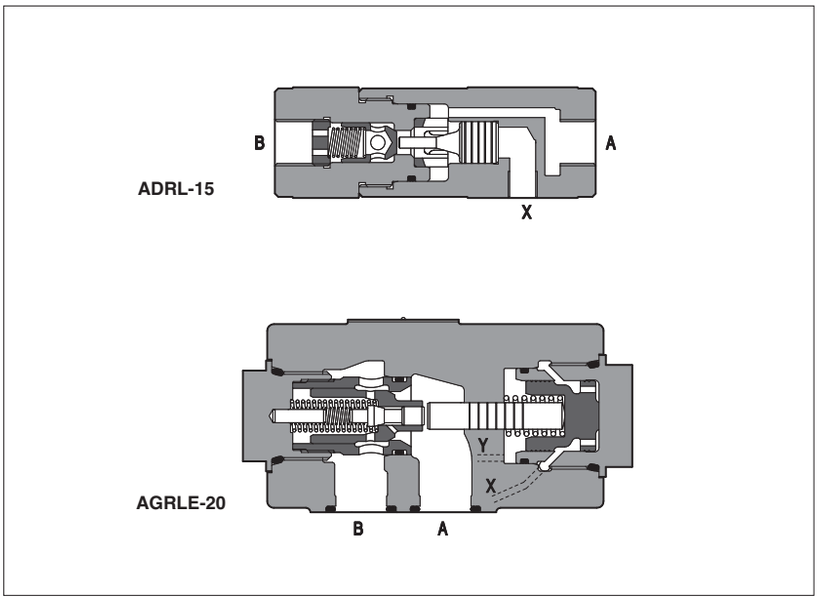
Pilot operated check valves type ADRL, AGRL, AGRLE

in-line mounting, port size from G 3/8" to G 1 1/4"
subplate mounting, ISO 5781 size 10, 20 and 32



ADRL are pilot operated (port X) check valves for in-line mounting available with port size from 3/8" GAS to 1 1/4" GAS.
Flow up to 300 l/min.
Pressure up to 400 bar.

AGRL and **AGRLE** are pilot operated (port X) check valves for subplate mounting available with mounting surface ISO 5781 size 10, 20 and 32.
Flow up to 500 l/min.
Max pressure: 315 bar.

AGRLE versions have an external drain (port Y) of the pilot chamber to permit a correct use of pilot operated check valve in systems where valve must open in presence of pressure at port A: infact pressure at port A, on regular pilot operated check valves, may affect the check opening by acting against the pilot device.

Valves designed to operate in hydraulic systems with hydraulic mineral oil or synthetic fluid having similar lubricating characteristics.

1 MODEL CODE

AGRL	E	-	10	/	*	**	/	*

ADRL = pilot operated check valve in-line mounting
AGRL = pilot operated check valve subplate mounting

Only for AGRL:
- = without external drain
E = with external drain

Threaded connections for ADRL:
10 = G 3/8"
15 = G 1/2"
20 = G 3/4"
32 = G 1 1/4"

Size for AGRL and AGRLE:
10 **20** **32**

Cracking pressure

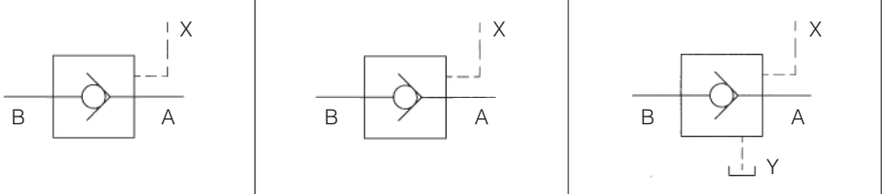
for ADRL	for AGRL
- = 0,5 bar	**-** = 0,5 bar
2 = 2 bar	
4 = 4 bar	
8 = 8 bar	

Series number

Seals material, see section 4:
- = NBR
PE = FKM
BT = HNBR

2 HYDRAULIC CHARACTERISTICS

Hydraulic symbols



Model	ADRL-10	ADRL-15	ADRL-20	ADRL-32	AGRL-10	AGRL-20	AGRL-32	AGRLE-10	AGRLE-20	AGRLE-32
Piloting ratio (1)	2,8	2,7	2,5	2,3	13,6	14,0	14,4	13,6	14,0	14,4
Max recommended flow [l/min]	30	60	100	300	160	300	500	160	300	500
Max pressure [bar]	400	350			315					

