Index chapter 3

VALVES
manually and mechanically actuated and complementary valves

Waircom complementary and manually/mechanically actuated valves: overview

As already described in the overview of the previous chapter, even for this series of valves we can find both poppet and spool construction, in order to satisfy the different applications.

As inferable by their definition, these valves can be actuated or by a mechanical device or by an operator, and they can be used together with some complementary valves, that, in spite of their definition, are of great importance for the proper and efficiency functioning of each pneumatic circuits.

DESCRIPTION

Minivalves series "M" are produced in the 2/2 and 3/2 pneumatic functions in both side and bottom ported versions, with push-in fittings on body valve for pipe Ø 4 mm or M5 threaded connections; the version G 1/8 bottom ported is also available. Thanks to the suitable adapter types MCS-SA and MCS-SAD these minivalves support the "BRETER" Ø 22 mm actuators for panel mounting. The same actuators can control 1 or 2 minivalves, thus it's possible to obtain the 3/2, 5/2, 5/3 open centre and the 5/3 pressure centre pneumatic functions.

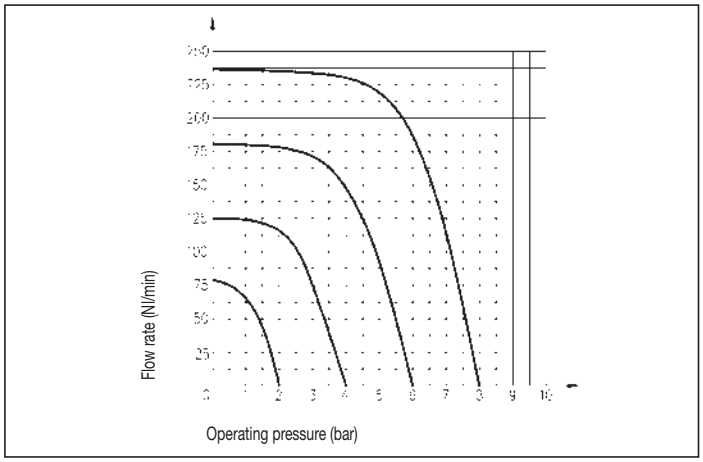
TECHNICAL DATA

Operating pressure	2 ÷ 10 bar
Working temperature	0 ÷ +60 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Push-in fittings for pipe Ø 4 mm - M5 - G 1/8
Nominal diameter	2,5 mm
Controls	
Mechanical	Plunger; roller lever; unidirectional roller lever
Manual	Tapper; actuators for panel mounting

MATERIALS

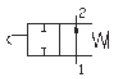
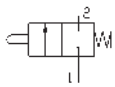
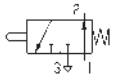
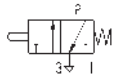
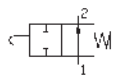
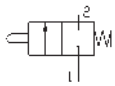
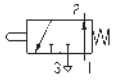
Body	Anodized aluminium alloy
Bushing and guide	Nickel - plated brass
Springs	Stainless steel
Seals	NBR rubber
Connections	Nickel - plated brass, plastic material
Controls	
Tapper; Swivel	Glass stiffened polyamide
Plunger; Roller	Nickel - plated brass
Lever	Steel

FLOW CHART - M

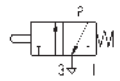
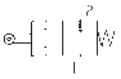
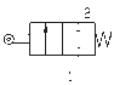
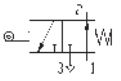
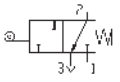
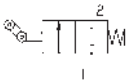
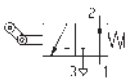
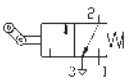
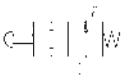
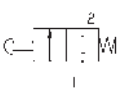
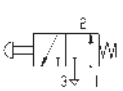
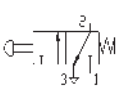


3

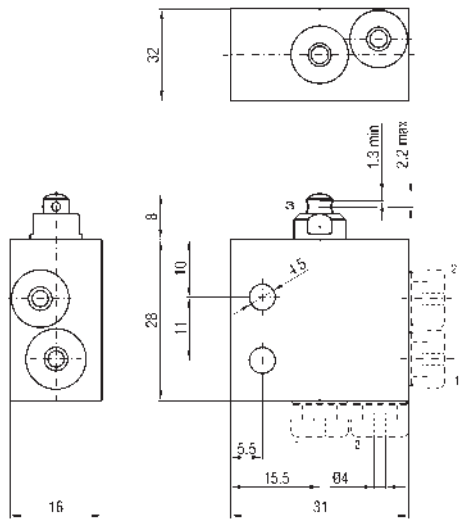
2 AND 3 PORT N.C. - N.O.

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	2/2 N.O. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAS4 MHAS4/L MHASM5 MHASM5/L MHAS1/8
	2/2 N.C. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCS4 MHCS4/L MHCSM5 MHCSM5/L MHCS1/8
	3/2 N.O. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAS4 MAS4/L MASM5 MASM5/L MAS1/8
	3/2 N.C. monostable	Plunger	Mechanical spring	13	83	40	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCS4 MCS4/L MCSM5 MCSM5/L MCS1/8
	2/2 N.O. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAP4 MHAP4/L MHAPM5 MHAPM5/L MHAP1/8
	2/2 N.C. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCP4 MHCP4/L MHCPM5 MHCPM5/L MHCP1/8
	3/2 N.O. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAP4 MAP4/L MAPM5 MAPM5/L MAP1/8

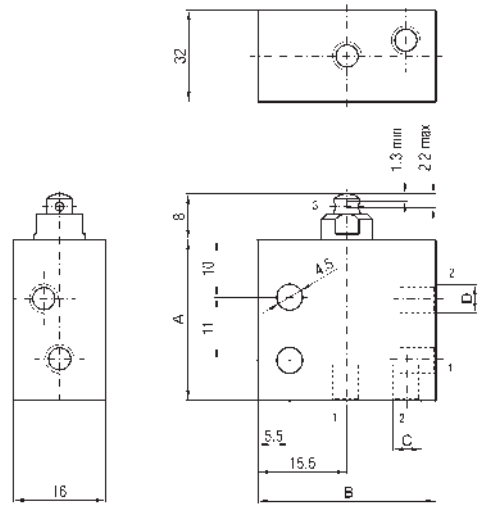
2 AND 3 PORT N.C. - N.O.

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	3/2 N.C. monostable	Plunger for panel mounting	Mechanical spring	13	83	60	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCP4 MCP4/L MCPM5 MCPM5/L MCP1/8
	2/2 N.O. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHALR4 MHALR4/L MHALRM5 MHALRM5/L MHALR1/8
	2/2 N.C. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCLR4 MHCLR4/L MHCLRM5 MHCLRM5/L MHCLR1/8
	2/2 N.O. monostable	Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MALR4 MALR4/L MALRM5 MALRM5/L MALR1/8
	3/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCLR4 MCLR4/L MCLRM5 MCLRM5/L MCLR1/8
	2/2 N.O. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHALRU4 MHALRU4/L MHALRUM5 MHALRUM5/L MHALRU1/8
	2/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCLRU4 MHCLRU4/L MHCLRUM5 MHCLRUM5/L MHCLRU1/8
	3/2 N.O. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MALRU4 MALRU4/L MALRUM5 MALRUM5/L MALRU1/8
	3/2 N.C. monostable	Unidiretional Roller lever	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCLRU4 MCLRU4/L MCLRUM5 MCLRUM5/L MCLRU1/8
	2/2 N.O. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHAT4 MHAT4/L MHATM5 MHATM5/L MHAT1/8
	2/2 N.C. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MHCT4 MHCT4/L MHCTM5 MHCTM5/L MHCT1/8
	3/2 N.O. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MAT4 MAT4/L MATM5 MATM5/L MAT1/8
	3/2 N.C. monostable	Tapper	Mechanical spring	7	83	50	Ø4 bottom ported Ø4 side ported M5 bottom threaded M5 side threaded G 1/8 bottom ported	MCT4 MCT4/L MCTM5 MCTM5/L MCT1/8

PLUNGER - Ø 4 mm SIDE AND BOTTOM PORTED



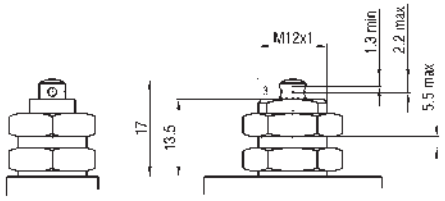
PLUNGER - M5 THREADED CONNECTIONS SIDE AND BOTTOM PORTED - G 1/8 BOTTOM PORTED



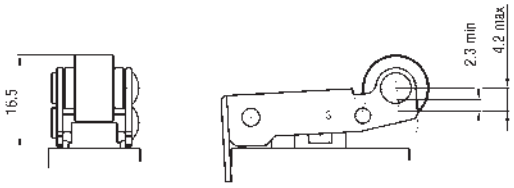
	M5	G1/8
A	28	31
B	31	40
C	M5	G1/8
D	M5	

CONTROLS

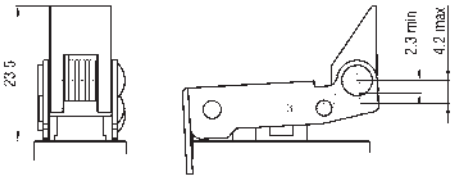
PLUNGER FOR PANEL MOUNTING



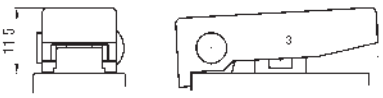
ROLLER LEVER



UNIDIRECTIONAL ROLLER LEVER



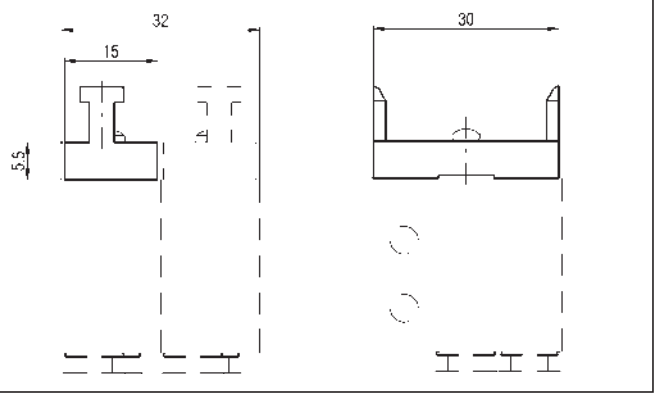
TAPPER



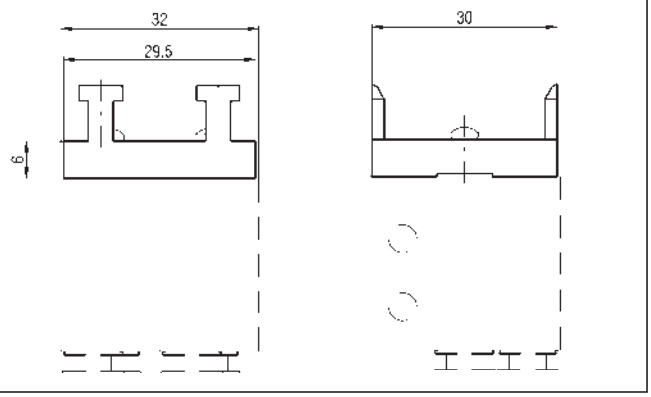
ACTUATORS FOR PANEL MOUNTING

Symbol	Description	Function	TYPE	Symbol	Description	Function	TYPE
	Protected monostable push-button BLACK RED GREEN	0 ← 1	MCS - PMN MCS - PMR MCS - PMV		Black bistable short-lever switch	0 1	MCS - LCB
	Red monostable mushroom	0 ← 1	MCS - FMR		Black monostable short-lever switch, 3 position with return to the centre	1 → 0 ← 2	MCS - LCSM
	Red bistable mushroom (rotate to unlock)	0 1	MCS - FBR		Black short-lever switch, 3 stable positions	1 0 2	MCS - LCSB
	Black monostable short-lever switch	0 ← 1	MCS - LCM		Bistable key (extractable in both the 2 positions)	0 1	MCS - CB2

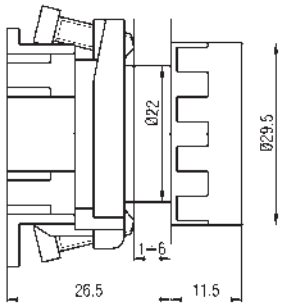
ADAPTER TYPE MCS-SA FOR ACTUATORS



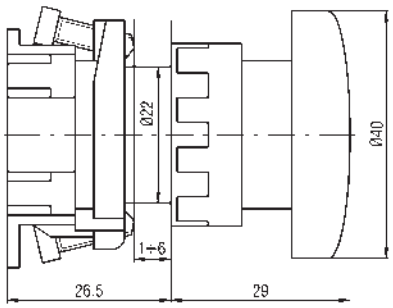
DOUBLE ADAPTER TYPE MCS-SAD FOR ACTUATORS



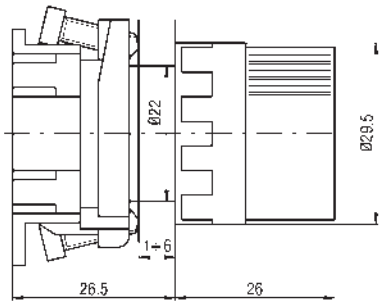
PUSH-BUTTON



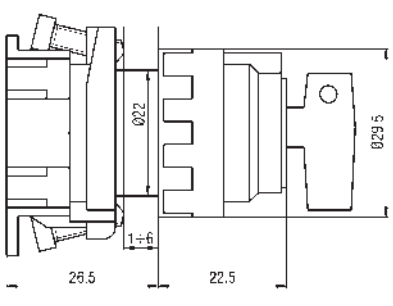
MUSHROOM



SHORT-LEVER SWITCH



BISTABLE KEY



DESCRIPTION

Valves series "EK" are produced in the 3/2, 5/2 and 5/3 pneumatic functions; the kind of construction is based on a balanced spool. In the mechanically actuated version these valves are available only for the size G 1/8 and G 1/4, while the manually actuated versions are available in the different sizes and they are suitable for panel mounting (except for size G 1/2).

TECHNICAL DATA

Operating pressure	0 ÷10 bar 3 ÷10 bar
Working temperature	0 ÷ +60 °C (con aria secca -20 °C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Nominal diameter	G 1/8 = 5 mm G 1/4 = 8 mm G 1/2 = 12 mm
Controls	
Mechanical	Plunger; roller lever; whisker; released pressure key
Manual	Drawer; front lever; lateral knob; actuators for panel mounting (see on page 3.6)

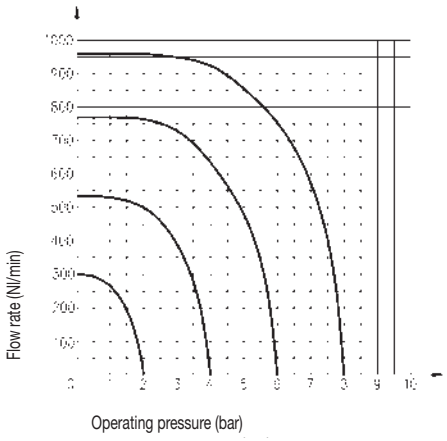
MATERIALS

Bottoms	Front: aluminium alloy or plastic - Rear: aluminium alloy
Body	Anodized aluminium alloy
Distance rings	Acetal resin
Springs	Galvanized steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Controls	
Lever; Ball	Steel
Whisker	Stainless steel
Released pressure key	Anodized aluminium alloy
Plunger	Brass
Bellows	Elastomer
Knobs; Handgrips	Plastic material
Roller	Ball bearing (plastic material upon request)

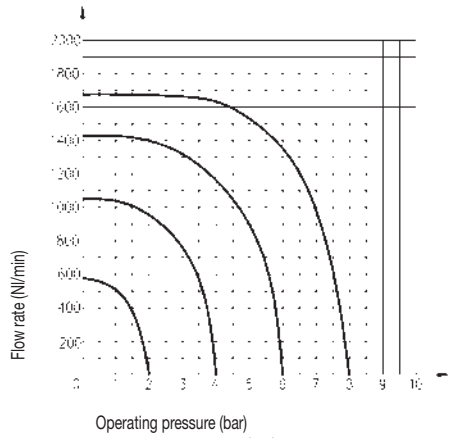
SPARE PARTS

SEALS KIT	
3 port G 1/8	EK/M/SG/8
5 port G 1/8	EKCA/M/SG/8
3 port G 1/4	EK/M/SG/4
5 port G 1/4	EKCA/M/SG/4
5 port G 1/2	EKCA/M/SG/2

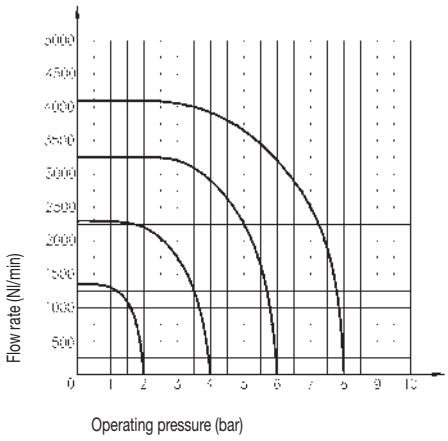
FLOW CHART - EK G 1/8 - 5/2



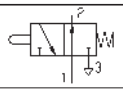
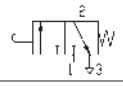
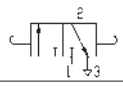
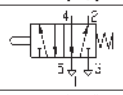
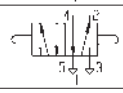
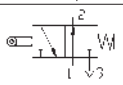
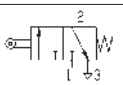
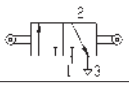
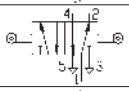
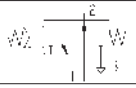
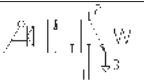
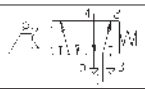
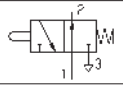
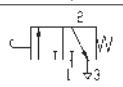
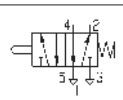
FLOW CHART - EK G 1/4 - 5/2



