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Технические характеристики

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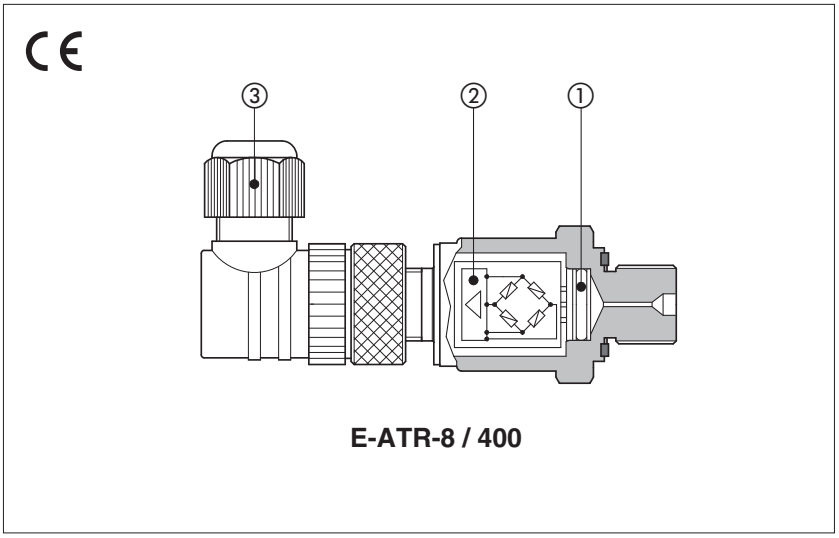
INDEX

ACCESSORIES

Pressure transducers type E-ATR-8

analog, for open and closed loop systems



E-ATR-8 / 400

E-ATR-8

This pressure transducers measure the static and dynamic pressure of the hydraulic fluid, supplying a voltage or current output signal.

The sensor is composed by a thin-film circuit ①, with high resistance to overloads and pressure peaks.

The integrated electronic circuit ② supplies an amplified voltage or current output signal, proportional to the hydraulic pressure, with thermal drift compensation.

E-ATR-8 equip pressure control digital proportional valves with integral transducer and electronics, REB/RES execution (see tech table GS205).

They are also used in association with other Atos digital proportionals to perform closed loop pressure controls:

- variable displacement axial piston pumps, PE(R)S execution (see tech table AS170)
- directional control valves with additional closed loop pressure control, SP and SF options on TES/LES execution (see tech table FS500)

Features:

- Factory preset and calibrated
- Standard 5 pin M12 main connector ③
- IP67 protection degree
- CE mark according to EMC directive

1 MODEL CODE

E-ATR-8	/	400	/	*	*
Pressure transducer		**Pressure measuring range:** **60** = 0 ÷ 60 bar **100** = 0 ÷ 100 bar **160** = 0 ÷ 160 bar **250** = 0 ÷ 250 bar **400** = 0 ÷ 400 bar		**Options:** **-** = voltage output signal 0 ÷ 10 V **I** = current output signal 4 ÷ 20 mA	Series number

2 MAIN CHARACTERISTICS

Pressure measuring range	0 ÷ 60/100/160/250/400 bar; other values availables on request Note: negative pressure can damage the pressure transducer
Overload pressure	2 x FS without exceeding 600 bar
Burst pressure	5 x FS without exceeding 1700 bar
Response time	≤ 2 ms
Temperature range	Operating -40 ÷ +100 °C; Storage -40 ÷ +100 °C; Fluid: -40 ÷ +100 °C
Thermal drift	@ zero: ≤ ±0,025 % FS/°C max; @ FS: ≤ ±0,025 % FS/°C max
Accuracy	≤ ±1,2 % FS
Non-Linearity	≤ ±0,5 % of FS (BFSL) as per IEC 61298-2
Fluid Compatibility	Hydraulic oil as per DIN51524...535; for water-glycol, phosphate ester and skydrol® , please contact Atos technical department
Power supply	24 VDC nominal; 14 ÷ 30 VDC for standard (8 ÷ 30 VDC for /I option); Imax 25 mA
Output signal	Standard: voltage output signal 0 ÷ 10 V (3 pins); Min load > maximum output signal / 1 mA /I option: current output signal 4 ÷ 20 mA (2 pins); Max load ≤ (power supply - 8 V) / 0,02 mA
Wiring protections	Against reverse polarity on power supply and short-circuit on output signal
Materials	Wetted parts: stainless steel 316L (13-8 PH for sensor); seals: FPM/FKM
Mass	Approx. 57 g
Electromagnetic compatibility (EMC)	According to Directive 2014/30/UE EN 61326 emission (group 1, class B) and immunity (industrial application)
Compliance	RoHs Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006
Vibration resistance	20 g according to DIN EN 60068-2-6 from 20 to 2000 Hz
Shock resistance	40 g / 6 ms / half-sinusoid, according to DIN EN 60068-2-27
Protection class	IP67 with mating connector
Hydraulic connection	1/4" GAS - DIN 3852 (pressure port orifice Ø 0,6 mm)
Electrical connection	Type: plastic 5 pins M12 at 90° (DIN 43650-C) with cable gland type PG7 for cable max Ø 6 mm Protection: IP67 according to EN 60529; Insulation: according to VDE 0110-C

Notes: FS = Full Scale; **BFSL** = Best Fit Straight Line

3 INSTALLATION AND COMMISSIONING

3.1 Warning

E-ATR-8 transducers have to be installed as near as possible to the point where the pressure have to be measured, taking care that the oil flow is not turbulent.

3.2 Commissioning

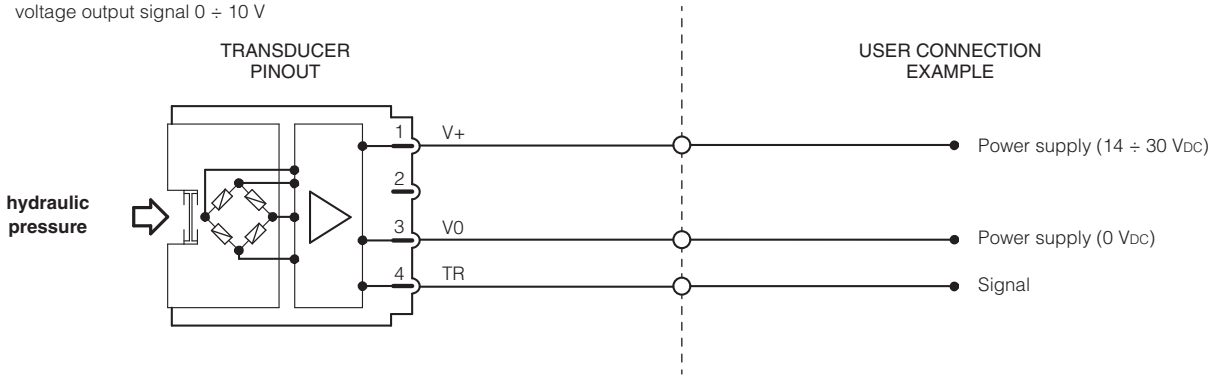
Install the transducer in the hydraulic circuit.

Switch-off the power supply before connecting and disconnecting the transducer connector as shown in scheme 4 .

4 ELECTRONIC CONNECTIONS

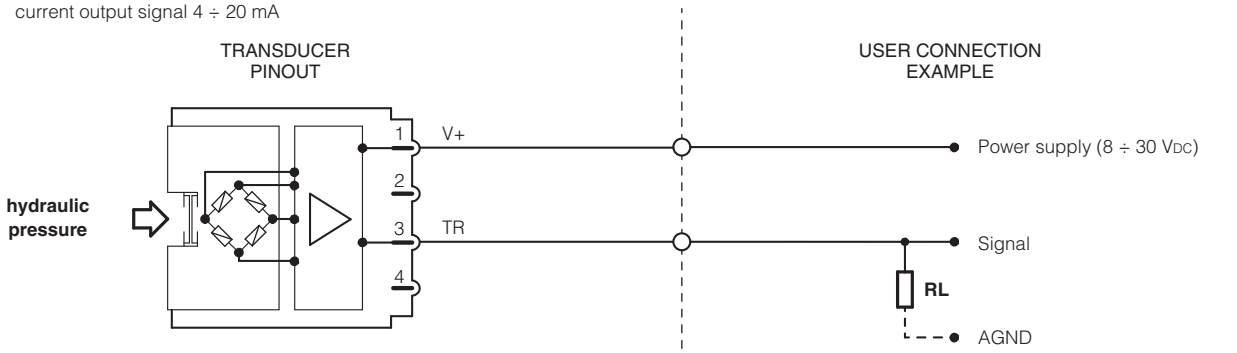
E-ATR-8 / *

voltage output signal 0 ÷ 10 V



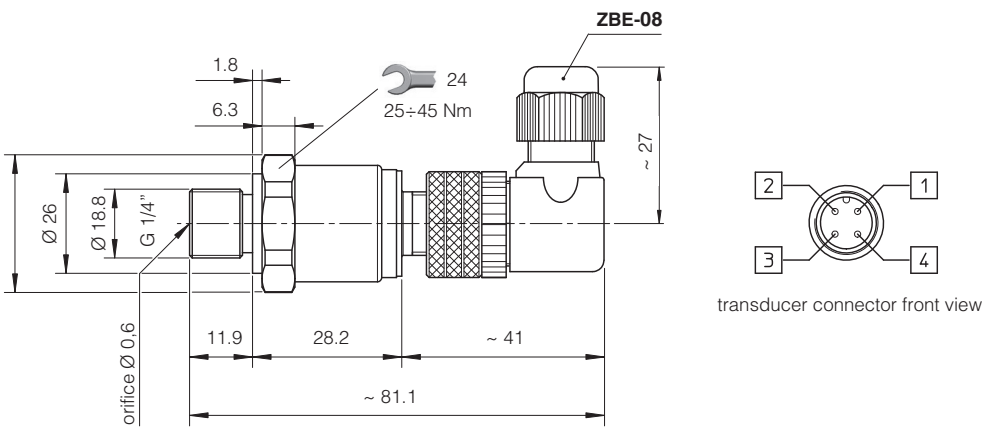
E-ATR-8 / * / I

current output signal 4 ÷ 20 mA



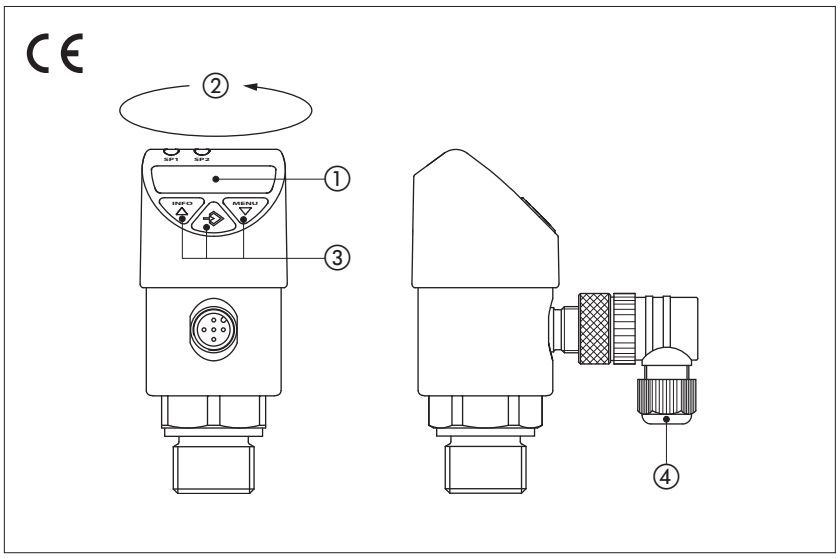
The max resistance **RL** [Ω] is calculated: $\mathbf{RL} = \frac{\text{Vsupply}}{0{,}02} - \frac{10[\text{V}]}{[\text{A}]}$

5 OVERALL DIMENSIONS [mm]



Electronic pressure switches type E-DAP-2

digital, with integral digital display



1 MODEL CODE

E-DAP-2	-	250	/	2	*
Electronic pressure switch		**Pressure range:** **100** = 100 bar **250** = 250 bar **400** = 400 bar		**2** = 2 switching outputs	Series number

E-DAP-2

Compact electronic pressure switch with integral digital display, available for 3 different pressure ranges.

The working pressure is real time measured and monitored on a 4 digits display ① in bar, Mpa, kPa, psi or kg/cm². The display can be mechanically rotated on 1 axis ② and turned electronically through 180°.

It provides two independent output with electronic contacts which are triggered when the pressure in the hydraulic circuit reaches the switch point or window (see section 4).

The functional parameters as the pressure switching point, hysteresis range, pressure measuring units and others additional functions can be easily set by the end user trough proper programming keys ③ .

For detailed instructions about the use of the electronic pressure switch refer to the operating manual supplied with the instrument.

