

Complete Guide to Heat Exchanger Gaskets

Introduction

Heat exchanger gaskets are critical sealing components used in shell-and-tube, plate, and spiral heat exchangers to prevent leaks of high-temperature/pressure fluids. They must withstand thermal cycling, chemical exposure, and mechanical stress while maintaining a reliable seal.

Technical Features & Materials

Common Gasket Materials

Material	Max Temp (°C)	Pressure (BAR)	Chemical Resistance	Color Code
Compressed Non-Asbestos (CNA)	260	150	Oils, water, steam	Blue
Graphite	500	200	Acids, alkalis, steam	Gray
PTFE	200	100	Strong acids, solvents	White
Spiral Wound (SS316 + Graphite)	800	300	Aggressive media	Silver/Gray
Rubber (EPDM/NBR)	120	25	Water, glycol	Black/Red

Key Properties

- Thermal Conductivity: 0.05–15 W/m·K (graphite = highest)
- Compressibility: 10–25% (CNA), 5–15% (spiral wound)

The technical information, data, and recommendations provided in this guide are intended solely for general guidance and reference purposes. While Cohere Tech India Pvt Ltd has made every effort to ensure the accuracy and reliability of the information presented, it does not constitute a warranty, guarantee, or representation of any kind, either expressed or implied. Users are strongly advised to consult our technical team prior to selecting or ordering any products to ensure suitability for the specific application or project requirements. Cohere Tech India Pvt Ltd shall not be held responsible for any direct or indirect damages, losses, or consequences arising from the use or reliance upon the information contained in this guide without proper consultation. Product specifications are subject to change without prior notice as part of our ongoing commitment to innovation and quality improvement.



- Recovery: 30–60% (ensures seal after thermal cycling)

Standards & Certifications

Standard	Scope	Applicable Gasket Types
ASME B16.20	Metallic & semi-metallic gaskets	Spiral wound, ring joints
ASME B16.21	Non-metallic gaskets	CNA, PTFE, rubber
API 662	Heat exchanger gaskets (oil & gas)	Spiral wound, CNA
EN 1514	European flange gasket dimensions	All types
ISO 15848	Fugitive emissions standards	PTFE, graphite

Size Classes & Pressure Ratings

Standard Sizes (ASME/ANSI Flanges)

Flange Class	Pressure Rating (BAR)	Typical Applications
150#	20	Low-pressure water, air
300#	50	Process piping
600#	100	Refineries, power plants
900#	150	High-pressure steam

The technical information, data, and recommendations provided in this guide are intended solely for general guidance and reference purposes. While Cohere Tech India Pvt Ltd has made every effort to ensure the accuracy and reliability of the information presented, it does not constitute a warranty, guarantee, or representation of any kind, either expressed or implied. Users are strongly advised to consult our technical team prior to selecting or ordering any products to ensure suitability for the specific application or project requirements. Cohere Tech India Pvt Ltd shall not be held responsible for any direct or indirect damages, losses, or consequences arising from the use or reliance upon the information contained in this guide without proper consultation. Product specifications are subject to change without prior notice as part of our ongoing commitment to innovation and quality improvement.



Flange Class	Pressure Rating (BAR)	Typical Applications
1500#	250	Offshore, subsea

Dimensions (Example: Spiral Wound Gaskets)

Nominal Size (inches)	ID (mm)	OD (mm)	Thickness (mm)
2"	52	102	4.5
6"	154	216	4.5
12"	309	381	4.5

Industry Applications

Industry	Gasket Type	Key Requirements
Oil & Gas	Spiral wound (316SS/graphite)	High temp/pressure, sour gas resistance
Power Generation	Graphite/CNA	Steam resistance, thermal cycling
Chemical Processing	PTFE, rubber-lined	Acid/alkali resistance
Heavy Industries	Metal-jacketed gaskets	Mechanical strength

