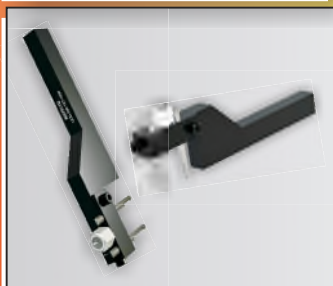
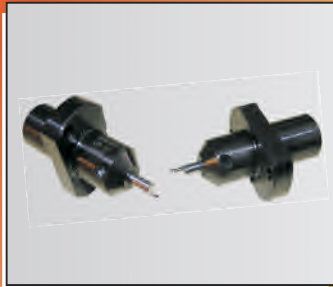


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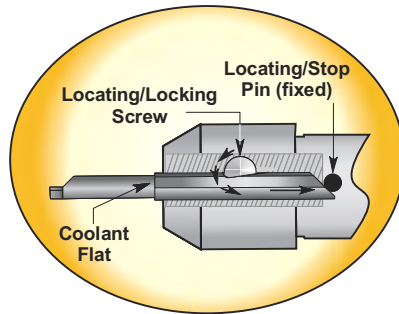
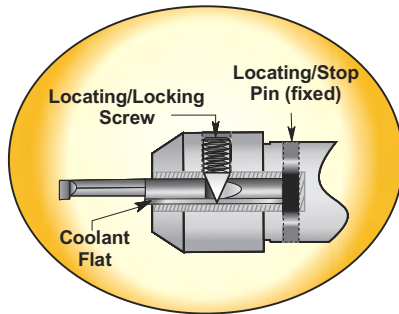


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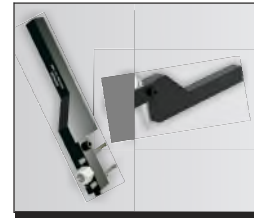
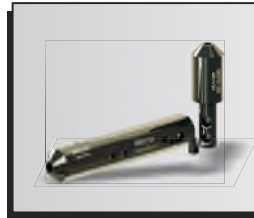
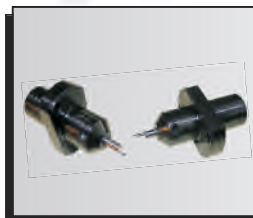
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BORING, GROOVING, PROFILING, AND THREADING
TOOLING SYSTEM.



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



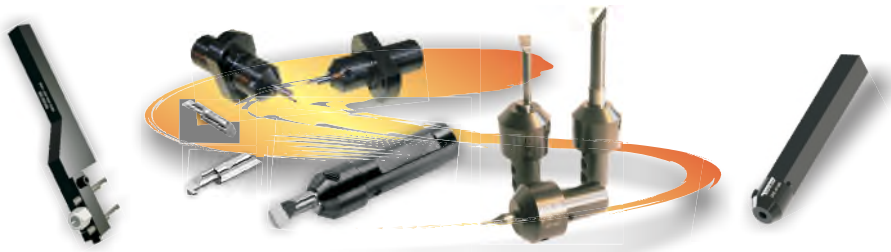
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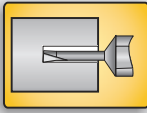
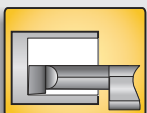
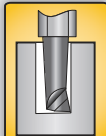
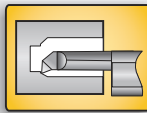
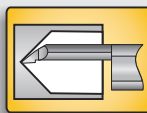
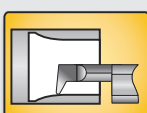
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- Bore, Groove, Face Groove, Profile, or Thread!
- Machine Aluminum, Brass, Copper, Steels, Stainless Steels, High Temperature Alloys, Thermoplastics, Exotic Metals, and Composites.
- Will not Chip or Break under Normal Machining Conditions!
- Tools Manufactured with our Exclusive MICRO 100 Proprietary Process!

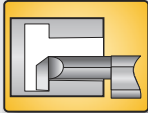
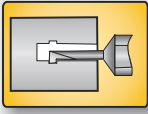
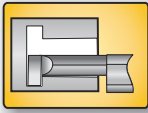
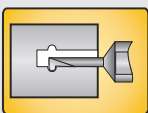
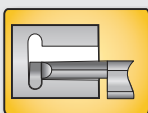
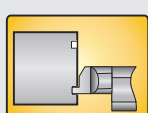
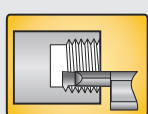
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| pages 10-12 | QBB Boring Tools |  | Minimum Bore Ranges: .050" (1.27mm) - .490" (12.5mm) Maximum Bore Depths: .150" (3.8mm) - 3.000" (76.2mm) Shank Sizes: .187" (4.8mm) - .500" (12.7mm) |
| page 13 | QBM Boring Tools for Milling Machines |  | Minimum Bore Ranges: .118" (3.00mm) - .460" (11.7mm) Maximum Bore Depths: .500" (12.7mm) - 3.000" (76.2mm) Shank Sizes: .187" (4.8mm) - .500" (12.7mm) |
| page 14-15 | QBT Boring Tools with Top Rake Chipbreakers |  | Minimum Bore Ranges: .050" (1.27mm) - .490" (12.5mm) Maximum Bore Depths: .200" (5.1mm) - 2.100" (53.3mm) Shank Sizes: .187" (4.8mm) - .500" (12.7mm) |
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| page 18 | QPR Profiling Tools |  | Minimum Bore Ranges: .070" (1.78mm) - .490" (12.5mm) Maximum Bore Depths: .200" (5.1mm) - 1.800" (45.7mm) Shank Sizes: .187" (4.8mm) - .500" (12.7mm) |

Precision, Solid Carbide Cutting Tools
Engineered and Manufactured to meet and/or exceed
your Specifications for your particular Machining Application needs!

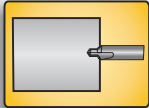






| | | | |
|--|---|--|------------------------|
| <p>Minimum Bore Ranges: .156"(3.96mm) - .490"(12.5mm)</p> <p>Maximum Bore Depths: .500"(12.7mm) - 1.800"(45.7mm)</p> <p>Shank Sizes: .187"(4.8mm) - .500"(12.7mm)</p> |  | <p>QRB Reverse Boring Tools</p> | <p>page 19</p> |
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WILL NOT CHIP OR BREAK UNDER NORMAL MACHINING CONDITIONS!







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Unmatched in Toughness and Application Versatility.
Superior in Material Removal and Tool Life!

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| page 32 | QDC Combined Drill/Countersink Tools |  | Drill Diameter Ranges: .025"(0.64mm) - .219"(5.6mm) Drill Length Ranges: .031"(0.80mm) - .219"(5.6mm) Shank Sizes: .187"(4.8mm) - .500"(12.7mm) |
| page 33 | QSP / QSR Precision Ground Cutting Tool Blanks |  | Overall Length Ranges: 1.500"(38mm) - 4.500"(114mm) Split Length Ranges: .375"(9.5mm) - .625"(15.9mm) Shank Sizes: .187"(4.8mm) - .500"(12.7mm) |
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Machine Aluminum, Copper, Brass, Steels, Stainless Steels,
High Temperature Alloys, Thermoplastics, Exotic Metals, and Composites!

| | | | |
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MICRO 100 products are superior in metal removal with tool life performance that exceed our customers expectations.

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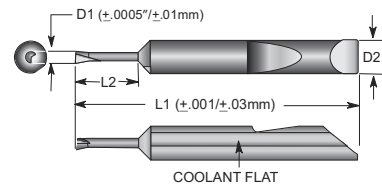
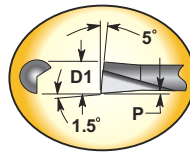
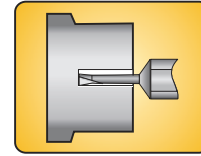
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Minimum Bore Ranges:
.015" (0.38mm) - .100" (2.54mm)

QMBB Boring Tools Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
+.0005" (+.01mm)
Maximum Bore Depths:
For bore diameters .015" (0.38mm) thru .045" (1.14mm),
bore depth tolerance is +.015" (.038mm) / -.000" (0mm)
For bore diameters .050" (1.27mm) and above, bore
depth tolerance is +.015" (.038mm) / -.000" (0mm)

AITiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QMBB-015050X

Left Hand Tools available upon request. +.030" (+0.76mm) - .000" (0mm)**

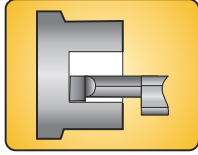


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| QMBB Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch/metric | inch/metric | inch/metric | inch/metric | inch/metric | inch/metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QMBB-015050 | .015 / 0.38 | .050 / 1.3 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-020075 | .020 / 0.51 | .075 / 1.9 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-025100 | .025 / 0.64 | .100 / 2.5 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-030100 | .030 / 0.76 | .100 / 2.5 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-035100 | .035 / 0.89 | .100 / 2.5 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-035150 | .035 / 0.89 | .150 / 3.8 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-040150 | .040 / 1.02 | .150 / 3.8 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-040200 | .040 / 1.02 | .200 / 5.1 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-045150 | .045 / 1.14 | .150 / 3.8 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-045200 | .045 / 1.14 | .200 / 5.1 | .005 / 0.01 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-050150 | .050 / 1.27 | .150 / 3.8 | .013 / 0.33 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-050200 | .050 / 1.27 | .200 / 5.1 | .013 / 0.33 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-050300 | .050 / 1.27 | .300 / 7.6 | .013 / 0.33 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-060150 | .060 / 1.52 | .150 / 3.8 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-060200 | .060 / 1.52 | .200 / 5.1 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-060300 | .060 / 1.52 | .300 / 7.6 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-060400 | .060 / 1.52 | .400 / 10.2 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-060500 | .060 / 1.52 | .500 / 12.7 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-070150 | .070 / 1.78 | .150 / 3.8 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
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| QMBB-070300 | .070 / 1.78 | .300 / 7.6 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-070400 | .070 / 1.78 | .400 / 10.2 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-070500 | .070 / 1.78 | .500 / 12.7 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-080150 | .080 / 2.03 | .150 / 3.8 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-080200 | .080 / 2.03 | .200 / 5.1 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-080300 | .080 / 2.03 | .300 / 7.6 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-080500 | .080 / 2.03 | .500 / 12.7 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-080600 | .080 / 2.03 | .600 / 15.2 | .020 / 0.51 | 0 / 0 | 2.000 / 51 | .1875 / 4.8 |
| QMBB-090300 | .090 / 2.29 | .300 / 7.6 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
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| QMBB-090700 | .090 / 2.29 | .700 / 17.8 | .020 / 0.51 | 0 / 0 | 2.000 / 51 | .1875 / 4.8 |
| QMBB-100300 | .100 / 2.54 | .300 / 7.6 | .025 / 0.64 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-100500 | .100 / 2.54 | .500 / 12.7 | .025 / 0.64 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QMBB-100700 | .100 / 2.54 | .700 / 17.8 | .025 / 0.64 | 0 / 0 | 2.000 / 51 | .1875 / 4.8 |
| QMBB-100800 | .100 / 2.54 | .800 / 20.3 | .025 / 0.64 | 0 / 0 | 2.000 / 51 | .1875 / 4.8 |

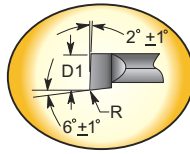
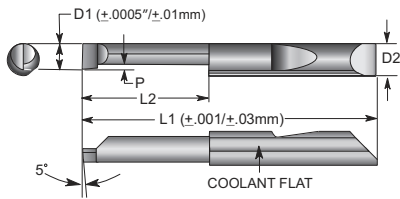
See pages 34-42 for Toolholder Selections.

QBB
Boring Tools



Minimum Bore Ranges:
.050"(1.27mm) - .160"(4.06mm)

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



AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QBB-050150X
Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QBB Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Nose Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QBB-050150 | .050 / 1.27 | .150 / 3.8 | .013 / 0.33 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QBB-050200 | | .200 / 5.1 | | | | |
| QBB-050300 | | .300 / 7.6 | | | | |
| QBB-050400 | | .400 / 10.2 | | | | |
| QBB-060150 | .060 / 1.52 | .150 / 3.8 | .015 / 0.38 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QBB-060200 | | .200 / 5.1 | | | | |
| QBB-060300 | | .300 / 7.6 | | | | |
| QBB-060400 | | .400 / 10.2 | | | | |
| QBB-060500 | | .500 / 12.7 | | | | |
| QBB-080200 | .080 / 2.03 | .200 / 5.1 | .020 / 0.51 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QBB-080300 | | .300 / 7.6 | | | | |
| QBB-080500 | | .500 / 12.7 | | | | |
| QBB-080600 | | .600 / 15.2 | | | | |
| QBB-100200 | .100 / 2.54 | .200 / 5.1 | .025 / 0.64 | 0 / 0 | 1.500 / 38 | .1875 / 4.8 |
| QBB-100300 | | .300 / 7.6 | | | | |
| QBB-100500 | | .500 / 12.7 | | | | |
| QBB-100700 | | .700 / 17.8 | | | | |
| QBB-110300 | .110 / 2.79 | .300 / 7.6 | .028 / 0.71 | .003 / 0.08 | 1.500 / 38 | .1875 / 4.8 |
| QBB-110500 | | .500 / 12.7 | | | | |
| QBB-110700 | | .700 / 17.8 | | | | |
| QBB-120250 | .120 / 3.05 | .250 / 6.4 | .030 / 0.76 | .003 / 0.08 | 1.500 / 38 | .1875 / 4.8 |
| QBB-120350 | | .350 / 8.9 | | | | |
| QBB-120500 | | .500 / 12.7 | | | | |
| QBB-120700 | | .700 / 17.8 | | | | |
| QBB-120800 | | .800 / 20.3 | | | | |
| QBB-140400 | .140 / 3.56 | .400 / 10.2 | .035 / 0.89 | .003 / 0.08 | 1.500 / 38 | .1875 / 4.8 |
| QBB-140600 | | .600 / 15.2 | | | | |
| QBB-140800 | | .800 / 20.3 | | | | |
| QBB-160400 | .160 / 4.06 | .400 / 10.2 | .040 / 1.02 | .003 / 0.08 | 1.500 / 38 | .1875 / 4.8 |
| QBB-160600 | | .600 / 15.2 | | | | |
| QBB-160750 | | .750 / 19.1 | | | | |
| QBB-1601000 | | 1.00 / 25.4 | | | | |

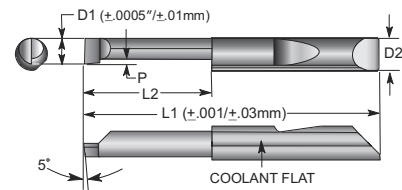
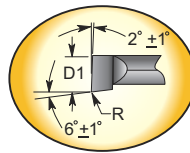
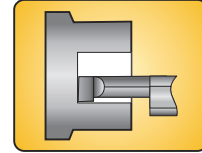
See pages 34-42 for Toolholder Selections.

Minimum Bore Ranges:
.180" (4.57mm) - .290" (7.37mm)

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

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QBB-180500X

Left Hand Tools available upon request.



For current pricing, please visit our website at: www.micro100.com

| QBB Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Nose Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 1/4" / 6.4mm Shanks | | | | | | |
| QBB-180500 | .180 / 4.57 | .500 / 12.7 | .045 / 1.14 | .005 / 0.13 | 2.000 / 51 | .2500 / 6.4 |
| QBB-180750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBB-1801000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-1801250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBB-1801500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-200500 | .200 / 5.08 | .500 / 12.7 | .050 / 1.27 | .005 / 0.13 | 2.000 / 51 | .2500 / 6.4 |
| QBB-200750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBB-2001000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-2001200 | | 1.20 / 30.5 | | | 2.500 / 64 | |
| QBB-2001500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QBB-230500 | .230 / 5.84 | .500 / 12.7 | .050 / 1.27 | .005 / 0.13 | 2.000 / 51 | .3125 / 9.5 |
| QBB-230750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBB-2301000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-2301250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBB-2301500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-2301600 | 1.60 / 40.7 | 3.000 / 76 | | | | |
| QBB-290500 | .290 / 7.37 | .500 / 12.7 | .050 / 1.27 | .005 / 0.13 | 2.000 / 51 | .3125 / 9.5 |
| QBB-290750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBB-2901000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-2901250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBB-2901500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-2901750 | 1.75 / 44.5 | 3.000 / 76 | | | | |

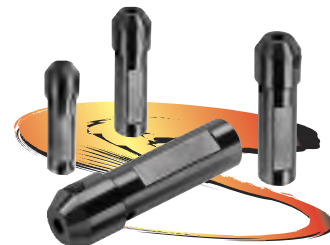
See pages 34-42 for Toolholder Selections.



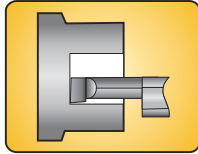
Bore Diameters as small as...0.015"!

Toolholders available in both
Inch or Metric Shank Sizes.

Standard or Extended
Lengths.

