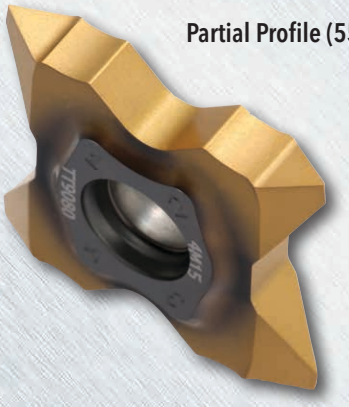
GOLD•FLEX

QUAD GROOVE LINE

Features

- 4 Cutting edge insert
- Available in 60° & 55° partial profiles
- **NEW** full profile threading inserts for ISO and UN threads
- TT9080 GOLD•RUSH coating grade to maximize tool life in all materials
- All GOLD•FLEX threading inserts are compatible with standard cartridges & holders (TQHR/L, TQHPR/L, TQCR/L)

Partial Profile (55° and 60°)



NEW

Full Profile (ISO and UN)

Threading Inserts

Ingersoll's GOLD•FLEX line, known for high accuracy and surface quality in shallow parting and grooving, is now available for external threading applications, including **NEW** full profile inserts.

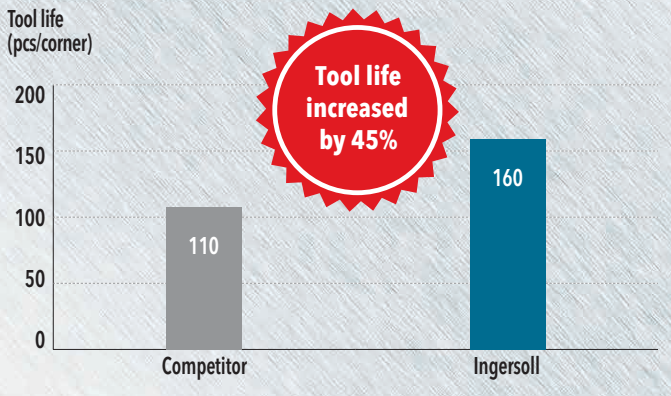
Each GOLD•FLEX insert has 4 cutting edges with the respective thread form, and includes the latest GOLD•RUSH coating – Grade TT9080 – for maximum protection against tool wear and better surface roughness.

With this expansion into threading applications, Ingersoll is providing end-users the highest productivity and economical tools that compliment the existing line of GOLD•FLEX parting and grooving tools.

Member IMC Group
Ingersoll Cutting Tools

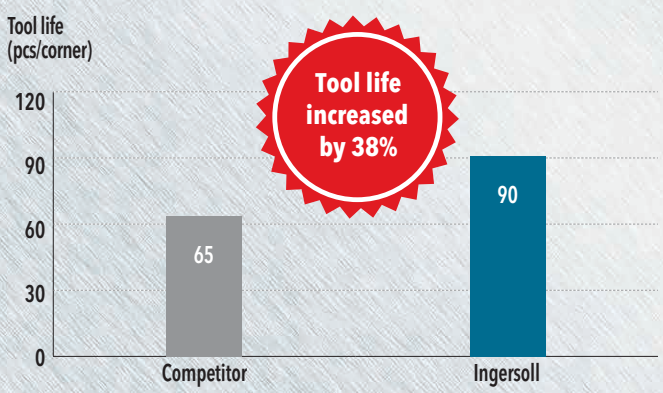
CASE STUDY 1

		Competitor	Ingersoll
Workpiece material		Alloy steel (AISI 4140, SCM440)	
Insert		3 corner lay-down type	TQS 27-1.5-ISO
Grade		PVD coating grade	TT9080
Thread type		M42x1.5, external	M42x1.5, external
Cutting speed	V (sfm)	525	525
Feed rate	F (ipr)	.060	.060
No. of passes		8	8
Coolant		Yes	Yes
Tool life (pcs/corner)		110	160



