



Keeping the Customer First

Tungaloy Report No. 395-US

**MILLLINE**

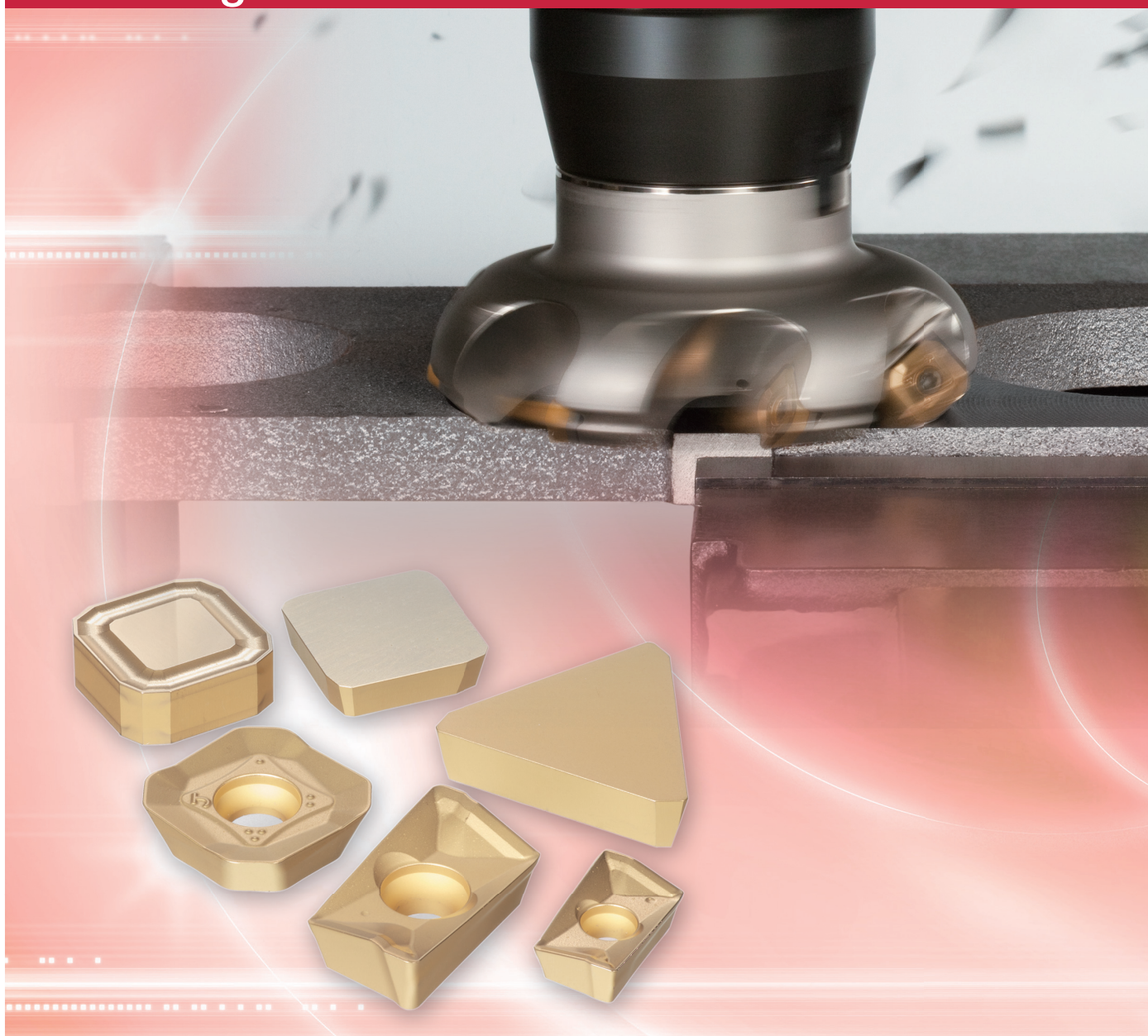
New CVD coated grade for milling  
cast iron

**T1115**



**PREMIUMTEC**  
TUNGALOY

Ensures remarkable wear resistance when  
machining cast iron!!



