

DC SWISS SA
DE-EN-ID-2014



**THREADING
TECHNOLOGY**

www.dcswiss.com

**Gesamtkatalog
Main catalogue**
DE-EN-ID-2014



**THREADING
TECHNOLOGY**



Verfügbarkeit der Artikel

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

Availability of the articles

- ID** Identification number, available from
stock
- * ID** Identification number, available from
stock, while stock lasts

The management system of

DC Swiss SA

Grand rue 19, CP 363
2735 Malleray, Switzerland



has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

**Cutting tool designer and manufacturer,
expert in Threading Technology.**

Further clarifications regarding the scope of this certificate and the applicability of
ISO 9001:2008 requirements may be obtained by consulting the organization

This certificate is valid from 7 September 2010 until 6 September 2013
Issue 3. Certified since September 2007

Authorised by

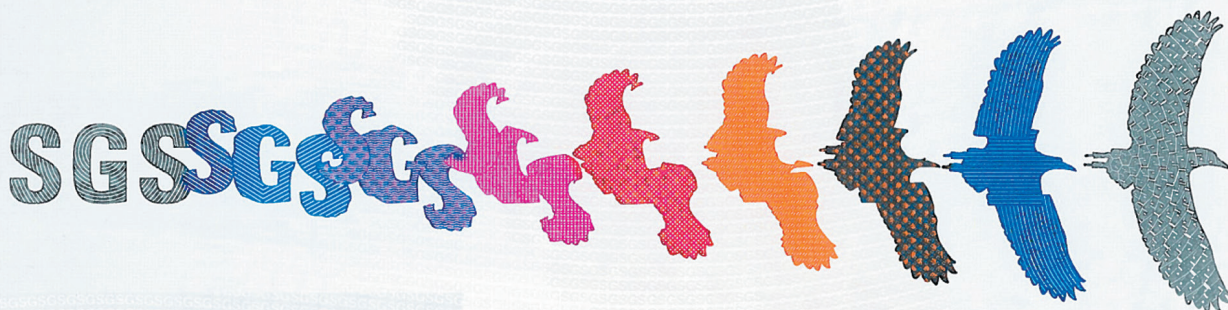
S. Bieri *[Signature]*



Accreditation No. 017

SGS Société Générale de Surveillance SA Systems & Services Certification
Technoparkstrasse 1 8005 Zurich Switzerland
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Page 1 of 1



K



K613VS-3

M



K313TC-3

K413TC-3

MF

FPS-FAS



FPS581VS-3

FPS681VS-3

M



FPS584VS-3

FPS684VS-3

M



FAS581VS-3

FAS681VS-3

M



FAS584VS-3

FAS684VS-3

M

W



W320DL-4

W420DL-4

M



W360DL-3

W460DL-3

W460DL-5

M

G

FS



FS380DL-5

M



FS380DL-3

M

GW



GW3016

GW3016VS

$\leq$ **M12**

MF



$\leq$ $\frac{1}{2}$ **UNC**

$\leq$ $\frac{3}{8}$ **UNF**

GW3019

GW3019VS

AERO



SA320-4

UNJF 3B



N

Schaublin



N1110-3

N1210-3

N5120

SV

NEW

KODIERUNG - CODIFICATION

DC Gewindebohrer

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

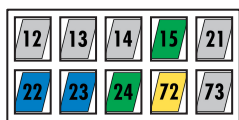


Standard Polygonform < Ø 3 mm	Standard polygon form < Ø 3 mm	FS							
Passive Polygonform ≥ Ø 3 mm	Passive polygon form ≥ Ø 3 mm	FPS							
Aktive Polygonform ≥ Ø 3 mm	Active polygon form ≥ Ø 3 mm	FAS							
Spezialausführung	Special execution		3						
Langer DIN-Schaft verstärkt	DIN long - reinforced 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 Spannnuten (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 application chart



12	
1.0037	Si37-2 (S235JR)
1.0050	Si50-2 (E295)
1.0060	Si60-2 (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

APPLICATION GROUPS

Examples for application groups

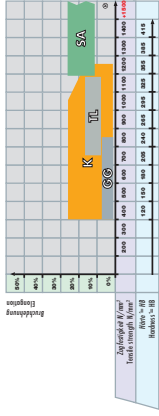
Reference: AISI/ASTM/UNS

Referenz: DIN

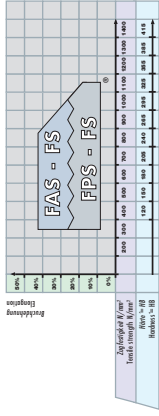
Referenz: DIN

GEWINDESCHNEIDEN - THREAD CUTTING

Gewindeschneiden Thread cutting



Gewindeformen Thread forming



Material designation	
Free-cutting steels	
Structural / construction steels	
Carbon steels	
Alloy steels <850 N/mm ²	
Alloy steels hard / temp. >850 - <1500 N/mm ²	
Free machine alloy steels	
Free machining stainless steels	
Austenitic stainless steels	
Ferritic and martensitic <850 N/mm ²	
Ferritic and martens. >850 - <1500 N/mm ²	
Cast iron	
Spheroidal graphite + malleable cast iron	
Pure titanium	
Titanium alloys	
Nickel alloys <850 N/mm ²	
Nickel alloys 2 >850 - <1500 N/mm ²	
Nickel alloys >1500 - ≤1600 N/mm ²	
Pure copper (electrical copper)	
Sheet chip brass, phosphor bronze, gun metal	
Long chip brass	
Al unalloyed	
Al alloyed Si < 1.5 %	
Al alloyed Si > 1.5 % < 10 %	
Al alloyed Si > 10 %, Mg alloys	
Thermoplastics	
Duroplastics	
Glass fibre reinforced plastics	

Härte Hardness (HB)	Festigkeit tensile Rm (N/mm ²)	Dehnung Elongation A (%)
< 200	< 100	< 10
< 200	< 100	< 30
< 300	< 200	< 20
< 250	< 850	< 30
> 250	> 850	< 30
> 250	> 850	< 12
< 250	< 850	< 25
< 250	< 850	> 20
< 250	< 850	> 20
< 250	< 850	> 15
< 250	< 850	< 10
< 250	< 850	> 10
< 250	< 850	> 20
> 250	> 850	< 20
< 250	< 850	> 25
> 250	> 850	< 25
> 340	> 1150	< 20
< 120	< 400	> 12
< 200	< 200	< 12
< 200	< 200	> 12
< 100	< 350	> 15
< 150	< 500	> 15
< 120	< 400	> 15
< 120	< 400	< 10
-	-	-
-	-	-

W
Weiche Werkstoffe
Soft materials

22	22	24	24	24	24	24	24	32	32	34	34	34	34	34	34	46	46	46	47	47
85	85	84	85	85	85	85	84	84	91	91	91	91	91							
114	114	114	114	114	114	114			116	116	116	116								
134	134	134	134	134	134	134			136	136	136	136								
150	150	150	150	150	150	150			151	151	151	151								
156	156	157	157	157	157	157			158	158	158	158						159	159	
166	166	166																		
170	170																			
172	172	172																		
	176	176							177	177	177									

[illegible]

- | | | | |
|---------------------------------|------------------------------------|--------------------------------|---------------------------------|
| S Optimal mit Schneidöl | S Optimal with cutting oil | E Optimal mit Emulsion | E Optimal with emulsion |
| G Geeignet mit Schneidöl | G Suitable with cutting oil | E Geeignet mit Emulsion | E Suitable with emulsion |

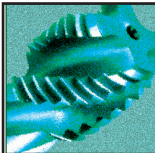
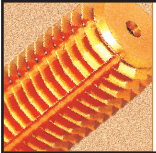
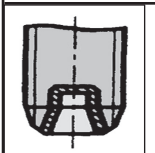
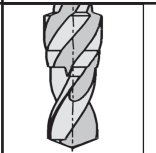
GEWINDESCHNEIDEN - THREAD CUTTING

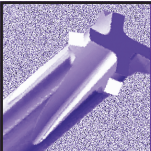
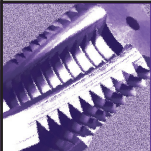
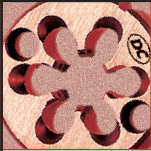
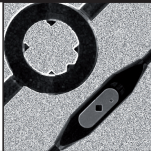
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GEWINDEFORMEN - THREAD FORMING

[illegible]

REGISTER - REGISTER

	Gewindeschneiden Thread Cutting 		Synchron-Gewindeschneiden Rigid Tapping 
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 MF N 84-93/106-108 Z 94-95 H 96-97 S 98 SA 99-101 TL 100-101 K 103 UNC, UNC(J) N 114-117/128-129 Z 118-120 H 121 S 122-123 SA 124-125 TL 124 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 G (BSP), Rp, Rc, W, SV Schaublin N 156-158/163-167 W 159 Z 160-161 H 159 GG 159 NPT, NPTF, PG, TR N 170-173 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		M RTS 62-65 Z.70/Z.73 50-51 K 66-67 MF RTS 102 Z.70 94-95 K 103 UNC RTS 126 Z.70 120 UNF RTS 146 Z.70 139 G (BSP) RTS 161 Z.70 161 EG UNC, EG UNF Z.70 181/184	
			Gewindeformen Thread Forming 
		M FS 68-69 FPS 70-72 FAS 73-75 MF FPS 104 FAS 105 UNC FS 127 FPS 127 FAS 127 UNF FS 147 FPS 147 FAS 147 G (BSP) FPS 162 FAS 162	
	Kronengewindebohrer Crown taps 		Kombi-Gewindebohrer Combination drill/taps 
M, MF N 187-188 UN, G (BSP) N 189		M, MF N 192 UNC, G (BSP), PG N 193	

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

M

MF

UNC, UNC(J)

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

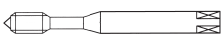
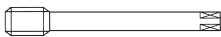
G, Rp, Rc, W, SV

NPT, NPTF,
PG, TR

EG M, EG UN

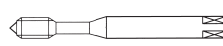
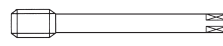
Kronengewindebohrer
Crown taps

Kombi-Gewindebohrer
Combination drill/taps

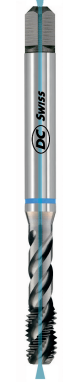
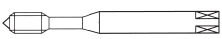
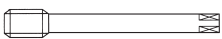
		N						
Merkmale Characteristics				 	 	 		 
					 			
Lochart Hole type								
		N310-3	N320-3 N320-4	N320V-3 N320V-4	N320TN-3/4 N320TC-3/4	N321-3 N321-4	N330-3 N330-4	N330V-3 N330V-4
DIN lang DIN long	DIN 371	22	22/24	24	24	30	30	30
Extra-lang Extra-long	DC							
ISO kurz ISO short	ISO 529							
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
Überrass Oversize	ISO 3 6G		28	28				
Überrass Oversize	7G		28					
Überrass 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
Überrass Oversize	ISO 3 6G		29	29				
Überrass Oversize	7G		29					
Überrass 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				

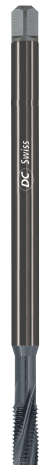
N

 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							

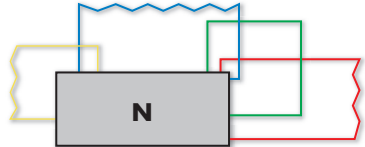
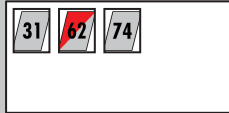
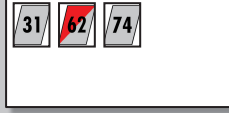
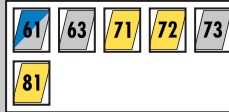
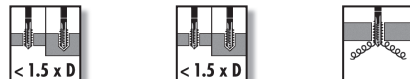
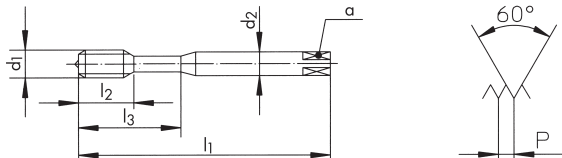
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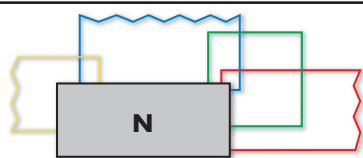
		Z		H		S		SA
Merkmale Characteristics		 R45	 R45	 TicN	 R25	 TicN	 R35	
		 VS	 VS	 TicN	 TicN	 VS	 VS	
								
Lochart Hole type								
		Z370VS-3	Z373VS-3	H320-4 H320TC-4	H350-3 H350TC-3	S320VS-4	S360VS-3	SA320-4
<i>DIN lang</i> DIN long	DIN 371	50	50	52	54	56	57	58
<i>Extra-lang</i> Extra-long	DC							
<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>Übersmass</i> Oversize	ISO 3 6G				54			
<i>Übersmass</i> Oversize	7G							
<i>Übersmass</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>Übersmass</i> Oversize	ISO 3 6G				55			
<i>Übersmass</i> Oversize	7G							
<i>Übersmass</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	  VS	 R15  VS	 R15  NV   DC Swiss	 R15  TiCN  DC Swiss	 R15  TiCN  DC Swiss	 TiCN  DC Swiss	 VS  DC Swiss  NEW
								
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							

FS				FPS					FAS								
	VS		DL							VS				VS			VS
	C		C														
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	

									N310-3	N310-3 LH	N320-3	
												
N310-3												
N310-3 LH	 LH											
N320-3												
												
$\varnothing d_1$ 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			
* N320-3 = 									$\leq M1.5$ 			



N410-3



31 62 74

N410-3 LH

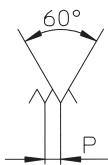
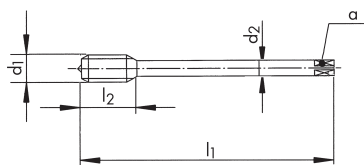


LH

31 62 74

N410-3

N410-3 LH



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
3	0.50	56	12.0	2.2	1.8	3	2.50
4	0.70	63	14.0	2.8	2.1	3	3.30
5	0.80	70	15.0	3.5	2.7	3	4.20
6	1.00	80	17.0	4.5	3.4	3	5.00
7	1.00	80	17.0	5.5	4.3	3	6.00
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	10.20
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
18	2.50	125	33.0	14.0	11.0	3	15.50
20	2.50	140	36.0	16.0	12.0	3	17.50
22	2.50	140	36.0	18.0	14.5	3	19.50
24	3.00	160	39.0	18.0	14.5	4	21.00
27	3.00	160	42.0	20.0	16.0	4	24.00
30	3.50	180	45.0	22.0	18.0	4	26.50
33	3.50	180	48.0	25.0	20.0	4	29.50
36	4.00	200	51.0	28.0	22.0	4	32.00
39	4.00	200	55.0	32.0	24.0	4	35.00
42	4.50	200	55.0	32.0	24.0	4	37.50
48	5.00	250	63.0	36.0	29.0	4	43.00
56	5.50	280	71.0	45.0	35.0	5	50.50

ID

ID

101897

101924

101942

101953

142645

111491

101958

111492

101866

111478

101870

111479

101874

111480

101880

111481

101883

111482

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111487

101907

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111488

101922

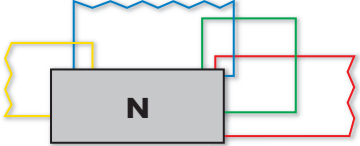
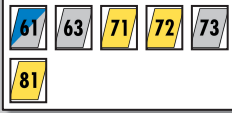
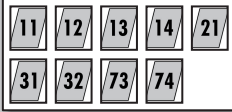
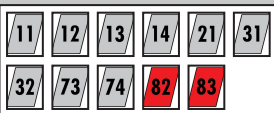
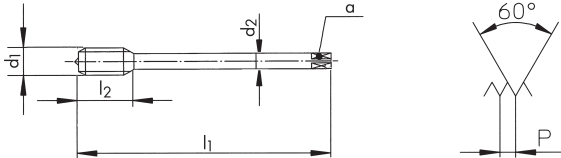
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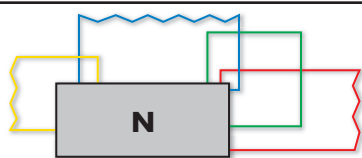
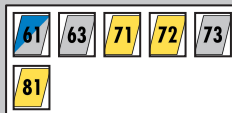
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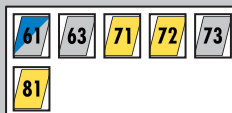
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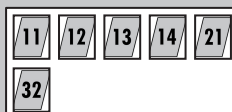
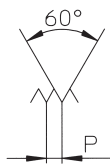
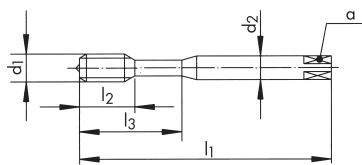


									N320-4	N320V-4	N320TN-4	N320TC-4
N320-4												
N320V-4												
N320TN-4												
N320TC-4												

								N420-4	N420V-4	N420TN-4	N420TC-4
N420-4  											
N420V-4  											
N420TN-4  											
N420TC-4  											
											
											
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
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

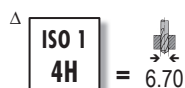
LH

N320V-4 LH

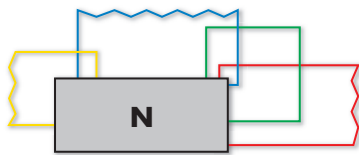
V
LH

N320-4
N320-4 LH
N320V-4 LH


$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
* 2	0.40	45	8.0		2.8	2.1	2	1.60
2.5	0.45	50	10.0		2.8	2.1	3	2.05
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	3	Δ 6.80
10	1.50	100	22.0	39	10.0	8.0	3	8.50

ID	ID	ID
162503	111472	162771
159345		
101487	111473	162772
101493	111474	162773
101497	111475	162774
101501	111476	162775
* 146482		
* 146484		

* N320-3



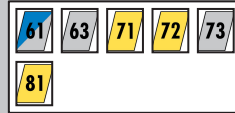


N420-4

N420-4 LH

N420V-4 LH

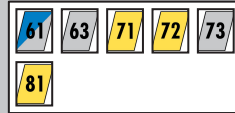
N420-4



N420-4 LH



LH

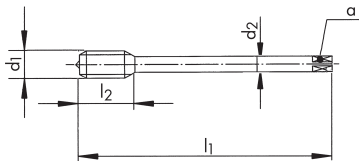
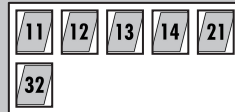


N420V-4 LH



V

LH



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a 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

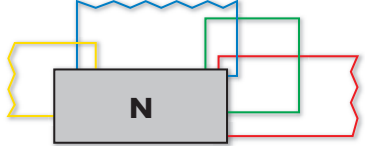
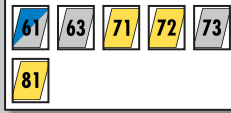
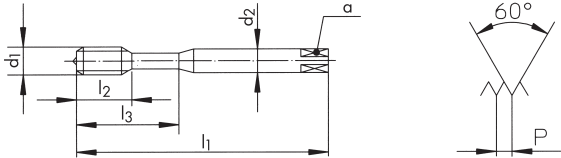
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111493

145578

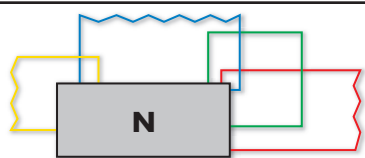
* 111494

Δ ISO 1
4H = 6.70

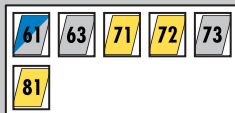
									N320-4		N320V-4		N320-4		N320-4	
N320-4  																
N320V-4  																
																
																
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	6H + mm	ID	6H + mm	ID	6H + mm	ID	6H + mm
*2	0.40	45	8.0		2.8	2.1	2	1.60	101457	0.019	143584	0.019				
2.5	0.45	50	10.0		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

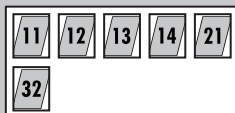




N420-4



N420V-4

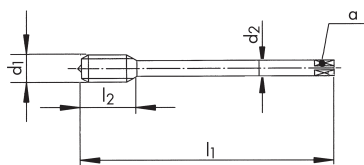


N420-4

N420V-4

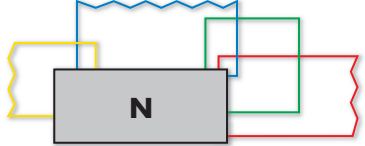
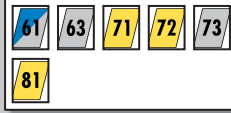
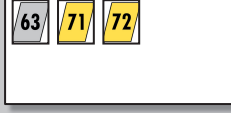
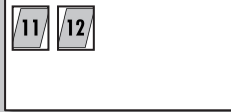
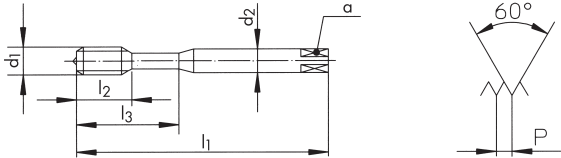
N420-4

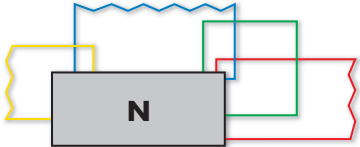
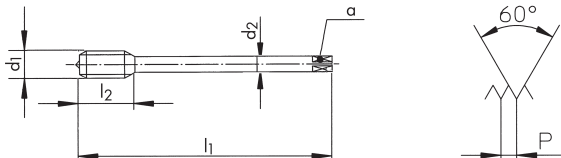
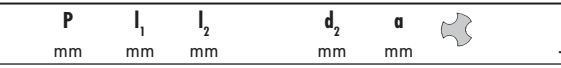
N420-4

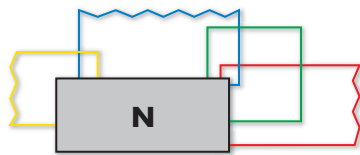


$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		6H
8	1.25	90	20.0	6.0	4.9	3	6.80
10	1.50	100	22.0	7.0	5.5	3	8.50
12	1.75	110	24.0	9.0	7.0	3	10.30
16	2.00	110	30.0	12.0	9.0	3	14.00

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  												
												
												
$\varnothing d_1$ 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	
* N321-3 / N330-3 / N330V-3  * N330-4 =  * N330V-4 = 									$\leq M1.5$			

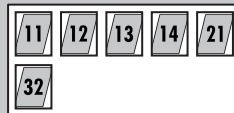
								N420-4	N421-4	N430-4	N430V-4
N420-4  6163717273 81											
N421-4  6163717273 81											
N430-4  637172											
N430V-4  1112											
								B4 x P	B4 x P	B4 x P	B4 x P
								6H+0.2mm	ISO 26H	ISO 26H	ISO 26H
∅ d₁ M	P mm	l₁ mm	l₂ mm	d₂ mm	a mm			ID	ID	ID	ID
4	0.70	63	14.0	2.8	2.1	3	3.30		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

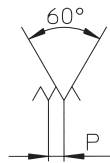
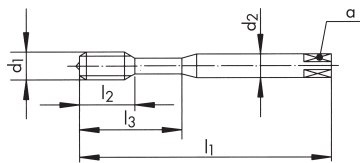


N350V-3



N350-3

N350V-3



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
2	0.40	45	8.0		2.8	2.1	2	1.60
2.3	0.40	45	9.0		2.8	2.1	2	1.90
2.5	0.45	50	10.0		2.8	2.1	2	2.05
2.6	0.45	50	10.0		2.8	2.1	2	2.15
3	0.50	56	12.0	18	3.5	2.7	2	2.50
3.5	0.60	56	13.0	20	4.0	3.0	2	2.90
4	0.70	63	14.0	21	4.5	3.4	2	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	3	6.80
10	1.50	100	22.0	39	10.0	8.0	3	8.50

ID

ID

101580

101593

101581

101594

101582

101595

101583

101596

101584

101597

101585

101598

101587

101599

101589

101600

101591

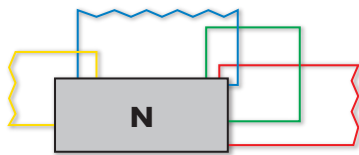
101601

101592

101602

101579

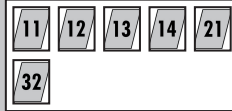
101603



N450-3

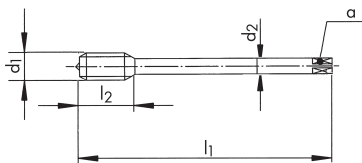


N450V-3



N450-3

N450V-3



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
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	10.20
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	4	17.50
24	3.00	160	39.0	18.0	14.5	4	21.00

ID

ID

102327

102334

102314

102329

102317

102330

102319

145487

102321

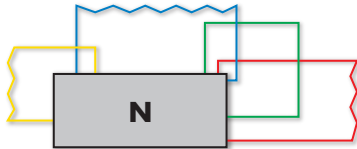
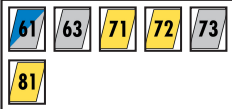
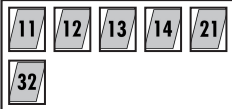
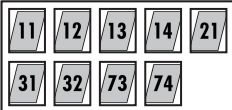
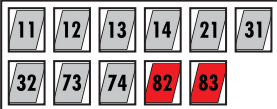
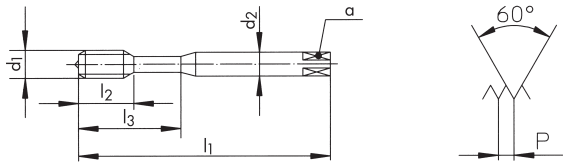
102331

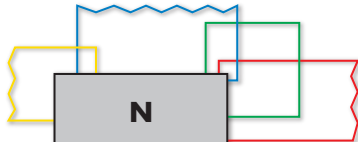
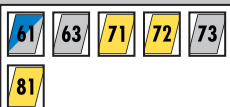
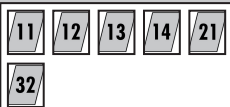
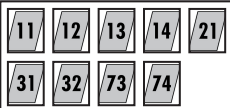
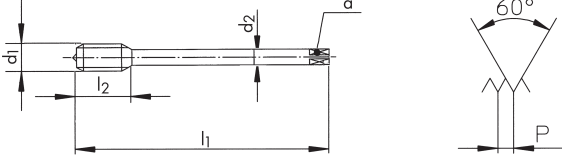
102324

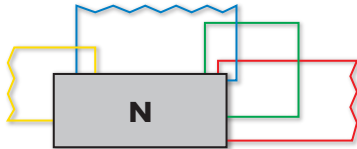
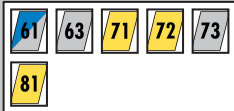
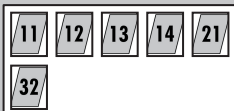
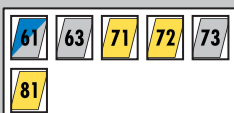
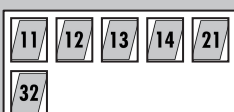
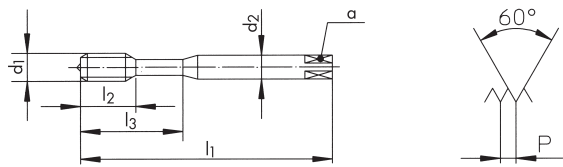
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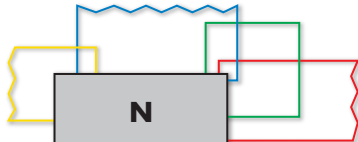
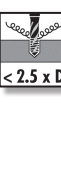
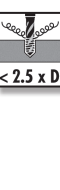
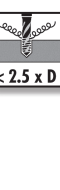
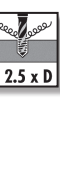
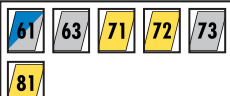
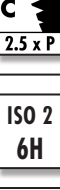
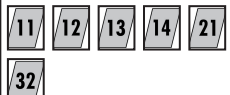
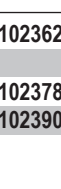
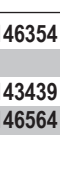
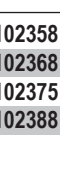
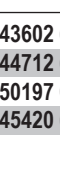
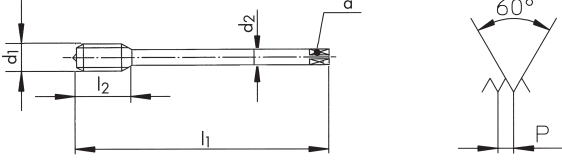
102325

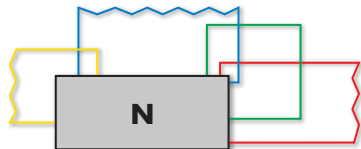
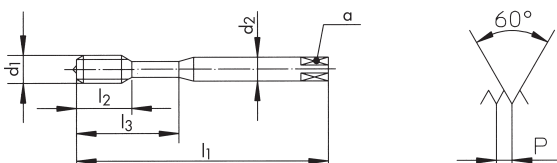
102333

									N360-3	N360V-3	N360TN-3	N360TC-3
N360-3  												
N360V-3   												
N360TN-3   												
N360TC-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	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   											
											
											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a 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  												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID + mm	ID + 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 												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			6H	ID	ID	ID + mm	ID + 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  61 63 71 72 73 81 N360V-3  V 11 12 13 14 21 32														
														
														
														
$\varnothing d_1$ 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	Δ 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

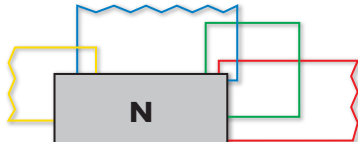
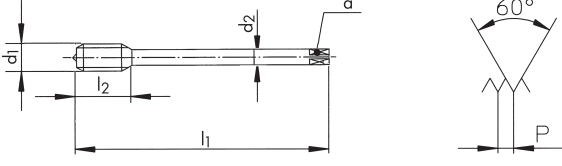
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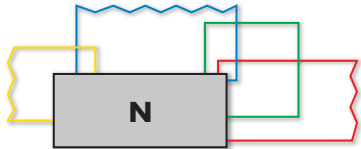
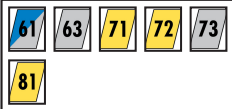
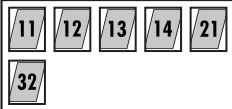
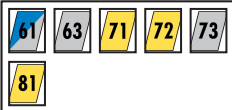
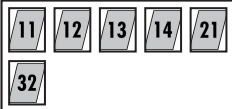
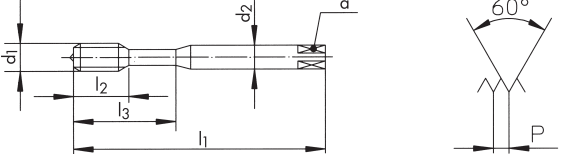
ISO 1
4H

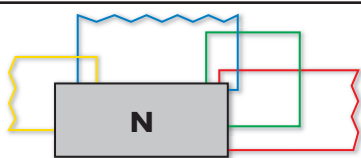
= 6.70



Δ ISO 1 4H = 

								
N460-3  61 63 71 72 73 81 N460V-3  V 11 12 13 14 21 32								
								
								
								
C 2.5 x P C 2.5 x P C 2.5 x P C 2.5 x P								
ISO 1 4H 7G 7G 6H +0.1mm								
$\varnothing d_1$ M	P	l_1	l_2	d_2	a		6H	
mm	mm	mm	mm	mm	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   												
												
												
$\varnothing d_1$ 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	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



ID

ID

ID

ID

104815

142651

102506

102512

* 102507 102513

* 102508 102514

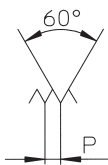
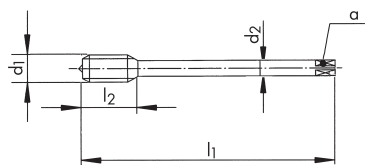
* 111614 102515

102516

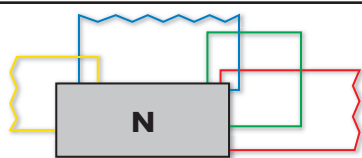
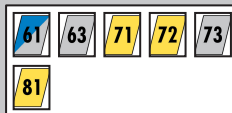
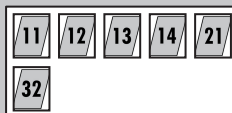
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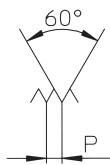
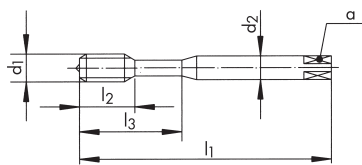
159244

143090



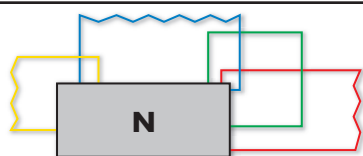
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
12	1.75	110	14.0	9.0	7.0	3	10.20
14	2.00	110	14.0	11.0	9.0	3	12.00
16	2.00	110	18.0	12.0	9.0	3	14.00
18	2.50	125	21.0	14.0	11.0	3	15.50
20	2.50	140	24.0	16.0	12.0	4	17.50
24	3.00	160	27.0	18.0	14.5	4	21.00
27	3.00	160	27.0	20.0	16.0	4	24.00
30	3.50	180	30.0	22.0	18.0	4	26.50


N520-4

N520V-4

N520TN-4

N520-4
N520V-4
N520TN-4


$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
2.5	0.45	100	10.0		2.8	2.1	3	2.05
3	0.50	112	12.0	18	3.5	2.7	3	2.50
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
6	1.00	125	17.0	30	6.0	4.9	3	5.00

ID
ID
ID
102594
142623
102595
143399
162790
102596
143400
146837
102597
142654
150113
102598
143137
148821

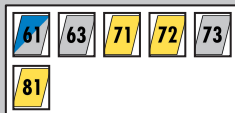


N620-4

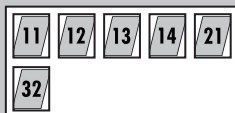
N620V-4

N620TN-4

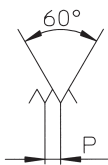
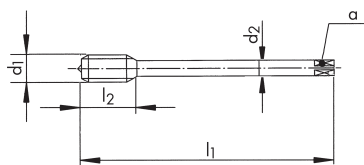
N620-4



N620V-4



N620TN-4



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
4	0.70	112	14.0	2.8	2.1	3	3.30
5	0.80	125	15.0	3.5	2.7	3	4.20
6	1.00	125	17.0	4.5	3.4	3	5.00
8	1.25	140	20.0	6.0	4.9	3	6.80
10	1.50	160	22.0	7.0	5.5	3	8.50
12	1.75	180	24.0	9.0	7.0	3	10.20
14	2.00	180	28.0	11.0	9.0	3	12.00
16	2.00	200	30.0	12.0	9.0	3	14.00
20	2.50	224	36.0	16.0	12.0	3	17.50

ID

ID

ID

102619

142582

146442

102620

142657

146443

102621

142658

144591

102622

143401

146262

102614

142660

146849

102615

143127

146295

102616

151905

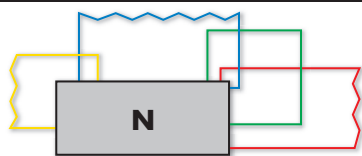
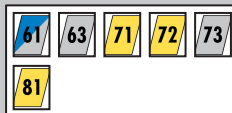
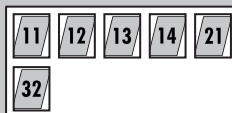
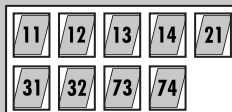
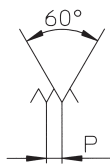
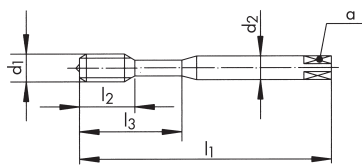
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143106

143574

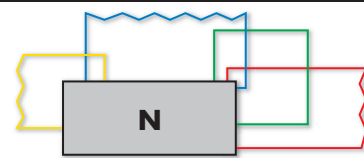
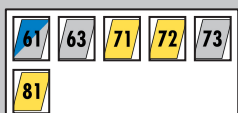
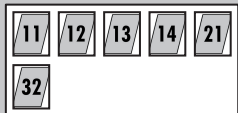
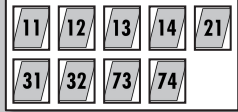
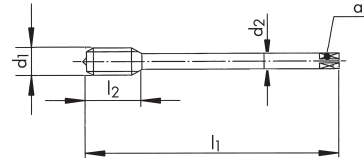
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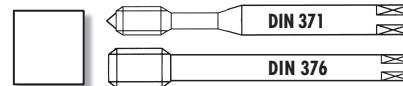
143596


N560-3

N560V-3

N560TN-3

N560-3
N560V-3
N560TN-3


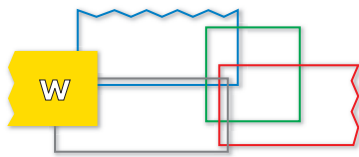
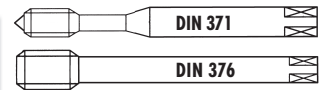
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
2.5	0.45	100	9.0		2.8	2.1	2	2.05
3	0.50	112	5.5	18	3.5	2.7	3	2.50
4	0.70	112	7.5	21	4.5	3.4	3	3.30
5	0.80	125	9.0	25	6.0	4.9	3	4.20
6	1.00	125	11.0	30	6.0	4.9	3	5.00
8	1.25	140	12.5	35	8.0	6.2	3	6.80
10	1.50	160	14.0	39	10.0	8.0	3	8.50

ID	ID	ID
102600	102607	
102601	102608	142663
102602	102609	142664
102603	102610	142665
102604	102611	142666
102605	102612	142667
102599	102606	142668

