

**Tungaloy**

Member IMC Group

Keeping the Customer First

Tungaloy Report No. 395-E

**MILLLINE**

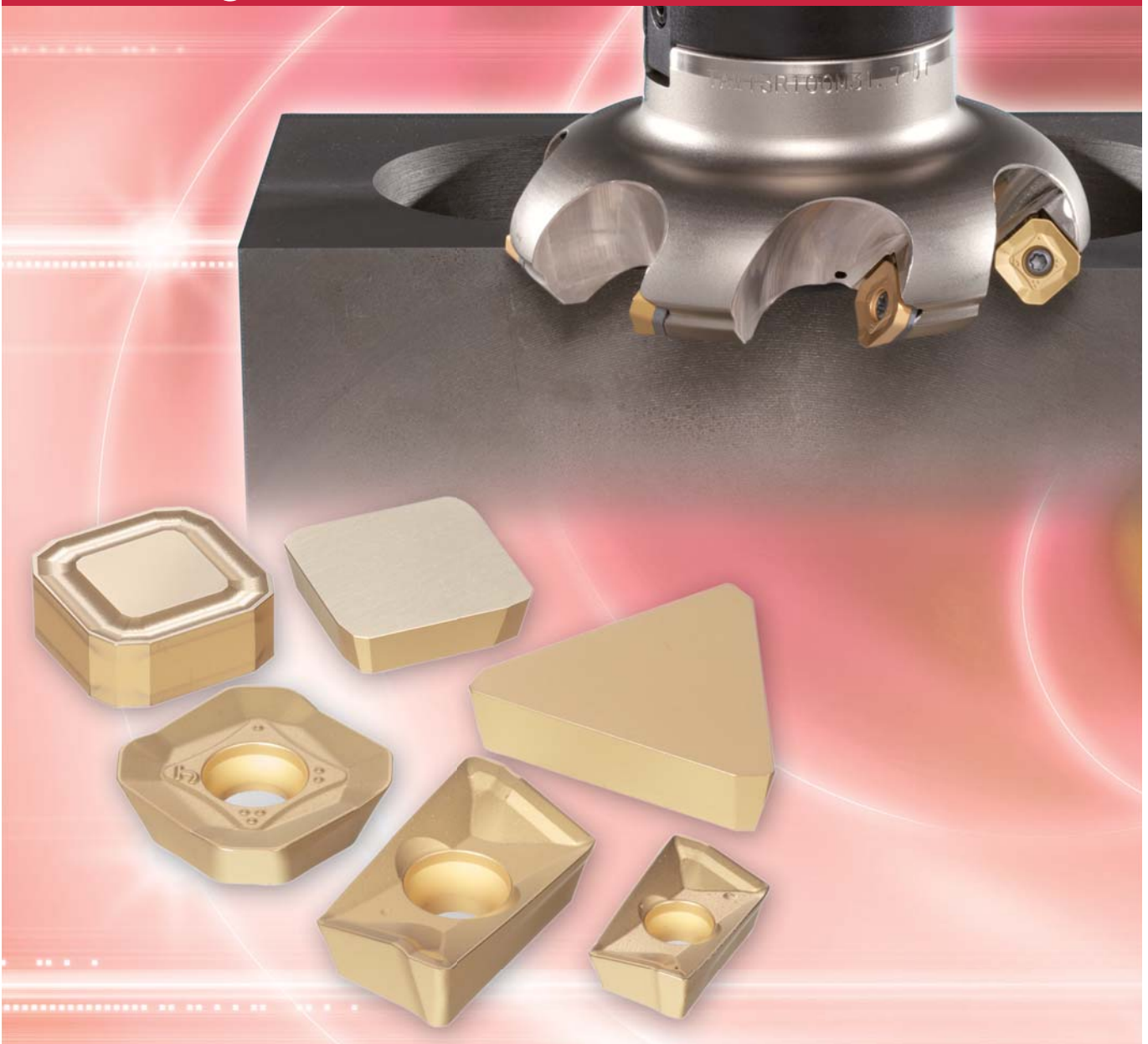
New CVD Coated Grade for  
Milling Cast Iron

**T1115**

**NEW**

**PREMIUMTEC**  
TUNGALOY

Ensures remarkable wear resistance when  
machining cast iron!!



