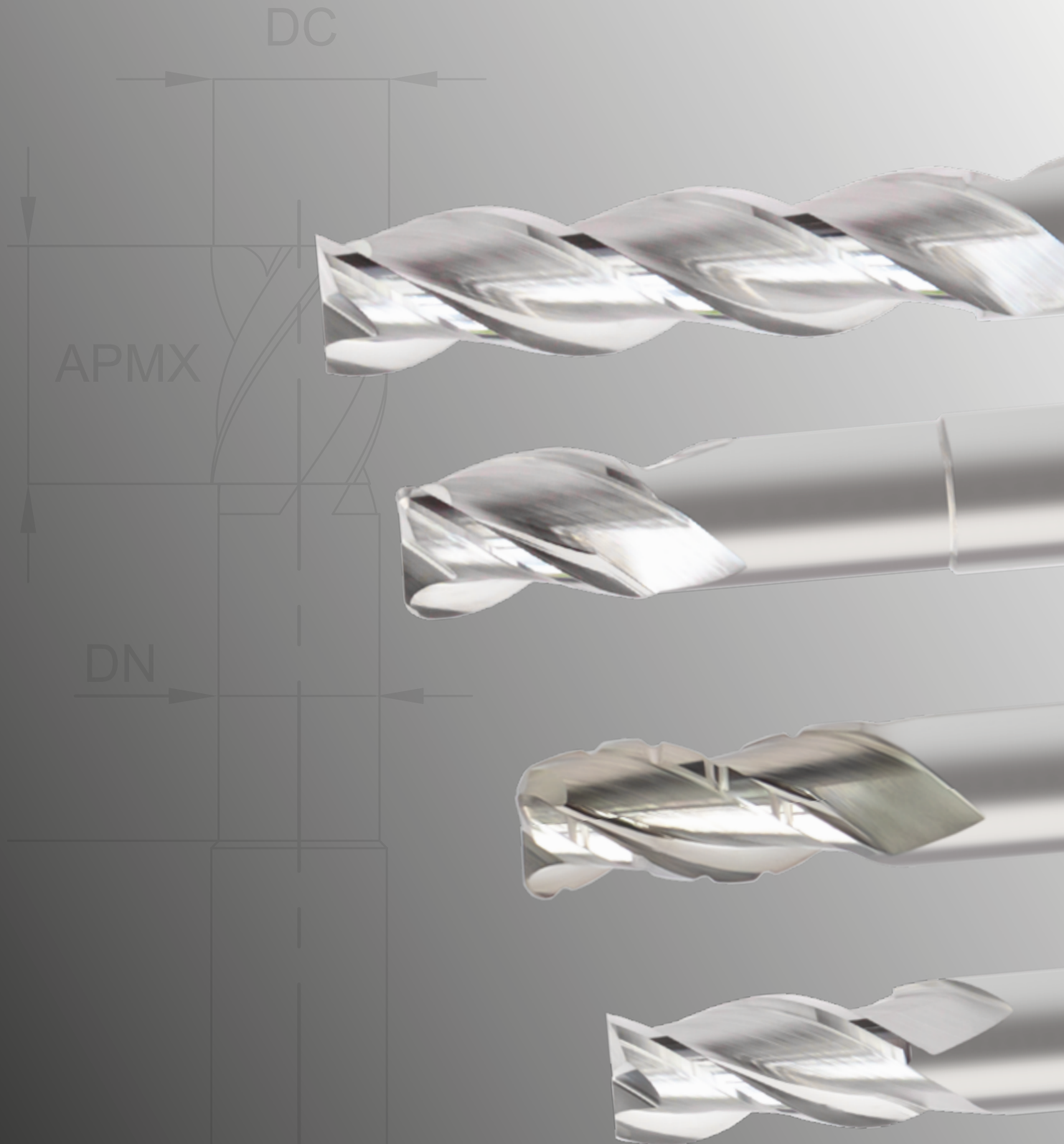


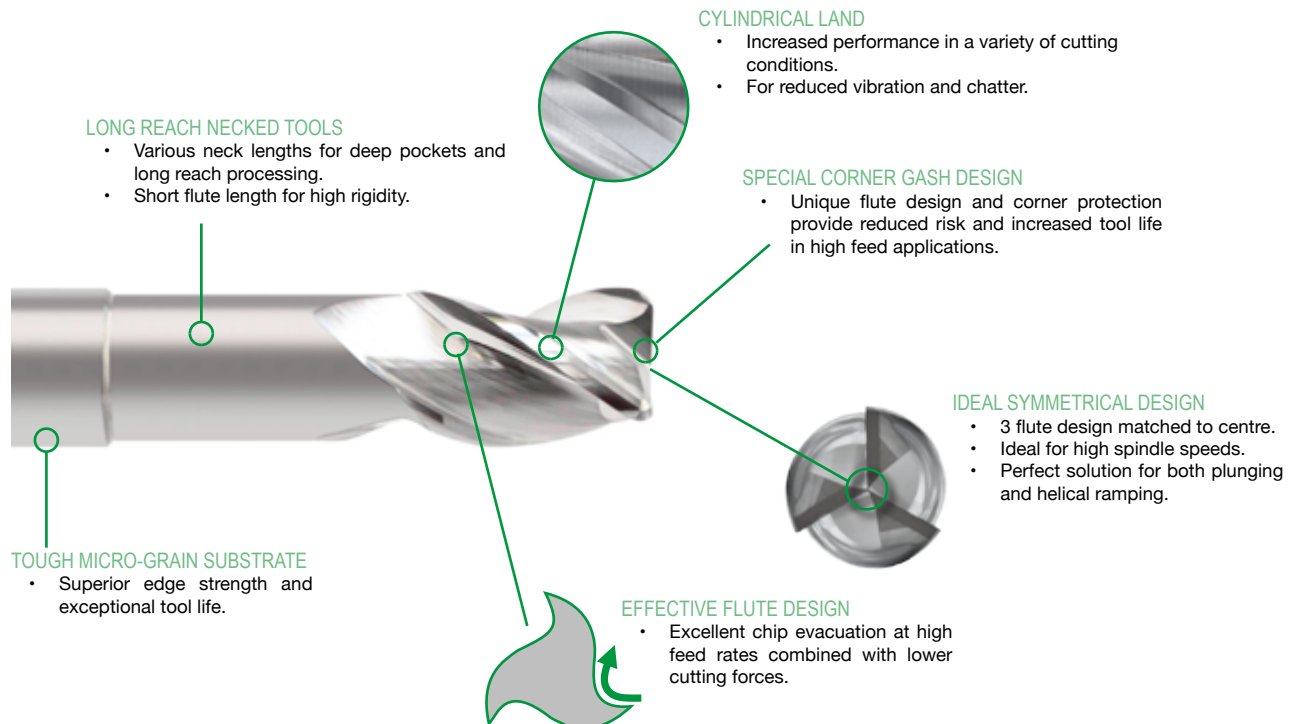
# MASTERMILL AL-HPC

Designed for high speed and high feed machining of Aluminium with no built-up edge



## MASTERMILL AL-HPC

Code	Item	Description	Page No.
143345		Std. Length 37° Helix, ø6.0mm - 25.0mm	P.3
142345		Std. Length 37° Helix, Corner Radius, ø6.0mm - 20.0mm	P.4
125345		Std. Length Chipbreaker 37° Helix, Corner Radius, ø6.0mm - 20.0mm	P.5
144345		Long Series 37° Helix, ø6.0mm - 20.0mm	P.6
145345		Long Series 37° Helix, Corner Radius, ø6.0mm - 20.0mm	P.7
127345		Long Series Chipbreaker 37° Helix, Corner Radius, ø6.0mm - 20.0mm	P.8
153345		Extended Neck 37° Helix, ø6.0mm - 20.0mm	P.11
156345		Extended Neck 37° Helix, Corner Radius, ø6.0mm - 20.0mm	P.9-10
		Cutting Data	P.12-15





## STANDARD LENGTH



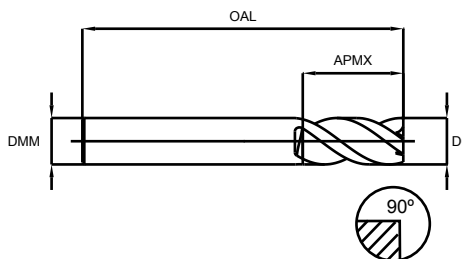
### Series No. 143345

- cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.

Exceptional performance in both high speed machining and heavy cutting conditions.

Polished flutes for improved chip flow.



