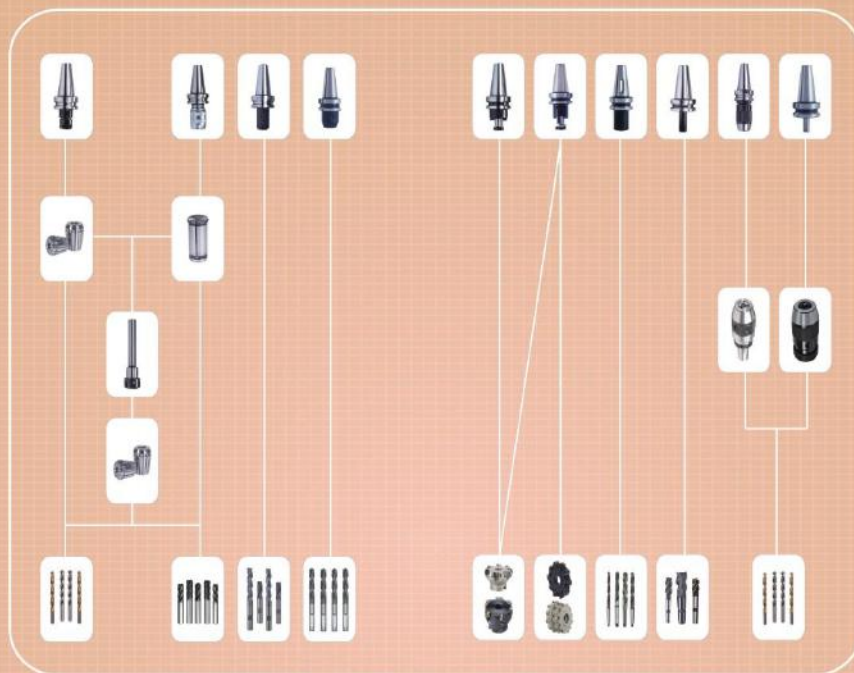


CNC TOOLS SYSTEMS



India Branch

Xtreme Tooling

Manufactures of Solid Carbide Tools

Plot No. S-83, MIDC, Bhosari, Pune - 411 026
 Mob. : +91 7875447615 / 16 / 20
 Email : sales@xtremetooling.com
 www.carbidecuttingtools.in

Please Visit us "Drilling Calculator"
 on Google Play



Bangkok Branch

Corporation Technology Solution Co., Ltd.

239/49, Kanchanapitsek Rd.
 Khwaeng Dokmai,
 Khet Prawel Bangkok - 10250 Thailand
 Tel. : (66)2-136-2098-9 / (66)818748159

Authorised Dealer :

IN A FIELD OF COMPETITORS

ONLY ONE

excels above all others

Born to Perform

Our Products
 perform-and
 the benefits
 are evident

OUTSTANDING TOOL LIFE AT

XTREME SPEED

XTREME PERFORMANCE

XTREME PRODUCTIVITY

CALL US TODAY

& arrange to test this revolutionary
 new product



Xtreme Tooling

(An ISO 9001 : 2008 Certified Company)



ABOUT US

XTREME TOOLING has been established in 2011 and started manufacturing of carbide Tools under the brand name "Fighter". Because of consumer acceptance of our quality we kept adding Carbide Drill, End mill, Ball nose, Reamer etc... in Carbide Tools. We provide the right part, at the right price, on time-every time. Our precision cutting tools are manufactured with the perfection under inhouse production setup and tough checking process.

XTREME TOOLING has a team of highly qualified and technically competent professionals who can develop any type of cutting tools to national and international standard highest quality. Our development procedure with dure is always based upon the customer requirements as per their sample/specification or drawing. In order to upkeep the industries with the modern development, Dedicated people with high intentions, sincere efforts, intelligent direction and successful execution by adhering to stringent quality control system and quality management system are key to our success.

OUR PHILOSOPHY :

- Double The Expertise & Enhance the service level

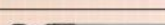
OUR MAIN OBJECTIVE :

- To increase our Customers Competitiveness by offering solution for their machining needs
- We have specialized QC professionals to guarantee the Quality of each product

We provide carbide mills and drills with different kinds of angle/length and shape. Moreover we provide OEM service and can produce specific cutting tools according to your drawings. We always persist in the spirit of "Respecting work, Being Realistic, Quality first & Customer First" so as to serve our Customers

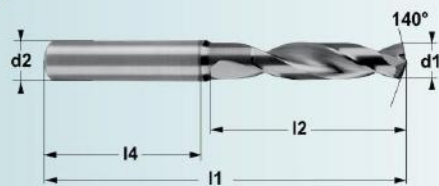


INDEX

	Page No.
	CARBIDE X-PLUS DRILL L/D3 4 / 5
	CARBIDE X-PLUS DRILL L/D5 6 / 7
	CARBIDE X-PLUS INTERNAL COOLANT DRILL L/D3 8 / 9
	CARBIDE X-PLUS INTERNAL COOLANT DRILL L/D5 10 / 11
	CARBIDE MEGA DRILL L/D3 12 / 13
	CARBIDE MEGA DRILL L/D5 14 / 15
	CARBIDE MEGA INTERNAL COOLANT DRILL L/D3 16 / 17
	CARBIDE MEGA INTERNAL COOLANT DRILL L/D5 18 / 19
	SOLID CARBIDE END MILLS - SHORT LENGTH 2F/4F 20
	SOLID CARBIDE BALL NOSE - SHORT LENGTH 2F/4F 21
	SOLID CARBIDE END MILLS - LONG LENGTH 2F/4F 22
	SOLID CARBIDE BALL NOSE - LONG LENGTH 2F/4F 23
	SOLID CARBIDE ROUGHING ENDMILL SERIES 24
	SOLID CARBIDE VHT ENDMILL SERIES 25
	HP SOLID CARBIDE REAMER 4F/6F 26
TOOL HOLDER	TOOL HOLDER / ER COLLET ADAPTORS / ER COLLET 27 / 28 / 29
TECHNICAL DATA	DRILL TROUBLESHOOTING GUIDE 30 / 31
	DRILL TERMINOLOGY & CUTTING CHARACTERSTICS 32
	FORMULAE DRILLING & MILLING 33 / 34
XTREME SERVICE	XTREME RECONDITIONING SERVICE 35
	INNOVATION FROM XTREME TOOLING 36 / 37
	REASON WHY ONLY XTREME 38
	XTREME ENQUIRY FORM 39

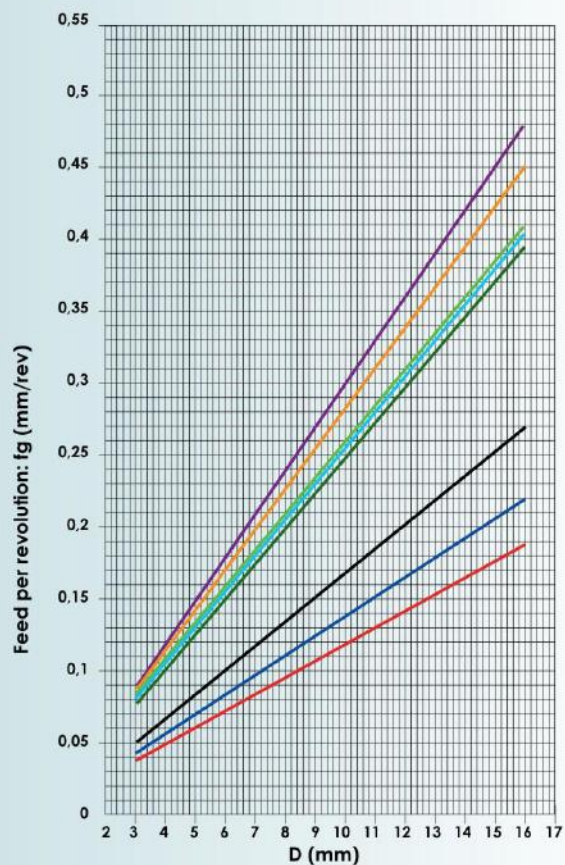


SOLID CARBIDE X-PLUS DRILL L/D 3



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.

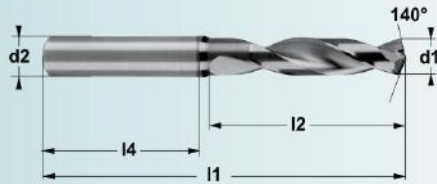


SOLID CARBIDE X-PLUS DRILL L/D 3

DIN L/D 3	XTREME X-PLUS	POINT ANGLE 140°	HEX ANGLE 30°	SHANK	ROTATION RH
X Plus	D1 m7	D2 h6	L2	L4	L1
XPSN0300	3.00	6.00	20.00	36.00	62.00
XPSN0310	3.10	6.00	20.00	36.00	62.00
XPSN0320	3.20	6.00	20.00	36.00	62.00
XPSN0330	3.30	6.00	20.00	36.00	62.00
XPSN0340	3.40	6.00	20.00	36.00	62.00
XPSN0350	3.50	6.00	20.00	36.00	62.00
XPSN0360	3.60	6.00	20.00	36.00	62.00
XPSN0370	3.70	6.00	20.00	36.00	62.00
XPSN0380	3.80	6.00	24.00	36.00	66.00
XPSN0390	3.90	6.00	24.00	36.00	66.00
XPSN0400	4.00	6.00	24.00	36.00	66.00
XPSN0410	4.10	6.00	24.00	36.00	66.00
XPSN0420	4.20	6.00	24.00	36.00	66.00
XPSN0430	4.30	6.00	24.00	36.00	66.00
XPSN0440	4.40	6.00	24.00	36.00	66.00
XPSN0450	4.50	6.00	24.00	36.00	66.00
XPSN0460	4.60	6.00	24.00	36.00	66.00
XPSN0470	4.70	6.00	24.00	36.00	66.00
XPSN0480	4.80	6.00	28.00	36.00	66.00
XPSN0490	4.90	6.00	28.00	36.00	66.00
XPSN0500	5.00	6.00	28.00	36.00	66.00
XPSN0510	5.10	6.00	28.00	36.00	66.00
XPSN0520	5.20	6.00	28.00	36.00	66.00
XPSN0530	5.30	6.00	28.00	36.00	66.00
XPSN0540	5.40	6.00	28.00	36.00	66.00
XPSN0550	5.50	6.00	28.00	36.00	66.00
XPSN0560	5.60	6.00	28.00	36.00	66.00
XPSN0570	5.70	6.00	28.00	36.00	66.00
XPSN0580	5.80	6.00	28.00	36.00	66.00
XPSN0590	5.90	6.00	28.00	36.00	66.00
XPSN0600	6.00	6.00	28.00	36.00	66.00
XPSN0610	6.10	6.00	28.00	36.00	66.00
XPSN0620	6.20	8.00	41.00	36.00	79.00
XPSN0630	6.30	8.00	41.00	36.00	79.00
XPSN0640	6.40	8.00	41.00	36.00	79.00
XPSN0650	6.50	8.00	41.00	36.00	79.00
XPSN0660	6.60	8.00	41.00	36.00	79.00
XPSN0670	6.70	8.00	41.00	36.00	79.00
XPSN0680	6.80	8.00	41.00	36.00	79.00
XPSN0690	6.90	8.00	41.00	36.00	79.00
XPSN0700	7.00	8.00	41.00	36.00	79.00
XPSN0710	7.10	8.00	41.00	36.00	79.00
XPSN0720	7.20	8.00	41.00	36.00	79.00
XPSN0730	7.30	8.00	41.00	36.00	79.00
XPSN0740	7.40	8.00	41.00	36.00	79.00
XPSN0750	7.50	8.00	41.00	36.00	79.00
XPSN0760	7.60	8.00	41.00	36.00	79.00
XPSN0770	7.70	8.00	41.00	36.00	79.00
XPSN0780	7.80	8.00	41.00	36.00	79.00
XPSN0790	7.90	8.00	41.00	36.00	79.00
XPSN0800	8.00	8.00	41.00	36.00	79.00
XPSN0810	8.10	10.00	47.00	40.00	89.00
XPSN0820	8.20	10.00	47.00	40.00	89.00
XPSN0830	8.30	10.00	47.00	40.00	89.00
XPSN0840	8.40	10.00	47.00	40.00	89.00
XPSN0850	8.50	10.00	47.00	40.00	89.00
XPSN0860	8.60	10.00	47.00	40.00	89.00
XPSN0870	8.70	10.00	47.00	40.00	89.00
XPSN0880	8.80	10.00	47.00	40.00	89.00
XPSN0890	8.90	10.00	47.00	40.00	89.00
XPSN0900	9.00	10.00	47.00	40.00	89.00
XPSN0910	9.10	10.00	47.00	40.00	89.00
XPSN0920	9.20	10.00	47.00	40.00	89.00
XPSN0930	9.30	10.00	47.00	40.00	89.00
XPSN0940	9.40	10.00	47.00	40.00	89.00
XPSN0950	9.50	10.00	47.00	40.00	89.00
XPSN0960	9.60	10.00	47.00	40.00	89.00
XPSN0970	9.70	10.00	47.00	40.00	89.00
XPSN0980	9.80	10.00	47.00	40.00	89.00
XPSN0990	9.90	10.00	47.00	40.00	89.00
XPSN1000	10.00	10.00	47.00	40.00	89.00
XPSN1010	10.10	12.00	55.00	45.00	102.00
XPSN1020	10.20	12.00	55.00	45.00	102.00
XPSN1030	10.30	12.00	55.00	45.00	102.00
XPSN1040	10.40	12.00	55.00	45.00	102.00
XPSN1050	10.50	12.00	55.00	45.00	102.00
XPSN1060	10.60	12.00	55.00	45.00	102.00
XPSN1070	10.70	12.00	55.00	45.00	102.00
XPSN1080	10.80	12.00	55.00	45.00	102.00
XPSN1090	10.90	12.00	55.00	45.00	102.00
XPSN1100	11.00	12.00	55.00	45.00	102.00
XPSN1110	11.10	12.00	55.00	45.00	102.00
XPSN1120	11.20	12.00	55.00	45.00	102.00
XPSN1130	11.30	12.00	55.00	45.00	102.00
XPSN1140	11.40	12.00	55.00	45.00	102.00
XPSN1150	11.50	12.00	55.00	45.00	102.00
XPSN1160	11.60	12.00	55.00	45.00	102.00
XPSN1170	11.70	12.00	55.00	45.00	102.00
XPSN1180	11.80	12.00	55.00	45.00	102.00
XPSN1190	11.90	12.00	55.00	45.00	102.00
XPSN1200	12.00	12.00	55.00	45.00	102.00
XPSN1210	12.10	12.00	55.00	45.00	102.00
XPSN1220	12.20	12.00	55.00	45.00	102.00
XPSN1230	12.30	14.00	60.00	45.00	107.00
XPSN1240	12.40	14.00	60.00	45.00	107.00
XPSN1250	12.50	14.00	60.00	45.00	107.00
XPSN1260	12.60	14.00	60.00	45.00	107.00
XPSN1270	12.70	14.00	60.00	45.00	107.00
XPSN1280	12.80	14.00	60.00	45.00	107.00
XPSN1290	12.90	14.00	60.00	45.00	107.00
XPSN1300	13.00	14.00	60.00	45.00	107.00
XPSN1310	13.10	14.00	60.00	45.00	107.00
XPSN1320	13.20	14.00	60.00	45.00	107.00
XPSN1330	13.30	14.00	60.00	45.00	107.00
XPSN1340	13.40	14.00	60.00	45.00	107.00
XPSN1350	13.50	14.00	60.00	45.00	107.00
XPSN1360	13.60	14.00	60.00	45.00	107.00
XPSN1370	13.70	14.00	60.00	45.00	107.00
XPSN1380	13.80	14.00	60.00	45.00	107.00
XPSN1390	13.90	14.00	60.00	45.00	107.00
XPSN1400	14.00	14.00	60.00	45.00	107.00
XPSN1410	14.10	16.00	65.00	48.00	115.00
XPSN1420	14.20	16.00	65.00	48.00	115.00
XPSN1430	14.30	16.00	65.00	48.00	115.00
XPSN1440	14.40	16.00	65.00	48.00	115.00
XPSN1450	14.50	16.00	65.00	48.00	115.00
XPSN1460	14.60	16.00	65.00	48.00	115.00
XPSN1470	14.70	16.00	65.00	48.00	115.00
XPSN1480	14.80	16.00	65.00	48.00	115.00
XPSN1490	14.90	16.00	65.00	48.00	115.00
XPSN1500	15.00	16.00	65.00	48.00	115.00
XPSN1510	15.10	16.00	65.00	48.00	115.00
XPSN1520	15.20	16.00	65.00	48.00	115.00
XPSN1530	15.30	16.00	65.00	48.00	115.00
XPSN1540	15.40	16.00	65.00	48.00	115.00
XPSN1550	15.50	16.00	65.00	48.00	115.00
XPSN1560	15.60	16.00	65.00	48.00	115.00
XPSN1570	15.70	16.00	65.00	48.00	115.00
XPSN1580	15.80	16.00	65.00	48.00	115.00
XPSN1590	15.90	16.00	65.00	48.00	115.00
XPSN1600	16.00	16.00	65.00	48.00	115.00
XPSN1610	16.10	18.00	73.00	48.00	123.00
XPSN1620	16.20	18.00	73.00	48.00	123.00
XPSN1630	16.30	18.00	73.00	48.00	123.00
XPSN1640	16.40	18.00	73.00	48.00	123.00
XPSN1650	16.50	18.00	73.00	48.00	123.00
XPSN1660	16.60	18.00	73.00	48.00	123.00
XPSN1670	16.70	18.00	73.00	48.00	123.00
XPSN1680	16.80	18.00	73.00	48.00	123.00
XPSN1690	16.90	18.00	73.00	48.00	123.00
XPSN1700	17.00	18.00	73.00	48.00	123.00
XPSN1710	17.10	18.00	73.00	48.00	123.00
XPSN1720	17.20	18.00	73.00	48.00	123.00
XPSN1730	17.30	18.00	73.00	48.00	123.00
XPSN1740	17.40	18.00	73.00	48.00	123.00
XPSN1750	17.50	18.00	73.00	48.00	123.00
XPSN1760	17.60	18.00	73.00	48.00	123.00
XPSN1770	17.70	18.00	73.00	48.00	123.00
XPSN1780	17.80	18.00	73.00	48.00	123.00
XPSN1790	17.90	18.00	73.00	48.00	123.00
XPSN1800	18.00	18.00	73.00	48.00	123.00
XPSN1810	18.10	20.00	79.00	50.00	131.00
XPSN1820	18.20	20.00	79.00	50.00	131.00
XPSN1830	18.30	20.00	79.00	50.00	131.00
XPSN1840	18.40	20.00	79.00	50.00	131.00
XPSN1850	18.50	20.00	79.00	50.00	131.00
XPSN1860	18.60	20.00	79.00	50.00	131.00
XPSN1870	18.70	20.00	79.00	50.00	131.00
XPSN1880	18.80	20.00	79.00	50.00	131.00
XPSN1890	18.90	20.00	79.00	50.00	131.00
XPSN1900	19.00	20.00	79.00	50.00	131.00
XPSN1910	19.10	20.00	79.00	50.00	131.00
XPSN1920	19.20	20.00	79.00	50.00	131.00
XPSN1930	19.30	20.00	79.00	50.00	131.00
XPSN1940	19.40	20.00	79.00	50.00	131.00
XPSN1950	19.50	20.00	79.00	50.00	131.00
XPSN1960	19.60	20.00	79.00	50.00	131.00
XPSN1970	19.70	20.00	79.00	50.00	131.00
XPSN1980	19.80	20.00	79.00	50.00	131.00
XPSN1990	19.90	20.00	79.00	50.00	131.00
XPSN2000	20.00	20.00	79.00	50.00	131.00