# T1115

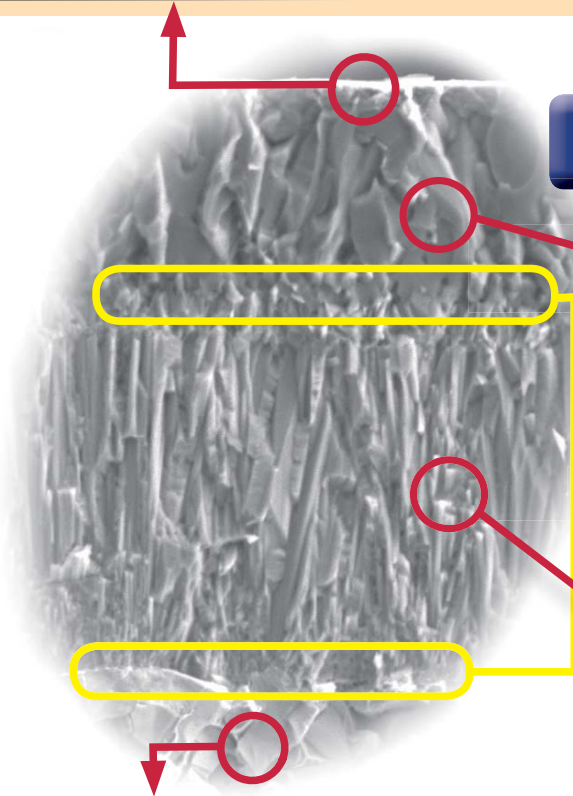
**Guarantees long and stable tool life by combining a newly developed coating and substrate with Tungaloy's PremiumTec.**

## 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

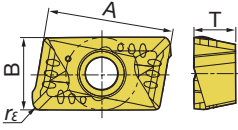
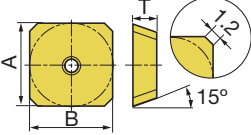
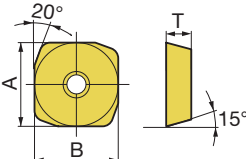
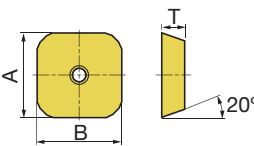
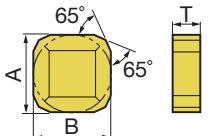
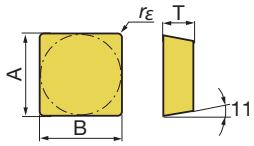
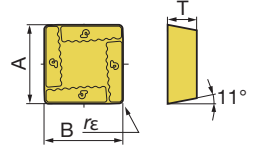
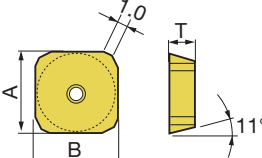
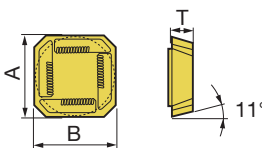
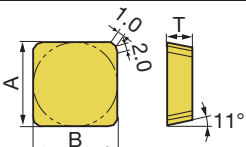
**New unique substrate**

Combines sharpness and wear resistance

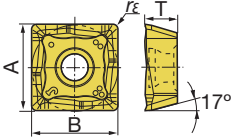
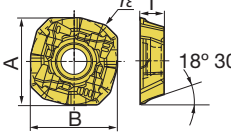
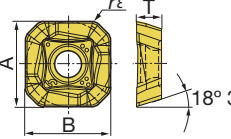
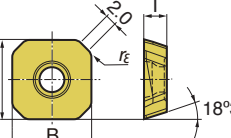
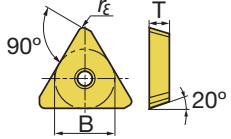
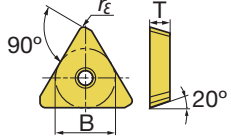
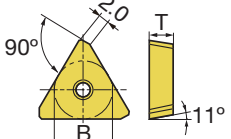
**Grade**

