


HSS DRILLS
















CAPTION .	184
SELECTION GUIDE .	188
SYSTEM CHARTS .	190
LFTA .	193
SUTA .	203
DIN1897 .	214
DIN338 .	223
DIN340 .	252
DIN1869 .	259
DIN345 .	265
DIN341 .	272
DIN1870 .	274

🇮🇹 Legenda 🇩🇪 Verzeichnis 🇫🇷 Légende 🇪🇸 Leyenda 🇷🇺 Условные обозначения













STOCK		
●	<ul style="list-style-type: none"> 🇩🇪 stock standard 🇮🇹 stock standard 🇩🇪 Standard Lager 	<ul style="list-style-type: none"> 🇫🇷 stock standard 🇪🇸 stock estándar 🇷🇺 складская позиция
○	<ul style="list-style-type: none"> 🇩🇪 non-standard stock 🇮🇹 stock non standard 🇩🇪 nicht Standard Lager 	<ul style="list-style-type: none"> 🇫🇷 stock non standard 🇪🇸 stock no estándar 🇷🇺 не складская позиция
▽	<ul style="list-style-type: none"> 🇩🇪 stock exhaustion 🇮🇹 esaurimento stock 🇩🇪 Vorraterschöpfung 	<ul style="list-style-type: none"> 🇫🇷 épuisement du stock 🇪🇸 agotamiento de stock 🇷🇺 складские остатки




🇩🇪 APPLICATION GUIDELINES 🇮🇹 INDICAZIONI PER L'APPLICAZIONE 🇩🇪 LEITFADEN ZUR ANWENDUNG 🇫🇷 INDICATIONS POUR L'APPLICATION 🇪🇸 INDICACIONES PARA SU APLICACIÓN 🇷🇺 УКАЗАНИЯ ПО ПРИМЕНЕНИЮ		
★	<ul style="list-style-type: none"> 🇩🇪 1st choice 🇮🇹 1a scelta 🇩🇪 1. Wahl 	<ul style="list-style-type: none"> 🇫🇷 1er choix 🇪🇸 1ª elección 🇷🇺 1-й выбор
☆	<ul style="list-style-type: none"> 🇩🇪 suitable 🇮🇹 adatto 🇩🇪 geeignet 	<ul style="list-style-type: none"> 🇫🇷 adapté 🇪🇸 adecuado 🇷🇺 пригоден

🇩🇪 SHANK 🇮🇹 ATTACCO 🇩🇪 SCHAFT 🇫🇷 QUEUE 🇪🇸 MANGO 🇷🇺 ХВОСТОВИК		
	<ul style="list-style-type: none"> 🇩🇪 cylindrical shank 🇮🇹 attacco cilindrico 🇩🇪 zylindrischer Schaft 	<ul style="list-style-type: none"> 🇫🇷 queue cylindrique 🇪🇸 mango cilíndrico 🇷🇺 цилиндрическое крепление
	<ul style="list-style-type: none"> 🇩🇪 Morse Taper shank 🇮🇹 attacco Cono Morse 🇩🇪 MK Schaft 	<ul style="list-style-type: none"> 🇫🇷 queue conique 🇪🇸 mango Cono Morse 🇷🇺 конус Морзе

🇩🇪 GEOMETRY 🇮🇹 GEOMETRIA 🇩🇪 GEOMETRIE 🇫🇷 GÉOMÉTRIE 🇪🇸 GEOMETRÍA 🇷🇺 ГЕОМЕТРИЯ		
  	<ul style="list-style-type: none"> 🇩🇪 high performance, selfcentering 🇮🇹 alto rendimento, autocentrante 🇩🇪 hochleistung, selbstzentrierende 	<ul style="list-style-type: none"> 🇫🇷 haute performance, auto centreur 🇪🇸 alto rendimiento, autocentrante 🇷🇺 высокопроизводительные, самоцентрирующиеся
  	<ul style="list-style-type: none"> 🇩🇪 for stainless steel and general application 🇮🇹 per acciaio inossidabile e applicazioni generiche 🇩🇪 für rostfreien Stahl und allgemeine Anwendung 	<ul style="list-style-type: none"> 🇫🇷 pour acier inoxydable et applications génériques 🇪🇸 para acero inoxidable y aplicaciones genéricas 🇷🇺 для нержавеющей сталей и общего назначения
  	<ul style="list-style-type: none"> 🇩🇪 HSS general purpose 🇮🇹 HSS uso generico 🇩🇪 HSS allgemeine Anwendung 	<ul style="list-style-type: none"> 🇫🇷 HSS applications génériques 🇪🇸 HSS uso genérico 🇷🇺 HSS общего назначения
  	HSS Tin Pointed	
  	HSS/Co Tin Pointed	


































🇮🇹 Legenda 🇩🇪 Verzeichnis 🇫🇷 Légende 🇪🇸 Leyenda 🇷🇺 Условные обозначения

⚙️ GEOMETRY 🇮🇹 GEOMETRIA 🇩🇪 GEOMETRIE 🇫🇷 GÉOMÉTRIE 🇪🇸 GEOMETRÍA 🇷🇺 ГЕОМЕТРИЯ					
			<ul style="list-style-type: none"> ⚙️ for stainless steel and general application 🇮🇹 per acciaio inossidabile e applicazioni generiche 🇩🇪 für rostfreien Stahl und allgemeine Anwendung 	<ul style="list-style-type: none"> 🇫🇷 pour acier inoxydable et applications génériques 🇪🇸 para acero inoxidable y aplicaciones genéricas 🇷🇺 для нержавеющей сталей и общего назначения 	
			<ul style="list-style-type: none"> ⚙️ for deep holes 🇮🇹 per fori profondi 🇩🇪 für tiefe Löcher 	<ul style="list-style-type: none"> 🇫🇷 pour trous profonds 🇪🇸 para agujeros profundos 🇷🇺 для глубоких отверстий 	
			<ul style="list-style-type: none"> ⚙️ for brass 🇮🇹 per ottone 🇩🇪 für Messing 	<ul style="list-style-type: none"> 🇫🇷 pour laiton 🇪🇸 para latón 🇷🇺 для латуни 	
			<ul style="list-style-type: none"> ⚙️ for aluminium 🇮🇹 per alluminio 🇩🇪 für Aluminium 	<ul style="list-style-type: none"> 🇫🇷 pour aluminium 🇪🇸 para aluminio 🇷🇺 для алюминия 	

⚙️ MATERIAL 🇮🇹 MATERIALE 🇩🇪 WERKSTOFF 🇫🇷 MATIÈRE 🇪🇸 MATERIAL 🇷🇺 МАТЕРИАЛ		
	<ul style="list-style-type: none"> ⚙️ high speed steel 🇮🇹 acciaio super rapido 🇩🇪 Hochleistungsschnellschnittstahl 	<ul style="list-style-type: none"> 🇫🇷 acier rapide 🇪🇸 acero súper rápido 🇷🇺 быстрорежущая сталь
	<ul style="list-style-type: none"> ⚙️ high speed steel - 5% ÷ 8% Co 🇮🇹 acciaio super rapido - 5% ÷ 8% Co 🇩🇪 Hochleistungsschnellschnittstahl - 5% ÷ 8% Co 	<ul style="list-style-type: none"> 🇫🇷 acier rapide - 5% ÷ 8% Co 🇪🇸 acero súper rápido - 5% ÷ 8% Co 🇷🇺 быстрорежущая сталь - 5% ÷ 8% Co
	HSS/Co + EV	

⚙️ SURFACE TREATMENT 🇮🇹 TRATTAMENTO SUPERFICIALE 🇩🇪 OBERFLÄCHENBEHANDLUNG 🇫🇷 TRAITEMENT DE SURFACE 🇪🇸 TRATAMIENTO SUPERFICIAL 🇷🇺 ОБРАБОТКА ПОВЕРХНОСТИ		
	<ul style="list-style-type: none"> ⚙️ uncoated 🇮🇹 non rivestito 🇩🇪 unbeschichtet 	<ul style="list-style-type: none"> 🇫🇷 non revêtu 🇪🇸 no revestido 🇷🇺 без покрытия
	<ul style="list-style-type: none"> ⚙️ vaporization 🇮🇹 vaporizzazione 🇩🇪 Dämpfung 	<ul style="list-style-type: none"> 🇫🇷 traitement vapeur 🇪🇸 vaporización 🇷🇺 окисление
	<ul style="list-style-type: none"> ⚙️ heat treatment 🇮🇹 trattamento termico 🇩🇪 thermische Behandlung 	<ul style="list-style-type: none"> 🇫🇷 traitement thermique 🇪🇸 tratamiento térmico 🇷🇺 термическая обработка

 Legenda
  Verzeichnis
  Légende
  Leyenda
  Условные обозначения

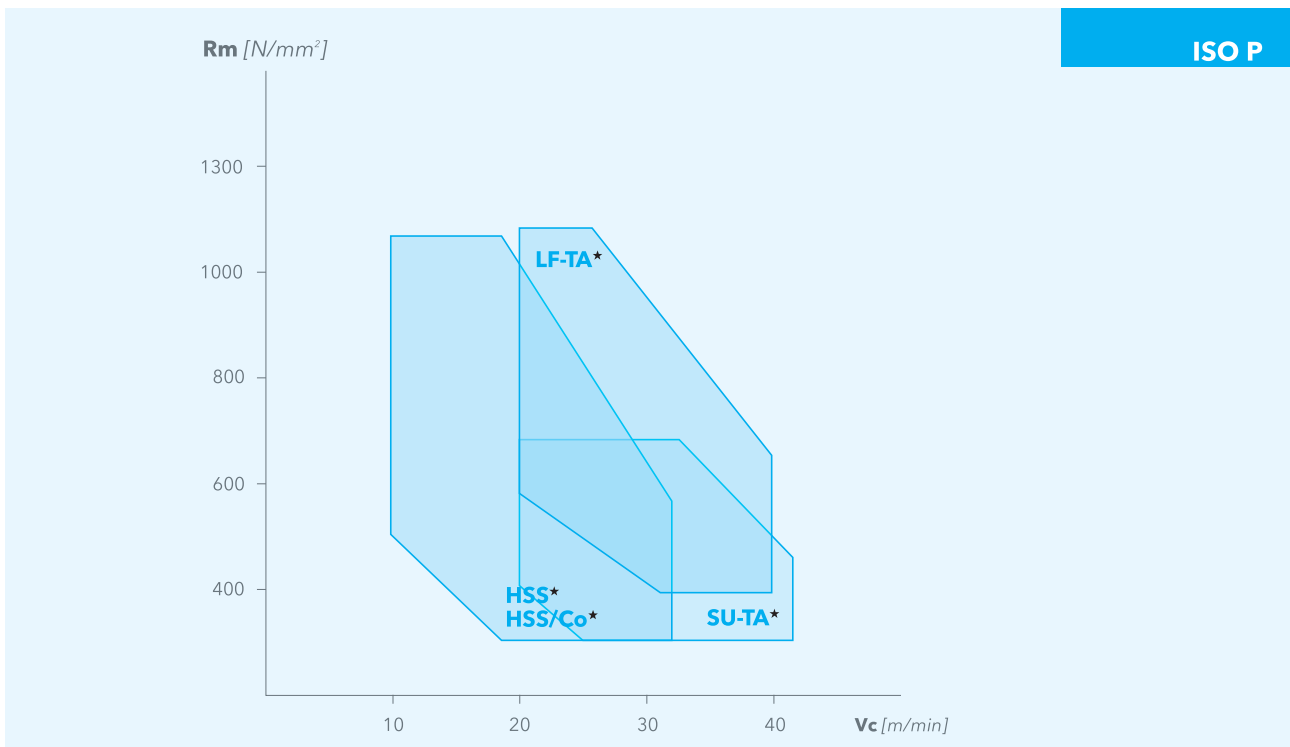
 COATINGS  RIVESTIMENTI  BESCHICHTUNGEN  REVÊTEMENTS  RECUBRIMIENTOS  ПОКРЫТИЕ		 TiN	 PV10	 PV15
 hardness (HV)  durezza (HV)  Härte (HV)	 dureté (HV)  dureza (HV)  твёрдость (HV)	2300	3300	TiAlN + WC/C
 friction coefficient  coefficiente d'attrito  Reibungskoeffizient	 coefficient de frottement  coeficiente de rozamiento  коэффициент трения	0.4	0.35	0.2
 thickness (μ)  spessore (μ)  dicke (μ)	 épaisseur (μ)  espesor (μ)  толщина (мкм)	1÷4	1÷5	2÷5
 max working temperature (°C)  temperatura max (°C)  höchste Temperatur (°C)	 température maximale (°C)  temperatura máx (°C)  макс. температура (°C)	600°	900°	1000°

	ITEM No.	PAGE	
LFTA high performance	218LFTA	194	
	238LFTA	198	
SUTA high performance	980SUTA	204	
	990SUTA	208	
HSS-HSS/Co general purpose	118N	214	
	218NVA	219	
	1386STI	223	
	138N	228	
	138NTI	228	
	138HB	234	
	138WB	238	
	2386STI	242	
	238NVA	247	
	234NVA	252	
	234LS	256	
	234LSTH	256	
	2691LS	259	
	2691LSTH	259	
	1692LS	261	
	1693LS	263	
	145N	265	
	145NTI	265	
	245N	270	
	241LS	272	
	2701LS	274	
	2702LS	276	