FLOW CHART - EK G 1/2 - 5/2



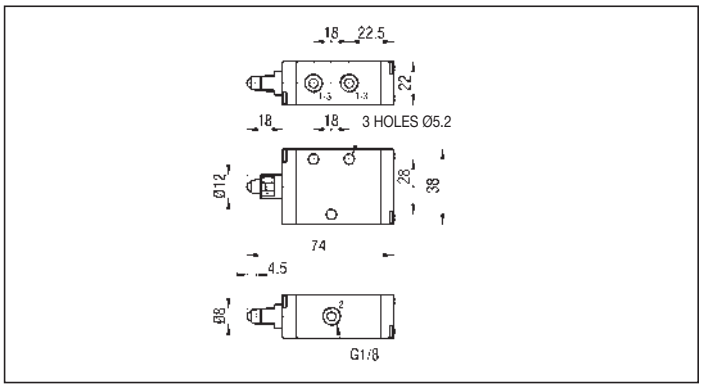
MECHANICALLY ACTUATED VALVES G 1/8

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Plunger	Mechanical spring	32	390	135	EK8/PS
	3/2 N.C. monostable						
	3/2 bistable	Plunger	Plunger	32	390	140	EK8/PSS
	5/2 monostable	Plunger	Mechanical spring	32	490	165	EKCA8/PS
	5/2 bistable	Plunger	Plunger	32	490	170	EKCA8/PSS
	3/2 N.O. monostable	Roller lever	Mechanical spring	15	390	160	EK8/LR*
	3/2 N.C. monostable						
	3/2 bistable	Roller lever	Roller lever	15	390	200	EK8/LRLR*
	5/2 monostable	Roller lever	Mechanical spring	15	490	190	EKCA8/LR*
	5/2 bistable	Roller lever	Roller lever	15	490	225	EKCA8/LRLR*
	3/2 N.O. monostable	Piloted whisker (sensitive)	Mechanical spring	1,5	420	230	EKA8/A
	3/2 N.C. monostable						EKC8/A
	5/2 monostable	Piloted whisker (sensitive)	Mechanical spring	1,5	490	260	EKCA8/A
	3/2 N.O. monostable	Piloted released pressure key (sensitive)	Mechanical spring	1,5	420	210	EKA8/TD
	3/2 N.C. monostable						EKC8/TD
	5/2 monostable	Piloted released pressure key (sensitive)	Mechanical spring	1,5	490	230	EKCA8/TD
	3/2 N.O. monostable	Piloted plunger for panel mounting (sensitive)	Mechanical spring	1,5	420	230	EKA8/Q
	3/2 N.C. monostable						EKC8/Q
	5/2 monostable	Piloted plunger for panel mounting (sensitive)	Mechanical spring	1,5	490	260	EKCA8/Q

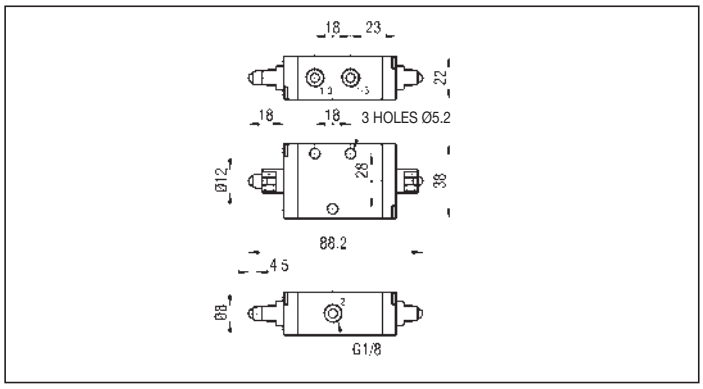
* - ADD THE LETTER “U” TO THE TYPE TO ORDER THE UNIDIRECTIONAL ROLLER VALVES - E.G.: EKCA8/LRLRU
- ADD THE LETTER “N” TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK8/LRN

3

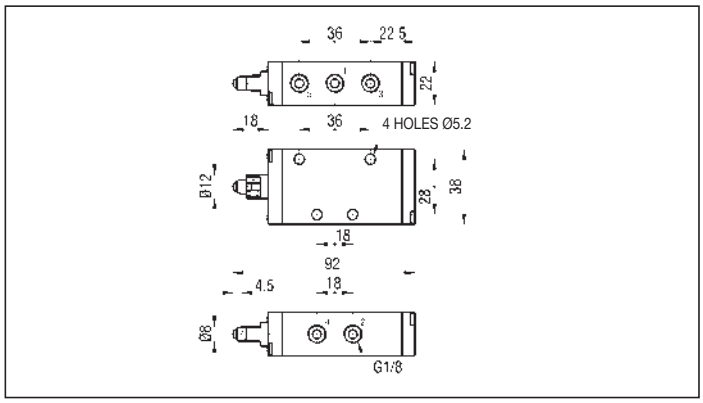
EK8/PS



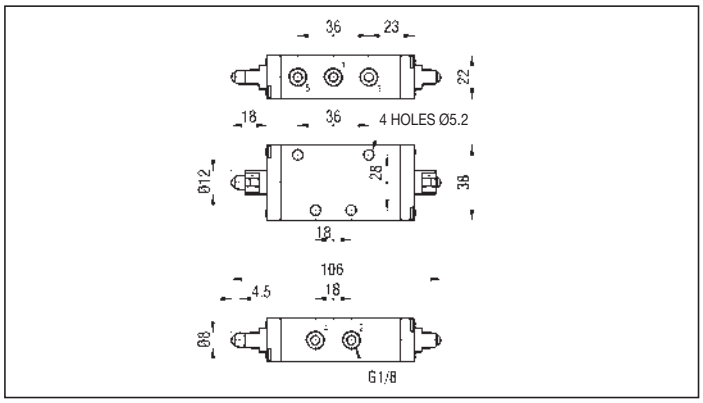
EK8/PSS



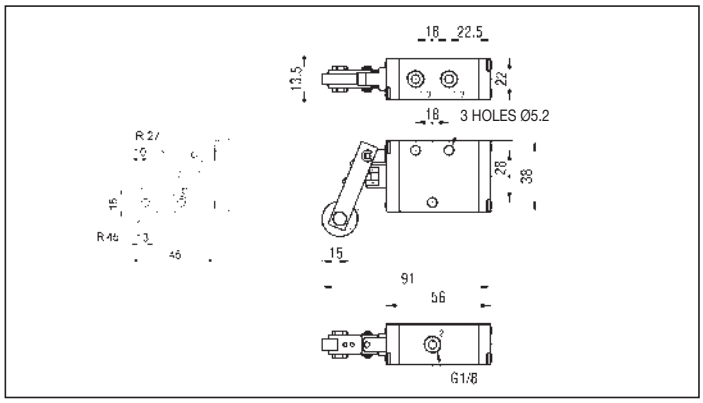
EKCA8/PS



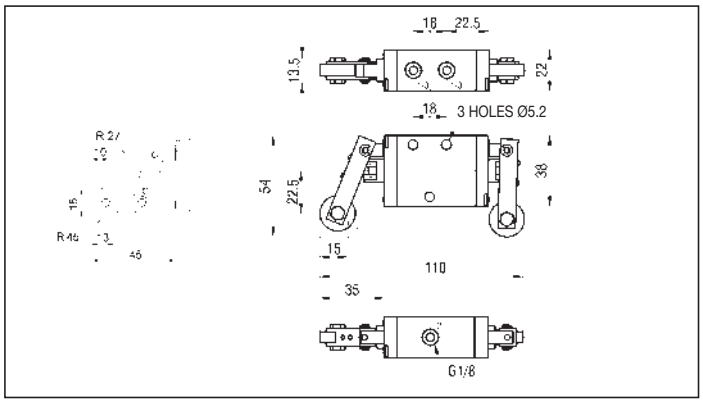
EKCA8/PSS



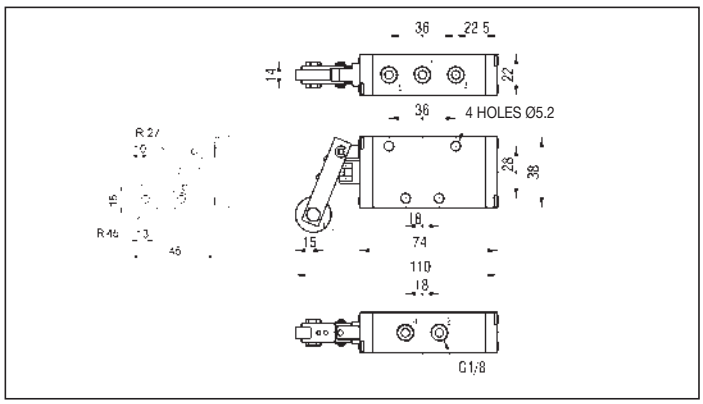
EK8/LR*



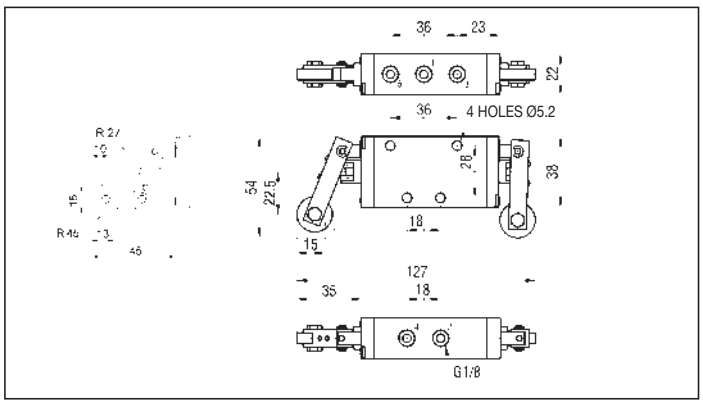
EK8/LRLR*



EKCA8/LR*

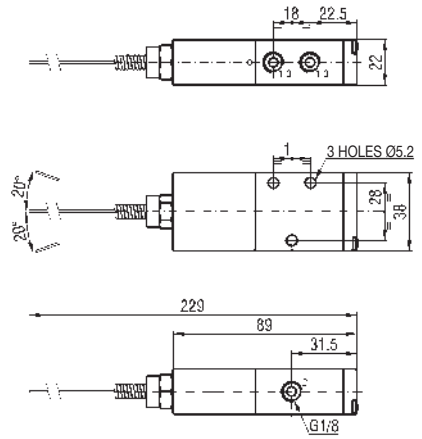


EKCA8/LRLR*

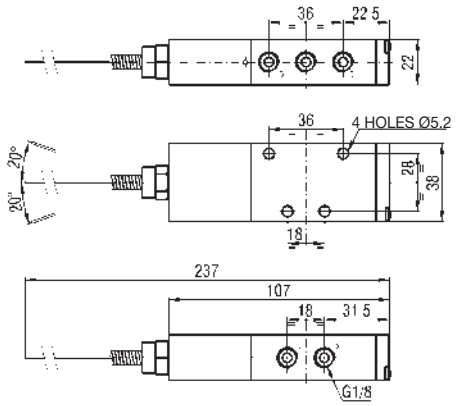


* - ADD THE LETTER “U” TO THE TYPE TO ORDER THE UNIDIRECTIONAL ROLLER VALVES - E.G.: EKCA8/LRLRU
- ADD THE LETTER “N” TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK8/LRN

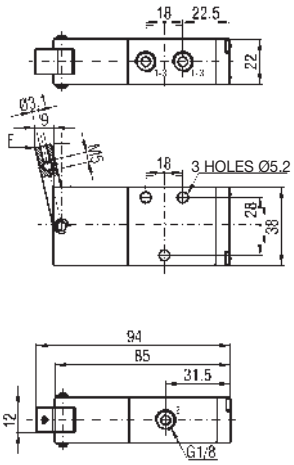
EKA8/A - EKC8/A



EKCA8/A

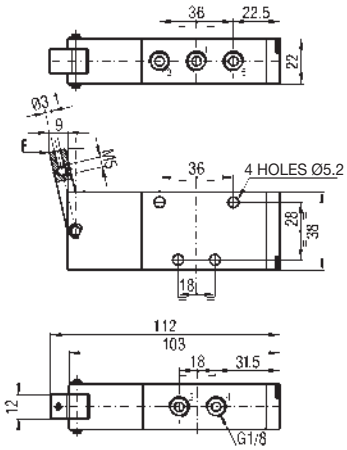


EKA8/TD - EKC8/TD*



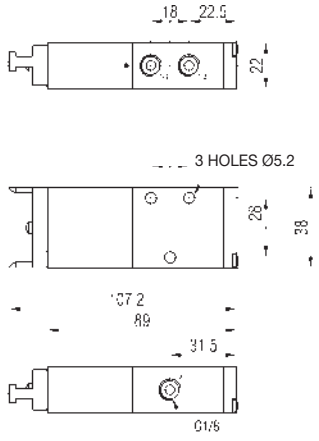
* IT IS POSSIBLE TO INCREASE THE SENSITIVITY OF THE KEY USING A Ø 3 mm EXTENSION ON THE SAME KEY

EKCA8/TD*



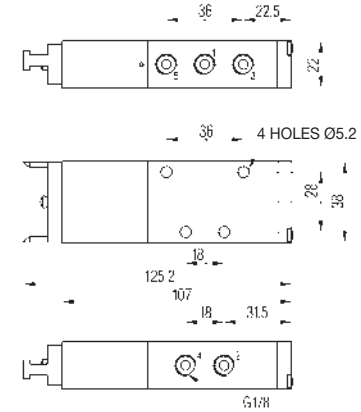
* IT IS POSSIBLE TO INCREASE THE SENSITIVITY OF THE KEY USING A Ø 3 mm EXTENSION ON THE SAME KEY

EKC8/Q - EKA8/Q



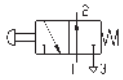
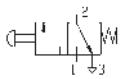
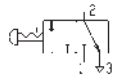
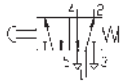
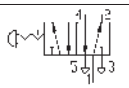
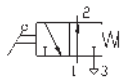
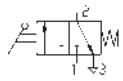
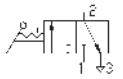
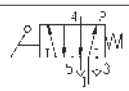
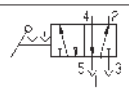
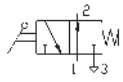
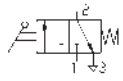
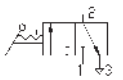
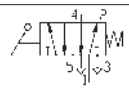
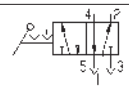
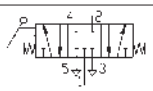
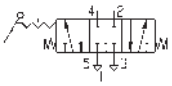
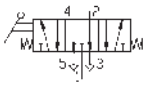
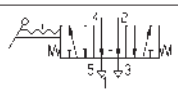
P.S.: SEE ACTUATORS FOR PANEL MOUNTING ON PAGE 3.6

EKCA8/Q

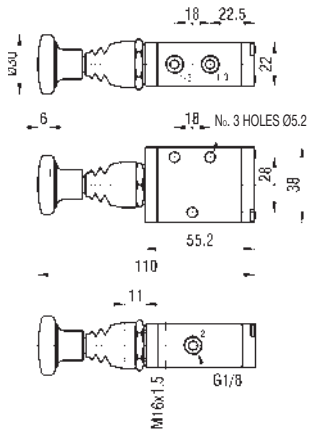


P.S.: SEE ACTUATORS FOR PANEL MOUNTING ON PAGE 3.6

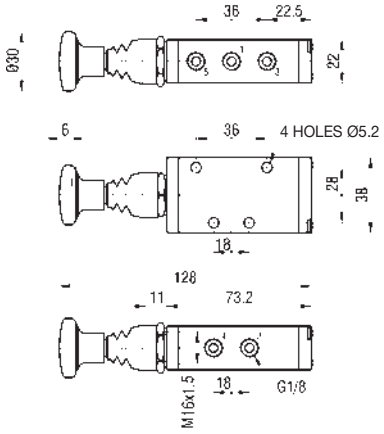
MANUALLY ACTUATED VALVES G 1/8

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	3/2 N.O. monostable	Drawer	Mechanical spring	480	155	EK8/T
	3/2 N.C. monostable					
	3/2 bistable	Drawer	Drawer	480	155	EK8/TF
	5/2 monostable	Drawer	Mechanical spring	480	185	EKCA8/T
	5/2 bistable	Drawer	Drawer	480	185	EKCA8/TF
	3/2 N.O. monostable	Front lever	Mechanical spring	480	150	EK8/MV
	3/2 N.C. monostable					
	3/2 bistable	Front lever	Front lever	480	150	EK8/MVF
	5/2 monostable	Front lever	Mechanical spring	480	185	EKCA8/MV
	5/2 bistable	Front lever	Front lever	480	185	EKCA8/MVF
	3/2 N.O. monostable	Lateral knob	Mechanical spring	480	155	EK8/M
	3/2 N.C. monostable					
	3/2 bistable	Lateral knob	Lateral knob	480	185	EK8/MF
	5/2 monostable	Lateral knob	Mechanical spring	480	205	EKCA8/M
	5/2 bistable	Lateral knob	Lateral knob	480	205	EKCA8/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	300	205	EKCA8/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	300	205	EKCA8/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	300	205	EKCA8/MA
	5/3 stable open centre	Lateral knob	Lateral knob	300	205	EKCA8/MAF

