



## **IMPORTANT INFORMATION**

READ THE COMPLETE DOCUMENTATION BEFORE USE

### **EC DECLARATION OF CONFORMITY**

In accordance with the

**Directive Explosive Atmosphere 94/9/EC (ATEX) and**

**Pressure Equipment Directive 2014/68/EU (PED)**



Art.no.: XB100 Version 2017-07-25

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## IMPORTANT INFORMATION

### Delivery Check

- *Check for any transportation damage.  
If so report this immediately to the forwarder.*
- *Make sure that the products and quantities are in accordance with the delivery note.*

### Complaints / Return of goods?

- **OBSERVE!** *If returning goods please use the Complaint Report found on [www.mann-tek.com/downloads](http://www.mann-tek.com/downloads)*
- *Complete the form with as much details as possible.*
- *Return the goods with the Complaint Report attached on the outside of the package!*

### Returning Used Product?

- **OBSERVE!** *If returning used goods please use the Complaint Report found on [www.mann-tek.com/downloads](http://www.mann-tek.com/downloads)*
- *Complete the form with as much details as possible*
- *Fill in the Certificate of Decontamination.*
- *Return the goods with the Complaint Report and the Certificate of Decontamination attached on the outside of the package or by email!*

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# 1. Instructions for correct installation and maintenance

All DACouplings®, DDCouplings® and DGCouplings® are designed for trouble free operation in a wide range of applications and operating conditions. Reliable and safe operation is dependent upon the correct installation and handling of the equipment. Regular and appropriate maintenance is essential to ensure both safety and reliability over the life of the equipment.

## 1.1. General safety rules

Before you install any DACouplings®, DDCouplings® or DGCouplings® equipment it is essential to check that the material and performance specifications are acceptable for your specific application. The pressure ratings and primary materials of the construction are clearly indicated on the identification plate of each Mann Tek product. A drawing showing the materials of construction relating to each individual component is available upon request. The technical department at Mann Teknik AB is always happy to provide guidance on material suitability. Our data is taken from published chemical resistance information as well as our own application experiences. Specification checks should always be carried out before the product is supplied, but if unsure, ask! Especially if you are using the couplings outside the standard temperature range (-20°C to +80°C), ask for confirmation regarding your application.

Do not assume that a DACoupling®, DDCoupling® or DGCoupling® product supplied for one specific application, automatically will be suitable for other similar applications. Many variables affect the performance of materials. If you wish to use a DACoupling®, DDCoupling® or DGCoupling® product for a different application than the one originally specified, check with Mann Teknik AB to ensure compatibility before installation. Please remember, the application details should include all media transferred through the coupling. Not just the primary transferred media. As with all equipment, a check should be made to ensure that the installation fulfils the requirements of applicable prevailing industry, local, national and international standards. Particular attention should be paid to pressure ratings, safety factors and the position of upstream and downstream affiliated closures.

## 1.2. Initial operation

The correct installation of all DACoupling®, DDCoupling® and DGCoupling® equipment is essential to ensure safe and satisfactory operation. Checks should be made to ensure that the fitting of DACoupling®, DDCoupling® and DGCoupling® equipment does not interfere with the correct operation of affiliated equipment (i.e. isolation valve, excess flow valves, etc). Before securing the flange or thread connection to mating equipment (i.e. hose, loading arm and storage tank) ensures that no foreign objects, dirt, grit, etc. are present in the coupling. All flange and thread connections should be made without imparting excessive strain to the equipment and pressure checked at least to 1.5 times the maximum application working pressure prior to use. All gaskets and sealing materials used to make the permanent connection should be of suitable material and able to operate at least up to the maximum parameters of the DACoupling®, DDCoupling® and DGCoupling® equipment.

When installing DACouplings®, DDCouplings® and DGCouplings® equipment to new pipe work, tanks, etc. ensure the system is free from debris that may be transferred through the coupling. Where the hose or loading arm assembly is the primary static dissipation or earth route, the electrical continuity value of the assembly shall be checked to ensure regulatory compliance. Special attention should be paid to the balancing of loading arms. The weight of the coupling plus transfer media should be taken into account at the specification stage. It is usual for loading arm balance settings to account of weight variations due to differences in the full / empty cycle. The loading arm should be set to balance in the condition present at the time of connection. For example, should the loading arm be empty at the time of connection then it should be balanced in the empty condition. If loading/ distributing some kind of liquid gas make sure that Safety Break-away coupling, SBCoupling, is applied in the application.

