

[Product Overview](#)

The **Knuckle Joint**, when incorporated between the jars and the manipulation tool, provides additional flexibility in the tool string. It allows **full 360° rotation** of the tool string and provides up to **15° angular deviations**, while maintaining internal pressure sealing throughout the full rotation. The ball-and-socket arrangement provides rotation and angular deviation, while seals in the ball provide the sealing capability.

[Key Features](#)

- Provides **additional flexibility** in the tool string.
- Allows **360° rotation** of the tool string.
- Provides **15° angular deviation**.
- Maintains **internal pressure sealing** throughout rotation.

[Technical Data](#)

Max. O.D. (in)	Min. I.D. (in)	Tensile Strength – Standard Service	Make-Up Length (in)	Internal Ball Clearance (in)	Angle of Deviation
1.687	0.500	40,000 LBS	10.461	7/16	15°
1.750	0.500	60,000 LBS	10.461	7/16	15°
2.125	0.500	56,000 LBS	9.260	7/16	15°
2.375	0.750	60,000 LBS	9.604	11/16	15°
3.125	1.000	100,000 LBS	11.000	15/16	15°