Features:

- Standard 5 pin M12 main connector ④
- IP65 / IP67 protection degree
- CE mark according to EMC directive

2 MAIN CHARACTERISTICS

Model	E-DAP-2-100	E-DAP-2-250	E-DAP-2-400
Pressure measuring range [bar] (1)	0,5 ÷ 100	1,25 ÷ 250	2 ÷ 400
Overload pressure	2 x FS		
Response time	≤ 10 ms		
Temperature range	Operating -40 ÷ +80 °C; Storage -40 ÷ +80 °C; Fluid: -40 ÷ +85 °C		
Thermal drift	Zero ±0,02 % FS / °C (typ); span ±0,01 % FS / °C (typ)		
Accuracy display	≤ ±1,0 % of FS ±1 digit		
Non-Linearity	≤ ±0,5 % of span BFSL as per IEC 61298-2		
Fluid compatibility	Hydraulic oil as per DIN51524...535; for water-glycol, phosphate ester and skydrol® , please contact Atos technical department		
Power supply	15 ÷ 35 VDC; Imax 600 mA		
N° of outputs	2		
Output type	PNP transistor output (ON state ≅ power supply - 1 V)		
Switching current	250 mA max per output (resistive load)		
Wiring protections	Against reverse polarity on power supply and short-circuit on output signal		
Display	4 digit, 14 segment led, red, height 9 mm		
Materials	Wetted parts: stainless steel 316L (13-8 PH for sensor); seals: FPM/FKM		
Mass	174 g		
Electromagnetic compatibility (EMC)	According to Directive 2014/30/UE EN 61326 emission (group 1, class B) and immunity (industrial application)		
Compliance	RoHs Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006		
Vibration resistance	10 g according to IEC 60068-2-6, under resonance		
Shock resistance	50 g according to IEC 60068-2-27		
Protection class	IP65 / IP67 with mating connector		
Hydraulic connection	1/4" GAS - DIN 3852 form E (pressure port orifice Ø 0,6 mm)		
Electrical connection	Type: plastic 5 pins M12 at 90° (DIN 43650-C) with cable gland type PG7 for cable max Ø 6 mm Protection: IP67 according to EN 60529; Insulation: according to VDE 0110-C		

Notes: FS = Full Scale; **BFSL** = Best Fit Straight Line; **(1)** negative pressure lower than -1 bar can damage the device

3 FEATURES

- Two independent PNP transistor switching outputs. Imax up to 250 mA per output
- 4 digit display, adjustable on one axes without tools for best visual position or visualized digits can be turned electronically of 180°
- Pressure reading selectable in: bar, Mpa, kPa, psi, kg/cm²
- Selection of different display modes: unit switching, offset adjustment, actual pressure value, minimum or maximum pressure value, function switch points, function reset points, display updates/second.
- Hydraulic connection G1/4"
- Electric connector M12x1 supplied with the pressure switch

4 OUTPUTS SWITCHING FUNCTION

The independent outputs can be settable using two different functions: Hysteresis and Windows.

Hysteresis function - see 4.1

If the system pressure fluctuates around the set point, the hysteresis keeps the switching status of the outputs stable. With increasing system pressure, the output switches when reaching the switch point (SP).

- HNO - contact normally open: active
- HNC - contact normally closed: inactive

With system pressure falling again, the output will not switch back before the reset point (RP) is reached.

- HNO - contact normally open: inactive
- HNC - contact normally closed: active

Window function - see 4.2

The window function allows for the control of a defined range.
When the system pressure is between window High (FH) and window Low (FL), the output switches on.

- FNO - contact normally open: active
- FNC - contact normally closed: inactive

When the system pressure is outside window High (FH) and window Low (FL), the output does not switch on.

- FNO - contact normally open: inactive
- FNC - contact normally closed: active

Delay times (0 ... 50 s) - see 4.3

This makes it possible to filter out unwanted pressure peaks of a short duration or a high frequency (damping).

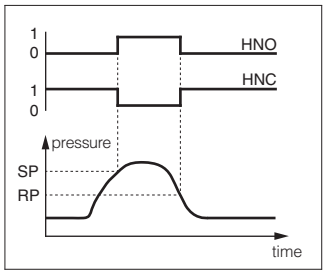
The pressure must be present for at least a certain pre-set time for the output to switch on. The output does not immediately change its status when it reaches the switching event (SP), but rather only after the pre-set delay time (DS).

If the switching event is no longer present after the delay time, the switch output does not change.
The output only switches back when the system pressure has fallen down to the reset point (RP) and stays at or below the reset point (RP) for at least the pre-set delay time (DR).

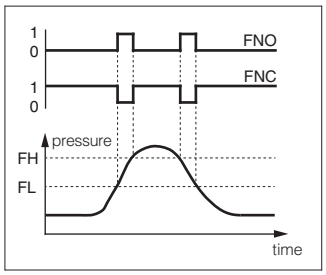
If the switching event is no longer present after the delay time, the switch output does not change.

Delay times is available for Hysteresis and Window functions.

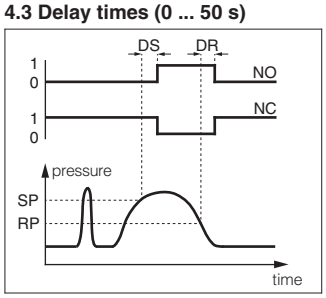
4.1 Hysteresis Function



4.2 Window Function



4.3 Delay times (0 ... 50 s)



5 INSTALLATION AND USE

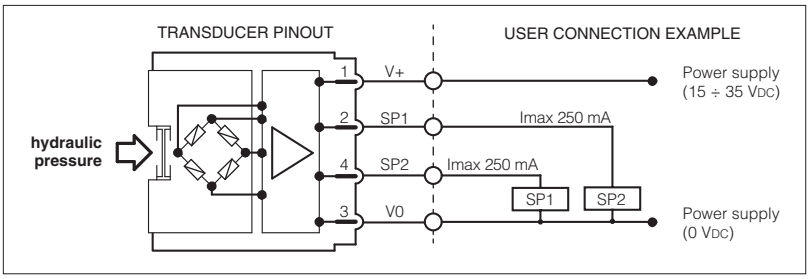
E-DAP-2 can be installed in any position.

Rotate the 4 digit display in order to provide the best visual orientation.

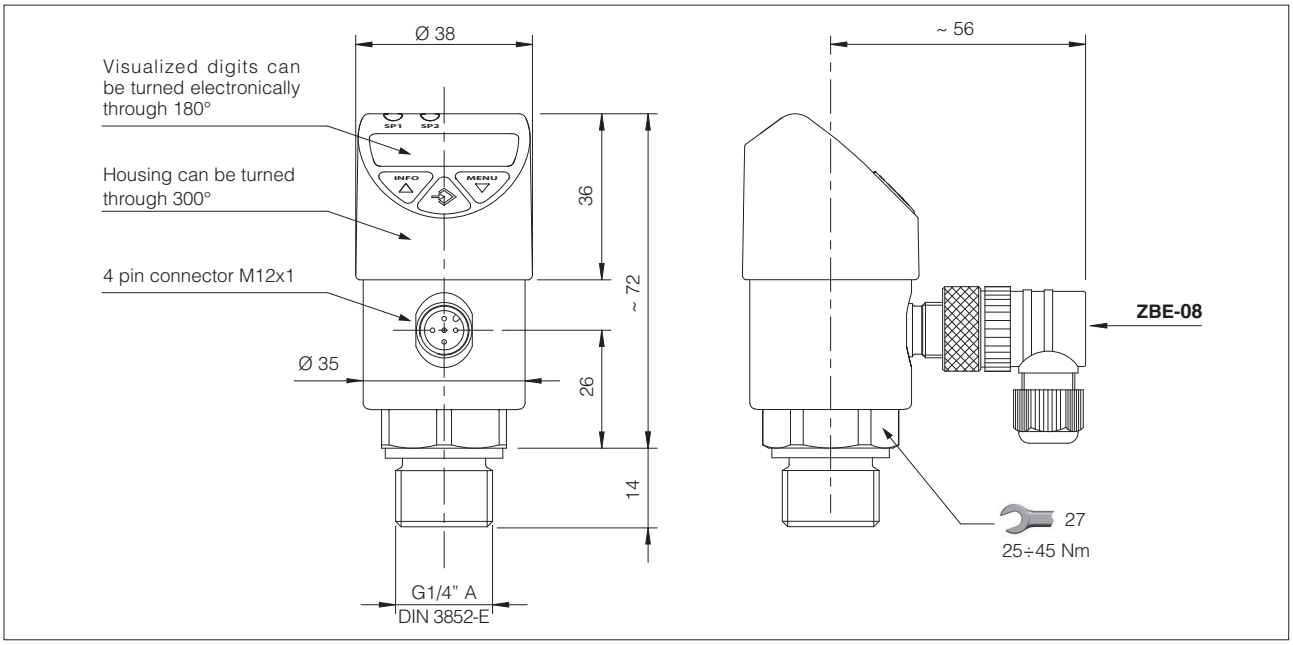
Connect M12 electric connector according the wiring diagram in section 6 .

Consult the operating manual, supplied with the electronic pressure switch, for the parameters setting.

6 ELECTRONIC CONNECTIONS

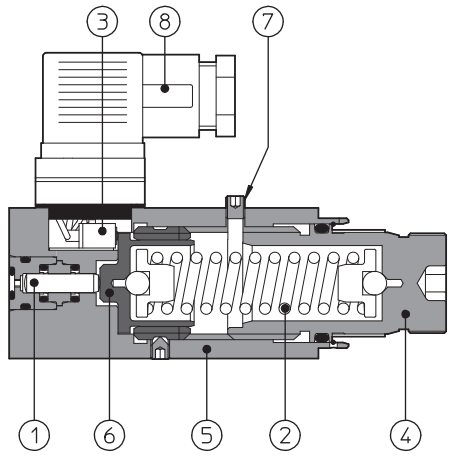


7 OVERALL DIMENSIONS [mm]



Pressure switches type MAP

with fixed switching pressure differential and microswitch with gold plated contacts



① Servo-piston
② Spring
③ Microswitch with gold plated contacts
④ Adjusting knob with graduated scale
⑤ Body
⑥ Switch actuator
⑦ Adjusting knob locking srew
⑧ Electric connector type 664 (included in the supply)

MAP are hydro-electric pressure switches with fixed switching pressure differential. The mechanical microswitch with gold plated contacts grants high reliability and long life service.

The microswitch changes its status when the pressure in the hydraulic circuit reaches the switching value set on the adjusting knob.The microswitch returns to the original rest position when the pressure in the hydraulic circuit drops below the nominal fixed switching pressure differential (hysteresis). The electric connector provides both NC or NO contacts.
The pressure in the circuit operates the piston ① acting against the adjustable spring ②; once the pressure setting is reached, the piston ⑥ actuates the microswitch ③.
The pressure switching value is selectable by a graduated adjusting knob ④.

Clockwise rotation increases the setting pressure.

Max pressure: **630 bar**

1 MODEL CODE

MAP	-	160	/	E	**	/	*

MAP — Fixed differential pressure switch

Pressure range:
40 = 5 ÷ 40 bar
80 = 7 ÷ 80 bar
160 = 10 ÷ 160 bar
320 = 30 ÷ 320 bar
630 = 50 ÷ 630 bar

****** — Series number

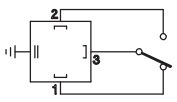
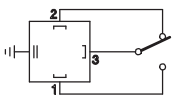
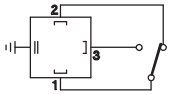
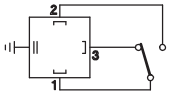
***** — Seals material, see section 2:
- = NBR
PE = FKM
BT = HNBR

Options:
E = Common electric contact connected to pin 1, see section 3

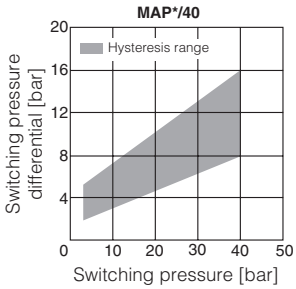
2 MAIN CHARACTERISTICS, SEALS AND HYDRAULIC FLUID - for other fluids not included in below table, consult our technical office

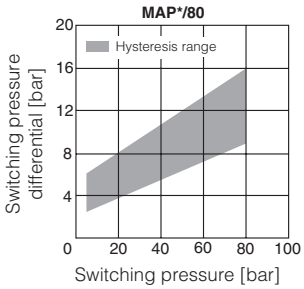
Assembly position / location	Any position		
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
Compliance	CE to Low Voltage Directive 2014/35/EU RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006		
Ambient temperature	**Standard** = -30°C ÷ +70°C **/PE** option = -20°C ÷ +70°C **/BT** option = -40°C ÷ +70°C		
Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option)= -20°C ÷ +80°C HNBR seals (/BT option)= -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C		
Recommended viscosity	15÷100 mm²/s - max allowed range 2.8 ÷ 500 mm²/s		
Fluid contamination class	ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 µm (β25 ≥75 recommended)		
Hydraulic fluid	**Suitable seals type**	**Classification**	**Ref. Standard**
Mineral oils	NBR, FKM, HNBR	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	ISO 12922
Flame resistant with water	NBR, HNBR	HFC	

