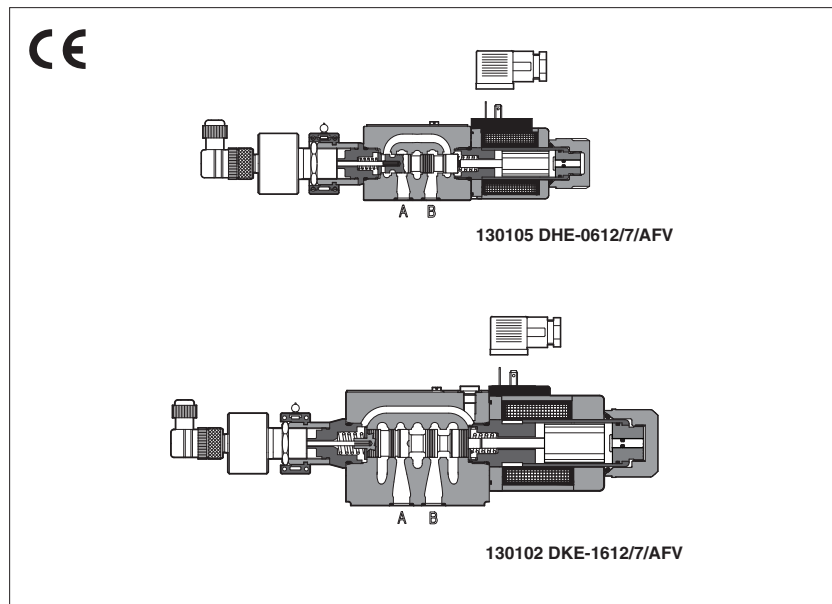


Safety valves for vertical presses and torque bar press brakes

with specific spool execution and inductive position switch

Available only on request



Directional safety valves specifically designed for applications in vertical presses and torque bar press brakes, are provided with ON-OFF inductive position switch FV (double contacts NC/NO) indicating the position of the valve's spool.

They are mainly used to intercept the hydraulic line to the beam cylinders in emergency conditions, in order to immediately stop their movement, particularly during the pressing phase.

At this subject the spool configuration is specifically designed to fulfill the particular application requirements.

By checking the position switch status, the machine controller can perform the safety function.

They are available in five different sizes:

- **130105 DHE**: size 06, direct
max flow 50 l/min
- **130102 DKE**: size 10, direct
max flow 150 l/min
- **130135 DPHE-1**: size 10, direct
max flow 160 l/min
- **130133 DPHE-2**: size 10, direct
max flow 300 l/min
- **130134 DPHE-4**: size 10, direct,
max flow 700 l/min

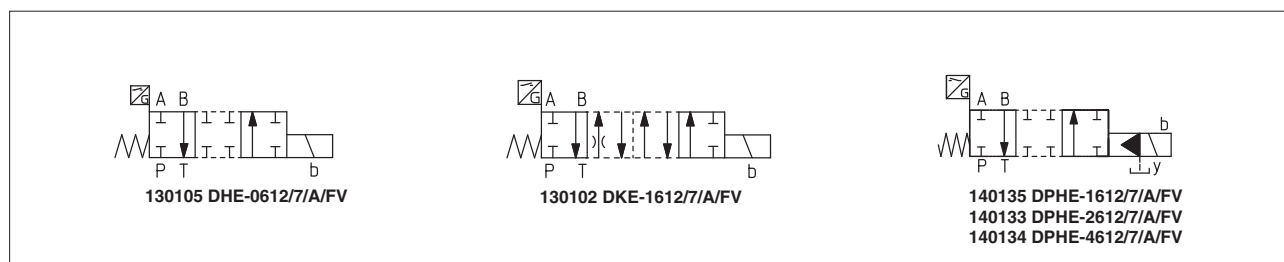
Max pressure: **350 bar**

See the below section 4 for detailed p/Q performance limits.

