

featuring...  
**INCH/METRIC  
PRODUCTS!**

**NEW**

**Micro-Quik®**

**QUICK CHANGE TOOLING**



**MICRO 100®**

**super carbide tools**

WILL NOT CHIP OR BREAK UNDER NORMAL MACHINING CONDITIONS!

**800-421-8065**

**208-888-7310**

**FAX: 208-888-2106**

**[www.micro100.com](http://www.micro100.com)**

**CATALOG  
Q101  
QUICK CHANGE**

All "NEW"...QUICK-CHANGE TOOLING SYSTEM from MICRO 100

Unique "2 Point" Locking System engineered for maximum Tool Rigidity and Centerline Repeatability within  $\pm .0005/\pm .001$ mm... from tool to tool!

Reduce machine setup, downtime, and tooling costs while boosting productivity.

Machine aluminum, copper brass, steels, stainless steels, high temperature alloys, thermoplastics, exotic metals, and composites.



Bore, Groove, Face Groove, Profile, and Thread from... one Tool Station!

**QMBB**

Miniature Boring Tools

Min. Bore Ranges:

.015"(0.38mm) - .045"(1.14mm)

page 4



**QRR**

Retaining Ring Grooving Tools

Min. Groove Width Ranges:

.017"(0.43mm) - .250"(6.35mm)

pages 8-9



**QBB**

Boring Tools

Min. Bore Ranges:

.050"(1.27mm) - .490"(12.45mm)

pages 4-5



**QMFR**

Miniature Full Radius Grooving Tools

Min. Groove Width Ranges:

.015"(0.38mm) - .020"(0.50mm)

page 10



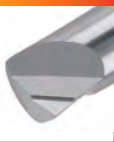
**QBM**

Boring Tools for Boring Heads & Milling Machines

Min. Bore Ranges:

.118"(3.00mm) - .460"(11.68mm)

page 6



**QFR**

Full Radius Grooving Tools

Min. Groove Width Ranges:

.017"(0.43mm) - .250"(6.35mm)

pages 10-11



**QRB**

Reverse Boring Tools

Min. Bore Ranges:

.156"(3.96mm) - .490"(12.45mm)

page 6



**QIT**

Internal Threading Tools

Min. Minor Diameter Ranges:

.035"(.089mm) - .460"(11.7mm)

pages 12-13



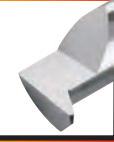
**QPR**

Profiling Tools

Min. Dia. Profiling Ranges:

.070"(1.78)mm - .490"(12.45)mm

page 7



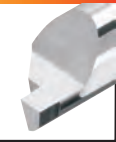
**QFG**

Face Grooving Tools

Min. Groove Width Ranges:

.050"(1.27mm) - .045"(1.14mm)

page 14



**QMRR**

Miniature Retaining Ring Grooving Tools

Min. Groove Width Ranges:

.015"(0.38mm) - .020"(0.50mm)

page 8



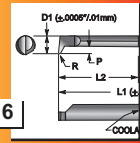
**TECHNICAL DATA**

Recommended Safe Starting Conditions

Speeds and Feeds

Inch and Metric Conversions

pages 15-16



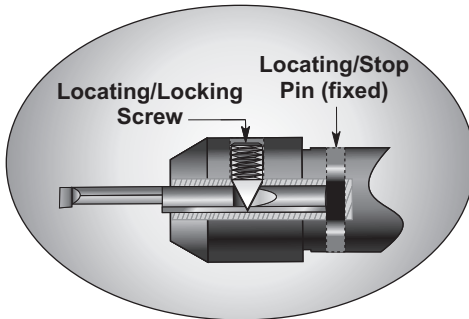
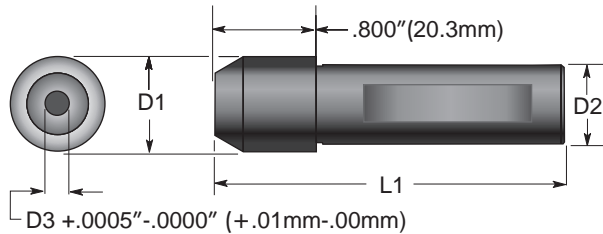
Quality Solutions...  
Through  
Manufacturing Excellence!

**SPECIALS!!!**

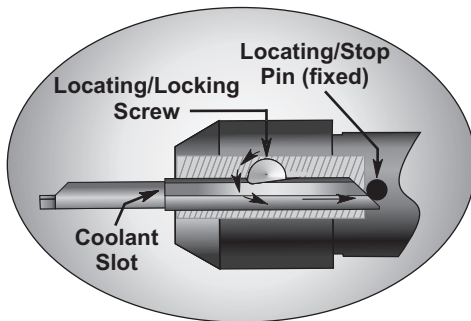
- \* Precision Cutting Tools Engineered and Manufactured to meet Your Specifications for Your Particular Machining Applications needs!
- \* Tools Manufactured with our exclusive MICRO 100 Proprietary Process.
- \* For more details ask your local MICRO 100 Representative about our Specials Program...today!

**Featuring:**

- Unique...“2 Point” Locking/Locating System ensures Tool to Tool change Repeatability of...  $\pm 0.0005"/0.01\text{mm}$  from Centerline.
- 0.0005"/0.01mm T.I.R.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.



Rotation of Locking Screw pushes Tool Downwards and Back, against the Locating Pin for...  
**Rigidity and Centerline Repeatability!**



**1/2" / 12.7mm Shanks**

Toolholder Catalog No.	Shank Dia. (D2)	I.D. Dia. (D3)	Overall Length (L1)	Head Dia. (D1)	Price
	inch/metric	inch/metric	inch/metric	inch/metric	
QTH-85	.500/12.7	.1875/4.76	2.75/70	.750/19.1	\$ 85.00
QTH-86	.500/12.7	.2500/6.35	2.75/70	.750/19.1	\$ 85.00

**5/8" / 15.9mm Shanks**

QTH-105	.625/15.9	.1875/4.76	2.75/70	.750/19.1	\$ 85.00
QTH-106	.625/15.9	.2500/6.35	2.75/70	.750/19.1	\$ 85.00
QTH-107	.625/15.9	.3125/7.94	2.75/70	.875/22.2	\$ 85.00
QTH-108	.625/15.9	.3750/9.53	2.75/70	1.00/25.4	\$ 85.00

**3/4" / 19.1mm Shanks**

QTH-205	.750/19.1	.1875/4.76	2.75/70	.875/22.2	\$ 85.00
QTH-206	.750/19.1	.2500/6.35	2.75/70	.875/22.2	\$ 85.00
QTH-207	.750/19.1	.3125/7.94	2.75/70	.875/22.2	\$ 85.00
QTH-208	.750/19.1	.3750/9.53	2.75/70	1.00/25.4	\$ 85.00
QTH-210	.750/19.1	.500/12.70	2.75/70	1.06/27.0	\$ 85.00

**1" / 25.4mm Shanks**

QTH-405	1.00/25.4	.1875/4.76	2.75/70	1.06/27.0	\$ 85.00
QTH-406	1.00/25.4	.2500/6.35	2.75/70	1.06/27.0	\$ 85.00
QTH-407	1.00/25.4	.3125/7.94	2.75/70	1.06/27.0	\$ 85.00
QTH-408	1.00/25.4	.3750/9.53	2.75/70	1.06/27.0	\$ 85.00
QTH-410	1.00/25.4	.500/12.70	2.75/70	1.06/27.0	\$ 85.00

**12mm Shanks**

QTHM-312	12/.470	4.76/.1875	70/2.75	19.1/.750	\$ 85.00
QTHM-412	12/.470	6.35/.2500	70/2.75	19.1/.750	\$ 85.00

**16mm Shanks**

QTHM-316	16/.630	4.76/.1875	70/2.75	19.1/.750	\$ 85.00
QTHM-416	16/.630	6.35/.2500	70/2.75	19.1/.750	\$ 85.00
QTHM-516	16/.630	7.94/.3125	70/2.75	22.2/.875	\$ 85.00
QTHM-616	16/.630	9.53/.3750	70/2.75	25.4/1.00	\$ 85.00

**17mm Shanks (Suitable for Wohlhaupter Boring Heads)**

QTHM-417	17/.670	6.35/.2500	70/2.75	19.1/.750	\$ 85.00
QTHM-617	17/.670	9.53/.3750	70/2.75	25.4/1.00	\$ 85.00

**20mm Shanks**

QTHM-320	20/.790	4.76/.1875	70/2.75	22.2/.875	\$ 85.00
QTHM-420	20/.790	6.35/.2500	70/2.75	22.2/.875	\$ 85.00
QTHM-520	20/.790	7.94/.3125	70/2.75	22.2/.875	\$ 85.00
QTHM-620	20/.790	9.53/.3750	70/2.75	25.4/1.00	\$ 85.00
QTHM-820	20/.790	12.7/.5000	70/2.75	27.0/1.06	\$ 85.00

**22mm Shanks**

QTHM-322	22/.870	4.76/.1875	70/2.75	25.4/1.00	\$ 85.00
QTHM-422	22/.870	6.35/.2500	70/2.75	25.4/1.00	\$ 85.00
QTHM-522	22/.870	7.94/.3125	70/2.75	25.4/1.00	\$ 85.00
QTHM-622	22/.870	9.53/.3750	70/2.75	25.4/1.00	\$ 85.00
QTHM-822	22/.870	12.7/.5000	70/2.75	27.0/1.06	\$ 85.00

**Locating/Locking Screws**

QC-1	Quick Change Set Screw (1)	\$ 3.50
QC-10	Quick Change Set Screw (pkg. of 10)	\$ 25.00

**"QUICK-CHANGE" Boring Tooling System Featuring:**

- Uncoated/Coated (AlTiN) Tools.
- Min. Bore Ranges: .015" (0.38mm) - .490" (12.5mm).
- Max. Bore Depth Ranges: .050" (1.27mm) - 3.500" (76.2mm).
- Shank Sizes: 3/16" (4.8mm), 1/4" (6.4mm), 5/16" (7.9mm), 3/8" (9.5mm), & 1/2" (12.7mm).
- Elliptical Necks for Maximum Rigidity.
- Radii: Sharp Cornered, .003" (0.08mm) - .005" (0.13mm).

