SERIES BE - VALVES ISO 5599/1

Reference Standard

ATEX 2014/34/UE

Pressures

Max 10 bar (0.10 MPa)

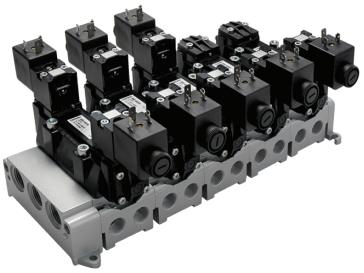
Ambient temperature

- 10 °C
+ 50 °C

TECHNICAL CHARACTERISTICS

Fluid temperature				Max +50 °C
Fluid				50 µm filtered air (mixed system)
				50 µm filtered air, with or without lubrication (spool system)
Commutation system				mixed system, spool system
Ways/Positions				5/2, 5/3
Control				indirect electro-pneumatic, pneumatic
Return				mechanical spring, pneumomechanical spring, pneumatic, electric
Connections				ISO 5599/1 interface
	ISO 1	ISO 2	ISO 3	ISO 4
Nominal Ø (mm)	8	10	15	19
Nominal flow rate (Nl/min)	1480	2300	4200	6600

CE Ex II 2Gc IIC T5 II 2Dc T100°C



CONSTRUCTIVE CHARACTERISTICS

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

MIXED
for heavy applications

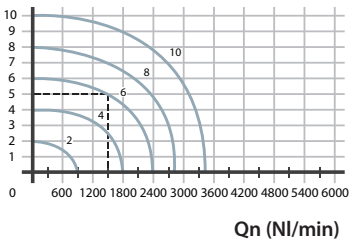
SPOOL
for all applications

ELECTRIC CHARACTERISTICS

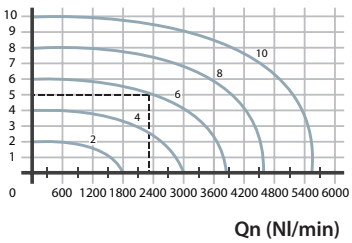
Electropilot	AA series
Coil	U3 series
Power consumption	2,5 W (DC) - 5 VA (AC)
Voltage	12 V DC - 24 V DC - 24 V AC - 110 V AC - 230 V AC
Connector	AM 5111
Manual override	impulse screw - 2 positions, button with tool (BE)
	recessed button - 1 position (BE12)

Flow rate characteristics

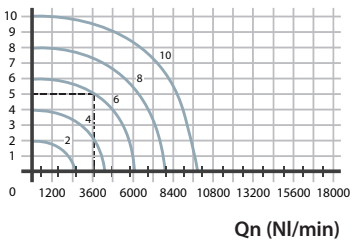
>> ISO 1



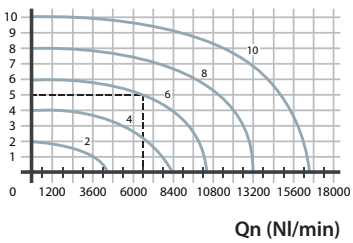
>> ISO 2



>> ISO 3



>> ISO 4



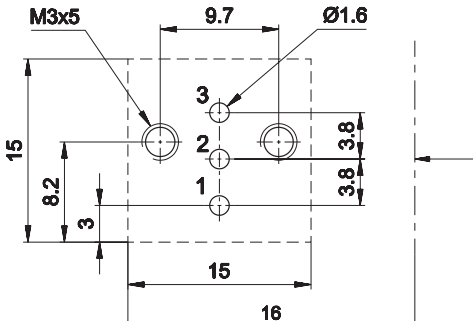
P = Working pressure

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 the main important pneumatic valve manufactures throughout the world. The choice of valves according to ISO standard guarantees to 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

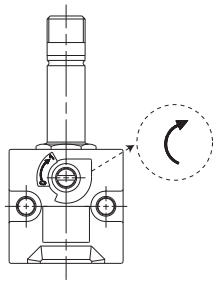
ISO Standard 5599/1

fixes the dimensions of the bearing surface of the valve and provides accomodation between two contiguous planes while guaranteeing, at the time of replacement, that any suitable valve can be inserted in the manifold assembly. It also provides a clear numbering system for the ports. Main connecting ports:

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

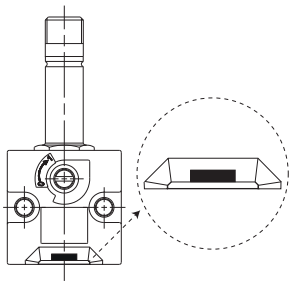
(e.g. single electrical impulse solenoid mounted side 14 single pneumatic impulse control at 14)

Manual control



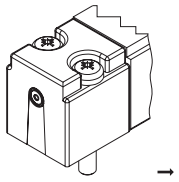
Standard for BE

Screw with 2 positions



On request with code BE....U

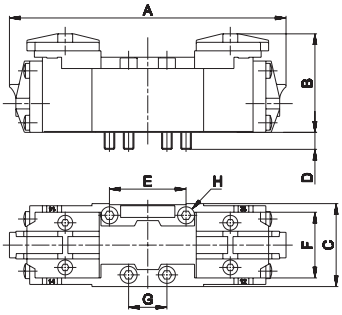
Single-position button



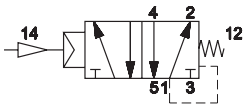
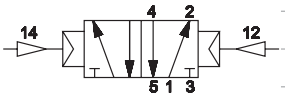
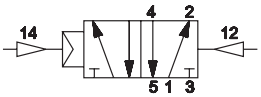
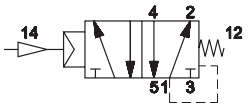
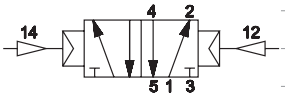
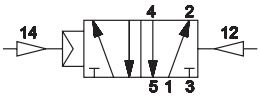
Standard for BE12

