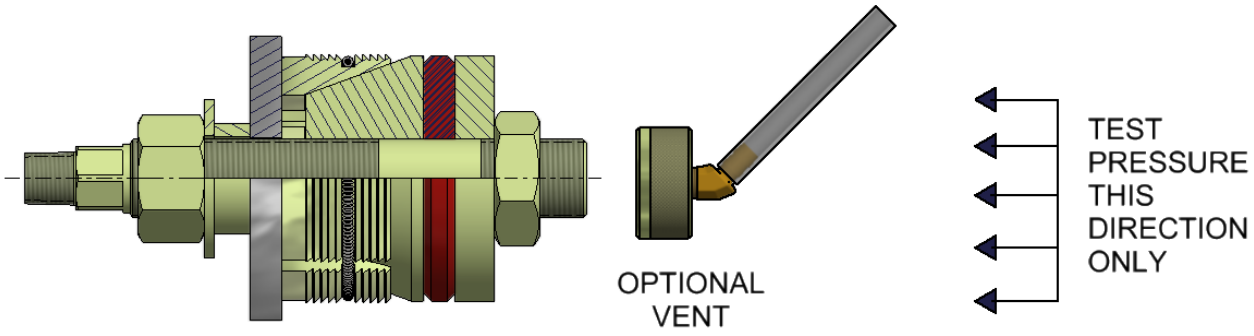
OPERATING PROCEDURES FOR GRIPTIGHT® HIGH PRESSURE TEST PLUGS WITH ALTERNATE SEAL MATERIALS

Description: GripTight plugs supplied with alternate seal materials will have lower pressure ratings and in some cases a different installation torque. The table below cross-references the most commonly requested alternate materials with the standard material. These instructions apply *ONLY* to the alternate seal materials listed in the table. See Page 2 for replacement seal instructions. For standard plug instructions, see DC2510 Operating instructions and DC2512 replacement part instructions.

ID RANGE inches (mm)	SHAFT DIA inches (mm)	STANDARD SEAL MATERIAL qty, inches (mm)	ALTERNATE SEAL MATERIAL qty, inches (mm)
.93 - 1.20 (23.6 - 30.5)	1/2 (12.7)	URETHANE BLUE - (1) 1/2" (12.7)	NEOPRENE BLACK, EPDM BLACK, SILICONE AND FLUOROELASTOMER; VITON®OR EQUIVALENT - (1) 1/2" (12.7)
1.13 - 1.43 (28.7 - 36.30)	5/8 (15.9)		
1.41 - 2.45 (35.8 - 62.20)	7/8 (22.2)		
2.44 - 4.34 (62.0 - 110.2)	1-1/4 (31.8)	URETHANE RED - (1) 1/2" (12.7)	
4.28 - 6.82 (108.7 - 173.2)	1-1/2 (38.1)	URETHANE RED - (1) 1/2" (12.7mm) AND NEOPRENE BLACK - (1) 1/2" (12.7)	NEOPRENE BLACK, EPDM BLACK, SILICONE AND FLUOROELASTOMER; VITON®OR EQUIVALENT - (1) 1" (25.4)



VERIFY PARTS ARE ASSEMBLED AS SHOWN

WARNING! FOR PROPER OPERATION, GRIPTIGHT PLUGS MUST BE ASSEMBLED AS SHOWN.

- ***PRESSURE TESTING IS INHERENTLY DANGEROUS. STRICT ADHERENCE TO THESE OPERATION INSTRUCTIONS AND INDUSTRY SAFETY PRACTICES COULD 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 IS TO BE EVACUATED FROM THE PIPE PRIOR TO TESTING. IN NON-VERTICAL APPLICATIONS THE OPTIONAL VENT, SHOWN ABOVE, WILL ALLOW FOR VENTING MOST AIR OR GAS.***
- ***PLUG SIZES AND OPERATING PRESSURES DO NOT APPLY TO COATED PIPE. CONTACT EST PRIOR TO USE OF GRIP TIGHT PLUG ON ANY TYPE OF COATED PIPE / TUBE.***

Questions? Contact EST Group Customer Service at any of the following locations.

