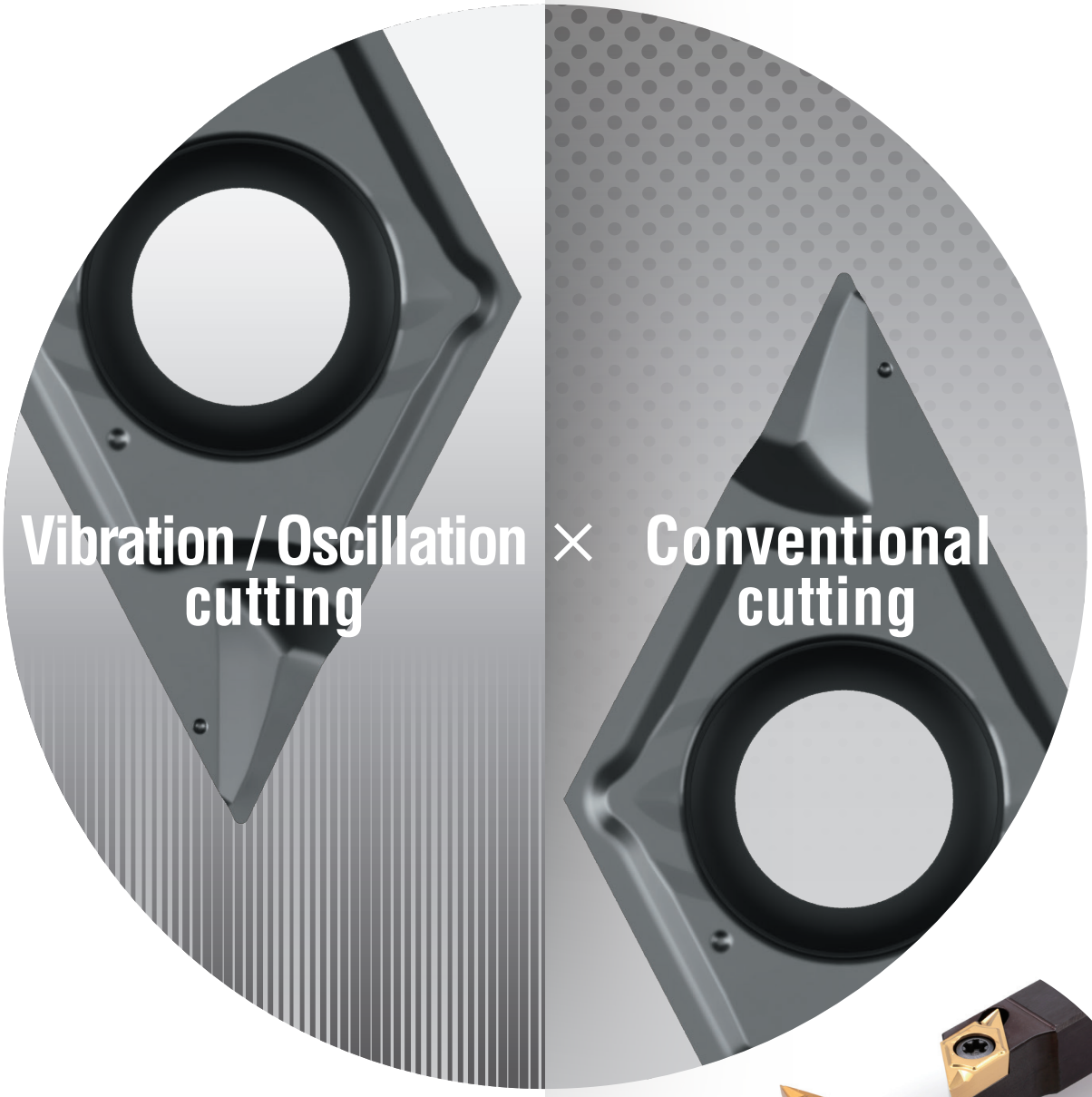
TMV Chipbreaker

For External Turning | Vibration / Oscillation & Conventional Cutting Dual-Purpose Chipbreaker

Member IMC Group
NTK CUTTING TOOLS



DOC range a_p=.020"~.080"inch (0.5~2.0mm)

TMV chipbreaker can be used for both purposes, Vibration/Oscillating & Conventional cutting.
Wiper insert has been added to the lineup for broader use.

