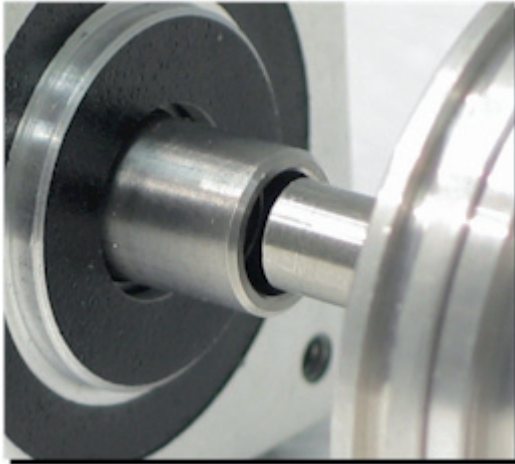


Technical Bulletin 121

Guideline 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.



All tolerances for shafts and bores produced by BEPC are based on the ANSI B4.1-1967, R1987 standards. The class of fit used for encoders is Class LC5, which states components should be freely assembled and disassembled. Class LC5 specifies an H7 bore tolerance and a g6 shaft tolerance.

The charts shown give the specific tolerances for both shafts and bores.

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"
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"
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"