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LFTA high performance	**218LFTA**	214	
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SUTA high perfromance	**980SUTA**	224	
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HSS-HSS/Co general purpose	**118N**	234	
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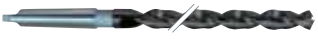
	1693LS	283	
	145N	285	
	145NTI	285	
	245N	290	
	241LS	292	
	2701LS	294	
	2702LS	296	

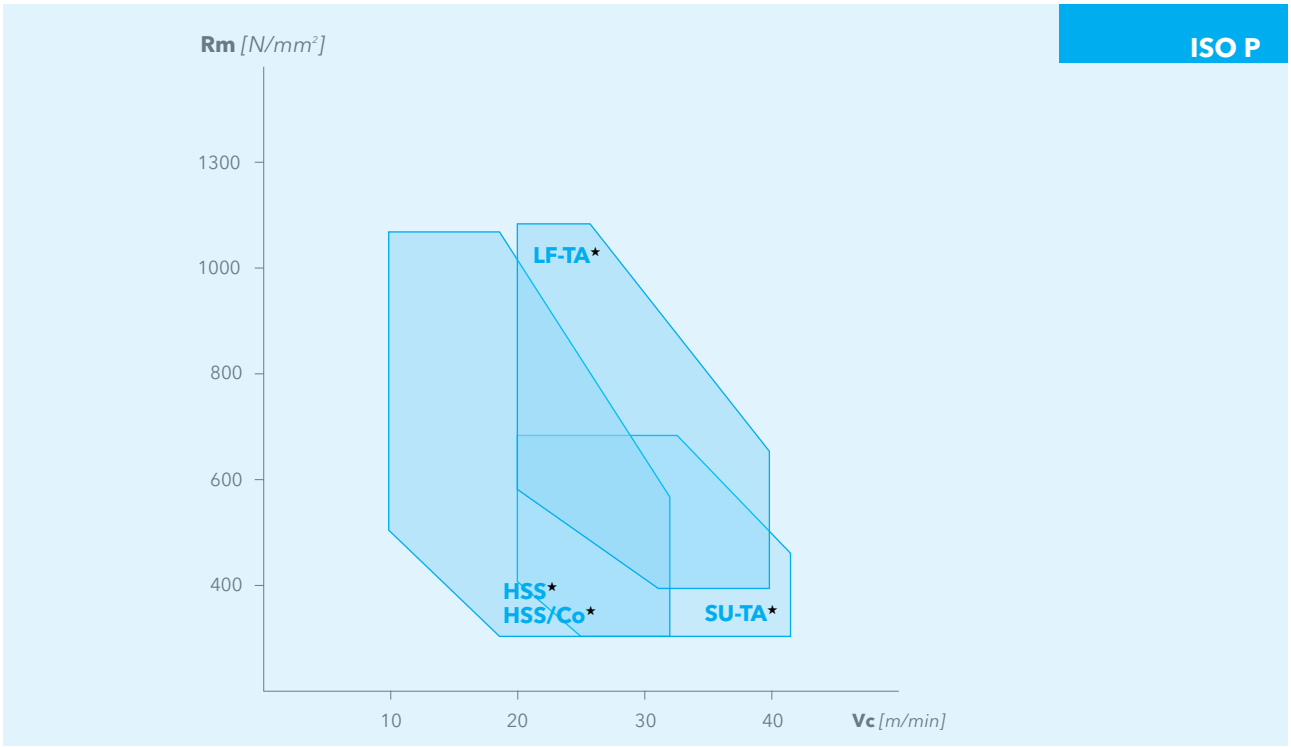
Indice grafico Auswahlhilfe Indice graphique Índice gráfico Руководство по выбору

RANGE	DRILLING DEPTH	NORM	TYPE	MATERIAL / COATING	HRC	POINT ANGLE	HELIX ANGLE	CHAMFER	ISO P	ISO M	ISO K	ISO N	ISO S	ISO H
2-20	extra short	DIN1897	LF	HSS/Co PV10		130°	35°-40°		★	☆	★	☆		
2-20	short	DIN338	LF	HSS/Co PV10		130°	35°-40°		★	☆	★	☆		
2-13	extra short	OSAWA	SU	HSSE PV10		120°	38°		★	★		★	☆	
2-20	short	OSAWA	SU	HSSE PV10		120°	38°		★	★		★	☆	
1-16	extra short	DIN1897	N	HSS OX		118°	25°-30°		★		☆	☆		
1-20	extra short	DIN1897	NH	HSS/Co HT		130°	30°		★	★	☆	☆	☆	
1-13	short	DIN338	SPLIT POINT	HSS TiN		118°	30°		★	☆	★	☆	☆	
0.2-20	short	DIN338	N	HSS OX		118°	25°-30°		★		☆	☆		
1-16	short	DIN338	N	HSS TiN		118°	25°-30°		★		☆	☆		
1.5-10	short	DIN338	H	HSS BR		118°	12°-15°					★		
1.5-10	short	DIN338	W	HSS BR		130°	35°-40°					★		
1-13	short	DIN338	SPLIT POINT	HSS/Co TiN		135°	33°		★	★	★	☆	☆	
1-20	short	DIN338	NH	HSS/Co HT		130°	30°		★	★	☆	☆	☆	
0.5-12	long	DIN340	NH	HSS/Co HT		130°	30°		★	★	☆	☆	☆	
2-13	long	DIN340	LS	HSS/Co OX		130°	35°-40°		★	☆	★			
2-13	long	DIN340	LS	HSS/Co PV15		130°	35°-40°		★	☆	★			
2-13	extra long	DIN1869/1	LS	HSS/Co BR		130°	35°-40°		★	☆	★			
2-13	extra long	DIN1869/1	LS	HSS/Co PV15		130°	35°-40°		★	☆	★			
3-12	extra long	DIN1869/2	LS	HSS BR		130°	35°-40°		★		★			
3.5-12	extra long	DIN1869/3	LS	HSS BR		130°	35°-40°		★		★			
5-60	short	DIN345	N	HSS OX		118°	25°-30°		★		☆	☆		
13-30	short	DIN345	N	HSS TiN		118°	25°-30°		★		☆	☆		
13-30	short	DIN345	NH	HSS/Co OX		118°	30°		★	★	☆	☆	☆	
13-30	long	DIN341	LS	HSS/Co OX		130°	35°-40°		★	☆	★			
13-30	extra long	DIN1870/1	LS	HSS/Co OX		130°	35°-40°		★	☆	★			
13-30	extra long	DIN1870/2	LS	HSS/Co OX		130°	35°-40°		★	☆	★			

★ 1st choice ☆ suitable

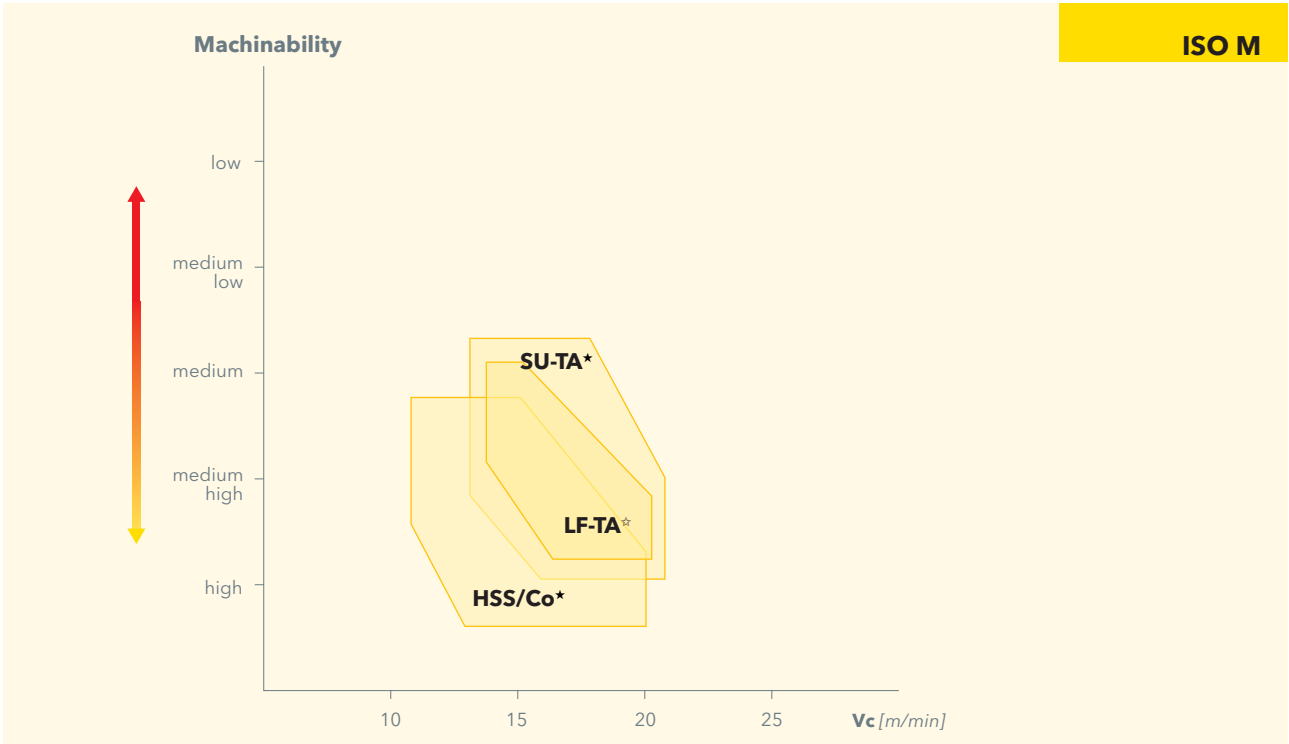
Grafici applicativi Anwendungsgrafiken Graphiques d'application Gráficos aplicativos Диаграммы

STEEL APPLICATION



★ 1st choice ☆ suitable

STAINLESS STEEL APPLICATION

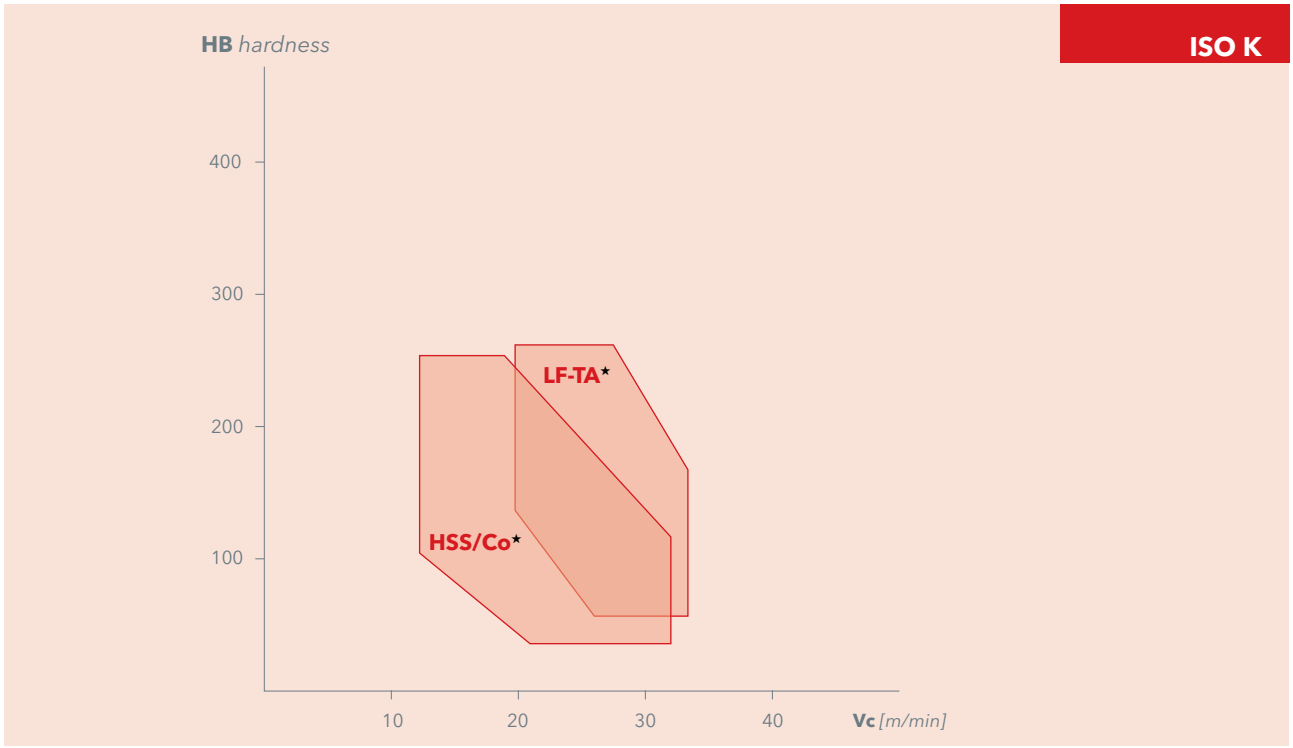


★ 1st choice ☆ suitable

LFTA : high performance (page 213)
SUTA : high performance (page 223)
HSS-HSS/Co : general purpose (page 233)

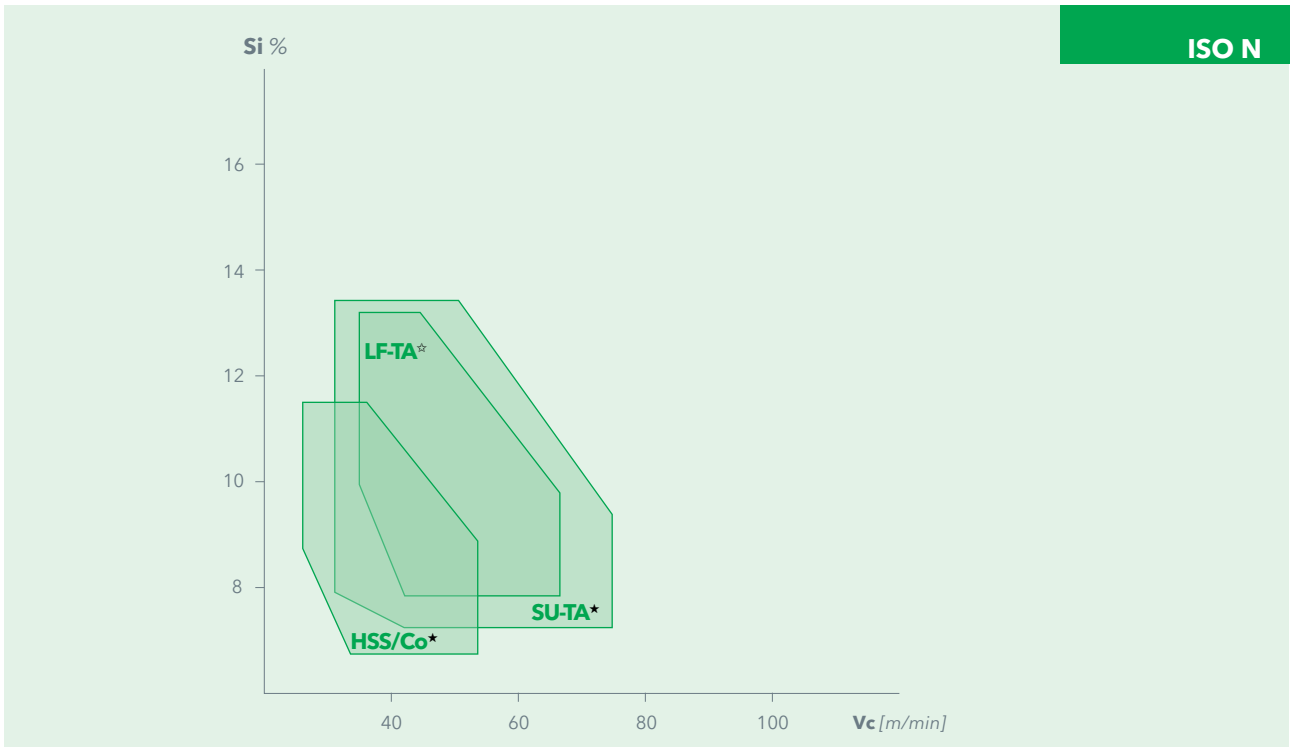
Grafici applicativi Anwendungsgrafiken Graphiques d'application Gráficos aplicativos Диаграммы

CAST IRON APPLICATION



★ 1st choice ☆ suitable

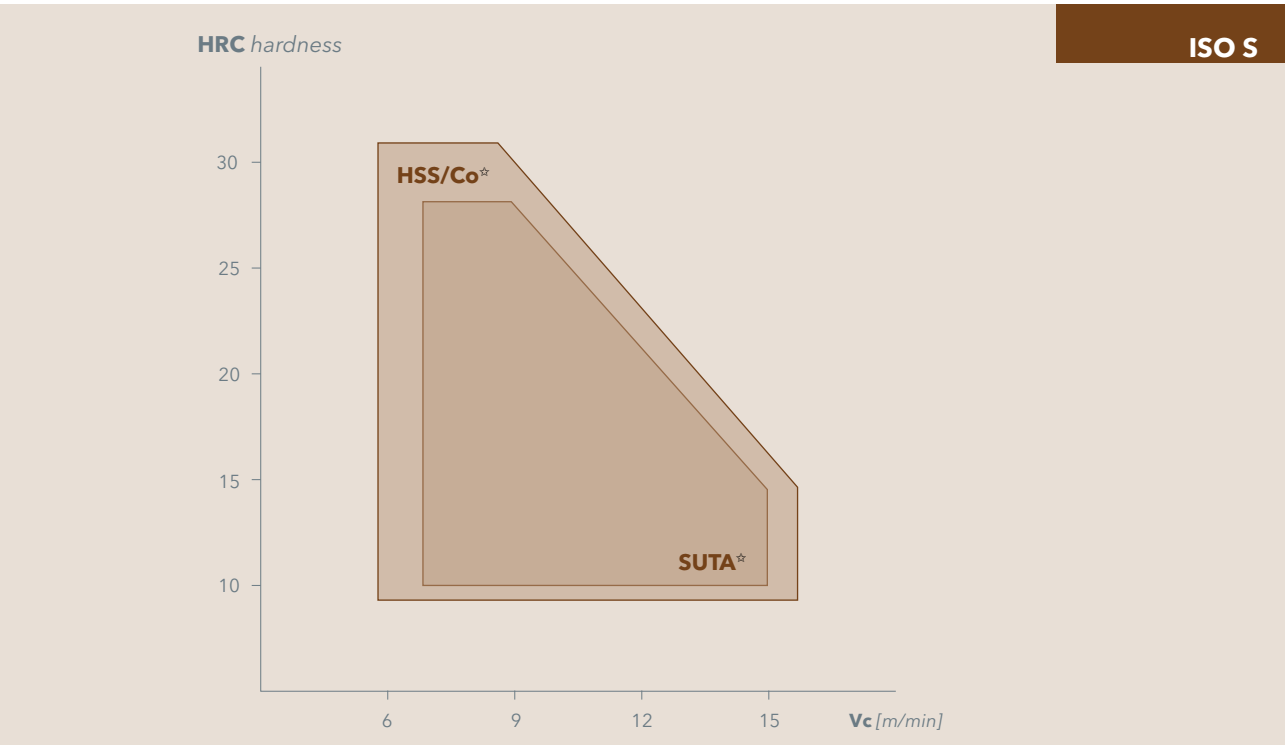
NON-FERROUS MATERIALS APPLICATION



★ 1st choice ☆ suitable

LFTA : high performance (page 213)
SUTA : high performance (page 223)
HSS-HSS/Co : general purpose (page 233)

SUPER ALLOYS APPLICATION



★ 1st choice ☆ suitable

SUTA : high performance (page 223)
HSS-HSS/Co : general purpose (page 233)

LFTA
HIGH PERFORMANCE

High performance and self-centering geometry. Featuring top quality HSS/Co+PV10 and very versatile cutting geometry, enables outstanding performance on a wide range of materials.

Alto rendimento e affilatura autocentrante. Costruita con HSS/Co+PV10 di alta qualità e caratterizzata da una geometria di taglio molto versatile, garantisce elevate prestazioni su una vasta gamma di materiali.

Hohe Leistungen und selbstzentrierende Schnittgeometrie. Aus hervorragendem HSS/Co mit PV10 Beschichtung. Dank der vielseitigen Geometrie, sind hohe Leistungen auf einem sehr breiten Spektrum von Materialien möglich.

Haute performance et affûtage auto-centré. Fabriquée en HSS/Co+PV10 de la plus haute qualité et caractérisée par une géométrie de coupe très polyvalente, elle garantit des performances excellentes dans une grande variété de matériaux.

Broca de alto rendimiento con afilado autocentrante. Fabricada en HSS/Co con recubrimiento PV10, gracias a su geometría de corte muy versátil, permite lograr un altísimo rendimiento en una gama muy amplia de materiales.

Высокопроизводительная и самоцентрующаяся геометрия. Использование HSS/Co высочайшего качества с покрытием PV10 и универсальная геометрия, позволяет получить повышенную производительность на широком спектре обрабатываемых материалов.

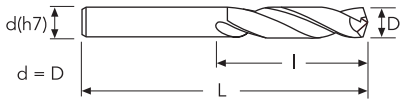
218LFTA

self-centering, general purpose, extra-short

DIN 1897 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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2.20	0/-0.014	2.2	13	40	5	P218LFTA0220	h
2.30	0/-0.014	2.3	13	40	5	P218LFTA0230	h
2.40	0/-0.014	2.4	14	43	5	P218LFTA0240	h
2.50	0/-0.014	2.5	14	43	5	P218LFTA0250	h
2.60	0/-0.014	2.6	14	43	5	P218LFTA0260	h
2.70	0/-0.014	2.7	16	46	5	P218LFTA0270	h
2.80	0/-0.014	2.8	16	46	5	P218LFTA0280	h
2.90	0/-0.014	2.9	16	46	5	P218LFTA0290	h
3.00	0/-0.014	3	16	46	5	P218LFTA0300	h
3.10	0/-0.018	3.1	18	49	5	P218LFTA0310	h
3.20	0/-0.018	3.2	18	49	5	P218LFTA0320	h
3.30	0/-0.018	3.3	18	49	5	P218LFTA0330	h
3.40	0/-0.018	3.4	20	52	5	P218LFTA0340	h
3.50	0/-0.018	3.5	20	52	5	P218LFTA0350	h
3.60	0/-0.018	3.6	20	52	5	P218LFTA0360	h
3.70	0/-0.018	3.7	20	52	5	P218LFTA0370	h
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4.80	0/-0.018	4.8	26	62	5	P218LFTA0480	h
4.90	0/-0.018	4.9	26	62	5	P218LFTA0490	h
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5.30	0/-0.018	5.3	26	62	5	P218LFTA0530	h
5.40	0/-0.018	5.4	28	66	5	P218LFTA0540	h
5.50	0/-0.018	5.5	28	66	5	P218LFTA0550	h
5.60	0/-0.018	5.6	28	66	5	P218LFTA0560	h
5.70	0/-0.018	5.7	28	66	5	P218LFTA0570	h
5.80	0/-0.018	5.8	28	66	5	P218LFTA0580	h

h stock standard f non-standard stock m stock exhaustion

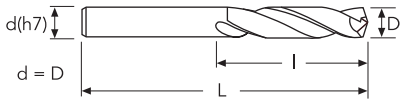
218LFTA

self-centering, general purpose, extra-short

DIN 1897 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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6.30	0/-0.022	6.3	31	70	5	P218LFTA0630	h
6.40	0/-0.022	6.4	31	70	5	P218LFTA0640	h
6.50	0/-0.022	6.5	31	70	5	P218LFTA0650	h
6.60	0/-0.022	6.6	31	70	5	P218LFTA0660	h
6.70	0/-0.022	6.7	31	70	5	P218LFTA0670	h
6.80	0/-0.022	6.8	34	74	5	P218LFTA0680	h
6.90	0/-0.022	6.9	34	74	5	P218LFTA0690	h
7.00	0/-0.022	7	34	74	5	P218LFTA0700	h
7.10	0/-0.022	7.1	34	74	5	P218LFTA0710	h
7.20	0/-0.022	7.2	34	74	5	P218LFTA0720	h
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7.40	0/-0.022	7.4	34	74	5	P218LFTA0740	h
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7.60	0/-0.022	7.6	37	79	5	P218LFTA0760	h
7.70	0/-0.022	7.7	37	79	5	P218LFTA0770	h
7.80	0/-0.022	7.8	37	79	5	P218LFTA0780	h
7.90	0/-0.022	7.9	37	79	5	P218LFTA0790	h
8.00	0/-0.022	8	37	79	5	P218LFTA0800	h
8.10	0/-0.022	8.1	37	79	5	P218LFTA0810	h
8.20	0/-0.022	8.2	37	79	5	P218LFTA0820	h
8.30	0/-0.022	8.3	37	79	5	P218LFTA0830	h
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8.70	0/-0.022	8.7	40	84	5	P218LFTA0870	h
8.80	0/-0.022	8.8	40	84	5	P218LFTA0880	h
8.90	0/-0.022	8.9	40	84	5	P218LFTA0890	h
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9.10	0/-0.022	9.1	40	84	5	P218LFTA0910	h
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9.30	0/-0.022	9.3	40	84	5	P218LFTA0930	h
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9.60	0/-0.022	9.6	43	89	5	P218LFTA0960	h
9.70	0/-0.022	9.7	43	89	5	P218LFTA0970	h

h stock standard f non-standard stock m stock exhaustion

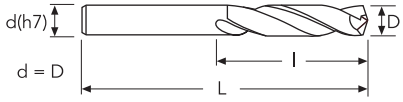
218LFTA

self-centering, general purpose, extra-short

DIN 1897 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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12.80	0/-0.027	12.8	51	102	1	P218LFTA1280	h
13.00	0/-0.027	13	51	102	1	P218LFTA1300	h
13.30	0/-0.027	13.3	54	107	1	P218LFTA1330	h
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13.80	0/-0.027	13.8	54	107	1	P218LFTA1380	h
14.00	0/-0.027	14	54	107	1	P218LFTA1400	h
14.50	0/-0.027	14.5	56	111	1	P218LFTA1450	h
14.80	0/-0.027	14.8	56	111	1	P218LFTA1480	h
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18.00	0/-0.027	18	62	123	1	P218LFTA1800	h
18.50	0/-0.033	18.5	64	127	1	P218LFTA1850	h
19.00	0/-0.033	19	64	127	1	P218LFTA1900	h
19.50	0/-0.033	19.5	66	131	1	P218LFTA1950	h
20.00	0/-0.033	20	66	131	1	P218LFTA2000	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

218LFTA

Material Group ISO 513	P1 P2			P3 P4			M1 M2					
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²					
Vc (m/min)	**40-50**			**30-40**			**18-22**					
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
2	7170	0.060	430	5570	0.051	280	3180	0.042	130			
3	4780	0.084	400	3720	0.071	270	2120	0.059	120			
4	3580	0.108	390	2790	0.092	260	1590	0.076	120			
5	2870	0.132	380	2230	0.112	250	1270	0.092	120			
6	2390	0.156	370	1860	0.133	250	1060	0.109	120			
7	2050	0.180	370	1590	0.153	240	910	0.126	110			
8	1790	0.204	370	1390	0.173	240	800	0.143	110			
9	1590	0.228	360	1240	0.194	240	710	0.160	110			
10	1430	0.252	360	1110	0.214	240	640	0.176	110			
11	1300	0.276	360	1010	0.235	240	580	0.179	100			
12	1190	0.300	360	930	0.255	240	530	0.195	100			
13	1100	0.324	360	860	0.275	240	490	0.204	100			
14	1020	0.348	350	800	0.296	240	450	0.219	100			
15	960	0.372	360	740	0.316	230	420	0.223	90			
16	900	0.396	360	700	0.337	240	400	0.238	100			
17	840	0.420	350	660	0.357	240	370	0.252	90			
18	800	0.444	360	620	0.377	230	350	0.266	90			
19	750	0.468	350	590	0.398	230	340	0.281	100			
20	720	0.492	350	560	0.418	230	320	0.295	90			

Material Group ISO 513	K1 K2			N1 N2			N3 N4					
Hardness/Rm	150-350 HB											
Vc (m/min)	**30-40**			**65-75**			**45-55**					
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
2	5570	0.057	320	11150	0.066	740	7960	0.060	480			
3	3720	0.080	300	7430	0.092	690	5310	0.084	450			
4	2790	0.103	290	5570	0.119	660	3980	0.108	430			
5	2230	0.125	280	4460	0.145	650	3180	0.132	420			
6	1860	0.148	280	3720	0.172	640	2650	0.156	410			
7	1590	0.171	270	3180	0.198	630	2270	0.180	410			
8	1390	0.194	270	2790	0.224	630	1990	0.204	410			
9	1240	0.217	270	2480	0.251	620	1770	0.228	400			
10	1110	0.239	270	2230	0.277	620	1590	0.252	400			
11	1010	0.262	260	2030	0.304	620	1450	0.276	400			
12	930	0.285	270	1860	0.330	610	1330	0.300	400			
13	860	0.308	260	1710	0.356	610	1220	0.324	400			
14	800	0.331	260	1590	0.383	610	1140	0.348	400			
15	740	0.353	260	1490	0.409	610	1060	0.372	390			
16	700	0.376	260	1390	0.436	610	1000	0.396	400			
17	660	0.399	260	1310	0.462	610	940	0.420	390			
18	620	0.422	260	1240	0.488	610	880	0.444	390			
19	590	0.445	260	1170	0.515	600	840	0.468	390			
20	560	0.467	260	1110	0.541	600	800	0.492	390			