Each DACoupling®, DDCoupling® and DGCoupling® is designed to take reasonable axial loads associated with good handling practice but is not designed to accept continuous excessive load values associated with maladjustment or poor installation. Continuous excessive strain will equate to increased component wear and possibly premature failure if not corrected.

When DACoupling®, DDCoupling® and DGCoupling® equipment is used with hoses, attention should be paid to hose length to ensure correct handling characteristics.

The hose assembly should be designed such that the minimum hose length is supported by the coupling or the operator. Hoses should be of sufficient length to ensure operation well within the stipulated hose minimum bend radius up to the maximum operation envelope. Also ensure that the flow velocity do not exceed 5,25 m/s due to static electricity.

Once all the above elements are satisfactory, a function check should be carried out to prove the system. The hose unit or coupler should connect and disconnect without physical interference or difficulty. Please remember that the higher the static pressure, the greater the effort to make a connection. The Mann-Tek technical department is happy to advice on this subject at the specification stage.

### **1.3. Maintenance**

All DACouplings®, DDCouplings® and DGCouplings® should be visually checked for damage, etc. on a daily or shift basis according to the handling instructions. Any sign of damage or operating difficulty should be reported and acted upon at the earliest opportunity. Do not continue to use any equipment that is not operating satisfactorily as continued use will cause further deterioration and possible equipment failure.

All DACoupling®, DDCoupling® and DGCoupling® equipment is designed such that all regular service components are contained within the repair or service kit. During normal operation, transferring media that has no or little component degradation, the application of the repair kit will return the equipment to full action. We recommend that the coupling is fully inspected, tested and serviced at least once a year. It must be accepted that some applications cause a greater level of component degradation either by chemical attack or by arduous physical/environmental conditions. In such circumstances a more frequent regime of inspection and service may be required. We recommend that in such applications a three monthly inspection should be carried out with automatic replacement of the hose unit piston and carrier seals. All other service parts and key components should also be checked. In addition to the three monthly inspection and primary seal replacement the hose unit shall have the full repair kit applied every year irrespective on component condition. After a representative period of time it may be possible to move to a six or twelve monthly service / inspection interval but only against a background of satisfactory operation.

There are full service instructions complete with photographs available for each DACoupling®, DDCoupling® and DGCoupling® size. These instructions show the service method as well as tools required and parts identification. DACouplings®, DDCouplings® and DGCouplings® are designed such that they can be served in a number of ways. Some Mann Tek distributors are trained and accredited by Mann Teknik AB to carry out service of Mann Tek couplings. Mann Teknik AB is always happy to service DACouplings®, DDCouplings® and DGCouplings® at our workshop. We are also happy to offer training either on or off site to customers' engineers who wish to carry out servicing themselves. Under no circumstances should Mann Tek equipment be serviced by untrained personnel.

The distributor of Mann Tek couplings has full responsibility to enclose this information to the customer. If the customer does not understand English the Distributor also have the responsibility to translate this document to a language the customer fully understand.

## 2. Declaration of Conformity PED

# MannTek

DECLARATION OF CONFORMITY:

### Pressure Equipment Directive 2014/68/EU

Mann Teknik AB of Strandvägen 16, SE-542 31 Mariestad, Sweden hereby declares that the products listed comply with the essential requirements of the Pressure Equipment Directive 2014/68/EU.

**Pressure accessories:**

**DDCouplings (STANAG), DGCouplings, DACouplings (ISO45), DCCouplings, SBCouplings and CBCouplings**

**Conformity assessment procedure followed:**

no CE-marking\*\*

SEP=sound engineering praxis

Article 4 section 3\*

CE

Cat 1=Category 1

Module A

CE 0038

Cat 2=Category 2

Module D1

For piping intended for gases, liquefied gases, gases dissolved under pressure, etc. according to article 4 paragraph 1.(c)(i) [Annex II Table 6]

