

COUPLING PARAMETER MATRIX v1.0

A unified engineering framework for mapping system behavior to coupling selection.

Coupling Type	Rigidity	Backlash	Torque	Misalign.	Max RPM	Material	Bore Range	Typical Applications
Jaw	Medium	Low	Medium	Medium	High	Al/Steel	6–20 mm	Servo, CNC ballscrew
Bellows	High	Zero	Med-High	Low	High	Al/SS	3–20 mm	Robotics, precision CNC
Diaphragm	High	Zero	High	Low	High	Steel	6–25 mm	Servo, robotics torque
Beam	Low	Near-0	Low	High	Med	Al	3–10 mm	Encoders, 3D printers
Oldham	Med-Low	Low	Low-M	High	Low-Med	Al/Poly	5–20 mm	Automation, conveyors
Rigid	Ultra	Zero	High	None	High	Al/Steel	3–25 mm	Laser stages, aligned servos
Spider (Jaw+)	Medium	Low	Medium	Medium	Med	Al/PU	6–25 mm	Damped servo systems