

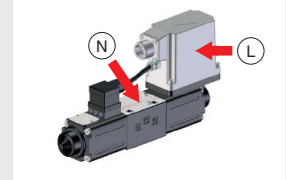
**PROPORTIONAL PRESSURE REDUCING VALVES**

Valve model:  
DHRZO-AEB

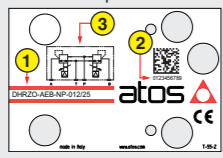
Driver model:  
E-RI-AEB

**IDENTIFICATION**

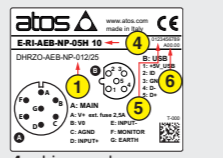
Valve identification plates and label



Valve name plate : N







Driver label : L






1 : valve code  
2 : valve matrix code  
3 : hydraulic symbol

4 : driver code  
5 : driver serial number  
6 : factory firmware version

**INSTALLATION TOOLS ACCORDING TO VALVE MODEL- not included**

Fastening bolts	Wrenches	Main connectors	
			
socket head screws	for fastening bolts and air bleeding	7 pin - metallic	12 pin - metallic
see STEP 1 and STEP 3		see STEP 2.1	

**PROGRAMMING TOOLS - not included**

Software	USB connection KIT	OR	Bluetooth connection KIT
			
E-SW-BASIC free basic software download from MyAtos at <a href="http://www.atos.com">www.atos.com</a>	E-C-SB-USB/M12	E-A-SB-USB/OPT	E-C-SB-M12/BTH E-A-SB-USB/BTH

**PROGRAMMING SOFTWARE**

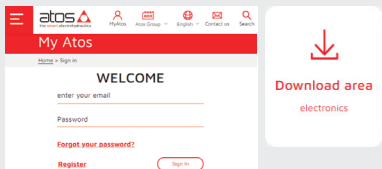
The software is available in different versions according to the driver's options:

Software	supports	NP (USB)	IL (IO-Link)	PS (Serial)	IR (Infrared)
E-SW-BASIC	supports	NP (USB)	IL (IO-Link)	PS (Serial)	IR (Infrared)
E-SW-FIELDBUS	supports	BC (CANopen)	BP (PROFIBUS DP)	EH (EtherCAT)	EW (POWERLINK)
E-SW-*/PQ	supports	valves with SP, SF, SL alternated P/Q control			

E-SW-FIELDBUS supports also valves without fieldbus communication; E-SW-\*/PQ supports also valves without P/Q control

REMARK Atos software is designed for Windows based operative systems - Windows XP SP3 or later

**DOWNLOAD AREA**



Perform the registration at [www.atos.com/en-it/login](http://www.atos.com/en-it/login) by filling the form. In MyAtos area, perform login with personal username and password and then press the **Download area electronics** button

Free version of E-SW-BASIC can be downloaded and used by the "FREE Activation Code"

The software remains active for 10 days from the installation date and then it stops until the user inputs the Activation Code

**RELATED DOCUMENTATION - www.atos.com - section Catalog on-line**

FS900 Operating and maintenance information - tech. table	STARTUP E-SW-BASIC Software startup guide
FS025 DHRZO 3-way reducing - tech. table	STARTUP BLUETOOTH Bluetooth adpater startup guide
P005 Mounting surface - tech. table	E-MAN-RI-AEB AEB - driver operating manual
GS500 Programming tools - tech. table	
K800 Electric and electronic connectors - tech. table	