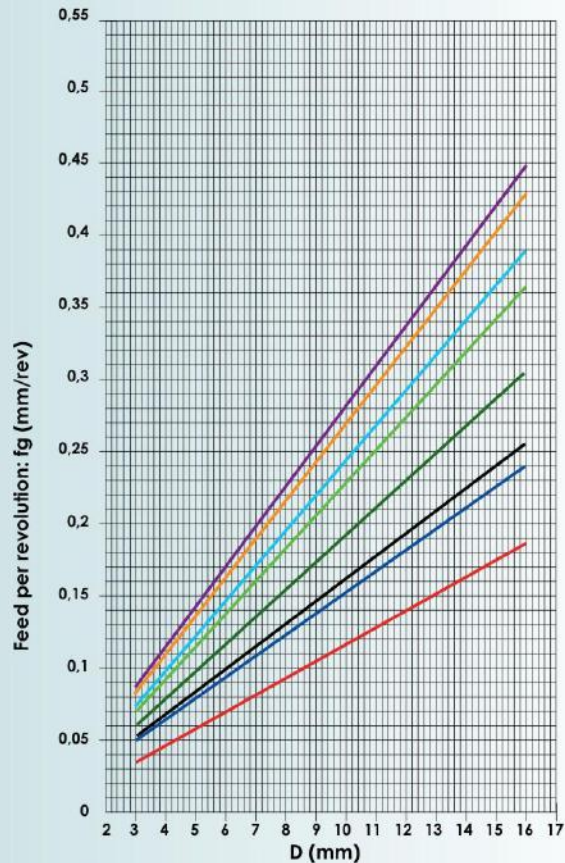


SOLID CARBIDE X-PLUS DRILL L/D 5



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



Spheroidal cast iron
Vc 155 m/min

Brass
Vc 200 m/min

Alu alloys Si <6%
Vc 230 m/min

< 800 N/mm²
Vc 110 m/min

< 1000 N/mm²
Vc 90 m/min

< 1300 N/mm²
Vc 55 m/min

12% Cr & Stainless Steel
Vc 45 m/min

< 1500 N/mm²
Vc 40 m/m



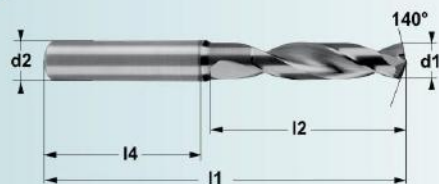
SOLID CARBIDE X-PLUS DRILL L/D 5



X Plus	D1 m7	D2 h6	L2	L4	L1	X Plus	D1 m7	D2 h6	L2	L4	L1
XPLSN0300	3.00	6.00	28.00	36.00	66.00	XPLSN1080	10.80	12.00	71.00	45.00	118.00
XPLSN0310	3.10	6.00	28.00	36.00	66.00	XPLSN1090	10.90	12.00	71.00	45.00	118.00
XPLSN0320	3.20	6.00	28.00	36.00	66.00	XPLSN1100	11.00	12.00	71.00	45.00	118.00
XPLSN0330	3.30	6.00	28.00	36.00	66.00	XPLSN1110	11.10	12.00	71.00	45.00	118.00
XPLSN0340	3.40	6.00	28.00	36.00	66.00	XPLSN1120	11.20	12.00	71.00	45.00	118.00
XPLSN0350	3.50	6.00	28.00	36.00	66.00	XPLSN1130	11.30	12.00	71.00	45.00	118.00
XPLSN0360	3.60	6.00	28.00	36.00	66.00	XPLSN1140	11.40	12.00	71.00	45.00	118.00
XPLSN0370	3.70	6.00	28.00	36.00	66.00	XPLSN1150	11.50	12.00	71.00	45.00	118.00
XPLSN0380	3.80	6.00	36.00	36.00	74.00	XPLSN1160	11.60	12.00	71.00	45.00	118.00
XPLSN0390	3.90	6.00	36.00	36.00	74.00	XPLSN1170	11.70	12.00	71.00	45.00	118.00
XPLSN0400	4.00	6.00	36.00	36.00	74.00	XPLSN1180	11.80	12.00	71.00	45.00	118.00
XPLSN0410	4.10	6.00	36.00	36.00	74.00	XPLSN1190	11.90	12.00	71.00	45.00	118.00
XPLSN0420	4.20	6.00	36.00	36.00	74.00	XPLSN1200	12.00	12.00	71.00	45.00	118.00
XPLSN0430	4.30	6.00	36.00	36.00	74.00	XPLSN1210	12.10	14.00	77.00	45.00	124.00
XPLSN0440	4.40	6.00	36.00	36.00	74.00	XPLSN1240	12.40	14.00	77.00	45.00	124.00
XPLSN0450	4.50	6.00	36.00	36.00	74.00	XPLSN1250	12.50	14.00	77.00	45.00	124.00
XPLSN0460	4.60	6.00	36.00	36.00	74.00	XPLSN1260	12.60	14.00	77.00	45.00	124.00
XPLSN0470	4.70	6.00	36.00	36.00	74.00	XPLSN1270	12.70	14.00	77.00	45.00	124.00
XPLSN0480	4.80	6.00	44.00	36.00	82.00	XPLSN1280	12.80	14.00	77.00	45.00	124.00
XPLSN0490	4.90	6.00	44.00	36.00	82.00	XPLSN1290	12.90	14.00	77.00	45.00	124.00
XPLSN0500	5.00	6.00	44.00	36.00	82.00	XPLSN1300	13.00	14.00	77.00	45.00	124.00
XPLSN0510	5.10	6.00	44.00	36.00	82.00	XPLSN1310	13.10	14.00	77.00	45.00	124.00
XPLSN0520	5.20	6.00	44.00	36.00	82.00	XPLSN1320	13.20	14.00	77.00	45.00	124.00
XPLSN0530	5.30	6.00	44.00	36.00	82.00	XPLSN1330	13.30	14.00	77.00	45.00	124.00
XPLSN0540	5.40	6.00	44.00	36.00	82.00	XPLSN1340	13.40	14.00	77.00	45.00	124.00
XPLSN0550	5.50	6.00	44.00	36.00	82.00	XPLSN1350	13.50	14.00	77.00	45.00	124.00
XPLSN0560	5.60	6.00	44.00	36.00	82.00	XPLSN1360	13.60	14.00	77.00	45.00	124.00
XPLSN0570	5.70	6.00	44.00	36.00	82.00	XPLSN1370	13.70	14.00	77.00	45.00	124.00
XPLSN0580	5.80	6.00	44.00	36.00	82.00	XPLSN1380	13.80	14.00	77.00	45.00	124.00
XPLSN0590	5.90	6.00	44.00	36.00	82.00	XPLSN1390	13.90	14.00	77.00	45.00	124.00
XPLSN0600	6.00	8.00	53.00	36.00	91.00	XPLSN1400	14.00	16.00	83.00	48.00	133.00
XPLSN0610	6.10	8.00	53.00	36.00	91.00	XPLSN1450	14.50	16.00	83.00	48.00	133.00
XPLSN0620	6.20	8.00	53.00	36.00	91.00	XPLSN1460	14.60	16.00	83.00	48.00	133.00
XPLSN0630	6.30	8.00	53.00	36.00	91.00	XPLSN1470	14.70	16.00	83.00	48.00	133.00
XPLSN0640	6.40	8.00	53.00	36.00	91.00	XPLSN1480	14.80	16.00	83.00	48.00	133.00
XPLSN0650	6.50	8.00	53.00	36.00	91.00	XPLSN1490	14.90	16.00	83.00	48.00	133.00
XPLSN0660	6.60	8.00	53.00	36.00	91.00	XPLSN1500	15.00	16.00	83.00	48.00	133.00
XPLSN0670	6.70	8.00	53.00	36.00	91.00	XPLSN1510	15.10	16.00	83.00	48.00	133.00
XPLSN0680	6.80	8.00	53.00	36.00	91.00	XPLSN1520	15.20	16.00	83.00	48.00	133.00
XPLSN0690	6.90	8.00	53.00	36.00	91.00	XPLSN1530	15.30	16.00	83.00	48.00	133.00
XPLSN0700	7.00	8.00	53.00	36.00	91.00	XPLSN1540	15.40	16.00	83.00	48.00	133.00
XPLSN0710	7.10	8.00	53.00	36.00	91.00	XPLSN1550	15.50	16.00	83.00	48.00	133.00
XPLSN0720	7.20	8.00	53.00	36.00	91.00	XPLSN1560	15.60	16.00	83.00	48.00	133.00
XPLSN0730	7.30	8.00	53.00	36.00	91.00	XPLSN1570	15.70	16.00	83.00	48.00	133.00
XPLSN0740	7.40	8.00	53.00	36.00	91.00	XPLSN1580	15.80	16.00	83.00	48.00	133.00
XPLSN0750	7.50	8.00	53.00	36.00	91.00	XPLSN1590	15.90	16.00	83.00	48.00	133.00
XPLSN0760	7.60	8.00	53.00	36.00	91.00	XPLSN1600	16.00	16.00	83.00	48.00	133.00
XPLSN0770	7.70	8.00	53.00	36.00	91.00	XPLSN1650	16.50	18.00	93.00	48.00	143.00
XPLSN0780	7.80	8.00	53.00	36.00	91.00	XPLSN1660	16.60	18.00	93.00	48.00	143.00
XPLSN0790	7.90	8.00	53.00	36.00	91.00	XPLSN1670	16.70	18.00	93.00	48.00	143.00
XPLSN0800	8.00	8.00	53.00	36.00	91.00	XPLSN1680	16.80	18.00	93.00	48.00	143.00
XPLSN0810	8.10	10.00	61.00	40.00	103.00	XPLSN1690	16.90	18.00	93.00	48.00	143.00
XPLSN0820	8.20	10.00	61.00	40.00	103.00	XPLSN1700	17.00	18.00	93.00	48.00	143.00
XPLSN0830	8.30	10.00	61.00	40.00	103.00	XPLSN1710	17.10	18.00	93.00	48.00	143.00
XPLSN0840	8.40	10.00	61.00	40.00	103.00	XPLSN1720	17.20	18.00	93.00	48.00	143.00
XPLSN0850	8.50	10.00	61.00	40.00	103.00	XPLSN1730	17.30	18.00	93.00	48.00	143.00
XPLSN0860	8.60	10.00	61.00	40.00	103.00	XPLSN1740	17.40	18.00	93.00	48.00	143.00
XPLSN0870	8.70	10.00	61.00	40.00	103.00	XPLSN1750	17.50	18.00	93.00	48.00	143.00
XPLSN0880	8.80	10.00	61.00	40.00	103.00	XPLSN1760	17.60	18.00	93.00	48.00	143.00
XPLSN0890	8.90	10.00	61.00	40.00	103.00	XPLSN1770	17.70	18.00	93.00	48.00	143.00
XPLSN0900	9.00	10.00	61.00	40.00	103.00	XPLSN1780	17.80	18.00	93.00	48.00	143.00
XPLSN0910	9.10	10.00	61.00	40.00	103.00	XPLSN1790	17.90	18.00	93.00	48.00	143.00
XPLSN0920	9.20	10.00	61.00	40.00	103.00	XPLSN1800	18.00	18.00	93.00	48.00	143.00
XPLSN0930	9.30	10.00	61.00	40.00	103.00	XPLSN1850	18.50	20.00	101.00	50.00	153.00
XPLSN0940	9.40	10.00	61.00	40.00	103.00	XPLSN1860	18.60	20.00	101.00	50.00	153.00
XPLSN0950	9.50	10.00	61.00	40.00	103.00	XPLSN1870	18.70	20.00	101.00	50.00	153.00
XPLSN0960	9.60	10.00	61.00	40.00	103.00	XPLSN1880	18.80	20.00	101.00	50.00	153.00
XPLSN0970	9.70	10.00	61.00	40.00	103.00	XPLSN1890	18.90	20.00	101.00	50.00	153.00
XPLSN0980	9.80	10.00	61.00	40.00	103.00	XPLSN1900	19.00	20.00	101.00	50.00	153.00
XPLSN0990	9.90	10.00	61.00	40.00	103.00	XPLSN1910	19.10	20.00	101.00	50.00	153.00
XPLSN1000	10.00	10.00	61.00	40.00	103.00	XPLSN1920	19.20	20.00	101.00	50.00	153.00
XPLSN1010	10.10	12.00	71.00	45.00	118.00	XPLSN1930	19.30	20.00	101.00	50.00	153.00
XPLSN1020	10.20	12.00	71.00	45.00	118.00	XPLSN1940	19.40	20.00	101.00	50.00	153.00
XPLSN1030	10.30	12.00	71.00	45.00	118.00	XPLSN1950	19.50	20.00	101.00	50.00	153.00
XPLSN1040	10.40	12.00	71.00	45.00	118.00	XPLSN1960	19.60	20.00	101.00	50.00	153.00
XPLSN1050	10.50	12.00	71.00	45.00	118.00	XPLSN1970	19.70	20.00	101.00	50.00	153.00
XPLSN1060	10.60	12.00	71.00	45.00	118.00	XPLSN1980	19.80	20.00	101.00	50.00	153.00
XPLSN1070	10.70	12.00	71.00	45.00	118.00	XPLSN2000	20.00	20.00	101.00	50.00	153.00

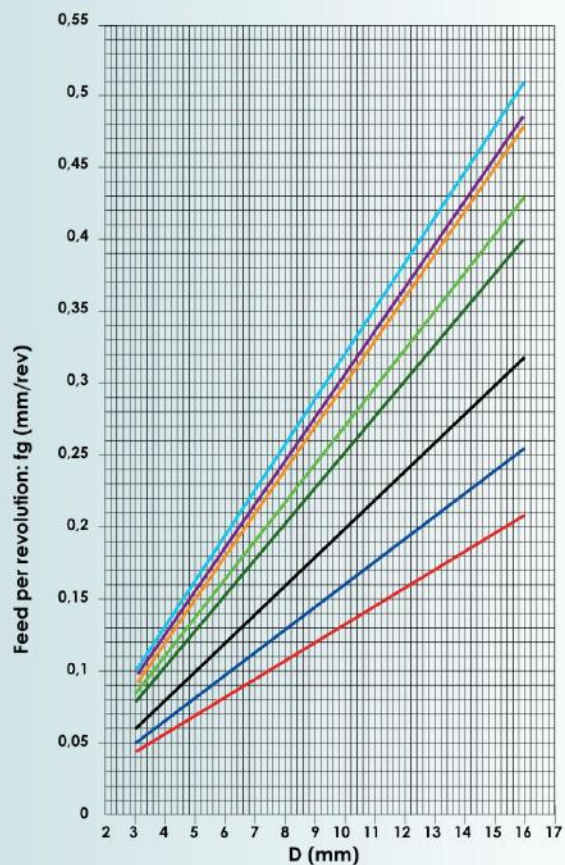


SOLID CARBIDE INTERNAL COOLANT X-PLUS DRILL L/D 3



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



Alu alloys Si <6%	Vc 250 m/min
Spheroidal cast iron	Vc 190 m/min
Brass	Vc 220 m/min
< 800 N/mm ²	Vc 145 m/min
< 1000 N/mm ²	Vc 110 m/min
< 1300 N/mm ²	Vc 75 m/min
12% Cr & Stainless Steel	Vc 55 m/min
< 1500 N/mm ²	Vc 45 m/m



SOLID CARBIDE INTERNAL COOLANT X-PLUS DRILL L/D 3

DIN
L/D 3

XTREME
X-PLUS

POINT
ANGLE 140°

HELIX
ANGLE
30°

SHANK

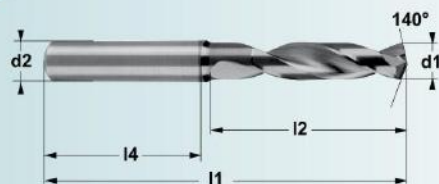
ROTATION
↑ RH

X-PLUS	D1 m7	D2 h6	L2	L4	L1
XPST0300	3.00	6.00	20.00	36.00	62.00
XPST0310	3.10	6.00	20.00	36.00	62.00
XPST0320	3.20	6.00	20.00	36.00	62.00
XPST0330	3.30	6.00	20.00	36.00	62.00
XPST0340	3.40	6.00	20.00	36.00	62.00
XPST0350	3.50	6.00	20.00	36.00	62.00
XPST0360	3.60	6.00	20.00	36.00	62.00
XPST0370	3.70	6.00	20.00	36.00	62.00
XPST0380	3.80	6.00	20.00	36.00	62.00
XPST0390	3.90	6.00	20.00	36.00	62.00
XPST0400	4.00	6.00	20.00	36.00	62.00
XPST0410	4.10	6.00	20.00	36.00	62.00
XPST0420	4.20	6.00	20.00	36.00	62.00
XPST0430	4.30	6.00	20.00	36.00	62.00
XPST0440	4.40	6.00	20.00	36.00	62.00
XPST0450	4.50	6.00	20.00	36.00	62.00
XPST0460	4.60	6.00	20.00	36.00	62.00
XPST0470	4.70	6.00	20.00	36.00	62.00
XPST0480	4.80	6.00	20.00	36.00	62.00
XPST0490	4.90	6.00	20.00	36.00	62.00
XPST0500	5.00	6.00	20.00	36.00	62.00
XPST0510	5.10	6.00	20.00	36.00	62.00
XPST0520	5.20	6.00	20.00	36.00	62.00
XPST0530	5.30	6.00	20.00	36.00	62.00
XPST0540	5.40	6.00	20.00	36.00	62.00
XPST0550	5.50	6.00	20.00	36.00	62.00
XPST0560	5.60	6.00	20.00	36.00	62.00
XPST0570	5.70	6.00	20.00	36.00	62.00
XPST0580	5.80	6.00	20.00	36.00	62.00
XPST0590	5.90	6.00	20.00	36.00	62.00
XPST0600	6.00	6.00	20.00	36.00	62.00
XPST0610	6.10	8.00	41.00	36.00	79.00
XPST0620	6.20	8.00	41.00	36.00	79.00
XPST0630	6.30	8.00	41.00	36.00	79.00
XPST0640	6.40	8.00	41.00	36.00	79.00
XPST0650	6.50	8.00	41.00	36.00	79.00
XPST0660	6.60	8.00	41.00	36.00	79.00
XPST0670	6.70	8.00	41.00	36.00	79.00
XPST0680	6.80	8.00	41.00	36.00	79.00
XPST0690	6.90	8.00	41.00	36.00	79.00
XPST0700	7.00	8.00	41.00	36.00	79.00
XPST0710	7.10	8.00	41.00	36.00	79.00
XPST0720	7.20	8.00	41.00	36.00	79.00
XPST0730	7.30	8.00	41.00	36.00	79.00
XPST0740	7.40	8.00	41.00	36.00	79.00
XPST0750	7.50	8.00	41.00	36.00	79.00
XPST0760	7.60	8.00	41.00	36.00	79.00
XPST0770	7.70	8.00	41.00	36.00	79.00
XPST0780	7.80	8.00	41.00	36.00	79.00
XPST0790	7.90	8.00	41.00	36.00	79.00
XPST0800	8.00	8.00	41.00	36.00	79.00
XPST0810	8.10	10.00	47.00	40.00	89.00
XPST0820	8.20	10.00	47.00	40.00	89.00
XPST0830	8.30	10.00	47.00	40.00	89.00
XPST0840	8.40	10.00	47.00	40.00	89.00
XPST0850	8.50	10.00	47.00	40.00	89.00
XPST0860	8.60	10.00	47.00	40.00	89.00
XPST0870	8.70	10.00	47.00	40.00	89.00
XPST0880	8.80	10.00	47.00	40.00	89.00
XPST0890	8.90	10.00	47.00	40.00	89.00
XPST0900	9.00	10.00	47.00	40.00	89.00
XPST0910	9.10	10.00	47.00	40.00	89.00