								N660-3	N660V-3	N660TN-3	
N660-3  											
N660V-3   											
N660TN-3   											
											
											
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	
6	1.00	125	11.0	4.5	3.4	3	5.00	162792	115657		
8	1.25	140	12.5	6.0	4.9	3	6.80	162793	115544		
10	1.50	160	14.0	7.0	5.5	3	8.50	162794	135539	173484	
12	1.75	180	14.0	9.0	7.0	3	10.20	102623	102626	142669	
14	2.00	180	14.0	11.0	9.0	3	12.00	162253	147500		
16	2.00	200	18.0	12.0	9.0	3	14.00	102624	102627	142670	
20	2.50	224	24.0	16.0	12.0	4	17.50	102625	102628		



									W320-4	W420-4	W320DL-4	W420DL-4
W320-4												
W420-4											NEW	NEW
W320DL-4 DL												
W420DL-4 DL												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			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



NEW

NEW



ID

ID

ID

ID

W360-3



71 72 81

W460-3



71 72 81

W360DL-3



DL

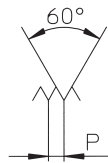
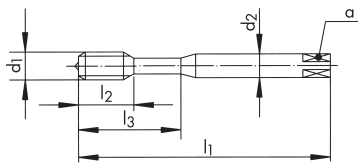
71 72 81

W460DL-3

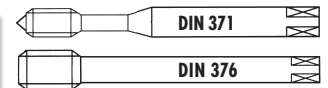


DL

71 72 81



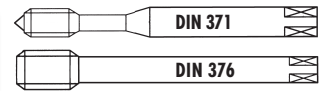
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
2	0.40	45	7.0		2.8	2.1	2	1.60
2.5	0.45	50	9.0		2.8	2.1	2	2.05
3	0.50	56	5.5	18	3.5	2.7	2	2.50
4	0.70	63	7.5	21	4.5	3.4	2	3.30
5	0.80	70	9.0	25	6.0	4.9	2	4.20
6	1.00	80	11.0	30	6.0	4.9	2	5.00
8	1.25	90	12.5	35	8.0	6.2	2	6.80
10	1.50	100	14.0	39	10.0	8.0	2	8.50
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

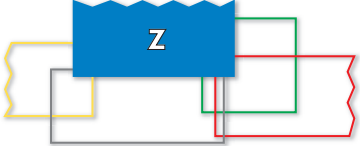
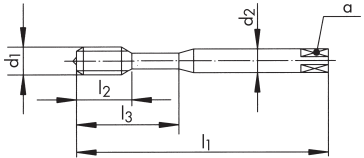
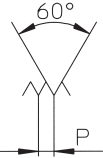


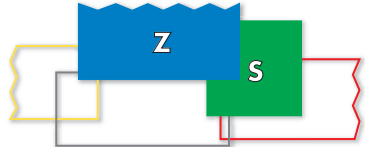
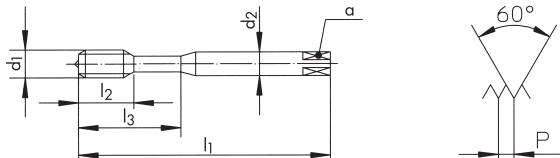
									Z320V-4	Z420V-4	Z320VS-4	Z420VS-4
Z320V-4												
Z420V-4												
Z320VS-4												
Z420VS-4												
									ID	ID	ID	ID
$\varnothing d_1$	P	l₁	l₂	l₃	d₂	a						
M	mm	mm	mm	mm	mm	mm						
*1.6	0.35	40	8.0		2.5	2.1	2	1.25	142671			
*2	0.40	45	8.0		2.8	2.1	2	1.60	111613			
2.5	0.45	50	10.0		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		

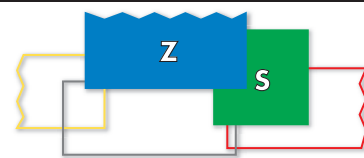
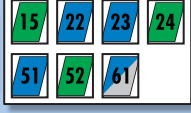
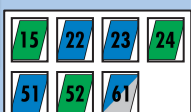
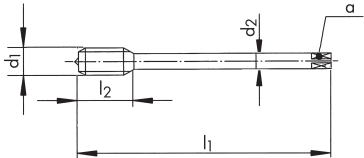
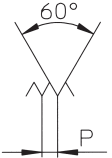
* Z320V-3

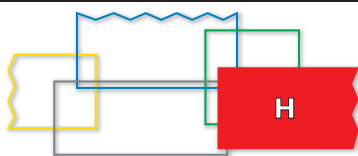




									Z360V-3	Z362V-3	Z462V-3	
Z360V-3   												
Z362V-3   												
Z462V-3   												
 												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
2	0.40	45	7.0		2.8	2.1	2	1.60	104684			
2.5	0.45	50	9.0		2.8	2.1	2	2.05	104685			
2.6	0.45	50	9.0		2.8	2.1	2	2.15	104686			
3	0.50	56	5.5	18	3.5	2.7	3	2.50	104687			
3.5	0.60	56	6.5	20	4.0	3.0	3	2.90		104688		
4	0.70	63	7.5	21	4.5	3.4	3	3.30		104689		
5	0.80	70	9.0	25	6.0	4.9	3	4.20		104690		
6	1.00	80	11.0	30	6.0	4.9	3	5.00		104691		
8	1.25	90	12.5	35	8.0	6.2	3	6.80		104692		
10	1.50	100	14.0	39	10.0	8.0	3	8.50		104683		
12	1.75	110	14.0		9.0	7.0	3	10.20			104742	
14	2.00	110	14.0		11.0	9.0	3	12.00			104743	
16	2.00	110	18.0		12.0	9.0	3	14.00			104744	
18	2.50	125	21.0		14.0	11.0	3	15.50			104745	
20	2.50	140	24.0		16.0	12.0	3	17.50			104746	
22	2.50	140	24.0		18.0	14.5	3	19.50			104752	
24	3.00	160	27.0		18.0	14.5	4	21.00			104747	
27	3.00	160	27.0		20.0	16.0	4	24.00			104748	
30	3.50	180	30.0		22.0	18.0	4	26.50			104749	
36	4.00	200	36.0		28.0	22.0	4	32.00			104750	
42	4.50	200	40.0		32.0	24.0	4	37.50			104751	

										Z362VS-3		Z370VS-3		Z370VS-3		Z373VS-3	
Z362VS-3   VS 22 23 24 51 61 Z370VS-3   CLASSIC  15 22 23 24 51 52 61 Z373VS-3   CLASSIC  15 22 23 24 51 52 61																	
																	
										PM		PM		PM		PM	
																	
										6HX		6HX		4HX		6HX	
Ø d₁ M P mm l₁ mm l₂ mm l₃ mm d₂ mm a mm  										ID							
* 3										111504							
4										111505							
5										111506							
6										111507							
8										111508							
10										111509							
* Z360VS-3																	
Ø d₁ M P mm l₁ mm l₂ mm l₃ mm d₂ h6 mm a mm  										ID		ID		ID			
3										162776		165324		165236			
4										162777		165325		165237			
5										162778		165326		165238			
6										162779		165327		165239			
8										162780		165328		165240			
10										162781		165438		165241			
4HX = 6.70																	

									Z462VS-3	Z470VS-3	Z473VS-3	
Z462VS-3   												
Z470VS-3     												
Z473VS-3     												
 									 PM	 PM	 PM	
									 6HX	 6HX	 6HX	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a 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			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm				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



15 16 62 82

H320TC-4

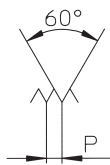
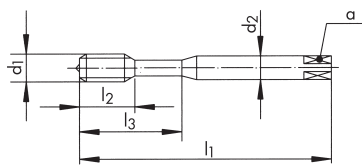


TiCN

15 16 31 82 83

H320-4

H320TC-4

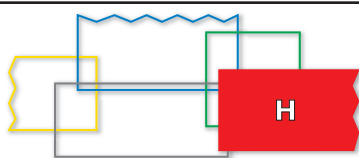


$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
2	0.40	45	8.0		2.8	2.1	2	1.60
2.2	0.45	45	9.0		2.8	2.1	2	1.75
2.5	0.45	50	10.0		2.8	2.1	3	2.05
3	0.50	56	12.0	18	3.5	2.7	3	2.50
3.5	0.60	56	13.0	20	4.0	3.0	3	2.90
4	0.70	63	14.0	21	4.5	3.4	3	3.30
4.5	0.75	70	15.0	25	6.0	4.9	3	3.75
5	0.80	70	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	3	6.80
10	1.50	100	22.0	39	10.0	8.0	3	8.50

ID

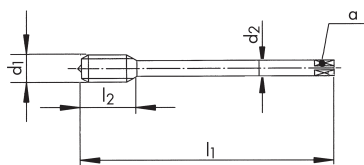
ID

101206	151836
111801	
101207	148603
101209	111836
101210	
101211	111502
101212	
101213	111458
101215	111456
101218	111453
101205	110911



H420-4

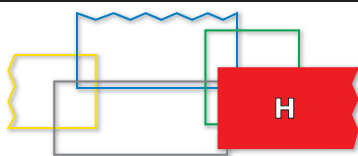
H420TC-4



ID

ID

Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a 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
18	2.50	125	33.0	14.0	11.0	4	15.50
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
27	3.00	160	42.0	20.0	16.0	4	24.00
30	3.50	180	45.0	22.0	18.0	4	26.50
36	4.00	200	51.0	28.0	22.0	4	32.00



H350-3



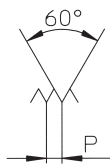
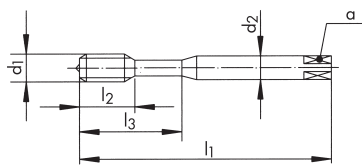
H350TC-3



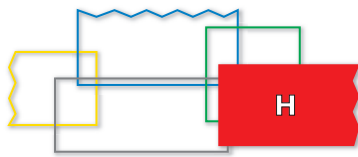
H350-3

H350-3

H350TC-3



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	$6H$ + mm	ID
2	0.40	45	7.0		2.8	2.1	2	1.60	101238			146451
2.5	0.45	50	9.0		2.8	2.1	3	2.05	101239			144957
3	0.50	56	5.5	18	3.5	2.7	3	2.50	101242	101241	0.020	111835
3.5	0.60	56	6.5	20	4.0	3.0	3	2.90	101243			
4	0.70	63	7.5	21	4.5	3.4	3	3.30	101245	101244	0.022	111607
4.5	0.75	70	9.0	25	6.0	4.9	3	3.75	101246			
5	0.80	70	9.0	25	6.0	4.9	3	4.20	101248	101247	0.024	111610
6	1.00	80	11.0	30	6.0	4.9	3	5.00	101251	101250	0.026	111500
8	1.25	90	12.5	35	8.0	6.2	3	6.80	101255	101254	0.028	110963
10	1.50	100	14.0	39	10.0	8.0	3	8.50	101237	101236	0.032	111454



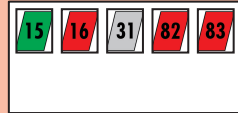
H450-3



H450TC-3



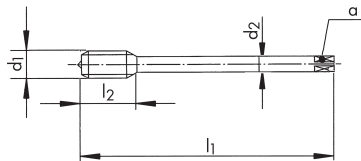
TiCN



H450-3

H450-3

H450TC-3



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		6H
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
18	2.50	125	21.0	14.0	11.0	4	15.50
20	2.50	140	24.0	16.0	12.0	4	17.50
22	2.50	140	24.0	18.0	14.5	4	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

6H
+ mm

ID

101305

101304

0.034

111501

101307

101309

111605

101311

101313

101315

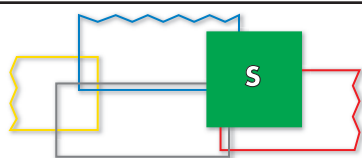
101318

101320

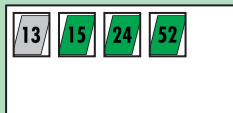
101323

101324

101325



S320VS-4



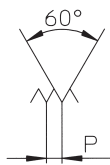
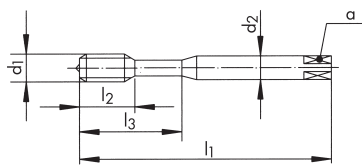
S420VS-4



S320VS-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		
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	3	Δ 6.80
10	1.50	100	22.0	39	10.0	8.0	3	8.50
12	1.75	110	24.0		9.0	7.0	4	10.20
14	2.00	110	30.0		11.0	9.0	4	12.50
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

ID

ID

ID

111596

* 165318

111597

165319

111598

165320

111599

165321

111600

165322

111601

165323

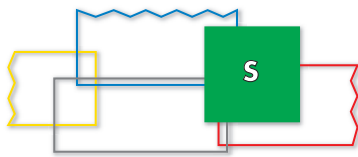
111602

* 162537

111603

111604

Δ 4HX = 6.70



S360VS-3

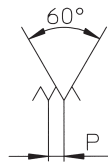
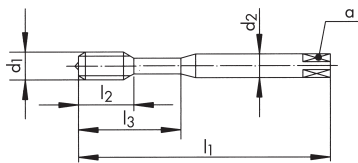
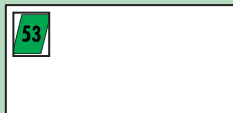


S460VS-3



aero

SA390-3



S360VS-3



S460VS-3



SA390-3



SA390-3



6HX

6HX

4HX

6HX

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a 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

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a 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

4HX



= 6.70

aero

SA320-4



52 53

SA350-3



52 53

TL320VS-4



VS

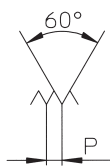
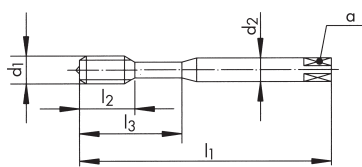
41 42

TL351VS-3



VS

41 42



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
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

SA320-4

SA350-3

TL320VS-4

TL351VS-3



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



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
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



ID

ID

ID

ID

148096

152189

152192

152195

* 152187

* 152188

* 152191

152197

6HX

6HX

6HX

6HX

ID

ID

ID

ID

152198

152201

152204

148028

* 152199

* 152202

* 152205

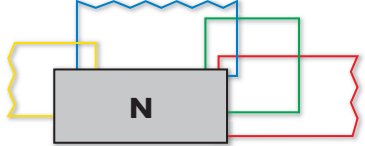
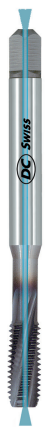
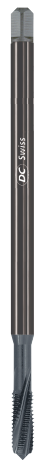
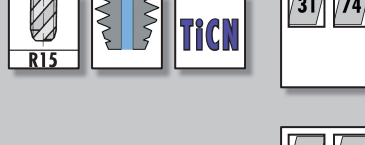
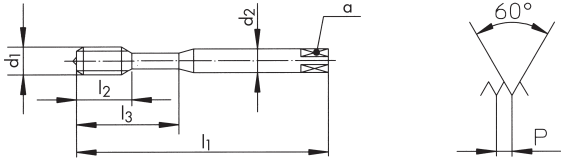
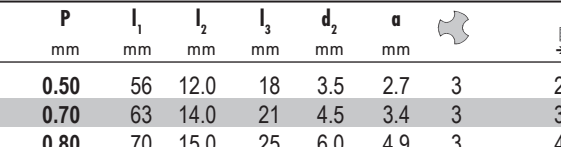
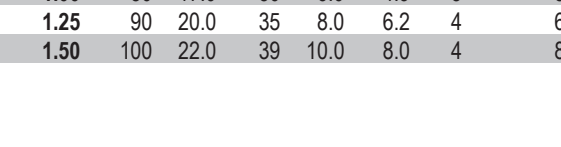
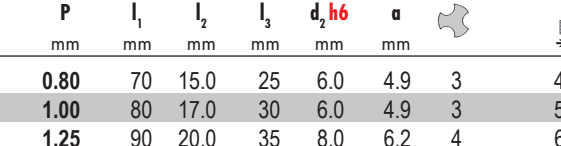
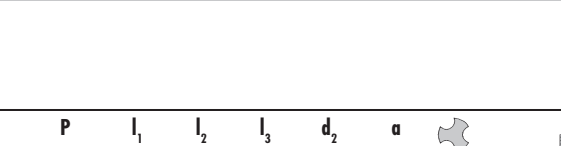
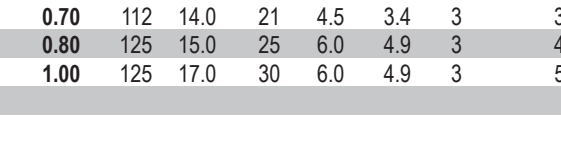
152207

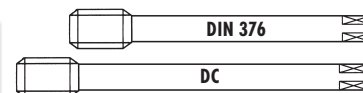
* 152200

152203

* 152206

148029

									GG350NV-3	GG350TC-3	GG353TC-3	GG550NV-3
												
												
												
												
												
												
												
												
												
												



									GG450NV-3	GG450TC-3	GG453TC-3	GG650NV-3
GG450NV-3 NV 												
GG450TC-3 TiCN 												
GG453TC-3 TiCN 												
GG650NV-3 NV 												
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm				ID	ID		
8	1.25	90	20.0	6.0	4.9	4	6.80		101189	101194		
10	1.50	100	22.0	7.0	5.5	4	8.50		101183	101195		
12	1.75	110	24.0	9.0	7.0	4	10.20		101184	101190		
14	2.00	110	28.0	11.0	9.0	4	12.00		101185	101191		
16	2.00	110	30.0	12.0	9.0	4	14.00		101186	101192		
20	2.50	140	36.0	16.0	12.0	4	17.50		101187	101193		
24	3.00	160	39.0	18.0	14.5	4	21.00		101188			
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 h6 mm	a mm				ID			
12	1.75	110	24.0	*10.0	*8.0	4	10.20		146707			
16	2.00	110	30.0	12.0	9.0	4	14.00		162796			
* Norme DC / * DC Norm / * Norma DC												
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm				ID			
8	1.25	140	20.0	6.0	4.9	4	6.80		101203			
10	1.50	160	22.0	7.0	5.5	4	8.50		101199			
12	1.75	180	24.0	9.0	7.0	4	10.20		101200			
16	2.00	200	30.0	12.0	9.0	4	14.00		101201			
20	2.50	224	36.0	16.0	12.0	4	17.50		101202			

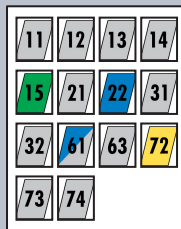
RTS

Rigid Tapping Synchro

RTS320VS-4



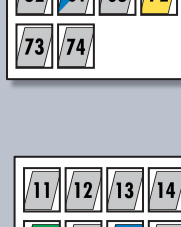
VS



RTS420VS-4



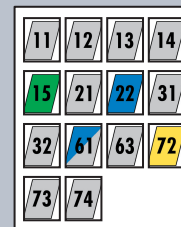
VS



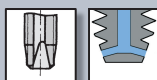
RTS323VS-4



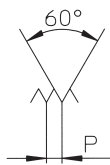
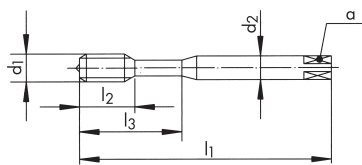
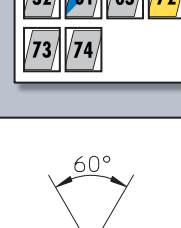
VS



RTS423VS-4



VS



RTS320VS-4

RTS420VS-4

RTS323VS-4

RTS423VS-4



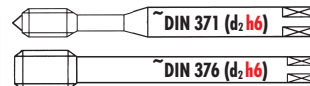
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	$d_2 h_6$ mm	a mm		
* 2	0.40	45	8.0		2.8(h9)	2.1	2	1.60
2.5	0.45	50	10.0		2.8(h9)	2.1	3	2.05
3	0.50	56	5.5	18	3.5(h9)	2.7	3	2.50
4	0.70	63	7.5	21	4.5(h9)	3.4	3	3.30
5	0.80	70	9.0	25	6.0	4.9	3	4.20
6	1.00	80	11.0	30	6.0	4.9	3	5.00
8	1.25	90	12.5	35	8.0	6.2	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

* Norme DC / * DC Norm / * Norma DC

* RTS320VS-3



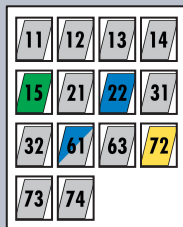
sur demande
auf Anfrage
on request
su richiesta
sobre pedido



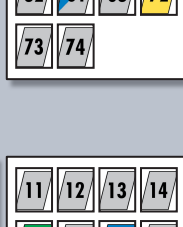
RTS

Rigid Tapping Synchro

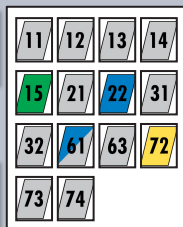
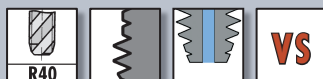
RTS362VS-3



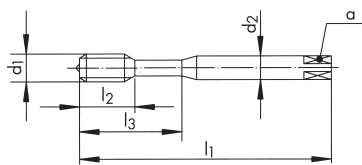
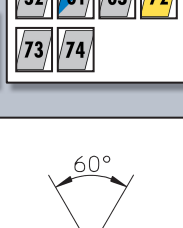
RTS462VS-3



RTS365VS-3



RTS465VS-3



RTS362VS-3

RTS462VS-3

RTS365VS-3

RTS465VS-3



< 2.5 x D



< 2.5 x D



≤ 2.5 x D



≤ 2.5 x D



2.5 x P



2.5 x P



2.5 x P



2.5 x P



6HX



6HX



6HX



6HX

Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a 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

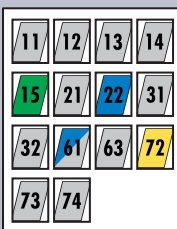
RTS

Rigid Tapping Synchro

RTS362VS-5



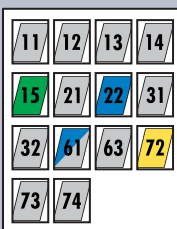
VS



RTS365VS-5



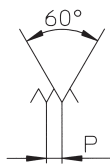
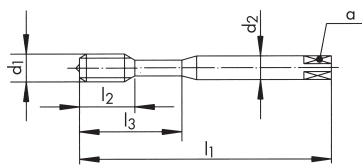
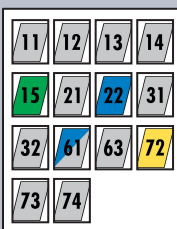
VS



RTS362VS-3



VS



$\varnothing d_1$ 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

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		6H
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	3.35
5	0.80	70	9.0	25	6.0	4.9	3	4.25
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

RTS362VS-5

RTS365VS-5

RTS362VS-3



ID	ID
157648	
157650	
157652	162791
158074	151803
158076	157821
153286	157823

ID	6H + mm
162797	0.020
162798	0.022
162799	0.024
162800	0.026
162801	0.028
162802	0.032



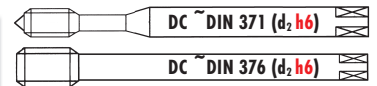
sur demande
auf Anfrage
on request
su richiesta
sobre pedido

≥ Ø 6 mm



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

PM



RTS

Rigid Tapping Synchro

RTS523VS-4



VS



RTS623VS-4



VS



RTS565VS-3



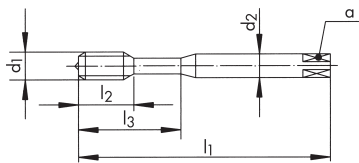
VS



RTS665VS-3



VS



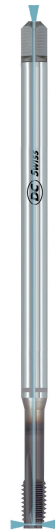
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		
5	0.80	125	9.0	25	6.0	4.9	3	4.20
6	1.00	125	11.0	30	6.0	4.9	3	5.00
8	1.25	140	12.5	35	8.0	6.2	3	6.80
10	1.50	160	14.0	39	10.0	8.0	3	8.50
12	1.75	180	14.0		*10.0	*8.0	3	10.20
16	2.00	200	18.0		12.0	9.0	3	14.00

* Norme DC / * DC Norm / * Norma DC

$\varnothing d_1$ 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

RTS523VS-4



RTS623VS-4



RTS565VS-3



RTS665VS-3



ID

ID

161038

161041

161044

161047

161050

161053

ID

ID

150614

150624

150639

151867

150674



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

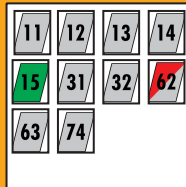
≥ Ø 6 mm

K

K313TC-3



TiCN



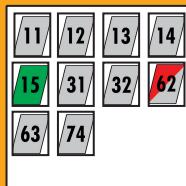
>20 bar



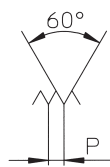
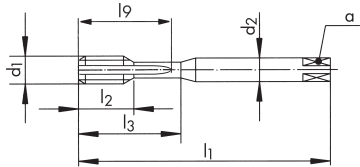
K413TC-3



TiCN



>20 bar



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

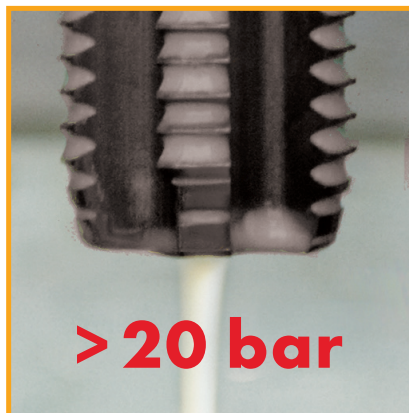
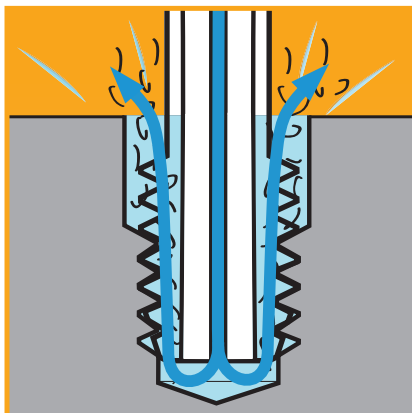
165838

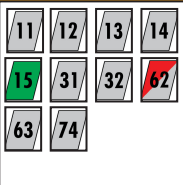
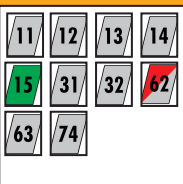
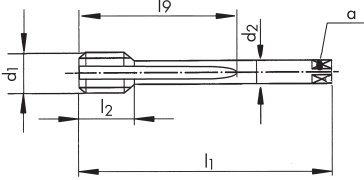
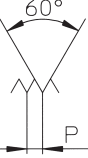
170778

170783

170786

170775



K									K613TC-3	K613VS-3		
K613TC-3   K613VS-3  												
									 	 		
									 	 		
 									 			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a 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
	32	28		22
	30	25		20
	24	20		16
	15	12		8
	35	30		25
M33 - M42				
				18
				15
				12
				6
				20

FS FORMING

FS380VS-5



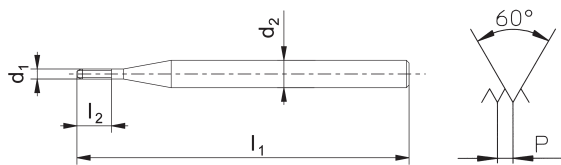
VS



FS380VS-3



VS



FS380VS-5



FS380VS-3



FS380VS-3



FS380VS-3



6HX

6HX

6HX

6GX

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a 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

157171

173452

157172

173455

157173

173458

157174

169779

169782

157175

169785

157176

157180 0.019

157178

157181 0.020

157179

≤ M1.5

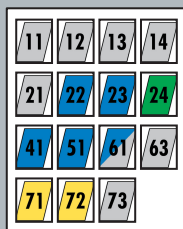
4HX

FS FORMING

FS380DL-5



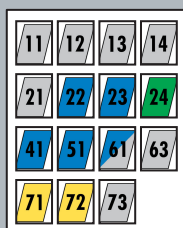
DL



FS380DL-3



DL



FS380DL-5

FS380DL-3

FS380DL-3

FS380DL-3



NEW

NEW

NEW

NEW

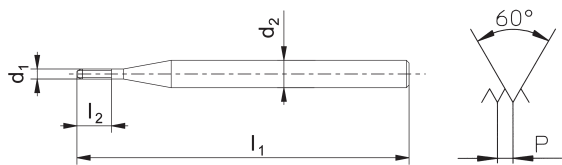


6HX

6HX

6HX

6GX



ID

ID

ID

ID

6H
+ mm

172839

173461

172840

173464

172841

173467

170585

170916

172842

172843

172842

172844

158814

172849

0.019

172845

173246

0.020

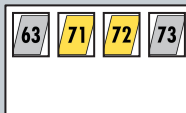
172846

≤ M1.5

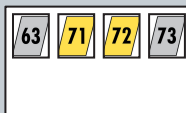
4HX

FPS FORMING

FPS380CN-3



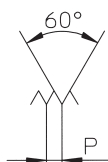
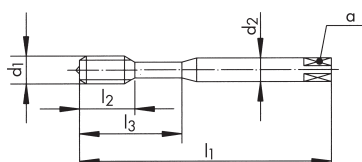
FPS381CN-3



FPS380VS-3



FPS381VS-3



FPS380CN-3

FPS381CN-3

FPS380VS-3

FPS381VS-3



$\varnothing d_1$ 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
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	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

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



VS



FPS581VS-3



EL

VS



FPS681VS-3



EL

VS



FPS481VS-3



FPS581VS-3



NEW

FPS681VS-3



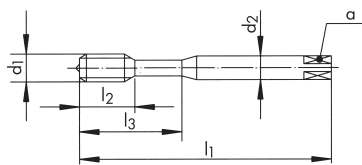
NEW



6HX

6HX

6HX



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	α mm	6HX Tol.
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

166673

166678

166683

168713

$\varnothing d_1$ 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

172824

172826

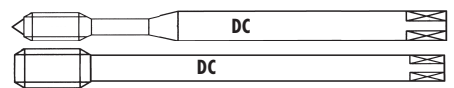
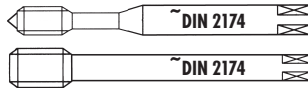
172828

172830

172832

172834

172836

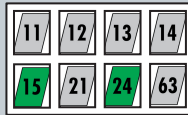


FPS FORMING

FPS384VS-3



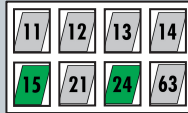
VS



FPS484VS-3



VS

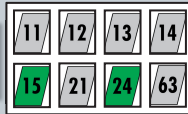


FPS584VS-3



EL

VS

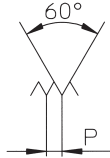
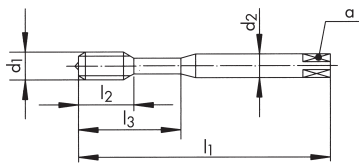


FPS684VS-3



EL

VS



$\varnothing d_1$ 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

$\varnothing d_1$ 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

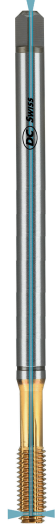
FPS384VS-3



FPS484VS-3



FPS584VS-3



NEW

FPS684VS-3



NEW



< 3 x D



< 3 x D



< 3 x D



< 3 x D



2.5 x P



2.5 x P



2.5 x P



2.5 x P

6HX

6HX

6HX

6HX

ID

ID

166737

166738

166640

166650

166660

166670

166675

166680

166685

ID

ID

172763

172766

172769

172772

172775

172778

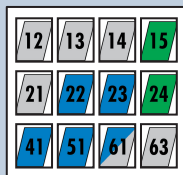
172781

FAS FORMING

FAS380VS-3



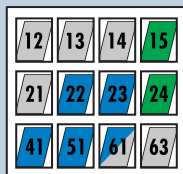
VS



FAS381VS-3



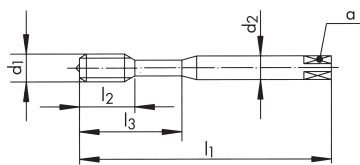
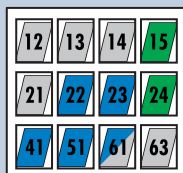
VS



FAS481VS-3



VS



FAS380VS-3



FAS381VS-3



FAS481VS-3



$\varnothing d_1$ 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
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

$\varnothing d_1$ 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
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 + mm	ID 6H + mm
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

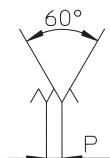
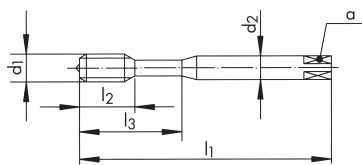
FAS384VS-3

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

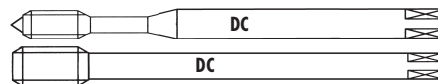
166692

166693

166694

* 166695

166696



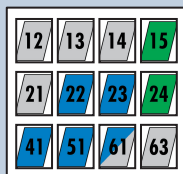
FAS FORMING

FAS581VS-3



EL

VS



FAS681VS-3



EL

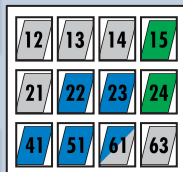
VS

FAS584VS-3



EL

VS

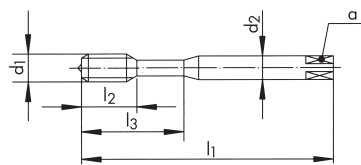


FAS684VS-3



EL

VS



FAS581VS-3

FAS681VS-3

FAS584VS-3

FAS684VS-3



NEW



NEW



NEW



NEW



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	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

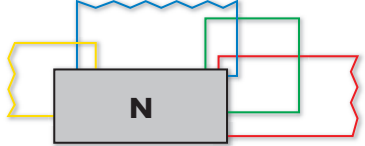
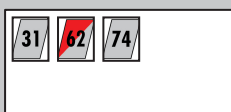
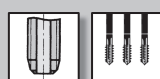
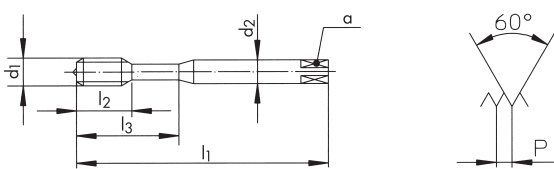
172817

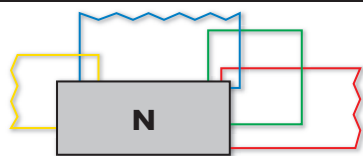
172799

172820

172802

172822

									N1110-1	N1110-2	N1110-3	N1110-S
N1110-1 												
N1110-2 												
N1110-3  												
N1110-S 												
												
												
												
$\varnothing d_1$ 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
									$\leq M1.5$			



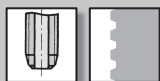
N1210-1

N1210-2

N1210-3

N1210-S

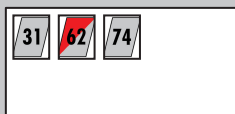
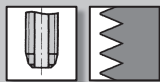
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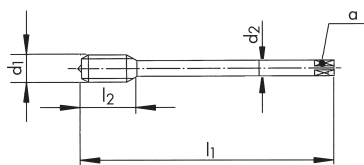
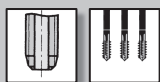
N1210-2



N1210-3



N1210-S



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
11	1.50	85	22.0	8.0	6.3	3	9.50
12	1.75	89	24.0	9.0	7.1	3	10.20
14	2.00	95	24.0	11.2	9.0	3	12.00
16	2.00	102	32.0	12.5	10.0	3	14.00
18	2.50	112	30.0	14.0	11.2	3	15.50
20	2.50	112	37.0	14.0	11.2	3	17.50
22	2.50	115	32.0	16.0	12.5	3	19.50
24	3.00	130	45.0	18.0	14.0	4	21.00
27	3.00	135	45.0	20.0	16.0	4	24.00
30	3.50	138	48.0	20.0	16.0	4	26.50
33	3.50	151	51.0	22.4	18.0	4	29.50
36	4.00	162	57.0	25.0	20.0	4	32.00

ID

ID

ID

ID

103302

103427

103489

111168

103303

103428

103499

111173

103310

103430

103510

111179

103319

103432

103522

111185

103324

103434

103534

111191

103330

103436

103543

111196

103337

103438

103550

125567

103341

103440

103557

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103353

103444

103579

111216

103357

103446

103581

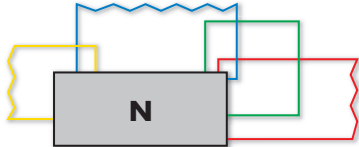
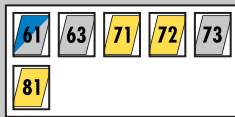
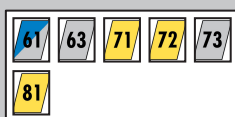
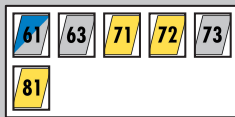
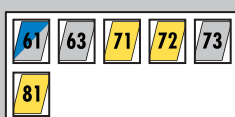
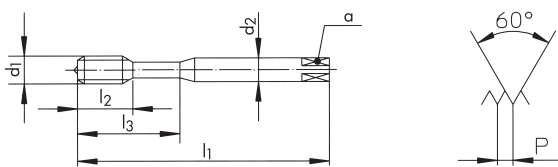
111218

103359

103448

103583

111220

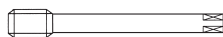
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N1120-4												
N1220-4												
N1160-3										NEW	NEW	
N1260-3												
												
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID		
3	0.50	48	11.0	18	3.15	2.50	3	2.50	103068			
4	0.70	53	13.0	21	4.00	3.15	3	3.30	103075			
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		
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm				ID	ID	
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	

