

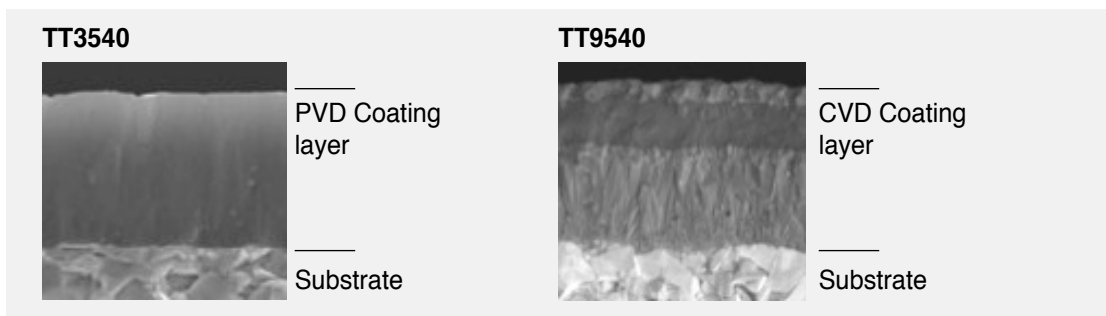
A NEW DEVELOPMENT FOR DIFFICULT TO CUT MATERIALS TT3540 & TT9540

High heat & wear resistant materials with difficult machining characteristics have been developed and applied in many industrial sectors such as **power generation, aerospace, oil & gas etc** industries. This has resulted in the soaring demand for qualified high productivity carbide grades with longer tool life to deal with the demanding machining conditions of difficult-to-cut materials.

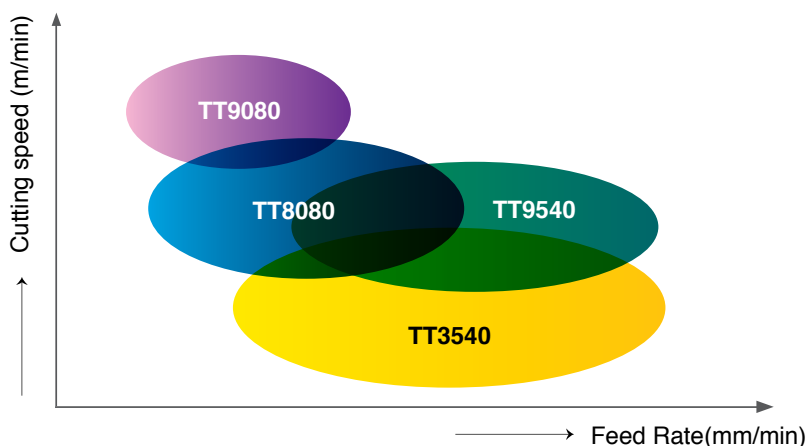
Now available from TaeguTec are two new milling grades, the TT3540 and TT9540 grades; these new PVD coated & CVD coated carbide grades will satisfy customers who machine stainless steel, nickel (Ni), cobalt (Co) and titanium (Ti) based alloys. The improved coating and advanced substrate achieve the optimal balance of improved toughness and wear resistance.

Features

- Higher toughness prevents breakage during machining
- Longer tool life and stable machining in hard materials
- Improved substrate composition for Stainless Steel and Heat Resistant Super Alloys (HRSA)
- TT3540 PVD coated grade with high toughness for low-medium cutting speeds
- TT9540 CVD coated grade with increased wear resistance for medium to high cutting speeds



Grade MAP (TT3540, TT9540)

