

HAHN+KOLB
GROUP



LET'S WORK TOGETHER.

**RANGE EXPANDED FOR
EVEN MORE POWER**

HARD MILLING

ATORN ROCKTEC PRO – TRUE, INHERENT POWER

***ATORN* ROCKTEC PRO MILLING CUTTER**

TRUE, INHERENT POWER

Hard milling is a practical method for reducing production costs, as even steels with a hardness up to 70 HRC can be effortlessly milled into shape. Hard machining therefore provides significant optimisation and has many benefits, in particular improved surface and shorter production times, as the workpieces can be machined in a single clamping operation, rather than the conventional milling, hardening and sanding processes. At the same time, no subsequent hardening is required, meaning there is no thermal distortion. The combination of cutting material, geometry and coating is important for the perfect result.

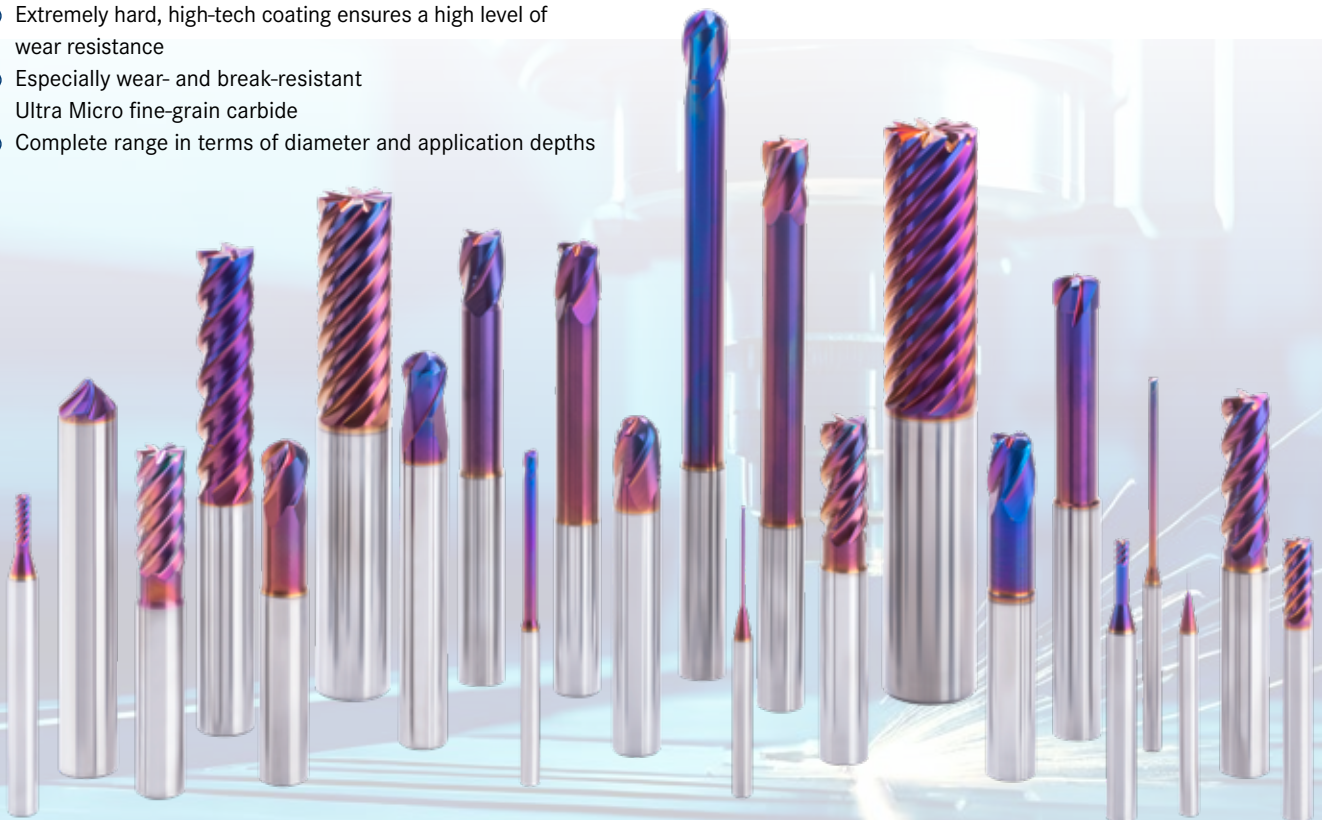
The new ATORN solid carbide milling cutters for use up to 67 HRC set a completely new standard in machining. Especially long service lives, high precision and excellent surface quality are characteristic for

the entire RockTec PRO product line. The high-performance tools are characterised by an extremely wear-resistant coating and a geometry with a rake specially designed for hard milling.

The new RockTec PRO TiAlSiN multi-layer coating, exclusively developed for ATORN, boasts extreme hardness and minimal friction for optimal results. The coating can be used for many different milling applications and is ideal for machining steels < 1,400 N/mm, < 55 HRC, < 60 HRC and < 67 HRC. The wide range of products from our RockTec PRO line includes all geometries with maximum precision. The full range contains end mills, torus milling cutters and ball nose end mills and covers a diameter range from 0.1-20 mm, yielding some 800 milling tools for a wide variety of machining tasks.

THE ADVANTAGES AT A GLANCE

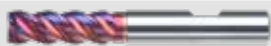
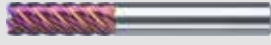
- ⊕ Outstanding service life, surface quality and high precision
- ⊕ Optimised rake for hard milling
- ⊕ Stable design with increased core diameter
- ⊕ Extremely hard, high-tech coating ensures a high level of wear resistance
- ⊕ Especially wear- and break-resistant
Ultra Micro fine-grain carbide
- ⊕ Complete range in terms of diameter and application depths



ATORN Performance needs quality



SOLID CARBIDE END MILL FOR HARD MACHINING

Type	Dia. range	Number of teeth	Overall length	Shank shape	Number			Page
Miniature end mills	0.2–3 mm	2	Long neck	HA	16950 001-121			9
End mills T=2	1–20 mm	2	Standard	HA	16950 450-470			7
End mills	3–20 mm	4	Standard	HA	16950 200-216			11
End mills	3–20 mm	4	Long	HA	16950 220-236			11
End mills	3–20 mm	4	Extra-long	HA	16950 240-256			11
HPC chamfer end mills	4–20 mm	4	Short	HB	16950 300-314	HPC		ONLINE
HPC chamfer end mills	4–20 mm	4	Standard	HB	16950 320-334	HPC		13
HPC ball nose end mills	4–20 mm	4	Standard	HA	16950 340-354	HPC		13
HPC chamfer end mills	4–20 mm	4	Long	HB	16950 360-374	HPC		13
HPC ball nose end mills	4–20 mm	4	Long	HA	16950 380-394	HPC		13
TVC end mills 3xD	6–20 mm	5	Long	HB	16950 650-660	TVC		15
TVC end mills 4xD	6–20 mm	4	Extra-long	HB	16950 680-690	TVC		15
Multi-tooth mills	3–20 mm	6–10	Short	HA	16950 500-516			17
Multi-tooth mills	3–20 mm	6–10	Standard	HA	16950 550-586			17
Multi-tooth mills	3–20 mm	6–10	Long	HA	16950 600-616			17
Miniature torus milling cutters	0.2–3 mm	2	Long neck	HA	16952 001-133			ONLINE
Torus milling cutters	1–16 mm	4	Standard	HA	16952 200-282			19
Torus milling cutters	1–16 mm	4	Long	HA	16952 300-472			20
Torus multi-tooth mills	3–20 mm	6–10	Short	HA	16952 500-568			23
Torus multi-tooth mills	3–20 mm	6–10	Standard	HA	16952 600-648			24
Torus multi-tooth mills	3–20 mm	6–10	Long	HA	16952 700-746			ONLINE
High-feed milling cutters	2–16 mm	4	Standard	HA	16952 800-816	HSC		ONLINE
High-feed milling cutters	2–12 mm	4	Long	HA	16952 830-844	HSC		ONLINE
Miniature ball nose end mills	0.1–3 mm	2	Long neck	HA	16954 001-099			ONLINE
Ball nose end mills	1–20 mm	2	Short	HA	16954 200-225			27
Ball nose end mills	1–20 mm	2	Standard	HA	16954 250-274			ONLINE
Ball nose end mills	1–20 mm	2	Long	HA	16954 300-520			ONLINE
Ball nose end mills	1–20 mm	4	Short	HA	16954 350-375			27
Ball nose end mills	1–20 mm	4	Standard	HA	16954 400-424			ONLINE
Solid carbide deburring tool, spiral	6–16 mm	6	Standard	HA	16950 400-408			7

All the tools can be found in the main catalogue and are available online at www.hahn-kolb.de.