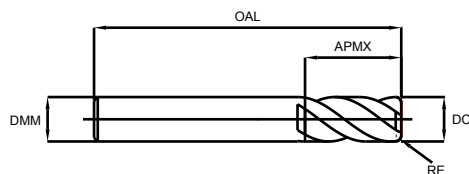
EUROPA CODE ORDCODE	DIAMETER DC	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL
1433450600	6.0	6	13.0	57
1433450800	8.0	8	19.2	63
1433451000	10.0	10	22.0	72
1433451200	12.0	12	26.0	83
1433451600	16.0	16	32.0	92
1433452000	20.0	20	38.0	104
1433452500	25.0	25	50.0	125

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Shank Dia. Tolerance TCDCON
6.0 - 10.0	0.00 / -0.008	h6
12.0 - 16.0	0.00 / -0.009	
20.0	0.00 / -0.011	
25.0	0.00 / -0.013	

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary								●	●	●						
○ Secondary																



## STANDARD LENGTH CORNER RADIUS



### Series No. 142345

► cutting conditions: Aluminium - p.13  
Copper Alloys - p.14  
Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.  
Exceptional performance in both high speed machining and heavy cutting conditions.  
Polished flutes for improved chip flow.

EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL
1423450600	6.0	0.5	6	13.0	57
1423450901		1.0	6	13.0	57
1423450902		1.5	6	13.0	57
1423450800	8.0	0.3	8	19.2	63
1423450907		0.5	8	19.2	63
1423450908		1.0	8	19.2	63
1423450904		1.5	8	19.2	63
1423451000	10.0	0.5	10	22.0	72
1423450915		1.0	10	22.0	72
1423450916		1.5	10	22.0	72
1423451200	12.0	1.5	12	26.0	83
1423450909		2.0	12	26.0	83
1423450922		2.5	12	26.0	83
1423450923		3.0	12	26.0	83
1423451600	16.0	1.5	16	32.0	92
1423450932		2.0	16	32.0	92
1423450933		2.5	16	32.0	92
1423450934		3.0	16	32.0	92
1423452000	20.0	2.0	20	38.0	104
1423450943		2.5	20	38.0	104
1423450944		3.0	20	38.0	104
1423450945		4.0	20	38.0	104

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary								●	●	●						
○ Secondary																



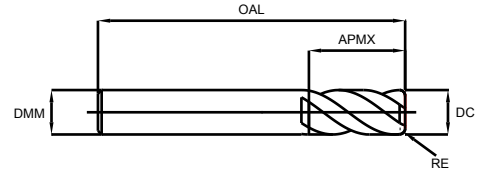
## STANDARD LENGTH CHIPBREAKER CORNER RADIUS



### Series No. 125345

- cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.  
 Exceptional performance in both high speed machining and heavy cutting conditions.  
 Polished flutes for improved chip flow.



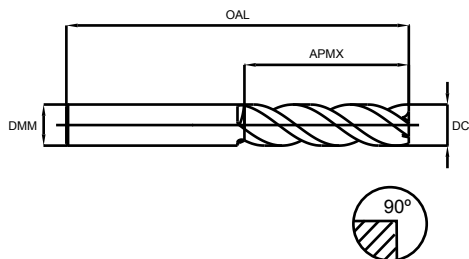
EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL
1253450600	6.0	0.25	6	13.0	57
1253459001		0.5	6	13.0	57
1253459002		1.0	6	13.0	57
1253459003		1.5	6	13.0	57
1253450800	8.0	0.25	8	19.2	63
1253459004		0.5	8	19.2	63
1253459005		1.0	8	19.2	63
1253459006		1.5	8	19.2	63
1253459007		2.0	8	19.2	63
1253451000	10.0	0.5	10	22.0	72
1253459008		1.0	10	22.0	72
1253459009		1.5	10	22.0	72
1253459010		2.0	10	22.0	72
1253451200	12.0	0.5	12	26.0	83
1253459011		1.0	12	26.0	83
1253459012		1.5	12	26.0	83
1253459013		2.0	12	26.0	83
1253459014		2.5	12	26.0	83
1253459015		3.0	12	26.0	83
1253451600	16.0	1.0	16	32.0	92
1253459016		1.5	16	32.0	92
1253459017		2.0	16	32.0	92
1253459018		2.5	16	32.0	92
1253459019		3.0	16	32.0	92
1253459020	4.0	16	32.0	92	
1253452000	20.0	1.0	20	38.0	104
1253459021		2.0	20	38.0	104
1253459022		2.5	20	38.0	104
1253459023		3.0	20	38.0	104
1253459024	4.0	20	20	38.0	104

