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**THREADING
TECHNOLOGY**

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DC SWISS SA
DE-EN-ID-2014



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TECHNOLOGY**



Verfügbarkeit der Artikel

- ID** *Identifikationsnummer, ab Lager lieferbar*
- * ID** *Identifikationsnummer, ab Lager lieferbar solange Vorrat*

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- ID** Identification number, available from stock
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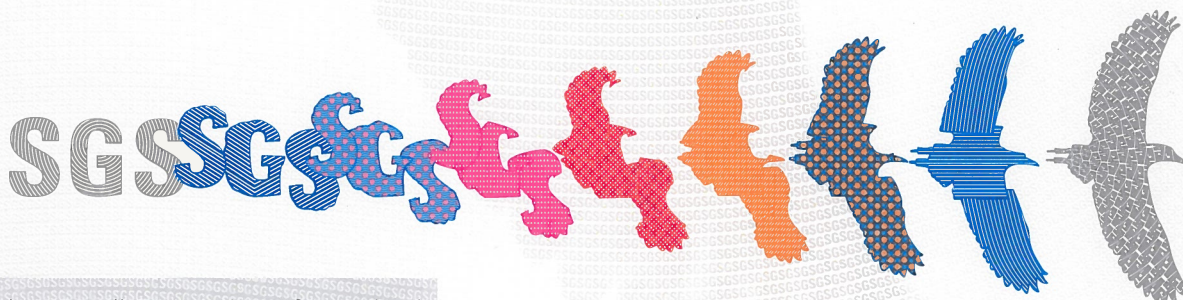
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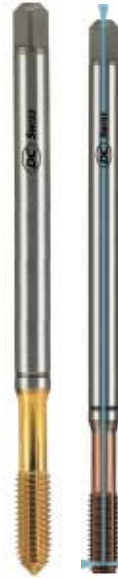
K








 **VS** 
K613VS-3 **M**



 **TiCN**
K313TC-3
K413TC-3 **MF**




FPS-FAS



 **VS** 
FPS581VS-3 **M**
FPS681VS-3


 **VS**  
FPS584VS-3 **M**
FPS684VS-3

 **VS** 
FAS581VS-3 **M**
FAS681VS-3

 **VS**  
FAS584VS-3 **M**
FAS684VS-3

W







 **DL**
W320DL-4 **M**
W420DL-4

 **DL**
W360DL-3 **M**
W460DL-3 **G**
W460DL-5

FS





 **DL** 
FS380DL-5 **M**

 **DL** 
FS380DL-3 **M**

GW



 **VS**
GW3016 \leq **M12**
GW3016VS **MF**

 **VS**
GW3019 \leq $\frac{1}{2}$ **UNC**
GW3019VS \leq $\frac{3}{8}$ **UNF**

AERO



SA320-4 **UNJF 3B**

N Schaublin



N1110-3 **SV**
N1210-3
N5120



NEW

KODIERUNG - CODIFICATION

DC Gewindebohrer DC Taps

Beispiel - Example



| | | | | | | | | | |
|--|---|-----|---|--|--|--|----|----|----|
| Normale Werkstoffe | Normal materials | N | | | | | | | |
| Weiche Werkstoffe | Soft materials | W | | | | | | | |
| Zähe Werkstoffe | Tough materials | Z | | | | | | | |
| Hochfeste Werkstoffe | High tensile materials | H | | | | | | | |
| Sonderlegierte Werkstoffe | Special alloys | S | | | | | | | |
| Sonderlegierte Werkstoffe (Aero) | Special alloys (Aero) | SA | | | | | | | |
| Titanlegierungen (Aero) | Titanium alloys (Aero) | TL | | | | | | | |
| Grauguss und Alu-Guss | Cast iron and aluminium casting | GG | | | | | | | |
| Synchron-Gewindeschneiden | Rigid Tapping | RTS | | | | | | | |
| Spanbrecher | Swarf breaker | K | | | | | | | |
| MEGA-Gewindegrößen | MEGA tap sizes | MA | | | | | | | |
| Spezialausführung | Special execution | | 3 | | | | | | |
| Kurzer DIN-Schaft verstärkt | DIN short - reinforced shank | | | | | | 1 | | |
| Kurzer DIN-Schaft durchfallend | DIN short - reduced shank | | | | | | 2 | | |
| Langer DIN-Schaft verstärkt | DIN long - reinforced shank | | | | | | 3 | | |
| Langer DIN-Schaft durchfallend | DIN long - reduced shank | | | | | | 4 | | |
| Extra-langer DIN-Schaft verstärkt | DIN extra-long - reinforced shank | | | | | | 5 | | |
| Extra-langer DIN-Schaft durchfallend | DIN extra-long - reduced shank | | | | | | 6 | | |
| DC-Werksnorm | DC standards | | | | | | 9 | | |
| Kurzer ISO-Schaft verstärkt | ISO short - reinforced shank | | | | | | 11 | | |
| Kurzer ISO-Schaft durchfallend | ISO short - reduced shank | | | | | | 12 | | |
| Gerade Nuten | Straight flutes | | | | | | 1 | | |
| Gerade Nuten und Schälanschnitt | Straight flutes with spiral point | | | | | | 2 | | |
| Schälanschnitt | Spiral point | | | | | | 3 | | |
| Spiralnuten mit Linksdrall < 27° | < 27° left hand slow spiral flutes | | | | | | 4 | | |
| Spiralnuten mit Rechtsdrall < 27° | < 27° right hand slow spiral flutes | | | | | | 5 | | |
| Spiralnuten mit Rechtsdrall > 27° | > 27° right hand fast spiral flutes | | | | | | 6 | | |
| Spiralnuten mit Rechtsdrall > 40° | > 40° right hand fast spiral flutes | | | | | | 7 | | |
| Spiralnuten mit Rechtsdrall 10°, Schälän. | 10° right hand fast spiral flutes, spiral point | | | | | | 9 | | |
| Standardausführung | Standard | | | | | | 0 | | |
| Ausgesetzte Zähne | Interrupted thread | | | | | | 1 | | |
| Verjüngtes Führungsgewinde | Truncated thread | | | | | | 2 | | |
| Innenkühlung | Internal coolant | | | | | | 3 | | |
| Ausgesetzte Zähne, Innenkühlung | Interrupted thread, internal coolant | | | | | | 4 | | |
| Verjüngtes Führungsgewinde, Innenkühlung | Truncated thread, internal coolant | | | | | | 5 | | |
| "V"-Oberflächenbehandlung | "V" surface treatment | | | | | | | V | |
| Verschleisschutzschicht | Wear-protective coating | | | | | | | VS | |
| Titannitrid-Beschichtung (TiN) | Titanium-nitride coating (TiN) | | | | | | | TN | |
| Titancarbonitrid-Beschichtung (TiCN) | Titanium carbonitride coating (TiCN) | | | | | | | TC | |
| Plasmanitrierung + "V"-Oberflächenbehandlung | Plasma nitriding + "V" surface treatment | | | | | | | NV | |
| DLC-Beschichtung | DLC-coating | | | | | | | DL | |
| Hardlube-Beschichtung | Hardlube-coating | | | | | | | HL | |
| Vorschneider | Taper tap | | | | | | | | =1 |
| Mittelschneider | Second tap | | | | | | | | =2 |
| Fertigschneider / 2 - 3 Gewindegänge | Bottoming tap / 2 - 3 chamfered threads | | | | | | | | =3 |
| 3.5 - 5 Gewindegänge, Schälanschnitt | 3.5 - 5 chamfered threads, spiral point | | | | | | | | =4 |
| 1.5 - 2 Gewindegänge | 1.5 - 2 chamfered threads | | | | | | | | =5 |
| 6 - 8 Gewindegänge | 6 - 8 chamfered threads | | | | | | | | =8 |
| Gewindebohrer-Satz | Thread taps set | | | | | | | | =S |

KODIERUNG - CODIFICATION






















DC Gewindeformer DC Thread formers

Beispiel - Example



| | | | | | | | | | | |
|---|--|-----|---|---|---|---|--|--|----|----|
| Standard Polygonform $\lt; \varnothing 3 \text{ mm}$ | Standard polygon form $\lt; \varnothing 3 \text{ mm}$ | FS | | | | | | | | |
| Passive Polygonform $\geq \varnothing 3 \text{ mm}$ | Passive polygon form $\geq \varnothing 3 \text{ mm}$ | FPS | | | | | | | | |
| Aktive Polygonform $\geq \varnothing 3 \text{ mm}$ | Active polygon form $\geq \varnothing 3 \text{ mm}$ | FAS | | | | | | | | |
| Spezialausführung | Special execution | | 3 | | | | | | | |
| Langer DIN-Schaft verstärkt | DIN long - reinforced shank | | | 3 | | | | | | |
| Langer DIN-Schaft durchfallend | DIN long - reduced shank | | | 4 | | | | | | |
| Extra-langer DIN-Schaft verstärkt | DIN extra-long - reinforced shank | | | 5 | | | | | | |
| Extra-langer DIN-Schaft durchfallend | DIN extra-long - reduced shank | | | 6 | | | | | | |
| Gewindeformer | Thread former | | | | 8 | | | | | |
| Ohne Schmiernuten | Without lubrication grooves | | | | | 0 | | | | |
| Mit Schmiernuten | With lubrication grooves | | | | | 1 | | | | |
| Innenkühlung mit seitlichem Austritt | Internal coolant with radial outflow | | | | | 4 | | | | |
| Verschleisschutzschicht | Wear-protective coating | | | | | | | | VS | |
| Chromnitrid-Beschichtung (CrN) | Chromenitride coating (CrN) | | | | | | | | CN | |
| DLC-Beschichtung | DLC-coating | | | | | | | | DL | |
| 2 - 3 Gewindegänge | 2 - 3 chamfered threads | | | | | | | | | -3 |
| 1.5 - 2 Gewindegänge | 1.5 - 2 chamfered threads | | | | | | | | | -5 |

PIKTOGRAMME - PICTOGRAPHS

| | | | |
|---|--|---|---|
|  | Verstärkter Schaft gemäss DIN 371 Reinforced shank as per DIN 371 |  | Gewindeformer Thread former |
|  | Durchfallender Schaft gemäss DIN 376 Reduced shank as per DIN 376 |  | Gewindeformer mit Schmiernuten Thread former with lubrication grooves |
|  | HSSE HSSE |  | Vorschneider Taper tap |
|  | HSSE-PM HSSE-PM |  | Mittelschneider Second tap |
|  | Anzahl Spannuten (Z) Number of flutes (Z) |  | Fertigschneider Bottoming tap |
|  | Gerade Nuten Straight flutes |  | Handgewindebohrer, Satz zu 2 Stück Hand taps, set of 2 pieces |
|  | Gerade Nuten und Schälanschnitt Straight flutes with spiral point |  | Handgewindebohrer, Satz zu 3 Stück Hand taps, set of 3 pieces |
|  | Schälanschnitt Spiral point only |  | Führungszapfen Parallel pilot |
|  | Spiralnuten mit 40° Rechtsdrill 40° right hand spiral flutes |  | Innenkühlung mit stirnseitigem Schmiermittelaustritt Internal coolant with frontal outflow |
|  | Verjüngtes Führungsgewinde Truncated thread |  | Innenkühlung mit seitlichem Schmiermittelaustritt Internal coolant with radial outflow |
|  | Ausgesetzte Zähne Interrupted thread | | |

PIKTOGRAMME - PICTOGRAPHS



Für Werkstoffgruppen gemäss
DC-Anwendungstabelle

For material groups as per **DC**
 application chart

| |
|------------------------|
| 12 |
| 1.0037 S137-2 (S235JR) |
| 1.0050 S150-2 (E295) |
| 1.0060 S160-2 (E335) |
| 1.5919 15CrNi6 |
| 1.7131 16MnCr5 |

| |
|--------------------------|
| 22 |
| 1.4301 X5CrNi18-10 |
| 1.4406 X2CrNiMoN17-12-2 |
| 1.4435 X2CrNiMo18-14-3 |
| 1.4541 X6CrNiTi18-10 |
| 1.4571 X6CrNiMoTi17-12-2 |



Extra-lang
 Extra-long



Durchgangsloch, langspanende Werkstoffe
 Through hole, long chipping materials



Durchgangsloch < 1.5 x D, kurzspanende Werkstoffe
 Through hole < 1.5 x D, short chipping materials



Sackloch < 1.5 x D, langspanende Werkstoffe
 Blind hole < 1.5 x D, long chipping materials



Sackloch < 2.5 x D, kurzspanende Werkstoffe
 Blind hole < 2.5 x D, short chipping materials



Durchgangs- und Sackloch < 2.5 x D
 Through / blind hole < 2.5 x D



Sackloch < 3 x D
 Blind hole < 3 x D



MEGA-Gewindeschneidkopf
 MEGA thread tapping head



Kronengewindebohrer
 Crown tap



Kombi-Gewindebohrer
 Combination drill/tap



Kernlochdurchmesser
 Core hole diameter



Radius auf Aussendurchmesser
 Radius on external diameter



Konisches Gewinde 1:16 (NPT - NPTF - Rc)
 Tapered thread 1:16 (NPT - NPTF - Rc)



EG-Gewinde
 Thread EG



Linksgewinde
 Left hand thread



3.5 - 5 Gewindegänge, Form B
 3.5 - 5 chamfered threads, form B



2 - 3 Gewindegänge, Form C
 2 - 3 chamfered threads, form C



1.5 - 2 Gewindegänge, Form E
 1.5 - 2 chamfered threads, form E



Toleranzklasse ISO 2 6H
 Tolerance class ISO 2 6H



Toleranzklasse ISO 2 6H + 0.1 mm
 Tolerance class ISO 2 6H + 0.1 mm



Toleranzklasse ISO 3 6G
 Tolerance class ISO 3 6G



DC -"V"-Oberflächenbehandlung
DC "V" surface treatment



DC -Verschleisschutzschicht
DC wear-protective coating



Titannitrid-Beschichtung
 Titanium-nitride coating



Titancarbonitrid-Beschichtung
 Titanium-carbonitride coating



Plasmanitrierung + "V"-Oberflächenbehandlung
 Plasma nitriding + "V" surface treatment



Chromnitrid-Beschichtung
 Chromenitride coating



DLC-Beschichtung
 DLC-coating



Hardlube-Beschichtung
 Hardlube-coating



Spanfragmente / regelmässige Spanaufteilung
 Swarf fragments / consistant chips



Für klassisches Gewindeschneiden
 For Classic Tapping



Für synchrones Gewindeschneiden
 For Rigid Tapping

ANWENDUNGSGRUPPEN

APPLICATION GROUPS

Beispiele für Anwendungsgruppen

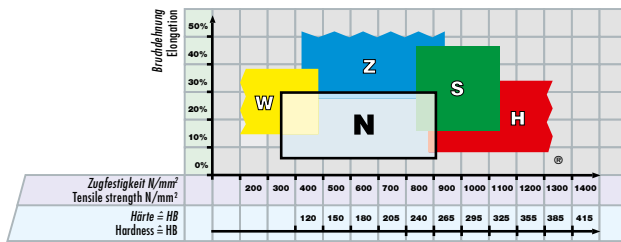
Examples for application groups

| | | | | | | | |
|--|--|---|--|---|---|---|--|
| 11 Automatenstahl 1.0711 9S20 1.0715 9SMn28 1.0718 9SMnPb28 1.0726 35S20 1.0737 9SMnPb36 | 12 Baustahl, Einsatzstahl 1.0037 Si37-2 (S235JR) 1.0050 Si50-2 (E295) 1.0060 Si60-2 (E335) 1.5919 15CrNi6 1.7131 16MnCr5 | 13 Kohlenstoffstahl 1.0503 C45 1.0535 C55 1.0601 C60 1.1545 C10SW1 1.2067 102Cr6 (100Cr6) | 14 Stahl legiert < 850 N/mm ² 1.2363 X100CrMoV5-1 1.3551 80MoCrV42-16 1.7218 25CrMo4 1.7220 34CrMo4 1.7225 42CrMo4 | 11 Free-cutting steels 1.0711 1212 1.0715 1213 1.0718 12L13 1.0726 1140 1.0737 12L14 | 12 Structural, cementation steels 1.0037 1015 1.0050 A570 Gr.50 1.0060 A572 Gr.65 1.5919 3115 1.7131 5115 | 13 Carbon steels 1.0503 1045 1.0535 1055 1.0601 1060 1.1545 W110 1.2067 L3 | 14 Alloy steels < 850 N/mm ² 1.2363 A2 1.3551 M50 1.7218 4130 1.7220 4135 1.7225 4140 |
| 15 Stahl legiert / vergütet > 850 - < 1150 N/mm ² 1.3553 X82WCrV6-5-4 1.6580 30CrNiMo8 1.7220 34CrMo4 1.7225 42CrMo4v 1.8507 34CrAlMo5 | 16 Hochfester Stahl EN-GJS-1200-2 1.6582 34CrNiMo6v 1.7225 42CrMo4v 1.7228 50CrMo4v 1.8515 31CrMo12v | 21 Rostfreier Stahl, geschwefelt 1.4005 X12CrS13 1.4104 X14CrMoS17 1.4305 X10CrNiS18-9 | 22 Austenitisch 1.4301 X5CrNi18-10 1.4406 X2CrNiMoN17-12-2 1.4435 X2CrNiMo18-14-3 1.4541 X6CrNiTi18-10 1.4571 X6CrNiMoTi17-12-2 | 15 Alloy steels hard./temp. > 850 - < 1150 N/mm ² 1.3553 - 1.6580 4340 1.7220 4135 1.7225 4140 1.8507 A355CLD (K23510) | 16 High tensile alloy steels EN-GJS-1200-2 1.6582 4340 1.7225 4140 1.7228 4150 1.8515 - | 21 Free machining stainless steels 1.4005 416 1.4104 430F 1.4305 303 | 22 Austenitic stainless steels 1.4301 304 1.4406 316LN 1.4435 316L 1.4541 321 1.4571 316Ti |
| 23 Ferritisch, martensitisch < 850 N/mm ² 1.4112 X90CrMoV18 1.4540 X4CrNiCuNb16-4 1.4582 X4CrNiMoNb25-7 1.4762 X10CrAl24 1.4922 X20CrMo11-1 | 24 Ferritisch, martensitisch > 850 - < 1150 N/mm ² 1.4057 X17CrNi17-2 1.4125 X105CrMo17 1.4542 X5CrNiCuNb16-4 1.4548 X5CrNiCuNb17-4-4 1.4748 X85CrMoV18-2 | 31 Grauguss 0.6015 GG15 0.6020 GG20 0.6025 GG25 0.6030 GG30 | 32 Kugelgraphitguss, Temperguss 0.7040 GGG40 0.7043 GGG40.3 0.7050 GGG50 0.7060 GGG60 0.7080 GGG80 | 23 Ferritic and martensitic < 850 N/mm ² 1.4112 440B 1.4540 XM12 (15-5PH) 1.4582 - 1.4762 446 1.4821 4922 | 24 Ferritic and martensitic > 850 - < 1150 N/mm ² 1.4057 431 1.4125 440C 1.4542 630 (17-4PH) 1.4748 - | 31 Cast iron 0.6015 A48-25B 0.6020 A48-30B 0.6025 A48-40B 0.6030 A48-45B | 32 Spheroidal graphite + malleable cast iron 0.7040 60-40-18 0.7043 - 0.7050 65-45-12 0.7060 80-55-06 0.7080 120-90-02 |
| 41 Reintitan 3.7024 Grad1 3.7034 Grad2 3.7055 Grad3 3.7065 Grad4 | 42 Titanlegierung 3.7124 TiCu2.5 Ti6Al7Nb 3.7164 TiAl6V4 (Grad5) 3.7174 TiAl6V6Sn2 | 51 Nickellegierung 1 < 850 N/mm ² 1.3912 Ni36 (Invar) 2.4360 NiCu30Fe (Monel 400) 2.4816 NiCr15Fe (Inconel 600) 1.4876 X10NiCrAlTi32-20 | 52 Nickellegierung 2 > 850 - < 1150 N/mm ² 2.4375 NiCu30Al (MonelK500) 2.4631 NiCr20TiAl (Nimonic 80) 2.4668 NiCr19NbMo (Inconel 718) | 41 Pure titanium 3.7024 Gr.1 3.7034 Gr.2 3.7055 Gr.3 3.7065 Gr.4 | 42 Titanium alloys 3.7124 Alloy 230 F-1295 3.7164 Gr.5 3.7174 - | 51 Nickel alloys 1 < 850 N/mm ² 1.3912 K93600 2.4360 N04400 1.4816 N08800 | 52 Nickel alloys 2 > 850 - < 1150 N/mm ² 2.4375 N05500 (B865) 2.4631 N07080 (B637) 2.4668 N07718 (B637) |
| 53 Nickellegierung 3 > 1150 - ≤ 1600 N/mm ² 2.4631 NiCr20TiAl (Nimonic80) 2.4668 NiCr19NbMo (Inconel718) | 61 Reinkupfer (Elektrolytkupfer) 2.0060 E-Cu57 (E-Cu) | 62 Messing, Bronze, Rotguss (kurzspanend) 2.0401 CuZn39Pb3 (Ms58) 2.0402 CuZn40Pb2 (Ms58) 2.1030 CuSn8 (Bz) 2.1096 G-CuSn5ZnPb | 63 Messing (langspanend) 2.0240 CuZn15 (Ms85) 2.0265 CuZn30 (Ms70) 2.0321 CuZn37 (Ms63) | 53 Nickel alloys 3 > 1150 - ≤ 1600 N/mm ² 2.4631 N07080 (B637) 2.4668 N07718 (B637) | 61 Pure copper (electrolytic copper) 2.0060 C11000 | 62 Short chip brass + phosphor-bronze + gun metal 2.0401 C38500 2.0402 C37800 2.1030 C52100 2.1096 - | 63 Long chip brass 2.0240 C23000 2.0265 C26000 2.0321 C27200 |
| 71 Al unlegiert 3.0205 Al99 3.0255 Al99.5 | 72 Al legiert Si < 1.5% 3.1255 AlCuSiMn 3.1355 AlCuMg2 3.2315 AlMgSi1 3.3206 AlMgSi0.5 3.4345 AlZnMgCu0.5 | 73 Al legiert Si > 1.5% - < 10% 3.2161 G-AlSi8Cu3 3.2162 GD-AlSi8Cu3 3.2341 G-AlSi5Mg 3.2371 G-AlSi7Mg | 74 Al legiert Si > 10% Mg-Legierung 3.2381 G-AlSi10Mg 3.2382 GD-AlSi10Mg 3.2581 G-AlSi12 3.2583 G-AlSi12 (Cu) | 71 Al unalloyed 3.0205 1200 3.0255 1050A | 72 Al alloyed Si < 1.5% 3.1255 2014 3.1355 2024 3.2315 6082 3.3206 6060 3.4345 7020 | 73 Al alloyed Si > 1.5% - < 10% 3.2161 380.1 3.2162 - 3.2341 - 3.2371 A 356.2 | 74 Al alloyed Si > 10% Mg-alloys 3.2381 A360 3.2382 - 3.2581 A413 3.2583 413.1 |
| 81 Thermoplaste Delrin (POM) Teflon Nylon | 82 Duroplaste Bakelit Novopan | 83 Faserverstärkte Kunststoffe Glasfaserverstärkte Thermo- und Duroplaste | Referenz: DIN | 81 Thermoplastics Delrin (POM) Teflon Nylon | 82 Duroplastics Bakelit Novopan | 83 Glass fibre reinforced plastics Glass fibre reinforced, Thermo and Duroplastics | Referenz: AISI/ASTM/UNS |

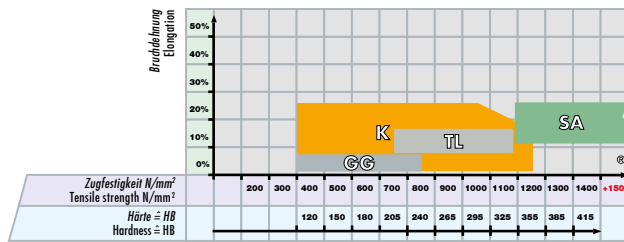
ANWENDUNGSTABELLE - APPLICATION CHART

GEWINDESCHNEIDEN - THREAD CUTTING

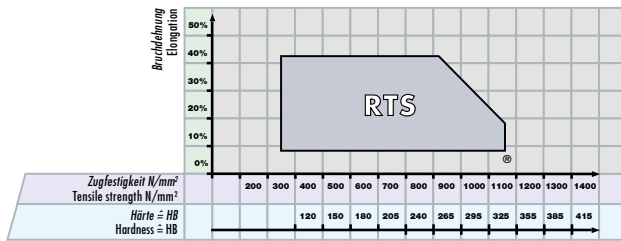
Gewindeschneiden Thread cutting



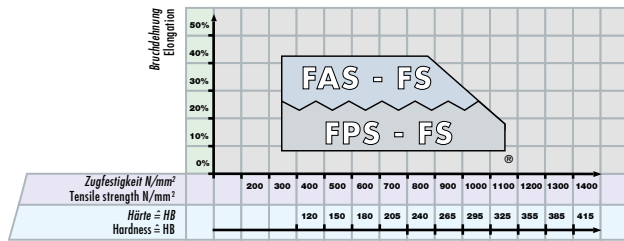
Gewindeschneiden Thread cutting



Synchron-Gewindeschneiden Rigid Tapping



Gewindeformen Thread forming



Anwendungsgruppen Material classification

| Werkstoff-Gruppen Material groups | Werkstoffbezeichnung | Material designation | Härte Hardness (HB) | Festigkeit Tensile strength Rm (N/mm ²) | Dehnung Elongation A (%) |
|---|---|---|---------------------------|---|--------------------------------|
| 10 Stahl Steels | 11 Automatenstahl | Free-cutting steels | < 200 | < 700 | < 10 |
| | 12 Baustahl, Einsatzstahl | Structural / cementation steels | < 200 | < 700 | < 30 |
| | 13 Kohlenstoffstahl | Carbon steels | < 300 | < 1000 | < 20 |
| | 14 Stahl legiert <850 N/mm ² | Alloy steels <850 N/mm ² | < 250 | < 850 | < 30 |
| | 15 Stahl legiert / vergütet >850 - <1150 N/mm ² | Alloy steels hard. / temp. >850 - <1150 N/mm ² | > 250 | > 850 | < 30 |
| | 16 Hochfester Stahl | High tensile alloy steels | > 250 | > 850 | < 12 |
| 20 Rostfreier Stahl Stainless Steels | 21 Rostfreier Stahl / geschwefelt | Free machining stainless steels | < 250 | < 850 | < 25 |
| | 22 Austenitisch | Austenitic stainless steels | < 250 | < 850 | > 20 |
| | 23 Ferritisch, martensitisch <850 N/mm ² | Ferritic and martensitic <850 N/mm ² | < 250 | < 850 | > 20 |
| | 24 Ferritisch, martensitisch >850 - <1150 N/mm ² | Ferritic and martens. >850 - <1150 N/mm ² | > 250 | > 850 | > 15 |
| 30 Guss Cast iron | 31 Grauguss | Cast iron | < 250 | < 850 | < 10 |
| | 32 Kugelgraphitguss, Temperguss | Spheroidal graphite + malleable cast iron | < 250 | < 850 | > 10 |
| 40 Titan Titanium | 41 Reintitan | Pure titanium | < 250 | < 850 | > 20 |
| | 42 Titanlegierung | Titanium alloys | > 250 | > 850 | < 20 |
| 50 Nickel Nickel | 51 Nickellegierung 1 <850 N/mm ² | Nickel alloys 1 <850 N/mm ² | < 250 | < 850 | > 25 |
| | 52 Nickellegierung 2 >850 - <1150 N/mm ² | Nickel alloys 2 >850 - <1150 N/mm ² | > 250 | > 850 | < 25 |
| | 53 Nickellegierung 3 >1150 - ≤1600 N/mm ² | Nickel alloys 3 >1150 - ≤1600 N/mm ² | > 340 | > 1150 | < 20 |
| 60 Kupfer Copper | 61 Reinkupfer (Elektrolytkupfer) | Pure copper (electrolytic copper) | < 120 | < 400 | > 12 |
| | 62 Messing, Bronze, Rotguss (kurzspanend) | Short chip brass, phosphor bronze, gun metal | < 200 | < 700 | < 12 |
| | 63 Messing (langspanend) | Long chip brass | < 200 | < 700 | > 12 |
| 70 Aluminium Magnesium Aluminium Magnesium | 71 Al unlegiert | Al unalloyed | < 100 | < 350 | > 15 |
| | 72 Al legiert Si < 1.5 % | Al alloyed Si < 1.5 % | < 150 | < 500 | > 15 |
| | 73 Al legiert Si > 1.5 % - < 10 % | Al alloyed Si > 1.5 % - < 10 % | < 120 | < 400 | < 15 |
| | 74 Al legiert Si > 10 %, Mg-Legierung | Al alloyed Si > 10 %, Mg-Alloys | < 120 | < 400 | < 10 |
| 80 Kunststoff Plastic compounds | 81 Thermoplaste | Thermoplastics | - | - | - |
| | 82 Duroplaste | Duroplastics | - | - | - |
| | 83 Faserverstärkte Kunststoffe | Glass fibre reinforced plastics | - | - | - |

Ab Seite :
From page :

| | |
|--------------------|-----|
| M | 22 |
| MF | 85 |
| UNC/UNC(J) | 114 |
| UNF/UNJF/UNF(J) | 134 |
| UNEF/UN/UNS | 150 |
| G/Rp/Rc | 156 |
| W / SV | 166 |
| NPT/NPTF | 170 |
| PG/TR | 172 |
| EG M/EG UNC/EG UNF | 176 |

| | N Normale Werkstoffe Normal materials | | | | | | | | | | W Weiche Werkstoffe Soft materials | | | | |
|--------------------|---|-----|-----|-----|----|----|----|-----|-----|-----|--|----|-----|-----|----|
| | 22 | 22 | 24 | 24 | 24 | 32 | 32 | 34 | 34 | 34 | 34 | 46 | 46 | 47 | 47 |
| M | 22 | 22 | 24 | 24 | 24 | 32 | 32 | 34 | 34 | 34 | 34 | 46 | 46 | 47 | 47 |
| MF | 85 | 84 | 85 | 85 | | 84 | | 91 | 91 | 91 | | | | | |
| UNC/UNC(J) | 114 | 114 | 114 | | | | | 116 | 116 | | | | | | |
| UNF/UNJF/UNF(J) | 134 | 134 | 134 | | | | | 136 | 136 | | | | | | |
| UNEF/UN/UNS | 150 | 150 | | | | | | 151 | 151 | | | | | | |
| G/Rp/Rc | 156 | 157 | 157 | 157 | | | | 158 | 158 | 158 | | | 159 | 159 | |
| W / SV | 166 | 166 | | | | | | | | | | | | | |
| NPT/NPTF | 170 | | | | | | | | | | | | | | |
| PG/TR | 172 | 172 | | | | | | | | | | | | | |
| EG M/EG UNC/EG UNF | 176 | 176 | | | | | | 177 | 177 | | | | | | |



| Vc (m/min) < Ø 20 mm Guide line | Standard +V / +NV | | Beschichtet Coated TN / TC / DL / VS | |
|---------------------------------------|----------------------|---------|---|---------|
| | 10 - 15 | 20 - 30 | 10 - 15 | 20 - 30 |
| 10 - 15 | 20 - 30 | 8 - 12 | 16 - 24 | |
| 8 - 12 | 16 - 24 | 8 - 12 | 16 - 24 | |
| 3 - 5 | 6 - 12 | 3 - 5 | 3 - 5 | |
| 3 - 5 | 3 - 5 | 10 - 15 | 20 - 30 | |
| 10 - 15 | 20 - 30 | 2 - 6 | 6 - 12 | |
| 2 - 6 | 6 - 12 | 2 - 6 | 6 - 12 | |
| | 4 - 8 | 10 - 15 | 20 - 30 | |
| 10 - 15 | 20 - 30 | 10 - 15 | 20 - 30 | |
| 4 - 8 | 4 - 8 | 3 - 5 | 3 - 5 | |
| 3 - 5 | 3 - 5 | 3 - 5 | 6 - 12 | |
| 3 - 5 | 6 - 12 | | 4 - 8 | |
| 2 - 3 | | 8 - 12 | 12 - 16 | |
| 8 - 12 | 12 - 16 | 20 - 30 | | |
| 20 - 30 | | 16 - 24 | | |
| 16 - 24 | | 10 - 15 | 20 - 30 | |
| 10 - 15 | 20 - 30 | 10 - 15 | 20 - 30 | |
| 10 - 15 | 20 - 30 | 10 - 15 | 20 - 30 | |
| 10 - 15 | 20 - 30 | 20 - 30 | 20 - 30 | |
| 20 - 30 | | 20 - 30 | 20 - 30 | |
| 8 - 16 | 16 - 24 | | | |
| 4 - 8 | 8 - 16 | | | |

| | N 10 | N 20 | N 20V | N 20TN | N 20TC | N 50 | N 50V | N 60 | N 60V | N 60TN | N 60TC | W 20 | W 20DL | W 60 | W 60DL |
|----|------|------|-------|--------|--------|------|-------|------|-------|--------|--------|------|--------|------|--------|
| SB | | SB | SB | SE | | SB | | SB | SB | SE | | | | | |
| SE | | SE | SE | SE | | SE | | SE | SE | SE | | | | | |
| E | | | | E | E | | | | | E | E | | | | |
| SE | | SE | SE | SE | | SE | | SE | SE | SE | | | | | |
| S | S | | | | | | | S | | | | S | SE | S | SE |
| SE | SE | | | SE | SE | | SE | SE | | | | SE | SE | SE | SE |
| E | E | | | E | E | | | E | | E | E | | | | |
| E | E | | | | | E | | E | | | | E | E | | |
| E | | | | E | | | | | | | | E | | E | |
| E | | | | | | | | | | | | | | | |

GEWINDEFORMEN - THREAD FORMING

| FS Standard < Ø 3 mm | | FPS Passive Polygonform Passive polygon form | | | | | FAS Aktive Polygonform Active polygon form | | |
|----------------------------|----|--|-----|----|----|-----|--|-----|----|
| 68 | 69 | 70 | 70 | 70 | 70 | 72 | 73 | 73 | 74 |
| | | | 104 | | | 104 | | 105 | |
| 127 | | | | | | 127 | | 127 | |
| 147 | | | | | | 147 | | 147 | |
| | | | | | | 162 | | 162 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |



Vc (m/min)
< Ø 20 mm
(Guide line)
Beschichtet VS + CN
Coated VS + CN

| | FS. 80VS | FS. 80DL | FPS. 80CN | FPS. 81CN | FPS. 80VS | FPS. 81VS | FPS. 84VS | FAS. 80VS | FAS. 81VS | FAS. 84VS | |
|---------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----|
| 20 - 40 | S | S | | | SE | SE | SE | | | | 11 |
| 20 - 40 | SE | S | | | SE | SE | SE | SE | SE | SE | 12 |
| 20 - 30 | SE | S | | | SE | SE | SE | SE | SE | SE | 13 |
| 20 - 30 | S | S | | | SE | SE | SE | SE | SE | SE | 14 |
| 10 - 15 | S | | | | S | S | SE | S | S | SE | 15 |
| | | | | | | | | | | | 16 |
| 10 - 20 | S | SE | | | S | S | SE | S | S | SE | 21 |
| 10 - 15 | | SE | | | | | | SE | SE | SE | 22 |
| 6 - 12 | | SE | | | | | | S | S | SE | 23 |
| 6 - 12 | | S | | | S | S | S | SE | SE | SE | 24 |
| | | | | | | | | | | | 31 |
| | | | | | | | | | | | 32 |
| 10 - 20 | | S | | | | | | S | S | S | 41 |
| | | | | | | | | | | | 42 |
| 10 - 15 | | S | | | | | | SE | SE | SE | 51 |
| | | | | | | | | | | | 52 |
| | | | | | | | | | | | 53 |
| 10 - 20 | S | S | | | | | | SE | SE | SE | 61 |
| | | | | | | | | | | | 62 |
| 20 - 30 | SE | SE | SE | SE | S | S | S | S | S | S | 63 |
| 20 - 40 | | SE | SE | SE | | | | | | | 71 |
| 20 - 40 | | SE | SE | SE | | | | | | | 72 |
| 20 - 40 | | SE | SE | SE | | | | | | | 73 |
| | | | | | | | | | | | 74 |
| | | | | | | | | | | | 81 |
| | | | | | | | | | | | 82 |
| | | | | | | | | | | | 83 |





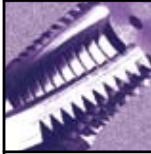





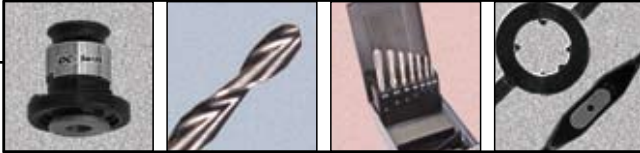

S Optimal mit Schneidöl
S Geeignet mit Schneidöl

S Optimal with cutting oil
S Suitable with cutting oil

E Optimal mit Emulsion
E Geeignet mit Emulsion

E Optimal with emulsion
E Suitable with emulsion

| | | | |
|---|---|--|---|
|  | <p>Gewindeschneiden Thread Cutting</p>  |  | <p>Synchron-Gewindeschneiden Rigid Tapping</p>  |
| <p>M N 22-45/76-78/285 W 46-47 Z 48-51 H 52-55 S 56-57 SA 57-59 TL 58-59 GG 60-61 K 66-67</p> <p>MF N 84-93/106-108 Z 94-95 H 96-97 S 98 SA 99-101 TL 100-101 K 103</p> <p>UNC, UNC(J) N 114-117/128-129 Z 118-120 H 121 S 122-123 SA 124-125 TL 124</p> <p>UNF, UNF(J), UNJF, UNEF, UN, UNS N 134-137/148-151 Z 138-139 H 140-141 S 142 SA 143-145 TL 143-144</p> <p>G (BSP), Rp, Rc, W, SV Schaublin N 156-158/163-167 W 159 Z 160-161 H 159 GG 159</p> <p>NPT, NPTF, PG, TR N 170-173</p> <p>EG M, EG UNC, EG UNF N 176-177/180/183 Z 181/184 S 184 SA 178-179/182/184-185 TL 178/182/185</p> | | <p>M RTS 62-65 Z.70/Z.73 50-51 K 66-67</p> <p>MF RTS 102 Z.70 94-95 K 103</p> <p>UNC RTS 126 Z.70 120</p> <p>UNF RTS 146 Z.70 139</p> <p>G (BSP) RTS 161 Z.70 161</p> <p>EG UNC, EG UNF Z.70 181/184</p> | |
| | |  | <p>Gewindeformen Thread Forming</p>  |
|  <p>Kronengewindebohrer Crown taps</p>  | |  <p>Kombi-Gewindebohrer Combination drill/taps</p>  | |
| <p>M, MF N 187-188</p> <p>UN, G (BSP) N 189</p> | | <p>M, MF N 192</p> <p>UNC, G (BSP), PG N 193</p> | |

| | |
|---|--|
|  <p>Gewindewirbeln Thread Whirling</p>  |  <p>Gewindelehren Thread gauges</p>  |
| <p>S, M, MF, UNC, UNF GW 206-213</p> | <p>M D 266-267</p> |
|  <p>Gewindefräsen Thread Milling</p>  | <p>MF D 268-271</p> |
| <p>M GF 214-216 GFH 214 GFS 225-227 GFM 236 BGF 240-242</p> <p>MF GF 217-218 GFS 228-229 GFM 236 BGF 243</p> <p>UNC, UNF, UNEF, UN, UNS GF 219-222 GFS 230-233 GFM 237</p> <p>G (BSP), PG GF 223 GFS 234 GFM 238</p> <p>NPT, NPTF GF 224 GFS 235 GFM 239</p> | <p>UNC, UNF, UNEF D 272-273</p> <p>G (BSP), PG D 274</p> <p>NPT, NPTF D 275</p> <p>EG M, EG UNC, EG UNF D 276</p> |
|  <p>Schneideisen Dies</p>  |  <p>Gewindeschneidfutter SRT Tapping chucks SRT</p>  |
| | <p>HSK 278 BT40 278 SK40/SK50 279 DIN1835 B 280-281</p> |
| |  |
| | <p>D 282/283 F 284 D 285 D 286-287</p> |
| |  |
| <p>M N 246/260/262/263 Z 247/260</p> <p>MF N 248-250/261/262 Z 248-249</p> <p>UNC, UNF, UNEF, UN, UNS N 251-253</p> <p>G (BSP), R N 254/256/263 Z 255 MS 255</p> <p>NPT, NPTF, PG, TR, W / W Schaublin N 257-259/263 N 167</p> | <p><i>Schnittgeschwindigkeiten, Vergleichstabelle, Kernlochbohrungen, Bolzendrehdurchmesser Technischer Fragebogen Liefer- und Zahlungsbedingungen</i></p> <p>Cutting speeds, conversion tables, core hole diameters, turned diameters Technical questionnaire Delivery and payment conditions</p> |

M

MF

UNC, UNF, UNEF

UNF, UNF(U), UNJF
UNEF, UN, UNS



G, Rp, Rc, W, SV

NPT, NPTF,
PG, TR






































EG M, EG UN


























Kronengewindebohrer
Crown taps

Kombi-Gewindebohrer
Combination drill/taps






















| | | N | | | | | | |
|---|------------------------|---|---|--|---|--|---|--|
| Merkmale Characteristics | |  |  |   |   |   |  |   |
| | | |  |  |  |   |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
|  | | N310-3 | N320-3 N320-4 | N320V-3 N320V-4 | N320TN-3/4 N320TC-3/4 | N321-3 N321-4 | N330-3 N330-4 | N330V-3 N330V-4 |
| DIN lang DIN long | DIN 371 | 22 | 22/24 | 24 | 24 | 30 | 30 | 30 |
| Extra-lang Extra-long | DC | | | | | | | |
| ISO kurz ISO short | ISO 529 | | | | | | | |
| DIN kurz DIN short | DIN 352 | | | | | | | |
| DIN lang DIN long | ~DIN 2174 | | | | | | | |
| Toleranz Tolerance | ISO 2 6H | 22 | 22/24 | 24 | 24 | 30 | 30 | 30 |
| Übermass Oversize | ISO 3 6G | | 28 | 28 | | | | |
| Übermass Oversize | 7G | | 28 | | | | | |
| Übermass Oversize | + 0.10 mm + 0.20 mm | | 28 | | | | | |
| Feintoleranz Fine tolerance | ISO 1 4H | | 26 | | | | | |
| LH Linksgewinde LH Left hand thread | ISO 2 6H | 22 | 26 | 26 | | | | |
|  | | N410-3 | N420-4 | N420V-4 | N420TN-4 N420TC-4 | N421-4 | N430-4 | N430V-4 |
| DIN lang DIN long | DIN 376 | 23 | 25 | 25 | 25 | 31 | 31 | 31 |
| Extra-lang Extra-long | DC | | | | | | | |
| ISO kurz ISO short | ISO 529 | | | | | | | |
| DIN kurz DIN short | DIN 352 | | | | | | | |
| DIN lang DIN long | ~DIN 2174 | | | | | | | |
| Toleranz Tolerance | ISO 2 6H | 23 | 25 | 25 | 25 | 31 | 31 | 31 |
| Übermass Oversize | ISO 3 6G | | 29 | 29 | | | | |
| Übermass Oversize | 7G | | 29 | | | | | |
| Übermass Oversize | + 0.10 mm + 0.20 mm | | 29/31 | | | | | |
| Feintoleranz Fine tolerance | ISO 1 4H | | 27 | | | | | |
| LH Linksgewinde LH Left hand thread | ISO 2 6H | 23 | 27 | 27 | | | | |



N























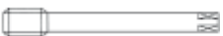
|  R15  |  R40 |  R40  |  R40   |  R40   |  R40  |  R40   |  |   |
|---|--|---|---|--|---|---|---|--|
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| N350-3 N350V-3 | N360-3 | N360V-3 | N360TN-3 N360TC-3 | N360-5 N360V-5 | N361-3 | N362V-3 | N520-4 | N520V-4 |
| 32 | 34 | 34 | 34 | 40 | 40 | 40 | 42 | 42 |
| | | | | | | | | |
| | | | | | | | | |
| 32 | 34 | 34 | 34 | 40 | 40 | 40 | 42 | 42 |
| | 36 | 36 | | | | | | |
| | 38 | 38 | | | | | | |
| | 38 | | | | | | | |
| | 36 | 36 | | | | | | |
| | | | | | | | | |
| N450-3 N450V-3 | N460-3 | N460V-3 | N460TN-3 N460TC-3 | N460-5 N460V-5 | N461-3 | N462V-3 | N620-4 | N620V-4 |
| 33 | 35 | 35 | 35 | 41 | 41 | 41 | 43 | 43 |
| | | | | | | | | |
| | | | | | | | | |
| 33 | 35 | 35 | 35 | 41 | 41 | 41 | 43 | 43 |
| | 37 | 37 | | | | | | |
| | 39 | 39 | | | | | | |
| | 39 | | | | | | | |
| | 37 | 37 | | | | | | |

| | | N | | | | | | | | |
|---|------------------------|---|---|---|---|---|--|---|---|---|
| Merkmale Characteristics | |  TiN |  R40 |  R40 |  V |  R40 |  TiN |  |  R40 |  |
| | |  |  |  |  |  |  |  | | |
| Lochart Hole type | |  |  |  |  |  |  |  | | |
|  | | N520TN-4 | N560-3 | N560V-3 | N560TN-3 | N1120-4 | N1160-3 | N1110 -1-2-3-S | | |
| <i>DIN lang</i> DIN long | DIN 371 | | | | | | | | | |
| <i>Extra-lang</i> Extra-long | DC | 42 | 44 | 44 | 44 | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | 78 | 78 | 76 | | |
| <i>DIN kurz</i> DIN short | DIN 352 | | | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | 42 | 44 | 44 | 44 | 78 | 78 | 76 | | |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | | | | | | |
| <i>Übermass</i> Oversize | 7G | | | | | | | | | |
| <i>Übermass</i> Oversize | + 0.10 mm + 0.20 mm | | | | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | | | | |
| <i>LH Linksgewinde</i> LH Left hand thread | ISO 2 6H | | | | | | | | | |
|  | | N620TN-4 | N660-3 | N660V-3 | N660TN-3 | N1220-4 | N1260-3 | N1210 -1-2-3-S | | |
| <i>DIN lang</i> DIN long | DIN 376 | | | | | | | | | |
| <i>Extra-lang</i> Extra-long | DC | 43 | 45 | 45 | 45 | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | 78 | 78 | 77 | | |
| <i>DIN kurz</i> DIN short | DIN 352 | | | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | 43 | 45 | 45 | 45 | 78 | 78 | 77 | | |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | | | | | | |
| <i>Übermass</i> Oversize | 7G | | | | | | | | | |
| <i>Übermass</i> Oversize | + 0.10 mm + 0.20 mm | | | | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | | | | |
| <i>LH Linksgewinde</i> LH Left hand thread | ISO 2 6H | | | | | | | | | |

| | W | | | | Z | | | |
|--|--------------------------------|------------------------------------|---------------|-----------------|----------------------------------|-----------------|----------------------------------|------------------------------------|
| | | DL | | DL | | VS | | VS |
| | | NEW | | NEW | | | | |
| | | | | | | | | |
| | W320-3 W320-4 | W320DL-3 W320DL-4 | W360-3 | W360DL-3 | Z320V-3 Z320V-4 | Z320VS-4 | Z360V-3 Z362V-3 | Z360VS-3 Z362VS-3 |
| | 46 | 46 | 47 | 47 | 48 | 48 | 49 | 50 |
| | 46 | 46 | 47 | 47 | 48 | 48 | 49 | 50 |
| | W420-4 | W420DL-4 | W460-3 | W460DL-3 | Z420V-4 | Z420VS-4 | Z462V-3 | Z462VS-3 |
| | 46 | 46 | 47 | 47 | 48 | 48 | 49 | 51 |
| | 46 | 46 | 47 | 47 | 48 | 48 | 49 | 51 |

| | | Z | H | S | SA | | | |
|---|---|---|---|---|---|---|---|---|
| Merkmale Characteristics | |  |  |  |  |  | | |
| | | VS | VS | TiCN | TiCN | VS | VS | |
| | |  |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
| |  | Z370VS-3 | Z373VS-3 | H320-4 H320TC-4 | H350-3 H350TC-3 | S320VS-4 | S360VS-3 | SA320-4 |
| <i>DIN lang</i> DIN long | DIN 371 | 50 | 50 | 52 | 54 | 56 | 57 | 58 |
| <i>Extra-lang</i> Extra-long | DC | | | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | | |
| <i>DIN kurz</i> DIN short | DIN 352 | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | 50 | 50 | 52 | 54 | 56 | 57 | 58 |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | 54 | | | |
| <i>Übermass</i> Oversize | 7G | | | | | | | |
| <i>Übermass</i> Oversize | + 0.10 mm + 0.20 mm | | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | 50 | | | | 56 | | 58 |
| <i>LH Linksgewinde</i> LH Left hand thread | ISO 2 6H | | | | | | | |
| |  | Z470VS-3 | Z473VS-3 | H420-4 H420TC-4 | H450-3 H450TC-3 | S420VS-4 | S460VS-3 | SA420-4 |
| <i>DIN lang</i> DIN long | DIN 376 | 51 | 51 | 53 | 55 | 56 | 57 | 59 |
| <i>Extra-lang</i> Extra-long | DC | | | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | | |
| <i>DIN kurz</i> DIN short | DIN 352 | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | 51 | 51 | 53 | 55 | 56 | 57 | 59 |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | 55 | | | |
| <i>Übermass</i> Oversize | 7G | | | | | | | |
| <i>Übermass</i> Oversize | + 0.10 mm + 0.20 mm | | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | | 59 |
| <i>LH Linksgewinde</i> LH Left hand thread | ISO 2 6H | | | | | | | |

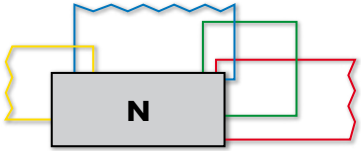










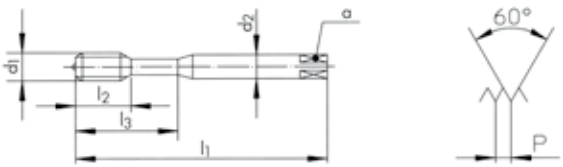





| SA | | TL | | GG | | | K | | |
|---|---|---|---|---|---|---|---|--|--|
|  R15 |  R10 |  |  |  R15 | NV |  R15 |  R15 |  TiCN |  VS |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| SA350-3 | SA390-3 | TL320VS-4 | TL351VS-3 | GG350NV-3 GG550NV-3 | | GG350TC-3 | GG353TC-3 | K313TC-3 | |
| 58 | 57 | 58 | 58 | 60 60 | | 60 | 60 | 66 | |
| 58 | 57 | 58 | 58 | 60 | | 60 | 60 | 66 | |
| 58 | 57 | 58 | 58 | | | | | | |
| SA450-3 | | TL420VS-4 | TL451VS-3 | GG450NV-3 GG650NV-3 | | GG450TC-3 | GG453TC-3 | K413TC-3 K613TC-3 | K613VS-3 |
| 59 | | 59 | 59 | 61 61 | | 61 | 61 | 66 67 | 67 |
| 59 | | 59 | 59 | 61 | | 61 | 61 | 66/67 | 67 |
| 59 | | 59 | 59 | | | | | | |

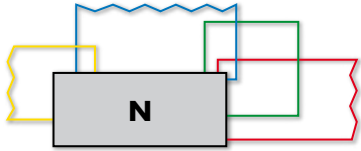


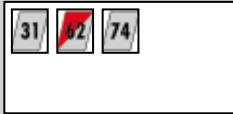

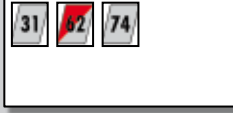
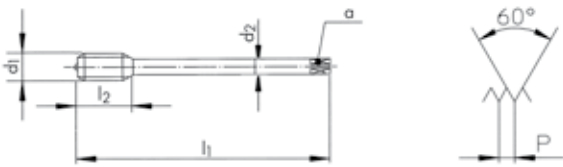







| | | RTS | | | | | | |
|---|------------------------|---|---|---|---|---|---|---|
| Merkmale Characteristics | |  |  |  |  |  |  |  |
| | | VS | VS | VS | VS | E 1.5 x P VS | | |
| | |  |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
|  | | RTS320VS-4 | RTS323VS-4 | RTS360VS-3 RTS362VS-3 | RTS365VS-3 | RTS362VS-5 RTS365VS-5 | RTS523VS-4 | RTS565VS-3 |
| DIN lang DIN long | DIN 371 | 62 | 62 | 63 | 63 | 64 | | |
| Extra-lang Extra-long | DC | | | | | | 65 | 65 |
| ISO kurz ISO short | ISO 529 | | | | | | | |
| DIN kurz DIN short | DIN 352 | | | | | | | |
| DIN lang DIN long | ~DIN 2174 | | | | | | | |
| Toleranz Tolerance | ISO 2 6H | 62 | 62 | 63 | 63 | 64 | 65 | 65 |
| Übermass Oversize | ISO 3 6G | | | 64 | | | | |
| Übermass Oversize | 7G | | | | | | | |
| Übermass Oversize | + 0.10 mm + 0.20 mm | | | | | | | |
| Feintoleranz Fine tolerance | ISO 1 4H | | | | | | | |
| LH Linksgewinde LH Left hand thread | ISO 2 6H | | | | | | | |
|  | | RTS420VS-4 | RTS423VS-4 | RTS462VS-3 | RTS465VS-3 | | RTS623VS-4 | RTS665VS-3 |
| DIN lang DIN long | DIN 376 | 62 | 62 | 63 | 63 | | | |
| Extra-lang Extra-long | DC | | | | | | 65 | 65 |
| ISO kurz ISO short | ISO 529 | | | | | | | |
| DIN kurz DIN short | DIN 352 | | | | | | | |
| DIN lang DIN long | ~DIN 2174 | | | | | | | |
| Toleranz Tolerance | ISO 2 6H | 62 | 62 | 63 | 63 | | 65 | 65 |
| Übermass Oversize | ISO 3 6G | | | | | | | |
| Übermass Oversize | 7G | | | | | | | |
| Übermass Oversize | + 0.10 mm + 0.20 mm | | | | | | | |
| Feintoleranz Fine tolerance | ISO 1 4H | | | | | | | |
| LH Linksgewinde LH Left hand thread | ISO 2 6H | | | | | | | |

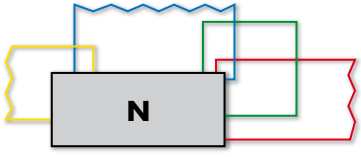





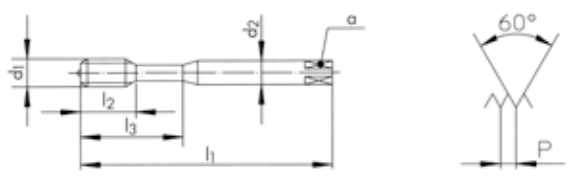
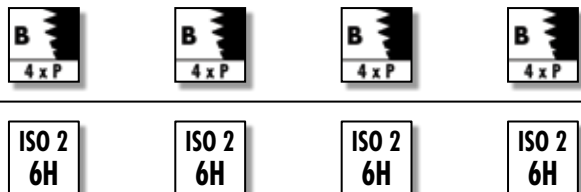




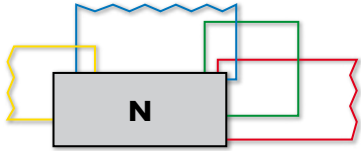

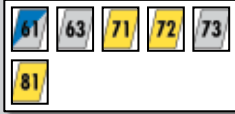


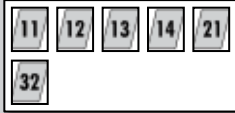




Inhaltsverzeichnis - Maschinengewindeformer DIN 13
Directory - Machine thread formers DIN 13

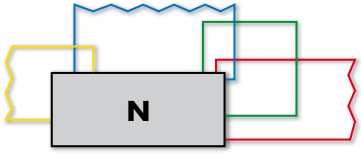




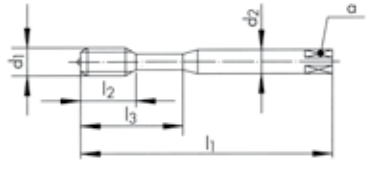

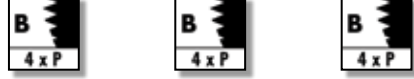
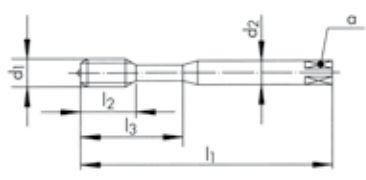




| FS | | FPS | | | | | FAS | | | | | |
|--------------------------------------|--------------------------------------|--|--|-------------------|--|--|-------------------|--|-----------|-----------|------------|-----------|
| | VS | | DL | | | | | VS | | | | VS |
| | | | | | VS | VS | | | VS | VS | | |
| | | | | | | | | | | | | |
| | NEW | | | | | | NEW | | | | NEW | |
| | | | | | | | | | | | | |
| FS380VS-5 FS380VS-3 | FS380DL-5 FS380DL-3 | FPS380CN-3 FPS381CN-3 | FPS380VS-3 FPS381VS-3 | FPS384VS-3 | FPS581VS-3 FPS584VS-3 | FAS380VS-3 FAS381VS-3 | FAS384VS-3 | FAS581VS-3 FAS584VS-3 | | | | |
| | | | | | 71/72 | | | 75 | | | | |
| 68 | 69 | 70 | 70 | 72 | | 73 | 74 | | | | | |
| 68 | 69 | 70 | 70 | 72 | 71/72 | 73 | 74 | 75 | | | | |
| 68 | 69 | | 70 | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | FPS481VS-3 | FPS484VS-3 | FPS681VS-3 FPS684VS-3 | FAS481VS-3 | FAS484VS-3 | FAS681VS-3 FAS684VS-3 | | | | |
| | | | | | 71/72 | | | 75 | | | | |
| | | | 71 | 72 | | 73 | 74 | | | | | |
| | | | 71 | 72 | 71/72 | 73 | 74 | 75 | | | | |

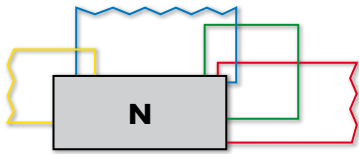
| | | | | | | | | | N310-3 | N310-3 LH | N320-3 | |
|---|---|---|----------------------|----------------------|----------------------|---------|---|---|--|-----------|----------|--|
|  | | | | | | | | |  | | | |
| N310-3 |  |  | | | | | | |  | | | |
| N310-3 LH |  LH |  | | | | | | |  | | | |
| N320-3 |  |  | | | | | | |  | | | |
|  | | | | | | | | |  | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | |
| 1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 3 | 0.75 | 150167 | | | |
| 1.1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 3 | 0.85 | 174745 | | | |
| 1.2 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 3 | 0.95 | 150168 | | | |
| 1.4 | 0.30 | 40 | 7.0 | | 2.5 | 2.1 | 3 | 1.10 | 150169 | | | |
| 1.5 | 0.30 | 40 | 7.0 | | 2.5 | 2.1 | 3 | 1.20 | 174752 | | | |
| 1.6 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 3 | 1.25 | 174753 | | | |
| 1.7 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 3 | 1.35 | 174754 | | | |
| 1.8 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 3 | 1.45 | 174755 | | | |
| 2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 3 | 1.60 | 101439 | 111460 | | |
| 2.2 | 0.45 | 45 | 9.0 | | 2.8 | 2.1 | 3 | 1.75 | 174756 | | | |
| 2.3 | 0.40 | 45 | 9.0 | | 2.8 | 2.1 | 3 | 1.90 | 174757 | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | *3 | 2.05 | 101440 | 111461 | * 101461 | |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.15 | 101441 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | *3 | 2.50 | 101442 | 111462 | * 101462 | |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | *3 | 2.90 | 101443 | | * 101463 | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | *3 | 3.30 | 101444 | 111464 | * 101464 | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | *3 | 4.20 | 101445 | 111465 | * 101465 | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | *3 | 5.00 | 101446 | 111466 | * 101466 | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101447 | | | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101438 | | | |
| <p>* N320-3 =  2</p> | | | | | | | | | <p>≤ M1.5 </p> | | | |



| | | | | | | | | N410-3 | N410-3 LH | | |
|--|--|---|-------------|-------------|----------------|---|---|---|-----------|---|--|
|  | | | | | | | |  | | | |
| N410-3 |  |  | | | | | | | | | |
| N410-3 LH |  LH |  | | | | | | | | | |
|  | | | | | | | |  | | | |
| | | | | | | | |  | |  | |
| | | | | | | | |  | |  | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm |  |  | ID | ID | | |
| 3 | 0.50 | 56 | 12.0 | 2.2 | 1.8 | 3 | 2.50 | 101897 | | | |
| 4 | 0.70 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.30 | 101924 | | | |
| 5 | 0.80 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.20 | 101942 | | | |
| 6 | 1.00 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.00 | 101953 | | | |
| 7 | 1.00 | 80 | 17.0 | 5.5 | 4.3 | 3 | 6.00 | 142645 | 111491 | | |
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.80 | 101958 | 111492 | | |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 | 101866 | 111478 | | |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.20 | 101870 | 111479 | | |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 3 | 12.00 | 101874 | 111480 | | |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | 14.00 | 101880 | 111481 | | |
| 18 | 2.50 | 125 | 33.0 | 14.0 | 11.0 | 3 | 15.50 | 101883 | 111482 | | |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 3 | 17.50 | 101885 | 125530 | | |
| 22 | 2.50 | 140 | 36.0 | 18.0 | 14.5 | 3 | 19.50 | 101888 | | | |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | 21.00 | 101891 | 111485 | | |
| 27 | 3.00 | 160 | 42.0 | 20.0 | 16.0 | 4 | 24.00 | 101895 | 111486 | | |
| 30 | 3.50 | 180 | 45.0 | 22.0 | 18.0 | 4 | 26.50 | 101901 | 111487 | | |
| 33 | 3.50 | 180 | 48.0 | 25.0 | 20.0 | 4 | 29.50 | 101907 | | | |
| 36 | 4.00 | 200 | 51.0 | 28.0 | 22.0 | 4 | 32.00 | 101915 | 111488 | | |
| 39 | 4.00 | 200 | 55.0 | 32.0 | 24.0 | 4 | 35.00 | 101922 | | | |
| 42 | 4.50 | 200 | 55.0 | 32.0 | 24.0 | 4 | 37.50 | 101932 | | | |
| 48 | 5.00 | 250 | 63.0 | 36.0 | 29.0 | 4 | 43.00 | 111489 | | | |
| 56 | 5.50 | 280 | 71.0 | 45.0 | 35.0 | 5 | 50.50 | 111447 | | | |


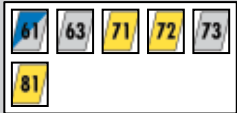
| | | | | | | | | | N320-4 | N320V-4 | N320TN-4 | N320TC-4 |
|---|---|----------------|----------------|----------------|----------------|-----|---|------|--|-----------|-----------|-----------|
|  | | | | | | | | |  | | | |
| N320-4 |  | | | | | | | | | | | |
| | | | | | | | | | | | | |
| N320V-4 |  | V | | | | | | | | | | |
| | | | | | | | | | | | | |
| N320TN-4 |  | TiN | | | | | | | | | | |
| | | | | | | | | | | | | |
| N320TC-4 |  | TiCN | | | | | | | | | | |
| | | | | | | | | | | | | |
|  | | | | | | | | |  | | | |
| Ø d ₁ | P | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | ID | ID | ID |
| M | mm | mm | mm | mm | mm | mm | | | | | | |
| *1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.75 | 111467 | | | |
| *1.1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.85 | 111468 | | | |
| *1.2 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.95 | 111469 | | | |
| *1.4 | 0.30 | 40 | 7.0 | | 2.5 | 2.1 | 2 | 1.10 | 111470 | | | |
| *1.5 | 0.30 | 40 | 7.0 | | 2.5 | 2.1 | 2 | 1.20 | 111471 | | | |
| *1.6 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.25 | 101454 | | | |
| *1.7 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.35 | 101455 | | | |
| *1.8 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.45 | 101456 | | | |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 101458 | 101536 | 101528 | 152900 |
| *2.2 | 0.45 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.75 | 101459 | | | |
| *2.3 | 0.40 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.90 | 101460 | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.05 | 101483 | 101545 | 101530 | 101522 |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.15 | 101484 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 | 101485 | 101546 | 101531 | 101523 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.90 | 101491 | 101547 | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 | 101495 | 101548 | 101532 | 101524 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101499 | 101549 | 101533 | 101525 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101503 | 101550 | 101534 | 101526 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101506 | 101551 | 101535 | 101527 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101481 | 101544 | 101529 | 101521 |
| <p>* N320-3 / N320V-3 N320TN-3 / N320TC-3</p>  | | | | | | | | | <p>≤ M1.5</p>  | | | |


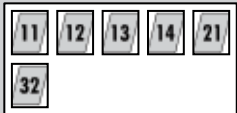
| | | | | | | | | N420-4 | N420V-4 | N420TN-4 | N420TC-4 |
|--|---|-------|-------|-------|----------|---|---|---|---------|----------|----------|
|  | | | | | | | |  | | | |
| N420-4 |  | | | | | | | | | | |
| | | | | | | | | | | | |
| N420V-4 |  | V | | | | | | | | | |
| | | | | | | | | | | | |
| N420TN-4 |  | TiN | | | | | | | | | |
| | | | | | | | | | | | |
| N420TC-4 |  | TiCN | | | | | | | | | |
| | | | | | | | | | | | |
|  | | | | | | | |  | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | d_2 | α |  |  | ID | ID | ID | ID |
| M | mm | mm | mm | mm | mm | | | | | | |
| 3 | 0.50 | 56 | 12.0 | 2.2 | 1.8 | 3 | 2.50 | 102119 | 143418 | | |
| 4 | 0.70 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.30 | 102146 | 102279 | | |
| 5 | 0.80 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.20 | 102171 | 102280 | 146297 | |
| 6 | 1.00 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.00 | 102182 | 102282 | 147439 | |
| 7 | 1.00 | 80 | 17.0 | 5.5 | 4.3 | 3 | 6.00 | 102189 | 144713 | | |
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.80 | 102195 | 102285 | 102251 | 102233 |
| 9 | 1.25 | 90 | 20.0 | 7.0 | 5.5 | 3 | 7.80 | 102202 | | | |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 | 102061 | 102263 | 102240 | 102228 |
| 11 | 1.50 | 100 | 19.0 | 8.0 | 6.2 | 3 | 9.50 | 162770 | | | |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.20 | 102072 | 102265 | 102243 | 102229 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 3 | 12.00 | 102081 | 102267 | 102245 | |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | 14.00 | 102090 | 102269 | 102247 | 102231 |
| 18 | 2.50 | 125 | 33.0 | 14.0 | 11.0 | 3 | 15.50 | 102097 | 102271 | | |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 3 | 17.50 | 102101 | 102273 | 102248 | 102232 |
| 22 | 2.50 | 140 | 36.0 | 18.0 | 14.5 | 3 | 19.50 | 102106 | 102275 | | |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | 21.00 | 102110 | 102278 | 144220 | 163736 |
| 27 | 3.00 | 160 | 42.0 | 20.0 | 16.0 | 4 | 24.00 | 102117 | 143856 | | |
| 30 | 3.50 | 180 | 45.0 | 22.0 | 18.0 | 4 | 26.50 | 102124 | 105124 | | |
| 33 | 3.50 | 180 | 48.0 | 25.0 | 20.0 | 4 | 29.50 | 102130 | 146968 | | |
| 36 | 4.00 | 200 | 51.0 | 28.0 | 22.0 | 4 | 32.00 | 102137 | 143430 | | |
| 39 | 4.00 | 200 | 55.0 | 32.0 | 24.0 | 4 | 35.00 | 102144 | 158724 | | |
| 42 | 4.50 | 200 | 55.0 | 32.0 | 24.0 | 4 | 37.50 | 102158 | 143107 | | |
| 45 | 4.50 | 220 | 59.0 | 36.0 | 29.0 | 4 | 40.50 | * 110225 | | | |
| 48 | 5.00 | 250 | 63.0 | 36.0 | 29.0 | 4 | 43.00 | 110226 | 157517 | | |
| 56 | 5.50 | 280 | 71.0 | 45.0 | 35.0 | 5 | 50.50 | 110229 | 158178 | | |

| | | | | | | | | | | N320-4 | N320-4 LH | N320V-4 LH | |
|--|---|----------------|----------------|----------------|----------------|-----|---|---|---|--|-----------|------------|--|
|  | | | | | | | | | |  | | | |
| N320-4 |  | | | | | | | | | | | | |
| N320-4 LH |  | LH | | | | | | | | | | | |
| N320V-4 LH |  | V | LH | | | | | | | | | | |
|   | | | | | | | | | |  | | | |
| | | | | | | | | | |  | | | |
| Ø d ₁ | P | l ₁ | l ₂ | l ₃ | d ₂ | a |  |  | | ID | ID | ID | |
| M | mm | mm | mm | mm | mm | mm | | | | | | | |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | | 162503 | 111472 | 162771 | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.05 | | 159345 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 | | 101487 | 111473 | 162772 | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 | | 101493 | 111474 | 162773 | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | | 101497 | 111475 | 162774 | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | | 101501 | 111476 | 162775 | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | Δ | * 146482 | | | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | | * 146484 | | | |
| <p>* N320-3 </p> <p>Δ ISO 1 4H =  6.70</p> | | | | | | | | | | | | | |

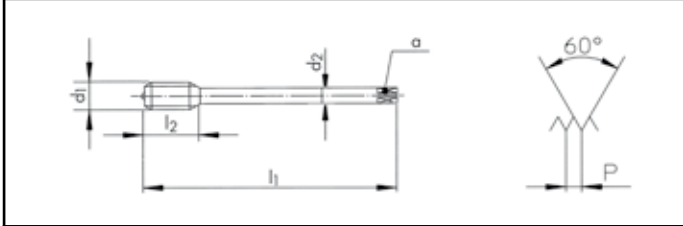


N420-4  



N420-4 LH  **LH** 

N420V-4 LH  **V** **LH** 


N420-4 **N420-4 LH** **N420V-4 LH**

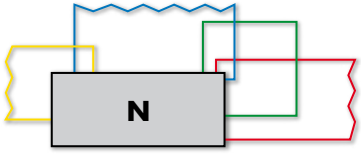





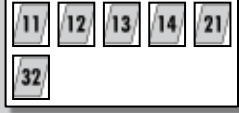

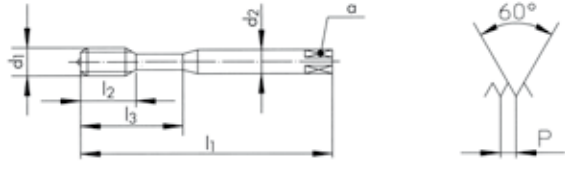




ISO 1 4H **ISO 2 6H** **ISO 2 6H**

| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm |  |  |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|---|
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | Δ 6.80 |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.20 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 3 | 12.00 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | 14.00 |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 3 | 17.50 |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | 21.00 |
| 30 | 3.50 | 180 | 45.0 | 22.0 | 18.0 | 4 | 26.50 |

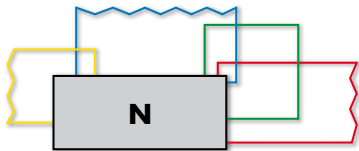
| ID | ID | ID |
|--------|----------|--------|
| 102193 | 102198 | 142621 |
| 102059 | 102064 | 143287 |
| 102070 | 102040 | 146583 |
| | 102084 | 146563 |
| | 102093 | 143108 |
| | 102103 | 145579 |
| | 111493 | 145578 |
| | * 111494 | |

Δ **ISO 1 4H** =  6.70

| | | | | | | | | | N320-4 | N320V-4 | N320-4 | N320-4 | | | |
|--|--|---|----------------------|----------------------|----------------------|---------|---|-----------|---|------------|--------|------------|--------|------------|--------|
|  | | | | | | | | |  | | | | | | |
| N320-4 |  |  | | | | | | |  | | | | | | |
| N320V-4 |  V |  | | | | | | |  | | | | | | |
|  | | | | | | | | |  | | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  | 6H → ← | ID | 6H + mm | ID | 6H + mm | ID | 6H + mm | ID |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 101457 | 0.019 | 143584 | 0.019 | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.05 | 101482 | 0.020 | 150522 | 0.020 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 | 101486 | 0.020 | 143116 | 0.020 | 101489 | 0.036 | 101488 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.95 | 101490 | 0.021 | | | | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.35 | 101494 | 0.022 | 143087 | 0.022 | 101496 | 0.041 | 111522 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.25 | 101498 | 0.024 | 143088 | 0.024 | 101500 | 0.044 | 111523 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101502 | 0.026 | 143089 | 0.026 | 101504 | 0.050 | 111524 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101505 | 0.028 | 143604 | 0.028 | | | |

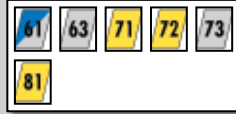
* N320-3 / N320V-3



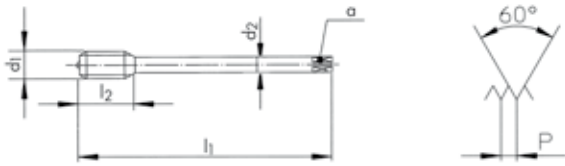
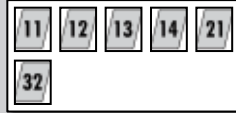



N420-4 N420V-4 N420-4 N420-4

N420-4

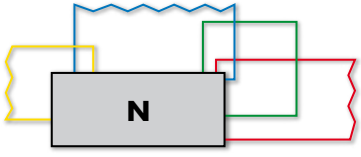




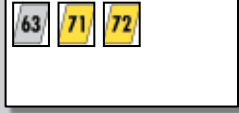


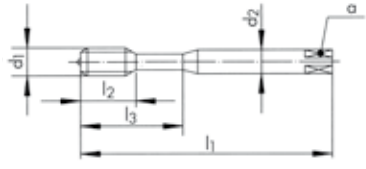

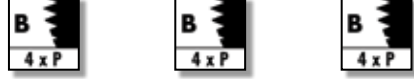









N420V-4

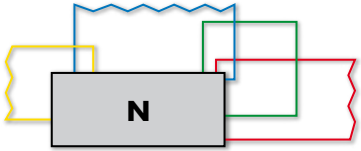









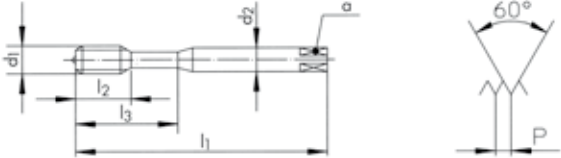








| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm |  | $6H$ $\rightarrow \leftarrow$ |
|------------------------|---------|-------------|-------------|-------------|----------------|---|----------------------------------|
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.80 |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.30 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | 14.00 |

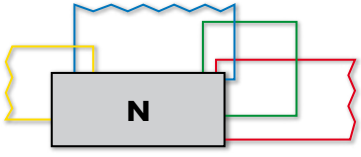



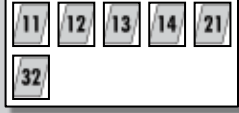

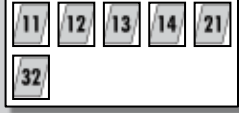







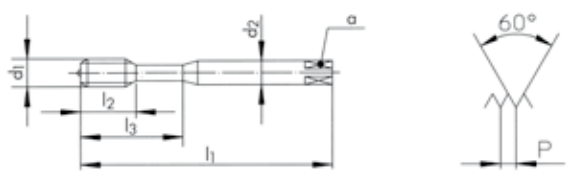




| ID | 6H + mm | ID | 6H + mm | ID | 6H + mm | ID |
|--------|------------|--------|------------|--------|------------|--------|
| 102194 | 0.028 | 145246 | 0.028 | 102199 | 0.052 | 102196 |
| 102060 | 0.032 | 143726 | 0.032 | 102065 | 0.060 | 102062 |
| 102071 | 0.034 | 145655 | 0.034 | 102076 | 0.066 | 102073 |
| 135531 | 0.038 | 162795 | 0.038 | 102094 | 0.072 | 102091 |

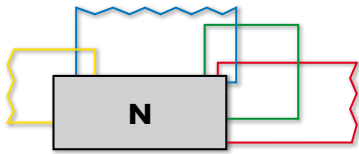
| | | | | | | | | | N321-4 | N330-4 | N330V-4 | |
|--|---|----------------------|---|----------------------|----------------------|---------|---|---|--|----------|---------|--|
|  | | | | | | | | |  | | | |
| N321-4 |  | |  | | | | | | | | | |
| N330-4 |  | |  | | | | | | | | | |
| N330V-4 |  | |  | | | | | | | | | |
|   | | | | | | | | |  | | | |
| | | | | | | | | |  | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | |
| *1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.75 | | 101558 | | |
| *1.1 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.85 | | * 101559 | | |
| *1.2 | 0.25 | 40 | 5.5 | | 2.5 | 2.1 | 2 | 0.95 | | 101560 | | |
| *1.4 | 0.30 | 40 | 7.0 | | 2.5 | 2.1 | 2 | 1.10 | | 101561 | | |
| *1.6 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.25 | | 101562 | 151246 | |
| *1.7 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.35 | | * 101563 | | |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 101552 | 105125 | 101572 | |
| *2.2 | 0.45 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.75 | | * 105126 | | |
| *2.3 | 0.40 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.90 | | * 105127 | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | *3 | 2.05 | 101553 | 101565 | 101573 | |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.15 | | * 101566 | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | *3 | 2.50 | 101555 | 101567 | 101574 | |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 2 | 2.90 | | 101568 | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 | 101557 | 101569 | 101576 | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | | 101570 | 101577 | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | | 101571 | 101578 | |
| <p>* N321-3 / N330-3 / N330V-3  * N330-4 =  2</p> <p>* N330V-4 =  2</p> | | | | | | | | | <p>≤ M1.5 </p> | | | |


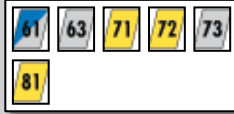


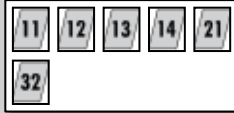






| | | | | | | | | | N420-4 | N421-4 | N430-4 | N430V-4 |
|-------------------|------|-------|-------|-------|----------|---|--------------------------|--|--------|----------|--------|---------|
| | | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | | |
| N421-4 | | | | | | | | | | | | |
| N430-4 | | | | | | | | | | | | |
| N430V-4 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | d_2 | α | | $\pm 6H$ | | ID | ID | ID | ID |
| M | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | | | | | |
| 4 | 0.70 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.30 | | | 102293 | | |
| 5 | 0.80 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.20 | | | 102294 | | |
| 6 | 1.00 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.00 | | | 102295 | | |
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.80 | | 102197 | 102296 | 102301 | 102306 |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 | | 102063 | 102286 | 102297 | 102302 |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.20 | | 102074 | 102287 | 102298 | 102303 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 3 | 12.00 | | | * 102288 | | |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | 14.00 | | 102092 | 102289 | | |

| | | | | | | | | | N350-3 | N350V-3 | | |
|---|---------|----------------------|----------------------|----------------------|----------------------|---------|---|---|---|---------|--|--|
|  | | | | | | | | |  | | | |
| <p>N350-3</p>   | | | | | | | | | | | | |
| <p>N350V-3</p>    | | | | | | | | | | | | |
| | | | | | | | | |   | | | |
| | | | | | | | | |  | | | |
|  | | | | | | | | |   | | | |
| | | | | | | | | |   | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | | |
| 2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 101580 | 101593 | | |
| 2.3 | 0.40 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.90 | 101581 | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.05 | 101582 | 101594 | | |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.15 | 101583 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2 | 2.50 | 101584 | 101595 | | |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 2 | 2.90 | 101585 | | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 2 | 3.30 | 101587 | 101596 | | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101589 | 101597 | | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101591 | 101598 | | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101592 | 146810 | | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101579 | 147217 | | |

| | | | | | | | | | N450-3 | N450V-3 | | |
|------------------------|---------|-------------|-------------|-------------|----------------|---|--|-------|--------|---------|--|--|
| | | | | | | | | | | | | |
| N450-3 | | | | | | | | | | | | |
| N450V-3 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | | | ID | ID | | |
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 3 | | 6.80 | 102327 | 102334 | | |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | | 8.50 | 102314 | 102329 | | |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 3 | | 10.20 | 102317 | 102330 | | |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 3 | | 12.00 | 102319 | 145487 | | |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 3 | | 14.00 | 102321 | 102331 | | |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 4 | | 17.50 | 102324 | 102332 | | |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | | 21.00 | 102325 | 102333 | | |





| | | | | | | | | | N360-3 | N360V-3 | N360TN-3 | N360TC-3 |
|--|---|---|----------------------|----------------------|----------------------|---------|---|---|--|---------|----------|----------|
|  | | | | | | | | |  | | | |
| N360-3 |  |  | | | | | | |  | | | |
| N360V-3 |  V |  | | | | | | |  | | | |
| N360TN-3 |  TiN |  | | | | | | |  | | | |
| N360TC-3 |  TiCN |  | | | | | | |  | | | |
|  | | | | | | | | |  | | | |
| | | | | | | | | |  | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | ID |
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 | 101618 | 101708 | 101697 | 146842 |
| 2.2 | 0.45 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 | 101619 | | | |
| 2.3 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.90 | 101620 | | | |
| 2.5 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.05 | 101622 | 101709 | 101698 | 101689 |
| 2.6 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.15 | 101623 | 101710 | | |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | 101626 | 101711 | 101699 | 101690 |
| 3.5 | 0.60 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.90 | 101630 | 142625 | | |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | 101635 | 101713 | 101700 | 101691 |
| 4.5 | 0.75 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.75 | 101639 | | | |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101644 | 101715 | 101701 | 101692 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101652 | 101717 | 101703 | 101693 |
| 7 | 1.00 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 6.00 | 101656 | 101718 | | |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101663 | 101721 | 101705 | 101694 |
| 9 | 1.25 | 90 | 12.5 | 35 | 9.0 | 7.0 | 3 | 7.80 | 101668 | | | |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101612 | 101707 | 101696 | 101688 |

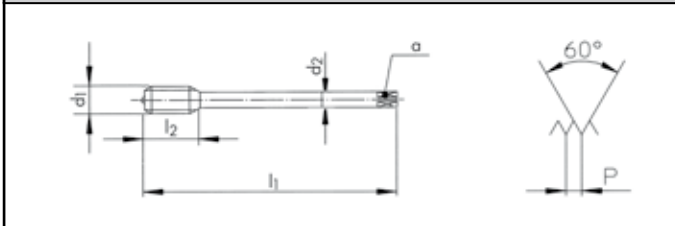










| | | |
|-----------------|---|---|
| N460-3 |  |  |
| N460V-3 |   |  |
| N460TN-3 |   |  |
| N460TC-3 |   |  |



| N460-3 | N460V-3 | N460TN-3 | N460TC-3 |
|--------|---------|----------|----------|
|--------|---------|----------|----------|

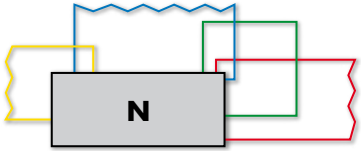


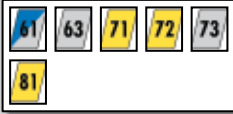

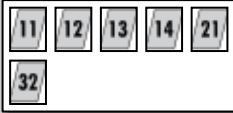





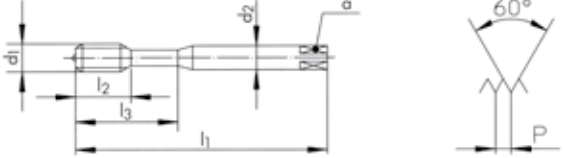





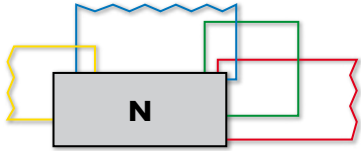




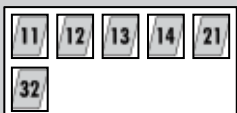

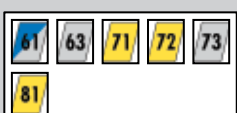

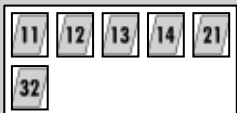
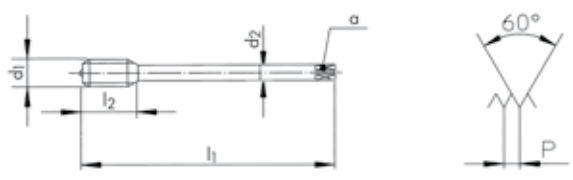



| | | | |
|---|--|---|---|
|  < 2.5 x D |  < 2.5 x D |  < 2.5 x D |  < 2.5 x D |
|---|--|---|---|

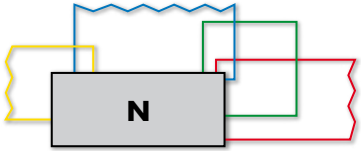

















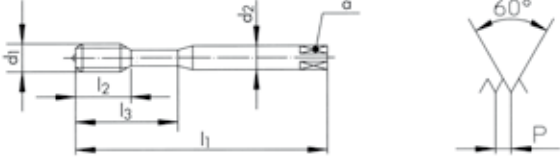






| | | | |
|---|--|---|---|
|  C 2.5 x P |  C 2.5 x P |  C 2.5 x P |  C 2.5 x P |
|  ISO 2 6H |  ISO 2 6H |  ISO 2 6H |  ISO 2 6H |

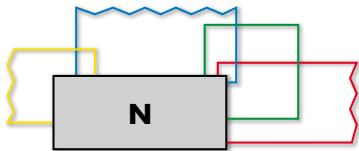
| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm |  |  | ID | ID | ID | ID |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|---|--------|--------|--------|--------|
| 5 | 0.80 | 70 | 9.0 | 3.5 | 2.7 | 3 | 4.20 | 102410 | 102489 | 160682 | |
| 6 | 1.00 | 80 | 11.0 | 4.5 | 3.4 | 3 | 5.00 | 102411 | 102491 | 152850 | |
| 8 | 1.25 | 90 | 12.5 | 6.0 | 4.9 | 3 | 6.80 | 102412 | 102492 | 152849 | |
| 10 | 1.50 | 100 | 14.0 | 7.0 | 5.5 | 3 | 8.50 | 102351 | 102461 | 150242 | 158687 |
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 3 | 10.20 | 102359 | 102465 | 102449 | 102438 |
| 14 | 2.00 | 110 | 14.0 | 11.0 | 9.0 | 3 | 12.00 | 102369 | 102468 | 102451 | 111615 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 3 | 14.00 | 102376 | 102471 | 102453 | 102440 |
| 18 | 2.50 | 125 | 21.0 | 14.0 | 11.0 | 3 | 15.50 | 102383 | 102473 | | |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | 102389 | 102475 | 102454 | 143280 |
| 22 | 2.50 | 140 | 24.0 | 18.0 | 14.5 | 4 | 19.50 | 102394 | 102477 | | |
| 24 | 3.00 | 160 | 27.0 | 18.0 | 14.5 | 4 | 21.00 | 102398 | 102480 | 143119 | 150018 |
| 27 | 3.00 | 160 | 27.0 | 20.0 | 16.0 | 4 | 24.00 | 175423 | 102481 | | |
| 30 | 3.50 | 180 | 30.0 | 22.0 | 18.0 | 4 | 26.50 | 150246 | 102482 | | |
| 33 | 3.50 | 180 | 33.0 | 25.0 | 20.0 | 4 | 29.50 | 167621 | 102483 | | |
| 36 | 4.00 | 200 | 36.0 | 28.0 | 22.0 | 5 | 32.00 | 143914 | 102484 | | |
| 39 | 4.00 | 200 | 40.0 | 32.0 | 24.0 | 5 | 35.00 | 175424 | 102485 | | |
| 42 | 4.50 | 200 | 40.0 | 32.0 | 24.0 | 5 | 37.50 | 169122 | 102486 | | |
| 45 | 4.50 | 220 | 44.0 | 36.0 | 29.0 | 5 | 40.50 | | 102487 | | |
| 48 | 5.00 | 250 | 48.0 | 36.0 | 29.0 | 5 | 43.00 | | 102488 | | |
| 52 | 5.00 | 250 | 52.0 | 40.0 | 32.0 | 5 | 47.00 | | 110228 | | |
| 56 | 5.50 | 280 | 56.0 | 45.0 | 35.0 | 6 | 50.50 | | 102490 | | |
| 64 | 6.00 | 315 | 64.0 | 50.0 | 39.0 | 6 | 58.00 | | 143805 | | |

| | | | | | | | | | N360-3 LH | N360V-3 LH | N360-3 | N360V-3 |
|--|---|----------------------|---|----------------------|----------------------|---------|---|-----------|--|------------|---------------|---------------|
|  | | | | | | | | |  | | | |
| N360-3 LH |  | LH |  | | | | | | | | | |
| N360V-3 LH |  | V LH |  | | | | | | | | | |
| N360-3 |  | |  | | | | | | | | | |
| N360V-3 |  | V |  | | | | | |  | | | |
|  | | | | | | | | |  | | | |
| | | | | | | | | |  | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  | 6H → ← | ID | ID | ID 6H + mm | ID 6H + mm |
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 | | | 101617 0.019 | 146000 0.019 |
| 2.5 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.05 | | | 101621 0.020 | 143294 0.020 |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | 101627 | 146811 | 101625 0.020 | 104816 0.020 |
| 3.5 | 0.60 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.95 | | | 101629 0.021 | 125829 0.021 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | 101637 | 162540 | 101634 0.022 | 104817 0.022 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101646 | 144003 | 101643 0.024 | 104818 0.024 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101654 | 144004 | 101669 0.026 | 104819 0.026 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 101666 | 143925 | 101662 0.028 | 104820 0.028 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101615 | 143587 | 101611 0.032 | 104821 0.032 |

| | | | | | | | | N460-3 LH | N460V-3 LH | N460-3 | N460V-3 | | |
|--|---|-------------|---|-------------|----------------|---|----------------------------------|--|------------|--------|--------------|--------|--------------|
|  | | | | | | | |  | | | | | |
| N460-3 LH |  | LH |  | | | | | | | | | | |
| N460V-3 LH |  | V LH |  | | | | | | | | | | |
| N460-3 |  | |  | | | | | | | | | | |
| N460V-3 |  | V |  | | | | | | | | | | |
|  | | | | | | | |  | | | | | |
| | | | | | | | |  | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm |  | $6H$ $\rightarrow \leftarrow$ | ID | ID | ID | $6H$ + mm | ID | $6H$ + mm |
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 3 | 10.20 | 102362 | 146354 | 102358 | 0.034 | 143602 | 0.034 |
| 14 | 2.00 | 110 | 14.0 | 11.0 | 9.0 | 3 | 12.00 | | | 102368 | 0.038 | 144712 | 0.038 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 3 | 14.00 | 102378 | 143439 | 102375 | 0.038 | 150197 | 0.038 |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | 102390 | 146564 | 102388 | 0.042 | 145420 | 0.042 |

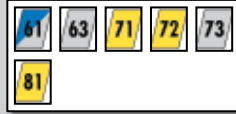
| | | | | | | | | | N360-3 | N360-3 | N360V-3 | N360-3 | | |
|--|---|---|---|----------------------|----------------------|---------|---|---|--|---|------------|--------|------------|--------|
|  | | | | | | | | |  | | | | | |
| N360-3 |  |      | | | | | | |  | | | | | |
| N360V-3 |   |      |  | | | | | | |  | | | | |
|  | | | | | | | | |  | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | 6H + mm | ID | 6H + mm | ID |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | 101624 | 101628 | 0.036 | 144311 | 0.036 | 160847 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | 101633 | 101638 | 0.041 | 144192 | 0.041 | 101636 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101642 | 101647 | 0.044 | 143208 | 0.044 | 101645 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 101651 | 101655 | 0.050 | 146709 | 0.050 | 101653 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | △ 6.80 | 101661 | 101667 | 0.052 | 146267 | 0.052 | 101664 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101610 | 101616 | 0.060 | 142547 | 0.060 | 101613 |

△ ISO 1 4H =  6.70

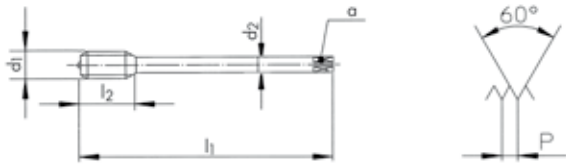
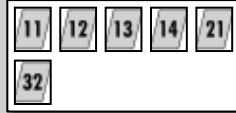




N460-3 N460-3 N460V-3 N460-3

N460-3

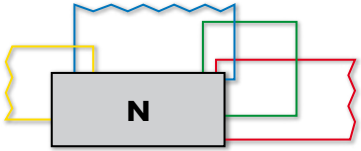


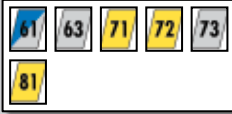


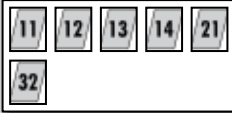








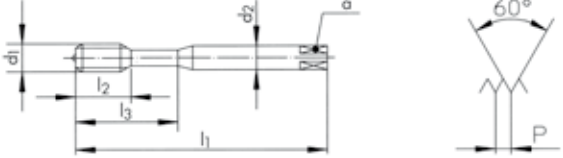






N460V-3



| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|---|
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 3 | 10.20 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 3 | 14.00 |

| ID | ID | 6H + mm | ID | 6H + mm | ID |
|----------|--------|------------|--------|------------|--------|
| * 124987 | 102363 | 0.066 | 142532 | 0.066 | 102360 |
| | 102379 | 0.072 | 144956 | 0.072 | 102377 |

| | | | | | | | | | N360-5 | N360V-5 | N361-3 | N362V-3 |
|--|---|---|----------------------|----------------------|----------------------|---------|---|---|--|---------|--------|---------|
|  | | | | | | | | |  | | | |
| N360-5 |  |  | | | | | | | | | | |
| N360V-5 |   |  | | | | | | | | | | |
| N361-3 |   |  | | | | | | | | | | |
| N362V-3 |    |  | | | | | | |  | | | |
|  | | | | | | | | |  | | | |
| | | | | | | | | |  | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | ID |
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 | 158079 | 150058 | | |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | 104809 | 142646 | 101735 | |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | 104810 | 142647 | 101736 | 101741 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 104811 | 142648 | 101737 | 101742 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 104812 | 142649 | 101738 | 101743 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 104813 | 142650 | 101739 | 101744 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 104814 | 124899 | 101734 | 101740 |

| | | | | | | | | N460-5 | N460V-5 | N461-3 | N462V-3 |
|------------------------|---------|-------------|-------------|-------------|----------------|---|-------|--------|---------|----------|---------|
| | | | | | | | | | | | |
| N460-5 | | | | | | | | | | | |
| N460V-5 | | | | | | | | | | | |
| N461-3 | | | | | | | | | | | |
| N462V-3 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | | ID | ID | ID | ID |
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 3 | 10.20 | 104815 | 142651 | 102506 | 102512 |
| 14 | 2.00 | 110 | 14.0 | 11.0 | 9.0 | 3 | 12.00 | | | * 102507 | 102513 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 3 | 14.00 | | | * 102508 | 102514 |
| 18 | 2.50 | 125 | 21.0 | 14.0 | 11.0 | 3 | 15.50 | | | * 111614 | 102515 |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | | | | 102516 |
| 24 | 3.00 | 160 | 27.0 | 18.0 | 14.5 | 4 | 21.00 | | | | 102517 |
| 27 | 3.00 | 160 | 27.0 | 20.0 | 16.0 | 4 | 24.00 | | | | 159244 |
| 30 | 3.50 | 180 | 30.0 | 22.0 | 18.0 | 4 | 26.50 | | | | 143090 |



