

procarb

CUTTING TOOLS



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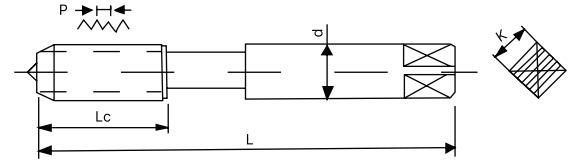
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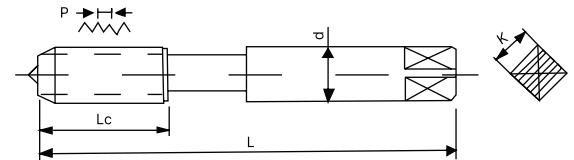
Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

DIN352 Hand Taps metric coarse
Material:HSS-M2,HSS-M35
M35 HSS-E,Coating,available for specified requirements
3 of set:Taper, Plug, Bottoming.
For through holes and blind holes.

Ex. Ordering code : PHT2C-M0305....

M	P(mm)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)	Tap limits
M3	0.5	40	11	35	2.7	2.5	6H
M4	0.7	45	13	4.5	3.4	3.3	
M5	0.8	50	16	6	4.9	4.2	
M6	1.0	50	19	6	4.9	5.0	
M7	1.0	50	19	6	4.9	6.0	
M8	1.25	56	22	6	4.9	6.75	
M9	1.25	63	22	7	5.5	7.75	
M10	1.5	70	24	7	5.5	8.5	
M11	1.5	70	24	8	6.2	9.5	
M12	1.75	75	29	9	7	10.25	
M14	2.0	80	30	11	9	12	
M16	2.0	80	32	12	9	14	
M18	2.5	95	40	14	11	15.5	
M20	2.5	95	40	16	12	17.5	
M22	2.5	100	40	18	14.5	19.5	
M24	3.0	110	50	18	14.5	21.0	
M27	3.0	110	50	20	16	24.0	
M30	3.5	125	56	22	18	26.5	
M33	3.5	125	56	25	20	29.5	
M36	4.0	150	63	28	22	32.0	
M39	4.0	150	63	32	24	35.0	
M42	4.5	150	63	32	24	37.5	
M45	4.5	160	70	36	29	40.5	
M48	5.0	180	75	36	29	43.0	
M52	5.0	180	75	40	32	47.0	

HSS Taps Series



Material:HSS-M2,HSS-M35
Alloy Steel,Carbon steel

DIN2128
DIN2128 Hand Taps metric fine
DIN2128, for metric-ISO thread DIN13,Tolerance 6H=ISO2
M35 HSS-E,Coating,available for specified requirements
2 of set:Taper and Plug
For through holes and blind holes

Ex. Ordering code : PHT2F-M0305....

M	P(mm)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)	Tap limits
M3X0.35	0.35	40	9	3.5	2.7	2.65	6H
M4X0.5	0.5	50	12	6	4.9	3.5	
M5X0.5	0.5	50	12	6	4.9	4.5	
M5X0.75	0.75					4.25	
M6X0.5	0.5	50	14	6	4.9	5.5	
M6X0.75	0.75					5.25	
M7X0.75	0.75	50	14	6	4.9	6.25	
M8X0.5	0.5	50	19	6	4.9	7.5	
M8X0.75	0.75					7.25	
M8X1.0	1.0	56	22	7	5.5	7.0	
M9X0.75	0.75	56	19			8.25	
M9X1.0	1.0	63	22	8.0			
M10X0.75	1.75	63	20	7	5.5	9.2	
M10X1.0	1.0					9.0	
M10X1.25	1.25	63	24	8.75			
M11X1.0	1.0	63	20	8	6.2	10.0	
M11X1.25	1.25					9.75	
M12X0.75	0.75	63	22	9	7	11.25	
M12X1.0	1.0	70	22			11.0	
M12X1.25	1.25					10.75	
M12X1.5	1.5	70	22	10.5			
M13X1.0	1.0	70	22	11	9	12.0	
M13X1.5	1.5					11.5	
M14X0.75	0.75	70	22	11	9	13.25	
M14X1.0	1.0					13.0	

HSS Taps Series

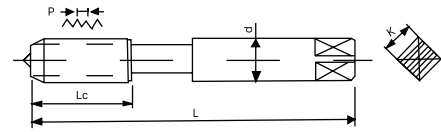
Ex. Ordering code : PHT2-M0305....

M	P(mm)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)	Tape limits
M14X1.25	1.25	70	22	11	22	12.75	6H
M14X1.5	1.5					12.5	
M15X1.0	1.0			12	9	14.0	
M15X1.5	1.5					13.5	
M16X1.0	1.0	70	22	12	9	15.0	
M16X1.25	1.25					14.75	
M16X1.5	1.5					14.5	
M18X1.0	1.0					17.0	
M18X1.25	1.25	70	22	14	11	16.75	
M18X1.5	1.5					16.5	
M18X2.0	2.0					16.0	
M20X1.0	1.0					19.0	
M20X1.25	1.25	80	22	16	12	18.75	
M20X1.5	1.5					18.5	
M20X2.0	2.0					18.0	
M21X1.5	1.5	80	22	16	12	19.5	
M22X1.0	1.0	80	22	18	14.5	21.0	
M22X1.25	1.25					20.75	
M22X1.5	1.5					20.5	
M22X2.0	2.0					20.0	
M23X1.5	1.5	80	22	18	14.5	21.5	
M24X1.0	1.0	80	22	18	14.5	23.0	
M24X1.5	1.5					22.5	
M24X2.0	2.0					22.0	
M25X1.5	1.5	90	22	18	14.5	23.5	
M26X1.0	1.0	90	22	18	14.5	25.0	
M26X1.5	1.5					24.0	
M26X2.0	2.0					25.5	
M27X1.5	1.5	90	22	20	16	25.0	
M27X2.0	2.0					25.0	
M28X1.0	1.0	90	22	20	16	27.0	
M28X1.5	1.5					26.5	
M28X2.0	2.0					26.0	
M29X1.5	1.5	90	22	22	18	27.5	
M30X1.0	1.0	90	22	22	18	29.0	
M30X1.5	1.5					28.5	
M30X2.0	2.0					28.0	
M30X3.0	3.0	125	66	22	18	27.0	

HSS Taps Series



DIN351,for UNC/UNF thread , tolernce 2B
M2 HSS, Inch
M35 HSS-E,Coating,available for specified requirements
3 of set: Taper , Second and Plug
For through holes and blind holes

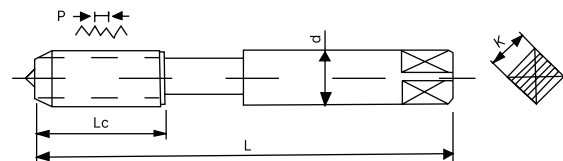


Material:HSS-M2,HSS-M35
Alloy Steel,Carbon steel

Ex. Ordering code : PHT2-IN....