X-PLUS	D1 m7	D2 h6	L2	L4	L1
XPST0920	9.20	10.00	47.00	40.00	89.00
XPST0930	9.30	10.00	47.00	40.00	89.00
XPST0940	9.40	10.00	47.00	40.00	89.00
XPST0950	9.50	10.00	47.00	40.00	89.00
XPST0960	9.60	10.00	47.00	40.00	89.00
XPST0970	9.70	10.00	47.00	40.00	89.00
XPST0980	9.80	10.00	47.00	40.00	89.00
XPST0990	9.90	10.00	47.00	40.00	89.00
XPST1000	10.00	10.00	47.00	40.00	89.00
XPST1010	10.10	12.00	55.00	45.00	102.00
XPST1020	10.20	12.00	55.00	45.00	102.00
XPST1030	10.30	12.00	55.00	45.00	102.00
XPST1040	10.40	12.00	55.00	45.00	102.00
XPST1050	10.50	12.00	55.00	45.00	102.00
XPST1060	10.60	12.00	55.00	45.00	102.00
XPST1070	10.70	12.00	55.00	45.00	102.00
XPST1080	10.80	12.00	55.00	45.00	102.00
XPST1090	10.90	12.00	55.00	45.00	102.00
XPST1100	11.00	12.00	55.00	45.00	102.00
XPST1110	11.10	12.00	55.00	45.00	102.00
XPST1120	11.20	12.00	55.00	45.00	102.00
XPST1130	11.30	12.00	55.00	45.00	102.00
XPST1140	11.40	12.00	55.00	45.00	102.00
XPST1150	11.50	12.00	55.00	45.00	102.00
XPST1160	11.60	12.00	55.00	45.00	102.00
XPST1170	11.70	12.00	55.00	45.00	102.00
XPST1180	11.80	12.00	55.00	45.00	102.00
XPST1190	11.90	12.00	55.00	45.00	102.00
XPST1200	12.00	12.00	55.00	45.00	102.00
XPST1210	12.10	14.00	60.00	45.00	107.00
XPST1220	12.20	14.00	60.00	45.00	107.00
XPST1230	12.30	14.00	60.00	45.00	107.00
XPST1240	12.40	14.00	60.00	45.00	107.00
XPST1250	12.50	14.00	60.00	45.00	107.00
XPST1260	12.60	14.00	60.00	45.00	107.00
XPST1270	12.70	14.00	60.00	45.00	107.00
XPST1280	12.80	14.00	60.00	45.00	107.00
XPST1290	12.90	14.00	60.00	45.00	107.00
XPST1300	13.00	14.00	60.00	45.00	107.00
XPST1310	13.10	14.00	60.00	45.00	107.00
XPST1320	13.20	14.00	60.00	45.00	107.00
XPST1330	13.30	14.00	60.00	45.00	107.00
XPST1340	13.40	14.00	60.00	45.00	107.00
XPST1350	13.50	14.00	60.00	45.00	107.00
XPST1360	13.60	14.00	60.00	45.00	107.00
XPST1370	13.70	14.00	60.00	45.00	107.00
XPST1380	13.80	14.00	60.00	45.00	107.00
XPST1390	13.90	14.00	60.00	45.00	107.00
XPST1400	14.00	14.00	60.00	45.00	107.00
XPST1410	14.10	16.00	65.00	48.00	115.00
XPST1420	14.20	16.00	65.00	48.00	115.00
XPST1430	14.30	16.00	65.00	48.00	115.00
XPST1440	14.40	16.00	65.00	48.00	115.00
XPST1450	14.50	16.00	65.00	48.00	115.00
XPST1460	14.60	16.00	65.00	48.00	115.00
XPST1470	14.70	16.00	65.00	48.00	115.00
XPST1480	14.80	16.00	65.00	48.00	115.00
XPST1490	14.90	16.00	65.00	48.00	115.00
XPST1500	15.00	16.00	65.00	48.00	115.00
XPST1510	15.10	16.00	65.00	48.00	115.00
XPST1520	15.20	16.00	65.00	48.00	115.00
XPST1530	15.30	16.00	65.00	48.00	115.00
XPST1540	15.40	16.00	65.00	48.00	115.00
XPST1550	15.50	16.00	65.00	48.00	115.00
XPST1560	15.60	16.00	65.00	48.00	115.00
XPST1570	15.70	16.00	65.00	48.00	115.00
XPST1580	15.80	16.00	65.00	48.00	115.00
XPST1590	15.90	16.00	65.00	48.00	115.00
XPST1600	16.00	16.00	65.00	48.00	115.00

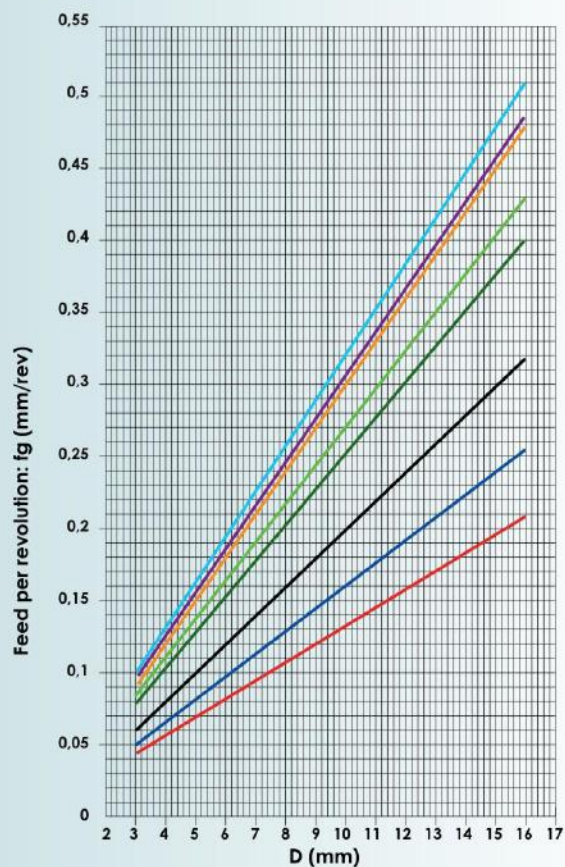


SOLID CARBIDE INTERNAL COOLANT X-PLUS DRILL L/D 5



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



- Alu alloys Si <6%
Vc 250 m/min
- Spheroidal cast iron
Vc 190 m/min
- Brass
Vc 220 m/min
- < 800 N/mm²
Vc 145 m/min
- < 1000 N/mm²
Vc 110 m/min
- < 1300 N/mm²
Vc 75 m/min
- 12% Cr & Stainless Steel
Vc 55 m/min
- < 1500 N/mm²
Vc 45 m/m



SOLID CARBIDE INTERNAL COOLANT X-PLUS DRILL L/D 5

DIN
L/D 5

XTREME
X-PLUS

POINT
ANGLE 140°

HELIX
ANGLE
30°

SHANK

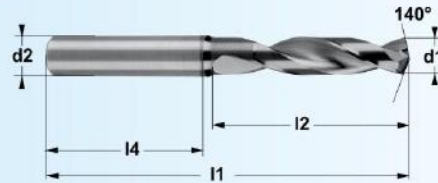
ROTATION
RH

X-PLUS	D1 m7	D2 h6	L2	L4	L1
XPLST0300	3.00	6.00	28.00	36.00	66.00
XPLST0310	3.30	6.00	28.00	36.00	66.00
XPLST0320	3.20	6.00	28.00	36.00	66.00
XPLST0330	3.30	6.00	28.00	36.00	66.00
XPLST0340	3.40	6.00	28.00	36.00	66.00
XPLST0350	3.50	6.00	28.00	36.00	66.00
XPLST0360	3.60	6.00	28.00	36.00	66.00
XPLST0370	3.70	6.00	28.00	36.00	66.00
XPLST0380	3.80	6.00	36.00	36.00	74.00
XPLST0390	3.90	6.00	36.00	36.00	74.00
XPLST0400	4.00	6.00	36.00	36.00	74.00
XPLST0410	4.10	6.00	36.00	36.00	74.00
XPLST0420	4.20	6.00	36.00	36.00	74.00
XPLST0430	4.30	6.00	36.00	36.00	74.00
XPLST0440	4.40	6.00	36.00	36.00	74.00
XPLST0450	4.50	6.00	36.00	36.00	74.00
XPLST0460	4.60	6.00	36.00	36.00	74.00
XPLST0470	4.70	6.00	36.00	36.00	74.00
XPLST0480	4.80	6.00	44.00	36.00	82.00
XPLST0490	4.90	6.00	44.00	36.00	82.00
XPLST0500	5.00	6.00	44.00	36.00	82.00
XPLST0510	5.10	6.00	44.00	36.00	82.00
XPLST0520	5.20	6.00	44.00	36.00	82.00
XPLST0530	5.30	6.00	44.00	36.00	82.00
XPLST0540	5.40	6.00	44.00	36.00	82.00
XPLST0550	5.50	6.00	44.00	36.00	82.00
XPLST0560	5.60	6.00	44.00	36.00	82.00
XPLST0570	5.70	6.00	44.00	36.00	82.00
XPLST0580	5.80	6.00	44.00	36.00	82.00
XPLST0590	5.90	6.00	44.00	36.00	82.00
XPLST0600	6.00	6.00	44.00	36.00	82.00
XPLST0610	6.10	8.00	53.00	36.00	91.00
XPLST0620	6.20	8.00	53.00	36.00	91.00
XPLST0630	6.30	8.00	53.00	36.00	91.00
XPLST0640	6.40	8.00	53.00	36.00	91.00
XPLST0650	6.50	8.00	53.00	36.00	91.00
XPLST0660	6.60	8.00	53.00	36.00	91.00
XPLST0670	6.70	8.00	53.00	36.00	91.00
XPLST0680	6.80	8.00	53.00	36.00	91.00
XPLST0690	6.90	8.00	53.00	36.00	91.00
XPLST0700	7.00	8.00	53.00	36.00	91.00
XPLST0710	7.10	8.00	53.00	36.00	91.00
XPLST0720	7.20	8.00	53.00	36.00	91.00
XPLST0730	7.30	8.00	53.00	36.00	91.00
XPLST0740	7.40	8.00	53.00	36.00	91.00
XPLST0750	7.50	8.00	53.00	36.00	91.00
XPLST0760	7.60	8.00	53.00	36.00	91.00
XPLST0770	7.70	8.00	53.00	36.00	91.00
XPLST0780	7.80	8.00	53.00	36.00	91.00
XPLST0790	7.90	8.00	53.00	36.00	91.00
XPLST0800	8.00	8.00	53.00	36.00	91.00
XPLST0810	8.10	10.00	61.00	40.00	103.00
XPLST0820	8.20	10.00	61.00	40.00	103.00
XPLST0830	8.30	10.00	61.00	40.00	103.00
XPLST0840	8.40	10.00	61.00	40.00	103.00
XPLST0850	8.50	10.00	61.00	40.00	103.00
XPLST0860	8.60	10.00	61.00	40.00	103.00
XPLST0870	8.70	10.00	61.00	40.00	103.00
XPLST0880	8.80	10.00	61.00	40.00	103.00
XPLST0890	8.90	10.00	61.00	40.00	103.00
XPLST0900	9.00	10.00	61.00	40.00	103.00
XPLST0910	9.10	10.00	61.00	40.00	103.00

X-PLUS	D1 m7	D2 h6	L2	L4	L1
XPLST0920	9.20	10.00	61.00	40.00	103.00
XPLST0930	9.30	10.00	61.00	40.00	103.00
XPLST0940	9.40	10.00	61.00	40.00	103.00
XPLST0950	9.50	10.00	61.00	40.00	103.00
XPLST0960	9.60	10.00	61.00	40.00	103.00
XPLST0970	9.70	10.00	61.00	40.00	103.00
XPLST0980	9.80	10.00	61.00	40.00	103.00
XPLST0990	9.90	10.00	61.00	40.00	103.00
XPLST1000	10.00	10.00	61.00	40.00	103.00
XPLST1010	10.10	12.00	71.00	45.00	118.00
XPLST1020	10.20	12.00	71.00	45.00	118.00
XPLST1030	10.30	12.00	71.00	45.00	118.00
XPLST1040	10.40	12.00	71.00	45.00	118.00
XPLST1050	10.50	12.00	71.00	45.00	118.00
XPLST1060	10.60	12.00	71.00	45.00	118.00
XPLST1070	10.70	12.00	71.00	45.00	118.00
XPLST1080	10.80	12.00	71.00	45.00	118.00
XPLST1090	10.90	12.00	71.00	45.00	118.00
XPLST1100	11.00	12.00	71.00	45.00	118.00
XPLST1110	11.10	12.00	71.00	45.00	118.00
XPLST1120	11.20	12.00	71.00	45.00	118.00
XPLST1130	11.30	12.00	71.00	45.00	118.00
XPLST1140	11.40	12.00	71.00	45.00	118.00
XPLST1150	11.50	12.00	71.00	45.00	118.00
XPLST1160	11.60	12.00	71.00	45.00	118.00
XPLST1170	11.70	12.00	71.00	45.00	118.00
XPLST1180	11.80	12.00	71.00	45.00	118.00
XPLST1190	11.90	12.00	71.00	45.00	118.00
XPLST1200	12.00	12.00	71.00	45.00	118.00
XPLST1230	12.30	14.00	77.00	45.00	124.00
XPLST1240	12.40	14.00	77.00	45.00	124.00
XPLST1250	12.50	14.00	77.00	45.00	124.00
XPLST1260	12.60	14.00	77.00	45.00	124.00
XPLST1270	12.70	14.00	77.00	45.00	124.00
XPLST1280	12.80	14.00	77.00	45.00	124.00
XPLST1290	12.90	14.00	77.00	45.00	124.00
XPLST1300	13.00	14.00	77.00	45.00	124.00
XPLST1310	13.10	14.00	77.00	45.00	124.00
XPLST1320	13.20	14.00	77.00	45.00	124.00
XPLST1330	13.30	14.00	77.00	45.00	124.00
XPLST1340	13.40	14.00	77.00	45.00	124.00
XPLST1350	13.50	14.00	77.00	45.00	124.00
XPLST1360	13.60	14.00	77.00	45.00	124.00
XPLST1370	13.70	14.00	77.00	45.00	124.00
XPLST1380	13.80	14.00	77.00	45.00	124.00
XPLST1390	13.90	14.00	77.00	45.00	124.00
XPLST1400	14.00	14.00	77.00	45.00	124.00
XPLST1450	14.50	16.00	83.00	48.00	133.00
XPLST1460	14.60	16.00	83.00	48.00	133.00
XPLST1470	14.70	16.00	83.00	48.00	133.00
XPLST1480	14.80	16.00	83.00	48.00	133.00
XPLST1490	14.90	16.00	83.00	48.00	133.00
XPLST1500	15.00	16.00	83.00	48.00	133.00
XPLST1510	15.10	16.00	83.00	48.00	133.00
XPLST1520	15.20	16.00	83.00	48.00	133.00
XPLST1530	15.30	16.00	83.00	48.00	133.00
XPLST1540	15.40	16.00	83.00	48.00	133.00
XPLST1550	15.50	16.00	83.00	48.00	133.00
XPLST1560	15.60	16.00	83.00	48.00	133.00
XPLST1570	15.70	16.00	83.00	48.00	133.00
XPLST1580	15.80	16.00	83.00	48.00	133.00
XPLST1590	15.90	16.00	83.00	48.00	133.00
XPLST1600	16.00	16.00	83.00	48.00	133.00

