

ISO LIGHT/5599/1 VALVES

Series AE/BE

AE

Light series valves for ISO 5599/1 sub-base mounting

Light series: technopolymer valve body with metall cover

Interchangeability: ISO 5599/1 sub-base mounting (size 1 and 2)

Reliability: the mixed internal system (poppet-spool) has been used and appreciated for decades

Performance: high flow rate (size 1 = 1480 NI/min - size 2 = 2300 NI/min), fast commutation, functioning without lubrication



TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C	
Fluid temperature	+50 °C Max	
Fluid	filtered air 50 µm, lubricated or not	
Commutation system	mixed system	
Ways/Positions	5/2	
Pressure	max 10 bar	
Control	indirect electro - pneumatic and pneumatic	
Return	pneumomechanical spring	
Connections	ISO 5599/1 interface (BF series sub-base)	
	size 1	size 2
Nominal Ø (mm)	8	10
Nominal flow rate (NI/min)	1480	2300

CONSTRUCTIVE FEATURES

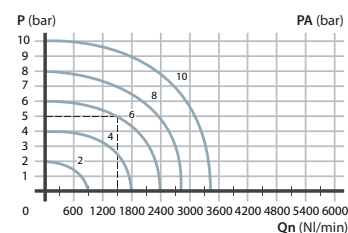
Valve body	acetalic resin
Seals	nitrilic rubber - polyurethane
Spool	aluminium
Cover	zamak

ELECTRIC FEATURES

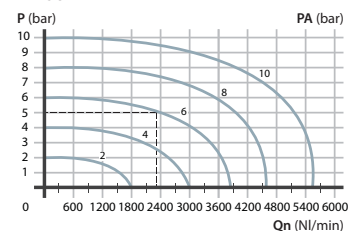
Electropilot	U1 - AA series
Coil	DA series
Power consumption	3,5 W (DC) - 5 VA (AC)
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Connector	AM-5110
Manual override	2 position screw

Flow rate characteristics

>> ISO 1



>> ISO 2

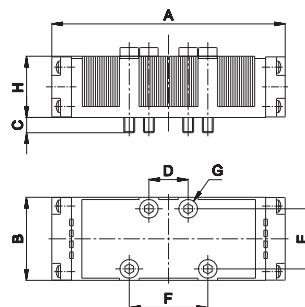


P = Working pressure

PA = Supply pressure

Qn = Nominal flow rate

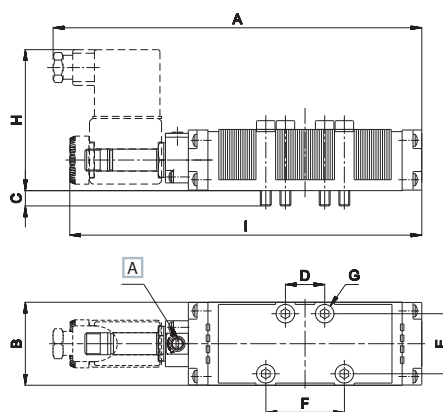
Single/double pneumatic impulse



	A	B	C	D	E	F	G	H
U1	108	38	7	18	28	36	M5x35	28
U2	120	50	7	24	38	48	M6x35	28

	Symbol	Control	Return	Pressure bar	Times (ms)		Size	Weight Kg	Part no.
					En.	De-en.			
5/2		pneumatic amplified	pneumomechanical spring	2÷10 2,3÷10	5	10	1	0,17	AE-1009
					8	10	2	0,80	AE-1120
5/2		pneumatic amplified	pneumatic amplified	1÷10 1÷10	3	3	1	0,17	AE-1010
					3	3	2	0,21	AE-1121

Single electric impulse

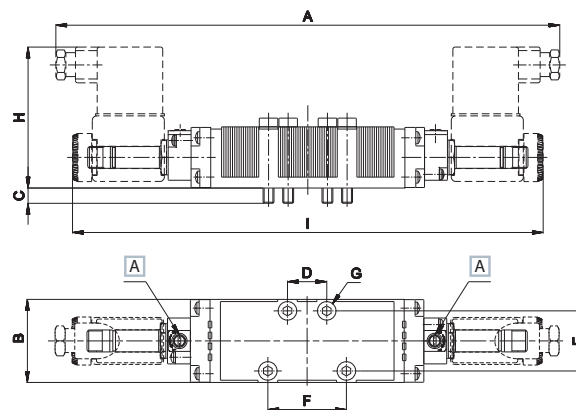


A Manual override

	A	B	C	D	E	F	G	H	I
U1	171	38	7	18	28	36	M5x35	64	161
U2	183	50	7	24	38	48	M6x35	64	173

	Symbol	Control	Return	Pressure bar	Times (ms)		Size	Weight Kg	Part no.
					En.	De-en.			
5/2		electric amplified	pneumomechanical spring	2÷10 2,3÷10	18	24	1	0,25	AE-1000
					22	18	2	0,29	AE-1100

Double electric impulse



A Manual override

	A	B	C	D	E	F	G	H	I
U1	234	38	7	18	28	36	M5x35	64	208
U2	246	50	7	24	38	48	M6x35	64	220

	Symbol	Control	Return	Pressure bar	Times (ms)		Size	Weight Kg	Part no.
					En.	De-en.			
5/2		electric amplified	electric amplified	1÷10 1÷10	16	16	1	0,33	AE-1003
					24	24	2	0,35	AE-1103

Electrovalves are supplied without coil, connector and locking ring

Technical modifications keep in reserve !

