Full Industrial Gasket Catalogue

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二、Introduction & Scope

This catalogue is written for international B2B procurement teams evaluating industrial gaskets used in process plants, power generation, marine, and automotive/engine applications. The document focuses on: material descriptions, typical applications, procurement-ready specifications (what to request in an RFQ), and selection guidance. Always request the manufacturer's current product datasheet, MSDS, and certificates for final acceptance.

三、Exhaust Gaskets

Overview: Exhaust gaskets seal high-temperature engine and turbocharger interfaces. Modern solutions include multi-layer steel (MLS) manifolds and stamped/pressed metallic turbo gaskets or metal core with graphite coating. Use OEM- or manufacturer-specified geometries to match thermal cycling and flange profiles.

Applications:

- Automotive OEM & aftermarket
- Heavy-duty diesel engines (mining, marine, power gen)
- Industrial burners, boilers and heaters
- Turbocharger manufacturers and service centers

Product	Construction	Primary Benefits / Procurement Notes
Exhaust Manifold Gasket (MLS / Metallic)	Multi-layer stainless steel with embossed sealing beads or elastomeric coatings	High thermal durability and cyclic stability. Specify part shape, thickness, and material grade per engine OEM. (See manufacturer guidance for crush % and torque.)
Turbocharger Gasket	Pressed stainless steel / metal ring or graphite-laminated metal rings	Designed for very high exhaust gas temperatures and localized sealing. Match to turbo flange type (V-band, 2-bolt, etc.).
Graphite-coated Metallic Ring	Metal core with graphite coating or graphite sleeve	Improved conformability at high temperatures; useful where flange surfaces are worn.

Technical note: turbo/exhaust gaskets often use stainless steel or graphite-metal laminates to manage high gas temperatures and thermal cycling — select parts from reputable suppliers to match OEM flange geometry.

四、PTFE Gaskets

Overview: PTFE gaskets (virgin and expanded) are chosen for broad chemical resistance, low permeability and inertness. Common forms include full-face, ring, and envelope (PTFE jacketed) gaskets.

1. Applications:

- Chemical processing (aggressive acids, solvents)
- Food & Beverage (sanitary PTFE gaskets)
- Pharmaceutical & biotech (low extractables)

- Semiconductor & electronics (ultra-pure chemical lines)
- Marine & desalination (corrosion resistance)

Product	Typical Form	Typical Service Temperature (typical)	Notes
Virgin (unfilled) PTFE Gaskets	Full-face / ring cut from PTFE sheet	-200°C to +260°C	Excellent chemical resistance; low friction and low ion content (for sanitary/pharma). Verify thickness and bolt load per datasheet.
Expanded PTFE (ePTFE)	Porous, micro-structure; highly conformable	Similar temperature limits; improved conformability	Good for low bolt load and irregular flange faces.
PTFE Envelope / Jacketed Gasket	Soft filler (graphite, aramid) inside a PTFE jacket	Depends on filler; PTFE jacket limits apply	Combines chemical resistance of PTFE with the compressibility or thermal benefit of filler.

五、Graphite Gaskets

Overview: Expanded graphite and graphite-laminate gaskets are broadly used in steam, refinery and high-temperature applications. Reinforcements such as stainless steel inserts or eyelets improve handling and blowout resistance.

1. Applications:

- Power generation — steam turbines, heat exchangers
- Petrochemical & refining — high-temp process lines
- Marine & offshore — exhaust and high-temp piping
- Chemical processing — many inorganic/organic services
- Industrial furnaces & boilers — high-temperature seals

Product	Construction	Typical Service Guidance	Procurement Notes
Reinforced Graphite Gasket	Expanded graphite sheet with stainless-steel tang or foil insert	Up to approximately +450°C in oxidizing atmospheres (higher in inert conditions)	Use stainless insert to improve blowout resistance and handling; specify insert thickness and graphite purity.
Graphite Gasket with Eyelets	Graphite sheet with stainless eyelets at bolt holes	As above	Eyelets protect bolt holes and improve sealing under high bolt load.

六、Spiral Wound Gaskets

Overview: Spiral wound gaskets (SWG) are alternating metal winding and soft filler (graphite / PTFE). They cover a broad range of pressure classes and temperatures and are widely used for piping and vessel flanges.

Inner Ring Function: The inner ring acts as a compression stop and contains the sealing element; it also prevents the sealing element from intruding into the pipe bore. This design is preferred for higher pressure/temperature classes and for ring-joint replacements.

1. Applications:

- Refining & petrochemical — high pressure process lines
- Power generation — steam lines, heat exchangers
- Oil & gas pipelines — high pressure trunk lines and risers
- Chemical plants — aggressive media with temperature cycling
- Marine & offshore — robust sealing in harsh environment

Style	Construction Example	Example Dimension	Procurement Note
Spiral Wound with Inner Ring	Stainless steel winding + graphite filler + metal inner ring	Common style example thickness: 0.175" (≈4.5 mm) (manufacturers provide class/dimension tables)	Specify flange class, material grade of winding (SS304/316 etc.) and inner/outer ring materials.
Spiral Wound without Inner Ring	Stainless steel winding + filler only	Variable	Use where unobstructed bore is required; ensure suitability for flange class.

