

SLOTMILL SERIES

www.tungaloy.com

Tungaloy Report No. 423-G

Stable slot milling operation with  
**excellent chip control!**





ACCELERATED MACHINING

MillLine

# SLOTMILL SERIES

TUNGALOY



Tungaloy SlotMill Series is an **economical and well-designed** slot milling line for improved surface finish in slotting, face milling, and back-face milling.

# SLOTMILL SERIES

TUNGALOY

An **economical** slot milling solution with stable chip formation allowing deeper slots thus **increasing productivity** and **stability** in machining!

## Exceptional chip evacuation

Offers stable deep slot milling!

### SLOTMILL SERIES

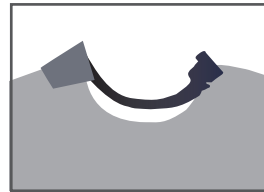
**OK**



Optimum chipbreaker and big gullets create compact chip formation and smooth evacuation!

### Competitor

**X**



Unformed chip and narrow gullet cause chip packing.

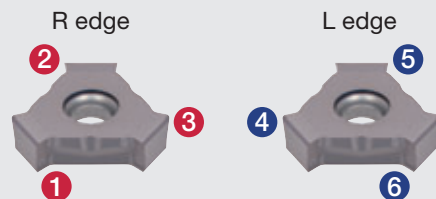
## Innovative inserts

Tough cutting edges lead to high stability

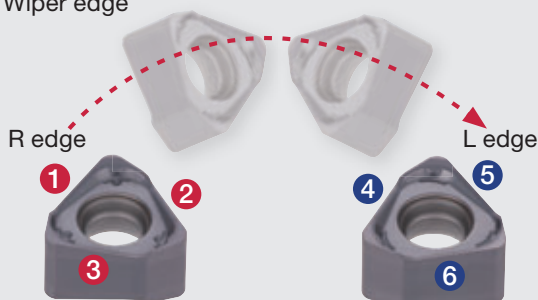
**TUNG M<sup>SLIT</sup>** S/ASG type  
For parting-off and thin slotting  
Precision insert ( $W \pm 0.04$ )  
W = 1.6, 1.85, 2.65, 4.0 mm



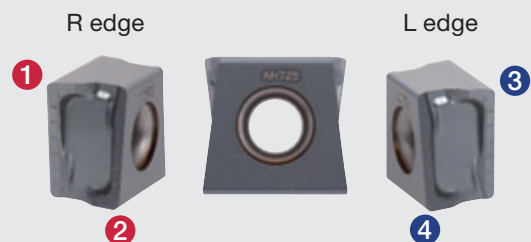
**TUNG T<sup>SLIT</sup>** ASV type  
6 corners available  
W = 4, 5, 6, 8 mm



**TUNG U<sup>NIVERSAL</sup>SLIT** ASW / TSW type  
6 corners available  
With Wiper edge  
W = 10, 12, 14, 16 mm



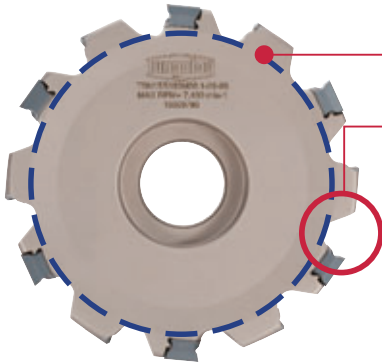
**TEC T<sup>ANGENTIAL</sup>SLIT** ASN / TSN type  
4 corners available  
With Wiper edge  
W = 16, 19, 25 mm



## High productivity due to a large number of edge lines

- High density insert cutters for TungThinSlit, TungUniversalSlot, TecTangentialSlot!
- 1.3 - 1.7 times higher productivity than conventional tools

Sample: **TECTANGENTIAL**



Highly rigid cutter body with tangential insert

Excellent chip evacuation with an optimized chip gullet

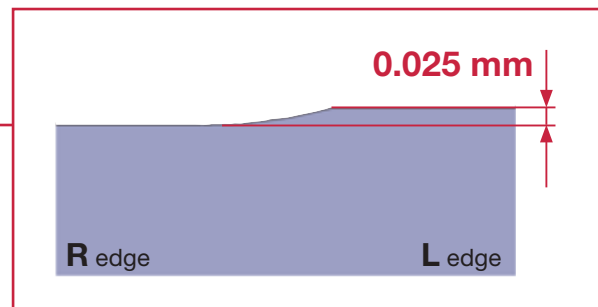
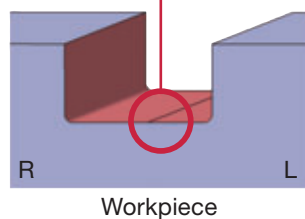
Comparison of no. of edge lines (Edge width:  $W = 16$  mm)

Tool dia. $\phi D_c$ (mm)	<b>TECTANGENTIAL</b>	Competitor A	Competitor B
$\phi 100$	<b>5</b>	-	3
$\phi 125$	<b>6</b>	5	4
$\phi 160$	<b>7</b>	6	5
$\phi 200$	<b>8</b>	7	6

## Small gap between R edge and L edge

Precise runout due to the ground inserts

Machining example: **TECTANGENTIAL**



Tool diameter :  $\phi D_c = \phi 125$  mm  
 Workpiece : S55C / C55 (200HB)  
 Cutting speed :  $V_c = 150$  m/min  
 Chip thickness :  $t = 0.13$  mm  
 Edge width :  $W = 16$  mm  
 Depth of slot :  $ae = 6$  mm  
 Machine : Vertical M/C, BT50

\*Dimension shown is under ideal condition.

## CUTTING PERFORMANCE

### Comparison of chip control

**Smooth chip evacuation!**  
**Better than conventional tools!**

Tool diameter :  $\phi D_c = \phi 125$  mm      Feed per :  $f_z = 0.19$  mm/t ( $a_e = 10$  mm)  
 Cutting speed :  $V_c = 150$  m/min      edge line  $f_z = 0.14$  mm/t ( $a_e = 20$  mm)  
 Chip thickness :  $t = 0.1$  mm       $f_z = 0.125$  mm/t ( $a_e = 25$  mm)  
 No. of edge lines: 1 edge line       $f_z = 0.12$  mm/t ( $a_e = 30$  mm)  
 Machine : Vertical M/C, BT50

### TUNG<sup>MIN</sup>TSLIT ASV type

○ : Good      ✕ : Bad, chip packing

**P** Steel S55C / C55 (200HB)  
 Edge width:  $W = 4$  mm, Dry (with air)  
 Corner radius:  $r_\epsilon = 0.4$  mm

Cutter	Depth of slot: $a_e$ (mm)		
	10	20	25
TUNG <sup>MIN</sup> TSLIT	○	○	○
Competitor A	○	○	✕
Competitor B	○	✕	✕

#### Chips at $a_e = 25$ mm depth



Competitor A



Packed chips

Competitor B



No chip control

**M** Stainless SUS304 / X5CrNi18-9 (180HB)  
 Edge width:  $W = 6$  mm, Wet  
 Corner radius:  $r_\epsilon = 0.8$  mm

Cutter	Depth of slot: $a_e$ (mm)		
	10	20	30
TUNG <sup>MIN</sup> TSLIT	○	○	○
Competitor A	○	✕	✕

#### Chips at $a_e = 30$ mm depth



Competitor A



Packed chips

### TUNG<sup>UNIVERSAL</sup>SLOT ASW / TSW type

**P** Steel S55C / C55 (200HB)  
 Edge width:  $W = 10$  mm, Dry  
 Corner radius:  $r_\epsilon = 0.8$  mm

Cutter	Depth of slot: $a_e$ (mm)		
	10	20	30
TUNG <sup>UNIVERSAL</sup> SLOT	○	○	○
Competitor A	○	○	✕

#### Chips at $a_e = 30$ mm depth



Competitor A



Packed chips



Chips are packed because of bad chip control and flow.

## Comparison of tool life

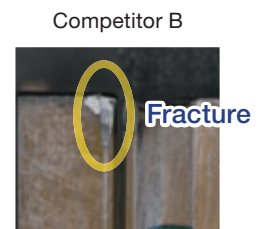
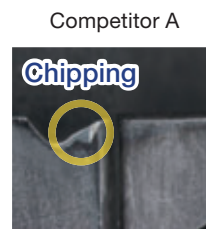
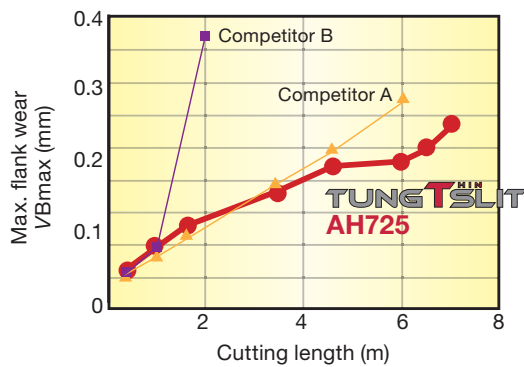
**Longer tool life than competitors tools!**

Tool diameter :  $\phi D_c = \phi 125$  mm  
 Cutting speed :  $V_c = 150$  m/min  
 Chip thickness :  $t = 0.1$  mm

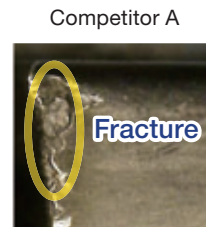
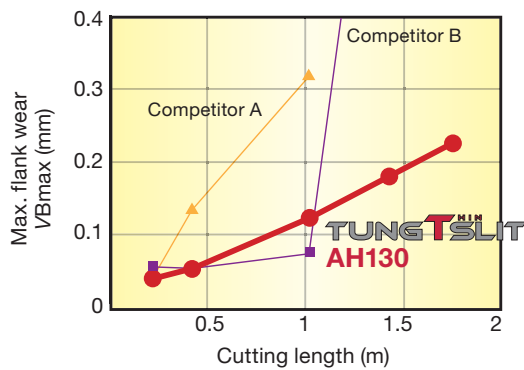
Feed per edge line :  $f_z = 0.19$  mm/t  
 Depth of slot :  $a_e = 10$  mm  
 No. of edge lines : 1 edge line  
 Machine : Vertical M/C, BT50