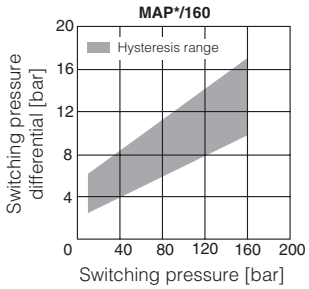
3 CHARACTERISTICS AND WIRING OF INTERNAL MICROSWITCH

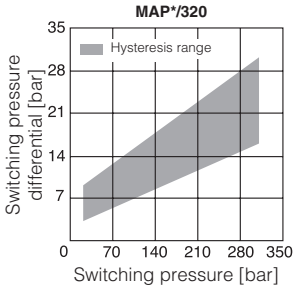
	Supply voltage [V]					Rest position	Pressure operated position
	125 AC	**250 AC**	**30 DC**	**250 DC**			
Max current resistive load [A]	7	5	5	0,2	**STD**		
Max current inductive load (Cos φ = 0,4) [A]	4	2	3	0,02			
Insulating resistance	≥100MΩ				**/E**		
Contact resistance	15 mΩ						
Electrical life-expectancy	≥1.000.000 switchings						
Mechanical life-expectancy	≥10.000.000 switchings						

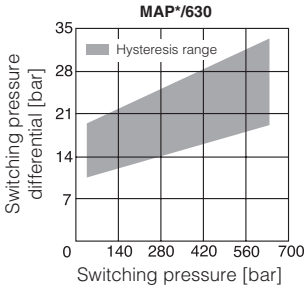
4 DIAGRAMS







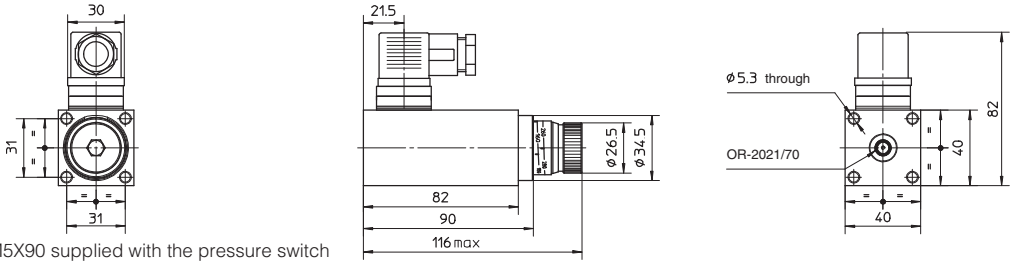




The diagrams show, the switching pressure difference (hysteresis) between the switching positions of the pressure switch electric contacts.

⚠ The switching pressure differential may increased depending to the deterioration of the fluid contamination class.

5 DIMENSIONS OF MAP WITHOUT ADAPTORS [mm]



Fastening bolts:
4 socket head screws M5X90 supplied with the pressure switch

6 MODEL CODE FOR ADAPTORS WHEN SUPPLIED SEPARATELY - BHM and BKM with option **/PE** or **/BT** are available on request

BHM	–	**

Type of adaptor
BMM = male
BMF = female
BFM = in-line
BHM = ISO 4401 size 06
BKM = ISO 4401 size 10

Threated connections for BMM and BFM adaptors, see section 7

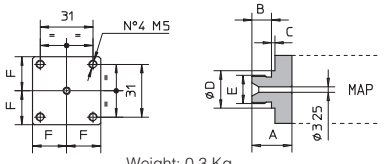
06 = G 1/4" (BMM, BMF, BFM)
10 = G 3/8" (BMM, BFM)
15 = G 1/2" (BMM, BFM)
20 = G 3/4" (BFM)
25 = G 1" (BFM)
32 = G 1 1/4"(BFM)

BHM and BKM adaptors, see section 7

11 = port P
12 = port A and B
13 = port A
14 = port B
17 = port P and A
18 = port P and B

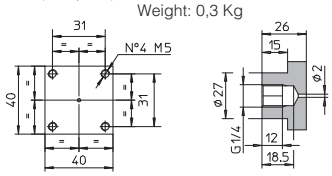
7 DIMENSIONS OF ADAPTORS [mm]

BMM - Male fittings:



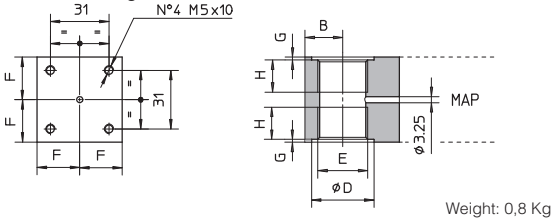
Weight: 0,3 Kg

BMF - Female fittings:



	A	B	C	Ø D	E	F
BMM-06	22,5	11	1,5	18	G 1/4"	20
BMM-10	23,5	11,5	2	22	G 3/8"	20
BMM-15	27,5	15	2,5	26	G 1/2"	20

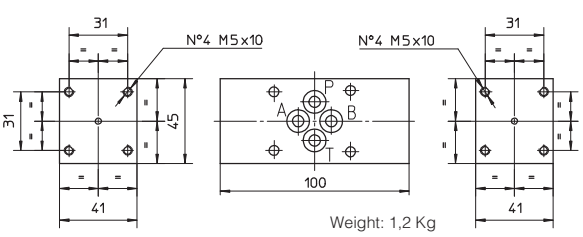
BFM - In-line mounting:



Weight: 0,8 Kg

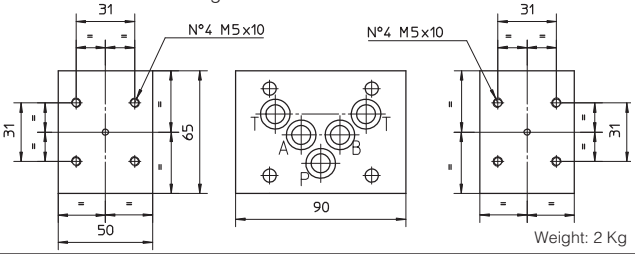
	A	B	Ø D	E	F	G	H
BFM-06	50	20	19	G 1/4"	22,5	1	12
BFM-10	50	20	23	G 3/8"	22,5	1	12
BFM-15	50	20	27	G 1/2"	22,5	1	15
BFM-20	50	20	33	G 3/4"	22,5	1,5	17
BFM-25	70	30	40	G 1"	30	1,5	19
BFM-32	70	30	50	G 1 1/4"	30	1,5	22

BHM - Modular mounting surface ISO 4401-03-02-0-05



Weight: 1,2 Kg

BKM - Modular mounting surface ISO 4401-05-03-0-05



Weight: 2 Kg

For versions 11 and 13 the pressure switch is mounted on side of port A. For version 14 the pressure switch is mounted on side of port B. For versions 12, 17, 18 the pressure switch is mounted on both sides.

Mounting subplates type BA

single, for ISO valves size 06 to 32

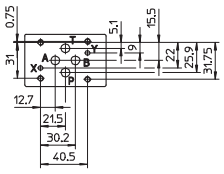
BA-* are single subplates with ISO mounting surface for installation of Atos valves and they are provided with threaded ports for connectios to pressure, tank and users lines. They are characterized by low pressure drops and they are specific for directional, flow and pressure control valves ISO size 06, 10, 16, 20, 25 and 32;
Special subplates or manifolds for customized applications are available upon request.
The set of screws for the valve installation on the BA subplate must be ordered separately, see the code SET SC-* specified in the following sections.

1 TECHNICAL CHARACTERISTICS

Installation position	Any position
Operating pressure	Ports P, T, A, B = 350 bar See technical table of the valves to be assembled
Ambient temperature range	-30°C ÷ +70°C
Fluid	Hydraulic oil as per DIN 51524...535, for other fluids contact our technical office
Recommended viscosity	15÷100 mm2/s - max allowed range: see the technical table of the valves to be assembled
Max fluid contamination level	See technical table of the valves to be assembled and filter section at or KTF catalog
Fluid temperature	See technical table of the valves to be assembled
Surface protection	zinc coating with black passivation
Corrosion resistance	Salt spray test (EN ISO 9227) > 200 h
Compliance	RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006

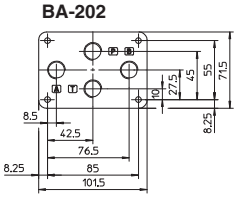
2 SINGLE STATION SUBPLATES FOR VALVES SIZE 06

ISO 4401:2005
Mounting surface: 4401-03-03-0-05

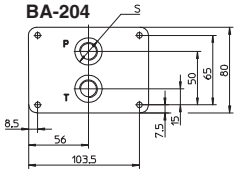


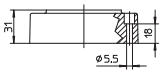
Matching valves	Set of screw (to be ordered separately)
DH-00, DH-01	SET SC-DHZ
DH-02, DH-04	SET SC-DHZ
DH-05, DH-08	SET SC-DHZ
DH-09	SET SC-DHZ
DHI, DHA, DHW	SET SC-DHZ
DHE, DHL	SET SC-DH
DHQ	SET SC-DHZ
DLEH, DLEHM	SET SC-DH
DLAH, DLAHM	SET SC-DHZ
DLWH	SET SC-DHZ
QV-06	SET SC-QV
RZMO, RZMA	SET SC-DHZ
RZME	SET SC-DH
RZGO, RZGA	SET SC-DHZ
RZGE	SET SC-DH
DHZO, DHZA	SET SC-DHZ
DHZE, DHRZE	SET SC-DH
DLHZO, DLHZA	SET SC-DHZ
QVHZO-*-06	SET SC-DHZ
QVHZA	SET SC-DHZ

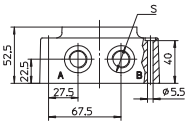
BA-202



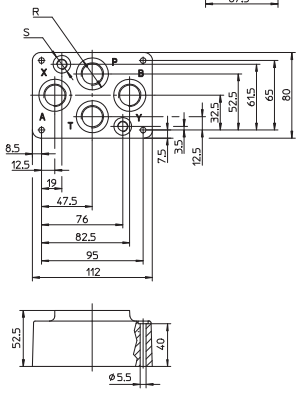
BA-204







BA-302/Y



VERSIONS

BA-202: basic version without ports X and Y; ports P, A, B, T (3/8") on the base.

BA-204: basic version without ports X and Y; ports P and T (3/8") on the base; ports A and B (3/8") on the side.

BA-302: basic version without ports X and Y; ports P, A, B, T (1/2") on the base.

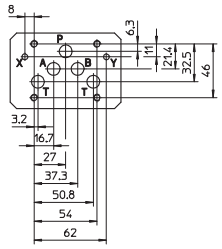
BA-302/Y: version dimensionally identical to the corresponding basic version with the addition of X and Y ports (1/8") on the base (see figure on the left).
The /Y version is always used for DHZO and DLHZO valves when drain from port Y is required.

X and Y ports are only present in the /Y versions.

Code	Ports (GAS) A,B,P,T	Ports (GAS) (X-Y)	Ø Counterbore S [mm]	Ø Counterbore R [mm]	Mass [Kg]
BA-202	3/8"	–	–	–	1,2
BA-204	3/8"	–	25,5	16,5	1,8
BA-302 (/Y)	1/2"	(1/8")	30	16,5	1,8

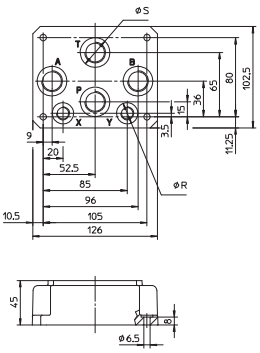
3 SINGLE STATION SUBPLATES FOR VALVES SIZE 10

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

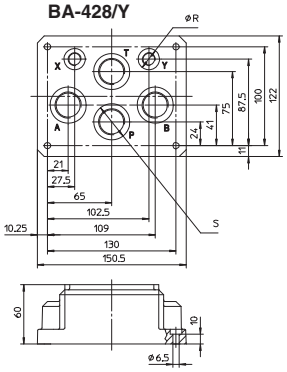


Matching valves	**Set of screw** (to be ordered separately)
DK-11	SET SC-DK/DP-1
DK-12	SET SC-DK/DP-1
DKE	SET SC-DK/DP-1
DKQ	SET SC-DK/DP-1
DKZOR	SET SC-DK/DP-1
DKZA	SET SC-DK/DP-1
DLKZOR	SET SC-DK/DP-1
DLKZA	SET SC-DK/DP-1

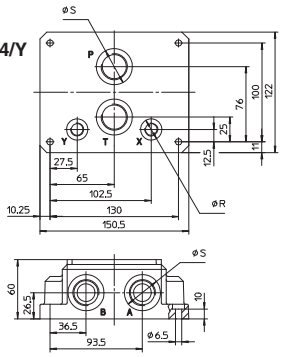
BA-308/Y



BA-428/Y



BA-434/Y



VERSIONS

BA-308: basic version without ports X and Y; ports P, A, B, T (1/2") on the base.

