

A solution for parting and deep grooving

# Saw Man-X

KORLOY  
TECH-NEWS



- Stable machining in deep grooving applying clamping system with strong three-way V-Rail
- Improving clamping precision and convenient replacing of inserts with using the exclusive wrench

A solution for parting and deep grooving

# Saw Man-X

The stable clamping system of an insert and a holder is the most important factor in parting and deep grooving due to vibration from long overhang, and narrow machining width making unexpected fracture of insert and breakage of holder.

**Saw Man-X** insert with specially designed cutting edge and concave three-way V-Rail of top, bottom and back face of it increases the clamping force and machinability. In addition, the optimal chip breaker and bump in the back area of insert reduce chip width effectively and minimizes scratch and chip rolling due to controlling chip radius.

Saw Man-X holder provides stable clamping even in high speed and high feed machining from strong clamping system due to convex three-way V-Rail having insert clamp tightly.

In addition, the independent self-clamping structure ensures stable clamping and durability of holder in machining with long overhang. The stopper in the back area and exclusive wrench increases precision of repeated clamping and make replacing insert easy.

Saw Man-X ensures stable quality of machining and, long tool life and convenient clamping system in high speed and high feed machining due to applying three-way V-Rail shape, new treatment on cutting edge, differentiated designed chip breaker and exclusive wrench. Through these advantages, Saw Man-X provides effective and economical solutions in parting and deep grooving.



### Three-way V-Rail structure

- Stable clamping system in high speed and high feed machining

### Special treatment on cutting edge

- Maximized quality of machining and wear resistance
- Over 30% longer tool life than the existing tools

### Optimally designed chip breaker and bump in the back area

- Minimized chip rolling and improved chip control

### Using the exclusive wrench

- More convenient replacing inserts

## Code system

### 【Insert】

<b>KSP</b>	<b>300</b>	-	<b>020</b>	-	<b>N</b>
KORLOY Saw Man-X Parting	Cutting edge width 200: 2 mm 300: 3 mm 400: 4 mm		Nose r 020: 0.2 mm 030: 0.3 mm		Chip breaker N: Negaland

### 【Blade】

<b>KSPB</b>	<b>30</b>		<b>26</b>
KORLOY Saw Man-X Parting Blade	Cutting edge width 20: 2 mm 30: 3 mm 40: 4 mm		Blade height 26: 26 mm 32: 32 mm

### 【Shank】

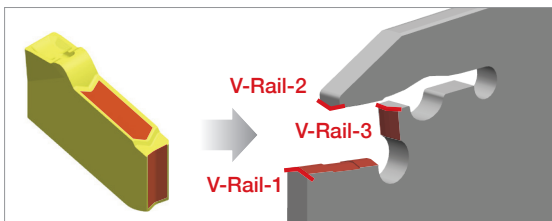
<b>KSPH</b>	<b>3</b>	<b>25</b>	<b>R</b>
KORLOY Saw Man-X Parting Holder	Cutting edge width 2: 2 mm 3: 3 mm 4: 4 mm	Shank size 16: 1616 20: 2020 25: 2525	Hand of insert R: Right handed L: Left handed

## Features

- **Three-way V-Rail** – More stable clamping system
- **New treatment on cutting edge** – Better quality of machining and longer tool life
- **Superior chip breaker** – Better chip control
- **Exclusive wrench** – More convenient clamping system

### Three-way V-RAIL

- An insert is tightly clamped in the tip seat.
- Minimized vibration during the machining increases stability.
- Stable high speed, high feed and high depth of cut machining is available.

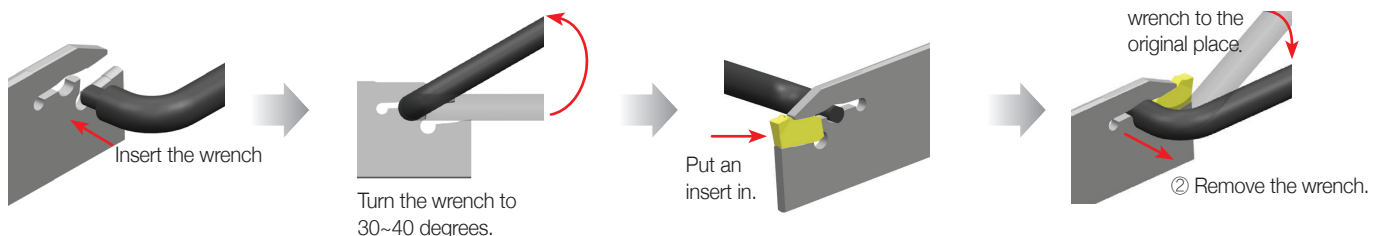


### Special cutting edge

- Even cutting edge improves machinability
- Higher quality of machining and wear resistance