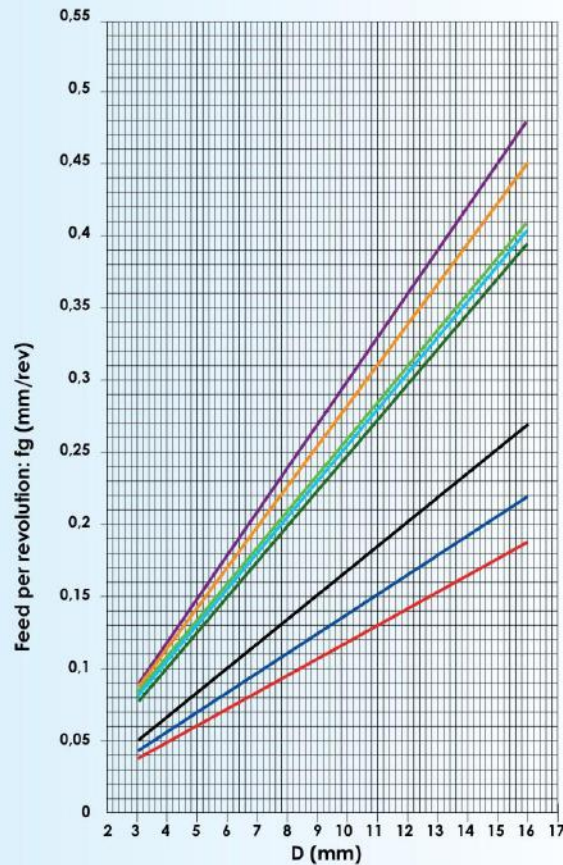


SOLID CARBIDE MEGA DRILL L/D 3



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



SOLID CARBIDE MEGA DRILL L/D 3

DIN
L/D 3

XTREME
MEGA

POINT
ANGLE 140°

HELIX
ANGLE
30°

SHANK

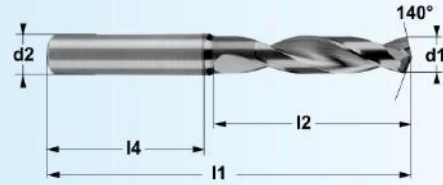
ROTATION
RH

X Plus	D1 m7	D2 h6	L2	L4	L1
MGSN0300	3.00	6.00	20.00	36.00	62.00
MGSN0310	3.10	6.00	20.00	36.00	62.00
MGSN0320	3.20	6.00	20.00	36.00	62.00
MGSN0330	3.30	6.00	20.00	36.00	62.00
MGSN0340	3.40	6.00	20.00	36.00	62.00
MGSN0350	3.50	6.00	20.00	36.00	62.00
MGSN0360	3.60	6.00	20.00	36.00	62.00
MGSN0370	3.70	6.00	20.00	36.00	62.00
MGSN0380	3.80	6.00	24.00	36.00	66.00
MGSN0390	3.90	6.00	24.00	36.00	66.00
MGSN0400	4.00	6.00	24.00	36.00	66.00
MGSN0410	4.10	6.00	24.00	36.00	66.00
MGSN0420	4.20	6.00	24.00	36.00	66.00
MGSN0430	4.30	6.00	24.00	36.00	66.00
MGSN0440	4.40	6.00	24.00	36.00	66.00
MGSN0450	4.50	6.00	24.00	36.00	66.00
MGSN0460	4.60	6.00	24.00	36.00	66.00
MGSN0470	4.70	6.00	24.00	36.00	66.00
MGSN0480	4.80	6.00	28.00	36.00	66.00
MGSN0490	4.90	6.00	28.00	36.00	66.00
MGSN0500	5.00	6.00	28.00	36.00	66.00
MGSN0510	5.10	6.00	28.00	36.00	66.00
MGSN0520	5.20	6.00	28.00	36.00	66.00
MGSN0530	5.30	6.00	28.00	36.00	66.00
MGSN0540	5.40	6.00	28.00	36.00	66.00
MGSN0550	5.50	6.00	28.00	36.00	66.00
MGSN0560	5.60	6.00	28.00	36.00	66.00
MGSN0570	5.70	6.00	28.00	36.00	66.00
MGSN0580	5.80	6.00	28.00	36.00	66.00
MGSN0590	5.90	6.00	28.00	36.00	66.00
MGSN0600	6.00	6.00	28.00	36.00	66.00
MGSN0610	6.10	8.00	41.00	36.00	79.00
MGSN0620	6.20	8.00	41.00	36.00	79.00
MGSN0630	6.30	8.00	41.00	36.00	79.00
MGSN0640	6.40	8.00	41.00	36.00	79.00
MGSN0650	6.50	8.00	41.00	36.00	79.00
MGSN0660	6.60	8.00	41.00	36.00	79.00
MGSN0670	6.70	8.00	41.00	36.00	79.00
MGSN0680	6.80	8.00	41.00	36.00	79.00
MGSN0690	6.90	8.00	41.00	36.00	79.00
MGSN0700	7.00	8.00	41.00	36.00	79.00
MGSN0710	7.10	8.00	41.00	36.00	79.00
MGSN0720	7.20	8.00	41.00	36.00	79.00
MGSN0730	7.30	8.00	41.00	36.00	79.00
MGSN0740	7.40	8.00	41.00	36.00	79.00
MGSN0750	7.50	8.00	41.00	36.00	79.00
MGSN0760	7.60	8.00	41.00	36.00	79.00
MGSN0770	7.70	8.00	41.00	36.00	79.00
MGSN0780	7.80	8.00	41.00	36.00	79.00
MGSN0790	7.90	8.00	41.00	36.00	79.00
MGSN0800	8.00	8.00	41.00	36.00	79.00
MGSN0810	8.10	10.00	47.00	40.00	89.00
MGSN0820	8.20	10.00	47.00	40.00	89.00
MGSN0830	8.30	10.00	47.00	40.00	89.00
MGSN0840	8.40	10.00	47.00	40.00	89.00
MGSN0850	8.50	10.00	47.00	40.00	89.00
MGSN0860	8.60	10.00	47.00	40.00	89.00
MGSN0870	8.70	10.00	47.00	40.00	89.00
MGSN0880	8.80	10.00	47.00	40.00	89.00
MGSN0890	8.90	10.00	47.00	40.00	89.00
MGSN0900	9.00	10.00	47.00	40.00	89.00
MGSN0910	9.10	10.00	47.00	40.00	89.00
MGSN0920	9.20	10.00	47.00	40.00	89.00
MGSN0930	9.30	10.00	47.00	40.00	89.00
MGSN0940	9.40	10.00	47.00	40.00	89.00
MGSN0950	9.50	10.00	47.00	40.00	89.00
MGSN0960	9.60	10.00	47.00	40.00	89.00
MGSN0970	9.70	10.00	47.00	40.00	89.00
MGSN0980	9.80	10.00	47.00	40.00	89.00
MGSN0990	9.90	10.00	47.00	40.00	89.00
MGSN1000	10.00	10.00	47.00	40.00	89.00
MGSN1010	10.10	12.00	55.00	45.00	102.00
MGSN1020	10.20	12.00	55.00	45.00	102.00
MGSN1030	10.30	12.00	55.00	45.00	102.00
MGSN1040	10.40	12.00	55.00	45.00	102.00
MGSN1050	10.50	12.00	55.00	45.00	102.00
MGSN1060	10.60	12.00	55.00	45.00	102.00
MGSN1070	10.70	12.00	55.00	45.00	102.00

X Plus	D1 m7	D2 h6	L2	L4	L1
MGSN1080	10.80	12.00	55.00	45.00	102.00
MGSN1090	10.90	12.00	55.00	45.00	102.00
MGSN1100	11.00	12.00	55.00	45.00	102.00
MGSN1110	11.10	12.00	55.00	45.00	102.00
MGSN1120	11.20	12.00	55.00	45.00	102.00
MGSN1130	11.30	12.00	55.00	45.00	102.00
MGSN1140	11.40	12.00	55.00	45.00	102.00
MGSN1150	11.50	12.00	55.00	45.00	102.00
MGSN1160	11.60	12.00	55.00	45.00	102.00
MGSN1170	11.70	12.00	55.00	45.00	102.00
MGSN1180	11.80	12.00	55.00	45.00	102.00
MGSN1190	11.90	12.00	55.00	45.00	102.00
MGSN1200	12.00	12.00	55.00	45.00	102.00
MGSN1230	12.30	14.00	60.00	45.00	107.00
MGSN1240	12.40	14.00	60.00	45.00	107.00
MGSN1250	12.50	14.00	60.00	45.00	107.00
MGSN1260	12.60	14.00	60.00	45.00	107.00
MGSN1270	12.70	14.00	60.00	45.00	107.00
MGSN1280	12.80	14.00	60.00	45.00	107.00
MGSN1290	12.90	14.00	60.00	45.00	107.00
MGSN1300	13.00	14.00	60.00	45.00	107.00
MGSN1310	13.10	14.00	60.00	45.00	107.00
MGSN1320	13.20	14.00	60.00	45.00	107.00
MGSN1330	13.30	14.00	60.00	45.00	107.00
MGSN1340	13.40	14.00	60.00	45.00	107.00
MGSN1350	13.50	14.00	60.00	45.00	107.00
MGSN1360	13.60	14.00	60.00	45.00	107.00
MGSN1370	13.70	14.00	60.00	45.00	107.00
MGSN1380	13.80	14.00	60.00	45.00	107.00
MGSN1390	13.90	14.00	60.00	45.00	107.00
MGSN1400	14.00	14.00	60.00	45.00	107.00
MGSN1450	14.50	16.00	65.00	48.00	115.00
MGSN1460	14.60	16.00	65.00	48.00	115.00
MGSN1470	14.70	16.00	65.00	48.00	115.00
MGSN1480	14.80	16.00	65.00	48.00	115.00
MGSN1490	14.90	16.00	65.00	48.00	115.00
MGSN1500	15.00	16.00	65.00	48.00	115.00
MGSN1510	15.10	16.00	65.00	48.00	115.00
MGSN1520	15.20	16.00	65.00	48.00	115.00
MGSN1530	15.30	16.00	65.00	48.00	115.00
MGSN1540	15.40	16.00	65.00	48.00	115.00
MGSN1550	15.50	16.00	65.00	48.00	115.00
MGSN1560	15.60	16.00	65.00	48.00	115.00
MGSN1570	15.70	16.00	65.00	48.00	115.00
MGSN1580	15.80	16.00	65.00	48.00	115.00
MGSN1590	15.90	16.00	65.00	48.00	115.00
MGSN1600	16.00	16.00	65.00	48.00	115.00
MGSN1650	16.50	18.00	73.00	48.00	123.00
MGSN1660	16.60	18.00	73.00	48.00	123.00
MGSN1670	16.70	18.00	73.00	48.00	123.00
MGSN1680	16.80	18.00	73.00	48.00	123.00
MGSN1690	16.90	18.00	73.00	48.00	123.00
MGSN1700	17.00	18.00	73.00	48.00	123.00
MGSN1710	17.10	18.00	73.00	48.00	123.00
MGSN1720	17.20	18.00	73.00	48.00	123.00
MGSN1730	17.30	18.00	73.00	48.00	123.00
MGSN1740	17.40	18.00	73.00	48.00	123.00
MGSN1750	17.50	18.00	73.00	48.00	123.00
MGSN1760	17.60	18.00	73.00	48.00	123.00
MGSN1770	17.70	18.00	73.00	48.00	123.00
MGSN1780	17.80	18.00	73.00	48.00	123.00
MGSN1790	17.90	18.00	73.00	48.00	123.00
MGSN1800	18.00	18.00	73.00	48.00	123.00
MGSN1850	18.50	20.00	79.00	50.00	131.00
MGSN1860	18.60	20.00	79.00	50.00	131.00
MGSN1870	18.70	20.00	79.00	50.00	131.00
MGSN1880	18.80	20.00	79.00	50.00	131.00
MGSN1890	18.90	20.00	79.00	50.00	131.00
MGSN1900	19.00	20.00	79.00	50.00	131.00
MGSN1910	19.10	20.00	79.00	50.00	131.00
MGSN1920	19.20	20.00	79.00	50.00	131.00
MGSN1930	19.30	20.00	79.00	50.00	131.00
MGSN1940	19.40	20.00	79.00	50.00	131.00
MGSN1950	19.50	20.00	79.00	50.00	131.00
MGSN1960	19.60	20.00	79.00	50.00	131.00
MGSN1970	19.70	20.00	79.00	50.00	131.00
MGSN1980	19.80	20.00	79.00	50.00	131.00
MGSN2000	20.00	20.00	79.00	50.00	131.00

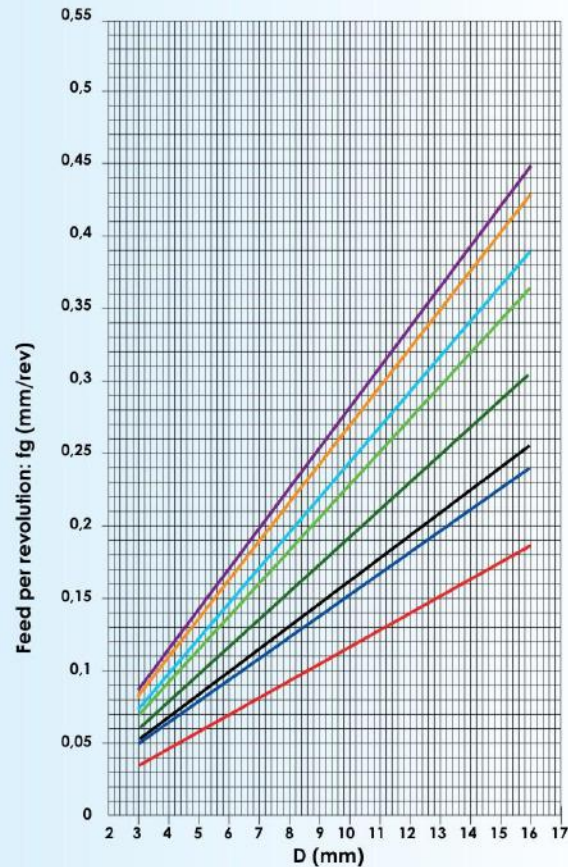


SOLID CARBIDE MEGA DRILL L/D 5



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



Spheroidal cast iron
Vc 186 m/min

Brass
Vc 240 m/min

< 800 N/mm²
Vc 132 m/min

Alu alloys Si < 6%
Vc 276 m/min

< 1000 N/mm²
Vc 108 m/min

< 1300 N/mm²
Vc 66 m/min

12% Cr & Stainless Steel
Vc 54 m/min

< 1500 N/mm²
Vc 48 m/min



SOLID CARBIDE MEGA DRILL L/D 5

DIN
L/D 5

XTREME
MEGA

POINT
ANGLE 140°

HELD
ANGLE
30°

SHANK

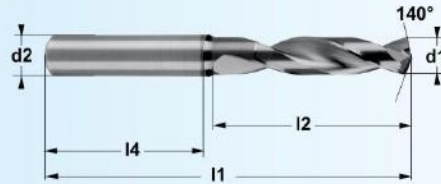
ROTATION
RH

MEGA	D1 m7	D2 h6	L2	L4	L1
MGLSN0300	3.00	6.00	28.00	36.00	66.00
MGLSN0310	3.10	6.00	28.00	36.00	66.00
MGLSN0320	3.20	6.00	28.00	36.00	66.00
MGLSN0330	3.30	6.00	28.00	36.00	66.00
MGLSN0340	3.40	6.00	28.00	36.00	66.00
MGLSN0350	3.50	6.00	28.00	36.00	66.00
MGLSN0360	3.60	6.00	28.00	36.00	66.00
MGLSN0370	3.70	6.00	28.00	36.00	66.00
MGLSN0380	3.80	6.00	36.00	36.00	74.00
MGLSN0390	3.90	6.00	36.00	36.00	74.00
MGLSN0400	4.00	6.00	36.00	36.00	74.00
MGLSN0410	4.10	6.00	36.00	36.00	74.00
MGLSN0420	4.20	6.00	36.00	36.00	74.00
MGLSN0430	4.30	6.00	36.00	36.00	74.00
MGLSN0440	4.40	6.00	36.00	36.00	74.00
MGLSN0450	4.50	6.00	36.00	36.00	74.00
MGLSN0460	4.60	6.00	36.00	36.00	74.00
MGLSN0470	4.70	6.00	36.00	36.00	74.00
MGLSN0480	4.80	6.00	44.00	36.00	82.00
MGLSN0490	4.90	6.00	44.00	36.00	82.00
MGLSN0500	5.00	6.00	44.00	36.00	82.00
MGLSN0510	5.10	6.00	44.00	36.00	82.00
MGLSN0520	5.20	6.00	44.00	36.00	82.00
MGLSN0530	5.30	6.00	44.00	36.00	82.00
MGLSN0540	5.40	6.00	44.00	36.00	82.00
MGLSN0550	5.50	6.00	44.00	36.00	82.00
MGLSN0560	5.60	6.00	44.00	36.00	82.00
MGLSN0570	5.70	6.00	44.00	36.00	82.00
MGLSN0580	5.80	6.00	44.00	36.00	82.00
MGLSN0590	5.90	6.00	44.00	36.00	82.00
MGLSN0600	6.00	6.00	44.00	36.00	82.00
MGLSN0610	6.10	8.00	53.00	36.00	91.00
MGLSN0620	6.20	8.00	53.00	36.00	91.00
MGLSN0630	6.30	8.00	53.00	36.00	91.00
MGLSN0640	6.40	8.00	53.00	36.00	91.00
MGLSN0650	6.50	8.00	53.00	36.00	91.00
MGLSN0660	6.60	8.00	53.00	36.00	91.00
MGLSN0670	6.70	8.00	53.00	36.00	91.00
MGLSN0680	6.80	8.00	53.00	36.00	91.00
MGLSN0690	6.90	8.00	53.00	36.00	91.00
MGLSN0700	7.00	8.00	53.00	36.00	91.00
MGLSN0710	7.10	8.00	53.00	36.00	91.00
MGLSN0720	7.20	8.00	53.00	36.00	91.00
MGLSN0730	7.30	8.00	53.00	36.00	91.00
MGLSN0740	7.40	8.00	53.00	36.00	91.00
MGLSN0750	7.50	8.00	53.00	36.00	91.00
MGLSN0760	7.60	8.00	53.00	36.00	91.00
MGLSN0770	7.70	8.00	53.00	36.00	91.00
MGLSN0780	7.80	8.00	53.00	36.00	91.00
MGLSN0790	7.90	8.00	53.00	36.00	91.00
MGLSN0800	8.00	8.00	53.00	36.00	91.00
MGLSN0810	8.10	10.00	61.00	40.00	103.00
MGLSN0820	8.20	10.00	61.00	40.00	103.00
MGLSN0830	8.30	10.00	61.00	40.00	103.00
MGLSN0840	8.40	10.00	61.00	40.00	103.00
MGLSN0850	8.50	10.00	61.00	40.00	103.00
MGLSN0860	8.60	10.00	61.00	40.00	103.00
MGLSN0870	8.70	10.00	61.00	40.00	103.00
MGLSN0880	8.80	10.00	61.00	40.00	103.00
MGLSN0890	8.90	10.00	61.00	40.00	103.00
MGLSN0900	9.00	10.00	61.00	40.00	103.00
MGLSN0910	9.10	10.00	61.00	40.00	103.00
MGLSN0920	9.20	10.00	61.00	40.00	103.00
MGLSN0930	9.30	10.00	61.00	40.00	103.00
MGLSN0940	9.40	10.00	61.00	40.00	103.00
MGLSN0950	9.50	10.00	61.00	40.00	103.00
MGLSN0960	9.60	10.00	61.00	40.00	103.00
MGLSN0970	9.70	10.00	61.00	40.00	103.00
MGLSN0980	9.80	10.00	61.00	40.00	103.00
MGLSN0990	9.90	10.00	61.00	40.00	103.00
MGLSN1000	10.00	10.00	61.00	40.00	103.00
MGLSN1010	10.10	12.00	71.00	45.00	118.00
MGLSN1020	10.20	12.00	71.00	45.00	118.00
MGLSN1030	10.30	12.00	71.00	45.00	118.00
MGLSN1040	10.40	12.00	71.00	45.00	118.00
MGLSN1050	10.50	12.00	71.00	45.00	118.00
MGLSN1060	10.60	12.00	71.00	45.00	118.00
MGLSN1070	10.70	12.00	71.00	45.00	118.00

