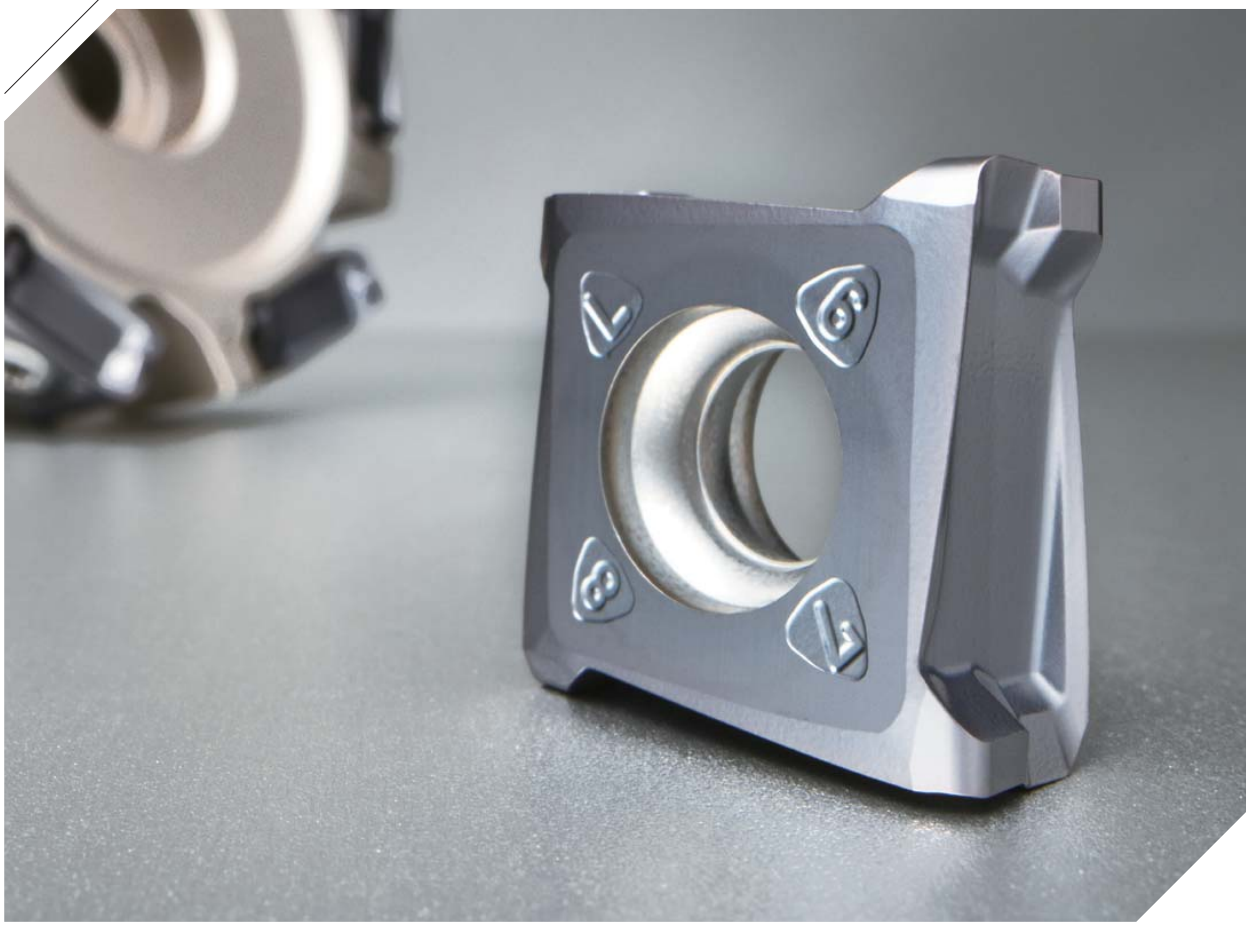
KORLOY TECH-NEWS

TP8P

Tangen-Pro series

Right angle milling tool with tangential double-sided 8 corners

- Double-sided insert with 8 corners realizes high cost efficiency thanks to right angle milling with high depth of cut.
- Excellent for productivity improvement because tangential type insert ensures rigid clamping and allows more flutes (extra close pitch) in accordance with a cutter diameter.



