



- HSS: square end mills
finishing cutters
roughing cutters
radius cutters
- Solid carbide:- end mills, universal
- end mills RockTec 52
and 65
- end mills, ALU
- roughing cutters
- deburring tools
- profiling cutters
- Broaches

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16.3 – 16.122



- Saw blades in HSS/solid carbide
- Shell end mills
- Profiling cutters with hole
- Indexable
inserts for:- end mills
- Face/angular milling
cutters
- Chamfer cutters
- Disc milling cutters
- Core drills
- Indexable milling inserts

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17.1 – 17.76

Our suppliers for MILLING TOOLS:

ATORN®

HHW

**CUTTING SOLUTIONS BY
CERATIZIT**

Dümmel®
WERKZEUGFABRIK

Info

Coatings for machining tools

Advantages:

- Longer service life
- Higher productivity
- Fewer tool changes

- High-speed machining
- Hard machining
- No emulsion due to dry machining
- Lower tool costs

Coating	ZrN	TiN	TiCN	TiAlN	Alcrona	Hardlube	Rocktec 52	Rocktec 65	Ultra-N	Ultra Npro	Ultra MS	Ultra DC
Micro-hardness (HV 0.05)	2,800	2,300	3,000	3,300	3,200	3,000	3,300	3,600	3,100	6,000	3,200	10,000
Friction coefficient vs. steel (dry)	–	0.4	0.4	0.30 - 0.35	0.35	0.15 - 0.20	0.4	0.4	–	–	0.35	–
Max. application temperature (°C)	1,100	600	400	900	1,100	800	900	1,200	900	550	1,100	700
Coating colour	Light yellow	Gold-yellow	Blue-grey	Purple-grey	Blue-grey	Dark grey	Grey-blue	Copper-coloured	Brownish silver	Rainbow	Blue-grey	Grey

Al alloy	○				○				○	○		
Copper	○								○	○		
Non-ferrous metals	○								○	○		
Plastic					○				○	○		
CFK												○
GFK										○		○
Graphite												○
Low alloy steels		○	○	○	○	○	○				○	
High-alloy steels		○	○	○	○	○	○	○			○	
Tempered steels up to 52 HRC				○			○	○				
Tempered steels up to 65 HRC				○				○				
Stainless steels			○	○		○					○	
Cast iron			○	○								
Titanium alloy				○		○					○	
Super alloy				○		○					○	

Info

Overview of HSS-E and PM (powder steel) cutters (I)

Brand	16010	16020	16022	16030	16032	16060	16062	16073	16074	16094	16096
Article number											
											
Standard/DIN	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	327D	327D	327D	327D	844B	844B
Number of cutting edges	1	3	3	3	3	2	2	2	2	3	3
Diameter range mm	3 - 10	1 - 20	1 - 12	2 - 10	2 - 8	1 - 40	1 - 25	2.5 - 25	2.5 - 20	1.5 - 30	1.5 - 30
Cutting material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coating	Co5	-	TiAIN	-	TiAIN	-	TiAIN	-	TiAIN	-	TiAIN
Version	Short	Short	Short	Long	Long	Short	Short	Long	Long	Short	Short
Type / Profile	-	N	N	N	N	N	N	N	N	N	N
Catalogue page	16.21	16.22	16.22	16.22	16.22	16.23	16.23	16.23	16.23	16.24	16.24

Recommended application	● = well-suited ○ = limited suitability										
Aluminium < 10% Si	●	○	○	○	○	○	○	○	○	○	○
Aluminium > 10% Si	●	○	○	○	○	○	○	○	○	○	○
Copper		○	○	○	○	○	○	○	○	○	○
Plastics		○	○	○	○	○	○	○	○	○	○
Graphite											
Steel < 520 N		●	●	●	●	●	●	●		●	●
Steel < 750 N		●	●	●	●	●	●	●		●	●
Steel < 900 N		●	●	●	●	●	●	●		●	●
Steel < 1100 N			●	●	●	●	●	●		●	●
Steel < 1200 N			●		●		●				●
Steel < 1400 N											
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG		○	○	○	○	○	○	○	○	○	○
GGG		○	○	○	○	○	○	○	○	○	○
VA < 900 N		○	○	○	○	○	○	○	○	○	○
VA > 900 N		○	○	○	○	○	○	○	○	○	○
Titanium											
Titanium alloy											
Nickel base											

Brand	16100	16104	16105	16120	16122	16131	16128	16129	16133	16134	16150
Article number											
											
Standard/DIN	844B	844B	844B	844B	844B	844B	844B	844B	Factory standard	Factory standard	844B
Number of cutting edges	3	3	3	4 - 6	4 - 6	4 - 6	4 - 6	4 - 5	4 - 6	4 - 6	6 - 8
Diameter range mm	4 - 20	2 - 20	2 - 20	2 - 40	2 - 32	5 - 30	2 - 32	2 - 25	6 - 25	6 - 25	30 - 50
Cutting material	HSS-E-PM	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E-PM	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coating	TiAIN	-	TiAIN	-	TiAIN	TiAIN	-	TiAIN	-	TiAIN	-
Version	Short	Long	Long	Short	Short	Short	Long	Long	Overlong	Overlong	Short
Type / Profile	N	N	N	N	N	N	N	N	N	N	N
Catalogue page	16.24	16.25	16.25	16.26	16.26	16.26	16.27	16.27	16.28	16.28	16.28

Recommended application	● = well-suited ○ = limited suitability										
Aluminium < 10% Si	○	○	○	○	○	○	○	○	○	○	○
Aluminium > 10% Si	○	○	○	○	○	○	○	○	○	○	○
Copper	○	○	○	○	○	○	○	○	○	○	○
Plastics		○	○	○	○	○	○	○	○	○	○
Graphite											
Steel < 520 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N			●	●	●	●	●	●		●	●
Steel < 1200 N			●	●	●	●	●	●		●	●
Steel < 1400 N				●		●					
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG	●	○	○	○	○	○	○	○	○	○	○
GGG	●	○	○	○	○	○	○	○	○	○	○
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○	○	○	○	○
Titanium	○					○					
Titanium alloy	○					○					
Nickel base	○					○					

Brand	HW	HW	HW	HW	ATORN	ATORN	ATORN	ATORN	HW	HW	HW
Article number	16153	16158	16161	16170	16176	16177	16183	16185	16195	16198	16200
											
Standard/DIN	844B	844B	844B	Factory standard	Factory standard	Factory standard	844B	844B	844B	844B	844B
Number of cutting edges	2	3	3	2	2	2	3	3	4 - 6	4 - 6	4 - 6
Diameter range mm	2 - 22	3 - 20	3 - 20	2 - 20	2 - 30	2 - 20	6 - 25	6 - 25	10 - 40	10 - 40	8 - 36
Cutting material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coating	-	-	-	-	-	TiAlN	-	TiAlN	-	TiAlN	-
Version	Short	Short	Long	Short	Long	Long	Short	Short	Short	Short	Long
Type / Profile	W	W	-	-	-	-	NR	NR	NR	NR	NR
Catalogue page	16.28	16.29	16.29	16.29	16.30	16.30	16.30	16.30	16.31	16.31	16.31

Recommended application	● = well-suited ○ = limited suitability										
Aluminium < 10% Si	●	●	●	○	○	○	○	○	○	○	○
Aluminium > 10% Si	○	○	○	○	○	○	○	○	○	○	○
Copper	●	●	●	○	○	○	○	○	○	○	○
Plastics	○	○	○	○	○	○	○	○	○	○	○
Graphite	○	○	○	○	○	○	○	○	○	○	○
Steel < 520 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 750 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 900 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1100 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1200 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1400 N	○	○	○	○	○	○	○	○	○	○	○
Hardox	○	○	○	○	○	○	○	○	○	○	○
< 50 HRC	○	○	○	○	○	○	○	○	○	○	○
< 60 HRC	○	○	○	○	○	○	○	○	○	○	○
< 67 HRC	○	○	○	○	○	○	○	○	○	○	○
GG	○	○	○	○	○	○	○	○	○	○	○
GGG	○	○	○	○	○	○	○	○	○	○	○
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○	○	○	○	○
Titanium	○	○	○	○	○	○	○	○	○	○	○
Titanium alloy	○	○	○	○	○	○	○	○	○	○	○
Nickel base	○	○	○	○	○	○	○	○	○	○	○

Brand	HW	HW	HW	HW	HW	HW	HW	ATORN	HW	HW	HW
Article number	16209	16205	16220	16223	16260	16262	16268	16270	16277	16278	16281
											
Standard/DIN	Factory standard	Factory standard	844B	844B	844B	844B	844B	844B	844B	844B	844B
Number of cutting edges	4 - 5	6 - 8	3	3	4 - 6	4 - 6	4 - 6	3 - 6	3 - 5	3 - 6	3 - 4
Diameter range mm	6 - 25	30 - 50	6 - 30	6 - 40	6 - 25	6 - 25	6 - 30	4 - 25	6 - 25	6 - 30	6 - 25
Cutting material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E-PM	HSS-E-PM	HSS-E	HSS-E	HSS-E
Coating	TiAlN	-	-	TiAlN	-	TiAlN	TiAlN	TiAlN	-	TiAlN	TiAlN
Version	Overlong	Short	Short	Short	Short	Short	Short	Short	Long	Long	Short
Type / Profile	NR	NR	NF	NF	HR	HR	HR	HPC	HR	HR	HR
Catalogue page	16.32	16.32	16.32	16.32	16.33	16.33	16.33	16.33	16.34	16.34	16.34

Recommended application	● = well-suited ○ = limited suitability										
Aluminium < 10% Si	○	○	○	○	○	○	○	○	○	○	○
Aluminium > 10% Si	○	○	○	○	○	○	○	○	○	○	○
Copper	○	○	○	○	○	○	○	○	○	○	○
Plastic	○	○	○	○	○	○	○	○	○	○	○
Graphite	○	○	○	○	○	○	○	○	○	○	○
Steel < 520 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 750 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 900 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1100 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1200 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1400 N	○	○	○	○	○	○	○	○	○	○	○
Hardox	○	○	○	○	○	○	○	○	○	○	○
< 50 HRC	○	○	○	○	○	○	○	○	○	○	○
< 60 HRC	○	○	○	○	○	○	○	○	○	○	○
< 67 HRC	○	○	○	○	○	○	○	○	○	○	○
GG	○	○	○	○	○	○	○	○	○	○	○
GGG	○	○	○	○	○	○	○	○	○	○	○
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○	○	○	○	○
Titanium	○	○	○	○	○	○	○	○	○	○	○
Titanium alloy	○	○	○	○	○	○	○	○	○	○	○
Nickel base	○	○	○	○	○	○	○	○	○	○	○

Brand	HHW	HHW	HHW	HHW	HHW	HHW	HHW
Article number	16370	16375	16380	16381	16382	16383	16385
							
Standard/DIN	851	850D	1833C	1833C	1833D	1833D	6518B
Number of cutting edges	6 - 8	6 - 12	10 - 12	10 - 12	10 - 12	10 - 12	4
Diameter range mm	6 - 22	10.5 - 45.5	16 - 32	16 - 32	16 - 32	16 - 32	1 - 20
Cutting material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coating	-	-	-	-	-	-	-
Version	Short	Short	Short	Short	Short	Short	Short
Type / Profile	N	N	H	H	H	H	N
Catalogue page	16.35	16.35	16.36	16.36	16.36	16.36	16.36
Recommended application ● = well-suited ○ = limited suitability							
Aluminium < 10% Si	○	○	○	○	○	○	○
Aluminium > 10% Si	○	○	○	○	○	○	○
Copper	○	○	○	○	○	○	○
Plastic	○	○	○	○	○	○	○
Graphite							
Steel < 520 N	●	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●
Steel < 1200 N							
Steel < 1400 N							
Hardox							
< 50 HRC							
< 60 HRC							
< 67 HRC							
GG	○	○	○	○	○	○	○
GGG	○	○	○	○	○	○	○
VA < 900 N	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○
Titanium							
Titanium alloy							
Nickel base							