MEGA	D1 m7	D2 h6	L2	L4	L1
MGLSN1080	10.80	12.00	71.00	45.00	118.00
MGLSN1090	10.90	12.00	71.00	45.00	118.00
MGLSN1100	11.00	12.00	71.00	45.00	118.00
MGLSN1110	11.10	12.00	71.00	45.00	118.00
MGLSN1120	11.20	12.00	71.00	45.00	118.00
MGLSN1130	11.30	12.00	71.00	45.00	118.00
MGLSN1140	11.40	12.00	71.00	45.00	118.00
MGLSN1150	11.50	12.00	71.00	45.00	118.00
MGLSN1160	11.60	12.00	71.00	45.00	118.00
MGLSN1170	11.70	12.00	71.00	45.00	118.00
MGLSN1180	11.80	12.00	71.00	45.00	118.00
MGLSN1190	11.90	12.00	71.00	45.00	118.00
MGLSN1200	12.00	12.00	71.00	45.00	118.00
MGLSN1210	12.10	14.00	77.00	45.00	124.00
MGLSN1220	12.20	14.00	77.00	45.00	124.00
MGLSN1230	12.30	14.00	77.00	45.00	124.00
MGLSN1240	12.40	14.00	77.00	45.00	124.00
MGLSN1250	12.50	14.00	77.00	45.00	124.00
MGLSN1260	12.60	14.00	77.00	45.00	124.00
MGLSN1270	12.70	14.00	77.00	45.00	124.00
MGLSN1280	12.80	14.00	77.00	45.00	124.00
MGLSN1290	12.90	14.00	77.00	45.00	124.00
MGLSN1300	13.00	14.00	77.00	45.00	124.00
MGLSN1310	13.10	14.00	77.00	45.00	124.00
MGLSN1320	13.20	14.00	77.00	45.00	124.00
MGLSN1330	13.30	14.00	77.00	45.00	124.00
MGLSN1340	13.40	14.00	77.00	45.00	124.00
MGLSN1350	13.50	14.00	77.00	45.00	124.00
MGLSN1360	13.60	14.00	77.00	45.00	124.00
MGLSN1370	13.70	14.00	77.00	45.00	124.00
MGLSN1380	13.80	14.00	77.00	45.00	124.00
MGLSN1390	13.90	14.00	77.00	45.00	124.00
MGLSN1400	14.00	14.00	77.00	45.00	124.00
MGLSN1450	14.50	16.00	83.00	48.00	133.00
MGLSN1460	14.60	16.00	83.00	48.00	133.00
MGLSN1470	14.70	16.00	83.00	48.00	133.00
MGLSN1480	14.80	16.00	83.00	48.00	133.00
MGLSN1490	14.90	16.00	83.00	48.00	133.00
MGLSN1500	15.00	16.00	83.00	48.00	133.00
MGLSN1510	15.10	16.00	83.00	48.00	133.00
MGLSN1520	15.20	16.00	83.00	48.00	133.00
MGLSN1530	15.30	16.00	83.00	48.00	133.00
MGLSN1540	15.40	16.00	83.00	48.00	133.00
MGLSN1550	15.50	16.00	83.00	48.00	133.00
MGLSN1560	15.60	16.00	83.00	48.00	133.00
MGLSN1570	15.70	16.00	83.00	48.00	133.00
MGLSN1580	15.80	16.00	83.00	48.00	133.00
MGLSN1590	15.90	16.00	83.00	48.00	133.00
MGLSN1600	16.00	16.00	83.00	48.00	133.00
MGLSN1650	16.50	18.00	93.00	48.00	143.00
MGLSN1660	16.60	18.00	93.00	48.00	143.00
MGLSN1670	16.70	18.00	93.00	48.00	143.00
MGLSN1680	16.80	18.00	93.00	48.00	143.00
MGLSN1690	16.90	18.00	93.00	48.00	143.00
MGLSN1700	17.00	18.00	93.00	48.00	143.00
MGLSN1710	17.10	18.00	93.00	48.00	143.00
MGLSN1720	17.20	18.00	93.00	48.00	143.00
MGLSN1730	17.30	18.00	93.00	48.00	143.00
MGLSN1740	17.40	18.00	93.00	48.00	143.00
MGLSN1750	17.50	18.00	93.00	48.00	143.00
MGLSN1760	17.60	18.00	93.00	48.00	143.00
MGLSN1770	17.70	18.00	93.00	48.00	143.00
MGLSN1780	17.80	18.00	93.00	48.00	143.00
MGLSN1790	17.90	18.00	93.00	48.00	143.00
MGLSN1800	18.00	18.00	93.00	48.00	143.00
MGLSN1850	18.50	20.00	101.00	50.00	153.00
MGLSN1860	18.60	20.00	101.00	50.00	153.00
MGLSN1870	18.70	20.00	101.00	50.00	153.00
MGLSN1880	18.80	20.00	101.00	50.00	153.00
MGLSN1890	18.90	20.00	101.00	50.00	153.00
MGLSN1900	19.00	20.00	101.00	50.00	153.00
MGLSN1910	19.10	20.00	101.00	50.00	153.00
MGLSN1920	19.20	20.00	101.00	50.00	153.00
MGLSN1930	19.30	20.00	101.00	50.00	153.00
MGLSN1940	19.40	20.00	101.00	50.00	153.00
MGLSN1950	19.50	20.00	101.00	50.00	153.00
MGLSN1960	19.60	20.00	101.00	50.00	153.00
MGLSN1970	19.70	20.00	101.00	50.00	153.00
MGLSN1980	19.80	20.00	101.00	50.00	153.00
MGLSN1990	19.90	20.00	101.00	50.00	153.00
MGLSN2000	20.00	20.00	101.00	50.00	153.00

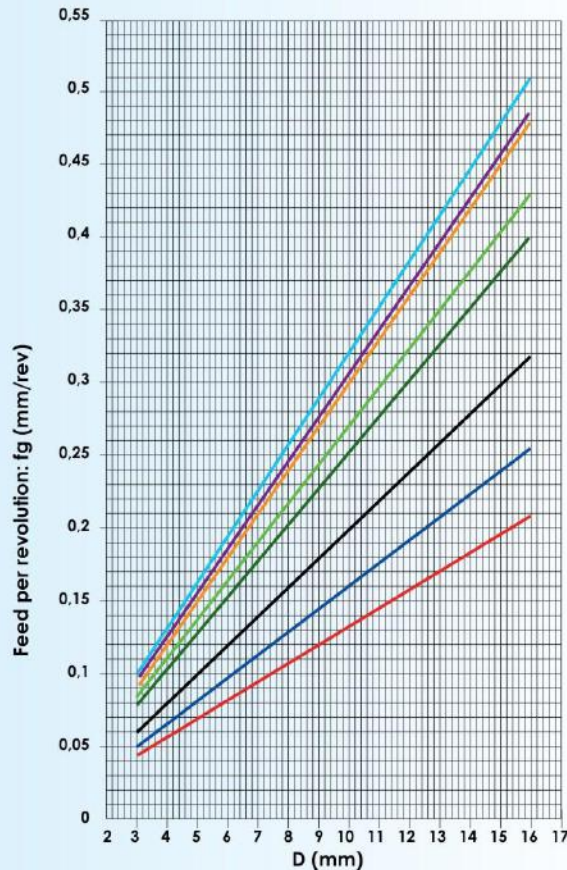


SOLID CARBIDE INTERNAL COOLANT MEGA DRILL L/D 3



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



- Alu alloys Si <6%
Vc 300 m/min
- Spheroidal cast iron
Vc 228 m/min
- Brass
Vc 264 m/min
- < 800 N/mm²
Vc 174 m/min
- < 1000 N/mm²
Vc 132 m/min
- < 1300 N/mm²
Vc 90 m/min
- 12% Cr & Stainless Steel
Vc 66 m/min
- < 1500 N/mm²
Vc 54 m/min



SOLID CARBIDE INTERNAL COOLANT MEGA DRILL L/D 3

DIN
L/D 3

XTREME
MEGA

POINT
ANGLE 140°

HELIX
ANGLE
30°

SHANK

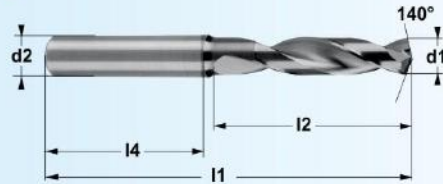
ROTATION
RH

MEGA	D1 m7	D2 m6	L2	L4	L1
MG5ST0300	3.00	6.00	20.00	36.00	62.00
MG5ST0310	3.10	6.00	20.00	36.00	62.00
MG5ST0320	3.20	6.00	20.00	36.00	62.00
MG5ST0330	3.30	6.00	20.00	36.00	62.00
MG5ST0340	3.40	6.00	20.00	36.00	62.00
MG5ST0350	3.50	6.00	20.00	36.00	62.00
MG5ST0360	3.60	6.00	20.00	36.00	62.00
MG5ST0370	3.70	6.00	20.00	36.00	62.00
MG5ST0380	3.80	6.00	20.00	36.00	62.00
MG5ST0390	3.90	6.00	20.00	36.00	62.00
MG5ST0400	4.00	6.00	20.00	36.00	62.00
MG5ST0410	4.10	6.00	20.00	36.00	62.00
MG5ST0420	4.20	6.00	20.00	36.00	62.00
MG5ST0430	4.30	6.00	20.00	36.00	62.00
MG5ST0440	4.40	6.00	20.00	36.00	62.00
MG5ST0450	4.50	6.00	20.00	36.00	62.00
MG5ST0460	4.60	6.00	20.00	36.00	62.00
MG5ST0470	4.70	6.00	20.00	36.00	62.00
MG5ST0480	4.80	6.00	20.00	36.00	62.00
MG5ST0490	4.90	6.00	20.00	36.00	62.00
MG5ST0500	5.00	6.00	20.00	36.00	62.00
MG5ST0510	5.10	6.00	20.00	36.00	62.00
MG5ST0520	5.20	6.00	20.00	36.00	62.00
MG5ST0530	5.30	6.00	20.00	36.00	62.00
MG5ST0540	5.40	6.00	20.00	36.00	62.00
MG5ST0550	5.50	6.00	20.00	36.00	62.00
MG5ST0560	5.60	6.00	20.00	36.00	62.00
MG5ST0570	5.70	6.00	20.00	36.00	62.00
MG5ST0580	5.80	6.00	20.00	36.00	62.00
MG5ST0590	5.90	6.00	20.00	36.00	62.00
MG5ST0600	6.00	6.00	20.00	36.00	62.00
MG5ST0610	6.10	8.00	41.00	36.00	79.00
MG5ST0620	6.20	8.00	41.00	36.00	79.00
MG5ST0630	6.30	8.00	41.00	36.00	79.00
MG5ST0640	6.40	8.00	41.00	36.00	79.00
MG5ST0650	6.50	8.00	41.00	36.00	79.00
MG5ST0660	6.60	8.00	41.00	36.00	79.00
MG5ST0670	6.70	8.00	41.00	36.00	79.00
MG5ST0680	6.80	8.00	41.00	36.00	79.00
MG5ST0690	6.90	8.00	41.00	36.00	79.00
MG5ST0700	7.00	8.00	41.00	36.00	79.00
MG5ST0710	7.10	8.00	41.00	36.00	79.00
MG5ST0720	7.20	8.00	41.00	36.00	79.00
MG5ST0730	7.30	8.00	41.00	36.00	79.00
MG5ST0740	7.40	8.00	41.00	36.00	79.00
MG5ST0750	7.50	8.00	41.00	36.00	79.00
MG5ST0760	7.60	8.00	41.00	36.00	79.00
MG5ST0770	7.70	8.00	41.00	36.00	79.00
MG5ST0780	7.80	8.00	41.00	36.00	79.00
MG5ST0790	7.90	8.00	41.00	36.00	79.00
MG5ST0800	8.00	8.00	41.00	36.00	79.00
MG5ST0810	8.10	10.00	47.00	40.00	89.00
MG5ST0820	8.20	10.00	47.00	40.00	89.00
MG5ST0830	8.30	10.00	47.00	40.00	89.00
MG5ST0840	8.40	10.00	47.00	40.00	89.00
MG5ST0850	8.50	10.00	47.00	40.00	89.00
MG5ST0860	8.60	10.00	47.00	40.00	89.00
MG5ST0870	8.70	10.00	47.00	40.00	89.00
MG5ST0880	8.80	10.00	47.00	40.00	89.00
MG5ST0890	8.90	10.00	47.00	40.00	89.00
MG5ST0900	9.00	10.00	47.00	40.00	89.00
MG5ST0910	9.10	10.00	47.00	40.00	89.00

MEGA	D1 m7	D2 m6	L2	L4	L1
MG5ST0920	9.20	10.00	47.00	40.00	89.00
MG5ST0930	9.30	10.00	47.00	40.00	89.00
MG5ST0940	9.40	10.00	47.00	40.00	89.00
MG5ST0950	9.50	10.00	47.00	40.00	89.00
MG5ST0960	9.60	10.00	47.00	40.00	89.00
MG5ST0970	9.70	10.00	47.00	40.00	89.00
MG5ST0980	9.80	10.00	47.00	40.00	89.00
MG5ST0990	9.90	10.00	47.00	40.00	89.00
MG5ST1000	10.00	10.00	47.00	40.00	89.00
MG5ST1010	10.10	12.00	55.00	45.00	102.00
MG5ST1020	10.20	12.00	55.00	45.00	102.00
MG5ST1030	10.30	12.00	55.00	45.00	102.00
MG5ST1040	10.40	12.00	55.00	45.00	102.00
MG5ST1050	10.50	12.00	55.00	45.00	102.00
MG5ST1060	10.60	12.00	55.00	45.00	102.00
MG5ST1070	10.70	12.00	55.00	45.00	102.00
MG5ST1080	10.80	12.00	55.00	45.00	102.00
MG5ST1090	10.90	12.00	55.00	45.00	102.00
MG5ST1100	11.00	12.00	55.00	45.00	102.00
MG5ST1110	11.10	12.00	55.00	45.00	102.00
MG5ST1120	11.20	12.00	55.00	45.00	102.00
MG5ST1130	11.30	12.00	55.00	45.00	102.00
MG5ST1140	11.40	12.00	55.00	45.00	102.00
MG5ST1150	11.50	12.00	55.00	45.00	102.00
MG5ST1160	11.60	12.00	55.00	45.00	102.00
MG5ST1170	11.70	12.00	55.00	45.00	102.00
MG5ST1180	11.80	12.00	55.00	45.00	102.00
MG5ST1190	11.90	12.00	55.00	45.00	102.00
MG5ST1200	12.00	12.00	55.00	45.00	102.00
MG5ST1230	12.30	14.00	60.00	45.00	107.00
MG5ST1240	12.40	14.00	60.00	45.00	107.00
MG5ST1250	12.50	14.00	60.00	45.00	107.00
MG5ST1260	12.60	14.00	60.00	45.00	107.00
MG5ST1270	12.70	14.00	60.00	45.00	107.00
MG5ST1280	12.80	14.00	60.00	45.00	107.00
MG5ST1290	12.90	14.00	60.00	45.00	107.00
MG5ST1300	13.00	14.00	60.00	45.00	107.00
MG5ST1310	13.10	14.00	60.00	45.00	107.00
MG5ST1320	13.20	14.00	60.00	45.00	107.00
MG5ST1330	13.30	14.00	60.00	45.00	107.00
MG5ST1340	13.40	14.00	60.00	45.00	107.00
MG5ST1350	13.50	14.00	60.00	45.00	107.00
MG5ST1360	13.60	14.00	60.00	45.00	107.00
MG5ST1370	13.70	14.00	60.00	45.00	107.00
MG5ST1380	13.80	14.00	60.00	45.00	107.00
MG5ST1390	13.90	14.00	60.00	45.00	107.00
MG5ST1400	14.00	14.00	60.00	45.00	107.00
MG5ST1450	14.50	16.00	65.00	48.00	115.00
MG5ST1460	14.60	16.00	65.00	48.00	115.00
MG5ST1470	14.70	16.00	65.00	48.00	115.00
MG5ST1480	14.80	16.00	65.00	48.00	115.00
MG 53T1490	14.90	16.00	65.00	48.00	115.00
MG5ST1500	15.00	16.00	65.00	48.00	115.00
MG5ST1510	15.10	16.00	65.00	48.00	115.00
MG 53T1520	15.20	16.00	65.00	48.00	115.00
MG5ST1530	15.30	16.00	65.00	48.00	115.00
MG5ST1540	15.40	16.00	65.00	48.00	115.00
MG 53T1550	15.50	16.00	65.00	48.00	115.00
MG5ST1560	15.60	16.00	65.00	48.00	115.00
MG5ST1570	15.70	16.00	65.00	48.00	115.00
MG 53T1580	15.80	16.00	65.00	48.00	115.00
MG5ST1590	15.90	16.00	65.00	48.00	115.00
MG5ST1600	16.00	16.00	65.00	48.00	115.00

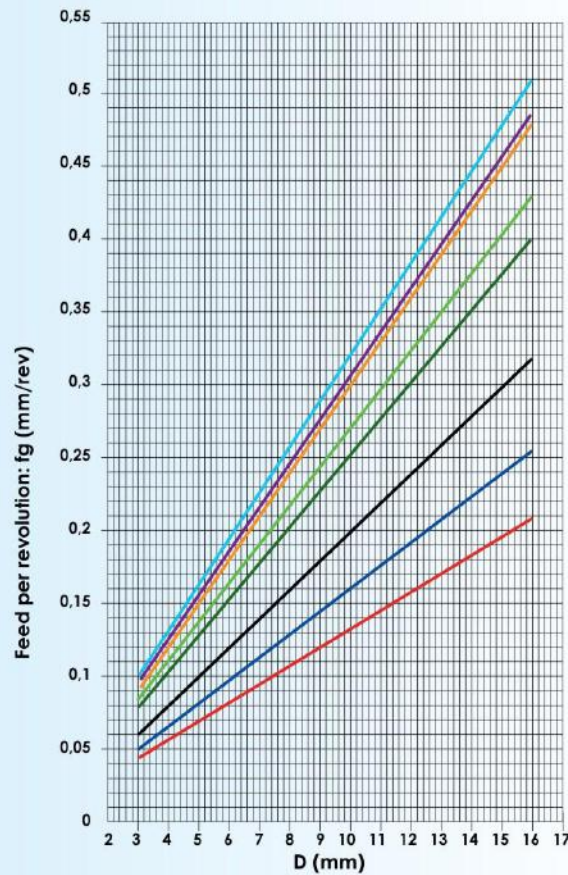


SOLID CARBIDE INTERNAL COOLANT MEGA DRILL L/D5



GEOMETRICAL HIGHLIGHTS :

- 140° Face Sharpening.
- Round face gash for an even distribution of the cutting forces.
- Low friction surface finishing.
- Formed flutes for an effective chip evacuation
- Exclusive Edge Honning.



