

# FLANGE SEALING PROGRAM

INDUSTRY GASKET SOLUTIONS

The image shows a complex industrial piping system, likely in a refinery or chemical plant. The pipes are arranged in a dense network, with several large horizontal pipes in the foreground and more intricate structures in the background. The entire scene is overlaid with a semi-transparent blue filter. The text is positioned in the upper left quadrant of the image.

*Greater sealing reliability  
with Innovative  
Flange Sealing Solutions*

# Reliable Flange Sealing Solutions

## INCREASE RELIABILITY, LOWER EMISSIONS, AND REDUCE TOTAL COSTS

*CHESTERTON® works with customers around the world and across a wide range of applications and industries to implement flange sealing solutions. Our flange sealing technology and programs will help you achieve your plant's goals to improve reliability, meet emissions regulations, and improve plant efficiencies, while reducing overall costs.*

- Significantly reduce downtime on critical equipment
- Lower emissions and meet environmental regulations
- Reduce leakage and product loss
- Eliminate safety and housekeeping concerns
- Improve plant efficiencies and reduce total cost
- Simplify maintenance requirements with standardization programs

### Engineered Flange Sealing Solutions

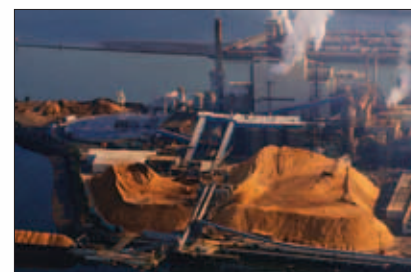
- Innovative products
- Plant specific reliability programs across industries

### Value Driven Service and Training

- Engineering review and analysis of individual applications
- In-plant seminars
- "Hands-on" installation training

### Proven Results

- Reduce emissions
- Increase MTBR
- Provide substantial cost savings
- Maintain a safer and healthier plant environment



# Flange Sealing Solutions

Chesterton offers a complete range of gasket materials that provide excellent sealability and superior reliability. Our line of sheet, tape, semi-metallic and metallic gaskets covers a broad range of applications from critical high performance and specialty flange sealing products to general service products suitable for plant wide use.

## Critical Flange Sealing



### ECS Environmental Containment Sheet

Our ECS sheet provides the full range of structured PTFE materials and service requirements suitable for FDA, chemically aggressive, high pressure and temperature services up to 500°F (260°C). ECS is an excellent choice for Chemical and Hydrocarbon plants. ECS gaskets are recommended for service in water, steam, hydrocarbons, solvents, refrigerants, caustics and strong acids.



### 459 Graphite Sheet

459 is a graphite sheet with nickel foil reinforcement designed for use in high pressure, high temperature flange applications. It has excellent chemical resistance and can be used to 850°F (450°C) in an oxidizing service and to 1600°F (870°C) in a non-oxidizing service.



### Steel Trap®

Steel Trap is the preferred gasket when needing improved performance at a minimum seating stress. It features fire, blow out and leak proof benefits along with the sealing properties of an encapsulated element in a compression seal. Steel Trap is the ideal replacement for problem applications. Steel Trap is available in standard and custom designs, including the unique self-locating design.

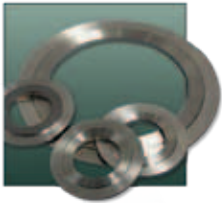


### Flange Live Loading System

Chesterton Flange Live Loading increases flange reliability by increasing the elastic energy in the flange assembly. This ensures that a pre-calculated gasket stress is maintained at all times, regardless of pressure fluctuations, gasket thickness loss, or thermal cycles. Chesterton flange discs are specially designed for flange applications and maintain their flexibility under extreme mechanical and thermal conditions.

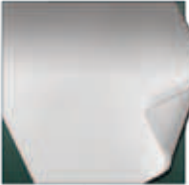
Technical Data	5500	5505L	5505H
Materials	Specialized stainless steel alloy	High strength, high temperature resistant and corrosion resistant stainless steel alloy	Chromium steel with oxide coating
Temperature	-200°C to 300°C (-328°F to 575°F)	-100°C to 350°C (-148°F to -662°F)	0°C to 600°C (32°F to 1100°F)
Corrosion resistance	good	good	average
Applications	Use in combination with Chesterton® Camprofile or Steel Trap™ gaskets on process flanges, heat exchangers, vessels, reactors, valve bonnets, housings, and sight glasses		
Warranty	3-year warranty (see flange live loading warranty for conditions)		

## High Performance Flange Sealing



### Camprofile Gaskets

Highly reliable flange gasket with excellent emission control. Certified low emission performance. High reliability ANSI and DIN standard gaskets. Custom shapes available, including heat exchanger gaskets.



