

# Spool valves pilot and solenoid actuated G 1/8 - G 1/4 - G 1/2

# serie EK

## DESCRIPTION

Valves series "EK" are produced in the 3/2, 5/2 and 5/3 pneumatic functions. The piloting solenoid valve can be assembled perpendicular respect the body valve, thanks to a suitable bracket. The kind of construction is based on a balanced spool with static seal, being the seals supported by distance rings integral to the body. This series of valves, in the size G 1/8 and G 1/4, is prearranged for both manifold mounting (conveyed inlet and exhausts), or supply rail mounting (conveyed inlet), by means of rear notch screws. The versions size G 1/4 - 5 port are available even with "Namur" port pattern or with high flow rate (see series EK30 on page 2.70). Upon request, they can be supplied in compliance with ATEX directive, category 2GD.

## TECHNICAL DATA

Operating pressure	Monostable: 2,5 ÷ 10 bar Bistable: 2 ÷ 10 bar
Working temperature	0 ÷ +70 °C (-20 °C with dry air)
Fluid	Compressed air, filtered, continuous lubricated, unlubricated or dry lubricated
Port size	G 1/8 - G 1/4 - G 1/2
Pneumatic piloting port size	G 1/8
Nominal diameter	G 1/8 = 5 mm; G 1/4 = 7 mm; G 1/2 = 12 mm
Piloting solenoid valve	C/USCSV - see chapter direct acting solenoid valves on page 2.14
Coils	USB - see chapter coils on page 2.17 USBG - see chapter coils on page 2.17* USBG2 - see chapter coils on page 2.17*
Electric connectors	USR 102/N9 - see chapter connectors on page 2.18 ULR1B - see chapter connectors on page 2.18*

\* Only for single valve (coil and connector overcome the overall dimensions of the valves)



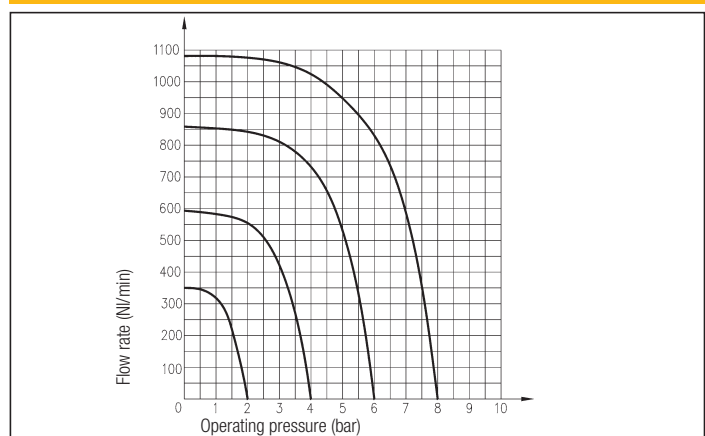
## MATERIALS

Bottoms	Anodized aluminium alloy
Body	Anodized aluminium alloy
Distance rings	Acetal resin
Springs	Galvanized steel
Seals	NBR rubber
Spools	Anodized aluminium alloy
Piston	Anodized aluminium alloy

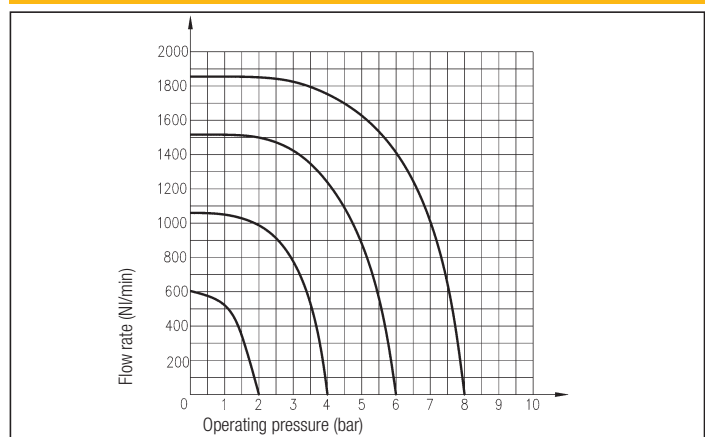
## SPARE PARTS

SEALS KIT	
3/2 - G 1/8	EK/SG/8
3/2 - G 1/4	EK/SG/4
3/2 - G 1/2	EK/SG/2
5/2 - G 1/8	EKCA/SG/8
5/3 - G 1/8	EKCA/SG/8 - 5/3
5/2 - G 1/4	EKCA/SG/4
5/3 - G 1/4	EKCA/SG/4 - 5/3
5/2 - G 1/2	EKCA/SG/2
5/3 - G 1/2	EKCA/SG/2 - 5/3
5/2 - G 1/4 Namur	ENCA/SG/4
5/3 - G 1/4 Namur	ENCA/SG/4 - 5/3

