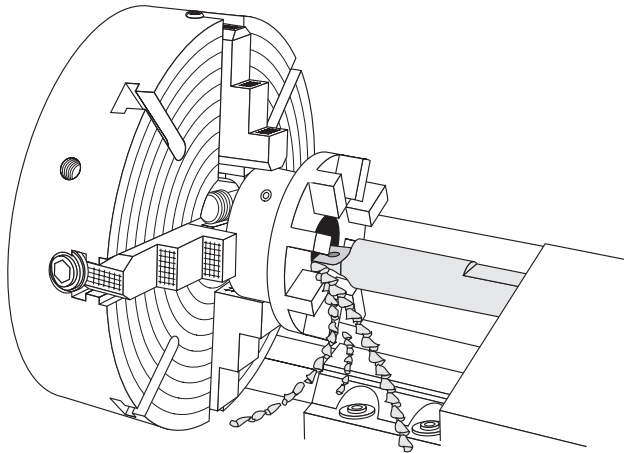
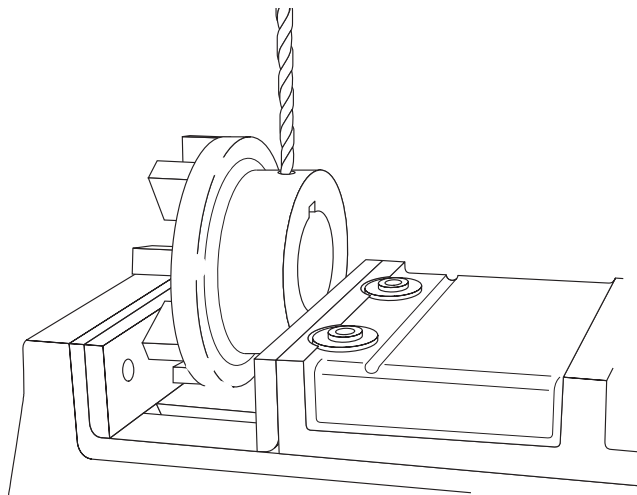

Figure 1

Figure 2

Figure 3

Boring Instructions for Steel Hubs

Refer to Table 3 for maximum bores. Use the following procedure for reboring couplings with STEEL hubs. To avoid damage to hub, use brass sheet between chuck jaws and hub.

1. Chuck hub and indicate on face for runout as shown in Figure 1. Also refer to Figure 4. Do not exceed runout shown in Table 1.
2. Indicate on diameter for runout as shown in Figure 1. Also refer to Figure 4. Do not exceed runout shown in Table 1. Tighten jaws and recheck runout on face and diameter.
3. For heavy cuts, use a large boring bar (Figure 2) or drill and then, after taking heavy cuts, recheck the runout on face and diameter per Steps 1 and 2. Finish bore per Table 4 and chamfer per Table 2 below.
4. Machine keyway to recommended size and tolerance listed per Table 5. Locate keyways per Figure 6 and Table 8.
5. If a setscrew is required, drill and tap over keyway as shown in Figure 3. Refer to Figures 4 and 5 and Tables 6 and 7 for recommended setscrew location and size. Do not chamfer setscrew hole, deburr with a file.

TABLE 1 — Hub Setup Runout Tolerances (Inches)

Bore Diameter		Runout Tolerance (TIR)
Over	To and Including	
..... 6.0000	6.0000 12.0000	.001 .002

TABLE 2 — Bore Chamfers (Inches)

Bore Diameter	Chamfer + .030 - .000
Up to 2.000	.030 x 45°
Over 2.000 - 3.000	.060 x 45°
Over 3.000 - 7.500	.090 x 45°
Over 7.500	.120 x 45°

TABLE 3 — Maximum Bores

SIZE	Clearance Fit ★		Interference Fit	
	Min	Max	Min	Max
5R	1.500	38,00	1.500	38,00
10R	1.750	45,00	1.750	45,00
20R	2.250	48,00	2.250	58,00
30R	2.500	64,00	2.500	64,00
40R	3.125	80,00	3.125	80,00
50R	4.125	105,00	4.125	105,00
60R	Not Recommended	Not Recommended	5.250	133,00
70R	Not Recommended	Not Recommended	6.125	156,00
80R	Not Recommended	Not Recommended	7.250	186,00

★ Two setscrews, one over keyway and one at 90 degrees from keyway, are recommended.

