

Complete Guide to Metallic Ring Type Joint Gaskets

RTJ Gasket Overview

RTJ gaskets are precision-machined metal sealing rings designed for high-pressure, high-temperature applications. Common in oil & gas, petrochemical, subsea, and refinery systems, they provide a metal-to-metal seal when compressed in an RTJ flange groove.

Types of RTJ Gaskets

Type	Profile	Pressure Rating	Features
R	Oval/Octagon	Up to ~5,000 psi	Most common; standard grooves
RX	Octagon	Up to ~15,000 psi	Pressure-energized; equalization holes
BX	Flat octagon	Up to 20,000 psi	API 6BX flanges; high-pressure
SBX/SRX	Coated BX/RX	Same as BX/RX	Corrosion protection for subsea
Rubber-coated	Oval	Testing/temporary use	Reusable; protects flanges

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Manufacturing Process

1. **Raw Material Selection** – Metals such as soft iron, stainless steel, Inconel, Monel, etc.
2. **CNC Machining** – High-precision machining into oval or octagonal profiles.
3. **Heat Treatment** – Controls hardness; ensures proper deformation upon tightening.
4. **Surface Finishing** – 32–63 RMS μin ; ensures metal-to-metal seal integrity.
5. **Optional Coating** – Zinc, PTFE for anti-galling or corrosion protection.

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Standard Sizes (Sample Table)

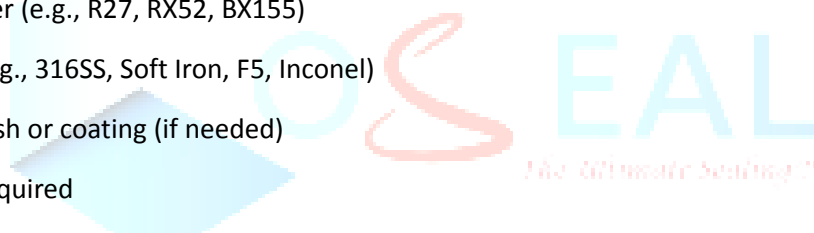
Ring No	Pipe Size	OD (mm)	ID (mm)	Width A (mm)	Height H (mm)
R11	½"	34.1	27.8	6.35	9.65
R20	1½"	76.2	60.3	7.95	14.2
R27	2½"	119.1	96.8	11.13	16.0
R48	8"	255.6	239.7	7.95	12.7
R105	36"	950+	~920	12+	16+

More sizes range from R11 to R105 and RX/BX series with pressure classes from 150 to 20,000 psi.

How to Order RTJ Gaskets

Checklist:

- Flange standard (e.g., ASME B16.20, API 6A, API 6BX)
- Ring number (e.g., R27, RX52, BX155)
- Material (e.g., 316SS, Soft Iron, F5, Inconel)
- Surface finish or coating (if needed)
- Quantity required
- Documentation (e.g., MTRs, compliance, NACE)



Handling & Storage

- Store flat, dry, and sealed in protective packaging.
- Avoid stacking to prevent deformation.
- Handle with gloves to prevent corrosion from skin oils.
- Keep traceability tags visible for inspection and inventory.

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Applications

- Oil and gas pipelines
- Pressure vessels and heat exchangers
- Subsea equipment
- Chemical process plants
- Power generation systems



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Troubleshooting Guide

Issue	Cause	Solution
Gasket Leakage	Wrong type or ring number	Verify flange and ring specs
Bolt Loosening	Uneven torque	Use torque sequence and calibrated wrench
Groove Galling	Improper handling or reuse	Replace gasket; inspect flange
Gasket Damage	Mishandling or dropping	Discard and use new ring

Safety and Installation Tips

- Do not reuse RTJ gaskets — they deform permanently.
- Clean flange grooves thoroughly before installing.
- Apply uniform torque following star pattern.
- Always inspect gasket and flange surface before tightening.
- Use protective equipment: gloves, goggles, etc.

Ordering Cut Gaskets

Cut gaskets are soft, non-metallic rings (e.g., PTFE, graphite) shaped for low-pressure use.

Provide:

- Outer diameter (OD), inner diameter (ID), thickness
- Number of bolt holes and bolt circle diameter (BCD)
- Gasket material and application pressure/temperature

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