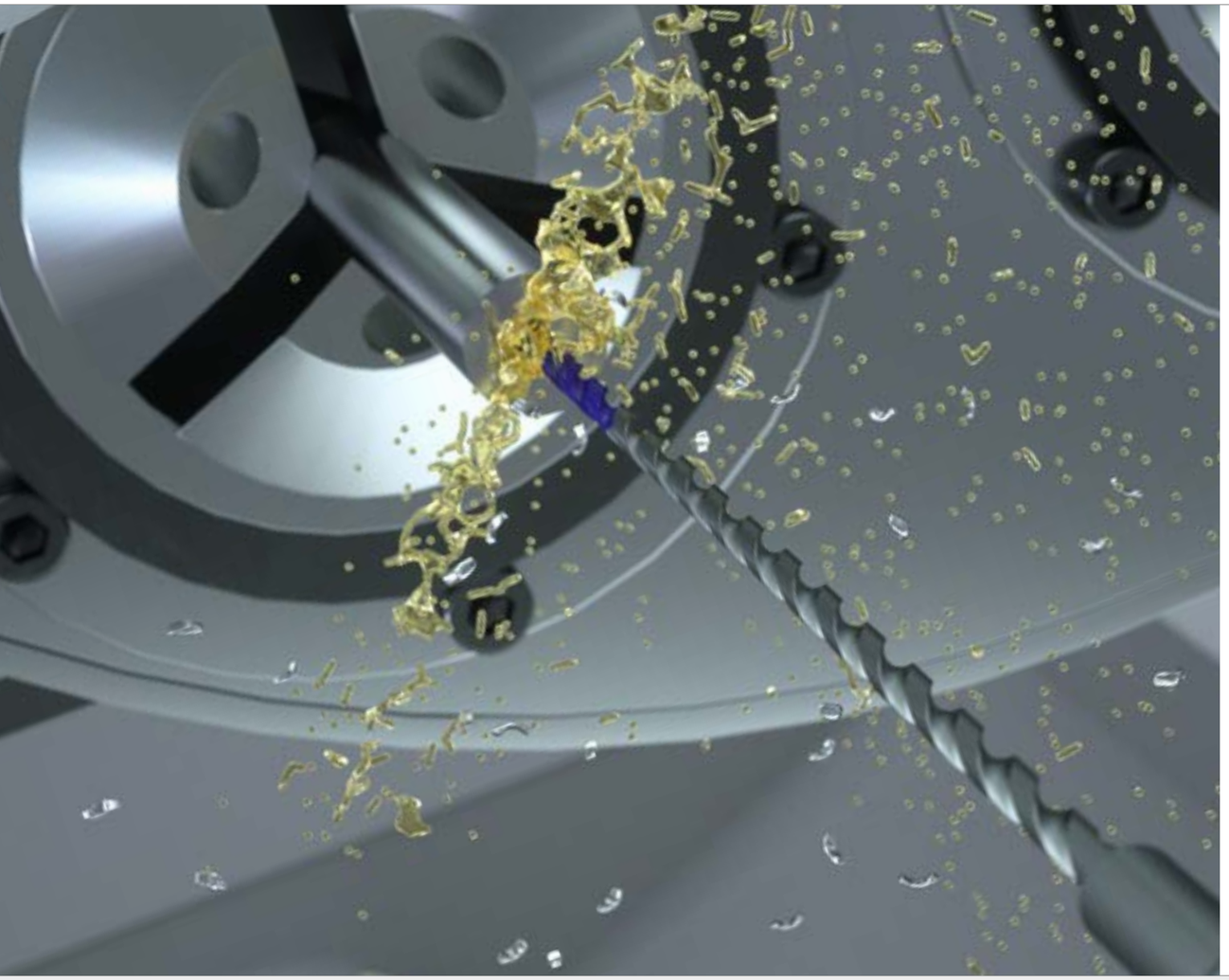
DRILLING TOOLS
CRAZYDRILL COOL XL

CrazyDrill Cool XL



CRAZYDRILL Cool XL

DEEP HOLE DRILLING WITH HIGH SPEED AND PRECISION

CrazyDrill Cool XL line offers a solid carbide deep-hole drill in the diameter range of 1.0 mm to 6.0 mm for drilling depths up to 40 x d. All drills are coated, have through coolant and are ground with double margin.

