EB 80 ELECTRO-PNEUMATIC SYSTEM

EB 80 is defined as an electro-pneumatic system as it would be simplistic to use the term "solenoid valve island". In effect, a single assembly can combine solenoid valves of all types, multi-position bases, pneumatic and electric supplies arranged as desired in a system, digital or analogue input or output signal control modules and much more besides.
The EB 80 system is protected by numerous patents and utility models, which enhance the most innovative design solutions.
The possible combinations are endless, but the most amazing thing is that they can be obtained using a small number of basic components.
In order to achieve this objective, a single size of small yet high-performance valves to cover the vast majority of applications was conceived.
A single electronic control unit is provided when supplying 12VDC or 24VDC valves with multi-pole cables or with a field bus for each protocol.
All EB 80 versions come with an efficient diagnostic system.
The EB 80 catalogue consists of a first overall introductory chapter followed by a chapter for each subsystem.
NSF H1-certified grease is used to lubricate the valve spool and seals.

TECHNICAL DATA

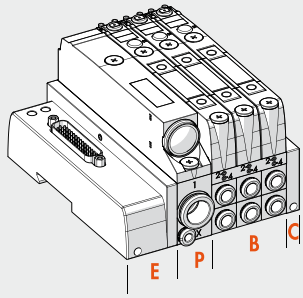
Supply voltage range	V	12 -10% 24 +30%					
Minimum operating voltage	V	10.8 *					
Maximum operating voltage	V	31.2					
Maximum admissible voltage	V	32 ***					
Power for each controlled pilot	W	3 for 15 ms, then holding 0.3					
Drive (for multi-pole)		PNP or NPN					
Solenoid rating		100% ED					
Solenoid valve supply power		See chapter "Electrical connection - E"					
Signal module supply power		See chapter "Signal module - S"					
Protection		Overload and short-circuit protected solenoid pilot Output					
Diagnostics		See chapter "Electrical connection - E"					
Maximum number of solenoid pilots		21 or 38 multi-pole connection; field bus 128					
Ambient temperature	°C	-10 to + 50 (at 116 psi)					
	°F	14 to 122 (at 116 psi)					
Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min. (see graph on page 1 -141) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page 1 -141) / max. 0.8		
	psi	43 to 116			min. (see graph on page 1 -141) / max. 116		
Valve flow rate, at 91 psi ΔP 14.5 psi		**Ø 4 mm (5/32")**	**Ø 6 mm**	**Ø 8 mm (5/16")**	**Ø 1/4"**	**Ø 10 mm ****	**Ø 3/8" ****
valve 2/2	scfm	12.4	15.2	17.7	15.2	-	-
valve 3/2	scfm	12.4	21.2	24.8	21.2	44.2	44.2
valve 5/2	scfm	12.4	23.0	28.3	23.0	44.2 - 49.5	44.2 - 49.5
valve 5/3	scfm	12.4	16.3	17.7	16.3	35.3 - 44.2	35.3 - 44.2
valve V3V (R)	scfm	-	-	-	-	35.3	35.3
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valve 2/2 and 3/2	ms	14 / 28					
TRA/TRR valves 5/2 monostable and shut-off valve	ms	12 / 45					
TRA/TRR valve 5/2 bistable	ms	12 / 14					
TRA/TRR valve 5/3	ms	15 / 45					
TRA/TRR valve 3/2 high flow	ms	13 / 36					
Fluid		Unlubricated air					
Air quality required		ISO 8573-1 class 4-7-3					
Degree of protection		IP65 (with connectors connected or plugged if not used)					

