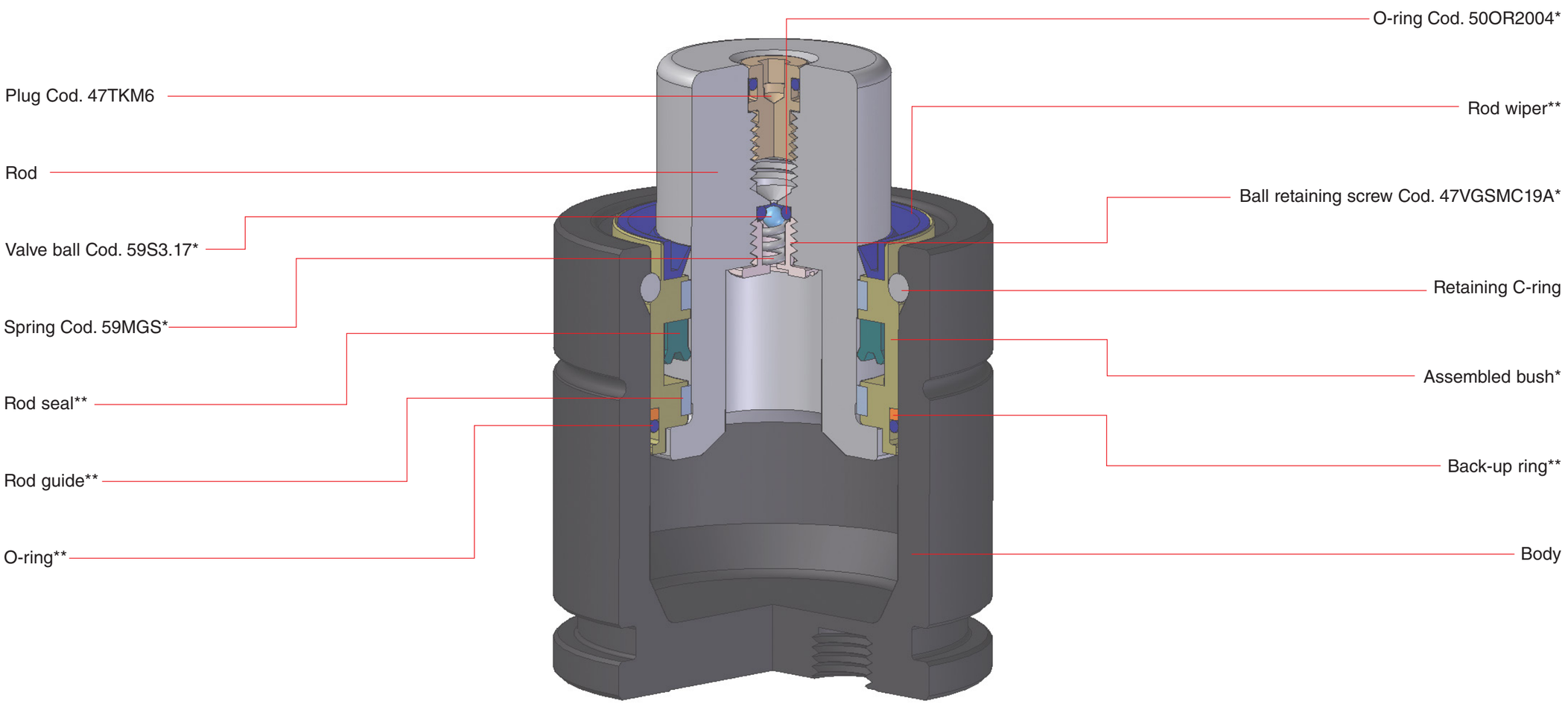
HR 300 A (for Cu ≤ 16) **HR/HRF 500 A** (for Cu ≤ 16) **HR/HRF 700 A** (for Cu ≤ 16)

* included in the mainenance kit ** included in the assembled bush



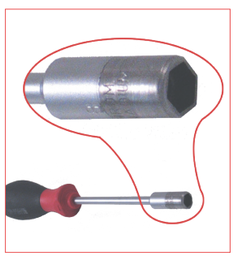
Cod. **39DMA**
The DMA multi device is designed and built to facilitate cheking, decreasing/increasing pressure or pressurising self-contained cylinders or hosed systems. It consists of two units: Main (**39DMCILA**) and secondary (**39DMCPVA**).