### Exclusive wrench

- The exclusive wrench having the principle of CAM for the Saw Man-X
- More convenient clamping system



## Features of chip breaker

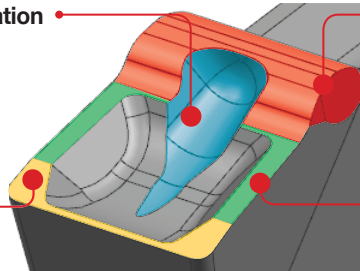
- The design of chip breaker and its bump in the back area realize better chip evacuation.
- The chip breaker with negaland is used universally.

### Coolant path and guide for chip evacuation

- Inner coolant holder is available.
- Guide for chip evacuation

### Negaland

- Applying for various workpieces
- Stability in interrupted cutting and machining with high depth of cut



### The second chip breaker in the back area

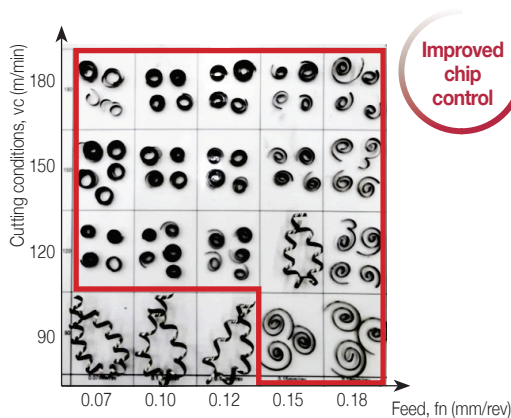
- Better chip control in machining of workpiece with a bigger diameter
- Preventing damage to holder from chip evacuation

### Strong land on flank

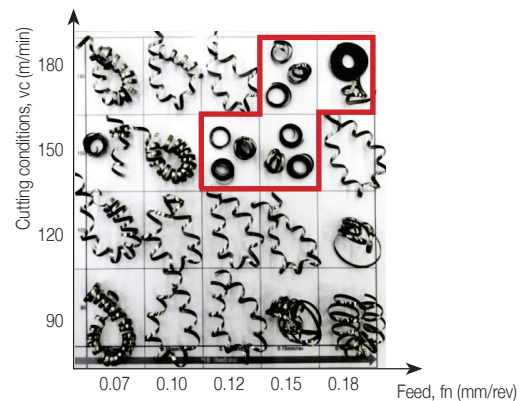
- Smaller diameter of chip curl makes better chip control
- Higher rigidity of insert

## Chip control

- **Workpiece** Alloy steel (SCM440), Ø100 mm
- **Cutting conditions**  $vc$  (m/min) = 90-80,  $fn$  (mm/rev) = 0.07-0.18,  $ap$  (mm) = 5, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



[ Saw Man-X ]



[ conventional tool ]

- ▶ Higher productivity and better chip control in high speed and high feed machining

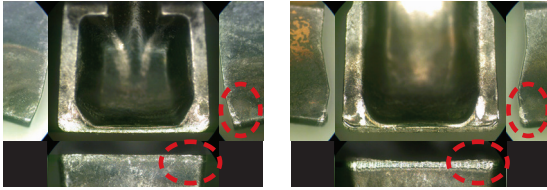
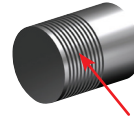
## Recommended cutting conditions

