

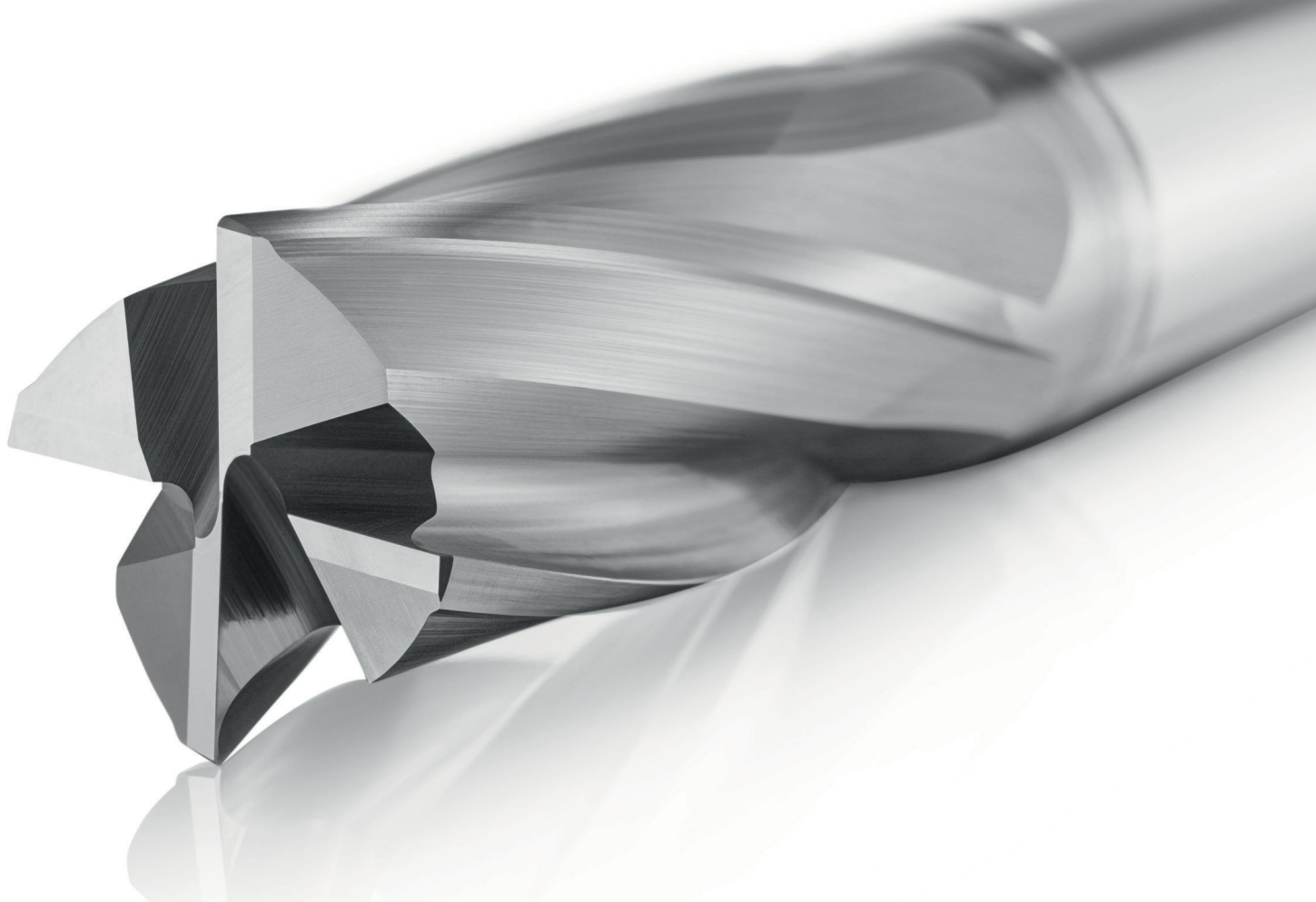


HPC-K High Performance Cutter

Our solution for the highest
requirements in the ISO-K range

www.lmt-tools.com

LMT•TOOLS
BELIN
FETTE
KIENINGER
ONSRUD



Maximum performance with HPC-K

A revolution in casting machining

The new HPC-K solid carbide milling cutter for applications in the ISO-K range (GG25 – GGG60), the world's first series-produced tool for this range, completes our existing HPC range (P, M, H, and universal ranges).