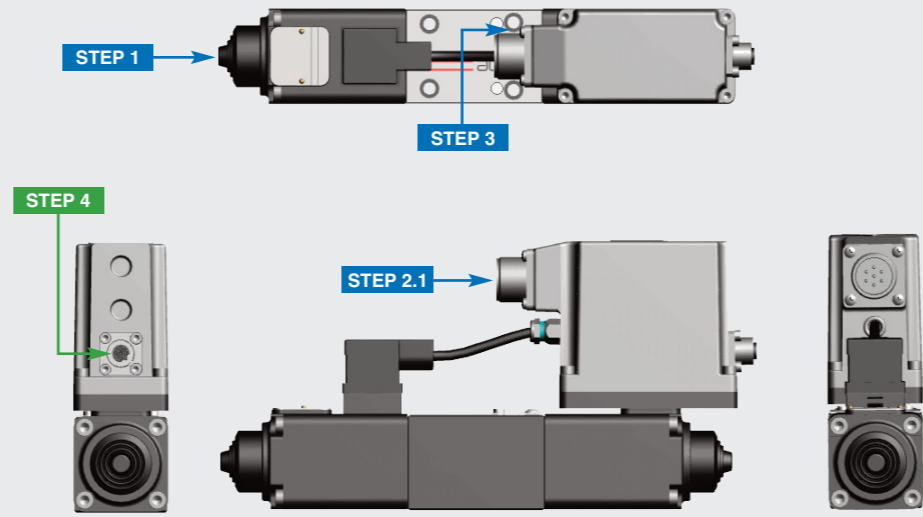
**ATTENTION !**

The purpose of this quickstart guide is show a logical sequence of basic operations. This guide does not cover all details or variants of Atos valves. All operations described in this document should be performed only by qualified personnel. Operations and images could be subject to change without notice. For further information please refer to related documentation.

**CONTACT US**

Atos spa - Italy - 21018 Sesto Calende [www.atos.com](http://www.atos.com) [support@atos.com](mailto:support@atos.com)

**PRODUCTS OVERVIEW**



STEP 1: Mechanical installation of the valve body.

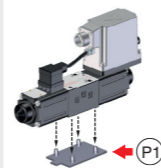
STEP 2.1: Electrical connection to the driver.

STEP 3: Hydraulic connection to the system.

STEP 4: Final assembly and testing.

INSTALLATION			PROGRAMMING
STEP 1	STEP 2	STEP 3	STEP 4
MECHANICAL	ELECTRICAL	HYDRAULICS	SOFTWARE

**STEP 1 MECHANICAL**



In case of first commissioning, before the valve installation the whole system must be correctly flushed to grant the required cleanliness level

During the flushing operation use on-off or by-pass valves in place of the proportional valve

- remove protection pad P1 located on the valve bottom face only immediately before installation (do not remove connectors caps)
- check the presence and correct positioning of the seals on valve ports
- verify that valve mounting surface is clean and free from damages or burrs
- verify the correct valve orientation according to the pattern of the relevant mounting interface
- lock the fastening bolts respecting below sequence and tightening torque according to valve model

**DHRZO-AES**

Mounting surface layout

4401-03-02-0-05  
4401-03-03-0-05 (for /Y without X port)  
Valve size ISO 4401: 06

n°1 OR 2025 (for option /Y)

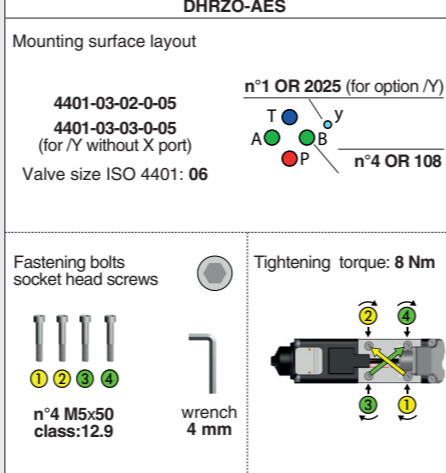
n°4 OR 108

Fastening bolts socket head screws

n°4 M5x50 class:12.9

wrench 4 mm

Tightening torque: 8 Nm

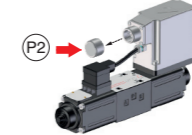


**STEP 2 ELECTRICAL**

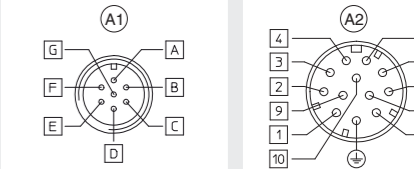
This section considers the different valves options, illustrating the multiple variants of the available electrical connections. The electrical connections have to be wired according to the selected valve code

**2.1 MAIN CONNECTOR**

1 Remove main connector cap P2



2 Select main connector according to valve code and proceed with wirings operations



Recommended LiYCY shielded cables:  
7 x 0,75 mm<sup>2</sup> max 20 m  
7 x 1 mm<sup>2</sup> max 40 m