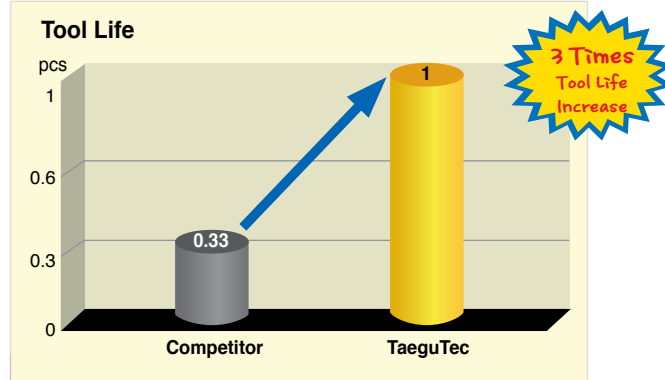


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Case Study 1 Workpiece: Turbine blade

Power generation

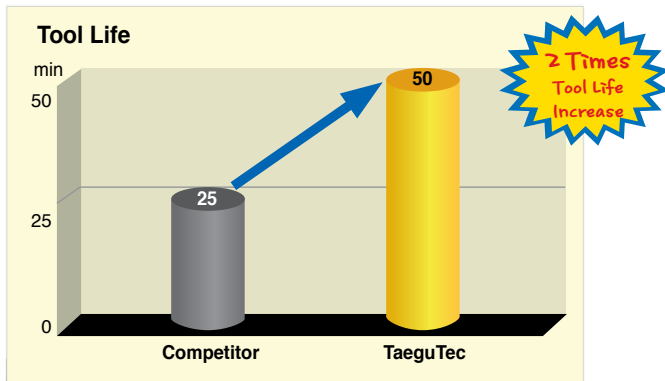
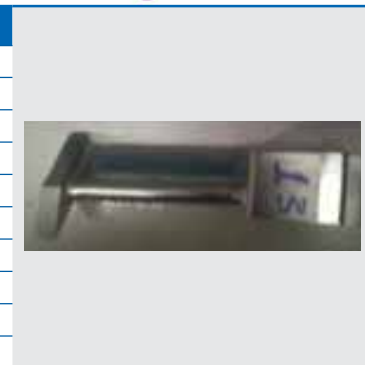
	Competitor	TaeguTec
Material	17-4PH(Martensitic stainless steel)	
Cutter	D40 face cutter	TFMRY 440-22R-12
Insert	Round insert D12	RYMX 1205-MM
Grade	CVD Coating	TT3540
Effective teeth	4	4
V (m/min)	220	220
F (mm/min) / fz (mm/tooth)	2100 / 0.3	2100 / 0.3
DOC / WOC (mm)	0.2 / 0.5~1.0	0.2 / 0.5~1.0
Coolant	Wet	Wet
Cycle Time	30	30
Tool Life	0.33 pcs / 1 corner	1 pcs / 1 corner



Case Study 2 Workpiece: Turbine blade

Power generation

	Competitor	TaeguTec
Material	X22CrMoV12(Martensitic stainless steel)	
Cutter	D50	TFMRY 650-22R-10
Insert	Round insert D10	RYMX 1004 MM
Grade	CVD Coating	TT3540
Effective teeth	5	6
V (m/min)	361	189
F (mm/min) / fz (mm/tooth)	6000 / 0.53	6000 / 0.83
DOC / WOC (mm)	0.60 / 30	0.60 / 30
Coolant	Dry	Dry
Tool Life	25 min	50 min

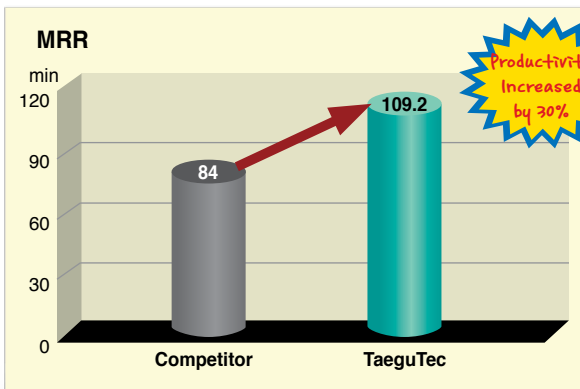


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Case Study 3 Workpiece: Turbine blade