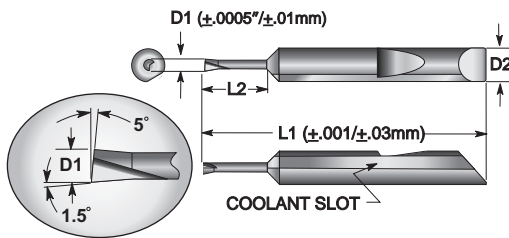


**QMBB Miniature Boring Tools Tolerances:**  
 Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050" (+1.27mm)

**QBB Boring Tools Tolerances:**  
 Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050" (+1.27mm)

**Miniature Boring Tools**

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QMBB-020075X

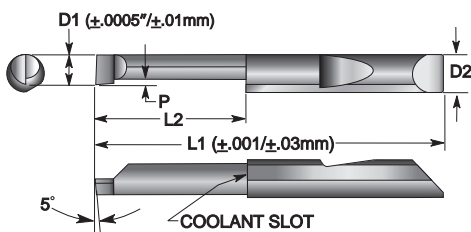
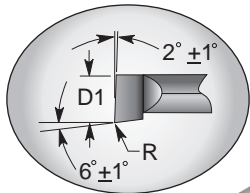


**3/16" / 4.8mm Shanks**

Miniature Boring Tool Catalog No.	Min. Bore Dia. (D1)	Max. Bore Depth (L2)	Projection (P)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QMBB-015050	.015/0.38	.050/1.3	.005/0.1	.1875/4.8	1.500/38	\$ 30.85	\$ 35.15
QMBB-020075	.020/0.51	.075/1.9	.005/0.1	.1875/4.8	1.500/38	\$ 30.85	\$ 35.15
QMBB-025100	.025/0.64	.100/2.5	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-030100	.030/0.76	.100/2.5	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-035100	.035/0.89	.100/2.5	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-035150	.035/0.89	.150/3.8	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-040150	.040/1.02	.150/3.8	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-040200	.040/1.02	.200/5.1	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-045150	.045/1.14	.150/3.8	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45
QMBB-045200	.045/1.14	.200/5.1	.005/0.1	.1875/4.8	1.500/38	\$ 27.15	\$ 31.45

**Boring Tools**

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QBB-060300X



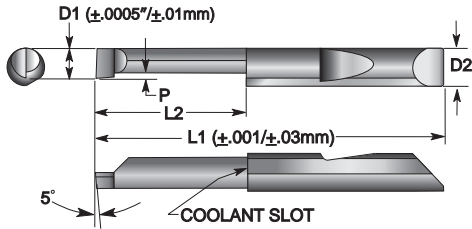
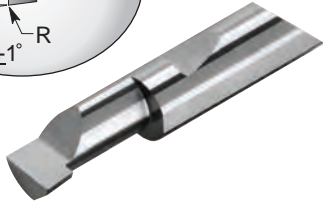
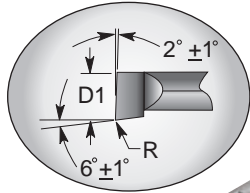
Right Hand, Boring Tool shown,  
 Left Hand available on request.

**3/16" / 4.8mm Shanks**

Boring Tool Catalog No.	Min. Bore Dia. (D1)	Max. Bore Depth (L2)	Projection (P)	Nose Radius (R)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QBB-050150	.050/1.27	.150/3.8	.013/0.33	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-050200	.050/1.27	.200/5.1	.013/0.33	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-050300	.050/1.27	.300/7.6	.013/0.33	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-050400	.050/1.27	.400/10.2	.013/0.33	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-060150	.060/1.52	.150/3.8	.015/0.38	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-060200	.060/1.52	.200/5.1	.015/0.38	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-060300	.060/1.52	.300/7.6	.015/0.38	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-060400	.060/1.52	.400/10.2	.015/0.38	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-060500	.060/1.52	.500/12.7	.015/0.38	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-080200	.080/2.03	.200/5.1	.020/0.51	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-080300	.080/2.03	.300/7.6	.020/0.51	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-080500	.080/2.03	.500/12.7	.020/0.51	0/0	.1875/4.8	1.5/38	\$ 21.25	\$ 24.20
QBB-080600	.080/2.03	.600/15.2	.020/0.51	0/0	.1875/4.8	2.0/51	\$ 21.25	\$ 24.20
QBB-100200	.100/2.54	.200/5.1	.025/0.64	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-100300	.100/2.54	.300/7.6	.025/0.64	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-100500	.100/2.54	.500/12.7	.025/0.64	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-100700	.100/2.54	.700/17.8	.025/0.64	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-110300	.110/2.79	.300/7.6	.028/0.71	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-110500	.110/2.79	.500/12.7	.028/0.71	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-110700	.110/2.79	.700/17.8	.028/0.71	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-120250	.120/3.05	.250/6.4	.030/0.76	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-120350	.120/3.05	.350/8.9	.030/0.76	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-120500	.120/3.05	.500/12.7	.030/0.76	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-120700	.120/3.05	.700/17.8	.030/0.76	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-120800	.120/3.05	.800/20.3	.030/0.76	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-140400	.140/3.56	.400/10.2	.035/0.89	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.25
QBB-140600	.140/3.56	.600/15.2	.035/0.89	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-140800	.140/3.56	.800/20.3	.035/0.89	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-160400	.160/4.06	.400/10.2	.040/1.02	.003/0.08	.1875/4.8	1.5/38	\$ 22.45	\$ 25.45
QBB-160600	.160/4.06	.600/15.2	.040/1.02	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-160750	.160/4.06	.750/19.1	.040/1.02	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45
QBB-1601000	.160/4.06	1.00/25.4	.040/1.02	.003/0.08	.1875/4.8	2.0/51	\$ 22.45	\$ 25.45

**Boring Tools**

AITiN Coated Tools available...  
Add an "X" to the end of the Catalog No.  
example: QBB-060300X



Right Hand, Boring Tool shown,  
Left Hand available on request.

**QBB Boring Tools Tolerances:**  
Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
Minimum Bore Diameter: ±.0005"(±.01mm)  
Maximum Bore Depth: +.050"(+1.27mm)

**1/4" / 6.4mm Shanks**

Boring Bar Catalog No.	Min. Bore Dia. (D1)	Max. Bore Depth (L2)	Projection (P)	Nose Radius (R)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QBB-180500	.180/4.57	.500/12.7	.045/1.14	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBB-180750	.180/4.57	.750/19.1	.045/1.14	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBB-1801000	.180/4.57	1.00/25.4	.045/1.14	.005/0.13	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBB-1801250	.180/4.57	1.25/31.8	.045/1.14	.005/0.13	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBB-1801500	.180/4.57	1.50/38.1	.045/1.14	.005/0.13	.2500/6.4	3.0/76	\$ 28.50	\$ 32.80
QBB-200500	.200/5.08	.500/12.7	.050/1.27	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBB-200750	.200/5.08	.750/19.1	.050/1.27	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBB-2001000	.200/5.08	1.00/25.4	.050/1.27	.005/0.13	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBB-2001250	.200/5.08	1.20/30.5	.050/1.27	.005/0.13	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBB-2001500	.200/5.08	1.50/38.1	.050/1.27	.005/0.13	.2500/6.4	3.0/76	\$ 28.50	\$ 32.80

**5/16" / 7.9mm Shanks**

QBB-230500	.230/5.84	.500/12.7	.058/1.47	.005/0.13	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QBB-230750	.230/5.84	.750/17.8	.058/1.47	.005/0.13	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QBB-2301000	.230/5.84	1.00/25.4	.058/1.47	.005/0.13	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QBB-2301250	.230/5.84	1.25/31.8	.058/1.47	.005/0.13	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QBB-2301500	.230/5.84	1.50/38.1	.058/1.47	.005/0.13	.3125/7.9	3.0/76	\$ 38.50	\$ 44.85
QBB-2301600	.230/5.84	1.60/40.7	.058/1.47	.005/0.13	.3125/7.9	3.0/76	\$ 38.50	\$ 44.85
QBB-290500	.290/7.37	.500/12.7	.073/1.85	.005/0.13	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QBB-290750	.290/7.37	.750/19.1	.073/1.85	.005/0.13	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QBB-2901000	.290/7.37	1.00/25.4	.073/1.85	.005/0.13	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QBB-2901250	.290/7.37	1.25/31.8	.073/1.85	.005/0.13	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QBB-2901500	.290/7.37	1.50/38.1	.073/1.85	.005/0.13	.3125/7.9	3.0/76	\$ 38.50	\$ 44.85
QBB-2901750	.290/7.37	1.75/44.5	.073/1.85	.005/0.13	.3125/7.9	3.0/76	\$ 38.50	\$ 44.85

**3/8" / 9.5mm Shanks**

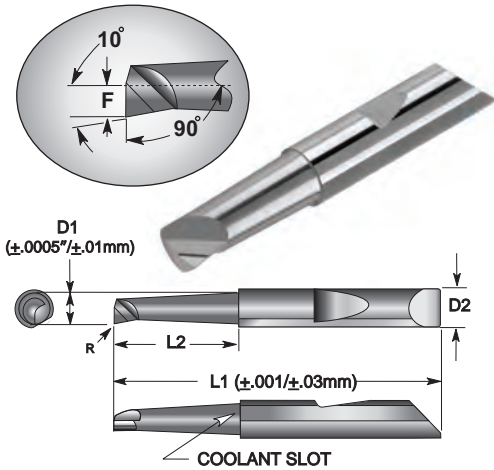
QBB-320500	.320/8.13	.500/12.7	.080/2.03	.005/0.13	.3750/9.5	2.0/51	\$ 44.55	\$ 50.90
QBB-320750	.320/8.13	.750/19.1	.080/2.03	.005/0.13	.3750/9.5	2.0/51	\$ 44.55	\$ 50.90
QBB-3201000	.320/8.13	1.00/25.4	.080/2.03	.005/0.13	.3750/9.5	2.5/64	\$ 44.55	\$ 50.90
QBB-3201250	.320/8.13	1.25/31.8	.080/2.03	.005/0.13	.3750/9.5	2.5/64	\$ 44.55	\$ 50.90
QBB-3201500	.320/8.13	1.50/38.1	.080/2.03	.005/0.13	.3750/9.5	3.0/76	\$ 49.50	\$ 55.85
QBB-3201800	.320/8.13	1.80/45.7	.080/2.03	.005/0.13	.3750/9.5	3.0/76	\$ 49.50	\$ 55.85
QBB-3202000	.320/8.13	2.00/50.8	.080/2.03	.005/0.13	.3750/9.5	3.5/89	\$ 53.95	\$ 61.90
QBB-3202500	.320/8.13	2.50/63.5	.080/2.03	.005/0.13	.3750/9.5	4.0/102	\$ 56.95	\$ 64.90
QBB-360750	.360/9.14	.750/19.1	.090/2.29	.005/0.13	.3750/9.5	2.0/51	\$ 44.55	\$ 50.90
QBB-3601000	.360/9.14	1.00/25.4	.090/2.29	.005/0.13	.3750/9.5	2.5/64	\$ 44.55	\$ 50.90
QBB-3601250	.360/9.14	1.25/31.8	.090/2.29	.005/0.13	.3750/9.5	2.5/64	\$ 44.55	\$ 50.90
QBB-3601500	.360/9.14	1.50/38.1	.090/2.29	.005/0.13	.3750/9.5	3.0/76	\$ 49.50	\$ 55.85
QBB-3601800	.360/9.14	1.80/45.7	.090/2.29	.005/0.13	.3750/9.5	3.0/76	\$ 49.50	\$ 55.85
QBB-3602000	.360/9.14	2.00/50.8	.090/2.29	.005/0.13	.3750/9.5	3.5/89	\$ 53.95	\$ 61.90
QBB-3602500	.360/9.14	2.50/63.5	.090/2.29	.005/0.13	.3750/9.5	4.0/102	\$ 56.95	\$ 64.90