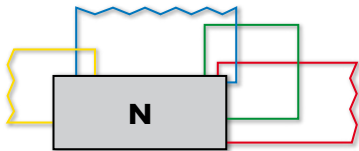
| | | | | | | | | | | N520-4 | N520V-4 | N520TN-4 | |
|-----------------------|------------|----------------------|----------------------|----------------------|----------------------|---------|---|--|------|--------|---------|----------|--|
| | | | | | | | | | | | | | |
| N520-4 | | | | | | | | | | | | | |
| N520V-4 | V | | | | | | | | | | | | |
| N520TN-4 | TiN | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | | ID | ID | ID | |
| 2.5 | 0.45 | 100 | 10.0 | | 2.8 | 2.1 | 3 | | 2.05 | 102594 | 142623 | | |
| 3 | 0.50 | 112 | 12.0 | 18 | 3.5 | 2.7 | 3 | | 2.50 | 102595 | 143399 | 162790 | |
| 4 | 0.70 | 112 | 14.0 | 21 | 4.5 | 3.4 | 3 | | 3.30 | 102596 | 143400 | 146837 | |
| 5 | 0.80 | 125 | 15.0 | 25 | 6.0 | 4.9 | 3 | | 4.20 | 102597 | 142654 | 150113 | |
| 6 | 1.00 | 125 | 17.0 | 30 | 6.0 | 4.9 | 3 | | 5.00 | 102598 | 143137 | 148821 | |



| | | | | | | | | N620-4 | N620V-4 | N620TN-4 | | | | |
|------------------------|---------|-------------|-------------|-------------|----------------|----|-------|-------------|-------------|-------------|----|----|----|----|
| | | | | | | | | | | | | | | |
| N620-4 | | | | | | | | | | | | | | |
| | | | | | | 61 | 63 | 71 | 72 | 73 | 81 | | | |
| N620V-4 | | V | | | | | | | | | | | | |
| | | | | | | 11 | 12 | 13 | 14 | 21 | 32 | | | |
| N620TN-4 | | TiN | | | | | | | | | | | | |
| | | | | | | 11 | 12 | 13 | 14 | 21 | 31 | 32 | 73 | 74 |
| | | | | | | | | | | | | | | |
| | | | | | | | | B 4 x P | B 4 x P | B 4 x P | | | | |
| | | | | | | | | ISO 2 6H | ISO 2 6H | ISO 2 6H | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | | ID | ID | ID | | | | |
| 4 | 0.70 | 112 | 14.0 | 2.8 | 2.1 | 3 | 3.30 | 102619 | 142582 | 146442 | | | | |
| 5 | 0.80 | 125 | 15.0 | 3.5 | 2.7 | 3 | 4.20 | 102620 | 142657 | 146443 | | | | |
| 6 | 1.00 | 125 | 17.0 | 4.5 | 3.4 | 3 | 5.00 | 102621 | 142658 | 144591 | | | | |
| 8 | 1.25 | 140 | 20.0 | 6.0 | 4.9 | 3 | 6.80 | 102622 | 143401 | 146262 | | | | |
| 10 | 1.50 | 160 | 22.0 | 7.0 | 5.5 | 3 | 8.50 | 102614 | 142660 | 146849 | | | | |
| 12 | 1.75 | 180 | 24.0 | 9.0 | 7.0 | 3 | 10.20 | 102615 | 143127 | 146295 | | | | |
| 14 | 2.00 | 180 | 28.0 | 11.0 | 9.0 | 3 | 12.00 | 102616 | 151905 | | | | | |
| 16 | 2.00 | 200 | 30.0 | 12.0 | 9.0 | 3 | 14.00 | 102617 | 143106 | 143574 | | | | |
| 20 | 2.50 | 224 | 36.0 | 16.0 | 12.0 | 3 | 17.50 | 102618 | 143596 | | | | | |



| | | | | | | | | | | N560-3 | N560V-3 | N560TN-3 | |
|-------------------|------------|-------|-------|-------|-------|-----|---|------|--|-----------|-----------|-----------|--|
| | | | | | | | | | | | | | |
| N560-3 | | | | | | | | | | | | | |
| N560V-3 | V | | | | | | | | | | | | |
| N560TN-3 | TiN | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | | ID | ID | ID | |
| M | mm | mm | mm | mm | mm | mm | | | | | | | |
| 2.5 | 0.45 | 100 | 9.0 | | 2.8 | 2.1 | 2 | 2.05 | | 102600 | 102607 | | |
| 3 | 0.50 | 112 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | | 102601 | 102608 | 142663 | |
| 4 | 0.70 | 112 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | | 102602 | 102609 | 142664 | |
| 5 | 0.80 | 125 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | | 102603 | 102610 | 142665 | |
| 6 | 1.00 | 125 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | | 102604 | 102611 | 142666 | |
| 8 | 1.25 | 140 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | | 102605 | 102612 | 142667 | |
| 10 | 1.50 | 160 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | | 102599 | 102606 | 142668 | |

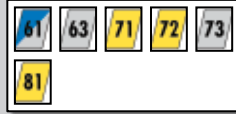


N660-3

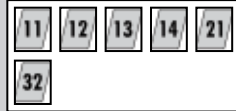
N660V-3

N660TN-3

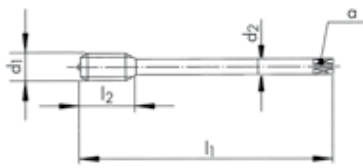
N660-3



N660V-3



N660TN-3



ISO 2 6H

ISO 2 6H

ISO 2 6H

| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|-------|
| 6 | 1.00 | 125 | 11.0 | 4.5 | 3.4 | 3 | 5.00 |
| 8 | 1.25 | 140 | 12.5 | 6.0 | 4.9 | 3 | 6.80 |
| 10 | 1.50 | 160 | 14.0 | 7.0 | 5.5 | 3 | 8.50 |
| 12 | 1.75 | 180 | 14.0 | 9.0 | 7.0 | 3 | 10.20 |
| 14 | 2.00 | 180 | 14.0 | 11.0 | 9.0 | 3 | 12.00 |
| 16 | 2.00 | 200 | 18.0 | 12.0 | 9.0 | 3 | 14.00 |
| 20 | 2.50 | 224 | 24.0 | 16.0 | 12.0 | 4 | 17.50 |

ID

ID

ID

162792

115657

162793

115544

162794

135539

173484

102623

102626

142669

162253

147500

102624

102627

142670

102625

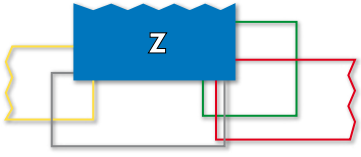




















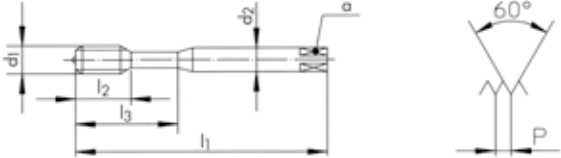






102628

| | | | | | | | | | W320-4 | W420-4 | W320DL-4 | W420DL-4 | |
|------------------------|---------|-------------|-------------|-------------|-------------|---------|---|-------|----------|--------|----------|----------|--|
| | | | | | | | | | | | | | |
| W320-4 | | 71 72 81 | | | | | | | | | | | |
| W420-4 | | 71 72 81 | | | | | | | | | | | |
| W320DL-4 | | DL | 71 72 81 | | | | | | | | | | |
| W420DL-4 | | DL | 71 72 81 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | ID | ID | ID | ID | |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 104612 | | 176688 | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.05 | 104613 | | 176689 | | |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.15 | * 104614 | | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2 | 2.50 | 104615 | | 176690 | | |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 2 | 2.90 | * 104616 | | | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 2 | 3.30 | 104617 | | 176691 | | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 2 | 4.20 | 104618 | | 176354 | | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 2 | 5.00 | 104619 | | 175590 | | |
| 8 | 1.25 | 90 | 20.0 | | 6.0 | 4.9 | 2 | 6.80 | | 104636 | | 176692 | |
| 10 | 1.50 | 100 | 22.0 | | 7.0 | 5.5 | 2 | 8.50 | | 104632 | | 176693 | |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 3 | 10.20 | | 104633 | | 176694 | |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 3 | 14.00 | | 104634 | | 176695 | |

* W320-3
* W320DL-3

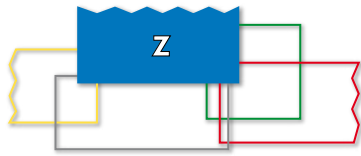


| | | | | | | | | | W360-3 | W460-3 | W360DL-3 | W460DL-3 | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|---------------|---------------|---------------|---------------|--|
| | | | | | | | | | | | | | |
| W360-3 | | | | | | | | | | | | | |
| W460-3 | | | | | | | | | | | | | |
| W360DL-3 | | DL | | | | | | | | NEW | | | |
| W460DL-3 | | DL | | | | | | | | NEW | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | | ID | ID | ID | ID | |
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 | 104625 | | 176719 | | |
| 2.5 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.05 | 104626 | | 176720 | | |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 2 | 2.50 | 104627 | | 176721 | | |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 2 | 3.30 | 104628 | | 176722 | | |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 2 | 4.20 | 104629 | | 176723 | | |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 2 | 5.00 | 104630 | | 176355 | | |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 2 | 6.80 | 104631 | | 176724 | | |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 2 | 8.50 | 104624 | | 176725 | | |
| 12 | 1.75 | 110 | 14.0 | | 9.0 | 7.0 | 3 | 10.20 | | 104640 | | 176726 | |
| 16 | 2.00 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 | | 104641 | | 176727 | |

|  | | | | | | | | | Z320V-4 | Z420V-4 | Z320VS-4 | Z420VS-4 |
|--|---|----------------------|----------------------|----------------------|----------------------|---------|---|---|--|--|--|--|
| Z320V-4 |  | V | 21 | 22 | 23 | 41 | 42 | 51 |  |  |  |  |
| Z420V-4 |  | V | 21 | 22 | 23 | 41 | 42 | 51 |  |  |  |  |
| Z320VS-4 |  | VS | 21 | 22 | 23 | 24 | 51 | 61 |  |  |  |  |
| Z420VS-4 |  | VS | 21 | 22 | 23 | 24 | 51 | 61 |  |  |  |  |
|  | | | | | | | | |  |  |  |  |
| | | | | | | | | | ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | ID |
| *1.6 | 0.35 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.25 | 142671 | | | |
| *2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | 111613 | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.05 | 111455 | | 143683 | |
| 2.6 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.15 | 142672 | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 | 104669 | | 104830 | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 | 104670 | | 104831 | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 104671 | | 104832 | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 104672 | | 104833 | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | 104673 | | 104834 | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 104668 | | 104835 | |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 3 | 10.20 | | 104723 | | 104836 |
| 14 | 2.00 | 110 | 28.0 | | 11.0 | 9.0 | 3 | 12.00 | | 142673 | | 143684 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 3 | 14.00 | | 105068 | | 111569 |
| 18 | 2.50 | 125 | 33.0 | | 14.0 | 11.0 | 4 | 15.50 | | 142674 | | |
| 20 | 2.50 | 140 | 36.0 | | 16.0 | 12.0 | 4 | 17.50 | | 105069 | | 111570 |
| 22 | 2.50 | 140 | 36.0 | | 18.0 | 14.5 | 4 | 19.50 | | 146003 | | |
| 24 | 3.00 | 160 | 39.0 | | 18.0 | 14.5 | 4 | 21.00 | | 142675 | | |
| 30 | 3.50 | 180 | 45.0 | | 22.0 | 18.0 | 4 | 26.50 | | 142676 | | |

* Z320V-3





Z360V-3

Z362V-3

Z462V-3

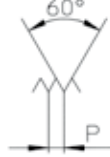
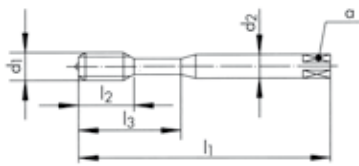
Z360V-3



Z362V-3



Z462V-3



ISO 2
6H

ISO 2
6H

ISO 2
6H

| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 |
| 2.5 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.05 |
| 2.6 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.15 |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 |
| 3.5 | 0.60 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.90 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 14.0 | | 9.0 | 7.0 | 3 | 10.20 |
| 14 | 2.00 | 110 | 14.0 | | 11.0 | 9.0 | 3 | 12.00 |
| 16 | 2.00 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 |
| 18 | 2.50 | 125 | 21.0 | | 14.0 | 11.0 | 3 | 15.50 |
| 20 | 2.50 | 140 | 24.0 | | 16.0 | 12.0 | 3 | 17.50 |
| 22 | 2.50 | 140 | 24.0 | | 18.0 | 14.5 | 3 | 19.50 |
| 24 | 3.00 | 160 | 27.0 | | 18.0 | 14.5 | 4 | 21.00 |
| 27 | 3.00 | 160 | 27.0 | | 20.0 | 16.0 | 4 | 24.00 |
| 30 | 3.50 | 180 | 30.0 | | 22.0 | 18.0 | 4 | 26.50 |
| 36 | 4.00 | 200 | 36.0 | | 28.0 | 22.0 | 4 | 32.00 |
| 42 | 4.50 | 200 | 40.0 | | 32.0 | 24.0 | 4 | 37.50 |

ID

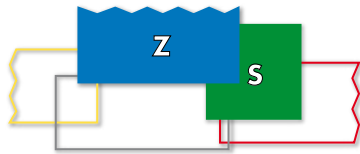
ID

ID

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104683

104742
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104747
104748
104749
104750
104751



Z362VS-3

R40 VS [22] [23] [24] [51] [61]

Z370VS-3

R45 VS CLASSIC SYNCHRO [15] [22] [23] [24] [51] [52] [61]

Z373VS-3

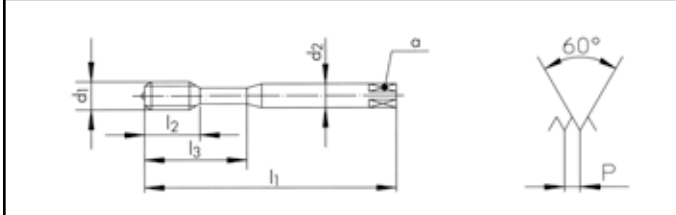
R45 VS CLASSIC SYNCHRO [15] [22] [23] [24] [51] [52] [61]

Z362VS-3 Z370VS-3 Z370VS-3 Z373VS-3



< 2.5 x D < 3 x D < 3 x D < 3 x D

PM PM PM



C 2.5 x P C 2.5 x P C 2.5 x P C 2.5 x P

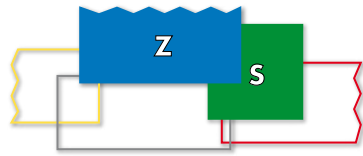
6HX 6HX 4HX 6HX

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|------|--------|
| *3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 | 111504 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 | 111505 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 111506 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 111507 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 111508 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 111509 |

* Z360VS-3

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | | ID | ID | ID |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|--------|--------|--------|
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5(h9) | 2.7 | 3 | 2.50 | 162776 | 165324 | 165236 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5(h9) | 3.4 | 3 | 3.30 | 162777 | 165325 | 165237 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 162778 | 165326 | 165238 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 162779 | 165327 | 165239 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 162780 | 165328 | 165240 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 162781 | 165438 | 165241 |

△ 4HX = 6.70



Z462VS-3

Z470VS-3

Z473VS-3

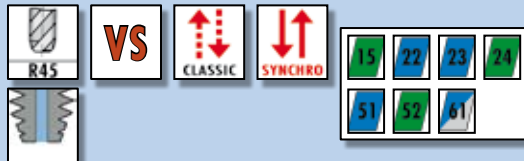
Z462VS-3



Z470VS-3



Z473VS-3



PM

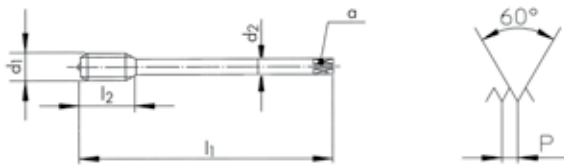
PM



6HX

6HX

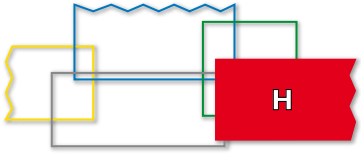







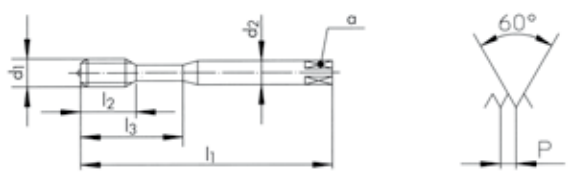






6HX



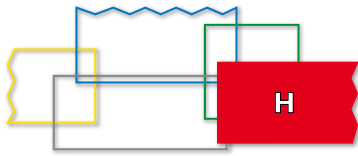
| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | ID |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|-------|----------|
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 4 | 10.20 | 111510 |
| 14 | 2.00 | 110 | 14.0 | 11.0 | 9.0 | 4 | 12.00 | * 148169 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 4 | 14.00 | 111511 |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | 111512 |
| 24 | 3.00 | 160 | 27.0 | 18.0 | 14.5 | 4 | 21.00 | * 111620 |

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ h ₆ mm | α mm | | | ID | ID |
|-----------------------|---------|----------------------|----------------------|-------------------------------------|---------|---|-------|--------|----------|
| 12 | 1.75 | 110 | 14.0 | *10.0 | *8.0 | 4 | 10.20 | 162782 | 165242 |
| 14 | 2.00 | 110 | 14.0 | *12.0 | *9.0 | 4 | 12.00 | 162783 | * 165243 |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 4 | 14.00 | 162784 | 165244 |
| 18 | 2.50 | 125 | 21.0 | 14.0 | 11.0 | 4 | 15.50 | 170643 | |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | 162785 | 165234 |
| 22 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 19.50 | 175190 | |
| 24 | 3.00 | 160 | 27.0 | 16.0 | 12.0 | 4 | 21.00 | 162786 | 165235 |

* Norme DC / * DC Norm / * Norma DC

| | | | | | | | | | | H320-4 | H320TC-4 | | | | | | |
|--|---|---|---|-------------|-------------|-----------|---|---|--|---|----------|---|--|--|--|--|--|
|  | | | | | | | | | |   | | | | | | | |
| H320-4 |  |  | | | | | | | | | | | | | | | |
| H320TC-4 |  |  |  | | | | | | | | | | | | | | |
|  | | | | | | | | | |  | |  | | | | | |
| | | | | | | | | | |  | |  | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  |  | | ID | ID | | | | | | |
| 2 | 0.40 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.60 | | 101206 | 151836 | | | | | | |
| 2.2 | 0.45 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.75 | | 111801 | | | | | | | |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.05 | | 101207 | 148603 | | | | | | |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 | | 101209 | 111836 | | | | | | |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.90 | | 101210 | | | | | | | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 | | 101211 | 111502 | | | | | | |
| 4.5 | 0.75 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.75 | | 101212 | | | | | | | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | | 101213 | 111458 | | | | | | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | | 101215 | 111456 | | | | | | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.80 | | 101218 | 111453 | | | | | | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | | 101205 | 110911 | | | | | | |

| | | | | | | | | | H420-4 | H420TC-4 | | |
|-----------------------|-------------|----------------------|----------------------|----------------------|---------|---|-------|--|---------------|---------------|--|--|
| | | | | | | | | | | | | |
| H420-4 | | | | | | | | | | | | |
| H420TC-4 | TiCN | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | | ID | ID | | |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 4 | 10.20 | | 101275 | 110912 | | |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 4 | 12.00 | | 101277 | | | |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 4 | 14.00 | | 101279 | 111612 | | |
| 18 | 2.50 | 125 | 33.0 | 14.0 | 11.0 | 4 | 15.50 | | 101281 | | | |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 4 | 17.50 | | 101284 | | | |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | 21.00 | | 101286 | | | |
| 27 | 3.00 | 160 | 42.0 | 20.0 | 16.0 | 4 | 24.00 | | 101287 | | | |
| 30 | 3.50 | 180 | 45.0 | 22.0 | 18.0 | 4 | 26.50 | | 101288 | | | |
| 36 | 4.00 | 200 | 51.0 | 28.0 | 22.0 | 4 | 32.00 | | 101289 | | | |



H350-3



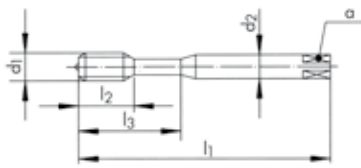
H350TC-3




H350-3

H350-3

H350TC-3



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  | $6H$ $\frac{\mu m}{\rightarrow \leftarrow}$ |
|------------------------|---------|-------------|-------------|-------------|-------------|---------|---|--|
| 2 | 0.40 | 45 | 7.0 | | 2.8 | 2.1 | 2 | 1.60 |
| 2.5 | 0.45 | 50 | 9.0 | | 2.8 | 2.1 | 3 | 2.05 |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 |
| 3.5 | 0.60 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.90 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 |
| 4.5 | 0.75 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.75 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |

ID

ID

$6H$
+ mm

ID

101238

146451

101239

144957

101242

101241

0.020

111835

101243

101245

101244

0.022

111607

101246

101248

101247

0.024

111610

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101250

0.026

111500

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101254

0.028

110963

101237

101236

0.032

111454

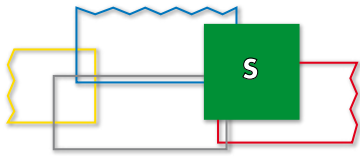
M ISO DIN 13

≤ Ø 25.4 > Ø 25.4

PM HSSE



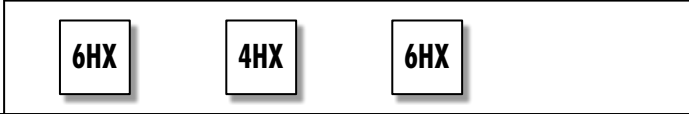
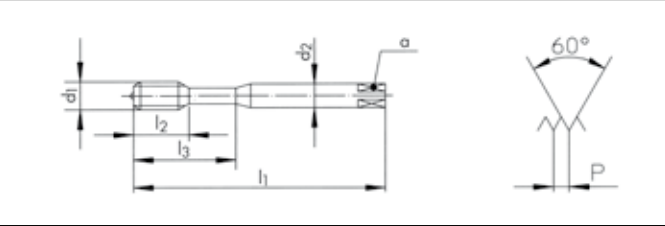
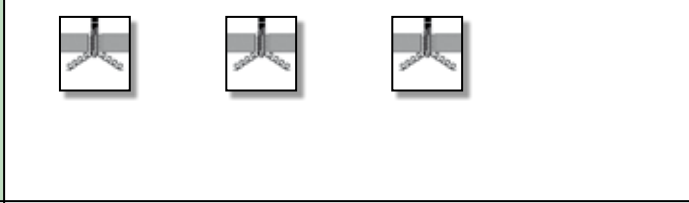
| | | | | | | | | | H450-3 | H450-3 | H450TC-3 | |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|-------|--|--------|--------------------------|----------|--------|
| | | | | | | | | | | | | |
| H450-3 | | | | | | | | | | | | |
| H450TC-3 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | | ID | ID ^{6H} + mm | ID | |
| 12 | 1.75 | 110 | 14.0 | 9.0 | 7.0 | 4 | 10.20 | | 101305 | 101304 | 0.034 | 111501 |
| 14 | 2.00 | 110 | 14.0 | 11.0 | 9.0 | 4 | 12.00 | | 101307 | | | |
| 16 | 2.00 | 110 | 18.0 | 12.0 | 9.0 | 4 | 14.00 | | 101309 | | | 111605 |
| 18 | 2.50 | 125 | 21.0 | 14.0 | 11.0 | 4 | 15.50 | | 101311 | | | |
| 20 | 2.50 | 140 | 24.0 | 16.0 | 12.0 | 4 | 17.50 | | 101313 | | | |
| 22 | 2.50 | 140 | 24.0 | 18.0 | 14.5 | 4 | 19.50 | | 101315 | | | |
| 24 | 3.00 | 160 | 27.0 | 18.0 | 14.5 | 4 | 21.00 | | 101318 | | | |
| 27 | 3.00 | 160 | 27.0 | 20.0 | 16.0 | 4 | 24.00 | | 101320 | | | |
| 30 | 3.50 | 180 | 30.0 | 22.0 | 18.0 | 4 | 26.50 | | 101323 | | | |
| 36 | 4.00 | 200 | 36.0 | 28.0 | 22.0 | 4 | 32.00 | | 101324 | | | |
| 42 | 4.50 | 200 | 40.0 | 32.0 | 24.0 | 4 | 37.50 | | 101325 | | | |



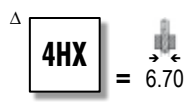
| | | | |
|----------|----------|----------|--|
| S320VS-4 | S320VS-4 | S420VS-4 | |
|----------|----------|----------|--|

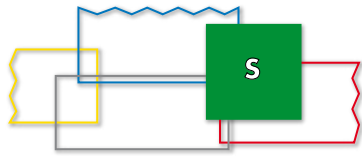
S320VS-4

S420VS-4



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | ID | ID | ID |
|------------------------|---------|-------------|-------------|-------------|-------------|-----------|---|--|--------|----------|----------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | | 111596 | * 165318 | |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | | 111597 | 165319 | |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | | 111598 | 165320 | |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | | 111599 | 165321 | |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | | 111600 | 165322 | |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | | 111601 | 165323 | |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 4 | | | | 111602 |
| 14 | 2.00 | 110 | 30.0 | | 11.0 | 9.0 | 4 | | | | * 162537 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 4 | | | | 111603 |
| 20 | 2.50 | 140 | 36.0 | | 16.0 | 12.0 | 4 | | | | 111604 |





| S360VS-3 | S460VS-3 | SA390-3 | SA390-3 |
|----------|----------|---------|---------|
|----------|----------|---------|---------|



S360VS-3



| | | | |
|----|----|----|----|
| 13 | 15 | 24 | S2 |
|----|----|----|----|

S460VS-3



| | | | |
|----|----|----|----|
| 13 | 15 | 24 | S2 |
|----|----|----|----|

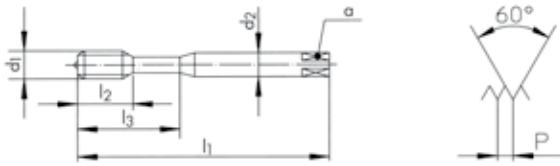
aero

SA390-3



| |
|----|
| S3 |
|----|

| | | | |
|--|--|--|--|
| | | | |
| | | | |



| | | | |
|-----|-----|-----|-----|
| | | | |
| 6HX | 6HX | 4HX | 6HX |

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.50 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 14.0 | | 9.0 | 7.0 | 4 | 10.20 |
| 14 | 2.00 | 110 | 14.0 | | 11.0 | 9.0 | 4 | 12.00 |
| 16 | 2.00 | 110 | 18.0 | | 12.0 | 9.0 | 4 | 14.00 |
| 20 | 2.50 | 140 | 24.0 | | 16.0 | 12.0 | 4 | 17.50 |
| 24 | 3.00 | 160 | 27.0 | | 18.0 | 14.5 | 4 | 21.00 |

| ID | ID |
|--------|--------|
| 111513 | |
| 111514 | |
| 111515 | |
| 111516 | |
| 111517 | |
| 111518 | |
| | 111519 |
| | 148171 |
| | 111520 |
| | 111521 |
| | 111606 |

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|---------|---|--------|
| 4 | 0.70 | 63 | 14.0 | 4.5 | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 15.0 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 20.0 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 25.0 | 8.0 | 6.2 | 3 | Δ 6.80 |
| 10 | 1.50 | 100 | 30.0 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 35.0 | 12.0 | 9.0 | 4 | 10.20 |
| 14 | 2.00 | 110 | 40.0 | 16.0 | 12.0 | 4 | 12.00 |
| 16 | 2.00 | 110 | 40.0 | 16.0 | 12.0 | 4 | 14.00 |

| ID | ID |
|--------|----------|
| 149673 | 149674 |
| 149693 | 149694 |
| 149707 | 149708 |
| 149736 | 149737 |
| 149754 | 149755 |
| | 149775 |
| | * 149792 |
| | * 149816 |

Δ 4HX = = 6.70

aero

| | | | | | | | | | | SA320-4 | SA350-3 | TL320VS-4 | TL351VS-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------|--------|--------|-------|-------|-----|---|--------------------------|--|--|---------|-----------|-----------|-------|-------|-----|--|--|---|----|----|----|----|----|----|--|--------------------------|---|------|----|------|--|-----|-----|---|------|---|------|----|------|--|-----|-----|---|------|---|------|----|------|--|-----|-----|---|------|---|------|----|------|----|-----|-----|---|------|---|------|----|------|----|-----|-----|---|------|----|------|-----|------|----|------|-----|---|------|--|--|--|--|--|--|--|--|--|--|----|----|----|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>SA320-4 52 53</p> <p>SA350-3 52 53</p> <p>TL320VS-4 VS 41 42</p> <p>TL351VS-3 VS 41 42</p> </div> <div style="width: 50%; text-align: center;"> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | <div style="display: flex; justify-content: space-around;"> 4HX 4HX 4HX 4HX </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>$\varnothing d_1$</th> <th>P</th> <th>l_1</th> <th>l_2</th> <th>l_3</th> <th>d_2</th> <th>a</th> <th></th> <th></th> </tr> <tr> <th>M</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th>$\rightarrow \leftarrow$</th> </tr> </thead> <tbody> <tr><td>3</td><td>0.50</td><td>56</td><td>12.0</td><td></td><td>3.5</td><td>2.7</td><td>3</td><td>2.50</td></tr> <tr><td>4</td><td>0.70</td><td>63</td><td>14.0</td><td></td><td>4.5</td><td>3.4</td><td>3</td><td>3.30</td></tr> <tr><td>5</td><td>0.80</td><td>70</td><td>15.0</td><td></td><td>6.0</td><td>4.9</td><td>3</td><td>4.20</td></tr> <tr><td>6</td><td>1.00</td><td>80</td><td>15.0</td><td>23</td><td>6.0</td><td>4.9</td><td>3</td><td>5.00</td></tr> <tr><td>8</td><td>1.25</td><td>90</td><td>18.0</td><td>29</td><td>8.0</td><td>6.2</td><td>3</td><td>6.70</td></tr> <tr><td>10</td><td>1.50</td><td>100</td><td>20.0</td><td>33</td><td>10.0</td><td>8.0</td><td>3</td><td>8.50</td></tr> </tbody> </table> | | | | | | | | | | $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | 3 | 0.50 | 56 | 12.0 | | 3.5 | 2.7 | 3 | 2.50 | 4 | 0.70 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.30 | 5 | 0.80 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.20 | 6 | 1.00 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.00 | 8 | 1.25 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.70 | 10 | 1.50 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.50 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ID</th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr><td>147975</td><td>147987</td><td>152006</td><td>152012</td></tr> <tr><td>147976</td><td>147988</td><td>152007</td><td>152013</td></tr> <tr><td>147977</td><td>147989</td><td>152008</td><td>152014</td></tr> <tr><td>147978</td><td>147990</td><td>152009</td><td>152015</td></tr> <tr><td>147979</td><td>147991</td><td>152010</td><td>152016</td></tr> <tr><td>147980</td><td>147992</td><td>152011</td><td>152017</td></tr> </tbody> </table> | | | | | | | | | | ID | ID | ID | ID | 147975 | 147987 | 152006 | 152012 | 147976 | 147988 | 152007 | 152013 | 147977 | 147989 | 152008 | 152014 | 147978 | 147990 | 152009 | 152015 | 147979 | 147991 | 152010 | 152016 | 147980 | 147992 | 152011 | 152017 |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 0.50 | 56 | 12.0 | | 3.5 | 2.7 | 3 | 2.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 0.70 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 0.80 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 1.00 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 1.25 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 1.50 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ID | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147975 | 147987 | 152006 | 152012 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147976 | 147988 | 152007 | 152013 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147977 | 147989 | 152008 | 152014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147978 | 147990 | 152009 | 152015 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147979 | 147991 | 152010 | 152016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147980 | 147992 | 152011 | 152017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | <div style="display: flex; justify-content: space-around;"> 6HX 6HX 6HX 6HX </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>$\varnothing d_1$</th> <th>P</th> <th>l_1</th> <th>l_2</th> <th>l_3</th> <th>d_2</th> <th>a</th> <th></th> <th></th> </tr> <tr> <th>M</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th>$\rightarrow \leftarrow$</th> </tr> </thead> <tbody> <tr><td>3</td><td>0.50</td><td>56</td><td>12.0</td><td></td><td>3.5</td><td>2.7</td><td>3</td><td>2.50</td></tr> <tr><td>4</td><td>0.70</td><td>63</td><td>14.0</td><td></td><td>4.5</td><td>3.4</td><td>3</td><td>3.30</td></tr> <tr><td>5</td><td>0.80</td><td>70</td><td>15.0</td><td></td><td>6.0</td><td>4.9</td><td>3</td><td>4.20</td></tr> <tr><td>6</td><td>1.00</td><td>80</td><td>15.0</td><td>23</td><td>6.0</td><td>4.9</td><td>3</td><td>5.00</td></tr> <tr><td>8</td><td>1.25</td><td>90</td><td>18.0</td><td>29</td><td>8.0</td><td>6.2</td><td>3</td><td>6.80</td></tr> <tr><td>10</td><td>1.50</td><td>100</td><td>20.0</td><td>33</td><td>10.0</td><td>8.0</td><td>3</td><td>8.50</td></tr> </tbody> </table> | | | | | | | | | | $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | 3 | 0.50 | 56 | 12.0 | | 3.5 | 2.7 | 3 | 2.50 | 4 | 0.70 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.30 | 5 | 0.80 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.20 | 6 | 1.00 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.00 | 8 | 1.25 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.80 | 10 | 1.50 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.50 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ID</th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr><td>147981</td><td>147993</td><td>148001</td><td>148000</td></tr> <tr><td>147982</td><td>147994</td><td>148003</td><td>148002</td></tr> <tr><td>147983</td><td>147995</td><td>148007</td><td>148006</td></tr> <tr><td>147984</td><td>147996</td><td>148011</td><td>148010</td></tr> <tr><td>147985</td><td>147997</td><td>148020</td><td>148018</td></tr> <tr><td>147986</td><td>147998</td><td>148027</td><td>148025</td></tr> </tbody> </table> | | | | | | | | | | ID | ID | ID | ID | 147981 | 147993 | 148001 | 148000 | 147982 | 147994 | 148003 | 148002 | 147983 | 147995 | 148007 | 148006 | 147984 | 147996 | 148011 | 148010 | 147985 | 147997 | 148020 | 148018 | 147986 | 147998 | 148027 | 148025 |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 0.50 | 56 | 12.0 | | 3.5 | 2.7 | 3 | 2.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 0.70 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 0.80 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 1.00 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 1.25 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 1.50 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ID | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147981 | 147993 | 148001 | 148000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147982 | 147994 | 148003 | 148002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147983 | 147995 | 148007 | 148006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147984 | 147996 | 148011 | 148010 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147985 | 147997 | 148020 | 148018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147986 | 147998 | 148027 | 148025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

aero

SA420-4

SA450-3

TL420VS-4

TL451VS-3

SA420-4



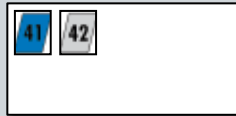
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TL420VS-4



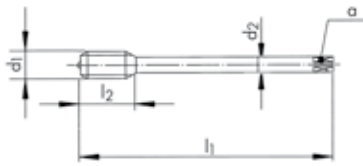
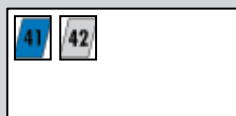
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TL451VS-3



VS



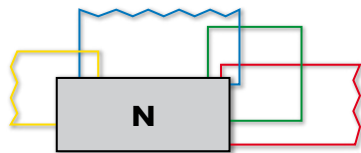
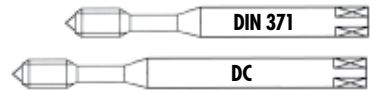
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|------------------------|---------|-------------|-------------|-------------|----------------|---|-------|
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 4 | 10.20 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 4 | 12.00 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 4 | 14.00 |

| ID | ID | ID | ID |
|----------|----------|--------|--------|
| 148096 | 152189 | 152192 | 152195 |
| * 152187 | | | |
| * 152188 | * 152191 | | 152197 |

| 6HX | 6HX | 6HX | 6HX |
|-----|-----|-----|-----|
|-----|-----|-----|-----|

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|------------------------|---------|-------------|-------------|-------------|----------------|---|-------|
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 4 | 10.20 |
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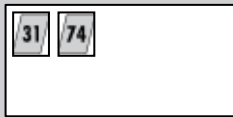
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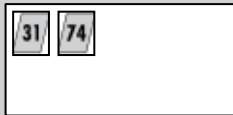
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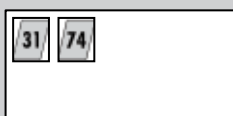
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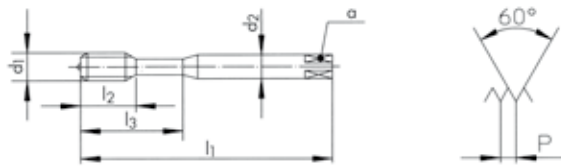
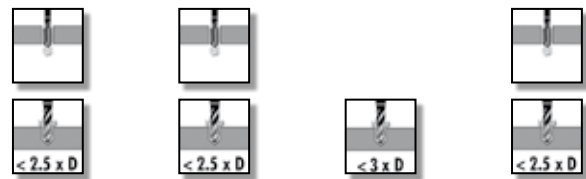
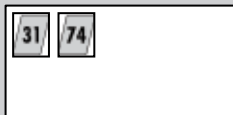
GG350TC-3



GG353TC-3



GG550NV-3



| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | α | | |
|-------------------|------|-------|-------|-------|-------|----------|---|--------------------------|
| M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ |
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.50 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 4 | 6.80 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 4 | 8.50 |

ID ID

| | |
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| 101172 | 101178 |
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| 101174 | 101180 |
| 101175 | 101181 |
| 101076 | 101182 |
| 101171 | 101177 |

| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 h6 | α | | |
|-------------------|------|-------|-------|-------|----------|----------|---|--------------------------|
| M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 4 | 6.80 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 4 | 8.50 |

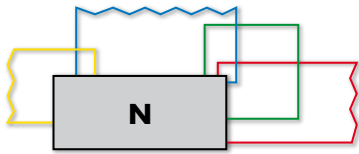
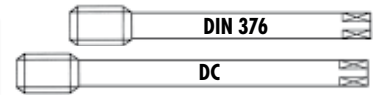
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|-------------------|------|-------|-------|-------|-------|----------|---|--------------------------|
| M | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ |
| 4 | 0.70 | 112 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 125 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
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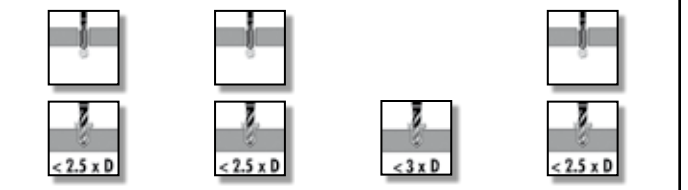
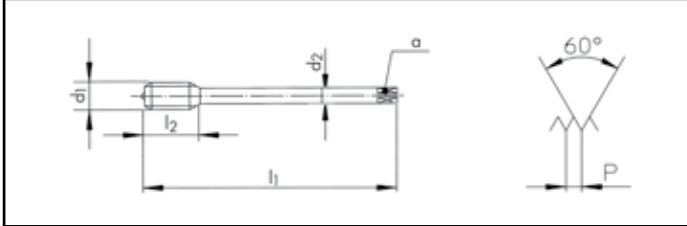
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| GG450TC-3 | | | | |
| GG453TC-3 | | | | |
| GG650NV-3 | | | | |

| GG450NV-3 | GG450TC-3 | GG453TC-3 | GG650NV-3 |
|-----------|-----------|-----------|-----------|
|-----------|-----------|-----------|-----------|



| | | | |
|---------|---------|---------|---------|
| | | | |
| 2.5 x P | 2.5 x P | 2.5 x P | 2.5 x P |
| 6HX | 6HX | 6HX | 6HX |

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|------------------------|---------|-------------|-------------|-------------|----------------|---|-------|
| 8 | 1.25 | 90 | 20.0 | 6.0 | 4.9 | 4 | 6.80 |
| 10 | 1.50 | 100 | 22.0 | 7.0 | 5.5 | 4 | 8.50 |
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 4 | 10.20 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 4 | 12.00 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 4 | 14.00 |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 4 | 17.50 |
| 24 | 3.00 | 160 | 39.0 | 18.0 | 14.5 | 4 | 21.00 |

| ID | ID |
|--------|--------|
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| 101184 | 101190 |
| 101185 | 101191 |
| 101186 | 101192 |
| 101187 | 101193 |
| 101188 | |

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 h6 mm | α mm | | |
|------------------------|---------|-------------|-------------|----------------|----------------|---|-------|
| 12 | 1.75 | 110 | 24.0 | *10.0 | *8.0 | 4 | 10.20 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 4 | 14.00 |

* Norme DC / * DC Norm / * Norma DC

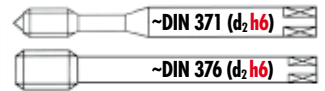
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| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|------------------------|---------|-------------|-------------|-------------|----------------|---|-------|
| 8 | 1.25 | 140 | 20.0 | 6.0 | 4.9 | 4 | 6.80 |
| 10 | 1.50 | 160 | 22.0 | 7.0 | 5.5 | 4 | 8.50 |
| 12 | 1.75 | 180 | 24.0 | 9.0 | 7.0 | 4 | 10.20 |
| 16 | 2.00 | 200 | 30.0 | 12.0 | 9.0 | 4 | 14.00 |
| 20 | 2.50 | 224 | 36.0 | 16.0 | 12.0 | 4 | 17.50 |

| ID |
|--------|
| 101203 |
| 101199 |
| 101200 |
| 101201 |
| 101202 |



Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para rosado sincronizado



RTS Rigid Tapping Synchro

RTS320VS-4



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 31 |
| 32 | 61 | 63 | 72 |
| 73 | 74 | | |

RTS420VS-4



RTS323VS-4



| | | | |
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| 73 | 74 | | |

RTS423VS-4

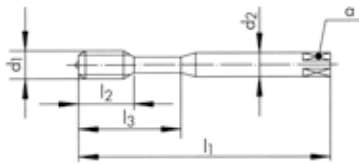


RTS320VS-4

RTS420VS-4

RTS323VS-4

RTS423VS-4



| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h ₆ mm | a mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------------------|---------|---|-------|
| *2 | 0.40 | 45 | 8.0 | | 2.8(h9) | 2.1 | 2 | 1.60 |
| 2.5 | 0.45 | 50 | 10.0 | | 2.8(h9) | 2.1 | 3 | 2.05 |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5(h9) | 2.7 | 3 | 2.50 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5(h9) | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 10.20 |
| 14 | 2.00 | 110 | 14.0 | | *12.0 | *9.0 | 3 | 12.00 |
| 16 | 2.00 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 |
| 20 | 2.50 | 140 | 24.0 | | 16.0 | 12.0 | 4 | 17.50 |
| 24 | 3.00 | 160 | 27.0 | | 16.0 | 12.0 | 4 | 21.00 |

ID

ID

ID

ID

143532

143534

150601

150603

150605

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* Norme DC / * DC Norm / * Norma DC

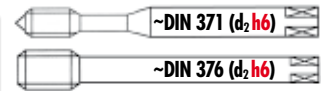
* RTS320VS-3



sur demande
auf Anfrage
on request
su richiesta
sobre pedido



Uniquement pour taraudage synchro
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado



RTS Rigid Tapping Synchro

RTS362VS-3



RTS462VS-3



RTS365VS-3



RTS465VS-3

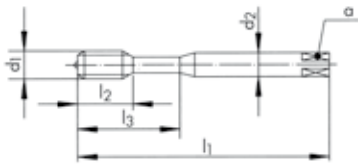


RTS362VS-3

RTS462VS-3

RTS365VS-3

RTS465VS-3



6HX

6HX

6HX

6HX

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | α mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| *2 | 0.40 | 45 | 7.0 | | 2.8 (h9) | 2.1 | 3 | 1.60 |
| *2.5 | 0.45 | 50 | 9.0 | | 2.8 (h9) | 2.1 | 3 | 2.05 |
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 (h9) | 2.7 | 3 | 2.50 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 (h9) | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 10.20 |
| 14 | 2.00 | 110 | 14.0 | | *12.0 | *9.0 | 3 | 12.00 |
| 16 | 2.00 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 |
| 20 | 2.50 | 140 | 24.0 | | 16.0 | 12.0 | 4 | 17.50 |
| 24 | 3.00 | 160 | 27.0 | | 16.0 | 12.0 | 4 | 21.00 |

* Norme DC / * DC Norm / * Norma DC

* RTS360VS-3



sur demande
auf Anfrage
on request
su richiesta
sobre pedido



Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado



RTS Rigid Tapping Synchro

RTS362VS-5



VS



RTS365VS-5



VS



RTS362VS-3



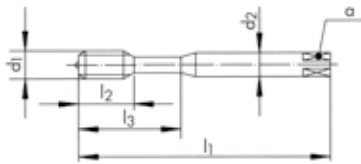
VS



RTS362VS-5

RTS365VS-5

RTS362VS-3



| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 (h9) | 2.7 | 3 | 2.50 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 (h9) | 3.4 | 3 | 3.30 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |

ID

ID

157648

157650

157652

162791

158074

151803

158076

157821

153286

157823

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | | 6H + mm |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|--------------|
| 3 | 0.50 | 56 | 5.5 | 18 | 3.5 (h9) | 2.7 | 3 | 2.50 | 162797 0.020 |
| 4 | 0.70 | 63 | 7.5 | 21 | 4.5 (h9) | 3.4 | 3 | 3.35 | 162798 0.022 |
| 5 | 0.80 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.25 | 162799 0.024 |
| 6 | 1.00 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 | 162800 0.026 |
| 8 | 1.25 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 | 162801 0.028 |
| 10 | 1.50 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 162802 0.032 |

ID

6H

162797 0.020

162798 0.022

162799 0.024

162800 0.026

162801 0.028

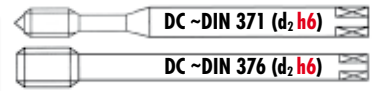
162802 0.032



sur demande
auf Anfrage
on request
su richiesta
sobre pedido



Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado



RTS Rigid Tapping Synchro

RTS523VS-4



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 31 |
| 32 | 61 | 63 | 72 |
| 73 | 74 | | |

RTS623VS-4



RTS565VS-3

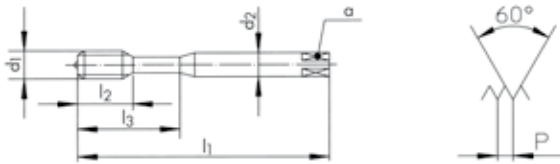


| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 31 |
| 32 | 61 | 63 | 72 |
| 73 | 74 | | |

RTS665VS-3



RTS523VS-4 RTS623VS-4 RTS565VS-3 RTS665VS-3



| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| 5 | 0.80 | 125 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 6 | 1.00 | 125 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 140 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 160 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 180 | 14.0 | | *10.0 | *8.0 | 3 | 10.20 |
| 16 | 2.00 | 200 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 |

* Norme DC / * DC Norm / * Norma DC

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| 6 | 1.00 | 125 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 140 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 160 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 180 | 14.0 | | *10.0 | *8.0 | 3 | 10.20 |
| 16 | 2.00 | 200 | 18.0 | | 12.0 | 9.0 | 3 | 14.00 |

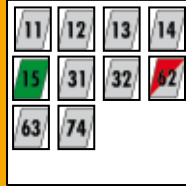
* Norme DC / * DC Norm / * Norma DC



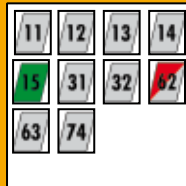
sur demande
auf Anfrage
on request
su richiesta
sobre pedido

K

K313TC-3



K413TC-3



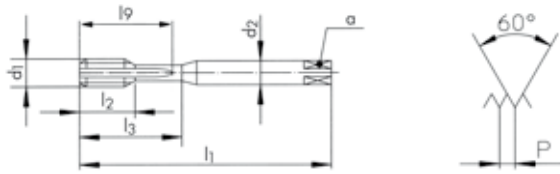
K313TC-3

K413TC-3



6HX

6HX



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | l_9 mm | d_2 mm | a mm | | |
|------------------------|---------|-------------|-------------|-------------|-------------|-------------|-----------|---|-------|
| 6 | 1.00 | 80 | 17.0 | 30 | 28.0 | 6.0 | 4.9 | 3 | 5.00 |
| 8 | 1.25 | 90 | 20.0 | 35 | 33.0 | 8.0 | 6.2 | 3 | 6.80 |
| 10 | 1.50 | 100 | 22.0 | 39 | 37.0 | 10.0 | 8.0 | 3 | 8.50 |
| 12 | 1.75 | 110 | 24.0 | 42.0 | 42.0 | 9.0 | 7.0 | 3 | 10.20 |
| 14 | 2.00 | 110 | 28.0 | 49.0 | 49.0 | 11.0 | 9.0 | 3 | 12.00 |
| 16 | 2.00 | 110 | 30.0 | 56.0 | 56.0 | 12.0 | 9.0 | 4 | 14.00 |
| 20 | 2.50 | 140 | 36.0 | 70.0 | 70.0 | 16.0 | 12.0 | 5 | 17.50 |
| 24 | 3.00 | 160 | 39.0 | 84.0 | 84.0 | 18.0 | 14.5 | 5 | 21.00 |

ID

ID

170766

170769

170772

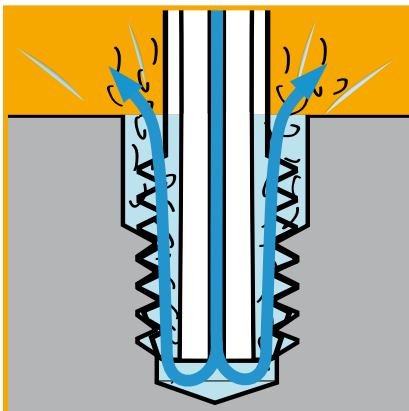
165838









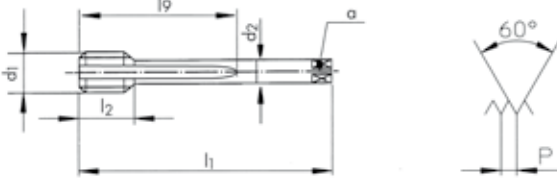






170778


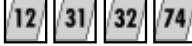



170783

170786

170775



| <div style="text-align: center; font-size: 2em; font-weight: bold; color: blue;">K</div> | | | | | | | | | K613TC-3 | | K613VS-3 | | | | | | | | | | | | | | | | | |
|--|---------|-------------|-------------|-------------|-------------|----------------|---|---|--|--------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| | | | | | | | | | <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>K613TC-3</p>    <p>>20 bar</p>  </div> <div style="width: 45%;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>31</td><td>32</td><td>62</td></tr> <tr><td>63</td><td>74</td><td></td><td></td></tr> </table> </div> </div> | | | | | | | | | 11 | 12 | 13 | 14 | 15 | 31 | 32 | 62 | 63 | 74 | |
| 11 | 12 | 13 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 31 | 32 | 62 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>K613VS-3</p>    <p>>20 bar</p>  </div> <div style="width: 45%;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>31</td><td>32</td><td>62</td></tr> <tr><td>63</td><td>74</td><td></td><td></td></tr> </table> </div> </div> | | | | | | | | | 11 | 12 | 13 | 14 | 15 | 31 | 32 | 62 | 63 | 74 | | | | | | | | | | |
| 11 | 12 | 13 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 31 | 32 | 62 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | |
| | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm |  |  | ID | ID | | | | | | | | | | | | | | | | | | |
| 6 | 1.00 | 110 | 17.0 | 30 | 4.5 | 3.4 | 3 | 5.00 | 170646 | 172699 | | | | | | | | | | | | | | | | | | |
| 8 | 1.25 | 110 | 20.0 | 40 | 6.0 | 4.9 | 3 | 6.80 | 170649 | 172700 | | | | | | | | | | | | | | | | | | |
| 10 | 1.50 | 125 | 22.0 | 50 | 7.0 | 5.5 | 3 | 8.50 | 170652 | 172701 | | | | | | | | | | | | | | | | | | |
| 12 | 1.75 | 140 | 24.0 | 60 | 9.0 | 7.0 | 3 | 10.20 | 167982 | 172702 | | | | | | | | | | | | | | | | | | |
| 14 | 2.00 | 140 | 28.0 | 70 | 11.0 | 9.0 | 3 | 12.00 | 167983 | | | | | | | | | | | | | | | | | | | |
| 16 | 2.00 | 160 | 30.0 | 80 | 12.0 | 9.0 | 4 | 14.00 | 167984 | 170573 | | | | | | | | | | | | | | | | | | |
| 20 | 2.50 | 180 | 36.0 | 100 | 16.0 | 12.0 | 5 | 17.50 | 167985 | 170576 | | | | | | | | | | | | | | | | | | |
| 24 | 3.00 | 200 | 39.0 | 120 | 18.0 | 14.5 | 5 | 21.00 | 167986 | 172704 | | | | | | | | | | | | | | | | | | |
| 27 | 3.00 | 225 | 42.0 | 135 | 20.0 | 16.0 | 5 | 24.00 | 167987 | | | | | | | | | | | | | | | | | | | |
| 30 | 3.50 | 250 | 45.0 | 150 | 22.0 | 18.0 | 5 | 26.50 | 165542 | | | | | | | | | | | | | | | | | | | |
| 33 | 3.50 | 280 | 48.0 | 165 | 25.0 | 20.0 | 5 | 29.50 | 167988 | | | | | | | | | | | | | | | | | | | |
| 36 | 4.00 | 300 | 51.0 | 180 | 28.0 | 22.0 | 6 | 32.00 | 167989 | | | | | | | | | | | | | | | | | | | |
| 39 | 4.00 | 300 | 55.0 | 195 | 32.0 | 24.0 | 6 | 35.00 | 167990 | | | | | | | | | | | | | | | | | | | |
| 42 | 4.50 | 355 | 55.0 | 210 | 32.0 | 24.0 | 6 | 37.50 | 167999 | | | | | | | | | | | | | | | | | | | |

| Vc (m/min) | | | | |
|---|----------|-----------|-----------|-----------|
| | M6 - M10 | M12 - M16 | M20 - M30 | M33 - M42 |
|  | 32 | 28 | 22 | 18 |
|  | 30 | 25 | 20 | 15 |
|  | 24 | 20 | 16 | 12 |
|  | 15 | 12 | 8 | 6 |
|  | 35 | 30 | 25 | 20 |

FS FORMING

FS380VS-5



FS380VS-3

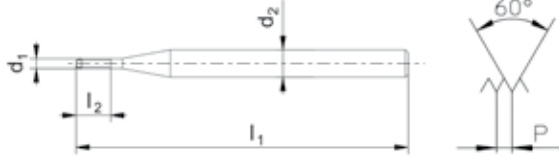


FS380VS-5

FS380VS-3

FS380VS-3

FS380VS-3



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | a mm | 4HX Tol. → ← 6HX | ID | ID | ID | ID | 6H + mm |
|------------------------|---------|-------------|-------------|-------------|-----------|---------------------|--------|--------|--------|----|--------------|
| 1 | 0.25 | 40 | 3.0 | 2.5 | | 0.88 +0.02 | 157171 | 173452 | | | |
| 1.2 | 0.25 | 40 | 3.6 | 2.5 | | 1.08 +0.02 | 157172 | 173455 | | | |
| 1.4 | 0.30 | 40 | 4.2 | 2.5 | | 1.25 +0.02 | 157173 | 173458 | | | |
| 1.6 | 0.35 | 40 | 4.8 | 2.5 | | 1.45 +0.02 | 157174 | 169779 | | | |
| 1.7 | 0.35 | 40 | 5.1 | 2.5 | | 1.55 +0.02 | | 169782 | | | |
| 1.8 | 0.35 | 40 | 5.4 | 2.5 | | 1.65 +0.02 | 157175 | 169785 | | | |
| 2 | 0.40 | 45 | 8.0 | 2.8 | 2.1 | 1.80 +0.02 | | | 157176 | | 157180 0.019 |
| 2.5 | 0.45 | 50 | 10.0 | 2.8 | 2.1 | 2.30 +0.02 | | | 157178 | | 157181 0.020 |
| 2.6 | 0.45 | 50 | 10.0 | 2.8 | 2.1 | 2.40 +0.02 | | | 157179 | | |

≤ M1.5 4HX

FS FORMING

FS380DL-5



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |
| 71 | 72 | 73 | |

FS380DL-3

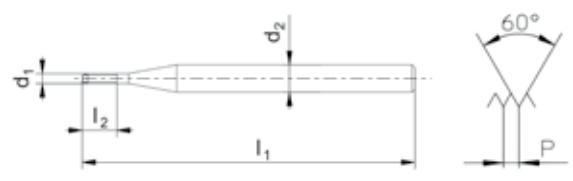


| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |
| 71 | 72 | 73 | |

FS380DL-5 FS380DL-3 FS380DL-3 FS380DL-3



NEW NEW NEW NEW



6HX 6HX 6HX 6GX

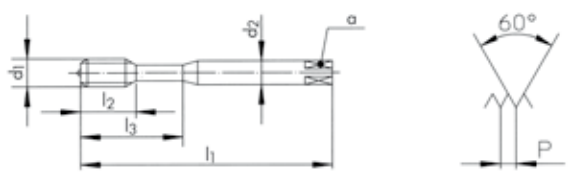
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | 4HX Tol. 6HX |
|------------------------|---------|-------------|-------------|-------------|----------------|-----------------|
| 1 | 0.25 | 40 | 3.0 | 2.5 | | 0.88 +0.02 |
| 1.2 | 0.25 | 40 | 3.6 | 2.5 | | 1.08 +0.02 |
| 1.4 | 0.30 | 40 | 4.2 | 2.5 | | 1.25 +0.02 |
| 1.6 | 0.35 | 40 | 4.8 | 2.5 | | 1.45 +0.02 |
| 1.7 | 0.35 | 40 | 5.1 | 2.5 | | 1.55 +0.02 |
| 1.8 | 0.35 | 40 | 5.4 | 2.5 | | 1.65 +0.02 |
| 2 | 0.40 | 45 | 8.0 | 2.8 | 2.1 | 1.80 +0.02 |
| 2.5 | 0.45 | 50 | 10.0 | 2.8 | 2.1 | 2.30 +0.02 |
| 2.6 | 0.45 | 50 | 10.0 | 2.8 | 2.1 | 2.40 +0.02 |

| ID | ID | ID | ID | 6H + mm |
|--------|--------|--------|----|--------------|
| 172839 | 173461 | | | |
| 172840 | 173464 | | | |
| 172841 | 173467 | | | |
| 170585 | 170916 | | | |
| | 172843 | | | |
| 172842 | 172844 | | | |
| | | 158814 | | 172849 0.019 |
| | | 172845 | | 173246 0.020 |
| | | 172846 | | |

≤ M1.5 4HX

FPS FORMING

| | | | |
|------------|--|-----|----------------------------|
| FPS380CN-3 | | CrN | 63 71 72 73 |
| FPS381CN-3 | | CrN | 63 71 72 73 |
| FPS380VS-3 | | VS | 11 12 13 14 15 21 24 63 |
| FPS381VS-3 | | VS | 11 12 13 14 15 21 24 63 |



| | | | |
|---------|---------|---------|---------|
| | | | |
| 2.5 x P | 2.5 x P | 2.5 x P | 2.5 x P |
| 6HX | 6HX | 6HX | 6HX |

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | 6HX Tol. → ← |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-----------------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3.25 + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |

| ID | ID | ID | ID |
|--------|--------|--------|--------|
| 166613 | 166615 | 166614 | 166616 |
| 166619 | 166621 | 166620 | 166622 |
| 166626 | 166628 | 166627 | 166629 |
| 166634 | 166636 | 166635 | 166637 |
| 166643 | 166645 | 166644 | 166646 |
| 166653 | 166655 | 166654 | 166656 |
| 166663 | 166665 | 166664 | 166666 |

| | |
|-----|-----|
| 6GX | 6GX |
|-----|-----|

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | 6HX Tol. → ← |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-----------------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3.25 + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |

| ID 6H + mm | ID 6H + mm |
|---------------|---------------|
| 166697 0.020 | 166617 0.020 |
| 166687 0.021 | 166623 0.021 |
| 166688 0.022 | 166630 0.022 |
| 166689 0.024 | 166638 0.024 |
| 166686 0.026 | 166647 0.026 |
| 166740 0.028 | 166657 0.028 |
| 166739 0.032 | 166667 0.032 |

FPS FORMING

FPS481VS-3



FPS581VS-3



FPS681VS-3



FPS481VS-3



FPS581VS-3



NEW

FPS681VS-3



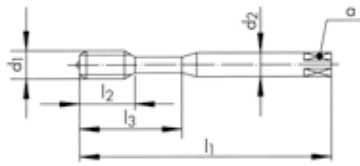
NEW



6HX

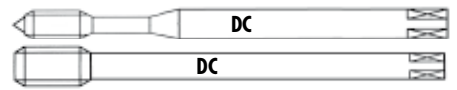
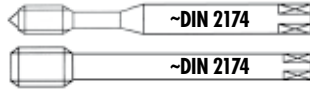
6HX

6HX



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | 6HX Tol. → ← | ID |
|------------------------|---------|-------------|-------------|-------------|----------------|-----------------|--------|
| 12 | 1.75 | 110 | 24.0 | 9.0 | 7.0 | 11.20 + 0.05 | 166673 |
| 14 | 2.00 | 110 | 28.0 | 11.0 | 9.0 | 13.10 + 0.05 | 166678 |
| 16 | 2.00 | 110 | 30.0 | 12.0 | 9.0 | 15.10 + 0.05 | 166683 |
| 20 | 2.50 | 140 | 36.0 | 16.0 | 12.0 | 18.85 + 0.05 | 168713 |

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | 6HX Tol. → ← | ID | ID |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-----------------|--------|--------|
| 3 | 0.50 | 100 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 | 172824 | |
| 4 | 0.70 | 125 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 | 172826 | |
| 5 | 0.80 | 140 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 | 172828 | |
| 6 | 1.00 | 160 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 | 172830 | |
| 8 | 1.25 | 180 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 | 172832 | |
| 10 | 1.50 | 200 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 | 172834 | |
| 12 | 1.75 | 224 | 24.0 | | 9.0 | 7.0 | 11.20 + 0.05 | | 172836 |



FPS FORMING

FPS384VS-3



FPS484VS-3



FPS584VS-3



FPS684VS-3



FPS384VS-3

FPS484VS-3

FPS584VS-3

FPS684VS-3

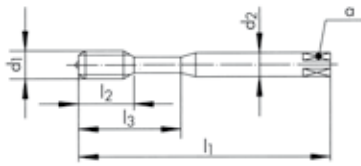


6HX

6HX

6HX

6HX



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | 6HX → ← | Tol. |
|------------------------|---------|-------------|-------------|-------------|-------------|-----------|------------|--------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 | + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 | + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 | + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 | + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 | + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 | + 0.05 |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 11.20 | + 0.05 |
| 14 | 2.00 | 110 | 28.0 | | 11.0 | 9.0 | 13.10 | + 0.05 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 15.10 | + 0.05 |

ID

ID

166737

166738

166640

166650

166660

166670

166675

166680

166685

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | 6HX → ← | Tol. |
|------------------------|---------|-------------|-------------|-------------|-------------|-----------|------------|--------|
| 3 | 0.50 | 100 | 12.0 | 18 | 3.5 | 2.7 | 2.80 | + 0.03 |
| 4 | 0.70 | 125 | 14.0 | 21 | 4.5 | 3.4 | 3.70 | + 0.03 |
| 5 | 0.80 | 140 | 15.0 | 25 | 6.0 | 4.9 | 4.65 | + 0.03 |
| 6 | 1.00 | 160 | 17.0 | 30 | 6.0 | 4.9 | 5.55 | + 0.05 |
| 8 | 1.25 | 180 | 20.0 | 35 | 8.0 | 6.2 | 7.40 | + 0.05 |
| 10 | 1.50 | 200 | 22.0 | 39 | 10.0 | 8.0 | 9.30 | + 0.05 |
| 12 | 1.75 | 224 | 24.0 | | 9.0 | 7.0 | 11.20 | + 0.05 |

ID

ID

172763

172766

172769

172772

172775

172778

172781

FAS FORMING

FAS380VS-3



VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS381VS-3



VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS481VS-3



VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS380VS-3



FAS381VS-3



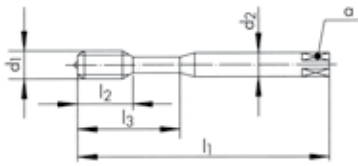
FAS481VS-3



6HX

6HX

6HX



| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | 6HX Tol. → ← |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|-----------------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3.25 + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 11.20 + 0.05 |
| 14 | 2.00 | 110 | 28.0 | | 11.0 | 9.0 | 13.10 + 0.05 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 15.10 + 0.05 |
| 20 | 2.50 | 140 | 36.0 | | 16.0 | 12.0 | 18.85 + 0.05 |

ID

ID

ID

170603

166612

170605

166618

170607

166624

170609

166632

170611

166641

170616

166651

170618

166661

166671

166676

166681

168711

6GX

6GX

| ∅ d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | 6HX Tol. → ← |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|-----------------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 3.5 | 0.60 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3.25 + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 11.20 + 0.05 |
| 14 | 2.00 | 110 | 28.0 | | 11.0 | 9.0 | 13.10 + 0.05 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 15.10 + 0.05 |

ID

6H

ID

6H

166703 0.020

* 166704 0.021

166705 0.022

166706 0.024

166707 0.026

166708 0.028

166709 0.032

166710 0.034

166711 0.038

166712 0.038

FAS FORMING

FAS384VS-3



VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS484VS-3

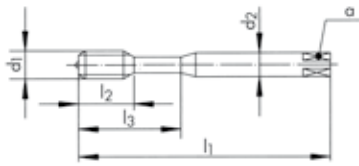


VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS384VS-3

FAS484VS-3



6HX

6HX

| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | 6HX Tol. → ← |
|------------------------|---------|-------------|-------------|-------------|-------------|-----------|-----------------|
| 3 | 0.50 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 4 | 0.70 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |
| 12 | 1.75 | 110 | 24.0 | | 9.0 | 7.0 | 11.20 + 0.05 |
| 14 | 2.00 | 110 | 28.0 | | 11.0 | 9.0 | 13.10 + 0.05 |
| 16 | 2.00 | 110 | 30.0 | | 12.0 | 9.0 | 15.10 + 0.05 |

ID

ID

166741

166742

166690

166691

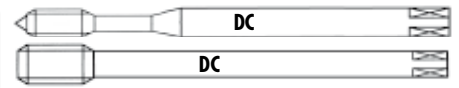
166692

166693

166694

* 166695

166696



FAS FORMING

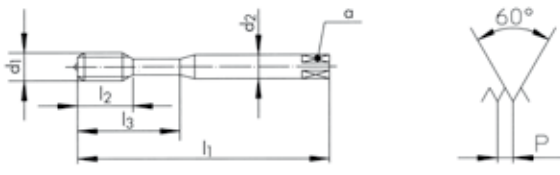
FAS581VS-3 **EL VS**

FAS681VS-3 **EL VS**

FAS584VS-3 **EL VS**

FAS684VS-3 **EL VS**

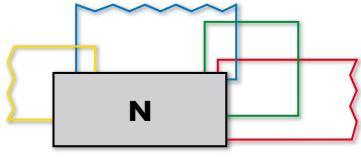












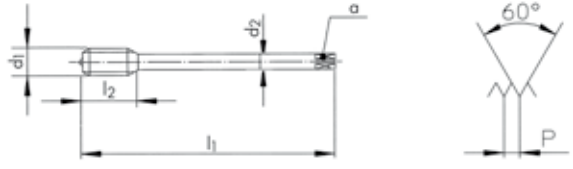







| FAS581VS-3 | FAS681VS-3 | FAS584VS-3 | FAS684VS-3 |
|------------|------------|------------|------------|
|------------|------------|------------|------------|



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | 6HX Tol. → ← |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-----------------|
| 3 | 0.50 | 100 | 12.0 | 18 | 3.5 | 2.7 | 2.80 + 0.03 |
| 4 | 0.70 | 125 | 14.0 | 21 | 4.5 | 3.4 | 3.70 + 0.03 |
| 5 | 0.80 | 140 | 15.0 | 25 | 6.0 | 4.9 | 4.65 + 0.03 |
| 6 | 1.00 | 160 | 17.0 | 30 | 6.0 | 4.9 | 5.55 + 0.05 |
| 8 | 1.25 | 180 | 20.0 | 35 | 8.0 | 6.2 | 7.40 + 0.05 |
| 10 | 1.50 | 200 | 22.0 | 39 | 10.0 | 8.0 | 9.30 + 0.05 |
| 12 | 1.75 | 224 | 24.0 | | 9.0 | 7.0 | 11.20 + 0.05 |

| ID | ID | ID | ID |
|--------|--------|--------|--------|
| 172784 | | 172805 | |
| 172787 | | 172808 | |
| 172790 | | 172811 | |
| 172793 | | 172814 | |
| 172796 | | 172817 | |
| 172799 | | 172820 | |
| | 172802 | | 172822 |

| | | | | | | | | | N1110-1 | N1110-2 | N1110-3 | N1110-S |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|------|---------|---------|-------------|-------------|
| | | | | | | | | | | | | |
| N1110-1 | | | | | | | | | | | | |
| N1110-2 | | | | | | | | | | | | |
| N1110-3 | | | | | | | | | | | | |
| N1110-S | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | ISO 2 6H | ISO 2 6H |
| Ø d ₁ M | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| 1 | 0.25 | 40 | 5.5 | | 2.50 | 2.10 | 3 | 0.75 | 102744 | 102844 | 102917 | 111015 |
| 1.2 | 0.25 | 40 | 5.5 | | 2.50 | 2.10 | 3 | 0.95 | 102746 | 102846 | 102919 | 111017 |
| 1.4 | 0.30 | 40 | 7.0 | | 2.50 | 2.10 | 3 | 1.10 | 102747 | 102847 | 102920 | 111018 |
| 1.6 | 0.35 | 40 | 8.0 | | 2.50 | 2.10 | 3 | 1.25 | 102749 | 102849 | 102922 | 111020 |
| 1.7 | 0.35 | 40 | 8.0 | | 2.50 | 2.10 | 3 | 1.35 | 102750 | 102850 | 102923 | 111021 |
| 1.8 | 0.35 | 40 | 8.0 | | 2.50 | 2.10 | 3 | 1.45 | 102751 | 102851 | 102924 | 111022 |
| 2 | 0.40 | 45 | 8.0 | | 2.80 | 2.10 | 3 | 1.60 | 102759 | 102854 | 102934 | 111028 |
| 2.2 | 0.45 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 1.75 | 102761 | 102856 | 102937 | 111030 |
| 2.5 | 0.45 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 2.05 | 102763 | 102858 | 102941 | 111032 |
| 2.6 | 0.45 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 2.15 | 102765 | 102860 | 102944 | 111034 |
| 3 | 0.50 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.50 | 102766 | 102861 | 102947 | 111036 |
| 3.5 | 0.60 | 50 | 13.0 | 20 | 3.55 | 2.80 | 3 | 2.90 | 102769 | 102864 | 102950 | 111038 |
| 4 | 0.70 | 53 | 13.0 | 21 | 4.00 | 3.15 | 3 | 3.30 | 102771 | 102866 | 102956 | 111042 |
| 4.5 | 0.75 | 53 | 13.0 | 21 | 4.50 | 3.55 | 3 | 3.75 | 102775 | 102869 | 102959 | 111044 |
| 5 | 0.80 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.20 | 102776 | 102870 | 102965 | 111047 |
| 6 | 1.00 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.00 | 102781 | 102874 | 102973 | 111053 |
| 7 | 1.00 | 66 | 19.0 | 30 | 7.10 | 5.60 | 3 | 6.00 | 102786 | 102876 | 102978 | 111055 |
| 8 | 1.25 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 6.80 | 102788 | 102878 | 102986 | 111059 |
| 9 | 1.25 | 72 | 22.0 | 36 | 9.00 | 7.10 | 3 | 7.80 | 102792 | 102880 | 102991 | 111061 |
| 10 | 1.50 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 8.50 | 102752 | 102852 | 102931 | 111026 |
| | | | | | | | | | | | | |























|  | | | | | | | | | N1210-1 | N1210-2 | N1210-3 | N1210-S |
|---|---------|-------------|-------------|-------------|----------------|---|---|--------|--|---------|---------|---------|
| | | | | | | | | |     | | | |
|  | | | | | | | | |  | | | |
|    | | | | | | | | |    | | | |
|  | | | | | | | | |    | | | |
|  | | | | | | | | |  | | | |
| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | α mm |  |  | ID | ID | ID | ID | |
| 11 | 1.50 | 85 | 22.0 | 8.0 | 6.3 | 3 | 9.50 | 103302 | 103427 | 103489 | 111168 | |
| 12 | 1.75 | 89 | 24.0 | 9.0 | 7.1 | 3 | 10.20 | 103303 | 103428 | 103499 | 111173 | |
| 14 | 2.00 | 95 | 24.0 | 11.2 | 9.0 | 3 | 12.00 | 103310 | 103430 | 103510 | 111179 | |
| 16 | 2.00 | 102 | 32.0 | 12.5 | 10.0 | 3 | 14.00 | 103319 | 103432 | 103522 | 111185 | |
| 18 | 2.50 | 112 | 30.0 | 14.0 | 11.2 | 3 | 15.50 | 103324 | 103434 | 103534 | 111191 | |
| 20 | 2.50 | 112 | 37.0 | 14.0 | 11.2 | 3 | 17.50 | 103330 | 103436 | 103543 | 111196 | |
| 22 | 2.50 | 115 | 32.0 | 16.0 | 12.5 | 3 | 19.50 | 103337 | 103438 | 103550 | 125567 | |
| 24 | 3.00 | 130 | 45.0 | 18.0 | 14.0 | 4 | 21.00 | 103341 | 103440 | 103557 | 111204 | |
| 27 | 3.00 | 135 | 45.0 | 20.0 | 16.0 | 4 | 24.00 | 103347 | 103442 | 103568 | 111211 | |
| 30 | 3.50 | 138 | 48.0 | 20.0 | 16.0 | 4 | 26.50 | 103353 | 103444 | 103579 | 111216 | |
| 33 | 3.50 | 151 | 51.0 | 22.4 | 18.0 | 4 | 29.50 | 103357 | 103446 | 103581 | 111218 | |
| 36 | 4.00 | 162 | 57.0 | 25.0 | 20.0 | 4 | 32.00 | 103359 | 103448 | 103583 | 111220 | |

| | | | | | | | | | | N1120-4 | N1220-4 | N1160-3 | N1260-3 |
|-------------------|------|-------|-------|-------|-------|-------|---|-------|----------|------------|------------|-----------|-----------|
| N1120-4 | | | | | | | | | | | | | |
| N1220-4 | | | | | | | | | | | | | |
| N1160-3 | | | | | | | | | | NEW | NEW | | |
| N1260-3 | | | | | | | | | | | | < 2.5 x D | < 2.5 x D |
| | | | | | | | | | | | | | |
| | | | | | | | | | | ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | ID | ID | | | |
| M | mm | mm | mm | mm | mm | mm | | | | | | | |
| 3 | 0.50 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.50 | 103068 | | | | |
| 4 | 0.70 | 53 | 13.0 | 21 | 4.00 | 3.15 | 3 | 3.30 | 103075 | | | | |
| 4.5 | 0.75 | 53 | 13.0 | 21 | 4.50 | 3.55 | 3 | 3.75 | * 103078 | | | | |
| 5 | 0.80 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.20 | 103082 | | | | |
| 6 | 1.00 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.00 | 103090 | | | | |
| 8 | 1.25 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 6.80 | 103102 | | | | |
| 10 | 1.50 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 8.50 | 103060 | | | | |
| 11 | 1.50 | 85 | 22.0 | | 8.00 | 6.30 | 3 | 9.50 | | * 103661 | | | |
| 12 | 1.75 | 89 | 24.0 | | 9.00 | 7.10 | 3 | 10.20 | | 103670 | | | |
| 14 | 2.00 | 95 | 24.0 | | 11.20 | 9.00 | 3 | 12.00 | | 103680 | | | |
| 16 | 2.00 | 102 | 32.0 | | 12.50 | 10.00 | 3 | 14.00 | | 103690 | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | a | | | ID | ID | | | |
| M | mm | mm | mm | mm | mm | mm | | | | | | | |
| 3 | 0.50 | 48 | 5.5 | 18 | 3.15 | 2.50 | 3 | 2.50 | | 103177 | | | |
| 4 | 0.70 | 53 | 7.5 | 21 | 4.00 | 3.15 | 3 | 3.30 | | 103178 | | | |
| 5 | 0.80 | 58 | 9.0 | 25 | 5.00 | 4.00 | 3 | 4.20 | | 103179 | | | |
| 6 | 1.00 | 66 | 11.0 | 30 | 6.30 | 5.00 | 3 | 5.00 | | 103180 | | | |
| 8 | 1.25 | 72 | 12.5 | 35 | 8.00 | 6.30 | 3 | 6.80 | | 103181 | | | |
| 10 | 1.50 | 80 | 14.0 | 39 | 10.00 | 8.00 | 3 | 8.50 | | 103174 | | | |
| 12 | 1.75 | 89 | 14.0 | | 9.00 | 7.10 | 3 | 10.20 | | | | 103781 | |
| 16 | 2.00 | 102 | 18.0 | | 12.50 | 10.00 | 3 | 14.00 | | | | 103782 | |





















































285



| | | N | | | | | | |
|---|---|---|---|---|--|--|--|--|
| Merkmale Characteristics | |  |  |  |  V |  TiN |  R15 |  R40 |
| | | |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
| |  | | N320-3 | N320-4 | | | N350-3 | N360-3 |
| <i>DIN lang</i> DIN long | DIN 371 | | 84 | 84 | | | 84 | 91 |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | | | 84 | | | 84 | 91 |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | 84 | | | | | |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | | | | 91 |
| | | | | | | | | |
| |  | N410-3 | N420-3 | N420-4 | N420V-4 | N420TN-4 | N450-3 | N460-3 |
| <i>DIN lang</i> DIN long | DIN 374 | 85/90 | 88/89 | 85/90 | 85/88 | 85/86 | 84 | 92/93 |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | 85/90 | | 85/90 | 85/88 | 85/86 | 84 | 92/93 |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | | |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | | | | 92 |
| <i>Toleranz</i> Tolerance | 7H (EN 60423) | | 88/89 | | | | | |
| <i>LH Linksgewinde</i> LH Left hand thread | ISO 2 6H | 90 | | 90 | | | | |

| N | | | | | Z | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  NEW |  |  |
|  |  |  |  |  |  |  |  |  |
| N360V-3 | N360TN-3 | N1110-1 | N1110-3 | N1110-S | Z320V-3 Z320V-4 | Z320VS-4 | Z360V-3 | Z370VS-3 |
| 91 | 91 | | | | 94 | 94 | 94 | 94 |
| | | 106 | 106 | 106 | | | | |
| 91 | 91 | | 106 | 106 | 94 | 94 | 94 | 94 |
| | | | | | 94 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| N460V-3 | N460TN-3 | N1210-1 | N1210-3 | N1210-S | Z420V-4 | Z420VS-4 | Z460V-3 | Z470VS-3 |
| 92/93 | 92 | | | | 95 | 95 | 95 | 95 |
| | | 107/108 | 107/108 | 107/108 | | | | |
| 92/93 | 92 | | 107/108 | 107/108 | 95 | 95 | 95 | 95 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | H | | S | | SA | | |
|---|---|---|--|---|---|---|---|
| Merkmale Characteristics |  |  |  VS |  VS |  |  |  |
| |  |  |  |  |  |  |  |
| Lochart Hole type |  |  |  |  |  |  |  |
|  | H320-4 | H350-3 | S320VS-4 | S360VS-3 | SA320-4 | SA350-3 | SA390-3 |
| <i>DIN lang</i> DIN long | DIN 371 | | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | |
| <i>Übermass</i> Oversize | ISO 3 6G | | | | | | |
|  | H420-4 | H450-3 | S420VS-4 | S460VS-3 | SA420-4 | SA450-3 | |
| <i>DIN lang</i> DIN long | DIN 374 | | | | | | |
| <i>ISO kurz</i> ISO short | ISO 529 | | | | | | |
| <i>DIN lang</i> DIN long | ~DIN 2174 | | | | | | |
| <i>Toleranz</i> Tolerance | ISO 2 6H | | | | | | |
| <i>Feintoleranz</i> Fine tolerance | ISO 1 4H | | | | | | |

| TL | | K | RTS | | FPS | | FAS | |
|---|---|---|---|---|---|---|---|--|
|  |  |  TiCN |  |  |  |  |  | |
| VS |  VS |  | VS | VS |  CrN | VS | VS | |
|  |  |  NEW |  |  |  |  |  | |
|  |  |  |  |  |  |  |  | |
| TL320VS-4 | TL351VS-3 | K313TC-3 | RTS320VS-4 | RTS362VS-3 | FPS381CN-3 | FPS381VS-3 | FAS381VS-3 | |
| 100 | 100 | 103 | 102 | 102 | | | | |
| | | | | | 104 | 104 | 105 | |
| 100 | 100 | 103 | 102 | 102 | 104 | 104 | 105 | |
| 100 | 100 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| TL420VS-4 | TL451VS-3 | K413TC-3 | RTS420VS-4 | RTS462VS-3 | FPS481CN-3 | FPS481VS-3 | FAS481VS-3 | |
| 101 | 101 | 103 | 102 | 102 | | | | |
| | | | | | | 104 | 105 | |
| 101 | 101 | 103 | 102 | 102 | | 104 | 105 | |
| 101 | 101 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

MF ISO DIN 13

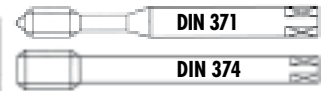
≤ Ø 2.8 > Ø 2.8

PM

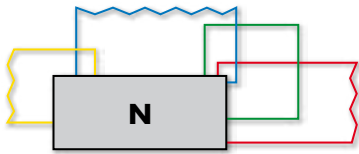
HSSE



HSSE



| | | | | | | | | | | N320-4 | | N350-3 | N450-3 | |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--------|--------|----------|--------|--------|--|
| | | | | | | | | | | | | | | |
| N320-4 | | | | | | | | | | | | | | |
| N350-3 | | | | | | | | | | | | | | |
| N450-3 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Ø d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | | ID | | | | | |
| *2 | 0.25 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 | 142689 | | | | | |
| 2.5 | 0.35 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.15 | 142691 | | | | | |
| 2.6 | 0.35 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.25 | 142692 | | | | | |
| 3 | 0.35 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.65 | 142693 | | | | | |
| 3.5 | 0.35 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 3.15 | 142694 | | | | | |
| Ø d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | | ID | | ID | | | |
| 4 | 0.50 | 63 | 14.0 | 21 | 4.5 | 3.4 | 2 | 3.50 | 101586 | | | | | |
| 5 | 0.50 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.50 | 101588 | | | | | |
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.25 | 101590 | | | | | |
| 8 | 1.00 | 90 | 20.0 | | 6.0 | 4.9 | 3 | 7.00 | | | 102326 | | | |
| 9 | 0.75 | 90 | 20.0 | | 7.0 | 5.5 | 3 | 8.25 | | | 102328 | | | |
| 10 | 1.00 | 100 | 22.0 | | 7.0 | 5.5 | 3 | 9.00 | | | 102313 | | | |
| 12 | 1.00 | 100 | 24.0 | | 9.0 | 7.0 | 3 | 11.00 | | | * 102315 | | | |
| 12 | 1.50 | 100 | 24.0 | | 9.0 | 7.0 | 3 | 10.50 | | | * 102316 | | | |
| 14 | 1.50 | 100 | 24.0 | | 11.0 | 9.0 | 3 | 12.50 | | | * 102318 | | | |
| 16 | 1.50 | 100 | 26.0 | | 12.0 | 9.0 | 3 | 14.50 | | | * 102320 | | | |
| 18 | 1.50 | 110 | 26.0 | | 14.0 | 11.0 | 4 | 16.50 | | | * 102322 | | | |
| 20 | 1.50 | 125 | 28.0 | | 16.0 | 12.0 | 4 | 18.50 | | | * 102323 | | | |
| * N320-3 | | | | | | | | | | P 0.25 | | | | |



| N410-3 | N420-4 | N420V-4 | N420TN-4 |
|--------|--------|---------|----------|
|--------|--------|---------|----------|

N410-3



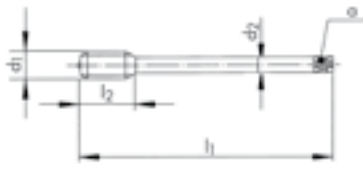
N420-4





N420V-4

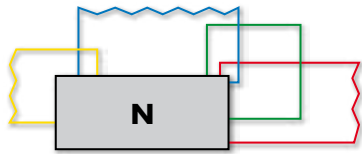










N420TN-4











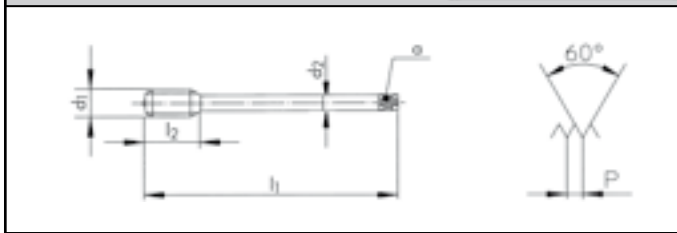
| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  |
|-------------------------|---------|-------------|-------------|-------------|-----------|---|---|
| 4 | 0.35 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.65 |
| 4 | 0.50 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.50 |
| 4.5 | 0.50 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.00 |
| 5 | 0.50 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.50 |
| 5 | 0.75 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.25 |
| 5.5 | 0.50 | 80 | 17.0 | 4.0 | 3.0 | 3 | 5.00 |
| 6 | 0.50 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.50 |
| 6 | 0.75 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.25 |
| 7 | 0.50 | 80 | 17.0 | 5.5 | 4.3 | 3 | 6.50 |
| 7 | 0.75 | 80 | 17.0 | 5.5 | 4.3 | 3 | 6.25 |
| 8 | 0.50 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.50 |
| 8 | 0.75 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.25 |
| 8 | 1.00 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.00 |
| 9 | 0.50 | 90 | 20.0 | 7.0 | 5.5 | 3 | 8.50 |
| 9 | 0.75 | 90 | 20.0 | 7.0 | 5.5 | 3 | 8.25 |
| 9 | 1.00 | 90 | 20.0 | 7.0 | 5.5 | 3 | 8.00 |
| 10 | 0.50 | 100 | 22.0 | 7.0 | 5.5 | 3 | 9.50 |
| 10 | 0.75 | 100 | 22.0 | 7.0 | 5.5 | 3 | 9.25 |
| 10 | 1.00 | 100 | 22.0 | 7.0 | 5.5 | 3 | 9.00 |
| 10 | 1.25 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.80 |





| ID | ID | ID | ID |
|--------|--------|--------|--------|
| | 142695 | | |
| 101923 | 102145 | 142715 | |
| | 102150 | | |
| 101941 | 102167 | 142716 | |
| | 102168 | | |
| | 142696 | | |
| 101951 | 102178 | 142717 | |
| 101952 | 102179 | 102281 | 102249 |
| | 102187 | | |
| 101954 | 102188 | | |
| 101955 | 102190 | 142718 | |
| 101956 | 102191 | 102283 | |
| 101957 | 102192 | 102284 | 102250 |
| | 142697 | | |
| | 102200 | | |
| | 102201 | 143935 | |
| | 142698 | | |
| 101863 | 102056 | | |
| 101864 | 102057 | 102262 | 102239 |
| 101865 | 102058 | 142719 | |






| | | |
|-----------------|--|---|
| N410-3 |  |  |
| N420-4 |  |  |
| N420V-4 |  V |  |
| N420TN-4 |  TiN |  |

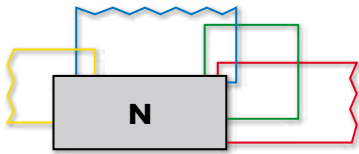
| N410-3 | N420-4 | N420V-4 | N420TN-4 |
|---|---|---|---|
|  |  |  |  |
|  |  |  |  |







| | | | |
|--|--|--|--|
|  |  |  |  |
| ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H |




| MF | ∅ d ₁ mm | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | ID | ID | ID | ID |
|----|------------------------|---------|----------------------|----------------------|----------------------|---------|---|---|--------|----------|--------|--------|
| 11 | 0.50 | 100 | 19.0 | 8.0 | 6.2 | 3 | | 10.50 | | 142699 | | |
| 11 | 0.75 | 100 | 19.0 | 8.0 | 6.2 | 3 | | 10.25 | | 142700 | | |
| 11 | 1.00 | 100 | 19.0 | 8.0 | 6.2 | 3 | | 10.00 | | 142701 | | |
| 11 | 1.25 | 100 | 19.0 | 8.0 | 6.2 | 3 | | 9.80 | | 142702 | | |
| 12 | 0.50 | 100 | 14.0 | 9.0 | 7.0 | 3 | | 11.50 | | 102066 | | |
| 12 | 0.75 | 100 | 24.0 | 9.0 | 7.0 | 3 | | 11.25 | | 142703 | | |
| 12 | 1.00 | 100 | 24.0 | 9.0 | 7.0 | 3 | | 11.00 | 101867 | 102067 | 142345 | 102241 |
| 12 | 1.25 | 100 | 24.0 | 9.0 | 7.0 | 3 | | 10.80 | 101868 | 102068 | 142721 | |
| 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 3 | | 10.50 | 101869 | 102069 | 102264 | 102242 |
| 13 | 1.00 | 100 | 21.0 | 11.0 | 9.0 | 3 | | 12.00 | 158401 | 142704 | | |
| 14 | 0.50 | 100 | 14.0 | 11.0 | 9.0 | 3 | | 13.50 | | 142705 | | |
| 14 | 0.75 | 100 | 24.0 | 11.0 | 9.0 | 3 | | 13.25 | | 142706 | | |
| 14 | 1.00 | 100 | 24.0 | 11.0 | 9.0 | 3 | | 13.00 | 101871 | 102077 | | |
| 14 | 1.25 | 100 | 24.0 | 11.0 | 9.0 | 3 | | 12.80 | 101872 | 102078 | | |
| 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 3 | | 12.50 | 101873 | 102079 | 102266 | 102244 |
| 15 | 1.00 | 100 | 26.0 | 12.0 | 9.0 | 3 | | 14.00 | 101875 | 102085 | | |
| 15 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 3 | | 13.50 | 101876 | 102086 | | |
| 16 | 0.75 | 100 | 26.0 | 12.0 | 9.0 | 3 | | 15.25 | | 142708 | | |
| 16 | 1.00 | 100 | 26.0 | 12.0 | 9.0 | *3 | | 15.00 | 101877 | 102087 | | |
| 16 | 1.25 | 100 | 26.0 | 12.0 | 9.0 | *3 | | 14.80 | 101878 | 102088 | | |
| 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | *3 | | 14.50 | 101879 | 102089 | 102268 | 102246 |
| 17 | 1.00 | 100 | 26.0 | 12.0 | 9.0 | 3 | | 16.00 | | 142709 | | |
| 17 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 3 | | 15.50 | | 142710 | | |
| 18 | 0.75 | 110 | 26.0 | 14.0 | 11.0 | 4 | | 17.25 | | 142711 | | |
| 18 | 1.00 | 110 | 26.0 | 14.0 | 11.0 | 4 | | 17.00 | 101881 | 102095 | | |
| 18 | 1.50 | 110 | 26.0 | 14.0 | 11.0 | 4 | | 16.50 | 101882 | 102096 | 102270 | |
| 18 | 2.00 | 125 | 33.0 | 14.0 | 11.0 | 3 | | 16.00 | | 142712 | | |
| 19 | 1.00 | 110 | 26.0 | 14.0 | 11.0 | 4 | | 18.00 | | * 142713 | | |

* N410-3 =  4

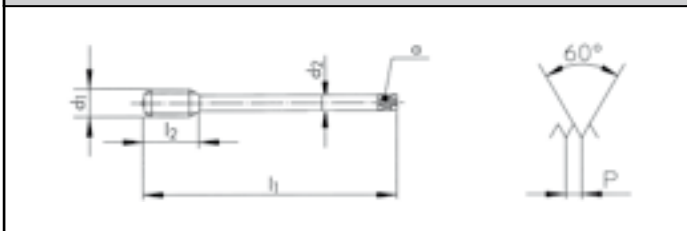
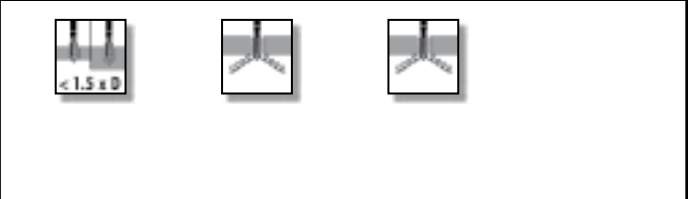





