atos
the smart electrohydraulics

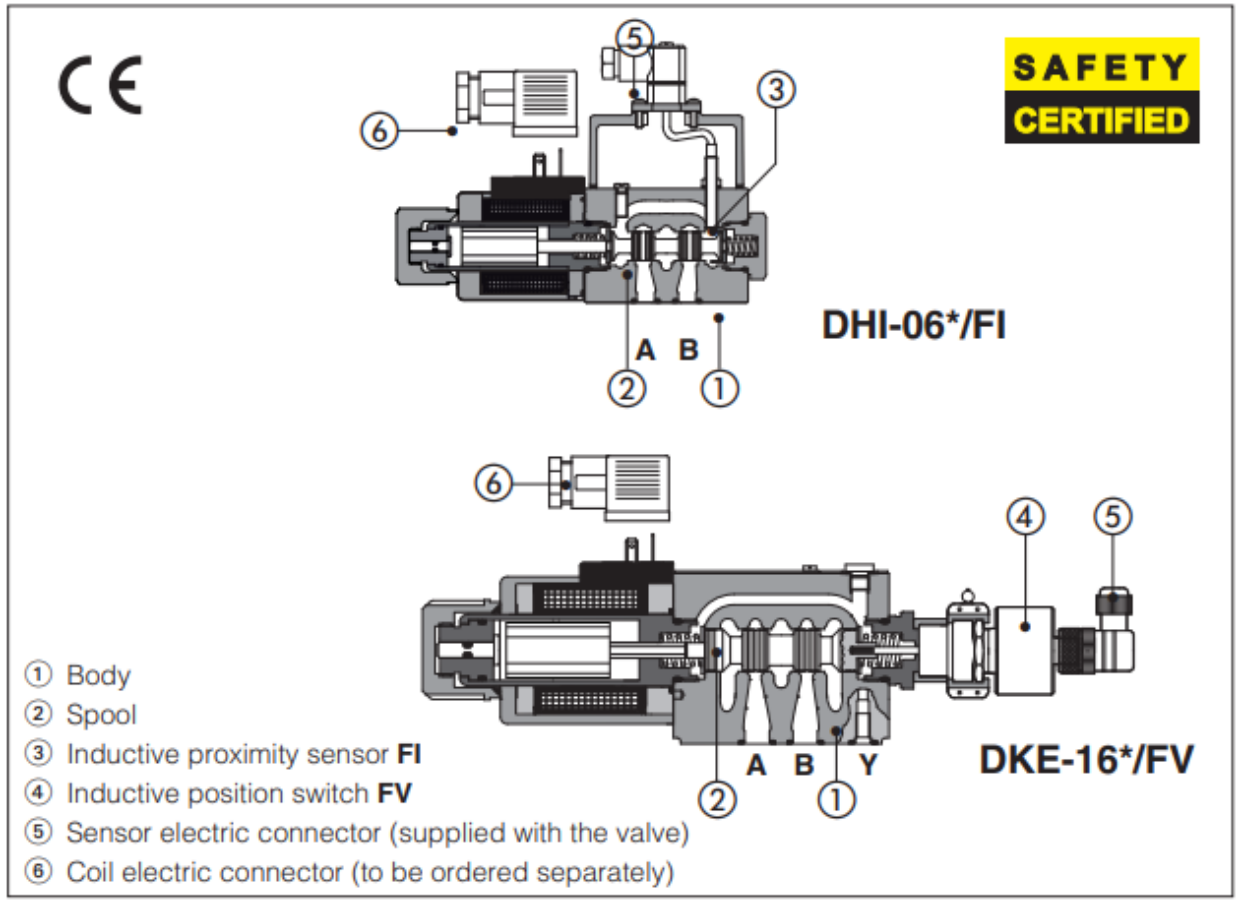
Service Center Training

FI / FV valves

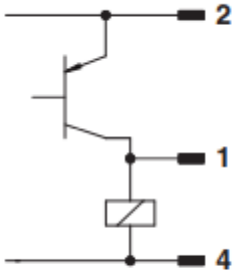
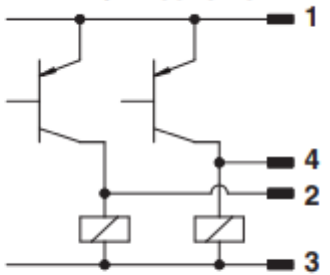
SECURITY SENSORS FI/FV

