



SWISS MADE



THREADING
TECHNOLOGY

www.dcswiss.com

Catalogue
US-ID-2014





Ever ready for new challenges

DC SWISS SA possesses high-level specialist skills and many years of experience in threading technology, which have earned the company international prestige. In comparison with other machining techniques, such as milling and turning, for example, thread cutting poses more complex requirements. Beside the thread norm, many ancillary production factors, such as chip removal or coolant supply, have to be taken into account in the design of thread cutting tools. But the ultimate effectiveness of the tool results from a symbiosis between cutting geometry, high and consistent raw material quality and the judicious application of surface coatings that enhance performance.

Thread cutting tools from DC are made using the latest and most modern production technologies to guarantee economy of cost and extremely consistent, fault-free manufacture.

Your expectations and your quality requirements are at the heart of the further development of our precision tools and of the whole range of services that we provide. Tell us your need and except nothing else than the best solution for your application.

Because our strength is your benefit

© DC SWISS SA







HSSE PM

N W Z H S SA TL GG

DC SWISS

V VS TiN TiCN NV



PM

RTS
Rigid Tapping Synchro

VS



nano >0.3 mm PM VHM CAR

NIHS | M

DC SWISS



PM

FORMING

VS CrN DL



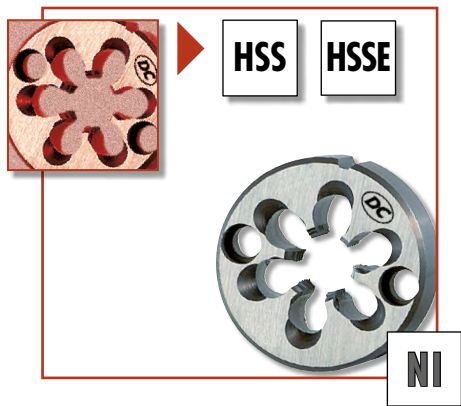
HSSE <4xD

> 20 bar

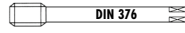
K
SWARFBREAKER

TiCN VS

CLASSIC SYNCHRO



PICTOGRAPHS

	Reinforced shank as per DIN 371
	Reduced shank as per DIN 376
	HSSE
	HSSE-PM
	High Performance Tool
	Number of flutes (Z)
	Through hole, long chipping materials
	Through hole < 1.5 x D, short chipping materials
	Blind hole < 1.5 x D, long chipping materials
	Blind hole < 2.5 x D, short chipping materials
	Through / blind hole < 2.5 x D
	Blind hole < 3 x D
	Straight flutes
	Straight flutes with spiral point
	Spiral point only
	40° right hand spiral flutes
	Truncated thread
	Interrupted thread
	Extra-long
	Core hole diameter

	For Rigid Tapping
	For Classic Tapping
	Thread former
	Thread former with lubrication grooves
	Internal coolant with frontal outflow
	Internal coolant with radial outflow
	3.5 - 5 chamfered threads, form B
	2 - 3 chamfered threads, form C
	1.5 - 2 chamfered threads, form E
	Tolerance class ISO 1 4H
	Tolerance class ISO 2 6H
	Tolerance class ISO 3 6G
	DC "V" surface treatment
	DC wear-protective coating
	Titanium-nitride coating
	Titanium-carbonitride coating
	Plasma nitriding + "V" surface treatment
	Chromenitride coating
	DLC-coating
	Radius on external diameter

Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm ²)	Elongation A (%)
Steels	11	Free-cutting steels	< 200	< 700	< 10
	12	Structural / cementation steels	< 200	< 700	< 30
	13	Carbon steels	< 300	< 1000	< 20
	14	Alloy steels <850 N/mm ²	< 250	< 850	< 30
	15	Alloy steels hard. / temp. >850 - <1150 N/mm ²	> 250	> 850	< 30
	16	High tensile alloy steels	> 250	> 850	< 12
Stainless Steels	21	Free machining stainless steels	< 250	< 850	< 25
	22	Austenitic stainless steels	< 250	< 850	> 20
	23	Ferritic and martensitic <850 N/mm ²	< 250	< 850	> 20
	24	Ferritic and martens. >850 - <1150 N/mm ²	> 250	> 850	> 15
Cast iron	31	Cast iron	< 250	< 850	< 10
	32	Spheroidal graphite + malleable cast iron	< 250	< 850	> 10
Titanium	41	Pure titanium	< 250	< 850	> 20
	42	Titanium alloys	> 250	> 850	< 20
Nickel	51	Nickel alloys 1 <850 N/mm ²	< 250	< 850	> 25
	52	Nickel alloys 2 >850 - <1150 N/mm ²	> 250	> 850	< 25
	53	Nickel alloys 3 >1150 - ≤1600 N/mm ²	> 340	> 1150	< 20
Copper	61	Pure copper (electrolytic copper)	< 120	< 400	> 12
	62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	< 12
	63	Long chip brass	< 200	< 700	> 12
Aluminium Magnesium	71	Al unalloyed	< 100	< 350	> 15
	72	Al alloyed Si < 1.5 %	< 150	< 500	> 15
	73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400	< 15
	74	Al alloyed Si > 10 %, Mg-Alloys	< 120	< 400	< 10
Plastic compounds	81	Thermoplastics	-	-	-
	82	Duroplastics	-	-	-
	83	Glass fibre reinforced plastics	-	-	-

11 Free-cutting steels 1.0711 1212 1.0715 1213 1.0718 1213 1.0726 1140 1.0737 12L14	12 Structural, cementation steels 1.0037 1015 1.0050 A570 Gr.50 1.0060 A572 Gr.65 1.5919 3115 1.7131 5115	13 Carbon steels 1.0503 1045 1.0535 1055 1.0601 1060 1.1545 W110 1.2067 L3	14 Alloy steels < 850 N/mm ² 1.2363 A2 1.3551 M50 1.7218 4130 1.7220 4135 1.7225 4140	15 Alloy steels hard./temp. > 850 - < 1150 N/mm ² 1.3553 - 1.6580 4340 1.7220 4135 1.7225 4140 1.8507 A355CLD (K23510)	16 High tensile alloy steels EN-GJS-1200-2 1.6582 4340 1.7225 4140 1.7228 4150 1.8515 -	21 Free machining stainless steels 1.4005 416 1.4104 430F 1.4305 303
22 Austenitic stainless steels 1.4301 304 1.4406 316LN 1.4435 316L 1.4541 321 1.4571 316Ti	23 Ferritic and martensitic < 850 N/mm ² 1.4112 440B 1.4540 XM12 (15-SPH) 1.4582 - 1.4762 446 1.4821 4922	24 Ferritic and martensitic > 850 - < 1150 N/mm ² 1.4057 431 1.4125 440C 1.4542 630 (17-4PH) 1.4748 -	31 Cast iron 0.6015 A48-25B 0.6020 A48-30B 0.6025 A48-40B 0.6030 A48-45B	32 Spheroidal graphite + malleable cast iron 0.7040 60-40-18 0.7043 - 0.7050 65-45-12 0.7060 80-55-06 0.7080 120-90-02	41 Pure titanium 3.7024 Gr.1 3.7034 Gr.2 3.7055 Gr.3 3.7065 Gr.4	42 Titanium alloys 3.7124 Alloy 230 F-1295 3.7164 Gr.5 3.7174 -
51 Nickel alloys 1 < 850 N/mm ² 1.3912 K93600 2.4360 N04400 1.4816 N08800	52 Nickel alloys 2 > 850 - < 1150 N/mm ² 2.4375 N05500 (B865) 2.4631 N07080 (B637) 2.4668 N07718 (B637)	53 Nickel alloys 3 > 1150 - ≤ 1600 N/mm ² 2.4631 N07080 (B637) 2.4668 N07718 (B637)	61 Pure copper (electrolytic copper) 2.0060 C11000	62 Short chip brass + phosphor bronze + gun metal 2.0401 C38500 2.0402 C37800 2.1030 C52100 2.1096 -	63 Long chip brass 2.0240 C23000 2.0265 C26000 2.0321 C27200	71 Al unalloyed 3.0205 1200 3.0255 1050A
72 Al alloyed Si < 1.5% 3.1255 2014 3.1355 2024 3.2315 6082 3.3206 6060 3.4345 7020	73 Al alloyed Si > 1.5% - < 10% 3.2161 380.1 3.2162 - 3.2341 - 3.2371 A 356.2	74 Al alloyed Si > 10% Mg-alloys 3.2381 A360 3.2382 - 3.2581 A413 3.2583 413.1	81 Thermoplastics Delrin (POM) Teflon Nylon	82 Duroplastics Bakelit Novopan	83 Glass fibre reinforced plastics Glass fibre reinforced, Thermo and Duroplastics	

Reference: AISI/ASTM/UNS

HOW TO FIND THE RIGHT TOOL

1

Choose Material

- 12

Structural, cementation steels
- 16

High tensile alloy steels
- 22

Austenitic stainless steels

2

Choose Thread

UNC / UNF / M / MF

3

Choose Type of Hole

- Through hole

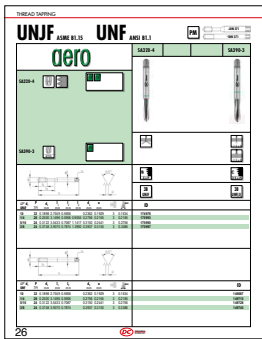

- Blind hole


- Through + Blind



4

Go to corresponding Page



TAPPING

N	Standard	Steels
Z	Blue Ring	Stainless Steels
H	Red Ring	Alloyed Steels
SA	Green Ring	Special Alloys & Nickel
TL	Black Ring	Titanium Alloys
RTS	Rigid Tapping	Multi Materials

FORMING

FS	Small Forming	Multi Materials
FPS	Passiv Forming	Steels
FAS	Activ Forming	Stainless Steels

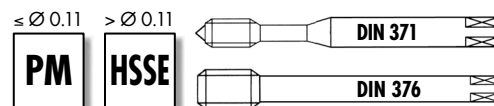
MILLING

GW3016	Whirling 2.5xD	Multi Materials
GW3019	Whirling 4xD	Multi Materials
GF 6115/65	Milling 2xD	Multi Materials
GF 6116/66	Milling 2.5xD	Multi Materials

UNC		UNF		UNEF		UNS		UN		M		MF	
													
10	11	19	20	29	-	-	30	-	30	32-33	34-35	46-49	50-51
12/14	13-14	21	21-22							36	37-38	52-53	52-53
15	15	23	23							39	40	54	54
16	16	24-26	24-26							41	41	55	55
16	16	24-25	24-25							41	41	55	55
17	17	27	27							42	42	56	56
18	18	28	28							43	43		
18	18	28	28							44	44		
18	18	28	28							45	45		
57	57	58	58							59-60	59-60	59-60	59-60
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61	61	62	62							64	64		

UNC

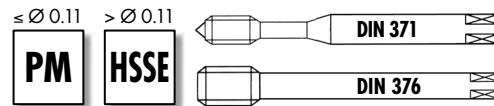
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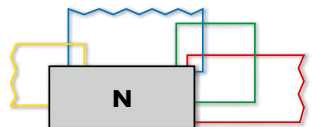
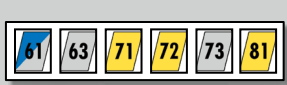
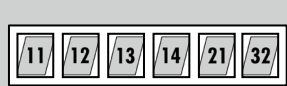
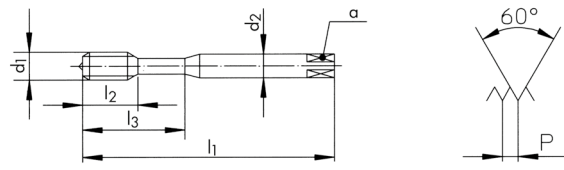


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N320-4													
N320V-4													
N420-4													
N420V-4													
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*3	48	0.099	1.97	0.394		0.110	0.083	2	0.0787	101470			
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5	40	0.125	2.20	0.472	0.709	0.138	0.106	3	0.1004	101512			
6	32	0.138	2.20	0.512	0.787	0.157	0.118	3	0.1083	101514	144402		
8	32	0.164	2.48	0.551	0.827	0.177	0.134	3	0.1339	101515	142739		
10	24	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1496	101508	142740		
12	24	0.216	3.15	0.669	1.181	0.236	0.193	3	0.1732	101509			
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3/8	16	0.375	3.94	0.866		0.276	0.217	3	0.3150		102212	142743	
7/16	14	0.437	3.94	0.748		0.315	0.244	3	0.3661		102215	142744	
1/2	13	0.500	4.33	0.945		0.354	0.276	3	0.4252		102208	142745	
9/16	12	0.562	4.33	1.102		0.433	0.354	3	0.4803		102217		
5/8	11	0.625	4.33	1.181		0.472	0.354	3	0.5354		102214	142746	
3/4	10	0.750	4.92	1.299		0.551	0.433	3	0.6535		102211	142747	
7/8	9	0.875	5.51	1.417		0.709	0.571	3	0.7677		102216	142748	
1	8	1.000	6.30	1.535		0.709	0.571	4	0.8780		102209	142749	
1 1/8	7	1.125	7.09	1.772		0.866	0.709	4	0.9843		102205		
1 1/4	7	1.250	7.09	1.772		0.866	0.709	4	1.1102		102204		
1 1/2	6	1.500	7.87	2.165		1.260	0.945	4	1.3386		102203		
1 3/4	5	1.750	8.66	2.323		1.417	1.142	4	1.5551		102206		
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* N320-3													

UNC

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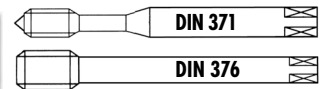


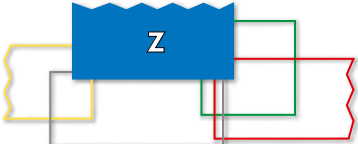
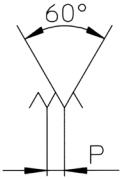
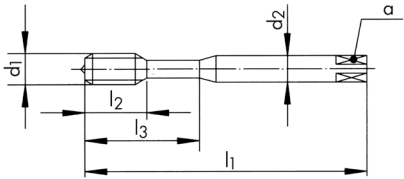
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N360V-3   													
N460-3  													
N460V-3   													
													
													
													
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5	40	0.125	2.20	0.217	0.709	0.138	0.106	3	0.1004	101677			
6	32	0.138	2.20	0.256	0.787	0.157	0.118	3	0.1083	101679	101727		
8	32	0.164	2.48	0.295	0.827	0.177	0.134	3	0.1339	101680	101728		
10	24	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1496	101671	101723		
12	24	0.216	3.15	0.433	1.181	0.236	0.193	3	0.1732	101672			
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3/8	16	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3150	101675	101724		
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7/16	14	0.437	3.94	0.551		0.315	0.244	3	0.3661		102424	105135	
1/2	13	0.500	4.33	0.551		0.354	0.276	3	0.4252		102420	102497	
9/16	12	0.562	4.33	0.551		0.433	0.354	3	0.4803		102426	102502	
5/8	11	0.625	4.33	0.709		0.472	0.354	3	0.5354		102423	102500	
3/4	10	0.750	4.92	0.827		0.551	0.433	3	0.6535		102422	102499	
7/8	9	0.875	5.51	0.945		0.709	0.571	4	0.7677		102425	102501	
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1 1/2	6	1.500	7.87	1.575		1.260	0.945	5	1.3386		102416	102493	
1 3/4	5	1.750	8.66	1.732		1.417	1.142	5	1.5551			128062	
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UNC