(2020/10)

BE/BE12

ISO 5599/1 Valves

- Compliance with ISO 5599/1 international standards
- Full range: 1 - 2 - 3 - 4 size
- Two different internal commutation system: mixed and spool, appreciated for decades thanks to their maximum reliability
- High capacity
- Short internal stroke
- No lubrication
- Electric connection M12 for 1 - 2 - 3 size
- Modular base
- Possibility of mounting different sizes on the same sub-base



TECHNICAL CHARACTERISTICS

Ambient temperature	-10 ÷ +50 °C			
Fluid temperature	max +50 °C			
Fluid	mixed system: filtered air 50 µm spool system: filtered air 50 µm			
Commutation system	mixed system, spool system			
Ways/Positions	5/2, 5/3			
Pressure	10 bar max			
Control	indirect electro - pneumatic, pneumatic			
Return	mixed system: pneumomechanical spring spool system: mechanical spring			
Connections	ISO 5599/1 interface			
	size 1	size 2	size 3	size 4
Nominal Ø (mm)	8	10	15	19
Nominal flow rate (NI/min)	1480	2300	4200	6600

CONSTRUCTIVE CHARACTERISTICS

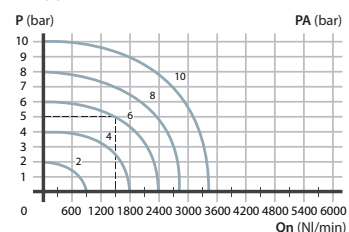
Valve body	acetalic resin
Cover	zamak - aluminium
Seals	mixed system: nitrile rubber and polyurethane spool system: nitrile rubber
Sub-base	zamak - aluminium
Actuators	technopolymer
Spool	aluminium

ELECTRIC CHARACTERISTICS

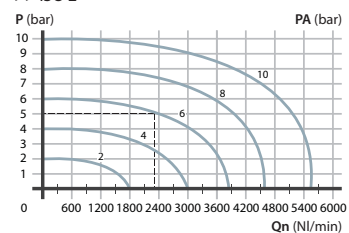
Electropilot	AA CNOMO (U1) series
Coil	U3 DC series
Power consumption	2,5 W (DC) - 5 VA (AC)
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Connector	AM 5111
Manual override	with two position screw (standard) with button with tool (upon request)

Flow rate characteristics

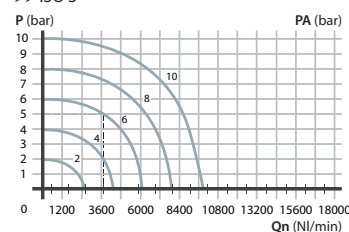
>> ISO 1



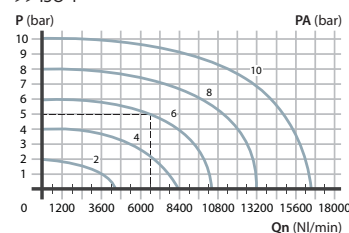
>> ISO 2



>> ISO 3



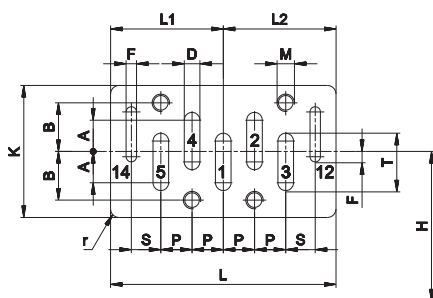
>> ISO 4



P = Working pressure
PA = Supply pressure
Qn = Nominal flow rate

ISO 5599/1 Standard

The ISO standard for pneumatic valves is accepted by industry and by the majority of major pneumatic valve manufactures throughout the world. The choice of valves according to ISO standard means to be at the technical forefront and to guarantee the user the interchangeability of both the valve body and the electromagnetic part

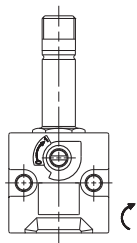


	A	B	D	F	H	K	L	L1	L2	M	P	r	S	T
ISO 1	9	14	4,5	3	43	38	65	32,5	32,5	M5	9	2,5	8,5	16,5
ISO 2	10	19	7	3	56	50	81	40,5	40,5	M6	12	3	10	22
ISO 3	11,5	24	10	4	71	64	106	53	53	M8	16	4	13	29
ISO 4	14,5	29	13	4	82	74	142	77,5	64,5	M8	20	4	15,5	36,5

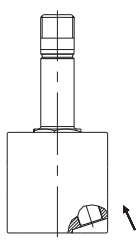
Standard manual overrides

Functioning	Suitable for valve	Symbol/Part no.
1 = with 2 position screw	BE	⊖
2 = with button with tool	BE	→
3 = with embedded button, 1 position	BE12	→

