

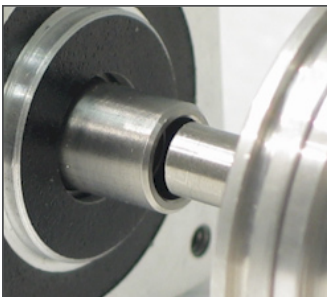
TECHNICAL BULLETIN

TB-121: Guidelines for Shaft and Bore Tolerances

Maintaining industry acceptable dimensions on shafts and bores is necessary to ensure the proper fit between encoders and the machinery they are installed on.

With sufficient clearance between a bore and a shaft, a slip fit is possible. Without a proper fit, encoders often are damaged during installation, accuracy is reduced, or their life is shortened.

Tolerances for shaft and bores produced by EPC are typically based on ANSI B4.1-1967, R1987 standards and usually conform to Class LC5, which states components should be freely assembled and disassembled. The H7 and g6 bore and shaft tolerances specified by the Class LC5 fit are outlined in the charts shown.



EPC g6 Shaft Tolerance Limits

Shaft Size	Maximum Tolerance Limit	Minimum Tolerance Limit
1/4", 0.250"	-0.0002"	-0.0006"
5/16", 0.3125	-0.0002"	-0.0006"
3/8", 0.375"	-0.0002"	-0.0006"
1/2", 0.500"	-0.00025"	-0.00065"
5/8", 0.625"	-0.00025"	-0.00065"
5 mm	-0.0002"	-0.0006"
6 mm	-0.0002"	-0.0006"
8 mm	-0.0002"	-0.0006"
10 mm	-0.0002"	-0.0006"

EPC H7 Bore Tolerance Limits

Bore Size	Minimum Tolerance Limit	Maximum Tolerance Limit
3/16", 0.1875"	-0.000"	+0.0005"
1/4", 0.250"	-0.000"	+0.0006"
5/16", 0.3125	-0.000"	+0.0006"
3/8", 0.375"	-0.000"	+0.0006"
7/16", 0.4375"	-0.000"	+0.0006"
1/2", 0.500"	-0.000"	+0.0007"
9/16", 0.5625"	-0.000"	+0.0007"
5/8", 0.625"	-0.000"	+0.0007"
3/4", 0.750"	-0.000"	+0.0008"
7/8", 0.875"	-0.000"	+0.0008"
1", 1.000"	-0.000"	+0.0008"
1-1/8", 1.125"	-0.000"	+0.0008"
1-1/4", 1.250"	-0.000"	+0.001"
1-3/8", 1.375"	-0.000"	+0.001"
1-1/2", 1.500"	-0.000"	+0.001"
1-5/8", 1.625"	-0.000"	+0.001"
1-3/4", 1.750"	-0.000"	+0.001"
1-7/8", 1.875"	-0.000"	+0.001"
5 mm	-0.000"	+0.0005"
6 mm	-0.000"	+0.0005"
8 mm	-0.000"	+0.0006"
10 mm	-0.000"	+0.0006"
11 mm	-0.000"	+0.0007"
12 mm	-0.000"	+0.0007"
14 mm	-0.000"	+0.0007"
15 mm	-0.000"	+0.0007"
19 mm	-0.000"	+0.0008"
20 mm	-0.000"	+0.0008"
24 mm	-0.000"	+0.0008"
25 mm	-0.000"	+0.0008"
28 mm	-0.000"	+0.0008"
30 mm	-0.000"	+0.0008"
32 mm	-0.000"	+0.001"
35 mm	-0.000"	+0.001"
38 mm	-0.000"	+0.001"
40 mm	-0.000"	+0.001"
42 mm	-0.000"	+0.001"
43 mm	-0.000"	+0.001"