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TECH-NEWS

Right angle milling tool with tangential double-sided 8 corners

TP8P (Tangen-Pro series)

KORLOY launched Tangen-Pro **TP8P**, right angle milling tool with tangential 8 corners with KORLOY's differentiated manufacturing technology integration.

Compared to the radial type milling cutters, tangential type insert, which is easier to get enough chip pocket space, can increase productivity because it can adopt extra close pitch and it can bear with increased table feed with its better clamping stability. In addition, the TP8P enhances smooth cutting reducing chattering and cutting resistance effectively in even high speed and high feed machining with its optimal sharp cutting edge.

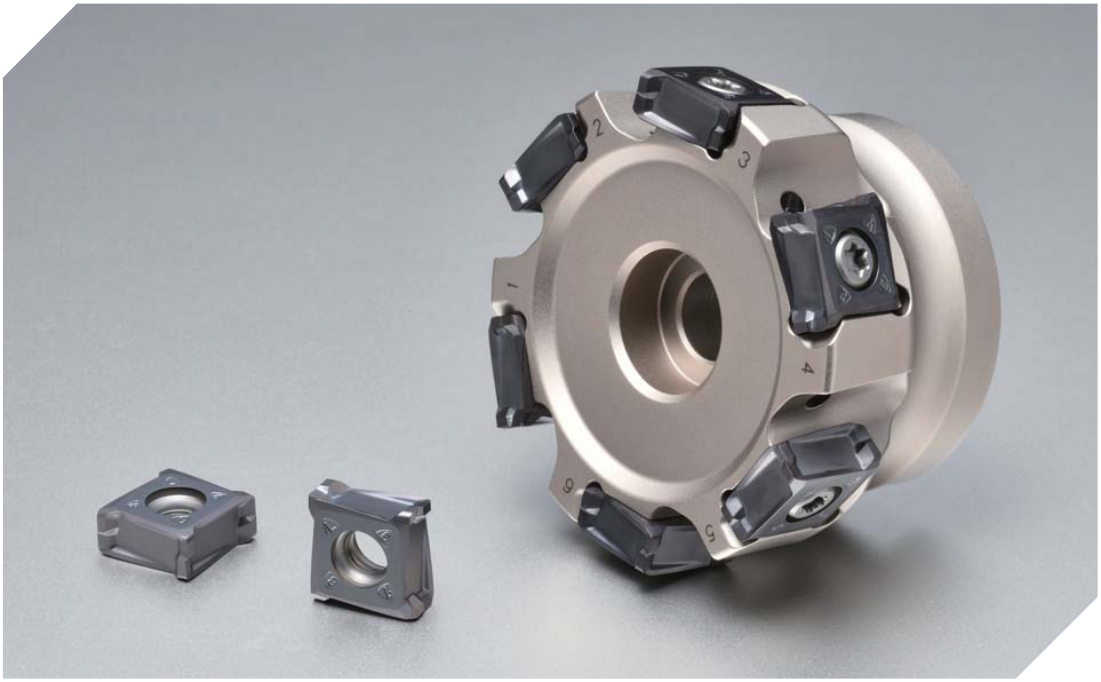
Therefore, the TP8P increases more than 30% productivity than radial type with its sharp cutting edge and rigid clamping ensure to apply higher speed and feed. The combination of TP8P and PC5300 ensures to apply various workpieces and realizes high cutting performance steel and cast iron machining.