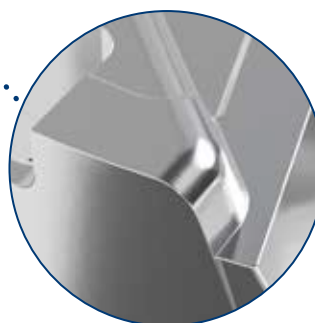
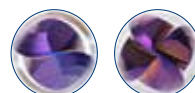
***ATORN* ROCKTEC PRO MILLING CUTTER**

TRUE, INHERENT POWER



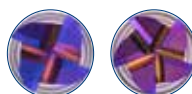
SOLID CARBIDE FULL RADIUS CUTTER

- Semi-finishing, finishing and for HSC finishing in die and mould making
- μ -precise full radius geometry
- Complete range in terms of diameter and application depths



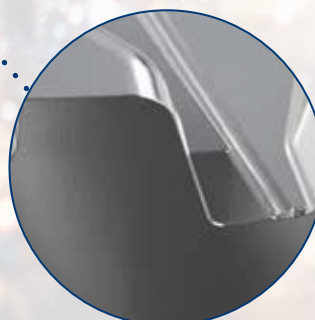
TVC END MILL

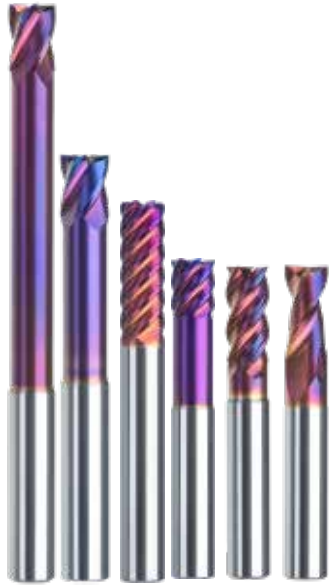
- Trochoidal milling in materials up to 67 HRC
- Optimised groove profile and increased core diameter



CHAMFER MILL

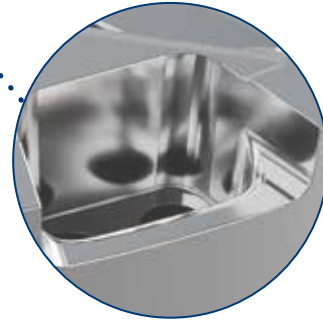
- Milling in materials up to 67 HRC
- Extremely hard, high-tech coating ensures a high level of wear resistance





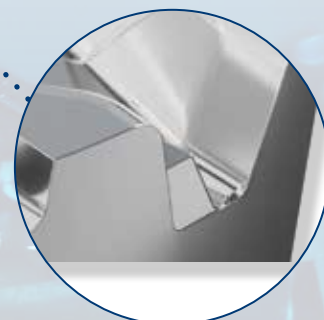
SOLID CARBIDE END MILL

- Hard milling in general mechanical engineering, tool manufacturing and mould making
- Broad range of applications
- Optimised rake for hard milling



SOLID CARBIDE TORUS MILLING CUTTER

- Ideal for die and mould making
- Stable design with increased core diameter
- Outstanding service life, surface quality and high precision



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SOLID CARBIDE END MILL

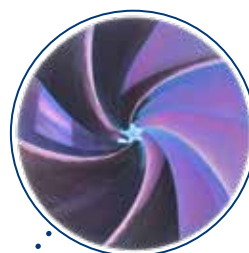
**HARD MILLING IN GENERAL
MECHANICAL ENGINEERING,
TOOL MANUFACTURING AND
MOULD MAKING**



Application:

End mills for processing materials up to 67 HRC, e.g. in die and mould making. The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



ATORN

SOLID CARBIDE

CHAMFER MILL 90°

**CHAMFER MILLING IN
MATERIALS UP TO
67 HRC**



Application:

For producing 45° chamfers and for deburring up to 67 HRC.

**TWO CUTTING
EDGES**

**OPTIMISED
GROOVE PROFILE**

Improves chip removal

**INCREASED
CORE
DIAMETER**

Stable core diameter
reduces vibrations

45° CHAMFERS

**ROCKTEC PRO
COATING**

For use in materials up to 67 HRC

ATORN®

SOLID CARBIDE END MILL



Two cutting edges with RockTec PRO coating

Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Chip angle: 0°



							Tool holder	Straight shank, HA	
							Cutting diameter tolerance	f8	
							Shank diameter tolerance	h5	
							Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.
1	3	-	57	-	6	0.02	2	0.011	450
2	5	12	57	1.8	6	0.03	2	0.019	452
3	8	15	57	2.8	6	0.04	2	0.024	454
4	11	15	57	3.8	6	0.05	2	0.037	456
5	13	18	57	4.8	6	0.06	2	0.042	458
6	16	20	57	5.8	6	0.07	2	0.047	460
8	19	27	63	7.8	8	0.08	2	0.057	462
10	22	32	72	9.8	10	0.1	2	0.067	464
12	26	36	83	11.8	12	0.13	2	0.077	466
16	32	42	92	15.7	16	0.18	2	0.092	468
20	38	52	104	19.7	20	0.2	2	0.117	470

ATORN®

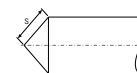
SOLID CARBIDE CHAMFER MILL 90°, SPIRAL



for use in materials up to 67 HRC

Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- Type H
- Chip angle: 0°

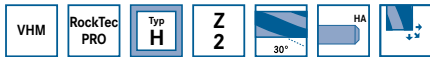


						Chamfer angle	90
						Shank diameter tolerance	h5
						Surface	RockTec PRO
						Type	H
Cutting diameter (mm)	S (mm)	Length (mm)	Shank diameter (mm)	Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.	
6	2.5	57	6	5	0.03	400	
8	3.5	63	8	5	0.05	402	
10	4.5	72	10	5	0.05	404	
12	5.5	83	12	5	0.05	406	
16	7.5	93	16	5	0.075	408	

ATORN

SOLID CARBIDE MINIATURE END MILL

PRECISE HARD MILLING OF SOPHISTICATED STRUCTURES



Application:

Miniature end mill with a long neck for precise machining of sophisticated structures in materials up to 67 HRC, e.g. in die and mould making. The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



**CLEARANCE LENGTH UP
TO 20xD DELIVERABLE**



ROCKTEC PRO COATING

High-performance, silicon-based PVD coating extends the service life and is optimised for higher cutting speeds

SPECIAL CUTTING EDGE FINISH

Reduces wear and enables considerably higher application values

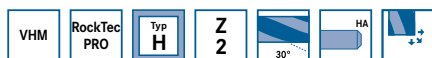
HIGHLY PRECISE MANU- FACTURING TOLERANCE