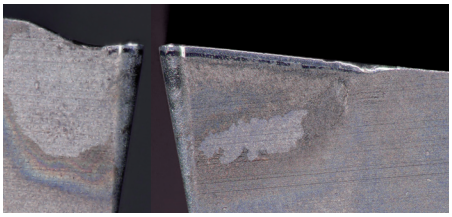
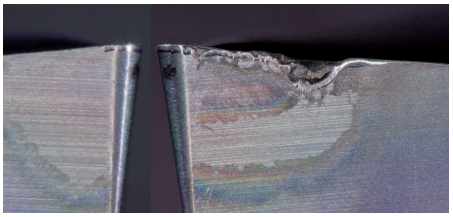
CERtainly [but not only] CERamics
Outstanding solutions for demanding applications

For Vibration / Oscillation cutting

Good chip control with tough cutting edge

I Practical examples

Machine	Cincom L20-LFV
Work material	SUS316L
Cutting speed	260 SFM (80 m/min)
Feed	.002 IPR (0.05 mm/rev)
D.O.C. (a_p)	.040 inch (1.0 mm)
Coolant	WET
Vibration conditions	mode1 Q0.5 D0.5

	TMV Chipbreaker	Conventional
Edge image Machining distance 8km		
Actual machining chips		

I Recommended conditions

Grade	Workpiece material	Cutting conditions		
		Cutting speed	Feed	D.O.C
NTK650	Ni base alloy / Steel / Stainless steel (Inco718 / S45C / SUS440C etc.)	130 - 400 SFM 40 - 120 m/min	.0008 - .0024 IPR 0.02 - 0.06 mm/rev	.020 - .080 inch 0.5 - 2.0 mm
ST4	Austenitic stainless steel (SUS304 / SUS316L etc.)	130 - 330 SFM 40 - 100 m/min		
DM4	Carbon steel / Alloy steel / Free-cutting steel (S45C / SCM435 / SUM22 etc.)	160 - 400 SFM 50 - 120 m/min		
TM4	Non-ferrous (Aluminum / Titanium etc.)	200 - 500 SFM 60 - 150 m/min		

CITIZEN

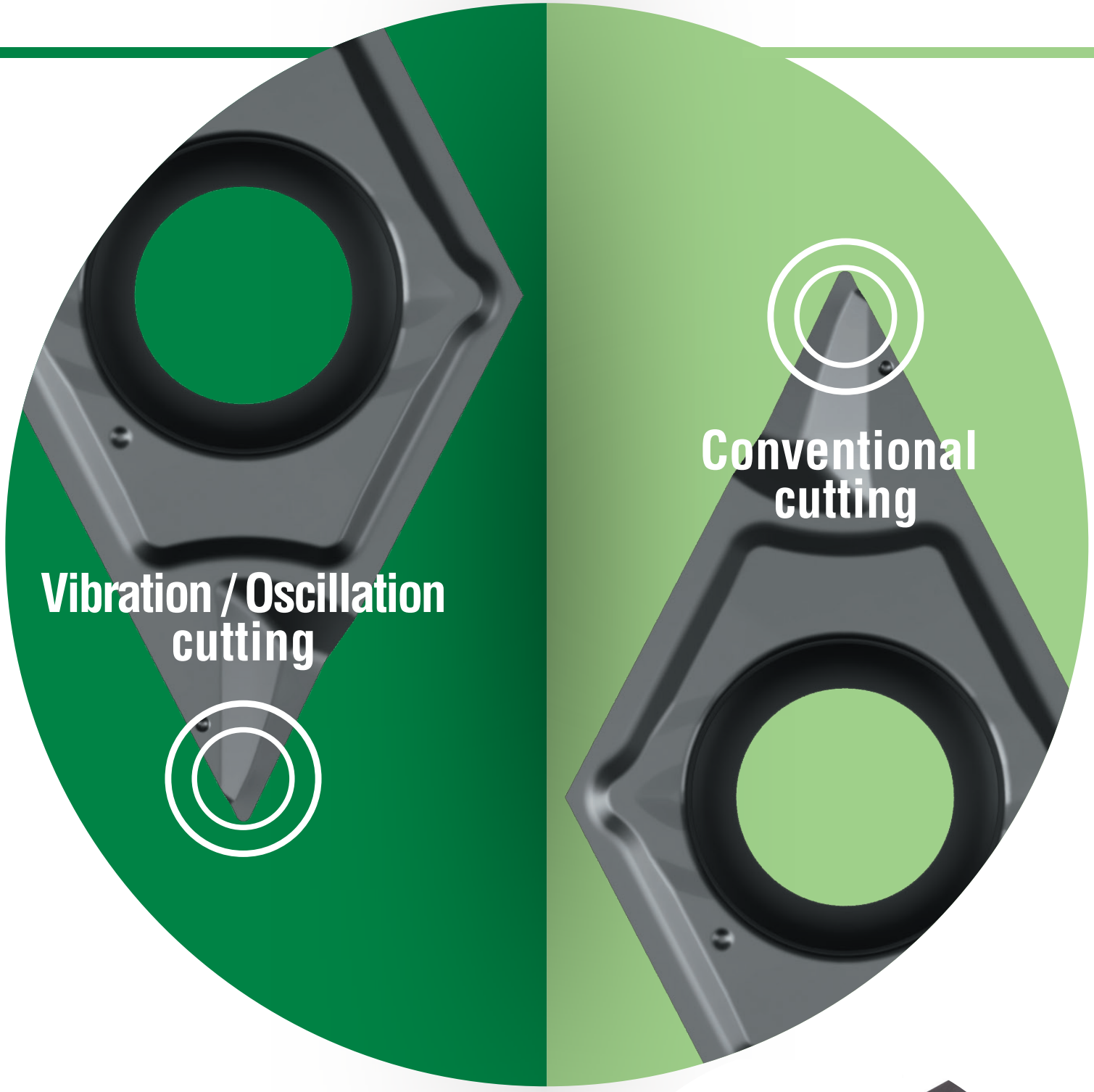
P Vibration mode	Q Vibration Ratio	D Frequency
mode1	0.5	0.5