Workpiece					Grade	Cutting conditions	
ISO	Workpiece	ISO (DIN)*	AISI	KS		$vc$ (m/min)	$fn$ (mm/rev)
P	Carbon steel	C45	1045	SM45C	PC5300	80-200	0.08-0.28
					PC3035	80-220	0.08-0.28
	Alloy steel	42CrMo4 (42CrMo4)*	4140	SCM440	PC5300	80-160	0.08-0.25
					PC3035	80-180	0.08-0.25
M	Stainless steel	X5CrNi18-9 (X2CrNi19-11)*	304	STS304	PC5300	80-190	0.06-0.20
		X5CrNiMo17-12-2	316	STS316	PC5300	80-190	0.06-0.20
K	Gray cast iron	250 (GG25)*	No35B	GC250	PC8110	100-220	0.10-0.28
					PC5300	100-200	0.10-0.28
	Nodular graphite cast iron	450-10	80-55-06	GCD500	PC8110	80-200	0.10-0.25
					PC5300	80-180	0.10-0.25
S	HRSA	15156-3	7718	Inconel 718	PC8110	35-65	0.05-0.15
					PC5300	25-55	0.05-0.15

# Performance evaluation

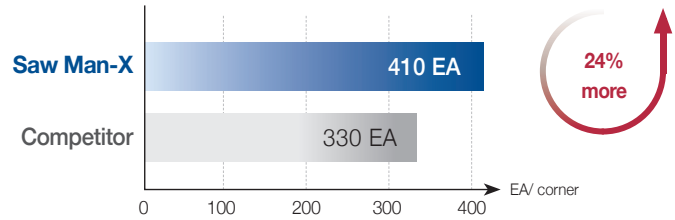
## Wear resistance

- **Workpiece** Alloy steel (42CrMo4), Ø100
- **Cutting conditions**  $vc$  (m/min) = 150,  $f_n$  (mm/rev) = 0.15,  $ap$  (mm) = 15, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



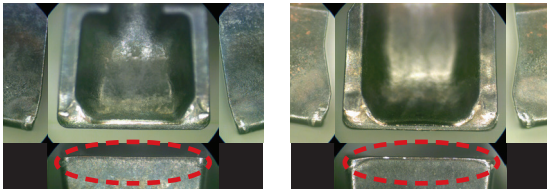
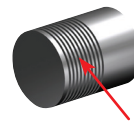
[Saw Man-X]

[Competitor]



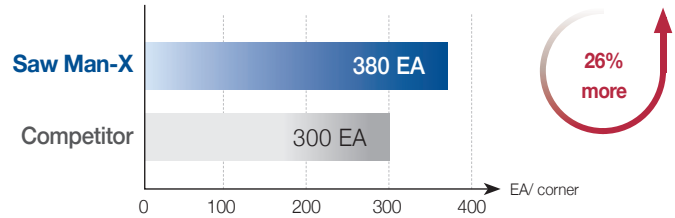
## Wear resistance

- **Workpiece** Stainless steel (X5CrNiMo17-12-2), Ø100
- **Cutting conditions**  $vc$  (m/min) = 120,  $f_n$  (mm/rev) = 0.1,  $ap$  (mm) = 7, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



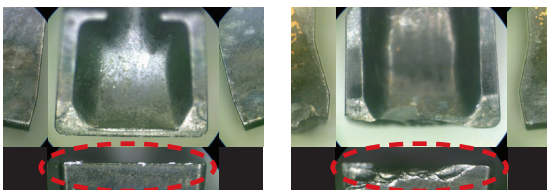
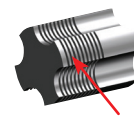
[Saw Man-X]

[Competitor]



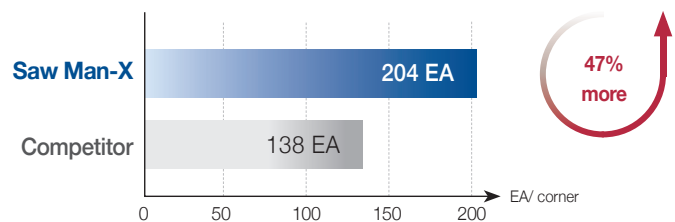
## Impact resistance

- **Workpiece** Alloy steel (42CrMo4), Ø100 (interrupted)
- **Cutting conditions**  $vc$  (m/min) = 120,  $f_n$  (mm/rev) = 0.15,  $ap$  (mm) = 15, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



