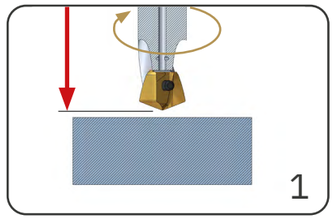
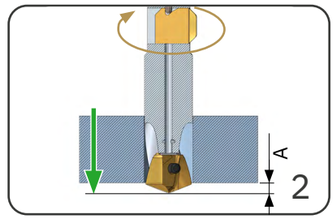
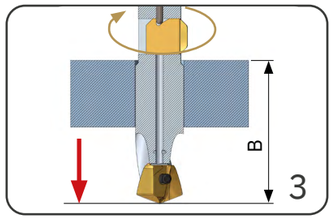
VEX-P PROCESS STEPS



- Spindle speed **drilling (!)** on
- Internal coolant on
- Rapid feed to the front of the workpiece



- Working feed **drilling (!)** to position **A**

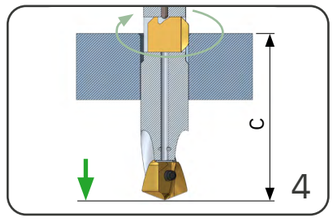


- Rapid feed to position **B**

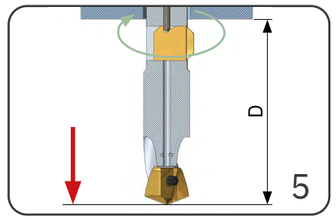
Example

S 2895 M3 M8 G0 Z+1.0	G1 Z-12.5[1] F579	G0 Z-32.5

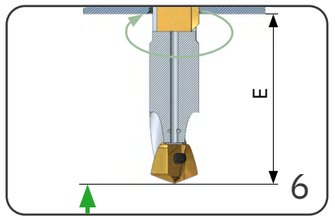
[1] 12.5=10.0+2.5



- Spindle speed **chamfering (!)**
- Working feed **chamfering (!)** to position **C**



- Rapid feed to position **D**



- Working feed **chamfering (!)** to position **E**
- Rapid feed out of the workpiece

S 1061 M3 G1 Z-37.5 F159	G0 Z-52.5[2]	G1 Z-47.5[3] G0 Z+1.0

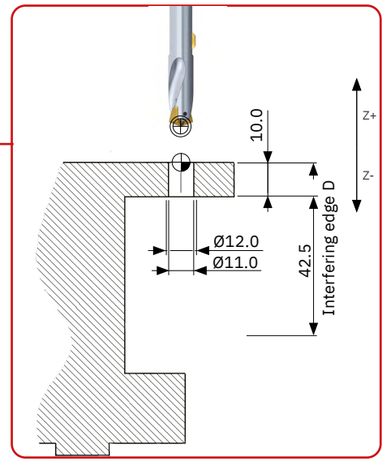
[2] 52.5=10.0+42.5

[3] 47.5=10.0+37.5

DIMENSION TABLE FOR PROGRAMMING

	A mm	B mm	C mm	D mm	E mm
Series C Ø11.00–11.49	2.5	32.5	37.5	42.5	37.5
Series C Ø11.50–11.99	2.6	33.3	38.3	43.3	38.3
Series C Ø12.00–12.49	2.7	34.0	39.0	44.0	39.0
Series C Ø12.50–12.99	2.8	34.8	39.8	44.8	39.8
Series C Ø13.00–13.49	2.9	35.6	40.6	45.6	40.6
Series C Ø13.50–13.99	3.0	36.3	41.3	46.3	41.3
Series D Ø14.00–14.49	3.1	36.1	41.1	46.1	41.1
Series D Ø14.50–14.99	3.2	36.8	41.8	46.8	41.8
Series D Ø15.00–15.49	3.3	37.5	42.5	47.5	42.5
Series D Ø15.50–15.99	3.4	38.3	43.3	48.3	43.3
Series D Ø16.00–16.49	3.5	39.0	44.0	49.0	44.0
Series D Ø16.50–16.99	3.6	39.8	44.8	49.8	44.8