Brand	HW	HW	HW	HW	ATORN	HW	HW	HW	ATORN	ATORN	HW	ATORN	ATORN
Article number	16500	16502	16505	16507	16603	16517	16522	16524	16605	16607	16532	16606	16612
Number of cutting edges	3	3	2	2	2	2	3	3	3	3	3	3	3
Diameter range mm	2 - 18	1.5 - 12	2 - 20	2 - 20	0.25 - 20	3 - 20	2 - 20	2 - 20	2 - 20	2 - 20	3 - 20	2.8 - 20	3.5 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	-	TiAlN	-	TiAlN	TiAlN-Ultra	TiAlN	-	TiAlN	TiAlN-Ultra	TiAlN-Ultra	TiAlN	TiAlN-Ultra	TiAlN-Ultra
Version	Mini	Mini	Short	Short	Short	Short	Short	Short	Extra short	Short	Short	Short	Long
Type / Profile	N	N	N	N	N	N	N	N	N	N	N	N	N
Catalogue page	16.37	16.37	16.37	16.37	16.38	16.38	16.39	16.39	16.39	16.40	16.40	16.41	16.42

Recommended application	● = well-suited ○ = limited suitability												
Aluminium < 8% Si	●	●	●	●	○				○	○		○	○
Aluminium > 8% Si	○	○	○	○	●				●	●		●	●
Copper	○	○	○	○	●				●	●		●	●
Plastics	●	○	○	○	○								
Graphite													
Steel < 520 N	●	●	●	●	●	●	●	●	●	●		●	●
Steel < 750 N	●	●	●	●	●	●	●	●	●	●		●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●		●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●		●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●		●	●
Steel < 1400 N	●	●	●	●	●	●	●	●			●	●	●
Hardox													
< 50 HRC													
< 60 HRC													
< 67 HRC													
GG	●	●	●	●	●	●	●	●	●	●	●	●	●
GGG	●	●	●	●	●	●	●	●	●	●	●	●	●
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○	○	○	○	○	○	○
Titanium					○				○	○		○	○
Titanium alloy					○				○	○		○	○
Nickel base					○				○	○		○	○

Brand	ATORN	HW	HW	HW	HW	HW	ATORN	HW	HW	HW	HW
Article number	16618	16552	16537	16539	16542	16543	16610	16545	16547	16548	16549
Number of cutting edges	4	4	4	4	4	4	4	4	4	4	4
Diameter range mm	2 - 20	5.7 - 20	2 - 20	2 - 20	4 - 16	4 - 20	2 - 20	3 - 20	3 - 20	3 - 12	3 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN-Ultra	AlCrN	-	TiAlN	-	TiAlN	TiAlN-Ultra	-	TiAlN	-	TiAlN
Version	Short	Short	Short	Short	Short	Short	Short	Short	Short	Overlong	Overlong
Type / Profile	N	HPC	N	N	N	N	HPC	N	N	N	N
Catalogue page	16.43	16.43	16.44	16.44	16.44	16.44	16.45	16.45	16.45	16.46	16.46

Recommended application	● = well-suited ○ = limited suitability										
Aluminium < 8% Si	○		○	○	○	○	○	○	○	○	○
Aluminium > 8% Si	●		○	○	○	○	●	○	○	○	○
Copper	○		○	○	○	○	○	○	○	○	○
Plastics			○	○	○	○		○	○	○	○
Graphite											
Steel < 520 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1400 N		●		●	●	●			●		●
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG	●	●	●	●	●	●	●	●	●	●	●
GGG	●	●	●	●	●	●	●	●	●	●	●
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○	○	○	○	○	○
Titanium	○	○					○		○		○
Titanium alloy	○	○					○		○		○
Nickel base	○	○					○		○		○

Brand	ATORN®	ATORN®	HW	HW	HW	HW	HW	HW	ATORN®	HW	HW
Article number	16527 1..	16527 2..	16592 NEW	16593 NEW	16594 NEW	16534 1..	16534 3..	16536	16627	16538	16540
Number of cutting edges	4	4	4	4	4	4	4	4	4	4	4
Diameter range mm	1 - 20	1 - 20	3 - 20	3 - 20	6 - 20	3 - 20	4 - 20	4 - 20	3 - 20	6 - 20	4 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	TiAlN	Varocon	Varocon	Varocon	TiAlN	TiAlN	TiAlN	TiAlN Ultra	TiAlN	TiAlN
Version	Short	Short	Short	Long	Overlong	Long	Long	Long/released	Short	Long m. IK	Long
Type / Profile	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC
Catalogue page	16.46	16.46	16.47	16.47	16.47	16.48	16.48	16.49	16.49	16.50	16.50

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si											
Aluminium > 8% Si											
Copper											
Plastics											
Graphite											
Steel < 520 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1400 N	●	●	●	●	●	●	●	●	●	●	●
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG	●	●	●	●	●	●	●	●	●	●	
GGG	●	●	●	●	●	●	●	●	●	●	
VA < 900 N						○	○	○		○	○
VA > 900 N						○	○	○		○	○
Titanium											
Titanium alloy											
Nickel base											

Brand	HW	HW	ATORN®	ATORN®	ATORN®	ATORN®	HW	HW	ATORN®	ATORN®	ATORN®
Article number	16554	16555	16640	16616 2..	16616 3..	16616 4..	16551	16553	16642	16643	16646 1..
Number of cutting edges	4	4	4	6 - 8	6 - 8	6 - 8	6 - 8	6 - 8	2	4	4
Diameter range mm	5 - 20	5 - 25	3 - 20	4 - 20	6 - 20	6 - 20	6 - 20	6 - 20	3 - 20	6 - 16	6 - 16
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	TiAlN	TiAlN-Ultra	TiAlN-Ultra	TiAlN-Ultra	TiAlN-Ultra	TiAlN	TiAlN	TiAlN-Ultra	TiAlN-Ultra	TiAlN-Ultra
Version	Long	Overlong	Short	Short	Long	Overlong	Short	Long	Long	Short	Long
Type / Profile	HPC	HPC	HSC	N	N	N	N	N	N	NR	N
Catalogue page	16.51	16.51	16.52	16.53	16.53	16.53	16.53	16.54	16.54	16.54	16.55

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 10% Si	○	○		○	○	○			○		●
Aluminium > 10% Si	○	○		○	○	○			○		●
Copper	○	○	●	●	●	●			●		●
Plastics									●		●
Graphite											
Steel < 520 N	●	●	●	●	●	●	●	●	○	●	●
Steel < 750 N	●	●	●	●	●	●	●	●	○	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	○	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	○	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	○	●	●
Steel < 1400 N	●	●	●	●	●	●	●	●	○	●	●
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG	●	●	●	●	●	●	●	●	●	●	●
GGG	●	●	●	●	●	●	●	●	●	●	●
VA < 900N	○	○	○	○	○	○	○	○	○		○
VA > 900N	○	○	○	○	○	○	○	○	○		○
Titanium	○	○	○	○	○	○	○	○	○	○	○
Titanium alloy	○	○	○	○	○	○	○	○	○	○	○
Nickel base	○	○	○	○	○	○	○	○	○	○	○

Brand	ATORN®	HHW	HHW	HHW	HHW	ATORN®	HHW	HHW	HHW	HHW	HHW	HHW
Article number	16646 2..	16557	16559 201	16559 202-208	16561	16628	16565	16567	16569	16650	16651	16629
Number of cutting edges	4	2	2	2	4	3-4	4	4	4	3-6	3-6	3-4
Diameter range mm	6 - 12	3 - 20	2	3 - 20	3 - 20	4 - 20	5 - 20	3 - 16	6 - 20	4 - 25	4 - 25	6 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN-Ultra	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN-Ultra	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
Version	Overlong	Short	Long	Long	Short	Short	Short	Long	Long m. IK	Short	Short	Long
Type / Profile	N	-	-	-	-	NR	NF	HR	HR	HR	HR	HR
Catalogue page	16.55	16.55	16.55	16.55	16.56	16.56	16.57	16.57	16.57	16.58	16.58	16.58
Recommended application	● = well-suited ○ = limited suitability											
Aluminium < 8% Si	●					●						
Aluminium > 8% Si	●					●						
Copper	●					●						
Plastics	●											
Graphite												
Steel < 520 N	●	●	●	●	●	○	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	○	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●	●	●
Steel < 1400 N		●	●	●	●	●	●	●	●	●	●	●
Hardox												
< 50 HRC										●	●	
< 60 HRC												
< 67 HRC												
GG	●	●	●	●	●	○	●	●	●	●	●	●
GGG	●	●	●	●	●	○	●	●	●	●	●	●
VA < 900 N	●	●	●	●	●	●	●	●	●	●	●	●
VA > 900 N	○	○	○	○	○	●	○	○	○	○	○	○
Titanium	○					●						
Titanium alloy	○					●						
Nickel base	○					●						

Brand	HHW	HHW	ATORN	ATORN	ATORN	HHW	HHW	HHW	HHW	HHW	HHW
Article number	16580	16575	16570	16571	16573	16583	16660	16661	16662 1..	16662 2..	16662 3..
											
Number of cutting edges	2	1	4 - 6	4 - 6	4 - 6	4	6 - 10	6	6 - 9	6 - 9	6 - 9
Diameter range mm	3 - 20	3 - 6	4 - 20	4 - 20	4 - 16	4 - 16	10.5 - 45.5	12.5 - 32	16 - 38	16 - 38	16 - 38
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	-	TiAlN	-	TiAlN	TiAlN	TiAlN	Alcrona	Alcrona	Alcrona	Alcrona	Alcrona
Version	Short	Short	Short	Short	Short	Long	-	-	-	-	-
Type / Profile	N	N	90° deburrer	90° deburrer	60° deburrer	Deburrer	Slotted	N/NF	Angle	DIN 1833C	DIN 1833D
Catalogue page	16.85	16.86	16.86	16.86	16.86	16.87	16.87	16.88	16.88	16.88	16.88

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si	●	●	●	○	○	○					
Aluminium > 8% Si	●	●	●	○	○	○					
Copper	●	●	●	○	○	○					
Plastics	●	●	●	○	○	○					
Graphite											
Steel < 520 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 750 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1400 N				●	●	●					
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG	●	●	●	●	●	●	●	●	●	●	●
GGG	●	●	●	●	●	●	●	●	●	●	●
VA < 900 N	○	○	○	○	○	○	○	○	○	○	○
VA > 900 N	○	○	○	○	○	○					
Titanium		○	○	○	○						
Titanium alloy		○	○	○	○						
Nickel base		○	○	○	○						

Brand	HHW	HHW
Article number	16662 4..	16658



Number of cutting edges	6 - 9	4
Diameter range mm	16 - 38	R 0.2 - 6.0
Cutting material	VHM	VHM
Coating	Alcrona	TiAlN
Version	60°	Short
Type / Profile	DIN 1833D	-
Catalogue page	16.88	16.89

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si		●
Aluminium > 8% Si		●
Copper		●
Plastics		●
Graphite		
Steel < 520 N	●	●
Steel < 750 N	●	●
Steel < 900 N	●	●
Steel < 1100 N	●	●
Steel < 1200 N	●	●
Steel < 1400 N		
Hardox		
< 50 HRC		
< 60 HRC		
< 67 HRC		
GG	●	●
GGG	●	●
VA < 900 N	○	○
VA > 900 N		○
Titanium		
Titanium alloy		
Nickel base		

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	
Article number	16800	16801	16802	16805	16806	16810	16812	16813	16626	16816	16817
											
Number of cutting edges	2	2	2	2	2	4	4	4	4	4	4
Diameter range mm	0.1 - 0.9	0.2 - 3	0.2 - 3	0.2 - 0.9	0.2 - 3	3 - 20	3 - 20	3 - 25	4 - 20	3 - 20	3 - 16
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
RockTec coating	52/65	52/65	52/65	52/65	52/65	52/65	52/65	52/65	65	52/65	52/65
Version	Short	Long	Long	Short	Long	Short	Long	Overlong	Short	Short	Short
Type / Profile	Mini shank	Mini shank	Mini torus	Mini radius	Mini radius	Shank	Shank	Shank	Shank	Torus	Torus
Catalogue page	16.59	16.60	16.61	16.62	16.63	16.64	16.66	16.67	16.68	16.69	16.70

