

OPERATING INSTRUCTIONS FOR PETERSEN® 146-SERIES BOLT TYPE TEST PLUGS

WARNINGS!

- PRESSURE TESTING IS INHERENTLY DANGEROUS. STRICT ADHERENCE TO THESE OPERATION INSTRUCTIONS AND INDUSTRY SAFETY PRACTICES WILL HELP PREVENT INJURY TO PERSONNEL
- ALL PERSONNEL MUST BE CLEAR OF TEST PLUG WHEN PRESSURE TESTING
- FOR SAFETY, AN INCOMPRESSIBLE LIQUID SUCH AS WATER SHOULD BE USED AS THE TEST MEDIUM.
- RESIDUAL AIR OR GAS MUST BE EVACUATED FROM THE PIPE PRIOR TO TESTING.

1. **The pipe to be tested must have an ID within the variance listed in Table 1.** Position the test plug in a clean, lubricant free pipe end so that the whole seal is within the pipe.
2. Center the plug within the pipe while hand tightening the hex nut(s). For 0.280" - 0.499" (7.11 – 12.67mm) sizes, firmly tighten the knurled nut by hand then snug an additional 1/4 to 1/2 turn using pliers. On multi-shaft plugs used horizontally, tightening the bottom hex nuts first will aid in centering the plug. The hex nuts on plugs with multiple shafts must be tightened in star pattern.
3. Tighten the hex nut(s) to the installation torque specified in Table 1. Use of a calibrated torque wrench is recommended.

WARNING! FAILURE TO APPLY THE INSTALLATION TORQUE SPECIFIED IN TABLE 1 COULD RESULT IN UNSAFE OPERATION OR LEAKAGE.

4. Install the pressure source or vent to the plug, leak tight. For plugs not being used to pressurize or vent the system, install a pipe cap or pipe plug, leak tight.
5. Fill the pipe with test medium while evacuating any residual air or gas. Slowly introduce the test pressure. The test pressure must never exceed the maximum test pressure listed in Table 1.
6. As pressure increases, movement of plug as large as 0.10" (2.5mm) may be detected. Should movement of the shaft or plug exceed .10" (2.5mm), release **ALL** pressure immediately, remove plug, examine, reinstall and begin testing in accordance with this operating procedure. Should movement of the shaft or plug during the test still exceed 0.10" (2.5mm), contact the factory for technical assistance.
7. At the conclusion of the test, release **ALL** pressure, loosen the hex nut(s), remove and inspect plug. Any plug component that is worn or damaged must be replaced before attempting further testing. Contact factory for replacement part information.
8. Prior to storing, dry all parts of the plug and lubricate the shaft threads and brass anti-gall washer(s) with antiseize. Store these instructions with the plug.

TABLE 1

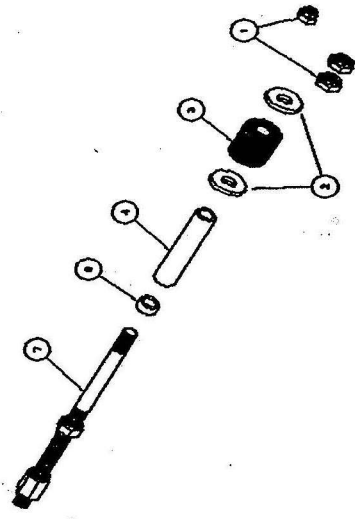
PIPE OR TUBE ID RANGE		-INSTALLATION TORQUE		-MAX. TEST PRESSURE		ACCEPTABLE TUBE/PIPE ID VARIANCE FROM NOMINAL	
(in)	(mm)	(ft-lbs)	as listed	(psi)	(Bar)	under	over
0.280" - 0.499"	7.11 – 12.68	Refer to step 2		250	17	0.02" (.5mm)	0.03" (.8mm)
0.500" – 0.719"	12.69 – 18.27	3.3	0.46 kg-cm	250	17	0.02" (.5mm)	0.03" (.8mm)
0.720" - 0.869"	18.28 – 22.08	3.3	0.46 kg-cm	175	12	0.02" (.5mm)	0.03" (.8mm)
0.870" – 1.429"	22.09 – 36.30	14	1.9 kg-m	175	12	0.02" (.5mm)	0.03" (.8mm)
1.430" – 2.169"	36.31 – 55.10	14	1.9 kg-m	75	5	0.02" (.5mm)	0.03" (.8mm)
2.17" - 3.50"	55.11 – 89.0	30	4.1 kg-m	50	3.4	0.04" (1.0mm)	0.06" (1.5mm)
3.51" - 4.00"	89.1 - 101.7	45	6.2 kg-m	40	2.7	0.04" (1.0mm)	0.06" (1.5mm)
4.01" - 4.50"	101.8 - 114.4	45	6.2 kg-m	40	2.7	0.05" (1.3mm)	0.06" (1.5mm)
4.51" - 6.00"	114.5 - 152.5	100	13.8 kg-m	25	1.7	0.05" (1.3mm)	0.06" (1.5mm)
6.01" - 6.50"	152.6 - 165.2	100	13.8 kg-m	25	1.7	0.05" (1.3mm)	0.06" (1.5mm)
6.51" - 8.00"	165.3 - 203.3	100	13.8 kg-m	15	1.0	0.05" (1.3mm)	0.06" (1.5mm)
8.01" - 8.50"	203.4 - 216.0	100	13.8 kg-m	15	1.0	0.06" (1.5mm)	0.08" (2.0mm)
8.51" - 10.50"	216.1 - 266.8	25	3.5 kg-m	10	.7	0.06" (1.5mm)	0.08" (2.0mm)

