

MiquDrill Centro



TO START IN THE RIGHT POSITION



Centering and simultaneously creating a 90° or 120° chamfer, this is the challenge of MiquDrill Centro. The centering drill is available in the diameter range of 0.5 mm to 6.0 mm (for drilling diameters from 0.1 mm) and in a coated and uncoated version.

This centering drill is the perfect solution for the production of small and medium batch sizes with process accuracy and highest quality. It centers perfectly even for the smallest drilling diameters from 0.1 mm and guarantees highest position accuracy for the follow-up drill, e.g. MiquDrill 200 / 210. MiquDrill Centro is universally applicable for steels (alloyed and unalloyed), cast iron, nonferrous metals and in the coated version also for hardened steel < 55 HRC.



Accurate and quick centering

FOR A PRECISELY POSITIONED FOLLOW-UP HOLE

Uncoated

- Chamfer 90° or 120°
- External cooling

Coated

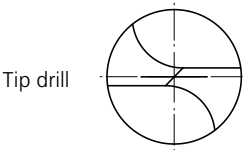
- Chamfer 90° or 120°
- External cooling

Centering and simultaneously creating a 90° or 120° chamfer, this is the challenge of MiquDrill Centro. The centering drill is available in the diameter range of 0.5 mm to 6.0 mm (for drilling diameters from 0.1 mm) and in a coated and uncoated version.

- MiquDrill Centro with tip angle and chamfer of 90°, coated or uncoated
- MiquDrill Centro with tip angle and chamfer of 120°, coated or uncoated



- 1 | SOLID CARBIDE**
The use of a newest generation's solid carbide allows high machining feeds. For example, in spite of similar feed rates as HSS drills, due to its higher cutting speed, drilling with MiquDrill is considerably faster.
- 2 | SHAFT**
The accurately ground shaft guarantees high concentricity and therefore highest position accuracy.
- 3 | COATING**
The coated version of the drill is also adapted for difficult-to-machine materials and hardened steels < 55 HRC and reaches even a better tool life.
- 4 | TIP ANGLE**
Optionally with 90° or 120° tip angle for drilling and simultaneously creating a correspondent chamfer.
- 5 | POSITION ACCURACY**
Accurate centering for highest position accuracy of the follow-up hole in smallest diameter ranges (from 0.1 mm).

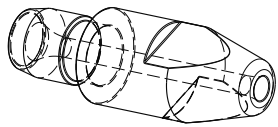


Benefits and applications



FITS EVERY APPLICATION

- HIGH DEGREE OF PROCESS RELIABILITY** | due to higher quality
- HIGH DEGREE OF PRECISION** | due to small tolerances
- LOW PRODUCTION COSTS** | due to the low cost of tool



COMPONENT
Welding nozzle

MATERIAL
CuZn39Pb3 / 2.0401 / UNS 38500

MACHINING
■ Centering and chamfering 120°
■ d = 2.5 mm

DRILLING TOOL
Mikron Tool - MiquDrill Centro - coated

DATA	MIKRON TOOL
Tool type	MiquDrill Centro - Carbide - Coated - External cooling
Item number	2.MC.120300.1
Cutting data	$v_c = 50 \text{ m/min}$ $f = 0.08 \text{ mm/rev}$

APPLICATION DOMAINS	COMPONENTS EXAMPLES	MATERIALS GROUPS	EXAMPLES		
			Mat. no.	DIN	AISI / ASTM / UNS
Automotive industry	Components for gasoline direct injection	Group P Unalloyed and alloyed steel	1.0401	C 15	1015
			1.3505	100Cr6	52100
			1.2436	X210CrW12	D4 / D6
Mechanical engineering	Particle of engine Cylinder	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 S2 Titanium (pure and alloyed)	3.7035	Gr.2	B348 / F67
3.7165	TiAl6V4		B348 / F136		
		Group H1 Hardened steel <55 HRC	1.2510	100MnCrMoW4	O1

MiquDrill Centro 90° / 120° - coated

Carbide

Z2



CENTER WITH EXTERNAL COOLING



90° / 120°

The coated version of MiquDrill Centro is universally applicable for steels (alloyed and unalloyed), hardened steel < 55 HRC), cast iron, nonferrous metals (e.g. aluminum with high silicon content). In the diameter range with max. chamfer diameter of 0.5 mm to 6.0 mm, the drill is applicable follow-up drilling starting at 0.1 mm. Simultaneously a chamfer of 90° / 120° is created.