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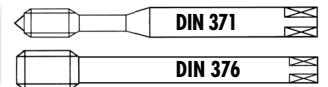
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3/8	16	0.375	3.94	0.866	1.535	0.394	0.315	3	0.3150	142757				
1/2	13	0.500	4.33	0.945		0.354	0.276	3	0.4252		142758			
5/8	11	0.625	4.33	1.181		0.472	0.354	3	0.5354		142759			
3/4	10	0.750	4.92	1.299		0.551	0.433	4	0.6535		142760			
7/8	9	0.875	5.51	1.417		0.709	0.571	4	0.7677		142761			
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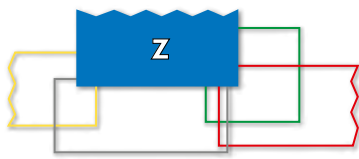
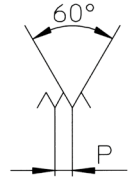
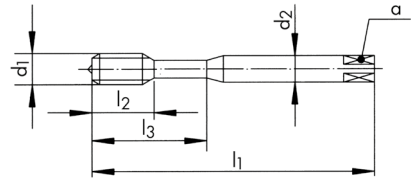
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≤ Ø 0.11 > Ø 0.11

PM **HSSE**

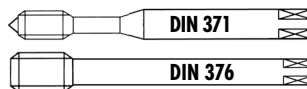


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Z362V-3  22 23 51 Z462V-3  22 23 51													
										 < 2.5 x D	 < 2.5 x D		
										 2.5 x P	 2.5 x P		
										2B	2B		
										ID	ID		
Ø" d ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	l ₃ inch	d ₂ inch	a inch						
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* 4	40	0.112	2.20	0.217	0.709	0.138	0.106	3	0.0886			104697	
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5/16	18	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2559			104698	
3/8	16	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3150			104696	
7/16	14	0.437	3.94	0.551		0.315	0.244	3	0.3661				104757
1/2	13	0.500	4.33	0.551		0.354	0.276	3	0.4252				104753
5/8	11	0.625	4.33	0.709		0.472	0.354	3	0.5354				104756
3/4	10	0.750	4.92	0.827		0.551	0.433	3	0.6535				104755
7/8	9	0.875	5.51	0.945		0.709	0.571	3	0.7677				104758
1	8	1.000	6.30	1.063		0.709	0.571	4	0.8780				104754
* Z360V-3													

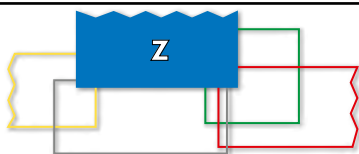
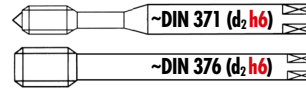
UNC

ANSI B1.1

PM



PM



Z320VS-4

Z420VS-4

Z370VS-3

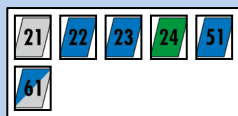
Z470VS-3



Z320VS-4



VS



Z420VS-4



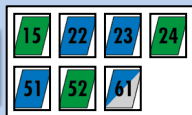
VS



Z370VS-3



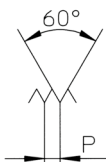
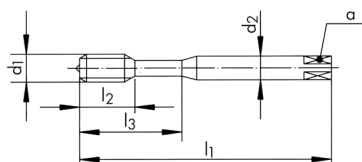
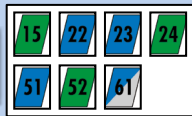
VS



Z470VS-3



VS



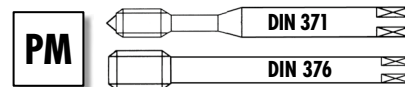
Ø" d ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	l ₃ inch	d ₂ inch	α inch		
6	32	0.138	2.20	0.512	0.787	0.157	0.118	3	0.1083
8	32	0.164	2.48	0.551	0.827	0.177	0.134	3	0.1339
10	24	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1496
1/4	20	0.250	3.15	0.669	1.181	0.276	0.217	3	0.2008
5/16	18	0.312	3.54	0.787	1.378	0.315	0.244	3	0.2559
3/8	16	0.375	3.94	0.866	1.535	0.394	0.315	3	0.3150
1/2	13	0.500	4.33	0.945		0.354	0.276	3	0.4252
5/8	11	0.625	4.33	1.181		0.472	0.354	3	0.5354
3/4	10	0.750	4.92	1.299		0.551	0.433	4	0.6535

Ø" d ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	l ₃ inch	d ₂ h6 inch	α inch		
6	32	0.138	2.20	0.256	0.787	0.157(h9)	0.118	3	0.1083
8	32	0.164	2.48	0.295	0.827	0.177(h9)	0.134	3	0.1339
10	24	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1496
1/4	20	0.250	3.15	0.433	1.181	*0.236	*0.193	3	0.2008
5/16	18	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2559
3/8	16	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3150
7/16	14	0.437	3.94	0.551		0.315	0.244	3	0.3661
1/2	13	0.500	4.33	0.551		*0.394	*0.315	4	0.4252
5/8	11	0.625	4.33	0.709		0.472	0.354	4	0.5354
3/4	10	0.750	4.92	0.827		0.551	0.433	4	0.6535
1	8	1.000	6.30	1.063		0.630	0.472	4	0.8780

* DC Norm

UNC

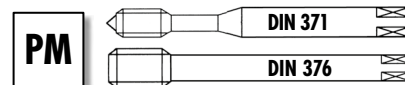
ANSI B1.1



										H320-4	H420-4	H350-3	H450-3
H320-4													
H420-4													
H350-3													
H450-3													
$\varnothing'' d_1$	P	d_1	l_1	l_2	l_3	d_2	α			ID	ID		
UNC	TPI	inch	inch	inch	inch	inch	inch						
2	56	0.086	1.77	0.315		0.110	0.083	2	0.0689	101221			
4	40	0.112	2.20	0.394	0.709	0.138	0.106	3	0.0886	101223			
6	32	0.138	2.20	0.512	0.787	0.157	0.118	3	0.1083	101225			
8	32	0.164	2.48	0.551	0.827	0.177	0.134	3	0.1339	101226			
10	24	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1496	101220			
1/4	20	0.250	3.15	0.669	1.181	0.276	0.217	3	0.2008	101219			
5/16	18	0.312	3.54	0.787	1.378	0.315	0.244	3	0.2559	101224			
3/8	16	0.375	3.94	0.866	1.535	0.394	0.315	3	0.3150	101222			
1/2	13	0.500	4.33	0.945		0.354	0.276	4	0.4252		101290		
$\varnothing'' d_1$	P	d_1	l_1	l_2	l_3	d_2	α			ID	ID		
UNC	TPI	inch	inch	inch	inch	inch	inch						
2	56	0.086	1.77	0.315		0.110	0.083	2	0.0689	101258			
4	40	0.112	2.20	0.217	0.709	0.138	0.106	3	0.0886	101260			
6	32	0.138	2.20	0.256	0.787	0.157	0.118	3	0.1083	101262			
8	32	0.164	2.48	0.295	0.827	0.177	0.134	3	0.1339	101263			
10	24	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1496	101257			
1/4	20	0.250	3.15	0.433	1.181	0.276	0.217	3	0.2008	101256			
5/16	18	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2559	101261			
3/8	16	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3150	101259			
1/2	13	0.500	4.33	0.551		0.354	0.276	4	0.4252		101326		
5/8	11	0.625	4.33	0.709		0.472	0.354	4	0.5354		101329		
3/4	10	0.750	4.92	0.827		0.551	0.433	4	0.6535		101328		
1	8	1.000	6.30	1.063		0.709	0.571	4	0.8780		101327		

UNC

ANSI B1.1

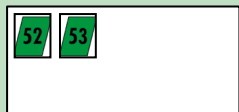


aero

SA320-4



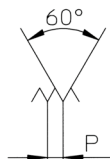
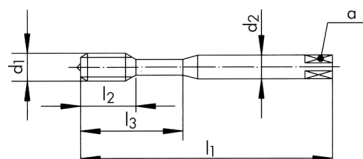
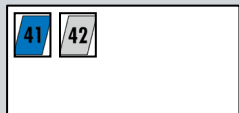
SA350-3



SA390-3



TL351VS-3



SA320-4

SA350-3

SA390-3

TL351VS-3



$\varnothing'' d_1$ UNC	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	d_2 inch	α inch		
4	40	0.112	2.20	0.472		0.138	0.106	3	0.0906
6	32	0.138	2.20	0.512		0.157	0.118	3	0.1102
8	32	0.164	2.48	0.551		0.177	0.134	3	0.1358
1/4	20	0.250	3.15	0.591	0.906	0.276	0.217	3	0.2047
5/16	18	0.312	3.54	0.709	1.142	0.315	0.244	3	0.2638
3/8	16	0.375	3.94	0.787	1.299	0.394	0.315	3	0.3189

$\varnothing'' d_1$ UNC	P TPI	d_1 inch	l_1 inch	l_2 inch	d_2 inch	α inch		
4	40	0.112	2.20	0.472	0.138	0.106	3	0.0906
6	32	0.138	2.20	0.512	0.157	0.118	3	0.1102
8	32	0.164	2.48	0.551	0.177	0.134	3	0.1358
10	24	0.190	2.76	0.591	0.236	0.193	3	0.1535
1/4	20	0.250	3.15	0.787	0.276	0.217	3	0.2047
5/16	18	0.312	3.54	0.984	0.315	0.244	3	0.2638
3/8	16	0.375	3.94	1.181	0.394	0.315	3	0.3189

ID

ID

ID

149005

149007

150194

149059

149061

150210

149097

149099

152039

149226

149228

152064

149273

149275

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ID

149652

149666

149677

149685

149713

149726

149747

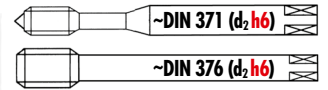
UNC

ANSI B1.1



Only for rigid tapping

PM



RTS

Rigid Tapping Synchro

RTS320VS-4



VS



RTS420VS-4



VS



RTS362VS-3



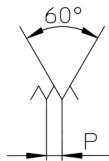
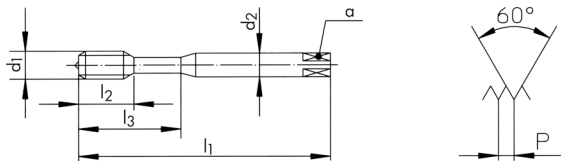
VS



RTS462VS-3



VS



RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



2BX

2BX

2BX

2BX

$\varnothing'' d_1$ UNC	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	$d_2 h6$ inch	α inch		
6	32	0.138	2.20	0.256	0.787	0.157 (19)	0.118	3	0.1083
8	32	0.164	2.48	0.295	0.827	0.177 (19)	0.134	3	0.1339
10	24	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1496
1/4	20	0.250	3.15	0.433	1.181	*0.236	*0.193	3	0.2008
5/16	18	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2559
3/8	16	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3150
1/2	13	0.500	4.33	0.551		*0.394	*0.315	3	0.4252

* DC Norm

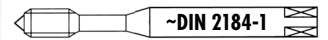


on request

UNC

ANSI B1.1

PM



FS FPS
FAS

FORMING

FS380VS-3



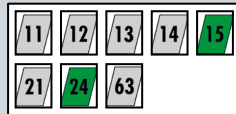
VS



FPS381VS-3



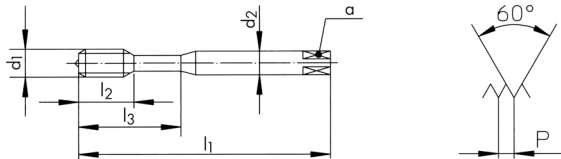
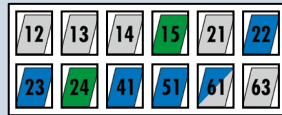
VS



FAS381VS-3



VS



FS380VS-3



FPS381VS-3



FAS381VS-3



$\varnothing'' d_1$ UNC	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	d_2 inch	a inch		Tol.
2	56	0.086	1.77	0.354		0.110	0.083	0.0768	+0.0008
4	40	0.112	2.20	0.472	0.709	0.138	0.106	0.1004	+0.0012
6	32	0.138	2.20	0.512	0.787	0.157	0.118	0.1240	+0.0012
8	32	0.164	2.48	0.551	0.827	0.177	0.134	0.1496	+0.0012
10	24	0.190	2.76	0.591	0.984	0.236	0.193	0.1713	+0.0020
1/4	20	0.250	3.15	0.669	1.181	0.276	0.217	0.2264	+0.0020

ID

157285

ID

170063

ID

170065

166713

166725

166714

166726

166715

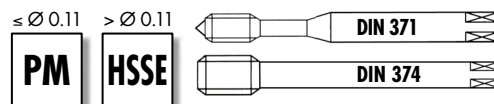
166727

166716

166728

UNF

ANSI B1.1

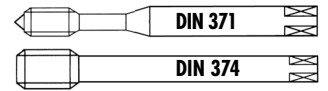


										N320-4	N320V-4	N420-4	N420V-4
N320-4													
N320V-4													
N420-4													
N420V-4													
Ø" d ₁ UNF	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	l ₃ inch	d ₂ inch	α inch			ID	ID	ID	ID
* 0	80	0.060	1.57	0.276		0.098	0.083	2	0.0472	101475			
* 2	64	0.086	1.77	0.354		0.110	0.083	2	0.0709	101477			
4	48	0.112	2.20	0.472	0.709	0.138	0.106	3	0.0925	128847			
5	44	0.125	2.20	0.472	0.709	0.138	0.106	3	0.1024	142764			
6	40	0.138	2.20	0.512	0.787	0.157	0.118	3	0.1142	101519	142765		
8	36	0.164	2.48	0.551	0.827	0.177	0.134	3	0.1378	101520			
10	32	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1594	101517	142766		
12	28	0.216	3.15	0.669	1.181	0.236	0.193	3	0.1811	101518			
1/4	28	0.250	3.15	0.669	1.181	0.276	0.217	3	0.2165	101516	142767		
Ø" d ₁ UNF	P TPI	d ₁ inch	l ₁ inch	l ₂ inch		d ₂ inch	α inch			ID	ID	ID	ID
5/16	24	0.312	3.54	0.787		0.236	0.193	3	0.2717		102223	142774	
3/8	24	0.375	3.94	0.866		0.276	0.217	3	0.3346		102222	142775	
7/16	20	0.437	3.94	0.748		0.315	0.244	3	0.3858		102225	142776	
1/2	20	0.500	3.94	0.945		0.354	0.276	3	0.4488		102219	142777	
9/16	18	0.562	3.94	0.945		0.433	0.354	3	0.5079		102227		
5/8	18	0.625	3.94	1.024		0.472	0.354	3	0.5709		102224	142778	
3/4	16	0.750	4.92	1.299		0.551	0.433	4	0.6890		102221	142779	
7/8	14	0.875	5.51	1.417		0.709	0.571	4	0.8031		102226		
1	12	1.000	6.30	1.535		0.709	0.571	4	0.9173		102220	142780	
1 1/8	12	1.125	7.09	1.535		0.866	0.709	4	1.0433		142773		
1 1/4	12	1.250	7.09	1.535		0.866	0.709	4	1.1693		102218		
1 3/8	12	1.375	7.87	1.417		1.102	0.866	4	1.2913		105137		
1 1/2	12	1.500	7.87	1.614		1.260	0.945	4	1.4173		105138		
* N320-3													

