

HELICAL BACK RAKE BORING TOOLS

Neck is centered to shank for use in jig boring machines. The helical grind provides an ideal top rake for better chip control. Left-hand boring tools also available.



LATHE CHUCKS
LIVE CENTERS

WISE JAWS
WISE ACCESSORIES

STRAIGHT SHANK
COLLET HOLDERS

TAP HOLDERS
DRILL CHUCKS

CARBIDE INSERTS
THREADING/GROOVING

CUTTING TOOLS
MACHINERY

PRECISION TOOLS
DEBURRING

COOLANT/FLUIDS
TOOL STORAGE



N/C GENERATION

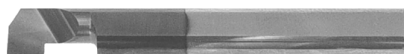
Shank Diameter -.0001 to -.0003"
Minimum Bore Dia. +.001 -.000"
Maximum Bore Depth +.030 -.000"
Overall Length ±1/64

Shank Dia. D2	OAL L1	Bore Dia. D1	Bore Depth L2	Neck Dia. N	Part Number	Price Each
1/8	1-1/2	0.020	1/16	0.015	MI-HBB020062	\$31.90
		0.025	1/8	0.020	MI-HBB025125	
		0.030	3/16	0.025	MI-HBB030187	
		\$24.60	0.035	1/8	0.030	MI-HBB035125
			0.040	3/16	0.035	MI-HBB040187
			0.050	1/4	0.035	MI-HBB040250
			0.060	5/16	0.040	MI-HBB050312
			0.070	3/8	0.050	MI-HBB060375
			0.080	7/16	0.060	MI-HBB070437
			0.090	1/2	0.070	MI-HBB080500
			0.100	1/2	0.080	MI-HBB090500
			0.120	9/16	0.090	MI-HBB100562
3/16	2	0.135	3/4	0.110	MI-HBB120625	\$26.35
		0.150	1	0.130	MI-HBB1201000	
		0.180	1-1/4	0.160	MI-HBB1801000	
		0.210	1-1/4	0.185	MI-HBB2101000	
		0.240	1-1/2	0.215	MI-HBB2401000	
		0.240	1-1/2	0.215	MI-HBB2401500	

Shank Dia. D2	OAL L1	Bore Dia. D1	Bore Depth L2	Neck Dia. N	Part Number	Price Each
3/16	2	0.135	3/4	0.110	MI-HBB135750	\$26.35
		0.150	1	0.130	MI-HBB1351000	
		0.180	1-1/4	0.160	MI-HBB1501000	
1/4	2-1/2	0.210	1-1/4	0.185	MI-HBB1501250	\$28.55
		0.240	1-1/2	0.215	MI-HBB1801000	
		0.240	1-1/2	0.215	MI-HBB1801250	
		0.240	1-1/2	0.215	MI-HBB2101500	
		0.240	1-1/2	0.215	MI-HBB2401500	
		0.240	1-1/2	0.215	MI-HBB2401750	
5/16	2-1/2	0.300	1-1/2	0.250	MI-HBB3001000	\$39.05
		0.300	1-3/4	0.250	MI-HBB3001500	
		0.300	1-3/4	0.250	MI-HBB3001750	
3/8	2-1/2	0.360	1-1/2	0.320	MI-HBB3601000	\$54.20
		0.360	1-3/4	0.320	MI-HBB3601500	
		0.360	1-3/4	0.320	MI-HBB3601750	
1/2	4	0.480	2-1/4	0.440	MI-HBB3602000	\$69.80
		0.480	2-1/2	0.440	MI-HBB3602250	
		0.480	2-1/2	0.440	MI-HBB3602500	
1/2	3	0.480	1-1/2	0.440	MI-HBB4801500	\$76.25
		0.480	2	0.440	MI-HBB4802000	
		0.480	2	0.440	MI-HBB4802500	
1/2	4	0.480	2-1/2	0.440	MI-HBB4803000	\$83.70
		0.480	3	0.440	MI-HBB4803500	
		0.480	3	0.440	MI-HBB4803000	
1/2	6	0.480	3-1/2	0.440	MI-HBB4803000	\$105.45
		0.480	4	0.440	MI-HBB4804000	
		0.480	4	0.440	MI-HBB4804500	

BORING TOOLS

TiAIN Coated
Ground w/ Helical Rake



- Max-Bore has a special helical flute for maximum shearing action with a better finish
- Elliptical neck for greater strength
- 0.007" radius
- Tools up to .490 minimum bore also available

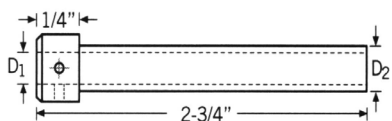
Min Bore	Shank	OAL	Max Depth	Part Number	Price Each
.120	1/8	2	0.375	IT-11-1300	\$25.52
			0.500	IT-11-1305	
			0.750	IT-11-1310	
.140	3/16	2-1/2	0.500	IT-11-1311	\$27.30
			0.750	IT-11-1312	
.160	3/16	2-1/2	0.500	IT-11-1313	\$27.30
			0.750	IT-11-1314	
			1.000	IT-11-1316	

Min Bore	Shank	OAL	Max Depth	Part Number	Price Each
.180	3/16	2-1/2	0.375	IT-11-1315	\$27.30
			0.500	IT-11-1320	
			0.750	IT-11-1325	
.200	1/4	2-1/2	1.000	IT-11-1330	\$29.57
			0.375	IT-11-1331	
			0.500	IT-11-1332	
.200	1/4	2-1/2	0.750	IT-11-1333	\$29.57
			0.750	IT-11-1333	
			1.000	IT-11-1334	

STEEL SHANK TOOLHOLDERS



- Precision ground heat treated steel shanks
- Ideal for solid carbide boring, grooving and threading tools
- Two lockdown screws at 90° for secure fastening, except TH-84, TH-104 and TH-204, which have one lockdown screw
- Lockdown screws are 8-32 x 1/4
- Tolerance: .002" maximum TIR



Shank D2	OAL	Head Thick.	Head Dia.	ID D1	Part Number	Price Each
1/2	2-3/4	1/4	5/8	1/8	MI-TH84	\$31.00
				3/16	MI-TH85	
				1/4	MI-TH86	
				5/16	MI-TH87	
5/8	2-3/4	1/4	3/4	3/8	MI-TH88	\$31.00
				1/8	MI-TH104	
				3/16	MI-TH105	
				1/4	MI-TH106	
3/4	2-3/4	1/4	7/8	5/16	MI-TH107	\$36.00
				3/8	MI-TH108	
				1/8	MI-TH204	
				3/16	MI-TH205	
3/4	2-3/4	1/4	7/8	1/4	MI-TH206	\$36.00
				5/16	MI-TH207	
				3/8	MI-TH208	

Call Us Or Visit Our Website For Our Complete Selection!

