

SERVICE INSTRUCTION

DCC - Hose Unit

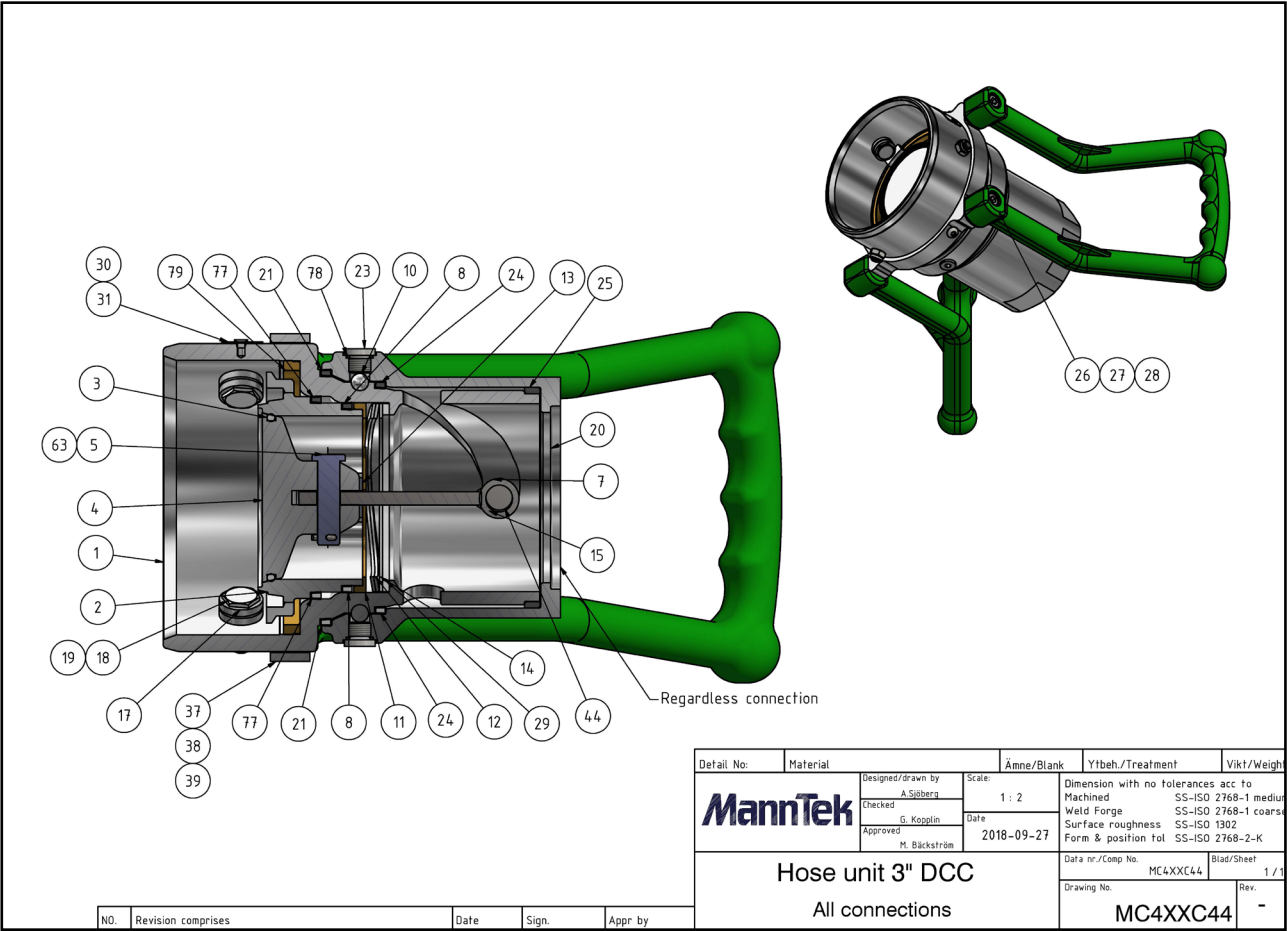
3" - C-Version



VERSION: 230123

MannTek

DCC – HOSE UNIT – 3”



MATERIAL: Brass, Stainless Steel

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

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

PLEASE NOTE

Make sure that you are using no grease for cryogenic applications



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ITEMS NEEDED FOR SERVICE

PARTS NEEDED FOR SERVICE: Spare part kit and Sealing kit (for order numbers see the info box at the bottom of this page)

TOOLS NEEDED: VM171 (tool to remove seals)
5mm allen key
6mm allen key
Pliers
10 mm wrench
Screwdriver

SPARE PART KIT INCLUDES: 1 pc. Ring for the inner package
2 pcs. Wave washer
2 pcs. Bushing
1 pc. Washer
3 pcs. Roller
3 pcs. Roller Axis
3 pcs. Nuts
2 pcs. Screws
1 pc. Teflon ring
1 pc. Flat bushing
1 pc. Split pin

OTHERS: Loctite 2700® Thread locker.

