

SERVICE INSTRUCTION

PERC

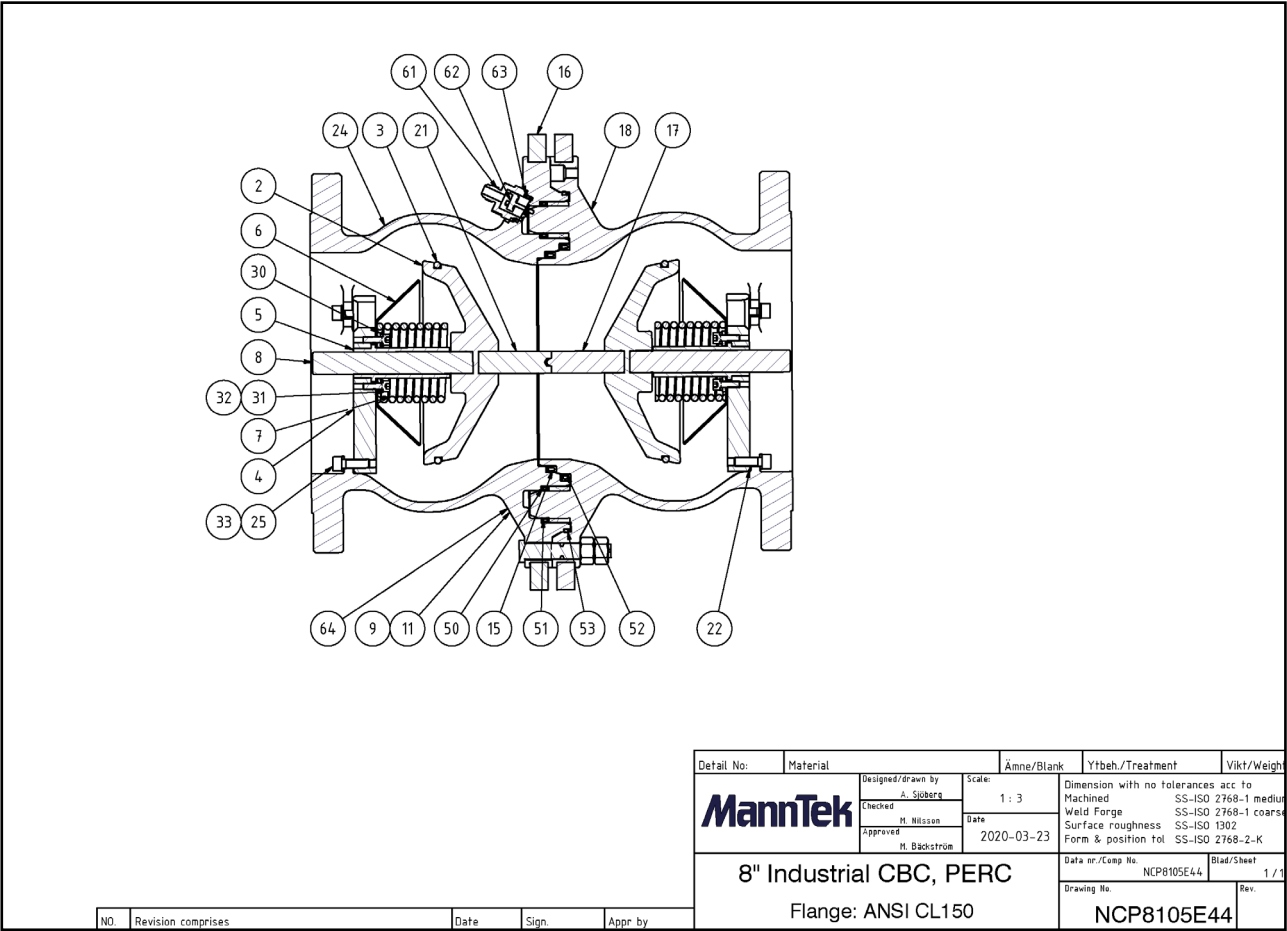
8" - E-Version



VERSION: 231005

MannTek

PERC – E-VERSION – 8"



MATERIAL: 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: Tool 001 (O-Ring Tools)
Tool 030
Screwdriver
Wrench
Allen Key

SPARE PART KIT INCLUDES: 4 pcs. O-rings
4 pcs. Lip Seal
3 pcs. Breaking Bolts
3 pcs. Nuts
3 pcs. Locking Nuts

OTHERS: Loctite 2700® Thread locker.

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

PLEASE NOTE

Use only original MannTek spare parts for maintenance

Spare part kit (S-NCP8E-XX)

Sealing kit (O-NCP8E-06)



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MAINTENANCE AND SERVICE



Always depressurize 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 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.

