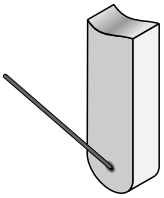
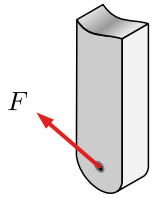
Two-force support — One reaction

two-force member constrains translation



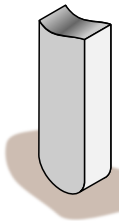
cable (or other two-force member)



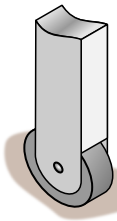
reaction force in-line with two-force member

Smooth surface — One reaction

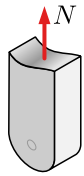
smooth surface constrains translation



body contacts smooth surface



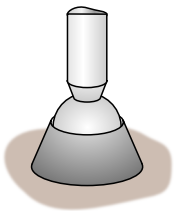
roller on smooth surface



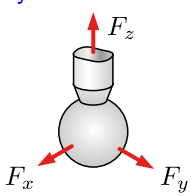
force perpendicular to surface

Ball & socket — Three reactions

ball cannot slide but is free to rotate



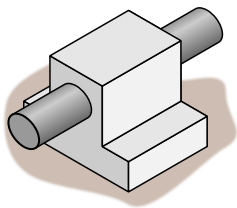
ball stays in socket & is free to rotate



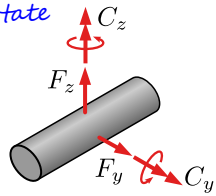
three reaction force components

Free-axle bearing — Four reactions

axle free to slide & rotate



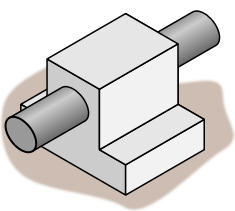
journal bearing



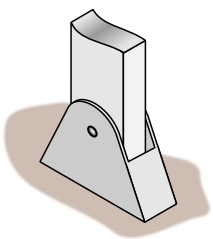
two reaction forces and two reaction couples perpendicular to axle

Confined-axle bearing — Five reactions

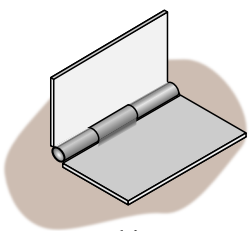
axle/pin cannot slide but is free to rotate



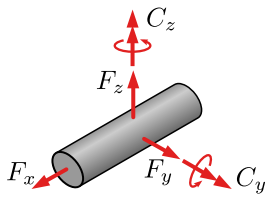
thrust bearing



smooth pin



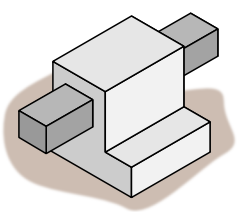
hinge



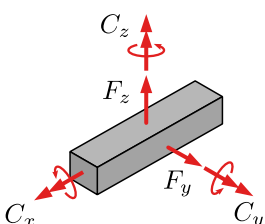
two reaction forces and two reaction couples all perpendicular to axle, plus reaction force along axle

Square-axle bearing — Five reactions

square axle free to slide but cannot rotate



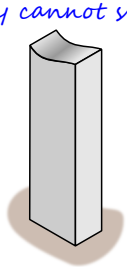
square axle journal bearing



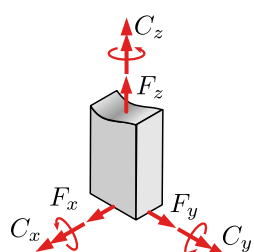
two reaction forces perpendicular to axle, three reaction couples

Fixed support — Six reactions

body cannot slide & cannot rotate



welded, bolted, or anchored



three reaction forces & three reaction couples