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>						

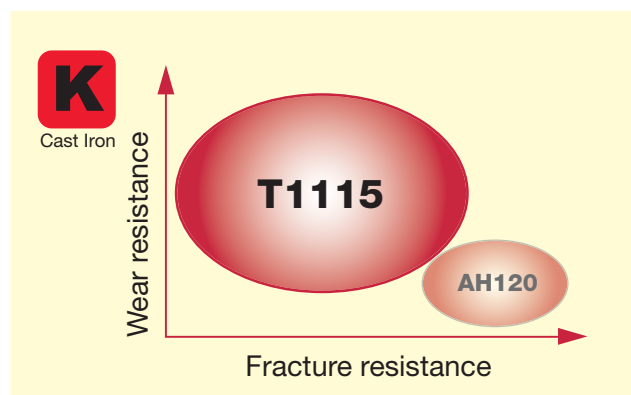
# Inserts

Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (mm)				Applicable cutter
				T1115	A	B	T	r <sub>ε</sub>	
	ASMT11T304PDPR-MJ	M	with	●	11.6	6.7	3.7	0.4	TPS11 EPS11
	ASMT11T308PDPR-MJ	M	with	●	11.6	6.7	3.7	0.8	
	ASMT170504PDPR-MJ	M	with	●	16.9	9.8	5.6	0.4	TPS17 EPS17
	ASMT170508PDPR-MJ	M	with	●	16.9	9.8	5.6	0.8	
	SDEN42ZTN (SDEN1203AETN-12)	E	with	●	12.7	12.7	3.18	-	TMD4400 EMD4400
	SDKN42ZTN (SDKN1203AETN-12)	K	with	●	12.7	12.7	3.18	-	
	SDEN1504ZDSR	E	with	●	15.875	15.875	4.76	-	TXD15
	SDNN1504ZDSR	N	with	●	15.875	15.875	4.76	-	
	SEEN1203AGTN	E	with	●	12.7	12.7	3.18	-	TME4400 EME4400
	SEKN1203AGTN-T	K	with	●	12.7	12.7	3.18	-	
	SNKN43ZTN (SNKF1204ZNTN)	K	with	●	12.7	12.7	4.76	-	TGN4200
	SNKF43ZTN (SNKF1204ZNTN)	K	with	●	12.7	12.7	4.76	-	
	SNMN120412TN	M	with	●	12.7	12.7	4.76	-	
	SPGN120412TN	G	with	●	12.7	12.7	4.76	1.2	QFP4000
	SPMR1605PPTR-MJ	M	with	●	16	16	5.56	0.8	TPP16
	SPKN42STR (SPKN1203EDTR)	K	with	●	12.7	12.7	3.18	-	TGP4100
	SPKN42ZTR (SPKN1203ZPTR)	K	with	●	12.7	12.7	3.18	-	TGP4200
	SPKR42SSR-MJ (SPKR1203EDSR-MJ)	K	with	●	12.7	12.7	3.18	-	TGP4100
	SPKN53STR (SPKN1504EDTR)	K	with	●	15.875	15.875	4.76	-	TGP5100

● : Stocked items

Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (mm)				Applicable cutter
				T1115	A	B	T	r <sub>ε</sub>	
	<b>SWMT1304PDPR-MJ</b>	M	with	●	13.6	13.6	5	0.8	TPW13 EPW13
	<b>SWMT13T3AFPR-HJ</b>	M	with	●	13.9	13.9	4	1.5	TAW13 EAW13
	<b>SWMT13T3AFPR-MJ</b>	M	with	●	13.9	13.9	4	1.5	
	<b>SWMW13T3AFTR</b>	M	with	●	14.7	14.7	4	1.5	
	<b>TEEN32ZTR (TEEN1603PETR)</b>	E	with	●	-	9.525	3.18	0.8	TSE3000
	<b>TEEN43ZTR (TEEN2204PETR)</b>	E	with	●	-	12.7	4.76	1.0	TSE4000
	<b>TPKN43ZTR (TPKN2204PPTR)</b>	K	with	●	-	12.7	4.76	-	TSP4000

