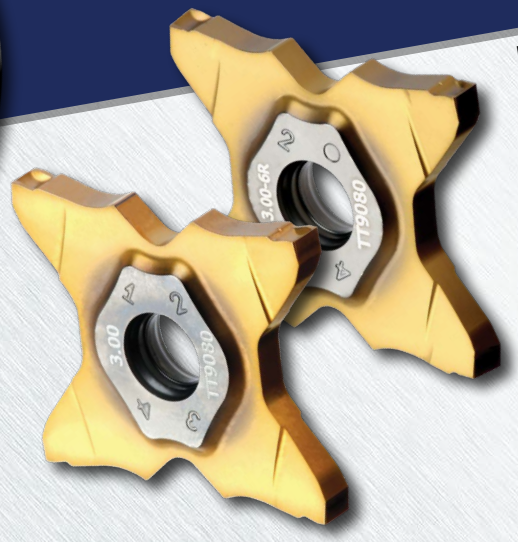
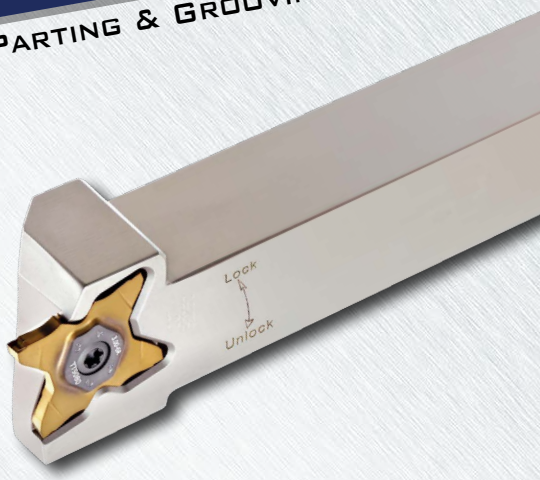
INDUSTRY 4.0

NEW PRODUCT ANNOUNCEMENT 2020

GOLD•FLEX

PARTING & GROOVING PRODUCTS





A new, larger, 4-edge GOLD•FLEX insert series is now available for deeper parting & grooving

GoldFlex 34 inserts are specifically suited for deeper parting and grooving applications compared to the smaller size GoldFlex 27 inserts, which were limited to a .250" (6.4mm) cutting depth. The GoldFlex 34 series inserts are capable of up to.393" (10mm) maximum depth-of-cut, making them more versatile across a wider range of work pieces.

These new inserts feature a stable fastening design and a strong insert geometry suitable for a wide variety of materials and cutting conditions. The C-type chip breaker provides excellent machining & surface roughness and generates a perfectly flat bottom groove. It's frontal land also permits higher feed rates to be applied without risk of damage to the cutting edge, reducing cycle time and improving overall efficiency.

Precise ground inserts are available in a range of widths from .059" - .157" (1.5mm-4.0mm). These inserts are produced from an ultra-fine base substrate and contain a multi-nano PVD coating for excellent tool life at high cutting speeds.

Holders are available in a variety of inch and metric sizes, and feature the T-Burst, internal coolant technology that delivers high-pressure internal coolant up to 4900 psi (340 bar) directly to the cutting edge, which promotes longer tool life and excellent chip control.

Features

- Deep grooving and parting up to 10mm
- Capable of parting or cutting off up to 20mm diameter solid bars
- Inserts width range: 1.5-4.0mm
- Four cutting corners for improved economy
- Unique chip breaker shape for excellent chip control
- Chip breaker's straight design enables flat bottom face machining
- Excellent chip evacuation specifically in medium to high feed applications

INSERTS

Widths (Square End)
.059" – .157"
(1.5mm – 4.0mm)

Widths (Full Radius)
.094", 2mm, 3mm

Depths
Up to .393" (10mm)

Lead Angles
6, 8, 15 degrees

Grade
TT9080 – PVD Gen Purpose

HOLDERS

Inch
(.750", 1.000")