### TUNG<sup>THIN</sup>SLIT ASV type

**P** Steel S55C / C55 (200HB)  
 Edge width:  $W = 4$  mm, Dry  
 Corner radius:  $r_\epsilon = 0.4$  mm

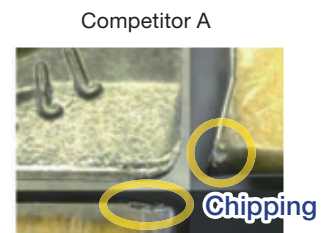
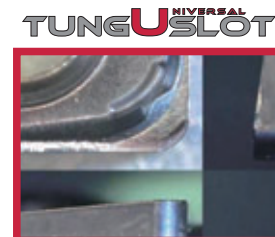
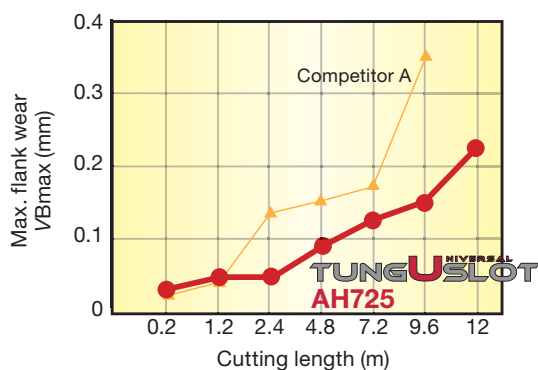


**M** Stainless SUS304 / X5CrNi18-9 (180HB)  
 Edge width:  $W = 6$  mm, Wet  
 Corner radius:  $r_\epsilon = 0.8$  mm



### TUNG<sup>UNIVERSAL</sup>SLIT ASW / TSW type

**P** Steel S55C / C55 (200HB)  
 Edge width:  $W = 10$  mm, Dry  
 Corner radius:  $r_\epsilon = 0.8$  mm



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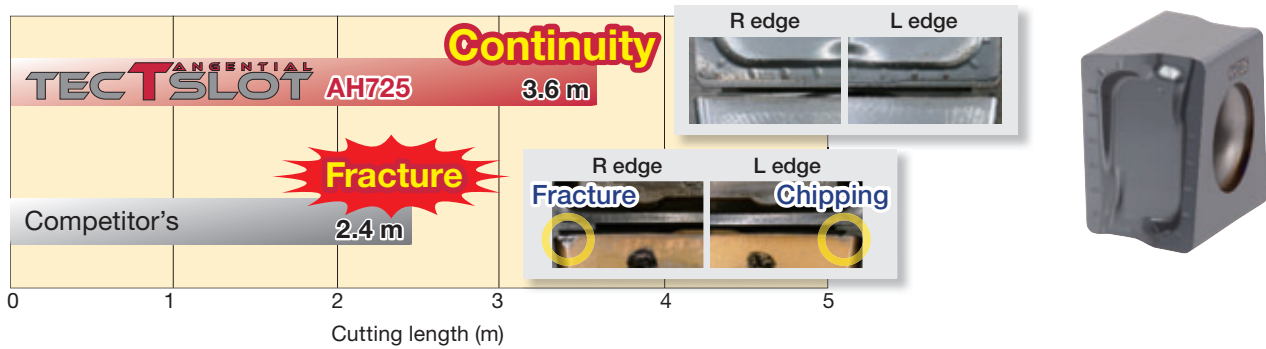
## Comparison of tool life

Reliable insert with tough cutting edge!

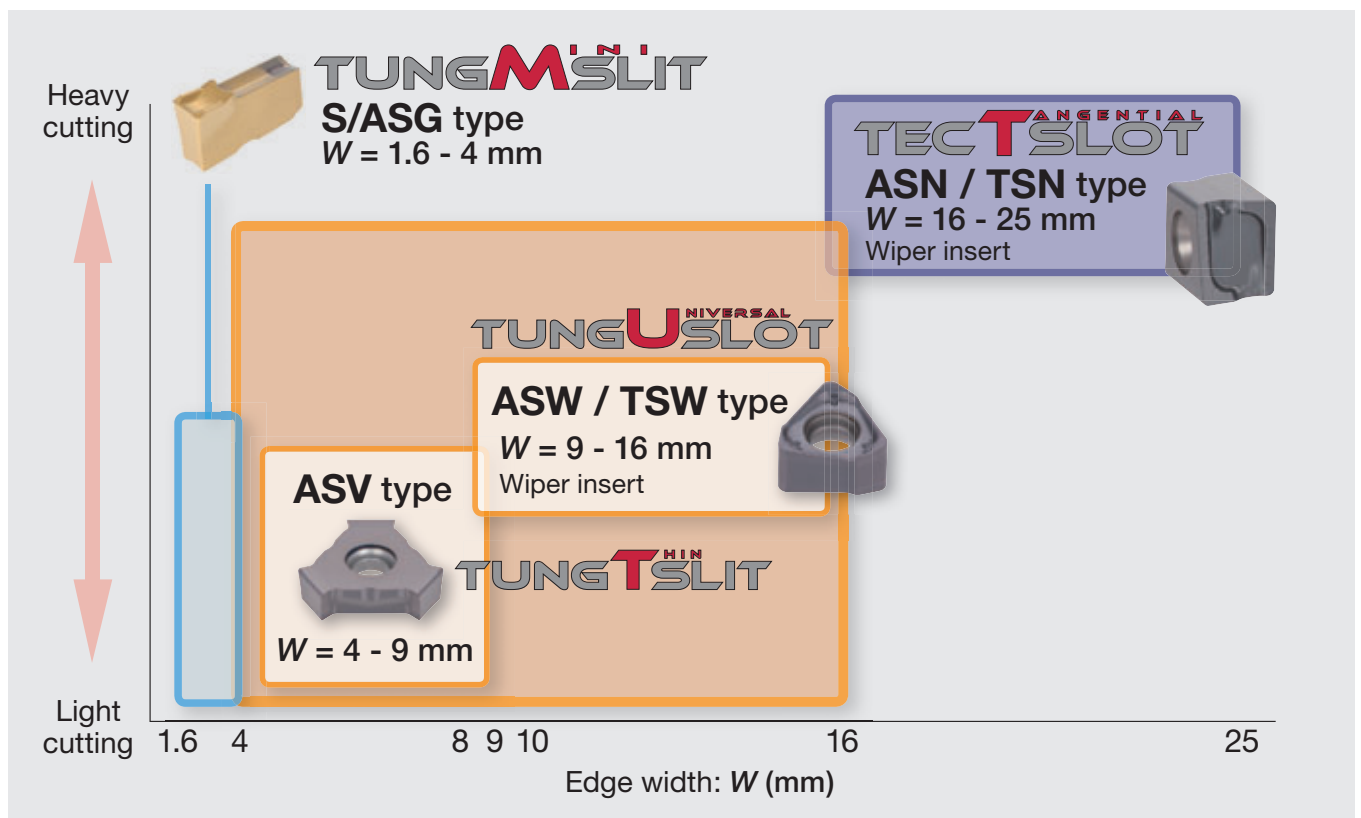
### TEC T<sup>ANGENTIAL</sup> S<sup>LOT</sup> ASN / TSN type

**P** Steel S55C / C55 (200HB)  
 Edge width:  $W = 16$  mm, Dry  
 Corner radius:  $r_\epsilon = 0.8$  mm

Tool diameter	: $\phi D_c = \phi 125$ mm	Edge width	: $W = 16$ mm
Cutting speed	: $V_c = 150$ m/min	Depth of slot	: $a_e = 16$ mm
Chip thickness	: $t = 0.2$ mm	No. of edge lines	: 1 edge line
Feed per edge line	: $f_z = 0.3$ mm/t	Machine	: Vertical M/C, BT50