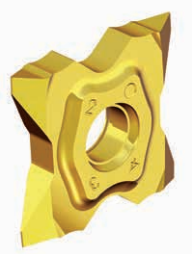
CASE STUDY 2

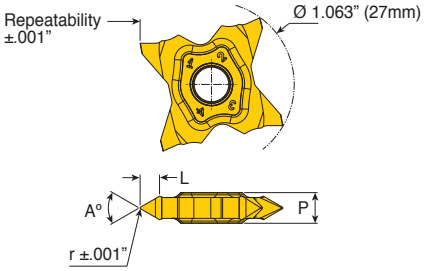
		Competitor	Ingersoll
Workpiece material		Stainless steel (AISI 304, SUS 304)	
Insert		3 corner lay-down type	TQS 27-1.5-ISO
Grade		PVD coating grade	TT9080
Thread type		M16x1.5, external	M16x1.5, external
Cutting speed	V (sfm)	330	330
Feed rate	F (ipr)	.060	.060
No. of passes		10	10
Coolant		Yes	Yes
Tool life (pcs/corner)		65	90



SERIES TQS 27-MT

PARTIAL PROFILE 60°, EXTERNAL THREADING MULTI-CORNER INSERT





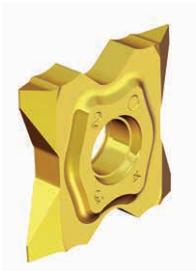
Designation	r	A°	P	L	Pitch (ISO)		TPI		Grade TT9080
					Min	Max	Min	Max	
TQS 27-4MT-0.05	.002" (0.05mm)	60	.157" (4mm)	.110" (2.8mm)	0.45	0.175 x D	5.7 / D	56	•
TQS 27-4MT-0.14	.005" (0.14mm)	60	.157" (4mm)	.106" (2.7mm)	1.11	0.175 x D	5.7 / D	23	•
TQS 27-5MT-0.15	.006" (0.15mm)	60	.197" (5mm)	.122" (3.1mm)	1.25	0.175 x D	5.7 / D	20	•
TQS 27-5MT-0.20	.008" (0.20mm)	60	.197" (5mm)	.122" (3.1mm)	1.63	0.175 x D	5.7 / D	16	•
TQS 27-6MT-0.25	.010" (0.25mm)	60	.236" (6mm)	.142" (3.6mm)	1.94	0.175 x D	5.7 / D	13	•

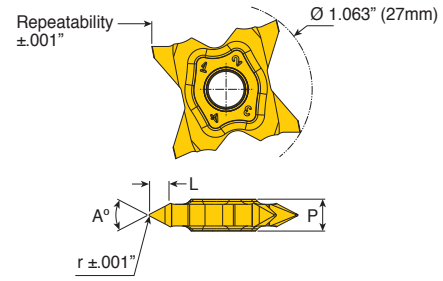
D: Diameter
TPI: Thread / inch

• Standard item

SERIES TQS 27-WT

PARTIAL PROFILE 55°, EXTERNAL THREADING MULTI-CORNER INSERT





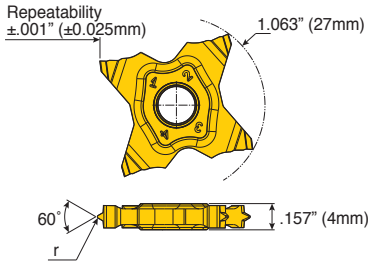
Designation	r	A°	P	L	TPI Min.	TPI Max.	Grade TT9080
TQS 27-4WT-0.05	.002" (0.05mm)	55	.157" (4mm)	.114" (2.9mm)	6.4 / D	54	•
TQS 27-5WT-0.15	.006" (0.15mm)	55	.197" (5mm)	.130" (3.3mm)	6.4 / D	19	•
TQS 27-6WT-0.25	.010" (0.25mm)	55	.236" (6mm)	.154" (3.9mm)	6.4 / D	12	•

D: Diameter
TPI: Thread / inch

• Standard item

SERIES TQS 27-ISO

ISO METRIC FULL PROFILE, EXTERNAL THREADING MULTI-CORNER INSERT

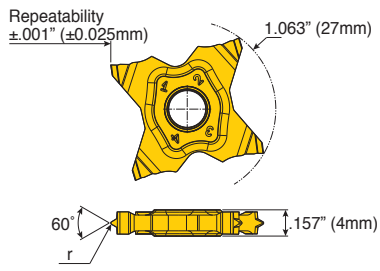


Designation	r inch(mm)	Pitch (mm)	Grade TT9080
TQS 27-0.5-ISO	.003 (0.08)	0.50	•
TQS 27-0.75-ISO	.004 (0.11)	0.75	•
TQS 27-0.8-ISO	.005 (0.12)	0.80	•
TQS 27-1.0-ISO	.006 (0.14)	1.00	•
TQS 27-1.25-ISO	.007 (0.18)	1.25	•
TQS 27-1.5-ISO	.009 (0.22)	1.50	•
TQS 27-1.75-ISO	.010 (0.25)	1.75	•
TQS 27-2.0-ISO	.011 (0.28)	2.00	•

