OPERATING MANUAL









FOREWORD

This operating manual applies to the person or persons using the Dry Disconnect Couplings.

It is very important to read and understand this operation manual before use of this coupling. Become familiar with the unit's operation, applications and limitations. Be particularly aware of its specific hazards. Store this manual in a clean area and always at a readily available location. Additional copies can be downloaded from the MannTek homepage.

IMPORTANT !!

READ THE COMPLETE DOCUMENTATION

The basis for this manual follows the EC-Directive:

Pressure Equipment Directive

2014/68/EU of 18th November 2019

- Do not make modifications that are not authorized by the manufacturer.
- Read and respect all warnings and instructions provided to you.
- Use only original MannTek spare parts for maintenance.

SUMMARY OF REVISIONS

| DATE OF CHANGE | DESCRIPTION |
|----------------|--|
| 2004-02-09 | New pressure ratings, Storage |
| 2004-02-20 | Copyright remark |
| 2008-10-29 | New front page layout |
| 2010-03-08 | General review |
| 2016-09-22 | General review & New front page layout |
| 2021-08-27 | High pressure version added |
| 2023-03-03 | New Layout & Design 2.0 added |

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1 INTRODUCTION

1.1 INTENDED USE

Dry Disconnect Couplings (DDCs) are designed for use wherever it is necessary to connect and disconnect hoses and pipelines under moderate pressure, quickly and without spillage. They are designed primarily for use with dangerous goods where reliability and safety are of prime concern.

All MannTek products 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. Take care that the product is only used inside the limits of the following product specification.



Operation is single action (see chapter 5.2), using a straightforward turning motion to connect the couplings and open a flow path. An initial push and turn action on the hose unit causes engagement with the tank unit, thus locking and sealing the two units together. Further rotation causes the internal valves to open, thereby allowing flow with minimum pressure drop.

The connection and valve mechanism is interlocked such that hose unit and matching tank unit are fully engaged and sealed before the valve opens. On disconnection the valve fully closes before the coupling separates and spillage is therefore negligible.



| PRODUCT NAME: | Dry Disconnect Coupling | Dry Disconnect Coupling - Design 2.0 |
|----------------------|---|---|
| SIZES: | 1", 2", 2½", 3", 4", 6" and 8" | 2", 3" |
| THREAD CONNECTION: | BSP-Thread ISO228, NPT-Thread A EN10226, ACME, S60x6 | NSI B1.20.1, BSPT-Thread |
| FLANGE CONNECTION: | Flange EN 1092, ANSI B16.5, DIN28 | 3459, T.T.M.A. ¹ |
| OTHER CONNECTION: | MIL-C-10387J, DIN 11864, DIN3267 | 6, ISO2852 ¹ |
| MATERIAL (CASTING): | EN 10213 – 1.4408/1.4409+AT, AST 1982 – CC491K, EN 1706 – AC-4200 | M A351 – CF-3M or CF-8M, EN 00/42100-T6 ¹ |
| MATERIAL (MACHINED): | EN 10272 – 1.4401/1.4404+AT, ASTM – CW614N, EN 755-2 – EN AC-6026 (Hastelloy C276), ASTM B446 N0662 (Duplex), ASTM B348 R50400 (Ti Gra | 4 A479 – S31603 (316L), EN 12164 /6262-T6, ASTM B574 N10276 25 (Inconel 625), EN 10272 – 1.4462 ade 2) |
| TEMPERATURE RANGE: | -20°C to +80°C (outside this rang ask for confirmation!)² | e between -54°C and +250°C, |

¹other connections possible on request.

² depending on O-Ring material

Working pressure and classification according to PED 2014/68/EU:

Pressure accessories: DDC (STANAG 3756), DAC (ISO45)

| no CE-marking** | SEP=sound engineering praxis | Article 4 section 3* |
|-----------------|------------------------------|----------------------|
| CE 0525 | Cat 1=Category 1 | Module A |
| CE 0525 | Cat 2=Category 2 | Module H |
| CE 0525 | Cat 3=Category 3 | Module H |