Cod. **39DMCPVA**
3 meters of high pressure hose, 1 female Cejn quick fit, 1 ON/OFF valve, 1 shut off valve and 1/2-20 UNF male coupling to connect to the nitrogen bottle.

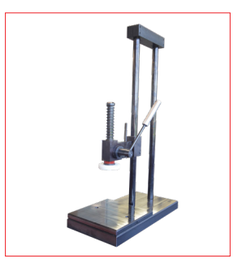
Cod. **58CE03** for M6 thread
Cod. **58CE05** for 1/8”G thread
Hex T-key to remove charging hole plug and valve retaining screw.

Cod. **58EC**
Retaining C-ring removal tool.

Cod. **58CA08**
8 mm hex built key to remove the valve assembly.



Cod. **39PM02A**
Table manual press for an easy assembly of piston-rod, assembled bushing and retaining C-ring.



Cod. **49TB016** (HR300A)
Cod. **49TB020** (HR/HRF500A)
Cod. **49TB024** (HR/HRF700A)

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

Cod. **49TN023** (HR300A)
Cod. **49TN027** (HR/HRF500A)
Cod. **49TN032** (HR/HRF700A)

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

Cod. **39DMCILA**
Multi device for charging, discharging and adjust gas pressure.

Cod. **QDFV01** for 1/8”G hole
Cod. **QDFV02** for M6 hole
Cejin male quick fit adapter for direct charging.

Cod. **DDS-M6/2**
Discharging device.

Cod. **58EM06**
T-handle to remove piston-rod + bushing.

Cod. **39RFG**
Special Springs gas detector special made to check possible gas leakge.

NITROGEN CYLINDERS MAINTENANCE KIT

HR300A Cu 5÷16	Cod. **39BMHR00300A**
HR/HRF500A Cu 5÷16	Cod. **39BMHR00500A**
HR/HRF700A Cu 10÷16	Cod. **39BMHR00700A**

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

⚠ Special Springs along with its own global network are pleased to help you anytime for the best result of your work.

⚠ 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 immediatley and do not procede with the maintenance operation.

⚠ Before starting any maintenance work carefully check the maintenance kit to correspond to the model of cylinder for which is required.

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

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

⚠ 

All Special Springs step-by-step manuals are available for download from our web site: www.specialsprings.com

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NITROGEN GAS CYLINDERS MAINTENANCE INSTRUCTIONS

HR 300 A Cu ≤ 16
HR/HRF 500 A Cu ≤ 16
HR/HRF 700 A Cu ≤ 16

SPECIAL SPRINGS

I. DISCHARGING for self-contained cylinders.

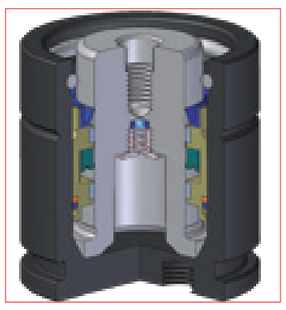
1. Remove the protective screw cap from the charging hole by using the appropriate tool.
Preserve the the protective screw cap for further reassembly.
58CE03 M6/3 for the M6 port.

2. Thread DDS bleed device on the charging port then exhaust completely the pressure. Point away from the operator for maximum safety.
DDS-M6/1 for the M6 port.

3. Be sure the pressure is completley exhauted by pressing down the piston rod into the cylinder body.
Then unthread the discarging device from the discarging hole.

II. RETAINING RING REMOVAL.

4. Position the anti scratch nylon removal tube on the cartridge **(49TN...)** then by the manual press **(39PM02A)** press all down into the body. The retaining ring is now free for an easy removal.



4.1. Cut off of cylinder to see the right position of the cartridge and C-ring after operation.

5. Position and clamp the cylinder into a self - centring chuck or a wise.

6. By using the removal C-ring hook up the retaining C-ring.
Preserve the retaining C-ring for reassembly.

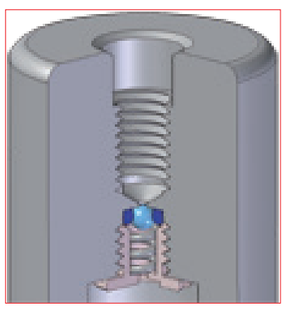
III. PISTON ROD + CARTRIDGE REMOVAL.

