

Pressure-Balanced Breakaway Joint (PBBJ)



Oceaneering's Pressure-Balanced Breakaway Joint (PBBJ) is a connector that separates if an externally applied tension load exceeds a preset value. Separation of the PBBJ at the predetermined load is independent of the pipeline internal pressure or external water depth pressure.

The intentional separation of the joint prevents overloading and costly damage to structures to which the pipeline is attached as well as protecting the pipe itself. Structures such as platforms, risers, offshore tanker loading installations, subsea production systems and lateral pipeline tie-ins are protected from loads often caused by anchor drags, mud slides, iceberg scouring and violent sea states during hurricanes.

The PBBJ design features include:

- Completely factory assembled and tested with preset separation loads up to the values tabulated
- Separation load can be easily changed by an Oceaneering qualified technician anytime prior to installation without disassembly of any pressure containing component
- May be refurbished by Oceaneering after separation
- A split Locking Ring temporarily prevents installation loads from separating the PBBJ during pipe lay
- Available with RTJ Flanged ends and with one or both Upstream and Downstream Check Valves
- Dual Viton seals at each point of pressure containment
- Externally coated with 3-part marine epoxy system

Pressure-Balanced Breakaway Joint (PBBJ) Specifications

Design Parameters:

- Nominal Pipe Size (NPS): any API Specification 5L pipe, wall thickness and grade
- Service: Standard (i.e. crude oil, natural gas, hydrocarbons, water or chemical injection, etc.) and Sour (i.e. hydrogen sulfide, carbon dioxide, etc.)
- Design Pressure Rating: up to ANSI 2500 or API 10000 psig WP
- Hydrostatic Test Pressure (min): 1.5 times Design Pressure Rating rounded up to nearest 25 psig
- Hydrostatic Test Duration (min): 4-hrs
- Design Temperature Range: 25°F (-4°C) to 250°F (121°C)
- Design Life: 25 years

Material Specifications:

- End Flange, Body and Shear Ring Retainer: ASTM A105 forging
- Sleeve and RTJ WN Flange: ASTM A694 F52 forging
- Locking Ring, Piston and Shear Rings: AISI 4130
- Shear Pins: ASTM A564 Type 630 Annealed
- O-Ring Seals: Viton
- Hex Socket Head Cap Screws: ASTM A193 Gr. B7, Xylan coated (i.e. PTFE, dark blue color)
- External Coating: Carboline 890 Epoxy Paint System, Safety Yellow Color