Recommended LiYCY shielded cable:  
12 x 0,75 mm<sup>2</sup> max 20 m

**WARNING:** remove power supply before any electrical or wiring operations

3 Connect the valve to the system

ZM-7P (metallic)  
7 PIN MAIN CONNECTOR

ZM-12P (metallic)  
12 PIN MAIN CONNECTOR

**NOTE:** the use of above metallic connectors is strongly recommended in order to fulfill EMC requirements

**WARNING:** a safety fuse is required in series to driver power supply - 2,5 A time lag fuse

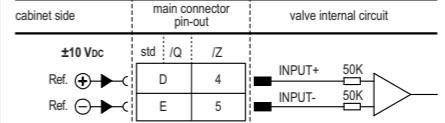
Standard		/Z option	
A	V+ (power supply 24Voc)	1	V+ (power supply 24Voc)
B	V0 (power supply 0Voc)	2	V0 (power supply 0Voc)
C	AGND (input 24Voc)	3	ENABLE (input 24Voc)
D	INPUT+ (±10Voc / 4 + 20mA)	4	INPUT+ (±10Voc / 4 + 20mA)
E	INPUT- (±10Voc / 4 + 20mA)	5	INPUT- (±10Voc / 4 + 20mA)
F	MONITOR (±5Voc 1V=1A)	6	MONITOR (±5Voc 1V=1A)
G	EARTH	7	NC
		8	NC
		9	VL+ (logic power supply 24Voc)
		10	VL0 (logic power supply 0Voc)
		11	FAULT (output 24Voc)
		PE	EARTH

/Q option	
A	V+ (power supply 24Voc)
B	V0 (power supply 0Voc)
C	ENABLE (input 24Voc)
D	INPUT+ (±10Voc / 4 + 20mA)
E	INPUT- (±10Voc / 4 + 20mA)
F	MONITOR (±5Voc 1V=1A)
G	EARTH

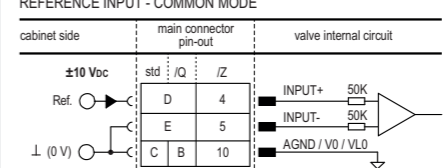
**ELECTRICAL WIRING EXAMPLES**

**MAIN CONNECTOR - VOLTAGE**

REFERENCE INPUT - DIFFERENTIAL MODE

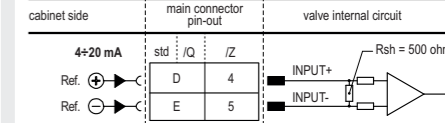


REFERENCE INPUT - COMMON MODE

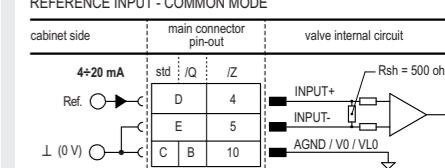


**MAIN CONNECTOR - CURRENT**

REFERENCE INPUT - DIFFERENTIAL MODE

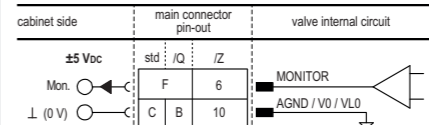


REFERENCE INPUT - COMMON MODE

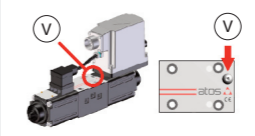


**MAIN CONNECTOR - MONITORS VOLTAGE ONLY**

MONITOR OUTPUT



**STEP 3 HYDRAULICS**



Wrenches types

DHRZO

3 mm

Tightening torque 4 Nm

**Air bleeding:**

- release 2 or 3 turns the air bleed screw V
- cycle the valve at low pressure until the oil leaking from the V port is exempted from air bubbles
- lock the air bleed screw V

**NOTE:** to facilitate bleeding operations, apply a light backpressure (1 or 2 bar) on T port by adding a check valve on T line

Consult tech table FS900 for general guidelines about component's commissioning

**STEP 4 SOFTWARE**

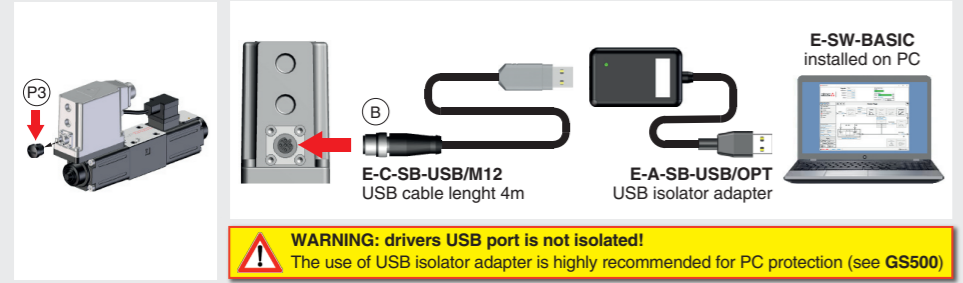
**REMARK** proportional valves with integral electronics are factory preset with default parameter and ready to use after piping and electrical connections. **Play with parameters is optional, not mandatory!**