Size	TPI	D(mm)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)	Tap Limits
NO.5-40UNC	40	3.18	40	12	3.5	2.7	2.6	2B
NO.5-44UNC	44	3.18	40	12			2.7	
NO.6-32UNC	32	3.51	45	14	4	3	2.8	
NO.6-40UNC	40	3.51	45	14			3.0	
NO.8-32UNC	32	4.17	45	14	4.5	3.4	3.4	
NO.8-36UNC	36	4.17	45	14			3.5	
NO.10-24UNC	24	4.83	48	16	6	4.9	3.9	
NO.10-32UNC	28	4.82	48	16			4.1	
NO.12-24UNC	20	5.49	50	18	6	4.9	4.5	
NO.12-2BUNC	28	5.49	50	16			4.65	
1/4-20UNC	18	6.35	56	22	6	4.9	5.2	
1/4-28UNF	24	6.35	50	16			5.5	
5/16-18LINC	16	7.94	56	22	6	4.9	6.6	
5/16-24UNF	24	7.94	56	16			6.9	
3/8-16UNC	14	9.53	70	28	7	5.5	8.0	
3/8-24UNF	20	9.53	56	16			8.5	
7/16-14UNC	13	11.11	75	30	8	6.2	9.4	
7/16-20UNF	20	11.11	63	18			9.9	
1/2-13UNC	12	12.70	75	30	9	7	10.8	
1/2-20UNF	18	12.70	70	20			11.5	
9/16-12UNC	11	14.29	80	32	11	9	12.3	
9/16-18UNF	18	14.29	70	22			13.0	
5/8-11UNC	10	15.88	80	32	12	9	13.5	
5/8-18UNF	16	15.88	70	22			14.6	
3/4-10UNC	9	19.05	95	40	14	11	16.5	
3/4-16UNF	14	19.05	80	22			17.5	
7/8-9UNC	8	22.23	100	40	18	14.5	19.5	
7/8-14UNF	12	22.23	90	28			20.5	
1-BUNC	7	25.4	110	50	20	16	22.3	
1-12UNF	12	25.4	100	32			23.5	
1 1/8-7UNC	7	28.58	132	56	22	18	25.0	
1 1/8-12UNF	12	28.58	100	32			26.5	
1 1/4-7UNC	6	31.75	132	56	28	20	28.3	
1 1/4-12UNF	12	31.75	100	32	25		29.5	
1 3/8-9UNC	6	34.93	150	63	28	22	30.8	
1 3/8-12UNF	12	34.93	110	32			32.5	
1 1/2-BUNC	6	38.10	150	63	32	24	34.0	
1 1/2-12UNF	12	38.10	110	32			36.0	
1 3/4-5UNC	5	44.45	160	70	36	29	39.5	
2-4 1/2UNF	4 1/2	50.80	180	75	40	32	45.0	

HSS Taps Series



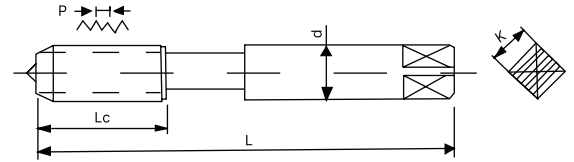
DIN351BSW Hand Taps
DIN351,for BSW BSF thread DINI3
M2 HSS, Inch
M35 HSS-E Coating,available for specified requirement
3 of set taper.Second and plug
For through holes and blind holes

Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

Ex. Ordering code : PHT2-IN...

Size	TPI	D(mm)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)
1/8-40 Bsw	40	3.18	40	12	3.5	2.7	2.60
5/32-32 Bsw	32	3.97	45	14	4.5	3.4	3.20
3/16-24 Bsw	24	4.76	45	14	5.5	4.3	3.80
7/32-24 Bsw	24	5.56	50	18	6	4.9	4.60
1/4-20 Bsw	20	6.35	56	22	6	4.9	5.10
5/16-18 Bsw	18	7.94	56	22	6	4.9	6.50
3/8-16 Bsw	16	9.53	70	25	7	5.5	7.90
7/16-14 Bsw	14	11.11	75	30	8	6.2	9.30
1/2-12 Bsw	12	12.70	75	30	9	7	10.5
9/16-12 Bsw	12	14.29	80	32	11	9	12.0
5/8-11 Bsw	11	15.88	80	32	12	9	13.5
3/4-10 Bsw	10	19.05	95	40	14	11	16.5
7/8-9 Bsw	9	22.23	100	40	18	14.5	19.5
1-8 Bsw	8	25.4	110	50	20	16	22.0
1 1/8-7 Bsw	7	28.58	132	56	22	18	24.5
1 1/4-7 Bsw	7	31.75	132	56	25	20	28.0
1 3/8-6 Baw	6	34.93	150	63	28	22	30.5
1 1/2-6 Bsw	6	38.10	150	63	32	24	33.5
1 5/8-5 Bsw	5	41.28	160	70	32	24	35.5
1 3/4-5 Bsw	5	44.45	160	70	36	29	39.0
1 7/8-4 1/2 Bsw	4 1/2	47.63	190	80	36	29	41.5
2-4 1/2 Bsw	4 1/2	50.8	190	80	40	32	44.5

HSS Taps Series



Material:HSS-M2,HSS-M35
Alloy steel

DIN5157
DIN5157 BSW Pipe Taps 2PCS
DIN5157,for Whitworth-Pipe thread DIN259,equal to ISO 228
M2 HSS
M35 HSS-E,Coating, available for specified requirements
2 of set: Tapper and plug
For through holes and blind holes
For connections not sealing in the thread

Ex. Ordering code : PHT2-IN....

Size	T.PI	D(MM)	L(mm)	Lc(mm)	d(mm)	K(mm)	Hole(mm)
G1/8	26	9.37	60	20	7	5.5	8.80
G1/4	19	13.16	70	20	11	9	11.8
G3/8	19	16.66	70	22	12	9	15.3
G1/2	14	20.96	80	22	16	12	19.0
G5/8	14	22.91	80	22	18	14.5	21.0
G3/4	14	26.44	90	22	20	16	24.5
G7/8	14	30.20	90	22	22	18	28.25
G1	11	33.25	100	25	25	20	30.5
G1/8	11	37.90	125	40	28	22	35.5
G1 1/4	11	41.91	125	40	32	24	39.5
G1 3/8	11	44.33	125	40	36	29	42.0
G1 1/2	11	47.80	140	40	36	29	45.0
G1 3/4	11	53.75	140	40	40	32	51.0
G2	11	59.62	140	40	45	35	57.0



DIN371/DIN376

DIN371/DIN376 Spiral Pointed Machine Taps

DIN352, for metric-ISO thread DIN13, tolerance 6H

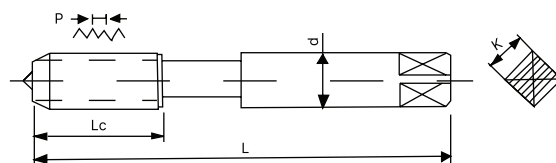
M2HSS

M35 HSS-E, Coating available for specified requirements

For machine

Short version for through holes

Good cutting action, high speed.



Material: HSS-M2, HSS-M35

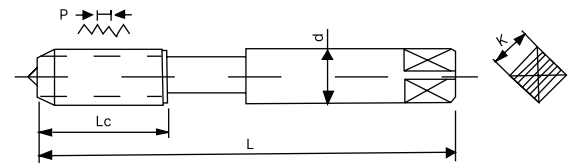
Ex. Ordering code : PMTSP2..-M....

