**NITROGEN CYLINDERS MAINTENANCE INSTRUCTIONS**

**HR 300 A (for Cu ≤ 16)** **HR/HRF 500 A (for Cu ≤ 16)** **HR/HRF 700 A (for Cu ≤ 16)**

* included in the maintenance kit ** included in the assembled bush

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**HR 300 A (for Cu ≤ 16)**

- Rod
- Valve ball Cod. 59S3.17
- Spring Cod. 59MGS
- Rod seal**
- Rod guide**
- O-ring**

**HR/HRF 500 A (Cu ≤ 16)**

- Ball retaining screw Cod. 47VGSWC10A
- Retaining C-ring
- Assembled bush*
- Back-up ring**

**HR/HRF 700 A (Cu ≤ 16)**

- Plug Cod. 47TKM6
- O-ring Cod. 50OR2004*
- Rod wiper**

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**COD. 39DMCILA**

Multi device for charging, discharging and adjust gas pressure.

**COD. 39BMHR00300A**

- 3 meters of high pressure hose
- 1 female Cejn quick fit
- 1 ON/OFF valve
- 1 shut off valve

**COD. 39BMHR00500A**

- 3 meters of high pressure hose
- 1 female Cejn quick fit
- 1 ON/OFF valve
- 1 shut off valve

**COD. 39BMHR00700A**

- 3 meters of high pressure hose
- 1 female Cejn quick fit
- 1 ON/OFF valve

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**COD. 39BMHR00300A**

- 3 meters of high pressure hose
- 1 female Cejn quick fit
- 1 ON/OFF valve
- 1 shut off valve
- 1/2-20 UNF male coupling to connect to the nitrogen bottle.

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**COD. 58CE03**

For M6 thread

**COD. 58CE05**

For 1/8"G thread

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**COD. 58CA08**

8 mm hex built key to remove the valve assembly.

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**COD. 39PM02A**

Table manual press for an easy assembly of piston-rod, assembled bushing and retaining C-ring.

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**COD. 49TB03 (HR300A)**

Reassembly guiding tube for the bushing + reassembly positioning tube for the retaining C-ring.

**COD. 49TN023 (HR300A)**

Anti scratch nylon tube to set the bushing into the cylinder body to release the retaining C-ring.

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The complete assembled kit along with this step-by-step service manual is result of Special Springs research for the most useful maintenance operation for Special Springs nitrogen gas cylinders. Few minutes and the Special Springs nitrogen gas cylinders are regenerated as new one.

Before starting any maintenance work, carefully check if the rod or the body of the cylinder are damage or wear. If yes, it is recommended to replace the cylinder immediately and do not proceed with the maintenance operation.

Before starting any maintenance work, carefully check this step-by-step manual to correspond to the model of cylinder for which is required.

Instructions and pictures of this step-by-step manual could slightly differ from practise.

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EYE PROTECTION

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NITROGEN CYLINDERS MAINTENANCE INSTRUCTIONS

HR 300 A Cu ≤ 16
HR/HRF 500 A Cu ≤ 16
HR/HRF 700 A Cu ≤ 16
I. DISCHARGING for self-contained cylinders.

1. Remove the protective screw cap from the charging hole by using the manual press (39PM02A). Proceed to remove the protective cap from the body. Please remove the protective screw cap for better readability.

2. Thread DDS drill device on the charging port then remove completely the drill device from the operator for maximum safety. DDS-M6 for the bbk part.

3. Be sure the pressure is completely exhausted by pressing down the piston rod into the cylinder body. Then unthread the drilling device from the discharging hole.

II. RETAINING RING REMOVAL.

4. Position the anti scratch nylon sleeve to protect the retaining C-ring. Then pull down the retaining C-ring using a pair of needlenose pliers for easy removal.

5. Position the anti scratch nylon sleeve to protect the retaining C-ring. Then pull down the retaining C-ring using a pair of needlenose pliers for easy removal.

III. PISTON ROD + CARTRIDGE REMOVAL.

6. By using the Triangle M6/3 for the M6 port. Position the anti scratch nylon sleeve to protect the retaining C-ring. Then pull down the retaining C-ring using a pair of needlenose pliers for easy removal.

7. Cut off of piston-rod with the special Spring gas detector. Carefully clean through the charging port then pull out the cylinder body. After removing the protective cap from the body.

IV. VALVE REMOVAL.

8. By using a 3/8 inch drive one-way valve removal tube (39E02A) remove the ball retaining screw (39VGSMC19A) from the valve (59PM01A). Then remove the O-ring (58PM2004) from within the valve and the ball retaining screw (59MGS) from within the valve.


10. Cut off of the valve assembly after removal.

11. Cut off of the valve assembly after removal.

12. Cut off of the valve assembly complete removal.

13. Cut off of the valve assembly before removal.


15. Cut off of the valve assembly after removal.


V. CLEANING AND INSPECTION.

17. Cut off of the valve assembly before removal.

18. Cut off of the valve assembly after removal.


20. Cut off of the valve assembly complete removal.


22. Cut off of the valve assembly after removal.

23. Cut off of the valve assembly after removal.


25. Cut off of the valve assembly before removal.


27. Cut off of the valve assembly after removal.

28. Cut off of the valve assembly complete removal.

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32. Cut off of the valve assembly complete removal.

33. Cut off of the valve assembly before removal.

34. Cut off of the valve assembly after removal.

35. Cut off of the valve assembly after removal.

36. Cut off of the valve assembly complete removal.

VI. VALVE REASSEMBLY.

37. Lubricate inside the cylinder body with the specific Special Springs oil compound supplied with the repair kit. Be sure to adjust the positioning tube to each cylinder model.

38. Insert the positioning tube (39PM02A) into the rod head threaded into the assembled bushing into the assembly tube.

39. Then positioning the retaining C-ring into the assembly tube. Connector the valve (59S3.17) into the rod head threaded into the assembled bushing into the assembly tube. Then unthread the assembly tube.

40. After removing the Triangle M6/3 for the M6 port. Position the anti scratch nylon sleeve to protect the retaining C-ring. Then pull down the retaining C-ring using a pair of needlenose pliers for easy removal.

41. Cut off of the valve assembly before removal.

42. Cut off of the valve assembly after removal.

43. Cut off of the valve assembly after removal.

44. Cut off of the valve assembly complete removal.

45. Cut off of the valve assembly before removal.

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92. Cut off of the valve assembly complete removal.