Product Information
**About Mann Tek**

Mann Teknik AB is a Swedish company located in Mariestad, Sweden.

Mann Teknik AB produces and markets products for safe and environmentally friendly handling of aggressive fluids for the chemical and petrochemical industries.

The main product is the Dry Disconnect Couplings, DDCouplings®, for spill free liquid handling. The products are marketed through independent representatives in more than 30 countries.

Mann Teknik AB have many years of experience in designing, producing and marketing of DDCouplings® all since 1977.

Mann Teknik AB has shown a high rate of growth during the past years and is now a major player in its specialised field of operation. This is due to a determined expansion into growing markets and recognition by customers of the robust design and reliable quality of the products.

Mann Teknik AB are certified to ISO9001:2000. The products are CE-labeled. The main products are certified to PED, the European Pressure Equipment Directive and ATEX, the European directive for Equipment intended for use in Potentially Explosive Atmospheres.

The products are produced in accordance with several important standards, e.g. the NATO STANAG 3756.

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**Industrial & Marine, Breaking Bolt series**
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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.

How it works - before and after emergency disconnect

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.

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

When the SBCouplings separate, it allows the valves to close. The two valves closes rapidly, minimizing exposure to personnel and the environment.
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,
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.
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.
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
Technical data - Sizes, connections, materials and seals

### Coupling sizes and connections

<table>
<thead>
<tr>
<th>Nominal width</th>
<th>Breaking force1)</th>
<th>Connection2)</th>
<th>kg (Stainless)</th>
<th>kg (Aluminium)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>Alu</td>
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</tr>
<tr>
<td>1&quot;</td>
<td>4,8 kN</td>
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<td>1&quot; Thread</td>
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<tr>
<td></td>
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<td>24 kN</td>
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<td>12&quot;</td>
<td>217 kN</td>
<td>217 kN</td>
<td>12&quot; Flange</td>
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</tr>
</tbody>
</table>

1) Mann Tek Standard. Other on request.
2) 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

### Materials

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Standard</th>
<th>Operation temperature3)</th>
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</thead>
<tbody>
<tr>
<td>Housing Check valve</td>
<td>SS (Stainless Steel)</td>
<td>EN 10272 - 1.4404+AT</td>
<td>-40°C to 250°C</td>
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<td></td>
<td>Br/Gm (Brass/Gun metal)</td>
<td>EN 12164 - CW614N</td>
<td>-40°C to 200°C</td>
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<tr>
<td></td>
<td>AL (Aluminium)</td>
<td>EN 755 - AW-6262-T6</td>
<td>-40°C to 150°C</td>
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<tr>
<td></td>
<td></td>
<td>EN 1706 -AC-42100-T6</td>
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### Seals

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Description4)</th>
<th>Operation temperature3)</th>
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<tbody>
<tr>
<td>O-ring</td>
<td>FKM</td>
<td>Viton™</td>
<td>-30°C to 200°C</td>
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<tr>
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<td>EPDM</td>
<td>Buna AP</td>
<td>-40°C to 120°C</td>
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<tr>
<td></td>
<td>FFKM</td>
<td>Kalrez™ Chemraz™</td>
<td>-15°C to 230°C</td>
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<tr>
<td></td>
<td>NBR</td>
<td>Perbunan</td>
<td>-38°C to 80°C</td>
</tr>
</tbody>
</table>

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
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 operations.

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®).**
- **Inner parts in Stainless Steel**
- **Connections:** Parallel BSP threads with flat sealing surface, tapered internal NPT threads, flanges and Victaulic.
- **Other material on request.**
Examples of Connection combinations

Other combinations of connections on request

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)
# Marine Breaking Bolt Series

## Technical data - Sizes, connections, materials and seals

### Coupling sizes and connections

<table>
<thead>
<tr>
<th>Nominal width</th>
<th>Breaking force(^1)</th>
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<td></td>
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<td>-38°C to 80°C</td>
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</table>

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

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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
Flow Diagram (Pressure Drop) for Industrial and Marine Break-away couplings

Test Fluid: n-paraffin  
Temperature: 20 °C  
Density: 0,75 kg/dm³  
Viscosity: 1,75 mm²/s

Industrial Break-aways
Non - Closure Break-away couplings

Industrial or Marine Break Away
- Non Closure

- Non-closure versions are available in both the Industrial and Marine versions of our couplings, the Non-Closure design acts purely as an identified safe parting point within the transfer system, protecting equipment and personnel.

- With no internal mechanism these couplings are utilised when the medium is non-hazardous and spillage is acceptable.

Option - Break-away /Swivel integrated

Where there is a risk of excessive force on the hose due to unexpected movement between the loading and unloading station, combining the Dry Disconnect Coupling or Swivel with a Safety Break Away coupling.

Dry Gas coupling Hose unit with Break-away integrated

Dry disconnect coupling Hose unit with Break-away integrated
Safety Break-away coupling - Cable release series

General info

For safe transfer of all your hazardous and non-hazardous products.

The Break-away Cable release series, is designed specifically to minimize spillage and damage associated with drive away and pull away incidents.

The Coupling automatically senses an excessive load, closes its valves and then permits disconnection.

Function

The safety break-away valve consists of two halves, each with a valve that has a flat type-sealing surface similar to a dry disconnect coupling.

The valve remains constantly open under normal use.