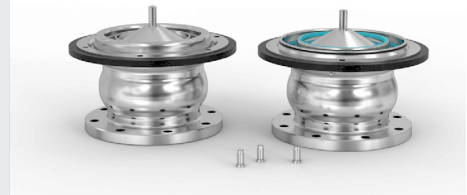
The service procedure shall be as follows:

1. Replace seals at least once a year.
2. Replace worn or damaged components..

AFTER RELEASE

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

- a) Wear suitable personal protective equipment.
- b) Make sure that the coupling is depressurized and empty.
- c) Clean coupling before disassembly (use cleaning agent suitable for the pumped fluid).



DISASSEMBLE

Screw out the destroyed parts of the breaking bolts.

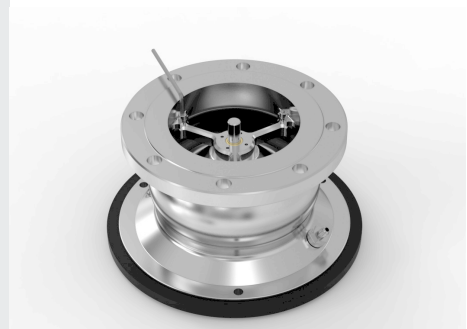
Check for dirt, seal damage and any obvious physical damage (such as impacts, etc.).



Unscrew the three screws that lock the spindle steering.

There is a distance pin in the piston protruding from the housing.

For disassembling a support plate with a hole in the middle, where the distance pin will get free, will avoid any damage of the inner parts



Press down the spindle steering and turn it free. Release it carefully.

Piston guide is spring loaded. Risk of injury.

Using our special tool makes work easier and therefore increases safety.

Repeat the same procedure with the second half.



DETAIL PARTS AFTER DISASSEMBLING

Take out all the parts from the body

Pos.2 – Piston

Pos.7 – Spring

Pos.5 – Spring cap

Pos.4 – Spindle steering

Pos.18 – Body



PISTON O-RING

Replace the O-ring (pos.3) on the piston with a new O-ring.

Be careful when removing the O-ring. Do not scratch the sealing surface.

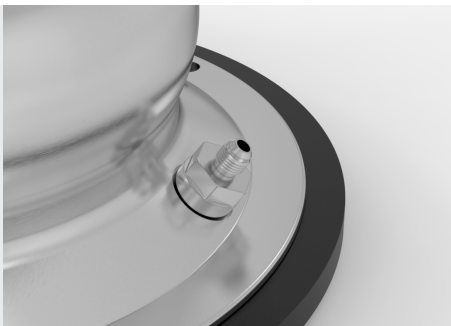
Make sure that the seal doesn't get scratched when mounting.

For mounting the new O-ring use MannTek spare parts only.



PERC

Remove the perc valve from the coupling housing.



Change the O-ring and test if the Perc valve is rotating without problems.

Mount back the Perc valve back into the coupling



MOUNTING PISTON

The piston is bigger in diameter than the three brackets for the piston guide.

Introduce the piston as shown. Put it into a relaxing position in the valve seat. Take care; the piston is sticking out on the other side.

For assembling a support plate with a hole in the middle will be helpful.



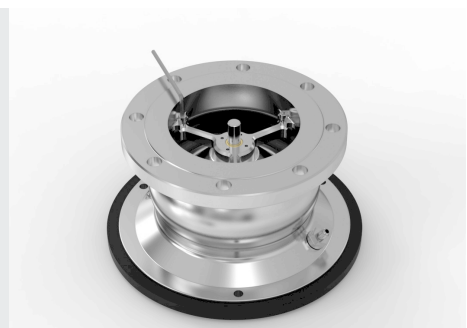
REASSEMBLE COUPLING HALVES

Fit the spring with spring cap and spindle steering with guidance bushing. Press down the spindle steering and turn, to fix it in its position.



Fit the screws into the given holes in the body and fix the spindle steering by mounting the three locking screws. Use Loctite® 2700 for locking the screws.

Repeat the same procedure with the second half.

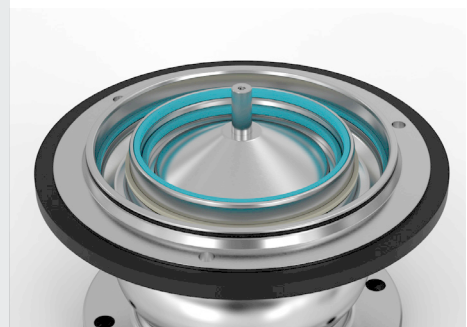


OUTER BODY SEALING RING

Replace the sealing rings (pos.15, pos.50, pos.51, pos.52, pos.53) on the body with a new one.