PROGRAMMING			PC
4.1	4.2	4.3	4.4
CONNECTION	CONFIGURATION	STORE	BACK UP

**4.1 CONNECTION**

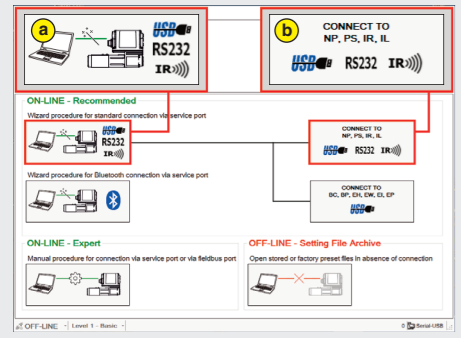
- In order to access valve parameterization:
  - Install E-SW-BASIC software on PC
  - Insert main connector to the valve and power on with 24Vdc

- Remove USB plastic protection cap **P3** and connect valve to the PC as shown below



- Launch the software using E-SW icon:
  - software does NOT detect valid connection communication is not established, please follow wizard procedure
  - software detects valid connection communication automatically established - valve is ON-LINE see

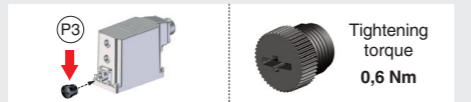
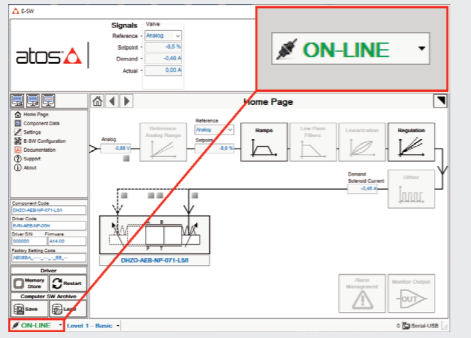
- Press buttons according the below sequence:
  - a** : ON-LINE - Recommended Wizard procedure for standard connection
  - b** : CONNECT TO NP, PS, IR, IL



**NOTE: Bluetooth adapter available!**  
For more info please refer to STARTUP BLUETOOTH guide

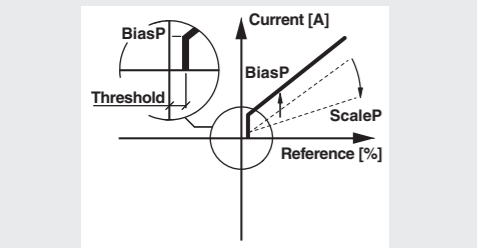
**REMARK:** once removed the USB cable E-C-SB-USB/M12, screw the plastic protection cap **P3** applying the correct tightening torque, in order to preserve valve's IP protection characteristics

- Communication established, valve is ON-LINE and it is possible change parameters



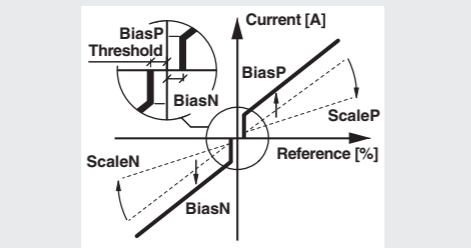
**4.2 CONFIGURATION**

Single solenoid directional control valve, 2 positions with positive overlapping and flow control valve



**BiasP** positive bias  
**ScaleP** positive scale  
  
**Threshold = 2%**  
(200mV or 0,32mA for /I option)

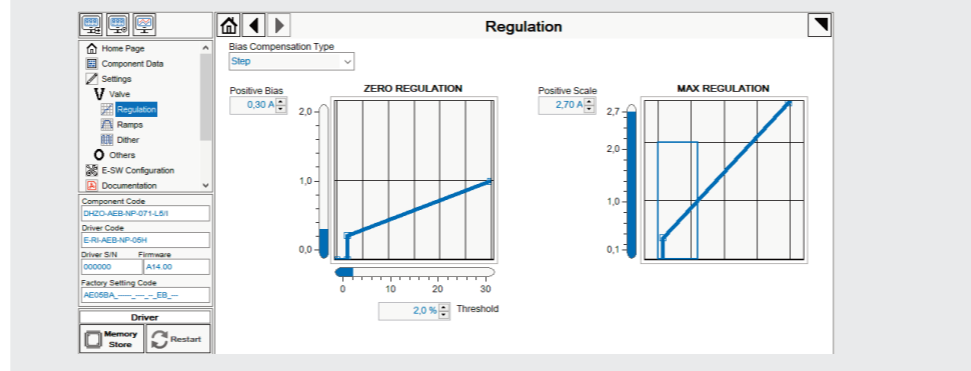
Double solenoid directional control valve, 3 positions with positive overlapping