Power generation[®]

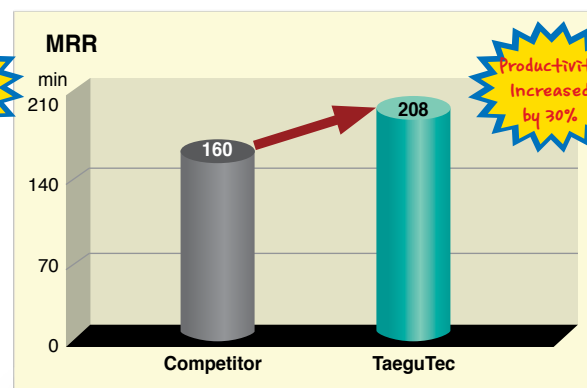
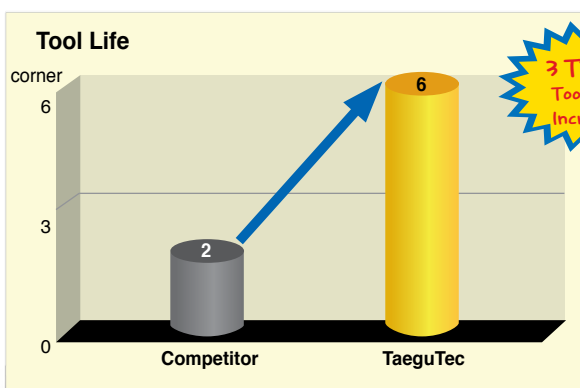
	Competitor	TaeguTec
Material	SUS400(Martensitic stainless steel)	
Cutter	D42 face cutter	TERY 642-M16-10
Insert	Round insert D10	RYMX 1004-MM
Grade	CVD coating	
Effective teeth	5	6
V (m/min)	120	144
F (mm/min) / fz (mm/tooth)	1600 / 0.35	2080 / 0.32
DOC / WOC (mm)	1.25 / Variable	1.25 / Variable
Coolant	Dry	
MRR (cm ³ /min)	84	109.2
Tool Life	1 pass / 1 corner	1 pass / 1 corner



Case Study 4 Workpiece: Impeller

Power generation[®]

	Competitor	TaeguTec
Material	SUS(Austenitic stainless steel)	
Cutter	D80 face cutter	TFMRY 780-27R-12
Insert	Round insert D16	RYMX 1205-MM
Grade	PVD & CVD coating	
Effective teeth	5	7
V (m/min)	250	150
F (mm/min) / fz (mm/tooth)	1000 / 0.2	1300 / 0.31
DOC / WOC (mm)	2 / Variable	2 / Variable
Coolant	Dry	
MRR (cm ³ /min)	160	208
Tool Life	2 pass / 1 corner	6 pass / 1 corner

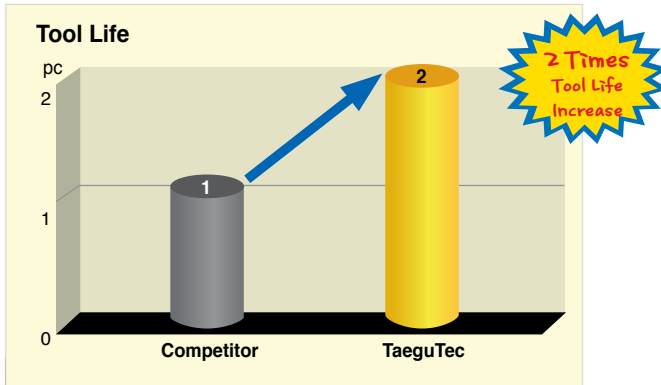
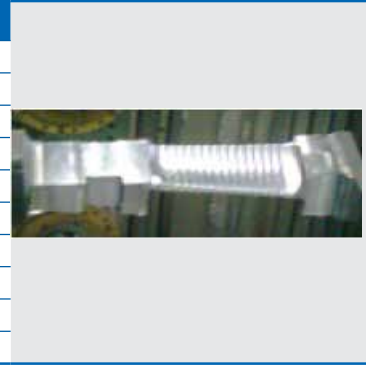


