

# Clearances of Rotating Equipment

Because machine clearances are very small, oil should be extremely clean.

## Typical Dynamic Clearances of Rotating Equipment

Component	Dynamic Clearances
Gears	0.1-1.0 microns
Journal Bearings	0.5-100 microns
<b>Pump, Gear</b>	
Tooth to Side Plate/to Case	0.5-5.0 microns
<b>Pump, Piston</b>	
Piston to Bore	5.0-40 microns
Valve Plate to Cylinder	0.5-5.0 microns
<b>Pump, Vane</b>	
Vane Sides	5.0-13 microns
Vane Tips	0.5-1.0 microns
Rolling Element Bearings	0.1-1.0 microns
<b>Valves</b>	
Directional Spool to Sleeve	2.0-8.0 microns
Proportional Spool to Sleeve	1.0-6.0 microns
Servo Spool to Sleeve	1.0-4.0 microns

Concern for the size and amount of solid particulates that are  $\geq 2$  microns becomes evident when examining typical mechanical clearances for equipment. Particulates that are larger than the mechanical clearances greatly accelerate wear by abrasion.

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