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LATHE WORKHOLDING

MACHINE VISES
VISE JAWS

RETENTION KNOBS
ER, DA, TG COLLETS

TOOLHOLDERS
TAP HOLDERS

INDEXABLE DRILLS
TURNING & BORING

ENDMILLS, DRILLS
TAPS & REAMERS

ABRASIVES
MEASURING TOOLS

MRO & SAFETY
FLAT STOCK/DRILL ROD

SOLID CARBIDE BORING BARS

SOLID CARBIDE BORING BARS

Right Hand, With Radius, NC Generation

- Provides for vastly increased speed and feed rates in cutting aluminum, copper, stainless steels, high temperature alloys
- Manufactured with a 4RMS finish
- Mirror polished cutting surface
- Lockdown flat automatically locates tool on center
- Highly shock resistant, will not chip or break under normal machining conditions
- Made in the USA!



Min. Bore	Shank Dia	OAL	Max. Bore Depth	Proj.	Part Number	Price Each
0.050	1/8	1-1/2	0.150	0.013	MO-BB050015	\$22.31
0.050	1/8	1-1/2	0.200	0.013	MO-BB050020	\$22.31
0.050	1/8	1-1/2	0.300	0.013	MO-BB050030	\$22.31
0.050	1/8	1-1/2	0.400	0.013	MO-BB050040	\$22.31
0.060	1/8	1-1/2	0.150	0.015	MO-BB060015	\$22.31
0.060	1/8	1-1/2	0.200	0.015	MO-BB060020	\$22.31
0.060	1/8	1-1/2	0.300	0.015	MO-BB060030	\$22.31
0.060	1/8	1-1/2	0.400	0.015	MO-BB060040	\$22.31
0.060	1/8	1-1/2	0.500	0.015	MO-BB060050	\$22.31
0.080	1/8	1-1/2	0.150	0.020	MO-BB080015	\$22.31
0.080	1/8	1-1/2	0.200	0.020	MO-BB080020	\$22.31
0.080	1/8	1-1/2	0.300	0.020	MO-BB080030	\$22.31
0.080	1/8	1-1/2	0.400	0.020	MO-BB080040	\$22.31
0.080	1/8	1-1/2	0.500	0.020	MO-BB080050	\$22.31
0.080	1/8	1-1/2	0.600	0.020	MO-BB080060	\$22.31
0.100	1/8	1-1/2	0.150	0.025	MO-BB100015	\$22.31
0.100	1/8	1-1/2	0.200	0.025	MO-BB100020	\$22.31
0.100	1/8	1-1/2	0.300	0.025	MO-BB100030	\$22.31
0.100	1/8	1-1/2	0.400	0.025	MO-BB100040	\$22.31
0.100	1/8	1-1/2	0.500	0.025	MO-BB100050	\$22.31
0.100	1/8	1-1/2	0.600	0.025	MO-BB100060	\$22.31
0.100	1/8	1-1/2	0.700	0.025	MO-BB100070	\$22.31
0.110	1/8	1-1/2	0.150	0.028	MO-BB110015	\$22.31
0.110	1/8	1-1/2	0.200	0.028	MO-BB110020	\$22.31
0.110	1/8	1-1/2	0.300	0.028	MO-BB110030	\$22.31
0.110	1/8	1-1/2	0.400	0.028	MO-BB110040	\$22.31
0.110	1/8	1-1/2	0.500	0.028	MO-BB110050	\$22.31
0.110	1/8	1-1/2	0.600	0.028	MO-BB110060	\$22.31
0.110	1/8	1-1/2	0.700	0.028	MO-BB110070	\$22.31
0.120	3/16	2	0.250	0.300	MO-BB120025	\$25.24
0.120	3/16	2	0.350	0.300	MO-BB120035	\$25.24
0.120	3/16	2	0.500	0.300	MO-BB120050	\$25.24
0.120	3/16	2	0.600	0.300	MO-BB120060	\$25.24
0.120	3/16	2	0.700	0.300	MO-BB120070	\$25.24
0.120	3/16	2	0.800	0.300	MO-BB120080	\$25.24
0.140	3/16	2	0.250	0.350	MO-BB140025	\$25.24
0.140	3/16	2	0.400	0.350	MO-BB140040	\$25.24
0.140	3/16	2	0.500	0.350	MO-BB140050	\$25.24
0.140	3/16	2	0.600	0.350	MO-BB140060	\$25.24
0.140	3/16	2	0.700	0.350	MO-BB140070	\$25.24
0.140	3/16	2	0.750	0.350	MO-BB140075	\$25.24
0.140	3/16	2	0.800	0.350	MO-BB140080	\$25.24
0.160	3/16	2	0.250	0.400	MO-BB160025	\$25.24
0.160	3/16	2	0.400	0.400	MO-BB160040	\$25.24
0.160	3/16	2	0.500	0.400	MO-BB160050	\$25.24
0.160	3/16	2	0.600	0.400	MO-BB160060	\$25.24
0.160	3/16	2	0.750	0.400	MO-BB160075	\$25.24
0.160	3/16	2	0.900	0.400	MO-BB160090	\$25.24
0.160	3/16	2	1.000	0.400	MO-BB160100	\$25.24
0.180	1/4	2-1/2	0.350	0.450	MO-BB180035	\$33.02
0.180	1/4	2-1/2	0.500	0.450	MO-BB180050	\$33.02
0.180	1/4	2-1/2	0.600	0.450	MO-BB180060	\$33.02
0.180	1/4	2-1/2	0.750	0.450	MO-BB180075	\$33.02
0.180	1/4	2-1/2	0.900	0.450	MO-BB180090	\$33.02
0.180	1/4	2-1/2	1.000	0.450	MO-BB180100	\$33.02
0.180	1/4	2-1/2	1.100	0.450	MO-BB180110	\$33.02
0.180	1/4	2-1/2	1.250	0.450	MO-BB180125	\$33.02
0.180	1/4	2-1/2	1.500	0.450	MO-BB180150	\$33.02

