VEX

Streamlines the drilling operation.
Simultaneous drilling and chamfering, front and back in one single pass.

The advantages – Your benefit

VEX combines the patented SNAP chamfering technology with a high-performance carbide drill insert into a single tool.

One operation and the bore is complete, including chamfer on both bore edges, without turning the workpiece and without changing tools.

Replaceable twist drill inserts and chamfering blades made of carbide with coatings for specific workpiece materials.

For bores from a diameter of 5.0 mm to 17.0 mm and bore depths from 1xd to 2xd. For additional solutions, see **INDIVIDUAL**.

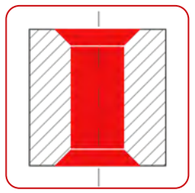
THE RANGE

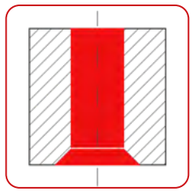
Bore Ø range mm	Max. bore depth mm		Internal coolant supply		Chamfer size mm	Series	Catalogue page
VEX-S	**1xd**	**2xd**	**with**	**without**	max.		
5.0–5.99	6.0	12.0		x	1.0	B	198 | 202
6.0–6.99	7.0	14.0	x	x	1.0	C	198 | 202
7.0–8.49	8.5	17.0	x	x	1.0	D	198 | 202
8.5–10.49	10.5	21.0	x	x	1.0	E	200 | 204
10.5–11.49	11.5	23.0	x	x	1.0	F	200 | 204

VEX-P	**1.5xd**					
11.0–13.99	21.0	x	-	1.0	C	208
14.0–17.00	25.5	x	-	1.0	D	210

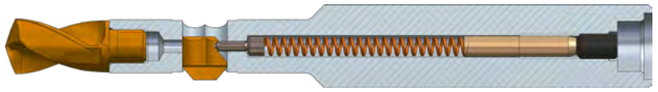
If the required tool is not included in the standard range above, the **INDIVIDUAL** range can offer you a possible solution. If required, we can also develop custom solutions that are fully tailored to your application.

FIELD OF APPLICATION





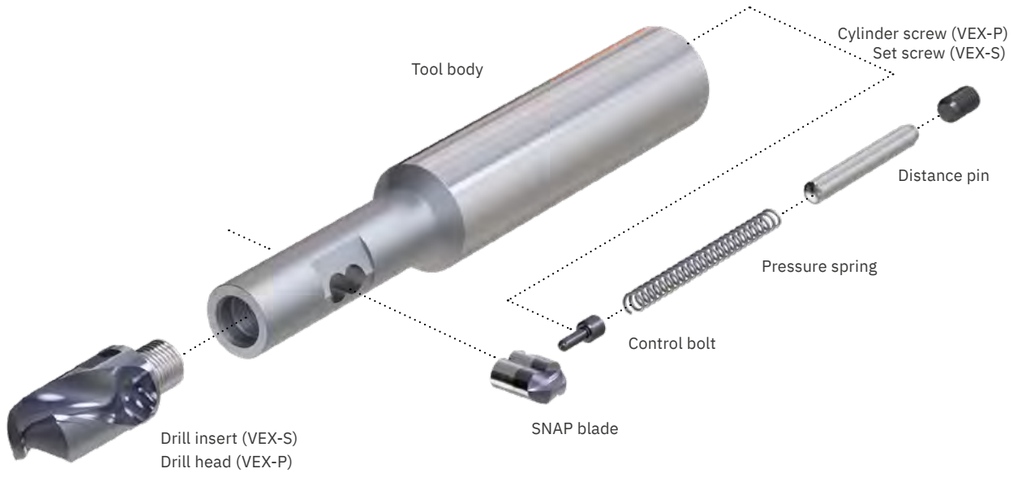
TOOL DESIGN



The VEX tool combines a replaceable high-performance twist drill with the tried-and-tested SNAP chamfering system.

The VEX twist drill insert is replaceable and has a self-centering high-performance cutting geometry. It can be resharpened once. This carbide drill insert is available with or without internal coolant supply.

The twist drill insert is connected to the tool body with a specially developed threaded interface. This adaptation ensures perfect radial alignment, good power transmission and quick and easy replacement of the drill insert.



Operating instructions

> Blade change

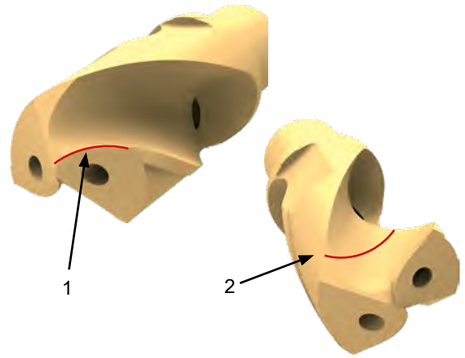
heule.com > Service > Media & download centre

OPERATING PRINCIPLE

With the combination of drilling and chamfering tools, it is possible to drill the bore and simultaneously chamfer it forward and backward in a single operation.

The VEX cutting geometry guarantees high drilling performance with short chip formation. The convex cutting edge (1), which merges into a concave flute angle, breaks the chips from long-chipping materials into short pieces. The large flutes ensure optimum chip removal (2).

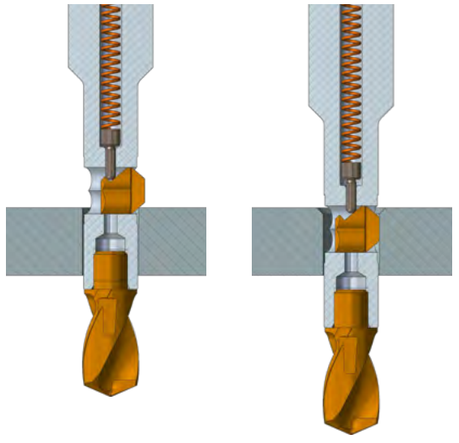
The coolant is fed through the carbide insert onto the end flank and thus directly into the bore.



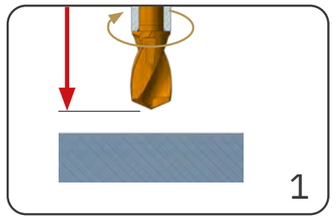
The SNAP chamfering blade is kept movable by a spring-loaded control bolt in the tool body. The specially ground SNAP blade, which cuts forwards and backwards or backward cutting only, produces the desired chamfer in the working feed.

Upon reaching the defined chamfer size, the blade retracts into the tool body. The chamfer size and angle are geometrically defined by the blade and can only be changed by using a different SNAP blade.

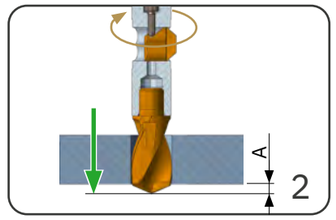
A specially designed sliding section of the blade prevents the bore from being damaged. When exiting the bore, the spring-loaded control bolt returns the blade to its neutral position to machine the edge of the bore.



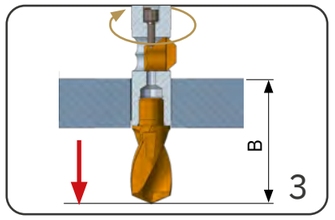
VEX PROCESS STEPS



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



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

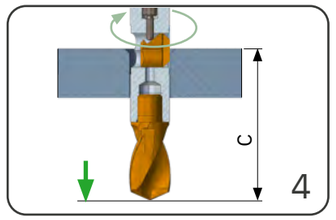


- Rapid feed to position **B**

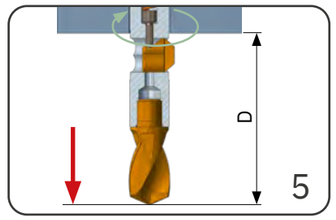
Example

S 3184 M3 M8 G0 Z+1.0	G1 Z-12.9[1] F636	G0 Z-28.1

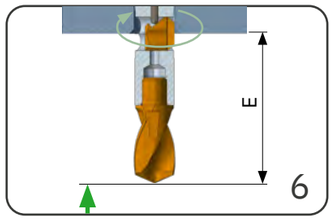
[1] 12.9=10.0+2.9



- 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 1158 M3 G1 Z-32.1 F174	G0 Z-45.6[2]	G1 Z-42.1[3] G0 Z+1.0