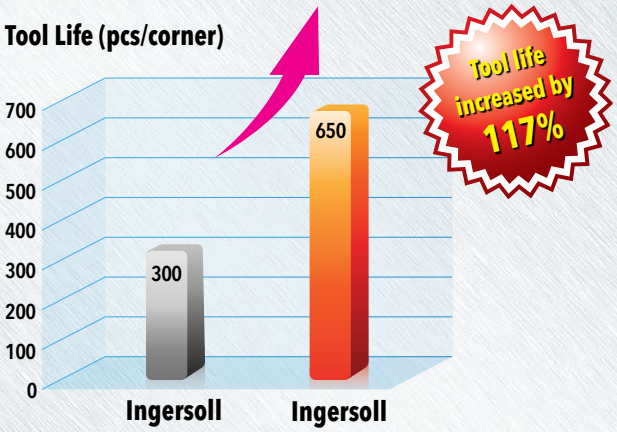
Metric
(16mm, 20mm, 25mm, 32mm)

Optional Coolant Thru: (T-Burst)

Member IMC Group Ingersoll Cutting Tools

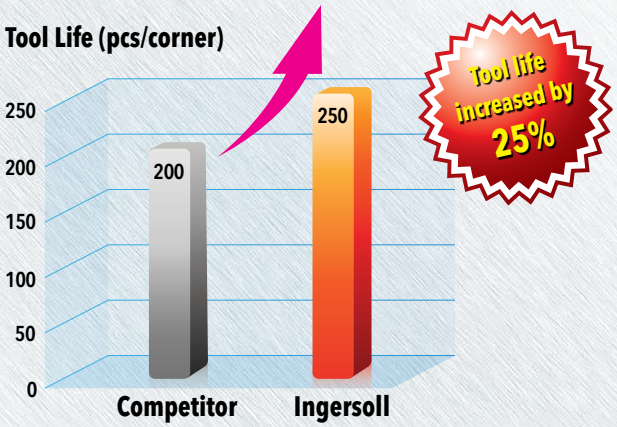
CASE STUDY 1

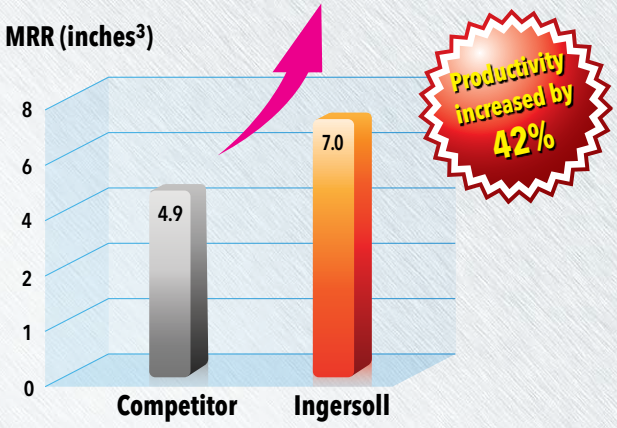
	Ingersoll	Ingersoll
Component	Sleeve	
Workpiece material	AISI 1035 / 1.0501 / S35C	
Operation	Parting	
Insert	TDXU 3E-0.3 TT9080	TQC 34-3.00-0.20 TT9080
Cutting speed V (sfm)	260	260
Feed rate f (ipr)	.002"	.002"
Depth of cut ap (inches)	.256"	.256"
Coolant	Wet	Wet
Tool life (pcs/corner)	300	650



CASE STUDY 2

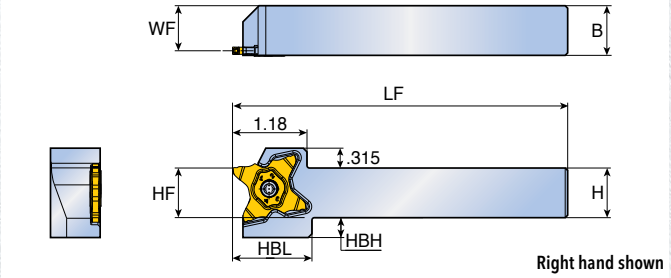
	Competitor	Ingersoll
Component	Gear	
Workpiece material	AISI 4130 / 1.7218 / SCM 420	
Operation	Grooving	
Insert	2 corner grooving PVD coated insert	TQC 34-3.00-0.20 TT9080
Cutting speed V (sfm)	360	425
Feed rate f (ipr)	.004"	.005"
Depth of cut ap (inches)	.287"	.287"
Coolant	Wet	Wet
Tool life (pcs/corner)	200	250
MRR (inches^3)	4.9	7.0





