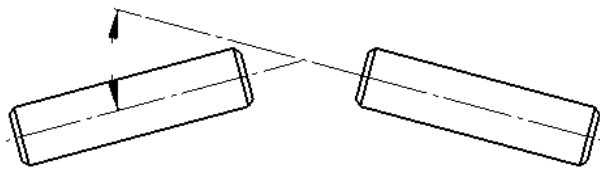


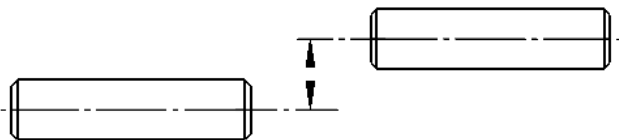
# Training: Issue 7, Flexible Couplings

Whether a drive system is designed for power transmission or precise rotary positioning, misaligned components will affect efficiency, accuracy and system life. Shaft misalignment is a common phenomenon; motors and drive components are designed to be easily attached and removed, those allowances can cause alignment errors that must be compensated for. Rigidly joining misaligned components will cause loading that increases bearing wear, friction and shaft fatigue. Flexible couplings isolate and absorb the loading from misaligned shafts, improving the performance of your assembly.

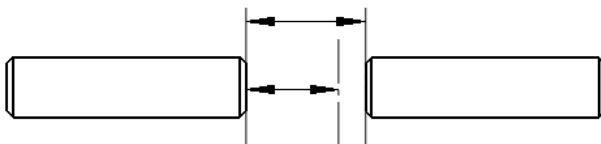
## Types of Shaft Misalignment:



**Angular** – The centerline of two shafts intersect at an angle.  
Expressed as number of degrees away from collinear.



**Lateral** – The centerlines of two shafts do not intersect.  
Expressed as distance between centerlines.



**Axial** – The amount that spacing between shaft ends can vary during operation.

## Resources:

PIC's website has a Selection Wizard that recommends couplings by the parameters you specify: [PIC Design Coupling Selector](#)

Selection guide from catalog:

| Coupling Type          | Angular Misalignment > 5° | Angular Misalignment < 5° | Lateral Misalignment > .010" | Withstand Shock Loads | Vibration Dampening | High Speeds | High Torque | High Ambient Temperature | Clean Room Environment | Stepper Motors | Reversing Drives | Maintenance Required | Vacuum Environment (No Lubr) | Compressibility | Electrically Insulated |
|------------------------|---------------------------|---------------------------|------------------------------|-----------------------|---------------------|-------------|-------------|--------------------------|------------------------|----------------|------------------|----------------------|------------------------------|-----------------|------------------------|
| Bellows                | X                         | X                         |                              |                       |                     |             |             | X                        | X                      | X              | X                |                      | X                            | X               |                        |
| Zero Adjustable        | X                         | X                         |                              |                       |                     |             |             | X                        | X                      | X              | X                |                      | X                            | X               |                        |
| Flexible               | X                         | X                         | X                            | X                     | X                   |             |             | X                        |                        |                |                  |                      |                              | X               |                        |
| Oldham                 | X                         | X                         |                              |                       |                     | X           |             |                          |                        |                | X                | X                    |                              |                 |                        |
| Wafer Spring           | X                         | X                         | X                            | X                     |                     | X           | X           | X                        | X                      | X              | X                |                      | X                            |                 |                        |
| Universal Lateral      | X                         | X                         | X                            |                       | X                   | X           |             |                          | X                      | X              | X                |                      |                              |                 | X                      |
| Multi-Jaw              |                           |                           |                              | X                     |                     |             |             | X                        | X                      | X              | X                |                      | X                            |                 |                        |
| Universal Joint        | X                         | X                         |                              |                       |                     | X           | X           |                          |                        | X              | X                | X                    |                              |                 |                        |
| Molded Universal Joint | X                         | X                         |                              |                       | X                   | X           |             |                          | X                      | X              | X                |                      |                              |                 | X                      |
| Sleeve Coupling        |                           |                           |                              | X                     | X                   | X           | X           | X                        | X                      | X              | X                |                      | X                            |                 |                        |
| Flexible Zero Coupling | X                         | X                         |                              |                       | X                   | X           | X           | X                        | X                      | X              | X                |                      | X                            | X               |                        |
| Flexible K             | X                         | X                         | X                            | X                     | X                   | X           | X           | X                        | X                      | X              |                  |                      |                              |                 | X                      |
| Spider Coupling        | X                         |                           |                              | X                     | X                   | X           | X           |                          |                        |                | X                | X                    |                              |                 | X                      |

## PIC's Most Popular Misalignment Couplings:

### Zero Backlash



Ends connected by several helical beams, one piece construction.

**Angular:** 5° max  
**Lateral:** .01 - .03  
**Axial:** +/- .008-.010

### Neoprene



Ends connected by flexible neoprene sleeve, absorbs vibration.

**Angular:** 2° max  
**Lateral:** .01 max

### Universal Lateral



Ends pivot and slide on common center section, electrical isolation.

**Angular:** 10° max  
**Lateral:** .05 max