

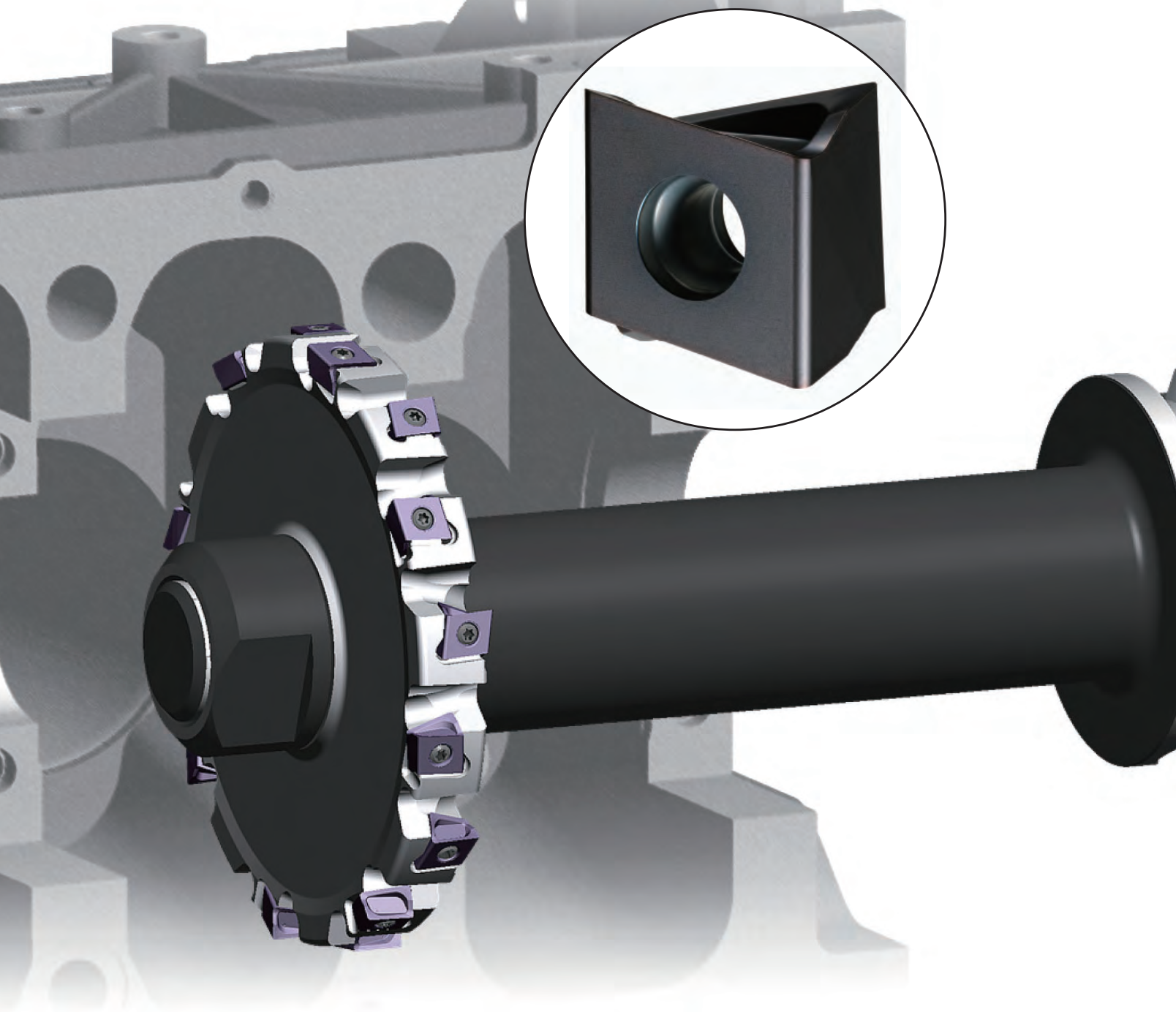
Milling

Side Cutter Series

New
Product

Side Cutter with Low Cutting Resistance

Vertical mount double-sided insert for VAS and VOS.





NEW

VA5400
VA5500

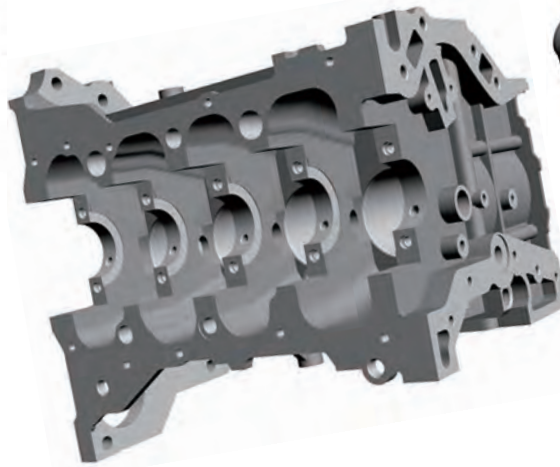


VO5400



ASX400

**Unique side cutter series
taking advantage of the latest technology,
materials and cutter geometry.**



Engineering Specials

(inch)