BA-428: basic version without ports X and Y; ports P, A, B, T (3/4") on the base.

BA-434: basic version without ports X and Y; ports P and T (3/4") on the base; ports A and B (3/4") on the side.

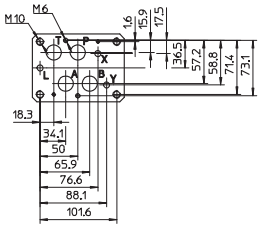
BA-*/Y**: versions dimensionally analogous to the corresponding basic versions with the addition of X and Y ports (1/4") on the base (see figure on the left).
The /Y versions are always used for valves type DKZOR, DLKZO, when drainage from port Y is required.

X and Y ports are only present in the /Y versions.

Code	Ports (GAS) A,B,P,T	(X-Y)	Ø Counterbore S [mm]	R [mm]	Mass [Kg]
BA- 308 (/Y)	1/2"	(1/4")	30	21,5	2,5
BA- 428 (/Y)	3/4"	(1/4")	36,5	21,5	5,5
BA- 434 (/Y)	3/4"	(1/4")	36,5	21,5	8,5

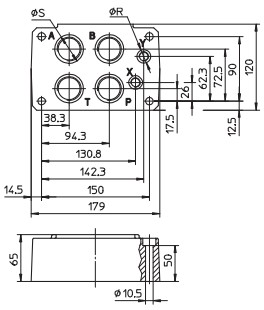
4 SINGLE STATION SUBPLATES FOR VALVES SIZE 16

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

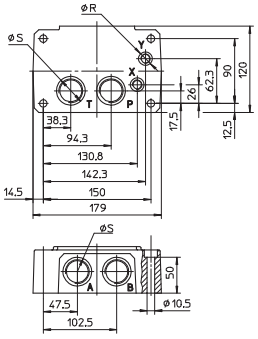


Matching valves	**Set of screw** (to be ordered separately)
DP-21	SET SC-DP2
DP-24	SET SC-DP2
DP-25	SET SC-DP2
DPH-28	SET SC-DP2
DPH-29	SET SC-DP2
DPHI-2	SET SC-DP2
DPHE-2	SET SC-DP2
DPHA-2	SET SC-DP2
DPHW-2	SET SC-DP2
DPZO-*-2	SET SC-DP2
DPZA-*-2	SET SC-DP2

BA-518



BA-519



VERSIONS

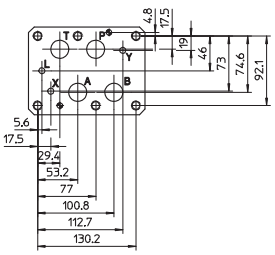
BA-518: basic version with ports P, A, B, T (1") and X, Y (1/4") on the base.

BA-519: basic version with ports P, T (1") and X, Y (1/4") on the base; ports A, B (1") on the side.

Code	Ports (GAS) A,B,P,T	X-Y	Ø Counterbore S [mm]	R [mm]	Mass [Kg]
BA-518	1"	1/4"	46	21,5	8
BA-519	1"	1/4"	46	21,5	8

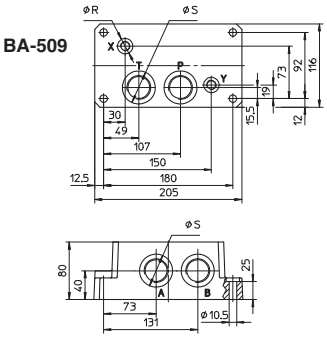
5 SINGLE STATION SUBPLATES FOR VALVES SIZE 25

ISO 4401:2005
Mounting surface: 4401-08-08-0-05

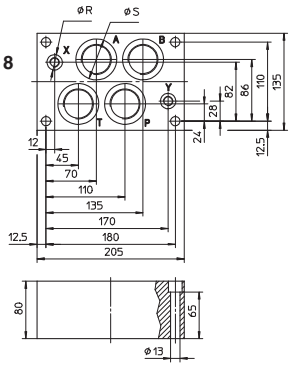


Matching valves	Set of screw (to be ordered separately)
DP-41	SET SC-DP4
DP-44	SET SC-DP4
DP-45	SET SC-DP4
DPH-48	SET SC-DP4
DPH-49	SET SC-DP4
DPHI-4	SET SC-DP4
DPHE-4	SET SC-DP4
DPHA-4	SET SC-DP4
DPHW-4	SET SC-DP4
DPZO-*-4	SET SC-DP4
DPZA-*-4	SET SC-DP4

BA-509



BA-618



VERSIONS

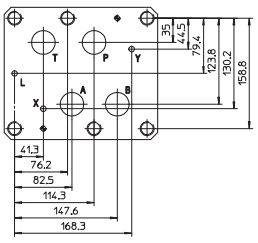
BA-509: basic version with ports P, T (1") and X, Y (1/4") on the base, ports A, B (1") on the side.

BA-618: basic version with ports P, A, B, T (1 1/4") and X, Y (1/4") on the base.

Code	Ports (GAS) A,B,P,T	Ports (GAS) X-Y	Ø Counterbore S [mm]	Ø Counterbore R [mm]	Mass [Kg]
BA-509	1"	1/4"	46	21,5	12,5
BA-618	1 1/4"	1/4"	57	21,5	13,5

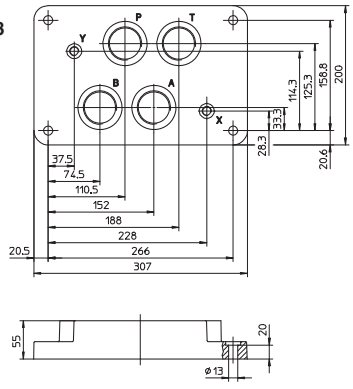
6 SINGLE STATION SUBPLATES FOR VALVES SIZE 32

ISO 4401:2005
Mounting surface: 4401-10-09-0-05



Matching valves	Set of screw (to be ordered separately)
DP-64	SET SC-DP6
DP-65	SET SC-DP6
DPH-68	SET SC-DP6
DPH-69	SET SC-DP6
DPHI-6	SET SC-DP6
DPHE-6	SET SC-DP6
DPHA-6	SET SC-DP6
DPZO-*-6	SET SC-DP6
DPZA-*-6	SET SC-DP6

BA-708



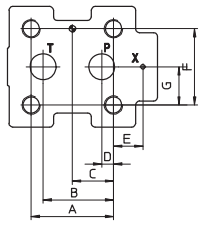
VERSIONS

BA-708: basic version with ports P, A, B, T
(1 1/2") and X, Y (1/4") on the base.

Code	Ports (GAS) A,B,P,T	Ports (GAS) X-Y	Ø Counterbore S [mm]	Ø Counterbore R [mm]	Mass [Kg]
BA-708	1 1/2"	1/4"	63,5	21,5	17

7 SINGLE STATION SUBPLATES FOR PRESSURE CONTROL VALVE SIZE 10, 20 AND 32

Mounting surface ISO 6264: 1998



Matching valves **Set of screw**
to be ordered separately

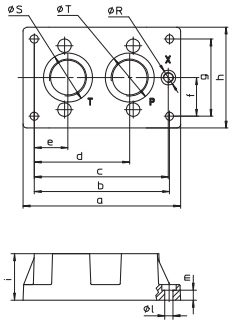
AGAM-10	SET SC-AGA-10
AGMZO-10	SET SC-AGA-10
AGMZA-10	SET SC-AGA-10
AGAM-20	SET SC-AGA-20
AGMZO-20	SET SC-AGA-20
AGMZA-20	SET SC-AGA-20
AGAM-32	SET SC-AGA-32
AGMZO-32	SET SC-AGA-32
AGMZA-32	SET SC-AGA-32

size	A	B	C	D	E	F	G
10	53,8	47,5	22,1	22,1	-	53,8	26,9
20	66,7	55,6	33,4	11,1	23,8	70	35
32	88,9	76,2	44,5	12,7	31,8	82,6	41,3

BA-306
Mounting surface
ISO 6264-06-09-0-97
matching valves:
AGAM-10
AGMZO-*-10
AGMZA-*-10

BA-506
Mounting surface
ISO 6264-08-13-0-97
matching valves:
AGAM-20
AGMZO-*-20
AGMZA-*-20

BA-706
Mounting surface
ISO 6264-10-17-0-97
matching valves:
AGAM-32
AGMZO-*-32
AGMZA-*-32



BA-306
BA-506
BA-706

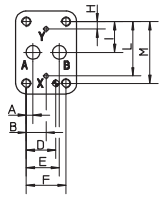
Code	a	b	c	d	e	f	g	h	i	l	m	Ø Blade S	R	T
BA - 306	130	104	97	64,5	19,5	27	54	80	40	8,4	15	36,5	21,5	30
BA - 506	180	150	133,25	92,25	37,25	37,5	75	105	50	10,5	13	46	21,5	46
BA - 706	204	175	173,5	123,5	43,5	50	100	130,5	60	10,5	13	63,5	21,5	63,5

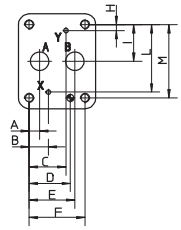
VERSIONS

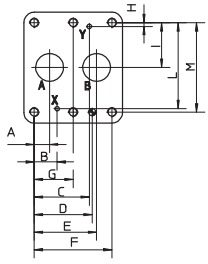
BA-306, BA-506, BA-706: basic version, see figure on left and dimensional tables.

Code	size	Ports (GAS) P	T	X	Mass [Kg]
BA - 306	10	1/2"	3/4"	1/4"	1,5
BA - 506	20	1"	1"	1/4"	3,5
BA - 706	32	1 1/2"	1 1/2"	1/4"	6

Mounting surface
ISO 5781: 2000





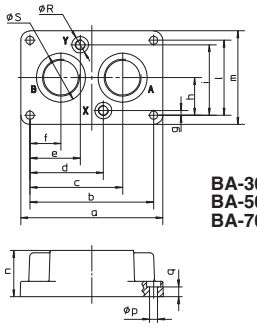


Matching valves **Set of screw**
to be ordered separately

AGI*-10(20)	SET SC-AGI
AGRL(E)-10(20)	SET SC-AGI
AGRCZO-10(20)	SET SC-AGI
AGRCZA-10(20)	SET SC-AGI
AGI*-32	SET SC-AGI-32
AGRL(E)-32	SET SC-AGRL-32

Mounting surface
ISO 5781-06-07-0-00
matching valves:
AGI*-10
AGRL-10
AGRLE-10
AGRZO-*-10

Mounting surface
ISO 5781-08-10-0-00
matching valves:
AGI*-20
AGRL-20
AGRLE-20
AGRZO-*-20



BA-305
BA-505
BA-705

Mounting surface
ISO 5781-10-13-0-00
matching valves:
AGI*-32
AGRL-32
AGRLE-32

Code	a	b	c	d	e	f	g	h	i	l	m	n	p	q	Ø Blade S	R
BA - 305	113	90	67	45	45	23	8	33,3	58,7	66,7	90	30	10,5	10	30	21,5
BA - 505	133	110	82,5	64,5	45,5	27,5	6,4	39,7	73	79,4	102,5	42	10,5	10	46	21,5
BA - 705	184	160	120	95	65	40	6	48,5	91	97	121	60	10,5	13	63,5	21,5

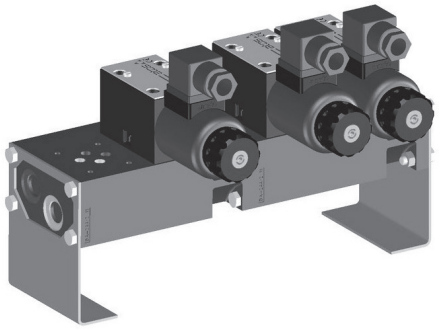
VERSIONS

BA-305, BA-506 and **BA-705**:see figure on left and dimensional tables.

Code	size	Ports (GAS) A	B	X-Y	Mass [Kg]
BA - 305	10	1/2"	1/2"	1/4"	1
BA - 505	20	1"	1"	1/4"	2
BA - 705	32	1 1/2"	1 1/2"	1/4"	7,5

Mounting subplates type BA-214, 314 and 244

Multi-station, for valves ISO 4401 size 06 and 10



example of **BA-244/2 + BA-244/2** modular assembling

BA-214, **BA-314** and **BA-244** are multi-station subplates for assembling of directional and modular valves with mounting surface ISO 4401, size 06 and 10.
They are made in cast iron with high corrosion protection black zinc surface treatment, and they are provided with P, T passing through lines and A, B user ports connections.