GOLD FLEX SERIES TQHR/L-34

INTEGRAL SHANK TOOLHOLDERS



Right hand shown

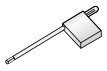
Inch

Part Number	Dimension (inch)						Insert
	H/HF (Shank Height)	B (Shank Width)	WF (Functional Width)	LF (Functional Length)	HBL (Head Bottom Offset Length)	HBH (Head Bottom Offset Height)	
TQHR/L 19-34	.750	.750	.677	5.00	1.181	.315	TQC 34
TQHR/L 25.4-34	1.000	1.000	.927	5.50	1.181	.118	TQC 34

Metric

Part Number	Dimension (inch)						Insert
	H/HF (Shank Height)	B (Shank Width)	WF (Functional Width)	LF (Functional Length)	HBL (Head Bottom Offset Length)	HBH (Head Bottom Offset Height)	
TQHR/L 16-34	16	16	14.2	135	32	12	TQC 34
TQHR/L 20-34	20	20	18.2	135	32	8	TQC 34
TQHR/L 25-34	25	25	23.2	135	32	3	TQC 34
TQHR/L 32-34	32	32	30.2	135	-	-	TQC 34

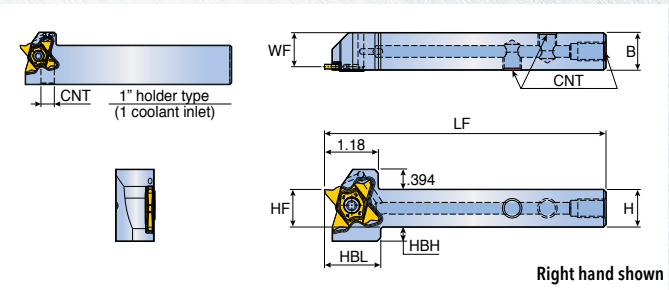
Spare Parts

Part Number	Screw	Wrench
		
TQHR/L-34	TS 50125I (1) TS 50125IL (2)	T 10/20

* (1) for left hand holder, (2) for right hand holder

GOLD FLEX SERIES TQHR/L-34-TB

GROOVING AND TURNING WITH CHANNELS FOR HIGH PRESSURE COOLANT



Right hand shown

Inch

Part Number	Dimension (inch)						CNT (Coolant Entry Thread Size)	Insert
	H/HF (Shank Height)	B (Shank Width)	WF (Functional Width)	LF (Functional Length)	HBL (Head Bottom Offset Length)	HBH (Head Bottom Offset Height)		
TQHR/L 19-34-TB	.750	.750	.677	5.00	1.181	.315	1/8-27 NPTF	TQC 34
TQHR/L 25.4-34-TB	1.000	1.000	.927	5.50	1.181	.118	1/8-27 NPTF	TQC 34

Metric

Part Number	Dimension (mm)						CNT	Insert
	H/HF (Shank Height)	B (Shank Width)	WF (Functional Width)	LF (Functional Length)	HBL (Head Bottom Offset Length)	HBH (Head Bottom Offset Height)		
TQHR/L 16-34-TB	16	16	14.2	135	32	12	5/16-24 UNF	TQC 34
TQHR/L 20-34-TB	20	20	18.2	135	32	8	G 1/8	TQC 34
TQHR/L 25-34-TB	25	25	23.2	135	32	3	G 1/8	TQC 34

Spare Parts

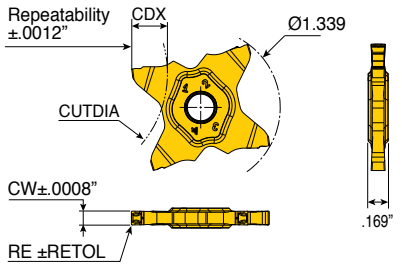
Part Number	Screw	Wrench	Plug	Wrench for plug
TQHR/L 16-34-TB	TS 50125I (1) TS 50125IL (2)	T 10/20	5/16-24 UNF	L-W 5/32
TQHR/L 19-34-TB		T 10/20	NPTF 1/8-TQ19	L-W 3/16
TQHR/L 20-34-TB		T 10/20	PLG G1/8-L6.5	L-W 5
TQHR/L 25-34-TB		T 10/20	PLG G1/8-L6.5	L-W 5
TQHR/L 25.4-34-TB		T 10/20	NPTF 1/8-TQ19	L-W 3/16