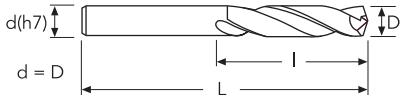
238LFTA

self-centering, general purpose, short

DIN 338 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
2.00	0/-0.014	2	24	49	5	P238LFTA0200	h
2.10	0/-0.014	2.1	24	49	5	P238LFTA0210	h
2.20	0/-0.014	2.2	27	53	5	P238LFTA0220	h
2.30	0/-0.014	2.3	27	53	5	P238LFTA0230	h
2.40	0/-0.014	2.4	30	57	5	P238LFTA0240	h
2.50	0/-0.014	2.5	30	57	5	P238LFTA0250	h
2.60	0/-0.014	2.6	30	57	5	P238LFTA0260	h
2.70	0/-0.014	2.7	33	61	5	P238LFTA0270	h
2.80	0/-0.014	2.8	33	61	5	P238LFTA0280	h
2.90	0/-0.014	2.9	33	61	5	P238LFTA0290	h
3.00	0/-0.014	3	33	61	5	P238LFTA0300	h
3.10	0/-0.018	3.1	36	65	5	P238LFTA0310	h
3.20	0/-0.018	3.2	36	65	5	P238LFTA0320	h
3.30	0/-0.018	3.3	36	65	5	P238LFTA0330	h
3.40	0/-0.018	3.4	39	70	5	P238LFTA0340	h
3.50	0/-0.018	3.5	39	70	5	P238LFTA0350	h
3.60	0/-0.018	3.6	39	70	5	P238LFTA0360	h
3.70	0/-0.018	3.7	39	70	5	P238LFTA0370	h
3.80	0/-0.018	3.8	43	75	5	P238LFTA0380	h
3.90	0/-0.018	3.9	43	75	5	P238LFTA0390	h
4.00	0/-0.018	4	43	75	5	P238LFTA0400	h
4.10	0/-0.018	4.1	43	75	5	P238LFTA0410	h
4.20	0/-0.018	4.2	43	75	5	P238LFTA0420	h
4.30	0/-0.018	4.3	47	80	5	P238LFTA0430	h
4.40	0/-0.018	4.4	47	80	5	P238LFTA0440	h
4.50	0/-0.018	4.5	47	80	5	P238LFTA0450	h
4.60	0/-0.018	4.6	47	80	5	P238LFTA0460	h
4.70	0/-0.018	4.7	47	80	5	P238LFTA0470	h
4.80	0/-0.018	4.8	52	86	5	P238LFTA0480	h
4.90	0/-0.018	4.9	52	86	5	P238LFTA0490	h
5.00	0/-0.018	5	52	86	5	P238LFTA0500	h
5.10	0/-0.018	5.1	52	86	5	P238LFTA0510	h
5.20	0/-0.018	5.2	52	86	5	P238LFTA0520	h
5.30	0/-0.018	5.3	52	86	5	P238LFTA0530	h
5.40	0/-0.018	5.4	57	93	5	P238LFTA0540	h
5.50	0/-0.018	5.5	57	93	5	P238LFTA0550	h
5.60	0/-0.018	5.6	57	93	5	P238LFTA0560	h
5.70	0/-0.018	5.7	57	93	5	P238LFTA0570	h
5.80	0/-0.018	5.8	57	93	5	P238LFTA0580	h

h stock standard f non-standard stock m stock exhaustion

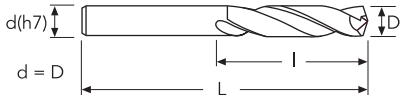
238LFTA

self-centering, general purpose, short

DIN 338 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
5.90	0/-0.018	5.9	57	93	5	P238LFTA0590	h
6.00	0/-0.018	6	57	93	5	P238LFTA0600	h
6.10	0/-0.022	6.1	63	101	1	P238LFTA0610	h
6.20	0/-0.022	6.2	63	101	1	P238LFTA0620	h
6.30	0/-0.022	6.3	63	101	1	P238LFTA0630	h
6.40	0/-0.022	6.4	63	101	1	P238LFTA0640	h
6.50	0/-0.022	6.5	63	101	1	P238LFTA0650	h
6.60	0/-0.022	6.6	63	101	1	P238LFTA0660	h
6.70	0/-0.022	6.7	63	101	1	P238LFTA0670	h
6.80	0/-0.022	6.8	69	109	1	P238LFTA0680	h
6.90	0/-0.022	6.9	69	109	1	P238LFTA0690	h
7.00	0/-0.022	7	69	109	1	P238LFTA0700	h
7.10	0/-0.022	7.1	69	109	1	P238LFTA0710	h
7.20	0/-0.022	7.2	69	109	1	P238LFTA0720	h
7.30	0/-0.022	7.3	69	109	1	P238LFTA0730	h
7.40	0/-0.022	7.4	69	109	1	P238LFTA0740	h
7.50	0/-0.022	7.5	69	109	1	P238LFTA0750	h
7.60	0/-0.022	7.6	75	117	1	P238LFTA0760	h
7.70	0/-0.022	7.7	75	117	1	P238LFTA0770	h
7.80	0/-0.022	7.8	75	117	1	P238LFTA0780	h
7.90	0/-0.022	7.9	75	117	1	P238LFTA0790	h
8.00	0/-0.022	8	75	117	1	P238LFTA0800	h
8.10	0/-0.022	8.1	75	117	1	P238LFTA0810	h
8.20	0/-0.022	8.2	75	117	1	P238LFTA0820	h
8.30	0/-0.022	8.3	75	117	1	P238LFTA0830	h
8.40	0/-0.022	8.4	75	117	1	P238LFTA0840	h
8.50	0/-0.022	8.5	75	117	1	P238LFTA0850	h
8.60	0/-0.022	8.6	81	125	1	P238LFTA0860	h
8.70	0/-0.022	8.7	81	125	1	P238LFTA0870	h
8.80	0/-0.022	8.8	81	125	1	P238LFTA0880	h
8.90	0/-0.022	8.9	81	125	1	P238LFTA0890	h
9.00	0/-0.022	9	81	125	1	P238LFTA0900	h
9.10	0/-0.022	9.1	81	125	1	P238LFTA0910	h
9.20	0/-0.022	9.2	81	125	1	P238LFTA0920	h
9.30	0/-0.022	9.3	81	125	1	P238LFTA0930	h
9.40	0/-0.022	9.4	81	125	1	P238LFTA0940	h
9.50	0/-0.022	9.5	81	125	1	P238LFTA0950	h
9.60	0/-0.022	9.6	87	133	1	P238LFTA0960	h
9.70	0/-0.022	9.7	87	133	1	P238LFTA0970	h

h stock standard f non-standard stock m stock exhaustion

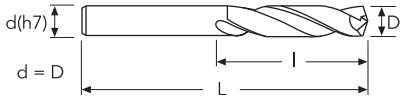
238LFTA

self-centering, general purpose, short

DIN 338 | LF | HSS/CO PV10 | 130° | 35-40°

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
9.80	0/-0.022	9.8	87	133	1	P238LFTA0980	h
9.90	0/-0.022	9.9	87	133	1	P238LFTA0990	h
10.00	0/-0.022	10	87	133	1	P238LFTA1000	h
10.20	0/-0.027	10.2	87	133	1	P238LFTA1020	h
10.30	0/-0.027	10.3	87	133	1	P238LFTA1030	h
10.50	0/-0.027	10.5	87	133	1	P238LFTA1050	h
10.80	0/-0.027	10.8	94	142	1	P238LFTA1080	h
11.00	0/-0.027	11	94	142	1	P238LFTA1100	h
11.20	0/-0.027	11.2	94	142	1	P238LFTA1120	h
11.30	0/-0.027	11.3	94	142	1	P238LFTA1130	h
11.50	0/-0.027	11.5	94	142	1	P238LFTA1150	h
11.80	0/-0.027	11.8	94	142	1	P238LFTA1180	h
12.00	0/-0.027	12	101	151	1	P238LFTA1200	h
12.20	0/-0.027	12.2	101	151	1	P238LFTA1220	h
12.50	0/-0.027	12.5	101	151	1	P238LFTA1250	h
12.80	0/-0.027	12.8	101	151	1	P238LFTA1280	h
13.00	0/-0.027	13	101	151	1	P238LFTA1300	h
13.30	0/-0.027	13.3	108	160	1	P238LFTA1330	h
13.50	0/-0.027	13.5	108	160	1	P238LFTA1350	h
13.80	0/-0.027	13.8	108	160	1	P238LFTA1380	h
14.00	0/-0.027	14	108	160	1	P238LFTA1400	h
14.50	0/-0.027	14.5	114	169	1	P238LFTA1450	h
14.80	0/-0.027	14.8	114	169	1	P238LFTA1480	h
15.00	0/-0.027	15	114	169	1	P238LFTA1500	h
15.30	0/-0.027	15.3	120	178	1	P238LFTA1530	h
15.50	0/-0.027	15.5	120	178	1	P238LFTA1550	h
15.80	0/-0.027	15.8	120	178	1	P238LFTA1580	h
16.00	0/-0.027	16	120	178	1	P238LFTA1600	h
16.50	0/-0.027	16.5	125	184	1	P238LFTA1650	h
17.00	0/-0.027	17	125	184	1	P238LFTA1700	h
17.50	0/-0.027	17.5	130	191	1	P238LFTA1750	h
18.00	0/-0.027	18	130	191	1	P238LFTA1800	h
18.50	0/-0.033	18.5	135	198	1	P238LFTA1850	h
19.00	0/-0.033	19	135	198	1	P238LFTA1900	h
19.50	0/-0.033	19.5	140	205	1	P238LFTA1950	h
20.00	0/-0.033	20	140	205	1	P238LFTA2000	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

238LFTA

	Material Group ISO 513	P1 P2			P3 P4			M1 M2					
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²					
	Vc (m/min)	30-40			20-30			14-18					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	2	5570	0.054	300	3980	0.046	180	2550	0.038	100			
	3	3720	0.076	280	2650	0.064	170	1700	0.053	90			
	4	2790	0.097	270	1990	0.083	160	1270	0.068	90			
	5	2230	0.119	260	1590	0.101	160	1020	0.083	80			
	6	1860	0.140	260	1330	0.119	160	850	0.098	80			
	7	1590	0.162	260	1140	0.138	160	730	0.113	80			
	8	1390	0.184	260	1000	0.156	160	640	0.129	80			
	9	1240	0.205	250	880	0.174	150	570	0.144	80			
	10	1110	0.227	250	800	0.193	150	510	0.159	80			
	11	1010	0.248	250	720	0.211	150	460	0.161	70			
	12	930	0.270	250	660	0.230	150	420	0.176	70			
	13	860	0.292	250	610	0.248	150	390	0.184	70			
	14	800	0.313	250	570	0.266	150	360	0.197	70			
	15	740	0.335	250	530	0.285	150	340	0.201	70			
	16	700	0.356	250	500	0.303	150	320	0.214	70			
	17	660	0.378	250	470	0.321	150	300	0.227	70			
	18	620	0.400	250	440	0.340	150	280	0.240	70			
	19	590	0.421	250	420	0.358	150	270	0.253	70			
	20	560	0.443	250	400	0.376	150	250	0.266	70			

	Material Group ISO 513	K1 K2			N1 N2			N3 N4					
	Hardness/Rm	150-350 HB											
	Vc (m/min)	25-35			50-60			35-45					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	2	4780	0.051	250	8760	0.059	520	6370	0.054	340			
	3	3180	0.072	230	5840	0.083	490	4250	0.076	320			
	4	2390	0.092	220	4380	0.107	470	3180	0.097	310			
	5	1910	0.113	220	3500	0.131	460	2550	0.119	300			
	6	1590	0.133	210	2920	0.154	450	2120	0.140	300			
	7	1360	0.154	210	2500	0.178	450	1820	0.162	290			
	8	1190	0.174	210	2190	0.202	440	1590	0.184	290			
	9	1060	0.195	210	1950	0.226	440	1420	0.205	290			
	10	960	0.215	210	1750	0.249	440	1270	0.227	290			
	11	870	0.236	210	1590	0.273	430	1160	0.248	290			
	12	800	0.257	210	1460	0.297	430	1060	0.270	290			
	13	730	0.277	200	1350	0.321	430	980	0.292	290			
	14	680	0.298	200	1250	0.345	430	910	0.313	290			
	15	640	0.318	200	1170	0.368	430	850	0.335	280			
	16	600	0.339	200	1090	0.392	430	800	0.356	290			
	17	560	0.359	200	1030	0.416	430	750	0.378	280			
	18	530	0.380	200	970	0.440	430	710	0.400	280			
	19	500	0.400	200	920	0.463	430	670	0.421	280			
	20	480	0.421	200	880	0.487	430	640	0.443	280			

SUTA
HIGH PERFORMANCE

High performance and self-centering geometry. Featuring premium HSSE+PV10 coating and special edge design, enables very low cutting pressure and outstanding performance on stainless steel, steel and non-ferrous materials.

Alto rendimento e affilatura autocentrante. Costruita con i migliori HSSE+PV10 e speciale geometria del tagliente, garantisce un bassissimo sforzo di taglio e prestazioni eccezionali nella foratura di acciaio inossidabile, acciaio e materiali non ferrosi.

Hohe Leistungen und selbstzentrierende Schnittgeometrie. Aus hervorragendem HSSE mit PV10 Beschichtung. Dank des sehr geringen Schneiddrucks, sind unschlagbare Leistungen auf rostfreien Stählen, Stählen und NE-Metall-Werkstoffe möglich.

Haute performance et affûtage autocentré. Fabriquée avec les meilleurs HSSE+PV10 et une géométrie spécifique de l'arête, elle permet de minimiser les efforts de coupe en garantissant des performances exceptionnelles dans le perçage des aciers inoxydables, des aciers et des matériaux non ferreux.

Broca de alto rendimiento con afilado autocentrante. Fabricada en HSSE Premium con recubrimiento PV10 y geometría especial, minimiza el esfuerzo de corte y permite lograr un altísimo rendimiento en aceros inoxidables, aceros y materiales no ferrosos.

Высокопроизводительная и самоцентрующаяся геометрия. Высококачественная быстрорежущая сталь с покрытием PV10 и специальная геометрия режущих кромок обеспечивает низкие силы резания и непревзойденную производительность при работе по нержавеющей стали, конструкционной стали и цветным металлам.

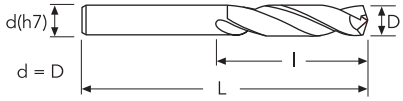
980SUTA

self centering, stainless steel, extra-short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
2.00	0/-0.014	2	12	44	1	P980SUTA0200	h
2.10	0/-0.014	2.1	12	44	1	P980SUTA0210	h
2.20	0/-0.014	2.2	13	45	1	P980SUTA0220	h
2.30	0/-0.014	2.3	13	45	1	P980SUTA0230	h
2.40	0/-0.014	2.4	14	46	1	P980SUTA0240	h
2.50	0/-0.014	2.5	14	46	1	P980SUTA0250	h
2.60	0/-0.014	2.6	14	46	1	P980SUTA0260	h
2.70	0/-0.014	2.7	16	48	1	P980SUTA0270	h
2.80	0/-0.014	2.8	16	48	1	P980SUTA0280	h
2.90	0/-0.014	2.9	16	48	1	P980SUTA0290	h
3.00	0/-0.014	3	16	48	1	P980SUTA0300	h
3.10	0/-0.018	3.1	18	50	1	P980SUTA0310	h
3.20	0/-0.018	3.2	18	50	1	P980SUTA0320	h
3.30	0/-0.018	3.3	18	50	1	P980SUTA0330	h
3.40	0/-0.018	3.4	20	52	1	P980SUTA0340	h
3.50	0/-0.018	3.5	20	52	1	P980SUTA0350	h
3.60	0/-0.018	3.6	20	52	1	P980SUTA0360	h
3.70	0/-0.018	3.7	20	52	1	P980SUTA0370	h
3.80	0/-0.018	3.8	22	54	1	P980SUTA0380	h
3.90	0/-0.018	3.9	22	54	1	P980SUTA0390	h
4.00	0/-0.018	4	22	54	1	P980SUTA0400	h
4.10	0/-0.018	4.1	22	66	1	P980SUTA0410	h
4.20	0/-0.018	4.2	22	66	1	P980SUTA0420	h
4.30	0/-0.018	4.3	24	68	1	P980SUTA0430	h
4.40	0/-0.018	4.4	24	68	1	P980SUTA0440	h
4.50	0/-0.018	4.5	24	68	1	P980SUTA0450	h
4.60	0/-0.018	4.6	24	68	1	P980SUTA0460	h
4.70	0/-0.018	4.7	24	68	1	P980SUTA0470	h
4.80	0/-0.018	4.8	26	70	1	P980SUTA0480	h
4.90	0/-0.018	4.9	26	70	1	P980SUTA0490	h
5.00	0/-0.018	5	26	70	1	P980SUTA0500	h
5.10	0/-0.018	5.1	26	70	1	P980SUTA0510	h
5.20	0/-0.018	5.2	26	70	1	P980SUTA0520	h
5.30	0/-0.018	5.3	26	70	1	P980SUTA0530	h
5.40	0/-0.018	5.4	28	72	1	P980SUTA0540	h
5.50	0/-0.018	5.5	28	72	1	P980SUTA0550	h
5.60	0/-0.018	5.6	28	72	1	P980SUTA0560	h
5.70	0/-0.018	5.7	28	72	1	P980SUTA0570	h
5.80	0/-0.018	5.8	28	72	1	P980SUTA0580	h

h stock standard f non-standard stock m stock exhaustion

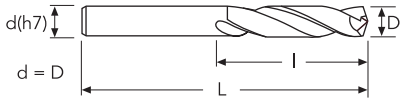
980SUTA

self centering, stainless steel, extra-short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
5.90	0/-0.018	5.9	28	72	1	P980SUTA0590	h
6.00	0/-0.018	6	28	72	1	P980SUTA0600	h
6.10	0/-0.022	6.1	31	75	1	P980SUTA0610	h
6.20	0/-0.022	6.2	31	75	1	P980SUTA0620	h
6.30	0/-0.022	6.3	31	75	1	P980SUTA0630	h
6.40	0/-0.022	6.4	31	75	1	P980SUTA0640	h
6.50	0/-0.022	6.5	31	75	1	P980SUTA0650	h
6.60	0/-0.022	6.6	31	75	1	P980SUTA0660	h
6.70	0/-0.022	6.7	31	75	1	P980SUTA0670	h
6.80	0/-0.022	6.8	34	78	1	P980SUTA0680	h
6.90	0/-0.022	6.9	34	78	1	P980SUTA0690	h
7.00	0/-0.022	7	34	78	1	P980SUTA0700	h
7.10	0/-0.022	7.1	34	78	1	P980SUTA0710	h
7.20	0/-0.022	7.2	34	78	1	P980SUTA0720	h
7.30	0/-0.022	7.3	34	78	1	P980SUTA0730	h
7.40	0/-0.022	7.4	34	78	1	P980SUTA0740	h
7.50	0/-0.022	7.5	34	78	1	P980SUTA0750	h
7.60	0/-0.022	7.6	37	81	1	P980SUTA0760	h
7.70	0/-0.022	7.7	37	81	1	P980SUTA0770	h
7.80	0/-0.022	7.8	37	81	1	P980SUTA0780	h
7.90	0/-0.022	7.9	37	81	1	P980SUTA0790	h
8.00	0/-0.022	8	37	81	1	P980SUTA0800	h
8.10	0/-0.022	8.1	37	87	1	P980SUTA0810	h
8.20	0/-0.022	8.2	37	87	1	P980SUTA0820	h
8.30	0/-0.022	8.3	37	87	1	P980SUTA0830	h
8.40	0/-0.022	8.4	37	87	1	P980SUTA0840	h
8.50	0/-0.022	8.5	37	87	1	P980SUTA0850	h
8.60	0/-0.022	8.6	40	90	1	P980SUTA0860	h
8.70	0/-0.022	8.7	40	90	1	P980SUTA0870	h
8.80	0/-0.022	8.8	40	90	1	P980SUTA0880	h
8.90	0/-0.022	8.9	40	90	1	P980SUTA0890	h
9.00	0/-0.022	9	40	90	1	P980SUTA0900	h
9.10	0/-0.022	9.1	40	90	1	P980SUTA0910	h
9.20	0/-0.022	9.2	40	90	1	P980SUTA0920	h
9.30	0/-0.022	9.3	40	90	1	P980SUTA0930	h
9.40	0/-0.022	9.4	40	90	1	P980SUTA0940	h
9.50	0/-0.022	9.5	40	90	1	P980SUTA0950	h
9.60	0/-0.022	9.6	43	93	1	P980SUTA0960	h
9.70	0/-0.022	9.7	43	93	1	P980SUTA0970	h

h stock standard f non-standard stock m stock exhaustion

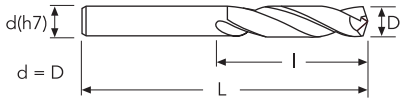
980SUTA

self centering, stainless steel, extra-short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
9.80	0/-0.022	9.8	43	93	1	P980SUTA0980	h
9.90	0/-0.022	9.9	43	93	1	P980SUTA0990	h
10.00	0/-0.022	10	43	93	1	P980SUTA1000	h
10.10	0/-0.022	10.1	43	100	1	P980SUTA1010	h
10.20	0/-0.022	10.2	43	100	1	P980SUTA1020	h
10.30	0/-0.022	10.3	43	100	1	P980SUTA1030	h
10.40	0/-0.022	10.4	43	100	1	P980SUTA1040	h
10.50	0/-0.022	10.5	43	100	1	P980SUTA1050	h
10.60	0/-0.022	10.6	43	100	1	P980SUTA1060	h
10.70	0/-0.022	10.7	47	104	1	P980SUTA1070	h
10.80	0/-0.022	10.8	47	104	1	P980SUTA1080	h
10.90	0/-0.022	10.9	47	104	1	P980SUTA1090	h
11.00	0/-0.022	11	47	104	1	P980SUTA1100	h
11.10	0/-0.022	11.1	47	104	1	P980SUTA1110	h
11.20	0/-0.022	11.2	47	104	1	P980SUTA1120	h
11.30	0/-0.022	11.3	47	104	1	P980SUTA1130	h
11.40	0/-0.022	11.4	47	104	1	P980SUTA1140	h
11.50	0/-0.022	11.5	47	104	1	P980SUTA1150	h
11.60	0/-0.022	11.6	47	104	1	P980SUTA1160	h
11.70	0/-0.022	11.7	47	104	1	P980SUTA1170	h
11.80	0/-0.022	11.8	47	104	1	P980SUTA1180	h
11.90	0/-0.022	11.9	51	108	1	P980SUTA1190	h
12.00	0/-0.022	12	51	108	1	P980SUTA1200	h
12.10	0/-0.022	12.1	51	108	1	P980SUTA1210	h
12.20	0/-0.022	12.2	51	108	1	P980SUTA1220	h
12.30	0/-0.022	12.3	51	108	1	P980SUTA1230	h
12.40	0/-0.022	12.4	51	108	1	P980SUTA1240	h
12.50	0/-0.022	12.5	51	108	1	P980SUTA1250	h
12.60	0/-0.022	12.6	51	108	1	P980SUTA1260	h
12.70	0/-0.022	12.7	51	108	1	P980SUTA1270	h
12.80	0/-0.022	12.8	51	108	1	P980SUTA1280	h
12.90	0/-0.022	12.9	51	108	1	P980SUTA1290	h
13.00	0/-0.022	13	51	108	1	P980SUTA1300	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

980SUTA

	Material Group ISO 513	P1 P2			M1 M2			M3					
	Hardness/Rm	500-700 N/mm²			< 750 N/mm²			550-850 N/mm²					
	Vc (m/min)	35-45			18-22			12-16					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	2	6370	0.060	380	3180	0.060	190	2230	0.042	90			
	3	4250	0.080	340	2120	0.080	170	1490	0.056	80			
	4	3180	0.100	320	1590	0.100	160	1110	0.070	80			
	5	2550	0.120	310	1270	0.120	150	890	0.084	70			
	6	2120	0.140	300	1060	0.140	150	740	0.098	70			
	7	1820	0.160	290	910	0.160	150	640	0.112	70			
	8	1590	0.180	290	800	0.180	140	560	0.126	70			
	9	1420	0.200	280	710	0.200	140	500	0.140	70			
	10	1270	0.230	290	640	0.230	150	450	0.161	70			
	11	1160	0.260	300	580	0.260	150	410	0.169	70			
	12	1060	0.300	320	530	0.300	160	370	0.195	70			
	13	980	0.340	330	490	0.340	170	340	0.221	80			
	14	910	0.360	330	450	0.360	160	320	0.234	70			
	15	850	0.380	320	420	0.380	160	300	0.247	70			
	16	800	0.400	320	400	0.400	160	280	0.260	70			
	17	750	0.425	320	370	0.425	160	260	0.276	70			
	18	710	0.450	320	350	0.450	160	250	0.293	70			
	19	670	0.460	310	340	0.460	160	230	0.299	70			
	20	640	0.470	300	320	0.470	150	220	0.306	70			

	Material Group ISO 513	N1 N2 N4			N3			S1 S2			S4		
	Hardness/Rm							< 30 HRC					
	Vc (m/min)	60-80			30-40			8-12			12-16		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	11150	0.066	740	5570	0.051	280	1590	0.024	38	2230	0.042	90
	3	7430	0.088	650	3720	0.068	250	1060	0.032	34	1490	0.056	80
	4	5570	0.120	670	2790	0.085	240	800	0.040	32	1110	0.070	80
	5	4460	0.144	640	2230	0.102	230	640	0.060	38	890	0.084	70
	6	3720	0.182	680	1860	0.119	220	530	0.070	37	740	0.098	70
	7	3180	0.208	660	1590	0.136	220	450	0.096	43	640	0.128	80
	8	2790	0.252	700	1390	0.153	210	400	0.108	43	560	0.144	80
	9	2480	0.280	690	1240	0.170	210	350	0.120	42	500	0.160	80
	10	2230	0.322	720	1110	0.196	220	320	0.138	44	450	0.184	80
	11	2030	0.364	740	1010	0.221	220	290	0.156	45	410	0.208	90
	12	1860	0.420	780	930	0.255	240	270	0.180	49	370	0.240	90
	13	1710	0.476	810	860	0.289	250	240	0.204	49	340	0.272	90
	14	1590	0.504	800	800	0.306	240	230	0.216	50	320	0.288	90
	15	1490	0.532	790	740	0.323	240	210	0.228	48	300	0.304	90
	16	1390	0.560	780	700	0.340	240	200	0.240	48	280	0.320	90
	17	1310	0.595	780	660	0.361	240	190	0.255	48	260	0.340	90
	18	1240	0.630	780	620	0.383	240	180	0.270	49	250	0.360	90
	19	1170	0.644	750	590	0.391	230	170	0.276	47	230	0.368	80
	20	1110	0.658	730	560	0.400	220	160	0.282	45	220	0.376	80

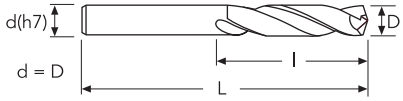
990SUTA

self centering, stainless steel, short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
2.00	0/-0.014	2	24	56	1	P990SUTA0200	h
2.10	0/-0.014	2.1	24	56	1	P990SUTA0210	h
2.20	0/-0.014	2.2	27	59	1	P990SUTA0220	h
2.30	0/-0.014	2.3	27	59	1	P990SUTA0230	h
2.40	0/-0.014	2.4	30	62	1	P990SUTA0240	h
2.50	0/-0.014	2.5	30	62	1	P990SUTA0250	h
2.60	0/-0.014	2.6	30	62	1	P990SUTA0260	h
2.70	0/-0.014	2.7	33	65	1	P990SUTA0270	h
2.80	0/-0.014	2.8	33	65	1	P990SUTA0280	h
2.90	0/-0.014	2.9	33	65	1	P990SUTA0290	h
3.00	0/-0.014	3	33	65	1	P990SUTA0300	h
3.10	0/-0.018	3.1	36	68	1	P990SUTA0310	h
3.20	0/-0.018	3.2	36	68	1	P990SUTA0320	h
3.30	0/-0.018	3.3	36	68	1	P990SUTA0330	h
3.40	0/-0.018	3.4	39	71	1	P990SUTA0340	h
3.50	0/-0.018	3.5	39	71	1	P990SUTA0350	h
3.60	0/-0.018	3.6	39	71	1	P990SUTA0360	h
3.70	0/-0.018	3.7	39	71	1	P990SUTA0370	h
3.80	0/-0.018	3.8	43	75	1	P990SUTA0380	h
3.90	0/-0.018	3.9	43	75	1	P990SUTA0390	h
4.00	0/-0.018	4	43	75	1	P990SUTA0400	h
4.10	0/-0.018	4.1	43	87	1	P990SUTA0410	h
4.20	0/-0.018	4.2	43	87	1	P990SUTA0420	h
4.30	0/-0.018	4.3	47	91	1	P990SUTA0430	h
4.40	0/-0.018	4.4	47	91	1	P990SUTA0440	h
4.50	0/-0.018	4.5	47	91	1	P990SUTA0450	h
4.60	0/-0.018	4.6	47	91	1	P990SUTA0460	h
4.70	0/-0.018	4.7	47	91	1	P990SUTA0470	h
4.80	0/-0.018	4.8	52	96	1	P990SUTA0480	h
4.90	0/-0.018	4.9	52	96	1	P990SUTA0490	h
5.00	0/-0.018	5	52	96	1	P990SUTA0500	h
5.10	0/-0.018	5.1	52	96	1	P990SUTA0510	h
5.20	0/-0.018	5.2	52	96	1	P990SUTA0520	h
5.30	0/-0.018	5.3	52	96	1	P990SUTA0530	h
5.40	0/-0.018	5.4	57	101	1	P990SUTA0540	h
5.50	0/-0.018	5.5	57	101	1	P990SUTA0550	h
5.60	0/-0.018	5.6	57	101	1	P990SUTA0560	h
5.70	0/-0.018	5.7	57	101	1	P990SUTA0570	h
5.80	0/-0.018	5.8	57	101	1	P990SUTA0580	h

h stock standard f non-standard stock m stock exhaustion

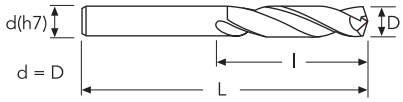
990SUTA

self centering, stainless steel, short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
5.90	0/-0.018	5.9	57	101	1	P990SUTA0590	h
6.00	0/-0.018	6	57	101	1	P990SUTA0600	h
6.10	0/-0.022	6.1	63	107	1	P990SUTA0610	h
6.20	0/-0.022	6.2	63	107	1	P990SUTA0620	h
6.30	0/-0.022	6.3	63	107	1	P990SUTA0630	h
6.40	0/-0.022	6.4	63	107	1	P990SUTA0640	h
6.50	0/-0.022	6.5	63	107	1	P990SUTA0650	h
6.60	0/-0.022	6.6	63	107	1	P990SUTA0660	h
6.70	0/-0.022	6.7	63	107	1	P990SUTA0670	h
6.80	0/-0.022	6.8	69	113	1	P990SUTA0680	h
6.90	0/-0.022	6.9	69	113	1	P990SUTA0690	h
7.00	0/-0.022	7	69	113	1	P990SUTA0700	h
7.10	0/-0.022	7.1	69	113	1	P990SUTA0710	h
7.20	0/-0.022	7.2	69	113	1	P990SUTA0720	h
7.30	0/-0.022	7.3	69	113	1	P990SUTA0730	h
7.40	0/-0.022	7.4	69	113	1	P990SUTA0740	h
7.50	0/-0.022	7.5	69	113	1	P990SUTA0750	h
7.60	0/-0.022	7.6	75	119	1	P990SUTA0760	h
7.70	0/-0.022	7.7	75	119	1	P990SUTA0770	h
7.80	0/-0.022	7.8	75	119	1	P990SUTA0780	h
7.90	0/-0.022	7.9	75	119	1	P990SUTA0790	h
8.00	0/-0.022	8	75	119	1	P990SUTA0800	h
8.10	0/-0.022	8.1	75	125	1	P990SUTA0810	h
8.20	0/-0.022	8.2	75	125	1	P990SUTA0820	h
8.30	0/-0.022	8.3	75	125	1	P990SUTA0830	h
8.40	0/-0.022	8.4	75	125	1	P990SUTA0840	h
8.50	0/-0.022	8.5	75	125	1	P990SUTA0850	h
8.60	0/-0.022	8.6	81	131	1	P990SUTA0860	h
8.70	0/-0.022	8.7	81	131	1	P990SUTA0870	h
8.80	0/-0.022	8.8	81	131	1	P990SUTA0880	h
8.90	0/-0.022	8.9	81	131	1	P990SUTA0890	h
9.00	0/-0.022	9	81	131	1	P990SUTA0900	h
9.10	0/-0.022	9.1	81	131	1	P990SUTA0910	h
9.20	0/-0.022	9.2	81	131	1	P990SUTA0920	h
9.30	0/-0.022	9.3	81	131	1	P990SUTA0930	h
9.40	0/-0.022	9.4	81	131	1	P990SUTA0940	h
9.50	0/-0.022	9.5	81	131	1	P990SUTA0950	h
9.60	0/-0.022	9.6	87	137	1	P990SUTA0960	h
9.70	0/-0.022	9.7	87	137	1	P990SUTA0970	h