M	P(mm)	L(mm)	Lc(mm)	Chamfer	d(mm)	K(mm)	n	Hole(mm)	Tap limits
DIN371									
M3	0.5	56	11	5P	3.5	2.7	3	2.5	6H
M4	0.7	63	13	5P	4.5	3.4	3	3.3	
M5	0.8	70	15	5P	6	4.9	3	4.2	
M6	1.0	80	19	5P	6	4.9	3	5.0	
M8	1.25	90	22	5P	8	6.2	3	6.75	
M10	1.5	100	24	5P	10	8	3	8.5	
DIN376									
M12	1.75	110	29	5P	9	7	4	10.25	6H
M14	2.2	110	30	5P	11	9	4	12.0	
M16	2.0	110	32	5P	12	9	4	14.0	
M18	2.5	125	34	5P	14	11	4	15.5	
M20	2.5	140	34	5P	16	12	4	17.5	
M22	2.5	140	34	5P	18	14.5	4	19.5	
M24	3.0	160	38	5P	18	14.5	4	21.0	

HSS Taps Series



DIN371/DIN376
 DIN371/DIN376 Straight flute Machine Taps
 DIN352, for metric-ISO thread DIN13, tolerance 6H
 M2HSS
 M35 HSS-E, Coating available for specified requirements
 For machine
 Short version for through holes
 Good cutting action, high speed.

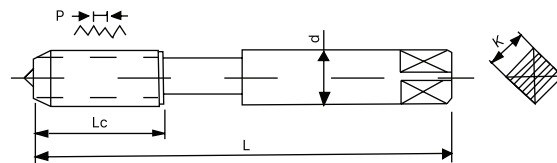


Material: HSS-M2, HSS-M35

Ex. Ordering code : PMTST2..-M....

M	P(mm)	L(mm)	Lc(mm)	Chamfer	d(mm)	K(mm)	n	Hole(mm)	Tap limits
DIN371									
M3	0.5	56	11	5P	3.5	2.7	3	2.5	6H
M4	0.7	63	13	5P	4.5	3.4	3	3.3	
M5	0.8	70	15	5P	6	4.9	3	4.2	
M6	1.0	80	19	5P	6	4.9	3	5.0	
M8	1.25	90	22	5P	8	6.2	3	6.75	
M10	1.5	100	24	5P	10	8	3	8.5	
DIN376									
M12	1.75	110	29	5P	9	7	4	10.25	6H
M14	2.2	110	30	5P	11	9	4	12.0	
M16	2.0	110	32	5P	12	9	4	14.0	
M18	2.5	125	34	5P	14	11	4	15.5	
M20	2.5	140	34	5P	16	12	4	17.5	
M22	2.5	140	34	5P	18	14.5	4	19.5	
M24	3.0	160	38	5P	18	14.5	4	21.0	

HSS Taps Series



Material: HSS-M2,HSS-M35



DIN371/376

DIN371/376 Spiral Flute Machine Taps

DIN371/376,with 35 spiral flute,metric-ISO thread DIN13,tolerance 6H=ISO2

M2 HSS

M35 HSS-E,Coating.available for specified requirements

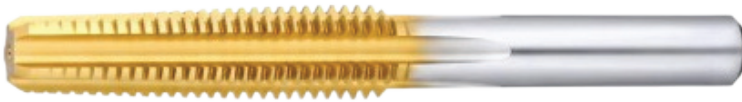
For blind holes

Good cutting action speeding

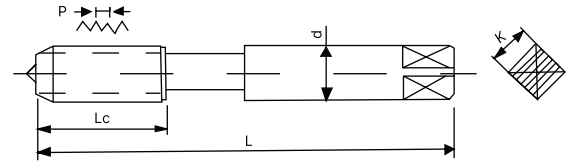
Ex. Ordering code : PMTSPF2..-M....

M	P(mm)	L(mm)	Lc(mm)	Chamfer	d(mm)	K(mm)	n	Hole(mm)	Tap limits
DIN371									
M3	0.5	56	11	2.5P	3.5	2.7	3	2.5	6H
M4	0.7	63	13	2.5P	4.5	3.4	3	3.3	
M5	0.8	70	15	2.5P	6	4.3	3	4.2	
M6	1.0	80	19	2.5P	6	4.9	3	5.0	
M8	1.25	90	22	2.5P	8	6.2	3	6.75	
M10	1.5	100	24	2.5P	10	8	3	8.5	
DIN376									
M12	1.75	110	29	2.5P	9	7	3	10.25	6H
M14	2.2	110	30	2.5P	11	9	4	12.0	
M16	2.0	110	32	2.5P	12	9	4	14.0	
M18	2.5	125	34	2.5P	14	11	4	15.5	
M20	2.5	140	34	2.5P	16	12	4	17.5	
M22	2.5	140	34	2.5P	18	14.5	4	19.5	
M24	3.0	160	38	2.5P	18	14.5	4	21.0	

HSS Taps Series



DIN357
DIN357 Machine Nut Taps
DIN357,with metric-ISO thread DIN13,tolerance 6H=ISO2
M2 HSS
M35 HSS-E,Coating.available for specified requirements



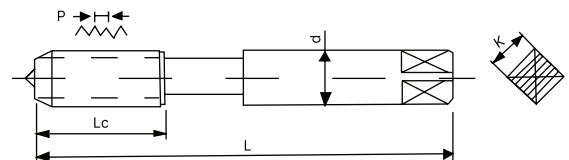
Material: HSS-M2,HSS-M35

Ex. Ordering code : PMTNT2..-M....

M	P(mm)	L(mm)	Lc(mm)	Chamfer	d(mm)	K(mm)	Hole(mm)	Tap limits
M3	0.5	70	22	13P	2.2	-	2.5	6H
M4	0.7	90	25	13P	2.8	2.1	3.3	
M5	0.8	100	28	13P	3.5	2.7	4.2	
M6	1.0	110	32	13P	4.5	3.4	5.0	
M8	1.25	125	40	13P	6	4.9	6.75	
M10	1.5	140	45	13P	7	5.5	8.5	
M12	1.75	180	50	13P	9	7	10.25	
M14	2.0	200	56	13P	11	9	12.0	
M16	2.0	200	63	13P	12	9	14.0	
M18	2.5	220	63	13P	14	11	15.5	
M20	2.5	250	70	13P	16	12	17.5	
M22	2.5	280	80	13P	18	14.5	19.5	
M24	3.0	280	80	13P	18	14.5	21.0	



DIN352
DIN352 Sprial Flute short Machine Taps
DIN352,with 350 , spiral flute, metric-iso thraed din 13, tolerance 6h=iso02
M2 HSS
M35 HSS-E,Coating.available for specified requirements
For blind holes
Good cutting action,high speeding.