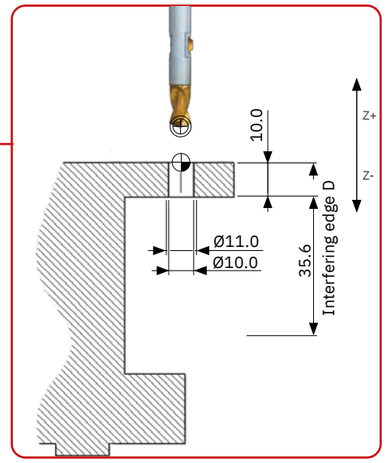
[2] 45.6=10.0+35.6

[3] 42.1=10.0+32.1

DIMENSION TABLE FOR PROGRAMMING

mm	A	B		C		D		E	
		1xd	2xd	1xd	2xd	1xd	2xd	1xd	2xd
Series B Ø5.00–5.49	2.0	17.9	23.7	21.9	27.7	25.4	31.2	21.9	27.7
Series B Ø5.50–5.99	2.1	18.8	25.1	22.8	29.1	26.3	32.6	22.8	29.1
Series C Ø6.00–6.49	2.2	19.6	26.3	23.6	30.3	27.1	33.8	23.6	30.3
Series C Ø6.50–6.99	2.3	20.6	27.9	24.6	31.9	28.1	35.4	24.6	31.9
Series D Ø7.00–7.49	2.4	22.8	30.7	26.8	34.7	30.3	38.1	26.8	34.7
Series D Ø7.50–7.99	2.5	23.6	31.9	27.6	35.9	31.1	39.4	27.6	35.9
Series D Ø8.00–8.49	2.6	24.4	33.2	28.4	37.2	31.9	40.7	28.4	37.2
Series E Ø8.50–8.99	2.7	25.6	34.9	29.6	38.9	33.1	42.4	29.6	38.9
Series E Ø9.00–9.49	2.8	26.4	36.2	30.4	40.2	33.9	43.7	30.4	40.2
Series E Ø9.50–9.99	2.9	27.3	37.6	31.3	41.6	34.8	45.5	31.3	41.6
Series E Ø10.00–10.49	2.9	28.1	38.9	32.1	42.9	35.6	46.4	32.1	42.9
Series E Ø10.50–10.99	3.1	29.1	40.2	33.1	44.2	36.6	47.7	33.1	44.2
Series F Ø11.00–11.49	3.1	29.9	41.5	33.9	45.5	37.4	49.0	33.9	45.5

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:	External coolant

Tool, blade and drill insert selection

Tool:	GH-Q-O-4010, max. bore depth 10.5, w/o int. coolant
Chamfering blade:	GH-Q-M-30215, coating A, for- and backward cutting
Drill insert:	P-S-E2-1000-1A, bore Ø10.0, coating A, w/o int. coolant

Cutting data drilling

Cutting speed V_c:	90–110 m/min.
Tool working feed:	0.15–0.25 mm/rev

Cutting data chamfering

Cutting speed V_c:	30–50 m/min.
Tool working feed:	0.1–0.2 mm/rev

VEX 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	0.15–0.25	A	40–60	0.1–0.3	A
P1	Low-carbon steel, short-chipping, C <0.25%	<530	<125	–	100–130	0.15–0.25	A	40–60	0.1–0.3	A
P2	Steel with carbon content C >0.25%	>530	<220	<25	90–110	0.15–0.25	A	40–60	0.1–0.3	A
P3	Alloy steel and tool steel, C >0.25%	600–850	<330	<35	90–110	0.15–0.25	A	30–50	0.1–0.2	A
P4	Alloy steel and tool steel, C >0.25%	850–1400	340–450	35–48	90–110	0.15–0.25	A	30–50	0.1–0.2	A
P5	Ferritic, martensitic and stainless PH steel	600–900	<330	<35	30–50	0.08–0.12	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	0.08–0.12	A	20–40	0.05–0.15	A
M1	Austenitic stainless steel	<600	130–200	–	30–40	0.08–0.12	A	10–20	0.05–0.15	A
M2	High-strength austenitic stainless steel	600–800	150–230	<25	30–40	0.08–0.12	A	10–20	0.05–0.15	A
M3	Duplex stainless steel	<800	135–275	<30	20–30	0.08–0.12	A	10–20	0.05–0.15	A
K1	Cast iron	125–500	120–290	<32	90–180	0.2–0.35	A	50–90	0.1–0.3	A
K2	Ductile cast iron with up to medium strength	<600	130–260	<28	90–180	0.2–0.35	A	40–60	0.1–0.3	A
K3	High-strength cast iron and bainitic cast iron	>600	180–350	<43	90–160	0.2–0.35	A	40–60	0.1–0.3	A
N1	Wrought aluminium alloys	–	–	–	140–200	0.25–0.35	D	70–120	0.1–0.3	D
N2	Aluminium alloys with low Si content	–	–	–	60–100	0.2–0.3	D	70–120	0.1–0.3	D
N3	Aluminium alloys with high Si content	–	–	–	40–60	0.15–0.25	D	70–120	0.1–0.3	D
N4	Copper, brass and zinc base	–	–	–	40–60	0.15–0.25	D	30–70	0.05–0.15	D
S1	Iron-based heat-resistant alloys	500–1200	160–260	25–48	20–25	0.06–0.1	A	8–15	0.02–0.1	A
S2	Cobalt-based heat-resistant alloys	1000–1450	250–450	25–48	20–25	0.06–0.1	A	8–15	0.02–0.1	A
S3	Nickel-based heat-resistant alloys	600–1700	160–450	<48	20–25	0.06–0.1	A	8–15	0.02–0.1	A
S4	Titanium and titanium alloys	900–1600	300–400	33–48	20–25	0.06–0.1	A	8–15	0.02–0.1	A

* coating for blades

COOLING

An internal coolant supply is required to ensure optimum chip transport.

For drilling depths larger than 1 x d, we recommend using a tool with internal coolant, as this results in a significantly longer tool life.

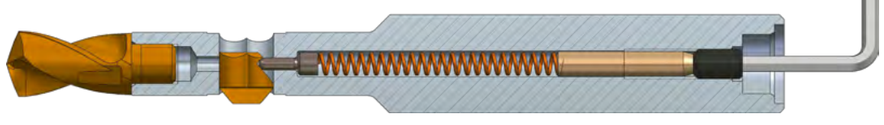
Minimum coolant pressure for max. 2 x d is 8 bar. Volume flow 5 to 20 litres/min. is recommended.

SELECTING THE CHAMFER Ø

The chamfer size is essentially determined by the blade selected (blade length). Each blade produces a specific chamfer diameter.

The maximum chamfer diameter theoretically achievable is shown in the "max. chamfer diameter" column of the tool table.

SETTING THE BLADE FORCE



The blade force can be adjusted using the set screw. The blade force should be set so high that the blade extends completely after exiting the bore. This ensures that the blade can also provide the necessary cutting force. The tougher the material, the harder the spring should be set.

However, the blade force does not affect the chamfer diameter. An adapted spring force increases the blade's service life and improves the quality of the chamfer.

A high blade force is required for extremely tough materials. The spring can be replaced for this purpose: GH-H-F-0041.

How it works:
Clockwise rotation increases the spring fload (tough steel, Inconel, titanium).

Anti-clockwise rotation reduces the spring load (aluminium).

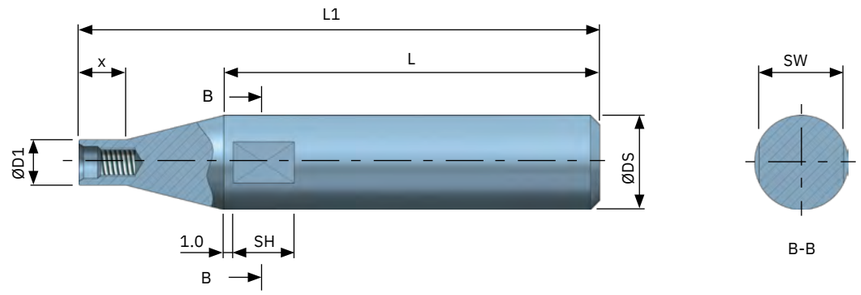
Important!

