

CrazyDrill™ Pilot

MIKRON



The drill for high
precision centering

CRAZYDRILL™
by Mikron Tool
Pilot

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Pilot

The ideal preparation for the drilling of deep holes

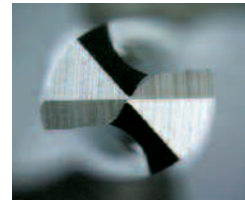
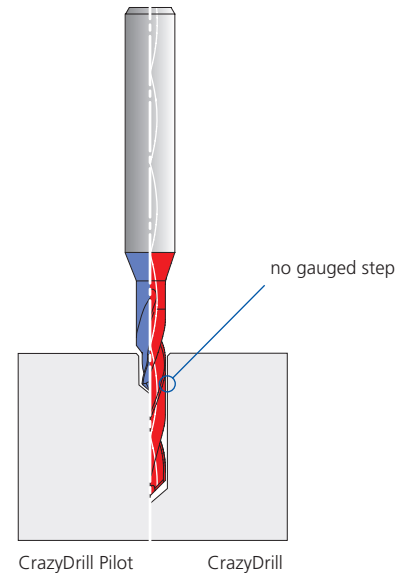
Properties

With conventional centering there is a considerable risk of breaking the cutting edge and drilling off-center. With the CrazyDrill Pilot, centering and drilling of the pilot hole up to $2 \times \varnothing$ is carried out in a single operation, thereby guaranteeing high precision for the follow-up drilling process. A 90° chamfer is cut at the same time. Diameter ranges and tolerances are matched to the CrazyDrill program, making it ideally suitable for preparing the drilling of deep holes of over $6 \times \varnothing$ in length with the CrazyDrill. Its special high-performance geometry combined with optimum coating increases the service life many times over while maintaining constant drilling precision.

The product range

- Diameter ranges:
0.75 to 6.0 mm
- Diameter tolerances:
m5
- Diameter increments:
up to $\varnothing 4$ mm every 0.05 mm
from $\varnothing 4$ mm every 0.1 mm
- Drilling depth:
max. $2 \times \varnothing$
- Shank diameter:
4.0 mm with drill diameter 0.75 – 3 mm
6.0 mm with drill diameter $> 3 - 5$ mm
8.0 mm with drill diameter > 5 mm

Drilling concept



Point angle = 140°

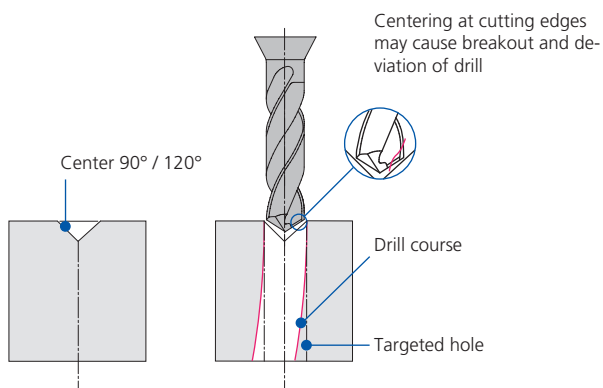
With CrazyDrill cutting geometry and Futura coating



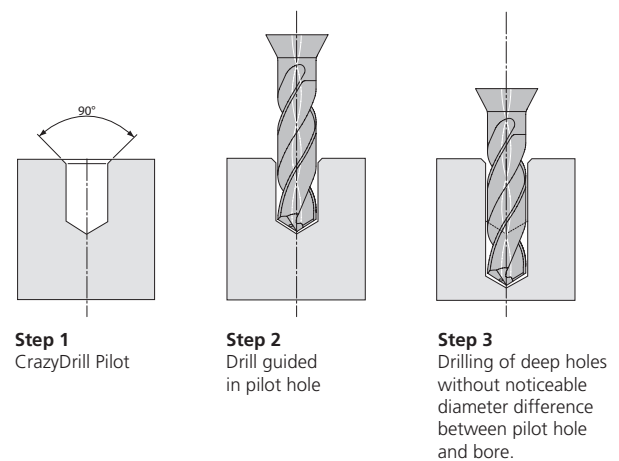


Optimized centering

Before:



New drilling concept:



