



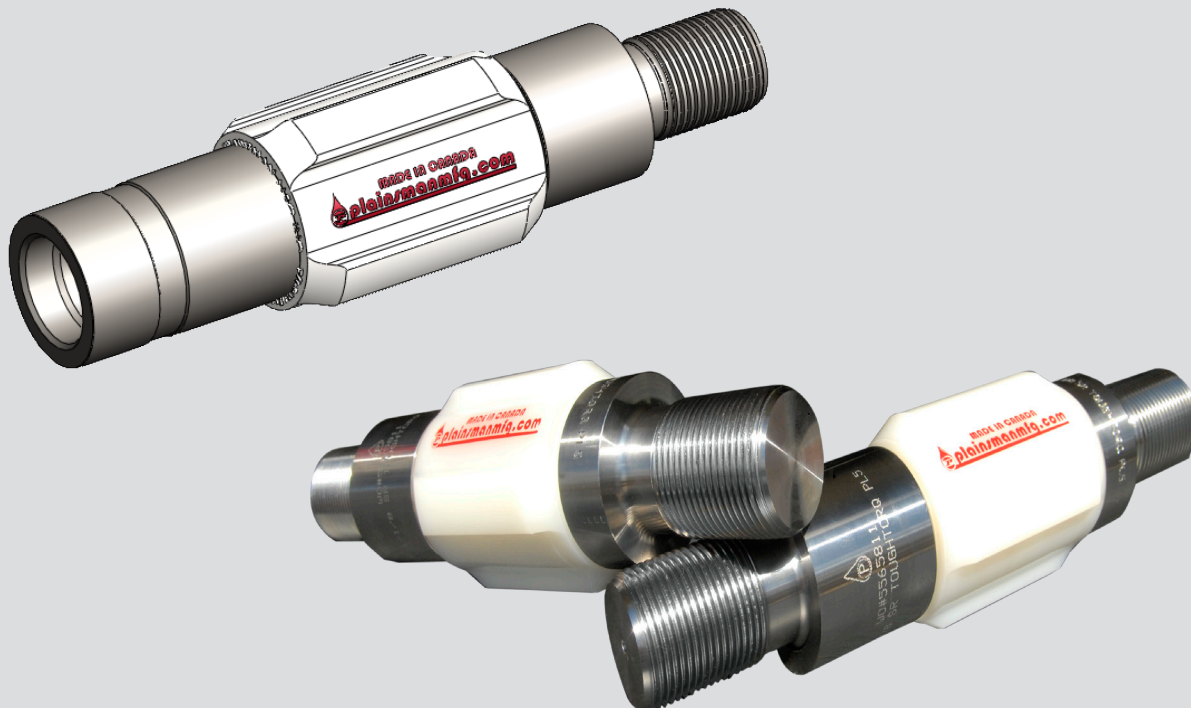
ToughTorq™ PL5 Spin-Through Coupling

The ToughTorq™ PL5 Spin-Through Coupling† has been specially designed for use with high torque rod applications such as Weatherford® T66/XD and HD sucker rods and Alberta Oil Tool Drive Rods®††.

Spin-through couplings reduce operating costs of progressing cavity pumped wells. The PL5 centralizer reduces rod and tubing wear, work over frequency, lifting costs and maintenance. PL5 centralizers are field replaceable and available with high temperature rotor materials rated to 218 °C.

Features

- High torque capabilities
- Available with abrasion resistant hard coating for severe service conditions
- Slim hole diameter maximizes flow path and protects tubing wall
- Pin by Pin construction
- Proprietary design maximizes contact strength and improves rotor retention
- Proprietary HTSR alloy steel components
- Formed (cold rolled) box and pin threads, not cut, conforming to API 11B
- Full material traceability stamping
- Manufactured to precisely engineered standards in ISO 9001 facility
- Field replaceable standard (104 °C) and high temperature (218 °C) rotors
- Proprietary blend of rotor materials provides maximum lubricity and wear life
- Available with or without coupling(s)



† Patent pending.

†† Weatherford and Alberta Oil Tool are in no way affiliated with Plainsman Mfg. Inc.