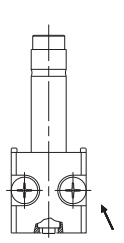
Special versions available (upon request): with 1 - 2 position button, with 1 position frontal button, with 1 position button



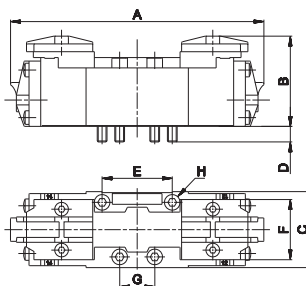
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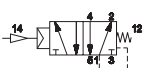
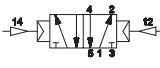
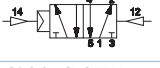
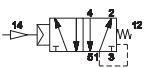
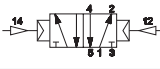
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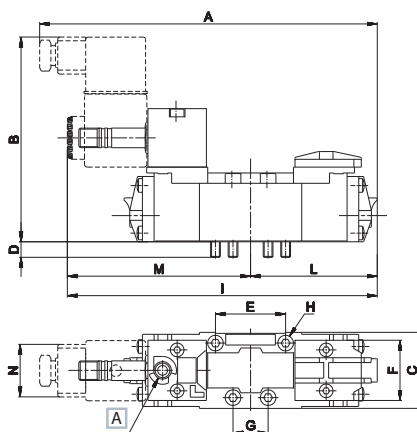


3

Single/double **pneumatic impulse**

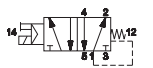
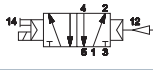
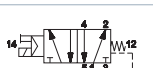
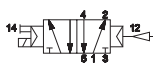
	ISO 1	ISO 2	ISO 3	ISO 4
A	128	145	191	222
B	47	47	63	63
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50

Symbol	Control	Return	Pressure		Times (ms)		Size	Weight	Part no.
			bar		En.	De-en.			
MIXED SYSTEM									
	pneumatic amplified	pneumomechanical spring	2÷10		9	18	1	0,30	BE-3100
			2,3÷10		11	14	2	0,40	BE-4100
			2,5÷10		19	49	3	0,65	BE-5100
			3÷10		23	46	4	0,87	BE-6100
	pneumatic amplified	pneumatic amplified	1÷10		5	5	1	0,30	BE-3150
			1÷10		6	6	2	0,40	BE-4150
			1÷10		10	10	3	0,65	BE-5150
			1,3÷10		12	12	4	0,87	BE-6150
	pneumatic amplified	pneumatic not amplified	2÷10		5	16	1	0,30	BE-3170
			2÷10		6	13	2	0,40	BE-4170
			2,2÷10		10	35	3	0,65	BE-5170
			2,2÷10		12	32	4	0,87	BE-6170
SPOOL SYSTEM									
	pneumatic amplified	pneumomechanical spring	1,8÷10		11	22	1	0,30	BE-3800
			2÷10		13	19	2	0,40	BE-4800
			2,2÷10		21	52	3	0,65	BE-5800
			2,8÷10		24	29	4	0,87	BE-6800
	pneumatic amplified	pneumatic amplified	0,8÷10		6	6	1	0,30	BE-3850
			1÷10		7	7	2	0,40	BE-4850
			1÷10		12	12	3	0,65	BE-5850
			1÷10		14	14	4	0,87	BE-6850
	pneumatic amplified	pneumatic not amplified	1,5÷10		6	15	1	0,30	BE-3870
			1,8÷10		7	14	2	0,40	BE-4870
			2÷10		12	38	3	0,65	BE-5870
			2÷10		14	31	4	0,87	BE-6870

Single **electric impulse**

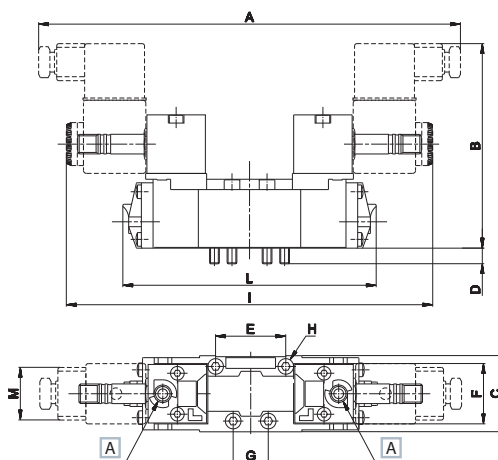
	ISO 1	ISO 2	ISO 3	ISO 4
A	169,5	195,5	219	253
B	105	105	118	118
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50
I	159,5	176	208,5	235
L	64	72,5	95,5	111
M	95,5	103,5	113	124
N	30	30	30	30