Min. Bore	Shank Dia	OAL	Max. Bore Depth	Proj.	Part Number	Price Each
0.200	1/4	2-1/2	0.400	0.500	MO-BB200040	\$33.02
0.200	1/4	2-1/2	0.500	0.500	MO-BB200050	\$33.02
0.200	1/4	2-1/2	0.600	0.500	MO-BB200060	\$33.02
0.200	1/4	2-1/2	0.700	0.500	MO-BB200070	\$33.02
0.200	1/4	2-1/2	0.800	0.500	MO-BB200080	\$33.02
0.200	1/4	2-1/2	0.900	0.500	MO-BB200090	\$33.02
0.200	1/4	2-1/2	1.000	0.500	MO-BB200100	\$33.02
0.200	1/4	2-1/2	1.100	0.500	MO-BB200110	\$33.02
0.200	1/4	2-1/2	1.200	0.500	MO-BB200120	\$33.02
0.200	1/4	2-1/2	1.300	0.500	MO-BB200130	\$33.02
0.230	5/16	2-1/2	0.400	0.058	MO-BB230040	\$38.87
0.230	5/16	2-1/2	0.500	0.058	MO-BB230050	\$38.87
0.230	5/16	2-1/2	0.600	0.058	MO-BB230060	\$38.87
0.230	5/16	2-1/2	0.700	0.058	MO-BB230070	\$38.87
0.230	5/16	2-1/2	0.800	0.058	MO-BB230080	\$38.87
0.230	5/16	2-1/2	0.900	0.058	MO-BB230090	\$38.87
0.230	5/16	2-1/2	1.000	0.058	MO-BB230100	\$38.87
0.230	5/16	2-1/2	1.100	0.058	MO-BB230110	\$38.87
0.230	5/16	2-1/2	1.150	0.058	MO-BB230115	\$38.87
0.230	5/16	2-1/2	1.200	0.058	MO-BB230120	\$38.87
0.230	5/16	2-1/2	1.250	0.058	MO-BB230125	\$38.87
0.230	5/16	2-1/2	1.400	0.058	MO-BB230140	\$38.87
0.230	5/16	2-1/2	1.500	0.058	MO-BB230150	\$38.87
0.230	5/16	2-1/2	1.600	0.058	MO-BB230160	\$38.87
0.290	5/16	2-1/2	0.500	0.730	MO-BB290050	\$38.87
0.290	5/16	2-1/2	0.600	0.730	MO-BB290060	\$38.87
0.290	5/16	2-1/2	0.750	0.730	MO-BB290075	\$38.87
0.290	5/16	2-1/2	0.900	0.730	MO-BB290090	\$38.87
0.290	5/16	2-1/2	1.000	0.730	MO-BB290100	\$38.87
0.290	5/16	2-1/2	1.100	0.730	MO-BB290110	\$38.87
0.290	5/16	2-1/2	1.250	0.730	MO-BB290125	\$38.87
0.290	5/16	2-1/2	1.350	0.730	MO-BB290135	\$38.87
0.290	5/16	2-1/2	1.500	0.730	MO-BB290150	\$38.87
0.290	5/16	2-1/2	1.600	0.730	MO-BB290160	\$38.87
0.290	5/16	2-1/2	1.750	0.730	MO-BB290170	\$38.87
0.320	3/8	2-1/2	0.500	0.080	MO-BB320050	\$48.42
0.320	3/8	2-1/2	0.600	0.080	MO-BB320060	\$48.42
0.320	3/8	2-1/2	0.750	0.080	MO-BB320075	\$48.42
0.320	3/8	2-1/2	0.900	0.080	MO-BB320090	\$48.42
0.320	3/8	2-1/2	1.000	0.080	MO-BB320100	\$48.42
0.320	3/8	2-1/2	1.100	0.080	MO-BB320110	\$48.42
0.320	3/8	2-1/2	1.250	0.080	MO-BB320125	\$48.42
0.320	3/8	2-1/2	1.500	0.080	MO-BB320150	\$48.42
0.320	3/8	2-1/2	1.800	0.080	MO-BB320180	\$48.42
0.320	3/8	4	2.000	0.080	MO-BB320200	\$48.42
0.320	3/8	4	2.500	0.080	MO-BB320250	\$48.42
0.320	3/8	4	3.000	0.080	MO-BB320300	\$48.42
0.360	3/8	2-1/2	0.500	0.090	MO-BB360050	\$48.42
0.360	3/8	2-1/2	0.600	0.090	MO-BB360060	\$48.42
0.360	3/8	2-1/2	0.750	0.090	MO-BB360075	\$48.42
0.360	3/8	2-1/2	0.900	0.090	MO-BB360090	\$48.42
0.360	3/8	2-1/2	1.000	0.090	MO-BB360100	\$48.42
0.360	3/8	2-1/2	1.150	0.090	MO-BB360115	\$48.42
0.360	3/8	2-1/2	1.250	0.090	MO-BB360125	\$48.42
0.360	3/8	2-1/2	1.500	0.090	MO-BB360150	\$48.42
0.360	3/8	2-1/2	1.800	0.090	MO-BB360180	\$48.42
0.360	3/8	4	2.000	0.090	MO-BB360200	\$48.42
0.360	3/8	4	2.500	0.090	MO-BB360250	\$48.42
0.360	3/8	4	3.000	0.090	MO-BB360300	\$48.42
0.490	1/2	3	0.750	0.123	MO-BB490750	\$67.91
0.490	1/2	3	1.000	0.123	MO-BB490100	\$67.91
0.490	1/2	3	1.250	0.123	MO-BB490125	\$67.91
0.490	1/2	3	1.500	0.123	MO-BB490150	\$67.91
0.490	1/2	4	2.000	0.123	MO-BB490200	\$86.11
0.490	1/2	4	2.500	0.123	MO-BB490250	\$86.11
0.490	1/2	4	2.750	0.123	MO-BB490275	\$86.11
0.490	1/2	6	3.000	0.123	MO-BB490300	\$120.28
0.490	1/2	6	3.500	0.123	MO-BB490350	\$120.28
0.490	1/2	6	4.000	0.123	MO-BB490400	\$120.28
0.490	1/2	6	4.500	0.123	MO-BB490450	\$120.28

Call Us Today For All Of Your Machine Tool Needs!

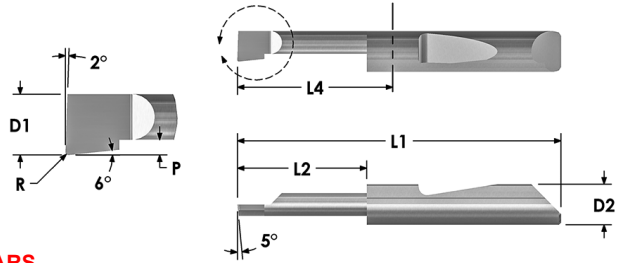
MICRO-QUIK™ QUICK CHANGE TOOLING



Full Line Available!
Please call for more information.



