3010 ¾” VALVE MANUAL
INSTALLATION, USE AND MAINTENANCE

AVAILABLE WITH TANK TYPE
HL, HL DRY, HL 50 DRY, HLV, HLV 40 e GL
WARNING – IMPORTANT

GMV Spa declines all responsibility in case you do not follow the instructions in this document. In particular, disregarding these instructions, may cause safety problems in the installation and for the users.

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Visit www.gmv.it to check for updates of this document and other product information from GMV.

Main acronyms and abbreviations

1. Pressure safety valve adjustment (p.max)
2. Levelling / slow speed adjustment (up/down)
3. Deceleration adjustment (up/down)
4. Upward start adjustment
5. Screw for rupture valve test (EN 81.20)
6. Minimum ram pressure adjustment
7. Downward start adjustment
8. High speed adjustment
9. Down speed compensator (empty/full load)
10. Hand pump max. pressure adjustment
11. Minimum upward pressure adjustment
RUB Shutoff valve for pressure gauge exclusion
MAN Pressure gauge
MM Manual lowering button
PAM Hand pump
V Hand pump air purge screw
VP Pilot valve
CHK Check valve
VMD Downward solenoid valve
VML Jump speed solenoid valve (upward/downward)
PRS Gauge fitting
S4 Fixed filter (don’t remove)
ISP Inspection gauge fitting (EN 81.20)
S Ball valve
PRF Blocking screw (don’t remove)

0 GENERAL SECTION

0.1 INTRODUCTION

0.1.1 DEFINITIONS

NOTES Indicates information which contents must be seriously taken in consideration.

WARNING Indicates that the described operation may cause, damages to the system or physical damages if performed without complying with the safety standards.
0.1.2 RULES REFERENCE

For all definitions not included in this manual please refer to rules and local laws in force, following, particularly:
- EN 81-2: Safety rules for the construction and installation of lifts,
- UNI–EN–ISO–14121: Safety of machinery - Principles for risk assessment,
- ISO 3864: Safety colours and safety signs
- MD 2006/42: Machine directive.

0.2 INSTALLATION RELATED DOCUMENTS

The documents to use for the installation are those required by the EN81-20:2014 and by the rules in force, particularly the following:
- THIS INSTALLATION MANUAL
- WIRING AND HYDRAULIC DIAGRAMS (EN81-20 7.3.2.A.6 AND 7).

All the documentation for a correct and safe installation must be stored by the installation responsible. Please remember that this documentation is considered part of the plant and must be complete, well stored and unabridged in every part. In order to maintain the readability, the documentation shouldn’t be damaged and shouldn’t have missing parts. Moreover, do not tear or deteriorate sheets during consulting.

0.3 SAFETY PRECAUTION DURING INSTALLATION

WARNING
Before starting all kind of installation operation:
ALWAYS verify that all the safety devices, mechanical or electrical, are active and working properly.

0.4 TOOLING

Use standard building-yard tooling for the installation.

0.5 GENERAL ORDERS

The valves shall be maintained in good working order in accordance with the Standards. To this effect, regular maintenance of the installation shall be carried out, to ensure, in particular, the safety of the installation.

The safety of an installation shall take into account the ability to be maintained without causing injury or damage to health.

Regular maintenance of the installation shall be carried out to ensure the reliability of the installation.

The access and the associated environment shall be maintained in good working order.

The competence of the maintenance person within the maintenance organization shall be continuously updated.

NOTE

We inform the owner of the installation that the qualification of the maintenance organization
needs to be in conformity with the rules applicable in the country in which the installation operates; if no rules exist, the qualification can be ensured by a certified EN ISO 9001 quality system supplemented if necessary to take into account the specific features of the installation.

### 0.6 LIABILITY AND WARRANTY

These instructions are intended for people with experience in installation, adjustment and maintenance of hydraulic lifts. GMV disclaims any liability for damage caused by improper or different use from what described in these instructions or inexperience or carelessness of those responsible to assemble, adjust or repair hydraulic components. GMV's warranty is voided if you install any components or parts not original, if you make unauthorized changes or modifications or made by unauthorized or unqualified personnel.

Unless otherwise indicated, the following situations are forbidden for safety reasons:

- Any product modification;
- The installation of the product for purposes other than those described;
- Damage to the joints;
- Carrying out maintenance or inspections improper or inadequate;
- The use of improper accessories and not original spare parts or materials from GMV.