A Manual override

Symbol	Control	Return	Pressure		Times (ms)		Size	Weight	Part no.
			bar		En.	De-en.			
MIXED SYSTEM									
	electric amplified	pneumomechanical spring	2÷10		20	32	1	0,45	BE-3000
			2,3÷10		24	25	2	0,55	BE-4000
			2,5÷10		32	71	3	0,90	BE-5000
			3÷10		38	62	4	1,12	BE-6000
	electric amplified	pneumatic amplified	1÷10		16	6	1	0,45	BE-3060
			1÷10		17	7	2	0,80	BE-4060
			1÷10		23	15	3	1,30	BE-5060
			1,3÷10		25	16	4	1,37	BE-6060
SPOOL SYSTEM									
	electric amplified	pneumomechanical spring	2÷10		21	35	1	0,45	BE-3700
			2,2÷10		24	30	2	0,55	BE-4700
			2,3÷10		33	74	3	0,90	BE-5700
			2,8÷10		39	68	4	1,12	BE-6700
	electric amplified	pneumatic amplified	1÷10		17	8	1	0,45	BE-3760
			1÷10		18	9	2	0,80	BE-4760
			1÷10		26	17	3	1,30	BE-5760
			1,3÷10		27	18	4	1,37	BE-6760

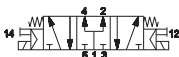
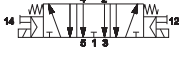
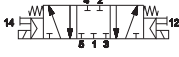
For manual version with button, add "U" to the end of the part number
Electrovalves are supplied without coil, connector and locking ring

Double electric impulse



	ISO 1	ISO 2	ISO 3	ISO 4
A	211	226	247	268
B	105	105	118	118
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50
I	191	207	226	248
L	128	145	191	222
M	30	30	30	30

A Manual override

Symbol	Control	Return	Pressure		Times (ms)		Size	Weight Kg	Part no.
			bar		En.	De-en.			
MIXED SYSTEM									
	electric amplified	electric amplified	1÷10		16	16	1	0,55	BE-3020
			1÷10		17	17	2	0,80	BE-4020
			1÷10		23	23	3	1,20	BE-5020
			1,3÷10		25	25	4	1,37	BE-6020
	electric amplified	electric non amplified	2÷10		16	34	1	0,55	BE-3030
			2÷10		17	29	2	0,80	BE-4030
			2,2÷10		23	54	3	1,20	BE-5030
			2,2÷10		25	45	4	1,37	BE-6030
	electric amplified	electric amplified	3÷10		50	26	1	0,55	BE-3200
			3÷10		54	24	2	0,80	BE-4200
			3÷10		108	36	3	1,20	BE-5200
			3÷10		115	115	4	1,37	BE-6200
	electric amplified	electric amplified	2÷10		50	26	1	0,50	BE-3205
			2,3÷10		54	24	2	0,80	BE-4205
			2,5÷10		108	36	3	1,20	BE-5205
			3÷10		115	115	4	1,37	BE-6205
SPOOL SYSTEM									
	electric amplified	electric amplified	1÷10		17	17	1	0,55	BE-3720
			1÷10		18	18	2	0,80	BE-4720
			1÷10		26	26	3	1,20	BE-5720
			1÷10		27	27	4	1,37	BE-6720
	electric amplified	electric non amplified	1,8÷10		17	28	1	0,55	BE-3730
			1,8÷10		18	25	2	0,80	BE-4730
			2÷10		26	46	3	1,20	BE-5730
			2÷10		27	42	4	1,37	BE-6730
	electric amplified	electric amplified	2,3÷10		17	25	1	0,55	BE-3900
			2,5÷10		18	27	2	0,80	BE-4900
			2,5÷10		26	50	3	1,20	BE-5900
			2,5÷10		30	47	4	1,37	BE-6900
	electric amplified	electric amplified	2,3÷10		17	25	1	0,55	BE-3940
			2,5÷10		18	27	2	0,80	BE-4940
			2,5÷10		26	50	3	1,20	BE-5940
			2,5÷10		30	47	4	1,37	BE-6940

o.c. = open centres c.c. = closed centres p.c. = pressurized centres

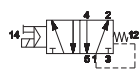
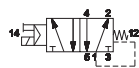
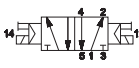
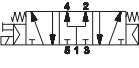
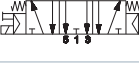
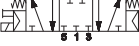
For manual version with button, add "U" to the end of the part number

Electrovalves are supplied without coil, connector and locking ring

The use of pneumatic component in the automotive field, coupled with electric components, led to the development of a traditional ISO valve with electric connector M12 placed in central position, for both valves with single as well as double electric control.