Boring Bar With Quick Change Toolholder



BORING BARS

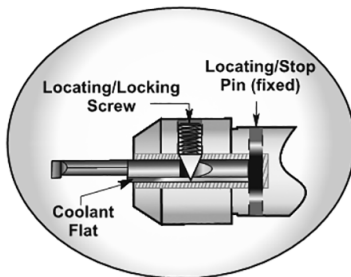
Min. Bore Dia D1	Shank Dia D2	OAL L1	Max. Bore Depth L2	Overhang L4	Part Number	Price
.050	3/16	1-1/2	.150	.590	MI-QBB050150	\$27.75
.050	3/16	1-1/2	.400	.590	MI-QBB050400	\$27.75
.060	3/16	1-1/2	.300	.590	MI-QBB060300	\$27.75
.080	3/16	1-1/2	.300	.590	MI-QBB080300	\$27.75
.100	3/16	1-1/2	.300	.590	MI-QBB100300	\$29.35
.110	3/16	1-1/2	.500	.590	MI-QBB110500	\$29.35
.120	3/16	1-1/2	.250	.590	MI-QBB120250	\$29.35
.120	3/16	1-1/2	.350	.590	MI-QBB120350	\$29.35
.120	3/16	1-1/2	.500	.590	MI-QBB120500	\$29.35
.120	3/16	2	.800	1.090	MI-QBB120800	\$29.35
.140	3/16	1-1/2	.400	.590	MI-QBB140400	\$29.35
.160	3/16	1-1/2	.400	.590	MI-QBB160400	\$29.35
.160	3/16	2	.750	1.090	MI-QBB160750	\$29.35
.160	3/16	2	1.000	1.090	MI-QBB1601000	\$29.35
.180	1/4	2	.500	.853	MI-QBB180500	\$31.70
.180	1/4	2	.750	.853	MI-QBB180750	\$31.70
.180	1/4	2-1/2	1.000	1.353	MI-QBB1801000	\$31.70
.180	1/4	3	1.500	1.853	MI-QBB1801500	\$37.20
.200	1/4	2	.500	.853	MI-QBB200500	\$31.70
.200	1/4	2	.750	.853	MI-QBB200750	\$31.70
.200	1/4	2-1/2	1.2000	1.353	MI-QBB2001200	\$31.70
.230	5/16	2	.500	.853	MI-QBB230500	\$42.55
.230	5/16	2	.750	.853	MI-QBB230750	\$42.55
.230	5/16	2-1/2	1.000	1.353	MI-QBB2301000	\$42.55
.230	5/16	3	1.500	1.853	MI-QBB2301500	\$48.95
.320	3/8	2-1/2	1.000	1.353	MI-QBB3201000	\$58.08
.360	3/8	2-1/2	1.250	1.353	MI-QBB3601250	\$58.05

FEATURES & BENEFITS

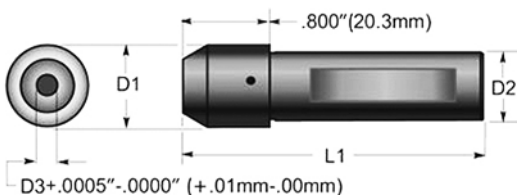
- Reduces machine setup, downtime and tooling costs
- Ensures high degree of tool length repeatability
- Toolholder features unique "3 point" locking/locating system ensures tool to tool change repeats +/-0.0005" from centerline
- Distance from tip of tool to this registration point is controlled to +/- .001"
- Ideal for cutting aluminum, brass, copper, stainless steels, high temperature alloys and composites

TOOL INFORMATION:

- Micro 100 Super Carbide Tools will not chip or break under normal machining conditions
- Shank dia tolerance: -.0001" to -.0003"
- Min. bore dia tolerance: +/- .0005"
- Minimum bore diameter range: 0.015" to 0.490"
- Maximum bore depth range: 0.050" to 1.750"
- Tool radius: .003"
- Shank sizes available: 3/16", 1/4", 5/16", 3/8" & 1/2"



Rotation of Locking Screw pushes tool downwards and back against the locating pin for rigidity and centerline repeatability



QUICK CHANGE TOOLHOLDERS

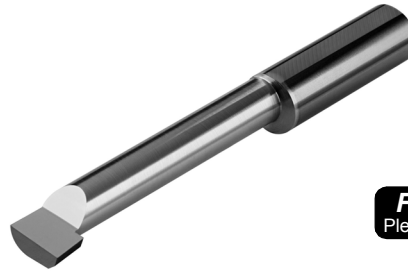
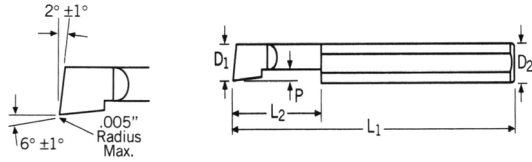
OD D2	ID D3	Head Dia D1	OAL L1	Part Number	Price Each
1/2	3/16	1/2	2-3/4	MI-QTH85	\$95.00
1/2	1/4	1/2	2-3/4	MI-QTH86	\$95.00
5/8	3/16	5/8	2-3/4	MI-QTH105	\$95.00
5/8	1/4	5/8	2-3/4	MI-QTH106	\$95.00
5/8	5/16	5/8	2-3/4	MI-QTH107	\$95.00
5/8	3/8	5/8	2-3/4	MI-QTH108	\$95.00
3/4	3/16	3/4	2-3/4	MI-QTH205	\$95.00
3/4	1/4	3/4	3/4	MI-QTH206	\$95.00
3/4	5/16	3/4	3/4	MI-QTH207	\$95.00
3/4	3/8	3/4	3/4	MI-QTH208	\$95.00
3/4	1/2	3/4	3/4	MI-QTH210	\$95.00
1	3/16	1	1	MI-QTH405	\$95.00
1	1/4	1	1	MI-QTH406	\$95.00
1	5/16	1	1	MI-QTH407	\$95.00
1	3/8	1	1	MI-QTH408	\$95.00
1	1/2	1	1	MI-QTH410	\$95.00

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SOLID CARBIDE BORING TOOLS

Lockdown flat automatically locates tool on center.