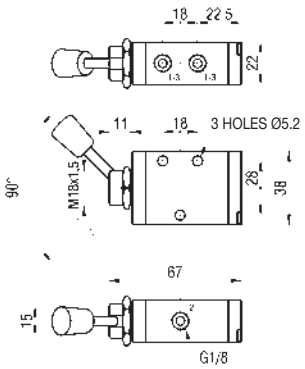
EK8/T - EK8/TF



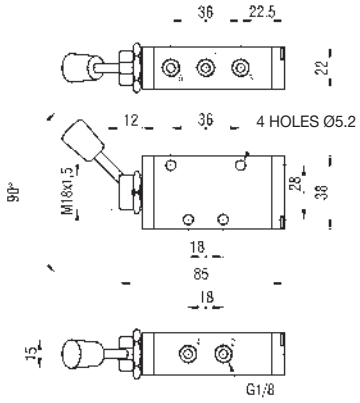
EKCA8/T - EKCA8/TF



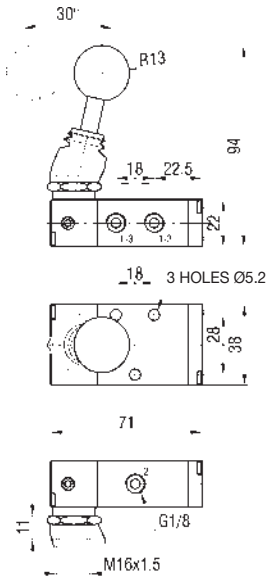
EK8/MV - EK8/MVF



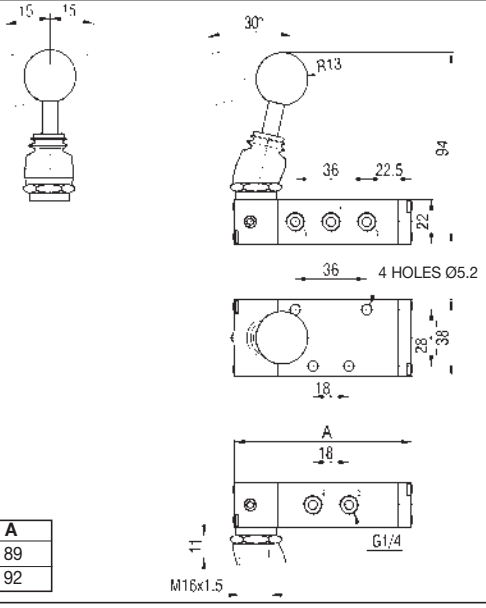
EKCA8/MV - EKCA8/MVF



EK8/M - EK8/MF

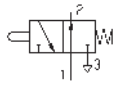
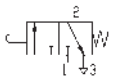
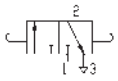
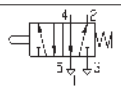
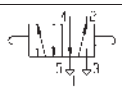
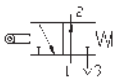
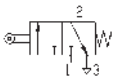
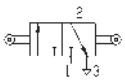
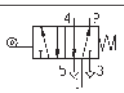
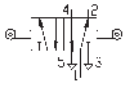


5/2 - 5/3 LATERAL KNOB



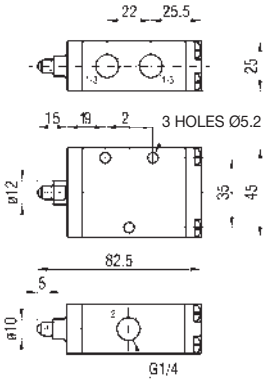
FUNCTION	A
5/2	89
5/3	92

MECHANICALLY ACTUATED VALVES G 1/4

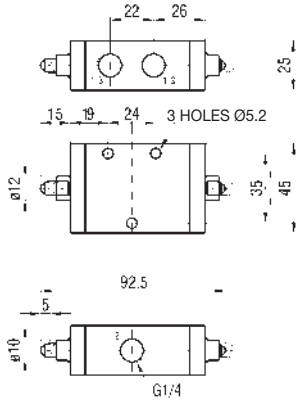
Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Drawer	Mechanical spring	51	900	205	EK4/PS
	3/2 N.C. monostable						
	3/2 bistable	Drawer	Drawer	9,5	900	200	EK4/PSS
	5/2 monostable	Drawer	Mechanical spring	51	900	250	EKCA4/PS
	5/2 bistable	Drawer	Drawer	9,5	900	250	EKCA4/PSS
	3/2 N.O. monostable	Front lever	Mechanical spring	21	900	270	EK4/LR*
	3/2 N.C. monostable						
	3/2 bistable	Front lever	Front lever	16	900	325	EK4/LRLR*
	5/2 monostable	Front lever	Mechanical spring	21	900	320	EKCA4/LR*
	5/2 bistable	Front lever	Front lever	16	900	380	EKCA4/LRLR*

* ADD THE LETTER “N“ TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK4/LRN

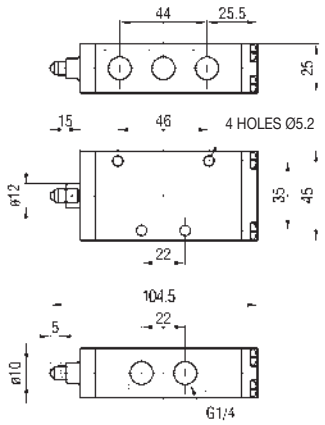
EK4/PS



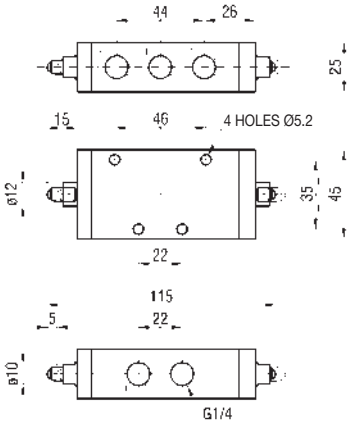
EK4/PSS



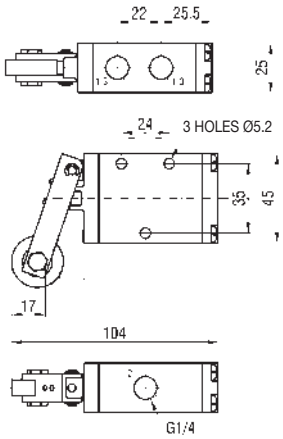
EKCA4/PS



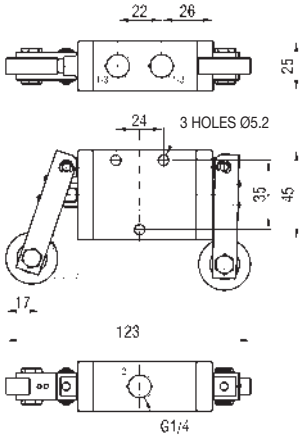
EKCA4/PSS



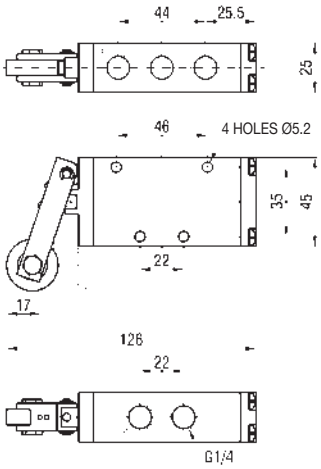
EK4/LR*



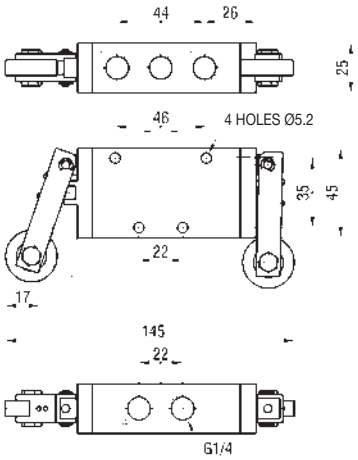
EK4/LRLR*



EKCA4/LR*

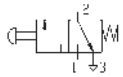
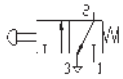
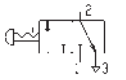
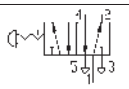
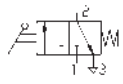
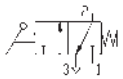
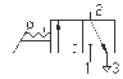
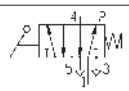
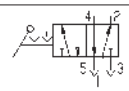
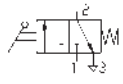
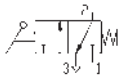
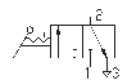
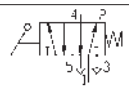
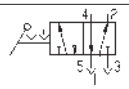
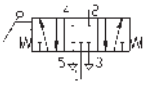
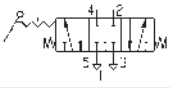
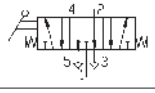
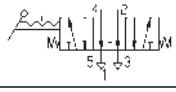


EKCA4/LRLR*

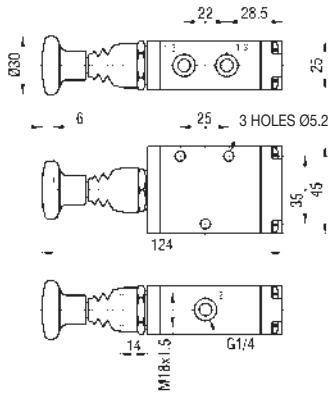


* ADD THE LETTER “N“ TO THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER - E.G.: EK4/LRN

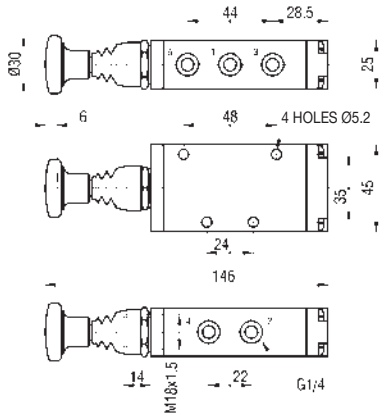
MANUALLY ACTUATED VALVES G 1/4

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	3/2 N.O. monostable	Drawer	Mechanical spring	900	240	EK4/T
	3/2 N.C. monostable					
	3/2 bistable	Drawer	Drawer	900	240	EK4/TF
	5/2 monostable	Drawer	Mechanical spring	900	305	EKCA4/T
	5/2 bistable	Drawer	Drawer	900	305	EKCA4/TF
	3/2 N.O. monostable	Front lever	Mechanical spring	920	230	EK4/MV
	3/2 N.C. monostable					
	3/2 bistable	Front lever	Front lever	920	230	EK4/MVF
	5/2 monostable	Front lever	Mechanical spring	920	185	EKCA4/MV
	5/2 bistable	Front lever	Front lever	920	185	EKCA4/MVF
	3/2 N.O. monostable	Lateral knob	Mechanical spring	920	255	EK4/M
	3/2 N.C. monostable					
	3/2 bistable	Lateral knob	Lateral knob	920	250	EK4/MF
	5/2 monostable	Lateral knob	Mechanical spring	920	310	EKCA4/M
	5/2 bistable	Lateral knob	Lateral knob	920	310	EKCA4/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	780	310	EKCA4/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	780	310	EKCA4/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	780	310	EKCA4/MA
	5/3 stable open centre	Lateral knob	Lateral knob	780	310	EKCA4/MAF

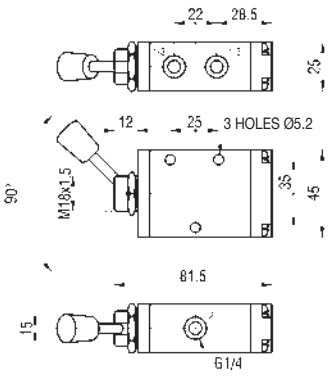
EK4/T - EK4/TF



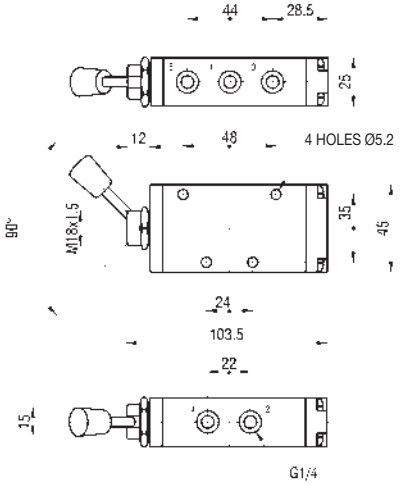
EKCA4/T - EKCA4/TF



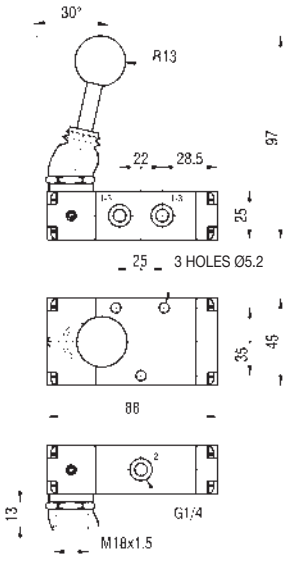
EK4/MV - EK4/MVF



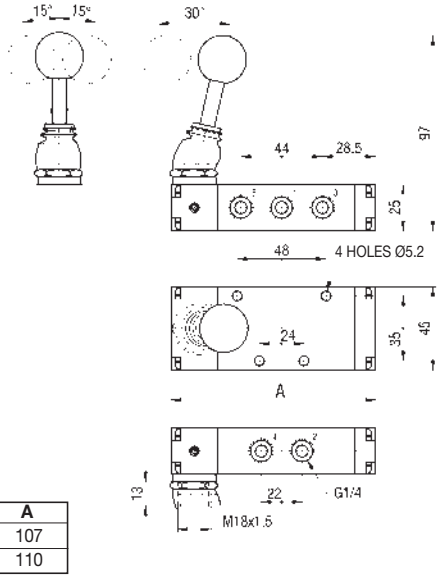
EKCA4/MV - EKCA4/MVF



EK4/M - EK4/MF

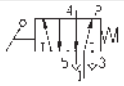
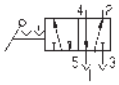
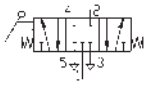
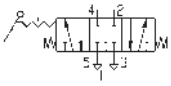
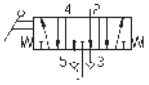
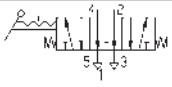


5/2 - 5/3 LATERAL KNOB

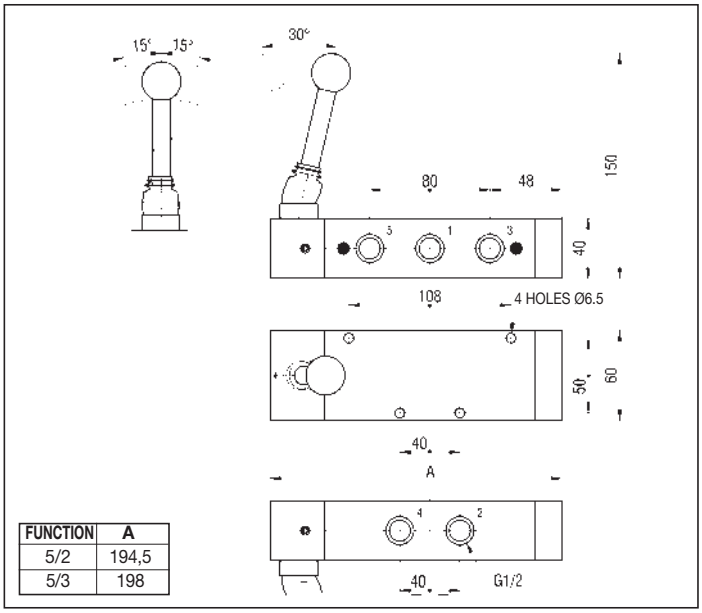


FUNCTION	A
5/2	107
5/3	110

MANUALLY ACTUATED VALVES G 1/2

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	TYPE
		Pilot	Return			
	5/2 monostable	Lateral knob	Mechanical spring	2250	1200	EKCA2/M
	5/2 bistable	Lateral knob	Lateral knob	2250	1200	EKCA2/MF
	5/3 monostable closed centre	Lateral knob	Mechanical spring	2000	1200	EKCA2/MS
	5/3 stable closed centre	Lateral knob	Lateral knob	2000	1200	EKCA2/MSF
	5/3 monostable open centre	Lateral knob	Mechanical spring	2000	1200	EKCA2/MA
	5/3 stable open centre	Lateral knob	Lateral knob	2000	1200	EKCA2/MAF

5/2 - 5/3 LATERAL KNOB



FUNCTION	A
5/2	194,5
5/3	198

DESCRIPTION

Valves series "CA" are produced in the 2/2, 3/2, 3/3, 5/2 and 5/3 pneumatic functions. The poppet kind of construction and the very rugged control allow the valve to stand high stress.
The push-button and mushroom controls are available only in the 3/2 monostable pneumatic functions for the size G 1/8.

