

Operating Procedures for GripTight® High Pressure Test Plug

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WARNING

- ⚠ Pressure testing is inherently dangerous. Strict adherence to these operating procedures and industry safety practices could prevent injury to personnel.
- ⚠ GripTight Test Plugs are for use in all Carbon Steel with a hardness up to HRC 20. Contact EST Customer Service if pipes to be tested have a hardness greater than HRC 20.
- ⚠ Contact EST Group Customer Service if the test pressure required exceeds the maximum plug rating or is in excess of 80% of specified minimum yield stress for host pipe, tube, or equipment.
- ⚠ All personnel must be clear of the GripTight Test Plug during pressure testing. Never stand in the potential path of a GripTight Test Plug during testing.
- ⚠ Pressures must never exceed the maximum pressure rating of the weakest component in a system.
- ⚠ For safety, an incompressible liquid such as water should be used as the test medium. Residual air or gas should be displaced from the pipe prior to testing. For horizontal testing applications, an optional GripTight Vent Cap (GTVC) will allow for venting of most air or gas. The GTVC is available for most GripTight Test Plugs.
- ⚠ GripTight Test Plugs are designed to withstand test pressure in the direction shown below. Do not use these plugs for reverse pressure applications.
- ⚠ Plug sizes and operating pressures do not apply to coated pipe. Contact EST Customer Service prior to using a GripTight Test Plug on any type of coated pipe or tube.
- ⚠ The maximum temperature exposure for urethane seals is 180°F (82°C). Contact EST Customer Service if high temperature material is needed.

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

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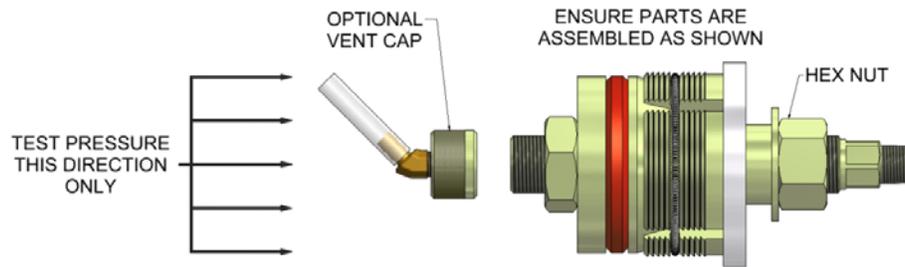
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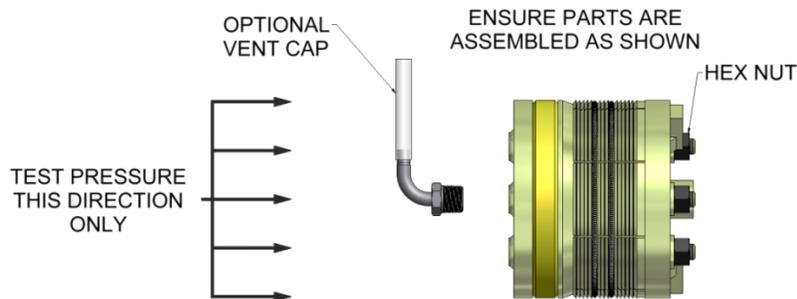
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Single Shaft 1" Through 6" GripTight High Pressure Test Plugs



Multi Shaft 8" GripTight High Pressure Test Plugs

1. Test Preparation

Perform the steps outlined below prior to performing your pressure test.

Step/Action	Additional Action/Information/Result
1.1. Visually inspect the plug for worn or damaged components. Replace as needed.	<ul style="list-style-type: none"> The surface between the Cone and Grippers must be free of friction producing dirt or corrosion.
1.2. Lubricate tapered surface of the cone.	<ul style="list-style-type: none"> Apply a lubricant such as Molykote® DX Paste or SAE 10W motor oil 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 gripper back. Lubricant <u>must not</u> be on seal. The Seal should not contain any deformations, cuts or scores.

