



Pressure Balanced Safety Joint

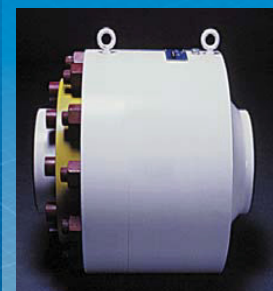
Protects your investment in major offshore systems

The Pressure-Balanced Safety Joint (PBSJ) separates at a preset axial load, independent of pipeline pressure, to prevent damage to platforms, offshore tanker loading installations, subsea production systems, or lateral tie-ins caused by a dragging anchor, mud slide, iceberg scouring, or other forces. Employing the PBSJ in conjunction with optional upstream and downstream check valves also prevents product loss and environmental damage. The PBSJ is completely assembled and tested at the factory; no on site preparation is required before connecting it into the pipeline.

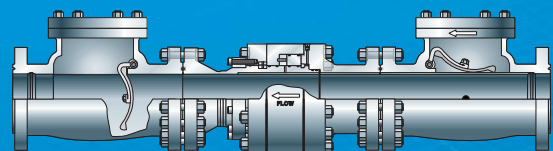
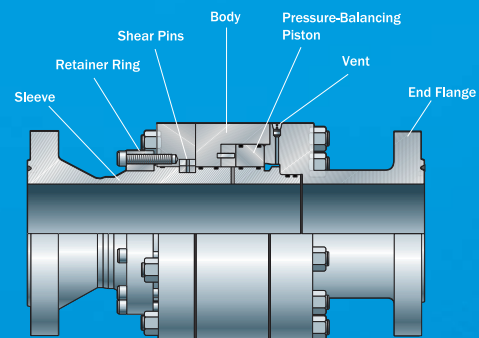
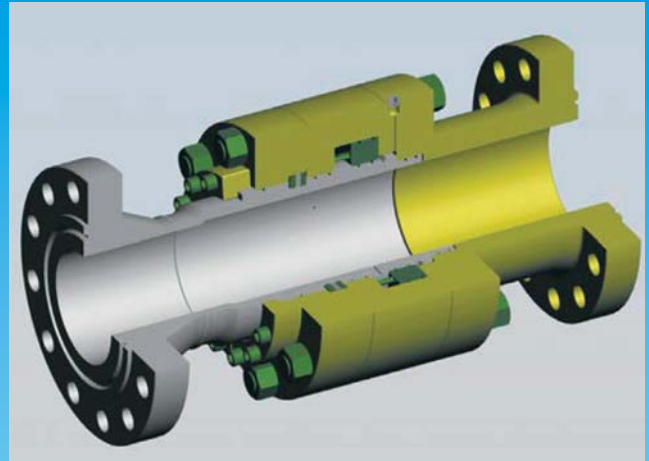
Tension load is transferred through the PBSJ sleeve to the body via shear pins. When a potentially damaging external force equal to or exceeding the shear-pin rating is applied, the pins shear and the PBSJ separates, preventing damage to your equipment. Internal pipeline pressure and external water pressure will not cause the PBSJ to separate, because a pressure compensating piston balances hydrostatic loads.

The rated separation load can be easily changed at any time prior to installation by varying the number of shear pins. A separated PBSJ can be reinstalled after being refurbished by Oil States.

The PBSJ is easily installed with the pipeline or flowline, using conventional construction techniques, working from lay barges or reel barges. A removable split retainer ring protects the shearing mechanism against tension loads during installation. A diver removes this retainer ring after pipeline installation is complete.



The standard PBSJ is available in a variety of configurations, including butt-weld by butt-weld and flange by flange. The latter is available with optional upstream and/or downstream check valves. The check valves are full



PBSJ with optional upstream and downstream check valves

opening, flapper-type designs with subsea trim. The downstream check valve is a conventional design, but the upstream valve is used in the reverse and is modified for the PBSJ. An extension sleeve attached to the sleeve of the PBSJ holds the springloaded flapper of the upstream check valve open and allows pigging from either direction during normal pipeline operation. If a downstream check valve is incorporated, it should have a lock-open feature for the flapper if bi-directional pigging is anticipated.