UNF

ANSI B1.1

HSSE



									N360-3	N360V-3	N460-3	N460V-3
N360-3												
N360V-3												
N460-3												
N460V-3												
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		ID	ID	ID	ID
UNF	TPI	inch	inch	inch	inch	inch	inch					
6	40	0.138	2.20	0.256	0.787	0.157	0.118	3	0.1142			
10	32	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1594			
12	28	0.216	3.15	0.433	1.181	0.236	0.193	3	0.1811			
1/4	28	0.250	3.15	0.433	1.181	0.276	0.217	3	0.2165			
5/16	24	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2717			
3/8	24	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3346			
Ø" d ₁	P	d ₁	l ₁	l ₂		d ₂	a		ID	ID	ID	ID
UNF	TPI	inch	inch	inch		inch	inch					
7/16	20	0.437	3.94	0.551		0.315	0.244	3	0.3858		102434	142781
1/2	20	0.500	3.94	0.551		0.354	0.276	3	0.4488		102430	102503
9/16	18	0.562	3.94	0.551		0.433	0.354	3	0.5079		102436	143422
5/8	18	0.625	3.94	0.551		0.472	0.354	3	0.5709		102433	143097
3/4	16	0.750	4.92	0.709		0.551	0.433	4	0.6890		102432	102505
7/8	14	0.875	5.51	0.787		0.709	0.571	4	0.8031		102435	144714
1	12	1.000	6.30	1.063		0.709	0.571	4	0.9173		102431	102504
1 1/8	12	1.125	7.09	0.945		0.866	0.709	4	1.0433		102429	144414
1 1/4	12	1.250	7.09	0.945		0.866	0.709	4	1.1693		102428	151709
1 1/2	12	1.500	7.87	1.181		1.260	0.945	5	1.4173		102427	148793

UNF

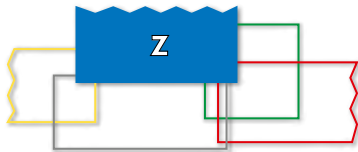
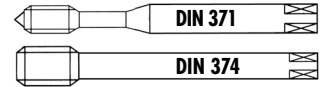
ANSI B1.1

Z .20

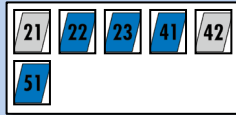
Z .60

PM

HSSE



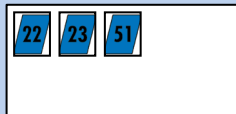
Z320V-4



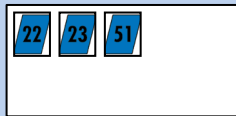
Z420V-4



Z360V-3



Z460V-3

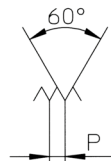
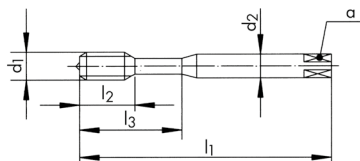


Z320V-4

Z420V-4

Z360V-3

Z460V-3



2B

2B

2B

2B

$\varnothing'' d_1$ UNF	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	d_2 inch	a inch		
10	32	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1594
1/4	28	0.250	3.15	0.669	1.181	0.276	0.217	3	0.2165
5/16	24	0.312	3.54	0.787	1.378	0.315	0.244	3	0.2717
3/8	24	0.375	3.94	0.866	1.535	0.394	0.315	3	0.3346
7/16	20	0.437	3.94	0.748		0.315	0.244	3	0.3858
1/2	20	0.500	3.94	0.945		0.354	0.276	3	0.4488

$\varnothing'' d_1$ UNF	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	d_2 inch	a inch		
10	32	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1594
1/4	28	0.250	3.15	0.433	1.181	0.276	0.217	3	0.2165
5/16	24	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2717
3/8	24	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3346
7/16	20	0.437	3.94	0.551		0.315	0.244	3	0.3858
1/2	20	0.500	3.94	0.551		0.354	0.276	3	0.4488
5/8	18	0.625	3.94	0.551		0.472	0.354	3	0.5709
3/4	16	0.750	4.92	0.709		0.551	0.433	4	0.6890

ID

ID

142783

142784

142785

142786

142787

142788

ID

ID

104680

104679

104682

104681

104741

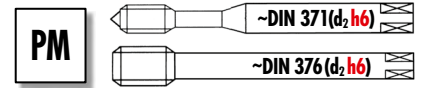
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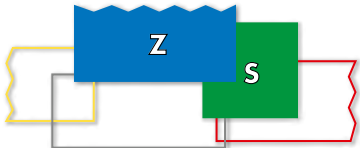
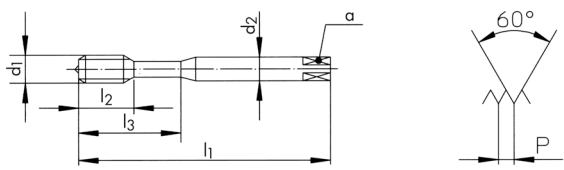
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104739

UNF

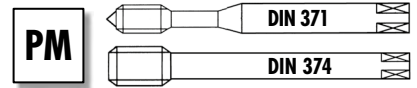
ANSI B1.1

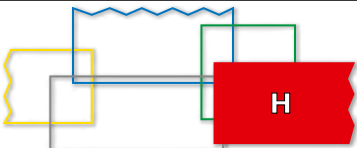
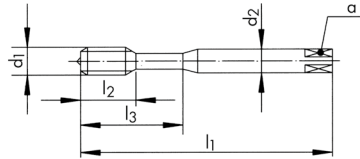
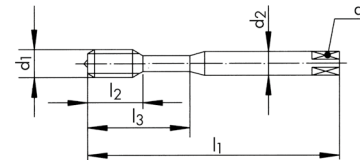


										Z370VS-3	Z470VS-3		
Z370VS-3  VS   													
Z470VS-3  VS   													
 High Performance													
													
													
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂ h ₆	a			ID	ID		
UNF	TPI	inch	inch	inch	inch	inch	inch						
10	32	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1594	166136			
1/4	28	0.250	3.15	0.433	1.181	*0.236	*0.193	3	0.2165	166135			
5/16	24	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2717	166134			
3/8	24	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3346	166133			
7/16	20	0.437	3.94	0.551		0.315	0.244	3	0.3858		166138		
1/2	20	0.500	4.33	0.551		*0.394	*0.315	4	0.4488		166137		
* DC Norm													

UNF

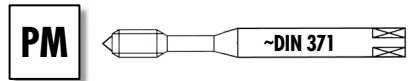
ANSI B1.1



										H320-4	H420-4	H350-3	H450-3
H320-4													
H420-4													
H350-3													
H450-3													
													
													
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	α			ID	ID		
UNF	TPI	inch	inch	inch	inch	inch	inch						
10	32	0.190	2.76	0.591	0.984	0.236	0.193	3	0.1594	101228			
1/4	28	0.250	3.15	0.669	1.181	0.276	0.217	3	0.2165	101227			
5/16	24	0.312	3.54	0.787	1.378	0.315	0.244	3	0.2717	105139			
3/8	24	0.375	3.94	0.866	1.535	0.394	0.315	3	0.3346	101229			
1/2	20	0.500	3.94	0.945		0.354	0.276	4	0.4488		101291		
													
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	α				ID	ID	
UNF	TPI	inch	inch	inch	inch	inch	inch						
10	32	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1594		101265		
1/4	28	0.250	3.15	0.433	1.181	0.276	0.217	3	0.2165		101264		
5/16	24	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2717		101267		
3/8	24	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3346		101266		
7/16	20	0.437	3.94	0.551		0.315	0.244	3	0.3858			101334	
1/2	20	0.500	3.94	0.551		0.354	0.276	4	0.4488			101331	
5/8	18	0.625	3.94	0.551		0.472	0.354	4	0.5709			101333	
3/4	16	0.750	4.92	0.709		0.551	0.433	4	0.6890			101332	

UNF

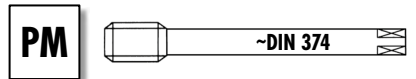
ANSI B1.1

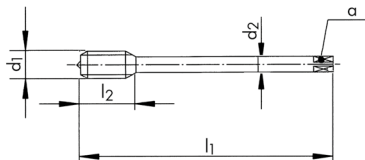
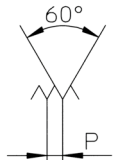


aero										SA320-4	SA350-3	TL351VS-3	
SA320-4  52 53 SA350-3  R15 52 53 TL351VS-3  R15  VS 41 42													
  < 1.5 x D  < 2 x D  < 2 x D													
 3B UNF(J)  3B UNF(J)  3B UNF(J)													
 ID  ID  ID													
 146098  149138  148004													
 146404  149235  148012													
 146393  149282  148016													
 147165  149344  148023													

UNF

ANSI B1.1



aero										SA420-4	SA450-3	TL451VS-3	
SA420-4  52 53													
SA450-3  52 53													
TL451VS-3   VS 41 42													
 										   			
  										  			
$\varnothing$ " d_1	P	d_1	l_1	l_2	d_2	a			ID	ID	ID		
UNF	TPI	inch	inch	inch	inch	inch							
7/16	20	0.437	3.94	0.866	0.315	0.244	* 4	0.3937	147187	152302	148031		
1/2	20	0.500	3.94	0.945	0.354	0.276	4	0.4547	147189	152303	152310		
9/16	18	0.562	3.94	0.945	0.433	0.354	4	0.5138	146395				
5/8	18	0.625	3.94	1.024	0.472	0.354	4	0.5748	147169				
* SA420-4 = 													

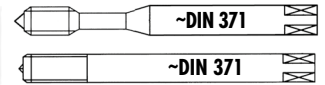
UNJF

ASME B1.15

UNF

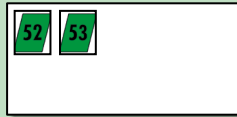
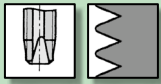
ANSI B1.1

PM



aero

SA320-4

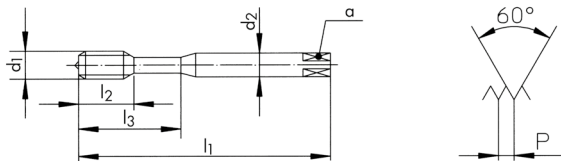


SA390-3



SA320-4

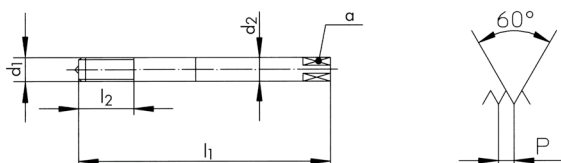
SA390-3



$\varnothing'' d_1$ UNJF	P TPI	d_1 inch	l_1 inch	l_2 inch	l_3 inch	d_2 inch	a inch		$\frac{UNJF}{\leftarrow \rightarrow}$
10	32	0.190	2.76	0.591		0.236	0.193	3	0.1634
1/4	28	0.250	3.15	0.591	0.906	0.276	0.217	3	0.2185
5/16	24	0.312	3.54	0.709	1.142	0.315	0.244	3	0.2756
3/8	24	0.375	3.94	0.787	1.299	0.394	0.315	3	0.3386

ID

174976
175993
175995
175997



$\varnothing'' d_1$ UNF	P TPI	d_1 inch	l_1 inch	l_2 inch	d_2 inch	a inch		$\frac{UNF}{\leftarrow \rightarrow}$
10	32	0.190	2.76	0.591	0.236	0.193	3	0.1634
1/4	28	0.250	3.15	0.787	0.276	0.217	3	0.2185
5/16	24	0.312	3.54	0.984	0.315	0.244	3	0.2756
3/8	24	0.375	3.94	1.181	0.394	0.315	3	0.3386

ID

149687
149715
149728
149745

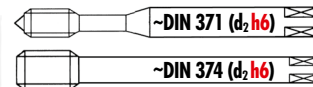
UNF

ANSI B1.1



Only for rigid tapping

PM



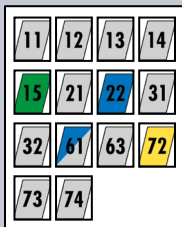
RTS

Rigid Tapping Synchro

RTS320VS-4



VS



RTS420VS-4



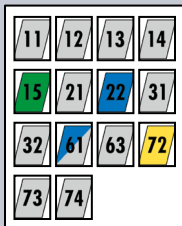
VS



RTS362VS-3



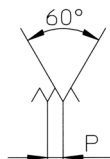
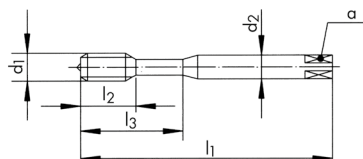
VS



RTS462VS-3



VS



RTS320VS-4



RTS420VS-4



RTS362VS-3



RTS462VS-3



$\varnothing'' d_1$	P	d_1	l_1	l_2	l_3	$d_2 h6$	α		
UNF	TPI	inch	inch	inch	inch	inch	inch		
10	32	0.190	2.76	0.354	0.984	0.236	0.193	3	0.1594
1/4	28	0.250	3.15	0.433	1.181	*0.236	*0.193	3	0.2165
5/16	24	0.312	3.54	0.492	1.378	0.315	0.244	3	0.2717
3/8	24	0.375	3.94	0.551	1.535	0.394	0.315	3	0.3346
1/2	20	0.500	4.33	0.551		*0.394	*0.315	3	0.4488