**1/2" / 12.7mm Shanks**

QBB-4601000	.460/11.7	1.00/25.4	.115/2.92	.005/0.13	.5000/12.7	2.5/64	\$ 62.10	\$ 70.30
QBB-4601250	.460/11.7	1.25/31.8	.115/2.92	.005/0.13	.5000/12.7	3.0/76	\$ 62.10	\$ 70.30
QBB-4601500	.460/11.7	1.50/38.1	.115/2.92	.005/0.13	.5000/12.7	3.0/76	\$ 62.10	\$ 70.30
QBB-4602000	.460/11.7	2.00/50.8	.115/2.92	.005/0.13	.5000/12.7	3.5/89	\$ 68.10	\$ 78.05
QBB-4602500	.460/11.7	2.50/63.5	.115/2.92	.005/0.13	.5000/12.7	4.0/102	\$ 68.10	\$ 78.05
QBB-4603000	.460/11.7	3.00/76.2	.115/2.92	.005/0.13	.5000/12.7	4.5/114	\$ 75.50	\$ 87.40
QBB-4901000	.490/12.5	1.00/25.4	.123/3.12	.005/0.13	.5000/12.7	2.5/64	\$ 62.10	\$ 70.30
QBB-4901250	.490/12.5	1.25/31.8	.123/3.12	.005/0.13	.5000/12.7	3.0/76	\$ 62.10	\$ 70.30
QBB-4901500	.490/12.5	1.50/38.1	.123/3.12	.005/0.13	.5000/12.7	3.0/76	\$ 62.10	\$ 70.30
QBB-4902000	.490/12.5	2.00/50.8	.123/3.12	.005/0.13	.5000/12.7	3.5/89	\$ 68.10	\$ 78.05
QBB-4902500	.490/12.5	2.50/63.5	.123/3.12	.005/0.13	.5000/12.7	4.0/102	\$ 68.10	\$ 78.05
QBB-4903000	.490/12.5	3.00/76.2	.123/3.12	.005/0.13	.5000/12.7	4.5/114	\$ 75.50	\$ 87.40

### Boring Tools for Boring Heads & Milling Machines

AITiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QBM-3601000X



**QBM Boring Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: +.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

#### 1/4" / 6.4mm Shanks

Milling Machine Boring Tool Catalog No.	Min. Bore Dia. (D1)	Max. Bore Depth (L2)	Centerline Dim. (F)	Nose Radius (R)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QBM-118500	.118/3.00	.500/12.7	.055/1.4	.003/0.08	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-118750	.118/3.00	.750/19.1	.055/1.4	.003/0.08	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-150500	.150/3.81	.500/12.7	.071/1.8	.003/0.08	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-150750	.150/3.81	.750/19.1	.071/1.8	.003/0.08	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-200500	.200/5.08	.500/12.7	.095/2.4	.008/0.20	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-200750	.200/5.08	.750/19.1	.095/2.4	.008/0.20	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-2001250	.200/5.08	1.25/31.8	.095/2.4	.008/0.20	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBM-230750	.230/5.84	.750/19.1	.110/2.8	.008/0.20	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QBM-2301250	.230/5.84	1.25/31.8	.110/2.8	.008/0.20	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QBM-2301500	.230/5.84	1.50/38.1	.110/2.8	.008/0.20	.2500/6.4	3.0/76	\$ 27.50	\$ 31.80

#### 3/8" / 9.5mm Shanks

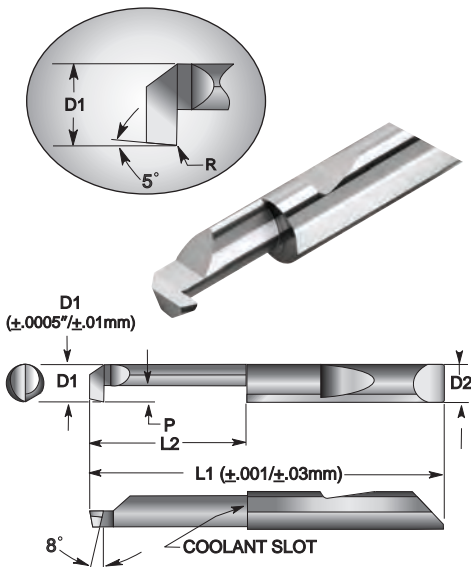
QBM-3001000	.300/7.62	1.00/24.4	.145/3.7	.008/0.20	.3750/9.5	2.5/64	\$ 44.55	\$ 51.00
QBM-3001500	.300/7.62	1.50/38.1	.145/3.7	.008/0.20	.3750/9.5	3.0/76	\$ 48.75	\$ 55.15
QBM-3001750	.300/7.62	1.75/44.5	.145/3.7	.008/0.20	.3750/9.5	3.0/76	\$ 48.75	\$ 55.15
QBM-3601000	.360/9.14	1.00/25.4	.175/4.5	.008/0.20	.3750/9.5	2.5/64	\$ 44.55	\$ 51.00
QBM-3601500	.360/9.14	1.50/38.1	.175/4.5	.008/0.20	.3750/9.5	3.0/76	\$ 48.75	\$ 55.15
QBM-3602000	.360/9.14	2.00/50.8	.175/4.5	.008/0.20	.3750/9.5	3.5/89	\$ 56.95	\$ 63.95

#### 1/2" / 12.7mm Shanks

QBM-4601000	.460/11.68	1.00/25.4	.225/5.7	.008/0.20	.5000/12.7	2.5/64	\$ 62.10	\$ 70.30
QBM-4601500	.460/11.68	1.50/38.1	.225/5.7	.008/0.20	.5000/12.7	3.0/76	\$ 62.10	\$ 70.30
QBM-4602000	.460/11.68	2.00/50.8	.225/5.7	.008/0.20	.5000/12.7	3.5/89	\$ 68.10	\$ 73.50
QBM-4602500	.460/11.68	2.50/63.5	.225/5.7	.008/0.20	.5000/12.7	4.0/102	\$ 68.10	\$ 73.50
QBM-4603000	.460/11.68	3.00/76.2	.225/5.7	.008/0.20	.5000/12.7	4.5/114	\$ 75.50	\$ 78.95

### Reverse Boring Tools

AITiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QRB-156500X



Right Hand, Back Boring Tool shown,  
 Left Hand available on request..

**QRB Reverse Boring Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: +.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

#### 3/16" / 4.8mm Shanks

Reverse Boring Tool Catalog No.	Min. Bore Dia. (D1)	Max. Bore Depth (L2)	Projection (P)	Nose Radius (R)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QRB-156500	.156/3.96	.500/12.7	.060/1.5	.005/0.13	.1875/4.8	1.5/38	\$ 22.45	\$ 26.75
QRB-156750	.156/3.96	.750/19.1	.060/1.5	.005/0.13	.1875/4.8	2.0/51	\$ 22.45	\$ 26.75
QRB-1561000	.156/3.96	1.00/25.4	.060/1.5	.005/0.13	.1875/4.8	2.0/51	\$ 22.45	\$ 26.75

#### 1/4" / 6.4mm Shanks

QRB-180500	.180/4.57	.500/12.7	.080/2.0	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QRB-180750	.180/4.57	.750/19.1	.080/2.0	.005/0.13	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QRB-1801000	.180/4.57	1.00/25.4	.080/2.0	.005/0.13	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QRB-200500	.200/5.08	.500/12.7	.090/2.0	.008/0.20	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QRB-200750	.200/5.08	.750/19.1	.090/2.0	.008/0.20	.2500/6.4	2.0/51	\$ 24.25	\$ 28.55
QRB-2001000	.200/5.08	1.00/25.4	.090/2.0	.008/0.20	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55
QRB-2001250	.200/5.08	1.25/31.8	.090/2.0	.008/0.20	.2500/6.4	2.5/64	\$ 24.25	\$ 28.55

#### 5/16" / 7.9mm Shanks

QRB-230500	.230/5.84	.500/12.7	.110/2.8	.008/0.20	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QRB-230750	.230/5.84	.750/19.1	.110/2.8	.008/0.20	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QRB-2301000	.230/5.84	1.00/25.4	.110/2.8	.008/0.20	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QRB-2301250	.230/5.84	1.25/31.8	.110/2.8	.008/0.20	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QRB-300750	.300/7.62	.750/19.1	.110/2.8	.008/0.20	.3125/7.9	2.0/51	\$ 32.60	\$ 38.95
QRB-3001000	.300/7.62	1.00/25.4	.110/2.8	.008/0.20	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95
QRB-3001250	.300/7.62	1.25/31.8	.110/2.8	.008/0.20	.3125/7.9	2.5/64	\$ 32.60	\$ 38.95

#### 3/8" / 9.5mm Shanks

QRB-360750	.360/9.14	.750/19.1	.130/3.3	.008/0.20	.3750/9.5	2.0/51	\$ 44.55	\$ 51.00
QRB-3601000	.360/9.14	1.00/25.4	.130/3.3	.008/0.20	.3750/9.5	2.5/64	\$ 44.55	\$ 51.00
QRB-3601250	.360/9.14	1.25/31.8	.130/3.3	.008/0.20	.3750/9.5	2.5/64	\$ 44.55	\$ 51.00
QRB-3601500	.360/9.14	1.50/38.1	.130/3.3	.008/0.20	.3750/9.5	3.0/76	\$ 49.50	\$ 55.95

#### 1/2" / 12.7mm Shanks

QRB-4601000	.460/11.68	1.00/25.4	.160/4.1	.008/0.20	.500/12.7	2.5/64	\$ 62.10	\$ 70.30
QRB-4601250	.460/11.68	1.25/31.8	.160/4.1	.008/0.20	.500/12.7	3.0/76	\$ 62.10	\$ 70.30
QRB-4601500	.460/11.68	1.50/38.1	.160/4.1	.008/0.20	.500/12.7	3.0/76	\$ 62.10	\$ 70.30
QRB-4601800	.460/11.68	1.80/45.7	.160/4.1	.008/0.20	.500/12.7	3.5/89	\$ 68.10	\$ 76.30
QRB-4901000	.490/12.45	1.00/25.4	.160/4.1	.008/0.20	.500/12.7	2.5/64	\$ 62.10	\$ 70.30
QRB-4901250	.490/12.45	1.25/31.8	.160/4.1	.008/0.20	.500/12.7	3.0/76	\$ 62.10	\$ 70.30
QRB-4901500	.490/12.45	1.50/38.1	.160/4.1	.008/0.20	.500/12.7	3.0/76	\$ 62.10	\$ 70.30
QRB-4901800	.490/12.45	1.80/45.7	.160/4.1	.008/0.20	.500/12.7	3.5/89	\$ 68.10	\$ 76.30

**"QUICK-CHANGE" Profiling Tooling System Featuring:**

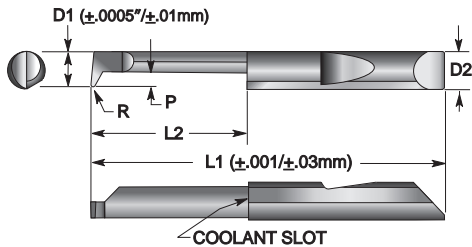
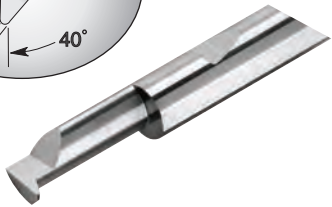
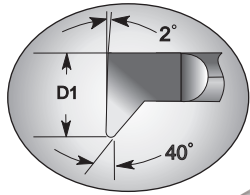
- Uncoated/Coated (AlTiN) Tools.
- Minimum Profiling Diameters: .070"(1.78mm) - .490"(12.45mm).
- Maximum Profiling Depth Ranges: .200"(5.08mm) - 1.800"(45.7m).
- Shank Sizes: 3/16"(4.8mm), 1/4"(6.4mm), 5/16"(7.9mm), 3/8"(9.5mm), 1/2"(12.7mm).
- Elliptical Necks for Maximum Rigidity.
- Point Radius: .005"(0.1mm) - .008"(0.2mm).
- Coolant Through Capabilities.