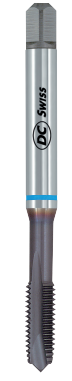


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DC *SWISS*

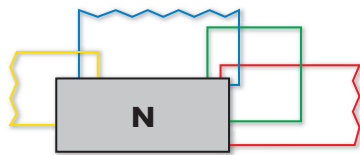


	N							
Merkmale Characteristics								
								
								
Lochart Hole type								
		N320-3	N320-4			N350-3	N360-3	
DIN lang DIN long	DIN 371	84	84			84	91	
ISO kurz ISO short	ISO 529							
DIN lang DIN long	~ DIN 2174							
Toleranz Tolerance	ISO 2 6H		84			84	91	
Feintoleranz Fine tolerance	ISO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

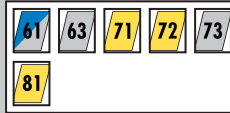
N					Z			
 R40 	 R40 	 	 	 	 	 	 R40 	 R45 
						 NEW		
								
N360V-3	N360TN-3	N1110-1	N1110-3	N1110-S	Z320V-3 Z320V-4	Z320VS-4	Z360V-3	Z370VS-3
91	91				94	94	94	94
		106	106	106				
91	91		106	106	94	94	94	94
					94			
N460V-3	N460TN-3	N1210-1	N1210-3	N1210-S	Z420V-4	Z420VS-4	Z460V-3	Z470VS-3
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							
							
							
Lochart Hole type							
	H320-4	H350-3	S320VS-4	S360VS-3	SA320-4	SA350-3	SA390-3
<i>DIN lang</i> <i>DIN long</i> DIN 371	96	97	98	98	100	100	99
<i>ISO kurz</i> <i>ISO short</i> ISO 529							
<i>DIN lang</i> <i>DIN long</i> ~ DIN 2174							
<i>Toleranz</i> <i>Tolerance</i> ISO 2 6H	96	97	98	98	100	100	99
<i>Feintoleranz</i> <i>Fine tolerance</i> ISO 1 4H					100	100	
<i>Übermass</i> <i>Oversize</i> ISO 3 6G							
	H420-4	H450-3	S420VS-4	S460VS-3	SA420-4	SA450-3	
<i>DIN lang</i> <i>DIN long</i> DIN 374	96	97	98	98	101	101	
<i>ISO kurz</i> <i>ISO short</i> ISO 529							
<i>DIN lang</i> <i>DIN long</i> ~ DIN 2174							
<i>Toleranz</i> <i>Tolerance</i> ISO 2 6H	96	97	98	98	101	101	
<i>Feintoleranz</i> <i>Fine tolerance</i> ISO 1 4H					101	101	

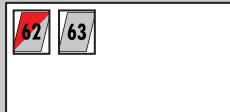
TL		K	RTS		FPS		FAS	
 VS	 R15 	 TiCN 	 VS	 R40 	 CrN 	 VS	 VS	
								
								
TL320VS-4	TL351VS-3	K313TC-3	RTS320VS-4	RTS362VS-3	FPS381CN-3	FPS381VS-3	FAS381VS-3	
100	100	103	102	102				
					104	104	105	
100	100	103	102	102	104	104	105	
100	100							
TL420VS-4	TL451VS-3	K413TC-3	RTS420VS-4	RTS462VS-3	FPS481CN-3	FPS481VS-3	FAS481VS-3	
101	101	103	102	102				
						104	105	
101	101	103	102	102		104	105	
101	101							



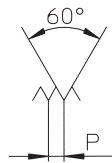
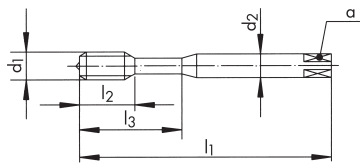
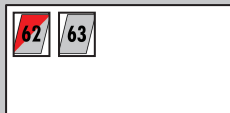
N320-4



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	a mm		
* 2	0.25	45	8.0		2.8	2.1	2	1.75
2.5	0.35	50	10.0		2.8	2.1	3	2.15
2.6	0.35	50	10.0		2.8	2.1	3	2.25
3	0.35	56	12.0	18	3.5	2.7	3	2.65
3.5	0.35	56	13.0	20	4.0	3.0	3	3.15

ID	ID
142689	
142691	
142692	
142693	
142694	

Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
4	0.50	63	14.0	21	4.5	3.4	2	3.50
5	0.50	70	15.0	25	6.0	4.9	3	4.50
6	0.75	80	17.0	30	6.0	4.9	3	5.25
8	1.00	90	20.0		6.0	4.9	3	7.00
9	0.75	90	20.0		7.0	5.5	3	8.25
10	1.00	100	22.0		7.0	5.5	3	9.00
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
18	1.50	110	26.0		14.0	11.0	4	16.50
20	1.50	125	28.0		16.0	12.0	4	18.50

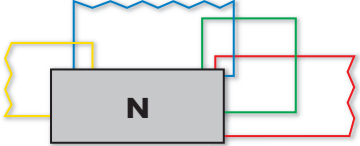
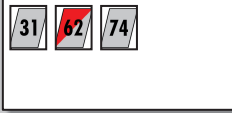
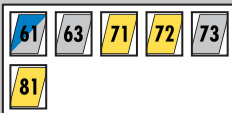
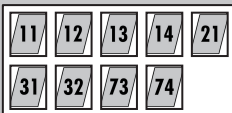
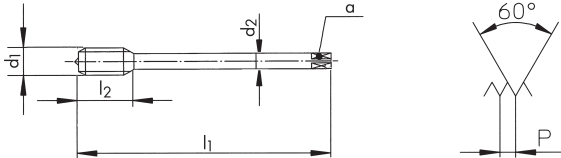
ID	ID
101586	
101588	
101590	
	102326
	102328
	102313
	* 102315
	* 102316
	* 102318
	* 102320
	* 102322
	* 102323

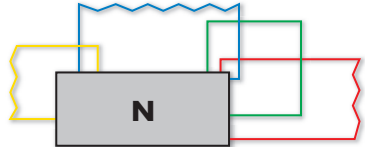
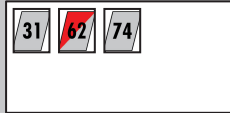
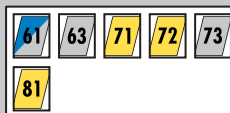
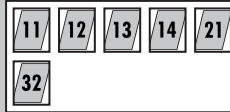
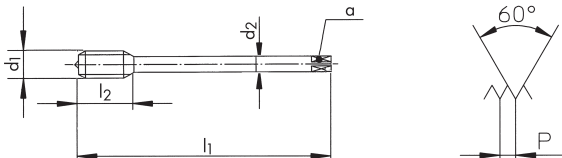
* N320-3



P 0.25

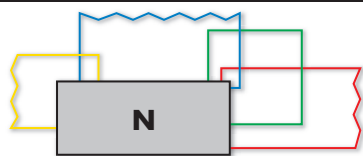


								N410-3	N420-4	N420V-4	N420TN-4
N410-3  											
N420-4  											
N420V-4  											
N420TN-4  											
											
											
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
4	0.35	63	14.0	2.8	2.1	3	3.65		142695		
4	0.50	63	14.0	2.8	2.1	3	3.50	101923	102145	142715	
4.5	0.50	70	15.0	3.5	2.7	3	4.00		102150		
5	0.50	70	15.0	3.5	2.7	3	4.50	101941	102167	142716	
5	0.75	70	15.0	3.5	2.7	3	4.25		102168		
5.5	0.50	80	17.0	4.0	3.0	3	5.00		142696		
6	0.50	80	17.0	4.5	3.4	3	5.50	101951	102178	142717	
6	0.75	80	17.0	4.5	3.4	3	5.25	101952	102179	102281	102249
7	0.50	80	17.0	5.5	4.3	3	6.50		102187		
7	0.75	80	17.0	5.5	4.3	3	6.25	101954	102188		
8	0.50	90	20.0	6.0	4.9	3	7.50	101955	102190	142718	
8	0.75	90	20.0	6.0	4.9	3	7.25	101956	102191	102283	
8	1.00	90	20.0	6.0	4.9	3	7.00	101957	102192	102284	102250
9	0.50	90	20.0	7.0	5.5	3	8.50		142697		
9	0.75	90	20.0	7.0	5.5	3	8.25		102200		
9	1.00	90	20.0	7.0	5.5	3	8.00		102201	143935	
10	0.50	100	22.0	7.0	5.5	3	9.50		142698		
10	0.75	100	22.0	7.0	5.5	3	9.25	101863	102056		
10	1.00	100	22.0	7.0	5.5	3	9.00	101864	102057	102262	102239
10	1.25	100	22.0	7.0	5.5	3	8.80	101865	102058	142719	

								N410-3	N420-4	N420V-4	N420TN-4
N410-3											
N420-4											
N420V-4	 V										
N420TN-4	 TiN										
											
$\varnothing d_1$ MF	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 = 

* N410-3 = 



N410-3

N420-4

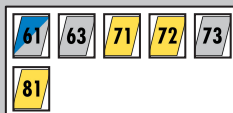
N420V-4



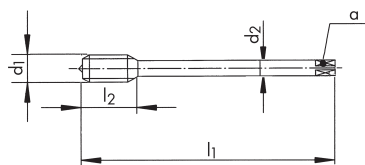
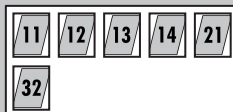
N410-3



N420-4

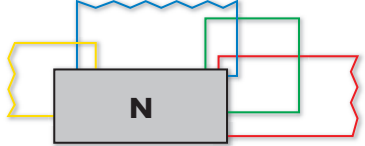
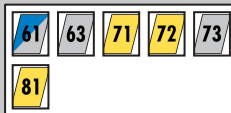
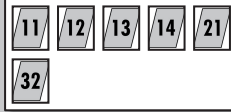
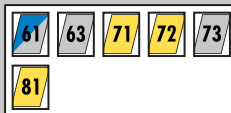
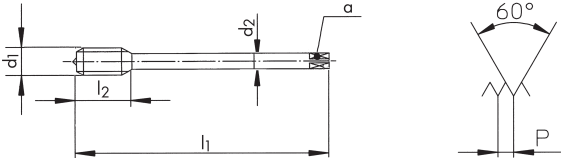


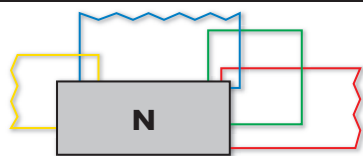
N420V-4



Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		
20	1.00	125	28.0	16.0	12.0	4	19.00
20	1.50	125	28.0	16.0	12.0	4	18.50
20	2.00	140	36.0	16.0	12.0	3	18.00
22	1.00	125	28.0	18.0	14.5	4	21.00
22	1.50	125	28.0	18.0	14.5	4	20.50
22	2.00	140	36.0	18.0	14.5	3	20.00
24	1.00	140	30.0	18.0	14.5	4	23.00
24	1.50	140	30.0	18.0	14.5	4	22.50
24	2.00	140	34.0	18.0	14.5	4	22.00
25	1.00	140	30.0	18.0	14.5	4	24.00
25	1.50	140	30.0	18.0	14.5	4	23.50
25	2.00	140	34.0	18.0	14.5	4	23.00
26	1.00	140	30.0	18.0	14.5	4	25.00
26	1.50	140	30.0	18.0	14.5	4	24.50
27	1.50	140	34.0	20.0	16.0	4	25.50
27	2.00	140	34.0	20.0	16.0	4	25.00
28	1.00	140	30.0	20.0	16.0	4	27.00
28	1.50	140	30.0	20.0	16.0	4	26.50
28	2.00	140	30.0	20.0	16.0	4	26.00

ID	ID	ID
	102098	
101884	102099	102272
105130	102100	
	102104	
101886	102105	102274
101887	142714	
	102107	
101889	102108	102276
101890	102109	102277
	142722	
101892	102112	
	142723	
	102113	
101893	102114	145896
	102115	
101894	102116	
	142725	
101896	102118	
122023		

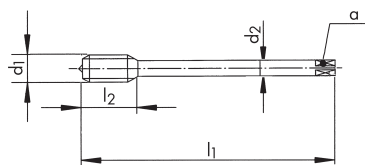
								N410-3	N420-4	N420V-4	N420-3
N410-3  											
N420-4  											
N420V-4   											
N420-3  											
											
											
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
30	1.00	150	32.0	22.0	18.0	4	29.00	101898	102121		
30	1.50	150	32.0	22.0	18.0	4	28.50	101899	102122	143978	
30	2.00	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



$\varnothing d_1$ MF	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

102163

101938

102164

101939

102165

101943

102176

143814

* 101944

* 102177

* 101946

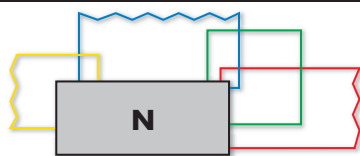
101947

* 101948

* 105131

105132

143815



N410-3 LH



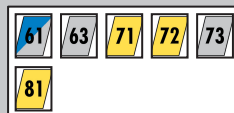
LH



N420-4 LH

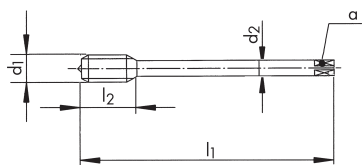


LH

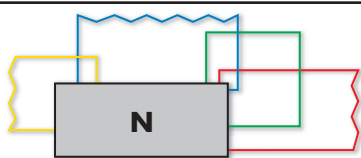


N410-3 LH

N420-4 LH



Ø 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 = 									



N360-3

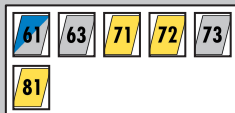
N360V-3

N360TN-3

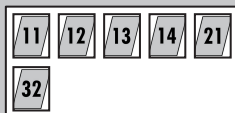
N360-3



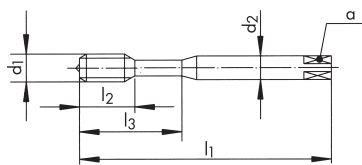
N360-3



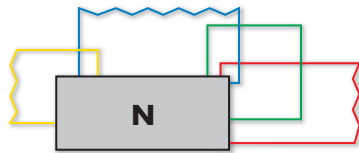
N360V-3



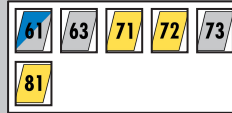
N360TN-3



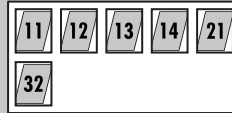
$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID ^{6H} + mm
4	0.50	63	7.5	21	4.5	3.4	3	3.50	101632	101712	111618	101631 0.020
5	0.50	70	9.0	25	6.0	4.9	3	4.50	101641	101714	111617	101640 0.020
6	0.50	80	11.0	30	6.0	4.9	3	5.50	101648	143990		
6	0.75	80	11.0	30	6.0	4.9	3	5.25	101650	101716	101702	101649 0.022
8	0.75	90	12.5	35	8.0	6.2	3	7.25	101658	101719		101657 0.022
8	1.00	90	12.5	35	8.0	6.2	3	7.00	101660	101720	101704	101659 0.026
10	0.75	100	14.0	39	10.0	8.0	3	9.25	101606	144401		
10	1.00	100	14.0	39	10.0	8.0	3	9.00	101608	101706	101695	101607 0.026
10	1.25	100	14.0	39	10.0	8.0	3	8.80	101609	105134	110965	



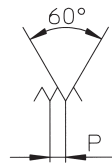
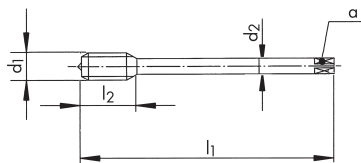
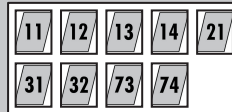
N460-3



N460V-3



N460TN-3



N460-3



N460V-3



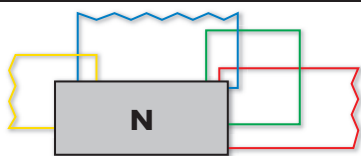
N460TN-3



N460-3

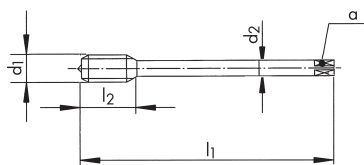


$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID ^{6H} + mm
12	1.00	100	14.0	9.0	7.0	3	11.00	102353	102462	102447	102352 0.026
12	1.25	100	14.0	9.0	7.0	3	10.80	102354	102463	144202	
12	1.50	100	14.0	9.0	7.0	3	10.50	102356	102464	102448	102355 0.032
13	1.00	100	14.0	11.0	9.0	3	12.00	102364			
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



Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		6H
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

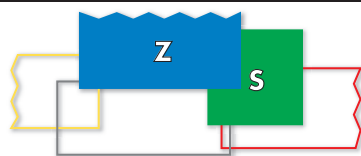
150453

174995

122669

174996

150436



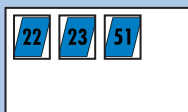
Z320V-4



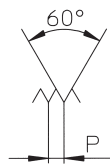
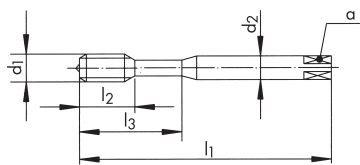
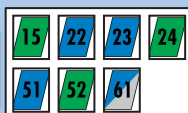
Z320VS-4



Z360V-3



Z370VS-3



Z320V-4



Z320VS-4



NEW

Z360V-3



Z370VS-3



PM



$\varnothing d_1$ 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

146487

114715

115462

115578

115887

115468

142726

142727

124289

142728

120060

$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a 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	0.75	80	11.0	30	6.0	4.9	3	5.25
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

ID

104675

104676

104677

104678

104674

$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		
6	0.75	80	11.0	30	6.0	4.9	3	5.25
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

ID

166117

166118

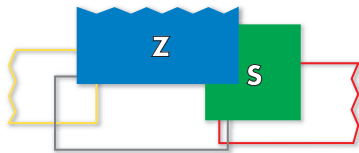
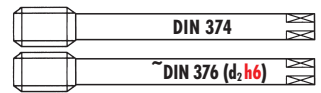
166119

* Z320V-3



P ≤ 0.25

ISO 1
4H



Z420V-4

Z420VS-4

Z460V-3

Z470VS-3



NEW



PM



Z420V-4



V



Z420VS-4



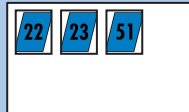
VS



Z460V-3



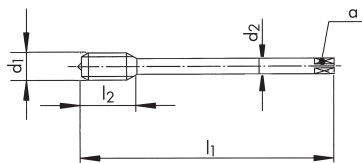
V



Z470VS-3



VS

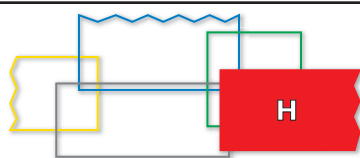


$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
12	1.00	100	24.0	9.0	7.0	3	11.00
12	1.50	100	24.0	9.0	7.0	3	10.50
14	1.50	100	24.0	11.0	9.0	3	12.50
16	1.50	100	26.0	12.0	9.0	3	14.50

$\varnothing d_1$ 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

$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	d_2 h6 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

* Norme DC / * DC Norm / * Norma DC



H320-4

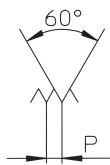
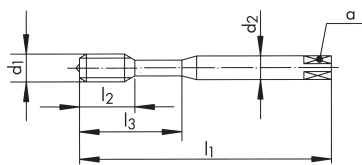


H420-4



H320-4

H420-4



$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
6	0.75	80	17.0	30	6.0	4.9	3	5.25
8	0.75	90	20.0	35	8.0	6.2	3	7.25
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
12	1.25	100	24.0		9.0	7.0	4	10.80
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
20	1.50	125	28.0		16.0	12.0	4	18.50
24	2.00	140	34.0		18.0	14.5	4	22.00

ID

ID

101214

101216

101217

101204

101273

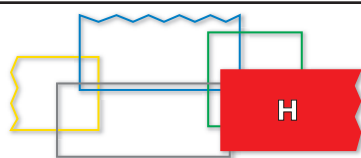
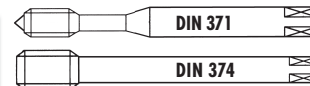
101274

101276

101278

101282

101285



H350-3

H450-3

H350-3

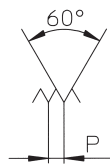
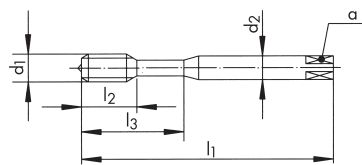


15 16 62 82

H450-3



15 16 62 82



Ø 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	11.0	30	6.0	4.9	3	5.25	101249	
8	0.75	90	12.5	35	8.0	6.2	3	7.25	101252	
8	1.00	90	12.5	35	8.0	6.2	3	7.00	101253	
10	1.00	100	14.0	39	10.0	8.0	3	9.00	101235	
12	1.00	100	14.0		9.0	7.0	4	11.00		101302
12	1.50	100	14.0		9.0	7.0	4	10.50		101303
14	1.50	100	14.0		11.0	9.0	4	12.50		101306
16	1.50	100	14.0		12.0	9.0	4	14.50		101308
18	1.50	110	18.0		14.0	11.0	4	16.50		101310
20	1.50	125	20.0		16.0	12.0	4	18.50		101312
22	1.50	125	20.0		18.0	14.5	4	20.50		101314
24	1.50	140	22.0		18.0	14.5	4	22.50		101316
24	2.00	140	22.0		18.0	14.5	4	22.00		101317
27	2.00	140	22.0		20.0	16.0	4	25.00		101319
30	1.50	150	24.0		22.0	18.0	4	28.50		101321
30	2.00	150	24.0		22.0	18.0	4	28.00		101322



S320VS-4



VS

13 15 24 52

S420VS-4



VS

13 15 24 52

S360VS-3



R35

VS

13 15 24 52

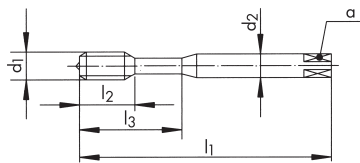
S460VS-3



R35

VS

13 15 24 52



S320VS-4



S420VS-4



S360VS-3



S460VS-3



$\varnothing d_1$	P	l_1	l_2	l_3	d_2	a		
MF	mm	mm	mm	mm	mm	mm		
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
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
* 123690	
124288	
120059	
	120420
	120687
	120877

$\varnothing d_1$	P	l_1	l_2	l_3	d_2	a		
MF	mm	mm	mm	mm	mm	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	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

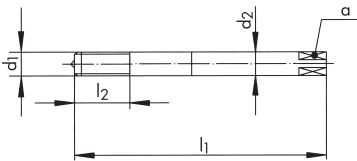
ID	ID
	111528
	111529
	111540
	111541
	111542

aero

SA390-3



SA390-3



$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID
8	1.00	90	25.0	8.0	6.2	3	7.00	* 149735
10	1.00	100	30.0	10.0	8.0	3	9.00	* 149751
10	1.25	100	30.0	10.0	8.0	3	8.80	* 149753
12	1.00	110	35.0	12.0	9.0	4	11.00	* 149769
12	1.50	110	35.0	12.0	9.0	4	10.50	* 149773
14	1.50	110	40.0	16.0	12.0	4	12.50	* 149790

aero

SA320-4



52 53

SA350-3



52 53

TL320VS-4



VS

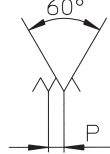
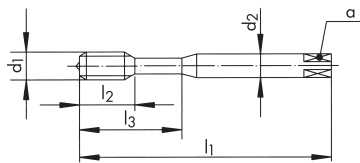
41 42

TL351VS-3



VS

41 42



SA320-4

SA350-3

TL320VS-4

TL351VS-3



$\varnothing d_1$	P	l_1	l_2	l_3	d_2	a		
MF	mm	mm	mm	mm	mm	mm		
4	0.50	63	14.0		4.5	3.4	3	3.50
5	0.50	70	15.0		6.0	4.9	3	4.50
6	0.50	80	15.0	23	6.0	4.9	3	5.50
8	1.00	90	18.0	29	8.0	6.2	3	7.00
10	1.00	100	20.0	33	10.0	8.0	3	9.00

ID

ID

ID

ID

	* 149079	* 152032	152033
* 149142	149144	* 152048	152049
* 149193		* 152058	152059
149304	149306	* 152079	152080
149362	149364	* 152092	152093

6HX

6HX

6HX

6HX

$\varnothing d_1$	P	l_1	l_2	l_3	d_2	a		
MF	mm	mm	mm	mm	mm	mm		
4	0.50	63	14.0		4.5	3.4	3	3.50
5	0.50	70	15.0		6.0	4.9	3	4.50
6	0.50	80	15.0	23	6.0	4.9	3	5.50
8	1.00	90	18.0	29	8.0	6.2	3	7.00
10	1.00	100	20.0	33	10.0	8.0	3	9.00

ID

ID

ID

ID

149081	149083	* 152034	152035
149146	149148	* 152050	152051
	* 149199	* 152060	152061
149308	149310		148019
149366	149368	* 152094	148026

aero

SA420-4

SA450-3

TL420VS-4

TL451VS-3

SA420-4



52 53

SA450-3



52 53

TL420VS-4



VS

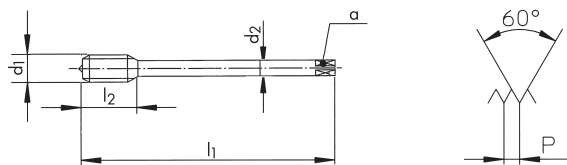
41 42

TL451VS-3



VS

41 42

B
4 x PC
2.5 x PB
4 x PC
2.5 x P

4HX

4HX

4HX

4HX

$\varnothing d_1$ 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

6HX

6HX

6HX

6HX

$\varnothing d_1$ 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

RTS

Rigid Tapping Synchro

RTS320VS-4



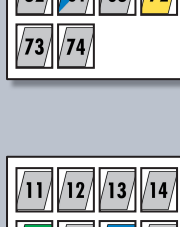
VS



RTS420VS-4



VS



RTS362VS-3



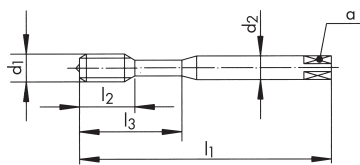
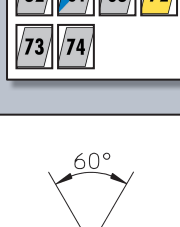
VS



RTS462VS-3



VS



Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 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	8.0	3	10.50
14	1.50	110	14.0	*12.0	*9.0	9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

* Norme DC / * DC Norm / * Norma DC

Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 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	8.0	3	10.50
14	1.50	110	14.0	*12.0	*9.0	9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

* Norme DC / * DC Norm / * Norma DC

RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



ID

ID

150615

150630

150640

150655

150665

ID

ID

150617

150632

151862

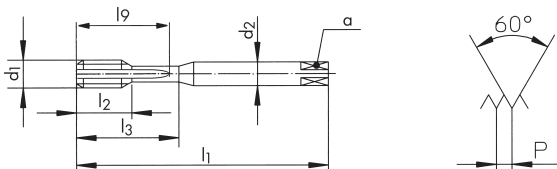
151869

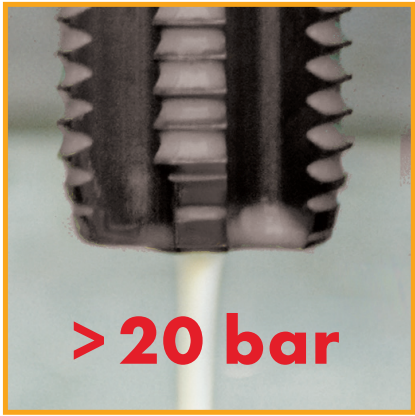
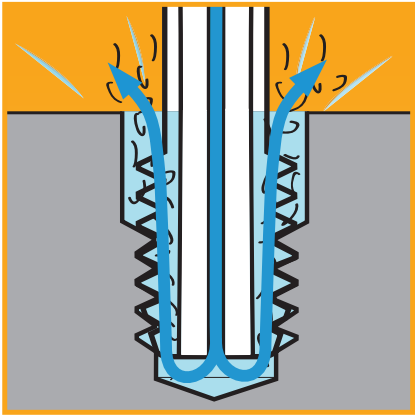
151871



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

≥ Ø 6 mm

K										K313TC-3	K413TC-3																																																																																																												
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										 C 2.5 x P	 C 2.5 x P																																																																																																												
										 6HX	 6HX																																																																																																												
<table><tr><th>Ø d₁</th><th>P</th><th>l₁</th><th>l₂</th><th>l₃</th><th>l₉</th><th>d₂</th><th>a</th><th></th><th></th><th>ID</th><th>ID</th></tr><tr><td>MF</td><td>mm</td><td>mm</td><td>mm</td><td>mm</td><td>mm</td><td>mm</td><td>mm</td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td>1.00</td><td>100</td><td>22.0</td><td>39</td><td>37</td><td>10.0</td><td>8.0</td><td>3</td><td>9.00</td><td>175729</td><td></td></tr><tr><td>12</td><td>1.00</td><td>110</td><td>24.0</td><td></td><td>42</td><td>9.0</td><td>7.0</td><td>3</td><td>11.00</td><td></td><td>175731</td></tr><tr><td>12</td><td>1.25</td><td>110</td><td>24.0</td><td></td><td>42</td><td>9.0</td><td>7.0</td><td>3</td><td>10.80</td><td></td><td>175733</td></tr><tr><td>12</td><td>1.50</td><td>110</td><td>24.0</td><td></td><td>42</td><td>9.0</td><td>7.0</td><td>3</td><td>10.50</td><td></td><td>175735</td></tr><tr><td>14</td><td>1.50</td><td>110</td><td>28.0</td><td></td><td>49</td><td>11.0</td><td>9.0</td><td>3</td><td>12.50</td><td></td><td>175737</td></tr><tr><td>16</td><td>1.50</td><td>110</td><td>30.0</td><td></td><td>56</td><td>12.0</td><td>9.0</td><td>3</td><td>14.50</td><td></td><td>175739</td></tr><tr><td>20</td><td>1.50</td><td>140</td><td>36.0</td><td></td><td>70</td><td>16.0</td><td>12.0</td><td>5</td><td>18.50</td><td></td><td>171205</td></tr></table>										Ø d ₁	P	l ₁	l ₂	l ₃	l ₉	d ₂	a			ID	ID	MF	mm	mm	mm	mm	mm	mm	mm					10	1.00	100	22.0	39	37	10.0	8.0	3	9.00	175729		12	1.00	110	24.0		42	9.0	7.0	3	11.00		175731	12	1.25	110	24.0		42	9.0	7.0	3	10.80		175733	12	1.50	110	24.0		42	9.0	7.0	3	10.50		175735	14	1.50	110	28.0		49	11.0	9.0	3	12.50		175737	16	1.50	110	30.0		56	12.0	9.0	3	14.50		175739	20	1.50	140	36.0		70	16.0	12.0	5	18.50		171205		
Ø d ₁	P	l ₁	l ₂	l ₃	l ₉	d ₂	a			ID	ID																																																																																																												
MF	mm	mm	mm	mm	mm	mm	mm																																																																																																																
10	1.00	100	22.0	39	37	10.0	8.0	3	9.00	175729																																																																																																													
12	1.00	110	24.0		42	9.0	7.0	3	11.00		175731																																																																																																												
12	1.25	110	24.0		42	9.0	7.0	3	10.80		175733																																																																																																												
12	1.50	110	24.0		42	9.0	7.0	3	10.50		175735																																																																																																												
14	1.50	110	28.0		49	11.0	9.0	3	12.50		175737																																																																																																												
16	1.50	110	30.0		56	12.0	9.0	3	14.50		175739																																																																																																												
20	1.50	140	36.0		70	16.0	12.0	5	18.50		171205																																																																																																												



FPS FORMING

FPS381CN-3



63 71 72 73

FPS381VS-3



11 12 13 14 15
21 24 63

FPS481VS-3

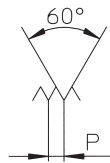
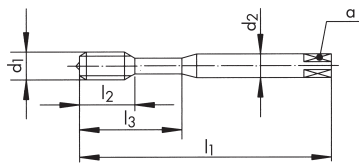


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21 24 63

FPS381CN-3

FPS381VS-3

FPS481VS-3



6HX

6HX

6HX

$\varnothing d_1$ 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

ID

166631

166639

166699

166648

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166701

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166658

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166668

166669

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FAS FORMING

FAS381VS-3



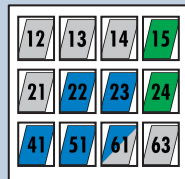
VS



FAS481VS-3

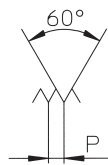
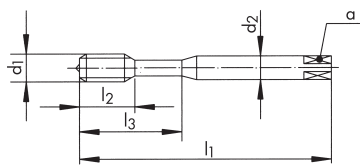


VS



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

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166625

166633

166698

166642

166700

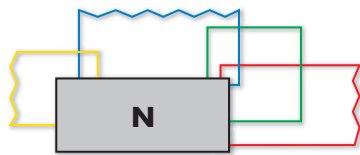
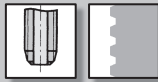
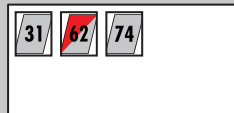
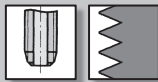
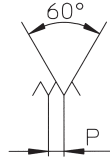
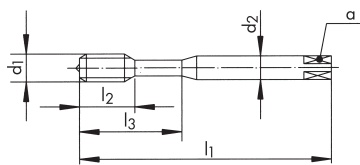
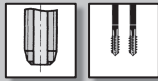
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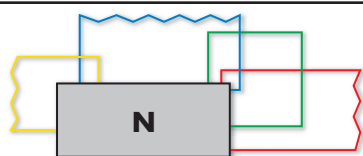
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166682


N1110-1

N1110-3

N1110-S

N1110-1
N1110-3
N1110-S


$\varnothing d_1$ 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
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*** 102938**
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4H**



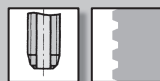
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N1210-3

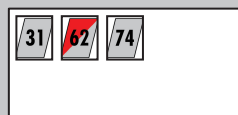
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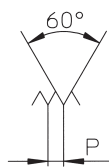
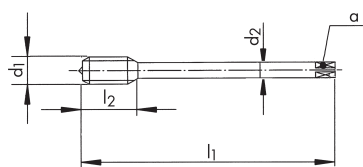
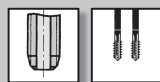
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N1210-S

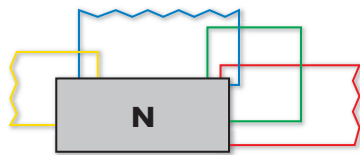


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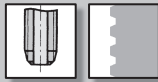
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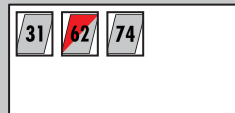
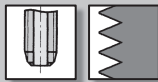
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11	0.75	85	22.0	8.0	6.3	3	10.25
11	1.00	85	22.0	8.0	6.3	3	10.00
11	1.25	85	22.0	8.0	6.3	3	9.80
12	0.50	89	24.0	9.0	7.1	3	11.50
12	0.75	89	24.0	9.0	7.1	3	11.25
12	1.00	89	24.0	9.0	7.1	3	11.00
12	1.25	89	24.0	9.0	7.1	3	10.80
12	1.50	89	24.0	9.0	7.1	3	10.50
14	0.50	95	24.0	11.2	9.0	3	13.50
14	0.75	95	24.0	11.2	9.0	3	13.25
14	1.00	95	24.0	11.2	9.0	3	13.00
14	1.25	95	24.0	11.2	9.0	3	12.80
14	1.50	95	24.0	11.2	9.0	3	12.50
15	0.75	90	23.0	11.2	9.0	3	14.25
15	1.00	90	23.0	11.2	9.0	3	14.00
16	0.50	102	32.0	12.5	10.0	4	15.50
16	0.75	102	32.0	12.5	10.0	4	15.25
16	1.00	102	32.0	12.5	10.0	4	15.00
16	1.50	102	32.0	12.5	10.0	4	14.50
17	1.00	95	23.0	12.5	10.0	4	16.00
18	0.75	112	30.0	14.0	11.2	4	17.25
18	1.00	112	30.0	14.0	11.2	4	17.00
18	1.50	112	30.0	14.0	11.2	4	16.50
18	2.00	112	30.0	14.0	11.2	3	16.00
19	1.00	112	33.0	14.0	11.2	4	18.00



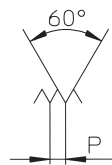
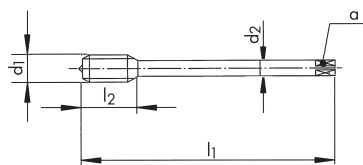
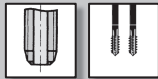
N1210-1



N1210-3



N1210-S



N1210-1

N1210-3

N1210-S



Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		
20	1.00	112	37.0	14.0	11.2	4	19.00
20	1.25	112	37.0	14.0	11.2	4	18.80
20	1.50	112	37.0	14.0	11.2	4	18.50
22	1.00	115	32.0	16.0	12.5	4	21.00
22	1.50	115	32.0	16.0	12.5	4	20.50
22	2.00	115	32.0	16.0	12.5	3	20.00
24	1.00	120	30.0	18.0	14.0	4	23.00
24	1.50	120	30.0	18.0	14.0	4	22.50
24	2.00	130	45.0	18.0	14.0	4	22.00
25	1.00	120	30.0	18.0	14.0	4	24.00
25	1.50	120	30.0	18.0	14.0	4	23.50
25	2.00	120	30.0	18.0	14.0	4	23.00
26	1.00	120	30.0	18.0	14.0	4	25.00
26	1.50	120	30.0	18.0	14.0	4	24.50
26	2.00	120	30.0	18.0	14.0	4	24.00
27	1.00	127	30.0	20.0	16.0	4	26.00
27	1.50	127	30.0	20.0	16.0	4	25.50
27	2.00	135	45.0	20.0	16.0	4	25.00
28	1.00	127	30.0	20.0	16.0	4	27.00
28	1.50	127	30.0	20.0	16.0	4	26.50
30	1.50	127	32.0	20.0	16.0	4	28.50
30	2.00	127	32.0	20.0	16.0	4	28.00

