

PATENTED CrazyDrill Pilot SST-Inox



THE MICRO PILOT OR SHORT DRILL FOR STAINLESS STEEL, HRSA AND CR-CO ALLOYS



With CrazyDrill Pilot SST-Inox, Mikron Tool introduces a pilot and short drill for stainless steels, heat-resistant and CrCo alloys in the diameter range of 0.2 mm to 2.0 mm and for drilling depths of up to 3 x d. All short drills are coated, have integrated cooling and a cutting edge for 90° chamfer.

Even without an integrated coolant supply (with external coolant supply), the CrazyDrill Pilot SST-Inox is an outstanding pilot drill.

This is the perfect preparation for the deep and precise drilling with CrazyDrill SST-Inox and CrazyDrill Flex SST-Inox. The digressive helical flute, the cooling channels, the coating and the possibility of adding a 90° countersink make it an extremely efficient pilot or short drill.

PATENTED

Preparing precise deep holes

CrazyDrill Pilot SST-Inox

EFFICIENT PILOT OR SHORT DRILLING IN STAINLESS STEEL

- Coated
- External cooling

- Coated
- Integrated cooling

With CrazyDrill Pilot SST-Inox, Mikron Tool introduces a pilot and short drill for stainless steels, heat-resistant and CrCo alloys in the diameter range of 0.2 mm to 2.0 mm and for drilling depths of up to 3 x d. All short drills are coated, have integrated cooling and a cutting edge for 90° chamfer.

■ CrazyDrill Pilot SST-Inox, drilling depth 3 x d, with coolant channels in the shaft, countersink 90°



- 1 | SHANK**  
The robust solid carbide shank guarantees stable vibration-free machining.
- 2 | NEW COOLING CONCEPT**  
The integrated cooling channels guarantee regular and significant cooling of the cutting edges starting from 15 bar. The result is greater process reliability and higher productivity. This tool can also be used with external coolant supply.
- 3 | CARBIDE**  
Due to the high degree of toughness and thermal shock resistance, the carbide developed for SST-Inox products perfectly meets the requirements for the machining of stainless steels, heat-resistant and CrCo alloys.
- 4 | COATING**  
The high-performance eXedur RIP coating provides thermal and wear protection against heat and abrasion. Extremely smooth and consistent coating exhibits low adhesion to work materials and prevents from cutting edge chipping. The result is a long tool life even in the smallest diameter sizes.
- 5 | CUTTING EDGE FOR 90° CHAMFER**  
A 90° countersink can be placed simultaneously with the drilling.
- 6 | DIGRESSIVE HELICAL FLUTE - PATENTED**  
The digressive helical flute with a new and patented geometry guarantees a high degree of tool stability. The front part ensures good chip breaking, while the rear ensures rapid chip removal.
- 7 | TIP GEOMETRY**  
The tip geometry is developed for stainless, acid-resistant and heat-resistant steels:
  - High degree of cutting edge stability
  - Self-centering
  - Short chips

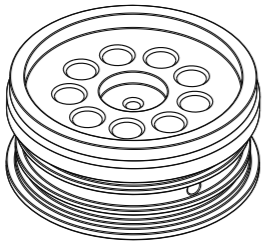


Benefits and applications



SUITABLE FOR EACH APPLICATION

- **SHORT MACHINING TIME** | drilling 3 x d + 90° countersink in one step
- **LONG TOOL LIFE** | due to innovative cooling concept
- **HIGH DEGREE OF PROCESS RELIABILITY** | due to a new cutting geometry
- **HIGH DEGREE OF PRECISION** | due to tight tolerances



**COMPONENT**  
Injection component - automotive

**MATERIAL**  
X5CrNi 18-10 / 1.4301 / AISI 304






**MACHINING**  
■ Pilot drilling and chamfering 90°  
■ d = 0.9 mm  
■ Drilling depth 2.9 mm

**DRILLING TOOL**  
Mikron Tool - CrazyDrill Pilot SST-Inox

DATA	MIKRON TOOL
Tool type	CrazyDrill Pilot SST-Inox - Carbide - Coated - Integrated cooling
Item number	2.PD.00900.090.IK
Cutting data	$v_c = 40 \text{ m/min}$ $f = 0.030 \text{ mm/rev}$