[Saw Man-X]

[Competitor]

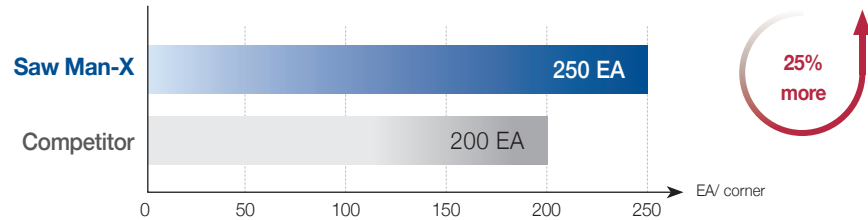
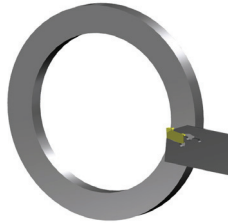




## Application examples

### Alloy steel (20Cr4)

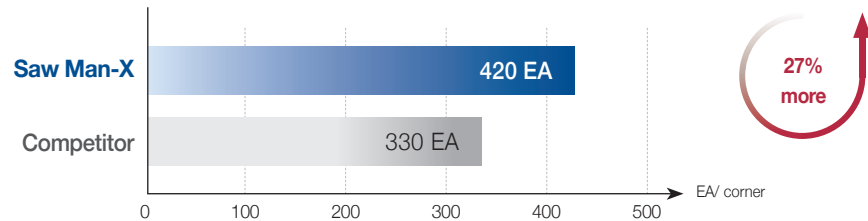
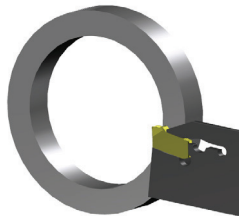
- **Workpiece use** An automobile transmission part,  $\varnothing 132\text{-}\varnothing 98$
- **Cutting conditions**  $vc$  (m/min) = 230,  $fn$  (mm/rev) = 0.12,  $ap$  (mm) = 17, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



► 25% longer tool life than competitor's

### Alloy steel (42CrMo4)

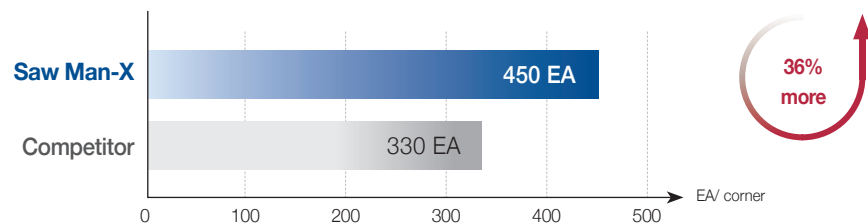
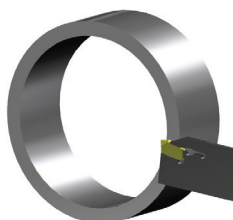
- **Workpiece use** A machine part,  $\varnothing 60\text{-}\varnothing 40$
- **Cutting conditions**  $vc$  (m/min) = 180,  $fn$  (mm/rev) = 0.15,  $ap$  (mm) = 10, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



