Mann Tek

Sweden

SBCouplings

Safety Break-away Couplings

Product Information

Art.No XB06 Version 1601

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Safety Break-away couplings are used to prevent pull away accidents, protect terminal and loading/unloading equipment and eliminated unwanted product release.

The break-away couplings has a diverted breaking point which will break at a determined break-load where upon the internal valves will automatically close on both sides.

This will in a longer time frame minimize down time, save money, equipment and the environment.

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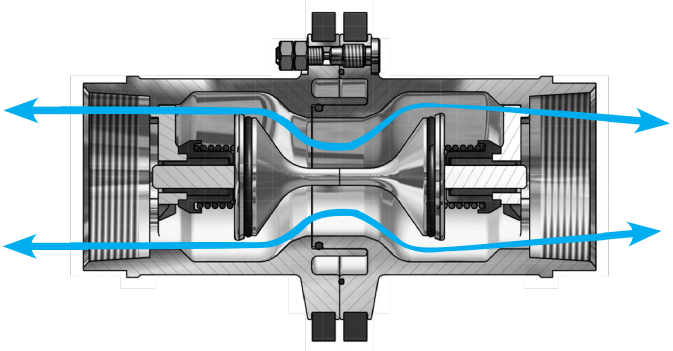
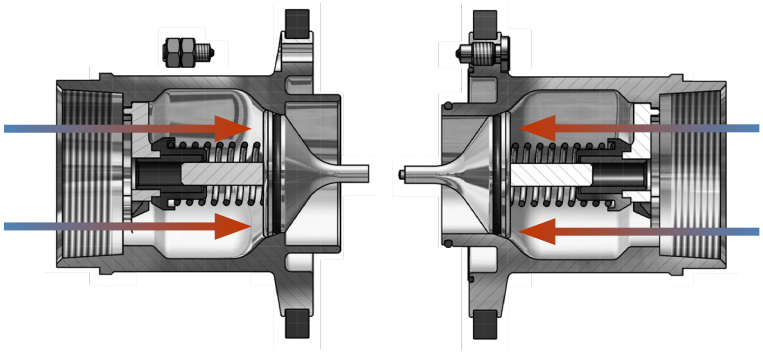
How it works - before and after emergency disconnect



SBCoupling before emergency disconnect

The safety break-away valve consists of two halves, each with a valve that has a o-ring seal.



SBCoupling after emergency disconnect

When the SBCouplings separate, it allows the valves to close. The two valves closes rapidly, minimizing exposure to personnel and the environment.

The SBCouplings, Safety break-away couplings has three external break bolts. In the case of axial tension all of the bolts take up the force corresponding to the break force on the hose with a safety margin.

Non-axial forces concentrate the tension forces more strongly on one bolt, so that the safety break-away coupling reacts in a natural way to the reduction of the hose break forces.

Features and Applications

Features

- Passive security against situations where a hose or loading arm could be subjected to inadvertent excessive loads.
- Design features are a simple mechanism and no loose components which could be lost after release.
- Operates independently of shut off safety system and does not require an external power source.
- Easy to reset on site with one person
- High flowrate / low pressure drop
- Very low loss, positive shut-off of both coupling halves results in minimum product loss.
- Lightweight and robust design.
- Available with ANSI/DIN flanges or threaded (BSP or NPT).

Applications

Liquified gases
LPG, Butane, Propane and Blends.
Co2, DME, LNG

Chemicals and Hydrocarbons
Aromatics, Ethylenes and Propylenes,
VCM, Alcohols and Acids, Diesel, Jet A1.
Refrigerants Forane.

Oil and Petrochemical
Bulk Loading/Unloading, Road Tankers
Rail Tankers, Process Product Transfer
Tank Cleaning

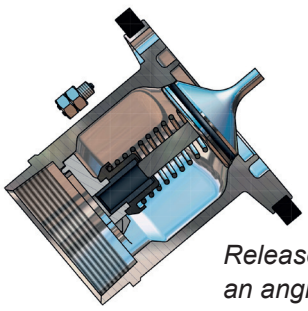
Marine and Offshore
Ship to Rig Fluid Transfer
Ship to Shore Fluid Transfer
Ship to Ship Fluid Transfer
Bunkering, Marine Refuelling

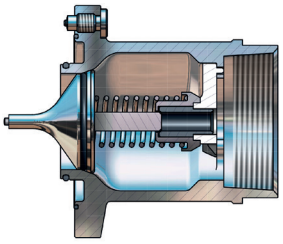
Speciality
Hydraulic Oils, Inks, Paints, Solvents,
Locomotive Fuelling, Helicopter Fuelling,
Food processing industry
Plant engineering and construction
Power plant construction, Food processing industry

The Safety Break-away couplings are available as Industrial and Marine type.