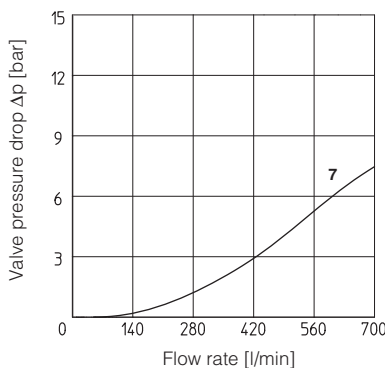
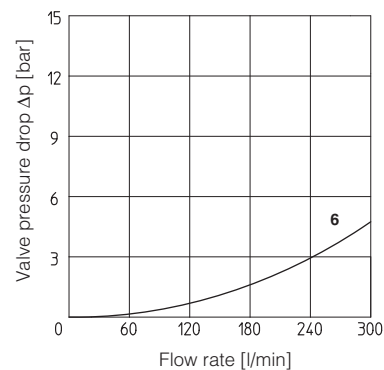
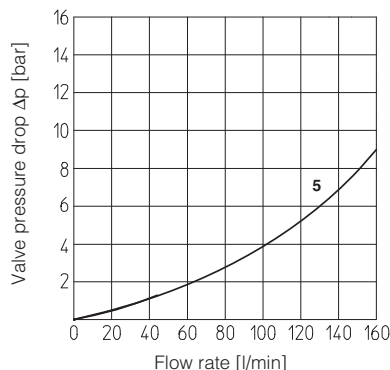
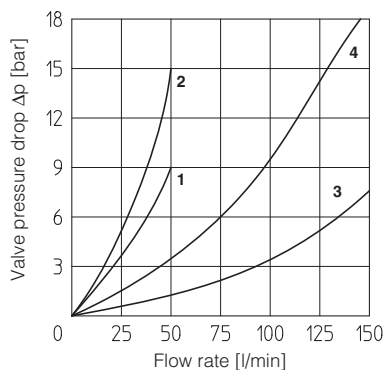
1 MODEL CODE

| | | | | | | | | | | | | |
|---|---|-----------|------------|---|----------|---|-----------|---|----------|---|-----------|-----------|
| 130105 DHE-0 | - | 61 | 2/7 | / | A | / | FV | - | X | 24DC | ** | /* |
| <p>Type valve</p> <p>130105 DHE-0 = size 06 130102 DKE-1 = size 10 140135 DPHE-1 = size 10 140133 DPHE-2 = size 16 140134 DPHE-4 = size 25</p> <p>Valve configuration</p> <p>61 = single solenoid, central plus external, spring centered</p> <p>Spool type, see section 2</p> <p>Solenoid mounted at side of port B</p> <p>Type of switch: FV = inductive position switch (double contacts)</p> | | | | | | | | | | <p>Series number</p> | | |
| | | | | | | | | | | <p>Voltage code 24 = 24 Vdc (other voltages on request)</p> | | |
| | | | | | | | | | | <p>X =without solenoid connector, to be order separately (see tab. K500)</p> | | |
| <p>- = NBR PE = FKM</p> | | | | | | | | | | | | |

2 CONFIGURATIONS and SPOOLS



3 Q/ΔP DIAGRAMS based on mineral oil ISO VG 46 at 50°C



130105 DHE
1 = P-A 2 = B-T

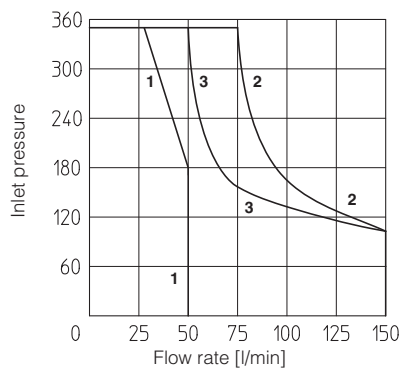
130102 DKE
3 = P-A 4 = B-T

140135 DPHE-1
5 = P-A, B-T

140133 DPHE-2
6 = P-A, B-T

140134 DPHE-4
7 = P-A, B-T

4 OPERATING LIMITS based on mineral oil ISO VG 46 at 50°C



130105 DHE
1 = P-A, B-T

130102 DKE
2 = P-A
3 = B-T

5 MAIN CHARACTERISTICS

| | |
|----------------------------|--|
| Installation position | Any position |
| Subplate surface finishing | Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101) |
| Ambient temperature | from -20°C to +70°C |
| Fluid | Hydraulic oil as per DIN 51524 535; for other fluids see section 11 |
| Recommended viscosity | 15 ÷ 100 mm ² /s at 40°C (ISO VG 15 ÷ 100) |
| Fluid contamination class | ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β ₁₀ ≥ 75 recommended) |
| Fluid temperature | -20°C +60°C (standard seals) -20°C +80°C (/PE seals) |
| Flow direction | As shown in the symbols of tables 2 |
| Operating pressure | DHE P, A, B = 350 bar T = 210 bar |
| | DKE P, A, B = 350 bar T = (with Y port not connected to tank) 210 bar T = (with Y port drained to tank) 250 bar |
| | DPHE P, A, B, X = 350 bar T = 250 bar Ports Y = 0 bar Minimum pilot pressure for correct operation is 8 bar |
| Maximum flow | DHE 50 l/min see technical table E015, section 9, operating limits |
| | DKE 150 l/min see technical table E025, section 9, operating limits |
| | DPHE DPHE-1: 160 l/min ; DPHE-2: 300 l/min ; DPHE-4: 700 l/min ; |