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LATHE WORKHOLDING

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VISE JAWS

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ER, DA, TG COLLETS

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TURNING & BORING

ENDMILLS, DRILLS
TAPS & REAMERS

ABRASIVES
MEASURING TOOLS

MRO & SAFETY
FLAT STOCK/DRILL ROD

Min. Bore D1	Shank Dia. D2	OAL L1	Proj. P	MAX. Bore L2	Right Hand Part Number	Left Hand Part Number	Price Each
.050	1/8	1-1/2	.013	.150	MI-BB050150	MI-BBL050150	\$25.10
				.200	MI-BB050200	MI-BBL050200	
				.300	MI-BB050300	MI-BBL050300	
				.400	MI-BB050400	MI-BBL050400	
.060	1/8	1-1/2	.015	.150	MI-BB060150	MI-BBL060150	\$25.10
				.200	MI-BB060200	MI-BBL060200	
				.300	MI-BB060300	MI-BBL060300	
				.400	MI-BB060400	MI-BBL060400	
				.500	MI-BB060500	MI-BBL060500	
				.600	MI-BB060600	MI-BBL060600	
.080	1/8	1-1/2	.020	.150	MI-BB080150	MI-BBL080150	\$25.10
				.200	MI-BB080200	MI-BBL080200	
				.300	MI-BB080300	MI-BBL080300	
				.400	MI-BB080400	MI-BBL080400	
				.500	MI-BB080500	MI-BBL080500	
				.600	MI-BB080600	MI-BBL080600	
.100	1/8	1-1/2	.025	.150	MI-BB100150	MI-BBL100150	\$25.10
				.200	MI-BB100200	MI-BBL100200	
				.300	MI-BB100300	MI-BBL100300	
				.400	MI-BB100400	MI-BBL100400	
				.500	MI-BB100500	MI-BBL100500	
				.600	MI-BB100600	MI-BBL100600	
				.700	MI-BB100700	MI-BBL100700	
.110	1/8	1-1/2	.028	.150	MI-BB110150	MI-BBL110150	\$25.10
				.200	MI-BB110200	MI-BBL110200	
				.300	MI-BB110300	MI-BBL110300	
				.400	MI-BB110400	MI-BBL110400	
				.500	MI-BB110500	MI-BBL110500	
				.600	MI-BB110600	MI-BBL110600	
				.700	MI-BB110700	MI-BBL110700	
.120	3/16	2	.030	.250	MI-BB120250	MI-BBL120250	\$26.65
				.350	MI-BB120350	MI-BBL120350	
				.500	MI-BB120500	MI-BBL120500	
				.600	MI-BB120600	MI-BBL120600	
				.700	MI-BB120700	MI-BBL120700	
				.800	MI-BB120800	MI-BBL120800	
				.900	MI-BB120900	MI-BBL120900	
.140	3/16	2	.035	.250	MI-BB140250	MI-BBL140250	\$26.65
				.400	MI-BB140400	MI-BBL140400	
				.500	MI-BB140500	MI-BBL140500	
				.600	MI-BB140600	MI-BBL140600	
				.700	MI-BB140700	MI-BBL140700	
				.750	MI-BB140750	MI-BBL140750	
				.800	MI-BB140800	MI-BBL140800	
				.900	MI-BB140900	MI-BBL140900	
.160	3/16	2	.040	.250	MI-BB160250	MI-BBL160250	\$26.65
				.400	MI-BB160400	MI-BBL160400	
				.500	MI-BB160500	MI-BBL160500	
				.600	MI-BB160600	MI-BBL160600	
				.750	MI-BB160750	MI-BBL160750	
				.900	MI-BB160900	MI-BBL160900	
				1.000	MI-BB1601000	MI-BBL1601000	
				.350	MI-BB180350	MI-BBL180350	
.500	MI-BB180500	MI-BBL180500					
.600	MI-BB180600	MI-BBL180600					
.750	MI-BB180750	MI-BBL180750					
.900	MI-BB180900	MI-BBL180900					
1.000	MI-BB1801000	MI-BBL1801000					
1.100	MI-BB1801100	MI-BBL1801100					
.200	1/4	2-1/2	.050	.400	MI-BB200400	MI-BBL200400	\$28.80
				.500	MI-BB200500	MI-BBL200500	
				.600	MI-BB200600	MI-BBL200600	
				.700	MI-BB200700	MI-BBL200700	
				.800	MI-BB200800	MI-BBL200800	
				.900	MI-BB200900	MI-BBL200900	
				1.000	MI-BB2001000	MI-BBL2001000	
				1.100	MI-BB2001100	MI-BBL2001100	
				1.200	MI-BB2001200	MI-BBL2001200	
				1.300	MI-BB2001300	MI-BBL2001300	

Min Bore D1	Shank Dia. D2	OAL L1	Proj. P	Max Bore L2	Right Hand Part Number	Left Hand Part Number	Price Each	
.230	5/16	2-1/2	.058	.400	MI-BB230400	MI-BBL230400	\$38.65	
				.500	MI-BB230500	MI-BBL230500		
				.600	MI-BB230600	MI-BBL230600		
				.700	MI-BB230700	MI-BBL230700		
				.800	MI-BB230800	MI-BBL230800		
				.900	MI-BB230900	MI-BBL230900		
.230	5/16	2-1/2	.058	1.000	MI-BB2301000	MI-BBL2301000	\$38.65	
				1.100	MI-BB2301100	MI-BBL2301100		
				1.150	MI-BB2301150	MI-BBL2301150		
				1.200	MI-BB2301200	MI-BBL2301200		
				1.250	MI-BB2301250	MI-BBL2301250		
				1.400	MI-BB2301400	MI-BBL2301400		
				1.500	MI-BB2301500	MI-BBL2301500		
				1.600	MI-BB2301600	MI-BBL2301600		
				.500	MI-BB290500	MI-BBL290500		\$38.65
				.600	MI-BB290600	MI-BBL290600		
.750	MI-BB290750	MI-BBL290750						
.900	MI-BB290900	MI-BBL290900						
1.000	MI-BB2901000	MI-BBL2901000						
1.100	MI-BB2901100	MI-BBL2901100						
1.250	MI-BB2901250	MI-BBL2901250						
1.350	MI-BB2901350	MI-BBL2901350						
1.500	MI-BB2901500	MI-BBL2901500						
1.600	MI-BB2901600	MI-BBL2901600						
.320	3/8	2-1/2	.080	1.750	MI-BB2901750	MI-BBL2901750	\$52.75	
				.500	MI-BB320500	MI-BBL320500		
				.600	MI-BB320600	MI-BBL320600		
				.750	MI-BB320750	MI-BBL320750		
				.900	MI-BB320900	MI-BBL320900		
				1.000	MI-BB3201000	MI-BBL3201000		
				1.100	MI-BB3201100	MI-BBL3201100		
				1.250	MI-BB3201250	MI-BBL3201250		
				1.500	MI-BB3201500	MI-BBL3201500		
				1.600	MI-BB3201600	MI-BBL3201600		
.320	3/8	4	.080	1.800	MI-BB3201800	MI-BBL3201800	\$67.45	
				2.000	MI-BB3202000	MI-BBL3202000		
				2.500	MI-BB3202500	MI-BBL3202500		
				3.000	MI-BB3203000	MI-BBL3203000		
				.500	MI-BB360500	MI-BBL360500		\$52.75
				.600	MI-BB360600	MI-BBL360600		
.750	MI-BB360750	MI-BBL360750						
.900	MI-BB360900	MI-BBL360900						
1.000	MI-BB3601000	MI-BBL3601000						
1.150	MI-BB3601150	MI-BBL3601150						
.360	3/8	2-1/2	.090	1.250	MI-BB3601250	MI-BBL3601250	\$67.45	
				1.500	MI-BB3601500	MI-BBL3601500		
				1.600	MI-BB3601600	MI-BBL3601600		
				1.800	MI-BB3601800	MI-BBL3601800		
				2.000	MI-BB3602000	MI-BBL3602000		
				2.500	MI-BB3602500	MI-BBL3602500		
.490	1/2	3	.123	3.000	MI-BB3603000	MI-BBL3603000	\$73.50	
				.750	MI-BB490750	MI-BBL490750		
				1.000	MI-BB4901000	MI-BBL4901000		
				1.250	MI-BB4901250	MI-BBL4901250		
				1.500	MI-BB4901500	MI-BBL4901500		
				2.000	MI-BB4902000	MI-BBL4902000		
.490	1/2	4	.123	2.500	MI-BB4902500	MI-BBL4902500	\$80.60	
				2.600	MI-BB4902600	MI-BBL4902600		
				2.750	MI-BB4902750	MI-BBL4902750		
				3.000	MI-BB4903000	MI-BBL4903000		
				3.500	MI-BB4903500	MI-BBL4903500		
				4.000	MI-BB4904000	MI-BBL4904000		
.490	1/2	6	.123	4.500	MI-BB4904500	MI-BBL4904500	\$101.15	
				4.500	MI-BB4904500	MI-BBL4904500		