Industrial Break-away

Typically installed into loading arm and hose assemblies, where at least one side of the coupling is attached to a rig and fixed point.

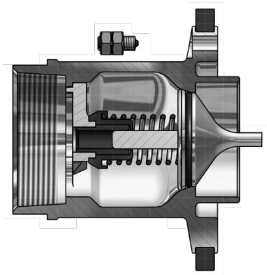


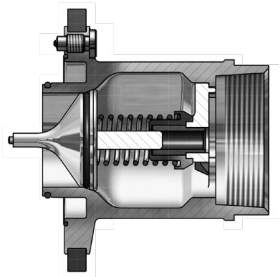


Release with a tensile force being applied at an angle to the plane of the coupling housing, up to 90 degrees.

Marine Break-away

Marine Safety Break-aways are designed to only release by inline pull and used between two strings of hose.





Release by inline pull only.

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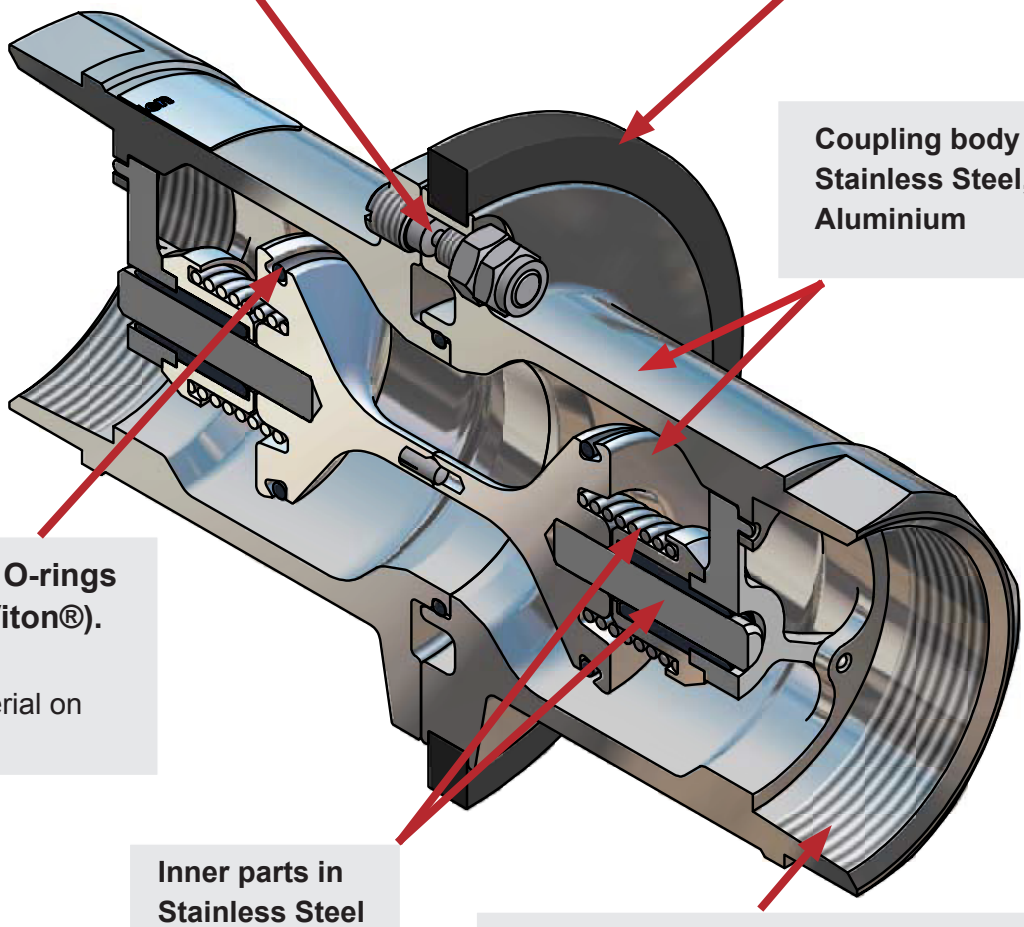
Industrial Break-away coupling

Industrial Break-away coupling is utilized all industrial product transfer installations.

The industrial SBCouplings are specifically designed to be able to activate with a tensile force being applied at an angle to the plane of the coupling housing, up to 90 degrees.