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Case Study 5 Workpiece: Turbine blade

Power generation 

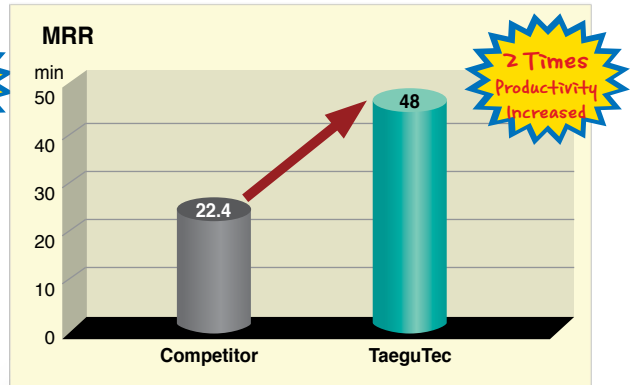
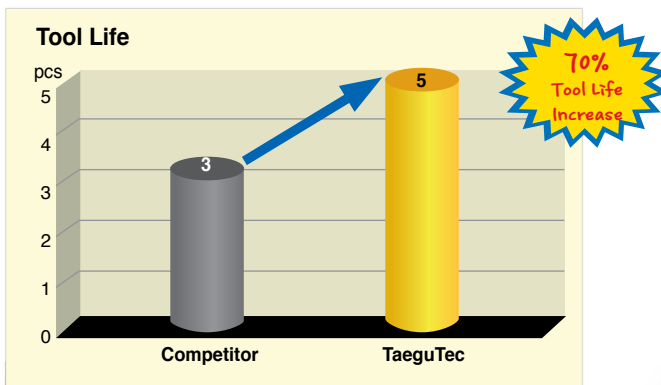
	Competitor	TaeguTec
Material	X12Cr13MoV12(Martensitic stainless steel)	
Cutter	D32 end mill cutter	TE90AP-332 M16-17
Insert	90° insert	APKT 1705 PER-EM
Grade	CVD coating	TT9540
Effective teeth	3	3
V (m/min)	195	195
F (mm/min) / fz (mm/tooth)	1636 / 0.27	1636 / 0.27
DOC / WOC (mm)	1.5~2 / 6	1.5~2 / 6
Coolant	Wet	Wet
Tool Life	1 pc / 1 corner	2 pc / 1 corner



Case Study 6 Workpiece: Turbine blade

Power generation 

	Competitor	TaeguTec
Material	Martensitic stainless steel	
Cutter	D40 face cutter	TFMBL 640-16R-06
Insert	Round insert D12	BLMP 0603R-MM
Grade	CVD coating	TT3540
Effective teeth	4	6
V (m/min)	600	200
F (mm/min) / fz (mm/tooth)	3200 / 0.17	6000 / 0.63
DOC / WOC (mm)	0.7 / Variable	0.8 / Variable
Coolant	Wet	Dry
MRR (cm ³ /min)	22.4	48
Tool Life	3 pcs / 1 corner	5 pcs / 1 corner

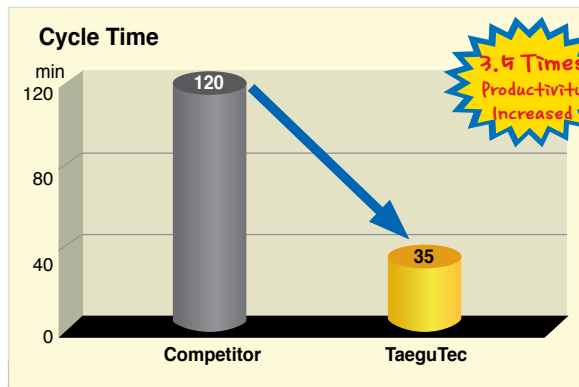
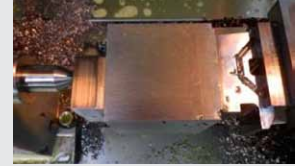