BA-214 are **multistaion subplates** with 1 to 10 stations for valves ISO size 06.

BA-314 are **multistaion subplates** with 1 to 6 stations for valves ISO size 10.

BA-244 are **modular subplates** with 1 to 4 stations for valves ISO 4401 size 06.

They are designed for installation on power units cover and they can be easily assembled together by means of n° 4 screws M6 class 12.9 (included in the supply), combining up to max 12 stations.

1 MODEL CODE OF SUBPLATES TYPE BA-214 and BA-314

BA-214	/	5	/	P	*

Type of subplate:
BA-214 = for valves ISO size 06
BA-314 = for valves ISO size 10

Number of stations, see section 4 5 6:
1 = one station
2 = two stations
3 = three stations
4 = four stations
5 = five stations
6 = six stations
7 = seven stations (only for BA-214)
8 = eight stations (only for BA-214)
9 = nine stations (only for BA-214)
10 = ten stations (only for BA-214)

Series number

- = with A and B lateral ports
P = with A and B rear ports (not for **BA-214/1** and all **BA-314**)

Model	Port P	Port T	Ports A, B	Qmax	Qmax ports A, B	Pmax
BA-214	G 1/2"	G 1/2"	G 3/8" lateral	80 l/min	60 l/min	350 bar
BA-214/*/P	G 1/2"	G 1/2"	G 3/8" rear	80 l/min	60 l/min	350 bar
BA-314	G 3/4"	G 1"	G 3/4" lateral	150 l/min	100 l/min	300 bar

2 MODEL CODE OF SUBPLATES TYPE BA-244

BA-244	/	4	*

Type of subplate:
BA-244 = modular subplate for valves ISO size 06

Number of stations:
1 = one station
2 = two stations
3 = three stations
4 = four stations

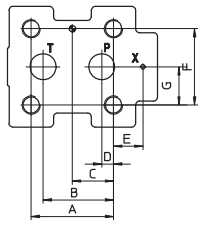
Series number

3 TECHNICAL CHARACTERISTICS

Installation position	Any position. For BA-244, a maximum of 12 stations can be combined; in case of horizontal mounting proper brackets are recommended.
Operating pressure	Ports P, T, A, B = **350 bar** (BA-214), **300 bar** (BA-314), **250 bar** (BA-244) See technical table of the valves to be assembled
Ambient temperature range	-30°C ÷ +70°C
Fluid	Hydraulic oil as per DIN 51524...535, for other fluids contact our technical office
Recommended viscosity	15÷100 mm2/s - max allowed range: see the technical table of the valves to be assembled
Max fluid contamination level	See technical table of the valves to be assembled and filter section at or KTF catalog
Fluid temperature	See technical table of the valves to be assembled
Surface protection	zinc coating with black passivation
Corrosion resistance	Salt spray test (EN ISO 9227) > 200 h
Compliance	RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006

7 SINGLE STATION SUBPLATES FOR PRESSURE CONTROL VALVE SIZE 10, 20 AND 32

Mounting surface ISO 6264: 1998



Matching valves **Set of screw**
to be ordered separately

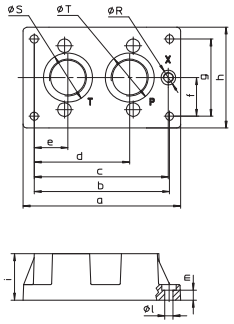
AGAM-10	SET SC-AGA-10
AGMZO-10	SET SC-AGA-10
AGMZA-10	SET SC-AGA-10
AGAM-20	SET SC-AGA-20
AGMZO-20	SET SC-AGA-20
AGMZA-20	SET SC-AGA-20
AGAM-32	SET SC-AGA-32
AGMZO-32	SET SC-AGA-32
AGMZA-32	SET SC-AGA-32

size	A	B	C	D	E	F	G
10	53,8	47,5	22,1	22,1	-	53,8	26,9
20	66,7	55,6	33,4	11,1	23,8	70	35
32	88,9	76,2	44,5	12,7	31,8	82,6	41,3

BA-306
Mounting surface
ISO 6264-06-09-0-97
matching valves:
AGAM-10
AGMZO-*-10
AGMZA-*-10

BA-506
Mounting surface
ISO 6264-08-13-0-97
matching valves:
AGAM-20
AGMZO-*-20
AGMZA-*-20

BA-706
Mounting surface
ISO 6264-10-17-0-97
matching valves:
AGAM-32
AGMZO-*-32
AGMZA-*-32



BA-306
BA-506
BA-706

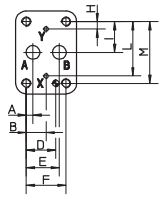
Code	a	b	c	d	e	f	g	h	i	l	m	Ø Blade S	R	T
BA - 306	130	104	97	64,5	19,5	27	54	80	40	8,4	15	36,5	21,5	30
BA - 506	180	150	133,25	92,25	37,25	37,5	75	105	50	10,5	13	46	21,5	46
BA - 706	204	175	173,5	123,5	43,5	50	100	130,5	60	10,5	13	63,5	21,5	63,5

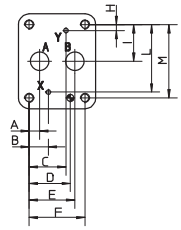
VERSIONS

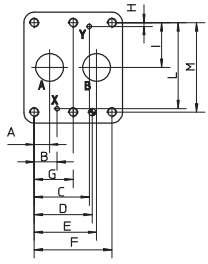
BA-306, BA-506, BA-706: basic version, see figure on left and dimensional tables.

Code	size	Ports (GAS) P	T	X	Mass [Kg]
BA - 306	10	1/2"	3/4"	1/4"	1,5
BA - 506	20	1"	1"	1/4"	3,5
BA - 706	32	1 1/2"	1 1/2"	1/4"	6

Mounting surface
ISO 5781: 2000





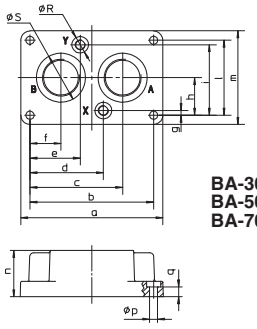


Matching valves **Set of screw**
to be ordered separately

AGI*-10(20)	SET SC-AGI
AGRL(E)-10(20)	SET SC-AGI
AGRCZO-10(20)	SET SC-AGI
AGRCZA-10(20)	SET SC-AGI
AGI*-32	SET SC-AGI-32
AGRL(E)-32	SET SC-AGRL-32

Mounting surface
ISO 5781-06-07-0-00
matching valves:
AGI*-10
AGRL-10
AGRLE-10
AGRZO-*-10

Mounting surface
ISO 5781-08-10-0-00
matching valves:
AGI*-20
AGRL-20
AGRLE-20
AGRZO-*-20



BA-305
BA-505
BA-705

Mounting surface
ISO 5781-10-13-0-00
matching valves:
AGI*-32
AGRL-32
AGRLE-32

Code	a	b	c	d	e	f	g	h	i	l	m	n	p	q	Ø Blade S	R
BA - 305	113	90	67	45	45	23	8	33,3	58,7	66,7	90	30	10,5	10	30	21,5
BA - 505	133	110	82,5	64,5	45,5	27,5	6,4	39,7	73	79,4	102,5	42	10,5	10	46	21,5
BA - 705	184	160	120	95	65	40	6	48,5	91	97	121	60	10,5	13	63,5	21,5

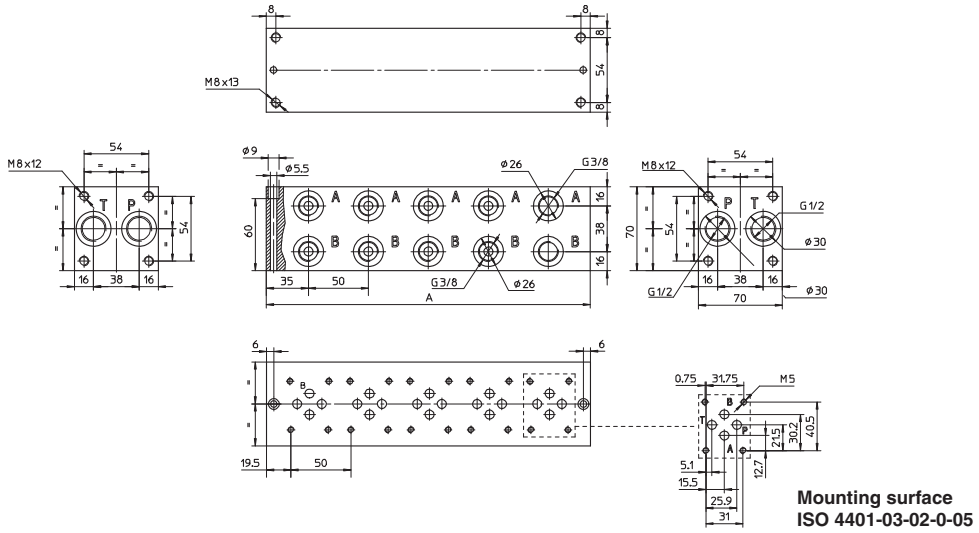
VERSIONS

BA-305, BA-506 and **BA-705**:see figure on left and dimensional tables.

Code	size	Ports (GAS) A	B	X-Y	Mass [Kg]
BA - 305	10	1/2"	1/2"	1/4"	1
BA - 505	20	1"	1"	1/4"	2
BA - 705	32	1 1/2"	1 1/2"	1/4"	7,5

4 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-214 [mm]

Ports P and T = G 1/2" (passing through)
Ports A and B = G 3/8"
Q_{max} = 80 l/min
Q_{max} A and B ports = 60 l/min
P_{max} = 350 bar



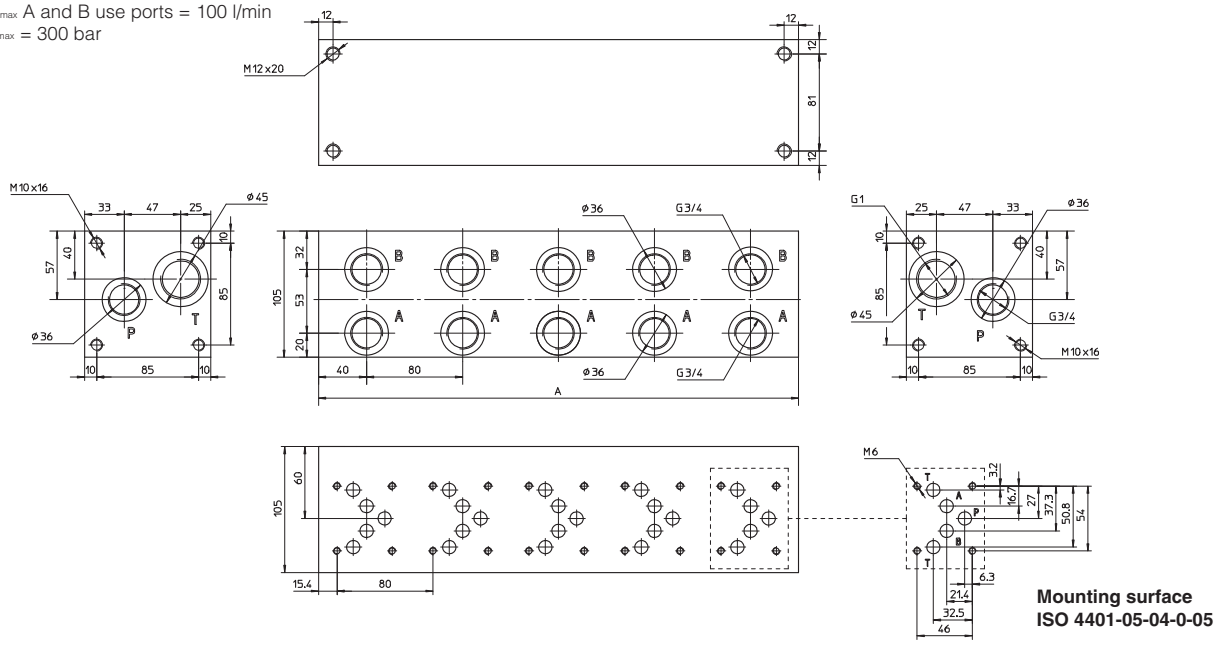
The lenght of the subplate depends to the number of stations as shown in the table below

Stations	1	2	3	4	5	6	7	8	9	10
Dimension A	70	120	170	220	270	320	370	420	470	520
Mass [Kg]	2	3,5	5	6,5	8	9,5	11	12,5	14	15,5

The 5-station version is shown in the drawing

5 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-314 [mm]