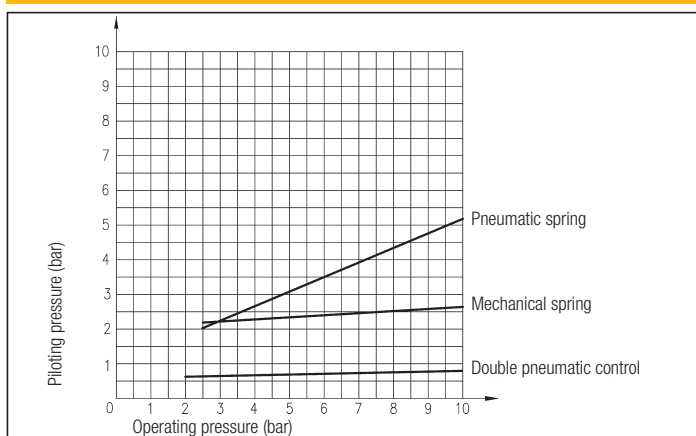
## FLOW CHART - EK G 1/8 - 3/2 & 5/2



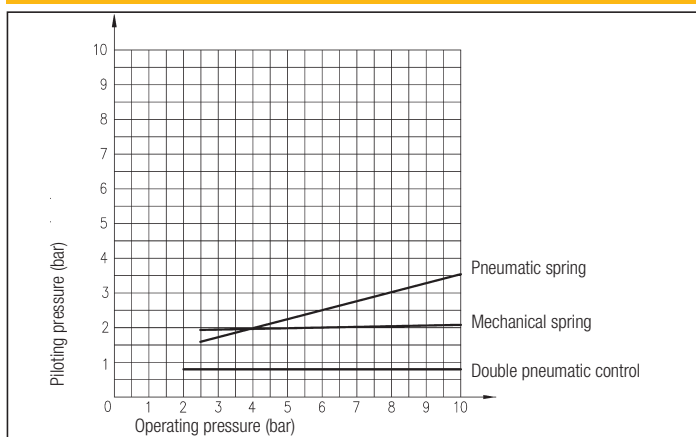
## FLOW CHART - EK G 1/4 - 3/2 & 5/2



## PILOTING CHART - EK G 1/8



## PILOTING CHART - EK G 1/4

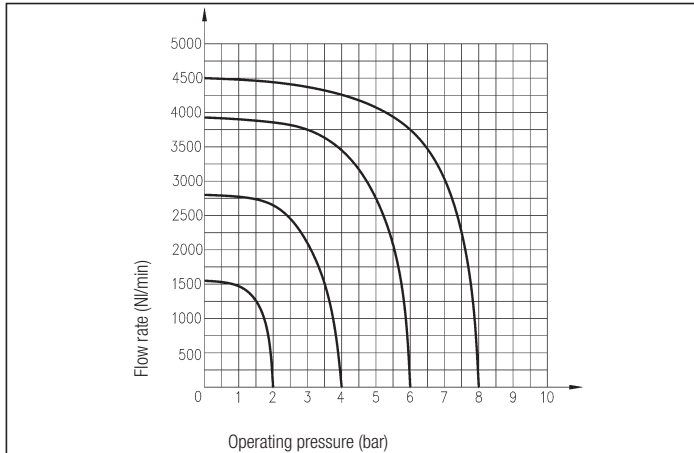


# series EK

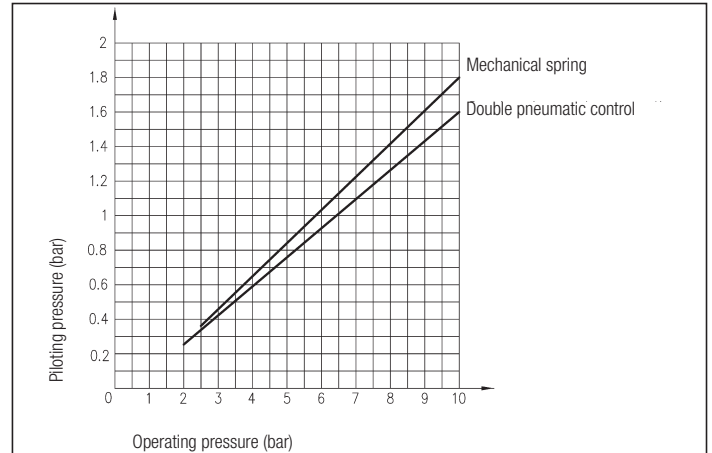
## G 1/8 - 3 PORT

2

FLOW CHART - EK G 1/2 - 3/2 & 5/2



PILOTING CHART - EK G 1/2



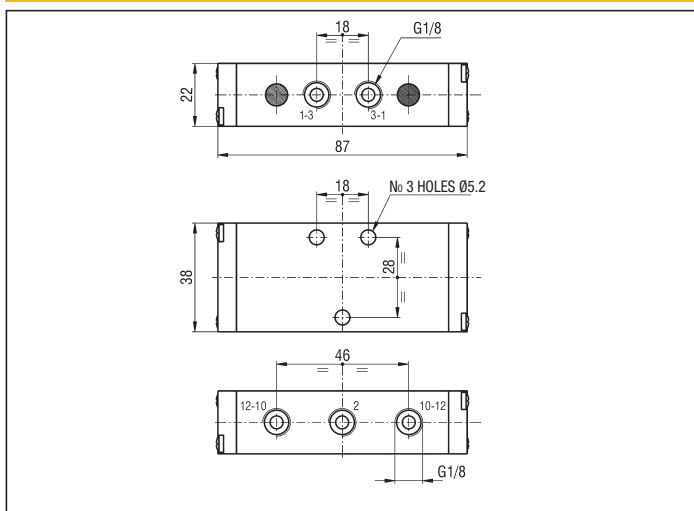
PILOT ACTUATED VALVES G 1/8 - 3 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar $\Delta P = 1$ bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Pneumatic	Mechanical spring	18	10	550	220	EKA8 KR/ZR
		Pneumatic	Pneumatic spring	26	16			
	3/2 N.C. monostable	Pneumatic	Mechanical spring	14	8	550	220	EKC8 KR/ZR
		Pneumatic	Pneumatic spring	30	28			
	3/2 bistable	Pneumatic	Pneumatic	10	10	550	215	EK8 KR/KR
		Big pneumatic	Small pneumatic	10	15			

