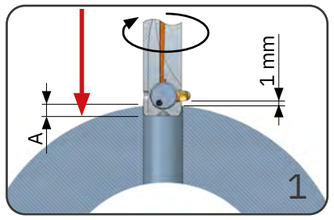
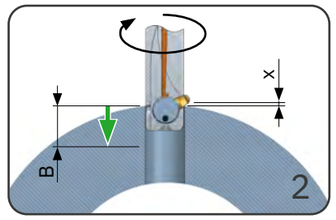
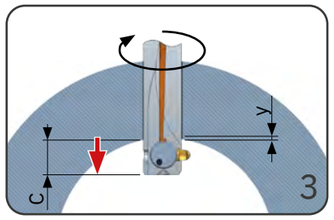
COFA PROCESS STEPS



- Rapid traverse to pos. **A** or 1.0 mm distance
- Spindle rotation clockwise
- External coolant on



- Working feed to **B +** x

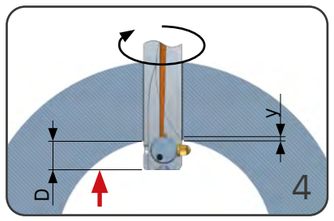


- Rapid traverse to **C** + y (blade fold-out position)
- Dwell time 1 sec.

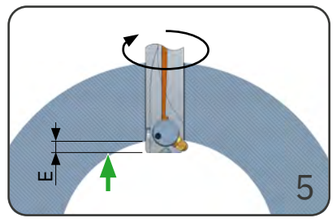
Example			
	G0 Z+15.6 S800 M3 M8	G1 Z+8.5[1] F160	G0 Z+1.25[2] G4 X1

[1] 8.5=17.5-8.0-1.0

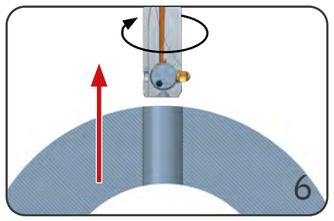
[2] 1.25=11.0-8.1-1.65



- Rapid traverse to **D** + y



- Working feed to **E**



- Rapid traverse out of the workpiece (outer edge + 2.0 mm)

G0 Z+3.25[3]	G1 Z+11.0[4]	G0 Z+19.50

[3] 3.25=11.0-6.1-1.65

[4] 11.0=11.0-0.0

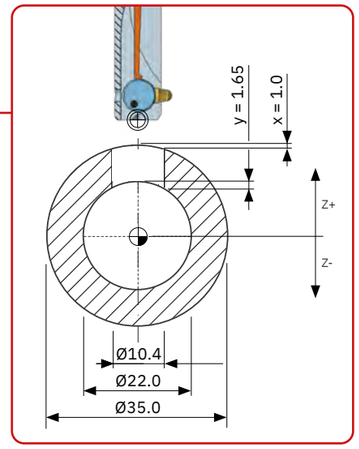
PROGRAMMING DIMENSION TABLE

Tool	A	B	C	D	E
COFA C2	1.7	4.5	4.5	4.3	1.5
COFA C3	2.5	6.0	6.0	5.5	2.0
COFA 4M	2.0	5.5	5.5	5.3	1.8
COFA 5M	2.8	7.0	6.9	6.4	2.2
COFA C6 Medium	1.1	6.3	6.5	4.9	-0.3
COFA C6 Large	1.1	6.8	6.8	4.9	-0.8
COFA C8 Medium	1.9	8.0	8.1	6.1	0
COFA C8 Large	1.9	8.8	8.5	6.1	-0.4
COFA C12 Medium	3.4	11.6	11.6	8.6	0.4
COFA C12 Large	3.4	13.0	12.5	8.6	-1.0

Important!

Watch out for uneven edges! If the bore edges are uneven, the unevenness must be taken into account in traverse distances. In the case of very uneven edges, we recommend traversing out of the bore when the spindle is stopped after machining has been completed.