» **High cost efficiency**
- Double-sided insert with maximum 8 corners usable

» **Good cutting performance**
- High helix and sharp chip breaker

» **Stable clamping**
- Tangential-typed clamping structure

» **Right angle cutting with 1 step or multiple steps**
- Nose R, chamfer type insert



Code system

Cutter type

TP8	P	C	M	063	R	-	22	-	6	-	SO14
TP8 (Tangen-Pro)	Approach angle P: 90°	Type C: Cutter	Arbor M: Metric A: inch None: Asia	Machining dia. 063: Ø63 mm	Oil hole & hand R: With oil hole, right-handed NR: Without oil hole, right-handed		Internal dia. 22: Ø22 mm		No. of tooth 6: 6 teeth		Available insert SO14: SOKX14

Shank type

TP8	P	S	032	R	-	3	W	32	-	110	-	SO14
TP8 (Tangen-Pro)	Approach angle P: 90°	Type S: Shank	Machining dia. 032: Ø32 mm	Oil hole & hand R: With oil hole, right-handed NR: Without oil hole, right-handed		No. of tooth 3: 3 teeth	Shank type W: Weldon C: Cylinder	Shank dia. 32: Ø32 mm		Overall length 110: 110 mm		Available insert SO14: SOKX14

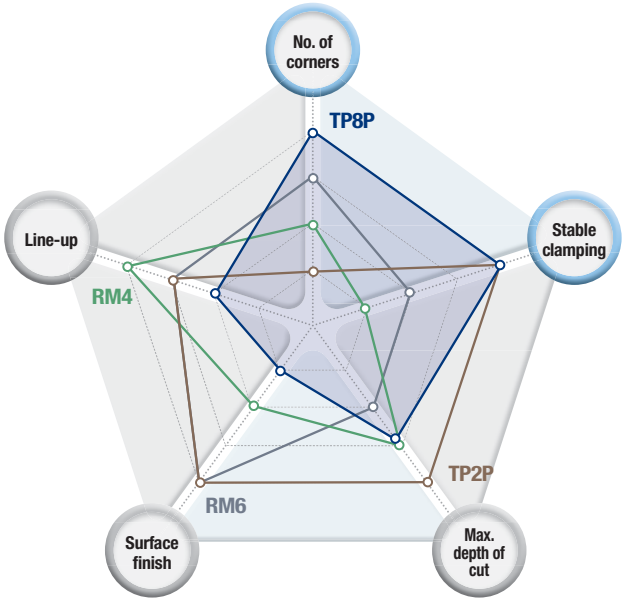
Recommended grade and cutting edge

Chip breaker	Cutting edge shape	Recommended grade and cutting shape by workpiece materials (●: 1st recommendation)	
		P	K
		Grade	Grade
ML		● PC5300	● PC5300

Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	HRC	Grade	Chip breaker	
ISO	Workpiece meterials	ISO	AISI			PC5300	ML	
						vc (m/min)	fz (mm/t)	ap (mm)
P	Carbon steel	C15E4 C15M2 C25	1015 1020 1025	1500	10 or under	150	0.15	2~7
						200	**0.20**	
						250	0.15	
		C45 C60	1045 1050 1060	1700	10~30	150	0.10	
						200	**0.20**	
						250	0.15	
	Alloy steel	42CrMo4 41CrNiMo2	4140 8637	1700	20~40	150	0.20	
						200	**0.20**	
						200	0.15	
	Die steel	-	KP4M	2020	27~30	120	0.10	
						150	0.10	
K	Gray cast iron	250 350	No 25 B No 35 B	900	23 or under	110	0.15	2~7
						160	**0.12**	
						180	0.10	
	Ductile cast iron	400-15 150-10 600-3	60-40-18 65-45-12 80-55-06	870	10 or under	150	0.20	
						200	0.15	

Tool selection guide



TP8P New

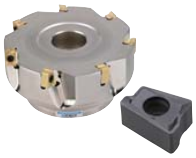
- Maximum no. of corners
- Highly stable clamping

TP2P

- Highly stable clamping
- Good cutting performance
- Excellent surface finish

RM4

- Good for general use



RM6

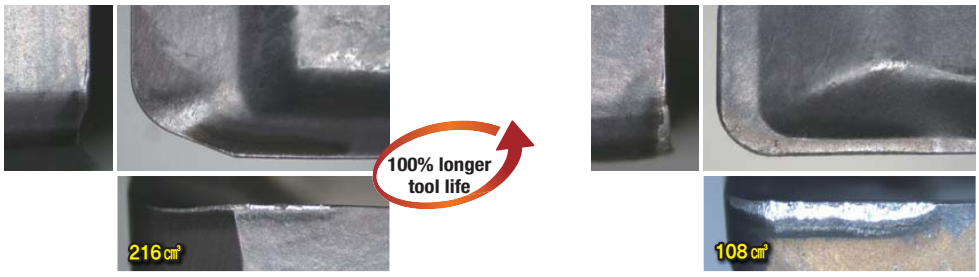
- Good surface finish
- High cost efficiency