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* | PN25 | SEP* |
| DN32 | PN16 | Cat 1 | PN16 | Cat 1 | PN25 | Cat 1 | PN25 | Cat 1 |
| DN40 | PN16 | Cat 1 | PN16 | Cat 1 | PN25 | Cat 1 | PN25 | Cat 1 |
| DN50 | PN16 | Cat 1 | PN16 | Cat 1 | PN25 | Cat 2 | PN25 | Cat 2 |
| DN65 | PN16 | Cat 2 | PN16 | Cat 2 | PN25 | Cat 2 | PN25 | Cat 2 |
| DN80 | PN16 | Cat 2 | PN16 | Cat 2 | PN25 | Cat 2 | PN25 | Cat 2 |
| DN100 | PN16 | Cat 2 | PN16 | Cat 2 | PN25 | Cat 2 | PN25 | Cat 2 |
| DN150 | | | | | PN25 | Cat 3 | | |
| DN200 | | | | | PN25 | Cat 3 | | |
| DN250 | | | | | PN25 | Cat 3 | | |
| DN300 | | | | | PN25 | Cat 3 | | |

| _ | | | | | | | | |
|-----|--------|----------|-------------|--------------|-----------|-----------|----------|--------------------|
| ⊦or | piping | intended | for liquids | according to | article 4 | paragraph | 1.lcJ[]] | [Annex II Table 8] |
| | F F J | | | J . | | J J J | | • • • • • • • |

| | 5 | AL | | Br | | SS | SS high | pressure |
|-------|------|------|------|------|------|-------|---------|----------|
| DN25 | PN16 | SEP* | PN16 | SEP* | PN25 | SEP* | PS40bar | SEP* |
| DN40 | PN16 | SEP* | PN16 | SEP* | PN25 | SEP* | PS40bar | SEP* |
| DN50 | PN16 | SEP* | PN16 | SEP* | PN25 | SEP* | PS40bar | SEP* |
| DN65 | PN16 | SEP* | PN16 | SEP* | PN25 | SEP* | PS25BAR | SEP* |
| DN80 | PN16 | SEP* | PN16 | SEP* | PN25 | SEP* | PS25BAR | SEP* |
| DN100 | PN16 | SEP* | PN16 | SEP* | PN25 | CAT 2 | PS30BAR | 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

Our product is often designed for both gas and liquid applications at a specific pressure, such as DN50 with a pressure rating of 40 bar. When used with liquids, it falls under SEP (Safety Integrity Level) requirements, while for gases, it falls under Category 2. As we do not always know which medium the coupling will be used for, we only sell products with CE marking, which means they are specifically adapted for gases but also function for liquids.

1.3 IDENTIFICATION PLATE

E.G. for DDC 2" - 2" BSP

| | C € 0525 2023/04 Mar S210A11018 Mi FPM/PUR ID: XXXXXX PS 16BAR | TILEK (1) II 2G H: AL BSP DN50 TÜ-AGG 304-99 EN 14432 | C€ 0525 2023/04 Man 2S10A1101B Mtr FPM/PUR ID. XXXXXX PS 16BAR | III 2G III 2G I: AL 3SP DN50 TÜ-AGG 304-99 EN 14432 |
|-------------------|---|--|---|--|
| | Des | ign 1.0 | Desi | gn 2.0 |
| | HU | TU | HU | TU |
| Article No: | S210A1101B* | T210A1101B* | 2S10A1101B* | 2T10A1101B* |
| Size: | 2"- 2" BSP | 2"- 2" BSP | 2"- 2" BSP | 2"- 2" BSP |
| Working Pressure: | 10 bar | 10 bar | 10 bar | 10 bar |
| Material: | Aluminium | Aluminium | Aluminium | Aluminium |
| Seal: | FPM (VITON®) | FPM (VITON®) | FPM (VITON®) | FPM (VITON®) |

1.4 SCOPE OF DELIVERY

E.G. for DDC 2" - 2" BSP

S210A1101B DDC 2" Hose unit with 2" BSP thread and/or

T210A1101B DDC 2" Tank unit with 2" BSP thread

In case of flange connection gaskets and bolts to mount the coupling into the application are not part of the delivery. For NPT thread use PTFE tape for sealing (see chapter 4.2).

2 GENERAL SAFETY RULES

FOR A SAFE OPERATION, READ THIS MANUAL COMPLETELY BEFORE OPERATING THIS PRODUCT.

Failure to follow the warnings may result in serious personal injury, environmental impact or property damage caused by leakage or unexpected separation.

Before you install any MannTek 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 MannTek 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, in case of uncertainty, reach out to our sales or design department! Especially if you are using the products outside the specified temperature range, ask for confirmation regarding your application.

Do not assume that a MannTek 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 MannTek 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.

2.1 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 extra 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 de-pressurised and drained before attempting disassembly and removal of any MannTek 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).