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary							●	●	●						



## LONG LENGTH



### Series No. 144345

- cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

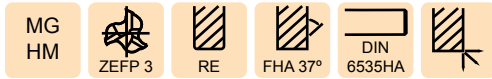
Special geometry to control balance at high RPM, for stable machining and high surface finish.  
 Exceptional performance in both high speed machining and heavy cutting conditions.  
 Polished flutes for improved chip flow.

EUROPA CODE ORDCODE	DIAMETER DC	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL
1443450600	6.0	6	24.0	75
1443450800	8.0	8	32.0	75
1443451000	10.0	10	40.0	100
1443451200	12.0	12	48.0	100
1443451600	16.0	16	64.0	125
1443452000	20.0	20	80.0	150

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Shank Dia. Tolerance TCDCON
6.0 - 10.0	0.00 / -0.008	h6
12.0 - 16.0	0.00 / -0.009	
20.0	0.00 / -0.011	
25.0	0.00 / -0.013	

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary								●	●	●						
○ Secondary																

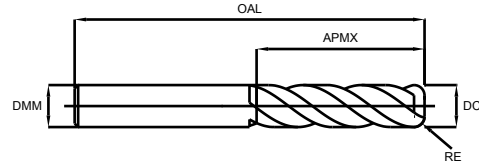
## LONG LENGTH CORNER RADIUS



### Series No. 145345

- ▶cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.  
 Exceptional performance in both high speed machining and heavy cutting conditions.  
 Polished flutes for improved chip flow.



EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL
1453450600	6.0	0.5	6	24.0	75
1453450906		1.0	6	24.0	75
1453450910	8.0	0.5	8	32.0	75
1453450911		1.0	8	32.0	75
1453450912		1.5	8	32.0	75
1453450913		2.0	8	32.0	75
1453451000		2.5	8	32.0	75
1453451000	10.0	0.5	10	40.0	100
1453450918		1.0	10	40.0	100
1453450919		1.5	10	40.0	100
1453450920		2.0	10	40.0	100
1453451200	12.0	0.5	12	48.0	100
1453450925		1.0	12	48.0	100
1453450926		1.5	12	48.0	100
1453450927		2.0	12	48.0	100
1453450928		2.5	12	48.0	100
1453450929		3.0	12	48.0	100
1453451600	16.0	0.5	16	64.0	125
1453450937		1.0	16	64.0	125
1453450938		1.5	16	64.0	125
1453450939		2.0	16	64.0	125
1453450940		2.5	16	64.0	125
1453450941		3.0	16	64.0	125
1453452000	20.0	0.5	20	80.0	150
1453450947		1.0	20	80.0	150
1453450948		1.5	20	80.0	150
1453450949		2.0	20	80.0	150
1453450950		2.5	20	80.0	150
1453450951		3.0	20	20	80.0

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M	K	N					S	H				
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary							●	●	●						

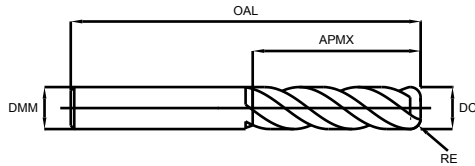
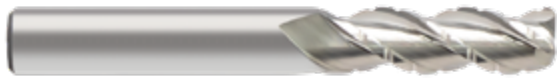




# MASTERMILL AL-HPC



## LONG LENGTH CHIPBREAKER CORNER RADIUS



### Series No. 127345

- ▶ cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.  
 Exceptional performance in both high speed machining and heavy cutting conditions.  
 Polished flutes for improved chip flow.