h stock standard f non-standard stock m stock exhaustion

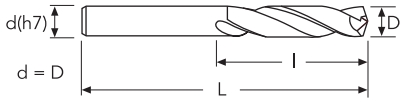
990SUTA

self centering, stainless steel, short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
9.80	0/-0.022	9.8	87	137	1	P990SUTA0980	h
9.90	0/-0.022	9.9	87	137	1	P990SUTA0990	h
10.00	0/-0.022	10	87	137	1	P990SUTA1000	h
10.10	0/-0.027	10.1	87	144	1	P990SUTA1010	h
10.20	0/-0.027	10.2	87	144	1	P990SUTA1020	h
10.30	0/-0.027	10.3	87	144	1	P990SUTA1030	h
10.40	0/-0.027	10.4	87	144	1	P990SUTA1040	h
10.50	0/-0.027	10.5	87	144	1	P990SUTA1050	h
10.60	0/-0.027	10.6	87	144	1	P990SUTA1060	h
10.70	0/-0.027	10.7	94	151	1	P990SUTA1070	h
10.80	0/-0.027	10.8	94	151	1	P990SUTA1080	h
10.90	0/-0.027	10.9	94	151	1	P990SUTA1090	h
11.00	0/-0.027	11	94	151	1	P990SUTA1100	h
11.10	0/-0.027	11.1	94	151	1	P990SUTA1110	h
11.20	0/-0.027	11.2	94	151	1	P990SUTA1120	h
11.30	0/-0.027	11.3	94	151	1	P990SUTA1130	h
11.40	0/-0.027	11.4	94	151	1	P990SUTA1140	h
11.50	0/-0.027	11.5	94	151	1	P990SUTA1150	h
11.60	0/-0.027	11.6	94	151	1	P990SUTA1160	h
11.70	0/-0.027	11.7	94	151	1	P990SUTA1170	h
11.80	0/-0.027	11.8	94	151	1	P990SUTA1180	h
11.90	0/-0.027	11.9	101	158	1	P990SUTA1190	h
12.00	0/-0.027	12	101	158	1	P990SUTA1200	h
12.10	0/-0.027	12.1	101	158	1	P990SUTA1210	h
12.20	0/-0.027	12.2	101	158	1	P990SUTA1220	h
12.30	0/-0.027	12.3	101	158	1	P990SUTA1230	h
12.40	0/-0.027	12.4	101	158	1	P990SUTA1240	h
12.50	0/-0.027	12.5	101	158	1	P990SUTA1250	h
12.60	0/-0.027	12.6	101	158	1	P990SUTA1260	h
12.70	0/-0.027	12.7	101	158	1	P990SUTA1270	h
12.80	0/-0.027	12.8	101	158	1	P990SUTA1280	h
12.90	0/-0.027	12.9	101	158	1	P990SUTA1290	h
13.00	0/-0.027	13	101	158	1	P990SUTA1300	h
13.50	0/-0.027	13.5	106	166	1	P990SUTA1350	h
14.00	0/-0.027	14	106	166	1	P990SUTA1400	h
14.10	0/-0.027	14.1	109	169	1	P990SUTA1410	h
14.50	0/-0.027	14.5	109	169	1	P990SUTA1450	h
15.00	0/-0.027	15	109	169	1	P990SUTA1500	h
15.50	0/-0.027	15.5	112	172	1	P990SUTA1550	h

h stock standard f non-standard stock m stock exhaustion

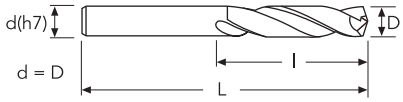
990SUTA

self centering, stainless steel, short

OSAWA NORM | SU | HSSE PV10 | 120° | 38°

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	l	L	PACKAGING	EDP No.	Stock
15.60	0/-0.027	15.6	112	172	1	P990SUTA1560	h
16.00	0/-0.027	16	112	172	1	P990SUTA1600	h
16.50	0/-0.027	16.5	115	181	1	P990SUTA1650	h
17.00	0/-0.027	17	115	181	1	P990SUTA1700	h
17.50	0/-0.027	17.5	118	184	1	P990SUTA1750	h
17.6	0/-0.027	17.6	118	184	1	P990SUTA1760	h
18.00	0/-0.027	18	118	184	1	P990SUTA1800	h
18.50	0/-0.033	18.5	122	188	1	P990SUTA1850	h
19.00	0/-0.033	19	122	188	1	P990SUTA1900	h
19.50	0/-0.033	19.5	125	191	1	P990SUTA1950	h
20.00	0/-0.033	20	125	191	1	P990SUTA2000	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

990SUTA

	Material Group ISO 513	P1 P2			M1 M2			M3					
	Hardness/Rm	500-700 N/mm²			< 750 N/mm²			550-850 N/mm²					
	Vc (m/min)	35-45			18-22			12-16					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	2	6370	0.057	360	3180	0.057	180	2230	0.040	90			
	3	4250	0.076	320	2120	0.076	160	1490	0.053	80			
	4	3180	0.095	300	1590	0.095	150	1110	0.067	70			
	5	2550	0.114	290	1270	0.114	140	890	0.080	70			
	6	2120	0.133	280	1060	0.133	140	740	0.093	70			
	7	1820	0.152	280	910	0.152	140	640	0.106	70			
	8	1590	0.171	270	800	0.171	140	560	0.120	70			
	9	1420	0.190	270	710	0.190	130	500	0.133	70			
	10	1270	0.219	280	640	0.219	140	450	0.153	70			
	11	1160	0.247	290	580	0.247	140	410	0.161	70			
	12	1060	0.285	300	530	0.285	150	370	0.185	70			
	13	980	0.323	320	490	0.323	160	340	0.203	70			
	14	910	0.342	310	450	0.342	150	320	0.215	70			
	15	850	0.361	310	420	0.361	150	300	0.217	60			
	16	800	0.380	300	400	0.380	150	280	0.228	60			
	17	750	0.404	300	370	0.404	150	260	0.242	60			
	18	710	0.428	300	350	0.428	150	250	0.257	60			
	19	670	0.437	290	340	0.437	150	230	0.262	60			
	20	640	0.447	290	320	0.447	140	220	0.268	60			

	Material Group ISO 513	N1 N2			N3 N4			S1 S2			S4		
	Hardness/Rm							< 30 HRC					
	Vc (m/min)	60-80			30-40			8-12			12-16		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	11150	0.063	700	5570	0.048	270	1590	0.023	36	2230	0.040	90
	3	7430	0.084	620	3720	0.065	240	1060	0.030	32	1490	0.053	80
	4	5570	0.105	580	2790	0.081	230	800	0.038	30	1110	0.067	70
	5	4460	0.125	560	2230	0.097	220	640	0.057	36	890	0.080	70
	6	3720	0.146	540	1860	0.113	210	530	0.067	35	740	0.093	70
	7	3180	0.167	530	1590	0.129	210	450	0.091	41	640	0.122	80
	8	2790	0.188	520	1390	0.145	200	400	0.103	41	560	0.137	80
	9	2480	0.209	520	1240	0.162	200	350	0.114	40	500	0.152	80
	10	2230	0.240	540	1110	0.186	210	320	0.131	42	450	0.175	80
	11	2030	0.272	550	1010	0.210	210	290	0.148	43	410	0.198	80
	12	1860	0.314	580	930	0.242	230	270	0.171	46	370	0.228	80
	13	1710	0.355	610	860	0.275	240	240	0.194	47	340	0.258	90
	14	1590	0.376	600	800	0.291	230	230	0.205	47	320	0.274	90
	15	1490	0.397	590	740	0.307	230	210	0.217	45	300	0.289	90
	16	1390	0.418	580	700	0.323	230	200	0.228	46	280	0.304	90
	17	1310	0.444	580	660	0.343	230	190	0.242	46	260	0.323	80
	18	1240	0.470	580	620	0.363	230	180	0.257	46	250	0.342	90
	19	1170	0.481	560	590	0.371	220	170	0.262	45	230	0.350	80
	20	1110	0.491	550	560	0.380	210	160	0.268	43	220	0.357	80

HSS-HSS/CO
GENERAL PURPOSE

A wide variety of geometries and standards, as well as a profitable mix of performance and price.

Un'ampia varietà di geometrie e standard costruttivi, con una vantaggiosa combinazione di rendimento e convenienza, sono i punti di forza delle punte in HSS e HSS/Co Osawa.

Die breite Palette an Geometrien und genormten Baumaßen bieten eine außergewöhnlich vorteilhafte Verbindung von Preis und Leistung: unschlagbare Stärken der Osawa Bohrer aus HSS und HSS/Co.

La gamme de forets HSS et HSS/Co Osawa offre une grande variété de géométries standards permettant une combinaison très rentable de performance et de prix.

Una amplia variedad de geometrías y estándares de fabricación, y una ventajosa combinación de rendimiento y conveniencia, son los puntos de fuerza de las brocas HSS y HSS/Co Osawa.

Исходный материал наивысшего качества в комбинации с современным покрытием и специальной геометрией. Отличное сочетание производительности и стоимости.

118N

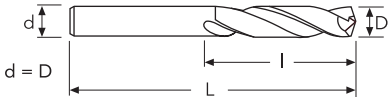
N type for general purpose, extra-short

DIN 1897 | N | HSS OX * | 118° | 25-30°

* < Ø2 mm = BR

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.00	0/-0.014	1	6	26	10	P118NB0100	h
1.10	0/-0.014	1.1	7	28	10	P118NB0110	h
1.20	0/-0.014	1.2	8	30	10	P118NB0120	h
1.25	0/-0.014	1.25	8	30	10	P118NB0125	h
1.30	0/-0.014	1.3	8	30	10	P118NB0130	h
1.40	0/-0.014	1.4	9	32	10	P118NB0140	h
1.50	0/-0.014	1.5	9	32	10	P118NB0150	h
1.60	0/-0.014	1.6	10	34	10	P118NB0160	h
1.70	0/-0.014	1.7	10	34	10	P118NB0170	h
1.75	0/-0.014	1.75	11	36	10	P118NB0175	h
1.80	0/-0.014	1.8	11	36	10	P118NB0180	h
1.90	0/-0.014	1.9	11	36	10	P118NB0190	h
2.00	0/-0.014	2	12	38	10	P118N0200	h
2.10	0/-0.014	2.1	12	38	10	P118N0210	h
2.20	0/-0.014	2.2	13	40	10	P118N0220	h
2.25	0/-0.014	2.25	13	40	10	P118N0225	h
2.30	0/-0.014	2.3	13	40	10	P118N0230	h
2.40	0/-0.014	2.4	14	43	10	P118N0240	h
2.50	0/-0.014	2.5	14	43	10	P118N0250	h
2.60	0/-0.014	2.6	14	43	10	P118N0260	h
2.70	0/-0.014	2.7	16	46	10	P118N0270	h
2.75	0/-0.014	2.75	16	46	10	P118N0275	h
2.80	0/-0.014	2.8	16	46	10	P118N0280	h
2.90	0/-0.014	2.9	16	46	10	P118N0290	h
3.00	0/-0.014	3	16	46	10	P118N0300	h
3.10	0/-0.018	3.1	18	49	10	P118N0310	h
3.20	0/-0.018	3.2	18	49	10	P118N0320	h
3.25	0/-0.018	3.25	18	49	10	P118N0325	h
3.30	0/-0.018	3.3	18	49	10	P118N0330	h
3.40	0/-0.018	3.4	20	52	10	P118N0340	h
3.50	0/-0.018	3.5	20	52	10	P118N0350	h
3.60	0/-0.018	3.6	20	52	10	P118N0360	h
3.70	0/-0.018	3.7	20	52	10	P118N0370	h
3.75	0/-0.018	3.75	20	52	10	P118N0375	h
3.80	0/-0.018	3.8	22	55	10	P118N0380	h
3.90	0/-0.018	3.9	22	55	10	P118N0390	h
4.00	0/-0.018	4	22	55	10	P118N0400	h
4.10	0/-0.018	4.1	22	55	10	P118N0410	h
4.20	0/-0.018	4.2	22	55	10	P118N0420	h

h stock standard f non-standard stock m stock exhaustion

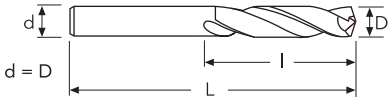
118N

N type for general purpose, extra-short

DIN 1897 | N | HSS OX | 118° | 25-30°

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.25	0/-0.018	4.25	22	55	10	P118N0425	h
4.30	0/-0.018	4.3	24	58	10	P118N0430	h
4.40	0/-0.018	4.4	24	58	10	P118N0440	f
4.50	0/-0.018	4.5	24	58	10	P118N0450	h
4.60	0/-0.018	4.6	24	58	10	P118N0460	h
4.70	0/-0.018	4.7	24	58	10	P118N0470	h
4.75	0/-0.018	4.75	24	58	10	P118N0475	h
4.80	0/-0.018	4.8	26	62	10	P118N0480	h
4.90	0/-0.018	4.9	26	62	10	P118N0490	h
5.00	0/-0.018	5	26	62	10	P118N0500	h
5.10	0/-0.018	5.1	26	62	10	P118N0510	h
5.20	0/-0.018	5.2	26	62	10	P118N0520	h
5.25	0/-0.018	5.25	26	62	10	P118N0525	h
5.30	0/-0.018	5.3	26	62	10	P118N0530	h
5.40	0/-0.018	5.4	28	66	10	P118N0540	h
5.50	0/-0.018	5.5	28	66	10	P118N0550	h
5.60	0/-0.018	5.6	28	66	10	P118N0560	h
5.70	0/-0.018	5.7	28	66	10	P118N0570	h
5.75	0/-0.018	5.75	28	66	10	P118N0575	h
5.80	0/-0.018	5.8	28	66	10	P118N0580	h
5.90	0/-0.018	5.9	28	66	10	P118N0590	f
6.00	0/-0.018	6	28	66	10	P118N0600	h
6.10	0/-0.022	6.1	31	70	10	P118N0610	h
6.20	0/-0.022	6.2	31	70	10	P118N0620	h
6.25	0/-0.022	6.25	31	70	10	P118N0625	h
6.30	0/-0.022	6.3	31	70	10	P118N0630	h
6.40	0/-0.022	6.4	31	70	10	P118N0640	h
6.50	0/-0.022	6.5	31	70	10	P118N0650	h
6.60	0/-0.022	6.6	31	70	5	P118N0660	f
6.70	0/-0.022	6.7	31	70	5	P118N0670	h
6.75	0/-0.022	6.75	34	74	5	P118N0675	h
6.80	0/-0.022	6.8	34	74	5	P118N0680	h
6.90	0/-0.022	6.9	34	74	5	P118N0690	h
7.00	0/-0.022	7	34	74	5	P118N0700	h
7.10	0/-0.022	7.1	34	74	5	P118N0710	h
7.20	0/-0.022	7.2	34	74	5	P118N0720	h
7.25	0/-0.022	7.25	34	74	5	P118N0725	h
7.30	0/-0.022	7.3	34	74	5	P118N0730	h
7.40	0/-0.022	7.4	34	74	5	P118N0740	f

h stock standard f non-standard stock m stock exhaustion

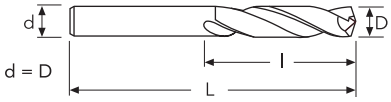
118N

N type for general purpose, extra-short

DIN 1897 | N | HSS OX | 118° | 25-30°

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
7.50	0/-0.022	7.5	34	74	5	P118N0750	h
7.60	0/-0.022	7.6	37	79	5	P118N0760	h
7.70	0/-0.022	7.7	37	79	5	P118N0770	f
7.75	0/-0.022	7.75	37	79	5	P118N0775	h
7.80	0/-0.022	7.8	37	79	5	P118N0780	h
7.90	0/-0.022	7.9	37	79	5	P118N0790	f
8.00	0/-0.022	8	37	79	5	P118N0800	h
8.10	0/-0.022	8.1	37	79	5	P118N0810	h
8.20	0/-0.022	8.2	37	79	5	P118N0820	h
8.25	0/-0.022	8.25	37	79	5	P118N0825	h
8.30	0/-0.022	8.3	37	79	5	P118N0830	f
8.40	0/-0.022	8.4	37	79	5	P118N0840	f
8.50	0/-0.022	8.5	37	79	5	P118N0850	h
8.60	0/-0.022	8.6	40	84	5	P118N0860	h
8.70	0/-0.022	8.7	40	84	5	P118N0870	f
8.75	0/-0.022	8.75	40	84	5	P118N0875	h
8.80	0/-0.022	8.8	40	84	5	P118N0880	f
8.90	0/-0.022	8.9	40	84	5	P118N0890	h
9.00	0/-0.022	9	40	84	5	P118N0900	h
9.10	0/-0.022	9.1	40	84	5	P118N0910	h
9.20	0/-0.022	9.2	40	84	5	P118N0920	f
9.25	0/-0.022	9.25	40	84	5	P118N0925	f
9.30	0/-0.022	9.3	40	84	5	P118N0930	f
9.40	0/-0.022	9.4	40	84	5	P118N0940	f
9.50	0/-0.022	9.5	40	84	5	P118N0950	h
9.60	0/-0.022	9.6	43	89	5	P118N0960	f
9.70	0/-0.022	9.7	43	89	5	P118N0970	f
9.75	0/-0.022	9.75	43	89	5	P118N0975	f
9.80	0/-0.022	9.8	43	89	5	P118N0980	f
9.90	0/-0.022	9.9	43	89	5	P118N0990	f
10.00	0/-0.022	10	43	89	5	P118N1000	h
10.25	0/-0.027	10.25	43	89	5	P118N1025	h
10.50	0/-0.027	10.5	43	89	5	P118N1050	h
10.75	0/-0.027	10.75	47	95	5	P118N1075	h
11.00	0/-0.027	11	47	95	5	P118N1100	h
11.25	0/-0.027	11.25	47	95	5	P118N1125	h
11.50	0/-0.027	11.5	47	95	5	P118N1150	h
11.75	0/-0.027	11.75	47	95	5	P118N1175	h
12.00	0/-0.027	12	51	102	5	P118N1200	h

h stock standard f non-standard stock m stock exhaustion

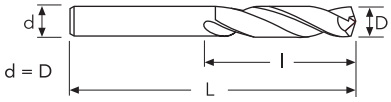
118N

N type for general purpose, extra-short

DIN 1897 | N | HSS OX | 118° | 25-30°

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
12.25	0/-0.027	12.25	51	102	5	P118N1225	h
12.50	0/-0.027	12.5	51	102	5	P118N1250	h
12.75	0/-0.027	12.75	51	102	5	P118N1275	h
13.00	0/-0.027	13	51	102	5	P118N1300	h
13.25	0/-0.027	13.25	54	107	1	P118N1325	h
13.50	0/-0.027	13.5	54	107	1	P118N1350	h
13.75	0/-0.027	13.75	54	107	1	P118N1375	h
14.00	0/-0.027	14	54	107	1	P118N1400	h
14.25	0/-0.027	14.25	56	111	1	P118N1425	h
14.50	0/-0.027	14.5	56	111	1	P118N1450	h
14.75	0/-0.027	14.75	56	111	1	P118N1475	h
15.00	0/-0.027	15	56	111	1	P118N1500	h
15.25	0/-0.027	15.25	58	115	1	P118N1525	h
15.50	0/-0.027	15.5	58	115	1	P118N1550	h
15.75	0/-0.027	15.75	58	115	1	P118N1575	f
16.00	0/-0.027	16	58	115	1	P118N1600	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

118N

	Material Group ISO 513	P1 P2			P3 P4			K1 K2			N1 N5			N2 N3 N4		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB								
	Vc (m/min)	25-35			20-30			25-35			50-70			40-60		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	1	9550	0.017	160	7960	0.014	120	9550	0.019	180	19110	0.024	450	15920	0.017	270
	1.5	6370	0.035	220	5310	0.030	160	6370	0.039	250	12740	0.049	620	10620	0.035	370
	2	4780	0.050	240	3980	0.043	170	4780	0.055	260	9550	0.070	670	7960	0.050	400
	2.5	3820	0.070	270	3180	0.060	190	3820	0.077	290	7640	0.098	750	6370	0.070	450
	3	3180	0.080	250	2650	0.068	180	3180	0.088	280	6370	0.112	710	5310	0.080	420
	3.5	2730	0.090	250	2270	0.077	170	2730	0.099	270	5460	0.126	690	4550	0.090	410
	4	2390	0.100	240	1990	0.085	170	2390	0.110	260	4780	0.140	670	3980	0.100	400
	5	1910	0.110	210	1590	0.094	150	1910	0.121	230	3820	0.154	590	3180	0.110	350
	6	1590	0.120	190	1330	0.102	140	1590	0.132	210	3180	0.168	530	2650	0.120	320
	7	1360	0.130	180	1140	0.111	130	1360	0.143	190	2730	0.182	500	2270	0.130	300
	8	1190	0.140	170	1000	0.119	120	1190	0.154	180	2390	0.196	470	1990	0.140	280
	9	1060	0.160	170	880	0.136	120	1060	0.176	190	2120	0.224	470	1770	0.160	280
	10	960	0.170	160	800	0.145	120	960	0.187	180	1910	0.238	450	1590	0.170	270
	11	870	0.180	160	720	0.153	110	870	0.198	170	1740	0.252	440	1450	0.180	260
	12	800	0.190	150	660	0.162	110	800	0.209	170	1590	0.266	420	1330	0.190	250
	13	730	0.200	150	610	0.170	100	730	0.220	160	1470	0.280	410	1220	0.200	240
	14	680	0.210	140	570	0.179	100	680	0.231	160	1360	0.294	400	1140	0.210	240
	15	640	0.220	140	530	0.187	100	640	0.242	150	1270	0.308	390	1060	0.220	230
	16	600	0.240	140	500	0.204	100	600	0.264	160	1190	0.336	400	1000	0.240	240

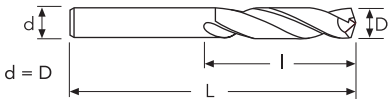
218NVA

NVA type for tough materials, extra-short

DIN 1897 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.00	0/-0.014	1	6	26	10	P218NVA0100	h
1.10	0/-0.014	1.1	7	28	10	P218NVA0110	f
1.20	0/-0.014	1.2	8	30	10	P218NVA0120	h
1.30	0/-0.014	1.3	8	30	10	P218NVA0130	h
1.40	0/-0.014	1.4	9	32	10	P218NVA0140	f
1.50	0/-0.014	1.5	9	32	10	P218NVA0150	h
1.60	0/-0.014	1.6	10	34	10	P218NVA0160	h
1.70	0/-0.014	1.7	10	34	10	P218NVA0170	f
1.80	0/-0.014	1.8	11	36	10	P218NVA0180	f
1.90	0/-0.014	1.9	11	36	10	P218NVA0190	h
2.00	0/-0.014	2	12	38	10	P218NVA0200	h
2.10	0/-0.014	2.1	12	38	10	P218NVA0210	h
2.20	0/-0.014	2.2	13	40	10	P218NVA0220	f
2.30	0/-0.014	2.3	13	40	10	P218NVA0230	h
2.40	0/-0.014	2.4	14	43	10	P218NVA0240	h
2.50	0/-0.014	2.5	14	43	10	P218NVA0250	h
2.60	0/-0.014	2.6	14	43	10	P218NVA0260	h
2.70	0/-0.014	2.7	16	46	10	P218NVA0270	f
2.80	0/-0.014	2.8	16	46	10	P218NVA0280	h
2.90	0/-0.014	2.9	16	46	10	P218NVA0290	f
3.00	0/-0.014	3	16	46	10	P218NVA0300	h
3.10	0/-0.018	3.1	18	49	10	P218NVA0310	f
3.20	0/-0.018	3.2	18	49	10	P218NVA0320	h
3.30	0/-0.018	3.3	18	49	10	P218NVA0330	h
3.40	0/-0.018	3.4	20	52	10	P218NVA0340	h
3.50	0/-0.018	3.5	20	52	10	P218NVA0350	h
3.60	0/-0.018	3.6	20	52	10	P218NVA0360	f
3.70	0/-0.018	3.7	20	52	10	P218NVA0370	h
3.80	0/-0.018	3.8	22	55	10	P218NVA0380	h
3.90	0/-0.018	3.9	22	55	10	P218NVA0390	f
4.00	0/-0.018	4	22	55	10	P218NVA0400	h
4.10	0/-0.018	4.1	22	55	10	P218NVA0410	h
4.20	0/-0.018	4.2	22	55	10	P218NVA0420	h
4.30	0/-0.018	4.3	24	58	10	P218NVA0430	h
4.40	0/-0.018	4.4	24	58	10	P218NVA0440	f
4.50	0/-0.018	4.5	24	58	10	P218NVA0450	h
4.60	0/-0.018	4.6	24	58	10	P218NVA0460	h
4.70	0/-0.018	4.7	24	58	10	P218NVA0470	f
4.80	0/-0.018	4.8	26	62	10	P218NVA0480	h

h stock standard f non-standard stock m stock exhaustion

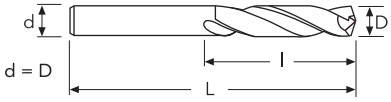
218NVA

NVA type for tough materials, extra-short

DIN 1897 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.90	0/-0.018	4.9	26	62	10	P218NVA0490	f
5.00	0/-0.018	5	26	62	10	P218NVA0500	h
5.10	0/-0.018	5.1	26	62	10	P218NVA0510	h
5.20	0/-0.018	5.2	26	62	10	P218NVA0520	h
5.30	0/-0.018	5.3	26	62	10	P218NVA0530	f
5.40	0/-0.018	5.4	28	66	10	P218NVA0540	f
5.50	0/-0.018	5.5	28	66	10	P218NVA0550	h
5.60	0/-0.018	5.6	28	66	10	P218NVA0560	h
5.70	0/-0.018	5.7	28	66	10	P218NVA0570	f
5.80	0/-0.018	5.8	28	66	10	P218NVA0580	f
5.90	0/-0.018	5.9	28	66	10	P218NVA0590	f
6.00	0/-0.018	6	28	66	10	P218NVA0600	h
6.10	0/-0.022	6.1	31	70	10	P218NVA0610	f
6.20	0/-0.022	6.2	31	70	10	P218NVA0620	f
6.30	0/-0.022	6.3	31	70	10	P218NVA0630	f
6.40	0/-0.022	6.4	31	70	10	P218NVA0640	f
6.50	0/-0.022	6.5	31	70	10	P218NVA0650	h
6.60	0/-0.022	6.6	31	70	5	P218NVA0660	f
6.70	0/-0.022	6.7	31	70	5	P218NVA0670	h
6.80	0/-0.022	6.8	34	74	5	P218NVA0680	h
6.90	0/-0.022	6.9	34	74	5	P218NVA0690	h
7.00	0/-0.022	7	34	74	5	P218NVA0700	h
7.10	0/-0.022	7.1	34	74	5	P218NVA0710	f
7.20	0/-0.022	7.2	34	74	5	P218NVA0720	f
7.30	0/-0.022	7.3	34	74	5	P218NVA0730	f
7.40	0/-0.022	7.4	34	74	5	P218NVA0740	f
7.50	0/-0.022	7.5	34	74	5	P218NVA0750	h
7.60	0/-0.022	7.6	37	79	5	P218NVA0760	f
7.70	0/-0.022	7.7	37	79	5	P218NVA0770	f
7.80	0/-0.022	7.8	37	79	5	P218NVA0780	h
7.90	0/-0.022	7.9	37	79	5	P218NVA0790	f
8.00	0/-0.022	8	37	79	5	P218NVA0800	h
8.10	0/-0.022	8.1	37	79	5	P218NVA0810	f
8.20	0/-0.022	8.2	37	79	5	P218NVA0820	h
8.30	0/-0.022	8.3	37	79	5	P218NVA0830	h
8.40	0/-0.022	8.4	37	79	5	P218NVA0840	f
8.50	0/-0.022	8.5	37	79	5	P218NVA0850	h
8.60	0/-0.022	8.6	40	84	5	P218NVA0860	h
8.70	0/-0.022	8.7	40	84	5	P218NVA0870	h

h stock standard f non-standard stock m stock exhaustion

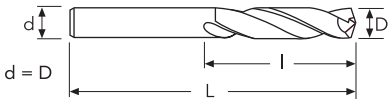
218NVA

NVA type for tough materials, extra-short

DIN 1897 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
8.80	0/-0.022	8.8	40	84	5	P218NVA0880	f
8.90	0/-0.022	8.9	40	84	5	P218NVA0890	f
9.00	0/-0.022	9	40	84	5	P218NVA0900	h
9.10	0/-0.022	9.1	40	84	5	P218NVA0910	f
9.20	0/-0.022	9.2	40	84	5	P218NVA0920	h
9.30	0/-0.022	9.3	40	84	5	P218NVA0930	f
9.40	0/-0.022	9.4	40	84	5	P218NVA0940	h
9.50	0/-0.022	9.5	40	84	5	P218NVA0950	h
9.60	0/-0.022	9.6	43	89	5	P218NVA0960	f
9.70	0/-0.022	9.7	43	89	5	P218NVA0970	f
9.80	0/-0.022	9.8	43	89	5	P218NVA0980	h
9.90	0/-0.022	9.9	43	89	5	P218NVA0990	f
10.00	0/-0.022	10	43	89	5	P218NVA1000	h
10.20	0/-0.027	10.2	43	89	5	P218NVA1020	h
10.25	0/-0.027	10.25	43	89	5	P218NVA1025	h
10.50	0/-0.027	10.5	43	89	5	P218NVA1050	h
11.00	0/-0.027	11	47	95	5	P218NVA1100	h
11.50	0/-0.027	11.5	47	95	5	P218NVA1150	h
12.00	0/-0.027	12	51	102	5	P218NVA1200	h
12.50	0/-0.027	12.5	51	102	5	P218NVA1250	h
13.00	0/-0.027	13	51	102	5	P218NVA1300	h
13.50	0/-0.027	13.5	54	107	1	P218NVA1350	h
14.00	0/-0.027	14	54	107	1	P218NVA1400	h
14.50	0/-0.027	14.5	56	111	1	P218NVA1450	h
15.00	0/-0.027	15	56	111	1	P218NVA1500	h
15.50	0/-0.027	15.5	58	115	1	P218NVA1550	h
16.00	0/-0.027	16	58	115	1	P218NVA1600	h
16.50	0/-0.027	16.5	60	119	1	P218NVA1650	h
17.00	0/-0.027	17	60	119	1	P218NVA1700	h
17.50	0/-0.027	17.5	62	123	1	P218NVA1750	h
18.00	0/-0.027	18	62	123	1	P218NVA1800	h
18.50	0/-0.033	18.5	64	127	1	P218NVA1850	h
19.00	0/-0.033	19	64	127	1	P218NVA1900	h
19.50	0/-0.033	19.5	66	131	1	P218NVA1950	h
20.00	0/-0.033	20	66	131	1	P218NVA2000	h

h stock standard f non-standard stock m stock exhaustion

218NVA

Material Group ISO 513	P1 P2			P3 P4			M1 M2			M3 M4			K1 K2		
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			550-850 N/mm²			150-350 HB		
Vc (m/min)	25-35			20-30			12-18			8-12			25-35		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	9550	0.017	160	7960	0.014	120	4780	0.012	57	3180	0.009	27	9550	0.019	180
1.5	6370	0.035	220	5310	0.030	160	3180	0.025	80	2120	0.018	37	6370	0.039	250
2	4780	0.050	240	3980	0.043	170	2390	0.035	80	1590	0.025	40	4780	0.055	260
2.5	3820	0.070	270	3180	0.060	190	1910	0.049	90	1270	0.035	44	3820	0.077	290
3	3180	0.080	250	2650	0.068	180	1590	0.056	90	1060	0.040	42	3180	0.088	280
3.5	2730	0.090	250	2270	0.077	170	1360	0.063	90	910	0.045	41	2730	0.099	270
4	2390	0.100	240	1990	0.085	170	1190	0.070	80	800	0.050	40	2390	0.110	260
5	1910	0.110	210	1590	0.094	150	960	0.077	70	640	0.055	35	1910	0.121	230
6	1590	0.120	190	1330	0.102	140	800	0.084	70	530	0.060	32	1590	0.132	210
7	1360	0.130	180	1140	0.111	130	680	0.091	60	450	0.065	29	1360	0.143	190
8	1190	0.140	170	1000	0.119	120	600	0.098	60	400	0.070	28	1190	0.154	180
9	1060	0.160	170	880	0.136	120	530	0.112	60	350	0.080	28	1060	0.176	190
10	960	0.170	160	800	0.145	120	480	0.119	60	320	0.085	27	960	0.187	180
11	870	0.180	160	720	0.153	110	430	0.126	54	290	0.090	26	870	0.198	170
12	800	0.190	150	660	0.162	110	400	0.133	53	270	0.095	26	800	0.209	170
13	730	0.200	150	610	0.170	100	370	0.140	52	240	0.100	24	730	0.220	160
14	680	0.210	140	570	0.179	100	340	0.147	50	230	0.105	24	680	0.231	160
15	640	0.220	140	530	0.187	100	320	0.154	49	210	0.110	23	640	0.242	150
16	600	0.240	140	500	0.204	100	300	0.168	50	200	0.120	24	600	0.264	160
17	560	0.260	150	470	0.221	100	280	0.182	51	190	0.130	25	560	0.286	160
18	530	0.280	150	440	0.238	100	270	0.196	53	180	0.140	25	530	0.308	160
19	500	0.300	150	420	0.255	110	250	0.210	53	170	0.150	26	500	0.330	170
20	480	0.320	150	400	0.272	110	240	0.224	54	160	0.160	26	480	0.352	170