Tools	No. of corners	Stable clamping	Max. depth of cut	Surface finish	Line-up
TP8P New	★★★★	★★★★	★★★	★	★★
TP2P	★	★★★★	★★★★	★★★★	★★★
RM4	★★	★	★★★	★★	★★★★
RM6	★★★	★★	★★	★★★★	★★★

Performance evaluation

Wear resistance

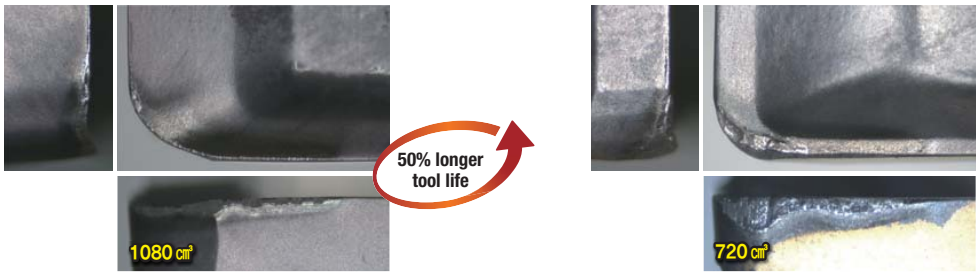
Workpiece	Cast iron (600-3), steel rectangular tube, 300 (L) × 200 (W) × 100 (H)
Cutting conditions	vc (m/min) = 150, fz (mm/t) = 0.15, ap (mm) = 3.0, ae (mm) = 40, dry
Tools	**Insert** SOKX1406XPNR-ML (PC5300) **Holder** TP8PCM063R-22-6-SO14



[TP8P] [Competitor]

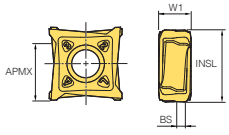
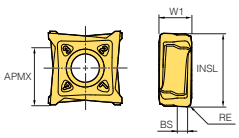
Wear resistance

Workpiece	Cast iron (600-3), steel rectangular tube, 300 (L) × 200 (W) × 100 (H)
Cutting conditions	vc (m/min) = 200, fz (mm/t) = 0.2, ap (mm) = 3.0, dry
Tools	**Insert** SOKX1406XPNR-ML (PC5300) **Holder** TP8PCM063R-22-6-SO14



[TP8P] [Competitor]

Insert

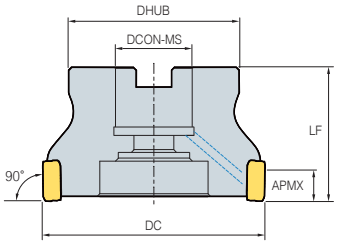
Picture	Designation	Coated	Dimensions (mm)					Geomotries
		PC5300	INSL	W1	BS	RE	APMX	
	**SOKX** 1406XPNR-ML	●	14.47	6.5	1.35	-	11	
	**SOKX** 140608PNR-ML	●	14.47	6.5	1.69	0.8	11	

●: Stock item

TP8PC(M)-S014

AA 90°

- AR: -6°
- RR: -23° ~ -18°



(mm)