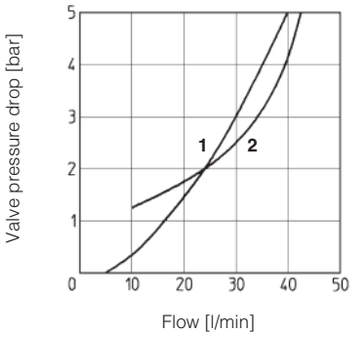
(1) Applying the pilot pressure through the pilot port X, the pilot spool opens the check valve, allowing free flow B→A.
The minimum pilot pressure for correct operation depends on the pilot ratio indicated in the table and on the pressure closing the check. i.e.: the pilot pressure for ADRL-20 is the pressure on the check divided by 2,5. The valves AGRL-* and AGRLE-*, are equipped with a decompression system.

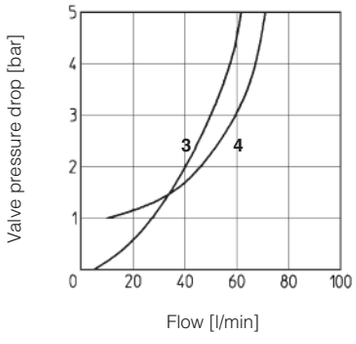
3 MAIN CHARACTERISTICS, SEALS AND FLUIDS - for other fluids not included in below table, consult our technical office

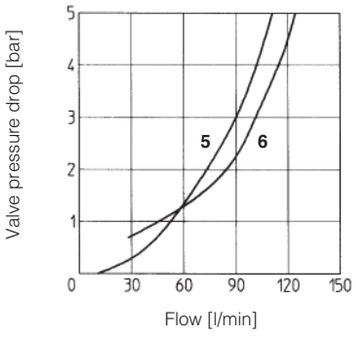
Assembly position	Any position. For AGRLE valves, the drain port Y has to be connected directly to the tank without counter pressure		
Ambient temperature	Standard execution = -30°C ÷ +70°C /PE option = -20°C ÷ +70°C /BT option = -40°C ÷ +70°C		
Seals, recommended fluid temperature	NBR seals (standard) = -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)		
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
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	

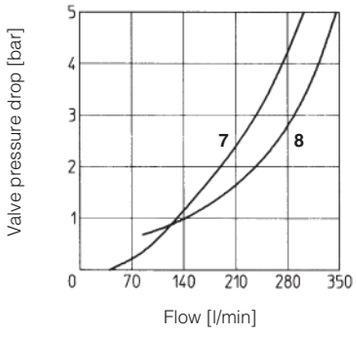
4 FLOW VERSUS PRESSURE DROP DIAGRAMS FOR ADRL based on mineral oil ISO VG 46 at 50°C

1 = **ADRL-10** B→A
2 = **ADRL-10** A→B
3 = **ADRL-15** B→A
4 = **ADRL-15** A→B
5 = **ADRL-20** B→A
6 = **ADRL-20** A→B
7 = **ADRL-32** B→A
8 = **ADRL-32** A→B