# T1115

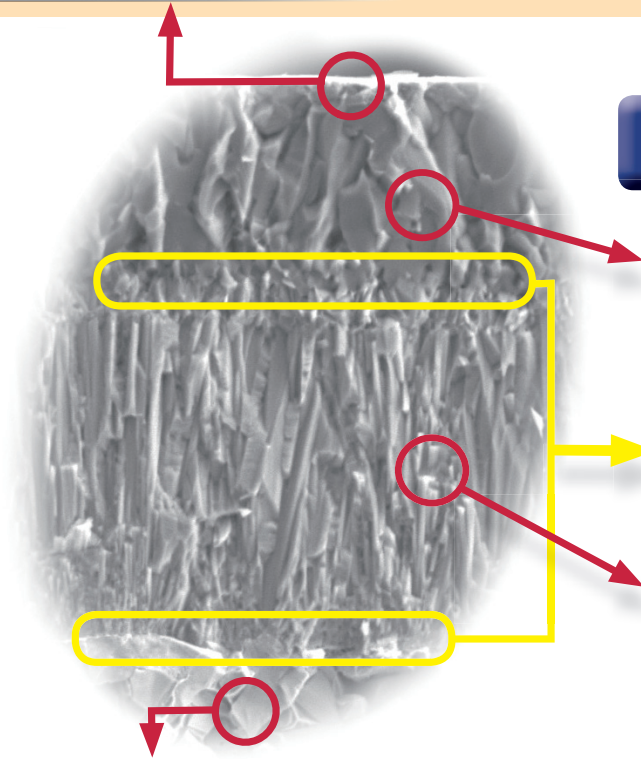
**Guarantees long and stable tool life by combining a newly developed coating and substrate with Tungaloy's PremiumTec.**

## Features

### ● Special Surface Technology

**PREMIUMTEC**  
TUNGALOY

Smooth insert surface prevents chip adhesion and improves chip flow.



### ● New CVD coating layer

#### ● Al<sub>2</sub>O<sub>3</sub> layer with optimized thickness

Exceptional wear resistance

#### ● Bridge-over technology

Coupling of function


#### ● Continuously formed columnar TiCN coating

Excellent fracture and chipping resistance

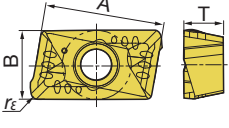
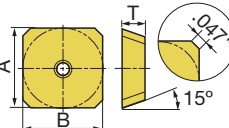
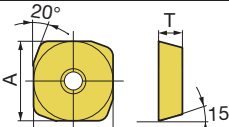
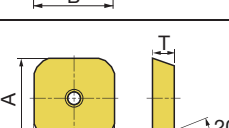
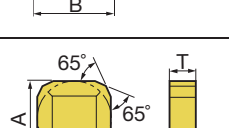
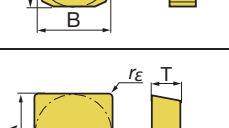
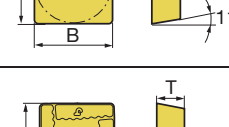
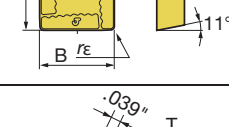
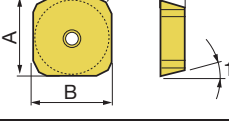
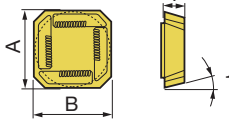
### ● New unique substrate

Combines sharpness and wear resistance

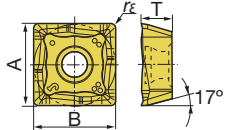
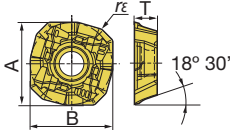
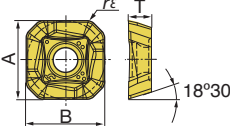
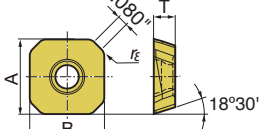
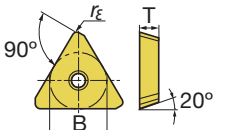
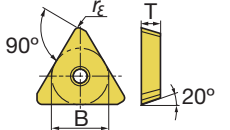
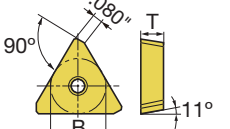
### ● Grade

Application	Grade	Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main composition	Thickness (μm)	
 Cast Iron	<b>T1115</b>	14.9	91.5	2.7	Fine columnar TiCN + Al <sub>2</sub> O <sub>3</sub>	11.0	<b>For milling gray cast irons &amp; ductile cast irons</b> The "PremiumTec" Adapted Special Surface Technology provides stable and high performance. Tungaloy utilises advanced technology for the crystallization process that improves chipping and fracture resistance. The grade also incorporates a thick Al <sub>2</sub> O <sub>3</sub> layer that has remarkable wear resistance.
	<b>K10-K20</b>						