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si											
Aluminium > 8% Si											
Copper											
Plastics											
Graphite											
Steel < 520 N											
Steel < 750 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 900 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1100 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●	●	●	●
Steel < 1400 N	●	●	●	●	●	●	●	●	●	●	●
Hardox											
< 50 HRC	●	●	●	●	●	●	●	●	●	●	●
< 60 HRC	●	●	●	●	●	●	●	●	●	●	●
< 67 HRC	●	●	●	●	●	●	●	●	●	●	●
GG											
GGG											
VA < 900 N											
VA > 900 N											
Titanium											
Titanium alloy											
Nickel base											

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16818	16819	16824	16825	16827	16828	16829	16830	16831	16832
										
Number of cutting edges	4	4	6-8	6-8	2	2	2	4	4	4-6
Diameter range mm	3 - 16	3 - 16	3 - 20	3 - 20	2 - 20	2 - 20	2 - 20	3 - 20	3 - 20	4 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
RockTec coating	52/65	52/65	52/65	52/65	52/65	52/65	52/65	52/65	52/65	65
Version	Long	Overlong	Short	Long	Short	Long	Overlong	Short	Long	Extra short
Type / Profile	Torus	Torus	Multi-tooth	Multi-tooth	Radius	Radius	Radius	Radius	Radius	High feed
Catalogue page	16.71	16.71	16.72	16.72	16.73	16.73	16.74	16.76	16.76	16.77

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si										
Aluminium > 8% Si										
Copper										
Plastics										
Graphite										
Steel < 520 N										
Steel < 750 N	●	●	●	●	●	●	●	●	●	
Steel < 900 N	●	●	●	●	●	●	●	●	●	
Steel < 1100 N	●	●	●	●	●	●	●	●	●	
Steel < 1200 N	●	●	●	●	●	●	●	●	●	
Steel < 1400 N	●	●	●	●	●	●	●	●	●	●
Hardox										
< 50 HRC	●	●	●	●	●	●	●	●	●	●
< 60 HRC	●	●	●	●	●	●	●	●	●	●
< 67 HRC	●	●	●	●	●	●	●	●	●	●
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW
Article number	16601	16604	16609	16613	16619	16621	16625	16637
								
Number of cutting edges	2	2	4	4	6	2	4	4
Diameter range mm	3 - 25	3 - 25	3 - 25	3 - 20	6 - 25	2 - 20	2 - 20	6 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
Version	Short	Long	Short	Long	Overlong	Long	Long	Long
Type / Profile	HSC	HSC	HSC	HSC	HSC	HSC	HSC	HSC
Catalogue page	16.64	16.64	16.65	16.65	16.66	16.74	16.75	16.70

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si								
Aluminium > 8% Si								
Copper								
Plastics								
Graphite								
Steel < 520 N								
Steel < 750 N	●							
Steel < 900 N	●							
Steel < 1100 N	●	●	●	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●	●	●	●
Steel < 1400 N	●	●		●	●	●	●	●
Hardox								
< 50 HRC	●	●	●	●	●	●	●	●
< 60 HRC	●	●	●	●	●	●	●	●
< 67 HRC								
GG								
GGG								
VA < 900 N								
VA > 900 N								
Titanium								
Titanium alloy								
Nickel base								

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16400	16401	16402	16403 1..	16403 2..	16405 1..	16405 2..	16407 1..	16407 2..	16544 1..	16544 2..
											
Number of cutting edges	2	2	2	3	3	2	2	2	2	4	4
Diameter range mm	0.5 - 4	0.5 - 4	0.5 - 4	3 - 20	3 - 20	3 - 20	3 - 20	3 - 20	3 - 20	4 - 20	4 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN	AlCrN
Version	Mini	Mini	Mini	Short	Short	Short	Short	Long	Long	Short	Short
Type / Profile	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC	HPC
Catalogue page	16.78	16.79	16.80	16.80	16.80	16.81	16.81	16.81	16.81	16.82	16.82

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si											
Aluminium > 8% Si											
Copper											
Plastic											
Graphite											
Steel < 520 N											
Steel < 750 N											
Steel < 900 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1100 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1200 N	○	○	○	○	○	○	○	○	○	○	○
Steel < 1400 N	○	○	○	○	○	○	○	○	○	○	○
Hardox											
< 50 HRC											
< 60 HRC											
< 67 HRC											
GG											
GGG											
VA < 900 N	●	●	●	●	●	●	●	●	●	●	●
VA > 900 N	●	●	●	●	●	●	●	●	●	●	●
Titanium	●	●	●	●	●	●	●	●	●	●	●
Titanium alloy	●	●	●	●	●	●	●	●	●	●	●
Nickel base	●	●	●	●	●	●	●	●	●	●	●

Brand	ATORN®	ATORN®	NEW	NEW
Article number	16550 3..	16550 4..	16525	16526
				
Number of cutting edges	4	4	4	4
Diameter range mm	4 - 20	4 - 20	3 - 20	3 - 20
Cutting material	VHM	VHM	VHM	VHM
Coating	AlCrN	AlCrN	Duocon	Duocon
Version	Short	Short	Short	Long
Type / Profile	HPC	HPC	HPC	HPC
Catalogue page	16.82	16.82	16.84	16.84

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si				
Aluminium > 8% Si				
Copper				
Plastic				
Graphite				
Steel < 520 N				
Steel < 750 N				
Steel < 900 N	○	○		
Steel < 1100 N	○	○		
Steel < 1200 N	○	○		
Steel < 1400 N	○	○		
Hardox				
< 50 HRC				
< 60 HRC				
< 67 HRC				
GG				
GGG				
VA < 900 N	●	●	●	●
VA > 900 N	●	●	●	●
Titanium	●	●		
Titanium alloy	●	●		
Nickel base	●	●		

Info

Overview of VHM aluminium milling cutters (I)

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16710	16711	16712	16715	16717	16718	16719	16722	16724	16725
										
Number of cutting edges	2	2	2	1	2	2	2	3	3	3
Diameter range mm	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	1.5 - 16	3 - 20	3 - 16	3 - 16	3 - 20	3 - 20	3 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	Polished	Polished	ZrCN Ultra-N	ZrCN Ultra-N	Polished	Polished	Polished
Version	Mini	Mini	Mini	Short	Short	Short	Short	Short	Short	Short
Type / Profile	HSC	HSC	HSC	HSC	HSC	HSC	HSC	HSC	HSC	HSC
Catalogue page	16.89	16.90	16.90	16.90	16.91	16.91	16.91	16.91	16.91	16.92

Recommended application	● = well-suited	○ = limited suitability								
Aluminium < 8% Si	●	●	●	●	●	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●	●	●	●	●	●
Copper	●	●	●	●	●	●	●	●	●	●
Plastic	○	○	○	●	●	○	○	●	●	●
Graphite										
Steel < 520 N										
Steel < 750 N										
Steel < 900 N										
Steel < 1100 N										
Steel < 1200 N										
Steel < 1400 N										
Hardox										
< 50 HRC										
< 60 HRC										
< 67 HRC										
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	H-W	ATORN®	ATORN®	ATORN®
Article number	16726	16727	16728	16729	16730	16731	16758	16732	16734	16735
										
Number of cutting edges	3	3	3	3	3	3	3	3	3	3
Diameter range mm	3 - 20	3 - 20	3 - 20	3 - 20	3 - 20	3 - 20	3 - 25	6 - 20	6 - 20	6 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	Polished	ZrCN Ultra-N	ZrCN Ultra-N	ZrN	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N
Version	Short	Short	Short	Long	Long	Long	Short/long	Short	Short	Short
Type / Profile	HPC	HPC	HPC	HSC	HPC	HPC	HPC	HPC	HPC	HPC
Catalogue page	16.92	16.92	16.92	16.93	16.93	16.93	16.94	16.94	16.94	16.95

Recommended application	● = well-suited	○ = limited suitability								
Aluminium < 8% Si	●	●	●	●	●	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●	●	●	●	●	●
Copper	●	●	●	●	●	●	●	●	●	●
Plastic	○	○	○	●	○	●	○	○	○	○
Graphite										
Steel < 520 N										
Steel < 750 N										
Steel < 900 N										
Steel < 1100 N										
Steel < 1200 N										
Steel < 1400 N										
Hardox										
< 50 HRC										
< 60 HRC										
< 67 HRC										
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	ATORN®		ATORN®		ATORN®		ATORN®		ATORN®	
Article number	16564	16737	16738	16739	16740	16741	16742	16745	16746	16747
										
Number of cutting edges	3	4	4	4	4	4	4	2	2	2
Diameter range mm	6 - 20	3 - 20	3 - 20	4 - 16	6 - 16	3 - 20	4 - 20	3 - 16	3 - 16	6 - 16
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	CALIDAZ	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N
Version	Short	Short	Short	Long	Overlong	Short	Long	Short	Long	Overlong
Type / Profile	HPC	HPC	HPC	HPC	HPC	HPC	HPC	-	-	-
Catalogue page	16.95	16.95	16.95	16.96	16.96	16.96	16.96	16.97	16.97	16.98
Recommended application	● = well-suited ○ = limited suitability									
Aluminium < 8% Si	●	●	●	●	●	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●	●	●	●	●	●
Copper	●	●	●	●	●	●	●	●	●	●
Plastic		○	○	○	○	○	○	○	○	○
Graphite										
Steel < 520 N										
Steel < 750 N										
Steel < 900 N										
Steel < 1100 N										
Steel < 1200 N										
Steel < 1400 N										
Hardox										
< 50 HRC										
< 60 HRC										
< 67 HRC										
GG	●									
GCG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16748	16749	16755	16756	16757
					
Number of cutting edges	3	3	2	2	2
Diameter range mm	5 - 20	5 - 20	3 - 16	3 - 16	3 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM
Coating	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N	ZrCN Ultra-N
Version	Short	Short	Short	Long	Overlong
Type / Profile	HPC	HPC	-	-	HPC
Catalogue page	16.98	16.98	16.99	16.99	16.99
Recommended application	● = well-suited ○ = limited suitability				
Aluminium < 8% Si	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●
Copper	●	●	●	●	●
Plastic	○	○	○	○	○
Graphite					
Steel < 520 N					
Steel < 750 N					
Steel < 900 N					
Steel < 1100 N					
Steel < 1200 N					
Steel < 1400 N					
Hardox					
< 50 HRC					
< 60 HRC					
< 67 HRC					
GG					
GCG					
VA < 900 N					
VA > 900 N					
Titanium					
Titanium alloy					
Nickel base					



Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16886	16887	16888	16889	16890	16891	16892	16893	16894	16895
										
Number of cutting edges	1	2 - 4	2	3	3	3	4	2	2	3
Diameter range mm	1 - 12	3 - 20	3 - 20	4 - 20	6 - 20	3 - 20	3 - 20	3 - 16	3 - 16	6 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro
Version	Medium	Medium	Medium	Long	Long	Short	Medium	Short	Long	Long
Type / Profile	WF	WF	WF	WF	WF	WF	WF	WF	WF	T
Catalogue page	16.100	16.100	16.101	16.102	16.102	16.101	16.104	16.104	16.105	16.105
Recommended application	● = well-suited ○ = limited suitability									
Aluminium < 8% Si	●	●	●	●	●	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●	●	●	●	●	●
Copper alloy Bronze	●	●	●	●	●	●	●	●	●	●
Copper alloy Brass	●	●	●	●	●	●	●	●	●	●
Graphite										
Duro										
Thermo	○	○	○	○	○	○	○	○	○	○
GFK	○	○	○	○	○	○		○	○	○
CFK	○	○	○	○	○	○		○	○	○
Aramid										
Composite ceramic										
Fibre plast										
Honeycomb										
< 60 HRC										
< 67 HRC										
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16896	16897	16898 1..	16898 2..	16899
					
Number of cutting edges	2	2	3	3	3
Diameter range mm	3 - 16	3 - 16	6 - 20	6 - 20	6 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM
Coating	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro	Ultra Npro
Version	Medium	Long	Medium	Medium	Long
Type / Profile	WF	WF	WR	WR	T
Catalogue page	16.106	16.106	16.103	16.103	16.103
Recommended application	● = well-suited ○ = limited suitability				
Aluminium < 8% Si	●	●	●	●	●
Aluminium > 8% Si	●	●	●	●	●
Copper alloy Bronze	●	●	●	●	●
Copper alloy Brass	●	●	●	●	●
Graphite					
Duro					
Thermo	○	○	○	○	○
GFK					○
CFK					○
Aramid					
Composite ceramic					
Fibre plast					
Honeycomb					
< 60 HRC					
< 67 HRC					
GG					
GGG					
VA < 900 N					
VA > 900 N					
Titanium					
Titanium alloy					
Nickel base					