FI = INDUCTIVE PROXIMITY SENSORS

FV = INDUCTIVE POSITION SWITCH

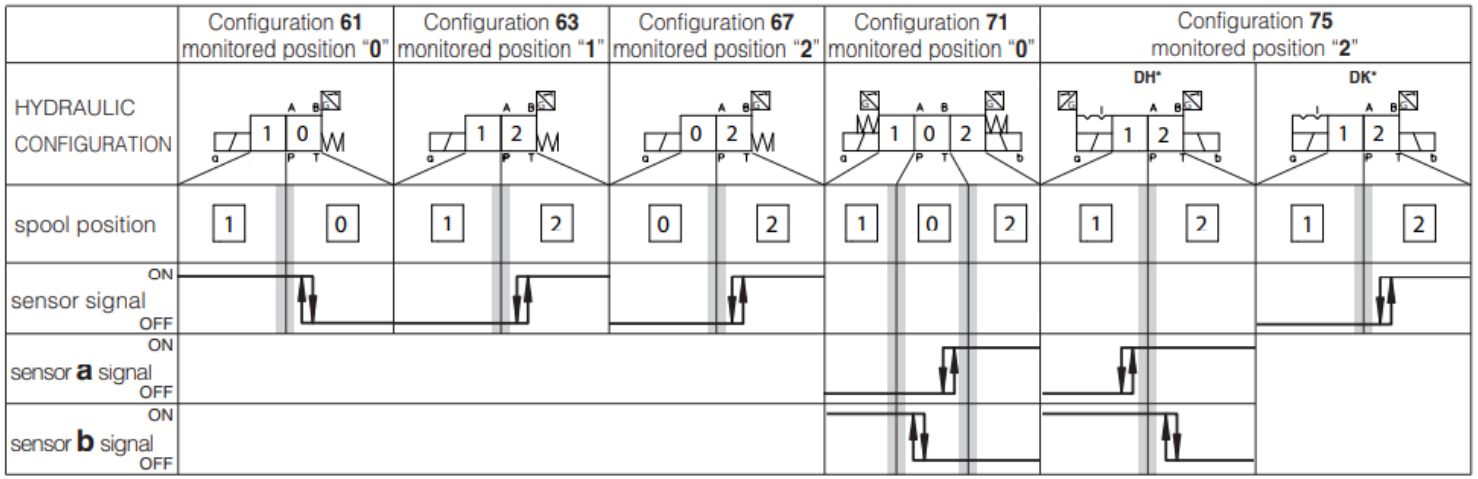


ELECTRICAL CONNECTIONS

Type of switch		**/FI** proximity sensor	**/FI** scheme	**/FV** position switch	**/FV** scheme
Supply voltage	[V]	10÷30		20÷32	
Ripple max	[%]	≤ 20		≤ 10	
Max current	[mA]	200		400	
Max peak pressure	[bar]	100		400	
Mechanical life		virtually infinite		virtually infinite	
Switch logic		PNP		PNP	
			1 output signal **2** supply +24 VDC **4** GND	**1** supply +24 VDC **2** output signal	**3** GND **4** output signal

