

SERVICE INSTRUCTION

DGC - Hose Unit

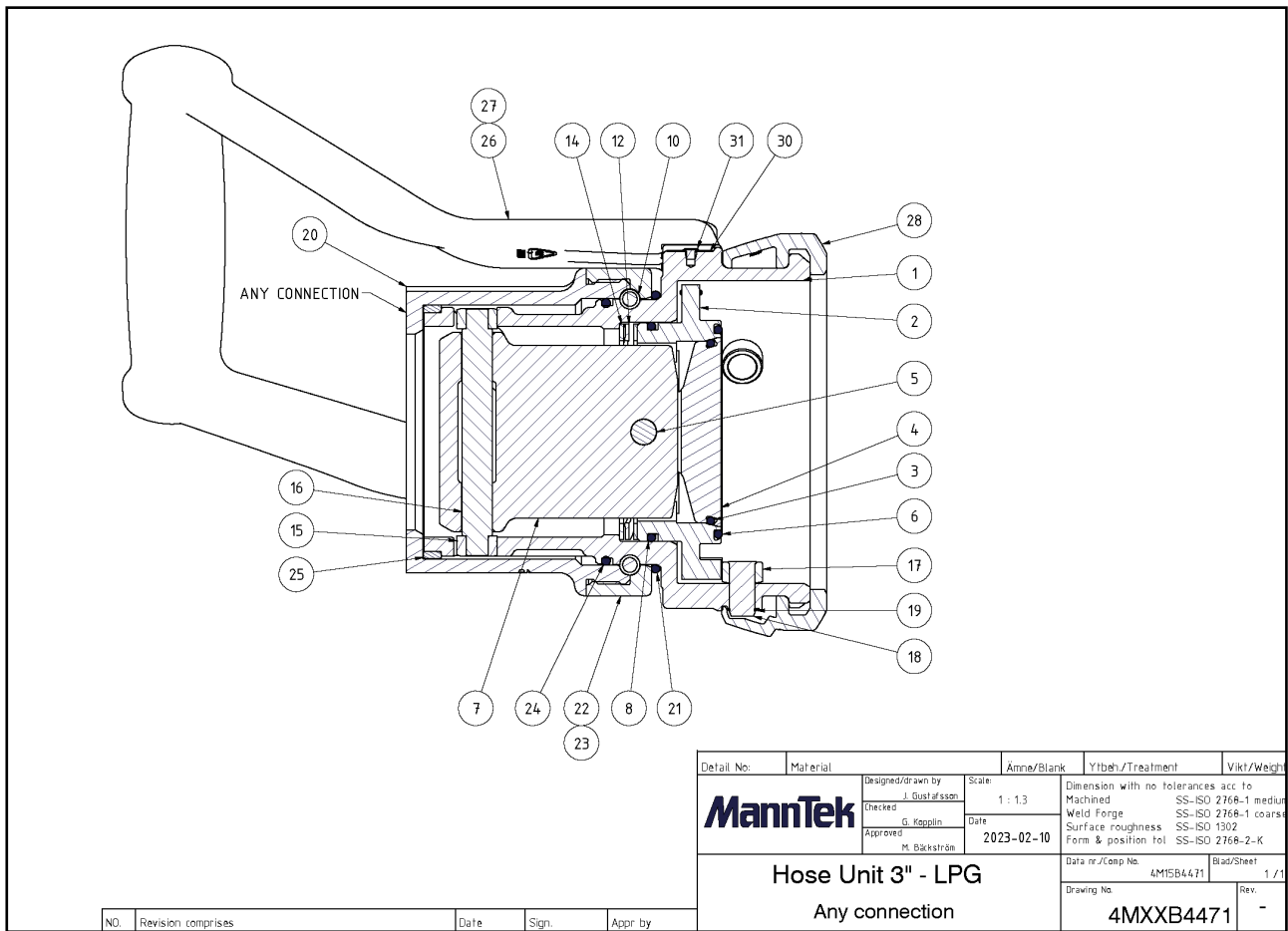
3" - Design 2.0



VERSION: 240208

MannTek

DGC – HOSE UNIT – 3” – DESIGN 2.0



MATERIAL: Stainless Steel

TYPE OF CONNECTION: Threaded and Flanged couplings have the same service instruction.