**BiasP** positive bias  
**ScaleP** positive scale  
**BiasN** negative bias  
**ScaleN** negative scale  
  
**Threshold = 2%**  
(±200mV or ±0,16mA for /I option)

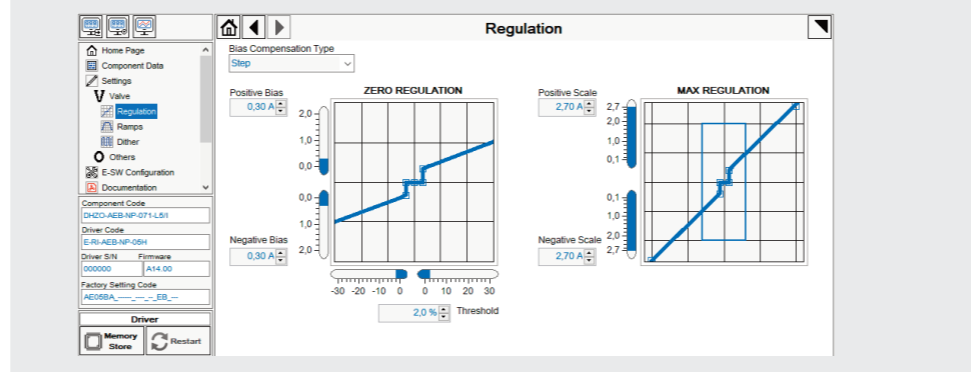
**BIAS AND SCALE - 2 POSITION VALVES and FLOW CONTROL VALVES**

**Bias setting:** supply input signal just over the Threshold value; increase the Bias until the actuator is start moving, then lightly reduce the Bias just to stop the actuator  
**Scale setting:** supply the max input signal; adjust the Scale to obtain the max actuator speed



**BIAS AND SCALE - 3 POSITION VALVES**

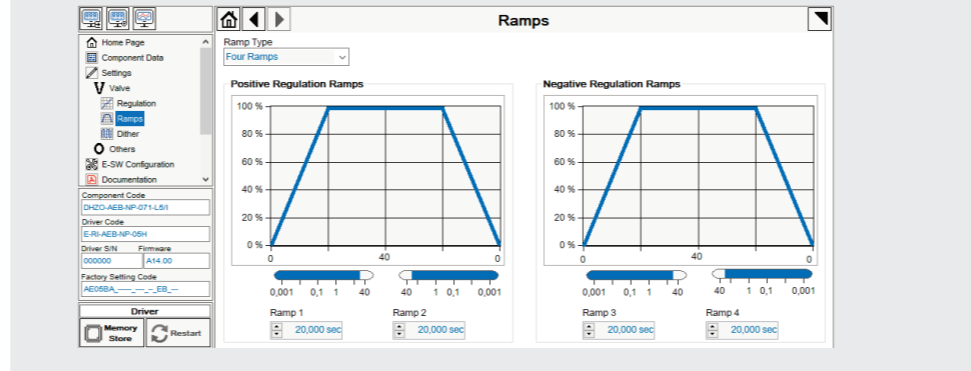
Follow the same indications reported for 2 position valves for both valve's solenoids



**RAMPS**

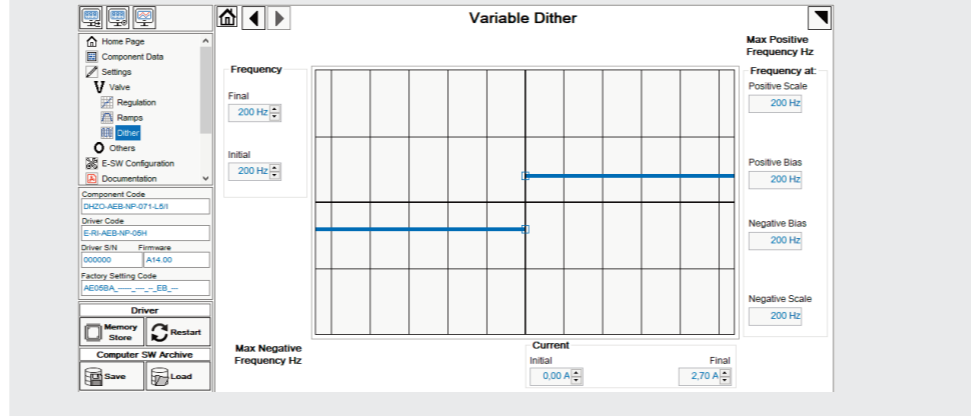
**Ramps setting:** select the required ramp configuration and adjust the ramp time to optimize the actuator's acceleration and deceleration