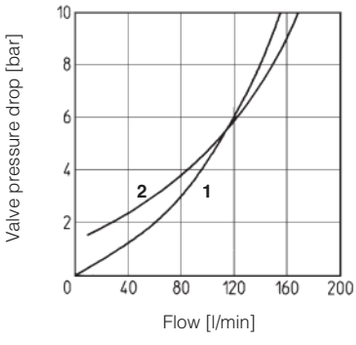


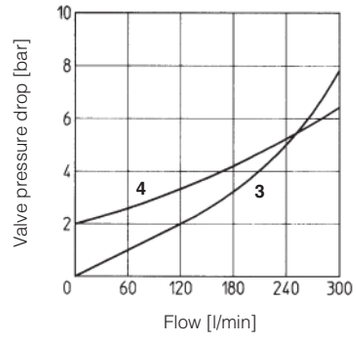


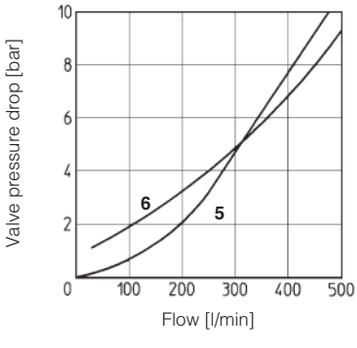


5 FLOW VERSUS PRESSURE DROP DIAGRAMS FOR AGRL AND AGRLE based on mineral oil ISO VG 46 at 50°C

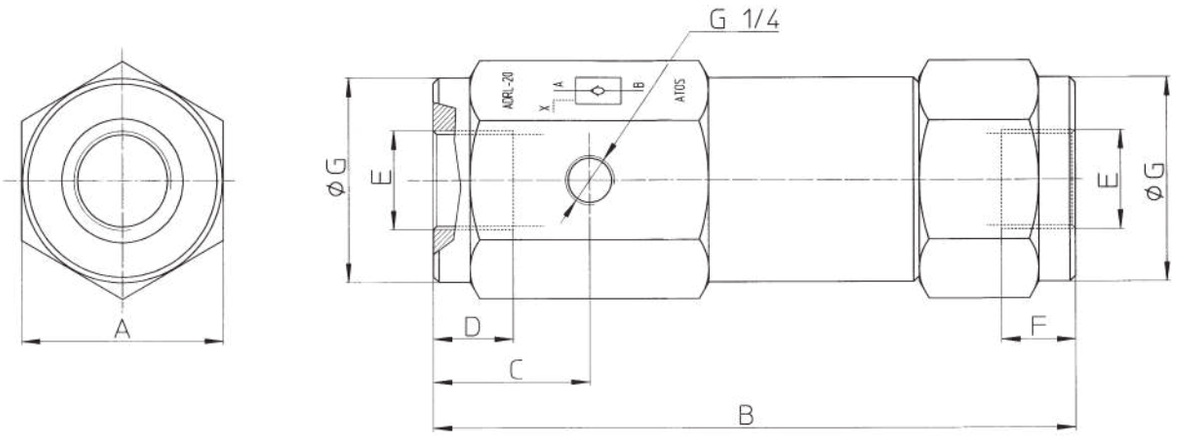
1 = **AGRL-10, AGRLE-10** B→A
2 = **AGRL-10, AGRLE-10** A→B
3 = **AGRL-20, AGRLE-20** B→A
4 = **AGRL-20, AGRLE-20** A→B
5 = **AGRL-32, AGRLE-32** B→A
6 = **AGRL-32, AGRLE-32** A→B







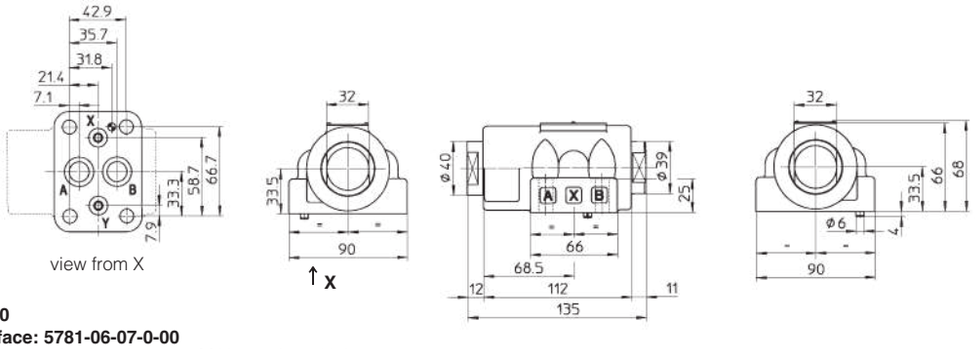
6 DIMENSIONS FOR ADRL VALVES [mm]



Model	A	B	C	D	E	F	ØG	Mass [Kg]
ADRL-10	41	120	30	14	G 3/8"	12	40	1
ADRL-15	50	145	33	16	G 1/2"	16	49	2
ADRL-20	55	175	42,5	18,5	G 3/4"	19	54,5	2,5
ADRL-32	90	245	53	23,5	G 1 1/4"	25	87,5	7