The blade force does not affect the chamfer diameter. It is essentially determined by the blade selected. Each blade produces a defined chamfer diameter.

Setting details for blade force

Tool	Thread size	max. screw-in depth	Number of revolutions
SNAP5	M3	6.0 mm	approx. 12

RE-SHARPING DEVICE FOR DRILL INSERT



Series	Thread	ØD1	ØDS	x	L	L1	SW	SH	Re-sharpening device part no.
B	M3*0.35	4.8	10.0	5.0	40.0	55.4	9.0	6.5	GH-V-V-0052
C	M4*0.5	5.8	10.0	5.0	40.0	55.8	9.0	6.5	GH-V-V-0053
D	M5*0.5	6.8	10.0	5.0	40.0	56.0	9.0	6.5	GH-V-V-0054
E	M6*0.75	8.3	16.0	8.0	50.0	70.6	14.0	7.0	GH-V-V-0055
F	M8*0.75	10.3	16.0	8.0	50.0	70.3	14.0	7.0	GH-V-V-0056

Selecting the correct VEX tool

TOOL SELECTOR

The HEULE Tool Selector is the quickest and easiest way to find the right tool.

Send your search result along with your application data to the HEULE contact person near you. They will check the application and offer you options if required.

If your search produces no results, please contact HEULE with your application data anyway. We also develop customised solutions and are happy to advise you.

TOOL TABLES

Although the correct tool is generally selected by the bore-Ø to be produced, it is the bore depth (1xd or 2xd) and the internal coolant (with or without) which determine the appropriate tool selection table in the catalogue.

Next, the drill insert is selected. The final selection is the chamfering blade.

If the standard does not fit your needs, please do not hesitate to contact your HEULE representative for advice, either using the enquiry form or by telephone.

Tool Selector

> Step-by-step guide to find the right solution

heule.com/en/tool-selector/vex

Tool Selector

Still have questions?

> HEULE Consulting and Support

heule.com/en/contact

CONFIGURING VEX TOOLS

1. Select drill insert

The correct drill insert is determined according to the following criteria:

1.1 Bore depth
1xd
2xd

1.2 Bore diameter
The drill inserts are available from stock in Ø increments of 0.5 mm. Other drill inserts in increments of 0.1 mm are available, but not necessarily from stock. Please enquire about availability and delivery date.

1.3 Internal coolant (IC)
without IC
with IC

Example:
P-S-B2-0510-1A
P: Drill insert
S: without IC
B2: Bore depth 1xd
0510: Bore diameter 5.1 mm
1: Cutting material carbide
A: Coating for steel

2. Select tool

The criteria for selecting the tool are:

2.1 Bore depth
1xd
2xd

2.2 Internal cooling (IC)
without IC
with IC

2.3 Bore diameter range
One tool covers a bore diameter range of 0.5 mm (e.g. 5.0-5.49).

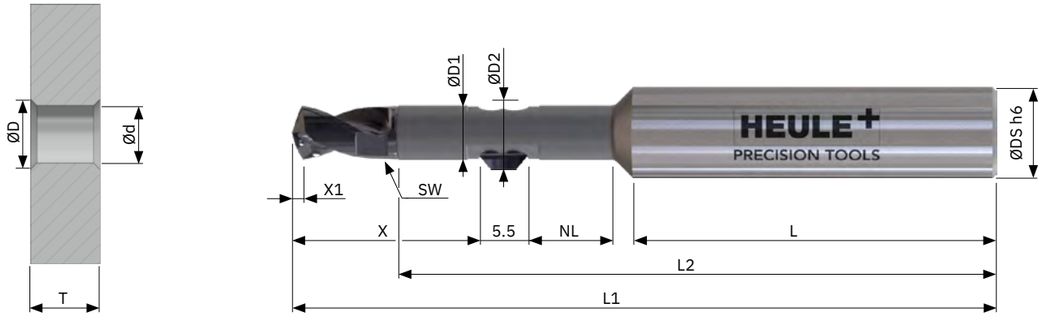
3. Select chamfering blade

The possible chamfer diameters can be found in the same row in the product table.

3.1 Chamfer diameter
Once the chamfer diameter has been determined, an arrow indicates the table with the chamfer blade part numbers.

Special blades offering additional chamfer diameters are available upon request.

VEX-S Ø5.0 to 8.49 mm | **Bore depth 1xd**



Tool and drill insert

Tool **without** drill insert, **without** blade. Both must be ordered separately.
- Drill inserts also available in increments of 0.1 mm in diameter.
- Drill inserts ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-S-B2-0500-1D).
- The tool can be used over a defined bore diameter range (see dimension table on page 199).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock

	Drill insert		Tool		Chamfering blade
Bore Ø mm	**without IC Part no.**	**with IC Part no.**	**without IC Part no.**	**with IC Part no.**	**ØD** mm
5.0	P-S-B2-0500-1A	-	GH-Q-O-4000	-	5.5 / 6.0 / 6.5 / 7.0
5.5	P-S-B2-0550-1A	-	GH-Q-O-4001	-	6.0 / 6.5 / 7.0 / 7.5
6.0	P-S-C2-0600-1A	P-SK-C2-0600-1A	GH-Q-O-4002	GH-Q-O-4022	6.5 / 7.0 / 7.5 / 8.0
6.35	P-S-C2-0635-1A	P-SK-C2-0635-1A	GH-Q-O-4002	GH-Q-O-4022	6.5 / 7.0 / 7.5 / 8.0
6.5	P-S-C2-0650-1A	P-SK-C2-0650-1A	GH-Q-O-4003	GH-Q-O-4023	7.0 / 7.5 / 8.0 / 8.5
6.8	P-S-C2-0680-1A	P-SK-C2-0680-1A	GH-Q-O-4003	GH-Q-O-4023	7.0 / 7.5 / 8.0 / 8.5
7.0	P-S-D2-0700-1A	P-SK-D2-0700-1A	GH-Q-O-4004	GH-Q-O-4024	7.5 / 8.0 / 8.5 / 9.0
7.5	P-S-D2-0750-1A	P-SK-D2-0750-1A	GH-Q-O-4005	GH-Q-O-4025	8.0 / 8.5 / 9.0 / 9.5
8.0	P-S-D2-0800-1A	P-SK-D2-0800-1A	GH-Q-O-4006	GH-Q-O-4026	8.5 / 9.0 / 9.5 / 10.0

Parts in stock highlighted in green

Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX-S Ø5.0 to 8.49 mm | **Bore depth 1xd**

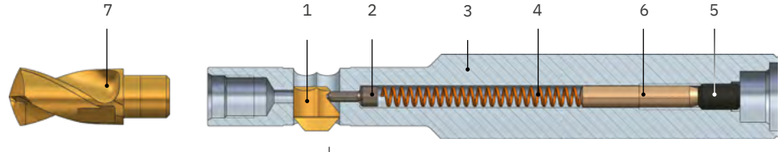
Blade GS geometry 90°

	Part no. forward and backward cutting		Part no. backward cutting only	
max. chamfer Ø mm	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**
5.5	GH-Q-M-30204	GH-Q-M-30404	GH-Q-M-31204	GH-Q-M-31404
6.0	GH-Q-M-30205	GH-Q-M-30405	GH-Q-M-31205	GH-Q-M-31405
6.5	GH-Q-M-30206	GH-Q-M-30406	GH-Q-M-31206	GH-Q-M-31406
7.0	GH-Q-M-30207	GH-Q-M-30407	GH-Q-M-31207	GH-Q-M-31407
7.5	GH-Q-M-30208	GH-Q-M-30408	GH-Q-M-31208	GH-Q-M-31408
8.0	GH-Q-M-30209	GH-Q-M-30409	GH-Q-M-31209	GH-Q-M-31409
8.5	GH-Q-M-30210	GH-Q-M-30410	GH-Q-M-31210	GH-Q-M-31410
9.0	GH-Q-M-30211	GH-Q-M-30411	GH-Q-M-31211	GH-Q-M-31411
9.5	GH-Q-M-30212	GH-Q-M-30412	GH-Q-M-31212	GH-Q-M-31412
10.0	GH-Q-M-30213	GH-Q-M-30413	GH-Q-M-31213	GH-Q-M-31413

