

Choosing a Bearing

Mechanical Engineering

What each bearing family takes, and where it belongs on a shaft.

Load direction is the first question; speed and cost come after.

Type	Load it takes	Note
Deep groove ball	Radial, some axial	The cheap default
Angular contact	Radial and one-way axial	Fit in opposed pairs
Cylindrical roller	High radial, no axial	Lets the shaft grow
Tapered roller	High radial and axial	Needs setting on build
Thrust ball	Axial only	No radial capacity
Plain bush	Radial, low speed	Quiet and forgiving

One bearing should locate the shaft axially and the other must float, or thermal growth preloads both to death.