Product Brochure

star

A Chip length coef.	D Amplitude coef.
2.0 or more	2.0 or more

Product Brochure



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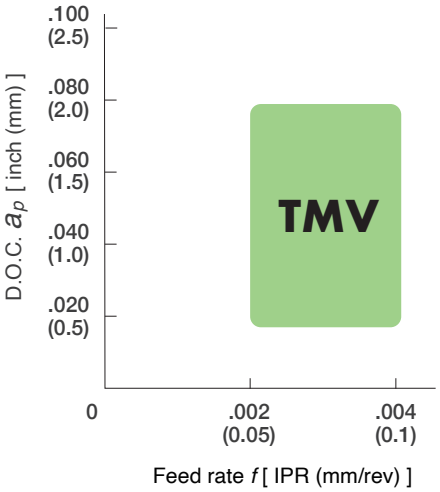
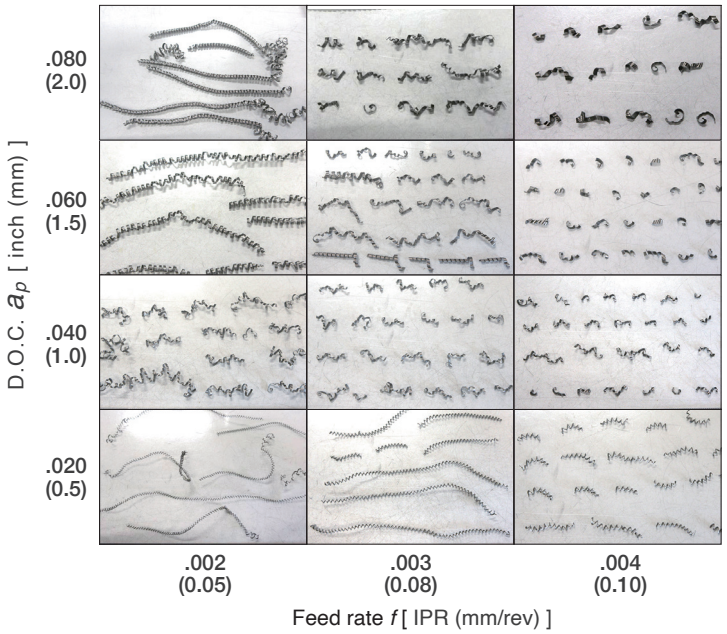
For Conventional Cutting

Stable chip control under a wide range of conditions





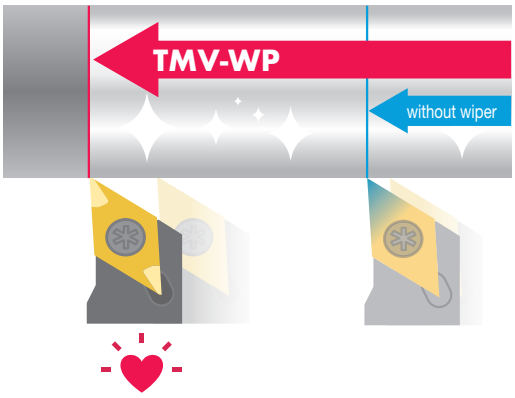
Cutting conditions

Work material	:	SUS316L ϕ.630 (16)
Cutting speed	:	V_c = 260 SFM (80m/min)
Feed	:	f = .002～.004 IPR (0.05～0.10mm/rev)
Coolant	:	WET

TMV-WP New

Double the feed rate and tool life while reducing machining time by 50%.