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	
Article number	16909 101-104	16909 105-108	16909 109-112	16911 103-108	16911 111-118	16912	16913	16914	16915	16916
										
Number of cutting edges	-	-	-	5	6	-	-	-	-	2
Diameter range mm	6 - 12	6 - 12	6 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	6 - 20	4 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	Dia. HC	Dia. HC	Dia. HC	Dia. HC	Dia. HC	-	-	-	-	-
Version	Short	Medium	Long	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Type / Profile	W	W	W	W	W	WF	WN	WR	WN	WF
Catalogue page	16.110	16.110	16.110	16.110	16.110	16.111	16.111	16.111	16.111	16.112

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si										
Aluminium > 8% Si										
Copper alloy Bronze										
Copper alloy Brass										
Graphite										
Duro										
Thermo										
GFK	●	●	●	●	●	●	●	●		●
CFK	●	●	●	●	●	●	●	●		●
Aramid				●	●	●	●	●		●
Composite ceramic										
Fibre plast	○	○	○	○	○	○	○	○		○
Honeycomb									●	
< 60 HRC										
< 67 HRC										
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16917	16918	16919	16920	16921	16925	16926	16927	16928	16933
										
Number of cutting edges	2	2	2	2	2	-	-	-	-	-
Diameter range mm	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12	4 - 12
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	-	-	Dia. HC	Dia. HC	Dia. HC	Dia. HC	-	-	-	-
Version	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Type / Profile	WN	WR	WF	WN	WR	WN	WF	WN	WR	WN
Catalogue page	16.112	16.112	16.112	16.112	16.112	16.112	16.113	16.113	16.113	16.113

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 8% Si										
Aluminium > 8% Si										
Copper alloy Bronze										
Copper alloy Brass										
Graphite										
Duro										
Thermo										
GFK	●	●	●	●	●	●	●	●	●	
CFK	●	●	●	●	●	●	●	●	●	
Aramid	●	●	●	●	●	●	●	●	●	●
Composite ceramic										
Fibre plast	○	○	○	○	○	○	○	○	○	
Honeycomb							○	○	○	
< 60 HRC										
< 67 HRC										
GG										
GGG										
VA < 900 N										
VA > 900 N										
Titanium										
Titanium alloy										
Nickel base										

Brand	HHW	ATORN®	ATORN®	ATORN®
Article number	16702	16703	16704	16705
				
Number of cutting edges	2 - 3	4	2	2
Diameter range mm	2 - 12	4 - 16	0.2 - 12	0.2 - 12
Cutting material	VHM	VHM	VHM	VHM
Coating	Diamond	Diamond	Diamond	Diamond
Version	Long/overlong	Short/long	Short/long	Short/long
Type / Profile	GFK	GFK	GFK	GFK
Catalogue page	16.107	16.107	16.108	16.109

Recommended application

Aluminium < 8% Si				
Aluminium > 8% Si				
Copper				
Plastic	●	●	●	●
Graphite	●	●	●	●
Steel < 520 N				
Steel < 750 N				
Steel < 900 N				
Steel < 1100 N				
Steel < 1200 N				
Steel < 1400 N				
Hardox				
< 50 HRC				
< 60 HRC				
< 67 HRC				
GG				
GGG				
VA < 900 N				
VA > 900 N				
Titanium				
Titanium alloy				
Nickel base				

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16763	16764	16765	16766	16767	16768	16769	16770	16771	16772	16773
											
Number of cutting edges	4	4-6	4-5	3	2	3	4	6-8	4	2	2
Diameter range mm	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	AlTiN	AlTiN	ZrN	TiAlN	TiAlN	TiAlN	TiAlN	Naco-blue	AlTiN	Naco-blue
Version	-	-	-	-	-	-	-	-	-	-	-
Type / Profile	HPC	NRf-MTC	NR-MTC	HPC	-	-	-	-	HPC/HSC	HSC	HPC/HSC
Catalogue page	16.115	16.115	16.115	16.116	16.116	16.116	16.116	16.117	16.117	16.117	16.118

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 10% Si				●	●	●	●				
Aluminium > 10% Si				●	●	●	●	○			
Copper				●	●	●	●				
Plastic				●	●	●	●				
Graphite											
Steel < 520 N	●	●	●		●	●	●	●	●	●	●
Steel < 750 N	●	●	●		●	●	●	●	●	●	●
Steel < 900 N	●	●	●		●	●	●	●	●	●	●
Steel < 1100 N	●	●	●		●	●	●	●	●	●	●
Steel < 1200 N	●	●	●		●	●	●	●	●	●	●
Steel < 1400 N	●	●	●		●	●	●	●	●	●	●
Hardox											
< 50 HRC										●	●
< 60 HRC										●	●
< 67HRC											
GG	●	○	●		●	●	●	●			
GGG	●	○	●		●	●	●	●			
VA < 900 N	○	○	○		○	○	○	○			
VA > 900 N		○									
Titanium											
Titanium alloy											
Nickel base											

Brand	ATORN®	ATORN®	ATORN®	ATORN®	ATORN®
Article number	16774	16775	16776	16777	16778
					
Number of cutting edges	4	2	2	6	4
Diameter range mm	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	AlTiN	TiAlN	TiAlN	TiAlN
Version	-	-	-	-	-
Type / Profile	-	HSC	-	-	-
Catalogue page	16.118	16.118	16.118	16.119	16.119

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 10% Si			●	●	●
Aluminium > 10% Si			●	●	●
Copper	○		●	●	●
Plastic					
Graphite					
Steel < 520 N	●	●	●	●	●
Steel < 750 N	●	●	●	●	●
Steel < 900 N	●	●	●	●	●
Steel < 110 N	●	●	●	●	●
Steel < 1200 N	●	●	●	●	●
Steel < 1400 N	●	●	●	●	●
Hardox					
< 50 HRC		●			
< 60 HRC		●			
< 67 HRC					
GG	●		●		
GGG	●		●		
VA < 900 N	○		○	○	○
VA > 900 N				○	○
Titanium					
Titanium alloy					
Nickel base					

Brand	h.w.	h.w.	ATORN®	ATORN®	ATORN®	h.w.	h.w.	h.w.	h.w.	ATORN®	ATORN®
Article number	16655	16664	16556 1..	16556 2..	16556 3..	16591 1..	16591 2..	16533	16534 2..	16535 2..	16535 3..
											
Number of cutting edges	2	5	4	4	4	4	4	4	4	3	3
Diameter range mm	3 - 12	6 - 20	4 - 20	4 - 20	4 - 20	3 - 25	3 - 25	3 - 20	4 - 20	3 - 20	3 - 20
Cutting material	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM	VHM
Coating	TiAlN	AlCrN	TiAlN	TiAlN	TiAlN	Multilay HPC ³	Multilay HPC ³	TiAlN	Nacro	TiAlN	TiAlN
Version	Overlong	Extra long	Short	Short	Short	Short	Short	Short	Long	Short	Short
Type / Profile	H	Trochoidal	HPC	HPC	HPC	HPC	HPC	HPC	HPC/VA	HPC	HPC
Catalogue page	16.75	16.77	16.83	16.83	16.83	16.52	16.52	16.48	16.48	16.42	16.42

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 10% Si			○	○	○				○		
Aluminium > 10% Si									○		
Copper			○	○	○				○		
Plastic											
Graphite											
Steel < 520 N	●	●				●	●	●		●	●
Steel < 750 N	●	●				●	●	●		●	●
Steel < 900 N	●	●				●	●	●		●	●
Steel < 1100 N	●	●				●	●	●	●	●	●
Steel < 1200 N	●	●				●	●	●	●	●	●
Steel < 1400 N	●	●				●	●	●	●	●	●
Hardox											
< 50 HRC	○	○									
< 60 HRC	○	○									
< 67 HRC	○	○									
GG						●	●	●			
GGG						●	●	●			
VA < 900 N	●		●	●	●	○	○	○	●	○	○
VA > 900 N	●		●	●	●			○	●	○	○
Titanium			○	○	○				○		
Titanium alloy			○	○	○				○		
Nickel base			○	○	○				○		

Brand	h.w.	ATORN®
Article number	16665	16630
		
Number of cutting edges	5	4 - 6
Diameter range mm	6 - 20	6 - 20
Cutting material	VHM	VHM
Coating	AlCrN	TiAlN-Ultra
Version	Overlong	Short
Type / Profile	Trochoidal	NR
Catalogue page	16.78	16.85

Recommended application

● = well-suited ○ = limited suitability

Aluminium < 10% Si		●
Aluminium > 10% Si		●
Copper		●
Plastic		
Graphite		
Steel < 520 N		○
Steel < 750 N		○
Steel < 900 N		○
Steel < 1100 N		○
Steel < 1200 N		○
Steel < 1400 N		○
Hardox		
< 50 HRC		
< 60 HRC		
< 67 HRC		
GG		○
GGG		○
VA < 900 N	●	●
VA > 900 N	●	●
Titanium	●	●
Titanium alloy	●	●
Nickel base	●	●

83943 - 83944 SystemBoard (modular system)**Design**

- Individual configuration with replaceable inserts (Ø 3–40 mm)
- Frames are ideal for stacking, suitable for storage boxes, order picking boxes and transport cases
- Tough and highly impact-resistant, offering reliable protection against damage
- Good heat distortion resistance (up to 120 °C)
- Resistant to solvents, oils and greases

Applications

Ideal for sorting, arranging and storing. Process optimisation, automation possible with precise positioning. Order-related filling for internal logistics processes or further external processing (e.g. cleaning, coating and transport processes). Space-saving storage and provision of tools, turned parts or technical components.

Quality

Polyamide (PA6).

83943 101**Frame****Applications**

To accommodate cutting inserts, see art. no. 83944.

Note:

Optional handles, see art. no. 83943 201.

83943 201**Handle****Applications**

For frames, see art. no. 83943 101.

83944**Cutting inserts****Design**

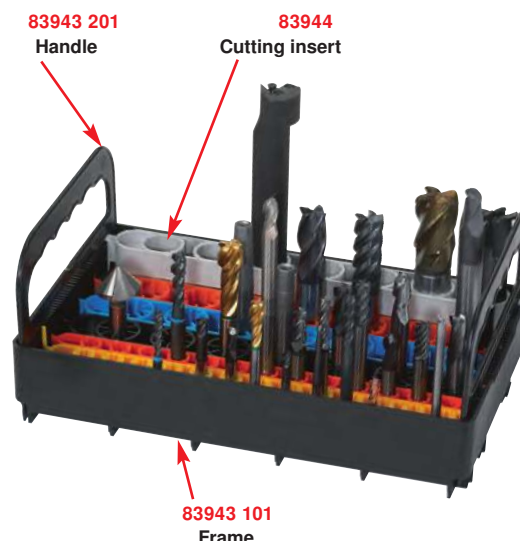
- Height can be adjusted (25 or 40 mm) via a simple twist

Applications

For frames, see art. no. 83943 101.

Note:

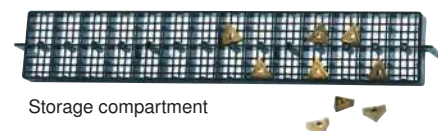
Ø 3/4, 3/8, 1/2, 1/4 inch deliverable on request.