1-position push button

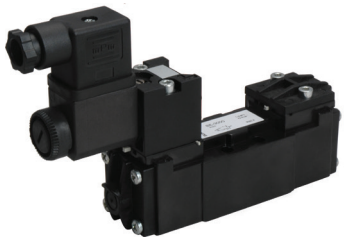
Single/double pneumatic impulse

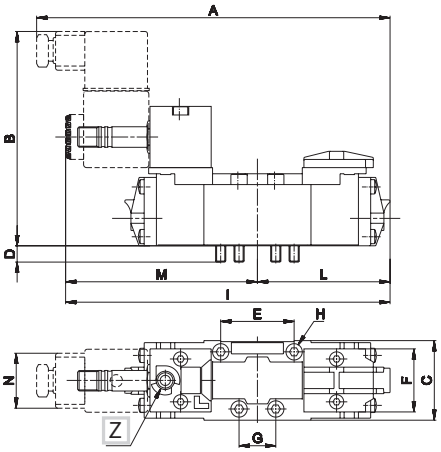


	ISO 1	ISO 2	ISO 3	ISO 4
A	128	145	191	222
B	47	47	63	63
C	39	52	64	74
D	5	5	10	10
E	36	48	64	80
F	28	38	48	58
G	18	24	32	40
H	M5x38	M6x35	M8x50	M8x50

	Code	Function	Control 14	Return 12	Size ISO	Pressure bar	Response Time (ms) En.	Response Time (ms) De-en.	Weight kg
MIXED SYSTEM									
	BE-3100	5/2	pneumatic amplified	pneumomechanical spring	1	2÷10	9	18	0,30
	BE-4100				2	2,3÷10	11	14	0,40
	BE-5100				3	2,5÷10	19	49	0,65
	BE-6100				4	3÷10	23	46	0,87
	BE-3150	5/2	pneumatic amplified	pneumatic amplified	1	1÷10	5	5	0,30
	BE-4150				2	1÷10	6	6	0,40
	BE-5150				3	1÷10	10	10	0,65
	BE-6150				4	1,3÷10	12	12	0,87
	BE-3170	5/2	pneumatic amplified	non-amplified pneumatic (differential)	1	2÷10	5	16	0,30
	BE-4170				2	2÷10	6	13	0,40
	BE-5170				3	2,2÷10	10	35	0,65
	BE-6170				4	2,2÷10	12	32	0,87
SPOOL SYSTEM									
	BE-3800	5/2	pneumatic amplified	pneumomechanical spring	1	1,8÷10	11	22	0,30
	BE-4800				2	2÷10	13	19	0,40
	BE-5800				3	2,2÷10	21	52	0,65
	BE-6800				4	2,8÷10	24	29	0,87
	BE-3850	5/2	pneumatic amplified	pneumatic amplified	1	0,8÷10	6	6	0,30
	BE-4850				2	1÷10	7	7	0,40
	BE-5850				3	1÷10	12	12	0,65
	BE-6850				4	1÷10	14	14	0,87
	BE-3870	5/2	pneumatic amplified	non-amplified pneumatic (differential)	1	1,5÷10	6	15	0,30
	BE-4870				2	1,8÷10	7	14	0,40
	BE-5870				3	2÷10	12	38	0,65
	BE-6870				4	2÷10	14	31	0,87

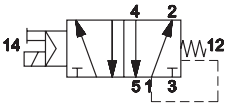
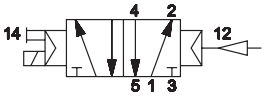
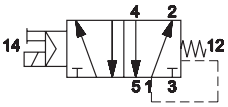
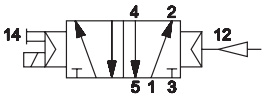
Single electric impulse





	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

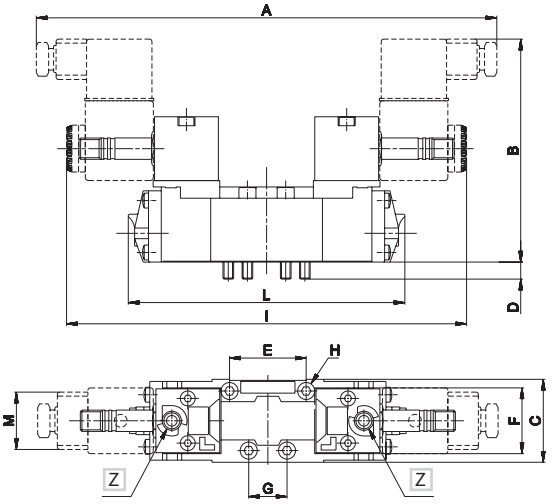
Z - Two position manual control

	Code	Function	Control 14	Return 12	Size ISO	Pressure bar	Response Time (ms) En.	Response Time (ms) De-en.	Weight kg
MIXED SYSTEM									
	BE-3000	5/2	electric amplified	pneumomechanical spring	1	2÷10	20	32	0,37
	BE-4000				2	2,3÷10	24	25	0,47
	BE-5000				3	2,5÷10	32	71	0,82
	BE-6000				4	3÷10	38	62	1,04
	BE-3060	5/2	electric amplified	pneumatic amplified	1	1÷10	16	6	0,37
	BE-4060				2	1÷10	17	7	0,47
	BE-5060				3	1÷10	23	15	0,82
	BE-6060				4	1,3÷10	25	16	1,04
SPOOL SYSTEM									
	BE-3700	5/2	electric amplified	pneumomechanical spring	1	2÷10	21	35	0,37
	BE-4700				2	2,2÷10	24	30	0,47
	BE-5700				3	2,3÷10	33	74	0,82
	BE-6700				4	2,8÷10	39	68	1,04
	BE-3760	5/2	electric amplified	pneumatic amplified	1	1÷10	17	8	0,37
	BE-4760				2	1÷10	18	9	0,47
	BE-5760				3	1÷10	26	17	0,82
	BE-6760				4	1,3÷10	27	18	1,04