TECHNICAL DATA

Operating pressure	0 ÷ 12 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Nominal diameter	G 1/8 = 6 mm
	G 1/4 = 8 mm G 1/2 =12 mm
Controls	
Mechanical	Plunger; roller lever; short roller lever; unidirectional roller lever
Manual	Tapper; push-button; mushroom; vertical knob; lateral knob; lateral hand-wheel

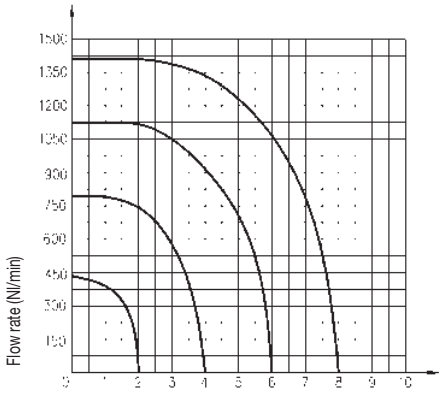
MATERIALS

Control rod	Hardened and nickel - plated steel
Body	Anodized aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Piston	Acetal resin
Guide bushing	Brass
Bottom plug	Nickel - plated brass
Controls	
Lever	Steel
Plunger	Nickel - plated brass
Knobs; handgrips; push-buttons	Plastic material
Roller	Ball bearing (plastic material upon request)

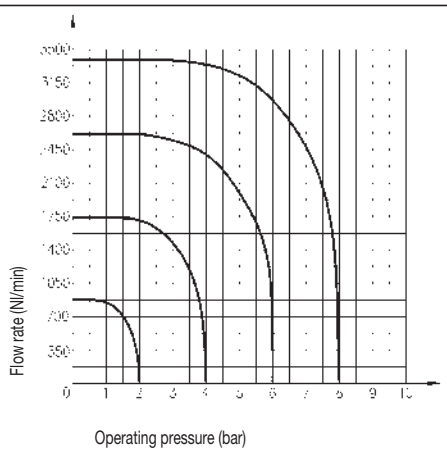
SPARE PARTS

SEALS KIT	
3/2 N.O. G 1/8	A/SG/8
3/2 N.C. G 1/8	C/SG/8
5/2 G 1/8	CA/SG/8
3/2 N.O. G 1/4	A/SG/4
3/2 N.C. G 1/4	C/SG/4
5/2 G 1/4	CA/SG/4
3/2 N.O. G 1/2	A/SG/2
3/2 N.C. G 1/2	C/SG/2
5/2 G 1/2	CA/SG/2

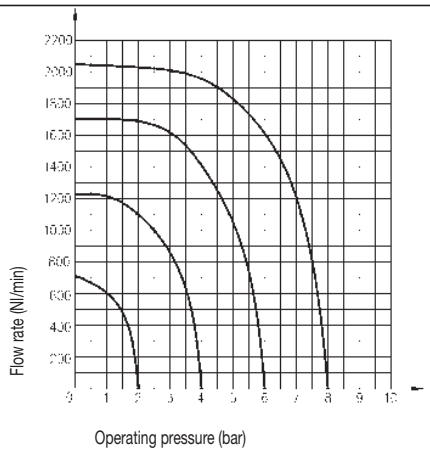
FLOW CHART - CA G 1/8 - 5/2



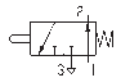
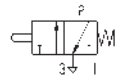
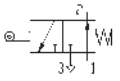
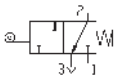
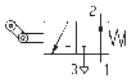
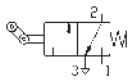
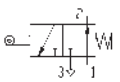
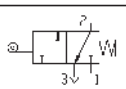
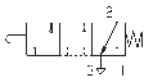
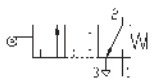
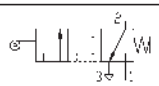
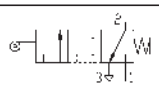
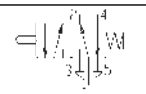
FLOW CHART - CA G 1/2 - 5/2



FLOW CHART - CA G 1/4 - 5/2



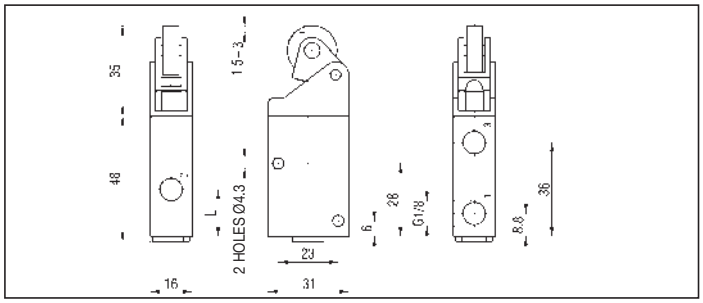
MECHANICALLY ACTUATED VALVES G 1/8 - G 1/4 - G 1/2

Symbol	Function	Controls		Actuation force at 6 bar (N)	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	Port size	TYPE
		Pilot	Return					
	3/2 N.O. monostable	Plunger	Mechanical spring	38	740	70	G 1/8	AS 8
				60	950	150	G 1/4	AS4
				88	2200	300	G 1/2	AS2
	3/2 N.C. monostable	Plunger	Mechanical spring	36	815	70	G 1/8	CS8
				64	950	150	G 1/4	CS4
				85	2250	300	G 1/2	CS2
	3/2 N.O. monostable	Roller lever	Mechanical spring	23	740	95	G 1/8	ALR8
				35	950	215	G 1/4	ALR4
				53	2200	415	G 1/2	ALR2
	3/2 N.C. monostable	Roller lever	Mechanical spring	24	815	95	G 1/8	CLR8
				34	950	215	G 1/4	CLR4
				52	2250	415	G 1/2	CLR2
	3/2 N.O. monostable	Unidirectional roller lever	Mechanical spring	30	740	100	G 1/8	ALRU8
				53	950	200	G 1/4	ALRU4
				64	2200	405	G 1/2	ALRU2
	3/2 N.C. monostable	Unidirectional roller lever	Mechanical spring	26	815	100	G 1/8	CLRU8
				50	950	200	G 1/4	CLRU4
				63	2250	405	G 1/2	CLRU2
	3/2 N.O. monostable	Short roller lever	Mechanical spring	35	740	110	G 1/8	AR8
	3/2 N.C. monostable	Short roller lever	Mechanical spring	33	815	110	G 1/8	CR8
	3/2 N.C. monostable	Plunger	Mechanical spring	48	815	70	G 1/8	FCS8*
				162	950	150	G 1/4	FCS4*
	3/2 N.C. monostable	Roller lever	Mechanical spring	25	815	95	G 1/8	FCLR8*
				70	950	215	G 1/4	FCLR4*
	3/2 N.C. monostable	Unidirectional roller lever	Mechanical spring	27	815	95	G 1/8	FCLRU8*
				80	950	215	G 1/4	FCLRU4*
	3/2 N.C. monostable	Short roller lever	Mechanical spring	69	815	110	G 1/8	FCR8*
	5/2 monostable	Plunger	Mechanical spring	62	650	140	G 1/8	CASS8
				103	1040	305	G 1/4	CASS4
				120	2050	600	G 1/2	CASS2
	5/2 monostable	Roller lever	Mechanical spring	38	650	190	G 1/8	CALR8
				64	1040	405	G 1/4	CALR4
				45	2050	765	G 1/2	CALR2
	5/2 monostable	Unidirectional roller lever	Mechanical spring	43	650	190	G 1/8	CALRU8
				68	1040	405	G 1/4	CALRU4
				94	2050	775	G 1/2	CALRU2

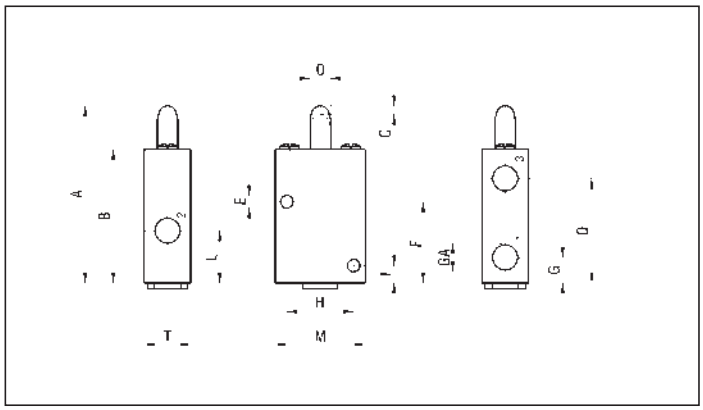
P.S.: ADD THE LETTER “N” AFTER THE LETTER “R” IN THE TYPE TO ORDER THE VALVES WITH PLASTIC ROLLER (AVAILABLE ONLY FOR THE SIZES G 1/8 AND G 1/4). E.G.: CLRN8
PUT THE LETTER “H” BEFORE THE TYPE OF 3/2 VALVES TO ORDER THE 2/2 N.O. AND 2/2 N.C. VALVES. E.G.: HCS8; HAR8

* THE WAYS AREN’T COMMUNICATING IN THE INTERMEDIATE PHASE OF ACTUATION

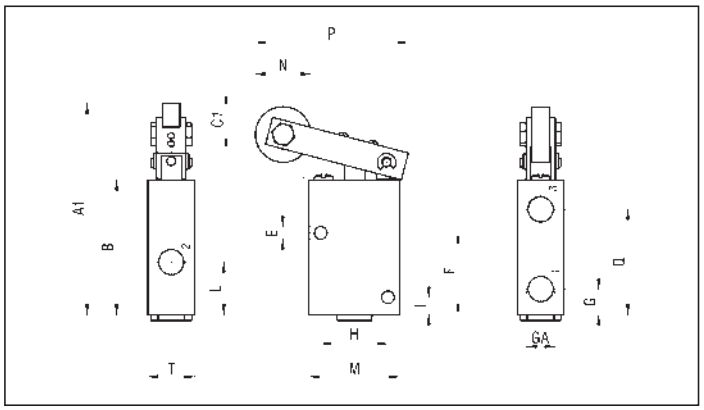
3/2 SHORT ROLLER LEVER



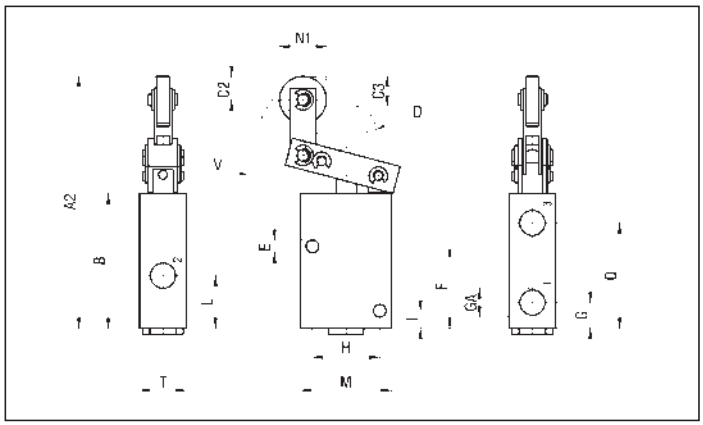
3/2 PLUNGER



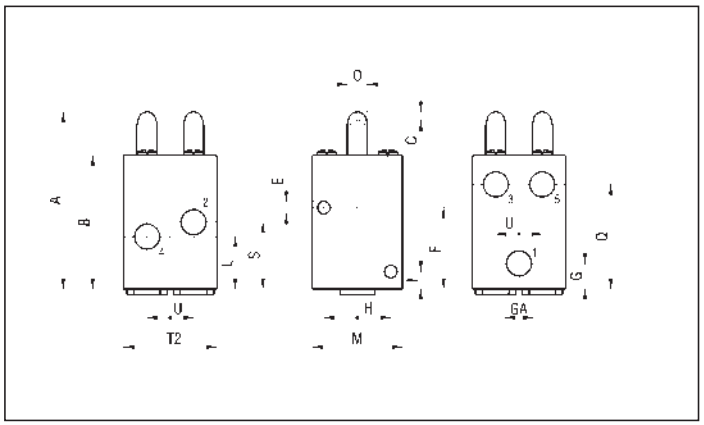
3/2 ROLLER LEVER



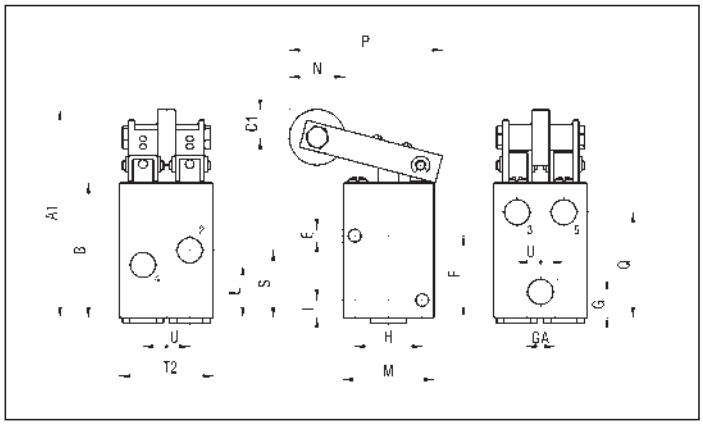
3/2 UNIDIRECTIONAL ROLLER LEVER



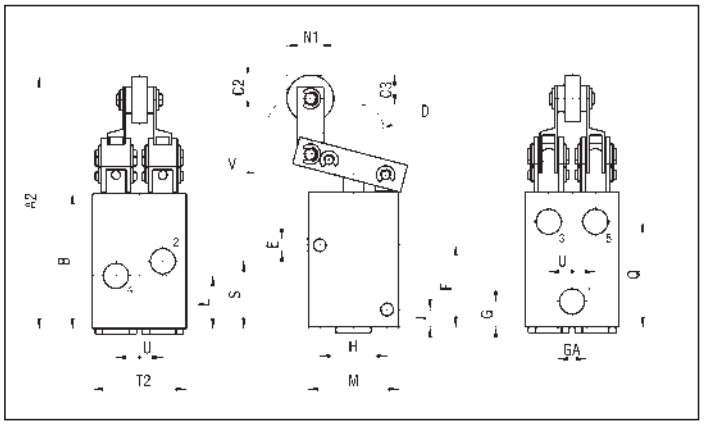
5/2 PLUNGER



5/2 ROLLER LEVER



5/2 UNIDIRECTIONAL ROLLER LEVER

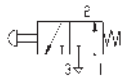
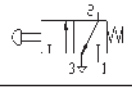
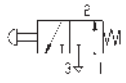
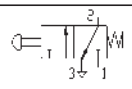
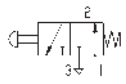
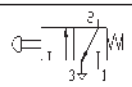
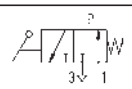
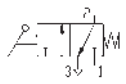
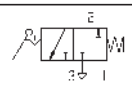
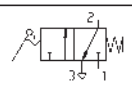
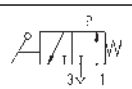
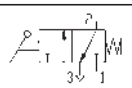
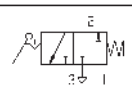
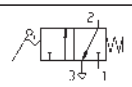
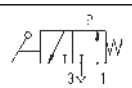
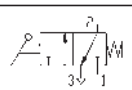
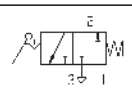
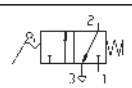


GA	A	A1	A2	B	C		C1		C2		C3	D	E	F
					min	max	min	max	min	max				
G 1/8	59	74	88	46	1,5	3	5,5	10	5	8	10	27	4,3	28
G 1/4	75	95	111	60	2	4	7,5	13,5	5	8	12	35	5,3	35
G 1/2	100	123	142	80	3	5,5	10,5	15,5	7	10	14	42,5	6,4	49

GA	G	H	I	L		M	N	N1	O	P	Q	S	T	T2
				N.O.	N.C.									
G 1/8	8,8	23	6	23	18	31	19	16	6,9	53	36	23	16	32
G 1/4	11,5	30	8	30	25,5	40	26	19	9	69	46	30	20	40
G 1/2	15	38	10	40	30	50	32	24	12	80,5	63,3	40	25	50