七、Rubber Gaskets

Overview: Elastomeric gaskets are commonly used for utility and low-to-medium pressure services. Choice depends on media (water, oils, fuels), temperature and environmental exposure.

1. Applications:

- Hydraulics & pneumatics — cylinders, valves, seals
- Automotive — sealing in engines, fuel systems, cooling
- Water treatment & HVAC — EPDM and neoprene seals
- Food & pharma — FDA-grade silicone & nitrile seals
- Appliances & consumer products — molded gaskets & seals

Material	Typical Service Range (typical)	Applications / Notes
Neoprene (CR)	-30°C to +120°C	Good weathering, ozone resistance; HVAC and water applications.
Nitrile (NBR)	-30°C to +120°C	Excellent oil/fuel resistance; common in hydraulic, fuel applications.
EPDM	-50°C to +120°C	Good for steam, hot water and weathering; poor hydrocarbon resistance.
Silicone	-60°C to +200°C	Very wide temp range; limited resistance to fuels. Good for high/low temperature applications.

八、Asbestos Gaskets

Asbestos-containing gasket products were historically used for high-temperature sealing but are now effectively obsolete in most markets due to severe health hazards. Procurement teams should require non-asbestos alternatives and ensure any legacy asbestos removal follows local hazardous waste regulations and certified handling procedures.

1. Applications:

- Power plants (boilers, steam systems)
- Petrochemical & refineries (older units)
- Shipbuilding & marine (legacy installations)
- Industrial manufacturing plants with vintage equipment

九、Non-Asbestos Gaskets

Overview: Compressed non-asbestos and aramid fiber gaskets combine aramid or mineral fibers with rubber binders (NBR/SBR) to replicate many performance features of compressed asbestos gasket materials. They are widely used for general flange gasketing where asbestos is banned.

1. Applications:

- Chemical & Petrochemical processing
- Power generation & boilers
- Oil & gas pipelines and refineries
- Water & wastewater
- Food, beverage & pharmaceutical plants

Type	Typical Composition	Common Uses / Notes
Compressed Aramid Fiber Gasket	Aramid fibers + inorganic fillers + elastomeric binder	General service gasketing with good oil and chemical resistance.
Compressed Fiber Gasket	Blend of fibers and rubber binders	Common for pumps, valves and heat exchangers in standard process services.

十、Procurement & Selection Guide

1. Exact gasket type and manufacturer part number (if known).

2. Flange standard & size (ASME B16.5 class or EN PN / DN) or exact ID/OD/thickness for non-standard pieces.

3. Service conditions: fluid(s), maximum temperature, continuous temperature, maximum pressure, pH (if applicable), and any solids/abrasives.

4. Surface finish and flange face type (raised-face, flat-face, RTJ, tongue & groove) and required machining tolerances.

5. Required certifications: material certificates, MSDS, third-party test reports (API, EN, ISO) or specific client QA documents.

6. Packaging & labeling requirements, quantity, lead time, and acceptable substitutes (if any).

十一、Technical Notes

- **PTFE gaskets:** typical service range −200 °C to +260 °C (verify per product datasheet).
- **Flexible / expanded graphite:** typical upper guidance to around +450 °C in oxidizing atmospheres (higher in inert atmospheres); select graphite purity and reinforcement as required.
- **Spiral wound gaskets:** inner ring provides compression stop and containment for the sealing element; manufacturers publish dimensional/class tables (e.g., 0.175" (4.5 mm) style examples).

- **Non-asbestos compressed sheet:** typically composed of aramid/mineral fibers + rubber binder; used to replace asbestos in many flange applications.

> Important: the ranges above are representative industry guidance — always require supplier datasheets and certificates to confirm exact limits for a specific product serial/grade.

十二、Ordering, Packaging & QA Documentation

When placing orders, specify: part number / material grade, flange size/class or exact dimensions, quantity, required delivery date, and documentation required (manufacturer datasheet, MSDS, material certificates, hydrostatic or leak test certificates if required). For long-term storage, request manufacturer storage recommendations (PTFE and rubber products can be sensitive to UV and ozone).

十三、References

Representative manufacturer & industry references consulted (procurement teams should request the supplier's latest datasheets):

- Flexitallic — Spiral Wound Gasket brochure and SWG datasheets (inner ring design & dimensions).
- Garlock — PTFE gasketing (GYLON) and Premium Rubber Gasketing product pages and technical manual.
- KLINGER — Graphite laminated and PSM graphite product pages.Technical notes on turbocharger and exhaust gaskets (manufacturers / technical articles).
- Compressed non-asbestos and aramid fiber gasket product pages.