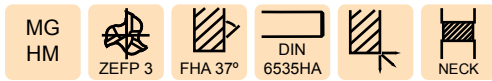
EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	OVERALL LENGTH OAL	
1273450600	6.0	0.25	6	24.0	75	
1273459001		0.5	6	24.0	75	
1273459002		1.0	6	24.0	75	
1273459003		1.5	6	24.0	75	
1273450800	8.0	0.25	8	32.0	75	
1273459004		0.5	8	32.0	75	
1273459005		1.0	8	32.0	75	
1273459006		1.5	8	32.0	75	
1273459007	8.0	2.0	8	32.0	75	
1273451000		10.0	0.5	10	40.0	100
1273459008			1.0	10	40.0	100
1273459009			1.5	10	40.0	100
1273459010	2.0		10	40.0	100	
1273451200	12.0	0.5	12	48.0	100	
1273459011		1.0	12	48.0	100	
1273459012		1.5	12	48.0	100	
1273459013		2.0	12	48.0	100	
1273459014		2.5	12	48.0	100	
1273459015		3.0	12	48.0	100	
1273451600	16.0	1.0	16	64.0	125	
1273459016		1.5	16	64.0	125	
1273459017		2.0	16	64.0	125	
1273459018		2.5	16	64.0	125	
1273459019		3.0	16	64.0	125	
1273459020	20.0	4.0	16	64.0	125	
1273452000		1.0	20	80.0	150	
1273459021		2.0	20	80.0	150	
1273459022		2.5	20	80.0	150	
1273459023		3.0	20	80.0	150	
1273459024	4.0	20	20	80.0	150	

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary							●	●	●						



## EXTENDED NECK CORNER RADIUS



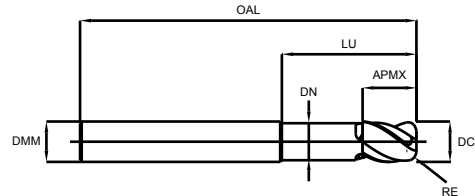
### Series No. 156345

- ▶cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.

Exceptional performance in both high speed machining and heavy cutting conditions.

Polished flutes for improved chip flow.



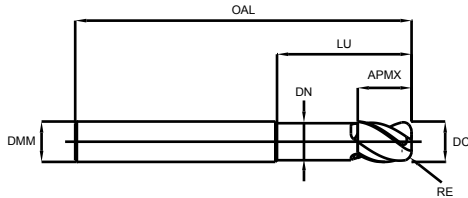
EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	EFFECTIVE LENGTH LU	OVERALL LENGTH OAL	NECK DIAMETER DN
1563450600	6.0	0.5	6	10.0	20.0	63	5.7
1563450901		1.0	6	10.0	20.0	63	5.7
1563450902		0.5	6	13.0	30.0	72	5.7
1563450903		1.0	6	13.0	30.0	72	5.7
1563450800	8.0	0.5	8	12.0	25.0	75	7.4
1563450905		0.8	8	12.0	25.0	75	7.4
1563450906		1.0	8	12.0	25.0	75	7.4
1563450907		1.2	8	12.0	25.0	75	7.4
1563450908		1.5	8	12.0	25.0	75	7.4
1563450909	1.6	8	12.0	25.0	75	7.4	
1563451000	10.0	0.5	10	14.0	35.0	100	9.2
1563450911		0.8	10	14.0	35.0	100	9.2
1563450912		1.0	10	14.0	35.0	100	9.2
1563450913		1.2	10	14.0	35.0	100	9.2
1563450914		1.5	10	14.0	35.0	100	9.2
1563450915		1.6	10	14.0	35.0	100	9.2
1563450916	2.4	10	14.0	35.0	100	9.2	
1563451200	12.0	0.5	12	16.0	40.0	100	11.0
1563450917		0.8	12	16.0	40.0	100	11.0
1563450918		1.0	12	16.0	40.0	100	11.0
1563450919		1.2	12	16.0	40.0	100	11.0
1563450920		1.5	12	16.0	40.0	100	11.0
1563450921		1.6	12	16.0	40.0	100	11.0
1563450922		2.0	12	16.0	40.0	100	11.0
1563450923		2.4	12	16.0	40.0	100	11.0
1563450924		2.5	12	16.0	40.0	100	11.0
1563450925		3.0	12	16.0	40.0	100	11.0
1563450926	4.0	12	16.0	16.0	40.0	100	11.0

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	○ Secondary							●	●	●						



## EXTENDED NECK CORNER RADIUS



### Series No. 156345

- cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.

Exceptional performance in both high speed machining and heavy cutting conditions.

Polished flutes for improved chip flow.