Tool dimension table

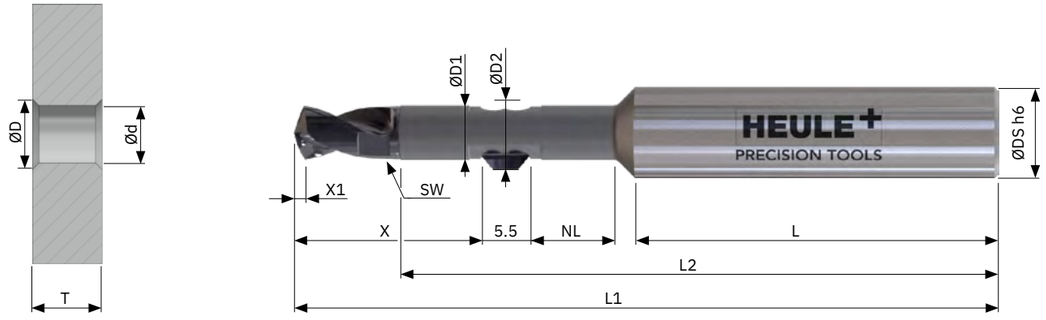
Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	L2	NL	X	X1	**Series**
5.00–5.49	5.5	4.9	ØD2 = ØD + 0.6 mm	8.0	36.0	70.5	60.3	8.1	18.9	1.0	B
5.50–5.99	6.0	5.4		8.0	36.0	71.6	60.5	8.6	19.8	1.1	B
6.00–6.49	6.5	5.9		10.0	40.0	77.7	66.0	9.1	20.6	1.2	C
6.50–6.99	7.0	6.4		10.0	40.0	78.9	66.2	9.6	21.6	1.3	C
7.00–7.49	7.5	6.9		10.0	40.0	81.4	67.8	10.1	23.8	1.4	D
7.50–7.99	8.0	7.4		10.0	40.0	82.4	68.0	10.6	24.6	1.5	D
8.00–8.49	8.5	7.9		12.0	45.0	89.5	74.3	11.1	25.4	1.6	D

Spare parts



Item	**Description**	**Part no.**	
1	SNAP chamfering blade	see above	
2	Control bolt Ø 1.2 mm	GH-Q-E-0008	
3	Tool (tool body)	see page 206	
4	Pressure spring Ø2.35xØ.35x30.0	GH-H-F-0019	
5	Set screw M3.5x5.0 DIN913 Allen key SW1.5	GH-H-S-0127 GH-H-S-2101	 not included
6	Distance pin bore Ø range 5.00-5.99 mm Distance pin bore Ø range 6.00-7.99 mm Distance pin bore Ø range 8.00-11.49 mm	GH-Q-E-0052 GH-Q-E-0043 GH-Q-E-0048	
7	Drill insert Wrench	see page 198 see page 207	 not included

VEX-S Ø8.5 to 11.49 mm | **Bore depth 1xd**



Tool and drill insert

Tool **without** drill insert, **without** blade. Both must be ordered separately.
- Drill inserts also available in increments of 0.1 mm in diameter.
- Drill inserts ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-S-E2-0850-1D).
- The tool can be used over a defined bore diameter range (see dimension table on page 201).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock

	Drill insert		**Tool**		**Chamfering blade**
Bore Ø mm	**without IC Part no.**	**with IC Part no.**	**without IC Part no.**	**with IC Part no.**	**ØD** mm
8.5	P-S-E2-0850-1A	P-SK-E2-0850-1A	GH-Q-4007	GH-Q-4027	9.0 / 9.5 / 10.0 / 10.5
9.0	P-S-E2-0900-1A	P-SK-E2-0900-1A	GH-Q-4008	GH-Q-4028	9.5 / 10.0 / 10.5 / 11.0
9.5	P-S-E2-0950-1A	P-SK-E2-0950-1A	GH-Q-4009	GH-Q-4029	10.0 / 10.5 / 11.0 / 11.5
10.0	P-S-E2-1000-1A	P-SK-E2-1000-1A	GH-Q-4010	GH-Q-4030	10.5 / 11.0 / 11.5 / 12.0
10.5	P-S-E2-1050-1A	P-SK-E2-1050-1A	GH-Q-4011	GH-Q-4031	11.0 / 11.5 / 12.0 / 12.5
11.0	P-S-E2-1100-1A	P-SK-E2-1100-1A	GH-Q-4012	GH-Q-4032	11.5 / 12.0 / 12.5 / 13.0

Parts in stock highlighted in green

Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX-S Ø8.5 to 11.49 mm | **Bore depth 1xd**

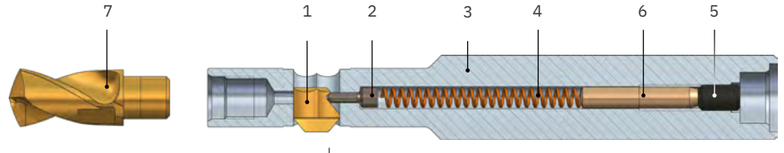
Blade GS geometry 90°

	Part no. forward and backward cutting		**Part no. backward cutting only**	
max. chamfer Ø mm	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**
9.0	GH-Q-M-30211	GH-Q-M-30411	GH-Q-M-31211	GH-Q-M-31411
9.5	GH-Q-M-30212	GH-Q-M-30412	GH-Q-M-31212	GH-Q-M-31412
10.0	GH-Q-M-30213	GH-Q-M-30413	GH-Q-M-31213	GH-Q-M-31413
10.5	GH-Q-M-30214	GH-Q-M-30414	GH-Q-M-31214	GH-Q-M-31414
11.0	GH-Q-M-30215	GH-Q-M-30415	GH-Q-M-31215	GH-Q-M-31415
11.5	GH-Q-M-30216	GH-Q-M-30416	GH-Q-M-31216	GH-Q-M-31416
12.0	GH-Q-M-30217	GH-Q-M-30417	GH-Q-M-31217	GH-Q-M-31417
12.5	GH-Q-M-30218	GH-Q-M-30418	GH-Q-M-31218	GH-Q-M-31418
13.0	GH-Q-M-30219	GH-Q-M-30419	GH-Q-M-31219	GH-Q-M-31419

Tool dimension table

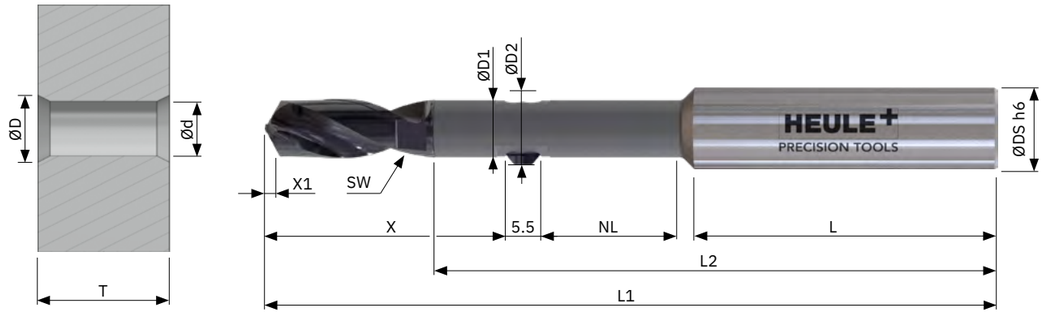
Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	L2	NL	X	X1	**Series**
8.5–8.99	9.0	8.4	ØD2 = ØD + 0.6 mm	12.0	45.0	90.9	74.8	11.6	26.6	1.7	E
9.0–9.49	9.5	8.9		12.0	45.0	91.9	75.0	12.1	27.4	1.8	E
9.5–9.99	10.0	9.4		12.0	45.0	93.1	75.3	12.6	28.3	1.9	E
10.0–10.49	10.5	9.9		14.0	45.0	95.1	76.5	13.1	29.1	1.9	E
10.5–10.99	11.0	10.4		14.0	45.0	96.4	77.3	13.6	30.1	2.1	F
11.0–11.49	11.5	10.9		14.0	45.0	97.4	77.5	14.1	30.9	2.1	F