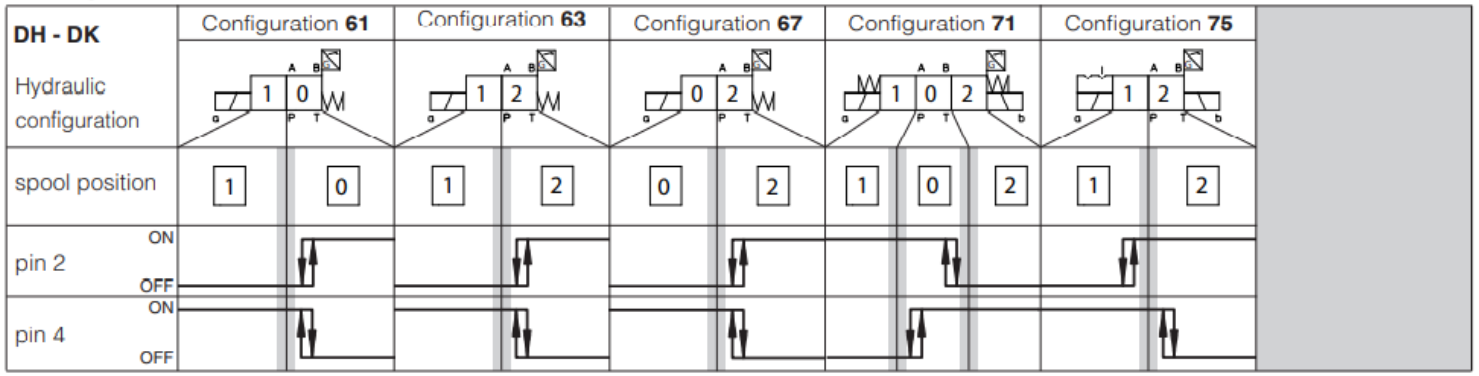
ELECTRICAL CONNECTIONS

Signal status for FI versions



Diagrams show the behaviour of the output signal for inductive switches type **FI/NO**.
For inductive switches type **FI/NC** the behaviour is opposite (high level signal instead of low level signal and viceversa)

Signal status for FV versions



Note: FV position switch can be electrically wired by the customer as NO or NC and then the status of the output signal will be in accordance to the selected configuration
= intermediate spool position corresponding to the hydraulic configuration change

Change of state before change of hydraulic configuration

SECURITY SENSORS FI/FV

2 MODEL CODE OF DHI AND DHE

DHI	-	0	63	1/2	/	A	/	FV	*	-	X	24DC	**	/	*

Directional control valve size 06
DHI = max flow 60 l/min
DHE = max flow 80 l/min

Size ISO 4401
0 = size 06

Valve configuration, see section 3
61 = single solenoid, central plus external position, spring centered
63 = single solenoid, 2 external positions, spring offset
67 = single solenoid, external plus central position, spring offset
71 = double solenoid, 3 positions, spring centered
75 = double solenoid, 2 external positions, with detent

Spool type, see section 3

Options, see section 8

Spool position monitor:
FI = inductive proximity switch
FV = inductive position switch (double contact)

Electrical signal - only for **FI** version (1):
/NC = electric contact is closed when the valve is de-energized
/NO = electric contact is open when the valve is de-energized

X = without connector, see section 10 for available connectors, to be ordered separately