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Step/Action	Additional Action/Information/Result								
1.3. Tighten the Hex Nut(s) so the Grippers move freely to the end of the tapered Cone surface.	<table border="1"> <thead> <tr> <th data-bbox="654 296 1003 331"><i>If</i></th> <th data-bbox="1003 296 1372 331"><i>then</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="654 331 1003 443">Grippers move freely to end of the tapered Cone surfaces,</td> <td data-bbox="1003 331 1372 443">Loosen the Hex Nut(s) back to its/their original position(s) and go to the next step.</td> </tr> <tr> <td data-bbox="654 443 1003 1266">Grippers do not fully retract,</td> <td data-bbox="1003 443 1372 1266">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 Paste or SAE 10W motor oil. 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.</td> </tr> <tr> <td data-bbox="654 1266 1003 1415">You cannot easily tighten the Hex Nut(s) to allow full Gripper expansion,</td> <td data-bbox="1003 1266 1372 1415">Do not use this plug for testing. Contact EST Group Customer Service for assistance.</td> </tr> </tbody> </table>	<i>If</i>	<i>then</i>	Grippers move freely to end of the tapered Cone surfaces,	Loosen the Hex Nut(s) back to its/their original position(s) and go to the next step.	Grippers do not fully retract,	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 Paste or SAE 10W motor oil. 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.	You cannot easily tighten the Hex Nut(s) to allow full Gripper expansion,	Do not use this plug for testing. Contact EST Group Customer Service for assistance.
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1.4. Verify that the pipe size and schedule stamped on the GripTight Test Plug is equivalent to the size of the pipe you are testing.	<p>NOTE: 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.</p>								
1.5. Clean and dry the pipe ID.	<ul style="list-style-type: none"> All moisture, debris, and excessive scale must be removed from the pipe ID to ensure a proper seal is established during the pressure test. 								

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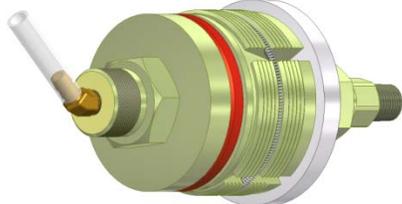
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Step/Action	Additional Action/Information/Result
1.6. Liberally spread antiseize over both sides of the Hardened Washer and on the threads of the Shaft.	<p>Failure to properly lubricate Shaft thread and Washer surfaces may result in unsafe operating conditions or plug leakage.</p> <div style="border: 2px solid red; padding: 10px; text-align: center;"> <p>CAUTION</p> <p>⚠ Special caution must be taken when applying lubricant and handling the GripTight Test Plug. The lubricant must not come in contact with the Seal or inside of pipe or tube.</p> </div>

2. Installing and Using the GripTight Vent Cap

Perform the steps outlined below if you are using the optional GripTight Vent Cap (sold separately – Contact EST Group Customer Service for availability). Use of a GripTight Vent Cap to remove air from horizontal test applications is strongly recommended (see Table 3: GripTight Vent Cap Size Chart for sizing). If you are not using the GripTight Vent Cap during your pressure test, then proceed to Section 3: Installing and Using the Safety Gag or Pipe Restraint.

Step/Action	Additional Action/Information/Result
2.1. Thread the GripTight Vent Cap on or into plug on the opposite side of the hex nut(s).	<ul style="list-style-type: none"> The GripTight Vent Cap is now installed on the plug. 
2.2. Cut or bend the Plastic Tube so that the open end just fits within the pipe ID. The open end of the plastic tube should be at the highest point within the pipe ID.	<ul style="list-style-type: none"> The Plastic Tube should easily fit within the pipe.

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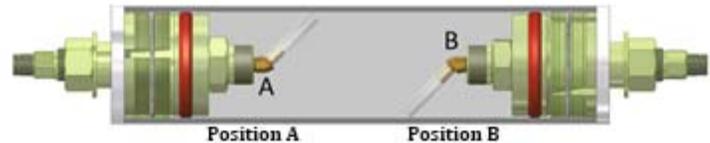
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Step/Action	Additional Action/Information/Result	
	If	Then
2.3. Ensure GripTight Vent Cap is positioned correctly within the pipe prior to plug installation.	Venting air from the pipe prior to hydrostatic testing – GripTight Test Plug and Vent Cap (Position A),	Install the GripTight Test Plug in the pipe with the GripTight Vent Cap Plastic Tube pointing up – towards the 12 o'clock position.
	To remove test medium from the pipe following hydrostatic testing – GripTight Test Plug and Vent Cap (Position B),	Install the GripTight Test Plug in the pipe with the GripTight Vent Cap Plastic Tube pointing down – towards the 6 o'clock position.
	Using GripTight Vent Caps in Position A and Position B,	Fill the pipe from Position B and vent from Position A.