CLEANING AGENTS: Strong clean® (Petroleum based degreasing agent)

PERFORM A SERVICE: If leaking
According to application service plan,
(see regular service p.3)
If change of media

PLEASE NOTE

Use only original MannTek spare parts for maintenance

Spare part kit (S-MC4C-4)
Sealing kit (O-MC4C-06V)



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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.



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.

REGULAR SERVICE

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-ring and seal.
2. Check the hose unit and ball bearing for faultlessness.
3. 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 usable 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.

DISASSEMBLE

Start with removing the handles.
Unscrew the screws (pos 27, see drawing on page 3).

Use a 6 mm allen key



Unscrew and remove the lock screw (pos 23) and o-ring (pos 78) from the swivel sleeve.

Use a 5 mm allen key



Put a small container underneath the coupling and start twisting the swivel sleeve, so the balls drop out, into the container. Placing a tank unit in the hose unit will make it easier to twist. Clean and save the 41 balls for reassembling later.

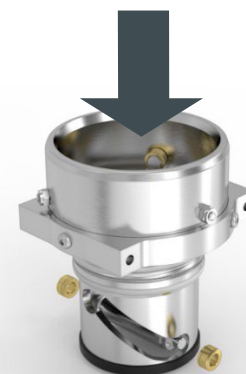


Remove the swivel sleeve by pulling out the hose unit body with the inner package. If the swivel sleeve can't be removed, there might be some balls left inside. Try turning back and forth again to get out the remaining balls.

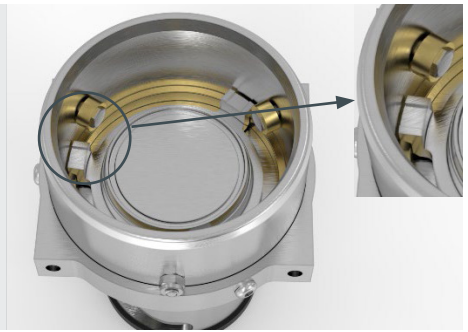


Remove the shaft and rollers (pos 15 & 44) for piston guide, by applying slight pressure to the driving plate package so that it moves down, until the driving plate package is released from the rollers.

WARNING. The ring surface on the top of the driving plate is a sealing surface. Press down the piston only, the driving plate will follow.



Put a shaft into the piston guide (pos 7) and turn the driving plate to the position where the driving plate heels are coming free from the rollers. It could be necessary to release the package from the press force.



Remove the inner package from the hose unit body.



Dismount the inner package by removing the pin and splint (pos 5 & 63) from the piston. Remove all parts from the inner package in order to change the seal (pos 8) on the driving plate and the seal (pos 3) on the piston.



CHANGE SEAL

Change the seal (pos 8) on the driving plate back side.

WARNING. Make sure that the seal doesn't get scratched when mounting. The open profile should be in the direction which is shown in the picture.

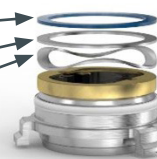


Change the bushings for piston guide (pos 13) and the support ring (pos 11) to new ones.



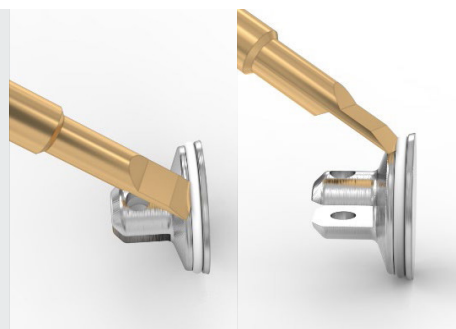
Place the flat seal (pos 29) and wave washer (pos 12) as shown in the picture.