7. By using the T-handle **(58EM06)** extract the piston-rod and the bushing from the body.

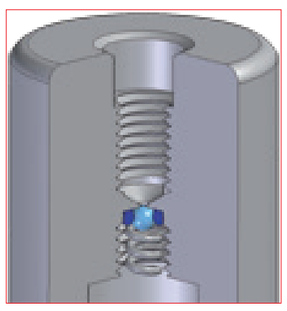
8. Slide off the bushing from the rod and discard the bushing.

IV. VALVE REMOVAL.

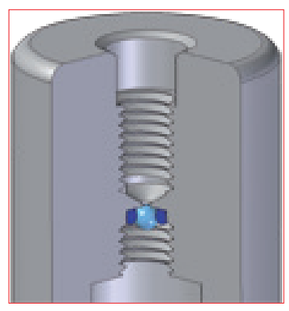
9. By using the 8 mm hex built key **(58CA08)** remove the ball retaining screw **(47VGSMC19A)** the ball **(59S3.17)** the spring **(59MGS)** then remove the O-ring **(50OR2004)**.
Preserve the spring and the ball for reassembly.



9.1. Cut off of the valve assembly before removal.

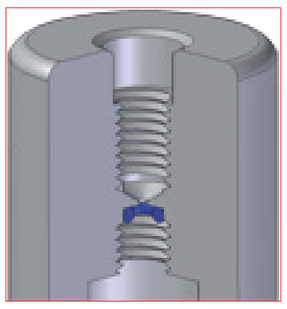


9.2. Cut off of after the ball retaining screw **(47VGSMC19A)** removal.

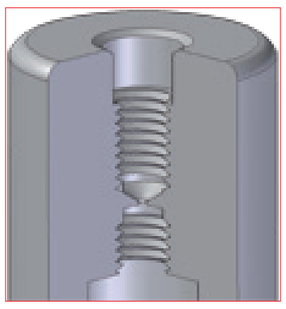


9.3. Cut off of after the spring removal.

V. CLEANING AND INSPECTION.



9.4. Cut off of the charging hole after ball **(59S3.17)** removal.



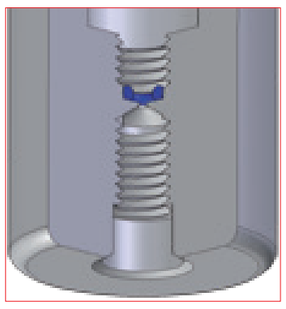
9.5. Cut off of the charging hole after the valve assembly complete removal.

10. Carefully check and clean the cylinder body.
If the cylinder body shows any damage or wear do not use it again and replace it with a new one.

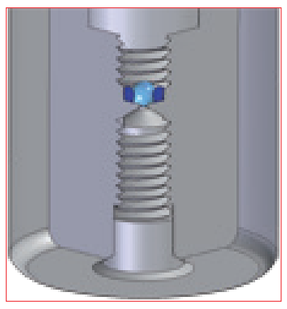
11. Carefully check and clean the piston-rod.
If the piston-rod shows any damage, wear or scratch do not use it again and replace it with a new one.

VI. VALVE REASSEMBLY.

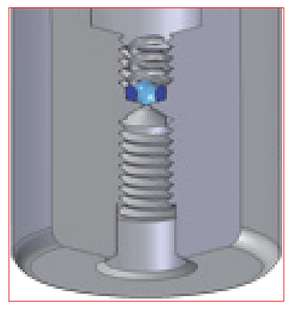
12. Carefully clean through the charging hole with an air gun, then drop the new valve components **(59VU)** into the conical hole.



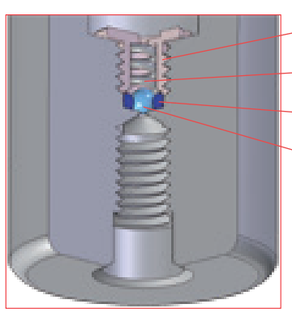
12.1. Cut off of the O-ring correctley mounted into the charging hole.
Be sure the retaining C-ring is the right position into its own groove.