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°		★	☆	★			

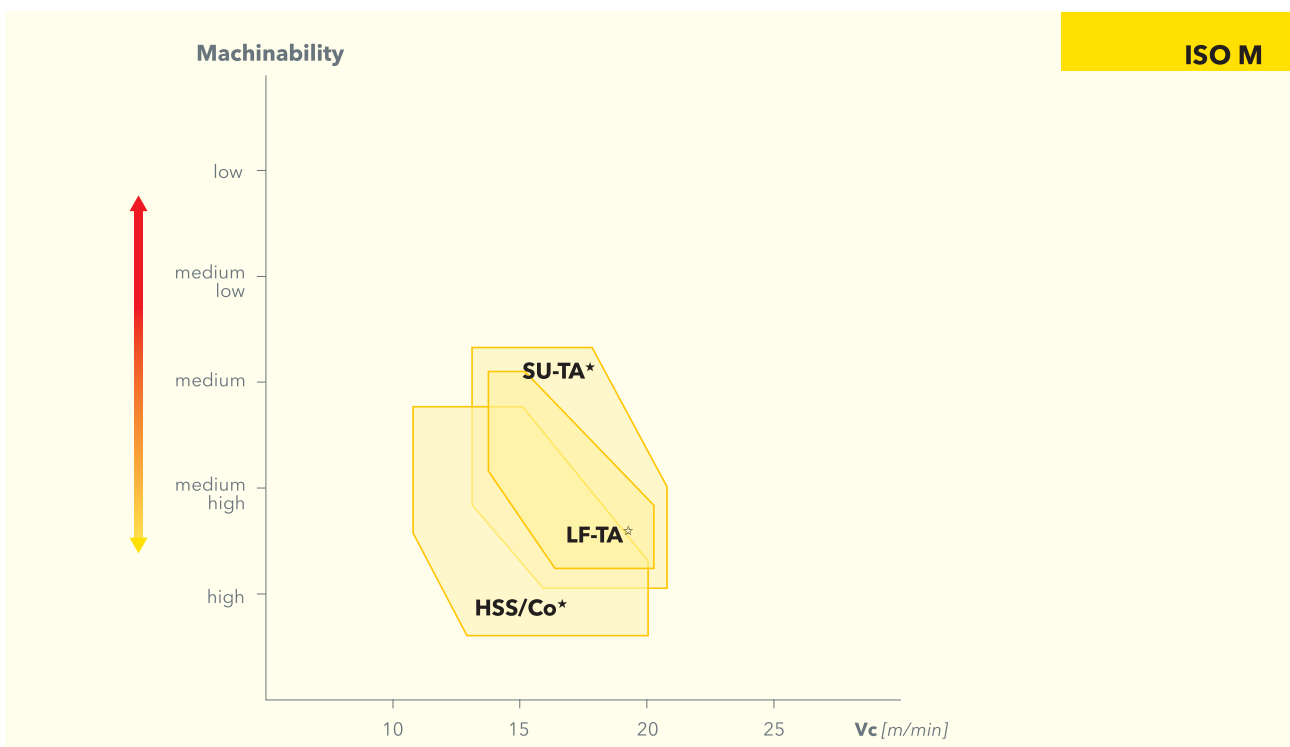
★ 1st choice ☆ suitable

STEEL APPLICATION



★ 1st choice ☆ suitable

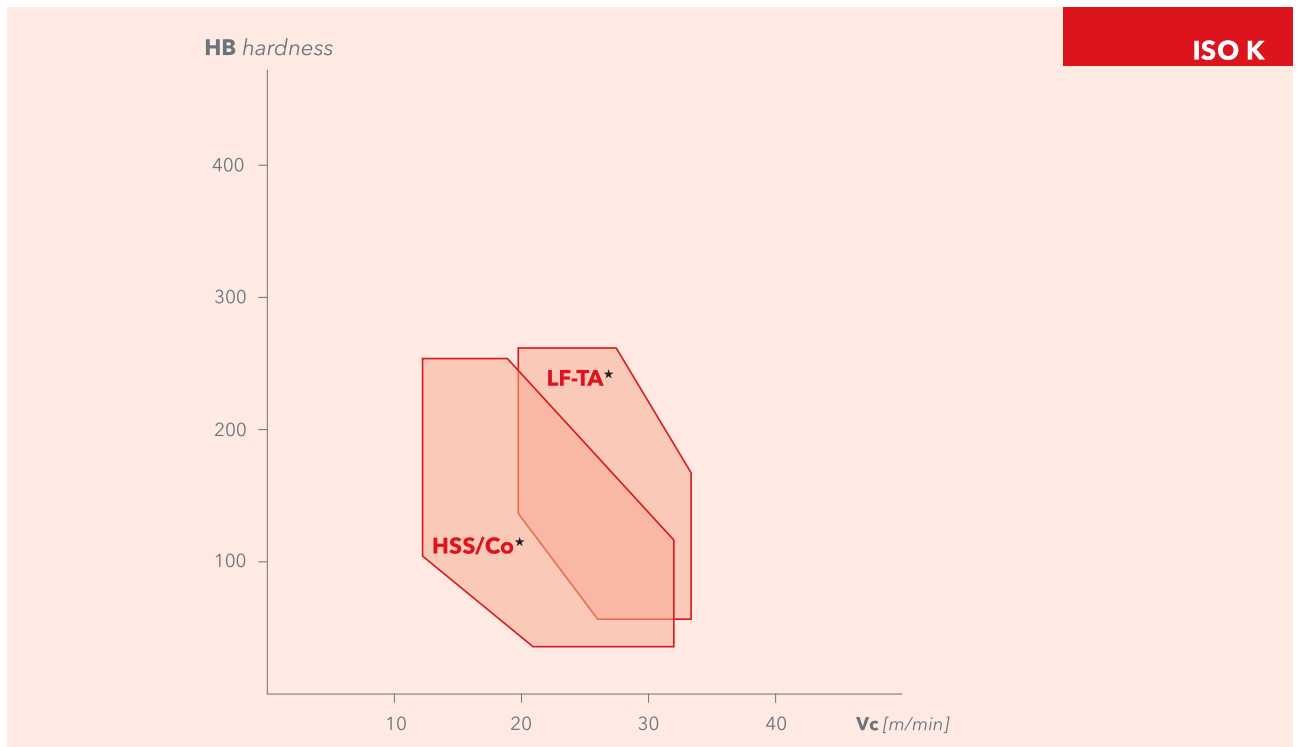
STAINLESS STEEL APPLICATION



★ 1st choice ☆ suitable

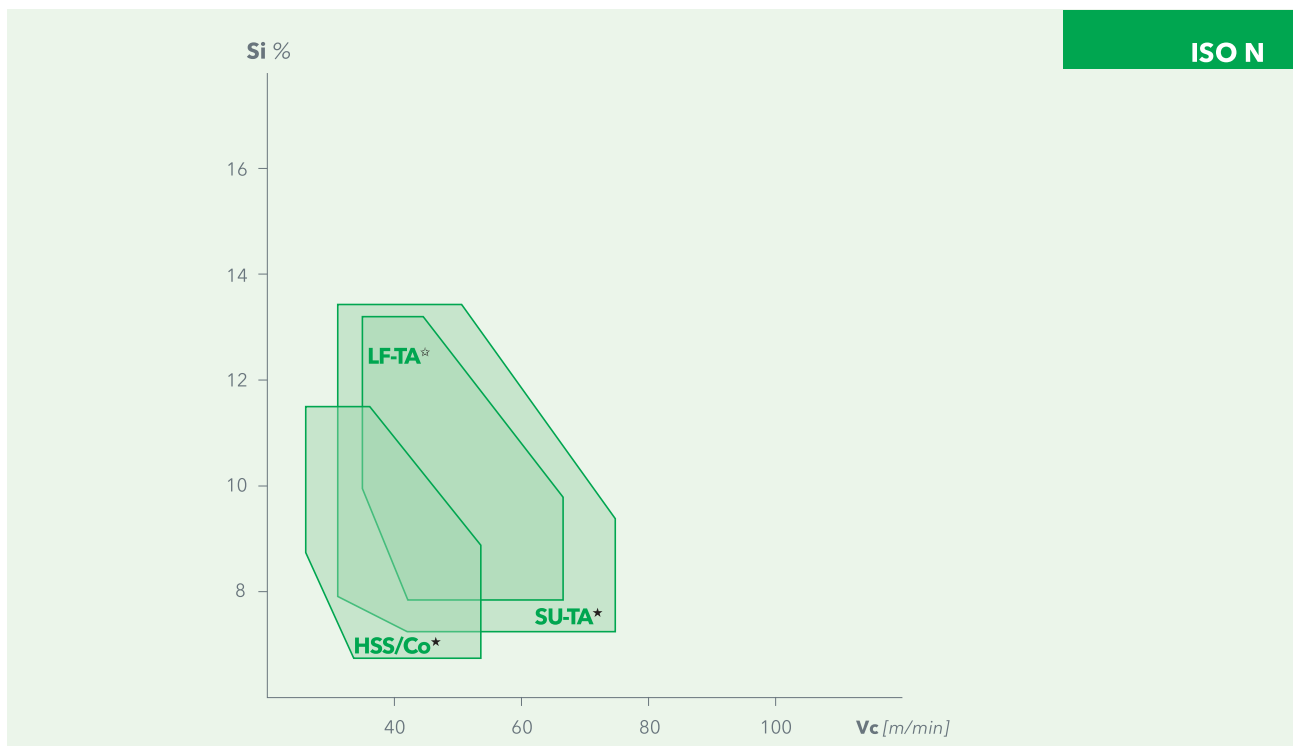
LFTA : high performance (page 194)
 SUTA : high performance (page 204)
 HSS-HSS/Co : general purpose (page 214)

CAST IRON APPLICATION



★ 1st choice ☆ suitable

NON-FERROUS MATERIALS APPLICATION



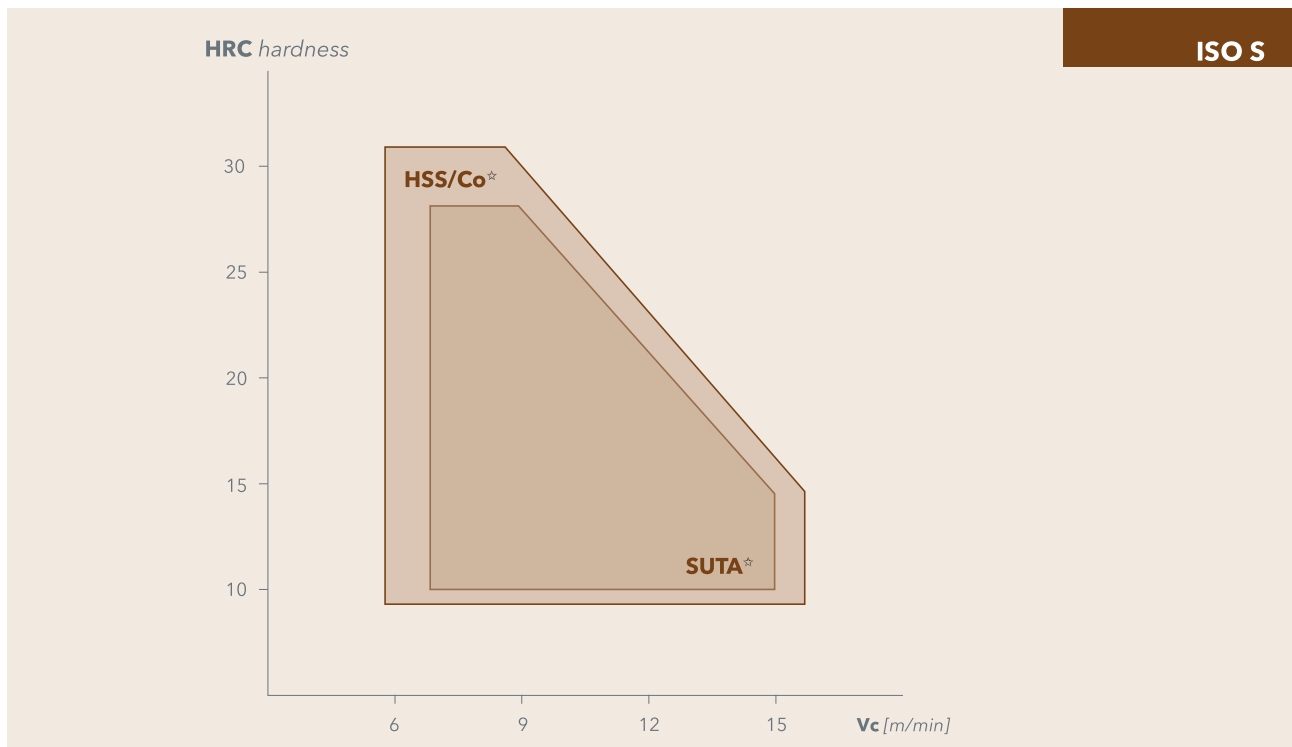
★ 1st choice ☆ suitable

LFTA : high performance (page 194)

SUTA : high performance (page 204)

HSS-HSS/Co : general purpose (page 214)

SUPER ALLOYS APPLICATION



SUTA : high performance (page 204)
 HSS-HSS/Co : general purpose (page 214)