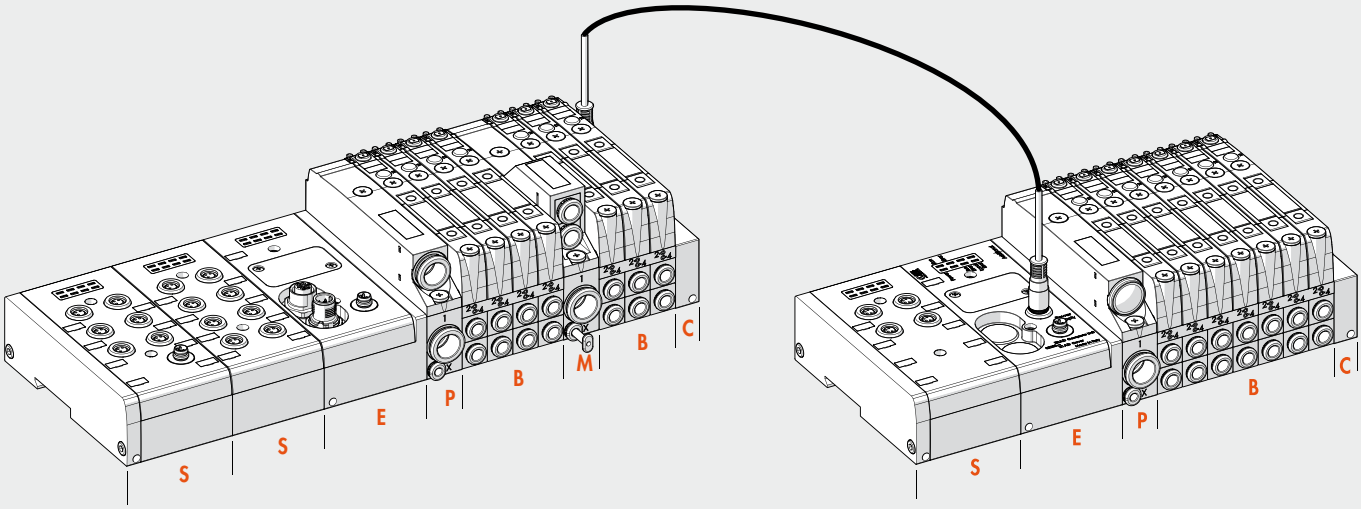
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page 1-109.**
** Using high-flow valves or connected valves - see pages 1-114
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
N.B.: Refer to the chapter of each EB 80 sub-assembly for specific technical data.

COMPONENTS

EB 80 systems are identified by a set of sub-assemblies:

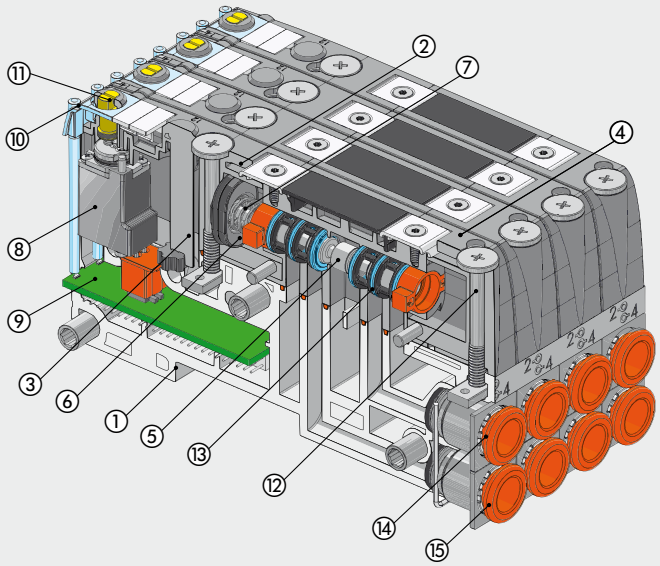
- **S** I/O **S**ignal Modules
- **E** **E**lectrical connection
- **P** **P**neumatic supply
- **B** **B**ases for solenoid valves; the valves are fixed on the bases
- **M** Inter**M**ediate Modules
- **C** **C**losed end-plate





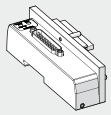
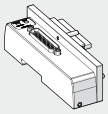
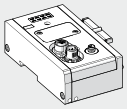
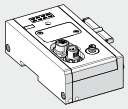
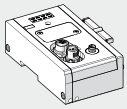
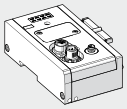
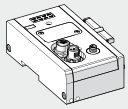
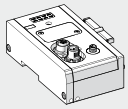
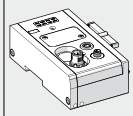
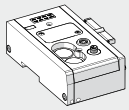
COMPONENTS – SOLENOID VALVE AND BASE