Spare parts



Item	**Description**	**Part no.**	
1	SNAP chamfering blade	see above	
2	Control bolt Ø1.2 mm	GH-Q-E-0008	
3	Tool (tool body)	see page 206	
4	Pressure spring Ø2.35xØ.35x30.0	GH-H-F-0019	
5	Set screw M3.5x5.0 DIN913 Allen key SW1.5	GH-H-S-0127 GH-H-S-2101	not included
6	Distance pin bore Ø range 8.00-11.49 mm	GH-Q-E-0048	
7	Drill insert Wrench	see page 200 see page 207	not included

VEX-S Ø5.0 to 8.49 mm | **Bore depth 2xd**



Tool and drill insert

Tool **without** drill insert, **without** blade. Both must be ordered separately.
- Drill inserts also available in increments of 0.1 mm in diameter.
- Drill inserts ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-S-B4-0500-1D).
- The tool can be used within a defined bore diameter range (see dimension table on page 203).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock

	Drill insert		Tool		Chamfering blade
Bore Ø mm	**without IC Part no.**	**with IC Part no.**	**without IC Part no.**	**with IC Part no.**	**ØD** mm
5.0	P-S-B4-0500-1A	-	GH-Q-O-4050	-	5.5 / 6.0 / 6.5 / 7.0
5.5	P-S-B4-0550-1A	-	GH-Q-O-4051	-	6.0 / 6.5 / 7.0 / 7.5
6.0	P-S-C4-0600-1A	P-SK-C4-0600-1A	GH-Q-O-4052	GH-Q-O-4072	6.5 / 7.0 / 7.5 / 8.0
6.35	P-S-C4-0635-1A	P-SK-C4-0635-1A	GH-Q-O-4052	GH-Q-O-4072	6.5 / 7.0 / 7.5 / 8.0
6.5	P-S-C4-0650-1A	P-SK-C4-0650-1A	GH-Q-O-4053	GH-Q-O-4073	7.0 / 7.5 / 8.0 / 8.5
6.8	P-S-C4-0680-1A	P-SK-C4-0680-1A	GH-Q-O-4053	GH-Q-O-4073	7.0 / 7.5 / 8.0 / 8.5
7.0	P-S-D4-0700-1A	P-SK-D4-0700-1A	GH-Q-O-4054	GH-Q-O-4074	7.5 / 8.0 / 8.5 / 9.0
7.5	P-S-D4-0750-1A	P-SK-D4-0750-1A	GH-Q-O-4055	GH-Q-O-4075	8.0 / 8.5 / 9.0 / 9.5
8.0	P-S-D4-0800-1A	P-SK-D4-0800-1A	GH-Q-O-4056	GH-Q-O-4076	8.5 / 9.0 / 9.5 / 10.0

Parts in stock highlighted in green

Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX-S Ø5.0 to 8.49 mm | **Bore depth 2xd**

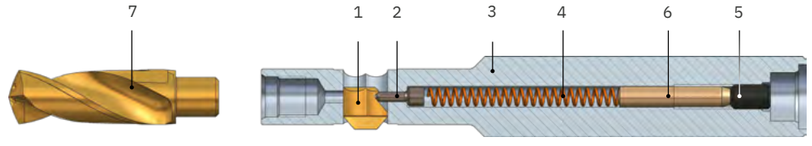
Blade GS geometry 90°

	Part no. forward and backward cutting		Part no. backward cutting only	
max. chamfer Ø mm	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**
5.5	GH-Q-M-30204	GH-Q-M-30404	GH-Q-M-31204	GH-Q-M-31404
6.0	GH-Q-M-30205	GH-Q-M-30405	GH-Q-M-31205	GH-Q-M-31405
6.5	GH-Q-M-30206	GH-Q-M-30406	GH-Q-M-31206	GH-Q-M-31406
7.0	GH-Q-M-30207	GH-Q-M-30407	GH-Q-M-31207	GH-Q-M-31407
7.5	GH-Q-M-30208	GH-Q-M-30408	GH-Q-M-31208	GH-Q-M-31408
8.0	GH-Q-M-30209	GH-Q-M-30409	GH-Q-M-31209	GH-Q-M-31409
8.5	GH-Q-M-30210	GH-Q-M-30410	GH-Q-M-31210	GH-Q-M-31410
9.0	GH-Q-M-30211	GH-Q-M-30411	GH-Q-M-31211	GH-Q-M-31411
9.5	GH-Q-M-30212	GH-Q-M-30412	GH-Q-M-31212	GH-Q-M-31412
10.0	GH-Q-M-30213	GH-Q-M-30413	GH-Q-M-31213	GH-Q-M-31413

Tool dimension table

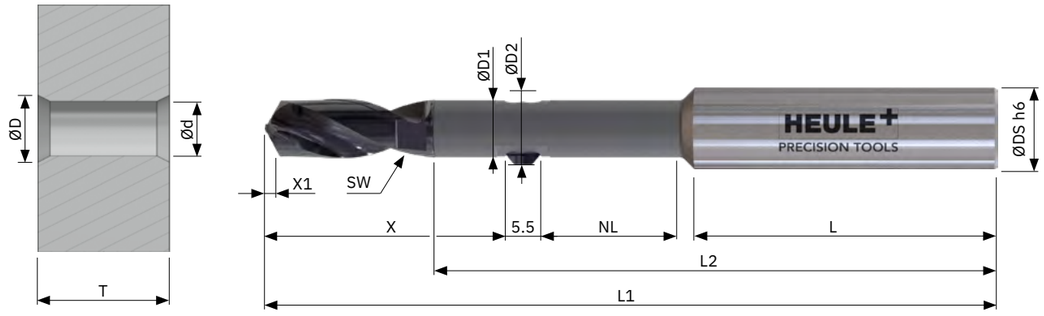
Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	L2	NL	X	X1	**Series**
5.00–5.49	11.0	4.9	ØD2 = ØD + 0.6 mm	8.0	36.0	81.8	65.5	13.6	24.7	1.0	B
5.50–5.99	12.0	5.4		8.0	36.0	82.9	65.8	13.6	26.1	1.1	B
6.00–6.49	13.0	5.9		10.0	40.0	90.8	72.4	15.6	27.3	1.2	C
6.50–6.99	14.0	6.4		10.0	40.0	93.3	73.3	16.7	28.9	1.3	C
7.00–7.49	15.0	6.9		10.0	40.0	96.7	75.3	17.9	31.7	1.4	D
7.50–7.99	16.0	7.4		10.0	40.0	98.7	76.0	18.6	32.9	1.5	D
8.00–8.49	17.5	7.9		12.0	45.0	106.7	82.7	19.8	34.2	1.6	D

Spare parts



Item	Description	Part no.	
1	SNAP chamfering blade	see above	
2	Control bolt Ø1.2 mm	GH-Q-E-0008	
3	Tool (tool body)	see page 206	
4	Pressure spring Ø2.35xØ.35x30.0	GH-H-F-0019	
5	Set screw M3.5x5.0 DIN913 Allen key SW1.5	GH-H-S-0127 GH-H-S-2101	not included
6	Distance pin bore Ø range 5.00-5.49 mm Distance pin bore Ø range 5.50-7.99 mm Distance pin bore Ø range 8.00-11.49 mm	GH-Q-E-0043 GH-Q-E-0048 GH-Q-E-0039	
7	Drill insert Wrench	see page 202 see page 207	not included

VEX-S Ø8.5 to 11.49 mm | **Bore depth 2xd**



Tool and drill insert

Tool **without** drill insert, **without** blade. Both must be ordered separately.
- Drill inserts also available in increments of 0.1 mm in diameter.
- Drill inserts ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-S-E4-0850-1D).
- The tool can be used over a defined bore diameter range (see dimension table on page 205).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock

	Drill insert		**Tool**		**Chamfering blade**
Bore Ø mm	**without IC Part no.**	**with IC Part no.**	**without IC Part no.**	**with IC Part no.**	**ØD** mm
8.5	P-S-E4-0850-1A	P-SK-E4-0850-1A	GH-Q-4057	GH-Q-4077	9.0 / 9.5 / 10.0 / 10.5
9.0	P-S-E4-0900-1A	P-SK-E4-0900-1A	GH-Q-4058	GH-Q-4078	9.5 / 10.0 / 10.5 / 11.0
9.5	P-S-E4-0950-1A	P-SK-E4-0950-1A	GH-Q-4059	GH-Q-4079	10.0 / 10.5 / 11.0 / 11.5
10.0	P-S-E4-1000-1A	P-SK-E4-1000-1A	GH-Q-4060	GH-Q-4080	10.5 / 11.0 / 11.5 / 12.0
10.5	P-S-F4-1050-1A	P-SK-F4-1050-1A	GH-Q-4061	GH-Q-4081	11.0 / 11.5 / 12.0 / 12.5
11.0	P-S-F4-1100-1A	P-SK-F4-1100-1A	GH-Q-4062	GH-Q-4082	11.5 / 12.0 / 12.5 / 13.0

Parts in stock highlighted in green

Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX-S Ø8.5 to 11.49 mm | **Bore depth 2xd**

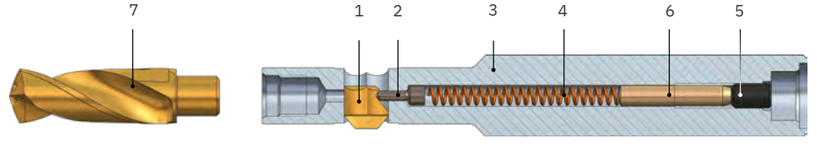
Blade GS geometry 90°

	Part no. forward and backward cutting		**Part no. backward cutting only**	
max. chamfer Ø mm	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**	**Coating A for steel, titanium, Inconel**	**Coating D for aluminium**
9.0	GH-Q-M-30211	GH-Q-M-30411	GH-Q-M-31211	GH-Q-M-31411
9.5	GH-Q-M-30212	GH-Q-M-30412	GH-Q-M-31212	GH-Q-M-31412
10.0	GH-Q-M-30213	GH-Q-M-30413	GH-Q-M-31213	GH-Q-M-31413
10.5	GH-Q-M-30214	GH-Q-M-30414	GH-Q-M-31214	GH-Q-M-31414
11.0	GH-Q-M-30215	GH-Q-M-30415	GH-Q-M-31215	GH-Q-M-31415
11.5	GH-Q-M-30216	GH-Q-M-30416	GH-Q-M-31216	GH-Q-M-31416
12.0	GH-Q-M-30217	GH-Q-M-30417	GH-Q-M-31217	GH-Q-M-31417
12.5	GH-Q-M-30218	GH-Q-M-30418	GH-Q-M-31218	GH-Q-M-31418
13.0	GH-Q-M-30219	GH-Q-M-30419	GH-Q-M-31219	GH-Q-M-31419

Tool dimension table

Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	L2	NL	X	X1	**Series**
8.5–8.99	18.0	8.4	ØD2 = ØD + 0.6 mm	12.0	45.0	90.9	83.8	20.6	35.9	1.7	E
9.0–9.49	19.0	8.9		12.0	45.0	91.9	85.3	22.6	37.2	1.8	E
9.5–9.99	20.0	9.4		12.0	45.0	93.1	86.5	23.6	38.6	1.9	E
10.0–10.49	21.0	9.9		14.0	45.0	95.1	87.0	23.6	39.9	1.9	E
10.5–10.99	22.0	10.4		14.0	45.0	96.4	88.3	24.6	41.2	2.1	F
11.0–11.49	23.0	10.9		14.0	45.0	97.4	89.0	25.6	42.5	2.1	F

Spare parts



Item	**Description**	**Part no.**	
1	SNAP chamfering blade	see above	
2	Control bolt Ø1.2 mm	GH-Q-E-0008	
3	Tool (tool body)	see page 206	
4	Pressure spring Ø2.35xØ.35x30.0	GH-H-F-0019	
5	Set screw M3.5x5.0 DIN913 Allen key SW1.5	GH-H-S-0127 GH-H-S-2101	 not included
6	Distance pin bore Ø range 8.00-11.49 mm	GH-Q-E-0039	
7	Drill insert Wrench	see page 204 see page 207	 not included

TOOL BODY

Bore depth 5.0–11.5 1xd			Tool body without int. cooling	Tool body with internal cooling
Bore Ø range mm d	Bore depth T	Series	Part no.	Part no.
5.00–5.49	5.5	B	GH-Q-G-4000	-
5.50–5.99	6.0	B	GH-Q-G-4001	-
6.00–6.49	6.5	C	GH-Q-G-4002	GH-Q-G-4022
6.50–6.99	7.0	C	GH-Q-G-4003	GH-Q-G-4023
7.00–7.49	7.5	D	GH-Q-G-4004	GH-Q-G-4024
7.50–7.99	8.0	D	GH-Q-G-4005	GH-Q-G-4025
8.00–8.49	8.5	D	GH-Q-G-4006	GH-Q-G-4026
8.50–8.99	9.0	E	GH-Q-G-4007	GH-Q-G-4027
9.00–9.49	9.5	E	GH-Q-G-4008	GH-Q-G-4028
9.50–9.99	10.0	E	GH-Q-G-4009	GH-Q-G-4029
10.00–10.49	10.5	E	GH-Q-G-4010	GH-Q-G-4030
10.50–10.99	11.0	F	GH-Q-G-4011	GH-Q-G-4031
11.00–11.49	11.5	F	GH-Q-G-4012	GH-Q-G-4032

Bore depth 11.0–23.0 2xd			Tool body without int. cooling	Tool body with int. cooling
Bore Ø range mm d	Bore depth T	Series	Part no.	Part no.
5.00–5.49	11.0	B	GH-Q-G-4050	-
5.50–5.99	12.0	B	GH-Q-G-4051	-
6.00–6.49	13.0	C	GH-Q-G-4052	GH-Q-G-4072
6.50–6.99	14.0	C	GH-Q-G-4053	GH-Q-G-4073
7.00–7.49	15.0	D	GH-Q-G-4054	GH-Q-G-4074
7.50–7.99	16.0	D	GH-Q-G-4055	GH-Q-G-4075
8.00–8.49	17.0	D	GH-Q-G-4056	GH-Q-G-4076
8.50–8.99	18.0	E	GH-Q-G-4057	GH-Q-G-4077
9.00–9.49	19.0	E	GH-Q-G-4058	GH-Q-G-4078
9.50–9.99	20.0	E	GH-Q-G-4059	GH-Q-G-4079
10.00–10.49	21.0	E	GH-Q-G-4060	GH-Q-G-4080
10.50–10.99	22.0	F	GH-Q-G-4061	GH-Q-G-4081
11.00–11.49	23.0	F	GH-Q-G-4062	GH-Q-G-4082