Voltage code, see section 9

Series number

Seals material see sect. 6,7
- = NBR
PE = FKM

(1) the **FV** inductive position switch provides both NC and NO contacts

FI SENSORS

3 tools depending on the valve body

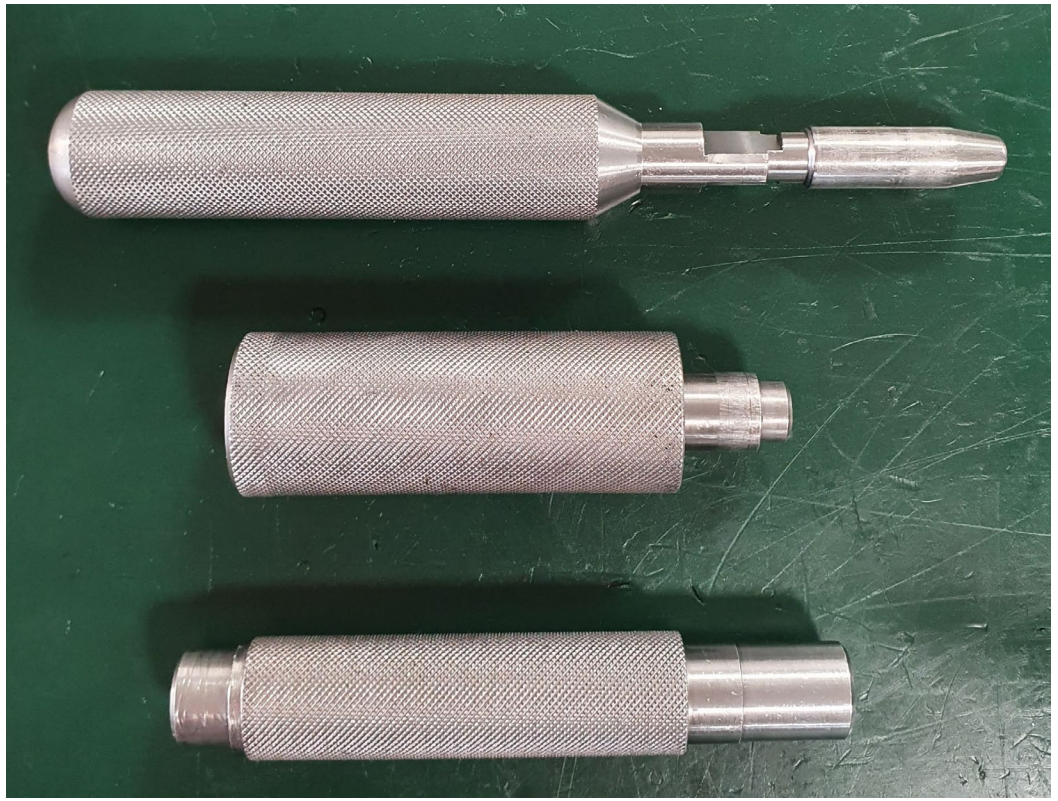
NG6 screw completly then 1/2 turn counterclockwise

DHE

DHI

NG10 screw completly

DK*

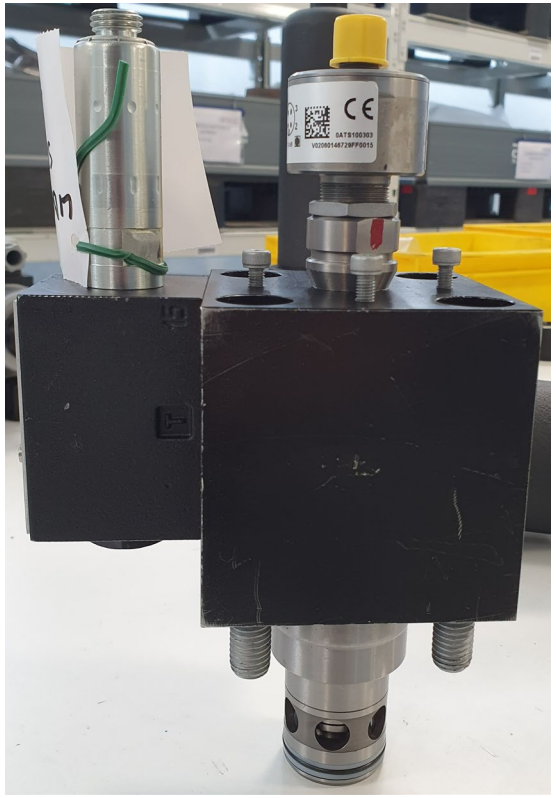


FV SENSORS

Mono solenoid valves

- Remove protection
- Replace sensor
- Clockwise rotation until change of pin state
- 1/2 counterclockwise rotation
- Lock and mark the bolt
- Close with protection and seal