► 27% longer tool life than competitor's

### Stainless steel (X5CrNiMo17-12-2)

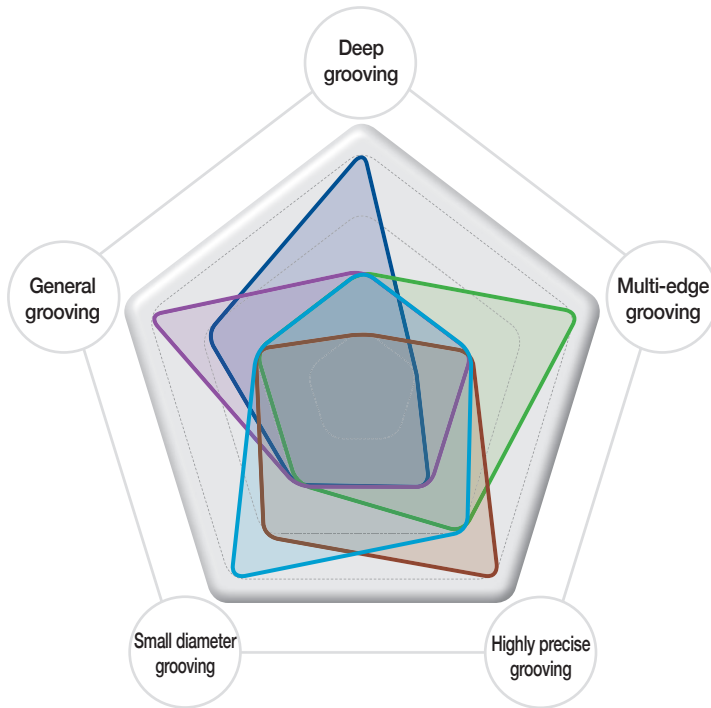
- **Workpiece use** A balfe part,  $\varnothing 96\text{-}\varnothing 82$
- **Cutting conditions**  $vc$  (m/min) = 120,  $fn$  (mm/rev) = 0.1,  $ap$  (mm) = 7, wet
- **Tools** Insert KSP300-020-N (PC5300) Holder KSPB3026



► 36% longer tool life than competitor's

# Grooving tool selection guide

— Saw Man-X — MGT, KGT — TB — Auto Tools (blade type) — K Notch



## Saw Man-X <sup>new</sup>

- One cutting edge
- Parting or deep grooving



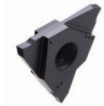
## MGT, KGT

- Two cutting edges
- Various machining



## TB

- Three cutting edges



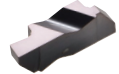
## Auto Tools (blade type)

- Two cutting edges
- For automatic lathe



## K Notch

- Two cutting edges
- High rigidity clamping



Tools	Deep grooving	Multi-edge grooving	Highly precise grooving	Small diameter grooving	General grooving
Saw Man-X <sup>new</sup>	★★★★★	★	★★	★★	★★★
MGT, KGT	★★	★★	★★	★★	★★★★★
TB	★★	★★★★★	★★★★	★★	★★
Auto Tools (blade type)	★★	★★	★★★★	★★★★★	★★
K Notch	★	★★	★★★★★	★★★	★★