Design	L x W x H mm	Carrying weight max. kg	Colour	83943	...
Frame with base	300 x 185 x 57	-	black		101
Handle	-	8	black		201

Hole Ø mm	Number of holes per cutting insert	Max. number of cutting inserts per frame	83944	...
3	13	12		101
4	13	12		102
5	13	12		103
6	13	12		104
7	13	12		105
8	13	12		106
9	13	12		107
10	13	12		108
11	13	12		109
12	13	12		110
13	7	6		111
14	7	6		112
15	7	6		113
16	7	6		114
17	7	6		115
18	7	6		116

Hole Ø mm	Number of holes per cutting insert	Max. number of cutting inserts per frame	83944	...
19	7	6		117
20	7	6		118
21	7	6		119
22	7	6		120
23	7	6		121
24	7	6		122
25	7	6		123
26	7	6		124
28	5	4		125
30	5	4		126
32	5	4		127
34	5	4		128
36	5	4		129
38	5	4		130
40	5	4		131

83944 132

Storage compartment

Storage compartment L x W mm	Guide height mm	Number of storage compartments per cutting insert	Max. number of cutting inserts per frame	83944	...
17 x 17	8.5	28	4		132

Design

- Plate bodies made of red injection-moulded plastic
- **Robust, handy, sits well**
- Tools with a short clamping shank are positioned far enough out of the location hole to be **easy to remove**
- All shank bores have an open area underneath, meaning **no blockages, e.g. by chips**
- Slightly conical hole guide for easy handling of the end mill
- Delivered **without** cutter

16005 101**Design**

- **Square** (182 x 182 x 30 mm)
- **With 7 different shank mount holes** to accommodate **77 different** end mills

16005 102-108**Design**

- **Rectangular** (140 x 70 x 30 mm)
- Each with **thesame shank holes** to each accommodate **a certain shank diameter**

Applications

The various mounting plates can be joined together in modules to form a plate system. Each plate body has dovetail shaped couplings **on the side walls**. They form an invisible connection so that combinations appear as one unit.

16005 101



16005 102-108



Shank mounting hole mm	End mill capacity piece	16005	...
6-25	77		101
6	72		102
8	50		103
10	32		104
12	21		105
16	18		106
20	10		107
25	8		108

**Design**

- Straight shank
- With only **one cutting edge**
- For cutting on periphery and end face

Applications

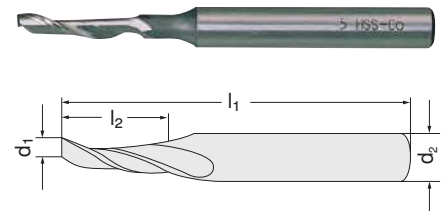
For milling slots on aluminium doors and windows on high-speed milling machines.

Quality

HSS-E (Co5).



16010



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	16010	...
3.0	12	60	8		101
4.0	12	60	8		102
5.0	13	60	8		103
L 5.0	16	80	8		107

d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	16010	...
6.0	16	60	8		104
8.0	16	80	8		105
L 8.0	30	100	8		108
10.0	15	80	10		106

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70	60	60	50	40	30	-	-	-	-	-	-	-	-	-	-	-	-

Mini cutters | Square end mills

16020 - 16022

Mini cutters

ATORN®

Design

Short, right cutting, right-hand twist 30°,
3 cutting edges, centre cutting, straight shank
with driving surface in accordance with DIN 1835 B.

16020
Quality
HSS-E (Co8).

16022
Quality
HSS-E (Co8)/TiAlN-coated.

Note:

Re-grinding of cutters with a small cutting-edge
diameter is uneconomical. It is therefore more
economical to use mini cutters up to the wear limit
and then throw them away. You repeatedly use
brand-new cutters and reduce the risk of having to
scrap finished pieces.



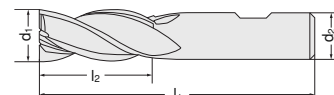
HSS-E

16020



HSS-E
TiAlN

16022



d1 d10 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E			HSS-E/TiAlN		
				16020	...	16022	...	16022	...
1.0	2	34	6			201		201	
1.5	3	34	6			202		202	
1.8	3	34	6			203		203	
2.0	4	35	6			204		204	
2.5	5	36	6			206		206	
2.8	5	36	6			207		207	
3.0	5	36	6			208		208	
3.5	6	37	6			210		210	
3.8	7	38	6					211	
4.0	7	38	6			212		212	
4.5	7	38	6			214		214	
4.8	8	39	6			215		215	
5.0	8	39	6			216		216	
5.5	8	39	6			217		217	

d1 d10 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E			HSS-E/TiAlN		
				16020	...	16022	...	16022	...
5.75	8	39	6					218	
6.0	8	39	6			219		219	
6.5	10	42	8					220	
7.0	10	42	8					221	
7.5	10	42	8					222	
8.0	11	43	8			223		223	
8.5	11	48	10			224		224	
9.0	11	48	10			225		225	
9.5	11	48	10			226		226	
10.0	13	50	10			227		227	
12.0	16	58	12			228		228	
16.0	19	64	16			229			
20.0	22	78	20			230			

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16020																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16022																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	15	65	-

16030 - 16032

Mini cutters

ATORN®

Design

Long, right cutting, right-hand twist 30°,
3 cutting edges, centre cutting, straight shank
with driving surface in accordance with DIN 1835 B.

16030
Quality
HSS-E (Co8).

16032
Quality
HSS-E (Co8)/TiAlN-coated.

Note:

Re-grinding of cutters with a small cutting-edge
diameter is uneconomical. It is therefore more
economical to use mini cutters up to the wear limit
and then throw them away. You repeatedly use
brand-new cutters and reduce the risk of having to
scrap finished pieces.



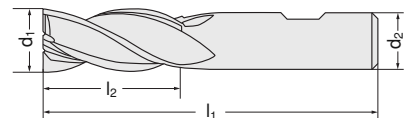
HSS-E

16030



HSS-E
TiAlN

16032



d1 d10 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E			HSS-E/TiAlN		
				16030	...	16032	...	16032	...
2.0	7	38	6			201		201	
2.5	8	39	6			202		202	
3.0	8	39	6			203		203	
3.5	10	41	6			204		204	
4.0	11	42	6			205		205	
4.5	11	42	6			206		206	

d1 d10 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E			HSS-E/TiAlN		
				16030	...	16032	...	16032	...
5.0	13	44	6			207		207	
5.5	13	44	6			208			
6.0	13	44	6			209		209	
6.5	16	48	8			210			
8.0	19	51	8			212		212	
10.0	22	59	10			215			

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16030																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16032																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16060 - 16062

Square end mills

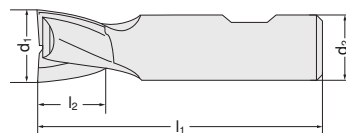
Z 2

**ATORN®**

Design

Short, right cutting, straight shank with driving surface in accordance with DIN 1835 B. Right-hand twist approx. 30°, 2 cutting edges, centre cutting.

16062
HSS-E (Co8)/TiAlN-coated.



HSS-E



16060

HSS-E
TiAlN

16062

16060

HSS-E (Co8).

d1 e8 mm	l2 mm	l1 mm	d2 h6 mm	d3 mm	HSS-E		HSS-E/TiAlN	
					16060	...	16062	...
1.0	2.5	47	6	-		201		201
1.5	3	47	6	-		202		202
2.0	4	48	6	-		203		203
2.5	5	49	6	-		204		204
2.8	5	49	6	-		205		205
3.0	5	49	6	-		206		206
3.5	6	50	6	-		207		207
3.8	7	51	6	-				208
4.0	7	51	6	-		209		209
4.5	7	51	6	-		210		210
4.8	8	52	6	-		211		211
5.0	8	52	6	-		212		212
5.5	8	52	6	-		213		213
5.75	8	52	6	-		214		214
6.0	8	52	6	5.5		215		215
6.5	10	60	10	-		216		216
7.0	10	60	10	-		218		218
7.5	10	60	10	-		219		219
7.75	11	61	10	-		220		220
8.0	11	61	10	7.5		221		221
8.5	11	61	10	-		222		222
9.0	11	61	10	-		224		224

d1 e8 mm	l2 mm	l1 mm	d2 h6 mm	d3 mm	HSS-E		HSS-E/TiAlN	
					16060	...	16062	...
9.5	11	61	10	-		225		225
9.7	13	63	10	-				226
10.0	13	63	10	9.0		227		227
11.0	13	70	12	-		228		228
11.7	16	73	12	-		229		229
12.0	16	73	12	11.0		230		230
13.0	16	73	12	-		231		231
14.0	16	73	12	-		233		233
15.0	16	73	12	-		234		234
16.0	19	79	16	15.0		236		236
17.0	19	79	16	-		237		237
18.0	19	79	16	-		239		239
19.0	19	79	16	-		240		240
20.0	22	88	20	19.0		242		242
22.0	22	88	20	-		243		243
25.0	26	102	25	24.0		245		245
26.0	26	102	25	-		246		246
28.0	26	102	25	-		247		247
30.0	26	102	25	-		248		248
32.0	32	112	32	31.0		249		249
36.0	32	112	32	-		251		251
40.0	38	130	40	39.0		252		252

Al<10% Si	Al>10% Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<50HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16060																	
70	60	60	50	50	50	30	20	-	-	-	-	-	20	15	10	40	-
16062																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16073 - 16074

Square end mills

Z 2

**ATORN®**

Design

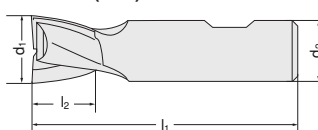
Long, right cutting, right-hand twist approx. 30°, 2 cutting edges, from 4.0 mm Ø centre cutting. With eccentric relief grinding, over Ø 10.0 mm produced with double relief grinding. Straight shank with driving surface in accordance with DIN 1835 B.

Advantage:

No circular grinding chamfer, therefore better support and clear cut.

16073
HSS-E (Co8).

16074
HSS-E (Co8)/TiAlN-coated.



HSS-E



16073

HSS-E
TiAlN

16074

d1 e8 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E		HSS-E/TiAlN	
				16073	...	16074	...
2.5	8	56	6		201		201
3.0	8	56	6		202		202
3.5	10	59	6		203		203
4.0	11	63	6		204		204
4.5	11	63	6		205		205
5.0	13	68	6		206		206
5.5	13	68	6		207		207
6.0	13	68	6		208		208
6.5	16	80	10		209		209
7.0	16	80	10		210		210

d1 e8 mm	l2 mm	l1 mm	d2 h6 mm	HSS-E		HSS-E/TiAlN	
				16073	...	16074	...
8.0	19	88	10		211		211
10.0	22	95	10		214		214
12.0	26	110	12		215		215
14.0	26	110	12		216		216
16.0	32	123	16		217		217
18.0	32	123	16		218		218
20.0	38	141	20		219		219
22.0	38	141	20		220		220
24.0	45	166	25		221		221
25.0	45	166	25		222		222

Al<10% Si	Al>10% Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16073																	
70	60	60	50	40	40	30	20	-	-	-	-	20	15	10	40	-	-
16074																	
100	90	90	80	65	65	45	30	-	-	-	-	30	20	-	65	-	-

Square end mills

16094 - 16100

Square end mills

Z 3



Design

- Short
- Right cutting
- Right-hand twist approx. 30°
- 3 cutting edges
- Centre cutting
- Straight shank with driving surface in accordance with DIN 1835 B

Advantage:

No circular grinding chamfer, therefore better support and clear cut.

16094

ATORN®

Quality
HSS-E (Co8).

16096

ATORN®

Quality
HSS-E (Co8)/TiAlN-coated.

16100

HHW

Applications

Also suitable for dry machining.

Quality

HSS-E powder steel/TiAlN-coated.

HSS-E



16094

HSS-E
TiAlN

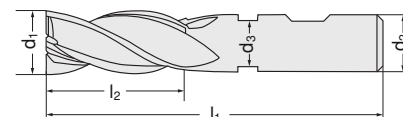


16096

HSS-E-PM
TiAlN



16100



d ₁ e8 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	HSS-E		HSS-E/TiAlN		HSS-E-PM/TiAlN	
					16094	...	16096	...	16100	...
1.5	7	51	6	-		101		101		
2.0	7	51	6	-		102		102		
2.5	8	52	6	-		103		103		
3.0	8	52	6	-		104		104		
3.5	10	54	6	-		105		105		
4.0	11	55	6	-		106		106		201
4.5	11	55	6	-		107		107		
5.0	13	57	6	-		108		108		202
5.5	13	57	6	-		109		109		
6.0	13	57	6	5.5		110		110		203
6.5	16	66	10	-		111		111		
7.0	16	66	10	-		112		112		204
7.5	16	66	10	-		113		113		
8.0	19	69	10	7.5		114		114		205
8.5	19	69	10	-		115		115		
9.0	19	69	10	-		116		116		
10.0	22	72	10	9.0		117		117		206
12.0	26	83	12	11.0		118		118		207
14.0	26	83	12	-		119		119		208
16.0	32	92	16	15.0		120		120		209
18.0	32	92	16	-		121		121		210
20.0	38	104	20	19.0		122		122		211
22.0	38	104	20	-		123		123		
25.0	45	121	25	24.0		124		124		
28.0	45	121	25	-		125		125		
30.0	45	121	25	-		126		126		

Al<10% Si	Al>10% Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<50HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16094																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	4	-
16096																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-
16100																	
140-250	120-140	90-120	80-90	70-80	55-65	50-60	40-50	-	-	-	-	-	40-45	35-40	-	80-90	80-120



ATORN®**Design**

- Long
- Right cutting
- Right-hand twist approx. 30°
- **3 cutting edges, centre cutting**
- Straight shank with driving surface in accordance with DIN 1835 B

16104
Quality
HSS-E (Co8).

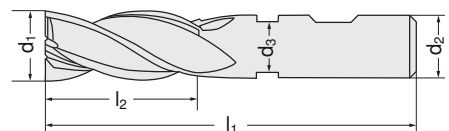
16105
Quality
HSS-E (Co8)/TiAlN-coated.