* DC Norm

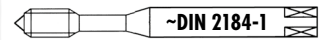


on request

UNF

ANSI B1.1

PM



FS FPS
FAS

FORMING

FS380VS-5



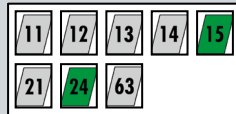
VS



FPS381VS-3



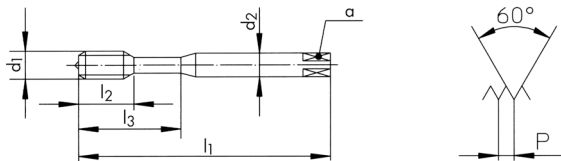
VS



FAS381VS-3



VS



FS380VS-5



FPS381VS-3



FAS381VS-3



$\varnothing'' d_1$	P	d_1	l_1	l_2	l_3	d_2	α	Tol.
UNF	TPI	inch	inch	inch	inch	inch	inch	
0	80	0.060	1.57	0.181		0.098		0.0539 +0.0008
10	32	0.190	2.76	0.591	0.984	0.236	0.193	0.1752 +0.0012
1/4	28	0.250	3.15	0.669	1.181	0.276	0.217	0.2343 +0.0020
5/16	24	0.312	3.54	0.787	1.378	0.315	0.244	0.2933 +0.0020

ID

161498

ID

166718

166719

166720

ID

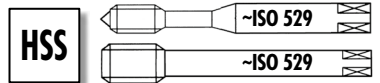
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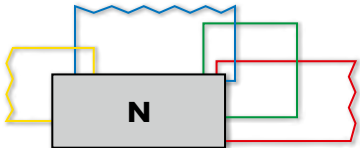
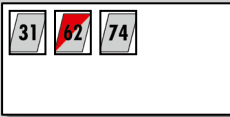
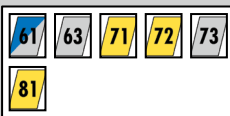
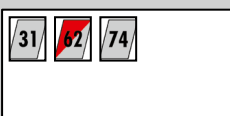
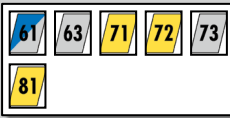
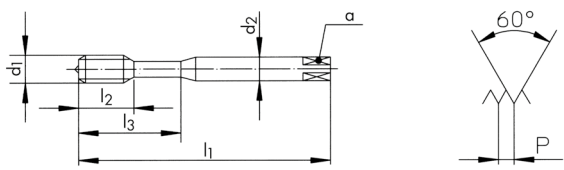
166731

166732

UNEF

ANSI B1.1

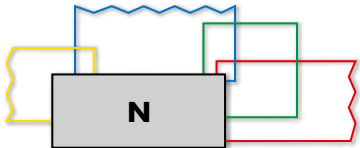
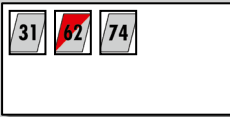
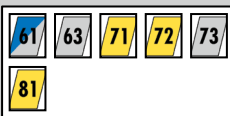
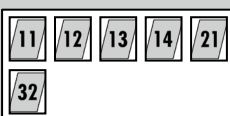
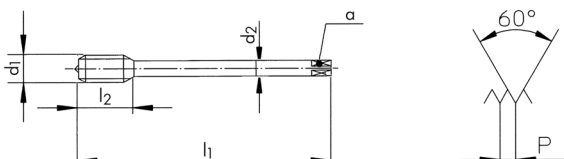


										N1110-3	N1120-4	N1210-3	N1220-4
N1110-3  													
N1120-4  													
N1210-3  													
N1220-4  													
													
													
Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a			ID	ID	ID	ID
UNEF	TPI	inch	inch	inch	inch	inch	inch						
12	32	0.216	2.44	0.669	1.024	0.220	0.177	3	0.1850	103007	103118		
1/4	32	0.250	2.60	0.748	1.181	0.248	0.197	3	0.2205	103006	103117		
5/16	32	0.312	2.83	0.866	1.378	0.315	0.248	3	0.2835	103009	103120		
3/8	32	0.375	3.15	0.945	1.535	0.394	0.315	3	0.3445	103008	103119		
7/16	28	0.437	3.35	0.866		0.315	0.248	3	0.4035			103615	103754
1/2	28	0.500	3.50	0.945		0.354	0.280	3	0.4665			103609	103749
9/16	24	0.562	3.74	0.945		0.441	0.354	3	0.5197			103617	103756
5/8	24	0.625	4.02	1.260		0.492	0.394	3	0.5827			103614	103753
11/16	24	0.687	4.09	1.024		0.551	0.441	4	0.6457			103611	
3/4	20	0.750	4.41	1.299		0.551	0.441	4	0.7008			103613	
7/8	20	0.875	4.53	1.260		0.630	0.492	4	0.8268			103616	
1	20	1.000	4.72	1.181		0.709	0.551	4	0.9488			103610	

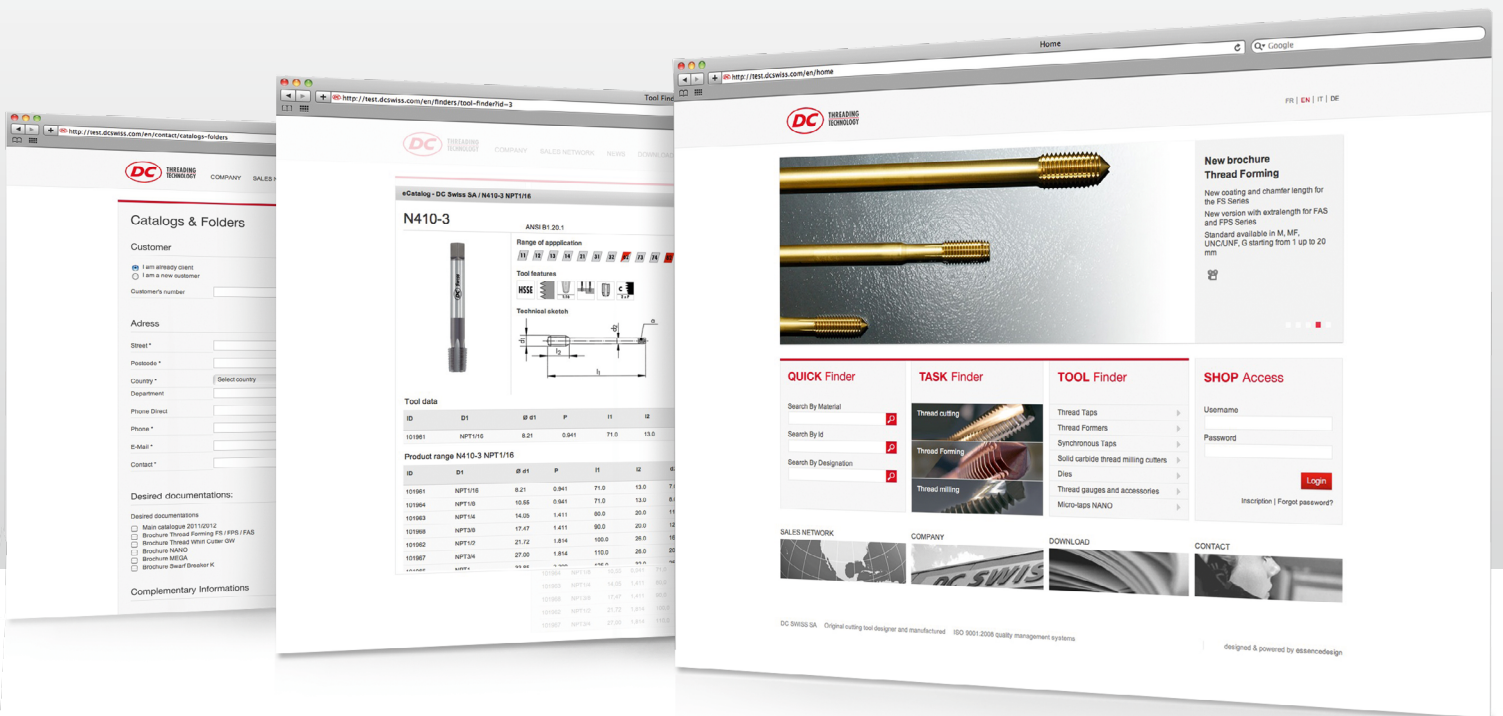
UNS, UN ANSI B1.1

HSSE

DIN 374

									N410-3	N460-3	N460V-3	
												
N410-3  												
N460-3  												
N460V-3  												
												
												
												
Ø" d ₁	P	d ₁	l ₁	l ₂	d ₂	a			ID	ID	ID	
UNS	TPI	inch	inch	inch	inch	inch						
1/4	36	0.250	3.15	0.669	0.177	0.134	3	0.2224	104899			
1/2	24	0.500	3.94	0.945	0.354	0.276	3	0.4567	104900			
1	14	1.000	5.51	1.339	0.709	0.571	4	0.9291	104898			
1	14	1.000	5.51	0.866	0.709	0.571	4	0.9291		102437	142789	
Ø" d ₁	P	d ₁	l ₁	l ₂	d ₂	a			ID	ID	ID	
UN	TPI	inch	inch	inch	inch	inch						
1 1/8	8	1.125	7.09	1.181	0.866	0.709	4	1.0039		102415	142790	
1 1/4	8	1.250	7.09	1.181	0.866	0.709	4	1.1299		102414	142520	
1 3/8	8	1.375	7.87	1.417	1.102	0.866	5	1.2520		104896	142792	
1 1/2	8	1.500	7.87	1.575	1.260	0.945	5	1.3780		102413	142793	
1 3/4	8	1.750	8.66	1.732	1.417	1.142	5	1.6299			115198	
2	8	2.000	9.84	1.496	1.575	1.260	5	1.8780			111622	

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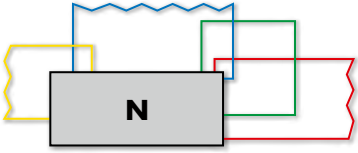
M

ISO DIN 13

≤ Ø 2.8 > Ø 2.8

PM **HSSE**



										N320-4	N320V-4	N320TN-4	
N320-4  6163717273 81 N320V-4  V 1112131421 32 N320TN-4  TiN 1112131421 31327374													
  										 4 x P	 4 x P	 4 x P	
 ISO 2 6H										 ISO 2 6H	 ISO 2 6H		
 ID										 ID	 ID		
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ISO DIN 13

HSSE



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

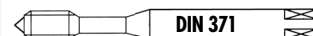
M

ISO DIN 13

≤ Ø 2.8 > Ø 2.8

PM

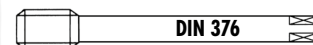
HSSE

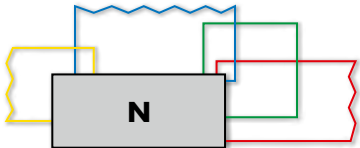
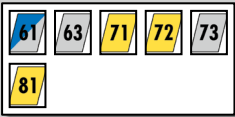
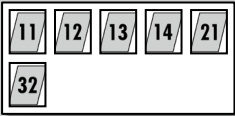
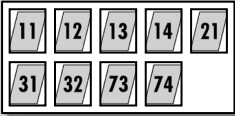
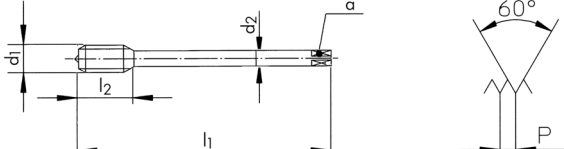


									N360-3	N360V-3	N360TN-3	
N360-3												
N360V-3												
N360TN-3												
$\varnothing d_1$	P	l_1	l_2	l_3	d_2	a			ID	ID	ID	
M	mm	mm	mm	mm	mm	mm						
2	0.40	45	7.0		2.8	2.1	2	1.60	101618	101708	101697	
2.2	0.45	45	8.0		2.8	2.1	2	1.75	101619			
2.3	0.40	45	8.0		2.8	2.1	2	1.90	101620			
2.5	0.45	50	9.0		2.8	2.1	2	2.05	101622	101709	101698	
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	
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	
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	
6	1.00	80	11.0	30	6.0	4.9	3	5.00	101652	101717	101703	
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	
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	

M ISO DIN 13

HSSE



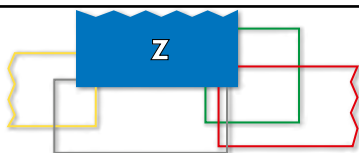
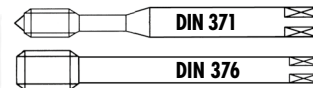
								N460-3	N460V-3	N460TN-3	
N460-3  											
N460V-3   											
N460TN-3   											
								 < 2.5 x D	 < 2.5 x D	 < 2.5 x D	
								 2.5 x P	 2.5 x P	 2.5 x P	
								 ISO 2 6H	 ISO 2 6H	 ISO 2 6H	
											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
5	0.80	70	9.0	3.5	2.7	3	4.20	102410	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	
12	1.75	110	14.0	9.0	7.0	3	10.20	102359	102465	102449	
14	2.00	110	14.0	11.0	9.0	3	12.00	102369	102468	102451	
16	2.00	110	18.0	12.0	9.0	3	14.00	102376	102471	102453	
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	
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	
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		

M ISO DIN 13

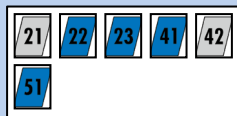
≤ Ø 25.4 > Ø 25.4

PM

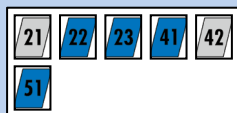
HSSE



Z320V-4



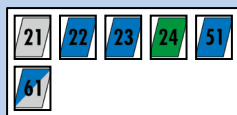
Z420V-4



Z320VS-4



Z420VS-4



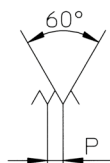
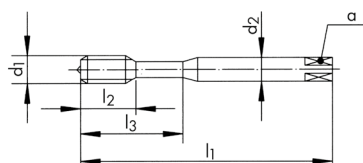
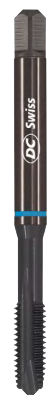
High Performance

Z320V-4

Z420V-4

Z320VS-4

Z420VS-4



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
*1.6	0.35	40	8.0		2.5	2.1	2	1.25
*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
2.6	0.45	50	10.0		2.8	2.1	3	2.15
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	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	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	4	15.50
20	2.50	140	36.0		16.0	12.0	4	17.50
22	2.50	140	36.0		18.0	14.5	4	19.50
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

* Z320V-3



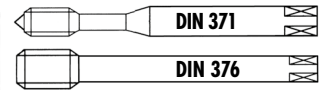
ID	ID	ID	ID
142671			
111613			
111455		143683	
142672			
104669		104830	
104670		104831	
104671		104832	
104672		104833	
104673		104834	
104668		104835	
	104723		104836
	142673		143684
	105068		111569
	142674		
	105069		111570
	146003		
	142675		
	142676		

M

ISO DIN 13

≤ Ø 2.8 > Ø 2.8

PM **HSSE**



									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	

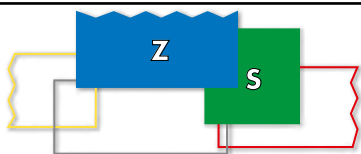
M

ISO DIN 13

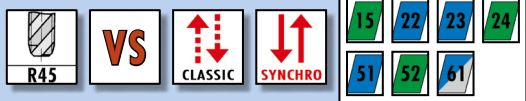
PM

~DIN 371 (d₂ h6)