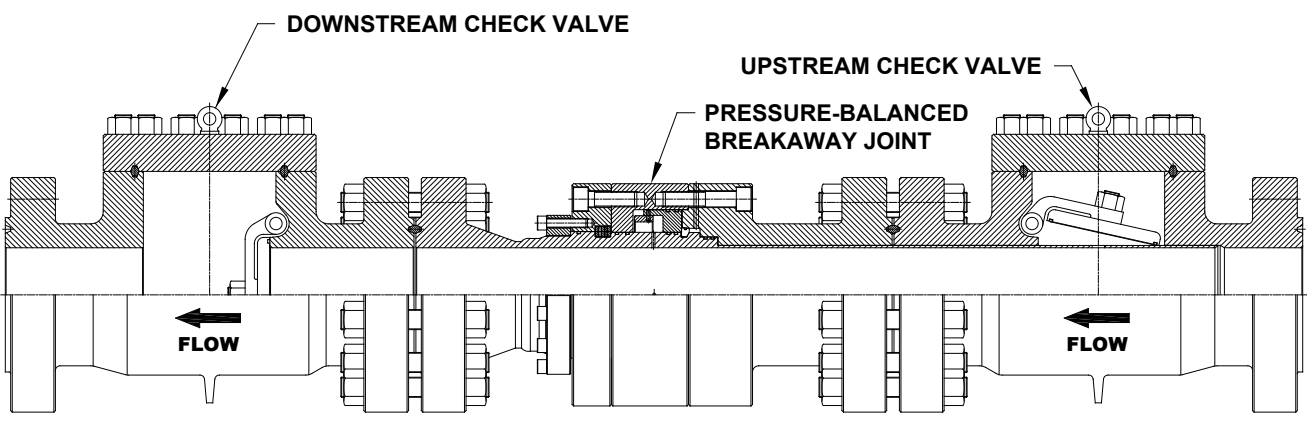
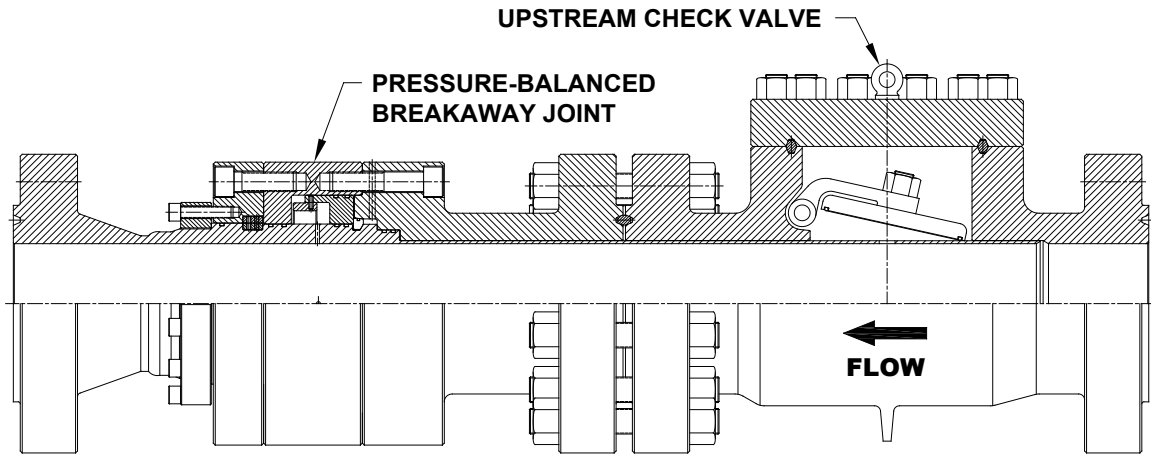
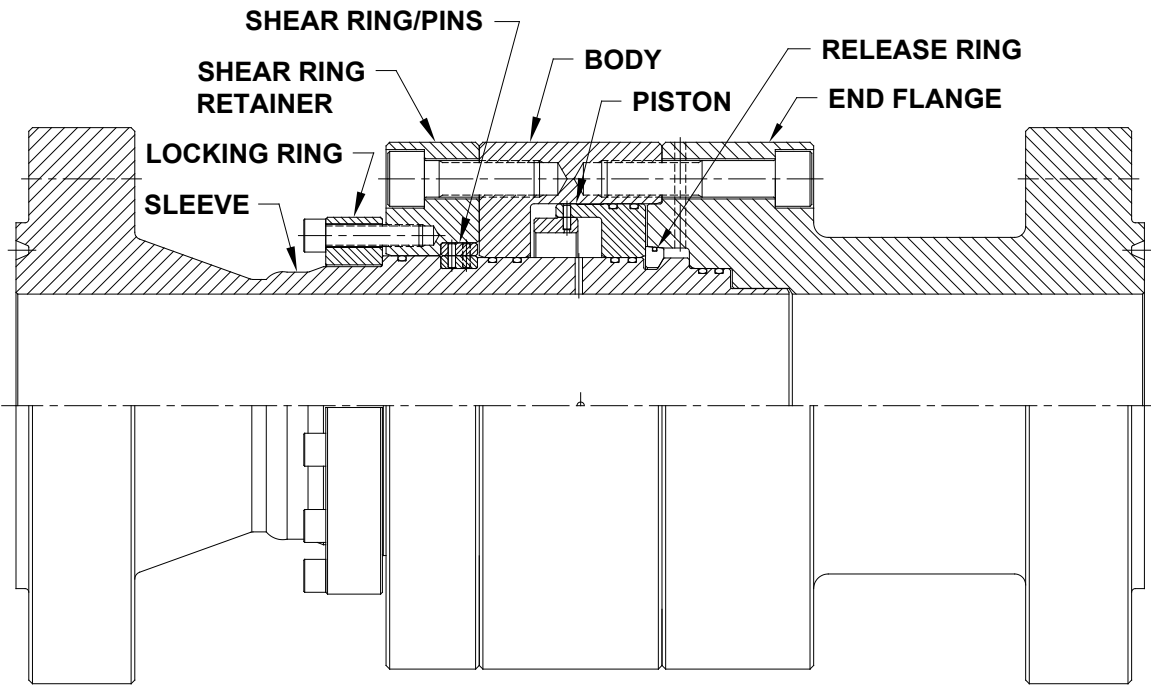
Applicable Design Codes, Standards & Specifications (latest editions):

