TOTURN™

ISO Class
M30 – M50
S30 – S50

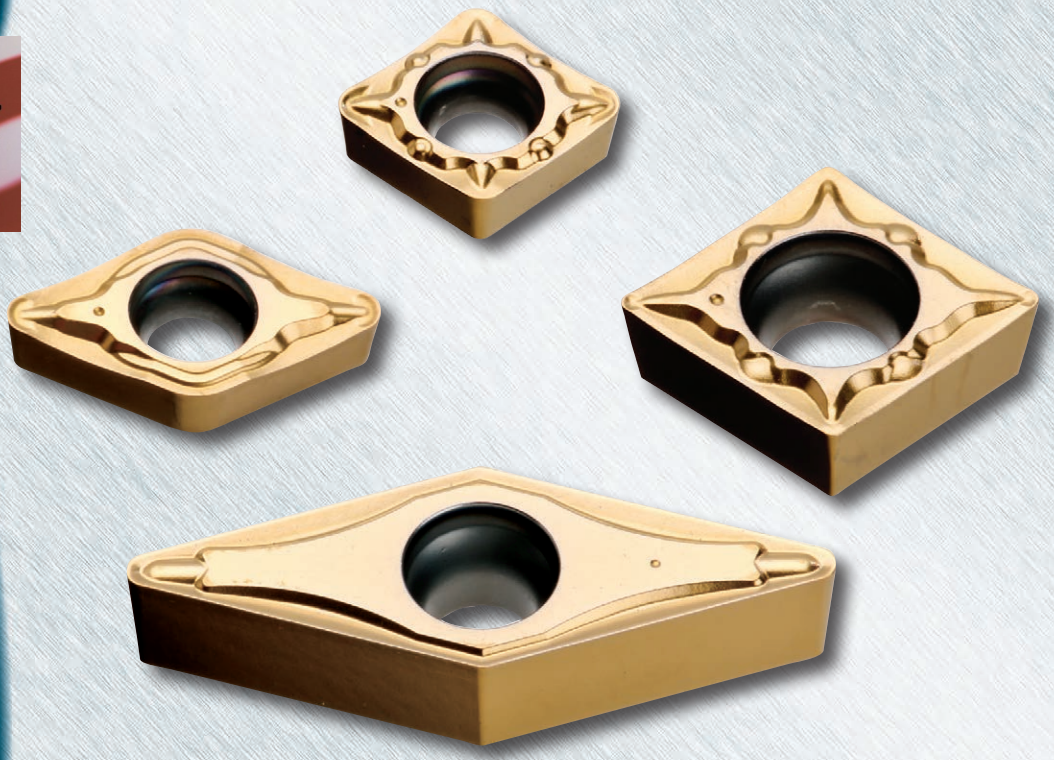
Insert Shapes & Sizes
Negative
- CNMG
- DNMG
- TNMG
- WNMG (NEW)

Positive
- CCMT
- DCMT
- SCMT
- TCMT
- VBMT

Chip Breakers
Negative
- EA
- EM
- ML
- MP (NEW)

Positive
- FG

NEW PRODUCT ANNOUNCEMENT UPDATE 2017



ISO Turning Grade TT8080 Product Expansion Now Available in Positive inserts

The TT8080 grade is characterized by excellent toughness and chipping resistance. Compared to existing grade TT8020, it features a new PVD coating that provides longer tool life and higher machining stability through improved wear resistance. It is suitable for a wide range of materials in difficult applications, with a particular emphasis on stainless steels and heat resistant alloys.

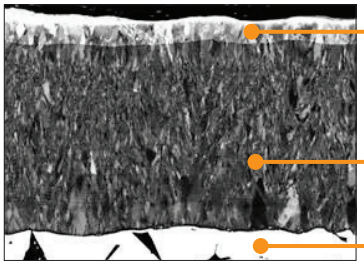
Initially introduced in 2016, this PVD-coated grade was available only in negative, double-sided inserts. Successful results in external applications have led to an increased demand for this grade in applications where positive inserts are required such as:

- Boring applications where insert side clearance is needed
- Severely interrupted work pieces
- Small diameter workpieces where cutting speeds are limited
- As a tough chamfer insert in rotating (plunging) applications