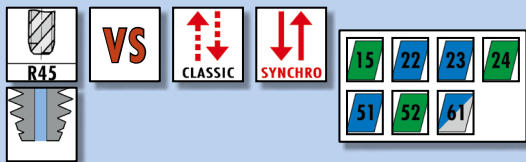
~DIN 376 (d₂ h6)



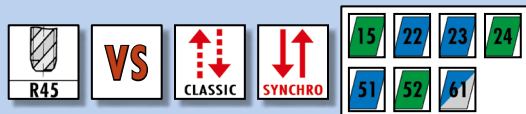
Z370VS-3



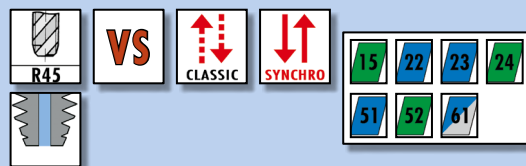
Z373VS-3



Z470VS-3



Z473VS-3



Z370VS-3



Z373VS-3



Z470VS-3



Z473VS-3



PM

HP



PM

HP



PM

HP



PM

HP



6HX



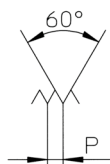
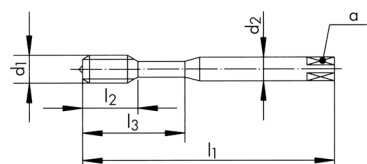
6HX



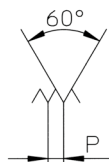
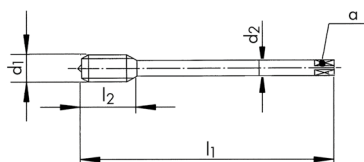
6HX



6HX



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



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm		
12	1.75	110	14.0	*10.0	*8.0	4	10.20
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
24	3.00	160	27.0	16.0	12.0	4	21.00

* DC Norm

ID	ID
162776	165236
162777	165237
162778	165238
162779	165239
162780	165240
162781	165241
162782	165242
162784	165244
170643	
162785	165234
162786	165235

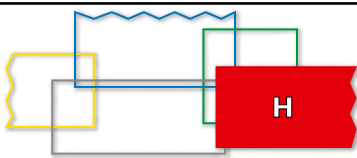
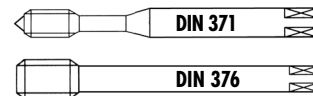
M

ISO DIN 13

≤ Ø 25.4 > Ø 25.4

PM

HSSE



H320-4

H320TC-4

H420-4

H420TC-4

H320-4



H320TC-4



TiCN



H420-4



H420TC-4

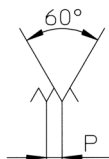
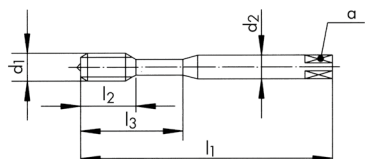


TiCN



HP

HP



ISO 2
6H

ISO 2
6H

ISO 2
6H

ISO 2
6H

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

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

ID

ID

101206

151836

111801

101207

148603

101209

111836

101210

101211

111502

101212

101213

111458

101215

111456

101218

111453

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ID

101275

110912

101277

101279

111612

101281

101284

101286

101287

101288

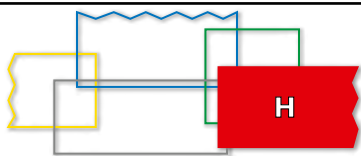
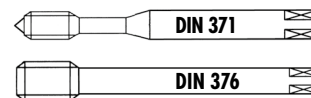
101289

M ISO DIN 13

≤ Ø 25.4 > Ø 25.4

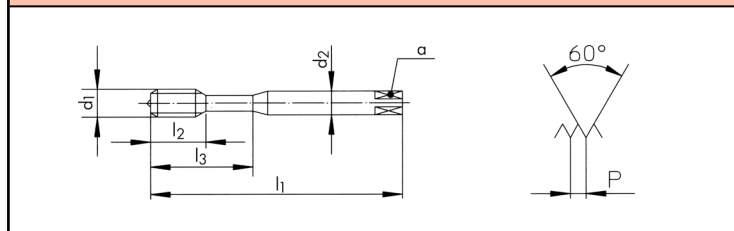
PM

HSSE



H350-3		
H350TC-3	 	
H450-3		
H450TC-3	 	

H350-3	H350TC-3	H450-3	H450TC-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	7.0		2.8	2.1	2	1.60
2.5	0.45	50	9.0		2.8	2.1	3	2.05
3	0.50	56	5.5	18	3.5	2.7	3	2.50
3.5	0.60	56	6.5	20	4.0	3.0	3	2.90
4	0.70	63	7.5	21	4.5	3.4	3	3.30
4.5	0.75	70	9.0	25	6.0	4.9	3	3.75
5	0.80	70	9.0	25	6.0	4.9	3	4.20
6	1.00	80	11.0	30	6.0	4.9	3	5.00
8	1.25	90	12.5	35	8.0	6.2	3	6.80
10	1.50	100	14.0	39	10.0	8.0	3	8.50

ID	ID
101238	146451
101239	144957
101242	111835
101243	
101245	111607
101246	
101248	111610
101251	111500
101255	110963
101237	111454

Ø 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	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
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
	101305
	101307
	101309
	101311
	101313
	101318
	101320
	101323
	101324
	101325

M ISO DIN 13

PM



aero

SA320-4



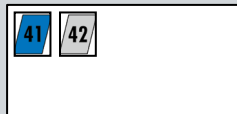
SA350-3



TL320VS-4



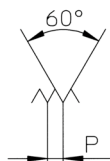
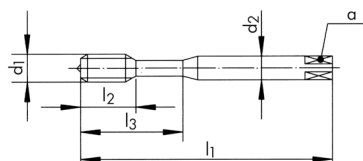
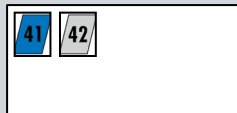
VS



TL351VS-3



VS



SA320-4

SA350-3

TL320VS-4

TL351VS-3



6HX

6HX

6HX

6HX

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

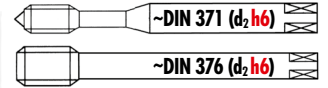
148027

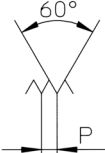
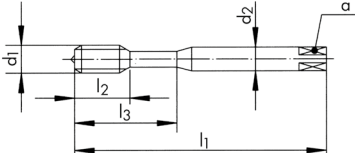
148025

M ISO DIN 13



Only for rigid tapping



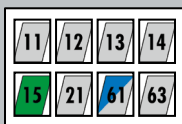
RTS Rigid Tapping Synchro										RTS320VS-4	RTS420VS-4	RTS362VS-3	RTS462VS-3																																																																																																																																																	
RTS320VS-4  <table><tr><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>15</td><td>21</td><td>22</td><td>31</td></tr><tr><td>32</td><td>61</td><td>63</td><td>72</td></tr><tr><td>73</td><td>74</td><td></td><td></td></tr></table>										11	12	13	14	15	21	22	31	32	61	63	72	73	74																																																																																																																																							
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RTS420VS-4  <table><tr><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>15</td><td>21</td><td>22</td><td>31</td></tr><tr><td>32</td><td>61</td><td>63</td><td>72</td></tr><tr><td>73</td><td>74</td><td></td><td></td></tr></table>										11	12	13	14	15	21	22	31	32	61	63	72	73	74																																																																																																																																							
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73	74																																																																																																																																																													
RTS362VS-3  <table><tr><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>15</td><td>21</td><td>22</td><td>31</td></tr><tr><td>32</td><td>61</td><td>63</td><td>72</td></tr><tr><td>73</td><td>74</td><td></td><td></td></tr></table>										11	12	13	14	15	21	22	31	32	61	63	72	73	74																																																																																																																																							
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73	74																																																																																																																																																													
RTS462VS-3  <table><tr><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>15</td><td>21</td><td>22</td><td>31</td></tr><tr><td>32</td><td>61</td><td>63</td><td>72</td></tr><tr><td>73</td><td>74</td><td></td><td></td></tr></table>										11	12	13	14	15	21	22	31	32	61	63	72	73	74																																																																																																																																							
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<table><tr><th>Ø d₁ M</th><th>P mm</th><th>l₁ mm</th><th>l₂ mm</th><th>l₃ mm</th><th>d₂ h₆ mm</th><th>a mm</th><th></th><th></th><th>ID</th><th>ID</th></tr><tr><td>*2</td><td>0.40</td><td>45</td><td>8.0</td><td></td><td>2.8 (h9)</td><td>2.1</td><td>2</td><td>1.60</td><td>143532</td><td></td></tr><tr><td>2.5</td><td>0.45</td><td>50</td><td>10.0</td><td></td><td>2.8 (h9)</td><td>2.1</td><td>3</td><td>2.05</td><td>143534</td><td></td></tr><tr><td>3</td><td>0.50</td><td>56</td><td>5.5</td><td>18</td><td>3.5 (h9)</td><td>2.7</td><td>3</td><td>2.50</td><td>150601</td><td></td></tr><tr><td>4</td><td>0.70</td><td>63</td><td>7.5</td><td>21</td><td>4.5 (h9)</td><td>3.4</td><td>3</td><td>3.30</td><td>150603</td><td></td></tr><tr><td>5</td><td>0.80</td><td>70</td><td>9.0</td><td>25</td><td>6.0</td><td>4.9</td><td>3</td><td>4.20</td><td>150605</td><td></td></tr><tr><td>6</td><td>1.00</td><td>80</td><td>11.0</td><td>30</td><td>6.0</td><td>4.9</td><td>3</td><td>5.00</td><td>150610</td><td></td></tr><tr><td>8</td><td>1.25</td><td>90</td><td>12.5</td><td>35</td><td>8.0</td><td>6.2</td><td>3</td><td>6.80</td><td>150620</td><td></td></tr><tr><td>10</td><td>1.50</td><td>100</td><td>14.0</td><td>39</td><td>10.0</td><td>8.0</td><td>3</td><td>8.50</td><td>150635</td><td></td></tr><tr><td>12</td><td>1.75</td><td>110</td><td>14.0</td><td></td><td>*10.0</td><td>*8.0</td><td>3</td><td>10.20</td><td></td><td>151863</td></tr><tr><td>16</td><td>2.00</td><td>110</td><td>18.0</td><td></td><td>12.0</td><td>9.0</td><td>3</td><td>14.00</td><td></td><td>150670</td></tr><tr><td colspan="10">* RTS320VS-3</td><td colspan="2">* DC Norm</td><td colspan="2"></td><td colspan="2"></td></tr></table>										Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm			ID	ID	*2	0.40	45	8.0		2.8 (h9)	2.1	2	1.60	143532		2.5	0.45	50	10.0		2.8 (h9)	2.1	3	2.05	143534		3	0.50	56	5.5	18	3.5 (h9)	2.7	3	2.50	150601		4	0.70	63	7.5	21	4.5 (h9)	3.4	3	3.30	150603		5	0.80	70	9.0	25	6.0	4.9	3	4.20	150605		6	1.00	80	11.0	30	6.0	4.9	3	5.00	150610		8	1.25	90	12.5	35	8.0	6.2	3	6.80	150620		10	1.50	100	14.0	39	10.0	8.0	3	8.50	150635		12	1.75	110	14.0		*10.0	*8.0	3	10.20		151863	16	2.00	110	18.0		12.0	9.0	3	14.00		150670	* RTS320VS-3										* DC Norm																	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm			ID	ID																																																																																																																																																				
*2	0.40	45	8.0		2.8 (h9)	2.1	2	1.60	143532																																																																																																																																																					
2.5	0.45	50	10.0		2.8 (h9)	2.1	3	2.05	143534																																																																																																																																																					
3	0.50	56	5.5	18	3.5 (h9)	2.7	3	2.50	150601																																																																																																																																																					
4	0.70	63	7.5	21	4.5 (h9)	3.4	3	3.30	150603																																																																																																																																																					
5	0.80	70	9.0	25	6.0	4.9	3	4.20	150605																																																																																																																																																					
6	1.00	80	11.0	30	6.0	4.9	3	5.00	150610																																																																																																																																																					
8	1.25	90	12.5	35	8.0	6.2	3	6.80	150620																																																																																																																																																					
10	1.50	100	14.0	39	10.0	8.0	3	8.50	150635																																																																																																																																																					
12	1.75	110	14.0		*10.0	*8.0	3	10.20		151863																																																																																																																																																				
16	2.00	110	18.0		12.0	9.0	3	14.00		150670																																																																																																																																																				
* RTS320VS-3										* DC Norm																																																																																																																																																				
<table><tr><th>Ø d₁ M</th><th>P mm</th><th>l₁ mm</th><th>l₂ mm</th><th>l₃ mm</th><th>d₂ h₆ mm</th><th>a mm</th><th></th><th></th><th>ID</th><th>ID</th></tr><tr><td>*2</td><td>0.40</td><td>45</td><td>7.0</td><td></td><td>2.8 (h9)</td><td>2.1</td><td>3</td><td>1.60</td><td>143536</td><td></td></tr><tr><td>*2.5</td><td>0.45</td><td>50</td><td>9.0</td><td></td><td>2.8 (h9)</td><td>2.1</td><td>3</td><td>2.05</td><td>143538</td><td></td></tr><tr><td>3</td><td>0.50</td><td>56</td><td>5.5</td><td>18</td><td>3.5 (h9)</td><td>2.7</td><td>3</td><td>2.50</td><td>150602</td><td></td></tr><tr><td>4</td><td>0.70</td><td>63</td><td>7.5</td><td>21</td><td>4.5 (h9)</td><td>3.4</td><td>3</td><td>3.30</td><td>150604</td><td></td></tr><tr><td>5</td><td>0.80</td><td>70</td><td>9.0</td><td>25</td><td>6.0</td><td>4.9</td><td>3</td><td>4.20</td><td>150607</td><td></td></tr><tr><td>6</td><td>1.00</td><td>80</td><td>11.0</td><td>30</td><td>6.0</td><td>4.9</td><td>3</td><td>5.00</td><td>150612</td><td></td></tr><tr><td>8</td><td>1.25</td><td>90</td><td>12.5</td><td>35</td><td>8.0</td><td>6.2</td><td>3</td><td>6.80</td><td>150622</td><td></td></tr><tr><td>10</td><td>1.50</td><td>100</td><td>14.0</td><td>39</td><td>10.0</td><td>8.0</td><td>3</td><td>8.50</td><td>150637</td><td></td></tr><tr><td>12</td><td>1.75</td><td>110</td><td>14.0</td><td></td><td>*10.0</td><td>*8.0</td><td>3</td><td>10.20</td><td></td><td>151865</td></tr><tr><td>16</td><td>2.00</td><td>110</td><td>18.0</td><td></td><td>12.0</td><td>9.0</td><td>3</td><td>14.00</td><td></td><td>150672</td></tr><tr><td colspan="10">* RTS360VS-3</td><td colspan="2">* DC Norm</td><td colspan="2"></td><td colspan="2"></td></tr></table>										Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm			ID	ID	*2	0.40	45	7.0		2.8 (h9)	2.1	3	1.60	143536		*2.5	0.45	50	9.0		2.8 (h9)	2.1	3	2.05	143538		3	0.50	56	5.5	18	3.5 (h9)	2.7	3	2.50	150602		4	0.70	63	7.5	21	4.5 (h9)	3.4	3	3.30	150604		5	0.80	70	9.0	25	6.0	4.9	3	4.20	150607		6	1.00	80	11.0	30	6.0	4.9	3	5.00	150612		8	1.25	90	12.5	35	8.0	6.2	3	6.80	150622		10	1.50	100	14.0	39	10.0	8.0	3	8.50	150637		12	1.75	110	14.0		*10.0	*8.0	3	10.20		151865	16	2.00	110	18.0		12.0	9.0	3	14.00		150672	* RTS360VS-3										* DC Norm																	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm			ID	ID																																																																																																																																																				
*2	0.40	45	7.0		2.8 (h9)	2.1	3	1.60	143536																																																																																																																																																					
*2.5	0.45	50	9.0		2.8 (h9)	2.1	3	2.05	143538																																																																																																																																																					
3	0.50	56	5.5	18	3.5 (h9)	2.7	3	2.50	150602																																																																																																																																																					
4	0.70	63	7.5	21	4.5 (h9)	3.4	3	3.30	150604																																																																																																																																																					
5	0.80	70	9.0	25	6.0	4.9	3	4.20	150607																																																																																																																																																					
6	1.00	80	11.0	30	6.0	4.9	3	5.00	150612																																																																																																																																																					
8	1.25	90	12.5	35	8.0	6.2	3	6.80	150622																																																																																																																																																					
10	1.50	100	14.0	39	10.0	8.0	3	8.50	150637																																																																																																																																																					
12	1.75	110	14.0		*10.0	*8.0	3	10.20		151865																																																																																																																																																				
16	2.00	110	18.0		12.0	9.0	3	14.00		150672																																																																																																																																																				
* RTS360VS-3										* DC Norm																																																																																																																																																				