Material Group ISO 513	K3 K4			N1 N5			N2 N3 N4			S1 S2 S4		
Hardness/Rm	< 350 HB									< 35 HRC		
Vc (m/min)	20-30			50-70			40-60			8-12		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	7960	0.013	100	19110	0.024	450	15920	0.017	270	3180	0.007	22
1.5	5310	0.026	140	12740	0.049	620	10620	0.035	370	2120	0.014	30
2	3980	0.038	150	9550	0.070	670	7960	0.050	400	1590	0.020	32
2.5	3180	0.053	170	7640	0.098	750	6370	0.070	450	1270	0.028	36
3	2650	0.060	160	6370	0.112	710	5310	0.080	420	1060	0.032	34
3.5	2270	0.068	150	5460	0.126	690	4550	0.090	410	910	0.036	33
4	1990	0.075	150	4780	0.140	670	3980	0.100	400	800	0.040	32
5	1590	0.083	130	3820	0.154	590	3180	0.110	350	640	0.044	28
6	1330	0.090	120	3180	0.168	530	2650	0.120	320	530	0.048	25
7	1140	0.098	110	2730	0.182	500	2270	0.130	300	450	0.052	23
8	1000	0.105	110	2390	0.196	470	1990	0.140	280	400	0.056	22
9	880	0.120	110	2120	0.224	470	1770	0.160	280	350	0.064	22
10	800	0.128	100	1910	0.238	450	1590	0.170	270	320	0.068	22
11	720	0.135	100	1740	0.252	440	1450	0.180	260	290	0.072	21
12	660	0.143	90	1590	0.266	420	1330	0.190	250	270	0.076	21
13	610	0.150	90	1470	0.280	410	1220	0.200	240	240	0.080	19
14	570	0.158	90	1360	0.294	400	1140	0.210	240	230	0.084	19
15	530	0.165	90	1270	0.308	390	1060	0.220	230	210	0.088	18
16	500	0.180	90	1190	0.336	400	1000	0.240	240	200	0.096	19
17	470	0.195	90	1120	0.364	410	940	0.260	240	190	0.104	20
18	440	0.210	90	1060	0.392	420	880	0.280	250	180	0.112	20
19	420	0.225	90	1010	0.420	420	840	0.300	250	170	0.120	20
20	400	0.240	100	960	0.448	430	800	0.320	260	160	0.128	20

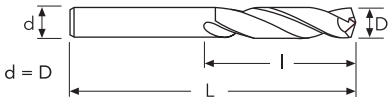
1386STI

STI type for general purpose, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS TiN | 118° | 30°

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.00	0/-0.014	1	12	34	10	P1385NTI0100	h
1.10	0/-0.014	1.1	14	36	10	P1385NTI0110	h
1.20	0/-0.014	1.2	16	38	10	P1385NTI0120	h
1.30	0/-0.014	1.3	16	38	10	P1385NTI0130	h
1.40	0/-0.014	1.4	18	40	10	P1385NTI0140	h
1.50	0/-0.014	1.5	18	40	10	P1385NTI0150	h
1.60	0/-0.014	1.6	20	43	10	P1386STI0160	h
1.70	0/-0.014	1.7	20	43	10	P1386STI0170	h
1.80	0/-0.014	1.8	22	46	10	P1386STI0180	h
1.90	0/-0.014	1.9	22	46	10	P1386STI0190	h
2.00	0/-0.014	2	24	49	10	P1386STI0200	h
2.10	0/-0.014	2.1	24	49	10	P1386STI0210	h
2.20	0/-0.014	2.2	27	53	10	P1386STI0220	h
2.30	0/-0.014	2.3	27	53	10	P1386STI0230	h
2.40	0/-0.014	2.4	30	57	10	P1386STI0240	h
2.50	0/-0.014	2.5	30	57	10	P1386STI0250	h
2.60	0/-0.014	2.6	30	57	10	P1386STI0260	h
2.70	0/-0.014	2.7	33	61	10	P1386STI0270	h
2.80	0/-0.014	2.8	33	61	10	P1386STI0280	h
2.90	0/-0.014	2.9	33	61	10	P1386STI0290	h
3.00	0/-0.014	3	33	61	10	P1386STI0300	h
3.10	0/-0.018	3.1	36	65	10	P1386STI0310	h
3.20	0/-0.018	3.2	36	65	10	P1386STI0320	h
3.30	0/-0.018	3.3	36	65	10	P1386STI0330	h
3.40	0/-0.018	3.4	39	70	10	P1386STI0340	h
3.50	0/-0.018	3.5	39	70	10	P1386STI0350	h
3.60	0/-0.018	3.6	39	70	10	P1386STI0360	h
3.70	0/-0.018	3.7	39	70	10	P1386STI0370	h
3.80	0/-0.018	3.8	43	75	10	P1386STI0380	h
3.90	0/-0.018	3.9	43	75	10	P1386STI0390	h
4.00	0/-0.018	4	43	75	10	P1386STI0400	h
4.10	0/-0.018	4.1	43	75	10	P1386STI0410	h
4.20	0/-0.018	4.2	43	75	10	P1386STI0420	h
4.30	0/-0.018	4.3	47	80	10	P1386STI0430	h
4.40	0/-0.018	4.4	47	80	10	P1386STI0440	h
4.50	0/-0.018	4.5	47	80	10	P1386STI0450	h
4.60	0/-0.018	4.6	47	80	10	P1386STI0460	h
4.70	0/-0.018	4.7	47	80	10	P1386STI0470	h
4.80	0/-0.018	4.8	52	86	10	P1386STI0480	h

h stock standard f non-standard stock m stock exhaustion

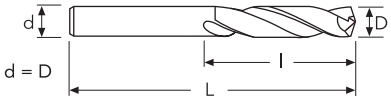
1386STI

STI type for general purpose, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS TiN | 118° | 30°

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.90	0/-0.018	4.9	52	86	10	P1386STI0490	h
5.00	0/-0.018	5	52	86	10	P1386STI0500	h
5.10	0/-0.018	5.1	52	86	10	P1386STI0510	h
5.20	0/-0.018	5.2	52	86	10	P1386STI0520	h
5.30	0/-0.018	5.3	52	86	10	P1386STI0530	h
5.40	0/-0.018	5.4	57	93	10	P1386STI0540	h
5.50	0/-0.018	5.5	57	93	10	P1386STI0550	h
5.60	0/-0.018	5.6	57	93	10	P1386STI0560	h
5.70	0/-0.018	5.7	57	93	10	P1386STI0570	h
5.80	0/-0.018	5.8	57	93	10	P1386STI0580	h
5.90	0/-0.018	5.9	57	93	10	P1386STI0590	h
6.00	0/-0.018	6	57	93	10	P1386STI0600	h
6.10	0/-0.022	6.1	63	101	10	P1386STI0610	h
6.20	0/-0.022	6.2	63	101	10	P1386STI0620	h
6.30	0/-0.022	6.3	63	101	10	P1386STI0630	h
6.40	0/-0.022	6.4	63	101	10	P1386STI0640	h
6.50	0/-0.022	6.5	63	101	10	P1386STI0650	h
6.60	0/-0.022	6.6	63	101	5	P1386STI0660	h
6.70	0/-0.022	6.7	63	101	5	P1386STI0670	h
6.80	0/-0.022	6.8	69	109	5	P1386STI0680	h
6.90	0/-0.022	6.9	69	109	5	P1386STI0690	h
7.00	0/-0.022	7	69	109	5	P1386STI0700	h
7.10	0/-0.022	7.1	69	109	5	P1386STI0710	h
7.20	0/-0.022	7.2	69	109	5	P1386STI0720	h
7.30	0/-0.022	7.3	69	109	5	P1386STI0730	h
7.40	0/-0.022	7.4	69	109	5	P1386STI0740	h
7.50	0/-0.022	7.5	69	109	5	P1386STI0750	h
7.60	0/-0.022	7.6	75	117	5	P1386STI0760	h
7.70	0/-0.022	7.7	75	117	5	P1386STI0770	h
7.80	0/-0.022	7.8	75	117	5	P1386STI0780	h
7.90	0/-0.022	7.9	75	117	5	P1386STI0790	h
8.00	0/-0.022	8	75	117	5	P1386STI0800	h
8.10	0/-0.022	8.1	75	117	5	P1386STI0810	h
8.20	0/-0.022	8.2	75	117	5	P1386STI0820	h
8.30	0/-0.022	8.3	75	117	5	P1386STI0830	h
8.40	0/-0.022	8.4	75	117	5	P1386STI0840	h
8.50	0/-0.022	8.5	75	117	5	P1386STI0850	h
8.60	0/-0.022	8.6	81	125	5	P1386STI0860	h
8.70	0/-0.022	8.7	81	125	5	P1386STI0870	h

h stock standard f non-standard stock m stock exhaustion

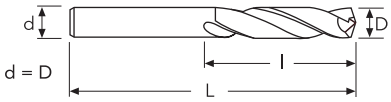
1386STI

STI type for general purpose, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS TiN | 118° | 30°

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
8.80	0/-0.022	8.8	81	125	5	P1386STI0880	h
8.90	0/-0.022	8.9	81	125	5	P1386STI0890	h
9.00	0/-0.022	9	81	125	5	P1386STI0900	h
9.10	0/-0.022	9.1	81	125	5	P1386STI0910	h
9.20	0/-0.022	9.2	81	125	5	P1386STI0920	h
9.30	0/-0.022	9.3	81	125	5	P1386STI0930	h
9.40	0/-0.022	9.4	81	125	5	P1386STI0940	h
9.50	0/-0.022	9.5	81	125	5	P1386STI0950	h
9.60	0/-0.022	9.6	87	133	5	P1386STI0960	h
9.70	0/-0.022	9.7	87	133	5	P1386STI0970	h
9.80	0/-0.022	9.8	87	133	5	P1386STI0980	h
9.90	0/-0.022	9.9	87	133	5	P1386STI0990	h
10.00	0/-0.022	10	87	133	5	P1386STI1000	h
10.10	0/-0.027	10.1	87	133	5	P1386STI1010	h
10.20	0/-0.027	10.2	87	133	5	P1386STI1020	h
10.30	0/-0.027	10.3	87	133	5	P1386STI1030	h
10.40	0/-0.027	10.4	87	133	5	P1386STI1040	h
10.50	0/-0.027	10.5	87	133	5	P1386STI1050	h
10.60	0/-0.027	10.6	87	133	5	P1386STI1060	h
10.70	0/-0.027	10.7	94	142	5	P1386STI1070	h
10.80	0/-0.027	10.8	94	142	5	P1386STI1080	h
10.90	0/-0.027	10.9	94	142	5	P1386STI1090	h
11.00	0/-0.027	11	94	142	5	P1386STI1100	h
11.10	0/-0.027	11.1	94	142	5	P1386STI1110	h
11.20	0/-0.027	11.2	94	142	5	P1386STI1120	h
11.30	0/-0.027	11.3	94	142	5	P1386STI1130	h
11.40	0/-0.027	11.4	94	142	5	P1386STI1140	h
11.50	0/-0.027	11.5	94	142	5	P1386STI1150	h
11.60	0/-0.027	11.6	94	142	5	P1386STI1160	h
11.70	0/-0.027	11.7	94	142	5	P1386STI1170	h
11.80	0/-0.027	11.8	94	142	5	P1386STI1180	h
11.90	0/-0.027	11.9	101	151	5	P1386STI1190	h
12.00	0/-0.027	12	101	151	5	P1386STI1200	h
12.10	0/-0.027	12.1	101	151	5	P1386STI1210	h
12.20	0/-0.027	12.2	101	151	5	P1386STI1220	h
12.30	0/-0.027	12.3	101	151	5	P1386STI1230	h
12.40	0/-0.027	12.4	101	151	5	P1386STI1240	h
12.50	0/-0.027	12.5	101	151	5	P1386STI1250	h
12.60	0/-0.027	12.6	101	151	5	P1386STI1260	h

h stock standard f non-standard stock m stock exhaustion

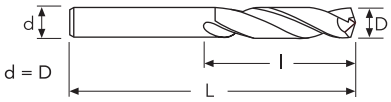
1386STI

STI type for general purpose, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS TiN | 118° | 30°

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
12.70	0/-0.027	12.7	101	151	5	P1386STI1270	h
12.80	0/-0.027	12.8	101	151	5	P1386STI1280	h
12.90	0/-0.027	12.9	101	151	5	P1386STI1290	h
13.00	0/-0.027	13	101	151	5	P1386STI1300	h

h stock standard f non-standard stock m stock exhaustion

1386STIA01A
Set 50 pcs.
1386STI DIN338 HSS TIN POINTED
Ø1 mm÷Ø5.9 mm x 0.1 mm

1386STIA01B
Set 41 pcs.
1386STI DIN338 HSS TIN POINTED
Ø6 mm÷Ø10 mm x 0.1 mm

1386STIA05C
Set 25 pcs.
1386STI DIN338 HSS TIN POINTED
Ø1 mm÷Ø13 mm x 0.5 mm

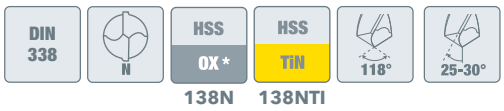
1386STI

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	**30-40**			**25-35**			**15-25**			**30-40**		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	1	11150	0.017	190	9550	0.014	140	6370	0.012	80	11150	0.019	210
	1.5	7430	0.035	260	6370	0.030	190	4250	0.025	100	7430	0.039	290
	2	5570	0.050	280	4780	0.043	200	3180	0.035	110	5570	0.055	310
	2.5	4460	0.075	330	3820	0.064	240	2550	0.053	130	4460	0.083	370
	3	3720	0.090	330	3180	0.077	240	2120	0.063	130	3720	0.099	370
	3.5	3180	0.105	330	2730	0.089	240	1820	0.074	130	3180	0.116	370
	4	2790	0.110	310	2390	0.094	220	1590	0.077	120	2790	0.121	340
	5	2230	0.125	280	1910	0.106	200	1270	0.088	110	2230	0.138	310
	6	1860	0.160	300	1590	0.136	220	1060	0.112	120	1860	0.176	330
	7	1590	0.175	280	1360	0.149	200	910	0.123	110	1590	0.193	310
	8	1390	0.200	280	1190	0.170	200	800	0.140	110	1390	0.220	310
	9	1240	0.210	260	1060	0.179	190	710	0.147	100	1240	0.231	290
	10	1110	0.220	240	960	0.187	180	640	0.154	100	1110	0.242	270
	11	1010	0.235	240	870	0.200	170	580	0.165	100	1010	0.259	260
	12	930	0.250	230	800	0.213	170	530	0.175	90	930	0.275	260
	13	860	0.265	230	730	0.225	160	490	0.186	90	860	0.292	250

	Material Group ISO 513	N1 N5			N2 N3 N4			S1 S2 S4					
	Hardness/Rm							< 35 HRC					
	Vc (m/min)	**60-80**			**50-70**			**12-18**					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	1	22290	0.024	530	19110	0.017	320	4780	0.007	35			
	1.5	14860	0.049	730	12740	0.035	450	3180	0.014	45			
	2	11150	0.070	780	9550	0.050	480	2390	0.020	50			
	2.5	8920	0.105	940	7640	0.075	570	1910	0.030	55			
	3	7430	0.126	940	6370	0.090	570	1590	0.036	55			
	3.5	6370	0.147	940	5460	0.105	570	1360	0.042	55			
	4	5570	0.154	860	4780	0.110	530	1190	0.044	50			
	5	4460	0.175	780	3820	0.125	480	960	0.050	50			
	6	3720	0.224	830	3180	0.160	510	800	0.064	50			
	7	3180	0.245	780	2730	0.175	480	680	0.070	50			
	8	2790	0.280	780	2390	0.200	480	600	0.080	50			
	9	2480	0.294	730	2120	0.210	450	530	0.084	45			
	10	2230	0.308	690	1910	0.220	420	480	0.088	40			
	11	2030	0.329	670	1740	0.235	410	430	0.094	40			
	12	1860	0.350	650	1590	0.250	400	400	0.100	40			
	13	1710	0.371	630	1470	0.265	390	370	0.106	40			

138N-138NTI

N type for general purpose, short (138N),
N type for general purpose, TiN coated, short (138NTI)



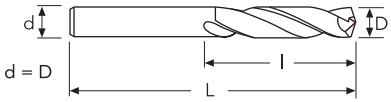
* < Ø2 mm = BR

138N

138NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						138N		138NTI	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
0.20	0/-0.014	0.2	2.5	19	10	P138NB0020	h		
0.30	0/-0.014	0.3	3	19	10	P138NB0030	h		
0.40	0/-0.014	0.4	5	20	10	P138NB0040	h		
0.50	0/-0.014	0.5	6	22	10	P138NB0050	h		
0.60	0/-0.014	0.6	7	24	10	P138NB0060	h		
0.70	0/-0.014	0.7	9	28	10	P138NB0070	h		
0.80	0/-0.014	0.8	10	30	10	P138NB0080	h		
0.90	0/-0.014	0.9	11	32	10	P138NB0090	h		
1.00	0/-0.014	1	12	34	10	P138NB0100	h	P138NTI0100	h
1.10	0/-0.014	1.1	14	36	10	P138NB0110	h	P138NTI0110	h
1.20	0/-0.014	1.2	16	38	10	P138NB0120	h	P138NTI0120	h
1.25	0/-0.014	1.25	16	38	10	P138NB0125	h		
1.30	0/-0.014	1.3	16	38	10	P138NB0130	h	P138NTI0130	h
1.40	0/-0.014	1.4	18	40	10	P138NB0140	h	P138NTI0140	h
1.50	0/-0.014	1.5	18	40	10	P138NB0150	h	P138NTI0150	h
1.60	0/-0.014	1.6	20	43	10	P138NB0160	h	P138NTI0160	h
1.70	0/-0.014	1.7	20	43	10	P138NB0170	h	P138NTI0170	h
1.75	0/-0.014	1.75	22	46	10	P138NB0175	h		
1.80	0/-0.014	1.8	22	46	10	P138NB0180	h	P138NTI0180	h
1.90	0/-0.014	1.9	22	46	10	P138NB0190	h	P138NTI0190	h
2.00	0/-0.014	2	24	49	10	P138N0200	h	P138NTI0200	h
2.10	0/-0.014	2.1	24	49	10	P138N0210	h	P138NTI0210	h
2.20	0/-0.014	2.2	27	53	10	P138N0220	h	P138NTI0220	h
2.25	0/-0.014	2.25	27	53	10	P138N0225	h		
2.30	0/-0.014	2.3	27	53	10	P138N0230	h	P138NTI0230	h
2.40	0/-0.014	2.4	30	57	10	P138N0240	h	P138NTI0240	h
2.50	0/-0.014	2.5	30	57	10	P138N0250	h	P138NTI0250	h
2.60	0/-0.014	2.6	30	57	10	P138N0260	h	P138NTI0260	h
2.70	0/-0.014	2.7	33	61	10	P138N0270	h	P138NTI0270	h
2.75	0/-0.014	2.75	33	61	10	P138N0275	h		
2.80	0/-0.014	2.8	33	61	10	P138N0280	h	P138NTI0280	h
2.90	0/-0.014	2.9	33	61	10	P138N0290	h	P138NTI0290	h
3.00	0/-0.014	3	33	61	10	P138N0300	h	P138NTI0300	h
3.10	0/-0.018	3.1	36	65	10	P138N0310	h	P138NTI0310	h
3.20	0/-0.018	3.2	36	65	10	P138N0320	h	P138NTI0320	h
3.25	0/-0.018	3.25	36	65	10	P138N0325	h		
3.30	0/-0.018	3.3	36	65	10	P138N0330	h	P138NTI0330	h
3.40	0/-0.018	3.4	39	70	10	P138N0340	h	P138NTI0340	h
3.50	0/-0.018	3.5	39	70	10	P138N0350	h	P138NTI0350	h

h stock standard f non-standard stock m stock exhaustion

138N-138NTI

N type for general purpose, short (138N),
N type for general purpose, TiN coated, short (138NTI)

DIN 338 | N | HSS OX | HSS TiN | 118° | 25-30°

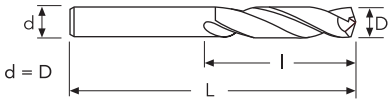
138N 138NTI

138N

138NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable

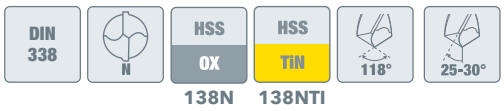


						138N		138NTI	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
3.60	0/-0.018	3.6	39	70	10	P138N0360	h	P138NTI0360	h
3.70	0/-0.018	3.7	39	70	10	P138N0370	h	P138NTI0370	h
3.75	0/-0.018	3.75	39	70	10	P138N0375	h		
3.80	0/-0.018	3.8	43	75	10	P138N0380	h	P138NTI0380	h
3.90	0/-0.018	3.9	43	75	10	P138N0390	h	P138NTI0390	h
4.00	0/-0.018	4	43	75	10	P138N0400	h	P138NTI0400	h
4.10	0/-0.018	4.1	43	75	10	P138N0410	h	P138NTI0410	h
4.20	0/-0.018	4.2	43	75	10	P138N0420	h	P138NTI0420	h
4.25	0/-0.018	4.25	43	75	10	P138N0425	h		
4.30	0/-0.018	4.3	47	80	10	P138N0430	h	P138NTI0430	h
4.40	0/-0.018	4.4	47	80	10	P138N0440	h	P138NTI0440	h
4.50	0/-0.018	4.5	47	80	10	P138N0450	h	P138NTI0450	h
4.60	0/-0.018	4.6	47	80	10	P138N0460	h	P138NTI0460	h
4.70	0/-0.018	4.7	47	80	10	P138N0470	h	P138NTI0470	h
4.75	0/-0.018	4.75	47	80	10	P138N0475	h		
4.80	0/-0.018	4.8	52	86	10	P138N0480	h	P138NTI0480	h
4.90	0/-0.018	4.9	52	86	10	P138N0490	h	P138NTI0490	h
5.00	0/-0.018	5	52	86	10	P138N0500	h	P138NTI0500	h
5.10	0/-0.018	5.1	52	86	10	P138N0510	h	P138NTI0510	h
5.20	0/-0.018	5.2	52	86	10	P138N0520	h	P138NTI0520	h
5.25	0/-0.018	5.25	52	86	10	P138N0525	h		
5.30	0/-0.018	5.3	52	86	10	P138N0530	h	P138NTI0530	h
5.40	0/-0.018	5.4	57	93	10	P138N0540	h	P138NTI0540	h
5.50	0/-0.018	5.5	57	93	10	P138N0550	h	P138NTI0550	h
5.60	0/-0.018	5.6	57	93	10	P138N0560	h	P138NTI0560	h
5.70	0/-0.018	5.7	57	93	10	P138N0570	h	P138NTI0570	h
5.75	0/-0.018	5.75	57	93	10	P138N0575	h		
5.80	0/-0.018	5.8	57	93	10	P138N0580	h	P138NTI0580	h
5.90	0/-0.018	5.9	57	93	10	P138N0590	h	P138NTI0590	h
6.00	0/-0.018	6	57	93	10	P138N0600	h	P138NTI0600	h
6.10	0/-0.022	6.1	63	101	10	P138N0610	h	P138NTI0610	h
6.20	0/-0.022	6.2	63	101	10	P138N0620	h	P138NTI0620	h
6.25	0/-0.022	6.25	63	101	10	P138N0625	h		
6.30	0/-0.022	6.3	63	101	10	P138N0630	h	P138NTI0630	h
6.40	0/-0.022	6.4	63	101	10	P138N0640	h	P138NTI0640	h
6.50	0/-0.022	6.5	63	101	10	P138N0650	h	P138NTI0650	h
6.60	0/-0.022	6.6	63	101	5	P138N0660	h	P138NTI0660	h
6.70	0/-0.022	6.7	63	101	5	P138N0670	h	P138NTI0670	h
6.75	0/-0.022	6.75	69	109	5	P138N0675	h		

h stock standard f non-standard stock m stock exhaustion

138N-138NTI

N type for general purpose, short (138N),
N type for general purpose, TiN coated, short (138NTI)

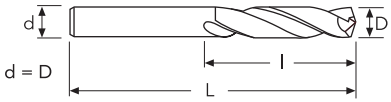


138N

138NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable

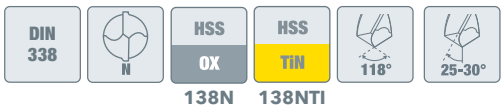


						138N		138NTI	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
6.80	0/-0.022	6.8	69	109	5	P138N0680	h	P138NTI0680	h
6.90	0/-0.022	6.9	69	109	5	P138N0690	h	P138NTI0690	h
7.00	0/-0.022	7	69	109	5	P138N0700	h	P138NTI0700	h
7.10	0/-0.022	7.1	69	109	5	P138N0710	h	P138NTI0710	h
7.20	0/-0.022	7.2	69	109	5	P138N0720	h	P138NTI0720	h
7.25	0/-0.022	7.25	69	109	5	P138N0725	h		
7.30	0/-0.022	7.3	69	109	5	P138N0730	h	P138NTI0730	h
7.40	0/-0.022	7.4	69	109	5	P138N0740	h	P138NTI0740	h
7.50	0/-0.022	7.5	69	109	5	P138N0750	h	P138NTI0750	h
7.60	0/-0.022	7.6	75	117	5	P138N0760	h	P138NTI0760	h
7.70	0/-0.022	7.7	75	117	5	P138N0770	h	P138NTI0770	h
7.75	0/-0.022	7.75	75	117	5	P138N0775	h		
7.80	0/-0.022	7.8	75	117	5	P138N0780	h	P138NTI0780	h
7.90	0/-0.022	7.9	75	117	5	P138N0790	h	P138NTI0790	h
8.00	0/-0.022	8	75	117	5	P138N0800	h	P138NTI0800	h
8.10	0/-0.022	8.1	75	117	5	P138N0810	h	P138NTI0810	h
8.20	0/-0.022	8.2	75	117	5	P138N0820	h	P138NTI0820	h
8.25	0/-0.022	8.25	75	117	5	P138N0825	h		
8.30	0/-0.022	8.3	75	117	5	P138N0830	h	P138NTI0830	h
8.40	0/-0.022	8.4	75	117	5	P138N0840	h	P138NTI0840	h
8.50	0/-0.022	8.5	75	117	5	P138N0850	h	P138NTI0850	h
8.60	0/-0.022	8.6	81	125	5	P138N0860	h	P138NTI0860	h
8.70	0/-0.022	8.7	81	125	5	P138N0870	h	P138NTI0870	h
8.75	0/-0.022	8.75	81	125	5	P138N0875	h		
8.80	0/-0.022	8.8	81	125	5	P138N0880	h	P138NTI0880	h
8.90	0/-0.022	8.9	81	125	5	P138N0890	h	P138NTI0890	h
9.00	0/-0.022	9	81	125	5	P138N0900	h	P138NTI0900	h
9.10	0/-0.022	9.1	81	125	5	P138N0910	h	P138NTI0910	h
9.20	0/-0.022	9.2	81	125	5	P138N0920	h	P138NTI0920	h
9.25	0/-0.022	9.25	81	125	5	P138N0925	h		
9.30	0/-0.022	9.3	81	125	5	P138N0930	h	P138NTI0930	h
9.40	0/-0.022	9.4	81	125	5	P138N0940	h	P138NTI0940	h
9.50	0/-0.022	9.5	81	125	5	P138N0950	h	P138NTI0950	h
9.60	0/-0.022	9.6	87	133	5	P138N0960	h	P138NTI0960	h
9.70	0/-0.022	9.7	87	133	5	P138N0970	h	P138NTI0970	h
9.75	0/-0.022	9.75	87	133	5	P138N0975	h		
9.80	0/-0.022	9.8	87	133	5	P138N0980	h	P138NTI0980	h
9.90	0/-0.022	9.9	87	133	5	P138N0990	h	P138NTI0990	h
10.00	0/-0.022	10	87	133	5	P138N1000	h	P138NTI1000	h

h stock standard f non-standard stock m stock exhaustion

138N-138NTI

N type for general purpose, short (138N),
N type for general purpose, TiN coated, short (138NTI)