ID

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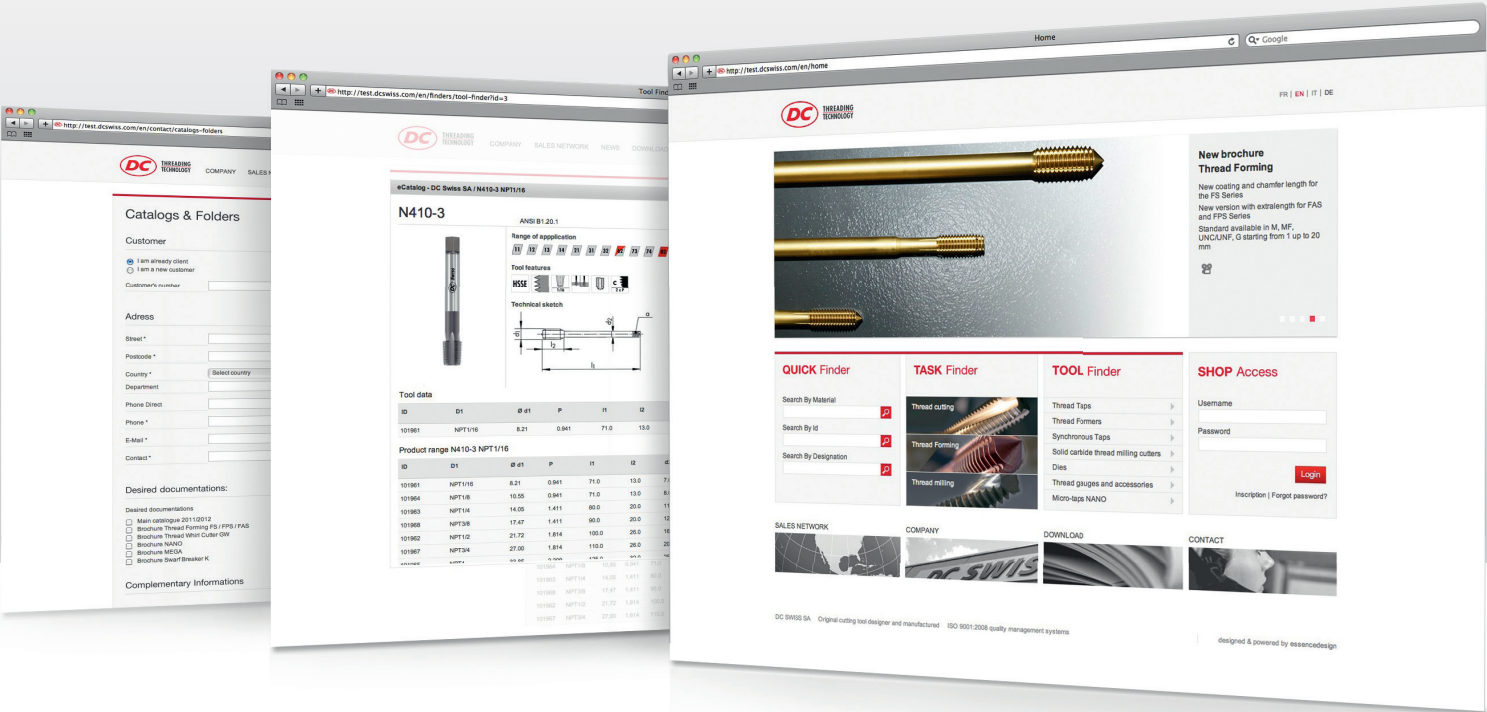
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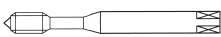
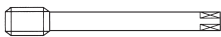
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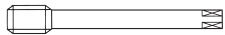
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	N					Z	
Merkmale Characteristics			 V	 R40 V	 	 V	 VS
				 	  		
Lochart Hole type							
	N310-3	N320-3 N320-4	N320V-4	N360-3 N360V-3	N1110 -1-2-3-S	Z320V-3 Z320V-4	Z320VS-4
DIN lang DIN long DIN 371	114	114	114	116		118	118
ISO kurz ISO short ISO 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							

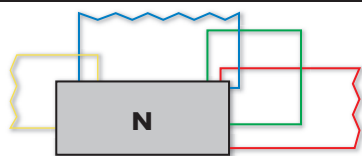
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119	120	121	121	122	123	124	124	125
119	120	121	121	122	123	124	124	
	120			122		124	124	125
Z462V-3	Z470VS-3	H420-4	H450-3	S420VS-4	S460VS-3	SA420-4	SA450-3	
119	120	121	121	122	123	125	125	
119	120	121	121	122	123	125	125	

	TL		RTS		FS	FPS	FAS
Merkmale Characteristics							
							
							
Lochart Hole type							
	TL320VS-4	TL351VS-3	RTS320VS-4	RTS362VS-3	FS380VS-3	FPS381VS-3	FAS381VS-3
DIN lang DIN long	DIN 371						
DIN lang DIN long	~ DIN 2184-1						
Toleranz Tolerance	UNC 2B						
Toleranz Tolerance	UNC 3B						
Toleranz Tolerance	UNC(J) 3B						
			RTS420VS-4	RTS462VS-3			
DIN lang DIN long							
DIN lang DIN long							
Toleranz Tolerance							
Toleranz Tolerance							
Toleranz Tolerance							

aero

THREADING TOOLS FOR AEROSPACE MATERIALS

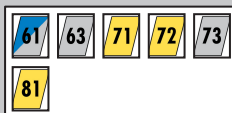




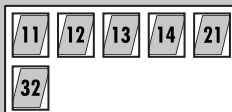
N310-3



N320-4



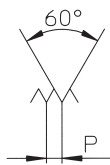
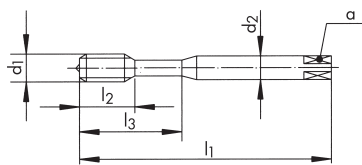
N320V-4



N310-3

N320-4

N320V-4



2B

2B

2B

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm		
*2	56	2.18	45	9.0		2.8	2.1	2	1.75
*3	48	2.51	50	10.0		2.8	2.1	2	2.00
4	40	2.84	56	12.0	18	3.5	2.7	3	2.25
5	40	3.17	56	12.0	18	3.5	2.7	3	2.55
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
12	24	5.48	80	17.0	30	6.0	4.9	3	4.40
1/4	20	6.35	80	17.0	30	7.0	5.5	3	5.10

ID

ID

ID

3B
UNC(J)

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm		UNC
4	40	2.84	56	12.0	18	3.5	2.7	3	2.30
6	32	3.50	56	13.0	20	4.0	3.0	3	2.80
8	32	4.16	63	14.0	21	4.5	3.4	3	3.45

ID

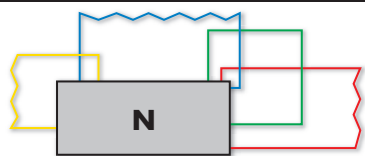
145656

155317

155319

* N320-3





N410-3

N420-4

N420V-4

N410-3



31 62 74

N420-4

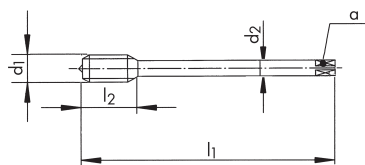


61 63 71 72 73
81

N420V-4



11 12 13 14 21
32



2B

2B

2B

$\varnothing'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm		
5/16	18	7.93	90	20.0	6.0	4.9	3	6.50
3/8	16	9.52	100	22.0	7.0	5.5	3	8.00
7/16	14	11.11	100	19.0	8.0	6.2	3	9.30
1/2	13	12.70	110	24.0	9.0	7.0	3	10.80
9/16	12	14.28	110	28.0	11.0	9.0	3	12.20
5/8	11	15.87	110	30.0	12.0	9.0	3	13.60
3/4	10	19.05	125	33.0	14.0	11.0	3	16.60
7/8	9	22.22	140	36.0	18.0	14.5	3	19.50
1	8	25.40	160	39.0	18.0	14.5	4	22.30
1 1/8	7	28.57	180	45.0	22.0	18.0	4	25.00
1 1/4	7	31.75	180	45.0	22.0	18.0	4	28.20
1 1/2	6	38.10	200	55.0	32.0	24.0	4	34.00
1 3/4	5	44.45	220	59.0	36.0	29.0	4	39.50
2	4.5	50.80	250	67.0	40.0	32.0	4	45.30

ID

ID

ID

101997

102213

142742

101996

102212

142743

102215

142744

101993

102208

142745

102217

101998

102214

142746

101995

102211

142747

102216

142748

101994

102209

142749

102205

* 101991

102204

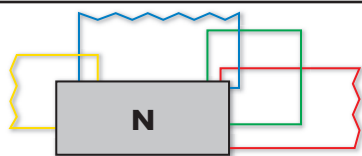
* 101990

102203

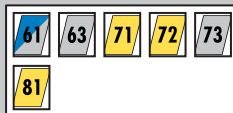
* 101992

102206

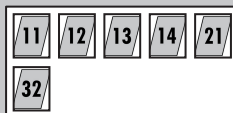
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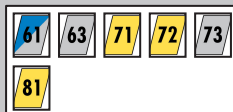
N360-3



N360V-3



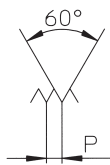
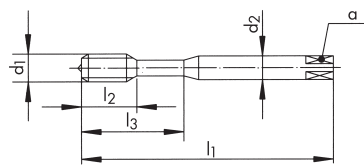
N360-3



N360-3

N360V-3

N360-3



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	α mm		
2	56	2.18	45	8.0		2.8	2.1	2	1.75
3	48	2.51	50	9.0		2.8	2.1	2	2.00
4	40	2.84	56	5.5	18	3.5	2.7	3	¹ 2.25
5	40	3.17	56	5.5	18	3.5	2.7	3	2.55
6	32	3.50	56	6.5	20	4.0	3.0	3	² 2.75
8	32	4.16	63	7.5	21	4.5	3.4	3	³ 3.40
10	24	4.82	70	9.0	25	6.0	4.9	3	3.80
12	24	5.48	80	11.0	30	6.0	4.9	3	4.40
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

UNJC
¹2.30
²2.80
³3.45

ID

ID

ID

101673

148887

101674

101676

101725

155316

101677

101679

101727

155318

101680

101728

155320

101671

101723

101672

101670

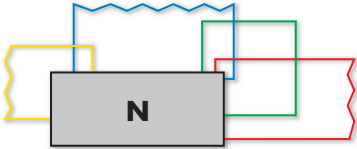
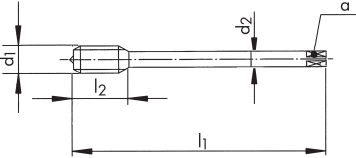
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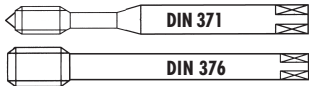
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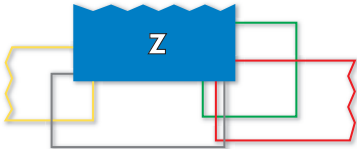
101726

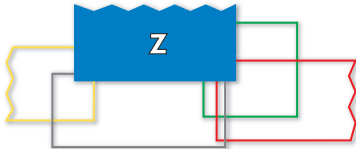
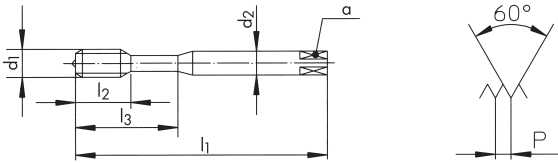
101675

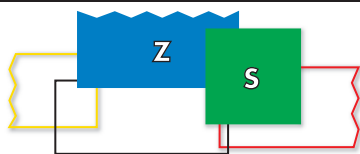
101724

									N460-3	N460V-3		
N460-3  6163717273 81 N460V-3  V 1112131421 32												
												
 												
									2B	2B		
$\varnothing'' d_1$ 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		

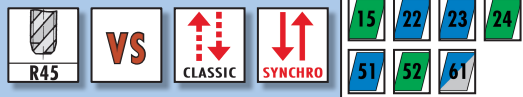


										Z320V-4	Z320VS-4	Z420V-4	Z420VS-4
Z320V-4  V 21 22 23 41 42 51 Z320VS-4  VS 21 22 23 24 51 61 Z420V-4  V 21 22 23 41 42 51 Z420VS-4  VS 21 22 23 24 51 61													
										 B 4 x P	 B 4 x P	 B 4 x P	 B 4 x P
 2B										 2B	 2B	 2B	 2B
$\varnothing'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 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  2.5 x P													

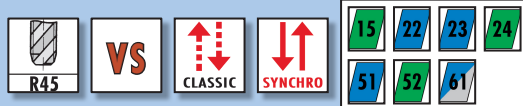
										Z362V-3	Z362VS-3	Z462V-3	
Z362V-3  22 23 51 Z362VS-3  22 23 24 51 61 Z462V-3  22 23 51													
													
													
													
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
* 2	56	2.18	45	8.0		2.8	2.1	2	1.75	104695			
* 4	40	2.84	56	5.5	18	3.5	2.7	3	2.25	104697			
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



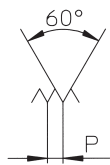
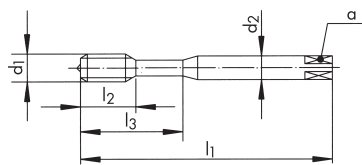
Z370VS-3

Z470VS-3



2BX

2BX



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
7/16	14	11.11	100	14.0		8.0	6.2	3	9.30
1/2	13	12.70	110	14.0		*10.0	*8.0	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		16.0	12.0	4	22.30

ID

ID

166123

166124

166125

166126

166127

166128

166129

166130

166131

166132

175703

* Norme DC / * DC Norm / * Norma DC

3B
UNC(J)

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	α mm		UNJC
4	40	2.84	56	5.5	18	3.5(h9)	2.7	3	2.30
6	32	3.50	56	6.5	20	4.0(h9)	3.0	3	2.80
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3.45
1/4	20	6.35	80	11.0	30	*6.0	*4.9	3	5.20
5/16	18	7.93	90	12.5	35	8.0	6.2	3	6.70

ID

165114

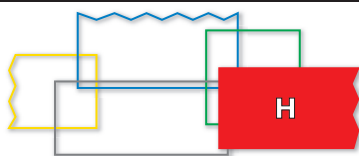
165115

165116

165117

165118

* Norme DC / * DC Norm / * Norma DC



H320-4

H420-4

H350-3

H450-3



ID

ID

101221

101223

101225

101226

101220

101219

101224

101222

101290

ID

ID

101258

101260

101262

101263

101257

101256

101261

101259

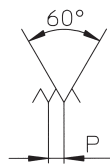
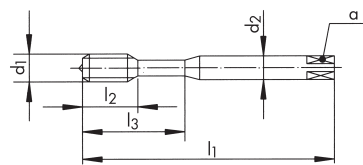
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101326

101329

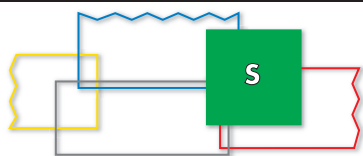
101328

101327



$\varnothing'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α 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

$\varnothing'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α 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



S320VS-4



13 15 24 52

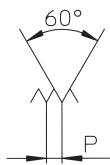
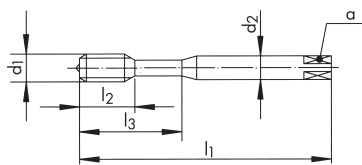
S420VS-4



13 15 24 52

S320VS-4

S420VS-4



$\varnothing^r d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm		
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
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

111587

111588

* 111589

111590

111591

111592

111593

111594

111595

3B
UNC(J)

$\varnothing^r d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm		UNC
4	40	2.84	56	12.0	18	3.5	2.7	3	2.30
6	32	3.50	56	13.0	20	4.0	3.0	3	2.80
8	32	4.16	63	14.0	21	4.5	3.4	3	3.45
1/4	20	6.35	80	17.0	30	7.0	5.5	3	5.20
5/16	18	7.93	90	20.0	35	8.0	6.2	3	6.70

ID

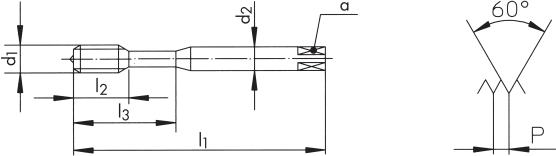
165314

165315

165316

165317

* 143761

										S360VS-3	S460VS-3		
S360VS-3  VS 13 15 24 52 S460VS-3  VS 13 15 24 52													
													
													
													
$\varnothing'' d_1$ 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



52 53

SA350-3



52 53

TL320VS-4



VS

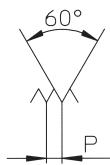
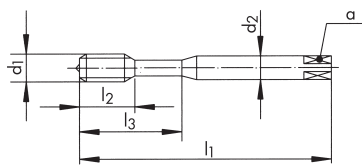
41 42

TL351VS-3



VS

41 42



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		
UNC	TPI	mm	mm	mm	mm	mm	mm		
4	40	2.84	56	12.0		3.5	2.7	3	2.25
5	40	3.17	56	12.0		3.5	2.7	3	2.55
6	32	3.50	56	13.0		4.0	3.0	3	2.75
8	32	4.16	63	14.0		4.5	3.4	3	3.40
10	24	4.82	70	15.0		6.0	4.9	3	3.80
1/4	20	6.35	80	15.0	23	7.0	5.5	3	5.10
5/16	18	7.93	90	18.0	29	8.0	6.2	3	6.50
3/8	16	9.52	100	20.0	33	10.0	8.0	3	8.00

SA320-4

SA350-3

TL320VS-4

TL351VS-3



ID

ID

ID

ID

147271

149003

152018

152018

* 149031

* 149033

* 152023

* 152024

149055

149057

* 152027

152028

149093

149095

* 152036

152037

149125

* 149127

* 152042

* 152043

149222

149224

* 152062

127972

149269

149271

152068

149346

149348

* 152084

152085

3B
UNC(J)

3B
UNC(J)

3B
UNC(J)

3B
UNC(J)

Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		
UNC	TPI	mm	mm	mm	mm	mm	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	15.0	23	7.0	5.5	3	5.20
5/16	18	7.93	90	18.0	29	8.0	6.2	3	6.70
3/8	16	9.52	100	20.0	33	10.0	8.0	3	8.10

ID

ID

ID

ID

149005

149007

* 148804

150194

149059

149061

* 152029

150210

149097

149099

* 152038

152039

* 149129

* 149131

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149273

149275

* 152069

152070

149350

149352

* 152086

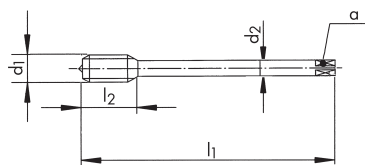
152087

aero

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

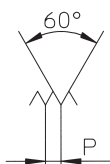
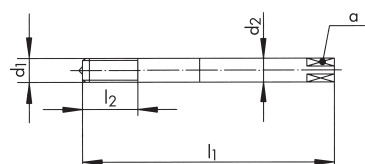
152247

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

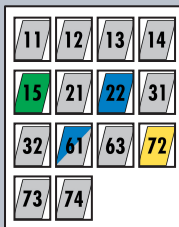
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149747

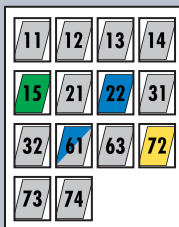
RTS

Rigid Tapping Synchro

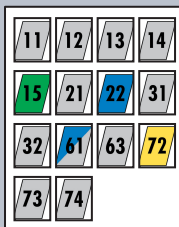
RTS320VS-4



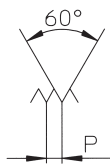
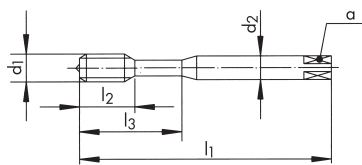
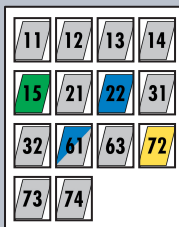
RTS420VS-4



RTS362VS-3



RTS462VS-3



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂ h6	α		
UNC	TPI	mm	mm	mm	mm	mm	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

* Norme DC / * DC Norm / * Norma DC

RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



ID

ID

ID

ID

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157402

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157404

157398

157405

157399

157406

157400

157407

157401

157408



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

≥ Ø 6 mm

FS FPS FAS FORMING

FS380VS-3



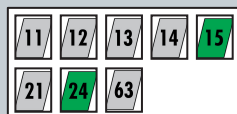
VS



FPS381VS-3



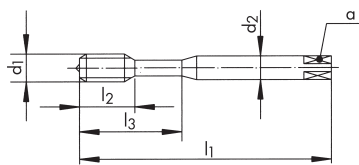
VS



FAS381VS-3



VS



FS380VS-3



FPS381VS-3



FAS381VS-3



Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm	2BX Tol.
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

ID

170065

166713

166725

166714

166726

166715

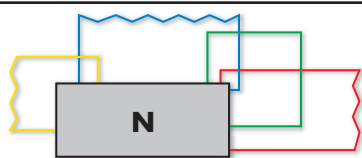
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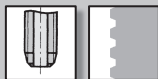
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* 166717

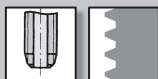
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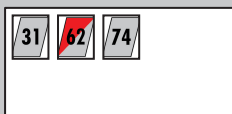
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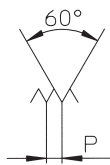
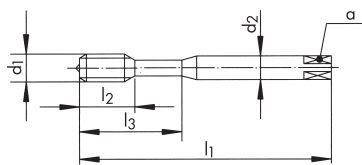
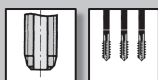
N1110-2



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	α mm		
2	56	2.18	45	9.5		2.80	2.10	3	1.75
3	48	2.51	45	9.5		2.80	2.10	3	2.00
4	40	2.84	48	11.0	18	3.15	2.50	3	2.25
5	40	3.17	48	11.0	18	3.15	2.50	3	2.55
6	32	3.50	50	13.0	20	3.55	2.80	3	2.75
8	32	4.16	53	13.0	21	4.50	3.55	3	3.40
10	24	4.82	58	16.0	25	5.00	4.00	3	3.80
1/4	20	6.35	66	19.0	30	6.30	5.00	3	5.10
5/16	18	7.93	72	22.0	35	8.00	6.30	3	6.50
3/8	16	9.52	80	24.0	39	10.00	8.00	3	8.00

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102799

102885

102998

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102802

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103001

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103002

102805

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103004

111073

102806

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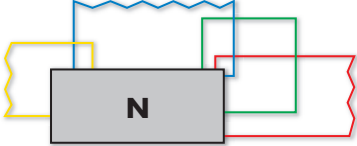
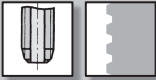
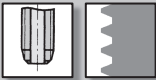
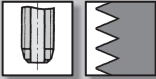
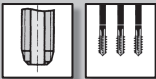
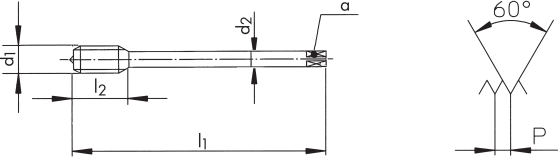
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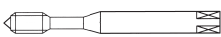
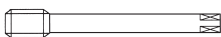
103000

111069

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

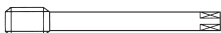
		N					
Merkmale Characteristics							
							
Lochart Hole type							
		N310-3	N320-3 N320-4	N320V-4	N360-3	N360V-3	N1110 -1-3-S N1120-4
DIN lang DIN long	DIN 371	134	134	134	136	136	
ISO kurz ISO short	ISO 529						148 150
Toleranz Tolerance	UNF 2B	134	134	134	136	136	148
Toleranz Tolerance	UNJF 3B						
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	
								
								
								
								NEW
								
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,
UNEF, UNS, UN

	SA		TL		RTS		
Merkmale Characteristics	 R15	 R10	 VS	 R15  VS	 VS	 R40  VS	
							
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						

Inhaltsverzeichnis - Maschinengewindeformer ANSI B1.1

A vertical arrangement of three DC Swiss drill bits against a dark, textured background. The bits are of increasing size from bottom to top. Each bit has a double-flute design and the 'DC SWISS' logo. The top bit is the largest, the middle one is medium-sized, and the bottom one is the smallest. The lighting highlights the metallic texture and the sharp edges of the flutes.UNF,
UNEF, UNS, UN

UNF

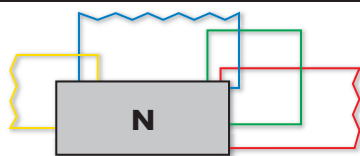
ANSI B1.1

≤ Ø 2.8

> Ø 2.8

PM

HSSE



N310-3



31 62 74

N320-3



61 63 71 72 73
81

N320-4

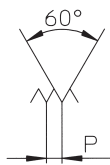
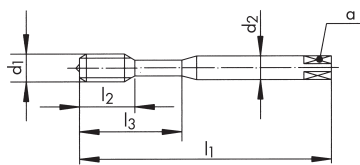


61 63 71 72 73
81

N320V-4



11 12 13 14 21
32



N310-3



N320-3



N320-4



N320V-4



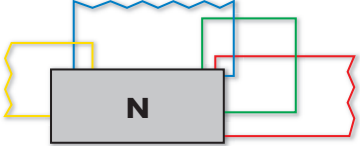
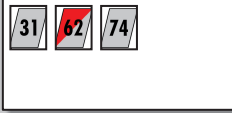
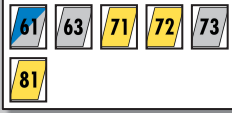
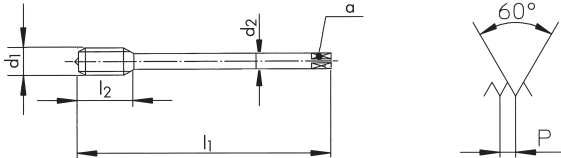
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	α		
UNF	TPI	mm	mm	mm	mm	mm	mm		
0	80	1.52	40	7.0		2.5	2.1	2	1.20
1	72	1.85	40	8.0		2.5	2.1	2	1.50
2	64	2.18	45	9.0		2.8	2.1	2	1.80
4	48	2.84	56	12.0	18	3.5	2.7	3	2.35
5	44	3.17	56	12.0	18	3.5	2.7	3	2.60
6	40	3.50	56	13.0	20	4.0	3.0	3	2.90
8	36	4.16	63	14.0	21	4.5	3.4	3	3.50
10	32	4.82	70	15.0	25	6.0	4.9	3	4.05
12	28	5.48	80	17.0	30	6.0	4.9	3	4.60
1/4	28	6.35	80	17.0	30	7.0	5.5	3	5.50

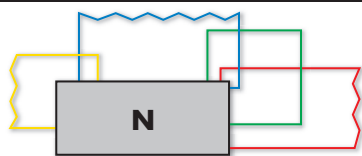
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	* 101476		
	101477		
		128847	
		142764	
		101519	142765
		101520	
		101517	142766
		101518	
101453		101516	142767

3B
UNF(J)

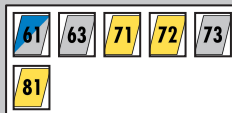
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	α		
UNF	TPI	mm	mm	mm	mm	mm	mm		
10	32	4.82	70	15.0	25	6.0	4.9	3	4.15
1/4	28	6.35	80	17.0	30	7.0	5.5	3	5.55

ID
135506
155323

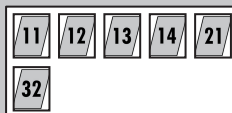
									N410-3	N420-4	N420V-4	
												
N410-3  												
N420-4  												
N420V-4  												
												
												
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
5/16	24	7.93	90	20.0	6.0	4.9	3	6.90	102004	102223	142774	
3/8	24	9.52	100	22.0	7.0	5.5	3	8.50	102003	102222	142775	
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		
												
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		UNF	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			



N360-3

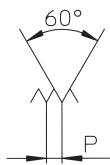
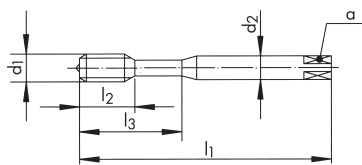


N360V-3



N360-3

N360V-3



2B

2B

$\varnothing'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm		
6	40	3.50	56	6.5	20	4.0	3.0	3	2.90
8	36	4.16	63	7.5	21	4.5	3.4	3	3.50
10	32	4.82	70	9.0	25	6.0	4.9	3	4.05
12	28	5.48	80	11.0	30	6.0	4.9	3	4.60
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

ID

ID

101686

* 101687 * 101733

101682 101730

101683

101681 101729

101685 101732

101684 101731

3B

UNF(J)

$\varnothing'' d_1$ 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	4.15
1/4	28	6.35	80	11.0	30	7.0	5.5	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

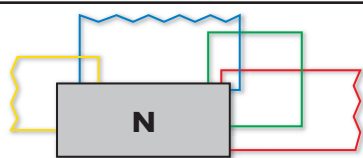
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155325

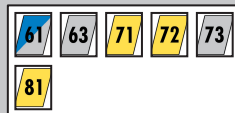
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155329

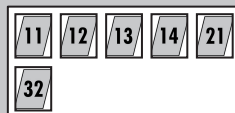
155327



N460-3

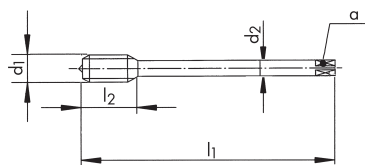


N460V-3



N460-3

N460V-3



2B

2B

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a 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)

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a 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

UNF

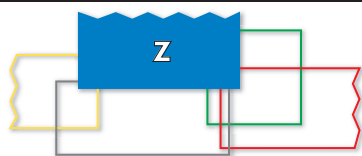
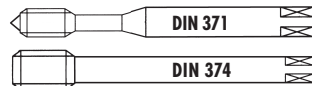
ANSI B1.1

Z.20

PM

Z.60

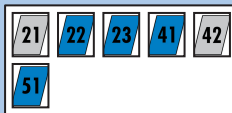
HSSE



Z320V-4



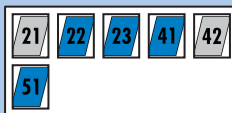
V



Z420V-4



V

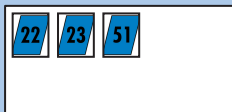


Z360V-3



R40

V

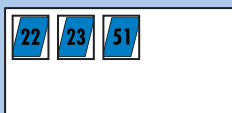


Z460V-3



R40

V



Z320V-4



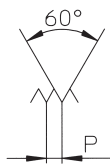
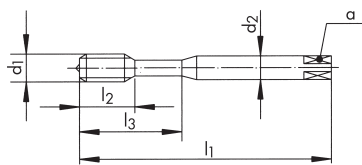
Z420V-4



Z360V-3



Z460V-3

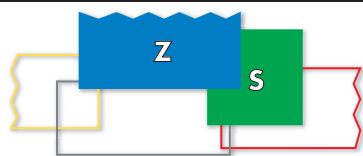


$\varnothing'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm		
10	32	4.82	70	15.0	25	6.0	4.9	3	4.05
1/4	28	6.35	80	17.0	30	7.0	5.5	3	5.50
5/16	24	7.93	90	20.0	35	8.0	6.2	3	6.90
3/8	24	9.52	100	22.0	39	10.0	8.0	3	8.50
7/16	20	11.11	100	19.0		8.0	6.2	3	9.80
1/2	20	12.70	100	24.0		9.0	7.0	3	11.40

ID	ID
142783	
142784	
142785	
142786	
	142787
	142788

$\varnothing'' d_1$ 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	3	11.40
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

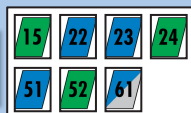
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	104682
	104681
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	104738
	104740
	104739



Z370VS-3



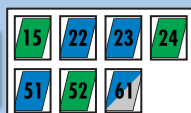
VS



Z470VS-3

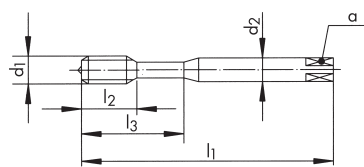


VS



Z370VS-3

Z470VS-3



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a 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

166136

166135

166134

166133

166138

166137

3B
UNF(J)

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm		UNF
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

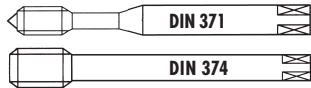
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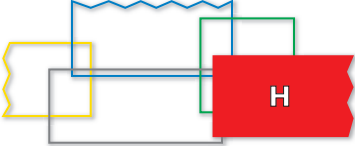
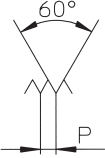
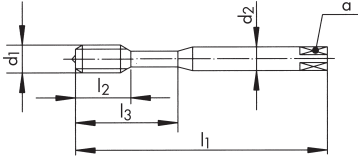
165121

165122

165123

165124

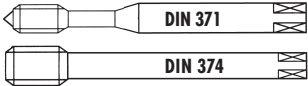


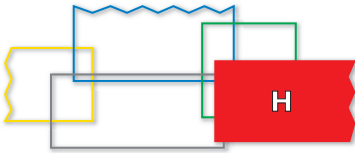
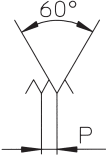
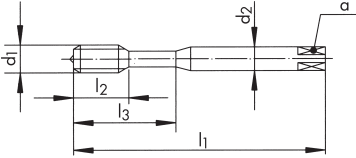
 H										H320-4	H420-4		
H320-4  H420-4 													
													
													
													
$\varnothing^r d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm			ID	ID		
10	32	4.82	70	15.0	25	6.0	4.9	3	4.05	101228			
1/4	28	6.35	80	17.0	30	7.0	5.5	3	5.50	101227			
5/16	24	7.93	90	20.0	35	8.0	6.2	3	6.90	105139			
3/8	24	9.52	100	22.0	39	10.0	8.0	3	8.50	101229			
1/2	20	12.70	100	24.0		9.0	7.0	4	11.40		101291		

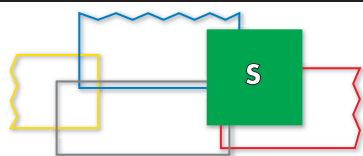
UNF

ANSI B1.1

PM



 H										H350-3	H450-3		
H350-3  15 16 62 82													
H450-3  15 16 62 82													
													
													
$\varnothing'' d_1$ 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	101265			
1/4	28	6.35	80	11.0	30	7.0	5.5	3	5.50	101264			
5/16	24	7.93	90	12.5	35	8.0	6.2	3	6.90	101267			
3/8	24	9.52	100	14.0	39	10.0	8.0	3	8.50	101266			
7/16	20	11.11	100	14.0		8.0	6.2	3	9.80		101334		
1/2	20	12.70	100	14.0		9.0	7.0	4	11.40		101331		
5/8	18	15.87	100	14.0		12.0	9.0	4	14.50		101333		
3/4	16	19.05	125	18.0		14.0	11.0	4	17.50		101332		



S320VS-4



13 15 24 52

S420VS-4



13 15 24 52

S360VS-3



13 15 24 52

S460VS-3



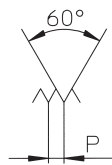
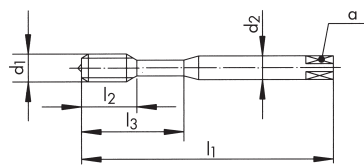
13 15 24 52

S320VS-4

S420VS-4

S360VS-3

S460VS-3



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		UNF
10	32	4.82	70	15.0	25	6.0	4.9	3	4.15
1/4	28	6.35	80	17.0	30	7.0	5.5	3	5.55
5/16	24	7.93	90	20.0	35	8.0	6.2	3	7.00
3/8	24	9.52	100	22.0	39	10.0	8.0	3	8.60
7/16	20	11.11	100	22.0		8.0	6.2	3	10.00

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		UNF
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
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

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		UNF
10	32	4.82	70	9.0	25	6.0	4.9	3	4.15
1/4	28	6.35	80	11.0	30	7.0	5.5	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
7/16	20	11.11	100	14.0		8.0	6.2	3	10.00

ID	ID
111814	
111813	
111816	
111818	
	111837

ID	ID
	* 111581
	* 111582
	* 111583
	* 111585
	* 111586

ID	ID
	3B UNF(J)
	3B UNF(J)
111815	
111820	
111817	
111819	
	111833

aero

SA320-4



52 53

SA350-3



52 53

TL320VS-4



VS

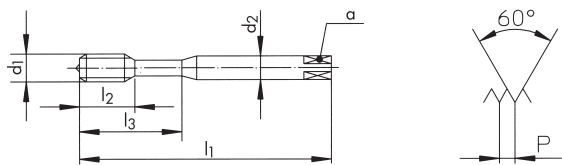
41 42

TL351VS-3



VS

41 42



SA320-4

SA350-3

TL320VS-4

TL351VS-3



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		
UNF	TPI	mm	mm	mm	mm	mm	mm		
10	32	4.82	70	15.0		6.0	4.9	3	4.05
1/4	28	6.35	80	15.0	23	7.0	5.5	3	5.50
5/16	24	7.93	90	18.0	29	8.0	6.2	3	6.90
3/8	24	9.52	100	20.0	33	10.0	8.0	3	8.50

ID	ID	ID	ID
149133	149135	* 152046	152047
149230	149232	* 152065	152066
149277	149279	* 152071	152072
149339	149341	* 152082	152083

Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		UNF
UNF	TPI	mm	mm	mm	mm	mm	mm		
4	48	2.84	56	12.0		3.5	2.7	3	2.35
10	32	4.82	70	15.0		6.0	4.9	3	4.15
1/4	28	6.35	80	15.0	23	7.0	5.5	3	5.55
5/16	24	7.93	90	18.0	29	8.0	6.2	3	7.00
3/8	24	9.52	100	20.0	33	10.0	8.0	3	8.60



ID

ID

ID

ID

	149015		
146098	149138	* 148005	148004
146404	149235	* 148013	148012
146393	149282	* 148017	148016
147165	149344	* 148024	148023

aero

SA420-4



52 53

SA450-3



52 53

TL420VS-4



VS

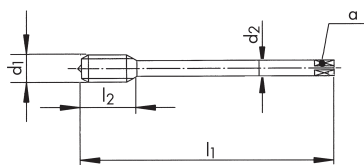
41 42

TL451VS-3



VS

41 42



SA420-4

SA450-3

TL420VS-4

TL451VS-3



$\varnothing'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm		
7/16	20	11.11	100	22.0	8.0	6.2	* 4	9.80
1/2	20	12.70	100	24.0	9.0	7.0	4	11.40
9/16	18	14.28	100	24.0	11.0	9.0	4	12.90
5/8	18	15.87	100	26.0	12.0	9.0	4	14.50

ID	ID	ID
152286	152290	* 152298
152287	152291	* 152299
* 152288		
* 152289		

$\varnothing'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm		
7/16	20	11.11	100	22.0	8.0	6.2	* 4	10.00
1/2	20	12.70	100	24.0	9.0	7.0	4	11.55
9/16	18	14.28	100	24.0	11.0	9.0	4	13.05
5/8	18	15.87	100	26.0	12.0	9.0	4	14.60

ID	ID	ID	ID
147187	152302	* 152306	148031
147189	152303	* 152307	152310
146395			
147169			

* SA420-4 =

* TL420VS-4 =

aero

SA320-4



SA390-3

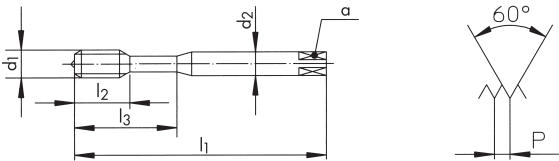


SA320-4

SA390-3



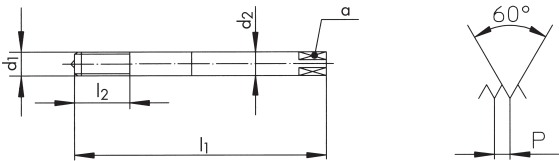
NEW



Ø" d ₁ UNJF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		UNJF
10	32	4.82	70	15.0		6.0	4.9	3	4.15
1/4	28	6.35	80	15.0	23	7.0	5.5	3	5.55
5/16	24	7.93	90	18.0	29	8.0	6.2	3	7.00
3/8	24	9.52	100	20.0	33	10.0	8.0	3	8.60

ID

174976
175993
175995
175997



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		UNF
10	32	4.82	70	15.0	6.0	4.9	3	4.15
1/4	28	6.35	80	20.0	7.0	5.5	3	5.55
5/16	24	7.93	90	25.0	8.0	6.2	3	7.00
3/8	24	9.52	100	30.0	10.0	8.0	3	8.60

ID

149687
149715
149728
149745

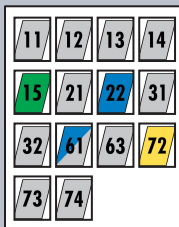
RTS

Rigid Tapping Synchro

RTS320VS-4



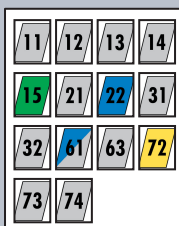
VS



RTS420VS-4



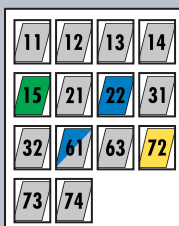
VS



RTS362VS-3



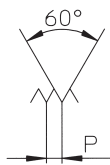
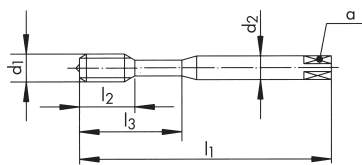
VS



RTS462VS-3



VS



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂ h6	α		
UNF	TPI	mm	mm	mm	mm	mm	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

* Norme DC / * DC Norm / * Norma DC

RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



ID

ID

ID

ID

157409

157413

157410

157414

157411

157415

157412

157416

157417

157418



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

≥ Ø 6 mm

FS FPS FAS FORMING

FS380VS-5



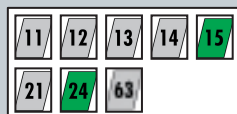
VS



FPS381VS-3



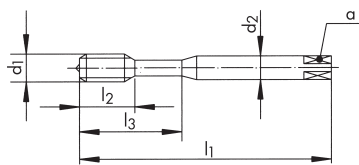
VS



FAS381VS-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	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

FS380VS-5



FPS381VS-3



FAS381VS-3



ID

161498

ID

166718

166719

166720

ID

166730

166731

166732

UNF

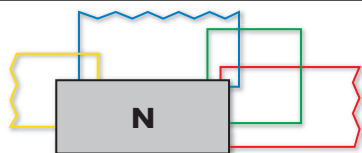
ANSI B1.1

≤ Ø 2.8

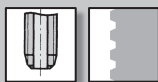
> Ø 2.8

PM

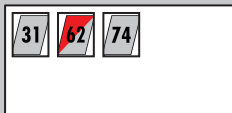
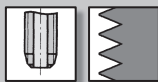
HSS



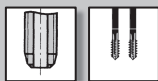
N1110-1



N1110-3



N1110-S



N1110-1

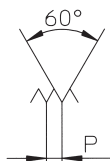
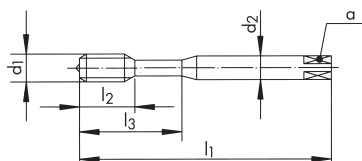
N1110-3

N1110-S



2B

2B



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
0	80	1.52	40	7.0		2.50	2.10	3	1.20
1	72	1.85	40	8.0		2.50	2.10	3	1.50
4	48	2.84	48	11.0	18	3.15	2.50	3	2.35
8	36	4.16	53	13.0	21	4.50	3.55	3	3.50
10	32	4.82	58	16.0	25	5.00	4.00	3	4.05
12	28	5.48	62	17.0	26	5.60	4.50	3	4.60
1/4	28	6.35	66	19.0	30	6.30	5.00	3	5.50
5/16	24	7.93	72	22.0	35	8.00	6.30	3	6.90
3/8	24	9.52	80	24.0	39	10.00	8.00	3	8.50

ID

ID

ID

102811

103010

111079

102812

103011

111080

* 103018

* 103022

102814

103013

111082

* 102815

* 103014

* 111083

102813

103012

111081

102821

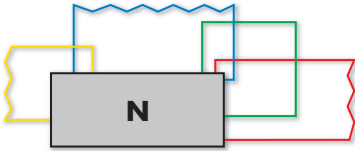
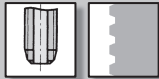
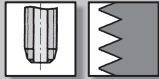
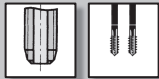
103020

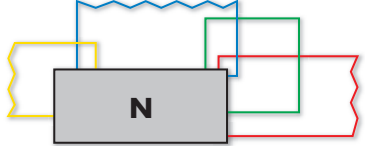
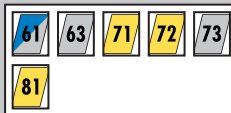
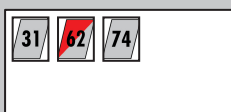
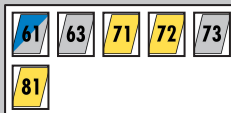
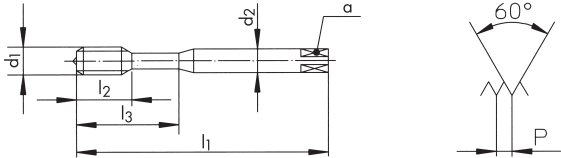
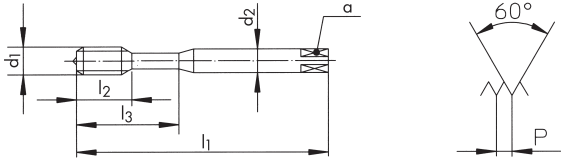
111089

102818

103017

111086

									N1210-1	N1210-3	N1210-S	
N1210-1 												
N1210-3  316274												
N1210-S 												
												
												
												
												
												
												
												
												
												
												
												
												
												

										N1110-3	N1120-4	N1210-3	N1220-4
N1110-3  													
N1120-4  													
N1210-3  													
N1220-4  													
													
													
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a			ID	ID	ID	ID
UNEF	TPI	mm	mm	mm	mm	mm	mm						
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		316274										
N460-3		616371727381										
N460V-3		111213142132										

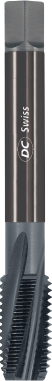
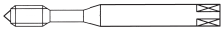
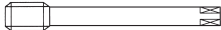
G Inhaltsverzeichnis - Maschinengewindebohrer G (Rohr) DIN ISO 228

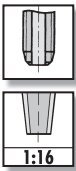
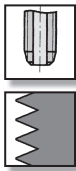
Directory - Machine taps G (BSP) DIN ISO 228

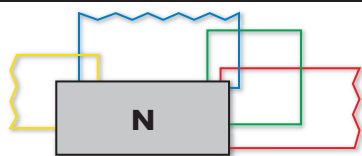
	N						
Merkmale Characteristics		 V	 TiN	 R40	 R40 V	 R40 V	 R40 TiN
							
Lochart Hole type							
							
	N410-3	N420-4 N420V-4	N420TN-4	N460-3	N460V-3	N462V-3	N460TN-3
DIN lang DIN long	DIN 5156	156	157	158	158	158	158
DIN kurz DIN short	DIN 5157						
LH Linksgewinde LH Left hand thread	DIN 5156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

G

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

	H	GG	RTS	RTS	FPS	FAS	
Merkmale Characteristics	 R25	 R15  NV	 R40  VS	 R40  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	

	N						
Merkmale Characteristics						  	
							
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	



N410-3



31 62 74

N410-3 LH

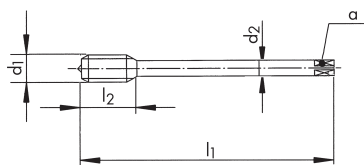


LH

31 62 74

N410-3

N410-3 LH



$\varnothing^r d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm		
1/8	28	9.72	90	22.0	7.0	5.5	3	8.75
1/4	19	13.15	100	20.0	11.0	9.0	3	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
1 1/4	11	41.91	170	32.0	32.0	24.0	5	39.30
1 1/2	11	47.80	190	32.0	36.0	29.0	5	45.20

ID

ID

101855

101853

101854

101861

101862

101851

101852

101859

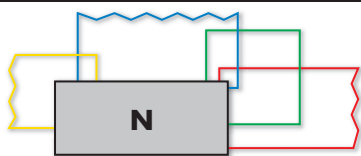
* 101860

101857

* 101858

101850

101849

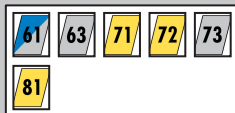


N420-4

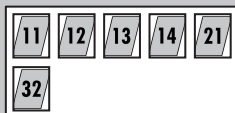
N420V-4

N420TN-4

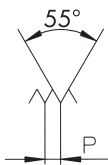
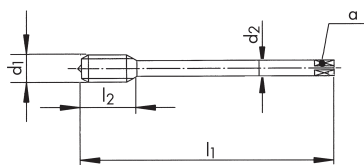
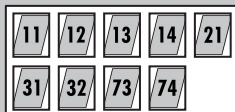
N420-4



N420V-4



N420TN-4



$\varnothing'' d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm		
1/16	28	7.72	90	18.0	6.0	4.9	3	6.75
1/8	28	9.72	90	22.0	7.0	5.5	3	8.75
1/4	19	13.15	100	20.0	11.0	9.0	3	11.60
3/8	19	16.66	100	20.0	12.0	9.0	3	15.20
1/2	14	20.95	125	22.0	16.0	12.0	4	18.90
5/8	14	22.91	125	25.0	18.0	14.5	4	20.90
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
1 1/4	11	41.91	170	32.0	32.0	24.0	5	39.30
1 1/2	11	47.80	190	32.0	36.0	29.0	5	45.20
2	11	59.61	220	36.0	45.0	35.0	5	57.00
2 1/2	11	75.18	280	36.0	50.0	39.0	6	72.60

ID

ID

ID

102045

102048

102258

102236

102047

102257

102235

102053

102261

102238

102046

102256

102234

102054

144722

102052

102260

102237

102049

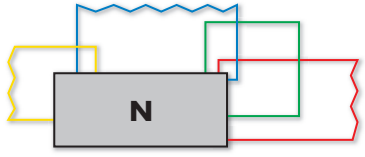
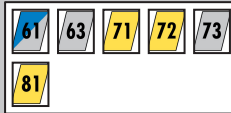
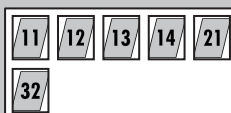
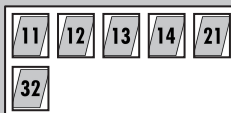
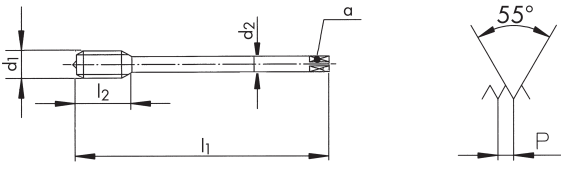
102259

102043

102042

102051

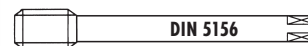
102050

									N460-3	N460V-3	N460TN-3	N462V-3
N460-3  												
N460V-3   												
N460TN-3   												
N462V-3   												
												
Ø" d ₁ G	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**
H/GG H/GG

HSSE
W



									W460-5	W460DL-5	H450-3	GG450NV-3
W460-5 71 72 81												
W460DL-5 DL 71 72 81												
H450-3 15 16 62 82												
GG450NV-3 NV 31 74												
$\varnothing'' d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm			ID	ID	ID	
1/8	28	9.72	90	14.0	7.0	5.5	3	8.75	119350	176728	101298	
1/4	19	13.15	100	14.0	11.0	9.0	* 4	11.60	119300	176729	101297	
3/8	19	16.66	100	14.0	12.0	9.0	4	15.20	119682	176730	101301	
1/2	14	20.95	125	20.0	16.0	12.0	4	18.90	119199	176731	101296	
3/4	14	26.44	140	22.0	20.0	16.0	4	24.40			101300	
1	11	33.24	160	26.0	25.0	20.0	4	30.70			101299	
* W460-5 =												
$\varnothing'' d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm			ID			
1/8	28	9.72	90	22.0	7.0	5.5	4	8.75	102309			
1/4	19	13.15	100	20.0	11.0	9.0	4	11.60	102308			
3/8	19	16.66	100	20.0	12.0	9.0	4	15.20	102312			
1/2	14	20.95	125	22.0	16.0	12.0	4	18.90	102307			
3/4	14	26.44	140	28.0	20.0	16.0	4	24.40	102311			
1	11	33.24	160	32.0	25.0	20.0	4	30.70	102310			

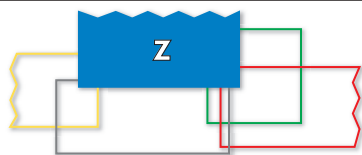
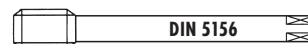
G DIN ISO 228 (BSP)

< Ø 25.4 > Ø 25.4

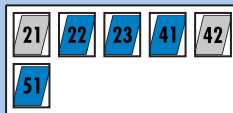
PM
Z420

HSSE
Z420

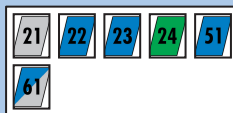
HSSE
Z460



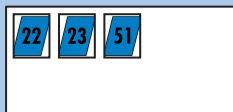
Z420V-4



Z420VS-4



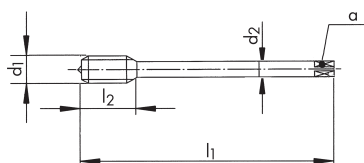
Z460V-3



Z420V-4

Z420VS-4

Z460V-3



Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm		
1/8	28	9.72	90	22.0	7.0	5.5	3	8.75
1/4	19	13.15	100	20.0	11.0	9.0	3	11.60
3/8	19	16.66	100	20.0	12.0	9.0	3	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

ID

142794

142800

142795

119303

142796

142802

142797

142803

142798

142799

Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α 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	3	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

ID

104726

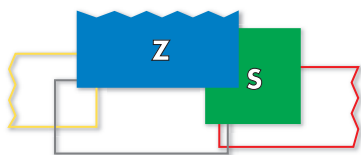
104725

104728

104724

104727

105142



Z470VS-3



VS

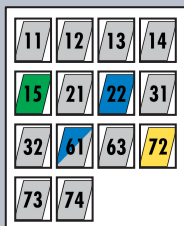


RTS
Rigid Tapping Synchro

RTS462VS-3



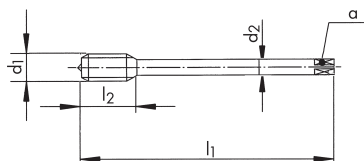
VS



RTS462VS-5



VS



Z470VS-3



RTS462VS-3



RTS462VS-5



ID

Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm		
1/8	28	9.72	100	14.0	*8.0	*6.2	3	8.75
1/4	19	13.15	110	14.0	*12.0	*9.0	4	11.60
3/8	19	16.66	110	18.0	12.0	9.0	4	15.20
1/2	14	20.95	125	20.0	16.0	12.0	4	18.90

* Norme DC / * DC Norm / * Norma DC

ID

Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm		
1/8	28	9.72	100	14.0	*8.0	*6.2	3	8.75
1/4	19	13.15	110	14.0	*12.0	*9.0	3	11.60
3/8	19	16.66	110	18.0	12.0	9.0	4	15.20
1/2	14	20.95	125	20.0	16.0	12.0	4	18.90

* Norme DC / * DC Norm / * Norma DC

ID

ID

151861

170629

151868

170631

151872

170633

150685

170635



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

FPS FAS FORMING

FPS481VS-3



VS

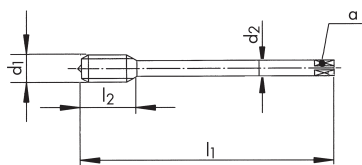
11	12	13	14	15
21	24	63		

FAS481VS-3



VS

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



$\varnothing^r d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm		Tol.
1/8	28	9.72	90	22.0	7.0	5.5	9.25	+ 0.05
1/4	19	13.15	100	20.0	11.0	9.0	12.50	+ 0.05
3/8	19	16.66	100	20.0	12.0	9.0	16.00	+ 0.05
1/2	14	20.95	125	22.0	16.0	12.0	20.00	+ 0.05

FPS481VS-3



FAS481VS-3

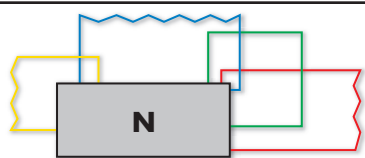


ID

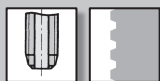
ID

166721
166722
166723
166724

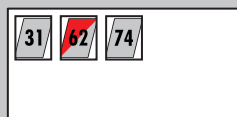
166733
166734
166735
166736



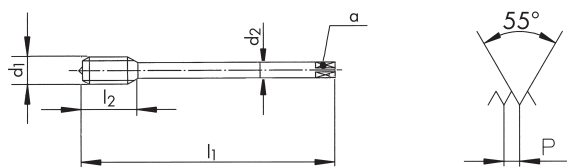
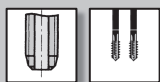
N210-1



N210-3



N210-S



N210-1



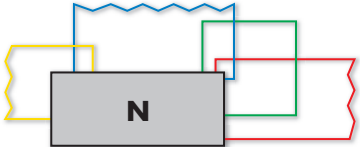
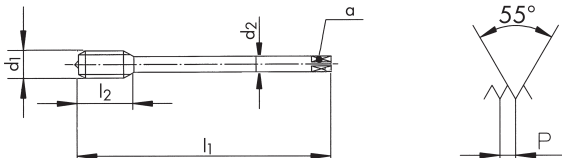
N210-3



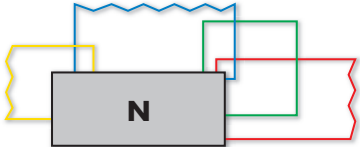
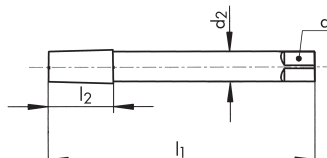
N210-S



$\varnothing''$ G	d ₁ 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	

									N420-3				N410-3																																																																	
N420-3  6163717273 81																																																																														
N410-3  316274											  1:16																																																																			
									 2.5 x P		 C 2 x P																																																																			
									ID																																																																					
<table><tr><th>Ø" d₁ Rp</th><th>P TPI</th><th>d₁ mm</th><th>l₁ mm</th><th>l₂ mm</th><th>d₂ mm</th><th>α mm</th><th></th><th></th></tr><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></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></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></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></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></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></tr></table>									Ø" d ₁ Rp	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm			1/8	28	9.72	90	22.0	7.0	5.5	3	8.60	1/4	19	13.15	100	20.0	11.0	9.0	3	11.50	3/8	19	16.66	100	20.0	12.0	9.0	3	15.00	1/2	14	20.95	125	22.0	16.0	12.0	4	18.50	3/4	14	26.44	140	28.0	20.0	16.0	4	24.00	1	11	33.24	160	32.0	25.0	20.0	4	30.25	104911		104912				
Ø" d ₁ Rp	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm																																																																								
1/8	28	9.72	90	22.0	7.0	5.5	3	8.60																																																																						
1/4	19	13.15	100	20.0	11.0	9.0	3	11.50																																																																						
3/8	19	16.66	100	20.0	12.0	9.0	3	15.00																																																																						
1/2	14	20.95	125	22.0	16.0	12.0	4	18.50																																																																						
3/4	14	26.44	140	28.0	20.0	16.0	4	24.00																																																																						
1	11	33.24	160	32.0	25.0	20.0	4	30.25																																																																						
									104913		104914																																																																			
									104915		104916																																																																			
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<table><tr><th>Ø" d₁ Rc</th><th>P TPI</th><th>d₁ mm</th><th>l₁ mm</th><th>l₂ mm</th><th>d₂ mm</th><th>α mm</th><th></th></tr><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></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></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></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></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></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></tr></table>									Ø" d ₁ Rc	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm		1/8	28	9.72	71	13.0	8.0	6.2	5	1/4	19	13.15	80	20.0	11.0	9.0	5	3/8	19	16.66	90	20.0	12.0	9.0	5	1/2	14	20.95	100	26.0	16.0	12.0	5	3/4	14	26.44	110	26.0	20.0	16.0	5	1	11	33.24	125	32.0	25.0	20.0	5	104917		104918											
Ø" d ₁ Rc	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm																																																																								
1/8	28	9.72	71	13.0	8.0	6.2	5																																																																							
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3/8	19	16.66	90	20.0	12.0	9.0	5																																																																							
1/2	14	20.95	100	26.0	16.0	12.0	5																																																																							
3/4	14	26.44	110	26.0	20.0	16.0	5																																																																							
1	11	33.24	125	32.0	25.0	20.0	5																																																																							
									104919		104920																																																																			
									104921		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 								
								
Ø"	l ₁	l ₂	d ₂	α	ID			
Rc	mm	mm	mm	mm				
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

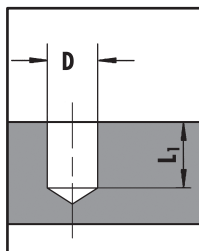
Core hole diameters for tapered pipe thread to DIN EN 10226

Bohrung zylindrisch

Vermeiden, da schnellere Abnutzung des Gewindebohrers und Klemmen

Parallel hole

Increased tap wear, not recommended

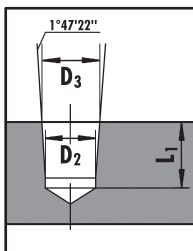


Bohrung konisch 1:16

Zylindrisch bohren nach Ø D₂ und konisch aufreiben auf Ø D₃

Tapered hole 1:16

Pre-drill at Ø D₂ and taper-ream to Ø D₃

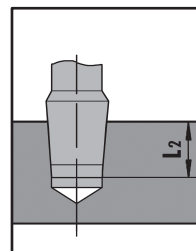


Gewindeschneiden

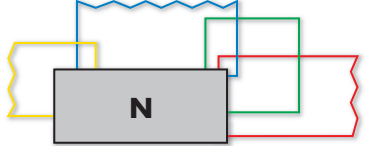
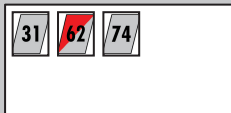
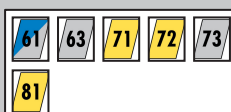
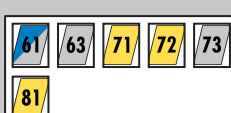
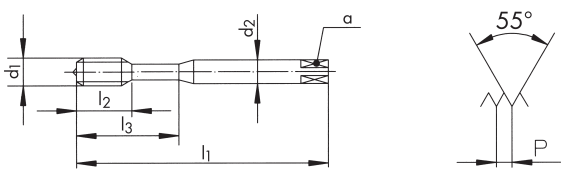
Gewindebohrer auf Nennmaß L₂ eindrehen

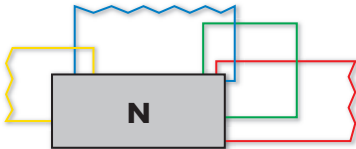
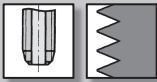
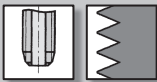
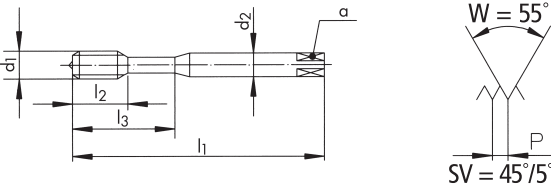
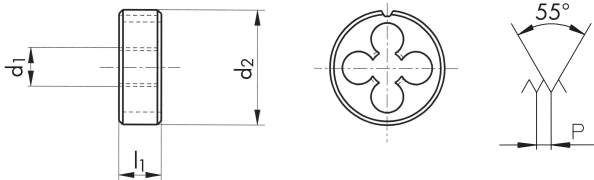
Tapped hole

Engage tap to hole depth L₂ = nominal Ø



Ø"	L ₁ min.	D ₁	D ₂	D ₃	L ₂
Rc	mm	mm	mm	mm	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

										N1110-3	N1210-3	N1120-4	N1220-4
N1110-3  													
N1210-3  													
N1120-4  													
N1220-4  													
													
Ø ^r d ₁ W	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
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 31 62 74 N1210-3 31 62 74 N5120 11 12  NEW NEW NEW																																																																																														
										 < 1.5 x D	 < 1.5 x D																																																																																			
<table><tr><th>Ø" 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></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></tr><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></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></tr></table>										Ø" 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																																									
Ø" 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																																																																																				
<table><tr><th>Ø" 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>ID</th></tr><tr><th>SV</th><th>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></tr><tr><td>10</td><td>0.833</td><td>W10</td><td>80</td><td>24.0</td><td>39</td><td>10.0</td><td>8.0</td><td>3</td><td>8.80*</td><td>130429</td><td></td></tr><tr><td>12</td><td>1.250</td><td>W12</td><td>89</td><td>24.0</td><td></td><td>9.0</td><td>7.1</td><td>3</td><td>10.50*</td><td></td><td>103591</td></tr><tr><td>15</td><td>1.250</td><td>W15</td><td>90</td><td>23.0</td><td></td><td>11.2</td><td>9.0</td><td>3</td><td>13.50*</td><td></td><td>103592</td></tr><tr><td>20</td><td>1.666</td><td>W20</td><td>112</td><td>37.0</td><td></td><td>14.0</td><td>11.2</td><td>4</td><td>17.80*</td><td></td><td>103593</td></tr><tr><td>25</td><td>1.693</td><td>W25</td><td>120</td><td>30.0</td><td></td><td>18.0</td><td>14.0</td><td>4</td><td>22.70*</td><td></td><td>103594</td></tr></table>										Ø" 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	
Ø" 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																																																																																			
*Tol. $\begin{matrix} +0.1 \text{ mm} \\ 0 \end{matrix}$																																																																																														
																																																																																														
<table><tr><th>Ø d₁</th><th>P</th><th></th><th>d₂</th><th>l₁</th><th></th><th></th><th>ID</th></tr><tr><th>W</th><th>mm</th><th></th><th>mm</th><th>mm</th><th></th><th></th><th></th></tr><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></tr></table>										Ø 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																																																													
Ø 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																																																																																							

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

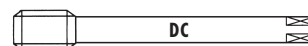
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Merkmale Characteristics		 	 				
							
Lochart Hole type							
							
	N410-3	N410V-3	N411V-3	D5800			
NPT DIN lang NPT DIN long DC	170	170	170	171			
NPTF DIN lang NPTF DIN long DC	170			171			

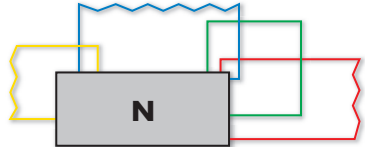
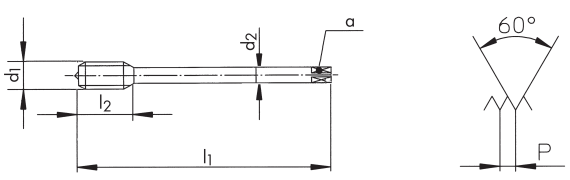
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Merkmale Characteristics		 	 	 	 		
							
Lochart Hole type							
							
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PG DIN lang PG DIN long	DIN 40433						
TR DIN lang TR DIN long	DC	173	173	173	173	172	
Toleranz Tolerance	TR 7H			173	173	172	

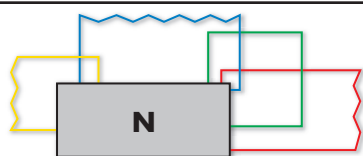
NPT, NPTF

ANSI B1.20.1, ANSI B1.20.3

HSSE



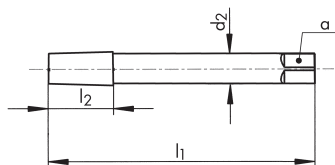
							N410-3	N410V-3	N411V-3	N410-3		
N410-3												
N410V-3												
N411V-3												
N410-3												
												
												
												
												
												
												
												
								</				



D5800



D5800



Ø"	l_1	l_2	d_2	a
NPT, NPTF	mm	mm	mm	mm
1/16	70	17.0	6.0	4.9
1/8	70	17.0	8.0	6.2
1/4	80	27.0	10.0	8.0
3/8	85	27.0	12.0	9.0
1/2	95	35.0	16.0	12.0
3/4	105	35.0	20.0	16.0
1	130	43.0	25.0	20.0

ID

118701
110531
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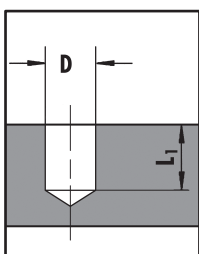
Kernloch-Durchmesser für NPT- und NPTF-Gewinde Core hole diameters for NPT and NPTF threads

Bohrung zylindrisch

Vermeiden, da schnellere
Abnützung des Gewinde-
bohrers und Klemmen

Parallel hole

Increased tap wear, not recom-
mended



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

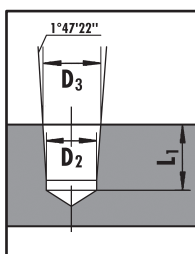
*Taper-ream at upper limit
 D_3 is recommended

Bohrung konisch 1:16

Zylindrisch bohren nach Ø D_2
und konisch aufreiben auf Ø D_3

Tapered hole 1:16

Pre-drill at Ø D_2
and taper-ream to Ø D_3

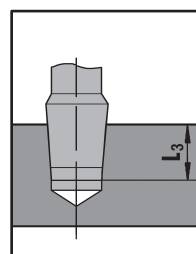


Gewindeschneiden

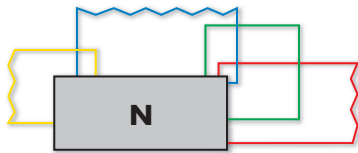
Gewindebohrer auf Nennmass
 L_3 eindrehen

Tapped hole

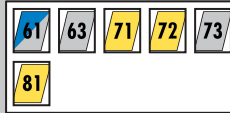
Engage tap to hole depth
 L_3 = nominal Ø



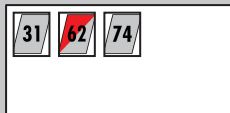
Ø"	D	L_1	D_2	NPT $D_3(+0.05)$	NPTF $D_3(+0.05)$	L_3
NPT, NPTF	mm	mm	mm	mm	mm	mm
1/16	6.15	12.00	6.00	6.39	6.41	10.20
1/8	8.50	12.00	8.30	8.74	8.76	10.30
1/4	11.00	17.50	10.80	11.36	11.40	15.10
3/8	14.50	17.50	14.20	14.80	14.84	15.30
1/2	17.90	23.00	17.50	18.32	18.33	20.00
3/4	23.20	23.00	22.80	23.67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



N420-3

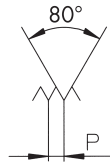
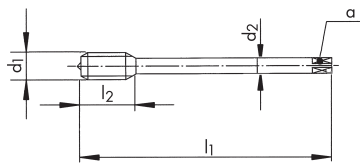


N410-8

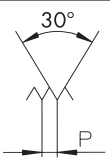
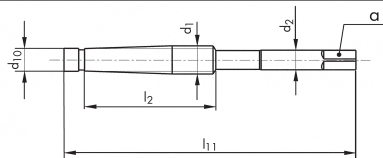


N420-3

N410-8



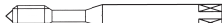
$\varnothing d_1$ PG	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	α mm			ID
7	20	12.50	100	24.0	9.0	7.0	3	11.30	104901
9	18	15.20	100	26.0	12.0	9.0	3	13.90	104902
11	18	18.60	110	26.0	14.0	11.0	4	17.30	104903
13.5	18	20.40	125	28.0	16.0	12.0	4	19.10	104904
16	18	22.50	125	28.0	18.0	14.5	4	21.20	104905
21	16	28.30	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	α 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												
		7H 7H										
$\varnothing d_1$ 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 	 	 	 	 	 	 	 
							
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
Gewinde Thread	EG M	176	176	177	177		
Gewinde Thread	EG UNC	180		180		181	
Gewinde Thread	EG UNF	183		183		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			

[illegible]

THREADING TECHNOLOGY



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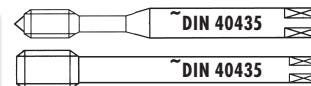


≤ Ø 2.8

> 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 ₁ 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							

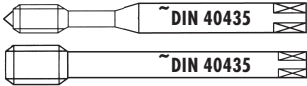


≤ Ø 2.8

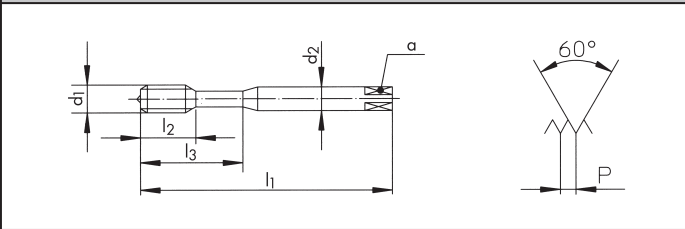
> Ø 2.8

PM

HSSE



N360-3			
N360V-3			
N460-3			
N460V-3			



Ø d ₁ EG M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α 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

N360-3	N360V-3	N460-3	N460V-3
 2.5 x P	 2.5 x P	 2.5 x P	 2.5 x P
 6H mod	 6H mod	 6H mod	 6H mod

ID	ID	ID	ID
101599			
101600			
101601	142813		
101602	142814		
101603	142815		
101604	142816		
101605	142817		
		102335	142818
		102336	142819
		102337	142820
		102338	142821



aero

SA320-4



52 53

SA350-3



52 53

TL320VS-4



VS

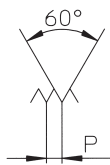
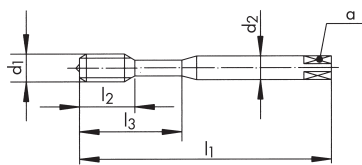
41 42

TL351VS-3



VS

41 42



SA320-4

SA350-3

TL320VS-4

TL351VS-3



$\varnothing d_1$	P	d_1	l_1	l_2	l_3	d_2	α		
EG M	mm	mm	mm	mm	mm	mm	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	15.0	23	6.0	4.9	3	5.25
6	1.00	7.300	80	15.0	23	7.0	5.5	3	6.30
8	1.25	9.624	100	20.0	33	10.0	8.0	3	8.40

ID

ID

ID

ID

147676

147682

* 152001

150478

147678

147684

* 152002

152003

147680

147686

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147688

147692

* 152004

152005

149354

149356

* 152088

152089

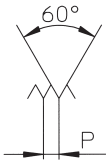
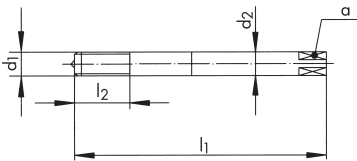


aero

SA390-3



SA390-3



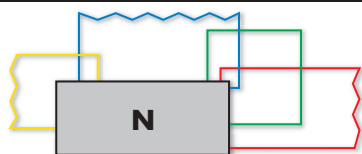
Ø d ₁ EG M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm		
3	0.50	3.650	56	13.0	4.0	3.0	3	3.15
4	0.70	4.910	70	15.0	6.0	4.9	3	4.20
5	0.80	6.040	80	20.0	6.0	4.9	3	5.25
6	1.00	7.300	80	20.0	7.0	5.5	3	6.30
8	1.25	9.624	100	30.0	10.0	8.0	3	8.40
10	1.50	11.948	110	35.0	12.0	9.0	3	10.40