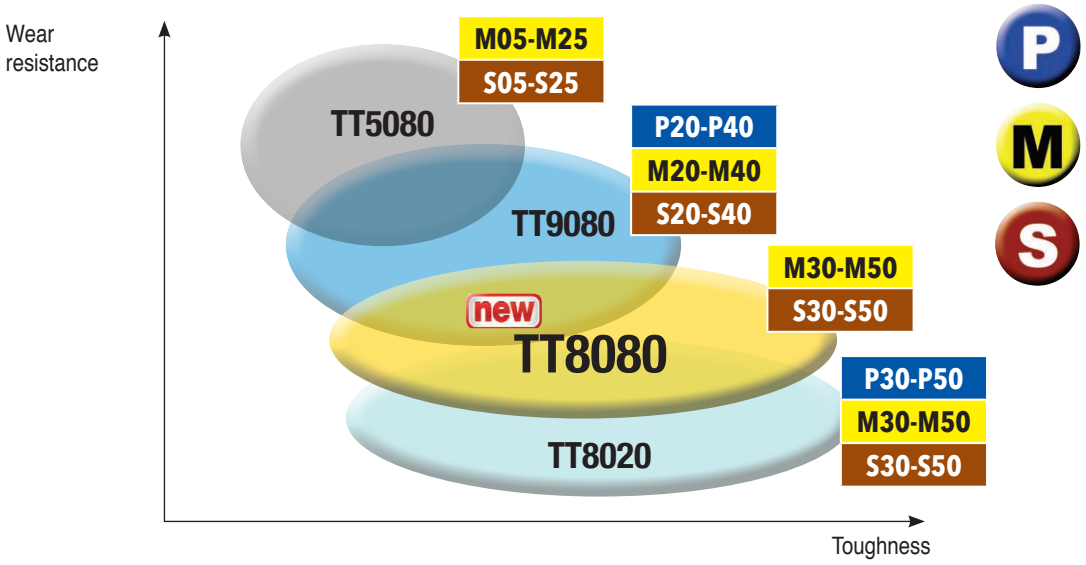
Member IMC Group
Ingersoll Cutting Tools

TT8080 Grade Features

- Excellent machining performance for stainless steel under low cutting speed and interrupted cutting conditions
- The latest PVD coating technology with enhanced wear resistance
- Eliminates coating layer delamination due to a strong coating adhesion
- Superior resistance to chipping

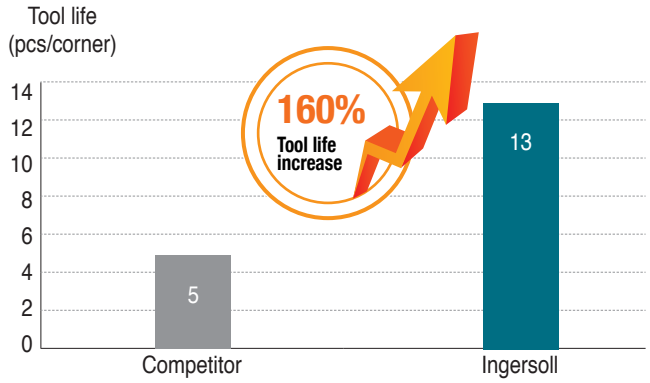


PVD Coating Application Range



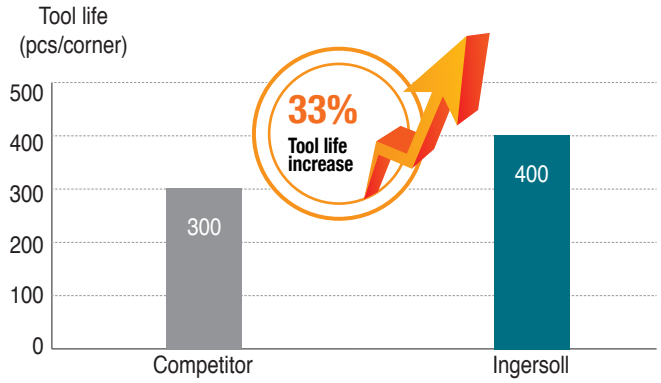
Case Study 1

		Competitor	Ingersoll
Component		Valve body	
Workpiece material		SUS 316 (1.4436)	
Operation		Interrupted facing	
Insert		CNMG 432	CNMG 432 ML TT8080
Cutting speed	V (sfm)	250-310	250-310
Feed rate	f (ipr)	.005-.006	.005-.006
Depth of cut	ap (inch)	.080	.080
Coolant		wet	wet
Tool life (pcs/corner)		5	13