	Al			Br		SS/Ni-alloy/Ti	
DN25	PN16	SEP*	PN16	SEP*	PN25	SEP*	
DN40	PN16	Cat 1	PN16	Cat 1	PN25	Cat 1	
DN50	PN16	Cat 1	PN16	Cat 1	PN25	Cat 2	
DN65	PN10	Cat 1	PN16	Cat 2	PN25	Cat 2	
DN80	PN10	Cat 1	PN16	Cat 2	PN25	Cat 2	
DN100	PN10	Cat 1	PN16	Cat 2	PN25	Cat 2	
DN150					PN16	Cat 2	
DN200					PN10	Cat 2	
DN250					PN10	Cat 2	
DN300					PN10	Cat 2	

For piping intended for liquids according to article 4 paragraph 1.(c)(II) [Annex II Table 8]

	Al			Br		SS/Ni-alloy/Ti	
DN25	PN16	SEP*	PN16	SEP*	PN25	SEP*	
DN40	PN16	SEP*	PN16	SEP*	PN25	SEP*	
DN50	PN16	SEP*	PN16	SEP*	PN25	SEP*	
DN65	PN10	SEP*	PN16	SEP*	PN25	SEP*	
DN80	PN10	SEP*	PN16	SEP*	PN25	SEP*	
DN100	PN10	SEP*	PN16	SEP*	PN25	Cat 2	
DN150	PN10	SEP*			PN16	Cat 2	
DN200					PN10	SEP*	
DN250					PN10	Cat 1	
DN300					PN10	Cat 1	

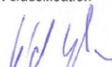
\*According to Article 4 section 3, the products designed and manufactured in accordance with the sound engineering practice (SEP) must not bear the CE marking. Unauthorized product modifications lead to an invalid declaration.

\*\*Attention: If the coupling is Ex-marked the CE-marking is for ATEX classification

**Notified body**

Identification number 0038  
Lloyds Register Verification Ltd.  
71 Fenchurch Street  
EC3M 4BS London  
United Kingdom

Signed:



Name:

Gerhard Kopplin

Title:

Technical Manager

Date:

19<sup>th</sup> January 2017



Mann Teknik AB is a certified ISO9001-company

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## The products are based on the standards and referred guidelines

NATO STANAG 3756 (edition 4) - Industrial couplings	ISO 45, STANAG 3105, MS 24484, Aircraft - Pressure refuelling connection
EN 13175 – Specification and testing for Liquefied Petroleum Gas (LPG) pressure vessel valves and fittings	2008/68/EC – The transport of dangerous goods by road, rail or inland waterways inside the member states
ISO TS 18683 – Guidelines for systems and installations for supply of LNG as fuel to ships (Annex G – Dry disconnect coupling)	94/9/EC – Equipment and protective systems intended for use in potentially explosive atmospheres

## The products are tested according to

EN 12266-1 and -2	Industrial valves – Testing of valves – Pressure tests, test procedures and acceptance criteria
EN 14432	Tanks for the transport of dangerous goods – Tank equipment – Product discharge and air inlet valves
ISO 5208	Industrial valves – Pressure testing of valves
EN 12567:2000	Industrial valves – Isolating valves for LNG – Specification for sustainability and appropriate verification tests

## Material specifications according to harmonized standards

<b>Stainless Steel</b> EN 10272:2007 EN 10028-7:2007 EN 10222-5:1999 EN 10216-5:2013 EN 10213-4:2007	Stainless steel - Bars for pressure purposes - Flat products made of steel for pressure purposes - Steel forgings for pressure purposes - Seamless steel tubes for pressure purposes - Technical delivery conditions for steel castings for pressure purposes
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## Material specifications according to EAM / PMA

<b>Aluminium</b> EN 754-2:2013 EN 755-2:2013 EN 1706:1998	Aluminium and aluminium alloys - Cold drawn rod/bar and tube - Extruded rod/bar, tube and profiles - Castings
<b>Brass / Gunmetal</b> EN 12163:1998 EN 12164:1998 EN 1982:1998	Copper and copper alloys - Rod for general purposes - Rod for free machining purposes - Ingots and Castings
<b>Stainless Steel</b> EN 10088-3:1995  ASTM A479 ASTM A351	- Semi-finished products, bars, rods and sections for general purposes - bars and shapes for use in boilers and other pressure vessels - Castings, austenitic, austenitic-ferritic for pressure containing parts
<b>Nickelalloys</b> ASTM B574 VdTUV Wst-blatt 400	- bars and shapes
<b>Titan</b> ASTM B348	- bars and shapes

### 3. Declaration of Conformity ATEX



#### DECLARATION OF CONFORMITY:

#### EC-Directive 94/9/EC (ATEX)

Mann Teknik AB of Strandvägen 16, SE-542 31 Mariestad, Sweden, hereby declares that the products listed comply with the essential requirements of the ATEX EC-Directive 94/9/EC.