Its strengths: Centering / Chamfering 90° / 120° in one step. Compared to "MiquDrill Centro uncoated" this drill is the solution for higher demand on tool life. As centering drill for MiquDrill 200 / 210 it guarantees high position accuracy.

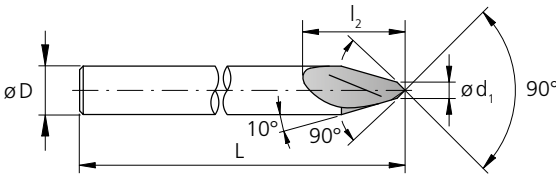
Coolant type, pressure and filtration

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

Please note

You couldn't find your suitable version of the MiquDrill Centro 90° / 120° - coated (diameter, length, cutting direction...)? Ask us about our customized versions!

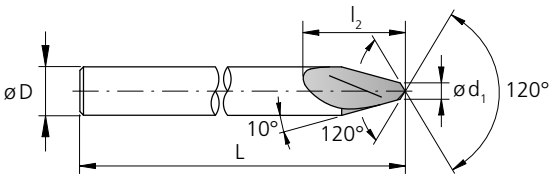
Regrinding: This product is not suitable for regrinding.



Execution: d₁ = 0.5 and 1.0 mm

d ₁	l ₂	D (h6)	L	Chamfer	Item number	Availability
[mm]	[mm]	[mm]	[mm]			
0.5	4.5	2	30	90°	2.MC.090050.1	■
1.0	4.5	2	30	90°	2.MC.090100.1	■
2.0	6.0	2	30	90°	2.MC.090200.1	■
3.0	8.0	3	40	90°	2.MC.090300.1	■
4.0	10.0	4	45	90°	2.MC.090400.1	■
5.0	12.0	5	50	90°	2.MC.090500.1	■
6.0	15.0	6	60	90°	2.MC.090600.1	■

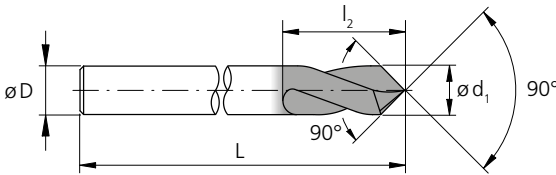
■ Stock item, packing unit of 3 pcs.



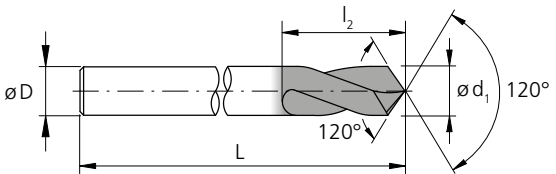
Execution: d₁ = 0.5 and 1.0 mm

d ₁	l ₂	D (h6)	L	Chamfer	Item number	Availability
[mm]	[mm]	[mm]	[mm]			
0.5	4.5	2	30	120°	2.MC.120050.1	■
1.0	4.5	2	30	120°	2.MC.120100.1	■
2.0	6.0	2	30	120°	2.MC.120200.1	■
3.0	8.0	3	40	120°	2.MC.120300.1	■
4.0	10.0	4	45	120°	2.MC.120400.1	■
5.0	12.0	5	50	120°	2.MC.120500.1	■
6.0	15.0	6	60	120°	2.MC.120600.1	■

■ Stock item, packing unit of 3 pcs.



Execution: d₁ = 2.0 to 6.0 mm



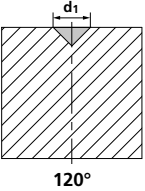
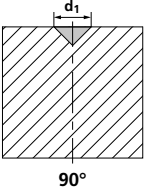
Execution: d₁ = 2.0 to 6.0 mm

