

OPERATING PROCEDURES FOR SERVICE LINE TEST PLUGS

WARNINGS

- ◆ **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 REASONS THE PLASTIC PIPE INSTITUTE RECOMMENDS USING AN INCOMPRESSIBLE LIQUID SUCH AS WATER AS THE TEST MEDIUM. WHEN USING ALTERNATIVE TEST MEDIUMS SUCH AS AIR OR OTHER NON-COMBUSTABLE GASES, ADDITIONAL SAFETY PRECAUTIONS NEED TO BE TAKEN TO PROTECT PERSONNEL AND EQUIPMENT FROM PIPE SYSTEM RUPTURE, THAT MAY RESULT IN SUDDEN, FORCIBLE, UNCONTROLLED MOVEMENT OF SYSTEM PIPING OR COMPONENTS, OR PARTS OF COMPONENTS.**

1. PRIOR TO USE, replace damaged or worn grippers and seal. The surface between the cone and grippers must be free of friction producing dirt or corrosion. Verify proper operation of the test plug by hand tightening the hex nut so that the grippers move freely to the end of the tapered cone surface. Threads should be kept well lubricated with antisieze. Inspect threads and apply antisieze if necessary before testing. If the nut cannot be easily advanced to allow full gripper expansion, **DO NOT USE THIS PLUG FOR TESTING** and contact the factory.
2. **The pipe size to be tested must be the same as the size specified on the plug.** Position the test plug in the clean, lubricant free pipe end until the collar is fully engage with the pipe. The pipe must be visible within the viewing hole on the collar. See Figure on page 2.
3. Center the plug within the pipe while hand tightening the hex nut. Tighten hex nut until the test plug has gripped the pipe i.d. Slight wiggling of the hand-tightened plug may allow further hand tightening of the hex nuts.
4. Tighten the hex nut to the installation torque specified in Table 1. Use of a calibrated torque wrench is recommended. **Failure to apply the installation torque specified could result in unsafe operation or leakage.**
5. USE OF A SAFETY GAG is a recommended safety device to protect personnel and equipment should something unforeseen occur. When using the Safety Gag, it should be installed behind the collar area of the pipe.
6. **Install the pressure source to the plug, leak tight. The plug is now ready for testing.**
7. Pressure testing can result in failure of components within the system being tested, such as the pipe, connections, valves, fittings, gauges, etc. Prior to pressure testing adequate measures need to be taken so that the safety of personnel and equipment is not compromised. * The restraint collar is used to prevent the pipe from swelling as the test pressure is increased.

WARNING:

PIPE SYSTEM PRESSURE TESTING IS PERFORMED TO DISCOVER UNACCEPTABLE FAULTS IN A PIPING SYSTEM. PRESSURE TESTING MAY CAUSE SUCH FAULTS TO FAIL BY LEAKING OR RUPTURING. THIS MAY RESULT IN CATASTROPHIC FAILURE. PIPING SYSTEM RUPTURE MAY RESULT IN SUDDEN, FORCIBLE, UNCONTROLLED MOVEMENT OF THE SYSTEM PIPING OR COMPONENTS, OR PARTS OF COMPONENTS.