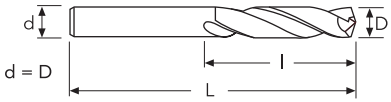


138N

138NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						138N		138NTI	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
10.10	0/-0.027	10.1	87	133	5	P138N1010	h		
10.20	0/-0.027	10.2	87	133	5	P138N1020	h	P138NTI1020	h
10.25	0/-0.027	10.25	87	133	5	P138N1025	h		
10.30	0/-0.027	10.3	87	133	5	P138N1030	h		
10.40	0/-0.027	10.4	87	133	5	P138N1040	h		
10.50	0/-0.027	10.5	87	133	5	P138N1050	h	P138NTI1050	h
10.60	0/-0.027	10.6	87	133	5	P138N1060	h		
10.70	0/-0.027	10.7	94	142	5	P138N1070	h		
10.75	0/-0.027	10.75	94	142	5	P138N1075	h		
10.80	0/-0.027	10.8	94	142	5	P138N1080	h		
10.90	0/-0.027	10.9	94	142	5	P138N1090	h		
11.00	0/-0.027	11	94	142	5	P138N1100	h	P138NTI1100	h
11.10	0/-0.027	11.1	94	142	5	P138N1110	h		
11.20	0/-0.027	11.2	94	142	5	P138N1120	h		
11.25	0/-0.027	11.25	94	142	5	P138N1125	h		
11.30	0/-0.027	11.3	94	142	5	P138N1130	h		
11.40	0/-0.027	11.4	94	142	5	P138N1140	h		
11.50	0/-0.027	11.5	94	142	5	P138N1150	h	P138NTI1150	h
11.60	0/-0.027	11.6	94	142	5	P138N1160	h		
11.70	0/-0.027	11.7	94	142	5	P138N1170	h		
11.75	0/-0.027	11.75	94	142	5	P138N1175	h		
11.80	0/-0.027	11.8	94	142	5	P138N1180	h		
11.90	0/-0.027	11.9	101	151	5	P138N1190	h		
12.00	0/-0.027	12	101	151	5	P138N1200	h	P138NTI1200	h
12.10	0/-0.027	12.1	101	151	5	P138N1210	h		
12.20	0/-0.027	12.2	101	151	5	P138N1220	h		
12.25	0/-0.027	12.25	101	151	5	P138N1225	h		
12.30	0/-0.027	12.3	101	151	5	P138N1230	h		
12.40	0/-0.027	12.4	101	151	5	P138N1240	h		
12.50	0/-0.027	12.5	101	151	5	P138N1250	h	P138NTI1250	h
12.60	0/-0.027	12.6	101	151	5	P138N1260	h		
12.70	0/-0.027	12.7	101	151	5	P138N1270	h		
12.75	0/-0.027	12.75	101	151	5	P138N1275	h		
12.80	0/-0.027	12.8	101	151	5	P138N1280	h		
12.90	0/-0.027	12.9	101	151	5	P138N1290	h		
13.00	0/-0.027	13	101	151	5	P138N1300	h	P138NTI1300	h
13.25	0/-0.027	13.25	108	160	1	P138N1325	h		
13.50	0/-0.027	13.5	108	160	1	P138N1350	h	P138NTI1350	h
13.75	0/-0.027	13.75	108	160	1	P138N1375	h		

h stock standard f non-standard stock m stock exhaustion

138N-138NTI

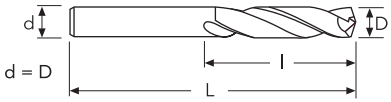
N type for general purpose, short (138N),
N type for general purpose, TiN coated, short (138NTI)

138N

138NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						138N		138NTI	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
14.00	0/-0.027	14	108	160	1	P138N1400	h	P138NTI1400	h
14.25	0/-0.027	14.25	114	169	1	P138N1425	h		
14.50	0/-0.027	14.5	114	169	1	P138N1450	h	P138NTI1450	h
14.75	0/-0.027	14.75	114	169	1	P138N1475	h		
15.00	0/-0.027	15	114	169	1	P138N1500	h	P138NTI1500	h
15.25	0/-0.027	15.25	120	178	1	P138N1525	h		
15.50	0/-0.027	15.5	120	178	1	P138N1550	h	P138NTI1550	h
15.75	0/-0.027	15.75	120	178	1	P138N1575	h		
16.00	0/-0.027	16	120	178	1	P138N1600	h	P138NTI1600	h
16.25	0/-0.027	16.25	125	184	1	P138N1625	h		
16.50	0/-0.027	16.5	125	184	1	P138N1650	h		
16.75	0/-0.027	16.75	125	184	1	P138N1675	h		
17.00	0/-0.027	17	125	184	1	P138N1700	h		
17.50	0/-0.027	17.5	130	191	1	P138N1750	h		
18.00	0/-0.027	18	130	191	1	P138N1800	h		
18.50	0/-0.033	18.5	135	198	1	P138N1850	h		
19.00	0/-0.033	19	135	198	1	P138N1900	h		
19.50	0/-0.033	19.5	140	205	1	P138N1950	h		
20.00	0/-0.033	20	140	205	1	P138N2000	h		

h stock standard f non-standard stock m stock exhaustion

138NA01A
Set 50 pcs.
138N DIN338 HSS
Ø1 mm÷Ø5.9 mm x 0.1 mm

138NA01B
Set 41 pcs.
138N DIN338 HSS
Ø6 mm÷Ø10 mm x 0.1 mm

138NA05C
Set 25 pcs.
138N DIN338 HSS
Ø1 mm÷Ø13 mm x 0.5 mm

138N

Material Group ISO 513	P1 P2			P3 P4			K1 K2			N1 N5			N2 N3 N4		
Hardness/Rm															
Vc (m/min)	25-35			20-30			25-35			50-70			40-60		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
0.2	47770	0.007	330	39810	0.006	240	47770	0.008	370	95540	0.010	940	79620	0.007	560
0.5	19110	0.011	210	15920	0.009	150	19110	0.012	230	38220	0.015	590	31850	0.011	350
0.8	11940	0.013	160	9950	0.011	110	11940	0.014	170	23890	0.018	430	19900	0.013	260
1	9550	0.017	160	7960	0.014	120	9550	0.019	180	19110	0.024	450	15920	0.017	270
1.5	6370	0.035	220	5310	0.030	160	6370	0.039	250	12740	0.049	620	10620	0.035	370
2	4780	0.050	240	3980	0.043	170	4780	0.055	260	9550	0.070	670	7960	0.050	400
2.5	3820	0.060	230	3180	0.051	160	3820	0.066	250	7640	0.084	640	6370	0.060	380
3	3180	0.070	220	2650	0.060	160	3180	0.077	240	6370	0.098	620	5310	0.070	370
3.5	2730	0.080	220	2270	0.068	150	2730	0.088	240	5460	0.112	610	4550	0.080	360
4	2390	0.090	220	1990	0.077	150	2390	0.099	240	4780	0.126	600	3980	0.090	360
5	1910	0.100	190	1590	0.085	140	1910	0.110	210	3820	0.140	530	3180	0.100	320
6	1590	0.110	170	1330	0.094	120	1590	0.121	190	3180	0.154	490	2650	0.110	290
7	1360	0.120	160	1140	0.102	120	1360	0.132	180	2730	0.168	460	2270	0.120	270
8	1190	0.130	150	1000	0.111	110	1190	0.143	170	2390	0.182	430	1990	0.130	260
9	1060	0.140	150	880	0.119	100	1060	0.154	160	2120	0.196	420	1770	0.140	250
10	960	0.160	150	800	0.136	110	960	0.176	170	1910	0.224	430	1590	0.160	250
11	870	0.170	150	720	0.145	100	870	0.187	160	1740	0.238	410	1450	0.170	250
12	800	0.180	140	660	0.153	100	800	0.198	160	1590	0.252	400	1330	0.180	240
13	730	0.190	140	610	0.162	100	730	0.209	150	1470	0.266	390	1220	0.190	230
14	680	0.200	140	570	0.170	100	680	0.220	150	1360	0.280	380	1140	0.200	230
15	640	0.210	130	530	0.179	90	640	0.231	150	1270	0.294	370	1060	0.210	220
16	600	0.220	130	500	0.187	90	600	0.242	150	1190	0.308	370	1000	0.220	220
17	560	0.230	130	470	0.196	90	560	0.253	140	1120	0.322	360	940	0.230	220
18	530	0.240	130	440	0.204	90	530	0.264	140	1060	0.336	360	880	0.240	210
19	500	0.250	130	420	0.213	90	500	0.275	140	1010	0.350	350	840	0.250	210
20	480	0.260	120	400	0.221	90	480	0.286	140	960	0.364	350	800	0.260	210

138NTI

Material Group ISO 513	P1 P2			P3 P4			K1 K2			N1 N5			N2 N3 N4		
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB								
Vc (m/min)	30-40			25-35			30-40			60-80			50-70		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	11150	0.017	190	9550	0.014	140	11150	0.019	210	22290	0.024	530	19110	0.017	320
1.5	7430	0.035	260	6370	0.030	190	7430	0.039	290	14860	0.049	730	12740	0.035	450
2	5570	0.050	280	4780	0.043	200	5570	0.055	310	11150	0.070	780	9550	0.050	480
2.5	4460	0.060	270	3820	0.051	190	4460	0.066	290	8920	0.084	750	7640	0.060	460
3	3720	0.070	260	3180	0.060	190	3720	0.077	290	7430	0.098	730	6370	0.070	450
3.5	3180	0.080	250	2730	0.068	190	3180	0.088	280	6370	0.112	710	5460	0.080	440
4	2790	0.090	250	2390	0.077	180	2790	0.099	280	5570	0.126	700	4780	0.090	430
5	2230	0.100	220	1910	0.085	160	2230	0.110	250	4460	0.140	620	3820	0.100	380
6	1860	0.110	200	1590	0.094	150	1860	0.121	230	3720	0.154	570	3180	0.110	350
7	1590	0.120	190	1360	0.102	140	1590	0.132	210	3180	0.168	530	2730	0.120	330
8	1390	0.130	180	1190	0.111	130	1390	0.143	200	2790	0.182	510	2390	0.130	310
9	1240	0.140	170	1060	0.119	130	1240	0.154	190	2480	0.196	490	2120	0.140	300
10	1110	0.160	180	960	0.136	130	1110	0.176	200	2230	0.224	500	1910	0.160	310
11	1010	0.170	170	870	0.145	130	1010	0.187	190	2030	0.238	480	1740	0.170	300
12	930	0.180	170	800	0.153	120	930	0.198	180	1860	0.252	470	1590	0.180	290
13	860	0.190	160	730	0.162	120	860	0.209	180	1710	0.266	450	1470	0.190	280
14	800	0.200	160	680	0.170	120	800	0.220	180	1590	0.280	450	1360	0.200	270
15	740	0.210	160	640	0.179	110	740	0.231	170	1490	0.294	440	1270	0.210	270
16	700	0.220	150	600	0.187	110	700	0.242	170	1390	0.308	430	1190	0.220	260

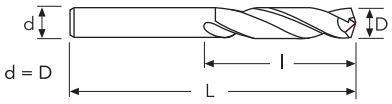
138HB

HB type for brass, short

DIN 338 | H | HSS BR | 118° | 12-15°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.50	0/-0.014	1.5	18	40	10	P138HB0150	h
1.60	0/-0.014	1.6	20	43	10	P138HB0160	h
1.70	0/-0.014	1.7	20	43	10	P138HB0170	h
1.80	0/-0.014	1.8	22	46	10	P138HB0180	h
1.90	0/-0.014	1.9	22	46	10	P138HB0190	h
2.00	0/-0.014	2	24	49	10	P138HB0200	h
2.10	0/-0.014	2.1	24	49	10	P138HB0210	h
2.20	0/-0.014	2.2	27	53	10	P138HB0220	h
2.30	0/-0.014	2.3	27	53	10	P138HB0230	h
2.40	0/-0.014	2.4	30	57	10	P138HB0240	h
2.50	0/-0.014	2.5	30	57	10	P138HB0250	h
2.60	0/-0.014	2.6	30	57	10	P138HB0260	h
2.70	0/-0.014	2.7	33	61	10	P138HB0270	h
2.80	0/-0.014	2.8	33	61	10	P138HB0280	h
2.90	0/-0.014	2.9	33	61	10	P138HB0290	h
3.00	0/-0.014	3	33	61	10	P138HB0300	h
3.10	0/-0.018	3.1	36	65	10	P138HB0310	h
3.20	0/-0.018	3.2	36	65	10	P138HB0320	h
3.30	0/-0.018	3.3	36	65	10	P138HB0330	h
3.40	0/-0.018	3.4	39	70	10	P138HB0340	h
3.50	0/-0.018	3.5	39	70	10	P138HB0350	h
3.60	0/-0.018	3.6	39	70	10	P138HB0360	h
3.70	0/-0.018	3.7	39	70	10	P138HB0370	h
3.80	0/-0.018	3.8	43	75	10	P138HB0380	h
3.90	0/-0.018	3.9	43	75	10	P138HB0390	h
4.00	0/-0.018	4	43	75	10	P138HB0400	h
4.10	0/-0.018	4.1	43	75	10	P138HB0410	h
4.20	0/-0.018	4.2	43	75	10	P138HB0420	h
4.30	0/-0.018	4.3	47	80	10	P138HB0430	h
4.40	0/-0.018	4.4	47	80	10	P138HB0440	f
4.50	0/-0.018	4.5	47	80	10	P138HB0450	h
4.60	0/-0.018	4.6	47	80	10	P138HB0460	h
4.70	0/-0.018	4.7	47	80	10	P138HB0470	h
4.80	0/-0.018	4.8	52	86	10	P138HB0480	h
4.90	0/-0.018	4.9	52	86	10	P138HB0490	f
5.00	0/-0.018	5	52	86	10	P138HB0500	h
5.10	0/-0.018	5.1	52	86	10	P138HB0510	f
5.20	0/-0.018	5.2	52	86	10	P138HB0520	f
5.30	0/-0.018	5.3	52	86	10	P138HB0530	f

h stock standard f non-standard stock m stock exhaustion

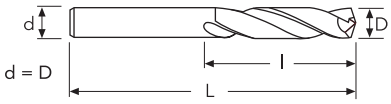
138HB

HB type for brass, short

DIN 338 | H | HSS BR | 118° | 12-15°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
5.40	0/-0.018	5.4	57	93	10	P138HB0540	f
5.50	0/-0.018	5.5	57	93	10	P138HB0550	h
5.60	0/-0.018	5.6	57	93	10	P138HB0560	f
5.70	0/-0.018	5.7	57	93	10	P138HB0570	f
5.80	0/-0.018	5.8	57	93	10	P138HB0580	f
5.90	0/-0.018	5.9	57	93	10	P138HB0590	f
6.00	0/-0.018	6	57	93	10	P138HB0600	h
6.10	0/-0.022	6.1	63	101	10	P138HB0610	f
6.20	0/-0.022	6.2	63	101	10	P138HB0620	f
6.30	0/-0.022	6.3	63	101	10	P138HB0630	f
6.40	0/-0.022	6.4	63	101	10	P138HB0640	f
6.50	0/-0.022	6.5	63	101	10	P138HB0650	h
6.60	0/-0.022	6.6	63	101	5	P138HB0660	f
6.70	0/-0.022	6.7	63	101	5	P138HB0670	f
6.80	0/-0.022	6.8	69	109	5	P138HB0680	f
6.90	0/-0.022	6.9	69	109	5	P138HB0690	f
7.00	0/-0.022	7	69	109	5	P138HB0700	h
7.10	0/-0.022	7.1	69	109	5	P138HB0710	f
7.20	0/-0.022	7.2	69	109	5	P138HB0720	f
7.30	0/-0.022	7.3	69	109	5	P138HB0730	f
7.40	0/-0.022	7.4	69	109	5	P138HB0740	f
7.50	0/-0.022	7.5	69	109	5	P138HB0750	h
7.60	0/-0.022	7.6	75	117	5	P138HB0760	f
7.70	0/-0.022	7.7	75	117	5	P138HB0770	f
7.80	0/-0.022	7.8	75	117	5	P138HB0780	h
7.90	0/-0.022	7.9	75	117	5	P138HB0790	f
8.00	0/-0.022	8	75	117	5	P138HB0800	h
8.10	0/-0.022	8.1	75	117	5	P138HB0810	f
8.20	0/-0.022	8.2	75	117	5	P138HB0820	f
8.30	0/-0.022	8.3	75	117	5	P138HB0830	f
8.40	0/-0.022	8.4	75	117	5	P138HB0840	f
8.50	0/-0.022	8.5	75	117	5	P138HB0850	h
8.60	0/-0.022	8.6	81	125	5	P138HB0860	f
8.70	0/-0.022	8.7	81	125	5	P138HB0870	f
8.80	0/-0.022	8.8	81	125	5	P138HB0880	f
8.90	0/-0.022	8.9	81	125	5	P138HB0890	f
9.00	0/-0.022	9	81	125	5	P138HB0900	h
9.10	0/-0.022	9.1	81	125	5	P138HB0910	f
9.20	0/-0.022	9.2	81	125	5	P138HB0920	f

h stock standard f non-standard stock m stock exhaustion

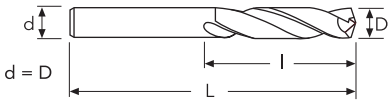
138HB

HB type for brass, short

DIN 338 | H | HSS BR | 118° | 12-15°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
9.30	0/-0.022	9.3	81	125	5	P138HB0930	f
9.40	0/-0.022	9.4	81	125	5	P138HB0940	f
9.50	0/-0.022	9.5	81	125	5	P138HB0950	h
9.60	0/-0.022	9.6	87	133	5	P138HB0960	f
9.70	0/-0.022	9.7	87	133	5	P138HB0970	f
9.80	0/-0.022	9.8	87	133	5	P138HB0980	f
9.90	0/-0.022	9.9	87	133	5	P138HB0990	f
10.00	0/-0.022	10	87	133	5	P138HB1000	h

h stock standard f non-standard stock m stock exhaustion

138HB

	Material Group ISO 513	N4											
	Hardness/Rm												
	Vc (m/min)	40-60											
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)									
	1.5	10620	0.065	690									
	2	7960	0.080	640									
	2.5	6370	0.090	570									
	3	5310	0.100	530									
	3.5	4550	0.110	500									
	4	3980	0.120	480									
	4.5	3540	0.130	460									
	5	3180	0.140	450									
	6	2650	0.160	420									
	7	2270	0.180	410									
	8	1990	0.200	400									
	9	1770	0.220	390									
	10	1590	0.250	400									

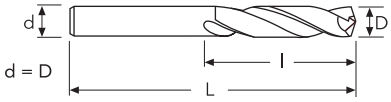
138WB

WB type for aluminium, short

DIN 338 | W | HSS / BR | 130° | 35-40°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.50	0/-0.014	1.5	18	40	10	P138WB0150	h
1.60	0/-0.014	1.6	20	43	10	P138WB0160	f
1.70	0/-0.014	1.7	20	43	10	P138WB0170	f
1.80	0/-0.014	1.8	22	46	10	P138WB0180	f
1.90	0/-0.014	1.9	22	46	10	P138WB0190	f
2.00	0/-0.014	2	24	49	10	P138WB0200	h
2.10	0/-0.014	2.1	24	49	10	P138WB0210	f
2.20	0/-0.014	2.2	27	53	10	P138WB0220	h
2.30	0/-0.014	2.3	27	53	10	P138WB0230	f
2.40	0/-0.014	2.4	30	57	10	P138WB0240	h
2.50	0/-0.014	2.5	30	57	10	P138WB0250	h
2.60	0/-0.014	2.6	30	57	10	P138WB0260	h
2.70	0/-0.014	2.7	33	61	10	P138WB0270	f
2.80	0/-0.014	2.8	33	61	10	P138WB0280	h
2.90	0/-0.014	2.9	33	61	10	P138WB0290	f
3.00	0/-0.014	3	33	61	10	P138WB0300	h
3.10	0/-0.018	3.1	36	65	10	P138WB0310	h
3.20	0/-0.018	3.2	36	65	10	P138WB0320	h
3.30	0/-0.018	3.3	36	65	10	P138WB0330	h
3.40	0/-0.018	3.4	39	70	10	P138WB0340	h
3.50	0/-0.018	3.5	39	70	10	P138WB0350	h
3.60	0/-0.018	3.6	39	70	10	P138WB0360	h
3.70	0/-0.018	3.7	39	70	10	P138WB0370	h
3.80	0/-0.018	3.8	43	75	10	P138WB0380	h
3.90	0/-0.018	3.9	43	75	10	P138WB0390	h
4.00	0/-0.018	4	43	75	10	P138WB0400	h
4.10	0/-0.018	4.1	43	75	10	P138WB0410	h
4.20	0/-0.018	4.2	43	75	10	P138WB0420	h
4.30	0/-0.018	4.3	47	80	10	P138WB0430	f
4.40	0/-0.018	4.4	47	80	10	P138WB0440	f
4.50	0/-0.018	4.5	47	80	10	P138WB0450	h
4.60	0/-0.018	4.6	47	80	10	P138WB0460	h
4.70	0/-0.018	4.7	47	80	10	P138WB0470	f
4.80	0/-0.018	4.8	52	86	10	P138WB0480	h
4.90	0/-0.018	4.9	52	86	10	P138WB0490	h
5.00	0/-0.018	5	52	86	10	P138WB0500	h
5.10	0/-0.018	5.1	52	86	10	P138WB0510	f
5.20	0/-0.018	5.2	52	86	10	P138WB0520	h
5.30	0/-0.018	5.3	52	86	10	P138WB0530	f

h stock standard f non-standard stock m stock exhaustion

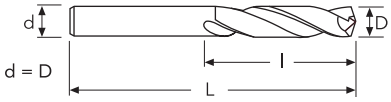
138WB

WB type for aluminium, short

DIN 338 | W | HSS / BR | 130° | 35-40°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
5.40	0/-0.018	5.4	57	93	10	P138WB0540	f
5.50	0/-0.018	5.5	57	93	10	P138WB0550	h
5.60	0/-0.018	5.6	57	93	10	P138WB0560	h
5.70	0/-0.018	5.7	57	93	10	P138WB0570	f
5.80	0/-0.018	5.8	57	93	10	P138WB0580	f
5.90	0/-0.018	5.9	57	93	10	P138WB0590	f
6.00	0/-0.018	6	57	93	10	P138WB0600	h
6.10	0/-0.022	6.1	63	101	10	P138WB0610	f
6.20	0/-0.022	6.2	63	101	10	P138WB0620	f
6.30	0/-0.022	6.3	63	101	10	P138WB0630	f
6.40	0/-0.022	6.4	63	101	10	P138WB0640	f
6.50	0/-0.022	6.5	63	101	10	P138WB0650	h
6.60	0/-0.022	6.6	63	101	5	P138WB0660	f
6.70	0/-0.022	6.7	63	101	5	P138WB0670	f
6.80	0/-0.022	6.8	69	109	5	P138WB0680	h
6.90	0/-0.022	6.9	69	109	5	P138WB0690	f
7.00	0/-0.022	7	69	109	5	P138WB0700	h
7.10	0/-0.022	7.1	69	109	5	P138WB0710	f
7.20	0/-0.022	7.2	69	109	5	P138WB0720	f
7.30	0/-0.022	7.3	69	109	5	P138WB0730	f
7.40	0/-0.022	7.4	69	109	5	P138WB0740	f
7.50	0/-0.022	7.5	69	109	5	P138WB0750	h
7.60	0/-0.022	7.6	75	117	5	P138WB0760	f
7.70	0/-0.022	7.7	75	117	5	P138WB0770	f
7.80	0/-0.022	7.8	75	117	5	P138WB0780	f
7.90	0/-0.022	7.9	75	117	5	P138WB0790	f
8.00	0/-0.022	8	75	117	5	P138WB0800	h
8.10	0/-0.022	8.1	75	117	5	P138WB0810	f
8.20	0/-0.022	8.2	75	117	5	P138WB0820	h
8.30	0/-0.022	8.3	75	117	5	P138WB0830	f
8.40	0/-0.022	8.4	75	117	5	P138WB0840	f
8.50	0/-0.022	8.5	75	117	5	P138WB0850	h
8.60	0/-0.022	8.6	81	125	5	P138WB0860	f
8.70	0/-0.022	8.7	81	125	5	P138WB0870	f
8.80	0/-0.022	8.8	81	125	5	P138WB0880	f
8.90	0/-0.022	8.9	81	125	5	P138WB0890	f
9.00	0/-0.022	9	81	125	5	P138WB0900	h
9.10	0/-0.022	9.1	81	125	5	P138WB0910	f
9.20	0/-0.022	9.2	81	125	5	P138WB0920	f

h stock standard f non-standard stock m stock exhaustion

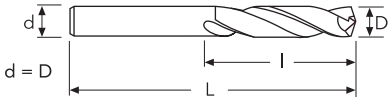
138WB

WB type for aluminium, short

DIN 338 | W | HSS / BR | 130° | 35-40°

P	M	K	N	S	H
			★		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
9.30	0/-0.022	9.3	81	125	5	P138WB0930	f
9.40	0/-0.022	9.4	81	125	5	P138WB0940	f
9.50	0/-0.022	9.5	81	125	5	P138WB0950	h
9.60	0/-0.022	9.6	87	133	5	P138WB0960	f
9.70	0/-0.022	9.7	87	133	5	P138WB0970	f
9.80	0/-0.022	9.8	87	133	5	P138WB0980	f
9.90	0/-0.022	9.9	87	133	5	P138WB0990	f
10.00	0/-0.022	10	87	133	5	P138WB1000	h

h stock standard f non-standard stock m stock exhaustion

138WB

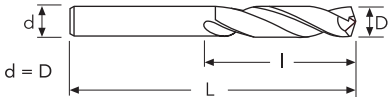
	Material Group ISO 513	N1			N2			N3					
	Hardness/Rm												
	Vc (m/min)	40-60			30-50			25-45					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	1.5	10620	0.070	740	8490	0.063	530	7430	0.060	440			
	2	7962	0.080	640	6369	0.072	460	5573	0.068	380			
	2.5	6369	0.090	570	5096	0.081	410	4459	0.077	340			
	3	5308	0.100	530	4246	0.090	380	3715	0.085	320			
	3.5	4550	0.110	500	3640	0.099	360	3185	0.094	300			
	4	3981	0.120	480	3185	0.108	340	2787	0.102	280			
	4.5	3539	0.130	460	2831	0.117	330	2477	0.111	270			
	5	3185	0.140	450	2548	0.126	320	2229	0.119	270			
	6	2654	0.160	420	2123	0.144	310	1858	0.136	250			
	7	2275	0.180	410	1820	0.162	290	1592	0.153	240			
	8	1990	0.200	400	1592	0.180	290	1393	0.170	240			
	9	1769	0.220	390	1415	0.198	280	1238	0.187	230			
	10	1592	0.250	400	1274	0.225	290	1115	0.213	240			

2386STI

STI type for tough materials, split point, TiN pointed, short

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.00	0/-0.014	1	12	34	10	P2385NTI0100	h
1.10	0/-0.014	1.1	14	36	10	P2385NTI0110	h
1.20	0/-0.014	1.2	16	38	10	P2385NTI0120	h
1.30	0/-0.014	1.3	16	38	10	P2385NTI0130	h
1.40	0/-0.014	1.4	18	40	10	P2385NTI0140	h
1.50	0/-0.014	1.5	18	40	10	P2385NTI0150	h
1.60	0/-0.014	1.6	20	43	10	P2386STI0160	h
1.70	0/-0.014	1.7	20	43	10	P2386STI0170	h
1.80	0/-0.014	1.8	22	46	10	P2386STI0180	h
1.90	0/-0.014	1.9	22	46	10	P2386STI0190	h
2.00	0/-0.014	2	24	49	10	P2386STI0200	h
2.10	0/-0.014	2.1	24	49	10	P2386STI0210	h
2.20	0/-0.014	2.2	27	53	10	P2386STI0220	h
2.30	0/-0.014	2.3	27	53	10	P2386STI0230	h
2.40	0/-0.014	2.4	30	57	10	P2386STI0240	h
2.50	0/-0.014	2.5	30	57	10	P2386STI0250	h
2.60	0/-0.014	2.6	30	57	10	P2386STI0260	h
2.70	0/-0.014	2.7	33	61	10	P2386STI0270	h
2.80	0/-0.014	2.8	33	61	10	P2386STI0280	h
2.90	0/-0.014	2.9	33	61	10	P2386STI0290	h
3.00	0/-0.014	3	33	61	10	P2386STI0300	h
3.10	0/-0.018	3.1	36	65	10	P2386STI0310	h
3.20	0/-0.018	3.2	36	65	10	P2386STI0320	h
3.30	0/-0.018	3.3	36	65	10	P2386STI0330	h
3.40	0/-0.018	3.4	39	70	10	P2386STI0340	h
3.50	0/-0.018	3.5	39	70	10	P2386STI0350	h
3.60	0/-0.018	3.6	39	70	10	P2386STI0360	h
3.70	0/-0.018	3.7	39	70	10	P2386STI0370	h
3.80	0/-0.018	3.8	43	75	10	P2386STI0380	h
3.90	0/-0.018	3.9	43	75	10	P2386STI0390	h
4.00	0/-0.018	4	43	75	10	P2386STI0400	h
4.10	0/-0.018	4.1	43	75	10	P2386STI0410	h
4.20	0/-0.018	4.2	43	75	10	P2386STI0420	h
4.30	0/-0.018	4.3	47	80	10	P2386STI0430	h
4.40	0/-0.018	4.4	47	80	10	P2386STI0440	h
4.50	0/-0.018	4.5	47	80	10	P2386STI0450	h
4.60	0/-0.018	4.6	47	80	10	P2386STI0460	h
4.70	0/-0.018	4.7	47	80	10	P2386STI0470	h
4.80	0/-0.018	4.8	52	86	10	P2386STI0480	h

h stock standard f non-standard stock m stock exhaustion

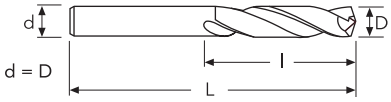
2386STI

STI type for tough materials, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS/Co | TiN | 135° | 33°