Single/double electric impulse

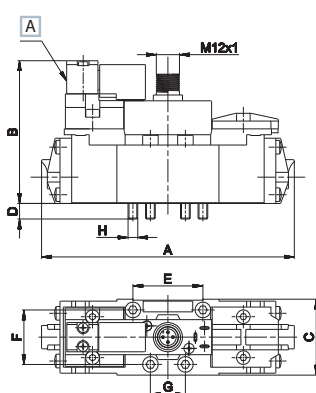


Symbol	Control	Return	Pressure	Times (ms)		Size	Weight Kg	Part no.
			bar	En.	De-en.			
SINGLE IMPULSE - MIXED SYSTEM								
	electric amplified	pneumomechanical spring	2÷9	18	29	1	0,45	BE12-3000
			2,3÷9	23	24	2	0,55	BE12-4000
			2,5÷9	35	78	3	0,90	BE12-5000
SINGLE IMPULSE - SPOOL SYSTEM								
	electric amplified	pneumomechanical spring	2÷9	19	32	1	0,45	BE12-3700
			2,2÷9	23	28	2	0,55	BE12-4700
			2,3÷9	36	82	3	0,90	BE12-5700
DOUBLE IMPULSE - MIXED SYSTEM								
	electric amplified	electric amplified	1÷9	14	14	1	0,55	BE12-3020
			1÷9	16	16	2	0,80	BE12-4020
			1÷9	25	25	3	1,20	BE12-5020
	electric amplified	electric amplified	2÷9	45	23	1	0,50	BE12-3205
			2,3÷9	51	23	2	0,80	BE12-4205
			2,5÷9	119	40	3	1,20	BE12-5205
DOUBLE IMPULSE - SPOOL SYSTEM								
	electric amplified	electric amplified	1÷9	15	15	1	0,55	BE12-3720
			1÷9	17	17	2	0,80	BE12-4720
			1÷9	29	29	3	1,20	BE12-5720
	electric amplified	electric amplified	2,3÷9	15	22	1	0,55	BE12-3900
			2,5÷9	17	26	2	0,80	BE12-4900
			2,5÷9	29	55	3	1,20	BE12-5900
	electric amplified	electric amplified	2,3÷9	15	22	1	0,55	BE12-3940
			2,5÷9	17	26	2	0,80	BE12-4940
			2,5÷9	29	55	3	1,20	BE12-5940

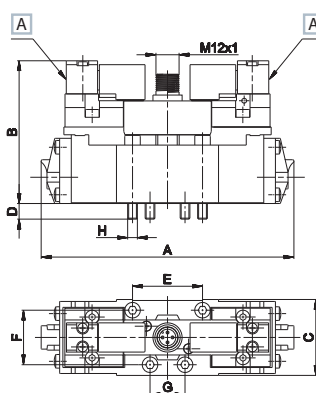
c.a. = centri aperti c.c. = centri chiusi c.p. = centri in pressione

Valves are supplied with 24 V DC coil

Single electric impulse



Double electric impulse



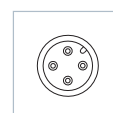
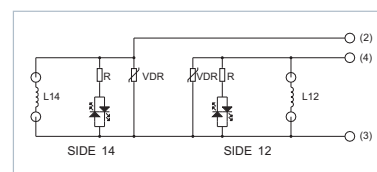
	ISO 1	ISO 2	ISO 3
A	128	145	191
B	73	73	90
C	39	52	64
D	5	5	10
E	36	48	64
F	28	38	48
G	18	24	32
H	M5x38	M6x35	M8x50

 Manual override

ELECTRIC FEATURES

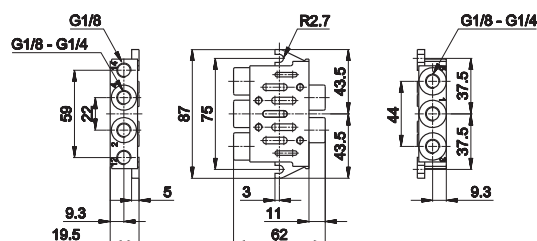
Central electric connector M12x1
IP 65 protection degree
24 V DC voltage
2,5 W nominal power
DD-052** series coil (without faston)
ED 100%
LED indicator

Available upon request other voltages
max 48 V DC



ISO 1 - Single sub-base, side connections

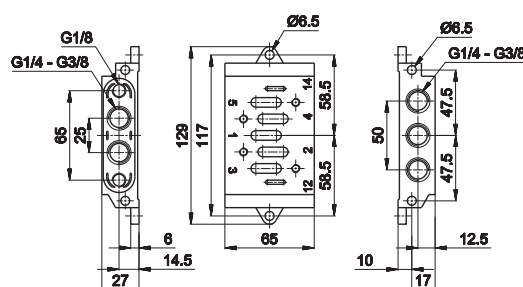
Notes	Connection	Material	Weight Kg	Part no.
in line connections	G1/8	zamak	0,250	BF-1060
in line connections	G1/4	zamak	0,230	BF-1061



1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 2 - Single sub-base, side connections

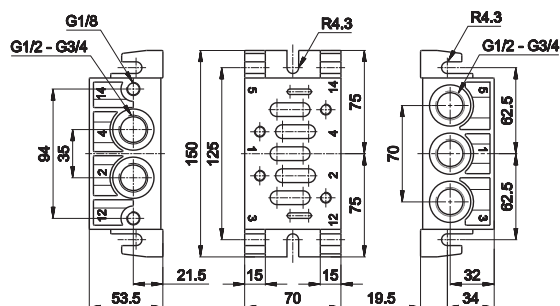
Notes	Connection	Material	Weight Kg	Part no.
in line connections	G1/4	zamak	0,640	BF-1150
in line connections	G3/8	zamak	0,650	BF-1151



1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 3 - Single sub-base, side connections