For a safe operation, read also the installation and operating instructions in this manual (see chapter 4 and 5) and ask for our service instructions.



3 TRANSPORT AND STORAGE

The product may only be transported or stored absolutely clean. Suitable protection must be used for both openings to ensure no damage occurs to the surfaces/sealed areas. The storage location must guarantee adequate protection from corrosion or extreme temperatures.

3.1 DELIVERY CHECK

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

3.2 COMPLAINTS / RETURN OF GOODS

- If returning goods please contact Mann Teknik AB to receive a Complaint Report form. The form can also be found on our homepage.
- Complete the form with as much details as possible.
- Return the goods with the Complaint Report attached on the outside of the package!

3.3 STORAGE

Store coupling in a dry, dust free, dark place, in ambient temperature.

4 INSTALLATION

4.1 INITIAL OPERATION

The correct installation of all MannTek products is essential to ensure safe and satisfactory operation. Checks should be made to ensure that the fitting of MannTek products does not interfere with the correct operation of affiliated equipment (i.e. isolation valve, excess flow valves, etc). Before securing the flange or thread connections to mating equipment (i.e. hose, loading arm and storage tank) ensure that no foreign objects, dirt, grit, water (moisture) etc. are present in the coupling.

All flange and thread connections should be made without imparting excessive strain to the equipment. All gaskets and sealing materials used to make the permanent connection should be of suitable material.

Each MannTek product is designed to take reasonable axial and bending 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 MannTek 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.

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.

4.2 INSTALLATION

When installing MannTek 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.

The MannTek product can be installed directly in the product line and is ready for use after removing the transport protection. The installation is as follows:

- a. Remove the packaging and the thread/flange protection.
- b. Check the coupling for damages before mounting.
- c. To prevent damages during mounting a suitable wrench should be used for the intended nut flats on the coupling (threaded connection) or the bolts (flanged connection).
- d. Ensure that the product line is empty and all valves are closed before you connect the coupling into the line.

Flange connection

| ME | TRIC | | INCH | | | | |
|------|--------|------|----------|------------|--|--|--|
| SIZE | 8.8 | SIZ | E | A193 B7 | | | |
| M8 | 24 Nm | 5/10 | 6-18 UNC | 16 lbf-ft | | | |
| M10 | 50 Nm | 3/8- | -16 UNC | 29 lbf-ft | | | |
| M12 | 85 Nm | 1/2- | -13 UNC | 70 lbf-ft | | | |
| M16 | 210 Nm | 5/8- | -11 UNC | 139 lbf-ft | | | |
| M20 | 410 Nm | 3/4- | -10 UNC | 243 lbf-ft | | | |
| M22 | 550 Nm | 7/8- | -9 UNC | 389 lbf-ft | | | |
| M24 | 700 Nm | 1-8 | UNC | 582 lbf-ft | | | |

e. Table 6: Tightening torque¹ for bolts:

 1 The torque forces recommended bases on a thread friction coefficient μ =0,16 at 70% of the preload force

f. Bolt tightening sequence.



NPT thread connection

Sealing NPT threads can be tricky if certain techniques are not followed.

The following tips will help alleviate many common problems in thread sealing:

- g. Always use some type of sealant (tape or paste) and apply sealant to male thread only. If using a hydraulic sealant, allow sufficient curing time before system is pressurized.
- h. When using tape sealant, wrap the threads in a clockwise motion starting at the first thread and, as layers are applied, work towards the imperfect (vanishing) thread. If the system that the connection being made to cannot tolerate foreign matter (i.e. air systems), leave the first thread exposed and apply the tape sealant as outlined above.
- i. When using paste sealant, apply to threads with a brush, using the brush to work the sealant into the threads. Apply enough sealant to fill in all the threads all the way around.
- j. When connecting one stainless steel part to another stainless steel part that will require future disassembly, use a thread sealant that is designed for stainless steel. This stainless steel thread sealant is also useful when connecting aluminium to aluminium that needs to be disconnected in the future. These two materials gall easily, and if the correct sealant is not used, it can be next to impossible to disassemble.
- k. When connecting parts made of dissimilar metals (i.e. steel and aluminium), standard tape or paste sealant performs satisfactory.
- l. For sizes 2" and below, tape or paste performs satisfactory. When using thread tape, four wraps (covering all necessary threads) are usually sufficient.
- m. For sizes 2 1/2" and above, thread paste is recommended. If thread tape is used, eight wraps (covering all necessary threads) are usually sufficient. Apply more wraps if necessary.