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Case Study 7 Workpiece: Turbine blade

Power generation[®]

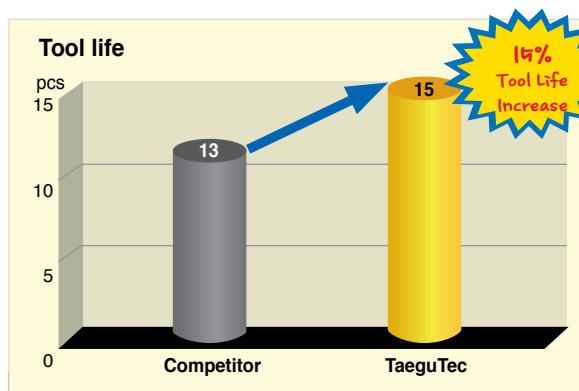
	Competitor	TaeguTec
Material	Martensitic stainless steel	
Cutter	D32 end mill(HSS)	TFMBL 640-22R-06
Insert		BLMP 0603R-MM
Grade	-	TT3540
Effective teeth	6	6
V (m/min)	22	90
F (mm/min) / fz (mm/tooth)	100 / 0.08	2600 / 0.6
DOC / WOC (mm)	7~8 / Variable	1 / Variable
Coolant	Wet	Air
Cycle Time	120 min	35 min
Tool Life	1 pass/ 1 corner	1 pass/ 1 corner



Case Study 8 Workpiece: Manifold

Automotive[®]



	Competitor	TaeguTec
Material	DIN 1.4848	
Cutter	D32 end mill cutter	3P TE90-532-W32-10
Insert	90° Insert	3PKT 100408R-ML
Grade	CVD coating	TT3540
Effective teeth	5	5
V (m/min)	40	40
F (mm/min) / fz (mm/tooth)	175 / 0.09	175 / 0.09
DOC / WOC (mm)	2 / 20	2 / 20
Coolant	wet	wet
Tool life	13 pcs / 1 corner	15 pcs / 1 corner

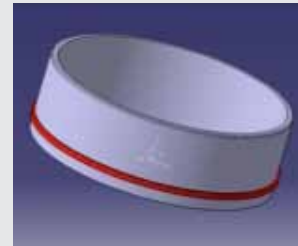


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Case Study 9 Workpiece: Rear case

Aerospace[®]

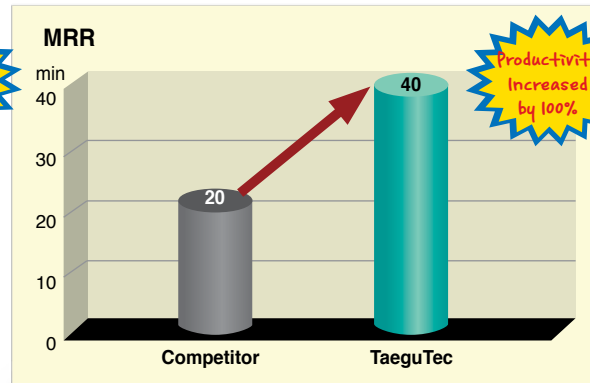
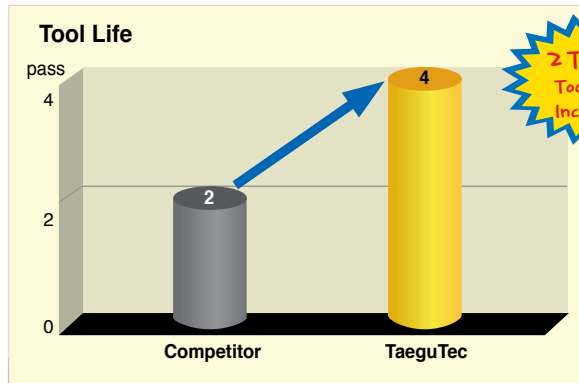
	Competitor	TaeguTec
Material	INCONEL 718	
Cutter	D25 end mill cutter	TE90AP 325-W25-12-C
Insert	90° insert	APKT 1204PER-EL
Grade	PVD coating	TT3540
Effective teeth	3	3
V (m/min)	25	25
F (mm/min) / fz (mm/tooth)	87 / 0.09	87 / 0.09
DOC / WOC (mm)	9 / Variable	9 / Variable
Cutting time (min)	20	20
Wear (mm)	0.52	0.1
Remarks		