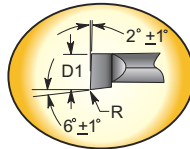
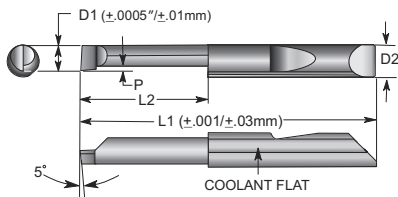


QBB
Boring Tools



Minimum Bore Ranges:
.320" (8.13mm) - .490" (12.5mm)

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



AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QBB-320500X
Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QBB Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/8" / 9.5mm Shanks | | | | | | |
| QBB-320500 | .320 / 8.13 | .500 / 12.7 | .080 / 2.03 | .005 / 0.13 | 2.000 / 51 | .3750 / 9.5 |
| QBB-320750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBB-3201000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-3201250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBB-3201500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-3201800 | | 1.80 / 45.7 | | | 3.000 / 76 | |
| QBB-3202000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QBB-3202500 | | 2.50 / 63.5 | | | 4.000 / 102 | |
| QBB-360750 | .360 / 9.14 | .750 / 19.1 | .090 / 2.29 | .005 / 0.13 | 2.000 / 51 | .3750 / 9.5 |
| QBB-3601000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QBB-3601250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBB-3601500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-3601800 | | 1.80 / 45.7 | | | 3.000 / 76 | |
| QBB-3602000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QBB-3602500 | 2.50 / 63.5 | 4.000 / 102 | | | | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QBB-4601000 | .460 / 11.7 | 1.00 / 25.4 | .115 / 2.92 | .005 / 0.13 | 2.500 / 64 | .5000 / 12.7 |
| QBB-4601250 | | 1.25 / 31.8 | | | 3.000 / 76 | |
| QBB-4601500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-4602000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QBB-4602500 | | 2.50 / 63.5 | | | 4.000 / 102 | |
| QBB-4603000 | 3.00 / 76.2 | 4.500 / 114 | | | | |
| QBB-4901000 | .490 / 12.5 | 1.00 / 25.4 | .123 / 3.12 | .005 / 0.13 | 2.500 / 64 | .5000 / 12.7 |
| QBB-4901250 | | 1.25 / 31.8 | | | 3.000 / 76 | |
| QBB-4901500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBB-4902000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QBB-4902500 | | 2.50 / 63.5 | | | 4.000 / 102 | |
| QBB-4903000 | | 3.00 / 76.2 | | | 4.500 / 114 | |

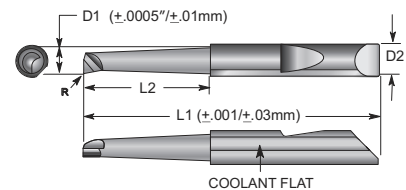
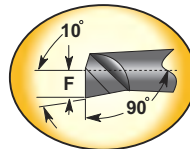
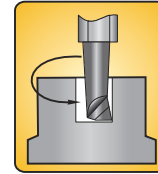
See pages 34-42 for Toolholder Selections.

Minimum Bore Ranges:
.118"(3.00mm) - .460"(11.7mm)

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

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QBM-118500X

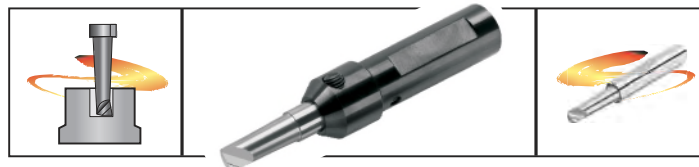
Left Hand Tools available upon request.



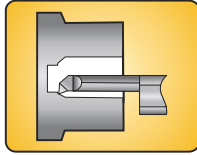
For current pricing, please visit our website at: www.micro100.com

| QBM Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Centerline Dimension (F) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|--------------------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 1/4" / 6.4mm Shanks | | | | | | |
| QBM-118500 | .118 / 3.00 | .500 / 12.7 | .055 / 1.4 | .003 / 0.08 | 2.000 / 51 | .2500 / 6.4 |
| QBM-118750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBM-150500 | .150 / 3.81 | .500 / 12.7 | .071 / 1.8 | .003 / 0.08 | 2.000 / 51 | .2500 / 6.4 |
| QBM-150750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBM-200500 | .200 / 5.08 | .500 / 12.7 | .095 / 2.4 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QBM-200750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QBM-2001250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBM-230750 | .230 / 5.84 | .750 / 19.1 | .110 / 2.8 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QBM-2301250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QBM-2301500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| 3/8" / 9.5mm Shanks | | | | | | |
| QBM-3001000 | .300 / 7.62 | 1.00 / 25.4 | .145 / 3.7 | .008 / 0.20 | 2.500 / 64 | .3750 / 9.5 |
| QBM-3001500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBM-3001750 | | 1.75 / 44.5 | | | 3.000 / 76 | |
| QBM-3601000 | .360 / 9.14 | 1.00 / 25.4 | .175 / 4.5 | .008 / 0.20 | 2.500 / 64 | .3750 / 9.5 |
| QBM-3601500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBM-3602000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QBM-4601000 | .460 / 11.7 | 1.00 / 25.4 | .225 / 5.7 | .008 / 0.20 | 2.500 / 64 | .5000 / 12.7 |
| QBM-4601500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QBM-4602000 | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QBM-4602500 | | 2.50 / 63.5 | | | 4.000 / 102 | |
| QBM-4603000 | | 3.00 / 76.2 | | | 4.500 / 114 | |

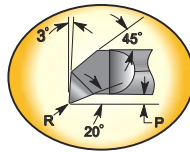
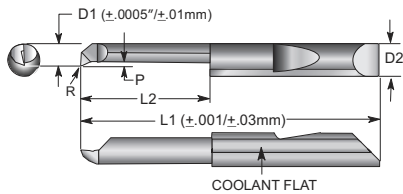
See pages 34-42 for Toolholder Selections.



QBT
Boring Tools with Top Rake Chipbreaker



Top Rake Chipbreaker promotes better chip control.



Minimum Bore Ranges:
.050" (1.27mm) - .200" (5.08mm)

QBT Boring and Profiling Tools (with Top Rake Chipbreaker) Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
+.0005" (+.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QBT-050200X

Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QBT Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QBT-050200 | .050 / 1.27 | .200 / 5.1 | .005 / 0.13 | .002 / 0.05 | 1.500 / 38 | .1875 / 4.8 |
| QBT-050400 | | .400 / 10.2 | | | | |
| QBT-050500 | | .500 / 12.7 | | | | |
| QBT-060200 | .060 / 1.52 | .200 / 5.1 | .007 / 0.18 | .002 / 0.05 | 1.500 / 38 | .1875 / 4.8 |
| QBT-060400 | | .400 / 10.2 | | | | |
| QBT-060500 | | .500 / 12.7 | | | | |
| QBT-070200 | .070 / 1.78 | .200 / 5.1 | .015 / 0.38 | .004 / 0.10 | 1.500 / 38 | .1875 / 4.8 |
| QBT-070400 | | .400 / 10.2 | | | | |
| QBT-070600 | | .600 / 15.2 | | | | |
| QBT-110250 | .110 / 2.79 | .250 / 6.4 | .015 / 0.38 | .004 / 0.10 | 1.500 / 38 | .1875 / 4.8 |
| QBT-110500 | | .500 / 12.7 | | | | |
| QBT-110750 | | .750 / 19.1 | | | | |
| QBT-120250 | .120 / 3.05 | .250 / 6.4 | .020 / 0.51 | .004 / 0.10 | 1.500 / 38 | .1875 / 4.8 |
| QBT-120500 | | .500 / 12.7 | | | | |
| QBT-120750 | | .750 / 19.1 | | | | |
| QBT-1201000 | | 1.00 / 25.4 | | | 2.000 / 64 | |
| QBT-160500 | .160 / 4.06 | .500 / 6.4 | .025 / 0.64 | .004 / 0.10 | 1.500 / 38 | .1875 / 4.8 |
| QBT-160750 | | .750 / 19.1 | | | | |
| QBT-1601000 | | 1.00 / 25.4 | | | | |
| QBT-1601250 | | 1.25 / 31.8 | | | | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QBT-180500 | .180 / 4.57 | .500 / 6.4 | .030 / 0.76 | .006 / 0.10 | 2.000 / 51 | .2500 / 6.4 |
| QBT-180750 | | .750 / 19.1 | | | | |
| QBT-1801000 | | 1.00 / 25.4 | | | | |
| QBT-1801250 | | 1.25 / 31.8 | | | | |
| QBT-1801500 | | 1.50 / 38.1 | | | | |
| QBT-200600 | .200 / 5.08 | .600 / 15.2 | .030 / 0.76 | .006 / 0.10 | 2.000 / 51 | .2500 / 6.4 |
| QBT-2001000 | | 1.00 / 25.4 | | | | |
| QBT-2001250 | | 1.25 / 31.8 | | | | |
| QBT-2001500 | | 1.50 / 38.1 | | | | |

See pages 34-42 for Toolholder Selections.

Minimum Bore Ranges:
.230" (5.84mm) - .490" (12.5mm)

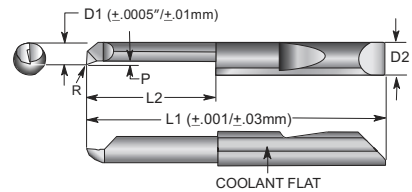
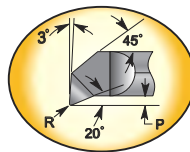
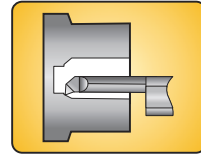
QBT Boring and Profiling Tools (with Top Rake Chipbreaker) Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QBT-230750X

Left Hand Tools available upon request.



Top Rake Chipbreaker promotes better chip control.



For current pricing, please visit our website at: www.micro100.com

| QBT Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 5/16" / 7.9mm Shanks | | | | | | |
| QBT-230750 | .230 / 5.84 | .750 / 19.1 | .040 / 1.02 | .006 / 0.10 | 2.000 / 51 | .3125 / 7.9 |
| QBT-2301100 | | 1.10 / 27.9 | | | 2.500 / 64 | |
| QBT-2301300 | | 1.30 / 33.0 | | | 2.500 / 64 | |
| QBT-2301600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| 3/8" / 9.5mm Shanks | | | | | | |
| QBT-3001000 | .300 / 7.62 | 1.00 / 25.4 | .050 / 1.27 | .006 / 0.10 | 2.500 / 64 | .3750 / 9.5 |
| QBT-3001600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| QBT-3002100 | | 2.10 / 53.3 | | | 3.500 / 89 | |
| QBT-3601000 | .360 / 9.14 | 1.00 / 25.4 | .050 / 1.27 | .006 / 0.10 | 2.500 / 64 | .3750 / 9.5 |
| QBT-3601600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| QBT-3602100 | | 2.10 / 53.3 | | | 3.500 / 89 | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QBT-4601000 | .460 / 11.7 | 1.00 / 25.4 | .075 / 1.91 | .006 / 0.10 | 2.500 / 64 | .5000 / 12.7 |
| QBT-4601600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| QBT-4602100 | | 2.10 / 53.3 | | | 3.500 / 89 | |
| QBT-4901000 | .490 / 12.5 | 1.00 / 25.4 | .075 / 1.91 | .006 / 0.10 | 2.500 / 64 | .5000 / 12.7 |
| QBT-4901600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| QBT-4902100 | | 2.10 / 53.3 | | | 3.500 / 89 | |

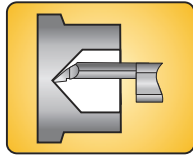
See pages 34-42 for Toolholder Selections.



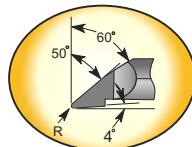
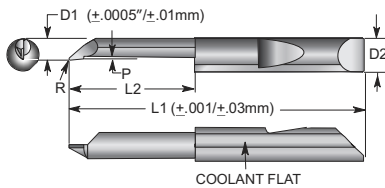
SPECIALS!!!

Precision Cutting Tools Engineered and Manufactured to meet
Your Specifications for **Your** Particular Machining Applications needs!

QPF
Boring and Profiling Tools



QPF
Tool Design allows for clearance while machining a 45 degree cone!



Minimum Bore Ranges:
.050" (1.27mm) - .200" (5.08mm)

QPF Boring and Profiling Tool Tolerances:
Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter: ±.0005" (±.01mm)
Maximum Bore Depth: +.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QPF-070200X
Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QPF Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QPF-050200 | .050 / 1.27 | .200 / 5.1 | .025 / 0.64 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPF-050400 | | .400 / 10.2 | | | | |
| QPF-050500 | | .500 / 12.7 | | | | |
| QPF-060200 | .060 / 1.52 | .200 / 5.1 | .050 / 1.27 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPF-060400 | | .400 / 10.2 | | | | |
| QPF-060500 | | .500 / 12.7 | | | | |
| QPF-070200 | .070 / 1.78 | .200 / 5.1 | .025 / 0.64 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPF-070400 | | .400 / 10.2 | | | | |
| QPF-070500 | | .500 / 12.7 | | | | |
| QPF-070600 | | .600 / 15.2 | | | | |
| QPF-110250 | .110 / 2.79 | .250 / 6.4 | .040 / 1.02 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPF-110500 | | .500 / 12.7 | | | | |
| QPF-110750 | | .750 / 19.1 | | | | |
| QPF-120250 | .120 / 3.05 | .250 / 6.4 | .050 / 1.27 | .008 / 0.20 | 1.500 / 38 | .1875 / 4.8 |
| QPF-120500 | | .500 / 12.7 | | | | |
| QPF-120750 | | .750 / 19.1 | | | | |
| QPF-1201000 | | 1.00 / 25.4 | | | | |
| QPF-160500 | .160 / 4.06 | .500 / 12.7 | .050 / 1.27 | .008 / 0.20 | 1.500 / 38 | .1875 / 4.8 |
| QPF-160750 | | .750 / 19.1 | | | | |
| QPF-1601000 | | 1.00 / 25.4 | | | | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QPF-180500 | .180 / 4.57 | .500 / 12.7 | .080 / 2.03 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QPF-180750 | | .750 / 19.1 | | | | |
| QPF-1801000 | | 1.00 / 25.4 | | | | |
| QPF-200600 | .200 / 5.08 | .600 / 15.2 | .080 / 2.03 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QPF-2001000 | | 1.00 / 25.4 | | | | |

See pages 34-42 for Toolholder Selections.

Superior...High Quality...Solid Carbide
Quick-Change Tooling for
Most Machining Applications!



Minimum Bore Ranges:
.230" (5.84mm) - .490" (12.5mm)

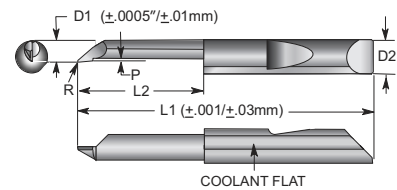
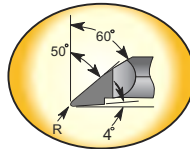
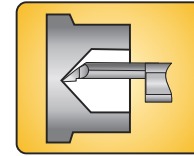
QPF Boring and Profiling Tool
Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
+.0005" (+.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QPF-070200X

Left Hand Tools available upon request.



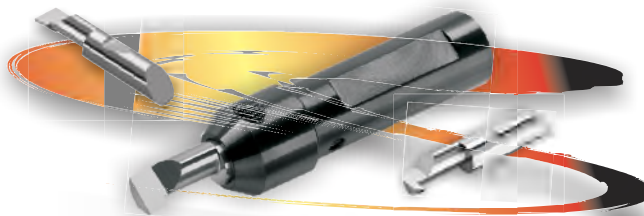
QPF
Tool Design allows for
clearance while machining a
45 degree cone!



For current pricing, please visit our website at: www.micro100.com

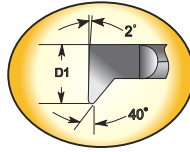
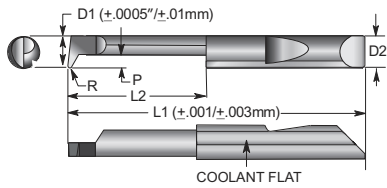
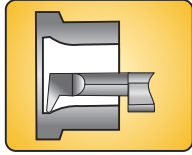
| QPF Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 5/16" / 7.9mm Shanks | | | | | | |
| QPF-230750 | .230 / 5.84 | .750 / 19.1 | .080 / 2.03 | .008 / 0.20 | 2.000 / 51 | .3125 / 7.9 |
| QPF-2301000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QPF-2301100 | | 1.10 / 27.9 | | | 2.500 / 64 | |
| QPF-2301250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QPF-3001000 | .300 / 7.62 | 1.00 / 25.4 | .100 / 2.79 | .008 / 0.20 | 2.500 / 51 | .3125 / 7.9 |
| QPF-3001250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| 3/8" / 9.5mm Shanks | | | | | | |
| QPF-3601000 | .360 / 9.14 | 1.00 / 25.4 | .130 / 3.30 | .008 / 0.20 | 2.500 / 64 | .3750 / 9.5 |
| QPF-3601250 | | 1.25 / 31.8 | | | | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QPF-4601000 | .460 / 11.7 | 1.00 / 25.4 | .150 / 3.81 | .008 / 0.20 | 2.500 / 64 | .5000 / 12.7 |
| QPF-4601500 | | 1.50 / 31.8 | | | 3.000 / 76 | |
| QPF-4601600 | | 1.60 / 40.6 | | | 3.500 / 89 | |
| QPF-4601800 | | 1.80 / 45.7 | | | 3.500 / 89 | |
| QPF-4602100 | | 2.10 / 53.3 | | | 4.000 / 102 | |
| QPF-4901000 | .490 / 12.5 | 1.00 / 25.4 | .150 / 3.81 | .008 / 0.20 | 2.500 / 64 | .5000 / 12.7 |
| QPF-4901500 | | 1.50 / 31.8 | | | 3.000 / 76 | |
| QPF-4901600 | | 1.60 / 40.6 | | | 3.000 / 76 | |
| QPF-4901800 | | 1.80 / 45.7 | | | 3.500 / 89 | |
| QPF-4902100 | | 2.10 / 53.3 | | | 4.000 / 102 | |

See pages 34-42 for Toolholder Selections.



• BORE • GROOVE • FACE GROOVE • PROFILE • THREAD •
...FROM ONE (1) TOOL STATION!