\*/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ T<sub>as</sub> ≤ 60°C

E.G.: EKA8 KR/ZR/EX

### 3 PORT



G 1/8 - 5 PORT

series **EK**

2

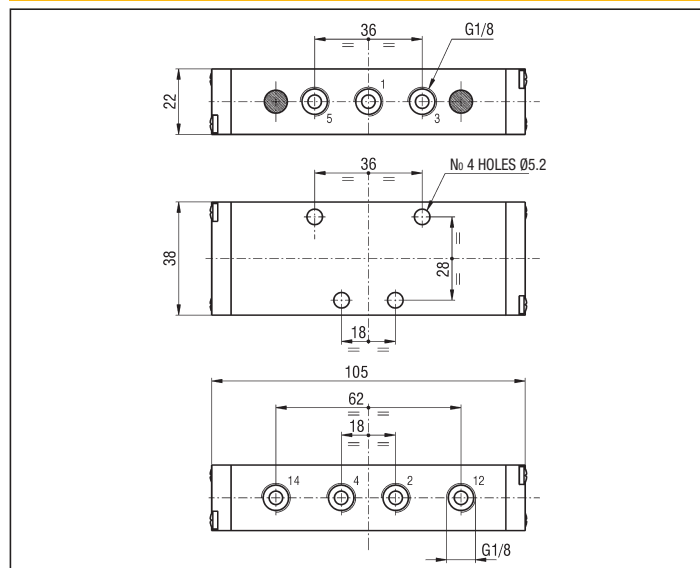
PILOT ACTUATED VALVES G 1/8 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar $\Delta P = 1 \text{ bar (Nl/min)}$	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Mechanical spring	20	10	550	270	EKCA8 KR/ZR
		Pneumatic	Pneumatic spring	25	15	550	260	EKCA8 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	10	10	550	230	EKCA8 KR/KR
		Big pneumatic	Small pneumatic	12	15	550	230	EKCA8 KR/TR
	5/3 closed centre	Pneumatic	Mechanical spring	18	25	425	285	EKCA8 SR/SR
	5/3 open centre	Pneumatic	Mechanical spring	18	25	500	285	EKCA8 AR/AR
	5/3 pressure centre	Pneumatic	Mechanical spring	15	20	425	285	EKCA8 PR/PR

\*EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ Ta ≤ 60°C

E.G.: EKCA8 KR/ZR/EX

5 PORT



# series EK

## G 1/8 - 3 PORT

### SOLENOID ACTUATED VALVES G 1/8 - 3 PORT

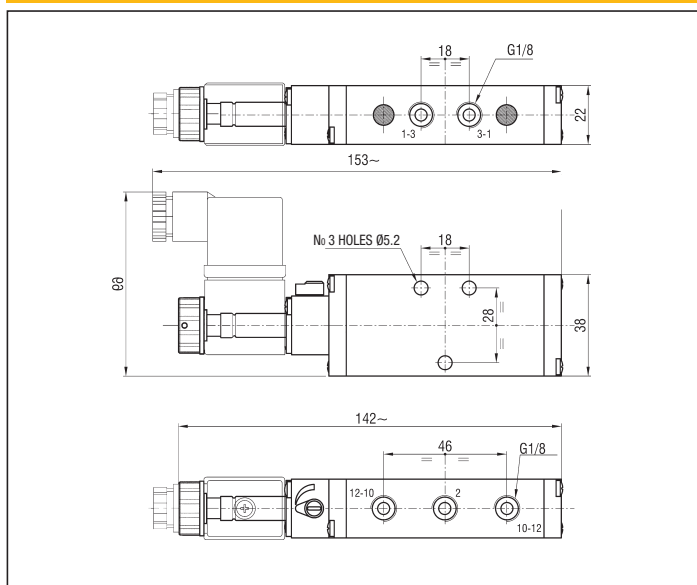
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar $\Delta P = 1 \text{ bar (Nl/min)}$	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Solenoid	Mechanical spring	24	28	550	250	EKA8 KUC/ZR
		Solenoid	Pneumatic spring	18	27	550	245	EKA8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	24	28	550	250	EKA8 KUR/ZR
	3/2 N.C. monostable	Solenoid	Mechanical spring	32	31	550	250	EKC8 KUC/ZR
		Solenoid	Pneumatic spring	22	28	550	245	EKC8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	32	31	550	250	EKC8 KUR/ZR
	3/2 bistable	Solenoid	Solenoid	21	21	550	290	EK8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	21	21	550	290	EK8 KUR/KUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKC8 KUC/TQ BECOMES EKC8 KLC/TQ (SEE ON PAGE 2.74 FOR THE MISSING DIMENSIONS)

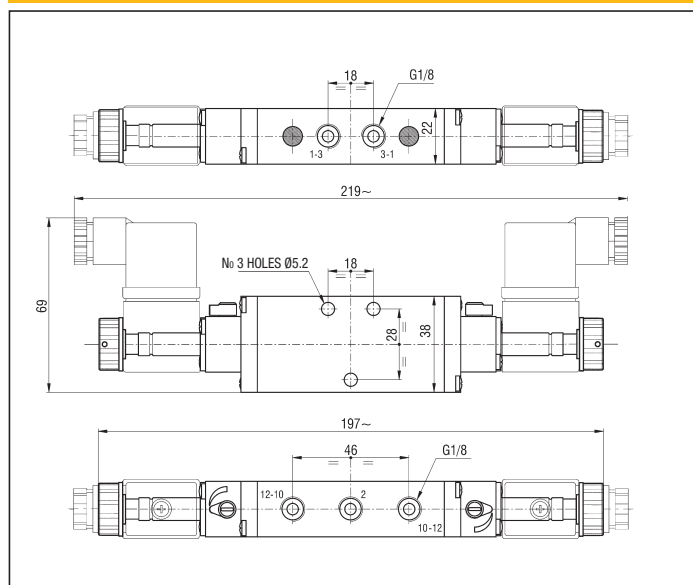
\*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ T<sub>a</sub> ≤ 60°C E.G.: EKA8 KUC/ZR/EX

