

ToughTorq™ AP Shear Coupling

Innovative, all-purpose shear coupling designed for BOTH reciprocating and PCP Shear couplings are used to reliably separate the rod string from the bottom hole assembly when a pump seizes or rods get stuck. This prevents the costly and environmentally unfriendly process of pulling tubing and rods out simultaneously.

The ToughTorq™ AP shear coupling was designed for high performance in both reciprocating and rotating applications. Plainsman, leaders in shear innovation, have designed an all-purpose shear coupling that combines many of the trusted features of our standard ToughTorq™ with technology that further reduces bending and axial fatigue failures. The ToughTorq™ AP also includes a proprietary internal shear mechanism eliminating the need for pins.

Features

- Proven significantly better in bending than all shears on the market
- Extensive rotating bending and axial fatigue lab testing
- Innovative, patent-pending shear technology
- Well suited for PCP or Reciprocating applications
- Flex groove on OD makes whole shear more flexible, therefore less stress from bending
- Larger multi-face key improves torque capabilities
- Preloading from the bolt isolates shear nut from large alternating loads which cause fatigue failures
- Proprietary internal shear has no pins, is isolated from bending, and eliminates internal wear
- All parts are internal, protected from corrosive production fluids
- Slim hole diameter
- Available in Box-by-Box and Box-by-Pin Configurations



TOUGHTORQ™ AP SHEAR COUPLING

MADE IN CANADA

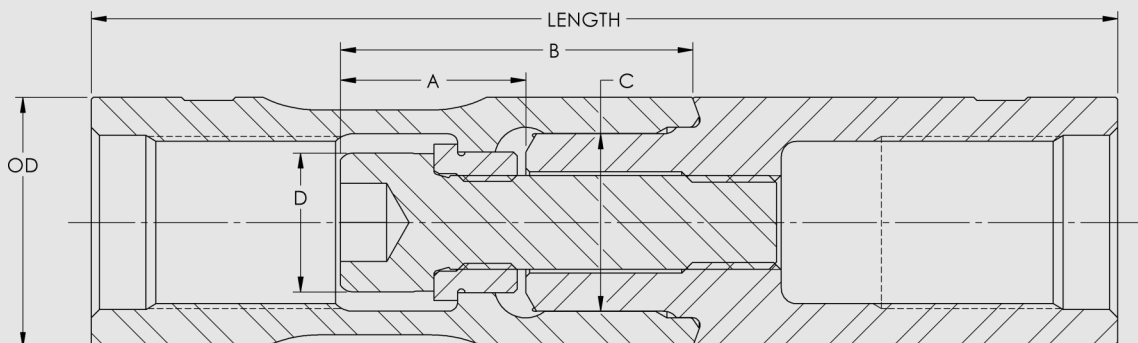


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SIZE	OD	LENGTH	SHEAR STRENGTH	MAX OPERATING LOAD	MAX STATIC TORQUE	BOLT HEAD COLOUR	A	B	C	D
3/4" (19 mm)	1.50" (38 mm)	Box x Box 6.46" (164 mm) Pin x Box 7.11" (181 mm)	14,000 lbs (62 kN)	5,600 lbs (25 kN)	1200 ft-lbs (1630 N-m)	Green	1.19" (30 mm)	2.00" (51 mm)	1.07" (27 mm)	0.83" (21 mm)
			19,000 lbs (85 kN)	7,600 lbs (34 kN)		Red				
			22,000 lbs (98 kN)	8,800 lbs (39 kN)		Yellow				
			26,000 lbs (116 kN)	10,400 lbs (46 kN)		Grey				
			30,000 lbs (133 kN)	12,000 lbs (53 kN)		White				
7/8" (22 mm)	1.63" (41 mm)	Box x Box 7.38" (187 mm) Pin x Box 7.88" (200 mm)	14,000 lbs (62 kN)	5,600 lbs (25 kN)	1500 ft-lbs (2030 N-m)	Green	1.35" (34 mm)	2.44" (62 mm)	1.18" (30 mm)	0.95" (24 mm)
			19,000 lbs (85 kN)	7,600 lbs (34 kN)		Red				
			22,000 lbs (98 kN)	8,800 lbs (39 kN)		Yellow				
			26,000 lbs (116 kN)	10,400 lbs (46 kN)		Grey				
			30,000 lbs (133 kN)	12,000 lbs (53 kN)		White				
			35,000 lbs (156 kN)	14,000 lbs (62 kN)		Purple				
			40,000 lbs (178 kN)	16,000 lbs (71 kN)		Blue				
1" (25 mm)	2.00" (51 mm)	Box x Box 8.24" (209 mm) Pin x Box 8.99" (228 mm)	26,000 lbs (116 kN)	10,400 lbs (46 kN)	2500 ft-lbs (3390 N-m)	Grey	1.49" (38 mm)	2.83" (72 mm)	1.42" (36 mm)	1.12" (28 mm)
			30,000 lbs (133 kN)	12,000 lbs (53 kN)		White				
			35,000 lbs (156 kN)	14,000 lbs (62 kN)		Purple				
			40,000 lbs (178 kN)	16,000 lbs (71 kN)		Blue				
			45,000 lbs (200 kN)	18,000 lbs (80 kN)		Green				
			50,000 lbs (222 kN)	20,000 lbs (89 kN)		Orange				
1-1/8" (29 mm)	2.25" (57 mm)	Box x Box 9.22" (234 mm) Pin x Box 9.87" (251 mm)	35,000 lbs (156 kN)	14,000 lbs (62 kN)	3800 ft-lbs (5150 N-m)	Purple	1.62" (41 mm)	3.05" (77 mm)	1.65" (42 mm)	1.31" (33 mm)
			40,000 lbs (178 kN)	16,000 lbs (71 kN)		Blue				
			45,000 lbs (200 kN)	18,000 lbs (80 kN)		Green				
			50,000 lbs (222 kN)	20,000 lbs (89 kN)		Orange				