Combined use of the CrazyDrill Pilot or CrazyDrill Coolpilot, with CrazyDrill Cool XL is an excellent solution for accurate and deep drilling operations. Thanks to its newly developed geometry, CrazyDrill Cool XL meets the very challenging conditions of drilling deep holes consistently up to 40 x d. The tool produces short chips and drills with constant torque in drilling depths up to 40 x d. High cutting speed and process reliability are given.

CrazyDrill XL is capable of drilling a wide range of materials in one shot (without pecking) at the highest speed and feed.

The through coolant holes supply adequate and continuous coolant to the tip for constant cooling, lubrication and chip removal. The power chamber reduces pressure loss and assure higher flowrate also when drilling even the smallest diameters.

CRAZYDRILL™ by Mikron Tool Cool XL

CRAZYDRILL™ by Mikron Tool Cool XL

DRILLING TOOLS
CRAZYDRILL COOL XL

Deeper, quicker, more accurate

DRILLING UP TO 40 X D IN ONE SINGLE STEP

CrazyDrill Cool XL line offers a carbide deep-hole drill in the diameter range of 1.0 mm to 6.0 mm for drilling depths up to 40 x d. All drills are coated, have through coolant and are ground with double margin.

- CrazyDrill Cool XL, depth of cut available: 15 x d / 20 x d / 30 x d / 40 x d, with internal cooling

15 x d	20 x d	30 x d	40 x d
■ Internal cooling ■ Coated	■ Internal cooling ■ Coated	■ Internal cooling ■ Coated	■ Internal cooling ■ Coated
■ Ø1.0 - 6.0 mm	■ Ø1.0 - 6.0 mm	■ Ø1.0 - 6.0 mm	■ Ø2.0 - 6.0 mm
			
			
			
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1 | SHAFT
The robust carbide shaft guarantees a high degree of concentric accuracy and reliability.

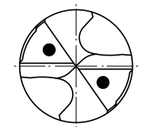
2 | CARBIDE GRADE
The use of latest generation carbide allows highest machining speed and feed.

3 | COATING
The high-performance eXedur SL coating is a thermal and wear protection against heat and abrasion. Extremely smooth and accurate, it exhibits low adhesion to work materials and prevents from cutting edge chipping. The result is controlled chip formation and long tool life.

4 | THROUGH COOLANT AND POWER CHAMBER
The through coolant holes supply adequate and continuous coolant to the tip for constant cooling, lubrication and chip removal. The power chamber reduces pressure loss and increases flowrate even when drilling smallest diameters.

5 | CUTTING AND FLUTES GEOMETRY
The CrazyDrill XL cutting geometry is optimized for short chip formation. With a large chip pocket flute design, jamming risk is significantly reduced and chip evacuation is highly effective through the maximum hole depth. This tool is capable of drilling a wide range of materials in one shot (without pecking) at the highest speeds and feeds (see speed and feed chart for more details on machining approach). The double margin ground on all CrazyDrill XL offers a 4-pints guide for excellent drilling stability and hole straightness.

6 | CUTTING EDGE TREATMENT
The special cutting edge preparation reduces chipping risk and guarantees a consistent drilling process and extends tool life.

Drill tip 

CRAZYDRILL™ by Mikron Tool Cool XL

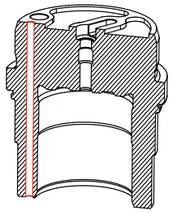
CRAZYDRILL™ by Mikron Tool Cool XL

DRILLING TOOLS
CRAZYDRILL COOL XL

Benefits and applications

EXTRA LONG DRILL WITH INTERNAL COOLING FOR DEEP HOLE DRILLING

- **SHORT MACHINING TIME** | deep hole drilling in one single step
- **LONG TOOL LIFE** | due to efficient coolant
- **HIGH DEGREE OF PROCESS RELIABILITY** | due to short chips
- **HIGH DEGREE OF PRECISION** | due to double margin