Additional sizes also available.

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SOLID CARBIDE BORING TOOLS

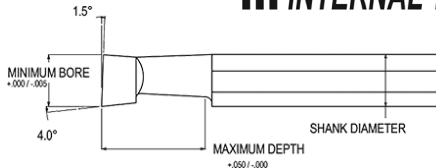
Right & Left Hand



- Solid Micrograin Carbide
- Tapered neck and fillet radius provide maximum rigidity
- All shanks have lockdown flat for faster setups
- For boring all types of material
- Radius corners and coating also available



INTERNAL TOOL



Min Bore	Max Depth	Shank Dia	OAL	RIGHT HAND Part Number	LEFT HAND Part Number	Price Each	Min Bore	Max Depth	Shank Dia	OAL	RIGHT HAND Part Number	LEFT HAND Part Number	Price Each
0.050	0.150	0.125	2.000	IT-10-1000	IT-10-1000-LH	\$19.74	0.200	0.400	0.250	2.500	IT-10-1280	IT-10-1280-LH	\$22.76
0.050	0.200	0.125	2.000	IT-10-1005	IT-10-1005-LH	\$19.74	0.200	0.500	0.250	2.500	IT-10-1285	IT-10-1285-LH	\$22.76
0.050	0.300	0.125	2.000	IT-10-1010	IT-10-1010-LH	\$19.74	0.200	0.600	0.250	2.500	IT-10-1290	IT-10-1290-LH	\$22.76
0.050	0.400	0.125	2.000	IT-10-1015	IT-10-1015-LH	\$19.74	0.200	0.700	0.250	2.500	IT-10-1295	IT-10-1295-LH	\$22.76
0.060	0.150	0.125	2.000	IT-10-1020	IT-10-1020-LH	\$19.74	0.200	0.800	0.250	2.500	IT-10-1300	IT-10-1300-LH	\$22.76
0.060	0.200	0.125	2.000	IT-10-1025	IT-10-1025-LH	\$19.74	0.200	0.900	0.250	2.500	IT-10-1305	IT-10-1305-LH	\$22.76
0.060	0.300	0.125	2.000	IT-10-1030	IT-10-1030-LH	\$19.74	0.200	1.000	0.250	2.500	IT-10-1310	IT-10-1310-LH	\$22.76
0.060	0.400	0.125	2.000	IT-10-1035	IT-10-1035-LH	\$19.74	0.200	1.100	0.250	2.500	IT-10-1315	IT-10-1315-LH	\$22.76
0.060	0.500	0.125	2.000	IT-10-1040	IT-10-1040-LH	\$19.74	0.200	1.200	0.250	2.500	IT-10-1320	IT-10-1320-LH	\$22.76
0.080	0.150	0.125	2.000	IT-10-1045	IT-10-1045-LH	\$19.74	0.200	1.300	0.250	2.500	IT-10-1325	IT-10-1325-LH	\$22.76
0.080	0.200	0.125	2.000	IT-10-1050	IT-10-1050-LH	\$19.74	0.230	0.400	0.312	2.500	IT-10-1330	IT-10-1330-LH	\$31.22
0.080	0.300	0.125	2.000	IT-10-1055	IT-10-1055-LH	\$19.74	0.230	0.500	0.312	2.500	IT-10-1335	IT-10-1335-LH	\$31.22
0.080	0.400	0.125	2.000	IT-10-1060	IT-10-1060-LH	\$19.74	0.230	0.600	0.312	2.500	IT-10-1340	IT-10-1340-LH	\$31.22
0.080	0.500	0.125	2.000	IT-10-1065	IT-10-1065-LH	\$19.74	0.230	0.700	0.312	2.500	IT-10-1345	IT-10-1345-LH	\$31.22
0.080	0.600	0.125	2.000	IT-10-1070	IT-10-1070-LH	\$19.74	0.230	0.800	0.312	2.500	IT-10-1350	IT-10-1350-LH	\$31.22
0.100	0.150	0.125	2.000	IT-10-1075	IT-10-1075-LH	\$19.74	0.230	0.900	0.312	2.500	IT-10-1355	IT-10-1355-LH	\$31.22
0.100	0.200	0.125	2.000	IT-10-1080	IT-10-1080-LH	\$19.74	0.230	1.000	0.312	2.500	IT-10-1360	IT-10-1360-LH	\$31.22
0.100	0.300	0.125	2.000	IT-10-1085	IT-10-1085-LH	\$19.74	0.230	1.150	0.312	2.500	IT-10-1365	IT-10-1365-LH	\$31.22
0.100	0.400	0.125	2.000	IT-10-1090	IT-10-1090-LH	\$19.74	0.230	1.200	0.312	2.500	IT-10-1370	IT-10-1370-LH	\$31.22
0.100	0.500	0.125	2.000	IT-10-1095	IT-10-1095-LH	\$19.74	0.230	1.250	0.312	2.500	IT-10-1375	IT-10-1375-LH	\$31.22
0.100	0.600	0.125	2.000	IT-10-1100	IT-10-1100-LH	\$19.74	0.230	1.400	0.312	2.500	IT-10-1380	IT-10-1380-LH	\$31.22
0.100	0.700	0.125	2.000	IT-10-1105	IT-10-1105-LH	\$19.74	0.230	1.500	0.312	2.500	IT-10-1385	IT-10-1385-LH	\$31.22
0.110	0.150	0.125	2.000	IT-10-1110	IT-10-1110-LH	\$19.74	0.230	1.600	0.312	2.500	IT-10-1390	IT-10-1390-LH	\$31.22
0.110	0.200	0.125	2.000	IT-10-1115	IT-10-1115-LH	\$19.74	0.290	0.500	0.312	2.500	IT-10-1395	IT-10-1395-LH	\$31.22
0.110	0.300	0.125	2.000	IT-10-1120	IT-10-1120-LH	\$19.74	0.290	0.600	0.312	2.500	IT-10-1400	IT-10-1400-LH	\$31.22
0.110	0.400	0.125	2.000	IT-10-1125	IT-10-1125-LH	\$19.74	0.290	0.750	0.312	2.500	IT-10-1405	IT-10-1405-LH	\$31.22
0.110	0.500	0.125	2.000	IT-10-1130	IT-10-1130-LH	\$19.74	0.290	0.900	0.312	2.500	IT-10-1410	IT-10-1410-LH	\$31.22