★ 1st choice ☆ suitable



INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

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

INFO

218LFTA

self-centering, general purpose, extra-short

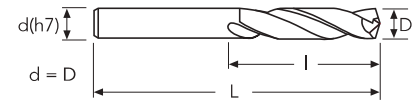


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	I	L	PACKAGING	EDP No.	Stock
2.00	0/-0.014	2	12	38	5	P218LFTA0200	●
2.10	0/-0.014	2.1	12	38	5	P218LFTA0210	●
2.20	0/-0.014	2.2	13	40	5	P218LFTA0220	●
2.30	0/-0.014	2.3	13	40	5	P218LFTA0230	●
2.40	0/-0.014	2.4	14	43	5	P218LFTA0240	●
2.50	0/-0.014	2.5	14	43	5	P218LFTA0250	●
2.60	0/-0.014	2.6	14	43	5	P218LFTA0260	●
2.70	0/-0.014	2.7	16	46	5	P218LFTA0270	●
2.80	0/-0.014	2.8	16	46	5	P218LFTA0280	●
2.90	0/-0.014	2.9	16	46	5	P218LFTA0290	●
3.00	0/-0.014	3	16	46	5	P218LFTA0300	●
3.10	0/-0.018	3.1	18	49	5	P218LFTA0310	●
3.20	0/-0.018	3.2	18	49	5	P218LFTA0320	●
3.30	0/-0.018	3.3	18	49	5	P218LFTA0330	●
3.40	0/-0.018	3.4	20	52	5	P218LFTA0340	●
3.50	0/-0.018	3.5	20	52	5	P218LFTA0350	●
3.60	0/-0.018	3.6	20	52	5	P218LFTA0360	●
3.70	0/-0.018	3.7	20	52	5	P218LFTA0370	●
3.80	0/-0.018	3.8	22	55	5	P218LFTA0380	●
3.90	0/-0.018	3.9	22	55	5	P218LFTA0390	●
4.00	0/-0.018	4	22	55	5	P218LFTA0400	●
4.10	0/-0.018	4.1	22	55	5	P218LFTA0410	●
4.20	0/-0.018	4.2	22	55	5	P218LFTA0420	●
4.30	0/-0.018	4.3	24	58	5	P218LFTA0430	●
4.40	0/-0.018	4.4	24	58	5	P218LFTA0440	●
4.50	0/-0.018	4.5	24	58	5	P218LFTA0450	●
4.60	0/-0.018	4.6	24	58	5	P218LFTA0460	●
4.70	0/-0.018	4.7	24	58	5	P218LFTA0470	●
4.80	0/-0.018	4.8	26	62	5	P218LFTA0480	●
4.90	0/-0.018	4.9	26	62	5	P218LFTA0490	●
5.00	0/-0.018	5	26	62	5	P218LFTA0500	●
5.10	0/-0.018	5.1	26	62	5	P218LFTA0510	●
5.20	0/-0.018	5.2	26	62	5	P218LFTA0520	●
5.30	0/-0.018	5.3	26	62	5	P218LFTA0530	●
5.40	0/-0.018	5.4	28	66	5	P218LFTA0540	●
5.50	0/-0.018	5.5	28	66	5	P218LFTA0550	●
5.60	0/-0.018	5.6	28	66	5	P218LFTA0560	●
5.70	0/-0.018	5.7	28	66	5	P218LFTA0570	●
5.80	0/-0.018	5.8	28	66	5	P218LFTA0580	●

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

218LFTA

self-centering, general purpose, extra-short



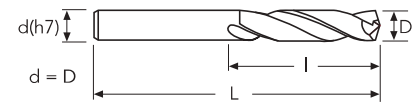
INFO

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



D(h8)	D Tol.	d(h7)	I	L	PACKAGING	EDP No.	Stock
5.90	0/-0.018	5.9	28	66	5	P218LFTA0590	●
6.00	0/-0.018	6	28	66	5	P218LFTA0600	●
6.10	0/-0.022	6.1	31	70	5	P218LFTA0610	●
6.20	0/-0.022	6.2	31	70	5	P218LFTA0620	●
6.30	0/-0.022	6.3	31	70	5	P218LFTA0630	●
6.40	0/-0.022	6.4	31	70	5	P218LFTA0640	●
6.50	0/-0.022	6.5	31	70	5	P218LFTA0650	●
6.60	0/-0.022	6.6	31	70	5	P218LFTA0660	●
6.70	0/-0.022	6.7	31	70	5	P218LFTA0670	●
6.80	0/-0.022	6.8	34	74	5	P218LFTA0680	●
6.90	0/-0.022	6.9	34	74	5	P218LFTA0690	●
7.00	0/-0.022	7	34	74	5	P218LFTA0700	●
7.10	0/-0.022	7.1	34	74	5	P218LFTA0710	●
7.20	0/-0.022	7.2	34	74	5	P218LFTA0720	●
7.30	0/-0.022	7.3	34	74	5	P218LFTA0730	●
7.40	0/-0.022	7.4	34	74	5	P218LFTA0740	●
7.50	0/-0.022	7.5	34	74	5	P218LFTA0750	●
7.60	0/-0.022	7.6	37	79	5	P218LFTA0760	●
7.70	0/-0.022	7.7	37	79	5	P218LFTA0770	●
7.80	0/-0.022	7.8	37	79	5	P218LFTA0780	●
7.90	0/-0.022	7.9	37	79	5	P218LFTA0790	●
8.00	0/-0.022	8	37	79	5	P218LFTA0800	●
8.10	0/-0.022	8.1	37	79	5	P218LFTA0810	●
8.20	0/-0.022	8.2	37	79	5	P218LFTA0820	●
8.30	0/-0.022	8.3	37	79	5	P218LFTA0830	●
8.40	0/-0.022	8.4	37	79	5	P218LFTA0840	●
8.50	0/-0.022	8.5	37	79	5	P218LFTA0850	●
8.60	0/-0.022	8.6	40	84	5	P218LFTA0860	●
8.70	0/-0.022	8.7	40	84	5	P218LFTA0870	●
8.80	0/-0.022	8.8	40	84	5	P218LFTA0880	●
8.90	0/-0.022	8.9	40	84	5	P218LFTA0890	●
9.00	0/-0.022	9	40	84	5	P218LFTA0900	●
9.10	0/-0.022	9.1	40	84	5	P218LFTA0910	●
9.20	0/-0.022	9.2	40	84	5	P218LFTA0920	●
9.30	0/-0.022	9.3	40	84	5	P218LFTA0930	●
9.40	0/-0.022	9.4	40	84	5	P218LFTA0940	●
9.50	0/-0.022	9.5	40	84	5	P218LFTA0950	●
9.60	0/-0.022	9.6	43	89	5	P218LFTA0960	●
9.70	0/-0.022	9.7	43	89	5	P218LFTA0970	●

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

218LFTA

self-centering, general purpose, extra-short

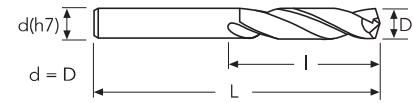


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



D(h8)	D Tol.	d(h7)	I	L	PACKAGING	EDP No.	Stock
9.80	0/-0.022	9.8	43	89	5	P218LFTA0980	●
9.90	0/-0.022	9.9	43	89	5	P218LFTA0990	●
10.00	0/-0.022	10	43	89	5	P218LFTA1000	●
10.20	0/-0.027	10.2	43	89	1	P218LFTA1020	●
10.30	0/-0.027	10.3	43	89	1	P218LFTA1030	●
10.50	0/-0.027	10.5	43	89	1	P218LFTA1050	●
10.80	0/-0.027	10.8	47	95	1	P218LFTA1080	●
11.00	0/-0.027	11	47	95	1	P218LFTA1100	●
11.20	0/-0.027	11.2	47	95	1	P218LFTA1120	●
11.30	0/-0.027	11.3	47	95	1	P218LFTA1130	●
11.50	0/-0.027	11.5	47	95	1	P218LFTA1150	●
11.80	0/-0.027	11.8	47	95	1	P218LFTA1180	●
12.00	0/-0.027	12	51	102	1	P218LFTA1200	●
12.20	0/-0.027	12.2	51	102	1	P218LFTA1220	●
12.50	0/-0.027	12.5	51	102	1	P218LFTA1250	●
12.80	0/-0.027	12.8	51	102	1	P218LFTA1280	●
13.00	0/-0.027	13	51	102	1	P218LFTA1300	●
13.30	0/-0.027	13.3	54	107	1	P218LFTA1330	●
13.50	0/-0.027	13.5	54	107	1	P218LFTA1350	●
13.80	0/-0.027	13.8	54	107	1	P218LFTA1380	●
14.00	0/-0.027	14	54	107	1	P218LFTA1400	●
14.50	0/-0.027	14.5	56	111	1	P218LFTA1450	●
14.80	0/-0.027	14.8	56	111	1	P218LFTA1480	●
15.00	0/-0.027	15	56	111	1	P218LFTA1500	●
15.30	0/-0.027	15.3	56	111	1	P218LFTA1530	●
15.50	0/-0.027	15.5	58	115	1	P218LFTA1550	●
15.80	0/-0.027	15.8	58	115	1	P218LFTA1580	●
16.00	0/-0.027	16	58	115	1	P218LFTA1600	●
16.50	0/-0.027	16.5	60	119	1	P218LFTA1650	●
17.00	0/-0.027	17	60	119	1	P218LFTA1700	●
17.50	0/-0.027	17.5	62	123	1	P218LFTA1750	●
18.00	0/-0.027	18	62	123	1	P218LFTA1800	●
18.50	0/-0.033	18.5	64	127	1	P218LFTA1850	●
19.00	0/-0.033	19	64	127	1	P218LFTA1900	●
19.50	0/-0.033	19.5	66	131	1	P218LFTA1950	●
20.00	0/-0.033	20	66	131	1	P218LFTA2000	●

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

218LFTA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	N1 N2	N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB			
Vc (m/min)	40÷50	30÷40	18÷22	18÷22	30÷40	65÷75	45÷55	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.060	0.051	0.042	0.042	0.057	0.066	0.060	
3	0.084	0.071	0.059	0.059	0.080	0.092	0.084	
4	0.108	0.092	0.076	0.076	0.103	0.119	0.108	
5	0.132	0.112	0.092	0.092	0.125	0.145	0.132	
6	0.156	0.133	0.109	0.109	0.148	0.172	0.156	
7	0.180	0.153	0.126	0.126	0.171	0.198	0.180	
8	0.204	0.173	0.143	0.143	0.194	0.224	0.204	
9	0.228	0.194	0.160	0.160	0.217	0.251	0.228	
10	0.252	0.214	0.176	0.176	0.239	0.277	0.252	
11	0.276	0.235	0.179	0.179	0.262	0.304	0.276	
12	0.300	0.255	0.195	0.195	0.285	0.330	0.300	
13	0.324	0.275	0.204	0.204	0.308	0.356	0.324	
14	0.348	0.296	0.219	0.219	0.331	0.383	0.348	
15	0.372	0.316	0.223	0.223	0.353	0.409	0.372	
16	0.396	0.337	0.238	0.238	0.376	0.436	0.396	
17	0.420	0.357	0.252	0.252	0.399	0.462	0.420	
18	0.444	0.377	0.266	0.266	0.422	0.488	0.444	
19	0.468	0.398	0.281	0.281	0.445	0.515	0.468	
20	0.492	0.418	0.295	0.295	0.467	0.541	0.492	

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

238LFTA

self-centering, general purpose, short



CARBIDE DRILLS

PU-HPU

TA-4HTA

SUH

ALH

HRC

SUH MINI

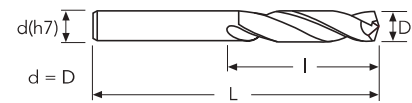
HL

HSD

C-SD-TA

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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

HSS DRILLS

LFTA

SUTA

HSS-HSS/CO

CARBIDE END-MILLS

G2

MDTA

HFVH/UP

MEF

ALU

MEX/MH

UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

238LFTA

self-centering, general purpose, short



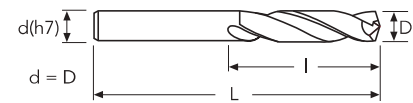
INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

238LFTA

self-centering, general purpose, short



CARBIDE DRILLS

PU-HPU
TA-4HTA

SUH

ALH

HRC

SUH MINI

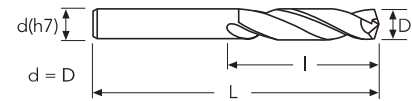
HL

HSD

C-SD-TA

P	M	K	N	S	H
★	☆	★	☆		

★ 1st choice ☆ suitable



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

HSS DRILLS

LFTA

SUTA

HSS-HSS/CO

CARBIDE END-MILLS

G2

MDTA

HFVH/UP

MEF

ALU

MEX/MH

UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

238LFTA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	N1 N2	N3 N4	
Hardness/Rm	500÷700 N/mm ²		600÷1000 N/mm ²		150÷350 HB			
Vc (m/min)	30÷40	20÷30	14÷18	14÷18	25÷35	50÷60	35÷45	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.054	0.046	0.038	0.038	0.051	0.059	0.054	
3	0.076	0.064	0.053	0.053	0.072	0.083	0.076	
4	0.097	0.083	0.068	0.068	0.092	0.107	0.097	
5	0.119	0.101	0.083	0.083	0.113	0.131	0.119	
6	0.140	0.119	0.098	0.098	0.133	0.154	0.140	
7	0.162	0.138	0.113	0.113	0.154	0.178	0.162	
8	0.184	0.156	0.129	0.129	0.174	0.202	0.184	
9	0.205	0.174	0.144	0.144	0.195	0.226	0.205	
10	0.227	0.193	0.159	0.159	0.215	0.249	0.227	
11	0.248	0.211	0.161	0.161	0.236	0.273	0.248	
12	0.270	0.230	0.176	0.176	0.257	0.297	0.270	
13	0.292	0.248	0.184	0.184	0.277	0.321	0.292	
14	0.313	0.266	0.197	0.197	0.298	0.345	0.313	
15	0.335	0.285	0.201	0.201	0.318	0.368	0.335	
16	0.356	0.303	0.214	0.214	0.339	0.392	0.356	
17	0.378	0.321	0.227	0.227	0.359	0.416	0.378	
18	0.400	0.340	0.240	0.240	0.380	0.440	0.400	
19	0.421	0.358	0.253	0.253	0.400	0.463	0.421	
20	0.443	0.376	0.266	0.266	0.421	0.487	0.443	

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS



INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

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 inoxidable, aceros y materiales no ferrosos.