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

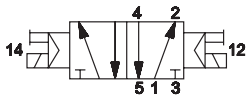
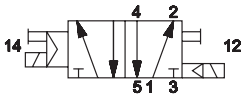
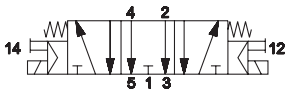
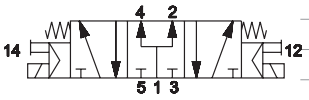
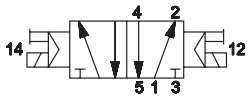
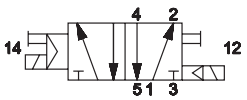
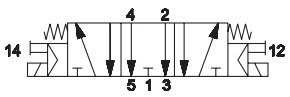
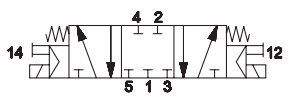
Electrovalves are supplied without coil, connector and locking ring

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

Z - Two position manual control

	Code	Function	Control 14	Return 12	Size ISO	Pressure bar	Response Time (ms) En.	Response Time (ms) De-en.	Weight kg
MIXED SYSTEM									
	BE-3020	5/2	electric amplified	electric amplified	1	1÷10	16	16	0,39
	BE-4020				2	1÷10	17	17	0,64
	BE-5020				3	1÷10	23	23	1,04
	BE-6020				4	1,3÷10	25	25	1,21
	BE-3030	5/2	electric amplified	electric non amplified (differential)	1	2÷10	16	34	0,39
	BE-4030				2	2÷10	17	29	0,64
	BE-5030				3	2,2÷10	23	54	1,04
	BE-6030				4	2,2÷10	25	45	1,21
	BE-3200*	5/2 O.C.	electric amplified	electric amplified	1	3÷10	50	26	0,39
	BE-4200*				2	3÷10	54	24	0,64
	BE-5200*				3	3÷10	108	36	1,04
	BE-6200*				4	3÷10	115	115	1,21
	BE-3205	5/2 P.C.	electric amplified	electric amplified	1	2÷10	50	26	0,39
	BE-4205				2	2,3÷10	54	24	0,64
	BE-5205				3	2,5÷10	108	36	1,04
	BE-6205				4	3÷10	115	115	1,21
SPOOL SYSTEM									
	BE-3720	5/2	electric amplified	electric amplified (differential)	1	1÷10	17	17	0,39
	BE-4720				2	1÷10	18	18	0,64
	BE-5720				3	1÷10	26	26	1,04
	BE-6720				4	1÷10	27	27	1,21
	BE-3730	5/2	electric amplified	electric non amplified	1	1,8÷10	17	28	0,39
	BE-4730				2	1,8÷10	18	25	0,64
	BE-5730				3	2,5÷10	26	46	1,04
	BE-6730				4	2,5÷10	27	42	1,21
	BE-3900	5/2 O.C.	electric amplified	electric amplified	1	2,3÷10	17	25	0,39
	BE-4900				2	2,5÷10	18	27	0,64
	BE-5900				3	2,5÷10	26	50	1,04
	BE-6900				4	2,5÷10	30	47	1,21
	BE-3940	5/2 C.C.	electric amplified	electric amplified	1	2,3÷10	17	25	0,39
	BE-4940				2	2,5÷10	18	27	0,64
	BE-5940				3	2,5÷10	26	50	1,04
	BE-6940				4	2,5÷10	30	47	1,21

O.C. = open centres **C.C.** = closed centres **P.C.** = pressurized centres

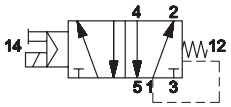
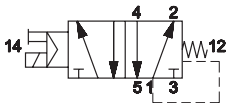
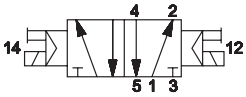
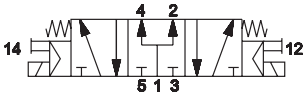
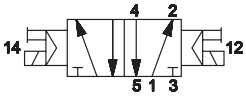
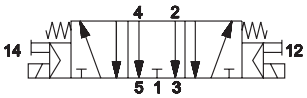
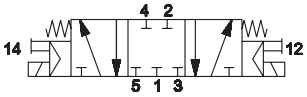
For manual version with button, add "U" to the end of the part number

* = For version with manual override contact our Sales Department

The solenoid valves are supplied without coil and connector.

The use of pneumatic components in the automotive sector, combined with electrical components, has made it possible to create a traditional ISO valve paired with a centrally positioned M12 electrical connector, for both single and double electrical control valves.