The two halves of the break-away coupling only close when there is excessive force, such as in a Road Tanker, or Rail Car drive away situation.

The release is executed by pulling out the locking bolts with the help of the cable. The locking bolts hold the two pressure clamps in position which press both casing halves of the SBCoupling together. A guiding pin set in between serves the alignment of the locking bolts.

When the SBCouplings separate, this allows the poppets to close. Product loss is minimized because of the two poppets close rapidly, minimizing exposure to personnel and the environment.

How it works

Safety Technology for Rough Environments: Cable Release Series

- Passive security against situations where a hose or loading arm could be subjected to inadvertent excessive loads.

- Minimal Tension forces on the cable are required to release the SBCouplings-system.

- 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.
Cryogenic Break-away Couplings are a further development of our Safety Break-away Couplings which has successfully been used to prevent pull-away accidents in the petroleum, chemical and LPG industry all over the world. The new range of Cryogenic Break-away Couplings can be installed either at fixed points or in the middle of hose strings.

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

Contact us or visit www.mann-tek.com for further information about Cryogenic Break-away couplings

Technical information

Sizes
1" (DN25) to 6" (DN150)

Working pressure
MWP 25 Bar - 1" (DN25) to 4" (DN100)
MWP 16 Bar - 6" (DN150)
with 5 time safety factor

Working temperature
Lowest working temperature is -200° C

Materials
Stainless steel. Others on request.

Connections
Female NPT, flanged EN and ANSI. Others on request.

Applications
- Container discharge
- Fuel bunkering
- Loading/unloading of tank trucks, rail tankers, bunkering and tank vessels
- Vapor recovery lines
## Enquiry Break-away couplings

### Industrial Break-away

**Required end connections (flange/threaded)**

<table>
<thead>
<tr>
<th>Fixed terminal (Connection 1)</th>
<th>Hose (Connection 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of SBCoupling Break-away</td>
<td>Angle of pull (if any)</td>
</tr>
</tbody>
</table>

### Marine Break-away

**Required end connections (flange/threaded)**

<table>
<thead>
<tr>
<th>Hose (Connection 1)</th>
<th>Hose (Connection 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of SBCoupling Break-away</td>
<td>Straight pull</td>
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</tbody>
</table>

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### Plant data

<table>
<thead>
<tr>
<th>DN / inch:</th>
<th>Quantity:</th>
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<tr>
<td>Connection 1:</td>
<td>Connection 2:</td>
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<tr>
<td>Hosemake/type:</td>
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</table>

### Flow data (Media CAS No)

| 1 | : |
| 2 | : |
| 3 | : |
| 4 | : |
| 5 | : |

- **Working Pressure (bar)**
- **Working Temperature (°C)**
- **Concentration (%)**
- **Viscosity (10⁻⁶ pa s)**
- **Specific weight (kg/dm³)**
- **Solid particle quantity:**
- **Hardening**
- **Flow rate (l/min)**

### Special points

- **Conditions of mounting:**
- **Legal regulations:**
- **Specialized designs:**

<table>
<thead>
<tr>
<th>Pull force (kN):</th>
<th>Angle of pull (if any):</th>
<th>Other requests:</th>
</tr>
</thead>
</table>

### Customers note

Mann Teknik AB
Strandvägen 16
SE-542 41 Mariestad
Sweden

46-(0)501 39 32 00
46-(0)501 39 32 09
www.mann-tek.com
sales@mann-tek.se
Product Information

**DDCouplings®**
Dry Disconnect Coupling.
1" to 8", PN 16 - PN 25. Aluminium, Brass-Gunmetal, Stainless Steel and PEEK. Other materials on request. According to NATO standard STANAG 3756.

**DACouplings,**
Dry Aviation Coupling.
2¾", PN 10. Main body in Aluminium.
**Standards:** ISO 45, MS 24484, NATO STANAG 3105, British Aerospace Spec. 2C14.

**Full Flow - ballvalves**

**SBCouplings, bolt series**
*Industrial and Marine Safety Break-away, breaking bolts,* Aluminium, Brass, Stainless Steel, 1" to 12", female/male threads and with flanges, with breaking bolts.

**Safety Break-away, cable release**
Stainless Steel, PN10 / PN 25. 2" to 4", female threads. 6" to 12", flanged connection.

**DGCouplings®**
Dry Gas Coupling.
1" to 8", PN25. Stainless steel. Other materials on request.

**Sampling, Vent or Drain unit**
Stainless Steel SS-EN 10 088-1.4404+AT (AISI 316L). Ball Valve in 1.0619 and 1.4301.

**Swivel joints**
¾" to 10", PN 10 - PN 25. Aluminium, Brass-Gunmetal, Stainless Steel. Other materials on request. Connection: BSP, NPT. Flanged connection (DIN, ANSI/ASA e.t.c)

Business Segment Information

- Offshore & Marine
- Gas (LPG)
- Rail tankers
- Chemical industry
- Tank trucks
- Military
- Container
- Cryogenic Couplings

Company Information

- General Information about Mann Tek, products and Business Segments

Approval Information

- Quality, Health, Safety and Environment Policy. Quality Approvals, Product Approvals and Declaration of Conformity

Service

- Service instructions and operation manuals

Your distributor

Your distributor:

Contact Mann Tek for your local distributor

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Mann-Tek is a certified ISO9001-company.

www.mann-tek.com