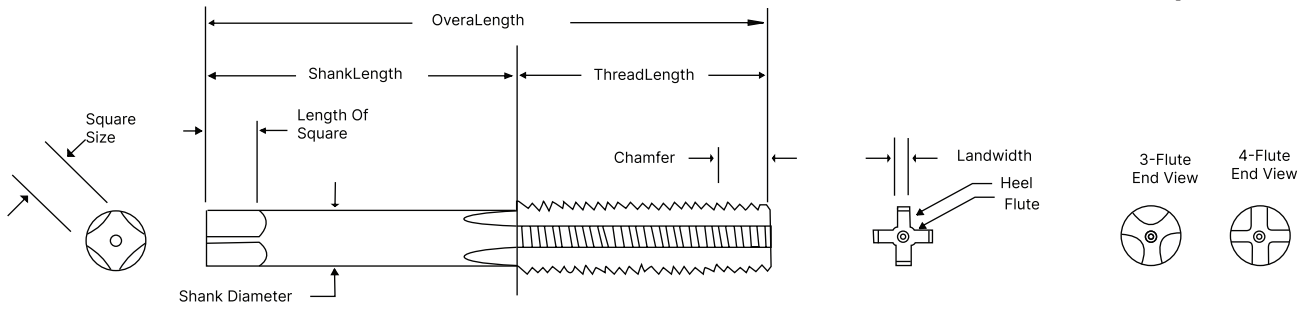


Material: HSS-M2,HSS-M35

Ex. Ordering code : PSMTSPF2..-M....

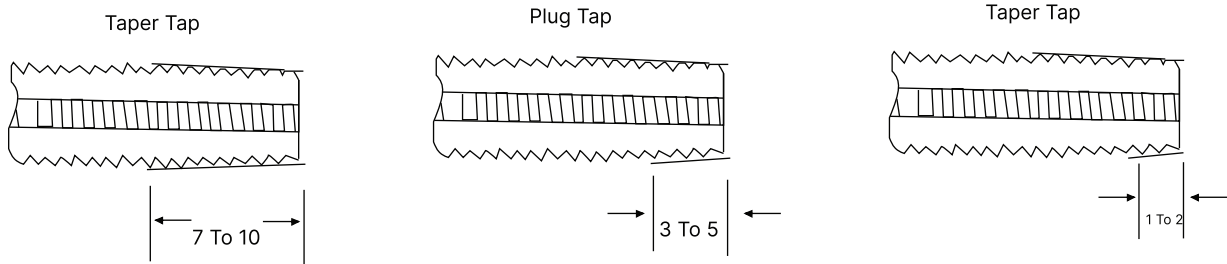
M	P(mm)	L(mm)	Lc(mm)	Chamfer	d(mm)	K(mm)	n	Hole(mm)	Tap limits
M3	0.5	40	11	2.5P	3.5	2.7	3	2.5	6H
M4	0.7	45	13	2.5P	4.5	3.4	3	3.5	
M5	0.8	50	16	2.5P	6	4.9	3	4.2	
M6	1.0	50	19	2.5P	6	4.9	3	5.0	
M7	1.0	50	19	2.5P	6	4.9	3	6.0	
M8	1.25	56	22	2.5P	6	4.9	3	6.75	
M10	1.5	70	24	2.5P	7	5.5	3	8.5	
M12	1.75	75	29	2.5P	9	7	4	10.25	

Basic Tap Terminology



HSS Taps Series

Chamfer Styles in Standard Taps



Angle of Thread The angle included between the flanks of the thread measured in an axial plane.

Back Taper A slight axial relief on the thread of the tap which makes the pitch diameter of the thread near the shank somewhat smaller than that of the chamfered end.

Bottoming Chamfer The shortest chamfer (1-2 threads long), for threading close to the bottom of blind holes.

Chamfer The tapering of the threads at the front end of each land of a tap by cutting away and relieving the crest of the first few teeth to distribute the cutting action over several teeth. Also see Taper, Plug and Bottoming Chamfers.

Chamfer Relief The gradual decrease in land height from cutting edge to heel on the chamfered portion, to provide clearance for the cutting action as the tap advances.

Chordal Hook Angle The angle between the chord passing through the root and crest of a thread form at the cutting face, and a radial line through the crest at the cutting edge.

Crest The top surface joining the two flanks of a thread. The crest of an external thread is at its major diameter, while the crest of an internal thread is at its minor diameter.

Cutting Face The leading side of the land in the direction of rotation for cutting on which the chip impinges.

Flutes The longitudinal channels formed in a tap to create cutting edges on the thread profile and to provide chip spaces and cutting fluid passages.

Height of Thread The distance between the crest and the Base of a thread measured normal to the axis.

Lead The distance a screw thread advances axially in one complete turn. On a single lead screw or tap, the lead and pitch are identical. On a double lead screw or tap, the lead is twice the pitch, etc.

Pitch The distance from any point on a screw or tap thread to a corresponding point on the next thread, measured parallel to the axis. The pitch equals one divided by the number of threads per inch.

Pitch Diameter On a straight thread, the diameter of an imaginary co-axial cylinder, the surface of which would pass through the thread profile at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cylinder.

On a taper thread, the diameter at a given distance from a reference plane perpendicular to the axis of an imaginary co-axial cone, the surface of which would pass through the thread profile at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cone.

Plug Chamfer The most common chamfer (3-5 threads long), for hand or machine tapping in through or blind holes.

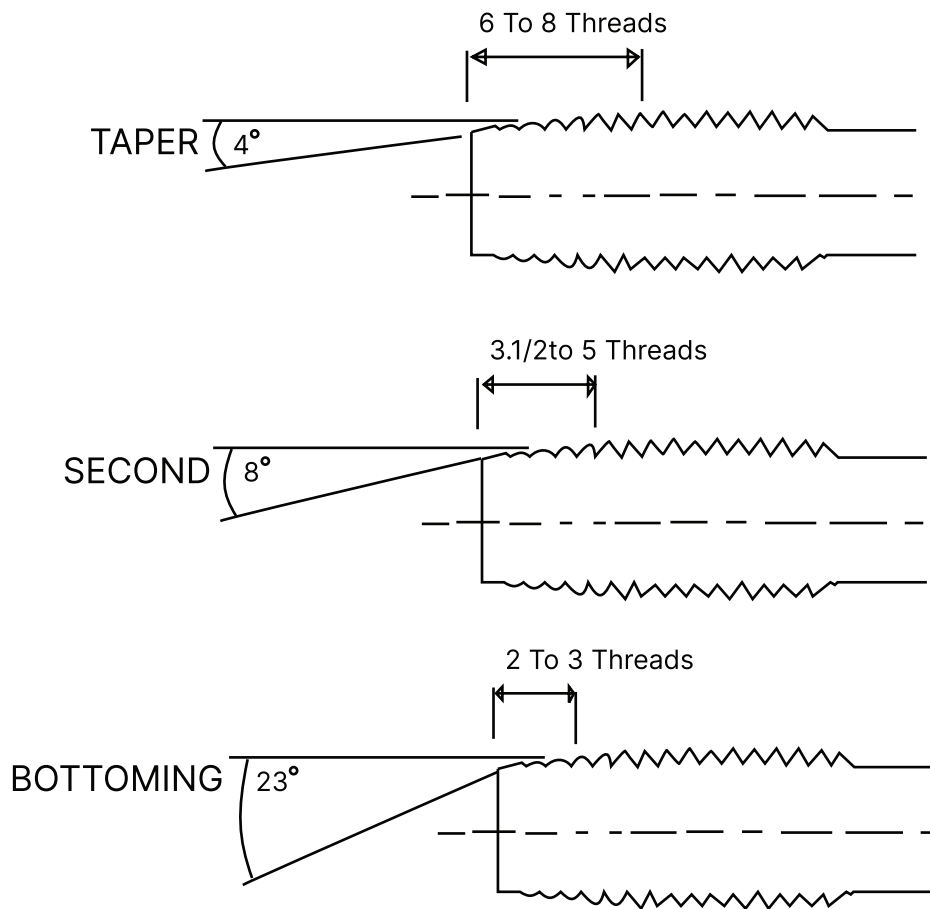
Rake Any deviation of a straight cutting face of the tooth from a radial line. Positive Rake means that the crest of the cutting face is angularly advanced ahead of the balance of the face of the tooth. Negative Rake means that the same point is angularly behind the balance of the cutting face of the tooth. Zero Rake means that the cutting face is directly on the center line.