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.90	0/-0.018	4.9	52	86	10	P2386STI0490	h
5.00	0/-0.018	5	52	86	10	P2386STI0500	h
5.10	0/-0.018	5.1	52	86	10	P2386STI0510	h
5.20	0/-0.018	5.2	52	86	10	P2386STI0520	h
5.30	0/-0.018	5.3	52	86	10	P2386STI0530	h
5.40	0/-0.018	5.4	57	93	10	P2386STI0540	h
5.50	0/-0.018	5.5	57	93	10	P2386STI0550	h
5.60	0/-0.018	5.6	57	93	10	P2386STI0560	h
5.70	0/-0.018	5.7	57	93	10	P2386STI0570	h
5.80	0/-0.018	5.8	57	93	10	P2386STI0580	h
5.90	0/-0.018	5.9	57	93	10	P2386STI0590	h
6.00	0/-0.018	6	57	93	10	P2386STI0600	h
6.10	0/-0.022	6.1	63	101	10	P2386STI0610	h
6.20	0/-0.022	6.2	63	101	10	P2386STI0620	h
6.30	0/-0.022	6.3	63	101	10	P2386STI0630	h
6.40	0/-0.022	6.4	63	101	10	P2386STI0640	h
6.50	0/-0.022	6.5	63	101	10	P2386STI0650	h
6.60	0/-0.022	6.6	63	101	5	P2386STI0660	h
6.70	0/-0.022	6.7	63	101	5	P2386STI0670	h
6.80	0/-0.022	6.8	69	109	5	P2386STI0680	h
6.90	0/-0.022	6.9	69	109	5	P2386STI0690	h
7.00	0/-0.022	7	69	109	5	P2386STI0700	h
7.10	0/-0.022	7.1	69	109	5	P2386STI0710	h
7.20	0/-0.022	7.2	69	109	5	P2386STI0720	h
7.30	0/-0.022	7.3	69	109	5	P2386STI0730	h
7.40	0/-0.022	7.4	69	109	5	P2386STI0740	h
7.50	0/-0.022	7.5	69	109	5	P2386STI0750	h
7.60	0/-0.022	7.6	75	117	5	P2386STI0760	h
7.70	0/-0.022	7.7	75	117	5	P2386STI0770	h
7.80	0/-0.022	7.8	75	117	5	P2386STI0780	h
7.90	0/-0.022	7.9	75	117	5	P2386STI0790	h
8.00	0/-0.022	8	75	117	5	P2386STI0800	h
8.10	0/-0.022	8.1	75	117	5	P2386STI0810	h
8.20	0/-0.022	8.2	75	117	5	P2386STI0820	h
8.30	0/-0.022	8.3	75	117	5	P2386STI0830	h
8.40	0/-0.022	8.4	75	117	5	P2386STI0840	h
8.50	0/-0.022	8.5	75	117	5	P2386STI0850	h
8.60	0/-0.022	8.6	81	125	5	P2386STI0860	h
8.70	0/-0.022	8.7	81	125	5	P2386STI0870	h

h stock standard f non-standard stock m stock exhaustion

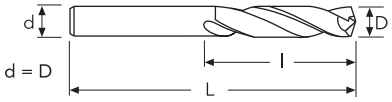
2386STI

STI type for tough materials, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS/Co TiN | 135° | 33°

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
8.80	0/-0.022	8.8	81	125	5	P2386STI0880	h
8.90	0/-0.022	8.9	81	125	5	P2386STI0890	h
9.00	0/-0.022	9	81	125	5	P2386STI0900	h
9.10	0/-0.022	9.1	81	125	5	P2386STI0910	h
9.20	0/-0.022	9.2	81	125	5	P2386STI0920	h
9.30	0/-0.022	9.3	81	125	5	P2386STI0930	h
9.40	0/-0.022	9.4	81	125	5	P2386STI0940	h
9.50	0/-0.022	9.5	81	125	5	P2386STI0950	h
9.60	0/-0.022	9.6	87	133	5	P2386STI0960	h
9.70	0/-0.022	9.7	87	133	5	P2386STI0970	h
9.80	0/-0.022	9.8	87	133	5	P2386STI0980	h
9.90	0/-0.022	9.9	87	133	5	P2386STI0990	h
10.00	0/-0.022	10	87	133	5	P2386STI1000	h
10.10	0/-0.027	10.1	87	133	5	P2386STI1010	h
10.20	0/-0.027	10.2	87	133	5	P2386STI1020	h
10.30	0/-0.027	10.3	87	133	5	P2386STI1030	h
10.40	0/-0.027	10.4	87	133	5	P2386STI1040	h
10.50	0/-0.027	10.5	87	133	5	P2386STI1050	h
10.60	0/-0.027	10.6	87	133	5	P2386STI1060	h
10.70	0/-0.027	10.7	94	142	5	P2386STI1070	h
10.80	0/-0.027	10.8	94	142	5	P2386STI1080	h
10.90	0/-0.027	10.9	94	142	5	P2386STI1090	h
11.00	0/-0.027	11	94	142	5	P2386STI1100	h
11.10	0/-0.027	11.1	94	142	5	P2386STI1110	h
11.20	0/-0.027	11.2	94	142	5	P2386STI1120	h
11.30	0/-0.027	11.3	94	142	5	P2386STI1130	h
11.40	0/-0.027	11.4	94	142	5	P2386STI1140	h
11.50	0/-0.027	11.5	94	142	5	P2386STI1150	h
11.60	0/-0.027	11.6	94	142	5	P2386STI1160	h
11.70	0/-0.027	11.7	94	142	5	P2386STI1170	h
11.80	0/-0.027	11.8	94	142	5	P2386STI1180	h
11.90	0/-0.027	11.9	101	151	5	P2386STI1190	h
12.00	0/-0.027	12	101	151	5	P2386STI1200	h
12.10	0/-0.027	12.1	101	151	5	P2386STI1210	h
12.20	0/-0.027	12.2	101	151	5	P2386STI1220	h
12.30	0/-0.027	12.3	101	151	5	P2386STI1230	h
12.40	0/-0.027	12.4	101	151	5	P2386STI1240	h
12.50	0/-0.027	12.5	101	151	5	P2386STI1250	h
12.60	0/-0.027	12.6	101	151	5	P2386STI1260	h

h stock standard f non-standard stock m stock exhaustion

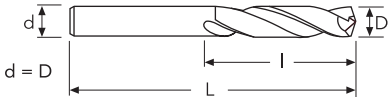
2386STI

STI type for tough materials, split point, TiN pointed, short

DIN 338 | SPLIT POINT | HSS/Co TiN | 135° | 33°

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
12.70	0/-0.027	12.7	101	151	5	P2386STI1270	h
12.80	0/-0.027	12.8	101	151	5	P2386STI1280	h
12.90	0/-0.027	12.9	101	151	5	P2386STI1290	h
13.00	0/-0.027	13	101	151	5	P2386STI1300	h

h stock standard f non-standard stock m stock exhaustion

2386STIA01A
Set 50pcs.
2386STI DIN338 HSS/Co TIN POINTED
Ø1 mm÷Ø5.9 mm x 0.1 mm

2386STIA01B
Set 41pcs.
2386STI DIN338 HSS/Co TIN POINTED
Ø6 mm÷Ø10 mm x 0.1 mm

2386STIA05C
Set 25pcs.
2386STI DIN338 HSS/Co TIN POINTED
Ø1 mm÷Ø13 mm x 0.5 mm

CUTTING PARAMETERS

2386STI

Material Group ISO 513	P1 P2			P3 P4			M1 M2			M3			K1 K2		
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			550-850 N/mm²			150-350 HB		
Vc (m/min)	30-40			25-35			15-25			12-18			30-40		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	11150	0.017	190	9550	0.014	140	6370	0.012	80	4780	0.009	40	11150	0.019	210
1.5	7430	0.035	260	6370	0.030	190	4250	0.025	100	3180	0.018	55	7430	0.039	290
2	5570	0.050	280	4780	0.043	200	3180	0.035	110	2390	0.025	60	5570	0.055	310
2.5	4460	0.075	330	3820	0.064	240	2550	0.053	130	1910	0.038	70	4460	0.083	370
3	3720	0.090	330	3180	0.077	240	2120	0.063	130	1590	0.045	70	3720	0.099	370
3.5	3180	0.105	330	2730	0.089	240	1820	0.074	130	1360	0.053	70	3180	0.116	370
4	2790	0.110	310	2390	0.094	220	1590	0.077	120	1190	0.055	65	2790	0.121	340
5	2230	0.125	280	1910	0.106	200	1270	0.088	110	960	0.063	60	2230	0.138	310
6	1860	0.160	300	1590	0.136	220	1060	0.112	120	800	0.080	65	1860	0.176	330
7	1590	0.175	280	1360	0.149	200	910	0.123	110	680	0.088	60	1590	0.193	310
8	1390	0.200	280	1190	0.170	200	800	0.140	110	600	0.100	60	1390	0.220	310
9	1240	0.210	260	1060	0.179	190	710	0.147	100	530	0.105	55	1240	0.231	290
10	1110	0.220	240	960	0.187	180	640	0.154	100	480	0.110	55	1110	0.242	270
11	1010	0.235	240	870	0.200	170	580	0.165	100	430	0.118	50	1010	0.259	260
12	930	0.250	230	800	0.213	170	530	0.175	90	400	0.125	50	930	0.275	260
13	860	0.265	230	730	0.225	160	490	0.186	90	370	0.133	50	860	0.292	250

Material Group ISO 513	K3 K4			N1 N5			N2 N3 N4			S1 S2 S4		
Hardness/Rm	< 350 HB									< 35 HRC		
Vc (m/min)	25-35			60-80			50-70			12-18		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	9550	0.013	120	22290	0.024	530	19110	0.017	320	4780	0.007	35
1.5	6370	0.026	170	14860	0.049	730	12740	0.035	450	3180	0.014	45
2	4780	0.038	180	11150	0.070	780	9550	0.050	480	2390	0.020	50
2.5	3820	0.056	210	8920	0.105	940	7640	0.075	570	1910	0.030	55
3	3180	0.068	210	7430	0.126	940	6370	0.090	570	1590	0.036	55
3.5	2730	0.079	210	6370	0.147	940	5460	0.105	570	1360	0.042	55
4	2390	0.083	200	5570	0.154	860	4780	0.110	530	1190	0.044	50
5	1910	0.094	180	4460	0.175	780	3820	0.125	480	960	0.050	50
6	1590	0.120	190	3720	0.224	830	3180	0.160	510	800	0.064	50
7	1360	0.131	180	3180	0.245	780	2730	0.175	480	680	0.070	50
8	1190	0.150	180	2790	0.280	780	2390	0.200	480	600	0.080	50
9	1060	0.158	170	2480	0.294	730	2120	0.210	450	530	0.084	45
10	960	0.165	160	2230	0.308	690	1910	0.220	420	480	0.088	40
11	870	0.176	150	2030	0.329	670	1740	0.235	410	430	0.094	40
12	800	0.188	150	1860	0.350	650	1590	0.250	400	400	0.100	40
13	730	0.199	150	1710	0.371	630	1470	0.265	390	370	0.106	40

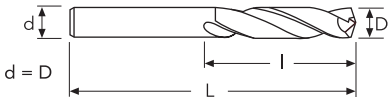
238NVA

NVA type for tough materials, short

DIN 338 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable

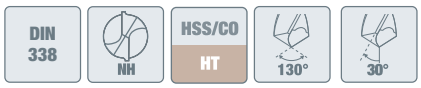


D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
1.00	0/-0.014	1	12	34	10	P238NVA0100	h
1.10	0/-0.014	1.1	14	36	10	P238NVA0110	h
1.20	0/-0.014	1.2	16	38	10	P238NVA0120	h
1.25	0/-0.014	1.25	16	38	10	P238NVA0125	h
1.30	0/-0.014	1.3	16	38	10	P238NVA0130	h
1.40	0/-0.014	1.4	18	40	10	P238NVA0140	h
1.50	0/-0.014	1.5	18	40	10	P238NVA0150	h
1.60	0/-0.014	1.6	20	43	10	P238NVA0160	h
1.70	0/-0.014	1.7	20	43	10	P238NVA0170	h
1.75	0/-0.014	1.75	22	46	10	P238NVA0175	h
1.80	0/-0.014	1.8	22	46	10	P238NVA0180	h
1.90	0/-0.014	1.9	22	46	10	P238NVA0190	h
2.00	0/-0.014	2	24	49	10	P238NVA0200	h
2.10	0/-0.014	2.1	24	49	10	P238NVA0210	h
2.20	0/-0.014	2.2	27	53	10	P238NVA0220	h
2.25	0/-0.014	2.25	27	53	10	P238NVA0225	h
2.30	0/-0.014	2.3	27	53	10	P238NVA0230	h
2.40	0/-0.014	2.4	30	57	10	P238NVA0240	h
2.50	0/-0.014	2.5	30	57	10	P238NVA0250	h
2.60	0/-0.014	2.6	30	57	10	P238NVA0260	h
2.70	0/-0.014	2.7	33	61	10	P238NVA0270	h
2.75	0/-0.014	2.75	33	61	10	P238NVA0275	h
2.80	0/-0.014	2.8	33	61	10	P238NVA0280	h
2.90	0/-0.014	2.9	33	61	10	P238NVA0290	h
3.00	0/-0.014	3	33	61	10	P238NVA0300	h
3.10	0/-0.018	3.1	36	65	10	P238NVA0310	h
3.20	0/-0.018	3.2	36	65	10	P238NVA0320	h
3.25	0/-0.018	3.25	36	65	10	P238NVA0325	h
3.30	0/-0.018	3.3	36	65	10	P238NVA0330	h
3.40	0/-0.018	3.4	39	70	10	P238NVA0340	h
3.50	0/-0.018	3.5	39	70	10	P238NVA0350	h
3.60	0/-0.018	3.6	39	70	10	P238NVA0360	h
3.70	0/-0.018	3.7	39	70	10	P238NVA0370	h
3.75	0/-0.018	3.75	39	70	10	P238NVA0375	h
3.80	0/-0.018	3.8	43	75	10	P238NVA0380	h
3.90	0/-0.018	3.9	43	75	10	P238NVA0390	h
4.00	0/-0.018	4	43	75	10	P238NVA0400	h
4.10	0/-0.018	4.1	43	75	10	P238NVA0410	h
4.20	0/-0.018	4.2	43	75	10	P238NVA0420	h

h stock standard f non-standard stock m stock exhaustion

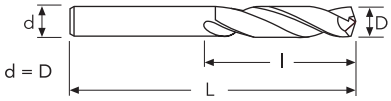
238NVA

NVA type for tough materials, short



P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.25	0/-0.018	4.25	43	75	10	P238NVA0425	h
4.30	0/-0.018	4.3	47	80	10	P238NVA0430	h
4.40	0/-0.018	4.4	47	80	10	P238NVA0440	h
4.50	0/-0.018	4.5	47	80	10	P238NVA0450	h
4.60	0/-0.018	4.6	47	80	10	P238NVA0460	h
4.70	0/-0.018	4.7	47	80	10	P238NVA0470	h
4.75	0/-0.018	4.75	47	80	10	P238NVA0475	h
4.80	0/-0.018	4.8	52	86	10	P238NVA0480	h
4.90	0/-0.018	4.9	52	86	10	P238NVA0490	h
5.00	0/-0.018	5	52	86	10	P238NVA0500	h
5.10	0/-0.018	5.1	52	86	10	P238NVA0510	h
5.20	0/-0.018	5.2	52	86	10	P238NVA0520	h
5.25	0/-0.018	5.25	52	86	10	P238NVA0525	h
5.30	0/-0.018	5.3	52	86	10	P238NVA0530	h
5.40	0/-0.018	5.4	57	93	10	P238NVA0540	h
5.50	0/-0.018	5.5	57	93	10	P238NVA0550	h
5.60	0/-0.018	5.6	57	93	10	P238NVA0560	h
5.70	0/-0.018	5.7	57	93	10	P238NVA0570	h
5.75	0/-0.018	5.75	57	93	10	P238NVA0575	h
5.80	0/-0.018	5.8	57	93	10	P238NVA0580	h
5.90	0/-0.018	5.9	57	93	10	P238NVA0590	h
6.00	0/-0.018	6	57	93	10	P238NVA0600	h
6.10	0/-0.022	6.1	63	101	10	P238NVA0610	h
6.20	0/-0.022	6.2	63	101	10	P238NVA0620	h
6.25	0/-0.022	6.25	63	101	10	P238NVA0625	h
6.30	0/-0.022	6.3	63	101	10	P238NVA0630	h
6.40	0/-0.022	6.4	63	101	10	P238NVA0640	h
6.50	0/-0.022	6.5	63	101	10	P238NVA0650	h
6.60	0/-0.022	6.6	63	101	5	P238NVA0660	h
6.70	0/-0.022	6.7	63	101	5	P238NVA0670	h
6.75	0/-0.022	6.75	69	109	5	P238NVA0675	h
6.80	0/-0.022	6.8	69	109	5	P238NVA0680	h
6.90	0/-0.022	6.9	69	109	5	P238NVA0690	h
7.00	0/-0.022	7	69	109	5	P238NVA0700	h
7.10	0/-0.022	7.1	69	109	5	P238NVA0710	h
7.20	0/-0.022	7.2	69	109	5	P238NVA0720	h
7.25	0/-0.022	7.25	69	109	5	P238NVA0725	h
7.30	0/-0.022	7.3	69	109	5	P238NVA0730	h
7.40	0/-0.022	7.4	69	109	5	P238NVA0740	h

h stock standard f non-standard stock m stock exhaustion

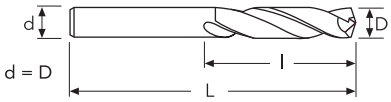
238NVA

NVA type for tough materials, short

DIN 338 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
7.50	0/-0.022	7.5	69	109	5	P238NVA0750	h
7.60	0/-0.022	7.6	75	117	5	P238NVA0760	h
7.70	0/-0.022	7.7	75	117	5	P238NVA0770	h
7.75	0/-0.022	7.75	75	117	5	P238NVA0775	h
7.80	0/-0.022	7.8	75	117	5	P238NVA0780	h
7.90	0/-0.022	7.9	75	117	5	P238NVA0790	h
8.00	0/-0.022	8	75	117	5	P238NVA0800	h
8.10	0/-0.022	8.1	75	117	5	P238NVA0810	h
8.20	0/-0.022	8.2	75	117	5	P238NVA0820	h
8.25	0/-0.022	8.25	75	117	5	P238NVA0825	h
8.30	0/-0.022	8.3	75	117	5	P238NVA0830	h
8.40	0/-0.022	8.4	75	117	5	P238NVA0840	h
8.50	0/-0.022	8.5	75	117	5	P238NVA0850	h
8.60	0/-0.022	8.6	81	125	5	P238NVA0860	h
8.70	0/-0.022	8.7	81	125	5	P238NVA0870	h
8.75	0/-0.022	8.75	81	125	5	P238NVA0875	h
8.80	0/-0.022	8.8	81	125	5	P238NVA0880	h
8.90	0/-0.022	8.9	81	125	5	P238NVA0890	h
9.00	0/-0.022	9	81	125	5	P238NVA0900	h
9.10	0/-0.022	9.1	81	125	5	P238NVA0910	h
9.20	0/-0.022	9.2	81	125	5	P238NVA0920	h
9.25	0/-0.022	9.25	81	125	5	P238NVA0925	h
9.30	0/-0.022	9.3	81	125	5	P238NVA0930	h
9.40	0/-0.022	9.4	81	125	5	P238NVA0940	h
9.50	0/-0.022	9.5	81	125	5	P238NVA0950	h
9.60	0/-0.022	9.6	87	133	5	P238NVA0960	h
9.70	0/-0.022	9.7	87	133	5	P238NVA0970	h
9.75	0/-0.022	9.75	87	133	5	P238NVA0975	h
9.80	0/-0.022	9.8	87	133	5	P238NVA0980	h
9.90	0/-0.022	9.9	87	133	5	P238NVA0990	h
10.00	0/-0.022	10	87	133	5	P238NVA1000	h
10.20	0/-0.027	10.2	87	133	5	P238NVA1020	h
10.50	0/-0.027	10.5	87	133	5	P238NVA1050	h
11.00	0/-0.027	11	94	142	5	P238NVA1100	h
11.50	0/-0.027	11.5	94	142	5	P238NVA1150	h
12.00	0/-0.027	12	101	151	5	P238NVA1200	h
12.50	0/-0.027	12.5	101	151	5	P238NVA1250	h
13.00	0/-0.027	13	101	151	5	P238NVA1300	h
13.50	0/-0.027	13.5	108	160	1	P238NVA1350	h

h stock standard f non-standard stock m stock exhaustion

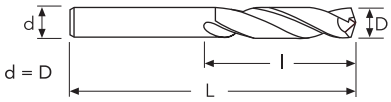
238NVA

NVA type for tough materials, short

DIN 338 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
14.00	0/-0.027	14	108	160	1	P238NVA1400	h
14.50	0/-0.027	14.5	114	169	1	P238NVA1450	h
15.00	0/-0.027	15	114	169	1	P238NVA1500	h
15.50	0/-0.027	15.5	120	178	1	P238NVA1550	h
16.00	0/-0.027	16	120	178	1	P238NVA1600	h
16.50	0/-0.027	16.5	125	184	1	P238NVA1650	h
17.00	0/-0.027	17	125	184	1	P238NVA1700	h
17.50	0/-0.027	17.5	130	191	1	P238NVA1750	h
18.00	0/-0.027	18	130	191	1	P238NVA1800	h
18.50	0/-0.033	18.5	135	198	1	P238NVA1850	h
19.00	0/-0.033	19	135	198	1	P238NVA1900	h
19.50	0/-0.033	19.5	140	205	1	P238NVA1950	f
20.00	0/-0.033	20	140	205	1	P238NVA2000	h

h stock standard f non-standard stock m stock exhaustion

238NVAA01A
Set 50pcs.
238NVA DIN338 HSS/Co
Ø1 mm÷Ø5.9 mm x 0.1 mm

238NVAA01B
Set 41pcs.
238NVA DIN338 HSS/Co
Ø6 mm÷Ø10 mm x 0.1 mm

238NVAA05C
Set 25pcs.
238NVA DIN338 HSS/Co
Ø1 mm÷Ø13 mm x 0.5 mm

238NVA

Material Group ISO 513	P1 P2			P3 P4			M1 M2			M3 M4			K1 K2		
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			550-850 N/mm²			150-350 HB		
Vc (m/min)	25-35			20-30			12-18			8-12			25-35		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	9550	0.017	160	7960	0.014	120	4780	0.012	57	3180	0.009	27	9550	0.019	180
1.5	6370	0.035	220	5310	0.030	160	3180	0.025	80	2120	0.018	37	6370	0.039	250
2	4780	0.050	240	3980	0.043	170	2390	0.035	80	1590	0.025	40	4780	0.055	260
2.5	3820	0.060	230	3180	0.051	160	1910	0.042	80	1270	0.030	38	3820	0.066	250
3	3180	0.070	220	2650	0.060	160	1590	0.049	80	1060	0.035	37	3180	0.077	240
3.5	2730	0.080	220	2270	0.068	150	1360	0.056	80	910	0.040	36	2730	0.088	240
4	2390	0.090	220	1990	0.077	150	1190	0.063	70	800	0.045	36	2390	0.099	240
5	1910	0.100	190	1590	0.085	140	960	0.070	70	640	0.050	32	1910	0.110	210
6	1590	0.110	170	1330	0.094	120	800	0.077	60	530	0.055	29	1590	0.121	190
7	1360	0.120	160	1140	0.102	120	680	0.084	60	450	0.060	27	1360	0.132	180
8	1190	0.130	150	1000	0.111	110	600	0.091	55	400	0.065	26	1190	0.143	170
9	1060	0.140	150	880	0.119	100	530	0.098	52	350	0.070	25	1060	0.154	160
10	960	0.160	150	800	0.136	110	480	0.112	54	320	0.080	26	960	0.176	170
11	870	0.170	150	720	0.145	100	430	0.119	51	290	0.085	25	870	0.187	160
12	800	0.180	140	660	0.153	100	400	0.126	50	270	0.090	24	800	0.198	160
13	730	0.190	140	610	0.162	100	370	0.133	49	240	0.095	23	730	0.209	150
14	680	0.200	140	570	0.170	100	340	0.140	48	230	0.100	23	680	0.220	150
15	640	0.210	130	530	0.179	90	320	0.147	47	210	0.105	22	640	0.231	150
16	600	0.220	130	500	0.187	90	300	0.154	46	200	0.110	22	600	0.242	150
17	560	0.230	130	470	0.196	90	280	0.161	45	190	0.115	22	560	0.253	140
18	530	0.240	130	440	0.204	90	270	0.168	45	180	0.120	22	530	0.264	140
19	500	0.250	130	420	0.213	90	250	0.175	44	170	0.125	21	500	0.275	140
20	480	0.260	120	400	0.221	90	240	0.182	44	160	0.130	21	480	0.286	140

Material Group ISO 513	K3 K4			N1 N5			N2 N3 N4			S1 S2 S4		
Hardness/Rm	< 350 HB									< 35 HRC		
Vc (m/min)	20-30			50-70			40-60			8-12		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
1	7960	0.013	100	19110	0.024	450	15920	0.017	270	3180	0.007	22
1.5	5310	0.026	140	12740	0.049	620	10620	0.035	370	2120	0.014	30
2	3980	0.038	150	9550	0.070	670	7960	0.050	400	1590	0.020	32
2.5	3180	0.045	140	7640	0.084	640	6370	0.060	380	1270	0.024	30
3	2650	0.053	140	6370	0.098	620	5310	0.070	370	1060	0.028	30
3.5	2270	0.060	140	5460	0.112	610	4550	0.080	360	910	0.032	29
4	1990	0.068	130	4780	0.126	600	3980	0.090	360	800	0.036	29
5	1590	0.075	120	3820	0.140	530	3180	0.100	320	640	0.040	26
6	1330	0.083	110	3180	0.154	490	2650	0.110	290	530	0.044	23
7	1140	0.090	100	2730	0.168	460	2270	0.120	270	450	0.048	22
8	1000	0.098	100	2390	0.182	430	1990	0.130	260	400	0.052	21
9	880	0.105	90	2120	0.196	420	1770	0.140	250	350	0.056	20
10	800	0.120	100	1910	0.224	430	1590	0.160	250	320	0.064	20
11	720	0.128	90	1740	0.238	410	1450	0.170	250	290	0.068	20
12	660	0.135	90	1590	0.252	400	1330	0.180	240	270	0.072	19
13	610	0.143	90	1470	0.266	390	1220	0.190	230	240	0.076	18
14	570	0.150	90	1360	0.280	380	1140	0.200	230	230	0.080	18
15	530	0.158	80	1270	0.294	370	1060	0.210	220	210	0.084	18
16	500	0.165	80	1190	0.308	370	1000	0.220	220	200	0.088	18
17	470	0.173	80	1120	0.322	360	940	0.230	220	190	0.092	17
18	440	0.180	80	1060	0.336	360	880	0.240	210	180	0.096	17
19	420	0.188	80	1010	0.350	350	840	0.250	210	170	0.100	17
20	400	0.195	80	960	0.364	350	800	0.260	210	160	0.104	17