### 3 PORT MONOSTABLE



### 3 PORT BISTABLE



G 1/8 - 5 PORT

series **EK**

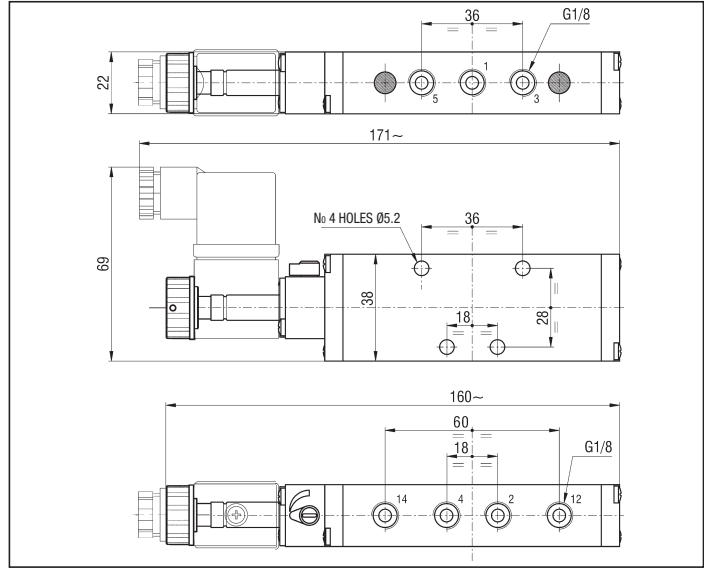
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SOLENOID ACTUATED VALVES G 1/8 - 5 PORT

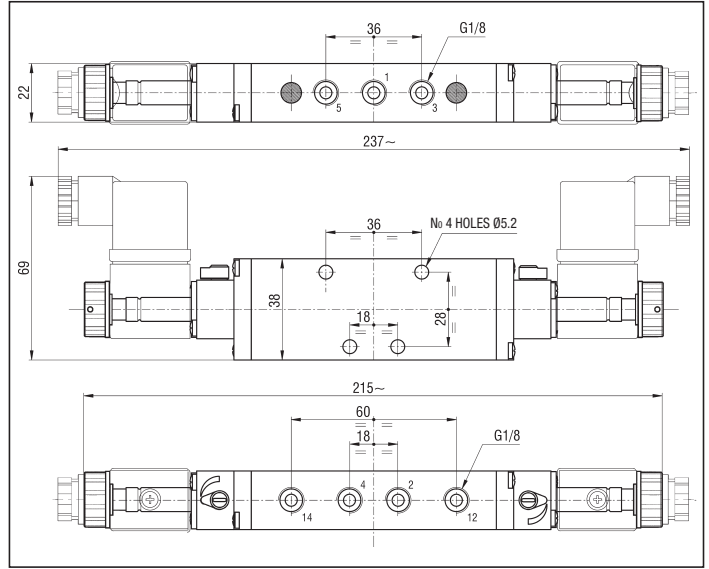
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (NI/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Mechanical spring	20	30	550	300	EKCA8 KUC/ZR
		Solenoid	Mechanical spring	27	39	550	300	EKCA8 KUC/TQ
		Solenoid pilot assisted	Mechanical spring	20	30	550	300	EKCA8 KUR/ZR
	5/2 bistable	Solenoid	Solenoid	18	18	550	325	EKCA8 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	18	18	550	325	EKCA8 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	23	37	425	335	EKCA8 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	23	37	425	335	EKCA8 SUR/SUR
	5/3 open centre	Solenoid	Mechanical spring	23	37	500	345	EKCA8 AUC/AUC
		Solenoid pilot assisted	Mechanical spring	23	37	500	345	EKCA8 AUR/AUR
	5/3 pressure centre	Solenoid	Mechanical spring	20	35	425	335	EKCA8 PUC/PUC
		Solenoid pilot assisted	Mechanical spring	20	25	425	335	EKCA8 PUR/PUR

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: EKCA8 KUC/TQ BECOMES EKCA8 KLC/TQ (SEE ON PAGE 2.74 FOR THE MISSING DIMENSIONS)  
 \*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS /EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ Ta ≤ 60°C ES.: EKCA8 KUC/ZR/EX