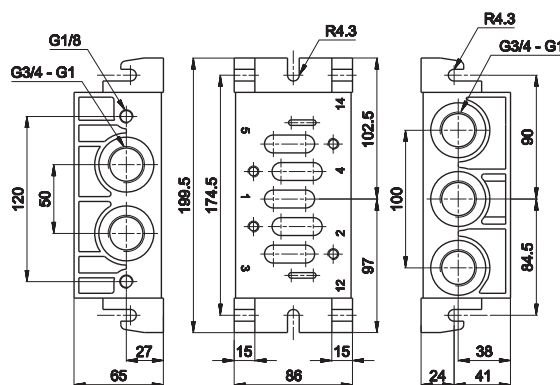
Notes	Connection	Material	Weight Kg	Part no.
in line connections	G1/2	aluminium	0,740	BF-3060
in line connections	G3/4	aluminium	0,740	BF-3061



1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 4 - Single sub-base, side connections

Notes	Connection	Material	Weight Kg	Part no.
in line connections	G3/4	aluminium	1,280	BF-4060
dorsal and side connections	G1	aluminium	1,280	BF-4061



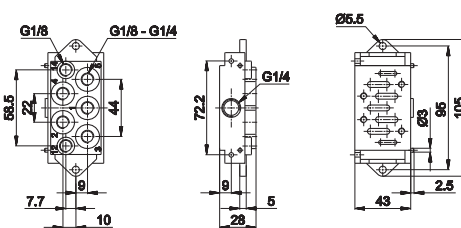
1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 1 - Single modular or Manifold sub-base, dorsal connections, separate exhausts



Notes	Connection	Material	Weight Kg	Part no.
dorsal connections	G1/8	zamak	0,350	BF-1062
dorsal connections	G1/4	zamak	0,330	BF-1063

Single assembly: close side ports (G1/8 - G1/4)
 Manifold assembly with common inlet: close dorsal connections n.1
 With incorporated screws and seal

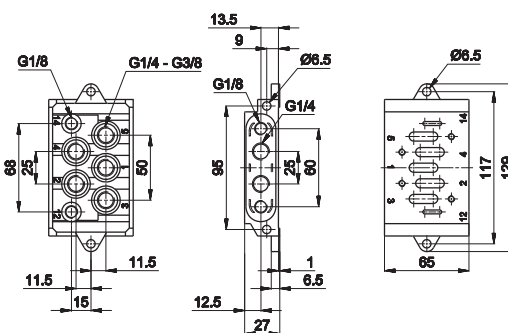


1 = Supply port 3 - 5 = Exhaust
 2 - 4 = Use 12 - 14 = Pilots

ISO 2 - Single sub-base, dorsal connections

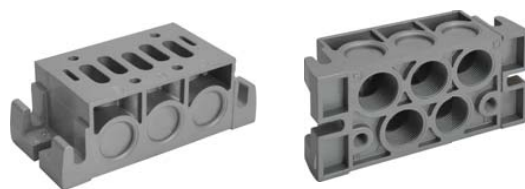


Notes	Connection	Material	Weight Kg	Part no.
dorsal connections	G1/4	zamak	0,640	BF-1152
dorsal connections	G3/8	zamak	0,650	BF-1153

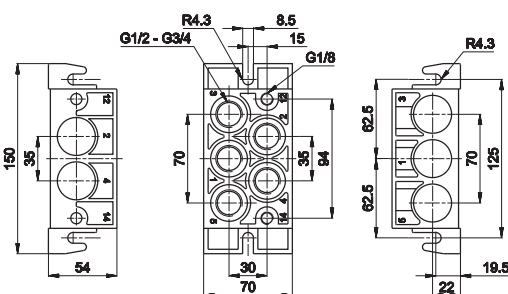


1 = Supply port 3 - 5 = Exhaust
 2 - 4 = Use 12 - 14 = Pilots

ISO 3 - Single sub-base, dorsal connections

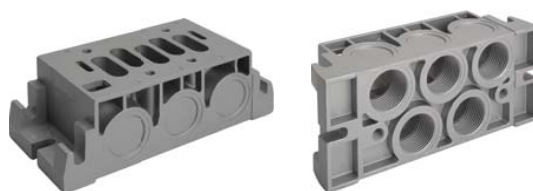


Notes	Connection	Material	Weight Kg	Part no.
dorsal connections	G3/4	aluminium	0,720	BF-3063

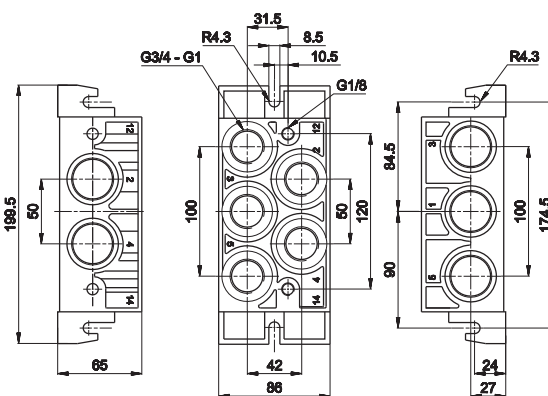


1 = Supply port 3 - 5 = Exhaust
 2 - 4 = Use 12 - 14 = Pilots

ISO 4 - Single sub-base, dorsal connections



Notes	Connection	Material	Weight Kg	Part no.
dorsal connections	G3/4	aluminium	1,240	BF-4062
dorsal connections	G1	aluminium	1,240	BF-4063