Steel Hubs

TABLE 4 — Recommended Bores for Steel Hubs (Inches)

Shaft Dia	Clearance Fit		Interference Fit		Shaft Dia	Clearance Fit		Interference Fit		Shaft Dia	Clearance Fit		Interference Fit		Shaft Dia	Interference Fit	
	Hub Bore	Clearance	Hub Bore	Interference		Hub Bore	Clearance	Hub Bore	Interference		Hub Bore	Clearance	Hub Bore	Interference		Hub Bore	Interference
+.0000 -.0005	+.0010 - .0000	.0000 .0015	+.0005 -.0000	.0000 .0010	+.0000 -.0010	+.0015 -.0000	.0000 .0025	+.0010 -.0000	.0000 .0020	+.0000 -.0010	+.0015 -.0000	.0000 .0025	+.0015 -.0000	.0010 .0035	+.0000 -.0010	+.0015 -.0000	.0015 .0040
.5000	.5000		.4990		2.2500	2.2500		2.2480		4.0625	4.0625		4.0590		6.7500	6.7460	
.5625	.5625		.5615		3.3125	2.3125		2.3105		4.1250	4.1250		4.1215		7.0000	6.9960	
.6250	.6250		.6240		2.3750	2.3750		2.3730		4.1875	4.1875		4.1840		7.0000	6.9960	
.6875	.6875		.6865		2.4375	2.4375		2.4355		4.2500	4.2500		4.2465		7.0000	6.9960	
.7500	.7500		.7490		2.5000	2.5000		2.4980		4.3125	4.3125		4.3090		7.2500	7.2450	
.8125	.8125		.8115		2.5625	2.5625		2.5605		4.3750	4.3750		4.3715		7.5000	7.4950	
.8750	.8750		.8740		2.6250	2.6250		2.6230		4.4375	4.4375		4.4340		7.5000	7.4950	
.9375	.9375		.9365		2.6875	2.6875		2.6855		4.5000	4.5000		4.4965		8.0000	7.9950	
1.0000	1.0000		.9990		2.7500	2.7500		2.7480		4.5625	4.5625		4.5590		8.2500	8.2445	.0025
1.0625	1.0625		1.0615		2.8125	2.8125		2.8105		4.6250	4.6250		4.6215		8.5000	8.4945	.0055
1.1250	1.1250		1.1240		2.8750	2.8750		2.8730		4.6875	4.6875		4.6840		8.7500	8.7445	
1.1875	1.1875		1.1865		2.9375	2.9375		2.9355		4.7500	4.7500		4.7465		9.0000	8.9945	
1.2500	1.2500		1.2490		3.0000	3.0000		2.9980		4.8125	4.8125		4.8090		9.2500	9.2440	.0030
1.3125	1.3125		1.3115		3.0625	3.0625		3.0600		4.8750	4.8750		4.8715		9.5000	9.4940	.0060
1.3750	1.3750		1.3740		3.1250	3.1250		3.1225		4.9375	4.9375		4.9340		9.7500	9.7440	
1.4375	1.4375		1.4365		3.1875	3.1875		3.1850		5.0000	5.0000		4.9965		10.0000	9.9940	
1.5000	1.5000		1.4990		3.2500	3.2500		3.2475		5.0625	5.0625		5.0585		10.2500	10.2435	.0035
1.5625	1.5625		1.5610		3.3125	3.3125		3.3100		5.1250	5.1250		5.1210		10.5000	10.4935	.0065
1.6250	1.6250		1.6235		3.3750	3.3750		3.3725		5.1875	5.1875		5.1835		10.7500	10.7435	
1.6875	1.6875		1.6860		3.4375	3.4375		3.4350		5.2500	5.2500		5.2460		11.0000	10.9935	
1.7500	1.7500		1.7485		3.5000	3.5000		3.4975		5.3125	5.3125		5.3085		11.2500	11.2430	.0040
1.8125	1.8125		1.8110		3.5625	3.5625		3.5600		5.3750	5.3750		5.3710		11.5000	11.4930	.0070
1.8750	1.8750		1.8735		3.6250	3.6250		3.6225		5.4375	5.4375		5.4335		11.7500	11.7430	
1.9375	1.9375		1.9360		3.6875	3.6875		3.6850		5.5000	5.5000		5.4960		12.0000	11.9930	
2.0000	2.0000		1.9985		3.7500	3.7500		3.7475		5.5625	5.5625		5.5585		12.5000	12.4925	.0045
2.0625	2.0625		2.0610		3.8125	3.8125		3.8100		5.6250	5.6250		5.6210		13.0000	12.9925	.0075
2.1250	2.1250		2.1235		3.8750	3.8750		3.8725		5.6875	5.6875		5.6835		13.5000	13.4920	.0050
2.1875	2.1875		2.1860		3.9375	3.9375		3.9350		5.7500	5.7500		5.7460		14.0000	13.9920	.0080
2.2500	2.2500		2.2480		4.0000	4.0000		3.9975		5.8125	5.8125		5.8085		14.5000	14.4915	.0055
2.3125	2.3125		2.3105							5.8750	5.8750		5.8710		15.0000	14.9915	.0085
2.3750	2.3750		2.3730							5.9375	5.9375		5.9335		15.5000	15.4910	
2.4375	2.4375		2.4355							6.0000	6.0000		5.9960		16.0000	15.9910	
2.5000	2.5000		2.4980							6.2500	6.2500		6.2460		16.5000	16.4905	.0060
2.5625	2.5625		2.5605							6.5000	6.5000		6.4960		17.0000	16.9905	.0095
2.6250	2.6250		2.6230														
2.6875	2.6875		2.6855														
2.7500	2.7500		2.7480														
2.8125	2.8125		2.8105														
2.8750	2.8750		2.8730														
2.9375	2.9375		2.9355														
3.0000	3.0000		2.9980														
3.0625	3.0625		3.0600														
3.1250	3.1250		3.1225														
3.1875	3.1875		3.1850														
3.2500	3.2500		3.2475														
3.3125	3.3125		3.3100														
3.3750	3.3750		3.3725														
3.4375	3.4375		3.4350														
3.5000	3.5000		3.4975														
3.5625	3.5625		3.5600														
3.6250	3.6250		3.6225														
3.6875	3.6875		3.6850														
3.7500	3.7500		3.7475														
3.8125	3.8125		3.8100														
3.8750	3.8750		3.8725														
3.9375	3.9375		3.9350														
4.0000	4.0000		3.9975														

