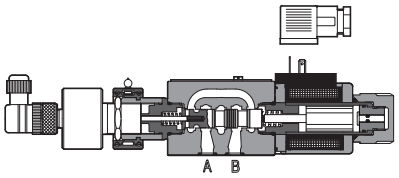
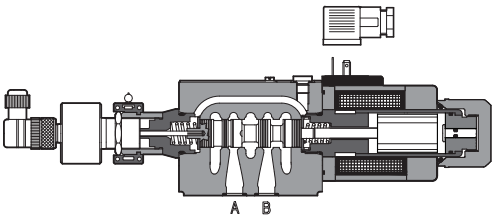
Safety valves for vertical presses and torque bar press brakes

with specific spool execution and inductive position switch

Availability and price only on request



13*105 DHE-0612/7/AFV



13*102 DKE-1612/7/AFV

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:

- **13*105 DHE**: size 06, direct max flow 50 l/min
- **13*102 DKE**: size 10, direct max flow 150 l/min
- **13*135 DPHE-1**: size 10, direct max flow 160 l/min
- **13*133 DPHE-2**: size 10, direct max flow 300 l/min
- **13*134 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

13*105 DHE-0	-	61	2/7	/	A	/	FV	-	X	24DC	**	/*

Type valve
13*105 DHE-0 = size 06
13*102 DKE-1 = size 10
14*135 DPHE-1 = size 10
14*133 DPHE-2 = size 16
14*134 DPHE-4 = size 25

Valve configuration
61 = single solenoid, central plus external, spring centered

Spool type, see section 2

Solenoid mounted at side of port B

Type of switch:
FV = inductive position switch (double contacts)

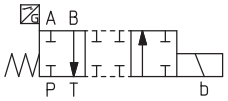
X =without solenoid connector, to be order separately (see tab. K800)

Voltage code
24 = 24 VDC (other voltages on request)

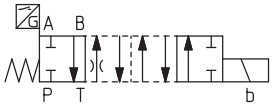
Series number

- = NBR
PE = FKM

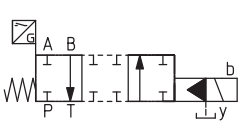
2 CONFIGURATIONS and SPOOLS



13*105 DHE-0612/7/A/FV

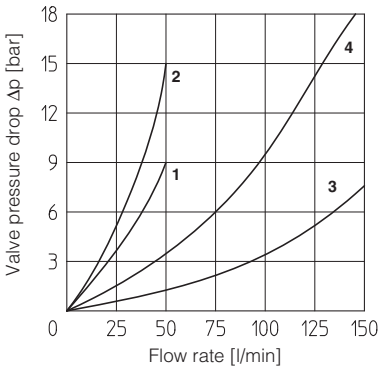


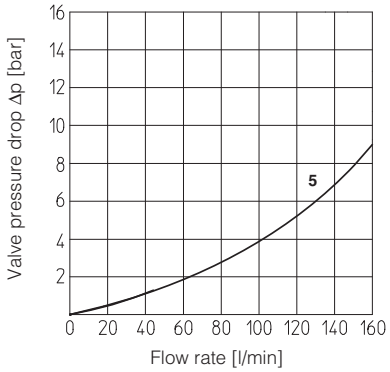
13*102 DKE-1612/7/A/FV

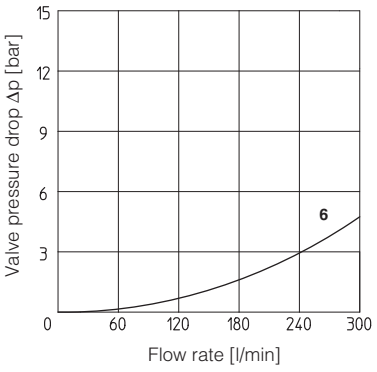


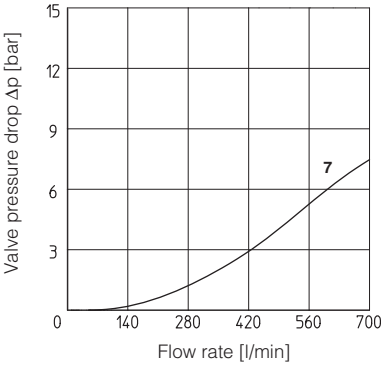
140135 DPHE-1612/7/A/FV
140133 DPHE-2612/7/A/FV
140134 DPHE-4612/7/A/FV