- To drain the test medium using low pressure air, introduce the compressed air through plug A. The hydrostatic test medium will be pushed out of the pipe through plug B. The pipe is drained of the test medium when air begins to come out of plug B. It may be helpful to attach a hose to plug B during this process to control the test medium.

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3. Installing and Using the Safety Gag or Pipe Restraint

Perform the following steps if you are using the optional Safety Gag. Regardless of test pressure, Safety Gags are strongly recommended for every application as they enhance the safety of the test system configuration. A Pipe Restraint is recommended for thin walled pipes or tubes (wall thickness less than Schedule 10 or equivalent wall thickness). If a Safety Gag or Pipe Restraint is not being used, skip to Section 4: Performing the Pressure Test.

Step/Action	Additional Action/Information/Result	
3.1. Install Safety Gag Pipe Clamps or Pipe Restraints onto pipe being tested. If required, the safety chains may be placed between the Pipe Clamps or the Pipe Restraints. This configuration is acceptable as long as the placement of the chains does not prevent the Safety Gag or Pipe Restraint from tightening securely on to the outside of the pipe or tube.	<i>If</i>	<i>Then</i>
	Using a Safety Gag	Install the Safety Gag pipe clamps onto the pipe.
3.2. Tighten the bolts enough to prevent the Safety Gag or Pipe Restraint from moving. The Safety Gag or Pipe Clamp should not be able to slide or move when pushed or pulled.	Using a Pipe Restraint with or without Safety Chains	Position the Pipe Restraint over the area where the GripTight Test Plug is installed.
	<p style="text-align: center;">CAUTION</p> <p>⚠ GripTight Test Plug Seals and Grippers are energized by test pressure. During pressurization, the Shaft(s) may move slightly. This is normal and expected. A small amount of slack in the Safety Chain(s) is required for this movement and energization to occur.</p>	

3.3. Insert the GripTight Test Plug into the pipe to be tested. Follow remaining GripTight Test Plug installation procedure as per the steps in Section 4: Performing the Pressure Test.

3.4. Slip the Link(s) over the Shaft(s) before introducing test medium or test pressure. Do not place the Link(s) under the GripTight Test Plug Hex Nut(s).



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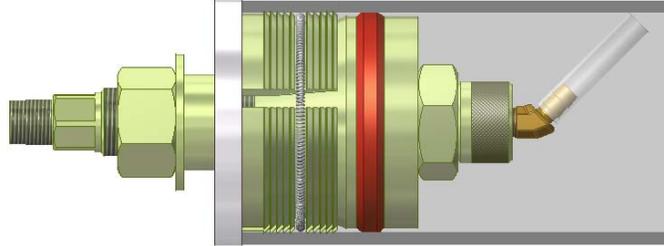
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4. Performing the Pressure Test

Perform the steps outlined below to perform a pressure test with the GripTight High Pressure Test Plug.

Step/Action	Additional Action/Information/Result
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- 4.1. Place the GripTight Test Plug inside the pipe. The GripTight Test Plug must be able to fit with the full length of the Grippers inside the pipe.



Note: The pipe ID must be clean, dry, and free of rust, scale, or debris.

- 4.2. Center the GripTight Test Plug within the pipe and hand tighten the Hex Nut(s) until the test plug has gripped the pipe ID.

Note: Slight wiggling of the plug may allow for further hand tightening of the Hex Nut(s).

If	then
Using multi-shaft GripTight Test Plugs horizontally,	Tighten the bottom Hex Nuts first to center the GripTight Test Plug within the pipe.
Using a multi-shaft GripTight Test Plug,	Incrementally tighten the Hex Nuts in a star pattern.