The ISO-K range is currently covered by all solid carbide milling tools on the market as a secondary application, which means that potential performance levels are not being achieved. The HPC-K was developed specifically for this primary application in the ISO-K range (GG25 – GGG60). Thanks to its unique geometry, it can consistently deliver these performance levels.

Many tools show significant wear or even breakage on the cutting edges after relatively short periods of use, particularly when used on cast skin. This means that consistent service life is not possible. Furthermore, these tools cannot usually be reground. This is precisely where the added value of HPC-K lies. Thanks to its design, it proves to be very robust in all ISO-K applications.

Whether corner, groove, outer contour, pocket, or circular milling, especially for applications in cast skin, the HPC-K offers maximum process reliability, outstanding process capability, and maximum service life.

The world's first series-produced high-performance tool for cast materials

The new HPC-K milling cutter is the ultimate tool for machining cast iron. In addition to its specially developed geometry, the latest coating contributes significantly to its outstanding performance and process reliability.

Your advantages:

- Maximum performance in casting applications
- Maximum process reliability
- Tool life increases of up to 600 %
- No chipping on the cutting edges, even when used on cast skin

Cylindrical shank: With and without clamping surface, Safe torque transmission and high balancing quality

Lengths available in 2 x D and 3 x D

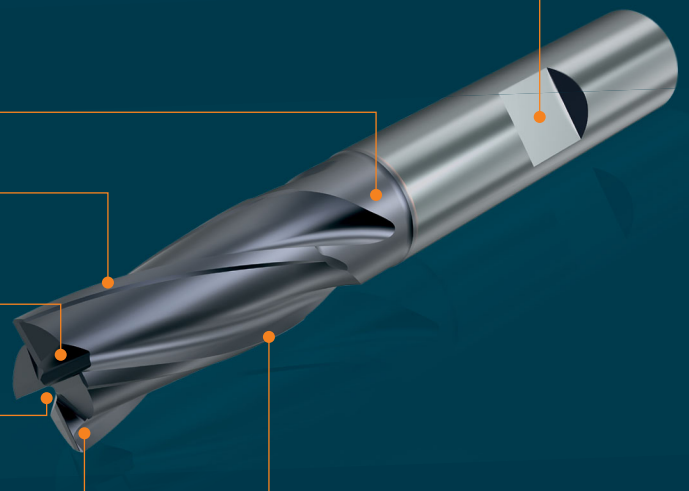
Main and face cutting edge geometry tailored to the casting

Cuts through the middle, also suitable for diagonal plunging

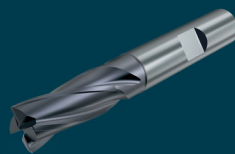
Optimized flute clearance for better chip removal

Corner protection chamfer for stable cutting edges, even in difficult applications

State-of-the-art coating



HPC-K



For cast iron and ductile iron
(GG25 – GGG60)