Specifications subject to change without notice

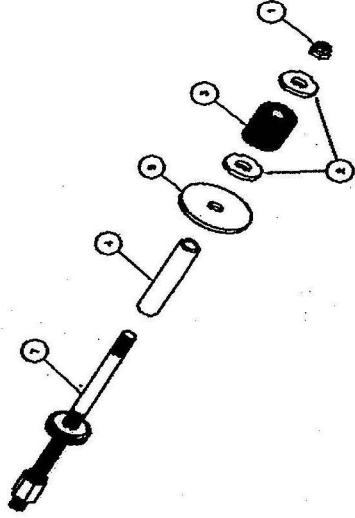
-INSTALLATION TORQUES ARE FOR STANDARD NEOPRENE SEALS, DO NOT EXCEED VALUES BY MORE THAN 5%

-MAXIMUM TEST PRESSURES HAVE BEEN DETERMINED FROM TESTS PERFORMED IN CLEAN, DRY CARBON STEEL PIPE

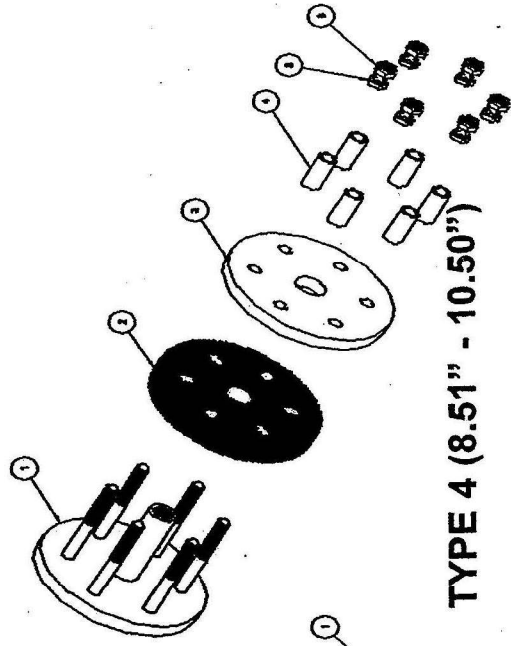
Call Petersen with any questions or suggestions relating to the use of any Petersen product. 800-926-1926



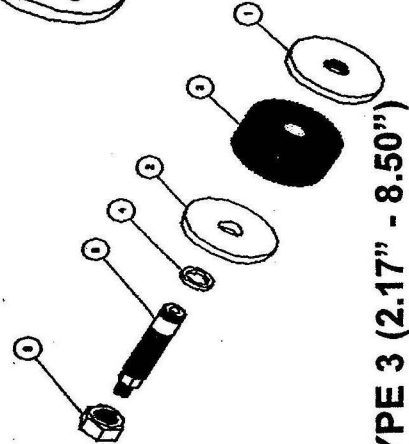
TYPE 2 (0.500" - 2.169")



TYPE 1 (0.280" - 0.499")



TYPE 4 (8.51" - 10.50")



TYPE 3 (2.17" - 8.50")

TYPE 1 & 2

RANGE: 0.280-2.169

ITEM	QTY	DESCRIPTION
1	1	LOCKNUT (0.280-0.869)
2	2	JAMNUT (0.870-2.169)
3	1	COMPRESSION WASHER
4	1	SEAL - STANDARD NEOPRENE
5	1	BTT-XXXX-NRS
6	1	COMPRESSION TUBE
7	1	POSITIONING WASHER (0.280-0.499)
	1	ANTIGALL WASHER (0.500-2.169)
	1	SHAFT ASSEMBLY
		INCLUDES KNURLED NUT (0.280-0.869)
		INCLUDES HEX NUT (0.870-2.169)

TYPE 3

RANGE: 2.17 - 8.50

ITEM	QTY	DESCRIPTION
1	1	BTM COMPRESSION WASHER
2	1	TOP COMPRESSION WASHER
3	1	SEAL - STANDARD NEOPRENE
4	1	BTT-XXXX-NRS
5	1	ANTIGALL WASHER
6	1	SHAFT
		HEX NUT

TYPE 4

RANGE: 8.51-10.50

ITEM	QTY	DESCRIPTION
1	1	COMPRESSION WASHER & SHAFT ASSEMBLY
2	1	SEAL - STANDARD NEOPRENE
3	1	BTT-XXXX-NRS
4	6	COMPRESSION WASHER
5	6	COMPRESSION TUBE
6	6	ANTIGALL WASHER
		HEX NUT