### 0.7 WARNINGS BEFORE THE INSTALLATION

In these instructions the major points concerning the safety and prevention will be marked with the following symbols:

- General warning.
- Warning high risk of danger. Risk of injury (e.g., crushing, sharp edges, protrusions, etc.).
- Warning risk of electrical damage (exposed parts).

Beyond the instruction manual, it should take into account national standards, laws, regulations and other rules on accident prevention and environmental protection, and special operating conditions, such as the use of the lift, tools and equipment working.

The installation and repair technicians are primarily responsible for their own safety. This “Manual” applies to the entire life of the facility, during normal operation, testing and maintenance to be an integral part of the system, so it should be kept in a safe place by the installer.

The installation, commissioning and maintenance of the system may only be performed by trained personnel.

Before starting the installation work:
- Use safety devices to protect personnel and prevent falls;
- Cover (safely) openings in walls and floor;
- Use the tools and means preventing accidental falls;
- The gaps should be closed, use appropriate warning signs.
- Work on electrical equipment must be performed by an electrician or other qualified personnel.

### 0.8 CLEANING AND POLLUTION PROTECTION

Impurities and dirty inside the equipment may cause malfunction of the hydraulic system and premature wear. All disassembled items for inspection or repair, as well as pipes and accessories should be thoroughly cleaned before re-assembled.
The oil that came out of the circuit during the repair must be properly collected (rags, ...) and treated appropriately. Do not throw freely in the environment.

1 FEATURES AND REQUIREMENTS

1.1 THE 3010 ¾” VALVE

The 3010 ¾” valve is a two speed mechanical valve with the following features:

- pump flow : 12-23 l/min
- pressure range 12-50 bar
- oil temperature range : 10 – 70°C

1.2 THE FLUID

GMV use and recommend an hydraulic fluid that:

- Thanks to classification as ISO-L-HFDU category according to ISO 6743-4 and its biodegradability index > 70%, according to standard OECD 301 B, is acceptable from an environmental point of view.
- Thanks to the synthetic base and its viscosity index (>180), higher than the traditional mineral oil, allowing greater stability, ensuring better performance against wear and aging on systems as lifts for persons and goods, in accordance with the environmental directive 2006/118/EC.
- Thanks to a flash point above 300°C compared to the 140°C of the traditional mineral oil it is safer and reduces the risk of fire.

2 INSTALLATION OPERATIONS

WARNING
During installation operations never disable safety devices or directly power the pump motor.

2.1 HYDRAULIC CONNECTIONS

- Before starting the installation, you should verify the structural and spatial limits within which you will work. Consider the mounting methods you are going to use. It is therefore advisable to consider in advance all conditions affecting the different working procedures and therefore do not take any action without first considering the consequences. Make sure that the products received are complete with everything you need and that all products and parts are not damaged during transport.
- Data written on the label should be compared with the order form.
- During the storage period, keep the material in the original container, protected from weather and direct sun exposure, in order to prevent accumulation of water / condensation which may occur inside the package. (See Technical data for the range of temperature and humidity). After removing the product, the packaging material must be properly disposed of, as required by local law. Before recycling should verify the nature of the various materials and recycle as prescribed.
- GMV is not responsible for any damages caused by manual modifications (or changes) of the packaging material done by others.
- Any use of the facility, which is different from the original proposal situation should be discussed with GMV. An application or use not permitted by GMV (patent legal reasons, technical or otherwise) is under the installer responsibility and may affect the warranty.
- For the installation or replacement of the hydraulic system components, observe the following points
  - Always place the elevator on the puffers;
  - Make sure the elevator cannot operate accidentally, blocking the main electrical switch;
  - Before opening any part of the hydraulic circuit, remove or unscrew the caps is always necessary to bring the oil pressure to zero.
  - In case of welding operations, be care to prevent any contact between the oil and the piston rod, its seals and other resilient parts that could be damaged;
- Remove the spilled oil, remove the oil leaks, keeping equipment clean so leaks can be detected and easily removed.