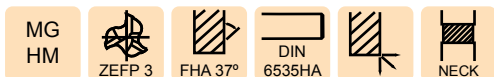
EUROPA CODE ORDCODE	DIAMETER DC	CORNER RADIUS RE	SHANK DIAMETER DMM	LENGTH OF CUT APMX	EFFECTIVE LENGTH LU	OVERALL LENGTH OAL	NECK DIAMETER DN
1563451600	16.0	0.8	16	20.0	50.0	125	15.0
1563450930		1.2	16	20.0	50.0	125	15.0
1563450931		1.6	16	20.0	50.0	125	15.0
1563450932		2.0	16	20.0	50.0	125	15.0
1563450933		2.4	16	20.0	50.0	125	15.0
1563450934		2.5	16	20.0	50.0	125	15.0
1563450935		3.0	16	20.0	50.0	125	15.0
1563450936		3.2	16	20.0	50.0	125	15.0
1563450937		4.0	16	20.0	50.0	125	15.0
1563452000		20.0	0.8	20	25.0	65.0	150
1563450938	1.2		20	25.0	65.0	150	19.0
1563450939	1.6		20	25.0	65.0	150	19.0
1563450940	2.0		20	25.0	65.0	150	19.0
1563450941	2.4		20	25.0	65.0	150	19.0
1563450942	2.5		20	25.0	65.0	150	19.0
1563450943	3.0		20	25.0	65.0	150	19.0
1563450944	3.2		20	25.0	65.0	150	19.0
1563450945	4.0		20	25.0	65.0	150	19.0

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Radius Tolerance (mm)		Shank Dia. Tolerance TCDCON
		RETOLL	RETOLU	
6.0 - 10.0	0.00 / -0.008	-0.02	+0.02	h6
12.0 - 16.0	0.00 / -0.009			
20.0	0.00 / -0.011			
25.0	0.00 / -0.013			

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary								●	●	●						
○ Secondary																



## EXTENDED NECK



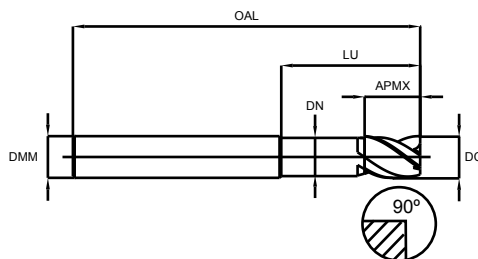
### Series No. 153345

- cutting conditions: Aluminium - p.13
- Copper Alloys - p.14
- Plastics/Acrylics - p.15

Special geometry to control balance at high RPM, for stable machining and high surface finish.

Exceptional performance in both high speed machining and heavy cutting conditions.

Polished flutes for improved chip flow.



EUROPA CODE ORCODE	DIAMETER DC	SHANK DIAMETER DMM	LENGTH OF CUT APMX	EFFECTIVE LENGTH LU	OVERALL LENGTH OAL	NECK DIAMETER DN
1533450300	3.0	6	6.0	16.0	60	2.8
1533450400	4.0	6	8.0	20.0	60	3.8
1533450600	6.0	6	10.0	20.0	75	5.7
1533450800	8.0	8	12.0	25.0	75	7.4
1533451000	10.0	10	14.0	35.0	100	9.2
1533451200	12.0	12	16.0	40.0	100	11.0
1533451600	16.0	16	20.0	50.0	125	15.0
1533452000	20.0	20	25.0	65.0	150	19.0

Mill Dia. DC	Mill Dia. Tolerance TCDC(mm)	Shank Dia. Tolerance TCDCON
6.0 - 10.0	0.00 / -0.008	h6
12.0 - 16.0	0.00 / -0.009	
20.0	0.00 / -0.011	
25.0	0.00 / -0.013	

ISO	P			M		K		N				S		H		
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary								●	●	●						
○ Secondary																