🇷🇺 Высокопроизводительная и самоцентрирующаяся 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.

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

980SUTA

self centering, stainless steel, extra-short

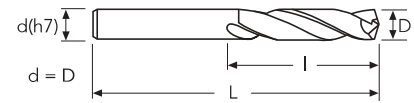


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
2.10	0/-0.014	2.1	12	44	1	P980SUTA0210	●
2.20	0/-0.014	2.2	13	45	1	P980SUTA0220	●
2.30	0/-0.014	2.3	13	45	1	P980SUTA0230	●
2.40	0/-0.014	2.4	14	46	1	P980SUTA0240	●
2.50	0/-0.014	2.5	14	46	1	P980SUTA0250	●
2.60	0/-0.014	2.6	14	46	1	P980SUTA0260	●
2.70	0/-0.014	2.7	16	48	1	P980SUTA0270	●
2.80	0/-0.014	2.8	16	48	1	P980SUTA0280	●
2.90	0/-0.014	2.9	16	48	1	P980SUTA0290	●
3.00	0/-0.014	3	16	48	1	P980SUTA0300	●
3.10	0/-0.018	3.1	18	50	1	P980SUTA0310	●
3.20	0/-0.018	3.2	18	50	1	P980SUTA0320	●
3.30	0/-0.018	3.3	18	50	1	P980SUTA0330	●
3.40	0/-0.018	3.4	20	52	1	P980SUTA0340	●
3.50	0/-0.018	3.5	20	52	1	P980SUTA0350	●
3.60	0/-0.018	3.6	20	52	1	P980SUTA0360	●
3.70	0/-0.018	3.7	20	52	1	P980SUTA0370	●
3.80	0/-0.018	3.8	22	54	1	P980SUTA0380	●
3.90	0/-0.018	3.9	22	54	1	P980SUTA0390	●
4.00	0/-0.018	4	22	54	1	P980SUTA0400	●
4.10	0/-0.018	4.1	22	66	1	P980SUTA0410	●
4.20	0/-0.018	4.2	22	66	1	P980SUTA0420	●
4.30	0/-0.018	4.3	24	68	1	P980SUTA0430	●
4.40	0/-0.018	4.4	24	68	1	P980SUTA0440	●
4.50	0/-0.018	4.5	24	68	1	P980SUTA0450	●
4.60	0/-0.018	4.6	24	68	1	P980SUTA0460	●
4.70	0/-0.018	4.7	24	68	1	P980SUTA0470	●
4.80	0/-0.018	4.8	26	70	1	P980SUTA0480	●
4.90	0/-0.018	4.9	26	70	1	P980SUTA0490	●
5.00	0/-0.018	5	26	70	1	P980SUTA0500	●
5.10	0/-0.018	5.1	26	70	1	P980SUTA0510	●
5.20	0/-0.018	5.2	26	70	1	P980SUTA0520	●
5.30	0/-0.018	5.3	26	70	1	P980SUTA0530	●
5.40	0/-0.018	5.4	28	72	1	P980SUTA0540	●
5.50	0/-0.018	5.5	28	72	1	P980SUTA0550	●
5.60	0/-0.018	5.6	28	72	1	P980SUTA0560	●
5.70	0/-0.018	5.7	28	72	1	P980SUTA0570	●
5.80	0/-0.018	5.8	28	72	1	P980SUTA0580	●

HSS DRILLS
LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS
G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

980SUTA

self centering, stainless steel, extra-short



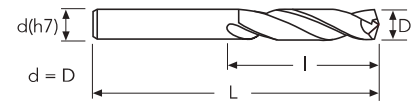
INFO

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

980SUTA

self centering, stainless steel, extra-short



CARBIDE DRILLS

PU-HPU
TA-4HTA

SUH

ALH

HRC

SUH MINI

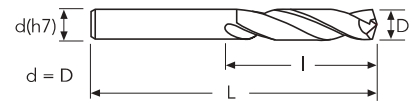
HL

HSD

C-SD-TA

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable



HSS DRILLS

LFTA

SUTA

HSS-HSS/CO

CARBIDE END-MILLS

G2

MDTA

HFVH/UP

MEF

ALU

MEX/MH

UH/MH

HSS END-MILLS

CARBIDE BURRS

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

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

980SUTA

Material Group ISO 513	P1 P2	P7	M1	M2	N1 N2 N4	N3	S1 S2	S4
Hardness/Rm	500÷700 N/mm ²	400÷700 N/mm ²					<30 HRC	
Vc (m/min)	35÷45	18÷22	18÷22	12÷16	60÷80	30÷40	8÷12	12÷16
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
2	0.060	0.060	0.060	0.042	0.066	0.051	0.024	0.042
3	0.080	0.080	0.080	0.056	0.088	0.068	0.032	0.056
4	0.100	0.100	0.100	0.070	0.120	0.085	0.040	0.070
5	0.120	0.120	0.120	0.084	0.144	0.102	0.060	0.084
6	0.140	0.140	0.140	0.098	0.182	0.119	0.070	0.098
7	0.160	0.160	0.160	0.112	0.208	0.136	0.096	0.128
8	0.180	0.180	0.180	0.126	0.252	0.153	0.108	0.144
9	0.200	0.200	0.200	0.140	0.280	0.170	0.120	0.160
10	0.230	0.230	0.230	0.161	0.322	0.196	0.138	0.184
11	0.260	0.260	0.260	0.169	0.364	0.221	0.156	0.208
12	0.300	0.300	0.300	0.195	0.420	0.255	0.180	0.240
13	0.340	0.340	0.340	0.221	0.476	0.289	0.204	0.272
14	0.360	0.360	0.360	0.234	0.504	0.306	0.216	0.288
15	0.380	0.380	0.380	0.247	0.532	0.323	0.228	0.304
16	0.400	0.400	0.400	0.260	0.560	0.340	0.240	0.320
17	0.425	0.425	0.425	0.276	0.595	0.361	0.255	0.340
18	0.450	0.450	0.450	0.293	0.630	0.383	0.270	0.360
19	0.460	0.460	0.460	0.299	0.644	0.391	0.276	0.368
20	0.470	0.470	0.470	0.306	0.658	0.400	0.282	0.376

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

990SUTA

self centering, stainless steel, short

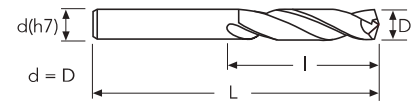


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
2.10	0/-0.014	2.1	24	56	1	P990SUTA0210	●
2.20	0/-0.014	2.2	27	59	1	P990SUTA0220	●
2.30	0/-0.014	2.3	27	59	1	P990SUTA0230	●
2.40	0/-0.014	2.4	30	62	1	P990SUTA0240	●
2.50	0/-0.014	2.5	30	62	1	P990SUTA0250	●
2.60	0/-0.014	2.6	30	62	1	P990SUTA0260	●
2.70	0/-0.014	2.7	33	65	1	P990SUTA0270	●
2.80	0/-0.014	2.8	33	65	1	P990SUTA0280	●
2.90	0/-0.014	2.9	33	65	1	P990SUTA0290	●
3.00	0/-0.014	3	33	65	1	P990SUTA0300	●
3.10	0/-0.018	3.1	36	68	1	P990SUTA0310	●
3.20	0/-0.018	3.2	36	68	1	P990SUTA0320	●
3.30	0/-0.018	3.3	36	68	1	P990SUTA0330	●
3.40	0/-0.018	3.4	39	71	1	P990SUTA0340	●
3.50	0/-0.018	3.5	39	71	1	P990SUTA0350	●
3.60	0/-0.018	3.6	39	71	1	P990SUTA0360	●
3.70	0/-0.018	3.7	39	71	1	P990SUTA0370	●
3.80	0/-0.018	3.8	43	75	1	P990SUTA0380	●
3.90	0/-0.018	3.9	43	75	1	P990SUTA0390	●
4.00	0/-0.018	4	43	75	1	P990SUTA0400	●
4.10	0/-0.018	4.1	43	87	1	P990SUTA0410	●
4.20	0/-0.018	4.2	43	87	1	P990SUTA0420	●
4.30	0/-0.018	4.3	47	91	1	P990SUTA0430	●
4.40	0/-0.018	4.4	47	91	1	P990SUTA0440	●
4.50	0/-0.018	4.5	47	91	1	P990SUTA0450	●
4.60	0/-0.018	4.6	47	91	1	P990SUTA0460	●
4.70	0/-0.018	4.7	47	91	1	P990SUTA0470	●
4.80	0/-0.018	4.8	52	96	1	P990SUTA0480	●
4.90	0/-0.018	4.9	52	96	1	P990SUTA0490	●
5.00	0/-0.018	5	52	96	1	P990SUTA0500	●
5.10	0/-0.018	5.1	52	96	1	P990SUTA0510	●
5.20	0/-0.018	5.2	52	96	1	P990SUTA0520	●
5.30	0/-0.018	5.3	52	96	1	P990SUTA0530	●
5.40	0/-0.018	5.4	57	101	1	P990SUTA0540	●
5.50	0/-0.018	5.5	57	101	1	P990SUTA0550	●
5.60	0/-0.018	5.6	57	101	1	P990SUTA0560	●
5.70	0/-0.018	5.7	57	101	1	P990SUTA0570	●
5.80	0/-0.018	5.8	57	101	1	P990SUTA0580	●

HSS DRILLS
LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS
G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

990SUTA

self centering, stainless steel, short



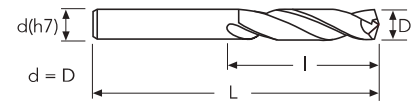
INFO

P	M	K	N	S	H
★	★		★	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

990SUTA

self centering, stainless steel, short

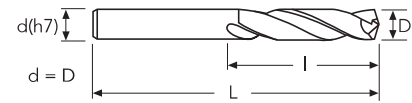


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	★	★	★	☆	☆

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA**
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

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

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

990SUTA

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

Material Group ISO 513	P1 P2	P7	M1	M2	N1 N2 N4	N3	S1 S2	S4
Hardness/Rm	500÷700 N/mm ²	400÷700 N/mm ²					<30 HRC	
Vc (m/min)	35÷45	18÷22	18÷22	12÷16	60÷80	30÷40	8÷12	12÷16
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
2	0.057	0.057	0.057	0.040	0.063	0.048	0.023	0.040
3	0.076	0.076	0.076	0.053	0.084	0.065	0.030	0.053
4	0.095	0.095	0.095	0.067	0.105	0.081	0.038	0.067
5	0.114	0.114	0.114	0.080	0.125	0.097	0.057	0.080
6	0.133	0.133	0.133	0.093	0.146	0.113	0.067	0.093
7	0.152	0.152	0.152	0.106	0.167	0.129	0.091	0.122
8	0.171	0.171	0.171	0.120	0.188	0.145	0.103	0.137
9	0.190	0.190	0.190	0.133	0.209	0.162	0.114	0.152
10	0.219	0.219	0.219	0.153	0.240	0.186	0.131	0.175
11	0.247	0.247	0.247	0.161	0.272	0.210	0.148	0.198
12	0.285	0.285	0.285	0.185	0.314	0.242	0.171	0.228
13	0.323	0.323	0.323	0.203	0.355	0.275	0.194	0.258
14	0.342	0.342	0.342	0.215	0.376	0.291	0.205	0.274
15	0.361	0.361	0.361	0.217	0.397	0.307	0.217	0.289
16	0.380	0.380	0.380	0.228	0.418	0.323	0.228	0.304
17	0.404	0.404	0.404	0.242	0.444	0.343	0.242	0.323
18	0.428	0.428	0.428	0.257	0.470	0.363	0.257	0.342
19	0.437	0.437	0.437	0.262	0.481	0.371	0.262	0.350
20	0.447	0.447	0.447	0.268	0.491	0.380	0.268	0.357



INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

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.