234NVA

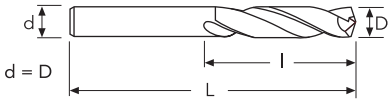
NVA type for tough materials, long

DIN 340 | NH | HSS/CO* HT | 130° | 30°

* < Ø2 mm = HSS BR

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
0.50	0/-0.014	0.5	12	32	10	P134NB0050	h
0.60	0/-0.014	0.6	15	35	10	P134NB0060	h
0.70	0/-0.014	0.7	21	42	10	P134NB0070	h
0.80	0/-0.014	0.8	25	46	10	P134NB0080	h
0.90	0/-0.014	0.9	29	51	10	P134NB0090	h
1.00	0/-0.014	1	33	56	10	P134NB0100	h
1.10	0/-0.014	1.1	37	60	10	P134NB0110	h
1.20	0/-0.014	1.2	41	65	10	P134NB0120	h
1.30	0/-0.014	1.3	41	65	10	P134NB0130	h
1.40	0/-0.014	1.4	45	70	10	P134NB0140	h
1.50	0/-0.014	1.5	45	70	10	P134NB0150	h
1.60	0/-0.014	1.6	50	76	10	P134NB0160	h
1.70	0/-0.014	1.7	50	76	10	P134NB0170	h
1.80	0/-0.014	1.8	53	80	10	P134NB0180	h
1.90	0/-0.014	1.9	53	80	10	P134NB0190	h
2.00	0/-0.014	2	56	85	10	P234NVA0200	h
2.10	0/-0.014	2.1	56	85	10	P234NVA0210	h
2.20	0/-0.014	2.2	59	90	10	P234NVA0220	h
2.30	0/-0.014	2.3	59	90	10	P234NVA0230	h
2.40	0/-0.014	2.4	62	95	10	P234NVA0240	h
2.50	0/-0.014	2.5	62	95	10	P234NVA0250	h
2.60	0/-0.014	2.6	62	95	10	P234NVA0260	h
2.70	0/-0.014	2.7	66	100	10	P234NVA0270	h
2.80	0/-0.014	2.8	66	100	10	P234NVA0280	h
2.90	0/-0.014	2.9	66	100	10	P234NVA0290	h
3.00	0/-0.014	3	66	100	10	P234NVA0300	h
3.10	0/-0.018	3.1	69	106	10	P234NVA0310	h
3.20	0/-0.018	3.2	69	106	10	P234NVA0320	h
3.30	0/-0.018	3.3	69	106	10	P234NVA0330	h
3.40	0/-0.018	3.4	73	112	10	P234NVA0340	h
3.50	0/-0.018	3.5	73	112	10	P234NVA0350	h
3.60	0/-0.018	3.6	73	112	10	P234NVA0360	h
3.70	0/-0.018	3.7	73	112	10	P234NVA0370	h
3.80	0/-0.018	3.8	78	119	10	P234NVA0380	h
3.90	0/-0.018	3.9	78	119	10	P234NVA0390	h
4.00	0/-0.018	4	78	119	10	P234NVA0400	h
4.10	0/-0.018	4.1	78	119	10	P234NVA0410	h
4.20	0/-0.018	4.2	78	119	10	P234NVA0420	h
4.30	0/-0.018	4.3	82	126	10	P234NVA0430	h

h stock standard f non-standard stock m stock exhaustion

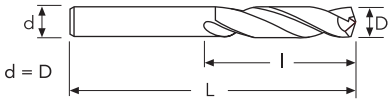
234NVA

NVA type for tough materials, long

DIN 340 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
4.40	0/-0.018	4.4	82	126	10	P234NVA0440	h
4.50	0/-0.018	4.5	82	126	10	P234NVA0450	h
4.60	0/-0.018	4.6	82	126	10	P234NVA0460	h
4.70	0/-0.018	4.7	82	126	10	P234NVA0470	h
4.80	0/-0.018	4.8	87	132	10	P234NVA0480	h
4.90	0/-0.018	4.9	87	132	10	P234NVA0490	h
5.00	0/-0.018	5	87	132	10	P234NVA0500	h
5.10	0/-0.018	5.1	87	132	10	P234NVA0510	h
5.20	0/-0.018	5.2	87	132	10	P234NVA0520	h
5.30	0/-0.018	5.3	87	132	10	P234NVA0530	h
5.40	0/-0.018	5.4	91	139	10	P234NVA0540	h
5.50	0/-0.018	5.5	91	139	10	P234NVA0550	h
5.60	0/-0.018	5.6	91	139	10	P234NVA0560	h
5.70	0/-0.018	5.7	91	139	10	P234NVA0570	h
5.80	0/-0.018	5.8	91	139	10	P234NVA0580	h
5.90	0/-0.018	5.9	91	139	10	P234NVA0590	h
6.00	0/-0.018	6	91	139	10	P234NVA0600	h
6.10	0/-0.022	6.1	97	148	5	P234NVA0610	h
6.20	0/-0.022	6.2	97	148	5	P234NVA0620	h
6.30	0/-0.022	6.3	97	148	5	P234NVA0630	h
6.40	0/-0.022	6.4	97	148	5	P234NVA0640	f
6.50	0/-0.022	6.5	97	148	5	P234NVA0650	h
6.60	0/-0.022	6.6	97	148	5	P234NVA0660	h
6.70	0/-0.022	6.7	97	148	5	P234NVA0670	h
6.80	0/-0.022	6.8	102	156	5	P234NVA0680	h
6.90	0/-0.022	6.9	102	156	5	P234NVA0690	h
7.00	0/-0.022	7	102	156	5	P234NVA0700	h
7.10	0/-0.022	7.1	102	156	5	P234NVA0710	h
7.20	0/-0.022	7.2	102	156	5	P234NVA0720	h
7.30	0/-0.022	7.3	102	156	5	P234NVA0730	f
7.40	0/-0.022	7.4	102	156	5	P234NVA0740	h
7.50	0/-0.022	7.5	102	156	5	P234NVA0750	h
7.60	0/-0.022	7.6	109	165	5	P234NVA0760	h
7.70	0/-0.022	7.7	109	165	5	P234NVA0770	h
7.80	0/-0.022	7.8	109	165	5	P234NVA0780	h
7.90	0/-0.022	7.9	109	165	5	P234NVA0790	h
8.00	0/-0.022	8	109	165	5	P234NVA0800	h
8.10	0/-0.022	8.1	109	165	5	P234NVA0810	h
8.20	0/-0.022	8.2	109	165	5	P234NVA0820	h

h stock standard f non-standard stock m stock exhaustion

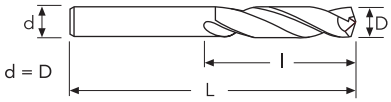
234NVA

NVA type for tough materials, long

DIN 340 | NH | HSS/CO HT | 130° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
8.30	0/-0.022	8.3	109	165	5	P234NVA0830	h
8.40	0/-0.022	8.4	109	165	5	P234NVA0840	h
8.50	0/-0.022	8.5	109	165	5	P234NVA0850	h
8.60	0/-0.022	8.6	115	175	5	P234NVA0860	h
8.70	0/-0.022	8.7	115	175	5	P234NVA0870	h
8.80	0/-0.022	8.8	115	175	5	P234NVA0880	h
8.90	0/-0.022	8.9	115	175	5	P234NVA0890	h
9.00	0/-0.022	9	115	175	5	P234NVA0900	h
9.10	0/-0.022	9.1	115	175	5	P234NVA0910	h
9.20	0/-0.022	9.2	115	175	5	P234NVA0920	h
9.30	0/-0.022	9.3	115	175	5	P234NVA0930	h
9.40	0/-0.022	9.4	115	175	5	P234NVA0940	h
9.50	0/-0.022	9.5	115	175	5	P234NVA0950	h
9.60	0/-0.022	9.6	121	184	5	P234NVA0960	h
9.70	0/-0.022	9.7	121	184	5	P234NVA0970	h
9.80	0/-0.022	9.8	121	184	5	P234NVA0980	h
9.90	0/-0.022	9.9	121	184	5	P234NVA0990	h
10.00	0/-0.022	10	121	184	5	P234NVA1000	h
10.20	0/-0.027	10.2	121	184	5	P234NVA1020	h
10.50	0/-0.027	10.5	121	184	5	P234NVA1050	h
10.80	0/-0.027	10.8	128	195	5	P234NVA1080	h
11.00	0/-0.027	11	128	195	5	P234NVA1100	h
11.20	0/-0.027	11.20	128	195	5	P234NVA1120	h
11.50	0/-0.027	11.5	128	195	5	P234NVA1150	h
11.80	0/-0.027	11.80	128	195	5	P234NVA1180	h
12.00	0/-0.027	12	134	205	5	P234NVA1200	h

h stock standard f non-standard stock m stock exhaustion

234NVA

Material Group ISO 513	P1 P2			P3 P4			M1 M2			M3 M4			K1 K2		
Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			550-850 N/mm²			150-350 HB		
Vc (m/min)	20-30			15-25			12-16			8-12			20-30		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
0.5	15920	0.008	130	12740	0.007	90	8920	0.006	50	6370	0.004	25	15920	0.009	140
0.8	9950	0.015	150	7960	0.013	100	5570	0.011	58	3980	0.008	30	9950	0.017	160
1	7960	0.020	160	6370	0.017	110	4460	0.014	62	3180	0.010	32	7960	0.022	180
1.5	5310	0.030	160	4250	0.026	110	2970	0.021	62	2120	0.015	32	5310	0.033	180
2	3980	0.040	160	3180	0.034	110	2230	0.028	62	1590	0.020	32	3980	0.044	180
2.5	3180	0.050	160	2550	0.043	110	1780	0.035	62	1270	0.025	32	3180	0.055	170
3	2650	0.060	160	2120	0.051	110	1490	0.042	63	1060	0.030	32	2650	0.066	170
3.5	2270	0.070	160	1820	0.060	110	1270	0.049	62	910	0.035	32	2270	0.077	170
4	1990	0.080	160	1590	0.068	110	1110	0.056	62	800	0.040	32	1990	0.088	180
5	1590	0.090	140	1270	0.077	100	890	0.063	56	640	0.045	29	1590	0.099	160
6	1330	0.100	130	1060	0.085	90	740	0.070	52	530	0.050	27	1330	0.110	150
7	1140	0.110	130	910	0.094	90	640	0.077	49	450	0.055	25	1140	0.121	140
8	1000	0.120	120	800	0.102	80	560	0.084	47	400	0.060	24	1000	0.132	130
9	880	0.130	110	710	0.111	80	500	0.091	46	350	0.065	23	880	0.143	130
10	800	0.140	110	640	0.119	80	450	0.098	44	320	0.070	22	800	0.154	120
11	720	0.150	110	580	0.128	70	410	0.105	43	290	0.075	22	720	0.165	120
12	660	0.160	110	530	0.136	70	370	0.112	41	270	0.080	22	660	0.176	120

Material Group ISO 513	K3 K4			N1 N5			N2 N3 N4			S1 S2 S4		
Hardness/Rm	< 350 HB									< 35 HRC		
Vc (m/min)	20-30			40-60			30-50			8-12		
D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
0.5	15920	0.006	100	31850	0.011	360	25480	0.008	200	6370	0.003	20
0.8	9950	0.011	110	19900	0.021	420	15920	0.015	240	3980	0.006	24
1	7960	0.015	120	15920	0.028	450	12740	0.020	250	3180	0.008	25
1.5	5310	0.023	120	10620	0.042	450	8490	0.030	250	2120	0.012	25
2	3980	0.030	120	7960	0.056	450	6370	0.040	250	1590	0.016	25
2.5	3180	0.038	120	6370	0.070	450	5100	0.050	260	1270	0.020	25
3	2650	0.045	120	5310	0.084	450	4250	0.060	260	1060	0.024	25
3.5	2270	0.053	120	4550	0.098	450	3640	0.070	250	910	0.028	25
4	1990	0.060	120	3980	0.112	450	3180	0.080	250	800	0.032	26
5	1590	0.068	110	3180	0.126	400	2550	0.090	230	640	0.036	23
6	1330	0.075	100	2650	0.140	370	2120	0.100	210	530	0.040	21
7	1140	0.083	90	2270	0.154	350	1820	0.110	200	450	0.044	20
8	1000	0.090	90	1990	0.168	330	1590	0.120	190	400	0.048	19
9	880	0.098	90	1770	0.182	320	1420	0.130	180	350	0.052	18
10	800	0.105	80	1590	0.196	310	1270	0.140	180	320	0.056	18
11	720	0.113	80	1450	0.210	300	1160	0.150	170	290	0.060	17
12	660	0.120	80	1330	0.224	300	1060	0.160	170	270	0.064	17

234LS-234LSTH

LS type for deep holes, long (234LS),
LS type for deep holes, PV15 coated, long (234LSTH)

DIN 340 | LS | HSS/CO OX | HSS/CO PV15 | 130° | 35-40°

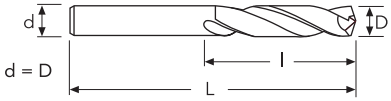
234LS 234LSTH

234LS

234LSTH

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



						234LS		234LSTH	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
2.00	0/-0.014	2	56	85	10	P234LS0200	h	P234LSTH0200	h
2.10	0/-0.014	2.1	56	85	10	P234LS0210	h	P234LSTH0210	h
2.20	0/-0.014	2.2	59	90	10	P234LS0220	h	P234LSTH0220	h
2.30	0/-0.014	2.3	59	90	10	P234LS0230	h	P234LSTH0230	h
2.40	0/-0.014	2.4	62	95	10	P234LS0240	h	P234LSTH0240	h
2.50	0/-0.014	2.5	62	95	10	P234LS0250	h	P234LSTH0250	h
2.60	0/-0.014	2.6	62	95	10	P234LS0260	h	P234LSTH0260	h
2.70	0/-0.014	2.7	66	100	10	P234LS0270	h	P234LSTH0270	h
2.80	0/-0.014	2.8	66	100	10	P234LS0280	h	P234LSTH0280	h
2.90	0/-0.014	2.9	66	100	10	P234LS0290	h	P234LSTH0290	h
3.00	0/-0.014	3	66	100	10	P234LS0300	h	P234LSTH0300	h
3.10	0/-0.018	3.1	69	106	10	P234LS0310	h	P234LSTH0310	h
3.20	0/-0.018	3.2	69	106	10	P234LS0320	h	P234LSTH0320	h
3.30	0/-0.018	3.3	69	106	10	P234LS0330	h	P234LSTH0330	h
3.40	0/-0.018	3.4	73	112	10	P234LS0340	h	P234LSTH0340	h
3.50	0/-0.018	3.5	73	112	10	P234LS0350	h	P234LSTH0350	h
3.60	0/-0.018	3.6	73	112	10	P234LS0360	h	P234LSTH0360	h
3.70	0/-0.018	3.7	73	112	10	P234LS0370	h	P234LSTH0370	h
3.80	0/-0.018	3.8	78	119	10	P234LS0380	h	P234LSTH0380	h
3.90	0/-0.018	3.9	78	119	10	P234LS0390	h	P234LSTH0390	h
4.00	0/-0.018	4	78	119	10	P234LS0400	h	P234LSTH0400	h
4.20	0/-0.018	4.2	78	119	10	P234LS0420	h	P234LSTH0420	h
4.50	0/-0.018	4.5	82	126	10	P234LS0450	h	P234LSTH0450	h
4.80	0/-0.018	4.8	87	132	10	P234LS0480	h	P234LSTH0480	h
5.00	0/-0.018	5	87	132	10	P234LS0500	h	P234LSTH0500	h
5.20	0/-0.018	5.2	87	132	10	P234LS0520	h	P234LSTH0520	h
5.50	0/-0.018	5.5	91	139	10	P234LS0550	h	P234LSTH0550	h
5.80	0/-0.018	5.8	91	139	10	P234LS0580	h	P234LSTH0580	h
6.00	0/-0.018	6	91	139	10	P234LS0600	h	P234LSTH0600	h
6.20	0/-0.022	6.2	97	148	5	P234LS0620	h	P234LSTH0620	h
6.50	0/-0.022	6.5	97	148	5	P234LS0650	h	P234LSTH0650	h
6.80	0/-0.022	6.8	102	156	5	P234LS0680	h	P234LSTH0680	h
7.00	0/-0.022	7	102	156	5	P234LS0700	h	P234LSTH0700	h
7.20	0/-0.022	7.2	102	156	5	P234LS0720	h		
7.50	0/-0.022	7.5	102	156	5	P234LS0750	h	P234LSTH0750	h
7.80	0/-0.022	7.8	109	165	5	P234LS0780	h		
8.00	0/-0.022	8	109	165	5	P234LS0800	h	P234LSTH0800	h
8.20	0/-0.022	8.2	109	165	5	P234LS0820	h		
8.50	0/-0.022	8.5	109	165	5	P234LS0850	h	P234LSTH0850	h

h stock standard f non-standard stock m stock exhaustion

234LS-234LSTH

LS type for deep holes, long (234LS),
LS type for deep holes, PV15 coated, long (234LSTH)

DIN 340 | LS | HSS/CO OX | HSS/CO PV15 | 130° | 35-40°

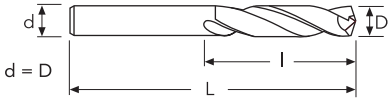
234LS 234LSTH

234LS

234LSTH

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



						234LS		234LSTH	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
9.00	0/-0.022	9	115	175	5	P234LS0900	h	P234LSTH0900	h
9.50	0/-0.022	9.5	115	175	5	P234LS0950	h	P234LSTH0950	h
9.80	0/-0.022	9.8	121	184	5	P234LS0980	h		
10.00	0/-0.022	10	121	184	5	P234LS1000	h	P234LSTH1000	h
10.50	0/-0.027	10.5	121	184	5	P234LS1050	h	P234LSTH1050	h
11.00	0/-0.027	11	128	195	5	P234LS1100	h	P234LSTH1100	h
11.50	0/-0.027	11.5	128	195	5	P234LS1150	h	P234LSTH1150	h
12.00	0/-0.027	12	134	205	5	P234LS1200	h	P234LSTH1200	h
12.50	0/-0.027	12.5	134	205	5	P234LS1250	h	P234LSTH1250	h
13.00	0/-0.027	13	134	205	5	P234LS1300	h	P234LSTH1300	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

234LS

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	**20-30**			**15-25**			**10-14**			**20-30**		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	3980	0.040	160	3180	0.034	110	1910	0.028	53	3980	0.044	180
	2.5	3180	0.050	160	2550	0.043	110	1530	0.035	54	3180	0.055	170
	3	2650	0.060	160	2120	0.051	110	1270	0.042	53	2650	0.066	170
	3.5	2270	0.070	160	1820	0.060	110	1090	0.049	53	2270	0.077	170
	4	1990	0.080	160	1590	0.068	110	960	0.056	54	1990	0.088	180
	5	1590	0.090	140	1270	0.077	100	760	0.063	48	1590	0.099	160
	6	1330	0.100	130	1060	0.085	90	640	0.070	45	1330	0.110	150
	7	1140	0.110	130	910	0.094	90	550	0.077	42	1140	0.121	140
	8	1000	0.120	120	800	0.102	80	480	0.084	40	1000	0.132	130
	9	880	0.130	110	710	0.111	80	420	0.091	38	880	0.143	130
	10	800	0.140	110	640	0.119	80	380	0.098	37	800	0.154	120
	11	720	0.150	110	580	0.128	70	350	0.105	37	720	0.165	120
	12	660	0.160	110	530	0.136	70	320	0.112	36	660	0.176	120
	13	610	0.170	100	490	0.145	70	290	0.119	35	610	0.187	110

234LSTH

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	**25-35**			**20-30**			**16-20**			**25-35**		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	4780	0.040	190	3980	0.034	140	2870	0.028	80	4780	0.044	210
	2.5	3820	0.050	190	3180	0.043	140	2290	0.035	80	3820	0.055	210
	3	3180	0.060	190	2650	0.051	140	1910	0.042	80	3180	0.066	210
	3.5	2730	0.070	190	2270	0.060	140	1640	0.049	80	2730	0.077	210
	4	2390	0.080	190	1990	0.068	140	1430	0.056	80	2390	0.088	210
	5	1910	0.090	170	1590	0.077	120	1150	0.063	72	1910	0.099	190
	6	1590	0.100	160	1330	0.085	110	960	0.070	67	1590	0.110	170
	7	1360	0.110	150	1140	0.094	110	820	0.077	63	1360	0.121	160
	8	1190	0.120	140	1000	0.102	100	720	0.084	60	1190	0.132	160
	9	1060	0.130	140	880	0.111	100	640	0.091	58	1060	0.143	150
	10	960	0.140	130	800	0.119	100	570	0.098	56	960	0.154	150
	11	870	0.150	130	720	0.128	90	520	0.105	55	870	0.165	140
	12	800	0.160	130	660	0.136	90	480	0.112	54	800	0.176	140
	13	730	0.170	120	610	0.145	90	440	0.119	52	730	0.187	140

2691LS-2691LSTH

LS type for deep holes, extra-long/1 (2691LS);
LS type for deep holes, PV15 coated, extra-long/1 (2691LSTH)

DIN 1869/1 | LS | HSS/Co BR | HSS/CO PV15 | 130° | 35-40°

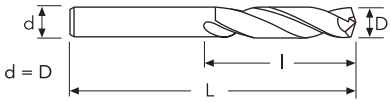
2691LS 2691LSTH

2691LS

2691LSTH

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



						2691LS		2691LSTH	
D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
2.00	0/-0.014	2	85	125	10	P2691LS0200	h	P2691LSTH0200	h
2.50	0/-0.014	2.5	95	140	10	P2691LS0250	h	P2691LSTH0250	h
3.00	0/-0.014	3	100	150	10	P2691LS0300	h	P2691LSTH0300	h
3.50	0/-0.018	3.5	115	165	10	P2691LS0350	h	P2691LSTH0350	h
4.00	0/-0.018	4	120	175	10	P2691LS0400	h	P2691LSTH0400	h
4.50	0/-0.018	4.5	125	185	10	P2691LS0450	h	P2691LSTH0450	h
5.00	0/-0.018	5	135	195	10	P2691LS0500	h	P2691LSTH0500	h
5.50	0/-0.018	5.5	140	205	10	P2691LS0550	h	P2691LSTH0550	h
6.00	0/-0.018	6	140	205	10	P2691LS0600	h	P2691LSTH0600	h
6.50	0/-0.022	6.5	150	215	5	P2691LS0650	h	P2691LSTH0650	h
6.75	0/-0.022	6.75	155	225	5	P2691LS0675	h		
7.00	0/-0.022	7	155	225	5	P2691LS0700	h	P2691LSTH0700	h
7.50	0/-0.022	7.5	155	225	5	P2691LS0750	h	P2691LSTH0750	h
8.00	0/-0.022	8	165	240	5	P2691LS0800	h	P2691LSTH0800	h
8.50	0/-0.022	8.5	165	240	5	P2691LS0850	h	P2691LSTH0850	h
9.00	0/-0.022	9	175	250	5	P2691LS0900	h	P2691LSTH0900	h
9.50	0/-0.022	9.5	175	250	5	P2691LS0950	h	P2691LSTH0950	h
10.00	0/-0.022	10	185	265	5	P2691LS1000	h	P2691LSTH1000	h
10.50	0/-0.027	10.5	185	265	5	P2691LS1050	h	P2691LSTH1050	h
11.00	0/-0.027	11	195	280	5	P2691LS1100	h	P2691LSTH1100	h
11.50	0/-0.027	11.5	195	280	5	P2691LS1150	h	P2691LSTH1150	h
12.00	0/-0.027	12	205	295	5	P2691LS1200	h	P2691LSTH1200	h
12.50	0/-0.027	12.5	205	295	5	P2691LS1250	h	P2691LSTH1250	h
13.00	0/-0.027	13	205	295	5	P2691LS1300	h	P2691LSTH1300	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

2691LS

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	**20-24**			**16-20**			**8-12**			**20-24**		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	3500	0.032	110	2870	0.027	80	1590	0.022	36	3500	0.035	125
	2.5	2800	0.040	110	2290	0.034	80	1270	0.028	36	2800	0.044	125
	3	2340	0.048	110	1910	0.041	80	1060	0.034	36	2340	0.053	125
	3.5	2000	0.056	110	1640	0.048	80	910	0.039	36	2000	0.062	125
	4	1750	0.064	110	1430	0.054	80	800	0.045	36	1750	0.070	125
	5	1400	0.072	100	1150	0.061	70	640	0.050	32	1400	0.079	110
	6	1170	0.080	95	960	0.068	65	530	0.056	30	1170	0.088	105
	7	1000	0.088	90	820	0.075	60	450	0.062	28	1000	0.097	95
	8	880	0.096	85	720	0.082	60	400	0.067	27	880	0.106	95
	9	780	0.104	80	640	0.088	55	350	0.073	25	780	0.114	90
	10	700	0.112	80	570	0.095	55	320	0.078	25	700	0.123	85
	11	640	0.120	75	520	0.102	55	290	0.084	24	640	0.132	85
	12	580	0.128	75	480	0.109	50	270	0.090	24	580	0.141	80
	13	540	0.136	75	440	0.116	50	240	0.095	23	540	0.150	80

2691LSTH

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	**24-28**			**20-24**			**10-14**			**24-28**		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	2	4140	0.032	132	3503	0.027	95	1911	0.022	43	4140	0.035	146
	2.5	3312	0.040	132	2803	0.034	95	1529	0.028	43	3312	0.044	146
	3	2760	0.048	132	2335	0.041	95	1274	0.034	43	2760	0.053	146
	3.5	2366	0.056	132	2002	0.048	95	1092	0.039	43	2366	0.062	146
	4	2070	0.064	132	1752	0.054	95	955	0.045	43	2070	0.070	146
	5	1656	0.072	119	1401	0.061	86	764	0.050	39	1656	0.079	131
	6	1380	0.080	110	1168	0.068	79	637	0.056	36	1380	0.088	121
	7	1183	0.088	104	1001	0.075	75	546	0.062	34	1183	0.097	115
	8	1035	0.096	99	876	0.082	71	478	0.067	32	1035	0.106	109
	9	920	0.104	96	778	0.088	69	425	0.073	31	920	0.114	105
	10	828	0.112	93	701	0.095	67	382	0.078	30	828	0.123	102
	11	753	0.120	90	637	0.102	65	347	0.084	29	753	0.132	99
	12	690	0.128	88	584	0.109	64	318	0.090	29	690	0.141	97
	13	637	0.136	87	539	0.116	62	294	0.095	28	637	0.150	95

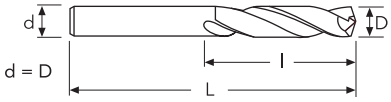
1692LS

LS type for deep holes, extra-long/2

DIN 1869/2 | LS | HSS BR | 130° | 35-40°

P	M	K	N	S	H
★		★			

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
3.00	0/-0.014	3	130	190	1	P1692LS0300	h
3.50	0/-0.018	3.5	145	210	1	P1692LS0350	h
4.00	0/-0.018	4	150	220	1	P1692LS0400	h
4.50	0/-0.018	4.5	160	235	1	P1692LS0450	h
5.00	0/-0.018	5	170	245	1	P1692LS0500	h
5.50	0/-0.018	5.5	180	260	1	P1692LS0550	h
6.00	0/-0.018	6	180	260	1	P1692LS0600	h
6.50	0/-0.022	6.5	190	275	1	P1692LS0650	h
7.00	0/-0.022	7	200	290	1	P1692LS0700	h
7.50	0/-0.022	7.5	200	290	1	P1692LS0750	h
8.00	0/-0.022	8	210	305	1	P1692LS0800	h
8.50	0/-0.022	8.5	210	305	1	P1692LS0850	h
9.00	0/-0.022	9	220	320	1	P1692LS0900	h
9.50	0/-0.022	9.5	220	320	1	P1692LS0950	h
10.00	0/-0.022	10	235	340	1	P1692LS1000	h
10.50	0/-0.027	10.5	235	340	1	P1692LS1050	h
11.00	0/-0.027	11	250	365	1	P1692LS1100	h
12.00	0/-0.027	12	260	375	1	P1692LS1200	h

h stock standard f non-standard stock m stock exhaustion

CUTTING PARAMETERS

1692LS

	Material Group ISO 513	P1 P2			P3 P4			K1 K2								
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB								
	Vc (m/min)	20-24			16-20			20-24								
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)						
	3	2340	0.040	95	1910	0.034	65	2340	0.044	105						
	3.5	2000	0.048	95	1640	0.041	65	2000	0.053	105						
	4	1750	0.056	100	1430	0.048	70	1750	0.062	110						
	5	1400	0.064	90	1150	0.054	65	1400	0.070	100						
	6	1170	0.072	85	960	0.061	60	1170	0.079	95						
	7	1000	0.080	80	820	0.068	55	1000	0.088	90						
	8	880	0.088	75	720	0.075	55	880	0.097	85						
	9	780	0.096	75	640	0.082	50	780	0.106	80						
	10	700	0.104	75	570	0.088	50	700	0.114	80						
	11	640	0.112	70	520	0.095	50	640	0.123	80						
	12	580	0.120	70	480	0.102	50	580	0.132	75						
	13	540	0.128	70	440	0.109	50	540	0.141	75						

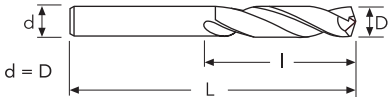
1693LS

LS type for deep holes, extra-long/3

DIN 1869/3 | LS | HSS / BR | 130° | 35-40°

P	M	K	N	S	H
★		★			

★ 1st choice ☆ suitable



D(h8)	D Tol.	d	l	L	PACKAGING	EDP No.	Stock
3.50	0/-0.018	3.5	180	265	1	P1693LS0350	h
4.00	0/-0.018	4	190	280	1	P1693LS0400	h
4.50	0/-0.018	4.5	200	295	1	P1693LS0450	h
5.00	0/-0.018	5	210	315	1	P1693LS0500	h
5.50	0/-0.018	5.5	225	330	1	P1693LS0550	h
6.00	0/-0.018	6	225	330	1	P1693LS0600	h
6.50	0/-0.022	6.5	235	350	1	P1693LS0650	h
7.00	0/-0.022	7	250	370	1	P1693LS0700	h
7.50	0/-0.022	7.5	250	370	1	P1693LS0750	h
8.00	0/-0.022	8	265	390	1	P1693LS0800	h
8.50	0/-0.022	8.5	265	390	1	P1693LS0850	h
9.00	0/-0.022	9	280	410	1	P1693LS0900	h
9.50	0/-0.022	9.5	280	410	1	P1693LS0950	h
10.00	0/-0.022	10	295	430	1	P1693LS1000	h
10.50	0/-0.027	10.5	295	430	1	P1693LS1050	h
11.00	0/-0.027	11	310	455	1	P1693LS1100	h
12.00	0/-0.027	12	330	480	1	P1693LS1200	h

h stock standard f non-standard stock m stock exhaustion

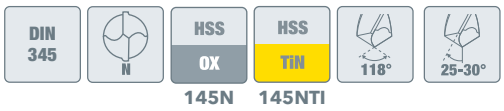
CUTTING PARAMETERS

1693LS

	Material Group ISO 513	P1 P2			P3 P4			K1 K2					
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB					
	Vc (m/min)	**15-25**			**10-20**			**15-25**					
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)			
	3.5	1820	0.045	80	1360	0.038	50	1820	0.050	90			
	4	1590	0.053	85	1190	0.045	55	1590	0.058	90			
	5	1270	0.060	75	960	0.051	50	1270	0.066	85			
	6	1060	0.068	70	800	0.057	45	1060	0.074	80			
	7	910	0.075	70	680	0.064	45	910	0.083	75			
	8	800	0.083	65	600	0.070	40	800	0.091	75			
	9	710	0.090	65	530	0.077	40	710	0.099	70			
	10	640	0.098	60	480	0.083	40	640	0.107	70			
	11	580	0.105	60	430	0.089	40	580	0.116	65			
	12	530	0.113	60	400	0.096	40	530	0.124	65			
	13	490	0.120	60	370	0.102	40	490	0.132	65			

145N-145NTI

N type for general purpose, MT shank, short (145N),
N type for general purpose, MT shank, TiN coated, short (145NTI)