K



Corner
milling



Slotting



Contour
milling



Pocket
milling



Ramping



Circular
milling

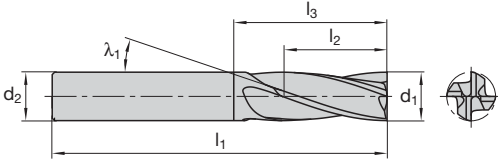


Trochoidal
milling



Roughing
and finishing

HPC01 Rougher 20K **High Performance Cutter for cast iron**



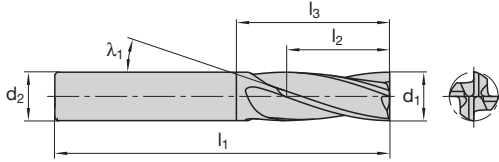
Cat.-No.							HPC01-K-A	
P								
M								
K								
N								
S								
H								
O								
d ₁	l ₂	l ₁	l ₃	d ₂	d ₃	z	Ident No.	LMT-Code
long (2 x Ø)								
8	19	63	27	8	7.5	4	7483676	EM-HPC01 K8.0x19/27 4C0.2HA
10	22	72	32	10	9.5	4	7483677	EM-HPC01 K10.0x22/32 4C0.2HA
12	26	83	38	12	11.5	4	7483678	EM-HPC01 K12.0x26/38 4C0.2HA
16	32	92	44	16	15.5	4	7483679	EM-HPC01 K16.0x32/44 4C0.3HA
20	38	104	54	20	19.5	4	7483680	EM-HPC01 K20.0x38/54 4C0.3HA
25	45	121	65	25	24.6	4	7483681	EM-HPC01 K25.0x45/65 4C0.3HA
extra long (3 x Ø)								
8	26	75	39	8	7.5	4	7483682	EM-HPC01 K8.0x26/39 4C0.2HA
10	32	90	50	10	9.5	4	7483683	EM-HPC01 K10.0x32/50 4C0.2HA
12	38	100	55	12	11.5	4	7483684	EM-HPC01 K12.0x38/55 4C0.2HA
16	50	116	68	16	15.5	4	7483685	EM-HPC01 K16.0x50/68 4C0.3HA
20	62	132	82	20	19.5	4	7483686	EM-HPC01 K20.0x62/82 4C0.3HA
25	77	150	94	25	24.6	4	7483687	EM-HPC01 K25.0x77/94 4C0.3HA

■ = First Choice
 □ = Second choice

Edge protection chamfer	d ₁	b
	8–12	0.2
	16–25	0.3

Cutting data recommendations starting page 6

HPC01 Rougher 20K High Performance Cutter for cast iron



Cat.-No.							HPC01-K-B	
P								
M								
K								
N								
S								
H								
O								
d ₁	l ₂	l ₁	l ₃	d ₂	d ₃	z	Ident No.	LMT-Code
long (2 x Ø)								
8	19	63	27	8	7.5	4	7483688	EM-HPC01 K8.0x19/27 4C0.2HB
10	22	72	32	10	9.5	4	7483689	EM-HPC01 K10.0x22/32 4C0.2HB
12	26	83	38	12	11.5	4	7483690	EM-HPC01 K12.0x26/38 4C0.2HB
16	32	92	44	16	15.5	4	7483691	EM-HPC01 K16.0x32/44 4C0.3HB
20	38	104	54	20	19.5	4	7483692	EM-HPC01 K20.0x38/54 4C0.3HB
25	45	121	65	25	24.6	4	7483693	EM-HPC01 K25.0x45/65 4C0.3HB
extra long (3 x Ø)								
8	26	75	39	8	7.5	4	7483694	EM-HPC01 K8.0x26/39 4C0.2HB
10	32	90	50	10	9.5	4	7483695	EM-HPC01 K10.0x32/50 4C0.2HB
12	38	100	55	12	11.5	4	7483696	EM-HPC01 K12.0x38/55 4C0.2HB
16	50	116	68	16	15.5	4	7483697	EM-HPC01 K16.0x50/68 4C0.3HB
20	62	132	82	20	19.5	4	7483698	EM-HPC01 K20.0x62/82 4C0.3HB
25	77	150	94	25	24.6	4	7483699	EM-HPC01 K25.0x77/94 4C0.3HB