INFO

118N

N type for general purpose, extra-short



* $\varnothing 2\text{ mm}$ = BR

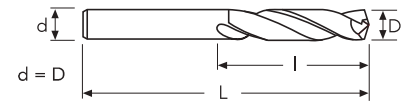


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
1.10	0/-0.014	1.1	7	28	10	P118NB0110	●
1.20	0/-0.014	1.2	8	30	10	P118NB0120	●
1.25	0/-0.014	1.25	8	30	10	P118NB0125	●
1.30	0/-0.014	1.3	8	30	10	P118NB0130	●
1.40	0/-0.014	1.4	9	32	10	P118NB0140	●
1.50	0/-0.014	1.5	9	32	10	P118NB0150	●
1.60	0/-0.014	1.6	10	34	10	P118NB0160	●
1.70	0/-0.014	1.7	10	34	10	P118NB0170	●
1.75	0/-0.014	1.75	11	36	10	P118NB0175	●
1.80	0/-0.014	1.8	11	36	10	P118NB0180	●
1.90	0/-0.014	1.9	11	36	10	P118NB0190	●
2.00	0/-0.014	2	12	38	10	P118N0200	●
2.10	0/-0.014	2.1	12	38	10	P118N0210	●
2.20	0/-0.014	2.2	13	40	10	P118N0220	●
2.25	0/-0.014	2.25	13	40	10	P118N0225	●
2.30	0/-0.014	2.3	13	40	10	P118N0230	●
2.40	0/-0.014	2.4	14	43	10	P118N0240	●
2.50	0/-0.014	2.5	14	43	10	P118N0250	●
2.60	0/-0.014	2.6	14	43	10	P118N0260	●
2.70	0/-0.014	2.7	16	46	10	P118N0270	●
2.75	0/-0.014	2.75	16	46	10	P118N0275	●
2.80	0/-0.014	2.8	16	46	10	P118N0280	●
2.90	0/-0.014	2.9	16	46	10	P118N0290	●
3.00	0/-0.014	3	16	46	10	P118N0300	●
3.10	0/-0.018	3.1	18	49	10	P118N0310	●
3.20	0/-0.018	3.2	18	49	10	P118N0320	●
3.25	0/-0.018	3.25	18	49	10	P118N0325	●
3.30	0/-0.018	3.3	18	49	10	P118N0330	●
3.40	0/-0.018	3.4	20	52	10	P118N0340	●
3.50	0/-0.018	3.5	20	52	10	P118N0350	●
3.60	0/-0.018	3.6	20	52	10	P118N0360	●
3.70	0/-0.018	3.7	20	52	10	P118N0370	●
3.75	0/-0.018	3.75	20	52	10	P118N0375	●
3.80	0/-0.018	3.8	22	55	10	P118N0380	●
3.90	0/-0.018	3.9	22	55	10	P118N0390	●
4.00	0/-0.018	4	22	55	10	P118N0400	●
4.10	0/-0.018	4.1	22	55	10	P118N0410	●
4.20	0/-0.018	4.2	22	55	10	P118N0420	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

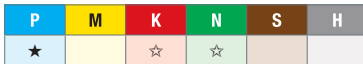
● stock standard ○ non-standard stock ▽ stock exhaustion

118N

N type for general purpose, extra-short



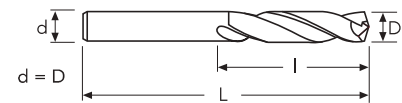
INFO



★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

118N

N type for general purpose, extra-short

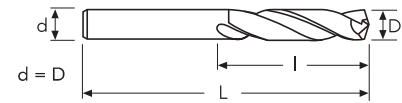


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
7.60	0/-0.022	7.6	37	79	5	P118N0760	●
7.70	0/-0.022	7.7	37	79	5	P118N0770	○
7.75	0/-0.022	7.75	37	79	5	P118N0775	●
7.80	0/-0.022	7.8	37	79	5	P118N0780	●
7.90	0/-0.022	7.9	37	79	5	P118N0790	○
8.00	0/-0.022	8	37	79	5	P118N0800	●
8.10	0/-0.022	8.1	37	79	5	P118N0810	●
8.20	0/-0.022	8.2	37	79	5	P118N0820	●
8.25	0/-0.022	8.25	37	79	5	P118N0825	●
8.30	0/-0.022	8.3	37	79	5	P118N0830	○
8.40	0/-0.022	8.4	37	79	5	P118N0840	○
8.50	0/-0.022	8.5	37	79	5	P118N0850	●
8.60	0/-0.022	8.6	40	84	5	P118N0860	●
8.70	0/-0.022	8.7	40	84	5	P118N0870	○
8.75	0/-0.022	8.75	40	84	5	P118N0875	●
8.80	0/-0.022	8.8	40	84	5	P118N0880	○
8.90	0/-0.022	8.9	40	84	5	P118N0890	●
9.00	0/-0.022	9	40	84	5	P118N0900	●
9.10	0/-0.022	9.1	40	84	5	P118N0910	●
9.20	0/-0.022	9.2	40	84	5	P118N0920	○
9.25	0/-0.022	9.25	40	84	5	P118N0925	○
9.30	0/-0.022	9.3	40	84	5	P118N0930	○
9.40	0/-0.022	9.4	40	84	5	P118N0940	○
9.50	0/-0.022	9.5	40	84	5	P118N0950	●
9.60	0/-0.022	9.6	43	89	5	P118N0960	○
9.70	0/-0.022	9.7	43	89	5	P118N0970	○
9.75	0/-0.022	9.75	43	89	5	P118N0975	○
9.80	0/-0.022	9.8	43	89	5	P118N0980	○
9.90	0/-0.022	9.9	43	89	5	P118N0990	○
10.00	0/-0.022	10	43	89	5	P118N1000	●
10.25	0/-0.027	10.25	43	89	5	P118N1025	●
10.50	0/-0.027	10.5	43	89	5	P118N1050	●
10.75	0/-0.027	10.75	47	95	5	P118N1075	●
11.00	0/-0.027	11	47	95	5	P118N1100	●
11.25	0/-0.027	11.25	47	95	5	P118N1125	●
11.50	0/-0.027	11.5	47	95	5	P118N1150	●
11.75	0/-0.027	11.75	47	95	5	P118N1175	●
12.00	0/-0.027	12	51	102	5	P118N1200	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

118N

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA

HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

Material Group ISO 513	P1 P2	P3 P4	K1 K2	N1 N5	N2 N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	25÷35	20÷30	25÷35	50÷70	40÷60	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.017	0.014	0.019	0.024	0.017	
1.5	0.035	0.030	0.039	0.049	0.035	
2	0.050	0.043	0.055	0.070	0.050	
2.5	0.070	0.060	0.077	0.098	0.070	
3	0.080	0.068	0.088	0.112	0.080	
3.5	0.090	0.077	0.099	0.126	0.090	
4	0.100	0.085	0.110	0.140	0.100	
5	0.110	0.094	0.121	0.154	0.110	
6	0.120	0.102	0.132	0.168	0.120	
7	0.130	0.111	0.143	0.182	0.130	
8	0.140	0.119	0.154	0.196	0.140	
9	0.160	0.136	0.176	0.224	0.160	
10	0.170	0.145	0.187	0.238	0.170	
11	0.180	0.153	0.198	0.252	0.180	
12	0.190	0.162	0.209	0.266	0.190	
13	0.200	0.170	0.220	0.280	0.200	
14	0.210	0.179	0.231	0.294	0.210	
15	0.220	0.187	0.242	0.308	0.220	
16	0.240	0.204	0.264	0.336	0.240	

218NVA

NVA type for tough materials, extra-short



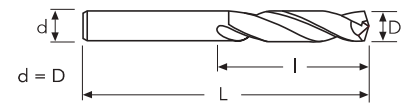
INFO

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
1.10	0/-0.014	1.1	7	28	10	P218NVA0110	○
1.20	0/-0.014	1.2	8	30	10	P218NVA0120	●
1.30	0/-0.014	1.3	8	30	10	P218NVA0130	●
1.40	0/-0.014	1.4	9	32	10	P218NVA0140	○
1.50	0/-0.014	1.5	9	32	10	P218NVA0150	●
1.60	0/-0.014	1.6	10	34	10	P218NVA0160	●
1.70	0/-0.014	1.7	10	34	10	P218NVA0170	○
1.80	0/-0.014	1.8	11	36	10	P218NVA0180	○
1.90	0/-0.014	1.9	11	36	10	P218NVA0190	●
2.00	0/-0.014	2	12	38	10	P218NVA0200	●
2.10	0/-0.014	2.1	12	38	10	P218NVA0210	●
2.20	0/-0.014	2.2	13	40	10	P218NVA0220	○
2.30	0/-0.014	2.3	13	40	10	P218NVA0230	●
2.40	0/-0.014	2.4	14	43	10	P218NVA0240	●
2.50	0/-0.014	2.5	14	43	10	P218NVA0250	●
2.60	0/-0.014	2.6	14	43	10	P218NVA0260	●
2.70	0/-0.014	2.7	16	46	10	P218NVA0270	○
2.80	0/-0.014	2.8	16	46	10	P218NVA0280	●
2.90	0/-0.014	2.9	16	46	10	P218NVA0290	○
3.00	0/-0.014	3	16	46	10	P218NVA0300	●
3.10	0/-0.018	3.1	18	49	10	P218NVA0310	○
3.20	0/-0.018	3.2	18	49	10	P218NVA0320	●
3.30	0/-0.018	3.3	18	49	10	P218NVA0330	●
3.40	0/-0.018	3.4	20	52	10	P218NVA0340	●
3.50	0/-0.018	3.5	20	52	10	P218NVA0350	●
3.60	0/-0.018	3.6	20	52	10	P218NVA0360	○
3.70	0/-0.018	3.7	20	52	10	P218NVA0370	●
3.80	0/-0.018	3.8	22	55	10	P218NVA0380	●
3.90	0/-0.018	3.9	22	55	10	P218NVA0390	○
4.00	0/-0.018	4	22	55	10	P218NVA0400	●
4.10	0/-0.018	4.1	22	55	10	P218NVA0410	●
4.20	0/-0.018	4.2	22	55	10	P218NVA0420	●
4.30	0/-0.018	4.3	24	58	10	P218NVA0430	●
4.40	0/-0.018	4.4	24	58	10	P218NVA0440	○
4.50	0/-0.018	4.5	24	58	10	P218NVA0450	●
4.60	0/-0.018	4.6	24	58	10	P218NVA0460	●
4.70	0/-0.018	4.7	24	58	10	P218NVA0470	○
4.80	0/-0.018	4.8	26	62	10	P218NVA0480	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

218NVA

NVA type for tough materials, extra-short

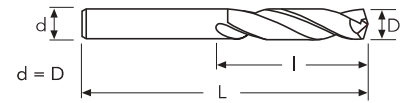


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	○
5.00	0/-0.018	5	26	62	10	P218NVA0500	●
5.10	0/-0.018	5.1	26	62	10	P218NVA0510	●
5.20	0/-0.018	5.2	26	62	10	P218NVA0520	●
5.30	0/-0.018	5.3	26	62	10	P218NVA0530	○
5.40	0/-0.018	5.4	28	66	10	P218NVA0540	○
5.50	0/-0.018	5.5	28	66	10	P218NVA0550	●
5.60	0/-0.018	5.6	28	66	10	P218NVA0560	●
5.70	0/-0.018	5.7	28	66	10	P218NVA0570	○
5.80	0/-0.018	5.8	28	66	10	P218NVA0580	○
5.90	0/-0.018	5.9	28	66	10	P218NVA0590	○
6.00	0/-0.018	6	28	66	10	P218NVA0600	●
6.10	0/-0.022	6.1	31	70	10	P218NVA0610	○
6.20	0/-0.022	6.2	31	70	10	P218NVA0620	○
6.30	0/-0.022	6.3	31	70	10	P218NVA0630	○
6.40	0/-0.022	6.4	31	70	10	P218NVA0640	○
6.50	0/-0.022	6.5	31	70	10	P218NVA0650	●
6.60	0/-0.022	6.6	31	70	5	P218NVA0660	○
6.70	0/-0.022	6.7	31	70	5	P218NVA0670	●
6.80	0/-0.022	6.8	34	74	5	P218NVA0680	●
6.90	0/-0.022	6.9	34	74	5	P218NVA0690	●
7.00	0/-0.022	7	34	74	5	P218NVA0700	●
7.10	0/-0.022	7.1	34	74	5	P218NVA0710	○
7.20	0/-0.022	7.2	34	74	5	P218NVA0720	○
7.30	0/-0.022	7.3	34	74	5	P218NVA0730	○
7.40	0/-0.022	7.4	34	74	5	P218NVA0740	○
7.50	0/-0.022	7.5	34	74	5	P218NVA0750	●
7.60	0/-0.022	7.6	37	79	5	P218NVA0760	○
7.70	0/-0.022	7.7	37	79	5	P218NVA0770	○
7.80	0/-0.022	7.8	37	79	5	P218NVA0780	●
7.90	0/-0.022	7.9	37	79	5	P218NVA0790	○
8.00	0/-0.022	8	37	79	5	P218NVA0800	●
8.10	0/-0.022	8.1	37	79	5	P218NVA0810	○
8.20	0/-0.022	8.2	37	79	5	P218NVA0820	●
8.30	0/-0.022	8.3	37	79	5	P218NVA0830	●
8.40	0/-0.022	8.4	37	79	5	P218NVA0840	○
8.50	0/-0.022	8.5	37	79	5	P218NVA0850	●
8.60	0/-0.022	8.6	40	84	5	P218NVA0860	●
8.70	0/-0.022	8.7	40	84	5	P218NVA0870	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

218NVA

NVA type for tough materials, extra-short



INFO

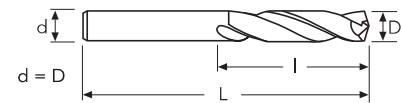


P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

218NVA

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA

HSS-HSS/CO

Material Group ISO 513	P1 P2	P3 P4	P7	M1 M2	M3	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²				
Vc (m/min)	25+35	20+30	12+18	12+18	8+12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.017	0.014	0.012	0.012	0.009	
1.5	0.035	0.030	0.025	0.025	0.018	
2	0.050	0.043	0.035	0.035	0.025	
2.5	0.070	0.060	0.049	0.049	0.035	
3	0.080	0.068	0.056	0.056	0.040	
3.5	0.090	0.077	0.063	0.063	0.045	
4	0.100	0.085	0.070	0.070	0.050	
5	0.110	0.094	0.077	0.077	0.055	
6	0.120	0.102	0.084	0.084	0.060	
7	0.130	0.111	0.091	0.091	0.065	
8	0.140	0.119	0.098	0.098	0.070	
9	0.160	0.136	0.112	0.112	0.080	
10	0.170	0.145	0.119	0.119	0.085	
11	0.180	0.153	0.126	0.126	0.090	
12	0.190	0.162	0.133	0.133	0.095	
13	0.200	0.170	0.140	0.140	0.100	
14	0.210	0.179	0.147	0.147	0.105	
15	0.220	0.187	0.154	0.154	0.110	
16	0.240	0.204	0.168	0.168	0.120	
17	0.260	0.221	0.182	0.182	0.130	
18	0.280	0.238	0.196	0.196	0.140	
19	0.300	0.255	0.210	0.210	0.150	
20	0.320	0.272	0.224	0.224	0.160	