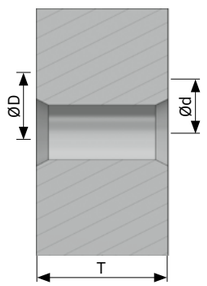
VEX-S spare parts

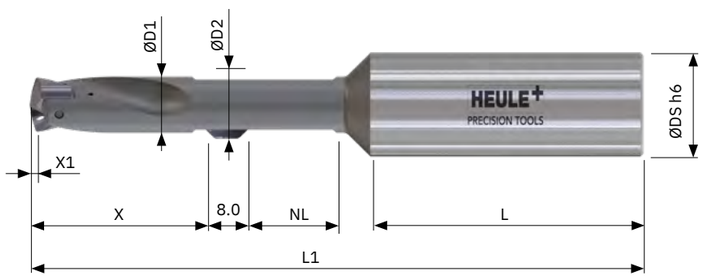
MISCELLANEOUS

				Open Jaw spanner	Torque wrench insert	Torque screwdriver
Bore Ø range d mm	Series	Width-across flats SW	Torque Ncm	Part no.	Part no.	Part no.
5.00–5.49	B	4.0	170	GH-H-S-2301	GH-H-S-2331	GH-H-S-2401
5.50–5.99	B	4.0	170	GH-H-S-2301	GH-H-S-2331	GH-H-S-2401
6.00–6.49	C	5.0	250	GH-H-S-2301	GH-H-S-2332	GH-H-S-2401
6.50–6.99	C	5.0	250	GH-H-S-2301	GH-H-S-2332	GH-H-S-2401
7.00–7.49	D	6.0	400	GH-H-S-2302	GH-H-S-2333	GH-H-S-2402
7.50–7.99	D	6.0	400	GH-H-S-2302	GH-H-S-2333	GH-H-S-2402
8.00–8.49	D	7.0	400	GH-H-S-2302	GH-H-S-2334	GH-H-S-2402
8.50–8.99	E	7.0	600	GH-H-S-2302	GH-H-S-2334	GH-H-S-2402
9.00–9.49	E	8.0	600	GH-H-S-2303	GH-H-S-2335	GH-H-S-2402
9.50–9.99	E	8.0	600	GH-H-S-2303	GH-H-S-2335	GH-H-S-2402
10.00–10.49	E	9.0	600	GH-H-S-2303	GH-H-S-2336	GH-H-S-2402
10.50–10.99	F	9.0	600	GH-H-S-2303	GH-H-S-2336	GH-H-S-2402
11.00–11.49	F	9.0	600	GH-H-S-2303	GH-H-S-2336	GH-H-S-2402

VEX

VEX-P Ø11.0 to 13.99 mm | Bore depth 1.5xd





Tools and drill heads

Tool **without** drill head, **without** blade. Both must be selected and ordered separately.

- Drill heads also available in increments of 0.1 mm in diameter
- Drill heads ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-P-C-1100-1D).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock and not recommended due to possible radial run-out error.

Bore Ø mm	Drill head Part no.	Tool with IC Part no.	Chamfering blade ØD / mm
11.0	P-P-C-1100-1A	GH-Q-O-4250	11.5[1)] / 12.0[1)] / 12.5[1)]
11.5	P-P-C-1150-1A	GH-Q-O-4251	12.0[1)] / 12.5[1)] / 13.0[1)]
12.0	P-P-C-1200-1A	GH-Q-O-4252	12.5 /13.0 / 13.5 / 14.0
12.5	P-P-C-1250-1A	GH-Q-O-4253	13.0 / 13.5 / 14.0 / 14.5
12.7	P-P-C-1270-1A	GH-Q-O-4253	13.0 / 13.5 / 14.0 / 14.5
13.0	P-P-C-1300-1A	GH-Q-O-4254	13.5 / 14.0 / 14.5 / 15.0
13.1	P-P-C-1310-1A	GH-Q-O-4254	13.5 / 14.0 / 14.5 / 15.0
13.5	P-P-C-1350-1A	GH-Q-O-4255	14.0 / 14.5 / 15.0 / 15.5

[1)] When selecting blades on page 209 only select from the chamfer diameter rows labelled "[1)]".

Tool dimension table

Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	NL	X	X1	Nm	Series
11.00–11.49	17.2	10.8	ØD2 = ØD + 0.6 mm	20h6	52.0	116.9	17.2	33.5	2.5	1.1	C
11.50–11.99	18.0	11.3		20h6	52.0	118.2	18.0	34.3	2.6	1.1	C
12.00–12.49	18.7	11.8		20h6	52.0	119.4	18.7	35.0	2.7	1.1	C
12.50–12.99	19.5	12.3		20h6	52.0	120.6	19.5	35.8	2.8	1.1	C
13.00–13.49	20.2	12.8		20h6	52.0	121.9	20.2	36.6	2.9	1.1	C
13.50–13.99	21.0	13.3		20h6	52.0	123.1	21.0	37.3	3.0	1.1	C

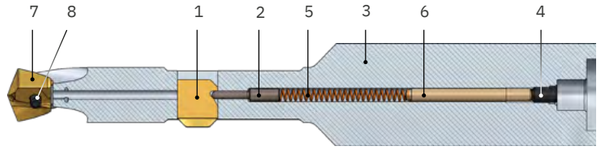
Parts in stock highlighted in green

VEX-P Ø11.0 to 13.99 mm | Bore depth 1.5xd

Blade GS geometry 90°

max. chamfer Ø mm	Part no. forward and backward cutting: Coating A for steel, titanium, Inconel	Part no. forward and backward cutting: Coating D for aluminium	Part no. backward cutting only: Coating A for steel, titanium, Inconel	Part no. backward cutting only: Coating D for aluminium
11.5[1)]	GH-Q-M-03826	GH-Q-M-13526	GH-Q-M-05826	GH-Q-M-15526
12.0[1)]	GH-Q-M-03827	GH-Q-M-13527	GH-Q-M-05827	GH-Q-M-15527
12.5[1)]	GH-Q-M-03828	GH-Q-M-13528	GH-Q-M-05828	GH-Q-M-15528
13.0[1)]	GH-Q-M-03829	GH-Q-M-13529	GH-Q-M-05829	GH-Q-M-15529
[1)] Blade only for bore diameter range 11.00 to 11.99				
12.5	GH-Q-M-03840	GH-Q-M-13540	GH-Q-M-05840	GH-Q-M-15540
13.0	GH-Q-M-03841	GH-Q-M-13541	GH-Q-M-05841	GH-Q-M-15541
13.5	GH-Q-M-03842	GH-Q-M-13542	GH-Q-M-05842	GH-Q-M-15542
14.0	GH-Q-M-03843	GH-Q-M-13543	GH-Q-M-05843	GH-Q-M-15543
14.5	GH-Q-M-03844	GH-Q-M-13544	GH-Q-M-05844	GH-Q-M-15544
15.0	GH-Q-M-03845	GH-Q-M-13545	GH-Q-M-05845	GH-Q-M-15545
15.5	GH-Q-M-03846	GH-Q-M-13546	GH-Q-M-05846	GH-Q-M-15546

Spare parts



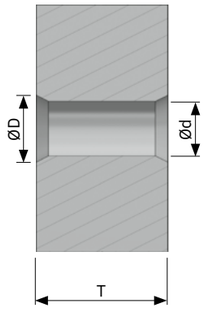
Item	Description	Part no.	
1	SNAP chamfering blade	see above	
2	Control bolt bore Ø range Ø11.0–11.99 mm Ø12.0–17.00 mm	GH-Q-E-0078 GH-Q-E-0002	
3	Tool body	see page 213	
4	Cylinder screw bore Ø range Ø11.00–11.99 mm Ø12.00–17.00 mm Allen key Ø11.00–11.99 mm Ø12.00–17.00 mm	GH-H-S-0127 GH-H-S-0119 GH-H-S-2101 GH-H-S-2100	 not included not included
5	Pressure spring bore Ø range Ø11.00–11.99 mm Ø12.00–17.00 mm	GH-H-F-0019 GH-H-F-0007	
6	Distance pin bore Ø range Ø11.00–11.99 mm Ø12.00–15.49 mm	GH-Q-E-0047 GH-Q-E-0012	
7	Drill head	see page 208	
8	Clamping screw bore Ø range Ø11.00–13.99 mm Torx spanner Ø11.00–13.99 mm	GH-H-S-0038 GH-H-S-2022	 not included

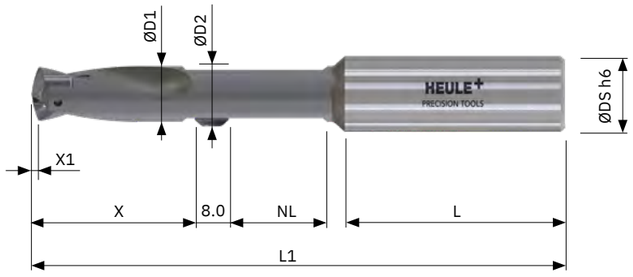
Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX-P Ø14.0 to 17.0 mm | bore depth 1.5xd





Tools and drill heads

Tool **without** drill head, **without** blade. Both must be be selected and ordered separately.

- Drill heads also available in increments of 0.1 mm in diameter.
- Drill heads ending in "A" are for steel alloys; those ending in "D" for aluminium (e.g. P-P-C-1400-1D).
- As standard with cylindrical shank, optional: Weldon "-HB", Whistle Notch "-HE", but not available from stock and not recommended due to possible radial run-out error.