### 2.2 3010 ¾” Valve Dimensions

![Diagram of 3010 Valve Dimensions]

### 2.3 Hydraulic Circuit

1. Pressure safety valve adjustment (p/max)
2. Levelling / slow speed adjustment (up/down)
3. Deceleration adjustment (up/down)
4. Upward start adjustment
5. Screw for rupture valve test (EN 81.20)
6. Minimum ram pressure adjustment
7. Downward start adjustment
8. High speed adjustment
9. Down speed compensator (empty/full load)
10. Hand pump max. pressure adjustment
11. Minimum upward pressure adjustment

**Abbreviations:**
- **RUB:** Shut-off valve for pressure gauge exclusion
- **MAN:** Pressure gauge
- **MM:** Manual lowering button
- **PAM:** Hand pump
- **V:** Hand pump air purge screw
- **VP:** Pilot valve
- **CHK:** Check valve
- **VMD:** Downward solenoid valve
- **VML:** Jump speed solenoid valve (upward/downward)
- **PRS:** Gauge fitting
- **S4:** Fixed filer (don’t remove)
- **ISP:** Inspection gauge fitting (EN 81.20)
- **S:** Ball valve
- **PRF:** Blocking screw (don’t remove)
2.4 DECELERATION DISTANCES AND SIGNALS

<table>
<thead>
<tr>
<th>Car Speed $V_n$ [m/s]</th>
<th>Distance C-E $\Delta L$ [m]</th>
<th>Distance G-I $\Delta L$ [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 &lt; 0.15$</td>
<td>0.10</td>
<td>0.15</td>
</tr>
<tr>
<td>$0.10 &lt; 0.15$</td>
<td>0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>$0.16 &lt; 0.30$</td>
<td>0.20</td>
<td>0.30</td>
</tr>
</tbody>
</table>

2.5 ELECTRICAL CONNECTIONS

Electrical connections must be performed by qualified and experienced personnel. Before doing any work is necessary to disconnect all electrical power by opening the main switch. Power wires must be of sufficient section to support the required current and appropriate insulation for the voltage of the mains. Wires must not come in contact with hot parts. The ground wire should always be connected to the screw marked with the appropriate symbol.

2.6 CONNECTION BOX

Power units with immersed motor have the motor connection box located next to valve block. Power units with dry motor have the motor connection box located in the motor itself.

2.6.1 POWER UNITS WITH IMMERSED MOTOR

2.6.2 POWER UNITS WITH DRY MOTOR
2.7 HYDRAULIC CONNECTIONS

<table>
<thead>
<tr>
<th>Hose Type</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Thread</th>
<th>Nut Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 ÷ 23</td>
<td>3010 ¾&quot;</td>
<td>1/2&quot;</td>
<td>¾&quot;</td>
<td>⅝&quot;</td>
</tr>
<tr>
<td>½ X ¾ M30</td>
<td>NON GMV</td>
<td>22</td>
<td>¾&quot; X M30</td>
<td></td>
</tr>
</tbody>
</table>

WARNING
Be careful to keep clean the hose. Dirty inside may damage the piston and valve seal to affect the proper system operation.

2.7.1 CONNECTION WITH HOSE
- Remove the end fitting of the ball valve, the nut and the locking ring.
- Make sure the terminal fitting is well secured to the shut-off valve.
- Clean and lubricate with oil the thread and the housing of the connector.
- Fix and tighten the hose to the fitting.

2.7.2 RIGID PIPE CONNECTION
- Cut the end of the tube at 90° (use a hack saw, DO NOT USE A TUBE CUTTER).
- Lightly file (make smooth) the inside and outside edges of the pipe. Pay attention to avoid any chips into the pipe.
- Make sure that there is no dirt inside the pipe, as this may cause a damage to the gaskets (seals) of the piston and the valves jeopardising the correct functionality of the system.
- Remove the nut and the compression-fitting ring from the silencer joint.
- Insert the compression fitting ring as shown in the figure.
- Make sure that the silencer joint is tight.
- Clean and apply a thin layer of oil to the thread and the joint area.
- Insert the tube to the 24° cone.
- Turn the nut to completely tighten the compression-fitting ring.
- Use two wrenches and tighten the nut until the ring comes in contact with the pipe and no more rotation is possible.

3 ADJUSTMENTS AND TESTS

See references on page 3

3.1 ADJUSTMENT OF THE MINIMUM PRESSURE UPWARD – Nº 11
- Close the ball valve (S).
- Start the motor-pump (refer to the controller manual).
- Tighten screw (11) to get 5-6 bar pressure.
- Tighten the lock nut (11).
- Re-open the ball valve (S).
- The adjustment is finished.