PERFORM A SERVICE: If leaking or change of media.
According to application service plan,
(see regular service page 4)

PLEASE NOTE

Make sure that you are using the correct material of O-rings for the media you are using. MannTek recommends use a standard silicone based grease which is suitable for most applications, if you are unsure of suitability for your media please contact us.



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ITEMS NEEDED FOR SERVICE

PARTS NEEDED FOR SERVICE: Spare part kit and/or O-ring kit (for order numbers see the info box at the bottom of this page)

USEFUL TOOLS: Tool 001 (O-Ring Tools)*
Tool 421 (Tool for service of inner package)*
2 mm Allen Key
7 mm Allen Key
Ø8 mm Pin
Large flathead screwdriver

*Can be ordered from MannTek

SPARE PART KIT INCLUDES: 1 pc. Bushing ring
3 pcs. Rollers
3 pcs. Shafts for rollers
3 pcs. Locking rings (+2 spare)
1 pc. Screw
1 pc. VM454 (Assy. tool lock ring)

OTHERS: Tool 081 - Flouroflon® grease. (Chemical neutral silicon oil with PTFE. Used for O-rings)*
Tool 086 - CargoFluor® grease (Fluor oil based grease oil with PTFE used for rollaxels.)*
Loctite® (only needed if handles are removed)

*Can be ordered from MannTek

CLEANING AGENTS: Strong clean® (Petroleum based degreasing agent)
Alcohol (95 % chemical clean ethanol)

PLEASE NOTE

Use only original MannTek spare parts for maintenance

Spare part kit (S-4M-XX)

O-ring kit (O-4M-YY or O-M4-YY, as both have the same content)

YY means the O-ring material key, 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. 4M15AXXY).



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MAINTENANCE AND SERVICE



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".

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.
4. Inspect the hose unit rollers for easy rotation and no signs of seizure. Clean and lubricate if needed.

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.

The service procedure shall be as follows:

1. Replace the hose unit O-rings.
2. Replace worn or damaged components.

Check the state of the connection surface and verify that it is clean before proceeding with the connection. Minor scratches on the sealing surfaces can sometimes be polished out.

Couple the serviced hose unit to a tank unit as appropriate and check for the correct operation of the valve actuating and bayonet locking mechanism. Couple and uncouple the unit(s) several times, to distribute the lubricants.

DISASSEMBLE

- Mark the position of the swivel sleeve against the swivel ring, e.g. by a marking pen, in order to know the correct position for the locking screw.
- Unscrew and remove the lock screw from the swivel ring.

Use an Allen Key 2mm



- Rotate the swivel sleeve so that a $\varnothing 8$ mm pin can be inserted in the slot between the housing and the swivel ring.

- Unscrew the swivel sleeve from the swivel ring.

Use a $\varnothing 8$ mm pin



- Remove the Bushing Ring (pos. 25). Sometimes it can be found inside the swivel sleeve.



- Fixate the *tool 421* from rotation in a vice.
- Put the hose unit on *tool 421* and turn it until the rollers are about halfway down the cam curve.

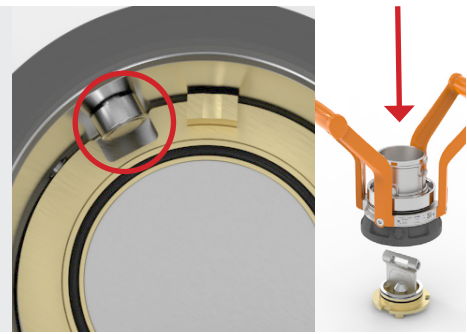
Use tool 421



- Remove the two rollers (pos. 15) and the rolling shaft (pos. 16) from the piston guide (pos. 7).

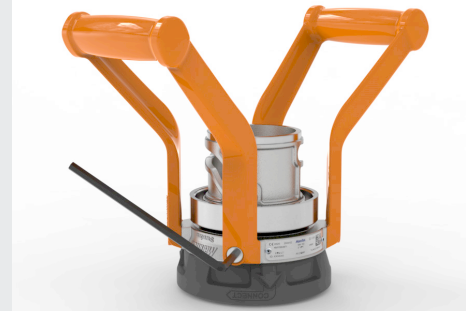


- Rotate the inner package so the three slots in the driving plate match the rollers.
- Remove the inner package by pressing the piston guide from behind. If the driving plate does not loosen easily use a soft tool, e.g. made by rubber, and carefully press the driving plate out.