**QPR Profiling Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

**Profiling Tools**

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QPR-180500X



Right Hand, Profiling Tool shown,  
 Left Hand available on request..

**3/16" / 4.8mm Shanks**

Profiling Tool Catalog No.	Min. Bore Diameter (D1)	Projection (P)	Max. Bore Depth (L2)	Nose Radius (R)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price (AlTiN Coated) Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QPR-070200	.070/1.78	.025/0.6	.200/5.08	.005/0.1	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-070300	.070/1.78	.025/0.6	.300/7.62	.005/0.1	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-070500	.070/1.78	.025/0.6	.500/12.7	.005/0.1	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-110250	.110/2.79	.040/1.0	.250/6.35	.005/0.1	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-110500	.110/2.79	.040/1.0	.500/12.7	.005/0.1	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-120250	.120/3.05	.050/1.3	.250/6.35	.008/0.2	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-120500	.120/3.05	.050/1.3	.500/12.7	.008/0.2	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-120750	.120/3.05	.050/1.3	.750/19.1	.008/0.2	.1875/4.76	2.0/51	\$ 22.65	\$ 26.95
QPR-160500	.160/4.06	.050/1.3	.500/12.7	.008/0.2	.1875/4.76	1.5/38	\$ 22.65	\$ 26.95
QPR-160750	.160/4.06	.050/1.3	.750/19.1	.008/0.2	.1875/4.76	2.0/51	\$ 22.65	\$ 26.95
QPR-1601000	.160/4.06	.050/1.3	1.00/25.4	.008/0.2	.1875/4.76	2.0/51	\$ 22.65	\$ 26.95

**1/4" / 6.4mm Shanks**

QPR-180500	.180/4.57	.080/2.0	.500/12.7	.008/0.2	.2500/6.35	2.0/51	\$ 28.30	\$ 32.60
QPR-180750	.180/4.57	.080/2.0	.750/19.1	.008/0.2	.2500/6.35	2.0/51	\$ 28.30	\$ 32.60
QPR-1801000	.180/4.57	.080/2.0	1.00/25.4	.008/0.2	.2500/6.35	2.5/64	\$ 28.30	\$ 32.60

**5/16" / 7.9mm Shanks**

QPR-230750	.230/5.84	.080/2.0	.750/19.1	.008/0.2	.3125/7.94	2.0/51	\$ 35.35	\$ 41.80
QPR-2301000	.230/5.84	.080/2.0	1.00/25.4	.008/0.2	.3125/7.94	2.5/64	\$ 35.35	\$ 41.80
QPR-2301250	.230/5.84	.080/2.0	1.25/31.8	.008/0.2	.3125/7.94	2.5/64	\$ 35.35	\$ 41.80
QPR-3001000	.300/7.62	.110/2.8	1.00/25.4	.008/0.2	.3125/7.94	2.5/64	\$ 35.35	\$ 41.80
QPR-3001250	.300/7.62	.110/2.8	1.25/31.8	.008/0.2	.3125/7.94	2.5/64	\$ 35.35	\$ 41.80

**3/8" / 9.5mm Shanks**

QPR-3601000	.360/9.14	.130/3.3	1.00/25.4	.008/0.2	.3750/9.50	2.5/64	\$ 42.55	\$ 46.10
QPR-3601250	.360/9.14	.130/3.3	1.25/31.8	.008/0.2	.3750/9.50	2.5/64	\$ 42.55	\$ 46.10

**1/2" / 12.7mm Shanks**

QPR-4601000	.460/11.68	.150/3.8	1.00/25.4	.008/0.2	.5000/12.7	3.0/76	\$ 64.65	\$ 72.85
QPR-4601500	.460/11.68	.150/3.8	1.50/38.1	.008/0.2	.5000/12.7	3.0/76	\$ 64.65	\$ 72.85
QPR-4601800	.460/11.68	.150/3.8	1.80/45.7	.008/0.2	.5000/12.7	3.5/89	\$ 68.30	\$ 76.50
QPR-4901000	.490/12.45	.150/3.8	1.00/25.4	.008/0.2	.5000/12.7	3.0/76	\$ 64.65	\$ 72.85
QPR-4901500	.490/12.45	.150/3.8	1.50/38.1	.008/0.2	.5000/12.7	3.0/76	\$ 64.65	\$ 72.85
QPR-4901800	.490/12.45	.150/3.8	1.80/45.7	.008/0.2	.5000/12.7	3.5/89	\$ 68.30	\$ 76.50

**"QUICK-CHANGE" Retaining Ring Grooving Tooling System Featuring:**

- Uncoated/Coated (AlTiN) Tools.
- Minimum Groove Width Ranges: 0.015"(0.38mm) - .250"(6.35mm).
- Maximum Groove Depth Ranges: .250"(6.35mm) - 1.500"(38.1mm)
- Shank Sizes: 3/16"(4.8mm), 1/4"(6.4mm), 5/16"(7.9mm), 3/8"(9.5mm), 1/2"(12.7mm).
- Elliptical Necks for Maximum Rigidity.
- Coolant Through Capabilities.

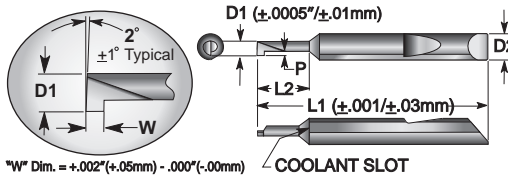


**QMRR Miniature Retaining Ring Grooving Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

**QRR Retaining Ring Grooving Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

**Miniature Retaining Ring Grooving Tools**

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QMRR-015-8X

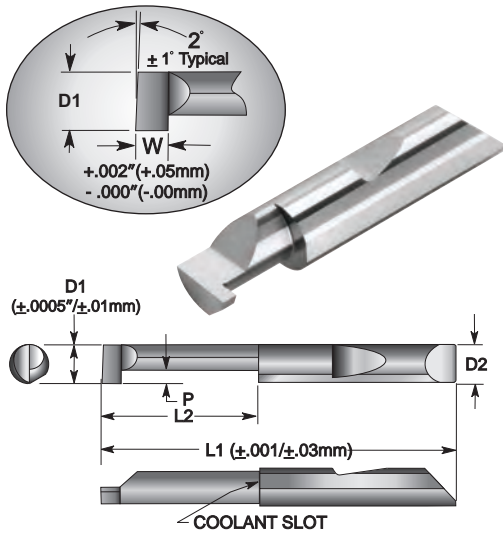


**3/16" / 4.8mm Shanks**

Miniature Grooving Tool Catalog No.	Groove Width (W)	Projection (P)	Max. Bore Depth (L2)	Min. Bore Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QMRR-015-4	.015/0.38	.025/0.64	.250/6.4	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMRR-015-6	.015/0.38	.025/0.64	.375/9.5	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMRR-015-8	.015/0.38	.025/0.64	.500/12.7	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMRR-020-6	.020/0.50	.030/0.76	.375/9.5	.120/3.05	.1875/4.8	1.5/38	\$ 28.30	\$ 32.60
QMRR-020-8	.020/0.50	.030/0.76	.500/12.7	.120/3.05	.1875/4.8	1.5/38	\$ 28.30	\$ 32.60
QMRR-020-10	.020/0.50	.030/0.76	.625/15.9	.120/3.05	.1875/4.8	2.0/51	\$ 28.30	\$ 32.60

**Retaining Ring Grooving Tools**

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QRR-030-010X



Right Hand, Retaining Ring Grooving Tool shown,  
 Left Hand available on request..

**3/16" / 4.8mm Shanks**

Retaining Ring Grooving Tool Catalog No.	Groove Width (W)	Projection (P)	Max. Bore Depth (L2)	Min. Bore Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QRR-017-4	.017/0.43	.030/0.76	.250/6.4	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-017-6	.017/0.43	.030/0.76	.375/9.5	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-017-8	.017/0.43	.030/0.76	.500/12.7	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-017-10	.017/0.43	.030/0.76	.625/15.9	.180/4.6	.1875/4.8	2.0/51	\$ 24.10	\$ 28.40
QRR-020-4	.020/0.50	.030/0.76	.250/6.4	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-020-6	.020/0.50	.030/0.76	.375/9.5	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-020-8	.020/0.50	.030/0.76	.500/12.7	.180/4.6	.1875/4.8	1.5/38	\$ 24.10	\$ 28.40
QRR-020-10	.020/0.50	.030/0.76	.625/15.9	.180/4.6	.1875/4.8	2.0/51	\$ 24.10	\$ 28.40

**1/4" / 6.4mm Shanks**

QRR-025-4	.025/0.64	.050/1.27	.250/6.4	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-025-6	.025/0.64	.050/1.27	.375/9.5	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-025-8	.025/0.64	.050/1.27	.500/12.7	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-025-10	.025/0.64	.050/1.27	.625/15.9	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-030-4	.030/0.76	.050/1.27	.250/6.4	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-030-6	.030/0.76	.050/1.27	.375/9.5	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-030-8	.030/0.76	.050/1.27	.500/12.7	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60
QRR-030-10	.030/0.76	.050/1.27	.625/15.9	.245/6.2	.250/6.4	2.0/51	\$ 28.30	\$ 32.60

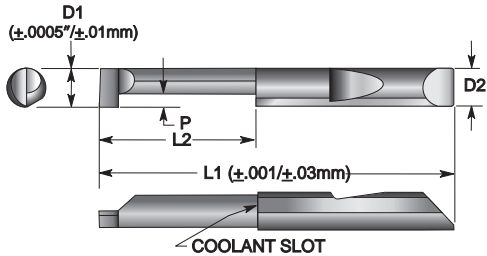
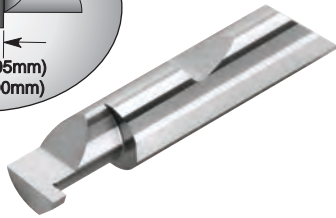
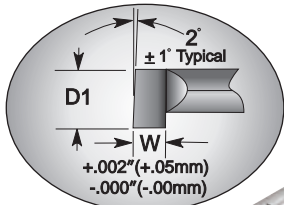
**5/16" / 7.9mm Shanks**

QRR-033-6	.033/0.84	.100/2.54	.375/9.5	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70
QRR-033-8	.033/0.84	.100/2.54	.500/12.7	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70
QRR-033-12	.033/0.84	.100/2.54	.750/19.1	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70
QRR-038-6	.038/0.97	.100/2.54	.375/9.5	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70
QRR-038-8	.038/0.97	.100/2.54	.500/12.7	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70
QRR-038-12	.038/0.97	.100/2.54	.750/19.1	.310/7.9	.312/7.9	2.0/51	\$ 35.35	\$ 41.70



**Retaining Ring Grooving Tools**

AITIN Coated Tools available...  
Add an "X" to the end of the Catalog No.  
example: QRR-039-20X



Right Hand, Retaining Ring Grooving Tool shown,  
Left Hand available on request..