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

Material Group ISO 513	K1	K3	N1 N5	N2 N3 N4	S1 S2 S4	
Hardness/Rm	150÷350 HB	<350 HB				<35 HRC
Vc (m/min)	25+35	20+30	50+70	40+60	8+12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.019	0.013	0.024	0.017	0.007	
1.5	0.039	0.026	0.049	0.035	0.014	
2	0.055	0.038	0.070	0.050	0.020	
2.5	0.077	0.053	0.098	0.070	0.028	
3	0.088	0.060	0.112	0.080	0.032	
3.5	0.099	0.068	0.126	0.090	0.036	
4	0.110	0.075	0.140	0.100	0.040	
5	0.121	0.083	0.154	0.110	0.044	
6	0.132	0.090	0.168	0.120	0.048	
7	0.143	0.098	0.182	0.130	0.052	
8	0.154	0.105	0.196	0.140	0.056	
9	0.176	0.120	0.224	0.160	0.064	
10	0.187	0.128	0.238	0.170	0.068	
11	0.198	0.135	0.252	0.180	0.072	
12	0.209	0.143	0.266	0.190	0.076	
13	0.220	0.150	0.280	0.200	0.080	
14	0.231	0.158	0.294	0.210	0.084	
15	0.242	0.165	0.308	0.220	0.088	
16	0.264	0.180	0.336	0.240	0.096	
17	0.286	0.195	0.364	0.260	0.104	
18	0.308	0.210	0.392	0.280	0.112	
19	0.330	0.225	0.420	0.300	0.120	
20	0.352	0.240	0.448	0.320	0.128	

1386STI

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



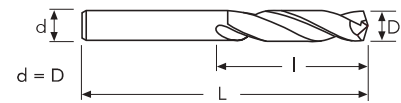
INFO

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

1386STI

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

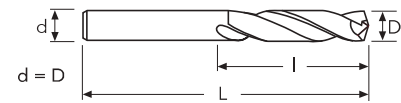


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	●
5.00	0/-0.018	5	52	86	10	P1386STI0500	●
5.10	0/-0.018	5.1	52	86	10	P1386STI0510	●
5.20	0/-0.018	5.2	52	86	10	P1386STI0520	●
5.30	0/-0.018	5.3	52	86	10	P1386STI0530	●
5.40	0/-0.018	5.4	57	93	10	P1386STI0540	●
5.50	0/-0.018	5.5	57	93	10	P1386STI0550	●
5.60	0/-0.018	5.6	57	93	10	P1386STI0560	●
5.70	0/-0.018	5.7	57	93	10	P1386STI0570	●
5.80	0/-0.018	5.8	57	93	10	P1386STI0580	●
5.90	0/-0.018	5.9	57	93	10	P1386STI0590	●
6.00	0/-0.018	6	57	93	10	P1386STI0600	●
6.10	0/-0.022	6.1	63	101	10	P1386STI0610	●
6.20	0/-0.022	6.2	63	101	10	P1386STI0620	●
6.30	0/-0.022	6.3	63	101	10	P1386STI0630	●
6.40	0/-0.022	6.4	63	101	10	P1386STI0640	●
6.50	0/-0.022	6.5	63	101	10	P1386STI0650	●
6.60	0/-0.022	6.6	63	101	5	P1386STI0660	●
6.70	0/-0.022	6.7	63	101	5	P1386STI0670	●
6.80	0/-0.022	6.8	69	109	5	P1386STI0680	●
6.90	0/-0.022	6.9	69	109	5	P1386STI0690	●
7.00	0/-0.022	7	69	109	5	P1386STI0700	●
7.10	0/-0.022	7.1	69	109	5	P1386STI0710	●
7.20	0/-0.022	7.2	69	109	5	P1386STI0720	●
7.30	0/-0.022	7.3	69	109	5	P1386STI0730	●
7.40	0/-0.022	7.4	69	109	5	P1386STI0740	●
7.50	0/-0.022	7.5	69	109	5	P1386STI0750	●
7.60	0/-0.022	7.6	75	117	5	P1386STI0760	●
7.70	0/-0.022	7.7	75	117	5	P1386STI0770	●
7.80	0/-0.022	7.8	75	117	5	P1386STI0780	●
7.90	0/-0.022	7.9	75	117	5	P1386STI0790	●
8.00	0/-0.022	8	75	117	5	P1386STI0800	●
8.10	0/-0.022	8.1	75	117	5	P1386STI0810	●
8.20	0/-0.022	8.2	75	117	5	P1386STI0820	●
8.30	0/-0.022	8.3	75	117	5	P1386STI0830	●
8.40	0/-0.022	8.4	75	117	5	P1386STI0840	●
8.50	0/-0.022	8.5	75	117	5	P1386STI0850	●
8.60	0/-0.022	8.6	81	125	5	P1386STI0860	●
8.70	0/-0.022	8.7	81	125	5	P1386STI0870	●

HSS DRILLS
LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

1386STI

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



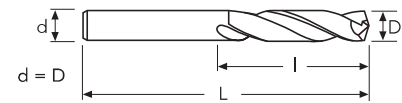
INFO

P	M	K	N	S	H
★	☆	★	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

1386STI

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	N1 N5	N2 N3 N4	S1 S2 S4
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB			<35 HRC
Vc (m/min)	30÷40	25÷35	15÷25	15÷25	30÷40	60÷80	50÷70	12÷18
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
1	0.017	0.014	0.012	0.012	0.019	0.024	0.017	0.007
1.5	0.035	0.030	0.025	0.025	0.039	0.049	0.035	0.014
2	0.050	0.043	0.035	0.035	0.055	0.070	0.050	0.020
2.5	0.075	0.064	0.053	0.053	0.083	0.105	0.075	0.030
3	0.090	0.077	0.063	0.063	0.099	0.126	0.090	0.036
3.5	0.105	0.089	0.074	0.074	0.116	0.147	0.105	0.042
4	0.110	0.094	0.077	0.077	0.121	0.154	0.110	0.044
5	0.125	0.106	0.088	0.088	0.138	0.175	0.125	0.050
6	0.160	0.136	0.112	0.112	0.176	0.224	0.160	0.064
7	0.175	0.149	0.123	0.123	0.193	0.245	0.175	0.070
8	0.200	0.170	0.140	0.140	0.220	0.280	0.200	0.080
9	0.210	0.179	0.147	0.147	0.231	0.294	0.210	0.084
10	0.220	0.187	0.154	0.154	0.242	0.308	0.220	0.088
11	0.235	0.200	0.165	0.165	0.259	0.329	0.235	0.094
12	0.250	0.213	0.175	0.175	0.275	0.350	0.250	0.100
13	0.265	0.225	0.186	0.186	0.292	0.371	0.265	0.106

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

138N-138NTI

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



138N 138NTI
* < Ø2 mm = BR

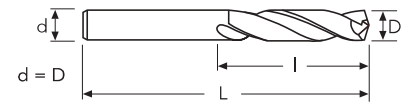


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



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

● stock standard ○ non-standard stock ▽ 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

INFO



138N

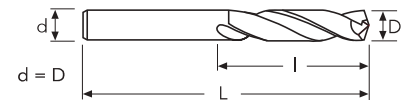


138NTI

138NTI will be gradually replaced by 1386STI (page 233)

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

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

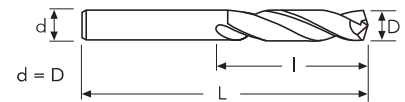
138NTI will be gradually replaced by 1386STI (page 233)

CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



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

HSS
DRILLS

CARBIDE
END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ 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

INFO



138N

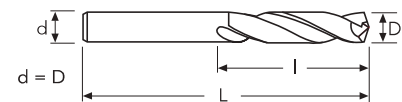


138NTI

138NTI will be gradually replaced by 1386STI (page 233)

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

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		



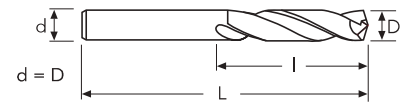
138NTI will be gradually replaced by 1386STI (page 239)

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



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

● stock standard ○ non-standard stock ▽ 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

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

CUTTING PARAMETERS

INFO

138N

Material Group ISO 513	P1 P2	P3 P4	K1 K2	N1 N5	N2 N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	25÷35	20÷30	25÷35	50÷70	40÷60	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
0.2	0.007	0.006	0.008	0.010	0.007	
0.5	0.011	0.009	0.012	0.015	0.011	
0.8	0.013	0.011	0.014	0.018	0.013	
1	0.017	0.014	0.019	0.024	0.017	
1.5	0.035	0.030	0.039	0.049	0.035	
2	0.050	0.043	0.055	0.070	0.050	
2.5	0.060	0.051	0.066	0.084	0.060	
3	0.070	0.060	0.077	0.098	0.070	
3.5	0.080	0.068	0.088	0.112	0.080	
4	0.090	0.077	0.099	0.126	0.090	
5	0.100	0.085	0.110	0.140	0.100	
6	0.110	0.094	0.121	0.154	0.110	
7	0.120	0.102	0.132	0.168	0.120	
8	0.130	0.111	0.143	0.182	0.130	
9	0.140	0.119	0.154	0.196	0.140	
10	0.160	0.136	0.176	0.224	0.160	
11	0.170	0.145	0.187	0.238	0.170	
12	0.180	0.153	0.198	0.252	0.180	
13	0.190	0.162	0.209	0.266	0.190	
14	0.200	0.170	0.220	0.280	0.200	
15	0.210	0.179	0.231	0.294	0.210	
16	0.220	0.187	0.242	0.308	0.220	
17	0.230	0.196	0.253	0.322	0.230	
18	0.240	0.204	0.264	0.336	0.240	
19	0.250	0.213	0.275	0.350	0.250	
20	0.260	0.221	0.286	0.364	0.260	

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

138NTI

Material Group ISO 513	P1 P2	P3 P4	K1 K2	N1 N5	N2 N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	30÷40	25÷35	30÷40	60÷80	50÷70	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.017	0.014	0.019	0.024	0.017	
1.5	0.035	0.030	0.039	0.049	0.035	
2	0.050	0.043	0.055	0.070	0.050	
2.5	0.060	0.051	0.066	0.084	0.060	
3	0.070	0.060	0.077	0.098	0.070	
3.5	0.080	0.068	0.088	0.112	0.080	
4	0.090	0.077	0.099	0.126	0.090	
5	0.100	0.085	0.110	0.140	0.100	
6	0.110	0.094	0.121	0.154	0.110	
7	0.120	0.102	0.132	0.168	0.120	
8	0.130	0.111	0.143	0.182	0.130	
9	0.140	0.119	0.154	0.196	0.140	
10	0.160	0.136	0.176	0.224	0.160	
11	0.170	0.145	0.187	0.238	0.170	
12	0.180	0.153	0.198	0.252	0.180	
13	0.190	0.162	0.209	0.266	0.190	
14	0.200	0.170	0.220	0.280	0.200	
15	0.210	0.179	0.231	0.294	0.210	
16	0.220	0.187	0.242	0.308	0.220	

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

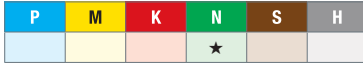
138HB

HB type for brass, short

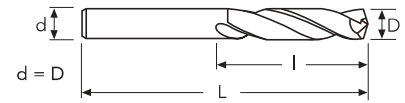


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



★ 1st choice ☆ suitable



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

HSS DRILLS
LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS
G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

138HB

HB type for brass, short



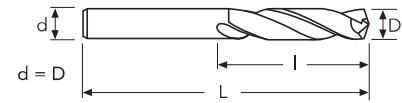
INFO



★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

138HB

	Material Group ISO 513	N4					
	Hardness/Rm						
	Vc (m/min)	40÷60					
	D (mm)	fn (mm/rev)					
	1.5	0.065					
	2	0.080					
	2.5	0.090					
	3	0.100					
	3.5	0.110					
	4	0.120					
	4.5	0.130					
	5	0.140					
	6	0.160					
	7	0.180					
8	0.200						
9	0.220						
10	0.250						

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

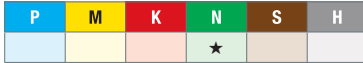
138WB

WB type for aluminium, short

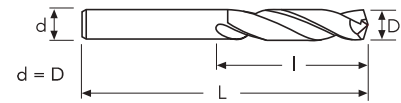


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



★ 1st choice ☆ suitable



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

HSS DRILLS
LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS
G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

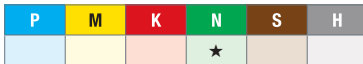
● stock standard ○ non-standard stock ▽ stock exhaustion