## APPLICATION RANGE

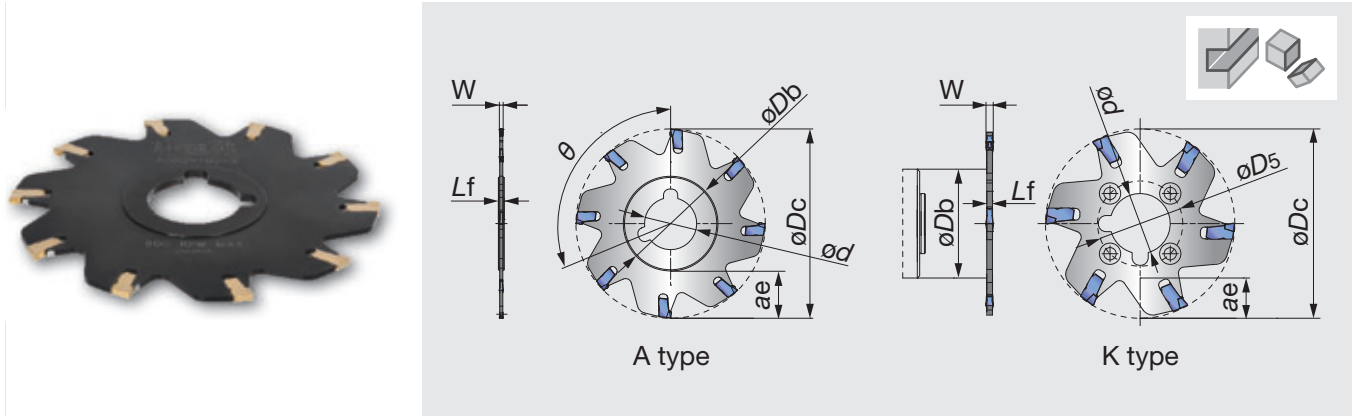




Side cutter for thin slitting and cutting off

## CUTTER - AXIAL DRIVE

TungMiniSlit S/ASG



Designation	W min	W max	oDc	z	oDb	od	oD5	Lf	Max. ae	θ°	SS	SS	Drive flange	type	Insert
SSG01R063-E1.6	1.6	1.6	63	6	32	10	22	2.4	14	0	SW25-32	SW1.00-32	-	K	SSS16N
ASG01N076-1.6	1.6	1.6	76.2	8	39	25.4	-	2.4	14	112.5	-	-	-	A	SSS16N
ASG01N080-E1.6	1.6	1.6	80	8	39	22	-	2.4	16	112.5	-	-	-	A	SSS16N
ASG01N100-1.6	1.6	1.6	100	10	39	25.4	-	2.4	30	90	-	-	-	A	SSS16N
ASG01N100-E1.6	1.6	1.6	100	10	39	22	-	2.4	30	90	-	-	-	A	SSS16N
ASG01N125-1.6	1.6	1.6	125	12	64	31.75	-	2.4	30	75	-	-	-	A	SSS16N
ASG01N125-E1.6	1.6	1.6	125	12	64	27	-	2.4	30	75	-	-	-	A	SSS16N
SSG02R063-E2	1.85	2.5	63	6	32	10	22	2.4	15	0	SW25-32	SW1.00-32	-	K	SSM/S22N
ASG02N076-2	1.85	2.5	76.2	8	39	25.4	-	2.4	17	112.5	-	-	-	A	SSM/S22N
ASG02N080-E2	1.85	2.5	80	8	39	22	-	2.4	20	112.5	-	-	-	A	SSM/S22N
ASG02N100-2	1.85	2.5	100	10	39	25.4	-	2.4	30	90	-	-	-	A	SSM/S22N
ASG02N100-E2	1.85	2.5	100	10	39	22	-	2.4	30	90	-	-	-	A	SSM/S22N
ASG02N125-2	1.85	2.5	125	12	60	31.75	-	2.4	32	75	-	-	-	A	SSM/S22N
ASG02N125-E2	1.85	2.5	125	12	60	27	-	2.4	32	75	-	-	-	A	SSM/S22N
SSG03R063-E3	2.65	3.5	63	5	32	10	22	2.4	15	0	SW25-32	SW1.00-32	-	K	SSM/S31N
SSG03R080-3	2.65	3.5	80	6	46	25.4	36	2.4	16	0	SW32-25.4-46-J	SW1.25-46	R1.00-46	K	SSM/S31N
SSG03R080-E3	2.65	3.5	80	6	40 <sup>(1)</sup>	22	32	2.4	19 <sup>(2)</sup>	0	SW32-40	-	R22-46	K	SSM/S31N
SSG03R100-3	2.65	3.5	100	6	46	25.4	36	2.4	26	0	SW32-25.4-46-J	SW1.25-46	R1.00-46	K	SSM/S31N
SSG03R100-E3	2.65	3.5	100	6	40 <sup>(1)</sup>	22	32	2.4	29 <sup>(3)</sup>	0	SW32-40	-	R22-46	K	SSM/S31N
SSG03R125-3	2.65	3.5	125	8	55	31.75	45	2.4	34	0	-	-	R1.25-55	K	SSM/S31N
SSG03R125-E3	2.65	3.5	125	8	55	32	45	2.4	34	0	S32-55	-	R32-55	K	SSM/S31N
SSG04R063-E4	4	4.5	63	5	32	10	22	3.2	15	0	SW25-32	SW1.00-32	-	K	SSM/S41N
SSG04R080-4	4	4.5	80	6	46	25.4	36	3.2	16	0	SW32-25.4-46-J	SW1.25-46	R1.00-46	K	SSM/S41N
SSG04R080-E4	4	4.5	80	6	40 <sup>(1)</sup>	22	32	3.2	19 <sup>(2)</sup>	0	SW32-40	-	R22-46	K	SSM/S41N
SSG04R100-4	4	4.5	100	6	46	25.4	36	3.2	26	0	SW32-25.4-46-J	SW1.25-46	R1.00-46	K	SSM/S41N
SSG04R100-E4	4	4.5	100	6	40 <sup>(1)</sup>	22	32	3.2	29 <sup>(3)</sup>	0	SW32-40	-	R22-46	K	SSM/S41N
SSG04R125-4	4	4.5	125	8	55	31.75	45	3.2	34	0	-	-	R1.25-55	K	SSM/S41N
SSG04R125-E4	4	4.5	125	8	55	32	45	3.2	34	0	S32-55	-	R32-55	K	SSM/S41N

(1) When using a drive flange, oDb = 46 mm

(2) When using a drive flange, Max. ae = 16 mm

(3) When using a drive flange, Max. ae = 26 mm

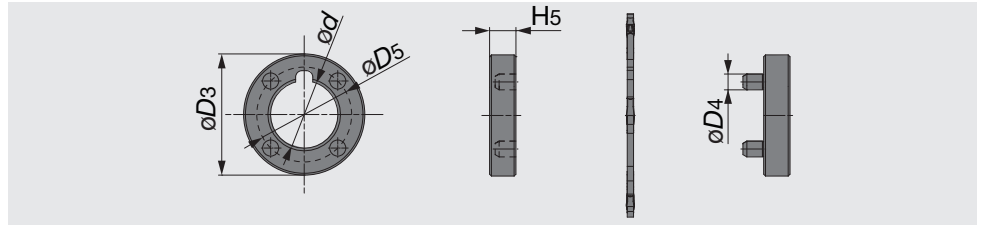
### SPARE PARTS

Designation	Grip	Extractor
SSG01/02...	ESG0.5	-
ASG01/02...	ESG0.5	-
SSG03/04...	-	ESG1

## TUNGMSLIT

### R (drive flange set)

Drive flange set for side cutters

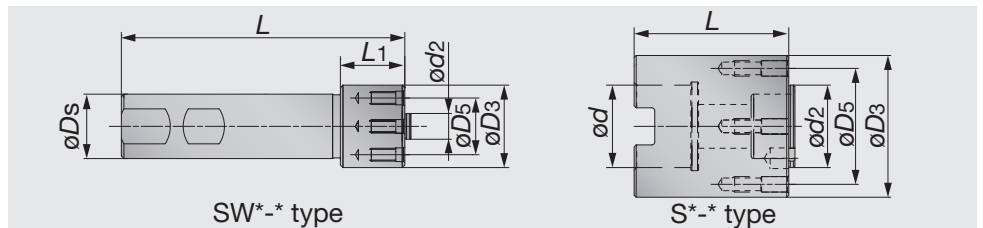


Designation	$\phi d$	$\phi D3$	$\phi D4$	$\phi D5$	H5
R1.00-46	25.4	46	5	36	10
R22-46	22	46	6	32	10
R1.25-55	31.75	55	6	45	10
R32-55	32	55	6	45	10

## TUNGMSLIT

### SW/S

Drive shanks for side cutters



Designation	$\phi D_s$	$\phi d$	$\phi d2$	$\phi D3$	$\phi D5$	L1	L
SW25-32	25	-	10	32	22	25	110
SW32-40	32	-	22	40	32	30	120
SW32-25.4-46-J	32	-	25.4	46	36	30	120
SW1.00-32	25.5	-	10	32	22	25.4	110
SW1.25-46	31.75	-	25.4	46	36	30	120
S32-55	-	32	32	55	45	-	60

### SPARE PARTS



Designation	Screw	Wrench		
		Mono block type	Torx bit	Handle
SW25-32	SR76-961	SETT-15/5	-	-
SW32-40	SR76-963	SETT-15/5	-	-
SW32-25.4-46-J	SR76-963	SETT-15/5	-	-
SW1.00-32	SR76-961	SETT-15/5	-	-
SW1.25-46	SR76-963	SETT-15/5	-	-
S32-55	SR76-943	-	BT20M	H-TB

## COMBINATION OF ARBORS / ATTACHMENTS

### Cutter bodies : "A" type

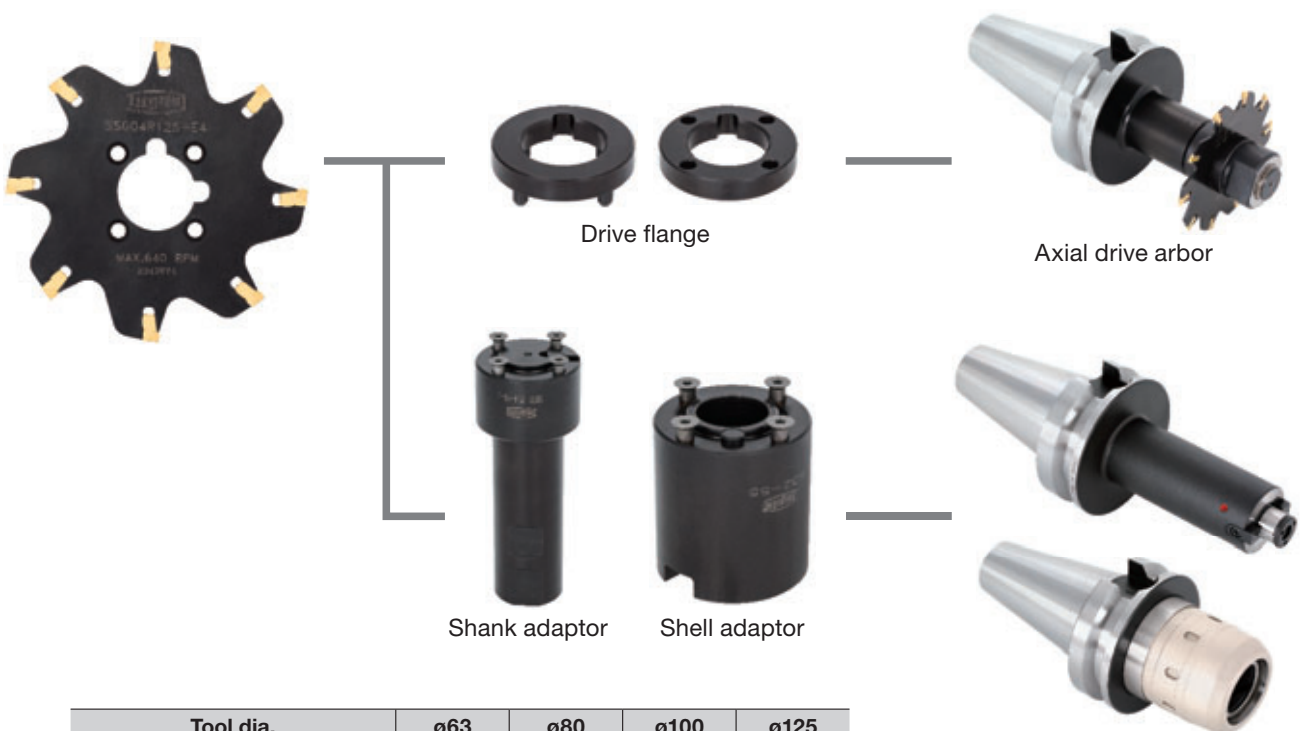
A-type disk cutters are without clamping holes on the hub and can be mounted only by using axial drive arbors.



