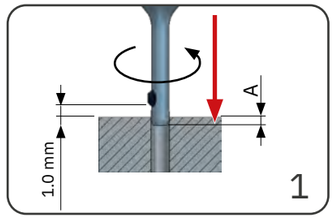
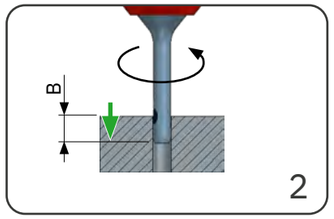
DL2 PROCESS STEPS

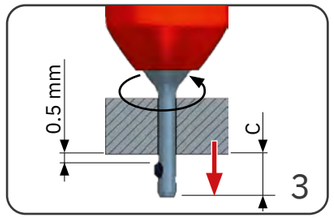
Important! The DL2 works in the anti-clockwise direction (left-hand cut).



- Rapid feed to position **A** or 1.0 mm distance
- Spindle turning **anti-clockwise**
- Internal coolant on



- Working feed to position **B**



- Rapid feed to position **C** or 0.5 mm distance

Example

G0 Z-0.5[1]
S7500 M4
M88

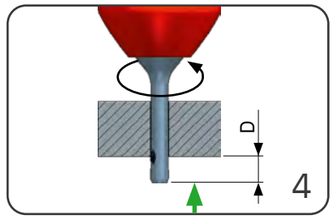
G1 Z-2.15[2] F75

G0 Z-8.3[3]

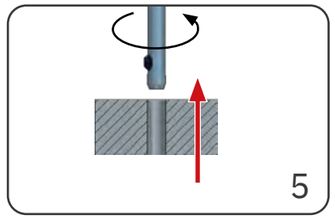
[1] 0.5=1.5-1.0

[2] 2.15=2.8-((2.8-1.5)/2)

[3] 8.3=5.0+2.8+0.5



- Working feed to position **D**



- Rapid feed out of the workpiece

G1 Z-7.15[4]

G0 Z+2.0

[4] 7.15=5.0+2.8-((2.8-1.5)/2)

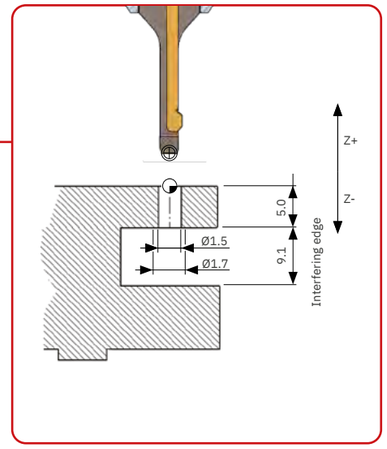
DIMENSION TABLE PROGRAMMING

Tool	A	B	C	D
DL2	0.5 mm	2.15 mm	3.3 mm	2.15 mm

IMPORTANT!
Observe max. working length

Bore Ø range	max. working length
1.00–1.05 mm	3.00 mm
1.10–1.35 mm	4.00 mm
1.40–1.45 mm	5.00 mm
1.50–1.60 mm	6.00 mm
1.65–1.70 mm	7.00 mm
1.75–1.80 mm	8.00 mm
1.85–1.90 mm	9.00 mm
1.95–2.10 mm	10.00 mm

APPLICATION AND PROGRAMMING EXAMPLE



Application data

Material:	Steel C45
Bore diameter:	Ø1.5 mm
Deburr diameter:	Ø1.7 mm
Burr height max.	0.1 mm
Workpiece depth:	5.0 mm
Machining:	both bore edges

Tool and blade selection

Tool:	DL2/1.5/06 Tool diameter: 1.45 mm
Blade:	DL2-M-0164-A (HM, Latuma coated)

Cutting data

Cutting speed V_c:	30–50 m/min.
Tool working feed:	0.005–0.015 mm/rev

CUTTING DATA

	Description	Tensile str. RM (MPa)	Hardness (HB)	Hardn. (HRC)	DL2		
					VC	FZ	B*
P0	Low-carbon steel, long-chipping, C <0.25%	<530	<125	–	30–50	0.005–0.015	A
P1	Low-carbon steel, short-chipping, C <0.25%	<530	<125	–	30–50	0.005–0.015	A
P2	Steel with carbon content C >0.25%	>530	<220	<25	30–50	0.005–0.015	A
P3	Alloy steel and tool steel, C >0.25%	600–850	<330	<35	30–50	0.005–0.015	A
P4	Alloy steel and tool steel, C >0.25%	850–1400	340–450	35–48	25–45	0.005–0.015	A
P5	Ferritic, martensitic and stainless PH steel	600–900	<330	<35	20–40	0.005–0.015	A
P6	High-strength ferritic, martensitic and PH stainless steel	900–1350	350–450	35–48	20–40	0.005–0.015	A
M1	Austenitic stainless steel	<600	130–200	–	15–30	0.005–0.015	A
M2	High-strength austenitic stainless steel	600–800	150–230	<25	15–30	0.005–0.015	A
M3	Duplex stainless steel	<800	135–275	<30	15–30	0.005–0.015	A
K1	Cast iron	125–500	120–290	<32	40–60	0.005–0.015	A
K2	Ductile cast iron with up to medium strength	<600	130–260	<28	40–60	0.005–0.015	A
K3	High-strength cast iron and bainitic cast iron	>600	180–350	<43	40–60	0.005–0.015	D
N1	Wrought aluminium alloys	–	–	–	60–80	0.005–0.015	D
N2	Aluminium alloys with low Si content	–	–	–	60–80	0.005–0.015	D
N3	Aluminium alloys with high Si content	–	–	–	60–80	0.005–0.015	D
N4	Copper, brass and zinc base	–	–	–	50–60	0.005–0.015	D
S1	Iron-based heat-resistant alloys	500–1200	160–260	25–48	20–40	0.005–0.015	A
S2	Cobalt-based heat-resistant alloys	1000–1450	250–450	25–48	10–15	0.005–0.015	A
S3	Nickel-based heat-resistant alloys	600–1700	160–450	<48	10–15	0.005–0.015	A
S4	Titanium and titanium alloys	900–1600	300–400	33–48	10–15	0.005–0.015	A

* coating for blades

The cutting data listed are guide values!
For materials that are difficult to machine or slightly uneven bore edges, we recommend applying cutting speeds that are at the lower end of the range.