1. Custom shear strengths available. Contact Plainsman.
2. Shear can be expected to release at $\pm 10\%$ of the shear strength rating.
3. Shear strength can be identified by OD stamping and color of bolt head when viewed down bore



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Phone: 780-496-9800

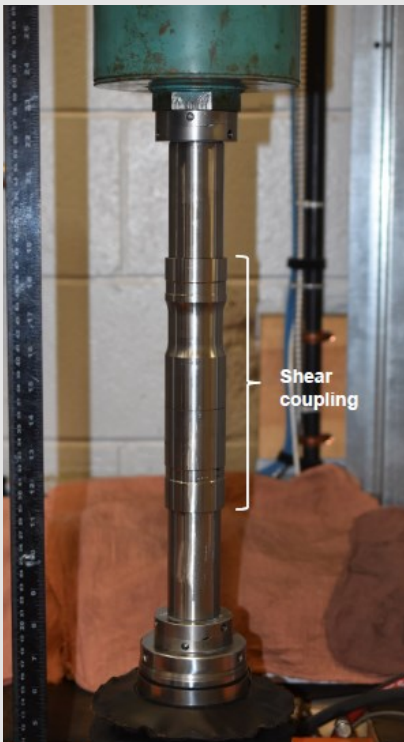
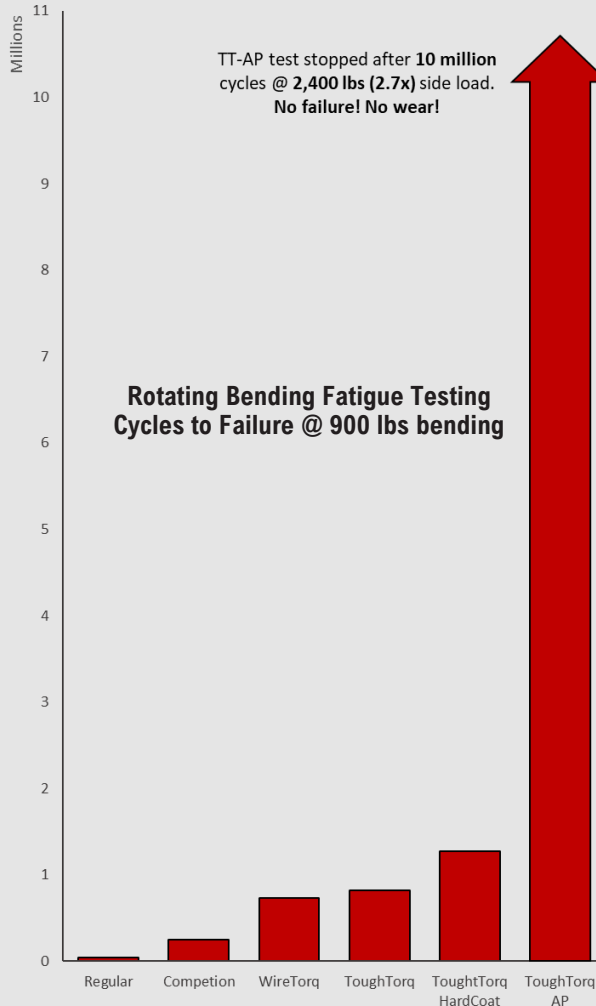
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www.plainsmanmfg.com

Proven Design – Fatigue Lab Testing

- Plainsman performed extensive rotating bending fatigue testing on our shears in an effort to design a fatigue resistant shear for PCP well applications.
- Two prototype tests ran out at 10 million cycles without failure.
- In the 2nd test, the side load was incrementally increased from 1400 to 2400 lbs approximately every million cycles and ran out over 10M cycles.
- TT-AP test stopped after 10 million cycles @ 2,400 LBS (2.7x) side load.
- After the proven excellent performance in rotating bending fatigue, an axial fatigue test was conducted to simulate a high load reciprocating application.
- A 1" 40K shear was run with alternating load from 2,500 to 25,000 lbs for 1.2 million cycles (run-out condition). No wear or fatigue damage was observed after the test, as anticipated.



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