- Alu alloys Si < 6%
Vc 300 m/min
- Spheroidal cast iron
Vc 228 m/min
- Brass
Vc 264 m/min
- < 800 N/mm²
Vc 174 m/min
- < 1000 N/mm²
Vc 132 m/min
- < 1300 N/mm²
Vc 90 m/min
- 12% Cr & Stainless Steel
Vc 66 m/min
- < 1500 N/mm²
Vc 54 m/min



SOLID CARBIDE INTERNAL COOLANT MEGA DRILL L/D 5

DIN
L/D 5

XTREME
MEGA

POINT
ANGLE 140°

HELIX
ANGLE 30°

SHANK

ROTATION
RH

MEGA	D1 m7	D2 h6	L2	L4	L3
MGLST0300	3.00	6.00	28.00	36.00	66.00
MGLST0310	3.10	6.00	28.00	36.00	66.00
MGLST0320	3.20	6.00	28.00	36.00	66.00
MGLST0330	3.30	6.00	28.00	36.00	66.00
MGLST0340	3.40	6.00	28.00	36.00	66.00
MGLST0350	3.50	6.00	28.00	36.00	66.00
MGLST0360	3.60	6.00	28.00	36.00	66.00
MGLST0370	3.70	6.00	28.00	36.00	66.00
MGLST0380	3.80	6.00	36.00	36.00	74.00
MGLST0390	3.90	6.00	36.00	36.00	74.00
MGLST0400	4.00	6.00	36.00	36.00	74.00
MGLST0410	4.10	6.00	36.00	36.00	74.00
MGLST0420	4.20	6.00	36.00	36.00	74.00
MGLST0430	4.30	6.00	36.00	36.00	74.00
MGLST0440	4.40	6.00	36.00	36.00	74.00
MGLST0450	4.50	6.00	36.00	36.00	74.00
MGLST0460	4.60	6.00	36.00	36.00	74.00
MGLST0470	4.70	6.00	36.00	36.00	74.00
MGLST0480	4.80	6.00	44.00	36.00	82.00
MGLST0490	4.90	6.00	44.00	36.00	82.00
MGLST0500	5.00	6.00	44.00	36.00	82.00
MGLST0510	5.10	6.00	44.00	36.00	82.00
MGLST0520	5.20	6.00	44.00	36.00	82.00
MGLST0530	5.30	6.00	44.00	36.00	82.00
MGLST0540	5.40	6.00	44.00	36.00	82.00
MGLST0550	5.50	6.00	44.00	36.00	82.00
MGLST0560	5.60	6.00	44.00	36.00	82.00
MGLST0570	5.70	6.00	44.00	36.00	82.00
MGLST0580	5.80	6.00	44.00	36.00	82.00
MGLST0590	5.90	6.00	44.00	36.00	82.00
MGLST0600	6.00	6.00	44.00	36.00	82.00
MGLST0610	6.10	8.00	53.00	36.00	91.00
MGLST0620	6.20	8.00	53.00	36.00	91.00
MGLST0630	6.30	8.00	53.00	36.00	91.00
MGLST0640	6.40	8.00	53.00	36.00	91.00
MGLST0650	6.50	8.00	53.00	36.00	91.00
MGLST0660	6.60	8.00	53.00	36.00	91.00
MGLST0670	6.70	8.00	53.00	36.00	91.00
MGLST0680	6.80	8.00	53.00	36.00	91.00
MGLST0690	6.90	8.00	53.00	36.00	91.00
MGLST0700	7.00	8.00	53.00	36.00	91.00
MGLST0710	7.10	8.00	53.00	36.00	91.00
MGLST0720	7.20	8.00	53.00	36.00	91.00
MGLST0730	7.30	8.00	53.00	36.00	91.00
MGLST0740	7.40	8.00	53.00	36.00	91.00
MGLST0750	7.50	8.00	53.00	36.00	91.00
MGLST0760	7.60	8.00	53.00	36.00	91.00
MGLST0770	7.70	8.00	53.00	36.00	91.00
MGLST0780	7.80	8.00	53.00	36.00	91.00
MGLST0790	7.90	8.00	53.00	36.00	91.00
MGLST0800	8.00	8.00	53.00	36.00	91.00
MGLST0810	8.10	10.00	61.00	40.00	103.00
MGLST0820	8.20	10.00	61.00	40.00	103.00
MGLST0830	8.30	10.00	61.00	40.00	103.00
MGLST0840	8.40	10.00	61.00	40.00	103.00
MGLST0850	8.50	10.00	61.00	40.00	103.00
MGLST0860	8.60	10.00	61.00	40.00	103.00
MGLST0870	8.70	10.00	61.00	40.00	103.00
MGLST0880	8.80	10.00	61.00	40.00	103.00
MGLST0890	8.90	10.00	61.00	40.00	103.00
MGLST0900	9.00	10.00	61.00	40.00	103.00
MGLST0910	9.10	10.00	61.00	40.00	103.00

MEGA	D1 m7	D2 h6	L2	L4	L3
MGLST0920	9.20	10.00	61.00	40.00	103.00
MGLST0930	9.30	10.00	61.00	40.00	103.00
MGLST0940	9.40	10.00	61.00	40.00	103.00
MGLST0950	9.50	10.00	61.00	40.00	103.00
MGLST0960	9.60	10.00	61.00	40.00	103.00
MGLST0970	9.70	10.00	61.00	40.00	103.00
MGLST0980	9.80	10.00	61.00	40.00	103.00
MGLST0990	9.90	10.00	61.00	40.00	103.00
MGLST1000	10.00	10.00	61.00	40.00	103.00
MGLST1010	10.10	12.00	71.00	45.00	118.00
MGLST1020	10.20	12.00	71.00	45.00	118.00
MGLST1030	10.30	12.00	71.00	45.00	118.00
MGLST1040	10.40	12.00	71.00	45.00	118.00
MGLST1050	10.50	12.00	71.00	45.00	118.00
MGLST1060	10.60	12.00	71.00	45.00	118.00
MGLST1070	10.70	12.00	71.00	45.00	118.00
MGLST1080	10.80	12.00	71.00	45.00	118.00
MGLST1090	10.90	12.00	71.00	45.00	118.00
MGLST1100	11.00	12.00	71.00	45.00	118.00
MGLST1110	11.10	12.00	71.00	45.00	118.00
MGLST1120	11.20	12.00	71.00	45.00	118.00
MGLST1130	11.30	12.00	71.00	45.00	118.00
MGLST1140	11.40	12.00	71.00	45.00	118.00
MGLST1150	11.50	12.00	71.00	45.00	118.00
MGLST1160	11.60	12.00	71.00	45.00	118.00
MGLST1170	11.70	12.00	71.00	45.00	118.00
MGLST1180	11.80	12.00	71.00	45.00	118.00
MGLST1190	11.90	12.00	71.00	45.00	118.00
MGLST1200	12.00	12.00	71.00	45.00	118.00
MGLST1230	12.30	14.00	77.00	45.00	124.00
MGLST1240	12.40	14.00	77.00	45.00	124.00
MGLST1250	12.50	14.00	77.00	45.00	124.00
MGLST1260	12.60	14.00	77.00	45.00	124.00
MGLST1270	12.70	14.00	77.00	45.00	124.00
MGLST1280	12.80	14.00	77.00	45.00	124.00
MGLST1290	12.90	14.00	77.00	45.00	124.00
MGLST1300	13.00	14.00	77.00	45.00	124.00
MGLST1310	13.10	14.00	77.00	45.00	124.00
MGLST1320	13.20	14.00	77.00	45.00	124.00
MGLST1330	13.30	14.00	77.00	45.00	124.00
MGLST1340	13.40	14.00	77.00	45.00	124.00
MGLST1350	13.50	14.00	77.00	45.00	124.00
MGLST1360	13.60	14.00	77.00	45.00	124.00
MGLST1370	13.70	14.00	77.00	45.00	124.00
MGLST1380	13.80	14.00	77.00	45.00	124.00
MGLST1390	13.90	14.00	77.00	45.00	124.00
MGLST1400	14.00	14.00	77.00	45.00	124.00
MGLST1450	14.50	16.00	83.00	48.00	133.00
MGLST1460	14.60	16.00	83.00	48.00	133.00
MGLST1470	14.70	16.00	83.00	48.00	133.00
MGLST1480	14.80	16.00	83.00	48.00	133.00
MGLST1490	14.90	16.00	83.00	48.00	133.00
MGLST1500	15.00	16.00	83.00	48.00	133.00
MGLST1510	15.10	16.00	83.00	48.00	133.00
MGLST1520	15.20	16.00	83.00	48.00	133.00
MGLST1530	15.30	16.00	83.00	48.00	133.00
MGLST1540	15.40	16.00	83.00	48.00	133.00
MGLST1550	15.50	16.00	83.00	48.00	133.00
MGLST1560	15.60	16.00	83.00	48.00	133.00
MGLST1570	15.70	16.00	83.00	48.00	133.00
MGLST1580	15.80	16.00	83.00	48.00	133.00
MGLST1590	15.90	16.00	83.00	48.00	133.00
MGLST1600	16.00	16.00	83.00	48.00	133.00

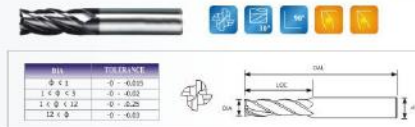


SOLID CARBIDE ENDMILL SHORT LENGTH

Solid Carbide 2-Flute End Mill



Solid Carbide 4-Flute End Mill



Cutting Condition / Square End Mills

Reference		Turning / Finishing												
P	Material	ENDMILL 2 Flute & 4 Flute												
		Vc (min/min)												
		3	4	5	6	8	10	12	15	18	20	25	30	35
P	Rm < 850	120	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1100	105	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1300	90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
M	Stainless Steels	65	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
K	Cast Iron	112	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	Copper	140	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Titanium alloys	44	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Inconel 718	28	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91

Cutting Condition / Square End Mills

Reference		Side milling / Roughing												
P	Material	ENDMILL 2 Flute & 4 Flute												
		Vc (min/min)												
		3	4	5	6	8	10	12	15	18	20	25	30	35
P	Rm < 850	140	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1100	120	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1300	92	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
M	Stainless Steels	37	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
K	Cast Iron	120	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	Copper	165	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Titanium alloys	53	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Inconel 718	28	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91

Reference		Side milling / Pre-Finishing												
P	Material	ENDMILL 2 Flute & 4 Flute												
		Vc (min/min)												
		3	4	5	6	8	10	12	15	18	20	25	30	35
P	Rm < 850	120	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1100	115	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1300	85	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
M	Stainless Steels	72	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
K	Cast Iron	145	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	Copper	160	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Titanium alloys	92	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Inconel 718	33	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91

Reference		Side milling / Finishing												
P	Material	ENDMILL 2 Flute & 4 Flute												
		Vc (min/min)												
		3	4	5	6	8	10	12	15	18	20	25	30	35
P	Rm < 850	150	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1100	130	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1300	88	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
M	Stainless Steels	84	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
K	Cast Iron	165	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	Copper	210	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Titanium alloys	110	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Inconel 718	40	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91

Reference		Setting / Pre-Finishing												
P	Material	ENDMILL 2 Flute & 4 Flute												
		Vc (min/min)												
		3	4	5	6	8	10	12	15	18	20	25	30	35
P	Rm < 850	180	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1100	150	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	Rm < 1300	150	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
M	Stainless Steels	88	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
K	Cast Iron	165	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	Copper	210	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Titanium alloys	128	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
S	Inconel 718	40	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91

SOLID CARBIDE END MILLS - SHORT LENGTH					
EDP No.		Dia (mm)	Shank Dia (mm)	Flute Length (mm)	DAL (mm)
EM-32	EM-24				
EM352	EM354	3	3	10	39
EM452	EM454	4	4	14	50
EM552	EM554	5	5	16	50
EM652	EM654	6	6	19	63
EM752	EM754	7	7	19	63
EM852	EM854	8	8	20	63
EM952	EM954	9	9	20	70
EM1052	EM1054	10	10	25	75
EM1152	EM1154	11	11	25	75
EM1252	EM1254	12	12	25	75
EM1352	EM1354	13	13	30	90
EM1452	EM1454	14	14	30	90
EM1552	EM1554	15	15	32	90
EM1652	EM1654	16	16	35	100
EM1752	EM1754	17	17	38	100
EM1852	EM1854	18	18	38	100
EM1952	EM1954	19	19	38	100
EM2052	EM2054	20	20	38	100
EM2152	EM2154	21	21	38	100
EM2252	EM2254	22	22	38	100
EM2352	EM2354	23	23	38	100

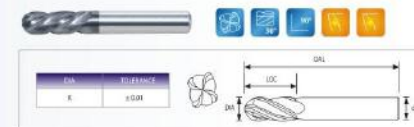
SOLID CARBIDE BALLNOSE SHORT LENGTH



Solid Carbide 2-Flute Ball End Mill



Solid Carbide 4-Flute Ball End Mill



Cutting Condition / Ballnose End Mills

U		Z-Leveling / Pre-Finishing										
		P				H		M		K		
		Rm < 850	Rm < 1100	Rm < 1300	HRC < 52							
Ap		0.02 x d	0.02 x d	0.02 x d	0.02 x d			0.02 x d		0.02 x d		
Ar		0.02 x d	0.02 x d	0.02 x d	0.02 x d			0.02 x d		0.02 x d		
Vc		230	200	180	115			102		192		
d	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf
R1.5	17200	2060	14900	1639	13900	1357	11700	1076	7600	720	14300	1710
R2.0	12800	2060	11200	1653	10400	1349	8800	1085	5600	720	10600	1710
R2.5	11700	2340	10200	1686	9550	1645	8000	1163	5100	810	9700	1945
R3.0	9800	2440	8500	1980	7900	1716	6700	1250	4300	850	8100	2025
R4.0	7300	2192	6300	1744	5900	1640	5000	1130	3200	760	6100	1815
R5.0	5900	1998	5100	1590	4700	1392	4000	1024	2600	690	4900	1655
R6.0	4900	1913	4200	1509	3900	1338	3300	964	2200	660	4100	1565

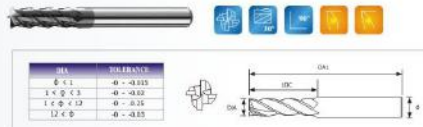


SOLID CARBIDE ENDMILL LONG LENGTH

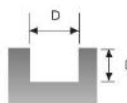
Solid Carbide 2-Flute End Mill



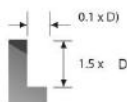
Solid Carbide 4-Flute End Mill



ENDMILL 2 Flute - Cutting Data												
Material	Aluminum		Cast Iron		Medium Carbon steels Mild Steel		Prehardened Stainless Die & Alloy Steel		Prehardened Stainless Die & Alloy Steel		(50~60HRC) Hardened Steels	
							(~30HRC)		(30~40HRC)		(40~50HRC)	
DIA	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
0.3	58000	180	32500	100	30000	35	22000	18	21000	13	17000	7
0.5	62000	200	23000	125	19000	40	13000	20	12000	15	9500	8
0.8	40000	200	16000	125	14000	65	8000	25	8000	15	6000	8
1	32000	200	14000	140	13000	75	7500	30	7000	15	4800	8
1.5	22000	200	10000	150	8500	90	6500	35	5000	20	3200	11
2	16000	300	7000	160	6300	100	5000	60	4000	30	2400	16
3	12000	300	5000	160	4300	100	3200	80	2600	30	1600	16
4	8000	300	4000	160	3200	100	2400	80	2000	30	1200	16
5	6500	300	3000	200	2500	100	2000	80	1600	30	1000	16
6	5300	300	2500	235	2200	100	1600	80	1300	30	800	16
8	4000	300	2000	235	1600	100	1200	80	1000	30	600	16
10	3200	300	1500	235	1300	100	1000	80	800	30	500	16
12	2700	300	1200	235	1100	100	800	80	700	30	400	16
16	2000	300	900	235	800	100	700	85	500	38	300	12
20	1600	300	700	235	600	100	500	85	400	38	300	10
25	1300	300	600	235	500	100	400	85	300	37	200	8



ENDMILL 4 Flute - Cutting Data												
Material	Aluminum		Cast Iron		Medium Carbon steels Mild Steel		Prehardened Stainless Die & Alloy Steel		Prehardened Stainless Die & Alloy Steel		(50~60HRC) Hardened Steels	
							(~30HRC)		(30~40HRC)		(40~50HRC)	
	DIA	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM
1	32000	450	14000	175	11000	85	8000	60	8000	35	4800	14
	22000	450	10000	175	7500	85	5300	60	5600	35	3200	14
2	16000	450	7000	250	5500	85	4000	60	4000	35	2400	14
3	12000	450	5000	300	4500	150	3500	120	3100	45	1600	26
4	10000	475	3500	300	3500	175	2700	120	2300	45	1200	26
5	7500	475	2800	300	2800	200	2100	125	1800	45	1000	26
6	6300	475	2500	300	2400	200	1700	125	1600	45	800	26
8	5000	500	1800	300	1800	200	1300	125	1200	45	600	26
10	4000	500	1400	315	1400	225	1000	125	1000	45	500	26
12	3000	560	1200	315	1200	225	800	125	800	45	400	26
16	2300	560	900	375	900	250	700	140	600	45	300	26
20	1900	560	700	375	700	250	500	160	500	45	300	25
25	1500	500	600	375	600	250	400	140	400	35	200	20



SOLID CARBIDE END MILLS - LONG LENGTH					
EM_ZZ	EM_Z4	Dia (mm)	Shank Dia (mm)	Flute Length (mm)	OAL (mm)
EM3L2	EM3L4	3	3	25	75
EM4L2	EM4L4	4	4	25	75
EM5L2	EM5L4	5	5	28	75
EM6L2	EM6L4	6	6	28	75
EM8L2	EM8L4	8	8	29	75
EM10L2	EM10L4	10	10	45	100
EM12L2	EM12L4	12	12	51	100
EM12LL2	EM12LL4	12	12	75	150
EM14L2	EM14L4	14	14	75	150
EM16L2	EM16L4	16	16	75	150
EM18L2	EM18L4	18	18	75	150
EM20L2	EM20L4	20	20	75	150

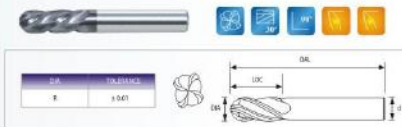


SOLID CARBIDE BALLNOSE LONG LENGTH

Solid Carbide 2-Flute Ball End Mill



Solid Carbide 2-Flute Ball End Mill



Cutting Condition / Ballnose End Mills

U		Z-Leveling / Pre-Finishing											
		BALLNOSE 2 Flute & 4 Flute											
		P			H		M		K				
		Rm < 850	Rm < 1100	Rm < 1300	HRC < 52								
Ap		0.02 x d	0.02 x d	0.02 x d	0.02 x d		0.02 x d		0.02 x d		0.02 x d		
Ae		0.02 x d	0.02 x d	0.02 x d	0.02 x d		0.02 x d		0.02 x d		0.02 x d		
Vc		230	200	180	115		102		102		192		
d		n	Vf	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf
R1.5		17200	2060	14800	1638	13800	1357	11700	1076	7600	720	14300	1710
R2.0		12800	2060	11200	1653	10400	1349	8800	1085	5600	720	10600	1710
R2.5		11700	2340	10200	1866	9500	1645	8000	1193	6100	810	9700	1942
R3.0		9800	2440	8500	1950	7800	1716	6700	1290	4300	850	8100	2025
R4.0		7300	2192	6300	1744	5800	1540	5000	1130	3200	760	6100	1819
R5.0		5900	1998	5100	1590	4700	1392	4000	1024	2600	690	4900	1658
R6.0		4900	1913	4200	1509	3900	1338	3300	964	2200	660	4100	1588

U		Copy-Milling / Finishing											
		P				H		M		K			
		Rm < 850	Rm < 1100	Rm < 1300	HRC < 52								
Ap		0.02 x d	0.02 x d	0.02 x d	0.02 x d		0.02 x d		0.02 x d		0.02 x d		
Ae		0.02 x d	0.02 x d	0.02 x d	0.02 x d		0.02 x d		0.02 x d		0.02 x d		
Vc		230	200	180	115		102		102		192		
d		n	Vf	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf
R1.5		24500	2100	21000	1690	19000	1410	12200	740	10800	730	20300	1740
R2.0		18400	2610	15800	2060	14200	1770	9100	910	8100	910	15300	2170
R2.5		14600	2310	12600	1640	11400	1570	7400	810	6400	800	12100	1920
R3.0		12200	2100	10600	1670	9500	1430	6200	740	5400	730	10100	1740
R4.0		9100	1830	7800	1450	7100	1240	4600	660	4000	640	7600	1520
R5.0		7400	1620	6300	1280	5700	1100	3700	560	3300	560	6100	1340
R6.0		6200	1560	5300	1250	4700	1060	3000	550	2700	550	5100	1310

Remark : For long series, Cutting condition reduce accordingly by 50%.