HSS-E

16104

HSS-E
TiAlN

16105



d ₁ h10 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	HSS-E 16104	...	HSS-E/TiAlN 16105	...
2.0	10	54	6	-		101		101
3.0	12	56	6	-		103		103
3.5	15	59	6	-		104		
4.0	19	63	6	-		105		105
4.5	19	63	6	-		106		
5.0	24	68	6	-		107		107
5.5	24	68	6	-		108		108
6.0	24	68	6	5,5		109		109
7.0	30	80	10	-		110		110
8.0	38	88	10	7,5		112		112
10,0	45	95	10	9,0		114		114
12,0	53	110	12	11,0		116		116
14.0	53	110	12	-		118		
16.0	63	123	16	15,0		120		120
18.0	63	123	16	-		122		
20.0	75	141	20	19,0		125		125

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16104																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16105																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

Info**The HHW colour guidance system**

With the **HHW** colour guidance system you can see at first glance which materials the tool is suitable for. In most catalogue sections, the **HHW** also informs you about the application data for the corresponding tool. The **HHW** colour guidance system is logically structured according to the steel key. This means that you can select the appropriate tools in advance of the machining process, saving you time and money.

St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA-steel<900N	VA-steel>900N	Ti alloys	GG(G)	plastics
40-50	35-40	-	-	-	-	35-45	35-45	-	80-120	-

Use
HM grade
Coating

Designation	W ^{±0,1} mm	R ^{±0,05} mm		
GTN-2	2,2	0,16	10 pieces	113
GTN-3	3,1	0,20	10 pieces	114

P M K
H 42
coated

18674 ...



End mills

16120 - 16131

End mills

Design

- Short
- Right cutting
- Right-hand twist approx. 35°
- **4-6 cutting edges, centre cutting**
- Straight shank with driving surface in accordance with DIN 1835 B

16120

ATORN®

Design

- Cutting tolerance h10

Quality

HSS-E (Co8).



HSS-E



16120

16122

ATORN®

Design

- Cutting tolerance h10

Quality

HSS-E (Co8)/TiAlN-coated.

HSS-E
TiAlN



16122

16131

HHW

Design

- Cutting tolerance k10

Applications

Also suitable for dry machining.

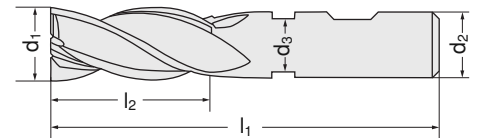
Quality

HSS-E-PM/TiAlN-coated.

HSS-E-PM
TiAlN



16131



d ₁ mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E		HSS-E/TiAlN		HSS-E-PM/TiAlN	
						16120	...	16122	...	16131	...
2.0	7	51	6	-	4			102		102	
2.5	8	52	6	-	4			103			
3.0	8	52	6	-	4			104		104	
3.5	10	54	6	-	4			105			
4.0	11	55	6	-	4			106		106	
4.5	11	55	6	-	4			107			
5.0	13	57	6	-	4			108		108	
6.0	13	57	6	5.5	4			110		110	302
7.0	16	66	10	-	4			112		112	
8.0	19	69	10	7.5	4			113		113	304
9.0	19	69	10	-	4			114		114	
10.0	22	72	10	9.0	4			115		115	305
11.0	22	79	12	-	4			116		116	
12.0	26	83	12	11.0	4			117		117	306
13.0	26	83	12	-	4			118		118	
14.0	26	83	12	-	4			119		119	307
15.0	26	83	12	-	4			120		120	
16.0	32	92	16	15.0	4			121		121	308
18.0	32	92	16	-	4			123		123	309
19.0	32	92	16	-	4			124		124	
20.0	38	104	20	19.0	4			125		125	310
22.0	38	104	20	-	5			127		127	
24.0	45	121	25	-	5			129		129	
25.0	45	121	25	24.0	5			130		130	312
28.0	45	121	25	-	6			132		132	
30.0	45	121	25	-	6			133		133	314
32.0	53	133	32	31.0	6			134		134	
40.0	63	155	40	39.0	6			138			

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16120																	
70-120	40-70	40-70	28-32	25-30	18-25	16-22	12-18	-	-	-	-	-	5-15	3-12	3-12	30-50	50-70
16122																	
70-200	40-150	40-150	75-85	45-55	40-60	20-50	12-40	-	-	-	-	-	5-28	3-25	-	40-70	80-10
16131																	
140-250	120-140	90-120	80-90	70-80	55-65	50-60	40-50		-	-	-	-	40-45	35-40	-	80-90	80-120



ATORN®**Design**

- Long
- Right cutting
- Right-hand twist approx. 30°
- **4-6 cutting edges, centre cutting**
- Straight shank with driving surface in accordance with DIN 1835 B
- From 25 mm shank diameter with 2 driving surfaces

16128
Quality
HSS-E (Co8).

16129
Quality
HSS-E (Co8)/TiAlN-coated.

Z 4-6



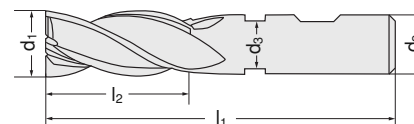
HSS-E



16128

HSS-E
TiAlN

16129



d ₁ h10 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E		HSS-E/TiAlN	
						16128	...	16129	...
2.0	10	54	6	-	4	201		201	
3.0	12	56	6	-	4	203		203	
3.5	15	59	6	-	4	204		204	
4.0	19	63	6	-	4	205		205	
4.5	19	63	6	-	4	206		206	
5.0	24	68	6	-	4	207		207	
5.5	24	68	6	-	4	208		208	
6.0	24	68	6	5.5	4	209		209	
7.0	30	80	10	-	4	210		210	
8.0	38	88	10	7.5	4	211		211	
9.0	38	88	10	-	4	212		212	
10.0	45	95	10	9.0	4	213		213	

d ₁ h10 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E		HSS-E/TiAlN	
						16128	...	16129	...
11.0	45	102	12	-	4	214		214	
12.0	53	110	12	11.0	4	215		215	
14.0	53	110	12	-	4	217		217	
16.0	63	123	16	15.0	4	219		219	
18.0	63	123	16	-	4	221		221	
20.0	75	141	20	19.0	4	223		223	
22.0	75	141	20	-	5	224		224	
25.0	90	166	25	24.0	5	226		226	
28.0	90	166	25	-	6	228		228	
30.0	90	166	25	-	6	229		229	
32.0	106	186	32	31.0	6	230		230	

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16128																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16129																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16133 - 16134

End mills



Design

- Extra long
- Straight face
- Right cutting, right-hand twist approx. 30°
- Straight shank with driving surface in accordance with 1835 B

16133
Quality
HSS-E (Co5).

16134
Quality
HSS-E (Co5)/TiAlN-coated.



HSS-E

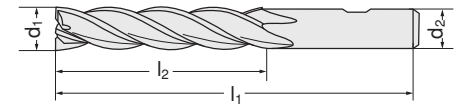
16133

HSS-E
TiAlN

16134



d ₁ k10 mm	l ₂ mm	l ₁ mm	d ₂ h ₆ mm	Z	HSS-E		HSS-E/TiAlN	
					16133	...	16134	...
6.0	40	100	6	4		206		206
8.0	65	115	10	4		208		208
10.0	65	115	10	4		210		210
12.0	75	132	12	4		212		212
16.0	100	160	16	4		216		216
20.0	125	191	20	4		220		220
25.0	140	216	25	4		225		225



Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16133																	
40-120	40-90	40-90	45-50	30-35	25-38	15-30	10-25	-	-	-	-	-	5-18	3-15	-	24-40	50-60
16134																	
110	85	90	65	55	50	36	28	22	-	-	-	-	18	13	-	38	-

16150

End mills



Design

Short, 6-8 cutting edges. With eccentric relief grinding. Straight shank with driving surface in accordance with DIN 1835 B. Multi-flute cutters, free in the middle on face side. Right-hand spiral 30°.

Applications
For normal to solid materials.

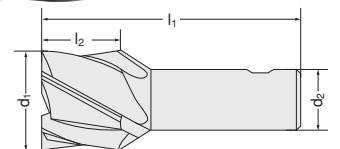
Quality
HSS-E (Co8).

d ₁ k10 mm	l ₂ mm	l ₁ mm	d ₂ h ₆ mm	Z	16150	...
30.0	30	90	20	6		101
35.0	30	90	20	6		102
40.0	32	95	25	8		103
50.0	36	100	32	8		104

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70-120	40-70	40-70	28-32	25-30	18-25	16-22	12-18	-	-	-	-	-	5-15	3-12	3-12	30-50	50-70



16150



16153

End mills



Design

- Short
- Right cutting, right-hand twist approx. 42°
- 2 cutting edges, centre cutting
- Straight shank with driving surface in accordance with DIN 1835 B

Applications
For soft to tough, long-chipping materials such as aluminium and copper alloys.

Quality
HSS-E (Co8).

d ₁ e8 mm	l ₂ mm	l ₁ mm	d ₂ h ₆ mm	16153	...
2.0	7.0	51	6		101
2.5	8.0	52	6		102
3.0	8.0	52	6		103
4.0	11.0	55	6		105
5.0	13.0	57	6		107
5.5	13.0	57	6		108
6.0	13.0	57	6		109
7.0	16.0	66	10		111

d ₁ e8 mm	l ₂ mm	l ₁ mm	d ₂ h ₆ mm	16153	...
8.0	19.0	69	10		113
9.0	19.0	69	10		115
10.0	22.0	72	10		116
12.0	26.0	83	12		117
16.0	32.0	92	16		119
18.0	32.0	92	16		120
20.0	38.0	104	20		121
22.0	38.0	104	20		122

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



16158 - 16161

End mills



Design

- Right cutting
- Right-hand twist approx. 35°
- **3 cutting edges**
- **Centre cutting**
- With eccentric relief grinding
- **With released straight shank** with driving surface in accordance with DIN 1835 B

Applications

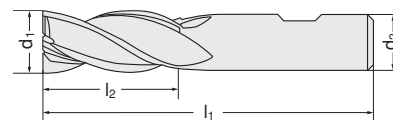
For soft to tough, long-chipping materials such as aluminium and copper alloys.

Quality

HSS-E (Co8).

16158
Short version.

16161
Long version.



		Short		Long				Short		Long							
d ₁ e8 mm	d ₂ h6 mm	l ₂ mm	l ₁ mm	l ₂ mm	l ₁ mm			16158	...	16161	...						
3.0	6	8	52	12	56				201		201						
4.0	6	11	55	19	63				202		202						
5.0	6	13	57	24	68				203		203						
6.0	6	13	57	24	68				204		204						
8.0	10	19	69	38	88				205		205						
10.0	10	22	72	45	95				206		206						
12.0	12	26	83	53	110				207		207						
14.0	12	26	83	53	110				208		208						
16.0	16	32	92	63	123				210		209						
18.0	16	32	92	63	123				211		210						
20.0	20	38	104	75	141				212		211						
Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
60-70	50-60	50-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60-100

16170

Radius cutter



Design

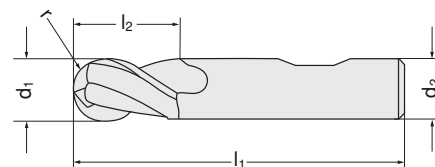
- **Short**
- With face radius
- Right cutting
- Right-hand twist up to 6.0 mm Ø 40°, from 8.0 mm Ø 30°
- **2 cutting edges**
- **Centre cutting**
- Radius tolerance +/- 0.04 mm
- Straight shank with driving surface in accordance with DIN 1835 B

Advantage:

No circular grinding chamfer, therefore better support and clear cut.