Spiral Point (Chip Driver) A supplementary angular fluting cut in the cutting face of the land at the chamfer end. It is slightly longer than the chamfer on the tap and of the opposite hand to that of rotation.

Taper Chamfer A long chamfer (7-10 threads long) for easier starting and engagement in the work piece. More working teeth means that less tapping torque is required and the chip load is reduced on each tooth.

Threads Per Inch The number of threads in one inch of length.

HSS Taps Series



in some countries the name "PLUG" is commonly used to indicate a Bottoming tap. In America it is used to indicate a Second tap. To avoid confusion with American terms, the terminology adopted by British Standard 949 1979 as shown above, should be used.

Short Hand and Maching. Long Shank Machine and pipe Taps	4" (6-8 threads) Taper 8" (3-1/2-5 threads) Second 23" (2-3 threads) Bottoming
Spiral Point Taps	8" (4-5 threads)
Spiral Flute Taps	23" (2-3 threads)
Fluteless Taps	23" (2-3 threads)

HSS Center drill



A Types

Ex. Ordering code : PHCD2A-005....

D	Dl	L	Ll max
0.50	2.0	31.5	1.0
0.70	3.15	31.5	1.5
1.00	3.15	31.5	1.9
1.50	4.00	35.5	2.0
2.00	5.00	40.0	2.5
2.50	6.00	45.0	3.1
3.00	8.00	50.0	3.9
4.00	10.0	56.0	5.0
5.00	12.50	63.0	6.3
6.00	16.00	71.0	8.0

B Types

Ex. Ordering code : PHCD2B-005...

D	Dl	L	L	Ll max
1.00	4.00	2.12	35.5	1.3
1.60	6.00	3.35	45.0	2.0
2.00	8.00	4.25	50.0	2.5
2.50	10.0	5.30	56.0	3.9
3.15	12.0	6.70	60.0	3.9
4.00	14.0	8.50	67.0	5.0
5.00	12.0	10.6	75.0	6.3
6.30	14.0	13.2	80.0	8.0

DIN338 DRILL JOBBER SERIES
HSS C05 Fully Ground Drill



4341/6542
C05

Ex. Ordering code : HSD5-0....

D	L1	L
1	12	34
1.05	12	34
1.1	14	36
1.15	14	36
1.2	16	38
1.25	16	38
1.3	16	38
1.35	18	40
1.4	18	40
1.45	18	40
1.5	18	40
1.55	20	43
1.6	20	43
1.65	20	43
1.7	20	43
1.75	22	46
1.8	22	46
1.85	22	46
1.9	22	46
1.95	24	46
2	24	49
2.05	24	49
2.1	24	49
2.15	27	53
2.2	27	53
2.25	27	53
2.3	27	53
2.35	27	53
2.4	30	57
2.45	30	57
2.5	30	57
2.55	30	57
2.6	30	57
2.65	30	57
2.7	33	61
2.75	33	61
2.8	33	61
2.85	33	61
2.9	33	61
2.95	33	61
3	33	61
3.1	36	65
3.2	36	65
3.3	36	65
3.4	39	70

D	L1	L
3.5	39	70
3.6	39	70
3.7	39	70
3.8	43	75
3.9	43	75
4	43	75
4.1	43	75
4.2	43	75
4.3	47	80
4.4	47	80
4.5	47	80
4.6	47	80
4.7	47	80
4.8	52	86
4.9	52	86
5	52	86
5.1	52	86
5.2	52	86
5.4	52	86
5.3	57	93
5.5	57	93
5.6	57	93
5.7	57	93
5.8	57	93
5.9	57	93
6	57	93
6.1	63	101
6.2	63	101
6.3	63	101
6.4	63	101
6.5	63	101
6.6	63	101
6.7	63	101
6.8	69	109
6.9	69	109
7	69	109
7.1	69	109
7.2	69	109
7.3	69	109
7.4	69	109
7.5	69	109
7.6	75	117
7.7	75	117
7.8	75	117
7.9	75	117

DIN338 DRILL JOBBER SERIES
HSS C05 Fully Ground Drill



4341/6542
C05

Ex. Ordering code : HSD5-0....

D	L1	L
8	75	117
8.1	75	117
8.2	75	117
8.3	75	117
8.4	75	117
8.5	75	117
8.6	81	125
8.7	81	125
8.8	81	125
8.9	81	125
9	81	125
9.1	81	125
9.2	81	125
9.3	81	125
9.4	81	125
9.5	81	125
9.6	81	125
9.7	87	133
9.8	87	133
9.9	87	133
10	87	133
10.1	87	133
10.2	87	133
10.3	87	133
10.4	87	133
10.5	87	133
10.6	87	133
10.7	94	142
10.8	94	142
10.9	94	142
11	94	142
11.1	94	142
11.2	94	142
11.3	94	142
11.4	94	142
11.5	94	142
11.6	94	142
11.7	94	142
11.8	94	142
11.9	101	151

D	L1	L
12	101	151
12.1	101	151
12.2	101	151
12.3	101	151
12.4	101	151
12.5	101	151
12.6	101	151
12.7	101	151
12.8	101	151
12.9	101	151
13	101	151
13.1	101	151
13.2	101	151
13.3	108	160
13.4	108	160
13.5	108	160
13.6	109	160
13.7	108	160
13.8	108	160
13.9	108	160
14	108	160
14.25	114	169
14.5	114	169
14.75	114	169
15	114	169
15.25	120	169
15.5	120	178
15.75	120	178
16	120	178
16.25	125	184
16.5	125	184
16.75	125	184
17	125	184
17.25	130	191
17.5	130	191
17.75	130	191
18	130	191
18.25	135	198
18.5	135	198
18.75	135	198
19	135	198
19.25	140	205
19.5	140	205
19.75	140	205
20	140	205

HSS Taper Shank Drill Series

DIN345 GB1438-85 Taper shank Twist Drill Bits



Ex. Ordering code : HTSD2-050...