① BASE: technopolymer
② VALVE BODY: technopolymer
③ CONTROL: technopolymer
④ BASE: technopolymer
⑤ SPOOL: chemically nickel-plated aluminium
⑥ CONTROL PISTON: Stainless steel and NBR
⑦ SPRING: Oteva® steel and Dacromet treatment
⑧ SOLENOID VALVE
⑨ ELECTRONIC BOARD
⑩ LED light display: technopolymer
⑪ MANUAL CONTROL: nickel-plated brass
⑫ SCREW SECURING VALVE TO THE BASE: galvanised steel
⑬ SPOOL GASKET: NBR
⑭ Push-in fitting CARTRIDGE for port 2
⑮ Push-in fitting CARTRIDGE for port 4

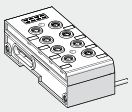
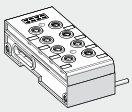
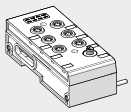
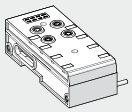
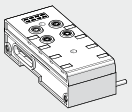
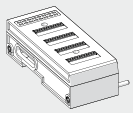
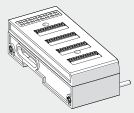
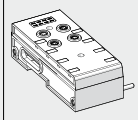


THE EB 80 WORLD

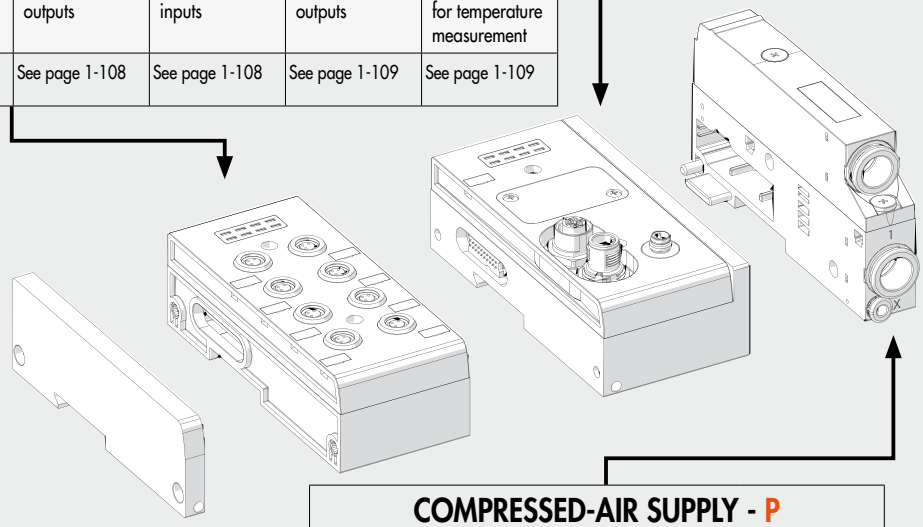
ELECTRICAL CONNECTION - E

E025	E044	E0EN	E0EC	E0PN	E0CN	E0PB	E0PL	E0IO	E0AD
									
EB 80 25-pin electrical connection	EB 80 44-pin electrical connection	EB 80 Electrical connection EtherNet/IP	EB 80 Electrical connection EtherCAT	EB 80 Electrical connection Profinet IO	EB 80 Electrical connection CANopen	EB 80 Electrical connection Profibus-DP	EB 80 Electrical connection Ethernet POWERLINK	EB 80 Electrical connection IO-Link	Additional electrical connection EB 80
See page 1-116	See page 1-116	See page 1-137	See page 1-137	See page 1-137	See page 1-137	See page 1-137	See page 1-137	See page 1-137	See page 1-142

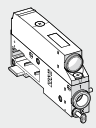
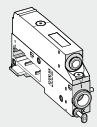
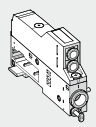
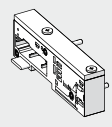
SIGNAL MODULE - S

S01	S02	S03	S04	S05	S06	S07	S08
							
EB 80 module with 8 M8 digital inputs	EB 80 module with 8 M8 digital outputs	EB 80 module with 6 M8 digital outputs + electrical supply	EB 80 module with 4 M8 analogue inputs	EB 80 module with 4 M8 analogue outputs	EB 80 module with 16 digital terminal block inputs	EB 80 module with 16 digital terminal block outputs	EB 80 module with 4 M8 analogue inputs for temperature measurement
See page 1-106	See page 1-106	See page 1-107	See page 1-107	See page 1-108	See page 1-108	See page 1-109	See page 1-109

