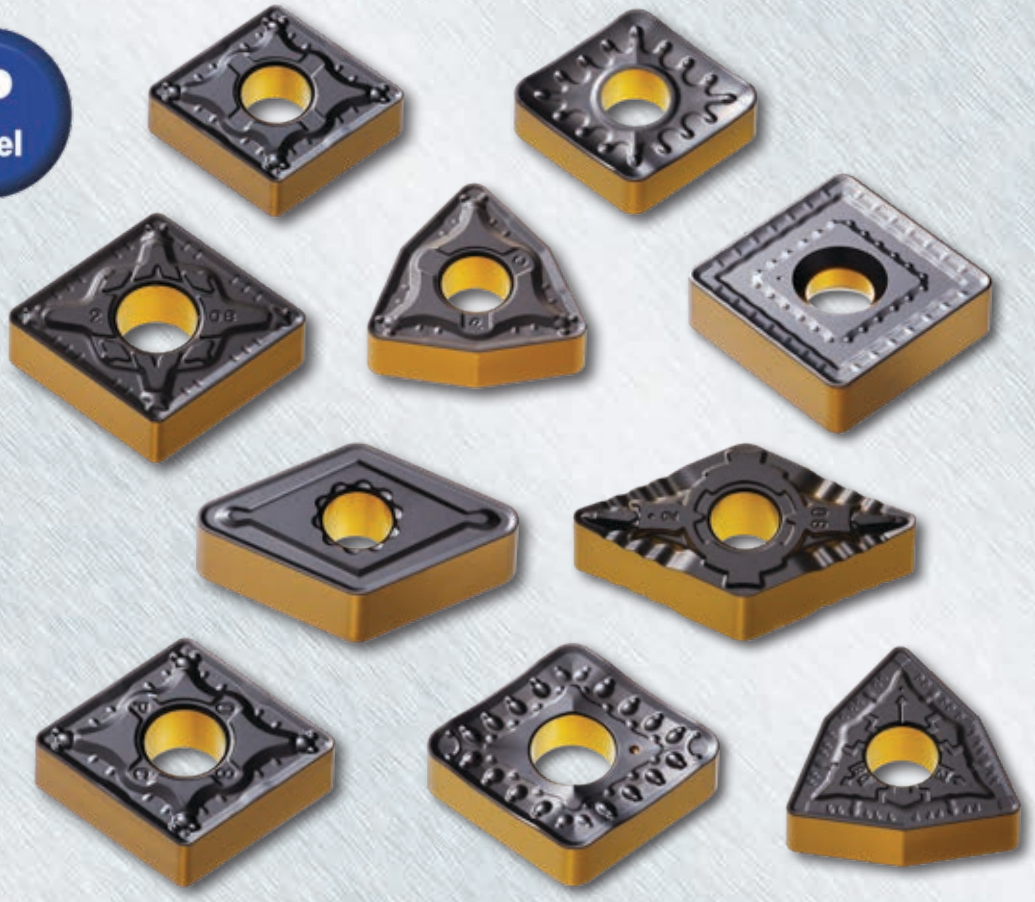
TOTURN™

P Steel



Grades

- TT8105 - More than 200 inserts
- TT8115 - More than 600 inserts
- TT8125 - More than 650 inserts
- TT8135 - More than 140 inserts

Insert Styles

- Negative geometry inserts - More than 1250 inserts
- Positive geometry inserts - More than 350 inserts

Al2O3 top layer coating provides maximum heat protection

NEW PRODUCT ANNOUNCEMENT 2019

Upgraded Coatings

New CVD Coatings for Steel Machining

Features and Benefits

- This is an upgrade to existing TT81SERIES turning grades for high-speed and high-feed applications in steel
- Latest CVD coating features brand new surface treatment and coating combination for superior anti-chipping
- Ensures excellent wear resistance due to the stable alumina coating layer
- More consistent performance and up to 80% longer tool life!
- Minimized chemical reaction between the coating surface and the workpiece during machining
- Guarantees stable machining performance under heavy interrupted machining conditions
- Two-tone insert color promotes easy detection of worn edges