+/- 0.005 mm for precise machining results and maximum repeat accuracy

IMPROVED TOOL GEOMETRY

Increases the stability and rigidity of the tool

ATORN®



SOLID CARBIDE MINIATURE END MILL

Two cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Chip angle: 0°

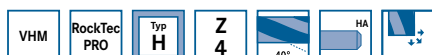
Tool holder								Straight shank, HA
Cutting diameter tolerance								f8
Shank diameter tolerance								h5
						Teeth (no.)	fz hardness 65 HRC (mm)	16950... Ref. no.
0.2	0.3	0.5	0.7	1.0	1.5	4	2	0.003
0.2	0.3	1	1.5	2	3	4	2	0.003
0.2	0.3	1.5	2	3	4	4	2	0.003
0.2	0.3	3	4	6	10	4	2	0.003
0.3	0.4	0.5	0.7	1.0	1.5	4	2	0.004
0.3	0.4	1	1.5	2	3	4	2	0.004
0.3	0.4	2	3	4	6	4	2	0.004
0.3	0.4	4	6	10	15	4	2	0.004
0.4	0.6	1	1.5	2	3	4	2	0.006
0.4	0.6	2	3	4	6	4	2	0.006
0.4	0.6	4	6	10	15	4	2	0.006
0.4	0.6	6	10	15	20	4	2	0.006
0.5	0.7	1	1.5	2	3	4	2	0.007
0.5	0.7	2	3	4	6	4	2	0.007
0.5	0.7	4	6	10	15	4	2	0.007
0.5	0.7	6	10	15	20	4	2	0.007
0.6	0.9	1	1.5	2	3	4	2	0.008
0.6	0.9	2	3	4	6	4	2	0.008
0.6	0.9	4	6	10	15	4	2	0.008
0.6	0.9	6	10	15	20	4	2	0.008
0.8	1.2	2	3	4	6	4	2	0.009
0.8	1.2	4	6	10	15	4	2	0.009
0.8	1.2	6	10	15	20	4	2	0.009
0.8	1.2	8	12	15	20	4	2	0.009
1	1.5	2	3	4	6	4	2	0.011
1	1.5	4	6	10	15	4	2	0.011
1	1.5	6	10	15	20	4	2	0.011
1	1.5	8	12	15	20	4	2	0.011
1	1.5	10	15	20	25	4	2	0.011
1	1.5	12	15	20	25	4	2	0.011
1	1.5	14	15	20	25	4	2	0.011
1	1.5	16	15	20	25	4	2	0.011
1	1.5	18	15	20	25	4	2	0.011
1	1.5	20	15	20	25	4	2	0.011
1.2	1.8	2	3	4	6	4	2	0.013
1.2	1.8	4	6	10	15	4	2	0.013
1.2	1.8	6	10	15	20	4	2	0.013
1.2	1.8	8	12	15	20	4	2	0.013

Tool holder								Straight shank, HA
Cutting diameter tolerance								f8
Shank diameter tolerance								h5
						Teeth (no.)	fz hardness 65 HRC (mm)	16950... Ref. no.
1.2	1.8	10	15	20	25	4	2	0.013
1.2	1.8	12	15	20	25	4	2	0.013
1.5	2.3	3	4	6	10	4	2	0.015
1.5	2.3	4	6	10	15	4	2	0.015
1.5	2.3	6	10	15	20	4	2	0.015
1.5	2.3	8	12	15	20	4	2	0.015
1.5	2.3	10	15	20	25	4	2	0.015
1.5	2.3	12	15	20	25	4	2	0.015
2	3	4	6	10	15	4	2	0.019
2	3	6	10	15	20	4	2	0.019
2	3	8	12	15	20	4	2	0.019
2	3	10	15	20	25	4	2	0.019
2	3	12	15	20	25	4	2	0.019
2	3	14	15	20	25	4	2	0.019
2	3	16	15	20	25	4	2	0.019
2	3	20	15	20	25	4	2	0.019
2	3	25	15	20	25	4	2	0.019
2	3	30	15	20	25	4	2	0.019
2	3	35	15	20	25	4	2	0.019
2	3	40	15	20	25	4	2	0.019
2.5	3.7	6	10	15	20	4	2	0.021
2.5	3.7	8	12	15	20	4	2	0.021
2.5	3.7	10	15	20	25	4	2	0.021
2.5	3.7	15	15	20	25	4	2	0.021
2.5	3.7	20	15	20	25	4	2	0.021
2.5	3.7	30	15	20	25	4	2	0.021
3	4.6	6	10	15	20	4	2	0.024
3	4.6	8	12	15	20	4	2	0.024
3	4.6	10	15	20	25	4	2	0.024
3	4.6	12	15	20	25	4	2	0.024
3	4.6	14	15	20	25	4	2	0.024
3	4.6	16	15	20	25	4	2	0.024
3	4.6	18	15	20	25	4	2	0.024
3	4.6	20	15	20	25	4	2	0.024
3	4.6	25	15	20	25	4	2	0.024
3	4.6	30	15	20	25	4	2	0.024
3	4.6	35	15	20	25	4	2	0.024
3	4.6	40	15	20	25	4	2	0.024

ATORN

SOLID CARBIDE END MILL

**HARD MILLING IN GENERAL
MECHANICAL ENGINEERING,
TOOL MANUFACTURING AND
MOULD MAKING**

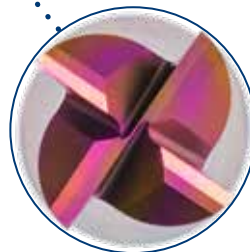
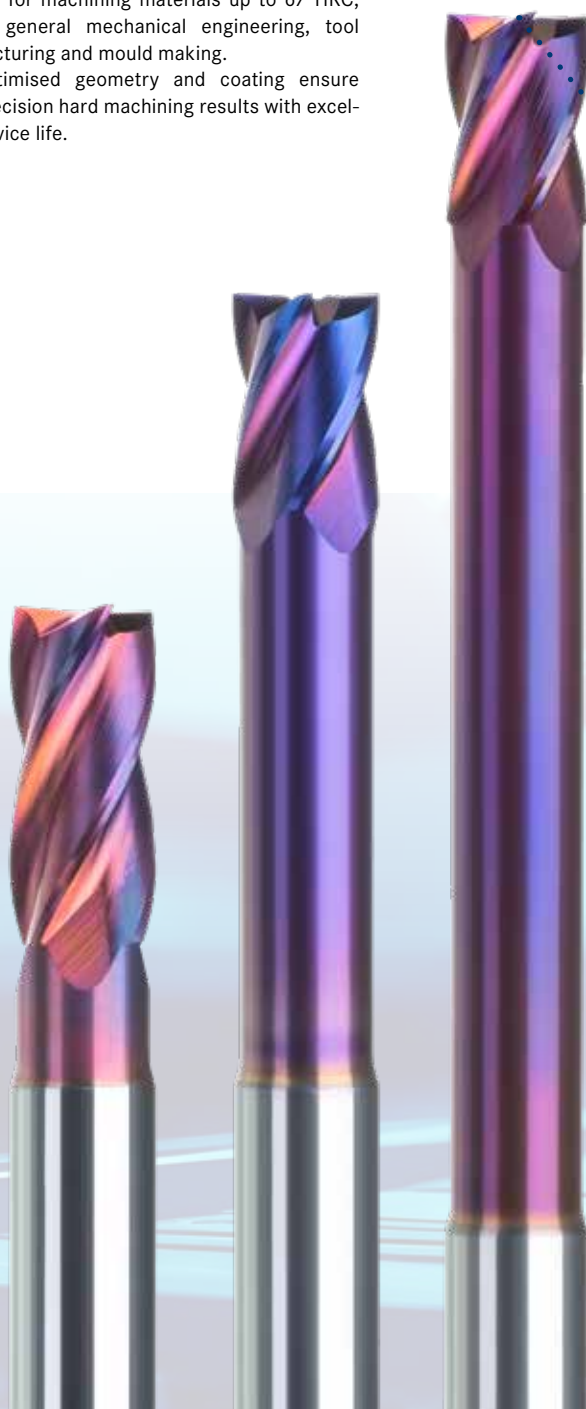


Application:

End mill for machining materials up to 67 HRC, e.g. in general mechanical engineering, tool manufacturing and mould making.

The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND CUTTING VALUES CAN BE FOUND IN OUR SHOP.