COMPONENT
Injector body

MATERIAL
100Cr6 / 1.3505 / AISI 52100

MACHINING
- Pilot and deep holes drilling
- d = 2.0 mm
- Drilling depth 76 mm

DRILLING TOOL
Mikron Tool - CrazyDrill Cool XL - 40 x d

DATA	MIKRON TOOL
Tool type	CrazyDrill Pilot CrazyDrill Cool XL - Carbide - Coated - Internal cooling
Item number	2.CD.400200.XL
Cutting data	v_c = 70 m/min f = 0.08 mm/rev Q_1 = 76 mm

APPLICATION DOMAINS	COMPONENTS EXAMPLES
Aerospace industry	Component for aircraft
Medical technology	Component for measuring device
Mold making	Casting mold
Automotive industry	Components for injection system
Mechanical engineering	Locking bolt
Food industry	Injection blow molding

MATERIALS GROUPS	EXAMPLES		
	Mat. no.	DIN	AISI / ASTM / UNS
Group P Unalloyed and alloyed steel	1.0401	C15	1015
	1.3505	100Cr6	52100
	1.2436	X210CrW12	D4 / D6
Group M Stainless steel	1.4105	X6CrMoS17	430F
	1.4034	X46Cr13	420C
	1.4542	X5CrNiCuNb 16-4	630
	1.4301	X5CrNi 18-10	304
Group K Cast iron	0.7040	GGG40	60-40-18
Group N Non ferrous metals	3.2315	AlMgSi1	6351
	3.2163	GD-AlSi9Cu3	A380
	2.004	Cu-OF / CW008A	C10100
	2.0321	CuZn37 CW508L	C27400
	2.102	CuSn6	C51900
	2.096	CuAl9Mn2	C63200
Group S1 Super alloys	2.4856		INCONEL 625
	2.4665	NiCr22Fe18Mo	HASTELLOY X
Group S3 CrCo alloys	2.4964	CoCr20W15Ni	HAYNES 25
Group H1 Hardened steel <55 HRC	1.2510	100MnCrMoW4	O1

CRAZYDRILL™ by Mikron Tool Cool XL

CRAZYDRILL™ by Mikron Tool Cool XL

DRILLING TOOLS
CRAZYDRILL COOL XL

CrazyDrill Cool XL 15 x d

Carbide | 15xd$_1$ | 140° | Z2 | eXedur SL

Ø d$_1$	0.1 - 3.0 mm	3.1 - 6.0 mm
Tolerance	+ 0.006 mm 0	+ 0.009 mm + 0.001 mm

DRILLING WITH INTERNAL COOLING

The small, through coolant, solid carbide drill CrazyDrill Cool XL 15 x d is available from diameter 1.0 mm up to 6.0 mm. All drills are coated and feature a double margin.

With drilling depths up to 15 x d, this is a high performance improvement to the time consuming and costly deep-hole drilling methods such as gun drilling.

The through coolant holes supplies constant coolant flow to the tip. For small diameters, an additional power chamber in the shank assures a higher flowrate. Comparatively at same coolant pressure three time flowrate will be supplied to the cutting area. This technology enables high drilling speed with more effective chip removal. High-performance eXedur SL coating provides thermal and wear protection, guaranteeing a longer tool life.

Optimized cutting geometry for short chip formation and large flute pocket design reduces jamming risk and guarantees effective chip evacuation. Maximum drill depth of 15 x d can be reached in one shot (without pecking) at the highest speed and feed.

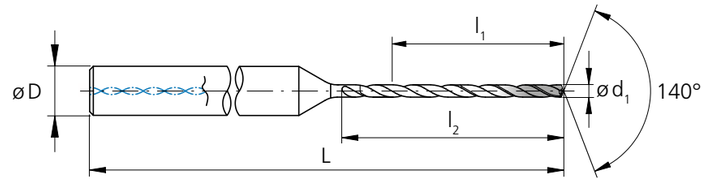
We recommend Mikron Tool CrazyDrill Pilot or CrazyDrill Coolpilot for hole preparation on flat and even surfaces or CrazyDrill Crosspilot on inclined surfaces up to 60°. Combining CrazyDrill Pilot / Coolpilot / Crosspilot with CrazyDrill Cool XL, enhances hole quality characteristics by means of fine tuned tolerances. For details see drilling process.