Case Study 10 Workpiece: Casing

Aerospace[®]

	Competitor	TaeguTec
Material	INCONEL 718	
Cutter	D55 face cutter	TFMRY 455-22R-12
Insert	Round insert D12	RYHX 1205-L
Grade	PVD Coating	TT9540
Effective teeth	4	4
V (m/min)	39	39
F (mm/min) / fz (mm/tooth)	122 / 0.135	244 / 0.27
DOC / WOC (mm)	3 / Variable	3 / Variable
Coolant	Wet	Wet
MRR (cm ³ /min)	20	40
Tool Life	2 pass/ 1 corner	4 pass/ 1 corner

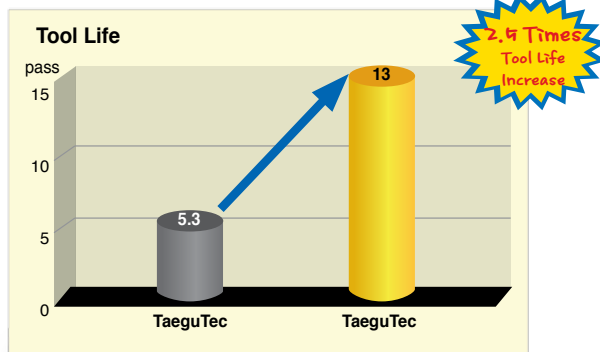


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Case Study 11 Workpiece: Bracket

Aerospace[®]

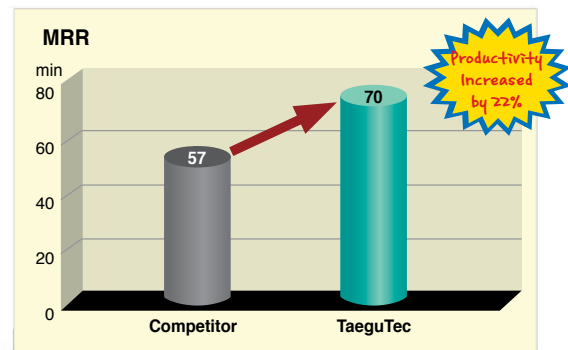
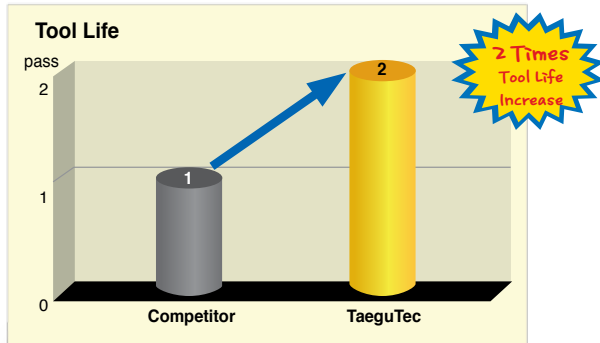
	TaeguTec	TaeguTec
Material	Ti-6Al-4V	
Cutter	TFMRY 650-22R-10	TFMRY 650-22R-10
Insert	RYMX 1004 MM	RYMX 1004 MM
Grade	TT9080	TT3540
Effective teeth	6	6
V (m/min)	84	84
F (mm/min) / fz (mm/tooth)	1440 / 0.45	1440 / 0.45
DOC / WOC (mm)	0.75 / 30	0.75 / 30
Coolant	MQL	MQL
Tool Life (min)	5.3	13