Axial drive arbor

### Cutter bodies : "K" type

K-type disk cutters are with clamping holes on the hub and can be mounted by using intermediate shanks or shell adaptors, making it possible to use endmills / shell mill arbors.



Drive flange

Axial drive arbor

Shank adaptor

Shell adaptor

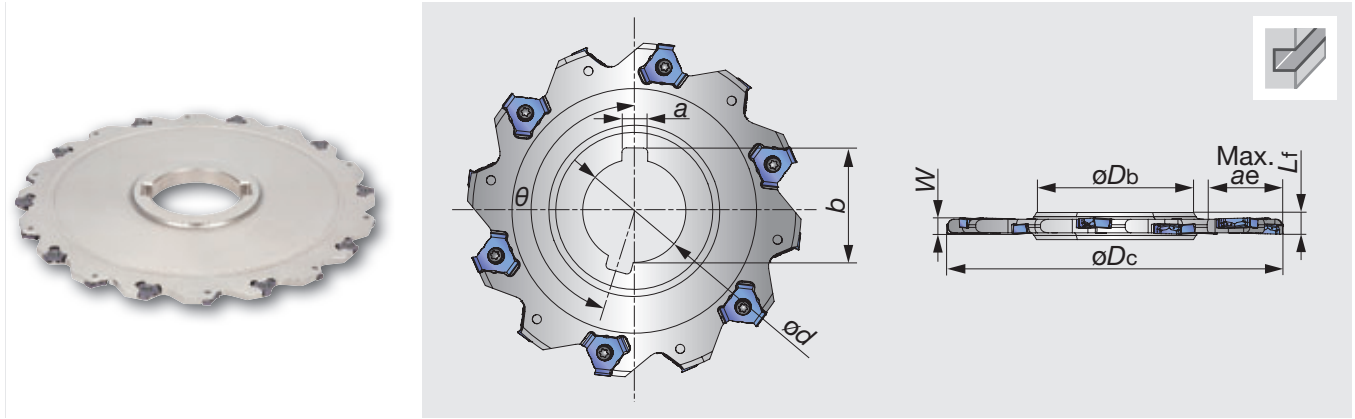
Shell mill / Endmill arbor

Tool dia.	ø63	ø80	ø100	ø125
Drive flange	-	✓	✓	✓
Shank / Shell adaptor	✓	✓	✓	✓

Axial drive type slot milling cutter with face mounted inserts

## CUTTER - AXIAL DRIVE

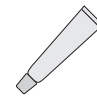
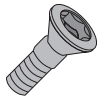
TungThinSlit ASV + TVKX



Designation	W	øDc	Z eff	øDb	ød	Lf	b	a	Max. ae	θ	z	Insert
ASV02N080-4	4	80	5	41	25.4	6	28	6.35	15	162°	10	TVKX0202...
ASV02N080-E4	4	80	5	41	27	6	29.8	7	15	162°	10	TVKX0202...
ASV02N100-4	4	100	6	48	31.75	6	35.2	7.92	20	165°	12	TVKX0202...
ASV02N100-E4	4	100	6	47	32	6	34.8	8	20	165°	12	TVKX0202...
ASV02N125-4	4	125	8	58	38.1	6	42.3	9.52	30	168.75°	16	TVKX0202...
ASV02N125-E4	4	125	8	55	40	6	43.5	10	30	168.75°	16	TVKX0202...
ASV02N160-4	4	160	10	58	38.1	6	42.3	9.52	45	171°	20	TVKX0202...
ASV02N160-E4	4	160	10	55	40	6	43.5	10	45	171°	20	TVKX0202...
ASV03N080-5	5	80	5	41	25.4	6.5	28	6.35	15	162°	10	TVKX03X3...
ASV03N080-E5	5	80	5	41	27	6.5	29.8	7	15	162°	10	TVKX03X3...
ASV03N100-5	5	100	6	48	31.75	6.5	35.2	7.92	20	165°	12	TVKX03X3...
ASV03N100-E5	5	100	6	47	32	6.5	34.8	8	20	165°	12	TVKX03X3...
ASV03N125-5	5	125	8	58	38.1	6.5	42.3	9.52	30	168.75°	16	TVKX03X3...
ASV03N125-E5	5	125	8	55	40	6.5	43.5	10	30	168.75°	16	TVKX03X3...
ASV03N160-5	5	160	10	58	38.1	6.5	42.3	9.52	45	171°	20	TVKX03X3...
ASV03N160-E5	5	160	10	55	40	6.5	43.5	10	45	171°	20	TVKX03X3...
ASV04N080-6	6	80	4	41	25.4	8	28	6.35	17	157.5°	8	TVKX04H3...
ASV04N080-E6	6	80	4	41	27	8	29.8	7	17	157.5°	8	TVKX04H3...
ASV04N100-6	6	100	5	48	31.75	8	35.2	7.92	23.5	162°	10	TVKX04H3...
ASV04N100-E6	6	100	5	47	32	8	34.8	8	23.5	162°	10	TVKX04H3...
ASV04N125-6	6	125	6	58	38.1	8	42.3	9.52	31	165°	12	TVKX04H3...
ASV04N125-E6	6	125	6	55	40	8	43.5	10	32.5	165°	12	TVKX04H3...
ASV04N160-6	6	160	8	58	38.1	8	42.3	9.52	48.5	168.75°	16	TVKX04H3...
ASV04N160-E6	6	160	8	55	40	8	43.5	10	50	168.75°	16	TVKX04H3...
ASV04N200-6	6	200	10	69	50.8	8	55.8	12.7	63	171°	20	TVKX04H3...
ASV04N200-E6	6	200	10	69	50	8	53.5	12	63	171°	20	TVKX04H3...
ASV05N080-8	8	80	4	41	25.4	10	28	6.35	17	157.5°	8	TVKX0504...
ASV05N080-E8	8	80	4	41	27	10	29.8	7	17	157.5°	8	TVKX0504...

Designation	<i>W</i>	$\phi D_c$	<i>Z</i> eff	$\phi D_b$	$\phi d$	<i>L</i> <sub>f</sub>	<i>b</i>	<i>a</i>	Max. <i>ae</i>	$\theta$	<i>z</i>	Insert
ASV05N100-8	8	100	5	48	31.75	10	35.2	7.92	23.5	162°	10	TVKX0504...
ASV05N100-E8	8	100	5	47	32	10	34.8	8	23.5	162°	10	TVKX0504...
ASV05N125-8	8	125	6	58	38.1	10	42.3	9.52	31	165°	12	TVKX0504...
ASV05N125-E8	8	125	6	55	40	10	43.5	10	32.5	165°	12	TVKX0504...
ASV05N160-8	8	160	8	58	38.1	10	42.3	9.52	48.5	168.75°	16	TVKX0504...
ASV05N160-E8	8	160	8	55	40	10	43.5	10	50	168.75°	16	TVKX0504...
ASV05N200-8	8	200	10	69	50.8	10	55.8	12.7	63	171°	20	TVKX0504...
ASV05N200-E8	8	200	10	69	50	10	53.5	12	63	171°	20	TVKX0504...

## SPARE PARTS

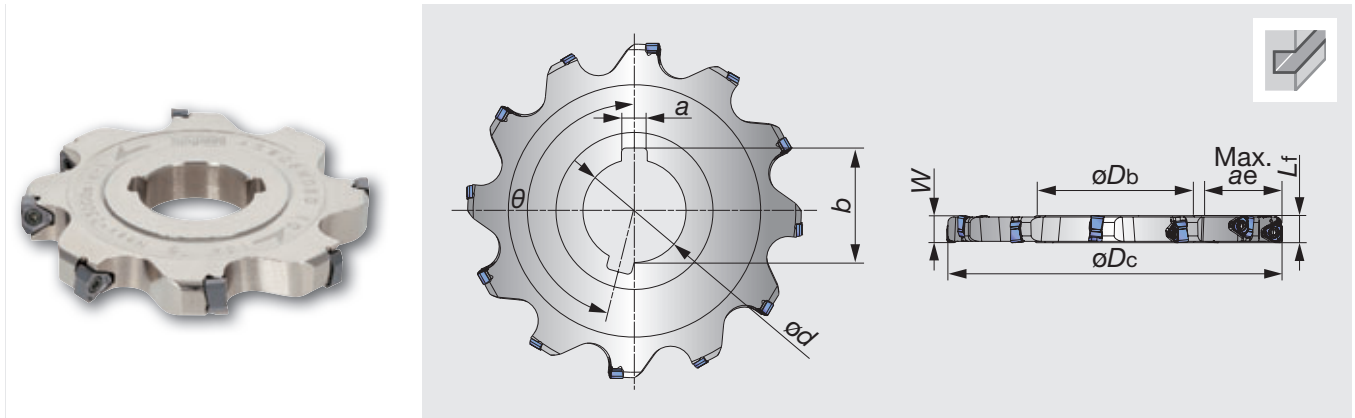


Designation	Clamping screw	Wrench		Lubricant
		Mono block type	Bit	
ASV02N...	SR114-018-L3.40	T-6D	-	M-1000
ASV03N...	SR114-018-L3.40	T-6D	-	M-1000
ASV04N...	SR14-500/L5.1	-	BT15S	H-TB2W M-1000
ASV05N...	SR14-500-L7.0	-	BT15S	H-TB2W M-1000