STABLE CUTTING EDGE

Stable, relief-ground cutting edges with equal pitch

ROCKTEC PRO COATING

High-performance, silicon-based PVD coating extends the service life and is optimised for higher cutting speeds

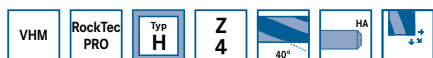
ULTRA MICRO FINE-GRAIN CARBIDE

Optimised carbide type with excellent properties in terms of hardness and bending strength

ATORN®

SOLID CARBIDE END MILL

Four cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Chip angle: 0°



Standard version

							Tool holder	Straight shank, HA
						Cutting diameter tolerance	f8	
						Shank diameter tolerance	h5	
 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.
3	9	15	57	2.8	6	4	0.024	200
4	12	17	57	3.7	6	4	0.037	202
5	15	19	57	4.6	6	4	0.042	204
6	16	20	57	5.5	6	4	0.047	206
8	20	25	63	7.4	8	4	0.057	208
10	22	30	72	9.2	10	4	0.067	210
12	25	36	83	11	12	4	0.077	212
16	32	42	92	15	16	4	0.092	214
20	38	52	104	19	20	4	0.117	216

Long version

3	5	30	75	2.8	6	4	0.024	220
4	8	32	75	3.7	6	4	0.037	222
5	9	32	75	4.6	6	4	0.042	224
6	10	36	75	5.5	6	4	0.047	226
8	12	36	75	7.4	8	4	0.057	228
10	14	52	100	9.2	10	4	0.067	230
12	16	52	100	11	12	4	0.077	232
16	22	72	125	15	16	4	0.092	234
20	26	72	125	19	20	4	0.117	236

Extra-long version

3	5	60	100	2.8	6	4	0.024	240
4	8	60	100	3.7	6	4	0.037	242
5	9	60	100	4.6	6	4	0.042	244
6	10	60	100	5.5	6	4	0.047	246
8	12	60	100	7.4	8	4	0.057	248
10	14	83	125	9.2	10	4	0.067	250
12	16	100	150	11	12	4	0.077	252
16	22	100	150	15	16	4	0.092	254
20	26	100	150	19	20	4	0.117	256

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SOLID CARBIDE HPC END MILL

HIGH-PERFORMANCE HARD MILLING IN GENERAL MECHANICAL ENGINEERING, TOOL MANUFACTURING AND MOULD MAKING

FURTHER DIMENSIONS, DETAILS AND CUTTING VALUES CAN BE FOUND IN OUR SHOP.



Application:

High-performance HPC end mill for hard machining of materials up to 67 HRC in general mechanical engineering, tool manufacturing and mould making.
Optimal application in trochoidal milling and in edge, corner and groove machining.



REDUCED VIBRATIONS

Fewer vibrations due to the unequal pitch of the cutting edges

BROAD RANGE OF APPLICATIONS

Optimal application in trochoidal milling and in edge, corner and groove machining

OPTIMAL CORNER PROTECTION

Versions with corner protection chamfer or corner radius deliverable

ROCKTEC PRO COATING

High-performance, silicon-based PVD coating extends the service life and is optimised for higher cutting speeds

ATORN®

SOLID CARBIDE HPC END MILL

Four cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA and HB shank in accordance with DIN 6535
- With clearance and centre cutting
- Cutting edge with unequal pitch
- Optimised cutting edge design with radius or 45° chamfer
- Chip angle: 0°



Standard version

										Tool holder	HB straight shank	Straight shank, HA
										Cutting diameter tolerance	f8	f8
										Shank diameter tolerance	h5	h5
								Teeth (no.)	fz hard- ness 65 HRC ● (mm)	16950... Ref. no.	16950... Ref. no.	
mm	mm	mm	mm	mm	mm	mm	mm					
4	11	16	57	3.8	6	0.05	-	4	0.037	320	-	
4	11	16	57	3.8	6	-	0.1	4	0.037	-	340	
5	13	18	57	4.7	6	0.1	-	4	0.042	322	-	
5	13	18	57	4.7	6	-	0.1	4	0.042	-	342	
6	13	20	57	5.5	6	0.1	-	4	0.047	324	-	
6	13	20	57	5.5	6	-	0.1	4	0.047	-	344	
8	21	25	63	7.4	8	0.1	-	4	0.057	326	-	
8	21	25	63	7.4	8	-	0.2	4	0.057	-	346	
10	22	30	72	9.2	10	0.15	-	4	0.067	328	-	
10	22	30	72	9.2	10	-	0.2	4	0.067	-	348	
12	26	35	83	11	12	0.15	-	4	0.077	330	-	
12	26	35	83	11	12	-	0.3	4	0.077	-	350	
16	36	40	92	15	16	0.15	-	4	0.092	332	-	
16	36	40	92	15	16	-	0.3	4	0.092	-	352	
20	41	50	104	19	20	0.25	-	4	0.117	334	-	
20	41	50	104	19	20	-	0.3	4	0.117	-	354	

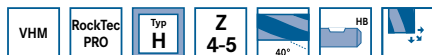
Long version

4	16	21	62	3.8	6	0.05	-	4	0.037	360	-
4	16	21	62	3.8	6	-	0.1	4	0.037	-	380
5	17	22	62	4.7	6	0.1	-	4	0.042	362	-
5	17	22	62	4.7	6	-	0.1	4	0.042	-	382
6	18	23	62	5.5	6	0.1	-	4	0.047	364	-
6	18	23	62	5.5	6	-	0.1	4	0.047	-	384
8	24	30	68	7.4	8	0.1	-	4	0.057	366	-
8	24	30	68	7.4	8	-	0.2	4	0.057	-	386
10	30	35	80	9.2	10	0.15	-	4	0.067	368	-
10	30	35	80	9.2	10	-	0.2	4	0.067	-	388
12	36	45	93	11	12	0.15	-	4	0.077	370	-
12	36	45	93	11	12	-	0.3	4	0.077	-	390
16	48	55	108	15	16	0.15	-	4	0.092	372	-
16	48	55	108	15	16	-	0.3	4	0.092	-	392
20	60	70	126	19	20	0.25	-	4	0.117	374	-
20	60	70	126	19	20	-	0.3	4	0.117	-	394

ATORN

SOLID CARBIDE TVC END MILL

TROCHOIDAL MILLING IN MATERIALS UP TO 67 HRC



Application:

The TVC end mills are optimally suited for machining with modern milling strategies.

Cutting edge lengths of 3xD and 4xD, reinforced cores and specially developed chip breaker geometries allow for deep application depths with maximum process reliability.

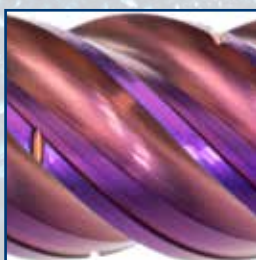
FURTHER DIMENSIONS, DETAILS AND CUTTING VALUES CAN BE FOUND IN OUR SHOP.



**3xD =
5 CUTTING
EDGES**

CHIP BREAKER GEOMETRY

Produces short chips,
thereby optimising chip removal



**4xD =
4 CUTTING EDGES**

CAD-OPTIMISED GROOVE PROFILE

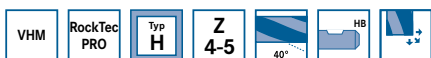
An optimised groove profile and increased core diameter increase the stability and improve chip removal

LOW WEAR

All tools are manufactured with an edge protection radius to protect against wear

ATORN®

SOLID CARBIDE TVC END MILL, „TROCHOIDAL“ - HARD



4-5 cutting edges with RockTec PRO coating

Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- Straight shank in accordance with DIN 6535 HB
- Centre cutting and edge protection radius
- Special chip breakers for short chips
- Uneven helix angle



3xD version



4xD version

							Tool holder	HB straight shank	
							Cutting diameter tolerance	f7	
							Shank diameter tolerance	h5	
 mm	 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.
6	19	25	65	5.8	6	0.1	5	0.05	650
8	26	30	68	7.8	8	0.2	5	0.06	652
10	32	35	80	9.8	10	0.2	5	0.07	654
12	38	45	93	11.8	12	0.3	5	0.08	656
16	50	55	110	15.8	16	0.3	5	0.1	658
20	62	70	126	19.8	20	0.3	5	0.13	660

					Teeth (no.)	fz hardness 65 HRC  (mm)	16950... Ref. no.
6	25	70	6	0.1	4	0.05	680
8	34	80	8	0.2	4	0.06	682
10	42	95	10	0.2	4	0.07	684
12	50	105	12	0.3	4	0.08	686
16	66	125	16	0.3	4	0.1	688
20	82	150	20	0.3	4	0.13	690



TVC = TROCHOIDAL VOLUME CUTTING



WHAT IS TROCHOIDAL MILLING?