Case Study 12 Workpiece: Blisks

Aerospace[®]

	Competitor	TaeguTec
Material	DIN 1.4980	
Cutter	D52 face cutter	TFMBL 852-22R-06
Insert	High feed insert	BLMP 0603R-MM
Grade	CVD coating	TT3540
Effective teeth	6	8
V (m/min)	68	50
F (mm/min) / fz (mm/tooth)	1100 / 0.43	1350 / 0.55
DOC / WOC (mm)	1 / Variable	1 / Variable
Coolant	Wet	Wet
MRR (cm ³ /min)	57	70
Tool Life	1 pass / 1 corner	2 pass / 1 corner



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Item list

Family	Item Description	Grade
CHASE² FEED <small>15-300-LINE</small>	BLMP 0603R-M	TT9540
	BLMP 0603R-M	TT3540
	BLMP 0603R-ML	TT9540
	BLMP 0603R-ML	TT3540
	BLMP 0603R-MM	TT9540
	BLMP 0603R-MM	TT3540
	BLMP 0904R-M	TT9540
	BLMP 0904R-M	TT3540
	BLMP 0904R-ML	TT9540
	BLMP 0904R-ML	TT3540
	BLMP 0904R-MM	TT9540
	BLMP 0904R-MM	TT3540
	BLMP 1205R-M	TT9540
	BLMP 1205R-M	TT3540
	RYMX 0803-M	TT9540
	RYMX 0803-M	TT3540
	RYMX 0803-ML	TT9540
	RYMX 0803-ML	TT3540
RYMX 0803-MM	TT9540	
RYMX 0803-MM	TT3540	
RYHX 0803-L	TT9540	
RYHX 0803-L	TT3540	
RYHX 0803-ML	TT9540	
RYHX 0803-ML	TT3540	
RYHX 0803-MLL	TT9540	
RYHX 0803-MLL	TT3540	
RYMX 1004-M	TT9540	
RYMX 1004-M	TT3540	
RYMX 1004-ML	TT9540	
RYMX 1004-ML	TT3540	
RYMX 1004-MM	TT9540	
RYMX 1004-MM	TT3540	
RYHX 1004-L	TT9540	
RYHX 1004-L	TT3540	
RYHX 1004-ML	TT9540	
RYHX 1004-ML	TT3540	
RYHX 1004-MLL	TT9540	
RYHX 1004-MLL	TT3540	
RYMX 1205-M	TT9540	
RYMX 1205-M	TT3540	
RYMX 1205-ML	TT9540	
RYMX 1205-ML	TT3540	
RYMX 1205-MM	TT9540	
RYMX 1205-MM	TT3540	
RYHX 1205-L	TT9540	
RYHX 1205-L	TT3540	
RYHX 1205-ML	TT9540	
RYHX 1205-ML	TT3540	
RYHX 1205-MLL	TT9540	
RYHX 1205-MLL	TT3540	