5.1 Coils characteristics

| | |
|------------------------------|---|
| Insulation class | H (180°C) Due to the occurring surface temperatures of the solenoid coils, the European standards EN ISO 13732-1 EN ISO 4413 must be taken into account |
| Connector protection degree | IP 65 |
| Relative duty factor | 100% |
| Supply voltage and frequency | See electric feature 16 |
| Supply voltage tolerance | ± 10% |

WARNING: the inobservance of following prescriptions invalidates the certification and may represent a risk for personnel injury



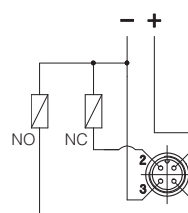
Safety valves must be installed and commissioned only by qualified personnel
Safety valves must not be disassembled
The inductive proximity switch or the position switch can be adjusted only by the manufacturer
Valve's components cannot be interchanged
The valves must operate without switching shocks and spool / poppet vibrations

6 TECHNICAL CHARACTERISTICS OF INDUCTIVE PROXIMITY AND POSITION SWITCHES

| Type of switch | | position switch /FV |
|-------------------------|-------|---------------------|
| Supply voltage | [V] | 20÷32 |
| Ripple max | [%] | ≤ 10 |
| Max current | [mA] | 400 |
| Power consumption | [mA] | - |
| Voltage drop | [V] | - |
| Max switching frequency | [Hz] | - |
| Max peak pressure | [bar] | 400 |
| Mechanical life | | virtually infinite |
| Switch logic | | PNP |

7 CONNECTING SCHEMES OF POSITION SWITCHES

Connector type **ZBE-06**

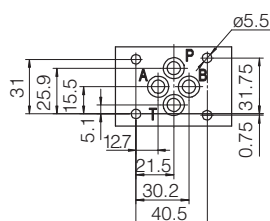


1 = supply +24 V_{DC}
2 = output signal NC
3 = GND
4 = output signal NO

NOTE: the /FV position switch are not provided with a protective earth connection

8 DIMENSIONS [mm]

130105 DHE-0612/7/A/FV



P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT

ISO 4401: 2005

Mounting surface: 4401-03-02-0-05

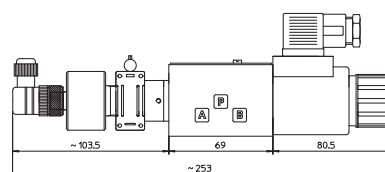
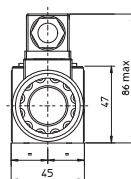
Fastening bolts:

4 socket head screws: M5x50 class 12.9 (DHI, DHU)
M5x30 class 12.9 (DHE, DHER)

Tightening torque = 8 Nm

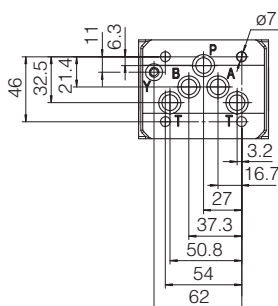
Seals: 4 OR 108

Ports P,A,B,T: Ø = 7.5 mm (max)



Mass: kg 1,7

130102 DKE-1612/7/A/FV



P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
Y = DRAIN PORT

ISO 4401: 2005

Mounting surface according to 4401-05-05-0-05 (without X port, Y port optional)

Fastening bolts:

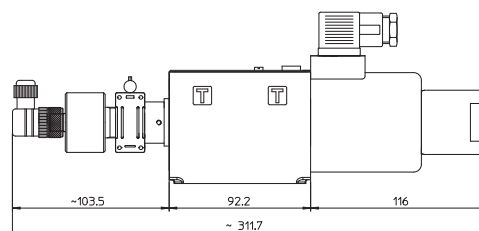
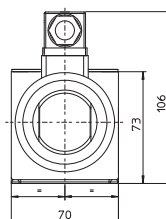
4 socket head screws M6x40 class 12.9

Tightening torque = 15 Nm

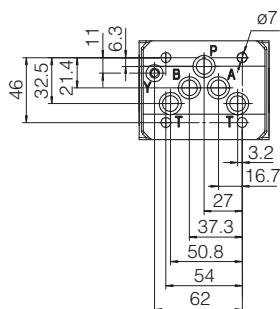
Seals: 5 OR 2050 and 1 OR 108

Ports P,A,B,T: Ø = 11.5 mm (max)