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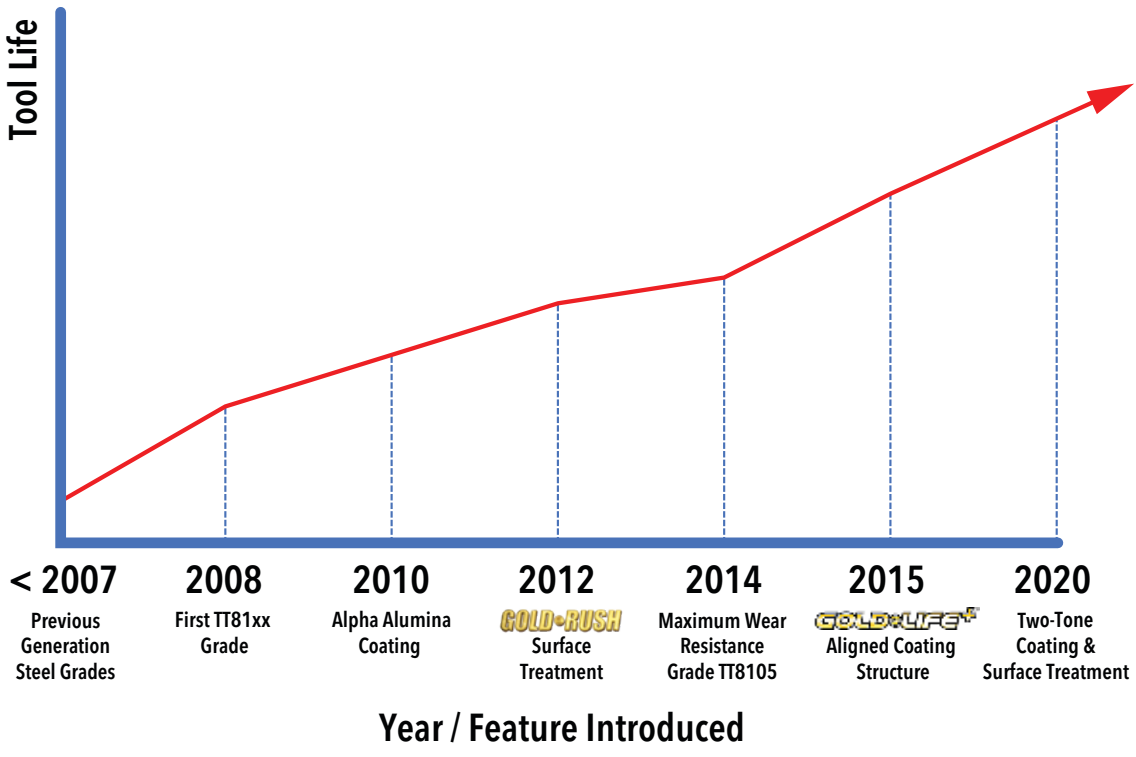
KEY POINT

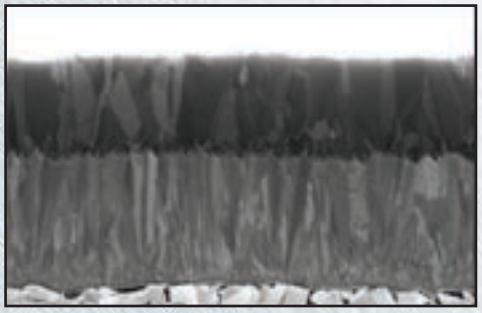
Ingersoll's successful family of grades for turning steel, Series TT81xx, has shown tremendous growth since its introduction in 2008. Over the past 12 years, the entire series has undergone several expansions featuring technological improvements that include a special "Gold-Rush" post-coat treatment in 2012 and "GoldLife+" aligned coating structure technology in 2015.