**QRR Retaining Ring Grooving Tools Tolerances:**  
Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
Minimum Bore Diameter: ±.0005" (±.01mm)  
Maximum Bore Depth: +.050"(+1.27mm)

**3/8" / 9.5mm Shanks**

Retaining Ring Grooving Tool Catalog No.	Groove Width (W)	Groove Depth (P)	Max. Bore Depth (L2)	Min. Bore Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITIN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QRR-039-8	.039/1.0	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-039-12	.039/1.0	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-039-16	.039/1.0	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-039-20	.039/1.0	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-046-8	.046/1.17	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-046-12	.046/1.17	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-046-16	.046/1.17	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-046-20	.046/1.17	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-055-8	.055/1.40	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-055-12	.055/1.40	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-055-16	.055/1.40	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-055-20	.055/1.40	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-059-8	.059/1.50	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-059-12	.059/1.50	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-059-16	.059/1.50	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-059-20	.059/1.50	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-062-8	.062/1.57	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-062-12	.062/1.57	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-062-16	.062/1.57	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-062-20	.062/1.57	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-069-8	.069/1.75	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-069-12	.069/1.75	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-069-16	.069/1.75	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-069-20	.069/1.75	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-079-8	.079/2.00	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-079-12	.079/2.00	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-079-16	.079/2.00	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-079-20	.079/2.00	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-087-8	.087/2.21	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-087-12	.087/2.21	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 46.10	\$ 52.55
QRR-087-16	.087/2.21	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55
QRR-087-20	.087/2.21	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 46.10	\$ 52.55

**1/2" / 12.7mm Shanks**

QRR-093-12	.093/2.36	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-093-16	.093/2.36	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-093-20	.093/2.36	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-093-24	.093/2.36	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-118-12	.118/3.00	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-118-16	.118/3.00	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-118-20	.118/3.00	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-118-24	.118/3.00	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-125-12	.125/3.18	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-125-16	.125/3.18	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-125-20	.125/3.18	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-125-24	.125/3.18	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-156-12	.156/3.96	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-156-16	.156/3.96	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-156-20	.156/3.96	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-156-24	.156/3.96	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-187-12	.187/4.75	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-187-16	.187/4.75	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-187-20	.187/4.75	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-187-24	.187/4.75	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-236-12	.236/6.00	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-236-16	.236/6.00	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-236-20	.236/6.00	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-236-24	.236/6.00	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-250-12	.250/6.35	.150/3.81	.750/19.1	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-250-16	.250/6.35	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 64.65	\$ 72.85
QRR-250-20	.250/6.35	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85
QRR-250-24	.250/6.35	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 64.65	\$ 72.85

### "QUICK-CHANGE" Full Radius Grooving Tooling System Featuring:

- Uncoated/Coated (AITiN) Tools.
- Minimum Groove Width Ranges: .015" (0.38mm) - .250" (6.35mm).
- Maximum Groove Depth Ranges: .250" (6.35mm) - 1.500" (38.1mm)
- Shank Sizes: 3/16" (4.8mm), 1/4" (6.4mm), 5/16" (7.9mm), 3/8" (9.5mm), 5/16" (7.9mm), 1/2" (12.7mm).
- Elliptical Necks for Maximum Rigidity.
- Coolant Through Capabilities.

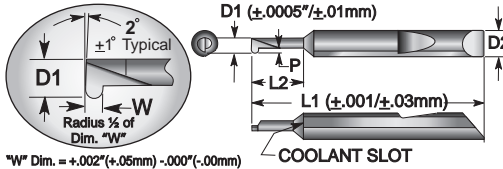


**QMFR Miniature Full Radius Grooving Tools Tolerances:**  
 Shank Diameter:  $-.0001" (-.005mm)$  to  $-.0002" (-.01mm)$   
 Minimum Bore Diameter:  $\pm .0005" (\pm .01mm)$   
 Maximum Bore Depth:  $+.050" (+1.27mm)$

**QFR Full Radius Grooving Tools Tolerances:**  
 Shank Diameter:  $-.0001" (-.005mm)$  to  $-.0002" (-.01mm)$   
 Minimum Bore Diameter:  $\pm .0005" (\pm .01mm)$   
 Maximum Bore Depth:  $+.050" (+1.27mm)$

### Miniature Full Radius Grooving Tools

AITiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QMFR-020-16X

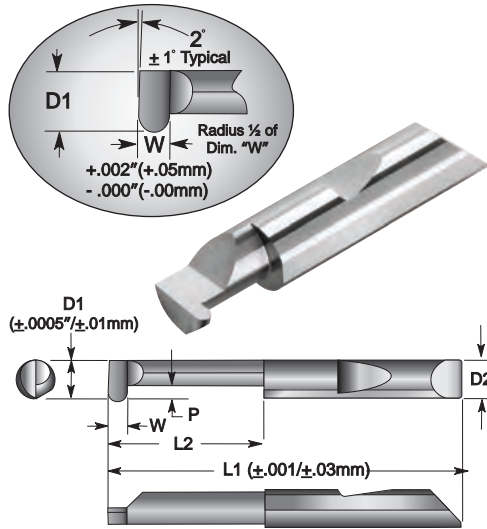


### 3/16" / 4.8mm Shanks

Miniature Grooving Tool Catalog No.	Groove Width (W)	Projection (P)	Max. Bore Depth (L2)	Min. Bore Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QMFR-015-4	.015/0.38	.025/0.64	.250/6.4	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMFR-015-6	.015/0.38	.025/0.64	.375/9.5	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMFR-015-8	.015/0.38	.025/0.64	.500/12.7	.080/2.03	.1875/4.8	1.5/38	\$ 31.50	\$ 35.80
QMFR-020-6	.020/0.50	.030/0.76	.375/9.5	.120/3.05	.1875/4.8	1.5/38	\$ 28.30	\$ 32.60
QMFR-020-8	.020/0.50	.030/0.76	.500/12.7	.120/3.05	.1875/4.8	1.5/38	\$ 28.30	\$ 32.60
QMFR-020-10	.020/0.50	.030/0.76	.625/15.9	.120/3.05	.1875/4.8	2.0/51	\$ 28.30	\$ 32.60

### Full Radius Grooving Tools

AITiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QFR-030-4X



Right Hand, Full Radius Grooving Tool shown,  
 Left Hand available on request..

### 3/16" / 4.8mm Shanks

Full Radius Grooving Tool Catalog No.	Groove Width (W)	Projection (P)	Max. Bore Depth (L2)	Min. Bore Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QFR-017-4	.017/0.43	.030/0.76	.250/6.4	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-017-6	.017/0.43	.030/0.76	.375/9.5	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-017-8	.017/0.43	.030/0.76	.500/12.7	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-017-10	.017/0.43	.030/0.76	.625/15.9	.180/4.6	.1875/6.4	2.0/51	\$ 26.05	\$ 30.35
QFR-020-4	.020/0.50	.030/0.76	.250/6.4	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-020-6	.020/0.50	.030/0.76	.375/9.5	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-020-8	.020/0.50	.030/0.76	.500/12.7	.180/4.6	.1875/6.4	1.5/38	\$ 26.05	\$ 30.35
QFR-020-10	.020/0.50	.030/0.76	.625/15.9	.180/4.6	.1875/6.4	2.0/51	\$ 26.05	\$ 30.35

### 1/4" / 6.4mm Shanks

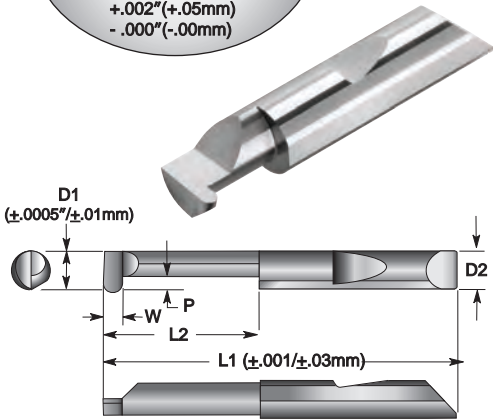
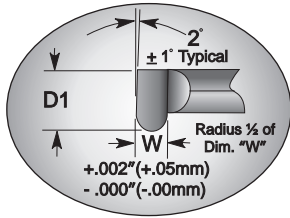
QFR-025-4	.025/0.64	.050/1.27	.250/6.4	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-025-6	.025/0.64	.050/1.27	.375/9.5	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-025-8	.025/0.64	.050/1.27	.500/12.7	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-025-10	.025/0.64	.050/1.27	.625/15.9	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-030-4	.030/0.76	.050/1.27	.250/6.4	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-030-6	.030/0.76	.050/1.27	.375/9.5	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-030-8	.030/0.76	.050/1.27	.500/12.7	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85
QFR-030-10	.030/0.76	.050/1.27	.625/15.9	.245/6.2	.250/6.4	2.0/51	\$ 32.55	\$ 36.85

### 5/16" / 7.9mm Shanks

QFR-033-6	.033/0.84	.100/2.54	.375/9.5	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00
QFR-033-8	.033/0.84	.100/2.54	.500/12.7	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00
QFR-033-12	.033/0.84	.100/2.54	.750/19.1	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00
QFR-038-6	.038/0.97	.100/2.54	.375/9.5	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00
QFR-038-8	.038/0.97	.100/2.54	.500/12.7	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00
QFR-038-12	.038/0.97	.100/2.54	.750/19.1	.310/7.9	.312/7.9	2.0/51	\$ 40.65	\$ 47.00

**Full Radius Grooving Tools**

AITIN Coated Tools available...  
Add an "X" to the end of the Catalog No.  
example: QFR-046-8X



Right Hand, Full Radius Grooving Tool shown,  
Left Hand available on request..