	NEW <i>VAS</i> Series		<i>VOS400</i>	<i>ASX400</i>
	<i>VAS400</i>	<i>VAS500</i>		
Work Material	K	P M K	K	P M K
Low Cutting Resistance	◎	◎	△	
Toughness	◎	◎		○
Insert Shape	Vertical	Vertical	Vertical	20° Positive
No. of Teeth	Double Sided Insert	Double Sided Insert	Double Sided Insert	Single Sided Insert
No. of Corners Used	4	4	8	4
Half Side Max.Depth of Cut APMX	RE<.118" .480"	RE<.118" .638"	.394"	.394"
	RE ≥ .118" .449"	RE ≥ .118" .606"		
Full Side Largest Width CW	3.937"	3.937"	3.937"	3.937"
Full Side Max. Cutting Dia DC	ø15.748"	ø25.984"	ø15.748"	ø15.748"
Corner R Development	.016"—.197"	.016"—.276"	.047"	.031"
Reference Page	⇒ Page 3	⇒ Page 3	⇒ Page 11	⇒ Page 13

Milling Side Cutter

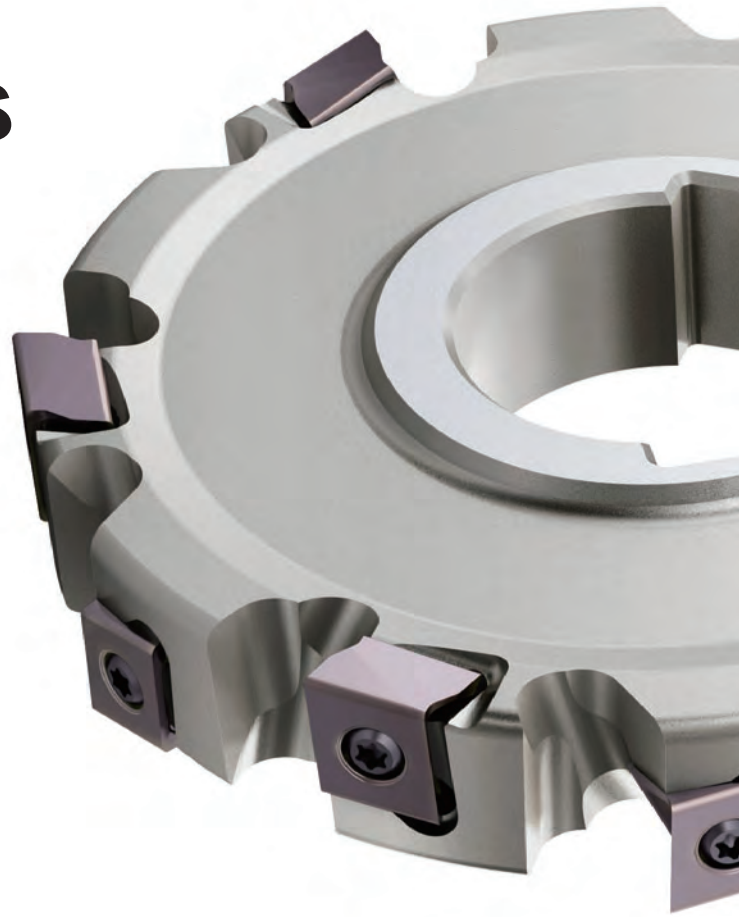
NEW

VAS Series

VAS400

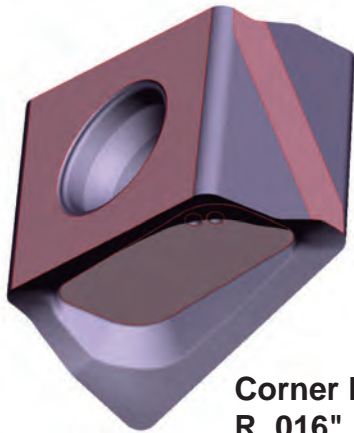
VAS500

Insert with 4 Cutting Edges

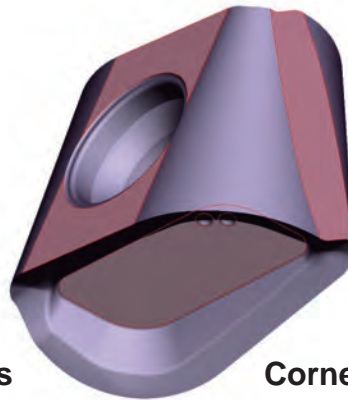


Secure Clamping

Wide seating surface ensure secure insert clamping.