## Axial drive type slot milling cutter

## CUTTER - AXIAL DRIVE

TungUniversalSlot ASW + WNGU



Designation	W	oDc	Z eff	oDb	od	Lf	b	a	Max. ae	θ	z	Insert
ASW06N080-10	10	80	4	41	25.4	10	28	6.35	18.5	157.5°	8	WNGU0603...
ASW06N080-E10	10	80	4	41	27	10	29.8	7	18.5	157.5°	8	WNGU0603...
ASW06N100-10	10	100	5	48	31.75	10	35.2	7.92	25	162°	10	WNGU0603...
ASW06N100-E10	10	100	5	47	32	10	34.8	8	25.5	162°	10	WNGU0603...
ASW06N125-10	10	125	6	58	38.1	10	42.3	9.52	32.5	165°	12	WNGU0603...
ASW06N125-E10	10	125	6	55	40	10	43.5	10	34	165°	12	WNGU0603...
ASW06N160-10	10	160	7	58	38.1	10	42.3	9.52	50	167.14°	14	WNGU0603...
ASW06N160-E10	10	160	7	55	40	10	43.5	10	51.5	167.14°	14	WNGU0603...
ASW07N100-12	12	100	5	48	31.75	12	35.2	7.92	25	162°	10	WNGU07T3...
ASW07N100-E12	12	100	5	47	32	12	34.8	8	25.5	162°	10	WNGU07T3...
ASW07N125-12	12	125	6	58	38.1	12	42.3	9.52	32.5	165°	12	WNGU07T3...
ASW07N125-E12	12	125	6	55	40	12	43.5	10	34	165°	12	WNGU07T3...
ASW07N160-12	12	160	7	58	38.1	12	42.3	9.52	50	167.14°	14	WNGU07T3...
ASW07N160-E12	12	160	7	55	40	12	43.5	10	51.5	167.14°	14	WNGU07T3...
ASW09N100-14	14	100	5	48	31.75	14	35.2	7.92	25	162°	10	WNGU0904...
ASW09N100-E14	14	100	5	47	32	14	34.8	8	25.5	162°	10	WNGU0904...
ASW09N160-14	14	160	7	58	38.1	14	42.3	9.52	50	167.14°	14	WNGU0904...
ASW09N160-E14	14	160	7	55	40	14	43.5	10	51.5	167.14°	14	WNGU0904...
ASW09N160-16	16	160	7	58	38.1	16	42.3	9.52	50	167.14°	14	WNGU0904...
ASW09N160-E16	16	160	7	55	40	16	43.5	10	51.5	167.14°	14	WNGU0904...

### SPARE PARTS

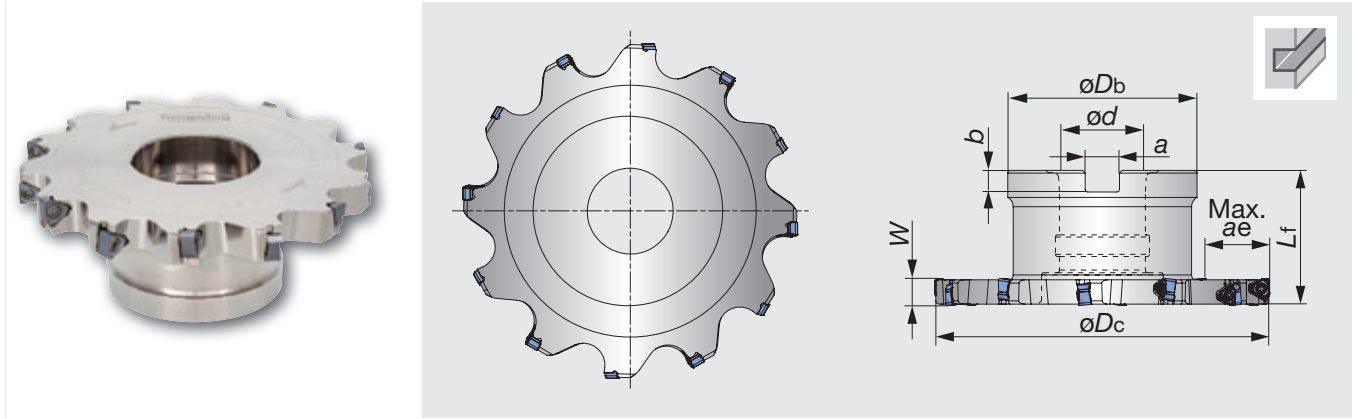


Designation	Clamping screw	Wrench			Lubricant
		Mono block type	Bit	Grip	
ASW06N...	CSPB-2.5	-	IP-8D	-	M-1000
ASW07N100...	CSPD-3	-	BLD IP10/S7	SW6-SD	M-1000
ASW07N125...	CSPD-3	-	BLD IP10/S7	SW6-SD	M-1000
ASW07N160...	CSPD-3	-	IP-10D	-	M-1000
ASW09N100...	-	CSPB-3.5	BLD IP15/S7	-	H-TB2W
ASW09N160...	-	CSPB-3.5	IP-15D	-	M-1000

## Radial drive type slot milling cutter

### CUTTER - RADIAL DRIVE

TungUniversalSlot TSW + WNGU



Designation	W	øDc	Z eff	øDb	ød	Lf	b	a	Max. ae	z	Insert
TSW06R100-10	10	100	5	50	25.4	50	6	9.5	24	10	WNGU0603...
TSW06R100-E10	10	100	5	58	27	50	7	12.4	20	10	WNGU0603...
TSW06R125-10	10	125	6	70	31.75	50	8	12.7	26.5	12	WNGU0603...
TSW06R125-E10	10	125	6	66	32	50	8	14.4	28.5	12	WNGU0603...
TSW06R160-10	10	160	7	100	38.1	63	10	15.9	29	14	WNGU0603...
TSW06R160-E10	10	160	7	82	40	63	9	16.4	38	14	WNGU0603...
TSW07R100-12	12	100	5	50	25.4	50	6	9.5	24	10	WNGU07T3...
TSW07R100-E12	12	100	5	58	27	50	7	12.4	20	10	WNGU07T3...
TSW07R125-12	12	125	6	70	31.75	50	8	12.7	26.5	12	WNGU07T3...
TSW07R125-E12	12	125	6	66	32	50	8	14.4	28.5	12	WNGU07T3...
TSW07R160-12	12	160	7	100	38.1	63	10	15.9	29	14	WNGU07T3...
TSW07R160-E12	12	160	7	82	40	63	9	16.4	38	14	WNGU07T3...
TSW09R160-16	16	160	7	100	38.1	63	10	15.9	29	14	WNGU0904...
TSW09R160-E16	16	160	7	82	40	63	9	16.4	38	14	WNGU0904...

#### SPARE PARTS

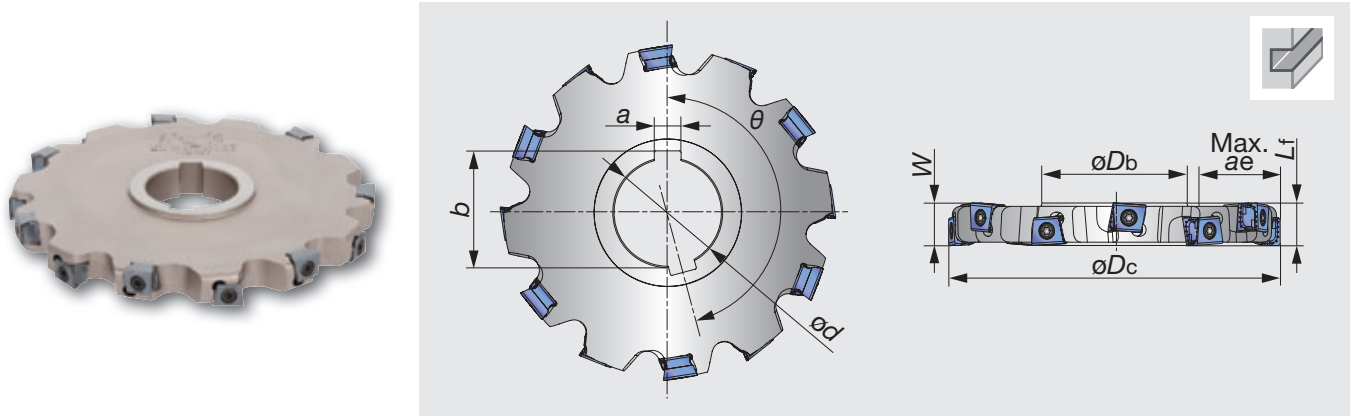


Designation	Clamping screw	Wrench			Lubricant
		Mono block type	Bit	Grip	
TSW06R...	CSPB-2.5	-	IP-8D	-	M-1000
TSW07R100...	CSPD-3	-	-	BLD IP10/S7	SW6-SD
TSW07R125...	CSPD-3	-	-	BLD IP10/S7	SW6-SD
TSW07R160...	CSPD-3	-	IP-10D	-	M-1000
TSW09R...	-	CSPB-3.5	IP-15D	-	M-1000