Single/double electric impulse

	Code	Function	Control 14	Return 12	Size ISO	Pressure bar	Response Time (ms) En.	Response Time (ms) De-en.	Weight kg
SINGLE IMPULSE - MIXED SYSTEM									
	BE12-3000	5/2	electric amplified	pneumatic spring	1	2÷9	18	29	0,45
	BE12-4000				2	2,3÷9	23	24	0,55
	BE12-5000				3	2,5÷9	35	78	0,90
SINGLE IMPULSE - SPOOL SYSTEM									
	BE12-3700	5/2	electric amplified	pneumatic spring	1	2÷9	19	32	0,45
	BE12-4700				2	2,2÷9	23	28	0,55
	BE12-5700				3	2,3÷9	36	82	0,90
DOUBLE IMPULSE - MIXED SYSTEM									
	BE12-3020	5/2	electric amplified	electric amplified	1	1÷9	14	14	0,55
	BE12-4020				2	1÷9	16	16	0,80
	BE12-5020				3	1÷9	25	25	1,20
	BE12-3205	5/3 P.C.	electric amplified	electric amplified	1	2÷9	45	23	0,55
	BE12-4205				2	2,3÷9	51	23	0,80
	BE12-5205				3	2,5÷9	119	40	1,20
DOUBLE IMPULSE - SPOOL SYSTEM									
	BE12-3720	5/2	electric amplified	electric amplified	1	1÷9	15	15	0,55
	BE12-4720				2	1÷9	17	17	0,80
	BE12-5720				3	1÷9	29	29	1,20
	BE12-3900	5/3 O.C.	electric amplified	electric amplified	1	2,3÷9	15	22	0,55
	BE12-4900				2	2,5÷9	17	26	0,80
	BE12-5900				3	2,5÷9	29	55	1,20
	BE12-3940	5/3 C.C.	electric amplified	electric amplified	1	2,3÷9	15	22	0,55
	BE12-4940				2	2,5÷9	17	26	0,80
	BE12-5940				3	2,5÷9	29	55	1,20

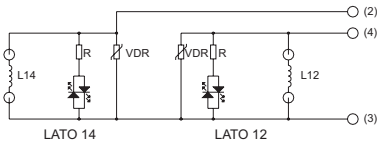
O.C. = open centres **C.C.** = closed centres **P.C.** = pressurized centres

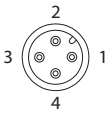
Valves are supplied with 24 V DC coil

ELECTRIC CHARACTERISTICS

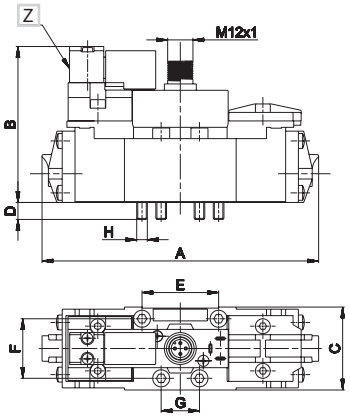
Central electric connector M12x1
IP 65 protection degree
24 V DC voltage
2,5 W nominal power
DD-052** series coil (without faston)
ED 100%
LED indicator

Available upon request other voltages max 48 V DC

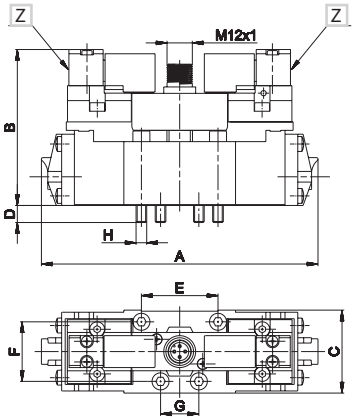




Single electric impulse



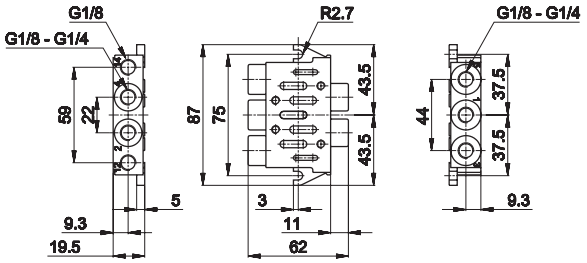
Double electric impulse



	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

Z - Single-position manual pushbutton control

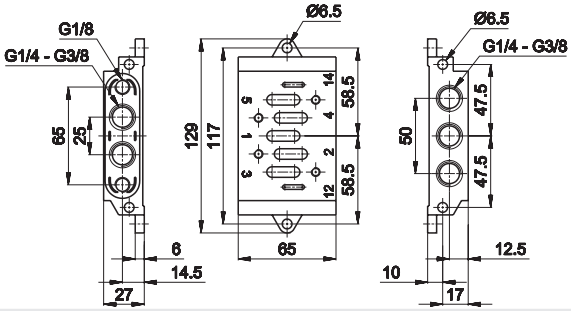
ISO 1 - Single sub-base, side connections



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

Code	Note	Connection	Material	Weight kg
BF-1060	in line connections	G1/8	Zamak	0,25
BF-1061	in line connections	G1/4	Zamak	0,25

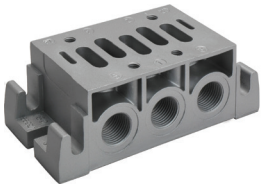
ISO 2 - Single sub-base, side connections