N410-3  



N420-4  

N420V-4   

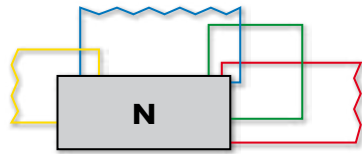
| N410-3 | N420-4 | N420V-4 | |
|--------|--------|---------|--|
|--------|--------|---------|--|



| | | |
|--|--|--|
|  2.5 x P |  4 x P |  4 x P |
| ISO 2 6H | ISO 2 6H | ISO 2 6H |

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | ID | ID | ID |
|-------------------------|---------|-------------|-------------|-------------|-----------|---|---|--------|--------|--------|
| 20 | 1.00 | 125 | 28.0 | 16.0 | 12.0 | 4 | 19.00 | | 102098 | |
| 20 | 1.50 | 125 | 28.0 | 16.0 | 12.0 | 4 | 18.50 | 101884 | 102099 | 102272 |
| 20 | 2.00 | 140 | 36.0 | 16.0 | 12.0 | 3 | 18.00 | 105130 | 102100 | |
| 22 | 1.00 | 125 | 28.0 | 18.0 | 14.5 | 4 | 21.00 | | 102104 | |
| 22 | 1.50 | 125 | 28.0 | 18.0 | 14.5 | 4 | 20.50 | 101886 | 102105 | 102274 |
| 22 | 2.00 | 140 | 36.0 | 18.0 | 14.5 | 3 | 20.00 | 101887 | 142714 | |
| 24 | 1.00 | 140 | 30.0 | 18.0 | 14.5 | 4 | 23.00 | | 102107 | |
| 24 | 1.50 | 140 | 30.0 | 18.0 | 14.5 | 4 | 22.50 | 101889 | 102108 | 102276 |
| 24 | 2.00 | 140 | 34.0 | 18.0 | 14.5 | 4 | 22.00 | 101890 | 102109 | 102277 |
| 25 | 1.00 | 140 | 30.0 | 18.0 | 14.5 | 4 | 24.00 | | 142722 | |
| 25 | 1.50 | 140 | 30.0 | 18.0 | 14.5 | 4 | 23.50 | 101892 | 102112 | |
| 25 | 2.00 | 140 | 34.0 | 18.0 | 14.5 | 4 | 23.00 | | 142723 | |
| 26 | 1.00 | 140 | 30.0 | 18.0 | 14.5 | 4 | 25.00 | | 102113 | |
| 26 | 1.50 | 140 | 30.0 | 18.0 | 14.5 | 4 | 24.50 | 101893 | 102114 | 145896 |
| 27 | 1.50 | 140 | 34.0 | 20.0 | 16.0 | 4 | 25.50 | | 102115 | |
| 27 | 2.00 | 140 | 34.0 | 20.0 | 16.0 | 4 | 25.00 | 101894 | 102116 | |
| 28 | 1.00 | 140 | 30.0 | 20.0 | 16.0 | 4 | 27.00 | | 142725 | |
| 28 | 1.50 | 140 | 30.0 | 20.0 | 16.0 | 4 | 26.50 | 101896 | 102118 | |
| 28 | 2.00 | 140 | 30.0 | 20.0 | 16.0 | 4 | 26.00 | 122023 | | |

| | | | | | | | | N410-3 | N420-4 | N420V-4 | N420-3 |
|-------------------------|----------|-------------|-------------|-------------|---------|---|-------------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | | | | | | | | |
| N410-3 | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | |
| N420V-4 | V | | | | | | | | | | |
| N420-3 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 3 7H |
| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm | | $\frac{6H}{\leftarrow}$ | ID | ID | ID | ID |
| 30 | 1.00 | 150 | 32.0 | 22.0 | 18.0 | 4 | 29.00 | 101898 | 102121 | | |
| 30 | 1.50 | 150 | 32.0 | 22.0 | 18.0 | 4 | 28.50 | 101899 | 102122 | 143978 | |
| 30 | 2.00 | 150 | 32.0 | 22.0 | 18.0 | 4 | 28.00 | 101900 | 102123 | 143766 | |
| 32 | 1.00 | 150 | 32.0 | 22.0 | 18.0 | 4 | 31.00 | 101902 | | | |
| 32 | 1.50 | 150 | 32.0 | 22.0 | 18.0 | 4 | 30.50 | 101903 | 102126 | | 143812 |
| 32 | 2.00 | 150 | 32.0 | 22.0 | 18.0 | 4 | 30.00 | 101904 | 102127 | | |
| 33 | 1.50 | 160 | 32.0 | 25.0 | 20.0 | 4 | 31.50 | 101905 | 102128 | | |
| 33 | 2.00 | 160 | 32.0 | 25.0 | 20.0 | 4 | 31.00 | 101906 | 102129 | | |
| 34 | 1.00 | 170 | 32.0 | 28.0 | 22.0 | 4 | 33.00 | * 101908 | | | |
| 34 | 1.50 | 170 | 32.0 | 28.0 | 22.0 | 4 | 32.50 | 101909 | * 102131 | | |
| 35 | 1.50 | 170 | 32.0 | 28.0 | 22.0 | 4 | 33.50 | 101910 | 102132 | | |
| 35 | 2.00 | 170 | 32.0 | 28.0 | 22.0 | 4 | 33.00 | 101911 | | | |
| 36 | 1.00 | 170 | 34.0 | 28.0 | 22.0 | 4 | 35.00 | | * 102133 | | |
| 36 | 1.50 | 170 | 34.0 | 28.0 | 22.0 | 4 | 34.50 | 101912 | 102134 | | |
| 36 | 2.00 | 170 | 34.0 | 28.0 | 22.0 | 4 | 34.00 | 101913 | 102135 | | |
| 36 | 3.00 | 200 | 45.0 | 28.0 | 22.0 | 4 | 33.00 | 101914 | 102136 | | |
| 38 | 1.00 | 170 | 34.0 | 28.0 | 22.0 | 4 | 37.00 | * 101916 | * 102138 | | |
| 38 | 1.50 | 170 | 34.0 | 28.0 | 22.0 | 4 | 36.50 | 101917 | 102139 | | |
| 38 | 2.00 | 170 | 34.0 | 28.0 | 22.0 | 4 | 36.00 | 101918 | | | |
| 39 | 2.00 | 170 | 34.0 | 32.0 | 24.0 | 4 | 37.00 | 101920 | | | |
| 39 | 3.00 | 200 | 45.0 | 32.0 | 24.0 | 4 | 36.00 | 101921 | | | |



N410-3

N420-4

N420-3

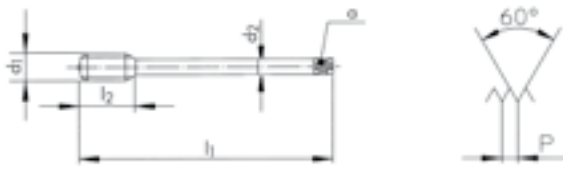
N410-3





N420-4



N420-3



| MF | ∅ d ₁ mm | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  6H |
|----|------------------------|---------|----------------------|----------------------|----------------------|---------|---|--|
| 40 | 1.00 | 170 | 34.0 | 32.0 | 24.0 | 5 | | 39.00 |
| 40 | 1.50 | 170 | 34.0 | 32.0 | 24.0 | 5 | | 38.50 |
| 40 | 2.00 | 170 | 34.0 | 32.0 | 24.0 | 5 | | 38.00 |
| 40 | 3.00 | 200 | 45.0 | 32.0 | 24.0 | 4 | | 37.00 |
| 42 | 1.50 | 170 | 34.0 | 32.0 | 24.0 | 5 | | 40.50 |
| 42 | 2.00 | 170 | 34.0 | 32.0 | 24.0 | 5 | | 40.00 |
| 42 | 3.00 | 200 | 45.0 | 32.0 | 24.0 | 4 | | 39.00 |
| 45 | 1.50 | 180 | 34.0 | 36.0 | 29.0 | 5 | | 43.50 |
| 45 | 2.00 | 180 | 34.0 | 36.0 | 29.0 | 5 | | 43.00 |
| 45 | 3.00 | 200 | 45.0 | 36.0 | 29.0 | 4 | | 42.00 |
| 48 | 1.50 | 190 | 36.0 | 36.0 | 29.0 | 5 | | 46.50 |
| 48 | 2.00 | 190 | 36.0 | 36.0 | 29.0 | 5 | | 46.00 |
| 48 | 3.00 | 220 | 48.0 | 36.0 | 29.0 | 5 | | 45.00 |
| 50 | 1.50 | 190 | 36.0 | 36.0 | 29.0 | 5 | | 48.50 |
| 50 | 2.00 | 190 | 36.0 | 36.0 | 29.0 | 5 | | 48.00 |
| 52 | 1.50 | 190 | 36.0 | 40.0 | 32.0 | 5 | | 50.50 |
| 52 | 2.00 | 190 | 36.0 | 40.0 | 32.0 | 5 | | 50.00 |
| 52 | 3.00 | 220 | 48.0 | 40.0 | 32.0 | 5 | | 49.00 |
| 55 | 2.00 | 190 | 40.0 | 40.0 | 32.0 | 5 | | 53.00 |
| 60 | 2.00 | 220 | 42.0 | 45.0 | 35.0 | 5 | | 58.00 |
| 63 | 1.50 | 220 | 38.0 | 45.0 | 35.0 | 5 | | 61.50 |

ID

ID

ID

101925

101926

102152

143813

101927

102153

* 101928

* 102154

101929

102155

101930

102156

101931

102157

101933

102159

101934

101935

* 102161

101937

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101938

102164

101939

102165

101943

102176

143814

* 101944

* 102177

* 101946

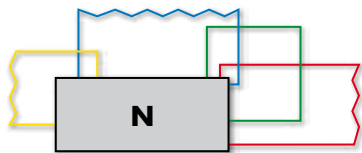
101947

* 101948

* 105131

105132

143815



N410-3 LH

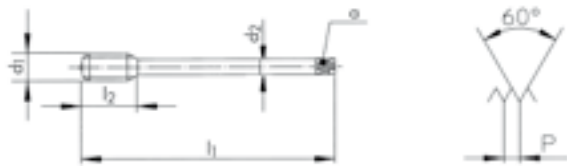




N420-4 LH




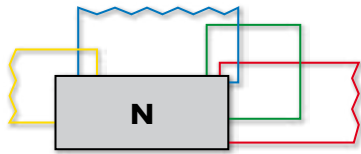
N410-3 LH

N420-4 LH



| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | ID | ID |
|-------------------------|---------|-------------|-------------|-------------|---------|---|---|--------|--------|
| 4 | 0.50 | 63 | 14.0 | 2.8 | 2.1 | 3 | 3.50 | 104844 | |
| 5 | 0.50 | 70 | 15.0 | 3.5 | 2.7 | 3 | 4.50 | 104845 | |
| 6 | 0.50 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.50 | 104846 | 104870 |
| 6 | 0.75 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.25 | 104847 | 105133 |
| 7 | 0.75 | 80 | 17.0 | 5.5 | 4.3 | 3 | 6.25 | 104848 | |
| 8 | 0.50 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.50 | 104849 | |
| 8 | 0.75 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.25 | 104850 | 104871 |
| 8 | 1.00 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.00 | 104851 | 104872 |
| 10 | 0.75 | 100 | 22.0 | 7.0 | 5.5 | 3 | 9.25 | 104852 | |
| 10 | 1.00 | 100 | 22.0 | 7.0 | 5.5 | 3 | 9.00 | 104853 | 104873 |
| 10 | 1.25 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.80 | | 104874 |
| 12 | 1.00 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.00 | 104854 | 104875 |
| 12 | 1.25 | 100 | 24.0 | 9.0 | 7.0 | 3 | 10.80 | 104855 | 104876 |
| 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 3 | 10.50 | 104856 | 104877 |
| 14 | 1.00 | 100 | 24.0 | 11.0 | 9.0 | 3 | 13.00 | 104857 | 104878 |
| 14 | 1.25 | 100 | 24.0 | 11.0 | 9.0 | 3 | 12.80 | 104858 | |
| 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 3 | 12.50 | 104859 | 104879 |
| 16 | 1.00 | 100 | 26.0 | 12.0 | 9.0 | *3 | 15.00 | 104860 | 104880 |
| 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | *3 | 14.50 | 104861 | 104881 |
| 18 | 1.00 | 110 | 26.0 | 14.0 | 11.0 | 4 | 17.00 | 104862 | |
| 18 | 1.50 | 110 | 26.0 | 14.0 | 11.0 | 4 | 16.50 | 104863 | 104882 |
| 20 | 1.00 | 125 | 28.0 | 16.0 | 12.0 | 4 | 19.00 | 104864 | |
| 20 | 1.50 | 125 | 28.0 | 16.0 | 12.0 | 4 | 18.50 | 104865 | 104883 |
| 22 | 1.50 | 125 | 28.0 | 18.0 | 14.5 | 4 | 20.50 | 104866 | 104884 |
| 24 | 1.50 | 140 | 30.0 | 18.0 | 14.5 | 4 | 22.50 | 104867 | 104885 |
| 24 | 2.00 | 140 | 34.0 | 18.0 | 14.5 | 4 | 22.00 | 104868 | 104886 |
| 28 | 1.50 | 140 | 30.0 | 20.0 | 16.0 | 4 | 26.50 | 105166 | |
| 30 | 1.50 | 150 | 32.0 | 22.0 | 18.0 | 4 | 28.50 | 105167 | 105165 |
| 30 | 2.00 | 150 | 32.0 | 22.0 | 18.0 | 4 | 28.00 | 105168 | |

* N410-3 LH =  4



N360-3

N360V-3

N360TN-3

N360-3



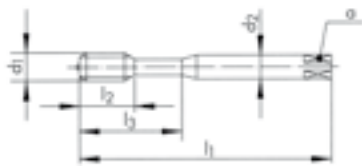
N360-3



N360V-3



N360TN-3



**ISO 2
6H**

**ISO 2
6H**

**ISO 2
6H**

**ISO 3
6G**

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | $\pm 6H$ mm |
|-------------------------|---------|-------------|-------------|-------------|-------------|---------|---|----------------|
| 4 | 0.50 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.50 |
| 5 | 0.50 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.50 |
| 6 | 0.50 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.50 |
| 6 | 0.75 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.25 |
| 8 | 0.75 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.25 |
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 0.75 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.25 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 |
| 10 | 1.25 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.80 |

ID

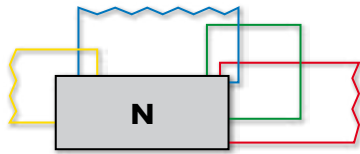
ID

ID

ID

**6H
+ mm**

| | | | |
|---------------|---------------|---------------|---------------------|
| 101632 | 101712 | 111618 | 101631 0.020 |
| 101641 | 101714 | 111617 | 101640 0.020 |
| 101648 | 143990 | | |
| 101650 | 101716 | 101702 | 101649 0.022 |
| 101658 | 101719 | | 101657 0.022 |
| 101660 | 101720 | 101704 | 101659 0.026 |
| 101606 | 144401 | | |
| 101608 | 101706 | 101695 | 101607 0.026 |
| 101609 | 105134 | 110965 | |



N460-3



N460V-3



N460TN-3

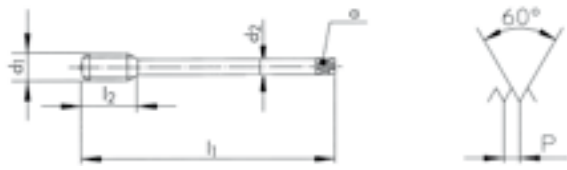


N460-3

N460V-3

N460TN-3

N460-3





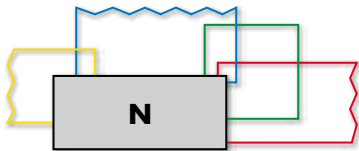
ISO 2
6H

ISO 2
6H

ISO 2
6H

ISO 3
6G

| MF | ∅ d ₁ mm | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  | 6H  | ID | ID | ID | ID ^{6H} + mm |
|----|------------------------|---------|----------------------|----------------------|----------------------|---------|---|---|--------|--------|--------|--------------------------|
| 12 | 1.00 | 100 | 14.0 | 9.0 | 7.0 | 3 | 11.00 | 102353 | 102462 | 102447 | 102352 | 0.026 |
| 12 | 1.25 | 100 | 14.0 | 9.0 | 7.0 | 3 | 10.80 | 102354 | 102463 | 144202 | | |
| 12 | 1.50 | 100 | 14.0 | 9.0 | 7.0 | 3 | 10.50 | 102356 | 102464 | 102448 | 102355 | 0.032 |
| 13 | 1.00 | 100 | 14.0 | 11.0 | 9.0 | 3 | 12.00 | 102364 | | | | |
| 14 | 1.00 | 100 | 14.0 | 11.0 | 9.0 | 3 | 13.00 | 102365 | 102466 | | | |
| 14 | 1.50 | 100 | 14.0 | 11.0 | 9.0 | 3 | 12.50 | 102367 | 102467 | 102450 | 102366 | 0.032 |
| 15 | 1.00 | 100 | 14.0 | 12.0 | 9.0 | 3 | 14.00 | 102370 | | | | |
| 15 | 1.50 | 100 | 18.0 | 12.0 | 9.0 | 3 | 13.50 | 102371 | | | | |
| 16 | 1.00 | 100 | 14.0 | 12.0 | 9.0 | 4 | 15.00 | 102372 | 102469 | | | |
| 16 | 1.50 | 100 | 14.0 | 12.0 | 9.0 | 4 | 14.50 | 102374 | 102470 | 102452 | 102373 | 0.032 |
| 18 | 1.00 | 110 | 18.0 | 14.0 | 11.0 | 4 | 17.00 | 102380 | 143926 | | | |
| 18 | 1.50 | 110 | 18.0 | 14.0 | 11.0 | 4 | 16.50 | 102382 | 102472 | | 102381 | 0.032 |
| 20 | 1.00 | 125 | 20.0 | 16.0 | 12.0 | 4 | 19.00 | 102384 | 146377 | | | |
| 20 | 1.50 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.50 | 102386 | 102474 | | | |
| 20 | 2.00 | 140 | 24.0 | 16.0 | 12.0 | 4 | 18.00 | 102387 | 143566 | | | |
| 22 | 1.00 | 125 | 20.0 | 18.0 | 14.5 | 4 | 21.00 | 102392 | 147702 | | | |
| 22 | 1.50 | 125 | 20.0 | 18.0 | 14.5 | 4 | 20.50 | 102393 | 102476 | | | |
| 24 | 1.50 | 140 | 22.0 | 18.0 | 14.5 | 4 | 22.50 | 102396 | 102478 | | | |
| 24 | 2.00 | 140 | 22.0 | 18.0 | 14.5 | 4 | 22.00 | 102397 | 102479 | | | |
| 25 | 1.50 | 140 | 22.0 | 18.0 | 14.5 | 4 | 23.50 | 102399 | 143810 | | | |
| 26 | 1.50 | 140 | 22.0 | 18.0 | 14.5 | 4 | 24.50 | 102400 | 143952 | | | |
| 27 | 1.50 | 140 | 22.0 | 20.0 | 16.0 | 4 | 25.50 | 102401 | 143965 | | | |
| 27 | 2.00 | 140 | 22.0 | 20.0 | 16.0 | 4 | 25.00 | 102402 | 144201 | | | |
| 28 | 1.50 | 140 | 22.0 | 20.0 | 16.0 | 4 | 26.50 | 102403 | 144997 | | | |



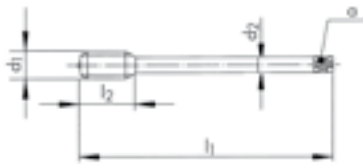
N460-3

N460V-3

N460-3



N460V-3



ISO 2
6H

ISO 2
6H

| MF | $\varnothing d_1$ mm | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | $\pm 6H$ mm |
|----|-------------------------|---------|-------------|-------------|-------------|----------------|-------|----------------|
| 30 | 1.50 | 150 | 24.0 | 22.0 | 18.0 | 4 | 28.50 | |
| 30 | 2.00 | 150 | 24.0 | 22.0 | 18.0 | 4 | 28.00 | |
| 32 | 1.50 | 150 | 24.0 | 22.0 | 18.0 | 4 | 30.50 | |
| 33 | 2.00 | 160 | 26.0 | 25.0 | 20.0 | 4 | 31.00 | |
| 33 | 3.00 | 180 | 33.0 | 25.0 | 20.0 | 4 | 30.00 | |
| 35 | 1.50 | 170 | 24.0 | 28.0 | 22.0 | 5 | 33.50 | |
| 36 | 1.50 | 170 | 24.0 | 28.0 | 22.0 | 5 | 34.50 | |
| 36 | 2.00 | 170 | 28.0 | 28.0 | 22.0 | 5 | 34.00 | |
| 36 | 3.00 | 200 | 36.0 | 28.0 | 22.0 | 4 | 33.00 | |
| 39 | 3.00 | 200 | 40.0 | 32.0 | 24.0 | 5 | 36.00 | |
| 42 | 3.00 | 200 | 40.0 | 32.0 | 24.0 | 5 | 39.00 | |

ID

ID

102404

142524

102405

142581

102406

143605

102407

147604

175437

150448

102408

146846

102409

143824

175436

164870

115072

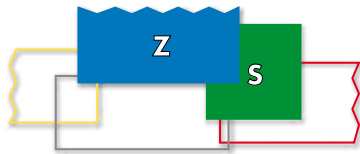
150453

174995

122669

174996

150436

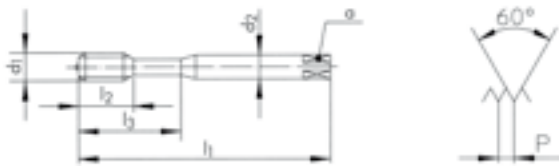

Z320V-4
Z320VS-4
Z360V-3
Z370VS-3
Z320V-4

Z320VS-4

Z360V-3

Z370VS-3

NEW

PM

**ISO 2
6H**
**ISO 2
6H**
**ISO 2
6H**
6HX

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | |
|-------------------------|---------|-------------|-------------|-------------|-------------|-----------|---|------|
| *2 | 0.20 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.80 |
| *2 | 0.25 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 |
| *2.2 | 0.25 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.95 |
| 2.5 | 0.20 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.30 |
| 2.5 | 0.25 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.25 |
| 3 | 0.35 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.65 |
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.25 |
| 8 | 1.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 1.00 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 9.00 |

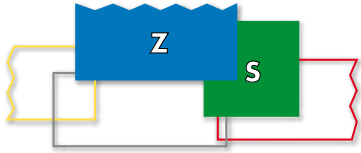
ID
ID

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | ID |
|-------------------------|---------|-------------|-------------|-------------|-------------|-----------|---|------|--------|
| 4 | 0.50 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.50 | 104675 |
| 5 | 0.50 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.50 | 104676 |
| 6 | 0.75 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.25 | 104677 |
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 | 104678 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 | 104674 |

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 h6 mm | a mm | | | ID |
|-------------------------|---------|-------------|-------------|-------------|----------------|-----------|---|------|--------|
| 6 | 0.75 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.25 | 166117 |
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 | 166118 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 | 166119 |

* Z320V-3


P ≤ 0.25
**ISO 1
4H**



Z420V-4 Z420VS-4 Z460V-3 Z470VS-3



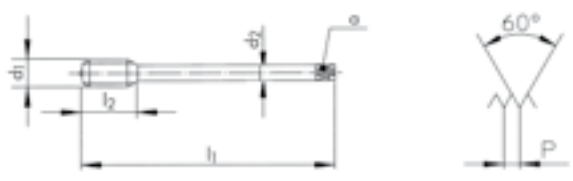
NEW



PM



ISO 2 6H ISO 2 6H ISO 2 6H 6HX



Z420V-4

Z420VS-4

Z460V-3

Z470VS-3

| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|---------|---|-------|
| 12 | 1.00 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.00 |
| 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 3 | 10.50 |
| 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 3 | 12.50 |
| 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 3 | 14.50 |

| ID | ID |
|--------|--------|
| 142729 | |
| 142730 | 120421 |
| 142731 | 120688 |
| 142732 | 120878 |

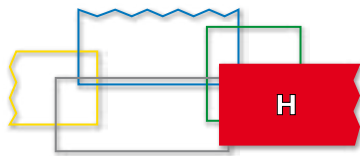
| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|---------|---|-------|
| 12 | 1.00 | 100 | 14.0 | 9.0 | 7.0 | 3 | 11.00 |
| 12 | 1.50 | 100 | 14.0 | 9.0 | 7.0 | 3 | 10.50 |
| 14 | 1.50 | 100 | 14.0 | 11.0 | 9.0 | 3 | 12.50 |
| 16 | 1.50 | 100 | 14.0 | 12.0 | 9.0 | 4 | 14.50 |
| 18 | 1.50 | 110 | 18.0 | 14.0 | 11.0 | 4 | 16.50 |
| 20 | 1.50 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.50 |
| 22 | 1.50 | 125 | 20.0 | 18.0 | 14.5 | 4 | 20.50 |
| 24 | 1.50 | 140 | 22.0 | 18.0 | 14.5 | 4 | 22.50 |
| 24 | 2.00 | 140 | 22.0 | 18.0 | 14.5 | 4 | 22.00 |

| ID |
|--------|
| 104729 |
| 104730 |
| 104731 |
| 104732 |
| 104733 |
| 104734 |
| 104735 |
| 104736 |
| 104737 |



| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ h ₆ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|-------------------------------------|---------|---|-------|
| 12 | 1.50 | 110 | 14.0 | *10.0 | *8.0 | 4 | 10.50 |
| 14 | 1.50 | 110 | 14.0 | *12.0 | *9.0 | 4 | 12.50 |
| 16 | 1.50 | 110 | 18.0 | 12.0 | 9.0 | 4 | 14.50 |



| ID |
|--------|
| 166120 |
| 166121 |
| 166122 |

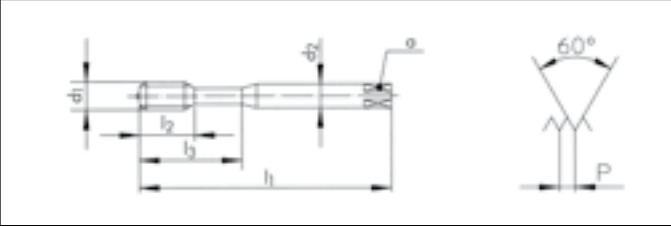
* Norme DC / * DC Norm / * Norma DC





| | | | |
|---------------|---------------|--|--|
| H320-4 | H420-4 | | |
|---------------|---------------|--|--|



H320-4  

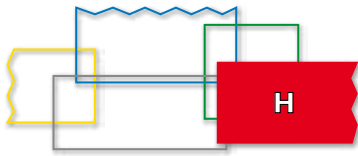
H420-4  



ISO 2 6H **ISO 2 6H**

| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  |  | ID | ID |
|-------------------------|---------|-------------|-------------|-------------|-------------|---------|---|---|--------|--------|
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.25 | 101214 | |
| 8 | 0.75 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 7.25 | 101216 | |
| 8 | 1.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 7.00 | 101217 | |
| 10 | 1.00 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 9.00 | 101204 | |
| 12 | 1.25 | 100 | 24.0 | | 9.0 | 7.0 | 4 | 10.80 | | 101273 |
| 12 | 1.50 | 100 | 24.0 | | 9.0 | 7.0 | 4 | 10.50 | | 101274 |
| 14 | 1.50 | 100 | 24.0 | | 11.0 | 9.0 | 4 | 12.50 | | 101276 |
| 16 | 1.50 | 100 | 26.0 | | 12.0 | 9.0 | 4 | 14.50 | | 101278 |
| 20 | 1.50 | 125 | 28.0 | | 16.0 | 12.0 | 4 | 18.50 | | 101282 |
| 24 | 2.00 | 140 | 34.0 | | 18.0 | 14.5 | 4 | 22.00 | | 101285 |



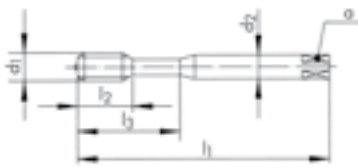
H350-3

H450-3

H350-3



H450-3



| Ø d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 6 | 0.75 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.25 |
| 8 | 0.75 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.25 |
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 |
| 12 | 1.00 | 100 | 14.0 | | 9.0 | 7.0 | 4 | 11.00 |
| 12 | 1.50 | 100 | 14.0 | | 9.0 | 7.0 | 4 | 10.50 |
| 14 | 1.50 | 100 | 14.0 | | 11.0 | 9.0 | 4 | 12.50 |
| 16 | 1.50 | 100 | 14.0 | | 12.0 | 9.0 | 4 | 14.50 |
| 18 | 1.50 | 110 | 18.0 | | 14.0 | 11.0 | 4 | 16.50 |
| 20 | 1.50 | 125 | 20.0 | | 16.0 | 12.0 | 4 | 18.50 |
| 22 | 1.50 | 125 | 20.0 | | 18.0 | 14.5 | 4 | 20.50 |
| 24 | 1.50 | 140 | 22.0 | | 18.0 | 14.5 | 4 | 22.50 |
| 24 | 2.00 | 140 | 22.0 | | 18.0 | 14.5 | 4 | 22.00 |
| 27 | 2.00 | 140 | 22.0 | | 20.0 | 16.0 | 4 | 25.00 |
| 30 | 1.50 | 150 | 24.0 | | 22.0 | 18.0 | 4 | 28.50 |
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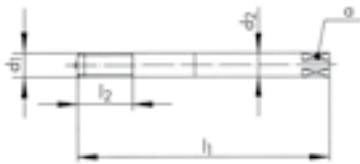
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| | | | | | | | | | | S320VS-4 | S420VS-4 | S360VS-3 | S460VS-3 |
|-------------------------|---------|-------------|-------------|-------------|-------------|-----------|---|--|-------|----------|----------|----------|----------|
| S320VS-4 | | VS | | | | | | | | | | | |
| S420VS-4 | | VS | | | | | | | | | | | |
| S360VS-3 | | VS | | | | | | | | | | | |
| S460VS-3 | | VS | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | | ID | ID | | |
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | | 5.25 | * 123690 | | | |
| 8 | 1.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | | 7.00 | 124288 | | | |
| 10 | 1.00 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | | 9.00 | 120059 | | | |
| 12 | 1.50 | 100 | 24.0 | | 9.0 | 7.0 | 4 | | 10.50 | | 120420 | | |
| 14 | 1.50 | 100 | 24.0 | | 11.0 | 9.0 | 4 | | 12.50 | | 120687 | | |
| 16 | 1.50 | 100 | 26.0 | | 12.0 | 9.0 | 4 | | 14.50 | | 120877 | | |
| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | | ID | ID | | |
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | | 7.00 | | 111528 | | |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | | 9.00 | | 111529 | | |
| 12 | 1.50 | 100 | 14.0 | | 9.0 | 7.0 | 4 | | 10.50 | | | 111540 | |
| 14 | 1.50 | 100 | 14.0 | | 11.0 | 9.0 | 4 | | 12.50 | | | 111541 | |
| 16 | 1.50 | 100 | 14.0 | | 12.0 | 9.0 | 4 | | 14.50 | | | 111542 | |

aero

SA390-3

SA390-3



| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|-------------------------|---------|-------------|-------------|-------------|----------------|---|-------|
| 8 | 1.00 | 90 | 25.0 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 1.00 | 100 | 30.0 | 10.0 | 8.0 | 3 | 9.00 |
| 10 | 1.25 | 100 | 30.0 | 10.0 | 8.0 | 3 | 8.80 |
| 12 | 1.00 | 110 | 35.0 | 12.0 | 9.0 | 4 | 11.00 |
| 12 | 1.50 | 110 | 35.0 | 12.0 | 9.0 | 4 | 10.50 |
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* 149735

* 149751

* 149753














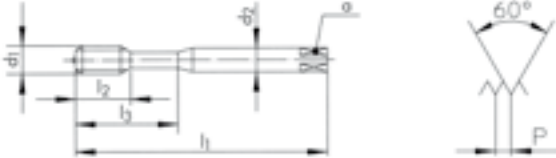
















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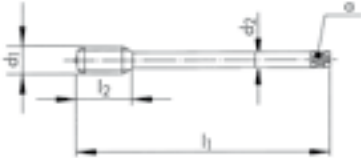

















* 149790

MF

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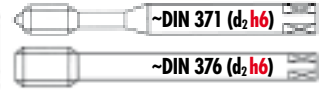
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|---|------|-------|-------|-------|-------|----------|---|---|---|----------|-----------|-----------|
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| <p>TL320VS-4  VS </p> <p>TL351VS-3   VS </p> | | | | | | | | | | | | |
|  | | | | | | | | |     | | | |
| | | | | | | | | |     | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | α |  |  | ID | ID | ID | ID |
| MF | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | | | | |
| 4 | 0.50 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.50 | | * 149079 | * 152032 | 152033 |
| 5 | 0.50 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.50 | * 149142 | 149144 | * 152048 | 152049 |
| 6 | 0.50 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.50 | * 149193 | | * 152058 | 152059 |
| 8 | 1.00 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 7.00 | 149304 | 149306 | * 152079 | 152080 |
| 10 | 1.00 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 9.00 | 149362 | 149364 | * 152092 | 152093 |
| | | | | | | | | |     | | | |
| $\varnothing d_1$ | P | l_1 | l_2 | l_3 | d_2 | α |  |  | ID | ID | ID | ID |
| MF | mm | mm | mm | mm | mm | mm | | $\rightarrow \leftarrow$ | | | | |
| 4 | 0.50 | 63 | 14.0 | | 4.5 | 3.4 | 3 | 3.50 | 149081 | 149083 | * 152034 | 152035 |
| 5 | 0.50 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.50 | 149146 | 149148 | * 152050 | 152051 |
| 6 | 0.50 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.50 | | * 149199 | * 152060 | 152061 |
| 8 | 1.00 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 7.00 | 149308 | 149310 | | 148019 |
| 10 | 1.00 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 9.00 | 149366 | 149368 | * 152094 | 148026 |

aero

| | | | | | | | | | SA420-4 | SA450-3 | TL420VS-4 | TL451VS-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------|----------------------|----------------------|----------------------|---------|---|---|--|--|---------|----------------------|----------------------|----------------------|---------|---|---|----|------|-----|------|-----|-----|---|-------|----|------|-----|------|-----|-----|---|-------|----|------|-----|------|------|-----|---|-------|----|------|-----|------|------|-----|---|-------|--|------|-----|------|------|-----|----|-------|---|--|----------|--|----------|----------|----|----|----------|----------|----------|----------|----------|----------|--|----------|----------|----------|----------|----------|--|--|----------|----------|--|----------|----------|----------|
| <p>SA420-4  52 53</p> <p>SA450-3  52 53</p> | | | | | | | | |     | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>TL420VS-4  VS 41 42</p> <p>TL451VS-3   VS 41 42</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|   | | | | | | | | |     | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">4HX</div> <div style="border: 1px solid black; padding: 5px;">4HX</div> <div style="border: 1px solid black; padding: 5px;">4HX</div> <div style="border: 1px solid black; padding: 5px;">4HX</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>∅ d₁ MF</th> <th>P mm</th> <th>l₁ mm</th> <th>l₂ mm</th> <th>d₂ mm</th> <th>a mm</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>12</td><td>1.00</td><td>100</td><td>19.0</td><td>9.0</td><td>7.0</td><td>4</td><td>11.00</td></tr> <tr><td>12</td><td>1.50</td><td>100</td><td>24.0</td><td>9.0</td><td>7.0</td><td>4</td><td>10.50</td></tr> <tr><td>14</td><td>1.50</td><td>100</td><td>24.0</td><td>11.0</td><td>9.0</td><td>4</td><td>12.50</td></tr> <tr><td>16</td><td>1.50</td><td>100</td><td>26.0</td><td>12.0</td><td>9.0</td><td>4</td><td>14.50</td></tr> </tbody> </table> | | | | | | | | | ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | 12 | 1.00 | 100 | 19.0 | 9.0 | 7.0 | 4 | 11.00 | 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 4 | 10.50 | 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 4 | 12.50 | 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | <table border="1"> <thead> <tr> <th>ID</th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>* 152209</td> <td></td> <td>* 152218</td> <td></td> </tr> <tr> <td>* 152208</td> <td>* 152213</td> <td></td> <td></td> </tr> <tr> <td>* 152210</td> <td>* 152214</td> <td></td> <td>* 152224</td> </tr> <tr> <td>* 152212</td> <td>* 152216</td> <td></td> <td>* 152226</td> </tr> </tbody> </table> | | | | ID | ID | ID | ID | * 152209 | | * 152218 | | * 152208 | * 152213 | | | * 152210 | * 152214 | | * 152224 | * 152212 | * 152216 | | * 152226 | | | | | | | | | | | | |
| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 1.00 | 100 | 19.0 | 9.0 | 7.0 | 4 | 11.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 4 | 10.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 4 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ID | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152209 | | * 152218 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152208 | * 152213 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152210 | * 152214 | | * 152224 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152212 | * 152216 | | * 152226 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">6HX</div> <div style="border: 1px solid black; padding: 5px;">6HX</div> <div style="border: 1px solid black; padding: 5px;">6HX</div> <div style="border: 1px solid black; padding: 5px;">6HX</div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>∅ d₁ MF</th> <th>P mm</th> <th>l₁ mm</th> <th>l₂ mm</th> <th>d₂ mm</th> <th>a mm</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>12</td><td>1.00</td><td>100</td><td>19.0</td><td>9.0</td><td>7.0</td><td>4</td><td>11.00</td></tr> <tr><td>12</td><td>1.50</td><td>100</td><td>24.0</td><td>9.0</td><td>7.0</td><td>4</td><td>10.50</td></tr> <tr><td>14</td><td>1.50</td><td>100</td><td>24.0</td><td>11.0</td><td>9.0</td><td>4</td><td>12.50</td></tr> <tr><td>16</td><td>1.00</td><td>100</td><td>23.0</td><td>12.0</td><td>9.0</td><td>4</td><td>15.00</td></tr> <tr><td>16</td><td>1.50</td><td>100</td><td>26.0</td><td>12.0</td><td>9.0</td><td>4</td><td>14.50</td></tr> </tbody> </table> | | | | | | | | | ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | 12 | 1.00 | 100 | 19.0 | 9.0 | 7.0 | 4 | 11.00 | 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 4 | 10.50 | 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 4 | 12.50 | 16 | 1.00 | 100 | 23.0 | 12.0 | 9.0 | 4 | 15.00 | 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | <table border="1"> <thead> <tr> <th>ID</th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>* 152228</td> <td>* 148967</td> <td>* 152237</td> <td>* 152242</td> </tr> <tr> <td>* 152227</td> <td>* 152232</td> <td></td> <td>* 152241</td> </tr> <tr> <td>* 152229</td> <td>* 152233</td> <td>* 152238</td> <td>* 152243</td> </tr> <tr> <td></td> <td></td> <td>* 152239</td> <td>* 152244</td> </tr> <tr> <td></td> <td>* 152235</td> <td>* 152240</td> <td>* 152245</td> </tr> </tbody> </table> | | | | ID | ID | ID | ID | * 152228 | * 148967 | * 152237 | * 152242 | * 152227 | * 152232 | | * 152241 | * 152229 | * 152233 | * 152238 | * 152243 | | | * 152239 | * 152244 | | * 152235 | * 152240 | * 152245 |
| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 1.00 | 100 | 19.0 | 9.0 | 7.0 | 4 | 11.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 1.50 | 100 | 24.0 | 9.0 | 7.0 | 4 | 10.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 1.50 | 100 | 24.0 | 11.0 | 9.0 | 4 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 1.00 | 100 | 23.0 | 12.0 | 9.0 | 4 | 15.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 1.50 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ID | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152228 | * 148967 | * 152237 | * 152242 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152227 | * 152232 | | * 152241 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 152229 | * 152233 | * 152238 | * 152243 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | * 152239 | * 152244 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | * 152235 | * 152240 | * 152245 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para rosado sincronizado



RTS Rigid Tapping Synchro

RTS320VS-4



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 31 |
| 32 | 61 | 63 | 72 |
| 73 | 74 | | |

RTS420VS-4



RTS362VS-3



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 31 |
| 32 | 61 | 63 | 72 |
| 73 | 74 | | |

RTS462VS-3



RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3

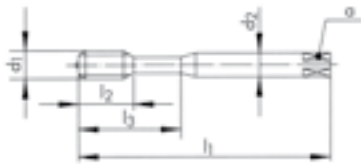


6HX

6HX

6HX

6HX



| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h ₆ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|-------------------------------------|---------|---|-------|
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 |
| 12 | 1.50 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 10.50 |
| 14 | 1.50 | 110 | 14.0 | | *12.0 | *9.0 | 3 | 12.50 |
| 16 | 1.50 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.50 |

* Norme DC / * DC Norm / * Norma DC

| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h ₆ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|-------------------------------------|---------|---|-------|
| 8 | 1.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 10 | 1.00 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 9.00 |
| 12 | 1.50 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 10.50 |
| 14 | 1.50 | 110 | 14.0 | | *12.0 | *9.0 | 3 | 12.50 |
| 16 | 1.50 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.50 |

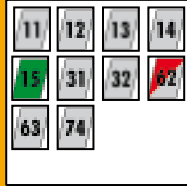
* Norme DC / * DC Norm / * Norma DC



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

K

K313TC-3



K413TC-3



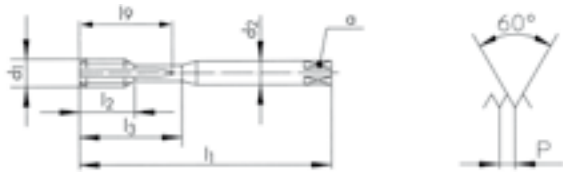
K313TC-3

K413TC-3



NEW

NEW



| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | l ₄ mm | d ₂ mm | a mm | → | ← |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 10 | 1.00 | 100 | 22.0 | 39 | 37 | 10.0 | 8.0 | 3 | 9.00 |
| 12 | 1.00 | 110 | 24.0 | | 42 | 9.0 | 7.0 | 3 | 11.00 |
| 12 | 1.25 | 110 | 24.0 | | 42 | 9.0 | 7.0 | 3 | 10.80 |
| 12 | 1.50 | 110 | 24.0 | | 42 | 9.0 | 7.0 | 3 | 10.50 |
| 14 | 1.50 | 110 | 28.0 | | 49 | 11.0 | 9.0 | 3 | 12.50 |
| 16 | 1.50 | 110 | 30.0 | | 56 | 12.0 | 9.0 | 3 | 14.50 |
| 20 | 1.50 | 140 | 36.0 | | 70 | 16.0 | 12.0 | 5 | 18.50 |

ID

ID

175729

175731

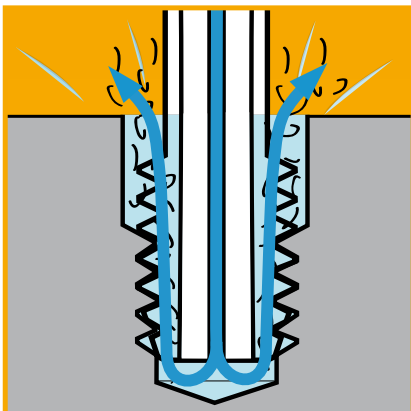
175733

175735

175737

175739

171205



FPS FORMING

FPS381CN-3



FPS381VS-3



FPS481VS-3



FPS381CN-3

FPS381VS-3

FPS481VS-3



| ∅ d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | 6HX Tol. → ← |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|-----------------|
| 4 | 0.50 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.80 + 0.03 |
| 5 | 0.50 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.80 + 0.03 |
| 6 | 0.50 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.80 + 0.03 |
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.65 + 0.03 |
| 8 | 0.75 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.65 + 0.03 |
| 8 | 1.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.55 + 0.05 |
| 10 | 1.00 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.55 + 0.05 |
| 12 | 1.00 | 100 | 19.0 | | 9.0 | 7.0 | 11.55 + 0.05 |
| 14 | 1.50 | 100 | 24.0 | | 11.0 | 9.0 | 13.30 + 0.05 |
| 16 | 1.50 | 100 | 26.0 | | 12.0 | 9.0 | 15.30 + 0.05 |

ID

ID

ID

166631

166639

166699

166648

166649

166701

166702

166658

166659

166668

166669

166674

166679

166684

FAS FORMING

FAS381VS-3



VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS481VS-3

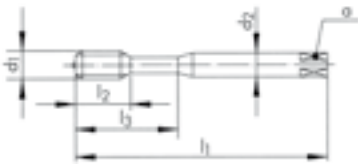


VS

| | | | |
|----|----|----|----|
| 12 | 13 | 14 | 15 |
| 21 | 22 | 23 | 24 |
| 41 | 51 | 61 | 63 |

FAS381VS-3

FAS481VS-3



| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | 6HX → ← | Tol. |
|-------------------------|---------|-------------|-------------|-------------|-------------|-----------|------------|--------|
| 4 | 0.50 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.80 | + 0.03 |
| 5 | 0.50 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.80 | + 0.03 |
| 6 | 0.50 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.80 | + 0.03 |
| 6 | 0.75 | 80 | 17.0 | 30 | 6.0 | 4.9 | 5.65 | + 0.03 |
| 8 | 0.75 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.65 | + 0.03 |
| 8 | 1.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.55 | + 0.05 |
| 10 | 1.00 | 100 | 22.0 | 39 | 10.0 | 8.0 | 9.55 | + 0.05 |
| 12 | 1.00 | 100 | 19.0 | | 9.0 | 7.0 | 11.55 | + 0.05 |
| 14 | 1.50 | 100 | 24.0 | | 11.0 | 9.0 | 13.30 | + 0.05 |
| 16 | 1.50 | 100 | 26.0 | | 12.0 | 9.0 | 15.30 | + 0.05 |

ID

ID

166625

166633

166698

166642

166700

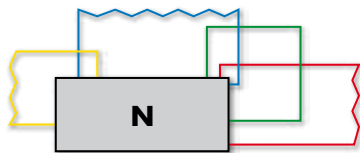
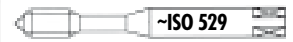
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166662

166672

166677

166682

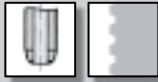


N1110-1

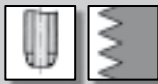
N1110-3

N1110-S

N1110-1



N1110-3



N1110-S



ISO 2
6H

ISO 2
6H

| Ø d ₁ MF | P mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|---------|---|------|
| 2 | 0.25 | 45 | 8.0 | | 2.80 | 2.10 | 3 | 1.75 |
| 2.2 | 0.25 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 1.95 |
| 2.3 | 0.25 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 2.05 |
| 2.5 | 0.35 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 2.15 |
| 3 | 0.35 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.65 |
| 3.5 | 0.35 | 50 | 13.0 | 20 | 3.55 | 2.80 | 3 | 3.15 |
| 4 | 0.35 | 53 | 13.0 | 21 | 4.00 | 3.15 | 3 | 3.65 |
| 4 | 0.50 | 53 | 13.0 | 21 | 4.00 | 3.15 | 3 | 3.50 |
| 4.5 | 0.50 | 53 | 13.0 | 21 | 4.50 | 3.55 | 3 | 4.00 |
| 5 | 0.35 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.65 |
| 5 | 0.50 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.50 |
| 5 | 0.75 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.25 |
| 5.5 | 0.50 | 62 | 17.0 | 26 | 5.60 | 4.50 | 3 | 5.00 |
| 6 | 0.50 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.50 |
| 6 | 0.75 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.25 |
| 7 | 0.50 | 66 | 19.0 | 30 | 7.10 | 5.60 | 3 | 6.50 |
| 8 | 0.75 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 7.25 |
| 8 | 1.00 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 7.00 |
| 9 | 0.50 | 72 | 22.0 | 36 | 9.00 | 7.10 | 3 | 8.50 |
| 9 | 0.75 | 72 | 22.0 | 36 | 9.00 | 7.10 | 3 | 8.25 |
| 9 | 1.00 | 72 | 22.0 | 36 | 9.00 | 7.10 | 3 | 8.00 |
| 10 | 0.50 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 9.50 |
| 10 | 1.00 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 9.00 |
| 10 | 1.25 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 8.80 |

ID

ID

ID

102933

102936

* 102938

102940

102945

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102952

102773

102953

111040

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102960

102778

102961

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111024

102758

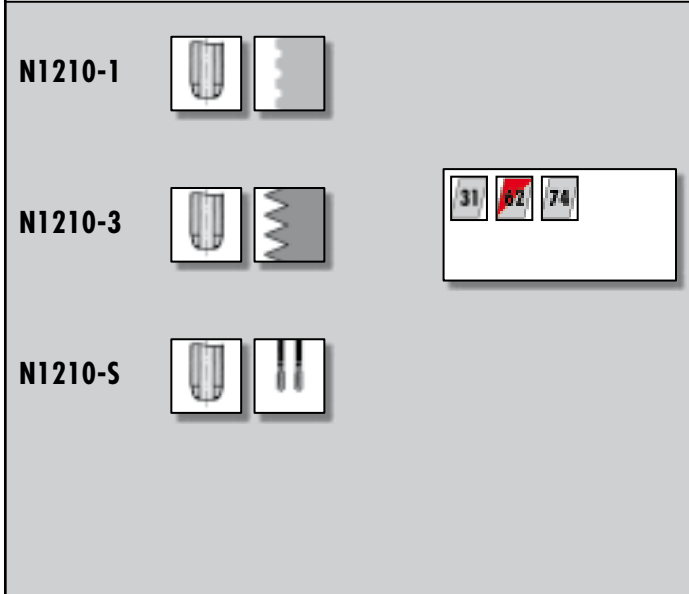
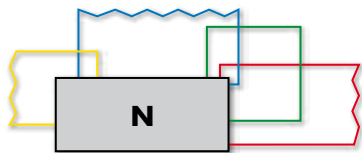
102930

111025

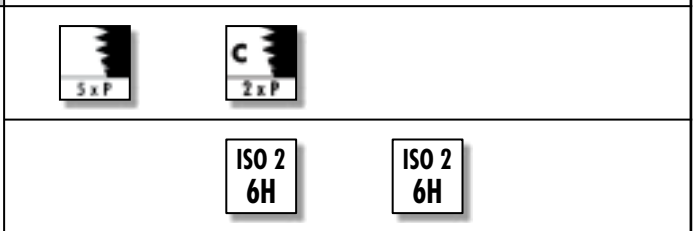
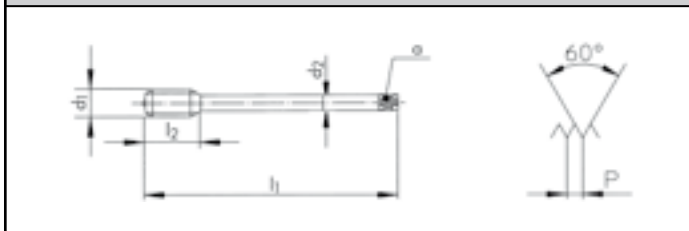
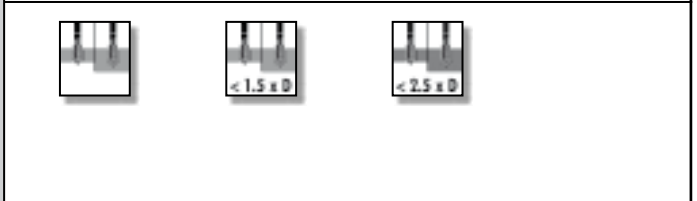
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
ISO 1
4H

| | | | | | | | | | N1210-1 | N1210-3 | N1210-S | |
|----|------|-----|------|------|------|---|-------|--------|----------|---------|----------|--|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | ISO 2 6H | | ISO 2 6H | |
| | | | | | | | | | ID | ID | ID | |
| 11 | 0.50 | 85 | 22.0 | 8.0 | 6.3 | 3 | 10.50 | | 103485 | | | |
| 11 | 0.75 | 85 | 22.0 | 8.0 | 6.3 | 3 | 10.25 | | 103486 | | | |
| 11 | 1.00 | 85 | 22.0 | 8.0 | 6.3 | 3 | 10.00 | | 103487 | | | |
| 11 | 1.25 | 85 | 22.0 | 8.0 | 6.3 | 3 | 9.80 | | 103488 | | | |
| 12 | 0.50 | 89 | 24.0 | 9.0 | 7.1 | 3 | 11.50 | | 103490 | | | |
| 12 | 0.75 | 89 | 24.0 | 9.0 | 7.1 | 3 | 11.25 | | 103491 | | | |
| 12 | 1.00 | 89 | 24.0 | 9.0 | 7.1 | 3 | 11.00 | 103305 | 103493 | 111169 | | |
| 12 | 1.25 | 89 | 24.0 | 9.0 | 7.1 | 3 | 10.80 | 103307 | 103495 | 111171 | | |
| 12 | 1.50 | 89 | 24.0 | 9.0 | 7.1 | 3 | 10.50 | 103308 | 103497 | 111172 | | |
| 14 | 0.50 | 95 | 24.0 | 11.2 | 9.0 | 3 | 13.50 | | 103502 | | | |
| 14 | 0.75 | 95 | 24.0 | 11.2 | 9.0 | 3 | 13.25 | | 103503 | | | |
| 14 | 1.00 | 95 | 24.0 | 11.2 | 9.0 | 3 | 13.00 | 103312 | 103504 | 111175 | | |
| 14 | 1.25 | 95 | 24.0 | 11.2 | 9.0 | 3 | 12.80 | 103314 | 103506 | 111177 | | |
| 14 | 1.50 | 95 | 24.0 | 11.2 | 9.0 | 3 | 12.50 | 103315 | 103508 | 111178 | | |
| 15 | 0.75 | 90 | 23.0 | 11.2 | 9.0 | 3 | 14.25 | | 103512 | | | |
| 15 | 1.00 | 90 | 23.0 | 11.2 | 9.0 | 3 | 14.00 | | 103513 | | | |
| 16 | 0.50 | 102 | 32.0 | 12.5 | 10.0 | 4 | 15.50 | | 103515 | | | |
| 16 | 0.75 | 102 | 32.0 | 12.5 | 10.0 | 4 | 15.25 | | 103516 | | | |
| 16 | 1.00 | 102 | 32.0 | 12.5 | 10.0 | 4 | 15.00 | 103321 | 103517 | 111183 | | |
| 16 | 1.50 | 102 | 32.0 | 12.5 | 10.0 | 4 | 14.50 | 103322 | 103520 | 111184 | | |
| 17 | 1.00 | 95 | 23.0 | 12.5 | 10.0 | 4 | 16.00 | | 103525 | | | |
| 18 | 0.75 | 112 | 30.0 | 14.0 | 11.2 | 4 | 17.25 | | 103527 | | | |
| 18 | 1.00 | 112 | 30.0 | 14.0 | 11.2 | 4 | 17.00 | 103326 | 103528 | 111187 | | |
| 18 | 1.50 | 112 | 30.0 | 14.0 | 11.2 | 4 | 16.50 | 103327 | 103531 | 111188 | | |
| 18 | 2.00 | 112 | 30.0 | 14.0 | 11.2 | 3 | 16.00 | | 103533 | | | |
| 19 | 1.00 | 112 | 33.0 | 14.0 | 11.2 | 4 | 18.00 | | 103536 | | | |

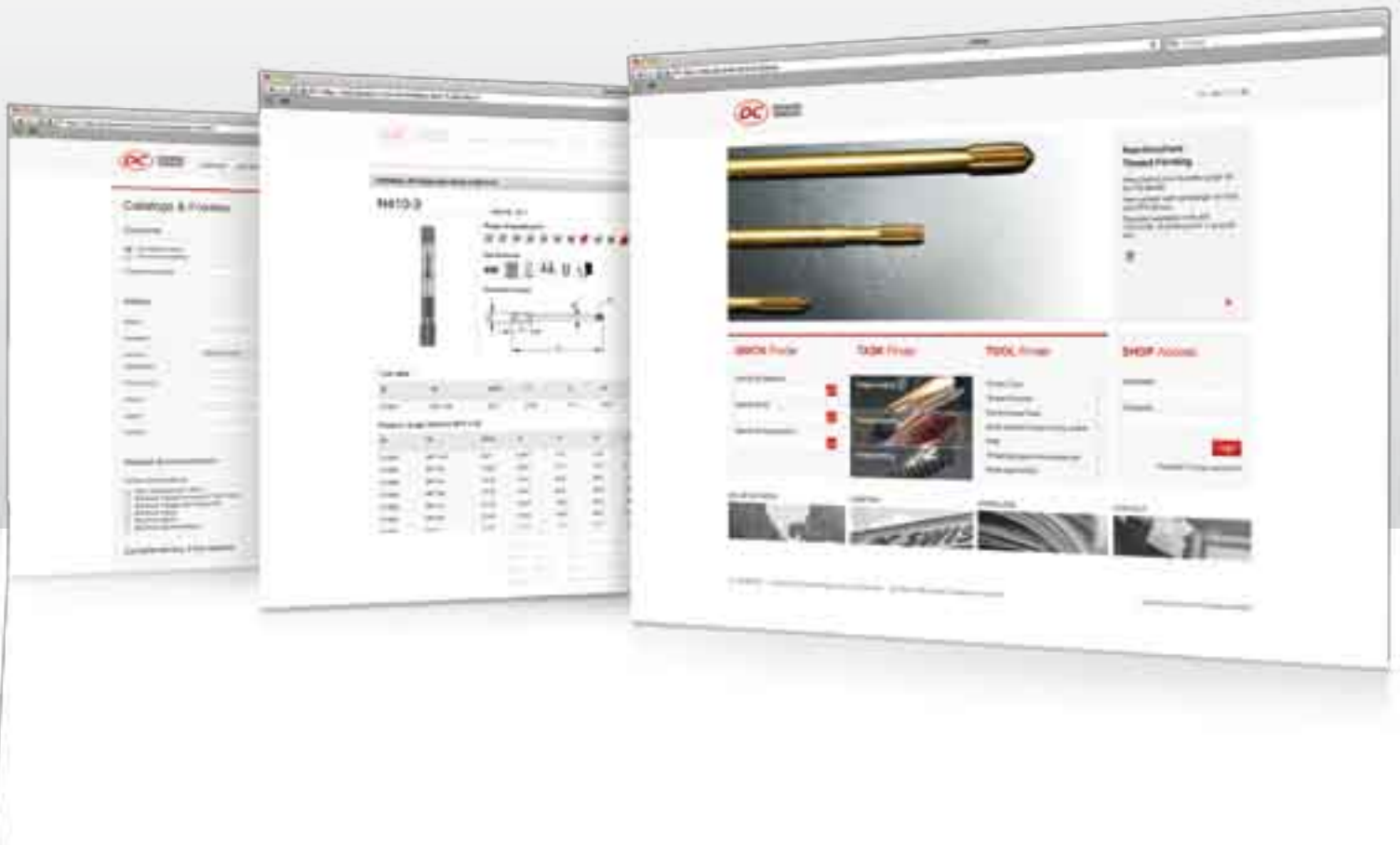


| N1210-1 | N1210-3 | N1210-S | |
|---------|---------|---------|--|
|---------|---------|---------|--|













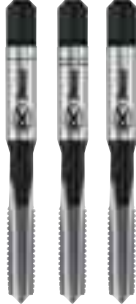






























| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | ID | ID | ID |
|-------------------------|---------|-------------|-------------|-------------|---------|---|---|----------|----------|----------|
| 20 | 1.00 | 112 | 37.0 | 14.0 | 11.2 | 4 | 19.00 | 103332 | 103537 | 111198 |
| 20 | 1.25 | 112 | 37.0 | 14.0 | 11.2 | 4 | 18.80 | | 103539 | |
| 20 | 1.50 | 112 | 37.0 | 14.0 | 11.2 | 4 | 18.50 | 103334 | 103540 | 111195 |
| 22 | 1.00 | 115 | 32.0 | 16.0 | 12.5 | 4 | 21.00 | | 103545 | |
| 22 | 1.50 | 115 | 32.0 | 16.0 | 12.5 | 4 | 20.50 | 103340 | 103546 | 121669 |
| 22 | 2.00 | 115 | 32.0 | 16.0 | 12.5 | 3 | 20.00 | | 103548 | |
| 24 | 1.00 | 120 | 30.0 | 18.0 | 14.0 | 4 | 23.00 | | 103552 | |
| 24 | 1.50 | 120 | 30.0 | 18.0 | 14.0 | 4 | 22.50 | 103343 | 103553 | 111202 |
| 24 | 2.00 | 130 | 45.0 | 18.0 | 14.0 | 4 | 22.00 | 103344 | 103555 | 111203 |
| 25 | 1.00 | 120 | 30.0 | 18.0 | 14.0 | 4 | 24.00 | | 103559 | |
| 25 | 1.50 | 120 | 30.0 | 18.0 | 14.0 | 4 | 23.50 | | 103560 | |
| 25 | 2.00 | 120 | 30.0 | 18.0 | 14.0 | 4 | 23.00 | | 103561 | |
| 26 | 1.00 | 120 | 30.0 | 18.0 | 14.0 | 4 | 25.00 | | 103562 | |
| 26 | 1.50 | 120 | 30.0 | 18.0 | 14.0 | 4 | 24.50 | 103346 | 103563 | 111207 |
| 26 | 2.00 | 120 | 30.0 | 18.0 | 14.0 | 4 | 24.00 | | 103564 | |
| 27 | 1.00 | 127 | 30.0 | 20.0 | 16.0 | 4 | 26.00 | | 103565 | |
| 27 | 1.50 | 127 | 30.0 | 20.0 | 16.0 | 4 | 25.50 | | 103566 | |
| 27 | 2.00 | 135 | 45.0 | 20.0 | 16.0 | 4 | 25.00 | * 103351 | * 103567 | * 111210 |
| 28 | 1.00 | 127 | 30.0 | 20.0 | 16.0 | 4 | 27.00 | | 103570 | |
| 28 | 1.50 | 127 | 30.0 | 20.0 | 16.0 | 4 | 26.50 | | 103571 | |
| 30 | 1.50 | 127 | 32.0 | 20.0 | 16.0 | 4 | 28.50 | 103355 | 103575 | 111214 |
| 30 | 2.00 | 127 | 32.0 | 20.0 | 16.0 | 4 | 28.00 | 103356 | 103577 | 111215 |

MORE PERSONAL.
MORE ACCURATE.
MORE COMPLETE.
MORE **YOU.**



























DCSWISS.COM

| | | N | | | | | Z | |
|---|------------------|---|---|--|--|--|--|---|
| Merkmale Characteristics | |  |  |  V |  R40 V |   |  V |  VS |
| | |  |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
|  | | N310-3 | N320-3 N320-4 | N320V-4 | N360-3 N360V-3 | N1110 -1-2-3-S | Z320V-3 Z320V-4 | Z320VS-4 |
| DIN lang DIN long | DIN 371 | 114 | 114 | 114 | 116 | | 118 | 118 |
| ISO kurz ISO short | ISO 529 | | | | | 128 | | |
| Toleranz Tolerance | UNC 2B | 114 | 114 | 114 | 116 | 128 | 118 | 118 |
| Toleranz Tolerance | UNC 3B | | | | | | | |
| Toleranz Tolerance | UNC(J) 3B | | 114 | | 116 | | | |
|  | | N410-3 | N420-4 | N420V-4 | N460-3 N460V-3 | N1210 -1-2-3-S | Z420V-4 | Z420VS-4 |
| DIN lang DIN long | DIN 376 | 115 | 115 | 115 | 117 | | 118 | 118 |
| ISO kurz ISO short | ISO 529 | | | | | 129 | | |
| Toleranz Tolerance | UNC 2B | 115 | 115 | 115 | 117 | 129 | 118 | 118 |
| Toleranz Tolerance | UNC 3B | | | | | | | |
| Toleranz Tolerance | UNC(J) 3B | | | | | | | |

| Z | | H | | S | | SA | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
|  |  | | |  |  | | | |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Z360V-3 Z362V-3 | Z370VS-3 | H320-4 | H350-3 | S320VS-4 | S360VS-3 | SA320-4 | SA350-3 | SA390-3 |
| 119 | 120 | 121 | 121 | 122 | 123 | 124 | 124 | 125 |
| 119 | 120 | 121 | 121 | 122 | 123 | 124 | 124 | |
| | 120 | | | 122 | | 124 | 124 | 125 |
| Z462V-3 | Z470VS-3 | H420-4 | H450-3 | S420VS-4 | S460VS-3 | SA420-4 | SA450-3 | |
| 119 | 120 | 121 | 121 | 122 | 123 | 125 | 125 | |
| 119 | 120 | 121 | 121 | 122 | 123 | 125 | 125 | |

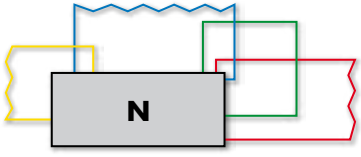







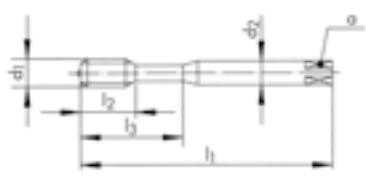
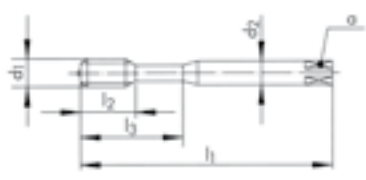








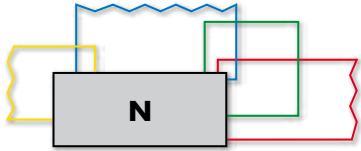












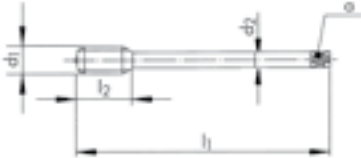









| | | TL | | RTS | | FS | FPS | FAS |
|---|---------------------|---|---|---|--|---|---|---|
| Merkmale Characteristics | |  |  |  |  |  |  |  |
| | | VS |  VS | VS | VS | VS | VS | VS |
| | |  |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
|  | | TL320VS-4 | TL351VS-3 | RTS320VS-4 | RTS362VS-3 | FS380VS-3 | FPS381VS-3 | FAS381VS-3 |
| <i>DIN lang</i> DIN long | DIN 371 | 124 | 124 | 126 | 126 | | | |
| <i>DIN lang</i> DIN long | ~ DIN 2184-1 | | | | | 127 | 127 | 127 |
| <i>Toleranz</i> Tolerance | UNC 2B | 124 | 124 | 126 | 126 | 127 | 127 | 127 |
| <i>Toleranz</i> Tolerance | UNC 3B | | | | | | | |
| <i>Toleranz</i> Tolerance | UNC(J) 3B | 124 | 124 | | | | | |
|  | | | | RTS420VS-4 | RTS462VS-3 | | | |
| <i>DIN lang</i> DIN long | DIN 376 | | | 126 | 126 | | | |
| <i>DIN lang</i> DIN long | ~ DIN 2184-1 | | | | | | | |
| <i>Toleranz</i> Tolerance | UNC 2B | | | 126 | 126 | | | |
| <i>Toleranz</i> Tolerance | UNC 3B | | | | | | | |
| <i>Toleranz</i> Tolerance | UNC(J) 3B | | | | | | | |

aero

THREADING TOOLS FOR AEROSPACE MATERIALS

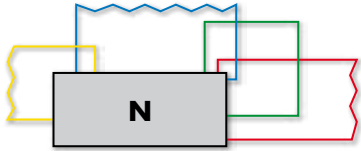
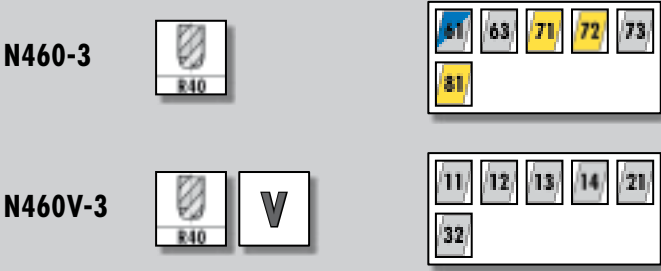


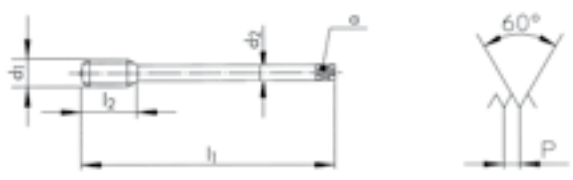






| | | | | | | | | | | N310-3 | N320-4 | N320V-4 | |
|---|--|---|----------------------|----------------------|----------------------|----------------------|---------|---|---|---|-----------|-----------|----------------------|
|  | | | | | | | | | |  | | | |
| N310-3 |  |  | | | | | | | | | | | |
| N320-4 |  |  | | | | | | | | | | | |
| N320V-4 |  V |  | | | | | | | | | | | |
|   | | | | | | | | | |  | | | |
| | | | | | | | | | | 2B | 2B | 2B | |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | ID | ID | |
| *2 | 56 | 2.18 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.75 | | 101469 | 143690 | |
| *3 | 48 | 2.51 | 50 | 10.0 | | 2.8 | 2.1 | 2 | 2.00 | | 101470 | | |
| 4 | 40 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.25 | 101450 | 101511 | 142738 | |
| 5 | 40 | 3.17 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.55 | | 101512 | | |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.75 | 101451 | 101514 | 144402 | |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.40 | 101452 | 101515 | 142739 | |
| 10 | 24 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | 101449 | 101508 | 142740 | |
| 12 | 24 | 5.48 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 4.40 | | 101509 | | |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 101448 | 101507 | 142741 | |
| | | | | | | | | | | | | | 3B UNC(J) |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm |  |  | ID | | | |
| 4 | 40 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.30 | | 145656 | | |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.80 | | 155317 | | |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.45 | | 155319 | | |
| * N320-3  | | | | | | | | | | | | | |

|  | | | | | | | | | N410-3 | N420-4 | N420V-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | N410-3 |  |  |
| N420-4 |  |  |  |  |  |  | | | | | |
| N420V-4 |   |  |  | | | | | | | | |
|   | | | | | | | | |  |  |  |
| | | | | | | | | |  |  |  |
| \varnothing " d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | ID | ID | ID |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.50 | 101997 | 102213 | 142742 |
| 3/8 | 16 | 9.52 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.00 | 101996 | 102212 | 142743 |
| 7/16 | 14 | 11.11 | 100 | 19.0 | 8.0 | 6.2 | 3 | 9.30 | | 102215 | 142744 |
| 1/2 | 13 | 12.70 | 110 | 24.0 | 9.0 | 7.0 | 3 | 10.80 | 101993 | 102208 | 142745 |
| 9/16 | 12 | 14.28 | 110 | 28.0 | 11.0 | 9.0 | 3 | 12.20 | | 102217 | |
| 5/8 | 11 | 15.87 | 110 | 30.0 | 12.0 | 9.0 | 3 | 13.60 | 101998 | 102214 | 142746 |
| 3/4 | 10 | 19.05 | 125 | 33.0 | 14.0 | 11.0 | 3 | 16.60 | 101995 | 102211 | 142747 |
| 7/8 | 9 | 22.22 | 140 | 36.0 | 18.0 | 14.5 | 3 | 19.50 | | 102216 | 142748 |
| 1 | 8 | 25.40 | 160 | 39.0 | 18.0 | 14.5 | 4 | 22.30 | 101994 | 102209 | 142749 |
| 1 1/8 | 7 | 28.57 | 180 | 45.0 | 22.0 | 18.0 | 4 | 25.00 | | 102205 | |
| 1 1/4 | 7 | 31.75 | 180 | 45.0 | 22.0 | 18.0 | 4 | 28.20 | * 101991 | 102204 | |
| 1 1/2 | 6 | 38.10 | 200 | 55.0 | 32.0 | 24.0 | 4 | 34.00 | * 101990 | 102203 | |
| 1 3/4 | 5 | 44.45 | 220 | 59.0 | 36.0 | 29.0 | 4 | 39.50 | * 101992 | 102206 | |
| 2 | 4.5 | 50.80 | 250 | 67.0 | 40.0 | 32.0 | 4 | 45.30 | | 102210 | |



| | | | | | | | | | | N360-3 | N360V-3 | N360-3 | |
|--|----------|---|---|----------------------|----------------------|----------------------|---------|---|-------------------|-----------|-----------|----------------------|--|
| | | | | | | | | | | | | | |
| N360-3 | | <div style="display: flex; justify-content: space-between;"> 61 63 71 72 73 81 </div> | | | | | | | | | | | |
| N360V-3 | | V | <div style="display: flex; justify-content: space-between;"> 11 12 13 14 21 32 </div> | | | | | | | | | | |
| N360-3 | | <div style="display: flex; justify-content: space-between;"> 61 63 71 72 73 81 </div> | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | 2B | 2B | 3B UNC(J) | |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | |
| 2 | 56 | 2.18 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 | 101673 | 148887 | | |
| 3 | 48 | 2.51 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.00 | 101674 | | | |
| 4 | 40 | 2.84 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | ¹ 2.25 | 101676 | 101725 | 155316 | |
| 5 | 40 | 3.17 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.55 | 101677 | | | |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | ² 2.75 | 101679 | 101727 | 155318 | |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | ³ 3.40 | 101680 | 101728 | 155320 | |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | 101671 | 101723 | | |
| 12 | 24 | 5.48 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 4.40 | 101672 | | | |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 101670 | 101722 | | |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 | 101678 | 101726 | | |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 101675 | 101724 | | |
| UNJC ¹ 2.30 ² 2.80 ³ 3.45 | | | | | | | | | | | | | |

|  | | | | | | | | | | N460-3 | N460V-3 | | |
|--|----------|-------------|-------------|-------------|-------------|-----------|---|---|--|--|---------|--|--|
| | | | | | | | | | |  | | | |
|  | | | | | | | | | |  | | | |
|  | | | | | | | | | |  | | | |
| | | | | | | | | | |  | | | |
| $\varnothing'' d_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | | ID | ID | | |
| 7/16 | 14 | 11.11 | 100 | 14.0 | 8.0 | 6.2 | 3 | 9.30 | | 102424 | 105135 | | |
| 1/2 | 13 | 12.70 | 110 | 14.0 | 9.0 | 7.0 | 3 | 10.80 | | 102420 | 102497 | | |
| 9/16 | 12 | 14.28 | 110 | 14.0 | 11.0 | 9.0 | 3 | 12.20 | | 102426 | 102502 | | |
| 5/8 | 11 | 15.87 | 110 | 18.0 | 12.0 | 9.0 | 3 | 13.60 | | 102423 | 102500 | | |
| 3/4 | 10 | 19.05 | 125 | 21.0 | 14.0 | 11.0 | 3 | 16.60 | | 102422 | 102499 | | |
| 7/8 | 9 | 22.22 | 140 | 24.0 | 18.0 | 14.5 | 4 | 19.50 | | 102425 | 102501 | | |
| 1 | 8 | 25.40 | 160 | 27.0 | 18.0 | 14.5 | 4 | 22.30 | | 102421 | 102498 | | |
| 1 1/8 | 7 | 28.57 | 180 | 30.0 | 22.0 | 18.0 | 4 | 25.00 | | 102418 | 102495 | | |
| 1 1/4 | 7 | 31.75 | 180 | 30.0 | 22.0 | 18.0 | 4 | 28.20 | | 102417 | 102494 | | |
| 1 1/2 | 6 | 38.10 | 200 | 40.0 | 32.0 | 24.0 | 5 | 34.00 | | 102416 | 102493 | | |
| 1 3/4 | 5 | 44.45 | 220 | 44.0 | 36.0 | 29.0 | 5 | 39.50 | | | 128062 | | |
| 2 | 4.5 | 50.80 | 250 | 52.0 | 40.0 | 32.0 | 5 | 45.30 | | | 128084 | | |

| | | | | | | | | | | Z320V-4 | Z320VS-4 | Z420V-4 | Z420VS-4 |
|-------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|---------|----------|---------|----------|
| | | | | | | | | | | | | | |
| Z320V-4 | | 21 22 23 41 42 51 | | | | | | | | | | | |
| Z320VS-4 | | 21 22 23 24 51 61 | | | | | | | | | | | |
| Z420V-4 | | 21 22 23 41 42 51 | | | | | | | | | | | |
| Z420VS-4 | | 21 22 23 24 51 61 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| \varnothing d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| *2 | 56 | 2.18 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.75 | 142750 | | | |
| 4 | 40 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.25 | 142751 | | | |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.75 | 142752 | 111560 | | |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.40 | 142753 | 111561 | | |
| 10 | 24 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | 142754 | 111562 | | |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 142755 | 111563 | | |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.50 | 142756 | 111564 | | |
| 3/8 | 16 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 142757 | 111565 | | |
| 1/2 | 13 | 12.70 | 110 | 24.0 | | 9.0 | 7.0 | 3 | 10.80 | | | 142758 | 111566 |
| 5/8 | 11 | 15.87 | 110 | 30.0 | | 12.0 | 9.0 | 3 | 13.60 | | | 142759 | 111567 |
| 3/4 | 10 | 19.05 | 125 | 33.0 | | 14.0 | 11.0 | 4 | 16.60 | | | 142760 | 111568 |
| 7/8 | 9 | 22.22 | 140 | 36.0 | | 18.0 | 14.5 | 4 | 19.50 | | | 142761 | |
| 1 | 8 | 25.40 | 160 | 39.0 | | 18.0 | 14.5 | 4 | 22.30 | | | 142762 | |

* Z320V-3



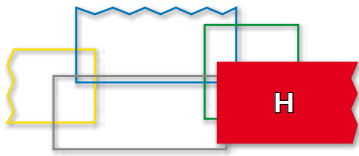
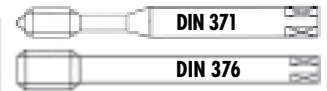
| | | | | | | | | | | Z362V-3 | Z362VS-3 | Z462V-3 | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--|----------|---------|--|
| | | | | | | | | | | <p>Z362V-3</p> <p>Z362VS-3</p> <p>Z462V-3</p> | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | |
| *2 | 56 | 2.18 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 | 104695 | | | |
| *4 | 40 | 2.84 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.25 | 104697 | | | |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.75 | 104699 | * 111543 | | |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.40 | 104700 | * 111544 | | |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | 104694 | | | |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 104693 | | | |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 | 104698 | | | |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 104696 | * 111548 | | |
| 7/16 | 14 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.30 | | | 104757 | |
| 1/2 | 13 | 12.70 | 110 | 14.0 | | 9.0 | 7.0 | 3 | 10.80 | | | 104753 | |
| 5/8 | 11 | 15.87 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 13.60 | | | 104756 | |
| 3/4 | 10 | 19.05 | 125 | 21.0 | | 14.0 | 11.0 | 3 | 16.60 | | | 104755 | |
| 7/8 | 9 | 22.22 | 140 | 24.0 | | 18.0 | 14.5 | 3 | 19.50 | | | 104758 | |
| 1 | 8 | 25.40 | 160 | 27.0 | | 18.0 | 14.5 | 4 | 22.30 | | | 104754 | |

* Z360V-3

| | | | | | | | | | | Z370VS-3 | Z470VS-3 | | |
|-------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------------------|---------|---|-------|----------|----------|--|--|
| | | | | | | | | | | | | | |
| <p>Z370VS-3</p> | | | | | | | | | | | | | |
| <p>Z470VS-3</p> | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h ₆ mm | a mm | | | ID | ID | | |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0(h9) | 3.0 | 3 | 2.75 | 166123 | | | |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5(h9) | 3.4 | 3 | 3.40 | 166124 | | | |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | 166125 | | | |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.10 | 166126 | | | |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 | 166127 | | | |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 166128 | | | |
| 7/16 | 14 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.30 | | 166129 | | |
| 1/2 | 13 | 12.70 | 110 | 14.0 | | *10.0 | *8.0 | 4 | 10.80 | | 166130 | | |
| 5/8 | 11 | 15.87 | 110 | 18.0 | | 12.0 | 9.0 | 4 | 13.60 | | 166131 | | |
| 3/4 | 10 | 19.05 | 125 | 21.0 | | 14.0 | 11.0 | 4 | 16.60 | | 166132 | | |
| 1 | 8 | 25.40 | 160 | 27.0 | | 16.0 | 12.0 | 4 | 22.30 | | 175703 | | |
| * Norme DC / * DC Norm / * Norma DC | | | | | | | | | | | | | |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h ₆ mm | a mm | | | ID | | | |
| 4 | 40 | 2.84 | 56 | 5.5 | 18 | 3.5(h9) | 2.7 | 3 | 2.30 | 165114 | | | |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0(h9) | 3.0 | 3 | 2.80 | 165115 | | | |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5(h9) | 3.4 | 3 | 3.45 | 165116 | | | |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.20 | 165117 | | | |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.70 | 165118 | | | |
| * Norme DC / * DC Norm / * Norma DC | | | | | | | | | | | | | |

UNC ANSI B1.1

PM



H320-4 H420-4 H350-3 H450-3

H320-4



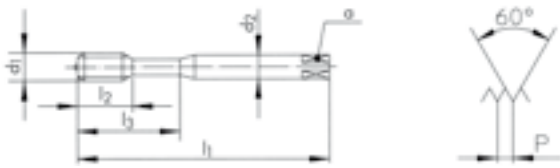
H420-4



H350-3



H450-3



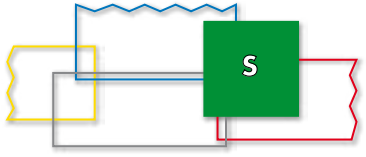




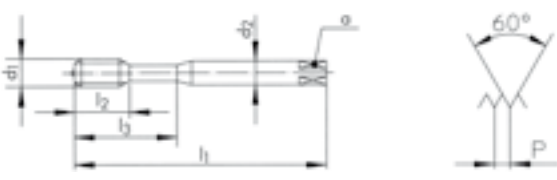






| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 2 | 56 | 2.18 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 |
| 4 | 40 | 2.84 | 56 | 10.0 | 18 | 3.5 | 2.7 | 3 | 2.25 |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.75 |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.40 |
| 10 | 24 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.80 |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.10 |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.50 |
| 3/8 | 16 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.00 |
| 1/2 | 13 | 12.70 | 110 | 24.0 | | 9.0 | 7.0 | 4 | 10.80 |

| ID | ID |
|--------|--------|
| 101221 | |
| 101223 | |
| 101225 | |
| 101226 | |
| 101220 | |
| 101219 | |
| 101224 | |
| 101222 | |
| | 101290 |











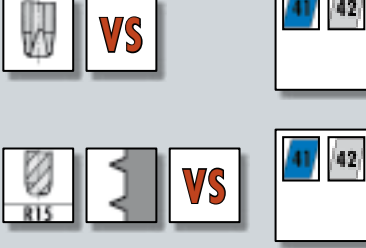

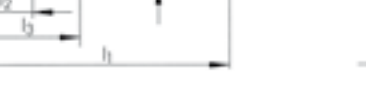

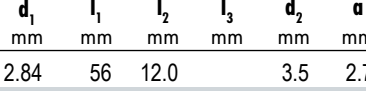

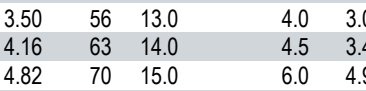
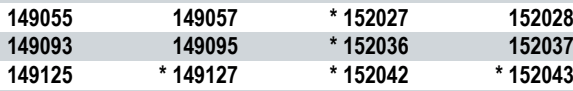
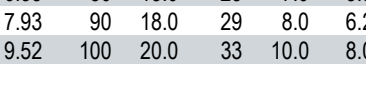

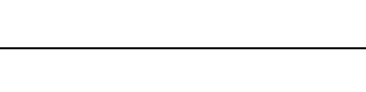

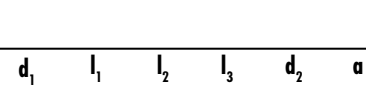
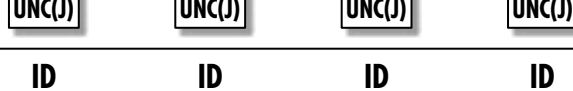
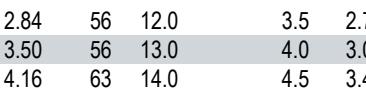

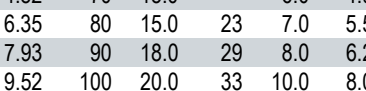
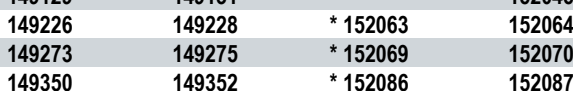


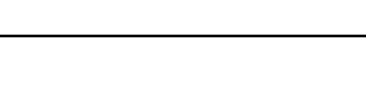
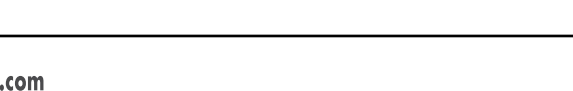
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 2 | 56 | 2.18 | 45 | 8.0 | | 2.8 | 2.1 | 2 | 1.75 |
| 4 | 40 | 2.84 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.25 |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.75 |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.40 |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.10 |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 |
| 7/16 | 14 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.30 |
| 1/2 | 13 | 12.70 | 110 | 14.0 | | 9.0 | 7.0 | 4 | 10.80 |
| 5/8 | 11 | 15.87 | 110 | 18.0 | | 12.0 | 9.0 | 4 | 13.60 |
| 3/4 | 10 | 19.05 | 125 | 21.0 | | 14.0 | 11.0 | 4 | 16.60 |
| 1 | 8 | 25.40 | 160 | 27.0 | | 18.0 | 14.5 | 4 | 22.30 |

| ID | ID |
|----|--------|
| | 101258 |
| | 101260 |
| | 101262 |
| | 101263 |
| | 101257 |
| | 101256 |
| | 101261 |
| | 101259 |
| | |
| | 101330 |
| | 101326 |
| | 101329 |
| | 101328 |
| | 101327 |

| | | | | | | | | | | S320VS-4 | S420VS-4 | | |
|-------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|----------|----------|--|--|
| | | | | | | | | | | | | | |
| S320VS-4 | | VS | | | | | | | | | | | |
| S420VS-4 | | VS | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| \varnothing d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | | |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.75 | 111587 | | | |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.40 | 111588 | | | |
| 10 | 24 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | * 111589 | | | |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 111590 | | | |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.50 | 111591 | | | |
| 3/8 | 16 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 111592 | | | |
| 1/2 | 13 | 12.70 | 110 | 24.0 | | 9.0 | 7.0 | 4 | 10.80 | | 111593 | | |
| 5/8 | 11 | 15.87 | 110 | 30.0 | | 12.0 | 9.0 | 4 | 13.60 | | 111594 | | |
| 3/4 | 10 | 19.05 | 125 | 33.0 | | 14.0 | 11.0 | 4 | 16.60 | | 111595 | | |
| | | | | | | | | | | | | | |
| \varnothing d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | | | |
| 4 | 40 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.30 | 165314 | | | |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.80 | 165315 | | | |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.45 | 165316 | | | |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.20 | 165317 | | | |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.70 | * 143761 | | | |

|  | | | | | | | | | | | S360VS-3 | S460VS-3 | | |
|--|----------|-------------|-------------|-------------|-------------|-------------|-----------|---|---|----------|---|----------|--|--|
| | | | | | | | | | | | <p>S360VS-3  </p> <p>S460VS-3  </p> | | | |
|  | | | | | | | | | | |   | |   | |
| $\varnothing'' d_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  |  | ID | ID | | | |
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.75 | 111530 | | | | |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.40 | 111531 | | | | |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 | * 111532 | | | | |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | 111533 | | | | |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 | 111534 | | | | |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 | 111535 | | | | |
| 1/2 | 13 | 12.70 | 110 | 14.0 | | 9.0 | 7.0 | 4 | 10.80 | | 111537 | | | |
| 3/4 | 10 | 19.05 | 125 | 21.0 | | 14.0 | 11.0 | 4 | 16.60 | | * 111539 | | | |

aero

| | | | | | | | | | | SA320-4 | SA350-3 | TL320VS-4 | TL351VS-3 |
|---|--|--|--|--|--|--|--|--|--|--|---------|-----------|-----------|
|     | | | | | | | | | |  | | | |
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aero

SA420-4

SA450-3

SA390-3

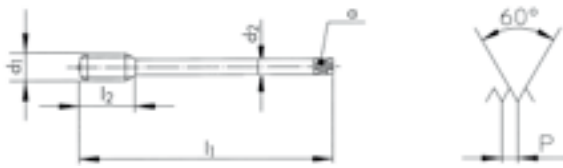
SA420-4



SA450-3



SA390-3



| $\varnothing'' d_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|-----------|---|-------|
| 7/16 | 14 | 11.11 | 100 | 22.0 | 8.0 | 6.2 | 3 | 9.30 |
| 1/2 | 13 | 12.70 | 110 | 24.0 | 9.0 | 7.0 | 4 | 10.80 |
| 5/8 | 11 | 15.87 | 110 | 30.0 | 12.0 | 9.0 | 4 | 13.60 |
| 3/4 | 10 | 19.05 | 125 | 33.0 | 14.0 | 11.0 | 4 | 16.60 |

ID

ID

* 152246

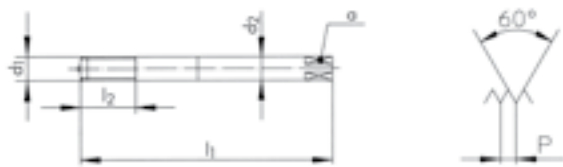
152247

152252

152249

152254

* 152250



| $\varnothing'' d_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|-----------|---|------|
| 4 | 40 | 2.84 | 56 | 12.0 | 3.5 | 2.7 | 3 | 2.30 |
| 6 | 32 | 3.50 | 56 | 13.0 | 4.0 | 3.0 | 3 | 2.80 |
| 8 | 32 | 4.16 | 63 | 14.0 | 4.5 | 3.4 | 3 | 3.45 |
| 10 | 24 | 4.82 | 70 | 15.0 | 6.0 | 4.9 | 3 | 3.90 |
| 1/4 | 20 | 6.35 | 80 | 20.0 | 7.0 | 5.5 | 3 | 5.20 |
| 5/16 | 18 | 7.93 | 90 | 25.0 | 8.0 | 6.2 | 3 | 6.70 |
| 3/8 | 16 | 9.52 | 100 | 30.0 | 10.0 | 8.0 | 3 | 8.10 |

3B
UNC(J)

ID

149652

149666

149677

149685

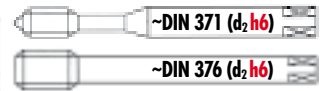
149713

149726

149747

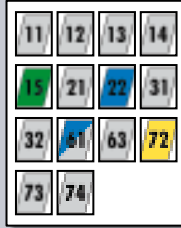


Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado



RTS Rigid Tapping Synchro

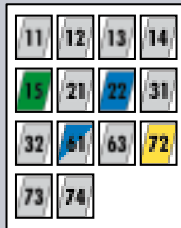
RTS320VS-4



RTS420VS-4



RTS362VS-3



RTS462VS-3

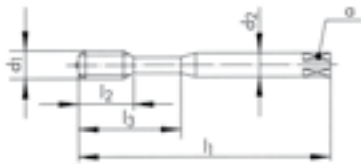


RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | α mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| 6 | 32 | 3.50 | 56 | 6.5 | 20 | 4.0(h9) | 3.0 | 3 | 2.75 |
| 8 | 32 | 4.16 | 63 | 7.5 | 21 | 4.5(h9) | 3.4 | 3 | 3.40 |
| 10 | 24 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.80 |
| 1/4 | 20 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.10 |
| 5/16 | 18 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.50 |
| 3/8 | 16 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.00 |
| 1/2 | 13 | 12.70 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 10.80 |

ID

ID

ID

ID

157395

157402

157396

157403

157397

157404

157398

157405

157399

157406

157400

157407

157401

157408

* Norme DC / * DC Norm / * Norma DC

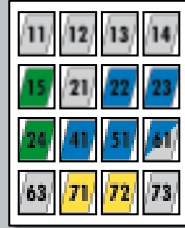


sur demande
auf Anfrage
on request
su richiesta
sobre pedido

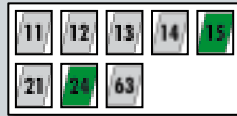
FS FPS
FAS

FORMING

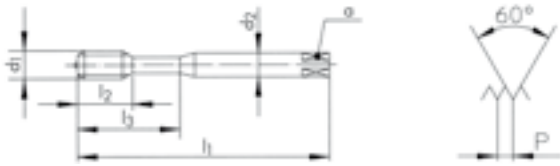
FS380VS-3



FPS381VS-3



FAS381VS-3



FS380VS-3



FPS381VS-3



FAS381VS-3



| $\varnothing'' d_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | 2BX Tol. $\rightarrow \leftarrow$ |
|----------------------------|----------|-------------|-------------|-------------|-------------|-------------|----------------|--------------------------------------|
| 2 | 56 | 2.18 | 45 | 9.0 | | 2.8 | 2.1 | 1.95 + 0.02 |
| 4 | 40 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 2.55 + 0.03 |
| 6 | 32 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3.15 + 0.03 |
| 8 | 32 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3.80 + 0.03 |
| 10 | 24 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 4.35 + 0.05 |
| 1/4 | 20 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 5.75 + 0.05 |
| 5/16 | 18 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 7.30 + 0.05 |

ID

157285

ID

170063
166713
166714
166715
166716
* 166717
























ID

170065
166725
166726
166727
166728
* 166729

| | | | | | | | | | | N1110-1 | N1110-2 | N1110-3 | N1110-S |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|----------|----------|-----------|-----------|
| | | | | | | | | | | | | | |
| N1110-1 | | | | | | | | | | | | | |
| N1110-2 | | | | | | | | | | | | | |
| N1110-3 | | | | | | | | | | | | | |
| N1110-S | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | 2B | 2B |
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| 2 | 56 | 2.18 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 1.75 | 102799 | 102885 | 102998 | 111067 |
| 3 | 48 | 2.51 | 45 | 9.5 | | 2.80 | 2.10 | 3 | 2.00 | * 102800 | * 102886 | * 102999 | * 111068 |
| 4 | 40 | 2.84 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.25 | 102802 | 102888 | 103001 | 111070 |
| 5 | 40 | 3.17 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.55 | | | 103002 | |
| 6 | 32 | 3.50 | 50 | 13.0 | 20 | 3.55 | 2.80 | 3 | 2.75 | 102805 | 102891 | 103004 | 111073 |
| 8 | 32 | 4.16 | 53 | 13.0 | 21 | 4.50 | 3.55 | 3 | 3.40 | 102806 | 102892 | 103005 | 111074 |
| 10 | 24 | 4.82 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 3.80 | 102797 | 102883 | 102996 | 111065 |
| 1/4 | 20 | 6.35 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.10 | 102796 | 102882 | 102995 | 111064 |
| 5/16 | 18 | 7.93 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 6.50 | 102804 | 102890 | 103003 | 111072 |
| 3/8 | 16 | 9.52 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 8.00 | 102801 | 102887 | 103000 | 111069 |

| | | | | | | | | | | N1210-1 | N1210-2 | N1210-3 | N1210-S |
|---------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--|---------|---------|---------|---------|
| | | | | | | | | | | | | | |
| N1210-1 | | | | | | | | | | | | | |
| N1210-2 | | | | | | | | | | | | | |
| N1210-3 | | | | | | | | | | | | | |
| N1210-S | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| \varnothing " d ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | | | ID | ID | ID | ID |
| 7/16 | 14 | 11.11 | 85 | 22.0 | 8.0 | 6.3 | 3 | 9.30 | | 103392 | 103466 | 103606 | 111236 |
| 1/2 | 13 | 12.70 | 89 | 24.0 | 9.0 | 7.1 | 3 | 10.80 | | 103387 | 103461 | 103601 | 111229 |
| 5/8 | 11 | 15.87 | 102 | 32.0 | 12.5 | 10.0 | 3 | 13.60 | | 103391 | 103465 | 103605 | 111235 |
| 3/4 | 10 | 19.05 | 112 | 33.0 | 14.0 | 11.2 | 3 | 16.60 | | 103390 | 103464 | 103604 | 111234 |
| 1 | 8 | 25.40 | 130 | 45.0 | 18.0 | 14.0 | 4 | 22.30 | | 103388 | 103462 | 103602 | 111230 |