3.2 ADJUSTMENT OF THE OVERPRESSURE – Nº 1
- Open the shut-off valve of the manometer (RUB).
- Close the ball valve (S).
- Loosen the lock nut (1).
- Loosen the screw (1) two or three turns.
- Start the motor-pump (refer to the controller manual).
- Tighten screw (1) till get the desired maximum pressure (see technical report of the lift).
- Tighten the lock nut (1).
- Re-open the ball valve (S).
- The adjustment is finished.

### 3.3 ADJUSTMENT OF THE UPWARD ACCELERATION – N° 4
- Loosen the lock nut (4).
- Tighten screw (4) completely.
- Send the car upward, the car will not move.
- Loosen the screw (4) till you get the desired acceleration.
- Tighten the lock nut (4).
- The adjustment is finished.

### 3.4 ADJUSTMENT OF SLOW LEVELLING SPEED – N° 2

SLOW LEVELLING SPEED MUST BE 1/4-1/6 VS HIGH UPWARD SPEED AND THE CAR SHOULD RUN THE SLOW SPEED RANGE CONTINUOUSLY WITHOUT RIPPING.

- Loosen the lock nut (2).
- Tightening the screw (2) reduces the speed (D-E upward, H-I downward). Loosening the screw (2) increases the speed.
- Tighten the lock nut (2).
- The adjustment is finished.

### 3.5 ADJUSTMENT OF THE UPWARD HIGH SPEED – N° 8
- Start to send the car upward.
- Loosen the lock nut (8).
- Tighten the screw (8) till you hear the oil returning to the tank, then loosen one turn to close.
- Tighten the lock nut (8).
- The adjustment is finished.
- If needed, in those lifts where the speed must be limited (for example Home Lift con V=0,15 m/s, other lifts), just gradually tighten the screw 8 to mach the requested speed value.

### 3.6 ADJUSTMENT OF THE DOWNWARD ACCELERATION – N° 7
- Loosen the lock nut (7).
- Tighten screw (7) completely.
- Send the car downward, the car will not move.
- Loosen slowly the screw (7) till you get the desired acceleration.
- Tighten the lock nut (7).
- The adjustment is finished.

### 3.7 ADJUSTMENT OF THE DOWNWARD HIGH SPEED – N° 9
- Take out the protection nut of the screw (9)
- Loosen the lock nut (9).
- Tighten the screw (9) to increase the speed, loosen the screw (9) to reduce the speed.
- Tighten the lock nut (9).
- The adjustment is finished.

### 3.8 ADJUSTMENT OF THE UPWARD AND DOWNWARD DECELERATION – N° 3
You get the maximum deceleration with the screw (3) completely open.
- Loosen the lock nut (3).
- Tighten the screw (3) to reduce the deceleration, loosen the screw (3) to increase the deceleration.
- Tighten the lock nut (3).
- The adjustment is finished.

3.9 PIPE RUPTURE VALVE (VC) TEST (IN THE VALVE BLOCK) – N° 5

**WARNING**
Before doing this test, the pipe rupture valve mounted on the piston should be adjusted (refer to VC manual)
- Send the car with full load to the highest floor.
- Once the car has stopped.
- Loosen the lock nut (5) to test the rupture valve
- Completely tighten the screw n.5.
- Call the car to the lowest floor.
- The test is finished.

**NOTE:** WHEN THE CAR DOWNWARD SPEED MATCHES THE INTERVENTION FLOW, THE RUPTURE VALVE CLOSES TO STOP THE CAR (IN CASE OF BY-PASS RUPTURE VALVE, THE CAR LOWERING CONTINUES SLOWLY). IN CASE THE RUPTURE VALVE DOES NOT CLOSE, FOLLOW THE FACTORY INSTRUCTIONS TO REDUCE ITS INTERVENTION SPEED TO BE ABLE TO RESTART THE TEST.
- Completely loosen the n.5.
- During the standard car downward we do not have any intervention of the rupture valve
- Completely tighten the lock nut (5).
- The test is finished.