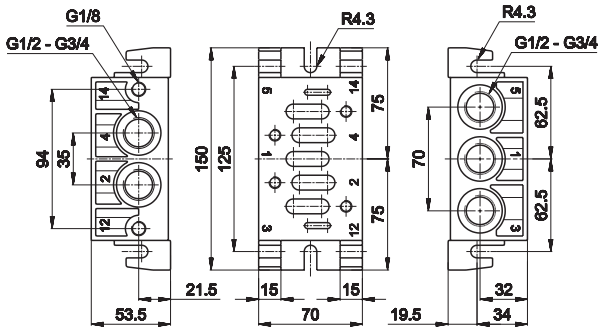


1= Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-1150	in line connections	G1/4	Zamak	0,65
BF-1151	in line connections	G3/8	Zamak	0,65

ISO 3 - Single sub-base, side connections

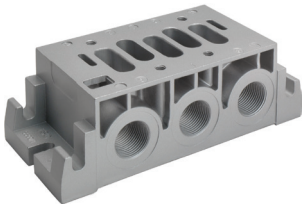


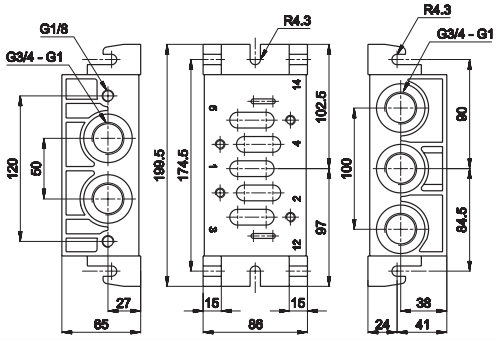


1= Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-3063	in line connections	G1/2	Aluminium	0,74
BF-3061	in line connections	G3/4	Aluminium	0,74

ISO 4 - Single sub-base, side connections

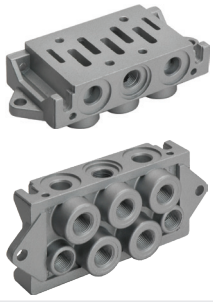


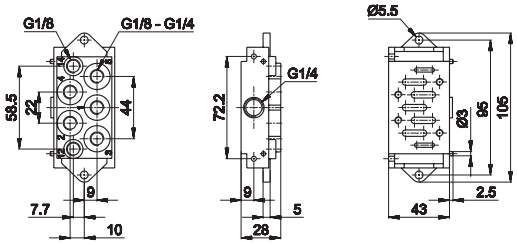


1= Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-4060	in line connections	G3/4	Aluminium	1,28
BF-4061	dorsal and side connections	G1	Aluminium	1,28

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



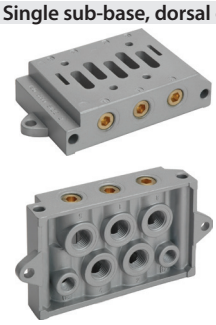


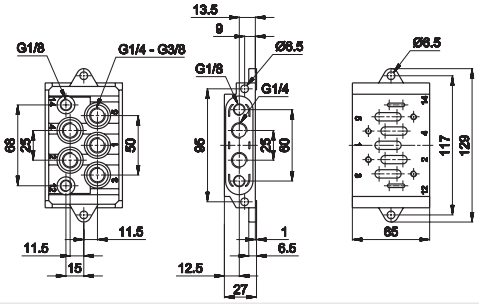
1= Supply port
2 - 4 = Use
3 - 5 = Exhaust
12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-1062	dorsal connections	G1/8	Zamak	0,35
BF-1063	dorsal connections	G1/4	Zamak	0,33

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

ISO 2 - Single sub-base, dorsal connections





1= Supply port

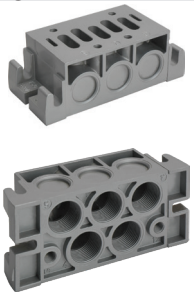
2 - 4 = Use

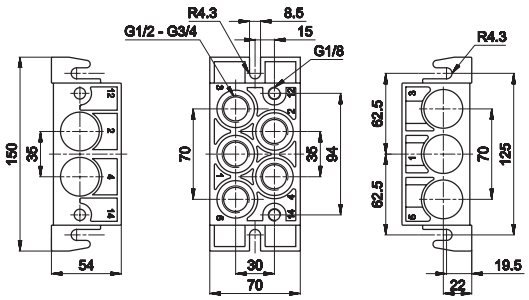
3 - 5 = Exhaust

12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-1152	dorsal connections	G1/4	Zamak	0,65
BF-1153	dorsal connections	G3/8	Zamak	0,65

ISO 3 - Single sub-base, dorsal connections





1= Supply port

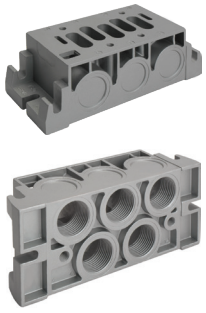
2 - 4 = Use

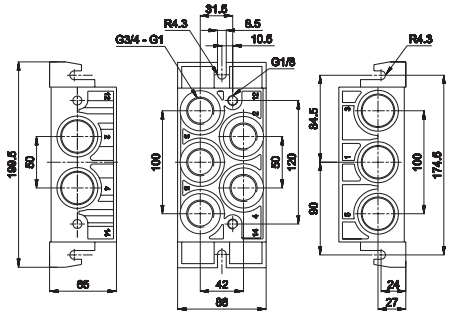
3 - 5 = Exhaust

12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF- 3063	dorsal connections	G3/4	Aluminium	0,72