UNF, UNEF, UNS, UN *Inhaltsverzeichnis - Maschinen- und Handgewindebohrer ANSI B1.1* Directory - Machine and hand taps ANSI B1.1

























| | | N | | | | | | |
|---|------------------|---|---|---|--|--|--|---|
| Merkmale Characteristics | |  |  |  V |  #40 |  #40 V |   |  |
| | |  |  |  |  |  |   |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
|  | | N310-3 | N320-3 N320-4 | N320V-4 | N360-3 | N360V-3 | N1110 -1-3-S | N1120-4 |
| DIN lang DIN long | DIN 371 | 134 | 134 | 134 | 136 | 136 | | |
| ISO kurz ISO short | ISO 529 | | | | | | 148 | 150 |
| Toleranz Tolerance | UNF 2B | 134 | 134 | 134 | 136 | 136 | 148 | |
| Toleranz Tolerance | UNJF 3B | | | | | | | |
| Toleranz Tolerance | UNF(J) 3B | | 134 | | 136 | | | |
| Toleranz Tolerance | UNEF 2B | | | | | | 150 | 150 |
| Toleranz Tolerance | UNS 2B | | | | | | | |
| Toleranz Tolerance | UN 2B | | | | | | | |
|  | | N410-3 | N420-4 | N420V-4 | N460-3 | N460V-3 | N1210 -1-3-S | N1220-4 |
| DIN lang DIN long | DIN 374 | 135/151 | 135 | 135 | 137 | 137 | | |
| ISO kurz ISO short | ISO 529 | | | | | | 149 | 150 |
| Toleranz Tolerance | UNF 2B | 135 | 135 | 135 | 137 | 137 | 149 | |
| Toleranz Tolerance | UNJF 3B | | | | | | | |
| Toleranz Tolerance | UNF(J) 3B | | 135 | | 137 | | | |
| Toleranz Tolerance | UNEF 2B | | | | | | 150 | 150 |
| Toleranz Tolerance | UNS 2B | 151 | | | 151 | 151 | | |
| Toleranz Tolerance | UN 2B | | | | 151 | 151 | | |

UNF, UNJF

Inhaltsverzeichnis - Maschinengewindebohrer ANSI B1.1 / ASME B1.15 Directory - Machine taps ANSI B1.1 / ASME B1.15

| Z | | | H | | S | | SA | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| V | V | VS | | | VS | VS | |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Z320V-4 | Z360V-3 | Z370VS-3 | H320-4 | H350-3 | S320VS-4 | S360VS-3 | SA320-4 | SA320-4 |
| 138 | 138 | 139 | 140 | 141 | 142 | 142 | 143 | 145 |
| 138 | 138 | 139 | 140 | 141 | | 142 | 143 | 145 |
| | | 139 | | | 142 | 142 | 143 | |
| Z420V-4 | Z460V-3 | Z470VS-3 | H420-4 | H450-3 | S420VS-4 | S460VS-3 | SA420-4 | |
| 138 | 138 | 139 | 140 | 141 | 142 | 142 | 144 | |
| 138 | 138 | 139 | 140 | 141 | | 142 | 144 | |
| | | | | | 142 | 142 | 144 | |













UNF, UNJF, UNS, UN

| | | SA | | TL | | RTS | | |
|---|--------------|---|---|---|--|---|---|--|
| Merkmale Characteristics | |  |  |  |  |  |  | |
| | | | |  |  |  |  | |
| | |  |  |  |  |  |  | |
| Lochart Hole type | |  |  |  |  |  |  | |
|  | | SA350-3 | SA390-3 | TL320VS-4 | TL351VS-3 | RTS320VS-4 | RTS362VS-3 | |
| DIN lang DIN long | DIN 371 | 143 | 145 | 143 | 143 | 146 | 146 | |
| DIN lang DIN long | ~ DIN 2184-1 | | | | | | | |
| Toleranz Tolerance | UNF 2B | 143 | | 143 | 143 | 146 | 146 | |
| Toleranz Tolerance | UNF(J) 3B | 143 | 145 | 143 | 143 | | | |
| Toleranz Tolerance | UNEF 2B | | | | | | | |
| Toleranz Tolerance | UNS 2B | | | | | | | |
| Toleranz Tolerance | UN 2B | | | | | | | |
|  | | SA450-3 | | TL420VS-4 | TL451VS-3 | RTS420VS-4 | RTS462VS-3 | |
| DIN lang DIN long | DIN 374 | 144 | | 144 | 144 | 146 | 146 | |
| DIN lang DIN long | ~ DIN 2184-1 | | | | | | | |
| Toleranz Tolerance | UNF 2B | 144 | | | 144 | 146 | 146 | |
| Toleranz Tolerance | UNF(J) 3B | 144 | | 144 | 144 | | | |
| Toleranz Tolerance | UNEF 2B | | | | | | | |
| Toleranz Tolerance | UNS 2B | | | | | | | |
| Toleranz Tolerance | UN 2B | | | | | | | |

UNF

Inhaltsverzeichnis - Maschinengewindeformer ANSI B1.1

Directory - Machine thread formers ANSI B1.1

| FS | FPS | FAS |
|---|---|---|
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|  |  |  |
|  |  |  |
| FS380VS-3 | FPS381VS-3 | FAS381VS-3 |
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| 147 | 147 | 147 |
| 147 | 147 | 147 |
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PM HSSE



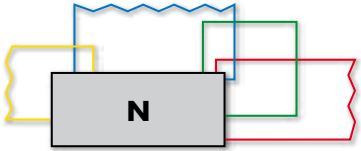


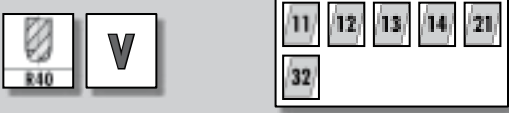
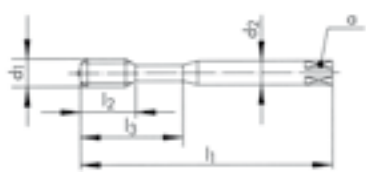










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|-------------------|-----|----------------|----------------|----------------|----------------|----------------|-----|---|------|--------|----------|--------|---------|
| | | | | | | | | | | | | | |
| N310-3 | | | | | | | | | | | | | |
| N320-3 | | | | | | | | | | | | | |
| N320-4 | | | | | | | | | | | | | |
| N320V-4 | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | ID | ID | ID |
| UNF | TPI | mm | mm | mm | mm | mm | mm | | | | | | |
| 0 | 80 | 1.52 | 40 | 7.0 | | 2.5 | 2.1 | 2 | 1.20 | | 101475 | | |
| 1 | 72 | 1.85 | 40 | 8.0 | | 2.5 | 2.1 | 2 | 1.50 | | * 101476 | | |
| 2 | 64 | 2.18 | 45 | 9.0 | | 2.8 | 2.1 | 2 | 1.80 | | 101477 | | |
| 4 | 48 | 2.84 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.35 | | | 128847 | |
| 5 | 44 | 3.17 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.60 | | | 142764 | |
| 6 | 40 | 3.50 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 2.90 | | | 101519 | 142765 |
| 8 | 36 | 4.16 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.50 | | | 101520 | |
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.05 | | | 101517 | 142766 |
| 12 | 28 | 5.48 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 4.60 | | | 101518 | |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.50 | 101453 | | 101516 | 142767 |
| | | | | | | | | | | | | | |
| Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | ID | ID | ID |
| UNF | TPI | mm | mm | mm | mm | mm | mm | | | | | | |
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.15 | | | 135506 | |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.55 | | | 155323 | |

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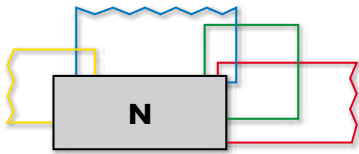
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| | | | | | | | | | | | | | |
| N410-3 | | | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | | | |
| N420V-4 | V | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | 2B | 2B | 2B | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | | | ID | ID | ID | |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 6.0 | 4.9 | 3 | 6.90 | | 102004 | 102223 | 142774 | |
| 3/8 | 24 | 9.52 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.50 | | 102003 | 102222 | 142775 | |
| 7/16 | 20 | 11.11 | 100 | 19.0 | 8.0 | 6.2 | 3 | 9.80 | | 102006 | 102225 | 142776 | |
| 1/2 | 20 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.40 | | 102000 | 102219 | 142777 | |
| 9/16 | 18 | 14.28 | 100 | 24.0 | 11.0 | 9.0 | 3 | 12.90 | | | 102227 | | |
| 5/8 | 18 | 15.87 | 100 | 26.0 | 12.0 | 9.0 | 3 | 14.50 | | 102005 | 102224 | 142778 | |
| 3/4 | 16 | 19.05 | 125 | 33.0 | 14.0 | 11.0 | 4 | 17.50 | | 102002 | 102221 | 142779 | |
| 7/8 | 14 | 22.22 | 140 | 36.0 | 18.0 | 14.5 | 4 | 20.40 | | * 102007 | 102226 | | |
| 1 | 12 | 25.40 | 160 | 39.0 | 18.0 | 14.5 | 4 | 23.30 | | | 102220 | 142780 | |
| 1 1/8 | 12 | 28.57 | 180 | 39.0 | 22.0 | 18.0 | 4 | 26.50 | | | 142773 | | |
| 1 1/4 | 12 | 31.75 | 180 | 39.0 | 22.0 | 18.0 | 4 | 29.70 | | | 102218 | | |
| 1 3/8 | 12 | 34.92 | 200 | 36.0 | 28.0 | 22.0 | 4 | 32.80 | | | 105137 | | |
| 1 1/2 | 12 | 38.10 | 200 | 41.0 | 32.0 | 24.0 | 4 | 36.00 | | * 110986 | 105138 | | |
| | | | | | | | | | | | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | | | ID | | | |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 6.0 | 4.9 | 3 | 7.00 | | | 155328 | | |
| 3/8 | 24 | 9.52 | 100 | 22.0 | 7.0 | 5.5 | 3 | 8.60 | | | 155326 | | |
| 7/16 | 20 | 11.11 | 100 | 19.0 | 8.0 | 6.2 | 3 | 10.00 | | | 155330 | | |
| 1/2 | 20 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.55 | | | 155321 | | |

UNF

| | | | | | | | | | | N360-3 | N360V-3 | | |
|---|----------|-------------|-------------|-------------|-------------|-------------|-----------|---|---|---|----------|---|--|
|  | | | | | | | | | |  | | | |
| <p>N360-3</p>  | | | | | | | | | | | | | |
| <p>N360V-3</p>  | | | | | | | | | | | | | |
|   | | | | | | | | | |  | |  | |
| | | | | | | | | | |  | |  | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  |  | ID | ID | | |
| 6 | 40 | 3.50 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 2.90 | 101686 | | | |
| 8 | 36 | 4.16 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.50 | * 101687 | * 101733 | | |
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 | 101682 | 101730 | | |
| 12 | 28 | 5.48 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 4.60 | 101683 | | | |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.50 | 101681 | 101729 | | |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 | 101685 | 101732 | | |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 101684 | 101731 | | |
| | | | | | | | | | |  | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm |  |  | ID | | | |
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.15 | 155325 | | | |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.55 | 155324 | | | |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 | 155329 | | | |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.60 | 155327 | | | |

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HSSE



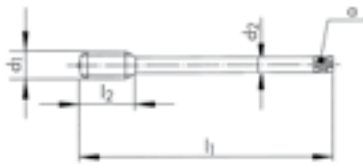
N460-3

N460V-3

N460-3



N460V-3



2B

2B

| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|---|-------|
| 7/16 | 20 | 11.11 | 100 | 14.0 | 8.0 | 6.2 | 3 | 9.80 |
| 1/2 | 20 | 12.70 | 100 | 14.0 | 9.0 | 7.0 | 3 | 11.40 |
| 9/16 | 18 | 14.28 | 100 | 14.0 | 11.0 | 9.0 | 3 | 12.90 |
| 5/8 | 18 | 15.87 | 100 | 14.0 | 12.0 | 9.0 | 3 | 14.50 |
| 3/4 | 16 | 19.05 | 125 | 18.0 | 14.0 | 11.0 | 4 | 17.50 |
| 7/8 | 14 | 22.22 | 140 | 20.0 | 18.0 | 14.5 | 4 | 20.40 |
| 1 | 12 | 25.40 | 160 | 27.0 | 18.0 | 14.5 | 4 | 23.30 |
| 1 1/8 | 12 | 28.57 | 180 | 24.0 | 22.0 | 18.0 | 4 | 26.50 |
| 1 1/4 | 12 | 31.75 | 180 | 24.0 | 22.0 | 18.0 | 4 | 29.70 |
| 1 1/2 | 12 | 38.10 | 200 | 30.0 | 32.0 | 24.0 | 5 | 36.00 |

ID

ID

102434

142781

102430

102503

102436

143422

102433

143097

102432

102505

102435

144714

102431

102504

102429

144414

102428

151709

102427

148793

3B
UNF(J)

| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|---|-------|
| 7/16 | 20 | 11.11 | 100 | 14.0 | 8.0 | 6.2 | 3 | 10.00 |
| 1/2 | 20 | 12.70 | 100 | 14.0 | 9.0 | 7.0 | 3 | 11.55 |

ID

155331

155322

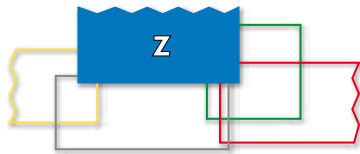
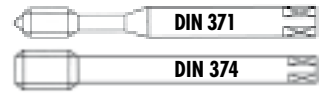
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Z .20

Z .60

PM

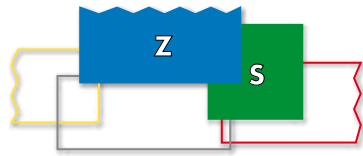
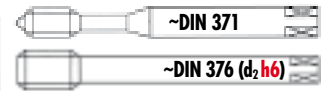
HSSE



| | | | | | | | | | | Z320V-4 | Z420V-4 | Z360V-3 | Z460V-3 |
|----------------------------|----------|-------------|-------------|-------------|-------------|-------------|-----------|---|-------|---------|---------|---------|---------|
| | | | | | | | | | | | | | |
| Z320V-4 | | | | | | | | | | | | | |
| Z420V-4 | | | | | | | | | | | | | |
| Z360V-3 | | | | | | | | | | | | | |
| Z460V-3 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | ID | ID | | |
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.05 | 142783 | | | |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.50 | 142784 | | | |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.90 | 142785 | | | |
| 3/8 | 24 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 142786 | | | |
| 7/16 | 20 | 11.11 | 100 | 19.0 | | 8.0 | 6.2 | 3 | 9.80 | | 142787 | | |
| 1/2 | 20 | 12.70 | 100 | 24.0 | | 9.0 | 7.0 | 3 | 11.40 | | 142788 | | |
| | | | | | | | | | | | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | a mm | | | ID | ID | | |
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 | 104680 | | | |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.50 | 104679 | | | |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 | 104682 | | | |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 | 104681 | | | |
| 7/16 | 20 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.80 | | 104741 | | |
| 1/2 | 20 | 12.70 | 100 | 14.0 | | 9.0 | 7.0 | 3 | 11.40 | | 104738 | | |
| 5/8 | 18 | 15.87 | 100 | 14.0 | | 12.0 | 9.0 | 3 | 14.50 | | 104740 | | |
| 3/4 | 16 | 19.05 | 125 | 18.0 | | 14.0 | 11.0 | 4 | 17.50 | | 104739 | | |

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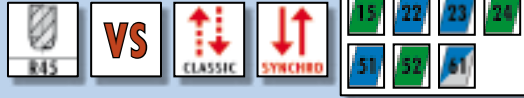
PM



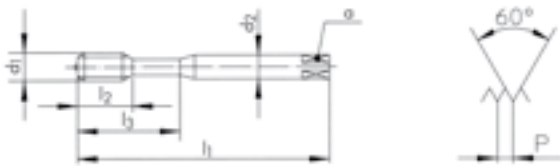
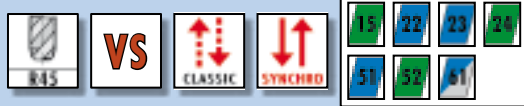
Z370VS-3

Z470VS-3

Z370VS-3



Z470VS-3



| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | α mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.50 |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 7/16 | 20 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.80 |
| 1/2 | 20 | 12.70 | 110 | 14.0 | | *10.0 | *8.0 | 4 | 11.40 |

* Norme DC / * DC Norm / * Norma DC

ID

ID



| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | α mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.15 |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.55 |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.60 |

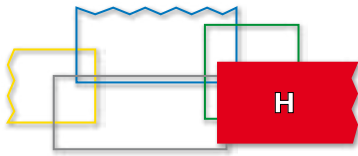
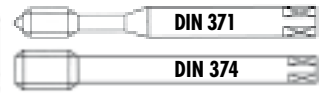
* Norme DC / * DC Norm / * Norma DC

ID

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UNF ANSI B1.1

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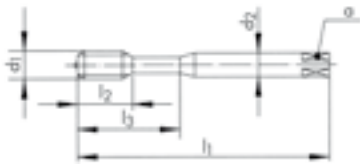


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| H320-4 | H420-4 | | |
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H320-4



H420-4

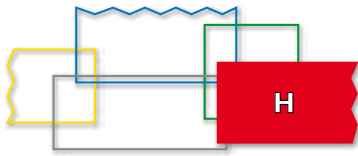
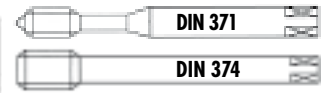


| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.05 |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.50 |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.90 |
| 3/8 | 24 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 1/2 | 20 | 12.70 | 100 | 24.0 | | 9.0 | 7.0 | 4 | 11.40 |

| | |
|-----------|-----------|
| ID | ID |
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| 101227 | |
| 105139 | |
| 101229 | |
| | 101291 |

UNF ANSI B1.1

PM



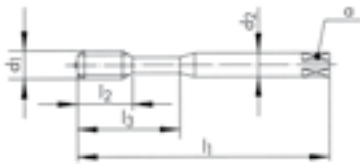
H350-3

H450-3

H350-3



H450-3



| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.50 |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 7/16 | 20 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.80 |
| 1/2 | 20 | 12.70 | 100 | 14.0 | | 9.0 | 7.0 | 4 | 11.40 |
| 5/8 | 18 | 15.87 | 100 | 14.0 | | 12.0 | 9.0 | 4 | 14.50 |
| 3/4 | 16 | 19.05 | 125 | 18.0 | | 14.0 | 11.0 | 4 | 17.50 |

ID

ID

101265

101264

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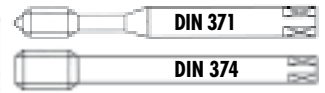
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| | | | | | | | | | | S320VS-4 | S420VS-4 | S360VS-3 | S460VS-3 | | | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|-------------|----------------|---|-------|----------|----------|----------|----------|--|--|--|--|
| | | | | | | | | | | | | | | | | | |
| S320VS-4 | | VS | | | | | | | | | | | | | | | |
| S420VS-4 | | VS | | | | | | | | | | | | | | | |
| S360VS-3 | | VS | | | | | | | | | | | | | | | |
| S460VS-3 | | VS | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | | | ID | ID | | | | | | |
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.15 | 111814 | | | | | | | |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.55 | 111813 | | | | | | | |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 7.00 | 111816 | | | | | | | |
| 3/8 | 24 | 9.52 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.60 | 111818 | | | | | | | |
| 7/16 | 20 | 11.11 | 100 | 22.0 | | 8.0 | 6.2 | 3 | 10.00 | | 111837 | | | | | | |
| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | | | ID | ID | | | | | | |
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 | | | * 111581 | | | | | |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.50 | | | * 111582 | | | | | |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 | | | * 111583 | | | | | |
| 7/16 | 20 | 11.11 | 100 | 14.0 | | 8.0 | 6.2 | 3 | 9.80 | | | | * 111585 | | | | |
| 1/2 | 20 | 12.70 | 100 | 14.0 | | 9.0 | 7.0 | 4 | 11.40 | | | | * 111586 | | | | |
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| $\varnothing'' d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 mm | α mm | | | ID | ID | | | | | | |
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.15 | 111815 | | | | | | | |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.55 | 111820 | | | | | | | |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 7.00 | 111817 | | | | | | | |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.60 | 111819 | | | | | | | |
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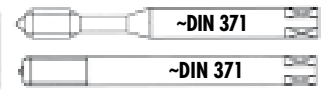
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| $\varnothing'' d_1$ UNF P TPI d ₁ mm l ₁ mm l ₂ mm l ₃ mm d ₂ mm a mm | | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">3B UNF(J)</div> <div style="border: 1px solid black; padding: 5px;">3B UNF(J)</div> <div style="border: 1px solid black; padding: 5px;">3B UNF(J)</div> <div style="border: 1px solid black; padding: 5px;">3B UNF(J)</div> </div> | | | | | |
| $\varnothing'' d_1$ UNF P TPI d ₁ mm l ₁ mm l ₂ mm l ₃ mm d ₂ mm a mm | | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">ID</div> <div style="border: 1px solid black; padding: 5px;">ID</div> <div style="border: 1px solid black; padding: 5px;">ID</div> <div style="border: 1px solid black; padding: 5px;">ID</div> </div> | | | | | |
| 10 1/4 5/16 3/8 | 32 28 24 24 | 4.82 6.35 7.93 9.52 | 70 80 90 100 | 15.0 15.0 18.0 20.0 | 23 29 33 | 7.0 8.0 10.0 | 5.5 6.2 8.0 | 3 3 3 | 4.05 5.50 6.90 8.50 | 149133 149230 149277 149339 | 149135 149232 149279 149341 | * 152046 * 152065 * 152071 * 152082 | 152047 152066 152072 152083 |
| 4 10 1/4 5/16 3/8 | 48 32 28 24 24 | 2.84 4.82 6.35 7.93 9.52 | 56 70 80 90 100 | 12.0 15.0 18.0 20.0 | | 3.5 6.0 7.0 8.0 10.0 | 2.7 4.9 5.5 6.2 8.0 | 3 3 3 3 3 | 2.35 4.15 5.55 7.00 8.60 | 149015 146098 146404 146393 147165 | 149015 149138 149235 149282 149344 | * 148005 * 148013 * 148017 * 148024 | 148004 148012 148016 148023 |

aero

| | | | | | | | | | | SA420-4 | SA450-3 | TL420VS-4 | TL451VS-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------|----------------|----------------|----------------|----------------|-----|-----|-------|----|--------------------------------|---------|----------------|----------------|----------------|----------------|---|--|--|--|-----|-----|----|----|----|----|----|--|--|--|------|----|-------|-----|------|-----|-----|-----|-------|----|-----|----|-------|-----|------|-----|-----|---|-------|----|------|----|-------|-----|------|------|-----|---|-------|----|-----|----|-------|-----|------|------|-----|---|-------|----|---|--|--|--|----|----|----|----|--------|---------|--------|---------|--------|--------|----------|--------|--------|--------|----------|--------|--------|--|--|--|--------|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>\varnothing" d₁</th> <th>P</th> <th>d₁</th> <th>l₁</th> <th>l₂</th> <th>d₂</th> <th>a</th> <th></th> <th></th> <th></th> </tr> <tr> <th>UNF</th> <th>TPI</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>7/16</td> <td>20</td> <td>11.11</td> <td>100</td> <td>22.0</td> <td>8.0</td> <td>6.2</td> <td>* 4</td> <td>9.80</td> <td>ID</td> </tr> <tr> <td>1/2</td> <td>20</td> <td>12.70</td> <td>100</td> <td>24.0</td> <td>9.0</td> <td>7.0</td> <td>4</td> <td>11.40</td> <td>ID</td> </tr> <tr> <td>9/16</td> <td>18</td> <td>14.28</td> <td>100</td> <td>24.0</td> <td>11.0</td> <td>9.0</td> <td>4</td> <td>12.90</td> <td>ID</td> </tr> <tr> <td>5/8</td> <td>18</td> <td>15.87</td> <td>100</td> <td>26.0</td> <td>12.0</td> <td>9.0</td> <td>4</td> <td>14.50</td> <td>ID</td> </tr> </tbody> </table> | | | | | | | | | | \varnothing " d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | a | | | | UNF | TPI | mm | mm | mm | mm | mm | | | | 7/16 | 20 | 11.11 | 100 | 22.0 | 8.0 | 6.2 | * 4 | 9.80 | ID | 1/2 | 20 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 4 | 11.40 | ID | 9/16 | 18 | 14.28 | 100 | 24.0 | 11.0 | 9.0 | 4 | 12.90 | ID | 5/8 | 18 | 15.87 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | ID | <table border="1"> <thead> <tr> <th>B</th> <th>C</th> <th>B</th> <th>C</th> </tr> <tr> <th>4 x P</th> <th>2.5 x P</th> <th>4 x P</th> <th>2.5 x P</th> </tr> </thead> <tbody> <tr> <td>2B</td> <td>2B</td> <td>2B</td> <td>2B</td> </tr> </tbody> </table> | | | | B | C | B | C | 4 x P | 2.5 x P | 4 x P | 2.5 x P | 2B | 2B | 2B | 2B | | | | | | | | | | | | |
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| UNF | TPI | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7/16 | 20 | 11.11 | 100 | 22.0 | 8.0 | 6.2 | * 4 | 9.80 | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 5/8 | 18 | 15.87 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.50 | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | C | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 x P | 2.5 x P | 4 x P | 2.5 x P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2B | 2B | 2B | 2B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>\varnothing" d₁</th> <th>P</th> <th>d₁</th> <th>l₁</th> <th>l₂</th> <th>d₂</th> <th>a</th> <th></th> <th></th> <th></th> </tr> <tr> <th>UNF</th> <th>TPI</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>7/16</td> <td>20</td> <td>11.11</td> <td>100</td> <td>22.0</td> <td>8.0</td> <td>6.2</td> <td>* 4</td> <td>10.00</td> <td>ID</td> </tr> <tr> <td>1/2</td> <td>20</td> <td>12.70</td> <td>100</td> <td>24.0</td> <td>9.0</td> <td>7.0</td> <td>4</td> <td>11.55</td> <td>ID</td> </tr> <tr> <td>9/16</td> <td>18</td> <td>14.28</td> <td>100</td> <td>24.0</td> <td>11.0</td> <td>9.0</td> <td>4</td> <td>13.05</td> <td>ID</td> </tr> <tr> <td>5/8</td> <td>18</td> <td>15.87</td> <td>100</td> <td>26.0</td> <td>12.0</td> <td>9.0</td> <td>4</td> <td>14.60</td> <td>ID</td> </tr> </tbody> </table> | | | | | | | | | | \varnothing " d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | a | | | | UNF | TPI | mm | mm | mm | mm | mm | | | | 7/16 | 20 | 11.11 | 100 | 22.0 | 8.0 | 6.2 | * 4 | 10.00 | ID | 1/2 | 20 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 4 | 11.55 | ID | 9/16 | 18 | 14.28 | 100 | 24.0 | 11.0 | 9.0 | 4 | 13.05 | ID | 5/8 | 18 | 15.87 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.60 | ID | <table border="1"> <thead> <tr> <th>3B</th> <th>3B</th> <th>3B</th> <th>3B</th> </tr> <tr> <th>UNF(J)</th> <th>UNF(J)</th> <th>UNF(J)</th> <th>UNF(J)</th> </tr> </thead> <tbody> <tr> <td>147187</td> <td>152302</td> <td>* 152306</td> <td>148031</td> </tr> <tr> <td>147189</td> <td>152303</td> <td>* 152307</td> <td>152310</td> </tr> <tr> <td>146395</td> <td></td> <td></td> <td></td> </tr> <tr> <td>147169</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | 3B | 3B | 3B | 3B | UNF(J) | UNF(J) | UNF(J) | UNF(J) | 147187 | 152302 | * 152306 | 148031 | 147189 | 152303 | * 152307 | 152310 | 146395 | | | | 147169 | | | |
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| UNF | TPI | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7/16 | 20 | 11.11 | 100 | 22.0 | 8.0 | 6.2 | * 4 | 10.00 | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 20 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 4 | 11.55 | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 5/8 | 18 | 15.87 | 100 | 26.0 | 12.0 | 9.0 | 4 | 14.60 | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| UNF(J) | UNF(J) | UNF(J) | UNF(J) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147187 | 152302 | * 152306 | 148031 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147189 | 152303 | * 152307 | 152310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 146395 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147169 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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UNJF ASME B1.15 UNF ANSI B1.1

PM



aero

SA320-4



SA390-3



SA320-4

SA390-3

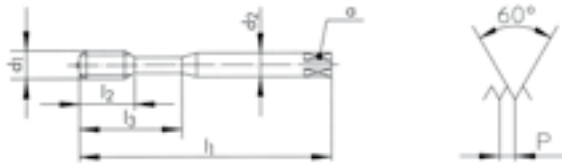


NEW

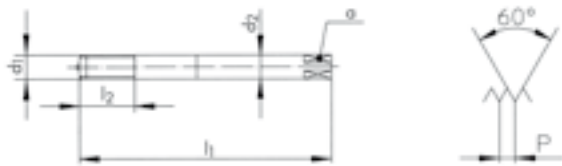


3B
UNJF

3B
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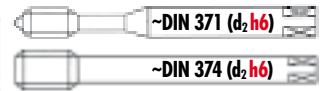


| \varnothing d ₁ UNJF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | | | ID |
|--------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|--------|
| 10 | 32 | 4.82 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.15 | 174976 |
| 1/4 | 28 | 6.35 | 80 | 15.0 | 23 | 7.0 | 5.5 | 3 | 5.55 | 175993 |
| 5/16 | 24 | 7.93 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 7.00 | 175995 |
| 3/8 | 24 | 9.52 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.60 | 175997 |



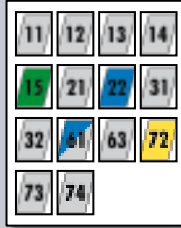
| \varnothing d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | ID |
|-------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|------|--------|
| 10 | 32 | 4.82 | 70 | 15.0 | 6.0 | 4.9 | 3 | 4.15 | 149687 |
| 1/4 | 28 | 6.35 | 80 | 20.0 | 7.0 | 5.5 | 3 | 5.55 | 149715 |
| 5/16 | 24 | 7.93 | 90 | 25.0 | 8.0 | 6.2 | 3 | 7.00 | 149728 |
| 3/8 | 24 | 9.52 | 100 | 30.0 | 10.0 | 8.0 | 3 | 8.60 | 149745 |

UNF



RTS Rigid Tapping Synchro

RTS320VS-4



RTS420VS-4



RTS362VS-3



RTS462VS-3

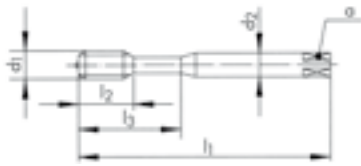


RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | α mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|-------|
| 10 | 32 | 4.82 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.05 |
| 1/4 | 28 | 6.35 | 80 | 11.0 | 30 | *6.0 | *4.9 | 3 | 5.50 |
| 5/16 | 24 | 7.93 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.90 |
| 3/8 | 24 | 9.52 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.50 |
| 1/2 | 20 | 12.70 | 110 | 14.0 | | *10.0 | *8.0 | 3 | 11.40 |

ID

ID

ID

ID

157409

157413

157410

157414

157411

157415

157412

157416

157417

157418

* Norme DC / * DC Norm / * Norma DC



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

FS FPS FAS **FORMING**

FS380VS-5



| | | | |
|----|----|----|----|
| 11 | 12 | 13 | 14 |
| 15 | 21 | 22 | 23 |
| 24 | 41 | 51 | 61 |
| 63 | 71 | 72 | 73 |

FPS381VS-3

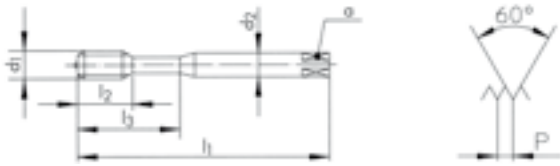


| | | | | |
|----|----|----|----|----|
| 11 | 12 | 13 | 14 | 15 |
| 21 | 24 | 63 | | |

FAS381VS-3



| | | | | | |
|----|----|----|----|----|----|
| 12 | 13 | 14 | 15 | 21 | 22 |
| 23 | 24 | 41 | 51 | 61 | 63 |



FS380VS-5



FPS381VS-3



FAS381VS-3



2BX

2BX

2BX

| \varnothing d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | α mm | Tol. |
|-------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|--------|
| 0 | 80 | 1.52 | 40 | 4.6 | | 2.5 | 1.37 | + 0.02 |
| 10 | 32 | 4.82 | 70 | 15.0 | 25 | 6.0 | 4.9 | + 0.03 |
| 1/4 | 28 | 6.35 | 80 | 17.0 | 30 | 7.0 | 5.5 | + 0.05 |
| 5/16 | 24 | 7.93 | 90 | 20.0 | 35 | 8.0 | 6.2 | + 0.05 |

ID

161498

ID

166718

166719

166720

ID

166730

166731

166732

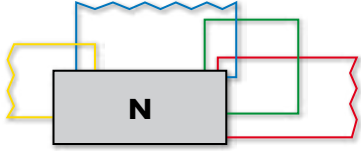
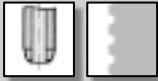





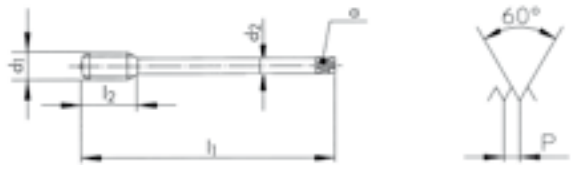
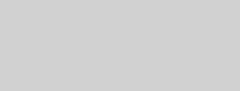

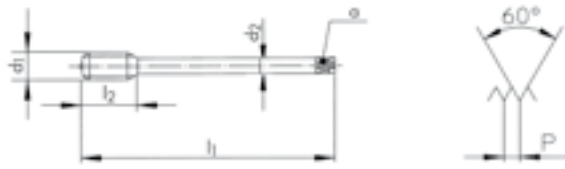

UNF ANSI B1.1

≤ Ø 2.8 > Ø 2.8

PM **HSS**



| | | | | | | | | | | N1110-1 | N1110-3 | N1110-S | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|----------|----------|----------|--|
| | | | | | | | | | | | | | |
| N1110-1 | | | | | | | | | | | | | |
| N1110-3 | | | | | | | | | | | | | |
| N1110-S | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø" d ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | |
| 0 | 80 | 1.52 | 40 | 7.0 | | 2.50 | 2.10 | 3 | 1.20 | 102811 | 103010 | 111079 | |
| 1 | 72 | 1.85 | 40 | 8.0 | | 2.50 | 2.10 | 3 | 1.50 | 102812 | 103011 | 111080 | |
| 4 | 48 | 2.84 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.35 | | * 103018 | | |
| 8 | 36 | 4.16 | 53 | 13.0 | 21 | 4.50 | 3.55 | 3 | 3.50 | | * 103022 | | |
| 10 | 32 | 4.82 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 4.05 | 102814 | 103013 | 111082 | |
| 12 | 28 | 5.48 | 62 | 17.0 | 26 | 5.60 | 4.50 | 3 | 4.60 | * 102815 | * 103014 | * 111083 | |
| 1/4 | 28 | 6.35 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 5.50 | 102813 | 103012 | 111081 | |
| 5/16 | 24 | 7.93 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 6.90 | 102821 | 103020 | 111089 | |
| 3/8 | 24 | 9.52 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 8.50 | 102818 | 103017 | 111086 | |

|  | | | | | | | | | | N1210-1 | N1210-3 | N1210-S | | |
|--|----------|-------------|-------------|-------------|-------------|-----------|---|---|--|---|---|---|--|--|
| | | | | | | | | | | <p>N1210-1 </p> <p>N1210-3  31 62 74</p> <p>N1210-S </p> | | | | |
| | | | | | | | | | |  |  |  | | |
|  | | | | | | | | | |  |  | | | |
| | | | | | | | | | | <div style="border: 1px solid black; padding: 5px; display: inline-block;">2B</div> | | <div style="border: 1px solid black; padding: 5px; display: inline-block;">2B</div> | | |
| $\varnothing^* d_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | | ID | ID | ID | | |
| 7/16 | 20 | 11.11 | 85 | 22.0 | 8.0 | 6.3 | 3 | 9.80 | | 103411 | 103626 | 111255 | | |
| 1/2 | 20 | 12.70 | 89 | 24.0 | 9.0 | 7.1 | 3 | 11.40 | | 103407 | 103622 | 111251 | | |
| 5/8 | 18 | 15.87 | 102 | 32.0 | 12.5 | 10.0 | 3 | 14.50 | | 103410 | 103625 | 111254 | | |
| 3/4 | 16 | 19.05 | 112 | 33.0 | 14.0 | 11.2 | 4 | 17.50 | | 103409 | 103624 | 111253 | | |
| 7/8 | 14 | 22.22 | 115 | 32.0 | 16.0 | 12.5 | 4 | 20.40 | | 103412 | 103627 | 111256 | | |
| 1 | 12 | 25.40 | 130 | 45.0 | 18.0 | 14.0 | 4 | 23.30 | | 103408 | 103623 | 111252 | | |

UNF

| | | | | | | | | | | N1110-3 | N1120-4 | N1210-3 | N1220-4 |
|--------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|---------|---------|---------|----------|
| | | | | | | | | | | | | | |
| N1110-3 | | | | | | | | | | | | | |
| N1120-4 | | | | | | | | | | | | | |
| N1210-3 | | | | | | | | | | | | | |
| N1220-4 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| \varnothing d ₁ UNEF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| 12 | 32 | 5.48 | 62 | 17.0 | 26 | 5.6 | 4.5 | 3 | 4.70 | 103007 | 103118 | | |
| 1/4 | 32 | 6.35 | 66 | 19.0 | 30 | 6.3 | 5.0 | 3 | 5.60 | 103006 | 103117 | | |
| 5/16 | 32 | 7.93 | 72 | 22.0 | 35 | 8.0 | 6.3 | 3 | 7.20 | 103009 | 103120 | | |
| 3/8 | 32 | 9.52 | 80 | 24.0 | 39 | 10.0 | 8.0 | 3 | 8.75 | 103008 | 103119 | | |
| 7/16 | 28 | 11.11 | 85 | 22.0 | | 8.0 | 6.3 | 3 | 10.25 | | | 103615 | 103754 |
| 1/2 | 28 | 12.70 | 89 | 24.0 | | 9.0 | 7.1 | 3 | 11.85 | | | 103609 | 103749 |
| 9/16 | 24 | 14.28 | 95 | 24.0 | | 11.2 | 9.0 | 3 | 13.20 | | | 103617 | 103756 |
| 5/8 | 24 | 15.87 | 102 | 32.0 | | 12.5 | 10.0 | 3 | 14.80 | | | 103614 | 103753 |
| 11/16 | 24 | 17.46 | 104 | 26.0 | | 14.0 | 11.2 | 4 | 16.40 | | | 103611 | |
| 3/4 | 20 | 19.05 | 112 | 33.0 | | 14.0 | 11.2 | 4 | 17.80 | | | 103613 | * 103752 |
| 7/8 | 20 | 22.22 | 115 | 32.0 | | 16.0 | 12.5 | 4 | 21.00 | | | 103616 | * 103755 |
| 1 | 20 | 25.40 | 120 | 30.0 | | 18.0 | 14.0 | 4 | 24.10 | | | 103610 | * 103750 |

UNS, UN ANSI B1.1

HSSE













| | | | | | | | | | | N410-3 | N460-3 | N460V-3 | | |
|---------------------|-----|-------|-------|-------|-------|------|---|-------|--|--------|--------|---------|----|--|
| | | | | | | | | | | | | | | |
| N410-3 | | | | | | | | | | | | | | |
| N460-3 | | | | | | | | | | | | | | |
| N460V-3 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| $\varnothing'' d_1$ | P | d_1 | l_1 | l_2 | d_2 | a | | | | | ID | ID | ID | |
| UNS | TPI | mm | mm | mm | mm | mm | | | | | | | | |
| 1/4 | 36 | 6.35 | 80 | 17.0 | 4.5 | 3.4 | 3 | 5.65 | | 104899 | | | | |
| 1/2 | 24 | 12.70 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.60 | | 104900 | | | | |
| 1 | 14 | 25.40 | 140 | 34.0 | 18.0 | 14.5 | 4 | 23.60 | | 104898 | | | | |
| 1 | 14 | 25.40 | 140 | 22.0 | 18.0 | 14.5 | 4 | 23.60 | | | 102437 | 142789 | | |
| $\varnothing'' d_1$ | P | d_1 | l_1 | l_2 | d_2 | a | | | | | ID | ID | | |
| UN | TPI | mm | mm | mm | mm | mm | | | | | | | | |
| 1 1/8 | 8 | 28.57 | 180 | 30.0 | 22.0 | 18.0 | 4 | 25.50 | | | 102415 | 142790 | | |
| 1 1/4 | 8 | 31.75 | 180 | 30.0 | 22.0 | 18.0 | 4 | 28.70 | | | 102414 | 142520 | | |
| 1 3/8 | 8 | 34.92 | 200 | 36.0 | 28.0 | 22.0 | 5 | 31.80 | | | 104896 | 142792 | | |
| 1 1/2 | 8 | 38.10 | 200 | 40.0 | 32.0 | 24.0 | 5 | 35.00 | | | 102413 | 142793 | | |
| 1 3/4 | 8 | 44.45 | 220 | 44.0 | 36.0 | 29.0 | 5 | 41.40 | | | | 115198 | | |
| 2 | 8 | 50.80 | 250 | 38.0 | 40.0 | 32.0 | 5 | 47.70 | | | | 111622 | | |

UNF, UNS, UN





















G Inhaltsverzeichnis - Maschinengewindebohrer G (Rohr) DIN ISO 228

Directory - Machine taps G (BSP) DIN ISO 228






















| | | N | | | | | |
|---|----------|---|--|--|--|---|---|
| Merkmale Characteristics | |  |  V |  TiN |  R40 |  R40 V |  R40 TiN |
| | |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |
|  | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
|  | | N410-3 | N420-4 N420V-4 | N420TN-4 | N460-3 | N460V-3 | N462V-3 N460TN-3 |
| DIN lang DIN long | DIN 5156 | 156 | 157 | 157 | 158 | 158 | 158 |
| DIN kurz DIN short | DIN 5157 | | | | | | |
| LH Linksgewinde LH Left hand thread | DIN 5156 | 156 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

G Inhaltsverzeichnis - Maschinengewindebohrer und Gewindeformer G (Rohr) DIN ISO 228

Directory - Machine taps and thread formers G (BSP) DIN ISO 228

| | H | GG | RTS | RTS | FPS | FAS | |
|---|---|--|--|---|--|--|--|
| Merkmale Characteristics |  |  NV |  VS |  E 1.5 x P VS |  VS |  VS | |
| |  |  |  |  |  |  | |
| Lochart Hole type |  |  |  |  |  |  | |
|  | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
|  | H450-3 | GG450NV-3 | RTS462VS-3 | RTS462VS-5 | FPS481VS-3 | FAS481VS-3 | |
| <i>DIN lang</i> DIN long | DIN 5156 | 159 | 159 | | | | |
| <i>DIN lang</i> DIN long | ~DIN 376 | | 161 | 161 | | | |
| <i>DIN lang</i> DIN long | ~DIN 2189 | | | | 162 | 162 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Rp, Rc DIN EN 10226, **W** BS 84 (BSW) *Inhaltsverzeichnis - Maschinen- und Handgewindebohrer*
W/SV Schaublin *Directory - Machine and hand taps*

| | N | | | | | | |
|---|---|--|---|--|---|--|--|
| Merkmale Characteristics |  |   |  |   |  | HSS   | |
| |  |  |  |  |  |  | |
| Lochart Hole type |  |  | |  |  | | |
|  | | | | N1110-3 | N1120-4 | N5120 | |
| ISO kurz ISO short | ISO 529 | | | 166 | 166 | | |
| W | ISO 529 | | | 166/167 | 166 | | |
| SV | ISO 529 | | | 167 | | | |
|  | N420-3 | N410-3 | D5800 | N1210-3 | N1220-4 | | |
| DIN lang DIN long | DIN 5156 | 164 | | | | | |
| DIN lang DIN long | DC | 164 | 165 | | | | |
| ISO kurz ISO short | ISO 529 | | | 166 | 166 | | |
| Rp | DIN 5156 | 164 | | | | | |
| Rc | DC | 164 | 165 | | | | |
| W | ISO 529 | | | 166 | 166 | | |
| SV | ISO 529/DC | | | 167 | | 167 | |

G (BSP),
Rp, Rc, W, SV

| | | | | | | | | | | N410-3 | N410-3 LH | | |
|---------------|-------|-------|-------|-------|-------|-------|----------|-------|--------|----------|-----------|--|--|
| | | | | | | | | | | | | | |
| \varnothing | d_1 | P | d_1 | l_1 | l_2 | d_2 | α | | | ID | ID | | |
| G | | TPI | mm | mm | mm | mm | mm | | | | | | |
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 3 | 8.75 | 101855 | | | | |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 3 | 11.60 | 101853 | 101854 | | | |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 4 | 15.20 | 101861 | 101862 | | | |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.90 | 101851 | 101852 | | | |
| 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.40 | 101859 | * 101860 | | | |
| 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.70 | 101857 | * 101858 | | | |
| 1 1/4 | 11 | 41.91 | 170 | 32.0 | 32.0 | 24.0 | 5 | 39.30 | 101850 | | | | |
| 1 1/2 | 11 | 47.80 | 190 | 32.0 | 36.0 | 29.0 | 5 | 45.20 | 101849 | | | | |

G DIN ISO 228 (BSP)



| | | | | | | | | | | N420-4 | N420V-4 | N420TN-4 | |
|--------------------------|------------|-------------|-------------|-------------|-------------|-----------|---|-------|--------------------------|--------|---------|----------|--|
| | | | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | | | |
| N420V-4 | V | | | | | | | | | | | | |
| N420TN-4 | TiN | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing'' d_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | | $\rightarrow \leftarrow$ | ID | ID | ID | |
| 1/16 | 28 | 7.72 | 90 | 18.0 | 6.0 | 4.9 | 3 | 6.75 | | 102045 | | | |
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 3 | 8.75 | | 102048 | 102258 | 102236 | |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 3 | 11.60 | | 102047 | 102257 | 102235 | |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 3 | 15.20 | | 102053 | 102261 | 102238 | |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.90 | | 102046 | 102256 | 102234 | |
| 5/8 | 14 | 22.91 | 125 | 25.0 | 18.0 | 14.5 | 4 | 20.90 | | 102054 | 144722 | | |
| 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.40 | | 102052 | 102260 | 102237 | |
| 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.70 | | 102049 | 102259 | | |
| 1 1/4 | 11 | 41.91 | 170 | 32.0 | 32.0 | 24.0 | 5 | 39.30 | | 102043 | | | |
| 1 1/2 | 11 | 47.80 | 190 | 32.0 | 36.0 | 29.0 | 5 | 45.20 | | 102042 | | | |
| 2 | 11 | 59.61 | 220 | 36.0 | 45.0 | 35.0 | 5 | 57.00 | | 102051 | | | |
| 2 1/2 | 11 | 75.18 | 280 | 36.0 | 50.0 | 39.0 | 6 | 72.60 | | 102050 | | | |

G DIN ISO 228 (BSP)

HSSE



| | | | | | | | | | | N460-3 | N460V-3 | N460TN-3 | N462V-3 | |
|---------------------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--|--------|---------|----------|---------|--|
| | | | | | | | | | | | | | | |
| N460-3 | | | | | | | | | | | | | | |
| N460V-3 | | V | | | | | | | | | | | | |
| N460TN-3 | | TiN | | | | | | | | | | | | |
| N462V-3 | | | V | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| $\frac{\text{Ø}''}{G}$ d ₁ | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | | ID | ID | ID | ID | |
| 1/16 | 28 | 7.72 | 90 | 12.5 | 6.0 | 4.9 | 3 | 6.75 | | 102341 | | | | |
| 1/8 | 28 | 9.72 | 90 | 14.0 | 7.0 | 5.5 | 3 | 8.75 | | 102344 | 102457 | 102444 | 143687 | |
| 1/4 | 19 | 13.15 | 100 | 14.0 | 11.0 | 9.0 | 3 | 11.60 | | 102343 | 102456 | 102443 | 143600 | |
| 3/8 | 19 | 16.66 | 100 | 14.0 | 12.0 | 9.0 | 4 | 15.20 | | 102348 | 102460 | 102446 | 143431 | |
| 1/2 | 14 | 20.95 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.90 | | 102342 | 102455 | 102442 | 143921 | |
| 5/8 | 14 | 22.91 | 125 | 20.0 | 18.0 | 14.5 | 4 | 20.90 | | 102349 | 143711 | | | |
| 3/4 | 14 | 26.44 | 140 | 22.0 | 20.0 | 16.0 | 4 | 24.40 | | 102347 | 102459 | 102445 | 143688 | |
| 1 | 11 | 33.24 | 160 | 26.0 | 25.0 | 20.0 | 4 | 30.70 | | 102345 | 102458 | | | |
| 1 1/4 | 11 | 41.91 | 170 | 30.0 | 32.0 | 24.0 | 5 | 39.30 | | 102340 | 111608 | | | |
| 1 1/2 | 11 | 47.80 | 190 | 35.0 | 36.0 | 29.0 | 5 | 45.20 | | 102339 | 111609 | | | |
| 2 | 11 | 59.61 | 220 | 41.0 | 45.0 | 35.0 | 6 | 57.00 | | 102346 | 111503 | | | |

G DIN ISO 228 (BSP)

≤ Ø 25.4 > Ø 25.4

PM

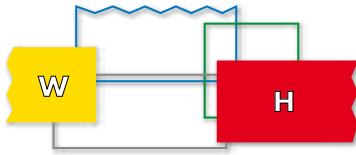
HSSE

HSSE

H/GG

H/GG

W



W460-5

W460DL-5

H450-3

GG450NV-3

W460-5



W460DL-5



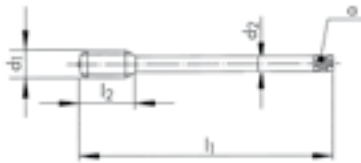
H450-3



GG450NV-3



NEW



| Ø" d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | |
|------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|----|-------|
| 1/8 | 28 | 9.72 | 90 | 14.0 | 7.0 | 5.5 | 3 | 8.75 |
| 1/4 | 19 | 13.15 | 100 | 14.0 | 11.0 | 9.0 | *4 | 11.60 |
| 3/8 | 19 | 16.66 | 100 | 14.0 | 12.0 | 9.0 | 4 | 15.20 |
| 1/2 | 14 | 20.95 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.90 |
| 3/4 | 14 | 26.44 | 140 | 22.0 | 20.0 | 16.0 | 4 | 24.40 |
| 1 | 11 | 33.24 | 160 | 26.0 | 25.0 | 20.0 | 4 | 30.70 |

* W460-5 = 3

ID

ID

ID

119350

176728

101298

119300

176729

101297

119682

176730

101301

119199

176731

101296

101300

101299

| Ø" d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | |
|------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 4 | 8.75 |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 4 | 11.60 |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 4 | 15.20 |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.90 |
| 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.40 |
| 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.70 |

ID

102309

102308

102312

102307

102311

102310

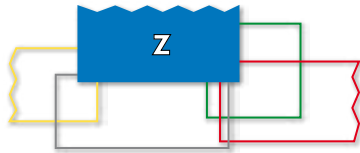
G DIN ISO 228 (BSP)

< Ø 25.4 > Ø 25.4

PM
Z420

HSSE
Z420

HSSE
Z460

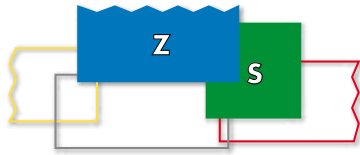


| | | | | | | | | | | Z420V-4 | Z420VS-4 | Z460V-3 | |
|---|----------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--|---------|----------|---------|--|
| <p>Z420V-4 V </p> <p>Z420VS-4 VS </p> <p>Z460V-3 V </p> | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø" d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | | ID | ID | | |
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 3 | 8.75 | | 142794 | 142800 | | |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 3 | 11.60 | | 142795 | 119303 | | |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 3 | 15.20 | | 142796 | 142802 | | |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.90 | | 142797 | 142803 | | |
| 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.40 | | 142798 | | | |
| 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.70 | | 142799 | | | |
| Ø" d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | α mm | | | | ID | | | |
| 1/8 | 28 | 9.72 | 90 | 14.0 | 7.0 | 5.5 | 3 | 8.75 | | | 104726 | | |
| 1/4 | 19 | 13.15 | 100 | 14.0 | 11.0 | 9.0 | 3 | 11.60 | | | 104725 | | |
| 3/8 | 19 | 16.66 | 100 | 14.0 | 12.0 | 9.0 | 4 | 15.20 | | | 104728 | | |
| 1/2 | 14 | 20.95 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.90 | | | 104724 | | |
| 3/4 | 14 | 26.44 | 140 | 22.0 | 20.0 | 16.0 | 4 | 24.40 | | | 104727 | | |
| 1 | 11 | 33.24 | 160 | 26.0 | 25.0 | 20.0 | 4 | 30.70 | | | 105142 | | |

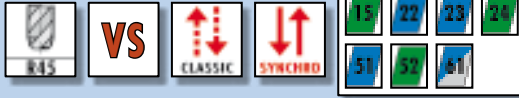


Uniquement pour taraudage synchrone
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado

PM



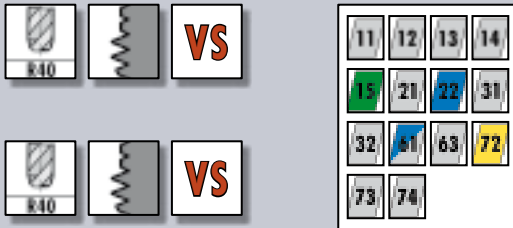
Z470VS-3



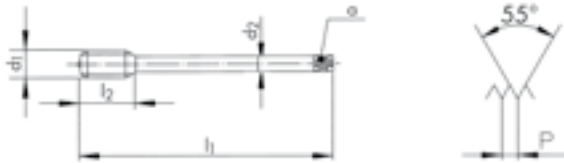
RTS

Rigid Tapping Synchro

RTS462VS-3



RTS462VS-5



Z470VS-3



RTS462VS-3



RTS462VS-5



| $\varnothing'' d_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | $d_2 h6$ mm | α mm | | | ID |
|--------------------------|----------|-------------|-------------|-------------|----------------|----------------|---|-------|--------|
| 1/8 | 28 | 9.72 | 100 | 14.0 | *8.0 | *6.2 | 3 | 8.75 | 165198 |
| 1/4 | 19 | 13.15 | 110 | 14.0 | *12.0 | *9.0 | 4 | 11.60 | 165199 |
| 3/8 | 19 | 16.66 | 110 | 18.0 | 12.0 | 9.0 | 4 | 15.20 | 165200 |
| 1/2 | 14 | 20.95 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.90 | 165201 |







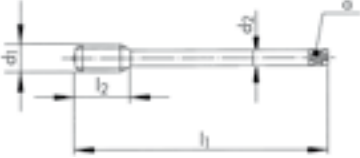



* Norme DC / * DC Norm / * Norma DC

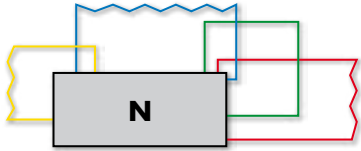
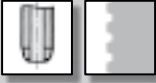
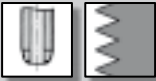






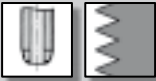
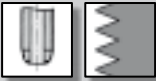









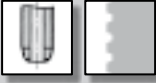
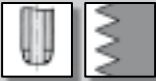









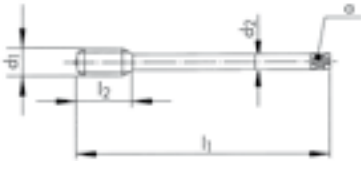













| $\varnothing'' d_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | $d_2 h6$ mm | α mm | | | ID | ID |
|--------------------------|----------|-------------|-------------|-------------|----------------|----------------|---|-------|--------|--------|
| 1/8 | 28 | 9.72 | 100 | 14.0 | *8.0 | *6.2 | 3 | 8.75 | 151861 | 170629 |
| 1/4 | 19 | 13.15 | 110 | 14.0 | *12.0 | *9.0 | 3 | 11.60 | 151868 | 170631 |
| 3/8 | 19 | 16.66 | 110 | 18.0 | 12.0 | 9.0 | 4 | 15.20 | 151872 | 170633 |
| 1/2 | 14 | 20.95 | 125 | 20.0 | 16.0 | 12.0 | 4 | 18.90 | 150685 | 170635 |

* Norme DC / * DC Norm / * Norma DC



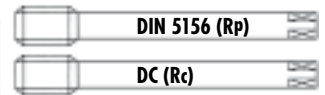
sur demande
auf Anfrage
on request
su richiesta
sobre pedido

| FPS FAS | | FORMING | | FPS481VS-3 | FAS481VS-3 | | | | | | | | | | | | |
|---|---|-------------|---|--|--|----------------|--|--------|-----------|-----------|----|----|----|---|---|---|---|
| FPS481VS-3 |  | VS | <table border="1"> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>21</td><td>24</td><td>63</td><td></td><td></td></tr> </table> | 11 | 12 | 13 | 14 | 15 | 21 | 24 | 63 | | |  |  | | |
| 11 | 12 | 13 | 14 | 15 | | | | | | | | | | | | | |
| 21 | 24 | 63 | | | | | | | | | | | | | | | |
| FAS481VS-3 |  | VS | <table border="1"> <tr><td>12</td><td>13</td><td>14</td><td>15</td><td>21</td><td>22</td></tr> <tr><td>23</td><td>24</td><td>41</td><td>51</td><td>61</td><td>63</td></tr> </table> | 12 | 13 | 14 | 15 | 21 | 22 | 23 | 24 | 41 | 51 | 61 | 63 |  |  |
| 12 | 13 | 14 | 15 | 21 | 22 | | | | | | | | | | | | |
| 23 | 24 | 41 | 51 | 61 | 63 | | | | | | | | | | | | |
|   | | | |  |  | | | | | | | | | | | | |
| $\varnothing d_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | α mm | \downarrow \rightarrow \leftarrow | Tol. | ID | ID | | | | | | | |
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 9.25 | + 0.05 | 166721 | 166733 | | | | | | | |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 12.50 | + 0.05 | 166722 | 166734 | | | | | | | |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 16.00 | + 0.05 | 166723 | 166735 | | | | | | | |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 20.00 | + 0.05 | 166724 | 166736 | | | | | | | |

|  | | | | | | | | | | N210-1 | N210-3 | N210-S | | | | | | |
|---|---|---|---|---|--|---|---|---|---|--|---|---|--|---|---|---|---|---|
| | | | | | | | | | | N210-1 |  |  |  |  |  |  |  |  |
| N210-3 |  |  |  |  |  |  |  |  |  |  |  | | | | | | | |
| N210-S |  |  |  |  |  |  |  |  |  |  |  | | | | | | | |
|   | | | | | | | | | |  |  |  |  |  |  |  |  |  |
| \varnothing d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  |  | ID | ID | ID | | | | | | |
| 1/16 | 28 | 7.72 | 63 | 18.0 | 6.0 | 4.9 | 3 | 6.75 | | 101418 | | | | | | | | |
| 1/8 | 28 | 9.72 | 63 | 22.0 | 7.0 | 5.5 | 3 | 8.75 | 101404 | 101421 | 119386 | | | | | | | |
| 1/4 | 19 | 13.15 | 70 | 20.0 | 11.0 | 9.0 | 3 | 11.60 | 101403 | 101420 | 119336 | | | | | | | |
| 3/8 | 19 | 16.66 | 70 | 20.0 | 12.0 | 9.0 | 4 | 15.20 | 101409 | 101427 | 110938 | | | | | | | |
| 1/2 | 14 | 20.95 | 80 | 22.0 | 16.0 | 12.0 | 4 | 18.90 | 101402 | 101419 | 119264 | | | | | | | |
| 5/8 | 14 | 22.91 | 80 | 25.0 | 18.0 | 14.5 | 4 | 20.90 | 101411 | 105140 | 110940 | | | | | | | |
| 3/4 | 14 | 26.44 | 90 | 28.0 | 20.0 | 16.0 | 4 | 24.40 | 101408 | 101426 | 110937 | | | | | | | |
| 7/8 | 14 | 30.20 | 90 | 28.0 | 22.0 | 18.0 | 4 | 28.20 | * 101412 | * 101429 | | | | | | | | |
| 1 | 11 | 33.24 | 100 | 32.0 | 25.0 | 20.0 | 4 | 30.70 | 101405 | 101422 | 110933 | | | | | | | |
| 1 1/8 | 11 | 37.89 | 125 | 32.0 | 28.0 | 22.0 | 4 | 35.30 | | 101415 | | | | | | | | |
| 1 1/4 | 11 | 41.91 | 125 | 32.0 | 32.0 | 24.0 | 5 | 39.30 | 101400 | 101414 | 111425 | | | | | | | |
| 1 3/8 | 11 | 44.32 | 125 | 32.0 | 36.0 | 29.0 | 5 | 41.80 | | * 101417 | | | | | | | | |
| 1 1/2 | 11 | 47.80 | 140 | 32.0 | 36.0 | 29.0 | 5 | 45.20 | 101399 | 101413 | 110934 | | | | | | | |
| 1 3/4 | 11 | 53.74 | 140 | 36.0 | 40.0 | 32.0 | 5 | 51.20 | | * 101416 | | | | | | | | |
| 2 | 11 | 59.61 | 160 | 36.0 | 45.0 | 35.0 | 5 | 57.00 | 101407 | 101425 | 110935 | | | | | | | |
| 2 1/2 | 11 | 75.18 | 160 | 36.0 | 50.0 | 39.0 | 6 | 72.60 | | 101423 | | | | | | | | |
| 3 | 11 | 87.88 | 160 | 40.0 | 50.0 | 39.0 | 6 | 85.30 | | * 101428 | | | | | | | | |

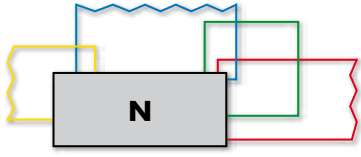



Rp, Rc DIN EN 10226

HSSE



| | | N420-3 | | N410-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----|-------------------|----------------|----------------|----------------|----------------|----------------|-------|--------|--|----|----|-----|----|----|----|----|----|--|--|--|-----|----|------|----|------|-----|-----|---|------|--------|-----|----|-------|-----|------|------|-----|---|-------|--------|-----|----|-------|-----|------|------|-----|---|-------|--------|-----|----|-------|-----|------|------|------|---|-------|--------|-----|----|-------|-----|------|------|------|---|-------|--------|---|----|-------|-----|------|------|------|---|-------|--------|---|--|-------------------|---|----------------|----------------|----------------|----------------|---|--|--|----|----|-----|----|----|----|----|----|--|--|--|-----|----|------|----|------|-----|-----|---|--|--------|-----|----|-------|----|------|------|-----|---|--|--------|-----|----|-------|----|------|------|-----|---|--|--------|-----|----|-------|-----|------|------|------|---|--|--------|-----|----|-------|-----|------|------|------|---|--|--------|---|----|-------|-----|------|------|------|---|--|--------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N420-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N410-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Ø" d₁</th> <th>P</th> <th>d₁</th> <th>l₁</th> <th>l₂</th> <th>d₂</th> <th>α</th> <th colspan="2"> </th> <th>ID</th> </tr> <tr> <th>Rp</th> <th>TPI</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>1/8</td><td>28</td><td>9.72</td><td>90</td><td>22.0</td><td>7.0</td><td>5.5</td><td>3</td><td>8.60</td><td>104911</td></tr> <tr><td>1/4</td><td>19</td><td>13.15</td><td>100</td><td>20.0</td><td>11.0</td><td>9.0</td><td>3</td><td>11.50</td><td>104912</td></tr> <tr><td>3/8</td><td>19</td><td>16.66</td><td>100</td><td>20.0</td><td>12.0</td><td>9.0</td><td>3</td><td>15.00</td><td>104913</td></tr> <tr><td>1/2</td><td>14</td><td>20.95</td><td>125</td><td>22.0</td><td>16.0</td><td>12.0</td><td>4</td><td>18.50</td><td>104914</td></tr> <tr><td>3/4</td><td>14</td><td>26.44</td><td>140</td><td>28.0</td><td>20.0</td><td>16.0</td><td>4</td><td>24.00</td><td>104915</td></tr> <tr><td>1</td><td>11</td><td>33.24</td><td>160</td><td>32.0</td><td>25.0</td><td>20.0</td><td>4</td><td>30.25</td><td>104916</td></tr> </tbody> </table> | | Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | α | | | ID | Rp | TPI | mm | mm | mm | mm | mm | | | | 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 3 | 8.60 | 104911 | 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 3 | 11.50 | 104912 | 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 3 | 15.00 | 104913 | 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.50 | 104914 | 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.00 | 104915 | 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.25 | 104916 | <table border="1"> <thead> <tr> <th>Ø" d₁</th> <th>P</th> <th>d₁</th> <th>l₁</th> <th>l₂</th> <th>d₂</th> <th>α</th> <th colspan="2"> </th> <th>ID</th> </tr> <tr> <th>Rc</th> <th>TPI</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>1/8</td><td>28</td><td>9.72</td><td>71</td><td>13.0</td><td>8.0</td><td>6.2</td><td>5</td><td></td><td>104917</td></tr> <tr><td>1/4</td><td>19</td><td>13.15</td><td>80</td><td>20.0</td><td>11.0</td><td>9.0</td><td>5</td><td></td><td>104918</td></tr> <tr><td>3/8</td><td>19</td><td>16.66</td><td>90</td><td>20.0</td><td>12.0</td><td>9.0</td><td>5</td><td></td><td>104919</td></tr> <tr><td>1/2</td><td>14</td><td>20.95</td><td>100</td><td>26.0</td><td>16.0</td><td>12.0</td><td>5</td><td></td><td>104920</td></tr> <tr><td>3/4</td><td>14</td><td>26.44</td><td>110</td><td>26.0</td><td>20.0</td><td>16.0</td><td>5</td><td></td><td>104921</td></tr> <tr><td>1</td><td>11</td><td>33.24</td><td>125</td><td>32.0</td><td>25.0</td><td>20.0</td><td>5</td><td></td><td>104922</td></tr> </tbody> </table> | | Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | α | | | ID | Rc | TPI | mm | mm | mm | mm | mm | | | | 1/8 | 28 | 9.72 | 71 | 13.0 | 8.0 | 6.2 | 5 | | 104917 | 1/4 | 19 | 13.15 | 80 | 20.0 | 11.0 | 9.0 | 5 | | 104918 | 3/8 | 19 | 16.66 | 90 | 20.0 | 12.0 | 9.0 | 5 | | 104919 | 1/2 | 14 | 20.95 | 100 | 26.0 | 16.0 | 12.0 | 5 | | 104920 | 3/4 | 14 | 26.44 | 110 | 26.0 | 20.0 | 16.0 | 5 | | 104921 | 1 | 11 | 33.24 | 125 | 32.0 | 25.0 | 20.0 | 5 | | 104922 |
| Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | α | | | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rp | TPI | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/8 | 28 | 9.72 | 90 | 22.0 | 7.0 | 5.5 | 3 | 8.60 | 104911 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/4 | 19 | 13.15 | 100 | 20.0 | 11.0 | 9.0 | 3 | 11.50 | 104912 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/8 | 19 | 16.66 | 100 | 20.0 | 12.0 | 9.0 | 3 | 15.00 | 104913 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 14 | 20.95 | 125 | 22.0 | 16.0 | 12.0 | 4 | 18.50 | 104914 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 | 14 | 26.44 | 140 | 28.0 | 20.0 | 16.0 | 4 | 24.00 | 104915 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 11 | 33.24 | 160 | 32.0 | 25.0 | 20.0 | 4 | 30.25 | 104916 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ø" d ₁ | P | d ₁ | l ₁ | l ₂ | d ₂ | α | | | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rc | TPI | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/8 | 28 | 9.72 | 71 | 13.0 | 8.0 | 6.2 | 5 | | 104917 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/4 | 19 | 13.15 | 80 | 20.0 | 11.0 | 9.0 | 5 | | 104918 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/8 | 19 | 16.66 | 90 | 20.0 | 12.0 | 9.0 | 5 | | 104919 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 14 | 20.95 | 100 | 26.0 | 16.0 | 12.0 | 5 | | 104920 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 | 14 | 26.44 | 110 | 26.0 | 20.0 | 16.0 | 5 | | 104921 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 11 | 33.24 | 125 | 32.0 | 25.0 | 20.0 | 5 | | 104922 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

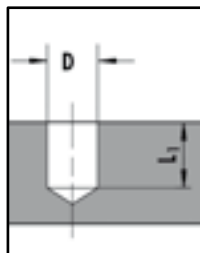
| | | Vc (m/min) Ø d1 | | | |
|----|--|-----------------|-------------|-----------|-------------|
| Rc | | 1/16" - 1/4" | 3/8" - 1/2" | 3/4" - 1" | 1.1/4" - 2" |
| | | 10 | 8 | 7 | 5 |
| | | 18 | 15 | 13 | 10 |

| | | | | | | | | |
|--|-------------|-------------|-------------|-----------|---|--|--|--|
|  | | | | | D5800 | | | |
| D5800  | | | | |  | | | |
|  | | | | | | | | |
| \varnothing'' Rc | l_1 mm | l_2 mm | d_2 mm | a mm | ID | | | |
| 1/16 | 70 | 17.0 | 6.0 | 4.9 | 118701 | | | |
| 1/8 | 70 | 17.0 | 8.0 | 6.2 | 110531 | | | |
| 1/4 | 80 | 27.0 | 10.0 | 8.0 | 110530 | | | |
| 3/8 | 85 | 27.0 | 12.0 | 9.0 | 110535 | | | |
| 1/2 | 95 | 35.0 | 16.0 | 12.0 | 110529 | | | |
| 3/4 | 105 | 35.0 | 20.0 | 16.0 | 110534 | | | |
| 1 | 130 | 43.0 | 25.0 | 20.0 | 110532 | | | |

Kernloch-Durchmesser für kegeliges Rohrgewinde nach DIN EN 10226 Core hole diameters for tapered pipe thread to DIN EN 10226

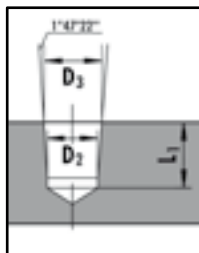
Bohrung zylindrisch
Vermeiden, da schnellere Abnutzung des Gewindebohrers und Klemmen

Parallel hole
Increased tap wear, not recommended



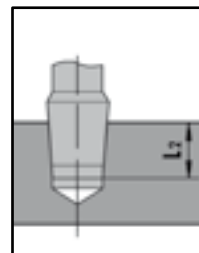
Bohrung konisch 1:16
Zylindrisch bohren nach $\varnothing D_2$ und konisch aufreiben auf $\varnothing D_3$

Tapered hole 1:16
Pre-drill at $\varnothing D_2$ and taper-ream to $\varnothing D_3$



Gewindeschneiden
Gewindebohrer auf Nennmass L_2 eindrehen

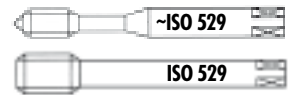
Tapped hole
Engage tap to hole depth $L_2 = \text{nominal } \varnothing$



| \varnothing'' Rc | L_1 min. mm | D_1 mm | D_2 mm | D_3 mm | L_2 mm |
|-----------------------|------------------|-------------|-------------|-------------|-------------|
| 1/16 | 11.90 | 6.20 | 6.10 | 6.56 | 10.60 |
| 1/8 | 11.90 | 8.20 | 8.10 | 8.57 | 10.60 |
| 1/4 | 17.70 | 11.00 | 10.75 | 11.45 | 15.70 |
| 3/8 | 18.10 | 14.50 | 14.25 | 14.95 | 16.10 |
| 1/2 | 24.00 | 18.00 | 17.75 | 18.63 | 21.40 |
| 3/4 | 25.30 | 23.50 | 23.00 | 24.12 | 21.50 |
| 1 | 30.60 | 29.50 | 29.00 | 30.29 | 26.30 |

W BS 84 (BSW)

HSS










| | | | | | | | | | | N1110-3 | N1210-3 | N1120-4 | N1220-4 | |
|-----------------|-------|-------|-------|-------|-------|-------|-------|----|-------|---------|---------|----------|---------|--------|
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| \varnothing W | d_1 | P | d_1 | l_1 | l_2 | l_3 | d_2 | a | | | ID | ID | ID | ID |
| | | TPI | mm | mm | mm | mm | mm | mm | | | | | | |
| 1/8 | 40 | 3.17 | 48 | 11.0 | 18 | 3.15 | 2.50 | 3 | 2.50 | | 103025 | | 103126 | |
| 5/32 | 32 | 3.96 | 53 | 13.0 | 21 | 4.00 | 3.15 | 3 | 3.10 | | 103031 | | 103130 | |
| 3/16 | 24 | 4.76 | 58 | 16.0 | 25 | 5.00 | 4.00 | 3 | 3.60 | | 103026 | | 103127 | |
| 1/4 | 20 | 6.35 | 66 | 19.0 | 30 | 6.30 | 5.00 | 3 | 4.90 | | 103024 | | 103125 | |
| 5/16 | 18 | 7.93 | 72 | 22.0 | 35 | 8.00 | 6.30 | 3 | 6.40 | | 103030 | | 103129 | |
| 3/8 | 16 | 9.52 | 80 | 24.0 | 39 | 10.00 | 8.00 | 3 | 7.70 | | 103028 | | 103128 | |
| 7/16 | 14 | 11.11 | 85 | 22.0 | | 8.00 | 6.30 | 3 | 9.10 | | | 103642 | | 103771 |
| 1/2 | 12 | 12.70 | 89 | 24.0 | | 9.00 | 7.10 | 3 | 10.30 | | | 103634 | | 103767 |
| 9/16 | 12 | 14.28 | 95 | 24.0 | | 11.20 | 9.00 | 3 | 11.90 | | | * 103644 | | |
| 5/8 | 11 | 15.87 | 102 | 32.0 | | 12.50 | 10.00 | 3 | 13.30 | | | 103641 | | 103770 |
| 3/4 | 10 | 19.05 | 112 | 33.0 | | 14.00 | 11.20 | 3 | 16.20 | | | 103640 | | 103769 |
| 1 | 8 | 25.40 | 130 | 45.0 | | 18.00 | 14.00 | 4 | 21.90 | | | * 103635 | | |

| | | | | | | | | | | N1110-3 | N1210-3 | N5120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------|-----|----------------|----------------|----------------|----------------|--------|---|--------|------------------|---------|-------|----------------|----------------|----------------|----------------|----|--|--|----|----|----|--|----|--------|--|----|----|----|----|----|------|-------|----|------|-----|---|------|--------|-----------|----|------|------|------|-----|-----|-------|--------|--------|--|----|-------|------|-------|------|----|------|-----|-----|--------|---|--------|--------|----|-------|-----|----|------|--|------|-----|---|--------|--|--------|--|----|-------|-----|-----|------|--|------|------|---|--------|--|--------|--|----|-------|-----|-----|------|--|------|------|---|--------|--|--------|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N1110-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N1210-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N5120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>∅ d₁</th> <th>P</th> <th></th> <th>l₁</th> <th>l₂</th> <th>l₃</th> <th>d₂</th> <th>a</th> <th></th> <th></th> <th>ID</th> <th colspan="3"></th> </tr> <tr> <th>W</th> <th>TPI/mm</th> <th></th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>36 TPI/1"</td> <td>B6</td> <td>58</td> <td>16.0</td> <td>25</td> <td>5.0</td> <td>4.0</td> <td>3</td> <td>4.20*</td> <td>103029</td> <td colspan="3"></td> </tr> <tr> <td>6.82</td> <td>0.625</td> <td>B8</td> <td>66</td> <td>19.0</td> <td>30</td> <td>7.1</td> <td>5.6</td> <td>3</td> <td>6.15*</td> <td>111143</td> <td colspan="3"></td> </tr> </tbody> </table> | | | | | | | | | | ∅ d ₁ | P | | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | | | | W | TPI/mm | | mm | mm | mm | mm | mm | | | | | | | | 5 | 36 TPI/1" | B6 | 58 | 16.0 | 25 | 5.0 | 4.0 | 3 | 4.20* | 103029 | | | | 6.82 | 0.625 | B8 | 66 | 19.0 | 30 | 7.1 | 5.6 | 3 | 6.15* | 111143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ∅ d ₁ | P | | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W | TPI/mm | | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 36 TPI/1" | B6 | 58 | 16.0 | 25 | 5.0 | 4.0 | 3 | 4.20* | 103029 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.82 | 0.625 | B8 | 66 | 19.0 | 30 | 7.1 | 5.6 | 3 | 6.15* | 111143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ∅ d ₁ | P | | l ₁ | l ₂ | l ₃ | d ₂ | a | | | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SV | mm | | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 0.833 | W10 | 80 | 24.0 | 39 | 10.0 | 8.0 | 3 | 8.80* | 130429 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 1.250 | W12 | 89 | 24.0 | | 9.0 | 7.1 | 3 | 10.50* | | 103591 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 1.250 | W15 | 90 | 23.0 | | 11.2 | 9.0 | 3 | 13.50* | | 103592 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 1.666 | W20 | 112 | 37.0 | | 14.0 | 11.2 | 4 | 17.80* | | 103593 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 1.693 | W25 | 120 | 30.0 | | 18.0 | 14.0 | 4 | 22.70* | | 103594 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>*Tol. $\begin{matrix} +0.1 \text{ mm} \\ 0 \end{matrix}$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>∅ d₁</th> <th>P</th> <th></th> <th>d₂</th> <th>l₁</th> <th></th> <th></th> <th>ID</th> <th colspan="3"></th> </tr> <tr> <th>W</th> <th>mm</th> <th></th> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>6.82</td> <td>0.625</td> <td>B6</td> <td>25.0</td> <td>9.0</td> <td>4</td> <td>6.77</td> <td>130215</td> <td colspan="3"></td> </tr> </tbody> </table> | | | | | | | | | | ∅ d ₁ | P | | d ₂ | l ₁ | | | ID | | | | W | mm | | mm | mm | | | | | | | 6.82 | 0.625 | B6 | 25.0 | 9.0 | 4 | 6.77 | 130215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ∅ d ₁ | P | | d ₂ | l ₁ | | | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W | mm | | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.82 | 0.625 | B6 | 25.0 | 9.0 | 4 | 6.77 | 130215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

W, SV

























NPT, NPTF

Maschinengewindebohrer, NPT ANSI B1.20.1 und NPTF B1.20.3
 Directory - Machine taps, NPT ANSI B1.20.1 and NPTF B1.20.3

| | | N | | | | | | |
|---------------------------------------|---|---|--|---|---|--|--|--|
| Merkmale Characteristics | |  |   |    | | | | |
| | |  |  |  |  | | | |
| Lochart Hole type | |  |  |  | | | | |
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| | | | | | | | | |
| |  | N410-3 | N410V-3 | N411V-3 | D5800 | | | |
| NPT DIN lang NPT DIN long | DC | 170 | 170 | 170 | 171 | | | |
| NPTF DIN lang NPTF DIN long | DC | 170 | | | 171 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

PG, TR

Maschinen- und Handgewindebohrer, PG DIN 40430, TR ISO 2901-2904, DIN 103
 Directory - Machine and hand taps, PG DIN 40430, TR ISO 2901-2904, DIN 103

| | N | | | | | | |
|---|---|--|--|--|--|---|--|
| Merkmale Characteristics |  |   |   |   |   |  | |
| |  |  |  |  |  |  | |
| Lochart Hole type |  |  |  |  |  |  | |
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| | | | | | | | |
|  | N420-3 | N410-1 | N410-2 | N410-3 | N410-S | N410-8 | |
| PG DIN lang PG DIN long | DIN 40433 | 172 | | | | | |
| TR DIN lang TR DIN long | DC | 173 | 173 | 173 | 173 | 172 | |
| Toleranz Tolerance | TR 7H | | | 173 | 173 | 172 | |
| | | | | | | | |
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NPT, NPTF
PG, TR

NPT, NPTF

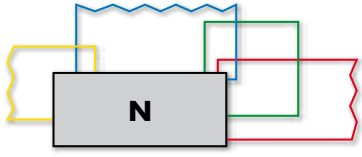


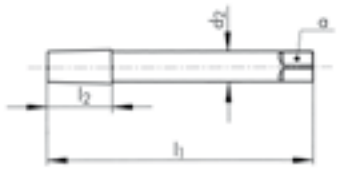
ANSI B1.20.1, ANSI B1.20.3

HSSE



| | | | | | | | N410-3 | N410V-3 | N411V-3 | N410-3 |
|------------------------------|------|----------------|----------------|----------------|------|---|--------|---------|---------|--------|
| | | | | | | | | | | |
| N410-3 | | | | | | | | | | |
| N410V-3 | | | | | | | | | | |
| N411V-3 | | | | | | | | | | |
| N410-3 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| \varnothing d ₁ | P | l ₁ | l ₂ | d ₂ | a | | ID | ID | ID | ID |
| NPT, NPTF | TPI | mm | mm | mm | mm | | | | | |
| 1/16 | 27 | 71 | 13.0 | 7.0 | 5.5 | 3 | 101961 | 102021 | 102031 | 101971 |
| 1/8 | 27 | 71 | 13.0 | 8.0 | 6.2 | 5 | 101964 | 102024 | 102034 | 101974 |
| 1/4 | 18 | 80 | 20.0 | 11.0 | 9.0 | 5 | 101963 | 102023 | 102033 | 101973 |
| 3/8 | 18 | 90 | 20.0 | 12.0 | 9.0 | 5 | 101968 | 102028 | 102038 | 101978 |
| 1/2 | 14 | 100 | 26.0 | 16.0 | 12.0 | 5 | 101962 | 102022 | 102032 | 101972 |
| 3/4 | 14 | 110 | 26.0 | 20.0 | 16.0 | 5 | 101967 | 102027 | 102037 | 101977 |
| 1 | 11.5 | 125 | 32.0 | 25.0 | 20.0 | 5 | 101965 | 102025 | 102035 | 101975 |
| 1 1/4 | 11.5 | 125 | 32.0 | 32.0 | 24.0 | 5 | 101960 | 102020 | | |
| 1 1/2 | 11.5 | 140 | 32.0 | 36.0 | 29.0 | 5 | 101959 | 102019 | | |
| 2 | 11.5 | 160 | 32.0 | 36.0 | 29.0 | 7 | 101966 | 102026 | | |

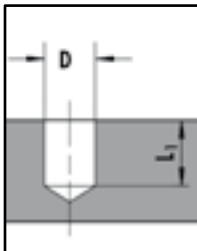
| Vc (m/min) Ø d1 | | | | |
|------------------------|----|-------------|-----------|-------------|
| NPT, NPTF 1/16" - 1/4" | | 3/8" - 1/2" | 3/4" - 1" | 1.1/4" - 2" |
| | 6 | 5 | 4 | 3 |
| | 5 | 4 | 3 | 2 |
| | 10 | 8 | 7 | 5 |
| | 18 | 15 | 13 | 10 |

| | | | | | | | | |
|--|-------------|-------------|-------------|-----------|---|--|--|--|
|  | | | | | D5800 | | | |
| D5800  | | | | |  | | | |
|  | | | | | | | | |
| \varnothing'' NPT, NPTF | l_1 mm | l_2 mm | d_2 mm | a mm | ID | | | |
| 1/16 | 70 | 17.0 | 6.0 | 4.9 | 118701 | | | |
| 1/8 | 70 | 17.0 | 8.0 | 6.2 | 110531 | | | |
| 1/4 | 80 | 27.0 | 10.0 | 8.0 | 110530 | | | |
| 3/8 | 85 | 27.0 | 12.0 | 9.0 | 110535 | | | |
| 1/2 | 95 | 35.0 | 16.0 | 12.0 | 110529 | | | |
| 3/4 | 105 | 35.0 | 20.0 | 16.0 | 110534 | | | |
| 1 | 130 | 43.0 | 25.0 | 20.0 | 110532 | | | |

Kernloch-Durchmesser für NPT- und NPTF-Gewinde Core hole diameters for NPT and NPTF threads

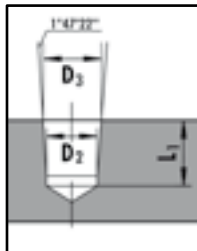
Bohrung zylindrisch
Vermeiden, da schnellere Abnützung des Gewindebohrers und Klemmen

Parallel hole
Increased tap wear, not recommended



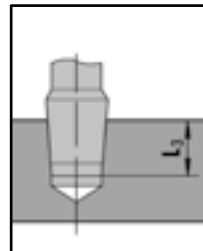
Bohrung konisch 1:16
Zylindrisch bohren nach $\varnothing D_2$ und konisch aufreiben auf $\varnothing D_3$

Tapered hole 1:16
Pre-drill at $\varnothing D_2$ and taper-ream to $\varnothing D_3$



Gewindeschneiden
Gewindebohrer auf Nennmass L_3 eindrehen

Tapped hole
Engage tap to hole depth $L_3 = \text{nominal } \varnothing$



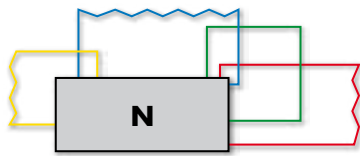
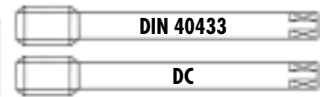
*Es wird empfohlen, das Kernloch auf D_3 maxi konisch aufzureiben.