Coolant type, pressure and filtration

Recommendations for coolant type, pressure and filtration are on page "drilling process".

Please note

You couldn't find your suitable version of the CrazyDrill Cool XL (diameter, length, cutting direction…)? Ask us about our customized versions!



d$_1$ [mm]	d$_1$ [inch]	l$_1$ [mm]	l$_2$ [mm]	D (h6) [mm]	L [mm]	Item number	Availability
1.00		15.00	18.0	4	58	2.CD.150100.XL	■
1.05		15.75	18.9	4	59	2.CD.150105.XL	■
1.10		16.50	19.8	4	60	2.CD.150110.XL	■
1.15		17.25	20.7	4	61	2.CD.150115.XL	■
1.20		18.00	21.6	4	62	2.CD.150120.XL	■
1.25		18.75	22.5	4	62	2.CD.150125.XL	■
1.30		19.50	23.4	4	63	2.CD.150130.XL	■
1.35		20.25	24.3	4	64	2.CD.150135.XL	■
1.40		21.00	25.2	4	65	2.CD.150140.XL	■
1.45		21.75	26.1	4	66	2.CD.150145.XL	■
1.50		22.50	27.0	4	67	2.CD.150150.XL	■
1.55		23.25	27.9	4	68	2.CD.150155.XL	■
1.587	**1/16**	24.00	28.8	4	68	2.CD.150F116.XL	■
1.60		24.00	28.8	4	68	2.CD.150160.XL	■
1.65		24.75	29.7	4	69	2.CD.150165.XL	■
1.70		25.50	30.6	4	70	2.CD.150170.XL	■
1.75		26.25	31.5	4	71	2.CD.150175.XL	■
1.80		27.00	32.4	4	72	2.CD.150180.XL	■
1.85		27.75	33.3	4	73	2.CD.150185.XL	■
1.90		28.50	34.2	4	74	2.CD.150190.XL	■
1.95		29.25	35.1	4	74	2.CD.150195.XL	■
2.00		30.00	36.0	4	75	2.CD.150200.XL	■
2.05		30.75	36.9	4	76	2.CD.150205.XL	■
2.10		31.50	37.8	4	77	2.CD.150210.XL	■
2.15		32.25	38.7	4	78	2.CD.150215.XL	■
2.20		33.00	39.6	4	79	2.CD.150220.XL	■
2.25		33.75	40.5	4	80	2.CD.150225.XL	■
2.30		34.50	41.4	4	80	2.CD.150230.XL	■
2.35		35.25	42.3	4	81	2.CD.150235.XL	■

■ Stock item

Complementary products	
CrazyDrill Pilot	p.161
CrazyDrill Coolpilot	p.189
CrazyDrill Crosspilot	p.175

Regrinding: This product can be reground starting from Ø 1.45 mm.

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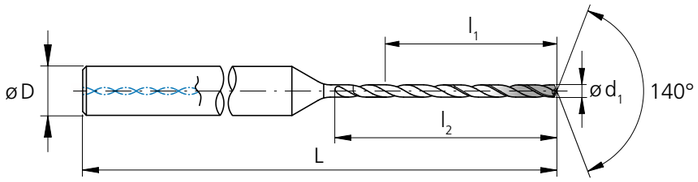
DRILLING TOOLS
CRAZYDRILL COOL XL