Quality

HSS-E (Co8).



d ₁ h10 mm	Radius mm	l ₂ mm	l ₁ mm	d ₂ h6 mm											16170	...	
2.0	1.0	4	48	6												201	
3.0	1.5	5	49	6												202	
4.0	2.0	7	51	6												203	
5.0	2.5	8	52	6												204	
6.0	3.0	8	52	6												205	
8.0	4.0	11	61	10												206	
10.0	5.0	13	63	10												207	
12.0	6.0	16	73	12												208	
16.0	8.0	19	79	16												210	
20.0	10.0	22	88	20												212	
Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70–120	40–70	40–70	28–32	25–30	18–25	16–22	12–18	-	-	-	-	-	5–15	3–12	3–12	30–50	50–70

16176 - 16177

Radius cutter

Z 2


ATORN®

Design

- Long
- With face radius
- Right cutting
- Right-hand twist approx. 30°
- 2 cutting edges
- Centre cutting
- Radius tolerance +/- 0.04 mm
- Straight shank with driving surface in accordance with DIN 1835 B

16176
Quality
HSS-E (Co8).

16177
Quality
HSS-E (Co8)/TiAlN-coated.

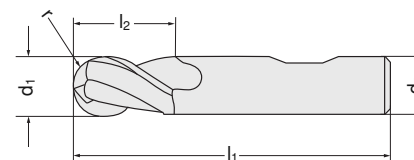
HSS-E



16176

HSS-E
TiAlN


16177



d ₁ e8 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E		HSS-E/TiAlN	
				16176	...	16177	...
2.0	10	54	6		201		201
3.0	12	56	6		202		202
4.0	19	63	6		203		203
5.0	24	68	6		204		204
6.0	24	68	6		205		205
8.0	38	88	10		207		207
10.0	45	95	10		209		209

d ₁ e8 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E		HSS-E/TiAlN	
				16176	...	16177	...
12.0	53	110	12		211		211
16.0	63	123	16		215		215
18.0	69	123	16		217		217
20.0	75	141	20		219		219
25.0	90	166	25		222		222
30.0	90	166	25		225		225

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16176																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	-	40	-
16177																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16183 - 16185

Shank roughing cutter

Z 3


ATORN®

Design

- Short
- 3 cutting edges
- Centre cutting
- Right-hand twist approx. 30°
- Straight shank with driving surface in accordance with DIN 1835 B

16183
Quality
HSS-E (Co8).

16185
Quality
HSS-E (Co8)/TiAlN-coated.

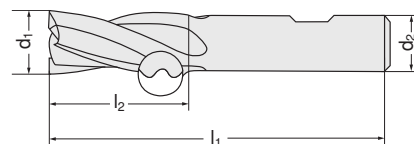
HSS-E



16183

HSS-E
TiAlN


16185



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E		HSS-E/TiAlN	
				16183	...	16185	...
6.0	13	57	6		201		201
7.0	16	66	10		202		202
8.0	19	69	10		203		203
9.0	19	69	10		204		204
10.0	22	72	10		205		205
12.0	26	83	12		206		206

d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E		HSS-E/TiAlN	
				16183	...	16185	...
14.0	26	83	12		207		207
16.0	32	92	16		208		208
18.0	32	92	16		209		209
20.0	38	104	20		210		210
25.0	45	121	25		212		212

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16183																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16185																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16195 - 16198

Shank roughing cutter



Design

- Short
- Right cutting
- Right-hand twist approx. 30°
- **4-6 cutting edges**
- **Centre cutting up to Ø 20 mm**, also free in the middle
- Straight shank with driving surface in accordance with DIN 1835 B
- With eccentric relief grinding

16195
Quality
HSS-E (Co8).

16198
Quality
HSS-E (Co8)/TiAlN-coated.



HSS-E

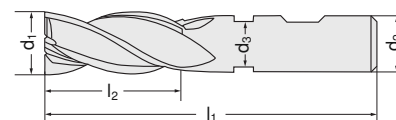


16195

HSS-E
TiAlN



16198



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E		HSS-E/TiAlN	
						16195	...	16198	...
10.0	22	72	10	9.0	4			105	105
11.0	22	79	12	-	4			106	106
12.0	26	83	12	11.0	4			107	107
13.0	26	83	12	-	4			108	108
14.0	26	83	12	-	4			109	109
15.0	26	83	12	-	4			110	110
16.0	32	92	16	15.0	4			111	111
17.0	32	92	16	-	4			112	112
18.0	32	92	16	-	4			113	113
20.0	38	104	20	19.0	4			116	116

d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E		HSS-E/TiAlN	
						16195	...	16198	...
22.0	38	104	20	-	5			117	117
24.0	45	121	25	-	5			119	
25.0	45	121	25	24.0	5			120	120
26.0	45	121	25	-	6			121	121
28.0	45	121	25	-	6			122	122
30.0	45	121	25	-	6			123	123
32.0	53	133	32	31.0	6			124	124
36.0	53	133	32	-	6			126	126
40.0	63	155	40	39.0	6			129	129

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16195																	
70	60	60	50	40	40	30	20	-	-	-	-	-	20	15	10	40	-
16198																	
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	-	65	-

16200

Shank roughing cutter



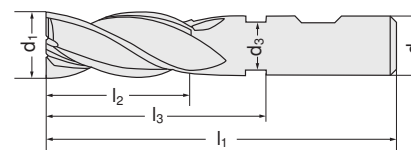
Design

- Long
- Right cutting
- With roughing teeth
- Right-hand twist approx. 30°
- **4-6 cutting edges**
- **Centre cutting up to Ø 32 mm**
- Straight shank with driving surface in accordance with DIN 1835 B
- With eccentric relief grinding, over Ø 10.0 mm with double relief grinding

Quality
HSS-E (Co5).



16200



d ₁ k12 mm	l ₂ mm	l ₃ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	16200	...
8.0	38	48	88	10	7.5	4		100
10.0	45	55	95	10	9.5	4		101
12.0	53	65	110	12	11.5	4		102
14.0	53	65	110	12	11.5	4		103
16.0	63	75	123	16	15.5	4		105
18.0	63	75	123	16	15.5	4		106

d ₁ k12 mm	l ₂ mm	l ₃ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	16200	...
20.0	75	91	141	20	19.5	4		107
25.0	90	110	166	25	24.5	4		110
30.0	90	110	166	25	24.5	6		113
32.0	106	126	186	32	31.5	6		114
36.0	106	126	186	32	31.5	6		115

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
40-120	40-90	40-90	45-50	30-35	25-38	15-30	10-25	-	-	-	-	-	5-18	3-15	3-15	24-40	50-60

Shank roughing cutters | Shank roughing finishing cutters

16209

Shank roughing cutter



Design

- Extra-long
- Right cutting
- Right-hand twist approx. 30°
- 4-5 cutting edges
- Straight shank with driving surface in accordance with DIN 1835 B

Quality
HSS-E/TiAlN.

HSS-E
TiAlN

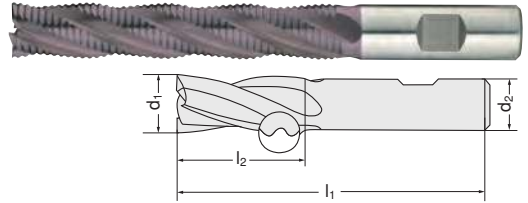
Z 4-5



NR



16209



d ₁ mm	l ₂ mm	l ₁ mm	d ₂ mm	Z	16209	...
6.0	40	100	6	4		106
8.0	65	115	8	4		108
10.0	65	115	10	4		110
12.0	75	132	12	4		112

d ₁ mm	l ₂ mm	l ₁ mm	d ₂ mm	Z	16209	...
16.0	100	160	16	4		116
20.0	125	191	20	4		120
25.0	125	201	25	5		125

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70-200	40-150	40-150	75-85	45-55	40-60	20-50	12-40	-	-	-	-	-	5-28	3-25	-	40-70	80-100

16205

Shank roughing cutter



Design

Short, 6-8 cutting edges, straight shank with driving surface in accordance with DIN 1835 B. Relief ground cord profile, right-hand spiral 35°. Roughing teeth.

Quality
HSS-E (Co5).

HSS-E

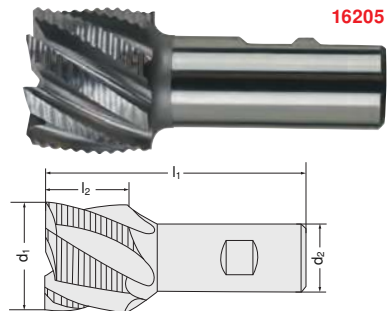
Z 6-8



NR



16205



d ₁ k12 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	Z	16205	...
30.0	30	90	20	6		101
35.0	30	90	20	6		102
40.0	32	95	25	8		103
50.0	36	100	32	8		104

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
70-120	40-70	40-70	28-32	25-30	18-25	16-22	12-18	-	-	-	-	-	5-15	3-12	3-12	30-50	50-70

16220 - 16223

Shank roughing finishing cutters



Design

- Short
- 3 cutting edges
- Right cutting
- Centre cutting
- Right-hand twist approx. 30°
- Straight shank with driving surface in accordance with DIN 1835 B
- With eccentric relief grinding, over Ø 10.0 mm with double relief grinding

16220
Quality
HSS-E (Co8).

16223
Quality
HSS-E (Co8)/TiAlN-coated.

Z 3



DIN 844B

NF



16220

16223



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E 16220	...	HSS-E/TiAlN 16223	...
6.0	13	57	6		101		101
8.0	19	69	10		102		102
10.0	22	72	10		103		103
12.0	26	83	12		104		104
14.0	26	83	12		105		105
16.0	32	92	16		106		106
18.0	32	92	16		107		107
20.0	38	104	20		108		108

d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	HSS-E 16220	...	HSS-E/TiAlN 16223	...
22.0	38	104	20				109
25.0	45	121	25		110		110
28.0	45	121	25				111
30.0	45	121	25		112		112
32.0	53	133	32				113
36.0	53	133	32				114
40.0	63	155	32				115

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16220	70	60	60	50	40	40	30	20	-	-	-	-	20	15	10	40	-
16223	100	90	90	80	65	65	45	30	-	-	-	-	30	20	15	65	-

16260 - 16268

Shank roughing cutter



Design

- Short
- 4-6 cutting edges
- With eccentric relief grinding
- With released straight shank with driving surface in accordance with DIN 1835 B
- Fine roughing profile
- Right cutting with centre cutting
- Right-hand twist approx. 35°

16260

Design

- Cutting tolerance js14

Quality

HSS-E (Co8).

16262

Design

- Cutting tolerance js14

Quality

HSS-E (Co8)/TiAlN-coated.

16268

Design

- Cutting tolerance k12

Applications

Also suitable for dry machining.

Quality

HSS-E-PM/TiAlN-coated.



HSS-E



16260

HSS-E
TiAlN

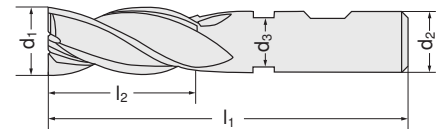


16262

HSS-E-PM
TiAlN



16268



d ₁ mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E 16260	HSS-E/TiAlN 16262	HSS-E-PM/TiAlN 16268
						...	...	...
6.0	13	57	6	5.5	4	101	101	101
8.0	19	69	10	7.5	4	102	102	102
10.0	22	72	10	9.0	4	103	103	103
12.0	26	83	12	11.0	4	104	104	104
14.0	26	83	12	-	4	105	105	105
16.0	32	92	16	15.0	4	106	106	106
18.0	32	92	16	-	4	107	107	107
20.0	38	104	20	19.0	4	108	108	108
25.0	45	121	25	24.0	5	109	109	109
30.0	45	121	25	-	6			110

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16260																	
70-120	40-70	40-70	28-32	25-30	18-25	16-22	12-18	-	-	-	-	-	5-15	3-12	3-12	30-50	50-70
16262																	
70-200	40-150	40-150	75-85	45-55	40-60	20-50	12-40	-	-	-	-	-	5-28	3-25	3-25	40-70	80-100
16268																	
140-250	120-140	90-120	80-90	70-80	55-65	50-60	40-50	-	-	-	-	-	40-45	35-40	-	60-90	80-120

16270

Shank roughing cutter



Design

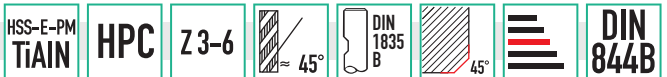
- With high-performance roughing teeth

Applications

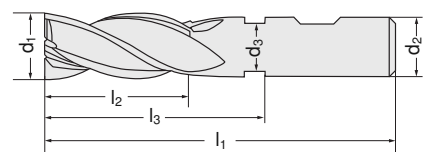
For roughing with the most stringent demands of the service life.