- No Ramp : no ramps selected
- Single Ramp : setup Ramp 1
- Double Ramp : setup Ramp 1 and 2
- Four Ramps : setup Ramp 1, 2, 3 and 4 (only 3 way)



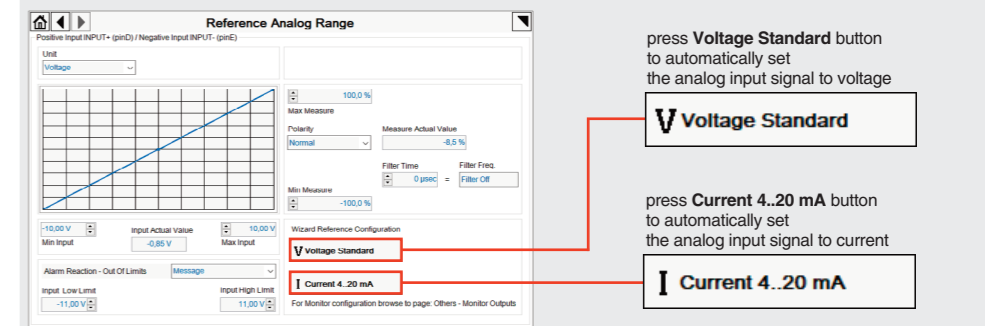
**DITHER**

**Dither setting:** factory default 200 Hz  
• lower frequencies reduce the hysteresis of the valve, too low values can affect the valve stability  
• higher frequencies increase regulation stability, but increase also the hysteresis of the valve



**WIZARD REFERENCE - E-SW level 2 functionality**

Reference input signal is factory preset according to selected valve code, defaults are ±10 Vdc for standard and 4 ÷ 20 mA for /I option. Input signal can be reconfigured via software selecting between voltage and current, browsing to **Reference Analog Range** page:



**REMARK:** Voltage Standard or Current 4..20 mA buttons do not act on Monitor output signal configuration! For Monitor output signal configuration browse to page **Others - Monitor Outputs**

**4.3 STORE**

- Parameters modifications will be stored into driver permanent memory:
- press **Memory Store** button to access **Driver - Memory Store** window
  - press **Store User** button to store **Valve Parameters**

**WARNING:** During valve parameters storing operations, the driver automatically shuts down the solenoid power supply for a short time. Do not perform any storing commands while the system is working.

**4.4 BACK UP**

- Parameter modifications will be saved into PC memory:
- press **Save** button to access **Computer SW Archive - Setting Files** page, **Setting File Name** pop-up appears
  - input a valid name into **Description** field and press **Ok** button

**TROUBLESHOOTING**

**Valve vibration or noise**  
• presence of air in the solenoid; perform air bleeding procedure – see STEP 3  
• dither frequency too low; increase value of the frequency – see STEP 4.2

**The valve does not follow the reference signal**  
• valve is powered off, verify presence of 24 Vdc power supply  
• valve is disabled, verify presence of 24 Vdc on enable pin - only for /Q and /Z options  
• flow/pressure values exceeding the valve's performance limits, verify that hydraulic operating conditions are in compliance with the valve's characteristics  
• big hysteresis or spool stick-slip, reduce the dither frequency  
• spool sticking, contact Atos service center

**Software parameters modifications are lost when valve is switched off**  
• parameter store operation was not performed, check store procedure – see STEP 4, section 4.3

**Software parameters modifications have no effect on the valve**  
• valve is OFF LINE, check connection procedure – see STEP 4, section 4.1

**After the modifications of software parameters the valve does not work properly**  
• restore valve factory parameters using 'Restore Factory' button, located in 'Driver - Memory Store' window:  
- during restore, the current to the solenoid(s) will be temporarily switched to off!  
- factory parameters will be applied at next driver restart or after power off-on sequence!