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









13*105 DHE
1 = P-A **2** = B-T

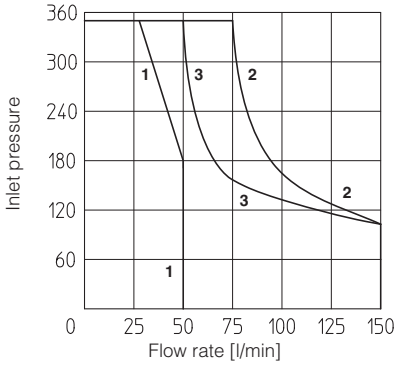
13*102 DKE
3 = P-A **4** = B-T

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



13*105 DHE
1 = P-A, B-T

13*102 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 1
Recommended viscosity		15 ÷ 100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s
Fluid contamination class		ISO 4406 class 20/18/15 NAS 1638 class 9, see also filter section at www.atos.com or KTF catalog
Fluid temperature		-20°C +80°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 “operating limits”
	DKE	**150 l/min** see technical table E025, section “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 occuring 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 6
Supply voltage tolerance	± 10%

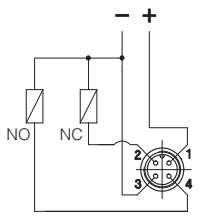
WARNING: the inobservance of following prescriptions invalidates the certification and may represent a risk for personnel injury
Safety valves must be installed and commissioned only by qualified personnel
Safety valves must not be disassembled
The inductive proximity switch or the position switch can 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**

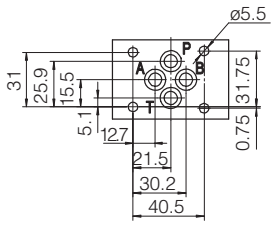


1 = supply +24 VDC
2 = output signal NC
3 = GND
4 = output signal NO

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

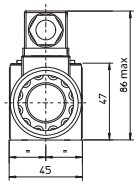
8 DIMENSIONS [mm]

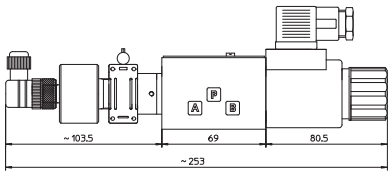
13*105 DHE-0612/7/A/FV



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

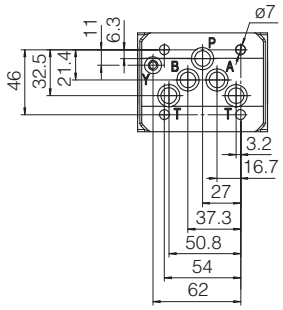
ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Fastening bolts:
4 socket head screws: M5x30 class 12.9
Tightening torque = 8 Nm
Seals: 4 OR 108
Ports P,A,B,T: Ø = 7.5 mm (max)





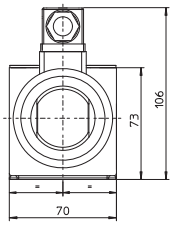
Mass: kg 1,7

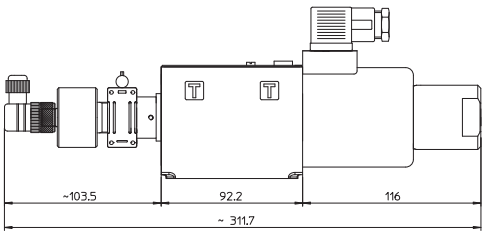
13*102 DKE-1612/7/A/FV



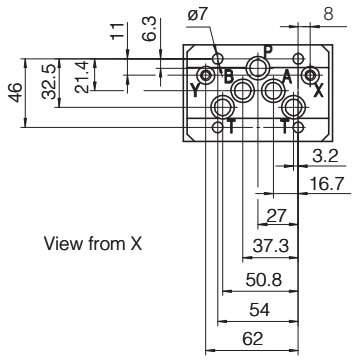
P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
Y = DRAIN PORT