#### Product models listed

**DDCouplings (STANAG), DGCouplings, DACouplings (ISO45), DCCouplings**

#### The following harmonized standards are applicable

##### **SS-EN 1127-1**

Explosion prevention and protection

##### **SS-EN 13463-1**

Non electrical equipment for potentially atmospheres, basic method and requirements.

##### **SS-EN 13463-5**

Non electrical equipment for potentially atmospheres, protection by constructional safety.

Marking:  **II 2G**

The manufacturer attested, that the DDCouplings®, DACouplings, DGCouplings and DCCoupling satisfy the stated requirements and may therefore be used in category 2, group II.

#### Technical file receipt

Storage No. 0038/ATEX/HAM0664017

#### **Notified body**

Identification number 0038  
Lloyds Register Verification Limited  
71 Fenchurch Street  
EC3M 4BS London

United Kingdom

Signed: 

Name: Gerhard Kopplin

Title: Technical Manager

Date: 20<sup>th</sup> January 2015

Mann Teknik AB is a certified ISO9001-company





DECLARATION OF CONFORMITY:

**EC-Directive 94/9/EC (ATEX)**

*Mann Teknik AB of Strandvägen 16, SE-542 31 Mariestad, Sweden, hereby declares that the products listed comply with the essential requirements of the ATEX EC-Directive 94/9/EC.*

**Product models listed**

**SBCouplings (Safety Break-Away Couplings)  
CBCouplings (Cryogenic Break-Away Couplings)**

**The following harmonized standards are applicable**

**SS-EN 1127-1**  
Explosion prevention and protection

**SS-EN 13463-1**  
Non electrical equipment for potentially atmospheres, basic method and requirements.

**SS-EN 13463-5**  
Non electrical equipment for potentially atmospheres, protection by constructional safety.

Marking:  **II 2G**

The manufacturer attested, that the SBCouplings and CBCoupling satisfy the stated requirements and may therefore be used in zone1, category 2, group II.

**Technical file receipt:** RET0271208

**Notified body** Identification number 0038  
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Signed:   
Name: Gerhard Kopplin  
Title: Technical Manager  
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Mann Teknik AB is a certified ISO9001-company



## 4. Operating advice

This advice is supplementary to your standard terminal operational procedures.

### 4.1. Intended use

DACouplings®, DDCouplings® and DGCouplings® are designed specifically for the bulk transfer of liquids and vapours. The materials of construction, including the seals should already be confirmed as compatible prior to installation. If in doubt, check before operation. Our help documents "Installation advice for DACouplings®, DDCouplings® and DGCouplings®" plus "Specification advice" are designed to assist you.

All DACouplings®, DDCouplings® and DGCouplings® are marked with a maximum pressure rating that is not to be exceeded. With careful use and regular maintenance they will give safe and trouble free operating for many years.

Service instructions are available for all DACouplings®, DDCouplings® and DGCouplings® upon request. The life expectancy and maintenance frequency of the couplings is dependent upon many variables such as cycles/day, pressures, contaminants etc., but the most significant after correct installation is correct use. The following information is designed to assist in your care of the couplings and associated equipment.

### 4.2. Safety Instructions



Proper seal and wetted metal parts material selection is critical for safe operation. To assure maximum life for the service intended, use only those materials, sealing and lubricant compatible with the fluids being handled. Please note material being supplied and make certain that it is suited for the intended service. This is important in the food processing industry.



The Dry Disconnect Coupling assembly does not eliminate possible exposure to hazardous substances. Likewise, some product residue may appear on the disc faces. The conditions of handling and use are beyond our control, and we make no guarantee, and assume not liability for damages or injuries related to the use of this coupling assembly. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.



Piping systems behind the tank unit should always be open before connecting. Do not use external tools to make a connection. It is impossible to connect against trapped liquid. Check if all valves in the pipeline are open.



Do not handle o-ring seals if their material appears charred, gummy or sticky. Use tweezers; wear gloves and protective goggles in appropriate material, consult the material safety data sheet (MSDS) of your product. Do not touch adjacent parts with unprotected hands.