Ports P = G 3/4" (passing through)
Ports T = G 1" (passing through)
Ports A and B = G 3/4"
Q_{max} = 150 l/min
Q_{max} A and B use ports = 100 l/min
P_{max} = 300 bar



The lenght of the subplate depends to the number of stations as shown in the table below

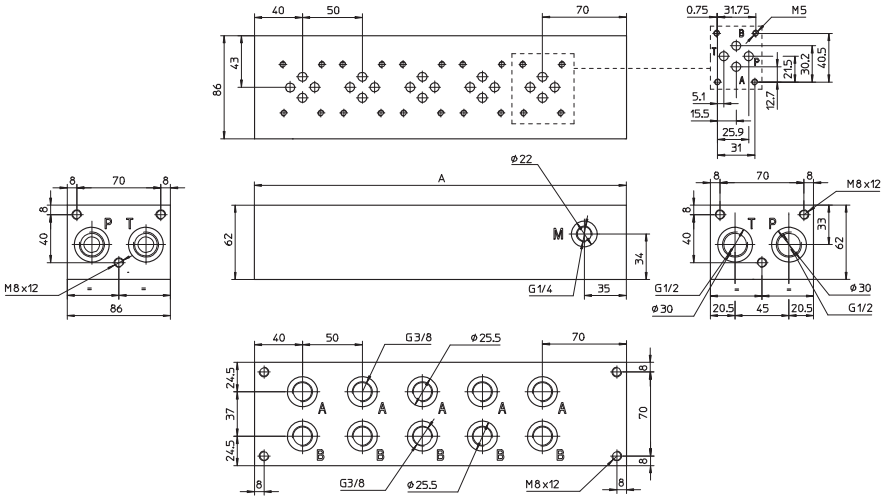
Stations	1	2	3	4	5	6
Dimension A	80	160	240	320	400	480
Mass [Kg]	4	8,5	13	17,5	22	26,5

The 5-station version is shown in the drawing

6 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-214/*/P [mm]

Ports P and T = G 1/2"
Ports A and B = G 3/8"
Q_{max} = 80 l/min
Q_{max} A and B ports = 60 l/min
P_{max} = 350 bar

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



The lenght of the subplate depends to the number of stations as shown in the table below

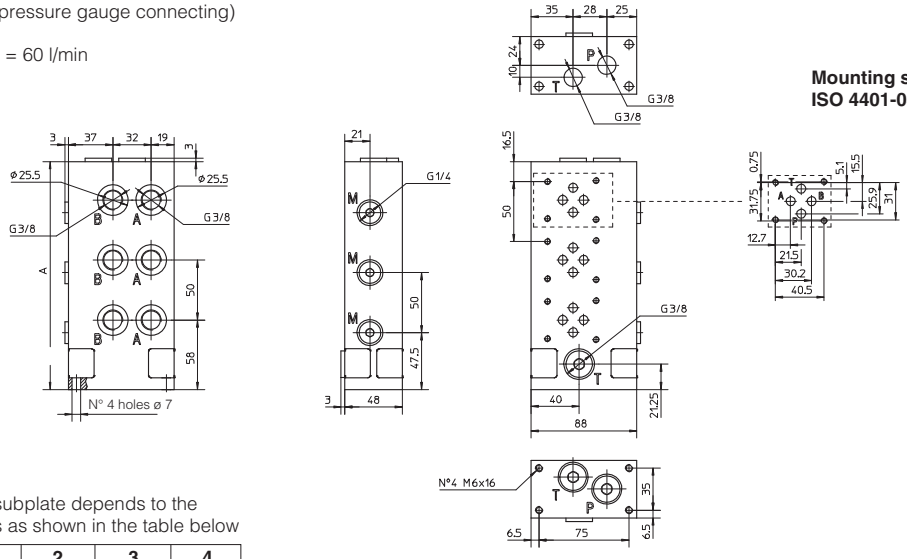
Stations	2	3	4	5	6	7	8	9	10
Dimension A	160	210	260	310	360	410	460	510	560
Mass [Kg]	5,4	7	8,7	10,4	12,1	13,8	15,5	17,2	18,9

The 5-station version is shown in the drawing

7 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-244 [mm]

Ports P and T = G 3/8" (passing through)
Ports A and B = G 3/8"
Ports M = G 1/4" (pressure gauge connecting)
Q_{max} = 35 l/min
Q_{max} A and B ports = 60 l/min
P_{max} = 250 bar

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



The lenght of the subplate depends to the number of stations as shown in the table below

Stations	1	2	3	4
Dimension A	90	140	190	240
Mass [Kg]	2,5	3,5	5,2	7

The 3-station version is shown in the drawing

Fastening bolts: 4 exagonal head screws M6x20 class 12.9 included in the supply
Tightening torque = 15 Nm
Seals: 2 OR-3081 included in the supply

Mounting subplates type BA-214/*-AL

multi-station, for valves ISO 4401 size 06, in aluminium

The multi-stations subplates type BA-214/*-AL for directional control valves are in aluminium and their mounting surface are in accordance with the international standards ISO 4401.

They perform limited pressure drop and are made by a **single subplate** from 1 to 10 stations for directional valves and modular elements ISO 4401 size 06.

Main characteristics:
P and T ports = G 1/2; A and B lateral use ports G 3/8; M pressure gauge connection G1/4; Q_{max} = 80 l/min; Q_{max} use ports = 60 l/min; Pmax = 250 bar
Note: for versions /M and /MH Q_{max} = 35 l/min;

For other technical characteristics, see section 2 and 3.

1 MODEL CODE OF SUBPLATES TYPE BA-214/*-AL

BA-214 / **5** / **MH** / **210** - **AL** ***** **PE**

Type of subplate:
BA-214 = for valves ISO size 06
On request, available with rear ports A and B

Number of stations:
1 = one station
2 = two stations
3 = three stations
4 = four stations
5 = five stations
6 = six stations
7 = seven stations
8 = eight stations
9 = nine stations
10 = ten stations

Series number

Seals material: only for **M**, **MH**
- = HNBR
PE = HNBR

AL = in aluminium
On request, available with anodizing

Pressure range of pressure relief valve, for versions /M and /MH:
100 = 100 bar
210 = 210 bar
250 = 250 bar

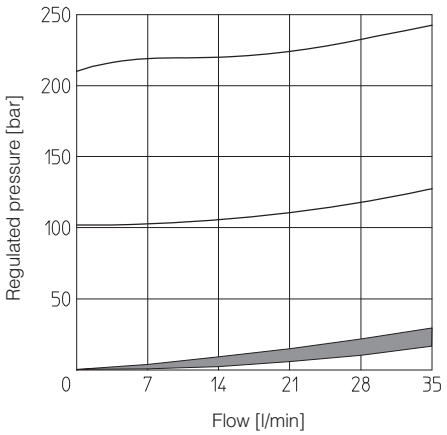
M = with direct operated pressure relief cartridge CART M-5/** - see tab. C010 (available also as spare part)
MH = with pressure relief valve type CART M-5, arranged with venting solenoid valve

2 TECHNICAL CHARACTERISTICS

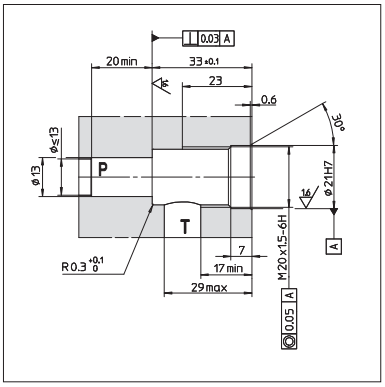
Installation position	Any position.
Operating pressure	Ports P, T, A, B = **250 bar** See technical table of the valves to be assembled
Ambient temperature range	-30°C ÷ +70°C
Fluid	Hydraulic oil as per DIN 51524...535, for other fluids contact our technical office
Recommended viscosity	15÷100 mm2/s - max allowed range: see the technical table of the valves to be assembled
Max fluid contamination level	See technical table of the valves to be assembled and filter section at or KTF catalog
Fluid temperature	See technical table of the valves to be assembled
Compliance	RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006

3 REGULATED PRESSURE/FLOW DIAGRAM FOR VERSIONS /M and /MH

MAIN CHARACTERISTICS OF ENCLOSED PRESSURE RELIEF VALVE	
Model code	Regulation range
CART M-5/100	3 ÷ 100 bar
CART M-5/210	5 ÷ 210 bar
CART M-5/250	7 ÷ 250 bar
Q_{max} = 35 l/min	

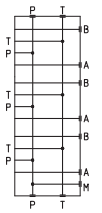


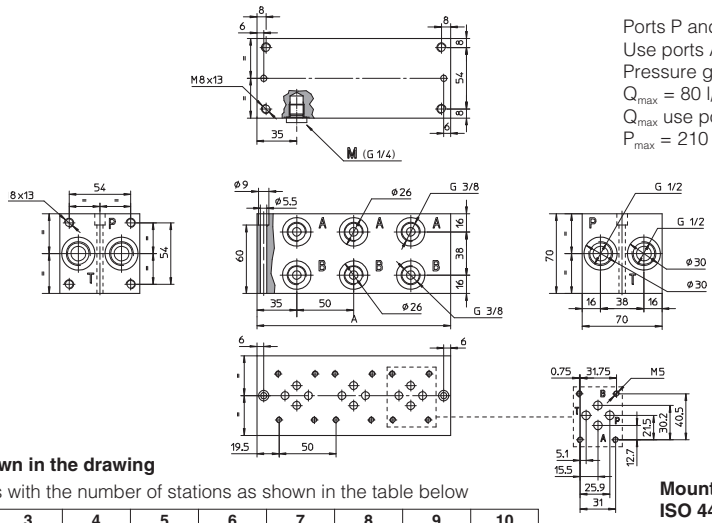
4 INSTALLATION DIMENSIONS OF CART M-5/***



5 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-214/*-AL [mm]

Hydraulic scheme





Ports P and T = G 1/2
Use ports A and B = G 3/8
Pressure gauge port M = G1/4 (plugged)
Q_{max} = 80 l/min
Q_{max} use ports = 60 l/min
P_{max} = 210 bar

The 3-stations subplate is shown in the drawing

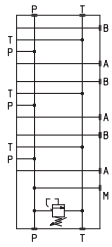
The lenght of the subplate varies with the number of stations as shown in the table below

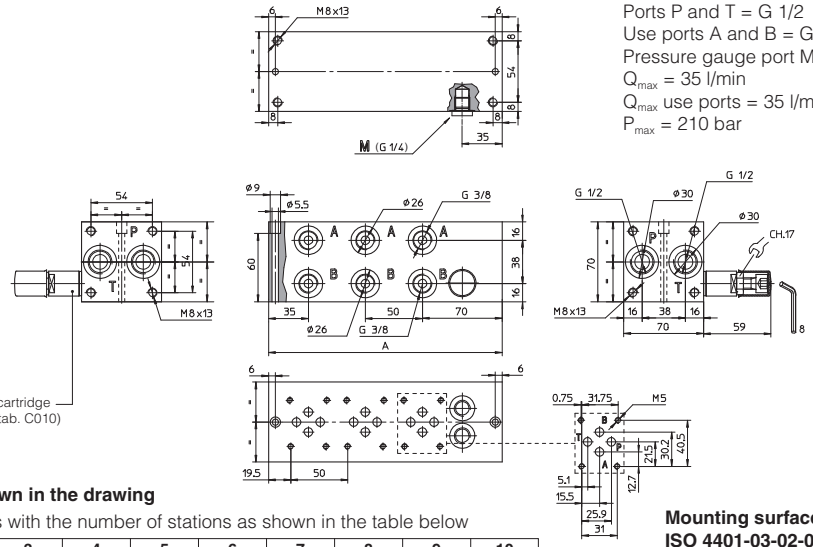
Stations	1	2	3	4	5	6	7	8	9	10
Dimension A	70	120	170	220	270	320	370	420	470	520
Mass [Kg]	1	1,4	2	2,6	3,2	3,8	4,4	5	5,6	6,2

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

6 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-214/*/M/*-AL [mm]

Hydraulic scheme





Ports P and T = G 1/2
Use ports A and B = G 3/8
Pressure gauge port M = G1/4 (plugged)
Q_{max} = 35 l/min
Q_{max} use ports = 35 l/min
P_{max} = 210 bar

The 3-stations subplate is shown in the drawing

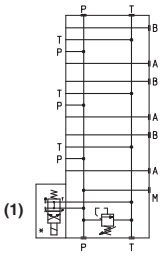
The lenght of the subplate varies with the number of stations as shown in the table below