- If you prefer easier access to the O-Rings, remove one or both handles before you change the O-rings. (Not required)

Use an Allen Key 7mm



CHANGE THE SWIVEL SLEEVE SEALS

Make sure you don't scratch any sealing surfaces.

Use the O-ring hook (Tool 001)

- Remove the dust protection O-ring (pos. 21) by using an O-ring hook. The easiest way to get the dust protection O-ring out is to put the hook through the O-ring and pull it out.
- Replace with a new O-ring.

Make sure that the balls are in the correct position before the new O-ring is mounted.



- Remove the swivel O-ring (pos. 24) by using an O-ring hook.
- Replace with a new O-ring. Use Flouroflon® grease on the new O-ring.

Make sure that the O-ring is not twisted.



CHANGE THE INTERNAL SEALS

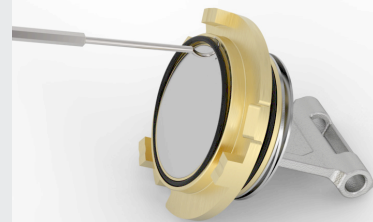
Make sure you don't scratch any sealing surfaces and that the new O-ring doesn't get twisted.

Use the O-ring tool (Tool 001)

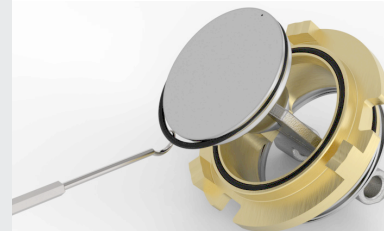
- Remove the O-ring (pos. 8) on the driving plate backside by using an O-ring hook.
- Replace with a new O-ring. Use Flouroflon® grease on the new O-ring and washers.



- Remove the O-ring (pos. 6) on the driving plate front side by using an O-ring hook.
- Replace with a new O-ring.



- Remove the O-ring (pos. 3) on the piston by using an O-ring hook.
- Replace with a new O-ring. Use Flouroflon® grease on the new O-ring.
- Press down the O-Ring with your thumb crosswise so it is stretched equally around the piston. Make sure that the O-Ring is fully pressed into the groove, all around the piston.



CHANGE THE ROLLERS

- Remove the bumper (pos. 28) by gently prying it off the coupling using a screwdriver or a similar tool.
- Insert the screwdriver from the front near one of the rollers/arrows. Push it through, and leverage it to pry off the bumper

Use a flathead screwdriver.



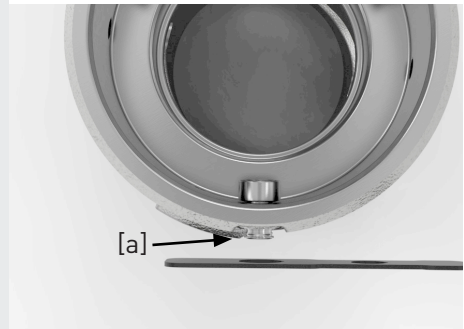
- Remove the locking rings (pos. 19).
- Block the ring from rotating by pressing the shaft from the outside.
- Use the *pointy O-ring needle* to remove the locking ring.
- The locking rings shall not be reused.
- Remove the worn rollers and shafts.

Use the pointy O-ring tool (Tool 001)



- Assemble new rollers and shafts one at a time.
- Use Cargoflour® grease on the new rollers and shafts.
- Place new rollers on the shafts with the flat side of the roller facing the head of the shaft. Put the shaft and the roller in the hole on the body.
- By hand, enter a new locking ring to the end of the shaft. See [a]. Always use the new locking ring that are included in the spare part kit. Note that there are 1 or 2 extra locking ring included in the kit.
- Block the roller and shaft from the inside by hand.
- Press the locking ring into place using the *assembly tool* that is included in the service kit. Press the tool straight until the ring snaps fully into the shafts groove.

