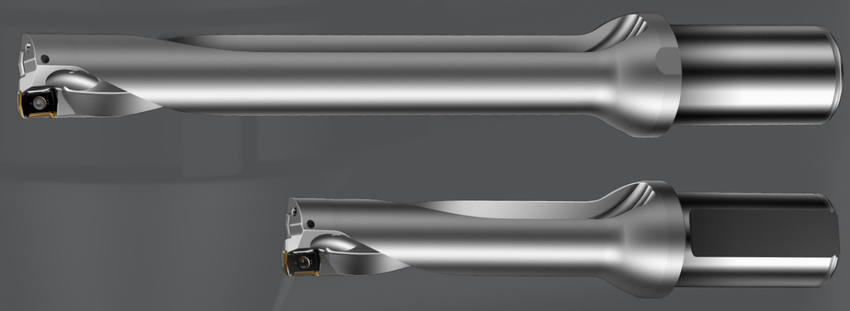
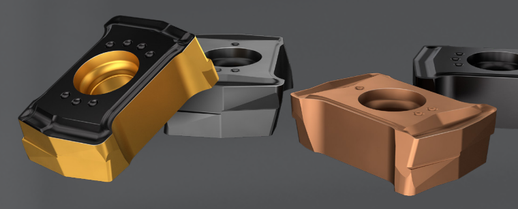
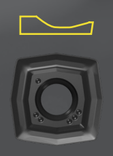
CoroDrill® DS20

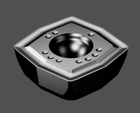
What innovation looks like

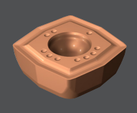


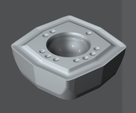


Geometries and grades: Central insert





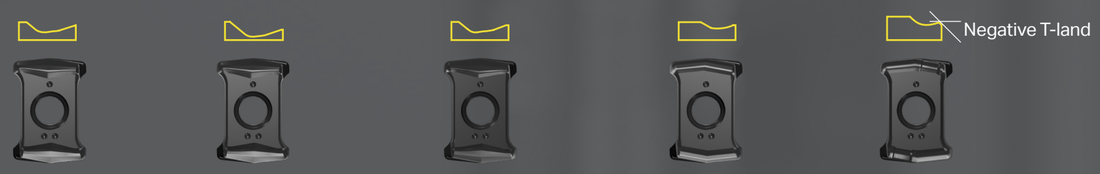




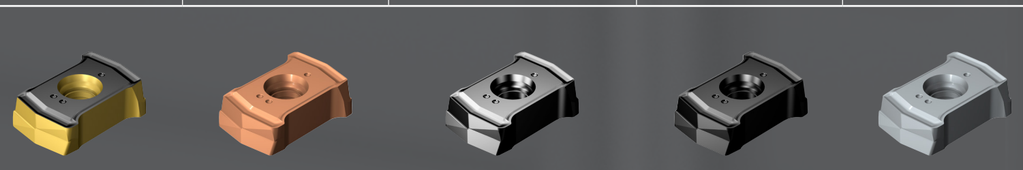
-L5	-M7
P M N S H	P K

GC1344	GC1144	H13A
P K S H	M S	N S

Geometries and grades: Peripheral insert

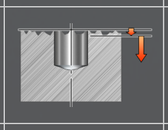
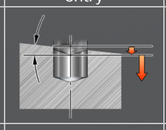
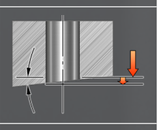
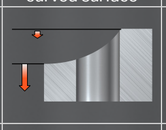
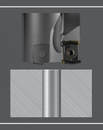
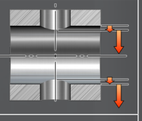


-S5W	-L5W	-L6W	-M7W	-H5W
N S	P M	P M K N S H	P K	P M

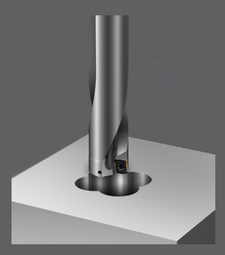


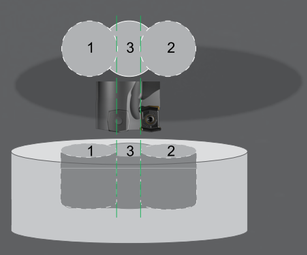
GC4334	GC2044	GC4344	GC4324	H13A
P K	M S	S H	P K	N S