# **MASTERMILL AL-HPC**

## **CUTTING DATA**

## CUTTING DATA

All Mastermill AL-HPC End Mills													
VDI MATERIAL GROUP		Type of cut		Size (mm)									
				3.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0		
<b>N</b>	21-24	Aluminium/Aluminium Alloys	SLOTTING	$v_c$ (m/min)	488	488	488	488	488	488	488	488	
				$n$	51778	25889	19427	15533	12945	9708	7767	6213	
				$f_z$	0.025	0.076	0.095	0.114	0.152	0.168	0.191	0.254	
	$f$ (mm/min)	3946		5918	5537	5326	5918	4883	4439	4735			
	25	Aluminium Si >16%		$v_c$ (m/min)	183	183	183	183	183	183	183	183	
				$n$	19417	9708	7285	5825	4854	3641	2913	2330	
				$f_z$	0.025	0.076	0.095	0.114	0.152	0.168	0.191	0.254	
	$f$ (mm/min)	1480		2219	2076	1997	2219	1831	1665	1775			
	21-24	Aluminium/Aluminium Alloys		SIDE CUTTING	$v_c$ (m/min)	610	610	610	610	610	610	610	610
			$n$		64756	32378	24283	19427	16189	12142	9713	7771	
			$f_z$		0.025	0.076	0.171	0.267	0.356	0.381	0.419	0.495	
	$f$ (mm/min)	4857	7382		12457	15561	17290	13878	12210	11539			
	25	Aluminium Si >16%	$v_c$ (m/min)		244	244	244	244	244	244	244	244	
			$n$		25889	12945	9713	7767	6472	4854	3883	3107	
			$f_z$		0.025	0.076	0.095	0.114	0.152	0.168	0.191	0.254	
	$f$ (mm/min)	1973	2959		2768	2663	2959	2441	2219	2367			
	21-24	Aluminium/Aluminium Alloys	DYNAMIC 10% ae		$v_c$ (m/min)	1000	1000	1000	1000	1000	1000	1000	1000
				$f_z$	0.08	0.104	0.154	0.198	0.264	0.283	0.311	0.341	
	25	Aluminium Si >16%		$v_c$ (m/min)	360	360	360	360	360	360	360	360	
				$f_z$	0.08	0.104	0.154	0.198	0.264	0.283	0.311	0.341	
	21-24	Aluminium/Aluminium Alloys		DYNAMIC 5% ae	$v_c$ (m/min)	1000	1000	1000	1000	1000	1000	1000	1000
					$f_z$	0.101	0.14	0.208	0.267	0.356	0.381	0.419	0.45
	25	Aluminium Si >16%	$v_c$ (m/min)		360	360	360	360	360	360	360	360	
			$f_z$		0.101	0.14	0.208	0.267	0.356	0.381	0.419	0.45	
21-24	Aluminium/Aluminium Alloys	DYNAMIC 2% ae	$v_c$ (m/min)		1000	1000	1000	1000	1000	1000	1000	1000	
			$f_z$		0.101	0.202	0.3	0.385	0.514	0.55	0.605	0.665	
25	Aluminium Si >16%		$v_c$ (m/min)	360	360	360	360	360	360	360	360		
			$f_z$	0.101	0.202	0.3	0.385	0.514	0.55	0.605	0.665		

<p><b>SLOTTING</b></p>	<p><b>SIDE CUTTING</b></p>	<p><b>DYNAMIC MACHINING</b> NOT FOR USE WITH CHIPBREAKER</p> <p>10% - 1 x DC 5% - 1.5 x DC 2% - 2 x DC</p>
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Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.  
 All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up.  
**For long series and long necked tools** it may be necessary to reduce feed rate by up to 50%.

$v_c$  - cutting speed (m/min)  
 $n$  - RPM (rev/min)  
 $f_z$  - feed per tooth (mm)  
 $f$  - feed rate (mm/min)  
 $a_p$  - axial depth of cut  
 $a_e$  - radial depth of cut