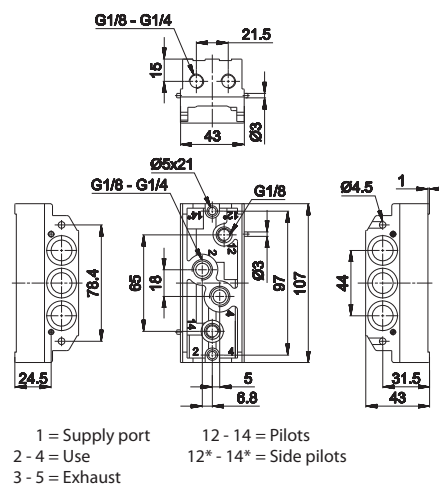
1 = Supply port 3 - 5 = Exhaust
 2 - 4 = Use 12 - 14 = Pilots

ISO 1 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts



Notes	Connection	Material	Weight Kg	Part no.
dorsal and side connections	G1/8	aluminium	0,280	BF-1071
dorsal and side connections	G1/4	aluminium	0,275	BF-1072
side pneumatic impulses	G1/8	aluminium	0,300	BF-1071S
side pneumatic impulses	G1/4	aluminium	0,295	BF-1072S

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screws, seals and caps included



ISO 1 - Manifold universal system inlet plate



- A On top connections
- B In line connections
- C Dorsal connetions

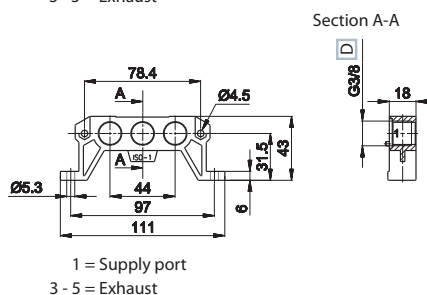
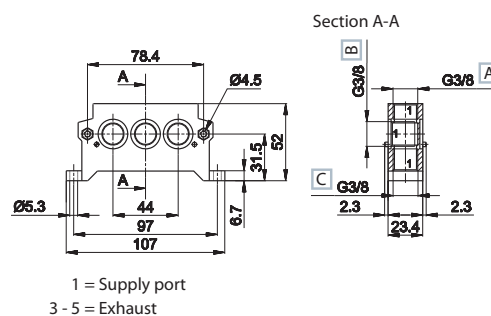
Notes	Connection	Material	Weight Kg	Part no.
in line connections	G3/8	zamak	0,355	BF-1064
on top connections	G3/8	zamak	0,355	BF-1065
dorsal connections	G3/8	zamak	0,355	BF-1066



- D Only in line connections

Notes	Connection	Material	Weight Kg	Part no.
only in line connections	G3/8	aluminium	0,120	BF-1068

When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screws and seal



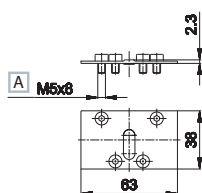
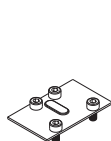
ISO 1 - Manifold universal system diaphragm



Notes	Connection	Material	Weight Kg	Part no.
-	-	zamak	0,090	BF-1070

The diaphragm is not only the end plate of the manifold but it is also coupled with the exhaust regulator to separate two sub-bases and regulate the valves independently. In this case break the central blind hole.
To get two or more pressures, break the two side blind holes.

BF-1085



A ISO 4762

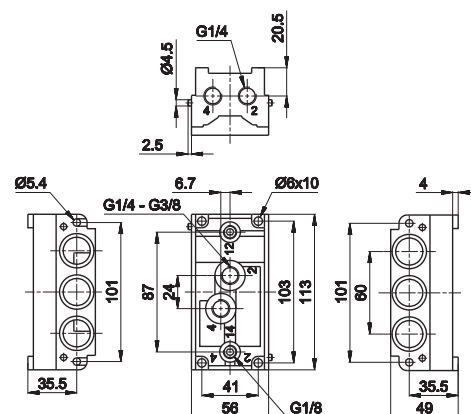
ISO 1 - Closing plate for sub-base 1
material: steel
weight: 0,030 Kg (for all sub-base versions)

ISO 2 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts



Notes	Connection	Material	Weight Kg	Part no.
dorsal and side connections	G1/4	zamak	0,800	BF-1160
dorsal and side connections	G3/8	zamak	0,800	BF-1161

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screw, seals and caps included