* (1) for left hand holder, (2) for right hand holder

GOLD•FLEX SERIES TQC 34

PARTING & GROOVING INSERT

Parting Grooving



RE	RETOL
RE ≤ .004	.0008
.004 < RE ≤ .016	.0012
RE > .016	.0020

Part Number	fn Cutting Feed (ipr)		CW (Cutting Width)	RE (Corner Radius)	CDX (Cutting Depth Max)	CUTDIA (Cutting Dia.)							Grade
	Min	Max				CDX<=.157	CDX<=.197	CDX<=.236	CDX<=.276	CDX<=.315	CDX<=.354	CDX<=.393	TT9080
TQC34-1.50-0.15	0.002	0.005	0.059	0.006	0.354	N.L.	15.75	7.48	4.92	3.54	1.57	–	•
TQC34-2.00-0.20	0.002	0.007	0.079	0.008	0.354	N.L.	15.75	7.48	4.92	3.54	1.57	–	•
TQC34-2.30-0.20	0.002	0.007	0.091	0.008	0.354	N.L.	15.75	7.48	4.92	3.54	1.77	–	•
TQC34-2.47-0.20	0.002	0.007	0.097	0.008	0.393	N.L.	15.75	7.48	4.92	3.54	1.77	0.79	•
TQC34-2.50-0.20	0.002	0.008	0.098	0.008	0.393	N.L.	15.75	7.48	4.92	3.54	1.77	0.79	•
TQC34-2.70-0.10	0.002	0.008	0.106	0.004	0.393	N.L.	15.75	7.48	4.92	3.54	1.77	0.79	•
TQC34-3.00-0.20	0.002	0.010	0.118	0.008	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•
TQC34-3.00-0.40	0.002	0.010	0.118	0.016	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•
TQC34-3.18-0.20	0.002	0.010	0.125	0.008	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•
TQC34-3.50-0.25	0.003	0.012	0.138	0.010	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•
TQC34-4.00-0.30	0.003	0.012	0.157	0.012	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•

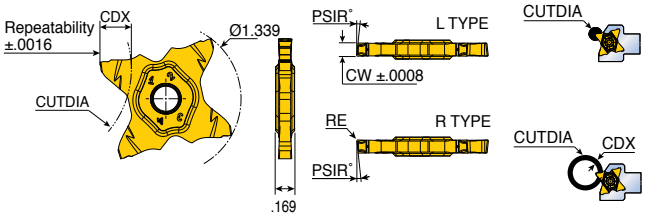
NL = No Limit

•: Standard items

GOLD FLEX SERIES TQC 34

PARTING INSERT

Parting



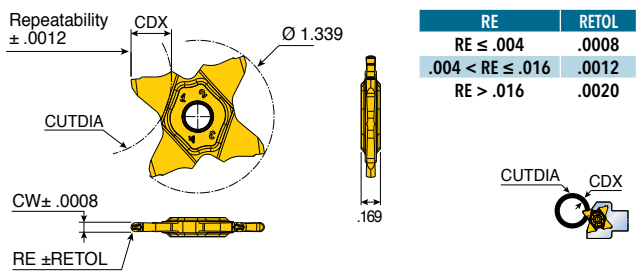
Part Number	fn Cutting Feed (ipr)		CW (Cutting Width)	RE (Corner Radius)	PSIR (Cutting Edge Angle)	Parting to Center	Parting Hollow Bars		Grade
	Min	Max				CUTDIA (Cutting Dia)	CDX (Cutting Depth Max)	CUTDIA (Cutting Dia)	TT9080
TQC34-1.50-8R/L	0.001	0.004	0.059	0.003	8	0.728	0.354	1.57	•
TQC34-2.00-6R/L	0.001	0.006	0.079	0.004	6	0.728	0.354	1.57	•
TQC34-2.00-15R/L	0.001	0.006	0.079	0.004	15	0.728	0.354	1.57	•
TQC34-3.00-6R/L	0.001	0.007	0.118	0.008	6	0.787	0.393	0.787	•

•: Standard items

GOLD FLEX SERIES TQC 34

FULL RADIUS INSERT

Grooving Turning



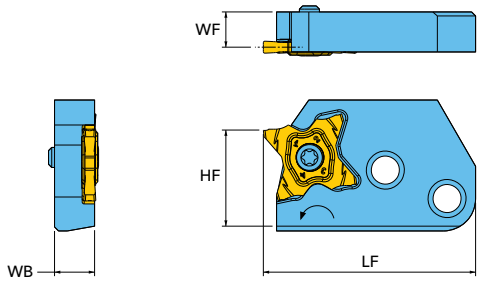
RE	RETOL
RE ≤ .004	.0008
.004 < RE ≤ .016	.0012
RE > .016	.0020