FS FORMING

FS380VS-3

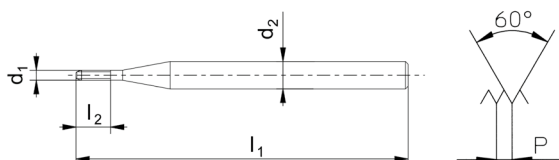


VS



FS380VS-3

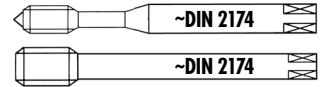
FS380VS-3



$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		Tol.	ID	ID
1	0.25	40	3.0	2.5		0.88	+ 0.02	173452	
1.2	0.25	40	3.6	2.5		1.08	+ 0.02	173455	
1.4	0.30	40	4.2	2.5		1.25	+ 0.02	173458	
1.6	0.35	40	4.8	2.5		1.45	+ 0.02	169779	
1.7	0.35	40	5.1	2.5		1.55	+ 0.02	169782	
1.8	0.35	40	5.4	2.5		1.65	+ 0.02	169785	
2	0.40	45	8.0	2.8	2.1	1.80	+ 0.02		157176
2.5	0.45	50	10.0	2.8	2.1	2.30	+ 0.02		157178
2.6	0.45	50	10.0	2.8	2.1	2.40	+ 0.02		157179

M ISO DIN 13

PM

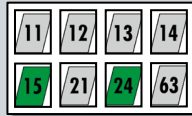


FPS FORMING

FPS381VS-3



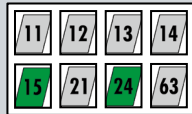
VS



FPS481VS-3

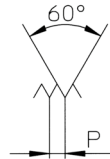
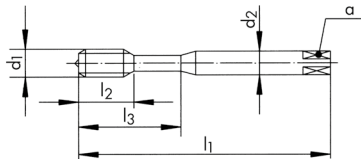


VS



FPS381VS-3

FPS481VS-3



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

166616

166622

166629

166637

166646

166656

166666

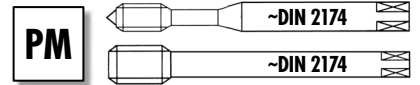
166673

166678

166683

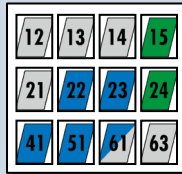
168713

M ISO DIN 13

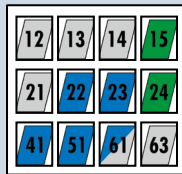


FAS FORMING

FAS381VS-3



FAS481VS-3



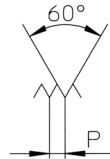
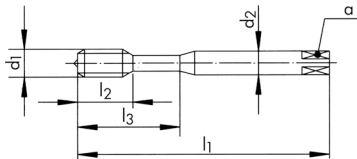
FAS381VS-3

FAS481VS-3



6HX

6HX



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

166612

166618

166624

166632

166641

166651

166661

166671

166676

166681

168711

MF

ISO DIN 13

HSSE



								N420-4	N420V-4	N420TN-4	
N420-4 N420V-4 N420TN-4											
$\varnothing d_1$	P	l_1	l_2	d_2	a			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	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	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	102178	142717		
6	0.75	80	17.0	4.5	3.4	3	5.25	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	102188			
8	0.50	90	20.0	6.0	4.9	3	7.50	102190	142718		
8	0.75	90	20.0	6.0	4.9	3	7.25	102191	102283		
8	1.00	90	20.0	6.0	4.9	3	7.00	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	102056			
10	1.00	100	22.0	7.0	5.5	3	9.00	102057	102262	102239	
10	1.25	100	22.0	7.0	5.5	3	8.80	102058	142719		

MF

ISO DIN 13

HSSE



								N420-4	N420V-4	N420TN-4	
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	
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	102067	142345	102241	
12	1.25	100	24.0	9.0	7.0	3	10.80	102068	142721		
12	1.50	100	24.0	9.0	7.0	3	10.50	102069	102264	102242	
13	1.00	100	21.0	11.0	9.0	3	12.00	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	102077			
14	1.25	100	24.0	11.0	9.0	3	12.80	102078			
14	1.50	100	24.0	11.0	9.0	3	12.50	102079	102266	102244	
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	102087			
16	1.25	100	26.0	12.0	9.0	3	14.80	102088			
16	1.50	100	26.0	12.0	9.0	3	14.50	102089	102268	102246	
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	102095			
18	1.50	110	26.0	14.0	11.0	4	16.50	102096	102270		
18	2.00	125	33.0	14.0	11.0	3	16.00	142712			

MF

ISO DIN 13

HSSE

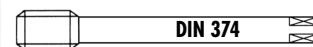


								N420-4	N420V-4		
N420-4 N420V-4											
Ø d ₁	P	l ₁	l ₂	d ₂	a			ID	ID		
MF	mm	mm	mm	mm	mm						
20	1.00	125	28.0	16.0	12.0	4	19.00	102098			
20	1.50	125	28.0	16.0	12.0	4	18.50	102099	102272		
20	2.00	140	36.0	16.0	12.0	3	18.00	102100			
22	1.00	125	28.0	18.0	14.5	4	21.00	102104			
22	1.50	125	28.0	18.0	14.5	4	20.50	102105	102274		
22	2.00	140	36.0	18.0	14.5	3	20.00	142714			
24	1.00	140	30.0	18.0	14.5	4	23.00	102107			
24	1.50	140	30.0	18.0	14.5	4	22.50	102108	102276		
24	2.00	140	34.0	18.0	14.5	4	22.00	102109	102277		
25	1.00	140	30.0	18.0	14.5	4	24.00	142722			
25	1.50	140	30.0	18.0	14.5	4	23.50	102112			
25	2.00	140	34.0	18.0	14.5	4	23.00	142723			
26	1.00	140	30.0	18.0	14.5	4	25.00	102113			
26	1.50	140	30.0	18.0	14.5	4	24.50	102114	145896		
27	1.50	140	34.0	20.0	16.0	4	25.50	102115			
27	2.00	140	34.0	20.0	16.0	4	25.00	102116			
28	1.00	140	30.0	20.0	16.0	4	27.00	142725			
28	1.50	140	30.0	20.0	16.0	4	26.50	102118			

MF

ISO DIN 13

HSSE



								N420-4	N420V-4	N420-3	
N420-4 6163717273 81 N420V-4 V 1112131421 32 N420-3 6163717273 81											
								B 4 x P	B 4 x P	2.5 x P	
								ISO 2 6H	ISO 2 6H	ISO 3 7H	
Ø d₁ MF	P mm	l₁ mm	l₂ mm	d₂ mm	a mm			ID	ID	ID	
30	1.00	150	32.0	22.0	18.0	4	29.00	102121			
30	1.50	150	32.0	22.0	18.0	4	28.50	102122	143978		
30	2.00	150	32.0	22.0	18.0	4	28.00	102123	143766		
32	1.50	150	32.0	22.0	18.0	4	30.50	102126		143812	
32	2.00	150	32.0	22.0	18.0	4	30.00	102127			
33	1.50	160	32.0	25.0	20.0	4	31.50	102128			
33	2.00	160	32.0	25.0	20.0	4	31.00	102129			
35	1.50	170	32.0	28.0	22.0	4	33.50	102132			
36	1.50	170	34.0	28.0	22.0	4	34.50	102134			
36	2.00	170	34.0	28.0	22.0	4	34.00	102135			
36	3.00	200	45.0	28.0	22.0	4	33.00	102136			
38	1.50	170	34.0	28.0	22.0	4	36.50	102139			

MF

ISO DIN 13

HSSE

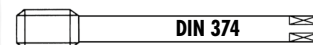


									N360-3	N360V-3	N360TN-3	
N360-3												
N360V-3												
N360TN-3												
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
4	0.50	63	7.5	21	4.5	3.4	3	3.50	101632	101712	111618	
5	0.50	70	9.0	25	6.0	4.9	3	4.50	101641	101714	111617	
6	0.50	80	11.0	30	6.0	4.9	3	5.50	101648	143990		
6	0.75	80	11.0	30	6.0	4.9	3	5.25	101650	101716	101702	
8	0.75	90	12.5	35	8.0	6.2	3	7.25	101658	101719		
8	1.00	90	12.5	35	8.0	6.2	3	7.00	101660	101720	101704	
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	
10	1.25	100	14.0	39	10.0	8.0	3	8.80	101609	105134	110965	

MF

ISO DIN 13

HSSE

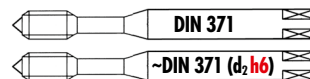


								N460-3	N460V-3		
N460-3 											
N460V-3 											
Ø d ₁	P	l ₁	l ₂	d ₂	a			ID	ID		
MF	mm	mm	mm	mm	mm						
12	1.00	100	14.0	9.0	7.0	3	11.00	102353	102462		
12	1.25	100	14.0	9.0	7.0	3	10.80	102354	102463		
12	1.50	100	14.0	9.0	7.0	3	10.50	102356	102464		
14	1.50	100	14.0	11.0	9.0	3	12.50	102367	102467		
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		
18	1.00	110	18.0	14.0	11.0	4	17.00	102380	143926		
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		
28	1.50	140	22.0	20.0	16.0	4	26.50	102403	144997		
30	1.50	150	24.0	22.0	18.0	4	28.50	102404	142524		
30	2.00	150	24.0	22.0	18.0	4	28.00	102405	142581		
36	2.00	170	28.0	28.0	22.0	5	34.00	175436	164870		
36	3.00	200	36.0	28.0	22.0	4	33.00	115072	150453		
42	3.00	200	40.0	32.0	24.0	5	39.00	174996	150436		

Z360

PM

HSSE

52

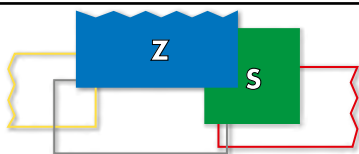
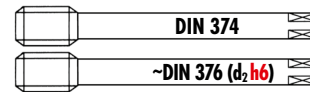
MF ISO DIN 13

Z420

PM

Z460

HSSE



Z420V-4



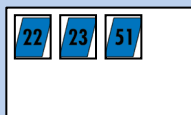
V



Z460V-3



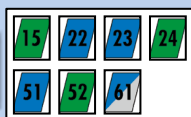
V



Z470VS-3



VS



HP

High Performance

Z420V-4

Z460V-3

Z470VS-3



PM

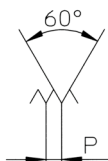
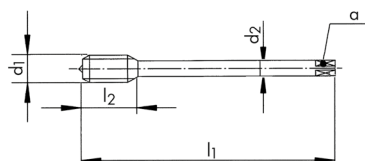
HP



ISO 2
6H

ISO 2
6H

6HX



$\varnothing d_1$ 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

ID

142729
142730
142731
142732

$\varnothing d_1$ 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

ID

104729
104730
104731
104732
104733
104734
104735
104736
104737

$\varnothing d_1$ 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

ID

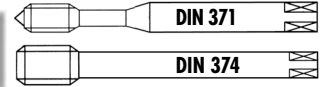
166120
166121
166122

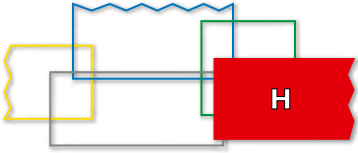
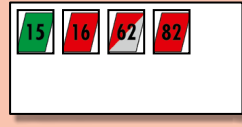
* DC Norm

MF

ISO DIN 13

PM



										H320-4	H420-4	H350-3	H450-3
H320-4   H420-4   H350-3  R25  H450-3  R25     													
   < 1.5 x D  < 1.5 x D													
 B 4 x P  B 4 x P  C 2.5 x P  C 2.5 x P													
 ISO 2 6H  ISO 2 6H  ISO 2 6H  ISO 2 6H													
$\varnothing d_1$ MF P mm l_1 mm l_2 mm l_3 mm d_2 mm a mm   ID ID													
60.758017.0306.04.935.25 80.759020.0358.06.237.25 81.009020.0358.06.237.00 101.0010022.03910.08.039.00 121.2510024.09.07.0410.80 121.5010024.09.07.0410.50 161.5010026.012.09.0414.50 201.5012528.016.012.0418.50 242.0014034.018.014.5422.00 101214 101216 101217 101204 101273 101274 101278 101282 101285													
$\varnothing d_1$ MF P mm l_1 mm l_2 mm l_3 mm d_2 mm a mm   ID ID													
60.758011.0306.04.935.25 80.759012.5358.06.237.25 81.009012.5358.06.237.00 101.0010014.03910.08.039.00 121.0010014.09.07.0411.00 121.5010014.09.07.0410.50 161.5010014.012.09.0414.50 201.5012520.016.012.0418.50 241.5014022.018.014.5422.50 242.0014022.018.014.5422.00 101249 101252 101253 101235 101302 101303 101308 101312 101316 101317													