GA	U	V
G 1/8	16	46
G 1/4	20	54
G 1/2	25	70

2 AND 3 PORT MANUALLY ACTUATED G 1/8 - G 1/4 - G 1/2

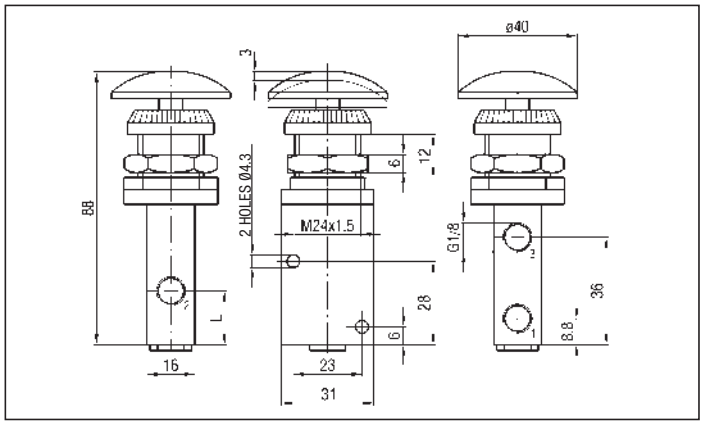
Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
		Pilot	Return				
	3/2 N.O. monostable	Tapper	Mechanical spring	740	90	G 1/8	AT8
				950	195	G 1/4	AT4
				2200	415	G 1/2	AT2
	3/2 N.C. monostable	Tapper	Mechanical spring	815	90	G 1/8	CT8
				950	205	G 1/4	CT4
				2250	425	G 1/2	CT2
	3/2 N.O. monostable	Push-button	Mechanical spring	740	125	G 1/8	AQB8*
	3/2 N.C. monostable	Push-button	Mechanical spring	815	125	G 1/8	CQB8*
	3/2 N.O. monostable	Mushroom	Mechanical spring	740	125	G 1/8	AQF8*
	3/2 N.C. monostable	Mushroom	Mechanical spring	815	125	G 1/8	CQF8*
	3/2 N.O. monostable	Vertical knob	Mechanical spring	740	185	G 1/8	AM8
				950	355	G 1/4	AM4
				2200	655	G 1/2	AM2
	3/2 N.C. monostable	Vertical knob	Mechanical spring	815	185	G 1/8	CM8
				950	355	G 1/4	CM4
				2250	655	G 1/2	CM2
	3/2 N.O. bistable	Vertical knob	Vertical knob	740	180	G 1/8	AM8F
				950	345	G 1/4	AM4F
				2200	645	G 1/2	AM2F
	3/2 N.C. bistable	Vertical knob	Vertical knob	815	180	G 1/8	CM8F
				950	345	G 1/4	CM4F
				2250	645	G 1/2	CM2F
	3/2 N.O. monostable	Lateral knob	Mechanical spring	740	240	G 1/8	AML8
				950	400	G 1/4	AML4
	3/2 N.C. monostable	Lateral knob	Mechanical spring	815	240	G 1/8	CML8
				950	400	G 1/4	CML4
	3/2 N.O. bistable	Lateral knob	Lateral knob	740	245	G 1/8	AML8F
				950	390	G 1/4	AML4F
	3/2 N.C. bistable	Lateral knob	Lateral knob	815	245	G 1/8	CML8F
				950	390	G 1/4	CML4F
	3/2 N.O. monostable	Lateral hand-wheel	Mechanical spring	740	270	G 1/8	AVL8
				950	415	G 1/4	AVL4
	3/2 N.C. monostable	Lateral hand-wheel	Mechanical spring	815	270	G 1/8	CVL8
				950	415	G 1/4	CVL4
	3/2 N.O. bistable	Lateral hand-wheel	Lateral hand-wheel	740	265	G 1/8	AVL8F
				950	405	G 1/4	AVL4F
	3/2 N.C. bistable	Lateral hand-wheel	Lateral hand-wheel	815	265	G 1/8	CVL8F
				950	405	G 1/4	CVL4F

* PUSH-BUTTON COLOUR: N = BLACK; R = RED; V = GREEN

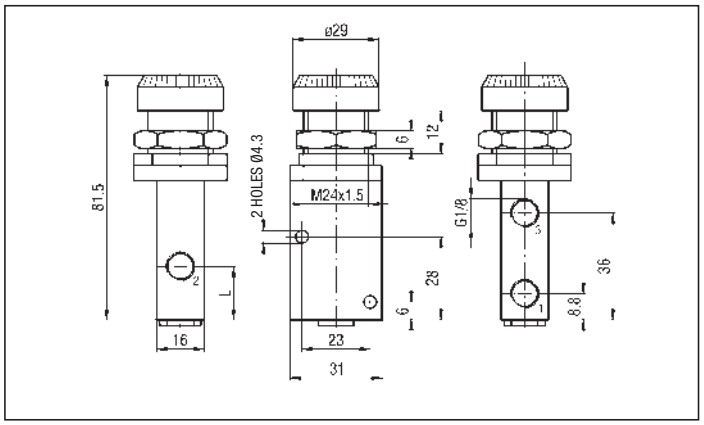
P.S.: THE VERSION WITH BLACK VERTICAL KNOB IS AVAILABLE ONLY IN THE SIZES G 1/8 AND G 1/4; TO ORDER THIS VERSION ADD THE SUFFIX "/E" TO THE TYPE. E.G.: CM8/E; AM8/E

PUT THE LETTER "H" BEFORE THE TYPE OF 3/2 VALVES TO ORDER THE 2/2 N.O. AND 2/2 N.C. VALVES. E.G.: HCM4; HAT2

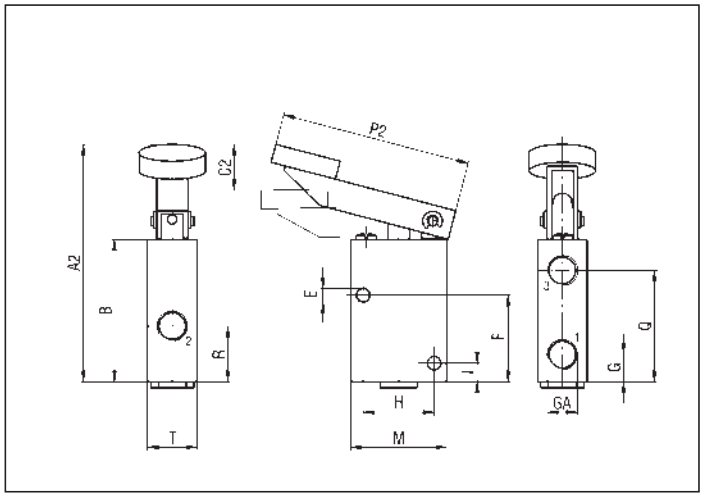
3/2 MUSHROOM



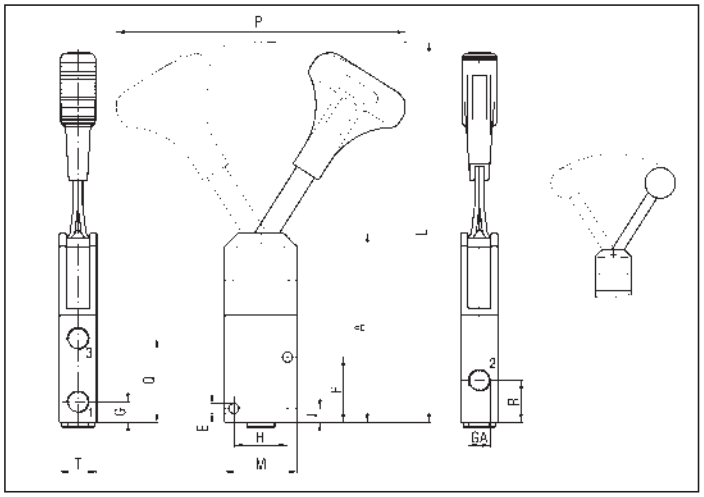
3/2 PUSH-BUTTON



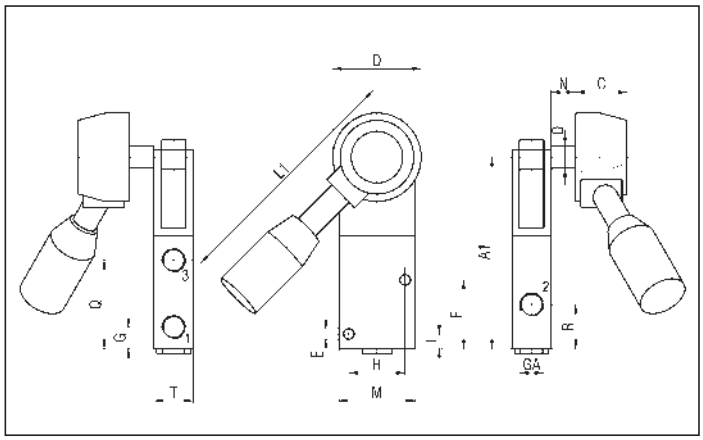
3/2 TAPPER



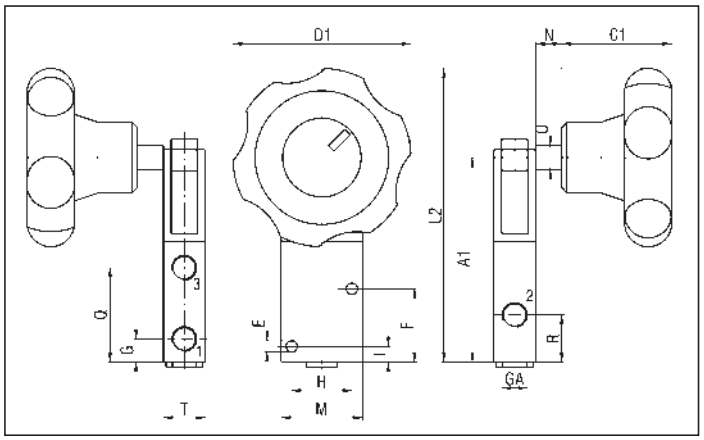
3/2 VERTICAL KNOB



3/2 LATERAL KNOB



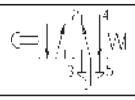
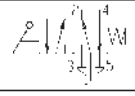
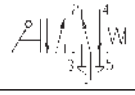
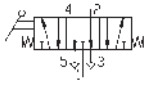
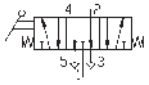
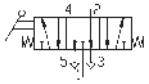
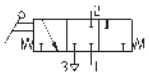
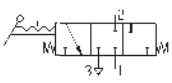
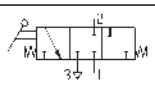
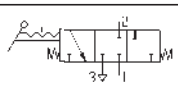
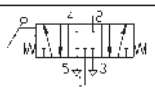
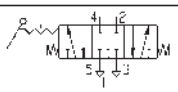
3/2 LATERAL HAND-WHEEL



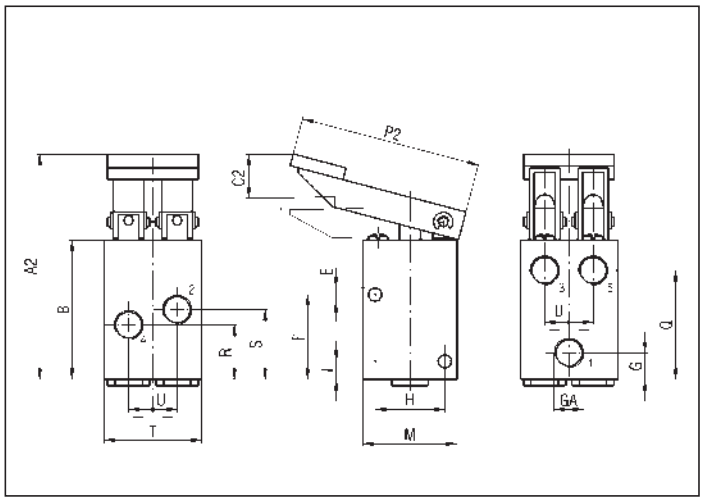
GA	A	A1	A2	B	C	C1	C2		D	D1	E	F	G	H
							min	max						
G 1/8	80	77	78	46	20	42	8	15,5	36	70	4,3	28	8,8	23
G 1/4	100	95	98	60	20	42	11	22,5	36	70	5,3	35	11,5	30
G 1/2	130	124	100	80	-	-	28	35	-	-	6,4	49	15	38

GA	I	L	L1	L2	M	N	O	P	P2	Q	R		T
											N.O.	N.C.	
G 1/8	6	162	100	112	31	10	9	124	60	36	23	18	16
G 1/4	8	188	100	130	40	10	9	152	83	46	30	25,5	20
G 1/2	10	238	-	-	50	-	-	180	145	63,3	40	30	25

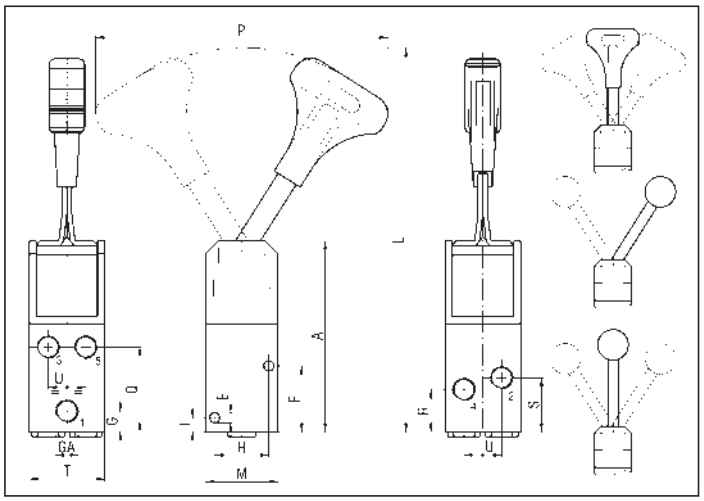
3 PORT, 3 POSITIONS AND 5 PORT MANUALLY ACTUATED VALVES G 1/8 - G 1/4 - G 1/2

Symbol	Function	Controls		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
		Pilot	Return				
	5/2 monostable	Tapper	Mechanical spring	650	180	G 1/8	CAT8
				1040	405	G 1/4	CAT4
				2050	790	G 1/2	CAT2
	5/2 monostable	Vertical knob	Mechanical spring	650	315	G 1/8	CAM8
				1040	600	G 1/4	CAM4
				2050	1160	G 1/2	CAM2
	5/2 bistable	Vertical knob	Vertical knob	650	290	G 1/8	CAM8F
				1040	570	G 1/4	CAM4F
				2050	1065	G 1/2	CAM2F
	5/2 monostable	Lateral knob	Mechanical spring	650	375	G 1/8	CAML8
				1040	650	G 1/4	CAML4
	5/2 bistable	Lateral knob	Lateral knob	650	365	G 1/8	CAML8F
				1040	635	G 1/4	CAML4F
	5/2 monostable	Hand-wheel	Mechanical spring	650	395	G 1/8	CAVL8
				1040	665	G 1/4	CAVL4
	5/2 bistable	Lateral hand-wheel	Lateral hand-wheel	650	380	G 1/8	CAVL8F
				1040	650	G 1/4	CAVL4F
	5/3 monostable open centre	Vertical knob	Mechanical spring	815	315	G 1/8	CCM8
				950	605	G 1/4	CCM4
				2250	1165	G 1/2	CCM2
	5/3 stable open centre	Vertical knob	Vertical knob	815	290	G 1/8	CCM8F
				950	575	G 1/4	CCM4F
				2250	1095	G 1/2	CCM2F
	5/3 monostable open centre	Lateral knob	Mechanical spring	815	385	G 1/8	CCML8
				950	675	G 1/4	CCML4
	5/3 stable open centre	Lateral knob	Lateral knob	815	370	G 1/8	CCML8F
				950	650	G 1/4	CCML4F
	5/3 monostable open centre	Lateral hand-wheel	Mechanical spring	815	405	G 1/8	CCVL8
				950	690	G 1/4	CCVL4
	5/3 stable open centre	Lateral hand-wheel	Lateral hand-wheel	815	385	G 1/8	CCVL8F
				950	660	G 1/4	CCVL4F
	3/3 monostable closed centre	Vertical knob	Mechanical spring	815	310	G 1/8	HCCM8
				950	600	G 1/4	HCCM4
	3/3 stable closed centre	Lateral knob	Mechanical spring	815	310	G 1/8	HCCM8F
				950	600	G 1/4	HCCM4F
	3/3 monostable closed centre	Lateral knob	Mechanical spring	815	310	G 1/8	HCCML8
				950	600	G 1/4	HCCML4
	3/3 stable closed centre	Vertical knob	Mechanical spring	815	310	G 1/8	HCCML8F
				950	600	G 1/4	HCCML4F
	5/3 monostable closed centre	Vertical knob	Mechanical spring	815	740	G 1/8	XH4CM8
				950	1605	G 1/4	XH4CM4
				2250	3185	G 1/2	XH4CM2
	5/3 stable closed centre	Vertical knob	Vertical knob	815	680	G 1/8	XH4CM8F
				1400	1555	G 1/4	XH4CM4F
				2250	3080	G 1/2	XH4CM2F

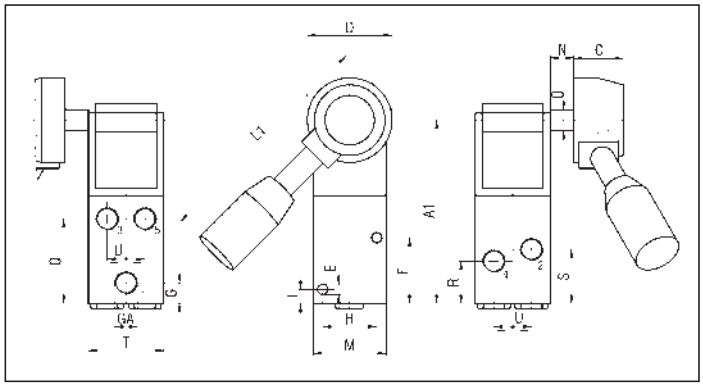
5/2 TAPPER



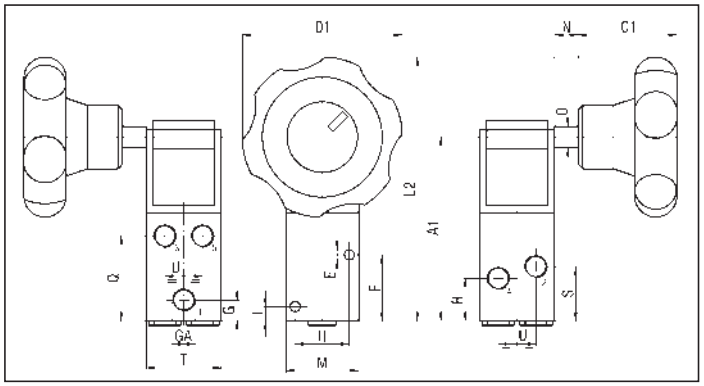
5/2 - 5/3 C.A. - 3/3 VERTICAL KNOB



5/2 - 5/3 C.A. - 3/3 C.C. LATERAL KNOB



5/2 LATERAL HAND-WHEEL



GA	A	A1	A2	B	C	C1	C2		D	D1	E	F	G	H
							min	max						
G 1/8	80	77	75,5	46	20	42	8	15,5	36	70	4,3	28	8,8	23
G 1/4	100	95	95	60	20	42	11	22,5	36	70	5,3	35	11,5	30
G 1/2	130	124	83	80	-	-	28	35	-	-	6,4	49	15	38