7 DIMENSIONS FOR AGRL AND AGRLE VALVES [mm]

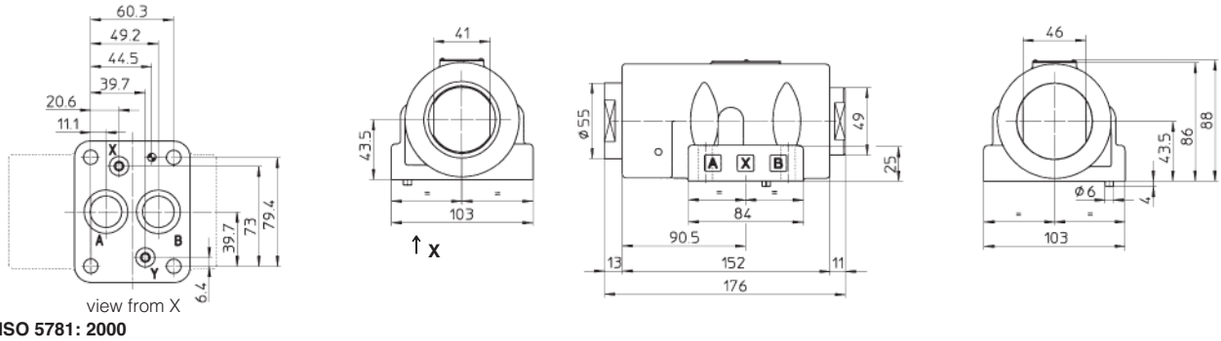
AGRL-10
AGRLE-10



ISO 5781: 2000
Mounting surface: 5781-06-07-0-00
Fastening bolts: 4 socket head screws M10x45 class 12.9
Tightening torque = 70 Nm
Seals: 2 OR 3068; 2 OR 109/70
Ports A, B: Ø = 15 mm
Ports X, Y: Ø = 5 mm

Mass: 4 Kg

AGRL-20
AGRLE-20

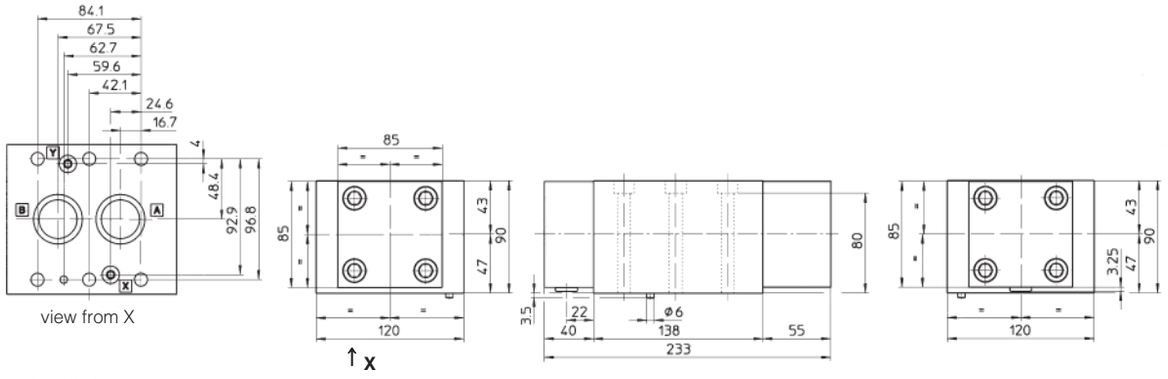


ISO 5781: 2000
Mounting surface: 5781-08-10-0-00
Fastening bolts: 4 socket head screws M10x45 class 12.9
Tightening torque = 70 Nm
Seals: 2 OR 4100; 2 OR 109/70
Ports A, B: Ø = 23 mm
Ports X, Y: Ø = 5 mm

Mass: 7 Kg

7 DIMENSIONS FOR AGRL AND AGRLE VALVES [mm]

AGRL-32
AGRLE-32



ISO 5781: 2000
Mounting surface: 5781-10-13-0-00
Fastening bolts: 6 socket head screws M10x100 class 12.9
Tightening torque = 70 Nm
Seals: 2 OR 4131; 2 OR 109/70
Ports A, B: Ø = 30 mm
Ports X, Y: Ø = 5 mm

Mass: 14,8 Kg

8 MOUNTING SUBPLATES FOR AGRL AND AGRLE VALVES

Valve	Subplate model	Port location	GAS ports				Ø Counterbore [mm]				Mass [kg]
			A	B	X	Y	A	B	X	Y	
AGRL-10, AGRLE-10	BA-305	Ports A, B, X, Y underneath;	1/2”	1/2”	1/4”	1/4”	30	30	21,5	21,5	1
AGRL-20, AGRLE-20	BA-505		1”	1”	1/4”	1/4”	46	46	21,5	21,5	2
AGRL-32, AGRLE-32	BA-705 A		1 1/2”	1 1/2”	1/4”	1/4”	63,5	63,5	21,5	21,5	7,5

The subplates are supplied with fastening bolts. For further details see table K280.