QPR
Profiling Tools



Minimum Bore Ranges:
.070" (1.78mm) - .490" (12.5mm)

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

AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QPR-070200X
Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QPR Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QPR-070200 | .070 / 1.78 | .200 / 5.1 | .025 / 0.64 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPR-070300 | | .300 / 7.6 | | | | |
| QPR-070500 | | .500 / 12.7 | | | | |
| QPR-110250 | .110 / 2.79 | .250 / 6.4 | .040 / 1.02 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QPR-110500 | | .500 / 12.7 | | | | |
| QPR-120250 | .120 / 3.05 | .250 / 6.4 | .050 / 1.27 | .008 / 0.20 | 1.500 / 38 | .1875 / 4.8 |
| QPR-120500 | | .500 / 12.7 | | | 1.500 / 38 | |
| QPR-120750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QPR-160500 | .160 / 4.06 | .500 / 12.7 | .050 / 1.27 | .008 / 0.20 | 1.500 / 38 | .1875 / 4.8 |
| QPR-160750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QPR-1601000 | | 1.00 / 25.4 | | | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QPR-180500 | .180 / 4.57 | .500 / 12.7 | .080 / 2.03 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QPR-180750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QPR-1801000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QPR-230750 | .230 / 5.84 | .750 / 19.1 | .080 / 2.03 | .008 / 0.20 | 2.000 / 51 | .3125 / 7.9 |
| QPR-2301000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QPR-2301250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| QPR-3001000 | .300 / 7.62 | 1.00 / 25.4 | .110 / 2.79 | .008 / 0.20 | 2.500 / 64 | .3125 / 7.9 |
| QPR-3001250 | | 1.25 / 31.8 | | | | |
| 3/8" / 9.5mm Shanks | | | | | | |
| QPR-3601000 | .360 / 9.14 | 1.00 / 25.4 | .130 / 3.30 | .008 / 0.20 | 2.500 / 64 | .3750 / 9.5 |
| QPR-3601250 | | 1.25 / 31.8 | | | | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QPR-4601000 | .460 / 11.7 | 1.00 / 25.4 | .150 / 3.81 | .008 / 0.20 | 2.500 / 64 | .5000 / 12.7 |
| QPR-4601500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QPR-4601800 | | 1.80 / 45.7 | | | 3.500 / 89 | |
| QPR-4901000 | .490 / 12.5 | 1.00 / 25.4 | .150 / 3.81 | .008 / 0.20 | 2.500 / 64 | .5000 / 12.7 |
| QPR-4901500 | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QPR-4901800 | | 1.80 / 45.7 | | | 3.500 / 89 | |

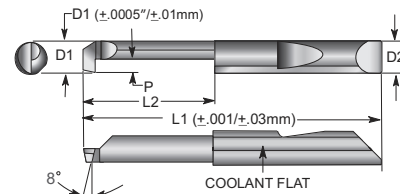
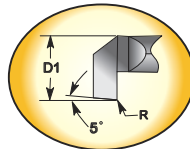
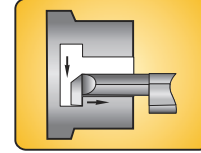
See pages 34-42 for Toolholder Selections.

Minimum Bore Ranges:
.156" (3.96mm) - .490" (12.5mm)

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

AITIN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QRB-156500X

Left Hand Tools available upon request.



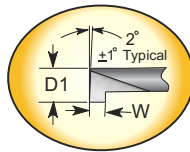
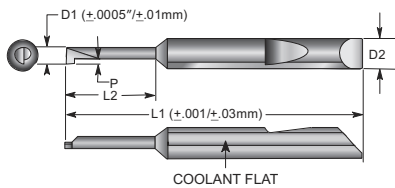
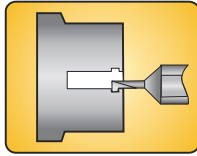
For current pricing, please visit our website at: www.micro100.com

| QRB Catalog No. | Minimum Bore Diameter (D1) | Maximum Bore Depth (L2) | Projection (P) | Tool Radius (R) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|-------------------------|----------------|-----------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QRB-156500 | .156 / 3.96 | .500 / 12.7 | .060 / 1.5 | .005 / 0.13 | 1.500 / 38 | .1875 / 4.8 |
| QRB-156750 | | .750 / 19.1 | | | 2.000 / 51 | |
| QRB-1561000 | | 1.00 / 25.4 | | | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QRB-180500 | .180 / 4.57 | .500 / 12.7 | .080 / 2.0 | .005 / 0.13 | 2.000 / 51 | .2500 / 6.4 |
| QRB-180750 | | .750 / 19.1 | | | 2.500 / 64 | |
| QRB-1801000 | | 1.00 / 25.4 | | | 3.000 / 76 | |
| QRB-200500 | .200 / 5.08 | .500 / 12.7 | .090 / 2.3 | .008 / 0.20 | 2.000 / 51 | .2500 / 6.4 |
| QRB-200750 | | .750 / 19.1 | | | 2.500 / 64 | |
| QRB-2001000 | | 1.00 / 25.4 | | | 3.000 / 76 | |
| QRB-2001250 | | 1.25 / 31.8 | | | 2.500 / 64 | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QRB-230500 | .230 / 5.85 | .500 / 12.7 | .110 / 2.8 | .008 / 0.20 | 2.000 / 51 | .3125 / 7.9 |
| QRB-230750 | | .750 / 19.1 | | | 2.500 / 64 | |
| QRB-2301000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QRB-2301250 | | 1.25 / 31.8 | | | 3.000 / 76 | |
| QRB-300500 | .300 / 7.62 | .500 / 12.7 | .110 / 2.8 | .008 / 0.20 | 2.000 / 51 | .3125 / 7.9 |
| QRB-3001000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QRB-3001250 | | 1.25 / 31.8 | | | 3.000 / 76 | |
| 3/8" / 9.4mm Shanks | | | | | | |
| QRB-360750 | .360 / 9.14 | .750 / 19.1 | .130 / 3.3 | .008 / 0.20 | 2.500 / 64 | .3750 / 9.4 |
| QRB-3601000 | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QRB-3601250 | | 1.25 / 31.8 | | | 3.000 / 76 | |
| QRB-3601500 | | 1.50 / 38.1 | | | 3.500 / 89 | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QRB-4601000 | .460 / 11.7 | 1.00 / 25.4 | .160 / 4.1 | .008 / 0.20 | 3.000 / 76 | .5000 / 12.7 |
| QRB-4601250 | | 1.25 / 31.8 | | | 3.500 / 89 | |
| QRB-4601500 | | 1.50 / 38.1 | | | 4.000 / 102 | |
| QRB-4601800 | | 1.80 / 45.7 | | | 4.500 / 114 | |
| QRB-4901000 | .490 / 12.5 | 1.00 / 25.4 | .160 / 4.1 | .008 / 0.20 | 3.000 / 76 | .5000 / 12.7 |
| QRB-4901250 | | 1.25 / 31.8 | | | 3.500 / 89 | |
| QRB-4901500 | | 1.50 / 38.1 | | | 4.000 / 102 | |
| QRB-4901800 | | 1.80 / 45.7 | | | 4.500 / 114 | |

See pages 34-42 for Toolholder Selections.

QMRR

Miniature Retaining Ring Grooving Tools



*W Dim. = +.002"/+.05mm) - .000"/(-.00mm)

Miniature Groove Width Ranges:
 .010" (0.25mm) - .030" (0.76mm)

QMRR Miniature Retaining Ring Grooving Tool Tolerances:

Shank Diameter:
 -.0001" (-.005mm) to -.0002" (-.01mm)
 Minimum Bore Diameter:
 ±.0005" (±.01mm)
 Maximum Bore Depths:
 For bore diameters .060" (0.38mm)
 bore depth tolerance is +.015" (0.38mm) / -.000" (0mm)
 For bore diameters .080" (1.27mm) and above, bore
 depth tolerance is +.030" (0.76mm) / -.000" (0mm)

AlTiN Coated Tools Available
 Add an "X" to end of
 Catalog No.

EXAMPLE:

QMRR-015-100-60X

Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QMRR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QMRR-010-100-060 | | | .100 / 2.5 | | | .1875 / 4.8 |
| QMRR-010-150-060 | .010 / 0.25 | .020 / 0.51 | .150 / 3.8 | .060 / 1.52 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-010-250-060 | | | .250 / 6.4 | | | |
| QMRR-015-100-060 | | | .100 / 2.5 | | | .1875 / 4.8 |
| QMRR-015-150-060 | .015 / 0.38 | .020 / 0.51 | .150 / 3.8 | .060 / 1.52 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-015-250-060 | | | .250 / 6.4 | | | |
| QMRR-020-100-060 | | | .100 / 2.5 | | | .1875 / 4.8 |
| QMRR-020-150-060 | .020 / 0.51 | .020 / 0.51 | .150 / 3.8 | .060 / 1.52 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-250-060 | | | .250 / 6.4 | | | |
| QMRR-015-250-080 | | | .250 / 6.4 | | | .1875 / 4.8 |
| QMRR-015-375-080 | .015 / 0.38 | .025 / 0.64 | .375 / 9.5 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-015-500-080 | | | .500 / 12.7 | | | |
| QMRR-020-250-080 | | | .250 / 6.4 | | | .1875 / 4.8 |
| QMRR-020-375-080 | .020 / 0.51 | .025 / 0.64 | .375 / 9.5 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-500-080 | | | .500 / 12.7 | | | |
| QMRR-030-250-080 | | | .250 / 6.4 | | | .1875 / 4.8 |
| QMRR-030-375-080 | .030 / 0.76 | .025 / 0.64 | .375 / 9.5 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-030-500-080 | | | .500 / 12.7 | | | |
| QMRR-015-250-100 | | | .250 / 6.4 | | 1.500 / 38 | .1875 / 4.8 |
| QMRR-015-500-100 | .015 / 0.38 | .030 / 0.76 | .500 / 12.7 | .100 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-015-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMRR-020-250-100 | | | .250 / 6.4 | | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-500-100 | .020 / 0.51 | .030 / 0.76 | .500 / 12.7 | .100 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMRR-030-250-100 | | | .250 / 6.4 | | 1.500 / 38 | .1875 / 4.8 |
| QMRR-030-500-100 | .030 / 0.76 | .030 / 0.76 | .500 / 12.7 | .100 / 2.54 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-030-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMRR-020-250-120 | | | .250 / 6.4 | | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-500-120 | .020 / 0.51 | .040 / 1.02 | .500 / 12.7 | .120 / 3.05 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-020-750-120 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMRR-030-250-120 | | | .250 / 6.4 | | 1.500 / 38 | .1875 / 4.8 |
| QMRR-030-500-120 | .030 / 0.76 | .040 / 1.02 | .500 / 12.7 | .120 / 3.05 | 1.500 / 38 | .1875 / 4.8 |
| QMRR-030-750-120 | | | .750 / 19.1 | | 2.000 / 51 | |

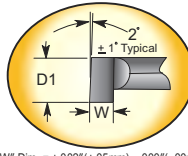
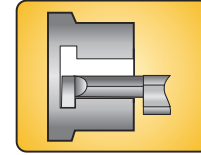
See pages 34-42 for Toolholder Selections.

Groove Width Ranges:
.017" (0.43mm) - .038" (0.97mm)

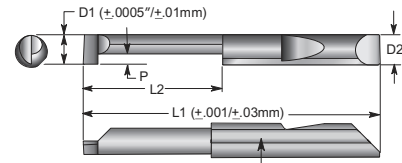
QRR Retaining Ring Grooving
Tool Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QRR-017-4X

Left Hand Tools available upon request.



"W" Dim. = +.002" (+.05mm) - .000" (-.00mm)



COOLANT FLAT

For current pricing, please visit our website at: www.micro100.com

| QRR Catalog No. | Groove Width | Projection | Maximum Bore Depth | Minimum Bore Diameter | Overall Length | Shank Diameter |
|-----------------------------|---------------|---------------|--------------------|-----------------------|----------------|----------------|
| | (W) | (P) | (L2) | (D1) | (L1) | (D2) |
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QRR-017-4 | .017 / 0.43 | .030 / 0.76 | .250 / 6.4 | .180 / 4.6 | 1.500 / 38 | .1875 / 4.8 |
| QRR-017-6 | | | .375 / 9.5 | | 1.500 / 38 | |
| QRR-017-8 | | | .500 / 12.7 | | 1.500 / 38 | |
| QRR-017-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| QRR-020-4 | .020 / 0.51 | .030 / 0.76 | .250 / 6.4 | .180 / 4.6 | 1.500 / 38 | .1875 / 4.8 |
| QRR-020-6 | | | .375 / 9.5 | | 1.500 / 38 | |
| QRR-020-8 | | | .500 / 12.7 | | 1.500 / 38 | |
| QRR-020-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QRR-025-4 | .025 / 0.64 | .050 / 1.27 | .250 / 6.4 | .245 / 6.2 | 2.000 / 51 | .2500 / 6.4 |
| QRR-025-6 | | | .375 / 9.5 | | 2.000 / 51 | |
| QRR-025-8 | | | .500 / 12.7 | | 2.000 / 51 | |
| QRR-025-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| QRR-030-4 | .030 / 0.76 | .050 / 1.27 | .250 / 6.4 | .245 / 6.2 | 2.000 / 51 | .2500 / 6.4 |
| QRR-030-6 | | | .375 / 9.5 | | 2.000 / 51 | |
| QRR-030-8 | | | .500 / 12.7 | | 2.000 / 51 | |
| QRR-030-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QRR-033-6 | .033 / 0.84 | .100 / 2.54 | .375 / 9.5 | .310 / 7.9 | 2.000 / 51 | .3125 / 7.9 |
| QRR-033-8 | | | .500 / 12.7 | | 2.000 / 51 | |
| QRR-033-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-038-6 | .038 / 0.97 | .100 / 2.54 | .375 / 9.5 | .310 / 7.9 | 2.000 / 51 | .3125 / 7.9 |
| QRR-038-8 | | | .500 / 12.7 | | 2.000 / 51 | |
| QRR-038-12 | | | .750 / 19.1 | | 2.000 / 51 | |

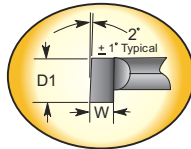
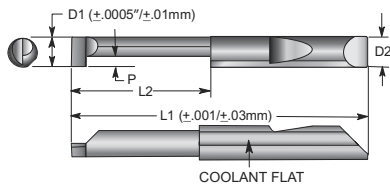
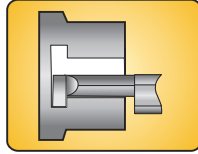
See pages 34-42 for Toolholder Selections.

Groove Widths down to...
0.017"!

Available in
Coated or Uncoated
Grades!



QRR
Retaining Ring Grooving Tools



*W" Dim. = +.002"(+.05mm) - .000"(-.00mm)

Groove Width Ranges:
.039"(1.00mm) - .087"(2.21mm)

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

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QRR-039-8X
Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QRR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/8" / 9.5mm Shanks | | | | | | |
| QRR-039-8 | .039 / 1.00 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-039-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-039-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-039-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-046-8 | .046 / 1.17 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-046-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-046-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-046-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-055-8 | .055 / 1.40 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-055-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-055-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-055-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-059-8 | .059 / 1.50 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-059-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-059-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-059-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-062-8 | .062 / 1.57 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-062-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-062-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-062-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-069-8 | .069 / 1.75 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-069-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-069-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-069-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-079-8 | .079 / 2.00 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-079-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-079-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-079-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QRR-087-8 | .087 / 2.21 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QRR-087-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QRR-087-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-087-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |

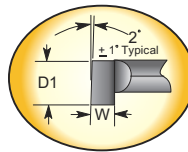
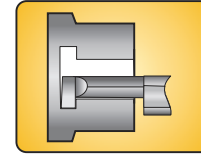
See pages 34-42 for Toolholder Selections.

Groove Width Ranges:
.093"(2.36mm) - .250"(6.35mm)

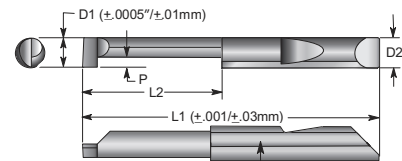
QRR Retaining Ring Grooving
Tool Tolerances:
Shank Diameter:
-.0001"(-.005mm) to -.0002"(-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050"(+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QRR-093-12X

Left Hand Tools available upon request.



"W" Dim. = +.002"(+.05mm) - .000"(-.00mm)



COOLANT FLAT

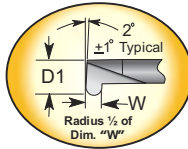
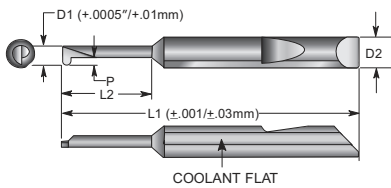
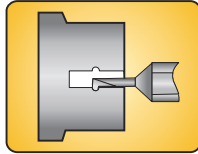
For current pricing, please visit our website at: www.micro100.com

| QRR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 1/2" / 12.7mm Shanks | | | | | | |
| QRR-093-12 | .093 / 2.36 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-093-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-093-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-093-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-118-12 | .118 / 3.00 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-118-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-118-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-118-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-125-12 | .125 / 3.18 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-125-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-125-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-125-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-156-12 | .156 / 3.96 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-156-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-156-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-156-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-187-12 | .187 / 4.75 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-187-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-187-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-187-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-236-12 | .236 / 6.00 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-236-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-236-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-236-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QRR-250-12 | .250 / 6.35 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QRR-250-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QRR-250-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QRR-250-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |

See pages 34-42 for Toolholder Selections.

QMFR

Miniature Full Radius Grooving Tools



Miniature Groove Width Ranges:
.015" (0.38mm) - .030" (0.76mm)

QMFR Miniature Full Radius Grooving Tool Tolerances:
Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter: ±.0005" (±.01mm)
Maximum Bore Depths: +.030" (+0.38mm) - .000" (0mm)*

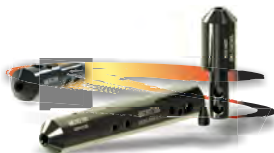
AITiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QMFR-015-250-80X

Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QMFR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QMFR-015-250-080 | .015 / 0.38 | .025 / 0.64 | .250 / 6.4 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-015-375-080 | | | .375 / 9.5 | | | |
| QMFR-015-500-080 | | | .500 / 12.7 | | | |
| QMFR-020-250-080 | .020 / 0.51 | .025 / 0.64 | .250 / 6.4 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-020-375-080 | | | .375 / 9.5 | | | |
| QMFR-020-500-080 | | | .500 / 12.7 | | | |
| QMFR-030-250-080 | .030 / 0.76 | .025 / 0.64 | .250 / 6.4 | .080 / 2.03 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-030-375-080 | | | .375 / 9.5 | | | |
| QMFR-030-500-080 | | | .500 / 12.7 | | | |
| QMFR-015-250-100 | .015 / 0.38 | .030 / 0.76 | .250 / 6.4 | .100 / 2.54 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-015-500-100 | | | .500 / 12.7 | | 1.500 / 38 | |
| QMFR-015-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMFR-020-250-100 | .020 / 0.51 | .030 / 0.76 | .250 / 6.4 | .100 / 2.54 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-020-500-100 | | | .500 / 12.7 | | 1.500 / 38 | |
| QMFR-020-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMFR-030-250-100 | .030 / 0.76 | .030 / 0.76 | .250 / 6.4 | .100 / 2.54 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-030-500-100 | | | .500 / 12.7 | | 1.500 / 38 | |
| QMFR-030-750-100 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMFR-020-250-120 | .020 / 0.51 | .030 / 0.76 | .250 / 6.4 | .120 / 3.05 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-020-500-120 | | | .500 / 12.7 | | 1.500 / 38 | |
| QMFR-020-750-120 | | | .750 / 19.1 | | 2.000 / 51 | |
| QMFR-030-250-120 | .030 / 0.76 | .040 / 1.02 | .250 / 6.4 | .120 / 3.05 | 1.500 / 38 | .1875 / 4.8 |
| QMFR-030-500-120 | | | .500 / 12.7 | | 1.500 / 38 | |
| QMFR-030-750-120 | | | .750 / 19.1 | | 2.000 / 51 | |

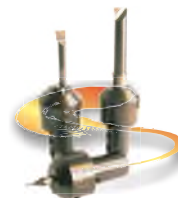
See pages 34-42 for Toolholder Selections.