ISO 4 - Single sub-base, dorsal connections





1= Supply port

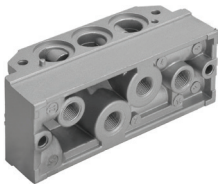
2 - 4 = Use

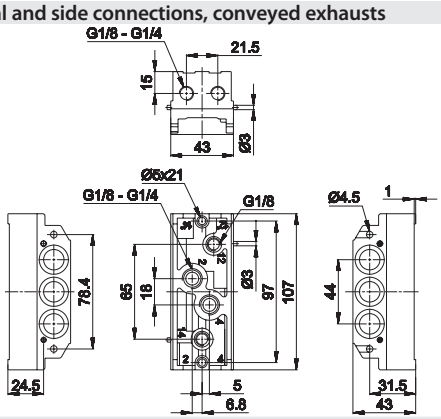
3 - 5 = Exhaust

12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-4062	dorsal connections	G3/4	Aluminium	1,24
BF-4063	dorsal connections	G1	Aluminium	1,24

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





1 = Supply port

2 - 4 = Use

3 - 5 = Exhaust

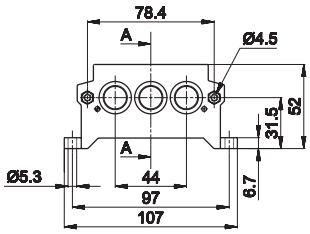
12 - 14 = Pilots

12* - 14* = Side pilots

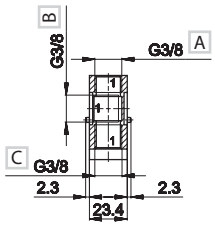
Code	Note	Connection	Material	Weight kg
BF-1071	dorsal and side connections	G1/8	Aluminium	0,28
BF-1072	dorsal and side connections	G1/4	Aluminium	0,28
BF-1071S	side pneumatic impulses	G1/8	Aluminium	0,30
BF-1072S	side pneumatic impulses	G1/4	Aluminium	0,30

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

ISO 1 - Manifold universal system inlet plate



Section A-A



1= Supply port

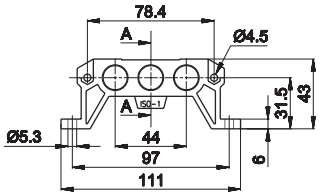
3 - 5= Exhaust

A - On top connections

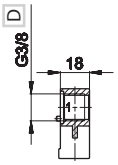
B - In line connections

C - Dorsal connetions

Code	Note	Connection	Material	Weight kg
BF-1065	on top connections	G3/8	Zamak	0,35
BF-1066	dorsal connections	G3/8	Zamak	0,35



Section A-A



1= Supply port

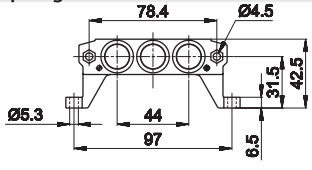
3 - 5= Exhaust

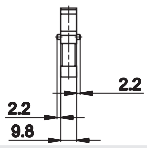
D - Outlets in-line only

Code	Note	Connection	Material	Weight kg
BF-1068	only in line connections	G3/8	Aluminium	0,12

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

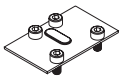


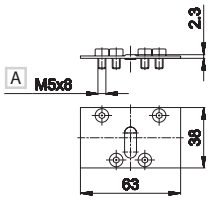


The diaphragm is not only the end plate of the manifold but it is also coupled with the exhaust regulator to separate two sub-bases and regulate the valves independently. In this case break the central blind hole.
To get two or more pressures, break the two side blind holes.

Code	Note	Connection	Material	Weight kg
BF-1070	-	-	Zamak	0,09

BF-1085

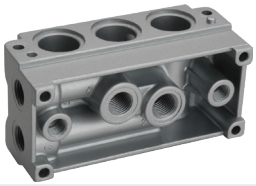


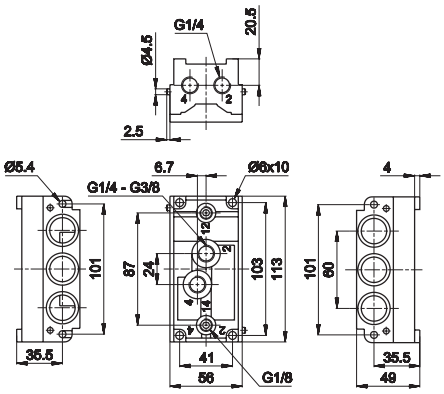


A - ISO 4762

ISO 1 - Closing plate for sub-base 1
material: steel
weight: 0,03 Kg (for all sub-base versions)

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





1= Supply port

2 - 4 = Use

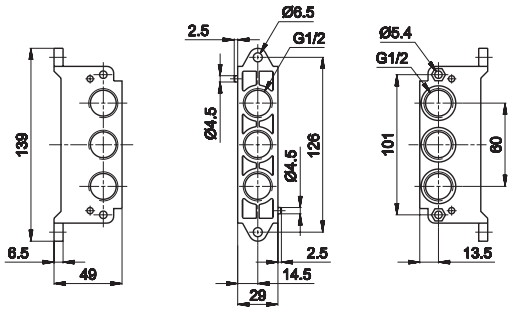
3 - 5= Exhaust

12 - 14 = Pilots

Code	Note	Connection	Material	Weight kg
BF-1160	Dorsal and side connections	G1/4	Zama	0,80
BF-1161	Dorsal and side connections	G3/8	Zama	0,80

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

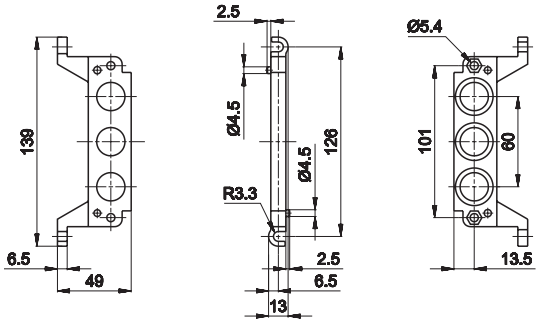
ISO 2 - Manifold Universal system inlet plate



Code	Note	Connection	Material	Weight kg
BF-1154	In line connections	G1/2	Zamak	0,46
BF-1155	Dorsal connections	G1/2	Zamak	0,46

The diaphragm, in addition to being the terminal plate of the battery, is coupled to the discharge regulator in order to separate one sub-base from the other, allowing the valves to be adjusted individually. In this case, break the central blind hole. It also acts as a diaphragm to obtain two or more pressures. In this case, break the two side blind holes.