0.110	0.600	0.125	2.000	IT-10-1135	IT-10-1135-LH	\$19.74	0.290	1.000	0.312	2.500	IT-10-1415	IT-10-1415-LH	\$31.22
0.110	0.700	0.125	2.000	IT-10-1140	IT-10-1140-LH	\$19.74	0.290	1.100	0.312	2.500	IT-10-1420	IT-10-1420-LH	\$31.22
0.120	0.250	0.187	2.500	IT-10-1145	IT-10-1145-LH	\$21.14	0.290	1.250	0.312	2.500	IT-10-1425	IT-10-1425-LH	\$31.22
0.120	0.350	0.187	2.500	IT-10-1150	IT-10-1150-LH	\$21.14	0.290	1.350	0.312	2.500	IT-10-1430	IT-10-1430-LH	\$31.22
0.120	0.500	0.187	2.500	IT-10-1155	IT-10-1155-LH	\$21.14	0.290	1.500	0.312	2.500	IT-10-1435	IT-10-1435-LH	\$31.22
0.120	0.600	0.187	2.500	IT-10-1160	IT-10-1160-LH	\$21.14	0.290	1.600	0.312	2.500	IT-10-1440	IT-10-1440-LH	\$31.22
0.120	0.700	0.187	2.500	IT-10-1165	IT-10-1165-LH	\$21.14	0.290	1.750	0.312	2.500	IT-10-1445	IT-10-1445-LH	\$31.22
0.120	0.800	0.187	2.500	IT-10-1170	IT-10-1170-LH	\$21.14	0.320	0.500	0.375	2.500	IT-10-1450	IT-10-1450-LH	\$43.61
0.140	0.250	0.187	2.500	IT-10-1175	IT-10-1175-LH	\$21.14	0.320	0.600	0.375	2.500	IT-10-1455	IT-10-1455-LH	\$43.61
0.140	0.400	0.187	2.500	IT-10-1180	IT-10-1180-LH	\$21.14	0.320	0.750	0.375	2.500	IT-10-1460	IT-10-1460-LH	\$43.61
0.140	0.500	0.187	2.500	IT-10-1185	IT-10-1185-LH	\$21.14	0.320	0.900	0.375	2.500	IT-10-1465	IT-10-1465-LH	\$43.61
0.140	0.600	0.187	2.500	IT-10-1190	IT-10-1190-LH	\$21.14	0.320	1.000	0.375	2.500	IT-10-1470	IT-10-1470-LH	\$43.61
0.140	0.700	0.187	2.500	IT-10-1195	IT-10-1195-LH	\$21.14	0.320	1.100	0.375	2.500	IT-10-1475	IT-10-1475-LH	\$43.61
0.140	0.750	0.187	2.500	IT-10-1200	IT-10-1200-LH	\$21.14	0.320	1.250	0.375	2.500	IT-10-1480	IT-10-1480-LH	\$43.61
0.140	0.800	0.187	2.500	IT-10-1205	IT-10-1205-LH	\$21.14	0.320	1.500	0.375	2.500	IT-10-1485	IT-10-1485-LH	\$43.61
0.160	0.250	0.187	2.500	IT-10-1210	IT-10-1210-LH	\$21.14	0.320	1.600	0.375	2.500	IT-10-1490	IT-10-1490-LH	\$43.61
0.160	0.400	0.187	2.500	IT-10-1215	IT-10-1215-LH	\$21.14	0.320	1.800	0.375	2.500	IT-10-1495	IT-10-1495-LH	\$43.61
0.160	0.500	0.187	2.500	IT-10-1220	IT-10-1220-LH	\$21.14	0.320	2.000	0.375	4.000	IT-10-1500	IT-10-1500-LH	\$56.15
0.160	0.600	0.187	2.500	IT-10-1225	IT-10-1225-LH	\$21.14	0.320	2.500	0.375	4.000	IT-10-1505	IT-10-1505-LH	\$56.15
0.160	0.750	0.187	2.500	IT-10-1230	IT-10-1230-LH	\$21.14	0.320	3.000	0.375	4.000	IT-10-1510	IT-10-1510-LH	\$56.15
0.160	0.900	0.187	2.500	IT-10-1235	IT-10-1235-LH	\$21.14	0.360	0.500	0.375	2.500	IT-10-1515	IT-10-1515-LH	\$43.61
0.160	1.000	0.187	2.500	IT-10-1240	IT-10-1240-LH	\$21.14	0.360	0.600	0.375	2.500	IT-10-1520	IT-10-1520-LH	\$43.61
0.180	0.350	0.250	2.500	IT-10-1245	IT-10-1245-LH	\$22.76	0.360	0.750	0.375	2.500	IT-10-1525	IT-10-1525-LH	\$43.61
0.180	0.500	0.250	2.500	IT-10-1250	IT-10-1250-LH	\$22.76	0.360	0.900	0.375	2.500	IT-10-1530	IT-10-1530-LH	\$43.61
0.180	0.600	0.250	2.500	IT-10-1255	IT-10-1255-LH	\$22.76	0.360	1.000	0.375	2.500	IT-10-1535	IT-10-1535-LH	\$43.61
0.180	0.750	0.250	2.500	IT-10-1260	IT-10-1260-LH	\$22.76	0.360	1.150	0.375	2.500	IT-10-1540	IT-10-1540-LH	\$43.61
0.180	0.900	0.250	2.500	IT-10-1265	IT-10-1265-LH	\$22.76	0.360	1.250	0.375	2.500	IT-10-1545	IT-10-1545-LH	\$43.61
0.180	1.000	0.250	2.500	IT-10-1270	IT-10-1270-LH	\$22.76	0.360	1.500	0.375	2.500	IT-10-1550	IT-10-1550-LH	\$43.61
0.180	1.100	0.250	2.500	IT-10-1275	IT-10-1275-LH	\$22.76	0.360	1.600	0.375	2.500	IT-10-1555	IT-10-1555-LH	\$43.61
							0.360	1.800	0.375	2.500	IT-10-1560	IT-10-1560-LH	\$43.61
							0.360	2.000	0.375	4.000	IT-10-1565	IT-10-1565-LH	\$56.15
							0.360	2.500	0.375	4.000	IT-10-1570	IT-10-1570-LH	\$56.15
							0.360	3.000	0.375	4.000	IT-10-1575	IT-10-1575-LH	\$56.15

