



# OILFIELD INNOVATIONS

HPHT Portfolio



HPHT PORTFOLIO

As the oilfield industry seeks to tap new reserves, HPHT (High-Pressure, High-Temperature) conditions have become increasingly common. With temperatures up to 600°F (316°C) and pressures as high as 45,000 psi, the challenges and risks faced in these environments are extreme. For this reason, Greene, Tweed has continually partnered with its customers to enable safe, consistent and reliable operation in HPHT conditions.

Successful HPHT solutions combine high-performance materials with cutting-edge design. Chemraz® perfluoroelastomers (FFKM) have brought enhanced capability to O-rings and seal assemblies alike for decades. And Seal-Connect® connectors pair engineering thermoplastics with an encapsulated design to protect electronics. When enhanced with XCD technology, they safeguard communications in the harshest environments. In addition, our latest development, Arlon® 3000 XT, marks the next generation of high-temperature polymers and raises the bar for innovation in material science.



Chemraz seals, Seal-Connect electrical connectors

DESIGNS

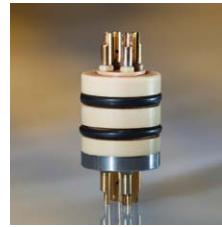
When developing HPHT solutions, effective design is crucial to success. The designs listed below withstand a variety of temperatures, pressures, and media. In addition, custom variations are available to meet application-specific needs.



G-T® RING

The G-T® Ring is a compact, double-acting seal for use in applications where O-rings fail. It combines a tough, T-shaped ring with one or two anti-extrusion rings for high-pressure environments.

SEAL-CONNECT® XCD



Seal-Connect® XCD connectors utilize Arlon engineering thermoplastic with custom pin materials to withstand high pressures and temperatures, delivering reliable electrical performance.

MSE® SEALS



MSE® (Metal Spring Energized) seals consist of a PTFE sealing device energized by a corrosion-resistant metal spring for optimal sealing in low or high pressures.



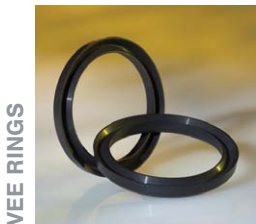
SEAL STACK

Custom seal stacks can be configured with a variety of elastomeric and thermoplastic sealing elements for a broad range of service conditions.

WIPERS



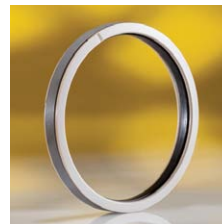
Wipers are available in a number of configurations for maximum exclusion and virtual elimination of rolling and twisting.



VEE RINGS

Vee rings are multi-lip (redundant), pressure-activated seals made from elastomeric or thermoplastic materials.

CAP SEALS



Capped seals are double-acting piston seals for dynamic applications that pair space-saving and non-extrusion features with low friction and a long service life.

## MATERIALS

Many of our high-performance solutions employ several materials working in concert to achieve the desired result. Below is an overview of our most common, which illustrates the breadth of specialty compounds available across applications.

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ARLON® 3000 XT



Arlon® 3000 XT is the latest engineering thermoplastic designed specifically for HPHT. With a glass transition temperature 35°F (20°C) higher than PEEK, Arlon 3000 XT demonstrates superior mechanical property retention from 350°F (177°C) – 600°F (316°C). In extrusion and creep testing, it outperforms both virgin and filled grades of PEEK and PEKEKK. Learn more at [www.arlon3000xt.com](http://www.arlon3000xt.com).

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CHEMRAZ® &amp; FKM



Chemraz® 526 provides excellent chemical resistance, high-temperature capability, and RGD (Rapid Gas Decompression) resistance.

Chemraz 562 can withstand temperatures up to 600°F (316°C), resists steam and hot water, and features excellent compression set.

FKM 944 is a premier RGD-resistant elastomer that combines high tensile strength with high elongation.

## MAXIMIZING PRODUCTION, MINIMIZING DOWNTIME

Faced with rising energy demand, the oil and gas industry is increasingly exploring and exploiting HPHT reserves. The challenges involved in these environments are extreme, with temperatures up to 600°F (316°C) and pressures as high as 45,000 psi. Additionally, HPHT applications are failure intolerant, leading to millions in repair, damage to surrounding ecosystems, and possible loss of life.

Greene, Tweed has been working for decades to push the limits of material science and develop high-performance solutions for these demanding conditions. Chemraz® perfluoroelastomers remain a leader in chemical resistant seals, and Arlon® 3000 XT promises to raise the bar for critical polymer components. By expanding throughout the Americas, Europe and Asia, we provide local support to enable customers' technology around the world. And through partnership with industry leaders, we ensure a steady flow of energy to the growing international community.

### Contact Us

#### Greene, Tweed Companies

Corporate Headquarters  
Kulpsville, PA, USA  
t +1.215.256.9521  
t +1.800.220.4733  
f +1.215.256.0189

#### Oilfield

Houston, TX, USA  
t +1.281.765.4500  
t +1.800.927.3301  
f +1.281.821.7771

#### Greene, Tweed & Co., Limited

Ruddington, Nottinghamshire, England  
t +44 (0) 115.9315.777  
f +44 (0) 115.9315.888

#### Greene, Tweed & Co France SAS

Cergy-Pontoise, Cedex, France  
t +33 (0) 1.30.73.54.44  
f +33 (0) 1.30.73.45.75

Greene, Tweed & Co. GmbH  
Hofheim am Taunus, Germany  
t +49 (0) 6192.929950  
f +49 (0) 6192.900316

Greene, Tweed & Co. Italia S.r.l.  
Milan, Italy  
t +39 (0) 2.21.05.17.1  
f +39 (0) 2.21.05.17.30

Greene, Tweed & Co. Japan  
Tokyo, Japan  
t +81 (0) 3.3454.1050  
f +81 (0) 3.3454.1040

Greene, Tweed & Co., Korea Ltd.  
Seoul, Korea  
t +82 (0) 2.566.5244  
f +82 (0) 2.566.5288

Greene, Tweed & Co., Benelux B.V.  
Halsteren, Netherlands  
t +31 (0) 164.612.123  
f +31 (0) 164.610.030

Greene, Tweed & Co. Pte Ltd  
Singapore  
t +65.6555.4828  
f +65.6555.5393

Greene, Tweed & Co. Pte Ltd  
ZhuBei City, HsinChu County,  
Taiwan, R.O.C.  
t +886.3.656.8585  
f +886.3.656.0365

[www.gtweed.com](http://www.gtweed.com)  
[www.arlon3000xt.com](http://www.arlon3000xt.com)

Arlon® 3000 XT is patent pending  
Arlon® 3000 XT by Greene, Tweed based on VESTAKEEP®, an Evonik product

*Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor modify or alter our standard warranty applicable to such products.*

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