ZCC·CT



A New Generation
of Vertical Milling Cutter

EMP09 Series

Higher strength and feed Rate but Minimum Gear Mark



ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.

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EMP09 series



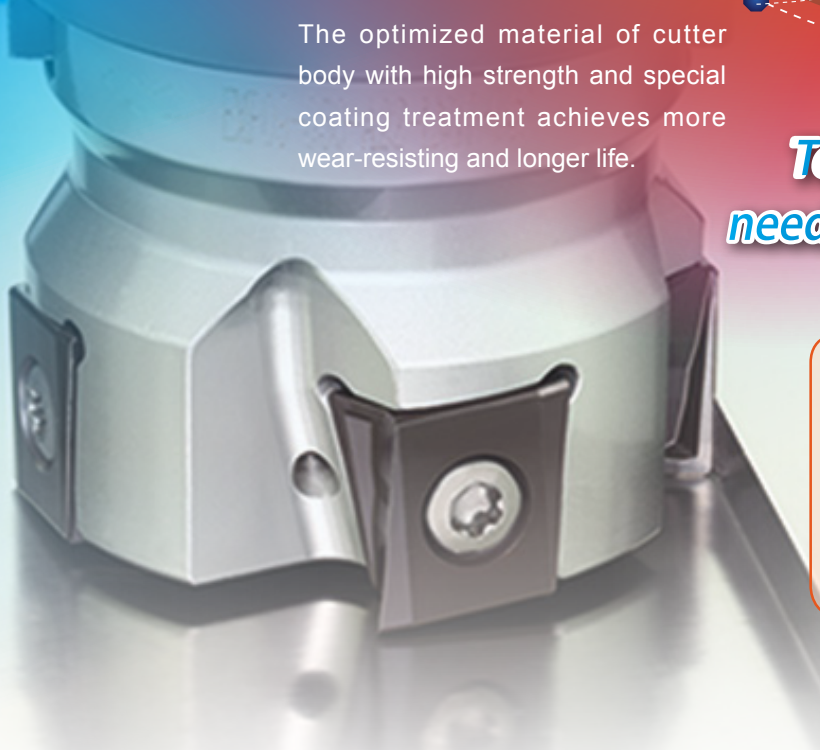
4 available cutting edges and precise 90°square shoulder.

Double rake angle can effectively reduce cutting force.

High precision of cutting tool can achieve high quality and efficient roughing.

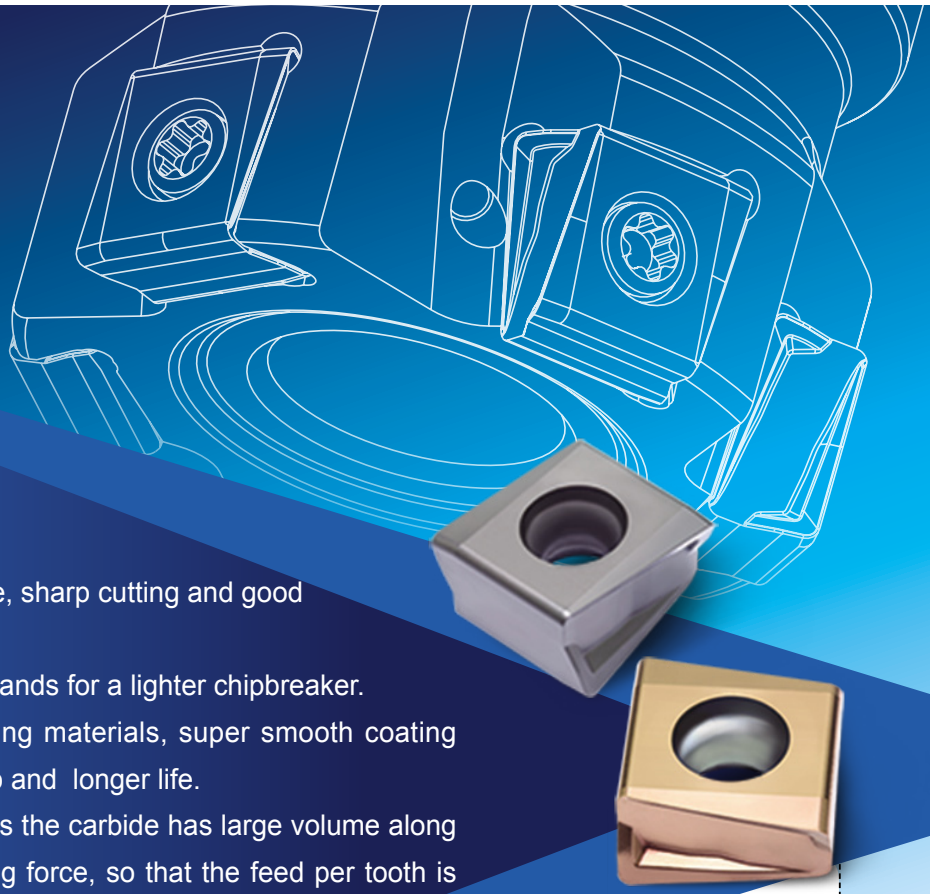
The vertical assembling can change the cutting force of main direction to be borne by the thickness direction to realize the high rigidity of the cutting tool.