Be careful when removing the lip-seal. Do not scratch the sealing surface.

Make sure that the seal doesn't get scratched when mounting. The open profile should be facing downward as shown in the picture.



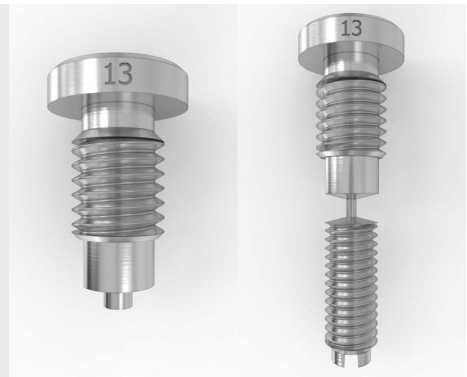
BREAKING BOLTS

Replace the bolts only by original spare parts from MannTek with the same breaking force.

Total break force for the bolts can be found on the head of each bolt. (E.g. 13 kN in the pictures)

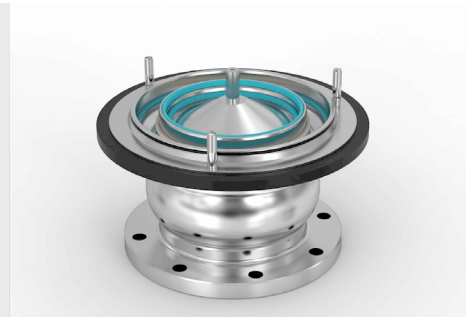
Left: destroyed bolt after release

Right: new breaking bolt



REASSEMBLE COUPLING

Fit the spring with spring cap and spindle steering with guidance bushing. Press down the spindle steering and turn, to fix it in its position.



Place both halves on top of each other and gently press them together. Ensure that the breaking bolts align with the bore holes in the second half.

It's crucial that the bodies are perfectly aligned when you're pressing the halves together. Take your time and exercise caution to avoid damaging the lip seal.

Employing a press along with a fixture will significantly simplify the task.



Carefully thread the nuts onto the bolts by hand. Stop once they are snug against the halves when pressed together.

Avoid Over Tightening! Emphasize not using excessive force when securing the nuts. This will prevent any potential damage to the bolts.



Use a standard 22mm wrench to fasten it, but only turn it a maximum of 45 degrees.

Ensure that all three bolts are mounted in the same manner. Failing to do so may result in one bolt being damaged before the others.

Standard wrench 22mm



Begin by thread on the second nut. Once it's in place, lock the first nut. To prevent any undue pressure on the breaking bolt, use a wrench to hold the first nut steady.



TEST THE COUPLING

Perform a visual inspection ensuring that everything is in its place. Finally, do a tightness test according to the test procedure described on the next page.

If the coupling functions correctly you are ready to mount the perc back in your application again.



TEST PROCEDURE

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

The following test parameters are in accordance with EN12266, EN14432 and ISO5208:

TEST PROCEDURE	TEST PRESSURE	STOP TIME
Tightness test (air/N ₂)	6 bar +/- 1 bar*	60 s

TABLE 1 – TEST PRESSURE

Instead of dry air/N₂ we recommend making the tightness test with liquid nitrogen or with LNG.

If a pressure test should be achieved for the coupling mounted in an assembly follow the respective text instructions for the equipment but do not exceed our recommended maximum test pressure of the coupling which you will find in table 2. If testing with higher pressure is necessary, please ask our sales department for a special test bolt kit.

It is not recommended to use liquids for the tests which will freeze under operation with LNG. If so it must be guaranteed that the coupling is completely free of liquid before it will be used in operation.

TEST PROCEDURE:

- Pressurize the perc chamber with a pilot pressure of 2.5-3.5 bar through the valve house (pos.61)
- Cool down the coupling by letting the test medium flow through until the coupling bodies are cooled down (the couplings should be completely covered by ice powder from condensed water from the air). Internal pressure should be 5-7 bar.
- Verify that there is no visible leakage between the coupling halves.
- Close the inlet for the pilot pressure and hold for 10 minutes. Note if the pressure goes up or down by 0,5 bar during that time.
- If the pressure rises this could indicate a leakage between media chamber and perc chamber. This is caused by damaged seals pos.15 and pos.52. If the pressure drops, it indicates that the seal pos.55 is damaged. Make sure to change any damaged seals and perform a new test before installing the coupling in any assembly.

STORAGE

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