APPLICATION DOMAINS	COMPONENTS EXAMPLES	MATERIALS GROUPS	Mat. no.	DIN	EXAMPLES AISI / ASTM / UNS
Dental	Dental implants	Group M Stainless steel	1.4105	X6CrMoS17	430F
Aerospace industry	Engine parts Spherical joint		1.4112	X90CrMoV18	440B
Medical technology	Eye surgical device		1.4542	X5CrNiCuNb 16-4	630
Automotive industry	Components for gasoline direct injection		1.4435	X2CrNiMo 18-14-3	316L
Mechanical engineering	Locking bolt	Group N Copper and Brass lead free	2.004	Cu-OF / CW008A	C10100
Watches	Watch housing		2.0321	CuZn37 CW508L	C27400
Electronics / Electrics	Neon Pin	Group S1 Super alloys	2.4856		INCONEL 625
Hydraulics / Pneumatics	Hydraulic valve		2.4665	NiCr22Fe18Mo	HASTELLOY X
		Group S3 CrCo alloys	2.4964	CoCr20W15Ni	HAYNES 25

CrazyDrill Pilot SST-Inox - 3 x d - 90° countersink

Carbide				Z2		
Ø d <sub>1</sub>		0.1 - 3.0 mm				
Tolerance		+ 0.006 mm + 0.002 mm				

DRILLING WITH INTEGRATED COOLING



The pilot and short drill was developed for stainless steels, heat-resistant and CrCo alloys. It has integrated cooling as well as a digressive helical flute and, as a pilot drill, is the ideal complement of CrazyDrill SST-Inox and CrazyDrill Flex SST-Inox.

CrazyDrill Pilot SST-Inox was developed as a pilot and short drill with an integrated bevel cutting edge. What is special about this drill are the integrated cooling channels, which ensure an efficient coolant jet starting from 15 bar, flush away the chips from the drill and keep the temperature under control. The result is significantly longer tool life.

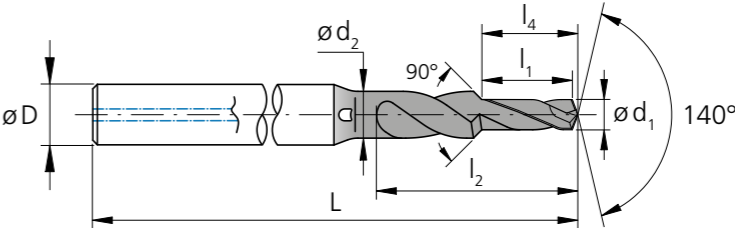
It is suitable just as well for the preparation of deep holes as for short drilling up to a drilling depth of 3 x d. An additional cutting edge for 90° chamfer also allows the placement of a 90° countersink in the same drilling step.

Coolant type, pressure and filtration

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

Please note

You couldn't find your suitable version of the CrazyDrill Pilot SST-Inox (diameter, length, cutting direction...)? Ask us about our customized versions!