THERE ARE MANY BRANDS OF MICRO-GRAIN CARBIDE TOOLS
BUT, THERE IS ONLY ONE

MICRO 100

MICRO GRAIN CARBIDE +PLUS, YOUR SUPER CARBIDE TOOLS
IN A CLASS OF THEIR OWN!

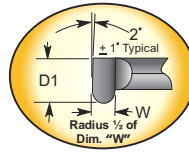
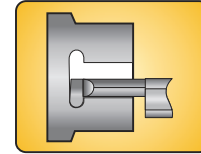


Groove Width Ranges:
.017" (0.43mm) - .038" (0.97mm)

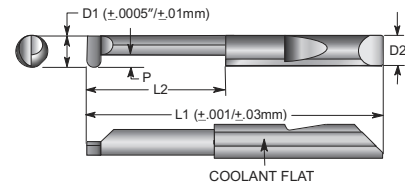
QFR Full Radius Grooving Tool Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AITiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QFR-017-4X

Left Hand Tools available upon request.



"W" Dim. = +.002" (+.05mm) - .000" (-.00mm)



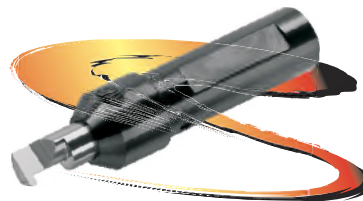
For current pricing, please visit our website at: www.micro100.com

| QFR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QFR-017-4 | .017 / 0.43 | .030 / 0.76 | .250 / 6.4 | .180 / 4.6 | 1.500 / 38 | .1875 / 4.8 |
| QFR-017-6 | | | .375 / 9.5 | | 1.500 / 38 | |
| QFR-017-8 | | | .500 / 12.7 | | 1.500 / 38 | |
| QFR-017-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| QFR-020-4 | .020 / 0.43 | .030 / 0.76 | .250 / 6.4 | .180 / 4.6 | 1.500 / 38 | .1875 / 4.8 |
| QFR-020-6 | | | .375 / 9.5 | | 1.500 / 38 | |
| QFR-020-8 | | | .500 / 12.7 | | 1.500 / 38 | |
| QFR-020-10 | | | .625 / 15.9 | | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QFR-025-4 | .025 / 0.64 | .050 / 1.27 | .250 / 6.4 | .245 / 6.2 | 2.000 / 51 | .2500 / 6.4 |
| QFR-025-6 | | | .375 / 9.5 | | | |
| QFR-025-8 | | | .500 / 12.7 | | | |
| QFR-025-10 | | | .625 / 15.9 | | | |
| QFR-030-4 | .030 / 0.76 | .050 / 1.27 | .250 / 6.4 | .245 / 6.2 | 2.000 / 51 | .2500 / 6.4 |
| QFR-030-6 | | | .375 / 9.5 | | | |
| QFR-030-8 | | | .500 / 12.7 | | | |
| QFR-030-10 | | | .625 / 15.9 | | | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QFR-033-6 | .033 / 0.84 | .100 / 2.54 | .375 / 9.5 | .310 / 7.9 | 2.000 / 51 | .3125 / 7.9 |
| QFR-033-8 | | | .500 / 12.7 | | | |
| QFR-033-12 | | | .750 / 19.1 | | | |
| QFR-038-6 | .038 / 0.97 | .100 / 2.54 | .375 / 9.5 | .310 / 7.9 | 2.000 / 51 | .3125 / 7.9 |
| QFR-038-8 | | | .500 / 12.7 | | | |
| QFR-038-12 | | | .750 / 19.1 | | | |

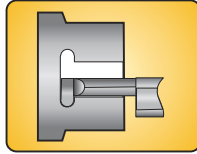
See pages 34-42 for Toolholder Selections.

Groove Widths down to...
0.017"!

Available in
Coated or Uncoated
Grades!



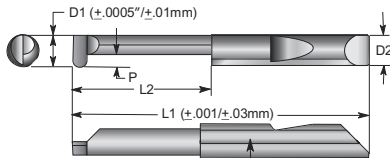
QFR
Full Radius Grooving Tools



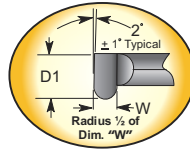
Groove Width Ranges:
.039"(1.00mm) - .087"(2.21mm)

QFR Full Radius Grooving Tool Tolerances:

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



COOLANT FLAT



"W" Dim. = +.002"(+.05mm) - .000"(-.00mm)

AlTiN Coated Tools Available
Add an "X" to end of Catalog No.
EXAMPLE:
QFR-039-8X

Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QFR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/8" / 9.5mm Shanks | | | | | | |
| QFR-039-8 | .039 / 1.00 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-039-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-039-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-039-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-046-8 | .046 / 1.17 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-046-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-046-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-046-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-055-8 | .055 / 1.40 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-055-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-055-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-055-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-059-8 | .059 / 1.50 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-059-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-059-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-059-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-062-8 | .062 / 1.57 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-062-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-062-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-062-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-069-8 | .069 / 1.75 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-069-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-069-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-069-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-079-8 | .079 / 2.00 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-079-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-079-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-079-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |
| QFR-087-8 | .087 / 2.21 | .100 / 2.54 | .500 / 12.7 | .370 / 9.4 | 2.000 / 51 | .3750 / 9.5 |
| QFR-087-12 | | | .750 / 19.1 | | 2.000 / 51 | |
| QFR-087-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-087-20 | | | 1.25 / 31.8 | | 2.500 / 64 | |

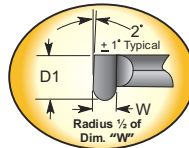
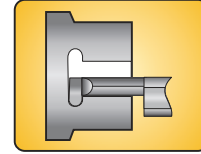
See pages 34-42 for Toolholder Selections.

Groove Width Ranges:
.093"(2.36mm) - .250"(6.35mm)

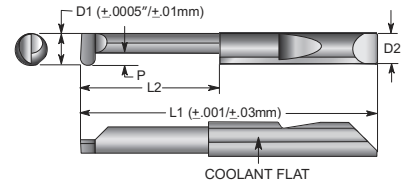
QFR Full Radius Grooving Tool Tolerances:
Shank Diameter:
-.0001"(-.005mm) to -.0002"(-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050"(+1.27mm)

AIN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QFR-093-12X

Left Hand Tools available upon request.



"W" Dim. = +.002(+.05mm) - .000(-.00mm)

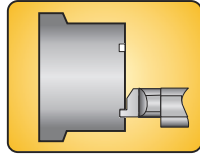


For current pricing, please visit our website at: www.micro100.com

| QFR Catalog No. | Groove Width (W) | Projection (P) | Maximum Bore Depth (L2) | Minimum Bore Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|-------------------------|----------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 1/2" / 12.7mm Shanks | | | | | | |
| QFR-093-12 | .093 / 2.36 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-093-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-093-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-093-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-118-12 | .118 / 3.00 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-118-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-118-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-118-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-125-12 | .125 / 3.18 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-125-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-125-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-125-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-156-12 | .156 / 3.96 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-156-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-156-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-156-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-187-12 | .187 / 4.75 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-187-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-187-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-187-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-236-12 | .236 / 6.00 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-236-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-236-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-236-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |
| QFR-250-12 | .250 / 6.35 | .150 / 3.81 | .750 / 19.1 | .495 / 12.6 | 2.500 / 64 | .500 / 12.7 |
| QFR-250-16 | | | 1.00 / 25.4 | | 2.500 / 64 | |
| QFR-250-20 | | | 1.25 / 31.8 | | 3.000 / 76 | |
| QFR-250-24 | | | 1.50 / 38.1 | | 3.000 / 76 | |

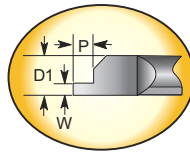
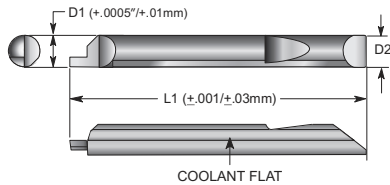
See pages 34-42 for Toolholder Selections.

QFG
Face Grooving Tools



Groove Width Ranges:
.020"(0.51mm) - .156"(3.96mm)

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



AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QFG-0180-020X
Left Hand Tools available upon request.

"W" Dim. = +.002"(+.05mm) - .000"(-.00mm)

For current pricing, please visit our website at: www.micro100.com

| QFG Catalog No. | Groove Width (W) | Projection (P) | Minimum Bore Diameter (L2) | Minimum Groove Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|------------------|----------------|----------------------------|------------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | |
| QFG-180-020 | .020 / 0.51 | .050 / 1.3 | .180 / 4.67 | .190 / 4.83 | 1.500 / 38 | .1875 / 4.8 |
| QFG-180-030 | .030 / 0.76 | | | | | |
| 1/4" / 6.4mm Shanks | | | | | | |
| QFG-230-020 | .020 / 0.51 | .050 / 1.3 | .230 / 5.84 | .240 / 6.10 | 2.000 / 51 | .2500 / 6.35 |
| QFG-230-030 | .030 / 0.76 | | | | | |
| QFG-250-020 | .020 / 0.51 | .050 / 1.3 | .250 / 5.84 | .240 / 6.35 | 2.000 / 51 | .2500 / 6.35 |
| QFG-250-030 | .030 / 0.76 | | | | | |
| 5/16" / 7.9mm Shanks | | | | | | |
| QFG-312-030 | .030 / 0.76 | .050 / 1.3 | .312 / 7.92 | .322 / 8.18 | 2.000 / 51 | .3125 / 7.92 |
| QFG-312-040 | .040 / 1.02 | .050 / 1.3 | | | | |
| QFG-312-062 | .062 / 1.57 | .100 / 2.5 | | | | |
| 3/8" / 9.5mm Shanks | | | | | | |
| QFG-375-062 | .062 / 1.57 | .100 / 2.5 | | | | |
| QFG-375-078 | .078 / 1.98 | .100 / 2.5 | | | | |
| QFG-375-093 | .093 / 2.36 | .100 / 2.5 | .375 / 9.53 | .385 / 9.78 | 2.000 / 51 | .3750 / 9.53 |
| QFG-375-118 | .118 / 3.00 | .150 / 3.8 | | | | |
| QFG-375-125 | .125 / 3.18 | .150 / 3.8 | | | | |
| 1/2" / 12.7mm Shanks | | | | | | |
| QFG-470-062 | .062 / 1.57 | .100 / 2.5 | | | | |
| QFG-470-078 | .078 / 1.98 | .100 / 2.5 | | | | |
| QFG-470-093 | .093 / 2.36 | .100 / 2.5 | | | | |
| QFG-470-118 | .118 / 3.00 | .150 / 3.8 | .470 / 11.9 | .480 / 12.2 | 2.500 / 64 | .5000 / 12.7 |
| QFG-470-125 | .125 / 3.18 | .150 / 3.8 | | | | |
| QFG-470-156 | .156 / 3.96 | .150 / 3.8 | | | | |
| QFG-490-062 | .062 / 1.57 | .100 / 2.5 | | | | |
| QFG-490-078 | .078 / 1.98 | .100 / 2.5 | | | | |
| QFG-490-093 | .093 / 2.36 | .100 / 2.5 | | | | |
| QFG-490-118 | .118 / 3.00 | .150 / 3.8 | .490 / 11.9 | .500 / 12.7 | 2.500 / 64 | .5000 / 12.7 |
| QFG-490-125 | .125 / 3.18 | .150 / 3.8 | | | | |
| QFG-490-156 | .156 / 3.96 | .150 / 3.8 | | | | |

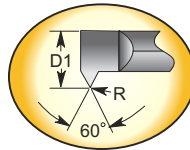
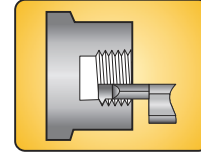
See pages 34-42 for Toolholder Selections.

Minimum Minor Diameter Ranges:
.035" (0.89mm) - .120" (3.05mm)

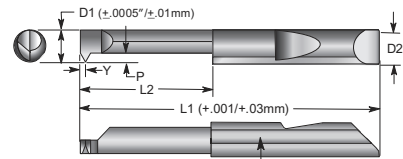
QIT Internal Threading Tool
Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
+.0005" (+.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QIT-035075X

Left Hand Tools available upon request.



"R" Dim. = .002" (0.05mm) ± .001" (±.03mm)



COOLANT FLAT

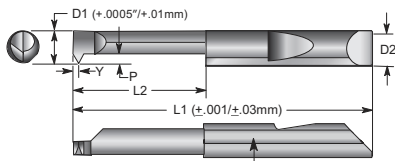
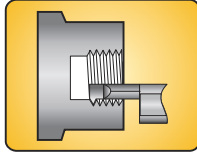
For current pricing, please visit our website at: www.micro100.com

| QIT Catalog No. | Minimum Bore Diameter (D1) | Projection (P) | Maximum Bore Depth (L2) | Offset Point (Y) | Threads Per Inch (T.P.I.) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|----------------|-------------------------|------------------|---------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | | |
| QIT-035075 | .035 / 0.89 | .015 / 0.38 | .075 / 1.91 | .008 / 0.20 | 56 to 80 | 1.500 / 38 | .1875 / 4.8 |
| QIT-035100 | | | .100 / 2.54 | | | | |
| QIT-035150 | | | .150 / 3.81 | | | | |
| QIT-040075 | .040 / 1.02 | .015 / 0.38 | .075 / 1.91 | .009 / 0.23 | 56 to 80 | 1.500 / 38 | .1875 / 4.8 |
| QIT-040100 | | | .100 / 2.54 | | | | |
| QIT-040150 | | | .150 / 3.81 | | | | |
| QIT-050100 | .050 / 1.27 | .020 / 0.51 | .100 / 2.54 | .012 / 0.30 | 48 to 80 | 1.500 / 38 | .1875 / 4.8 |
| QIT-050150 | | | .150 / 3.81 | | | | |
| QIT-050200 | | | .200 / 5.08 | | | | |
| QIT-060200 | .060 / 1.52 | .020 / 0.51 | .200 / 5.08 | .012 / 0.30 | 40 to 80 | 1.500 / 38 | .1875 / 4.8 |
| QIT-060250 | | | .250 / 6.35 | | | | |
| QIT-060300 | | | .300 / 7.62 | | | | |
| QIT-080250 | .080 / 2.03 | .020 / 0.51 | .250 / 6.35 | .012 / 0.30 | 32 to 76 | 1.500 / 38 | .1875 / 4.8 |
| QIT-080350 | | | .350 / 8.89 | | | | |
| QIT-080500 | | | .500 / 12.7 | | | | |
| QIT-100250 | .100 / 2.54 | .025 / 0.64 | .250 / 6.35 | .014 / 0.36 | 32 to 64 | 1.500 / 38 | .1875 / 4.8 |
| QIT-100350 | | | .350 / 8.89 | | | 1.500 / 38 | |
| QIT-100500 | | | .500 / 12.7 | | | 1.500 / 38 | |
| QIT-100600 | | | .600 / 15.2 | | | 2.000 / 51 | |
| QIT-110250 | .110 / 2.79 | .030 / 0.76 | .250 / 6.35 | .016 / 0.41 | 32 to 64 | 1.500 / 38 | .1875 / 4.8 |
| QIT-110400 | | | .400 / 4.06 | | | 1.500 / 38 | |
| QIT-110500 | | | .500 / 12.7 | | | 1.500 / 38 | |
| QIT-110600 | | | .600 / 15.2 | | | 2.000 / 51 | |
| QIT-110750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-120250 | .120 / 3.05 | .030 / 0.76 | .250 / 6.35 | .017 / 0.43 | 24 to 56 | 1.500 / 38 | .1875 / 4.8 |
| QIT-120400 | | | .400 / 4.06 | | | 1.500 / 38 | |
| QIT-120500 | | | .500 / 12.7 | | | 1.500 / 38 | |
| QIT-120600 | | | .600 / 15.2 | | | 2.000 / 51 | |
| QIT-120750 | | | .750 / 19.1 | | | 2.000 / 51 | |

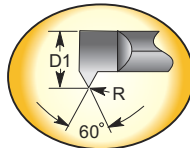
See pages 34- 42 for Toolholder Selections.

QIT

Internal Single Point Threading Tools



COOLANT FLAT



*"R" Dim. = .002"/(.05mm) ± .001"/(±0.03mm)

Minimum Minor Diameter Ranges:
.140" (3.56mm) - .290" (7.37mm)

QIT Internal Threading Tool

Tolerances:

Shank Diameter:

-.0001" (-.005mm) to -.0002" (-.01mm)

Minimum Bore Diameter:

±.0005" (±.01mm)

Maximum Bore Depth:

+.050" (+1.27mm)

AlTiN Coated Tools Available
Add an "X" to end of
Catalog No.

EXAMPLE:

QIT-140250X

Left Hand Tools available upon request.