Particularly during roughing, this milling strategy results in smarter and more efficient tool paths. This means that more material can be removed in a shorter time - without any loss of quality. Overlapping a circular path on the feed movement has a positive influence on contact conditions. Reducing stepover while at the same time utilising the entire cutting edge length results in the process forces being significantly reduced.

ADVANTAGES:

- Cutting depths of 3-4xD can be easily achieved
- Optimised and controlled tool engagement
- Almost constant engagement angle (max. 70°) and average chip thickness
- Reduced loads on the tool/spindle/bearings
- Extremely aggressive cutting parameters can be selected

Static: Only grooves are milled. The tool paths consist exclusively of circular tool paths.

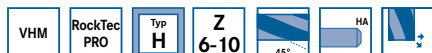
Dynamic: Free workpiece contours are milled. The tool paths consist of circular and straight tool paths.

The circular paths may in some cases include very large radii or linear movements.

ATORN

SOLID CARBIDE MULTI-TOOTH MILL

**FINISHING IN HARDENED
STEELS UP TO 67 HRC**



Application:

Multi-tooth mills for circumferential machining, fine finishing and semi-roughing up to 67 HRC. The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



HIGH STABILITY

Stable design with short cutting edge length for finishing with excellent surface quality

BROAD RANGE OF APPLICATIONS

Circumferential machining, fine finishing and semi-roughing in materials up to 67 HRC

INCREASED CORE DIAMETER

Stable core diameter reduces vibrations

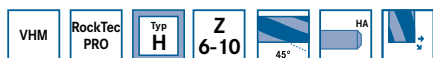
HIGH NUMBER OF TEETH

High feed rates

ROCKTEC PRO COATING

Powerful silicon-based PVD coating extends the service life and is optimised for higher cutting speeds

ATORN®



SOLID CARBIDE MULTI-TOOTH MILL

6-10 cutting edges with RockTec PRO coating

Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Chip angle: 0°



Short cutting edge

							Tool holder	Straight shank, HA
							Cutting diameter tolerance	f8
							Shank diameter tolerance	h5
 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.
3	4	12	57	2.9	6	6	0.024	500
4	5	14	57	3.8	6	6	0.035	502
5	6	16	57	4.7	6	6	0.04	504
6	7	20	57	5.6	6	6	0.047	506
8	9	26	63	7.6	8	6	0.057	508
10	11	32	72	9.4	10	6	0.062	510
12	12	38	83	11.4	12	6	0.075	512
16	16	44	92	15.4	16	8	0.088	514
20	20	52	104	19.4	20	10	0.095	516

Standard version

3	9	15	57	2.8	6	6	0.024	570
4	11	17	57	3.7	6	6	0.037	572
5	13	19	57	4.6	6	6	0.042	574
6	15	20	57	5.5	6	6	0.047	576
8	19	25	63	7.4	8	6	0.057	578
10	24	30	72	9.2	10	6	0.067	580
12	28	36	83	11	12	6	0.077	582
16	36	42	92	15	16	8	0.092	584
20	44	52	104	19	20	10	0.117	586

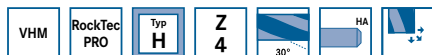
Long version

 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16950... Ref. no.
3	9	65	6	6	0.024	600
4	12	65	6	6	0.035	602
5	15	65	6	6	0.04	604
6	18	65	6	6	0.047	606
8	24	70	8	6	0.057	608
10	30	85	10	6	0.062	610
12	36	93	12	6	0.075	612
16	48	110	16	8	0.088	614
20	60	126	20	10	0.095	616

ATORN

SOLID CARBIDE TORUS MILLING CUTTER

**IDEAL FOR DIE AND
MOULD MAKING**



Application:

Torus milling cutter for processing materials up to 67 HRC, e.g. in die and mould making.

The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



DIE AND MOULD MAKING

Ideal for machining complex free-form surfaces and geometries

OPTIMISED GEOMETRY

Specially developed rake for HSC milling of hard materials. Polished cutting edges and chip spaces for smooth chip removal and low wear

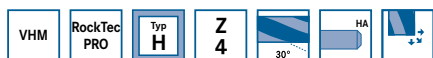
HIGHLY PRECISE RADIUS TOLERANCE

+/- 0.005 mm for precise machining results and maximum repeat accuracy

ULTRA MICRO FINE-GRAIN CARBIDE

Optimised carbide type with excellent properties in terms of hardness and bending strength

ATORN®



SOLID CARBIDE TORUS MILLING CUTTER

Four cutting edges with RockTec PRO coating

Version:

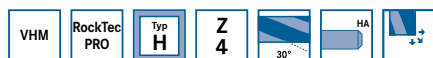
- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Radius tolerance = +/- 0.005 mm
- Chip angle: 0°



Tool holder										Straight shank, HA
Cutting diameter tolerance										f8
Shank diameter tolerance										h5
mm	R mm	mm	mm	mm	mm	mm	Teeth (no.)	fz hard-ness 65 HRC (mm)	16952... Ref. no.	
1	0.1	1.5	10	57	0.95	6	4	0.011	200	
1	0.2	1.5	10	57	0.95	6	4	0.011	202	
2	0.1	2.5	12	57	1.85	6	4	0.019	204	
2	0.2	2.5	8	50	1.8	6	4	0.019	205	
2	0.3	2.5	12	57	1.85	6	4	0.019	206	
2	0.5	2.5	12	57	1.85	6	4	0.019	208	
3	0.1	3.5	12	57	2.9	6	4	0.024	210	
3	0.25	4	8	50	2.7	6	4	0.024	211	
3	0.3	3.5	12	57	2.9	6	4	0.024	212	
3	0.5	3.5	12	57	2.9	6	4	0.024	214	
3	1	3.5	12	57	2.9	6	4	0.024	216	
4	0.1	4.5	14	57	3.8	6	4	0.035	218	
4	0.2	5	10	50	3.7	6	4	0.037	219	
4	0.3	4.5	14	57	3.8	6	4	0.035	220	
4	0.25	5	10	50	3.7	6	4	0.037	221	
4	0.5	4.5	14	57	3.8	6	4	0.035	222	
4	1	4.5	14	57	3.8	6	4	0.035	224	
5	0.1	5.5	16	57	4.7	6	4	0.04	226	
5	0.25	6	16	57	4.6	6	4	0.042	227	
5	0.3	5.5	16	57	4.7	6	4	0.04	228	
5	0.5	5.5	16	57	4.7	6	4	0.04	230	
5	1	5.5	16	57	4.7	6	4	0.04	232	
6	0.1	7	20	57	5.7	6	4	0.047	234	
6	0.25	7	20	57	5.5	6	4	0.047	235	
6	0.3	7	20	57	5.7	6	4	0.047	236	
6	0.5	7	20	57	5.7	6	4	0.047	238	
6	0.8	7	20	57	5.5	6	4	0.047	239	