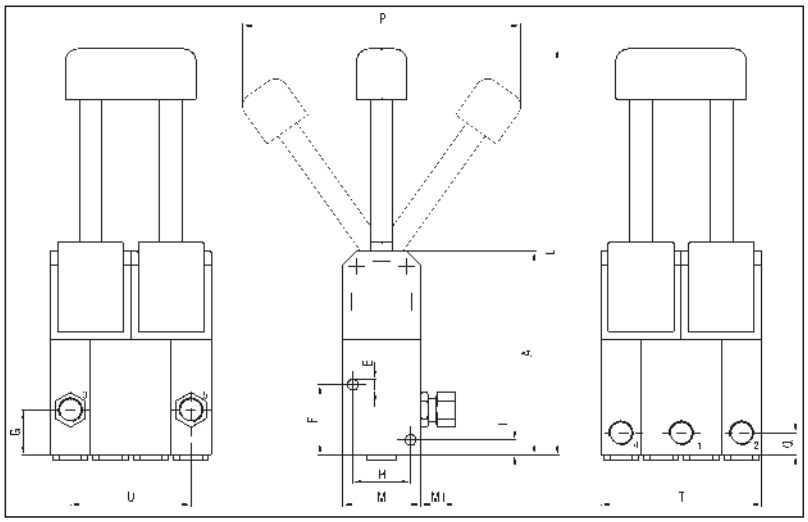
GA	I	L	L1	L2	M	N	O	P	P2	Q	R		S	T
											N.O.	N.C.		
G 1/8	6	162	100	112	31	10	9	124	60	36	23	18	23	32
G 1/4	8	188	100	130	40	10	9	152	83	46	30	25,5	30	40
G 1/2	10	238	-	-	50	-	-	180	145	63,3	40	30	40	50

GA	U
G 1/8	16
G 1/4	20
G 1/2	25

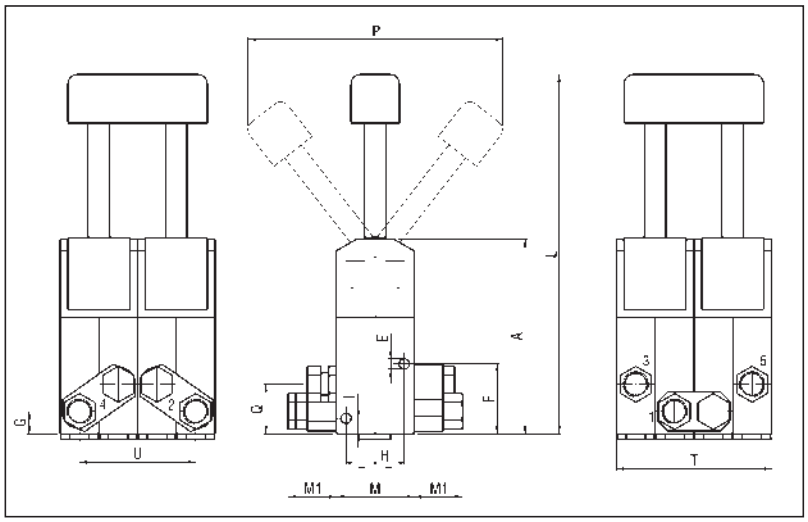
P.S.: THE VERSION WITH BLACK VERTICAL KNOB IS AVAILABLE ONLY IN THE SIZES G 1/8 AND G 1/4; TO ORDER THIS VERSION ADD THE SUFFIX “/E” TO THE TYPE. E.G.: CAM8/E; CCM8/E

3

5/3 C.C. VERTICAL KNOB G 1/8



5/3 C.C. VERTICAL KNOB G 1/4 - G 1/2



GA	A	E	F	G	H	I	L	M	M1	P		Q	T	U
										with catch	without catch			
G 1/8	81	4,3	28	8,8	23	6	157,5	31	15	111	70	18	64	48
G 1/4	100	5,3	35	11,5	30	8	185	40	24	132	84	25,5	80	60
G 1/2	130	6,4	49	15	38	10	235	50	29	162	60	30	100	75

DESCRIPTION

Pedal actuated valves series "PC" are produced in the 3/2 and 5/2 pneumatic functions, with or without protection, and they are based on direct acting poppet valves and direct acting or pilot assisted spool valves in the sizes G 1/8 and G 1/4.
The catch on the pedal allows obtaining the bistable pneumatic functions, while the safety device avoids the accidental actuation of the same pedal.

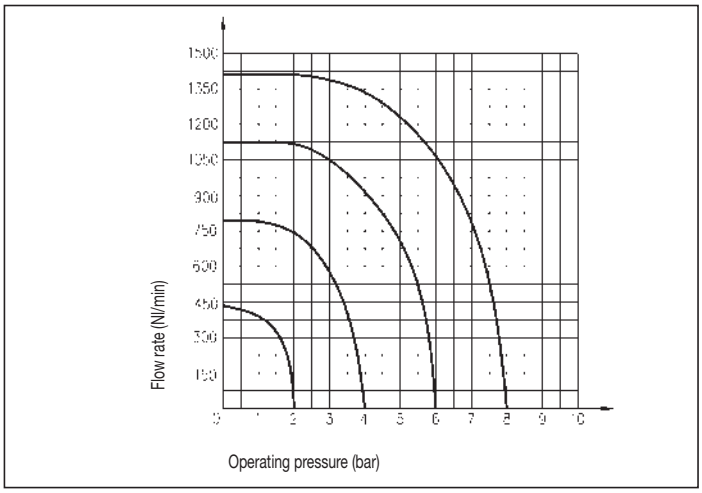
TECHNICAL DATA

Operating pressure	0 ÷ 10 bar (with direct acting valves) 2,5 ÷ 10 bar (with pilot assisted valves)
Working temperature	0 ÷ +50 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4
Nominal diameter	G 1/8 = 6 mm G 1/4 = 8,5 mm

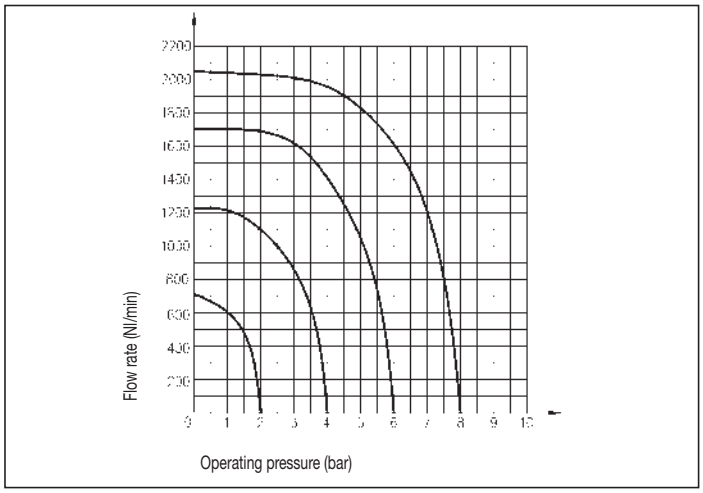
MATERIALS

Control rod	Hardened and nickel - plated steel – nickel - plated brass
Body	Anodized aluminium alloy
Spool	Aluminium alloy
Springs	Stainless steel
Seals	NBR rubber
Protection cover	Die - cast aluminium - Plastic material
Safety device	Plastic material
Catch	Plastic material
Control lever	Press-forged aluminium - Plastic material

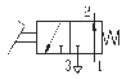
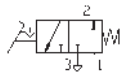
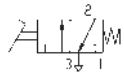
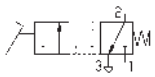
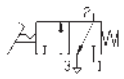
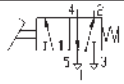
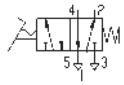
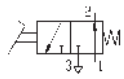
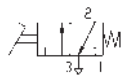
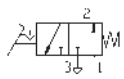
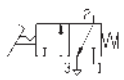
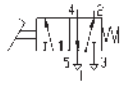
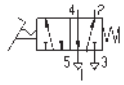
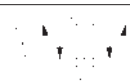
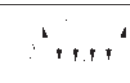
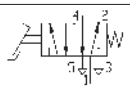
FLOW CHART - PC G 1/8 - 5/2



FLOW CHART - PC G 1/4 - 5/2

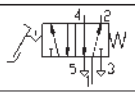
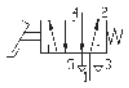
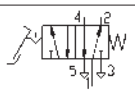


PEDAL ACTUATED VALVES G 1/8 - G 1/4

Symbol	Function	Protection	Actuation	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
	3/2 N.O. monostable	–	Direct acting	740	565	G 1/8	AP8
				950	700	G 1/4	AP4
	3/2 N.O. bistable	–	Direct acting	740	1020	G 1/8	AP8F
	3/2 N.C. monostable	–	Direct acting	815	570	G 1/8	CP8
				950	700	G 1/4	CP4
	3/2 N.C. monostable	–	Direct acting	815	570	G 1/8	FCP8*
	3/2 N.C. bistable	–	Direct acting	815	1015	G 1/8	CP8F
	5/2 monostable	–	Direct acting	650	915	G 1/8	CAP8
	5/2 bistable	–	Direct acting	650	1025	G 1/8	CAP8F
	3/2 N.O. monostable	–	Direct acting	900	970	G 1/4	PNP4
	3/2 N.C. monostable						
	3/2 N.O. bistable	–	Direct acting	900	970	G 1/4	PNP4/F
	3/2 N.C. bistable						
	5/2 monostable	–	Direct acting	900	1020	G 1/4	PNPCA4
	5/2 bistable	–	Direct acting	900	1020	G 1/4	PNPCA4/F
	5/3 monostable closed centre	–	Direct acting	780	1020	G 1/4	PNPCA4/S
	5/3 stable closed centre	–	Direct acting	780	1020	G 1/4	PNPCA4/SF
	5/3 monostable open centre	–	Direct acting	780	1020	G 1/4	PNPCA4/A
	5/3 stable open centre	–	Direct acting	780	1020	G 1/4	PNPCA4/AF
	5/2 with safety device monostable	Plastic	Pilot assisted	900	1350	G 1/4	PCA4

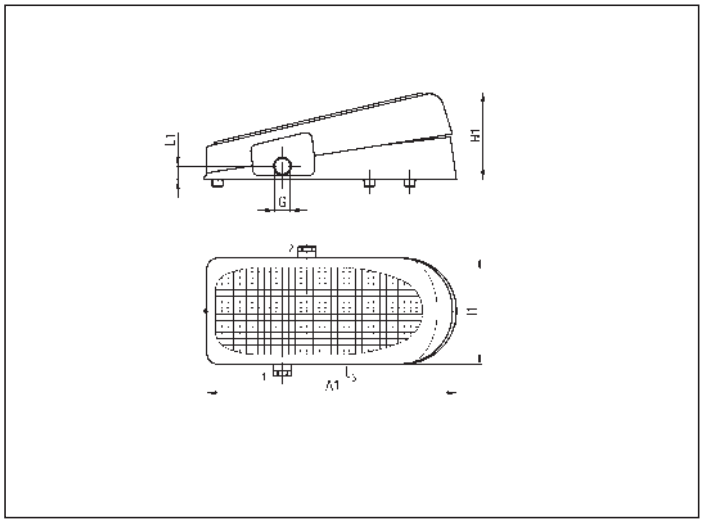
* THE WAYS AREN'T COMMUNICATING IN THE INTERMEDIATE PHASE OF ACTUATION

PEDAL ACTUATED VALVES G 1/8 - G 1/4

Symbol	Function	Protection	Actuation	Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight *(g)*	Port size	TYPE
	5/2 with safety device bistable	Plastic	Pilot assisted	900	1350	G 1/4	PCA4/F
	5/2 with safety device monostable	Metallic	Pilot assisted	900	1750	G 1/4	PCA4M
	5/2 with safety device bistable	Metallic	Pilot assisted	900	1750	G 1/4	PCA4M/F

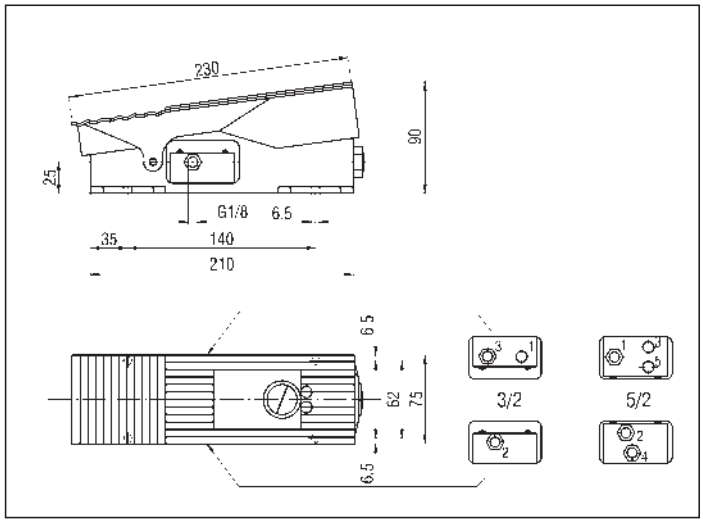
3

AP8 - AP4 - CP8 - CP4 - FCP8

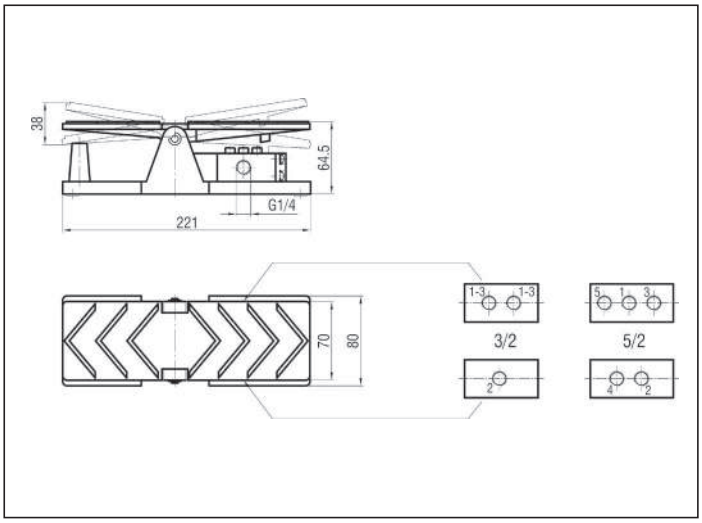


G	A1	H1	I1	L1
G 1/8	193	70	83	11
G 1/4	193	70	83	13

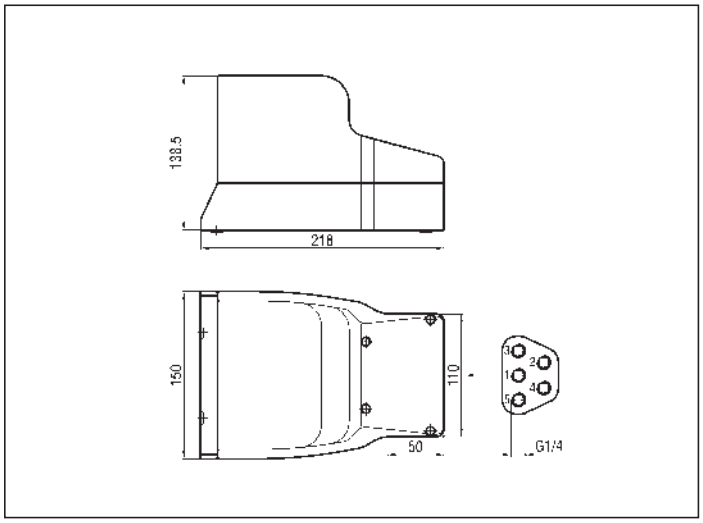
AP8F - CP8F - CAP8F



3/2 - 5/2 - 5/3 BALANCING WITHOUT PROTECTION - PNP

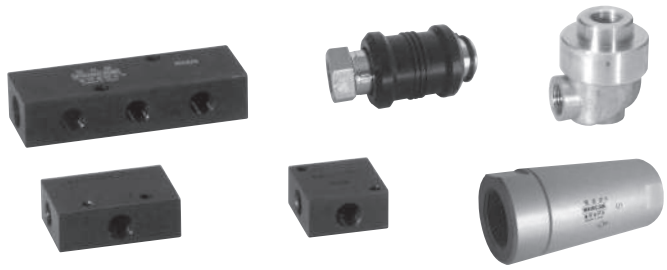


5 PORT PLASTIC AND METALLIC PROTECTION - PCA



DESCRIPTION

Complementary valves are very important components of the pneumatic circuits. This group includes the:
SHUTTLE VALVES: these valves are used when there is the necessity to convey, in one pipeline, two pneumatic flows coming from two different pipelines without any interference; in fact the compressed air flows from one of the two inlet ports to the working port while the second inlet port is excluded.
QUICK EXHAUST VALVES: air flows from the inlet port to the working port while the exhaust port is closed. By shutting off the inlet port, the compressed air from the working port is exhausted through the exhaust port.
CHECK VALVES: these valves are used to prevent loss of pressure in a pipeline when the inlet is connected to the exhaust; the compressed air can flow freely from the inlet to the working port while the opposite direction is blocked.