Bore Ø mm	Drill head Part no.	Tool with IC Part no.	Chamfering blade ØD
14.0	P-P-D-1400-1A	GH-Q-O-4256	14.5 / 15.0 / 15.5 / 16.0
14.5	P-P-D-1450-1A	GH-Q-O-4257	15.0 / 15.5 / 16.0 / 16.5
15.0	P-P-D-1500-1A	GH-Q-O-4258	15.5 / 16.0 / 16.5 / 17.0
15.5	P-P-D-1550-1A	GH-Q-O-4259	16.0 / 16.5 / 17.0 / 17.5
16.0	P-P-D-1600-1A	GH-Q-O-4260	16.5 / 17.0 / 17.5 / 18.0
16.5	P-P-D-1650-1A	GH-Q-O-4261	17.0 / 17.5 / 18.0 / 18.5
17.0	P-P-D-1700-1A	GH-Q-O-4261	17.5 / 18.0 / 18.5 / 19.0

Tool dimension table

Bore Ø range mm d	Bore depth T	ØD1	ØD2	ØDS	L	L1	NL	X	X1	Nm	Series
14.00–14.49	21.7	13.8	ØD2 = ØD + 0.6 mm	20h6	52.0	123.4	21.7	37.1	3.1	1.2	D
14.50–14.99	22.5	14.3		20h6	52.0	124.6	22.5	37.8	3.2	1.2	D
15.00–15.49	23.2	14.8		20h6	52.0	125.9	23.2	38.5	3.3	1.2	D
15.50–15.99	24.0	15.3		20h6	52.0	127.2	24.0	39.3	3.4	1.2	D
16.00–16.49	24.7	15.8		20h6	52.0	128.3	24.7	40.0	3.5	1.2	D
16.50–17.00	25.5	16.3		20h6	52.0	129.7	25.5	40.8	3.6	1.2	D

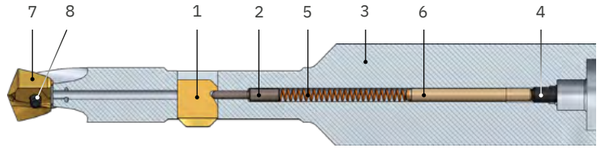
Parts in stock highlighted in green

VEX-P Ø14.0 to 17.0 mm | bore depth 1.5xd

Blade GS geometry 90°

	Part no. forward and backward cutting		Part no. backward cutting only	
max. chamfer Ø mm	Coating A for steel, titanium, Inconel	Coating D for aluminium	Coating A for steel, titanium, Inconel	Coating D for aluminium
14.5	GH-Q-M-03844	GH-Q-M-13544	GH-Q-M-05844	GH-Q-M-15544
15.0	GH-Q-M-03845	GH-Q-M-13545	GH-Q-M-05845	GH-Q-M-15545
15.5	GH-Q-M-03846	GH-Q-M-13546	GH-Q-M-05846	GH-Q-M-15546
16.0	GH-Q-M-03847	GH-Q-M-13547	GH-Q-M-05847	GH-Q-M-15547
16.5	GH-Q-M-03848	GH-Q-M-13548	GH-Q-M-05848	GH-Q-M-15548
17.0	GH-Q-M-03849	GH-Q-M-13549	GH-Q-M-05849	GH-Q-M-15549
17.5	GH-Q-M-03850	GH-Q-M-13550	GH-Q-M-05850	GH-Q-M-15550
18.0	GH-Q-M-03851	GH-Q-M-13551	GH-Q-M-05851	GH-Q-M-15551
18.5	GH-Q-M-03852	GH-Q-M-13552	GH-Q-M-05852	GH-Q-M-15552
19.0	GH-Q-M-03853	GH-Q-M-13553	GH-Q-M-05853	GH-Q-M-15553

Spare parts



Item	Description	Part no.	
1	SNAP chamfering blade	see page above	
2	Control bolt bore Ø range Ø12.0–17.00 mm	GH-Q-E-0002	
3	Tool body	see page 213	
4	Cylinder screw bore Ø range Ø12.00–17.00 mm Allen key Ø12.00–17.00 mm	GH-H-S-0119 GH-H-S-2100	 not included
5	Pressure spring bore Ø range Ø12.00–17.00 mm	GH-H-F-0007	
6	Distance pin bore Ø range Ø12.00–15.49 mm Ø 15.50–17.00 mm	GH-Q-E-0012 GH-Q-E-0022	
7	Drill head	see page 210	
8	Clamping screw bore range Ø14.00–17.00 mm Torx spanner Ø14.00–17.00 mm	GH-H-S-0035 GH-H-S-2023	 not included

Programming
Page 193

Cutting data
Page 193

Tool Selector –
Product selection made easy
heule.com/en/tool-selector/vex

VEX

VEX FAQ

Question	Causes	Remedy
Built-up edge	• Cutting speed too low • Insufficient cooling / lubrication • Incorrect coating for the material	• Increase cutting speed • Increase coolant pressure • Select another coating
Chip jam	• Working feed rate too high for chip removal • Drill insert too short for bore depth • Insufficient cooling	• Reduce working feed rate • With VEX-S, use a longer drill insert or improve drilling cycle • Increase coolant pressure
Large burr formation at the exit of the bore	• Cutting values too high • Insufficient cooling • Drill insert/head worn	• Reduce cutting speed • Increase coolant pressure • Replace drill insert/head
Fluctuating accuracy	• Working feed rate too high • Insufficient cooling • Spindle/setup not stable	• Reduce working feed rate • Increase coolant pressure • Check radial run-out • Check spindle and setup stability
Poor surface quality	• Incorrect cutting values • Insufficient cooling • Spindle/setup not stable • Drill insert/head worn	• Increase or reduce working feed rate and cutting speed • Increase coolant pressure • Check radial run-out • Check spindle and setup stability • Replace drill insert or head • Improve drilling process
Vibration / chatter	• Incorrect cutting values • Insufficient cooling • Spindle/setup not stable	• Increase or reduce the cutting speed • Increase or reduce the working feed rate • Increase coolant pressure • Check radial run-out • Check spindle and setup stability
Wear on cutting edge	• Incorrect cutting values • Insufficient cooling • Spindle/setup not stable	• Increase cutting speed • Reduce working feed rate • Increase coolant pressure • Check spindle and setup stability
Wear on cross-cutting edge	• Working feed rate too high • Insufficient cooling • Spindle/setup not stable	• Reduce working feed rate • Increase coolant pressure • Check spindle and setup stability

VEX FAQ – continued

Question	Causes	Remedy
Wear on guiding section	• incorrect cutting values • Insufficient cooling • Spindle/setup not stable	• Reduce cutting speed • Reduce working feed rate • Increase coolant pressure • Check radial run-out • Check spindle and setup stability
Break of cutting edge	• incorrect cutting values • Insufficient cooling • Spindle/setup not stable	• Increase cutting speed • Increase coolant pressure • Check spindle and setup stability
Break of top of drill insert	• Working feed rate too high • Insufficient cooling • Spindle/setup not stable	• Reduce working feed rate • Increase coolant pressure • Check spindle and setup stability
No chamfer or chamfer not consistent	see FAQ for SNAP on page 100	

VEX-P spare parts – Tool body

Item	Description	Part no.
3	Tool body bore Ø range Ø 11.00–11.49 mm	GH-Q-G-4250
	Ø 11.50–11.99 mm	GH-Q-G-4251
	Ø 12.00–12.49 mm	GH-Q-G-4252
	Ø 12.50–12.99 mm	GH-Q-G-4253
	Ø 13.00–13.49 mm	GH-Q-G-4254
	Ø 13.50–13.99 mm	GH-Q-G-4255
	Ø 14.00–14.49 mm	GH-Q-G-4256
	Ø 14.50–14.99 mm	GH-Q-G-4257
	Ø 15.00–15.49 mm	GH-Q-G-4258
	Ø 15.50–15.99 mm	GH-Q-G-4259
	Ø 16.00–16.49 mm	GH-Q-G-4260
	Ø 16.50–17.00 mm	GH-Q-G-4261