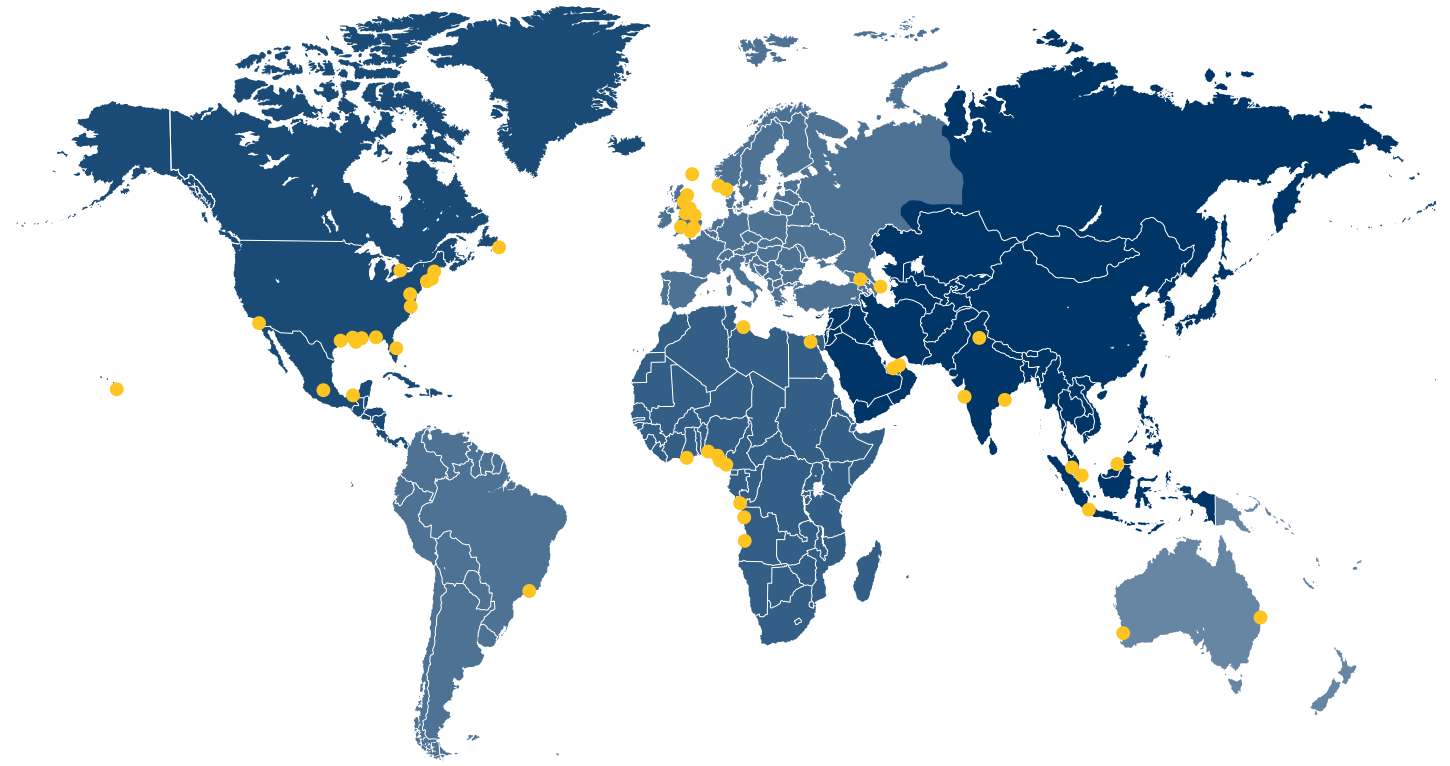
- OIE/PCRS Group Pressure-Balanced Breakaway Joint Drawings, Bill of Materials (Controlled Copies) and Vendor Supplied Material Test Reports
- OIE ISO 9001:2000 Quality Assurance - Quality Control Procedures & PCRS Operating Procedures
- ASME Boiler Pressure Vessel Code, Section V Nondestructive Examination
- ASME Boiler Pressure Vessel Code, Section VIII, Division 1 and 2
- ASME Boiler and Pressure Vessel Code, Section IX Welding and Brazing Qualifications
- ASME B16.5, Pipe Flanges and Flanged Fittings
- ASME B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids
- ASME B31.8, Gas Transmission and Distribution Systems
- ASME B18.2.1, Square and Hex Bolts and Screws Inch Series
- API SPEC 6H, Specification on End Closures, Connectors and Swivels
- API SPEC 5L, Specification for Line Pipe
- MSS SP-44, Steel Pipeline Flanges
- NACE MR0175, Sulfide Stress Cracking Resistant Metallic Materials for Oilfield Equipment
- Code of Federal Regulations, Title 49, Parts 192 and 195

Certifications:

- ISO 9001:2008 - World Certification Services Ltd. - Accredited by UKAS Quality Management
- EN 10204 Section 3.1B (DIN 50049), Inspection Documents for the Delivery of Metallic Products

Pressure-Balanced Breakaway Joints		
NPS	Max. Design Loads (kips)	
	Separation	Installation
2 in	85	55
3 in	125	85
4 in	165	110
6 in	250	170
8 in	335	225
10 in	415	275
12 in	500	335
14 in	585	390
16 in	665	445
18 in	750	500
20 in	835	555
24 in	1000	670





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