Quality

HSS-E-PM/TiAlN-coated.



16270



d ₁ k12 mm	l ₂ mm	l ₃ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	16270	...
4.0	11	-	55	6	-	3		204
5.0	13	21	57	6	4.8	4		205
6.0	16	21	57	6	5.5	4		206
8.0	16	27	63	8	7.5	4		208
10.0	22	32	72	10	9.5	4		210
12.0	25	38	83	12	11.5	4		212
16.0	32	44	92	16	15.5	5		216
20.0	38	54	104	20	19.5	6		220
25.0	45	65	121	25	24.5	6		225

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1300N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
200-450	120-140	60-80	80-90	70-80	50-70	40-50	30-40	30-35	-	-	-	-	40-45	40-45	16-30	-	-

16277 - 16278

Shank roughing cutter



Design

Long, 3–6 cutting edges, centre cutting up to Ø 20 mm, also free in the middle. Straight shank with driving surface in accordance with DIN 1835 B, fine roughing profile, right-hand spiral 30°.

16277

Quality

HSS-E (Co8).

16278

Quality

HSS-E (Co8)/TiAlN-coated.



Z 3–6



DIN 844B

HR

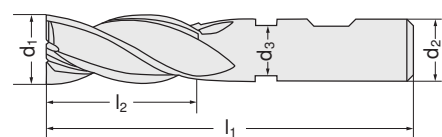


HSS-E

16277

HSS-E
TiAlN

16278



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	d ₃ mm	Z	HSS-E 16277	...	HSS-E/TiAlN 16278	...
6.0	24	68	6	5.5	3		101		101
8.0	38	88	10	7.5	3		102		102
10.0	45	95	10	9.0	4		103		103
12.0	53	110	12	11.0	4		104		104
14.0	53	110	12	-	4		105		105
16.0	63	123	16	15.0	4		106		106
18.0	63	123	16	-	4				107
20.0	75	141	20	19.0	4		108		108
22.0	75	141	20	-	5		109		109
25.0	90	166	25	24.0	5		110		110
28.0	90	166	25	-	6				111
30.0	90	166	25	-	6				112

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
16277																	
70–120	40–70	40–70	28–32	25–30	18–25	16–22	12–18	-	-	-	-	-	5–15	3–12	3–12	-	-
16278																	
70–200	40–150	40–150	75–85	45–55	40–60	20–50	12–40	-	-	-	-	-	5–28	3–25	-	40–70	80–100

16281

Radius roughing cutter



Design

Short, 3–4 cutting edges, centre cutting. Straight shank with driving surface in accordance with DIN 1835 B, fine roughing profile, right-hand spiral 35°.

Quality

HSS-E (Co8)/TiAlN-coated.



Z 3–4

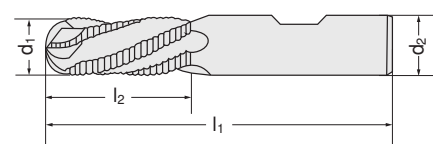


DIN 844B

HR



16281



d ₁ js14 mm	l ₂ mm	l ₁ mm	d ₂ h6 mm	Z	16281	...
6.0	13	57	6	3		101
8.0	19	69	10	3		102
10.0	22	72	10	3		103
12.0	26	83	12	4		104
16.0	32	92	16	4		105
20.0	38	104	20	4		106
25.0	45	121	25	4		107

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
100	90	90	80	65	65	45	30	-	-	-	-	-	30	20	15	65	-



16370

T-slot cutter

HSS-E

Z 6-8



DIN 851

N



H+W

Design

- Type N

- 6-8 cutting edges

- Right cutting

- Cross-toothed

- For cutting on periphery and end face

- Straight shank with driving surface

in accordance with DIN 1835 B

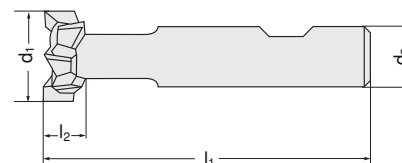
Applications

For cutting T-slots in accordance with DIN 650.

Quality

HSS-E (Co5).

16370



For T-slots nominal dimension	d ₁ d11 mm	l ₂ d11 mm	l ₁ mm	d ₂ h6 mm	Z	16370	...
6.0	12.5	6	57	10	6		201
8.0	16.0	8	62	10	6		202
10.0	18.0	8	70	12	6		203
10.0	19.0	9	71	12	6		204
12.0	21.0	9	74	12	6		205
12.0	22.0	10	75	12	6		206
14.0	25.0	11	82	16	8		207
16.0	28.0	12	85	16	8		208
18.0	32.0	14	90	16	8		209
20.0	36.0	16	103	25	8		210
22.0	40.0	18	108	25	10		211

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
75-150	30-75	30-45	40-45	30-35	28-30	25-28	-	-	-	-	-	-	20-23	18-20	10-20	22-35	60-120

16375

Keyway cutters

HSS-E

Z 6-12



DIN 850D

N



H+W

Design

- 6-12 cutting edges

- Right cutting

- Cross-toothed

- For cutting on periphery

- Straight shank with driving surface

in accordance with DIN 1835 B

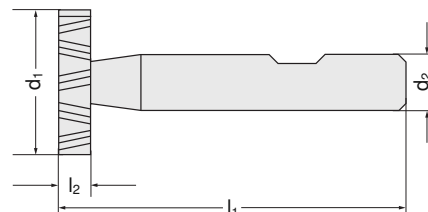
Applications

For cutting grooves for disc springs in accordance with DIN 6888.

Quality

HSS-E (Co5).

16375



d ₁ h12 x l ₂ e8 mm	for disc springs width x height mm	l ₁ mm	d ₂ h6 mm	Z	16375	...
10.5 x 2.0	2.0 x 3.7	50	6	8		104
10.5 x 2.5	2.5 x 3.7	50	6	8		105
10.5 x 3.0	3.0 x 3.7	50	6	6		106
13.5 x 3.0	3.0 x 5.0	56	10	6		107
*13.5 x 2.0	-	56	10	6		125
13.5 x 4.0	4.0 x 5.0	56	10	6		108
16.5 x 3.0	3.0 x 6.5	56	10	6		109
16.5 x 4.0	4.0 x 6.5	56	10	6		110
16.5 x 5.0	5.0 x 6.5	56	10	6		111
19.5 x 4.0	4.0 x 7.5	63	10	8		112
*19.5 x 3.0	-	63	10	8		126
19.5 x 5.0	5.0 x 7.5	63	10	8		113
19.5 x 6.0	6.0 x 7.5	63	10	8		114
22.5 x 5.0	5.0 x 9.0	63	10	8		115
*22.5 x 4.0	-	63	10	8		127
22.5 x 6.0	6.0 x 9.0	63	10	8		116
22.5 x 8.0	8.0 x 9.0	63	10	8		117
25.5 x 6.0	6.0 x 10.0	63	10	10		118
*25.5 x 5.0	-	63	10	10		128
28.5 x 6.0	6.0 x 11.0	63	10	10		119
28.5 x 8.0	8.0 x 11.0	63	10	10		120
28.5 x 10.0	10.0 x 11.0	71	12	10		121
32.5 x 8.0	8.0 x 13.0	71	12	12		122
*32.5 x 6.0	-	71	12	10		129
32.5 x 10.0	10.0 x 13.0	71	12	12		123
*38.5 x 8.0	-	71	12	10		130
45.5 x 10.0	10.0 x 16.0	71	12	12		124

* Not DIN 850

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
75-150	30-75	30-45	40-45	30-35	28-30	25-28	-	-	-	-	-	-	20-23	18-20	10-20	22-35	60-120

16380 - 16383

Angle cutters



Design

- Straight shank with driving surface in accordance with DIN 1835 B
- Right cutting
- **10-12 cutting edges**
- Angle tolerance $\pm 30^\circ$

Applications

For cutting angle grooves (slide guideways etc.).

Quality

HSS-E (Co5).

16380

Design

- **Shape C**
- Cutting edge tapering in the direction of the shank
- For cutting on periphery and end face
- $\alpha = 45^\circ$

DIN 1833C



16380

16381

Design

- **Shape C**
- Cutting edge tapering in the direction of the shank
- For cutting on periphery and end face
- $\alpha = 60^\circ$

DIN 1833C



16381

16382

Design

- **Shape D**
- Cutting edge tapering in the direction of the end face
- Only cuts on periphery
- $\alpha = 45^\circ$

DIN 1833D



16382

16383

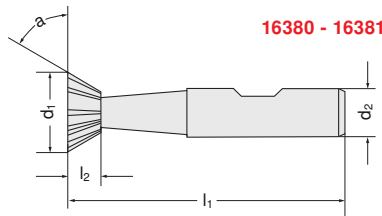
Design

- **Shape D**
- Cutting edge tapering in the direction of the end face
- Only cuts on periphery
- $\alpha = 60^\circ$

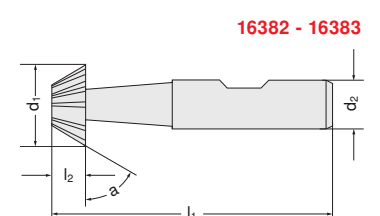
DIN 1833D



16383



16380 - 16381



16382 - 16383

45°		60°		l ₁ mm	d ₂ h6 mm	Z	45° / C		60° / C		45° / D		60° / D	
d ₁ mm	l ₂ mm	d ₁ mm	l ₂ mm				16380	...	16381	...	16382	...	16383	...
16.0	4.0	6.3	60	12	10		101		101		101		101	
20.0	5.0	8.0	63	12	10		102		102		102		102	
25.0	6.3	10.0	67	12	10		103		103		103		103	
32.0	8.0	12.5	71	16	12		104		104		104		104	

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
75-150	30-75	30-45	40-45	30-35	28-30	25-28	-	-	-	-	-	-	20-23	18-20	10-20	22-35	60-120

16385

Radius cutter



Design

- **Concave** (quarter circle cutter)
- Straight shank with driving surface in accordance with DIN 1835 B
- Right cutting
- **4 cutting edges**

Applications

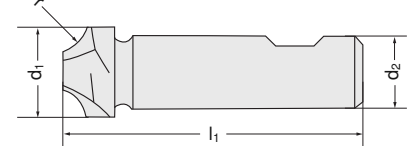
For materials up to approx. 1000 N/mm² strength.

Quality

HSS-E (Co5).



16385



r h11 mm	d ₁ mm	d ₃ js14 mm	l ₁ mm	d ₂ h6 mm	Z	16385	...
1.0	8	6	60	10	4		101
1.5	10	6	60	10	4		103
2.0	10	6	60	10	4		105
2.5	10	6	60	10	4		106
3.0	12	6	60	12	4		107
3.5	14	6	60	12	4		109
4.0	14	6	60	12	4		110
4.5	16	6	60	12	4		111
5.0	16	6	60	12	4		112

r h11 mm	d ₁ mm	d ₃ js14 mm	l ₁ mm	d ₂ h6 mm	Z	16385	...
6.0	21	8	67	16	4		114
8.0	24	8	71	16	4		118
10.0	28	8	85	25	4		119
12.0	35	10	90	25	4		121
14.0	42	16	100	25	4		124
16.0	48	16	100	25	4		126
18.0	54	16	112	32	4		127
20.0	58	16	112	32	4		128

Al<10%Si	Al>10%Si	Cu	St<520N	St<750N	St<900N	St<1100N	St<1200N	St<1400N	<45HRC	<55HRC	<60HRC	<67HRC	VA<900N	VA>900N	Ti alloy	GG(G)	Plastic
75-150	30-75	30-45	40-45	30-35	28-30	25-28	-	-	-	-	-	-	20-23	18-20	10-20	22-35	60-120