SOLID CARBIDE BALL NOSE - LONG LENGTH					
BN_ZZ	BN_Z4	Dia (mm)	Shank Dia (mm)	Flute Length (mm)	OAL (mm)
BN3L2	BN3L4	3	3	25	75
BN4L2	BN4L4	4	4	25	75
BN5L2	BN5L4	5	5	28	75
BN6L2	BN6L4	6	6	28	75
BN8L2	BN8L4	8	8	29	75
BN10L2	BN10L4	10	10	45	100
BN12L2	BN12L4	12	12	51	100
BN12LL2	BN12LL4	12	12	75	150
BN14L2	BN14L4	14	14	75	150
BN16L2	BN16L4	16	16	75	150
BN18L2	BN18L4	18	18	75	150
BN20L2	BN20L4	20	20	75	150

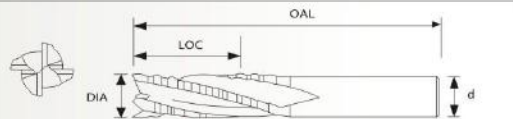




SOLID CARBIDE ROUGHING ENDMILL



DIA	TOLERANCE
$\phi < 1$	-0 - -0.015
$1 < \phi < 3$	-0 - -0.02
$3 < \phi < 12$	-0 - -0.25
$12 < \phi$	-0 - -0.03



Steel <800 N/mm²												Steel <1000 N/mm²												Steel <1300 N/mm²											
																																			
Vc 145				Vc 175				Vc 115				Vc 140				Vc 90				Vc 110															
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n														
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm														
3	0.016	730	15300	0.017	940	18400	0.016	600	12400	0.017	760	14900	0.013	360	9500	0.013	450	11500	0.013	450	11500														
4	0.021	720	11500	0.023	950	13800	0.021	590	9300	0.023	770	11100	0.016	340	7200	0.017	440	8600	0.017	440	8600														
5	0.028	770	9200	0.031	1020	11000	0.028	620	7400	0.031	830	8900	0.021	360	5700	0.023	480	6900	0.023	480	6900														
6	0.024	730	7600	0.026	960	9200	0.024	600	6200	0.026	770	7400	0.018	350	4800	0.020	460	5700	0.020	460	5700														
8	0.032	730	5700	0.035	970	6900	0.032	620	4700	0.035	780	5600	0.024	350	3600	0.026	450	4300	0.026	450	4300														
10	0.035	640	4600	0.040	880	5500	0.035	520	3700	0.040	720	4500	0.026	300	2900	0.030	410	3400	0.030	410	3400														
12	0.044	670	3800	0.048	880	4600	0.044	550	3100	0.048	710	3700	0.033	320	2400	0.036	420	2900	0.036	420	2900														
14	0.048	630	3300	0.052	810	3900	0.048	520	2700	0.052	670	3200	0.036	290	2000	0.039	390	2500	0.039	390	2500														
16	0.052	600	2900	0.057	780	3400	0.052	480	2300	0.057	640	2800	0.039	280	1800	0.043	340	2100	0.043	340	2100														
20	0.059	540	2300	0.065	730	2800	0.059	450	1900	0.065	570	2200	0.044	250	1400	0.049	330	1700	0.049	330	1700														

12% Cr

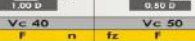
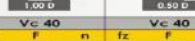
Inox Ferrilico

Inox Austenilico

																																			
Vc 45				Vc 55				Vc 60				Vc 70				Vc 50				Vc 60															
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n														
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm														
3	0.012	170	4800	0.013	220	5700	0.010	180	6400	0.013	290	7400	0.009	140	5300	0.013	250	6400	0.013	250	6400														
4	0.016	170	3600	0.017	220	4300	0.012	170	4900	0.017	290	5600	0.012	140	4000	0.017	240	4800	0.017	240	4800														
5	0.021	180	2900	0.023	230	3400	0.016	180	3800	0.023	310	4500	0.016	140	3200	0.023	240	3800	0.023	240	3800														
6	0.018	170	2400	0.020	230	2900	0.014	170	3200	0.020	300	3700	0.014	150	2700	0.020	260	3200	0.020	260	3200														
8	0.024	170	1800	0.026	220	2100	0.018	170	2400	0.026	290	2800	0.018	140	2000	0.026	250	2500	0.026	250	2500														
10	0.026	150	1400	0.026	200	1700	0.020	150	1900	0.030	260	2200	0.020	130	1600	0.030	230	1900	0.030	230	1900														
12	0.033	160	1200	0.036	200	1400	0.025	160	1600	0.036	270	1900	0.025	130	1300	0.036	240	1600	0.036	240	1600														
14	0.036	140	1000	0.039	190	1200	0.027	150	1400	0.039	250	1600	0.027	120	1100	0.039	220	1400	0.039	220	1400														
16	0.039	140	900	0.043	190	1100	0.029	140	1200	0.043	240	1400	0.029	120	1000	0.043	210	1200	0.043	210	1200														
20	0.044	120	700	0.049	180	900	0.033	130	1000	0.049	220	1100	0.033	110	800	0.049	200	1000	0.049	200	1000														

Titanio

PH / Duplex

																																			
Vc 40				Vc 50				Vc 40				Vc 40																							
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n																				
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm																				
3	0.009	110	4200	0.009	140	5300	0.009	110	4200	0.009	140	5300																							
4	0.012	110	3200	0.012	140	4000	0.012	110	3200	0.012	140	4000																							
5	0.016	120	2500	0.016	150	3200	0.016	120	2500	0.016	150	3200																							
6	0.014	110	2100	0.014	150	2700	0.014	110	2100	0.014	150	2700																							
8	0.018	120	1600	0.018	140	2000	0.018	120	1600	0.018	140	2000																							
10	0.020	100	1300	0.020	130	1600	0.020	100	1300	0.020	130	1600																							
12	0.025	110	1100	0.025	130	1300	0.025	110	1100	0.025	130	1300																							
14	0.027	100	900	0.027	120	1100	0.027	100	900	0.027	120	1100																							
16	0.029	90	800	0.029	120	1000	0.029	90	800	0.029	120	1000																							
20	0.033	80	600	0.033	110	800	0.033	80	600	0.033	110	800																							



HIGH PERFORMANCE SOLID CARBIDE REAMER



Through Hole



Blind Hole

A central channel supplies coolant to the flutes even for very deep holes, resulting in long tool life and good chip removal. Different versions are available for blind holes and through holes.

Application *Material Groups*

■ Excellent for Application

● Good for Application

Example

30 = Peripheral speed in metres/minute +/- 10% ; D = Feed range

	Ø mm								
	1,5	2	3	5	8	10	12	16	20
A	0,045	0,055	0,078	0,100	0,150	0,170	0,185	0,220	0,250
B	0,055	0,072	0,110	0,150	0,180	0,210	0,240	0,280	0,310
C	0,065	0,085	0,135	0,185	0,220	0,260	0,285	0,335	0,390
D	0,080	0,110	0,160	0,200	0,270	0,320	0,360	0,410	0,470
E	0,100	0,140	0,180	0,250	0,350	0,390	0,430	0,500	0,530
F	0,140	0,180	0,260	0,350	0,440	0,500	0,550	0,630	0,700
mm/REV ± 15%									

HIGH PERFORMANCE SOLID CARBIDE REAMER						
EDP No	D1	D2 h6	L2	L3	L1	z
RM0397	3.97	6.00	12.00	39.00	75.00	4
RM0398	3.98	6.00	12.00	39.00	75.00	4
RM0399	3.99	6.00	12.00	39.00	75.00	4
RM0400	4.00	6.00	12.00	39.00	75.00	4
RM0401	4.01	6.00	12.00	39.00	75.00	4
RM0402	4.02	6.00	12.00	39.00	75.00	4
RM0403	4.03	6.00	12.00	39.00	75.00	4
RM0450	4.50	6.00	12.00	39.00	75.00	4
RM0497	4.97	6.00	12.00	39.00	75.00	4
RM0498	4.98	6.00	12.00	39.00	75.00	4
RM0499	4.99	6.00	12.00	39.00	75.00	4
RM0500	5.00	6.00	12.00	39.00	75.00	4
RM0501	5.01	6.00	12.00	39.00	75.00	4
RM0502	5.02	6.00	12.00	39.00	75.00	4
RM0503	5.03	6.00	12.00	39.00	75.00	4
RM0550	5.50	6.00	12.00	39.00	75.00	4
RM0597	5.97	6.00	12.00	39.00	75.00	4
RM0598	5.98	6.00	12.00	39.00	75.00	4
RM0599	5.99	6.00	12.00	39.00	75.00	4
RM0600	6.00	6.00	12.00	39.00	75.00	4
RM0601	6.01	6.00	12.00	39.00	75.00	4
RM0602	6.02	6.00	12.00	39.00	75.00	4
RM0603	6.03	6.00	12.00	39.00	75.00	4
RM0650	6.50	8.00	16.00	64.00	100.00	4
RM0700	7.00	8.00	16.00	64.00	100.00	4
RM0750	7.50	8.00	16.00	64.00	100.00	4
RM0797	7.97	8.00	16.00	64.00	100.00	4
RM0798	7.98	8.00	16.00	64.00	100.00	4
RM0799	7.99	8.00	16.00	64.00	100.00	4

HIGH PERFORMANCE SOLID CARBIDE REAMER						
EDP No	D1	D2 h6	L2	L3	L1	z
RM0802	8.02	8.00	16.00	64.00	100.00	4
RM0803	8.03	8.00	16.00	64.00	100.00	4
RM0850	8.50	10.00	20.00	80.00	100.00	4
RM0900	9.00	10.00	20.00	80.00	100.00	4
RM0950	9.50	10.00	20.00	80.00	120.00	4
RM0997	9.97	10.00	20.00	80.00	120.00	4
RM0998	9.98	10.00	20.00	80.00	120.00	4
RM0999	9.99	10.00	20.00	80.00	120.00	4
RM1000	10.00	10.00	20.00	80.00	120.00	4
RM1001	10.01	10.00	20.00	80.00	120.00	4
RM1002	10.02	10.00	20.00	80.00	120.00	4
RM1003	10.03	10.00	20.00	80.00	120.00	4
RM1050	10.50	12.00	20.00	75.00	120.00	4
RM1100	11.00	12.00	20.00	75.00	120.00	4
RM1150	11.50	12.00	20.00	75.00	120.00	4
RM1197	11.97	12.00	20.00	75.00	120.00	4
RM1198	11.98	12.00	20.00	75.00	120.00	4
RM1199	11.99	12.00	20.00	75.00	120.00	4
RM1200	12.00	12.00	20.00	75.00	120.00	4
RM1201	12.01	12.00	20.00	75.00	120.00	4
RM1202	12.02	12.00	20.00	75.00	120.00	4
RM1203	12.03	12.00	20.00	75.00	120.00	4
RM1300	13.00	14.00	22.00	85.00	130.00	4
RM1400	14.00	14.00	22.00	85.00	130.00	4
RM1500	15.00	16.00	22.00	82.00	130.00	4
RM1600	16.00	16.00	25.00	102.00	150.00	4
RM1700	17.00	18.00	25.00	102.00	150.00	4
RM1800	18.00	18.00	25.00	102.00	150.00	4
RM1900	19.00	20.00	25.00	100.00	150.00	4

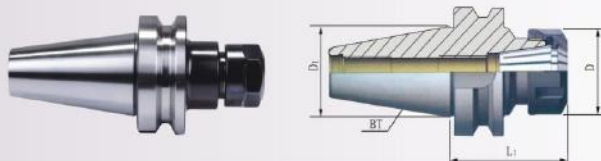


Xtreme Tooling

(An ISO 9001 : 2008 Certified Company)



ER COLLET ADAPTORS



MODEL	D	D1	L1	CLAMPING RANGE
BT40ER16-70	32	44.45	70	0.5 - 10
BT40ER16-100	32	44.45	100	0.5 - 10
BT40ER20-70	35	44.45	70	0.5 - 10
BT40ER20-100	35	44.45	100	0.5 - 10
BT40ER25-70	42	44.45	70	0.5 - 10
BT40ER25-100	42	44.45	100	0.5 - 10
BT40ER32-70	50	44.45	70	0.5 - 10
BT40ER32-100	50	44.45	100	0.5 - 10
BT40ER40-70	63	44.45	70	0.5 - 10
BT40ER40-100	63	44.45	100	0.5 - 10

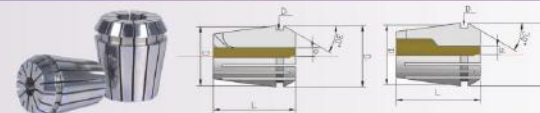
STRAIGHT SHANK COLLET CHUCK



MODEL	ER	C	L1
C16 - ER16 - 70	16	16	70
C16 - ER16 - 100	16	16	100
C20 - ER16 - 70	16	20	70
C20 - ER16 - 100	16	20	100
C20 - ER20 - 70	20	20	70
C20 - ER20 - 100	20	20	100
C20 - ER25 - 70	25	20	70
C20 - ER25 - 100	25	20	100
C25 - ER16 - 100	16	25	100
C25 - ER20 - 100	20	25	100
C25 - ER25 - 100	25	25	100
C25 - ER32 - 100	32	25	100
C32 - ER25 - 100	25	32	100
C32 - ER32 - 100	32	32	100
C32 - ER40 - 100	40	32	100
C40 - ER32 - 100	32	40	100
C40 - ER40 - 100	40	40	100

ER COLLET

DIN 6499B



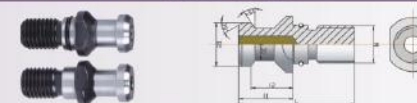
MODEL	d	D	D1	D2	L
ER16	2.5 - 10.0	16	17	13.8	27.5
ER20	2.5 - 13.0	20	21	17.4	31.5
ER25	2.5 - 16.0	25	26	22	34
ER32	2.5 - 20.0	32	33	29.2	40
ER40	3.0 - 25.0	40	41	36.2	46

ER CLAMPING NUT



MODEL	D	d1	L
ER16-UM	32	26	17
ER20-UM	35	29	19
ER25-UM	42	36	20
ER32-UM	50	44	22.5
ER40-UM	63	57	25.5

SK PULL STUD



MODEL	D1	D2	M	L	L1
SK-30A	9	13	M12	44	24
SK-40A	14	19	M16	54	26
SK-50A	21	28	M24	74	34

SK PULL STUD



MODEL	B	L	CLAMPING NUT
ER16-UM	26	180	ER16-UM
ER20-UM	30	190	ER20-UM
ER25-UM	37	210	ER25-UM
ER32-UM	46.5	250	ER32-UM
ER40-UM	58	290	ER40-UM

DRILL TROUBLESHOOTING GUIDE

DRILL GUIDANCE



Built-up-edge

1. Cutting Speed too low and edge temperature too high
2. Neg. land to large
3. No coating
4. Percentage of oil in the cutting fluid too low

1. Increase cutting speed or use external cutting fluid
2. Sharper cutting edge.
3. Coating on the edge
4. Increase the percentage of oil in the cutting fluid



Chipping on the edge corner

1. Unstable fixturing
2. TIR to large
3. Intermittent cutting
4. Insufficient cutting fluid (Thermal cracking)
5. Unstable tool holding

1. Check fixture
2. Check radial run - out
3. Decrease the feed
4. Check cutting fluid supply
5. Check the toolholder



Large wear on the cutting edge

1. Cutting speed too high
2. Feed too low
3. Grade too soft
4. Lack of cutting fluid

1. Decrease the cutting speed
2. Increase the feed
3. Change to harder Grade
4. Check for proper cutting fluid supply



Chipping on the cutting edge

1. unstable Conditions
2. maximum allowed wear exceeded
3. Grade too hard

1. Check the set - up
2. Replace drill sooner
3. Change to softer grade



Wear on the circular lands

1. TIR too large
2. Cutting fluid too weak
3. Cutting speed too high
4. Abrasive material

1. Check the radial run - out
2. Use neat oil or stronger emulsion
3. Decrease cutting speed
4. Change to harder grade



Wear on the chisel edge

1. Cutting speed to low
2. Feed too high
3. Chisel edge too small

1. Increase cutting speed
2. Decrease feed
3. Check dimensions



Wear due to plastic deformation

1. Cutting speed or/and feed too high
2. Not enough cutting fluid supply
3. Unsuitable drill / grade

1. Decrease the cutting speed or / and feed
2. Increase cutting fluid pressure
3. Use a harder grade



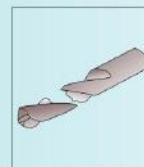
Thermal cracks (notches)

1. Inconsistent cutting fluid

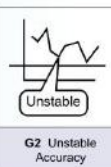
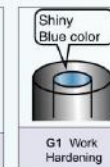
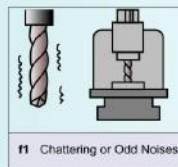
1. Check cutting fluid supply
2. Fill cutting fluid tank

DRILL TROUBLESHOOTING GUIDE

E Breakage



F Trouble During Operation



• MACHINE A, B, C, E, F1

Is there any excessive vibration or odd noise during operation?

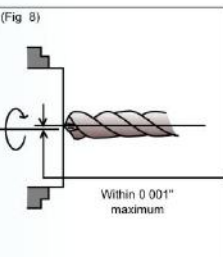
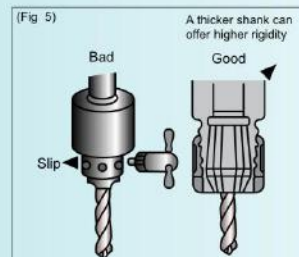
• CHUCKING OF DRILL A, B, C, E, F1

Is the rigidity of the drill chuck enough? (Fig 5)

Is there any dust or scratches inside the drill chuck? (Fig 6)

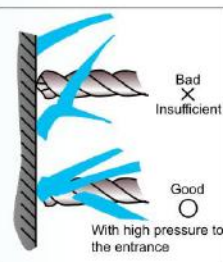
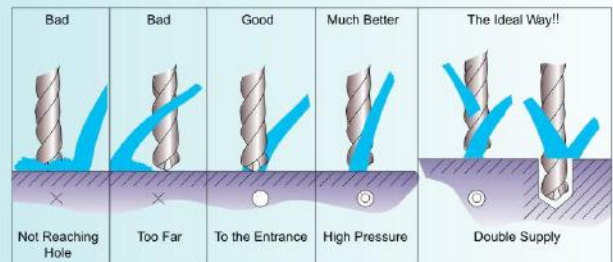
Is the run out of the drill too great when it is held in the drill chuck? (Fig 7)

The drill point should be within 0.001" maximum of the center of the work piece (when the work rotates) (Fig 8)



• CUTTING FLUID A, C, E, G1

Make sure cutting fluid is supplied adequately to the entrance of drill hole



DRILL TERMINOLOGY AND CUTTING CHARACTERISTICS

■ DRILLING CHIPS

Types of Chips	Shape	Features and Ease of Raking
Conical Spiral		Fan-shaped chips cut by the cutting edge are curved by the flute. Chips of this type are produced when the feeding rate of ductile material is small. If the chip breaks after several turns, the chip raking performance is satisfactory.
Long Pitch		The generated chip comes out without coiling. It will easily coil around the drill.
Fan		This is a chip broken by the restraint caused by the drill flute and the wall of a drilled hole. It is generated when the feed rate is high.
Segment		A conical spiral chip that is broken before the chip grows into the long-pitch shape by the restraint caused by the wall of the drilled hole due to the insufficiency of ductility. Excellent chip disposal and chip discharge.
Zigzag		A chip that is buckled and folded because of the shape of flute and the characteristics of the material. It easily causes chip packing at the flute.
Needle		Chips broken by vibration or broken when brittle material is curled with a small radius. The raking performance is satisfactory, but these chips can pack closely creating.