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PART NUMBER	APPLICATION	PIPE ID RANGE		PIPE ID RANGE		MAXIMUM PRESSURE WITH RESTRAINING COLLAR		NORMAL INSTALLATION TORQUE		MAXIMUM INSTALLATION TORQUE	
		MIN (In)	MAX (In)	MIN (mm)	MAX (mm)	P.S.I.	BAR	ft-lbs	kg-m	ft-lbs	kg-m
GT-50CTS-SDR-11	1/2" CTS SDR 11	0.48	0.50	12.2	12.7	150	10.3	6	.83	10	1.38
GT-50IPS-SDR-9	1/2" IPS SDR 9-11	0.60	0.70	15.2	17.8	150	10.3	6	.83	10	1.38
GT-75CTS-SDR-11	3/4" CTS SDR 11	0.67	0.73	17.0	18.5	150	10.3	6	.83	10	1.38
GT-75CTS-077W	3/4" CTS .077-.090 WALL	0.67	0.73	17.0	18.5	150	10.3	6	.83	10	1.38
GT-75IPS-SDR-11	3/4" IPS SDR 11-13.5	0.81	0.91	20.6	23.1	150	10.3	6	.83	10	1.38
GT-1CTS-121W	1" CTS .121-.125 WALL	0.85	0.89	21.6	22.6	150	10.3	6	.83	10	1.38
GT-1CTS-SDR-9	1" CTS SDR 9	0.85	0.89	21.6	22.6	150	10.3	6	.83	10	1.38
GT-1CTS-SDR-11	1" CTS SDR 11	0.89	0.93	22.6	23.6	150	10.3	6	.83	10	1.38
GT-1CTS-099W	1" CTS .099-.101 WALL	0.90	0.93	22.9	23.6	150	10.3	6	.83	10	1.38
GT-1CTS-SDR-114	1" CTS SDR 11.4	0.92	1.01	23.4	25.7	150	10.3	6	.83	10	1.38
GT-1CTS-062W	1" CTS .062-.090 WALL	0.92	1.01	23.4	25.7	150	10.3	15	2.07	25	3.46
GT-1CTS-SDR-125	1" CTS SDR 12.5	0.92	1.01	23.4	25.7	150	10.3	15	2.07	25	3.46
GT-1IPS-SDR-9	1" IPS SDR 9	0.97	1.04	24.6	26.4	150	10.3	15	2.07	25	3.46
GT-1IPS-SDR-11	1" IPS SDR 11-13.5	1.02	1.14	25.9	29.0	150	10.3	15	2.07	25	3.46
GT-125CTS-SDR-11	1-1/4" CTS SDR 11	1.09	1.13	27.7	28.7	150	10.3	15	2.07	25	3.46
GT-125IPS-SDR-7	1-1/4" IPS SDR 7	1.10	1.20	27.9	30.5	150	10.3	15	2.07	25	3.46
GT-125CTS-SDR-062	1-1/4" CTS .062-.121 WALL	1.10	1.26	27.9	32.0	150	10.3	15	2.07	50	6.91
GT-125CTS-SDR-15	1-1/4" CTS SDR 15	1.10	1.26	27.9	32.0	150	10.3	15	2.07	50	6.91
GT-125IPS-SDR-9	1-1/4" IPS SDR 9-10	1.23	1.34	31.2	34.0	150	10.3	15	2.07	50	6.91
GT-15CTS-SDR-11	1-1/2" CTS SDR 11	1.28	1.33	32.5	33.8	150	10.3	15	2.07	50	6.91
GT-125IPS-SDR-11	1-1/4" IPS SDR 11-13	1.30	1.43	33.0	36.3	150	10.3	15	2.07	50	6.91
GT-15IPS-SDR-9	1-1/2 IPS SDR 9-9.33	1.41	1.51	35.8	38.4	150	10.3	15	2.07	50	6.91
GT-15IPS-SDR-11	1-1/2" IPS SDR 11-13.5	1.49	1.64	37.8	41.7	150	10.3	15	2.07	50	6.91

WARNING:

THE PIPE SYSTEM UNDER TEST AND ANY CLOSURES IN THE TEST SECTION SHOULD BE RESTRAINED AGAINST SUDDEN UNCONTROLLED MOVEMENT FROM CATASTROPHIC FAILURE. TEST EQUIPMENT SHOULD BE EXAMINED BEFORE PRESSURE IS APPLIED TO INSURE THAT IT IS TIGHTLY CONNECTED. ALL LOW PRESSURE FILLING LINES AND OTHER ITEMS NOT SUBJECT TO THE TEST PRESSURE SHOULD BE DISCONNECTED OR ISOLATED.

WARNING:

TAKE SUITABLE PRECAUTIONS TO ELIMINATE HAZARDS TO PERSONNEL NEAR LINES BEING TESTED. KEEP PERSONNEL A SAFE DISTANCE AWAY FROM THE TEST SECTION DURING TESTING.

- Fill the pipe with test medium. If hydrostatic testing, all air or gas needs to be vented from the piping system prior to pressurizing. Slowly introduce the test pressure. The test pressure must never exceed the maximum pressure listed in the table.
- As pressure increases, movement of the shaft as large as .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 .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 .10"(2.54mm), contact the factory for technical assistance.
- At the conclusion of the test, release **ALL** pressure. Insure pressure has been released BEFORE loosening the hex nut. Remove and inspect the plug. Any plug component, which is worn or damaged, must be replaced before attempting further testing. Contact factory for replacement part information.
- Prior to storing, dry all parts of the plug and lubricate the shaft threads. Store these instructions with the plug.

QUESTIONS? Contact EST Group Customer Service at any of the following locations with questions.

In USA and Canada: tel: 800-355-7044, fax: 215-721-1101, e-mail: est-info@curtisswright.com

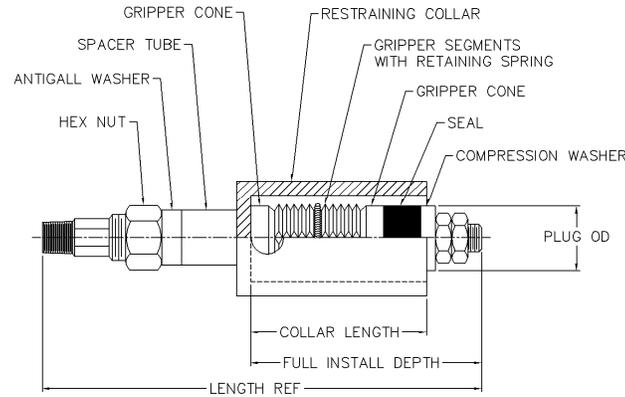
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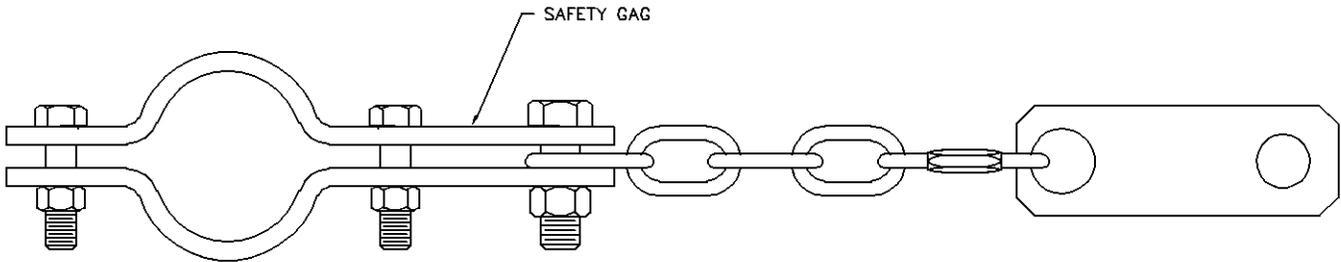
On the Internet: <http://estgroup.cwfc.com>