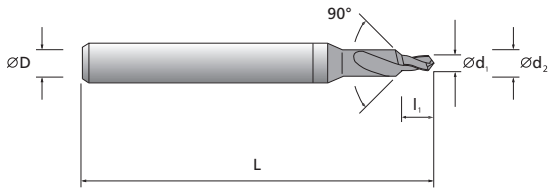
Die Crazy Familie – eine hochproduktive Werkzeuglösung

Alle Produkte der CrazyDrill Linie sind sorgfältig aufeinander abgestimmt. Bohren mit CrazyDrill bedeutet höhere Wirtschaftlichkeit und optimale Ergebnisse in Bezug auf Präzision, Zuverlässigkeit und Standzeit.

Five benefits

- Centering and pilot drilling in one step
- Hole chamfered directly with 90° countersink high precision
- No deviation from center when drilling deep holes
- Longer tool life of the follow-up drills
- Matched to CrazyDrill

Product range



- Newest generation of carbide

Helix

- Special flute form for optimized chip removal

Cutting edge

- Center $90^\circ \pm 0.5^\circ$
- Degressive helix groove
- High performance CrazyDrill cutting geometry



Item number	d ₁ (m5) mm	l mm	d ₂ (-0.01) mm	D (h6) mm	L mm
PD.00400.090	0.40	0.8	1.00	4	46.5
PD.00450.090	0.45	0.9	1.00	4	46.5
PD.00500.090	0.50	1.0	1.20	4	47
PD.00550.090	0.55	1.1	1.20	4	47
PD.00600.090	0.60	1.2	1.50	4	48
PD.00650.090	0.65	1.3	1.50	4	48
PD.00700.090	0.70	1.4	1.75	4	49
PD.00750.090	0.75	1.5	1.75	4	49
PD.00800.090	0.80	1.6	2.00	4	49
PD.00850.090	0.85	1.7	2.00	4	49
PD.00900.090	0.90	1.8	2.00	4	49
PD.00950.090	0.95	1.9	2.00	4	49
PD.01000.090	1.00	2.0	2.50	4	51
PD.01050.090	1.05	2.1	2.50	4	51
PD.01100.090	1.10	2.2	2.50	4	51
PD.01150.090	1.15	2.3	2.50	4	51
PD.01200.090	1.20	2.4	2.50	4	51
PD.01250.090	1.25	2.5	2.50	4	51
PD.01300.090	1.30	2.6	2.50	4	51
PD.01350.090	1.35	2.7	2.50	4	51
PD.01400.090	1.40	2.8	2.50	4	51
PD.01450.090	1.45	2.9	2.50	4	51
PD.01500.090	1.50	3.0	3.00	4	53
PD.01550.090	1.55	3.1	3.00	4	53
PD.01600.090	1.60	3.2	3.00	4	53
PD.01650.090	1.65	3.3	3.00	4	53
PD.01700.090	1.70	3.4	3.00	4	53
PD.01750.090	1.75	3.5	3.00	4	53
PD.01800.090	1.80	3.6	3.00	4	53
PD.01850.090	1.85	3.7	3.00	4	53
PD.01900.090	1.90	3.8	3.00	4	53
PD.01950.090	1.95	3.9	3.00	4	53
PD.02000.090	2.00	4.0	3.50	4	55
PD.02050.090	2.05	4.1	3.50	4	55
PD.02100.090	2.10	4.2	3.50	4	55
PD.02150.090	2.15	4.3	3.50	4	55
PD.02200.090	2.20	4.4	3.50	4	55
PD.02250.090	2.25	4.5	3.50	4	55
PD.02300.090	2.30	4.6	3.50	4	55
PD.02350.090	2.35	4.7	3.50	4	55
PD.02400.090	2.40	4.8	3.50	4	55
PD.02450.090	2.45	4.9	3.50	4	55
PD.02500.090	2.50	5.0	3.80	4	57
PD.02550.090	2.55	5.1	3.80	4	57
PD.02600.090	2.60	5.2	3.80	4	57
PD.02650.090	2.65	5.3	3.80	4	57
PD.02700.090	2.70	5.4	3.80	4	57
PD.02750.090	2.75	5.5	3.80	4	57
PD.02800.090	2.80	5.6	3.80	4	57
PD.02850.090	2.85	5.7	3.80	4	57
PD.02900.090	2.90	5.8	3.80	4	57
PD.02950.090	2.95	5.9	3.80	4	57
PD.03000.090	3.00	6.0	3.80	4	57
PD.03050.090	3.05	6.1	4.50	6	61
PD.03100.090	3.10	6.2	4.50	6	61
PD.03150.090	3.15	6.3	4.50	6	61
PD.03200.090	3.20	6.4	4.50	6	61
PD.03250.090	3.25	6.5	4.50	6	61
PD.03300.090	3.30	6.6	4.50	6	61
PD.03350.090	3.35	6.7	4.50	6	61
PD.03400.090	3.40	6.8	4.50	6	61
PD.03450.090	3.45	6.9	4.50	6	61
PD.03500.090	3.50	7.0	4.50	6	61
PD.03550.090	3.55	7.1	5.30	6	64
PD.03600.090	3.60	7.2	5.30	6	64
PD.03650.090	3.65	7.3	5.30	6	64
PD.03700.090	3.70	7.4	5.30	6	64
PD.03750.090	3.75	7.5	5.30	6	64
PD.03800.090	3.80	7.6	5.30	6	64
PD.03850.090	3.85	7.7	5.30	6	64
PD.03900.090	3.90	7.8	5.30	6	64
PD.03950.090	3.95	7.9	5.30	6	64
PD.04000.090	4.00	8.0	5.30	6	64
PD.04100.090	4.10	8.2	6.00	6	70
PD.04200.090	4.20	8.4	6.00	6	70
PD.04300.090	4.30	8.6	6.00	6	70
PD.04400.090	4.40	8.8	6.00	6	70
PD.04500.090	4.50	9.0	6.00	6	70
PD.04600.090	4.60	9.2	6.00	6	70
PD.04700.090	4.70	9.4	6.00	6	70
PD.04800.090	4.80	9.6	6.00	6	70
PD.04900.090	4.90	9.8	6.00	6	70
PD.05000.090	5.00	10.0	6.00	6	70
PD.05100.090	5.10	10.2	8.00	8	80
PD.05200.090	5.20	10.4	8.00	8	80
PD.05300.090	5.30	10.6	8.00	8	80
PD.05400.090	5.40	10.8	8.00	8	80
PD.05500.090	5.50	11.0	8.00	8	80
PD.05600.090	5.60	11.2	8.00	8	80
PD.05700.090	5.70	11.4	8.00	8	80
PD.05800.090	5.80	11.6	8.00	8	80
PD.05900.090	5.90	11.8	8.00	8	80
PD.06000.090	6.00	12.0	8.00	8	80

