



Expansion Seal Technologies EST Heat Exchanger LLC EST Field Services

Product Application Bulletin

Nylon Gripper GripTight™ Test Plug

Expansion Seal Technologies recently developed a special version of our GripTight™ high pressure test plug to satisfy a unique testing application for Jacobs Applied Technology, a division of Jacobs Engineering.



Jacobs Applied Technology manufactures and assembles modular sections of processing equipment for a variety of industries, with current business emphasis on pharmaceutical applications, at its manufacturing facility in Goose Creek, SC, USA. They need to produce, assemble, and then completely test these assemblies. Following the test phase, they break down the assemblies (which can be the size of a small factory) and in many cases put them on barges to ship to Puerto Rico, etc. The tough part for Jacobs, is that they are on a very tight time table. Once complete, they must test and breakdown the assemblies at a breakneck pace. Compounding the difficulties is that pharmaceutical processing equipment operates in an ultra pure environment. Equipment is cleaned constantly to prevent bacterial growth. Any scarring or damage to the tube ID occurring during testing would create a site that could possibly foster bacterial growth. For this reason, they were

looking for a testing method that would meet their needs and timetable.

Jacobs evaluated a number of different techniques. Alternative methods were limited to welding on a blind flange because of both test pressure required and the need to not mar the polished stainless steel tubing. The blind flange method was impractical because they would have had to allow extra tubing/pipe for testing, which would then have to be cut off and finished after testing. Besides the considerable time required with this method, there were places where there was not enough room for the additional tubing/pipe required. The method that had been in use, was to use test plugs (including our Bolt Types) that were not up to the test pressure, and restraining them. Finding a way to restrain them was time consuming also.

Jacobs turned to EST because they had a situation where there would not be enough time to test the way they had been testing, before they had to ship the equipment. We had them send us a sample of the material to be tested and committed to them to engineer, test, and produce a nylon gripper plug to meet their timetable, from receipt of tubing/pipe sample to shipment of the order of test plugs in less than 1-½ weeks. Engineering, testing, and production departments all came together to expedite the development of this test plug.

The initial plug was designed for Jacobs test requirement of a 150 psi air test. Jacobs quality and engineering departments reviewed our test results and approved their use. Jacobs subsequently reported that the plug performed as designed and resulted in them being able to save a substantial amount of time and money, and keep the project on schedule. They have since ordered additional plugs in other sizes.

This plug design could satisfy applications ranging from the processing equipment manufacturer through the end user of such equipment. Industries, such as Aerospace, that make use of exotic metals, may also have a use for such a design.

Expansion Seal Technologies offers a complete range of testing and plugging equipment for tubular heat exchangers, pipelines, piping systems and pressure vessels. We have the technology, experience and manpower to meet the critical demands of our customers. For more information or to arrange a demonstration contact EST by phone at 800-355-7044, fax 215-721-1101, or e-mail: info@expansionseal.com.