138WB

WB type for aluminium, short



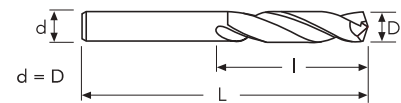
INFO



★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

138WB

WB type for aluminium, short

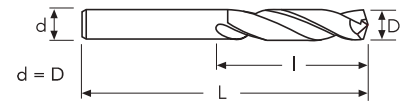


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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	○
9.40	0/-0.022	9.4	81	125	5	P138WB0940	○
9.50	0/-0.022	9.5	81	125	5	P138WB0950	●
9.60	0/-0.022	9.6	87	133	5	P138WB0960	○
9.70	0/-0.022	9.7	87	133	5	P138WB0970	○
9.80	0/-0.022	9.8	87	133	5	P138WB0980	○
9.90	0/-0.022	9.9	87	133	5	P138WB0990	○
10.00	0/-0.022	10	87	133	5	P138WB1000	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

138WB

Material Group ISO 513	N1	N2	N3			
Hardness/Rm						
Vc (m/min)	40÷60	30÷50	25÷45			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
1.5	0.070	0.063	0.060			
2	0.080	0.072	0.068			
2.5	0.090	0.081	0.077			
3	0.100	0.090	0.085			
3.5	0.110	0.099	0.094			
4	0.120	0.108	0.102			
4.5	0.130	0.117	0.111			
5	0.140	0.126	0.119			
6	0.160	0.144	0.136			
7	0.180	0.162	0.153			
8	0.200	0.180	0.170			
9	0.220	0.198	0.187			
10	0.250	0.225	0.213			

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

2386STI

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

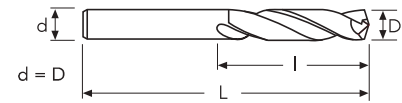


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

2386STI

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



DIN
338

SPLIT POINT

HSS/Co
TIN

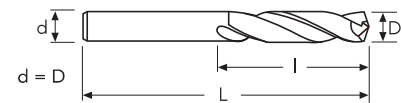
135°

33°

INFO

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

2386STI

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

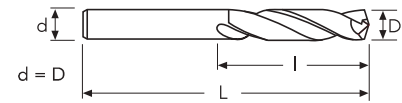


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	★	★	☆	☆	

★ 1st choice ☆ suitable



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

2386STI

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	M2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²				
Vc (m/min)	30÷40	25÷35	15÷25	15÷25	12÷18	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.017	0.014	0.012	0.012	0.009	
1.5	0.035	0.030	0.025	0.025	0.018	
2	0.050	0.043	0.035	0.035	0.025	
2.5	0.075	0.064	0.053	0.053	0.038	
3	0.090	0.077	0.063	0.063	0.045	
3.5	0.105	0.089	0.074	0.074	0.053	
4	0.110	0.094	0.077	0.077	0.055	
5	0.125	0.106	0.088	0.088	0.063	
6	0.160	0.136	0.112	0.112	0.080	
7	0.175	0.149	0.123	0.123	0.088	
8	0.200	0.170	0.140	0.140	0.100	
9	0.210	0.179	0.147	0.147	0.105	
10	0.220	0.187	0.154	0.154	0.110	
11	0.235	0.200	0.165	0.165	0.118	
12	0.250	0.213	0.175	0.175	0.125	
13	0.265	0.225	0.186	0.186	0.133	

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

Material Group ISO 513	K1 K2	K3 K4	N1 N5	N2 N3 N4	S1 S2 S4	
Hardness/Rm	150÷350 HB	<350 HB			<35 HRC	
Vc (m/min)	30÷40	25÷35	60÷80	50÷70	12÷18	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.019	0.013	0.024	0.017	0.007	
1.5	0.039	0.026	0.049	0.035	0.014	
2	0.055	0.038	0.070	0.050	0.020	
2.5	0.083	0.056	0.105	0.075	0.030	
3	0.099	0.068	0.126	0.090	0.036	
3.5	0.116	0.079	0.147	0.105	0.042	
4	0.121	0.083	0.154	0.110	0.044	
5	0.138	0.094	0.175	0.125	0.050	
6	0.176	0.120	0.224	0.160	0.064	
7	0.193	0.131	0.245	0.175	0.070	
8	0.220	0.150	0.280	0.200	0.080	
9	0.231	0.158	0.294	0.210	0.084	
10	0.242	0.165	0.308	0.220	0.088	
11	0.259	0.176	0.329	0.235	0.094	
12	0.275	0.188	0.350	0.250	0.100	
13	0.292	0.199	0.371	0.265	0.106	

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

238NVA

NVA type for tough materials, short



INFO

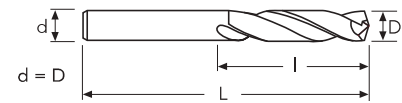


P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

238NVA

NVA type for tough materials, short

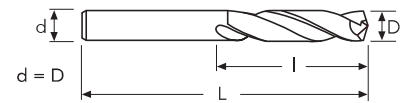


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	★	☆	☆	☆	☆

★ 1st choice ☆ suitable



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

238NVA

NVA type for tough materials, short



INFO

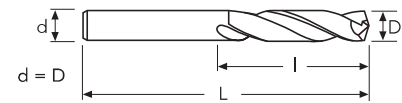


P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



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

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

238NVA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	M2 M3	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²				
Vc (m/min)	25÷35	20÷30	12÷18	12÷18	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.017	0.014	0.012	0.012	0.009	
1.5	0.035	0.030	0.025	0.025	0.018	
2	0.050	0.043	0.035	0.035	0.025	
2.5	0.060	0.051	0.042	0.042	0.030	
3	0.070	0.060	0.049	0.049	0.035	
3.5	0.080	0.068	0.056	0.056	0.040	
4	0.090	0.077	0.063	0.063	0.045	
5	0.100	0.085	0.070	0.070	0.050	
6	0.110	0.094	0.077	0.077	0.055	
7	0.120	0.102	0.084	0.084	0.060	
8	0.130	0.111	0.091	0.091	0.065	
9	0.140	0.119	0.098	0.098	0.070	
10	0.160	0.136	0.112	0.112	0.080	
11	0.170	0.145	0.119	0.119	0.085	
12	0.180	0.153	0.126	0.126	0.090	
13	0.190	0.162	0.133	0.133	0.095	
14	0.200	0.170	0.140	0.140	0.100	
15	0.210	0.179	0.147	0.147	0.105	
16	0.220	0.187	0.154	0.154	0.110	
17	0.230	0.196	0.161	0.161	0.115	
18	0.240	0.204	0.168	0.168	0.120	
19	0.250	0.213	0.175	0.175	0.125	
20	0.260	0.221	0.182	0.182	0.130	

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

Material Group ISO 513	K1 K2	K3 K4	N1 N5	N2 N3 N4	S1 S2 S4	
Hardness/Rm	150÷350 HB	<350 HB			<35 HRC	
Vc (m/min)	25÷35	20÷30	50÷70	40÷60	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
1	0.019	0.013	0.024	0.017	0.007	
1.5	0.039	0.026	0.049	0.035	0.014	
2	0.055	0.038	0.070	0.050	0.020	
2.5	0.066	0.045	0.084	0.060	0.024	
3	0.077	0.053	0.098	0.070	0.028	
3.5	0.088	0.060	0.112	0.080	0.032	
4	0.099	0.068	0.126	0.090	0.036	
5	0.110	0.075	0.140	0.100	0.040	
6	0.121	0.083	0.154	0.110	0.044	
7	0.132	0.090	0.168	0.120	0.048	
8	0.143	0.098	0.182	0.130	0.052	
9	0.154	0.105	0.196	0.140	0.056	
10	0.176	0.120	0.224	0.160	0.064	
11	0.187	0.128	0.238	0.170	0.068	
12	0.198	0.135	0.252	0.180	0.072	
13	0.209	0.143	0.266	0.190	0.076	
14	0.220	0.150	0.280	0.200	0.080	
15	0.231	0.158	0.294	0.210	0.084	
16	0.242	0.165	0.308	0.220	0.088	
17	0.253	0.173	0.322	0.230	0.092	
18	0.264	0.180	0.336	0.240	0.096	
19	0.275	0.188	0.350	0.250	0.100	
20	0.286	0.195	0.364	0.260	0.104	

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

234NVA

NVA type for tough materials, long



* $\varnothing 2\text{ mm}$ = HSS BR

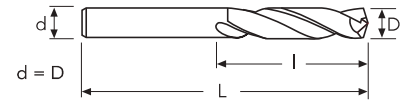


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	★	☆	☆	☆	☆

★ 1st choice ☆ suitable



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

234NVA

NVA type for tough materials, long



INFO

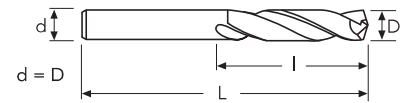


P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA



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

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

234NVA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	M2 M3	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²				
Vc (m/min)	20÷30	15÷25	12÷16	12÷16	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
0.5	0.008	0.007	0.006	0.006	0.004	
0.8	0.015	0.013	0.011	0.011	0.008	
1	0.020	0.017	0.014	0.014	0.010	
1.5	0.030	0.026	0.021	0.021	0.015	
2	0.040	0.034	0.028	0.028	0.020	
2.5	0.050	0.043	0.035	0.035	0.025	
3	0.060	0.051	0.042	0.042	0.030	
3.5	0.070	0.060	0.049	0.049	0.035	
4	0.080	0.068	0.056	0.056	0.040	
5	0.090	0.077	0.063	0.063	0.045	
6	0.100	0.085	0.070	0.070	0.050	
7	0.110	0.094	0.077	0.077	0.055	
8	0.120	0.102	0.084	0.084	0.060	
9	0.130	0.111	0.091	0.091	0.065	
10	0.140	0.119	0.098	0.098	0.070	
11	0.150	0.128	0.105	0.105	0.075	
12	0.160	0.136	0.112	0.112	0.080	

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

Material Group ISO 513	K1 K2	K3 K4	N1 N5	N2 N3 N4	S1 S2 S4	
Hardness/Rm	150÷350 HB	<350 HB			<35 HRC	
Vc (m/min)	20÷30	20÷30	40÷60	30÷50	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
0.5	0.009	0.006	0.011	0.008	0.003	
0.8	0.017	0.011	0.021	0.015	0.006	
1	0.022	0.015	0.028	0.020	0.008	
1.5	0.033	0.023	0.042	0.030	0.012	
2	0.044	0.030	0.056	0.040	0.016	
2.5	0.055	0.038	0.070	0.050	0.020	
3	0.066	0.045	0.084	0.060	0.024	
3.5	0.077	0.053	0.098	0.070	0.028	
4	0.088	0.060	0.112	0.080	0.032	
5	0.099	0.068	0.126	0.090	0.036	
6	0.110	0.075	0.140	0.100	0.040	
7	0.121	0.083	0.154	0.110	0.044	
8	0.132	0.090	0.168	0.120	0.048	
9	0.143	0.098	0.182	0.130	0.052	
10	0.154	0.105	0.196	0.140	0.056	
11	0.165	0.113	0.210	0.150	0.060	
12	0.176	0.120	0.224	0.160	0.064	

INFO

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



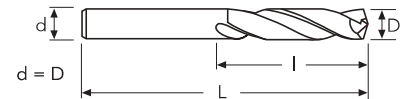
234LSTH

CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



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

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

234LS

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	20÷30	15÷25	10÷14	10÷14	20÷30	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.040	0.034	0.028	0.028	0.044	
2.5	0.050	0.043	0.035	0.035	0.055	
3	0.060	0.051	0.042	0.042	0.066	
3.5	0.070	0.060	0.049	0.049	0.077	
4	0.080	0.068	0.056	0.056	0.088	
5	0.090	0.077	0.063	0.063	0.099	
6	0.100	0.085	0.070	0.070	0.110	
7	0.110	0.094	0.077	0.077	0.121	
8	0.120	0.102	0.084	0.084	0.132	
9	0.130	0.111	0.091	0.091	0.143	
10	0.140	0.119	0.098	0.098	0.154	
11	0.150	0.128	0.105	0.105	0.165	
12	0.160	0.136	0.112	0.112	0.176	
13	0.170	0.145	0.119	0.119	0.187	

234LSTH

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	25÷35	20÷30	16÷20	16÷20	25÷35	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.040	0.034	0.028	0.028	0.044	
2.5	0.050	0.043	0.035	0.035	0.055	
3	0.060	0.051	0.042	0.042	0.066	
3.5	0.070	0.060	0.049	0.049	0.077	
4	0.080	0.068	0.056	0.056	0.088	
5	0.090	0.077	0.063	0.063	0.099	
6	0.100	0.085	0.070	0.070	0.110	
7	0.110	0.094	0.077	0.077	0.121	
8	0.120	0.102	0.084	0.084	0.132	
9	0.130	0.111	0.091	0.091	0.143	
10	0.140	0.119	0.098	0.098	0.154	
11	0.150	0.128	0.105	0.105	0.165	
12	0.160	0.136	0.112	0.112	0.176	
13	0.170	0.145	0.119	0.119	0.187	

HSS
END-MILLS

CARBIDE
BURRS

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		



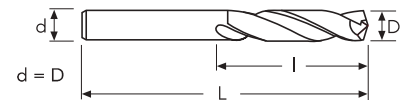
2691LS



2691LSTH

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



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

INFO

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

2691LS

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	20÷24	16÷20	8÷12	8÷12	20÷24	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.032	0.027	0.022	0.022	0.035	
2.5	0.040	0.034	0.028	0.028	0.044	
3	0.048	0.041	0.034	0.034	0.053	
3.5	0.056	0.048	0.039	0.039	0.062	
4	0.064	0.054	0.045	0.045	0.070	
5	0.072	0.061	0.050	0.050	0.079	
6	0.080	0.068	0.056	0.056	0.088	
7	0.088	0.075	0.062	0.062	0.097	
8	0.096	0.082	0.067	0.067	0.106	
9	0.104	0.088	0.073	0.073	0.114	
10	0.112	0.095	0.078	0.078	0.123	
11	0.120	0.102	0.084	0.084	0.132	
12	0.128	0.109	0.090	0.090	0.141	
13	0.136	0.116	0.095	0.095	0.150	