Flat seal
Washer
Wave washer



Carefully remove the old o-ring and replace it with a new one.

Use VM171



REASSEMBLE

Place the piston into the driving plate and the press them together.
This can be done by either using a press or a special tool as shown in the picture.
If you only use a press, make sure to do this carefully so you don't damage the o-ring.



Reassemble the inner package.



Reassemble the piston on the piston guide, make sure that the splint (pos 63) is correct mounted.



If necessary change the three axis for rollers (pos 18), locking nuts (pos 19) and rollers (pos 17), to new ones.

Use a 10 mm wrench



Before the coupling body is placed back on the driving plate package, make sure that the part where the upper cam curve ends, shall be placed exactly over one roll, and the heel on the driving plate package should be placed under the hole for the shaft.

Place the coupling body over the driving plate package. Grab the piston guide and turn the unit upside down. (There are different ways to mount the driving plate package. If yours is not possible like this, ask your sales representative for an updated instruction)



Put a small container underneath the coupling and start twisting the swivel sleeve, so the balls drop out, into the container. Placing a tank unit in the hose unit will make it easier to twist. Clean and save the 35 balls for reassembling later.



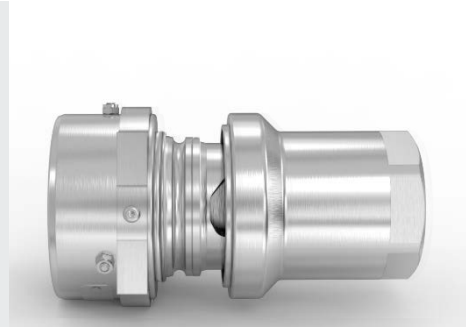
Remove the swivel sleeve by pulling out the hose unit body with the inner package. If the swivel sleeve can't be removed, there might be some balls left inside. Try turning back and forth again to get out the remaining balls.



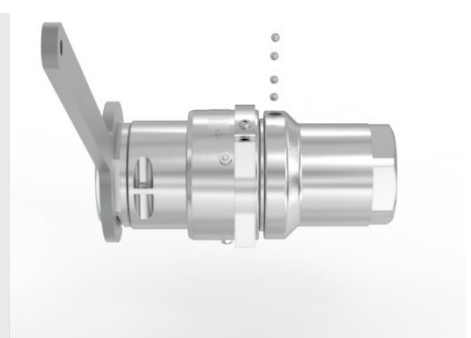
Change the seals in the swivel sleeve. Note the direction of the seals. The open profile should be in the direction downwards as shown in the picture.



Mount the swivel sleeve over the coupling body by using either a press or vise to push them together.



Drop the 41 balls into the swivel joint, turn the swivel sleeve after each ball.



Use Loctite 2700 and screw the lock screw (pos 23) and o-ring (pos 78) into the swivel ring without any force! Risk to deform the ball bearing!

Use a 5 mm allen key



Reassemble the handles.

Use a 6 mm allen key



Finally, make a visual inspection that everything is in its place. Do also a test connection / disconnection with a tank unit that doesn't have any fluid inside. If the coupling works alright you are ready to do a tightness test before mounting the hose unit on your hose again.



TEST PROCEDURE

After each major service a pressure test and a leak test of each coupling is required.

The following test parameters are in accordance with EN12266:

TEST PROCEDURE	TEST PRESSURE	ACCEPTANCE CRITERIA
Tightness test (liquid nitrogen)	6 bar +/- 1 bar	No visually detectable leakage for the duration of the test

TABLE 1 – TEST PRESSURE

NOMINAL SIZE	COOLING DOWN TIME	KEEPING TIME
DN 25	30 s	5 min
DN 50	45 s	10 min
DN 65	60 s	15 min
DN 80	60 s	20 min
DN 100	90 s	25 min
DN 150	120 s	30 min
DN 200	300 s	30 min

TABLE 2 – MINIMUM TEST DURATION

TEST PROCEDURE:

- Connect the hose unit to a tank unit
- Cool down the couplings by opening the tank with liquid nitrogen for the cooling down time specified in tabel 2.
- Maintain the test pressure for the keeping time specified in table 2.
- Determine the leakage rate.
- Disconnect the hose unit and the tank unit.
- Maintain a test pressure according to table 1 in the tested unit(s) for the keeping time in table 2.
- Determine the leakage rate while de-pressurising the units.

STORAGE

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