ID

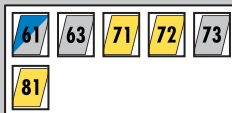
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149688
149710
149723
149748
149767



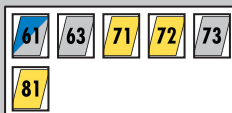
HSSE



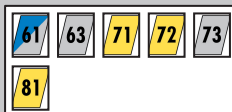
N320-4



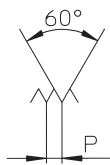
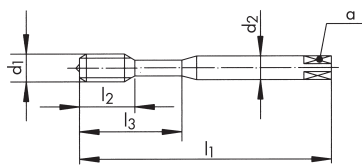
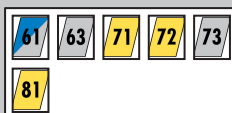
N420-4



N360-3



N460-3



N320-4



N420-4



N360-3



N460-3

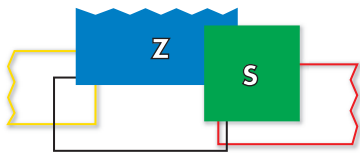


Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
4	40	3.67	56	13.0	20	4.0	3.0	3	3.05
6	32	4.53	70	15.0	25	6.0	4.9	3	3.75
8	32	5.19	70	15.0	25	6.0	4.9	3	4.45
10	24	6.20	80	17.0	30	7.0	5.5	3	5.10
1/4	20	8.00	90	20.0	35	8.0	6.2	3	6.70
5/16	18	9.77	100	22.0	39	10.0	8.0	3	8.40
3/8	16	11.59	110	24.0		9.0	7.0	3	10.00
1/2	13	15.23	110	30.0		12.0	9.0	3	13.30

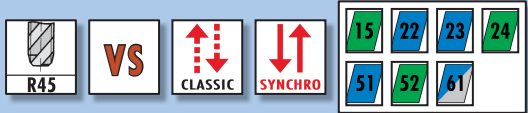
ID	ID
110946	
110948	
110949	
* 110945	
110944	
110947	
	110033
	104935

Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
4	40	3.67	56	6.5	20	4.0	3.0	3	3.05
6	32	4.53	70	9.0	25	6.0	4.9	3	3.75
8	32	5.19	70	9.0	25	6.0	4.9	3	4.45
10	24	6.20	80	11.0	30	7.0	5.5	3	5.10
1/4	20	8.00	90	12.5	35	8.0	6.2	3	6.70
5/16	18	9.77	100	14.0	39	10.0	8.0	3	8.40
3/8	16	11.58	110	14.0		9.0	7.0	3	10.00
1/2	13	15.23	110	18.0		12.0	9.0	3	13.30

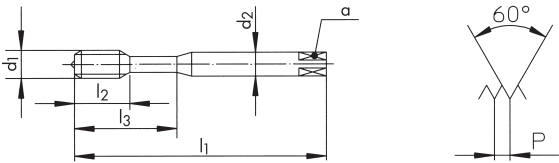
ID	ID
	110018
	110019
	110956
	110954
	110024
	111759
	111715
	111558



Z370VS-3



Z370VS-3



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂ h6	a		
EG UNC	TPI	mm	mm	mm	mm	mm	mm		
4	40	3.67	56	6.5	20	4.0(h9)	3.0	3	3.05
6	32	4.53	70	9.0	25	6.0	4.9	3	3.75
8	32	5.19	70	9.0	25	6.0	4.9	3	4.45

ID

165126
165127
165128



aero

SA320-4



52 53

SA350-3



52 53

TL320VS-4



VS

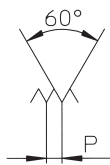
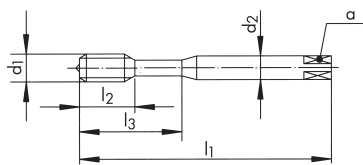
41 42

TL351VS-3



VS

41 42



SA320-4

SA350-3

TL320VS-4

TL351VS-3



$\varnothing d_1$ EG UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	α mm		
4	40	3.67	56	13.0		4.0	3.0	3	3.05
6	32	4.53	70	15.0		6.0	4.9	3	3.75
8	32	5.19	70	15.0		6.0	4.9	3	4.45
1/4	20	8.00	90	18.0	29	8.0	6.2	3	6.70
5/16	18	9.77	100	20.0	33	10.0	8.0	3	8.40

ID

ID

ID

ID

149073

149075

* 152030

152031

149121

149123

* 152040

152041

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* 152052

152053

149284

149286

* 152073

152074

* 149358

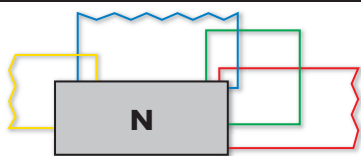
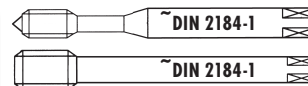
* 149360

* 152090

* 152091



HSSE



N320-4

N420-4

N360-3

N460-3



ID

ID

118879

118882

104941

110234

118876

118873

118865

ID

ID

110959

110960

104946

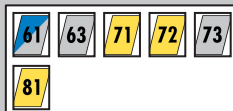
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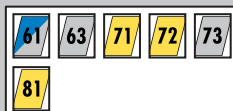
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104951

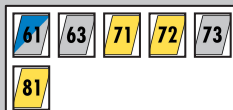
N320-4



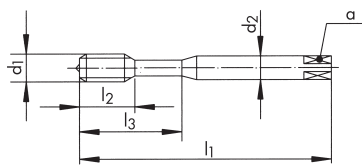
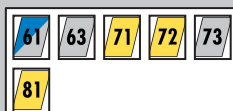
N420-4



N360-3



N460-3

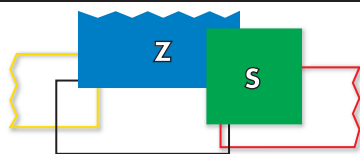
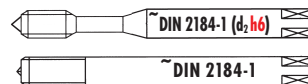


Ø" d ₁ EG UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm		
6	40	4.33	63	14.0	21	4.5	3.4	3	3.70
8	36	5.08	70	15.0	25	6.0	4.9	3	4.40
10	32	5.85	80	17.0	30	6.0	4.9	3	5.10
1/4	28	7.52	90	20.0	35	8.0	6.2	3	6.65
5/16	24	9.31	90	20.0	35	9.0	7.0	3	8.20
3/8	24	10.89	100	19.0		8.0	6.2	3	9.80
1/2	20	14.35	100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

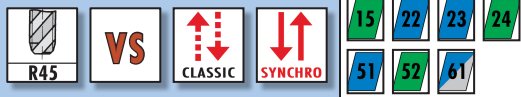
Ø" d ₁ EG UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm		
6	40	4.33	63	7.5	21	4.5	3.4	3	3.70
8	36	5.08	70	9.0	25	6.0	4.9	3	4.40
10	32	5.85	80	11.0	30	6.0	4.9	3	5.10
1/4	28	7.52	90	12.5	35	8.0	6.2	3	6.65
5/16	24	9.31	90	12.5	35	9.0	7.0	3	8.20
3/8	24	10.89	100	19.0		8.0	6.2	3	9.80
1/2	20	14.35	100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



PM



Z370VS-3



S320VS-4



S360VS-3



SA390-3

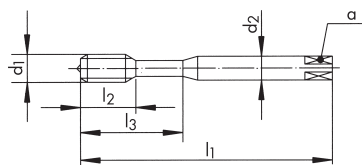


Z370VS-3

S320VS-4

S360VS-3

SA390-3



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

* 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

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

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

165129

165130

165131

ID

111821

111822

111823

ID

111811

111812

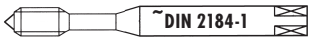
111824

149702

149724



PM

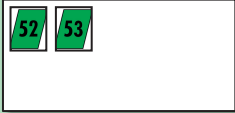


aero

SA320-4



SA350-3



TL320VS-4



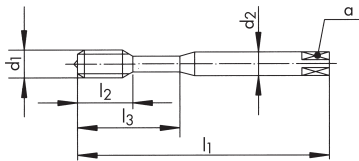
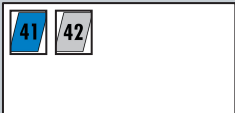
VS



TL351VS-3



VS



SA320-4

SA350-3

TL320VS-4

TL351VS-3



$\varnothing'' d_1$	P	d_1	l_1	l_2	l_3	d_2	α		
EG UNF	TPI	mm	mm	mm	mm	mm	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

ID

ID

ID

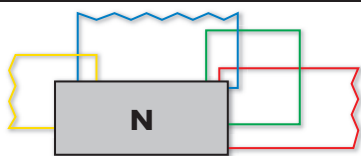
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149336

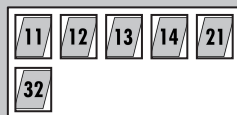
149192
149268
149338

* 148009
* 148015

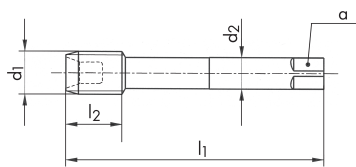
148008
148014
148021



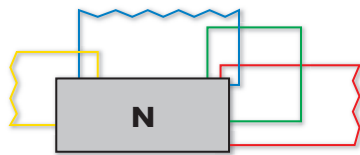
N470V-4



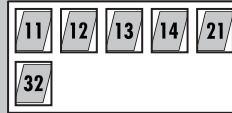
N470V-4



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID
30	3.50	180	39.0	22.0	18.0	5	26.50	102575
33	3.50	180	39.0	22.0	18.0	5	29.50	* 102576
36	4.00	200	43.0	25.0	20.0	5	32.00	102577
39	4.00	200	43.0	25.0	20.0	5	35.00	102578
42	4.50	220	47.0	28.0	22.0	5	37.50	102579
45	4.50	220	47.0	28.0	22.0	5	40.50	102580
48	5.00	240	52.0	32.0	24.0	5	43.00	102581
52	5.00	240	52.0	32.0	24.0	5	47.00	102582
56	5.50	260	58.0	36.0	29.0	6	50.50	102583
60	5.50	260	58.0	36.0	29.0	6	54.50	102584
64	6.00	290	64.0	40.0	32.0	6	58.00	102585
68	6.00	290	64.0	40.0	32.0	6	62.00	* 102586



N470V-3



N470V-3



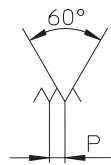
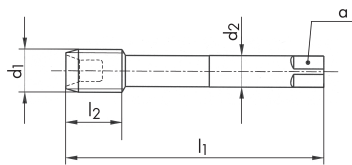
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2.5 x P



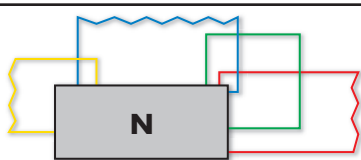
ISO 2
6H



Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID
22	1.50	125	28.0	18.0	14.5	4	20.50	* 102526
26	1.50	140	30.0	18.0	14.5	4	24.50	* 102529
28	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

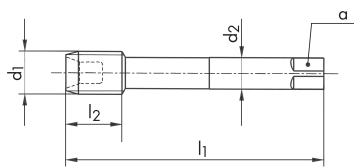
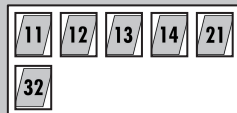


< 1.2 x D



N470V-3

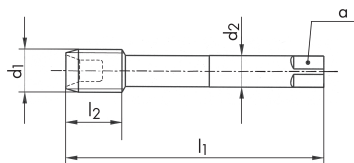
N470V-3



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

ID

102566
102568
102565
102569
102567
102570
102572
102571
111879



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

ID

* 102521
102525
102522
102519
102518
* 102520
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 Kombiboher 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
Aluminium25	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:

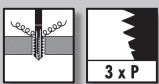
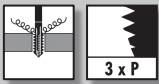
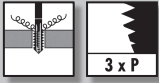
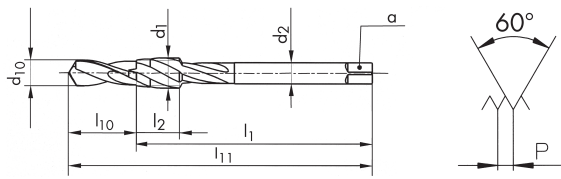
Important: Mount combination drill-tap in chuck with locked pressure spring, but with axial compensation on pull.

- 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)

Speeds for different diameters												
Material groups	Vc (m/min)	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
Aluminium25	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	
Ø d ₁	P	l ₁₁	l ₂	d ₂	a	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			
Ø d ₁	P	l ₁₁	l ₂	d ₂	a	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			
Ø d ₁	P	l ₁₁	l ₂	d ₂	a	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			
Ø d ₁	P	l ₁₁	l ₂	d ₂	a	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

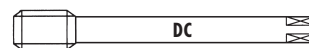
G

DIN ISO 228

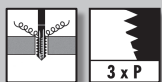
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DIN 40430

HSSE



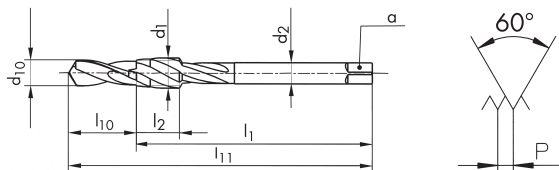
N5951



N5951



2B



$\varnothing'' d_1$	P	d_1	l_{11}	l_2	d_2	α	d_{10}	l_{10}
UNC	TPI	mm	mm	mm	mm	mm	mm	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

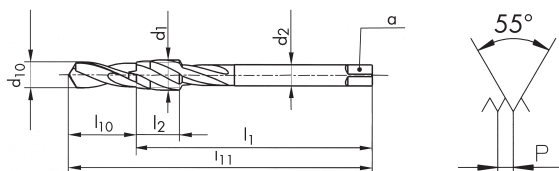
ID

* 104601

* 104598

* 104597

* 104596



$\varnothing'' d_1$	P	d_1	l_{11}	l_2	d_2	α	d_{10}	l_{10}
G	TPI	mm	mm	mm	mm	mm	mm	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

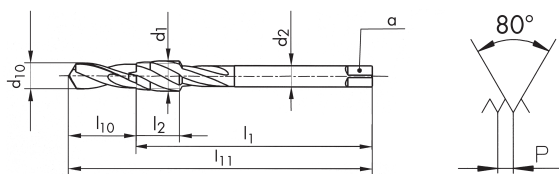
104567

104566

104569

104565

* 104568



$\varnothing d_1$	P	d_1	l_{11}	l_2	d_2	α	d_{10}	l_{10}
PG	TPI	mm	mm	mm	mm	mm	mm	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 whirl cutters



Beispiel - Example

Gewindewirbler	Thread whirl cutter	GW				
Einzahn	Single tooth		10			
Mehrzahl-Einzelprofil	Single profile, multi toothed		20			
Mehrzahl-Doppelprofil	Double pitch with multi flutes		30			
Mehrzahl-Vollprofil	Multi fluted with full profile					
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-Gewindewirbler DC Solid carbide thread whirl 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



10° Rechtsspiralnuten
10° right hand spiral flutes



15° Rechtsspiralnuten
15° right hand spiral flutes



27° Rechtsspiralnuten
27° right hand spiral flutes



27° Rechtsspiralnuten
27° right hand spiral flutes



Mit 45° Senker zum Anfasen des Gewindes
With 45° chamfer for countersinking



Anzahl Spannnuten (Z)
Number of flutes (Z)



Kühlkanal
Internal cooling channel



Kühlkanal (BGF, 2 Spannnuten)
Internal cooling channel (BGF, 2 flutes)



Kühlkanal (BGF, 3 Spannnuten)
Internal cooling channel (BGF, 3 flutes)



DC Verschleisschutzschicht
DC wear-protective coating



EG-Gewinde
Thread EG (for wire screw thread inserts)



Gewindelänge 2.5 x D₁
Thread length 2.5 x D₁



Gewindelänge 4 x D₁
Thread length 4 x D₁



Kernlochdurchmesser
Core hole diameter



Gewindelänge 1.5 x D₁
Thread length 1.5 x D₁



Gewindelänge 2 x D₁
Thread length 2 x D₁



Gewindelänge 2.5 x D₁
Thread length 2.5 x D₁



Innengewinde
Internal thread



Aussengewinde
External thread



Sacklöcher (BGF)
Blind holes (BGF)



Durchgangslöcher (BGF)
Through holes (BGF)



BGF, 2 Spannnuten
BGF, 2 flutes



BGF, 3 Spannnuten
BGF, 3 flutes



Für Werkstoffe ≤ 63 HRC (GFH)
For materials ≤ 63 HRC (GFH)



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



Rundlaufgenauigkeit
Shape accuracy



Toleranzklasse h5
Tolerance class h5



Drallwinkel
Helix angle



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.

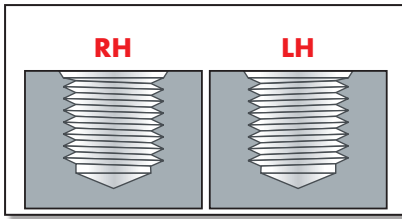


In order to avoid profile defects it is important that the tool diameter does not exceed 2/3 of the diameter of the work-piece thread for coarse threads (3/4 for fine threads).

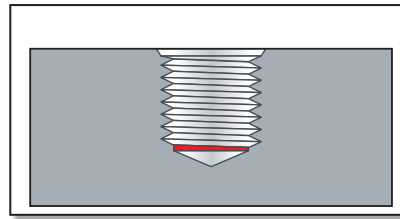
Notice GFM

VORTEILE - ADVANTAGES

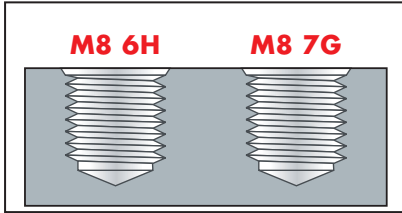
GW-GF-GFH-GFS-GFM



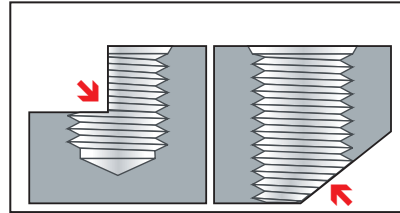
Ein einziger Gewindefräser für Rechts- und Linksgewinde
The same cutter can be used for right and left hand threads



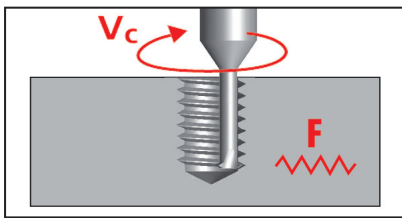
Für Gewinde bis fast auf den Grund der Vorbohrung
For threads to be cut near to the bottom of blind holes



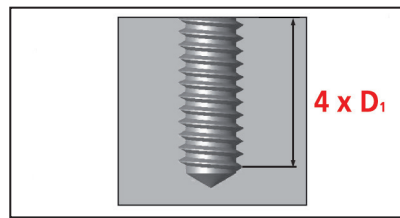
Je nach Wahl, gewünschte Toleranz einstellbar
Required tolerance adjustable as per users choice



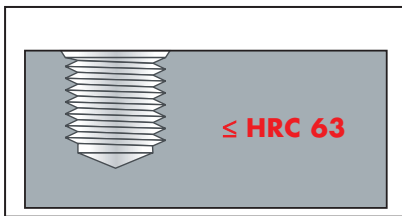
Für Gewinde mit unterbrochenem Schnitt, mit schrägem Anschnitt oder Austritt
For threads with interrupted cut or with oblique entrance or exit



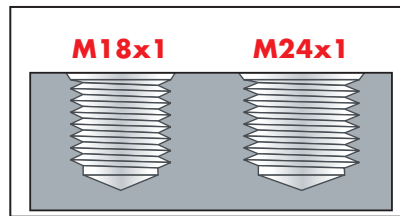
Schnittgeschwindigkeit und Vorschub können dem zu bearbeitenden Werkstoff individuell angepasst werden.
The cutting speed and feed rate can be matched individually to each work-piece material.



Ideal für tiefe Sacklöcher.
Ideal for deep blind holes.

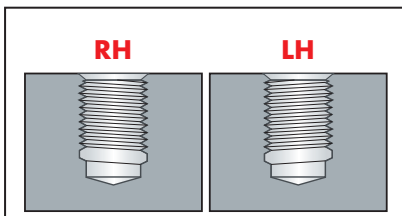


Gewinde in hochfeste Werkstoffe können realisiert werden
To realise threads in hardened materials

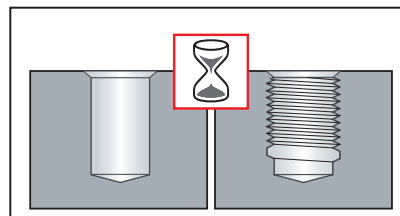


Ein einziger Gewindefräser für einen grossen Durchmesserbereich
One only tool for threads of a wide range of diameters with the same pitch

BGF



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

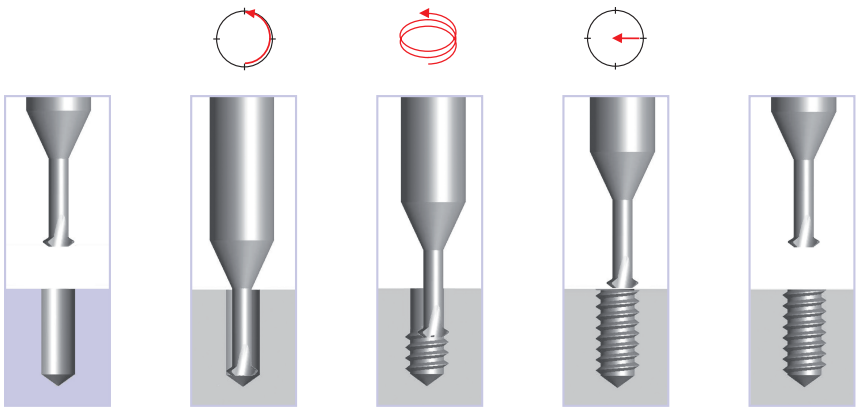


Platzgewinn im Werkzeugmagazin der Maschine und Einsparung von Bearbeitungszeit
Time-saving when tool changing and space-saving in the tool carousel

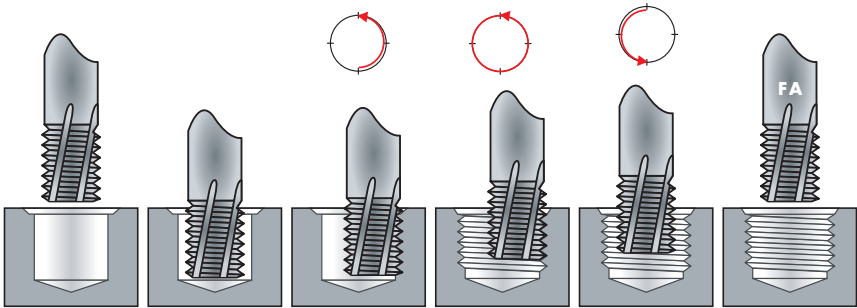
PROGRAMMIERZYKLUS - PROGRAMMING CYCLE

Rechtsgewinde im Gleichlauf – Right hand thread climb milling

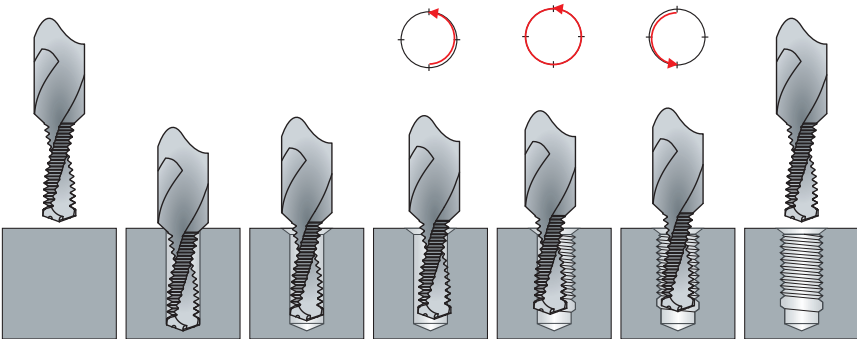
GW1016
GW1016VS
GW2016
GW2016VS
GW3016
GW3016VS
GW3019
GW3019VS



Programmierzcyklus für Typ GF - Operating cycle type GF



Programmierzcyklus für Typ BGF - Operating cycle type BGF

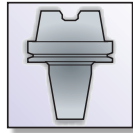


CUTTING SPEEDS AND FEED RATES

CNC machine with 3-D continuous path control

HSC

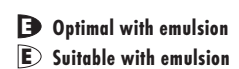
High speed cutting



Perfect concentricity of fixture

Application chart for thread whirling

Einsatz – Use



GW								GW1016		GW2016					
								GW3016/19							
GW116		GW116S		GW2016		GW2016S		GW3016		GW3019		GW3016S		GW3019S	
SE		SE		SE		SE		SE		SE		SE		SE	
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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	Material designation	Härte Hardness (HB)	Festigkeit Tensile strength Rm (N/mm²)
		Für Werkstoffbeispiele siehe Seiten 5 - 6. Examples for application groups, pag. 5 - 6.			
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	Alloy steels <850 N/mm²		< 250	< 850
	15	Stahl legiert / vergütet >850 - <1150 N/mm²	Alloy steels hard. / temp. >850 - <1150 N/mm²	> 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/mm²	Ferritic and martensitic <850 N/mm²	< 250	< 850
	24	Ferritisch, martensitisch >850 - <1150 N/mm²	Ferritic and martens. >850 - <1150 N/mm²	> 250	> 850
30 Guss Cast iron	31	Cast iron		< 250	< 850
	32	Kugelgraphitguss, Temperguss	Spheroidal graphite + malleable cast iron	< 250	< 850
40 Titan Titanium	41	Reintitan	Pure titanium	< 250	< 850
	42	Titanium alloys		> 250	> 850
50 Nickel Nickel	51	Nickellegierung 1 <850 N/mm²	Nickel alloys 1 <850 N/mm²	< 250	< 850
	52	Nickellegierung 2 >850 - <1150 N/mm²	Nickel alloys 2 >850 - <1150 N/mm²	> 250	> 850
	53	Nickellegierung 3 >1150 - ≤1600 N/mm²		> 340	> 1150
60 Kupfer Copper	61	Reinkupfer (Elektrolytkupfer)	Pure copper (electrolitic copper)	< 120	< 400
	62	Messing, Bronze, Rotguss (kurzspanend)		< 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"

Vorschub

$$V_{fk} = f_z \times Z \times n$$

Vorschub der Werkzeugmitte

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

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

Thread milling feed rates

Feed rate

$$V_{fk} = f_z \times Z \times n$$

Feed rate of the tool middle

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

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.

Bohrgewindefräser Thrillers

Vc (m/min)		Bohrvorschub f (mm/U) Drilling f (mm/rev.)	Fräsvorschub fz (mm/Zahn) Milling fz (mm/tooth)
Standard Standard	Beschichtet VS Coated VS		
50 - 100	80 - 150	0.1 - 0.3	0.05 - 0.15
50 - 80	80 - 120	0.1 - 0.2	0.02 - 0.10
100 - 250	150 - 300	0.1 - 0.4	0.05 - 0.20
100 - 250	150 - 300	0.1 - 0.4	0.05 - 0.20
100 - 250	150 - 300	0.1 - 0.4	0.05 - 0.20
100 - 250	150 - 300	0.1 - 0.4	0.05 - 0.20
100 - 250	150 - 300	0.1 - 0.4	0.05 - 0.20
100 - 200	150 - 250	0.1 - 0.3	0.05 - 0.15

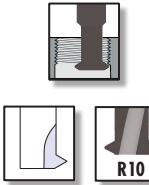
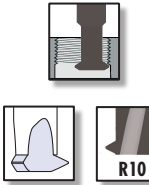
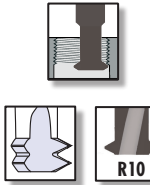
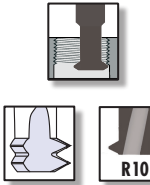
Technische Hinweise

- ## Technical notes

- 

Inhaltsverzeichnis - VHM-Gewindewirbler Typ GW

Directory - Solid carbide thread whirl cutters type GW

		GW			
Typ Type		GW1016 GW1016VS	GW2016 GW2016VS	GW3016 GW3016VS	GW3019 GW3019VS
Beschichtung Coating					
					
Gewindelänge Thread length					
Merkmale Characteristics					
M	ISO DIN 13		207	208/209	208/209
	ISO DIN 14				
MF	ISO DIN 13			208/209	208/209
UNC	ANSI B1.1			210	210
UNF	ANSI B1.1			211	211
S	NIHS	206	207		

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

GW-GF-GFH-
GFS-GFM-BGF

		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						

		GFH	GFS							
Typ Type		GFH6110VS	GFS6610 GFS6610VS	GFS6660 GFS6660VS	GFS6615 GFS6615VS	GFS6665 GFS6665VS	GFS6616 GFS6616VS			
Beschichtung Coating										
			 	 	 	 	 			
Gewindelänge Thread length										
Merkmale Characteristics										
M	ISO DIN 13	214	225	225	226	226	227			
MF	ISO DIN 13		228	228	229	229				
UNC	ANSI B1.1		230	230	231	231				
UNF	ANSI B1.1		232	232	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

GW-GF-GFH-
GFS-GFM-BGF

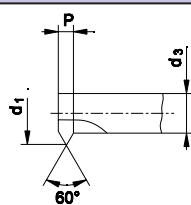
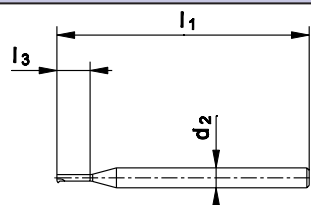
	GFM	BGF				
GFS6666 GFS6666VS	GFM6260 GFM6260VS	BGF6760 BGF6760VS	BGF6765 BGF6765VS	BGF6766 BGF6766VS	BGF6865 BGF6865VS	BGF6866 BGF6866VS
VS	VS	VS	VS	VS	VS	VS
						
						
 	 	 	 	 	 	 
227	236	240	241	241	242	242
	236	243	243			
	237					
	237					
	237					
	238					
	239					
	239					

GW

GW1016



GW1016VS



GW1016

GW1016VS



$\varnothing D_1$	P	d_1	l_1	l_3	d_2 h5	d_3		
S	mm	mm	mm	mm	mm	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

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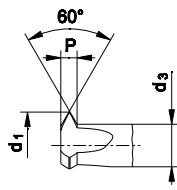
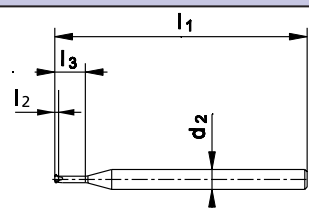
*Tol. $\begin{matrix} +0.02 \text{ mm} \\ 0 \end{matrix}$

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

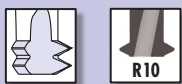
ID

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

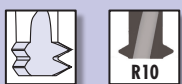
*Tol. +0.02 mm
0

GW

GW3016



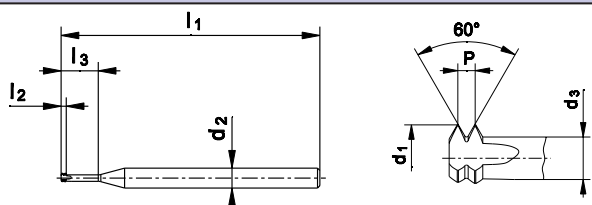
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



∅ D ₁ M, MF	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃ 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	0.20	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

167021

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167041

175225

171442

167028

167042

175226

175241

175227

167299

167029

167043

∅ D ₁ M, MF	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃ mm		
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

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175270

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167084

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167085

GW

GW3016



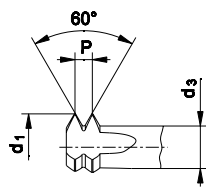
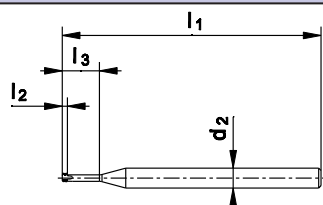
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



ID

ID

Ø 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

175228

175242

167030

167044

167031

167045

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167034

167048

175229

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175230

175244

175231

175245

Ø 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

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167074

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175276

*Tol. h6

GW

GW3016



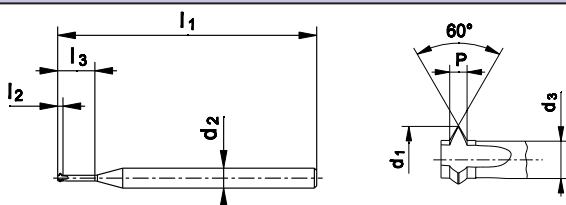
GW3016VS



GW3019



GW3019VS



∅ D ₁ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃		
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

∅ D ₁ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃		
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

*Tol. h6

GW3016

GW3016VS

GW3019

GW3019VS



ID

ID

167472

167500

167473

167501

167474

167502

167475

167503

173983

173986

167476

167504

175232

175246

175233

173546

175234

175247

ID

ID

167479

167507

167480

167508

167481

167509

167482

167510

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173979

167483

167511

175261

175277

175262

175278

175263

175279

GW

GW3016



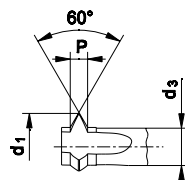
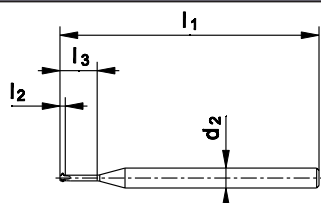
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



∅ D ₁ UNF TPI	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃		
0	80	1.15	39	4.3	3	0.71	3	1.20
1	72	1.44	39	5.1	3	0.95	3	1.50
4	48	2.23	39	7.9	3	1.49	3	2.35
8	36	3.35	51	11.7	5	2.36	4	3.50
10	32	3.91	51	13.5	5	2.80	4	4.05
1/4	28	4.95	51	17.6	5	3.68	4	5.50
5/16	24	5.95	63	22.0	6*	4.47	5	6.90
3/8	24	7.10	67	26.0	8*	5.62	5	8.50

ID

ID

175235

175248

175236

175249

175237

175250

175238

175251

167477

167505

167478

167506

175239

175252

175240

175253

∅ D ₁ UNF TPI	P mm	d ₁ mm	l ₁ mm	l ₃ mm	d ₂ h5 mm	d ₃		
0	80	1.15	39	6.6	3	0.71	3	1.20
1	72	1.44	39	7.9	3	0.95	3	1.50
4	48	2.23	39	12.1	3	1.49	3	2.35
8	36	3.35	51	18.0	5	2.36	4	3.50
10	32	3.91	51	20.8	5	2.80	4	4.05
1/4	28	4.95	51	27.1	5	3.68	4	5.50
5/16	24	5.95	75	34.0	6*	4.47	5	6.90
3/8	24	7.10	83	40.0	8*	5.62	5	8.50

ID

ID

175264

175280

175265

175281

175266

172376

175267

175282

167484

167512

167485

167513

175268

175283

175269

175284

*Tol. h6

TIME TO SET A

GWi



Double performance

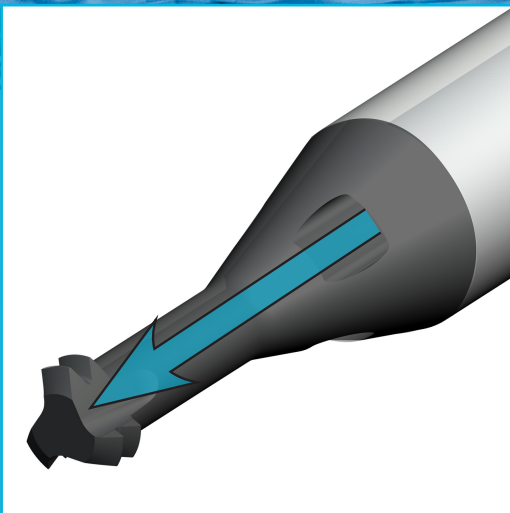


Thread quality

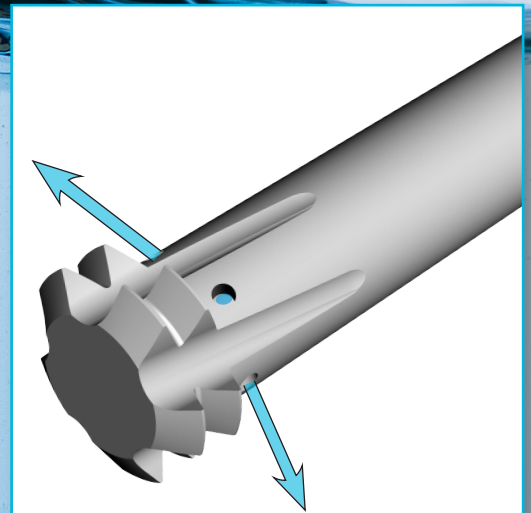


Chip evacuation

« **GWi**, the best solution for high performance thread
manufacturing in **STAINLESS STEELS AND SUPER ALLOYS** »