12.2. Cut off of the ball correctley positioned.



12.3. Cut off of the spring **(59MGS)** correctly mounted.



12.4. Cut off of piston-rod with the O-ring **(50OR2004)**, ball **(59S3.17)**, spring **(59MGS)** and the Ball retaining screw **(47VGSMC19A)**.

VII. REASSEMBLY OF PISTON-ROD AND CARTRIDGE.

13. Take the new assembled bushing and grease inside all over by using the specific Special Springs grease compound supplied with the repair kit.

14. Manually or by using the manual press **(39PM02A)** insert the assembled bushing into the rod.
Be care to position it on the right side, follow the laser print arrows on the bushing.

15. Slide down the assembled bushing to the piston shoulder.

16. Grease the O-ring on the assembled bushing with the specific Special Springs grease compound supplied with the repair kit.

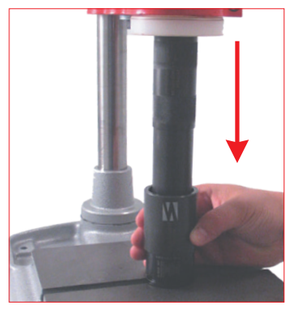
17. Lubrificate inside the cylinder body with the specific Special Springs oil supplied with the repair kit.
Be care to the quantity as indicated for each cylinder model.

NOTE: Each oil dispenser contains a volume of 5 ml.

18. Position the assembly guiding tube **(49TB...)** on the top side of the cylinder body then insert the piston-rod and the assembled bushing into the assembly tube.

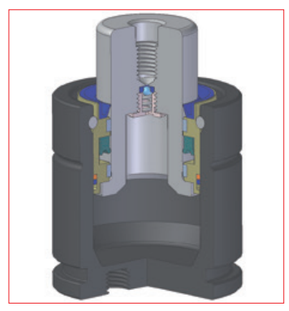
19. Then positioning the retaining C-ring into the assembly guiding tube.

20. Insert the positioning tube **(49TB...)** over the rod.
Carefully verify the tube is correctly rest against the top side of the assembled bushing.



21. By using the manual press **(39PM02A)** act on the positioning tube to push down the retaining C-ring into it's groove. When the C-ring enter into the groove you will hear a "click".
Be sure the retaining C-ring is the right position into its own groove.

22. After threading the T-handle M6 **(58EM06)** into the rod head threaded hole and pull completley the unit piston-rod and bushing.



22.1. Cut off of the piston-rod, bushing and retaining C-ring correctley positioned.

IX. CHARGING AND FORCE TEST for self-contained cylinders.

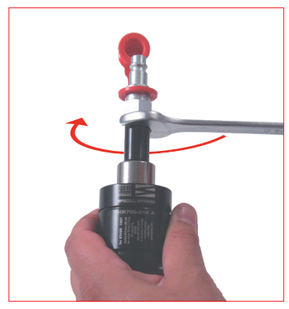
23. Open the nitrogen bottle main tap.
39R... pressure regulation valve.

24. Adjust the required charging pressure trought the regulation valve.
Usually the gauge on the right display the set charging pressure.
39R... pressure regulation valve.

25. Select and assemble the desired charging adapter on the charging unit device **(39DMA)**, thread it on the charging hole and proceed to fill the gas on the desired pressure (Max. 150 if not different specified). Do not exceed the maximum indicated charging pressure.

26. Wait a wile for pressure stabilization, close the shut-off hose and bottle valves.
Then unthread adapter
from cylinder.
More detail included with the **39DMA** instruction manual.

27. When directly charging throught the adapter and desired pressure is reached shut off the hose and bottle valves and disconnect the the quick fit coupling.
For an easy and safety work carefully follow the instructions supplied with the charging unit.
39DMCPVA charging unit.
39QDFV... adapter for direct charging.



28. Unthread the adapter from the charging hole.

29. More precise force control can be carried out by using the digital force testing rigs.
FT... Digital force tester
IPCDIG Digital force tester

30. It is always recommended to check leaks on the charging port after the maintenance work and before re-using the cylinders by using the special gas detector.
39RFG Special Springs gas detector.

30. It is always recommended to check leaks on the upper side of the cylinders after the maintenance work and before re-using the cylinders by using the special gas detector.
39RFG Special Springs gas detector.

31. Thread the protective screw cap into the charging hole M6 by using the hex key **(58CE03)**.