	Designation	Stock	⊚	DC	DHUB	DCON-MS	LF	APMX	kg
TP8PCM	040R-16-3-S014	●	3	40	34	16	40	11	0.18
	040R-16-4-S014	●	4	40	34	16	40	11	0.17
	050R-22-4-S014	●	4	50	45	22	40	11	0.28
	050R-22-5-S014	●	5	50	45	22	40	11	0.27
	050R-22-6-S014	●	6	50	45	22	40	11	0.28
	063R-22-6-S014	●	6	63	49	22	40	11	0.44
	063R-22-7-S014	●	7	63	49	22	40	11	0.45
	063R-22-8-S014	●	8	63	49	22	40	11	0.45
	080R-27-6-S014	●	6	80	60	27	50	11	0.87
	080R-27-7-S014	●	7	80	60	27	50	11	0.86
	080R-27-9-S014	●	9	80	60	27	50	11	0.89
	100R-32-8-S014	●		100	70	32	63	11	1.79
	100R-32-12-S014	●	12	100	70	32	63	11	1.80
	125R-40-9-S014	●	9	125	90	40	63	11	2.95
	125R-40-15-S014	●	15	125	90	40	63	11	2.96
TP8PC	080R-25.4-6-S014	●	6	80	60	25.4	50	11	0.90
	080R-25.4-7-S014	●	7	80	60	25.4	50	11	0.90
	080R-25.4-9-S014	●	9	80	60	25.4	50	11	0.92
	100R-31.75-8-S014	●	8	100	70	31.75	63	11	1.80
	100R-31.75-12-S014	●	12	100	70	31.75	63	11	1.82
	125R-38.1-9-S014	●	9	125	90	38.1	63	11	3.00
	125R-38.1-15-S014	●	15	125	90	38.1	63	11	3.00

●: Stock item

Available inserts

SOKX-ML

Designation		Coated
		PC5300
SOKX	1406XPNR-ML	●
	140608PNR-ML	●

●: Stock item

Available arbors

Designation		DCON	Available arbors
TP8PCM	040R-16-□-S014	16	BT□□-FMC16-□□
	050R-22-□-S014	22	BT□□-FMC22-□□
	063R-22-□-S014		
	080R-27-□-S014	27	BT□□-FMC27-□□
	100R-32-□-S014	32	BT□□-FMC32-□□
	125R-40-□-S014	40	BT□□-FMC40-□□
TP8PC	080R-25.4-□-S014	25.4	BT□□-FMA25.4-□□
	100R-31.75-□-S014	31.75	BT□□-FMA31.75-□□
	125R-38.1-□-SA14	38.1	BT□□-FMA38.1-□□

Parts

Specification	Screw	Wrench
Ø40	FTGA0511-P	TW20-100
Ø50 ~ Ø125	FTGA0513-P	TW20-100

TP8PS-S014

AA 90°

- AR: -6°
- RR: -29° ~ -23°

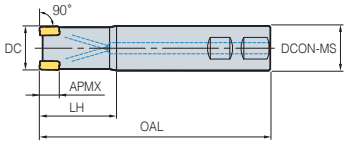


Fig. 1

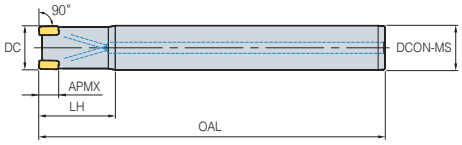


Fig. 2

(mm)

	Designation	Stock	⦾	DC	DCON-MS	LH	OAL	APMX	kg	Fig.
TP8PS	032R-2W32-130-S014	●	2	32	32	40	130	11	0.70	1
	032R-3W32-130-S014	●	3	32	32	40	130	11	0.69	1
	032R-2C32-250-S014	●	2	32	32	50	250	11	1.40	2
	032R-3C32-250-S014	●	3	32	32	50	250	11	1.39	2
	040R-3W32-130-S014	●	3	40	32	40	130	11	0.78	1
	040R-4W32-130-S014	●	4	40	32	40	130	11	0.77	1
	040R-3C32-250-S014	●	3	40	32	50	250	11	1.51	2
	040R-4C32-250-S014	●	4	40	32	50	250	11	1.51	2

●: Stock item

Available inserts

SOKX-ML

	Designation	Coated
		PC5300
SOKX	1406XPNR-ML	●
	140608PNR-ML	●

●: Stock item

Parts

Specification	Screw	Wrench
Ø32	FTGA0511-P	TW20-100
Ø40	FTGA0513-P	TW20-100

⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasess or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.

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