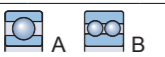
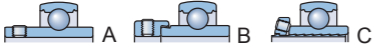

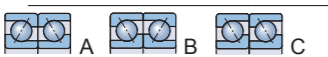











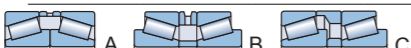











Suitability of rolling bearings for industrial applications

Symbols		Load carrying capability			Misalignment		Arrangement				Suitable for					Design features			
		Radial load	Axial load	Moment load	Static misalignment	Dynamic misalignment (few tenths of a degree)	Locating	Non-locating	Adjusted	Floating	Long grease life	High speed	Low run-out	High stiffness	Low friction	Integral sealing	Separable ring mounting	Tapered bore	Standard housings and accessories available
+++ excellent ++ good + fair - poor -- unsuitable	↔ double direction ← single direction □ non-locating displacement on the seat ■ non-locating displacement within the bearing ✓ yes ✗ no																		
Deep groove ball bearings		+	↔	A-, B+	-	--	↔	□	✗	✓	A+++ B++	A+++ B+	A+++ B++	+	+++	A✓	✗	✗	✗
Insert bearings		+	↔	--	++	--	↔	↔	✗	✗	+++	++	A, B+ C++	+	++	✓	✗	✗	✓
Angular contact ball bearings, single row		+1)	++←	--	-	--	✗	✗	✓	✗	++	++	+++	++	++	✓	✗	✗	✗
matched single row		A, B++ C+++1)	A, B++↔ C+++←	A++, B+ C--	A, C--, B-	--	A, B↔ C←	A, B□ C✗	✗	✗	++	++	+++	++	++	✗	✗	✗	✗
double row		++	++↔	++	--	--	↔	□	✗	✗	++	++	++	++	++	A✓	B✓	✗	✗
four-point contact		+1)	++↔	--	--	--	↔1)	--	--	--	+	+++	++	++	++	✗	✓	✗	✗
Self-aligning ball bearings		+	-	--	+++	+2)	↔	□	✗	✓	+++	++	++	+	+++	✓	✗	✓	✓
Cylindrical roller bearings, with cage		++	--	--	-	--	✗	■	✗	✗	++	+++	+++	++	+++	✗	✓	✗	✗
		++	A, B+← C, D+↔	--	-	--	A, B← C, D↔	A, B■← C, D✗	✗	A✓ B, C, D✗	+++3)	+++	++	++	+++	✗	✓	✗	✗
full complement, single row		+++	+←	--	-	--	←	A, B←	✗	✓	-	+	+	+++	-	✗	A✗ B✓	✗	✗
full complement, double row		+++	A--, B+← C+↔	--	-	--	B← C, D↔	A■↔ B■←	✗	✗	-	+	+	+++	-	D✓	✗	✗	✗
Needle roller bearings, with steel rings		++	--	--	A, B- C++	--	✗	■↔	✗	✗	++	++	+	++	+	A✓	✓	✗	✗
assemblies / drawn cups		++	A, B-- C-	--	-	--	A, B✗ C←	A, B■ C■←	✗	✗	++	++	+	++	+	B, C✓	✓	✗	✗
combined bearings		++	A-, B+ C++	--	--	--	←	✗	✓	✗	+	+	+	++	+	✗	✓	✗	✗
Tapered roller bearings, single row		+++1)	++←	--	-	--	←	✗	✓	✗	+	++	+++	++	+	✗	✓	✗	✗
matched single row		A, B+++ C+++1)	A, B++↔ C+++←	A+, B++ C--	A- B, C--	--	A, B↔ C←	A, B□ C✗	A, B✗ C✓	✗	+	+	++	+++	+	✗	✓	✗	✗
double row		+++	++↔	A+ B++	A-, B--	--	↔	□	✗	✗	+	+	++	+++	+	✓	✓	B✓	✗
Spherical roller bearings		+++	+↔	--	+++	+2)	↔	□	✗	✓	+	++	+++	++	+	✓	✗	✓	✓
CARB toroidal roller bearings, with cage		+++	--	-	++	-	✗	■	✗	✗	+	++	+++	++	+	✗	✗	✓	✓
full complement		+++	--	-	++	-	✗	■	✗	✗	-	+	+++	++	-	✓	✗	✓	✓
Thrust ball bearings		--	A+← B+↔	--	--	--	A← B↔	✗	✗	✗	+	-	++	+	+	✗	✓	✗	✗
with sphered housing washer		--	A+← B+↔	--	++	--	A← B↔	✗	✗	✗	+	-	+	+	+	✗	✓	✗	✗
Cylindrical roller thrust bearings		--	++←	--	--	--	←	✗	✗	✗	-	-	+	+++	+	✗	✓	✗	✗
Needle roller thrust bearings		--	++←	--	--	--	←	✗	✗	✗	-	-	+	+++	+	✗	✓	✗	✗
Spherical roller thrust bearings		+1)	+++←	--	+++	+2)	←	✗	✓	✗	-	+	+	+++	+	✗	✓	✗	✗

1) Provided the F_a/F_r ratio requirement is met 2) Reduced misalignment angle – contact SKF 3) Depending on cage and axial load level