For current pricing, please visit our website at: www.micro100.com

| QIT Catalog No. | Minimum Bore Diameter (D1) | Projection (P) | Maximum Bore Depth (L2) | Offset Point (Y) | Threads Per Inch (T.P.I.) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|----------------|-------------------------|------------------|---------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | | | |
| QIT-140250 | .140 / 3.56 | .035 / 0.89 | .250 / 6.35 | .020 / 0.51 | 20 to 56 | 1.500 / 38 | .1875 / 4.8 |
| QIT-140400 | | | .400 / 10.2 | | | 1.500 / 38 | |
| QIT-140500 | | | .500 / 12.7 | | | 1.500 / 38 | |
| QIT-140750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-160250 | .160 / 4.06 | .040 / 1.02 | .250 / 6.35 | .023 / 0.58 | 20 to 56 | 1.500 / 38 | .1875 / 4.8 |
| QIT-160400 | | | .400 / 10.2 | | | 1.500 / 38 | |
| QIT-160500 | | | .500 / 12.7 | | | 1.500 / 38 | |
| QIT-160750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-1601000 | | | 1.00 / 25.4 | | | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | | | |
| QIT-180350 | .180 / 4.57 | .040 / 1.02 | .350 / 8.89 | .023 / 0.58 | 18 to 56 | 2.000 / 51 | .2500 / 6.4 |
| QIT-180500 | | | .500 / 12.7 | | | 2.000 / 51 | |
| QIT-180750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-1801000 | | | 1.00 / 25.4 | | | 2.500 / 64 | |
| QIT-200400 | .200 / 5.08 | .045 / 1.14 | .400 / 10.2 | .026 / 0.66 | 16 to 40 | 2.000 / 51 | .2500 / 6.4 |
| QIT-200600 | | | .600 / 15.2 | | | 2.000 / 51 | |
| QIT-200750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-2001000 | | | 1.00 / 25.4 | | | 2.500 / 63 | |
| 5/16" / 7.9mm Shanks | | | | | | | |
| QIT-230400 | .230 / 5.84 | .055 / 1.40 | .400 / 10.2 | .032 / 0.81 | 14 to 40 | 2.000 / 51 | .3125 / 7.9 |
| QIT-230600 | | | .600 / 15.2 | | | 2.000 / 51 | |
| QIT-230750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-2301000 | | | 1.00 / 25.4 | | | 2.500 / 63 | |
| QIT-2301500 | | | 1.50 / 38.1 | | | 2.500 / 63 | |
| QIT-290500 | .290 / 7.37 | .070 / 1.78 | .500 / 12.7 | .040 / 1.02 | 12 to 40 | 2.000 / 51 | .3125 / 7.9 |
| QIT-290750 | | | .750 / 19.1 | | | 2.000 / 51 | |
| QIT-2901000 | | | 1.00 / 25.4 | | | 2.000 / 51 | |
| QIT-2901250 | | | 1.25 / 31.8 | | | 2.500 / 63 | |
| QIT-2901750 | | | 1.75 / 44.5 | | | 2.500 / 63 | |

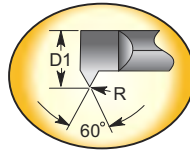
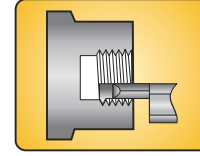
See pages 34-42 for Toolholder Selections.

Minimum Minor Diameter Ranges:
.320" (8.13mm) - .490" (12.5mm)

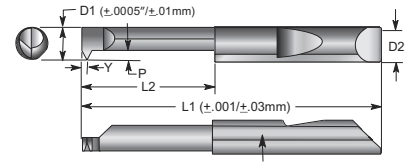
QIT Internal Threading Tool
Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Minimum Bore Diameter:
±.0005" (±.01mm)
Maximum Bore Depth:
+.050" (+1.27mm)

AITiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QIT-320500X

Left Hand Tools available upon request.



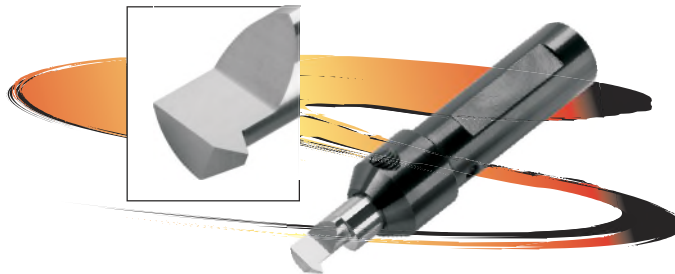
"R" Dim. = .002" (.05mm) ± .001" (±.03mm)



For current pricing, please visit our website at: www.micro100.com

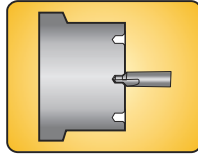
| QIT Catalog No. | Minimum Bore Diameter (D1) | Projection (P) | Maximum Bore Depth (L2) | Offset Point (Y) | Threads Per Inch (T.P.I.) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|----------------------------|----------------|-------------------------|------------------|---------------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | | inch / metric | inch / metric |
| 3/8" / 9.5mm Shanks | | | | | | | |
| QIT-320500 | .320 / 8.13 | .075 / 1.91 | .500 / 1.91 | .043 / 1.09 | 10 to 32 | 2.000 / 51 | .3750 / 9.5 |
| QIT-320750 | | | .750 / 2.54 | | | 2.000 / 51 | |
| QIT-3201000 | | | 1.00 / 3.81 | | | 2.500 / 63 | |
| QIT-3201250 | | | 1.25 / 31.8 | | | 2.500 / 63 | |
| QIT-3201800 | | | 1.80 / 45.7 | | | 3.000 / 76 | |
| QIT-360500 | .360 / 9.14 | .085 / 2.16 | .500 / 1.91 | .049 / 1.24 | 10 to 32 | 2.000 / 51 | .3750 / 9.5 |
| QIT-360750 | | | .750 / 2.54 | | | 2.000 / 51 | |
| QIT-3601000 | | | 1.00 / 3.81 | | | 2.500 / 63 | |
| QIT-3601250 | | | 1.25 / 31.8 | | | 2.500 / 63 | |
| QIT-3601800 | | | 1.80 / 45.7 | | | 3.000 / 76 | |
| 1/2" / 12.7mm Shanks | | | | | | | |
| QIT-460750 | .460 / 11.7 | .120 / 3.05 | .750 / 2.54 | .069 / 1.75 | 8 to 24 | 2.500 / 63 | .5000 / 12.7 |
| QIT-4601500 | | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QIT-4602000 | | | 2.00 / 50.8 | | | 3.500 / 89 | |
| QIT-490750 | .490 / 12.5 | .120 / 3.05 | .750 / 2.54 | .069 / 1.75 | 8 to 24 | 2.500 / 63 | .5000 / 12.7 |
| QIT-4901500 | | | 1.50 / 38.1 | | | 3.000 / 76 | |
| QIT-4902000 | | | 2.00 / 50.8 | | | 3.500 / 89 | |

See pages 34-42 for Toolholder Selections.



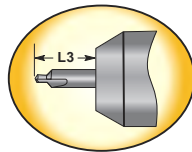
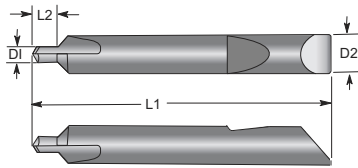
QDC

Combined Drill and Countersink Tools



Combined Drill Diameter Ranges:
.025" (0.64mm) - .219" (5.56mm)

QDC Combined Drill and Countersink
Tool Tolerances:
Shank Diameter:
-.0001" (-.005mm) to -.0002" (-.01mm)
Drill Diameter:
±.003" (±.08mm) to -.000" (-.00mm)



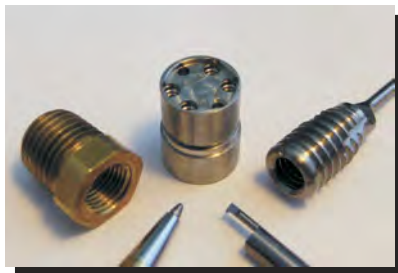
AITiN Coated Tools Available
Add an "X" to end of
Catalog No.
EXAMPLE:
QDC-00X

Left Hand Tools available upon request.

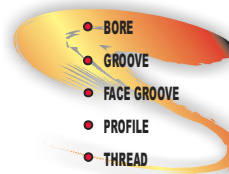
For current pricing, please visit our website at: www.micro100.com

| QDC Catalog No. | Drill Diameter (D1) | Drill Length (L2) | Tool Projection (L3) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|---------------------|-------------------|----------------------|---------------------|---------------------|
| | inch / metric | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | |
| QDC-00 | .025 / 0.64 | .031 / 0.80 | | | |
| QDC-01 | .031 / 0.80 | .031 / 0.80 | 1.079 / 27.4 | 2.000 / 51 | .1875 / 4.76 |
| QDC-1 | .047 / 1.2 | .047 / 1.2 | | | |
| QDC-2 | .047 / 1.2 | .047 / 1.2 | | | |
| 1/4" / 6.4mm Shanks | | | | | |
| QDC-3 | .109 / 2.8 | .109 / 2.8 | 1.379 / 34.8 | 2.500 / 64 | .2500 / 6.35 |
| 5/16" / 7.9mm Shanks | | | | | |
| QDC-4 | .125 / 3.2 | .125 / 3.2 | 1.404 / 35.6 | 2.500 / 64 | .3125 / 7.92 |
| 1/2" / 12.7mm Shanks | | | | | |
| QDC-5 | .187 / 4.8 | .187 / 4.8 | 1.685 / 42.7 | 3.000 / 76 | .5000 / 12.7 |
| QDC-6 | .219 / 5.6 | .219 / 5.6 | | | |

See pages 34-42 for Toolholder Selections.



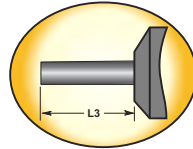
Superior...High Quality...Solid Carbide
Quick-Change Tooling for
Most Machining Applications!



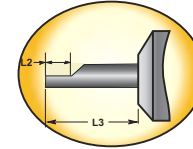
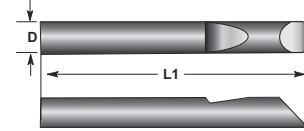
FOR MORE DETAILS...
CONTACT YOUR LOCAL AUTHORIZED
MICRO 100 DISTRIBUTOR
OR MICRO 100 SALES REPRESENTATIVE

Featuring:

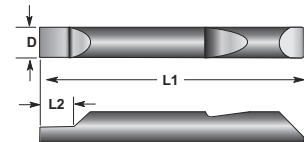
- All Blanks ground with Locating/Locking for use in Micro-Quik Toolholders.
- Unfinished Blanks
- Semi-Finished Blanks with Split Flat
- Shank Sizes: 3/16" (4.8mm), 1/4" (6.4mm), 5/16" (7.9mm), 3/8" (9.5mm), & 1/2" (12.7mm)



QSR
STYLE



QSP
STYLE

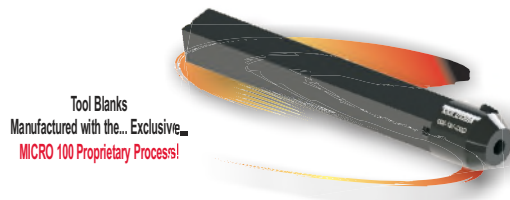


QSP/QSR Blank Tolerances:
Shank Diameter: -.0001" (-.005mm) to -.0002" (-.01mm) Finish Ground
Split Tolerance: +.001" (+.03mm) to -.000" (-.00mm) of Tool Center

For current pricing, please visit our website at: www.micro100.com

| QSP Catalog No. | QSR Catalog No. | Split Length* (L2) | Usable Neck (L3) | Overall Length (L1) | Shank Diameter (D2) |
|-----------------------------|-----------------|--------------------|------------------|---------------------|---------------------|
| | | inch / metric | inch / metric | inch / metric | inch / metric |
| 3/16" / 4.8mm Shanks | | | | | |
| QSP-187-1.5 | QSR-187-1.5 | .3750 / 9.5 | .579 / 14.7 | 1.500 / 38 | .1875 / 4.8 |
| QSP-187-2.0 | QSR-187-2.0 | | 1.079 / 27.4 | 2.000 / 51 | |
| 1/4" / 6.4mm Shanks | | | | | |
| QSP-250-2.0 | QSR-250-2.0 | .3750 / 9.5 | .873 / 22.2 | 2.000 / 51 | .2500 / 6.4 |
| QSP-200-2.5 | QSR-200-2.5 | | 1.373 / 34.9 | 2.500 / 64 | |
| QSP-250-3.0 | QSR-250-3.0 | | 1.873 / 47.6 | 3.000 / 76 | |
| 5/16" / 7.9mm Shanks | | | | | |
| QSP-312-2.0 | QSR-312-2.0 | .5000 / 12.7 | .904 / 23.0 | 2.000 / 51 | .3125 / 7.9 |
| QSP-312-2.5 | QSR-312-2.5 | | 1.404 / 35.7 | 2.500 / 64 | |
| QSP-312-3.0 | QSR-312-3.0 | | 1.904 / 48.4 | 3.000 / 76 | |
| 3/8" / 9.5mm Shanks | | | | | |
| QSP-375-2.0 | QSR-375-2.0 | .5000 / 12.7 | .935 / 23.7 | 2.000 / 51 | .3750 / 9.5 |
| QSP-375-2.5 | QSR-375-2.5 | | 1.435 / 36.4 | 2.500 / 64 | |
| QSP-375-3.0 | QSR-375-3.0 | | 1.935 / 49.1 | 3.000 / 76 | |
| QSP-375-3.5 | QSR-375-3.5 | | 2.435 / 61.8 | 3.500 / 89 | |
| QSP-375-4.0 | QSR-375-4.0 | | 2.935 / 74.5 | 4.000 / 102 | |
| 1/2" / 12.7mm Shanks | | | | | |
| QSP-500-2.5 | QSR-500-2.5 | .6250 / 15.9 | 1.185 / 30.1 | 2.000 / 51 | .5000 / 12.7 |
| QSP-500-3.0 | QSR-500-3.0 | | 1.685 / 42.8 | 2.500 / 64 | |
| QSP-500-3.5 | QSR-500-3.5 | | 2.185 / 55.5 | 3.000 / 76 | |
| QSP-500-4.0 | QSR-500-4.0 | | 2.685 / 68.2 | 3.500 / 89 | |
| QSP-500-4.5 | QSR-500-4.5 | | 3.185 / 80.9 | 4.000 / 102 | |

*Split Length Dimension (L2) is for "Split Flat...QSP" Style Blanks.
See pages 34-42 for Toolholder Selections.



Tool Blanks
Manufactured with the... Exclusive...
MICRO 100 Proprietary Process!

Grind those "One of a Kind" Specials
or Regrind Standard Tools with
our QSG Toolholders
featured on page 40.

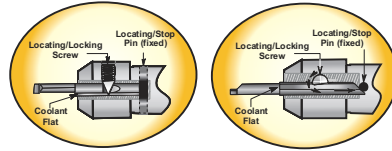
QTH Inch Toolholders



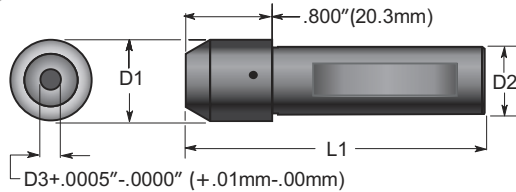
Featuring:

- Unique "3 Point" Locking/Locating System ensures Tool to Tool change Repeatability of $\pm 0.0005"/\pm 0.01\text{mm}$ from Centerline.
- $\pm 0.0005"/\pm 0.01\text{mm}$ T.I.R.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.

Change Tools in...
30 Seconds or Less!



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



For current pricing, please visit our website at: www.micro100.com

| Standard Lengths / Inch | | | | | Extended Lengths / Inch | | | | |
|----------------------------|--------------------|--------------------|---------------------|---------------------|----------------------------|--------------------|--------------------|---------------------|---------------------|
| QTH Toolholder Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) | QTH Toolholder Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
| | inch | inch | inch | inch | | inch | inch | inch | inch |
| 1/2" Shanks | | | | | 1/2" Shanks | | | | |
| QTH-85 | .1875 | .750 | 2.750 | .500 | QTH-85L | .1875 | .750 | 5.800 | .500 |
| QTH-86 | .2500 | .750 | 2.750 | .500 | QTH-86L | .2500 | .750 | 5.800 | .500 |
| 5/8" Shanks | | | | | 5/8" Shanks | | | | |
| QTH-105 | .1875 | .750 | 2.750 | .625 | QTH-105L | .1875 | .750 | 5.800 | .625 |
| QTH-106 | .2500 | .750 | | | QTH-106L | .2500 | .750 | | |
| QTH-107 | .3125 | .875 | | | QTH-107L | .3125 | .875 | | |
| QTH-108 | .3750 | 1.000 | | | QTH-108L | .3750 | 1.000 | | |
| 3/4" Shanks | | | | | 3/4" Shanks | | | | |
| QTH-205 | .1875 | .875 | 2.750 | .750 | QTH-205L | .1875 | .875 | 5.800 | .750 |
| QTH-206 | .2500 | .875 | | | QTH-206L | .2500 | .875 | | |
| QTH-207 | .3125 | .875 | | | QTH-207L | .3125 | .875 | | |
| QTH-208 | .3750 | 1.000 | | | QTH-208L | .3750 | 1.000 | | |
| QTH-210 | .5000 | 1.060 | | | QTH-210L | .5000 | 1.060 | | |
| 1" Shanks | | | | | 1" Shanks | | | | |
| QTH-405 | .1875 | 1.060 | 2.750 | 1.000 | QTH-405L | .1875 | 1.060 | 5.800 | 1.000 |
| QTH-406 | .2500 | | | | QTH-406L | .2500 | | | |
| QTH-407 | .3125 | | | | QTH-407L | .3125 | | | |
| QTH-408 | .3750 | | | | QTH-408L | .3750 | | | |
| QTH-410 | .5000 | | | | QTH-410L | .5000 | | | |
| 1 1/4" Shanks | | | | | 1 1/4" Shanks | | | | |
| QTH-605 | .1875 | 1.250 | 2.750 | 1.250 | QTH-605L | .1875 | 1.250 | 5.800 | 1.250 |
| QTH-606 | .2500 | | | | QTH-606L | .2500 | | | |
| QTH-607 | .3125 | | | | QTH-607L | .3125 | | | |
| QTH-608 | .3750 | | | | QTH-608L | .3750 | | | |
| QTH-610 | .5000 | | | | QTH-610L | .5000 | | | |

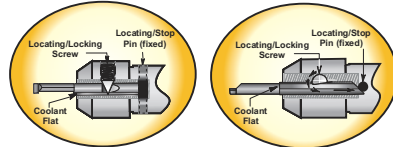
For Toolholder Accessories see page 44.