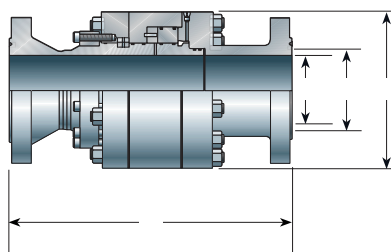


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Design Specifications

Pressure-Balanced Safety Joints meet the requirements of API 6H and are designed in accordance with ASME Pressure Vessel Code, Section VIII, Division 2, unless otherwise specified. Configurations of the butt-weld ends are in accordance with ASME B16.5 or MSS SP-44 to match the pipeline. Materials are OSI standard material specifications, or to meet customer design specifications.

The minimum recommended separation load of a PBSJ is assessed for the specific application. PBSJs are designed to separate within 20% of the specified value.

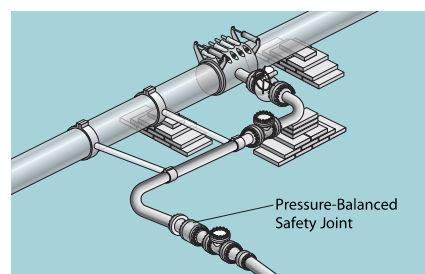


Nominal pipe size, in.	Pressure rating	A Weld-neck OD, in.	B Bore size in.	C Outside diameter in.	D Overall length, in.	Approximate weight, lb	Maximum separation load, lb
2	5000 API	2.50	2.06	10.50	15.00	250	95,000
	10000 API	2.94	2.06	12.00	16.00	350	104,000
3	5000 API	3.81	3.12	12.50	17.00	400	113,000
	10000 API	4.34	3.06	15.50	21.00	750	223,000
	1500 ANSI	3.50	2.90	10.50	15.00	225	78,000
4	5000 API	5.00	4.06	15.00	20.00	650	201,000
	10000 API	5.75	4.06	18.00	26.00	1200	390,000
	900 ANSI	4.50	3.83	11.50	16.00	325	82,000
	1500 ANSI	4.50	3.62	12.25	17.00	375	114,000
6	900 ANSI	6.62	5.76	15.00	20.00	600	217,000
	1500 ANSI	6.62	5.62	15.50	21.00	650	250,000
8	900 ANSI	8.62	7.62	18.50	25.00	1040	332,000
10	900 ANSI	10.75	9.75	21.50	27.00	1400	419,000
12	900 ANSI	12.75	11.75	24.00	31.00	1950	500,000
14	900 ANSI	14.00	12.81	24.25	33.69	2490	650,000
16	900 ANSI	16.19	14.69	29.50	29.00	2230	730,000

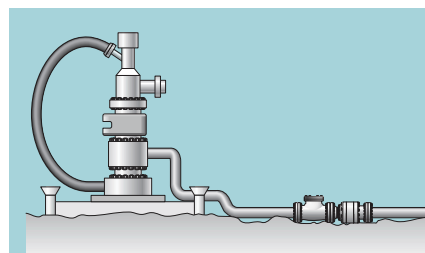
Ordering Information

Please provide the following information on any purchase order or request for quotation:

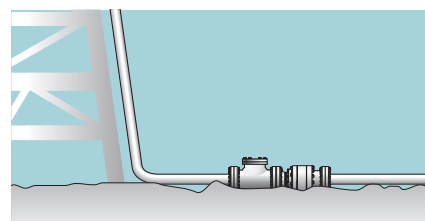
- Nominal pipe size
- Pipe wall thickness or bore
- Pipe grade
- Design rating
- Separation loads
- Installation water depth
- Configuration
- Flange type and specification, if applicable



A Pressure-Balanced Safety Joint provides sure protection when used in a lateral tie-in line.



When installed with subsea trees, a Pressure-Balanced Safety Joint protects all seafloor equipment.



A Pressure-Balanced Safety Joint prevents damage to the riser and possibly to the jacket.



SUBSEA PIPELINE SYSTEMS

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