Tool holder										Straight shank, HA
Cutting diameter tolerance										f8
Shank diameter tolerance										h5
mm	R mm	mm	mm	mm	mm	mm	Teeth (no.)	fz hard-ness 65 HRC (mm)	16952... Ref. no.	
6	1	7	20	57	5.7	6	4	0.047	240	
6	1.5	7	20	57	5.7	6	4	0.047	242	
6	2	7	20	57	5.7	6	4	0.047	244	
8	0.1	9	26	63	7.6	8	4	0.057	246	
8	0.25	9	27	63	7.4	8	4	0.057	247	
8	0.3	9	26	63	7.6	8	4	0.057	248	
8	0.5	9	26	63	7.6	8	4	0.057	250	
8	0.8	9	27	63	7.4	8	4	0.057	251	
8	1	9	26	63	7.6	8	4	0.057	252	
8	2	9	26	63	7.6	8	4	0.057	254	
8	3	9	26	63	7.6	8	4	0.057	256	
10	0.1	12	32	72	9.6	10	4	0.062	258	
10	0.25	11	32	72	9.2	10	4	0.067	259	
10	0.3	12	32	72	9.6	10	4	0.062	260	
10	0.5	12	32	72	9.6	10	4	0.062	262	
10	0.8	11	32	72	9.2	10	4	0.067	263	
10	1	12	32	72	9.6	10	4	0.062	264	
10	2	12	32	72	9.6	10	4	0.062	266	
10	3	12	32	72	9.6	10	4	0.062	268	
12	0.5	14	38	83	11.6	12	4	0.075	270	
12	1	14	38	83	11.6	12	4	0.075	272	
12	2	14	38	83	11.6	12	4	0.075	274	
12	3	14	38	83	11.6	12	4	0.075	276	
16	1	18	44	92	15.4	16	4	0.088	278	
16	2	18	44	92	15.4	16	4	0.088	280	
16	3	18	44	92	15.4	16	4	0.088	282	

ATORN®



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Radius tolerance = +/- 0.005 mm
- Chip angle: 0°

SOLID CARBIDE TORUS MILLING CUTTER

Four cutting edges with RockTec PRO coating



Tool holder										Straight shank, HA
Cutting diameter tolerance										f8
Shank diameter tolerance										h5
 mm	 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16952... Ref. no.	
1	0.1	1.5	20	65	0.95	6	4	0.011	300	
1	0.2	1.5	20	65	0.95	6	4	0.011	302	
2	0.1	2.5	25	70	1.85	6	4	0.019	304	
2	0.2	2.5	25	75	1.8	6	4	0.019	305	
2	0.3	2.5	25	70	1.85	6	4	0.019	306	
2	0.5	2.5	25	70	1.85	6	4	0.019	308	
3	0.1	3.5	32	75	2.9	6	4	0.024	310	
3	0.25	4	32	75	2.7	6	4	0.024	311	
3	0.3	3.5	32	75	2.9	6	4	0.024	312	
3	0.3	5	60	100	2.8	6	4	0.024	410	
3	0.5	3.5	32	75	2.9	6	4	0.024	314	
3	0.5	5	60	100	2.8	6	4	0.024	412	
3	1	3.5	32	75	2.9	6	4	0.024	316	
4	0.1	4.5	32	80	3.8	6	4	0.035	318	
4	0.2	5	34	75	3.7	6	4	0.037	319	
4	0.25	5	34	75	3.7	6	4	0.037	321	
4	0.3	4.5	36	80	3.8	6	4	0.035	320	
4	0.3	8	60	100	3.7	6	4	0.037	420	
4	0.5	4.5	36	80	3.8	6	4	0.035	322	
4	0.5	8	60	100	3.7	6	4	0.037	422	
4	1	4.5	36	80	3.8	6	4	0.035	324	
5	0.1	5.5	40	80	4.7	6	4	0.04	326	
5	0.25	6	38	75	4.6	6	4	0.042	327	
5	0.3	5.5	40	80	4.7	6	4	0.04	328	
5	0.3	9	60	100	4.6	6	4	0.042	430	
5	0.5	5.5	40	80	4.7	6	4	0.04	330	
5	0.5	9	60	100	4.6	6	4	0.042	432	
5	1	5.5	40	80	4.7	6	4	0.04	332	
6	0.1	7	44	80	5.7	6	4	0.047	334	
6	0.25	7	44	80	5.5	6	4	0.047	335	
6	0.3	7	44	80	5.7	6	4	0.047	336	
6	0.5	7	44	80	5.7	6	4	0.047	338	
6	0.5	10	60	100	5.5	6	4	0.047	440	

Tool holder										Straight shank, HA
Cutting diameter tolerance										f8
Shank diameter tolerance										h5
 mm	 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC ● (mm)	16952... Ref. no.	
6	0.8	7	44	80	5.5	6	4	0.047	339	
6	1	7	44	80	5.7	6	4	0.047	340	
6	1	10	60	100	5.5	6	4	0.047	442	
6	1.5	7	44	80	5.7	6	4	0.047	342	
6	2	7	44	80	5.7	6	4	0.047	344	
8	0.1	9	54	100	7.6	8	4	0.057	346	
8	0.25	9	54	100	7.4	8	4	0.057	347	
8	0.3	9	54	100	7.6	8	4	0.057	348	
8	0.5	9	54	100	7.6	8	4	0.057	350	
8	0.8	9	54	100	7.4	8	4	0.057	351	
8	1	9	54	100	7.6	8	4	0.057	352	
8	2	9	54	100	7.6	8	4	0.057	354	
8	3	9	54	100	7.6	8	4	0.057	356	
10	0.1	12	60	100	9.6	10	4	0.062	358	
10	0.25	11	60	120	9.2	10	4	0.067	359	
10	0.3	12	60	100	9.6	10	4	0.062	360	
10	0.5	12	60	100	9.6	10	4	0.062	362	
10	0.8	11	60	120	9.2	10	4	0.067	363	
10	1	12	60	100	9.6	10	4	0.062	364	
10	1	14	83	125	9.2	10	4	0.067	460	
10	2	12	60	100	9.6	10	4	0.062	366	
10	2	14	83	125	9.2	10	4	0.067	462	
10	3	12	60	100	9.6	10	4	0.062	368	
12	0.5	14	75	120	11.6	12	4	0.075	370	
12	1	14	75	120	11.6	12	4	0.075	372	
12	1	16	105	150	11	12	4	0.077	470	
12	2	14	75	120	11.6	12	4	0.075	374	
12	2	16	105	150	11	12	4	0.077	472	
12	3	14	75	120	11.6	12	4	0.075	376	
16	1	18	92	150	15.4	16	4	0.088	378	
16	2	18	92	150	15.4	16	4	0.088	380	
16	3	18	92	150	15.4	16	4	0.088	382	

PRECISE MACHINING FOR THE TOUGHEST REQUIREMENTS IN ALL AREAS

ATORN®

HARD DRILL BIT

ATORN hard drill bits are characterised by their cost economy and efficiency. They ensure reliable and consistent performance across the entire machining process and achieve a long service life due to their quality.



DISCOVER OUR HARD
DRILL BITS



ATORN®

HARD TAPPING TOOL

If you want to achieve optimal thread creation in hardened materials, you can now benefit from ATORN hard screw taps for hard thread cutting and ATORN hard thread milling cutters.



DISCOVER OUR
HARD TAPPING TOOLS



ATORN®

HARD REAMERS

ATORN hard reamers achieve optimal work results with their innovative rake.

They produce perfectly round fit tolerances and enable significant savings in terms of process costs whilst ensuring very high process reliability.



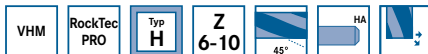
DISCOVER OUR
HARD REAMERS



ATORN

SOLID CARBIDE TORUS MULTI-TOOTH MILL

**IDEAL FOR FINISHING
OPERATIONS FOR FREE-FORM
SURFACES AND GEOMETRIES**



Application:

Torus multi-tooth mill in short version for machining materials up to 67 HRC, e.g. in die and mould making.

The optimised geometry and coating ensure high-precision hard machining results with excellent service life.

