

V560™

It's Simple. The Power of PENTA. Times Two.



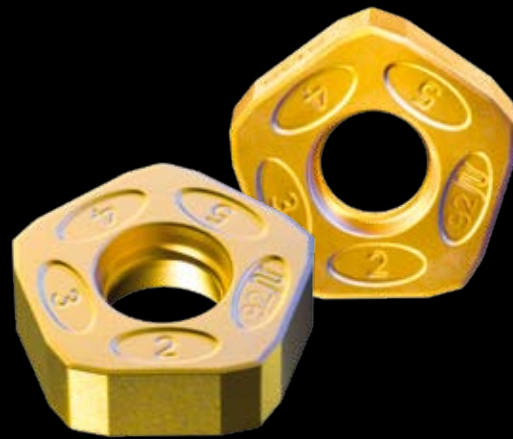
HEAVY ROUGHING FACE MILL

10 CUTTING EDGES
10 MM DEPTH OF CUT
100% SATISFACTION

Safety

The V560 Gives YOU the Power of Penta. Times Two.

The V560 allows operators to utilize the full power of machine tools, as well as securely perform heavy roughing operations. The V560 excels under difficult, full depth-of-cut machining conditions in forgings and beneath-casting scale.



FEATURES

- Double-sided Penta design with 10 indexes per insert increases metal removal rates and production capacity while using less horsepower
- No cool down period required before indexing, allowing for more machine uptime
- Secure insert retention for easier indexing... only three turns required

DESIGN

- Patented ThruLok technology only requires a large, insert retention screw that remains in the body
- 10 mm depth-of-cut capability allows operators to machine under the tough outer layer of forge or cast workpieces, reducing insert wear
- Insert edges are numbered for easy indexing

V560



INDUSTRIES

AUTOMOTIVE

DIE & MOLD

OIL/GAS

AEROSPACE

POWER GENERATION

OFF HIGHWAY

MEDICAL

MARINE

HEAVY EQUIPMENT

GENERAL MACHINING



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- Diameter: 100 - 315 mm (4" - 12")
- Max Depth of Cut: 10 mm (.400")
- Entry angle: 57°
- Applications: Heavy Roughing
- Material: Cast and Forged Steel, Stainless Steel, Cast Iron

V560

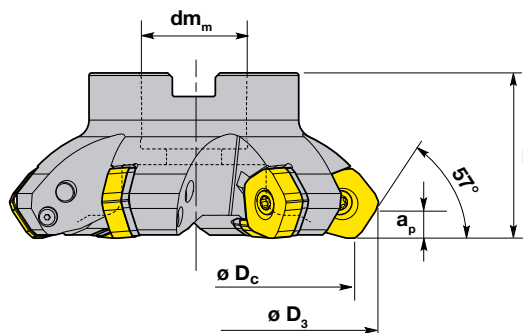
TEST REPORTS

SKIN REMOVAL	Existing Tool	V560 Solution
Diameter D_c (mm)	250	250
Number of Teeth	12	12
Insert reference	SNGX 12 05 AN NF P35	PNMU 13 08 DN SR-52 5020
V_c (m/min)	98 (N= 125 rpm)	98 (N= 125 rpm)
V_f (mm/min)	350 ($f_z= 0.23$ mm)	600 ($f_z= 0.4$ mm)
a_p	3	5
a_e	95% D_c	95% D_c
Material	55NiCrMoV7 (1500 Mpa)	
Material volume (cm ³ /min)	240	690
Benefit	Machining time reduction 65%	

TURBINE BLADE	Existing Tool	V560 Solution
Diameter D_c (mm)	125	100
Number of Teeth	5	5
Insert reference	RPMX 20 06 MO 25	PNMU 13 08 DN SR-52 5040
V_c (m/min)	170	140
V_f (mm/min)	700 ($f_z= 0.32$ mm)	1500 ($f_z= 0.66$ mm)
a_p	8	8
a_e	50	50
Material	Stainless Steel - 316L type	
Material volume (cm ³ /min)	280	600
Benefit	Machining time reduction 50%	



MILLING CUTTER PROGRAM



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Metric tools

Insert size	Reference	Dimensions (mm)						Weight (lbs)	Weight (kg)	Maxi revolution speed (rpm)
		D _c	D ₃	Z	a _p	dm _m	l ₁			
13	V560A 13 M100 32 05R	100	115.8	5	10	32	50	2.628	1.193	6400
13	V560A 13 M125 40 06R	125	140.8	6	10	40	63	5.020	2.279	5500
13	V560A 13 M160 40 08R	160	175.8	8	10	40	63	7.037	3.195	5000
13	V560A 13 M200 60 10R*	200	215.8	10	10	60	63	14.711	6.679	4400
13	V560A 13 M250 60 12R*	250	265.8	12	10	60	63	27.507	12.488	3900
13	V560A 13 M315 60 14R*	315	330.8	14	10	60	80	45.474	20.645	3500