- n. Over-tightening threads can be just as detrimental as insufficient tightening. For sizes 2" and below, hand tighten the components and, with a wrench, tighten 3 full turns. For sizes 2 1/2" and above, hand tighten the components and, with a wrench, tighten 2 full turns.
- n. For stubborn to seal threads, apply a normal coating of thread paste followed by a normal layer of thread tape.



When this procedure is done, the connection becomes permanent. Extreme measures will be necessary to disconnect these components. All other measures to deal the threads should be explored prior to use of this technique.



The start-up may take place only when the MannTek product has been mounted as instructed and the necessary function tests and leak tests have been conducted by the approved authorities (see chapter 7).

5 **OPERATION**

5.1 GENERAL NOTES

Operators are obliged to provide qualified and trained personnel familiar with the handling of supply pipes, safety couplings, any fluid being pumped as well as its danger potential. Such staff must also be familiar with the applicable safety regulations and the regulations of the employer's liability association. Notice also our safety instructions (see chapter 2.1).

When making the connection, make sure that all relevant isolation values connected in the hose unit application are closed. Also check that no pumping pressure is present at the hose unit. Make sure that all isolation values behind the tank unit in the pipe work are fully open.

5.2 MAKING CONNECTION/DISCONNECTION

Lift the hose unit and hose into position to start the connection. Take care to support the hose end assembly to present the hose unit to the tank unit in the correct orientation. It is important to ensure that 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 axial strain. The handles have no operating purpose other than providing handling assistance and applying manual coupling force without tools.

When correctly supported, the hose unit should slide easily over the tank unit. The three tappets on the hose unit engage in the three slots in any one of three positions at 120-degree centers. Rotate the hose unit clockwise about 100 degrees while gently pushing towards the tank unit. At the start of rotation, you will feel some resistance. The level of resistance depends on the static line and tank pressure. The higher the pressure, the greater the effort required 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.

The sequence of isolation valve and/or pump operation should be taken from your operating procedures. However, it is preferable for the vehicle 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.

The disconnection procedure is similar to the connection procedure but in reverse. Before attempting to disconnect the coupling, all isolation valves should be closed, and where possible, the pumps should be switched off. If 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 for the reasons in the first paragraph, so long as this is compatible with your standard operating procedures.

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 vapor 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.

The hose assembly should be stowed in a way that avoids physical damage. Do not drop the hose end assembly or stow it on the floor. The dust plug provided should always be fitted. Ensure the tank unit cap (if fitted) is replaced and secured.

5.3 DAILY VISUAL INSPECTION

• All couplings should be briefly inspected at the start of each day's operation.

• Inspect the coupling surface for cleanliness and corrosion. Check for dirt and any obvious physical damage (such as impacts, etc.).

• Inspect the O-ring in the hose unit connection for serviceability and correct seating in the groove.

- Inspect the hose unit swivel for free rotation.
- Inspect the tank- and hose unit for faultlessness and external signs of seizure.
- Inspect the hose unit rollers for easy rotation and no signs of seizure. Clean and lubricate if needed.
- On the first operation, check for leakage and smooth operation.

5.4 CLEANING

Check the seal of the connections before every cleaning. In case the coupling is used for materials that harden, stick, etc., the coupling has to be cleaned of residues after every use. Before dismantling, the coupling always has to be cleaned with a suitable cleaning agent (regardless of the product carried).

5.5 DISASSEMBLY

When the DDCoupling should go into service there is a danger that the fluid will spurt out. Special protective measures such as personal protection equipment must therefore be adopted. Always ensure that the system is cleaned in the proper manner. After cleaning, remove any residue from the cleaning agent.

How to disassemble:



Wear suitable personal safety equipment.

Make sure that the coupling is de-pressurised and empty.

Clean coupling before disassembly (use cleaning agent suitable for the pumped fluid).

Unscrew coupling (threaded connection) or bolts (flanged connection) with a fitting wrench.

5.6 IMPROPER USE

The equipment should never be used in the case of visible damage or where there is prior knowledge of damage that may lead to malfunction.

5.7 MAINTENANCE / REPAIR

Maintenance and repair of the equipment may be carried out only by Mann Teknik AB or by companies / technicians authorised by Mann Teknik AB (see chapter 6).