Corner Radius
R .016"

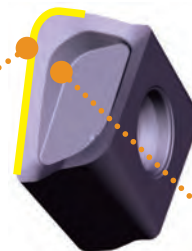


Corner Radius
R .197"

Low Cutting Resistance Insert



Cutting Edge
Strength
(Convex Curve)

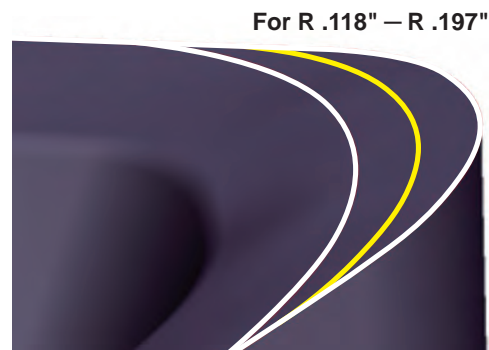


Double-phased Helical
Rake Angles



True Radius Form Remains on Work Material

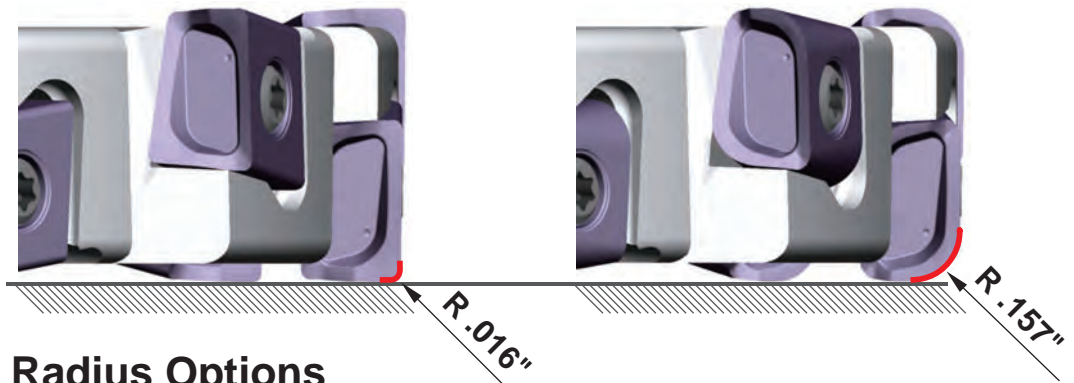
The unique combination of cutter and insert provides true radius on work material after machining.



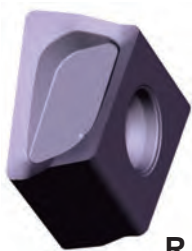
(Note 1) The VAS500 has a max. R.276"

Cutter Body can Hold All Corner Radii from Small to Large

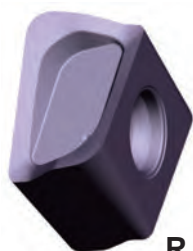
Cutting width and diameter do not change even if corner radius does.



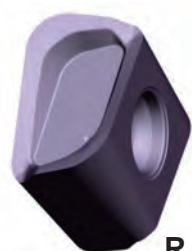
Various Corner Radius Options



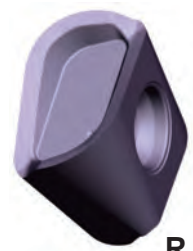
R .031"



R .079"



R .118"



R .157"

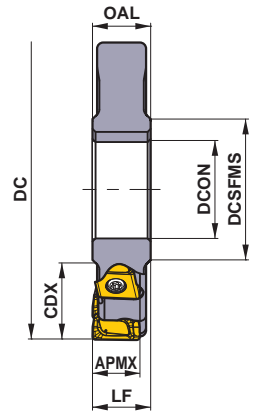
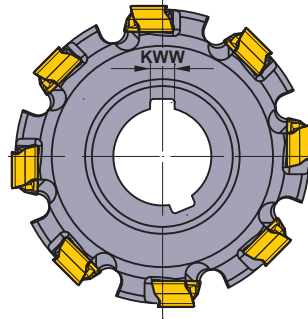
SIDE CUTTER



NEW

VAS400

P M **K** N S H



Half Side

GAMP: +3°
GAMF: +8°

Max. Depth of Cut **APMX** : RE < .118" .480"
RE ≥ .118" .449"

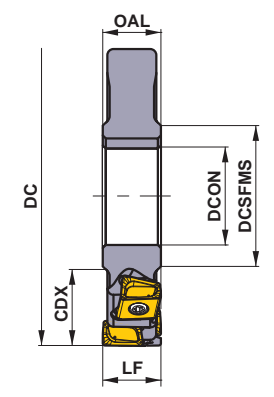
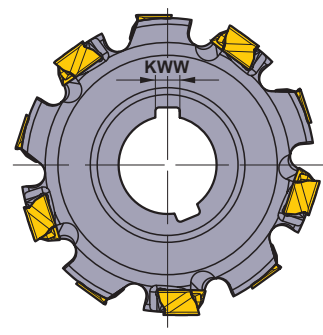
(inch)