★ For shaft diameters larger than 17.000", use an average interference fit of .0005" per inch of shaft diameter within the following bore tolerances:
 +.0025, -.0000 for over 17" to 20" dia. incl.
 +.003, -.0000 for over 20" to 30" dia. incl.
 +.004, -.0000 for over 30" to 40" dia. incl.
 Tolerances and fits comply with, or are within, AGMA 9002-A86 standard (Class 1 clearance fit).

TABLE 5 — Recommended Keyways for Hubs with One Keyway (Inches)

Nominal Bore		Keyway Size ★ Width x Depth	Width Tolerance †
Over	Thru		
.4375	.5625	.125 x .062	+ .0020 -.0000
.5625	.875	.1875 x .094	+ .0020 -.0000
.875	1.250	.250 x .125	+ .0020 -.0000
1.250	1.375	.3125 x .156	+ .0020 -.0000
1.375	1.750	.375 x .188	+ .0025 -.0000
1.750	2.250	.500 x .250	+ .0025 -.0000
2.250	2.750	.625 x .312	+ .0030 -.0000
2.750	3.250	.750 x .375	+ .0030 -.0000
3.250	3.750	.875 x .438	+ .0030 -.0000
3.750	4.500	1.000 x .500	+ .0030 -.0000
4.500	5.500	1.250 x .625	+ .0035 -.0000
5.500	6.500	1.500 x .750	+ .0035 -.0000
6.500	7.500	1.750 x .750	+ .0040 -.0000
7.500	9.000	2.000 x .750	+ .0040 -.0000
9.000	11.000	2.500 x .875	+ .0045 -.0000
11.000	13.000	3.000 x 1.000	+ .0045 -.0000
13.000	15.000	3.500 x 1.250	+ .0050 -.0000
15.000	18.000	4.000 x 1.500	+ .0050 -.0000

★ One square key for bore diameters thru 6.500"; one rectangular key for bore diameters over 6.500".

† Depth tolerance: +.010" to +.020".

TABLE 6 — Drill & Tap Size

Inch		Millimeters	
Tap Size UNC	Drill	Tap Size-6H	Drill
#6-32	.1094	M5 x 0,8	4,2
#8-32	#29	M6 x 1	5,0
#10-24	#25	M8 x 1,25	6,8
.250-20	#7	M10 x 1,25	8,5
.3125-18	F	M12 x 1,75	10,2
.375-16	.3125	M16 x 2	14,0
.4375-14	U		
.500-13	.4219		
.625-11	.5312		
.750-10	.6562		
.875-9	.7656		
1.000-8	.875		
1.125-7	.9844		
1.250-7	1.1094		
1.500-6	1.3438		
2.000-4.5	1.7812		