CrazyDrill Cool XL 15 x d

Carbide | 15xd$_1$ | 140° | Z2 | eXedur SL

Ø d$_1$	0.1 - 3.0 mm	3.1 - 6.0 mm
Tolerance	+ 0.006 mm 0	+ 0.009 mm + 0.001 mm

DRILLING WITH INTERNAL COOLING



d$_1$ [mm]	d$_1$ [inch]	l$_1$ [mm]	l$_2$ [mm]	D (h6) [mm]	L [mm]	Item number	Availability
2.381	**3/32**	36.00	43.2	4	82	2.CD.150F332.XL	■
2.40		36.00	43.2	4	82	2.CD.150240.XL	■
2.45		36.75	44.1	4	83	2.CD.150245.XL	■
2.50		37.50	45.0	4	84	2.CD.150250.XL	■
2.55		38.25	45.9	4	85	2.CD.150255.XL	■
2.60		39.00	46.8	4	86	2.CD.150260.XL	■
2.65		39.75	47.7	4	86	2.CD.150265.XL	■
2.70		40.50	48.6	4	87	2.CD.150270.XL	■
2.75		41.25	49.5	4	88	2.CD.150275.XL	■
2.80		42.00	50.4	4	89	2.CD.150280.XL	■
2.85		42.75	51.3	4	90	2.CD.150285.XL	■
2.90		43.50	52.2	4	91	2.CD.150290.XL	■
2.95		44.25	53.1	4	92	2.CD.150295.XL	■
3.00		45.00	54.0	4	92	2.CD.150300.XL	■
3.05		45.75	54.9	6	99	2.CD.150305.XL	■
3.10		46.50	55.8	6	100	2.CD.150310.XL	■
3.15		47.25	56.7	6	101	2.CD.150315.XL	■
3.175	**1/8**	48.00	57.6	6	102	2.CD.150F18.XL	■
3.20		48.00	57.6	6	102	2.CD.150320.XL	■
3.25		48.75	58.5	6	102	2.CD.150325.XL	■
3.30		49.50	59.4	6	103	2.CD.150330.XL	■
3.35		50.25	60.3	6	104	2.CD.150335.XL	■
3.40		51.00	61.2	6	105	2.CD.150340.XL	■
3.45		51.75	62.1	6	106	2.CD.150345.XL	■
3.50		52.50	63.0	6	107	2.CD.150350.XL	■
3.55		53.25	63.9	6	108	2.CD.150355.XL	■
3.60		54.00	64.8	6	108	2.CD.150360.XL	■
3.65		54.75	65.7	6	109	2.CD.150365.XL	■
3.70		55.50	66.6	6	110	2.CD.150370.XL	■
3.75		56.25	67.5	6	111	2.CD.150375.XL	■

■ Stock item

d$_1$ [mm]	d$_1$ [inch]	l$_1$ [mm]	l$_2$ [mm]	D (h6) [mm]	L [mm]	Item number	Availability
3.80		57.00	68.4	6	112	2.CD.150380.XL	■
3.85		57.75	69.3	6	113	2.CD.150385.XL	■
3.90		58.50	70.2	6	114	2.CD.150390.XL	■
3.95		59.25	71.1	6	114	2.CD.150395.XL	■
3.968	**5/32**	60.00	72.0	6	115	2.CD.150F532.XL	■
4.00		60.00	72.0	6	115	2.CD.150400.XL	■
4.10		61.50	73.8	6	117	2.CD.150410.XL	■
4.20		63.00	75.6	6	119	2.CD.150420.XL	■
4.30		64.50	77.4	6	120	2.CD.150430.XL	■
4.40		66.00	79.2	6	122	2.CD.150440.XL	■
4.50		67.50	81.0	6	124	2.CD.150450.XL	■
4.60		69.00	82.8	6	126	2.CD.150460.XL	■
4.70		70.50	84.6	6	127	2.CD.150470.XL	■
4.762	**3/16**	72.00	86.4	6	129	2.CD.150F316.XL	■
4.80		72.00	86.4	6	129	2.CD.150480.XL	■
4.90		73.50	88.2	6	131	2.CD.150490.XL	■
5.00		75.00	90.0	6	133	2.CD.150500.XL	■
5.10		76.50	91.8	6	134	2.CD.150510.XL	■
5.20		78.00	93.6	6	136	2.CD.150520.XL	■
5.30		79.50	95.4	6	138	2.CD.150530.XL	■
5.40		81.00	97.2	6	139	2.CD.150540.XL	■
5.50		82.50	99.0	6	141	2.CD.150550.XL	■
5.560	**7/32**	84.00	100.8	6	143	2.CD.150F732.XL	■
5.60		84.00	100.8	6	143	2.CD.150560.XL	■
5.70		85.50	102.6	6	145	2.CD.150570.XL	■
5.80		87.00	104.4	6	146	2.CD.150580.XL	■
5.90		88.50	106.2	6	148	2.CD.150590.XL	■
6.00		90.00	108.0	6	150	2.CD.150600.XL	■