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Step/Action	Additional Action/Information/Result
<p>4.3. Tighten the Hex Nut(s) with a calibrated torque wrench and an appropriately sized crowfoot wrench or deep well socket, as applicable. Crowfoot wrenches are recommended for 6" and smaller (single shaft) plugs, while deep well sockets are recommended for 8" and larger (multi shaft) plugs. See Table 1 and 2 for nominal and maximum installation torques.</p>	<p style="text-align: center;">CAUTION</p> <ul style="list-style-type: none"> ⚠ Using a wrench on the Shaft Hex will prevent the Shaft on Single-Shaft GripTight Test Plugs from spinning during installation. ⚠ The torque wrench being used must be calibrated to ensure that the correct amount of torque is being applied. An uncalibrated torque wrench may cause the operator to tighten the Hex Nut(s) either too much or too little. This may result in unsafe operating conditions or prevent testing from being carried out successfully. ⚠ Some crowfoot wrenches may not be able to apply the required amount of torque for some GripTight Test Plugs. Before attempting to install, make sure the equipment being used is of adequate strength for the application. Using an insufficiently strong crowfoot wrench may cause injury to personnel or damage to the GripTight Test Plug. ⚠ Failure to apply at least the nominal installation torque may result in unsafe operation or leakage past the plug. ⚠ If a crowfoot wrench is used, ensure wrench is used at a 90° angle from torque wrench. Failure to do so can result in significant and dangerous over-torque. See torque wrench instructions for use of crowfoot wrench. 
<p>4.4. Install the pressure source. Inspect connections to ensure they are leak tight.</p>	<ul style="list-style-type: none"> • For GripTight Test Plugs not being used to pressurize or vent the system, install a pipe cap (1" thru 6" GripTight Test Plugs) or pipe plug (8" GripTight Test Plugs) with a pressure rating that is greater than or equal to the maximum test pressure of the GripTight Test Plug being used.
<p>4.5. Fill the pipe with test medium.</p>	 <ul style="list-style-type: none"> • Introduce the test medium while evacuating any residual air or gas. Once all residual air or gas is vented, cap the GripTight Test Plug not connected to a pressure source. • Slowly introduce the test pressure. Test pressure must never exceed the maximum pressure rating of the weakest component in the test system. • Maximum test pressures based on 80% yield of ASTM A106 Grade B pipe is listed in Table 1 and 2.

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Step/Action	Additional Action/Information/Result
<p>4.6. Verify that GripTight Test Plug movement is within specified limits.</p> <div data-bbox="191 342 673 537" style="border: 1px solid red; padding: 5px;"> <p style="text-align: center;">Warning</p> <p>⚠ Never re-torque the hex nut while the plug is pressurized. Release all pressure prior to adjusting GripTight Test Plug torque.</p> </div>	<ul style="list-style-type: none"> • Movement of the Shaft up to 0.10" (2.5 mm) is expected and acceptable. If Shaft movement is greater than 0.10" (2.5 mm), immediately release all pressure and remove the GripTight Test Plug. <ul style="list-style-type: none"> • Examine the GripTight Test Plug components for wear. Replace as necessary. • Reinstall the GripTight Test Plug, following all instructions provided. <div data-bbox="743 516 1425 663" style="border: 1px solid gray; padding: 5px;"> <p>Note: Should movement of the Shaft or GripTight Test Plug after reinstallation exceed 0.10" (2.5 mm), stop the test, release all test pressure, and contact EST Group customer Service for technical assistance.</p> </div>
<p>4.7. Perform the pressure test.</p>	<ul style="list-style-type: none"> • Imperfections within the pipe being tested may cause small GripTight Test Plug leaks. • Additional tightening of the Hex Nut(s) may be required. Release all test pressure before making adjustments to the GripTight Test Plug. • Do not exceed the maximum torque for the GripTight Test Plug. See Table 1 and 2 for torque values.
<p>4.8. Release all pressure from the system once the test is completed.</p> <div data-bbox="191 995 673 1226" style="border: 1px solid red; padding: 5px;"> <p style="text-align: center;">Warning</p> <p>⚠ Incrementally loosen Hex Nuts on multi-shaft plugs using the same star pattern as installation. Failure to do so may over stress the shafts and nuts and cause deformation or damage.</p> </div>	<ul style="list-style-type: none"> • If using a GripTight Vent Cap to recover test medium, apply low pressure air to plug in Position A (see Section 2.3 reference). • Loosen the Hex Nut(s), remove the GripTight Test Plug from the pipe and then inspect the GripTight Test Plug for any deformation or damage. • If the plug is difficult to remove, wait for the seal to relax (up to 2-3 minutes) and a gentle wiggle of the shaft(s) or tap on the positioning washer, will help.
<div data-bbox="191 1241 1435 1367" style="border: 1px solid red; padding: 5px;"> <p style="text-align: center;">Warning</p> <p>⚠ Some test medium may remain inside the pipe after a hydrostatic test has been conducted. Caution must be taken when loosening Hex Nut(s) and removing GripTight Test Plugs to prevent unsafe conditions from occurring during removal, e.g. water spills onto a catwalk creating slippery conditions.</p> </div>	

5. Storage

- Prior to storing, clean and dry the GripTight Test Plug. Do not allow the Seal(s) to come in contact with any cleaning chemicals or solvents. Exposure to these chemicals may damage the Seal(s).
- Re-lubricate the Shaft threads and between the Hex Nut(s) and mating surface(s) as previously described in Section 1: Test Preparation. Store these instructions with each GripTight Test Plug.
- Store the GripTight Test Plug in an area out of direct exposure to sun or ultraviolet (UV) light. Do not store in an area where it will be subjected to heat in excess of 180°F (82°C). Excessive heat or UV light exposure will damage and prematurely degrade the Seal(s).