*Taper-ream at upper limit D_3 is recommended

| \varnothing'' NPT, NPTF | D mm | L_1 mm | D_2 mm | NPT $D_3(+0.05)$ mm | NPTF $D_3(+0.05)$ mm | L_3 mm |
|------------------------------|---------|-------------|-------------|---------------------------|----------------------------|-------------|
| 1/16 | 6.15 | 12.00 | 6.00 | 6.39 | 6.41 | 10.20 |
| 1/8 | 8.50 | 12.00 | 8.30 | 8.74 | 8.76 | 10.30 |
| 1/4 | 11.00 | 17.50 | 10.80 | 11.36 | 11.40 | 15.10 |
| 3/8 | 14.50 | 17.50 | 14.20 | 14.80 | 14.84 | 15.30 |
| 1/2 | 17.90 | 23.00 | 17.50 | 18.32 | 18.33 | 20.00 |
| 3/4 | 23.20 | 23.00 | 22.80 | 23.67 | 23.68 | 20.50 |
| 1 | 29.00 | 28.00 | 28.60 | 29.69 | 29.72 | 24.60 |

PG DIN 40430 TR ISO 2901-2904, DIN 103

HSSE



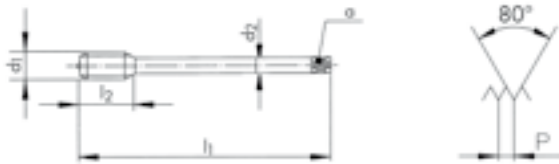
N420-3

N410-8

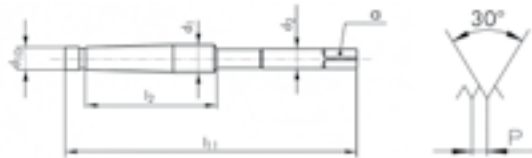
N420-3



N410-8

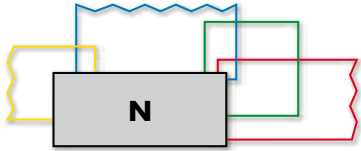

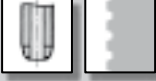



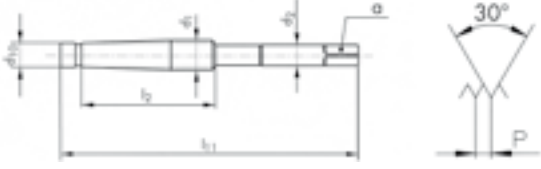




























| $\varnothing d_1$ PG | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | a mm | | | ID |
|-------------------------|----------|-------------|-------------|-------------|-------------|-----------|---|-------|--------|
| 7 | 20 | 12.50 | 100 | 24.0 | 9.0 | 7.0 | 3 | 11.30 | 104901 |
| 9 | 18 | 15.20 | 100 | 26.0 | 12.0 | 9.0 | 3 | 13.90 | 104902 |
| 11 | 18 | 18.60 | 110 | 26.0 | 14.0 | 11.0 | 4 | 17.30 | 104903 |
| 13.5 | 18 | 20.40 | 125 | 28.0 | 16.0 | 12.0 | 4 | 19.10 | 104904 |
| 16 | 18 | 22.50 | 125 | 28.0 | 18.0 | 14.5 | 4 | 21.20 | 104905 |
| 21 | 16 | 28.30 | 150 | 36.0 | 22.0 | 18.0 | 4 | 26.80 | 104906 |
| 29 | 16 | 37.00 | 170 | 38.0 | 28.0 | 22.0 | 4 | 35.50 | 104907 |
| 36 | 16 | 47.00 | 190 | 38.0 | 36.0 | 29.0 | 5 | 45.50 | 104908 |



7H

| $\varnothing d_1$ TR | P mm | l_{11} mm | l_2 mm | d_{10} mm | d_2 mm | a mm | | | ID |
|-------------------------|---------|----------------|-------------|----------------|-------------|-----------|---|-------|--------|
| 10 | 2.00 | 100 | 45.0 | 8.20 | 7.0 | 5.5 | 3 | 8.20 | 102008 |
| 12 | 3.00 | 140 | 75.0 | 9.25 | 8.0 | 6.2 | 3 | 9.25 | 102009 |
| 14 | 3.00 | 150 | 75.0 | 11.25 | 10.0 | 8.0 | 3 | 11.25 | 102010 |
| 16 | 4.00 | 180 | 100.0 | 12.25 | 11.0 | 9.0 | 3 | 12.25 | 102011 |
| 18 | 4.00 | 180 | 100.0 | 14.25 | 12.0 | 9.0 | 3 | 14.25 | 102012 |
| 20 | 4.00 | 190 | 100.0 | 16.25 | 14.0 | 11.0 | 3 | 16.25 | 102013 |
| 22 | 5.00 | 220 | 110.0 | 17.25 | 16.0 | 12.0 | 4 | 17.25 | 111616 |
| 24 | 5.00 | 220 | 110.0 | 19.25 | 18.0 | 14.5 | 4 | 19.25 | 102015 |

|  | | | | | | | | | N410-1 | N410-2 | N410-3 | N410-S |
|--|---|-----------------------|----------------------|-----------------------|----------------------|---------|---|---|--|----------|----------|----------|
| | | | | | | | | |  | | | |
| N410-1 |  | | | | | | | | | | | |
| N410-2 |  | | | | | | | | | | | |
| N410-3 |  | | | | | | | | | | | |
| N410-S |  | | | | | | | | | | | |
|  | | | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">7H</div> <div style="border: 1px solid black; padding: 5px;">7H</div> </div> | | | |
| ∅ d ₁ TR | P mm | l ₁₁ mm | l ₂ mm | d ₁₀ mm | d ₂ mm | a mm |  |  | ID | ID | ID | ID |
| 10 | 2.00 | 85 | 30.0 | 8.20 | 7.0 | 5.5 | 3 | 8.20 | * 101827 | * 101838 | * 101979 | * 110972 |
| 12 | 3.00 | 115 | 45.0 | 9.25 | 8.0 | 6.2 | 3 | 9.25 | * 101828 | * 101839 | * 101980 | * 110973 |
| 16 | 4.00 | 165 | 65.0 | 12.25 | 11.0 | 9.0 | 3 | 12.25 | * 101830 | * 101841 | * 101982 | * 110975 |
| 20 | 4.00 | 175 | 65.0 | 16.25 | 14.0 | 11.0 | 3 | 16.25 | * 101832 | * 101843 | * 101984 | * 110977 |

| | | N | | | | Z | S | |
|---|---|---|---|--|---|---|--|---|
| Merkmale Characteristics  | |  |  V |  R40 |  R40 V |  R45 VS |  VS |  R35 VS |
| | |  |  |  |  |  |  |  |
| Lochart Hole type | |  |  |  |  |  |  |  |
| |  | N320-4 | N320V-4 | N360-3 | N360V-3 | Z370VS-3 | S320VS-4 | S360VS-3 |
| DIN lang DIN long | ~DIN 40435 | 176 | 176 | 177 | 177 | | | |
| DIN lang DIN long | ~DIN 2184-1 | 180/183 | | 180/183 | | 181/184 | 184 | 184 |
| Gewinde Thread | EG M | 176 | 176 | 177 | 177 | | | |
| Gewinde Thread | EG UNC | 180 | | 180 | | 181 | | |
| Gewinde Thread | EG UNF | 183 | | 183 | | 184 | 184 | 184 |
| |  | N420-4 | N420V-4 | N460-3 | N460V-3 | | | |
| DIN lang DIN long | ~DIN 40435 | 176 | 176 | 177 | 177 | | | |
| DIN lang DIN long | ~DIN 2184-1 | 180/183 | | 180/183 | | | | |
| Gewinde Thread | EG M | 176 | 176 | 177 | 177 | | | |
| Gewinde Thread | EG UNC | 180 | | 180 | | | | |
| Gewinde Thread | EG UNF | 183 | | 183 | | | | |

EG

Maschinengewindebohrer, Aufnahmegewinde für Gewindeeinsätze EG M, EG UNC, EG UNF
 Directory - Machine taps for wire screw thread inserts, EG M, EG UNC, EG UNF

| SA | | | TL | |
|----------------|----------------|----------------|------------------|------------------|
| | | | | |
| | | | | |
| | | | | |
| SA320-4 | SA350-3 | SA390-3 | TL320VS-4 | TL351VS-3 |
| 178 | 178 | 179 | 178 | 178 |
| 182/185 | 182/185 | 184 | 182/185 | 182/185 |
| 178 | 178 | 179 | 178 | 178 |
| 182 | 182 | | 182 | 182 |
| 185 | 185 | 184 | 185 | 185 |
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**THREADING
 TECHNOLOGY**



www.dcswiss.com

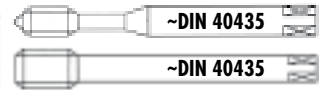
EG M, EG UN



≤ Ø 2.8 > Ø 2.8

PM

HSSE

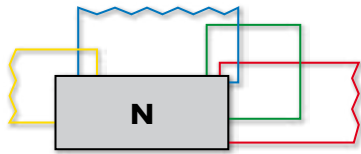
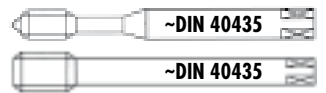


| | | | | | | | | | | N320-4 | N320V-4 | N420-4 | N420V-4 |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|--------|---------|--------|----------|
| | | | | | | | | | | | | | |
| N320-4 | | | | | | | | | | | | | |
| N320V-4 | V | | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | | | |
| N420V-4 | V | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Ø d ₁ EG M | P mm | d ₂ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| 2 | 0.40 | 2.520 | 50 | 10.0 | | 2.8 | 2.1 | 3 | 2.10 | 101537 | 118788 | | |
| 2.5 | 0.45 | 3.084 | 56 | 12.0 | 18 | 3.5 | 2.7 | 3 | 2.65 | 101538 | | | |
| 3 | 0.50 | 3.650 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 3.15 | 101539 | 142804 | | |
| 4 | 0.70 | 4.910 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.20 | 101540 | 142805 | | |
| 5 | 0.80 | 6.040 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.25 | 101541 | 142806 | | |
| 6 | 1.00 | 7.300 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 6.30 | 101542 | 142807 | | |
| 8 | 1.25 | 9.624 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.40 | 101543 | 142808 | | |
| 10 | 1.50 | 11.948 | 100 | 24.0 | | 9.0 | 7.0 | 3 | 10.40 | | | 102252 | 142809 |
| 12 | 1.75 | 14.274 | 110 | 28.0 | | 11.0 | 9.0 | 3 | 12.50 | | | 102253 | 142810 |
| 14 | 2.00 | 16.598 | 110 | 30.0 | | 12.0 | 9.0 | 3 | 14.60 | | | | * 142811 |
| 16 | 2.00 | 18.598 | 125 | 33.0 | | 14.0 | 11.0 | 3 | 16.60 | | | 102255 | 142812 |



≤ Ø 2.8 > Ø 2.8

PM **HSSE**



N360-3



N360V-3



N460-3



N460V-3

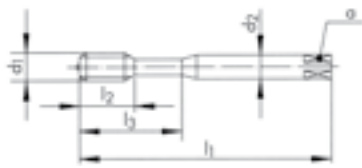


N360-3

N360V-3

N460-3

N460V-3



| Ø d ₁ EG M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|--------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 2 | 0.40 | 2.520 | 50 | 9.0 | | 2.8 | 2.1 | 2 | 2.10 |
| 2.5 | 0.45 | 3.084 | 56 | 5.5 | 18 | 3.5 | 2.7 | 3 | 2.65 |
| 3 | 0.50 | 3.650 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 3.15 |
| 4 | 0.70 | 4.910 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.20 |
| 5 | 0.80 | 6.040 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.25 |
| 6 | 1.00 | 7.300 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 6.30 |
| 8 | 1.25 | 9.624 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.40 |
| 10 | 1.50 | 11.948 | 100 | 14.0 | | 9.0 | 7.0 | 3 | 10.40 |
| 12 | 1.75 | 14.274 | 110 | 14.0 | | 11.0 | 9.0 | 3 | 12.50 |
| 14 | 2.00 | 16.598 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 14.60 |
| 16 | 2.00 | 18.598 | 125 | 21.0 | | 14.0 | 11.0 | 3 | 16.60 |

ID

ID

ID

ID

101599

101600

101601

142813

101602

142814

101603

142815

101604

142816

101605

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102335

142818

102336

142819

102337

142820

102338

142821



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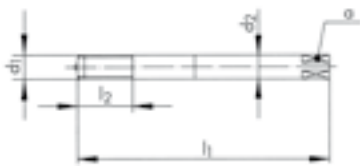
| | | | | | | | | | | SA320-4 | SA350-3 | TL320VS-4 | TL351VS-3 |
|---|------|-------|-------|-------|-------|-------|----------|---|------|---------|---------|-----------|-----------|
| SA320-4 SA350-3 | | | | | | | | | | | | | |
| TL320VS-4 VS TL351VS-3 VS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| $\varnothing d_1$ | P | d_1 | l_1 | l_2 | l_3 | d_2 | α | | | ID | ID | ID | ID |
| EG M | mm | mm | mm | mm | mm | mm | mm | | | | | | |
| 3 | 0.50 | 3.650 | 56 | 13.0 | | 4.0 | 3.0 | 3 | 3.15 | 147676 | 147682 | * 152001 | 150478 |
| 4 | 0.70 | 4.910 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.20 | 147678 | 147684 | * 152002 | 152003 |
| 5 | 0.80 | 6.040 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.25 | 147680 | 147686 | | 150184 |
| 6 | 1.00 | 7.300 | 80 | 15.0 | 23 | 7.0 | 5.5 | 3 | 6.30 | 147688 | 147692 | * 152004 | 152005 |
| 8 | 1.25 | 9.624 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.40 | 149354 | 149356 | * 152088 | 152089 |



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SA390-3

SA390-3



| $\varnothing d_1$ EG M | P mm | d_1 mm | l_1 mm | l_2 mm | d_2 mm | α mm | | |
|---------------------------|---------|-------------|-------------|-------------|-------------|----------------|---|-------|
| 3 | 0.50 | 3.650 | 56 | 13.0 | 4.0 | 3.0 | 3 | 3.15 |
| 4 | 0.70 | 4.910 | 70 | 15.0 | 6.0 | 4.9 | 3 | 4.20 |
| 5 | 0.80 | 6.040 | 80 | 20.0 | 6.0 | 4.9 | 3 | 5.25 |
| 6 | 1.00 | 7.300 | 80 | 20.0 | 7.0 | 5.5 | 3 | 6.30 |
| 8 | 1.25 | 9.624 | 100 | 30.0 | 10.0 | 8.0 | 3 | 8.40 |
| 10 | 1.50 | 11.948 | 110 | 35.0 | 12.0 | 9.0 | 3 | 10.40 |

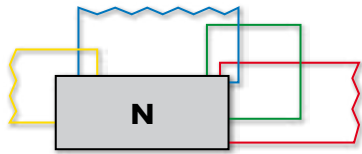
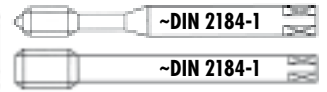
ID

149669
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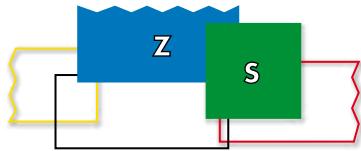
EG UNC NASM33537



HSSE

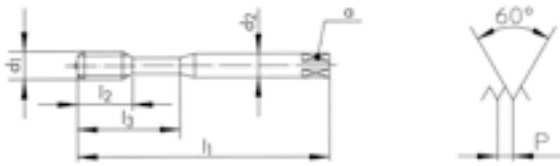
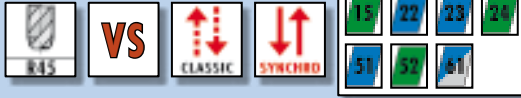


| | | | | | | | | | | N320-4 | N420-4 | N360-3 | N460-3 |
|--|-----------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------|---|-------|-----------|-----------|-----------|-----------|
| | | | | | | | | | | | | | |
| N320-4 | | | | | | | | | | | | | |
| N420-4 | | | | | | | | | | | | | |
| N360-3 | | | | | | | | | | | | | |
| N460-3 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | 3B | 3B | 3B | 3B |
| Ø" d₁ EG UNC | P TPI | d₁ mm | l₁ mm | l₂ mm | l₃ mm | d₂ mm | a mm | | | ID | ID | | |
| 4 | 40 | 3.67 | 56 | 13.0 | 20 | 4.0 | 3.0 | 3 | 3.05 | 110946 | | | |
| 6 | 32 | 4.53 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 3.75 | 110948 | | | |
| 8 | 32 | 5.19 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.45 | 110949 | | | |
| 10 | 24 | 6.20 | 80 | 17.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | * 110945 | | | |
| 1/4 | 20 | 8.00 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.70 | 110944 | | | |
| 5/16 | 18 | 9.77 | 100 | 22.0 | 39 | 10.0 | 8.0 | 3 | 8.40 | 110947 | | | |
| 3/8 | 16 | 11.59 | 110 | 24.0 | | 9.0 | 7.0 | 3 | 10.00 | | 110033 | | |
| 1/2 | 13 | 15.23 | 110 | 30.0 | | 12.0 | 9.0 | 3 | 13.30 | | 104935 | | |
| Ø" d₁ EG UNC | P TPI | d₁ mm | l₁ mm | l₂ mm | l₃ mm | d₂ mm | a mm | | | | ID | ID | |
| 4 | 40 | 3.67 | 56 | 6.5 | 20 | 4.0 | 3.0 | 3 | 3.05 | | 110018 | | |
| 6 | 32 | 4.53 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.75 | | 110019 | | |
| 8 | 32 | 5.19 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.45 | | 110956 | | |
| 10 | 24 | 6.20 | 80 | 11.0 | 30 | 7.0 | 5.5 | 3 | 5.10 | | 110954 | | |
| 1/4 | 20 | 8.00 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.70 | | 110024 | | |
| 5/16 | 18 | 9.77 | 100 | 14.0 | 39 | 10.0 | 8.0 | 3 | 8.40 | | 111759 | | |
| 3/8 | 16 | 11.58 | 110 | 14.0 | | 9.0 | 7.0 | 3 | 10.00 | | | 111715 | |
| 1/2 | 13 | 15.23 | 110 | 18.0 | | 12.0 | 9.0 | 3 | 13.30 | | | 111558 | |



Z370VS-3

Z370VS-3



| \varnothing d ₁ EG UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | | ID |
|--|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|--------|
| 4 | 40 | 3.67 | 56 | 6.5 | 20 | 4.0 (h9) | 3.0 | 3 | 3.05 | 165126 |
| 6 | 32 | 4.53 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 3.75 | 165127 |
| 8 | 32 | 5.19 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.45 | 165128 |

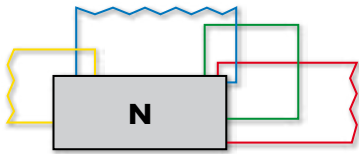
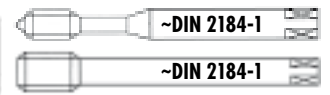


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| | | | | | | | | | | SA320-4 | SA350-3 | TL320VS-4 | TL351VS-3 |
|--|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|----------|----------|-----------|-----------|
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| \varnothing d ₁ EG UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | | ID | ID | ID | ID |
| 4 | 40 | 3.67 | 56 | 13.0 | | 4.0 | 3.0 | 3 | 3.05 | 149073 | 149075 | * 152030 | 152031 |
| 6 | 32 | 4.53 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 3.75 | 149121 | 149123 | * 152040 | 152041 |
| 8 | 32 | 5.19 | 70 | 15.0 | | 6.0 | 4.9 | 3 | 4.45 | 149170 | 149172 | * 152052 | 152053 |
| 1/4 | 20 | 8.00 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.70 | 149284 | 149286 | * 152073 | 152074 |
| 5/16 | 18 | 9.77 | 100 | 20.0 | 33 | 10.0 | 8.0 | 3 | 8.40 | * 149358 | * 149360 | * 152090 | * 152091 |



HSSE



N320-4

N420-4

N360-3

N460-3



N320-4



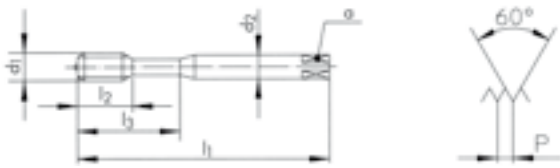
N420-4



N360-3



N460-3



| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 6 | 40 | 4.33 | 63 | 14.0 | 21 | 4.5 | 3.4 | 3 | 3.70 |
| 8 | 36 | 5.08 | 70 | 15.0 | 25 | 6.0 | 4.9 | 3 | 4.40 |
| 10 | 32 | 5.85 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 20.0 | 35 | 9.0 | 7.0 | 3 | 8.20 |
| 3/8 | 24 | 10.89 | 100 | 19.0 | | 8.0 | 6.2 | 3 | 9.80 |
| 1/2 | 20 | 14.35 | 100 | 24.0 | | 11.0 | 9.0 | 3 | 13.10 |

| ID | ID |
|--------|--------|
| 118879 | |
| 118882 | |
| 104941 | |
| 110234 | |
| 118876 | |
| | 118873 |
| | 118865 |

| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|-------|
| 6 | 40 | 4.33 | 63 | 7.5 | 21 | 4.5 | 3.4 | 3 | 3.70 |
| 8 | 36 | 5.08 | 70 | 9.0 | 25 | 6.0 | 4.9 | 3 | 4.40 |
| 10 | 32 | 5.85 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 12.5 | 35 | 9.0 | 7.0 | 3 | 8.20 |
| 3/8 | 24 | 10.89 | 100 | 19.0 | | 8.0 | 6.2 | 3 | 9.80 |
| 1/2 | 20 | 14.35 | 100 | 14.0 | | 11.0 | 9.0 | 3 | 13.10 |

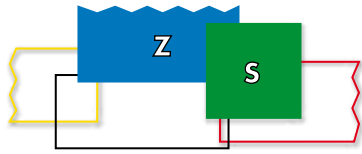
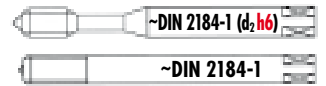
| ID | ID |
|----|--------|
| | 110959 |
| | 110960 |
| | 104946 |
| | 110020 |
| | 111619 |
| | |
| | 110027 |
| | 104951 |

EG UNC
EG UNF

EG UNF NASM33537



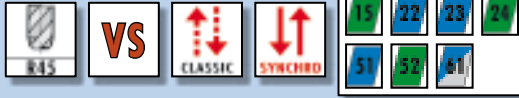
PM



Z370VS-3 S320VS-4 S360VS-3 SA390-3



Z370VS-3



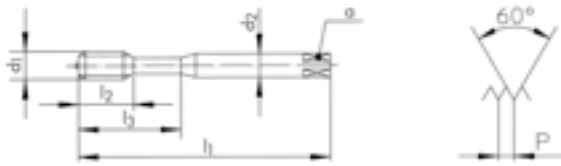
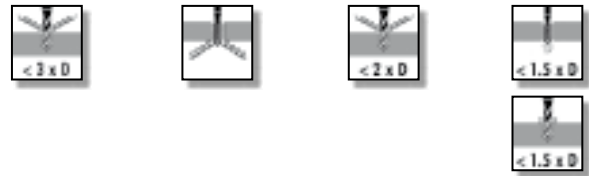
S320VS-4



S360VS-3



SA390-3



3B 3B 3B 3B

| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ h6 mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|-------------------------|---------|---|------|
| 10 | 32 | 5.85 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 12.5 | 35 | *8.0 | *6.2 | 3 | 8.20 |

| ID |
|--------|
| 165129 |
| 165130 |
| 165131 |

* Norme DC / * DC Norm / * Norma DC

| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|
| 10 | 32 | 5.85 | 80 | 17.0 | 30 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 20.0 | 35 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 20.0 | 35 | 9.0 | 7.0 | 3 | 8.20 |

| ID |
|--------|
| 111821 |
| 111822 |
| 111823 |

| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|
| 10 | 32 | 5.85 | 80 | 11.0 | 30 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 12.5 | 35 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 12.5 | 35 | 9.0 | 7.0 | 3 | 8.20 |

| ID |
|--------|
| 111811 |
| 111812 |
| 111824 |

| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|------|
| 10 | 32 | 5.85 | 80 | 20.0 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 25.0 | 8.0 | 6.2 | 3 | 6.65 |

| ID |
|--------|
| 149702 |
| 149724 |



aero

SA320-4

SA350-3

TL320VS-4

TL351VS-3



SA320-4



SA350-3



TL320VS-4



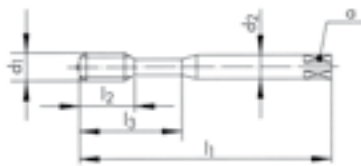
VS



TL351VS-3



VS



| Ø" d ₁ EG UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | a mm | | |
|-----------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|---------|---|------|
| 10 | 32 | 5.85 | 80 | 15.0 | 23 | 6.0 | 4.9 | 3 | 5.10 |
| 1/4 | 28 | 7.52 | 90 | 18.0 | 29 | 8.0 | 6.2 | 3 | 6.65 |
| 5/16 | 24 | 9.31 | 90 | 20.0 | 31 | 9.0 | 7.0 | 3 | 8.20 |

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KRONENGEWINDEBOHRER

CROWN TAPS

Allgemeines

Der DC-Kronengewindebohrer mit "V"-Oberflächenbehandlung ist ein Hochleistungswerkzeug, das eine sichere Toleranzhaltigkeit und eine sehr saubere Oberflächenqualität garantiert.

Anwendungsbereich

Dank der stirnseitigen Aussparung, die die Spanaufnahme erlaubt, kann der Kronengewindebohrer sowohl für das Schneiden von Durchgangs- als auch von Sacklöchern verwendet werden. Er ist bestimmt für die Bearbeitung von Werkstoffen mit einer Zugfestigkeit von bis zu 850 N/mm² und einer Bruchdehnung von maximal 30 %.

Einsatz

Der DC-Kronengewindebohrer kann für Durchgangslöcher jeglicher Gewindetiefe eingesetzt werden. Für einwandfreie Sacklochgewinde muss jedoch die Tiefe der Kernlochbohrung jeweils entsprechend angepasst und die nachstehenden Hinweise befolgt werden:

- Gewinde schneiden, bis Rutschkupplung anspricht
- Gewindebohrer zurückdrehen und Späne entfernen
- Gewinde fertig schneiden.

Spezielle Anforderungen

Das einwandfreie Funktionieren der DC-Kronengewindebohrer und der damit erzielten Gewindequalität sind abhängig von folgenden Voraussetzungen:

- Zentrierfehler darf 0.1 mm nicht überschreiten
- Einsatz eines entsprechenden Gewindeschneidfutters, das einen einwandfreien Rundlauf ermöglicht
- Korrekte Schnittgeschwindigkeit wählen
- Schneidöl dem Werkstoff anpassen
- Einspannen in einem Gewindeschneidfutter mit Längenausgleich und Überlastungskupplung
- Überlastungskupplung so einstellen, dass das Ansprechdrehmoment nur leicht höher liegt als das Schneiddrehmoment.

Es ist empfehlenswert, beim ersten Gewinde die Rutschkupplung bis zum Gleiten zu entlasten und dann schrittweise anzuziehen, bis der Gewindebohrer mitgenommen wird.

Spanaufnahme

Die Spanaufnahmekapazität der stirnseitigen Krone ist ausreichend für:

| Gewindedurchmesser | Ø 20 - 29 mm | ≥ Ø 30 mm |
|--------------------|--------------|-----------|
| M | - | 1.4 x D |
| MF | 1.2 x D | 1.4 x D |
| UN-8 | - | 1.4 x D |
| G | 1.2 x D | 1.4 x D |

General information

The DC crown tap with "V" surface treatment to prevent cold welding is a tool of high performance, which offers a very high quality surface finish of the tapped threads.

Application rang

Thanks to the front recess providing space for the chip collection, the DC crown tap is suitable for both, through and blind hole tapping. The crown tap can be used for materials with a tensile strength up to 850 N/mm² and an elongation of maximum 30 %.

Utilization

The crown tap can be used for through holes of any depth. However, for an optimal blind hole threading, the core hole depth must be adapted accordingly and the following application instructions must be followed:

- Tap until tapping head clutch slips
- Retract tap and clear chips
- Tap to the full depth.

General hints

The efficient operation of DC crown taps, as well as the quality of the cut threads, depend on observation of the following rules:

- Do not exceed the maximum permissible centering error of 0.1 mm
- The tap must run concentrically, use a suitable tapping head
- Tap at the correct cutting speed
- Select a coolant to suit the material being tapped
- Use a tapping head with axial compensation and safety clutch
- Set the safety clutch so that it will slip at just above the tapping torque.

When tapping the first hole, slacken the clutch until it slips, then gradually tighten it until the tap is driven.

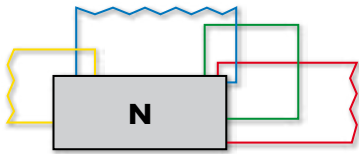
Chip accumulation

The chip accumulation capacity of the recess is the following :

| Thread diameter | Ø 20 - 29 mm | ≥ Ø 30 mm |
|-----------------|--------------|-----------|
| M | - | 1.4 x D |
| MF | 1.2 x D | 1.4 x D |
| UN-8 | - | 1.4 x D |
| G | 1.2 x D | 1.4 x D |

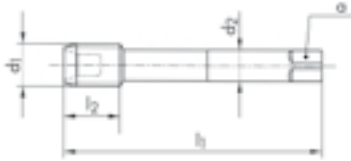
Schnittgeschwindigkeiten und Drehzahlen (Richtwerte) - Cutting and spindle speeds (guide values)



| M | | | | MF | | | | MF | | | | UN-8 | | | |
|----|---------------------------|--------------|----|----|---------------------------|--------------|-----|-----|---------------------------|--------------|----|----------|---------------------------|--------------|----|
| P | V _c (m/min) | n (U/min) | | P | V _c (m/min) | n (U/min) | | P | V _c (m/min) | n (U/min) | | P TPI | V _c (m/min) | n (U/min) | |
| 30 | 3.5 | 7.9 | 84 | 22 | 1.5 | 8.0 | 116 | 45 | 1.5 | 6.9 | 49 | 1 1/4" | 8.0 | 7.8 | 77 |
| 33 | 3.5 | 7.7 | 74 | 24 | 1.5 | 8.0 | 106 | 45 | 2.0 | 6.9 | 49 | 1 3/8" | 8.0 | 7.6 | 69 |
| 36 | 4.0 | 7.5 | 66 | 26 | 1.5 | 7.9 | 97 | 48 | 1.5 | 6.6 | 44 | 1 1/2" | 8.0 | 7.3 | 62 |
| 39 | 4.0 | 7.3 | 60 | 28 | 1.5 | 7.9 | 90 | 48 | 2.0 | 6.6 | 44 | 1 5/8" | 8.0 | 7.1 | 55 |
| 42 | 4.5 | 7.1 | 54 | 30 | 1.5 | 7.9 | 84 | 48 | 3.0 | 6.6 | 44 | 1 3/4" | 8.0 | 6.9 | 49 |
| 45 | 4.5 | 6.9 | 49 | 30 | 2.0 | 7.9 | 84 | 48 | 4.0 | 6.6 | 44 | 1 7/8" | 8.0 | 6.7 | 45 |
| 48 | 5.0 | 6.6 | 44 | 32 | 1.5 | 7.8 | 77 | 50 | 1.5 | 6.5 | 41 | 2" | 8.0 | 6.4 | 40 |
| 52 | 5.0 | 6.4 | 39 | 32 | 2.0 | 7.8 | 77 | 52 | 1.5 | 6.4 | 39 | | | | |
| 56 | 5.5 | 6.1 | 35 | 33 | 1.5 | 7.7 | 74 | 52 | 3.0 | 6.4 | 39 | | | | |
| 60 | 5.5 | 5.8 | 31 | 33 | 2.0 | 7.7 | 74 | 55 | 1.5 | 6.2 | 36 | | | | |
| 64 | 6.0 | 5.5 | 28 | 34 | 1.5 | 7.6 | 71 | 56 | 4.0 | 6.1 | 35 | | | | |
| 68 | 6.0 | 5.2 | 25 | 35 | 1.5 | 7.6 | 69 | 60 | 2.0 | 5.8 | 31 | | | | |
| | | | | 36 | 1.5 | 7.5 | 66 | 64 | 4.0 | 5.5 | 28 | | | | |
| | | | | 36 | 2.0 | 7.5 | 66 | 68 | 4.0 | 5.2 | 25 | | | | |
| | | | | 36 | 3.0 | 7.5 | 66 | 72 | 6.0 | 5.0 | 22 | | | | |
| | | | | 38 | 1.5 | 7.3 | 62 | 76 | 6.0 | 4.7 | 20 | | | | |
| | | | | 40 | 1.5 | 7.2 | 57 | 80 | 2.0 | 4.4 | 18 | | | | |
| | | | | 40 | 2.0 | 7.2 | 57 | 80 | 4.0 | 4.4 | 18 | | | | |
| | | | | 42 | 1.5 | 7.1 | 54 | 80 | 6.0 | 4.4 | 18 | | | | |
| | | | | 42 | 2.0 | 7.1 | 54 | 90 | 6.0 | 3.7 | 13 | | | | |
| | | | | 42 | 3.0 | 7.1 | 54 | 100 | 6.0 | 3.0 | 10 | | | | |
| | | | | 42 | 4.0 | 7.1 | 54 | 110 | 6.0 | 2.5 | 7 | | | | |



N470V-4

N470V-4



| $\varnothing d_1$ M | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  |
|------------------------|---------|-------------|-------------|-------------|---------|---|---|
| 30 | 3.50 | 180 | 39.0 | 22.0 | 18.0 | 5 | 26.50 |
| 33 | 3.50 | 180 | 39.0 | 22.0 | 18.0 | 5 | 29.50 |
| 36 | 4.00 | 200 | 43.0 | 25.0 | 20.0 | 5 | 32.00 |
| 39 | 4.00 | 200 | 43.0 | 25.0 | 20.0 | 5 | 35.00 |
| 42 | 4.50 | 220 | 47.0 | 28.0 | 22.0 | 5 | 37.50 |
| 45 | 4.50 | 220 | 47.0 | 28.0 | 22.0 | 5 | 40.50 |
| 48 | 5.00 | 240 | 52.0 | 32.0 | 24.0 | 5 | 43.00 |
| 52 | 5.00 | 240 | 52.0 | 32.0 | 24.0 | 5 | 47.00 |
| 56 | 5.50 | 260 | 58.0 | 36.0 | 29.0 | 6 | 50.50 |
| 60 | 5.50 | 260 | 58.0 | 36.0 | 29.0 | 6 | 54.50 |
| 64 | 6.00 | 290 | 64.0 | 40.0 | 32.0 | 6 | 58.00 |
| 68 | 6.00 | 290 | 64.0 | 40.0 | 32.0 | 6 | 62.00 |

ID

102575

* 102576

102577

102578

102579

102580

102581

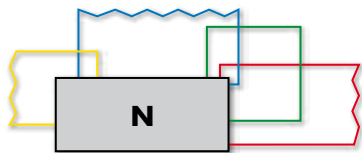
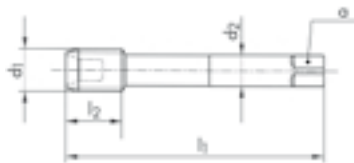
102582



102583

102584

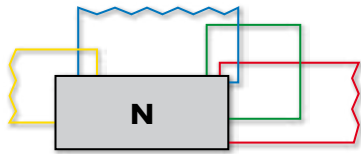
102585

* 102586


N470V-3
N470V-3

**ISO 2
6H**

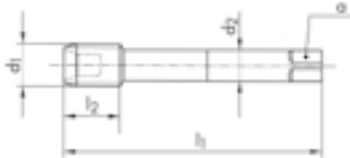
| $\varnothing d_1$ MF | P mm | l_1 mm | l_2 mm | d_2 mm | a mm |  |  | ID |
|-------------------------|---------|-------------|-------------|-------------|---------|---|---|----------|
| Δ22 | 1.50 | 125 | 28.0 | 18.0 | 14.5 | 4 | 20.50 | * 102526 |
| Δ26 | 1.50 | 140 | 30.0 | 18.0 | 14.5 | 4 | 24.50 | * 102529 |
| Δ28 | 1.50 | 140 | 30.0 | 20.0 | 16.0 | 4 | 26.50 | * 102530 |
| 30 | 1.50 | 160 | 32.0 | 22.0 | 18.0 | 5 | 28.50 | * 102531 |
| 32 | 1.50 | 160 | 32.0 | 22.0 | 18.0 | 5 | 30.50 | * 102533 |
| 34 | 1.50 | 160 | 26.0 | 22.0 | 18.0 | 5 | 32.50 | * 102537 |
| 35 | 1.50 | 175 | 28.0 | 25.0 | 20.0 | 5 | 33.50 | * 102538 |
| 36 | 2.00 | 175 | 35.0 | 25.0 | 20.0 | 5 | 34.00 | 102540 |
| 36 | 3.00 | 200 | 43.0 | 25.0 | 20.0 | 5 | 33.00 | 102541 |
| 38 | 1.50 | 175 | 28.0 | 25.0 | 20.0 | 5 | 36.50 | * 102542 |
| 40 | 1.50 | 190 | 31.0 | 28.0 | 22.0 | 5 | 38.50 | * 102543 |
| 40 | 2.00 | 190 | 38.0 | 28.0 | 22.0 | 5 | 38.00 | * 102544 |
| 42 | 2.00 | 190 | 38.0 | 28.0 | 22.0 | 5 | 40.00 | 102546 |
| 42 | 3.00 | 220 | 47.0 | 28.0 | 22.0 | 5 | 39.00 | 102547 |
| 48 | 1.50 | 205 | 34.0 | 32.0 | 24.0 | 5 | 46.50 | * 102551 |
| 48 | 3.00 | 205 | 41.0 | 32.0 | 24.0 | 5 | 45.00 | 102553 |
| 52 | 3.00 | 205 | 41.0 | 32.0 | 24.0 | 5 | 49.00 | 102557 |
| 56 | 4.00 | 260 | 58.0 | 36.0 | 29.0 | 6 | 52.00 | 102559 |
| 64 | 4.00 | 290 | 64.0 | 40.0 | 32.0 | 6 | 60.00 | 102561 |
| 80 | 4.00 | 270 | 56.0 | 45.0 | 35.0 | 7 | 76.00 | * 102564 |





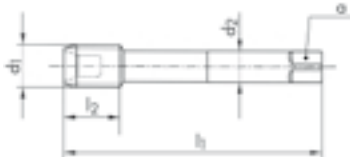




N470V-3

N470V-3



| Ø" d ₁ UN | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | ID |
|-------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|---|--------|
| 1 1/4 | 8 | 31.75 | 180 | 39.0 | 22.0 | 18.0 | 5 | 28.70 | 102566 |
| 1 3/8 | 8 | 34.92 | 180 | 39.0 | 22.0 | 18.0 | 5 | 31.80 | 102568 |
| 1 1/2 | 8 | 38.10 | 200 | 43.0 | 25.0 | 20.0 | 5 | 35.00 | 102565 |
| 1 5/8 | 8 | 41.27 | 220 | 47.0 | 28.0 | 22.0 | 5 | 38.20 | 102569 |
| 1 3/4 | 8 | 44.45 | 220 | 47.0 | 28.0 | 22.0 | 5 | 41.40 | 102567 |
| 1 7/8 | 8 | 47.62 | 240 | 52.0 | 32.0 | 24.0 | 5 | 44.50 | 102570 |
| 2 | 8 | 50.80 | 205 | 41.0 | 32.0 | 24.0 | 5 | 47.70 | 102572 |
| 2 1/4 | 8 | 57.15 | 220 | 45.0 | 36.0 | 29.0 | 6 | 54.10 | 102571 |
| 2 1/2 | 8 | 63.50 | 220 | 45.0 | 36.0 | 29.0 | 6 | 60.40 | 111879 |



| Ø" d ₁ G | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | a mm |  |  | ID |
|------------------------|----------|----------------------|----------------------|----------------------|----------------------|---------|---|---|----------|
| Δ 1/2 | 14 | 20.95 | 140 | 32.0 | 16.0 | 12.0 | 4 | 18.90 | * 102521 |
| Δ 3/4 | 14 | 26.44 | 150 | 34.0 | 20.0 | 16.0 | 4 | 24.40 | 102525 |
| 1 | 11 | 33.24 | 160 | 32.0 | 22.0 | 18.0 | 5 | 30.70 | 102522 |
| 1 1/4 | 11 | 41.91 | 190 | 38.0 | 28.0 | 22.0 | 5 | 39.30 | 102519 |
| 1 1/2 | 11 | 47.80 | 205 | 41.0 | 32.0 | 24.0 | 5 | 45.20 | 102518 |
| 1 3/4 | 11 | 53.74 | 205 | 41.0 | 32.0 | 24.0 | 5 | 51.20 | * 102520 |
| 2 | 11 | 59.61 | 220 | 45.0 | 36.0 | 29.0 | 6 | 57.00 | 102524 |



KOMBI-GEWINDEBOHRER

Allgemeines

Der DC-Kombi-Gewindebohrer ist ein Werkzeug, das das Schneiden des Kernloches und des Gewindes in einem Arbeitsgang erlaubt, ohne dass ein Werkzeugwechsel notwendig ist.

Er ist ideal für den Einsatz auf CNC-Maschinen, Bohrtasteinheiten, Drehbänken mit Revolverkopf und Gewindeschneidmaschinen.

Anwendungsbereich

Werkstoffe mit einer Zugfestigkeit bis 750 N/mm² lassen sich mit dem DC-Kombi-Gewindebohrer bearbeiten, also gewisse Stähle, Grauguss, Messing, Aluminium.

Spezielle Anforderungen

- Das Kernloch muss vollständig durchbohrt sein, bevor der Gewindebohrer zu schneiden beginnt.
- Bei der Bearbeitung von kurzspanenden Werkstoffen darf die Gewindetiefe 1.8 x D nicht überschreiten (Typ N5952 bis 2 x D).
- Bei der Bearbeitung von langspanenden Werkstoffen darf die Gewindetiefe 1.2 x D nicht überschreiten.
- Schmieren wie beim Gewindeschneiden.

Schnittgeschwindigkeiten

Wenn die Maschine, auf der die Kombiboherer eingesetzt werden, es erlaubt, ist es vorteilhaft, die idealste Drehzahl für das Gewindeschneiden zu wählen. (Siehe dazu unsere Anwendungstabelle auf Seite 7).

Für Maschinen, auf denen eine unterschiedliche Drehzahl für das Bohren und Gewindeschneiden nicht eingestellt werden kann, empfehlen wir die nachstehend aufgeführten Schnittwerte.

Programmierungs-Instruktionen

Ansenkung:

Gleichzeitig zentrieren und ansenken.

Programmschritte bei Spindelvorschub und Rotation, 100 % synchronisiert (Idealfall):

- 1) Kombi-Gewindebohrer im Eilgang in Arbeitsposition bringen
- 2) Bohren:
 - Drehzahl einstellen
 - Vorschub einstellen
 - lange Späne vermeiden
 - Späne entfernen
- 3) Gewindeanschnitt in Startposition bringen
- 4) Gewindeschneiden:
 - Drehzahl einstellen
 - Vorschub (100 %) einstellen
 - Gewindetiefe einstellen
 - Gewindebohrer muss vor Arbeitsbeginn spanfrei sein
- 5) Kombi-Gewindebohrer zurück in Startposition.

Programmschritte bei nicht voller Synchronisation von Spindelvorschub und Rotation:

Wichtig: Kombi-Gewindebohrer in Futter spannen, mit blockierter Andrucksfeder, jedoch mit Längenausgleich.

- 1) Kombi-Gewindebohrer im Eilgang in Arbeitsposition bringen
- 2) Bohren:
 - Drehzahl einstellen
 - Vorschub einstellen
 - lange Späne vermeiden
 - Späne entfernen
- 3) Gewindeanschnitt in Startposition bringen
- 4) Gewindeschneiden:
 - Drehzahl einstellen
 - Vorschub = 90 - 95 %
 - Gewindetiefe einstellen
- 5) Kombi-Gewindebohrer zurück in Startposition.

Schnittgeschwindigkeiten und Drehzahlen (Richtwerte)

| Werkstoffgruppen | Vc (m/min) | Durchmesser und Drehzahl U/min | | | | | | | | | | |
|-----------------------------------|------------|--------------------------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 |
| Stähle bis 500 N/mm ² | 20 | 2120 | 1600 | 1270 | 1060 | 800 | 640 | 530 | 460 | 400 | 360 | 320 |
| Stähle über 500 N/mm ² | 15 | 1600 | 1200 | 950 | 800 | 600 | 480 | 400 | 340 | 300 | 270 | 240 |
| Grauguss weich | 20 | 2120 | 1600 | 1270 | 1060 | 800 | 640 | 530 | 460 | 400 | 360 | 320 |
| Grauguss hart | 15 | 1600 | 1200 | 950 | 800 | 600 | 480 | 400 | 340 | 300 | 270 | 240 |
| Messing | 25 | 2650 | 2000 | 1600 | 1330 | 950 | 800 | 660 | 570 | 500 | 450 | 400 |
| Aluminium | 25 | 2650 | 2000 | 1600 | 1330 | 950 | 800 | 660 | 570 | 500 | 450 | 400 |

COMBINATION DRILL/TAPS

General information

DC combination drill/taps - two tools in one, which allows the drilling and the threading of a workpiece without changing the tool.

It is the optimal solution for CNC-machines, drilling heads, turret lathes and tapping machines.

Application rang

DC combination drill/taps are recommended for use in materials with a tensile strenght up to 750 N/mm², such as certain steels, cast iron, aluminium, brass.

General hints

- The core hole must be completely drilled through before the tap starts cutting.
- In short chipping materials, the depth of thread should not exceed 1.8 x D (type N5952 up to 2 x D).
- In long chipping materials, the depth of thread should not exceed 1.2 x D.
- Lubricate as for tapping.

Cutting speeds

On drilling heads and CNC-machines, the ideal speeds for drilling and tapping are selected (see our application chart on page 7).

If the same speed is selected for both drilling and tapping, we recommend the values indicated below.

Programming instructions

Countersinking:

Center and countersink simultaneously.

Programming steps for spindle feed and rotation 100 % synchronised (ideal case):

- 1) Combi-drill-tap in rapid to start position
- 2) Drilling:
 - set speed
 - set feed
 - avoid long chips
 - clear shavings
- 3) Tapping section in start position
- 4) Tapping:
 - set speed
 - feed = 100 % pitch
 - set thread depth
 - tap must be free of swarf before starting to cut
- 5) Combi-drill-tap returns to start position.







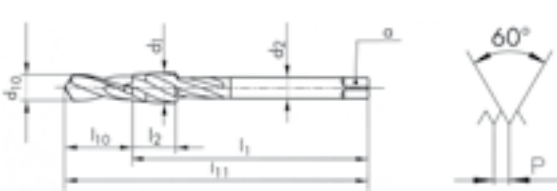

Programming steps for spindle feed rotation not fully synchronised:

Important: Mount combination drill-tap in chuck with locked pressure spring, but with axial compensation on pull.

- 1) Combi-drill-tap in rapid to start position
- 2) Drilling:
 - set speed
 - set feed
 - avoid long chips
 - clear shavings
- 3) Tapping section in start position
- 4) Tapping:
 - set speed
 - feed = 90 - 95 % pitch
 - set thread depth
- 5) Combi-drill-tap returns to start position.

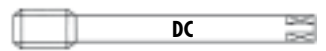
Cutting and spindle speeds (guide values)

| Material groups | Vc (m/min) | Speeds for different diameters | | | | | | | | | | |
|------------------------------------|------------|--------------------------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 |
| Steels up to 500 N/mm ² | 20 | 2120 | 1600 | 1270 | 1060 | 800 | 640 | 530 | 460 | 400 | 360 | 320 |
| Steels over 500 N/mm ² | 15 | 1600 | 1200 | 950 | 800 | 600 | 480 | 400 | 340 | 300 | 270 | 240 |
| Cast iron, soft | 20 | 2120 | 1600 | 1270 | 1060 | 800 | 640 | 530 | 460 | 400 | 360 | 320 |
| Cast iron, hard | 15 | 1600 | 1200 | 950 | 800 | 600 | 480 | 400 | 340 | 300 | 270 | 240 |
| Brass | 25 | 2650 | 2000 | 1600 | 1330 | 950 | 800 | 660 | 570 | 500 | 450 | 400 |
| Aluminium | 25 | 2650 | 2000 | 1600 | 1330 | 950 | 800 | 660 | 570 | 500 | 450 | 400 |


| | | | | | | | | N5951 | N5952 | N5951 | |
|---|---|---|-------|-------|----------|----------|----------|--|-------------|----------------|--|
| N5951 |  |  | | | | | | | | | |
| N5952 |  |  | | | | | | | | | |
| N5951 |  |  | | | | | | | | | |
|  | | | | | | | |  | | | |
| | | | | | | | | ISO 2 6H | ISO 2 6H | 7H EN 60423 | |
| $\varnothing d_1$ | P | l_{11} | l_2 | d_2 | α | d_{10} | l_{10} | ID | | | |
| M | mm | mm | mm | mm | mm | mm | mm | | | | |
| 3 | 0.50 | 62.0 | 12.5 | 3.5 | 2.7 | 2.55 | 9.0 | 104578 | | | |
| 4 | 0.70 | 66.0 | 16.0 | 4.5 | 3.4 | 3.36 | 10.0 | 104580 | | | |
| 5 | 0.80 | 75.5 | 18.0 | 6.0 | 4.9 | 4.26 | 12.5 | 104583 | | | |
| 6 | 1.00 | 81.0 | 20.0 | 6.0 | 4.9 | 5.05 | 14.0 | 104585 | | | |
| 8 | 1.25 | 93.0 | 12.0 | 6.0 | 4.9 | 6.80 | 20.0 | 104588 | | | |
| 10 | 1.50 | 99.0 | 14.0 | 7.0 | 5.5 | 8.55 | 22.0 | 104571 | | | |
| 12 | 1.75 | 106.0 | 16.0 | 9.0 | 7.0 | 10.30 | 25.0 | 104573 | | | |
| 16 | 2.00 | 123.0 | 20.0 | 12.0 | 9.0 | 14.10 | 32.0 | 104576 | | | |
| 20 | 2.50 | 132.0 | 22.0 | 16.0 | 12.0 | 17.60 | 36.0 | 104577 | | | |
| | | | | | | | | | | | |
| $\varnothing d_1$ | P | l_{11} | l_2 | d_2 | α | d_{10} | l_{10} | ID | | | |
| M | mm | mm | mm | mm | mm | mm | mm | | | | |
| 4 | 0.70 | 77.0 | 16.0 | 4.5 | 3.4 | 3.36 | 21.0 | 104608 | | | |
| 5 | 0.80 | 87.0 | 18.0 | 6.0 | 4.9 | 4.26 | 24.0 | 104609 | | | |
| 6 | 1.00 | 94.0 | 20.0 | 6.0 | 4.9 | 5.05 | 27.0 | 104610 | | | |
| 8 | 1.25 | 109.0 | 12.0 | 6.0 | 4.9 | 6.80 | 36.0 | 104611 | | | |
| 10 | 1.50 | 118.0 | 14.0 | 7.0 | 5.5 | 8.55 | 41.0 | 104603 | | | |
| | | | | | | | | | | | |
| $\varnothing d_1$ | P | l_{11} | l_2 | d_2 | α | d_{10} | l_{10} | ID | | | |
| MF | mm | mm | mm | mm | mm | mm | mm | | | | |
| 4 | 0.50 | 66.0 | 16.0 | 4.5 | 3.4 | 3.55 | 10.0 | * 104579 | | | |
| 5 | 0.75 | 75.5 | 18.0 | 6.0 | 4.9 | 4.31 | 12.5 | * 123379 | | | |
| 8 | 1.00 | 93.0 | 12.0 | 6.0 | 4.9 | 7.05 | 20.0 | 104587 | | | |
| 10 | 1.00 | 99.0 | 14.0 | 7.0 | 5.5 | 9.05 | 22.0 | 104570 | | | |
| | | | | | | | | | | | |
| $\varnothing d_1$ | P | l_{11} | l_2 | d_2 | α | d_{10} | l_{10} | ID | | | |
| MF | mm | mm | mm | mm | mm | mm | mm | | | | |
| 12 | 1.50 | 106.0 | 16.0 | 9.0 | 7.0 | 10.55 | 25.0 | 142825 | | | |
| 16 | 1.50 | 123.0 | 16.0 | 12.0 | 9.0 | 14.55 | 32.0 | 142826 | | | |
| 20 | 1.50 | 132.0 | 18.0 | 16.0 | 12.0 | 18.55 | 36.0 | 111844 | | | |
| 25 | 1.50 | 155.0 | 22.0 | 18.0 | 14.5 | 23.55 | 45.0 | 111845 | | | |
| 32 | 1.50 | 170.0 | 24.0 | 22.0 | 18.0 | 30.55 | 50.0 | 111846 | | | |
| | | | | | | | | | | | |

UNC ANSI B1.1 G DIN ISO 228 PG DIN 40430

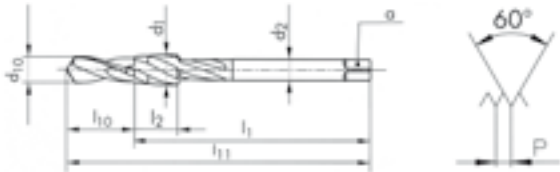
HSSE



N5951

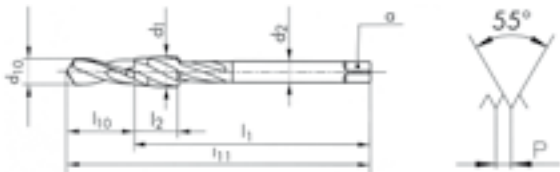



2B



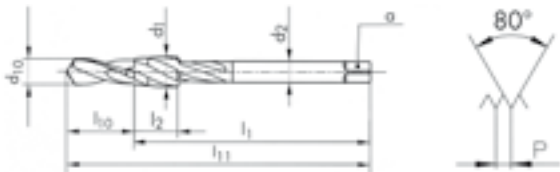
| Ø" d ₁ UNC | P TPI | d ₁ mm | l ₁₁ mm | l ₂ mm | d ₂ mm | a mm | d ₁₀ mm | l ₁₀ mm |
|--------------------------|----------|----------------------|-----------------------|----------------------|----------------------|---------|-----------------------|-----------------------|
| 6 | 32 | 3.50 | 66.0 | 16.0 | 4.0 | 3.0 | 2.80 | 10.0 |
| 10 | 24 | 4.82 | 75.5 | 18.0 | 4.5 | 3.4 | 3.86 | 12.5 |
| 1/4 | 20 | 6.35 | 81.0 | 20.0 | 7.0 | 5.5 | 5.15 | 14.0 |
| 1/2 | 13 | 12.70 | 106.0 | 16.0 | 9.0 | 7.0 | 10.85 | 25.0 |

| ID |
|----------|
| * 104601 |
| * 104598 |
| * 104597 |
| * 104596 |



| Ø" d ₁ G | P TPI | d ₁ mm | l ₁₁ mm | l ₂ mm | d ₂ mm | a mm | d ₁₀ mm | l ₁₀ mm |
|------------------------|----------|----------------------|-----------------------|----------------------|----------------------|---------|-----------------------|-----------------------|
| 1/8 | 28 | 9.72 | 93.0 | 12.0 | 7.0 | 5.5 | 8.75 | 20.0 |
| 1/4 | 19 | 13.15 | 106.0 | 14.0 | 11.0 | 9.0 | 11.75 | 25.0 |
| 3/8 | 19 | 16.66 | 123.0 | 16.0 | 12.0 | 9.0 | 15.25 | 32.0 |
| 1/2 | 14 | 20.95 | 132.0 | 18.0 | 16.0 | 12.0 | 19.00 | 36.0 |
| 3/4 | 14 | 26.44 | 155.0 | 22.0 | 18.0 | 14.5 | 24.45 | 45.0 |

| ID |
|----------|
| 104567 |
| 104566 |
| 104569 |
| 104565 |
| * 104568 |



| Ø d ₁ PG | P TPI | d ₁ mm | l ₁₁ mm | l ₂ mm | d ₂ mm | a mm | d ₁₀ mm | l ₁₀ mm |
|------------------------|----------|----------------------|-----------------------|----------------------|----------------------|---------|-----------------------|-----------------------|
| 7 | 20 | 12.50 | 106.0 | 14.0 | 9.0 | 7.0 | 11.40 | 25.0 |
| 9 | 18 | 15.20 | 114.0 | 15.0 | 12.0 | 9.0 | 13.95 | 28.0 |
| 13.5 | 18 | 20.40 | 132.0 | 18.0 | 16.0 | 12.0 | 19.15 | 36.0 |
| 16 | 18 | 22.50 | 142.0 | 20.0 | 18.0 | 14.5 | 21.25 | 40.0 |
| 29 | 16 | 37.00 | 203.0 | 28.0 | 28.0 | 22.0 | 35.65 | 63.0 |

| ID |
|----------|
| * 104594 |
| * 104595 |
| * 104590 |
| * 104591 |
| * 104593 |



KODIERUNG - CODIFICATION

DC VHM-Gewindewirbler DC Solid carbide thread whirler cutters



Beispiel - Example

| | | | | | | | |
|-----------------------------------|------------------------------------|----|----|--|----|----|----|
| Gewindewirbler | Thread whirler cutter | GW | | | | | |
| Einzahn | Single tooth | | 10 | | | | |
| Mehrzahn-Einzelprofil | Single profile, multi toothed | | 20 | | | | |
| Mehrzahn-Doppelprofil | Double pitch with multi flutes | | 30 | | | | |
| Mehrzahn-Vollprofil | Multi fluted with full profile | | 40 | | | | |
| Gewindelänge 2.5 x D ₁ | Thread length 2.5 x D ₁ | | | | 16 | | |
| Gewindelänge 4 x D ₁ | Thread length 4 x D ₁ | | | | 19 | | |
| Verschleisschutzschicht | Wear-protective coating | | | | | VS | |
| Spezialausführung | Special execution | | | | | | SP |































DC VHM-Gewindefräser DC Solid carbide thread milling cutters




Beispiel - Example

| | | | | | | | |
|------------------------------------|--|-----|----|--|---|---|----|
| Standardausführung | Standard execution | GF | | | | | |
| Für gehärteten Stahl (55 - 63 HRC) | For hardened steels (55 - 63 HRC) | GFH | | | | | |
| Mit 45° Senkfase | With 45° chamfer for countersinking | GFS | | | | | |
| Polyvalenter Gewindefräser | For multi sizes thread milling cutters | GFM | | | | | |
| Bohrgewindefräser | Thrillers | BGF | | | | | |
| Spiralnuten 27° (GF), 10° (GFH) | Spiral flutes 27° (GF), 10° (GFH) | | 61 | | | | |
| Spiralnuten 27° (GFS) | Spiral flutes 27° (GFS) | | 66 | | | | |
| Spiralnuten 15° (GFM) | Spiral flutes 15° (GFM) | | 62 | | | | |
| Bohrgewindefräser zweilippig | Thrillers 2 flutes | | 67 | | | | |
| Bohrgewindefräser dreilippig | Thrillers 3 flutes | | 68 | | | | |
| Aussenkühlung | External lubrication | | | | 1 | | |
| Innenkühlung | Internal lubrication | | | | 6 | | |
| Gewindelänge 1.5 x D ₁ | Thread length 1.5 x D ₁ | | | | | 0 | |
| Gewindelänge 2 x D ₁ | Thread length 2 x D ₁ | | | | | 5 | |
| Gewindelänge 2.5 x D ₁ | Thread length 2.5 x D ₁ | | | | | 6 | |
| Verschleisschutzschicht | Wear-protective coating | | | | | | VS |
| Spezialausführung | Special execution | | | | | | SP |


Piktogramme - Pictographs

| | | | |
|---|--|---|---|
|  | Vollhartmetall Solid carbide |  | Gewindelänge 1.5 x D ₁ Thread length 1.5 x D ₁ |
|  | 10° Rechtsspiralnuten 10° right hand spiral flutes |  | Gewindelänge 2 x D ₁ Thread length 2 x D ₁ |
|  | 15° Rechtsspiralnuten 15° right hand spiral flutes |  | Gewindelänge 2.5 x D ₁ Thread length 2.5 x D ₁ |
|  | 27° Rechtsspiralnuten 27° right hand spiral flutes |  | Innengewinde Internal thread |
|  | 27° Rechtsspiralnuten 27° right hand spiral flutes |  | Aussengewinde External thread |
|  | Mit 45° Senker zum Anfasen des Gewindes With 45° chamfer for countersinking |  | Sacklöcher (BGF) Blind holes (BGF) |
|  | Anzahl Spannuten (Z) Number of flutes (Z) |  | Durchgangslöcher (BGF) Through holes (BGF) |
|  | Kühlkanal Internal cooling channel |  | BGF, 2 Spannuten BGF, 2 flutes |
|  | Kühlkanal (BGF, 2 Spannuten) Internal cooling channel (BGF, 2 flutes) |  | BGF, 3 Spannuten BGF, 3 flutes |
|  | Kühlkanal (BGF, 3 Spannuten) Internal cooling channel (BGF, 3 flutes) |  | Für Werkstoffe ≤ 63 HRC (GFH) For materials ≤ 63 HRC (GFH) |
|  | DC -Verschleisschutzschicht DC wear-protective coating |  | Konisches Gewinde 1:16 (NPT - NPTF) Tapered thread 1:16 (NPT - NPTF) |
|  | EG-Gewinde Thread EG (for wire screw thread inserts) |  | Rundlaufgenauigkeit Shape accuracy |
|  | Gewindelänge 2.5 x D ₁ Thread length 2.5 x D ₁ |  | Toleranzklasse h5 Tolerance class h5 |
|  | Gewindelänge 4 x D ₁ Thread length 4 x D ₁ |  | Drallwinkel Helix angle |
|  | Kernlochdurchmesser Core hole diameter |  | Schweizerische Uhrenindustrie-Norm Norm of Swiss Watch Industry |

Bemerkung GFM

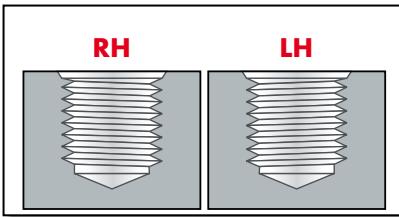
 Zur Vermeidung grösserer Profilüberfräsungen darf der Fräser-Ø für Regelgewinde nicht grösser als 2/3 (Feingewinde 3/4) des zu fräsenden Gewinde-Ø sein.

Notice GFM

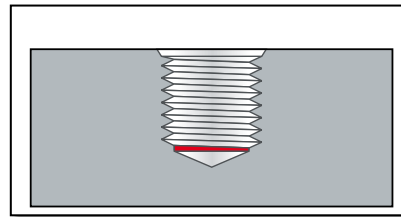
 In order to avoid profile defects it is important that the tool diameter does not exceed 2/3 of the diameter of the work-piece thread for coarse threads (3/4 for fine threads).

VORTEILE - ADVANTAGES

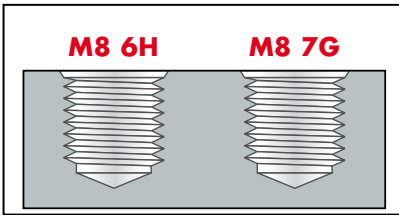
GW-GF-GFH-GFS-GFM



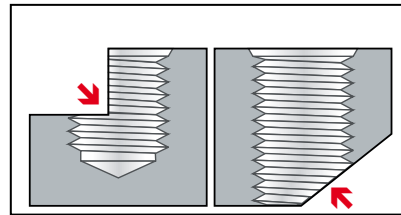
Ein einziger Gewindefräser für Rechts- und Linksgewinde
The same cutter can be used for right and left hand threads



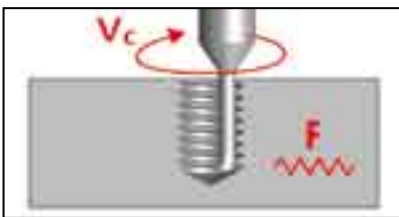
Für Gewinde bis fast auf den Grund der Vorbohrung
For threads to be cut near to the bottom of blind holes



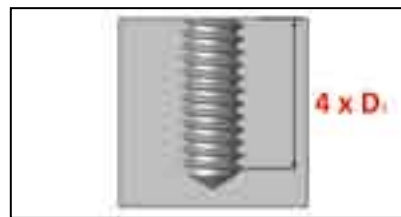
Je nach Wahl, gewünschte Toleranz einstellbar
Required tolerance adjustable as per users choice



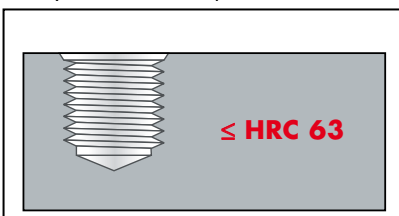
Für Gewinde mit unterbrochenem Schnitt, mit schrägem Anschnitt oder Austritt
For threads with interrupted cut or with oblique entrance or exit



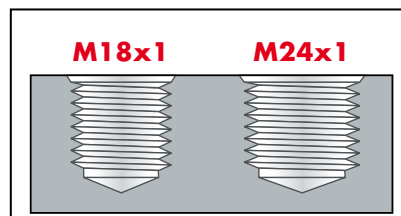
Schnittgeschwindigkeit und Vorschub können dem zu bearbeitenden Werkstoff individuell angepasst werden.
The cutting speed and feed rate can be matched individually to each work-piece material.



Ideal für tiefe Sacklöcher.
Ideal for deep blind holes.

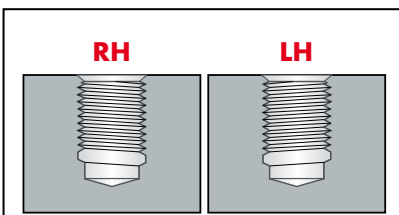


Gewinde in hochfeste Werkstoffe können realisiert werden
To realise threads in hardened materials

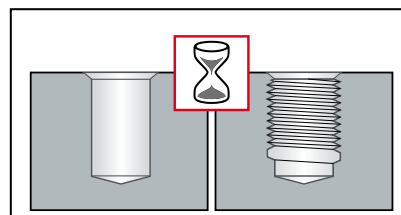


Ein einziger Gewindefräser für einen grossen Durchmesserbereich
One only tool for threads of a wide range of diameters with the same pitch

BGF



Ein einziger Gewindefräser für Rechts- und Linksgewinde
The same cutter can be used for right and left hand threads

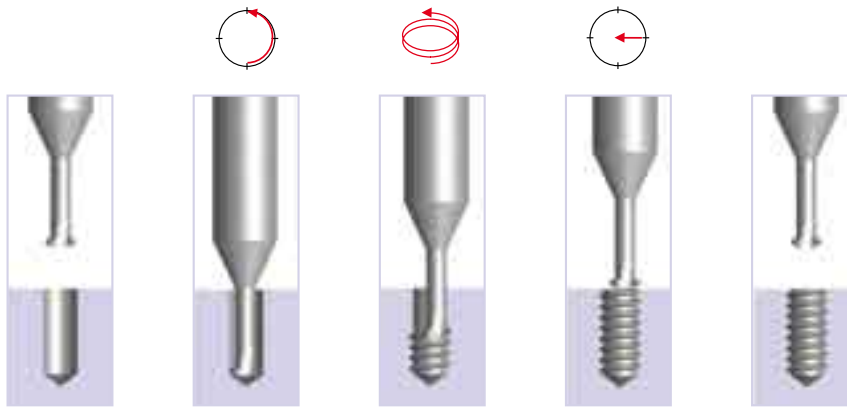


Platzgewinn im Werkzeugmagazin der Maschine und Einsparung von Bearbeitungszeit
Time-saving when tool changing and space-saving in the tool carousel

PROGRAMMIERZYKLUS - PROGRAMMING CYCLE

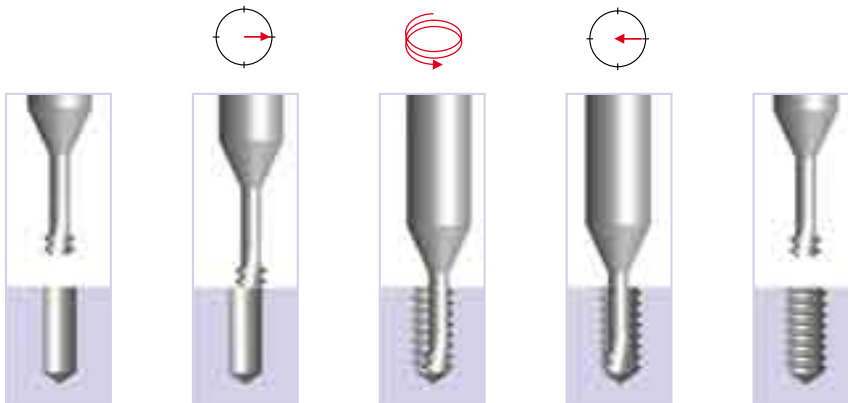
Rechtsgewinde im Gleichlauf - Right hand thread climb milling

GW1016
GW1016VS
GW2016
GW2016VS

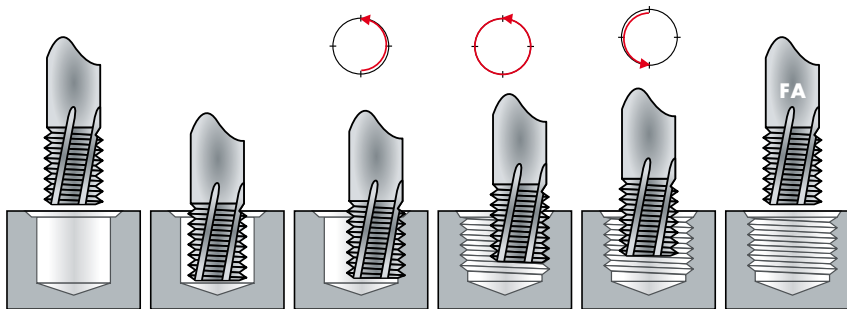


Rechtsgewinde im Gegenlauf - Conventional right hand thread milling

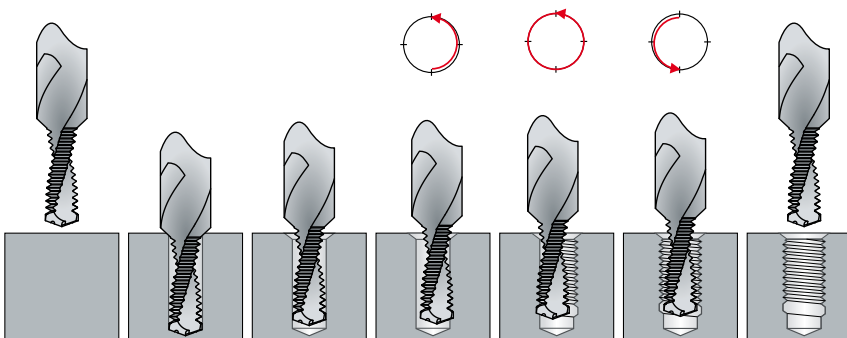
GW3016
GW3016VS
GW3019
GW3019VS
GW4016
GW4016VS
GW4019
GW4019VS



Programmierzklus für Typ GF - Operating cycle type GF



Programmierzklus für Typ BGF - Operating cycle type BGF



SCHNITTGESCHWINDIGKEITEN UND VORSCHÜBE

CUTTING SPEEDS AND FEED RATES

Besondere Anforderungen – Specific requirements



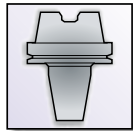
CNC-Bearbeitungsmaschine
mit 3-Achsen-Bahnsteuerung

CNC machine with 3-D continuous
path control



HSC-Bearbeitung

High speed cutting



Absoluter Rundlauf des Aufspannfutters

Perfect concentricity of fixture

DC -Anwendungstabelle für Gewindewirbler

DC Application chart for thread whirling

| Werkstoff-Gruppen Material groups | Werkstoffbezeichnung | Material designation | Härte Hardness (HB) | Festigkeit Tensile strength Rm (N/mm ²) |
|---|---|--|---------------------------|--|
| 10 Stahl Steels | 11 Automatenstahl | Free-cutting steels | < 200 | < 700 |
| | 12 Baustahl, Einsatzstahl | Structural / cementation steels | < 200 | < 700 |
| | 13 Kohlenstoffstahl | Carbon steels | < 300 | <1000 |
| | 14 Stahl legiert <850 N/mm ² | Alloy steels <850 N/mm ² | < 250 | < 850 |
| | 15 Stahl legiert / vergütet >850 - <1150 N/mm ² | Alloy steels hard./ temp. >850 - <1150 N/mm ² | > 250 | > 850 |
| | 16 Hochfester Stahl <55 HRC | High tensile alloy steels <55 HRC | > 250 | > 850 |
| 20 Rostfreier Stahl Stainless Steels | 21 Rostfreier Stahl / geschwefelt | Free machining stainless steels | < 250 | < 850 |
| | 22 Austenitisch | Austenitic stainless steels | < 250 | < 850 |
| | 23 Ferritisch, martensitisch <850 N/mm ² | Ferritic and martensitic <850 N/mm ² | < 250 | < 850 |
| | 24 Ferritisch, martensitisch >850 - <1150 N/mm ² | Ferritic and martens. >850 - <1150 N/mm ² | > 250 | > 850 |
| 30 Guss Cast iron | 31 Grauguss | Cast iron | < 250 | < 850 |
| | 32 Kugelgraphitguss | Spheroidal graphite + malleable cast iron | < 250 | < 850 |
| 40 Titan Titanium | 41 Reintitan | Pure titanium | < 250 | < 850 |
| | 42 Titanlegierung | Titanium alloys | > 250 | > 850 |
| 50 Nickel Nickel | 51 Nickellegierung 1 <850 N/mm ² | Nickel alloys 1 <850 N/mm ² | < 250 | < 850 |
| | 52 Nickellegierung 2 >850 - <1150 N/mm ² | Nickel alloys 2 >850 - <1150 N/mm ² | > 250 | > 850 |
| | 53 Nickellegierung 3 >1150 - ≤1600 N/mm ² | Nickel alloys 3 >1150 - ≤1600 N/mm ² | > 340 | > 1150 |
| 60 Kupfer Copper | 61 Reinkupfer (Elektrolytkupfer) | Pure copper (electrolytic copper) | < 120 | < 400 |
| | 62 Messing, Bronze, Rotguss (kurzspanend) | Short chip brass, phosphor bronze, gun metal | < 200 | < 700 |
| | 63 Messing (langspanend) | Long chip brass | < 200 | < 700 |
| 70 Aluminium Magnesium Aluminium Magnesium | 71 Al unlegiert | Al unalloyed | < 100 | < 350 |
| | 72 Al legiert Si < 1.5 % | Al alloyed Si < 1.5 % | < 150 | < 500 |
| | 73 Al legiert Si > 1.5 % - < 10 % | Al alloyed Si > 1.5 % - < 10 % | < 120 | < 400 |
| | 74 Al legiert Si > 10 %, Mg-Legierung | Al alloyed Si > 10 %, Mg-Alloys | < 120 | < 400 |
| 80 Kunststoff Plastic compounds | 81 Thermoplaste | Thermoplastics | - | - |
| | 82 Duroplaste | Duroplastics | - | - |
| | 83 Faserverstärkte Kunststoffe | Glass fibre reinforced plastics | - | - |
| 90 Edelm. - M. Prec. | 91 Gelbgold | Yellow gold | - | - |
| | 92 Rotgold | Red gold | - | - |
| | 93 Weissgold | White gold | - | - |
| | 94 Silber | Silver | - | - |

Einsatz – Use

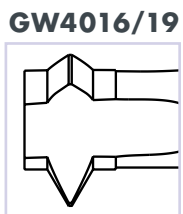
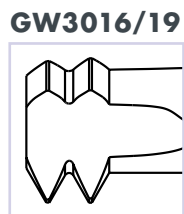
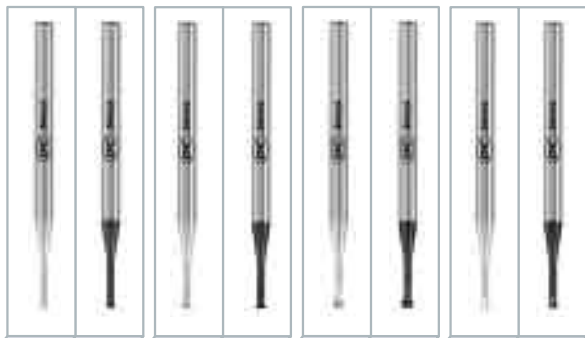
S Optimal mit Schneidöl
S Geeignet mit Schneidöl

S Optimal with cutting oil
S Suitable with cutting oil

E Optimal mit Emulsion
E Geeignet mit Emulsion

E Optimal with emulsion
E Suitable with emulsion

GW



| | | | | Vc (m/min) | | Vorschub fz (mm/Zahn) | | | Milling fz (mm/tooth) | | |
|--|--|--|--|------------|--------------------|-----------------------|--------------|--------------|-----------------------|----|--|
| | | | | Standard | Beschichtet Coated | ∅ 0.3 - 1.0 | ∅ 1.01 - 3.0 | ∅ 3.01 - 6.0 | ∅ 6.01 - 12.0 | | |
| | | | | 60 - 80 | 80 - 100 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 11 | |
| | | | | 60 - 80 | 80 - 100 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 12 | |
| | | | | 50 - 70 | 70 - 90 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 13 | |
| | | | | 50 - 70 | 70 - 90 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 14 | |
| | | | | 15 - 35 | 30 - 50 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.08 | 0.04 - 0.15 | 15 | |
| | | | | | 15 - 40 | 0.003 - 0.01 | 0.006 - 0.03 | 0.008 - 0.05 | 0.01 - 0.08 | 16 | |
| | | | | | 40 - 60 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 21 | |
| | | | | | 30 - 50 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 22 | |
| | | | | | 30 - 50 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 23 | |
| | | | | | 30 - 50 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 24 | |
| | | | | 60 - 90 | 90 - 120 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 31 | |
| | | | | 50 - 70 | 70 - 90 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 32 | |
| | | | | 15 - 35 | 20 - 40 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 41 | |
| | | | | 10 - 30 | 15 - 35 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 42 | |
| | | | | | 20 - 40 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 51 | |
| | | | | | 20 - 40 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 52 | |
| | | | | | 20 - 30 | 0.003 - 0.01 | 0.006 - 0.03 | 0.008 - 0.05 | 0.01 - 0.08 | 53 | |
| | | | | 150 - 200 | 200 - 250 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 61 | |
| | | | | 100 - 150 | 150 - 200 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 62 | |
| | | | | 100 - 150 | 150 - 200 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.05 - 0.15 | 63 | |
| | | | | 150 - 250 | | 0.004 - 0.01 | 0.01 - 0.05 | 0.05 - 0.10 | 0.10 - 0.20 | 71 | |
| | | | | 150 - 250 | | 0.004 - 0.01 | 0.01 - 0.05 | 0.05 - 0.10 | 0.10 - 0.20 | 72 | |
| | | | | 150 - 250 | 200 - 300 | 0.004 - 0.01 | 0.01 - 0.05 | 0.05 - 0.10 | 0.10 - 0.20 | 73 | |
| | | | | 150 - 250 | 200 - 300 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 74 | |
| | | | | 150 - 250 | 200 - 300 | 0.004 - 0.01 | 0.01 - 0.05 | 0.05 - 0.10 | 0.10 - 0.20 | 81 | |
| | | | | 80 - 150 | 100 - 200 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 82 | |
| | | | | | 80 - 100 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 83 | |
| | | | | 100 - 150 | 150 - 200 | 0.004 - 0.01 | 0.01 - 0.05 | 0.04 - 0.10 | 0.08 - 0.15 | 91 | |
| | | | | 60 - 90 | 90 - 120 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.04 - 0.15 | 92 | |
| | | | | | 30 - 50 | 0.004 - 0.01 | 0.01 - 0.03 | 0.02 - 0.05 | 0.03 - 0.08 | 93 | |
| | | | | 60 - 90 | 90 - 120 | 0.004 - 0.01 | 0.01 - 0.05 | 0.02 - 0.10 | 0.04 - 0.15 | 94 | |

Bei den oben aufgeführten Daten handelt es sich um Richtwerte. The indicated values are a guideline.

SCHNITTGESCHWINDIGKEITEN UND VORSCHÜBE

CUTTING SPEEDS AND FEED RATES

DC -Anwendungstabelle für Gewindefräser und Bohrgewindefräser

DC Application chart for thread milling cutters and thrillers

| Werkstoff-Gruppen Material groups | Werkstoffbezeichnung Für Werkstoffbeispiele siehe Seiten 5 - 6. | Material designation Examples for application groups, pag. 5 - 6. | Härte Hardness (HB) | Festigkeit Tensile strength Rm (N/mm ²) |
|---|--|--|---------------------------|--|
| 10 Stahl Steels | 11 Automatenstahl | Free-cutting steels | < 200 | < 700 |
| | 12 Baustahl, Einsatzstahl | Structural / cementation steels | < 200 | < 700 |
| | 13 Kohlenstoffstahl | Carbon steels | < 300 | < 1000 |
| | 14 Stahl legiert <850 N/mm ² | Alloy steels <850 N/mm ² | < 250 | < 850 |
| | 15 Stahl legiert / vergütet >850 - <1150 N/mm ² | Alloy steels hard. / temp. >850 - <1150 N/mm ² | > 250 | > 850 |
| | 16 Hochfester Stahl | High tensile alloy steels | > 250 | > 850 |
| | * Hochfester Stahl 55 - 63 HRC | High tensile alloy steels 55 - 63 HRC | > 560 | > 2000 |
| 20 Rostfreier Stahl Stainless Steels | 21 Rostfreier Stahl / geschwefelt | Free machining stainless steels | < 250 | < 850 |
| | 22 Austenitisch | Austenitic stainless steels | < 250 | < 850 |
| | 23 Ferritisch, martensitisch <850 N/mm ² | Ferritic and martensitic <850 N/mm ² | < 250 | < 850 |
| | 24 Ferritisch, martensitisch >850 - <1150 N/mm ² | Ferritic and martens. >850 - <1150 N/mm ² | > 250 | > 850 |
| 30 Guss Cast iron | 31 Grauguss | Cast iron | < 250 | < 850 |
| | 32 Kugelgraphitguss, Temperguss | Spheroidal graphite + malleable cast iron | < 250 | < 850 |
| 40 Titan Titanium | 41 Reintitan | Pure titanium | < 250 | < 850 |
| | 42 Titanlegierung | Titanium alloys | > 250 | > 850 |
| 50 Nickel Nickel | 51 Nickellegierung 1 <850 N/mm ² | Nickel alloys 1 <850 N/mm ² | < 250 | < 850 |
| | 52 Nickellegierung 2 >850 - <1150 N/mm ² | Nickel alloys 2 >850 - <1150 N/mm ² | > 250 | > 850 |
| | 53 Nickellegierung 3 >1150 - ≤1600 N/mm ² | Nickel alloys 3 >1150 - ≤1600 N/mm ² | > 340 | > 1150 |
| 60 Kupfer Copper | 61 Reinkupfer (Elektrolytkupfer) | Pure copper (electrolytic copper) | < 120 | < 400 |
| | 62 Messing, Bronze, Rotguss (kurzspanend) | Short chip brass, phosphor bronze, gun metal | < 200 | < 700 |
| | 63 Messing (langspanend) | Long chip brass | < 200 | < 700 |
| 70 Aluminium Magnesium Aluminium Magnesium | 71 Al unlegiert | Al / Mg unalloyed | < 100 | < 350 |
| | 72 Al legiert Si < 1.5 % | Al alloyed Si < 1.5 % | < 150 | < 500 |
| | 73 Al legiert Si > 1.5 % - < 10 % | Al alloyed Si > 1.5 % - < 10 % | < 120 | < 400 |
| | 74 Al legiert Si > 10 %, Mg-Legierung | Al alloyed Si > 10 %, Mg-Alloys | < 120 | < 400 |
| 80 Kunststoff Plastic compounds | 81 Thermoplaste | Thermoplastics | - | - |
| | 82 Duroplaste | Duroplastics | - | - |
| | 83 Faserverstärkte Kunststoffe | Glass fibre reinforced plastics | - | - |

* Gewindefräser Typ GFH

Thread milling cutter type GFH

Formel zur Berechnung des "Fräsvorschubes"

$$\text{Vorschub} \quad V_{fk} = f_z \times Z \times n$$

$$\text{Vorschub der Werkzeugmitte} \quad V_{fm} = \frac{V_{fk} \times (\text{Nenndurchmesser des Gewindes} - \text{Fräserdurchmesser})}{\text{Nenndurchmesser des Gewindes}}$$

Auf CNC-Maschinen, die den Vorschub der Werkzeugmitte nicht automatisch berechnen, muss der Wert "Vorschub Werkzeugmitte V_{fm} " berücksichtigt werden.


































Thread milling feed rates

$$\text{Feed rate} \quad V_{fk} = f_z \times Z \times n$$
















$$\text{Feed rate of the tool middle} \quad V_{fm} = \frac{V_{fk} \times (\text{nominal thread } \varnothing - \varnothing \text{ of the thread milling cutter})}{\text{nominal thread } \varnothing}$$

On CNC machines, which do not calculate for themselves the feed rate at the tool-centre, the value "centre of the tool V_{fm} " must be considered.
























Inhaltsverzeichnis - VHM-Gewindewirbler Typ GW
Directory - Solid carbide thread whirl cutters type GW

| | |  | | | | | | | | | | | |
|-------------------------------|--------------------------|---|---|---|--|---|---|---|---|---|---|---|---|
| Typ Type | | GW1016 | GW1016VS | GW2016 | GW2016VS | GW3016 | GW3016VS | GW3019 | GW3019VS | GW4016* | GW4016VS* | GW4019* | GW4019VS* |
| Beschichtung Coating | | |  | |  | |  | |  | |  | |  |
| | |  |  |  |  |  |  |  |  |  |  |  |  |
| Gewindelänge Thread length | |  |  |  |  |  |  |  | | | | | |
| Merkmale Characteristics | |  |  |  |  |  |  |  | | | | | |
| | | | | | | | | | | | | | |
| M | ISO DIN 13 ISO DIN 14 | | | 207 | | 208/209 | | 208/209 | | 212 | | 212 | |
| MF | ISO DIN 13 | | | | | 208/209 | | 208/209 | | | | | |
| UNC | ANSI B1.1 | | | | | 210 | | 210 | | 213 | | 213 | |
| UNF | ANSI B1.1 | | | | | 211 | | 211 | | 213 | | 213 | |
| S | NIHS | 206 | | 207 | | | | | | | | | |

Inhaltsverzeichnis - VHM-Gewindefräser Typ GF
Directory - Solid carbide thread milling cutters type GF

| | | GF | | | | | | | | | | | |
|---------------------------------------|--------------|--|-----------------|---|-----------------|--|-----------------|--|-----------------|--|-----------------|---|-----------------|
| Typ Type | | GF6110 | GF6110VS | GF6160 | GF6160VS | GF6115 | GF6115VS | GF6165 | GF6165VS | GF6116 | GF6116VS | GF6166 | GF6166VS |
| Beschichtung Coating | | VS | | VS | | VS | | VS | | VS | | VS | |
| | |  | |  | |  | |  | |  | |  | |
| Gewindelänge Thread length | |  | |  | |  | |  | |  | |  | |
| Merkmale Characteristics | | | |  | | | |  | | | |  | |
| M | ISO DIN 13 | 214 | | | | 215 | | 215 | | 216 | | 216 | |
| MF | ISO DIN 13 | 217 | | | | | | 218 | | | | 218 | |
| UNC | ANSI B1.1 | 219 | | | | | | 220 | | | | 220 | |
| UNF | ANSI B1.1 | 221 | | | | | | 222 | | | | 222 | |
| UN | ANSI B1.1 | | | | | | | | | | | | |
| G (BSP) | DIN ISO 228 | | | | | | | 223 | | | | 223 | |
| PG | DIN 40430 | | | | | | | | | | | | |
| NPT | ANSI B1.20.1 | | | 224 | | | | | | | | | |
| NPTF | ANSI B1.20.3 | | | 224 | | | | | | | | | |
| EG M | DIN 8140 | | | | | | | | | | | | |

Inhaltsverzeichnis - VHM-Gewindfräser Typ GFH und GFS
Directory - Solid carbide thread milling cutters type GFH and GFS

| | | GFH | | GFS | | | | | | | |
|-------------------------------|--------------|---|--|---|--|---|--|---|--|---|--|
| Typ Type | | GFH6110VS | GFS6610 GFS6610VS | GFS6660 GFS6660VS | GFS6615 GFS6615VS | GFS6665 GFS6665VS | GFS6616 GFS6616VS | GFS6666 GFS6666VS | GFS6616 GFS6616VS | GFS6666 GFS6666VS | |
| Beschichtung Coating | |  |  |  |  |  |  |  |  |  | |
| Gewindelänge Thread length | |  |  |  |  |  |  |  |  |  | |
| Merkmale Characteristics | |  | |  | |  | |  | |  | |
| M | ISO DIN 13 | 214 | 225 | 225 | 226 | 226 | | 226 | | 227 | |
| MF | ISO DIN 13 | | 228 | 228 | 229 | 229 | | 229 | | | |
| UNC | ANSI B1.1 | | 230 | 230 | 231 | 231 | | 231 | | | |
| UNF | ANSI B1.1 | | 232 | 232 | 233 | 233 | | 233 | | | |
| UN/EF/S | ANSI B1.1 | | | | | | | | | | |
| G (BSP) | DIN ISO 228 | | | 234 | | | | 234 | | | |
| PG | DIN 40430 | | | | | | | | | | |
| NPT | ANSI B1.20.1 | | | 235 | | | | | | | |
| NPTF | ANSI B1.20.3 | | | 235 | | | | | | | |
| EG M | DIN 8140 | | | | | | | | | | |

Inhaltsverzeichnis - VHM-Gewindefräser und VHM-Bohrgewindefräser Typ GFM und BGF
Directory - Solid carbide thread milling cutters and thrillers type GFM and BGF

| | | GFM | | BGF | | | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GFS6666 | GFS6666VS | GFM6260 | GFM6260VS | BGF6760 | BGF6760VS | BGF6765 | BGF6765VS | BGF6766 | BGF6766VS | BGF6865 | BGF6865VS | BGF6866 | BGF6866VS |
| VS | | VS | | VS | | VS | | VS | | VS | | VS | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 227 | | 236 | | 240 | | 241 | | 241 | | 242 | | 242 | |
| | | 236 | | 243 | | 243 | | | | | | | |
| | | 237 | | | | | | | | | | | |
| | | 237 | | | | | | | | | | | |
| | | 237 | | | | | | | | | | | |
| | | 238 | | | | | | | | | | | |
| | | 239 | | | | | | | | | | | |
| | | 239 | | | | | | | | | | | |

GW

GW1016

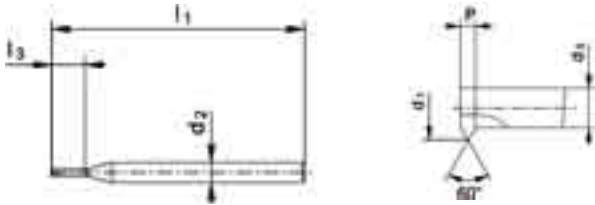


GW1016VS



GW1016

GW1016VS



| $\varnothing D_1$ S | P mm | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|------------------------|---------|-------------|-------------|-------------|----------------|-------------|---|--------|
| 0.3 | 0.08 | 0.21 | 39 | 0.9 | 3 | 0.10 | 1 | 0.23 * |
| 0.4 | 0.10 | 0.29 | 39 | 1.2 | 3 | 0.15 | 1 | 0.32 * |
| 0.5 | 0.125 | 0.36 | 39 | 1.5 | 3 | 0.19 | 1 | 0.40 * |
| 0.6 | 0.15 | 0.43 | 39 | 1.7 | 3 | 0.23 | 1 | 0.48 * |
| 0.7 | 0.175 | 0.50 | 39 | 2.0 | 3 | 0.27 | 1 | 0.56 * |
| 0.8 | 0.20 | 0.57 | 39 | 2.3 | 3 | 0.31 | 1 | 0.64 * |
| 0.9 | 0.225 | 0.64 | 39 | 2.6 | 3 | 0.34 | 1 | 0.72 * |
| 1.0 | 0.25 | 0.71 | 39 | 2.9 | 3 | 0.38 | 1 | 0.80 * |
| 1.2 | 0.25 | 0.91 | 39 | 3.4 | 3 | 0.58 | 1 | 1.00 * |
| 1.4 | 0.30 | 1.06 | 39 | 3.9 | 3 | 0.66 | 1 | 1.15 * |

ID

ID

166930

166940

166931

166941

166932

166942

166933

166943

166934

166944

166935

166945

166936

166946

166937

166947

166938

166948

166939

166949

*Tol. +0.02 mm
0

GW

GW2016

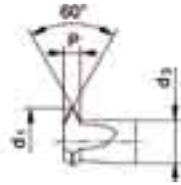
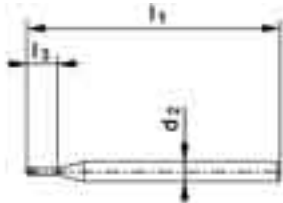


GW2016VS



GW2016

GW2016VS



| ∅ D ₁ | P | d ₁ | l ₁ | l ₃ | d ₂ h5 | d ₃ | | |
|------------------|----|----------------|----------------|----------------|-------------------|----------------|--|-----|
| S | mm | mm | mm | mm | mm | mm | | → ← |

| | | | | | | | | |
|-----|-------|------|----|-----|---|------|---|--------|
| 0.8 | 0.20 | 0.57 | 39 | 2.3 | 3 | 0.29 | 3 | 0.64 * |
| 0.9 | 0.225 | 0.64 | 39 | 2.6 | 3 | 0.33 | 3 | 0.72 * |
| 1.0 | 0.25 | 0.71 | 39 | 2.9 | 3 | 0.36 | 3 | 0.80 * |
| 1.2 | 0.25 | 0.91 | 39 | 3.4 | 3 | 0.56 | 3 | 1.00 * |
| 1.4 | 0.30 | 1.06 | 39 | 3.9 | 3 | 0.64 | 3 | 1.15 * |

ID

ID

| | |
|--------|--------|
| 166969 | 166988 |
| 166970 | 166989 |
| 166971 | 166990 |
| 166972 | 166991 |
| 166973 | 166992 |

| ∅ D ₁ | P | d ₁ | l ₁ | l ₃ | d ₂ h5 | d ₃ | | |
|------------------|----|----------------|----------------|----------------|-------------------|----------------|--|-----|
| M | mm | mm | mm | mm | mm | mm | | → ← |

| | | | | | | | | |
|-----|-------|------|----|------|---|------|---|------|
| 0.8 | 0.20 | 0.57 | 39 | 2.3 | 3 | 0.29 | 3 | 0.62 |
| 0.9 | 0.225 | 0.64 | 39 | 2.6 | 3 | 0.33 | 3 | 0.70 |
| 1.0 | 0.25 | 0.71 | 39 | 2.9 | 3 | 0.36 | 3 | 0.75 |
| 1.2 | 0.25 | 0.91 | 39 | 3.4 | 3 | 0.56 | 3 | 0.95 |
| 1.4 | 0.30 | 1.06 | 39 | 3.9 | 3 | 0.64 | 3 | 1.10 |
| 1.6 | 0.35 | 1.20 | 39 | 4.5 | 3 | 0.71 | 3 | 1.25 |
| 1.8 | 0.35 | 1.40 | 39 | 5.0 | 3 | 0.91 | 3 | 1.45 |
| 2.0 | 0.40 | 1.54 | 39 | 5.6 | 3 | 0.98 | 3 | 1.60 |
| 2.5 | 0.45 | 1.98 | 39 | 6.9 | 3 | 1.35 | 3 | 2.05 |
| 3.0 | 0.50 | 2.43 | 51 | 8.4 | 5 | 1.73 | 4 | 2.50 |
| 3.5 | 0.60 | 2.81 | 51 | 9.9 | 5 | 1.97 | 4 | 2.90 |
| 4.0 | 0.70 | 3.20 | 51 | 11.3 | 5 | 2.22 | 4 | 3.30 |
| 5.0 | 0.80 | 4.08 | 51 | 14.0 | 5 | 2.96 | 4 | 4.20 |
| 6.0 | 1.00 | 4.90 | 51 | 16.8 | 5 | 3.50 | 4 | 5.00 |

ID

ID

| | |
|--------|--------|
| 166974 | 166993 |
| 166975 | 166994 |
| 166976 | 166995 |
| 166977 | 166996 |
| 166978 | 166997 |
| 166979 | 166998 |
| 166980 | 166999 |
| 166981 | 167000 |
| 166982 | 167001 |
| 166983 | 167002 |
| 166984 | 167003 |
| 166985 | 167004 |
| 166986 | 167005 |
| 166987 | 167006 |

*Tol. +0.02 mm
0



h5

GW

GW3016



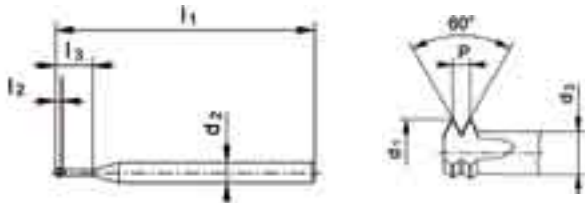
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



| $\varnothing D_1$ M, MF | P | d_1 | l_1 | l_3 | d_2 h5 | d_3 | | |
|----------------------------|----|-------|-------|-------|----------|-------|---------------|--------------|
| mm | mm | mm | mm | mm | mm | mm | \rightarrow | \leftarrow |

| | | | | | | | | |
|-----|-------|------|----|-----|---|------|---|------|
| 0.8 | 0.20 | 0.57 | 39 | 2.3 | 3 | 0.29 | 3 | 0.62 |
| 0.9 | 0.225 | 0.64 | 39 | 2.6 | 3 | 0.33 | 3 | 0.70 |
| 1.0 | 0.25 | 0.71 | 39 | 2.9 | 3 | 0.36 | 3 | 0.75 |
| 1.2 | 0.25 | 0.91 | 39 | 3.4 | 3 | 0.56 | 3 | 0.95 |
| 1.4 | 0.30 | 1.06 | 39 | 3.9 | 3 | 0.64 | 3 | 1.10 |
| 1.6 | 0.35 | 1.20 | 39 | 4.5 | 3 | 0.71 | 3 | 1.25 |
| 1.8 | 0.35 | 1.40 | 39 | 5.0 | 3 | 0.91 | 3 | 1.45 |
| 2.0 | 0.20 | 1.77 | 39 | 5.3 | 3 | 1.49 | 3 | 1.80 |
| 2.0 | 0.40 | 1.54 | 39 | 5.6 | 3 | 0.98 | 3 | 1.60 |
| 2.5 | 0.20 | 2.27 | 39 | 6.6 | 3 | 1.99 | 3 | 2.30 |
| 2.5 | 0.25 | 2.21 | 39 | 6.6 | 3 | 1.86 | 3 | 2.25 |
| 2.5 | 0.45 | 1.98 | 39 | 6.9 | 3 | 1.35 | 3 | 2.05 |

ID

ID

| $\varnothing D_1$ M, MF | P | d_1 | l_1 | l_3 | d_2 h5 | d_3 | | |
|----------------------------|----|-------|-------|-------|----------|-------|---------------|--------------|
| mm | mm | mm | mm | mm | mm | mm | \rightarrow | \leftarrow |

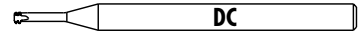
| | | | | | | | | |
|-----|-------|------|----|------|---|------|---|------|
| 0.8 | 0.20 | 0.57 | 39 | 3.5 | 3 | 0.29 | 3 | 0.62 |
| 0.9 | 0.225 | 0.64 | 39 | 3.9 | 3 | 0.33 | 3 | 0.70 |
| 1.0 | 0.25 | 0.71 | 39 | 4.4 | 3 | 0.36 | 3 | 0.75 |
| 1.2 | 0.25 | 0.91 | 39 | 5.2 | 3 | 0.56 | 3 | 0.95 |
| 1.4 | 0.30 | 1.06 | 39 | 6.0 | 3 | 0.64 | 3 | 1.10 |
| 1.6 | 0.35 | 1.20 | 39 | 6.9 | 3 | 0.71 | 3 | 1.25 |
| 1.8 | 0.35 | 1.40 | 39 | 7.7 | 3 | 0.91 | 3 | 1.45 |
| 2.0 | 0.20 | 1.77 | 39 | 8.3 | 3 | 1.49 | 3 | 1.80 |
| 2.0 | 0.40 | 1.54 | 39 | 8.6 | 3 | 0.98 | 3 | 1.60 |
| 2.5 | 0.20 | 2.27 | 39 | 10.3 | 3 | 1.99 | 3 | 2.30 |
| 2.5 | 0.25 | 2.21 | 39 | 10.4 | 3 | 1.86 | 3 | 2.25 |
| 2.5 | 0.45 | 1.98 | 39 | 10.6 | 3 | 1.35 | 3 | 2.05 |

ID

ID

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|---------------|---------------|
| | | | | | | | | | 167063 | 167077 |
| | | | | | | | | | 167064 | 167078 |
| | | | | | | | | | 167065 | 167079 |
| | | | | | | | | | 167066 | 167080 |
| | | | | | | | | | 167067 | 167081 |
| | | | | | | | | | 167068 | 167082 |
| | | | | | | | | | 167069 | 167083 |
| | | | | | | | | | 175254 | 175270 |
| | | | | | | | | | 167070 | 167084 |
| | | | | | | | | | 175255 | 175271 |
| | | | | | | | | | 175256 | 175272 |
| | | | | | | | | | 167071 | 167085 |

M, MF ISO DIN 13



h5

GW

GW3016



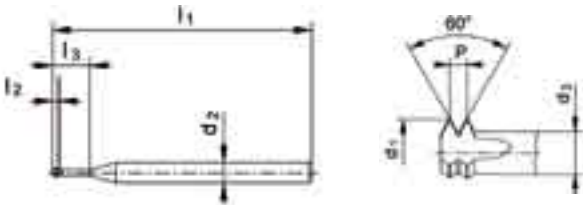
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



| $\varnothing D_1$ M, MF | P mm | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|---------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 3.0 | 0.35 | 2.60 | 51 | 8.2 | 5 | 2.11 | 4 | 2.65 |
| 3.0 | 0.50 | 2.43 | 51 | 8.4 | 5 | 1.73 | 4 | 2.50 |
| 3.5 | 0.60 | 2.81 | 51 | 9.9 | 5 | 1.97 | 4 | 2.90 |
| 4.0 | 0.70 | 3.20 | 51 | 11.3 | 5 | 2.22 | 4 | 3.30 |
| 5.0 | 0.80 | 4.08 | 51 | 14.0 | 5 | 2.96 | 4 | 4.20 |
| 6.0 | 1.00 | 4.85 | 51 | 16.8 | 5 | 3.45 | 4 | 5.00 |
| 8.0 | 1.25 | 5.95 | 63 | 23.0 | 6* | 4.20 | 5 | 6.80 |
| 10.0 | 1.50 | 7.95 | 67 | 28.0 | 8* | 5.85 | 5 | 8.50 |
| 12.0 | 1.75 | 9.95 | 76 | 34.0 | 10* | 7.50 | 5 | 10.20 |

