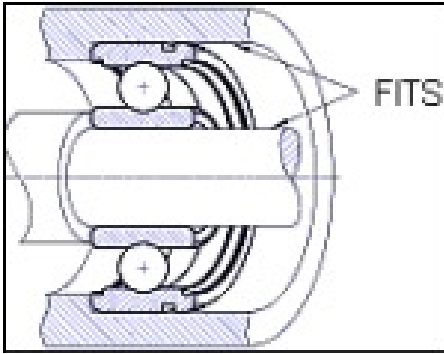


**Electric Motor Bearing Fits**



In order for a ball or roller bearing to perform satisfactorily, the fit between the inner ring and the shaft, and the fit between the outer ring and the housing must be suitable for the application. For example, too loose a fit could result in a corroded or scored bearing bore and shaft, while too tight a fit could result in unnecessarily large mounting and dismantling forces and too great a reduction in internal bearing Clearance.

The purpose of ‘fitting’ an inner or outer ring onto a shaft or into a housing is to prevent circumferential sliding or spinning of the fitted ring.

In a standard horizontal mount electric motor ,with a ‘rotating load’ condition the application requires an **Interference Shaft Fit** and a **Clearance Housing Fit**.

To help the shop make the most precise fit there are tables that are used. Below are some extracts from tables provided by SKF Bearings from their ‘Bearing Handbook for Electric Motors’ see [link](#) .

Shaft and housing diameters  
Deep groove ball bearings  
6200 series

Bearing	bearing bore diameter (mm)	shaft diameter (in.)		bearing outside diameter (mm)	housing diameter (in.)	
		max.	min.		max.	min.
6200	10	0.3939	0.3936	30	1.1816	1.1811
6201	12	0.4726	0.4723	32	1.2604	1.2598
6202	15	0.5908	0.5905	35	1.3786	1.3780
6203	17	0.6695	0.6692	40	1.5754	1.5748
6204	20	0.7878	0.7875	47	1.8510	1.8504
6205	25	0.9847	0.9844	52	2.0479	2.0472
6206	30	1.1815	1.1812	62	2.4416	2.4409
6207	35	1.3785	1.3781	72	2.8353	2.8346

As you can see from the above chart for a 6205 bearing the difference between the max shaft diameter and the min shaft diameter is only 0.0003 ie 3 tenths of a thousandth of an inch. Great care has to be taken to achieve the best bearing fit.

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