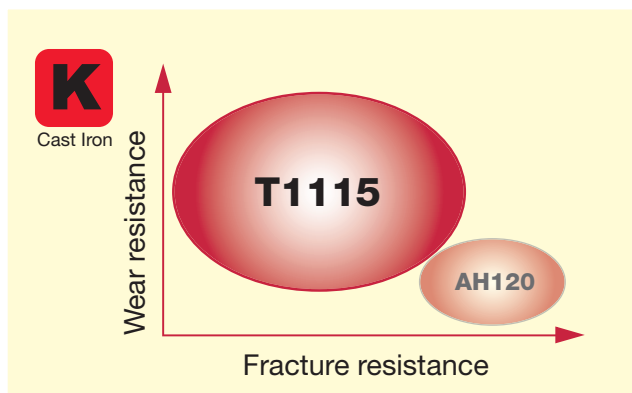
# Inserts

Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (inch)				Applicable cutter
				T1115	A	B	T	r <sub>E</sub>	
	ASMT11T304PDPR-MJ	M	with	●	.457	.264	.146	.016	TPS11 EPS11
	ASMT11T308PDPR-MJ	M	with	●	.457	.264	.146	.031	
	ASMT170504PDPR-MJ	M	with	●	.665	.386	.220	.016	TPS17 EPS17
	ASMT170508PDPR-MJ	M	with	●	.665	.386	.220	.031	
	SDEN42ZTN (SDEN1203AETN-12)	E	with	●	.500	.500	.125	-	TMD4400 EMD4400
	SDKN42ZTN (SDKN1203AETN-12)	K	with	●	.500	.500	.125	-	
	SDEN1504ZDSR	E	with	●	.625	.625	.187	-	TXD15
	SDNN1504ZDSR	N	with	●	.625	.625	.187	-	
	SEEN1203AGTN	E	with	●	.500	.500	.125	-	TME4400 EME4400
	SEKN1203AGTN-T	K	with	●	.500	.500	.125	-	
	SNKN43ZTN (SNKF1204ZNTN)	K	with	●	.500	.500	.187	-	TGN4200
	SNKF43ZTN (SNKF1204ZNTN)	K	with	●	.500	.500	.187	-	
	SNMN120412TN	M	with	●	.500	.500	.187	-	
	SPGN120412TN	G	with	●	.500	.500	.187	.047	QFP4000
	SPMR1605PPTR-MJ	M	with	●	.630	.630	.219	.031	TPP16
	SPKN42STR (SPKN1203EDTR)	K	with	●	.500	.500	.125	-	TGP4100
	SPKN42ZTR (SPKN1203ZPTR)	K	with	●	.500	.500	.125	-	TGP4200
	SPKR42SSR-MJ (SPKR1203EDSR-MJ)	K	with	●	.500	.500	.125	-	TGP4100
	SPKN53STR (SPKN1504EDTR)	K	with	●	.625	.625	.187	-	TGP5100

● : Stocked items

Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (inch)				Applicable cutter
				T1115	A	B	T	$r_{\epsilon}$	
	SWMT1304PDPR-MJ	M	with	●	.535	.535	.197	.031	TPW13 EPW13
	SWMT13T3AFPR-HJ	M	with	●	.579	.579	.157	.059	TAW13 EAW13
	SWMT13T3AFPR-MJ	M	with	●	.547	.547	.157	.059	
	SWMW13T3AFTR	M	with	●	.547	.547	.157	.059	
	TEEN32ZTR (TEEN1603PETR)	E	with	●	-	.375	.125	.031	TSE3000
	TEEN43ZTR (TEEN2204PETR)	E	with	●	-	.500	.187	.039	TSE4000
	TPKN43ZTR (TPKN2204PPTR)	K	with	●	-	.500	.187	-	TSP4000

## Applicable area



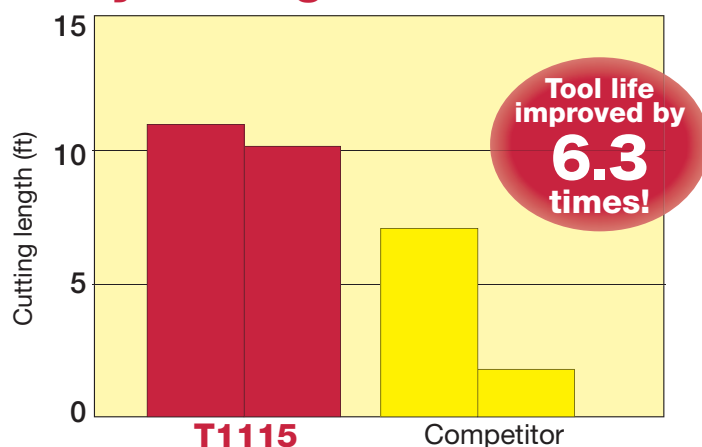
## Standard cutting conditions

Work materials	Grade	Cutting speed $V_c$ (sfm)
Gray cast irons (No.40 etc.)	<b>T1115</b>	590 ~ 1000
Ductile cast irons (60-40-18 etc.)		400 ~ 660