The technical information, data, and recommendations provided in this guide are intended solely for general guidance and reference purposes. While Cohere Tech India Pvt Ltd has made every effort to ensure the accuracy and reliability of the information presented, it does not constitute a warranty, guarantee, or representation of any kind, either expressed or implied. Users are strongly advised to consult our technical team prior to selecting or ordering any products to ensure suitability for the specific application or project requirements. Cohere Tech India Pvt Ltd shall not be held responsible for any direct or indirect damages, losses, or consequences arising from the use or reliance upon the information contained in this guide without proper consultation. Product specifications are subject to change without prior notice as part of our ongoing commitment to innovation and quality improvement.

Handling & Storage Guidelines

Storage

- Temperature: <40°C (PTFE/graphite degrade above 50°C)
- Humidity: <60% RH (prevents moisture absorption in CNA)
- Stacking: Flat to avoid deformation (do not hang spiral wound gaskets)

Installation

1. Surface Prep: Clean flanges, remove old gasket residue.
2. Alignment: Ensure gasket is centered (no overhang).
3. Bolt Tightening:
 - Use ASME PCC-1 torque sequence (star pattern).
 - Re-torque after 24hrs of operation.

Safety

- PPE: Gloves (for graphite/PTFE), safety glasses (during cutting).
- Ventilation: Required when machining PTFE (fumes hazardous).

Troubleshooting Common Issues

Issue	Root Cause	Solution
Leakage at joints	Incorrect gasket material	Upgrade to spiral wound/graphite
Gasket blowout	Over-compression	Use thicker gasket or higher-class material
Chemical degradation	Incompatible media	Switch to PTFE/rubber-lined

The technical information, data, and recommendations provided in this guide are intended solely for general guidance and reference purposes. While Cohere Tech India Pvt Ltd has made every effort to ensure the accuracy and reliability of the information presented, it does not constitute a warranty, guarantee, or representation of any kind, either expressed or implied. Users are strongly advised to consult our technical team prior to selecting or ordering any products to ensure suitability for the specific application or project requirements. Cohere Tech India Pvt Ltd shall not be held responsible for any direct or indirect damages, losses, or consequences arising from the use or reliance upon the information contained in this guide without proper consultation. Product specifications are subject to change without prior notice as part of our ongoing commitment to innovation and quality improvement.



Issue	Root Cause	Solution
Bolt relaxation	Thermal cycling	Re-torque after 24hrs

How to Order

Information Required

- Heat Exchanger Type: Shell-and-tube, plate, etc.
- Flange Details:
 - Size (NPS), class (150#, 300#), facing (RF, FF).
- Operating Conditions:
 - Temperature, pressure, media (e.g., H₂SO₄, steam).
- Material Preference:
 - Graphite (high temp), PTFE (chemical resistance).

Order Channels

- Online Configurator: www.coheretech.in
- Email: info@coheretech.in (attach flange drawings)
- Phone: +91 96003 00448

Lead Times

- Stock Gaskets: 24–48hrs (standard sizes).
- Custom: 1–3 weeks (special materials/dimensions).

Compliance & Safety Data

- Fire-Safe: API 6FB (spiral wound gaskets).
- FDA Compliance: PTFE gaskets for food/pharma.
- MSDS: Available for all materials (graphite dust = irritant).

The technical information, data, and recommendations provided in this guide are intended solely for general guidance and reference purposes. While Cohere Tech India Pvt Ltd has made every effort to ensure the accuracy and reliability of the information presented, it does not constitute a warranty, guarantee, or representation of any kind, either expressed or implied. Users are strongly advised to consult our technical team prior to selecting or ordering any products to ensure suitability for the specific application or project requirements. Cohere Tech India Pvt Ltd shall not be held responsible for any direct or indirect damages, losses, or consequences arising from the use or reliance upon the information contained in this guide without proper consultation. Product specifications are subject to change without prior notice as part of our ongoing commitment to innovation and quality improvement.