Dia	Overall Length	Fulte Length	#MT
5	52	133	1
5.2	52	133	1
2.5	57	138	1
2.8	57	138	1
6	57	138	1
6.2	63	144	1
6.5	63	144	1
6.8	69	150	1
7	69	150	1
7.2	69	150	1
7.5	69	150	1
7.8	75	156	1
8	75	156	1
8.2	75	156	1
8.5	75	156	1
8.8	81	162	1
9	81	162	1
9.2	81	162	1
9.5	81	162	1
9.8	87	168	1
10	87	168	1
10.2	87	168	1
10.5	87	168	1
10.8	94	175	1
11	94	175	1
11.2	94	175	1
11.5	94	175	1
11.8	94	175	1
12	101	182	1
12.2	101	182	1
12.5	101	182	1
12.8	101	182	1
13	101	182	1
13.2	101	182	1
13.5	108	189	1
13.8	108	189	1
14	108	189	2
*14.25	114	212	2
14.5	114	212	2
14.75	114	212	2
15	114	212	2
*15.25	120	218	2
15.5	120	218	2
*15.75	120	218	2
16	120	218	2
*16.25	125	223	2
16.5	125	223	2
*16.75	125	223	2
17	125	223	2
*17.25	130	223	2

Dia	Overall Length	Fulte Length	#MT
17.5	130	228	2
*17.75	130	228	2
18	130	228	2
18.5	135	233	2
*18.75	135	233	2
19	135	233	2
*19.25	141	238	2
19.5	141	238	2
*19.75	140	238	2
20	140	238	2
*20.25	145	243	2
20.5	145	243	2
*20.75	145	243	2
21	145	243	2
*21.25	150	248	2
21.5	150	248	2
*21.75	150	248	2
22	150	248	2
*22.25	150	248	2
22.5	155	253	2
*22.75	155	253	2
23	155	253	2
*23.25	155	276	3
23.5	155	276	3
*23.75	160	281	3
24	160	281	3
*24.25	160	281	3
24.5	160	281	3
*24.75	160	281	3
25	160	281	3
*25.25	165	286	3
25.5	165	286	3
*25.75	165	286	3
26	165	286	3
*26.25	165	286	3
26.5	165	286	3
*26.75	170	291	3
27	170	291	3
*27.25	170	291	3
27.5	170	291	3
*27.75	170	291	3
28	170	291	3
*28.25	175	296	3
28.5	175	296	3
*28.75	175	296	3
29	175	296	3
*29.25	175	296	3
29.5	175	296	3
*29.75	175	296	3
30	175	296	3

HSS Taper Shank Drill Series

DIN345 GB1438-85 Taper shank Twist Drill Bits



Ex. Ordering code : HTSD2-050...

Dia	Overall Length	Fulite Length	#MT
*30.25	180	301	3
30.5	180	301	3
*30.75	180	301	3
31	180	301	3
*31.25	180	301	3
31.5	180	301	3
*31.75	185	306	3
32	185	334	4
32.5	185	334	4
33	185	334	4
33.5	185	334	4
34	190	339	4
34.5	190	339	4
35	190	339	4
35.5	190	339	4
36	195	344	4
36.5	195	344	4
37	195	344	4
38	200	349	4
39.5	200	349	4
39	200	349	4
39.5	200	349	4
40	200	349	4
40.5	205	354	4
41	205	354	4
41.5	205	354	4
42	205	354	4
42.5	205	354	4
43	205	359	4
43.5	210	359	4
44.5	210	359	4
45	210	359	4
45.5	210	364	4
46	215	364	4
48.5	215	364	4
47	215	364	4
47.5	215	364	4
48	215	369	4
48.5	220	369	4
49	220	369	4
49.5	220	369	4
50	220	369	4
50.5	220	374	4
51	220	412	4
52	225	412	5
53	225	412	5
54	230	417	5
55	230	417	5
56	230	417	5
57	235	422	5

Dia	Overall Length	Fulite Length	#MT
58	235	422	5
59	235	422	5
60	235	422	5
61	240	427	5
62	240	427	5
63	240	427	5
64	245	432	5
65	245	432	5
66	245	432	5
67	245	432	5
68	250	437	5
69	250	437	5
70	250	437	5
71	250	437	5
72	255	442	5
73	255	442	5
74	255	442	5
75	255	442	5
76	260	447	5
77	260	514	6
78	260	514	6
79	260	514	6
80	260	514	6
81	265	519	6
82	265	519	6
83	265	519	6
84	265	519	6
85	265	519	6
86	270	524	6
87	270	524	6
88	270	524	6
89	270	524	6
90	270	524	6
91	275	529	6
92	275	529	6
93	275	529	6
94	275	529	6
95	275	529	6
96	280	534	6
97	280	534	6
98	280	534	6
99	280	534	6
100	280	534	6

HSS END MILL



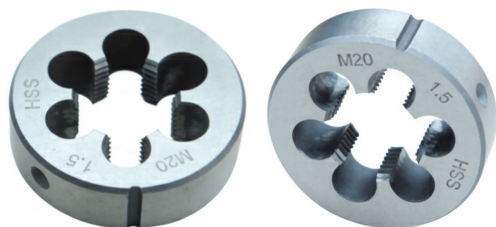
Material:HSS-M2,HSS-M35

Ex. Ordering code : PHSE2-02...

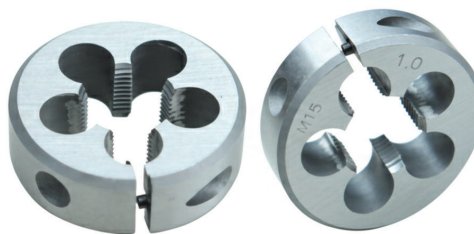
Dia	Shank	FL	OAL
2	6	7	51
3	6	8	52
4	6	11	55
5	6	13	57
6	6	13	57
7	10	16	66
8	10	19	69
9	10	19	69
10	10	22	72
11	12	22	79
12	12	26	83
13	12	26	83
14	12	26	83
15	12	26	83
16	16	32	92
17	16	32	92
18	16	32	92
19	16	32	92
20	20	38	104
21	20	38	104
22	20	38	104
23	20	38	104
24	25	45	121
25	25	45	121
26	25	45	121
27	25	45	121
28	25	45	121
29	25	45	121
30	25	45	121
31	32	53	133
36	32	53	133
40	40	63	133
45	40	63	155
50	40	75	177

Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

Normal dies



Adjustable round split dies



Spiral Pointed dies



Ex. Ordering code : PD2M...-M03...