MiquDrill Centro 90° / 120° - coated

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

P	N	S ₃
M	S ₁	H ₁
K	S ₂	H ₂

CENTERING WITH EXTERNAL COOLING | CUTTING DATA OVERVIEW



						f [mm/rev]							
Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v _c [m/min]	Ød1							
						0.5 mm f	1.0 mm f	2.0 mm f	3.0 mm f	4.0 mm f	5.0 mm f	6.0 mm f	
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010	20 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		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	20 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		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	20 – 60	0.020	0.030	0.040	0.060	0.080	0.120	0.130	
		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	20 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		1.4105	X6CrMoS17	AISI 430F									
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	20 – 60	0.020	0.030	0.040	0.060	0.080	0.120	0.130	
		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	20 – 50	0.020	0.030	0.030	0.040	0.060	0.080	0.080	
		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	20 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		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	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		3.4365	AlZnMgCu1.5	ASTM 7075									
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		3.2381	GD-AlSi10Mg	UNS A03590									
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		2.0065	Cu-ETP / CW004A	UNS C11000									
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		2.0360	CuZn40 CW509L	UNS C28000									
	Brass, Bronze Rm < 400 N/mm²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		2.1020	CuSn6	UNS C51900									
	Bronze Rm < 600 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000	50 – 100	0.030	0.050	0.060	0.080	0.100	0.150	0.150	
		2.0960	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	20 – 50	0.020	0.030	0.030	0.040	0.060	0.080	0.080	
		3.7065	Gr.4	ASTM B348 / F68									
	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	20 – 50	0.020	0.030	0.030	0.040	0.060	0.080	0.080	
9.9367		TiAl6Nb7	ASTM F1295										
S ₃	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25									
			CrCoMo28	ASTM F1537									
H ₁ H ₂	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1	20 – 50	0.020	0.030	0.040	0.060	0.080	0.100	0.120	
	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2									

MiquDrill Centro 90° / 120° - uncoated

Carbide

Z2



Uncoated



CENTERING WITH EXTERNAL COOLING



90° / 120°

The uncoated version of MiquDrill Centro is universally applicable for steels (alloyed and unalloyed), cast iron, nonferrous metals (e.g. copper, brass). In the diameter range with max. chamfer diameter of 0.5 mm to 6.0 mm, the drill is applicable for follow-up drilling starting at 0.1 mm. Simultaneously a chamfer of 90° / 120° is created.

Its strengths: Cost-efficient centering / chamfering 90° / 120° in one step. As centering drill for MiquDrill 200 / 210 it guarantees high position accuracy.

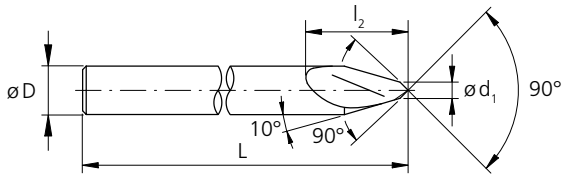
Coolant type, pressure and filtration

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

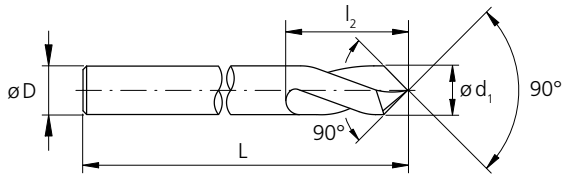
Please note

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Regrinding: This product is not suitable for regrinding.



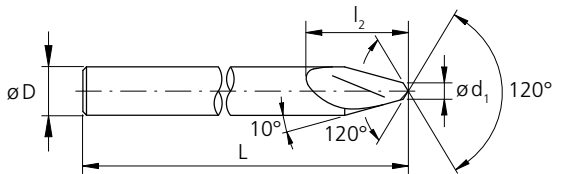
Execution: d₁ = 0.5 and 1.0 mm



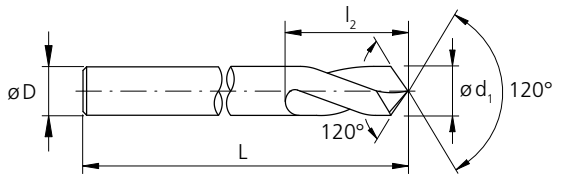
Execution: d₁ = 2.0 to 6.0 mm

d ₁	l ₂	D (h6)	L	Chamfer	Item number	Availability
[mm]	[mm]	[mm]	[mm]			
0.5	4.5	2	30	90°	2.MC.090050.0	■
1.0	4.5	2	30	90°	2.MC.090100.0	■
2.0	6.0	2	30	90°	2.MC.090200.0	■
3.0	8.0	3	40	90°	2.MC.090300.0	■
4.0	10.0	4	45	90°	2.MC.090400.0	■
5.0	12.0	5	50	90°	2.MC.090500.0	■
6.0	15.0	6	60	90°	2.MC.090600.0	■

■ Stock item, packing unit of 3 pcs.