Axial drive type slot milling cutter with tangentially mounted inserts

## CUTTER - AXIAL DRIVE

TecTangentialSlot ASN + LMEU



Designation	W	odC	Z eff	odB	od	Lf	b	a	Max. ae	theta	z	Insert
ASN10R100M31.7-16-05	16	100	5	48	31.75	16	35.2	7.92	25	162°	10	LMEU1008...
ASN10R100M32.0E16-05	16	100	5	47	32	16	34.8	8	25.5	162°	10	LMEU1008...
ASN10R125M38.1-16-06	16	125	6	58	38.1	16	42.3	9.52	32.5	165°	12	LMEU1008...
ASN10R125M40.0E16-06	16	125	6	55	40	16	43.5	10	34	165°	12	LMEU1008...
ASN10R160M38.1-16-07	16	160	7	58	38.1	16	42.3	9.52	50	167.14°	14	LMEU1008...
ASN10R160M40.0E16-07	16	160	7	55	40	16	43.5	10	51.5	167.14°	14	LMEU1008...
ASN10R200M50.0E16-08	16	200	8	69	50	16	53.6	12	64.5	168.75°	16	LMEU1008...
ASN12R100M31.7-19-05	19	100	5	48	31.75	19	35.2	7.92	25	162°	10	LMEU1208...
ASN12R100M32.0E19-05	19	100	5	47	32	19	34.8	8	25.5	162°	10	LMEU1208...
ASN12R125M38.1-19-06	19	125	6	58	38.1	19	42.3	9.52	32.5	165°	12	LMEU1208...
ASN12R125M40.0E19-06	19	125	6	55	40	19	43.5	10	34	165°	12	LMEU1208...
ASN12R160M38.1-19-07	19	160	7	58	38.1	19	42.3	9.52	50	167.14°	14	LMEU1208...
ASN12R160M40.0E19-07	19	160	7	55	40	19	43.5	10	51.5	167.14°	14	LMEU1208...
ASN12R200M50.0E19-08	19	200	8	69	50	19	53.6	12	64.5	168.75°	16	LMEU1208...
ASN12R250M50.0E19-09	19	250	9	84	50	19	53.6	12	82	170°	18	LMEU1208...
ASN15R125M38.1-25-05	25	125	5	58	38.1	25	42.3	9.52	32.5	162°	10	LMEU1509...
ASN15R125M40.0E25-05	25	125	5	55	40	25	43.5	10	34	165°	10	LMEU1509...
ASN15R160M38.1-25-06	25	160	6	58	38.1	25	42.3	9.52	50	165°	12	LMEU1509...
ASN15R160M40.0E25-06	25	160	6	55	40	25	43.5	10	51.5	167.14°	12	LMEU1509...
ASN15R200M50.0E25-07	25	200	7	69	50	25	53.6	12	64.5	168.75°	14	LMEU1509...
ASN15R250M50.0E25-08	25	250	8	84	50	25	53.6	12	82	170°	16	LMEU1509...

**SPARE PARTS**

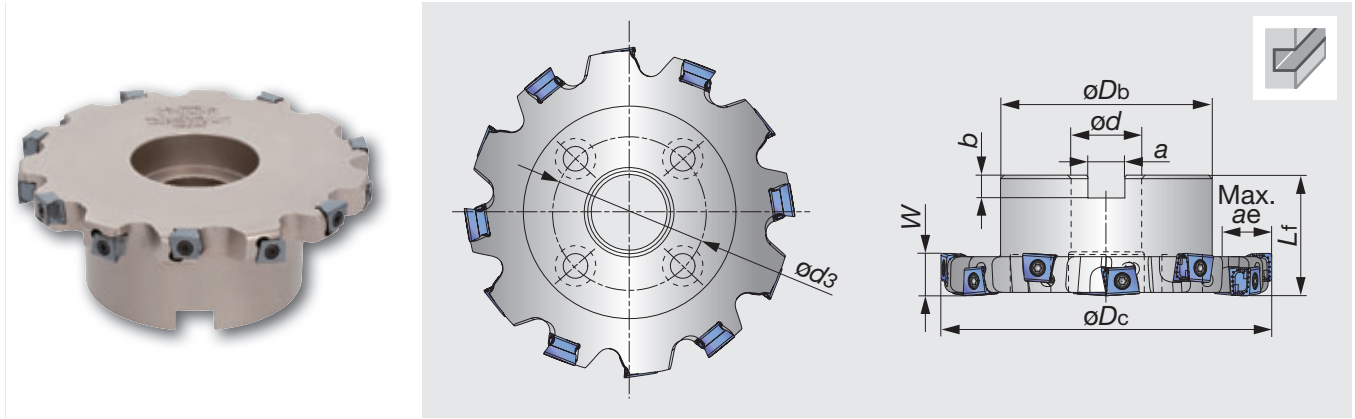
Designation	Clamping screw	Wrench	
		Bit	Grip
ASN10R...	SM40-143-H0	BT15S	H-TB
ASN12R...	SM40-143-H0	BT15S	H-TB
ASN15R...	CSTB-5L159	BT20S	H-TB



## Radial drive type slot milling cutter with tangentially mounted inserts

### CUTTER - RADIAL DRIVE

TecTangentialSlot TSN + LMEU



Designation	W	$\phi D_c$	Z eff	$\phi D_b$	$\phi d$	Lf	b	a	Max. ae	$\phi d_3$	z	Insert
TSN10R100M25.4-16-05	16	100	5	50	25.4	50	6	9.5	24	-	10	LMEU1008...
TSN10R100M27.0E16-05	16	100	5	58	27	50	7	12.4	20	-	10	LMEU1008...
TSN10R125M31.7-16-06	16	125	6	70	31.75	50	8	12.7	26.5	-	12	LMEU1008...
TSN10R125M32.0E16-06	16	125	6	66	32	50	8	14.4	28.5	-	12	LMEU1008...
TSN10R160M38.1-16-07	16	160	7	100	38.1	63	10	15.9	29	-	14	LMEU1008...
TSN10R160M40.0E16-07	16	160	7	82	40	63	9	16.4	38	-	14	LMEU1008...
TSN10R200M47.6-16-08	16	200	8	135	47.625	63	14	25.4	31.5	101.6	16	LMEU1008...
TSN10R200M40.0E16-08	16	200	8	88	40	63	9	16.4	55	66.7	16	LMEU1008...
TSN12R100M25.4-19-05	19	100	5	50	25.4	50	6	9.5	24	-	10	LMEU1208...
TSN12R100M27.0E19-05	19	100	5	58	27	50	7	12.4	20	-	10	LMEU1208...
TSN12R125M31.7-19-06	19	125	6	70	31.75	50	8	12.7	26.5	-	12	LMEU1208...
TSN12R125M32.0E19-06	19	125	6	66	32	50	8	14.4	28.5	-	12	LMEU1208...
TSN12R160M38.1-19-07	19	160	7	100	38.1	63	10	15.9	29	-	14	LMEU1208...
TSN12R160M40.0E19-07	19	160	7	82	40	63	9	16.4	38	-	14	LMEU1208...
TSN12R200M40.0E19-08	19	200	8	88	40	63	9	16.4	55	66.7	16	LMEU1208...
TSN12R200M47.6-19-08	19	200	8	135	47.625	63	14	25.4	31.5	101.6	16	LMEU1208...
TSN12R250M47.6-19-09	19	250	9	140	47.625	63	14	25.4	54	101.6	18	LMEU1208...
TSN12R250M60.0E19-09	19	250	9	128	60	63	14	25.7	60	101.6	18	LMEU1208...
TSN15R125M31.7-25-05	25	125	5	70	31.75	50	8	12.7	26.5	-	10	LMEU1509...
TSN15R125M32.0E25-05	25	125	5	66	32	50	8	14.4	28.5	-	10	LMEU1509...
TSN15R160M38.1-25-06	25	160	6	100	38.1	63	10	15.9	29	-	12	LMEU1509...
TSN15R160M40.0E25-06	25	160	6	82	40	63	9	16.4	38	-	12	LMEU1509...
TSN15R200M40.0E25-07	25	200	7	88	40	63	9	16.4	55	66.7	14	LMEU1509...
TSN15R200M47.6-25-07	25	200	7	135	47.625	63	14	25.4	31.5	101.6	14	LMEU1509...
TSN15R250M47.6-25-08	25	250	8	140	47.625	63	14	25.4	54	101.6	16	LMEU1509...
TSN15R250M60.0E25-08	25	250	8	128	60	63	14	25.7	60	101.6	16	LMEU1509...

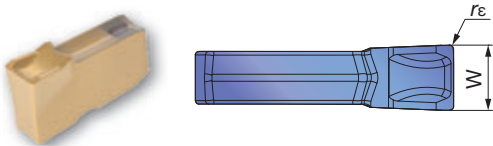
#### SPARE PARTS



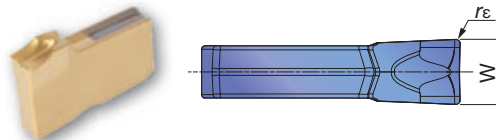
Designation	Clamping screw	Wrench	
		Bit	Grip
TSN10R...	SM40-143-H0	BT15S	H-TB
TSN12R...	SM40-143-H0	BT15S	H-TB
TSN15R...	CSTB-5L159	BT20S	H-TB

## INSERTS

### SSM



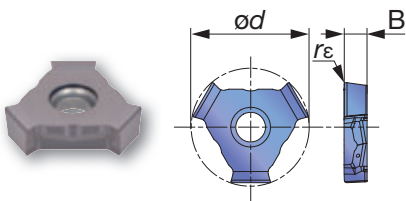
### SSS



Designation	$r_\epsilon$	$W_{\pm 0.04}$	GH130			
SSM22N	0.2	2.2	●	●	●	
SSM31N	0.2	3.1	●	●	●	
SSM41N	0.25	4.1	●	●	●	
SSS16N	0.16	1.6	●	●	●	
SSS22N	0.2	2.2	●	●	●	
SSS31N	0.2	3.1	●	●	●	
SSS41N	0.25	4.1	●	●	●	
			P	M	K	S