Cooling system: 0.8 - 6.5 mm



Cooling system: 6.5 - 20 mm

NEW BENCHMARK



High wear resistance

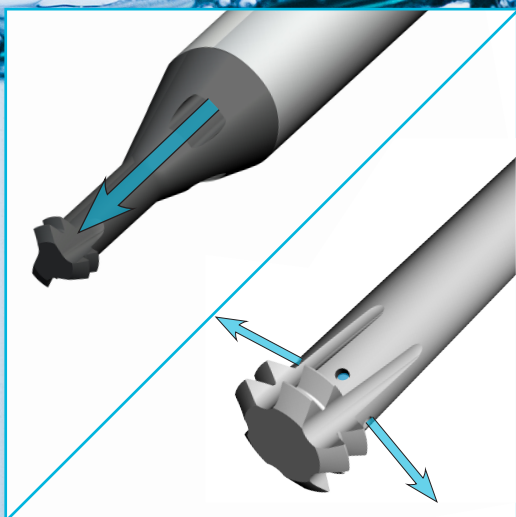


No sticking



Process security

« **VX** solution for reliable production of critical and expensive components in **MEDICAL AND AEROSPACE** »



**Available for internal coolant
GWi-VX**



**Available for external coolant
GW-VX**

GF - GFH

GF6110



GF6110VS

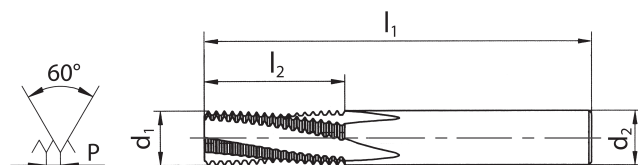


VS

GFH6110VS



VS



$\varnothing D_1$ M	P mm	d_1 mm	l_1 mm	l_2 mm	d_2 mm	GF	GFH	
2	0.40	1.50	48	3.4	6	2		1.60
2.5	0.45	1.90	48	4.3	6	3		2.05
3	0.50	2.30	48	5.3	6	3	3	2.50
3.5	0.60	2.70	48	6.3	6	3		2.90
4	0.70	3.00	48	7.4	6	3	3	3.30
5	0.80	3.80	48	9.2	6	3	4	4.20
6	1.00	4.50	54	10.5	6		4	5.00
8	1.25	5.95	54	13.1	6		5	6.80
10	1.50	7.95	64	17.3	8		5	8.50
12	1.75	9.95	74	20.1	10		5	10.20

GF6110

GF6110VS

GFH6110VS



HRC
≤ 63



ID

ID

ID

125233

115993

150565

152124

125660

116395

150072

116350

135217

125944

116396

150073

126158

116397

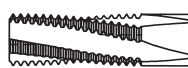
150074

150075

150076

150077

151326



GF

GF6115



GF6115VS



VS

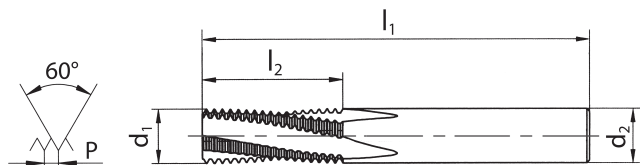
GF6165



GF6165VS



VS



GF6115

GF6115VS

GF6165

GF6165VS



ID

ID

ID

ID

$\varnothing D_1$ 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

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



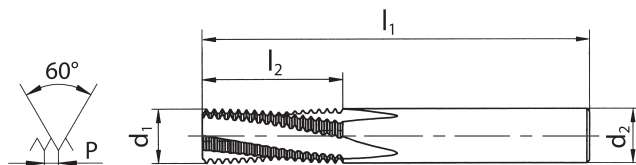
GF6116VS



GF6166



GF6166VS



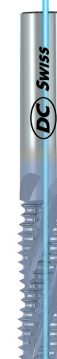
$\varnothing D_1$ M	P mm	d_1 mm	l_1 mm	l_2 mm	d_2 mm		
4	0.70	3.00	48	10.9	6	3	3.30
5	0.80	3.80	48	13.2	6	3	4.20
6	1.00	4.50	54	16.5	6	3	5.00
8	1.25	5.95	54	21.9	6	3	6.80
10	1.50	7.95	64	26.3	8	4	8.50
12	1.75	9.95	74	32.4	10	4	10.20
14	2.00	9.95	74	37.0	10	4	12.00
16	2.00	11.95	90	43.0	12	4	14.00
18	2.50	13.95	105	53.8	14	4	15.50
20							17.50

GF6116

GF6116VS

GF6166

GF6166VS



ID

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155365

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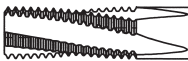
155386

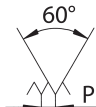
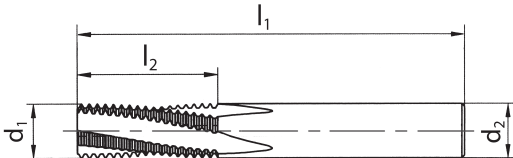
155380

155387

155381

155388



GF								GF6110	GF6110VS		
GF6110  GF6110VS  VS											
 											
											
$\varnothing D_1$ MF	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm			ID	ID		
4	0.50	3.00	48	7.3	6	3	3.50	135218	135219		
5	0.50	3.80	48	8.8	6	3	4.50	135069	135220		

GF

GF6165



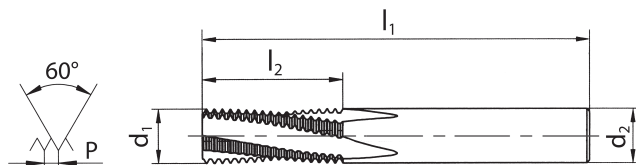
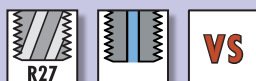
GF6165VS



GF6166



GF6166VS



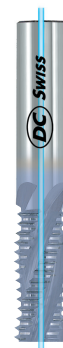
$\varnothing D_1$ MF	P mm	d_1 mm	l_1 mm	l_2 mm	d_2 mm		
6	0.50	4.50	54	12.8	6	3	5.50
6	0.75	4.50	54	13.1	6	3	5.25
8	0.50	5.95	54	17.8	6	3	7.50
8	0.75	5.95	54	16.9	6	3	7.25
8	1.00	5.95	54	17.5	6	3	7.00
10	1.00	7.95	64	21.5	8	4	9.00
10	1.25	7.95	64	21.9	8	4	8.80
12	1.00	9.95	72	25.5	10	4	11.00
12	1.50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

$\varnothing D_1$ 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

GF6165



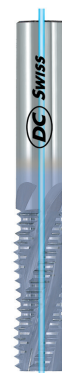
GF6165VS



GF6166



GF6166VS



ID

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135221

135222

123664

123665

135002

135223

143110

135224

124239

116404

119986

116405

120102

116406

120303

116407

120392

120393

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155389

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155390

155399

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155400

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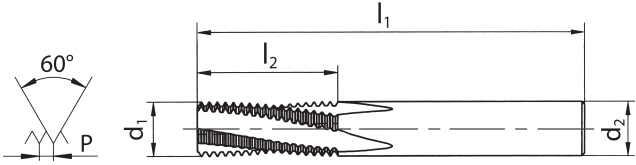
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155396

155405

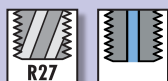
155397

155406

GF								GF6110	GF6110VS		
GF6110											
GF6110VS											
											
											
											
											
Ø" D ₁ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂			ID	ID		
10	24	3.60	48	10.1	6.0	3	3.80	135225	135226		
12	24	4.10	48	10.1	6.0	3	4.40	135227	135228		
1/4	20	4.80	54	12.1	6.0	3	5.10	135229	135230		

GF

GF6165



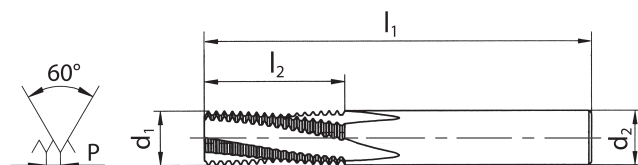
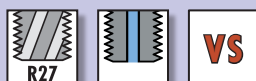
GF6165VS



GF6166



GF6166VS



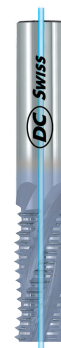
$\varnothing'' D_1$ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂		
1/4	20	4.80	54	14.6	6.0	3	5.10
5/16	18	5.95	54	17.6	6.0	3	6.50
3/8	16	7.10	64	21.5	8.0	4	8.00
7/16	14	7.95	64	24.5	8.0	4	9.30
1/2	13	9.95	72	28.4	10.0	4	10.80

$\varnothing'' D_1$ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂		
1/4	20	4.80	54	17.1	6.0	3	5.10
5/16	18	5.95	54	21.9	6.0	3	6.50
3/8	16	7.10	64	26.2	8.0	4	8.00
7/16	14	7.95	64	29.9	8.0	4	9.30
1/2	13	9.95	74	34.2	10.0	4	10.80

GF6165



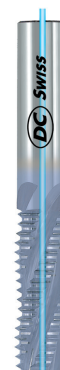
GF6165VS



GF6166



GF6166VS



ID

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155407

155408

116047

135231

135232

135233

116049

135234

135235

135236

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155409

155414

155410

155415

155411

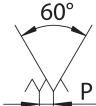
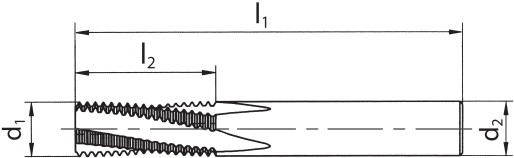
155416

155412

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155413

155418

GF								GF6110	GF6110VS		
GF6110  GF6110VS  VS											
 											
 1.5 x D₁								 1.5 x D₁			
Ø" D ₁ UNFTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂			ID	ID		
10	32	3.60	48	8.3	6.0	3	4.05	128659	135237		
12	28	4.10	48	9.5	6.0	3	4.60	135238	135239		
1/4	28	4.80	54	11.3	6.0	3	5.50	135240	135176		

GF-GFH-GFS

GF

GF6165



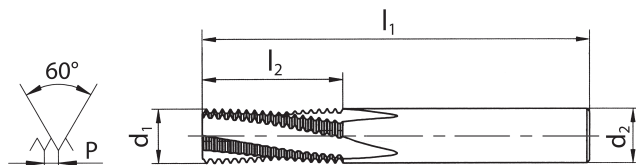
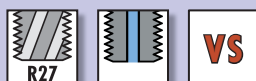
GF6165VS



GF6166



GF6166VS



$\varnothing'' D_1$ UNFTPI	P mm	d_1 mm	l_1 mm	l_2 mm	d_2		
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1/4	28	4.80	54	14.1	6.0	3	5.50
5/16	24	5.95	54	17.5	6.0	3	6.90
3/8	24	7.10	64	20.6	8.0	4	8.50
7/16	20	7.95	64	24.8	8.0	4	9.80
1/2	20	9.95	72	27.3	10.0	4	11.40

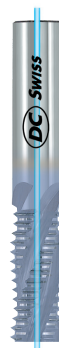
$\varnothing'' D_1$ UNFTPI	P mm	d_1 mm	l_1 mm	l_2 mm	d_2		
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1/4	28	4.80	54	16.8	6.0	3	5.50
5/16	24	5.95	54	20.6	6.0	3	6.90
3/8	24	7.10	64	24.9	8.0	4	8.50
7/16	20	7.95	64	28.6	8.0	4	9.80
1/2	20	9.95	74	33.7	10.0	4	11.40

GF6165



GF6165VS



GF6166



GF6166VS



ID

ID

155419

155420

135242

135243

135182

135245

135246

135247

135183

135249

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155421

155426

155422

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GF

GF6165



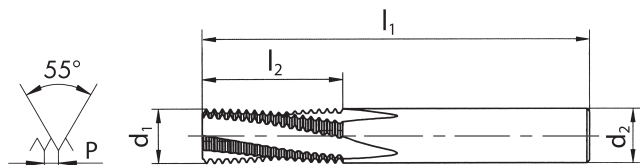
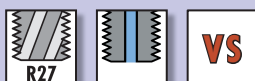
GF6165VS



GF6166



GF6166VS

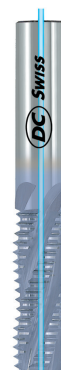


GF6165

GF6165VS

GF6166

GF6166VS



Ø" D ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm		
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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

Ø" D ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm		
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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

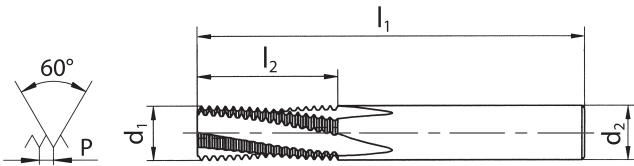
155436

GF

GF6160

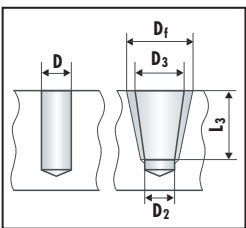


GF6160VS



$\varnothing'' D_1$ NPTTPI	P mm	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

$\varnothing'' D_1$ 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



Vorbereitung Core hole				
NPT NPTF				
$\varnothing D_1$	D	D ₂	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

GF6160

GF6160VS



ID

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116371

116435

135250

135251

135252

135253

155437

155438

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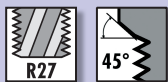
* 155439

* 155440



GFS

GFS6610



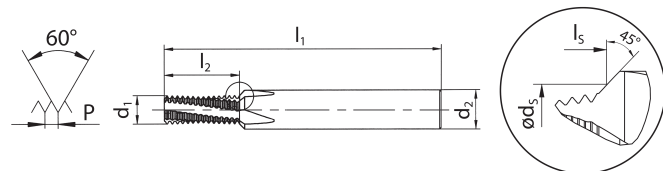
GFS6610VS



GFS6660



GFS6660VS



$\varnothing D_1$ M	P mm	d_1 mm	l_1 mm	l_2 mm	l_s 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

GFS6610

GFS6610VS

GFS6660

GFS6660VS



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GFS

GFS6615



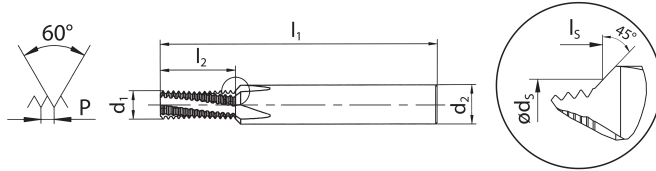
GFS6615VS



GFS6665



GFS6665VS



GFS6615

GFS6615VS

GFS6665

GFS6665VS



Ø D ₁ M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l _s 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

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135349

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116178

126352

135353

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155525

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116343

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GFS6616



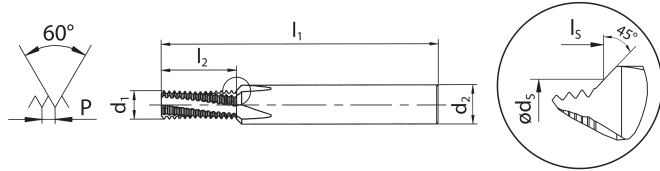
GFS6616VS



GFS6666



GFS6666VS



GFS6616

GFS6616VS

GFS6666

GFS6666VS



ID

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ID

$\varnothing D_1$ M	P mm	d_1 mm	l_1 mm	l_2 mm	l_s 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

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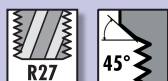
* 155462

* 155469



GFS

GFS6610



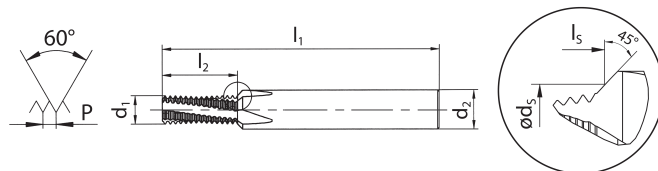
GFS6610VS



GFS6660



GFS6660VS



GFS6610

GFS6610VS

GFS6660

GFS6660VS



Ø D ₁	P	d ₁	l ₁	l ₂	l _s	d _s	d ₂		
MF	mm	mm	mm	mm	mm	mm	mm		
4	0.50	3.00	48	7.3	7.8	4.1	6	3	3.50
5	0.50	3.80	54	8.8	9.4	5.1	6	3	4.50
6	0.50	4.50	62	9.8	10.6	6.2	8	3	5.50
6	0.75	4.50	62	10.1	11.0	6.2	8	3	5.25
8	0.50	5.95	74	12.8	13.9	8.2	10	3	7.50
8	0.75	5.95	74	13.1	14.3	8.2	10	3	7.25
8	1.00	5.95	74	13.5	14.6	8.2	10	3	7.00
10	1.00	7.95	80	16.5	17.7	10.3	12	4	9.00
10	1.25	7.95	80	16.9	18.1	10.3	12	4	8.80
12	1.00	9.95	90	19.5	20.7	12.3	14	4	11.00
12	1.50	9.95	90	20.3	21.4	12.3	14	4	10.50
14	1.50	10.80	102	23.3	25.0	14.4	16	4	12.50
16	1.50	12.80	102	26.3	28.1	16.4	18	4	14.50

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GFS

GFS6615



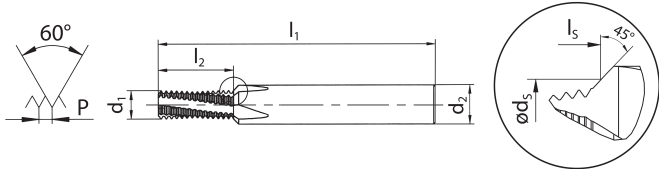
GFS6615VS



GFS6665



GFS6665VS



$\varnothing D_1$ MF	P mm	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_5 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

GFS6615

GFS6615VS

GFS6665

GFS6665VS



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GFS

GFS6610



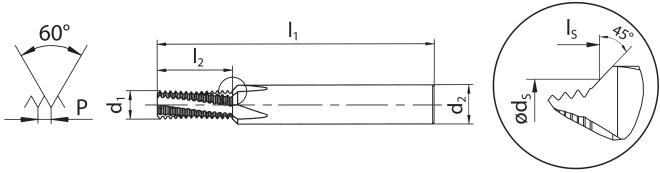
GFS6610VS



GFS6660



GFS6660VS



$\varnothing'' D_1$ UNCTPI	P mm	d_1 mm	l_1 mm	l_2 mm	l_s mm	d_s mm	d_2		
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

GFS6610

GFS6610VS

GFS6660

GFS6660VS



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GFS6615



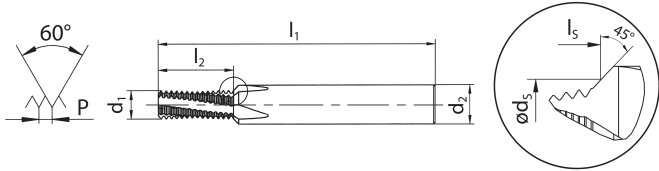
GFS6615VS



GFS6665



GFS6665VS



Ø" D ₁ UNCTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l _s mm	d _s mm	d ₂		
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

GFS6615

GFS6615VS

GFS6665

GFS6665VS



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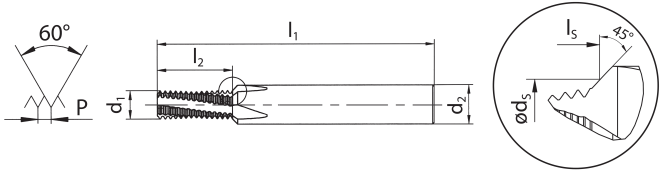
GFS6610VS



GFS6660



GFS6660VS



$\varnothing'' D_1$ UNFTPI	P mm	d_1 mm	l_1 mm	l_2 mm	l_s mm	d_s mm	d_2		
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

GFS6610

GFS6610VS

GFS6660

GFS6660VS



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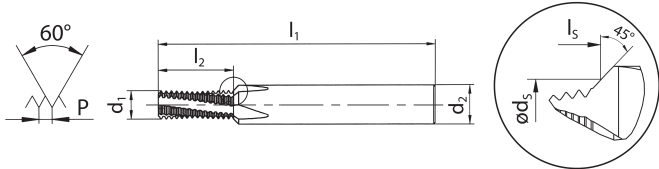
GFS6615VS



GFS6665



GFS6665VS



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

GFS6615

GFS6615VS

GFS6665

GFS6665VS



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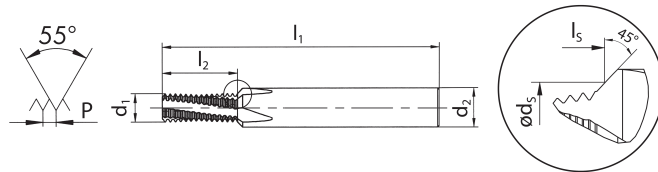
GFS6660VS



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GFS6660VS

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Ø" D ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l _s mm	d _s mm	d ₂ mm		
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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

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Ø" D ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l _s mm	d _s mm	d ₂ mm		
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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

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GFS

GFS6660

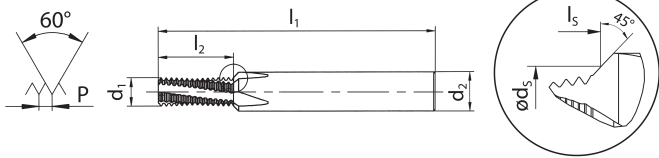


GFS6660VS



GFS6660

GFS6660VS



Ø" D ₁ NPTTPI	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l _s mm	d _s mm	d ₂	
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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

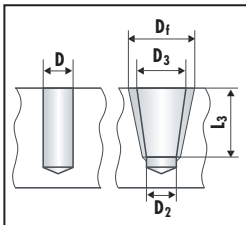
Ø" D ₁ NPTF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l _s mm	d _s mm	d ₂ mm	
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1/8	27	7.30	70	9.9	11.2	10.6	12	4
1/4	18	9.95	80	14.8	16.4	14.0	16	4
3/8	18	12.50	80	14.8	16.9	17.6	18	4

ID

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* 135493	* 135494
* 135495	* 135496
* 135497	* 135498



Vorbereitung Core hole				
Ø D ₁	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

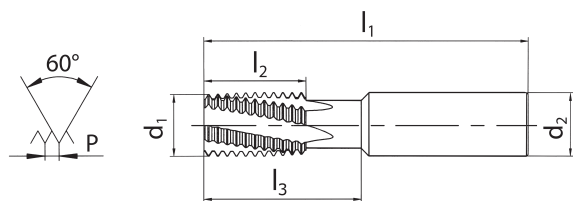
Fräsen Milling	
D _f	L ₃
9.81	6.92
12.99	10.02
16.41	10.33

GFM

GFM6260



GFM6260VS

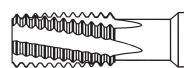


GFM6260

GFM6260VS



d ₁ mm	P mm	Ø 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

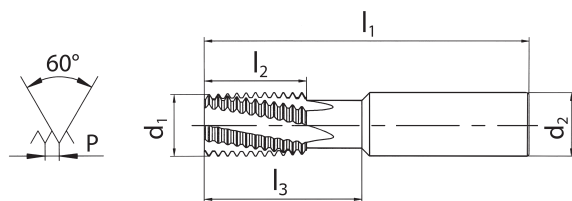


GFM

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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

GFM6260

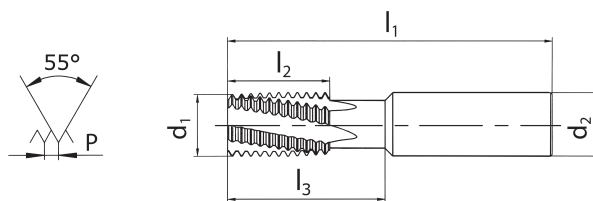
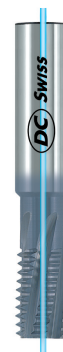


GFM6260VS



GFM6260

GFM6260VS



d ₁ mm	P TPI	Ø" D ₁ G	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	
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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

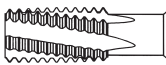
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118678

135281

118691

135282

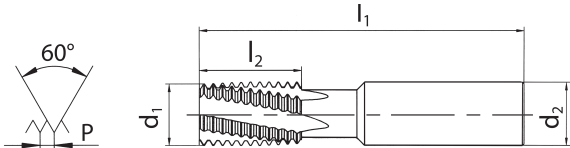


GFM

GFM6260



GFM6260VS



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

GFM6260

GFM6260VS



ID

ID

135323

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135326

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

ID

ID

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Vorbereitung Core hole				
Ø D ₁	D	D ₂	NPT 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

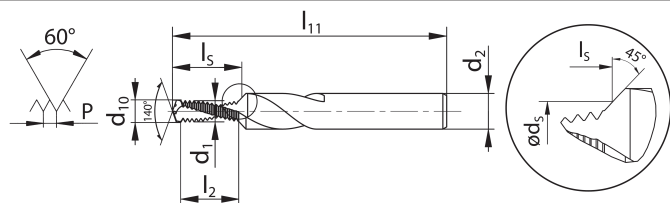
Fräsen Milling	
D _f	L ₃
20.37	13.57
25.69	14.05
32.18	16.79
40.90	17.30
49.67	17.30
58.99	17.70

BGF

BGF6760



BGF6760VS



$\varnothing D_1$ M	P mm	d_1 mm	d_{10} mm	l_{11} mm	l_2 mm	l_s mm	d_s mm	d_2 mm	
4	0.70	3.10	3.30	48	5.6	7.4	4.1	6	2
5	0.80	4.00	4.20	54	7.2	9.4	5.1	6	2
6	1.00	4.75	5.00	62	9.0	11.7	6.2	8	2
8	1.25	6.50	6.75	74	11.2	14.6	8.2	10	2
10	1.50	8.25	8.50	80	14.9	19.1	10.3	12	2
12	1.75	9.95	10.25	90	17.4	22.1	12.3	14	2
14	2.00	11.60	12.00	102	19.9	25.1	14.4	16	2
16	2.00	13.60	14.00	102	23.9	29.5	16.4	18	2

BGF6760

BGF6760VS



ID

ID

153400

153415

153401

153416

153402

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151911

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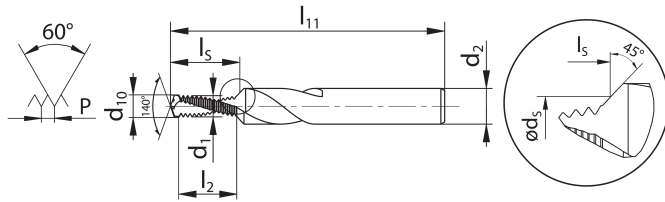
BGF6765VS



BGF6766



BGF6766VS



$\varnothing D_1$ M	P mm	d_1 mm	d_{10} mm	l_{11} mm	l_2 mm	l_s 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

$\varnothing D_1$ M	P mm	d_1 mm	d_{10} mm	l_{11} mm	l_2 mm	l_s 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

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BGF6766VS



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151305

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150933

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150588

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150927

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* 153443

* 153435

* 151324

ID

ID

153451

153467

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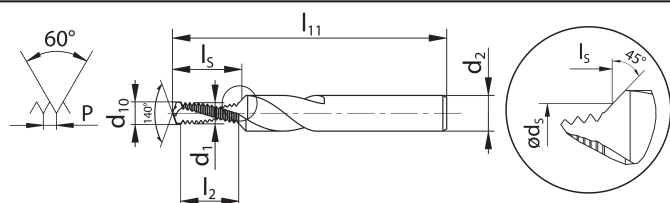
BGF6865VS



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$\varnothing D_1$ M	P mm	d_1 mm	d_{10} mm	l_{11} mm	l_2 mm	l_s mm	d_s 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

$\varnothing D_1$ M	P mm	d_1 mm	d_{10} mm	l_{11} mm	l_2 mm	l_s mm	d_s 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

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* 153582

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ID

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* 153601

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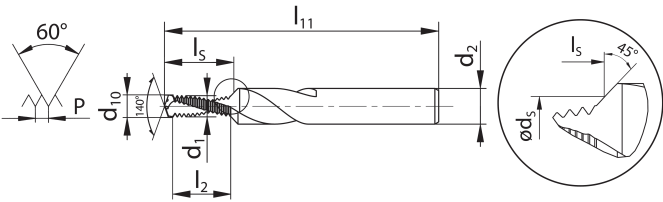
BGF6760VS



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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

∅ 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

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BGF6760VS

BGF6765

BGF6765VS



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* 153787

* 153767

* 153788

ID

ID

* 153802 * 153824

* 153804 * 153826

* 153805 * 153827

* 153807 * 153829

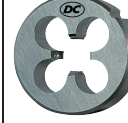
* 153808 * 153830

* 153809 * 153831

* 153810 * 153832

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

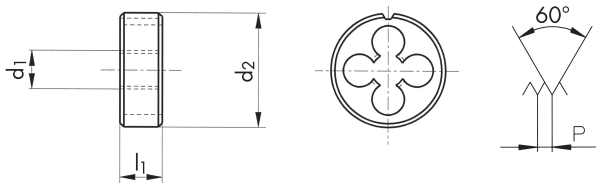
Directory - Round dies, button dies for Swiss automatics, hexagon die nuts and bell form dies

		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

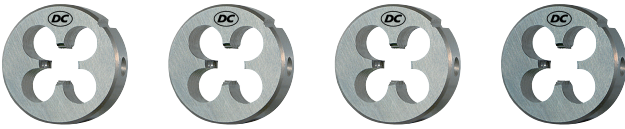
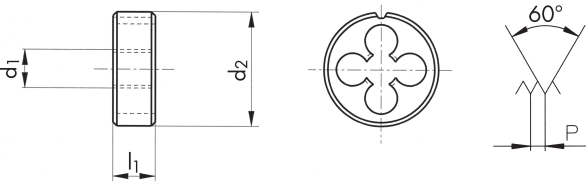
	HSS HSS
	HSSE HSSE
	1.25 Gewindegänge 1.25 chamfered threads
	1.75 Gewindegänge 1.75 chamfered threads
	2 Gewindegänge 2 chamfered threads
	Schälanschnitt ab Ø 3 mm Peeling cut from Ø 3 mm
	Schälanschnitt, beidseitig, ab Ø 3 mm Peeling cut on both sides from Ø 3 mm
	Anzahl Spannuten Number of flutes
	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

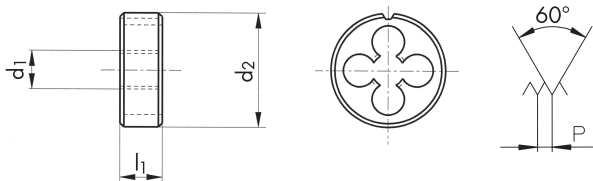
N5110							N5110		N5120		N5120 LH		N5120	
N5120														
N5120 LH														
N5120														
														
														
$\varnothing d_1$ M	P mm	d_2 mm	l_1 mm	 6g	 LH / 6e	 6g	 6e	ID	ID	ID	ID	6g - mm		
1	0.25	16.0	5.0	3		0.97		103851						
1.1	0.25	16.0	5.0	3		1.07		124659						
1.2	0.25	16.0	5.0	3		1.17		103852						
1.4	0.30	16.0	5.0	3		1.36		103853						
1.6	0.35	16.0	5.0	3		1.54		103855						
1.7	0.35	16.0	5.0	3		1.64		103856						
1.8	0.35	16.0	5.0	3		1.74		103857						
2	0.40	16.0	5.0	3		1.93	1.90	103864						
2.2	0.45	16.0	5.0	3		2.13		103867						
2.3	0.40	16.0	5.0	3		2.23		103869						
2.5	0.45	16.0	5.0	3		2.43	2.40	103872						
2.6	0.45	16.0	5.0	3		2.53		103876						
3	0.50	20.0	5.0	3	4	2.92	2.90	103879	104067	104068	104066	0.030		
3.5	0.60	20.0	5.0	3	4	3.41	3.38	103880	104071	104072	* 104070	0.030		
4	0.70	20.0	5.0	3	4	3.91	3.87	103881	104114	104115	104113	0.035		
4.5	0.75	20.0	7.0	4		4.40		103882	104117					
5	0.80	20.0	7.0	4	4	4.90	4.87	103883	104146	104147	104145	0.035		
5.5	0.90	20.0	7.0	4		5.40		103884						
6	1.00	20.0	7.0	4	4	5.88	5.85	103885	104165	104166	104164	0.035		
7	1.00	25.0	9.0	4	4	6.88		103886	104174	104175				
8	1.25	25.0	9.0	4	4	7.87	7.83	103887	104186	104187	104185	0.035		
9	1.25	25.0	9.0	4		8.87		103888	104191					
10	1.50	30.0	11.0	4	4	9.85	9.82	103858	103953	103954	103952	0.035		
12	1.75	38.0	14.0	4	4	11.83	11.80	103859	103973	103974	103972	0.035		
14	2.00	38.0	14.0	4	4	13.82		103860	103989	103990				
16	2.00	45.0	18.0	4	4	15.82	15.79		104003	104004	* 104002	0.035		
18	2.50	45.0	18.0	5		17.79		* 103862	104015					
20	2.50	45.0	18.0	5	5	19.79		103878	104028	104029				
22	2.50	55.0	22.0	5		21.79			104035					
24	3.00	55.0	22.0	5	5	23.76			104043	104044				
27	3.00	65.0	25.0	5		26.76			104058					
30	3.50	65.0	25.0	5	5	29.73			104079	104080				
33	3.50	65.0	25.0	6		32.73			104089					
36	4.00	65.0	25.0	7		35.70			104100					

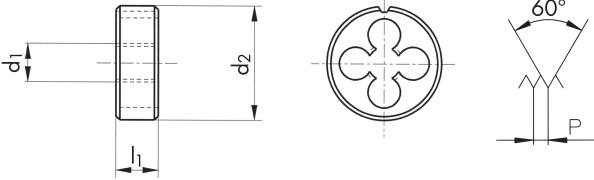
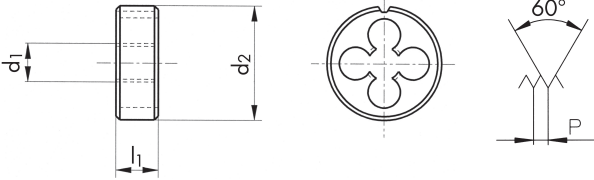
≤ M1.4

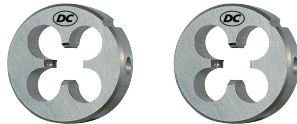
6h

N5120				N5120 LH				N5120				Z5120			
 ≥ Ø3				 ≥ Ø3				 ≥ Ø3				 ≥ Ø2			
															
															
															
															
Ø d ₁ MF	P mm	d ₂ mm	l ₁ mm	 N	 Z	 6g	 6e	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  ≥ Ø3 11/12 N5120 LH  ≥ Ø3 LH 11/12 N5120  ≥ Ø3 11/12 Z5120  ≥ Ø2 NI 13/14/21										
							1.75 x P 6g	1.75 x P 6g	1.75 x P 6e	2 x P 6g
Ø d ₁ MF	P mm	d ₂ mm	l ₁ mm	N	Z	6g mm	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	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  11 12 N5120 LH  LH 11 12						N5120	N5120 LH		
									
						6g	6g		
Ø d ₁ MF	P mm	d ₂ mm	l ₁ mm			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						N5110	N5120		
N5120									
									
$\varnothing'' d_1$ UNCTPI									
P mm									
d_2 mm									
l_1									
									
									
						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		

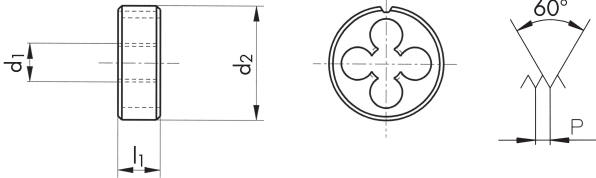
N5110						N5110		N5120			
N5120											
											
											
											
											
$\varnothing'' d_1$ UNFTPI	P mm	d_2 mm	l_1			ID	ID				
0	80	16.0	5.0	3	1.47	103897					
1	72	16.0	5.0	3	1.79	103898					
2	64	16.0	5.0	4	2.12	103899					
3	56	16.0	5.0	4	2.44	103900					
4	48	16.0	5.0	4	2.77	103901					
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

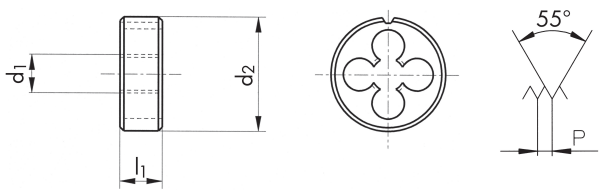
ANSI B1.1

HSS



N5120						N5120			
 									
									
									
Ø" d ₁ UNEF	P TPI	d ₂ mm	l ₁ mm			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 UNSTPI	P mm	d ₂ mm	l ₁			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			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			



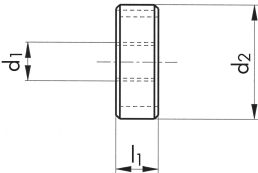
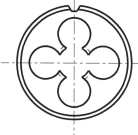
N5120  11 12 N5120 LH  LH 11 12						N5120	N5120 LH		
									
						A	A		
$\varnothing'' d_1$ G	P TPI	d ₂ mm	l ₁ mm			ID	ID		
1/8	28	30.0	11.0	5	9.62	103926			
1/4	19	38.0	10.0	5	13.03	103924	103925		
3/8	19	45.0	14.0	5	16.54	103935	103936		
1/2	14	45.0	14.0	6	20.81	103922	103923		
5/8	14	55.0	16.0	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)

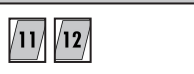
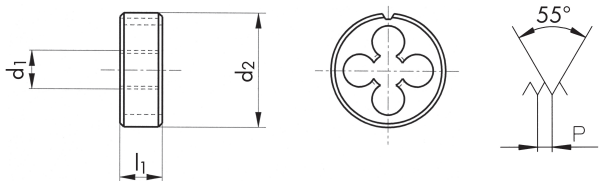
Z
HSSE