Advanced operations: How to apply

		Irregular surface	Angled surface entry	Angled surface exit	Asymmetrically curved surface	Pre-drilled holes	Cross holes
Cut data	L×DC						
v_c	4–5	Start values	Lowest rec.	Start values	Start values	Start values	Start values
	6–7				Not rec.		
f_n	4–5	Lowest rec.	1/3 of lowest rec.	Lowest rec.	1/3 of lowest rec.		Lowest rec.
	6–7				Not rec.		
Preconditions		Not rec. for 6–7×DC if concave radius ≤ drill radius	4–5 × DC: angle ≤ 15° 6–7 × DC: angle ≤ 10°	4–5 × DC: angle ≤ 15° 6–7 × DC: angle ≤ 5°	Radius of curved surface > drill radius	Pre-drilled hole ≤ DC/4	Not rec. in long-chipping materials

Advanced operations: Plunge drilling (4–5×DC)



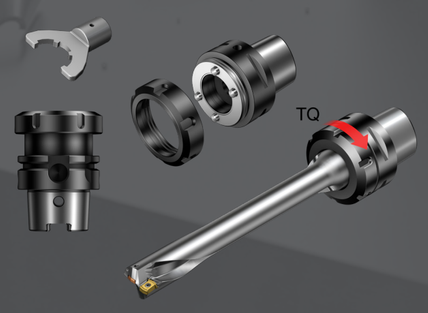


- Drill solid holes first (1 and 2) with recommended cutting data
- Webbed holes (3): Use lowest recommended feed with soft entry
- Edge plunging, ensure 70% of the drill diameter is in engagement

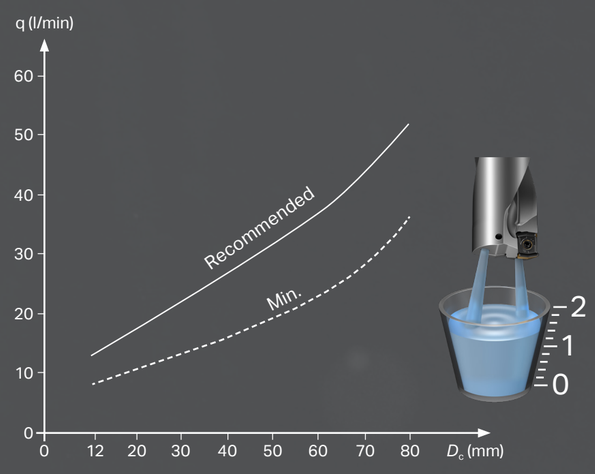
MDI: Tool holder assembly

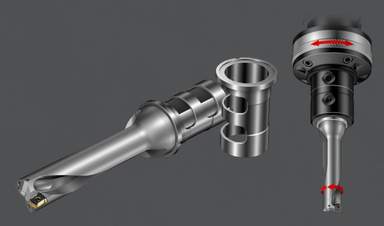
Diameter, mm	MDI size	Key	Torque, Nm
15.00–17.43	20 (ER 32)	5680 103-05	135
17.44–25.99	25 (ER 40)	5680 103-06	170
26.00–31.99	32	5680 103-07	200
32.00–43.99	40	5680 103-08	230
44.00–65.00	50	5680 103-09	250

Torque wrench recommendation:
ER-TK-02M (key interface 16) 60–300 Nm



Coolant flow recommendation





An eccentric sleeve or drilling adaptor can be used to get close hole tolerances or to change the tool dimension.

You can find the max. radial adjustment (ADJLX) in the catalog or webshop
Note: Not recommended for 6–7×DC

First choice

		First choice		Complementary choice	
		Central insert	Peripheral insert	Central insert	Peripheral insert
Low-carbon steel , P1	P	P1.1–1.2: -L5 1344 P1.3–1.5: -M7 1344	P1.1: -H5W 4334 P1.2: -L5W 4334 P1.3–1.5: -M7W 4334	-L5 1344	-L5W 4324 -L5W 4334 -L5W 4344 -H5W 4344 -M7W 4324 -M7W 4344
Low-alloy steel, P2	P	-M7 1344	-M7W 4334	-M7 1344	-M7W 4324 -M7W 4344
Stainless steel	M	-L5 1144	-H5W 2044	-L5 1144	-L5W 2044 -L5W 4344 -H5W 4344
Cast iron	K	-M7 1344	-M7W 4334	-M7 1344	-M7W 4324 -M7W 4344
Non-ferrous material	N	-L5 H13A	-S5W H13A	-L5 1344	-L5W 4344
HRSA	S	-L5 1344	-L6W 4344 (Inconel) -S5W 4344 (Titanium)	-L5 H13A	-L5W H13A -S5W H13A
Hardened steels	H	-L5 1344	-L6W 4344	-M7 1344	-M7W 4344