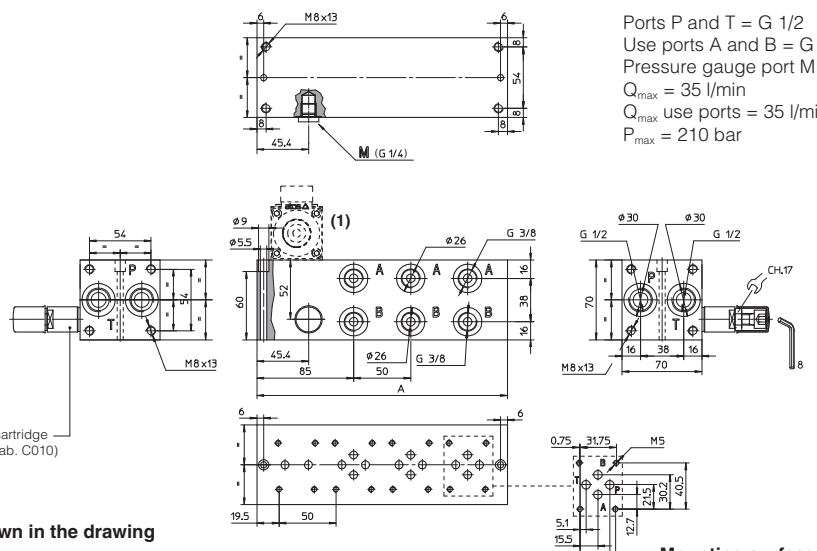
Stations	1	2	3	4	5	6	7	8	9	10
Dimension A	105	155	205	255	305	355	405	455	505	555
Mass [Kg]	1,1	1,5	2,1	2,7	3,3	3,9	4,5	5,1	5,7	6,3

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

7 OVERALL DIMENSIONS OF SUBPLATES TYPE BA-214/*/MH/*-AL [mm]

Hydraulic scheme





Ports P and T = G 1/2
Use ports A and B = G 3/8
Pressure gauge port M = G1/4 (plugged)
Q_{max} = 35 l/min
Q_{max} use ports = 35 l/min
P_{max} = 210 bar

The 3-stations subplate is shown in the drawing

The lenght of the subplate varies with the number of stations as shown in the table below

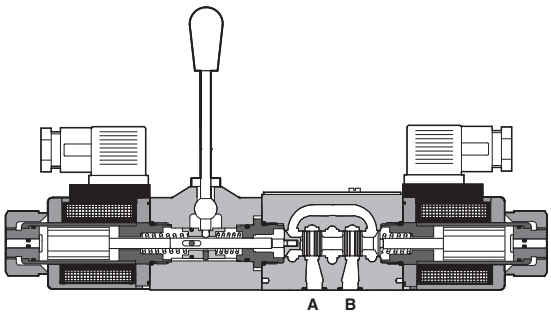
Stations	1	2	3	4	5	6	7	8	9	10
Dimension A	120	170	220	270	320	370	420	470	520	570
Mass [Kg]	1,2	1,6	2,2	2,8	3,4	4	4,6	5,2	5,8	6,4

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

(1) The venting directional valve in the dashing line must be ordered separately

Auxiliary hand levers for solenoid valves

direct operated on-off and proportional, ISO 4401 size 06



DHE-0711/MV

Auxiliary hand levers for direct operated on-off solenoid valves size 06, type DHI, DHE, DHA and proportional valves size 06, type DHZO, DHZE, DHZA and QVHZO.

This option allows to operate the valves in absence of electrical power supply, i.e. during commissioning, maintenance or in case of emergency.

It is available with two different configurations depending to the installation requirements:
MV = lever positioned vertically (perpendicular to the valve axis)
MO = lever positioned horizontally (parallel to the valve axis)

When the valve is electrically operated the hand lever remains stopped in its rest position

The hand lever execution does not affect the performances of the original valves.

1 **MODEL CODE FOR ON-OFF DIRECTIONAL VALVES** (for the details, see indicated tech. table)

DHE - 0	63	1/2	/	MV	-	X	24 DC	**	/*

Directional control valves size 06
DHI-0= for AC and DC supply, with **cURus** certified solenoids - see table E010
DHE-0 = for AC and DC supply, high performances, with **cURus** certified solenoids - see table E015
DHA-0 = ex-proof - see table EX010

Valve configuration: **61 - 63 - 71**

Available spools: **0 - 0/2 - 1 - 1P - 1/2 - 1/2P - 3 - 3P - 4 - 7**

Options, hand lever configuration:
MO = horizontal hand lever (not for DHA)
MV = vertical hand lever
AMO = horizontal hand lever installed at the side of port B (not for DHA)
AMV = vertical hand lever installed at the side of port B

Only for DHI and DHE:
00 = solenoids without coils, for DHI valve
00-AC = AC solenoids without coils, for DHE valve
00-DC = DC solenoids without coils, for DHE valve
X = without connector

Voltage code: see relevant tech. table

Series number

Seals material:
- = NBR
PE = FKM
BT = HNBR

(1) For DHA model code see table E120 (Multicertification) or E125 (UL)

2 **MODEL CODE FOR PROPORTIONAL DIRECTIONAL VALVES AND FLOW CONTROL VALVES** (for the details, see indicated tech.table)

DHZO	-	A	-	0	71	-	S5	/	MV	/*	**	/*

Directional proportional valves size 06
DHZO = see table F160
DHZE = see table F150
DHZA = ex-proof - see table FX010

Flow control valves size 06
QVHZO = see tab F410

A = without position transducer **(2)**

Valve size
0 = ISO 4401 size 06 (for DHZ*)
06 = ISO 4401 size 06 (for QVHZO)

Valve configuration (only DHZ*): **51, 53, 71, 73**

Options:
MO = horizontal hand lever (not for DHA, DHZA)
MV = vertical hand lever
BMO = horizontal hand lever installed at the side of port A (not for DHZA, QVHZO)
BMV = vertical hand lever installed at the side of port A (not for QVHZO)
O = Horizontal cable entrance (only for DHZA)
Y = External drain (only for DHZA, DHZO)

Spool size (for DHZ*): **S3 - S5 - D3 - D5 - L3 - L5**
Max regulated flow (for QVHZO): **3-12-18-36-45** l/min

Coil option: see relevant tech. table

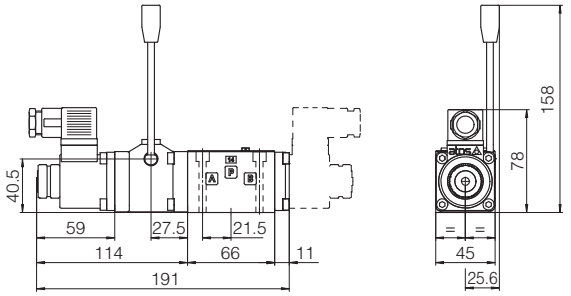
Series number

Seals material:
- = NBR
PE = FKM
BT = HNBR

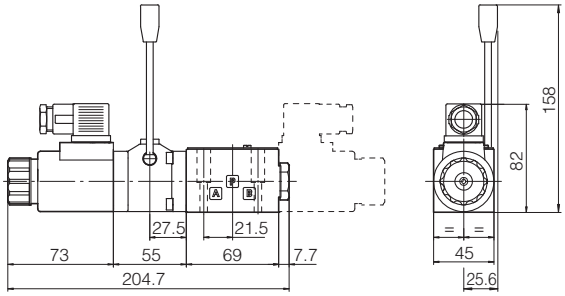
3 LEVER CHARACTERISTICS

Total angle stroke	[°deg]	± 28°	Lever actuating force	[N]	1 ÷ 8
Working angle stroke	[°deg]	± 15°	Lever device weight	[g]	880

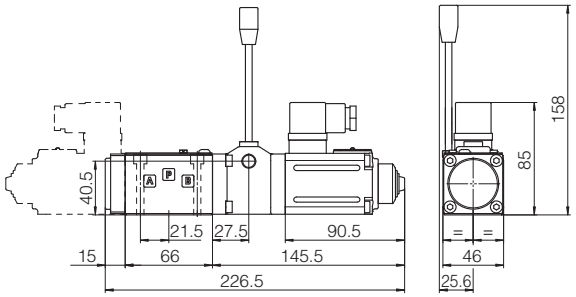
4 INSTALLATION DIMENSIONS [mm]



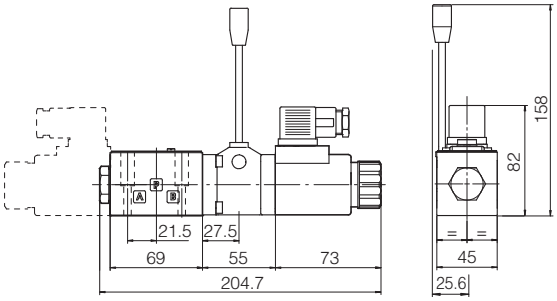
DHI-06*/MV Mass: 2,4 kg (single solenoid)
DHI-07*/MV (dotted line) Mass: 2,7 kg (double solenoid)



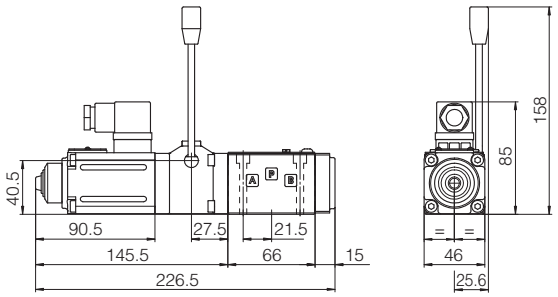
DHE-06*/MV Mass: 2,7 kg (single solenoid)
DHE-07*/MV (dotted line) Mass: 3,0 kg (double solenoid)



DHZO-A-05*/MV Mass: 2,8 kg (single solenoid)
DHZO-A-07*/MV (dotted line) Mass: 3,5 kg (double solenoid)

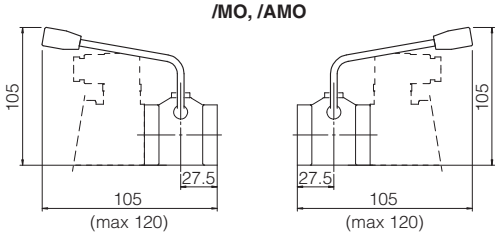


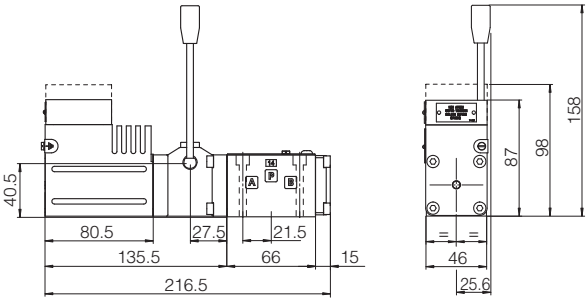
DHZE-05*/MV Mass: 2,7 kg (single solenoid)
DHZE-07*/MV (dotted line) Mass: 3,0 kg (double solenoid)



QVHZO-A-06*/MV Mass: 3,2 kg

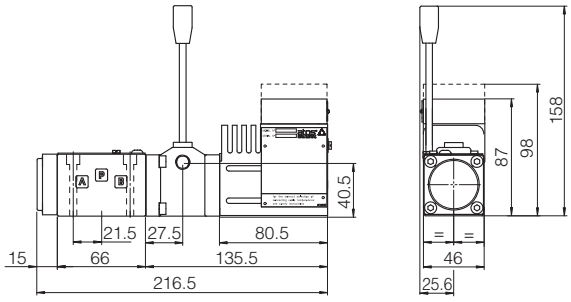
Horizontal hand lever device /MO, /AMO





DHA/*-06*/MV Mass: 3,4 kg
DHA/UL-*-06*/MV (dotted line)

Note: see tech. table FX010 for DHA/MV models

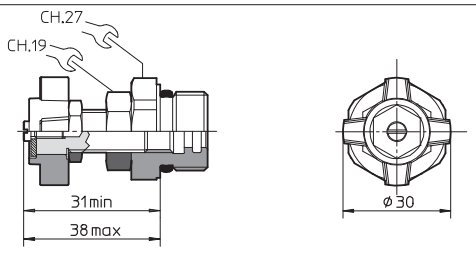
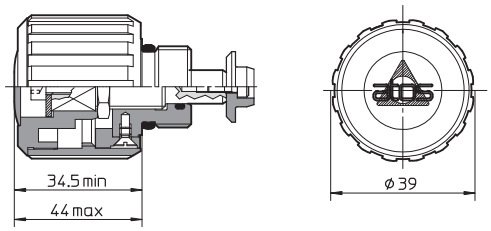
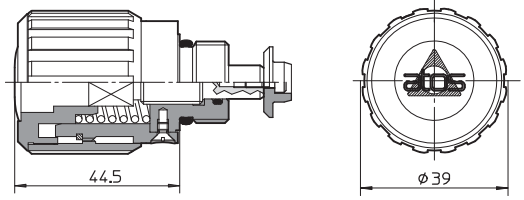
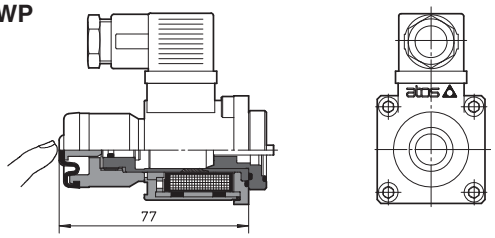
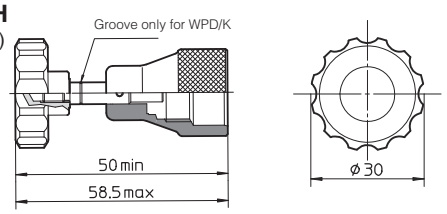
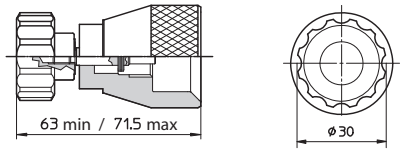
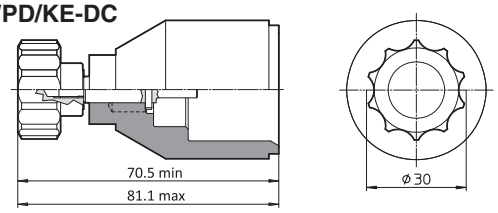