**QFR Full Radius Grooving Tools Tolerances:**  
Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm)  
Minimum Bore Diameter: ±.0005" (±.01mm)  
Maximum Bore Depth: +.050" (+1.27mm)

**3/8" / 9.5mm Shanks**

Full Radius Grooving Tool Catalog No.	Groove Width (W)	Groove Depth (P)	Max. Hole Depth (L2)	Min. Hole Dia. (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITIN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QFR-039-8	.039/1.00	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-039-12	.039/1.00	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-039-16	.039/1.00	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-039-20	.039/1.00	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-046-8	.046/1.17	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-046-12	.046/1.17	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-046-16	.046/1.17	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-046-20	.046/1.17	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-055-8	.055/1.40	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-055-12	.055/1.40	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-055-16	.055/1.40	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-055-20	.055/1.40	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-059-8	.059/1.50	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-059-12	.059/1.50	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-059-16	.059/1.50	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-059-20	.059/1.50	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-062-8	.062/1.57	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-062-12	.062/1.57	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-062-16	.062/1.57	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-062-20	.062/1.57	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-069-8	.069/1.75	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-069-12	.069/1.75	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-069-16	.069/1.75	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-069-20	.069/1.75	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-079-8	.079/2.00	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-079-12	.079/2.00	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-079-16	.079/2.00	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-079-20	.079/2.00	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-087-8	.087/2.21	.100/2.54	.500/12.7	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-087-12	.087/2.21	.100/2.54	.750/19.1	.370/9.4	.375/9.5	2.0/51	\$ 51.50	\$ 57.95
QFR-087-16	.087/2.21	.100/2.54	1.00/25.4	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95
QFR-087-20	.087/2.21	.100/2.54	1.25/31.8	.370/9.4	.375/9.5	2.5/64	\$ 51.50	\$ 57.95

**1/2" / 12.7mm Shanks**

QFR-093-12	.093/2.36	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-093-16	.093/2.36	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-093-20	.093/2.36	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-093-24	.093/2.36	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-118-12	.118/3.00	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-118-16	.118/3.00	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-118-20	.118/3.00	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-118-24	.118/3.00	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-125-12	.125/3.18	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-125-16	.125/3.18	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-125-20	.125/3.18	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-125-24	.125/3.18	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-156-12	.156/3.96	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-156-16	.156/3.96	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-156-20	.156/3.96	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-156-24	.156/3.96	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-187-12	.187/4.75	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-187-16	.187/4.75	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-187-20	.187/4.75	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-187-24	.187/4.75	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-236-12	.236/6.00	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-236-16	.236/6.00	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-236-20	.236/6.00	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-236-24	.236/6.00	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-250-12	.250/6.35	.150/3.81	.375/19.1	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-250-16	.250/6.35	.150/3.81	1.00/25.4	.495/12.6	.500/12.7	2.5/64	\$ 70.85	\$ 79.05
QFR-250-20	.250/6.35	.150/3.81	1.25/31.8	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05
QFR-250-24	.250/6.35	.150/3.81	1.50/38.1	.495/12.6	.500/12.7	3.0/76	\$ 70.85	\$ 79.05

**"QUICK-CHANGE" Internal Threading Tooling System Featuring:**

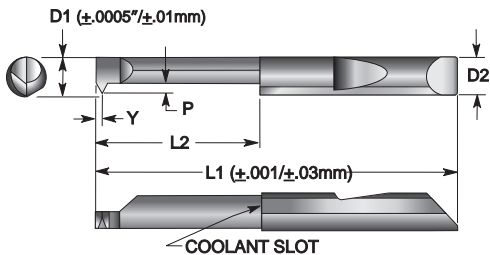
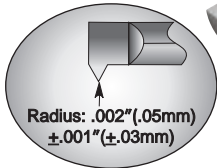
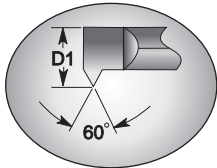
- Uncoated/Coated (AlTiN) Tools.
- Minimum Minor Diameter Ranges: .035" (0.89mm) - .460" (11.7mm).
- Maximum Thread Depths Ranges: .075" (1.91mm) - 2.000" (50.1mm).
- TPI (Threads Per inch) Ranges: up to 80 TPI.
- Shank Sizes: 3/16" (4.8mm), 1/4" (6.4mm), 5/16" (7.9mm), 3/8" (9.5mm), 1/2" (12.7mm).
- Elliptical Shanks for Maximum Rigidity.
- Point Radius: .002" (0.05mm).
- Coolant Through Capabilities.



**QIT Internal Threading Tools Tolerances:**  
 Shank Diameter:  $-.0001"$  (-.005mm) to  $-.0002"$  (-.01mm)  
 Minimum Bore Diameter:  $\pm .0005"$  ( $\pm .01$ mm)  
 Maximum Bore Depth:  $+.050"$  (+1.27mm)

### Internal Threading Tools

AlTiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QIT-050-200X



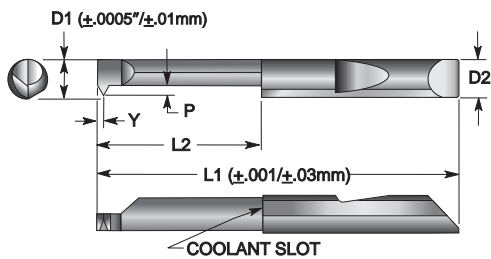
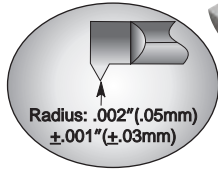
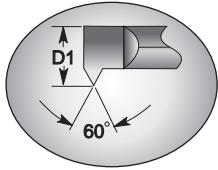
Right Hand, Threading Tool shown,  
 Left Hand available on request..

### 3/16" / 4.8mm Shanks

Internal Threading Tool Catalog No.	Min. Bore Diameter (D1)	Projection (P)	Max. Bore Depth (L2)	Shank Dia. (D2)	Offset Point (Y)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QIT-035075	.035/0.89	.015/0.38	.075/1.91	.1875/4.8	.008/0.20	1.5/38	\$ 33.10	\$ 37.40
QIT-035100	.035/0.89	.015/0.38	.100/2.54	.1875/4.8	.008/0.20	1.5/38	\$ 33.10	\$ 37.40
QIT-035150	.035/0.89	.015/0.38	.150/3.81	.1875/4.8	.008/0.20	1.5/38	\$ 33.10	\$ 37.40
QIT-040075	.040/1.02	.015/0.38	.075/1.91	.1875/4.8	.009/0.23	1.5/38	\$ 33.10	\$ 37.40
QIT-040100	.040/1.02	.015/0.38	.100/2.54	.1875/4.8	.009/0.23	1.5/38	\$ 33.10	\$ 37.40
QIT-040150	.040/1.02	.015/0.38	.150/3.81	.1875/4.8	.009/0.23	1.5/38	\$ 33.10	\$ 37.40
QIT-050100	.050/1.27	.020/0.51	.100/2.54	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-050150	.050/1.27	.020/0.51	.150/3.81	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-050200	.050/1.27	.020/0.51	.200/5.08	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-060200	.060/1.52	.020/0.51	.200/5.08	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-060250	.060/1.52	.020/0.51	.250/6.35	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-060300	.060/1.52	.020/0.51	.300/7.62	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-080250	.080/2.03	.020/0.51	.250/6.35	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-080350	.080/2.03	.020/0.51	.350/8.89	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-080500	.080/2.03	.020/0.51	.500/12.7	.1875/4.8	.012/0.30	1.5/38	\$ 28.00	\$ 32.30
QIT-100250	.100/2.54	.025/0.64	.250/6.35	.1875/4.8	.014/0.36	1.5/38	\$ 28.00	\$ 32.30
QIT-100350	.100/2.54	.025/0.64	.350/8.89	.1875/4.8	.014/0.36	1.5/38	\$ 28.00	\$ 32.30
QIT-100500	.100/2.54	.025/0.64	.500/12.7	.1875/4.8	.014/0.36	1.5/38	\$ 28.00	\$ 32.30
QIT-100600	.100/2.54	.025/0.64	.600/15.2	.1875/4.8	.014/0.36	2.0/51	\$ 28.00	\$ 32.30
QIT-110250	.110/2.79	.030/0.76	.250/6.35	.1875/4.8	.016/0.41	1.5/38	\$ 28.00	\$ 32.30
QIT-110400	.110/2.79	.030/0.76	.400/4.06	.1875/4.8	.016/0.41	1.5/38	\$ 28.00	\$ 32.30
QIT-110500	.110/2.79	.030/0.76	.500/12.7	.1875/4.8	.016/0.41	1.5/38	\$ 28.00	\$ 32.30
QIT-110600	.110/2.79	.030/0.76	.600/15.2	.1875/4.8	.016/0.41	2.0/38	\$ 28.00	\$ 32.30
QIT-110750	.110/2.79	.030/0.76	.750/19.1	.1875/4.8	.016/0.41	2.0/38	\$ 28.00	\$ 32.30
QIT-120250	.120/3.05	.030/0.76	.250/6.35	.1875/4.8	.017/0.43	1.5/38	\$ 28.00	\$ 32.30
QIT-120400	.120/3.05	.030/0.76	.400/4.06	.1875/4.8	.017/0.43	1.5/38	\$ 28.00	\$ 32.30
QIT-120500	.120/3.05	.030/0.76	.500/12.7	.1875/4.8	.017/0.43	1.5/38	\$ 28.00	\$ 32.30
QIT-120600	.120/3.05	.030/0.76	.600/15.2	.1875/4.8	.017/0.43	2.0/51	\$ 28.00	\$ 32.30
QIT-120750	.120/3.05	.030/0.76	.750/19.1	.1875/4.8	.017/0.43	2.0/51	\$ 28.00	\$ 32.30
QIT-140250	.140/3.56	.035/0.89	.250/6.35	.1875/4.8	.020/0.51	1.5/38	\$ 28.00	\$ 32.30
QIT-140400	.140/3.56	.035/0.89	.400/4.06	.1875/4.8	.020/0.51	1.5/38	\$ 28.00	\$ 32.30
QIT-140500	.140/3.56	.035/0.89	.500/12.7	.1875/4.8	.020/0.51	1.5/38	\$ 28.00	\$ 32.30
QIT-140750	.140/3.56	.035/0.89	.750/19.1	.1875/4.8	.020/0.51	2.0/51	\$ 28.00	\$ 32.30
QIT-160250	.160/4.06	.040/1.02	.250/6.35	.1875/4.8	.023/0.58	1.5/38	\$ 28.00	\$ 32.30
QIT-160400	.160/4.06	.040/1.02	.400/4.06	.1875/4.8	.023/0.58	1.5/38	\$ 28.00	\$ 32.30
QIT-160500	.160/4.06	.040/1.02	.500/12.7	.1875/4.8	.023/0.58	1.5/38	\$ 28.00	\$ 32.30
QIT-160750	.160/4.06	.040/1.02	.750/19.1	.1875/4.8	.023/0.58	2.0/51	\$ 28.00	\$ 32.30
QIT-1601000	.160/4.06	.040/1.02	1.00/25.4	.1875/4.8	.023/0.58	2.0/51	\$ 28.00	\$ 32.30

### Internal Threading Tools

AlTiN Coated Tools available...  
Add an "X" to the end of the Catalog No.  
example: QIT-490-750X



Right Hand, Threading Tool shown,  
Left Hand available on request..