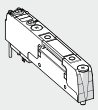
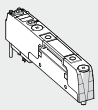
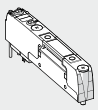
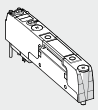
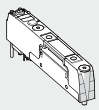
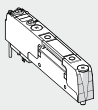
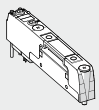
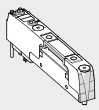
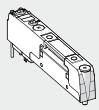
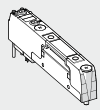
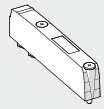
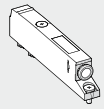
Part included in the **ELECTRICAL CONNECTION - E** with Fieldbus

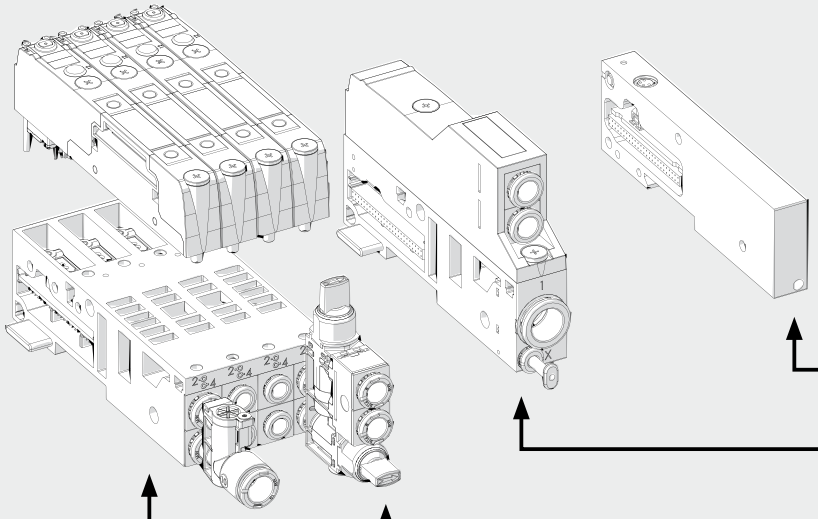


COMPRESSED-AIR SUPPLY - P

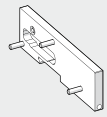
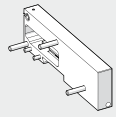
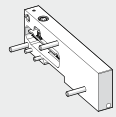
P_ _Z00	P_ _Z_ _	P_ _Z60	P91Z90
			
Compressed air supply - Silenced relief	Compressed air supply - Conveyed relief	Compressed air supply - Separate reliefs	Module for electric version only
See page 1-135	See page 1-135	See page 1-135	See page 1-136

VALVES

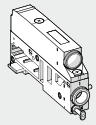
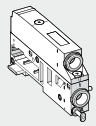
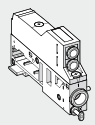
Z_ ▲	I_ ▲	W_ ▲	L_ ▲	V_ ▲	K_ ▲	O_ ▲	G_	J_	R_ ✚	N0	Y8
											
2 valves 2/2 NC	2 valves 3/2 NC (valid as 5/3 OC)	2 valves 3/2 NO (valid as 5/3 PC)	3/2 NC + 3/2 NO	monostable 5/2	bistable 5/2	5/3 CC	3/2 NC high flow	3/2 NO high flow	Shut-off valve	Dummy valve	Bypass
See page 1-141	See page 1-141	See page 1-141	See page 1-141	See page 1-141	See page 1-141	See page 1-141	See page 1-142	See page 1-142	See page 1-143	See page 1-144	See page 1-144



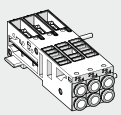
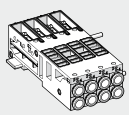
CLOSED END-PLATE - C

C1	C2	C3
		
Closed end-plate for islands with multi-pole connector	Closed end-plate for islands with fieldbus	Closed end-plate for electrical connection of islands with fieldbus to additional islands
See page 1-152	See page 1-152	See page 1-152

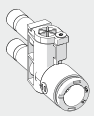
INTERMEDIATE SUPPORT - M

M_ _ _ Z0_	M_ _ _ Z_ _	M_ _ _ Z6_
		
Intermediate module - Silenced relief	Intermediate module - Conveyed relief	Intermediate module - Separate relief
See page 1-147	See page 1-148	See page 1-149

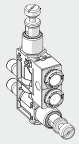
BASES FOR VALVES - B

B3_ _ _ _ _0	B4_ _ _ _ _ _
	
3-position base for valves	4-position base for valves
See page 1-138	See page 1-138

Y-FITTING

R2

Y-fitting
See page 1-145

MULTI-FUNCTION MODULE


Fittings with pneumatic functions
See page 1-166

▲ Can only be used with 8-control bases.
✚ Requires inlet port X slave synchronisation.