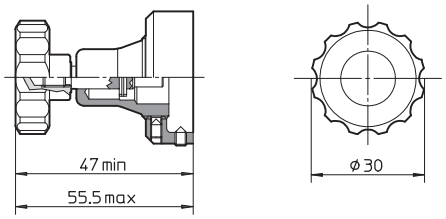
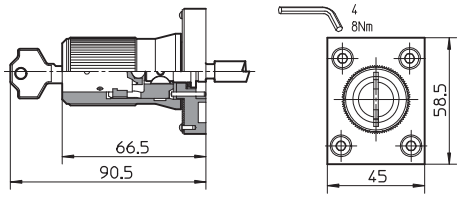
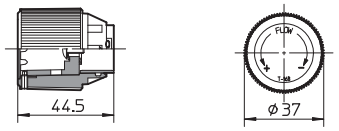
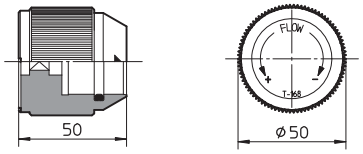
DHZA/*-06*/MV Mass: 3,4 kg
DHZA/UL-*-06*/MV (dotted line)

Note: see tech. table FX100 for DHZA/MV models

Handwheels for hydraulic controls

on-off and proportional valves

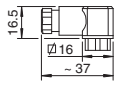
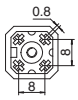
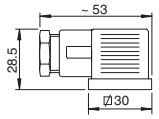
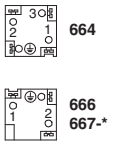
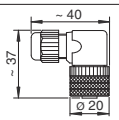
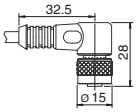
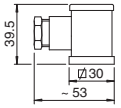
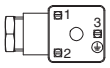
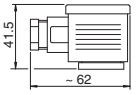
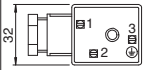
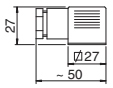
	OPTIONS CODES AND DIMENSIONS	FEATURES	VALVE TYPE
OPTION	**/V** 	Regulating handwheel	ARE, CART ARE, CART M-6, ARAM, AGAM, REM, AGIR, AGIS, AGIU, HMP, HM, KM, HS, KS, HG, KG, LIMM, LIRA, LICM
OPTION	**/VF** 	Regulating knob	ARE, CART ARE, CART M-6, AGIS, AGIU (as spare part, code VFG instead of VF and VSG instead of VS), HMP, HS, HG.
OPTION	**VS** 	Manual override with safety locking. Regulation possible only with pushed knob.	
OPTION	**/WP** 	Prolonged manual override protected by rubber cap	DHI, DHE DKE DLEH, DLEHM DPHI, DPHE LID*
SPARE PART	**WPD/H** (size 06) 	Manual override with detent, for mechanical operation and fixed actuation of spools	DHI
SPARE PART	**WPD/HE-DC** 		DHE (only DC version)
SPARE PART	**WPD/KE-DC** 		DKE-DC

	OPTIONS CODES AND DIMENSIONS	FEATURES	VALVE TYPE
SPARE PART	**WPD/Z** 	Manual override with detent, for mechanical operation and fixed actuation of spools. Only for open-loop valves.	DHZO, DKZOR, DPZO, QVHZO, QVKZOR
OPTION	**/K** 	Lock key for the setting knob	DHQ, DKQ QV-06,
OPTION	**/G** 	Adjustment by graduated micrometer	HQ, KQ, JPQ-2
OPTION	**/G** 		JPQ-3

Electric and electronic connectors

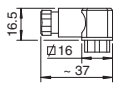
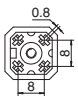
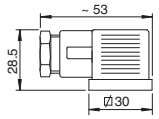
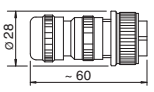
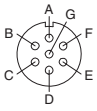
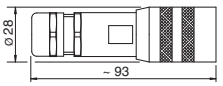
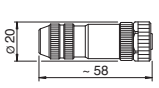
for transducers, on/off and proportional valves

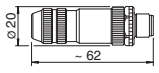
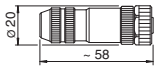
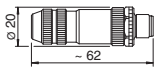
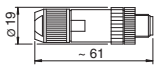
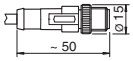
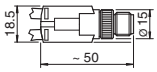
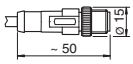
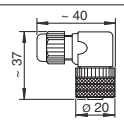
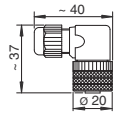
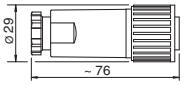
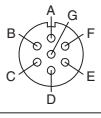
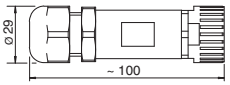
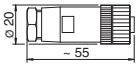
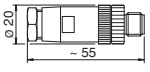
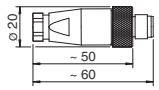
1 CONNECTORS FOR ON/OFF VALVES

CODE AND DIMENSIONS	APPLICATION	INTERNAL VIEW PINOUT (1)	FRONT VIEW	CABLE GLAND Ø CABLE	REFERENCE RULES
345 	Female plastic connector - 4 pin: - inductive proximity sensor, /FI option for DHI, DHE			PG7 ø 4 ÷ 6 mm	Protection degree IP 65 EN 60529
664 **666** (black) **666/A** (grey) **667-24** **667-110** **667-220** 	Female plastic connector - 4 pin: - pressure switch type MAP - inductive proximity sensor, /FI option for DKE-17* Female plastic connector - 3 pin: - standard coil connector for on/off valves - inductive proximity sensor, /FI option for DKE-16* Female plastic connector - 3 pin: - standard coil connector for on/off valves with built-in led	 **664** **666** **667-***		PG11 ø 8 ÷ 10 mm	DIN 43650-A/ISO 4400 Protection degree IP 65 EN 60529
ZBE-06 	Female plastic connector - 4 pin: - inductive position switch, /FV option			PG7 ø 2,5 ÷ 6,5 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
BKS-B-20-4-03 	Female plastic connector - 4 pin (3 wire): - inductive proximity sensor for LIFI Cable length: 3 m			Moulded on cable	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
669 (black) **669/A** (grey) 	Female plastic connector - 3 pin: - optional electronic connector for on/off valves with built-in rectifier bridge for supplying DC coils by AC current			PG11 ø 8 ÷ 10 mm	DIN 43650-A/ISO 4400 Protection degree IP 65 EN 60529
E-SD/AC 	Female plastic connector - 3 pin: - electronic connector which eliminate electric disturbances when AC solenoid valves are deenergized Power supply: 110/50, 115/60, 220/50, 230/60 VAC			PG11 ø 8 ÷ 10 mm	DIN 43650 Protection degree IP 65 EN 60529
E-SD/DC 	Female plastic connector - 3 pin: - electronic connector which eliminate electric disturbances when DC solenoid valves are deenergized Power supply: 12, 24, 48 VDC			PG11 ø 8 ÷ 10 mm	DIN 43650 Protection degree IP 65 EN 60529

(1) the wiring of electrical terminals has to be made according to specific valve's technical table

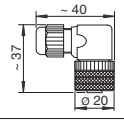
2 CONNECTORS FOR PROPORTIONAL VALVES

CODE AND DIMENSIONS	APPLICATION	INTERNAL VIEW PINOUT (1)	FRONT VIEW	CABLE GLAND Ø CABLE	REFERENCE RULES
345 	Female plastic connector - 4 pin: - position transducer for ZO(R)-T and ZO-L valves			PG7 ø 4 ÷ 6 mm	Protection degree IP 65 EN 60529
666 (black) 	Female plastic connector - 4 pin: - standard coil connector for proportionals valves			PG11 ø 8 ÷ 10 mm	DIN 43650-A/ISO 4400 Protection degree IP 65 EN 60529
ZM-7P 	Female metallic connector - 7 pin: - main connector for integral electronic driver			PG11 ø 7 ÷ 9 mm	According to MIL-C-5015 Protection degree IP 67 EN 60529
ZM-12P 	Female metallic connector - 12 pin: - main connector for integral electronic driver			PG13,5 ø 8 ÷ 11 mm	DIN 43651 Protection degree IP 67 EN 60529
ZM-5PF 	Female metallic connector - 5 pin: - CANbus for integral electronic driver			Pressure nut ø 6 ÷ 8 mm	M12 - coding A IEC 60947-5-2 Protection degree IP 67 EN 60529

ZM-5PM		Male metallic connector - 5 pin: - CANbus for integral electronic driver			Pressure nut ø 6 ÷ 8 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZM-5PF/BP		Female metallic connector - 5 pin: - PROFIBUS DP for integral electronic driver			Pressure nut ø 6 ÷ 8 mm	M12 - coding B IEC 61076-2-101 Protection degree IP 67 EN 60529
ZM-5PM/BP		Male metallic connector - 5 pin: - PROFIBUS DP for integral electronic driver			Pressure nut ø 6 ÷ 8 mm	M12 - coding B IIEC 61076-2-101 Protection degree IP 67 EN 60529
ZM-4PM/E		Male metallic connector - 4 pin: - EtherCAT, POWERLINK, EtherNet/IP, PROFINET RT/IRT for integral electronic driver			Pressure nut ø 6 ÷ 8 mm	M12 - coding D IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-5PM/1.5 **ZH-5PM/5**		Male plastic connector - 5 pin - single pressure/force transducer - analog position transducer Cable length: 1.5 m or 5 m			Moulded on cable	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-5PM-2.2		Male plastic connector - 4 pin: - double pressure/force transducers Splitting cable length: 2 m			Moulded on cable	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-8PM/5 **ZH-8PM/10**		Male plastic connector - 8 pin: - digital position transducer Cable length: 5 m or 10 m			Moulded on cable	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZBE-06		Female plastic connector - 4 pin: - position transducer (LIQZO-T* size 50) - integral pressure transducer (TERS)			PG7 ø 2,5 ÷ 6,5 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZBE-08		Female plastic connector - 5 pin: - position transducer E-THT-15 (LIQZP)			PG7 ø 2,5 ÷ 6,5 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-7P		Female plastic reinforced with fiber glass connector - 7 pin: - main connector for integral electronic driver			PG11 ø 8 ÷ 10 mm	According to MIL-C-5015 Protection degree IP 67 EN 60529
ZH-12P		Female plastic reinforced with fiber glass connector - 12 pin: - main connector for integral electronic driver			PG16 ø 6 mm x 2 cable	DIN 43651 Protection degree IP 67 EN 60529
ZH-5P		Female plastic connector - 5 pin: - RS232 Serial, CANbus - digital electronic driver E-MI-AS-IR, /M12 option			PG9 ø 6 ÷ 8 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-5P/BP		Male plastic connector - 5 pin: - PROFIBUS DP			PG9 ø 6 ÷ 8 mm	M12 - coding B IEC 61076-2-101 Protection degree IP 67 EN 60529
ZH-5PM		Male plastic connector - 5 pin: - pressure, force, position transducers (TEZ/LEZ series 10 or lower)			PG7 ø 4 ÷ 6 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529

(1) the wiring of electrical terminals has to be realized according to specific valve's technical table

3 CONNECTOR FOR PRESSURE TRANSDUCERS AND PRESSURE SWITCHES

CODE AND DIMENSIONS	APPLICATION	INTERNAL VIEW PINOUT (1)	FRONT VIEW	CABLE GLAND Ø CABLE	REFERENCE RULES
ZBE-08 	Female plastic connector - 5 pin: - pressure transducer E-ATR8 - electronic pressure switch type E-DAP-2			PG7 ø 2,5 ÷ 6,5 mm	M12 - coding A IEC 61076-2-101 Protection degree IP 67 EN 60529

(1) the wiring of electrical terminals has to be made according to specific transducer's technical table

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
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