MF

ISO DIN 13

PM

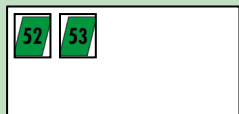


aero

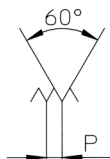
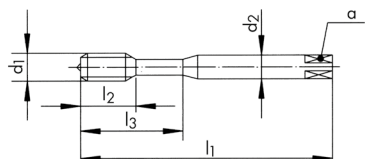
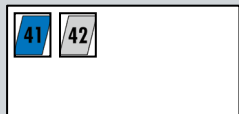
SA320-4



SA350-3



TL351VS-3



SA320-4

SA350-3

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

149081

149083

152035

149146

149148

152051

149308

149310

152061

149366

149368

148019

148026

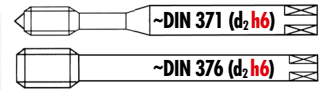
MF

ISO DIN 13



Only for rigid tapping

PM



RTS

Rigid Tapping Synchro

RTS320VS-4



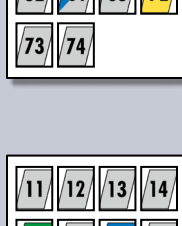
VS



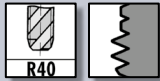
RTS420VS-4



VS



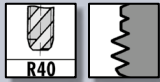
RTS362VS-3



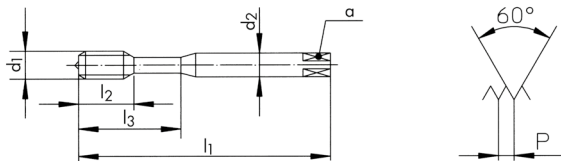
VS



RTS462VS-3



VS



RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



$\varnothing d_1$	P	l_1	l_2	l_3	$d_2 h_6$	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	110	14.0		*10.0	*8.0	3	10.50
14	1.50	110	14.0		*12.0	*9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

* DC Norm

$\varnothing d_1$	P	l_1	l_2	l_3	$d_2 h_6$	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	110	14.0		*10.0	*8.0	3	10.50
14	1.50	110	14.0		*12.0	*9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

* DC Norm

ID	ID
150615	
150630	
	150640
	150655
	150665

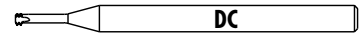
ID	ID
	150617
	150632
	151862
	151869
	151871



on request

UNC

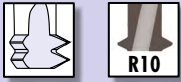
ANSI B1.1



h5

GW

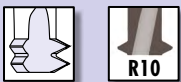
GW3016



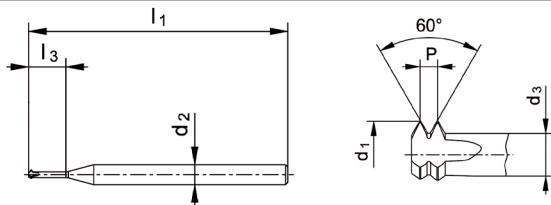
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS

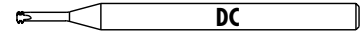


Ø D ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₃ inch	d ₂ h5 inch	d ₃ inch			ID	ID
2	56	0.065	1.54	0.240	0.118	0.040	3	0.0689	167472	167500
4	40	0.083	1.54	0.315	0.118	0.048	3	0.0886	167473	167501
6	32	0.102	2.01	0.402	0.197	0.058	4	0.1083	167474	167502
8	32	0.128	2.01	0.469	0.197	0.084	4	0.1339	167475	167503
10	24	0.142	2.01	0.551	0.197	0.083	4	0.1496	173983	173986
1/4	20	0.193	2.01	0.717	0.197	0.122	4	0.2008	167476	167504
5/16	18	0.234	2.48	0.906	*0.236	0.156	5	0.2559	175232	175246
3/8	16	0.280	2.64	1.063	*0.315	0.192	5	0.3150	175233	173546
1/2	13	0.392	2.99	1.417	*0.394	0.284	5	0.4252	175234	175247
Ø D ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₃ inch	d ₂ h5 inch	d ₃ inch			ID	ID
2	56	0.065	1.54	0.370	0.118	0.040	3	0.0689	167479	167507
4	40	0.083	1.54	0.480	0.118	0.048	3	0.0886	167480	167508
6	32	0.102	2.01	0.610	0.197	0.058	4	0.1083	167481	167509
8	32	0.128	2.01	0.713	0.197	0.084	4	0.1339	167482	167510
10	24	0.142	2.01	0.839	0.197	0.083	4	0.1496	173982	173979
1/4	20	0.193	2.01	1.091	0.197	0.122	4	0.2008	167483	167511
5/16	18	0.234	2.95	1.378	*0.236	0.156	5	0.2559	175261	175277
3/8	16	0.280	3.27	1.614	*0.315	0.192	5	0.3150	175262	175278
1/2	13	0.392	3.74	2.165	*0.394	0.284	5	0.4252	175263	175279

*Tol. h6

UNF

ANSI B1.1



h5

GW

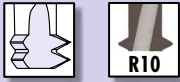
GW3016

GW3016VS

GW3019

GW3019VS

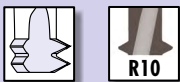
GW3016



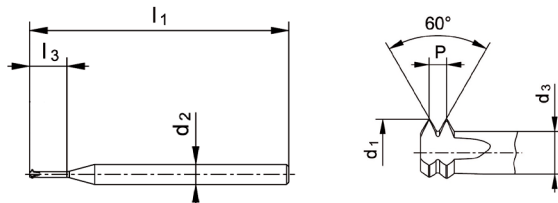
GW3016VS



GW3019



GW3019VS



Ø D ₁ UNF	P TPI	d ₁ inch	l ₁ inch	l ₃ inch	d ₂ h5 inch	d ₃ inch		
0	80	0.045	1.54	0.169	0.118	0.028	3	0.0472
1	72	0.057	1.54	0.201	0.118	0.037	3	0.0591
4	48	0.088	1.54	0.311	0.118	0.059	3	0.0925
8	36	0.132	2.01	0.461	0.197	0.093	4	0.1378
10	32	0.154	2.01	0.531	0.197	0.110	4	0.1594
1/4	28	0.195	2.01	0.693	0.197	0.145	4	0.2165
5/16	24	0.234	2.48	0.866	*0.236	0.176	5	0.2717
3/8	24	0.280	2.64	1.024	*0.315	0.221	5	0.3346

ID

ID

175235

175248

175236

175249

175237

175250

175238

175251

167477

167505

167478

167506

175239

175252

175240

175253

Ø D ₁ UNF	P TPI	d ₁ inch	l ₁ inch	l ₃ inch	d ₂ h5 inch	d ₃ inch		
0	80	0.045	1.54	0.260	0.118	0.028	3	0.0472
1	72	0.057	1.54	0.311	0.118	0.037	3	0.0591
4	48	0.088	1.54	0.476	0.118	0.059	3	0.0925
8	36	0.132	2.01	0.709	0.197	0.093	4	0.1378
10	32	0.154	2.01	0.819	0.197	0.110	4	0.1594
1/4	28	0.195	2.01	1.067	0.197	0.145	4	0.2165
5/16	24	0.234	2.95	1.339	*0.236	0.176	5	0.2717
3/8	24	0.280	3.27	1.575	*0.315	0.221	5	0.3346

ID

ID

175264

175280

175265

175281

175266

172376

175267

175282

167484

167512

167485

167513

175268

175283

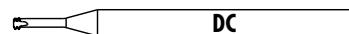
175269

175284

*Tol. h6

M ISO DIN 14

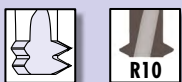
MF ISO DIN 13



h5

GW

GW3016



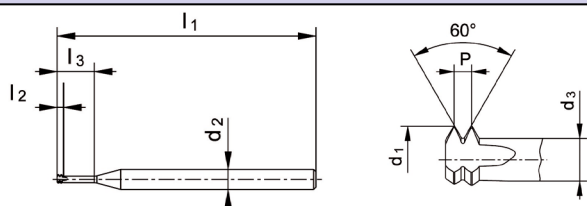
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



Ø 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

167035

167022

167036

167023

167037

167024

167038

167025

167039

167026

167040

167027

167041

175225

171442

167028

167042

175226

175241

175227

167299

167029

167043

Ø 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

167078

167065

167079

167066

167080

167067

167081

167068

167082

167069

167083

175254

175270

167070

167084

175255

175271

175256

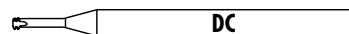
175272

167071

167085

M, MF

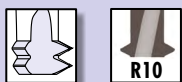
ISO DIN 13



h5

GW

GW3016



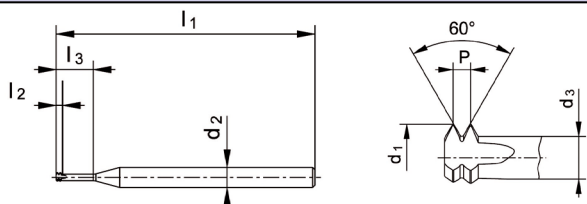
GW3016VS



GW3019



GW3019VS



GW3016

GW3016VS

GW3019

GW3019VS



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

ID

ID

175228

175242

167030

167044

167031

167045

167032

167046

167033

167047

167034

167048

175229

175243

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

167087

167074

167088

167075

167089

167076

167090

175258

175274

175259

175275

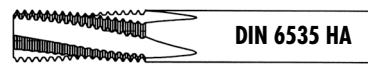
175260

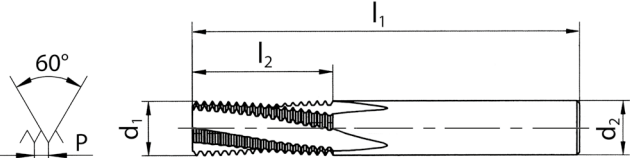
175276

*Tol. h6

UNC

ANSI B1.1



GF									GF6165	GF6165VS	GF6166	GF6166VS
GF6165  GF6165VS  VS GF6166  GF6166VS  VS 												
												
												
Ø" D ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	d ₂ inch				ID	ID		
1/4	20	0.189	2.13	0.575	0.236	3	0.2008		155407	155408		
5/16	18	0.234	2.13	0.693	0.236	3	0.2559		116047	135231		
3/8	16	0.280	2.52	0.846	0.315	4	0.3150		135232	135233		
7/16	14	0.313	2.52	0.965	0.315	4	0.3661		116049	135234		
1/2	13	0.392	2.83	1.118	0.394	4	0.4252		135235	135236		
Ø" D ₁ UNC	P TPI	d ₁ inch	l ₁ inch	l ₂ inch	d ₂ inch				ID		ID	
1/4	20	0.189	2.13	0.673	0.236	3	0.2008		155409		155414	
5/16	18	0.234	2.13	0.862	0.236	3	0.2559		155410		155415	
3/8	16	0.280	2.52	1.031	0.315	4	0.3150		155411		155416	
7/16	14	0.313	2.52	1.177	0.315	4	0.3661		155412		155417	
1/2	13	0.392	2.91	1.346	0.394	4	0.4252		155413		155418	

UNF

ANSI B1.1



DIN 6535 HA



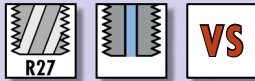
on request

GF

GF6165



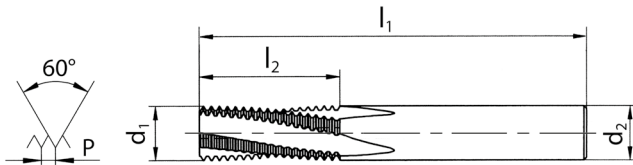
GF6165VS



GF6166



GF6166VS



GF6165



GF6165VS



GF6166



GF6166VS



$\varnothing'' D_1$ UNF	P TPI	d_1 inch	l_1 inch	l_2 inch	d_2 inch		
1/4	28	0.189	2.13	0.555	0.236	3	0.2165
5/16	24	0.234	2.13	0.689	0.236	3	0.2717
3/8	24	0.280	2.52	0.811	0.315	4	0.3346
7/16	20	0.313	2.52	0.976	0.315	4	0.3858
1/2	20	0.392	2.83	1.075	0.394	4	0.4488

ID

ID

155419

155420

135242

135243

135182

135245

135246

135247

135183

135249

$\varnothing'' D_1$ UNF	P TPI	d_1 inch	l_1 inch	l_2 inch	d_2 inch		
1/4	28	0.189	2.13	0.661	0.236	3	0.2165
5/16	24	0.234	2.13	0.811	0.236	3	0.2717
3/8	24	0.280	2.52	0.980	0.315	4	0.3346
7/16	20	0.313	2.52	1.126	0.315	4	0.3858
1/2	20	0.392	2.91	1.327	0.394	4	0.4488

ID

ID

155421

155426

155422

155427

155423

155428

155424

155429

155425

155430

M ISO DIN 13



GF

GF6115



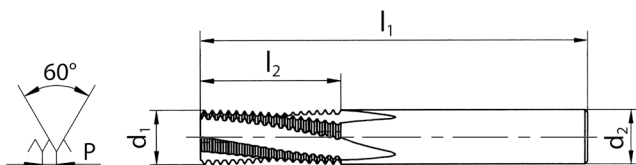
GF6115VS



GF6165



GF6165VS

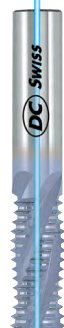


GF6115

GF6115VS

GF6165

GF6165VS



$\varnothing D_1$ 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

ID

ID

ID

ID

146298

146969

146299

146970

146300

146971

126350

116398

146321

146972

126586

116399

146322

146973

124836

116400

116342

116401

125066

116402

125114

115990

125229

116403

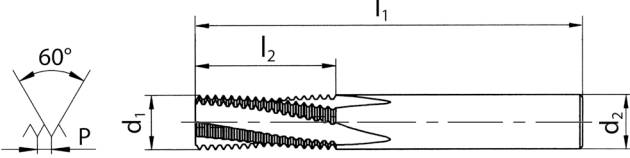
M ISO DIN 13



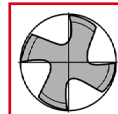
DIN 6535 HA



on request

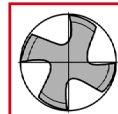
GF								GF6116	GF6116VS	GF6166	GF6166VS
GF6116  GF6116VS  VS GF6166   GF6166VS   VS											
											