DC	Order Number	Hand	Stock	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW
4.000	VAS400UA041010L0.75D	L	<input type="checkbox"/>	10	.750	1.040	1.250	1.750	.750	.318
4.000	VAS400UA041010R0.75D	R	<input type="checkbox"/>	10	.750	1.040	1.250	1.750	.750	.318
4.000	VAS400UA041010L1.00D	L	<input type="checkbox"/>	10	1.000	1.040	1.250	1.750	1.000	.318
4.000	VAS400UA041010R1.00D	R	<input type="checkbox"/>	10	1.000	1.040	1.250	1.750	1.000	.318
5.000	VAS400UA051212L0.75E	L	<input type="checkbox"/>	12	.750	1.380	1.500	2.120	.750	.385
5.000	VAS400UA051212R0.75E	R	<input type="checkbox"/>	12	.750	1.380	1.500	2.120	.750	.385
5.000	VAS400UA051212L1.00E	L	<input type="checkbox"/>	12	1.000	1.380	1.500	2.120	1.000	.385
5.000	VAS400UA051212R1.00E	R	<input type="checkbox"/>	12	1.000	1.380	1.500	2.120	1.000	.385
6.000	VAS400UA061414L0.75E	L	<input type="checkbox"/>	14	.750	1.890	1.500	2.120	.750	.385
6.000	VAS400UA061414R0.75E	R	<input type="checkbox"/>	14	.750	1.890	1.500	2.120	.750	.385
6.000	VAS400UA061414L1.00E	L	<input type="checkbox"/>	14	1.000	1.890	1.500	2.120	1.000	.385
6.000	VAS400UA061414R1.00E	R	<input type="checkbox"/>	14	1.000	1.890	1.500	2.120	1.000	.385
8.000	VAS400UA082020L0.75F	L	<input type="checkbox"/>	20	.750	2.560	2.000	2.750	.750	.510
8.000	VAS400UA082020R0.75F	R	<input type="checkbox"/>	20	.750	2.560	2.000	2.750	.750	.510
8.000	VAS400UA082020L1.00F	L	<input type="checkbox"/>	20	1.000	2.560	2.000	2.750	1.000	.510
8.000	VAS400UA082020R1.00F	R	<input type="checkbox"/>	20	1.000	2.560	2.000	2.750	1.000	.510

NEW

VAS400

- P M **K** N S H



Full Side

GAMP: +3°
GAMF: +8°

(inch)

DC	Order Number	Stock	Effective No. of Teeth	Total No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW
4.000	VAS400UA041005N0.75D	●	5	10	.750	1.040	1.250	1.750	.750	.318
4.000	VAS400UA041005N1.00D	●	5	10	1.000	1.040	1.250	1.750	1.000	.318
5.000	VAS400UA051206N0.75E	●	6	12	.750	1.380	1.500	2.120	.750	.385
5.000	VAS400UA051206N1.00E	●	6	12	1.000	1.380	1.500	2.120	1.000	.385
6.000	VAS400UA061407N0.75E	●	7	14	.750	1.890	1.500	2.120	.750	.385
6.000	VAS400UA061407N1.00E	●	7	14	1.000	1.890	1.500	2.120	1.000	.385
8.000	VAS400UA082010N0.75F	●	10	20	.750	2.560	2.000	2.750	.750	.510
8.000	VAS400UA082010N1.00F	●	10	20	1.000	2.560	2.000	2.750	1.000	.510

Insert

(inch)

Shape	Order Number	Class	Horn	VP15TF		L	LE	S	S10	RE1	RE2	W1	D1	Geometry
				R	L									
	LNGU130804PNER/L-M	G	E	●	●	.512	.480	.315	.433	.016	.031	.315	.177	
	LNGU130808PNER/L-M	G	E	●	●	.512	.480	.315	.433	.031	.031	.315	.177	
	LNGU130812PNER/L-M	G	E	●	●	.512	.480	.315	.433	.047	.031	.315	.177	
	LNGU130816PNER/L-M	G	E	●	●	.512	.480	.315	.433	.063	.031	.315	.177	
	LNGU130820PNER/L-M	G	E	●	●	.512	.480	.315	.433	.079	.031	.315	.177	
	LNGU130824PNER/L-M	G	E	●	●	.512	.480	.315	.433	.094	.031	.315	.177	
	LNGU130830PNER/L-M	G	E	●	●	.512	.449	.315	.433	.118	.063	.315	.177	
	LNGU130840PNER/L-M	G	E	●	●	.512	.449	.315	.433	.157	.063	.315	.177	
	LNGU130850PNER/L-M	G	E	●	●	.512	.449	.315	.433	.197	.063	.315	.177	

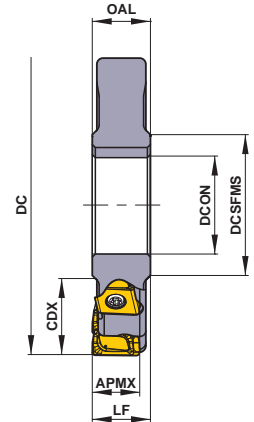
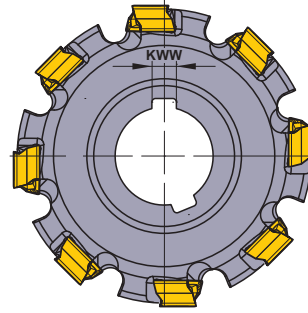
Right hand insert shown.