EST Group is a business unit of Curtiss-Wright Flow Control Company. **EST Group** provides a complete range of repair products, services and replacement parts covering the life cycle of tubular heat exchangers and condensers; additionally EST Group provides products and services to facilitate pressure testing pipe, piping systems, pressure vessels and their components. Visit EST Group on the Internet at <http://estgroup.cwfc.com>.

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PART NUMBER	APPLICATION	PLUG ODS		LENGTH		COLLAR LENGTH		FULL INSTALLTION DEPTH	
		<i>In</i>	<i>mm</i>	<i>In</i>	<i>mm</i>	<i>In</i>	<i>mm</i>	<i>In</i>	<i>mm</i>
GT-50CTS-SDR-11	1/2" CTS SDR 11	.47	11.9	5 1/16	128.6	2	50.8	2 3/8	60.3
GT-50IPS-SDR-9	1/2" IPS SDR 9-11	.57	14.5	5 1/16	128.6	1 7/8	47.6	2 3/8	60.3
GT-75CTS-SDR-11	3/4" CTS SDR 11	.65	16.5	5 1/16	128.6	1 11/16	42.9	2 3/8	60.3
GT-75CTS-077W	3/4" CTS .077-.090 WALL	.65	16.5	5 1/16	128.6	1 11/16	42.9	2 3/8	60.3
GT-75IPS-SDR-11	3/4" IPS SDR 11-13.5	.78	19.8	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-121W	1" CTS .121-.125 WALL	.80	20.3	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-SDR-9	1" CTS SDR 9	.80	20.3	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-SDR-11	1" CTS SDR 11	.84	21.3	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-099W	1" CTS .099-.101 WALL	.87	22.1	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-SDR-114	1" CTS SDR 11.4	.87	22.1	5 1/16	128.6	1 13/16	46.0	2 5/16	58.7
GT-1CTS-062W	1" CTS .062-.090 WALL	.89	22.6	6	152.4	2 5/16	58.7	3 1/8	79.4
GT-1CTS-SDR-125	1" CTS SDR 12.5	.89	22.6	6	152.4	2 5/16	58.7	3 1/8	79.4
GT-1IPS-SDR-9	1" IPS SDR 9	.89	22.6	6	152.4	2 5/16	58.7	3 1/8	79.4
GT-1IPS-SDR-11	1" IPS SDR 11-13.5	.97	24.6	6	152.4	2 5/16	58.7	3	76.2
GT-125CTS-SDR-11	1-1/4" CTS SDR 11	1.03	26.2	6	152.4	2 3/8	60.3	3 1/8	79.4
GT-125IPS-SDR-7	1-1/4" IPS SDR 7	1.03	26.2	6	152.4	2 3/8	60.3	3 1/8	79.4
GT-125CTS-SDR-062	1-1/4" CTS .062-.121 WALL	1.07	27.2	6 5/8	168.3	2 3/8	60.3	3 1/8	79.4
GT-125CTS-SDR-15	1-1/4" CTS SDR 15	1.07	27.2	6 5/8	168.3	2 3/8	60.3	3 1/8	79.4
GT-125IPS-SDR-9	1-1/4" IPS SDR 9-10	1.19	30.2	6 5/8	168.3	2 1/4	57.2	3 1/8	79.4
GT-15CTS-SDR-11	1-1/2" CTS SDR 11	1.19	30.2	6 5/8	168.3	2 3/8	60.3	3 1/8	79.4
GT-125IPS-SDR-11	1-1/4" IPS SDR 11-13	1.25	31.8	6 5/8	168.3	2 1/4	57.2	3 1/8	79.4
GT-15IPS-SDR-9	1-1/2" IPS SDR 9-9.33	1.35	34.3	7	177.8	2 9/16	65.1	3 9/16	90.5
GT-15IPS-SDR-11	1-1/2" IPS SDR 11-13.5	1.41	35.8	7	177.8	2 9/16	65.1	3 9/16	90.5



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