Execution: d₁ = 0.5 and 1.0 mm



Execution: d₁ = 2.0 to 6.0 mm

d ₁	l ₂	D (h6)	L	Chamfer	Item number	Availability
[mm]	[mm]	[mm]	[mm]			
0.5	4.5	2	30	120°	2.MC.120050.0	■
1.0	4.5	2	30	120°	2.MC.120100.0	■
2.0	6.0	2	30	120°	2.MC.120200.0	■
3.0	8.0	3	40	120°	2.MC.120300.0	■
4.0	10.0	4	45	120°	2.MC.120400.0	■
5.0	12.0	5	50	120°	2.MC.120500.0	■
6.0	15.0	6	60	120°	2.MC.120600.0	■

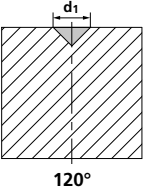
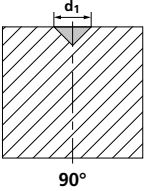
■ Stock item, packing unit of 3 pcs.

MiquDrill Centro 90° / 120° - uncoated

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

P	N	S ₃
M	S ₁	H ₁
K	S ₂	H ₂

CENTERING WITH EXTERNAL COOLING | CUTTING DATA OVERVIEW



						f [mm/rev]						
Materials group	Material	Mat. no.	DIN	AISI/ASTM/UNS	v _c [m/min]	0.5 mm f	1.0 mm f	2.0 mm f	Ød1 3.0 mm f	4.0 mm f	5.0 mm f	6.0 mm f
P	Unalloyed carbon steel Rm < 800 N/mm²	1.0301	C10	AISI 1010	20 – 50	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		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	20 – 50	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		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	20 – 40	0.020	0.030	0.040	0.060	0.080	0.120	0.130
		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	20 – 50	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		1.4105	X6CrMoS17	AISI 430F								
	Stainless steel martensitic	1.4034	X46Cr13	AISI 420C	20 – 40	0.020	0.030	0.040	0.060	0.080	0.120	0.130
		1.4112	X90CrMoV18	AISI 440B								
	Stainless steel martensitic – PH	1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	15 – 25	0.020	0.030	0.030	0.040	0.060	0.080	0.080
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH								
	Stainless steel austenitic	1.4301	X5CrNi 18-10	AISI 304								
		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	20 – 50	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		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	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		3.4365	AlZnMgCu1.5	ASTM 7075								
	Aluminium alloy cast	3.2163	GD-AlSi9Cu3	ASTM A380	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		3.2381	GD-AlSi10Mg	UNS A03590								
	Copper	2.0040	Cu-OF / CW008A	UNS C10100	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		2.0065	Cu-ETP / CW004A	UNS C11000								
	Brass lead free	2.0321	CuZn37 CW508L	UNS C27400	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		2.0360	CuZn40 CW509L	UNS C28000								
	Brass, Bronze Rm < 400 N/mm²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		2.1020	CuSn6	UNS C51900								
	Bronze Rm < 600 N/mm²	2.0966	CuAl10Ni5Fe4	UNS C63000	40 – 80	0.030	0.050	0.060	0.080	0.100	0.150	0.150
		2.0960	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	15 – 25	0.020	0.030	0.030	0.040	0.060	0.080	0.080
		3.7065	Gr.4	ASTM B348 / F68								
S ₃	Titanium alloys	3.7165	TiAl6V4	ASTM B348 / F136	15 – 25	0.020	0.030	0.030	0.040	0.060	0.080	0.080
		9.9367	TiAl6Nb7	ASTM F1295								
S ₃	CrCo alloys	2.4964	CoCr20W15Ni	Haynes 25								
			CrCoMo28	ASTM F1537								
H ₁ H ₂	Hardened steel < 55 HRC	1.2510	100MnCrMoW4	AISI O1		Recommended: MiquDrill Centro 90° / 120° - coated						
	Hardened steel ≥ 55 HRC	1.2379	X153CrMoV12	AISI D2								

Recommended: MiquDrill Centro 90° / 120° - coated

Centering process MiquDrill Centro

ACCURATE AND QUICK CENTERING AND CHAMFERING

Coolant type, pressure and filtration

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.

For tools with external cooling no specific parameters have to be considered concerning filter and coolant pressure and quantity. But it must be ensured that the coolant fluid is directed 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".

Center drilling is the base of drilling

Center drilling with MiquDrill Centro is the base of highly accurate drilling. The tool's sturdy construction and its accuracy guarantee highest position accuracy for the follow-up drill, e.g. MiquDrill 200 / 210. For centering and follow-up drilling with MiquDrill 200 / 210, we recommend the use of the same tip angle (120°). Thus higher process accuracy and tool life are assured.

CENTERING PROCESS

Centering and chamfering in one step

1 | CENTER DRILLING

■ With MiquDrill Centro in one step.