Inch tools

Insert size	Reference	Dimensions (in.)						Weight (lbs)	Weight (kg)	Maxi revolution speed (rpm)
		D _c	D ₃	Z	a _p	dm _m	l ₁			
13	V560A 13 0400 K 05R	4.00	4.62	5	0.39	1.50	2.00	2.306	1.047	6400
13	V560A 13 0500 K 06R	5.00	5.62	6	0.39	1.50	2.37	5.015	2.277	5500
13	V560A 13 0600 K 08R	6.00	6.62	8	0.39	1.50	2.37	7.515	3.412	5000
13	V560A 13 0800 C 10R*	8.00	8.62	10	0.39	2.50	2.37	17.61	7.995	4400
13	V560A 13 1000 C 12R*	10.00	10.62	12	0.39	2.50	2.37	31.253	14.189	3900
13	V560A 13 1200 F 14R*	12.00	12.62	14	0.39	2.50	2.37	47.205	21.431	3500

* = Indicates cutters mount using bolt circle pattern.

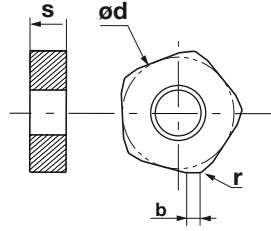
INSERT PROGRAM



PNMU 52



PNMU 92



Insert Size	Reference	Dimensions mm (in.)				Grades			
		d	s	b	r	5020	5040	KX20	5135
13	PNMU 13 08 DN SR-52	24.40 (.945)	7.94 (.312)	3 (.118)	1 (.039)	✓	✓	-	-
13	PNMU 13 08 DN SN-92	24.40 (.945)	7.94 (.312)	3 (.118)	1 (.039)	-	-	✓	✓

✓: Standard stocked

TOP FORM GEOMETRY

Top Form Geometry	Grades		
	P Steel	M Stainless Steel	K Cast Iron
SR-52	5020 5040	5020 5040	5020
SN-92	5135 KX20	-	KX20

SPARE PARTS

Diameter D _c mm (in.)	Insert Screw (M8)		Insert Screw Wrench		Shim Seat*	Shim Screw	Shim Screw Screwdriver
	Reference	Tightening Torque	Reference		Reference	Reference	Reference
100 - 315 (4" - 12")	DVZ 3642	16-17 N.m (11-12 ft-lbs)	DMP 3460	T30IP	DAN 4585	DVF 2259	TX 215 PLUS

Note: Shim screw Torx Plus driver must be ordered separately.

OPTIONAL SPARE PARTS

Metric tools

Diameter D _c (mm)	Coolant Screw
	Reference
100	DVZ 3536
125	DVZ 3537

Inch tools

Diameter D _c (in.)	Coolant Screw
	Reference
4"	PT-890
6"	PT-872

NEW SHIM SEAT



Part DAN 4585

OLD SHIM SEAT*



*For cutters produced prior to 01.04.2009 use Part DAN 4457

CUTTING DATA

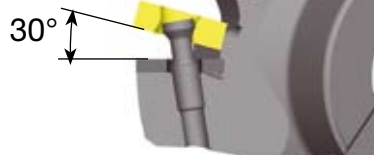
Material	Hardness or tensile strength	Cutting Speed v_c m/min (SFM)				Tooth Feed f_z mm (in.)		
		PVD			CVD	Geometries		
		5020	5040	KX20	5135	52	92	
P Low carbon steel	400 - 600 Mpa	130 - 220 (426 - 721)	100 - 160 (328 - 524)	-	-	0.4 - 0.6 (.015 - .023)	-	
	Alloy steel	600 - 1000 Mpa	110 - 170 (360 - 557)	90 - 130 (295 - 426)	80 - 130 (262 - 426)	70 - 120 (229 - 393)	0.3 - 0.5 (.011 - .019)	0.35 - 0.6 (.013 - .023)
	High alloy steel	900 - 1400 Mpa	90 - 130 (295 - 426)	-	60 - 110 (197 - 360)	50 - 100 (164 - 328)	0.3 - 0.4 (.011 - .015)	0.3 - 0.5 (.011 - .019)
M Stainless steel	-	100 - 150 (328 - 492)	90 - 140 (295 - 459)	-	-	0.3 - 0.7 (.011 - .027)	-	
K	Gray cast iron	180 - 260 HB	150 - 200 (492 - 656)	-	150 - 200 (492 - 656)	-	-	0.35 - 0.6 (.013 - .023)
		220 - 260 HB	120 - 170 (393 - 557)	-	120 - 170 (393 - 557)	-	-	0.3 - 0.6 (.011 - .023)
	Malleable and nodular cast iron	140 - 180 HB	150 - 250 (492 - 820)	-	130 - 190 (426 - 623)	-	0.3 - 0.4 (.011 - .015)	0.4 - 0.7 (.015 - .027)
		220 - 260 HB	130 - 220 (426 - 721)	-	110 - 170 (360 - 557)	-	0.2 - 0.3 (.007 - .011)	0.3 - 0.6 (.011 - .023)

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PERMANENT RESIDENT SCREW IN THE INSERT POCKET

1

Set the insert into the pocket at an angle of about 30 degrees



2

Rotate the insert down flat against the shim seat to its final position in the cutter pocket



3

Tighten three revolutions



4

Torque specification:
16-17 N.m
(11-12 ft-lbs)*



* For information

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Safety