• Standard item

SERIES TQS 27-UN

AMERICAN UN (UNC, UNF, UNEF) FULL PROFILE, EXTERNAL THREADING MULTI-CORNER INSERT



Designation	r inch(mm)	TPI	Grade TT9080
TQS 27-24-UN	.005 (0.13)	24	•
TQS 27-20-UN	.006 (0.16)	20	•
TQS 27-18-UN	.007 (0.18)	18	•
TQS 27-16-UN	.008 (0.21)	16	•
TQS 27-14-UN	.009 (0.23)	14	•
TQS 27-12-UN	.011 (0.27)	12	•

• Standard item

RECOMMENDED CUTTING CONDITIONS

ISO	Material		Condition	Tensile Strength (N/mm²)	Hardness (HB)	Material No.	Cutting Speed Vc m/min (SFM)
							TT9080
P	Non-alloy steel & cast steel, free cutting steel	0.1 - 0.25 %C	Annealed	420	125	1	110 - 200 (360 - 650)
		0.25 - 0.25 %C	Annealed	650	190	2	100 - 180 (330 - 590)
		0.25 - 0.25 %C	Quenched & Tempered	850	250	3	70 - 160 (230 - 530)
		0.55 - 0.80 %C	Annealed	750	220	4	80 - 180 (260 - 590)
		0.55 - 0.80 %C	Quenched & Tempered	1000	300	5	60 - 140 (200 - 460)
	Low alloy steel & cast steek (less than 5% alloying elements)		Annealed	600	200	6	80 - 180 (260 - 590)
			Quenched & Tempered	930	275	7	70 - 140 (230 - 460)
				1000	300	8	60 - 110 (200 - 360)
				1200	350	9	40 - 100 (130 - 330)
	High alloy steel, cast steel, & tool steel		Annealed	680	200	10	50 - 110 (160 - 360)
			Quenched & Tempered	1100	325	11	40 - 100 (130 - 330)
M	Stainless steel & cast steel		Ferritic/martensitic	680	200	12	60 - 140 (200 - 460)
			Martensitic	820	240	13	50 - 120 (160 - 390)
			Austenitic	600	180	14	70 - 140 (230 - 460)
K	Grey Cast Iron (GG)		Ferritic		160	15	80 - 180 (260 - 590)
			Pearlitic		250	16	70 - 140 (230 - 460)
	Cast Iron Nodular (GGG)		Ferritic		180	17	150 - 240 (490 - 790)
			Pearlitic		260	18	100 - 180 (330 - 590)
	Malleable Cast Iron		Ferritic		130	19	100 - 200 (330 - 650)
			Pearlitic		230	20	80 - 260 (260 - 560)
N	Aluminum - wrought alloy		Not cureable		60	21	
			Cured		100	22	
	Aluminum - cast, alloyed	<=12%	Not cureable		75	23	
			Cured		90	24	
		>12% Si	High temperature		130	25	
	Copper alloys	>1% Pb	Free cutting		110	26	
			Brass		90	27	
			Electrolitic copper		100	28	
	Non-metallic		Duro & fiber plastics			29	
			Hard rubber			30	
S	High Temp Alloys	Fe based	Annealed		200	31	30 - 60 (100 - 200)
			Cured		280	32	25 - 40 (80 - 130)
		Ni or Co based	Annealed		250	33	25 - 35 (80 - 115)
			Cured		350	34	15 - 25 (50 - 80)
			Cast		320	35	15 - 30 (50 - 100)
	Titanium, Ti alloys			Rm 400		36	70 - 150 (230 - 490)
			Alpha+beta alloys cured	Rm 1050		37	25 - 50 (80 - 16)
H	Hardened steel		Hardened		55 HRC	38	
			Hardened		60 HRC	39	
	Chilled cast iron		Cast		400	40	
	Cast iron nodular		Hardened		55 HRC	41	

NUMBER OF CUTTING PASSES

Pitch (mm)	0.5	1.0	1.5	2.0	2.5	3.0	4.0	6.0
TPI	48	24	16	12	10	8	6	4
Number of passes	4-6	5-9	5-12	6-14	7-15	8-17	10-20	11-22