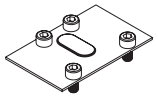
ISO 2 - Manifold universal system diaphragm

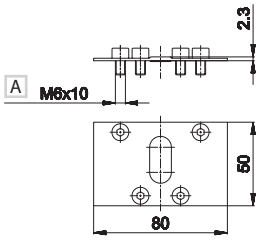


The diaphragm is not only the end plate of the manifold but it is also coupled
with the exhaust regulator to separate two sub-bases and regulate the valves
independently. In this case breakthe central blind hole.
To get two or more pressures, break the two side blind holes..

Code	Note	Connection	Material	Weight kg
BF-1162	-	-	Zamak	0,16

BF-1175

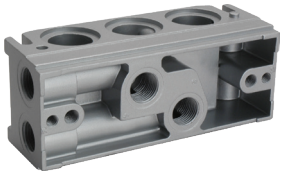


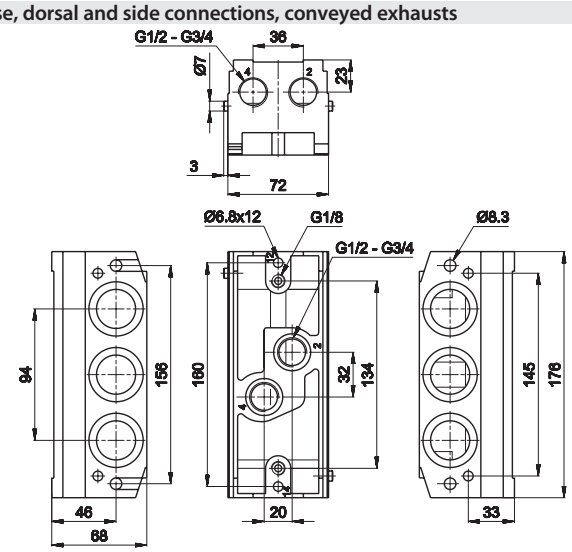


A - ISO 4762

ISO 2 - Closing plate for sub-base 2
material: steel
weight: 0,05 Kg (for all sub-base versions)

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





1 = Supply port

2 - 4 = Use

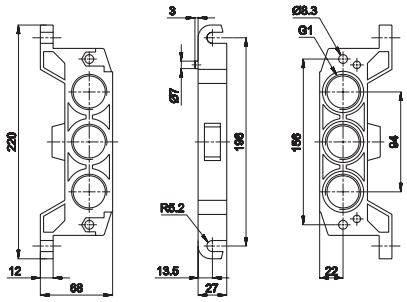
3 - 5 = Exhaust

12 - 14 = Pilots

Code	Note	Connessione	Materiale	Peso kg
BF-3071	dorsal and side connections	G1/2	Aluminium	1,10
BF-3072	dorsal and side connections	G3/4	Aluminium	1,10

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

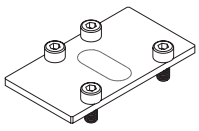
ISO 3 - Manifold Universal system inlet plate

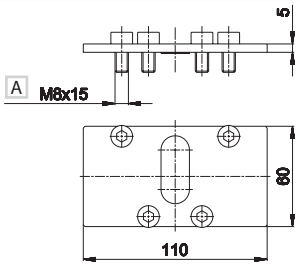


Code	Note	Connessione	Materiale	Peso kg
BF-3064	in line connections	G1	Aluminium	0,44

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

BF-3175





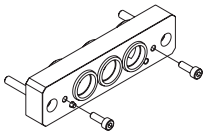
A - ISO 4762

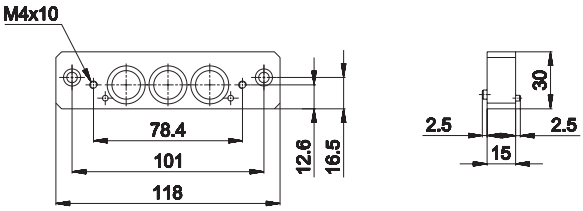
ISO 3 - Closing plate for sub-base 3
material: steel
weight: 0,08 Kg (for all sub-base versions)

BF-3082

ISO 3 - Universal system Cap
material: steel
weight: 0,20 Kg
To be used to reach two pressures

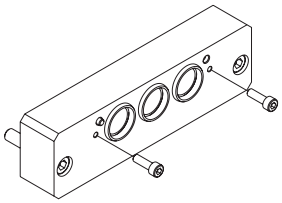
BF-1190

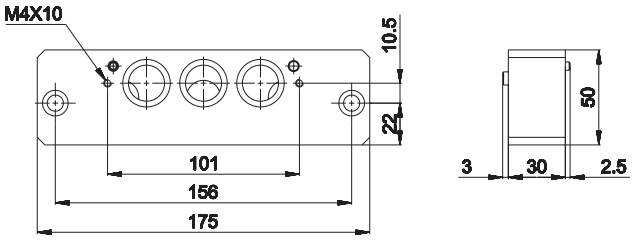




Connecting interface for universal sub-bases size 1 and 2
material: steel
weight: 0,11 Kg
It allows the use of size 1 and 2 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