Hole tolerance

Drill depth: 4–5×DC	Drill diameter, mm	15.00–18.00	18.01-30.00	30.01–65.00
	Hole tolerance, mm	0/+0.27	0/+0.33	0/+0.35

Drill depth: 6–7×DC	Drill diameter, mm	15.00–18.00	18.01–30.00	30.01–65.00
	Hole tolerance, mm	-0.1/+0.5		

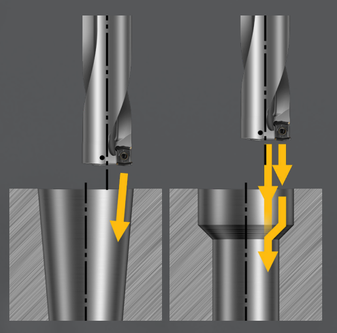
Drilling strategy for deep holes (6–7×DC)

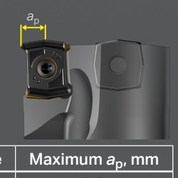
Use CoroPlus® Tool Guide for recommendations to apply soft entry and exit to maintain the hole tolerance:
1. Entry feed: f_n×75%; Length of entry: 1 mm
2. Recommended feed
3. Exit feed: 0.05 mm/rev; Length of exit: 3–5 mm

v_c remains the same through all sections

Non-rotating: Turning

Drilling strategy
- 4–5 × DC: Normal cutting data
- 6–7 × DC: Use 50% of cutting data recommendations and depth of cut

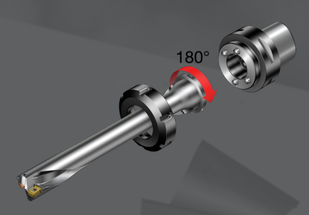


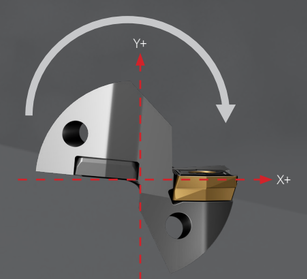


Insert size	Maximum a_p, mm
01	2.6
02	3.2
03	3.9
04	4.9
05	6.0
06	7.7
07	9.7

Non-rotating: Troubleshooting

If hole is undersized in an unaligned machine, flipping the tool 180 degrees (if possible) can solve the problem.





Spare parts

Drill dimension, mm	Insert size	Screw size	Screw	TORXPLUS® keygrip	Torque Nm	Bits TORXPLUS®	Torque screwdriver for bits (adjustable torque)	Torque screwdriver (preset torque)	Fixed screwdriver
15.00–18.00	01	M2.0	5513 020-27	6 IP	0.6	5680 084-17	5680 105-01	5680 100-01	5680 046-08
18.01–22.00	02	M2.2	5513 020-88	7 IP	0.9	5680 084-18	5680 105-01	5680 100-02	5680 046-03
22.01–27.00	03	M2.5	5513 020-58	7 IP	0.9	5680 084-18	5680 105-01	5680 100-02	5680 046-03
27.01–33.00	04	M3.0	5513 020-57	9 IP	1.4	5680 084-20	5680 105-02	5680 100-04	5680 046-04
33.01–40.00	05	M3.5	416.1-833	10 IP	2.0	5680 084-21	5680 105-02	5680 100-05	5680 046-05
40.01–52.00	06	M4.0	416.1-834	15 IP	3.0	5680 084-15	5680 105-02	5680 100-06	5680 046-02
52.01–65.00	07								

Note: TORXPLUS® bits to be used with adjustable torque.

Surface finish

Feed	R_a, µm	R_z (ISO), µm
Low	Down to 0.5	3.8
Medium	0.8–2	6.1–15.2
High	2–4	15.2–30.4

Tailor Made

Further optimization to your exact specification is possible with Tailor Made.

Use CoroPlus® Tool Guide for cutting data recommendations and details specific to your application.

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