ADDITIONAL SIZES UP TO .490 AVAILABLE!

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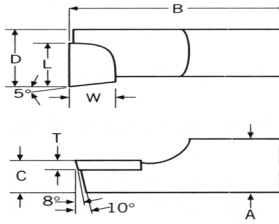
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2019-20 MASTER CATALOG

357

BORING HEAD/BORING BARS

BRAZED BORING BARS



BORING BAR SETS

Five Boring Bars:
1/4", 3/8", 1/2",
5/8" and 3/4"
RH Part #- MI-TBB-5
LH Part #- MI-TBBL-5
Set Price: **\$130.70**

Shank				Tip			Right Hand	Left Hand	Price Each
A	B	C	D	T	W	L			
1/4	4	1/8	0.320	1/16	3/16	1/4	MI-TBB250	MI-TBBL250	\$23.45
5/16	5	5/32	0.413	1/16	1/4	5/16	MI-TBB312	MI-TBBL312	\$24.25
3/8	6	3/16	0.463	1/16	1/4	5/16	MI-TBB375	MI-TBBL375	\$25.85
1/2	7	1/4	0.625	1/8	1/4	1/2	MI-TBB500	MI-TBBL500	\$31.65
5/8	8	5/16	0.795	1/8	1/4	5/8	MI-TBB625	MI-TBBL625	\$33.20
3/4	9	3/8	0.935	1/8	1/4	5/8	MI-TBB750	MI-TBBL750	\$34.75
1	10	1/2	1.233	3/16	7/16	13/16	MI-TBB001	MI-TBBL001	\$36.55

3 PIECE BORING TOOL SET

Head Features:

- Bar holder moves freely and smoothly.
- Design assures superior rigidity for chatter-free boring and precise hole size accuracy
- Hardened and ground adjusting screw designed for long lasting and trouble free use.

Set includes:

- Boring head,
- R8 boring shank and
- C-6 carbide tipped boring

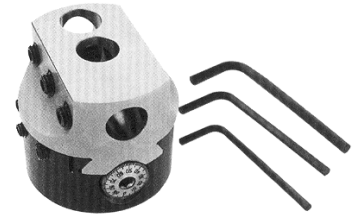


Head Size	Shank	Boring Bar	Boring Bar Qty	Tool Capacity	Part Number	Set Price
2"	7/8-20	1/2"	9 pcs	Up to 1/2"	A-1001-0106	\$73.00
3"	1 1/2-18	3/4"	12 pcs	Up to 3/4"	A-1001-0107	\$105.00

BORING HEADS



- Bar holder moves freely and smoothly
- Design assures superior rigidity for chatter-free boring and precise hole size accuracy
- Hardened and ground adjusting screw designed for long lasting and trouble free use

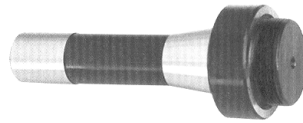


Head Size	Threads	Tool Cap	Part Number	Price Each
2"	1-1/2"-18	Up to 1/2"	A-1001-0101	\$65.00
2"	7/8"-20	Up to 1/2"	A-1001-0101-01	\$65.00
3"	1-1/2"-18	Up to 3/4"	A-1001-0102	\$89.00
4"	1-1/2"-18	Up to 1"	A-1001-0103	\$170.00

BORING HEAD SHANKS



- Made of high grade tool steel
- Hardened and ground
- R8, Morse Taper and Straight shanks



Taper Of Shank	End Type	7/8" -20 Thread		1-1/2" -18 Thread	
		Part Number	Price Each	Part Number	Price Each
R8	-	A-1001-0090	\$19.00	A-1001-0089	\$19.00
MT2	Draw Bar	A-1001-0080	\$19.00	A-1001-0081	\$20.00
MT2	Tang End	A-1001-0041	\$19.00	-	-
MT3	Tang End	A-1001-0043	\$20.00	A-1001-0086	\$20.00
MT3	Draw Bar	A-1001-0043-1	\$25.00	-	-
MT4	Tang End	A-1001-0045	\$25.00	A-1001-0066	\$25.00
# 30	Draw Bar	A-1001-0050	\$21.00	A-1001-0068	\$21.00
# 40	Draw Bar	A-1001-0052	\$27.00	A-1001-0069	\$27.00
1/2" SS	-	A-1001-0056	\$19.00	-	-
3/4" SS	-	A-1001-0058	\$19.00	A-1001-0074	\$19.00
1" SS	-	A-1001-0060	\$20.00	A-1001-0076	\$20.00
1-1/4" SS	-	A-1001-0062	\$21.00	A-1001-0077	\$21.00
1-1/2" SS	-	-	-	A-1001-0078	\$24.00

PRECISION BORING HEADS



FEATURES:

- Heavy duty construction offers smooth, chatter-free operation.
- Precision hardened steel with black oxide finish.
- .001" direct diameter reading micrometer dial.

Head Dia.	Shank	Part Number	Price
2"	Head Only	BHD-200	\$59.99
2-1/2"	R8	BHD-R8250	\$60.00
2-1/2"	3/4" SS	BHD-SS250	\$60.00
3"	R8	BHD-R8300	\$60.00

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