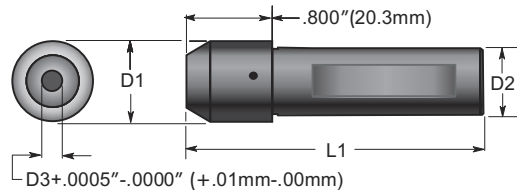
Featuring:

- Unique "3 Point" Locking/Locating System ensures Tool to Tool change Repeatability of $\pm 0.0005"/\pm 0.01\text{mm}$ from Centerline.
- $\pm 0.0005"/\pm 0.01\text{mm}$ T.I.R.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.

Change Tools in...
30 Seconds or Less!



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



For current pricing, please visit our website at: www.micro100.com

| Standard Lengths / Metric | | | | | Extended Lengths / Metric | | | | |
|----------------------------|--------------------|--------------------|---------------------|---------------------|----------------------------|--------------------|--------------------|---------------------|---------------------|
| QTH Toolholder Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) | QTH Toolholder Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
| | metric | metric | metric | metric | | metric | metric | metric | metric |
| 12mm Shanks | | | | | 12mm Shanks | | | | |
| QTHM-312 | 4.8 | 19.1 | 70 | 12 | QTHM-312L | 4.8 | 19.1 | 147 | 12 |
| QTHM-412 | 6.4 | | | | QTHM-412L | 6.4 | | | |
| 16mm Shanks | | | | | 16mm Shanks | | | | |
| QTHM-316 | 4.8 | 19.1 | 70 | 16 | QTHM-316L | 4.8 | 19.1 | 147 | 16 |
| QTHM-416 | 6.4 | 19.1 | | | QTHM-416L | 6.4 | 19.1 | | |
| QTHM-516 | 7.9 | 22.2 | | | QTHM-516L | 7.9 | 22.2 | | |
| QTHM-616 | 9.5 | 25.4 | | | QTHM-616L | 9.5 | 25.4 | | |
| 20mm Shanks | | | | | 20mm Shanks | | | | |
| QTHM-320 | 4.8 | 22.2 | 70 | 20 | QTHM-320L | 4.8 | 22.2 | 147 | 20 |
| QTHM-420 | 6.4 | 22.2 | | | QTHM-420L | 6.4 | 22.2 | | |
| QTHM-520 | 7.9 | 22.2 | | | QTHM-520L | 7.9 | 22.2 | | |
| QTHM-620 | 9.5 | 25.4 | | | QTHM-620L | 9.5 | 25.4 | | |
| QTHM-820 | 12.7 | 26.9 | | | QTHM-820L | 12.7 | 26.9 | | |
| 22mm Shanks | | | | | 22mm Shanks | | | | |
| QTHM-322 | 4.8 | 26.9 | 70 | 22 | QTHM-322L | 4.8 | 26.9 | 147 | 22 |
| QTHM-422 | 6.4 | | | | QTHM-422L | 6.4 | | | |
| QTHM-522 | 7.9 | | | | QTHM-522L | 7.9 | | | |
| QTHM-622 | 9.5 | | | | QTHM-622L | 9.5 | | | |
| QTHM-822 | 12.7 | | | | QTHM-822L | 12.7 | | | |
| 25mm Shanks | | | | | 25mm Shanks | | | | |
| QTHM-325 | 4.8 | 26.9 | 70 | 25 | QTHM-325L | 4.8 | 26.9 | 147 | 25 |
| QTHM-425 | 6.4 | | | | QTHM-425L | 6.4 | | | |
| QTHM-525 | 7.9 | | | | QTHM-525L | 7.9 | | | |
| QTHM-625 | 9.5 | | | | QTHM-625L | 9.5 | | | |
| QTHM-825 | 12.7 | | | | QTHM-825L | 12.7 | | | |
| 32mm Shanks | | | | | 32mm Shanks | | | | |
| QTHM-332 | 4.8 | 32.0 | 70 | 32 | QTHM-332L | 4.8 | 32.0 | 147 | 32 |
| QTHM-432 | 6.4 | | | | QTHM-432L | 6.4 | | | |
| QTHM-532 | 7.9 | | | | QTHM-532L | 7.9 | | | |
| QTHM-632 | 9.5 | | | | QTHM-632L | 9.5 | | | |
| QTHM-832 | 12.7 | | | | QTHM-832L | 12.7 | | | |

For Toolholder Accessories see page 44.

QZST

Toolholders Engineered
for STAR CNC Swiss Machines



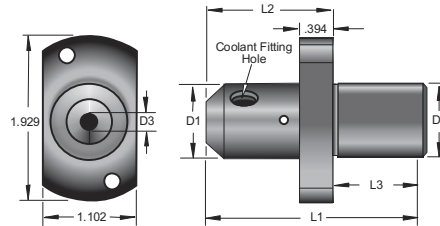
Featuring:

- Unique "3 Point" Locking/Locating System ensures Tool to Tool change Repeatability of $\pm 0.0005"/\pm 0.01\text{mm}$ from Centerline.
- Specifically Designed and Engineered for STAR CNC Swiss Type Machines.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.

Change Tools in...
30 Seconds or Less!



REDUCE SETUP TIME FOR... STAR CNC SWISS TYPE MACHINES!

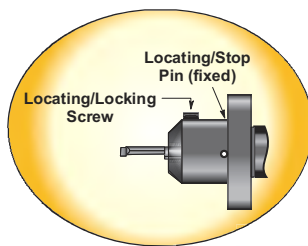


For current pricing, please visit our website at: www.micro100.com

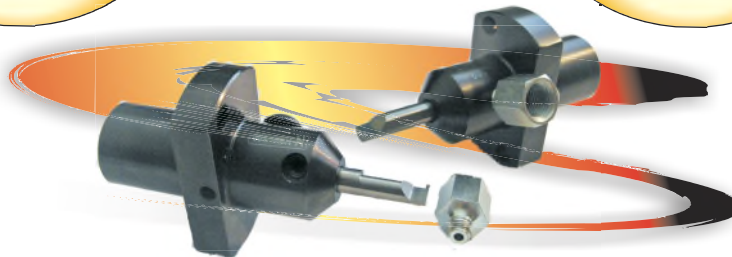
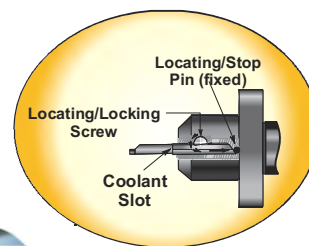
| Standard Lengths | | | | | | |
|--------------------|--------------------|--------------------|-------------------|-------------------------|---------------------|---------------------|
| QZST Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Shank Length (L3) | Head/Flange Length (L2) | Overall Length (L1) | Shank Diameter (D2) |
| | inch | inch | inch | inch | inch | metric |
| 22mm Shanks | | | | | | |
| QZST-322 | .1875 | .875 | .984 | 1.400 | 2.380 | 22 |
| QZST-422 | .2500 | | | | | |
| QZST-522 | .3125 | | | | | |

| Extended Lengths | | | | | | |
|--------------------|--------------------|--------------------|-------------------|-------------------------|---------------------|---------------------|
| QZST Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Shank Length (L3) | Head/Flange Length (L2) | Overall Length (L1) | Shank Diameter (D2) |
| | inch | inch | inch | inch | inch | metric |
| 22mm Shanks | | | | | | |
| QZST-322L | .1875 | .875 | .984 | 2.000 | 2.980 | 22 |
| QZST-422L | .2500 | | | | | |
| QZST-522L | .3125 | | | | | |

For Toolholder Accessories see page 44.



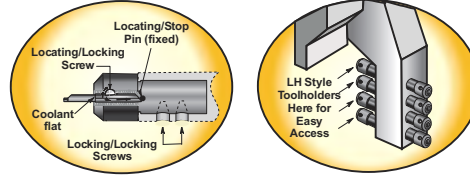
Rotation of Locking Screw pushes Tool Downwards and Back, against the Locating Pin for...
Rigidity and Centerline Repeatability!



Featuring:

- Modular Quik-Change Tooling System
- Utilizes Micro-Quik, Solid Carbide Tooling
- Coolant/Air Through Capabilities.
- Heat-Treated Toolholders.

Solutions for...
Front / Backside Machining!



QDH-"LH"
STYLE
with
LH
SCREW



QDH
STYLE
with
RH
SCREW

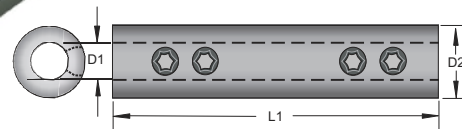
**"LH" Style Quick-Change Toolholder Recommended for positioning on "Backside" Tool Block facing Main Spindle for...
Easy Access to Locating/Locking Screws!

| QDH Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|------------------------|--------------------|--------------------|---------------------|---------------------|
| | inch | inch | inch | inch |
| 7/16" Shanks | | | | |
| QDH-3125 QDH-3125LH | .1875 | .750 | 2.750 | .438 |
| QDH-4125 QDH-4125LH | .2500 | .750 | 2.750 | .438 |
| QDH-5125 QDH-5125LH | .3125 | .750 | 2.750 | .438 |

Note: Toolholders with a Left-Hand, locating/locking screw are designated by an "LH" and are designed to be used in the sleeve facing the "Main Spindle".

Featuring:

- $\pm .0005"$ T.I.R.
- Locating/Locking System for Maximum Rigidity.
- Available in both Inch and Metric sizes.
- Heat-Treated Sleeves.



| QDS Catalog No. | Overall Length (L1) | Shank Diameter (D2) |
|------------------------------|---------------------|---------------------|
| | inch | inch |
| 3/4" Shanks | | |
| QDS-750-2.5 QDS-750-3.1 | 2.500 3.100 | .750 |
| 1" Shanks | | |
| QDS-1.00-2.5 QDS-1.00-3.1 | 2.500 3.100 | 1.000 |

| QDSM Catalog No. | Overall Length (L1) | Shank Diameter (D2) |
|--------------------------|---------------------|---------------------|
| | metric | metric |
| 20mm Shanks | | |
| QDSM-20-64 QDSM-20-79 | 64 79 | 20 |
| 22mm Shanks | | |
| QDSM-22-64 QDSM-22-79 | 64 79 | 22 |
| 25mm Shanks | | |
| QDSM-25-64 | 64 | 25 |

For current pricing, please visit our website at: www.micro100.com

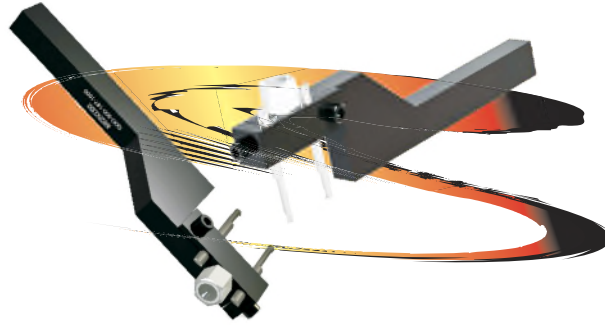
For Toolholder Accessories see page 44.

QDL Dog Leg Toolholders - Inch



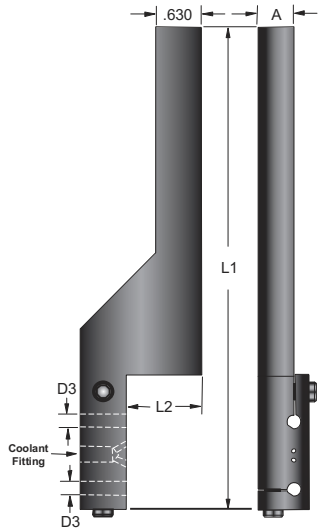
Featuring:

- Perform "2" Operations with 1 Toolholder ...from 1 Tool Station!
- Locate Tools Accurately with Quick and Easy Centerline Adjustment!
- One piece...clamp-style...toolholder.
- Utilizes Micro-Quik, Solid Carbide Tooling
- High Pressure Coolant/Air Through Capabilities.
- Toolholders Manufactured from H13 material for...Ultra-Rigidity.

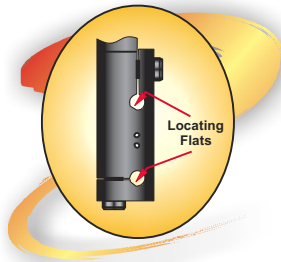


For current pricing, please visit our website at: www.micro100.com

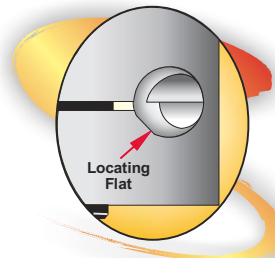
| QDL Toolholder Catalog No. | I.D. Diameter (D3) | Max Depth of Cut (L2) | Overall Length (L1) | Shank Width (A) |
|----------------------------|--------------------|-----------------------|---------------------|-----------------|
| | inch | inch | inch | inch |
| 5/16" Shanks | | | | |
| QDL-312-187-500 | .1875 | .500 | 6.664 | .3125 |
| QDL-312-187-750 | .1875 | .750 | | |
| QDL-312-250-750 | .2500 | .750 | | |
| QDL-312-250-1000 | .2500 | 1.000 | | |
| 3/8" Shanks | | | | |
| QDL-375-187-500 | .1875 | .500 | 6.664 | .3750 |
| QDL-375-187-750 | .1875 | .750 | | |
| QDL-375-250-750 | .2500 | .750 | | |
| QDL-375-250-1000 | .2500 | 1.000 | | |
| 1/2" Shanks | | | | |
| QDL-500-187-500 | .1875 | .500 | 6.664 | .5000 |
| QDL-500-187-750 | .1875 | .750 | | |
| QDL-500-187-1000 | .1875 | 1.000 | | |
| QDL-500-250-750 | .2500 | .750 | | |
| QDL-500-250-1000 | .2500 | 1.000 | | |
| QDL-500-250-1250 | .2500 | 1.250 | | |
| QDL-500-312-1000 | .3125 | 1.000 | | |
| QDL-500-312-1250 | .3125 | 1.250 | | |
| 5/8" Shanks | | | | |
| QDL-625-187-500 | .1875 | .500 | 6.664 | .6250 |
| QDL-625-187-750 | .1875 | .750 | | |
| QDL-625-250-750 | .2500 | .750 | | |
| QDL-625-250-1000 | .2500 | 1.000 | | |
| QDL-625-250-1250 | .2500 | 1.250 | | |
| QDL-625-312-1000 | .3125 | 1.000 | | |
| QDL-625-312-1250 | .3125 | 1.250 | | |



For Toolholder Accessories see page 44.

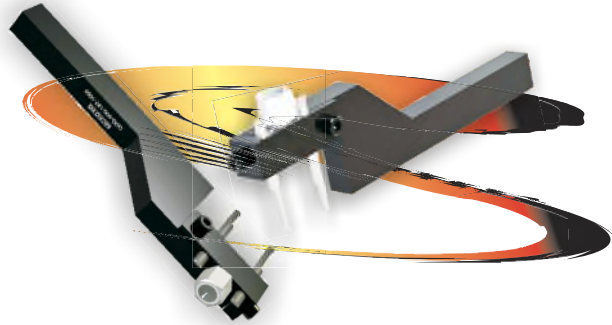


"Q" Series Cutting Tools have machined flats that easily help locate tooling for...
Rigidity and Centerline Repeatability!



Featuring:

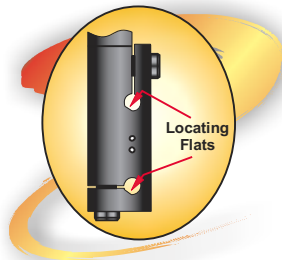
- Perform "2" Operations with 1 Toolholder ...from 1 Tool Station!
- Locate Tools Accurately with Quick and Easy Centerline Adjustment!
- One piece...clamp-style...toolholder.
- Utilizes Micro-Quik, Solid Carbide Tooling
- High Pressure Coolant/Air Through Capabilities.
- Toolholders Manufactured from H13 material for...Ultra-Rigidity.



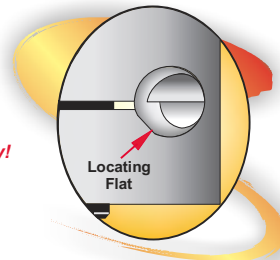
For current pricing, please visit our website at: www.micro100.com

| | QDLM Toolholder Catalog No. | I.D. Diameter (D3) | Max Depth of Cut (L2) | Overall Length (L1) | Shank Width (A) |
|--------------------|-----------------------------|--------------------|-----------------------|---------------------|-----------------|
| | | metric | metric | metric | metric |
| 10mm Shanks | | | | | |
| | QDLM-10-187-500 | 4.8 | 12.7 | 169 | 10 |
| | QDLM-10-187-750 | 4.8 | 19.1 | | |
| | QDLM-10-250-750 | 6.4 | 19.1 | | |
| | QDLM-10-250-1000 | 6.4 | 25.4 | | |
| 12mm Shanks | | | | | |
| | QDLM-12-187-500 | 4.8 | 12.7 | 169 | 12 |
| | QDLM-12-187-750 | 4.8 | 19.1 | | |
| | QDLM-12-250-750 | 6.4 | 19.1 | | |
| | QDLM-12-250-1000 | 6.4 | 25.4 | | |
| 16mm Shanks | | | | | |
| | QDLM-16-187-500 | 4.8 | 12.7 | 169 | 16 |
| | QDLM-16-187-750 | 4.8 | 19.1 | | |
| | QDLM-16-187-1000 | 4.8 | 25.4 | | |
| | QDLM-16-250-750 | 6.4 | 19.1 | | |
| | QDLM-16-250-1000 | 6.4 | 25.4 | | |
| | QDLM-16-250-1250 | 6.4 | 31.8 | | |
| | QDLM-16-312-1000 | 7.9 | 25.4 | | |
| | QDLM-16-312-1250 | 7.9 | 31.8 | | |

For Toolholder Accessories see page 44.