The latest improvement to the TT81xx grades introduces a new coating and surface treatment that provides even more stability and longer tool life in a wide range of steel applications. This combination of coating and treatment clearly distinguishes the entire line of TT81xx inserts by offering a black top and bottom surface, and gold periphery. The result is a series of grades that not only extend tool life, but also permit easy wear detection of used corners thanks to the two-tone appearance. This improved performance provides more stable and consistent tool life, making them ideal for automated, unsupervised machining applications.

CHRONOLOGICAL HISTORY OF TT81XX SERIES GRADES

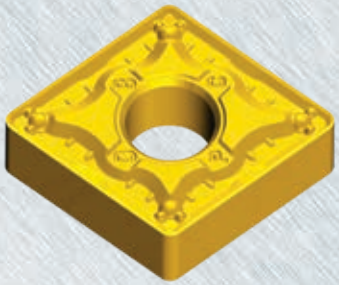


COATING DETAILS

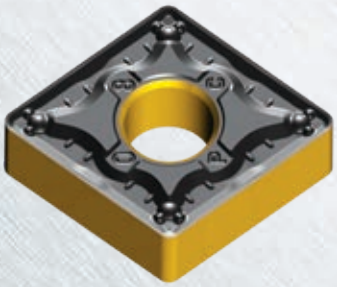


- Specialized surface treatment
- Al_2O_3 coating layer for effective heat blocking
- Rigid bonding layer
- High hardness and toughness TiCN coating layer for high wear resistance

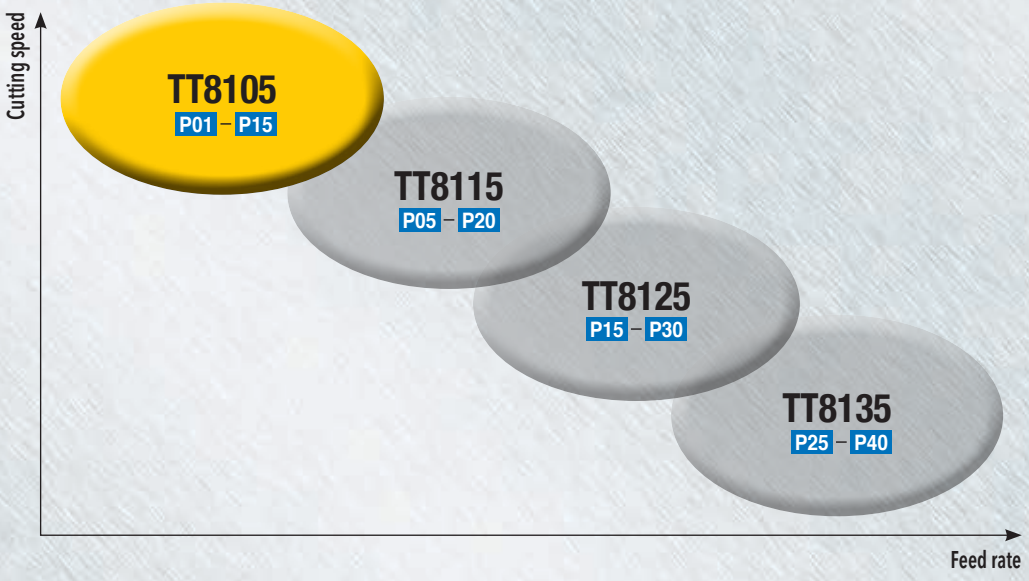
GOLD-LIFE+™



NEW TWO-TONE COATING



APPLICATION RANGE

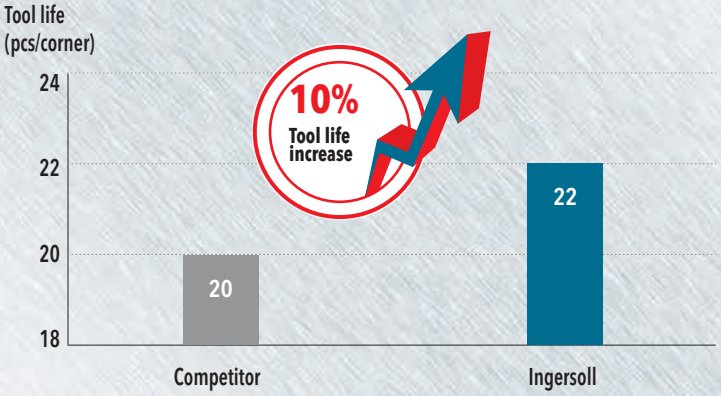


STOCKING PLAN/AVAILABILITY

There will be no change to the grade designations. This upgrade will be managed item by item. As existing stock is depleted the replacement inserts will feature the new coating technology.