5 PORT MONOSTABLE



5 PORT AND 3 POSITIONS BISTABLE



# series EK30

G 1/4 - 5 PORT

2

SOLENOID ACTUATED VALVES G 1/4 - 5 PORT

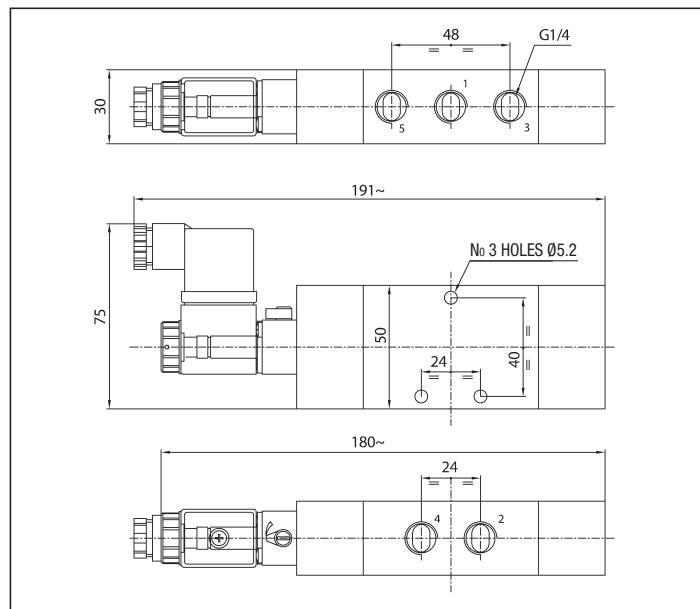
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar $\Delta P = 1$ bar (l/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Pneumomechanical spring	45	35	1400	480	EKCA30 KUC/ZQ
		Solenoid	Pneumatic spring	40	40			
	5/2 bistable	Solenoid	Solenoid	20	20	1400	470	EKCA30 KUC/KUC
	5/3 closed centre	Solenoid	Mechanical spring	30	35	1100	550	EKCA30 SUC/SUC
	5/3 open centre	Solenoid	Mechanical spring	30	35	1100	550	EKCA30 AUC/AUC
	5/3 pressure centre	Solenoid	Mechanical spring	30	35	1100	550	EKCA30 PUC/PUC

P.S.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: **EKCA30 KUC/TQ** BECOMES **EKCA30 KLC/TQ** (SEE ON PAGE 2.74 FOR THE MISSING DIMENSIONS)  
\*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

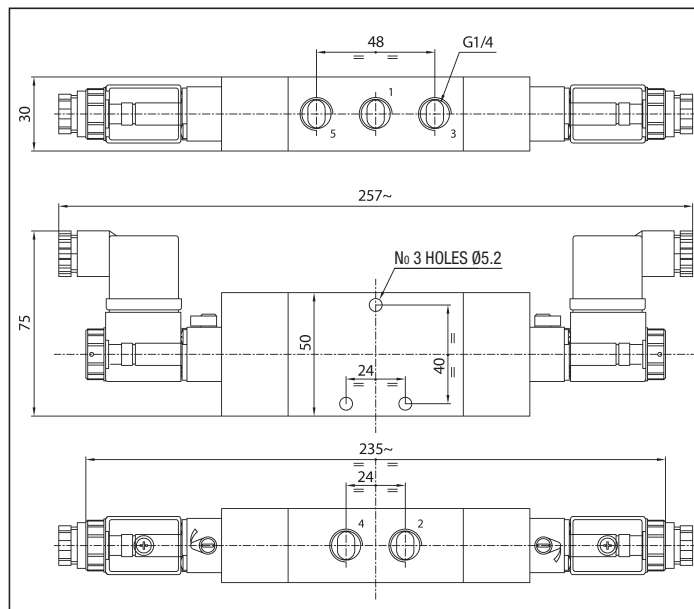
/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ Ta ≤ 60°C

E.G.: **EKCA30 KUC/ZQ/EX**

5 PORT MONOSTABLE



5 PORT BISTABLE



SPARE PARTS

SEALS KIT	
5/2 - G 1/4	EKCA30/SG
5/3 - G 1/4	EKCA30/SG - 5/3

G 1/2 - 3 and 5 PORT

series **EK**

PILOT ACTUATED VALVES G 1/2 - 3 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (NI/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Pneumatic	Pneumomechanical spring	21	27	2400	770	EKA2 KR/ZQ
	3/2 N.O. monostable	Pneumatic	Pneumatic spring	21	27	2400	760	EKA2 KR/TQ
	3/2 N.C. monostable	Pneumatic	Pneumomechanical	21	27	2200	770	EKC2 KR/ZQ
	3/2 N.C. monostable	Pneumatic	Pneumatic spring	21	27	2200	760	EKC2 KR/TQ
	3/2 bistable	Pneumatic	Pneumatic	20	20	2200	790	EK2 KR/KR

2

\*/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C≤Ta≤60°C

E.G.: EKA2 KR/ZQ/EX

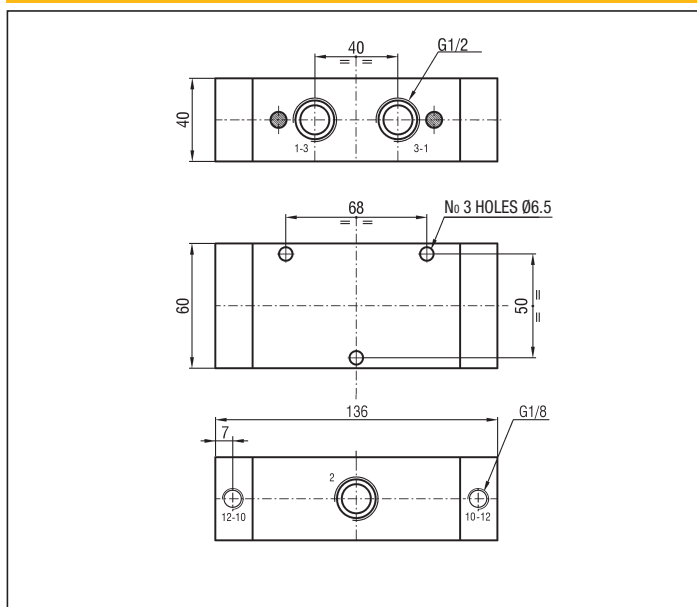
PILOT ACTUATED VALVES G 1/2 - 5 PORT

Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (NI/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Pneumatic	Pneumomechanical spring	21	27	2800	1010	EKCA2 KR/ZQ
		Pneumatic	Pneumatic spring	21	27	2800	1000	EKCA2 KR/TQ
	5/2 bistable	Pneumatic	Pneumatic	20	20	2800	1000	EKCA2 KR/KR
	5/3 closed centre	Pneumatic	Pneumatic spring	20	25	1700	1020	EKCA2 SR/SR