ID

ID

ID

ID

| | |
|--------|--------|
| 175228 | 175242 |
| 167030 | 167044 |
| 167031 | 167045 |
| 167032 | 167046 |
| 167033 | 167047 |
| 167034 | 167048 |
| 175229 | 175243 |
| 175230 | 175244 |
| 175231 | 175245 |

| $\varnothing D_1$ M, MF | P mm | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|---------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 3.0 | 0.35 | 2.60 | 51 | 12.7 | 5 | 2.11 | 4 | 2.65 |
| 3.0 | 0.50 | 2.43 | 51 | 12.9 | 5 | 1.73 | 4 | 2.50 |
| 3.5 | 0.60 | 2.81 | 51 | 15.1 | 5 | 1.97 | 4 | 2.90 |
| 4.0 | 0.70 | 3.20 | 51 | 17.3 | 5 | 2.22 | 4 | 3.30 |
| 5.0 | 0.80 | 4.08 | 51 | 21.5 | 5 | 2.96 | 4 | 4.20 |
| 6.0 | 1.00 | 4.85 | 51 | 25.8 | 5 | 3.45 | 4 | 5.00 |
| 8.0 | 1.25 | 5.95 | 75 | 35.0 | 6* | 4.20 | 5 | 6.80 |
| 10.0 | 1.50 | 7.95 | 83 | 43.0 | 8* | 5.85 | 5 | 8.50 |
| 12.0 | 1.75 | 9.95 | 95 | 52.0 | 10* | 7.50 | 5 | 10.20 |

ID

ID

| | |
|--------|--------|
| 175257 | 175273 |
| 167072 | 167086 |
| 167073 | 167087 |
| 167074 | 167088 |
| 167075 | 167089 |
| 167076 | 167090 |
| 175258 | 175274 |
| 175259 | 175275 |
| 175260 | 175276 |

*Tol. h6

GW

GW3016



R10

GW3016VS



R10

VS

GW3019



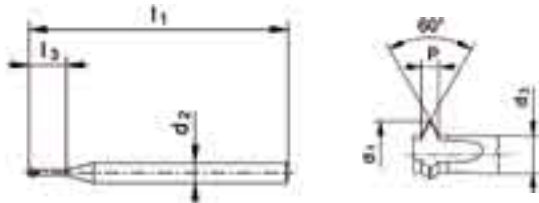
R10

GW3019VS



R10

VS



GW3016

GW3016VS

GW3019

GW3019VS



| $\varnothing D_1$ UNC | P TPI | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|--------------------------|----------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 2 | 56 | 1.66 | 39 | 6.1 | 3 | 1.02 | 3 | 1.75 |
| 4 | 40 | 2.11 | 39 | 8.0 | 3 | 1.22 | 3 | 2.25 |
| 6 | 32 | 2.59 | 51 | 10.2 | 5 | 1.48 | 4 | 2.75 |
| 8 | 32 | 3.25 | 51 | 11.9 | 5 | 2.14 | 4 | 3.40 |
| 10 | 24 | 3.60 | 51 | 14.0 | 5 | 2.12 | 4 | 3.80 |
| 1/4 | 20 | 4.89 | 51 | 18.2 | 5 | 3.11 | 4 | 5.10 |
| 5/16 | 18 | 5.95 | 63 | 23.0 | 6* | 3.97 | 5 | 6.50 |
| 3/8 | 16 | 7.10 | 67 | 27.0 | 8* | 4.87 | 5 | 8.00 |
| 1/2 | 13 | 9.95 | 76 | 36.0 | 10* | 7.21 | 5 | 10.80 |

ID ID

| | |
|--------|--------|
| 167472 | 167500 |
| 167473 | 167501 |
| 167474 | 167502 |
| 167475 | 167503 |
| 173983 | 173986 |
| 167476 | 167504 |
| 175232 | 175246 |
| 175233 | 173546 |
| 175234 | 175247 |

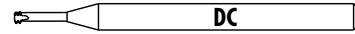
| $\varnothing D_1$ UNC | P TPI | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|--------------------------|----------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 2 | 56 | 1.66 | 39 | 9.4 | 3 | 1.02 | 3 | 1.75 |
| 4 | 40 | 2.11 | 39 | 12.2 | 3 | 1.22 | 3 | 2.25 |
| 6 | 32 | 2.59 | 51 | 15.5 | 5 | 1.48 | 4 | 2.75 |
| 8 | 32 | 3.25 | 51 | 18.1 | 5 | 2.14 | 4 | 3.40 |
| 10 | 24 | 3.60 | 51 | 21.3 | 5 | 2.12 | 4 | 3.80 |
| 1/4 | 20 | 4.89 | 51 | 27.7 | 5 | 3.11 | 4 | 5.10 |
| 5/16 | 18 | 5.95 | 75 | 35.0 | 6* | 3.97 | 5 | 6.50 |
| 3/8 | 16 | 7.10 | 83 | 41.0 | 8* | 4.87 | 5 | 8.00 |
| 1/2 | 13 | 9.95 | 95 | 55.0 | 10* | 7.21 | 5 | 10.80 |

ID ID

| | |
|--------|--------|
| 167479 | 167507 |
| 167480 | 167508 |
| 167481 | 167509 |
| 167482 | 167510 |
| 173982 | 173979 |
| 167483 | 167511 |
| 175261 | 175277 |
| 175262 | 175278 |
| 175263 | 175279 |

*Tol. h6

UNF ANSI B1.1



h5

GW

GW3016 GW3016VS GW3019 GW3019VS

GW3016



GW3016VS



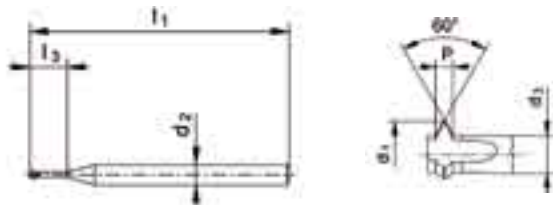
GW3019



GW3019VS



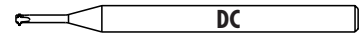
GW



| $\varnothing D_1$ UNF | P TPI | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | | ID | ID |
|--------------------------|----------|-------------|-------------|-------------|----------------|-------------|---|------|--------|--------|
| 0 | 80 | 1.15 | 39 | 4.3 | 3 | 0.71 | 3 | 1.20 | 175235 | 175248 |
| 1 | 72 | 1.44 | 39 | 5.1 | 3 | 0.95 | 3 | 1.50 | 175236 | 175249 |
| 4 | 48 | 2.23 | 39 | 7.9 | 3 | 1.49 | 3 | 2.35 | 175237 | 175250 |
| 8 | 36 | 3.35 | 51 | 11.7 | 5 | 2.36 | 4 | 3.50 | 175238 | 175251 |
| 10 | 32 | 3.91 | 51 | 13.5 | 5 | 2.80 | 4 | 4.05 | 167477 | 167505 |
| 1/4 | 28 | 4.95 | 51 | 17.6 | 5 | 3.68 | 4 | 5.50 | 167478 | 167506 |
| 5/16 | 24 | 5.95 | 63 | 22.0 | 6* | 4.47 | 5 | 6.90 | 175239 | 175252 |
| 3/8 | 24 | 7.10 | 67 | 26.0 | 8* | 5.62 | 5 | 8.50 | 175240 | 175253 |

| $\varnothing D_1$ UNF | P TPI | d_1 mm | l_1 mm | l_3 mm | d_2 h5 mm | d_3 mm | | | ID | ID |
|--------------------------|----------|-------------|-------------|-------------|----------------|-------------|---|------|--------|--------|
| 0 | 80 | 1.15 | 39 | 6.6 | 3 | 0.71 | 3 | 1.20 | 175264 | 175280 |
| 1 | 72 | 1.44 | 39 | 7.9 | 3 | 0.95 | 3 | 1.50 | 175265 | 175281 |
| 4 | 48 | 2.23 | 39 | 12.1 | 3 | 1.49 | 3 | 2.35 | 175266 | 172376 |
| 8 | 36 | 3.35 | 51 | 18.0 | 5 | 2.36 | 4 | 3.50 | 175267 | 175282 |
| 10 | 32 | 3.91 | 51 | 20.8 | 5 | 2.80 | 4 | 4.05 | 167484 | 167512 |
| 1/4 | 28 | 4.95 | 51 | 27.1 | 5 | 3.68 | 4 | 5.50 | 167485 | 167513 |
| 5/16 | 24 | 5.95 | 75 | 34.0 | 6* | 4.47 | 5 | 6.90 | 175268 | 175283 |
| 3/8 | 24 | 7.10 | 83 | 40.0 | 8* | 5.62 | 5 | 8.50 | 175269 | 175284 |

*Tol. h6



h5

GW

GW4016



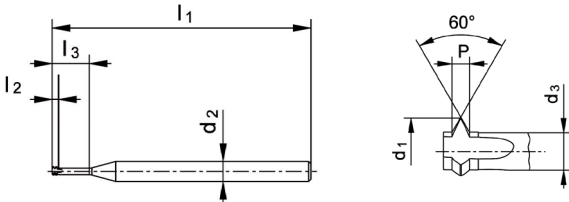
GW4016VS



GW4019



GW4019VS



GW4016*

GW4016VS*

GW4019*

GW4019VS*



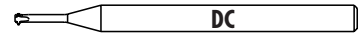
| $\varnothing D_1$ M | P mm | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | | ID | ID |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|--------|--------|
| 0.8 | 0.20 | 0.51 | 39 | 0.40 | 2.3 | 3 | 0.23 | 3 | 0.58* | 167105 | 167119 |
| 0.9 | 0.225 | 0.57 | 39 | 0.45 | 2.6 | 3 | 0.26 | 3 | 0.65* | 167106 | 167120 |
| 1.0 | 0.25 | 0.64 | 39 | 0.50 | 2.9 | 3 | 0.29 | 3 | 0.70* | 167107 | 167121 |
| 1.2 | 0.25 | 0.84 | 39 | 0.50 | 3.4 | 3 | 0.49 | 3 | 0.90* | 167108 | 167122 |
| 1.4 | 0.30 | 0.97 | 39 | 0.60 | 4.0 | 3 | 0.55 | 3 | 1.05* | 167109 | 167123 |
| 1.6 | 0.35 | 1.09 | 39 | 0.70 | 4.6 | 3 | 0.60 | 3 | 1.19* | 167110 | 167124 |
| 1.8 | 0.35 | 1.29 | 39 | 0.70 | 5.1 | 3 | 0.80 | 3 | 1.39* | 167111 | 167125 |
| 2.0 | 0.40 | 1.42 | 39 | 0.80 | 5.6 | 3 | 0.86 | 3 | 1.54* | 167112 | 167126 |
| 2.5 | 0.45 | 1.85 | 39 | 0.90 | 7.0 | 3 | 1.22 | 3 | 1.98* | 167113 | 167127 |
| 3.0 | 0.50 | 2.28 | 51 | 1.00 | 8.5 | 5 | 1.58 | 4 | 2.43* | 167114 | 167128 |
| 3.5 | 0.60 | 2.63 | 51 | 1.20 | 10.0 | 5 | 1.79 | 4 | 2.80* | 167115 | 167129 |
| 4.0 | 0.70 | 2.99 | 51 | 1.40 | 11.4 | 5 | 2.01 | 4 | 3.20* | 167116 | 167130 |
| 5.0 | 0.80 | 3.84 | 51 | 1.60 | 14.1 | 5 | 2.72 | 4 | 4.10* | 167117 | 167131 |
| 6.0 | 1.00 | 4.55 | 51 | 2.00 | 17.0 | 5 | 3.15 | 4 | 4.90* | 167118 | 167132 |

| $\varnothing D_1$ M | P mm | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | | ID | ID |
|------------------------|---------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|--------|--------|
| 0.8 | 0.20 | 0.51 | 39 | 0.40 | 3.5 | 3 | 0.23 | 3 | 0.58* | 167147 | 167161 |
| 0.9 | 0.225 | 0.57 | 39 | 0.45 | 4.0 | 3 | 0.26 | 3 | 0.65* | 167148 | 167162 |
| 1.0 | 0.25 | 0.64 | 39 | 0.50 | 4.4 | 3 | 0.29 | 3 | 0.70* | 167149 | 167163 |
| 1.2 | 0.25 | 0.84 | 39 | 0.50 | 5.2 | 3 | 0.49 | 3 | 0.90* | 167150 | 167164 |
| 1.4 | 0.30 | 0.97 | 39 | 0.60 | 6.1 | 3 | 0.55 | 3 | 1.05* | 167151 | 167165 |
| 1.6 | 0.35 | 1.09 | 39 | 0.70 | 7.0 | 3 | 0.60 | 3 | 1.19* | 167152 | 167166 |
| 1.8 | 0.35 | 1.29 | 39 | 0.70 | 7.8 | 3 | 0.80 | 3 | 1.39* | 167153 | 167167 |
| 2.0 | 0.40 | 1.42 | 39 | 0.80 | 8.6 | 3 | 0.86 | 3 | 1.54* | 167154 | 167168 |
| 2.5 | 0.45 | 1.85 | 39 | 0.90 | 10.7 | 3 | 1.22 | 3 | 1.98* | 167155 | 167169 |
| 3.0 | 0.50 | 2.28 | 51 | 1.00 | 13.0 | 5 | 1.58 | 4 | 2.43* | 167156 | 167170 |
| 3.5 | 0.60 | 2.63 | 51 | 1.20 | 15.2 | 5 | 1.79 | 4 | 2.80* | 167157 | 167171 |
| 4.0 | 0.70 | 2.99 | 51 | 1.40 | 17.4 | 5 | 2.01 | 4 | 3.20* | 167158 | 167172 |
| 5.0 | 0.80 | 3.84 | 51 | 1.60 | 21.6 | 5 | 2.72 | 4 | 4.10* | 167159 | 167173 |
| 6.0 | 1.00 | 4.55 | 51 | 2.00 | 26.0 | 5 | 3.15 | 4 | 4.90* | 167160 | 167174 |

*Tol. +0.03 mm
0

*Ersetzt worden durch GW4116/ GW4119
Replaced by GW4116/ GW4119

UNC-UNF ANSI B1.1



h5

GW

GW4016



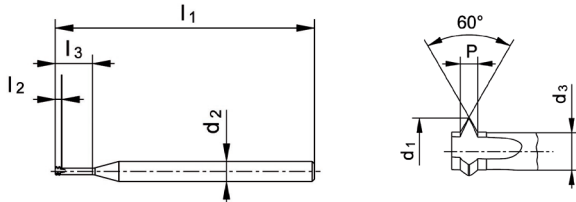
GW4016VS



GW4019



GW4019VS



GW4016* GW4016VS* GW4019* GW4019VS*



| $\varnothing'' D_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 2 | 56 | 1.52 | 39 | 0.91 | 6.2 | 3 | 0.89 | 3 | 1.65* |
| 4 | 40 | 1.92 | 39 | 1.27 | 8.1 | 3 | 1.03 | 3 | 2.10* |
| 6 | 32 | 2.35 | 51 | 1.59 | 10.4 | 5 | 1.24 | 4 | 2.60* |
| 1/4 | 20 | 4.51 | 51 | 2.54 | 18.5 | 5 | 2.73 | 4 | 5.00* |

| ID | ID |
|--------|--------|
| 167486 | 167514 |
| 167487 | 167515 |
| 167488 | 167516 |
| 167490 | 167518 |

| $\varnothing'' D_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 10 | 32 | 3.67 | 51 | 1.59 | 13.7 | 5 | 2.56 | 4 | 3.95* |
| 1/4 | 28 | 4.95 | 51 | 1.81 | 17.7 | 5 | 3.68 | 4 | 5.35* |

| ID | ID |
|--------|--------|
| 167491 | 167519 |
| 167492 | 167520 |

| $\varnothing'' D_1$ UNC | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 2 | 56 | 1.52 | 39 | 0.90 | 9.5 | 3 | 0.89 | 3 | 1.65* |
| 4 | 40 | 1.92 | 39 | 1.27 | 12.4 | 3 | 1.03 | 3 | 2.10* |
| 6 | 32 | 2.35 | 51 | 1.59 | 15.6 | 5 | 1.24 | 4 | 2.60* |
| 1/4 | 20 | 4.51 | 51 | 2.54 | 28.0 | 5 | 2.73 | 4 | 5.00* |

| ID | ID |
|--------|--------|
| 167493 | 167521 |
| 167494 | 167522 |
| 167495 | 167523 |
| 167497 | 167525 |

| $\varnothing'' D_1$ UNF | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_2 h5 mm | d_3 mm | | |
|----------------------------|----------|-------------|-------------|-------------|-------------|----------------|-------------|---|-------|
| 10 | 32 | 3.67 | 51 | 1.59 | 20.9 | 5 | 2.56 | 4 | 3.95* |
| 1/4 | 28 | 4.95 | 51 | 1.81 | 27.3 | 5 | 3.68 | 4 | 5.35* |

| ID | ID |
|--------|--------|
| 167498 | 167526 |
| 167499 | 167527 |

*Tol. $\begin{matrix} +0.03 \text{ mm} \\ 0 \end{matrix}$

* Ersetzt worden durch GW4116/ GW4119
Replaced by GW4116/ GW4119



GF - GFH

GF6110



GF6110VS

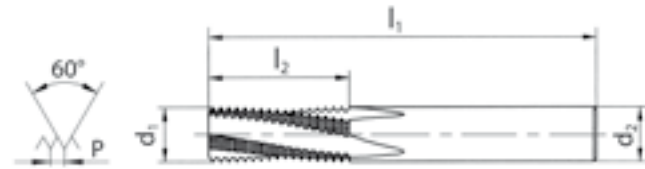


VS

GFH6110VS



VS



GF6110

GF6110VS

GFH6110VS



HRC
≤ 63



| ∅ D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | GF | GFH | | ID | ID | ID |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|----|-----|-------|--------|--------|--------|
| 2 | 0.40 | 1.50 | 48 | 3.4 | 6 | 2 | | 1.60 | 125233 | 115993 | |
| 2.5 | 0.45 | 1.90 | 48 | 4.3 | 6 | 3 | | 2.05 | 150565 | 152124 | |
| 3 | 0.50 | 2.30 | 48 | 5.3 | 6 | 3 | 3 | 2.50 | 125660 | 116395 | 150072 |
| 3.5 | 0.60 | 2.70 | 48 | 6.3 | 6 | 3 | | 2.90 | 116350 | 135217 | |
| 4 | 0.70 | 3.00 | 48 | 7.4 | 6 | 3 | 3 | 3.30 | 125944 | 116396 | 150073 |
| 5 | 0.80 | 3.80 | 48 | 9.2 | 6 | 3 | 4 | 4.20 | 126158 | 116397 | 150074 |
| 6 | 1.00 | 4.50 | 54 | 10.5 | 6 | | 4 | 5.00 | | | 150075 |
| 8 | 1.25 | 5.95 | 54 | 13.1 | 6 | | 5 | 6.80 | | | 150076 |
| 10 | 1.50 | 7.95 | 64 | 17.3 | 8 | | 5 | 8.50 | | | 150077 |
| 12 | 1.75 | 9.95 | 74 | 20.1 | 10 | | 5 | 10.20 | | | 151326 |



GF

GF6115



GF6115VS



VS

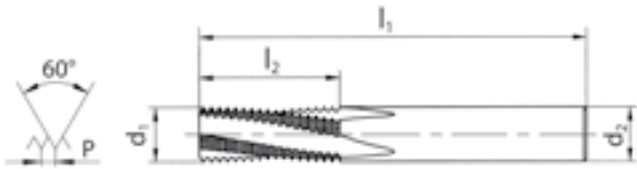
GF6165



GF6165VS



VS



GF6115

GF6115VS

GF6165

GF6165VS



| Ø D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 4 | 0.70 | 3.00 | 48 | 8.8 | 6 | 3 | 3.30 |
| 5 | 0.80 | 3.80 | 48 | 10.8 | 6 | 3 | 4.20 |
| 6 | 1.00 | 4.50 | 54 | 13.5 | 6 | 3 | 5.00 |
| 8 | 1.25 | 5.95 | 54 | 18.1 | 6 | 3 | 6.80 |
| 10 | 1.50 | 7.95 | 64 | 21.8 | 8 | 4 | 8.50 |
| 12 | 1.75 | 9.95 | 72 | 25.4 | 10 | 4 | 10.20 |
| 14 | 2.00 | 9.95 | 74 | 31.0 | 10 | 4 | 12.00 |
| 16 | 2.00 | 11.95 | 80 | 35.0 | 12 | 4 | 14.00 |
| 18 | 2.50 | 13.95 | 90 | 41.3 | 14 | 4 | 15.50 |
| 20 | | | | | | | 17.50 |

ID

ID

ID

ID

146298

146969

146299

146970

146300

146971

126350

116398

146321

146972

126586

116399

146322

146973

124836

116400

116342

116401

125066

116402

125114

115990

125229

116403



GF

GF6116



GF6116VS



VS

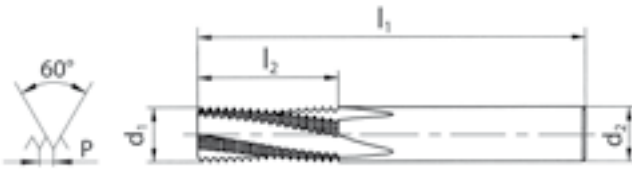
GF6166



GF6166VS



VS



GF6116

GF6116VS

GF6166

GF6166VS



| ∅ D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 4 | 0.70 | 3.00 | 48 | 10.9 | 6 | 3 | 3.30 |
| 5 | 0.80 | 3.80 | 48 | 13.2 | 6 | 3 | 4.20 |
| 6 | 1.00 | 4.50 | 54 | 16.5 | 6 | 3 | 5.00 |
| 8 | 1.25 | 5.95 | 54 | 21.9 | 6 | 3 | 6.80 |
| 10 | 1.50 | 7.95 | 64 | 26.3 | 8 | 4 | 8.50 |
| 12 | 1.75 | 9.95 | 74 | 32.4 | 10 | 4 | 10.20 |
| 14 | 2.00 | 9.95 | 74 | 37.0 | 10 | 4 | 12.00 |
| 16 | 2.00 | 11.95 | 90 | 43.0 | 12 | 4 | 14.00 |
| 18 | 2.50 | 13.95 | 105 | 53.8 | 14 | 4 | 15.50 |
| 20 | | | | | | | 17.50 |

ID

ID

ID

ID

155365

155370

155366

155371

155367

155372

155375

155382

155368

155373

155376

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155385

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155386

155380

155387

155381

155388

GF

GF6110



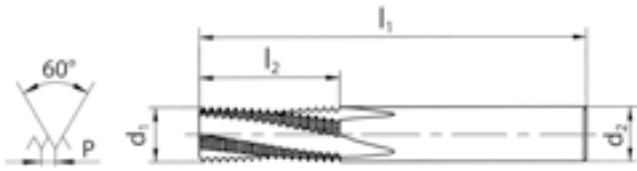
GF6110VS



VS

GF6110

GF6110VS



| ∅ D ₁ MF | P mm | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|---|------|
| 4 | 0.50 | 3.00 | 48 | 7.3 | 6 | 3 | 3.50 |
| 5 | 0.50 | 3.80 | 48 | 8.8 | 6 | 3 | 4.50 |

ID

ID

135218

135219

135069

135220



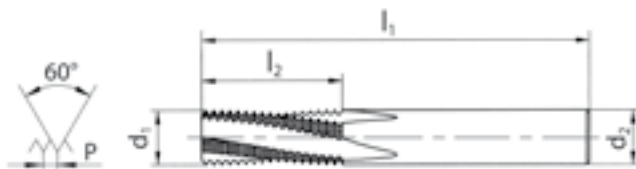
GF

GF6165

GF6165VS

GF6166

GF6166VS

GF6165
GF6165VS
GF6166
GF6166VS


| $\varnothing D_1$ MF | P mm | d_1 mm | l_1 mm | l_2 mm | d_2 mm | | |
|-------------------------|---------|-------------|-------------|-------------|-------------|---|-------|
| 6 | 0.50 | 4.50 | 54 | 12.8 | 6 | 3 | 5.50 |
| 6 | 0.75 | 4.50 | 54 | 13.1 | 6 | 3 | 5.25 |
| 8 | 0.50 | 5.95 | 54 | 17.8 | 6 | 3 | 7.50 |
| 8 | 0.75 | 5.95 | 54 | 16.9 | 6 | 3 | 7.25 |
| 8 | 1.00 | 5.95 | 54 | 17.5 | 6 | 3 | 7.00 |
| 10 | 1.00 | 7.95 | 64 | 21.5 | 8 | 4 | 9.00 |
| 10 | 1.25 | 7.95 | 64 | 21.9 | 8 | 4 | 8.80 |
| 12 | 1.00 | 9.95 | 72 | 25.5 | 10 | 4 | 11.00 |
| 12 | 1.50 | 9.95 | 72 | 26.3 | 10 | 4 | 10.50 |

ID
ID

| | |
|--------|--------|
| 135221 | 135222 |
| 123664 | 123665 |
| 135002 | 135223 |
| 143110 | 135224 |
| 124239 | 116404 |
| 119986 | 116405 |
| 120102 | 116406 |
| 120303 | 116407 |
| 120392 | 120393 |

| $\varnothing D_1$ MF | P mm | d_1 mm | l_1 mm | l_2 mm | d_2 mm | | |
|-------------------------|---------|-------------|-------------|-------------|-------------|---|-------|
| 6 | 0.50 | 4.50 | 54 | 15.8 | 6 | 3 | 5.50 |
| 6 | 0.75 | 4.50 | 54 | 16.1 | 6 | 3 | 5.25 |
| 8 | 0.50 | 5.95 | 54 | 20.8 | 6 | 3 | 7.50 |
| 8 | 0.75 | 5.95 | 54 | 20.6 | 6 | 3 | 7.25 |
| 8 | 1.00 | 5.95 | 54 | 21.5 | 6 | 3 | 7.00 |
| 10 | 1.00 | 7.95 | 64 | 26.5 | 8 | 4 | 9.00 |
| 10 | 1.25 | 7.95 | 64 | 26.9 | 8 | 4 | 8.80 |
| 12 | 1.00 | 9.95 | 74 | 31.5 | 10 | 4 | 11.00 |
| 12 | 1.50 | 9.95 | 74 | 32.3 | 10 | 4 | 10.50 |

ID
ID

| | |
|--------|--------|
| 155389 | 155398 |
| 155390 | 155399 |
| 155391 | 155400 |
| 155392 | 155401 |
| 155393 | 155402 |
| 155394 | 155403 |
| 155395 | 155404 |
| 155396 | 155405 |
| 155397 | 155406 |



GF

GF6110

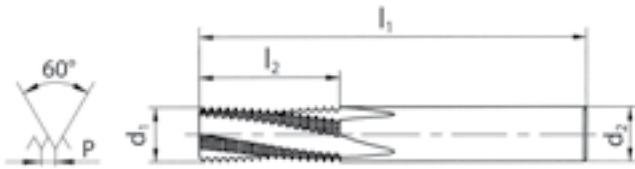


GF6110VS



GF6110

GF6110VS



| Ø" D ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|------|
| 10 | 24 | 3.60 | 48 | 10.1 | 6.0 | 3 | 3.80 |
| 12 | 24 | 4.10 | 48 | 10.1 | 6.0 | 3 | 4.40 |
| 1/4 | 20 | 4.80 | 54 | 12.1 | 6.0 | 3 | 5.10 |

ID

ID

135225

135226

135227

135228

135229

135230

GF

GF6165



GF6165VS



GF6166



GF6166VS

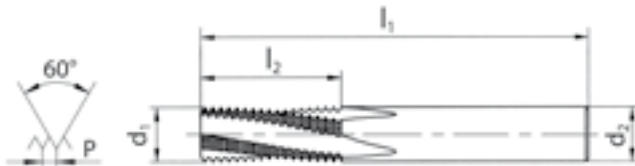


GF6165

GF6165VS

GF6166

GF6166VS



| Ø" D ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | | ID | ID |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|-------|--------|--------|
| 1/4 | 20 | 4.80 | 54 | 14.6 | 6.0 | 3 | 5.10 | 155407 | 155408 |
| 5/16 | 18 | 5.95 | 54 | 17.6 | 6.0 | 3 | 6.50 | 116047 | 135231 |
| 3/8 | 16 | 7.10 | 64 | 21.5 | 8.0 | 4 | 8.00 | 135232 | 135233 |
| 7/16 | 14 | 7.95 | 64 | 24.5 | 8.0 | 4 | 9.30 | 116049 | 135234 |
| 1/2 | 13 | 9.95 | 72 | 28.4 | 10.0 | 4 | 10.80 | 135235 | 135236 |

| Ø" D ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | | ID | ID |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|-------|--------|--------|
| 1/4 | 20 | 4.80 | 54 | 17.1 | 6.0 | 3 | 5.10 | 155409 | 155414 |
| 5/16 | 18 | 5.95 | 54 | 21.9 | 6.0 | 3 | 6.50 | 155410 | 155415 |
| 3/8 | 16 | 7.10 | 64 | 26.2 | 8.0 | 4 | 8.00 | 155411 | 155416 |
| 7/16 | 14 | 7.95 | 64 | 29.9 | 8.0 | 4 | 9.30 | 155412 | 155417 |
| 1/2 | 13 | 9.95 | 74 | 34.2 | 10.0 | 4 | 10.80 | 155413 | 155418 |

UNF ANSI B1.1

VHM
CAR



DIN 6535 HA

HB
HE

sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GF

GF6110



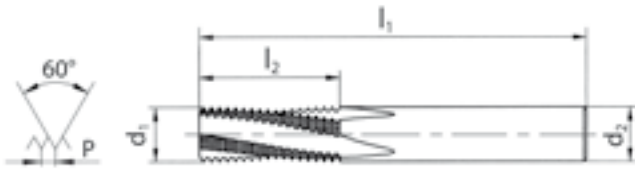
GF6110VS



VS

GF6110

GF6110VS



| Ø" D ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|------|
| 10 | 32 | 3.60 | 48 | 8.3 | 6.0 | 3 | 4.05 |
| 12 | 28 | 4.10 | 48 | 9.5 | 6.0 | 3 | 4.60 |
| 1/4 | 28 | 4.80 | 54 | 11.3 | 6.0 | 3 | 5.50 |

ID

ID

128659

135237

135238

135239

135240

135176

GF-GFH-GFS



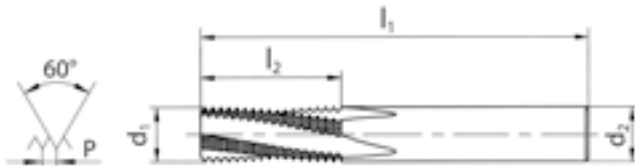
GF

GF6165

GF6165VS

GF6166

GF6166VS

GF6165
GF6165VS
GF6166
GF6166VS


| Ø" D ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | | ID | ID |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|--|--------|--------|
| 1/4 | 28 | 4.80 | 54 | 14.1 | 6.0 | 3 | | 155419 | 155420 |
| 5/16 | 24 | 5.95 | 54 | 17.5 | 6.0 | 3 | | 135242 | 135243 |
| 3/8 | 24 | 7.10 | 64 | 20.6 | 8.0 | 4 | | 135182 | 135245 |
| 7/16 | 20 | 7.95 | 64 | 24.8 | 8.0 | 4 | | 135246 | 135247 |
| 1/2 | 20 | 9.95 | 72 | 27.3 | 10.0 | 4 | | 135183 | 135249 |

| Ø" D ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | | | ID | ID |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|--|--------|--------|
| 1/4 | 28 | 4.80 | 54 | 16.8 | 6.0 | 3 | | 155421 | 155426 |
| 5/16 | 24 | 5.95 | 54 | 20.6 | 6.0 | 3 | | 155422 | 155427 |
| 3/8 | 24 | 7.10 | 64 | 24.9 | 8.0 | 4 | | 155423 | 155428 |
| 7/16 | 20 | 7.95 | 64 | 28.6 | 8.0 | 4 | | 155424 | 155429 |
| 1/2 | 20 | 9.95 | 74 | 33.7 | 10.0 | 4 | | 155425 | 155430 |

G DIN ISO 228 (BSP)

VHM
CAR



DIN 6535 HA

HB
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sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GF

GF6165



GF6165VS



GF6166



GF6166VS

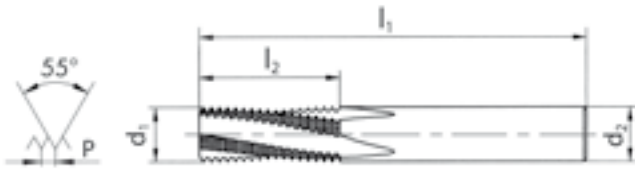
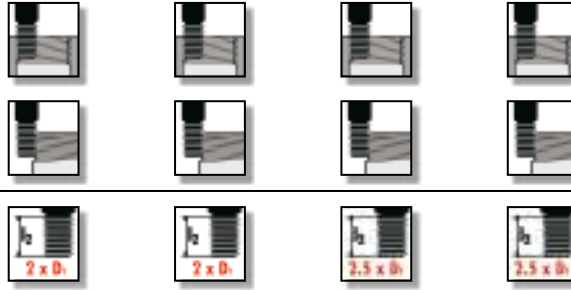


GF6165

GF6165VS

GF6166

GF6166VS



| $\varnothing'' D_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | | |
|--------------------------|----------|-------------|-------------|-------------|-------------|---|-------|
| 1/8 | 28 | 7.95 | 64 | 21.3 | 8.0 | 4 | 8.75 |
| 1/4 | 19 | 9.95 | 72 | 28.7 | 10.0 | 4 | 11.60 |
| 3/8 | 19 | 13.60 | 80 | 35.4 | 14.0 | 4 | 15.20 |

ID

ID

119347 116409
119292 116410
119678 116411

| $\varnothing'' D_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | d_2 mm | | |
|--------------------------|----------|-------------|-------------|-------------|-------------|---|-------|
| 1/8 | 28 | 7.95 | 64 | 24.9 | 8.0 | 4 | 8.75 |
| 1/4 | 19 | 9.95 | 74 | 34.1 | 10.0 | 4 | 11.60 |
| 3/8 | 19 | 13.60 | 90 | 43.4 | 14.0 | 4 | 15.20 |

ID

ID

155431 155434
155432 155435
155433 155436

GF-GFH-GFS

NPT, NPTF

ANSI B1.20.1
ANSI B1.20.3



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GF

GF6160

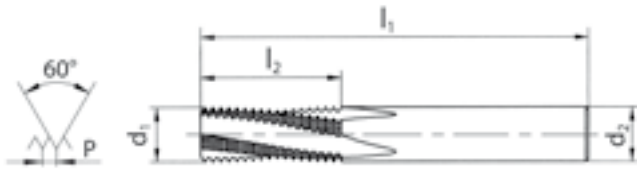


GF6160VS



GF6160

GF6160VS



| Ø" D ₁ NPT | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | ♣ |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|
| 1/8 | 27 | 7.30 | 64 | 9.9 | 8.0 | 4 |
| 1/4 | 18 | 9.95 | 72 | 14.8 | 12.0 | 4 |
| 3/8 | 18 | 12.50 | 80 | 14.8 | 14.0 | 4 |
| 1/2 | 14 | 14.70 | 90 | 19.1 | 16.0 | 4 |

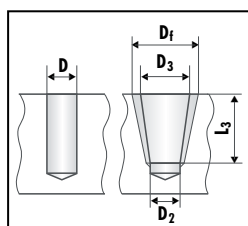
ID ID

| | |
|--------|--------|
| 116371 | 116435 |
| 135250 | 135251 |
| 135252 | 135253 |
| 155437 | 155438 |

| Ø" D ₁ NPTF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | d ₂ mm | ♣ |
|---------------------------|----------|----------------------|----------------------|----------------------|----------------------|---|
| 1/8 | 27 | 7.30 | 64 | 9.9 | 8.0 | 4 |
| 1/4 | 18 | 9.95 | 72 | 14.8 | 12.0 | 4 |
| 3/8 | 18 | 12.50 | 80 | 14.8 | 14.0 | 4 |
| 1/2 | 14 | 14.70 | 90 | 19.1 | 16.0 | 4 |

ID ID

| | |
|----------|----------|
| * 135254 | |
| * 135256 | * 135257 |
| * 135258 | * 135259 |
| * 155439 | * 155440 |



| Ø D ₁ | Vorbereitung Core hole | | | |
|------------------|---------------------------|----------------|------------------------------------|-------|
| | D | D ₂ | NPT NPTF D ₃ (+0.05) | |
| 1/8 | 8.5 | 8.3 | 8.74 | 8.76 |
| 1/4 | 11.0 | 10.8 | 11.36 | 11.40 |
| 3/8 | 14.5 | 14.2 | 14.80 | 14.84 |
| 1/2 | 17.9 | 17.5 | 18.32 | 18.33 |

| Fräsen Milling | |
|-------------------|----------------|
| D _f | L ₃ |
| 9.81 | 6.92 |
| 12.99 | 10.02 |
| 16.41 | 10.33 |
| 20.37 | 13.57 |

GFS

GFS6610



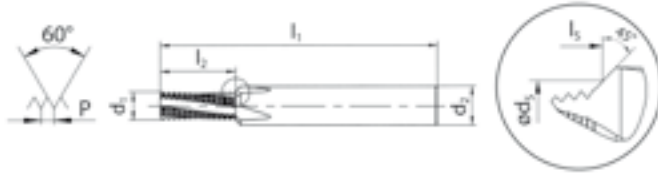
GFS6610VS



GFS6660



GFS6660VS



GFS6610



GFS6610VS



GFS6660



GFS6660VS



| Ø D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 2 | 0.40 | 1.50 | 48 | 3.4 | 3.7 | 2.1 | 6 | 2 | 1.60 |
| 2.5 | 0.45 | 1.90 | 48 | 4.3 | 4.7 | 2.6 | 6 | 3 | 2.05 |
| 3 | 0.50 | 2.30 | 48 | 5.3 | 5.6 | 3.1 | 6 | 3 | 2.50 |
| 3.5 | 0.60 | 2.70 | 48 | 5.7 | 6.2 | 3.6 | 6 | 3 | 2.90 |
| 4 | 0.70 | 3.00 | 48 | 7.3 | 7.9 | 4.1 | 6 | 3 | 3.30 |
| 5 | 0.80 | 3.80 | 54 | 9.2 | 9.9 | 5.1 | 6 | 3 | 4.20 |
| 6 | 1.00 | 4.50 | 62 | 10.5 | 11.3 | 6.2 | 8 | 3 | 5.00 |
| 8 | 1.25 | 5.95 | 74 | 13.1 | 14.3 | 8.2 | 10 | 3 | 6.80 |
| 10 | 1.50 | 7.95 | 80 | 17.3 | 18.4 | 10.3 | 12 | 4 | 8.50 |
| 12 | 1.75 | 9.95 | 90 | 20.1 | 21.3 | 12.3 | 14 | 4 | 10.20 |
| 14 | 2.00 | 10.80 | 102 | 25.0 | 26.8 | 14.4 | 16 | 4 | 12.00 |
| 16 | 2.00 | 12.80 | 102 | 27.0 | 28.8 | 16.4 | 18 | 4 | 14.00 |
| 18 | 2.50 | 13.95 | 125 | 33.8 | 36.0 | 18.5 | 25 | 4 | 15.50 |
| 20 | | | | 37.0 | 20.5 | | | | 17.50 |

ID

ID

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ID

* 135331

* 135332

* 155441

* 155443

135333

135334

* 155442

* 155444

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* 135348

GFS

GFS6615



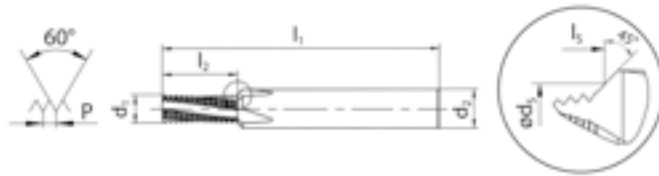
GFS6615VS



GFS6665



GFS6665VS



GFS6615

GFS6615VS

GFS6665

GFS6665VS



| Ø D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 2 | 0.40 | 1.50 | 48 | 4.6 | 4.9 | 2.1 | 6 | 2 | 1.60 |
| 2.5 | 0.45 | 1.90 | 48 | 5.6 | 6.0 | 2.6 | 6 | 3 | 2.05 |
| 3 | 0.50 | 2.30 | 48 | 6.8 | 7.1 | 3.1 | 6 | 3 | 2.50 |
| 3.5 | 0.60 | 2.70 | 48 | 7.5 | 8.0 | 3.6 | 6 | 3 | 2.90 |
| 4 | 0.70 | 3.00 | 48 | 8.8 | 9.3 | 4.1 | 6 | 3 | 3.30 |
| 5 | 0.80 | 3.80 | 54 | 10.8 | 11.5 | 5.1 | 6 | 3 | 4.20 |
| 6 | 1.00 | 4.50 | 62 | 13.5 | 14.3 | 6.2 | 8 | 3 | 5.00 |
| 8 | 1.25 | 5.95 | 74 | 18.1 | 19.3 | 8.2 | 10 | 3 | 6.80 |
| 10 | 1.50 | 7.95 | 80 | 21.8 | 22.9 | 10.3 | 12 | 4 | 8.50 |
| 12 | 1.75 | 9.95 | 90 | 25.4 | 26.6 | 12.3 | 14 | 4 | 10.20 |
| 14 | 2.00 | 10.80 | 102 | 31.0 | 32.8 | 14.4 | 16 | 4 | 12.00 |
| 16 | 2.00 | 12.80 | 102 | 35.0 | 36.8 | 16.4 | 18 | 4 | 14.00 |
| 18 | 2.50 | 13.95 | 125 | 41.3 | 43.5 | 18.5 | 25 | 4 | 15.50 |
| 20 | | | | | 44.5 | 20.5 | | | 17.50 |

ID

ID

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135349

135350

155445

155447

125661

135351

* 155446

* 147108

125946

135352

126160

116178

126352

135353

155524

155525

126587

116343

124837

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124973

135355

* 125067

* 135356

125116

135357

* 125231

* 135358

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GFS6616



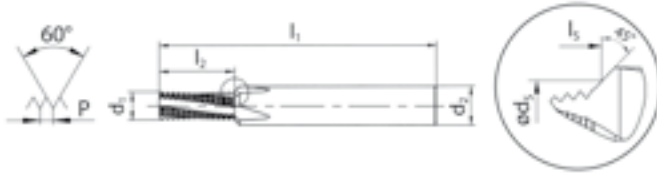
GFS6616VS



GFS6666



GFS6666VS



GFS6616



GFS6616VS



GFS6666



GFS6666VS



| ∅ D ₁ M | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | |
|-----------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 3 | 0.50 | 2.30 | 48 | 8.3 | 8.7 | 3.1 | 6 | 3 | 2.50 |
| 4 | 0.70 | 3.00 | 48 | 10.9 | 11.5 | 4.1 | 6 | 3 | 3.30 |
| 5 | 0.80 | 3.80 | 54 | 13.2 | 13.9 | 5.1 | 6 | 3 | 4.20 |
| 6 | 1.00 | 4.50 | 62 | 16.5 | 17.4 | 6.2 | 8 | 3 | 5.00 |
| 8 | 1.25 | 5.95 | 74 | 21.9 | 23.0 | 8.2 | 10 | 3 | 6.80 |
| 10 | 1.50 | 7.95 | 80 | 26.3 | 27.5 | 10.3 | 12 | 4 | 8.50 |
| 12 | 1.75 | 9.95 | 90 | 32.4 | 33.6 | 12.3 | 14 | 4 | 10.20 |
| 14 | 2.00 | 10.80 | 102 | 37.0 | 38.8 | 14.4 | 16 | 4 | 12.00 |
| 16 | 2.00 | 12.80 | 102 | 43.0 | 44.8 | 16.4 | 18 | 4 | 14.00 |
| 18 | 2.50 | 13.95 | 125 | 53.8 | 56.1 | 18.5 | 25 | 4 | 15.50 |
| 20 | | | | | 57.1 | 20.5 | | | 17.50 |

ID

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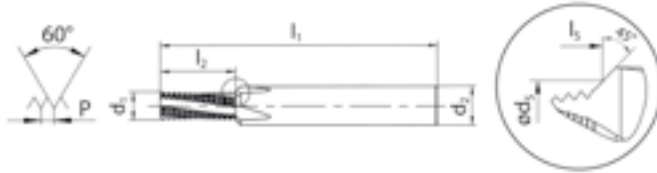
GFS6610VS



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GFS6660VS



GFS6610

GFS6610VS

GFS6660

GFS6660VS



| ∅ D ₁ MF | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | | ID | ID | ID | ID |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|--------|--------|----------|----------|
| 4 | 0.50 | 3.00 | 48 | 7.3 | 7.8 | 4.1 | 6 | 3 | 3.50 | 135359 | 135360 | | |
| 5 | 0.50 | 3.80 | 54 | 8.8 | 9.4 | 5.1 | 6 | 3 | 4.50 | 135361 | 135362 | | |
| 6 | 0.50 | 4.50 | 62 | 9.8 | 10.6 | 6.2 | 8 | 3 | 5.50 | 135363 | 135364 | | |
| 6 | 0.75 | 4.50 | 62 | 10.1 | 11.0 | 6.2 | 8 | 3 | 5.25 | 135365 | 135366 | | |
| 8 | 0.50 | 5.95 | 74 | 12.8 | 13.9 | 8.2 | 10 | 3 | 7.50 | | | 135367 | 135368 |
| 8 | 0.75 | 5.95 | 74 | 13.1 | 14.3 | 8.2 | 10 | 3 | 7.25 | | | 135369 | 135370 |
| 8 | 1.00 | 5.95 | 74 | 13.5 | 14.6 | 8.2 | 10 | 3 | 7.00 | | | 135371 | 135372 |
| 10 | 1.00 | 7.95 | 80 | 16.5 | 17.7 | 10.3 | 12 | 4 | 9.00 | | | 135373 | 135374 |
| 10 | 1.25 | 7.95 | 80 | 16.9 | 18.1 | 10.3 | 12 | 4 | 8.80 | | | * 135375 | * 135376 |
| 12 | 1.00 | 9.95 | 90 | 19.5 | 20.7 | 12.3 | 14 | 4 | 11.00 | | | 135377 | 135378 |
| 12 | 1.50 | 9.95 | 90 | 20.3 | 21.4 | 12.3 | 14 | 4 | 10.50 | | | 135379 | 135380 |
| 14 | 1.50 | 10.80 | 102 | 23.3 | 25.0 | 14.4 | 16 | 4 | 12.50 | | | 135381 | 135382 |
| 16 | 1.50 | 12.80 | 102 | 26.3 | 28.1 | 16.4 | 18 | 4 | 14.50 | | | 135383 | 135384 |

GFS

GFS6615



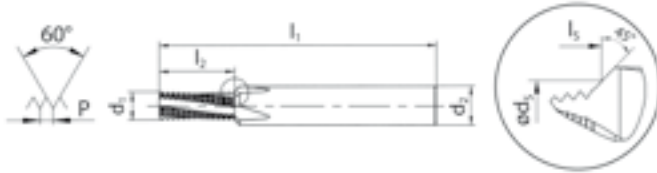
GFS6615VS



GFS6665



GFS6665VS



GFS6615



GFS6615VS



GFS6665



GFS6665VS



| ∅ D ₁ MF | P mm | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 4 | 0.50 | 3.00 | 48 | 8.8 | 9.3 | 4.1 | 6 | 3 | 3.50 |
| 5 | 0.50 | 3.80 | 54 | 10.8 | 11.4 | 5.1 | 6 | 3 | 4.50 |
| 6 | 0.50 | 4.50 | 62 | 12.8 | 13.6 | 6.2 | 8 | 3 | 5.50 |
| 6 | 0.75 | 4.50 | 62 | 13.1 | 14.0 | 6.2 | 8 | 3 | 5.25 |
| 8 | 0.50 | 5.95 | 74 | 17.8 | 18.9 | 8.2 | 10 | 3 | 7.50 |
| 8 | 0.75 | 5.95 | 74 | 16.9 | 18.0 | 8.2 | 10 | 3 | 7.25 |
| 8 | 1.00 | 5.95 | 74 | 17.5 | 18.6 | 8.2 | 10 | 3 | 7.00 |
| 10 | 1.00 | 7.95 | 80 | 21.5 | 22.7 | 10.3 | 12 | 4 | 9.00 |
| 10 | 1.25 | 7.95 | 80 | 21.9 | 23.0 | 10.3 | 12 | 4 | 8.80 |
| 12 | 1.00 | 9.95 | 90 | 25.5 | 26.7 | 12.3 | 14 | 4 | 11.00 |
| 12 | 1.50 | 9.95 | 90 | 26.3 | 27.4 | 12.3 | 14 | 4 | 10.50 |
| 14 | 1.50 | 10.80 | 102 | 30.8 | 32.5 | 14.4 | 16 | 4 | 12.50 |
| 16 | 1.50 | 12.80 | 102 | 33.8 | 35.6 | 16.4 | 18 | 4 | 14.50 |

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GFS

GFS6610



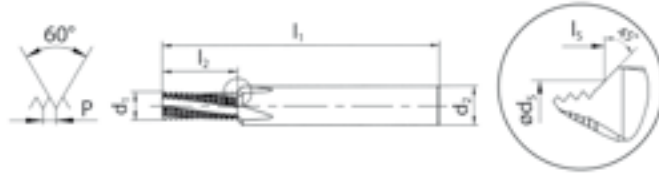
GFS6610VS



GFS6660



GFS6660VS



GFS6610

GFS6610VS

GFS6660

GFS6660VS



| Ø" D ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 10 | 24 | 3.60 | 54 | 10.1 | 10.7 | 4.9 | 6 | 3 | 3.80 |
| 12 | 24 | 4.10 | 54 | 10.1 | 10.8 | 5.6 | 6 | 3 | 4.40 |
| 1/4 | 20 | 4.80 | 62 | 12.1 | 12.9 | 6.5 | 8 | 3 | 5.10 |
| 5/16 | 18 | 5.95 | 74 | 14.8 | 15.9 | 8.1 | 10 | 3 | 6.50 |
| 3/8 | 16 | 7.10 | 80 | 16.7 | 18.0 | 9.8 | 12 | 4 | 8.00 |
| 7/16 | 14 | 7.95 | 80 | 19.0 | 20.8 | 11.4 | 12 | 4 | 9.30 |
| 1/2 | 13 | 9.95 | 90 | 22.5 | 24.0 | 13.0 | 14 | 4 | 10.80 |
| 9/16 | 12 | 10.80 | 102 | 24.4 | 26.3 | 14.6 | 16 | 4 | 12.20 |
| 5/8 | 11 | 11.90 | 102 | 26.5 | 28.8 | 16.3 | 18 | 4 | 13.60 |

ID

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GFS

GFS6615



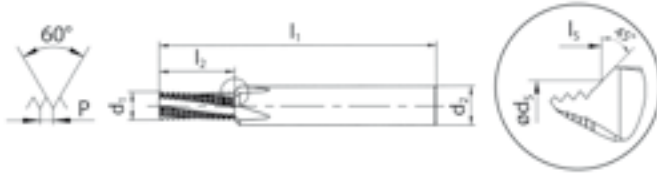
GFS6615VS



GFS6665



GFS6665VS



GFS6615

GFS6615VS

GFS6665

GFS6665VS



| ∅" D ₁ UNC | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | → | ← |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 10 | 24 | 3.60 | 54 | 12.2 | 12.8 | 4.9 | 6 | 3 | 3.80 |
| 12 | 24 | 4.10 | 54 | 13.2 | 14.0 | 5.6 | 6 | 3 | 4.40 |
| 1/4 | 20 | 4.80 | 62 | 14.6 | 15.5 | 6.5 | 8 | 3 | 5.10 |
| 5/16 | 18 | 5.95 | 74 | 17.6 | 18.7 | 8.1 | 10 | 3 | 6.50 |
| 3/8 | 16 | 7.10 | 80 | 21.5 | 22.8 | 9.8 | 12 | 4 | 8.00 |
| 7/16 | 14 | 7.95 | 80 | 24.5 | 26.2 | 11.4 | 12 | 4 | 9.30 |
| 1/2 | 13 | 9.95 | 90 | 28.4 | 29.9 | 13.0 | 14 | 4 | 10.80 |
| 9/16 | 12 | 10.80 | 102 | 32.8 | 34.7 | 14.6 | 16 | 4 | 12.20 |
| 5/8 | 11 | 11.90 | 102 | 35.8 | 38.0 | 16.3 | 18 | 4 | 13.60 |

ID

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GFS

GFS

GFS6610



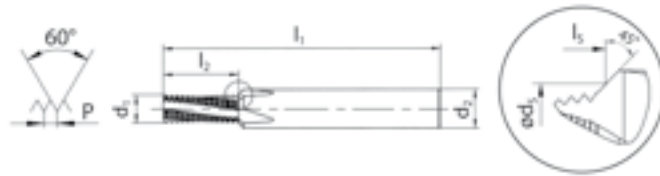
GFS6610VS



GFS6660



GFS6660VS



GFS6610

GFS6610VS

GFS6660

GFS6660VS



| Ø" D ₁ UNF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₃ mm | d ₂ mm | | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|-------|
| 10 | 32 | 3.60 | 54 | 8.3 | 9.0 | 4.9 | 6 | 3 | 4.05 |
| 12 | 28 | 4.10 | 54 | 9.5 | 10.3 | 5.6 | 6 | 3 | 4.60 |
| 1/4 | 28 | 4.80 | 62 | 11.3 | 12.2 | 6.5 | 8 | 3 | 5.50 |
| 5/16 | 24 | 5.95 | 74 | 13.2 | 14.3 | 8.1 | 10 | 3 | 6.90 |
| 3/8 | 24 | 7.10 | 80 | 16.4 | 17.3 | 9.8 | 12 | 4 | 8.50 |
| 7/16 | 20 | 7.95 | 80 | 18.4 | 20.1 | 11.4 | 12 | 4 | 9.80 |
| 1/2 | 20 | 9.95 | 90 | 21.0 | 22.5 | 13.0 | 14 | 4 | 11.40 |
| 9/16 | 18 | 11.60 | 102 | 23.3 | 24.8 | 14.6 | 16 | 4 | 12.90 |
| 5/8 | 18 | 11.90 | 102 | 26.1 | 28.3 | 16.3 | 18 | 4 | 14.50 |

ID

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GFS

GFS6615



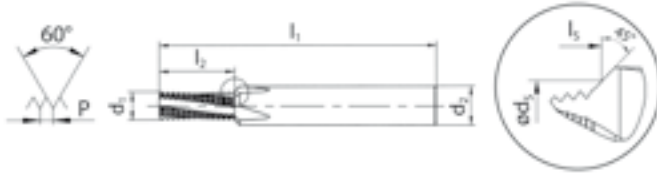
GFS6615VS



GFS6665



GFS6665VS



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GFS6615VS



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GFS6665VS



| Ø" D ₁ | P | d ₁ | l ₁ | l ₂ | l ₃ | d _s | d ₂ | | |
|-------------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|--|--|
| UNF | TPI | mm | mm | mm | mm | mm | mm | | |

| | | | | | | | | | |
|------|----|-------|-----|------|------|------|----|---|-------|
| 10 | 32 | 3.60 | 54 | 11.5 | 12.2 | 4.9 | 6 | 3 | 4.05 |
| 12 | 28 | 4.10 | 54 | 12.3 | 13.0 | 5.6 | 6 | 3 | 4.60 |
| 1/4 | 28 | 4.80 | 62 | 14.1 | 14.9 | 6.5 | 8 | 3 | 5.50 |
| 5/16 | 24 | 5.95 | 74 | 17.5 | 18.6 | 8.1 | 10 | 3 | 6.90 |
| 3/8 | 24 | 7.10 | 80 | 20.6 | 21.5 | 9.8 | 12 | 4 | 8.50 |
| 7/16 | 20 | 7.95 | 80 | 24.8 | 26.5 | 11.4 | 12 | 4 | 9.80 |
| 1/2 | 20 | 9.95 | 90 | 27.3 | 28.8 | 13.0 | 14 | 4 | 11.40 |
| 9/16 | 18 | 11.60 | 102 | 30.4 | 31.9 | 14.6 | 16 | 4 | 12.90 |
| 5/8 | 18 | 11.90 | 102 | 34.6 | 36.8 | 16.3 | 18 | 4 | 14.50 |

ID

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128660

135474

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128578

135477

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G DIN ISO 228 (BSP)

VHM
CAR

DIN 6535 HA

HB
HE

sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GFS

GFS6660



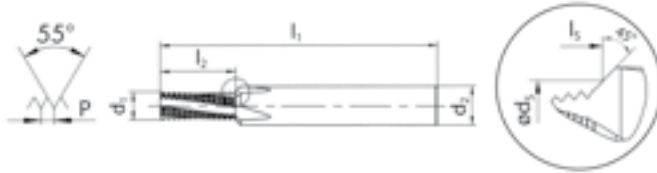
GFS6660VS



GFS6665



GFS6665VS



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GFS6660VS



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GFS6665VS



| $\varnothing'' D_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_5 mm | d_2 mm | | |
|--------------------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|---|-------|
| 1/8 | 28 | 7.95 | 80 | 15.9 | 16.9 | 10.0 | 12 | 4 | 8.75 |
| 1/4 | 19 | 9.95 | 90 | 22.1 | 23.8 | 13.5 | 14 | 4 | 11.60 |
| 3/8 | 19 | 12.80 | 102 | 27.4 | 29.5 | 17.1 | 18 | 4 | 15.20 |

ID

ID

* 135411

* 135412

* 135413

* 135414

* 135415

* 135416

| $\varnothing'' D_1$ G | P TPI | d_1 mm | l_1 mm | l_2 mm | l_3 mm | d_5 mm | d_2 mm | | |
|--------------------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|---|-------|
| 1/8 | 28 | 7.95 | 80 | 21.3 | 22.3 | 10.0 | 12 | 4 | 8.75 |
| 1/4 | 19 | 9.95 | 90 | 28.7 | 30.5 | 13.5 | 14 | 4 | 11.60 |
| 3/8 | 19 | 12.80 | 102 | 35.4 | 37.6 | 17.1 | 18 | 4 | 15.20 |

ID

ID

* 119349

* 135417

* 119298

* 135418

* 119680

* 135419

NPT, NPTF

ANSI B1.20.1
ANSI B1.20.3

VHM
CAR

DIN 6535 HA

HB
HE

sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GFS

GFS6660

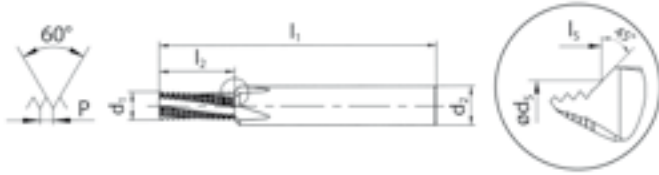


GFS6660VS



GFS6660

GFS6660VS



| Ø" D ₁ NPT | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | d ₃ mm | |
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
|--------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|

| | | | | | | | | |
|-----|----|-------|----|------|------|------|----|---|
| 1/8 | 27 | 7.30 | 70 | 9.9 | 11.2 | 10.6 | 12 | 4 |
| 1/4 | 18 | 9.95 | 80 | 14.8 | 16.4 | 14.0 | 16 | 4 |
| 3/8 | 18 | 12.50 | 80 | 14.8 | 16.9 | 17.6 | 18 | 4 |

ID

ID

| | |
|----------|----------|
| * 126910 | * 135490 |
| * 126899 | * 135491 |
| * 126928 | * 135492 |

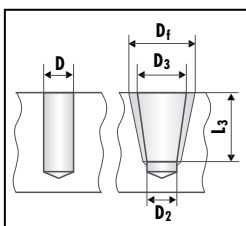
| Ø" D ₁ NPTF | P TPI | d ₁ mm | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | d ₃ mm | |
|---------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
|---------------------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|

| | | | | | | | | |
|-----|----|-------|----|------|------|------|----|---|
| 1/8 | 27 | 7.30 | 70 | 9.9 | 11.2 | 10.6 | 12 | 4 |
| 1/4 | 18 | 9.95 | 80 | 14.8 | 16.4 | 14.0 | 16 | 4 |
| 3/8 | 18 | 12.50 | 80 | 14.8 | 16.9 | 17.6 | 18 | 4 |

ID

ID

| | |
|----------|----------|
| * 135493 | * 135494 |
| * 135495 | * 135496 |
| * 135497 | * 135498 |



| Ø D ₁ | Vorbereitung Core hole | | | |
|------------------|---------------------------|----------------|------------------------------------|-------|
| | D | D ₂ | NPT NPTF D ₃ (+0.05) | |
| 1/8 | 8.5 | 8.3 | 8.74 | 8.76 |
| 1/4 | 11.0 | 10.8 | 11.36 | 11.40 |
| 3/8 | 14.5 | 14.2 | 14.80 | 14.84 |

| Fräsen Milling | |
|-------------------|----------------|
| D _f | L ₃ |
| 9.81 | 6.92 |
| 12.99 | 10.02 |
| 16.41 | 10.33 |

GFM

GFM6260

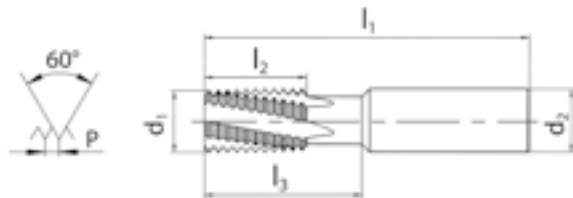


GFM6260VS



GFM6260

GFM6260VS



| d ₁ mm | P mm | ∅ D ₁ ≥ M, MF | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | ✚ | ID | ID |
|----------------------|---------|-----------------------------|----------------------|----------------------|----------------------|----------------------|---|----------|--------|
| 8 | 0.50 | 10 | 64 | 16.0 | 16 | 8.0 | 4 | 116450 | 135260 |
| 8 | 0.75 | 10 | 64 | 15.8 | 16 | 8.0 | 4 | 116340 | 135261 |
| 10 | 0.75 | 14 | 70 | 15.8 | 26 | 10.0 | 4 | 116128 | 135262 |
| 10 | 1.00 | 14 | 70 | 16.0 | 26 | 10.0 | 4 | 118657 | 135263 |
| 10 | 1.25 | 14 | 70 | 16.3 | 26 | 10.0 | 4 | 118659 | 135264 |
| 10 | 1.50 | 14 | 70 | 16.5 | 26 | 10.0 | 4 | 118661 | 135265 |
| 12 | 0.50 | 18 | 80 | 20.0 | 32 | 12.0 | 4 | 116129 | 135214 |
| 12 | 0.75 | 18 | 80 | 20.3 | 32 | 12.0 | 4 | 155526 | 155527 |
| 12 | 1.00 | 18 | 80 | 20.0 | 32 | 12.0 | 4 | 118664 | 135007 |
| 12 | 1.50 | 18 | 80 | 21.0 | 32 | 12.0 | 4 | 118669 | 135181 |
| 12 | 2.00 | 18 | 80 | 20.0 | 32 | 12.0 | 4 | 118673 | 135269 |
| 16 | 1.00 | 24 | 90 | 25.0 | 42 | 16.0 | 4 | 118680 | 135270 |
| 16 | 1.50 | 24 | 90 | 25.5 | 42 | 16.0 | 4 | 118682 | 116017 |
| 16 | 2.00 | 24 | 90 | 26.0 | 42 | 16.0 | 4 | 118684 | 135271 |
| 16 | 2.50 | 24 | 90 | 25.0 | 42 | 16.0 | 4 | 118689 | 135272 |
| 16 | 3.00 | 24 | 90 | 27.0 | 42 | 16.0 | 4 | 158760 | 150564 |
| 20 | 1.00 | 30 | 105 | 33.0 | 52 | 20.0 | 5 | 135273 | 135274 |
| 20 | 1.50 | 30 | 105 | 33.0 | 52 | 20.0 | 5 | 118694 | 135275 |
| 20 | 2.00 | 30 | 105 | 34.0 | 52 | 20.0 | 5 | 116338 | 135276 |
| 20 | 2.50 | 30 | 105 | 32.5 | 52 | 20.0 | 5 | * 135277 | |
| 20 | 3.00 | 30 | 105 | 33.0 | 52 | 20.0 | 5 | 118699 | 135279 |
| 20 | 3.50 | 30 | 105 | 38.5 | 52 | 20.0 | 5 | 144195 | 144065 |



GFM

GFM6260

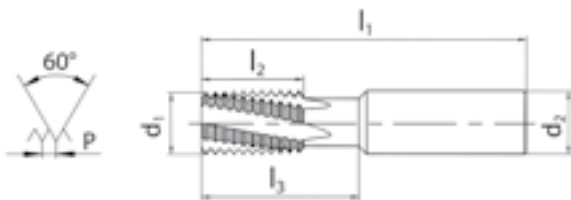


GFM6260VS



GFM6260

GFM6260VS



| d ₁ mm | P TPI | Ø" D ₁ ≥ UN | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | ⊕ | ID | ID |
|----------------------|----------|---------------------------|----------------------|----------------------|----------------------|----------------------|---|----------|----------|
| 10 | 24 | 1/2 | 70 | 15.9 | 26 | 10 | 4 | 135288 | 135289 |
| 12 | 24 | 3/4 | 80 | 20.1 | 32 | 12 | 4 | 135290 | 135291 |
| 12 | 20 | 3/4 | 80 | 20.3 | 32 | 12 | 4 | 135292 | 135293 |
| 12 | 18 | 3/4 | 80 | 19.8 | 32 | 12 | 4 | 135294 | 135295 |
| 12 | 16 | 3/4 | 80 | 20.6 | 32 | 12 | 4 | 135296 | 135297 |
| 12 | 10 | 3/4 | 80 | 20.3 | 32 | 12 | 4 | 150963 | 155494 |
| 16 | 24 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135298 | 135299 |
| 16 | 20 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135300 | 135301 |
| 16 | 18 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135302 | 135303 |
| 16 | 16 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135304 | 135305 |
| 16 | 14 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135306 | 135307 |
| 16 | 12 | 1 | 90 | 25.4 | 42 | 16 | 4 | 135308 | 135309 |
| 16 | 9 | 1 | 90 | 25.4 | 42 | 16 | 4 | 150964 | 155495 |
| 16 | 8 | 1 | 90 | 25.4 | 42 | 16 | 4 | 150965 | 155496 |
| 20 | 24 | 1 1/4 | 105 | 32.8 | 52 | 20 | 5 | * 135310 | * 135311 |
| 20 | 20 | 1 1/4 | 105 | 33.0 | 52 | 20 | 5 | * 135312 | * 135313 |
| 20 | 18 | 1 1/4 | 105 | 32.5 | 52 | 20 | 5 | 135314 | 135315 |
| 20 | 16 | 1 1/4 | 105 | 33.4 | 52 | 20 | 5 | 118697 | 135316 |
| 20 | 14 | 1 1/4 | 105 | 32.7 | 52 | 20 | 5 | 135317 | 135318 |
| 20 | 12 | 1 1/4 | 105 | 31.8 | 52 | 20 | 5 | 135319 | 135320 |
| 20 | 8 | 1 1/4 | 105 | 31.8 | 52 | 20 | 5 | 135321 | 135322 |
| 20 | 7 | 1 1/4 | 105 | 32.7 | 52 | 20 | 5 | 150962 | 155497 |

GFM

GFM

GFM6260

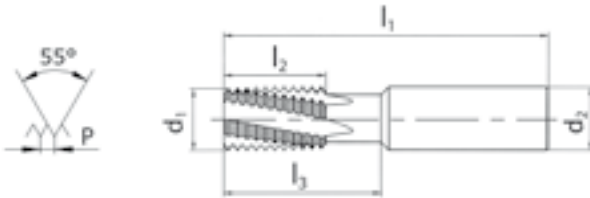


GFM6260VS



GFM6260

GFM6260VS



| d ₁ mm | P TPI | Ø" D ₁ G | l ₁ mm | l ₂ mm | l ₃ mm | d ₂ mm | |
|----------------------|----------|------------------------|----------------------|----------------------|----------------------|----------------------|---|
| 10 | 19 | 1/4 - 3/8 | 70 | 16.0 | 26 | 10 | 4 |
| 16 | 14 | 1/2 - 7/8 | 90 | 25.4 | 42 | 16 | 4 |
| 20 | 11 | ≥ 1 | 105 | 32.3 | 52 | 20 | 5 |

ID

ID

118655

135280

118678

135281

118691

135282

NPT, NPTF

ANSI B1.20.1
ANSI B1.20.3

VHM
CAR



DIN 6535 HA

HB
HE

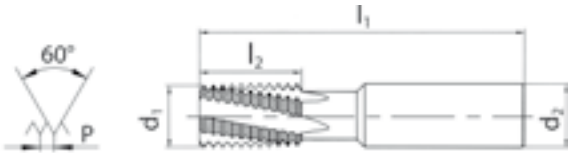
sur demande
auf Anfrage
on request
su richiesta
sobre pedido

GFM

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GFM6260VS



GFM6260

GFM6260VS



| d ₁ mm | P TPI | Ø" D ₁ ≥ NPT | l ₁ mm | l ₂ mm | d ₂ mm | ✿ |
|----------------------|----------|----------------------------|----------------------|----------------------|----------------------|---|
| 14.5 | 14 | 1/2 | 90 | 19.1 | 16 | 4 |
| 18.5 | 11.5 | 1 | 90 | 23.2 | 20 | 5 |

ID

ID

135323

135324

135325

135326

| d ₁ mm | P TPI | Ø" D ₁ ≥ NPTF | l ₁ mm | l ₂ mm | d ₂ mm | ✿ |
|----------------------|----------|-----------------------------|----------------------|----------------------|----------------------|---|
| 14.5 | 14 | 1/2 | 90 | 19.1 | 16 | 4 |
| 18.5 | 11.5 | 1 | 90 | 23.2 | 20 | 5 |

ID

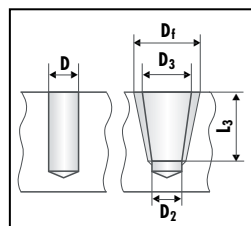
ID

* 135327

* 135328

* 135329

* 135330



| Ø D ₁ | Vorbereitung Core hole | | | |
|------------------|---------------------------|----------------|-------------------------------|--------------------------------|
| | D | D ₂ | NPT D ₃ (+0.05) | NPTF D ₃ (+0.05) |
| 1/2 | 17.9 | 17.5 | 18.32 | 18.33 |
| 3/4 | 23.2 | 22.8 | 23.67 | 23.68 |
| 1 | 29.0 | 28.6 | 29.69 | 29.72 |
| 1 1/4 | 37.7 | 37.3 | 38.45 | 38.48 |
| 1 1/2 | 44.0 | 43.5 | 44.52 | 44.55 |
| 2 | 56.0 | 55.5 | 56.56 | 56.59 |

Fräsen
Milling

| D _f | L ₃ |
|----------------|----------------|
| 20.37 | 13.57 |
| 25.69 | 14.05 |
| 32.18 | 16.79 |
| 40.90 | 17.30 |
| 49.67 | 17.30 |
| 58.99 | 17.70 |

GFM

BGF

BGF6760

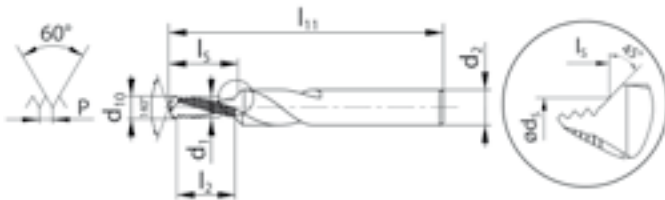


BGF6760VS



BGF6760

BGF6760VS



| $\varnothing D_1$ M | P mm | d_1 mm | d_{10} mm | l_{11} mm | l_2 mm | l_3 mm | d_5 mm | d_2 mm | | ID | ID |
|------------------------|---------|-------------|----------------|----------------|-------------|-------------|-------------|-------------|---|----------|----------|
| 4 | 0.70 | 3.10 | 3.30 | 48 | 5.6 | 7.4 | 4.1 | 6 | 2 | 153400 | 153415 |
| 5 | 0.80 | 4.00 | 4.20 | 54 | 7.2 | 9.4 | 5.1 | 6 | 2 | 153401 | 153416 |
| 6 | 1.00 | 4.75 | 5.00 | 62 | 9.0 | 11.7 | 6.2 | 8 | 2 | 153402 | 153417 |
| 8 | 1.25 | 6.50 | 6.75 | 74 | 11.2 | 14.6 | 8.2 | 10 | 2 | 151911 | 153418 |
| 10 | 1.50 | 8.25 | 8.50 | 80 | 14.9 | 19.1 | 10.3 | 12 | 2 | 153403 | 151442 |
| 12 | 1.75 | 9.95 | 10.25 | 90 | 17.4 | 22.1 | 12.3 | 14 | 2 | 153404 | 153419 |
| 14 | 2.00 | 11.60 | 12.00 | 102 | 19.9 | 25.1 | 14.4 | 16 | 2 | * 153405 | * 153420 |
| 16 | 2.00 | 13.60 | 14.00 | 102 | 23.9 | 29.5 | 16.4 | 18 | 2 | * 153406 | * 153421 |

BGF

BGF6765



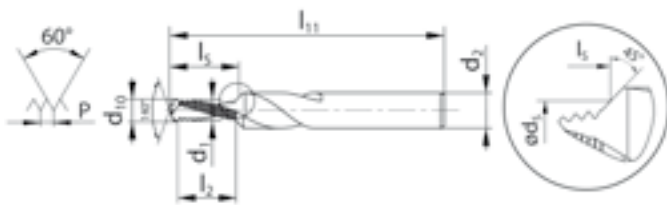
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| ∅ D ₁ M | P mm | d ₁ mm | d ₁₀ mm | l ₁₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | |
|-----------------------|---------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|---|
| 4 | 0.70 | 3.10 | 3.30 | 48 | 7.7 | 9.5 | 4.1 | 6 | 2 |
| 5 | 0.80 | 4.00 | 4.20 | 54 | 9.6 | 11.8 | 5.1 | 6 | 2 |
| 6 | 1.00 | 4.75 | 5.00 | 62 | 12.0 | 14.7 | 6.2 | 8 | 2 |
| 8 | 1.25 | 6.50 | 6.75 | 74 | 15.0 | 18.4 | 8.2 | 10 | 2 |
| 10 | 1.50 | 8.25 | 8.50 | 80 | 19.4 | 23.6 | 10.3 | 12 | 2 |
| 12 | 1.75 | 9.95 | 10.25 | 90 | 22.7 | 27.3 | 12.3 | 14 | 2 |
| 14 | 2.00 | 11.60 | 12.00 | 102 | 27.9 | 33.1 | 14.4 | 16 | 2 |
| 16 | 2.00 | 13.60 | 14.00 | 102 | 31.9 | 37.5 | 16.4 | 18 | 2 |

ID

ID

| | |
|----------|----------|
| 153430 | 153442 |
| 151305 | 151306 |
| 150933 | 151776 |
| 153431 | 150588 |
| 153432 | 150589 |
| 153433 | 150927 |
| * 153434 | * 153443 |
| * 153435 | * 151324 |

| ∅ D ₁ M | P mm | d ₁ mm | d ₁₀ mm | l ₁₁ mm | l ₂ mm | l ₃ mm | d _s mm | d ₂ mm | |
|-----------------------|---------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|---|
| 6 | 1.00 | 4.75 | 5.00 | 62 | 15.0 | 17.7 | 6.2 | 8 | 2 |
| 8 | 1.25 | 6.50 | 6.75 | 74 | 20.0 | 23.4 | 8.2 | 10 | 2 |
| 10 | 1.50 | 8.25 | 8.50 | 80 | 23.9 | 28.1 | 10.3 | 12 | 2 |
| 12 | 1.75 | 9.95 | 10.25 | 90 | 29.7 | 34.3 | 12.3 | 14 | 2 |
| 14 | 2.00 | 11.60 | 12.00 | 102 | 35.9 | 41.1 | 14.4 | 16 | 2 |
| 16 | 2.00 | 13.60 | 14.00 | 102 | 39.9 | 45.5 | 16.4 | 18 | 2 |

ID

ID

| | |
|----------|----------|
| 153451 | 153467 |
| 153452 | 153468 |
| 153453 | 153469 |
| 153454 | 153470 |
| * 153455 | * 153471 |
| * 153456 | * 153472 |

BGF

BGF6865



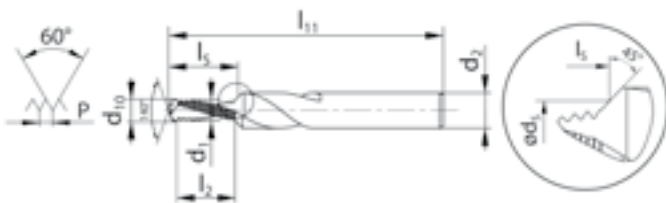
BGF6865VS



BGF6866



BGF6866VS



BGF6865

BGF6865VS

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BGF6866VS



| $\varnothing D_1$ M | P mm | d_1 mm | d_{10} mm | l_{11} mm | l_2 mm | l_3 mm | d_5 mm | d_2 mm | |
|------------------------|---------|-------------|----------------|----------------|-------------|-------------|-------------|-------------|--|
|------------------------|---------|-------------|----------------|----------------|-------------|-------------|-------------|-------------|--|

| | | | | | | | | | |
|----|------|-------|-------|-----|------|------|------|----|---|
| 6 | 1.00 | 4.75 | 5.00 | 62 | 12.0 | 14.7 | 6.2 | 8 | 3 |
| 8 | 1.25 | 6.50 | 6.75 | 74 | 14.9 | 18.4 | 8.2 | 10 | 3 |
| 10 | 1.50 | 8.25 | 8.50 | 80 | 19.4 | 23.6 | 10.3 | 12 | 3 |
| 12 | 1.75 | 9.95 | 10.25 | 90 | 22.7 | 27.3 | 12.3 | 14 | 3 |
| 14 | 2.00 | 11.60 | 12.00 | 102 | 27.9 | 33.1 | 14.4 | 16 | 3 |
| 16 | 2.00 | 13.60 | 14.00 | 102 | 31.9 | 37.5 | 16.4 | 18 | 3 |

ID

ID

* 153577

* 153589

* 153578

* 153590

* 153579

* 153591

* 153580

* 153592

* 153581

* 153593

* 153582

* 153594

| $\varnothing D_1$ M | P mm | d_1 mm | d_{10} mm | l_{11} mm | l_2 mm | l_3 mm | d_5 mm | d_2 mm | |
|------------------------|---------|-------------|----------------|----------------|-------------|-------------|-------------|-------------|--|
|------------------------|---------|-------------|----------------|----------------|-------------|-------------|-------------|-------------|--|

| | | | | | | | | | |
|----|------|-------|-------|-----|------|------|------|----|---|
| 6 | 1.00 | 4.75 | 5.00 | 62 | 15.0 | 17.7 | 6.2 | 8 | 3 |
| 8 | 1.25 | 6.50 | 6.75 | 74 | 20.0 | 23.4 | 8.2 | 10 | 3 |
| 10 | 1.50 | 8.25 | 8.50 | 80 | 23.9 | 28.1 | 10.3 | 12 | 3 |
| 12 | 1.75 | 9.95 | 10.25 | 90 | 29.7 | 34.3 | 12.3 | 14 | 3 |
| 14 | 2.00 | 11.60 | 12.00 | 102 | 35.9 | 41.1 | 14.4 | 16 | 3 |
| 16 | 2.00 | 13.60 | 14.00 | 102 | 39.9 | 45.5 | 16.4 | 18 | 3 |

ID

ID

* 153601

* 153613

* 153602

* 153614

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* 153616

* 153605

* 153617

* 153606

* 153618

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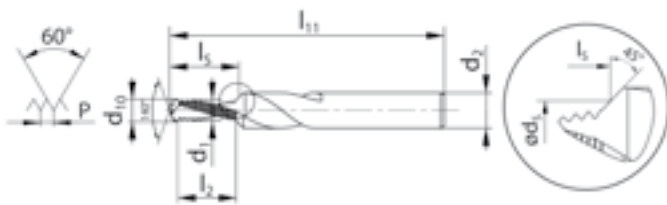
BGF6760VS



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BGF6765VS



BGF6760

BGF6760VS

BGF6765

BGF6765VS



| ∅ D ₁ MF | P mm | d ₁ mm | d ₁₀ mm | l ₁₁ mm | l ₂ mm | l _s mm | d _s mm | d ₂ mm | ✚ |
|------------------------|---------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|---|
| 6 | 0.75 | 5.00 | 5.25 | 62 | 9.0 | 11.4 | 6.2 | 8 | 2 |
| 8 | 1.00 | 6.75 | 7.00 | 74 | 12.0 | 15.0 | 8.2 | 10 | 2 |
| 10 | 1.00 | 8.75 | 9.00 | 80 | 15.0 | 18.5 | 10.3 | 12 | 2 |
| 12 | 1.00 | 10.70 | 11.00 | 90 | 18.0 | 21.9 | 12.3 | 14 | 2 |
| 12 | 1.50 | 10.20 | 10.50 | 90 | 17.9 | 22.5 | 12.3 | 14 | 2 |
| 14 | 1.50 | 12.10 | 12.50 | 102 | 20.9 | 26.0 | 14.4 | 16 | 2 |
| 16 | 1.50 | 14.10 | 14.50 | 102 | 23.9 | 29.4 | 16.4 | 18 | 2 |

| ID | ID |
|----------|----------|
| * 153759 | * 153780 |
| * 153761 | * 153782 |
| * 153762 | * 153783 |
| * 153764 | * 153785 |
| * 153765 | * 153786 |
| * 153766 | * 153787 |
| * 153767 | * 153788 |






































| ∅ D ₁ MF | P mm | d ₁ mm | d ₁₀ mm | l ₁₁ mm | l ₂ mm | l _s mm | d _s mm | d ₂ mm | ✚ |
|------------------------|---------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|---|
| 6 | 0.75 | 5.00 | 5.25 | 62 | 9.0 | 11.4 | 6.2 | 8 | 2 |
| 8 | 1.00 | 6.75 | 7.00 | 74 | 12.0 | 15.0 | 8.2 | 10 | 2 |
| 10 | 1.00 | 8.75 | 9.00 | 80 | 15.0 | 18.5 | 10.3 | 12 | 2 |
| 12 | 1.00 | 10.70 | 11.00 | 90 | 18.0 | 21.9 | 12.3 | 14 | 2 |
| 12 | 1.50 | 10.20 | 10.50 | 90 | 17.9 | 22.5 | 12.3 | 14 | 2 |
| 14 | 1.50 | 12.10 | 12.50 | 102 | 20.9 | 26.0 | 14.4 | 16 | 2 |
| 16 | 1.50 | 14.10 | 14.50 | 102 | 23.9 | 29.4 | 16.4 | 18 | 2 |








| ID | ID |
|----------|----------|
| * 153802 | * 153824 |
| * 153804 | * 153826 |
| * 153805 | * 153827 |
| * 153807 | * 153829 |
| * 153808 | * 153830 |
| * 153809 | * 153831 |
| * 153810 | * 153832 |

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












Inhaltsverzeichnis - Runde-, Automaten-, Sechskant- und Glocken-Schneideisen

Directory - Round dies, button dies for Swiss automatics, hexagon die nuts and bell form dies

| | | N | | MS | Z | | N | Z |
|------------------------------------|---------------------|---|--|--|---|---|--|---|
| Merkmale Characteristics | |    |     |     |      |      |     |      |
| | |  |  |  |  |  |  |  |
| | | N5110 | N5120 | MS5120 | Z5120 | Z5120LL | N5220 | Z5220 |
| M 6g | DIN 13 | 246 | 246 | | 247 | 247 | 260 | 260 |
| M 6e | DIN 13 | | 246 | | | | 260 | |
| M 6g LH | DIN 13 | | 246 | | | | | |
| MF 6g | DIN 13 | 248 | 248-250 | | 248-249 | | 261 | |
| MF 6e | DIN 13 | | 248-249 | | | | | |
| MF 6g LH | DIN 13 | | 248-250 | | | | | |
| UNC | ANSI B1.1 | 251 | 251 | | | | | |
| UNF | ANSI B1.1 | 252 | 252 | | | | | |
| UNEF | ANSI B1.1 | | 253 | | | | | |
| UN | ANSI B1.1 | | 253 | | | | | |
| UNS | ANSI B1.1 | | 253 | | | | | |
| G (BSP) | DIN ISO 228 | | 254 | 255 | 255 | | | |
| G (BSP) LH | DIN ISO 228 | | 254 | | | | | |
| G (BSP) -0.1 mm | DIN ISO 228 | | | 255 | | | | |
| R (BSPT) | DIN EN 10226 | | 256 | | | | | |
| NPT | ANSI B1.20.1 | | 257 | | | | | |
| NPTF | ANSI B1.20.3 | | 257 | | | | | |
| PG | DIN 40430 | | 258 | | | | | |
| TR | DIN 103 | | 258 | | | | | |
| W (BSW) | BS 84 | | 259 | | | | | |
| W (BSW) LH | BS 84 | | 259 | | | | | |

| N | |
|--|---|
|   |    |
|  |  |
| N5310 | N5420 |
| 262 | 263 |
| 262 | |
| 263 | |
| 263 | |

Piktogramme - Pictographs

| | |
|---|--|
|  | HSS HSS |
|  | HSSE HSSE |
|  | 1.25 Gewindegänge 1.25 chamfered threads |
|  | 1.75 Gewindegänge 1.75 chamfered threads |
|  | 2 Gewindegänge 2 chamfered threads |
|  | Schälanschnitt ab Ø 3 mm Peeling cut from Ø 3 mm |
|  | Schälanschnitt, beidseitig, ab Ø 3 mm Peeling cut on both sides from Ø 3 mm |
|  | Anzahl Spannuten Number of flutes |
|  | Vordrehdurchmesser Turned diameters |
|  | Nitriert ($d_1 \geq 3 \text{ mm}$, $P \geq 0.5 \text{ mm}$) Nitrided ($d_1 \geq 3 \text{ mm}$, $P \geq 0.5 \text{ mm}$) |
|  | Schneideisen mit 2 Aufschraublöchern Die with 2 securing holes |
|  | Toleranz 6g Tolerance 6g |
|  | Toleranz 6e Tolerance 6e |
|  | Toleranz "Medium Class" Tolerance "Medium Class" |
|  | Toleranz A Tolerance A |
|  | Konisches Gewinde 1:16 (NPT - NPTF - R) Tapered thread 1:16 (NPT - NPTF - R) |
|  | Linksgewinde Left hand thread |

| Z5120 | | NI | | 13 14 21 | | | Z5120 | Z5120 LL | | |
|------------------------|---------|-------------|-------------|-------------|---------|-------|--------|----------|----|--|
| Z5120 LL | | NI | | 13 14 15 21 | | | | | | |
| | | | | | | | | | | |
| | | | | | | | 6g | | 6g | |
| $\varnothing d_1$ M | P mm | d_2 mm | l_1 mm | Z5120 | Z5120LL | 6g | ID | ID | | |
| 2 | 0.40 | 16.0 | 3.5 | 4 | 4 | 1.93 | 125269 | 105115 | | |
| 2.5 | 0.45 | 16.0 | 5.0 | 4 | 4 | 2.43 | 104779 | 105116 | | |
| 2.6 | 0.45 | 16.0 | 5.0 | 4 | | 2.53 | 104780 | | | |
| 3 | 0.50 | 20.0 | 5.0 | 4 | 5 | 2.92 | 104788 | 105117 | | |
| 3.5 | 0.60 | 20.0 | 5.0 | 4 | | 3.41 | 104789 | | | |
| 4 | 0.70 | 20.0 | 5.0 | 4 | 5 | 3.91 | 104790 | 105118 | | |
| 5 | 0.80 | 20.0 | 7.0 | 4 | 5 | 4.90 | 104792 | 105119 | | |
| 6 | 1.00 | 20.0 | 7.0 | 4 | 5 | 5.88 | 104795 | 105120 | | |
| 7 | 1.00 | 25.0 | 9.0 | 4 | | 6.88 | 111424 | | | |
| 8 | 1.25 | 25.0 | 9.0 | 5 | 6 | 7.87 | 104798 | 105121 | | |
| 10 | 1.50 | 30.0 | 11.0 | 5 | 6 | 9.85 | 104767 | 105122 | | |
| 12 | 1.75 | 38.0 | 14.0 | 5 | 6 | 11.83 | 104770 | 105123 | | |
| 14 | 2.00 | 38.0 | 14.0 | 5 | | 13.82 | 104773 | | | |
| 16 | 2.00 | 45.0 | 18.0 | 5 | | 15.82 | 104776 | | | |
| 18 | 2.50 | 45.0 | 18.0 | 5 | | 17.79 | 104778 | | | |
| 20 | 2.50 | 45.0 | 18.0 | 5 | | 19.79 | 104783 | | | |
| 24 | 3.00 | 55.0 | 22.0 | 6 | | 23.76 | 104787 | | | |











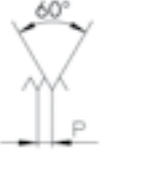
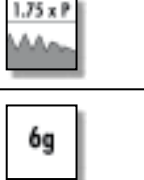














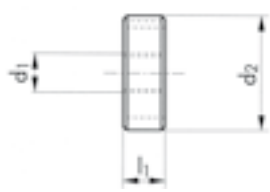






| | | | | | | | | N5120 | N5120 LH | N5120 | Z5120 | | | | |
|-------------------------|---------|-------------|-------------|---------------|---------------|-----------------------------|-----------------------------|--------|----------|----------|------------|--------|--|--|--|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| $\varnothing d_1$ MF | P mm | d_2 mm | l_1 mm | \oplus N | \oplus Z | $\rightarrow 6g \leftarrow$ | $\rightarrow 6e \leftarrow$ | ID | ID | ID | 6g - mm | ID | | | |
| *2 | 0.25 | 16.0 | 5.0 | 4 | | 1.93 | | 103863 | | | | | | | |
| *2.5 | 0.35 | 16.0 | 5.0 | 4 | | 2.44 | | 103871 | | | | | | | |
| 3 | 0.35 | 20.0 | 5.0 | 4 | | 2.94 | | 104064 | | | | | | | |
| 3.5 | 0.35 | 20.0 | 5.0 | 4 | | 3.44 | | 104069 | | | | | | | |
| 4 | 0.35 | 20.0 | 5.0 | 4 | | 3.94 | | 104108 | | | | | | | |
| 4 | 0.50 | 20.0 | 5.0 | 4 | | 3.93 | | 104110 | | | | | | | |
| 4.5 | 0.50 | 20.0 | 5.0 | 4 | | 4.43 | | 104116 | | | | | | | |
| 5 | 0.50 | 20.0 | 5.0 | 4 | 4 | 4.93 | 4.90 | 104141 | 104142 | 104140 | 0.030 | 104791 | | | |
| 5 | 0.75 | 20.0 | 7.0 | 4 | | 4.90 | | 104143 | | | | | | | |
| 5.5 | 0.50 | 20.0 | 5.0 | 4 | | 5.43 | | 104148 | | | | | | | |
| 6 | 0.50 | 20.0 | 5.0 | 4 | | 5.93 | | 104159 | 104160 | | | 104793 | | | |
| 6 | 0.75 | 20.0 | 7.0 | 4 | 4 | 5.90 | | 104162 | 104163 | | | 104794 | | | |
| 7 | 0.50 | 25.0 | 9.0 | 4 | 4 | 6.93 | | 104169 | | | | | | | |
| 7 | 0.75 | 25.0 | 9.0 | 4 | | 6.90 | 6.87 | 104171 | | * 104170 | 0.035 | | | | |
| 8 | 0.50 | 25.0 | 9.0 | 5 | | 7.93 | | 104177 | | | | | | | |
| 8 | 0.75 | 25.0 | 9.0 | 4 | 4 | 7.90 | | 104180 | | | | 104796 | | | |
| 8 | 1.00 | 25.0 | 9.0 | 4 | 4 | 7.88 | 7.85 | 104183 | 104184 | 104182 | 0.035 | 104797 | | | |
| 9 | 0.50 | 25.0 | 9.0 | 5 | | 8.93 | | 104188 | | | | | | | |
| 9 | 0.75 | 25.0 | 9.0 | 5 | | 8.90 | | 104189 | | | | | | | |
| 9 | 1.00 | 25.0 | 9.0 | 5 | | 8.88 | | 104190 | | | | | | | |
| 10 | 0.50 | 30.0 | 11.0 | 5 | | 9.93 | | 103942 | | | | | | | |
| 10 | 0.75 | 30.0 | 11.0 | 5 | 5 | 9.90 | 9.87 | 103945 | | * 103944 | 0.035 | 104765 | | | |
| 10 | 1.00 | 30.0 | 11.0 | 5 | 5 | 9.88 | 9.85 | 103948 | 103949 | 103947 | 0.035 | 104766 | | | |
| 10 | 1.25 | 30.0 | 11.0 | 4 | | 9.86 | | 103950 | 103951 | | | | | | |
| 11 | 0.75 | 30.0 | 11.0 | 5 | | 10.90 | | 103956 | | | | | | | |
| 11 | 1.00 | 30.0 | 11.0 | 5 | | 10.88 | | 103957 | | | | | | | |
| 11 | 1.25 | 30.0 | 11.0 | 5 | | 10.87 | | 103958 | | | | | | | |
| 12 | 0.50 | 38.0 | 10.0 | 5 | | 11.93 | | 103960 | | | | | | | |
| 12 | 0.75 | 38.0 | 10.0 | 5 | | 11.90 | 11.87 | 103962 | | * 103961 | 0.035 | | | | |
| 12 | 1.00 | 38.0 | 10.0 | 5 | 5 | 11.88 | 11.85 | 103965 | 103966 | 103964 | 0.035 | 104768 | | | |
| 12 | 1.25 | 38.0 | 10.0 | 4 | | 11.86 | | 103967 | 103968 | | | | | | |
| 12 | 1.50 | 38.0 | 10.0 | 4 | 5 | 11.85 | | 103970 | 103971 | | | 104769 | | | |
| 13 | 1.00 | 38.0 | 10.0 | 5 | | 12.88 | | 103976 | | | | | | | |