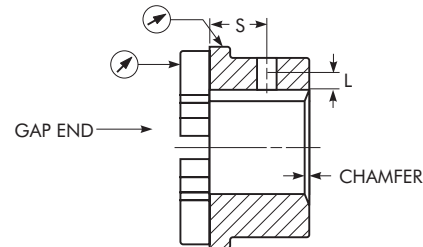
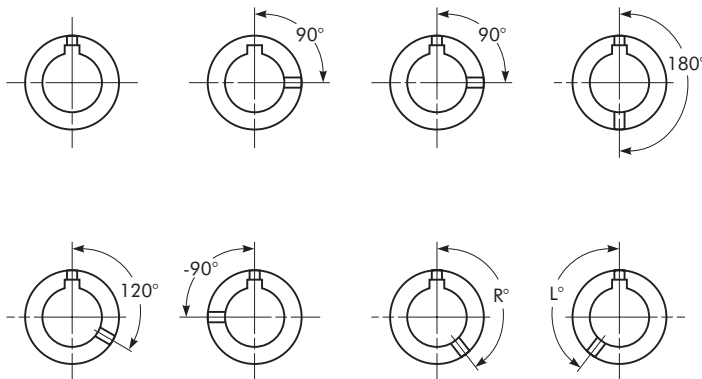
TABLE 7 — Type R Setscrew Location & Size ■

SIZE	"S" (Inches) ‡	"L" (Inches) ●	Metric Series		Inch Series	
			Tap Size 6H (mm)	Setscrew Size (mm)	Tap Size 2B (Inches)	Setscrew Size (Inches)
5R	.63	.31	M8 x 1,25	M8 x 8	.3125-18	.3125 x .3125
10R	.88	.39	M10 x 1,50	M10 x 10	.3750-16	.3750 x .3750
20R	1.00	.39	M10 x 1,50	M10 x 10	.3750-16	.3750 x .3750
30R	1.25	.50	M12 x 1,75	M12 x 12	.5000-13	.5000 x .5000
40R	1.63	.50	M12 x 1,75	M12 x 12	.5000-13	.5000 x .5000
50R	1.75	.63	M16 x 2,00	M16 x 16	.6250-11	.6250 x .6250
60R	2.38	.63	M16 x 2,00	M16 x 16	.6250-11	.6250 x .6250
70R	3.00	.63	M16 x 2,00	M16 x 16	.6250-11	.6250 x .6250
80R	3.50	.63	M16 x 2,00	M16 x 16	.6250-11	.6250 x .6250

■ Recommend two setscrews for Clearance fits, one over keyway and one at 90 degrees from keyway. 5R-50R are normally Clearance fit with setscrews. 60R-80R are normally Interference fit without setscrews.

‡ Tolerance ± .030".

● "6H" or "2B" class of thread required for this length. Additional thread length need not be controlled.


Figure 4 — Dial Indicator Position & Setscrew Location (Refer to Table 7.)

Figure 5 — Various Setscrew Locations (viewed From Gap End Of Hub) Angle Tolerance ±5°

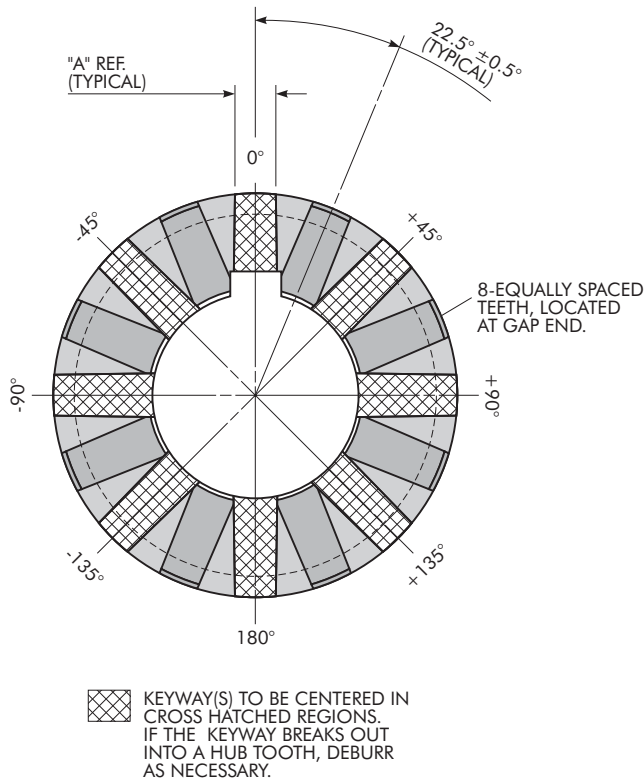


TABLE 8 — "A" Reference

SIZE	"A" Reference
5R	.33
10R	.40
20R	.51
30R	.53
40R	.66
50R	.85
60R	1.20
70R	1.42
80R	1.66

Figure 6 — Keyway Location (Refer to Table 8.)