3.10 ADJUSTMENT OF THE MINIMUM RAM PRESSURE, VSMA (2:1 SYSTEMS) N° 6

Only in installations with traction 2:1.
- Close the ball valve (S).
- Press the manual lowering button (MM) to release pressure.
- Check the pressure on the manometer (MAN) is around 6 bar.
- If the pressure it not correct, adjust screw (6).
- The adjustment is finished.

3.11 MANUAL LOWERING OPERATION (EMERGENCY ONLY) – BUTTON (MM)

- Press the manual lowering button (MM) to send downward the car to the unlock door area

3.12 ADJUSTMENT OF THE MAXIMUM PRESSURE - HAND PUMP

- Close the ball valve (S).
- Verify that the suction tube is immersed in the oil.
- Loosen the screw (V) two or three turns to bleed the air.
- Push the lever several times till the oil starts flowing through the screw (V).
- Tighten the screw (V) completely.
- Loosen the lock nut (10)
- Loosen the screw (10) two or three turns.
- Open the shut-off valve for pressure gauge exclusion (RUB).
- Push the hand pump lever to reach the maximum pressure, adjust the screw (10) till the value is 2,3 times the full load pressure (refer to the lift technical report).

**Example:**
If full load pressure is 35 bar, screw (10) should be adjusted to:

\[
35 \times 2,3 = 80,5
\]
- When the pressure is correct.
- Tighten lock nut (10).
- Open the ball valve (S).
- The adjustment is finished.
4 MAINTENANCE AND FAULT ANALYSIS

4.1 PROGRAMMED MAINTENANCE
For a correct and safe lift use, it is necessary to make a preventive programmed maintenance, following a fixed plan.
To define the periodical maintenance frequency, you should consider more events, particularly:
- Number of travel per year
- Travelling and stopping periods
- Age and condition of the lift
- Site and type of the building in which the lift travel
- Passengers and goods demand
- Inside and outside working condition (climate, vandalism, etc.)
In the next table, parts are shared in groups and for each group is shown the type of check and its frequency recommended. You can find the detailed instructions to perform the operational checks, inside the maintenance schedules, in the following pages.
Please, note that all checks are applicable only if the part is really installed.

4.2 PERIODICAL MAINTENANCE AND CHECKS TABLE

<table>
<thead>
<tr>
<th>Operation checks</th>
<th>Recommended maximal Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INSTALLATION</td>
</tr>
<tr>
<td>Valve gaskets seal</td>
<td>☑</td>
</tr>
<tr>
<td>Oil level check up</td>
<td>☑</td>
</tr>
<tr>
<td>Characteristics of the oil</td>
<td>☑</td>
</tr>
<tr>
<td>Motor protection operation</td>
<td>☑</td>
</tr>
<tr>
<td>Filters</td>
<td>☑</td>
</tr>
<tr>
<td>Pressure check</td>
<td>☑</td>
</tr>
<tr>
<td>Pressure gauge shut off (6)</td>
<td>☑</td>
</tr>
<tr>
<td>Pressure test (static pressure x2)</td>
<td>☑</td>
</tr>
<tr>
<td>Ball valve seal</td>
<td>☑</td>
</tr>
<tr>
<td>Labels, signs and schemes</td>
<td>☑</td>
</tr>
<tr>
<td>Overall check-up</td>
<td></td>
</tr>
</tbody>
</table>

4.3 MAINTENANCE OPERATIONS

What to do:
Valve gaskets seals
- At the end of installation, and during check-ups, verify the gasket seals, in the following way: with the oil at room temperature close the ball valve (S) and open the pressure gauge shut off (RUB). Check that the pressure gauge reading on pressure gauge should not drop more than 4 bar in 5 minutes.

Oil level check-up.
- With the elevator at the highest floor, check, using dipstick or level indicator, that the oil level is above the minimum level and (if the motor is immersed the motor should be fully covered in oil).

Oil properties.
- Visually check the appearance of the oil, it should not have changed. This operation should be performed after leaving the elevator stopped a few hours.

Motor protection functionality
- Disconnect one terminal of the thermistors, and check that the motor protection working properly.

Filter
- Check the main filter mounted inside the VRP spool and clean it if is necessary.

Pressures check
- Check static and dynamic (working) pressure at the end of installation. Check regularly that all values of these parameters remain unchanged.
Check for the exclusion shut-off pressure gauge

Pressure gauge shut off (RUB)

Close the ball valve (S), open the pressure gauge shut off (RUB) and fully discharge the pressure using electro-valve (VMD). Close the pressure gauge shut off (RUB) open the ball valve (S) and check that the level shown on pressure gauge is zero.