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



HIGH STABILITY

Stable design with short cutting edge length for finishing with excellent surface quality

OPTIMISED GEOMETRY

Specially developed rake for HSC milling of hard materials. Polished cutting edges and chip spaces for smooth chip removal and low wear

ROCKTEC PRO COATING

High-performance, silicon-based PVD coating extends the service life and is optimised for higher cutting speeds

DIE AND MOULD MAKING

Ideal for machining complex free-form surfaces and geometries

IMPROVED TOOL GEOMETRY

Stable core diameter increases the stability and rigidity of the tool

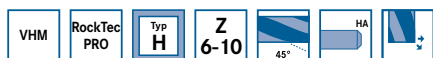
HIGHLY PRECISE RADIUS TOLERANCE

+/- 0.005 mm for precise machining results and maximum repeat accuracy

ATORN®

SOLID CARBIDE TORUS MULTI-TOOTH MILL

6-10 cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Radius tolerance = +/- 0.005 mm
- Chip angle: 0°

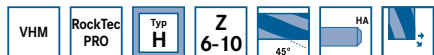


Tool holder									Straight shank, HA
Cutting diameter tolerance									f8
Shank diameter tolerance									h5
							Teeth (no.)	fz hardness 65 HRC  (mm)	16952... Ref. no.
3	0.1	4	12	57	2.9	6	6	0.024	500
3	0.5	4	12	57	2.9	6	6	0.024	502
4	0.1	5	14	57	3.8	6	6	0.035	504
4	0.5	5	14	57	3.8	6	6	0.035	506
4	1	5	14	57	3.8	6	6	0.035	508
5	0.1	6	16	57	4.7	6	6	0.04	510
5	0.5	6	16	57	4.7	6	6	0.04	512
5	1	6	16	57	4.7	6	6	0.04	514
6	0.1	7	20	57	5.6	6	6	0.047	516
6	0.5	7	20	57	5.6	6	6	0.047	518
6	0.8	7	20	57	5.6	6	6	0.047	520
6	1	7	20	57	5.6	6	6	0.047	522
6	1.5	7	20	57	5.6	6	6	0.047	524
8	0.1	9	26	63	7.6	8	6	0.057	526
8	0.5	9	26	63	7.6	8	6	0.057	528
8	0.8	9	26	63	7.6	8	6	0.057	530
8	1	9	26	63	7.6	8	6	0.057	532
8	1.5	9	26	63	7.6	8	6	0.057	534
8	2	9	26	63	7.6	8	6	0.057	536
10	0.1	11	32	72	9.4	10	6	0.062	538
10	0.5	11	32	72	9.4	10	6	0.062	540
10	0.8	11	32	72	9.4	10	6	0.062	542
10	1	11	32	72	9.4	10	6	0.062	544
10	1.5	11	32	72	9.4	10	6	0.062	546
10	2	11	32	72	9.4	10	6	0.062	548
12	0.1	12	38	83	11.4	12	6	0.075	550
12	0.5	12	38	83	11.4	12	6	0.075	552
12	1	12	38	83	11.4	12	6	0.075	554
12	1.5	12	38	83	11.4	12	6	0.075	556
12	2	12	38	83	11.4	12	6	0.075	558
16	0.5	16	44	92	15.4	16	8	0.088	560
16	1	16	44	92	15.4	16	8	0.088	562
16	2	16	44	92	15.4	16	8	0.088	564
16	3	16	44	92	15.4	16	8	0.088	566
20	1	20	52	104	19.4	20	10	0.095	568

ATORN®

SOLID CARBIDE TORUS MULTI-TOOTH MILL

6-10 cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Radius tolerance = +/- 0.005 mm
- Chip angle: 0°



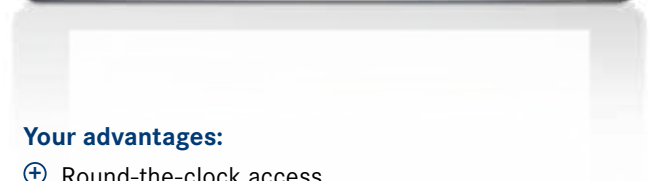
						Tool holder	Straight shank, HA
						Cutting diameter tolerance	f8
						Shank diameter tolerance	h5
					Teeth (no.)	fz hardness 65 HRC ● (mm)	16952... Ref. no.
mm	R mm	mm	mm	mm			
3	0.1	9	57	6	6	0.024	600
3	0.5	9	57	6	6	0.024	602
4	0.1	11	57	6	6	0.035	604
4	0.5	11	57	6	6	0.035	606
4	1	11	57	6	6	0.035	608
5	0.1	13	57	6	6	0.04	610
5	0.5	13	57	6	6	0.04	612
5	1	13	57	6	6	0.04	614
6	0.1	15	57	6	6	0.047	616
6	0.5	15	57	6	6	0.047	618
6	1	15	57	6	6	0.047	620
8	0.1	19	63	8	6	0.057	622
8	0.5	19	63	8	6	0.057	624
8	1	19	63	8	6	0.057	626
10	0.1	24	72	10	6	0.062	628
10	0.5	24	72	10	6	0.062	630
10	1	24	72	10	6	0.062	632
10	1.5	24	72	10	6	0.062	634
12	0.1	28	83	12	6	0.075	636
12	0.5	28	83	12	6	0.075	638
12	1	28	83	12	6	0.075	640
12	1.5	28	83	12	6	0.075	642
16	0.5	36	92	16	8	0.088	644
16	1	36	92	16	8	0.088	646
20	1	44	104	20	10	0.095	648



THE DIGITAL TWIN TO YOUR MACHINING TOOLS

We maintain a comprehensive package of cutting data for all machining tools. All essential tool information is available in the highest data quality. Conveniently retrieve the data relevant to you in our online shop.

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- ⊕ Greater planning and process reliability



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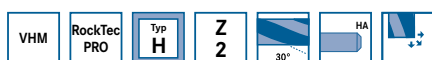
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SOLID CARBIDE BALL NOSE END MILL

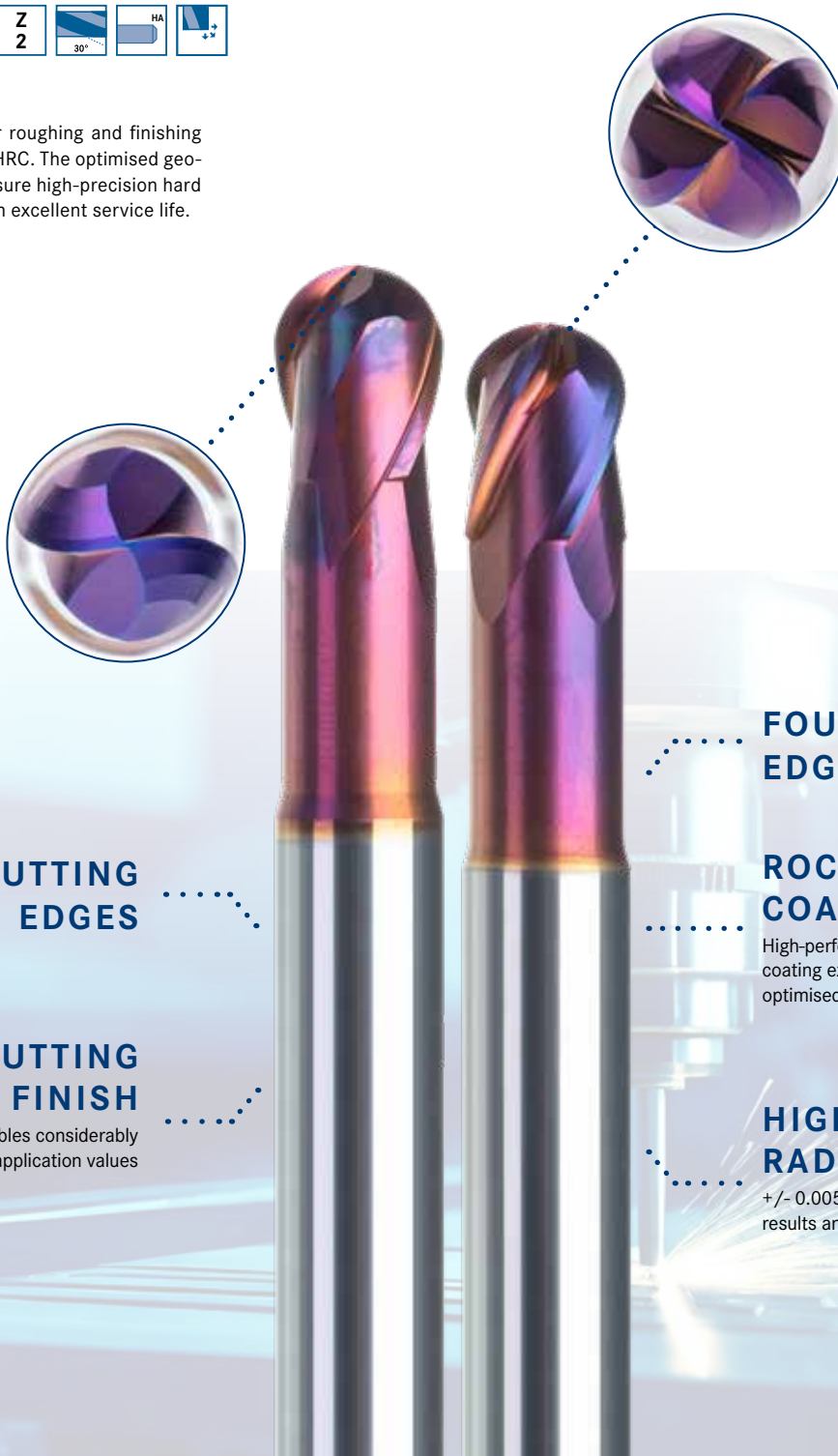
**IDEAL FOR SEMI-FINISHING,
FINISHING AND FOR HSC
FINISHING IN DIE AND MOULD
MAKING UP TO 67 HRC**