**QIT Internal Threading Tools Tolerances:**  
Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
Minimum Bore Diameter: ±.0005" (±.01mm)  
Maximum Bore Depth: +.050"(+1.27mm)

### 1/4" / 6.4mm Shanks

Internal Threading Tool Catalog No.	Min. Bore Dia. (D1)	Projection (P)	Max. Bore Depth (L2)	Shank Dia. (D2)	Offset Point (Y)	Overall Length (L1)	Price Uncoated	Price AlTiN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QIT-180350	.180/4.57	.040/1.02	.350/8.89	.2500/6.4	.023/0.58	2.0/51	\$ 29.95	\$ 34.35
QIT-180500	.180/4.57	.040/1.02	.500/12.7	.2500/6.4	.023/0.58	2.0/51	\$ 29.95	\$ 34.35
QIT-180750	.180/4.57	.040/1.02	.750/19.1	.2500/6.4	.023/0.58	2.0/51	\$ 29.95	\$ 34.35
QIT-1801000	.180/4.57	.040/1.02	1.00/25.4	.2500/6.4	.023/0.58	2.5/63	\$ 29.95	\$ 34.35
QIT-200400	.200/5.08	.045/1.14	.400/4.06	.2500/6.4	.026/0.66	2.0/51	\$ 29.95	\$ 34.35
QIT-200600	.200/5.08	.045/1.14	.600/15.2	.2500/6.4	.026/0.66	2.0/51	\$ 29.95	\$ 34.35
QIT-200750	.200/5.08	.045/1.14	.750/19.1	.2500/6.4	.026/0.66	2.0/51	\$ 29.95	\$ 34.35
QIT-2001000	.200/5.08	.045/1.14	1.00/25.4	.2500/6.4	.026/0.66	2.5/63	\$ 29.95	\$ 34.35

### 5/16" / 7.9mm Shanks

QIT-230400	.230/5.84	.055/1.40	.400/10.2	.3125/7.9	.032/0.81	2.0/51	\$ 37.40	\$ 43.75
QIT-230600	.230/5.84	.055/1.40	.600/15.2	.3125/7.9	.032/0.81	2.0/51	\$ 37.40	\$ 43.75
QIT-230750	.230/5.84	.055/1.40	.750/19.1	.3125/7.9	.032/0.81	2.0/51	\$ 37.40	\$ 43.75
QIT-2301000	.230/5.84	.055/1.40	1.00/25.4	.3125/7.9	.032/0.81	2.5/51	\$ 37.40	\$ 43.75
QIT-2301500	.230/5.84	.055/1.40	1.50/38.1	.3125/7.9	.032/0.81	3.0/76	\$ 41.75	\$ 48.10
QIT-290500	.290/7.37	.070/1.78	.500/12.7	.3125/7.9	.040/1.02	2.0/51	\$ 37.40	\$ 43.75
QIT-290750	.290/7.37	.070/1.78	.750/19.1	.3125/7.9	.040/1.02	2.0/51	\$ 37.40	\$ 43.75
QIT-2901000	.290/7.37	.070/1.78	1.00/25.4	.3125/7.9	.040/1.02	2.5/63	\$ 37.40	\$ 43.75
QIT-2901250	.290/7.37	.070/1.78	1.25/31.8	.3125/7.9	.040/1.02	2.5/63	\$ 37.40	\$ 43.75
QIT-2901750	.290/7.37	.070/1.78	1.75/44.5	.3125/7.9	.040/1.02	3.0/76	\$ 41.75	\$ 48.10

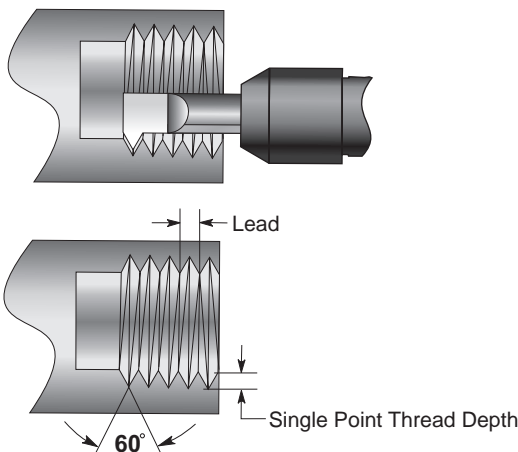
### 3/8" / 9.5mm Shanks

QIT-320500	.320/8.13	.075/1.91	.500/12.7	.375/9.5	.043/1.09	2.0/51	\$ 48.75	\$ 55.20
QIT-320750	.320/8.13	.075/1.91	.750/19.1	.375/9.5	.043/1.09	2.0/51	\$ 48.75	\$ 55.20
QIT-3201000	.320/8.13	.075/1.91	1.00/25.4	.375/9.5	.043/1.09	2.5/64	\$ 48.75	\$ 55.20
QIT-3201250	.320/8.13	.075/1.91	1.25/31.8	.375/9.5	.043/1.09	2.5/64	\$ 48.75	\$ 55.20
QIT-3201800	.320/8.13	.075/1.91	1.80/45.7	.375/9.5	.043/1.09	3.0/76	\$ 53.10	\$ 59.55
QIT-360500	.360/9.14	.085/2.16	.500/12.7	.375/9.5	.049/1.24	2.0/51	\$ 48.75	\$ 55.20
QIT-360750	.360/9.14	.085/2.16	.750/19.1	.375/9.5	.049/1.24	2.0/51	\$ 48.75	\$ 55.20
QIT-3601000	.360/9.14	.085/2.16	1.00/25.4	.375/9.5	.049/1.24	2.5/64	\$ 48.75	\$ 55.20
QIT-3601250	.360/9.14	.085/2.16	1.25/31.8	.375/9.5	.049/1.24	2.5/64	\$ 48.75	\$ 55.20
QIT-3601800	.360/9.14	.085/2.16	1.80/45.7	.375/9.5	.049/1.24	3.0/76	\$ 53.10	\$ 59.55

### 1/2" / 12.7mm Shanks

QIT-460750	.460/11.7	.120/3.05	.750/19.1	.500/12.7	.069/1.75	2.5/64	\$ 68.40	\$ 76.60
QIT-4601500	.460/11.7	.120/3.05	1.50/25.4	.500/12.7	.069/1.75	3.0/76	\$ 68.40	\$ 76.60
QIT-4602000	.460/11.7	.120/3.05	2.00/50.1	.500/12.7	.069/1.75	3.5/89	\$ 73.25	\$ 81.45
QIT-490750	.490/12.5	.120/3.05	.750/19.1	.500/12.7	.069/1.75	2.5/64	\$ 68.40	\$ 76.60
QIT-4901500	.490/12.5	.120/3.05	1.50/25.4	.500/12.7	.069/1.75	3.0/76	\$ 68.40	\$ 76.60
QIT-4902000	.490/12.5	.120/3.05	2.00/50.1	.500/12.7	.069/1.75	3.5/89	\$ 73.25	\$ 81.45

### Single Point Threading



### Methods of Infeed

	<b>RADIAL</b>	Most widely used infeed method. This method creates the most cutting force on the insert due to the entire insert cutting edge being engaged in the cut.
	<b>MODIFIED FLANK</b>	This infeed method reduces the cutting force and will wear one edge of the insert. Less heat and better chip flow can be expected with this method.
	<b>ALTERNATE</b>	This infeed method equally utilizes both cutting edges of the insert producing better chip flow.

**"QUICK-CHANGE" Face Grooving Tooling System Featuring:**

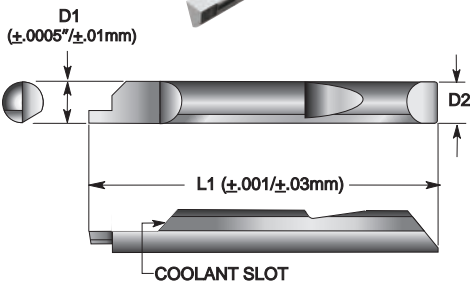
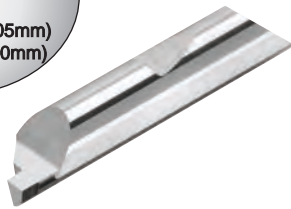
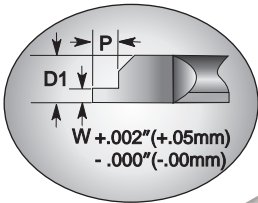
- Uncoated /Coated (AITIN) Tools.
- Face Groove Width Ranges: .020"(0.51mm)- .156"(4.0mm).
- Face Groove Depth Ranges: .050"(0.13mm) - .150"(3.8mm)
- Shank Size: 1/4"(6.4mm), 5/16"(7.9mm), 3/8"(9.5mm), 1/2"(12.7mm)
- Coolant Through Capabilities.



**QFG Face Grooving Tools Tolerances:**  
 Shank Diameter: -.0001"(-.005mm) to -.0002"(-.01mm)  
 Minimum Bore Diameter: ±.0005" (±.01mm)  
 Maximum Bore Depth: +.050"(+1.27mm)

### Face Grooving Tools

AITiN Coated Tools available...  
 Add an "X" to the end of the Catalog No.  
 example: QFG-250-030X



Right Hand, Face Grooving Tool shown,  
 Left Hand available on request..

#### 3/16" / 4.8mm Shanks

Face Grooving Tool Catalog No.	Groove Width (W)	Projection (P)	Min. Bore Diameter (D1)	Min. Groove Diameter (D1)	Shank Dia. (D2)	Overall Length (L1)	Price Uncoated	Price AITIN Coated Add "X" to end of Catalog Number
	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric	inch/metric		
QFG-180-020	.020/0.51	.050/1.3	.180/4.67	.190/4.83	.1875/4.76	1.5/38	\$ 22.75	\$ 27.05
QFG-180-030	.030/0.76	.050/1.3	.180/4.67	.190/4.83	.1875/4.76	1.5/38	\$ 22.75	\$ 27.05

#### 1/4" / 6.4mm Shanks

QFG-230-020	.020/0.51	.050/1.3	.230/5.84	.240/6.10	.2500/6.35	2.0/50	\$ 22.75	\$ 27.05
QFG-230-030	.030/0.76	.050/1.3	.230/5.84	.240/6.10	.2500/6.35	2.0/50	\$ 22.75	\$ 27.05
QFG-250-020	.020/0.51	.050/1.3	.250/6.35	.260/6.60	.2500/6.35	2.0/50	\$ 22.75	\$ 27.05
QFG-250-030	.030/0.76	.050/1.3	.250/6.35	.260/6.60	.2500/6.35	2.0/50	\$ 22.75	\$ 27.05

#### 5/16" / 7.9mm Shanks

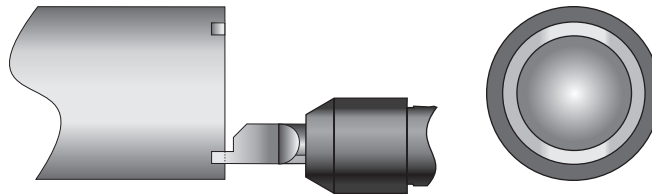
QFG-312-030	.030/0.76	.050/1.3	.312/7.92	.322/8.18	.3125/7.92	2.0/50	\$ 31.10	\$ 37.45
QFG-312-040	.040/1.02	.050/1.3	.312/7.92	.322/8.18	.3125/7.92	2.0/50	\$ 31.10	\$ 37.45
QFG-312-062	.062/1.57	.100/2.5	.312/7.92	.322/8.18	.3125/7.92	2.0/50	\$ 31.10	\$ 37.45

#### 3/8" / 9.53mm Shanks

QFG-375-062	.062/1.57	.100/2.5	.375/9.53	.385/9.78	.3750/9.53	2.0/50	\$ 43.25	\$ 49.70
QFG-375-078	.078/1.98	.100/2.5	.375/9.53	.385/9.78	.3750/9.53	2.0/50	\$ 43.25	\$ 49.70
QFG-375-093	.093/2.36	.100/2.5	.375/9.53	.385/9.78	.3750/9.53	2.0/50	\$ 43.25	\$ 49.70
QFG-375-118	.118/3.00	.150/3.8	.375/9.53	.385/9.78	.3750/9.53	2.0/50	\$ 43.25	\$ 49.70
QFG-375-125	.125/3.18	.150/3.8	.375/9.53	.385/9.78	.3750/9.53	2.0/50	\$ 43.25	\$ 49.70

#### 1/2" / 12.7mm Shanks

QFG-470-062	.062/1.57	.100/2.5	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-470-078	.078/1.98	.100/2.5	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-470-093	.093/2.36	.100/2.5	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-470-118	.118/3.00	.150/3.8	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-470-125	.125/3.18	.150/3.8	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-470-156	.156/3.96	.150/3.8	.470/11.9	.480/12.2	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-062	.062/1.57	.100/2.5	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-078	.078/1.98	.100/2.5	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-093	.093/2.36	.100/2.5	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-118	.118/3.00	.150/3.8	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-125	.125/3.18	.150/3.8	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25
QFG-490-156	.156/3.96	.150/3.8	.490/12.4	.500/12.7	.5000/12.7	2.5/64	\$ 49.05	\$ 57.25



Groove Widths from .020"(.50mm) to .156"(3.96mm) are typically used in applications to create Face Grooves with Major Diameters greater than .250"(6.35mm).