Size	Outside	Thickness
M1x0.2	16	5
M1x0.25	16	5
M1.2x0.2	16	5
M1.2x0.25	16	5
M1.4x0.2	16	5
M1.4x0.3	16	5
M1.6x0.2	16	5
M1.6x0.35	16	5
M1.8x0.2	16	5
M1.8x0.35	16	5
M2x0.25	16	5
M2x0.4	16	5
M2.2x0.25	16	5
M2.2x0.45	16	5
M2.5x0.35	16	5
M2.5x0.45	16	5
M3x0.35	20	5
M3x0.5	20	5
M3.5x0.35	20	5
M3.5x0.6	20	5
M4x0.5	20	5
M4x0.7	20	5
M4.5x0.5	20	5
M4.5x0.75	20	7
M5x0.5	20	5
M5x0.8	20	7
M5.5x0.5	20	5

Size	Outside	Thickness
M6x0.75	20	7
M6x1	20	7
M7x0.75	25	9
M7x1	25	9
M8x1	25	9
M8x1.25	25	9
M8x0.2	25	9
M9x1	25	9
M10x1	30	11
M10x1.25	30	11
M10x1.5	30	11
M12x1.25	38	10
M12x1.5	38	10
M12x1.75	38	14
M14x1.25	38	10
M14x1.5	38	10
M14x2	38	14
M15x1.5	38	10
M16x1.5	45	14
M16x2	45	18
M17x1.5	45	14
M18x1.5	45	14
M18x2	45	14
M18x2.5	45	18
M20x1.5	45	14
M20x2	45	14
M20x2.5	45	18

Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

Normal dies

Adjustable round split dies

Spiral Pointed dies

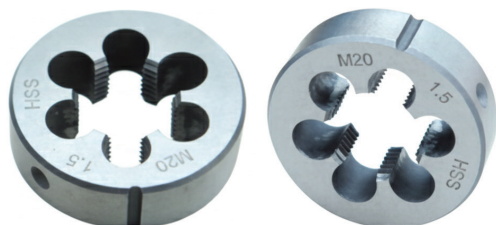
Ex. Ordering code : PD2M...-M03...

Size	Outside	Thickness
M22x1.5	55	16
M22x2	55	16
M22x2.5	55	22
M24x1.5	55	16
M24x2	55	16
M24x3	55	22
M25x1.5	55	16
M25x2.0	55	16
M27x1.5	65	18
M27x2	65	18
M27x3	65	25
M28x1.5	65	18
M28x2	65	18
M30x1.5	65	18
M30x2	65	18
M30x3	65	25
M30x3.5	65	25
M32x1.5	65	18
M32x2	65	18
M33x1.5	65	18
M33x2	65	18
M33x3	65	25
M33x3.5	65	25
M35x1.5	65	18
M36x1.5	65	18
M36x2	65	18
M36x3	65	25
M36x4	65	25
M39x1.5	75	20
M39x2	75	20
M39x3	75	30
M39x4	75	30
M40x1.5	75	20
M40x2	75	20
M40x3	75	30

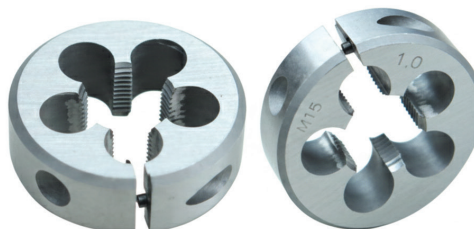
Size	Outside	Thickness
M42x1.5	75	20
M42x2	75	20
M42x3	75	30
M42x4	75	30
M42x4.5	75	30
M45x1.5	90	22
M45x2	90	22
M45x3	90	36
M45x4	90	36
M48x1.5	90	22
M48x2	90	22
M48x3	90	36
M48x4	90	36
M48x5	90	36
M50x1.5	90	22
M50x2	90	22
M50x3	90	36
M52x1.5	90	22
M52x2	90	22
M52x3	90	36
M52x4	90	36
M52x5	90	36
M55x1.5	105	22
M55x2	105	22
M55x3	105	36
M55x4	105	36
M56x1.5	105	22
M56x2	105	22
M56x3	105	36
M56x4	105	36
M56x5.5	105	36
M60x5.5	105	36
M64x6	120	38
M68x6	120	36

Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

Normal dies



Adjustable round split dies



Spiral Pointd dies



Ex. Ordering code : PD2l...-M03...

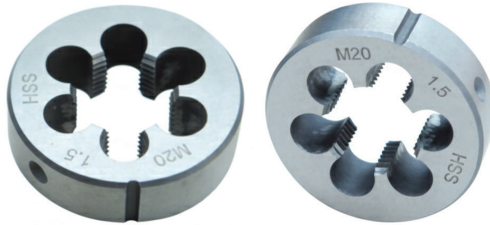
Size	Outside	Thickness
NO.0-8DUNF	16	5
NO.1-64UNC	16	5
NO.1-72UNF	16	5
NO.2-56UNC	16	5
NO.2-64UNF	16	5
NO.3-48UNC	16	5
NO.3-56UNF	16	5
NO.4-40UNC	20	5
NO.4-4BUNF	20	5
NO.5-40UNC	20	5
NO.5-44UNF	20	5
NO.6-32UNC	20	7
NO.6-4DUNF	20	5
NO.8-32UNC	20	7
NO.8-36UNF	20	7
NO.10-24UNC	20	7
NO.10-32UNF	20	7
NO.12-24UNC	20	7
NO.12-28UNF	20	7
1/4-20UNC	20	7
1/4/28UNF	20	7
5/16-18UNC	25	9
5/16-24UNF	25	9
3/8-16UNC	30	11
3/8-24UNF	30	11
7/16-14UNC	30	11

Size	Outside	Thickness
7/16-20UNF	30	11
1/2-13UNC	38	14
1/2-20UNF	38	10
9/16-12UNC	38	14
9/16-1BUNF	38	10
5/8-11UNC	45	18
5/8-18UNF	45	14
3/4-10UNC	45	18
3/4-16UNF	45	14
7/8-9UNC	55	22
7/8-14UNF	55	16
1-8UNC	55	22
1-12UNF	55	16
1-1/8-7UNC	65	25
1-1/8-12UNF	65	18
1-1/4-7UNC	65	25
1-1/4-12UNF	65	18
1-3/8-6UNC	65	25
1-3/8-12UNF	65	18
1-1/2-6UNC	75	30
1-1/2-12UNF	75	20
1-3/4-5UNC	90	36
2-4-1/2UNC	90	36
2-1/4-4-1/2UNC	105	36
2-1/2-4UNC	120	38
2-3/4-4UNC	120	36

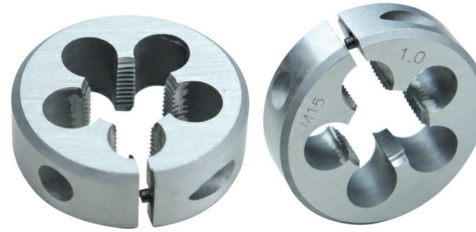
Dies

Material:HSS-M2,HSS-M35
Alloy steel,Carbon steel

Normal dies



Adjustable round split dies



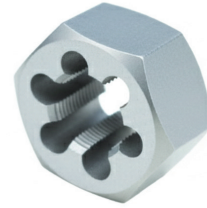
Spiral Pointed dies



Ex. Ordering code : PD21...-M03...