FURTHER DIMENSIONS, DETAILS AND
CUTTING VALUES CAN BE FOUND IN
OUR SHOP.



Application:

Ball nose end mill for roughing and finishing of materials up to 67 HRC. The optimised geometry and coating ensure high-precision hard machining results with excellent service life.



**TWO CUTTING
EDGES**

**SPECIAL CUTTING
EDGE FINISH**

Reduces wear and enables considerably
higher application values

**FOUR CUTTING
EDGES**

**ROCKTEC PRO
COATING**

High-performance, silicon-based PVD
coating extends the service life and is
optimised for higher cutting speeds

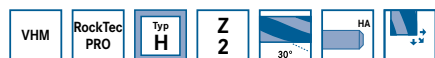
**HIGHLY PRECISE
RADIUS TOLERANCE**

+/- 0.005 mm for precise machining
results and maximum repeat accuracy

ATORN®

SOLID CARBIDE BALL NOSE END MILL

Two and four cutting edges with RockTec PRO coating



Version:

- Ultra Micro fine-grain cutting material
- With RockTec PRO coating
- Cutting edge finish
- HA shank in accordance with DIN 6535
- With clearance and centre cutting
- Radius tolerance = +/- 0.005 mm
- Chip angle: 0°



Two cutting edges

Tool holder								Straight shank, HA
Cutting diameter tolerance								f8
Shank diameter tolerance								h5
 mm	 mm	 mm	 mm	 mm	 mm	Teeth (no.)	fz hardness 65 HRC  (mm)	16954... Ref. no.
1	1.5	3.5	57	0.96	6	2	0.011	201
1.5	2	5	57	1.44	6	2	0.015	203
2	2.5	7	57	1.95	6	2	0.019	205
2.5	3	9	57	2.45	6	2	0.021	207
3	3.5	11	57	2.8	6	2	0.024	209
4	4.5	14	57	3.7	6	2	0.037	211
5	5.5	18	57	4.6	6	2	0.042	213
6	7	20	57	5.5	6	2	0.047	215
8	9	28	70	7.4	8	2	0.057	217
10	12	30	72	9.2	10	2	0.067	219
12	14	36	83	11	12	2	0.077	221
16	18	42	92	15	16	2	0.092	223
20	22	52	104	19	20	2	0.117	225

Four cutting edges

1	1.5	3.5	57	0.96	6	4	0.011	351
1.5	2	5	57	1.44	6	4	0.015	353
2	2.5	7	57	1.95	6	4	0.019	355
2.5	3	9	57	2.45	6	4	0.021	357
3	3.5	11	57	2.8	6	4	0.024	359
4	4.5	14	57	3.7	6	4	0.037	361
5	5.5	18	57	4.6	6	4	0.042	363
6	7	20	57	5.5	6	4	0.047	365
8	9	28	70	7.4	8	4	0.057	367
10	12	30	72	9.2	10	4	0.067	369
12	14	36	83	11	12	4	0.077	371
16	18	42	92	15	16	4	0.092	373
20	22	52	104	19	20	4	0.117	375

Application:

The cold/hot air nozzle is used for cooling specific points on metal and plastic parts of machine tools. It is dual-function and generates both hot and cold air.

Cold air is primarily used where lubricants or cooling lubricants are undesirable.

It works based on the principle of a vortex tube in which two air streams rotating in opposing directions are generated.

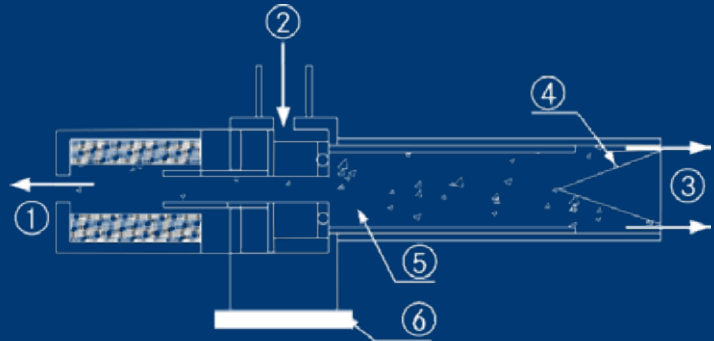
Version:

- Cold air down to -48 °C
- Hot air up to 100 °C
- Requires approx. 3-8 bar air pressure
- 3/8 inch compressed air connection
- 1/2 inch cold and hot air connection

Max. hot air temperature (°C)	100
Max. cold air temperature (°C)	-48
Cold air temperature at 5 bar (°C)	-30
Cold air temperature at 6 bar (°C)	-36
Cold air temperature at 8 bar (°C)	-48
Max. operating pressure (bar)	8
18300...	Ref. no. 172

Scope of delivery:

Magnetic plate, ball valve, 3/8 inch connection for compressed air coupling, silencer, 1/2 inch Cool Line jointed hose with round nozzle



- ① Cold air outlet
- ② Compressed air inlet
- ③ Hot air outlet up to 100 °C
- ④ Adjustment valve
- ⑤ Vortex generation space
- ⑥ Magnet holder

DUAL FUNCTION

The nozzle can generate both hot and cold air

INCREASED EFFICIENCY

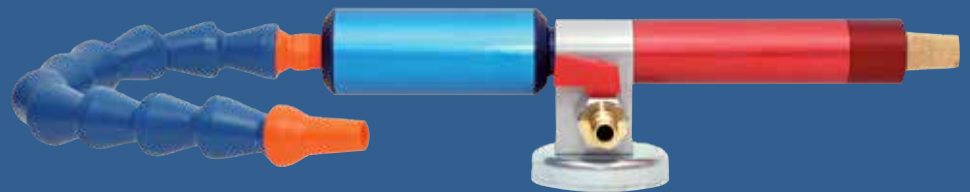
Using cooled air enables higher cutting speeds, a longer service life of the tools and prevents thermal shock of the cutting edges.

INFINITELY VARIABLE ADJUSTMENT

of volume flow and cold air ratio

SIMPLE CHIP REMOVAL

The chips produced during milling can be removed even from deep recesses or cavities



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