APPLICATION AND PROGRAMMING EXAMPLE



Application data

Material:	Steel C45 / P3
Bore Ø:	10.0 mm
Chamfer Ø:	11.0 mm
Workpiece:	10.0 mm
Machining:	both bore edges
Cooling:	internal coolant

Tool, blade and drill head selection

Tool:	GH-Q-O-4250, max. bore depth 17.2, with int. coolant
Chamfering blade:	GH-Q-M-03827, coating A, for- and backward cutting
Drill head:	P-P-C-1100-1A, bore Ø11.0, coating A

Cutting data drilling

Cutting speed Vc:	90–110 m/min.
Working feed fz:	0.20–0.30 mm/rev

Cutting data chamfering

Cutting speed Vc:	30–50 m/min.
Working feed fz:	0.1–0.2 mm/rev

VEX-P CUTTING DATA

	Description	Tensile str. RM (MPa)	Hardness (HB)	Hardn. (HRC)	VEX – Drilling			SNAP – Chamfering		
					Vc	fz	B*	Vc	fz	B*
P0	Low-carbon steel, long-chipping, C <0.25%	<530	<125	–	100–130	0.20–0.30	A	40–60	0.10–0.30	A
P1	Low-carbon steel, short-chipping, C <0.25%	<530	<125	–	100–130	0.20–0.30	A	40–60	0.10–0.30	A
P2	Steel with carbon content C >0.25%	>530	<220	<25	90–110	0.20–0.30	A	40–60	0.10–0.30	A
P3	Alloy steel and tool steel, C >0.25%	600–850	<330	<35	90–110	0.20–0.30	A	30–50	0.10–0.20	A
P4	Alloy steel and tool steel, C >0.25%	850–1400	340–450	35–48	90–110	0.20–0.30	A	30–50	0.10–0.20	A
P5	Ferritic, martensitic and stainless PH steel	600–900	<330	<35	30–50	0.12–0.15	A	20–40	0.05–0.15	A
P6	High-strength ferritic, martensitic and PH stainless steel	900–1350	350–450	35–48	20–30	0.12–0.15	A	20–40	0.05–0.15	A
M1	Austenitic stainless steel	<600	130–200	–	30–40	0.12–0.15	A	10–20	0.05–0.15	A
M2	High-strength austenitic stainless steel	600–800	150–230	<25	30–40	0.12–0.15	A	10–20	0.05–0.15	A
M3	Duplex stainless steel	<800	135–275	<30	20–30	0.12–0.15	A	10–20	0.05–0.15	A
K1	Cast iron	125–500	120–290	<32	90–180	0.30–0.40	A	50–90	0.10–0.30	A
K2	Ductile cast iron with up to medium strength	<600	130–260	<28	90–180	0.30–0.40	A	40–60	0.10–0.30	A
K3	High-strength cast iron and bainitic cast iron	>600	180–350	<43	90–160	0.25–0.35	A	40–60	0.10–0.30	A
N1	Wrought aluminium alloys	–	–	–	140–200	0.30–0.40	D	70–120	0.10–0.30	D
N2	Aluminium alloys with low Si content	–	–	–	60–100	0.25–0.35	D	70–120	0.10–0.30	D
N3	Aluminium alloys with high Si content	–	–	–	40–60	0.20–0.30	D	70–120	0.10–0.30	D
N4	Copper, brass and zinc base	–	–	–	40–60	0.20–0.30	D	30–70	0.05–0.15	D
S1	Iron-based heat-resistant alloys	500–1200	160–260	25–48	20–25	0.10–0.12	A	8–15	0.02–0.10	A
S2	Cobalt-based heat-resistant alloys	1000–1450	250–450	25–48	20–25	0.10–0.12	A	8–15	0.02–0.10	A
S3	Nickel-based heat-resistant alloys	600–1700	160–450	<48	20–25	0.10–0.12	A	8–15	0.02–0.10	A
S4	Titanium and titanium alloys	900–1600	300–400	33–48	20–25	0.10–0.12	A	8–15	0.02–0.10	A

* coating for blades