* N5110






P 0.25

6h

| N5120 | | N5120 LH | | N5120 | | Z5120 | | N5120 | N5120 LH | N5120 | Z5120 | |
|---|---------|---|-------------|---|---|---|-----------------------------|---|---|---|---|--------|
|  | |  | |  | |  | |  |  |  |  | |
|  | |  | |  | |  | |  |  |  |  | |
| $\varnothing d_1$ MF | P mm | d_2 mm | l_1 mm | N | Z | $\rightarrow 6g \leftarrow$ | $\rightarrow 6e \leftarrow$ | ID | ID | ID | $6g$ - mm | ID |
| 14 | 0.50 | 38.0 | 10.0 | 5 | | 13.93 | | 103977 | | | | |
| 14 | 0.75 | 38.0 | 10.0 | 5 | | 13.90 | | 103979 | | | | |
| 14 | 1.00 | 38.0 | 10.0 | 5 | 5 | 13.88 | | 103981 | 103982 | | | 104771 |
| 14 | 1.25 | 38.0 | 10.0 | 5 | | 13.86 | | 103983 | | | | |
| 14 | 1.50 | 38.0 | 10.0 | 5 | 5 | 13.85 | | 103986 | 103987 | | | 104772 |
| 15 | 1.00 | 38.0 | 10.0 | 5 | | 14.88 | | 103991 | | | | |
| 15 | 1.50 | 38.0 | 10.0 | 5 | | 14.85 | | 103992 | | | | |
| 16 | 1.00 | 45.0 | 14.0 | 5 | 5 | 15.88 | 15.85 | 103996 | 103997 | * 103995 | 0.035 | 104774 |
| 16 | 1.25 | 45.0 | 14.0 | 5 | | 15.87 | | 103998 | | | | |
| 16 | 1.50 | 45.0 | 14.0 | 5 | 5 | 15.85 | | 104000 | 104001 | | | 104775 |
| 17 | 1.00 | 45.0 | 14.0 | 5 | | 16.88 | | 104005 | | | | |
| 18 | 1.00 | 45.0 | 14.0 | 5 | | 17.88 | | 104008 | | | | |
| 18 | 1.50 | 45.0 | 14.0 | 5 | 5 | 17.85 | | 104011 | 104012 | | | |
| 18 | 2.00 | 45.0 | 14.0 | 5 | | 17.82 | | 104013 | | | | |
| 19 | 1.00 | 45.0 | 14.0 | 6 | | 18.88 | | 104017 | | | | |
| 20 | 1.00 | 45.0 | 14.0 | 6 | 6 | 19.88 | | 104021 | 104022 | | | 104781 |
| 20 | 1.50 | 45.0 | 14.0 | 6 | 6 | 19.85 | | 104024 | 104025 | | | 104782 |
| 20 | 2.00 | 45.0 | 14.0 | 6 | | 19.82 | | 104026 | * 104027 | | | |
| 21 | 1.00 | 45.0 | 14.0 | 7 | | 20.88 | | 111386 | | | | |
| 22 | 1.00 | 55.0 | 16.0 | 6 | | 21.88 | | 104030 | | | | |
| 22 | 1.50 | 55.0 | 16.0 | 5 | 6 | 21.85 | | 104032 | | | | |
| 22 | 2.00 | 55.0 | 16.0 | 5 | | 21.82 | | 104034 | | | | |
| 23 | 1.00 | 55.0 | 16.0 | 6 | | 22.88 | | 121704 | | | | |
| 24 | 1.00 | 55.0 | 16.0 | 6 | | 23.88 | | 104037 | | | | |
| 24 | 1.50 | 55.0 | 16.0 | 6 | 6 | 23.85 | | 104039 | | | | |
| 24 | 2.00 | 55.0 | 16.0 | 6 | | 23.82 | | 104041 | 104042 | | | |
| 25 | 1.00 | 55.0 | 16.0 | 6 | | 24.88 | | 104045 | | | | |
| 25 | 1.50 | 55.0 | 16.0 | 6 | | 24.85 | | 104046 | | | | |
| 26 | 1.00 | 55.0 | 16.0 | 7 | | 25.88 | | 104049 | | | | |
| 26 | 1.50 | 55.0 | 16.0 | 6 | | 25.85 | | 104050 | | | | |
| 26 | 2.00 | 55.0 | 16.0 | 6 | | 25.82 | | 104052 | | | | |
| 27 | 1.00 | 65.0 | 18.0 | 6 | | 26.88 | | 104053 | | | | |
| 27 | 1.50 | 65.0 | 18.0 | 6 | | 26.85 | | 104054 | * 104055 | | | |
| 27 | 2.00 | 65.0 | 18.0 | 6 | | 26.82 | | 104056 | | | | |







| | | | | | | | N5120 | N5120 LH | | | | | | |
|--|---------|-------------|-------------|----------|-----------------------------|----------|---|----------|--|--|--|--|--|--|
| <p>N5120</p>       | | | | | | |   | | | | | | | |
|    | | | | | | |   | | | | | | | |
| | | | | | | |   | | | | | | | |
| $\varnothing d_1$ MF | P mm | d_2 mm | l_1 mm | \oplus | $\rightarrow 6g \leftarrow$ | ID | ID | | | | | | | |
| 28 | 1.00 | 65.0 | 18.0 | 6 | 27.88 | 104060 | | | | | | | | |
| 28 | 1.50 | 65.0 | 18.0 | 6 | 27.85 | 104061 | | | | | | | | |
| 30 | 1.00 | 65.0 | 18.0 | 7 | 29.88 | 104073 | | | | | | | | |
| 30 | 1.50 | 65.0 | 18.0 | 6 | 29.85 | 104074 | | | | | | | | |
| 30 | 2.00 | 65.0 | 18.0 | 6 | 29.82 | 104076 | | | | | | | | |
| 32 | 1.50 | 65.0 | 18.0 | 7 | 31.85 | 104082 | * 104083 | | | | | | | |
| 33 | 1.50 | 65.0 | 18.0 | 7 | 32.85 | 104085 | | | | | | | | |
| 33 | 2.00 | 65.0 | 18.0 | 7 | 32.82 | 104086 | | | | | | | | |
| 33 | 3.00 | 65.0 | 25.0 | 7 | 32.76 | * 104088 | | | | | | | | |
| 34 | 1.50 | 65.0 | 18.0 | 7 | 33.85 | 104091 | | | | | | | | |
| 35 | 1.50 | 65.0 | 18.0 | 8 | 34.85 | 104092 | * 104093 | | | | | | | |
| 36 | 1.50 | 65.0 | 18.0 | 8 | 35.85 | 104095 | * 104096 | | | | | | | |
| 36 | 2.00 | 65.0 | 18.0 | 8 | 35.82 | 104097 | | | | | | | | |
| 36 | 3.00 | 65.0 | 25.0 | 7 | 35.76 | 104099 | | | | | | | | |
| 38 | 1.50 | 75.0 | 20.0 | 7 | 37.85 | 104101 | | | | | | | | |
| 39 | 1.50 | 75.0 | 20.0 | 7 | 38.85 | 104104 | | | | | | | | |
| 40 | 1.50 | 75.0 | 20.0 | 8 | 39.85 | 104118 | * 104119 | | | | | | | |
| 40 | 2.00 | 75.0 | 20.0 | 7 | 39.82 | 104120 | | | | | | | | |
| 42 | 1.50 | 75.0 | 20.0 | 8 | 41.85 | 104122 | | | | | | | | |
| 42 | 3.00 | 75.0 | 20.0 | 8 | 41.76 | 104125 | | | | | | | | |
| 45 | 1.50 | 90.0 | 22.0 | 7 | 44.85 | 104127 | | | | | | | | |
| 45 | 2.00 | 90.0 | 22.0 | 7 | 44.82 | 104129 | | | | | | | | |
| 48 | 1.50 | 90.0 | 22.0 | 8 | 47.85 | 104133 | * 104134 | | | | | | | |
| 48 | 2.00 | 90.0 | 22.0 | 8 | 47.82 | 104135 | | | | | | | | |
| 48 | 3.00 | 90.0 | 22.0 | 7 | 47.76 | 104137 | | | | | | | | |
| 50 | 1.50 | 90.0 | 22.0 | 8 | 49.85 | 104150 | | | | | | | | |
| 60 | 2.00 | 105.0 | 22.0 | 9 | 59.82 | 104168 | | | | | | | | |

| | | | | | | |
|----------------------------------|--|--|--|--------------|--|--|
| N5110 N5120 |   |   | N5110 | N5120 | | |
| | | |  | | | |

| | | |
|---|---|---|
|  |  |  |
| |  |  |

| Ø" d ₁ UNC | P TPI | d ₂ mm | l ₁ mm | ⊕ | ⚙ →2A← | ID | ID |
|--------------------------|----------|----------------------|----------------------|---|-----------|--------|----------|
| 1 | 64 | 16.0 | 5.0 | 3 | 1.79 | 103893 | |
| 2 | 56 | 16.0 | 5.0 | 4 | 2.12 | 103894 | |
| 3 | 48 | 16.0 | 5.0 | 4 | 2.44 | 103895 | |
| 4 | 40 | 16.0 | 5.0 | 4 | 2.76 | 103896 | |
| 5 | 40 | 20.0 | 5.0 | 4 | 3.09 | | 104263 |
| 6 | 32 | 20.0 | 7.0 | 4 | 3.41 | | 104266 |
| 8 | 32 | 20.0 | 7.0 | 4 | 4.07 | | 104269 |
| 10 | 24 | 20.0 | 7.0 | 4 | 4.71 | | 104258 |
| 12 | 24 | 20.0 | 7.0 | 4 | 5.37 | | 104259 |
| 1/4 | 20 | 20.0 | 7.0 | 4 | 6.22 | | 104256 |
| 5/16 | 18 | 25.0 | 9.0 | 4 | 7.80 | | 104264 |
| 3/8 | 16 | 30.0 | 11.0 | 4 | 9.37 | | 104262 |
| 7/16 | 14 | 30.0 | 11.0 | 4 | 10.95 | | 104267 |
| 1/2 | 13 | 38.0 | 14.0 | 4 | 12.52 | | 111387 |
| 9/16 | 12 | 38.0 | 14.0 | 4 | 14.10 | | 104270 |
| 5/8 | 11 | 45.0 | 18.0 | 4 | 15.68 | | 104265 |
| 3/4 | 10 | 45.0 | 18.0 | 5 | 18.84 | | 104261 |
| 7/8 | 9 | 55.0 | 22.0 | 5 | 22.00 | | 104268 |
| 1 | 8 | 55.0 | 22.0 | 5 | 25.16 | | 104257 |
| 1 1/4 | 7 | 65.0 | 25.0 | 6 | 31.49 | | 104251 |
| 1 1/2 | 6 | 75.0 | 30.0 | 6 | 37.81 | | 104250 |
| 2 | 4.5 | 90.0 | 36.0 | 7 | 50.45 | | * 104260 |



| | | | | | | N5110 | N5120 | | |
|---|----------|----------------------|----------------------|---|-------|--|---|--|--|
| <p>N5110</p> <p>N5120</p>  | | | | | |  | | | |
| | | | | | |  |  | | |
| | | | | | |  |  | | |
| Ø" d ₁ UNF | P TPI | d ₂ mm | l ₁ mm | ⊕ | →2A← | ID | ID | | |
| 0 | 80 | 16.0 | 5.0 | 3 | 1.47 | 103897 | | | |
| 1 | 72 | 16.0 | 5.0 | 3 | 1.79 | 103898 | | | |
| 2 | 64 | 16.0 | 5.0 | 4 | 2.12 | 103899 | | | |
| 3 | 56 | 16.0 | 5.0 | 4 | 2.44 | 103900 | | | |
| 4 | 48 | 16.0 | 5.0 | 4 | 2.77 | 103901 | | | |
| 5 | 44 | 20.0 | 5.0 | 4 | 3.10 | | 104299 | | |
| 6 | 40 | 20.0 | 5.0 | 4 | 3.42 | | 104302 | | |
| 8 | 36 | 20.0 | 7.0 | 4 | 4.08 | | 104305 | | |
| 10 | 32 | 20.0 | 7.0 | 4 | 4.73 | | 104295 | | |
| 12 | 28 | 20.0 | 7.0 | 4 | 5.38 | | 104296 | | |
| 1/4 | 28 | 20.0 | 7.0 | 4 | 6.24 | | 104293 | | |
| 5/16 | 24 | 25.0 | 9.0 | 4 | 7.82 | | 104300 | | |
| 3/8 | 24 | 30.0 | 11.0 | 4 | 9.41 | | 104298 | | |
| 7/16 | 20 | 30.0 | 11.0 | 5 | 10.98 | | 104303 | | |
| 1/2 | 20 | 38.0 | 10.0 | 5 | 12.56 | | 104292 | | |
| 9/16 | 18 | 38.0 | 10.0 | 5 | 14.14 | | 104306 | | |
| 5/8 | 18 | 45.0 | 14.0 | 5 | 15.73 | | 104301 | | |
| 3/4 | 16 | 45.0 | 14.0 | 6 | 18.89 | | 104297 | | |
| 7/8 | 14 | 55.0 | 16.0 | 5 | 22.05 | | 104304 | | |
| 1 | 12 | 55.0 | 16.0 | 6 | 25.21 | | 104294 | | |
| 1 1/4 | 12 | 65.0 | 18.0 | 7 | 31.56 | | 104289 | | |
| 1 1/2 | 12 | 75.0 | 20.0 | 7 | 37.91 | | 111390 | | |

UNEF, UNS, UN












ANSI B1.1

HSS



| N5120 | | | | | | N5120 |
|---------------------------|----------|----------------------|----------------------|---|-------|----------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Ø" d ₁ UNEF | P TPI | d ₂ mm | l ₁ mm | ⊕ | →2A← | ID |
| 12 | 32 | 20.0 | 7.0 | 4 | 5.39 | 104278 |
| 1/4 | 32 | 20.0 | 7.0 | 4 | 6.25 | 104275 |
| 5/16 | 32 | 25.0 | 9.0 | 4 | 7.84 | 104283 |
| 3/8 | 32 | 30.0 | 11.0 | 4 | 9.42 | 104282 |
| 7/16 | 28 | 30.0 | 11.0 | 5 | 11.00 | 104285 |
| 1/2 | 28 | 38.0 | 10.0 | 5 | 12.59 | 104274 |
| 9/16 | 24 | 38.0 | 10.0 | 5 | 14.17 | 104287 |
| 5/8 | 24 | 45.0 | 14.0 | 5 | 15.75 | 104284 |
| 3/4 | 20 | 45.0 | 14.0 | 5 | 18.91 | 104281 |
| 13/16 | 20 | 45.0 | 14.0 | 6 | 20.50 | * 104279 |
| 7/8 | 20 | 55.0 | 16.0 | 5 | 22.09 | * 104286 |
| 1 | 20 | 55.0 | 16.0 | 6 | 25.26 | * 104276 |
| Ø" d ₁ UNS | P TPI | d ₂ mm | l ₁ mm | ⊕ | →2A← | ID |
| 1/4 | 40 | 20.0 | 5.0 | 4 | 6.26 | 104309 |
| 1/4 | 36 | 20.0 | 5.0 | 4 | 6.26 | 104308 |
| 7/16 | 24 | 30.0 | 11.0 | 5 | 10.99 | 104311 |
| 1/2 | 24 | 38.0 | 10.0 | 5 | 12.58 | 104307 |
| 1 | 14 | 55.0 | 16.0 | 6 | 25.23 | 104310 |
| Ø" d ₁ UN | P TPI | d ₂ mm | l ₁ mm | ⊕ | →2A← | ID |
| 1 1/8 | 8 | 65.0 | 25.0 | 5 | 28.33 | 104246 |
| 1 1/4 | 8 | 65.0 | 25.0 | 6 | 31.51 | 104245 |
| 1 1/2 | 8 | 75.0 | 20.0 | 7 | 37.85 | 104244 |
| 1 3/4 | 8 | 90.0 | 22.0 | 7 | 44.20 | 104247 |



| | | | | | | N5120 | N5120 LH | | |
|--|----------|----------------------|----------------------|----|-------|---|----------|---|--|
| <p>N5120</p>     | | | | | |   | | | |
|  | | | | | |   | |   | |
| Ø" d ₁ G | P TPI | d ₂ mm | l ₁ mm | ⊕ | ↔ A ↔ | ID | ID | | |
| 1/8 | 28 | 30.0 | 11.0 | 5 | 9.62 | 103926 | | | |
| 1/4 | 19 | 38.0 | 10.0 | 5 | 13.03 | 103924 | 103925 | | |
| 3/8 | 19 | 45.0 | 14.0 | 5 | 16.54 | 103935 | 103936 | | |
| 1/2 | 14 | 45.0 | 14.0 | 6 | 20.81 | 103922 | 103923 | | |
| 5/8 | 14 | 55.0 | 16.0 | 5 | 22.77 | 103938 | | | |
| 3/4 | 14 | 55.0 | 16.0 | 6 | 26.30 | 103933 | 103934 | | |
| 7/8 | 14 | 65.0 | 18.0 | 6 | 30.06 | 103940 | | | |
| 1 | 11 | 65.0 | 18.0 | 7 | 33.07 | 103928 | | | |
| 1 1/4 | 11 | 75.0 | 20.0 | 8 | 41.73 | 103918 | | | |
| 1 3/8 | 11 | 90.0 | 22.0 | 7 | 44.14 | * 103921 | | | |
| 1 1/2 | 11 | 90.0 | 22.0 | 8 | 47.62 | 103917 | | | |
| 2 | 11 | 105.0 | 22.0 | 9 | 59.43 | 103932 | | | |
| 2 1/2 | 11 | 120.0 | 22.0 | 10 | 74.97 | 103930 | | | |







G DIN ISO 228 (BSP)

Z
MS
HSSE HSS



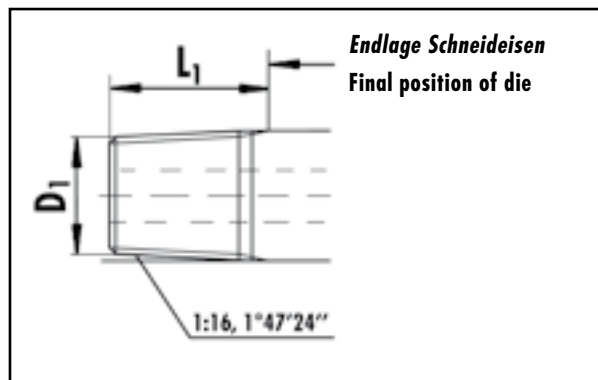
| Z5120 | | NI | | Z5120 | MS5120 | MS5120 | |
|--------------------------------|----------|----------------------|----------------------|-------|--------|--------|--------------------------|
| MS5120 | | | | | | | |
| MS5120 | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| \varnothing " d ₁ | P TPI | d ₂ mm | l ₁ mm | | | | |
| G | | | | Z | MS | → A ← | |
| 1/8 | 28 | 30.0 | 11.0 | 5 | 5 | 9.62 | 104761 * 101339 * 142831 |
| 1/4 | 19 | 38.0 | 10.0 | 5 | 5 | 13.03 | 104760 101338 * 142832 |
| 3/8 | 19 | 45.0 | 14.0 | 5 | 5 | 16.54 | 104764 101342 119716 |
| 1/2 | 14 | 45.0 | 14.0 | 6 | 6 | 20.81 | 104759 101337 119243 |
| 3/4 | 14 | 55.0 | 16.0 | 6 | 6 | 26.30 | 104763 101341 119648 |
| 1 | 11 | 65.0 | 18.0 | 8 | 7 | 33.07 | 104762 101340 135186 |
| 1 1/2 | 11 | 90.0 | 22.0 | | 8 | 47.62 | * 142830 |



| <p>N5120</p>   | <p>N5120</p>  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|-------------|-------------|----------|----|-----|----|------|------|---|--------|-----|----|------|------|---|--------|-----|----|------|------|---|--------|-----|----|------|------|---|--------|-----|----|------|------|---|--------|---|----|------|------|---|--------|---|
| | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>$\varnothing'' d_1$ R</th> <th>P TPI</th> <th>d_2 mm</th> <th>l_1 mm</th> <th>\oplus</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>1/8</td> <td>28</td> <td>30.0</td> <td>11.0</td> <td>5</td> <td>104226</td> </tr> <tr> <td>1/4</td> <td>19</td> <td>38.0</td> <td>14.0</td> <td>5</td> <td>104225</td> </tr> <tr> <td>3/8</td> <td>19</td> <td>45.0</td> <td>14.0</td> <td>5</td> <td>104230</td> </tr> <tr> <td>1/2</td> <td>14</td> <td>45.0</td> <td>18.0</td> <td>6</td> <td>104224</td> </tr> <tr> <td>3/4</td> <td>14</td> <td>55.0</td> <td>22.0</td> <td>6</td> <td>104229</td> </tr> <tr> <td>1</td> <td>11</td> <td>65.0</td> <td>25.0</td> <td>7</td> <td>104227</td> </tr> </tbody> </table> | $\varnothing'' d_1$ R | P TPI | d_2 mm | l_1 mm | \oplus | ID | 1/8 | 28 | 30.0 | 11.0 | 5 | 104226 | 1/4 | 19 | 38.0 | 14.0 | 5 | 104225 | 3/8 | 19 | 45.0 | 14.0 | 5 | 104230 | 1/2 | 14 | 45.0 | 18.0 | 6 | 104224 | 3/4 | 14 | 55.0 | 22.0 | 6 | 104229 | 1 | 11 | 65.0 | 25.0 | 7 | 104227 |   |
| $\varnothing'' d_1$ R | P TPI | d_2 mm | l_1 mm | \oplus | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/8 | 28 | 30.0 | 11.0 | 5 | 104226 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/4 | 19 | 38.0 | 14.0 | 5 | 104225 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/8 | 19 | 45.0 | 14.0 | 5 | 104230 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 14 | 45.0 | 18.0 | 6 | 104224 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 | 14 | 55.0 | 22.0 | 6 | 104229 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 11 | 65.0 | 25.0 | 7 | 104227 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Richtwerte für den Drehdurchmesser

Turning dimensions for R threads (in mm)

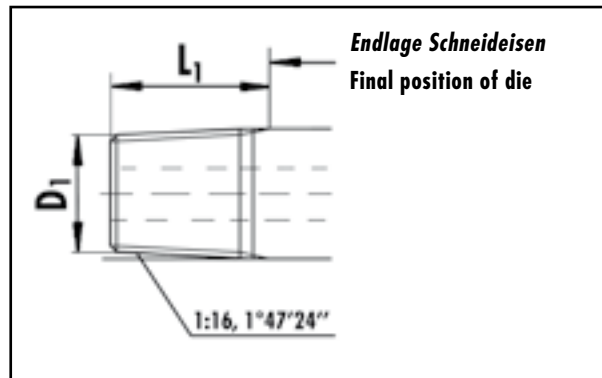


| \varnothing'' R | D_1 mini mm | D_1 maxi mm | D_1 (guide line) mm | L_1 (guide line) mm |
|----------------------|------------------|------------------|--------------------------|--------------------------|
| 1/8 | 9.422 | 9.534 | 9.48 | 8.2 |
| 1/4 | 12.700 | 12.863 | 12.78 | 12.1 |
| 3/8 | 16.181 | 16.343 | 16.26 | 12.5 |
| 1/2 | 20.330 | 20.555 | 20.44 | 16.4 |
| 3/4 | 25.735 | 25.960 | 25.85 | 17.7 |
| 1 | 32.455 | 32.743 | 32.60 | 20.9 |

| | | | | |
|---------------------|------|-------|--------|----------|
| N5120 | | | N5120 | N5120 |
| N5120 | | | NPT | NPTF |
| | | | | |
| | | | | |
| $\varnothing'' d_1$ | P | d_2 | l_1 | \oplus |
| NPT, NPTF | TPI | mm | mm | |
| 1/16 | 27 | 25.0 | 9.0 | 4 |
| 1/8 | 27 | 30.0 | 11.0 | 5 |
| 1/4 | 18 | 38.0 | 14.0 | 5 |
| 3/8 | 18 | 45.0 | 14.0 | 5 |
| 1/2 | 14 | 45.0 | 18.0 | 6 |
| 3/4 | 14 | 55.0 | 22.0 | 6 |
| 1 | 11.5 | 65.0 | 25.0 | 7 |
| 1 1/4 | 11.5 | 75.0 | 26.0 | 8 |
| | | | ID | ID |
| | | | 104194 | |
| | | | 104197 | * 104207 |
| | | | 104196 | |
| | | | 104201 | |
| | | | 104195 | * 104205 |
| | | | 104200 | |
| | | | 104198 | * 104208 |
| | | | 104193 | |

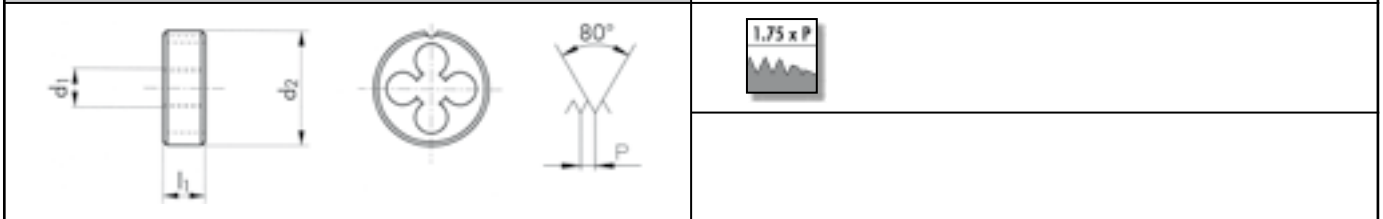
Richtwerte für den Drehdurchmesser

Turning dimensions for NPT and NPTF threads (in mm)

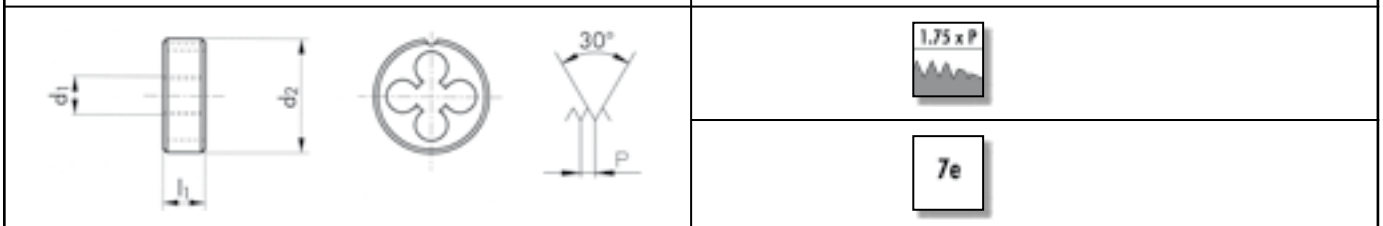


| \varnothing'' NPT | D_1 mini mm | D_1 maxi mm | D_1 (guide line) mm | L_1 (guide line) mm | \varnothing'' NPTF | D_1 mini mm | D_1 maxi mm | D_1 (guide line) mm | L_1 (guide line) mm |
|------------------------|------------------|------------------|--------------------------|--------------------------|-------------------------|------------------|------------------|--------------------------|--------------------------|
| 1/16 | 7.521 | 7.643 | 7.58 | 8.4 | 1/16 | 7.525 | 7.617 | 7.57 | 8.4 |
| 1/8 | 9.866 | 9.988 | 9.93 | 8.5 | 1/8 | 9.870 | 9.962 | 9.92 | 8.5 |
| 1/4 | 13.099 | 13.255 | 13.18 | 12.7 | 1/4 | 13.129 | 13.215 | 13.17 | 12.7 |
| 3/8 | 16.518 | 16.674 | 16.60 | 12.9 | 3/8 | 16.548 | 16.634 | 16.59 | 12.9 |
| 1/2 | 20.551 | 20.713 | 20.63 | 16.8 | 1/2 | 20.617 | 20.703 | 20.66 | 16.8 |
| 3/4 | 25.866 | 26.028 | 25.95 | 17.1 | 3/4 | 25.932 | 26.018 | 25.98 | 17.1 |
| 1 | 32.419 | 32.591 | 32.51 | 21.3 | 1 | 32.475 | 32.561 | 32.52 | 21.3 |
| 1 1/4 | 41.144 | 41.316 | 41.23 | 21.9 | | | | | |

| | | | | | | |
|-------|--|--|-------|-------|--|--|
| N5120 | | | N5120 | N5120 | | |
| N5120 | | | PG | TR | | |
















| $\varnothing d_1$ PG | P TPI | d_2 mm | l_1 mm | \oplus | | ID |
|-------------------------|----------|-------------|-------------|----------|-------|----------|
| 7 | 20 | 38.0 | 10.0 | 5 | 12.40 | 104220 |
| 9 | 18 | 38.0 | 10.0 | 5 | 15.10 | 104221 |
| 11 | 18 | 45.0 | 14.0 | 5 | 18.50 | 104212 |
| 13.5 | 18 | 45.0 | 14.0 | 6 | 20.30 | 104213 |
| 16 | 18 | 55.0 | 16.0 | 5 | 22.40 | 104214 |
| 21 | 16 | 65.0 | 18.0 | 6 | 28.15 | * 104215 |
| 29 | 16 | 65.0 | 18.0 | 8 | 36.85 | * 104216 |
| 36 | 16 | 90.0 | 22.0 | 8 | 46.85 | * 104217 |
| 42 | 16 | 90.0 | 22.0 | 10 | 53.85 | * 104218 |
| 48 | 16 | 105.0 | 22.0 | 9 | 59.15 | * 104219 |













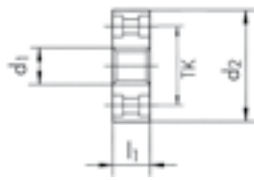










| $\varnothing d_1$ TR | P mm | d_2 mm | l_1 mm | \oplus | | ID |
|-------------------------|---------|-------------|-------------|----------|-------|----------|
| *10 | 2 | 38.0 | 14.0 | 4 | 9.91 | * 104231 |
| 12 | 3 | 38.0 | 14.0 | 4 | 11.88 | * 104232 |
| 16 | 4 | 45.0 | 18.0 | 4 | 15.85 | * 104234 |
| 26 | 5 | 65.0 | 25.0 | 5 | 25.83 | * 104239 |
| 28 | 5 | 65.0 | 25.0 | 5 | 27.83 | * 104240 |
| 32 | 6 | 65.0 | 25.0 | 6 | 31.81 | * 104242 |
| 36 | 6 | 65.0 | 25.0 | 6 | 35.81 | * 104243 |






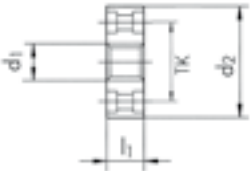






| | | | | | | N5120 | N5120 LH | | |
|--|----------|----------------------|----------------------|---|---|---|----------|--|--|
| <p>N5120  </p> <p>N5120 LH   </p> | | | | | |  | | | |
|  | | | | | |   | | | |
| | | | | | |   | | | |
| \varnothing'' W | P TPI | d ₂ mm | l ₁ mm |  |  | ID | ID | | |
| 1/8 | 40 | 20.0 | 5.0 | 4 | 3.09 | 104320 | | | |
| 5/32 | 32 | 20.0 | 7.0 | 4 | 3.88 | 104333 | | | |
| 3/16 | 24 | 20.0 | 7.0 | 4 | 4.66 | 104325 | | | |
| 1/4 | 20 | 20.0 | 7.0 | 4 | 6.24 | 104318 | | | |
| 5/16 | 18 | 25.0 | 9.0 | 4 | 7.82 | 104331 | | | |
| 3/8 | 16 | 30.0 | 11.0 | 4 | 9.40 | 104329 | | | |
| 7/16 | 14 | 30.0 | 11.0 | 4 | 10.98 | 104336 | | | |
| 1/2 | 12 | 38.0 | 14.0 | 4 | 12.56 | 104316 | | | |
| 5/8 | 11 | 45.0 | 18.0 | 4 | 15.72 | 104334 | * 104335 | | |
| 3/4 | 10 | 45.0 | 18.0 | 5 | 18.89 | 104327 | * 104328 | | |
| 7/8 | 9 | 55.0 | 22.0 | 5 | 22.10 | * 104338 | | | |
| 1 | 8 | 55.0 | 22.0 | 5 | 25.27 | 104322 | | | |
| 1 3/8 | 6 | 65.0 | 25.0 | 6 | 34.77 | * 104315 | | | |



| | | | | | | | | N5220 | N5220 | Z5220 | |
|--|---------|-------------|-------------|----------|----------|-----------------------------|-----------------------------|---|-----------------|--------|--|
| <p>N5220   </p> <p>N5220   </p> <p>Z5220   NI </p> | | | | | | | |    | | | |
|    | | | | | | | |    | | | |
| | | | | | | | |    | | | |
| $\varnothing d_1$ M | P mm | d_2 mm | l_1 mm | \oplus | TK mm | $\rightarrow 6g \leftarrow$ | $\rightarrow 6e \leftarrow$ | ID | ID $6g$ - mm | ID | |
| 1.4 | 0.30 | 16.0 | 2.6 | 4 | 12.2 | 1.36 | | 104346 | | | |
| 1.6 | 0.35 | 16.0 | 2.6 | 4 | 12.2 | 1.54 | | 104347 | | | |
| 1.7 | 0.35 | 16.0 | 2.6 | 4 | 12.2 | 1.64 | | * 104348 | | | |
| 2 | 0.40 | 16.0 | 3.5 | 4 | 12.2 | 1.93 | 1.90 | 104367 | | | |
| 2.3 | 0.40 | 16.0 | 3.5 | 4 | 12.2 | 2.23 | | 104369 | | | |
| 2.5 | 0.45 | 16.0 | 3.5 | 4 | 12.2 | 2.43 | 2.40 | 104371 | * 104370 0.030 | 104803 | |
| 2.6 | 0.45 | 16.0 | 3.5 | 4 | 12.2 | 2.53 | | 104372 | | | |
| 3 | 0.50 | 16.0 | 3.5 | 4 | 12.2 | 2.92 | 2.90 | 104375 | 104374 0.030 | 104804 | |
| 3.5 | 0.60 | 16.0 | 4.0 | 4 | 12.2 | 3.41 | | 104376 | | | |
| 4 | 0.70 | 16.0 | 5.0 | 4 | 12.2 | 3.91 | 3.87 | 104380 | 104379 0.035 | 104805 | |
| 5 | 0.80 | 20.0 | 7.0 | 4 | 15.0 | 4.90 | 4.87 | 104384 | 104383 0.035 | 104806 | |
| 6 | 1.00 | 20.0 | 7.0 | 4 | 15.0 | 5.88 | 5.85 | 104388 | 104387 0.035 | 104807 | |
| 7 | 1.00 | 25.0 | 7.0 | 4 | 19.0 | 6.88 | | * 104392 | | | |
| 8 | 1.25 | 25.0 | 9.0 | 4 | 19.0 | 7.87 | 7.83 | 104397 | 104396 0.035 | 104808 | |
| 10 | 1.50 | 30.0 | 11.0 | 6 | 23.0 | 9.85 | 9.82 | 104354 | 104353 0.035 | | |
| 12 | 1.75 | 30.0 | 11.0 | 6 | 23.0 | 11.83 | | 104358 | | | |

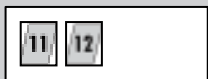

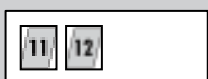




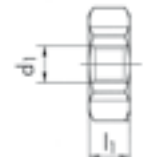


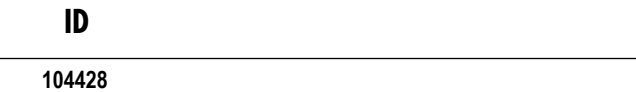
≤ M1.4

6h

| N5220    | | | | | | | N5220 | | | |
|--|---------|-------------|-------------|---|----------|---|---|--|--|--|
|    | | | | | | |  | | | |
| | | | | | | |  | | | |
| $\varnothing d_1$ MF | P mm | d_2 mm | l_1 mm |  | TK mm |  | ID | | | |
| 3 | 0.35 | 16.0 | 3.0 | 4 | 12.2 | 2.94 | 104373 | | | |
| 4 | 0.35 | 16.0 | 3.5 | 4 | 12.2 | 3.94 | * 104377 | | | |
| 4 | 0.50 | 16.0 | 4.0 | 4 | 12.2 | 3.93 | 104378 | | | |
| 5 | 0.50 | 20.0 | 5.0 | 4 | 15.0 | 4.93 | 104382 | | | |
| 6 | 0.50 | 20.0 | 5.0 | 4 | 15.0 | 5.93 | 104385 | | | |
| 6 | 0.75 | 20.0 | 7.0 | 4 | 15.0 | 5.90 | 104386 | | | |
| 7 | 0.50 | 25.0 | 7.0 | 4 | 19.0 | 6.93 | * 104389 | | | |
| 7 | 0.75 | 25.0 | 7.0 | 4 | 19.0 | 6.90 | * 104390 | | | |
| 8 | 0.75 | 25.0 | 7.0 | 4 | 19.0 | 7.90 | * 104394 | | | |
| 8 | 1.00 | 25.0 | 7.0 | 4 | 19.0 | 7.88 | * 104395 | | | |
| 10 | 0.75 | 30.0 | 7.0 | 6 | 23.0 | 9.90 | * 104350 | | | |
| 10 | 1.00 | 30.0 | 7.0 | 6 | 23.0 | 9.88 | * 104351 | | | |
| 10 | 1.25 | 25.0 | 9.0 | 6 | 19.0 | 9.86 | * 104352 | | | |
| 12 | 1.00 | 30.0 | 7.0 | 6 | 23.0 | 11.88 | * 104355 | | | |
| 12 | 1.50 | 30.0 | 11.0 | 6 | 23.0 | 11.85 | * 104356 | | | |
| 14 | 1.00 | 35.0 | 10.0 | 6 | 27.5 | 13.88 | * 104359 | | | |
| 14 | 1.50 | 35.0 | 10.0 | 6 | 27.5 | 13.85 | * 104360 | | | |



| N5310 | | | | | | N5310 | | | | | | |
|-------------------------|---------|---------|-------------|---|-------|----------|--|--|--|--|--|--|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| $\varnothing d_1$ M | P mm | s mm | l_1 mm | | | ID | | | | | | |
| 3 | 0.50 | 18.0 | 5.0 | 3 | 2.92 | 104464 | | | | | | |
| 3.5 | 0.60 | 18.0 | 5.0 | 3 | 3.41 | * 104465 | | | | | | |
| 4 | 0.70 | 18.0 | 5.0 | 3 | 3.91 | 104478 | | | | | | |
| 4.5 | 0.75 | 18.0 | 7.0 | 3 | 4.41 | * 104479 | | | | | | |
| 5 | 0.80 | 18.0 | 7.0 | 4 | 4.90 | 104487 | | | | | | |
| 6 | 1.00 | 18.0 | 7.0 | 4 | 5.88 | 104493 | | | | | | |
| 7 | 1.00 | 21.0 | 9.0 | 4 | 6.88 | * 104497 | | | | | | |
| 8 | 1.25 | 21.0 | 9.0 | 4 | 7.87 | 104502 | | | | | | |
| 9 | 1.25 | 21.0 | 9.0 | 5 | 8.87 | * 104503 | | | | | | |
| 10 | 1.50 | 27.0 | 11.0 | 4 | 9.85 | 104438 | | | | | | |
| 12 | 1.75 | 36.0 | 14.0 | 4 | 11.83 | 104443 | | | | | | |
| 14 | 2.00 | 36.0 | 14.0 | 4 | 13.82 | 104445 | | | | | | |
| 16 | 2.00 | 41.0 | 18.0 | 4 | 15.82 | 104447 | | | | | | |
| 18 | 2.50 | 41.0 | 18.0 | 5 | 17.79 | 104450 | | | | | | |
| 20 | 2.50 | 41.0 | 18.0 | 5 | 19.79 | 104453 | | | | | | |
| 22 | 2.50 | 50.0 | 22.0 | 5 | 21.79 | 104456 | | | | | | |
| 24 | 3.00 | 50.0 | 22.0 | 5 | 23.76 | 104459 | | | | | | |
| 27 | 3.00 | 60.0 | 25.0 | 5 | 26.76 | * 104463 | | | | | | |
| 30 | 3.50 | 60.0 | 25.0 | 5 | 29.73 | 104468 | | | | | | |
| 52 | 5.00 | 85.0 | 36.0 | 8 | 51.66 | * 104489 | | | | | | |
| $\varnothing d_1$ MF | P mm | s mm | l_1 mm | | | ID | | | | | | |
| 6 | 0.75 | 18.0 | 7.0 | 4 | 5.90 | * 104492 | | | | | | |
| 8 | 0.75 | 21.0 | 9.0 | 4 | 7.90 | * 104500 | | | | | | |
| 8 | 1.00 | 21.0 | 9.0 | 4 | 7.88 | * 104501 | | | | | | |
| 12 | 1.00 | 36.0 | 10.0 | 4 | 11.88 | * 104440 | | | | | | |
| 20 | 1.50 | 41.0 | 14.0 | 6 | 19.85 | * 104451 | | | | | | |
| 27 | 1.50 | 60.0 | 18.0 | 6 | 26.85 | * 104461 | | | | | | |
| 27 | 2.00 | 60.0 | 18.0 | 6 | 26.82 | * 104462 | | | | | | |
| 30 | 2.00 | 60.0 | 18.0 | 6 | 29.82 | * 104467 | | | | | | |
| 33 | 1.50 | 60.0 | 18.0 | 7 | 32.85 | * 104469 | | | | | | |
| 33 | 2.00 | 60.0 | 18.0 | 7 | 32.82 | * 104470 | | | | | | |
| 38 | 1.50 | 70.0 | 20.0 | 8 | 37.85 | * 104475 | | | | | | |
| 39 | 1.50 | 70.0 | 20.0 | 8 | 38.85 | * 104476 | | | | | | |
| 40 | 1.50 | 70.0 | 20.0 | 8 | 39.85 | * 104480 | | | | | | |
| 64 | 2.00 | 115.0 | 22.0 | 8 | 63.82 | * 104495 | | | | | | |

| N5310 | | | | | | N5310 | N5310 | N5420 |
|---|----------|-------------|-------------|----------|--------------------------|--|-------|-------|
|  | | | | | |  | | |
|  | | | | | |  | | |
|   | | | | | |  | | |
|    | | | | | |  | | |
| $\varnothing'' d_1$ G | P TPI | s mm | l_1 mm | \oplus | $\rightarrow \leftarrow$ | ID | | |
| 1/4 | 19 | 36.0 | 10.0 | 5 | 13.03 | 104428 | | |
| 3/8 | 19 | 41.0 | 14.0 | 5 | 16.54 | 104433 | | |
| 1/2 | 14 | 41.0 | 14.0 | 6 | 20.81 | 104427 | | |
| 5/8 | 14 | 50.0 | 16.0 | 6 | 22.77 | * 104434 | | |
| 3/4 | 14 | 50.0 | 16.0 | 6 | 26.30 | 104432 | | |
| 7/8 | 14 | 60.0 | 18.0 | 6 | 30.06 | * 104435 | | |
| 1 | 11 | 60.0 | 18.0 | 7 | 33.07 | 104430 | | |
| 1 3/8 | 11 | 85.0 | 22.0 | 7 | 44.14 | * 104426 | | |
| 1 3/4 | 11 | 100.0 | 22.0 | 8 | 53.57 | * 104425 | | |
| $\varnothing'' d_1$ W | P TPI | s mm | l_1 mm | \oplus | $\rightarrow \leftarrow$ | ID | | |
| 1/8 | 40 | 18.0 | 5.0 | 3 | 3.09 | * 104512 | | |
| 3/16 | 24 | 18.0 | 7.0 | 3 | 4.66 | * 104515 | | |
| 7/16 | 14 | 27.0 | 11.0 | 5 | 10.98 | * 104520 | | |
| 9/16 | 12 | 36.0 | 14.0 | 4 | 14.14 | * 104522 | | |
| 7/8 | 9 | 50.0 | 22.0 | 5 | 22.10 | * 104521 | | |
| 1 3/8 | 6 | 60.0 | 25.0 | 6 | 34.77 | * 104508 | | |
| 1 1/2 | 6 | 70.0 | 30.0 | 6 | 37.95 | * 104504 | | |
| 1 3/4 | 5 | 85.0 | 36.0 | 6 | 44.28 | * 104507 | | |
| 2 | 4.5 | 85.0 | 36.0 | 7 | 50.63 | * 104514 | | |
| $\varnothing d_1$ M | P mm | d_2 mm | l_1 mm | \oplus | $\rightarrow \leftarrow$ | ID | | |
| 2.5 | 0.45 | 16.0 | 8.0 | 4 | 2.43 | * 104527 | | |
| 3.5 | 0.60 | 16.0 | 9.5 | 4 | 3.41 | * 104530 | | |
| 4 | 0.70 | 16.0 | 9.5 | 4 | 3.90 | * 104531 | | |
| 8 | 1.25 | 25.0 | 14.0 | 5 | 7.86 | * 104535 | | |

Inhaltsverzeichnis - Gewindelehrdorne und Gewindelehrringe









Directory - Screw thread plug and ring gauges









| Merkmale Characteristics | |  |  |  | |  |  |  |
|---|---------------------|---|---|---|--|---|---|---|
| | |  |  |  | |  |  |  |
| | | D5701-1 | D5701-2 | D5703 | | D5720 | D5722 | D5725 |
| M 6H / 6g | ISO DIN 13 | 266 | 266 | 266 | | | | |
| M 6G / 6e | ISO DIN 13 | | | 266 | | | | |
| M 6H / 6g LH | ISO DIN 13 | | | 266 | | | | |
| MF 6H / 6g | ISO DIN 13 | 268-269 | 269 | 268-269 | | | | |
| MF 6G / 6e | ISO DIN 13 | | | 268 | | | | |
| MF 6H / 6g LH | ISO DIN 13 | | | 268 | | | | |
| UNC | ANSI B1.1 | 272 | | 272 | | | | |
| UNF | ANSI B1.1 | 273 | | 273 | | | | |
| UNEF | ANSI B1.1 | | | 273 | | | | |
| NPT | ANSI B1.20.1 | | | | | 275 | | |
| NPTF | ANSI B1.20.3 | | | | | 275 | | |
| G (BSP) | DIN ISO 228 | 274 | 274 | 274 | | | | |
| PG | DIN 40430 | | | | | | | 274 |
| EG M | ISO DIN 8140 | | | 276 | | | | |
| EG UNC | NASM 33537 | | | 276 | | | | |
| EG UNF | NASM 33537 | | | 276 | | | | |

| D5704 | D5714 | D5721 | D5723 |
|--------------|--------------|--------------|--------------|
| 267 | 267 | | |
| 267 | 267 | | |
| 267 | | | |
| | | | |
| 270-271 | 270-271 | | |
| | | | |
| 270 | | | |
| | | | |
| 272 | 272 | | |
| 273 | 273 | | |
| 273 | 273 | | |
| | | | |
| | | 275 | |
| | | 275 | |
| | | | |
| 274 | 274 | | |
| 274 | | | |
| | | | |
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| | | | |
| | | | |







Piktogramme - Pictographs







- "Gut"
"Go"
- "Ausschuss"
"No-go"
- "Gut / Ausschuss"
"Go" / "No-go"
- Toleranz 6H, "Gut"
Tolerance 6H, "Go"
- Toleranz 6G, "Gut" / "Ausschuss"
Tolerance 6G, "Go" / "No-go"
- Toleranz 6g, "Ausschuss"
Tolerance 6g, "No-go"
- Linksgewinde
Left hand thread

| | | D5701-1 | D5701-2 | D5703 | D5703 LH | D5703 | |
|--|---------|--|---|---|---|---|--|
| D5701-1 M1 - M1.4 =  D5703 M1 - M1.4 =  | |  | | | | | |
| | |  |  |  |  LH |  | |
| $\varnothing d_1$ M | P mm | ID | ID | ID | ID | ID | |
| 1 | 0.25 | | | 100242 | | | |
| 1.1 | 0.25 | | | 100243 | | | |
| 1.2 | 0.25 | | | 100244 | | | |
| 1.4 | 0.30 | | | 100245 | | | |
| 1.6 | 0.35 | | | 100246 | * 110168 | | |
| 1.7 | 0.35 | | | 100247 | | | |
| 1.8 | 0.35 | | | 100248 | * 110169 | | |
| 2 | 0.40 | | | 100278 | 105159 | 104982 | |
| 2.2 | 0.45 | | | 100280 | | | |
| 2.3 | 0.40 | | | 100281 | | | |
| 2.5 | 0.45 | | | 100283 | 105160 | 104979 | |
| 2.6 | 0.45 | * 100064 | | 100285 | | | |
| 3 | 0.50 | | | 100310 | 104964 | 104976 | |
| 3.5 | 0.60 | | | 100312 | | 104977 | |
| 4 | 0.70 | | | 100333 | 104966 | 104978 | |
| 4.5 | 0.75 | * 100114 | | | | | |
| 5 | 0.80 | | | 100348 | 104967 | 104980 | |
| 6 | 1.00 | | | 100363 | 104968 | 104981 | |
| 7 | 1.00 | | | 100369 | * 110186 | | |
| 8 | 1.25 | | | 100373 | 104969 | 104983 | |
| 9 | 1.25 | | | 100375 | | | |
| 10 | 1.50 | | | 100253 | 104970 | 104984 | |
| 11 | 1.50 | | | * 100256 | | | |
| 12 | 1.75 | | | 100261 | 104971 | 104985 | |
| 14 | 2.00 | * 100045 | | 100266 | | 104986 | |
| 16 | 2.00 | | | 100271 | 104973 | 104987 | |
| 18 | 2.50 | * 100055 | | 100276 | | * 104988 | |
| 20 | 2.50 | * 100068 | | 100289 | 104975 | 104989 | |
| 22 | 2.50 | * 100072 | | 100293 | * 110178 | | |
| 24 | 3.00 | * 100076 | | 100297 | 110179 | | |
| 27 | 3.00 | | | 100305 | * 110180 | | |
| 30 | 3.50 | | | 100316 | | | |
| 33 | 3.50 | * 100101 | | 100322 | | | |
| 36 | 4.00 | * 100107 | | 100328 | | | |
| 39 | 4.00 | * 100109 | | 100330 | | | |
| 42 | 4.50 | 100119 | 142843 | | | | |
| 45 | 4.50 | 100122 | 142844 | | | | |
| 48 | 5.00 | 100125 | 142845 | | | | |
| 52 | 5.00 | 100132 | 142846 | | | | |
| 56 | 5.50 | 100137 | 142847 | | | | |



| | | D5704 | D5704 LH | D5704 | D5714 | D5714 | |
|--|---------|--|--|---|--|---|--|
| D5704 M1 - M1.4 =  D5714 M1 - M1.4 =  | |  | | | | | |
| | |  |  LH |  |  |  | |
| Ø d ₁ M | P mm | ID | ID | ID | ID | ID | |
| 1 | 0.25 | 100480 | | | 110419 | | |
| 1.2 | 0.25 | 100481 | | | 110420 | | |
| 1.4 | 0.30 | 100482 | | | 110421 | | |
| 1.6 | 0.35 | 100483 | | | 110422 | | |
| 1.7 | 0.35 | 100484 | | | 111439 | | |
| 1.8 | 0.35 | 100485 | | | 110423 | | |
| 2 | 0.40 | 100515 | 105006 | * 104997 | 100734 | * 142833 | |
| 2.2 | 0.45 | 100517 | | | 100735 | | |
| 2.3 | 0.40 | 100518 | | | 100736 | | |
| 2.5 | 0.45 | 100520 | | * 104991 | 100737 | * 142834 | |
| 2.6 | 0.45 | 100522 | | | 100738 | | |
| 3 | 0.50 | 100547 | 105001 | * 104990 | 100763 | * 142835 | |
| 3.5 | 0.60 | 100549 | 110302 | * 110301 | 100765 | * 142836 | |
| 4 | 0.70 | 100570 | 105003 | * 104992 | 100774 | * 142837 | |
| 5 | 0.80 | 100585 | 105004 | * 104993 | 100778 | * 143406 | |
| 6 | 1.00 | 100600 | 105005 | * 104994 | 100781 | * 135556 | |
| 7 | 1.00 | 100605 | * 126560 | * 104995 | 100783 | * 142840 | |
| 8 | 1.25 | 100611 | 105007 | * 104996 | 100786 | * 142841 | |
| 9 | 1.25 | 100610 | | | 100788 | | |
| 10 | 1.50 | 100490 | 105008 | * 104998 | 100711 | * 142842 | |
| 11 | 1.50 | * 100493 | | | * 100713 | | |
| 12 | 1.75 | 100498 | 105009 | | 100718 | | |
| 14 | 2.00 | 100503 | 105010 | | 100723 | | |
| 16 | 2.00 | 100508 | 105011 | * 105000 | 100728 | | |
| 18 | 2.50 | 100513 | 105012 | | 100733 | | |
| 20 | 2.50 | 100526 | 105013 | | 100742 | | |
| 22 | 2.50 | 100530 | 110298 | | 100746 | | |
| 24 | 3.00 | 100534 | | | 100750 | | |
| 27 | 3.00 | 100542 | | | 100758 | | |
| 30 | 3.50 | 100553 | | | 100769 | | |
| 33 | 3.50 | * 100559 | | | * 100770 | | |
| 36 | 4.00 | | * 110305 | | | | |
| 39 | 4.00 | | | | * 110440 | | |
| 42 | 4.50 | * 100577 | | | | | |
| 45 | 4.50 | * 100580 | | | * 110448 | | |
| 48 | 5.00 | | | | * 110451 | | |
| 52 | 5.00 | * 100590 | | | * 110456 | | |
| 56 | 5.50 | * 100595 | | | * 110461 | | |





| | | D5701-1 | D5703 | D5703 LH | D5703 | | |
|-------------------------|---------|--|---|---|---|--|--|
| | |  | | | | | |
| | |  |  |   |  | | |
| $\varnothing d_1$ MF | P mm | ID | ID | ID | ID | | |
| 2.5 | 0.35 | | 100282 | | | | |
| 3 | 0.35 | | 100309 | | | | |
| 4 | 0.35 | | 100331 | | | | |
| 4 | 0.50 | | 100332 | | | | |
| 4.5 | 0.50 | | * 100334 | | | | |
| 5 | 0.50 | | 100347 | 105016 | 105045 | | |
| 6 | 0.50 | * 100140 | 100361 | 110184 | | | |
| 6 | 0.75 | | 100362 | | 105046 | | |
| 7 | 0.50 | | 100367 | | | | |
| 7 | 0.75 | * 100147 | 100368 | | | | |
| 8 | 0.50 | * 100149 | 100370 | | | | |
| 8 | 0.75 | | 100371 | 105018 | 105047 | | |
| 8 | 1.00 | * 100151 | 100372 | 105019 | 105048 | | |
| 9 | 1.00 | | 100374 | | | | |
| 10 | 0.50 | | 100249 | | | | |
| 10 | 0.75 | | 100250 | | | | |
| 10 | 1.00 | | 100251 | 105020 | 105049 | | |
| 10 | 1.25 | * 100031 | 100252 | | | | |
| 11 | 0.75 | * 100033 | | | | | |
| 11 | 1.00 | * 100034 | 100255 | | | | |
| 12 | 0.75 | * 100036 | 100257 | | | | |
| 12 | 1.00 | | 100258 | 105021 | 105050 | | |
| 12 | 1.25 | | 100259 | | | | |
| 12 | 1.50 | * 100039 | 100260 | 105022 | | | |
| 14 | 1.00 | | 100263 | 110171 | | | |
| 14 | 1.25 | | 100264 | | | | |
| 14 | 1.50 | * 100044 | 100265 | 105023 | 105052 | | |
| 15 | 1.00 | * 100046 | 100267 | | | | |
| 15 | 1.50 | | 100268 | | | | |
| 16 | 1.00 | | 100269 | 110172 | | | |
| 16 | 1.50 | * 100049 | 100270 | 105024 | 105053 | | |
| 17 | 1.00 | | 100272 | | | | |
| 18 | 1.00 | | 100273 | | | | |
| 18 | 1.50 | * 100053 | 100274 | 105025 | 105054 | | |
| 18 | 2.00 | * 100054 | 100275 | | | | |
| 20 | 1.00 | * 100065 | 100286 | | | | |
| 20 | 1.50 | | 100287 | 105026 | | | |
| 20 | 2.00 | * 100067 | 100288 | | * 110176 | | |
| 22 | 1.00 | | 100290 | | | | |
| 22 | 1.50 | | 100291 | 110177 | | | |
| 22 | 2.00 | | 100292 | | | | |
| 24 | 1.00 | | 100294 | | | | |
| 24 | 1.50 | | 100295 | | | | |
| 24 | 2.00 | | 100296 | | | | |

| | | D5701-1 | D5701-2 | D5703 | | | |
|-------------------------|---------|---|---|---|--|--|--|
| | |  |  |  | | | |
| | |  |  |  | | | |
| $\varnothing d_1$ MF | P mm | ID | ID | ID | | | |
| 25 | 1.00 | * 100077 | | 100298 | | | |
| 25 | 1.50 | | | 100299 | | | |
| 25 | 2.00 | | | 100300 | | | |
| 26 | 1.00 | | | 100301 | | | |
| 26 | 1.50 | * 100081 | | 100302 | | | |
| 27 | 1.50 | * 100082 | | 100303 | | | |
| 27 | 2.00 | * 100083 | | 100304 | | | |
| 28 | 1.00 | | | 100306 | | | |
| 28 | 1.50 | * 100086 | | 100307 | | | |
| 28 | 2.00 | * 100087 | | 100308 | | | |
| 30 | 1.00 | * 100092 | | 100313 | | | |
| 30 | 1.50 | | | 100314 | | | |
| 30 | 2.00 | | | 100315 | | | |
| 32 | 1.00 | | | 100317 | | | |
| 32 | 1.50 | * 100097 | | 100318 | | | |
| 32 | 2.00 | | | 100319 | | | |
| 33 | 1.50 | | | 100320 | | | |
| 33 | 2.00 | * 100100 | | 100321 | | | |
| 35 | 1.50 | * 100102 | | 100323 | | | |
| 36 | 1.50 | * 100104 | | 100325 | | | |
| 36 | 2.00 | | | 100326 | | | |
| 36 | 3.00 | | | 100327 | | | |
| 38 | 1.50 | * 100108 | | 100329 | | | |
| 40 | 1.50 | | | 100336 | | | |
| 40 | 2.00 | | | 100337 | | | |
| 42 | 1.50 | 100117 | 142848 | | | | |
| 42 | 2.00 | 100118 | 142849 | | | | |
| 45 | 1.50 | 100120 | 110127 | | | | |
| 45 | 2.00 | 100121 | 142851 | | | | |
| 48 | 1.50 | 100123 | 123180 | | | | |
| 48 | 2.00 | 100124 | 142853 | | | | |
| 50 | 1.50 | 100128 | 142854 | | | | |
| 50 | 2.00 | 100129 | 142855 | | | | |
| 52 | 1.50 | 100130 | 123428 | | | | |
| 52 | 2.00 | 100131 | 142857 | | | | |
| 55 | 1.50 | 100133 | 123468 | | | | |
| 55 | 2.00 | 100134 | 142859 | | | | |
| 56 | 1.50 | 100135 | 142860 | | | | |
| 56 | 2.00 | 100136 | 142861 | | | | |
| 58 | 1.50 | 100138 | 142862 | | | | |
| 58 | 2.00 | 100139 | 142863 | | | | |
| 60 | 1.50 | 100143 | 142864 | | | | |
| 60 | 2.00 | 100144 | 142865 | | | | |











| | | D5704 | D5704 LH | D5714 | | | |
|-------------------------|---------|---|----------|--------|--|--|--|
| | |  | | | | | |
| | |  | | | | | |
| $\varnothing d_1$ MF | P mm | ID | ID | ID | | | |
| 2.5 | 0.35 | 100519 | | 110427 | | | |
| 3 | 0.35 | 100546 | | 100762 | | | |
| 3.5 | 0.35 | 100548 | | 100764 | | | |
| 4 | 0.35 | 100568 | | 100772 | | | |
| 4 | 0.50 | 100569 | | 100773 | | | |
| 4.5 | 0.50 | 100571 | | 100775 | | | |
| 5 | 0.50 | 100584 | 105057 | 100777 | | | |
| 6 | 0.50 | 100598 | 110307 | 100779 | | | |
| 6 | 0.75 | 100599 | 105058 | 100780 | | | |
| 7 | 0.50 | 100603 | | 110467 | | | |
| 7 | 0.75 | 100604 | | 100782 | | | |
| 8 | 0.50 | 100606 | | | | | |
| 8 | 0.75 | 100607 | * 105059 | 100784 | | | |
| 8 | 1.00 | 100608 | 105060 | 100785 | | | |
| 9 | 1.00 | 100609 | | 100787 | | | |
| 10 | 0.50 | 100486 | | 100707 | | | |
| 10 | 0.75 | 100487 | | 100708 | | | |
| 10 | 1.00 | 100488 | 105061 | 100709 | | | |
| 10 | 1.25 | 100489 | | 100710 | | | |
| 11 | 1.00 | 100492 | | 100712 | | | |
| 12 | 0.75 | 100494 | | 100714 | | | |
| 12 | 1.00 | 100495 | 105062 | 100715 | | | |
| 12 | 1.25 | 100496 | | 100716 | | | |
| 12 | 1.50 | 100497 | 105063 | 100717 | | | |
| 13 | 1.00 | 100499 | | 100719 | | | |
| 14 | 1.00 | 100500 | 110290 | 100720 | | | |
| 14 | 1.25 | 100501 | | 100721 | | | |
| 14 | 1.50 | 100502 | 105064 | 100722 | | | |
| 15 | 1.00 | 100504 | | 100724 | | | |
| 15 | 1.50 | 100505 | | 100725 | | | |
| 16 | 1.00 | 100506 | 110292 | 100726 | | | |
| 16 | 1.50 | 100507 | 105065 | 100727 | | | |
| 17 | 1.00 | 100509 | | 100729 | | | |
| 18 | 1.00 | 100510 | | 100730 | | | |
| 18 | 1.50 | 100511 | 105066 | 100731 | | | |
| 20 | 1.00 | 100523 | 110295 | 100739 | | | |
| 20 | 1.50 | 100524 | 105067 | 100740 | | | |
| 20 | 2.00 | 100525 | | 100741 | | | |
| 22 | 1.00 | 100527 | | 100743 | | | |
| 22 | 1.50 | 100528 | | 100744 | | | |
| 22 | 2.00 | 100529 | | 100745 | | | |
| 24 | 1.00 | 100531 | | 100747 | | | |
| 24 | 1.50 | 100532 | | 100748 | | | |
| 24 | 2.00 | 100533 | | | | | |

| | | D5704 | D5714 | | | | |
|------------------------|---------|---|----------|--|--|--|--|
| | |  | | | | | |
| | |  | | | | | |
| Ø d ₁ MF | P mm | ID | ID | | | | |
| 25 | 1.00 | 100535 | | | | | |
| 25 | 1.50 | 100536 | | | | | |
| 26 | 1.00 | 100538 | * 100754 | | | | |
| 26 | 1.50 | 100539 | * 100755 | | | | |
| 27 | 1.50 | 100540 | * 100756 | | | | |
| 27 | 2.00 | 100541 | * 100757 | | | | |
| 28 | 1.00 | 100543 | | | | | |
| 28 | 1.50 | 100544 | * 100760 | | | | |
| 30 | 1.00 | 100550 | | | | | |
| 30 | 1.50 | 100551 | | | | | |
| 30 | 2.00 | 100552 | * 100768 | | | | |
| 32 | 1.00 | 100554 | | | | | |
| 32 | 1.50 | 100555 | | | | | |
| 32 | 2.00 | 100556 | * 110431 | | | | |
| 33 | 1.50 | 100557 | * 110432 | | | | |
| 33 | 2.00 | 100558 | * 110433 | | | | |
| 35 | 1.50 | 100560 | | | | | |
| 36 | 1.50 | 100562 | | | | | |
| 36 | 2.00 | 100563 | | | | | |
| 36 | 3.00 | 100564 | | | | | |
| 38 | 1.50 | 100566 | * 110439 | | | | |
| 40 | 1.50 | 100573 | * 110441 | | | | |
| 42 | 1.50 | 100575 | | | | | |
| 42 | 2.00 | 100576 | | | | | |
| 45 | 1.50 | 100578 | | | | | |
| 45 | 2.00 | 100579 | * 110447 | | | | |
| 48 | 1.50 | 100581 | * 110449 | | | | |
| 48 | 2.00 | 100582 | | | | | |
| 50 | 1.50 | 100586 | * 110452 | | | | |
| 50 | 2.00 | 100587 | * 110453 | | | | |
| 52 | 1.50 | | * 110454 | | | | |
| 52 | 2.00 | 100589 | | | | | |
| 55 | 1.50 | 100591 | | | | | |
| 55 | 2.00 | 100592 | * 110458 | | | | |
| 56 | 1.50 | 100593 | * 110459 | | | | |
| 56 | 2.00 | 100594 | * 110460 | | | | |
| 58 | 1.50 | 100596 | | | | | |
| 58 | 2.00 | 100597 | * 110463 | | | | |
| 60 | 1.50 | 100601 | * 110464 | | | | |
| 60 | 2.00 | 105014 | | | | | |











UNC













ANSI B1.1
ANSI B1.2

| | | D5701-1 | D5703 | D5704 | D5714 | | |
|--------------------------|----------|---|---|---|---|--|--|
| | |  |  |  |  | | |
| | |  |  |  |  | | |
| Ø" d ₁ UNC | P TPI | ID | ID | ID | ID | | |
| 1 | 64 | | 100408 | 110347 | 110473 | | |
| 2 | 56 | * 110076 | 100414 | 110353 | 110479 | | |
| 3 | 48 | * 110077 | 100416 | | * 110480 | | |
| 4 | 40 | * 110080 | 110224 | 110357 | 110483 | | |
| 5 | 40 | | 100420 | * 110358 | * 110484 | | |
| 6 | 32 | * 110084 | 100423 | 110361 | 110487 | | |
| 8 | 32 | * 110087 | 100426 | 110364 | 110490 | | |
| 10 | 24 | * 110074 | 100412 | 110351 | 110477 | | |
| 12 | 24 | | 100413 | | | | |
| 1/4 | 20 | | 100410 | 110349 | 110475 | | |
| 5/16 | 18 | * 110082 | 100421 | 110359 | 110485 | | |
| 3/8 | 16 | * 110079 | 100418 | 110356 | 110482 | | |
| 7/16 | 14 | * 110085 | 100424 | 110362 | 110488 | | |
| 1/2 | 13 | * 110071 | 100409 | 110348 | 110474 | | |
| 9/16 | 12 | | 100427 | 110365 | * 110491 | | |
| 5/8 | 11 | * 110083 | 100422 | 110360 | | | |
| 3/4 | 10 | * 110078 | 100417 | 110355 | * 110481 | | |
| 7/8 | 9 | | 100425 | 110363 | * 110489 | | |
| 1 | 8 | * 110073 | 100411 | 110350 | * 110476 | | |
| 1 1/8 | 7 | * 110068 | 100405 | * 110345 | * 110471 | | |
| 1 1/4 | 7 | * 110067 | 100404 | * 110344 | * 110470 | | |
| 1 3/8 | 6 | * 110069 | 100407 | * 110346 | * 110472 | | |
| 1 1/2 | 6 | * 110066 | 100403 | * 110343 | * 110469 | | |

UNF, UNEF ANSI B1.1 ANSI B1.2

| | | D5701-1 | D5703 | D5704 | D5714 | | |
|--|----------|---|---|---|--|--|--|
| | |  |  |  |  | | |
| | |  |  |  |  | | |
| \varnothing " d ₁ UNF | P TPI | ID | ID | ID | ID | | |
| 0 | 80 | | 110246 | * 110378 | * 110503 | | |
| 1 | 72 | * 110105 | 110251 | 110383 | 110508 | | |
| 2 | 64 | | 110256 | 110389 | 110514 | | |
| 3 | 56 | * 110112 | 110257 | 110390 | 110515 | | |
| 4 | 48 | | 110260 | 110393 | 110518 | | |
| 5 | 44 | * 110116 | * 110261 | | | | |
| 6 | 40 | | 110264 | 110397 | 110522 | | |
| 8 | 36 | * 110122 | 110267 | * 110400 | | | |
| 10 | 32 | | 110254 | 110387 | 110512 | | |
| 12 | 28 | | 110255 | 110388 | 110513 | | |
| 1/4 | 28 | * 110107 | 110006 | 110385 | 110510 | | |
| 5/16 | 24 | * 110117 | 110262 | 110395 | 110520 | | |
| 3/8 | 24 | * 110114 | 110259 | 110392 | 110517 | | |
| 7/16 | 20 | * 110120 | 110265 | 110398 | 111440 | | |
| 1/2 | 20 | * 110106 | 110252 | 110384 | 110509 | | |
| 9/16 | 18 | | 110268 | 110401 | | | |
| 5/8 | 18 | * 110118 | 110263 | 110396 | | | |
| 3/4 | 16 | | 110258 | 110391 | * 110516 | | |
| 7/8 | 14 | | 110266 | 110399 | | | |
| 1 | 12 | | 128646 | 110386 | | | |
| 1 1/8 | 12 | * 110103 | 110249 | 110381 | * 110506 | | |
| 1 1/4 | 12 | * 110102 | 110248 | 110380 | * 110505 | | |
| 1 3/8 | 12 | * 110104 | 110250 | * 110382 | * 110507 | | |
| 1 1/2 | 12 | | 110247 | 110379 | | | |
| \varnothing " d ₁ UNEF | P TPI | ID | ID | ID | ID | | |
| 12 | 32 | | 110238 | * 110370 | * 110495 | | |
| 1/4 | 32 | | 110236 | 110368 | 110493 | | |
| 5/16 | 32 | | 110241 | 110373 | 110498 | | |
| 3/8 | 32 | | 110240 | 110372 | 110497 | | |
| 7/16 | 28 | | 110243 | 110375 | 110500 | | |
| 1/2 | 28 | | 110235 | 110367 | 110492 | | |
| 9/16 | 24 | | 110245 | 110377 | 110502 | | |
| 5/8 | 24 | | 110242 | 110374 | 110499 | | |
| 3/4 | 20 | | 110239 | 110371 | 110496 | | |
| 7/8 | 20 | | 110244 | | * 110501 | | |
| 1 | 20 | | 110253 | 110369 | 110494 | | |





| | | D5701-1 | D5701-2 | D5703 | D5704 | D5714 | D5725 |
|-------------------------------------|----------|---|---|---|---|---|---|
| | |  |  |  |  |  |  |
| | |  |  |  |  |  |  |
| \varnothing " d ₁ G | P TPI | ID | ID | ID | ID | ID | |
| 1/8 | 28 | * 110044 | | 110009 | 110277 | 110408 | |
| 1/4 | 19 | | | 110003 | 110276 | 110407 | |
| 3/8 | 19 | * 110052 | | 110162 | 110284 | 110415 | |
| 1/2 | 14 | | | 110001 | 110275 | 110406 | |
| 5/8 | 14 | | | 110164 | 110286 | 110417 | |
| 3/4 | 14 | | | 110161 | 110283 | 110414 | |
| 7/8 | 14 | * 110054 | | 110165 | * 110287 | * 110418 | |
| 1 | 11 | | | 110156 | 110278 | 110409 | |
| 1 1/8 | 11 | | | 110154 | | * 110404 | |
| 1 1/4 | 11 | 110041 | 119459 | | 110272 | | |
| 1 1/2 | 11 | 110040 | 119429 | | 110271 | | |
| 1 3/4 | 11 | 110043 | 142868 | | 110274 | * 110405 | |
| 2 | 11 | 110050 | 110126 | | 110282 | | |
| 2 1/4 | 11 | | | | | * 110411 | |
| 2 1/2 | 11 | | * 110125 | | | | |
| 2 3/4 | 11 | | | | | * 110412 | |
| 3 | 11 | | | | * 110285 | * 110416 | |
| \varnothing d ₁ PG | P TPI | ID | | | | ID | ID |
| 7 | 20 | | | | | | 110216 |
| 9 | 18 | | | | | | 110217 |
| 11 | 18 | | | | | | 110205 |
| 13.5 | 18 | | | | | | 110209 |
| 16 | 18 | | | | | * 110330 | 110210 |
| 21 | 16 | | | | | * 110331 | 110211 |
| 29 | 16 | | | | | * 110332 | 110212 |

NPT, NPTF



ANSI B1.20.1 / ANSI B1.20.3

ANSI B1.20.1 / ANSI B1.20.5

| | | D5720 | D5721 | | | | |
|--|----------|---|----------|--|--|--|--|
| | |  | | | | | |
| | |  | | | | | |
| \varnothing " d ₁ NPT | P TPI | ID | ID | | | | |
| 1/16 | 27 | 110190 | 110313 | | | | |
| 1/8 | 27 | 110193 | 110316 | | | | |
| 1/4 | 18 | 110192 | 110315 | | | | |
| 3/8 | 18 | 110197 | 110320 | | | | |
| 1/2 | 14 | 110191 | 110314 | | | | |
| 3/4 | 14 | 110196 | 110319 | | | | |
| 1 | 11.5 | 110194 | 110317 | | | | |
| 1 1/4 | 11.5 | 110189 | 110312 | | | | |
| 1 1/2 | 11.5 | 110188 | 110311 | | | | |
| 2 | 11.5 | 110195 | 110318 | | | | |
| \varnothing " d ₁ NPTF | P TPI | ID | ID | | | | |
| 1/8 | 27 | 110201 | * 110324 | | | | |
| 1/4 | 18 | 110200 | * 110323 | | | | |
| 3/8 | 18 | 110204 | * 110327 | | | | |
| 1/2 | 14 | 110199 | * 110322 | | | | |
| 3/4 | 14 | 110203 | * 110326 | | | | |
| 1 | 11.5 | 110202 | * 110325 | | | | |



EG M ISO DIN 8140 ISO DIN 1502 EG UNC, EG UNF NASM 33537

| | | D5703 | D5703 | D5703 | | | |
|--|----------|---|-------|-------|--|--|--|
| | |  | | | | | |
| | |  | | | | | |
| $\varnothing d_1$ EG M | P mm | ID | | | | | |
| 2.5 | 0.45 | 110132 | | | | | |
| 3 | 0.50 | 110133 | | | | | |
| 4 | 0.70 | 110134 | | | | | |
| 5 | 0.80 | 110135 | | | | | |
| 6 | 1.00 | 110136 | | | | | |
| 8 | 1.25 | 110137 | | | | | |
| 10 | 1.50 | 110128 | | | | | |
| 12 | 1.75 | 110129 | | | | | |
| 16 | 2.00 | 110131 | | | | | |
| \varnothing " d ₁ EG UNC | P TPI | ID | | | | | |
| 4 | 40 | 170252 | | | | | |
| 6 | 32 | 170253 | | | | | |
| 8 | 32 | 170254 | | | | | |
| 10 | 24 | 170255 | | | | | |
| 1/4 | 20 | 170256 | | | | | |
| 5/16 | 18 | 170257 | | | | | |
| 3/8 | 16 | 170258 | | | | | |
| \varnothing " d ₁ EG UNF | P TPI | ID | | | | | |
| 6 | 40 | 170259 | | | | | |
| 8 | 36 | 170260 | | | | | |
| 10 | 32 | 161020 | | | | | |
| 1/4 | 28 | 151790 | | | | | |
| 5/16 | 24 | 170261 | | | | | |
| 3/8 | 24 | 160134 | | | | | |



SYNCHRO



SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

Tapping chucks with axial shock absorber



Uniquement pour taraudage synchrone
 Nur für Synchronbearbeitung
 Only for rigid tapping
 Solo per maschiatura sincrona
 Solo para roscado sincronizado

| DIN 69 893 A | | | | | SRT-HSK63-312 | SRT-HSK63-520 | SRT-HSK63-1433 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------|----------|----|-----|---------------|---------------|----------------|--|--|----|----|----|----------|---------|----------|----|-----|--------|--|--|----------|---------|----------|----|--|--|--------|--|-----------|----------|----------|----|--|--|--|--------|--|--|--|
| <h1>HSK</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>D_1 mm</th> <th>L_1 mm</th> <th></th> <th></th> <th></th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>M3 - M12</td> <td>36 72.0</td> <td>HSK A 63</td> <td>S1</td> <td>282</td> <td>170111</td> <td></td> <td></td> </tr> <tr> <td>M5 - M20</td> <td>53 89.0</td> <td>HSK A 63</td> <td>S2</td> <td></td> <td></td> <td>170112</td> <td></td> </tr> <tr> <td>M14 - M33</td> <td>78 121.0</td> <td>HSK A 63</td> <td>S3</td> <td></td> <td></td> <td></td> <td>170114</td> </tr> </tbody> </table> | | | | | D_1 mm | L_1 mm | | | | ID | ID | ID | M3 - M12 | 36 72.0 | HSK A 63 | S1 | 282 | 170111 | | | M5 - M20 | 53 89.0 | HSK A 63 | S2 | | | 170112 | | M14 - M33 | 78 121.0 | HSK A 63 | S3 | | | | 170114 | | | |
| D_1 mm | L_1 mm | | | | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 36 72.0 | HSK A 63 | S1 | 282 | 170111 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 89.0 | HSK A 63 | S2 | | | 170112 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 121.0 | HSK A 63 | S3 | | | | 170114 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MAS/BT Form AD + B | | | | | SRT-BT40-312 | SRT-BT40-520 | SRT-BT40-1433 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h1>BT</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>D_1 mm</th> <th>L_1 mm</th> <th></th> <th></th> <th></th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>M3 - M12</td> <td>36 71.0</td> <td>BT 40</td> <td>S1</td> <td>282</td> <td>170133</td> <td></td> <td></td> </tr> <tr> <td>M5 - M20</td> <td>53 85.0</td> <td>BT 40</td> <td>S2</td> <td></td> <td></td> <td>170134</td> <td></td> </tr> <tr> <td>M14 - M33</td> <td>78 121.0</td> <td>BT 40</td> <td>S3</td> <td></td> <td></td> <td></td> <td>170135</td> </tr> </tbody> </table> | | | | | D_1 mm | L_1 mm | | | | ID | ID | ID | M3 - M12 | 36 71.0 | BT 40 | S1 | 282 | 170133 | | | M5 - M20 | 53 85.0 | BT 40 | S2 | | | 170134 | | M14 - M33 | 78 121.0 | BT 40 | S3 | | | | 170135 | | | |
| D_1 mm | L_1 mm | | | | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 36 71.0 | BT 40 | S1 | 282 | 170133 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 85.0 | BT 40 | S2 | | | 170134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 121.0 | BT 40 | S3 | | | | 170135 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

Tapping chucks with axial shock absorber



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado

| DIN 69 871 Form AD + B | | | | | SRT-SK40-312 | SRT-SK40-520 | SRT-SK40-1433 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------|-------|----|--|--------------|---------------|---------------|--|--|----|----|----|----|----|--|--|--|--|--|--|----------|---------|-------|----|--|--------|--|--|-----------|----------|-------|----|--|--|--------|--|-----------|----------|-------|----|--|--|--|--------|--|--|--|
| <h1>SK</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>D_1</th> <th>L_1</th> <th></th> <th></th> <th></th> <th>ID</th> <th>ID</th> <th>ID</th> </tr> <tr> <th>mm</th> <th>mm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>M3 - M12</td> <td>36 65.0</td> <td>SK 40</td> <td>S1</td> <td></td> <td>170124</td> <td></td> <td></td> </tr> <tr> <td>M5 - M20</td> <td>53 79.0</td> <td>SK 40</td> <td>S2</td> <td></td> <td></td> <td>170125</td> <td></td> </tr> <tr> <td>M14 - M33</td> <td>78 115.0</td> <td>SK 40</td> <td>S3</td> <td></td> <td></td> <td></td> <td>170126</td> </tr> </tbody> </table> | | | | | D_1 | L_1 | | | | ID | ID | ID | mm | mm | | | | | | | M3 - M12 | 36 65.0 | SK 40 | S1 | | 170124 | | | M5 - M20 | 53 79.0 | SK 40 | S2 | | | 170125 | | M14 - M33 | 78 115.0 | SK 40 | S3 | | | | 170126 | | | |
| D_1 | L_1 | | | | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 36 65.0 | SK 40 | S1 | | 170124 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 79.0 | SK 40 | S2 | | | 170125 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 115.0 | SK 40 | S3 | | | | 170126 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DIN 69 871 Form AD + B | | | | | SRT-SK50-520 | SRT-SK50-1433 | SRT-SK50-2248 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h1>SK</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| D_1 | L_1 | | | | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 79.0 | SK 50 | S2 | | 170128 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 115.0 | SK 50 | S3 | | | 170129 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M22 - M48 | 96 170.0 | SK 50 | S4 | | | | 170130 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

Tapping chucks with axial shock absorber



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado




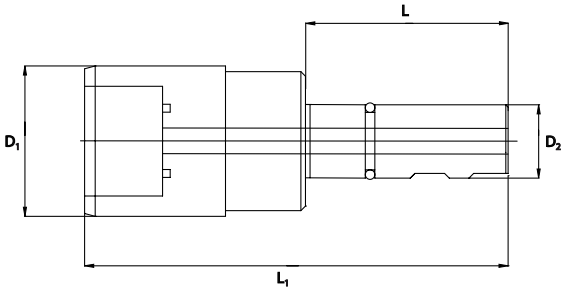












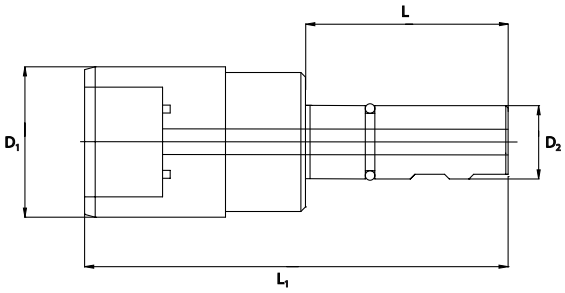









| DIN 1835 B | | SRT032-D6 | SRT054-D12 | ER8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|----------------|----------------|----------------|----------------|----------------|----------------|----------|-----|------|-----|----------|-----|-----------|-----|----------|-----|------|-----|-----------|-----|------|-----|----------|-----|----------|-----|----------|-----|-------|-----|--|----|--|
| <h1>SRT nano</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>SRT032 / SRT054 D9865-</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>D</th> <th>D₁</th> <th>D₂</th> <th>L</th> <th>L₁</th> <th>L₂</th> </tr> <tr> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>M0.3 - M2</td> <td>12</td> <td>11</td> <td>6</td> <td>25</td> <td>40</td> </tr> <tr> <td>M0.5 - M4</td> <td>12</td> <td>20</td> <td>12</td> <td>33</td> <td>59</td> </tr> </tbody> </table> | D | D ₁ | D ₂ | L | L ₁ | L ₂ | mm | mm | mm | mm | mm | mm | M0.3 - M2 | 12 | 11 | 6 | 25 | 40 | M0.5 - M4 | 12 | 20 | 12 | 33 | 59 | ID | ID | | | | | | | |
| D | D ₁ | D ₂ | L | L ₁ | L ₂ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mm | mm | mm | mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0.3 - M2 | 12 | 11 | 6 | 25 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0.5 - M4 | 12 | 20 | 12 | 33 | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 157610 | 127413 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No | <table border="1"> <thead> <tr> <th>D₂</th> <th>L₃</th> <th>d₂</th> </tr> <tr> <th>mm</th> <th>mm</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>ER8-0200</td> <td>8.5</td> <td>13.5</td> <td>2.0</td> </tr> <tr> <td>ER8-0250</td> <td>8.5</td> <td>13.5</td> <td>2.5</td> </tr> <tr> <td>ER8-0300</td> <td>8.5</td> <td>13.5</td> <td>3.0</td> </tr> <tr> <td>ER8-0350</td> <td>8.5</td> <td>13.5</td> <td>3.5</td> </tr> <tr> <td>ER8-0400</td> <td>8.5</td> <td>13.5</td> <td>4.0</td> </tr> <tr> <td>ER8-0450</td> <td>8.5</td> <td>13.5</td> <td>4.5</td> </tr> </tbody> </table> | D ₂ | L ₃ | d ₂ | mm | mm | mm | ER8-0200 | 8.5 | 13.5 | 2.0 | ER8-0250 | 8.5 | 13.5 | 2.5 | ER8-0300 | 8.5 | 13.5 | 3.0 | ER8-0350 | 8.5 | 13.5 | 3.5 | ER8-0400 | 8.5 | 13.5 | 4.0 | ER8-0450 | 8.5 | 13.5 | 4.5 | | ID | |
| D ₂ | L ₃ | d ₂ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mm | mm | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0200 | 8.5 | 13.5 | 2.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0250 | 8.5 | 13.5 | 2.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0300 | 8.5 | 13.5 | 3.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0350 | 8.5 | 13.5 | 3.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0400 | 8.5 | 13.5 | 4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER8-0450 | 8.5 | 13.5 | 4.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118895 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118896 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118897 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118898 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118899 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 118900 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DIN 1835 B | | SRT312-D20 | SRT312-D25 | SRT520-D25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h1>SRT short</h1> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>D₁</th> <th>D₂</th> <th>L</th> <th>L₁</th> <th></th> <th></th> </tr> <tr> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm</th> <th></th> <th>282</th> </tr> </thead> <tbody> <tr> <td>M3 - M12</td> <td>39</td> <td>20</td> <td>47</td> <td>86.0</td> <td>S1</td> </tr> <tr> <td>M3 - M12</td> <td>39</td> <td>25</td> <td>53</td> <td>90.0</td> <td>S1</td> </tr> <tr> <td>M5 - M20</td> <td>56</td> <td>25</td> <td>53</td> <td>110.0</td> <td>S2</td> </tr> </tbody> </table> | D ₁ | D ₂ | L | L ₁ | | | mm | mm | mm | mm | | 282 | M3 - M12 | 39 | 20 | 47 | 86.0 | S1 | M3 - M12 | 39 | 25 | 53 | 90.0 | S1 | M5 - M20 | 56 | 25 | 53 | 110.0 | S2 | | | |
| D ₁ | D ₂ | L | L ₁ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mm | mm | mm | mm | | 282 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 39 | 20 | 47 | 86.0 | S1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 39 | 25 | 53 | 90.0 | S1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 56 | 25 | 53 | 110.0 | S2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ID | ID | ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 162832 | 162831 | 162833 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

Tapping chucks with axial shock absorber



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado

| DIN 1835 B | SRT-1D20-312 | SRT-1D25-312 | SRT-2D25-520 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|----------------------|---|---|---|----------|----|----|------|-------|----|--|-----------|----|----|------|-------|----|--|-----------|----|----|------|-------|----|--|---------------------|---------------------|---------------------|
| SRT |  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  <50 bar |  <50 bar |  <50 bar | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th></th> <th>D₁ mm</th> <th>D₂ mm</th> <th>L mm</th> <th>L₁ mm</th> <th></th> <th> 282</th> </tr> </thead> <tbody> <tr> <td>M3 - M12</td> <td>36</td> <td>20</td> <td>51.0</td> <td>97</td> <td>S1</td> <td></td> </tr> <tr> <td>M3 - M12</td> <td>36</td> <td>25</td> <td>57.0</td> <td>103</td> <td>S1</td> <td></td> </tr> <tr> <td>M5 - M20</td> <td>53</td> <td>25</td> <td>57.0</td> <td>131</td> <td>S2</td> <td></td> </tr> </tbody> </table> | | D ₁ mm | D ₂ mm | L mm | L ₁ mm |  |  282 | M3 - M12 | 36 | 20 | 51.0 | 97 | S1 | | M3 - M12 | 36 | 25 | 57.0 | 103 | S1 | | M5 - M20 | 53 | 25 | 57.0 | 131 | S2 | | ID 170140 | ID 170020 | ID 170141 |
| | D ₁ mm | D ₂ mm | L mm | L ₁ mm |  |  282 | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 36 | 20 | 51.0 | 97 | S1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M3 - M12 | 36 | 25 | 57.0 | 103 | S1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 | 25 | 57.0 | 131 | S2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DIN 1835 B | SRT-2D32-520 | SRT-3D25-1433 | SRT-3D32-1433 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SRT |  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  <50 bar |  <50 bar |  <50 bar | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th></th> <th>D₁ mm</th> <th>D₂ mm</th> <th>L mm</th> <th>L₁ mm</th> <th></th> <th> 282</th> </tr> </thead> <tbody> <tr> <td>M5 - M20</td> <td>53</td> <td>32</td> <td>61.5</td> <td>135.5</td> <td>S2</td> <td></td> </tr> <tr> <td>M14 - M33</td> <td>78</td> <td>25</td> <td>57.0</td> <td>164.5</td> <td>S3</td> <td></td> </tr> <tr> <td>M14 - M33</td> <td>78</td> <td>32</td> <td>61.5</td> <td>169.0</td> <td>S3</td> <td></td> </tr> </tbody> </table> | | D ₁ mm | D ₂ mm | L mm | L ₁ mm |  |  282 | M5 - M20 | 53 | 32 | 61.5 | 135.5 | S2 | | M14 - M33 | 78 | 25 | 57.0 | 164.5 | S3 | | M14 - M33 | 78 | 32 | 61.5 | 169.0 | S3 | | ID 170142 | ID 170143 | ID 170144 |
| | D ₁ mm | D ₂ mm | L mm | L ₁ mm |  |  282 | | | | | | | | | | | | | | | | | | | | | | | | | |
| M5 - M20 | 53 | 32 | 61.5 | 135.5 | S2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 | 25 | 57.0 | 164.5 | S3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M14 - M33 | 78 | 32 | 61.5 | 169.0 | S3 | | | | | | | | | | | | | | | | | | | | | | | | | | |



SRT

Einsätze ohne Sicherheitskupplung
Inserts without slipping clutch



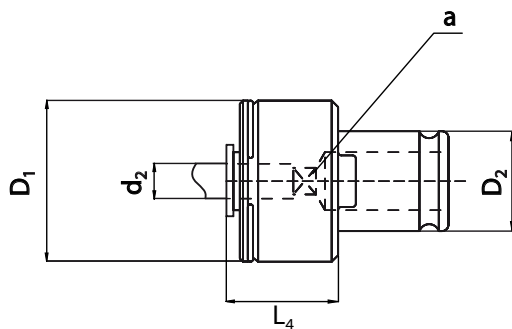
Uniquement pour taraudage synchrone
 Nur für Synchrobearbeitung
 Only for rigid tapping
 Solo per maschiatura sincrona
 Solo para roscado sincronizado

| SRT | | | | | S1- | S2- | S3- | S4- |
|------------|----------------------|----------------------|----------------------|---------|--------|--------|--------|--------|
| | | | | | | | | |
| No | D ₁ mm | D ₂ mm | d ₂ mm | α mm | ID | ID | ID | ID |
| S1-0028 | 30 | 19.0 | 2.8 | 2.1 | 129915 | | | |
| S1-0035 | 30 | 19.0 | 3.5 | 2.7 | 129916 | | | |
| S1-0045 | 30 | 19.0 | 4.5 | 3.4 | 129918 | | | |
| S1-0060 | 30 | 19.0 | 6.0 | 4.9 | 129920 | | | |
| S1-0070 | 30 | 19.0 | 7.0 | 5.5 | 129921 | | | |
| S1-0080 | 30 | 19.0 | 8.0 | 6.2 | 129922 | | | |
| S1-0090 | 30 | 19.0 | 9.0 | 7.0 | 129923 | | | |
| S1-0100 | 30 | 19.0 | 10.0 | 8.0 | 129924 | | | |
| S1-0110 | 30 | 19.0 | 11.0 | 9.0 | 129925 | | | |
| S2-0060 | 48 | 31.0 | 6.0 | 4.9 | | 129927 | | |
| S2-0070 | 48 | 31.0 | 7.0 | 5.5 | | 129928 | | |
| S2-0080 | 48 | 31.0 | 8.0 | 6.2 | | 129929 | | |
| S2-0090 | 48 | 31.0 | 9.0 | 7.0 | | 129930 | | |
| S2-0100 | 48 | 31.0 | 10.0 | 8.0 | | 129931 | | |
| S2-0110 | 48 | 31.0 | 11.0 | 9.0 | | 148303 | | |
| S2-0120 | 48 | 31.0 | 12.0 | 9.0 | | 129932 | | |
| S2-0140 | 48 | 31.0 | 14.0 | 11.0 | | 129933 | | |
| S2-0160 | 48 | 31.0 | 16.0 | 12.0 | | 129934 | | |
| S2-0180 | 48 | 31.0 | 18.0 | 14.5 | | 151355 | | |
| S3-0110 | 70 | 48.0 | 11.0 | 9.0 | | | 170145 | |
| S3-0120 | 70 | 48.0 | 12.0 | 9.0 | | | 170146 | |
| S3-0140 | 70 | 48.0 | 14.0 | 11.0 | | | 170147 | |
| S3-0160 | 70 | 48.0 | 16.0 | 12.0 | | | 170148 | |
| S3-0180 | 70 | 48.0 | 18.0 | 14.5 | | | 170149 | |
| S3-0200 | 70 | 48.0 | 20.0 | 16.0 | | | 170150 | |
| S3-0220 | 70 | 48.0 | 22.0 | 18.0 | | | 170151 | |
| S3-0250 | 70 | 48.0 | 25.0 | 20.0 | | | 170152 | |
| S4-0180 | 96 | 60.0 | 18.0 | 14.5 | | | | 170153 |
| S4-0200 | 96 | 60.0 | 20.0 | 16.0 | | | | 170154 |
| S4-0220 | 96 | 60.0 | 22.0 | 18.0 | | | | 170155 |
| S4-0250 | 96 | 60.0 | 25.0 | 20.0 | | | | 170156 |
| S4-0280 | 96 | 60.0 | 28.0 | 22.0 | | | | 170157 |
| S4-0320 | 96 | 60.0 | 32.0 | 24.0 | | | | 170158 |
| S4-0360 | 96 | 60.0 | 36.0 | 29.0 | | | | 170159 |