Advantages



Breaking bolts in Stainless Steel

Protecting ring in PUR (Vulkollan®)

Coupling body and valves in Stainless Steel, Brass and Aluminium

Standard O-rings in FPM (Viton®).

Other material on request.

Inner parts in Stainless Steel

Connections: Parallel BSP threads with flat sealing surface, tapered internal NPT threads, flanges and Victaulic.

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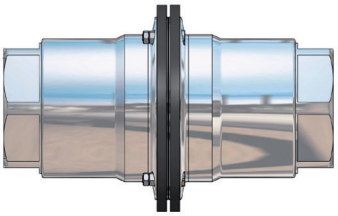
Examples of Connection combinations

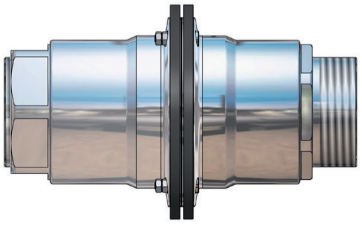
BSP Female thread / BSP Female thread

NPT Female thread / NPT Female thread

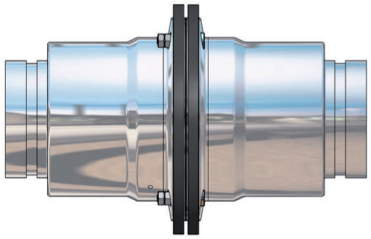


Male thread / Male thread

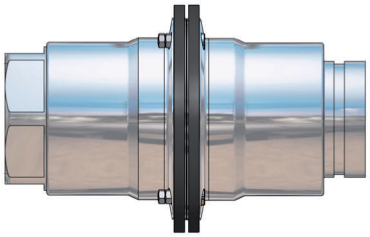
NPT Female thread / NPT Male thread
also available with BSP



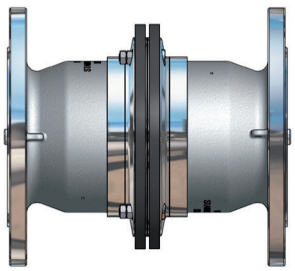
Victaulic / Victaulic



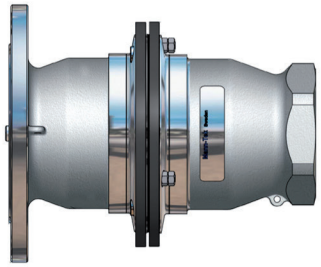
NPT Female thread / Victaulic



Flange / Flange



Flange / Thread
(BSP/NPT -Female/Male and Victaulic)



Other combinations of connections on request

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Technical data - Sizes, connections, materials and seals

Coupling sizes and connections

Nominal width	Protection ring[1]	Breaking force[2]		Connection[3]	Kg (Stainless)	Kg (Aluminium)
		SS	Alu			
1"	PUR	4,8 kN	3,2 kN	1" Thread	1,6	-
				1" Flange	2,7	-
2"	TPU & PUR[4]	13 kN	9 kN	2" Thread	2,6	0,9
				2" Flange	7,3	2,5
2½"	PUR	22 kN	10 kN	2½" Thread	7,4	2,5
				2½" Flange	13,2	4,5
3"	TPU	33 kN	15 kN	3" Thread	8,5	2,9
				3" Flange	15,1	5,1
4"	TPU	52 kN	24 kN	4" Thread	15,5	5,3
				4" Flange	20,7	7,0
5"	PUR	81 kN	37 kN	5" Thread	32,0	12,0
				5" Victaulic	31,0	11,7
6"	PUR	92 kN	54 kN	6" Thread	46,8	15,9
				6" Flange	57,6	19,6
8"	PUR	165 kN	96 kN	8" Thread	-	-
				8" Flange	71,0	25,9
10"	PUR	151 kN	151 kN	10" Flange	120	-
12"	PUR	217 kN	217 kN	12" Flange	185	-

1. **PUR-** Polyurethane
   TPU- Thermaplastic
2. Mann Tek Standard. Other on request.
3. **Threads:** Female and Male (F/F - F/M - M/M) BSP, Female and Male (F/F - F/M - M/M) NPT **Flanges:** ANSI 150 psi / ANSI 300 psi, DN 25-150 PN 10/16 and PN 25/40, TW1/50, TW3/80, TW7/150, T.T.M.A . **Others:** Victaulic
4. 2" Flanges & male thread uses PUR protection ring