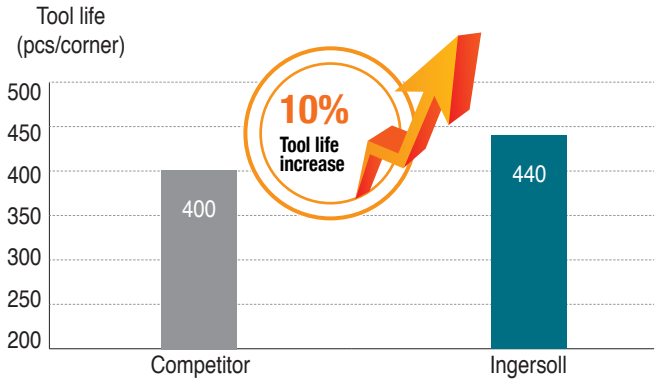
Case Study 2

		Competitor	Ingersoll
Component		Ring	
Workpiece material		SUS 316 (1.4436)	
Operation		External continuous	
Insert		CNMG 431	CNMG 431 ML TT8080
Cutting speed	V (sfm)	820	820
Feed rate	f (ipr)	.008	.008
Depth of cut	ap (inch)	.020	.020
Coolant		wet	wet
Tool life (pcs/corner)		300	400



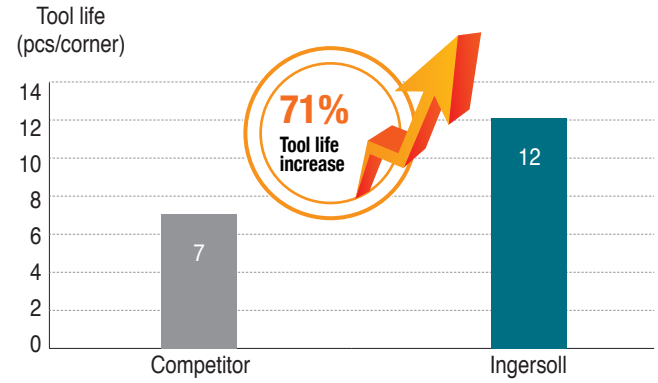
Case Study 3

		Competitor	Ingersoll
Component		Pipe fitting (Hexa)	
Workpiece material		SUS 316 (1.4436)	
Operation		External interrupted	
Insert		CNMG 432	CNMG 432 EM TT8080
Cutting speed	V (sfm)	300	300
Feed rate	f (ipr)	.010	.010
Depth of cut	ap (inch)	.080	.080
Coolant		wet	wet
Tool life (pcs/corner)		400	440



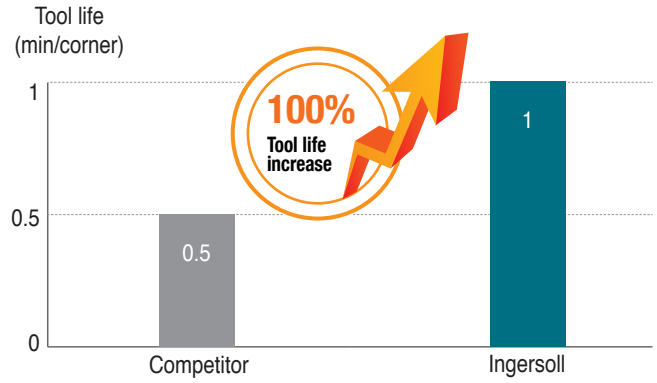
Case Study 4

		Competitor	Ingersoll
Component		Pipe fitting (2 inch hexa)	
Workpiece material		SUS 316 (1.4436)	
Operation		External interrupted	
Insert		CNMG 432	CNMG 432 ML TT8080
Cutting speed	V (sfm)	310	310
Feed rate	f (ipr)	.006	.006
Depth of cut	ap (inch)	.040-.160	.040-.160
Coolant		wet	wet
Tool life (pcs/corner)		7	12