Einsätze mit Sicherheitskupplung
Inserts with slipping clutch



CLASSIC



SC1-

SC2-

SC3-

SC4-



| No | D_1 mm | D_2 mm | d_2 mm | a mm | L_4 mm | ID | ID | ID | ID |
|----------|-------------|-------------|-------------|-----------|-------------|--------|--------|--------|--------|
| SC1-0028 | 32 | 19.0 | 2.8 | 2.1 | 25 | 170160 | | | |
| SC1-0035 | 32 | 19.0 | 3.5 | 2.7 | 25 | 170161 | | | |
| SC1-0045 | 32 | 19.0 | 4.5 | 3.4 | 25 | 170162 | | | |
| SC1-0060 | 32 | 19.0 | 6.0 | 4.9 | 25 | 170163 | | | |
| SC1-0070 | 32 | 19.0 | 7.0 | 5.5 | 25 | 170164 | | | |
| SC1-0080 | 32 | 19.0 | 8.0 | 6.2 | 25 | 170165 | | | |
| SC1-0090 | 32 | 19.0 | 9.0 | 7.0 | 25 | 170166 | | | |
| SC1-0100 | 32 | 19.0 | 10.0 | 8.0 | 25 | 170167 | | | |
| SC2-0060 | 50 | 31.0 | 6.0 | 4.9 | 34 | | 170168 | | |
| SC2-0070 | 50 | 31.0 | 7.0 | 5.5 | 34 | | 170169 | | |
| SC2-0080 | 50 | 31.0 | 8.0 | 6.2 | 34 | | 170170 | | |
| SC2-0090 | 50 | 31.0 | 9.0 | 7.0 | 34 | | 170171 | | |
| SC2-0100 | 50 | 31.0 | 10.0 | 8.0 | 34 | | 170172 | | |
| SC2-0110 | 50 | 31.0 | 11.0 | 9.0 | 34 | | 170173 | | |
| SC2-0120 | 50 | 31.0 | 12.0 | 9.0 | 34 | | 170174 | | |
| SC2-0140 | 50 | 31.0 | 14.0 | 11.0 | 34 | | 170175 | | |
| SC2-0160 | 50 | 31.0 | 16.0 | 12.0 | 34 | | 170176 | | |
| SC2-0180 | 50 | 31.0 | 18.0 | 14.5 | 34 | | 170177 | | |
| SC3-0110 | 72 | 48.0 | 11.0 | 9.0 | 45 | | | 170178 | |
| SC3-0120 | 72 | 48.0 | 12.0 | 9.0 | 45 | | | 170179 | |
| SC3-0140 | 72 | 48.0 | 14.0 | 11.0 | 45 | | | 170180 | |
| SC3-0160 | 72 | 48.0 | 16.0 | 12.0 | 45 | | | 170181 | |
| SC3-0180 | 72 | 48.0 | 18.0 | 14.5 | 45 | | | 170182 | |
| SC3-0200 | 72 | 48.0 | 20.0 | 16.0 | 45 | | | 170183 | |
| SC3-0220 | 72 | 48.0 | 22.0 | 18.0 | 45 | | | 170184 | |
| SC3-0250 | 72 | 48.0 | 25.0 | 20.0 | 45 | | | 170185 | |
| SC4-0180 | 96 | 60.0 | 18.0 | 14.5 | 68 | | | | 170186 |
| SC4-0200 | 96 | 60.0 | 20.0 | 16.0 | 68 | | | | 170187 |
| SC4-0220 | 96 | 60.0 | 22.0 | 18.0 | 68 | | | | 170188 |
| SC4-0250 | 96 | 60.0 | 25.0 | 20.0 | 68 | | | | 170189 |
| SC4-0280 | 96 | 60.0 | 28.0 | 22.0 | 68 | | | | 170190 |
| SC4-0320 | 96 | 60.0 | 32.0 | 24.0 | 68 | | | | 170191 |
| SC4-0360 | 96 | 60.0 | 36.0 | 29.0 | 68 | | | | 170192 |



Vollhartmetall-Spiralbohrer


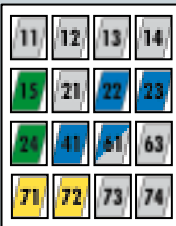

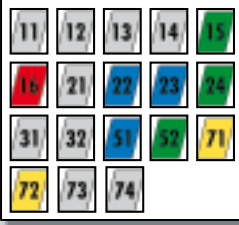



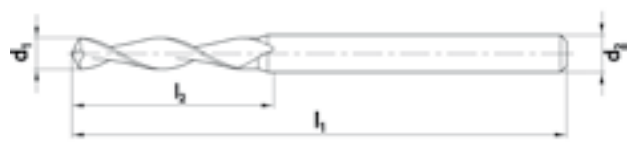




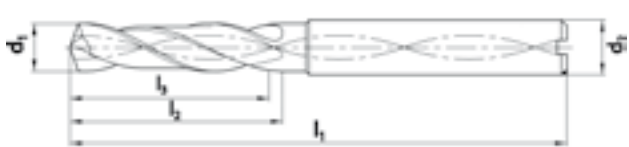




Solid carbide twist drills

VHM
CAR

DC
DIN 6537 HAK






















HBK
HEK

sur demande
auf Anfrage
on request
su richiesta
sobre pedido

| | | | | | | | F313VS | F285VS | F286VS | | | |
|---|-----------------------|-------------|-------------|---|---|---|---|--------|--------|--|--|--|
| <p>F313VS</p>   <p>F285VS F286VS</p>   | | | | | | |    | | | | | |
|  | | | | | | |  | | | | | |
| | | | | | | |  | | | | | |
| $\varnothing d_1$ (h_7) | d_2 (h_6) mm | l_1 mm | l_2 mm |  |  | | ID | | | | | |
| 0.88 | 3.0 | 38.0 | 8.0 | 2 | M 1 | | 158515 | | | | | |
| 1.08 | 3.0 | 38.0 | 10.0 | 2 | M 1.2 | | 158516 | | | | | |
| 1.25 | 3.0 | 38.0 | 12.0 | 2 | M 1.4 | | 158517 | | | | | |
| 1.45 | 3.0 | 38.0 | 12.0 | 2 | M 1.6 | | 158518 | | | | | |
| 1.65 | 3.0 | 38.0 | 12.0 | 2 | M 1.8 | | 158519 | | | | | |
| 1.80 | 3.0 | 38.0 | 12.0 | 2 | M 2 | | 158520 | | | | | |
| 1.95 | 3.0 | 38.0 | 12.0 | 2 | UNC 2-56 | | 158521 | | | | | |
| 2.30 | 3.0 | 38.0 | 16.0 | 2 | M 2.5 | | 158522 | | | | | |
| 2.55 | 3.0 | 38.0 | 16.0 | 2 | UNC 4-40 | | 158523 | | | | | |
| 2.80 | 3.0 | 38.0 | 16.0 | 2 | M 3 | | 158524 | | | | | |
|  | | | | | | | | | | | | |
| $\varnothing d_1$ (m_7) | d_2 (h_6) mm | l_1 mm | l_2 mm | l_3 mm |  |  | ID | | | | | |
| 3.25 | 6.0 | 62.0 | 20.0 | 14.0 | 2 | M 3.5 | 158527 | | | | | |
| 3.70 | 6.0 | 62.0 | 20.0 | 14.0 | 2 | M 4 | 158528 | | | | | |
| 4.65 | 6.0 | 66.0 | 24.0 | 17.0 | 2 | M 5 | 158532 | | | | | |
| 5.55 | 6.0 | 66.0 | 28.0 | 20.0 | 2 | M 6 | 158534 | | | | | |
| 7.40 | 8.0 | 79.0 | 41.0 | 29.0 | 2 | M 8 | 158540 | | | | | |
| 9.30 | 10.0 | 89.0 | 47.0 | 35.0 | 2 | M 10 | 158544 | | | | | |
| 11.20 | 12.0 | 102.0 | 55.0 | 40.0 | 2 | M 12 | 158546 | | | | | |
| $\varnothing d_1$ (m_7) | d_2 (h_6) mm | l_1 mm | l_2 mm | l_3 mm |  |  | ID | | | | | |
| 3.30 | 6.0 | 66.0 | 28.0 | 23.0 | 2 | M 4 | 160989 | | | | | |
| 4.20 | 6.0 | 74.0 | 36.0 | 29.0 | 2 | M 5 | 160990 | | | | | |
| 5.00 | 6.0 | 82.0 | 44.0 | 35.0 | 2 | M 6 | 160991 | | | | | |
| 6.80 | 8.0 | 91.0 | 53.0 | 43.0 | 2 | M 8 | 160992 | | | | | |
| 8.50 | 10.0 | 103.0 | 61.0 | 49.0 | 2 | M 10 | 160993 | | | | | |
| 10.20 | 12.0 | 118.0 | 71.0 | 56.0 | 2 | M 12 | 160994 | | | | | |


Gewindeschneid-Sortimente

Tap assortments

| Boxset | | D5855 | D5860 | D5891 | |
|-----------------------------|--|---|-----------|-----------|-----------|
| D5855 |   N1110-S M3, M4, M5, M6, M8, M10 N1210-S M12 |    | | | |
| D5860 |   N1110-S M3, M4, M5, M6, M8, M10 N1210-S M12   FO DIN 338 D2.5, 3.3, 4.2, 5.0, 6.8, FO DIN 338 8.5, 10.2 | | | | |
| D5891 |   N310-3 M3, M4, M5, M6, M8, M10 N410-3 M12 | | | | |
| No D5855 / D5860 / D5891 | | ID | ID | ID | |
| M3 - M12 | | 118728 | 118733 | 170922 | |
| Boxset | | D5892 | | | |
| D5892 |    N320V-4 M3, M4, M5, M6, M8, M10  |  | | | |
| No D5892 | | | | | ID |
| M3 - M10 | | | | | 170921 |
| Boxset | | D5896 | | | |
| D5896 |    N360V-3 M3, M4, M5, M6, M8, M10  |  | | | |
| No D5896 | | | | | ID |
| M3 - M10 | | | | | 167599 |

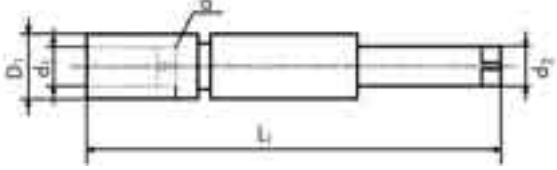

Schneideisenhalter und Windeisen

Die stocks and tap wrenches

| D5810- Schneideisenhalter für runde Schneideisen nach DIN EN 22568, DIN EN 24230, DIN EN 24231, DIN EN 40434. Die stocks for round dies to DIN EN 22568, DIN EN 24230, DIN EN 24231, DIN EN 40434. | | | | | | | | | D5810- | D5820- |
|--|-------------|---------|----------|-----------------|-------------------|------------------|-----------------|-------------------------|---|---------------|
| D5820- Windeisen verstellbar DIN 1814 Tap wrenches, adjustable DIN 1814 | | | | | | | | |  | |
| DIN EN | M | MF | UNC | UNF | UNEF UNS UN | W | G (BSP) | NPT NPTF R (BSPT) | ID | |
| No D5810- Ø | Ø | Ø | Ø | Ø | Ø | Ø | Ø | Ø | | |
| 1 | 16 x 5 | 1 - 2.6 | 2 - 2.6 | No 1 - 4 | No 1 - 4 | | 1/16" - 3/32" | | 170712 | |
| 2 | 20 x 5 | 3 - 4 | 3 - 6 | No 5 | No 5 - 6 | | 1/8" | | 170713 | |
| 3 | 20 x 7 | 4.5 - 6 | | No 6 - 1/4" | No 8 - 1/4" | No 12 - 1/4" | 5/32" - 1/4" | | 170714 | |
| 4 | 25 x 9 | 7 - 9 | 7 - 9 | 5/16" | 5/16" | 5/16" | 5/16" | 1/16" | 170715 | |
| 5 | 30 x 11 | 10 - 11 | 10 - 11 | 3/8" - 7/16" | 3/8" - 7/16" | 3/8" - 7/16" | 3/8" - 7/16" | 1/8" | 170716 | |
| 6 | 38 x 10 | | 12 - 15 | | 1/2" - 9/16" | 1/2" - 9/16" | | 1/4" | 170717 | |
| 7 | 38 x 14 | 12 - 14 | | 1/2" - 9/16" | | | 1/2" - 9/16" | 1/4" | 170718 | |
| 8 | 45 x 14 | | 16 - 20 | | 5/8" - 3/4" | 5/8" - 13/16" | | 3/8" - 1/2" | 170719 | |
| 9 | 45 x 18 | 16 - 20 | | 5/8" - 3/4" | | | 5/8" - 3/4" | 1/2" | 170720 | |
| 10 | 55 x 16 | | 22 - 26 | | 7/8" - 1" | 7/8" - 1" | | 5/8" - 3/4" | 170721 | |
| 11 | 55 x 22 | 22 - 24 | | 7/8" - 1" | | | 7/8" - 1" | 3/4" | 170722 | |
| 12 | 65 x 18 | | *27 - 36 | | 1 1/8" - 1 3/8" | 1 1/16" - 1 3/8" | | 7/8" - 1" | 170723 | |
| 13 | 65 x 25 | 27 - 36 | | 1 1/8" - 1 3/8" | | | 1 1/8" - 1 3/8" | 1" | 170724 | |
| 14 | 75 x 20 | | 38 - 42 | | 1 1/2" | 1 7/16" - 1 1/2" | | 1 1/8" - 1 1/4" | 170725 | |
| 15 | 75 x 30 | 39 - 42 | | 1 1/2" | | | 1 1/2" - 1 5/8" | | 170726 | |
| 16 | 90 x 22 | | 45 - 52 | | | 1 3/4" - 2" | | 1 3/8" - 1 3/4" | 170727 | |
| 17 | 90 x 36 | 45 - 52 | | 1 3/4" - 2" | | | 1 3/4" - 2" | | 170728 | |
| 18 | 105 x 22 | | 55 - 65 | | | | | 2" - 2 1/4" | 170729 | |
| * Ausnahme Steigung 3 mm (Nr. 13 verlangen). For 3 mm pitches use No. 13. | | | | | | | | | | |
| No D5820- | a mm | | | | | | | | | ID |
| 0 | 1.9 - 3.0 | | | | | | | | | 170730 |
| 1 | 2.5 - 5.5 | | | | | | | | | 170731 |
| 2 | 4.3 - 8.0 | | | | | | | | | 170732 |
| 3 | 5.5 - 12.0 | | | | | | | | | 170733 |
| 4 | 9.5 - 15.5 | | | | | | | | | 170734 |
| 5 | 12.5 - 22.4 | | | | | | | | | 170735 |

Verlängerungen

Tap extension sleeves

| D5830- Verlängerungen für Gewindebohrer, ~DIN 377. Tap extension sleeves ~DIN 377. | | D5840- Verlängerungen für Gewindebohrer. Tap extension sleeves. | | D5830- | D5840- | | |
|--|---------|---|----------------------|--|----------------------|--------|--|
|  | | | |  | | | |
| No D5830- | a mm | L ₁ mm | D ₁ mm | ID | | | |
| 1 | 2.10 | 60 | 6 | 110571 | | | |
| 2 | 2.24 | 70 | 6 | 110572 | | | |
| 3 | 2.40 | 70 | 6 | 110573 | | | |
| 4 | 2.50 | 80 | 7 | 110574 | | | |
| 5 | 2.80 | 90 | 7 | 110575 | | | |
| 6 | 3.00 | 90 | 7 | 110579 | | | |
| 7 | 3.15 | 95 | 7 | 110580 | | | |
| 8 | 3.40 | 95 | 8 | 110581 | | | |
| 9 | 3.55 | 100 | 8 | 118706 | | | |
| 10 | 3.80 | 100 | 9 | 118707 | | | |
| 11 | 4.00 | 105 | 10 | 118708 | | | |
| 12 | 4.30 | 105 | 10 | 118709 | | | |
| 13 | 4.50 | 105 | 10 | 118710 | | | |
| 14 | 4.90 | 110 | 10 | 118711 | | | |
| 15 | 5.00 | 110 | 11 | 118712 | | | |
| 16 | 5.50 | 115 | 12 | 118713 | | | |
| 17 | 5.60 | 110 | 12 | 118714 | | | |
| 18 | 6.20 | 120 | 14 | 118715 | | | |
| 19 | 6.30 | 120 | 14 | 118716 | | | |
| 20 | 7.00 | 125 | 15 | 118717 | | | |
| 21 | 7.10 | 120 | 15 | 118718 | | | |
| 22 | 7.50 | 120 | 15 | 118719 | | | |
| 23 | 8.00 | 125 | 17 | 118720 | | | |
| 24 | 9.00 | 130 | 19 | 118721 | | | |
| 25 | 10.00 | 140 | 21 | 110562 | | | |
| 26 | 11.00 | 150 | 23 | 110563 | | | |
| 27 | 11.20 | 145 | 23 | 110564 | | | |
| 28 | 12.00 | 155 | 25 | 110565 | | | |
| 29 | 12.50 | 160 | 25 | 110566 | | | |
| 30 | 14.00 | 165 | 28 | 110567 | | | |
| 31 | 14.50 | 175 | 29 | 110568 | | | |
| 32 | 16.00 | 180 | 30 | 110569 | | | |
| 33 | 18.00 | 200 | 33 | 110570 | | | |
| 34 | 20.00 | 220 | 36 | 110576 | | | |
| 35 | 22.00 | 220 | 40 | 110577 | | | |
| 36 | 22.40 | 240 | 40 | 110578 | | | |
| No D5840- | a mm | L ₁ mm | d ₂ mm | d ₁ mm | D ₁ mm | ID | |
| 10 | 2.70 | 130 | 6 | 3.5 | 7.5 | 169928 | |
| 11 | 3.40 | 130 | 6 | 4.5 | 8.5 | 169929 | |
| 1 | 4.90 | 130 | 6 | 6.0 | 12.0 | 142137 | |
| 2 | 5.50 | 130 | 7 | 7.0 | 13.0 | 142138 | |
| 3 | 6.20 | 130 | 8 | 8.0 | 13.0 | 142139 | |
| 4 | 7.00 | 130 | 9 | 9.0 | 17.0 | 142140 | |
| 5 | 8.00 | 130 | 10 | 10.0 | 17.0 | 142141 | |
| 6 | 9.00 | 130 | 11 | 11.0 | 17.0 | 142142 | |
| 7 | 9.00 | 130 | 12 | 12.0 | 20.0 | 142143 | |
| 8 | 11.00 | 130 | 14 | 14.0 | 20.0 | 142144 | |
| 9 | 12.00 | 130 | 16 | 16.0 | 25.0 | 142145 | |

HÄRTEVERGLEICHSTABELLE - HARDNESS CHART

| HRC <i>Rockwellhärte</i> Hardness Rockwell | HB <i>Brinellhärte</i> Hardness Brinell | HV <i>Vickershärte</i> Hardness Vickers | N/mm² Mpa <i>Zugfestigkeit</i> Tensile strength |
|---|--|--|---|
| 25 | 253 | 266 | 854 |
| 26 | 254 | 273 | 873 |
| 27 | 265 | 279 | 897 |
| 28 | 272 | 286 | 914 |
| 29 | 274 | 294 | 944 |
| 30 | 287 | 302 | 970 |
| 31 | 295 | 310 | 995 |
| 32 | 302 | 318 | 1024 |
| 33 | 311 | 327 | 1052 |
| 34 | 320 | 336 | 1082 |
| 35 | 329 | 345 | 1111 |
| 36 | 337 | 355 | 1139 |
| 37 | 346 | 364 | 1168 |
| 38 | 354 | 373 | 1198 |
| 39 | 363 | 382 | 1227 |
| 40 | 373 | 392 | 1262 |
| 41 | 382 | 402 | 1296 |
| 42 | 392 | 412 | 1327 |
| 43 | 402 | 423 | 1362 |
| 44 | 413 | 434 | 1401 |
| 45 | 424 | 446 | 1442 |
| 46 | 436 | 459 | 1481 |
| 47 | 448 | 471 | 1524 |
| 48 | 460 | 484 | 1572 |
| 49 | 474 | 499 | 1625 |
| 50 | 488 | 513 | 1668 |
| 51 | 502 | 528 | 1733 |
| 52 | 518 | 545 | 1793 |
| 53 | 532 | 560 | 1845 |
| 54 | 548 | 578 | 1912 |
| 55 | 566 | 596 | 1979 |
| 56 | 585 | 615 | 2050 |
| 57 | 603 | 634 | 2121 |
| 58 | | 654 | |
| 59 | | 675 | |
| 60 | | 698 | |

Umrechnungstabelle für Härtewerte, Auszug aus DIN 50150
Conversion chart for hardness values, according to DIN 50150

ZOLL-MM - INCHES-MM

| Ø" d ₁ | Ø mm | TPI UN | | | | | | | | | | | W(BSW) | BSF | G (BSP) R _p | Ø mm | | |
|--|---|----------------------|----------------------|----------------------------|--------|------------------|------------------|----------------|----------------------------|----------------------|----------------------|----|--------|----------------------------|----------------------------|----------------------|---------------------------|----------------|
| | | UNC | UNF | UNEF | 4 | 6 | 8 | 12 | 16 | 20 | 28 | 32 | | | | | | |
| 0 1/16" | 1.52 1.59 | | 80 | | | | | | | | | | | 48 | | 28 | 7.72 | |
| 1 2 3/32" | 1.85 2.18 2.38 | 64 56 | 72 64 | | | | | | | | | | | | | | | |
| 3 4 5 1/8" | 2.51 2.84 3.17 3.17 3.50 | 48 40 40 32 | 56 48 44 40 | | | | | | | | | | | 40 | | 28 | 9.72 | |
| 5/32" 8 3/16" 10 12 | 3.96 4.16 4.76 4.82 5.48 | 32 32 24 24 | 36 32 28 | 32 | | | | | | | | | | 32 24 | 32 | | | |
| 7/32" 1/4" 9/32" 5/16" 3/8" | 5.55 6.35 7.14 7.93 9.52 | 20 18 16 | 28 24 24 | 32 32 | | | | | | | | | | 24 20 16 | 28 26 20 | 19 19 | 13.15 16.66 | |
| 7/16" 1/2" 9/16" 5/8" 11/16" | 11.11 12.70 14.28 15.87 17.46 | 14 13 12 11 | 20 20 18 18 | 28 28 24 24 24 | | | | | 16 16 16 12 12 | | | | | 32 32 28 28 32 | 14 12 12 11 14 | 18 16 16 14 | 14 14 | 20.95 22.91 |
| 3/4" 13/16" 7/8" 15/16" 1" | 19.05 20.64 22.22 23.81 25.40 | 10 9 8 | 16 14 12 | 20 20 20 20 | | | | 12 12 12 | | | | | | 28 28 28 28 32 | 12 12 11 10 | 14 14 11 | 26.44 30.20 33.24 | |
| 1 1/16" 1 1/8" 1 3/16" 1 1/4" 1 5/16" | 26.99 28.57 30.16 31.75 33.34 | 7 7 | 12 12 | 18 18 18 18 | | | 8 8 8 8 | 12 12 12 | 16 16 16 16 | 20 20 20 20 | 28 28 28 28 | | | 7 7 | 9 9 | 11 11 | 37.89 41.91 | |
| 1 3/8" 1 7/16" 1 1/2" 1 9/16" 1 5/8" | 34.92 36.51 38.10 39.69 41.28 | 6 6 | 12 12 | 18 18 18 18 | | 6 6 | 8 8 8 | 12 12 | 16 16 16 | 20 20 20 | 28 28 | | | 6 6 5 | 8 8 | 11 11 | 44.32 47.80 | |
| 1 11/16" 1 3/4" 1 13/16" 1 7/8" 1 15/16" | 42.86 44.45 46.04 47.63 49.21 | 5 | | 18 | | 6 6 6 6 | 8 8 8 | 12 12 12 | 16 16 16 | 20 20 20 | | | | 5 4 1/2 | 7 | 11 | 53.74 | |
| 2" 2 1/8" 2 1/4" 2 3/8" 2 1/2" | 50.80 53.97 57.15 60.32 63.50 | 4 1/2 4 1/2 4 | | | | 6 6 6 6 | 8 8 8 | 12 12 12 | 16 16 16 | 20 20 20 | | | | 4 1/2 4 4 | 7 6 6 | 11 11 11 | 59.61 65.71 75.18 | |
| 2 5/8" 2 3/4" 2 7/8" 3" 3 1/8" | 66.67 69.85 73.02 76.20 79.37 | 4 4 | | | 4 4 | 6 6 | 8 8 8 | 12 12 12 | 16 16 16 | 20 20 20 | | | | 3 1/2 3 1/2 | 6 5 | 11 11 | 81.53 87.88 | |
| 3 1/4" 3 3/8" 3 1/2" 3 5/8" 3 3/4" | 82.55 85.72 88.90 92.07 95.25 | 4 4 4 | | | 4 4 | 6 6 | 8 8 8 | 12 12 12 | 16 16 16 | | | | | 3 1/4 3 1/4 3 | 5 4 1/2 4 1/2 | 11 11 11 | 93.98 100.33 106.68 | |
| 3 7/8" 4" | 98.42 101.60 | 4 | | | 4 | 6 6 | 8 8 | 12 12 | 16 16 | | | | | 3 3 | 4 1/2 | 11 | 113.03 | |




UMRECHNUNGSTABELLE - CONVERSION TABLE


| | Vc m/min | | | | | | | | | | | | | | | |
|----|-------------------|-----|-----|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| | min ⁻¹ | | | | | | | | | | | | | | | |
| 1 | 318 | 637 | 955 | 1273 | 1592 | 1910 | 2546 | 3183 | 3820 | 4775 | 6366 | 7958 | 9549 | 12732 | 15915 | 19099 |
| | | | | | | | | | | | | | | | | |
| 2 | 159 | 318 | 477 | 637 | 796 | 955 | 1273 | 1592 | 1910 | 2387 | 3183 | 3979 | 4775 | 6366 | 7958 | 9549 |
| | | | | | | | | | | | | | | | | |
| 3 | 106 | 212 | 318 | 424 | 531 | 637 | 849 | 1061 | 1273 | 1592 | 2122 | 2653 | 3183 | 4244 | 5305 | 6366 |
| | | | | | | | | | | | | | | | | |
| 4 | 80 | 159 | 239 | 318 | 398 | 477 | 637 | 796 | 955 | 1194 | 1592 | 1989 | 2387 | 3183 | 3979 | 4775 |
| | | | | | | | | | | | | | | | | |
| 5 | 64 | 127 | 191 | 255 | 318 | 382 | 509 | 637 | 764 | 955 | 1273 | 1592 | 1910 | 2546 | 3183 | 3820 |
| | | | | | | | | | | | | | | | | |
| 6 | 53 | 106 | 159 | 212 | 265 | 318 | 424 | 531 | 637 | 796 | 1061 | 1326 | 1592 | 2122 | 2653 | 3183 |
| | | | | | | | | | | | | | | | | |
| 8 | 40 | 80 | 119 | 159 | 199 | 239 | 318 | 398 | 477 | 597 | 796 | 995 | 1194 | 1592 | 1989 | 2387 |
| | | | | | | | | | | | | | | | | |
| 10 | 32 | 64 | 95 | 127 | 159 | 191 | 255 | 318 | 382 | 477 | 637 | 796 | 955 | 1273 | 1592 | 1910 |
| | | | | | | | | | | | | | | | | |
| 12 | 27 | 53 | 80 | 106 | 133 | 159 | 212 | 265 | 318 | 398 | 531 | 663 | 796 | 1061 | 1326 | 1592 |
| | | | | | | | | | | | | | | | | |
| 14 | 23 | 45 | 68 | 91 | 114 | 136 | 182 | 227 | 273 | 341 | 455 | 568 | 682 | 909 | 1137 | 1364 |
| | | | | | | | | | | | | | | | | |
| 16 | 20 | 40 | 60 | 80 | 99 | 119 | 159 | 199 | 239 | 298 | 398 | 497 | 597 | 796 | 995 | 1194 |
| | | | | | | | | | | | | | | | | |
| 18 | 18 | 35 | 53 | 71 | 88 | 106 | 141 | 177 | 212 | 265 | 354 | 442 | 531 | 707 | 884 | 1061 |
| | | | | | | | | | | | | | | | | |
| 20 | 16 | 32 | 48 | 64 | 80 | 95 | 127 | 159 | 191 | 239 | 318 | 398 | 477 | 637 | 796 | 955 |
| | | | | | | | | | | | | | | | | |
| 25 | 13 | 25 | 38 | 51 | 64 | 76 | 102 | 127 | 153 | 191 | 255 | 318 | 382 | 509 | 637 | 764 |
| | | | | | | | | | | | | | | | | |
| 30 | 11 | 21 | 32 | 42 | 53 | 64 | 85 | 106 | 127 | 159 | 212 | 265 | 318 | 424 | 531 | 637 |
| | | | | | | | | | | | | | | | | |
| 35 | 9 | 18 | 27 | 36 | 45 | 55 | 73 | 91 | 109 | 136 | 182 | 227 | 273 | 364 | 455 | 546 |
| | | | | | | | | | | | | | | | | |
| 40 | 8 | 16 | 24 | 32 | 40 | 48 | 64 | 80 | 95 | 119 | 159 | 199 | 239 | 318 | 398 | 477 |
| | | | | | | | | | | | | | | | | |
| 45 | 7 | 14 | 21 | 28 | 35 | 42 | 57 | 71 | 85 | 106 | 141 | 177 | 212 | 283 | 354 | 424 |
| | | | | | | | | | | | | | | | | |
| 50 | 6 | 13 | 19 | 25 | 32 | 38 | 51 | 64 | 76 | 95 | 127 | 159 | 191 | 255 | 318 | 382 |
| | | | | | | | | | | | | | | | | |

KERNLOCHBOHRUNGEN - CORE HOLES


M DIN 13, ISO 261, *5H / 6H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|------|----------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | mm | | | | |
| * 1 | 0.25 | 0.729 | 0.785 | 0.75 | |
| * 1.1 | 0.25 | 0.829 | 0.885 | 0.85 | |
| * 1.2 | 0.25 | 0.929 | 0.985 | 0.95 | |
| * 1.4 | 0.30 | 1.075 | 1.142 | 1.10 | |
| 1.6 | 0.35 | 1.221 | 1.321 | 1.25 | |
| 1.7 | 0.35 | 1.321 | 1.421 | 1.35 | |
| 1.8 | 0.35 | 1.421 | 1.521 | 1.45 | |
| 2 | 0.40 | 1.567 | 1.679 | 1.60 | |
| 2.2 | 0.45 | 1.713 | 1.838 | 1.75 | |
| 2.3 | 0.40 | 1.867 | 1.979 | 1.90 | |
| 2.5 | 0.45 | 2.013 | 2.138 | 2.05 | |
| 2.6 | 0.45 | 2.113 | 2.238 | 2.15 | |
| 3 | 0.50 | 2.459 | 2.599 | 2.50 | |
| 3.5 | 0.60 | 2.850 | 3.010 | 2.90 | |
| 4 | 0.70 | 3.242 | 3.422 | 3.30 | |
| 4.5 | 0.75 | 3.688 | 3.878 | 3.75 | |
| 5 | 0.80 | 4.134 | 4.334 | 4.20 | |
| 6 | 1.00 | 4.917 | 5.153 | 5.00 | |
| 7 | 1.00 | 5.917 | 6.153 | 6.00 | |
| 8 | 1.25 | 6.647 | 6.912 | 6.80 | |
| 9 | 1.25 | 7.647 | 7.912 | 7.80 | |
| 10 | 1.50 | 8.376 | 8.676 | 8.50 | |
| 11 | 1.50 | 9.376 | 9.676 | 9.50 | |
| 12 | 1.75 | 10.106 | 10.441 | 10.20 | |
| 14 | 2.00 | 11.835 | 12.210 | 12.00 | |
| 16 | 2.00 | 13.835 | 14.210 | 14.00 | |
| 18 | 2.50 | 15.294 | 15.744 | 15.50 | |
| 20 | 2.50 | 17.294 | 17.744 | 17.50 | |
| 22 | 2.50 | 19.294 | 19.744 | 19.50 | |
| 24 | 3.00 | 20.752 | 21.252 | 21.00 | |
| 27 | 3.00 | 23.752 | 24.252 | 24.00 | |
| 30 | 3.50 | 26.211 | 26.771 | 26.50 | |
| 33 | 3.50 | 29.211 | 29.771 | 29.50 | |
| 36 | 4.00 | 31.670 | 32.270 | 32.00 | |
| 39 | 4.00 | 34.670 | 35.270 | 35.00 | |
| 42 | 4.50 | 37.129 | 37.799 | 37.50 | |
| 45 | 4.50 | 40.129 | 40.799 | 40.50 | |
| 48 | 5.00 | 42.587 | 43.297 | 43.00 | |
| 52 | 5.00 | 46.587 | 47.297 | 47.00 | |
| 56 | 5.50 | 50.046 | 50.796 | 50.50 | |

MF DIN 13, ISO 261, 6H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|------|----------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | mm | | | | |
| 8 | 1.00 | 6.917 | 7.153 | 7.00 | |
| 9 | 0.75 | 8.188 | 8.378 | 8.25 | |
| 9 | 1.00 | 7.917 | 8.153 | 8.00 | |
| 10 | 0.75 | 9.188 | 9.378 | 9.25 | |
| 10 | 1.00 | 8.917 | 9.153 | 9.00 | |
| 10 | 1.25 | 8.647 | 8.912 | 8.80 | |
| 11 | 0.75 | 10.188 | 10.378 | 10.25 | |
| 11 | 1.00 | 9.917 | 10.153 | 10.00 | |
| 12 | 1.00 | 10.917 | 11.153 | 11.00 | |
| 12 | 1.25 | 10.647 | 10.912 | 10.80 | |
| 12 | 1.50 | 10.376 | 10.676 | 10.50 | |
| 14 | 1.00 | 12.917 | 13.153 | 13.00 | |
| 14 | 1.25 | 12.647 | 12.912 | 12.80 | |
| 14 | 1.50 | 12.376 | 12.676 | 12.50 | |
| 15 | 1.00 | 13.917 | 14.153 | 14.00 | |
| 15 | 1.50 | 13.376 | 13.676 | 13.50 | |
| 16 | 1.00 | 14.917 | 15.153 | 15.00 | |
| 16 | 1.50 | 14.376 | 14.676 | 14.50 | |
| 17 | 1.00 | 15.917 | 16.153 | 16.00 | |
| 17 | 1.50 | 15.376 | 15.676 | 15.50 | |
| 18 | 1.00 | 16.917 | 17.153 | 17.00 | |
| 18 | 1.50 | 16.376 | 16.676 | 16.50 | |
| 18 | 2.00 | 15.835 | 16.210 | 16.00 | |
| 20 | 1.00 | 18.917 | 19.153 | 19.00 | |
| 20 | 1.50 | 18.376 | 18.676 | 18.50 | |
| 20 | 2.00 | 17.835 | 18.210 | 18.00 | |
| 22 | 1.00 | 20.917 | 21.153 | 21.00 | |
| 22 | 1.50 | 20.376 | 20.676 | 20.50 | |
| 22 | 2.00 | 19.835 | 20.210 | 20.00 | |
| 24 | 1.00 | 22.917 | 23.153 | 23.00 | |
| 24 | 1.50 | 22.376 | 22.676 | 22.50 | |
| 24 | 2.00 | 21.835 | 22.210 | 22.00 | |
| 25 | 1.00 | 23.917 | 24.153 | 24.00 | |
| 25 | 1.50 | 23.376 | 23.676 | 23.50 | |
| 25 | 2.00 | 22.835 | 23.210 | 23.00 | |
| 27 | 1.50 | 25.376 | 25.676 | 25.50 | |
| 27 | 2.00 | 24.835 | 25.210 | 25.00 | |
| 28 | 1.00 | 26.917 | 27.153 | 27.00 | |
| 28 | 1.50 | 26.376 | 26.676 | 26.50 | |
| 28 | 2.00 | 25.835 | 26.210 | 26.00 | |
| 30 | 1.00 | 28.917 | 29.153 | 29.00 | |
| 30 | 1.50 | 28.376 | 28.676 | 28.50 | |
| 30 | 2.00 | 27.835 | 28.210 | 28.00 | |
| 32 | 1.50 | 30.376 | 30.676 | 30.50 | |
| 32 | 2.00 | 29.835 | 30.210 | 30.00 | |
| 33 | 1.50 | 31.376 | 31.676 | 31.50 | |
| 33 | 2.00 | 30.835 | 31.210 | 31.00 | |
| 35 | 1.50 | 33.376 | 33.676 | 33.50 | |
| 36 | 1.50 | 34.376 | 34.676 | 34.50 | |
| 36 | 2.00 | 33.835 | 34.210 | 34.00 | |
| 36 | 3.00 | 32.752 | 33.252 | 33.00 | |
| 39 | 1.50 | 37.376 | 37.676 | 37.50 | |
| 39 | 2.00 | 36.835 | 37.210 | 37.00 | |
| 39 | 3.00 | 35.752 | 36.252 | 36.00 | |
| 40 | 1.50 | 38.376 | 38.676 | 38.50 | |


MF DIN 13, ISO 261, 6H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|------|----------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | mm | | | | |
| 2.5 | 0.35 | 2.121 | 2.221 | 2.15 | |
| 3 | 0.35 | 2.621 | 2.721 | 2.65 | |
| 3.5 | 0.35 | 3.121 | 3.221 | 3.15 | |
| 4 | 0.50 | 3.459 | 3.599 | 3.50 | |
| 4.5 | 0.50 | 3.959 | 4.099 | 4.00 | |
| 5 | 0.50 | 4.459 | 4.599 | 4.50 | |
| 5.5 | 0.50 | 4.959 | 5.099 | 5.00 | |
| 6 | 0.75 | 5.188 | 5.378 | 5.25 | |
| 7 | 0.75 | 6.188 | 6.378 | 6.25 | |
| 8 | 0.75 | 7.188 | 7.378 | 7.25 | |




KERNLOCHBOHRUNGEN - CORE HOLES


MF DIN 13, ISO 261, 6H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|------|----------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | mm | | | | |
| 40 | 2.00 | 37.835 | 38.210 | 38.00 | |
| 40 | 3.00 | 36.752 | 37.252 | 37.00 | |
| 42 | 1.50 | 40.376 | 40.676 | 40.50 | |
| 42 | 2.00 | 39.835 | 40.210 | 40.00 | |
| 42 | 3.00 | 38.752 | 39.252 | 39.00 | |
| 45 | 1.50 | 43.376 | 43.676 | 43.50 | |
| 45 | 2.00 | 42.835 | 43.210 | 43.00 | |
| 45 | 3.00 | 41.752 | 42.252 | 42.00 | |
| 48 | 1.50 | 46.376 | 46.676 | 46.50 | |
| 48 | 2.00 | 45.835 | 46.210 | 46.00 | |
| 48 | 3.00 | 44.752 | 45.252 | 45.00 | |
| 50 | 1.50 | 48.376 | 48.676 | 48.50 | |
| 50 | 2.00 | 47.835 | 48.210 | 48.00 | |
| 50 | 3.00 | 46.752 | 47.252 | 47.00 | |
| 52 | 1.50 | 50.376 | 50.676 | 50.50 | |
| 52 | 2.00 | 49.835 | 50.210 | 50.00 | |
| 52 | 3.00 | 48.752 | 49.252 | 49.00 | |
| 55 | 2.00 | 52.835 | 53.210 | 53.00 | |
| 60 | 2.00 | 57.835 | 58.210 | 58.00 | |


MF EN 60423:1994, 7H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|------|----------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | mm | | | | |
| 8 | 1.00 | 6.917 | 7.217 | 7.00 | |
| 10 | 1.00 | 8.917 | 9.217 | 9.00 | |
| 12 | 1.50 | 10.376 | 10.751 | 10.50 | |
| 16 | 1.50 | 14.376 | 14.751 | 14.50 | |
| 20 | 1.50 | 18.376 | 18.751 | 18.50 | |
| 25 | 1.50 | 23.376 | 23.751 | 23.50 | |
| 32 | 1.50 | 30.376 | 30.751 | 30.50 | |
| 40 | 1.50 | 38.376 | 38.751 | 38.50 | |
| 63 | 1.50 | 61.376 | 61.751 | 61.50 | |


UNC ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|-----|-------|----------------------------|--------|--------------|---|
| | | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | TPI | mm | | | | |
| 1 | 64 | 0.397 | 1.425 | 1.582 | 1.45 | |
| 2 | 56 | 0.454 | 1.695 | 1.871 | 1.75 | |
| 3 | 48 | 0.529 | 1.941 | 2.146 | 2.00 | |
| 4 | 40 | 0.635 | 2.157 | 2.385 | 2.25 | |
| 5 | 40 | 0.635 | 2.487 | 2.697 | 2.55 | |
| 6 | 32 | 0.794 | 2.642 | 2.895 | 2.75 | |
| 8 | 32 | 0.794 | 3.302 | 3.530 | 3.40 | |
| 10 | 24 | 1.058 | 3.683 | 3.962 | 3.80 | |
| 12 | 24 | 1.058 | 4.344 | 4.597 | 4.40 | |
| 1/4" | 20 | 1.270 | 4.979 | 5.257 | 5.10 | |
| 5/16" | 18 | 1.411 | 6.401 | 6.731 | 6.50 | |

UNC ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|-----|-------|----------------------------|--------|--------------|---|
| | | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | TPI | mm | | | | |
| 3/8" | 16 | 1.588 | 7.798 | 8.153 | 8.00 | |
| 7/16" | 14 | 1.814 | 9.144 | 9.550 | 9.30 | |
| 1/2" | 13 | 1.954 | 10.592 | 11.023 | 10.80 | |
| 9/16" | 12 | 2.117 | 11.989 | 12.446 | 12.20 | |
| 5/8" | 11 | 2.309 | 13.386 | 13.868 | 13.60 | |
| 3/4" | 10 | 2.540 | 16.307 | 16.840 | 16.60 | |
| 7/8" | 9 | 2.822 | 19.177 | 19.761 | 19.50 | |
| 1" | 8 | 3.175 | 21.971 | 22.606 | 22.30 | |
| 1 1/8" | 7 | 3.629 | 24.638 | 25.349 | 25.00 | |
| 1 1/4" | 7 | 3.629 | 27.813 | 28.524 | 28.20 | |
| 1 3/8" | 6 | 4.233 | 30.353 | 31.115 | 30.80 | |
| 1 1/2" | 6 | 4.233 | 33.528 | 34.290 | 34.00 | |
| 1 3/4" | 5 | 5.080 | 38.964 | 39.827 | 39.50 | |
| 2" | 4.5 | 5.644 | 44.679 | 45.593 | 45.30 | |

UNJC ISO 3161:1999, 3B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |  |
|----------------|-----|-------|----------------------------|--------|--------------|---|
| | | | Ø mini | Ø maxi | Ø guide line | |
| d ₁ | TPI | mm | | | | |
| 4 | 40 | 0.635 | 2.228 | 2.393 | 2.30 | |
| 5 | 40 | 0.635 | 2.558 | 2.723 | 2.60 | |
| 6 | 32 | 0.794 | 2.733 | 2.939 | 2.80 | |
| 8 | 32 | 0.794 | 3.393 | 3.599 | 3.45 | |
| 10 | 24 | 1.058 | 3.795 | 4.064 | 3.90 | |
| 12 | 24 | 1.058 | 4.455 | 4.704 | 4.55 | |
| 1/4" | 20 | 1.270 | 5.113 | 5.387 | 5.20 | |
| 5/16" | 18 | 1.411 | 6.563 | 6.833 | 6.70 | |
| 3/8" | 16 | 1.588 | 7.978 | 8.255 | 8.10 | |
| 7/16" | 14 | 1.814 | 9.347 | 9.639 | 9.40 | |
| 1/2" | 13 | 1.954 | 10.798 | 11.095 | 10.90 | |
| 9/16" | 12 | 2.117 | 12.228 | 12.482 | 12.40 | |
| 5/8" | 11 | 2.309 | 13.627 | 13.904 | 13.80 | |
| 3/4" | 10 | 2.540 | 16.576 | 16.881 | 16.70 | |

KERNLOCHBOHRUNGEN - CORE HOLES

UNF ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 0 | 80 | 0.318 | 1.182 | 1.305 | 1.20 |
| 1 | 72 | 0.353 | 1.474 | 1.612 | 1.50 |
| 2 | 64 | 0.397 | 1.756 | 1.912 | 1.80 |
| 3 | 56 | 0.454 | 2.025 | 2.197 | 2.10 |
| 4 | 48 | 0.529 | 2.271 | 2.458 | 2.35 |
| 5 | 44 | 0.577 | 2.551 | 2.740 | 2.60 |
| 6 | 40 | 0.635 | 2.820 | 3.022 | 2.90 |
| 8 | 36 | 0.706 | 3.404 | 3.606 | 3.50 |
| 10 | 32 | 0.794 | 3.963 | 4.165 | 4.05 |
| 12 | 28 | 0.907 | 4.496 | 4.724 | 4.60 |
| 1/4" | 28 | 0.907 | 5.360 | 5.588 | 5.50 |
| 5/16" | 24 | 1.058 | 6.782 | 7.035 | 6.90 |
| 3/8" | 24 | 1.058 | 8.382 | 8.636 | 8.50 |
| 7/16" | 20 | 1.270 | 9.729 | 10.033 | 9.80 |
| 1/2" | 20 | 1.270 | 11.329 | 11.607 | 11.40 |
| 9/16" | 18 | 1.411 | 12.751 | 13.081 | 12.90 |
| 5/8" | 18 | 1.411 | 14.351 | 14.681 | 14.50 |
| 3/4" | 16 | 1.588 | 17.323 | 17.678 | 17.50 |
| 7/8" | 14 | 1.814 | 20.270 | 20.675 | 20.40 |
| 1" | 12 | 2.117 | 23.114 | 23.571 | 23.30 |
| 1 1/8" | 12 | 2.117 | 26.289 | 26.746 | 26.50 |
| 1 1/4" | 12 | 2.117 | 29.464 | 29.921 | 29.70 |
| 1 3/8" | 12 | 2.117 | 32.639 | 33.096 | 32.80 |
| 1 1/2" | 12 | 2.117 | 35.814 | 36.271 | 36.00 |

UNEF ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 12 | 32 | 0.794 | 4.623 | 4.826 | 4.70 |
| 1/4" | 32 | 0.794 | 5.487 | 5.689 | 5.60 |
| 5/16" | 32 | 0.794 | 7.087 | 7.264 | 7.20 |
| 3/8" | 32 | 0.794 | 8.662 | 8.864 | 8.75 |
| 7/16" | 28 | 0.907 | 10.135 | 10.337 | 10.25 |
| 1/2" | 28 | 0.907 | 11.710 | 11.938 | 11.85 |
| 9/16" | 24 | 1.058 | 13.132 | 13.385 | 13.20 |
| 5/8" | 24 | 1.058 | 14.732 | 14.986 | 14.80 |
| 11/16" | 24 | 1.058 | 16.307 | 16.560 | 16.40 |
| 3/4" | 20 | 1.270 | 17.679 | 17.957 | 17.80 |
| 13/16" | 20 | 1.270 | 19.254 | 19.558 | 19.40 |
| 7/8" | 20 | 1.270 | 20.854 | 21.132 | 21.00 |
| 1" | 20 | 1.270 | 24.029 | 24.307 | 24.10 |

UN ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 5/16" | 20 | 1.270 | 6.554 | 6.858 | 6.70 |
| 3/8" | 20 | 1.270 | 8.154 | 8.432 | 8.30 |
| 9/16" | 20 | 1.270 | 12.904 | 13.208 | 13.00 |
| 5/8" | 20 | 1.270 | 14.504 | 14.782 | 14.60 |
| 1 1/8" | 8 | 3.175 | 25.146 | 25.781 | 25.50 |
| 1 1/4" | 8 | 3.175 | 28.321 | 28.956 | 28.70 |
| 1 3/8" | 8 | 3.175 | 31.496 | 32.131 | 31.80 |
| 1 1/2" | 8 | 3.175 | 34.671 | 35.306 | 35.00 |
| 1 5/8" | 8 | 3.175 | 37.846 | 38.481 | 38.20 |
| 1 3/4" | 8 | 3.175 | 41.021 | 41.656 | 41.40 |
| 1 7/8" | 8 | 3.175 | 44.196 | 44.831 | 44.50 |
| 2" | 8 | 3.175 | 47.371 | 48.006 | 47.70 |
| 2 1/4" | 8 | 3.175 | 53.721 | 54.356 | 54.10 |
| 2 1/2" | 8 | 3.175 | 60.071 | 60.706 | 60.40 |

UNJF ISO 3161:1999, 3B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 0 | 80 | 0.318 | 1.217 | 1.298 | 1.25 |
| 1 | 72 | 0.353 | 1.511 | 1.603 | 1.55 |
| 2 | 64 | 0.397 | 1.798 | 1.902 | 1.85 |
| 3 | 56 | 0.454 | 2.073 | 2.189 | 2.15 |
| 4 | 48 | 0.529 | 2.329 | 2.466 | 2.35 |
| 5 | 44 | 0.577 | 2.614 | 2.764 | 2.70 |
| 6 | 40 | 0.635 | 2.888 | 3.053 | 2.95 |
| 8 | 36 | 0.706 | 3.480 | 3.663 | 3.60 |
| 10 | 32 | 0.794 | 4.054 | 4.255 | 4.10 |
| 12 | 28 | 0.907 | 4.602 | 4.816 | 4.70 |
| 1/4" | 28 | 0.907 | 5.466 | 5.662 | 5.55 |
| 5/16" | 24 | 1.058 | 6.906 | 7.109 | 7.00 |
| 3/8" | 24 | 1.058 | 8.494 | 8.679 | 8.60 |
| 7/16" | 20 | 1.270 | 9.876 | 10.084 | 10.00 |
| 1/2" | 20 | 1.270 | 11.463 | 11.661 | 11.55 |
| 9/16" | 18 | 1.411 | 12.913 | 13.122 | 13.05 |
| 5/8" | 18 | 1.411 | 14.501 | 14.702 | 14.60 |
| 3/4" | 16 | 1.588 | 17.506 | 17.722 | 17.60 |
| 7/8" | 14 | 1.814 | 20.460 | 20.706 | 20.50 |
| 1" | 12 | 2.117 | 23.340 | 23.594 | 23.40 |



KERNLOCHBOHRUNGEN - CORE HOLES

UNS ANSI B1.1, 2B

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 10 | 36 | 0.706 | 4.064 | 4.216 | 4.10 |
| 10 | 40 | 0.635 | 4.141 | 4.292 | 4.20 |
| 10 | 56 | 0.454 | 4.344 | 4.445 | 4.40 |
| 1/4" | 36 | 0.706 | 5.588 | 5.740 | 5.65 |
| 1/4" | 40 | 0.635 | 5.665 | 5.816 | 5.70 |
| 1/4" | 48 | 0.529 | 5.766 | 5.892 | 5.80 |
| 1/4" | 56 | 0.454 | 5.868 | 5.969 | 5.90 |
| 5/16" | 36 | 0.706 | 7.163 | 7.340 | 7.25 |
| 3/8" | 36 | 0.706 | 8.763 | 8.940 | 8.80 |
| 7/16" | 24 | 1.058 | 9.957 | 10.210 | 10.00 |
| 1/2" | 24 | 1.058 | 11.557 | 11.811 | 11.60 |
| 1" | 14 | 1.814 | 23.445 | 23.825 | 23.60 |

W (BSW) BS 84, (DIN11 - 1970)

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| (3/32") | 48 | | | | 1.80 |
| 1/8" | 40 | 0.635 | 2.362 | 2.591 | 2.50 |
| (5/32") | 32 | | | | 3.10 |
| 3/16" | 24 | 1.058 | 3.406 | 3.744 | 3.60 |
| (7/32") | 24 | | | | 4.40 |
| 1/4" | 20 | 1.270 | 4.724 | 5.156 | 4.90 |
| 5/16" | 18 | 1.411 | 6.129 | 6.588 | 6.40 |
| 3/8" | 16 | 1.588 | 7.493 | 7.988 | 7.70 |
| 7/16" | 14 | 1.814 | 8.791 | 9.332 | 9.10 |
| 1/2" | 12 | 2.117 | 9.987 | 10.589 | 10.30 |
| 5/8" | 11 | 2.309 | 12.918 | 13.558 | 13.30 |
| 3/4" | 10 | 2.540 | 15.799 | 16.484 | 16.20 |
| 7/8" | 9 | 2.822 | 18.613 | 19.355 | 19.25 |
| 1" | 8 | 3.175 | 21.336 | 22.149 | 21.90 |

G (BSP) DIN ISO 228

| Ø" | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 1/16" | 28 | 0.907 | 6.561 | 6.843 | 6.75 |
| 1/8" | 28 | 0.907 | 8.566 | 8.848 | 8.75 |
| 1/4" | 19 | 1.337 | 11.445 | 11.890 | 11.60 |
| 3/8" | 19 | 1.337 | 14.950 | 15.395 | 15.20 |
| 1/2" | 14 | 1.814 | 18.631 | 19.172 | 18.90 |
| 5/8" | 14 | 1.814 | 20.587 | 21.128 | 20.90 |
| 3/4" | 14 | 1.814 | 24.117 | 24.658 | 24.40 |
| 7/8" | 14 | 1.814 | 27.877 | 28.418 | 28.20 |
| 1" | 11 | 2.309 | 30.291 | 30.931 | 30.70 |
| 1 1/8" | 11 | 2.309 | 34.939 | 35.579 | 35.30 |
| 1 1/4" | 11 | 2.309 | 38.952 | 39.592 | 39.30 |
| 1 3/8" | 11 | 2.309 | 41.365 | 42.005 | 41.80 |
| 1 1/2" | 11 | 2.309 | 44.845 | 45.485 | 45.20 |
| 1 3/4" | 11 | 2.309 | 50.788 | 51.428 | 51.20 |
| 2" | 11 | 2.309 | 56.656 | 57.296 | 57.00 |
| 2 1/4" | 11 | 2.309 | 62.752 | 63.392 | 63.10 |
| 2 1/2" | 11 | 2.309 | 72.226 | 72.866 | 72.60 |
| 3" | 11 | 2.309 | 84.926 | 85.566 | 85.30 |

PG DIN 40430

| Ø | P | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|-----|-------|----------------------------|--------|--------------|
| d _i | TPI | mm | Ø mini | Ø maxi | Ø guide line |
| 7 | 20 | 1.270 | 11.28 | 11.43 | 11.35 |
| 9 | 18 | 1.411 | 13.86 | 14.01 | 13.90 |
| 11 | 18 | 1.411 | 17.26 | 17.41 | 17.30 |
| 13.5 | 18 | 1.411 | 19.06 | 19.21 | 19.10 |
| 16 | 18 | 1.411 | 21.16 | 21.31 | 21.20 |
| 21 | 16 | 1.588 | 26.78 | 27.03 | 26.80 |
| 29 | 16 | 1.588 | 35.48 | 35.73 | 35.50 |
| 36 | 16 | 1.588 | 45.48 | 45.73 | 45.50 |
| 42 | 16 | 1.588 | 52.48 | 52.73 | 52.50 |
| 48 | 16 | 1.588 | 57.78 | 58.03 | 57.80 |

TR ISO 2901-2904, DIN 103, 7H

| Ø | P | Kern-Ø Mutter - Core Ø nut | | |
|----------------|----|----------------------------|--------|--------------|
| d _i | mm | Ø mini | Ø maxi | Ø guide line |
| 10 | 2 | 8 | 8.236 | 8.20 |
| 12 | 3 | 9 | 9.315 | 9.25 |
| 14 | 3 | 11 | 11.315 | 11.25 |
| 16 | 4 | 12 | 12.375 | 12.25 |
| 18 | 4 | 14 | 14.375 | 14.25 |
| 20 | 4 | 16 | 16.375 | 16.25 |
| 22 | 5 | 17 | 17.450 | 17.25 |
| 24 | 5 | 19 | 19.450 | 19.25 |
| 26 | 5 | 21 | 21.450 | 21.25 |
| 28 | 5 | 23 | 23.450 | 23.25 |
| 30 | 6 | 24 | 24.500 | 24.25 |
| 32 | 6 | 26 | 26.500 | 26.25 |

AUSSENDURCHMESSER - TURNED DIAMETERS

M DIN 13, ISO 261, *6h / 6g

| Ø | P | Aussen-Ø Bolzen - Thread outside Ø | | |
|----------------|------|------------------------------------|--------|--------------|
| | | Ø mini | Ø maxi | Ø guide line |
| d ₁ | mm | | | |
| * 1 | 0.25 | 0.933 | 1.000 | 0.97 |
| * 1.1 | 0.25 | 1.033 | 1.100 | 1.07 |
| * 1.2 | 0.25 | 1.133 | 1.200 | 1.17 |
| * 1.4 | 0.30 | 1.325 | 1.400 | 1.36 |
| 1.6 | 0.35 | 1.496 | 1.581 | 1.54 |
| 1.7 | 0.35 | 1.596 | 1.681 | 1.64 |
| 1.8 | 0.35 | 1.696 | 1.781 | 1.74 |
| 2 | 0.40 | 1.886 | 1.981 | 1.93 |
| 2.2 | 0.45 | 2.080 | 2.180 | 2.13 |
| 2.3 | 0.40 | 2.186 | 2.300 | 2.23 |
| 2.5 | 0.45 | 2.380 | 2.480 | 2.43 |
| 2.6 | 0.45 | 2.480 | 2.600 | 2.53 |
| 3 | 0.50 | 2.874 | 2.980 | 2.92 |
| 3.5 | 0.60 | 3.354 | 3.479 | 3.41 |
| 4 | 0.70 | 3.838 | 3.978 | 3.91 |
| 4.5 | 0.75 | 4.338 | 4.478 | 4.40 |
| 5 | 0.80 | 4.826 | 4.976 | 4.90 |
| 6 | 1.00 | 5.794 | 5.974 | 5.88 |
| 7 | 1.00 | 6.794 | 6.974 | 6.88 |
| 8 | 1.25 | 7.760 | 7.972 | 7.87 |
| 9 | 1.25 | 8.760 | 8.972 | 8.87 |
| 10 | 1.50 | 9.732 | 9.968 | 9.85 |
| 11 | 1.50 | 10.732 | 10.968 | 10.85 |
| 12 | 1.75 | 11.701 | 11.966 | 11.83 |
| 14 | 2.00 | 13.682 | 13.962 | 13.82 |
| 16 | 2.00 | 15.682 | 15.962 | 15.82 |
| 18 | 2.50 | 17.623 | 17.958 | 17.79 |
| 20 | 2.50 | 19.623 | 19.958 | 19.79 |
| 22 | 2.50 | 21.623 | 21.958 | 21.79 |
| 24 | 3.00 | 23.577 | 23.952 | 23.76 |
| 27 | 3.00 | 26.577 | 26.952 | 26.76 |
| 30 | 3.50 | 29.522 | 29.947 | 29.73 |
| 33 | 3.50 | 32.522 | 32.947 | 32.73 |
| 36 | 4.00 | 35.465 | 35.940 | 35.70 |
| 39 | 4.00 | 38.465 | 38.940 | 38.70 |
| 42 | 4.50 | 41.437 | 41.937 | 41.69 |
| 45 | 4.50 | 44.437 | 44.937 | 44.69 |
| 48 | 5.00 | 47.399 | 47.929 | 47.66 |
| 52 | 5.00 | 51.399 | 51.929 | 51.66 |
| 56 | 5.50 | 55.365 | 55.925 | 55.65 |

MF DIN 13, ISO 261, 6g

| Ø | P | Aussen-Ø Bolzen - Thread outside Ø | | |
|----------------|------|------------------------------------|--------|--------------|
| | | Ø mini | Ø maxi | Ø guide line |
| d ₁ | mm | | | |
| 8 | 1.00 | 7.794 | 7.974 | 7.88 |
| 9 | 0.75 | 8.838 | 8.978 | 8.90 |
| 9 | 1.00 | 8.794 | 8.974 | 8.88 |
| 10 | 0.75 | 9.838 | 9.978 | 9.90 |
| 10 | 1.00 | 9.794 | 9.974 | 9.88 |
| 10 | 1.25 | 9.760 | 9.972 | 9.86 |
| 11 | 0.75 | 10.838 | 10.978 | 10.90 |
| 11 | 1.00 | 10.794 | 10.974 | 10.88 |
| 12 | 1.00 | 11.794 | 11.974 | 11.88 |
| 12 | 1.25 | 11.760 | 11.972 | 11.86 |
| 14 | 1.00 | 13.794 | 13.974 | 13.88 |
| 14 | 1.25 | 13.760 | 13.972 | 13.86 |
| 14 | 1.50 | 13.732 | 13.968 | 13.85 |
| 15 | 1.00 | 14.794 | 14.974 | 14.88 |
| 15 | 1.50 | 14.732 | 14.968 | 14.85 |
| 16 | 1.00 | 15.794 | 15.974 | 15.88 |
| 16 | 1.50 | 15.732 | 15.968 | 15.85 |
| 17 | 1.00 | 16.794 | 16.974 | 16.88 |
| 17 | 1.50 | 16.732 | 16.968 | 16.85 |
| 18 | 1.00 | 17.794 | 17.974 | 17.88 |
| 18 | 1.50 | 17.732 | 17.968 | 17.85 |
| 18 | 2.00 | 17.682 | 17.962 | 17.82 |
| 20 | 1.00 | 19.794 | 19.974 | 19.88 |
| 20 | 1.50 | 19.732 | 19.968 | 19.85 |
| 20 | 2.00 | 19.682 | 19.962 | 19.82 |
| 22 | 1.00 | 21.794 | 21.974 | 21.88 |
| 22 | 1.50 | 21.732 | 21.968 | 21.85 |
| 22 | 2.00 | 21.682 | 21.962 | 21.82 |
| 24 | 1.00 | 23.794 | 23.974 | 23.88 |
| 24 | 1.50 | 23.732 | 23.968 | 23.85 |
| 24 | 2.00 | 23.682 | 23.962 | 23.82 |
| 25 | 1.00 | 24.794 | 24.974 | 24.88 |
| 25 | 1.50 | 24.732 | 24.968 | 24.85 |
| 25 | 2.00 | 24.682 | 24.962 | 24.82 |
| 27 | 1.00 | 26.794 | 26.974 | 26.88 |
| 27 | 1.50 | 26.732 | 26.968 | 26.85 |
| 27 | 2.00 | 26.682 | 26.962 | 26.82 |
| 28 | 1.00 | 27.794 | 27.974 | 27.88 |
| 28 | 1.50 | 27.732 | 27.968 | 27.85 |
| 28 | 2.00 | 27.682 | 27.962 | 27.82 |
| 30 | 1.00 | 29.794 | 29.974 | 29.88 |
| 30 | 1.50 | 29.732 | 29.968 | 29.85 |
| 30 | 2.00 | 29.682 | 29.962 | 29.82 |
| 30 | 3.00 | 29.577 | 29.952 | 29.76 |
| 32 | 1.50 | 31.732 | 31.968 | 31.85 |
| 32 | 2.00 | 31.682 | 31.962 | 31.82 |
| 33 | 1.50 | 32.732 | 32.968 | 32.85 |
| 33 | 2.00 | 32.682 | 32.962 | 32.82 |
| 33 | 3.00 | 32.577 | 32.952 | 32.76 |
| 35 | 1.50 | 34.732 | 34.968 | 34.85 |
| 36 | 1.50 | 35.732 | 35.968 | 35.85 |
| 36 | 2.00 | 35.682 | 35.962 | 35.82 |
| 36 | 3.00 | 35.577 | 35.952 | 35.76 |
| 39 | 1.50 | 38.732 | 38.968 | 38.85 |
| 39 | 2.00 | 38.682 | 38.962 | 38.82 |
| 39 | 3.00 | 38.577 | 38.952 | 38.76 |


MF DIN 13, ISO 261, 6g

| Ø | P | Aussen-Ø Bolzen - Thread outside Ø | | |
|----------------|------|------------------------------------|--------|--------------|
| | | Ø mini | Ø maxi | Ø guide line |
| d ₁ | mm | | | |
| 2.5 | 0.35 | 2.396 | 2.481 | 2.44 |
| 3 | 0.35 | 2.896 | 2.981 | 2.94 |
| 3.5 | 0.35 | 3.396 | 3.481 | 3.44 |
| 4 | 0.50 | 3.874 | 3.980 | 3.93 |
| 4.5 | 0.50 | 4.374 | 4.480 | 4.43 |
| 5 | 0.50 | 4.874 | 4.980 | 4.93 |
| 5.5 | 0.50 | 5.374 | 5.480 | 5.43 |
| 6 | 0.75 | 5.838 | 5.978 | 5.90 |
| 7 | 0.75 | 6.838 | 6.978 | 6.90 |
| 8 | 0.75 | 7.838 | 7.978 | 7.90 |




AUSSENDURCHMESSER - TURNED DIAMETERS


MF DIN 13, ISO 261, 6g

| Ø | P | Aussen-Ø Bolzen - Thread outside Ø | | |  |
|----------------|------|------------------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d _i | mm | | | | |
| 40 | 1.50 | 39.732 | 39.968 | 39.85 | |
| 40 | 2.00 | 39.682 | 39.962 | 39.82 | |
| 40 | 3.00 | 39.577 | 39.952 | 39.76 | |
| 42 | 1.50 | 41.732 | 41.968 | 41.85 | |
| 42 | 2.00 | 41.682 | 41.962 | 41.82 | |
| 42 | 3.00 | 41.577 | 41.952 | 41.76 | |
| 45 | 1.50 | 44.732 | 44.968 | 44.85 | |
| 45 | 2.00 | 44.682 | 44.962 | 44.82 | |
| 45 | 3.00 | 44.577 | 44.952 | 44.76 | |
| 48 | 1.50 | 47.732 | 47.968 | 47.85 | |
| 48 | 2.00 | 47.682 | 47.962 | 47.82 | |
| 48 | 3.00 | 47.577 | 47.952 | 47.76 | |
| 50 | 1.50 | 49.732 | 49.968 | 49.85 | |
| 50 | 2.00 | 49.682 | 49.962 | 49.82 | |
| 50 | 3.00 | 49.577 | 49.952 | 49.76 | |
| 52 | 1.50 | 51.732 | 51.968 | 51.85 | |
| 52 | 2.00 | 51.682 | 51.962 | 51.82 | |
| 52 | 3.00 | 51.577 | 51.952 | 51.76 | |
| 52 | 4.00 | 51.465 | 51.940 | 51.70 | |


UNC ANSI B1.1, 2A

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | |  |
|----------------|-----|--------------------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d _i | TPI | mm | | | |
| 1 | 64 | 0.397 | 1.743 | 1.838 | 1.79 |
| 2 | 56 | 0.454 | 2.066 | 2.169 | 2.12 |
| 3 | 48 | 0.529 | 2.383 | 2.496 | 2.44 |
| 4 | 40 | 0.635 | 2.695 | 2.824 | 2.76 |
| 5 | 40 | 0.635 | 3.026 | 3.154 | 3.09 |
| 6 | 32 | 0.794 | 3.333 | 3.484 | 3.41 |
| 8 | 32 | 0.794 | 3.991 | 4.142 | 4.07 |
| 10 | 24 | 1.058 | 4.618 | 4.800 | 4.71 |
| 12 | 24 | 1.058 | 5.279 | 5.461 | 5.37 |
| 1/4" | 20 | 1.270 | 6.117 | 6.322 | 6.22 |
| 5/16" | 18 | 1.411 | 7.687 | 7.907 | 7.80 |
| 3/8" | 16 | 1.588 | 9.254 | 9.491 | 9.37 |
| 7/16" | 14 | 1.814 | 10.816 | 11.076 | 10.95 |
| 1/2" | 13 | 1.954 | 12.386 | 12.661 | 12.52 |
| 9/16" | 12 | 2.117 | 13.958 | 14.246 | 14.10 |
| 5/8" | 11 | 2.309 | 15.528 | 15.834 | 15.68 |
| 3/4" | 10 | 2.540 | 18.677 | 19.004 | 18.84 |
| 7/8" | 9 | 2.822 | 21.824 | 22.176 | 22.00 |
| 1" | 8 | 3.175 | 24.969 | 25.349 | 25.16 |
| 1 1/8" | 7 | 3.629 | 28.103 | 28.519 | 28.31 |
| 1 1/4" | 7 | 3.629 | 31.278 | 31.694 | 31.49 |
| 1 3/8" | 6 | 4.233 | 34.402 | 34.864 | 34.63 |
| 1 1/2" | 6 | 4.233 | 37.577 | 38.039 | 37.81 |
| 1 3/4" | 5 | 5.080 | 43.860 | 44.381 | 44.12 |
| 2" | 4.5 | 5.644 | 50.168 | 50.726 | 50.45 |
| 2 1/4" | 4.5 | 5.644 | 56.518 | 57.076 | 56.80 |
| 2 1/2" | 4 | 6.350 | 62.817 | 63.421 | 63.12 |
| 2 3/4" | 4 | 6.350 | 69.165 | 69.768 | 69.47 |
| 3" | 4 | 6.350 | 75.515 | 76.118 | 75.82 |
| 3 1/4" | 4 | 6.350 | 81.862 | 82.466 | 82.16 |
| 3 1/2" | 4 | 6.350 | 88.212 | 88.816 | 88.51 |


UNC ANSI B1.1, 2A

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | |  |
|----------------|-----|--------------------------------------|---------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d _i | TPI | mm | | | |
| 3 3/4" | 4 | 6.350 | 94.560 | 95.163 | 94.86 |
| 4" | 4 | 6.350 | 100.910 | 101.513 | 101.21 |

UNF ANSI B1.1, 2A


| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | |  |
|----------------|-----|--------------------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d _i | TPI | mm | | | |
| 0 | 80 | 0.318 | 1.431 | 1.511 | 1.47 |
| 1 | 72 | 0.353 | 1.751 | 1.838 | 1.79 |
| 2 | 64 | 0.397 | 2.073 | 2.169 | 2.12 |
| 3 | 56 | 0.454 | 2.393 | 2.496 | 2.44 |
| 4 | 48 | 0.529 | 2.713 | 2.827 | 2.77 |
| 5 | 44 | 0.577 | 3.036 | 3.157 | 3.10 |
| 6 | 40 | 0.635 | 3.356 | 3.484 | 3.42 |
| 8 | 36 | 0.706 | 4.006 | 4.145 | 4.08 |
| 10 | 32 | 0.794 | 4.651 | 4.803 | 4.73 |
| 12 | 28 | 0.907 | 5.296 | 5.461 | 5.38 |
| 1/4" | 28 | 0.907 | 6.160 | 6.324 | 6.24 |
| 5/16" | 24 | 1.058 | 7.727 | 7.909 | 7.82 |
| 3/8" | 24 | 1.058 | 9.315 | 9.497 | 9.41 |
| 7/16" | 20 | 1.270 | 10.874 | 11.079 | 10.98 |
| 1/2" | 20 | 1.270 | 12.462 | 12.666 | 12.56 |
| 9/16" | 18 | 1.411 | 14.031 | 14.251 | 14.14 |
| 5/8" | 18 | 1.411 | 15.619 | 15.839 | 15.73 |
| 3/4" | 16 | 1.588 | 18.774 | 19.011 | 18.89 |
| 7/8" | 14 | 1.814 | 21.923 | 22.184 | 22.05 |
| 1" | 12 | 2.117 | 25.065 | 25.354 | 25.21 |
| 1 1/8" | 12 | 2.117 | 28.240 | 28.529 | 28.38 |
| 1 1/4" | 12 | 2.117 | 31.415 | 31.704 | 31.56 |
| 1 3/8" | 12 | 2.117 | 34.588 | 34.876 | 34.73 |
| 1 1/2" | 12 | 2.117 | 37.763 | 38.051 | 37.91 |

UNEF ANSI B1.1, 2A


| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | |  |
|----------------|-----|--------------------------------------|--------|--------------|---|
| | | Ø mini | Ø maxi | Ø guide line | |
| d _i | TPI | mm | | | |
| 12 | 32 | 0.794 | 5.312 | 5.463 | 5.39 |
| 1/4" | 32 | 0.794 | 6.173 | 6.324 | 6.25 |
| 5/16" | 32 | 0.794 | 7.760 | 7.912 | 7.84 |
| 3/8" | 32 | 0.794 | 9.348 | 9.499 | 9.42 |
| 7/16" | 28 | 0.907 | 10.920 | 11.084 | 11.00 |
| 1/2" | 28 | 0.907 | 12.507 | 12.672 | 12.59 |
| 9/16" | 24 | 1.058 | 14.075 | 14.257 | 14.17 |
| 5/8" | 24 | 1.058 | 15.662 | 15.844 | 15.75 |
| 11/16" | 24 | 1.058 | 17.250 | 17.432 | 17.34 |
| 3/4" | 20 | 1.270 | 18.812 | 19.016 | 18.91 |
| 13/16" | 20 | 1.270 | 20.339 | 20.604 | 20.50 |
| 7/8" | 20 | 1.270 | 21.987 | 22.191 | 22.09 |
| 15/16" | 20 | 1.270 | 23.572 | 23.776 | 23.67 |
| 1" | 20 | 1.270 | 25.159 | 25.364 | 25.26 |
| 1 1/8" | 18 | 1.411 | 28.319 | 28.539 | 28.43 |
| 1 1/4" | 18 | 1.411 | 31.491 | 31.711 | 31.60 |
| 1 1/2" | 18 | 1.411 | 37.841 | 38.061 | 37.95 |

AUSSENDURCHMESSER - TURNED DIAMETERS


UN ANSI B1.1, 2A

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|--------|----|--------------------------------------|--------|--------|--------|---|
| | | d _i | TPI | mm | Ø mini | |
| 5/16" | 20 | 1.270 | 7.702 | 7.907 | 7.80 | |
| 3/8" | 20 | 1.270 | 9.289 | 9.494 | 9.39 | |
| 9/16" | 20 | 1.270 | 14.049 | 14.254 | 14.15 | |
| 5/8" | 20 | 1.270 | 15.637 | 15.841 | 15.74 | |
| 1 1/8" | 8 | 3.175 | 28.141 | 28.521 | 28.33 | |
| 1 1/4" | 8 | 3.175 | 31.316 | 31.696 | 31.51 | |
| 1 3/8" | 8 | 3.175 | 34.489 | 34.869 | 34.68 | |
| 1 1/2" | 8 | 3.175 | 37.664 | 38.044 | 37.85 | |
| 1 5/8" | 8 | 3.175 | 40.839 | 41.219 | 41.03 | |
| 1 3/4" | 8 | 3.175 | 44.011 | 44.391 | 44.20 | |
| 1 7/8" | 8 | 3.175 | 47.186 | 47.566 | 47.38 | |
| 2" | 8 | 3.175 | 50.361 | 50.741 | 50.55 | |
| 2 1/4" | 8 | 3.175 | 56.709 | 57.089 | 56.90 | |
| 2 1/2" | 8 | 3.175 | 63.059 | 63.439 | 63.25 | |
| 2 3/4" | 8 | 3.175 | 69.406 | 69.786 | 69.60 | |
| 3" | 8 | 3.175 | 75.753 | 76.133 | 75.94 | |


W (BSW) BS 84

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|--------|-----|--------------------------------------|--------|--------|--------|---|
| | | d _i | TPI | mm | Ø mini | |
| 1/4" | 20 | 1.270 | 6.165 | 6.319 | 6.24 | |
| 5/16" | 18 | 1.411 | 7.737 | 7.904 | 7.82 | |
| 3/8" | 16 | 1.588 | 9.312 | 9.489 | 9.40 | |
| 7/16" | 14 | 1.814 | 10.884 | 11.074 | 10.98 | |
| 1/2" | 12 | 2.117 | 12.456 | 12.662 | 12.56 | |
| 5/8" | 11 | 2.309 | 15.613 | 15.832 | 15.72 | |
| 3/4" | 10 | 2.540 | 18.771 | 19.004 | 18.89 | |
| 7/8" | 9 | 2.822 | 21.979 | 22.225 | 22.10 | |
| 1" | 8 | 3.175 | 25.138 | 25.400 | 25.27 | |
| 1 1/8" | 7 | 3.629 | 28.296 | 28.575 | 28.44 | |
| 1 1/4" | 7 | 3.629 | 31.465 | 31.750 | 31.61 | |
| 1 1/2" | 6 | 4.233 | 37.793 | 38.100 | 37.95 | |
| 1 3/4" | 5 | 5.080 | 44.117 | 44.450 | 44.28 | |
| 2" | 4.5 | 5.644 | 50.449 | 50.800 | 50.62 | |
| 2 1/4" | 4 | 6.350 | 56.779 | 57.150 | 56.96 | |
| 2 1/2" | 4 | 6.350 | 63.119 | 63.500 | 63.31 | |


UNS ANSI B1.1, 2A

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|-------|----|--------------------------------------|--------|--------|--------|---|
| | | d _i | TPI | mm | Ø mini | |
| 10 | 36 | 0.706 | 4.664 | 4.803 | 4.73 | |
| 10 | 40 | 0.635 | 4.674 | 4.803 | 4.74 | |
| 10 | 56 | 0.454 | 4.705 | 4.808 | 4.76 | |
| 1/4" | 36 | 0.706 | 6.188 | 6.327 | 6.26 | |
| 1/4" | 40 | 0.635 | 6.198 | 6.327 | 6.26 | |
| 1/4" | 48 | 0.529 | 6.216 | 6.329 | 6.27 | |
| 1/4" | 56 | 0.454 | 6.226 | 6.329 | 6.28 | |
| 5/16" | 36 | 0.706 | 7.775 | 7.914 | 7.84 | |
| 3/8" | 36 | 0.706 | 9.360 | 9.499 | 9.43 | |
| 7/16" | 24 | 1.058 | 10.902 | 11.084 | 10.99 | |
| 1/2" | 24 | 1.058 | 12.487 | 12.669 | 12.58 | |
| 1" | 14 | 1.814 | 25.096 | 25.356 | 25.23 | |


PG DIN 40430

| Ø | P | P Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|------|----|--------------------------------------|------|------|--------|---|
| | | d _i | TPI | mm | Ø mini | |
| 7 | 20 | 1.270 | 12.3 | 12.5 | 12.40 | |
| 9 | 18 | 1.411 | 15.0 | 15.2 | 15.10 | |
| 11 | 18 | 1.411 | 18.4 | 18.6 | 18.50 | |
| 13.5 | 18 | 1.411 | 20.2 | 20.4 | 20.30 | |
| 16 | 18 | 1.411 | 22.3 | 22.5 | 22.40 | |
| 21 | 16 | 1.588 | 28.0 | 28.3 | 28.15 | |
| 29 | 16 | 1.588 | 36.7 | 37.0 | 36.85 | |
| 36 | 16 | 1.588 | 46.7 | 47.0 | 46.85 | |
| 42 | 16 | 1.588 | 53.7 | 54.0 | 53.85 | |
| 48 | 16 | 1.588 | 59.0 | 59.3 | 59.15 | |

G (BSP) DIN ISO 228

| Ø" | P | P Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|--------|----|--------------------------------------|--------|---------|--------|---|
| | | d _i | TPI | mm | Ø mini | |
| 1/16" | 28 | 0.907 | 7.509 | 7.723 | 7.62 | |
| 1/8" | 28 | 0.907 | 9.514 | 9.728 | 9.62 | |
| 1/4" | 19 | 1.337 | 12.907 | 13.157 | 13.03 | |
| 3/8" | 19 | 1.337 | 16.412 | 16.662 | 16.54 | |
| 1/2" | 14 | 1.814 | 20.671 | 20.955 | 20.81 | |
| 5/8" | 14 | 1.814 | 22.627 | 22.911 | 22.77 | |
| 3/4" | 14 | 1.814 | 26.157 | 26.441 | 26.30 | |
| 7/8" | 14 | 1.814 | 29.917 | 30.201 | 30.06 | |
| 1" | 11 | 2.309 | 32.889 | 33.249 | 33.07 | |
| 1 1/8" | 11 | 2.309 | 37.537 | 37.897 | 37.72 | |
| 1 1/4" | 11 | 2.309 | 41.550 | 40.910 | 41.73 | |
| 1 3/8" | 11 | 2.309 | 43.963 | 44.323 | 44.14 | |
| 1 1/2" | 11 | 2.309 | 47.443 | 47.803 | 47.62 | |
| 1 3/4" | 11 | 2.309 | 53.386 | 53.746 | 53.57 | |
| 2" | 11 | 2.309 | 59.254 | 59.614 | 59.43 | |
| 2 1/4" | 11 | 2.309 | 65.276 | 65.710 | 65.49 | |
| 2 1/2" | 11 | 2.309 | 74.750 | 75.184 | 74.97 | |
| 2 3/4" | 11 | 2.309 | 81.100 | 81.534 | 81.32 | |
| 3" | 11 | 2.309 | 87.450 | 87.884 | 87.67 | |
| 3 1/2" | 11 | 2.309 | 99.896 | 100.330 | 100.11 | |

TR ISO 2901-2904, DIN 103, 7e

| Ø | P | Aussen-Ø Bolzen - Thread outside Ø | | | |  |
|----|---|------------------------------------|--------|--------|--------|---|
| | | d _i | mm | Ø mini | Ø maxi | |
| 10 | 2 | 9.820 | 10.000 | 9.91 | | |
| 12 | 3 | 11.764 | 12.000 | 11.88 | | |
| 14 | 3 | 13.764 | 14.000 | 13.88 | | |
| 16 | 4 | 15.700 | 16.000 | 15.85 | | |
| 18 | 4 | 17.700 | 18.000 | 17.85 | | |
| 20 | 4 | 19.700 | 20.000 | 19.85 | | |
| 22 | 5 | 21.665 | 22.000 | 21.83 | | |
| 24 | 5 | 23.665 | 24.000 | 23.83 | | |
| 26 | 5 | 25.665 | 26.000 | 25.83 | | |
| 28 | 5 | 27.665 | 28.000 | 27.83 | | |
| 30 | 6 | 29.625 | 30.000 | 29.81 | | |
| 32 | 6 | 31.625 | 32.000 | 31.81 | | |



TECHNICAL QUESTIONNAIRE

THREAD CUTTING AND THREAD FORMING

Enquiry

Test result

Complaint

Agency : _____
Customer : _____
Phone or fax : _____

Contact : _____
E-mail : _____
Date : _____

1. Tool type : _____ Thread size : _____
Particularity : _____ Class of tolerance : _____

2. Material group : _____
Material N° : _____ Hardness : _____ N/mm² /HB/HRC
Norm : _____ Elongation : _____ %

3. Thread : blind hole through hole Threaded length : _____ mm
Core hole Ø : _____ Depth : _____ mm
Counter-bore Ø : _____ Depth : _____ mm

4. Cutting speed (V_c) : _____ m/min _____ l/min
Feed (f) : _____ %

5. Machine : _____ internal coolant
Working position : horizontal vertical
Rigid Tapping : "Soft Rigid Tapping"
 collet de-clutching
 Weldon reversible
 hot / cold shrunk sliding clutch

6. Lubricant : emulsion oil air mist
Product : _____

7. Tool change reason : tool wear tool breakage
 thread not correct (checked with thread plug gauge) tooth breakage in the chamfer lead
 machine error tooth breakage in the guiding thread

8. Efficiency comparison

Tool under test : _____
Performance and observations : _____

Remarks : _____

Angebotsanfrage

Versuchsergebnis

Beanstandung

Vertretung : _____
 Kunde : _____
 Tel.- /Fax-Nr : _____

Kontaktperson : _____
 E-Mail : _____
 Datum : _____

1. Werkzeug-Typ : _____

Nenn-Ø : _____
 Serie : _____

Steigung : _____
 Beschichtung : _____

2. Werkstoffgruppe : _____

Werkstoff-Nr : _____
 Norm : _____

Härte : _____ N/mm² /HB/HRC
 Bruchdehnung : _____ %

3. Gewinde : Innen Aussen

Lochart : Sackloch Durchgangsloch

Gewindelänge : _____ mm

Kernloch-Ø : _____ Tiefe : _____ mm

Aufbohrungs-Ø : _____ Tiefe : _____ mm

4. Schnittgeschwindigkeit (V_c) : _____ m/min _____ 1/min

Vorschub (f) : _____ mm/U

Vorschub (f_z) : _____ mm/Zahn

5. Maschine : _____

Innenkühlung

Arbeitsrichtung : horizontal
vertikal

Werkzeugaufnahme :

Spannzange

Weldon / Whistle Notch

Hydrodehnspannfutter

Schrumpffutter

6. Schmierung : Emulsion

Schneidöl

Luft

MMS

Produkt : _____

7. Grund des Werkzeugwechsels Werkzeugverschleiss

Werkzeugbruch

Gewinde nicht korrekt (kontrolliert mit Lehre)

Maschinenfehler

8. Standzeitvergleich

Vergleichswerkzeug : _____

Resultat und Befund : _____

Bemerkungen : _____

TECHNICAL QUESTIONNAIRE

THREAD MILLING AND THREAD WHIRLING

Enquiry

Test result

Complaint

Agency : _____
Customer : _____
Phone or fax : _____

Contact : _____
E-mail : _____
Date : _____

1. Tool type : _____

Tool Ø : _____
Serie : _____

Pitch : _____
Coating : _____

2. Material group : _____

Material N° : _____
Norm : _____

Hardness : _____ N/mm² /HB/HRC
Elongation : _____ %

3. Thread : internal external

Hole : blind through

Threaded length : _____ mm

Core hole Ø : _____ Depth : _____ mm

Counter-bore Ø : _____ Depth : _____ mm

4. Cutting speed (V_c) : _____ m/min _____ 1/min

Feed (f) : _____ mm/rev. Feed (f_z) : _____ mm/tooth

5. Machine : _____ internal coolant

Working position : horizontal
 vertical

Tool attachment : collet
 hydraulic chuck

Weldon / Whistle Notch
 hot / cold shrunk

6. Lubricant : emulsion oil

air mist

Product : _____

7. Tool change reason : tool wear

tool breakage

incorrect threading (inspected with gauge)

programme error

8. Efficiency comparison

Tool under test : _____

Performance and observations : _____

Remarks : _____

LIEFER- UND ZAHLUNGSBEDINGUNGEN

| | |
|---|---|
| Bestellungen | <p>Bestellungen, die nicht ab Lager ausgeliefert werden können, sind von uns zu bestätigen.</p> <p>Artikel, die nicht mehr standardmässig hergestellt werden, obwohl sie im Katalog aufgeführt sind, müssen als Spezialanfertigung angeboten und berechnet werden.</p> <p>Aufträge können nur nach gegenseitiger schriftlicher Abmachung annulliert werden.</p> |
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| Eigentumsvorbehalt | <p>Wir behalten uns das Eigentum an der jeweils gelieferten Ware bis zur vollständigen Bezahlung des Kaufpreises, einschliesslich aller Nebenkosten, vor.</p> |
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| Spezialanfertigungen | <p>Bei allen Lieferungen von Spezialwerkzeugen behalten wir uns das Recht einer Über- oder Unterschreitung der Bestellmenge um bis zu 15 %, bei kleinen Mengen um 1 bis 2 Stück, vor.</p> |
| Garantie | <p>Werkzeuge, die wir als fehlerhaft anerkennen, werden gratis ersetzt. Dies jedoch ohne jegliche weitere Entschädigung.</p> |
| Beanstandungen | <p>Müssen spätestens innert 14 Tagen nach Erhalt der Ware schriftlich angebracht werden.</p> |
| Zeichnungen und Abbildungen | <p>Es ist untersagt, Zeichnungen und Abbildungen zu kopieren oder Dritten zugänglich zu machen.</p> <p>Angaben in unserem Katalog, auf Zeichnungen und in anderen Dokumenten können sich infolge technischer Weiterentwicklung und eventueller neuer Normen ändern. Sie sind deshalb nicht verbindlich.</p> |
| Notstandsbedingungen | <p>In Fällen von höherer Gewalt, teilweisem oder totalem Unterbruch unserer Fabrikation, behalten wir uns das Recht vor, von eingegangenen Lieferverpflichtungen ganz oder teilweise zurückzutreten.</p> |
| Erfüllungsort und Gerichtsstand | <p>Für alle sich aus dem Vertragsverhältnis ergebenden Streitigkeiten ist das Amtsgericht Moutier (Schweiz) zuständig.</p> <p>Streitigkeiten unterstehen ausschliesslich dem Schweizerischen Obligationenrecht.</p> |

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| | |
|--|--|
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| Tribunal | All disputes are subject to Swiss Law. The seat of court of law will be Moutier (Switzerland). |

ZUSCHLÄGE - PRICE SUPPLEMENTS

Zuschläge für Abänderungen von blanken Gewindebohren und Oberflächen-Behandlungen

| | Auf Bruttopreis pro Stück | Anteil an Einrichtkosten pro Typ und Abmessung (netto) |
|--|------------------------------|--|
| Abändern des Spanwinkels (Ø 5 - 20 mm) | 10 % | auf Anfrage |
| Verlängern des Anschnittes (bis Ø 20 mm) | 10 % | auf Anfrage |
| Kürzen des Anschnittes (Ø 3 - 20 mm) | 20 % | auf Anfrage |
| Schälanschnitt anschleifen (Ø 5 - 20 mm) | 10 % | auf Anfrage |
| Abschleifen der Zentrierspitze | 3 % | auf Anfrage |
| Verjüngen des Führungsgewindes ab Ø 4 mm | 12 % | auf Anfrage |
| NV-Plasmanitrierung + "V"-Oberflächenbehandlung | 10 % | auf Anfrage |
| DC-"V"-Oberflächenbehandlung | 8 % | auf Anfrage |
| Zusätzliche Markierung | 5 % | auf Anfrage |
| Kühlkanal, mit stirnseitigem Schmiermittelaustritt | auf Anfrage | auf Anfrage |
| Kühlkanal, mit seitlichem Schmiermittelaustritt | auf Anfrage | auf Anfrage |
| Beschichtungen TiN, TiCN, VS, CrN, HL | auf Anfrage | auf Anfrage |

Price supplements for modifications for bright finished taps and surface treatments

| | On gross price each | Participation of set-up costs per type and size (net) |
|---|------------------------|---|
| Modification of cutting angle (Ø 5 - 20 mm) | 10 % | on request |
| Lengthening of chamfer (up to Ø 20 mm) | 10 % | on request |
| Shortening of chamfer (Ø 3 - 20 mm) | 20 % | on request |
| Grinding of peeling cut (Ø 5 - 20 mm) | 10 % | on request |
| Removal of centre point | 3 % | on request |
| Truncated thread from Ø 4 mm | 12 % | on request |
| NV-Plasma nitriding + "V" surface treatment | 10 % | on request |
| DC "V" surface treatment | 8 % | on request |
| Additional marking | 5 % | on request |
| Internal coolant, with frontal outflow | on request | on request |
| Internal coolant, with radial outflow | on request | on request |
| Coatings TiN, TiCN, VS, CrN, HL | on request | on request |

Kosten für Prüfzertifikate - Prices for gauge test certificates

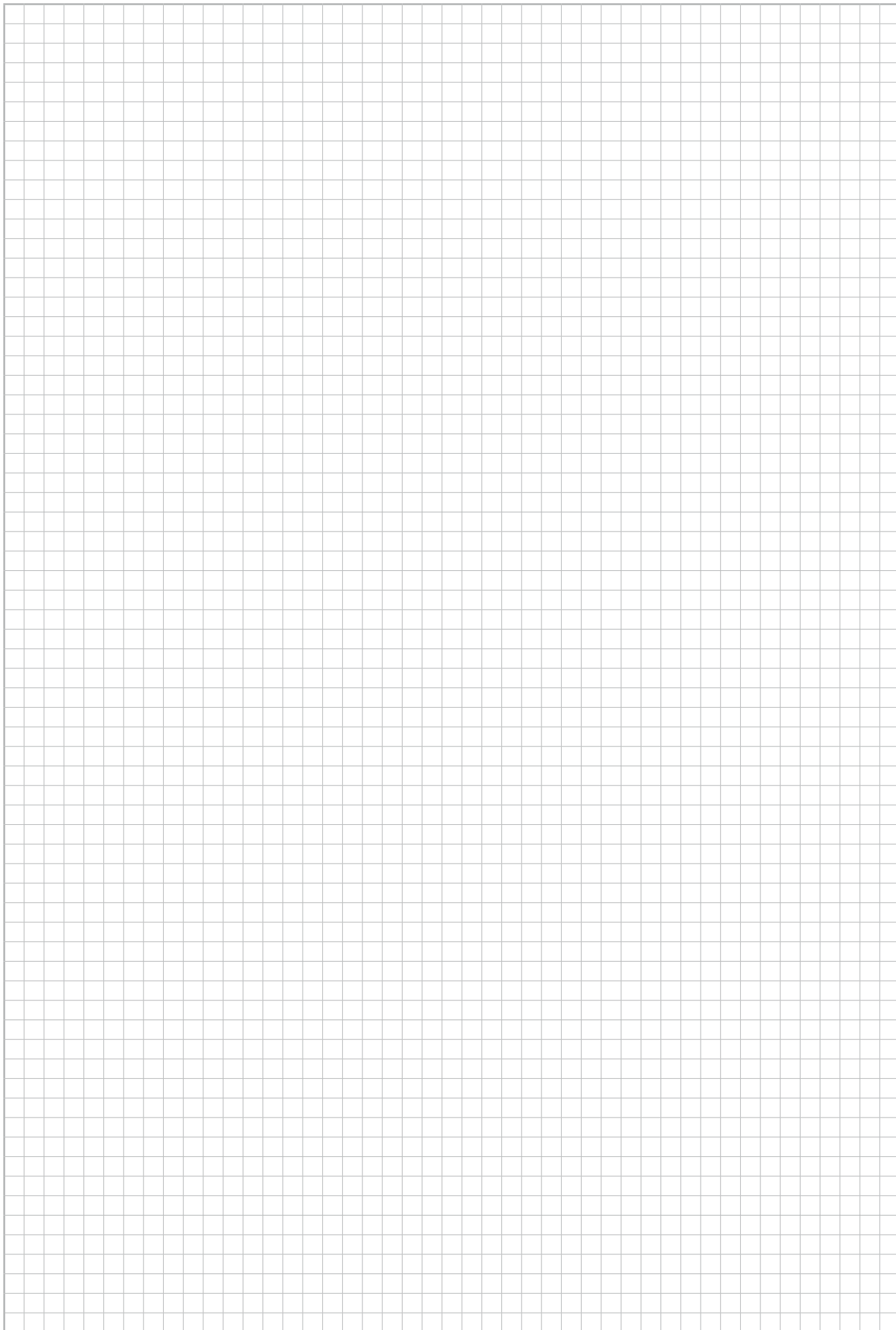
Für neue Gewindelehren (Neulieferung) / Messunsicherheit U95

For new ordered thread gauges / Measuring uncertainty U95

| | | Nettopreise / Net prices | |
|----------------------|----------------------|--------------------------|--------------------------|
| D5703 | D5725 | Ø 1 - 2.9 mm | auf Anfrage / on request |
| | | Ø 3 - 40 mm | auf Anfrage / on request |
| D5701-1 | D5701-2 | Ø 1 - 2.9 mm | auf Anfrage / on request |
| | | Ø 3 - 40 mm | auf Anfrage / on request |
| | | Ø 41 - 80 mm | auf Anfrage / on request |
| | | Ø 81 - 200 mm | auf Anfrage / on request |
| D5704 | D5714 | Ø 1 - 2.9 mm | auf Anfrage / on request |
| | | Ø 3 - 40 mm | auf Anfrage / on request |
| | | Ø 41 - 80 mm | auf Anfrage / on request |
| | | Ø 81 - 200 mm | auf Anfrage / on request |
| D5720 / D5721 | D5722 / D5723 | Ø 3 - 40 mm | auf Anfrage / on request |
| | | Ø 41 - 80 mm | auf Anfrage / on request |
| | | Ø > 80 mm | auf Anfrage / on request |

Alle zertifizierten Gewindelehren werden mit der auf dem entsprechenden Prüfzertifikat aufgeführten Identnummer beschriftet.

All "certified" gauges will be marked with the identity number of the corresponding test certificate.





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Warnung

Gewindewerkzeuge können durch technisches Versagen oder durch Fahrlässigkeit brechen oder zersplittern und die Gesundheit des Mitarbeitenden gefährden. Befolgen Sie daher die gesetzlichen Sicherheits- und Gesundheitsvorschriften. Zudem ist das Tragen der Schutzbrille unerlässlich.

Das Schleifen von Gewindewerkzeugen verursacht gefährlichen Staub und darf nur unter gewissenhaftesten Sicherheitsrichtlinien verrichtet werden.

Warning

Thread tools can break or shatter either through technical failure or negligence, and can endanger the health of the operator. Always obey the safety and health regulations, also the wearing of safety glasses is compulsory.

The grinding of threading tools causes hazardous particles, and must be performed only under most rigorous safety standards.

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