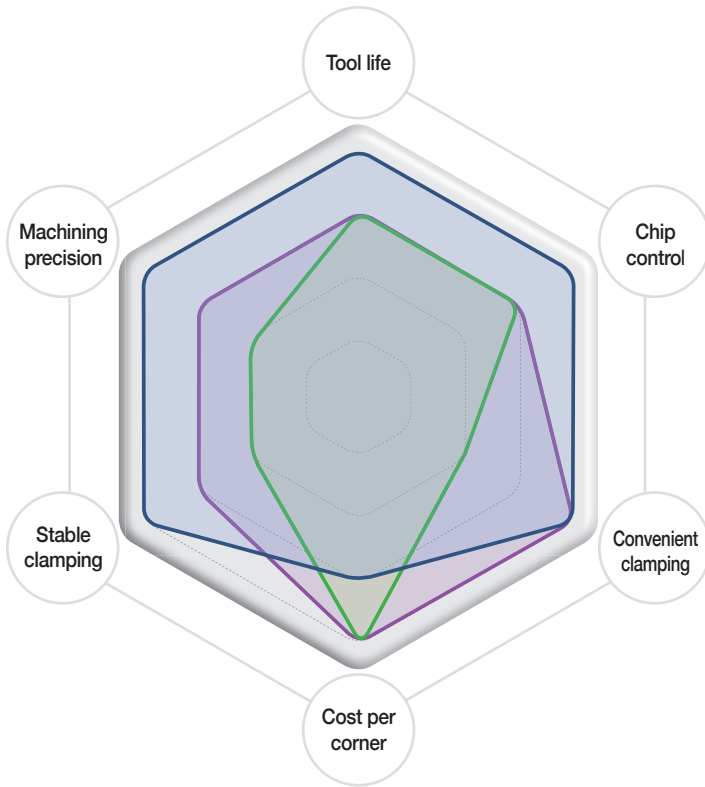
# Cutting edge width and T-MAX by tools

⊙: First recommendation ○: Second recommendation

Shape	Cutting edge width (mm)	T-MAX (mm)	No. of corner	Machining				Features
				External diameter	Internal diameter	Cross section	Parting	
Saw Man-X <sup>new</sup>	2.0	6.0	1	○			⊙	• Self clamping • Deep grooving
MGT, KGT	1.5	8.0	2	⊙	○	○	○	• Various machining • Wide range of machining
TB	1.25	6.0	3	⊙			○	• Precise ground class • Optimally automatic machining
Auto Tools	Blade type	2.0	2	⊙			○	• For swiss-type lathe (blade) • Small deliberate component machining
	Multi-functional type	4.0	2	⊙			○	• For swiss-type lathe (multifunctional) • Small deliberate component machining
K Notch	0.75	6.3	2	⊙				• Strong clamping system • Highly qualified cutting edge

# Parting blade selection guide

— Saw Man-X — Saw Man — MGT, KGT



## Saw Man-X <sup>new</sup>

- Three-way V-Rail
- New treatment on cutting edge
- Differentiated designed chip breaker
- Exclusive wrench



## Saw Man

- Wedge type clamping
- Compatible holder



## MGT, KGT

- Two cutting edges
- Exclusive wrench



Tools	Tool life	Chip control	Convenient clamping	Cost per corner	Stable clamping	Machining precision
Saw Man-X <sup>new</sup>	★★★★	★★★★	★★★★	★★★	★★★★	★★★★
Saw Man	★★★	★★★	★★	★★★★	★★	★★
MGT, KGT	★★★	★★★	★★★★	★★★★	★★★	★★★

※ The standard of KGT and MGT for their blades

## Recommended cutting conditions

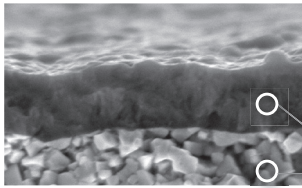
Workpiece	Cutting	Grade	Recommended cutting conditions (m/min)
P Steel	Interrupted cutting	PC5300	130 (80-160)
	Interrupted cutting	PC3035	140 (80-180)
M Stainless steel	Interrupted cutting	PC5300	135 (80-190)
K Cast iron	Interrupted cutting	PC8110	160 (100-220)
	Interrupted cutting	PC5300	140 (80-200)
S HRSA	Continuous cutting	PC8110	50 (35-65)
	Interrupted cutting	PC5300	40 (25-55)

## Grade selection guide

ISO	Application range
P30	PC5300 — PC3035 <sup>new</sup>
P40	PC5300
M25	PC5300
K10	PC8110
K20	PC5300
K30	PC5300
S10	PC8110
S20	PC5300



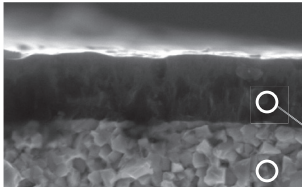
## Grade selection



**PC3035** new

**The exclusive substrate with stable machinability for grooving and good wear resistance coating layer**

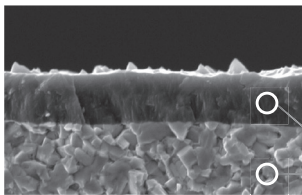
- New TiAlN coating with good wear resistance and high hardness at high temperature
- Exclusive substrate with stable machinability and fracture resistance for grooving



**PC5300**

**The ultra-fine substrate with high hardness and coating with high hardness at high temperature**

- New TiAlN coating with good wear resistance and high hardness at high temperature
- High toughness ultra-fine substrate with good chipping resistance



**PC8110**

**The good substrate and PVD coating for machining at high temperature**

- PVD coating with high oxidation resistance and hardness at high temperature
- Good substrate with wear resistance and plastic deformation at high temperature

## Insert

(mm)

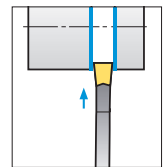
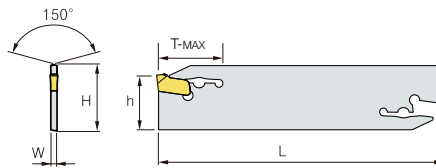
Application	Picture	Designation	Coated			W	r	L	Configuration
			PC3035	PC5300	PC8110				
Parting		KSP 200-020-N	●	●	●	2.0	0.20	11.0	
		300-020-N	●	●	●	3.0	0.20	12.0	
		400-025-N	●	●	●	4.0	0.25	12.5	
		500-025-N	●	●	●	5.0	0.25	13.5	
		600-035-N	●	●	●	6.0	0.35	14.5	