SIDE CUTTER



VAS400 Engineering Specials

P M **K** N S H



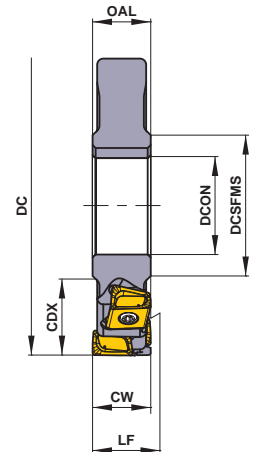
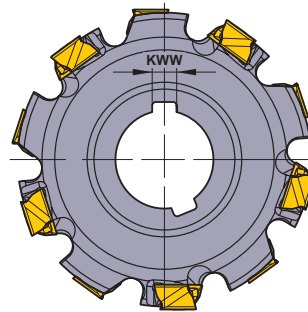
Half Side

GAMP: +3°
GAMF: +8°

Max. Cutting Diameter **DC** : $\phi 400$ mm
Max. Depth of Cut **APMX** : RE < 3.0mm 12.2mm
RE ≥ 3.0 mm 11.4mm

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
80	8	≥ 18	20	27	40	≥ 18	7	LNGU13
100	10	≥ 18	27	32	46	≥ 18	8	LNGU13
125	12	≥ 18	35	40	55	≥ 18	10	LNGU13
160	14	≥ 18	52.5	40	55	≥ 18	10	LNGU13



Full Side

GAMP: +3°
GAMF: +8°

Largest Width **CW** : 100mm
Max. Cutting Diameter **DC** : $\phi 400$ mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF ^{*1}	CW ^{*2}	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
80	4	8	≥ 18	18-24	20	27	40	≥ 18	7	LNGU13
100	5	10	≥ 18	18-24	27	32	46	≥ 18	8	LNGU13
125	6	12	≥ 18	18-24	35	40	55	≥ 18	10	LNGU13
160	7	14	≥ 18	18-24	52.5	40	55	≥ 18	10	LNGU13

*1 In case of adjustment piece specification. **LF** : ≥ 24

*2 **CW** of RE < 3.0mm is 24mm, and RE ≤ 3.0 mm is 22.8mm. Multilevel designs available for **CW** over each sizes.

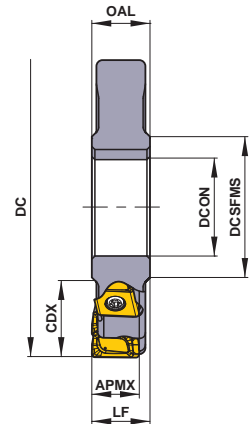
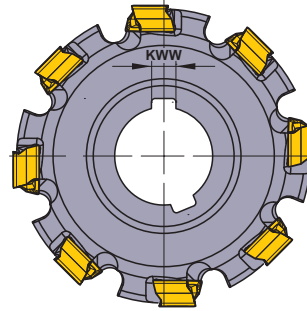
* Please contact us for details of any geometry.



NEW

VAS500 Engineering Specials

P M K N S H



Half Side

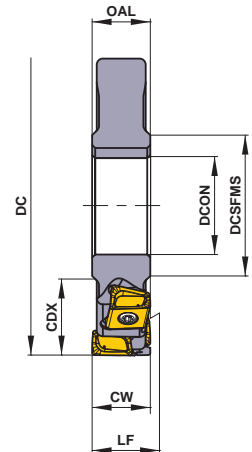
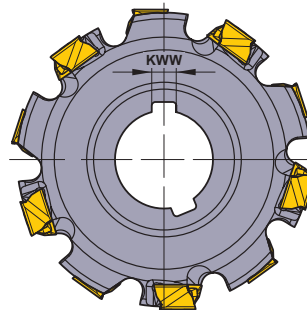
GAMP: +3°
GAMF: +8°

Max. Cutting Diameter **DC** : ø660mm
Max. Depth of Cut **APMX** : RE < 3.0mm 16.2mm
RE ≥ 3.0mm 15.4mm

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
100	8	≥23	27	32	46	≥23	8	LNGU17
125	10	≥23	35	40	55	≥23	10	LNGU17
160	12	≥23	52.5	40	55	≥23	10	LNGU17
200	16	≥23	65	50	70	≥23	12	LNGU17

* In case of adjustment piece specification. **LF** : ≥29



Full Side

GAMP: +3°
GAMF: +8°

Largest Width **CW** : 100mm
Max. Cutting Diameter **DC** : ø660mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	*1 LF	*2 CW	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
100	4	8	≥23	23 - 32	27	32	46	≥23	8	LNGU17
125	5	10	≥23	23 - 32	35	40	55	≥23	10	LNGU17
160	6	12	≥23	23 - 32	52.5	40	55	≥23	10	LNGU17
200	8	16	≥23	23 - 32	65	50	70	≥23	12	LNGU17

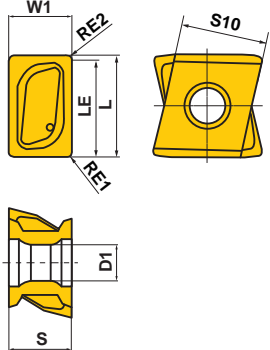
*1 In case of adjustment piece specification. **LF** : ≥29

*2 **CW** of RE < 3.0mm is 32mm, and RE ≤ 3.0mm is 30.8mm.