Part Number	fn Cutting Feed (ipr)		CW (Cutting Width)	RE (Corner Radius)	CDX (Cutting Depth Max)	CUTDIA (Cutting Dia)							Grade
	Min	Max				CDX<=.157	CDX<=.197	CDX<=.236	CDX<=.276	CDX<=.315	CDX<=.354	CDX<=.393	TT9080
TQC34-2.00-1.00	0.002	0.004	0.079	0.039	0.354	N.L.	15.75	7.48	4.92	3.54	1.57	–	•
TQC34-2.39-1.20	0.002	0.004	0.094	0.047	0.393	N.L.	15.75	7.48	4.92	3.54	1.77	0.79	•
TQC34-3.00-1.50	0.002	0.005	0.118	0.059	0.393	N.L.	15.75	7.48	4.92	3.54	1.97	0.79	•

NL = No Limit

•: Standard items

GOLD FLEX TQCR/L ADAPTER FOR PARTING AND GROOVING



Part Number	WF (Functional Width)	LF (Functional Length)	HF (Functional Height)	WB (Body Width)	Screw	Torx Wrench	Insert	Holder
TQCR 34	.346	2.09	.992	.394	SM50-125L60	T-2010/5	TQ□34	TCHR/L TCHPR/L C□-TCHN C□-TCHPN
TQCL 34					SM50-125-60			

GOLD-FLEX RECOMMENDED CUTTING CONDITIONS

ISO	Material		Condition	Tensile Strength (N/mm²)	Hardness (HB)	Material No.	Cutting Speed Vc (SFM)
							TT9080
P	Non-alloy steel & cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	360 - 650
		>=0.25%C	Annealed	650	190	2	330 - 590
		<0.55%C	Quenched & Tempered	850	250	3	230 - 525
		>=0.25%C	Annealed	750	220	4	260 - 590
			Quenched & Tempered	1000	300	5	200 - 460
	Low alloy steel & cast steel (less than 5% alloying elements)		Annealed	600	200	6	260 - 590
			Quenched & Tempered	930	275	7	230 - 460
				1000	300	8	200 - 360
				1200	350	9	130 - 330
	High alloy steel, cast steel, & tool steel		Annealed	680	200	10	165 - 360
			Quenched & Tempered	1100	325	11	130 - 330
M	Stainless steel & cast steel		Ferritic/martensitic	680	200	12	200 - 460
			Martensitic	820	240	13	395 - 590
			Austenitic	600	180	14	230 - 460
K	Grey Cast Iron (GG)		Ferritic		160	15	395 - 595
			Pearlitic		250	16	230 - 460
	Cast Iron Nodular (GGG)		Ferritic		180	17	230 - 425
			Pearlitic		260	18	200 - 375
	Malleable Cast Iron		Ferritic		130	19	200 - 230
			Pearlitic		230	20	260 - 560
N	Aluminum - wrought alloy		Not cureable		60	21	330 - 1200
			Cured		100	22	260 - 720
	Aluminum - cast, alloyed	<=12% Si	Not cureable		75	23	650 - 1310
			Cured		90	24	650 - 920
		>12% Si	High temperature		130	25	650 - 920
	Copper alloys	>1% Pb	Free cutting		110	26	260 - 835
			Brass		90	27	260 - 835
			Electrolitic copper		100	28	260 - 835
	Non-metallic		Duro plastics fiber plastics			29	260 - 820
			Hard rubber			30	260 - 820
S	High Temp Alloys	Fe based	Annealed		200	31	100 - 200
			Cured		280	32	80 - 130
		Ni or Co based	Annealed		250	33	80 - 115
			Cured		350	34	50 - 80
			Cast		320	35	50 - 100
	Titanium, Ti alloys			Rm 400		36	230 - 490
			Alpha+beta alloys cured	Rm 1050		37	80 - 165
H	Hardened steel		Hardened		55 HRC	38	145 - 200
			Hardened		60 HRC	39	145 - 200
	Chilled cast iron		Cast		400	40	145 - 200
	Cast iron nodular		Hardened		55 HRC	41	145 - 200