d <sub>1</sub>	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	l <sub>4</sub>	D (h6)	L	Item number	Availability
[mm]	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
0.20		0.60	0.50	1.7	0.63	3	45	2.PD.00200.090.IK	■
0.25		0.75	0.50	2.1	0.79	3	45	2.PD.00250.090.IK	■
0.30		0.90	0.60	2.5	0.95	3	45	2.PD.00300.090.IK	■
0.35		1.05	0.70	2.8	1.11	3	45	2.PD.00350.090.IK	■
0.396	1/64	1.20	0.80	3.2	1.26	3	45	2.PD.F164.IK	■
0.40		1.20	0.80	3.2	1.26	3	45	2.PD.00400.090.IK	■
0.45		1.35	0.90	3.6	1.42	3	45	2.PD.00450.090.IK	■
0.50		1.50	1.00	4.0	1.58	3	48	2.PD.00500.090.IK	■
0.55		1.65	1.00	4.4	1.74	3	48	2.PD.00550.090.IK	■
0.60		1.80	1.10	4.7	1.90	3	48	2.PD.00600.090.IK	■
0.65		1.95	1.10	5.1	2.05	3	48	2.PD.00650.090.IK	■
0.70		2.10	1.30	5.5	2.21	4	52	2.PD.00700.090.IK	■
0.75		2.25	1.40	5.8	2.37	4	52	2.PD.00750.090.IK	■
0.793	1/32	2.40	1.40	6.2	2.53	4	52	2.PD.F132.IK	■
0.80		2.40	1.40	6.2	2.53	4	52	2.PD.00800.090.IK	■
0.85		2.55	1.50	6.5	2.68	4	52	2.PD.00850.090.IK	■
0.90		2.70	1.50	6.9	2.84	4	52	2.PD.00900.090.IK	■
0.95		2.85	1.50	7.2	3.00	4	52	2.PD.00950.090.IK	■
1.00		3.00	1.70	7.5	3.16	4	55	2.PD.01000.090.IK	■
1.05		3.15	1.70	7.9	3.32	4	55	2.PD.01050.090.IK	■
1.10		3.30	1.70	8.2	3.47	4	55	2.PD.01100.090.IK	■
1.15		3.45	1.80	8.5	3.63	4	55	2.PD.01150.090.IK	■
1.20		3.60	1.80	8.8	3.79	4	55	2.PD.01200.090.IK	■
1.25		3.75	2.00	9.2	3.95	4	55	2.PD.01250.090.IK	■
1.30		3.90	2.00	9.5	4.11	4	55	2.PD.01300.090.IK	■
1.35		4.05	2.00	9.8	4.26	4	55	2.PD.01350.090.IK	■
1.40		4.20	2.25	10.1	4.42	4	55	2.PD.01400.090.IK	■
1.45		4.35	2.25	10.4	4.58	4	55	2.PD.01450.090.IK	■
1.50		4.50	2.25	10.7	4.74	4	55	2.PD.01500.090.IK	■
1.55		4.65	2.25	10.9	4.89	4	55	2.PD.01550.090.IK	■
1.587	1/16	4.80	2.25	11.2	5.05	4	55	2.PD.F116.IK	■
1.60		4.80	2.25	11.2	5.05	4	55	2.PD.01600.090.IK	■
1.65		4.95	2.25	11.5	5.21	4	55	2.PD.01650.090.IK	■
1.70		5.10	2.60	11.8	5.37	6	55	2.PD.01700.090.IK	■
1.75		5.25	2.60	12.0	5.53	6	55	2.PD.01750.090.IK	■
1.80		5.40	2.60	12.3	5.68	6	55	2.PD.01800.090.IK	■
1.85		5.55	2.60	12.6	5.84	6	55	2.PD.01850.090.IK	■
1.90		5.70	2.60	12.8	6.00	6	55	2.PD.01900.090.IK	■
1.95		5.85	2.60	13.1	6.16	6	55	2.PD.01950.090.IK	■
2.00		6.00	3.10	13.3	6.32	6	55	2.PD.02000.090.IK	■

■ Stock item

Complementary products	
CrazyDrill SST-Inox	p.279
CrazyDrill Flex SST-Inox	p.435

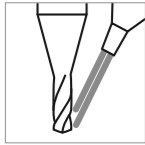
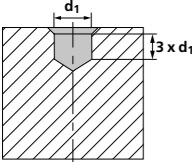
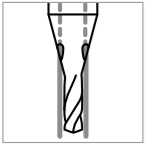
Regrinding: This product is not suitable for regrinding.

CrazyDrill Pilot SST-Inox - 3 x d - 90° countersink

RECOMMENDATION FOR USE  
● Excellent | ● Good | ○ Acceptable | ☒ Not recommended

P	N	S <sub>3</sub>
M	S <sub>1</sub>	H <sub>1</sub>
K	S <sub>2</sub>	H <sub>2</sub>

DRILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW



**Note:**  
In case of external cooling reduce  $v_c$  and  $f$  of 20%

DRILLING WITH INTEGRATED COOLING   CUTTING DATA OVERVIEW						f [mm/rev]									
Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v <sub>c</sub> [m/min]	0.2 mm	0.5 mm 1/64"	0.8 mm 1/32"	1.0 mm	Ød <sub>1</sub> 1.2 mm	1.2 mm	1.6 mm 1/16"	1.8 mm	2.0 mm	
						f	f	f	f	f	f	f	f	f	
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010											
		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											
		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											
		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	35 – 50		0.015	0.020	0.030	0.035	0.040	0.050	0.055	0.060	0.070
		1.4105	X6CrMoS17	AISI 430F											
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	35 – 50		0.020	0.030	0.040	0.055	0.060	0.070	0.075	0.080	0.100
		1.4112	X90CrMoV18	AISI 440B											
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	35 – 50		0.015	0.020	0.025	0.030	0.040	0.050	0.055	0.060	0.070
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH											
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304	30 – 45		0.010	0.020	0.025	0.030	0.035	0.045	0.050	0.055	0.060
		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											
		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											
		3.4365	AlZnMgCu1.5	ASTM 7075											
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380											
		3.2381	GD-AlSi10Mg	UNS A03590											
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	40 – 100		0.040	0.060	0.080	0.090	0.100	0.120	0.140	0.160	0.180
		2.0065	Cu-ETP / CW004A	UNS C11000											
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	40 – 100		0.040	0.060	0.080	0.090	0.100	0.120	0.140	0.160	0.180
		2.0360	CuZn40 CW509L	UNS C28000											
	Brass, Bronze Rm < 400 N/mm²	2.0401	CuZn39Pb3 / CW614N	UNS C38500											
		2.1020	CuSn6	UNS C51900											
Bronze Rm < 600 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000												
	2.0960	CuAl9Mn2	UNS C63200												
S <sub>1</sub>	Super alloys	2.4856		Inconel 625	15 – 30		0.010	0.015	0.020	0.022	0.025	0.035	0.037	0.045	0.055
		2.4668		Inconel 718											
		2.4617	NiMo28	Hastelloy B-2											
		2.4665	NiCr22Fe18Mo	Hastelloy X											
S <sub>2</sub>	Titanium pure	3.7035	Gr.2	ASTM B348 / F67											
		3.7065	Gr.4	ASTM B348 / F68											
S <sub>3</sub>	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136											
		9.9367	TiAl6Nb7	ASTM F1295											
S <sub>3</sub>	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25	40 – 50		0.020	0.030	0.040	0.055	0.060	0.070	0.075	0.080	0.100
			CrCoMo28	ASTM F1537											
H <sub>1</sub> H <sub>2</sub>	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1											
	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2											

# Drilling process CrazyDrill Pilot SST-Inox

## SHORT DRILLING 3 X D AND 90° COUNTERSINK

### Coolant type, pressure and filtration

#### 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:** The large cooling channels permit the use of a standard filter. Filter quality ≤ 0.050 mm.

**Coolant pressure:** At least 15 bar coolant pressure is required for the CrazyDrill Pilot SST-Inox to achieve reliable drilling. High pressure is generally better for the cooling and flushing effect.

Revolution	[rpm]	≤ 10'000	> 10'000
Minimal pressure	[bar]	15	30

### Cooling with external coolant supply

For tools with external cooling must be ensured that the coolant fluid is addressed directly to the drill tip, thus cooling and lubricating the drill perfectly and flushing away the chips.

### Tool holders

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

### Pilot drilling and short drilling

Pilot drilling with CrazyDrill Pilot SST-Inox is the perfect preparation for accurate drilling (position and alignment accuracy) and stable machining process for deep holes drilling with CrazyDrill SST-Inox and CrazyDrill Flex SST-Inox.

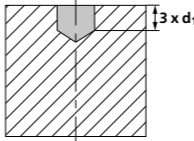
Drilling quality (position and alignment accuracy, no measurable transition from pilot to follow-up hole) and stable machining process are assured due to matched diameters of the tools.

CrazyDrill Pilot SST-Inox not only is the perfect preparation of deep follow-up holes. Concurrently it is a short drill for highly precise and quick drilling up to 3 x d + 90° countersink.

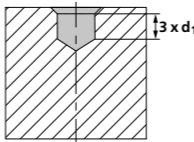
## DRILLING PROCESS

### 1 | PILOT DRILLING OR SHORT DRILLING

- Turn on internal or external coolant.
- Drilling in one step with recommended cutting speed and feed rate (see cutting data table).



- If needed, after the desired cutting depth of 3 x d is reached, a chamfer angle of 90° can be realized.



Note:  
After the drill reached desired cutting depth, return at increased feed rate (or in case of perfect conditions rapid traverse) to safety position.