* Please contact us for details of any geometry.

Insert


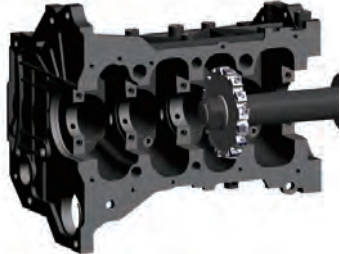
(mm)

Shape	Order Number	Hand	Class	Honing	Coated		L	LE	S	S10	RE1	RE2	W1	D1	Geometry
					MP6120	VP15TF									
	LNGU130804PNER-M	R	G	E	●		13	12.2	8	11	0.4	0.8	8	4.5	
	LNGU130804PNEL-M	L	G	E	●		13	12.2	8	11	0.4	0.8	8	4.5	
	LNGU130808PNER-M	R	G	E	●		13	12.2	8	11	0.8	0.8	8	4.5	
	LNGU130808PNEL-M	L	G	E	●		13	12.2	8	11	0.8	0.8	8	4.5	
	LNGU130812PNER-M	R	G	E	●		13	12.2	8	11	1.2	0.8	8	4.5	
	LNGU130812PNEL-M	L	G	E	●		13	12.2	8	11	1.2	0.8	8	4.5	
	LNGU130816PNER-M	R	G	E	●		13	12.2	8	11	1.6	0.8	8	4.5	
	LNGU130816PNEL-M	L	G	E	●		13	12.2	8	11	1.6	0.8	8	4.5	
	LNGU130820PNER-M	R	G	E	●		13	12.2	8	11	2	0.8	8	4.5	
	LNGU130820PNEL-M	L	G	E	●		13	12.2	8	11	2	0.8	8	4.5	
	LNGU130824PNER-M	R	G	E	●		13	12.2	8	11	2.4	0.8	8	4.5	
	LNGU130824PNEL-M	L	G	E	●		13	12.2	8	11	2.4	0.8	8	4.5	
	LNGU130830PNER-M	R	G	E	●		13	11.4	8	11	3	1.6	8	4.5	
	LNGU130830PNEL-M	L	G	E	●		13	11.4	8	11	3	1.6	8	4.5	
	LNGU130840PNER-M	R	G	E	●		13	11.4	8	11	4	1.6	8	4.5	
	LNGU130840PNEL-M	L	G	E	●		13	11.4	8	11	4	1.6	8	4.5	
	LNGU130850PNER-M	R	G	E	●		13	11.4	8	11	5	1.6	8	4.5	
	LNGU130850PNEL-M	L	G	E	●		13	11.4	8	11	5	1.6	8	4.5	
NEW	LNGU171004PNER-R	R	G	E	★	★	17	16.2	10	13	0.4	0.8	10	5.5	
NEW	LNGU171004PNEL-R	L	G	E	★	★	17	16.2	10	13	0.4	0.8	10	5.5	
NEW	LNGU171008PNER-R	R	G	E	★	★	17	16.2	10	13	0.8	0.8	10	5.5	
NEW	LNGU171008PNEL-R	L	G	E	★	★	17	16.2	10	13	0.8	0.8	10	5.5	
NEW	LNGU171012PNER-R	R	G	E	★	★	17	16.2	10	13	1.2	0.8	10	5.5	
NEW	LNGU171012PNEL-R	L	G	E	★	★	17	16.2	10	13	1.2	0.8	10	5.5	
NEW	LNGU171016PNER-R	R	G	E	★	★	17	16.2	10	13	1.6	0.8	10	5.5	
NEW	LNGU171016PNEL-R	L	G	E	★	★	17	16.2	10	13	1.6	0.8	10	5.5	
NEW	LNGU171020PNER-R	R	G	E	★	★	17	16.2	10	13	2	0.8	10	5.5	
NEW	LNGU171020PNEL-R	L	G	E	★	★	17	16.2	10	13	2	0.8	10	5.5	
NEW	LNGU171024PNER-R	R	G	E	★	★	17	16.2	10	13	2.4	0.8	10	5.5	
NEW	LNGU171024PNEL-R	L	G	E	★	★	17	16.2	10	13	2.4	0.8	10	5.5	
NEW	LNGU171030PNER-R	R	G	E	★	★	17	15.4	10	13	3	1.6	10	5.5	
NEW	LNGU171030PNEL-R	L	G	E	★	★	17	15.4	10	13	3	1.6	10	5.5	
NEW	LNGU171040PNER-R	R	G	E	★	★	17	15.4	10	13	4	1.6	10	5.5	
NEW	LNGU171040PNEL-R	L	G	E	★	★	17	15.4	10	13	4	1.6	10	5.5	
NEW	LNGU171050PNER-R	R	G	E	★	★	17	15.4	10	13	5	1.6	10	5.5	
NEW	LNGU171050PNEL-R	L	G	E	★	★	17	15.4	10	13	5	1.6	10	5.5	
NEW	LNGU171060PNER-R	R	G	E	★	★	17	15.4	10	13	6	1.6	10	5.5	
NEW	LNGU171060PNEL-R	L	G	E	★	★	17	15.4	10	13	6	1.6	10	5.5	
NEW	LNGU171070PNER-R	R	G	E	★	★	17	15.4	10	13	7	1.6	10	5.5	
NEW	LNGU171070PNEL-R	L	G	E	★	★	17	15.4	10	13	7	1.6	10	5.5	