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Table 1 Single Shaft (1" thru 6") GripTight Test Plug Installation Torque Specifications

SALES PART NUMBER	PIPE SIZE AND SCHEDULE inches	CROWFOOT WRENCH SIZE inches	FUNCTIONAL ID RANGE inches (mm)	NOMINAL INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM TEST PRESSURE ⁽¹⁾ PsiG (BarG)
GT1P80	1" SCH 80	3/4	.93 - 1.00 (23.6 - 25.4)	50 (68)	60 (81)	8600 (590)
GT1P40	1" SCH 40	3/4	1.01 - 1.09 (25.7 - 27.7)	50 (68)	60 (81)	6200 (430)
GT15PXXS	1-1/2" XXS	3/4	1.07 - 1.20 (27.2 - 30.5)	50 (68)	60 (81)	13900 (960)
GT1P10	1" SCH 10	3/4	1.07 - 1.20 (27.2 - 30.5)	50 (68)	60 (81)	5000 (350)
GT125P160	1-1/4" SCH 160	15/16	1.13 - 1.24 (28.7 - 31.5)	50 (68)	75 (102)	9600 (660)
GT1P5	1" SCH 5	15/16	1.13 - 1.24 (28.7 - 31.5)	50 (68)	75 (102)	2900 (200)
GT125P80	1-1/4" SCH 80	15/16	1.25 - 1.33 (31.8 - 33.8)	50 (68)	75 (102)	7200 (500)
GT125P40	1-1/4" SCH 40/STD	15/16	1.31 - 1.43 (33.3 - 36.3)	50 (68)	75 (102)	5100 (350)
GT15P160	1 1/2" SCH 160	15/16	1.31 - 1.43 (33.3 - 36.3)	50 (68)	75 (102)	9400 (650)
GT125P10	1 - 1/4" SCH 10	1-5/16	1.41 - 1.49 (35.8 - 37.8)	75 (102)	150 (204)	3900 (270)
GT125P5	1-1/4" SCH 5	1-5/16	1.47 - 1.61 (37.3 - 40.9)	75 (102)	150 (204)	2300 (160)
GT15P80	1-1/2" SCH 80	1-5/16	1.47 - 1.61 (37.3 - 40.9)	75 (102)	150 (204)	6500 (450)
GT2PXXS	2" XXS	1-5/16	1.47 - 1.61 (37.3 - 40.9)	75 (102)	150 (204)	12000 (830)
GT15P40	1-1/2" SCH 40/STD	1-5/16	1.58 - 1.66 (40.1 - 42.2)	75 (102)	150 (204)	4600 (320)
GT15P10	1-1/2" SCH 10	1-5/16	1.66 - 1.77 (42.2 - 45.0)	75 (102)	150 (204)	3400 (240)
GT2P160	2" SCH 160	1-5/16	1.66 - 1.77 (42.2 - 45.0)	75 (102)	150 (204)	9200 (640)
GT15P5	1-1/2" SCH 5	1-5/16	1.74 - 1.91 (44.2 - 48.5)	75 (102)	150 (204)	2000 (140)