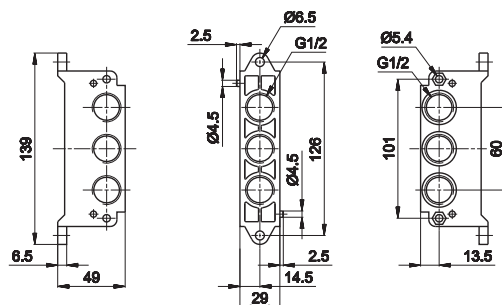
1 = Supply port 3 - 5 = Exhaust
2 - 4 = Use 12 - 14 = Pilots

ISO 2 - Manifold Universal system inlet plate



Notes	Connection	Material	Weight Kg	Part no.
in line connections	G1/2	zamak	0,460	BF-1154
dorsal connections	G1/2	zamak	0,460	BF-1155

When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screw and seals

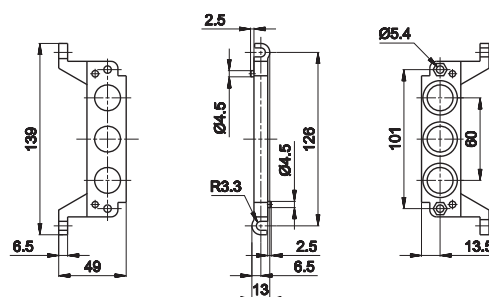


ISO 2 - Manifold universal system diaphragm

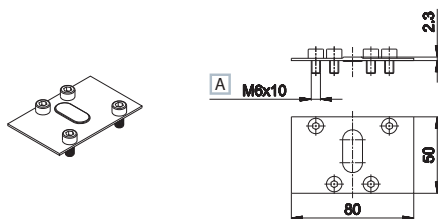


Notes	Connection	Material	Weight Kg	Part no.
-	-	zamak	0,160	BF-1162

The diaphragm is not only the end plate of the manifold but it is also coupled with the exhaust regulator to separate two sub-bases and regulate the valves independently. In this case break the central blind hole.
To get two or more pressures, break the two side blind holes.



BF-1175



A ISO 4762

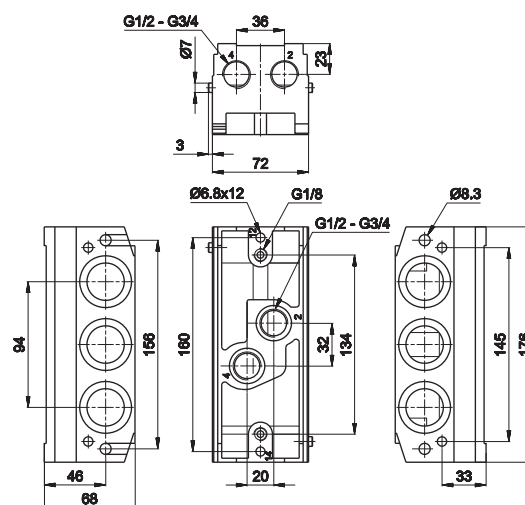
ISO 2 - Closing plate for sub-base 2
material: steel
weight: 0,050 Kg (for all sub-base versions)

ISO 3 - Manifold universal system sub-base, dorsal and side connections, conveyed exhausts



Notes	Connection	Material	Weight Kg	Part no.
dorsal and side connections	G1/2	aluminium	1,100	BF-3071
dorsal and side connections	G3/4	aluminium	1,100	BF-3072

Dorsal and side connections possible. Close unused ports with caps.
With incorporated screws, seals and caps included



1 = Supply port
2 - 4 = Use

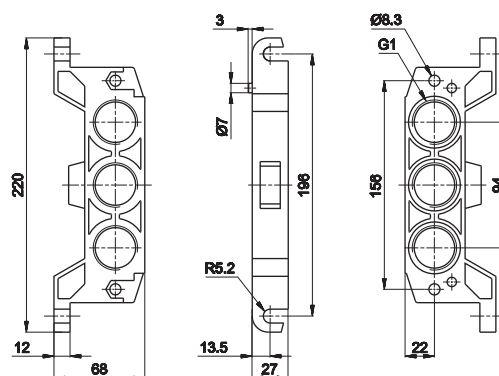
3 - 5 = Exhaust
12 - 14 = Pilots

ISO 3 - Manifold Universal system inlet plate



Notes	Connection	Material	Weight Kg	Part no.
in line connections	G1	aluminium	0,440	BF-3064

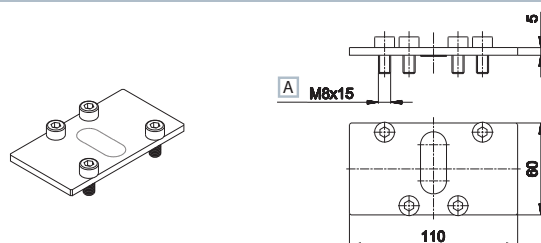
When battery exceeds 4 units, the mounting of 2 plates is recommended
Mixed version available upon request
With incorporated screws and seals



Technical modifications keep in reserve !

BF-3175

BF-3082



A ISO 4762



ISO 3 - Closing plate for sub-base 3
material: steel
weight: 0,080 Kq (for all sub-base versions)

ISO 3 - Universal system Cap
material: steel
weight: 0,020 Kg
To be used to reach two pressures