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TOUGHTORQ™ PL5 COUPLING

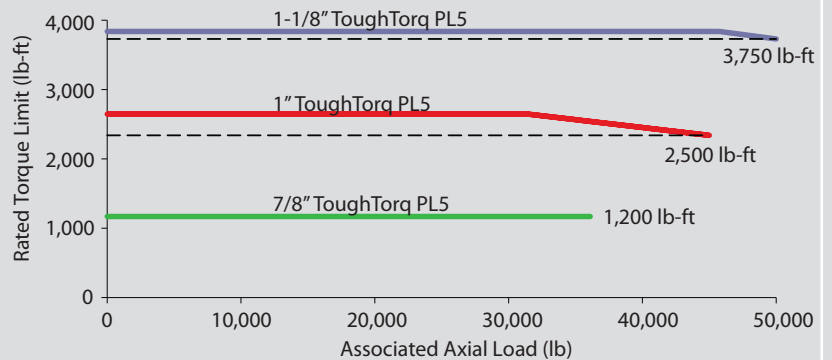
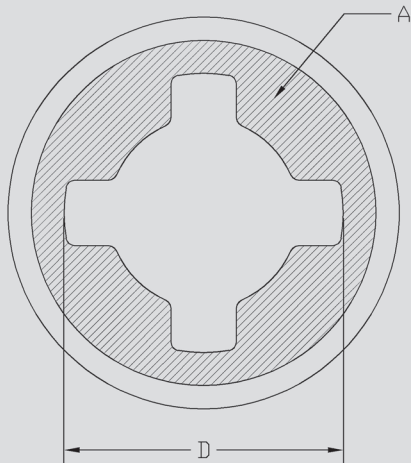
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TOUGHTORQ™ PL5 COUPLING



ROD SIZE (IN.) ¹	TUBING SIZE (IN.)	ROTOR DIAMETER D (IN.)	FLOW AREA A (IN. ²)		REQUIRED COUPLING	MAXIMUM OPERATING TORQUE (LB • FT) ^{2,3}		ASSOCIATED AXIAL LOAD (LB) ⁶
			MIN ⁷	MAX ⁷		HIGH STRENGTH COUPLING ⁴	REGULAR COUPLING ⁵	
7/8" (22 mm)	2-3/8" (60 mm)	1.86 (47 mm)	0.34 (217 mm ²)	0.87 (561 mm ²)	SLIM HOLE ONLY	1,200 (1,625 N • m)	875 (1,185 N • m)	30,000 (13,600 kg)
	2-7/8" (73 mm)	2.29 (58 mm)	1.08 (700 mm ²)	1.53 (985 mm ²)	SLIM HOLE OR FULL SIZE			
	3-1/2" (89 mm)	2.82 (71 mm)	2.57 (1658 mm ²)	3.26 (2103 mm ²)				
1" (25 mm)	2-7/8" (73 mm)	2.27 (58 mm)	0.81 (522 mm ²)	1.25 (806 mm ²)	SLIM HOLE ONLY	2,500 (3,390 N • m)	2,000 (2,710 N • m)	40,000 (18,140 kg)
	3-1/2" (89 mm)	2.82 (71 mm)	1.75 (1130 mm ²)	2.44 (1574 mm ²)	SLIM HOLE OR FULL SIZE			
	4-1/2" (114 mm)	3.21 (82 mm)	2.41 (1557 mm ²)	6.48 (4181 mm ²)				
1-1/8" (29 mm)	3-1/2" (89 mm)	2.80 (71 mm)	1.75 (1130 mm ²)	2.44 (1574 mm ²)	SLIM HOLE OR FULL SIZE	3,750 (5,080 N • m)	2,900 (3,930 N • m)	50,000 (22,680 kg)
	4-1/2" (114 mm)	3.21 (82 mm)	2.41 (1557 mm ²)	6.48 (4181 mm ²)				



Rated Torque Limit vs. Associated Axial Load^{2,3,4,6}

Notes:

- Other sizes available as well as optional coating for increased wear life. Contact Plainsman for details.
- Maximum operating torque subject to the following conditions:
 - Do not exceed sucker rod manufacturer's operating torque guidelines
 - All values based on coupling contact areas as follows:
 - 7/8" ToughTorq PL5 Contact Area = 0.573 in² (370 mm²) or greater
 - 1" ToughTorq PL5 Contact Area = 1.120 in² (723 mm²) or greater
 - 1-1/8" ToughTorq PL5 Contact Area = 1.451 in² (936 mm²) or greater
 - Connections to be made-up as per Plainsman's Tough Torq™ PL5 make-up procedure PB-CPLR06
- To maximize fatigue life, Plainsman recommends using a 0.8 service factor
- High Strength coupling with 105 ksi (724 MPa) minimum yield strength in like new condition
- Regular coupling with 80 ksi (552 MPa) minimum yield strength in like new condition
- Associated axial load may be exceeded at lesser operating torques. Refer to graph above.
- Min and max flow areas based on heaviest and lightest API 5CT tubing that the centralizer rotor will fit.

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Specifications subject to change without notice

(6), PB-CPLR05