

Technical Brief - EST Group**DESCRIPTION**

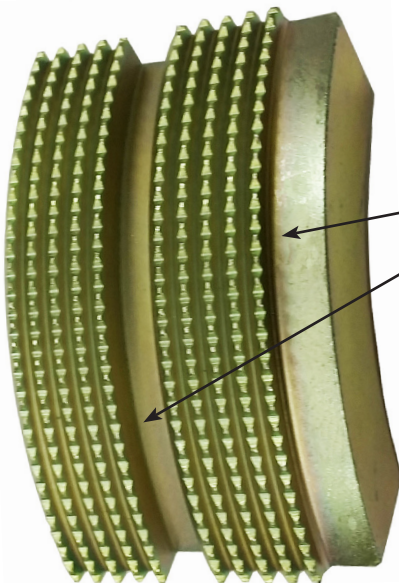
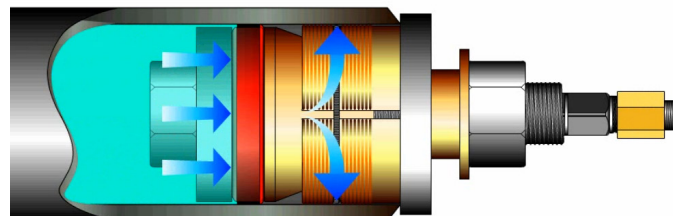
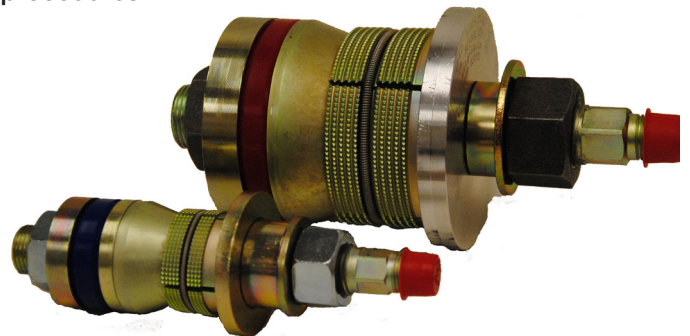
EST Group's GripTight MAX Test Plug is a revolutionary new plug design which significantly increases the range of pipe materials and pressures that can be tested. It is highly effective in applications such as down hole / well-head piping, high pressure steam systems and in the replacement of older piping with newer high alloy hardened pipe materials used in refineries and chemical plants. It is also effective for testing non-metallic materials such as Fiberglass Reinforced Plastic (FRP) and Glass Reinforced Epoxy (GRE) piping systems.

BASIC OPERATIONS

- Similar to standard GripTight® plugs, GripTight MAX plugs are inserted into the pipe, (with recommended vents) and tightened to manufacturer's specifications.
- The patent-pending design of the dual serrated grippers provides additional gripping points around the pipe wall to provide the strength necessary to secure the plug to meet the higher test pressure requirements.
- As the pressure increases the seal and grippers are energized. This provides the additional sealing necessary to prevent leakage. Thus as with all GripTight designs, the greater the pressure, the greater the grip!

FEATURES AND BENEFITS

- Patent-pending dual-serrated gripper design provides more gripping points on inside pipe surfaces
- Test pressures to 15000 PsiG (1030 BarG)
- New hardened shaft increases durability, plug life and reduces wear
- Stocked sizes for NPS ranging from 1" to 8" (DN25 - DN200), larger sizes up to 24" (DN 600) available on request
- Safe and reliable testing at higher pressures
- Effective for testing non-metallic pipe such as FRP and GRE
- Facilitates testing in accordance with ASME PCC-2 and ASME Boiler and Pressure Vessel Codes
- Saves over 90% in testing time vs. welded-on end cap testing procedures

**DUAL-
SERRATED
GRIPPERS**

See the time savings for yourself!

Significant time and effort is saved when hydrotesting pipe spools, pipe racks and process modules.

GripTight MAX eliminates the time consuming process of welding on end caps, then cutting them off and re-machining the pipe end. EST Group's range of high pressure test plugs offer a fast, safe and reusable solution.

GripTight MAX high pressure test plugs use the proven self gripping feature combined with its dual-serrated gripper design to safely, quickly, and effectively test pipe.

For example, on the right (Table 1) a comparison is made for the time and technicians needed to test one typical pipe spool using the GripTight MAX test plugs vs. the conventional welded end cap method.¹

The results are significant with almost 108 man hours being saved using the GripTight MAX plug!

Table 1 TIME SAVINGS USING GRIPTIGHT MAX TEST PLUG

Testing with welded end caps - plain end pipe - Typical pipe rack						
# of Pipes	Pipe Size	#tests	Pipe Ends	Cut, Prep and Weld Time / Test (1)(2) (man hours per end)	Technicians needed	Time (man-hours)
2	2" STD	1	4	1	1	4
2	3" STD	1	4	1.3	1	5.2
2	4" STD	1	4	1.5	1	6
2	6" SCH 40	1	4	2	2	16
1	6" SCH 80	1	2	2.5	2	10
1	8" STD	1	2	2.6	2	10.4
1	12" STD	1	2	5.2	2	20.8
1	16" STD	1	2	6.6	3	39.6
					Total Time	112
(1) All weld times based on Estimators Pipe Handbook. Does not include cutting off, re-beveling or stress relieving time.						
(2) Time will vary depending on skill level of welders and equipment type.						
GripTight MAX™ Test Plugs						
# of Pipes	Pipe Size	#tests	Pipe Ends	Plug Installation	Technicians needed	Time (man-hours)
2	2" STD	1	4	0.1	1	0.4
2	3" STD	1	4	0.1	1	0.4
2	4" STD	1	4	0.1	1	0.4
2	6" SCH 40	1	4	0.1	1	0.4
1	6" SCH 80	1	2	0.1	1	0.2
1	8" STD	1	2	0.25	1	0.5
1	12" STD	1	2	0.25	2	1
1	16" STD	1	2	0.25	2	1
					Total Time	4.3
note: re-beveling or stress relieving not required						
Total time savings using Test Plugs instead of End Caps					Saved Man-hours	107.7

¹ Estimates provided in *Estimators Piping Man-Hour Manual by John S. Page, Fifth Edition*

ELIMINATION OF GRIPPER RIDGE MARKS

TEST END WITH GRIPTIGHT MAX PLUG



Gripper marks shown are from tests performed on 4" Stainless 304 pipe, GTMAX plug in one end and a typical plug in the other. Both plugs installed with same installation torque, and tested at same pressure for same time.

TEST END WITH TYPICAL PLUG



GripTight and GripTight MAX comparison

EST Group's GripTight and GripTight MAX both share the same time-savings advantages over welded end cap test methods, and they also cover the same range of pipe sizes and schedules.

At right are the pipe materials recommended for use with each plug type. To discuss your specific application and find the testing solution that's right for you, please contact us at one of the addresses below or your local representative for more information.

	GripTight®	GripTight MAX™
HARDENED PIPE UP TO HRC 35		○
HIGH ALLOYS		○
CHROMOLY	○	○
STAINLESS STEEL	○	○
CARBON STEEL	○	○
IRON DUCTILE	○	○
ALUMINUM	○	○
GRE		○
FRP		○
DUAL SERRATED GRIPPERS		○
AVAILABILITY (DIA) - Std	1"-24"	1/2"-24"

CURTISS - WRIGHT

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