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1. PRIOR TO USE, replace damaged or worn grippers and seal(s). The surface between the cone and grippers must be free of friction producing dirt or corrosion. Apply a lubricant such as Molykote DX to the tapered surface of the cone. Wipe away any excess lubricant from components making sure to leave an ample amount on tapered cone face and mating surface of the gripper back. Lubricant must not be on seal.

2. Verify proper operation of the test plug by tightening with a wrench the hex nuts so that the grippers move freely to the end of the tapered cone surface.

   - If grippers move freely to end of the tapered cone surface, then loosen the jam nut back to its original position and go on to next step.

   - Should the grippers not fully retract, if required, remove any light rust, residue or corrosion on the cone face, gripper backs and tops and underside of positioning washer using a Scotch Brite Pad or pad of equivalent quality. Re-lubricate gripper backs, tops and tapered cone surface using a lubricant such as Molykote DX. Wipe away any excess lubricant from components making sure to leave an ample amount on tapered cone face and mating surface of gripper back. If grippers still do not fully retract and nut cannot be easily advanced, do not use this plug for testing. Contact EST Group Customer Service for assistance.

3. **The pipe ID to be tested must be within the limits specified on the plug.** Schedule 5 wall thickness pipe, or tubes with a wall thickness thinner than equivalent schedule 10 pipe, must have an OD restraint. Contact EST Customer Service for information. Position the test plug in clean, lubricant free pipe end so that all of the gripper teeth are within the pipe.

4. Center the plug within the pipe while hand tightening the hex nut. Tighten hex nut until the test plug has gripped the pipe ID. Slight wiggling of the hand-tightened plug may allow further hand tightening of the hex nut.

5. Tighten the hex nut 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.

6. 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 that is rated at or above the GripTight test plug working pressure. Tighten so that it is leak tight.

7. Fill the pipe with test medium while displacing any residual air or gas. Slowly introduce the test pressure. The test pressure must never exceed the strength of the weakest component within the system being tested.

8. As pressure increases, movement of the shaft as large as 0.10”(2.54mm) may be detected. This movement indicates additional squeeze of the seal and expansion of the grippers and is normal for this plug design. Should movement of the shaft or plug exceed 0.10”(2.54mm), 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”(2.54mm), contact EST Customer Service for technical assistance.

9. Imperfections within the pipe being tested may cause small plug leaks as the test pressure is being increased. Should small leaks develop, additional tightening of the plug may be required. Prior to additional tightening remove pressurization from the system. Tighten the hex nut further and re-pressurize the system. If leakage continues, the imperfections within the pipe must be removed.

WARNING! NEVER STAND IN THE POSSIBLE PATH OF THE TEST PLUG

WARNING! NEVER EXCEED THE MAXIMUM TORQUE SPECIFIED IN TABLE 1 AS DAMAGE TO THE PLUG MAY OCCUR.

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10. At the conclusion of the test, release **ALL** pressure, loosen the hex nut, remove and inspect plug. Worn or damaged plug components must be replaced before attempting further testing. Contact EST Customer Service for replacement part information.

11. Prior to storing, dry all parts of the plug and lubricate the shaft threads and hardened washers with antiseize. Store these instructions with the plug or replacement seals

SEAL REPLACEMENT

1. Remove jamnut and unthread bottom washer from shaft. Remove old seal(s) and replace with new seal. See chart on page (1) to cross reference standard and alternate seal applications.