Right hand insert shown.

● : Inventory maintained. ★ : Inventory maintained in Japan.
(10 inserts in one case)

Application Examples

Tool		VAS400 ø300 mm	VAS400 ø160 mm
Insert (Grade)		LNGU130804PNER-M (VP15TF)	LNGU130804PNER-M (VP15TF)
Workpiece		Brake Caliper (ASTM 65-45-12) 	Cylinder Block (AISI No 35 B) 
Cutting Conditions	Revolution (min ⁻¹)	120	500
	Cutting Speed (SFM)	370	660
	Feed per Tooth (IPT)	.004 – .009	.006
	Table Feed (IPM)	5.9 – 15.7	19.7
	Depth of Cut ap (inch)	.039 – .079	.039
Cutting Mode		Dry Cutting	Dry Cutting
Machine		Machining Center	Horizontal
Results		Approximately 2 x longer tool life than conventional products. Excellent cutting dimensions and finished surface roughness. 30% reduction in tooling costs. Improved machining efficiency.	1.5 x better machining efficiency than conventional products. Approximately 2x longer tool life. Stable cutting with minimal sound and fine finished surface roughness. Improved machining efficiency and longer tool life.

The above application examples are customer's application examples, so it can be different from the recommended conditions.

Milling Side Cutter

V05400



Features

Cutter Body

High Rigidity Design

Arranging the inserts vertically absorbs the principal cutting force through the thickness of the insert and achieves extremely high rigidity.

Easy to Clamp Insert

Inserts are screwed into the side of the holder, this simplifies clamping and unclamping for superior usability.


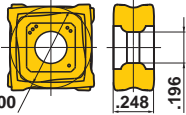
Insert

Unique Vertical Insert

8 usable corners with high strength cutting edge. The fracture resistance is significantly improved due to a convex curve cutting edge and a specially shaped relief face. Maximum depth of cut is 10mm.

Insert

(inch)

Shape	Order Number	Hand	Class	Horning	Coated		Geometry
					VP15TF		
	SONX1206PER	R	N	E	●		 Right hand insert shown.
	SONX1206PEL	L	N	E	★		

● : Inventory maintained. (10 inserts in one case)

★ : Inventory maintained in Japan. (10 inserts in one case)

VP15TF

PVD coated grade for application versatility. Ideal for ductile cast iron, unstable cutting conditions and low rigidity work materials. Wet cutting is possible.

SIDE CUTTER



V05400 Engineering Specials

P

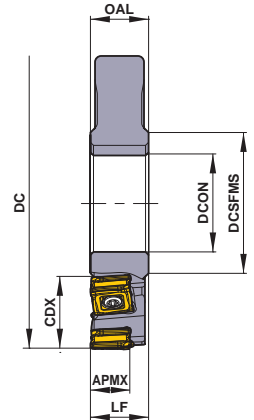
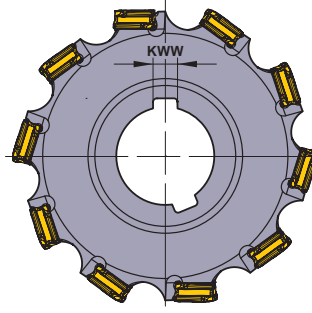
M

K

N

S

H

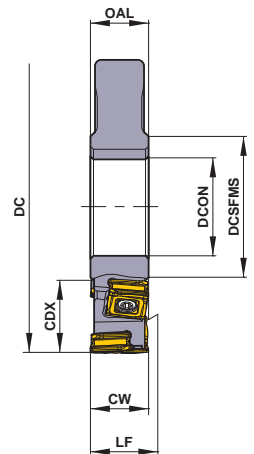
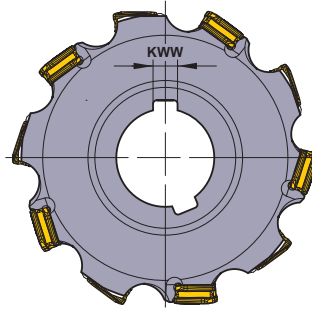