### 184 100% Expanded PTFE Sheet

184 is a 100% PTFE with a micro-fibrillated structure which makes it a dimensionally strong, creep resistant gasket. 184 will provide a long lasting, high reliability seal with minimum re-torque requirements. 184's excellent pliability makes it an excellent choice for worn or uneven surfaces.

## General Flange Sealing



### 450 Synthetic Fiber Sheet

450 is a synthetic fiber, low temperature gasket suitable for a broad range of general service applications including water, gas, brine and low pressure steam applications.



### 455 Aramid Fiber Sheet

455 is an aramid fiber/nitrile binder general purpose gasket with good sealability and chemical resistance. 455 is suitable for water, saturated steam, salt solutions, organic alkali aliphatic and aromatic hydrocarbons, alcohols, ester, oils and gases.



### 359 Stainless Steel Foil Reinforced Graphite Sheet

359 is an economical, general purpose graphite sheet gasket with excellent chemical resistance and thermal stability for a wide range of applications throughout the plant.



### Spiral Wound Gaskets

Spiral Wound Gaskets are one of the most common metal gaskets used for flange sealing. Chesterton's Spiral Wound Gaskets are manufactured in accordance with ASME B16.20 and DIN Standards, and are available in a wide range of alloys, sealing materials, sizes and shapes for most flange applications and services.



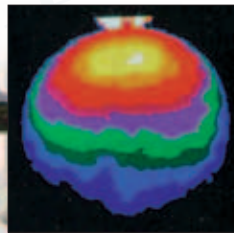
### 457 Carbon Fiber/Nitrile Binder

457 is a carbon fiber/nitrile binder gasket formulated for a broad range of services including saturated steam, water, oil and hydrocarbon applications.

# Proven Reliability

## SHUTDOWN TO SHUTDOWN

*Chesterton's Flange Sealing solutions are proven to perform reliably from shutdown to shutdown across a wide variety of applications and industries.*



Typical operating environments create a number of unique challenges for plants in meeting their goals for reliable flange sealing.

### Common Flange Sealing Concerns:

- High temperatures
- Temperature cycling
- Chemical attack
- Vibration
- Pressure surges
- Improper gasket loading

Chesterton addresses these challenges with customized programs for standard and critical flanges.

### Heat Exchanger and Critical Flange Solutions Focus on:

- *Selecting the proper gasket*
- *Optimizing bolt loading*
- *Maintaining gasket sealing stress*

### Good Bolting Practices

- **Thread Friction** – lubrication of bolts is necessary to reduce thread friction and add a constant coefficient of friction during assembly.
- **Bolting Sequence** – proper bolting sequences must be followed to ensure even loading of the gasket.
- **Tightening Methods** – accurate gasket loading ensures longer mean time between failure.

# Customized Programs

## CHESTERTON'S CRITICAL FLANGE SEALING PROGRAM

*Our specialists will work with you to assess your equipment and develop a plan with your goal in focus.*

### Shutdown Planning

- In-plant survey of critical flanges
- Complete engineering review of fluid compatibility, pressure and temperature capabilities and seating stress of bolted joints
- Comprehensive training programs for product selection, installation and proper bolting techniques
- Logistics and planning support

### Innovative Flange Sealing Technology

- Critical flange sealing solutions to improve reliability, reduce emissions and decrease overall costs
- High performance specialty gaskets and joint sealants to meet the demands of high pressure, high temperature applications
- A full line of general service gaskets that provide optimized performance while promoting plant standardization





## Global Solutions, Local Service

Since its founding in 1884, the A. W. Chesterton Company has successfully met the critical needs of its diverse customer base. Today, as always, customers count on Chesterton solutions to increase equipment reliability, optimize energy consumption, and provide local technical support and service wherever they are in the world.

Chesterton's global capabilities include:

- Servicing plants in over 100 countries
- Global manufacturing operations
- More than 500 Service Centers and Sales Offices worldwide
- Over 1200 trained local Service Specialists and Technicians

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Distributed by:



A.W. Chesterton Company  
860 Salem Street  
Groveland, MA 01834 USA

Telephone: 781-438-7000  
Fax: 978-469-6528  
[www.chesterton.com](http://www.chesterton.com)

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