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

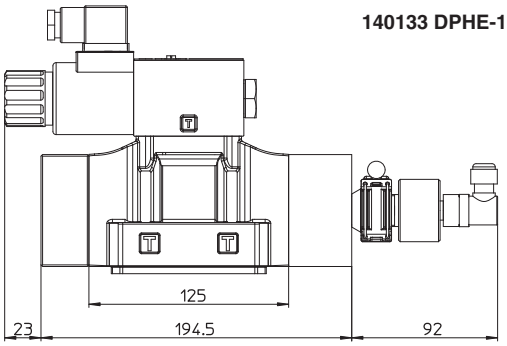


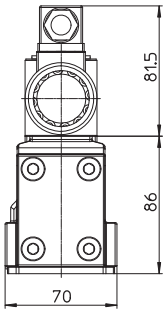
View from X

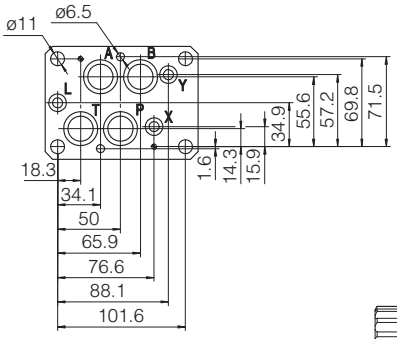
P = PRESSURE PORT
A, B = USE PORT
T = TANK PORT
Y = DRAIN PORT

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 2 OR 108
Ports P,A,B,T: Ø = 11.5 mm (max)
Ports Y: Ø = 5 mm

140133 DPHE-1612/7/A/FV





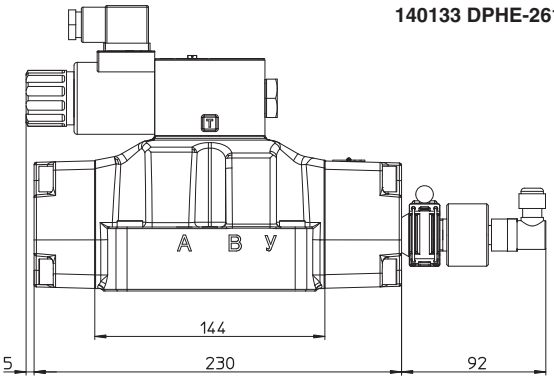


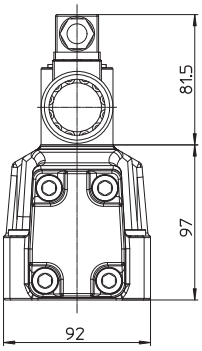
P = PRESSURE PORT
A,B = USE PORT
T = TANK PORT
X = EXTERNAL OIL PILOT PORT
Y = DRAIN PORT

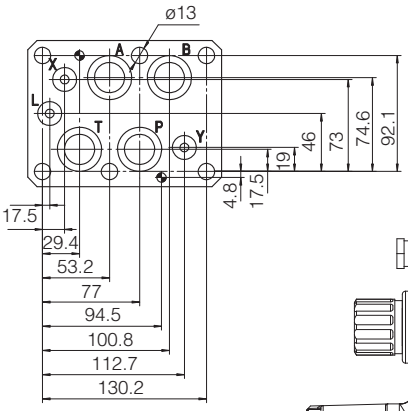
ISO 4401: 2005
Mounting surface: 4401-07-07-0-05

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: Ø = 20 mm;
Diameter of ports X, Y: Ø = 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: Ø = 24 mm;
Diameter of ports X, Y: Ø = 7 mm;
Seals: 4 OR 4112, 2 OR 3056

140134 DPHE-4612/7/A/FV