



LAMONS DEFENDER HF

The Gasket of Choice for Critical Applications for Hydrofluoric Acid Service

Lamons® Defender HF™ gaskets are designed to provide an excellent seal on new and moderately corroded flange faces used in hydrofluoric (HF) acid service. With a patented two step Kammpro® metallic core, the Defender HF offers safe, high-integrity, primary and secondary sealing components that seal on the flange face to the bore. The customer piping classifications and process design specifications generally determine the materials of construction. Lamons has Monel® and other common core options available. Plus, in addition to the integral stepped Kammpro core, each gasket uses high purity APX2 flexible graphite and L-120 ePTFE covering layers. The Defender HF is also API 6FB certified (fire tested).

DATA SHEET

TYPICAL APPLICATIONS FOR DEFENDER HF

INDUSTRIES:

- Refining
- Chemical (alkylation units)

APPLICATIONS:

- HF acid service for alkylation process units and chemical processes, and fire-safe applications

TECHNICAL DATA

DESIGN STANDARDS:	Suitable for ASME B16.5 flanges: ½" to 24" (12mm to 600 mm); DN 12 to 600; custom sizes for non-standard flanges
GASKET TYPE:	F
GASKET PRESSURE RANGE:	Suitable for ASME B16.5 flanges; Class 150 to 2,500
TEMPERATURE RANGE:	-321°F to 500°F (-196°C to 260°C)

FEATURES AND BENEFITS

- The Defender HF typically requires no more bolt load than a standard piping gasket. This allows you to use standard bolt-up protocols and eliminate extra work.
- The rigid, two-step Kammpro has ePTFE on the inner section, which adds stability under installation, conformity to limited corrosion, and compression of L-120 ePTFE.
- The outer Kammpro section is faced with graphite that provides a redundant seal to the inner ePTFE, while helping to provide an API 6FB fire rating for the gasket.
- The gasket acts as a primary seal to prevent media ingress and crevice corrosion, prolonging the life of the flange and the connection.
- The serrated profile creates "point contact" loading for high-integrity sealing that delivers a tighter sealing gasket for the same clamp load than other typical gaskets used for this application.
- The ePTFE seals to the bore. This protects the flange face from erosion and corrosion, which extends the life of the flange.

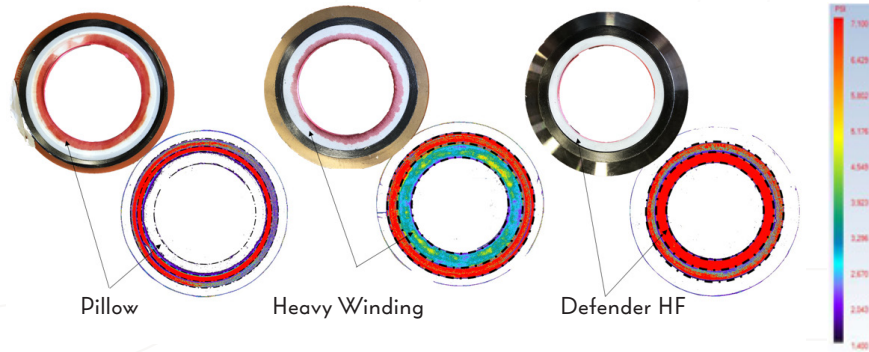
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TEST RESULTS

The Lamons Defender HF was tested against two major competitive gaskets by an independent, third-party company. The Defender HF had higher gasket stress on the ePTFE at the bore and better gasket stress on the graphite Kammpro outer section than the two competitor's gaskets. The Defender HF achieved tighter sealing for a given load than either competitor. It also maintained that seal tightness as the load was reduced better than either competitor.

Dye penetration and stress profiling tests were performed on the Defender HF and two other competitive gaskets. The image below shows the amount of dye penetration to the three different gaskets loaded into a 4-inch, class 150 flange with B7 studs at 60 percent of yield stress. The adjacent image shows the actual stress profile on the sealing area of the gaskets...note the strong correlation between the two.



The gaskets were all tested via the EN 13555 industry standard test. The Defender HF was able to achieve seal tightness for Helium of $1 \times 10^{-5} \text{mg}/(\text{m}/\text{s})$ with less load than either competitor. The Defender HF was also able to keep that seal tightness longer as the clamping load (gasket stress) was continually reduced per the test standard.

To contact a Lamons office near you, visit our website.



Lamons Global Headquarters
7300 Airport Blvd.
Houston, Texas 77061 USA

Worldwide: +1 713.222.0284
U.S./Canada Toll Free:
800.231.6906

Info@Lamons.com

LamonsTM
MANUFACTURING AND SERVICE CO.

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