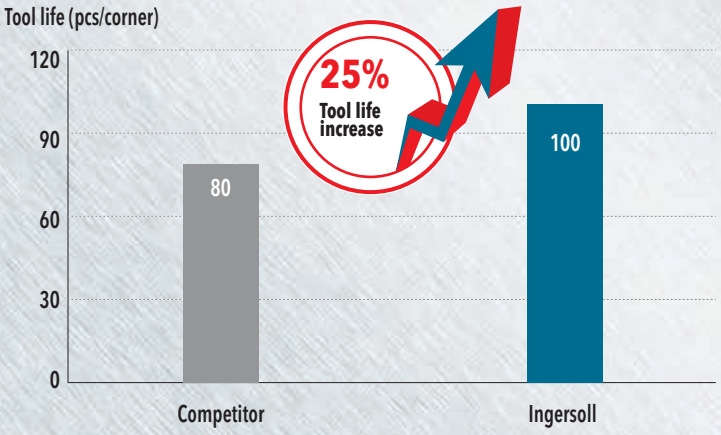
CASE STUDY 1

		Competitor	Ingersoll
Component		Flange	
Workpiece material		Cr Alloy Steel	
Operation		Finishing, External Turning	
Insert		CNMG 432 CVD Coated	CNMG 432 PC TT8115
Cutting speed	V (sfm)	1110	1110
Feed rate	f (ipr)	.009	.009
Depth of cut	ap (inch)	.080	.080
Coolant		wet	wet
Tool life (pcs/corner)		20	22



CASE STUDY 2

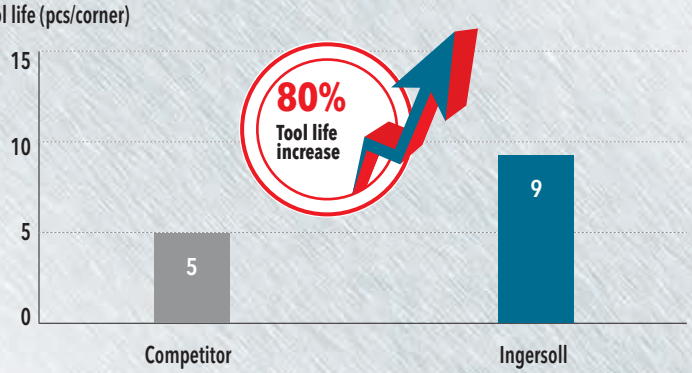
		Competitor	Ingersoll
Component		Heavy equipment component	
Workpiece material		Cr Alloy Steel	
Operation		Internal Turning	
Insert		DNMG 442 CVD coated	DNMG 442 PC TT8115
Cutting speed	V (sfm)	1110	1110
Feed rate	f (ipr)	.011	.011
Depth of cut	ap (inch)	.024	.024
Coolant		Wet	Wet
Tool life (pcs/corner)		80	100



CASE STUDY 3

		Competitor	Ingersoll
Component		Flange	
Workpiece material		A 36	
Operation		Rough Facing	
Insert		CNMG 432 CVD Coated	CNMG 432 PC TT8125
Cutting speed	V (sfm)	820	820
Feed rate	f (ipr)	.009	.009
Depth of cut	ap (inch)	.120	.120
Coolant		wet	wet
Tool life (pcs/corner)		5	9

Tool life (pcs/corner)



CHIPPING COMPARISON TEST

Alloy steel (HB190-200), Facing, extreme interruption
V=820 sfm, ap=.040", f=.006 ipr, wet

Existing TT8125	New TT8125