DRILL DIAMETERS FOR PREPARED HOLES

Metric Coarse Screw Thread			Metric Fine Screw Thread			Metric Fine Screw Thread		
Nominal		Carbide	Nominal		Carbide Drill ϕ	Nominal		Carbide Drill ϕ
M1	x0.25	0.75	M1	X0.2	0.8	M14	X1.5	12.7
M1.1	X0.25	0.85	M1.1	X0.2	0.9	M14	X1.0	13.1
M1.2	x0.25	0.95	M1.2	X0.2	1	M15	X1.5	13.7
M1.4	X0.3	1.10	M1.4	X0.2	1.2	M15	X1.0	14.1
M1.6	X0.35	1.30	M1.6	X0.2	1.4	M16	X1.5	14.7
M1.7	X0.35	1.40	M1.8	X0.2	1.6	M16	X1.0	15.1
M1.8	X0.35	1.50	M2	X0.25	1.75	M17	X1.5	15.7
M2	X0.4	1.65	M2.2	X0.25	2	M17	X1.0	16.1
M2.2	X0.45	1.80	M2.5	X0.35	2.2	M18	X2.0	16.3
M2.3	X0.4	1.95	M3	X0.35	2.7	M18	X1.5	16.7
M2.5	X0.45	2.15	M3.5	X0.35	3.2	M18	X1.0	17.1
M2.6	X0.45	2.20	M4	X0.5	3.55	M20	X2.0	18.3
M3	X0.5	2.55	M4.5	X0.5	4.05	M20	X1.5	18.7
M3.5	X0.6	2.95	M5	X0.5	4.55	M20	X1.0	19.1
M4	X0.7	3.40	M5.5	X0.5	5.05			
M4.5	X0.75	3.90	M6	X0.75	5.35			
M5	X0.8	4.30	M7	X0.75	6.35			
M6	X1.0	5.10	M8	X1.0	7.1			
M7	X1.0	6.10	M8	X0.75	7.35			
M8	X1.25	6.90	M9	X1.0	8.1			
M9	X1.25	7.90	M9	X0.75	8.35			
M10	X1.5	8.70	M10	X1.25	8.9			
M11	X1.5	9.70	M10	X1.0	9.1			
M12	X1.75	10.50	M10	X0.75	9.35			
M14	X2.0	12.20	M11	X1.0	10.1			
M16	X2.0	14.20	M11	X0.75	10.3			
M18	X2.5	15.70	M12	X1.5	10.7			
M20	X2.5	17.70	M12	X1.25	10.9			
M22	X2.5	19.70	M12	X1.0	11.1			

FORMULAE FOR DRILLING

■ CUTTING SPEED (vc)

$$vc = \frac{\pi \cdot DC \cdot n}{1000} \text{ (m/min)}$$

*Divide by 1,000 to change to m from mm.



vc (m/min) : Cutting Speed
 π (3.14) : Pi
DC (mm) : Drill Diameter
n (min⁻¹) : Main Axis Spindle Speed

(Problem) What is the cutting speed when main axis spindle speed is 1350min⁻¹ and drill diameter is 12mm?

(Answer) Substitute $\pi=3.14$, DC=12, n=1350 into the formula

$$vc = \frac{\pi \cdot DC \cdot n}{1000} = \frac{3.14 \times 12 \times 1350}{1000} = 50.9 \text{ m/min}$$

The cutting speed is 50.9m/min.

■ FEED OF THE MAIN SPINDLE (vf)

$$vf = f \cdot n \text{ (mm/min)}$$



vf (mm/min) : Feed Speed of the Main Spindle (Z axis)
f (mm/rev) : Feed per Revolution
n (min⁻¹) : Main Axis Spindle Speed

(Problem) What is the spindle feed (vf) when the feed per revolution is 0.2mm/rev and main axis spindle speed is 1350min⁻¹?

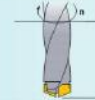
(Answer) Substitute f=0.2, n=1350 into the formula

$$vf = f \cdot n = 0.2 \times 1350 = 270 \text{ mm/min}$$

The spindle feed is 270mm/min.

■ DRILLING TIME (Tc)

$$Tc = \frac{ld \cdot i}{n \cdot f}$$



Tc (min) : Drilling Time
n (min⁻¹) : Spindle Speed
ld (mm) : Hole Depth
f (mm/rev) : Feed per Revolution
i : Number of Holes

(Problem) What is the drilling time required for drilling a 30mm length hole in alloy steel (JIS SCM440) at a cutting speed of 50m/min and a feed 0.15mm/rev?

(Answer) Spindle Speed $n = \frac{50 \times 1000}{15 \times 3.14} = 1061.57 \text{ min}^{-1}$

$$Tc = \frac{30 \times 1}{1061.57 \times 0.15} = 0.188$$

$$= 0.188 \times 60 \approx 11.3 \text{ sec}$$

FORMULAE FOR FACE MILLING

■ CUTTING SPEED (vc)

$$vc = \frac{\pi \cdot DC \cdot n}{1000} \text{ (m/min)}$$

*Divide by 1000 to change to m from mm.



vc (m/min) : Cutting Speed
 π (3.14) : Pi
DC (mm) : Cutter Diameter
n (min⁻¹) : Main Axis Spindle Speed

(Problem) What is the cutting speed when main axis spindle speed is 350min⁻¹ and the cutter diameter is $\phi 125$?

(Answer) Substitute $\pi=3.14$, DC=125, n=350 into the formula.

$$vc = \frac{\pi \cdot DC \cdot n}{1000} = \frac{3.14 \times 125 \times 350}{1000} = 137.4 \text{ m/min}$$

The cutting speed is 137.4m/min.

■ FEED PER TOOTH (fz)

$$fz = \frac{vf}{z \cdot n} \text{ (mm/tooth)}$$



fz (mm/tooth) : Feed per Tooth
vf (mm/min) : Table Feed per Min.
n (min⁻¹) : Main Axis Spindle Speed (Feed per Revolution $f = z \cdot fz$)
z : Insert Number

(Problem) What is the feed per tooth when the main axis spindle speed is 500min⁻¹, number of insert is 10, and table feed is 500mm/min?

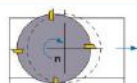
(Answer) Substitute the above figures into the formula.

$$fz = \frac{vf}{z \cdot n} = \frac{500}{10 \times 500} = 0.1 \text{ mm/tooth}$$

The answer is 0.1mm/tooth.

TABLE FEED (vf)

$$vf = fz \cdot z \cdot n \text{ (mm/min)}$$



vf (mm/min) : Table Feed per Min. z : Insert Number
fz (mm/tooth) : Feed per Tooth
n (min⁻¹) : Main Axis Spindle Speed

(Problem) What is the table feed when feed per tooth is 0.1mm/tooth, number of insert is 10, and main axis spindle speed is 500min⁻¹?
(Answer) Substitute the above figures into the formula.
 $vf = fz \cdot z \cdot n = 0.1 \times 10 \times 500 = 500 \text{ mm/min}$
The table feed is 500mm/min.

CUTTING TIME (Tc)

$$Tc = \frac{L}{vf} \text{ (min)}$$



Tc (min) : Cutting Time
vf (mm/min) : Table Feed per Min.
L (mm) : Total Table Feed Length (Workpiece Length: (l) + Cutter Diameter : (DC))

(Problem) What is the cutting time required for finishing 100mm width and 300mm length surface of a cast iron (JIS FC200) block when the cutter diameter is $\phi 200$ mm, the number of inserts is 16, the cutting speed is 125m/min, and feed per tooth is 0.25mm. (spindle speed is 200min⁻¹)
(Answer) Calculate table feed per min $vf = 0.25 \times 16 \times 200 = 800 \text{ mm/min}$
Calculate total table feed length. $L = 300 + 200 = 500 \text{ mm}$
Substitute the above answers into the formula.
 $Tc = \frac{500}{800} = 0.625 \text{ (min)}$
 $0.625 \times 60 = 37.5 \text{ (sec)}$. The answer is 37.5 sec.

CUTTING POWER (Pc)

$$Pc = \frac{ap \cdot ae \cdot vf \cdot Kc}{60 \times 10^6 \cdot \eta} \text{ (kW)}$$

(Problem) What is the cutting power required for milling tool steel at a cutting speed of 80m/min. With depth of cut 2mm, cutting width 80mm, and table feed 280mm/min by $\phi 250$ cutter with 12 inserts. Machine coefficient 80%.

Pc (kW) : Actual Cutting Power
ae (mm) : Cutting Width
Kc (MPa) : Specific Cutting Force
ap (mm) : Depth of Cut
vf (mm/min) : Table Feed per Min.
 η : (Machine Coefficient)

(Answer) First, calculate the spindle speed in order to obtain feed per tooth.
 $n = \frac{1000vc}{\pi DC} = \frac{1000 \times 80}{3.14 \times 250} = 101.91 \text{ min}^{-1}$
Feed per Tooth $fz = \frac{vf}{z \cdot n} = \frac{280}{12 \times 101.9} = 0.228 \text{ mm/tooth}$
Substitute the specific cutting force into the formula.
 $Pc = \frac{2 \times 80 \times 280 \times 1800}{60 \times 10^6 \times 0.8} = 1.68 \text{ kW}$

Kc

Work Material	Tensile Strength (MPa) and Hardness	Specific Cutting Force Kc (MPa)				
		0.1mm/tooth	0.2mm/tooth	0.3mm/tooth	0.4mm/tooth	0.6mm/tooth
Mild Steel	520	2200	1950	1820	1700	1580
Medium Steel	620	1980	1800	1730	1600	1570
Hard Steel	720	2620	2080	2040	1850	1740
Tool Steel	670	1980	1990	1730	1700	1600
Tool Steel	770	2030	1990	1750	1700	1580
Chrome Manganese Steel	770	2080	2080	1880	1750	1680
Chrome Manganese Steel	630	2750	2300	2000	1800	1780
Chrome Molybdenum Steel	730	2540	2250	2140	2000	1800
Chrome Molybdenum Steel	600	2180	2000	1850	1800	1670
Nickel Chrome Molybdenum Steel	940	2060	1800	1680	1600	1500
Nickel Chrome Molybdenum Steel	352HB	2100	1900	1780	1700	1530
Austenitic Stainless Steel	155HB	2030	1970	1900	1770	1710
Cast Iron	520	2890	2590	2320	2200	2040
Hard Cast Iron	46HRC	3060	2790	2600	2400	2200
Meehanite Cast Iron	300	2180	2080	1750	1600	1470
Grey Cast Iron	200HB	1750	1400	1240	1050	970
Brass	500	1150	950	800	700	630
Light Alloy (Al-Mg)	100	580	480	400	300	320
Light Alloy (Al-Si)	200	760	600	490	450	390
Light Alloy (Al-Zn-Mg-Cu)	570	880	840	840	810	720

XTREME RECONDITIONING SERVICES

At XTREME ;

Reconditioning is an ART!!!

There is a big difference between regrinding and reconditioning. Regrinding is just sharpening a cutting edge. "Reconditioning" is repairing the geometry as close as possible to it's original specifications.

Effective reconditioning takes know-how, experience and even the original manufacturer's training & certification. We have and do what it takes - everyday!

Try us and see for yourself. We'll get you more out of the tools you use!

Restore LIKE - NEW Performance , Guaranteed!

High Performance Carbide Drills, End Mills & Special Cutting Tools



RECONDITIONING SERVICES, PVD COATING SERVICES, TOOL MODIFICATION & GEOMETRY OPTIMIZATION

Reconditioning Services

XTREME Reconditioning Services is a business with its primary purpose being to restore used and worn cutting tools in a way that enables them to provide the same performance and productivity as they were when they were brand new. Typically, companies providing regrinding services do so as a supplement to higher priority things they do. Some are primarily tool & cutter grinders, set up to do small runs of special tools and component parts. Others are cutting tool manufacturers, whose focus and priorities are on manufacturing new tools.

XTREME was built to provide reconditioning services.

Standard Reconditioning - Restores the tool to its original manufactured specifications and includes re-coating the tool with the appropriate PVD coating.

Enhanced Reconditioning - In addition to basic restoration, we modify the geometry to improve the tool's performance within specific application. To do this we will need to know the material being machined, the type of operation and the desired improvement (higher metal removal rate, longer tool life, better surface finish). We would then advise the changes we'd recommend before proceeding.

Tool Modification - Adding a corner radius, a shank flat, or neck clearance relief, reworking an end gash, or reducing the cutting diameter or length of cut. This kind of work can be done to new or used tools.

Equipment

CNC 7 Axis Grinders
> 1 - Makino Seiki CNJ-2u (1st machine in India)
> 2-TGT 6 Axis CNC tool grinding machine
> 2- CNC Cylindrical grinding machine
> 1-True Tech O.D. Grinder
> 1 Harig Centerless Grinder
> 1-Okamoto Surface Grinder

Wheel Dresser (General)

> Diamond and CBN Grinding
> Wheel Truing and Dressing Capabilities

Edge Preparation

> Proprietary Design Special Honing Technology

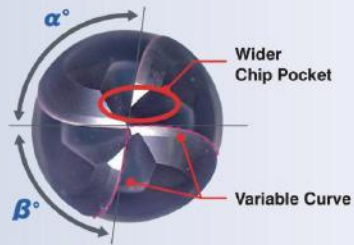
Inspection

> 1-Automised measuring system having magnification 250x



INNOVATIONS FROM XTREME TOOLING

A Four Flute, ball nose solid carbide end mill with variable curve and variable helix technology.



Technical Information :

- Variable curve and variable helix
- Wider flute space
- Length of cut is three times the radius
- Impact Miracle coating and micro grain carbide substrate

Applications to Target :

- Suitable for titanium alloys, high temperature alloys, stainless steels and other gummy materials
- Concave or Convex surfaces
- Profiling or Angled surfaces
- Thin plate machining
- Power generation components
- Aerospace

Benefits :

- Variable curve and variable pitch is an anti-vibration design which creates a large footprint of stable machining with difficult materials
- Wider flute space enables excellent chip disposal
- Wider flute space also enables larger depth of cut in relation to conventional end mills
- Short type length of cut enables proficient shoulder or profile milling
- Impact Miracle coating has silicon added to increase it's hardness and oxidation temperature which enables longer tool life.



Conventional Ballnose



New VHT Ballnose



INNOVATIONS FROM XTREME TOOLING



X - STAR

Solid Carbide Super Long Drill For Deep Hole Drilling



X- PLUS

Solid Carbide Drills For Steel & Cast Iron
Solid Carbide Drills For High Efficiency Machining Aluminium Alloys



SOLID CARBIDE ENDMILLS

Prevention Of Vibration With Irregular Helix Flutes Single Phase Nano Crystal Coating Technology For Higher Film Hardness And Heat Resistance

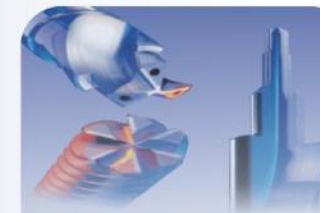


SOLID CARBIDE BALLNOSE

Industry Leader in Ballnose finishing. Helical Geometry for Smooth Surface & reduce heat.



SOLID CARBIDE CENTER DRILLS



TAILOR MADE TOOLS

As Per Customer Request



The tool sample of 20 flutes end mill



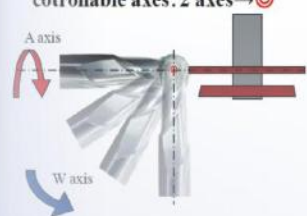
REASON WHY ONLY XTREME

Enhanced ball end mill grinding precision

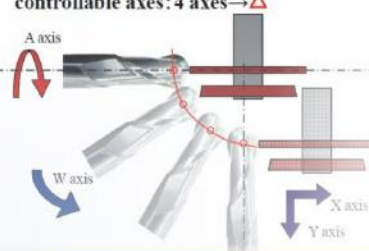
The center of R is indexed at all times,

even when workpieces with different tool lengths are mixed.

CNJ5u-A: Simultaneous
controllable axes: 2 axes → ⊙

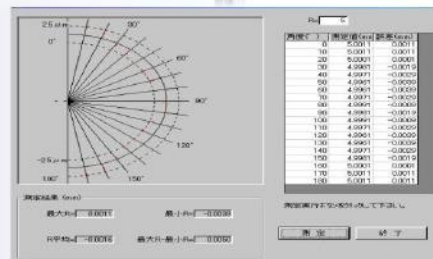


Other machines: Simultaneous
controllable axes: 4 axes → △



• 10mm Ball End mill 2 flute Radius
Accuracy within 5 microns Max.

• Ground Carbide Rod / Blanks
within h5 tolerance.



GLOBAL SERVICES



Xtreme Tooling

Manufactures of Solid Carbide Tools

Plot No. S-83, MIDC, Bhosari, Pune - 411 026

Ph. : 020 - 46780782 Email : sales@xtremetooling.com www.carbidecuttingtools.in

Drill & End Mill Inquiry Form

Customer Name : _____ Date : _____
Address : _____ From : _____
Attn. : _____ By : _____
Contact No. _____ Mail Id : _____ Sample No. : _____

Existing Tool :

Type of Machine : _____

Component : _____

Component Material : _____

Component Hardness : _____

Tool Description : _____

Operation : _____

Monthly Production : _____

Drill / EM Dia : _____

Hole Tolerance : min= _____ max= _____

Number of Flute : _____

COOLANT SUPPLY : INT / EXT / DRY

Drilling Depth : _____

Depth of Cut : _____

Holes / Component : _____

Existing Tool Life : _____

Existing RPM : _____

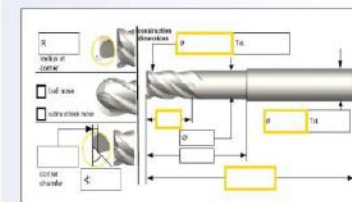
Existing Feed Rate : _____

Existing Drill (Brand) : _____

Cycle Time : _____

REMARKS : _____

ENDMILL / BALLNOSE



FINISHING / ROUGHING

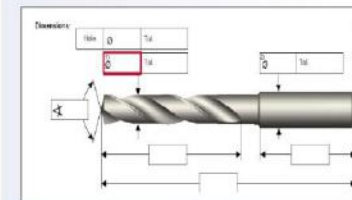
HELIX ANGLE

TC / NON TC

CENTER CUT

APPLICATION

DRILL



FINISHING / ROUGHING

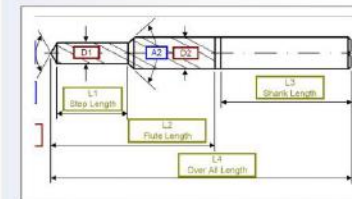
HELIX ANGLE

TC / NON TC

BLIND HOLE

THROUGH HOLE

STEP DRILL



FINISHING / ROUGHING

HELIX ANGLE

TC / NON TC

BLIND HOLE

THROUGH HOLE