The optimized material of cutter body with high strength and special coating treatment achieves more wear-resisting and longer life.



To meet the diverse processing needs and achieve efficient rough machining.

Being suitable for square shoulder milling and deep shoulder milling of steel, cast iron, stainless steel and super hard materials, and being widely used in automobile industry, aerospace industry, general machinery industry and etc.



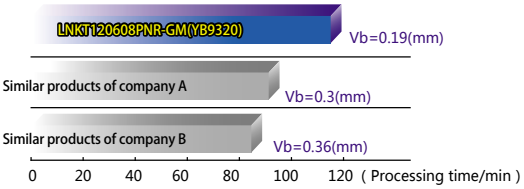
- High strength of tool nose, sharp cutting and good wear resistance.
- The spiral cutting edge stands for a lighter chipbreaker.
- Excellent universal coating materials, super smooth coating technology, no sticky chip and longer life.
- The vertical design makes the carbide has large volume along the direction of the cutting force, so that the feed per tooth is 30% higher than the flat load insert.

Ultra-long working life

Machining case

The material of workpiece: 45# Hardness: 175-190（HB）
Type of cooling: none
The machining type: square shoulder milling
Toolholder：EMP09-050-A22-LN12-05C
Insert：LNKT120608PNR-GM（YB9320）
Similar products of company A
Similar products of company B
Cutting parameter：Vc=260m/min，ap=8mm，
ae=2mm，fz=0.2mm/z

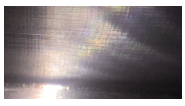
Result: The processing life of LNKT12 (YB9320) is approximately 1.3 times of the similar product of company A and 1.4 times of the similar product of company B, with excellent wear resistance and longer tool life.



Better surface quality

Machining case

The material of workpiece: 45#
Hardness: HRC(33-37)
Type of cooling: none
The machining type: square shoulder milling
Tool：EMP09-050-A22-LN12-05C
Toolholder：LNKT120608PNR-GM (YB9320)
Similar products of company A
Cutting parameter：Vc=240m/min，ap=8mm，
ae=2mm，fz=0.2mm/z

EMP09	Similar products of company A
	
No obvious gear mark	Slight step

Results: EMP09 series of vertical milling cutter has a high precision and good surface quality, no obvious gear mark, and runout value is better than the similar product of company A.

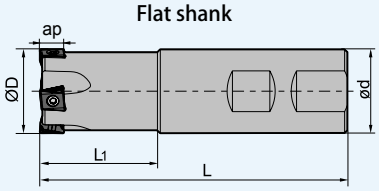
EMP09 series of vertical milling cutter



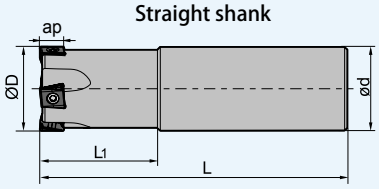
EMP09 P M K Kr:90°



Flat shank



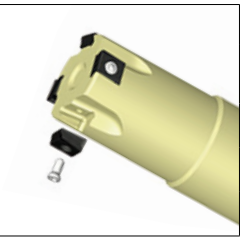
Straight shank



Specifications

Model		Dimension(mm)					Z	Weight (kg)
		øD	ød	L	L_1	ap_{max}		
EMP09 Flat shank	**-025-XP25-LN08-03C**	25	25	100	32	8.0	3	0.36
	-025-XP25-LN08-04C	25	25	100	32	8.0	4	0.35
	-032-XP32-LN08-04C	32	32	115	40	8.0	4	0.67
	-032-XP32-LN08-05C	32	32	115	40	8.0	5	0.67
	-040-XP40-LN08-05C	40	40	125	40	8.0	5	1.15
	-040-XP40-LN08-06C	40	40	125	40	8.0	6	1.14
	-040-XP40-LN12-03C	40	40	125	40	11.5	3	1.11
	-040-XP40-LN12-04C	40	40	125	40	11.5	4	1.10
Straight shank	**-025-G40-LN08-03C**	25	25	100	32	8.0	3	0.36
	-025-G40-LN08-04C	25	25	100	32	8.0	4	0.35
	-032-G40-LN08-04C	32	32	115	40	8.0	4	0.67
	-032-G40-LN08-05C	32	32	115	40	8.0	5	0.67
	-040-G40-LN12-03C	40	40	125	40	11.5	3	1.11
	-040-G40-LN12-04C	40	40	125	40	11.5	4	1.10