Half Side

Max. Cutting Diameter DC : ϕ 400mm

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	APMX
80	8	≥ 16	20	27	40	≥ 16.8	7	10
100	10	≥ 16	27	32	46	≥ 16.8	8	10
125	12	≥ 16	35	40	55	≥ 16.8	10	10
160	14	≥ 16	52.5	40	55	≥ 16.8	10	10



Full Side

Largest Width CW : 100mm

Max. Cutting Diameter DC : ϕ 400mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF	CW	CDX	DCON	DCSFMS	OAL	KWW
80	4	8	≥ 16	16-20	20	27	40	≥ 16	7
100	5	10	≥ 16	16-20	27	32	46	≥ 16	8
125	6	12	≥ 16	16-20	35	40	55	≥ 16	10
160	7	14	≥ 16	16-20	52.5	40	55	≥ 16	10

* Multilevel designs available for CW over 20mm.

* Please contact us for detail of any geometry.

Milling Side Cutter

ASX400



Features

ASX is a well-balanced cutter for positive insert type that improves fracture resistance and reduces cutting resistance. Effective for when work material with small thickness is cut and when heat generation is needed to suppress because of low cutting resistance, and ideal for finish cutting.

High Reliability

Uses a carbide shim and proprietary Anti-Fly-Insert (A.F.I) to prevent the inserts from moving when machining. Additionally the clamp screw uses TORXPLUS, for high clamping force ensuring high reliability.



Low Cutting Resistance

Due to the 3D design of the cutting edge and a large rake angle, high cutting edge sharpness has been achieved with reduced cutting resistance.




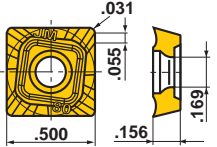
Easy to Use

Employs a screw on type mechanism, therefore inserts can easily be loaded. Additionally when indexing the insert, it is not necessary to remove the screw completely.



Insert

(inch)

Shape	Order Number	Hand	Class	Horn	Coated		Geometry
					VP15TF		
	SOMT12T308PEER-JM	R	M	E	●		 Right hand insert shown.
	SOMT12T308PEEL-JM	L	M	E	★		

● : Inventory maintained. (10 inserts in one case)

★ : Inventory maintained in Japan. (10 inserts in one case)

VP15TF

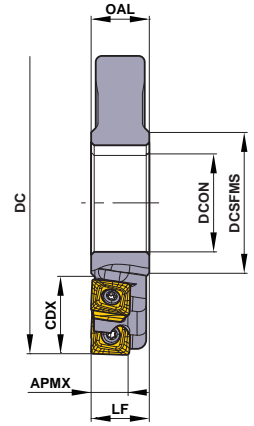
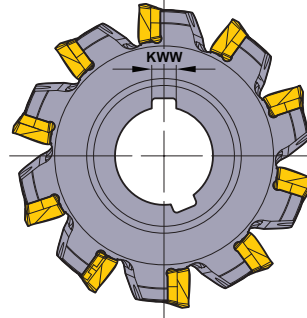
PVD coated grade for application versatility. Ideal for ductile cast iron, unstable cutting conditions and low rigidity work materials. Wet cutting is possible.

SIDE CUTTER



ASX400 Engineering Specials

P M K N S H

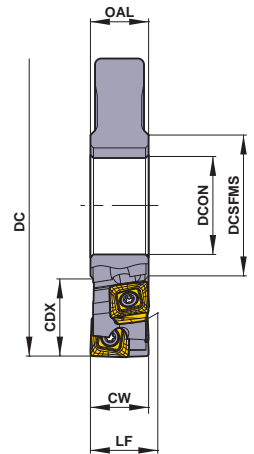
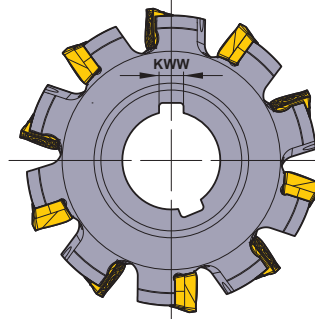


Half Side

Max. Cutting Diameter DC : $\varnothing 400$ mm

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	APMX
80	8	≥ 16	20	27	40	≥ 16.8	7	10
100	10	≥ 16	27	32	46	≥ 16.8	8	10
125	12	≥ 16	35	40	55	≥ 16.8	10	10
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Full Side

Largest Width CW : 100mm
Max. Cutting Diameter DC : $\varnothing 400$ mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF	CW	CDX	DCON	DCSFMS	OAL	KWW
80	4	8	≥ 16	16 – 20	20	27	40	≥ 16	7
100	5	10	≥ 16	16 – 20	27	32	46	≥ 16	8
125	6	12	≥ 16	16 – 20	35	40	55	≥ 16	10
160	7	14	≥ 16	16 – 20	52.5	40	55	≥ 16	10

* Multilevel designs available for CW over 20mm.

* Please contact us for detail of any geometry.



Milling

Side Cutter Series

For your safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

 MITSUBISHI MATERIALS U.S.A. CORPORATION



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