



**Autoclave
Engineers** 

Parker Autoclave Engineers
Providing Tools for Research and Industry

Gasche Resilient Thread Pressure Vessels

At A Glance

Designed for extreme conditions of pressure and temperature where cycling is involved.

ID range: 8" to 48"
(203 mm to 1219 mm)
Pressure ranges: 2,000 psi to 48,000 psi
138 bar to 3309 bar

Gasche Resilient Thread Closure

Many high pressure processes require cyclic operation, in which the vessels must be charged, closed, heated, pressurized, then cooled, depressurized and opened. Such cyclic operation may be required once a day or several times an hour. In addition, there is an increasing need for pressure vessels that can operate at extremely high pressures and elevated temperatures.

To meet the application requirements, pressure vessel design must, in many cases, make use of materials with different coefficients of expansion. During elevated temperature operation, these differing coefficients of expansion cause additional stresses that are difficult to overcome by conventional means. Repeated cycling can also cause deformation of closure components that may reduce cyclic life.

Extensive investigations of various closure designs were conducted jointly by Parker Autoclave Engineers and an independent analyst.

The fact was established that with the conventional threaded closures, stresses are concentrated at the base of the closure - on the first or second bottom threads. Parker Autoclave Engineers has determined that this concentration of stress is greatly reduced by introducing flexibility into the thread.

The required resiliency is provided by using a flexible high quality spring to form the thread.

The resilient spring consists of a solid wound spring with an inner steel rod core forming the equivalent of an integral thread. The main nut incorporates a semi-circular helical groove that receives the resilient spring assembly. Thus the main nut can be engaged with the body of the vessel as with any conventional design.

Even large covers can be turned manually because of rounded surface of the resilient thread. Turning is facilitated by the slight clearance between the inside diameter of the body opening and the outside diameter of the main nut.

The Resilient Thread Closure answers the conditions imposed by modern high pressure processes, with performance proven in actual operation.

Parker Autoclave Engineers designs and manufactures pressure vessels to suit many applications. Sizes, temperature and pressure parameters and materials will vary widely because of the customers individual needs. For information regarding your specific application requirements please contact the factory.



Gasche resilient thread closure

The Parker Autoclave Engineers Gasche Resilient Thread Closure ensures greater reliability of pressure vessels subjected to severe conditions of use.

The Resilient Thread Closure provides dependability under extreme conditions of pressure and temperature, particularly where cycling is involved.

In such cases, unusual stress demands are placed on the closure. With conventional threaded closures, these stresses are concentrated on the bottom one or two threads in the body of the vessel which may result in reduced cyclic life.

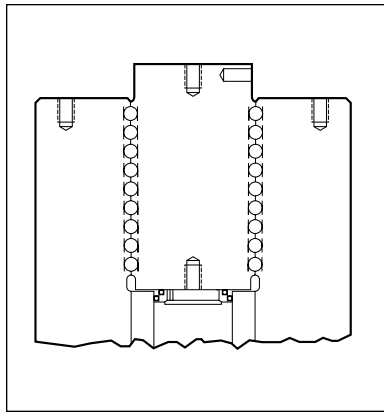
Parker Autoclave Engineers, with the Gasche Resilient Thread, has succeeded in distributing stresses more uniformly across the length of the entire thread. The generous radii incorporated in this design greatly reduced the stress concentrations characteristic of conventional threads. The Resilient Thread Closure provides reliability superior to other types of threaded closures.

The Resilient Thread Closure can be supplied with a variety of seals to suit particular application requirements, including o-ring, flat gasket, and modified Bridgman types.

**Pressure
Vessels**

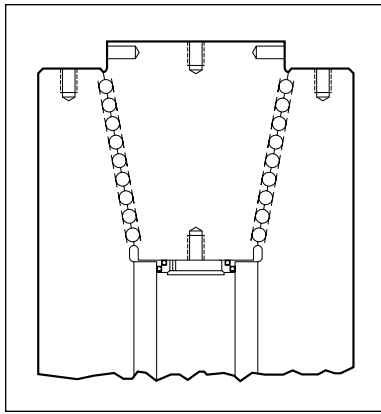


Range of Specifications



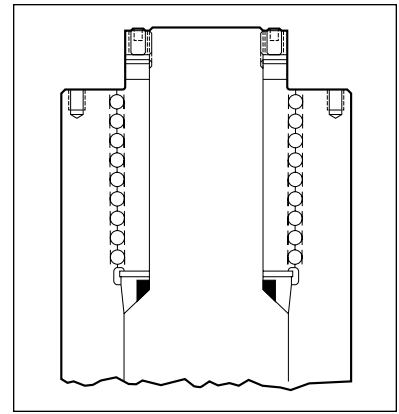
Resilient straight thread vessels with dual o-ring seal:

The resilient straight thread closure distributes the load more evenly across the entire threaded area. The straight thread closure with o-ring seal is used in applications requiring high pressure at moderate to low temperature.



Tapered, resilient thread closure with dual o-ring seal:

The tapered resilient thread not only spreads the load more uniformly across the closure, but also provides for quick opening and closing of the pressure vessel. It requires approximately 2-1/4 turns to open or close.



Resilient straight thread vessel with self-energizing closure:

Non-tapered, resilient straight thread closure vessel with self-energizing closure is particularly suited to high pressure, high temperature cyclic operating conditions. A modified Bridgman, AE self sealing resilient thread closure permits accelerated heating and cooling of the pressure vessel, and also compensates for thermal and pressure fluctuations during operation.

WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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