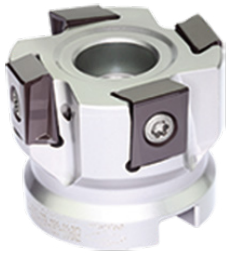
Accessories

Diameter of cutter øD	Insert	Screw	Wrench	
				
ø25~ ø40	LNKT080404PNR-GM	I60M3×7	WT10IS	
ø40	LNKT120608PNR-GM	I60M4×12	WT15IS	

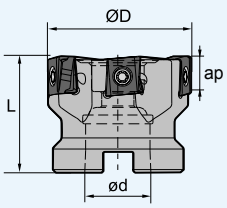

Face machining


Step shoulder

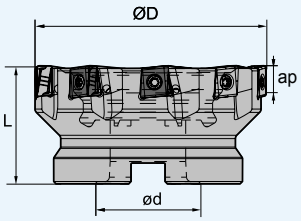
EMP09 P M K Kr:90°



A-type coupling



B-type coupling



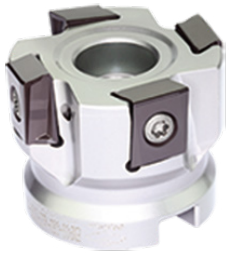
Specifications

Model		Dimensions(mm)				Z	IType of coupling	Weight (kg)
		øD	ød	L	ap_{max}			
EMP09	-040-A16-LN08-05C	40	16	40	8.0	5	A	0.21
	-040-A16-LN08-06C	40	16	40	8.0	6	A	0.21
	-050-A22-LN08-06C	50	22	40	8.0	6	A	0.35
	-050-A22-LN08-07C	50	22	40	8.0	7	A	0.35
	-063-A22-LN08-08C	63	22	40	8.0	8	A	0.60
	-063-A22-LN08-10C	63	22	40	8.0	10	A	0.60
	-080-A27-LN08-10C	80	27	50	8.0	10	A	1.26
	-080-A27-LN08-12C	80	27	50	8.0	12	A	1.26
	-040-A16-LN12-03C	40	16	40	11.5	3	A	0.20
	-040-A16-LN12-04C	40	16	40	11.5	4	A	0.19
	-050-A22-LN12-05C	50	22	40	11.5	5	A	0.30
	-050-A22-LN12-06C	50	22	40	11.5	6	A	0.30
	-063-A22-LN12-06C	63	22	40	11.5	6	A	0.54
	-063-A22-LN12-08C	63	22	40	11.5	8	A	0.54
	-080-A27-LN12-07C	80	27	50	11.5	7	A	1.18
	-080-A27-LN12-10C	80	27	50	11.5	10	A	1.18
	-100-B32-LN12-09C	100	32	50	11.5	9	B	1.64
	-100-B32-LN12-13C	100	32	50	11.5	13	B	1.64
	-125-B40-LN12-11C	125	40	63	11.5	11	B	2.74
	-125-B40-LN12-16C	125	40	63	11.5	16	B	2.74