5.8 MISCELLANEOUS

The operator is solely responsible for the installation, operation and maintenance of the coupling. Mann Teknik AB accepts no responsibility for damages due to faulty installation, faulty handling, as well as negligent or incorrect maintenance.



6 MAINTENANCE AND REPAIR

6.1 GENERAL INFORMATION

Maintenance and repair of the equipment may be carried out only by Mann Teknik AB or by companies / technicians authorised by Mann Teknik AB. All measures necessary for inspection, maintenance and repair must be carried out in accordance with the national regulations of the country where the system is installed. A separate service instruction is available on request. Notice also our safety instructions (see chapter 2.1).

6.1.1 MAINTENANCE AND SERVICE PRECAUTIONS



Always de-pressurise the system and rinse off the parts before beginning any maintenance work. Use protective goggles. Do not handle O-ring seals without gloves if the material appears charred, gummy or sticky.

Use tweezers and wear neoprene or PVC gloves. Do not touch adjacent parts with unprotected hands. Rinse off the parts once again before starting the "daily inspection".

6.1.2 DAILY INSPECTION

- 1. Visually inspect the coupling for cleanliness, wear, loose parts, damage and signs of corrosion.
- 2. Visually inspect the front face of the coupling for wear, dirt and damage.
- 3. Visually inspect the coupling for leaks.

6.1.3 REGULAR SERVICE

The regular service interval is very much depending on local regulations and application conditions. If nothing else is specified or agreed and it is a new application with unknown parameters we recommend to make a first service after one year and then decide depending on the inspection result about further intervals.

PLEASE NOTE

Use only original MannTek spare parts for maintenance

| | Design 1.0 | Design 2.0 |
|----------------|------------|------------|
| Spare part kit | (S-S2-XX) | (S-2S-XX) |
| Sealing kit | (0-S2-YY) | (0-2S-YY) |



yy means the O-ring material, xx means the coupling material according to the product catalogue. You will find it also as the 6th to 9th sign in the serial number (e.g. S210Axxyy or 2S10Axxyy).

6.2 PRESSURE AND TIGHTNESS TEST

After the o-ring kit and/or spare part kit is replaced a leak test according to the test procedure below is required.

If any pressure bearing parts (hose unit body, swivel sleeve, driving plate, piston, piston guide) are changed, a pressure test with water must first be made at 1,5 times the working pressure before testing the coupling with air for the leak test.

| The | following | test | narameters | are in | accordance | with | EN12266 | and EN | 114432. |
|-----|------------|------|------------|--------|------------|--------|---------|--------|---------|
| THE | lottowning | iesi | parameters | arem | accordance | VVILII | | | 14402. |

| TEST PROCEDURE | TEST PRESSURE | ACCEPTANCE CRITERIA |
|--|-----------------------|---|
| | 0,3 BAR | |
| LEAKTEST (AIR) | 6 BAR | NO VISUALLY DETECTABLE LEAK- AGE FOR THE DURATION OF THE |
| PRESSURE TEST (WATER) (IF APPLICABLE) | 1,5X WORKING PRESSURE | TEST* |

TABLE 1 – TEST PRESSURE

| NOMINAL SIZE | MINIMUM TEST DURATION |
|-----------------|-----------------------|
| UP TO DN 50 | 15 S |
| DN 65 TO DN 150 | 60 S |

TABLE 2 - MINIMUM TEST DURATION

TEST PROCEDURE:

- Plug the unit with an appropriate end connection and fill it with the test media (e.g. air or water).
- Apply the test pressure specified in Table 1 (please note that both a low pressure and a high pressure test are required).
- Maintain the test pressure for the keeping time specified in table 2.
- Make sure that there is no visual leakage.
- Couple the serviced unit to a tank or hose unit and repeat the low pressure and high pressure leak test according to the steps above.
- After successful test results dry the coupling before use.

* In order to detect leakage when testing with air, make sure to fully submerge the sealing surface in water. Initial leakage might be due to air trapped behind the seal and is acceptable. Reoccurring bubbles indicate a leak.

7 APPLICABLE DOCUMENTS

Product standards:NATO STANAG 3756, ISO45, ASTM F1122-22EC Guidelines:2014/68/EU PED, 2014/34/EU ATEXInternational Transport of Dangerous Goods ADR, RID, IMDGTest standardsEN12266, EN14432, ISO5208

For use in Germany: Facts sheet T 002 (7/2005) BGI 572 of BG Chemie

For use in other countries: Respective national requirements and guidelines

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