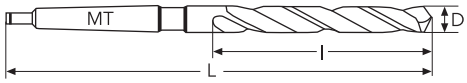


145N

145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						145N		145NTI	
D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
5.00	0/-0.018	1	52	133	1	P145N0500	h		
5.25	0/-0.018	1	52	133	1	P145N0525	f		
5.50	0/-0.018	1	57	138	1	P145N0550	h		
5.75	0/-0.018	1	57	138	1	P145N0575	f		
6.00	0/-0.018	1	57	138	1	P145N0600	h		
6.25	0/-0.022	1	63	144	1	P145N0625	f		
6.50	0/-0.022	1	63	144	1	P145N0650	h		
6.75	0/-0.022	1	69	150	1	P145N0675	h		
7.00	0/-0.022	1	69	150	1	P145N0700	h		
7.25	0/-0.022	1	69	150	1	P145N0725	f		
7.50	0/-0.022	1	69	150	1	P145N0750	h		
7.75	0/-0.022	1	75	156	1	P145N0775	f		
8.00	0/-0.022	1	75	156	1	P145N0800	h		
8.25	0/-0.022	1	75	156	1	P145N0825	f		
8.50	0/-0.022	1	75	156	1	P145N0850	h		
8.75	0/-0.022	1	81	162	1	P145N0875	f		
9.00	0/-0.022	1	81	162	1	P145N0900	h		
9.25	0/-0.022	1	81	162	1	P145N0925	f		
9.50	0/-0.022	1	81	162	1	P145N0950	h		
9.75	0/-0.022	1	87	168	1	P145N0975	f		
10.00	0/-0.022	1	87	168	1	P145N1000	h		
10.25	0/-0.027	1	87	168	1	P145N1025	h		
10.50	0/-0.027	1	87	168	1	P145N1050	h		
10.75	0/-0.027	1	94	175	1	P145N1075	f		
11.00	0/-0.027	1	94	175	1	P145N1100	h		
11.25	0/-0.027	1	94	175	1	P145N1125	f		
11.50	0/-0.027	1	94	175	1	P145N1150	h		
11.75	0/-0.027	1	94	175	1	P145N1175	f		
12.00	0/-0.027	1	101	182	1	P145N1200	h		
12.25	0/-0.027	1	101	182	1	P145N1225	f		
12.50	0/-0.027	1	101	182	1	P145N1250	h		
12.75	0/-0.027	1	101	182	1	P145N1275	f		
13.00	0/-0.027	1	101	182	1	P145N1300	h	P145NTI1300	h
13.25	0/-0.027	1	108	189	1	P145N1325	h		
13.50	0/-0.027	1	108	189	1	P145N1350	h	P145NTI1350	h
13.75	0/-0.027	1	108	189	1	P145N1375	h		
14.00	0/-0.027	1	108	189	1	P145N1400	h	P145NTI1400	h
14.25	0/-0.027	2	114	212	1	P145N1425	h		
14.50	0/-0.027	2	114	212	1	P145N1450	h	P145NTI1450	h

h stock standard f non-standard stock m stock exhaustion

145N-145NTI

N type for general purpose, MT shank, short (145N),
N type for general purpose, MT shank, TiN coated, short (145NTI)

DIN 345 | N | HSS OX | HSS TiN | 118° | 25-30°

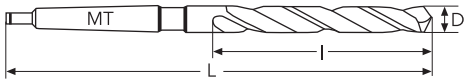
145N 145NTI

145N

145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						145N		145NTI	
D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
14.75	0/-0.027	2	114	212	1	P145N1475	h		
15.00	0/-0.027	2	114	212	1	P145N1500	h	P145NTI1500	h
15.25	0/-0.027	2	120	218	1	P145N1525	h		
15.50	0/-0.027	2	120	218	1	P145N1550	h	P145NTI1550	h
15.75	0/-0.027	2	120	218	1	P145N1575	h		
16.00	0/-0.027	2	120	218	1	P145N1600	h	P145NTI1600	h
16.25	0/-0.027	2	125	223	1	P145N1625	h		
16.50	0/-0.027	2	125	223	1	P145N1650	h	P145NTI1650	h
16.75	0/-0.027	2	125	223	1	P145N1675	h		
17.00	0/-0.027	2	125	223	1	P145N1700	h	P145NTI1700	h
17.25	0/-0.027	2	130	228	1	P145N1725	h		
17.50	0/-0.027	2	130	228	1	P145N1750	h	P145NTI1750	h
17.75	0/-0.027	2	130	228	1	P145N1775	h		
18.00	0/-0.027	2	130	228	1	P145N1800	h	P145NTI1800	h
18.25	0/-0.033	2	135	233	1	P145N1825	h		
18.50	0/-0.033	2	135	233	1	P145N1850	h	P145NTI1850	h
18.75	0/-0.033	2	135	233	1	P145N1875	h		
19.00	0/-0.033	2	135	233	1	P145N1900	h	P145NTI1900	h
19.25	0/-0.033	2	140	238	1	P145N1925	h		
19.50	0/-0.033	2	140	238	1	P145N1950	h	P145NTI1950	h
19.75	0/-0.033	2	140	238	1	P145N1975	h		
20.00	0/-0.033	2	140	238	1	P145N2000	h	P145NTI2000	h
20.25	0/-0.033	2	145	243	1	P145N2025	h		
20.50	0/-0.033	2	145	243	1	P145N2050	h	P145NTI2050	h
20.75	0/-0.033	2	145	243	1	P145N2075	h		
21.00	0/-0.033	2	145	243	1	P145N2100	h	P145NTI2100	h
21.25	0/-0.033	2	150	248	1	P145N2125	h		
21.50	0/-0.033	2	150	248	1	P145N2150	h	P145NTI2150	h
21.75	0/-0.033	2	150	248	1	P145N2175	h		
22.00	0/-0.033	2	150	248	1	P145N2200	h	P145NTI2200	h
22.25	0/-0.033	2	150	248	1	P145N2225	h		
22.50	0/-0.033	2	155	253	1	P145N2250	h	P145NTI2250	h
22.75	0/-0.033	2	155	253	1	P145N2275	h		
23.00	0/-0.033	2	155	253	1	P145N2300	h	P145NTI2300	h
23.25	0/-0.033	3	155	276	1	P145N2325	h		
23.50	0/-0.033	3	155	276	1	P145N2350	h	P145NTI2350	h
23.75	0/-0.033	3	160	281	1	P145N2375	h		
24.00	0/-0.033	3	160	281	1	P145N2400	h	P145NTI2400	h
24.25	0/-0.033	3	160	281	1	P145N2425	h		

h stock standard f non-standard stock m stock exhaustion

145N-145NTI

N type for general purpose, MT shank, short (145N),
N type for general purpose, MT shank, TiN coated, short (145NTI)

DIN 345 | N | HSS OX | HSS TiN | 118° | 25-30°

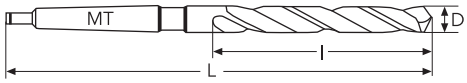
145N 145NTI

145N

145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						145N		145NTI	
D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
24.50	0/-0.033	3	160	281	1	P145N2450	h	P145NTI2450	h
24.75	0/-0.033	3	160	281	1	P145N2475	h		
25.00	0/-0.033	3	160	281	1	P145N2500	h	P145NTI2500	h
25.25	0/-0.033	3	165	286	1	P145N2525	f		
25.50	0/-0.033	3	165	286	1	P145N2550	h		
25.75	0/-0.033	3	165	286	1	P145N2575	f		
26.00	0/-0.033	3	165	286	1	P145N2600	h	P145NTI2600	h
26.25	0/-0.033	3	165	286	1	P145N2625	f		
26.50	0/-0.033	3	165	286	1	P145N2650	h		
26.75	0/-0.033	3	170	291	1	P145N2675	f		
27.00	0/-0.033	3	170	291	1	P145N2700	h	P145NTI2700	h
27.25	0/-0.033	3	170	291	1	P145N2725	f		
27.50	0/-0.033	3	170	291	1	P145N2750	h		
27.75	0/-0.033	3	170	291	1	P145N2775	f		
28.00	0/-0.033	3	170	291	1	P145N2800	h	P145NTI2800	h
28.25	0/-0.033	3	175	296	1	P145N2825	f		
28.50	0/-0.033	3	175	296	1	P145N2850	h		
28.75	0/-0.033	3	175	296	1	P145N2875	f		
29.00	0/-0.033	3	175	296	1	P145N2900	h	P145NTI2900	h
29.25	0/-0.033	3	175	296	1	P145N2925	f		
29.50	0/-0.033	3	175	296	1	P145N2950	h		
29.75	0/-0.033	3	175	296	1	P145N2975	f		
30.00	0/-0.033	3	175	296	1	P145N3000	h	P145NTI3000	h
30.25	0/-0.039	3	180	301	1	P145N3025	f		
30.50	0/-0.039	3	180	301	1	P145N3050	h		
30.75	0/-0.039	3	180	301	1	P145N3075	f		
31.00	0/-0.039	3	180	301	1	P145N3100	h		
31.25	0/-0.039	3	180	301	1	P145N3125	f		
31.50	0/-0.039	3	180	301	1	P145N3150	h		
31.75	0/-0.039	3	185	306	1	P145N3175	f		
32.00	0/-0.039	4	185	334	1	P145N3200	h		
32.50	0/-0.039	4	185	334	1	P145N3250	h		
33.00	0/-0.039	4	185	334	1	P145N3300	h		
33.50	0/-0.039	4	185	334	1	P145N3350	h		
34.00	0/-0.039	4	190	339	1	P145N3400	h		
34.50	0/-0.039	4	190	339	1	P145N3450	h		
35.00	0/-0.039	4	190	339	1	P145N3500	h		
35.50	0/-0.039	4	190	339	1	P145N3550	h		
36.00	0/-0.039	4	195	344	1	P145N3600	h		

h stock standard f non-standard stock m stock exhaustion

145N-145NTI

N type for general purpose, MT shank, short (145N),
N type for general purpose, MT shank, TiN coated, short (145NTI)

DIN 345 | N | HSS OX | HSS TiN | 118° | 25-30°

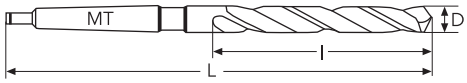
145N 145NTI

145N

145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



						145N		145NTI	
D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock	EDP No.	Stock
36.50	0/-0.039	4	195	344	1	P145N3650	h		
37.00	0/-0.039	4	195	344	1	P145N3700	h		
37.50	0/-0.039	4	195	344	1	P145N3750	h		
38.00	0/-0.039	4	200	349	1	P145N3800	h		
38.50	0/-0.039	4	200	349	1	P145N3850	h		
39.00	0/-0.039	4	200	349	1	P145N3900	h		
39.50	0/-0.039	4	200	349	1	P145N3950	h		
40.00	0/-0.039	4	200	349	1	P145N4000	h		
40.50	0/-0.039	4	205	354	1	P145N4050	h		
41.00	0/-0.039	4	205	354	1	P145N4100	h		
42.00	0/-0.039	4	205	354	1	P145N4200	h		
43.00	0/-0.039	4	210	359	1	P145N4300	h		
44.00	0/-0.039	4	210	359	1	P145N4400	h		
45.00	0/-0.039	4	210	359	1	P145N4500	h		
46.00	0/-0.039	4	215	364	1	P145N4600	h		
47.00	0/-0.039	4	215	364	1	P145N4700	h		
48.00	0/-0.039	4	220	369	1	P145N4800	h		
49.00	0/-0.039	4	220	369	1	P145N4900	h		
50.00	0/-0.039	4	220	369	1	P145N5000	h		
55.00	0/-0.046	5	230	417	1	P145N5500	h		
60.00	0/-0.046	5	235	422	1	P145N6000	h		

h stock standard f non-standard stock m stock exhaustion

145N

	Material Group ISO 513	P1 P2			P3 P4			K1 K2			N1 N5			N2 N3 N4		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB								
	Vc (m/min)	25-35			20-30			25-35			50-70			40-60		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	5	1910	0.100	190	1590	0.085	140	1910	0.110	210	3820	0.140	530	3180	0.100	320
	6	1590	0.120	190	1330	0.102	140	1590	0.132	210	3180	0.168	530	2650	0.120	320
	7	1360	0.140	190	1140	0.119	140	1360	0.154	210	2730	0.196	540	2270	0.140	320
	8	1190	0.160	190	1000	0.136	140	1190	0.176	210	2390	0.224	540	1990	0.160	320
	9	1060	0.180	190	880	0.153	130	1060	0.198	210	2120	0.252	530	1770	0.180	320
	10	960	0.200	190	800	0.170	140	960	0.220	210	1910	0.280	530	1590	0.200	320
	11	870	0.208	180	720	0.177	130	870	0.229	200	1740	0.291	510	1450	0.208	300
	12	800	0.216	170	660	0.184	120	800	0.238	190	1590	0.302	480	1330	0.216	290
	13	730	0.224	160	610	0.190	120	730	0.246	180	1470	0.314	460	1220	0.224	270
	14	680	0.232	160	570	0.197	110	680	0.255	170	1360	0.325	440	1140	0.232	260
	15	640	0.240	150	530	0.204	110	640	0.264	170	1270	0.336	430	1060	0.240	250
	16	600	0.250	150	500	0.213	110	600	0.275	170	1190	0.350	420	1000	0.250	250
	17	560	0.265	150	470	0.225	110	560	0.292	160	1120	0.371	420	940	0.265	250
	18	530	0.280	150	440	0.238	100	530	0.308	160	1060	0.392	420	880	0.280	250
	19	500	0.295	150	420	0.251	110	500	0.325	160	1010	0.413	420	840	0.295	250
	20	480	0.315	150	400	0.268	110	480	0.347	170	960	0.441	420	800	0.315	250
	22	430	0.330	140	360	0.281	100	430	0.363	160	870	0.462	400	720	0.330	240
	25	380	0.350	130	320	0.298	100	380	0.385	150	760	0.490	370	640	0.350	220
	27	350	0.370	130	290	0.315	90	350	0.407	140	710	0.518	370	590	0.370	220
	30	320	0.400	130	270	0.340	90	320	0.440	140	640	0.560	360	530	0.400	210
	35	270	0.450	120	230	0.383	90	270	0.495	130	550	0.630	350	450	0.450	200
	40	240	0.500	120	200	0.425	90	240	0.550	130	480	0.700	340	400	0.500	200
	45	210	0.560	120	180	0.476	90	210	0.616	130	420	0.784	330	350	0.560	200
	50	190	0.630	120	160	0.536	90	190	0.693	130	380	0.882	340	320	0.630	200
	55	170	0.700	120	140	0.595	80	170	0.770	130	350	0.980	340	290	0.700	200
	60	160	0.800	130	130	0.680	90	160	0.880	140	320	1.120	360	270	0.800	220

145NTI

	Material Group ISO 513	P1 P2			P3 P4			K1 K2			N1 N5			N2 N3 N4		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			150-350 HB								
	Vc (m/min)	30-40			25-35			30-40			60-80			50-70		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	860	0.224	190	730	0.190	139	860	0.246	210	1710	0.314	540	1470	0.224	330
	14	800	0.232	190	680	0.197	134	800	0.255	200	1590	0.325	520	1360	0.232	320
	15	740	0.240	180	640	0.204	131	740	0.264	200	1490	0.336	500	1270	0.240	300
	16	700	0.250	180	600	0.213	128	700	0.275	190	1390	0.350	490	1190	0.250	300
	17	660	0.265	170	560	0.225	126	660	0.292	190	1310	0.371	490	1120	0.265	300
	18	620	0.280	170	530	0.238	126	620	0.308	190	1240	0.392	490	1060	0.280	300
	19	590	0.295	170	500	0.251	125	590	0.325	190	1170	0.413	480	1010	0.295	300
	20	560	0.315	180	480	0.268	129	560	0.347	190	1110	0.441	490	960	0.315	300
	22	510	0.330	170	430	0.281	121	510	0.363	190	1010	0.462	470	870	0.330	290
	25	450	0.350	160	380	0.298	113	450	0.385	170	890	0.490	440	760	0.350	270
	27	410	0.370	150	350	0.315	110	410	0.407	170	830	0.518	430	710	0.370	260
	30	370	0.400	150	320	0.340	109	370	0.440	160	740	0.560	410	640	0.400	260

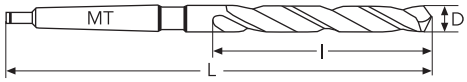
245N

N type for tough materials, MT shank, short

DIN 345 | NH | HSS/CO OX | 118° | 30°

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock
13.00	0/-0.027	1	101	182	1	P245N1300	h
13.50	0/-0.027	1	108	189	1	P245N1350	h
14.00	0/-0.027	1	108	189	1	P245N1400	h
14.50	0/-0.027	2	114	212	1	P245N1450	h
15.00	0/-0.027	2	114	212	1	P245N1500	h
15.50	0/-0.027	2	120	218	1	P245N1550	h
16.00	0/-0.027	2	120	218	1	P245N1600	h
16.50	0/-0.027	2	125	223	1	P245N1650	h
17.00	0/-0.027	2	125	223	1	P245N1700	h
17.50	0/-0.027	2	130	228	1	P245N1750	h
18.00	0/-0.027	2	130	228	1	P245N1800	h
18.50	0/-0.033	2	135	233	1	P245N1850	h
19.00	0/-0.033	2	135	233	1	P245N1900	h
19.50	0/-0.033	2	140	238	1	P245N1950	h
20.00	0/-0.033	2	140	238	1	P245N2000	h
20.50	0/-0.033	2	145	243	1	P245N2050	h
21.00	0/-0.033	2	145	243	1	P245N2100	h
21.50	0/-0.033	2	150	248	1	P245N2150	h
22.00	0/-0.033	2	150	248	1	P245N2200	h
22.50	0/-0.033	2	155	253	1	P245N2250	h
23.00	0/-0.033	2	155	253	1	P245N2300	h
23.50	0/-0.033	3	155	276	1	P245N2350	h
24.00	0/-0.033	3	160	281	1	P245N2400	h
24.50	0/-0.033	3	160	281	1	P245N2450	h
25.00	0/-0.033	3	160	281	1	P245N2500	h
26.00	0/-0.033	3	165	286	1	P245N2600	h
27.00	0/-0.033	3	170	291	1	P245N2700	h
28.00	0/-0.033	3	170	291	1	P245N2800	h
29.00	0/-0.033	3	175	296	1	P245N2900	h
30.00	0/-0.033	3	175	296	1	P245N3000	h

h stock standard f non-standard stock m stock exhaustion

245N

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			M3 M4			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			550-850 N/mm²			150-350 HB		
	Vc (m/min)	25-35			20-30			12-18			8-12			25-35		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	730	0.224	160	610	0.190	120	370	0.157	60	240	0.112	27	730	0.246	180
	14	680	0.232	160	570	0.197	110	340	0.162	55	230	0.116	27	680	0.255	170
	15	640	0.240	150	530	0.204	110	320	0.168	55	210	0.120	25	640	0.264	170
	16	600	0.250	150	500	0.213	110	300	0.175	55	200	0.125	25	600	0.275	170
	17	560	0.265	150	470	0.225	110	280	0.186	50	190	0.133	25	560	0.292	160
	18	530	0.280	150	440	0.238	100	270	0.196	55	180	0.140	25	530	0.308	160
	19	500	0.295	150	420	0.251	110	250	0.207	50	170	0.148	25	500	0.325	160
	20	480	0.315	150	400	0.268	110	240	0.221	55	160	0.158	25	480	0.347	170
	22	430	0.330	140	360	0.281	100	220	0.231	50	140	0.165	23	430	0.363	160
	25	380	0.350	130	320	0.298	100	190	0.245	47	130	0.175	23	380	0.385	150
	27	350	0.370	130	290	0.315	90	180	0.259	47	120	0.185	22	350	0.407	140
	30	320	0.400	130	270	0.340	90	160	0.280	45	110	0.200	22	320	0.440	140

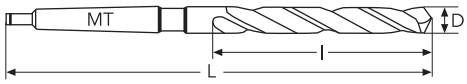
	Material Group ISO 513	K3 K4			N1 N5			N2 N3 N4			S1 S2 S4		
	Hardness/Rm	< 350 HB									< 35 HRC		
	Vc (m/min)	20-30			50-70			40-60			8-12		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	610	0.168	100	1470	0.314	460	1220	0.224	270	240	0.090	22
	14	570	0.174	100	1360	0.325	440	1140	0.232	260	230	0.093	21
	15	530	0.180	100	1270	0.336	430	1060	0.240	250	210	0.096	20
	16	500	0.188	90	1190	0.350	420	1000	0.250	250	200	0.100	20
	17	470	0.199	90	1120	0.371	420	940	0.265	250	190	0.106	20
	18	440	0.210	90	1060	0.392	420	880	0.280	250	180	0.112	20
	19	420	0.221	90	1010	0.413	420	840	0.295	250	170	0.118	20
	20	400	0.236	90	960	0.441	420	800	0.315	250	160	0.126	20
	22	360	0.248	90	870	0.462	400	720	0.330	240	140	0.132	18
	25	320	0.263	80	760	0.490	370	640	0.350	220	130	0.140	18
	27	290	0.278	80	710	0.518	370	590	0.370	220	120	0.148	18
	30	270	0.300	80	640	0.560	360	530	0.400	210	110	0.160	18

241LS

LS type for deep holes, MT shank, long

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock
13.00	0/-0.027	1	134	215	1	P241LS1300	h
14.00	0/-0.027	1	142	223	1	P241LS1400	h
14.50	0/-0.027	2	147	245	1	P241LS1450	h
15.00	0/-0.027	2	147	245	1	P241LS1500	h
15.50	0/-0.027	2	153	251	1	P241LS1550	h
16.00	0/-0.027	2	153	251	1	P241LS1600	h
16.50	0/-0.027	2	159	257	1	P241LS1650	h
17.00	0/-0.027	2	159	257	1	P241LS1700	h
17.50	0/-0.027	2	165	263	1	P241LS1750	h
18.00	0/-0.027	2	165	263	1	P241LS1800	h
18.50	0/-0.033	2	171	269	1	P241LS1850	h
19.00	0/-0.033	2	171	269	1	P241LS1900	h
19.50	0/-0.033	2	177	275	1	P241LS1950	h
20.00	0/-0.033	2	177	275	1	P241LS2000	h
21.00	0/-0.033	2	184	282	1	P241LS2100	h
22.00	0/-0.033	2	191	289	1	P241LS2200	h
23.00	0/-0.033	2	198	296	1	P241LS2300	h
24.00	0/-0.033	3	206	327	1	P241LS2400	h
25.00	0/-0.033	3	206	327	1	P241LS2500	h
26.00	0/-0.033	3	214	335	1	P241LS2600	h
27.00	0/-0.033	3	222	343	1	P241LS2700	h
28.00	0/-0.033	3	222	343	1	P241LS2800	h
29.00	0/-0.033	3	230	351	1	P241LS2900	h
30.00	0/-0.033	3	230	351	1	P241LS3000	h

h stock standard f non-standard stock m stock exhaustion

241LS

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	15-25			10-20			10-14			20-30		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	490	0.160	80	370	0.136	50	290	0.112	32	610	0.176	110
	14	450	0.170	75	340	0.145	49	270	0.119	32	570	0.187	110
	15	420	0.180	75	320	0.153	49	250	0.126	32	530	0.198	100
	16	400	0.200	80	300	0.170	51	240	0.140	34	500	0.220	110
	17	370	0.190	70	280	0.162	45	220	0.133	29	470	0.209	100
	18	350	0.205	70	270	0.174	47	210	0.144	30	440	0.226	100
	19	340	0.220	75	250	0.187	47	200	0.154	31	420	0.242	100
	20	320	0.235	75	240	0.200	48	190	0.165	31	400	0.259	100
	21	300	0.250	75	230	0.213	49	180	0.175	32	380	0.275	100
	22	290	0.265	75	220	0.225	50	170	0.186	32	360	0.292	100
	23	280	0.280	80	210	0.238	50	170	0.196	33	350	0.308	110
	24	270	0.295	80	200	0.251	50	160	0.207	33	330	0.325	110
	25	250	0.310	80	190	0.264	50	150	0.217	33	320	0.341	110
	26	240	0.325	80	180	0.276	50	150	0.228	34	310	0.358	110
	27	240	0.340	80	180	0.289	52	140	0.238	33	290	0.374	110
	28	230	0.355	80	170	0.302	51	140	0.249	35	280	0.391	110
	29	220	0.370	80	160	0.315	50	130	0.259	34	270	0.407	110
	30	210	0.385	80	160	0.327	52	130	0.270	35	270	0.424	110

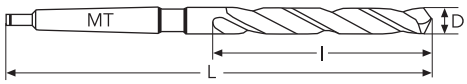
2701LS

LS type for deep holes, MT shank, extra-long/1

DIN 1870/1 | LS | HSS/CO OX | 130° | 35-40°

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock
13.00	0/-0.027	1	205	310	1	P2701LS1300	h
13.50	0/-0.027	1	220	325	1	P2701LS1350	h
14.00	0/-0.027	1	220	325	1	P2701LS1400	h
14.50	0/-0.027	2	220	340	1	P2701LS1450	h
15.00	0/-0.027	2	220	340	1	P2701LS1500	h
15.50	0/-0.027	2	230	355	1	P2701LS1550	h
16.00	0/-0.027	2	230	355	1	P2701LS1600	h
16.50	0/-0.027	2	230	355	1	P2701LS1650	h
17.00	0/-0.027	2	230	355	1	P2701LS1700	h
17.50	0/-0.027	2	245	370	1	P2701LS1750	h
18.00	0/-0.027	2	245	370	1	P2701LS1800	h
18.50	0/-0.033	2	245	370	1	P2701LS1850	h
19.00	0/-0.033	2	245	370	1	P2701LS1900	h
19.50	0/-0.033	2	260	385	1	P2701LS1950	h
20.00	0/-0.033	2	260	385	1	P2701LS2000	h
21.00	0/-0.033	2	260	385	1	P2701LS2100	h
22.00	0/-0.033	2	270	405	1	P2701LS2200	h
23.00	0/-0.033	2	270	405	1	P2701LS2300	h
24.00	0/-0.033	3	290	440	1	P2701LS2400	h
25.00	0/-0.033	3	290	440	1	P2701LS2500	h
26.00	0/-0.033	3	290	440	1	P2701LS2600	h
27.00	0/-0.033	3	305	460	1	P2701LS2700	h
28.00	0/-0.033	3	305	460	1	P2701LS2800	h
29.00	0/-0.033	3	305	460	1	P2701LS2900	h
30.00	0/-0.033	3	305	460	1	P2701LS3000	h

h stock standard f non-standard stock m stock exhaustion

2701LS

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	20-24			16-20			8-12			20-24		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	540	0.140	75	440	0.119	50	240	0.098	24	540	0.154	83
	14	500	0.150	75	410	0.128	50	230	0.105	24	500	0.165	83
	15	470	0.160	75	380	0.136	50	210	0.112	24	470	0.176	83
	16	440	0.180	80	360	0.153	55	200	0.126	25	440	0.198	87
	17	410	0.190	80	340	0.162	55	190	0.133	25	410	0.209	86
	18	390	0.200	80	320	0.170	55	180	0.140	25	390	0.220	86
	19	370	0.210	80	300	0.179	55	170	0.147	25	370	0.231	85
	20	350	0.220	75	290	0.187	55	160	0.154	25	350	0.242	85
	21	330	0.220	75	270	0.187	50	150	0.154	23	330	0.242	80
	22	320	0.230	75	260	0.196	50	140	0.161	23	320	0.253	81
	23	300	0.250	75	250	0.213	55	140	0.175	25	300	0.275	83
	24	290	0.260	75	240	0.221	55	130	0.182	24	290	0.286	83
	25	280	0.280	80	230	0.238	55	130	0.196	25	280	0.308	86
	26	270	0.290	80	220	0.247	55	120	0.203	24	270	0.319	86
	27	260	0.300	80	210	0.255	55	120	0.210	25	260	0.330	86
	28	250	0.310	80	200	0.264	55	110	0.217	24	250	0.341	85
	29	240	0.325	80	200	0.276	55	110	0.228	25	240	0.358	86
	30	230	0.340	80	190	0.289	55	110	0.238	26	230	0.374	86

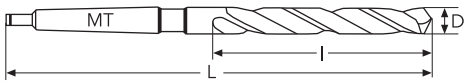
2702LS

LS type for deep holes, MT shank, extra-long/2

DIN 1870/2 | LS | HSS/CO OX | 130° | 35-40°

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(h8)	D Tol.	MT	l	L	PACKAGING	EDP No.	Stock
13.00	0/-0.027	1	260	395	1	P2702LS1300	h
14.00	0/-0.027	1	275	410	1	P2702LS1400	h
14.50	0/-0.027	2	275	425	1	P2702LS1450	h
15.00	0/-0.027	2	275	425	1	P2702LS1500	h
15.50	0/-0.027	2	295	445	1	P2702LS1550	h
16.00	0/-0.027	2	295	445	1	P2702LS1600	h
16.50	0/-0.027	2	295	445	1	P2702LS1650	h
17.00	0/-0.027	2	295	445	1	P2702LS1700	h
17.50	0/-0.027	2	310	465	1	P2702LS1750	h
18.00	0/-0.027	2	310	465	1	P2702LS1800	h
18.50	0/-0.033	2	310	465	1	P2702LS1850	h
19.00	0/-0.033	2	310	465	1	P2702LS1900	h
19.50	0/-0.033	2	325	490	1	P2702LS1950	h
20.00	0/-0.033	2	325	490	1	P2702LS2000	h
21.00	0/-0.033	2	325	490	1	P2702LS2100	h
22.00	0/-0.033	2	345	515	1	P2702LS2200	h
23.00	0/-0.033	2	345	515	1	P2702LS2300	h
24.00	0/-0.033	3	365	555	1	P2702LS2400	h
25.00	0/-0.033	3	365	555	1	P2702LS2500	h
26.00	0/-0.033	3	365	555	1	P2702LS2600	h
27.00	0/-0.033	3	385	580	1	P2702LS2700	h
28.00	0/-0.033	3	385	580	1	P2702LS2800	h
29.00	0/-0.033	3	385	580	1	P2702LS2900	h
30.00	0/-0.033	3	385	580	1	P2702LS3000	h

h stock standard f non-standard stock m stock exhaustion

2702LS

	Material Group ISO 513	P1 P2			P3 P4			M1 M2			K1 K2		
	Hardness/Rm	500-700 N/mm²			600-1000 N/mm²			< 750 N/mm²			150-350 HB		
	Vc (m/min)	15-25			10-20			10-14			20-30		
	D (mm)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)	n (rpm)	fn (mm/rev)	Vf (mm/min)
	13	490	0.130	65	370	0.111	40	290	0.091	26	610	0.143	85
	14	450	0.140	65	340	0.119	40	270	0.098	26	570	0.154	90
	15	420	0.150	65	320	0.128	40	250	0.105	26	530	0.165	85
	16	400	0.160	65	300	0.136	40	240	0.112	27	500	0.176	90
	17	370	0.170	65	280	0.145	40	220	0.119	26	470	0.187	90
	18	350	0.180	65	270	0.153	40	210	0.126	26	440	0.198	85
	19	340	0.190	65	250	0.162	40	200	0.133	27	420	0.209	90
	20	320	0.200	65	240	0.170	40	190	0.140	27	400	0.220	90
	21	300	0.210	65	230	0.179	40	180	0.147	26	380	0.231	90
	22	290	0.220	65	220	0.187	40	170	0.154	26	360	0.242	85
	23	280	0.230	65	210	0.196	40	170	0.161	27	350	0.253	90
	24	270	0.240	65	200	0.204	40	160	0.168	27	330	0.264	85
	25	250	0.250	65	190	0.213	40	150	0.175	26	320	0.275	90
	26	240	0.270	65	180	0.230	40	150	0.189	28	310	0.297	90
	27	240	0.280	65	180	0.238	45	140	0.196	27	290	0.308	90
	28	230	0.290	65	170	0.247	40	140	0.203	28	280	0.319	90
	29	220	0.300	65	160	0.255	40	130	0.210	27	270	0.330	90
	30	210	0.310	65	160	0.264	40	130	0.217	28	270	0.341	90