FIXING OPTIONS

1 - Fixing on a DIN bar: tighten the grub screws into modules E (electrical connection) and C (closed end plate).
For islands with more than 40 valves or 5 modules, also use the additional plate code 02282R4001.

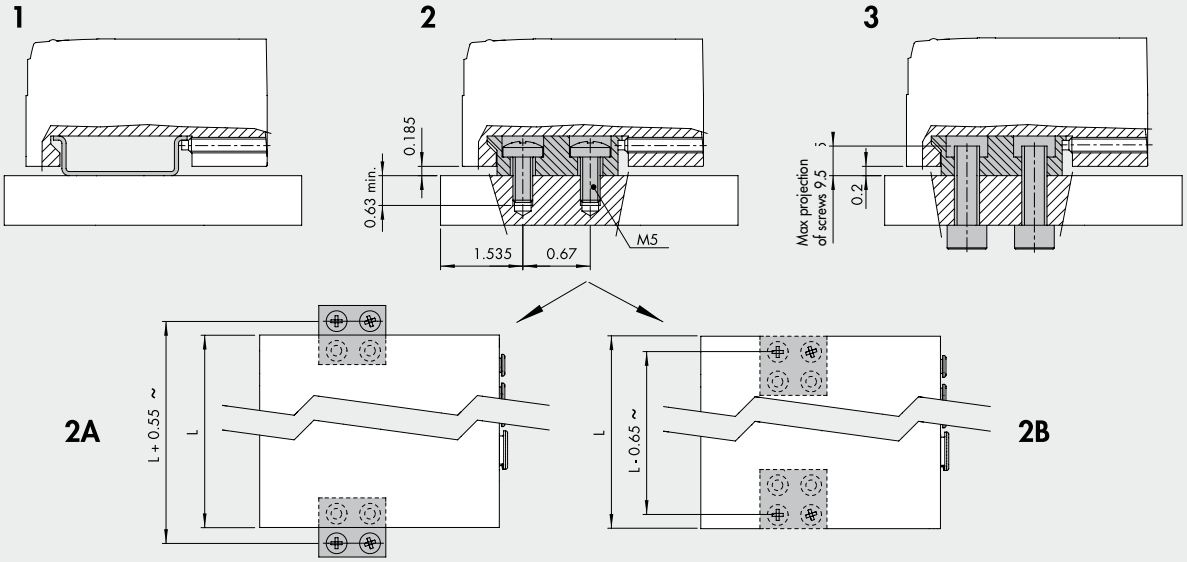
2 - Fixing on a flat surface: use the pair of brackets code 02282R4000 and the M5x20 screws supplied.
You can choose where to position the brackets in relation to the island:

2A - *Protruding brackets*: can be used to install the island + brackets unit from above. First secure the brackets to the modules E and C using the grub screws, then secure everything with M5x20 screws.

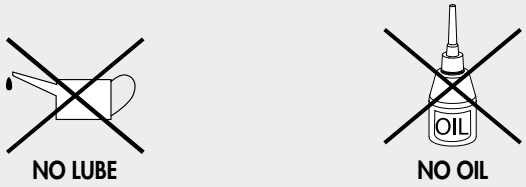
2B - *Concealed brackets*: the overall dimensions of the island are reduced. First secure the brackets to the flat top with M5x20 screws, then place the island onto the brackets and lock the two grub screws provided in the modules E and C.

3 - Fixing through a wall: use the brackets code 02282R4000. The brackets come with M6 threaded holes and can be fixed with M6 screws (not included in the supply) passing through the wall. The brackets can fixed either protruded or concealed.

N.B.: Planar surfaces are required to ensure correct fixing. Avoid twisting or bending the valve units.