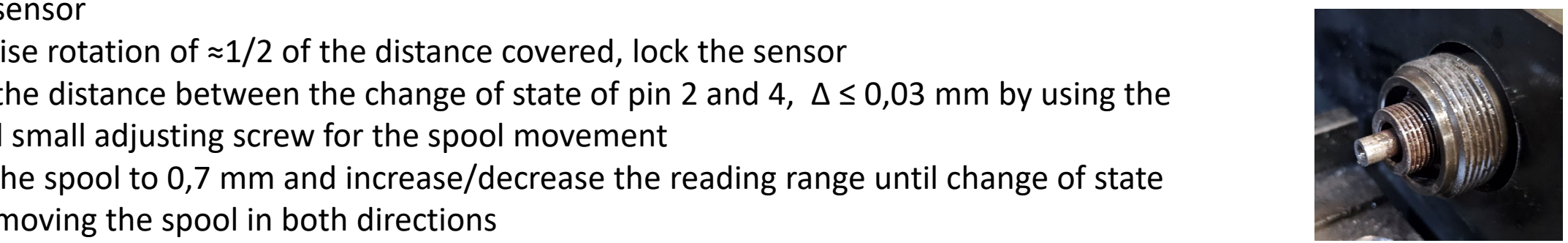
- Remove protection
- Replace sensor
- Close the cartridge
- Clockwise rotation until change of pin state
- 1/2 counterclockwise rotation
- Lock and mark the bolt
- Close with protection and seal