"Q" Series Cutting Tools have machined flats that easily help locate tooling for...
Rigidity and Centerline Repeatability!



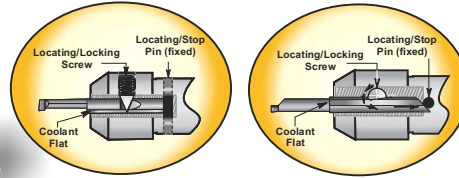
QSG
Square Shank Toolholders



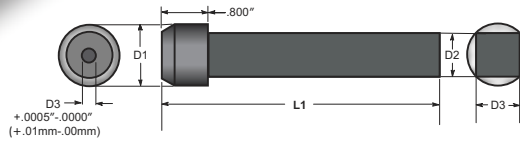
Featuring:

- Unique "3 Point" Locking/Locating System ensures Tool to Tool change Repeatability of $\pm 0.0005"/\pm 0.01\text{mm}$ from Centerline.
- Ideal Quick-Change System for Gang Tool Machines and Standard Lathes!
- Regrind Micro-Quik Tools with Confidence.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.

Great for...
Gang Tool Machines
and Standard Lathes!



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



For current pricing, please visit our website at: www.micro100.com

| QSG Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Height (D3) | Shank Width (D2) |
|--------------------|--------------------|--------------------|---------------------|-------------------|------------------|
| | inch | inch | inch | inch | inch |
| 1/2" Shanks | | | | | |
| QSG-187-500 | .1875 | .750 | 4.800 | .5000 | .5000 |
| QSG-250-500 | .2500 | .750 | | | |
| QSG-312-500 | .3125 | .875 | | | |
| 3/4" Shanks | | | | | |
| QSG-187-750 | .1875 | 1.060 | 4.800 | .7500 | .7500 |
| QSG-250-750 | .2500 | | | | |
| QSG-312-750 | .3125 | | | | |
| QSG-375-750 | .3750 | | | | |
| QSG-500-750 | .5000 | | | | |

AN ALL "NEW" QUICK-CHANGE TOOLING SYSTEM FROM THE NAME YOU CAN TRUST

HIGH QUALITY...ULTRA PRECISION



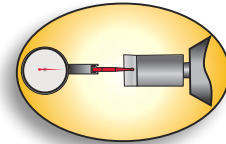
QUICK-CHANGE
BORING, GROOVING, PROFILING, AND THREADING TOOLING SYSTEM

Featuring:

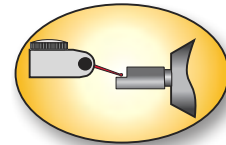
- Reduce Machine Setup and Downtime!
- $\pm 0.0005"$ T.I.R.
- 3/16", 1/4", and 5/16" Shanks.
- 3/8" Wide Locating Surface.

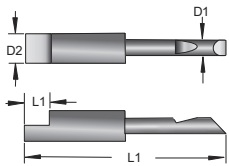
Reduces...
Machine Setup Times!

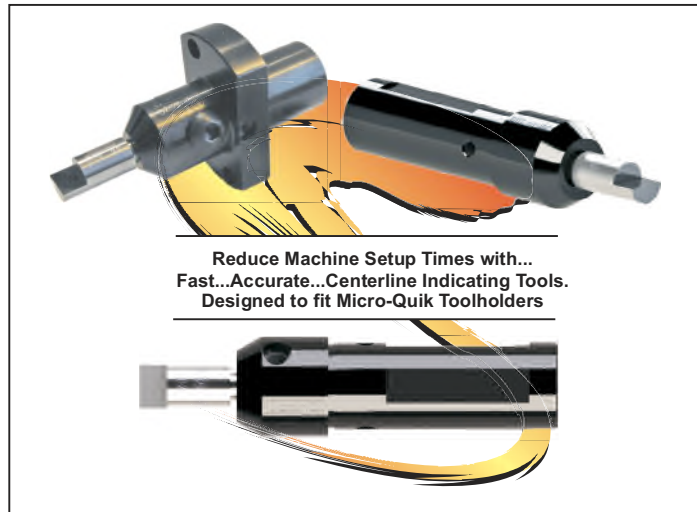
Indicate your toolholders...
Quickly and Easily...
Centerline Adjustment in just Seconds!



Centerline
Indicating Flat



|  | QI Catalog No. | Locating Flat Dimension (D3) | Head Diameter (D1) | Overall Length (L1) | Shank Diameter (D2) |
|--|-----------------------------|------------------------------|--------------------|---------------------|---------------------|
| | | inch / metric | inch / metric | inch / metric | inch / metric |
| | 3/16" / 4.8mm Shanks | | | | |
| | QI-187 | .2500 / 6.35 | .375 / 9.50 | 1.500 / 38 | .1875 / 4.76 |
| | 1/4" / 6.4mm Shanks | | | | |
| | QI-250 | .2500 / 6.35 | .375 / 9.50 | 1.500 / 38 | .2500 / 6.35 |
| | 5/16" / 7.9mm Shanks | | | | |
| | QI-312 | .2500 / 6.35 | .375 / 9.50 | 1.500 / 38 | .3125 / 7.94 |



QDB
Precision Boring Head with Digital Readout



“Experience the **POWER** and **PARTNERSHIP** of **PRECISION!**”



MICRO 100 and WOHLHAUPTER... two of the most trusted brand names in the industry have teamed up to offer you...

Solutions for your Precision Boring Application Needs.

The DigiBore Precision Boring Head is unbelievably practical and offers Superior Performance.

- .138" (3.5mm) Radial Stroke Adjustment
- Boring Range: .015" and Up!
- Maximum Speed: 16,000 rpm
- Automatic Internal Balancing
- 0-580 PSI Coolant Flow
- Easy-to-read LCD display makes accurate tool setting easy - reducing scrap!
- +/- display provide for accurate dimensional corrections at the machine - increasing productivity and quality!
- Monobloc electronics for safety and easy servicing - featuring auto shut-down after 30 seconds.
- Water and Particle protection meets IP65 standards.
- Powered by standard batteries.

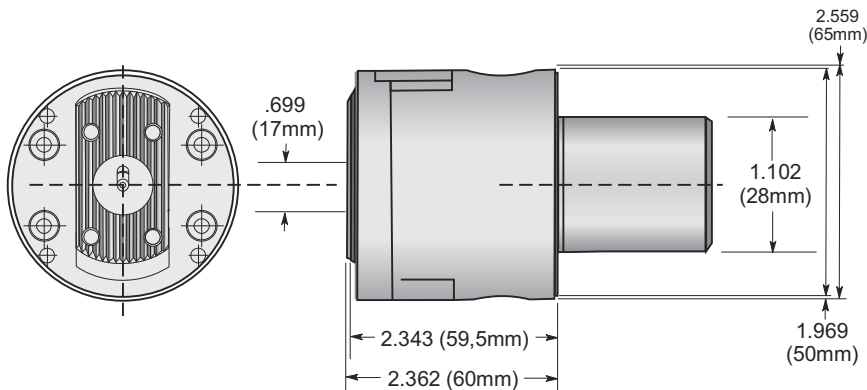
.0001" (0,002mm) Resolution on diameter provided by Opto-Electrical Traverse Measurement!



Boring Head
Catalog No.

QDB-100

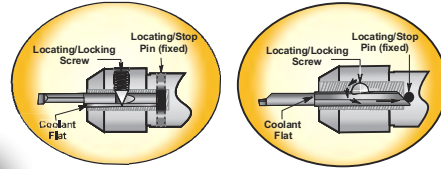
This technology renders all other Boring Systems...**Obsolete!**



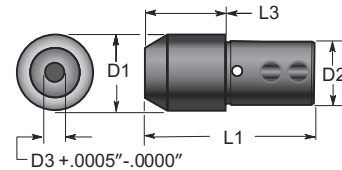
Featuring:

- Unique "3 Point" Locking/Locating System ensures Tool to Tool change Repeatability of $\pm 0.0005"/\pm .01\text{mm}$ from Centerline.
- Specifically Designed and Engineered for Wohlhaupter Precision DigiBore Boring Heads.
- Coolant Through Capabilities.
- Heat-Treated Toolholders.

Ultra Precision...
Quick-Change Boring System!



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



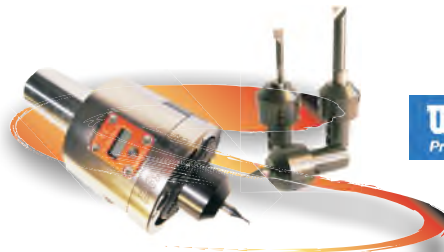
For current pricing, please visit our website at: www.micro100.com

| QTHM Catalog No. | I.D. Diameter (D3) | Head Diameter (D1) | Head Length (L3) | Overall Length (L1) | Shank Diameter (D2) |
|--------------------|--------------------|--------------------|------------------|---------------------|---------------------|
| | inch | inch | inch | inch | metric |
| 17mm Shanks | | | | | |
| QTHM-317 | .1875 | .750 | .800 | 2.750 | 17 |
| QTHM-417 | .2500 | .750 | | | |
| QTHM-517 | .3125 | .875 | | | |
| QTHM-617 | .3750 | 1.06 | | | |
| QTHM-817 | .5000 | 1.06 | | | |

For Toolholder Accessories see page 44.

| QMBB | | | QBB | | |
|---|--|--|------------|---|--|
| | Miniature Boring Tools Min. Bore Ranges: .015" - .100" Coated/Uncoated Grades | | | Boring Tools Min. Bore Ranges: .050" - .490" Coated/Uncoated Grades | |
| Ultra Precision Boring Tools Specifically Engineered and Designed for Boring Head Applications | | | | | |
| QBM | | | QFG | | |
| | Boring Tools Min. Bore Ranges: .118" - .460" Coated/Uncoated Grades | | | Face Grooving Tools Min. Groove Width Ranges: .020" - .156" Coated/Uncoated Grades | |

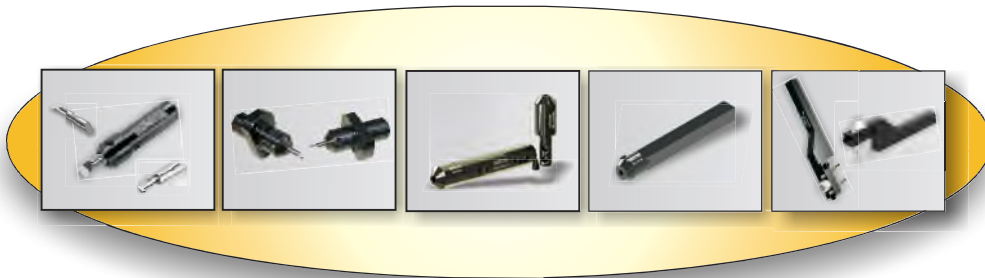
MICRO 100®
super carbide tools



WOHLHAUPTER
Productivity through Technology

"Experience the **POWER** and **PARTNERSHIP** of **PRECISION!**"

ACCESSORIES
Quick Change Tooling System



| Accessory Catalog No. | Accessory Description | Accessory |
|--|--|-----------|
| FOR USE IN QTH, QTHM, QZST, QSG, QDH, | | |
| QC-1 | Locating/Locking Screw (Right Hand Threads) | |
| QC-10 | Package of ten (10) QC-1 Locating/Locking Screws | |
| QC-1LH | Locating/locking Screw (Left Hand Threads) | |
| QC-10LH | Package of ten (10) QC-1LH Locating/Locking Screws | |
| FOR USE IN QDS & QDSM SLEEVES | | |
| QC-2 | Locating/Locking Screw for | |
| QC-20 | Package of ten (10) QC-2 Locating/Locking Screws | |
| FOR USE IN QDH, QDL, QDLM, QZST | | |
| QN-1 | High Pressure Coolant Fitting | |
| QN-10 | Package of ten (10) QN-1 High Pressure Coolant Fittings | |
| FOR USE IN QDH, QDL, QDLM, QZST | | |
| QC-5 | Button Head Screw (Plug) for High Pressure Coolant Hole | |
| QC-50 | Package of ten (10) QC-5 Button Head Screws (Plug) | |
| FOR USE IN QDL & QDLM | | |
| QC-3 | Locking Hex Screws for Dog-Leg Style Toolholders - Bottom Hole | |
| QC-30 | Package of ten (10) QC-3 Locking Hex Screws - Bottom Hole | |
| QC-4 | Locking Hex Screws for Dog-Leg Style Toolholders - Top Hole | |
| QC-40 | Package of ten (10) QC-4 Locking Hex Screws - Top Hole | |
| QHK-1 | Hex Wrench | |
| QHK-10 | Package of ten (10) Hex Wrenches | |
| QHT-1 | "T" Handle Style Hex Wrench | |
| QHT-10 | Package of ten (10) "T" Handle Hex Wrenches | |

The recommendations listed in this "Technical Data Section", should be considered to be only as "Safe 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.

MICRO 100 Tool Corporation has no control over the conditions of which the products we manufacture may be subjected to. It is highly recommended that the user(s) of and product(s) manufactured by MICRO 100 Tool Corporation abide by the guidelines and/or standards in regard to the type of machinery our products will be used on and that common safety practices and precautions be enforced.

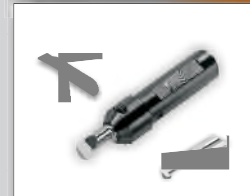
During Machining applications, "hot flying" chips may be projected from the workpiece or a rotating part of the machine tool. If carbide is subjected to over-stress and/or severe impact, it may fracture causing small fragments to be dispelled. In such instances, precautionary methods must be implemented to protect the operator(s) and/or observer(s).

These safety measures may include but not be limited to, safety glasses with wrap around eye protection and/or safety shields on the machines to protect everyone in the immediate area of where machining applications are being performed.

Grinding products manufactured by MICRO 100 Tool Corporation, will produce a dust/mist that may be hazardous. Using common safety practices is recommended.

Any modification(s) of the products manufactured by MICRO 100 Tool Corporation by the customer and/or any end user may void any/all specifications and/or guarantees listed.

Designs, Specifications, and/or Pricing of any products manufactured by MICRO 100 Tool Corporation are subject to change without notice.



THERE ARE MANY BRANDS OF MICRO-GRAIN CARBIDE TOOLS
BUT, THERE IS ONLY ONE

MICRO 100

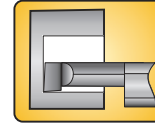
MICRO GRAIN CARBIDE +PLUS, YOUR SUPER CARBIDE TOOLS
IN A CLASS OF THEIR OWN!



Technical Data Boring Recommendations

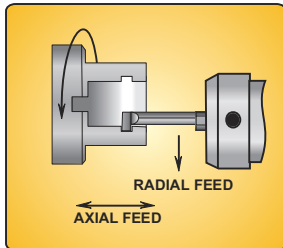


Safe Starting Conditions for Boring Applications



| MATERIAL GROUP | MATERIAL | BHN | SURFACE SPEED (SFM) | FEED RATE (I.P.R.) | DEPTH OF CUT* (per side/inch) | SURFACE SPEED (m/min) | FEED RATE (mm/r) | DEPTH OF CUT* (per side/mm) |
|-------------------------------------|-------------------------------|---------|---------------------|--------------------|-------------------------------|-----------------------|------------------|-----------------------------|
| N Non-Ferrous | Wrought Aluminum Alloys | 140-300 | 175-2000 | .0005-.030 | .0002-.090 | 53-610 | .013-.076 | .005-2.3 |
| | Cast Aluminum Alloys | 225-363 | 175-2000 | .0005-.030 | .0002-.090 | 53-610 | .013-.076 | .005-2.3 |
| | High Silicone Aluminum Alloys | 270-425 | 150-400 | .0005-.030 | .0002-.090 | 46-122 | .013-.076 | .005-2.3 |
| | Brass | 80-120 | 175-1500 | .0005-.030 | .0002-.090 | 53-457 | .013-.076 | .005-2.3 |
| | Bronze | 80-120 | 175-1500 | .0005-.030 | .0002-.090 | 53-457 | .013-.076 | .005-2.3 |
| | Non-Leaded Copper | 80-120 | 200-1500 | .0005-.030 | .0002-.090 | 61-457 | .013-.076 | .005-2.3 |
| | Zinc Alloys | 80-120 | 150-350 | .0005-.030 | .0002-.090 | 46-107 | .013-.076 | .005-2.3 |
| | Non-Metallics | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Acrylics | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Fiberglass | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Graphites | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Nylons | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Phenolics | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| | Plastics | - | 200-1000 | .0005-.030 | .0002-.090 | 61-305 | .013-.076 | .005-2.3 |
| K Cast Irons | Cast Iron - Gray | 160-260 | 100-900 | .0005-.025 | .0002-.030 | 30-84 | .013-.064 | .005-.076 |
| | Cast Iron - Ferritic | 140-200 | 75-750 | .0005-.025 | .0002-.030 | 23-229 | .013-.064 | .005-.076 |
| | Cast Iron - Pearlitic | 220-260 | 75-650 | .0005-.025 | .0002-.030 | 23-198 | .013-.064 | .005-.076 |
| | Iron - SG Nodular | 160-260 | 164-262 | .0005-.025 | .0002-.030 | 50-80 | .013-.064 | .005-.076 |
| P STEELS | Low Carbon - Unalloyed | 160-260 | 75-800 | .0005-.015 | .0002-.025 | 23-244 | .013-.038 | .005-.064 |
| | Medium Carbon - Unalloyed | 140-200 | 75-800 | .0005-.015 | .0002-.025 | 23-244 | .013-.038 | .005-.064 |
| | High Carbon - Unalloyed | 220-260 | 75-800 | .0005-.015 | .0002-.025 | 23-244 | .013-.038 | .005-.064 |
| | Low Carbon Alloys | 220-260 | 75-800 | .0005-.015 | .0002-.025 | 23-244 | .013-.038 | .005-.064 |
| | Medium Carbon Alloys | 220-260 | 75-800 | .0005-.015 | .0002-.025 | 23-244 | .013-.038 | .005-.064 |
| | High Strength Alloys | 220-260 | 75-600 | .0005-.015 | .0002-.025 | 23-183 | .013-.038 | .005-.064 |
| | Tool Steels | 220-250 | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| | Heat Treated Alloys | 32-40RC | 75-250 | .0005-.015 | .0002-.025 | 23-76 | .013-.038 | .005-.064 |
| M STAINLESS STEELS | 300 Series | 135-185 | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| | 400 Series | 180-220 | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| | 13-8 PH | 32-35RC | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| | 15-5 PH | 32-35RC | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| | 17-4 PH | 32-35RC | 75-500 | .0005-.015 | .0002-.025 | 23-152 | .013-.038 | .005-.064 |
| S HIGH TEMPERATURE ALLOYS | Monel 400 | 140-300 | 70-300 | .0003-.010 | .0002-.020 | 21-91 | .013-.025 | .005-.051 |
| | Monel 500 | 140-300 | 70-300 | .0003-.010 | .0002-.020 | 21-91 | .013-.025 | .005-.051 |
| | K Monel | 140-300 | 70-300 | .0003-.010 | .0002-.020 | 21-91 | .013-.025 | .005-.051 |
| | A286 | 225-363 | 75-300 | .0003-.010 | .0002-.020 | 23-91 | .013-.025 | .005-.051 |
| | Hastelloy | 225-363 | 75-300 | .0003-.010 | .0002-.020 | 23-91 | .013-.025 | .005-.051 |
| | Inconel | 225-363 | 75-300 | .0003-.010 | .0002-.020 | 23-91 | .013-.025 | .005-.051 |
| | Rene | 225-363 | 75-300 | .0003-.010 | .0002-.020 | 23-91 | .013-.025 | .005-.051 |
| K HARDENED MATERIALS | Titanium Alloys | 300-500 | 70-140 | .0002-.008 | .0001-.005 | 21-43 | .005-.020 | .003-.013 |
| | Extra Hard Steels | 45-50RC | 65-147 | .0001-.005 | .0001-.005 | 20-45 | .003-.013 | .003-.013 |
| | Hardened and Tempered | 51-55RC | 65-131 | .0001-.005 | .0001-.005 | 20-40 | .003-.013 | .003-.013 |

Machining Data for Speeds, Feeds, and Depth of Cuts are considered to be "safe starting conditions" and may need to be adjusted to obtain optimal performance.
For greater Depth of Cuts...reduce the Feed Rates.
To obtain better surface finish, reduce Feed Rates.