3

SHUTTLE VALVES SERIES DS

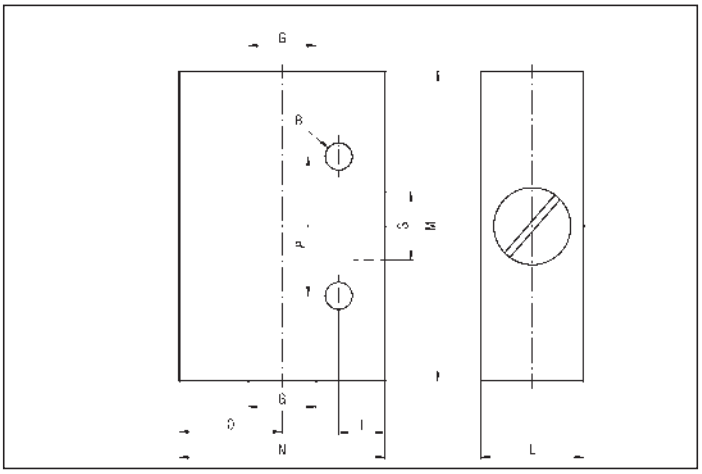
TECHNICAL DATA

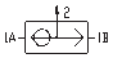
Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Aluminium alloy
Seals	NBR rubber

DIMENSIONS AND WEIGHTS DS



Symbol	B	I	L	M	N	O	P	Flow rate at 6 bar ΔP=1 bar (Nl/min)	Pmin *(bar)*	Weight *(g)*	G	TYPE
	4,2	6	16	46	31	13	22	700	0,2	60	G 1/8	DS8
	5,2	8	20	60	40	17,5	27	1700	0,4	125	G 1/4	DS4
	6,4	10	25	80	50	22	38	3400	0,3	235	G 3/8	DS3
	6,4	12	30	100	60	26	48	5000	0,6	435	G 1/2	DS2

QUICK EXHAUST VALVES SERIES D3/

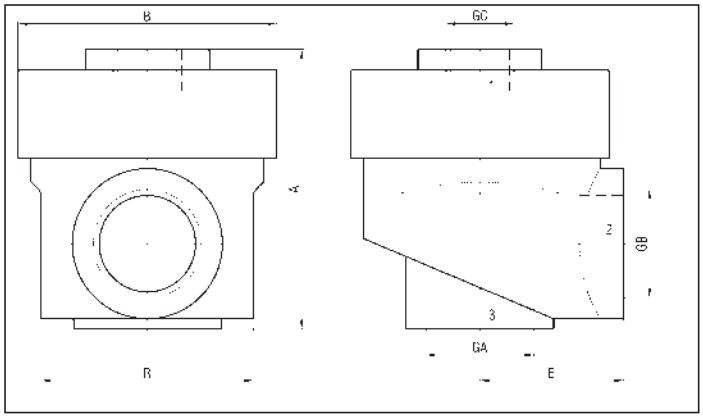
TECHNICAL DATA

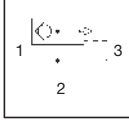
Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/4 - G 1/2 - G 3/4

MATERIALS

Body	Aluminium alloy
Seals	NBR rubber
Bottom	Aluminium alloy

DIMENSIONS AND WEIGHTS D3/



Symbol	A	B	E	R	Flow rate from 1 to 2 at 6 bar ΔP=1 bar (Nl/min)	Flow rate from 2 to 3 at 6 bar free exhaust (Nl/min)	Pmin *(bar)*	Weight *(g)*	GA	GB	GC	TYPE
	38	35	19,5	27	520	2300	0,2	70	G 1/4	G 1/4	G 1/8	D3/4
	43	35	19,5	27	610	2300	0,2	75	G 1/4	G 1/4	G 1/4	D3/4B
	54	50	27,5	41	1520	4300	0,2	135	G 1/2	G 1/2	G 1/4	D3/2
	58	50	27,5	41	2220	4300	0,2	140	G 1/2	G 1/2	G 1/2	D3/2B
	82	82	44	70	4400	6000	0,2	510	G 3/4	G 3/4	G 1/2	D3/15

Complementary valves: check and slide valves, distribution frames

CHECK VALVES SERIES U

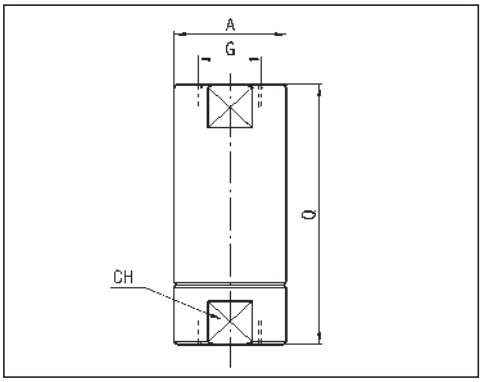
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid: Filtered, unlubricated or continuous lubricated compressed air	
Port size	G 1/8 - G 1/4 - G 1/2 - G 1

MATERIALS

Body	Anodized aluminium
Piston	Brass
Seals	NBR rubber
Spring	Stainless steel

DIMENSIONS AND WEIGHTS U



Symbol	CH	A	Q	Flow rate at 6 bar ΔP=1 bar (Nl/min)	Pmin *(bar)*	Weight *(g)*	G	TYPE
	13	15	34	70	0,2	25	G 1/8	U8
	19	21	48	700	0,7	75	G 1/4	U4
	19	21	48	725	0,2	75	G 1/4	U4/SM
	27	30	66	2750	0,2	170	G 1/2	U2
	50	50	110	5100	0,2	1000	G 1	U1
	19	21	48	800	0,2	75	G 1/4	U4/SM2

SLIDE VALVES SERIES VC

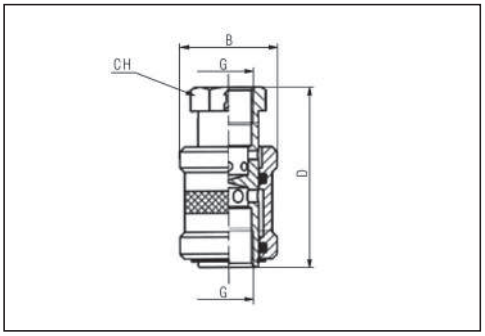
TECHNICAL DATA

Operating pressure	1 ÷ 10 bar
Working temperature	1 ÷ +60°C
Fluid: Filtered, unlubricated or continuous lubricated compressed air	
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Nickel-plated brass
Slide	Anodized aluminium
Seals	NBR rubber

DIMENSIONS AND WEIGHTS VC



CH	B	Flow rate at 6 bar ΔP=1 bar (Nl/min)	D	Weight *(g)*	G	TYPE
14	25	700	48	54	G 1/8	VC-01
17	30	1500	58	102	G 1/4	VC-02
22	35	2200	68	153	G 3/8	VC-03
27	40	3400	80	204	G 1/2	VC-04

DISTRIBUTION FRAMES SERIES RX

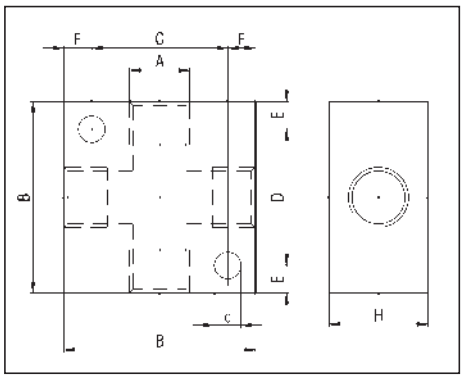
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80°C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

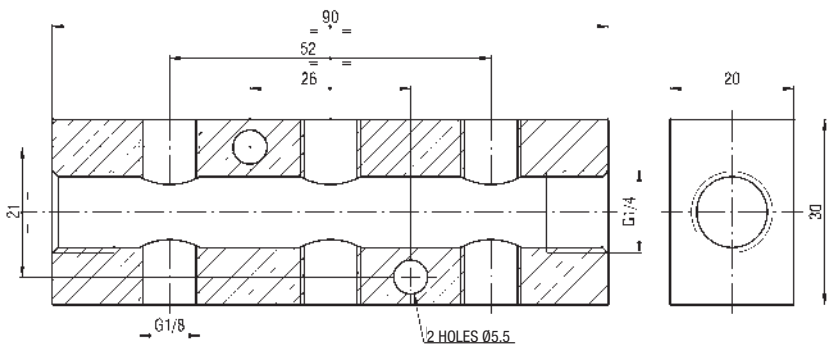
Body	Anodized aluminium alloy

DIMENSIONS AND WEIGHTS RX



B	C	D	E	F	G	H	A	Weight *(g)*	TYPE
31	23	22	4,5	4	4,3	16	G 1/8	35	RX8
40	30	27	6,5	5	5,3	20	G 1/4	70	RX4
50	38	39	5,5	6	6,3	25	G 3/8	130	RX3
50	38	39	5,5	6	6,3	25	G 1/2	115	RX2

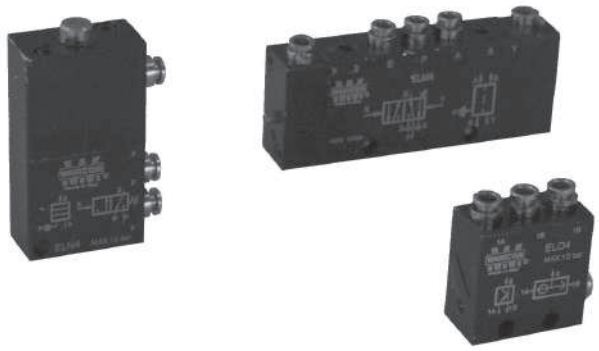
DIMENSIONS AND WEIGHT RX8/6



WEIGHT 110 g

DESCRIPTION

Pneumatic logic elements series "EL" are produced in the following No.5 basic functions: OR, AND, YES, NOT and MEMORY, with push-in fittings for pipe Ø 4 mm, and the pressure indicator is on body valve as standard. These elements can be mounted both separately (line mounted thanks to the No.2 holes on body valve) than on manifold bracket. The pneumatic logic element NOT is a threshold component and the pressure triggering value is 0,6 bar (at 6 bar).



TECHNICAL DATA

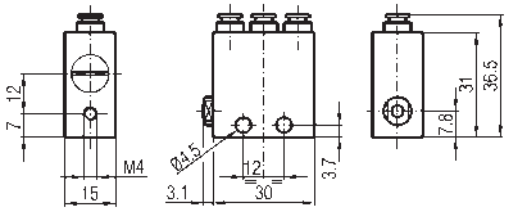
Operating pressure	1,5 ÷10 bar (OR, AND, YES, NOT0, MEMORY)
Working temperature	0 ÷ +60 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	Push-in fittings for pipe Ø 4 mm
Rated flow rate	90 Nl/min

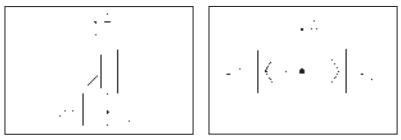
3

MATERIALS

Body	Anodized aluminium alloy
Bushing and guide	Nickel - plated brass
Springs	Stainless steel
Seals	NBR rubber
Spool	Anodized aluminium alloy
Connections	Nickel - plated brass, plastic material

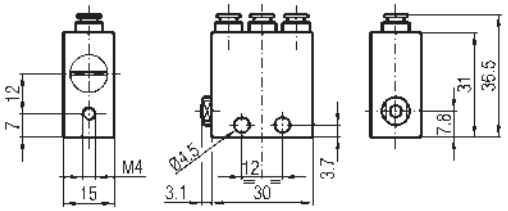
LOGIC ELEMENT - ELO4 (OR - logical sum)

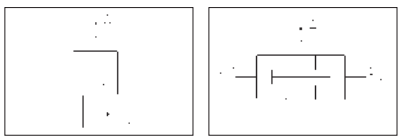




WEIGHT 40 g

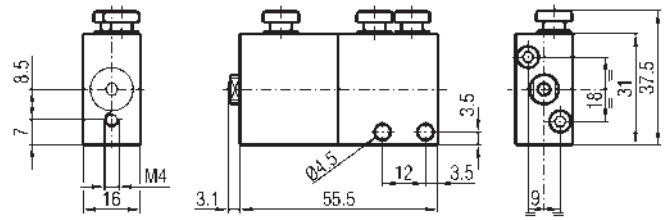
LOGIC ELEMENT - ELA4 (AND - logical multiplication)

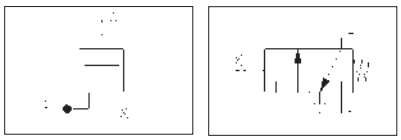




WEIGHT 40 g

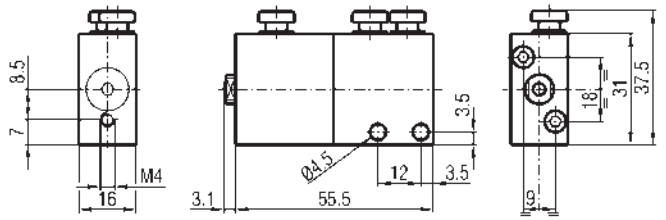
LOGIC ELEMENT - ELY4 (YES - affirmation)

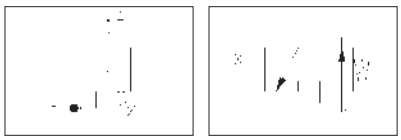




WEIGHT 82 g

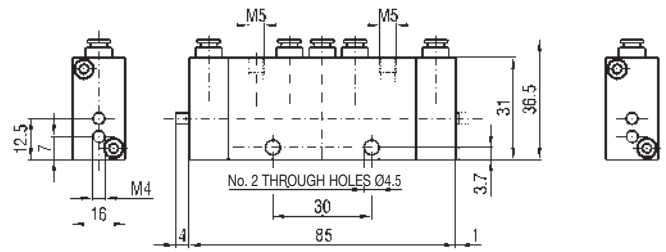
LOGIC ELEMENT - ELN4 (NOT - negation)

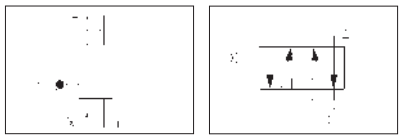




WEIGHT 82 g

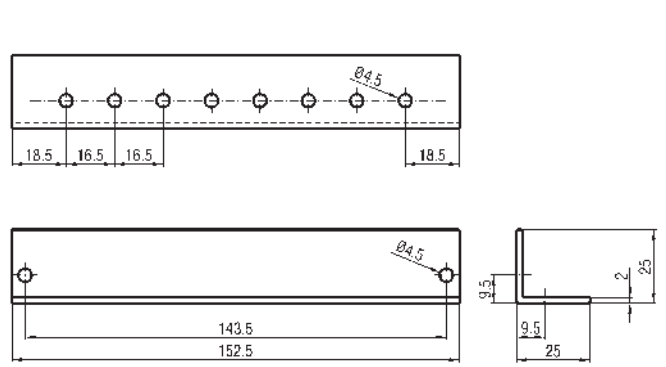
LOGIC ELEMENT - ELM4 (memory)





WEIGHT 110 g

BRACKET - ELSQ



WEIGHT 30 g

3

DESCRIPTION

Flow regulators series "UR" are produced in three different versions, unidirectional (type "URG") - bi-directional (type "URF"), to have a precision in-line regulation; unidirectional (type “URE”), when it’s necessary a standard in-line regulation with reduced dimensions, and in the silenced exhaust version (type “URS”). In-line precision flow regulators type “URG”-”URF” are available in different adjustment scale in the size G 1/8 (see the flow charts).