Ports Y: Ø = 5 mm



Mass: kg 4,4



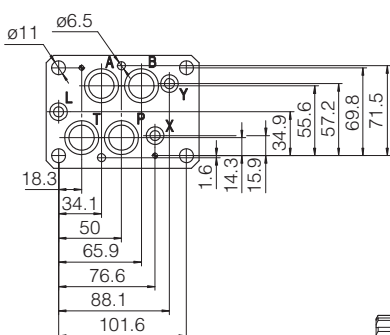
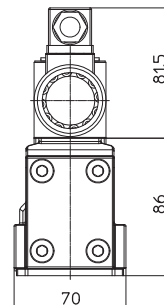
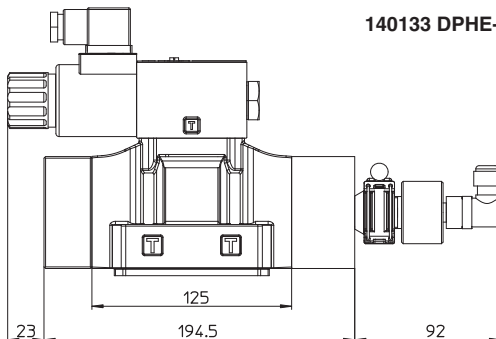
P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
Y = DRAIN PORT

ISO 4401: 2005

Mounting surface according to 4401-05-05-0-05 (without X port)

Fastening bolts:
 4 socket head screws M6x40 class 12.9
 Tightening torque = 15 Nm
 Seals: 5 OR 2050 and 1 OR 108
 Ports P, A, B, T: $\varnothing = 11.5$ mm (max)
 Ports Y: $\varnothing = 5$ mm

140133 DPHE-1612/7/A/FV



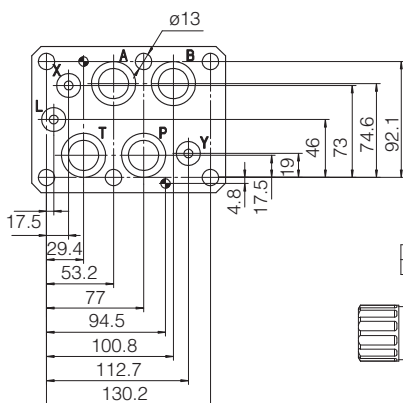
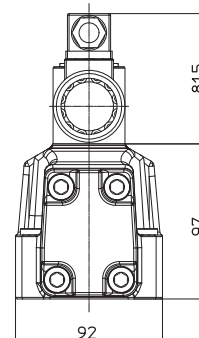
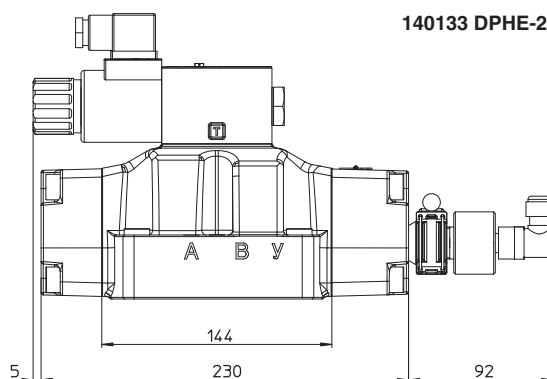
P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
X = EXTERNAL OIL PILOT PORT
Y = DRAIN PORT

ISO 4401: 2005

Mounting surface: 4401-07-07-0-05

Fastening bolts:
 4 socket head screws M10x50 class 12.9
 Tightening torque = 70 Nm
 2 socket head screws M6x45 class 12.9
 Tightening torque = 15 Nm
 Diameter of ports A, B, P, T: $\varnothing = 20$ mm;
 Diameter of ports X, Y: $\varnothing = 7$ mm;
 Seals: 4 OR 130, 2 OR 2043

140133 DPHE-2612/7/A/FV



P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
X = EXTERNAL OIL PILOT PORT
Y = DRAIN PORT

ISO 4401: 2005

Mounting surface: 4401-08-08-0-05

Fastening bolts:
 6 socket head screws M12x60 class 12.9
 Tightening torque = 125 Nm
 Diameter of ports A, B, P, T: $\varnothing = 24$ mm;
 Diameter of ports X, Y: $\varnothing = 7$ mm;
 Seals: 4 OR 4112, 2 OR 3056

140134 DPHE-4612/7/A/FV