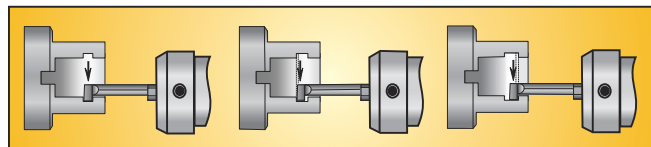
The Recommendations listed below should be considered to be only as starting points.

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 surface finish 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.

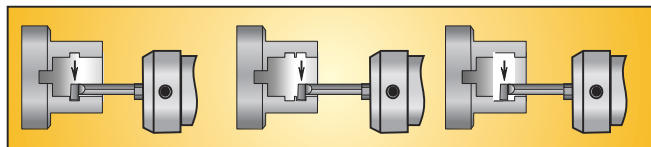
Coated versions of selected tools may allow you to increase Speed/Feed rates by 25% or more.

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.



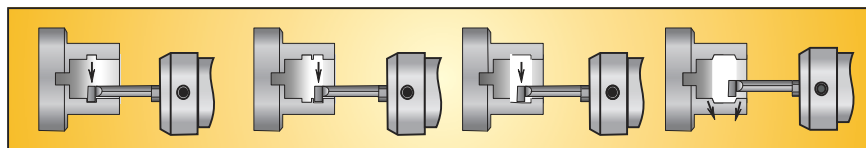
GROOVE WIDTHS "SLIGHTLY" WIDER THAN THE WIDTH OF THE GROOVING TOOL
Plunge the center of the desired groove location.

Plunge each side of the groove to obtain the specified width.
Slower "feed rates" should be used during this operation.



GROOVE WIDTHS WIDER THAN THE WIDTH OF THE GROOVING TOOL

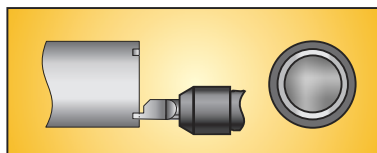
Plunge out both sides of the desired groove width.
Plunge the center area to remove excess material.



GROOVE WIDTHS WIDER THAN THE WIDTH OF THE GROOVING TOOL WITH A "SPECIFIED" ANGLE

Plunge out both sides of the desired groove width.
Plunge the center area to remove excess material.

Plunge both sides of the groove at the specified angle calculating approximately 1/2 of the "maximum" width of the tool.

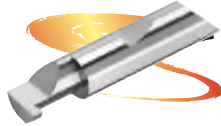


FACE GROOVING

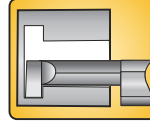
Groove Widths from .020"(.50mm) to .156"(3.96mm)
are typically used in applications to create
Face Grooves with
Major Diameters greater than .250"(6.35mm).



Technical Data Grooving Recommendations

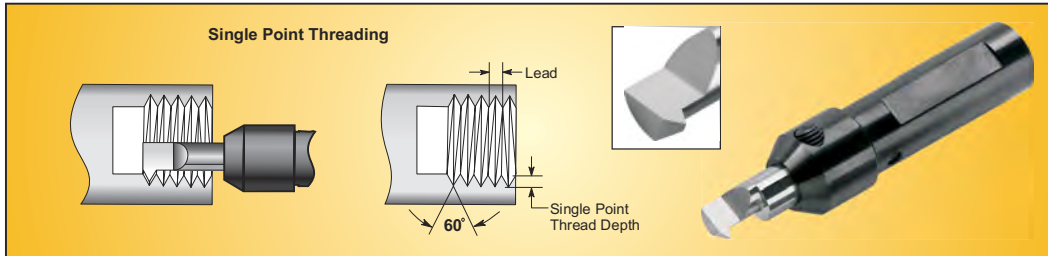


Safe Starting Conditions Grooving Applications



| MATERIAL GROUP | | BHN | FEED RATE (Radial/Inch) | FEED RATE (Axial/Inch) | FEED RATE (Radial/Inch) | FEED RATE (Axial/Inch) |
|---|-------------------------------|------------|----------------------------|---------------------------|----------------------------|---------------------------|
| N Non-Ferrous | Wrought Aluminum Alloys | 140-300 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Cast Aluminum Alloys | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | High Silicone Aluminum Alloys | 270-425 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Brass | 80-120 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Bronze | 80-120 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Non-Leaded Copper | 80-120 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Zinc Alloys | 80-120 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Non-Metallics | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Acrylics | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Fiberglass | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Graphites | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Nylons | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Phenolics | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Plastics | - | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| K Cast Irons | Cast Iron - Gray | 160-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Cast Iron - Ferritic | 140-200 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Cast Iron - Pearlitic | 220-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Iron - SG Nodular | 160-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| P STEELS | Low Carbon - Unalloyed | 160-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Medium Carbon - Unalloyed | 140-200 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | High Carbon - Unalloyed | 220-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Low Carbon Alloys | 220-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Medium Carbon Alloys | 220-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | High Strength Alloys | 220-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Tool Steels | 220-250 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Heat Treated Alloys | 32-40RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Powder Metal Alloys | 230-260 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| M STAINLESS STEELS | 300 Series | 135-185 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | 400 Series | 180-220 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | 13-8 PH | 32-35RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | 15-5 PH | 32-35RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | 17-4 PH | 32-35RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| S HIGH TEMPERATURE ALLOYS | Monel 400 | 140-300 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Monel 500 | 140-300 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | K Monel | 140-300 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | A286 | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Hastelloy | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Inconel | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Rene | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| Waspalloy | 225-363 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 | |
| K HARDENED MATERIALS | Titanium Alloys | 300-500 | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Extra Hard Steels | 45-50RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |
| | Hardened and Tempered | 51-55RC | .0005-.002 | .0003-.005 | .013-.051 | .008-.127 |

Machining Data for Speeds, Feeds, and Depth of Cuts are considered to be "safe starting conditions" and may need to be adjusted to obtain optimal performance.
For greater Depth of Cuts...reduce the Feed Rates.
To obtain better surface finish, reduce Feed Rates.



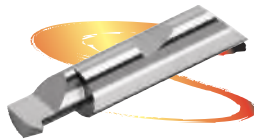
| Methods of Infeed | |
|-----------------------|---|
| RADIAL | <p>Most widely used infeed method. This method creates the most cutting force on the tool due to the entire tool cutting edge being engaged in the cut.</p> |
| FLANK | <p>This infeed method allows for a more "evenly" formed chip. Reduction of heat generated by this method promotes longer tool edge life.</p> |
| MODIFIED FLANK | <p>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.</p> |
| ALTERNATE | <p>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.</p> |

| | | | | | | | | | | | | | | | |
|------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| T.P.I. | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 56 |
| MM | 3.18 | 2.54 | 2.12 | 1.81 | 1.59 | 1.41 | 1.27 | 1.06 | 0.91 | 0.80 | 0.71 | 0.64 | 0.58 | 0.53 | 0.45 |
| NUMBER OF PASSES | 12-14 | 10-12 | 8-10 | 8-10 | 8-10 | 6-8 | 6-8 | 6-8 | 6-8 | 4-6 | 4-6 | 4-6 | 4-6 | 4-6 | 4-6 |

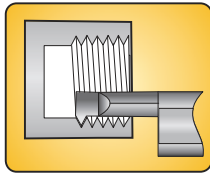
Conditions based on Mild Steel and Non-Ferrous materials. Harder materials and/or High Temperature Alloys may require more passes. The data given in the chart above should always consider to be "safe starting conditions" and may need to be adjusted to obtain optimal machining performance.

Technical Data

Threading Recommendations



Safe Starting Conditions for Internal Threading Applications



| MATERIAL GROUP | MATERIAL | BHN | SURFACE SPEED (SFM) | SURFACE SPEED (m/min) |
|-------------------------------------|-------------------------------|----------|---------------------|-----------------------|
| N Non-Ferrous | Wrought Aluminum Alloys | 140-300 | 200-2000 | 61-610 |
| | Cast Aluminum Alloys | 225-363 | 200-2000 | 61-610 |
| | High Silicone Aluminum Alloys | 270-425 | 150-400 | 45-122 |
| | Brass | 80-120 | 175-1500 | 61-457 |
| | Bronze | 80-120 | 175-1500 | 61-457 |
| | Non-Leaded Copper | 80-120 | 175-1500 | 61-457 |
| | Zinc Alloys | 80-120 | 175-1500 | 53-457 |
| | Non-Metallics | - | 200-1000 | 61-305 |
| | Acrylics | - | 200-1000 | 61-305 |
| | Fiberglass | - | 200-1000 | 61-305 |
| | Graphites | - | 200-1000 | 61-305 |
| | Nylons | - | 200-1000 | 61-305 |
| | Phenolics | - | 200-1000 | 61-305 |
| Plastics | - | 200-1000 | 61-305 | |
| K Cast Irons | Cast Iron - Gray | 160-260 | 130-260 | 40-79 |
| | Cast Iron - Ferritic | 140-200 | 190-260 | 58-79 |
| | Cast Iron - Pearlitic | 220-260 | 190-260 | 58-79 |
| | Iron - SG Nodular | 160-260 | 190-300 | 58-91 |
| P STEELS | Low Carbon - Unalloyed | 160-260 | 450-700 | 137-213 |
| | Medium Carbon - Unalloyed | 140-200 | 400-600 | 122-183 |
| | High Carbon - Unalloyed | 220-260 | 350-600 | 107-183 |
| | Low Carbon Alloys | 220-260 | 80-130 | 24-40 |
| | Medium Carbon Alloys | 220-260 | 90-170 | 27-52 |
| | High Strength Alloys | 220-260 | 210-380 | 64-116 |
| | Tool Steels | 220-250 | 290-400 | 88-122 |
| | Heat Treated Alloys | 32-40RC | 160-330 | 49-101 |
| Powder Metal Alloys | 230-260 | 320-500 | 98-152 | |
| M STAINLESS STEELS | 300 Series | 135-185 | 130-300 | 40-91 |
| | 400 Series | 180-220 | 130-300 | 40-91 |
| | 13-8 PH | 32-35RC | 130-300 | 40-91 |
| | 15-5 PH | 32-35RC | 130-300 | 40-91 |
| | 17-4 PH | 32-35RC | 130-300 | 40-91 |
| S HIGH TEMPERATURE ALLOYS | Monel 400 | 140-300 | 82-330 | 25-100 |
| | Monel 500 | 140-300 | 82-330 | 25-100 |
| | K Monel | 140-300 | 82-330 | 25-100 |
| | A286 | 225-363 | 82-330 | 25-100 |
| | Hastelloy | 225-363 | 82-330 | 25-100 |
| | Inconel | 225-363 | 82-330 | 25-100 |
| | Rene | 225-363 | 82-330 | 25-100 |
| Waspalloy | 225-363 | 82-330 | 25-100 | |
| K HARDENED MATERIALS | Titanium Alloys | 300-350 | 82-130 | 25-40 |
| | Extra Hard Steels | 45-50RC | 82-130 | 25-40 |
| | Hardened and Tempered | 51-55RC | 82-130 | 25-40 |

For number of recommended passes, see chart on page 49.
Machining Data for Speeds, Feeds, and Depth of Cuts are considered to be "safe starting conditions" and may need to be adjusted to obtain optimal performance.
For greater Depth of Cuts...reduce the Feed Rates.
To obtain better surface finish, reduce Feed Rates.



MICRO 100 Tool Corporation has been manufacturing high-quality solid carbide tooling for over 40 years and we are proud of our reputation for high-quality.

These machining formulas are considered to be "industry standards".

All tooling manufactured by MICRO 100 Tool Corporation if applied properly, will give exceptional performance.

MICRO 100 Tool Corporation is a "World Class" Machining and Grinding facility. Our engineering staff is outstanding and would be pleased to help offer solutions for your difficult machining applications.

MICRO 100 is recognized as an Industry Leader. Our proprietary micro grain carbide cutting tool products provide, you the customer, the highest transverse rupture strength in today's market. Other benefits of MICRO 100 products feature, unmatched toughness, application versatility, superior metal removal, and tool performance.

Our goal is to provide high-quality, performance driven, solid carbide tooling. We will treat each order with the care and attention to detail that you deserve. Earning your business on a consistent basis is very important to us.

| Inch / Metric Conversions | | | |
|---------------------------|---|---------|---------------|
| Inches | x | 25.4 | = Millimeters |
| Inches | x | 2.54 | = Centimeters |
| Inches | x | 0.0254 | = Meters |
| Millimeters | x | 0.03937 | = Inches |
| Centimeters | x | 0.3937 | = Inches |
| Meters | x | 39.37 | = Inches |

| | | |
|--------|---|---------------------------------|
| A.D.C. | = | Axial Depth Of Cut |
| D(d) | = | Diameter of Cutter or Bore Size |
| D.O.C. | = | Depth Of Cut |
| F.P.T. | = | Feed Rate Per Tooth |
| F.P.R. | = | Feed Rate Per Revolution |
| I.P.M. | = | Inches Per Minute |
| I.P.T. | = | Inch Per Tooth/Flute Chipload |
| N.O.T. | = | Number of Teeth/Flutes |
| P.C. | = | Power Constants |
| R.D.C. | = | Radial Depth Of Cut |
| R.P.M. | = | Revolutions Per Minute |
| S.F.M. | = | Surface Footage Per Minute |

| Machining Formulas - Inch | | Machining Formulas - Metric | |
|--|---|--|---|
| Need to Know | Formula | Need to Know: | Formula: |
| <u>S.F.M.</u> Surface Footage Per Minute | $S.F.M. = 0.262 \times D \times R.P.M.$ | <u>m/min</u> Meters Per Minute | $m/min = 0.00314 \times d \times rpm$ |
| <u>R.P.M.</u> Revolutions Per Minute | $R.P.M. = 3.82 \times S.F.M. \div D$ | <u>rpm</u> Revolutions Per Minute | $rpm = 318.057 \times m/min. \div d$ |
| <u>I.P.M.</u> Inches Per Minute | $I.P.M. = F.P.T \times N.O.T. \times R.P.M.$ | <u>mm/min</u> Millimeters Per Minute | $mm/min = rpm \times mmpt \times not$ |
| <u>I.P.T.</u> Inches Per Tooth / Chipload | $I.P.T. = I.P.M. \div R.P.M. \div N.O.T.$ | <u>mmpt</u> Millimeters Per Tooth / Chipload | $mmpt = mm/min. \div rpm \times not$ |
| <u>I.P.R. (F.P.R.)</u> Inch Feed Per Revolution | $I.P.R.(F.R.R.) = I.P.M. \div R.P.M.$ | <u>mmpr(fr)</u> Millimeters (Feed) Per Revolution | $mmpr(fr) = mm/min \div rpm$ |
| <u>M.R.</u> Metal Removal | $M.R. = A.D.C. \times R.D.C. \times I.P.M.$ | <u>mr</u> Metal Removal | $mr = adc \times rdc \times mm/min \div 1000$ |
| <u>H.P.</u> Horsepower Requires | $H.P. = I.P.M. \times R.D.C. \times A.D.C. \times P.C.$ | <u>hp</u> Horsepower Requires | $hp = mm/min \times rdc \times adc \times .001 \times pc$ |
| | | <u>kW</u> | $kW = .7457 \times hp$ |

| Inch / Metric Conversions | |
|--|--|
| S.F.M. (Surface Footage Per Minute) ÷ | 0.3048 = m/min (Meters per Minute) |
| I.P.M. (Inches Per Minute) = | mm/min (Millimeters Per Minute) ÷ 25.4 |
| m/min (Meters per Minute (m/min) = | sfm (Surface Footage Per Minute) x 0.304 |
| mm/min (Millimeters per Minute (m/min) = | ipm (Inches Per Minute) x 25.4 |

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