GT25PXXS	2-1/2" XXS	1-5/16	1.74 - 1.91 (44.2 - 48.5)	75 (102)	150 (204)	12600 (870)
GT2P80	2" SCH 80/XS	1-5/16	1.91 - 1.99 (48.5 - 50.5)	75 (102)	150 (204)	5600 (390)
GT198T		1-5/16	1.98 - 2.06 (50.3 - 52.3)	75 (102)	150 (204)	see note 2
GT2P40	2" SCH 40/STD	1-5/16	2.04 - 2.12 (51.8 - 53.8)	75 (102)	150 (204)	3900 (270)
GT2P10	2" SCH 10	1-5/16	2.10 - 2.22 (53.3 - 56.4)	75 (102)	150 (204)	2700 (190)
GT25P160	2-1/2" SCH 160	1-5/16	2.10 - 2.22 (53.3 - 56.4)	75 (102)	150 (204)	8200 (570)
GT2P5	2" SCH 5	1-5/16	2.22 - 2.30 (56.4 - 58.4)	75 (102)	150 (204)	1600 (110)
GT25P80	2-1/2" SCH 80/XS	1-5/16	2.27 - 2.45 (57.7 - 62.2)	75 (102)	150 (204)	5900 (410)
GT3PXXS	3" XXS	1-5/16	2.27 - 2.45 (57.7 - 62.2)	75 (102)	150 (204)	11100 (770)
GT25P40	2-1/2" SCH 40/STD	1-7/8	2.44 - 2.54 (62.0 - 64.5)	150 (204)	300 (407)	4200 (290)
GT253T		1-7/8	2.53 - 2.63 (64.3 - 66.8)	150 (204)	300 (407)	see note 2
GT25P10	2-1/2" SCH 10	1-7/8	2.60 - 2.74 (66.0 - 69.6)	150 (204)	300 (407)	2400 (170)
GT3P160	3" SCH 160	1-7/8	2.60 - 2.74 (66.0 - 69.6)	150 (204)	300 (407)	7800 (540)
GT25P5	2"-1/2" SCH 5	1-7/8	2.68 - 2.78 (68.1 - 70.6)	150 (204)	300 (407)	1600 (110)
GT35PXXS	3-1/2" XXS	1-7/8	2.70 - 2.89 (68.6 - 73.4)	150 (204)	300 (407)	10200 (700)
GT3P80	3" SCH 80/XS	1-7/8	2.87 - 2.98 (72.9 - 75.7)	150 (204)	300 (407)	5200 (360)
GT296T		1-7/8	2.96 - 3.07 (75.2 - 78.0)	150 (204)	300 (407)	see note 2
GT3P40	3" SCH 40/STD	1-7/8	3.04 - 3.14 (77.2 - 79.8)	150 (204)	300 (407)	3700 (260)
GT4PXXS	4" XXS	1-7/8	3.12 - 3.32 (79.2 - 84.3)	150 (204)	300 (407)	9500 (660)
GT3P10	3" SCH 10	1-7/8	3.23 - 3.34 (82.0 - 84.8)	150 (204)	300 (407)	2000 (140)
GT3P5	3" SCH 5	1-7/8	3.30 - 3.41 (83.8 - 86.6)	150 (204)	300 (407)	1400 (100)