2691LSTH

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	24÷28	20÷24	10÷14	10÷14	24÷28	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
2	0.032	0.027	0.022	0.022	0.035	
2.5	0.040	0.034	0.028	0.028	0.044	
3	0.048	0.041	0.034	0.034	0.053	
3.5	0.056	0.048	0.039	0.039	0.062	
4	0.064	0.054	0.045	0.045	0.070	
5	0.072	0.061	0.050	0.050	0.079	
6	0.080	0.068	0.056	0.056	0.088	
7	0.088	0.075	0.062	0.062	0.097	
8	0.096	0.082	0.067	0.067	0.106	
9	0.104	0.088	0.073	0.073	0.114	
10	0.112	0.095	0.078	0.078	0.123	
11	0.120	0.102	0.084	0.084	0.132	
12	0.128	0.109	0.090	0.090	0.141	
13	0.136	0.116	0.095	0.095	0.150	

HSS
END-MILLS

CARBIDE
BURRS

INFO

1692LS

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

Material Group ISO 513	P1 P2	P3 P4	K1 K2			
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	20÷24	16÷20	20÷24			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3.5	0.045	0.038	0.050			
4	0.053	0.045	0.058			
5	0.060	0.051	0.066			
6	0.068	0.057	0.074			
7	0.075	0.064	0.083			
8	0.083	0.070	0.091			
9	0.090	0.077	0.099			
10	0.098	0.083	0.107			
11	0.105	0.089	0.116			
12	0.113	0.096	0.124			
13	0.120	0.102	0.132			

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

1693LS

CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

Material Group ISO 513	P1 P2	P3 P4	K1 K2			
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	15÷25	10÷20	15÷25			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3.5	0.045	0.038	0.050			
4	0.053	0.045	0.058			
5	0.060	0.051	0.066			
6	0.068	0.057	0.074			
7	0.075	0.064	0.083			
8	0.083	0.070	0.091			
9	0.090	0.077	0.099			
10	0.098	0.083	0.107			
11	0.105	0.089	0.116			
12	0.113	0.096	0.124			
13	0.120	0.102	0.132			

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO**

CARBIDE
END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

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

INFO



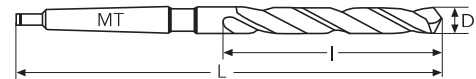
145N



145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

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

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO**

CARBIDE
END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

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



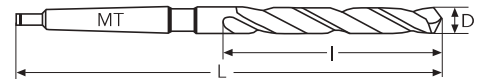
145NTI

CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



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

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ 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

INFO



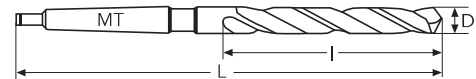
145N



145NTI

P	M	K	N	S	H
★		☆	☆		

★ 1st choice ☆ suitable



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

CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

INFO

145N

Material Group ISO 513	P1 P2	P3 P4	K1 K2	N1 N5	N2 N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	25÷35	20÷30	25÷35	50÷70	40÷60	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
5	0.100	0.085	0.110	0.140	0.100	
6	0.120	0.102	0.132	0.168	0.120	
7	0.140	0.119	0.154	0.196	0.140	
8	0.160	0.136	0.176	0.224	0.160	
9	0.180	0.153	0.198	0.252	0.180	
10	0.200	0.170	0.220	0.280	0.200	
11	0.208	0.177	0.229	0.291	0.208	
12	0.216	0.184	0.238	0.302	0.216	
13	0.224	0.190	0.246	0.314	0.224	
14	0.232	0.197	0.255	0.325	0.232	
15	0.240	0.204	0.264	0.336	0.240	
16	0.250	0.213	0.275	0.350	0.250	
17	0.265	0.225	0.292	0.371	0.265	
18	0.280	0.238	0.308	0.392	0.280	
19	0.295	0.251	0.325	0.413	0.295	
20	0.315	0.268	0.347	0.441	0.315	
22	0.330	0.281	0.363	0.462	0.330	
25	0.350	0.298	0.385	0.490	0.350	
27	0.370	0.315	0.407	0.518	0.370	
30	0.400	0.340	0.440	0.560	0.400	
35	0.450	0.383	0.495	0.630	0.450	
40	0.500	0.425	0.550	0.700	0.500	
45	0.560	0.476	0.616	0.784	0.560	
50	0.630	0.536	0.693	0.882	0.630	
55	0.700	0.595	0.770	0.980	0.700	
60	0.800	0.680	0.880	1.120	0.800	

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

145NTI

Material Group ISO 513	P1 P2	P3 P4	K1 K2	N1 N5	N2 N3 N4	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	150÷350 HB			
Vc (m/min)	30÷40	25÷35	30÷40	60÷80	50÷70	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.224	0.190	0.246	0.314	0.224	
14	0.232	0.197	0.255	0.325	0.232	
15	0.240	0.204	0.264	0.336	0.240	
16	0.250	0.213	0.275	0.350	0.250	
17	0.265	0.225	0.292	0.371	0.265	
18	0.280	0.238	0.308	0.392	0.280	
19	0.295	0.251	0.325	0.413	0.295	
20	0.315	0.268	0.347	0.441	0.315	
22	0.330	0.281	0.363	0.462	0.330	
25	0.350	0.298	0.385	0.490	0.350	
27	0.370	0.315	0.407	0.518	0.370	
30	0.400	0.340	0.440	0.560	0.400	

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

245N

N type for tough materials. MT shank. short

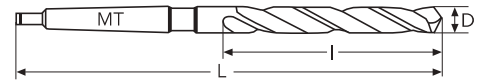


CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

P	M	K	N	S	H
★	★	☆	☆	☆	

★ 1st choice ☆ suitable



HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

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

CARBIDE END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

245N

Material Group ISO 513	P1 P2	P3 P4	P7	M1	M2 M3	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²				
Vc (m/min)	25÷35	20÷30	12÷18	12÷18	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.224	0.190	0.157	0.157	0.112	
14	0.232	0.197	0.162	0.162	0.116	
15	0.240	0.204	0.168	0.168	0.120	
16	0.250	0.213	0.175	0.175	0.125	
17	0.265	0.225	0.186	0.186	0.133	
18	0.280	0.238	0.196	0.196	0.140	
19	0.295	0.251	0.207	0.207	0.148	
20	0.315	0.268	0.221	0.221	0.158	
22	0.330	0.281	0.231	0.231	0.165	
25	0.350	0.298	0.245	0.245	0.175	
27	0.370	0.315	0.259	0.259	0.185	
30	0.400	0.340	0.280	0.280	0.200	

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

Material Group ISO 513	K1 K2	K3 K4	N1 N5	N2 N3 N4	S1 S2 S4	
Hardness/Rm	150÷350 HB	<350 HB			<35 HRC	
Vc (m/min)	25÷35	20÷30	50÷70	40÷60	8÷12	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.246	0.168	0.314	0.224	0.090	
14	0.255	0.174	0.325	0.232	0.093	
15	0.264	0.180	0.336	0.240	0.096	
16	0.275	0.188	0.350	0.250	0.100	
17	0.292	0.199	0.371	0.265	0.106	
18	0.308	0.210	0.392	0.280	0.112	
19	0.325	0.221	0.413	0.295	0.118	
20	0.347	0.236	0.441	0.315	0.126	
22	0.363	0.248	0.462	0.330	0.132	
25	0.385	0.263	0.490	0.350	0.140	
27	0.407	0.278	0.518	0.370	0.148	
30	0.440	0.300	0.560	0.400	0.160	

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

241LS

LS type for deep holes. MT shank. long



CARBIDE DRILLS

PU-HPU

TA-4HTA

SUH

ALH

HRC

SUH MINI

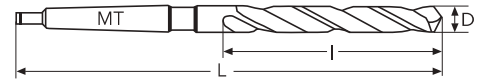
HL

HSD

C-SD-TA

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	●
14.00	0/-0.027	1	142	223	1	P241LS1400	●
14.50	0/-0.027	2	147	245	1	P241LS1450	●
15.00	0/-0.027	2	147	245	1	P241LS1500	●
15.50	0/-0.027	2	153	251	1	P241LS1550	●
16.00	0/-0.027	2	153	251	1	P241LS1600	●
16.50	0/-0.027	2	159	257	1	P241LS1650	●
17.00	0/-0.027	2	159	257	1	P241LS1700	●
17.50	0/-0.027	2	165	263	1	P241LS1750	●
18.00	0/-0.027	2	165	263	1	P241LS1800	●
18.50	0/-0.033	2	171	269	1	P241LS1850	●
19.00	0/-0.033	2	171	269	1	P241LS1900	●
19.50	0/-0.033	2	177	275	1	P241LS1950	●
20.00	0/-0.033	2	177	275	1	P241LS2000	●
21.00	0/-0.033	2	184	282	1	P241LS2100	●
22.00	0/-0.033	2	191	289	1	P241LS2200	●
23.00	0/-0.033	2	198	296	1	P241LS2300	●
24.00	0/-0.033	3	206	327	1	P241LS2400	●
25.00	0/-0.033	3	206	327	1	P241LS2500	●
26.00	0/-0.033	3	214	335	1	P241LS2600	●
27.00	0/-0.033	3	222	343	1	P241LS2700	▽
29.00	0/-0.033	3	230	351	1	P241LS2900	●
30.00	0/-0.033	3	230	351	1	P241LS3000	●

HSS DRILLS

LFTA

SUTA

HSS-HSS/CO

CARBIDE END-MILLS

G2

MDTA

HFVH/UP

MEF

ALU

MEX/MH

UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

241LS

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	15÷25	10÷20	10÷14	10÷14	20÷30	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.160	0.136	0.112	0.112	0.176	
14	0.170	0.145	0.119	0.119	0.187	
15	0.180	0.153	0.126	0.126	0.198	
16	0.200	0.170	0.140	0.140	0.220	
17	0.190	0.162	0.133	0.133	0.209	
18	0.205	0.174	0.144	0.144	0.226	
19	0.220	0.187	0.154	0.154	0.242	
20	0.235	0.200	0.165	0.165	0.259	
21	0.250	0.213	0.175	0.175	0.275	
22	0.265	0.225	0.186	0.186	0.292	
23	0.280	0.238	0.196	0.196	0.308	
24	0.295	0.251	0.207	0.207	0.325	
25	0.310	0.264	0.217	0.217	0.341	
26	0.325	0.276	0.228	0.228	0.358	
27	0.340	0.289	0.238	0.238	0.374	
28	0.355	0.302	0.249	0.249	0.391	
29	0.370	0.315	0.259	0.259	0.407	
30	0.385	0.327	0.270	0.270	0.424	

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

CUTTING PARAMETERS

2701LS

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²			150÷350 HB	
Vc (m/min)	20÷24	16÷20	8÷12	8÷12	20÷24	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.140	0.119	0.098	0.098	0.154	
14	0.150	0.128	0.105	0.105	0.165	
15	0.160	0.136	0.112	0.112	0.176	
16	0.180	0.153	0.126	0.126	0.198	
17	0.190	0.162	0.133	0.133	0.209	
18	0.200	0.170	0.140	0.140	0.220	
19	0.210	0.179	0.147	0.147	0.231	
20	0.220	0.187	0.154	0.154	0.242	
21	0.220	0.187	0.154	0.154	0.242	
22	0.230	0.196	0.161	0.161	0.253	
23	0.250	0.213	0.175	0.175	0.275	
24	0.260	0.221	0.182	0.182	0.286	
25	0.280	0.238	0.196	0.196	0.308	
26	0.290	0.247	0.203	0.203	0.319	
27	0.300	0.255	0.210	0.210	0.330	
28	0.310	0.264	0.217	0.217	0.341	
29	0.325	0.276	0.228	0.228	0.358	
30	0.340	0.289	0.238	0.238	0.374	

INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF-VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

CUTTING PARAMETERS

2702LS

Material Group ISO 513	P1 P2	P3 P4	P7	M1	K1 K2	
Hardness/Rm	500÷700 N/mm ²	600÷1000 N/mm ²	<700 N/mm ²	<750 N/mm ²	150÷350 HB	
Vc (m/min)	20÷24	16÷20	8÷12	8÷12	20÷24	
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
13	0.130	0.111	0.091	0.091	0.143	
14	0.140	0.119	0.098	0.098	0.154	
15	0.150	0.128	0.105	0.105	0.165	
16	0.160	0.136	0.112	0.112	0.176	
17	0.170	0.145	0.119	0.119	0.187	
18	0.180	0.153	0.126	0.126	0.198	
19	0.190	0.162	0.133	0.133	0.209	
20	0.200	0.170	0.140	0.140	0.220	
21	0.210	0.179	0.147	0.147	0.231	
22	0.220	0.187	0.154	0.154	0.242	
23	0.230	0.196	0.161	0.161	0.253	
24	0.240	0.204	0.168	0.168	0.264	
25	0.250	0.213	0.175	0.175	0.275	
26	0.270	0.230	0.189	0.189	0.297	
27	0.280	0.238	0.196	0.196	0.308	
28	0.290	0.247	0.203	0.203	0.319	
29	0.300	0.255	0.210	0.210	0.330	
30	0.310	0.264	0.217	0.217	0.341	

INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
HSS-HSS/CO
CARBIDE
END-MILLS
 G2
 MDTA
 HF-VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