● First choice

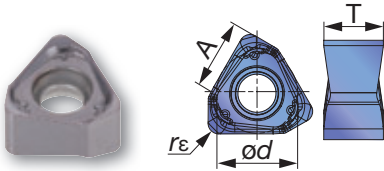
### TVKX-MJ



Designation	B	$\phi d$	$r_\epsilon$	AH725				AH130				AH120			
TVKX020202TN-MJ	2.4	9.4	0.2	●	○	○	●							●	
TVKX020204TN-MJ	2.4	9.4	0.4	●	○	○	●							●	
TVKX03X302TN-MJ	3.2	9.4	0.2	●	○	○	●							●	
TVKX03X304TN-MJ	3.2	9.4	0.4	●	○	○	●							●	
TVKX04H304TN-MJ	3.5	16.9	0.4	●			●	○	●	○				●	
TVKX04H308TN-MJ	3.5	16.9	0.8	●			●	○	●	○				●	
TVKX050404TN-MJ	4.5	16.9	0.4	●			●	○	●	○				●	
TVKX050408TN-MJ	4.5	16.9	0.8	●			●	○	●	○				●	
				P	M	K	S	P	M	K	S	P	M	K	S

● First choice

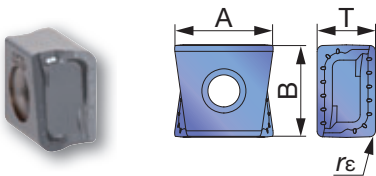
## WNGU-MJ



Designation	A	ød	T	rε	AH725	AH130	AH120
WNGU060308TN-MJ	5.6	6.1	4.4	0.8	●	○	●
WNGU060316TN-MJ	5.6	6.1	4.4	1.6	●	○	●
WNGU07T308TN-MJ	6.8	7.4	5.5	0.8	●	○	●
WNGU07T316TN-MJ	6.8	7.4	5.5	1.6	●	○	●
WNGU090408TN-MJ	8.5	8.6	6.5	0.8	●	○	●
WNGU090416TN-MJ	8.5	8.6	6.5	1.6	●	○	●
					P M K S	P M K S	P M K S

● First choice

## LMEU-MJ

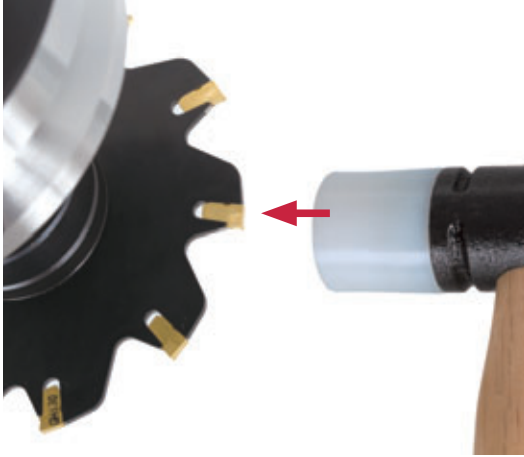


Designation	A	B	T	rε	AH725	AH140	AH120
LMEU100808ZNEN-MJ	12.7	10.5	8	0.8	●	○	●
LMEU100816ZNEN-MJ	12.5	10.5	8	1.6	●	○	●
LMEU100824ZNEN-MJ	12.4	10.5	8	2.4	●	○	●
LMEU100832ZNEN-MJ	12.2	10.5	8	3.2	●	○	●
LMEU120808ZNEN-MJ	13.6	12.7	8	0.8	●	○	●
LMEU120816ZNEN-MJ	13.4	12.7	8	1.6	●	○	●
LMEU120824ZNEN-MJ	13.2	12.7	8	2.4	●	○	●
LMEU120832ZNEN-MJ	13.1	12.7	8	3.2	●	○	●
LMEU150908ZNEN-MJ	15.6	15	9.5	0.8	●	○	●
LMEU150916ZNEN-MJ	15.4	15	9.5	1.6	●	○	●
LMEU150924ZNEN-MJ	15.3	15	9.5	2.4	●	○	●
LMEU150932ZNEN-MJ	15.1	15	9.5	3.2	●	○	●
					P M K S	P M K S	P M K S

● First choice

## INSERT INSTALLATION AND REMOVAL

### Installation



Before installing inserts, clear chips and dust from the insert seats by air blast or waste rag.

Lightly press the insert into the insert seat by hand, then use a plastic hammer to fix the insert in firmly into the position.

Make sure that there is no gap between the insert and the insert seat.



OK



×

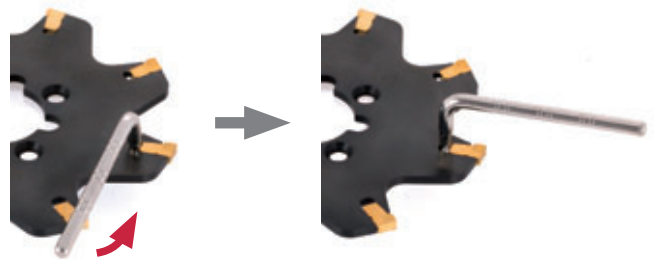
### Removal

#### SSG01/02 type



Insert the wrench (included in the package) in the hole and tilt the wrench in the arrowed direction.

#### SSG03/04 type



Insert the wrench in the hole and turn the wrench to the arrowed direction.

## STANDARD CUTTING CONDITIONS

## S/ASG type

ISO	Work piece materials	Hardness (HB)	Insert	Cutting speed $V_c$ (m/min)	Chip thickness $t$ (mm)
<b>P</b>	Low carbon steel (SS400, S15C, etc.)	- 200	SSM...	150 - 230	0.05 - 0.15
	High carbon steel (S45C, S55C, etc.)	200 - 300	SSM...	100 - 170	0.04 - 0.13
	Alloy steels (SCM440, SCr415, etc.)	150 - 300	SSM...	90 - 160	0.04 - 0.13
	Tool steel (SKD11, SKD61, etc.)	- 300	SSM...	70 - 120	0.04 - 0.13
<b>M</b>	Stainless steel (SUS304, SUS316, etc.)	-	SSS...	90 - 200	0.04 - 0.13
<b>K</b>	Grey cast iron (FC250, FC300, etc.)	150 - 250	SSM...	100 - 200	0.05 - 0.15
	Ductile cast iron (FCD400, etc.)	150 - 250	SSM...	80 - 130	0.05 - 0.15



## STANDARD CUTTING CONDITIONS

### ASV, ASW / TSW, ASN / TSN type

ISO	Workpiece materials	Hardness (HB)	Priority	Grades	Cutting speed Vc (m/min)	Feed per edge line: fz (mm/t)	
						ASV	
						ae / øDc (mm)	
						10%	20%
P	Low carbon steel (SS400 / E275A, etc.)	- 200	First choice	AH725	90 - 180	0.08 - 0.25	0.06 - 0.19
		- 200	For impact resistance	AH130, AH140	90 - 180	0.08 - 0.25	0.06 - 0.19
	High carbon steel (S45C / C45, etc.)	200 - 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16
		200 - 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16
	Alloy steel (SCM440 / 42CrMo4, etc.)	150 - 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16
		150 - 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16
Tool steel (SKD61 / X40CrMoV5-1, etc.)	- 300	First choice	AH725	90 - 180	0.07 - 0.22	0.05 - 0.16	
	- 300	For impact resistance	AH130, AH140	90 - 180	0.07 - 0.22	0.05 - 0.16	
M	Stainless steel (SUS304 / X5CrNi18-9, etc.)	-	-	AH130, AH140	90 - 200	0.07 - 0.22	0.05 - 0.16
K	Grey cast iron (FC250 / 250, etc.)	150 - 250	-	AH120	120 - 230	0.08 - 0.25	0.06 - 0.19
	Ductile cast iron (FCD400, etc.)	150 - 250	-	AH120	90 - 150	0.08 - 0.25	0.06 - 0.19
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH725	30 - 40	0.07 - 0.12	0.05 - 0.09
		-	For impact resistance	AH130	30 - 40	0.07 - 0.12	0.05 - 0.09
	Nickel-based alloys (Inconel 718, etc.)	-	First choice	AH725	20 - 35	0.07 - 0.12	0.05 - 0.09
		-	For impact resistance	AH130	20 - 35	0.07 - 0.12	0.05 - 0.09

### ■ Chip thickness “t”

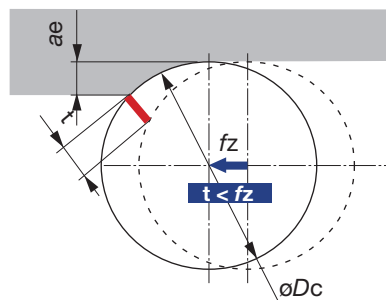
- Chip thickness “t” is one of the most important factors for chip evacuation in slot milling.
- Therefore, setup feed per edge line (fz) should be calculated according to chip thickness (t).

### Slotting with a slot milling cutter

$$t \cong 2 \times fz \times \sqrt{(ae / \phi Dc) \times (1 - (ae / \phi Dc))}$$

$$fz \cong t / 2 / \sqrt{(ae / \phi Dc) \times (1 - (ae / \phi Dc))}$$

øDc: Tool diameter (mm)  
fz : Feed per edge line (mm/t)  
ae : Depth of slot (mm)



Feed per edge line: fz (mm/t)

ASV		ASW / TSW				ASN / TSN			
ae / øDc (mm)		ae / øDc (mm)				ae / øDc (mm)			
30%	≤ 50%	10%	20%	30%	≤ 50%	10%	20%	30%	≤ 50%
0.05 - 0.16	0.05 - 0.15	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.05 - 0.16	0.05 - 0.15	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.04 - 0.14	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.05 - 0.16	0.05 - 0.15	0.12 - 0.42	0.09 - 0.31	0.07 - 0.27	0.07 - 0.25	0.22 - 0.5	0.16 - 0.38	0.14 - 0.32	0.13 - 0.3
0.05 - 0.16	0.05 - 0.15	0.12 - 0.42	0.09 - 0.31	0.07 - 0.27	0.07 - 0.25	0.22 - 0.33	0.16 - 0.25	0.14 - 0.21	0.13 - 0.2
0.04 - 0.07	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.04 - 0.07	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.04 - 0.07	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.04 - 0.07	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13



## GUIDELINE FOR ORDERING SPECIAL TOOL

Tailor made cutters and inserts are available upon request. Please verify if your desired specification is possible from the table below. When requesting the quotation, please fill in the information sheet on the next page and send it to us.