●: Stock item

## KSPB (Blade)



KSPB



(mm)

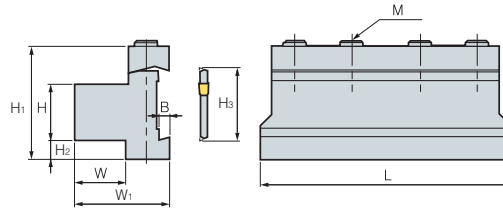
Designation	Stock	Cutting edge width	H	W	L	h	T-MAX	Wrench
KSPB	2026	●	2	26	1.6	110	21	CW08
	2032	●	2	32	1.6	150	25	
	3026	●	3	26	2.4	110	21	
	3032	●	3	32	2.4	150	25	
	4026	●	4	26	3.2	110	21	
	4032	●	4	32	3.2	150	25	
KSPB	5026	●	5	26	4.0	110	21	CW10
	5032	●	5	32	4.0	150	25	
	6026	●	6	26	5.2	110	21	
	6032	●	6	32	5.2	150	25	

●: Stock item

## SMBB (Block)



KSPB□□□□  
 SPB□□□(-S)  
 KGTB□□□□

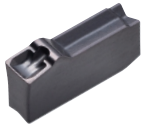


(mm)

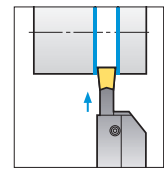
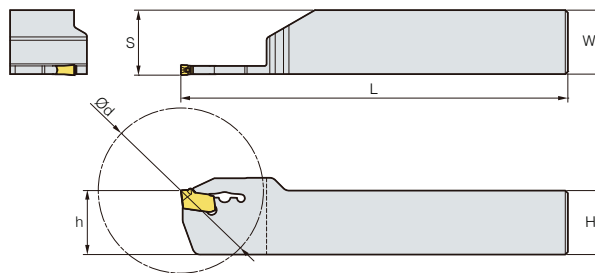
Designation	Stock	H	W	H <sub>3</sub>	L	H <sub>1</sub>	H <sub>2</sub>	W <sub>1</sub>	B	M	Wrench	
SMBB	1626	●	16	12	26	86	43	13	30	5.3	3-M6	HW50L
	2026	●	20	19	26	86	43	9	38	5.3	3-M6	
	2032	●	20	19	32	100	50	13	38	5.3	4-M6	
	2526	●	25	23	26	86	43	4	42	5.3	4-M6	
	2532	●	25	23	32	110	50	8	42	5.3	4-M6	
	3232	●	32	30	32	110	54	5	48	5.3	4-M6	

● : Stock item

## KSPH (Shank)



KSP



R type insert  
(mm)

Designation	Stock		Cutting edge width	H=(h)	W	L	Ød	S	Wrench
	R	L							
KSPH	216R/L		2	16	16	100	46	16.2	CW08
	220R/L			20	20	120	48	20.2	
	225R/L	●	25	25	150	50	25.2		
	316R/L		3	16	16	100	52	16.2	
	320R/L	●		20	20	120	54	20.2	
	325R/L	●		25	25	150	56	25.2	
	420R/L	●	4	20	20	120	64	20.4	
	425R/L	●		25	25	150	66	25.4	
520R/L		5	20	20	120	74	20.4	CW10	
525R/L	●		25	25	150	76	25.4		
625R/L	●		25	25	150	76	25.4		

● : Stock item

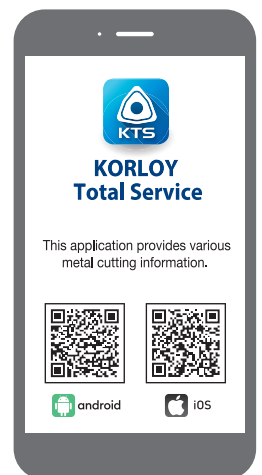
[www.korloy.com](http://www.korloy.com)



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