Use the Assy. tool lock ring (VM454)



- Make sure the rollers rotate easily and that the locking rings are mounted correctly into the groove on the shafts. Test this by pressing the shaft firmly from the outside.



- Reassemble the bumper to the coupling.
- Make sure that the arrows on the bumper are positioned over the rollers and make sure that the bumper snaps into place securely.



REASSEMBLE

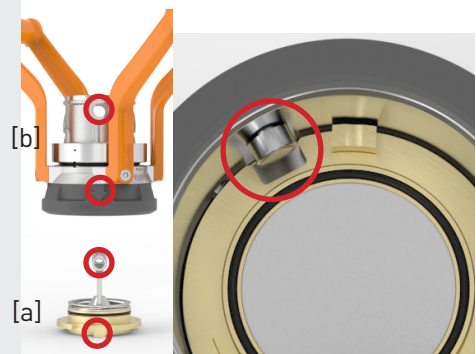
- If you disassembled the handles, it is now time to reassemble those.
- Use *Loctite*® to secure the screws. Tighten the screws firmly (from factory 30 Nm)

Use an Allen Key 7mm and Loctite®



- Find the heel on the driving plate that is aligned with the hole on the piston guide. [a]
- Find the arrow on the bumper that is aligned with the upper end position of the cam curve. [b]
- Place the coupling body and inner package according to the picture with all 4 above points aligned.
- Lower the coupling body over the inner package and grab the piston guide from behind. Turn the coupling upside down and rotate the inner package so the closest cut-out in the driving plate passes the rollers.
- Place the hose unit on *tool 421*.

Use Tool 421



- Mount the rolling shaft (pos. 16) and the two rollers (pos. 15) with the flat side facing inwards.
- Use *Cargoflour® grease* both on the inside (towards the shaft) and outside (towards the swivel sleeve).
- Turn the hose unit on the fixed *tool 421* until the rollers are in the top end position of the cam curve. Make sure to support the rollers by hand, so they don't fall out.
- Remove it from *tool 421*.

Use *Tool 421* and *Cargoflour® grease*.



- Double check that the old bushing ring isn't still stuck in the swivel sleeve.
- Place a new bushing ring (pos. 25) with the outer chamfered edge facing upwards on the coupling.



- Put the $\varnothing 8$ mm pin back in the slot to lock the swivel ring.
- Place the swivel sleeve over the coupling body and screw it down fully until the pen marking made in the beginning align. When the sleeve is in correct position, screw the new locking screw into the swivel ring with a 2mm allen key.

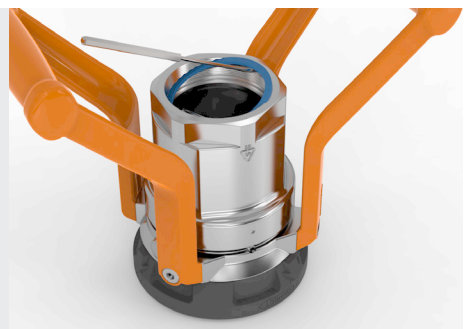
NOTE tighten the locking screw with light torque and test the swivel function. Too much torque might deform the swivel ring which causes that the swivel function won't work properly.

Use a $\varnothing 8$ mm pin and 2mm allen key



- If needed replace the Flat seal* (only applicable for BSP connections)

* please note that the flat seal is not included in any kit and needs to be ordered separately.



TEST THE COUPLING

- Perform a visual inspection ensuring that everything is in its place. Also do some test connections with an empty tank unit, to verify functionality and to distribute the added lubricants.
- Finally, perform a leak test according to the test procedure described on the next page.
- If any pressure bearing parts have been changed a pressure test is also necessary.
- If the coupling functions correctly you are ready to mount the hose unit in your application again.



TEST PROCEDURE

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 parameters are in accordance with EN12266 and EN14432:

TEST PROCEDURE	TEST PRESSURE	ACCEPTANCE CRITERIA
Leak test (air)	0,3 bar	No visually detectable leakage for the duration of the test*
	6 bar	
Pressure test (water) (if applicable)	1,5x working pressure	

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 hose 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 hose unit to a tank 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.

STORAGE

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