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Table 1 – Single Shaft (1" thru 6") GripTight Test Plug Installation Torque Specifications (continued)

SALES PART NUMBER	PIPE SIZE AND SCHEDULE inches	CROWFOOT WRENCH SIZE inches	FUNCTIONAL ID RANGE inches (mm)	NOMINAL INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM TEST PRESSURE ⁽¹⁾ PsiG (BarG)
GT35P80	3-1/2" SCH 80/XS	1-7/8	3.33 - 3.44 (84.6 - 87.4)	150 (204)	300 (407)	4800 (330)
GT4P160	4" SCH 160	1-7/8	3.41 - 3.57 (86.6 - 90.7)	150 (204)	300 (407)	7400 (510)
GT35P40	3-1/2" SCH 40/STD	1-7/8	3.52 - 3.63 (89.4 - 92.2)	150 (204)	300 (407)	3300 (230)
GT4P120	4" SCH 120	1-7/8	3.60 - 3.74 (91.4 - 95.0)	150 (204)	300 (407)	6000 (410)
GT35P10	3-1/2" SCH 10	1-7/8	3.73 - 3.84 (94.7 - 97.5)	150 (204)	300 (407)	1700 (120)
GT35P5	3-1/2" SCH 5	1-7/8	3.80 - 3.91 (96.5 - 99.3)	150 (204)	300 (407)	1200 (80)
GT4P80	4" SCH 80/XS	1-7/8	3.80 - 3.91 (96.5 - 99.3)	150 (204)	300 (407)	4500 (310)
GT390T		1-7/8	3.90 - 4.01 (99.1 - 101.9)	150 (204)	300 (407)	see note 2
GT4P40	4" SCH 40/STD	1-7/8	4.00 - 4.11 (101.6 - 104.4)	150 (204)	300 (407)	3100(210)
GT5PXXS	5" XXS	1-7/8	4.03 - 4.25 (102.4 - 108.0)	150 (204)	300 (407)	8500 (590)
GT4P10	4" SCH 10	1-7/8	4.23 - 4.34 (107.4 - 110.2)	150 (204)	300 (407)	1500 (100)
GT4P5	4" SCH 5	2-1/4	4.28 - 4.47 (108.7 - 113.5)	200 (271)	380 (515)	1100 (80)
GT5P160	5" SCH 160	2-1/4	4.28 - 4.47 (108.7 - 113.5)	200 (271.2)	380 (515.2)	7000 (480)
GT442T		2-1/4	4.42 - 4.58 (112.3 - 116.3)	200 (271.2)	380 (515.2)	see note 2
GT5P120	5" SCH 120	2-1/4	4.53 - 4.69 (115.1 - 119.1)	200 (271.2)	380 (515.2)	5500 (380)
GT466T		2-1/4	4.66 - 4.82 (118.4 - 122.4)	200 (271.2)	380 (515.2)	see note 2
GT5P80	5" SCH 80/XS	2-1/4	4.78 - 4.91 (121.4 - 124.7)	200 (271.2)	380 (515.2)	4000 (280)
GT6PXXS	6" XXS	2-1/4	4.87 - 5.11 (123.7 - 129.8)	200 (271.2)	380 (515.2)	8200 (570)
GT5P40	5" SCH 40/STD	2-1/4	5.02 - 5.14 (127.5 - 130.6)	200 (271.2)	380 (515.2)	2700 (190)
GT514T		2-1/4	5.14 - 5.26 (130.6 - 133.6)	200 (271.2)	380 (515.2)	see note 2
GT6P160	6" SCH160	2-1/4	5.16 - 5.37 (131.1 - 136.4)	200 (271.2)	380 (515.2)	6700 (460)
GT5P10	5" SCH10	2-1/4	5.27 - 5.39 (133.9 - 136.9)	200 (271.2)	380 (515.2)	1400 (100)
GT5P5	5" SCH 5	2-1/4	5.32 - 5.44 (135.1 - 138.2)	200 (271.2)	380 (515.2)	1100 (80)
GT534T		2-1/4	5.34 - 5.51 (135.6 - 140.0)	200 (271.2)	380 (515.2)	see note 2
GT6P120	6" SCH120	2-1/4	5.47 - 5.64 (138.9 - 143.3)	200 (271.2)	380 (515.2)	5100 (350)
GT562T		2-1/4	5.62 - 5.76 (142.7 - 146.3)	200 (271.2)	380 (515.2)	see note 2
GT6P80	6" SCH 80/XS	2-1/4	5.73 - 5.87 (145.5 - 149.1)	200 (271.2)	380 (515.2)	3900 (270)
GT588T		2-1/4	5.88 - 6.03 (149.4 - 153.2)	200 (271.2)	380 (515.2)	see note 2
GT6P40	6" SCH 40/STD	2-1/4	6.04 - 6.17 (153.4 - 156.7)	200 (271.2)	380 (515.2)	2500 (170)
GT618T		2-1/4	6.18 - 6.32 (157.0 - 160.5)	200 (271.2)	380 (515.2)	see note 2
GT6P10	6" SCH10	2-1/4	6.33 - 6.47 (160.8 - 164.3)	200 (271.2)	380 (515.2)	1200 (80)
GT6P5	6" SCH5	2-1/4	6.38 - 6.52 (162.1 - 165.6)	200 (271.2)	380 (515.2)	940 (70)
GT653T		2-1/4	6.53 - 6.67 (165.9 - 169.4)	200 (271.2)	380 (515.2)	see note 2
GT668T		2-1/4	6.68 - 6.82 (169.7 - 173.2)	200 (271.2)	380 (515.2)	see note 2

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Table 2 Multi Shaft (8") GripTight Test Plug Installation Torque Specifications