APPLICATION AND PROGRAMMING EXAMPLE



Application data

Workpiece:	Outside Ø 35.0 mm / inside Ø 22.0 mm
Bore Ø:	Ø10.4 mm
Material:	P3 / steel C45
Machining:	both bore edges
Unevenness y:	Angle 15.9°

Tool and blade selection

Tool:	COFA C8/10.4/H
Blade:	C8-M-0006-T, medium, forward and backward cutting
Deburring Ø:	11.6 mm max.
Outside Ø:	Ø D2 = 13.2 mm (note interfering edge / inside Ø)

Cutting data

Cutting speed V_c:	20–60 m/min.
Tool working feed:	0.1–0.3 mm/rev

CUTTING DATA

	Description	Tensile str.	Hardness		Spring	C2–C3			COFA4M–C12		
		RM /MPA	(HB)	(HRC)		VC	FZ	B*	VC	FZ	B*
P0	Low-carbon steel, long-chipping, C <0.25%	<530	<125	–	H	20–60	0.05–0.15	A	20–60	0.1–0.3	T
P1	Low-carbon steel, short-chipping, C <0.25%	<530	<125	–	H	20–60	0.05–0.15	A	20–60	0.1–0.3	T
P2	Steel with carbon content C >0.25%	>530	<220	<25	H	20–60	0.05–0.15	A	20–60	0.1–0.3	T
P3	Alloy steel and tool steel, C >0.25%	600–850	<330	<35	H	20–60	0.05–0.15	A	20–60	0.1–0.3	T
P4	Alloy steel and tool steel, C >0.25%	850–1400	340–450	35–48	S	20–40	0.05–0.15	A	20–40	0.1–0.3	T
P5	Ferritic, martensitic and stainless PH steel	600–900	<330	<35	S	15–30	0.05–0.15	A	15–30	0.1–0.3	T
P6	High-strength ferritic, martensitic and PH stainless steel	900–1350	350–450	35–48	Z	15–30	0.05–0.15	A	15–30	0.1–0.3	T
M1	Austenitic stainless steel	<600	130–200	–	Z	10–20	0.05–0.15	A	10–20	0.1–0.3	T
M2	High-strength austenitic stainless steel	600–800	150–230	<25	Z1	10–20	0.05–0.15	A	10–20	0.1–0.3	T
M3	Duplex stainless steel	<800	135–275	<30	Z1	15–30	0.05–0.15	A	15–30	0.1–0.3	T
K1	Cast iron	125–500	120–290	<32	H	30–80	0.05–0.15	A	30–80	0.1–0.3	T
K2	Ductile cast iron up to medium strength	<600	130–260	<28	H	30–80	0.05–0.15	A	30–80	0.1–0.3	T
K3	High-strength cast iron and bainitic cast iron	>600	180–350	<43	H	30–80	0.05–0.15	D	30–80	0.1–0.3	T
N1	Wrought aluminium alloys	–	–	–	W	30–70	0.05–0.15	D	30–70	0.1–0.3	D
N2	Aluminium alloys with low Si content	–	–	–	W	30–70	0.05–0.15	D	30–70	0.1–0.3	D
N3	Aluminium alloys with high Si content	–	–	–	W	30–70	0.05–0.15	D	30–70	0.1–0.3	D
N4	Copper, brass and zinc base	–	–	–	W	30–70	0.05–0.15	D	30–70	0.1–0.3	D
S1	Iron-based heat-resistant alloys	500–1200	160–260	25–48	Z	15–30	0.05–0.15	A	15–30	0.1–0.3	T
S2	Cobalt-based heat-resistant alloys	1000–1450	250–450	25–48	Z	10–20	0.05–0.15	A	10–20	0.1–0.3	T
S3	Nickel-based heat-resistant alloys	600–1700	160–450	<48	Z	10–20	0.05–0.15	A	10–20	0.1–0.3	T
S4	Titanium and titanium alloys	900–1600	300–400	33–48	Z	10–20	0.05–0.15	A	10–20	0.1–0.3	T

* coating for blades

The cutting data listed are guide values! They depend on the amount of the unevenness of the bore edges (e.g. high slope > low cutting value).
For materials that are difficult to machine or uneven bore edges, we recommend applying cutting speeds that are at the lower end of the range.