## CUTTING DATA



All Mastermill AL-HPC End Mills												
VDI MATERIAL GROUP		Type of cut		Size (mm)								
				3.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0	
<b>N</b>	26-27	Copper/ Copper Alloys	SLOTTING	$v_c$ (m/min)	268	268	268	268	268	268	268	268
				$n$	28436	14218	11465	8531	7109	5332	4265	3412
				$f_z$	0.020	0.051	0.076	0.102	0.127	0.140	0.152	0.178
	$f$ (mm/min)	1733		2167	2614	2600	2708	9311	6983	5586		
	$v_c$ (m/min)	91		91	91	91	91	91	91	91		
	$n$	9655		4828	3623	2897	2414	1810	1448	1159		
	$f_z$	0.020		0.051	0.076	0.102	0.127	0.140	0.152	0.178		
	$f$ (mm/min)	589		736	826	883	920	759	662	618		
	$v_c$ (m/min)	351		351	351	351	351	351	351	351		
	$n$	37242	18621	13973	11173	9311	6983	5586	4469			
	$f_z$	0.020	0.051	0.076	0.102	0.127	0.140	0.152	0.178			
	$f$ (mm/min)	2270	2838	3186	3405	3547	2927	2554	2384			
	$v_c$ (m/min)	137	137	137	137	137	137	137	137			
	$n$	14536	7268	5454	4361	33634	2726	2180	1744			
	$f_z$	0.020	0.051	0.076	0.102	0.127	0.140	0.152	0.178			
	$f$ (mm/min)	886	1108	1243	1329	1385	1142	997	930			
	$v_c$ (m/min)	1000	1000	1000	1000	1000	1000	1000	1000			
	$f_z$	0.12	0.17	0.25	0.321	0.433	0.471	0.519	0.535			
	$v_c$ (m/min)	560	560	560	560	560	560	560	560			
	$f_z$	0.06	0.085	0.125	0.16	0.217	0.245	0.264	0.288			
	$v_c$ (m/min)	1000	1000	1000	1000	1000	1000	1000	1000			
	$f_z$	0.19	0.229	0.337	0.432	0.584	0.635	0.699	0.735			
	$v_c$ (m/min)	560	560	560	560	560	560	560	560			
	$f_z$	0.08	0.114	0.168	0.216	0.292	0.33	0.356	0.388			
$v_c$ (m/min)	1000	1000	1000	1000	1000	1000	1000	1000				
$f_z$	0.28	0.331	0.486	0.924	0.843	0.916	1.01	1.12				
$v_c$ (m/min)	560	560	560	560	560	560	560	560				
$f_z$	0.11	0.165	0.252	0.312	0.421	0.476	0.514	0.55				

<p><b>SLOTTING</b></p>	<p><b>SIDE CUTTING</b></p>	<p><b>DYNAMIC MACHINING</b> NOT FOR USE WITH CHIPBREAKER</p> <p>10% - 1 x DC 5% - 1.5 x DC 2% - 2 x DC</p> <p>10% - 0.1 x DC 5% - 0.05 x DC 2% - 0.02 x DC</p>
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Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.  
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$v_c$  - cutting speed (m/min)  
 $n$  - RPM (rev/min)  
 $f_z$  - feed per tooth (mm)  
 $f$  - feed rate (mm/min)  
 $a_p$  - axial depth of cut  
 $a_e$  - radial depth of cut



## CUTTING DATA

All Mastermill AL-HPC End Mills													
VDI MATERIAL GROUP		Type of cut		Size (mm)									
				3.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0		
<b>N</b> 29.1	Plastics/ Acrylics	SLOTTING	$v_c$ (m/min)	503	503	503	503	503	503	503	503		
			$n$	53370	26685	20024	16011	13342	10007	8005	6404		
			$f_z$	0.038	0.102	0.146	0.191	0.254	0.249	0.305	0.356		
			$f$ (mm/min)	6100	8134	8770	9150	10167	8388	320	6832		
		SIDE CUTTING	$v_c$ (m/min)	625	625	625	625	625	625	625	625		
			$n$	66314	33157	24881	19894	16579	12434	9947	7958		
			$f_z$	0.038	0.102	0.146	0.191	0.254	0.249	0.305	0.356		
		DYNAMIC 10% $a_e$	$v_c$ (m/min)	100	100	100	100	100	100	100	100		
			$f_z$	0.18	0.29	0.41	0.512	0.586	0.611	0.64	0.688		
		DYNAMIC 5% $a_e$	$v_c$ (m/min)	100	100	100	100	100	100	100	100		
			$f_z$	0.25	0.391	0.552	0.69	0.789	0.864	0.92	1.015		
		DYNAMIC 2% $a_e$	$v_c$ (m/min)	100	100	100	100	100	100	100	100		
			$f_z$	0.35	0.564	0.797	0.996	1.139	1.340	1.55	1.764		
		SLOTTING			SIDE CUTTING				DYNAMIC MACHINING NOT FOR USE WITH CHIPBREAKER				

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Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.

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$v_c$  - cutting speed (m/min)

$n$  - RPM (rev/min)

$f_z$  - feed per tooth (mm)

$f$  - feed rate (mm/min)

$a_p$  - axial depth of cut

$a_e$  - radial depth of cut