NEW CHASE² MOLD
15-300-LINE

Family	Item Description	Grade
CHASE² MOLD <small>15-300-LINE</small>	RNMU 1004-ML	TT9540
	RNMU 1004-ML	TT3540
	RNMU 1004S-M	TT9540
	RNMU 1004S-M	TT3540
	RNMU 1205-ML	TT9540
	RNMU 1205-ML	TT3540
	RNMU 1205S-M	TT9540
	RNMU 1205S-M	TT3540
	2FB160-M	TT9540
	2FB160-M	TT3540
	2FB200-M	TT9540
	2FB200-M	TT3540
DUETBALL	2FB250-M	TT9540
	2FB250-M	TT3540
	2FB300-M	TT9540
	2FB300-M	TT3540
	2FB320-M	TT9540
	2FB320-M	TT3540
CHASE² PLUNGE	PLNG 090408R-M	TT9540
	PLNG 090408R-M	TT3540
CHASEMILL <small>25-90-LINE</small>	(06) AXMT 0602R-HF	TT9540
	AXMT 0602R-HF	TT3540
CHASEMILL <small>25-90-LINE</small>	(09) APKT 09T3 PER-EM	TT9540
	APKT 09T3 PER-EM	TT3540
	APKT 09T3R-HF	TT9540
	APKT 09T3R-HF	TT3540
	APCT 09T3 PER-ML	TT9540
	APCT 09T3 PER-ML	TT3540
	APKT 1204 PER-EL	TT9540
	APKT 1204 PER-EL	TT3540
	APKT 1204 PER-EM	TT9540
	APKT 1204 PER-EM	TT3540
	APKT 1204 PER-EML	TT9540
	APKT 1204 PER-EML	TT3540
CHASEMILL <small>25-90-LINE</small>	(12) APKT 1204 PER-SM	TT9540
	APKT 1204 PER-SM	TT3540
	APKT 120430R-EL	TT9540
	APKT 120430R-EL	TT3540
	APCT 120430R-ML	TT9540
	APCT 120430R-ML	TT3540
	APCT 120432R-ML	TT9540
	APCT 120432R-ML	TT3540
	APCT 120440R-ML	TT9540
	APCT 120440R-ML	TT3540

◆ All listed items are available upon customer request

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Item list

Family	Item Description	Grade	
CHASEMILL ES 90-LINE (17)	APKT 1705 PER-EL	TT9540	
	APKT 1705 PER-EL	TT3540	
	APKT 1705 PER-EM	TT9540	
	APKT 1705 PER-EM	TT3540	
	APKT 1705 PER-EML	TT9540	
	APKT 1705 PER-EML	TT3540	
	APKT 1705 PER-SM	TT9540	
	APKT 1705 PER-SM	TT3540	
	APKT 170516R-EML	TT9540	
	APKT 170516R-EML	TT3540	
	APCT 1705 PER-ML	TT9540	
	APCT 1705 PER-ML	TT3540	
	MILL-RUSH (06)	3PKT 100404R-M	TT3540
		3PKT 100404R-ML	TT3540
3PKT 100404R-ML		TT9540	
3PKT 100408R-M		TT3540	
3PKT 100408R-ML		TT3540	

Family	Item Description	Grade
MILL-RUSH (15)	3PKT 150508R-M	TT3540
	3PKT 150508R-ML	TT3540
	3PKT 150508R-ML	TT9540
	3PHT 150516R-ML	TT3540
	3PHT 150516R-ML	TT9540
	3PKT 150524R-ML	TT3540
MILL-RUSH (19)	3PKT 190608R-M	TT3540
	3PKT 190608R-ML	TT3540
	3PKT 190608R-ML	TT9540
	3PKT 190616R-ML	TT3540
	3PKT 190616R-ML	TT9540
	3PKT 190624R-ML	TT3540
	3PKT 190630R-ML	TT3540
	3PKT 190632R-ML	TT3540

◆ All listed items are available upon customer request

Operating Guidelines for TT3540 & TT9540

Material	Speed (m/min)	
	TT3540	TT9540
Stainless 300 Series	80 - 200	100 - 250
Stainless 400 Series	80 - 230	100 - 280
Inconel-Hastelloy-Waspalloy	20 - 40	25 - 50
Ti-Alloy (Ti-6AL-4V)	30 - 80	40 - 90
Co-based Alloy	50 - 200	70 - 250

Sincerely,
TaeguTec



Lee, Jae Wook
Milling Product Manager

Sincerely,
TaeguTec



Lee, Seog Hwan
Milling Assistant Product Manager