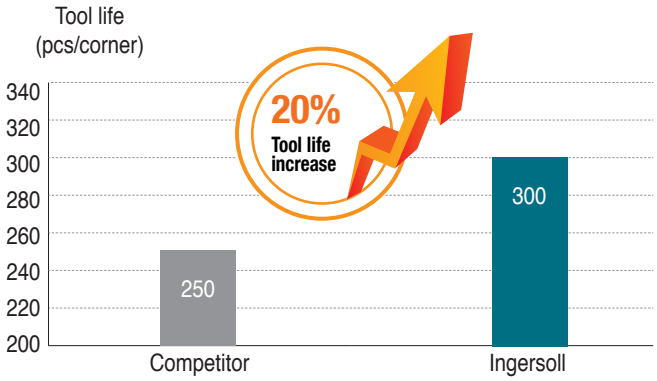
Case Study 5

		Competitor	Ingersoll
Component		Main block	
Workpiece material		Heat resistant alloy (Inconel 625)	
Operation		Internal turning	
Insert		CCMT 32.51 PVD coated	CCMT32.51 FG TT8080
Cutting speed	V (sfm)	100	100
Feed rate	f (ipr)	.002	.002
Depth of Cut	ap (inches)	.016	.016
Coolant		Wet	Wet
Tool life (min/corner)		0.5	1



Case Study 6

		Competitor	Ingersoll
Component		Semi-conductor component	
Workpiece material		Stainless steel (SUS 304, 1.4350)	
Operation		Internal turning	
Insert		DCMT 32.51 PVD coated	DCMT 32.51 FG TT8080
Cutting speed	V (sfm)	310	310
Feed rate	f (ipr)	.006	.006
Depth of Cut	ap (inches)	.040	.040
Coolant		Wet	Wet
Tool life (pcs/corner)		250	300



Grade TT8080 Item List

NEGATIVE

ASA Description		ISO Description	
CNMG431EA	TT8080	CNMG120404EA	TT8080
CNMG431EM	TT8080	CNMG120404EM	TT8080
CNMG431ML	TT8080	CNMG120404ML	TT8080
CNMG431MP	TT8080	CNMG120404MP	TT8080
CNMG432EM	TT8080	CNMG120408EM	TT8080
CNMG432ML	TT8080	CNMG120408ML	TT8080
CNMG432MP	TT8080	CNMG120408MP	TT8080
CNMG433ML	TT8080	CNMG120412ML	TT8080
DNMG431EA	TT8080	DNMG150404EA	TT8080
DNMG431ML	TT8080	DNMG150404ML	TT8080
DNMG432EM	TT8080	DNMG150408EM	TT8080
DNMG432ML	TT8080	DNMG150408ML	TT8080
TNMG331EA	TT8080	TNMG160404EA	TT8080
TNMG331ML	TT8080	TNMG160404ML	TT8080
TNMG332EM	TT8080	TNMG160408EM	TT8080
TNMG332ML	TT8080	TNMG160408ML	TT8080
WNMG332EM	TT8080	WNMG060408EM	TT8080
WNMG431EA	TT8080	WNMG080404EA	TT8080
WNMG431EM	TT8080	WNMG080404EM	TT8080
WNMG432EM	TT8080	WNMG080408EM	TT8080
WNMG432ML	TT8080	WNMG080408ML	TT8080

POSITIVE

NEW ASA Description		ISO Description	
CCMT21.51FG	TT8080	CCMT060204FG	TT8080
CCMT21.52FG	TT8080	CCMT060208FG	TT8080
CCMT32.51FG	TT8080	CCMT09T304FG	TT8080
CCMT32.52FG	TT8080	CCMT09T308FG	TT8080
CCMT432FG	TT8080	CCMT120408FG	TT8080
DCMT21.51FG	TT8080	DCMT070204FG	TT8080
DCMT21.52FG	TT8080	DCMT070208FG	TT8080
DCMT32.51FG	TT8080	DCMT11T304FG	TT8080
DCMT32.52FG	TT8080	DCMT11T308FG	TT8080
SCMT32.51FG	TT8080	SCMT09T304FG	TT8080
SCMT32.52FG	TT8080	SCMT09T308FG	TT8080
TCMT731FG	TT8080	TCMT090204FG	TT8080
TCMT732FG	TT8080	TCMT090204FG	TT8080
TCMT21.51FG	TT8080	TCMT110204FG	TT8080
TCMT21.52FG	TT8080	TCMT110208FG	TT8080
TCMT32.51FG	TT8080	TCMT16T304FG	TT8080
TCMT32.52FG	TT8080	TCMT16T308FG	TT8080
VBMT331FG	TT8080	VBMT160404FG	TT8080
VBMT331FG	TT8080	VBMT160408FG	TT8080