2. Thread bottom washer onto shaft and firmly tighten jam nut against bottom washer.

TABLE 1. GripTight Installation Torque Specifications

(Using alternate seal materials)

SALES PART NUMBER	PIPE SIZE (inches)	ID RANGE inches(mm)	NORMAL INSTALLATION TORQUE ft-lbs(N·m)	MAXIMUM INSTALLATION TORQUE ft-lbs(N·m)	MAXIMUM TEST PRESSURE[1] PsiG(BarG)
GT1P80	1" SCH 80	.93 - 1.00(23.6 - 25.4)	25 (34)	40 (55)	3000 (206.8)
GT1P40	1" SCH 40	1.01 - 1.09(25.7 - 27.7)	25 (34)	40 (55)	3000 (206.8)
GT15PXXS	1-1/2" XXS	1.07 - 1.2(27.2 - 30.5)	25 (34)	40 (55)	3000 (206.8)
GT1P10	1" SCH 10	1.07 - 1.2(27.2 - 30.5)	25 (34)	40 (55)	3000 (206.8)
GT125P160	1-1/4" SCH 160	1.13 - 1.24(28.7 - 31.5)	25 (34)	50 (68)	2500 (172.4)
GT1P5	1" SCH 5	1.13 - 1.24(28.7 - 31.5)	25 (34)	50 (68)	2500 (172.4)
GT125P80	1-1/4" SCH 80	1.25 - 1.33(31.8 - 33.8)	25 (34)	50 (68)	2500 (172.4)
GT125P40	1-1/4" SCH 40/STD	1.31 - 1.43(33.3 - 36.3)	25 (34)	50 (68)	2500 (172.4)
GT15P160	1 1/2" SCH 160	1.31 - 1.43(33.3 - 36.3)	25 (34)	50 (68)	2500 (172.4)
GT125P10	1 - 1/4" SCH 10	1.41 - 1.49(35.8 - 37.8)	35 (48)	100 (136)	2000 (137.9)
GT125P5	1-1/4" SCH 5	1.47 - 1.61(37.3 - 40.9)	35 (48)	100 (136)	2000 (137.9)
GT15P80	1-1/2" SCH 80	1.47 - 1.61(37.3 - 40.9)	35 (48)	100 (136)	2000 (137.9)
GT2PXXS	2" XXS	1.47 - 1.61(37.3 - 40.9)	35 (48)	100 (136)	2000 (137.9)
GT15P40	1-1/2" SCH 40/STD	1.58 - 1.66(40.1 - 42.2)	35 (48)	100 (136)	2000 (137.9)
GT15P10	1-1/2" SCH 10	1.66 - 1.77(42.2 - 45.0)	35 (48)	100 (136)	2000 (137.9)
GT2P160	2" SCH 160	1.66 - 1.77(42.2 - 45.0)	35 (48)	100 (136)	2000 (137.9)
GT15P5	1-1/2" SCH5	1.74 - 1.91(44.2 - 48.5)	35 (48)	100 (136)	2000 (137.9)
GT25PXXS	2-1/2" XXS	1.74 - 1.91(44.2 - 48.5)	35 (48)	100 (136)	2000 (137.9)
GT2P80	2" SCH 80/XS	1.91 - 1.99(48.5 - 50.5)	35 (48)	100 (136)	2000 (137.9)
GT198T		1.98 - 2.06(50.3 - 52.3)	35 (48)	100 (136)	2000 (137.9)
GT2P40	2" SCH 40/STD	2.04 - 2.13(51.8 - 53.8)	35 (48)	100 (136)	2000 (137.9)
GT2P10	2" SCH 10	2.10 - 2.22(53.3 - 56.4)	35 (48)	100 (136)	2000 (137.9)
GT25P160	2-1/2" SCH 160	2.10 - 2.22(53.3 - 56.4)	35 (48)	100 (136)	2000 (137.9)
GT2P5	2" SCH 5	2.22 - 2.30(56.4 - 58.4)	35 (48)	100 (136)	2000 (137.9)
GT25P80	2-1/2" SCH 80/XS	2.27 - 2.45(57.7 - 62.2)	35 (48)	100 (136)	2000 (137.9)
GT3PXXS	3" XXS	2.27 - 2.45(57.7 - 62.2)	35 (48)	100 (136)	2000 (137.9)
GT25P40	2-1/2" SCH 40/STD	2.44 - 2.54(62.0 - 64.5)	50 (68)	150 (204)	2000 (137.9)
GT253T		2.53 - 2.63(64.3 - 66.8)	50 (68)	150 (204)	2000 (137.9)
GT25P10	2-1/2" SCH 10	2.60 - 2.74(65.9 - 69.6)	50 (68)	150 (204)	2000 (137.9)
GT3P160	3" SCH 160	2.60 - 2.74(65.9 - 69.6)	50 (68)	150 (204)	2000 (137.9)
GT25P5	2"-1/2" SCH 5	2.68 - 2.78(68.1 - 70.6)	50 (68)	150 (204)	2000 (137.9)
GT35PXXS	3-1/2" XXS	2.70 - 2.89(68.6 - 73.4)	50 (68)	150 (204)	2000 (137.9)
GT3P80	3" SCH 80/XS	2.87 - 2.98(72.9 - 75.7)	50 (68)	150 (204)	2000 (137.9)
GT296T		2.96 - 3.07(75.2 - 78.0)	50 (68)	150 (204)	2000 (137.9)
GT3P40	3" SCH 40/STD	3.04 - 3.14(77.2 - 79.8)	50 (68)	150 (204)	2000 (137.9)
GT4PXXS	4" XXS	3.12 - 3.32(79.2 - 84.3)	50 (68)	150 (204)	1750 (120.6)
GT3P10	3" SCH 10	3.23 - 3.34(82.0 - 84.8)	50 (68)	150 (204)	1750 (120.6)