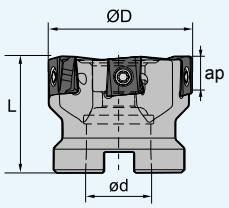

Face machining


Step shoulder

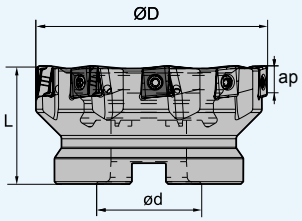
EMP09 P M K Kr:90°



A-type coupling



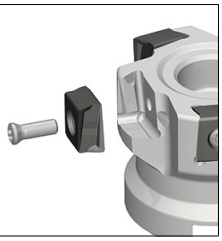
B-type coupling

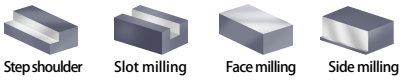


Specifications

Model		Dimensions(mm)				Z	IType of coupling	Weight (kg)
		øD	ød	L	ap_{max}			
EMP09	-050-A22-LN16-04C	50	22	40	15	4	A	0.31
	-050-A22-LN16-05C	50	22	40	15	5	A	0.31
	-063-A22-LN16-05C	63	22	40	15	5	A	0.56
	-063-A22-LN16-06C	63	22	40	15	6	A	0.56
	-080-A27-LN16-06C	80	27	50	15	6	A	1.20
	-080-A27-LN16-07C	80	27	50	15	7	A	1.20
	-100-B32-LN16-08C	100	32	50	15	8	B	1.62
	-100-B32-LN16-10C	100	32	50	15	10	B	1.62
	-125-B40-LN16-10C	125	40	63	15	10	B	3.27
	-125-B40-LN16-13C	125	40	63	15	13	B	3.27
	-160-B40-LN16-12C	160	40	63	15	12	B	6.37
	-160-B40-LN16-16C	160	40	63	15	16	B	6.37

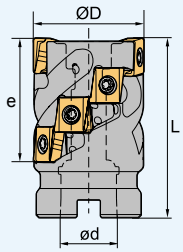
Tool accessories

Diameter of cutter øD	Insert	Screw	Wrench	
				
ø40~ø80	LNKT080408PNR-GM	I60M3×7	WT10IS	
ø40~ ø125	LNKT120608PNR-GM	I60M4×12	WT15IS	
ø50~ ø160	LNKT160708PNR-GM	I60M5×17	WT20IT	



EMP09 P M K Kr:90°



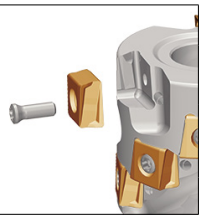


Specifications

Model		Dimensions(mm)				Groove number	Inserts number	Weight (kg)
		øD	ød	L	e			
EMP09	-040X43-A16-LN12-02C	40	16	65	43	2	8	0.34
	-050X43-A22-LN12-03C	50	22	70	43	3	12	0.62
	-063X43-A27-LN12-04C	63	27	70	43	4	16	1.03
	-080X43-A27-LN12-05C	80	27	70	43	5	20	1.91

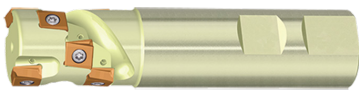
Tool accessories

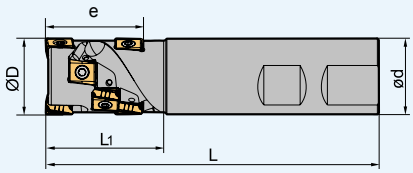
Diameter of cutter øD	Insert	Screw	Wrench
			
ø40x43~ ø80x43	LNKT120608PNR-GM	I60M4×12	WT15IS





EMP09 P M K Kr:90°



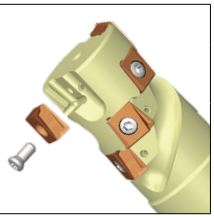


Specifications

Model		Dimensions(mm)					Groove number	Inserts number	Weight (kg)
		øD	ød	L	L1	e			
EMP09	-25X30-XP25-LN08-02C	25	25	100	40	30	2	8	0.31
	-32X38-XP32-LN08-03C	32	32	115	45	38	3	15	0.62

Tool accessories

Diameter of cutter øD	Insert	Screw	Wrench
			
ø25x30~ ø32x38	LNKT080408PNR-GM	I60M3×7	WT10IS



Insert selection



Geometry of insert	Model	dimensions(mm)					CVD coating						PVD coating								Cermet		Cemented carbide			
		L	I.W	S	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	**LNKT080404PNR-GM**	8.75	8.5	4.45	3.4	0.4			●		●	●				●									
	LNKT120608PNR-GM	12.7	13	6.75	4.4	0.8			●		●	●				●									
	LNKT160708PNR-GM	16.05	15	7.35	5.5	0.8			●		●	●				●									

Recommended cutting parameter

Processed material		Hardness HB	Grade of insert	Cutting parameter	
				V(m/min)	f(mm/z)
P	Low carbon steel, mild steel	⩽180	YBM253	260 (160-300)	0.3(0.1-0.35)
			YB9320	260 (160-300)	0.3(0.1-0.35)
	High carbon steel, alloy steel	180-280	YBM253	240 (160-240)	0.25(0.1-0.35)
			YB9320	240 (160-240)	0.25(0.1-0.35)
	Alloy tool steel	280-350	YBM253	200(120-240)	0.2(0.1-0.35)
			YB9320	200(120-240)	0.2(0.1-0.35)
M	Stainless steel	⩽270	YBM253	180(100-230)	0.15(0.1-0.3)
			YB9320	160 (140-250)	0.15(0.1-0.3)
K	Cast iron	180-250	YBD152 YBD252	220 (140-250)	0.2(0.1-0.3)

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