SALES PART NUMBER	PIPE SIZE AND SCHEDULE inches	DEEP WELL SOCKET SIZE inches	FUNCTIONAL ID RANGE inches (mm)	NOMINAL INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM INSTALLATION TORQUE ft-lbs (N-m)	MAXIMUM TEST PRESSURE ⁽¹⁾ PsiG (BarG)
GT8P160	8" SCH160	1 1/16	6.78 - 7.04 (172.2 - 178.8)	85 (115.2)	130 (176.3)	6400 (440)
GT8PXXS	8" XXS	1 1/16	6.85 - 7.09 (174.0 - 180.1)	85 (115.2)	130 (176.3)	6200 (430)
GT8P140	8" SCH 140	1 1/16	6.97 - 7.20 (177.0 - 182.9)	85 (115.2)	130 (176.3)	5700 (390)
GT8P120	8" SCH 120	1 1/16	7.16 - 7.37 (181.9 - 187.2)	85 (115.2)	130 (176.3)	5100 (350)
GT730T		1 1/16	7.30 - 7.48 (185.4 - 190.0)	85 (115.2)	130 (176.3)	see note 2
GT8P100	8" SCH 100	1 1/16	7.41 - 7.59 (188.2 - 192.8)	85 (115.2)	130 (176.3)	4100 (280)
GT8P80	8" SCH 80/XS	1 1/16	7.60 - 7.75 (193.0 - 196.9)	85 (115.2)	130 (176.3)	3400 (240)
GT769T		1 1/16	7.69 - 7.84 (195.3 - 199.1)	85 (115.2)	130 (176.3)	see note 2
GT8P60	8" SCH 60	1 1/16	7.78 - 7.93 (197.6 - 201.4)	85 (115.2)	130 (176.3)	2800 (190)
GT787T		1 1/16	7.87 - 8.02 (199.9 - 203.7)	85 (115.2)	130 (176.3)	see note 2
GT8P40	8" SCH 40/STD	1 1/16	7.95 - 8.10 (201.9 - 205.7)	85 (115.2)	130 (176.3)	2200 (150)
GT8P30	8" SCH 30	1 1/16	8.04 - 8.19 (204.2 - 208.0)	85 (115.2)	130 (176.3)	1900 (130)
GT8P20	8" SCH 20	1 1/16	8.10 - 8.25 (205.7 - 209.6)	85 (115.2)	130 (176.3)	1700 (120)
GT820T		1 1/16	8.20 - 8.35 (208.3 - 212.1)	85 (115.2)	130 (176.3)	see note 2
GT8P10	8" SCH 10	1 1/16	8.30 - 8.45 (210.8 - 214.6)	85 (115.2)	130 (176.3)	980 (70)
GT8P5	8" SCH 5	1 1/16	8.38 - 8.53 (212.9 - 216.7)	85 (115.2)	130 (176.3)	720 (50)

(1) NEVER use a test pressure greater than the maximum pressure rating of any component in the system. Test pressure specified in **Table 1 and 2** is equivalent to 80% of the pressure that will yield ASTM A106 Grade B pipe at minimum specification. The test pressure for higher and lower strength pipes will differ proportionally. The maximum test pressure for higher strength pipe must never exceed the highest test pressure listed for that pipe OD. DO NOT use with internally coated pipe: Contact EST Group for technical issues.

(2) Sizes which do not have a test pressure listed differ from standard pipe sizes. These plug sizes are normally used to test tubing. For use of these GripTight Test Plug sizes in tubing with a minimum yield strength of 35 ksi (240 MPa), the maximum test pressure is estimated by the test pressure listed for the equivalent or next larger pipe OD with the equivalent or next thinner wall thickness. The test pressure for higher and lower strength tubes will differ proportionally. The maximum test pressure for higher strength tubes must never exceed the highest test pressure listed for the equivalent or next larger pipe OD. NEVER use a test pressure that exceeds the maximum pressure rating of any component in the system.

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Table 3 GripTight Vent Cap Size Chart

Pipe Size inches (mm)	SCH 5	SCH 10	STD	SCH40	XS	SCH80	SCH120	SCH160	XXS
1.25 (31.8)	GTVC-0088	GTVC-0088	*	*	*	*	*	*	*
1.50 (38.1)	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	*	*	*
2.00 (50.8)	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	GTVC-0088	*	GTVC-0088	GTVC-0088
2.50 (63.5)	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0088	GTVS-0088	*	GTVC-0088	GTVC-0088
3.00 (76.2)	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	*	GTVC-0125	GTVC-0088
3.50 (88.9)	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	GTVC-0125	*	*	GTVC-0125
4.00 (101.6)	GTVC-0150	GTVC-0125							
5.00 (127.0)	GTVC-0150	GTVC-0125							
6.00 (152.4)	GTVC-0150								
8.00 (203.2)	GTVC-0075								

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