■ Stock item

Complementary products

CrazyDrill Pilot	p.161
CrazyDrill Coolpilot	p.189
CrazyDrill Crosspilot	p.175

CRAZYDRILL™ by Mikron Tool Cool XL

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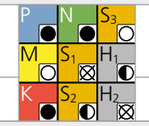
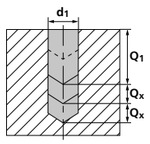
DRILLING TOOLS
CRAZYDRILL COOL XL

CrazyDrill Cool XL 15 x d

RECOMMENDATION FOR USE
● Excellent | ◐ Good | ○ Acceptable | ⊠ Not recommended



DRILLING WITH INTERNAL COOLING | CUTTING DATA OVERVIEW



Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v_c [m/min]	Q_1	Q_x	f [mm/rev] Ød1 1.0 mm f	1.25 mm f	1.5 mm 1/16" f	2.0 mm f	2.5 mm 3/32" f	3.0 mm 1/8" f	4.0 mm 5/32" f	5.0 mm 3/16" - 7/32" f	6.0 mm f
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010	60–140	15xd1	–	0.040	0.050	0.060	0.080	0.090	0.120	0.160	0.180	0.200
		1.0401	C15	AISI 1015												
		1.1191	C45E/CK45	AISI 1045												
		1.0044	S275JR	AISI 1020												
		1.0715	11SMn30	AISI 1215												
	Low alloyed steel Rm > 900 N/mm²	1.5752	15NiCr13	ASTM 3415 / AISI 3310	50–130	15xd1	–	0.040	0.050	0.060	0.080	0.090	0.120	0.160	0.180	0.200
		1.7131	16MnCr5	AISI 5115												
		1.3505	100Cr6	AISI 52100												
		1.7225	42CrMo4	AISI 4140												
		1.2842	90MnCrV8	AISI O2												
	High alloyed tool steel Rm < 1200 N/mm²	1.2379	X153CrMoV12	AISI D2	40–100	15xd1	–	0.030	0.040	0.050	0.070	0.080	0.090	0.120	0.150	0.180
		1.2436	X210CrW12	AISI D4/D6												
		1.3343	HS6-5-2C	AISI M2 / UNS T11302												
		1.3355	HS18-0-1	AISI T1 / UNS T12001												
M	Stainless steel ferritic	1.4016	X6Cr17	AISI 430 / UNS S43000	30–60	15xd1	–	0.020	0.040	0.060	0.080	0.100	0.130	0.150	0.200	0.220
		1.4105	X6CrMoS17	AISI 430F												
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	40–80	15xd1	–	0.040	0.060	0.080	0.100	0.120	0.150	0.180	0.200	0.220
		1.4112	X90CrMoV18	AISI 440B												
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH												
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH												
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304	30–60	5xd1	2xd1	0.020	0.030	0.040	0.060	0.070	0.100	0.120	0.150	0.180
		1.4435	X2CrNiMo 18-14-3	AISI 316L												
		1.4441	X2CrNiMo 18-15-3	AISI 316LM												
		1.4539	X1NiCrMoCu 25-20-5	AISI 904L												
K	Cast iron	0.6020	GG20	ASTM 30	80–150	15xd1	–	0.050	0.060	0.070	0.080	0.090	0.160	0.200	0.250	0.300
		0.6030	GG30	ASTM 40B												
		0.7040	GGG40	ASTM 60-40-18												
		0.7060	GGG60	ASTM 80-60-03												
N	Aluminium alloy wrought	3.2315	AlMgSi1	ASTM 6351	100–200	15xd1	–	0.050	0.060	0.080	0.120	0.160	0.180	0.200	0.250	0.300
		3.4365	AlZnMgCu1.5	ASTM 7075												
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	80–150	15xd1	–	0.050	0.060	0.080	0.100	0.120	0.150	0.200	0.250	0.300
		3.2381	GD-AlSi10Mg	UNS A03590												
	Copper	2.004	Cu-OF / CW008A	UNS C10100	40–80	2xd1	2xd1	0.025	0.045	0.065	0.085	0.110	0.140	0.160	0.180	0.200
		2.0065	Cu-ETP / CW004A	UNS C11000												
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	40–80	2xd1	2xd1	0.025	0.045	0.065	0.085	0.110	0.140	0.160	0.180	0.200
		2.036	CuZn40 CW509L	UNS C28000												
	Brass, Bronze Rm < 400 N/mm²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	50–120	15xd1	–	0.040	0.050	0.060	0.090	0.120	0.130	0.170	0.220	0.240
		2.102	CuSn6	UNS C51900												
	Bronze Rm < 600 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000	40–80	15xd1	–	0.025	0.045	0.065	0.085	0.110	0.120	0.160	0.200	0.220
		2.096	CuAl9Mn2	UNS C63200												
S_1	Super alloys	2.4856		Inconel 625												
		2.4668		Inconel 718												
		2.4617	NiMo28	Hastelloy B-2												
		2.4665	NiCr22Fe18Mo	Hastelloy X												
S_2	Titanium pure	3.7035	Gr.2	ASTM B348 / F67	25–50	3xd1	1xd1	0.010	0.020	0.030	0.040	0.050	0.065	0.080	0.100	0.120
		3.7065	Gr.4	ASTM B348 / F68												
	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	20–40	5xd1	1xd1	0.010	0.020	0.030	0.040	0.050	0.065	0.080	0.100	0.120
		9.9367	TiAl6Nb7	ASTM F1295												
S_3	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25	20–40	5xd1	2xd1	0.010	0.020	0.030	0.040	0.050	0.065	0.080	0.100	0.120
			CrCoMo28	ASTM F1537												
H_1	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1	30–60	5xd1	1xd1	0.020	0.030	0.040	0.050	0.060	0.080	0.110	0.140	0.160
H_2	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2												