Pressure test (static pressure x2)

- This test assures you about the integrity of parts under pressure, including those which cannot be visually checked.
- To correctly carry out this test follow these instructions:
  - Close the pressure gauge exclusion valve.
  - Close the ball valve (S). Unscrew the pressure gauge (MAN).
  - Connect the flow of the testing hand pump (M) instead of the pressure gauge (G1/4”)
  - Open the pressure gauge exclusion valve.
  - Open the ball valve (S)
  - Open the ball valve of the hand-pump for about a minute.
  - Close it again
  - Close the ball valve (S) again.
  - Continuing with the hand pump, reach the desired pressure value, controlling with the pressure gauge
  - After the test, completely unload the pressure pushing with a screwdriver on the VMD valve.
  - Close the pressure gauge exclusion valve.
  - Disconnect the hand pump
  - Screw the pressure gauge (MAN).

Ball valve seal

Close the ball valve (S) and open the pressure gauge shut off (RUB). Fully discharge the pressure using valve (VMD). Check that the pressure shown on pressure gauge (MAN) is zero.

Labels, signs and schemes

- Check that all the tags and diagrams are in place and legible (oil data label, emergency operation manual, electrical diagram and hydraulic power unit schemes).

Overall check-up

- Perform an overall check up of the power unit. When the overall check-up ends, check all the settings for the power unit start-up.
- Replace or restore all the components not correctly working.

**NOTE**

In case of oil replacement, do not throw the oil away in the environment, but give it to oil recycling company.

**NOTE**

When the power unit in no longer required, don’t throw it away, but give it to a recycling company or to the manufacturer.
### 4.4 Fault Analysis

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Possible solution</th>
</tr>
</thead>
</table>
| The car doesn’t keep the floor level, pressure loss.                 | **DEVICES**: VRP, VMD, VSMA, PAM       | **VRP** Remove the spool and check the cleanliness of the closure. If the seal is damaged and/or worn, replace it. Reassemble the spool checking that moves well into its housing.  
**VMD** Remove the solenoid and control the movement of the plunger (approx 2 mm). Check the cleanliness of the closure and the good condition of the sphere. Eventually once cleaned, remark the closing, with the sphere itself.  
**Hand pump PAM** Check the closing of the check valve of the hand pump.  |
| Car with full load doesn't start upward.                             | **DEVICES**: VS                        | Verify maximum pressure control safety. Tighten the screw (1) to increase the discharge pressure of the VS.                                                     |
| Delay too big on start upward.                                       | **DEVICES**: VP                        | Check the adjustment of the screw (4). Clean filters and restrictors. Check the perfect sliding and closure cleanliness of the spool (VP). If no improvement is obtained, replace the valve VP. |
| The downward speed is less than the upward speed.                   | **DEVICES**: VRF, VMD, COMPENSATOR      | **VRF** Check the adjustment of the screw (8).  
**VMD** Check the cleanliness of filters and restrictors.  
**SPEED COMPENSATOR** Check the perfect sliding of the spool. If it’s necessary, tighten the screw (9) to increase downwards speed. |
| The lift only runs at high speed, both upward and downward.          | **DEVICES**: VML, VRF                  | **VML** Check that the screw (3) is open. Clean filters and restrictors.  
**VRF** Check the perfect sliding of the spool (could be locked in the open position). Clean the housing and the spool. |
| The lift only runs at slow speed, both upward and downward.          | **DEVICES**: VML, VRF                  | **VML** Check that the solenoid valve works in manual mode (with a screwdriver pushing the nucleus). Check the electrical connections to the solenoid. Clean filters and restrictors. Check the travel of the plunger (about 2 mm).  
**VRF** Check the perfect sliding of the spool (could be locked in the closed position). Clean the housing and the spool. |
| The car doesn’t stop correctly at the floor level, it goes below and it has to relevel. The slow speed is too high or it hasn’t changed. | **DEVICES**: VMD, VRFP                | **VMD** Check the perfect sliding of the solenoid nucleus. Clean the housing and the spool.  
**VRFP** Check that the screw (5) is fully open. Unmount and check the perfect sliding of the spool. |