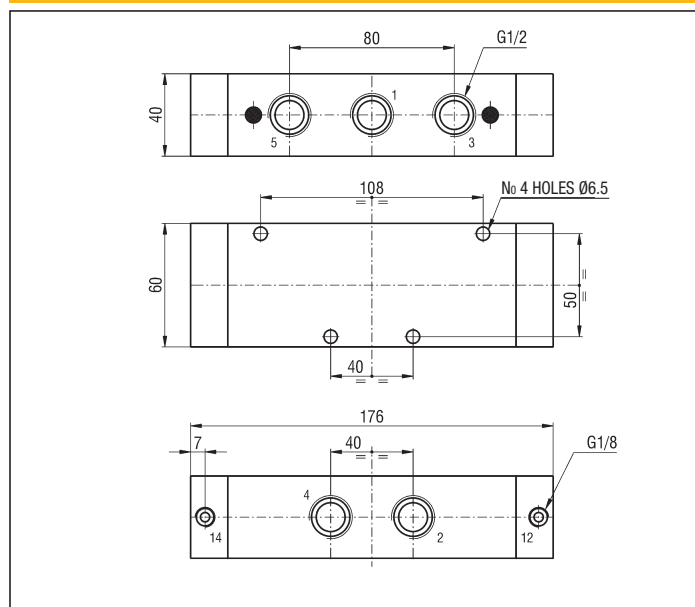
\*/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C≤Ta≤60°C

E.G.: EKCA2 KR/ZQ/EX

3 PORT



5 PORT



# series EK

## G 1/2 - 3 PORT

2

### SOLENOID ACTUATED VALVES G 1/2 - 3 PORT

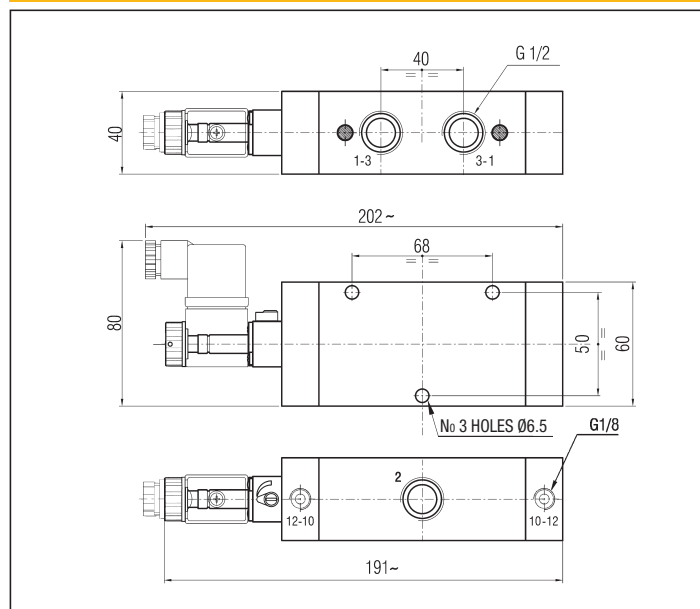
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar $\Delta P = 1 \text{ bar (Nl/min)}$	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	3/2 N.O. monostable	Solenoid	Pneumomechanical spring	30	90	2400	800	EKA2 KUC/ZQ
		Solenoid pilot assisted	Pneumomechanical spring	30	90	2400	800	EKA2 KUR/ZQ
		Solenoid	Pneumatic spring	30	90	2400	790	EKA2 KUC/TQ
	3/2 N.C. monostable	Solenoid	Pneumomechanical spring	30	90	2200	800	EKC2 KUC/ZQ
		Solenoid pilot assisted	Pneumomechanical spring	30	90	2200	800	EKC2 KUR/ZQ
		Solenoid	Pneumatic spring	30	90	2200	790	EKC2 KUC/TQ
	3/2 bistable	Solenoid	Solenoid	25	25	2200	850	EK2 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	25	25	2200	850	EK2 KUR/KUR

PS.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: **EKA2 KUC/TQ** BECOMES **EKA2 KLC/TQ** (SEE ON PAGE 2.74 FOR THE MISSING DIMENSIONS)

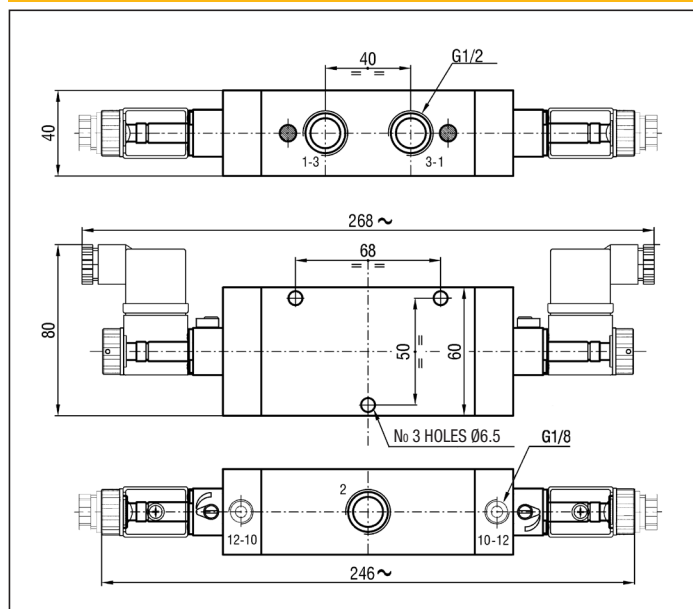
\*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ T<sub>a</sub> ≤ 60°C E.G.: **EKA2 KUC/ZQ/EX**