CRAZYDRILL Cool XL

CRAZYDRILL Cool XL

DRILLING TOOLS
CRAZYDRILL COOL XL

Drilling process CrazyDrill Cool XL

ACCURATE AND RAPID DRILLING UP TO 40 X D

Coolant type, filtration, coolant pressure and flowrate

Coolant type: For best results, Mikron Tool recommends the use of cutting oil as coolant fluid. Alternatively, emulsion of 8% or more with EP-Additives (Extreme-Pressure-Additives) can be used with good results as well.

Filtration: Good filter quality is very important when using through coolant drills. Dirt particles or residual chips can clog the coolant holes and consequently reduce dramatically the flowrate. The following filter qualities must be adhered especially in small diameters:

- Drill with Ø < 2 mm filter quality ≤ 0.010 mm.
- Drill with Ø < 3 mm filter quality ≤ 0.020 mm.
- Drill with Ø < 6 mm filter quality ≤ 0.050 mm.

Coolant pressure: To ensure a reliable drilling process the following minimal pressures are required (see chart). Higher pressures are needed for smaller drill size diameters. High pressure is generally better for the cooling and chip evacuation effectiveness.

Ø d, Tool	Minimal pressure	
	15 / 20 x d,	30 / 40 x d,
[mm]	[bar]	[bar]
1.0	70	80
2.0	50	70
4.0	40	60
6.0	30	50

Tool holders

For detailed indications for tool holders see page see chapter "Technical information".

CrazyDrill Cool 15 x d, 20 x d, 30 x d, 40 x d

Mikron Tool recommends CrazyDrill Pilot for all types of CrazyDrill Cool XL:

- **CrazyDrill Pilot** as pilot drill
- **CrazyDrill Coolpilot** as pilot drill for difficult to machine materials
- **CrazyDrill Crosspilot** as pilot drill for inclined surfaces

Pilot drilling and drilling

Pilot drilling with CrazyDrill Pilot or CrazyDrill Coolpilot is the perfect start for an accurate (position and alignment accuracy) and consistent machining process. Inclined surfaces requires the use of CrazyDrill Crosspilot.

The quality of drilling (position and alignment accuracy, no measurable transition from pilot hole to the following drilling steps) and a stable machining process are guaranteed by carefully determined tool tolerances.

Note:
With a depth of 40 x d it might be advantageous to use after the pilot drill a 15 x d or 20 x d CrazyDrill Cool XL drill. With this the subsequent 40 x d drill gets even better guidance and protection against bending. Result: an improved tool life.