Superior surface finish even under high feed conditions thanks to the wiper design. Contributes to extended tool life by enabling increased feed rates.

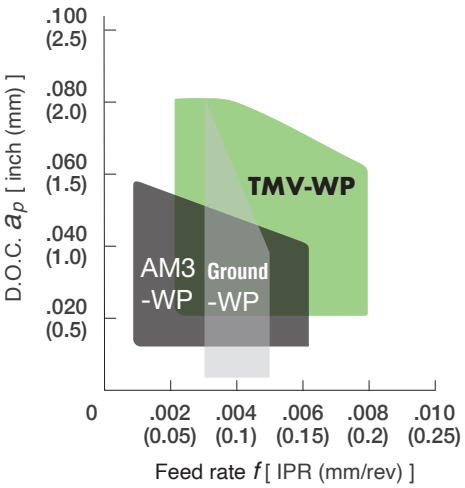


Increased feed rate reduces machining time!

Surface roughness is maintained by wiper

Extend tool life by reducing cutting distance

l Function range



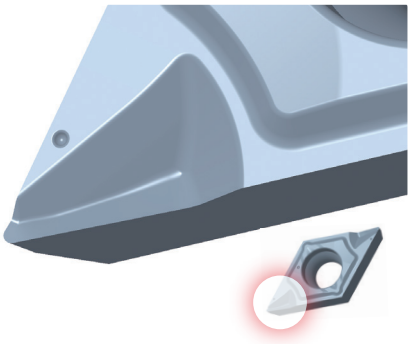
Please use 93 degree set angle toolholder

* The wiper function is effective when the cutting edge is parallel to the workpiece surface.

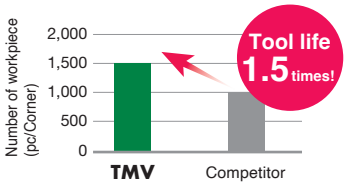
For Vibration / Oscillation or Conventional Cutting, delivering extended tool life and excellent chip control.

I Performance

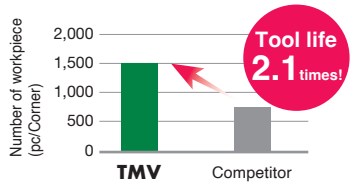
- **Significantly reduces cutting edge damage**
  Longer tool life can be expected even when machining difficult-to-cut materials.
- **Stable chip control**
  The large chipbreaker produces regular and stable chip shapes.



Vibration/Oscillation cutting practical examples

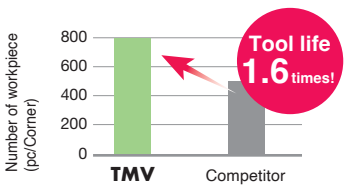
Component name	Piston
Insert	CCGT32.504MRTMV (CCGT09T301MRTMV) ST4
Toolholder	SCLCR type
Workpiece	SUS430 / 430SS
Cutting conditions: Cutting speed	150 SFM (45 m/min)
Cutting conditions: Rotation speed	1,200 rpm
Cutting conditions: Feed	.0008" IPR (0.02 mm/rev)
Cutting conditions: DOC	.080" inch (2.0 mm)
Cutting conditions: Machining area	Facing + OD turning
Cutting conditions: Coolant	WET
Results	

Current tool suffered from short tool life due to sudden breakage and poor surface quality. TMV successfully improved both, achieving 1.5x longer tool life.

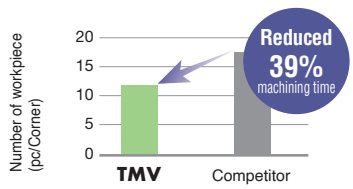
Component name	Bolt
Insert	DCGT32.508MRTMV (DCGT11T302MRTMV) ST4
Toolholder	SDJCR type
Workpiece	SUS304 / 304SS
Cutting conditions: Cutting speed	170 SFM (51 m/min)
Cutting conditions: Rotation speed	4,680 rpm
Cutting conditions: Feed	.0012" IPR (0.03 mm/rev)
Cutting conditions: DOC	.050" inch (1.2 mm)
Cutting conditions: Machining area	Facing + OD turning
Cutting conditions: Coolant	WET
Results	

Current tool had a short tool life due to dimensional and appearance defects. TMV improved dimensional accuracy and chip control while reducing burrs and protrusions, achieving 2x longer tool life.