■ = First Choice
 □ = Second choice

Edge protection chamfer	d ₁	b
	8-12	0.2
	16-25	0.3

Cutting data recommendations starting page 6

HPC01 Rougher 20K **Cutting data recommendations**

Material	Material No.	DIN Description Old	R _m /UTS (N/mm ²)	DIN Description New
K1 Cast iron with flake graphite	0.6010	GG-10		EN-GJL-100
	0.6015	GG-15		EN-GJL-150
	0.6017	GG-170 HB		EN-GJL-HB155
	0.6020	GG-20		EN-GJL-200
	0.6022	GG-190 HB		GJL-HB 230
	0.6025	GG-25		EN-GJL-250
	0.6027	GG-220 HB		GJL-HB 250
	0.6030	GG-30		EN-GJL-300
	0.6032	GG-240 HB		GJL-HB 275
	0.6035	GG-35		EN-GJL-350
	0.6037	GG-260 HB		GJL-HB 275
	0.6040	GG-40		EN-GJL-400
	0.6652	GGL-NiMn 13 7		EN-GJLA-XNiMn13-7
	0.6655	GGL-NiCuCr 15 6 2		EN-GJLA-XNiCuCr15-6-2
	0.6660	GGL-NiCr 20 2		GGL-NiCr20-2
	0.6667	GGL-NiSiCr 20 4 3		GGL-NiSiCr20-4-3
	0.6676	GGL-NiCr 30 3		GGL-NiCr30-3
	0.6678	GGL-NiCr 35 2		EN-GJLA-XNiCr35-2
	0.6680	GGL-NiSiCr 30 5 5		GGL-NiSiCr30-5-5
	Malleable cast iron	0.8035	230 HB	EN-GJMW-350-4
		0.8038	200 HB	EN-GJMW-360-12
		0.8040	220 HB	EN-GJMW-400-5
		0.8045	220 HB	EN-GJMW-450-7
		0.8055	240 HB	EN-GJMW-550-4
		0.8065	270 HB	
		0.8135	150 HB	EN-GJMB-350-10
		0.8145	150-200 HB	EN-GJMB-450-6
		0.8155	180-230 HB	EN-GJMB-550-4
		0.8165	210-260 HB	
		0.8170	240-290 HB	
K2 Graphite cast iron	0.7033	GGG-35.3		EN-GJS-350-22-LT
	0.7040	GGG-40		EN-GJS-400-15
	0.7043	GGG-40.3		EN-GJS-400-18
	0.7050	GGG-50		EN-GJS-500-7
	0.7060	GGG-60		EN-GJS-600-3

The cutting data indicated are starting values and must be adjusted to the prevailing conditions.



Dry machining,
air-blast cooling is advantageous



Wet machining,
sufficient emulsion volume required

Calculation formulas and feed correction factors

Speed n (min ⁻¹): $n = \frac{v_c \cdot 1000}{\pi \cdot d_1}$	Feed correction f ₁			
	a _e	a _p	HPC01-K long f ₁	HPC01-K extra long f ₁
Feed rate in v _f (mm/min): $v_f = f_z \cdot z \cdot n \cdot f_1$	0.1 · d ₁	1 x d ₁	2.2	1.6
		1.5 x d ₁	2	1.5
		2 x d ₁	1.6	1.4
	0.25 · d ₁	1 x d ₁	1.6	1.1
		1.5 x d ₁	1.4	1
		2 x d ₁	1.2	0.9
	0.5 · d ₁	1 x d ₁	1.2	0.7
		1.5 x d ₁	1	0.6
		2 x d ₁	0.8	0.5
	0.75 · d ₁	1 x d ₁	0.8	–
		1.5 x d ₁	0.7	–
		2 x d ₁	0.6	–
	1 · d ₁	0.5 x d ₁	0.6	–
		1 x d ₁	0.5	–
		2 x d ₁	0.4	–

a_e = Width of cut in mm
a_p = Depth of cut in mm
d₁ = Cutter diameter in mm
f₁ = Correction factor for v_f
f_z = Feed per tooth in mm
n = Speed in min⁻¹
v_f = Feed rate in mm/min
z = No. of teeth

	Coolant	Cutting speed v_c (m/min)	Cutting diameter (mm)					
			Feed per tooth f_z (mm/z.)					
			8	10	12	16	20	25
	 	180–220	0.12	0.15	0.18	0.22	0.28	0.35
		120–150	0.10	0.12	0.14	0.19	0.24	0.29
	 	160	0.10	0.12	0.14	0.16	0.20	0.24

Features of the HPC01-K

Main and face cutting edge geometry tailored to the casting with micro cutting edge preparation for maximum process reliability



Radius-shaped face clearance design for improved chip removal



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