### ■ Cutter

**(A) Edge width:** Depending on the edge width, insert type should be selected. (Please see Table #1 for detail.)

**(B) Tool diameter:** Depending on the insert type selected, tool diameter may be limited.

**(C) Mount specification, bore diameter:** For mount specification, axial drive or radial drive can be selected. If other specification is required, please provide the specification on the information sheet.

**Tool designation can be determined with information A, B and C**

Table #1: Available range of edge width and tool diameter

Edge width W (mm)	Insert Designation	Tool Designation (tool shape)	Tool diameter range <sup>(2)</sup> øDc (mm)
4.0 - 4.5	TVKX02***	ASV02...	ø50 -
4.5 - 6.0	TVKX03***	ASV03...	ø50 -
6.0 - 7.4	TVKX04****(1)	T/ASV04...	ø80 -
7.4 - 9.0	TVKX05****(1)	T/ASV05...	ø80 -
8.7 - 11.0	WNGU0603**	T/ASW06...	ø50 -
10.6 - 13.2	WNGU07T3**	T/ASW07...	ø50 -
12.6 - 16.7	WNGU0904**	T/ASW09...	ø50 -
15.1 - 18.6	LMEU1008**	T/ASN10...	ø80 -
17.5 - 23.1	LMEU1208**	T/ASN12...	ø80 -
19.8 - 27.6	LMEU1509**	T/ASN15...	ø80 -

(1) Special inserts may be required depending on the edge width.

(2) Max tool diameter should be confirmed when requesting quotation.

■ Example of tool designation

<b>T</b>	<b>SW06</b>	<b>R</b>	<b>110.5</b>	<b>-</b>	<b>9.8</b>	<b>M</b>	<b>25.4</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	
<b>1 Mount specification</b>		<b>4 Tool diameter øDc (mm)</b>		<b>6 Bore specification</b>			
T	Radial drive	100	ø100	M	JIS		
A	Axial drive	110.5	ø110.5	E	ISO		
<b>2 Tool shape</b>		<b>5 Edge width W (mm)</b>		<b>7 Bore diameter ød (mm)</b>			
Please see table #1		9.8	9.8	25.4	ø25.4		
<b>3 Hand of tool</b>		11	11	27.0	ø27.0		
R	Right						
L	Left						

### ■ Insert

Special corner radius is available.

Available range

Insert Designation	Edge width W (mm)	Corner radius r <sub>ε</sub> (mm)	Grades
SSM...	1.70 - 2.52	0.2 - 1.0	GH130
	2.53 - 3.52	0.2 - 1.5	
	3.53 - 4.52	0.2 - 2.0	
TVKX02,03	-	0 - 1.0	AH725, AH130,
TVKX04,05	-	0 - 2.0	AH120

Insert Designation	Corner radius r <sub>ε</sub> (mm)	Grades
WNGU06	0 - 2.0	AH725, AH130, AH120
WNGU07	0 - 2.4	
WNGU09	0 - 2.8	
LMEU...	0.4 - 4.0	AH725, AH140, AH120

■ Example of insert designation

<b>WNGU07T3</b>	<b>08</b>	<b>-</b>	<b>12345</b>	<b>AH725</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	
<b>1 Insert shape</b>		<b>2 Corner radius r<sub>ε</sub> (mm)</b>		<b>3 Identification #</b>
Please see table #1		08	0.8	Decided by Tungaloy
		13	1.3	<b>4 Grade</b>



## ■ Information sheet for quotation & order

When requesting a quotation, please make a COPY of this page and send to us.

**Company:**

**Name:**

**Phone:**

### Tool information

Tool diameter: $\varnothing D_c$	$\varnothing D_c =$ mm	Sketch of tool:
Edge width: $W$	$W =$ mm	
Tool type	<ul style="list-style-type: none"> <li>• Axial drive                      • Radial drive</li> <li>• Other</li> </ul>	
Bore diameter: $\varnothing d$	$\varnothing d =$ mm	
Corner radius: $r_\epsilon$	$r_\epsilon =$ mm	

**Tool Designation:**

**Insert Designation:**



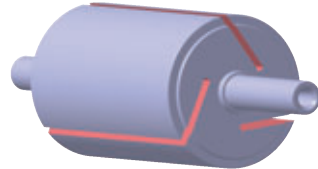
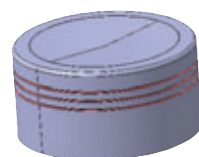
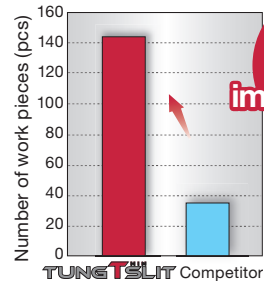
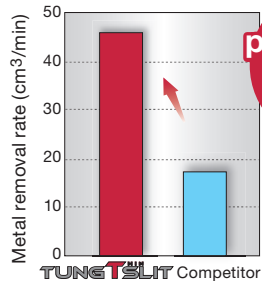
### Workpiece information

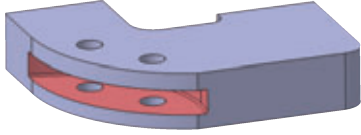
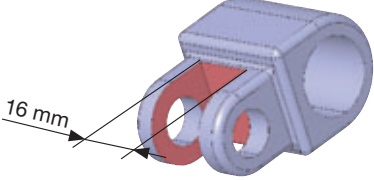
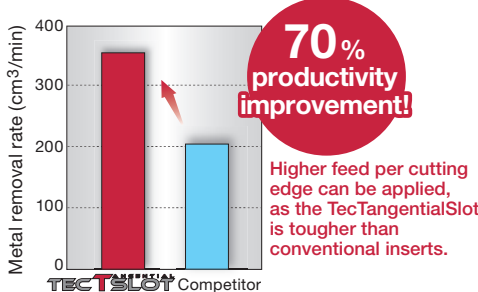
Tolerance of slot width required		Sketch of component:
Slot depth	mm	
Name of component		
Material, hardness		

### Machine information

Machine type	<ul style="list-style-type: none"> <li>• Horizontal                      • Vertical</li> <li>• Other</li> </ul>	Note: e.g. Angled head attachment is used.
Spindle motor power		
Spindle adaptation		

## PRACTICAL EXAMPLES

Workpiece type	Rotor	Piston head	
<b>Cutter</b>	ASV02N160-E4 (ø100, 5 edge lines)	ASV05N100-8 (ø100, 5 edge lines)	
<b>Insert</b>	TVKX020204-TN MJ	TVKX050404TN-MJ	
<b>Grade</b>	AH130 	AH725 	
<b>Workpiece material</b>	AVP- Alloyed Steel P40  <b>P</b>	Alloy steel  <b>P</b>	
<b>Cutting conditions</b>	<b>Cutting speed: Vc (m/min)</b>	161	120
	<b>Chip thickness: t (mm)</b>	0.01	0.12
	<b>Feed per edge line: fz (mm/t)</b>	0.07	0.15
	<b>Feed speed : Vf (mm/min)</b>	200	286
	<b>Edge width : W (mm)</b>	4	8
	<b>Depth of slot: ae (mm)</b>	41	20
	<b>Coolant</b>	Air blast	Dry
<b>Machine</b>	ISO50, 20Kw, 3Axis VMC	HSK100	
<b>Results</b>	 <p><b>4 times tool life improvement!</b></p> <p>TungThinSlit could machine the complete slot in one pass without finish as the surface quality was good.</p> <p>TUNGTHINSLIT Competitor</p>	 <p><b>productivity 3 times!</b></p> <p>Due to the incredible rigidity, 3 times higher productivity and improved surface finish are achieved without chattering.</p> <p>TUNGTHINSLIT Competitor</p>	

Workpiece type	Machine parts														
<b>Cutter</b>	ASW06N100-10 (ø100, 5 edge lines)	TSN10R125M31.7-16-06 (ø125, 6 edge lines)													
<b>Insert</b>	WNGU060308TN-MJ	LMEU100808ZNEN-MJ													
<b>Grade</b>	AH725	AH120													
<b>Workpiece material</b>	SKD11 / X153CrMoV12	FCD450 / 450-10S													
	 <b>P</b>	 <b>K</b>													
<b>Cutting conditions</b>	<b>Cutting speed: Vc (m/min)</b>	110	150												
	<b>Chip thickness: t (mm)</b>	0.08	0.15												
	<b>Feed per edge line: fz (mm/t)</b>	0.1	0.2												
	<b>Feed speed : Vf (mm/min)</b>	175	358												
	<b>Edge width : W (mm)</b>	10	16												
	<b>Depth of slot: ae (mm)</b>	23	22												
	<b>Coolant</b>	Dry	Dry												
<b>Machine</b>	Vertical M/C, BT40	Vertical M/C, BT50													
<b>Results</b>	<table border="1"> <thead> <tr> <th></th> <th><b>TUNGUSLOT</b></th> <th>Competitor</th> </tr> </thead> <tbody> <tr> <td>Number of passes</td> <td><b>1</b></td> <td>2</td> </tr> <tr> <td>Chip evacuation</td> <td><b>Good</b></td> <td>Bad</td> </tr> <tr> <td>Chattering</td> <td><b>No</b></td> <td>With</td> </tr> </tbody> </table> <p>TungUniversalSlot creates fine surface finish due to the excellent chip evacuation. Metal saw has chattering because of the number of effective edges. TungUniversalSlot machines without any vibration because of the optimum number of edges.</p>			<b>TUNGUSLOT</b>	Competitor	Number of passes	<b>1</b>	2	Chip evacuation	<b>Good</b>	Bad	Chattering	<b>No</b>	With	 <p><b>70% productivity improvement!</b></p> <p>Higher feed per cutting edge can be applied, as the TecTangentialSlot is tougher than conventional inserts.</p>
		<b>TUNGUSLOT</b>	Competitor												
Number of passes	<b>1</b>	2													
Chip evacuation	<b>Good</b>	Bad													
Chattering	<b>No</b>	With													

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