

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



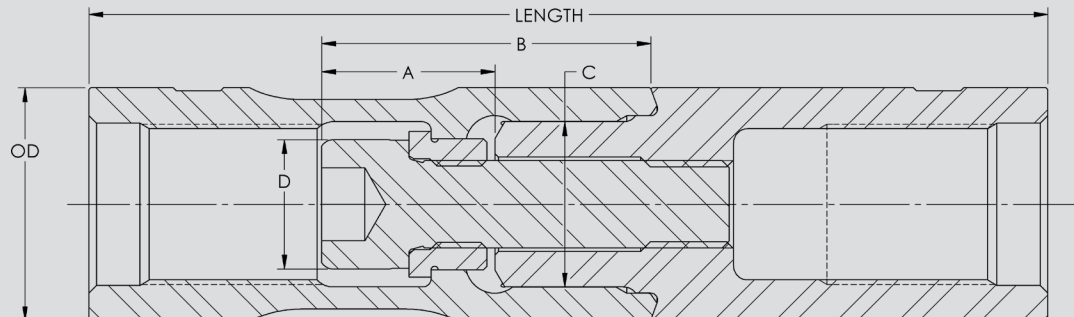
TOUGHTORQ™ AP SHEAR COUPLING

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SIZE (IN)	OD (IN)	LENGTH (IN)	SHEAR STRENGTH (LBS)	MAXIMUM OPERATING LOAD (LBS)	MAX ALLOWABLE STATIC TORQUE (LBS)	BOLT HEAD COLOUR	A (IN)	B (IN)	C (IN)	D (IN)
3/4" (19 mm)	1.50" (38 mm)	6.46" (164 mm)	14,000 (62 kN)	7,000 (31 kN)	1200	Green	1.19" (30 mm)	2" (51 mm)	1.07" (27 mm)	0.83" (21 mm)
			19,000 (85 kN)	9,500 (42 kN)		Red				
			22,000 (98 kN)	11,000 (49 kN)		Yellow				
			26,000 (116 kN)	13,000 (58 kN)		Grey				
7/8" (22 mm)	1.63" (41 mm)	7.38" (187 mm)	14,000 (62 kN)	7,000 (31 kN)	1500	Green	1.35" (34 mm)	2.44" (62 mm)	1.18" (30 mm)	0.95" (24 mm)
			19,000 (85 kN)	9,500 (42 kN)		Red				
			22,000 (98 kN)	11,000 (49 kN)		Yellow				
			26,000 (116 kN)	13,000 (58 kN)		Grey				
			30,000 (133 kN)	15,000 (67 kN)		White				
			35,000 (156 kN)	17,500 (78 kN)		Purple				
			40,000 (178 kN)	20,000 (89 kN)		Blue				
1" (25 mm)	2" (51 mm)	8.24" (209 mm)	30,000 (133 kN)	15,000 (67 kN)	2500	White	1.49" (38 mm)	2.83" (72 mm)	1.42" (36 mm)	1.12" (28 mm)
			35,000 (156 kN)	17,500 (78 kN)		Purple				
			40,000 (178 kN)	20,000 (89 kN)		Blue				
			45,000 (200 kN)	22,500 (100 kN)		Green				
			50,000 (200 kN)	25,000 (111 kN)		Orange				
1-1/8" (29 mm)	2.25" (57 mm)	9.22" (234 mm)	35,000 (156 kN)	17,500 (78 kN)	3800	Purple	1.62" (41 mm)	3.05" (77 mm)	1.65" (42 mm)	1.31" (33 mm)
			40,000 (178 kN)	20,000 (89 kN)		Blue				
			45,000 (200 kN)	22,500 (100 kN)		Green				
			50,000 (222 kN)	25,000 (111 kN)		Orange				

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



MADE IN CANADA



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 2500 to 25,000 lbs for 1.2 million cycles (run-out condition). No wear or fatigue damage was observed after the test, as anticipated.