#### 3 PORT MONOSTABLE



#### 3 PORT BISTABLE





G 1/2 - 5 PORT

series **EK**

2

SOLENOID ACTUATED VALVES G 1/2 - 5 PORT

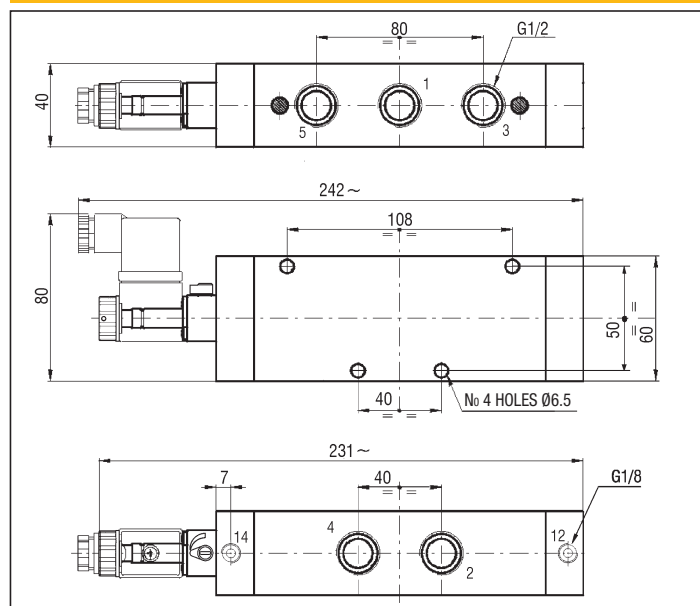
Symbol	Function	Controls		Response time at 6 bar (ms)		Flow rate at 6 bar ΔP = 1 bar (Nl/min)	Weight (g)	TYPE*
		Pilot	Return	Energized	De-energized			
	5/2 monostable	Solenoid	Pneumomechanical spring	30	90	2800	1025	EKCA2 KUC/ZQ
		Solenoid	Pneumatic spring	30	90	2800	1015	EKCA2 KUC/TQ
		Solenoid pilot assisted	Pneumomechanical spring	30	90	2800	1025	EKCA2 KUR/ZQ
	5/2 bistable	Solenoid	Solenoid	25	25	2800	1075	EKCA2 KUC/KUC
		Solenoid pilot assisted	Solenoid pilot assisted	25	25	2800	1075	EKCA2 KUR/KUR
	5/3 closed centre	Solenoid	Mechanical spring	25	80	1700	1085	EKCA2 SUC/SUC
		Solenoid pilot assisted	Mechanical spring	25	80	1700	1085	EKCA2 SUR/SUR

PS.: SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: **EKCA2 KUC/TQ** BECOMES **EKCA2 KLC/TQ** (SEE ON PAGE 2.74 FOR THE MISSING DIMENSIONS)

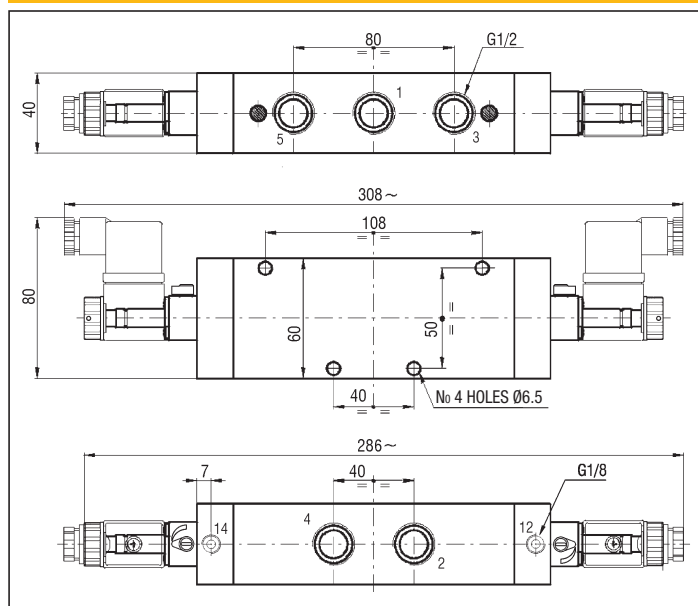
\*THE TYPES OF THE SOLENOID VALVES DO NOT INCLUDE COILS

/EX Consistent with the ATEX directive II 2GD c T5 T100°C -20°C ≤ Ta ≤ 60°C E.G.: **EKCA2 KUC/ZQ/EX**