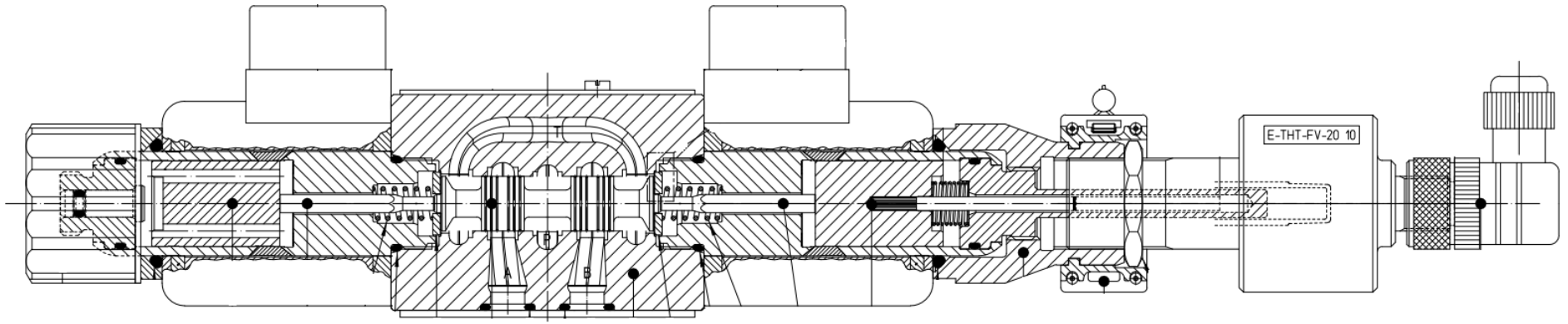


FV sensor

Double solenoid valves

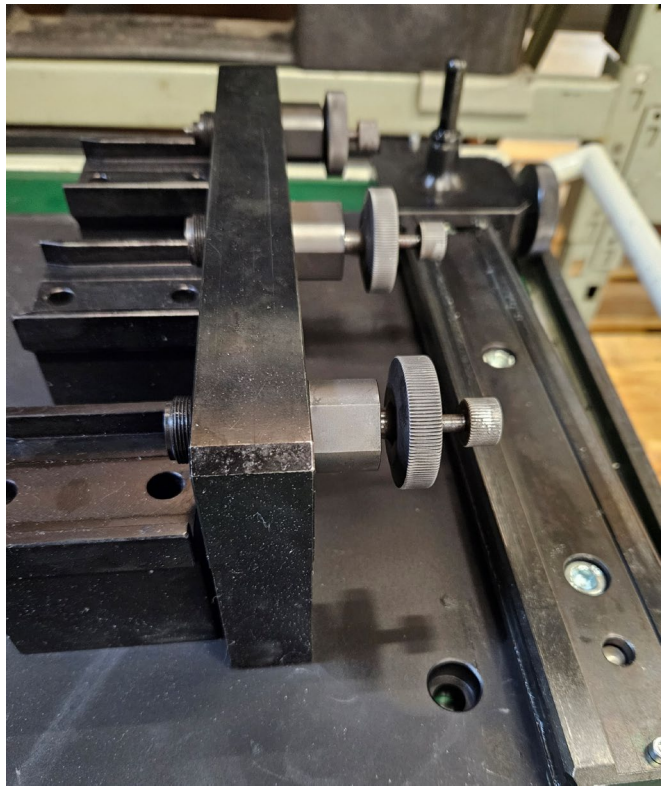
- Replace sensor
- 5 counterclockwise rotations of the trimmer (only on new sensors)
- Start position with both pins ON
- Clockwise rotation of the sensor until pin 4 turns OFF
- Counter clockwise rotation of the sensor until pin 2 turns OFF, measuring the displacement of the sensor
- Clockwise rotation of ≈1/2 of the distance covered, lock the sensor
- Check the distance between the change of state of pin 2 and 4, $\Delta \leq 0{,}03$ mm by using the big and small adjusting screw for the spool movement
- Move the spool to 0,7 mm and increase/decrease the reading range until change of state
- Check moving the spool in both directions
- Lock and mark the bolt
- Close with protection and seal

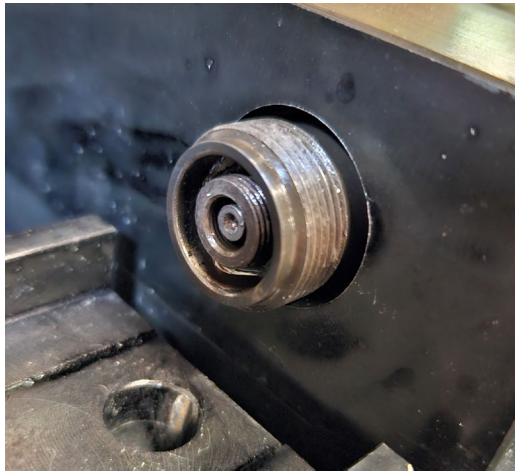


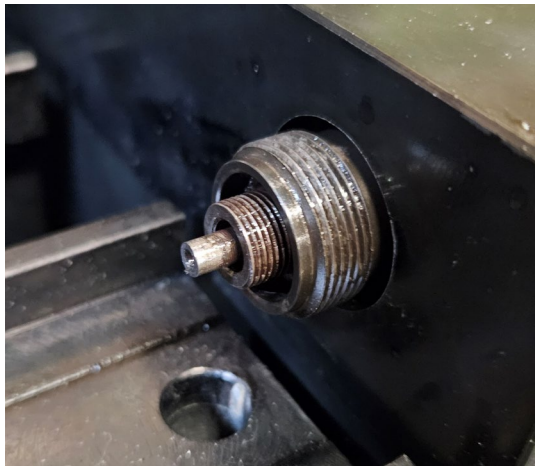


FV calibration tool

Double solenoid valves







PAY ATTENTION TO
THE WASHER!

Atos SpA

21018 Sesto Calende – Italy
Via alla Piana, 57
+39 0331 922078
info@atos.com
www.atos.com

the smart electrohydraulics