MS
HSS



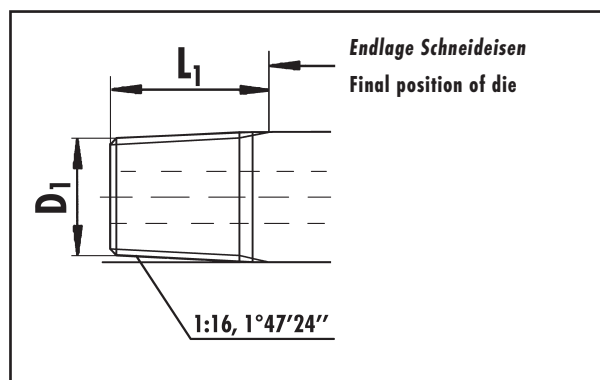
Z5120	 ≥ Ø 2	NI	  	Z5120	MS5120	MS5120			
MS5120	 ≥ Ø 3			  					
MS5120	 ≥ Ø 3								
  									
									
Ø" d ₁ G	P TPI	d ₂ mm	l ₁ mm	 Z	 MS	 → A ←	ID	ID	ID
1/8	28	30.0	11.0	5	5	9.62	104761	* 101339	* 142831
1/4	19	38.0	10.0	5	5	13.03	104760	101338	* 142832
3/8	19	45.0	14.0	5	5	16.54	104764	101342	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	



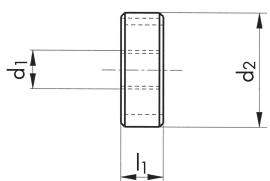
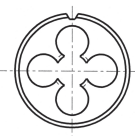
N5120  					N5120			
								
								
								
$\varnothing''$ R	d_1 TPI	d_2 mm	l_1 mm		ID			
1/8	28	30.0	11.0	5	104226			
1/4	19	38.0	14.0	5	104225			
3/8	19	45.0	14.0	5	104230			
1/2	14	45.0	18.0	6	104224			
3/4	14	55.0	22.0	6	104229			
1	11	65.0	25.0	7	104227			

Richtwerte für den Drehdurchmesser

Turning dimensions for R threads (in mm)

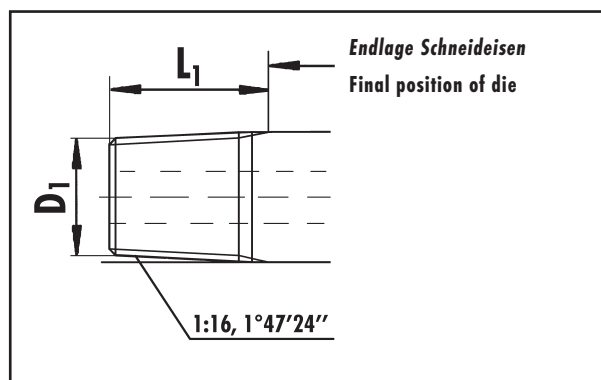


$\varnothing''$ R	D_1 mini mm	D_1 maxi mm	D_1 (guide line) mm	L_1 (guide line) mm
1/8	9.422	9.534	9.48	8.2
1/4	12.700	12.863	12.78	12.1
3/8	16.181	16.343	16.26	12.5
1/2	20.330	20.555	20.44	16.4
3/4	25.735	25.960	25.85	17.7
1	32.455	32.743	32.60	20.9

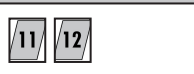
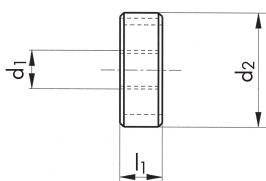
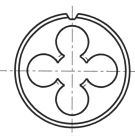
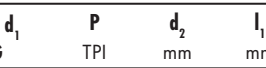
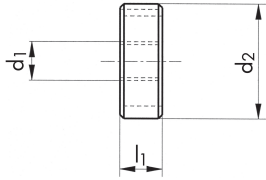
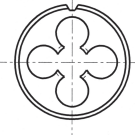
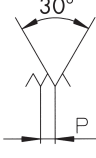
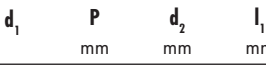
N5120			N5120	N5120		
N5120			NPT	NPTF		
  			1.75 x P	1.75 x P		
			1:16	1:16		
Ø" d ₁ NPT, NPTF	P TPI	d ₂ mm	l ₁ mm	⊕	ID	ID
1/16	27	25.0	9.0	4	104194	
1/8	27	30.0	11.0	5	104197	* 104207
1/4	18	38.0	14.0	5	104196	
3/8	18	45.0	14.0	5	104201	
1/2	14	45.0	18.0	6	104195	* 104205
3/4	14	55.0	22.0	6	104200	
1	11.5	65.0	25.0	7	104198	* 104208
1 1/4	11.5	75.0	26.0	8	104193	

Richtwerte für den Drehdurchmesser

Turning dimensions for NPT and NPTF threads (in mm)



Ø" NPTmm	D ₁ mini mm	D ₁ maxi mm	D ₁ (guide line) mm	L ₁ (guide line) mm	Ø" 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		
 									
  						1.75 x P			
  						ID			
Ø d ₁	P	d ₂	l ₁						
PG	TPI	mm	mm						
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			
  						1.75 x P			
  						7e			
Ø d ₁	P	d ₂	l ₁						
TR	mm	mm	mm						
*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 11 12 N5120 LH LH 11 12						N5120	N5120 LH		
						MC	MC		
Ø" d ₁ 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			





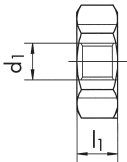
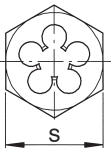
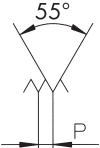
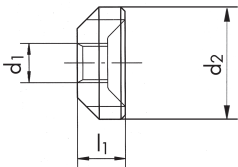
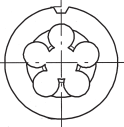
							N5220	N5220	Z5220	
N5220										
N5220										
Z5220			NI							
							6g	6e	6g	
Ø d ₁ M	P mm	d ₂ mm	l ₁ mm		TK mm			ID	ID 6g - mm	ID
1.4	0.30	16.0	2.6	4	12.2	1.36		104346		
1.6	0.35	16.0	2.6	4	12.2	1.54		104347		
1.7	0.35	16.0	2.6	4	12.2	1.64		* 104348		
2	0.40	16.0	3.5	4	12.2	1.93	1.90	104367		
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			
≥Ø3 11 12										
d₁ TK d₂ l₁ 60° P							1.75 x P 6g			
Ø 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			

N5310	11 12		N5310	N5310		N5420
N5310	11 12					
N5420	▶ ≥ Ø 3	11 12				
  			A	MC	6g	
Ø" d ₁ G	P TPI	s mm	l ₁ mm			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
Ø" d ₁ W	P TPI	s mm	l ₁ mm			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
  						
Ø d ₁ M	P mm	d ₂ mm	l ₁ mm			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				
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MF 6H / 6g LH	ISO DIN 13			268				
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EG UNF	NASM 33537			276				

			
			
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267	267		
267			
270-271	270-271		
270			
272	272		
273	273		
273	273		
		275	
		275	
274	274		
274			

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		
Ø 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 = 6h						
D5714	M1 - M1.4 = 6h						
		6g	6g	LH	6e	6g	6e
∅ 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		
							
				 			
Ø 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			
							
							
Ø d _f 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			
							
		6g	6g	LH	6g		
∅ 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					



		D5701-1	D5703	D5704	D5714		
							
							
Ø" d ₁ UNCTPI	P	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		
		   					
		2B	2B	2A	2A		
Ø" d ₁ UNFTPI	P	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			
Ø" d ₁ UNEF	P TPI	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	

NPT, NPTF

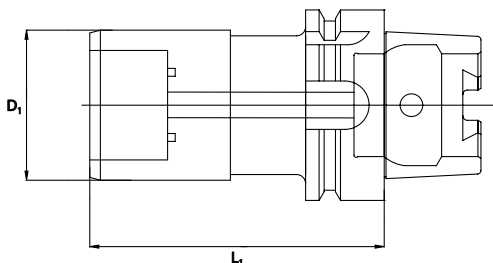
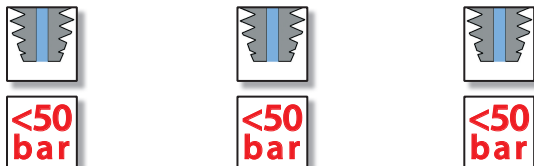
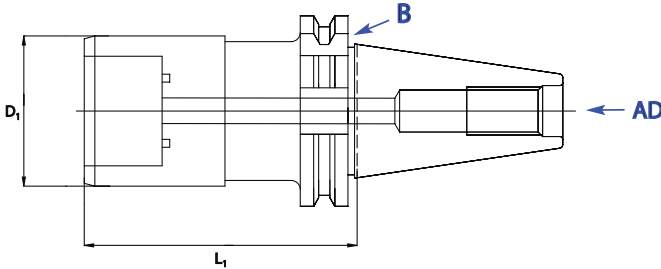
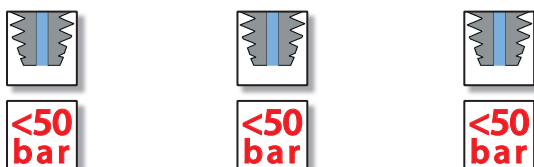
ANSI B1.20.1 / ANSI B1.20.3
ANSI B1.20.1 / ANSI B1.20.5

		D5720	D5721				
		 					
							
Ø" 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				
Ø" 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				



		D5703	D5703	D5703			
							
							
Ø 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					
Ø" 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					
Ø" 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					



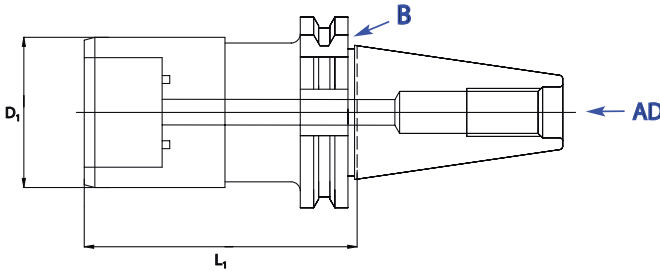
DIN 69 893 A						SRT-HSK63-312	SRT-HSK63-520	SRT-HSK63-1433
HSK								
								
D_1 mm L_1 mm  282						ID	ID	ID
M3 - M12 36 72.0 HSK A 63 S1						170111		
M5 - M20 53 89.0 HSK A 63 S2						170112		
M14 - M33 78 121.0 HSK A 63 S3						170114		
MAS/BT Form AD + B						SRT-BT40-312	SRT-BT40-520	SRT-BT40-1433
BT								
								
D_1 mm L_1 mm  282						ID	ID	ID
M3 - M12 36 71.0 BT 40 S1						170133		
M5 - M20 53 85.0 BT 40 S2						170134		
M14 - M33 78 121.0 BT 40 S3						170135		

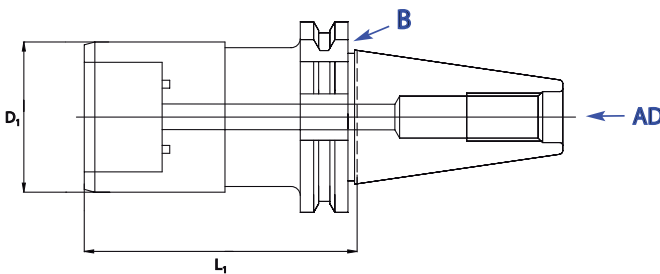
SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

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																								
SK																																
																																
 <50 bar						 <50 bar	 <50 bar																									
<table><thead><tr><th></th><th>D₁ mm</th><th>L₁ mm</th><th></th><th></th><th> 282</th></tr></thead><tbody><tr><td>M3 - M12</td><td>36</td><td>65.0</td><td>SK 40</td><td>S1</td><td></td></tr><tr><td>M5 - M20</td><td>53</td><td>79.0</td><td>SK 40</td><td>S2</td><td></td></tr><tr><td>M14 - M33</td><td>78</td><td>115.0</td><td>SK 40</td><td>S3</td><td></td></tr></tbody></table>							D ₁ mm	L ₁ mm			 282	M3 - M12	36	65.0	SK 40	S1		M5 - M20	53	79.0	SK 40	S2		M14 - M33	78	115.0	SK 40	S3		ID	ID	ID
	D ₁ mm	L ₁ mm			 282																											
M3 - M12	36	65.0	SK 40	S1																												
M5 - M20	53	79.0	SK 40	S2																												
M14 - M33	78	115.0	SK 40	S3																												
						170124	170125	170126																								

DIN 69 871 Form AD + B						SRT-SK50-520	SRT-SK50-1433	SRT-SK50-2248																								
SK																																
																																
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<table><thead><tr><th></th><th>D₁ mm</th><th>L₁ mm</th><th></th><th></th><th> 282</th></tr></thead><tbody><tr><td>M5 - M20</td><td>53</td><td>79.0</td><td>SK 50</td><td>S2</td><td></td></tr><tr><td>M14 - M33</td><td>78</td><td>115.0</td><td>SK 50</td><td>S3</td><td></td></tr><tr><td>M22 - M48</td><td>96</td><td>170.0</td><td>SK 50</td><td>S4</td><td></td></tr></tbody></table>							D ₁ mm	L ₁ mm			 282	M5 - M20	53	79.0	SK 50	S2		M14 - M33	78	115.0	SK 50	S3		M22 - M48	96	170.0	SK 50	S4		ID	ID	ID
	D ₁ mm	L ₁ mm			 282																											
M5 - M20	53	79.0	SK 50	S2																												
M14 - M33	78	115.0	SK 50	S3																												
M22 - M48	96	170.0	SK 50	S4																												
						170128	170129	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
SRT nano			
SRT032 / SRT054 D9865-			
D mm D1 mm D2 mm L mm L1 mm L2 mm	ID ID		
M0.3 - M2 M0.5 - M4	157610 127413		
No D2 mm L3 mm d2 mm	ID		
ER8-0200 ER8-0250 ER8-0300 ER8-0350 ER8-0400 ER8-0450	118895 118896 118897 118899 118900		
DIN 1835 B	SRT312-D20	SRT312-D25	SRT520-D25
SRT short			
D1 mm D2 mm L mm L1 mm S1 S2 282	ID ID ID		
M3 - M12 M3 - M12 M5 - M20	162832 162831 162833		

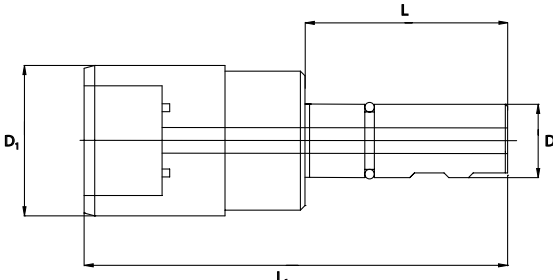
118898

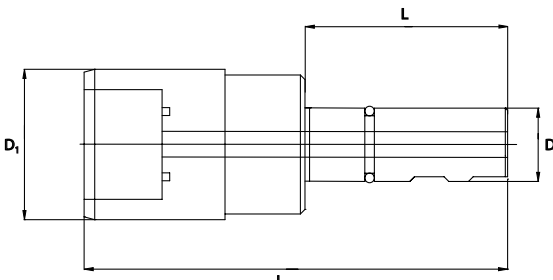
SRT Synchron-Gewindeschneidfutter mit Axial-Stossdämpfer

Tapping chucks with axial shock absorber

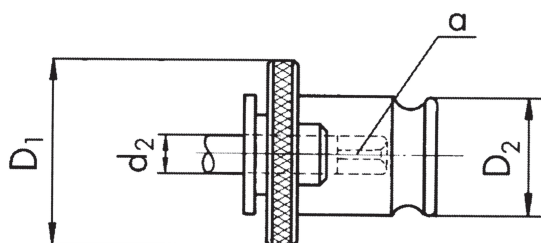


Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado

DIN 1835 B							SRT-1D20-312	SRT-1D25-312	SRT-2D25-520																												
SRT																																					
																																					
 <50 bar							 <50 bar	 <50 bar																													
<table><tr><td></td><td>D₁ mm</td><td>D₂ mm</td><td>L mm</td><td>L₁ mm</td><td></td><td> 282</td></tr><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></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	ID	ID
	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																																
							170140																														
								170020																													
									170141																												

DIN 1835 B							SRT-2D32-520	SRT-3D25-1433	SRT-3D32-1433																												
SRT																																					
																																					
 <50 bar							 <50 bar	 <50 bar																													
<table><tr><td></td><td>D₁ mm</td><td>D₂ mm</td><td>L mm</td><td>L₁ mm</td><td></td><td> 282</td></tr><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></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	ID	ID
	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																																
							170142																														
								170143																													
									170144																												

SRT



S1-

S2-

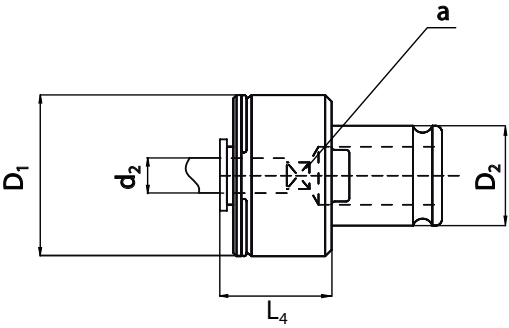
S3-

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

CLASSIC



SC1-

SC2-

SC3-

SC4-



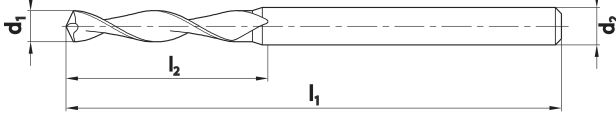
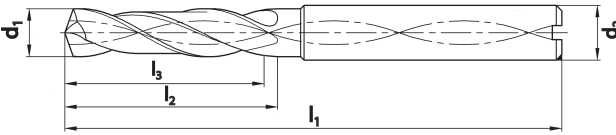
No	D ₁ mm	D ₂ mm	d ₂ mm	a mm	L ₄ mm	ID	ID	ID	ID
SC1-0028	32	19.0	2.8	2.1	25	170160			
SC1-0035	32	19.0	3.5	2.7	25	170161			
SC1-0045	32	19.0	4.5	3.4	25	170162			
SC1-0060	32	19.0	6.0	4.9	25	170163			
SC1-0070	32	19.0	7.0	5.5	25	170164			
SC1-0080	32	19.0	8.0	6.2	25	170165			
SC1-0090	32	19.0	9.0	7.0	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



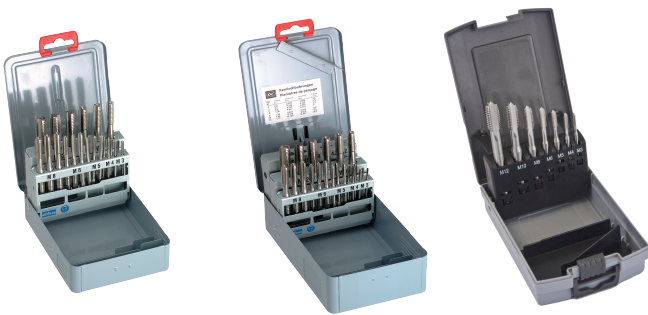
Vollhartmetall-Spiralbohrer
Solid carbide twist drills



sur demande
auf Anfrage
on request
su richiesta
sobre pedido

							F313VS	F285VS	F286VS	
F313VS  F285VS F286VS  11 12 13 14 15 21 22 23 24 41 61 63 71 72 73 74 11 12 13 14 15 16 21 22 23 24 31 32 51 52 71 72 73 74										
										
										
$\varnothing d_1$ (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		ISO 2 6H	N1110-S N1210-S	M3, M4, M5, M6, M8, M10 M12		
D5860		ISO 2 6H	N1110-S N1210-S	M3, M4, M5, M6, M8, M10 M12		
		HSS	FO DIN 338 FO DIN 338	D2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2		
D5891		ISO 2 6H	N310-3 N410-3	M3, M4, M5, M6, M8, M10 M12		
No D5855 / D5860 / D5891				ID	ID	ID
M3 - M12				118728	118733	170922

Boxset		D5892
D5892	 ISO 2 6H  N320V-4 M3, M4, M5, M6, M8, M10	
No D5892		ID
M3 - M10		170921

Boxset		D5896
D5896	 ISO 2 6H  N360V-3 M3, M4, M5, M6, M8, M10	
No D5896		ID
M3 - M10		167599

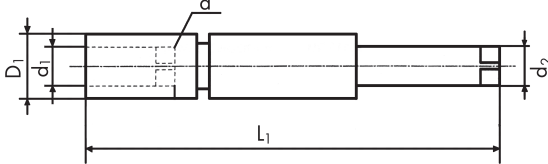
Schneideisenhalter und Windeisen

Die stocks and tap wrenches

D5810- <i>Schneideisenhalter für runde Schneideisen nach DIN EN 22568, DIN EN 24230, DIN EN 24231, DIN EN 40434.</i> Die stocks for round dies to DIN EN 22568, DIN EN 24230, DIN EN 24231, DIN EN 40434. D5820- <i>Windeisen verstellbar DIN 1814</i> Tap wrenches, adjustable DIN 1814										D5810-	D5820-
											
DIN EN	M	MF	UNC	UNF	UNEF	W	G (BSP)	NPT			
No					UNS						
D5810- Ø	Ø	Ø	Ø	Ø	UN Ø	Ø	Ø	Ø	R (BSPT) Ø	ID	
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"	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"	3/8"	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	a									ID	
D5820- mm	mm										
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	a	L ₁	D ₁		ID			
D5830-	mm	mm	mm					
1	2.10	60	6		110571			
					110572			
2	2.24	70	6		110573			
3	2.40	70	6		110574			
4	2.50	80	7		110575			
5	2.80	90	7		110579			
6	3.00	90	7		110580			
7	3.15	95	7		110581			
8	3.40	95	8		118706			
9	3.55	100	8		118707			
10	3.80	100	9		118708			
11	4.00	105	10		118709			
12	4.30	105	10		118710			
13	4.50	105	10		118711			
14	4.90	110	10		118712			
15	5.00	110	11		118713			
16	5.50	115	12		118714			
17	5.60	110	12		118715			
18	6.20	120	14		118716			
19	6.30	120	14		118717			
20	7.00	125	15		118718			
21	7.10	120	15		118719			
22	7.50	120	15		118720			
23	8.00	125	17		118721			
24	9.00	130	19		110562			
25	10.00	140	21		110563			
26	11.00	150	23		110564			
27	11.20	145	23		110565			
28	12.00	155	25		110566			
29	12.50	160	25		110567			
30	14.00	165	28		110568			
31	14.50	175	29		110569			
32	16.00	180	30		110570			
33	18.00	200	33		110576			
34	20.00	220	36		110577			
35	22.00	220	40		110578			
36	22.40	240	40					
No	a	L ₁	d ₂	d ₁	D ₁	ID		
D5840-	mm	mm	mm	mm	mm			
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	HB	HV	N/mm ² Mpa
Rockwellhärte	Brinellhärte	Vickershärte	Zugfestigkeit
Hardness Rockwell	Hardness Brinell	Hardness Vickers	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														G (BSP) Rp	Ø mm
		UNC	UNF	UNEF	4	6	8	12	16	20	28	32	W(BSW)	BSF			
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"	3.96												32				
8 3/16"	4.16 4.76	32	36										24	32			
10 12	4.82 5.48	24 24	32 28	32													
7/32"	5.55												24	28	19	13.15	
1/4"	6.35	20	28	32									20	26			
9/32"	7.14													26			
5/16"	7.93	18	24	32						20	28						
3/8"	9.52	16	24	32						20	28		16	20	19	16.66	
7/16"	11.11	14	20	28					16			32	14	18			
1/2"	12.70	13	20	28					16			32	12	16	14	20.95	
9/16"	14.28	12	18	24					16	20	28	32	12	16			
5/8"	15.87	11	18	24				12	16	20	28	32	11	14	14	22.91	
11/16"	17.46			24				12	16	20	28	32		14			
3/4"	19.05	10	16	20				12			28	32	10	12	14	26.44	
13/16"	20.64			20				12	16		28	32		12			
7/8"	22.22	9	14	20				12	16		28	32	9	11	14	30.20	
15/16"	23.81			20				12	16		28	32					
1"	25.40	8	12	20					16		28	32	8	10	11	33.24	
11/16"	26.99			18			8	12	16	20	28						
11/8"	28.57	7	12	18			8		16	20	28		7	9	11	37.89	
13/16"	30.16			18			8	12	16	20	28						
11/4"	31.75	7	12	18			8		16	20	28		7	9	11	41.91	
15/16"	33.34			18			8	12	16	20	28						
13/8"	34.92	6	12	18			8		16	20	28		6	8	11	44.32	
17/16"	36.51			18		6	8	12	16	20	28						
11/2"	38.10	6	12	18			8		16	20	28		6	8	11	47.80	
19/16"	39.69			18		6	8	12	16	20							
15/8"	41.28			18		6	8	12	16	20			5	8			
111/16"	42.86			18		6	8	12	16	20							
13/4"	44.45	5				6	8	12	16	20			5	7	11	53.74	
113/16"	46.04					6	8	12	16	20							
17/8"	47.63					6	8	12	16	20			4 1/2				
115/16"	49.21					6	8	12	16	20							
2"	50.80	4 1/2				6	8	12	16	20			4 1/2	7	11	59.61	
21/8"	53.97					6	8	12	16	20							
21/4"	57.15	4 1/2				6	8	12	16	20			4	6	11	65.71	
23/8"	60.32					6	8	12	16	20							
21/2"	63.50	4				6	8	12	16	20			4	6	11	75.18	
25/8"	66.67				4	6	8	12	16	20							
23/4"	69.85	4				6	8	12	16	20			3 1/2	6	11	81.53	
27/8"	73.02				4	6	8	12	16	20							
3"	76.20	4				6	8	12	16	20			3 1/2	5	11	87.88	
31/8"	79.37				4	6	8	12	16								
31/4"	82.55	4				6	8	12	16				3 1/4	5	11	93.98	
33/8"	85.72				4	6	8	12	16								
31/2"	88.90	4				6	8	12	16				3 1/4	4 1/2	11	100.33	
35/8"	92.07				4	6	8	12	16								
33/4"	95.25	4				6	8	12	16				3	4 1/2	11	106.68	
37/8"	98.42				4	6	8	12	16								
4"	101.60	4				6	8	12	16				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															
Ø d 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	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	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	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	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	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	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	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	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	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			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
* 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			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
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	

MF DIN 13, ISO 261, 6H

Ø	P	Kern-Ø Mutter - Core Ø nut			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
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	



KERNLOCHBOHRUNGEN - CORE HOLES

MF DIN 13, ISO 261, 6H

Ø	P	Kern-Ø Mutter - Core Ø nut		
d ₁	mm	Ø mini	Ø maxi	Ø guide line
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		
d ₁	mm	Ø mini	Ø maxi	Ø guide line
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		
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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		
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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		
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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 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 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 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 1/4"	36	0.706	5.588	5.740	5.65
1 1/4"	40	0.635	5.665	5.816	5.70
1 1/4"	48	0.529	5.766	5.892	5.80
1 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	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			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
* 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			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
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	

MF DIN 13, ISO 261, 6g

Ø	P	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
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	
12	1.50	11.732	11.968	11.85	
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	

AUSSENDURCHMESSER - TURNED DIAMETERS

MF DIN 13, ISO 261, 6g

Ø	P	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	mm	Ø mini	Ø maxi	Ø guide line	
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	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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 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	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
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 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	Aussen-Ø Bolzen - Thread outside Ø			
d ₁	TPI	mm	Ø mini	Ø maxi	Ø guide line
12	32	0.794	5.312	5.463	5.39
1 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	Ø maxi	Ø guide line
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	Ø maxi	Ø guide line
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	Ø maxi	Ø guide line
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	Ø maxi	Ø guide line
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



TR ISO 2901-2904, DIN 103, 7e

G (BSP) DIN ISO 228

Ø"	P	P	Aussen-Ø Bolzen - Thread outside Ø		
d _i	TPI	mm	Ø mini	Ø maxi	Ø guide line
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



Ø	P	Aussen-Ø Bolzen - Thread outside Ø		
d _i	mm	Ø mini	Ø maxi	Ø guide line
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



Angebotsanfrage ☐

Versuchsergebnis ☐

Beanstandung ☐

Vertretung : _____

Kontaktperson : _____

Kunde : _____

E-Mail : _____

Tel.- /Fax-Nr : _____

Datum : _____

1. Werkzeug-Typ : _____ Abmessung : _____

Besonderheit : _____

Toleranzklasse : _____

2. Werkstoffgruppe : _____

Werkstoff-Nr : _____

Härte : _____ N/mm² /HB/HRC

Norm : _____

Bruchdehnung : _____ %

3. Gewinde : ☐ Sackloch ☐ Durchgangsloch

Gewindelänge : _____ mm

Kernloch-Ø : _____

Tiefe : _____ mm

Aufbohrungs-Ø : _____

Tiefe : _____ mm

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

Vorschub (f) : _____ %

5. Maschine : _____

☐ Innenkühlung

Arbeitsrichtung : ☐ horizontal

☐ vertikal

Synchro-Gewindeschneiden : ☐ Soft-Rigidfutter

Gewindeschneidspindel : ☐ Längenausgleich

☐ Spannzange

☐ Ausklinkbar

☐ Weldon

☐ Rutschkupplung

☐ Schrumpffutter

☐ Automat. Umschaltung

6. Schmierung : ☐ Emulsion

☐ Schneidöl

☐ Luft

☐ MMS

Produkt : _____

7. Grund des Werkzeugwechsels : ☐ Werkzeugverschleiss

☐ Werkzeugbruch

☐ Gewinde nicht korrekt (kontrolliert mit Lehre)

☐ Zahnausbrüche im Anschnittbereich

☐ Maschinenfehler

☐ Zahnausbrüche im Führungsgewinde

8. Standzeitvergleich

Vergleichswerkzeug : _____

Resultat und Befund : _____

Bemerkungen : _____

TECHNICAL QUESTIONNAIRE

THREAD CUTTING AND THREAD FORMING

Enquiry ☐	Test result ☐	Complaint ☐
Agency : _____ Customer : _____ Phone or fax : _____ Contact : _____ E-mail : _____ Date : _____		
1. Tool type : _____ Particularity : _____ Thread size : _____ Class of tolerance : _____		
2. Material group : _____ Material N° : _____ Norm : _____ Hardness : _____ N/mm² /HB/HRC Elongation : _____ %		
3. Thread : ☐ blind hole ☐ through hole Threaded length : _____ mm Core hole Ø : _____ Counter-bore Ø : _____ Depth : _____ mm Depth : _____ mm		
4. Cutting speed (V_c) : _____ m/min _____ 1/min Feed (f) : _____ %		
5. Machine : _____ ☐ internal coolant Working position : ☐ horizontal ☐ vertical Rigid Tapping : ☐ "Soft Rigid Tapping" Tapping spindle : ☐ axial compensation ☐ 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 : _____

Kontaktperson : _____

Kunde : _____

E-Mail : _____

Tel. - /Fax-Nr : _____

Datum : _____

1. Werkzeug-Typ : _____

Nenn-Ø : _____

Steigung : _____

Serie : _____

Beschichtung : _____

2. Werkstoffgruppe : _____

Werkstoff-Nr : _____

Härte : _____ N/mm² /HB/HRC

Norm : _____

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

Werkzeugaufnahme : ☐ Spannzange

☐ Weldon / Whistle Notch

☐ vertikal

☐ 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 : _____	Contact : _____	
Customer : _____	E-mail : _____	
Phone or fax : _____	Date : _____	
1. Tool type : _____		
Tool Ø : _____	Pitch : _____	
Serie : _____	Coating : _____	
2. Material group : _____		
Material N° : _____	Hardness : _____ N/mm ² /HB/HRC	
Norm : _____	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 _____ l/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 : _____		

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uns zu bestätigen.

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Garantie

Werkzeuge, die wir als fehlerhaft anerkennen, werden gratis ersetzt. Dies jedoch ohne jegliche weitere Entschädigung.

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Erfüllungsort und Gerichtsstand

Für alle sich aus dem Vertragsverhältnis ergebenden Streitigkeiten ist das Amtsgericht Moutier (Schweiz) zuständig.

Streitigkeiten unterstehen ausschliesslich dem Schweizerischen Obligationenrecht.

DELIVERY AND PAYMENT CONDITIONS

Orders

Orders, which cannot be delivered from stock, will be acknowledged. Items, which do not belong any more to our standard programme, although still featured in the catalogue, will be invoiced as «specials».

Orders may only be cancelled by mutual written agreement.

Quotations and acknowledgements

For reasons of constant development in this field, all descriptions mentioned in our quotations, annexed documents, weight indications, measurements as well as illustrations and drawings are approximate indications. These technical data have binding value only if expressly specified.

Prices

Our prices are quoted for deliveries ex works Malleray, excluding VAT, packing, insurance, freight, customs' and legalisation duties. Should prices increase, we reserve the right to invoice tools already acknowledged at the new prices.

Payment

Payments must be made in advance or against irrevocable and confirmed documentary credit to be opened in our favour with a Swiss bank. All banking commissions and charges have to be borne by the buyer.

Right of ownership

We reserve the right of ownership of all goods supplied until the sales price, plus all incidental charges, have fully been paid.

Despatch

Deliveries take place at the purchaser's risk.

Delivery

Confirmed delivery dates are non-binding. We will do our utmost to maintain them. However, we cannot accept responsibility of direct or consequential losses due to delayed deliveries.

Special orders

For all special tools we reserve the right to over or under supply the ordered quantity by up to 15 %, or on small quantities by 1 or 2 pieces.

Guarantee

Tools recognised to be defective by DC will be replaced free of charge, but without prejudice.

Complaints

Complaints will be considered only within 15 days after receipt of the goods.

Drawings and sketches

The reproduction or transmission of drawings and other documents to a third party are prohibited.

The information (drawings and prints) in our catalogue is for guidance only and is not binding.

Special conditions

In the case of partial or total disruption of our production; we reserve the right to partially or totally cancel our delivery commitments.

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

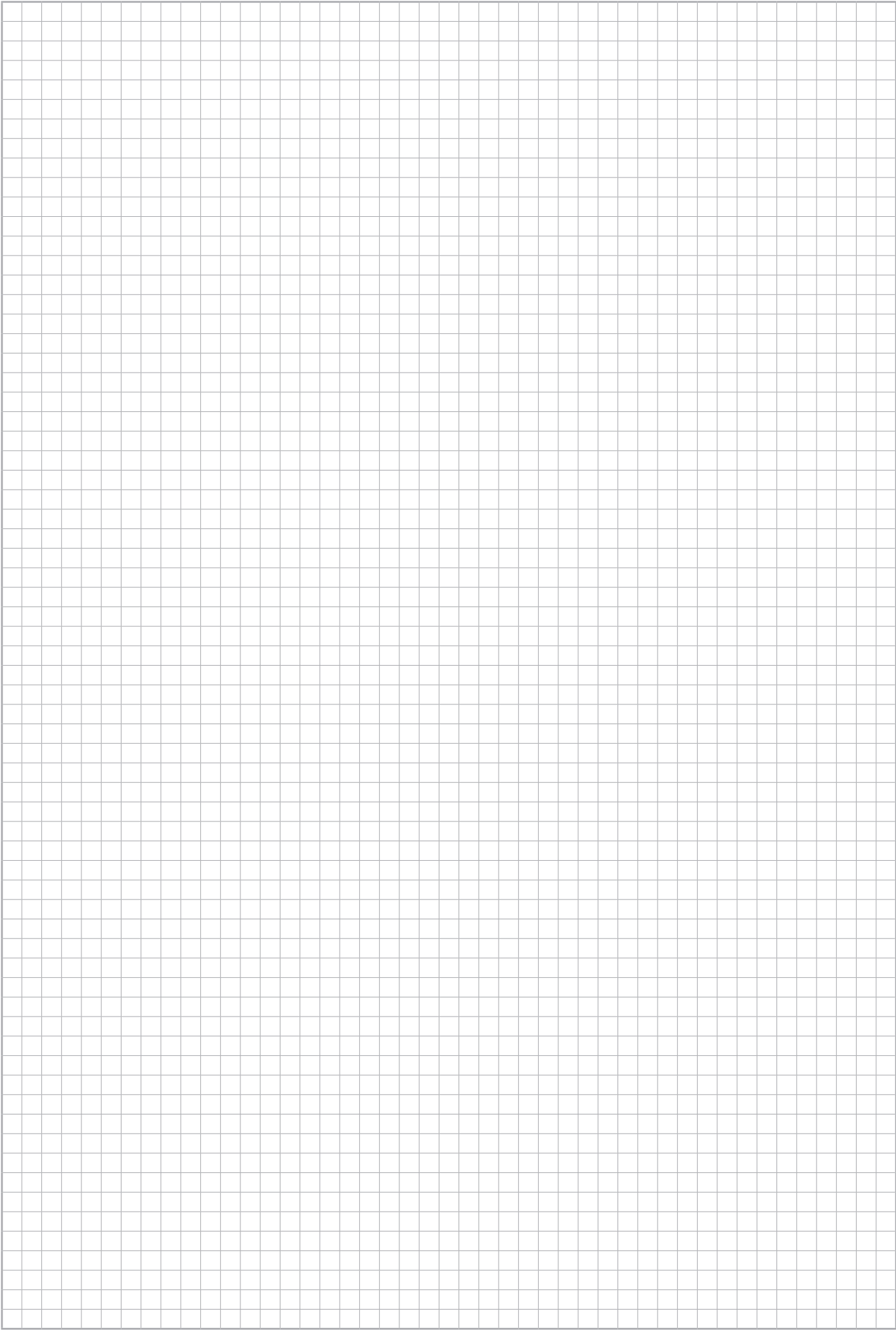
Für neue Gewindelehren (Neulieferung) / Messunsicherheit U95

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

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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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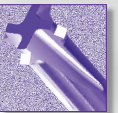
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**THREADING
TECHNOLOGY**

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