BEARING CLEARANCE AND WORKING CLEARANCE

Excellent working of revolving bearing depends on a correct working clearance. It is established by radial clearance and by its modifications in consequence of the assembling interference and of the temperature during the work.

RADIAL BEARING CLEARANCE

Radial bearing clearance is determined by the radial movement of the inside ring in relation to the external ring. Radial bearing clearance is distinct in 4 categories (see table 1. 1)

TECOM cylindrical roller bearings built with CN clearance guarantees a correct working clearance in conditions of normal work and recommended assembling tolerances.

C3 and C4 radial clearances take into consideration bearings of larger dimensions, subjected to very high loads and also when there is great assembling interference and considerable sudden changes of temperature between internal and external rings.

Bearings with C2 radial clearance are employed only in exceptional cases; when there are very high alternate loads. In these last cases it is necessary to check the bearings during operation since they are subjected to higher heating.

The values of CN, C2, C3, C4, radial clearances can be found in table 1.2.

The requested bearing clearance, with the exception of CO, must be specified with the order.

Table 1.1 Groups of the radial clearance of the bearings

Field	Details
C2	Radial clearance of the bearings lower than CN
CN	Normal Radial clearance of the bearings
C3	Radial Clearance of the bearings higher than CN
C4	Radial Clearance of the bearings higher than C3

Table 1.2 Radial clearance of the roller thrust bearings

Nominal diameter of the holes (mm)		Radial clearance of the bearings (um)							
d		C2		CN		C3		C4	
-	24	0	25	20	45	35	60	50	75
24	30	0	25	20	45	35	60	50	75
30	40	5	30	25	50	45	70	60	85
40	50	5	35	30	60	50	80	70	100
50	65	10	40	40	70	60	90	80	110
65	80	10	45	40	75	65	100	90	125
80	100	15	50	50	85	75	110	105	140
100	120	15	55	50	90	85	125	125	165
120	140	15	60	60	105	100	145	145	190
140	160	20	70	70	120	115	165	165	215
160	180	25	75	75	125	120	170	170	220
180	200	35	90	90	145	140	195	195	250
200	225	45	105	105	165	160	220	220	280
225	250	45	110	110	175	170	235	235	300
250	280	55	125	125	195	190	260	260	330
280	315	55	130	130	205	200	275	275	350
315	355	65	145	145	225	225	305	305	385
355	400	100	190	190	280	280	370	370	460
400	450	110	210	210	310	310	410	410	510
450	500	110	220	220	330	330	440	440	550

WORKING CLEARANCE

Working clearance is the amount of radial movement of the shaft in comparison with external ring at the assembled bearing.

Working clearance results from decreasing of radial clearance in relation to assembling interferences and to the influence of the temperature.

Decreasing of radial clearance of the assembled bearing, due to assembling is the result of the internal ring expansion and of the external ring contraction.

The difference of temperature between the internal and the external rings, can cause a decreasing or increasing working clearance.