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TABLE 1. GripTight Installation Torque Specifications Continued.

(Using alternate seal materials)

SALES PART NUMBER	PIPE SIZE (inches)	ID RANGE inches(mm)	INSTALLATION TORQUE ft-lbs(N·m)	INSTALLATION TORQUE ft-lbs(N·m)	TEST PRESSURE(1) PsiG(BarG)
GT3P5	3" SCH 5	3.30 - 3.41(83.8 - 86.6)	50 (68)	150 (204)	1750 (120.6)
GT35P80	3-1/2" SCH 80/XS	3.33 - 3.44(84.6 - 87.4)	50 (68)	150 (204)	1750 (120.6)
GT4P160	4" SCH 160	3.41 - 3.57(86.6 - 90.7)	50 (68)	150 (204)	1750 (120.6)
GT35P40	3-1/2" SCH 40/STD	3.52 - 3.63(89.4 - 92.2)	50 (68)	150 (204)	1750 (120.6)
GT4P120	4" SCH 120	3.60 - 3.74(91.4 - 95.0)	50 (68)	150 (204)	1750 (120.6)
GT35P10	3-1/2" SCH 10	3.73 - 3.84(94.7 - 97.5)	50 (68)	150 (204)	1750 (120.6)
GT35P5	3-1/2" SCH 5	3.80 - 3.91(96.5 - 99.3)	50 (68)	150 (204)	1750 (120.6)
GT4P80	4" SCH 80/XS	3.80 - 3.91(96.5 - 99.3)	50 (68)	150 (204)	1750 (120.6)
GT390T		3.90 - 4.01(99.1 - 101.9)	50 (68)	150 (204)	1750 (120.6)
GT4P40	4" SCH 40/STD	4.00 - 4.11(101.6 - 104.4)	50 (68)	150 (204)	1750 (120.6)
GT5PXXS	5" XXS	4.03 - 4.25(102.4 - 108.0)	50 (68)	150 (204)	1750 (120.6)
GT4P10	4" SCH 10	4.23 - 4.34(107.4 - 110.2)	50 (68)	150 (204)	1750 (120.6)
GT4P5	4" SCH 5	4.28 - 4.47(108.7 - 113.5)	200 (271)	380 (515)	1750 (120.6)
GT5P160	5" SCH 160	4.28 - 4.47(108.7 - 113.5)	200 (271)	380 (515)	1750 (120.6)
GT442T		4.42 - 4.58(112.3 - 116.3)	200 (271)	380 (515)	1750 (120.6)
GT5P120	5" SCH 120	4.53 - 4.69(115.1 - 119.1)	200 (271)	380 (515)	1250 (86.2)
GT466T		4.66 - 4.82(118.4 - 122.4)	200 (271)	380 (515)	1250 (86.2)
GT5P80	5" SCH 80/XS	4.78 - 4.91(121.4 - 124.7)	200 (271)	380 (515)	1250 (86.2)
GT6PXXS	6" XXS	4.87 - 5.11(123.7 - 129.8)	200 (271)	380 (515)	1250 (86.2)
GT5P40	5" SCH 40/STD	5.02 - 5.14(127.5 - 130.6)	200 (271)	380 (515)	1250 (86.2)