   								ID	ID	ID	ID
$\varnothing D_1$	P	d ₁	l ₁	l ₂	d ₂			155365	155370		
M	mm	mm	mm	mm	mm			155366	155371		
4	0.70	3.00	48	10.9	6	3	3.30	155367	155372	155375	155382
5	0.80	3.80	48	13.2	6	3	4.20	155368	155373	155376	155383
6	1.00	4.50	54	16.5	6	3	5.00	155369	155374	155377	155384
8	1.25	5.95	54	21.9	6	3	6.80			155378	155385
10	1.50	7.95	64	26.3	8	4	8.50			155379	155386
12	1.75	9.95	74	32.4	10	4	10.20			155380	155387
14	2.00	9.95	74	37.0	10	4	12.00			155381	155388
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				

CORE HOLE DIAMETERS FOR THREAD TAPPING



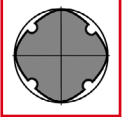
Ø d1 inch	P TPI	Ø mini inch	Ø maxi inch	 guide line	Ø d1 inch	P TPI	Ø mini inch	Ø maxi inch	 guide line
UNC ANSI B1.1, 2B					UNF ANSI B1.1, 2B				
1	64	0.0561	0.0623	0.0571	0	80	0.0465	0.0514	0.0472
2	56	0.0667	0.0737	0.0689	1	72	0.0580	0.0635	0.0591
3	48	0.0764	0.0845	0.0787	2	64	0.0691	0.0753	0.0709
4	40	0.0849	0.0939	0.0886	3	56	0.0797	0.0865	0.0827
5	40	0.0979	0.1062	0.1004	4	48	0.0894	0.0968	0.0925
6	32	0.1040	0.1140	0.1083	5	44	0.1004	0.1079	0.1024
8	32	0.1300	0.1390	0.1339	6	40	0.1110	0.1190	0.1142
10	24	0.1450	0.1560	0.1496	8	36	0.1340	0.1420	0.1378
12	24	0.1710	0.1810	0.1732	10	32	0.1560	0.1640	0.1594
1/4"	20	0.1960	0.2070	0.2008	12	28	0.1770	0.1860	0.1811
5/16"	18	0.2520	0.2650	0.2559	1/4"	28	0.2110	0.2200	0.2165
3/8"	16	0.3070	0.3210	0.3150	5/16"	24	0.2670	0.2770	0.2717
7/16"	14	0.3600	0.3760	0.3661	3/8"	24	0.3300	0.3400	0.3346
1/2"	13	0.4170	0.4340	0.4252	7/16"	20	0.3830	0.3950	0.3858
9/16"	12	0.4720	0.4900	0.4803	1/2"	20	0.4460	0.4570	0.4488
5/8"	11	0.5270	0.5460	0.5354	9/16"	18	0.5020	0.5150	0.5079
3/4"	10	0.6420	0.6630	0.6535	5/8"	18	0.5650	0.5780	0.5709
7/8"	9	0.7550	0.7780	0.7677	3/4"	16	0.6820	0.6960	0.6890
1"	8	0.8650	0.8900	0.8780	7/8"	14	0.7980	0.8140	0.8031
1 1/8"	7	0.9700	0.9980	0.9843	1"	12	0.9100	0.9280	0.9173
1 1/4"	7	1.0950	1.1230	1.1102	1 1/8"	12	1.0350	1.0530	1.0433
1 3/8"	6	1.1950	1.2250	1.2126	1 1/4"	12	1.1600	1.1780	1.1693
1 1/2"	6	1.3200	1.3500	1.3386	1 3/8"	12	1.2850	1.3030	1.2913
1 3/4"	5	1.5340	1.5680	1.5551	1 1/2"	12	1.4100	1.4280	1.4173
2"	5	1.7590	1.7950	1.7835					
UNJC ISO 3161:1999, 3B					UNJF ISO 3161:1999, 3B				
4	40	0.0877	0.0942	0.0906	2	64	0.0708	0.0749	0.0728
6	32	0.1076	0.1157	0.1102	4	48	0.0917	0.0971	0.0925
8	32	0.1336	0.1417	0.1358	6	40	0.1137	0.1202	0.1161
10	24	0.1494	0.1600	0.1535	8	36	0.1370	0.1442	0.1417
1/4"	20	0.2013	0.2121	0.2047	10	32	0.1596	0.1675	0.1634
5/16"	18	0.2584	0.2690	0.2638	1/4"	28	0.2152	0.2229	0.2185
3/8"	16	0.3141	0.3250	0.3189	5/16"	24	0.2719	0.2799	0.2756
1/2"	13	0.4251	0.4368	0.4291	3/8"	24	0.3344	0.3417	0.3386
UN ANSI B1.1, 2B					7/16"	20	0.3888	0.3970	0.3937
1 1/8"	8	0.9900	1.0150	1.0039	1/2"	20	0.4513	0.4591	0.4547
1 1/4"	8	1.1150	1.1400	1.1299	UNEF ANSI B1.1, 2B				
1 3/8"	8	1.2400	1.2650	1.2520	12	32	0.1820	0.1900	0.1850
1 1/2"	8	1.3650	1.3900	1.3780	1/4"	32	0.2160	0.2240	0.2205
1 5/8"	8	1.4900	1.5150	1.5039	5/16"	32	0.2790	0.2860	0.2835
1 3/4"	8	1.6150	1.6400	1.6299	3/8"	32	0.3410	0.3490	0.3445
1 7/8"	8	1.7400	1.7650	1.7520	7/16"	28	0.3990	0.4070	0.4035
2"	8	1.8650	1.8900	1.8780	1/2"	28	0.4610	0.4700	0.4665
					9/16"	24	0.5170	0.5270	0.5197
					5/8"	24	0.5800	0.5900	0.5827
					11/16"	24	0.6420	0.6520	0.6457
					3/4"	20	0.6960	0.7070	0.7008
					7/8"	20	0.8210	0.8320	0.8268
					1"	20	0.9460	0.9570	0.9488

CORE HOLE DIAMETERS FOR THREAD TAPPING



Ø d1 mm	P mm / inch	Ø mini inch	Ø maxi inch	 guide line	Ø d1 mm	P mm / inch	Ø mini inch	Ø maxi inch	 guide line
M DIN 13, ISO 261, *5H/6H					MF DIN 13, ISO 261, 6H				
*1	0.25 / 0.0098	0.0287	0.0309	0.0295	2.5	0.35 / 0.0138	0.0835	0.0874	0.0846
*1.2	0.25 / 0.0098	0.0366	0.0388	0.0374	3	0.35 / 0.0138	0.1032	0.1071	0.1043
*1.4	0.3 / 0.0118	0.0423	0.0450	0.0433	3.5	0.35 / 0.0138	0.1229	0.1268	0.1240
1.6	0.35 / 0.0138	0.0481	0.0520	0.0492	4	0.5 / 0.0197	0.1362	0.1417	0.1378
1.7	0.35 / 0.0138	0.0520	0.0559	0.0531	4.5	0.5 / 0.0197	0.1559	0.1614	0.1575
1.8	0.35 / 0.0138	0.0559	0.0599	0.0571	5	0.5 / 0.0197	0.1756	0.1811	0.1772
2.0	0.4 / 0.0157	0.0617	0.0661	0.0630	5.5	0.5 / 0.0197	0.1952	0.2007	0.1969
2.2	0.45 / 0.0177	0.0674	0.0724	0.0689	6	0.75 / 0.0295	0.2043	0.2117	0.2067
2.3	0.4 / 0.0157	0.0735	0.0779	0.0748	7	0.75 / 0.0295	0.2436	0.2511	0.2461
2.5	0.45 / 0.0177	0.0793	0.0842	0.0807	8	0.75 / 0.0295	0.2830	0.2905	0.2854
2.6	0.45 / 0.0177	0.0832	0.0881	0.0846	8	1 / 0.0394	0.2723	0.2816	0.2756
3.0	0.5 / 0.0197	0.0968	0.1023	0.0984	9	0.75 / 0.0295	0.3224	0.3298	0.3248
3.5	0.6 / 0.0236	0.1122	0.1185	0.1142	9	1 / 0.0394	0.3117	0.3210	0.3150
4.0	0.7 / 0.0276	0.1276	0.1347	0.1299	10	0.75 / 0.0295	0.3617	0.3692	0.3642
4.50	0.75 / 0.0295	0.1452	0.1527	0.1476	10	1 / 0.0394	0.3511	0.3604	0.3543
5.00	0.8 / 0.0315	0.1628	0.1706	0.1654	10	1.25 / 0.0492	0.3404	0.3509	0.3465
6.00	1 / 0.0394	0.1936	0.2029	0.1969	11	0.75 / 0.0295	0.4011	0.4086	0.4035
7.00	1 / 0.0394	0.2330	0.2422	0.2362	11	1 / 0.0394	0.3904	0.3997	0.3937
8.00	1.25 / 0.0492	0.2617	0.2721	0.2677	12	1 / 0.0394	0.4298	0.4391	0.4331
9.00	1.25 / 0.0492	0.3011	0.3115	0.3071	12	1.25 / 0.0492	0.4192	0.4296	0.4252
10.00	1.5 / 0.0591	0.3298	0.3416	0.3346	12	1.5 / 0.0591	0.4085	0.4203	0.4134
11.00	1.5 / 0.0591	0.3691	0.3809	0.3740	14	1 / 0.0394	0.5085	0.5178	0.5118
12.00	1.75 / 0.0689	0.3979	0.4111	0.4016	14	1.25 / 0.0492	0.4979	0.5083	0.5039
14.00	2 / 0.0787	0.4659	0.4807	0.4724	14	1.5 / 0.0591	0.4872	0.4991	0.4921
16.00	2 / 0.0787	0.5447	0.5594	0.5512	15	1 / 0.0394	0.5479	0.5572	0.5512
18.00	2.5 / 0.0984	0.6021	0.6198	0.6102	15	1.5 / 0.0591	0.5266	0.5384	0.5315
20.00	2.5 / 0.0984	0.6809	0.6986	0.6890	16	1 / 0.0394	0.5873	0.5966	0.5906
22.00	2.5 / 0.0984	0.7596	0.7773	0.7677	16	1.5 / 0.0591	0.5660	0.5778	0.5709
24.00	3 / 0.1181	0.8170	0.8367	0.8268	17	1 / 0.0394	0.6267	0.6359	0.6299
27.00	3 / 0.1181	0.9351	0.9548	0.9449	17	1.5 / 0.0591	0.6054	0.6172	0.6102
30.00	3.5 / 0.1378	1.0319	1.0540	1.0433	18	1 / 0.0394	0.6660	0.6753	0.6693
33.00	3.5 / 0.1378	1.1500	1.1721	1.1614	18	1.5 / 0.0591	0.6447	0.6565	0.6496
36.00	4 / 0.1575	1.2469	1.2705	1.2598	18	2 / 0.0787	0.6234	0.6382	0.6299
39.00	4 / 0.1575	1.3650	1.3886	1.3780	20	1 / 0.0394	0.7448	0.7541	0.7480
42.00	4.5 / 0.1772	1.4618	1.4881	1.4764	20	1.5 / 0.0591	0.7235	0.7353	0.7283
45.00	4.5 / 0.1772	1.5799	1.6063	1.5945	20	2 / 0.0787	0.7022	0.7169	0.7087
48.00	5 / 0.1969	1.6767	1.7046	1.6929	22	1 / 0.0394	0.8235	0.8328	0.8268
52.00	5 / 0.1969	1.8341	1.8621	1.8504	22	1.5 / 0.0591	0.8022	0.8140	0.8071
56.00	5.5 / 0.2165	1.9703	1.9998	1.9882	22	2 / 0.0787	0.7809	0.7957	0.7874
					24	1 / 0.0394	0.9022	0.9115	0.9055
					24	1.5 / 0.0591	0.8809	0.8928	0.8858
					24	2 / 0.0787	0.8596	0.8744	0.8661
					25	1.5 / 0.0591	0.9203	0.9321	0.9252
					26	1.5 / 0.0591	0.9597	0.9715	0.9646
					28	1.5 / 0.0591	1.0384	1.0502	1.0433
					30	2 / 0.0787	1.0959	1.1106	1.1024
					36	2 / 0.0787	1.3321	1.3469	1.3386
					36	3 / 0.1181	1.2894	1.3091	1.2992
					42	3 / 0.1181	1.5257	1.5454	1.5354

CORE HOLE DIAMETERS FOR THREAD FORMING



Ø d1 inch	P TPI	Ø mini inch	Ø maxi inch	 guide line
UNC ANSI B1.1, 2B				
2	56	0.0667	0.0737	0.0768
4	40	0.0849	0.0939	0.1004
6	32	0.1040	0.1140	0.1240
8	32	0.1300	0.1390	0.1496
10	24	0.1450	0.1560	0.1713
1/4"	20	0.1960	0.2070	0.2264
5/16"	18	0.2520	0.2650	0.2874

UNF ANSI B1.1, 2B				
6	40	0.1110	0.1190	0.1260
10	32	0.1560	0.1640	0.1752
1/4"	28	0.2110	0.2200	0.2343
5/16"	24	0.2670	0.2770	0.2933

Ø d1 mm	P mm / inch	Ø mini inch	Ø maxi inch	 guide line
M DIN 13-50, 7H				
1	0.25 / 0.0098	0.0287	0.0309	0.0346
1.2	0.25 / 0.0098	0.0366	0.0388	0.0425
1.4	0.3 / 0.0118	0.0423	0.0450	0.0492
1.6	0.35 / 0.0138	0.0481	0.0520	0.0571
1.8	0.35 / 0.0138	0.0559	0.0599	0.0650
2	0.4 / 0.0157	0.0617	0.0661	0.0709
2.5	0.45 / 0.0177	0.0793	0.0842	0.0906
3	0.5 / 0.0197	0.0968	0.1039	0.1102
3.5	0.6 / 0.0236	0.1122	0.1201	0.1280
4	0.7 / 0.0276	0.1276	0.1365	0.1457
5	0.8 / 0.0315	0.1628	0.1726	0.1831
6	1 / 0.0394	0.1936	0.2054	0.2185
8	1.25 / 0.0492	0.2617	0.2749	0.2913
10	1.5 / 0.0591	0.3298	0.3445	0.3661
12	1.75 / 0.0689	0.3979	0.4146	0.4409

MF DIN 13-50, 7H				
4	0.5 / 0.0197	0.1362	0.1433	0.1496
5	0.5 / 0.0197	0.1756	0.1826	0.1890
6	0.5 / 0.0197	0.2149	0.2220	0.2283
6	0.75 / 0.0295	0.2043	0.2117	0.2224
8	0.75 / 0.0295	0.2830	0.2905	0.3012
8	1 / 0.0394	0.2723	0.2841	0.2972
10	1 / 0.0394	0.3511	0.3629	0.3760
12	1 / 0.0394	0.4298	0.4416	0.4547
14	1.5 / 0.0591	0.4872	0.5020	0.5236
16	1.5 / 0.0591	0.5660	0.5807	0.6024

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

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