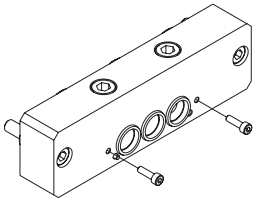
BF-3190

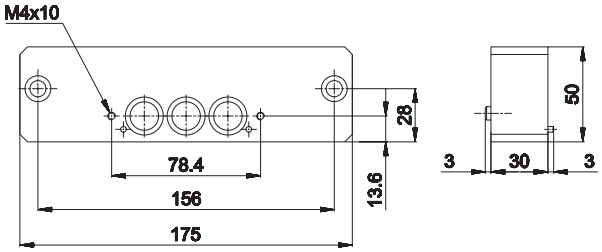




Connecting interface for universal sub-bases size 2 and 3
material: steel
weight: 0,57 Kg
It allows the use of size 2 and 3 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

BF-3191





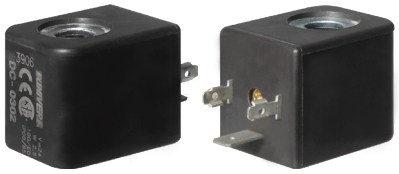
Connecting interface for universal sub-bases size 1 and 3
material: steel
weight: 0,57 Kg
It allows the use of size 1 and 3 valves in one manifold with conveyed pressure and exhausts. (Upon request: pressure and/or exhausts separated)

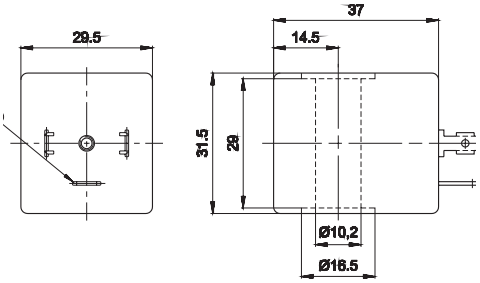
Coil

CSA/UL

Possibility of replacement without intervention in the pneumatic circuit
Other voltages available upon request
360° rotation on the pilot. Coil winding: H class
Ambient temperature: -10 ÷ +45 °C. Fluid temperature: -10 ÷ +95 °C.
The solenoid valves functioning with 100V-230V must be incorporated (EN60204-1)
Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated.
Protection class IP65, if used with connector.

Coil U3 - lato 30 mm to be used with electropilot BE

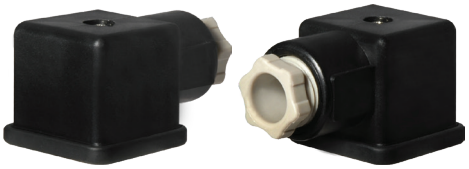


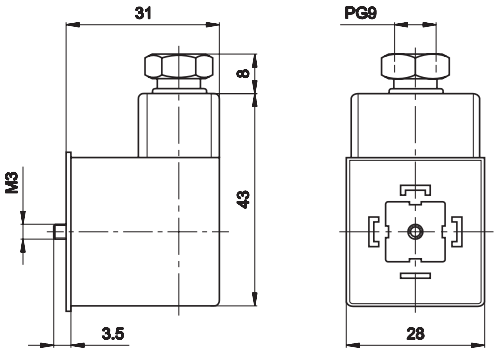


Code	Duty cycle ED (a) %	Power consumption W Hold	Inrush	Tolerance tension %	Rated voltage	Weight Kg
DC-0301	100	2,5	2,5	±10	12 V DC	0,08
DC-0302	100	2,5	2,5	±10	24 V DC	0,08
DC-0307	100	3,3 VA (Max)	5 VA (Max)	±10	24 V AC/50-60 HZ	0,08
DC-0309	100	3,3 VA (Max)	5 VA (Max)	±10	110 V AC/50-60 HZ	0,08
DC-0310	100	3,3 VA (Max)	5 VA (Max)	±10	230 V AC/50-60 HZ	0,08

(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilated

Connector DIN 43650 for coil series U3

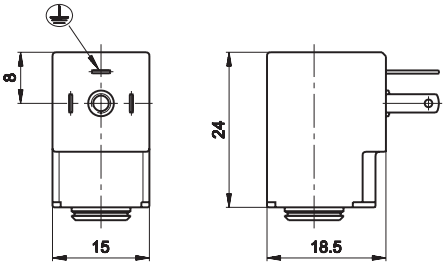




Coil series U3

AM-5111 Protection according to IP 65. PG9 cable connection. 360° rotation on the coil.
LED available upon request.

U05 coil, 15 mm, Faston, for BE12 replacement



Code	Connector	Duty cycle ED (a) %	Power consumption W DC W Hold	DC W Inrush	AC VA Hold	AC VA Inrush	Tolerance tension % DC	Tolerance tension % AC	Rated voltage DC	Rated voltage AC	Frequency HZ	Weight Kg
DD-052	AM-5109	100	2,5	2,5	-	-	±10	-	24	-	-	0,019

Upon request version with LED:
(a) = 110V - 230V solenoid valves must be built-in (EN-60204-1)
Under continuous service a maximum temperature will not compromise the functioning of the coil provided that the working position is ventilatedt