Size	Outside	Thickness	Size	Outside	Thickness
1/8-40BSW	20	5	7/8-9BSW	55	22
3/16-24BSW	20	7	7/8-11BSWF	55	22
3/16-32BSF	20	7	1-8BSW	55	22
1/4-20BSW	25	9	1-10BSF	55	22
1/4-26BSF	25	9	1-1/8-7BSW	65	25
5/16-18BSW	25	9	1-1/8-9BSF	65	25
5/16-22BSF	25	9	1-1/4-7BSW	65	25
3/8-16BSW	30	11	1-1/4-9BSF	65	25
3/8-20BSF	30	11	1-1/2-6BSW	75	30
7/16-14BSW	30	11	1-1/2-8BSF	75	30
7/16-18BSF	30	11	1-3/4-5BSW	90	36
1/2-12BSW	38	14	1-3/4-7BSF	90	36
1/2-16BSF	38	10	2-4-1/2BSW	90	36
9/16-12BSW	38	14	2-7BSF	90	36
9/16-16BSF	38	10	2-1/4-4BSW	105	36
5/8-11BSW	45	18	2-1/4-6BSF	105	36
5/8-14BSF	45	14	2-1/2-4BSW	120	36
11/16-11BSW	45	18	2-1/2-6BSF	120	36
11/16-14BSF	45	14	2-34-3-1/2BSW	120	36
3/4-10BSW	45	18	2-3/4-6BSF	120	36
3/4-12BSF	45	14			

Die Series



Ex. Ordering code : PD2MF..-M03...

Metric Series

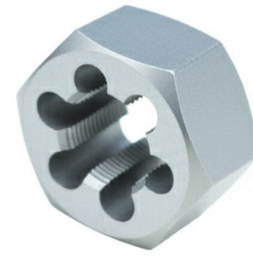
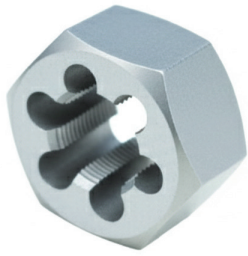
Size	Outside	Thickness
M7x0.35	19	5
M3x0.5	19	5
M4x0.5	19	5
M4x0.7	19	5
M5x0.5	19	5
M5x0.8	19	5
M6x0.75	19	7
M6x1	19	7
M7x0.75	22	9
M7x1	22	9
M8x0.75	22	9
M8x1	22	9
M8x1.25	22	9
M14x1	36	10
M14X1.5	36	10
M14x2	36	14
M16x1	41	14
M16x1.5	41	14
M16x2	41	18
M18x1	41	14
M18x1.5	41	14
M18x2.5	41	18
M20x1	41	14
M20x1.5	41	14
M20x2	41	18
M20x2.5	41	18
M22x1	50	16
M22x1.5	50	16
M22x2	50	16
M22x2.5	50	22
M24x1	50	16
M24x1.5	50	16
M24x2	50	16
M24x3	50	22
M27x1	60	18
M27x1.5	60	18
M27x2	60	18
M27x3	60	25
M30x1	60	18
M30x1.5	60	18
M30x2	60	18
M30x3.5	60	25

Size	Outside	Thickness
M9x0.75	22	9
M9x1	22	9
M9x1.25	22	9
M10x0.75	27	11
M10X1	27	11
M10x1.25	27	11
M10x1.5	27	11
M11x1	27	11
M11X1.5	27	11
M12X1	36	10
M12x1.25	36	10
M12x1.5	36	10
M12x1.75	36	4
M33x1.5	60	18
M33x2	60	18
M33x3.5	60	18
M36x1.5	60	18
M36x2	60	18
M36x3	60	25
M36x4	60	25
M39x1.5	70	25
M39x2	70	20
M39x3	70	20
M39x4	70	30
M42x1.5	70	30
M42x2	70	20
M42x3	70	20
M42x4.5	70	30
M45x1.5	85	30
M45x2	85	22
M45x3	85	22
M45x4.5	85	36
M48x1.5	85	36
M48X2	85	22
M48x3	85	22
M48X4	85	36
M48x5	85	36
M52x1.5	85	22
M52x2	85	22
M52x3	85	36
M52x4	85	36
M52x5	85	36

Die Series

HEXAGON DIES/BSW.BSF

Britain Series



Ex. Ordering code : PD2I..-M03...

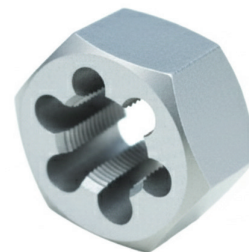
Size	Outside	Thickness
1/8-40 BSW	18	5
3/16-24BSW	18	7
3/16-32 BSF	18	7
7/32-28 BSF	18	7
1/4-20 BSW	18	7
1/4-26BSF	18	7
9/32-26BSF	21	9
5/16-18BSW	21	9
5/16-22BSF	21	9
3/8-16BSW	27	11
3/8-20BSF	27	11
7/16-14BSW	27	11
7/16-18BSF	27	11
1/2-12BSW	36	14
1/2-16BSF	36	14
9/16-12BSW	36	14
9/16-16BSF	36	10
5/8-11BSW	41	18
5/8-14RSF	41	14
11/16-11BSW	41	18
11/16-14BSF	41	14

Size	Outside	Thickness
3/4-10BSW	41	18
3/4-12BSF	41	18
7/8-9BSW	50	22
7/8-11BSF	50	22
1-8BSW	50	22
1-10BSF	50	22
1-1/8-7BSW	60	25
1-1/8-9BSF	60	25
1-1/4-7BSW	60	25
1-1/4-9BSF	60	25
1-3/8-6BSW	60	25
1-3/8-6BSF	60	25
1-1/2-6BSW	70	30
1-1/2-8BSF	70	30
1-5/8-5BSW	70	30
1-5/8-8BSF	70	30
1-3/4-5BSW	85	36
1-3/4-7BSF	85	36
2-4-1/2BSW	85	36
2-7BSW	85	36

HEXAGON DIES/UNC.UNF

United Series

Die Series



Ex. Ordering code : PD21..-M03...

Size	Outside	Thickness
NO.4-40UNC	19	5
NO.4-48UNF	19	5
NO.5-40UNC	19	5
NO.5-44UNF	19	5
NO.6-32UNC	19	7
NO.6-40UNF	19	5
NO.8-32UNC	19	7
NO.8-36UNF	19	7
NO.10-24UNC	19	7
NO.10-32UNF	19	7
NO.12-24UNC	19	7
NO.12-28UNF	19	7
1/4-20UNC	18	7
1/4-28UNF	18	7
5/16-18UNC	21	9
5/16-24UNF	21	9
3/8-16UNC	27	11
3/8-24UNF	27	11
7/16-14LINC	97	11
7/16-20UNF	27	11
1/2-13UNC	36	14

Size	Outside	Thickness
1/2-20UNF	36	10
9/16-12UNF	36	14
9/16-18UNF	36	10
5/8-11UNC	41	18
5/8-18UNF	41	14
3/4-10UNC	41	18
3/4-16UNF	41	14
7/8-9UNC	50	22
7/8-14UNF	50	16
1-8UNC	50	22
1-8UNF	50	16
1-1/8-7UNC	60	25
1-1/8-12UNF	60	18
1-1/4-7UNC	60	25
1-1/4-12UNF	60	18
1-3/8-6UNC	60	25
1-3/8-12UNF	60	18
1-1/2-6UNC	70	30
1-1/2-12UNF	70	20
1-3/4-5UNC	85	38
2-4-1/2UNC	85	36

NOTES

Lined area for notes, consisting of multiple horizontal lines.



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