## Applicable area

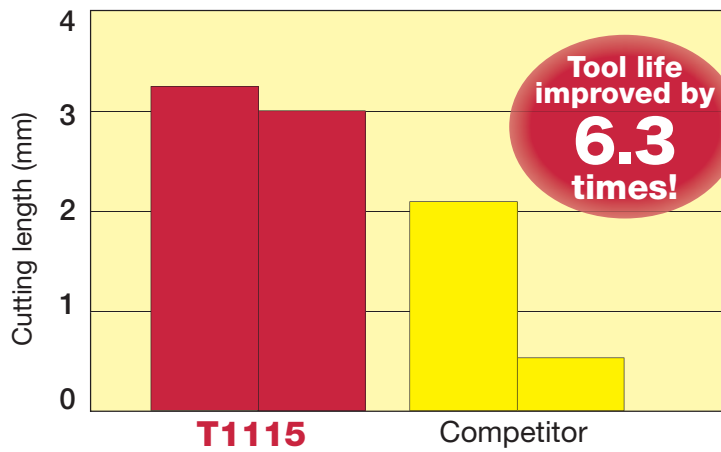


## Standard cutting conditions

Work materials	Grade	Cutting speeds V <sub>c</sub> (m/min)
Gray cast irons & Ductile cast irons (FC250, FCD400, etc.)	<b>T1115</b>	150 (80 ~ 200)

# Cutting performance

## ► Dry cutting of Ductile cast iron (FCD600)



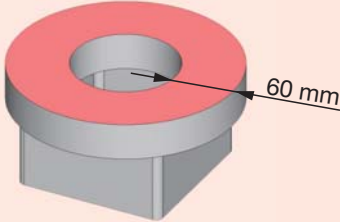
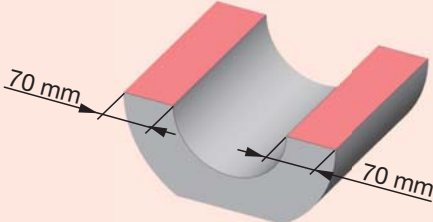
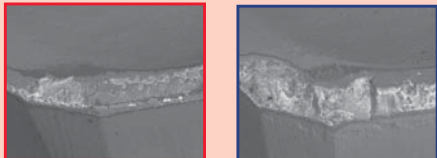
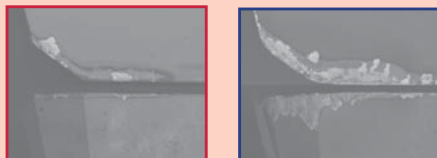
Insert : SNMN120412TN  
 cutter : TGN42 type  
 Cutting speed :  $V_c = 200$  m/min  
 Feed rate :  $f_z = 0.2$  mm/t  
 Depth of cut :  $a_p = 2.0$  mm  
 Tool life criteria :  $VB_{max} = 0.3$  mm

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

## Practical examples

Name of workpiece		Plate	Case
Cutter		TGP4106RIA	TMD4405RI
Insert		SPKN42STR (SPKN1203EDTR)	SDEN42ZTN (SDEN1203AETN-12)
Grade		T1115	T1115
Workpiece Material		FC300 (EN-GJL-300)	FCD450 (EN-GJS-450)
Cutting conditions	Cutting speed: $V_c$ (m/min)	160	180
	Feed rate: $f_z$ (mm/t)	0.13	0.13
	Depth of cut: $a_p$ (mm)	Roughing: 3 mm, Finishing: 0.5 mm	3
	Width of cut: $a_e$ (mm)	140	75
	Machining	Face milling	Face milling
	Coolant	Dry cutting	Water soluble
Machine		Vertical MC	Vertical MC
Result		<p><b>Tool life improved by 4 times!</b></p>	<p><b>Tool life improved by 1.7 times!</b></p>
		<p><b>Prolonged tool life reduces machine downtime and increases productivity.</b></p>	<p><b>Reduces wear and chipping on the insert edge, providing extended tool life.</b></p>



Name of workpiece		Case	Truck part	
Cutter		TGP4104RIA	TGP5105RIA	
Insert		SPKR42SSR-MJ (SPKR1203EDSR-MJ)	SPKN53STR (SPKN1504EDTR)	
Grade		T1115	T1115	
Workpiece Material		FC300 (EN-GJL-300)	FC350 (EN-GJL-350)	
				
Cutting conditions	Cutting speed: Vc (m/min)	100	170	
	Feed rate: fz (mm/t)	0.2	0.15	
	Depth of cut: ap (mm)	5	2	
	Width of cut: ae (mm)	50	70	
	Machining	Face milling	Face milling	
	Coolant	Dry cutting	Water soluble	
	Machine	Vertical MC	Vertical MC	
Result	 <p><b>T1115</b> Competitor</p> <p><b>Provides stable tool life even in machining of a scaled surface.</b></p>		 <p><b>T1115</b> Competitor</p> <p><b>Reduces fracture on cutting edges and improves surface quality.</b></p>	

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