Guidelines for CrazyDrill Pilot cutting parameters

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Pilot

Materials to be machined	Examples	Cutting speed vc m/min coated TiAlN	Feed f in mm/revolution in relation to diameter									
			0.4 mm	0.8 mm	1.0 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm	4.0 mm	5.0 mm	6.0 mm
Carbon Steel Steel casting	Ck45, 16MnCr5, 200MnCr6	40 - 80	0.01	0.055	0.08	0.14	0.18	0.21	0.24	0.28	0.31	0.34
Carbon Steel Steel casting	100Cr6, 90MnCrV8	40 - 80	0.01	0.055	0.08	0.12	0.15	0.17	0.19	0.22	0.24	0.26
Tool Steels	G-X 100 CrMoV 5 1, X210CrW12, S 18-1-2-10	30 - 60	0.01	0.02	0.05	0.08	0.11	0.13	0.15	0.18	0.20	0.22
Carbon Steel Steel casting	90MnCrV8, X40CrV5-1	20 - 40	0.01	0.008	0.010	0.015	0.02	0.025	0.03	0.04	0.05	0.06
Carbon Steel Steel casting	X17CrNi16-2, X6CrMo 17-1, X20Cr13, G-X130CrSi29	25 - 50	0.01	0.011	0.03	0.06	0.08	0.09	0.10	0.12	0.13	0.14
Tool Steels	X5CrNi 18-10, X10CrNiS 18-9	20 - 40	0.01	0.011	0.02	0.05	0.07	0.08	0.09	0.11	0.12	0.13
Stainless steel	Ti.Gr2, Ti.Gr.5	12 - 55	0.01	0.08	0.09	0.11	0.12	0.125	0.13	0.14	0.15	0.15
Cast iron	GG 20 - GGG 50 GGG 40 - GGG 70 GTW/GTS	50 - 100	0.010	0.05	0.08	0.12	0.15	0.15	0.15	0.20	0.20	0.20
Copper alloys	Brass, Nickel silver, Bronze	70 - 150	0.015	0.06	0.10	0.12	0.15	0.20	0.20	0.25	0.25	0.25
Copper alloys	Beryllium-Bronze, Aluminium-Bronze	40 - 70	0.010	0.05	0.08	0.10	0.12	0.15	0.15	0.20	0.20	0.20
Aluminium alloys wrought, Magnesium alloys	AlSi1, AlSi1 MgMn, AlCuMgPb	100 - 200	0.010	0.05	0.10	0.12	0.15	0.20	0.20	0.25	0.25	0.25
Aluminium alloys cast	GD-AlSi9Cu3, GD-AlSi12, GD-AlSi10Mg	80 - 150	0.015	0.08	0.11	0.16	0.2	0.25	0.25	0.28	0.28	0.28
Gold Silber		50 - 100	0.01	0.04	0.06	0.08	0.12	0.15	0.15	0.20	0.20	0.20