IN-LINE PRECISION FLOW REGULATORS TYPE URG - URF

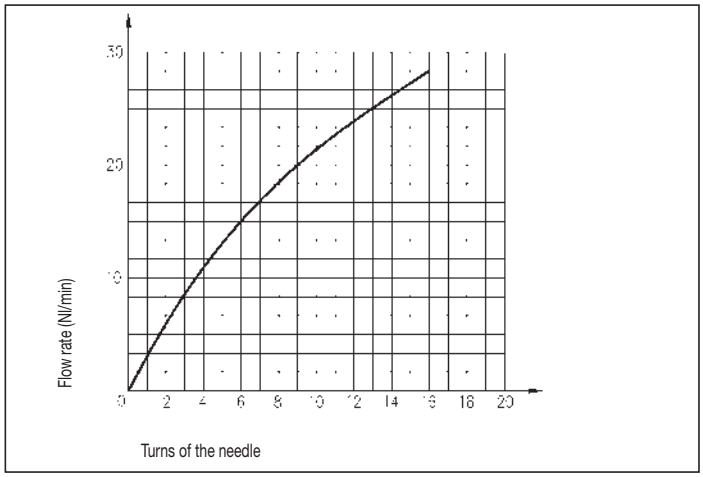
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80° C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2

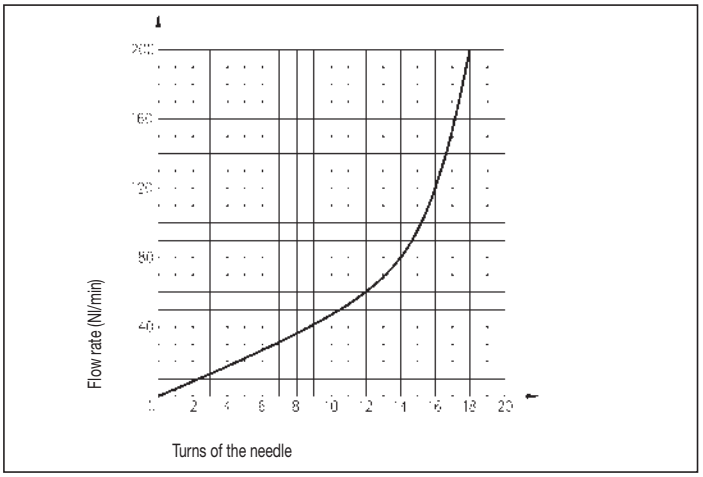
MATERIALS

Body	Anodized aluminium alloy
Seals	NBR rubber
Regulation needle	Aluminium (stainless steel for “URG” - “URF 8/1”)
Needle guide	Brass
Nuts	Brass

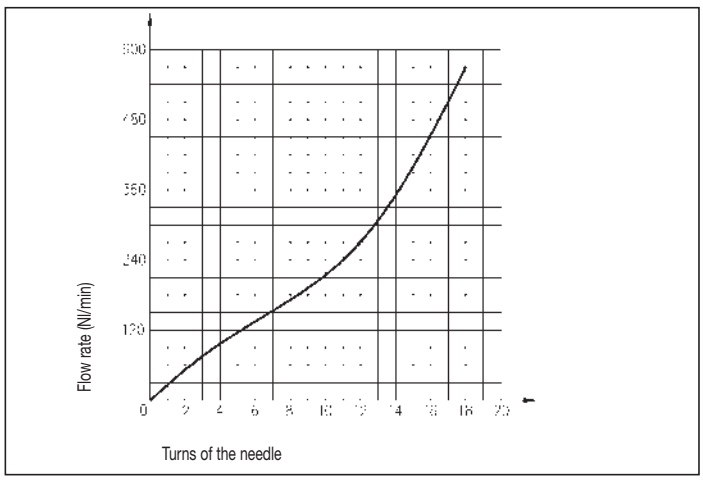
FLOW CHART AT 6 BAR - UR 8/1



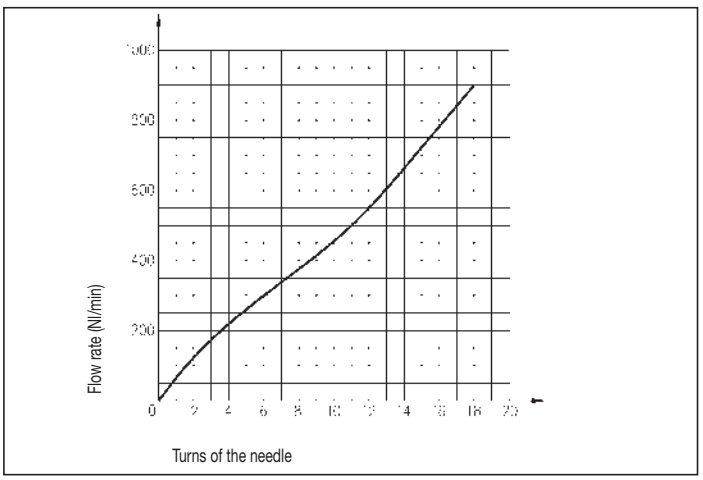
FLOW CHART AT 6 BAR - UR 8/2



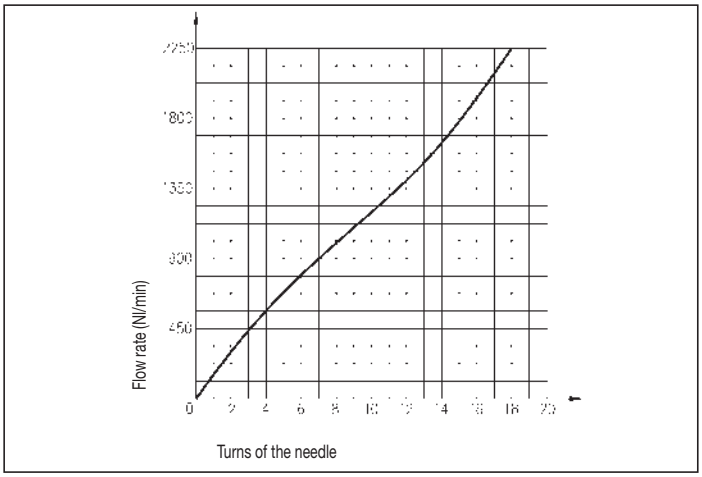
FLOW CHART AT 6 BAR - UR 8/5



FLOW CHART AT 6 BAR - UR 4/10

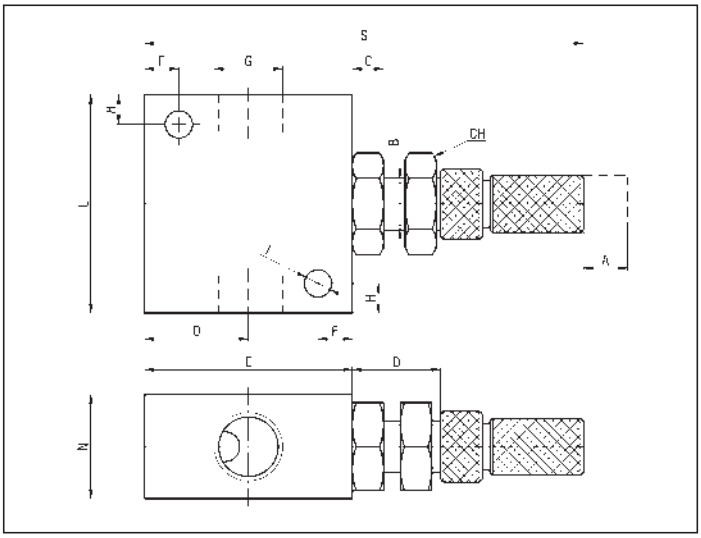


FLOW CHART AT 6 BAR - UR 2/25



Symbol	Nominal diameter *(mm)*	Port size	TYPE
	0,9	G 1/8	URG8/1
	2	G 1/8	URG8/2
	5	G 1/8	URG8/5
	7,2	G 1/4	URG4/10
	12	G 1/2	URG2/25
	0,9	G 1/8	URF8/1
	2	G 1/8	URF8/2
	5	G 1/8	URF8/5
	7,2	G 1/4	URF4/10
	12	G 1/2	URF2/25

DIMENSIONS AND WEIGHTS URG - URF



A	B	C	CH	D	E	F	H
6	M12x0,75	4	14	12,5	31	4,5	5,5
8,5	M15x0,75	5,5	17	17	40	6,5	6
13	M25x1,5	7	30	22	65	8,5	12,5
I	**L**	**N**	**O**	**S**	**Weight *(g)***	**G**	
4,3	34	16	15,5	65	60	G 1/8	
5,25	42	20	20	84,5	120	G 1/4	
6,25	69	35	32,5	127	540	G 1/2	

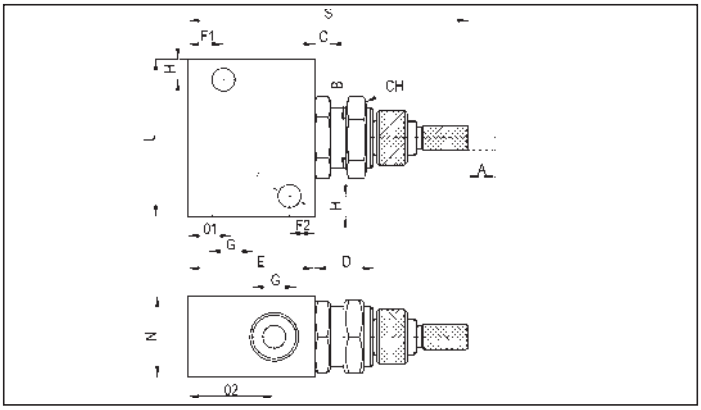
IN LINE STANDARD FLOW REGULATORS TYPE URE

Symbol	A	B	C	CH	D	E	F1	F2	H
	10	M12x0.75	3	14	11	25	7	5	4
	6,8	M12x0.75	3.5	15	11	35	*	5	5

I	L	N	O1	O2	S	Weight *(g)*	G	TYPE
4,5	31	16	8,5	17	55	55	G 1/8	URE8
4,3	40	26	14,5	13,5	58,7	101	G 1/2	URE2

* THE No. 2 FIXING HOLES FOR THESE SIZES ARE ALIGNED (SEE DIMENSION “F2”)

DIMENSIONS AND WEIGHTS URE



SILENCED EXHAUST FLOW REGULATORS TYPE URS

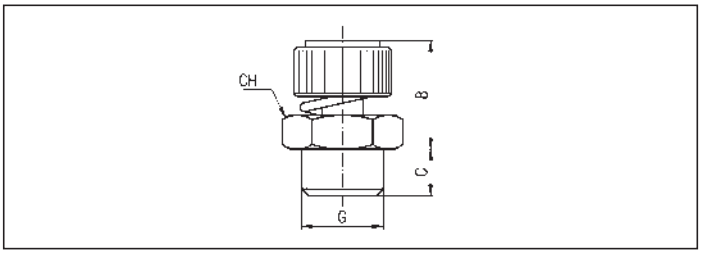
TECHNICAL DATA

Maximum pressure	12 bar
Working temperature	0 ÷ +80 °C (-20 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 3/8 - G 1/2

MATERIALS

Body	Brass
Silencer	Sintered bronze

DIMENSIONS AND WEIGHTS - URS



Symbol	B	C	CH	Weight *(g)*	G	TYPE
	15,5	6	12	15	G 1/8	URS8/3
	17,5	8	16	25	G 1/4	URS4/5
	20	9	20	40	G 3/8	URS3/7
	22,5	10,5	26	70	G 1/2	URS2/9

DESCRIPTION

Block valves series “WB” are produced in the 2/2 - G 1/8, G 1/4 and G 1/2 monostable pneumatic functions in both the uni- and bi-directional versions. The working of the block valve consists in avoiding unexpected depressurisation of the cylinder’s chamber due to lack of compressed air at the piloting port. For a correct functioning of the block valves we suggest to mount them directly on the cylinder.

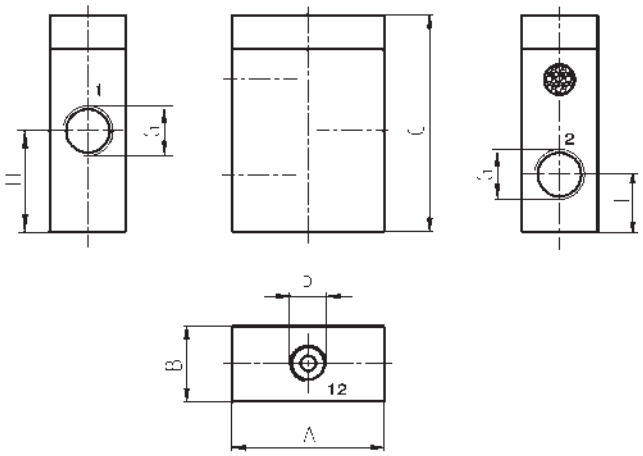
TECHNICAL DATA

Operating pressure	0 ÷ 10 bar
Minimum piloting pressure (at 10 bar)	G 1/8 = 2,5 bar G 1/4 = 4 bar G 1/2 = 5 bar
Working temperature	0 ÷ +70°C (with dry air -10°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Port size	G 1/8 - G 1/4 - G 1/2
Pneumating piloting port size	G 1/8
Nominal diameter	G 1/8 = 7 mm G 1/4 = 7 mm G 1/2 = 12 mm
Flow rate at 6 bar (with ΔP = 1 bar)	G 1/8 = 700 Nl/min G 1/4 = 700 Nl/min G 1/2 = 1900 Nl/min

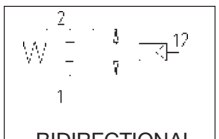
MATERIALS

Control rod	Anodized aluminium alloy
Body	Anodized aluminium alloy
Spring	Stainless steel
End plug	Nick-plated brass
Seals	NBR rubber
Washer	Brass

WB8U - WB8B - WB4U - WB4B - WB2U - WB2B

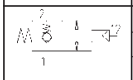
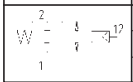


UNIDIRECTIONAL



BIDIRECTIONAL

DESCRIPTION OF THE CONNECTION
1 = INPUT
2 = CYLINDER
12 = PILOTING

Symbol	A	B	C	H	I	P	Weight (g)	G	TYPE
	31	16	47	21,5	11,5	G 1/8	61	G 1/8	WB8U
	40	20	57	26,5	15		120	G 1/4	WB4U
	50	25	69	34,5	18		220	G 1/2	WB2U
	31	16	47	21,5	11,5		61	G 1/8	WB8B
	40	20	57	26,5	15		120	G 1/4	WB4B
	50	25	69	34,5	18		220	G 1/2	WB2B

DESCRIPTION

The type “XVF4” identifies a 3/2 N.C. amplifier valve that changes low pressure signals into pneumatic signals (1 ÷ 8 bar).
Valve type “XVF5” is instead a 3/2 N.O. amplifier valve that changes negative pneumatic signals into pneumatic signals (1 ÷ 7 bar).
Both of them are suitable to pilot directly the valves series “UDS” and “UK” with the same mounting than solenoid valves series “UL”.
For single mounting there is the sub-base type “XVB” (see on page 2.8) while for manifold mounting there are the bases type “ULP” (see on page 2.7).

TECHNICAL DATA

Operating pressure	XVF4: 1 ÷ 8 bar XVF5: 1 ÷ 7 bar
Working temperature	0 ÷ +60 °C (-10 °C with dry air)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Piloting pressure	XVF4: 500 mbar XVF5: -500 mbar
Maximum frequency	50 Hz
Flow rate	500 Nl/min at 6 bar
Controlled leakage consumption	1,4 Nl/min at 7 bar
Piloting hole	M5

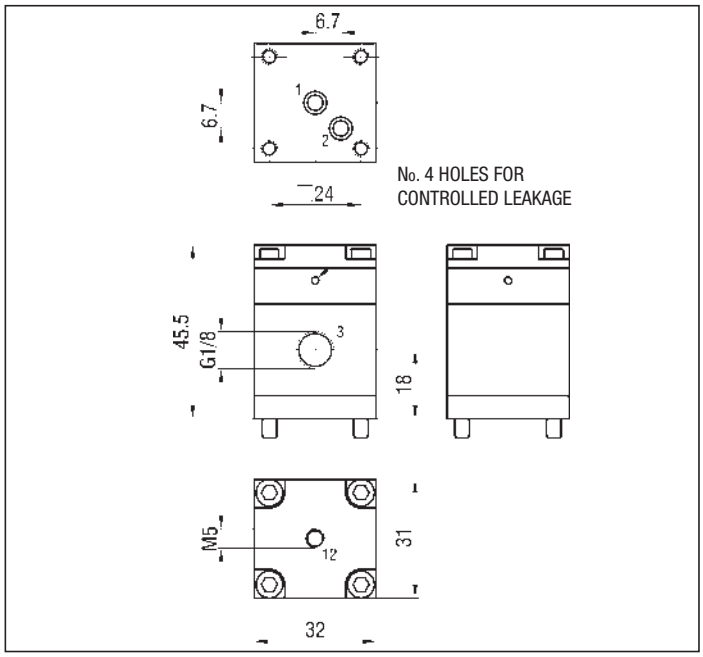
MATERIALS

Control rod	Aluminium
Body	Anodized aluminium alloy
Springs	Phosphor bronze
Seals	NBR rubber
Washer	Aluminium
Fixing screws	White galvanized steel

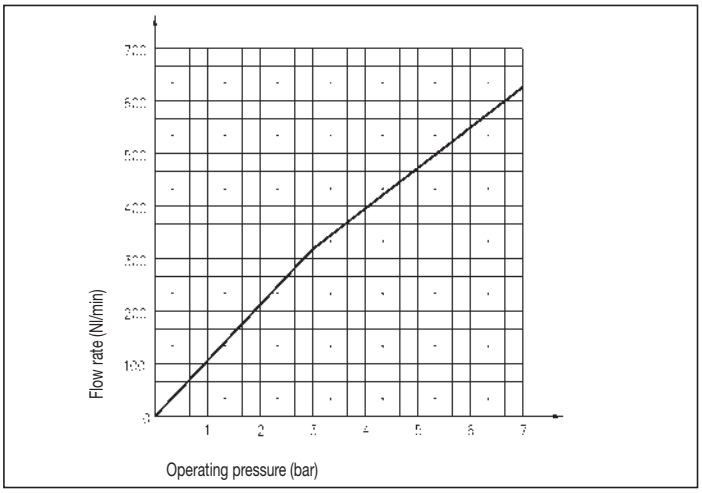
SPARE PARTS

SEALS KIT	
XVF	XVF/SG/4-5

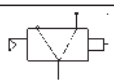
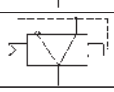
DIMENSIONS XVF



FLOW CHART XVF



3 PORT

Symbol	Function	Controls		Response times at 6 bar (ms)		Flow rate at 6 bar ΔP=1 bar (Nl/min)	Weight (g)	TYPE
		Actuation	Return	Actuation	Return			
	3/2 N.C.	Pneumatic	Mechanical spring	26,64	38,42	500	10,5	XVF4
	3/2 N.O.	Vacuum	Mechanical spring	21,14	32,66	500	10,5	XVF5