5 PORT MONOSTABLE



5 PORT BISTABLE AND 3 POSITIONS



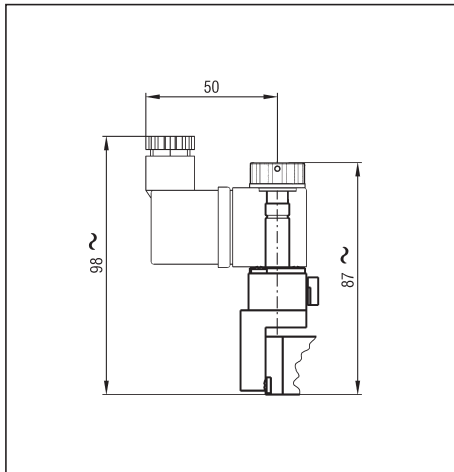
# series EK

## 90° solenoid actuated valves

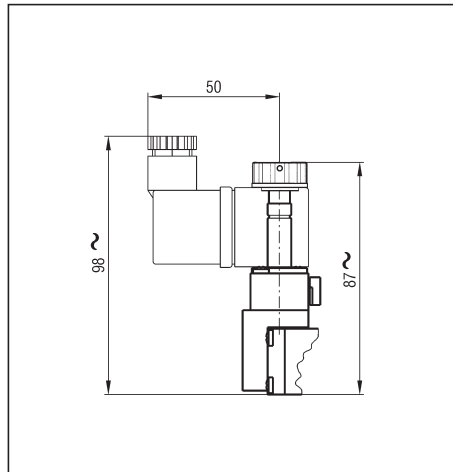
### SOLENOID ACTUATED VALVES WITH SOLENOID AT 90°

SUBSTITUTE THE LETTER "U" WITH THE LETTER "L" IN EACH SOLENOID CONTROL TYPE TO ORDER THE SOLENOID ACTUATED VALVES WITH SOLENOID AT 90° RESPECT THE BODY OF THE VALVE. E.G.: **EKCA2 KUC/TQ** BECOMES **EKCA2 KLC/TQ**

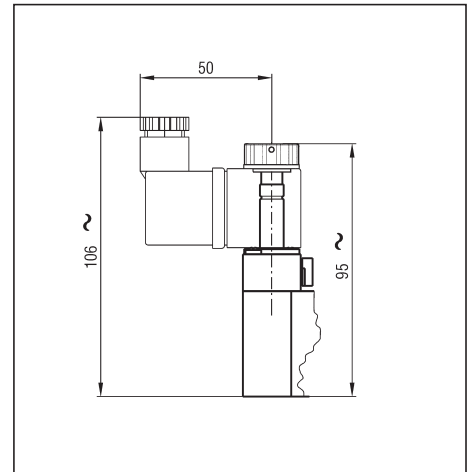
G 1/8



G 1/4



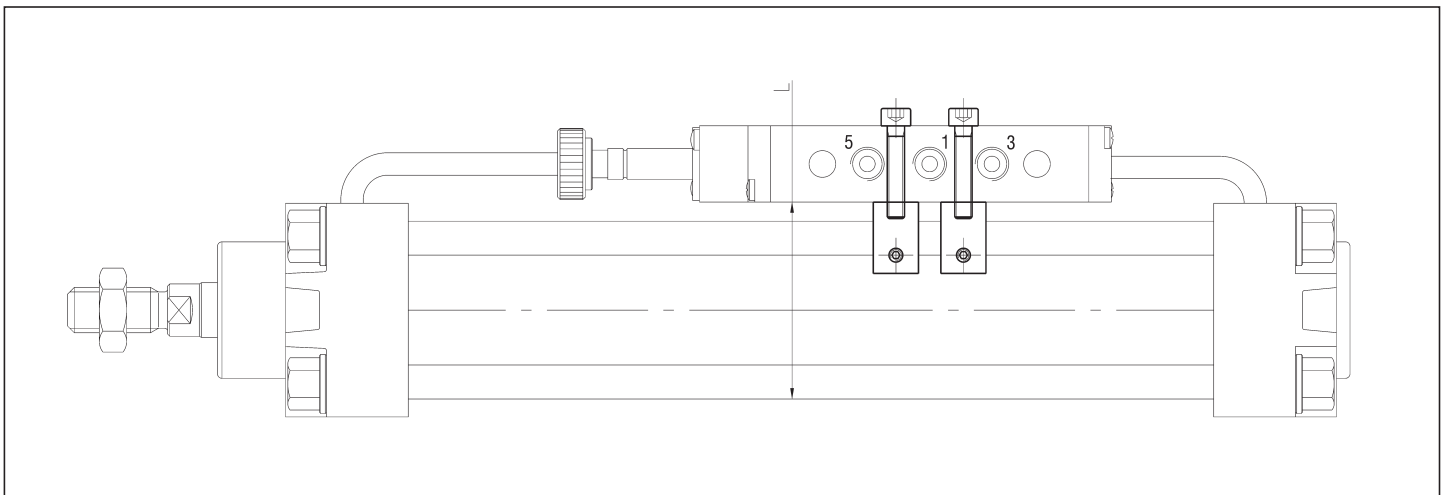
G 1/2



2

### ACCESSORIES

MOUNTING BRACKET FOR PILOT AND SOLENOID ACTUATED VALVES TYPES EK 4 - EK 8 ON CYLINDER SERIES "XT"  
(see from page 1.25)



Ø CYLINDER	L	TYPE*
32	50,5	SQ32-40/EK
40	57,5	
50	69	SQ50-63/EK
63	79,5	
80	95,5	SQ80-100/EK
100	113	

\* BRACKETS ARE SUPPLIED COMPLETE WITH DOWELS AND SCREWS  
P.S.: PLEASE CHECK BEFORE ORDERING THE COUPLED DIMENSIONS OF THE CYLINDER WITH THE VALVE