Materials

Component	Material	Standard	Operation temperature[3)]
Housing Check valve	SS (Stainless Steel)	EN 10272 - 1.4404+AT	-40°C to 250°C
		EN 10213 - 1.4409+AT	
	Br/Gm (Brass/Gun metal)	EN 12164 - CW614N	-40°C to 200°C
		EN 1982 - CB491K-GS	
	AL (Aluminium)	EN 755 - AW-6262-T6	-40°C to 150°C
		EN 1706 -AC-42100-T6	

Seals

Component	Material	Description[4)]	Operation temperature[3)]
O-ring	FKM	Viton™	-30°C to 200°C
	EPDM	Buna AP	-40°C to 120°C
	FFKM	Kalrez™ Chemraz™	-15°C to 230°C
	NBR	Perbunan	-38°C to 80°C

Working pressure: 16 bar / 25 bar 150psi / 300 psi 40 bar / 600 psi on request.

3) For temperature stability of the seal material used must be considered separately for each individual case
4) Kalrez, Viton = Registered Trademarks of DuPont; Chemraz = Registered Trademark of Green Tweed

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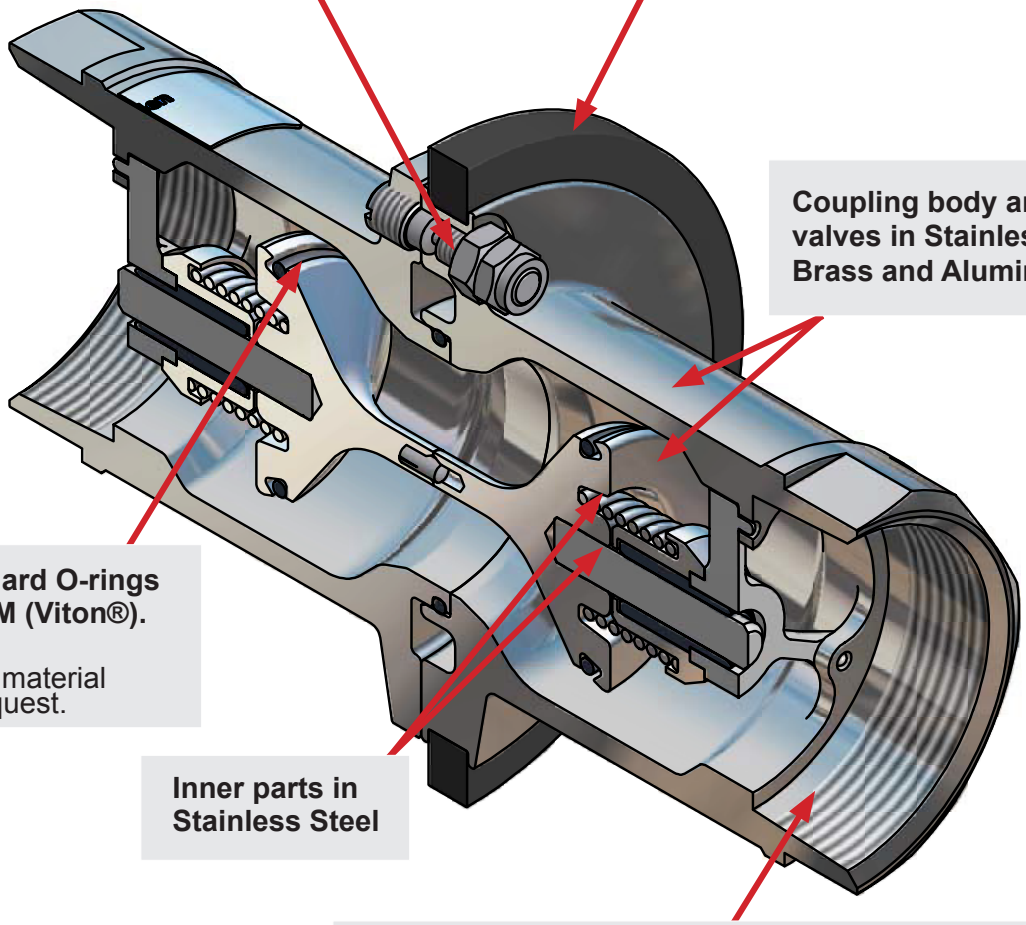
Marine Break-away couplings

Marine version of SBCouplings are designed specifically to be installed within a hose string, where the coupling would have a length of hose attached to both sides.

This coupling incorporates the same internal mechanism as our Industrial couplings, but has additional external features that provide increased resistance to torsional and bending moment forces which may be applied to the coupling, preventing premature activation in the unpredictable marine environment.

Typical applications include ship to offshore platform, and ship to ship product transfer opertations.

Advantages



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