CRAZYDRILL Cool XL

CRAZYDRILL Cool XL

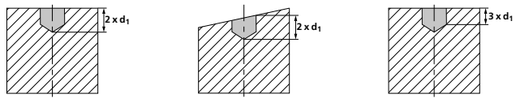
DRILLING TOOLS
CRAZYDRILL COOL XL

Drilling process CrazyDrill Cool XL

ONE STEP DRILLING (DEPENDING ON MATERIAL, SEE CUTTING DATA CHART)

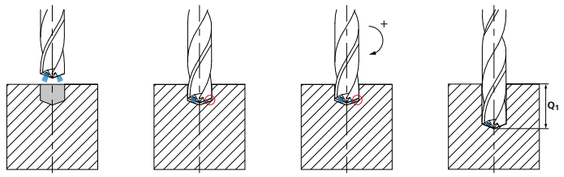
1 | PILOT DRILLING

- With CrazyDrill Pilot or Coolpilot (straight surfaces) or CrazyDrill Crosspilot (inclined surfaces).



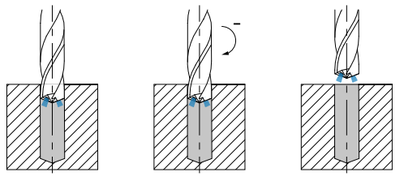
2 | DEEP HOLE DRILLING

- Turn on coolant. Enter the hole at a maximum speed n = 500 rpm and v_f = 1'000 mm/min, up to drilling depth 1.8 x d (drill should not touch the bottom of pilot hole).
- Increase speed as per cutting data chart and wait until the desired drilling speed is reached. Program dwell in case of slow spindle acceleration.
- Drill in one step with recommended cutting speed and feed rate.



3 | EXIT FROM BORE

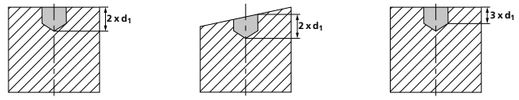
- After the desired drilling depth is reached, return with the drill to drilling depth 2 x d at feed rate or reduced rapid traverse.
- Reduce speed to n = 500 rpm.
- Exit the bore at speed n = 500 rpm and v_f = 1'000 mm/min.



DRILLING AS PER DIN 66025 / PAL (DEPENDING ON MATERIAL, SEE CUTTING DATA CHART)

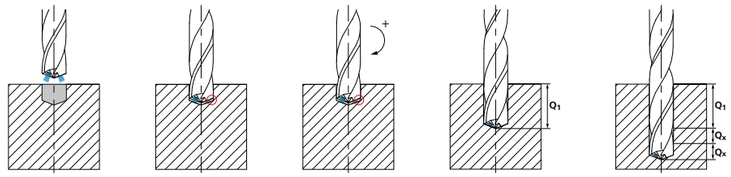
1 | PILOT DRILLING

- With CrazyDrill Pilot or Coolpilot (straight surfaces) or CrazyDrill Crosspilot (inclined surfaces).



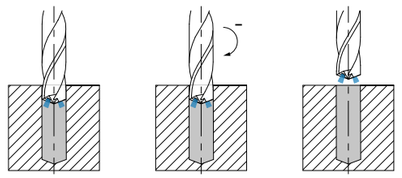
2 | DEEP HOLE DRILLING

- Turn on coolant. Enter the hole at a maximum speed n = 500 rpm and v_f = 1'000 mm/mim, up to drilling depth 1.8 x d (drill should not touch the bottom of pilot hole).
- Increase speed as per cutting data chart and wait until the desired drilling speed is reached. Program well in case of slow spindle acceleration.
- Drilling with CrazyDrill Cool XL up to maximum drilling depth (Q_1) in one step, afterwards remove chips.
- Single steps (Q_X) as per cutting data chart, afterwards remove chips without taking out the drill completely from the bore.



3 | EXIT FROM BORE

- After the desired drilling depth is reached, return with the drill to drilling depth 2 x d at feed rate or reduced rapid traverse.
- Reduce speed to n = 500 rpm.
- Exit the bore at speed n = 500 rpm and vf = 1'000 mm/min.



Note: Do not take the drill completely out from the bore between pecks (chattering and consequent break risk). For CrazyDrill Cool XL 15 x d it's possible to enter and drill the pilot hole immediately at the cutting speed and feed recommended on the chart.