# Cutting performance

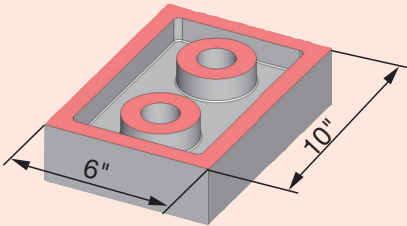
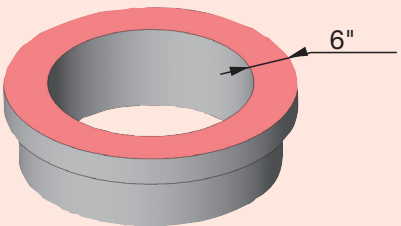
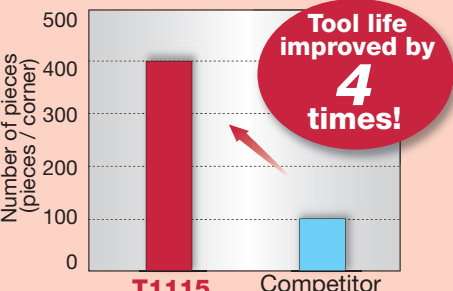
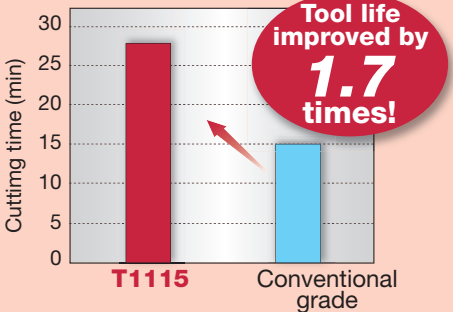
## ► Dry cutting of ductile cast iron (80-55-06)

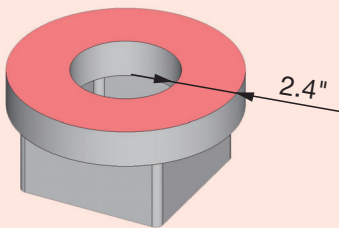
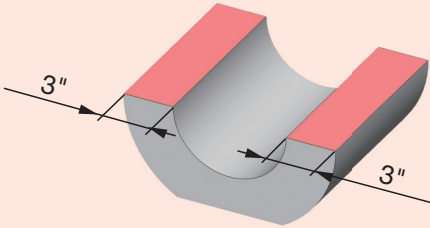
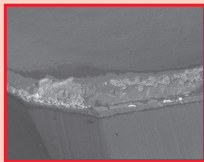
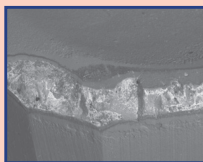
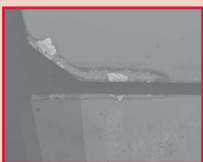
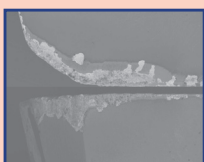


Insert : SNMN120412TN  
 cutter : TGN42 type  
 Cutting speed :  $V_c = 650$  sfm  
 Feed per tooth :  $f_z = .008$  ipt  
 Depth of cut :  $a_p = .080$ "  
 Tool life criteria :  $VB_{max} = .012$ "

**Drastically extends tool life due to T1115's excellent wear resistance.**

## Practical examples

Workpiece type		Plate	Case
Cutter		TGP4106RIA-U	TMD4405RI-U
Insert		SPKN42STR	SDEN42ZTN
Grade		T1115	T1115
Work material		No.45	65-45-12
			
Cutting conditions	Cutting speed: $V_c$ (sfm)	530	590
	Feed per tooth: $f_z$ (ipt)	.005	.005
	Depth of cut: $a_p$ (inch)	Roughing: .120, Finishing: .020	.120
	Width of cut: $a_e$ (inch)	5.500	3.000
	Machining	Face milling	Face milling
	Coolant	Dry	Wet
	Machine	Vertical M/C	Vertical M/C
Result		 <p>Tool life improved by <b>4</b> times!</p>	 <p>Tool life improved by <b>1.7</b> times!</p>
		<p>Prolonged tool life reduces machine downtime and increases productivity.</p>	<p>Reduces wear and chipping on the insert edge, providing extended tool life.</p>

Workpiece type		Case	Truck part
Cutter		TPG4104RIAU	TGP5105RIAU
Insert		SPKR42SSR-MJ	SPKN53STR
Grade		T1115	T1115
Work material		No.45	No.50
			
Cutting conditions	Cutting speed: $V_c$ (sfm)	330	560
	Feed per tooth: $f_z$ (ipt)	.008	.006
	Depth of cut: $a_p$ (inch)	.200	.080
	Width of cut: $a_e$ (inch)	2.000	3.000
	Machining	Face milling	Face milling
	Coolant	Dry	Wet
	Machine	Vertical M/C	Vertical M/C
Result		  <b>T1115</b> Competitor <b>Provides stable tool life even in machining of a scaled surface.</b>	  <b>T1115</b> Competitor <b>Reduces fracture on cutting edges and improves surface quality.</b>



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