Piping systems must always be depressurised and drained before attempting disassembly and removal of any Mann Teknik AB products.



Authorized and qualified personnel must carry out all assembly and maintenance operations. The installation must be equipped with suitable controls that prevent an increase of pressure beyond the maximum allowed limit (this is the responsibility of the installer/user).



Failure to do so could result in serious personal injury, property damage, leakage or unexpected separation.

### 4.3. Daily visual inspection

All hose units should be briefly inspected at the start of each day's operation. Look inside the connection socket. Check that the three rollers are not obviously damaged. Check that the connection socket area is free from dirt and foreign objects. Check for signs of seal damage (for example you may see a cut seal or small pieces of rubber coming from the piston area).

Check that the hose unit rotates freely about the hose swivel. On the first operation, check for leakage and smooth operation. Each tank unit on the truck should also be briefly checked prior to use. Check for dirt, seal damage and any obvious physical damage (such as impacts, etc.).

## 4.4. Making a connection & disconnection

- a) Hose unit:** When making the connection make sure that all relevant isolation valves connected in the hose unit application are closed. Also check that no pumping pressure is present at the hose unit.
- b) Tank unit:** Make sure that all isolation valves behind the tank unit in the pipe work are fully open.
- c)** Lift the hose unit and hose into position to start the connection. Take care to support the hose end assembly so as to present the hose unit to the tank unit in the correct orientation. It is important to ensure the hose unit is not supporting the full weight of the hose assembly during the connection process. Loading should be balanced to a neutral condition in the connection phase. Once connected, the hose unit is secure to the tank unit and able to accommodate all reasonable strain of a balanced loading arm or hose assembly. The handles have no operating purpose other than providing handling assistance.
- d)** When correctly supported, the hose unit should slide easily over the tank unit. The three rollers engage in the three slots in any one of three positions at 120 degree centre. To allow the hose unit to locate to the tank unit, and still supporting the hose assembly, rotate the hose unit whilst gently pushing towards the tank unit.
- e)** Still supporting the hose assembly, rotate the hose unit clockwise about 100 degrees. At the start of rotation you will feel some resistance. The level of resistance is dependent upon the static line and tank pressure. The higher the pressure the bigger the effort is necessary to connect the coupling. At the completion of the 100 degree turn you will feel a definite stop. Do not attempt to rotate the unit further. Further rotation does not tighten the connection or open the valves more, it only causes unnecessary damage. The hose unit valve is now open and the loading process can start.
- f)** The sequence of isolation valve and/or pump operation should be taken from your operating procedures; however it is preferable to close the isolation valve to be the last valve opening in the sequence. This reduces the possible surge effect on the coupling seals often associated with automatically actuated valve systems.
- g)** The disconnection procedure is similar to the connection procedure but in reverse. Before any attempt is made to disconnect the coupling, all isolation valves should be closed and where possible, the pumps be switched off. Where a common pumping system is in use, all flow through the coupling shall be stopped using the isolation valves and not the coupling. Closing the vehicle isolation valve first is preferred according to reasons in section (f) so long as this is compatible with your standard operating procedures.
- h)** Whilst supporting the hose unit assembly, turn the hose unit anti-clockwise approximately 100 degrees. You may feel a slight "pop off" effect at the end of the rotation travel when transferring liquids with an elevated vapour pressure. This is normal. Do not attempt to rotate the hose unit further. This will not further loosen the connection or secure the seal, it only causes unnecessary damage.
- i)** Still supporting the hose assembly, pull the hose unit away from the tank unit. You may feel a small resistance due to seal vacuum. Correctly supported, the hose unit will come away from the tank unit with ease.
- j)** The hose assembly should be stowed in a manner so as to avoid physical damage. Do not drop the hose end assembly or stow on the floor. The dust plug provided should always be fitted.
- k)** Ensure the tank unit cap (if fitted) is replaced and secured.
- l)** Do not use anything other than the handles provided to operate the coupling. The handles are specifically designed to provide sufficient assistance in operation. Should the couplings become stiff or difficult to operate then something is wrong and they should be inspected prior to further use. Under no circumstances should the couplings be subjected to excessive force.

The use of damaged or faulty equipment may have serious safety consequences.

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