These values are intended to represent approximate ranges.

This data is indicative. Different conditions due to machine, spindle, coolant, etc. can influence the performance.

Important criteria for using CrazyDrill Pilot:

For best results, Mikron Tool recommends the use of cutting oil as lubricant. The use of water based coolant with high pressure additives, or minimum quantity lubrication is also possible as an alternative. In this case, the cutting parameters have to be adjusted accordingly.

Services that complete the concept

Engineering and Consulting

Mikron Tool advises its customers on the selection of suitable tools with respect to material and geometry, necessary tolerances and ideal operating parameters, and partners with them from the initial trials through mass production.

Star-Service

With the Star Service (Standard Tool Adjustment & Record Service), Mikron Tool also offers high-performance drills in dimensions outside the standard range.

Regrinding

CrazyDrill with a diameter of 1.5 mm or more can be reground and recoated which considerably increases the cost-effectiveness of this drill.

Mikron Tool offers this service in Agno (Switzerland) as well as in Rottweil (Germany).

Packaging

Practical packaging provides optimum protection for the tool and allows easier, safer handling without the risk of personal injury or tool damage.

Recycling

Worn tools (CrazyDrill and special tools) are taken back by Mikron Tool, and the material is recycled – holding true our statement in our environmental certificate.

Certifications

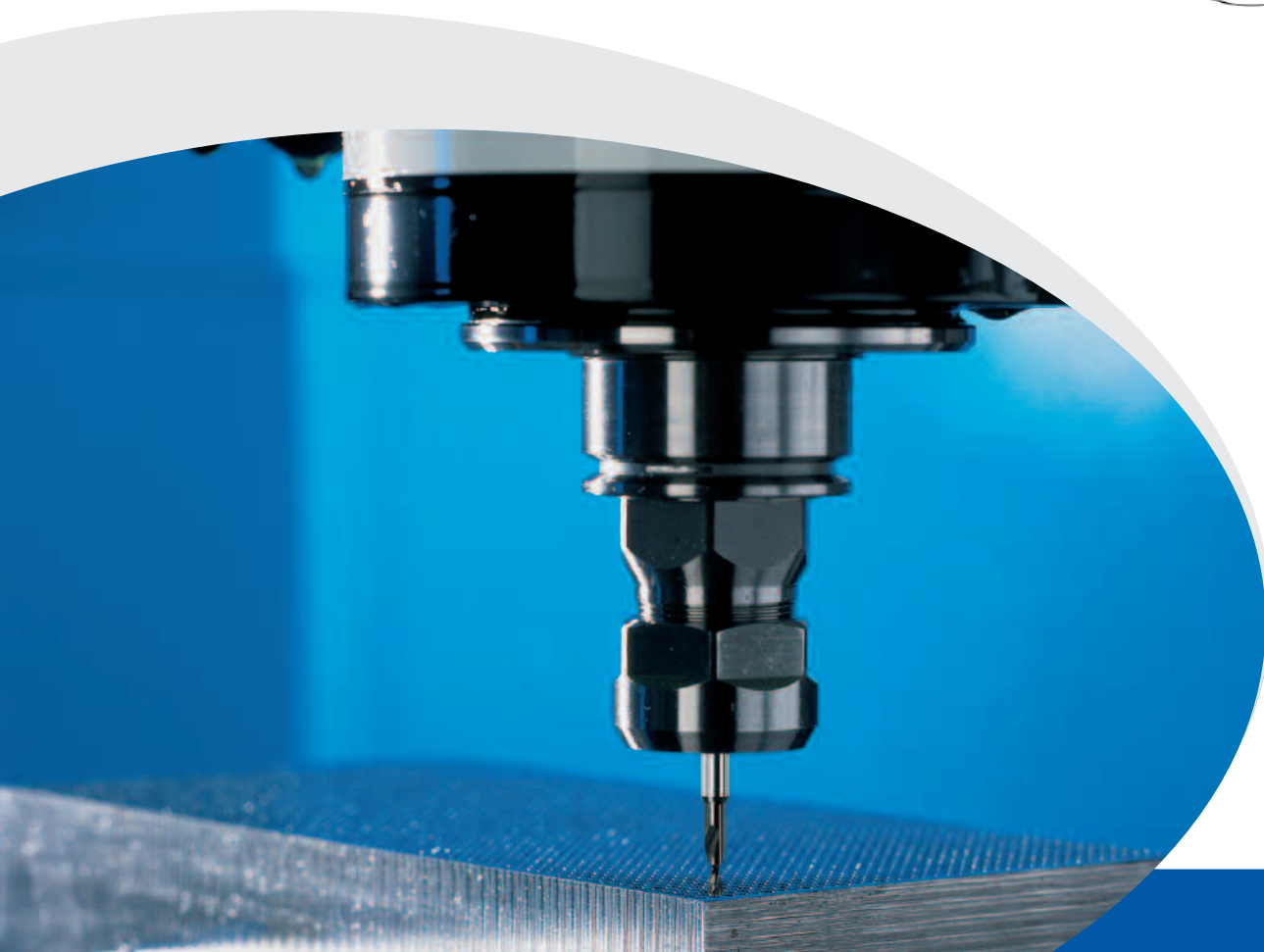
Mikron Tool is certified to:

ISO 9001:2008 for quality

ISO 14001:2004 for environment

OHSAS 18001:2007 for occupational health and safety management.

CrazyDrill products are supplied with a Quality Certificate and an instruction for safe handling.



High performance tools from Mikron Tool

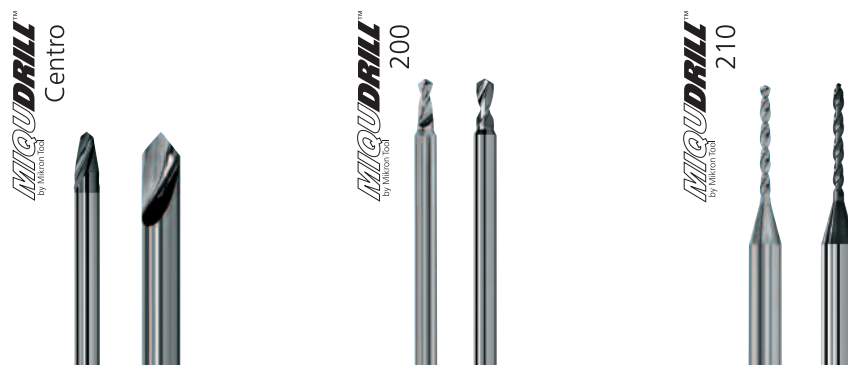
CrazyDrill: for large production lots and materials difficult to machine.

CrazyDrill is ideally suited for high volume production of precision parts. CrazyDrill offers, comparing to standard drills, much higher cutting speeds and feeds.



MiquDrill: for smaller production lots and a variety of work pieces

Mikron Tool standard quality drills MiquDrill are the perfect solution for the machining of small to midsize work pieces, guaranteeing at the same time quality and process reliability.



Special tools: customer tailored solutions for machining of precision parts

Developed for particular machining operations; special tools guarantee the best conditions for a process-sure, efficient machining of precision parts.

Special tools



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