GT514T		5.14 - 5.26(130.6 - 133.6)	200 (271)	380 (515)	1250 (86.2)
GT6P160	6" SCH160	5.16 - 5.37(131.1 - 136.4)	200 (271)	380 (515)	1250 (86.2)
GT5P10	5" SCH10	5.27 - 5.39(133.9 - 136.9)	200 (271)	380 (515)	1250 (86.2)
GT5P5	5" SCH 5	5.32 - 5.44(135.1 - 138.2)	200 (271)	380 (515)	1250 (86.2)
GT534T		5.34 - 5.51(135.6 - 140.0)	200 (271)	380 (515)	1250 (86.2)
GT6P120	6" SCH120	5.47 - 5.64(138.9 - 143.3)	200 (271)	380 (515)	1250 (86.2)
GT562T		5.62 - 5.76(142.7 - 146.3)	200 (271)	380 (515)	1250 (86.2)
GT6P80	6" SCH 80/XS	5.73 - 5.87(145.5 - 149.1)	200 (271)	380 (515)	1250 (86.2)
GT588T		5.88 - 6.03(149.4 - 153.2)	200 (271)	380 (515)	1250 (86.2)
GT6P40	6" SCH 40/STD	6.04 - 6.17(153.4 - 156.7)	200 (271)	380 (515)	1250 (86.2)
GT618T		6.18 - 6.32(157.0 - 160.5)	200 (271)	380 (515)	1250 (86.2)
GT6P10	6" SCH10	6.33 - 6.47(160.8 - 164.3)	200 (271)	380 (515)	1250 (86.2)
GT6P5	6" SCH5	6.38 - 6.52(162.1 - 165.6)	200 (271)	380 (515)	1250 (86.2)
GT653T		6.53 - 6.67(165.9 - 169.4)	200 (271)	380 (515)	750 (51.7)
GT668T		6.68 - 6.82(169.7 - 173.2)	200 (271)	380 (515)	750 (51.7)

(1) NEVER use a test pressure greater than the weakest component in the system can safely handle. DO NOT use on coated pipe at any pressure: Contact EST to determine use.

WARNING!:
- THE MAXIMUM TEMPERATURE EXPOSURE FOR A URETHANE SEAL IS 180°F (82°C).
- THE MAXIMUM TEMPERATURE EXPOSURE FOR A NEOPRENE SEAL IS 225°F (107°C).
- THE MAXIMUM TEMPERATURE EXPOSURE FOR AN EPDM SEAL IS 270°F (132°C).
- THE MAXIMUM TEMPERATURE EXPOSURE FOR A SILICONE AND FLUOROELASTOMER (VITON® or EQUIVALENT SEAL IS 400°F (204°C).
***** PLEASE NOTE - LOW TEMPERATURE LIMITS VARY FOR THE SILICONE AND FLUOROELASTOMER *****

CONTACT EST CUSTOMER SERVICE FOR ANY INQUIRIES REGARDING ALTERNATE MATERIAL SEALS.

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