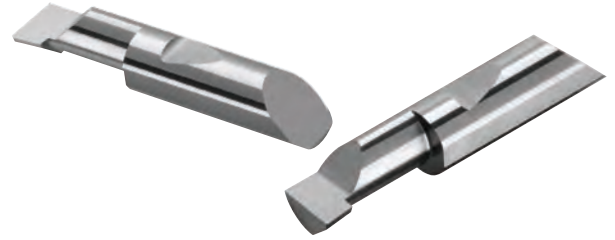
The Recommendations listed below should be considered to be only as starting points.

Selection of proper tools for the required machining applications and/or conditions such as but, not limited to rigidity of setups, tool overhang, tool clearances, and finished surface requirements.

Surface Speeds, Feed Rates, Machine RPM and Depth of Cuts will vary depending on materials being machined. Adjustments and variations may be necessary to achieve optimum machining performances and prolonged tool life.

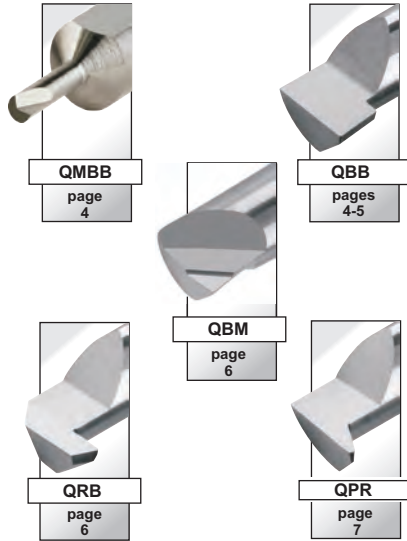
Coated versions of selected tools may allow you to increase Speed/Feed rates by 25% or more.

During Machining applications, it is recommended that the operator(s) and/or observer(s) use precautions such as, but not limited to, safety glasses with wrap around eye protection and/or safety shields on the machine(s). Grinding products manufactured by MICRO 100 Tool Corporation will produce a dust/mist that may be hazardous. Using common safety practices is recommended.



## Starting Recommendations for Boring/Profiling Applications (QMBB, QBB, QBM, QBR, QPR)

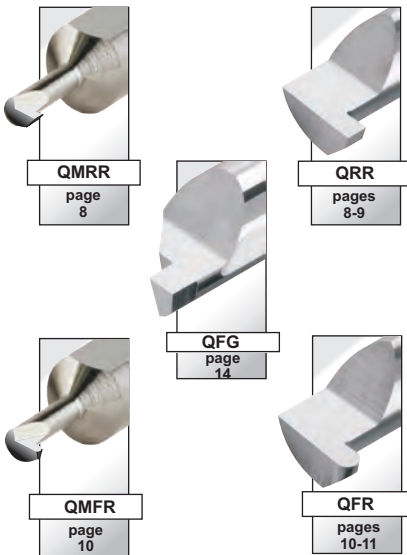
### Reduce Feed Rates for Smaller Diameter Tools



Materials	Speed (SFM) v=f/min	Speed (SFM) v=m/min	Feed (IPR) inch/r	Feed (IPR) mm/r
Aluminum/Aluminium Alloys	750-2000	229-610	.005-.012	.127-.309
Brass/Bronze	300-900	91-274	.001-.005	.025-.127
Copper/Copper Alloys	600-900	183-274	.003-.005	.076-.254
Cast Iron, Soft	470-480	143-146	.003-.010	.076-.254
Cast Iron, Hard	300-400	91-122	.003-.010	.076-.254
Ductile Irons	300-400	91-122	.003-.010	.076-.254
Malleable Iron	350-400	107-122	.003-.010	.076-.254
Magnesium/Magnesium Alloys	750-2000	229-610	.005-.012	.127-.309
Monel/High Nickel Steels	80-120	24-37	.001-.003	.025-.076
Nickle Base Hi-Temperature Alloys	100-250	30-76	.002-.005	.051-.076
Inconels	70-120	21-37	.001-.003	.025-.076
Rene 41	60-100	18-30	.001-.002	.025-.051
Plastics	700-2000	213-610	.002-.006	.051-.152
Plastics, Glass Filled	700-800	213-244	.001-.003	.025-.076
Refractory Alloys	700-800	213-244	.001-.003	.025-.076
Steels, Low Carbon	350-475	107-145	.003-.008	.076-.203
Steels, Medium Carbon	300-400	91-122	.003-.008	.076-.203
Steels, Hardened 35-40 RC	90-125	27-38	.001-.003	.025-.076
Steels, Hardened 40+ RC	90-125	27-38	.001-.002	.025-.051
Steels, D-2	150-250	46-76	.002-.004	.051-.102
Stainless Steels, 316	100-250	30-76	.001-.004	.025-.102
Stainless Steels, 304	100-250	30-76	.001-.004	.025-.102
Stainless Steels, 17-4	300-400	91-122	.002-.004	.051-.102
Stainless Steels, 15-5	300-400	92-122	.002-.004	.051-.102
Titanium, Soft	90-250	27-76	.001-.003	.025-.076
Titanium, Hard	90-250	27-76	.001-.003	.025-.076
Waspalloys	70-120	21-37	.001-.003	.025-.076

## Starting Recommendations for Grooving Applications (QMRR, QRR, QMFR, QFR, QFG)

### Reduce Feed Rates for Smaller Diameter Tools



Materials	Speed (SFM) v=f/min	Speed (SFM) v=m/min	Feed (IPR) inch/r	Feed (IPR) mm/r
Aluminum/Aluminium Alloys	750-2000	229-610	.005-.012	.127-.309
Brass/Bronze	300-900	91-274	.001-.005	.025-.127
Copper/Copper Alloys	600-900	183-274	.003-.005	.076-.254
Cast Iron, Soft	470-480	143-146	.003-.010	.076-.254
Cast Iron, Hard	300-400	91-122	.003-.010	.076-.254
Ductile Irons	300-400	91-122	.003-.010	.076-.254
Malleable Iron	350-400	107-122	.003-.010	.076-.254
Magnesium/Magnesium Alloys	750-2000	229-610	.005-.012	.127-.309
Monel/High Nickel Steels	80-120	24-37	.001-.003	.025-.076
Nickle Base Hi-Temperature Alloys	100-250	30-76	.002-.005	.051-.076
Inconels	70-120	21-37	.001-.003	.025-.076
Rene 41	60-100	18-30	.001-.002	.025-.051
Plastics	700-2000	213-610	.002-.006	.051-.152
Plastics, Glass Filled	700-800	213-244	.001-.003	.025-.076
Refractory Alloys	700-800	213-244	.001-.003	.025-.076
Steels, Low Carbon	350-475	107-145	.003-.008	.076-.203
Steels, Medium Carbon	300-400	91-122	.003-.008	.076-.203
Steels, Hardened 35-40 RC	90-125	27-38	.001-.003	.025-.076
Steels, Hardened 40+ RC	90-125	27-38	.001-.002	.025-.051
Steels, D-2	150-250	46-76	.002-.004	.051-.102
Stainless Steels, 316	100-250	30-76	.001-.004	.025-.102
Stainless Steels, 304	100-250	30-76	.001-.004	.025-.102
Stainless Steels, 17-4	300-400	91-122	.002-.004	.051-.102
Stainless Steels, 15-5	300-400	92-122	.002-.004	.051-.102
Titanium, Soft	90-250	27-76	.001-.003	.025-.076
Titanium, Hard	90-250	27-76	.001-.003	.025-.076
Waspalloys	70-120	21-37	.001-.003	.025-.076

Starting Recommendations for Threading Applications (QIT Tools)

Reduce Feed Rates for Smaller Diameter Tools



QIT  
pages  
12-13

Materials	Speed (SFM) v=f/min	Speed (SFM) v=m/min	Feed (IPR) inch/r	Feed (IPR) mm/r
Aluminum/Aluminium Alloys	600-2200	182-670	.005-.012	.127-.309
Brass/Bronze	300-900	92-274	.001-.005	.025-.127
Copper/Copper Alloys	300-900	92-274	.003-.005	.076-.254
Cast Iron, Soft	200-550	60-146	.003-.010	.076-.254
Cast Iron, Hard	300-600	92-182	.003-.010	.076-.254
Ductile Irons	250-450	76-137	.003-.010	.076-.254
Malleable Iron	250-450	76-137	.003-.010	.076-.254
Magnesium/Magnesium Alloys	600-2200	182-670	.005-.012	.127-.309
Monel/High Nickel Steels	50-100	15-30	.001-.003	.025-.076
Nickle Base Hi-Temperature Alloys	50-100	15-30	.002-.005	.051-.076
Inconels	50-80	15-24	.001-.003	.025-.076
Rene 41	50-80	15-24	.001-.002	.025-.051
Plastics	350-1500	213-610	.002-.006	.051-.152
Plastics, Glass Filled	250-440	76-134	.001-.003	.025-.076
Refractory Alloys	200-400	60-122	.001-.003	.025-.076
Steels, Low Carbon	250-500	76-152	.003-.008	.076-.203
Steels, Medium Carbon	250-500	76-152	.003-.008	.076-.203
Steels, Hardened 35-40 RC	200-400	60-122	.001-.003	.025-.076
Steels, Hardened 40+ RC	100-300	27-38	.001-.002	.025-.051
Steels, D-2	250-400	76-122	.002-.004	.051-.102
Stainless Steels, 316	300-600	92-182	.001-.004	.025-.102
Stainless Steels, 304	300-600	92-182	.001-.004	.025-.102
Stainless Steels, 17-4	65-120	20-122	.002-.004	.051-.102
Stainless Steels, 15-5	65-120	20-122	.002-.004	.051-.102
Titanium, Soft	80-300	24-92	.001-.003	.025-.076
Titanium, Hard	80-200	24-60	.001-.003	.025-.076
Waspalloys	50-80	15-24	.001-.003	.025-.076

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