Conventional cutting practical examples

Component name	Precision equipment
Insert	DCGT32.508MRTMV (DCGT11T302MRTMV) TM4
Toolholder	SDJCR type
Workpiece	SUS303 / 303SS
Cutting conditions: Cutting speed	270 SFM (80 m/min)
Cutting conditions: Rotation speed	910 rpm
Cutting conditions: Feed	.0030" IPR (0.07 mm/rev)
Cutting conditions: DOC	.016" inch (0.4 mm)
Cutting conditions: Machining area	OD turning
Cutting conditions: Coolant	WET
Results	

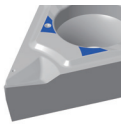
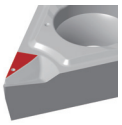
Previous tool produced long, continuous chips, while TMV delivered excellent chip control even in conventional cutting. This reduced chip related surface roughness and achieved 1.6x longer tool life.

Component name	Valve
Insert	DCGT32.508MRTMV (DCGT11T302MRTMV) TM4
Toolholder	SDJCR type
Workpiece	A2017
Cutting conditions: Cutting speed	820SFM (250m/min)
Cutting conditions: Rotation speed	5,000 rpm
Cutting conditions: Feed	.0031" IPR (0.08 mm/rev)
Cutting conditions: DOC	.040" inch (1.0 mm)
Cutting conditions: Machining area	Facing + OD turning
Cutting conditions: Coolant	WET
Results	

TMV achieves excellent chip breaking at higher feed rates, reducing machining time by 39% even in conventional cutting. Additionally, improved chip control reduces machine cleaning frequency, enhancing productivity.

l Lineup

NEW

Shape	Designation	PVD grade				Dimension				TMV centerline lowering amount *	
	Inch / Metric	NTK650	ST4	DM4	TM4	IC	Thickness	Corner Radius	Wiper width	Centerline height from the reference surface (Blue) 	Centerline height from the reference surface (Red) 
	DCGT32.504MRTMV	●	●	●	●	.375	.160	.003	-	.020	.003
	DCGT11T301MRTMV	●	●	●	●	9.525	3.97	0.08	-	0.51	0.08
	DCGT32.508MRTMV	●	●	●	●	.375	.160	.007	-	.021	.004
	DCGT11T302MRTMV	●	●	●	●	9.525	3.97	0.18	-	0.53	0.10
	DCGT32.51MRTMV	●	●	●	●	.375	.160	.015	-	.022	.005
	DCGT11T304MRTMV	●	●	●	●	9.525	3.97	0.38	-	0.55	0.12
	DCGT32.504MRTMV-WP	●	●	○	○	.375	.160	.003	(.012)	.020	.003
	DCGT11T301MRTMV-WP	●	●	○	○	9.525	3.97	0.08	(0.3)	0.51	0.08
	DCGT32.508MRTMV-WP	●	●	○	○	.375	.160	.007	(.012)	.021	.004
	DCGT11T302MRTMV-WP	●	●	○	○	9.525	3.97	0.18	(0.3)	0.53	0.10
	CCGT32.504MRTMV	●	●	●	●	.375	.160	.003	-	.020	.003
	CCGT09T301MRTMV	●	●	●	●	9.525	3.97	0.08	-	0.52	0.08
	CCGT32.508MRTMV	●	●	●	●	.375	.160	.007	-	.021	.004
	CCGT09T302MRTMV	●	●	●	●	9.525	3.97	0.18	-	0.53	0.09
	CCGT32.51MRTMV	●	●	●	●	.375	.160	.015	-	.022	.005
	CCGT09T304MRTMV	●	●	●	●	9.525	3.97	0.38	-	0.55	0.12
	VCGT2208MRTMV	●	●	●	●	.250	.125	.007	-	.021	.003
	VCGT110302MRTMV	●	●	●	●	6.35	3.18	0.18	-	0.53	0.07
	VCGT221MRTMV	●	●	●	●	.250	.125	.015	-	.022	.004
	VCGT110304MRTMV	●	●	●	●	6.35	3.18	0.38	-	0.55	0.10
	TNGG3308MRTMV	●	●	●	●	.375	.200	.007	-	.021	.004
	TNGG160402MRTMV	●	●	●	●	9.525	4.76	0.18	-	0.53	0.09
	TNGG331MRTMV	●	●	●	●	.375	.200	.015	-	.022	.004
	TNGG160404MRTMV	●	●	●	●	9.525	4.76	0.38	-	0.56	0.11

○ Made-to-order products

*Centerline height is nominal, please adjust using actual measured values during setup.

Tungaloy-NTK America Inc.

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Specifications in this catalog are subject to change due to improvements. The contents of this catalog are as of April 2026.