English

1) Fitting (valve integration)

An insufficient deburring and/or a surface, which is too coarse (>Ra0.8), may damage the o'rings during the assembly process, thus causing internal and external leaks.

„C" = *Cartridge valve*

Follow the fitting procedure specified in D170.0001 or D170.0002 or D170.0003

„V" = *Base valve*

Follow the fitting procedure specified in D170.0004

2) Valve assembly

Visual inspection of cleanliness and condition of o'rings before assembly greatly reduces the risk of internal and external leaks.

„C" *Cartridge valve*

Exert a simultaneous amount of pressure and oscillating rotation on the circuit through the valve handle (connection side) to ease the insertion of the o-ring subjected to radial compression. The aim is to generate a dynamic movement that reduces friction and also avoids o'ring deterioration caused through those becoming trapped.

Tightening the screws should be done after the valve has been fully inserted in its place.

„V" *Base valve*

Verify that the orifices for the flow of fluids correspond between the valve and the installation plan.

Tightening the screws should be done after the valve has been fully inserted in its place.

3) Assembly aids (lubricant)

„C" *Cartridge valve*

The use of a lubricant, compatible with the type of elastomer and the fluids used, is possible.

The application of a lubricant on the o'rings must be localized and parsimonious to avoid internal contamination of the valve (increased risk of an accumulation of dirt).

If the use of oil or grease is prohibited, a compatible volatile liquid (see table below) provides temporary lubrication leaving no residue when dry.

Elastomer	**Compatible volatile liquid**
NBR	Ethanol (100% pure)
FPM / FKM	Isopropanol
EPDM	Ethanol (100% pure) or Isopropanol
FFPM / FFKM	Ethanol (100% pure) or Isopropanol

4) Assembly tools

„C“ *Cartridge valve* & „V“ *Base valve*

No tools are required for assembly.

WARNING: Alteration of the valve’s functionality

- The M2.5x6mm screws are used only to ensure the valve is in its fitting and in no way to facilitate or assist its insertion.
- The use of a hammer or other object to insert the valve is strictly forbidden.

5) Screw tightening torque

„C“ *Cartridge valve*

M2.5x6mm steel screw => 0.26Nm.

„V“ *Base valve*

M2.5x6mm steel screw => 0.26Nm.

6) Fluid filtering

The stroke or movement of the mobile parts of a proportional valve, being in the <0.001 to ~ 0.3mm range, indicates a type of valve that is sensitive to impurities which generally, lasting or not, get caught between the seat and the sealing element. Even a successful flushing (removing impurities) will not restore the seal to its original tightness, as a lasting imprint will always remain on the elastomeric sealing elements.

Therefore, a filter should be placed upstream of the valve.

The degree of filtration is dependent on the seat ø:

- <= ø0.4mm: **5«m filter included upstream of the valve (standard)**
- * >=0.5mm to 2mm: **10«m filter option,**

*When using a valve without a filter **:*

The client filter will only be partially effective without a cleaning and an adequate level of maintenance of the block on which the proportional valve, without a filter, is assembled.

The filter material must be compatible with the fluid(s) used.

In all cases:

If there is a risk of fluid flow reversal, it is also advisable to place a filter downstream of the valve.

The active surface of the filter must be set so as to minimize pressure decay. Otherwise, the filter will act as a flow restrictor, and the valve will not be able to meet the flow specifications given.

7) Driving / electrical control of the valve

The electrical signal may be one of 3 types:

- *Current driving [A],*

  In a coil, the electromagnetic force is directly proportional to the current passing through it.

  The current drive is therefore the most favorable method, as the influence of the coil's resistance (R) variation due to the temperature (self-heating of the powered coil, variable room temperature) on the voltage according to ohm's law U (V) = R (Ω) x I (A) will not affect the electromagnetic force.

  With a constant current, the flow rate will be stable as long as the entry pressure and exit counter-pressure are stable.

  To ensure optimal usage of the valve, do not limit the voltage to its nominal value (indicated in our specifications @ T = 20°C), but anticipate a factor of 1.5x this voltage.

  Example: see example under "Voltage driving [V]"

- *Voltage driving [V],*

  In this case, you should size the electrical circuit to supply a maximum voltage equivalent to 1.5x the nominal voltage, if necessary.

  Example: for 24V DC nominal that corresponds to an 83mA 288ohm coil, the voltage can, in the worst case (maximum room temperature and weak cooling), reach 36V DC.

  With a constant voltage, the flow rate will decrease as the temperature rises (increasing coil resistance) according to Ohm's law U (V) = R (Ω) x I (A).

- *Driving with PWM (pulse-width modulation voltage),*

  The frequency should be f > = 3 kHz to minimize the audible "noise" and, above all, so as not to create noise on the flow signal.

  The explanation of the voltage drive is valid in this case.

8) Reading barcodes / coding

- Reading the barcode

  -Format: Data Matrix

  -Compatible reader (used by FAS):

  Powerscan PD9530-HPE

- Coding
  - Valve identification
  - Date (year/week format)
  - Valve number

Production date + valve n° AASSxxxx

xxxx

Valve identification

Data Matrix