LUBRICATION



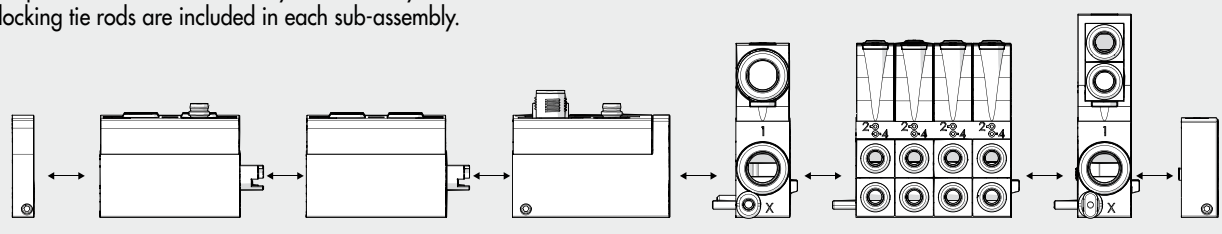
NO LUBE NO OIL

The EB 80 electro-pneumatic system is designed to run millions of cycles without the need for any lubrication. This is possible thanks to the optimisation of its components and the use of a special grease with excellent properties and NSF H1 certified. To avoid removing the grease, it is highly recommended not to lubricate the valve input and output ports and check the quality (to ISO 8573-1 class 4-7-3) of the compressed air used, which is often contaminated by particularly aggressive oils that are released by compressors and are not always compatible with the elastomers used in the valves.

SOME CHARACTERISTICS OF EB 80 SYSTEMS

HORIZONTAL MODULARITY

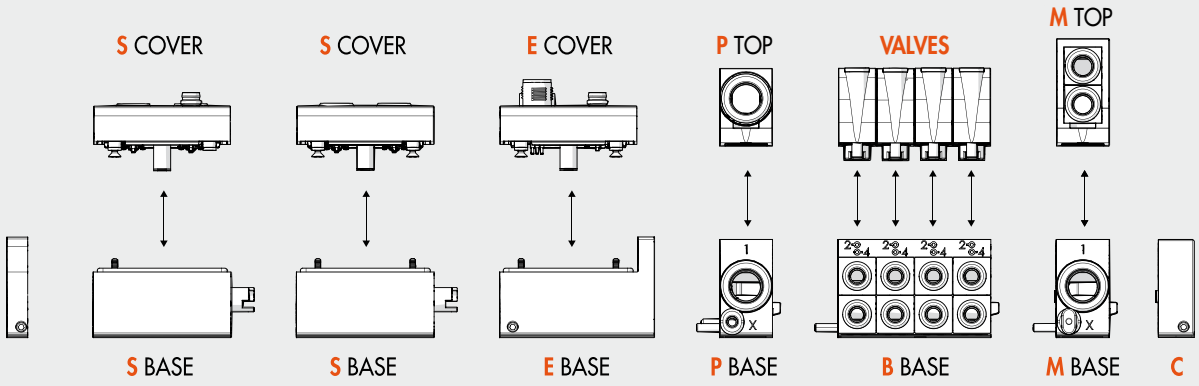
- Easy replacement or addition of any sub-assembly.
  The locking tie rods are included in each sub-assembly.



VERTICAL MODULARITY

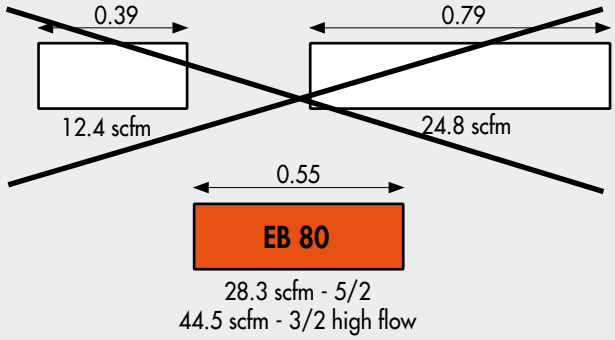
- Easy replacement – no need to disassemble the pack – of the valves on the Bases – B and also of the top part (cover) of subsystems **S**, **E**, **P**, **M** using a single Phillips-head screwdriver.

N.B.: All protocols can be mounted on the base for field buses and all input or output modules can be mounted on the same base for signals.



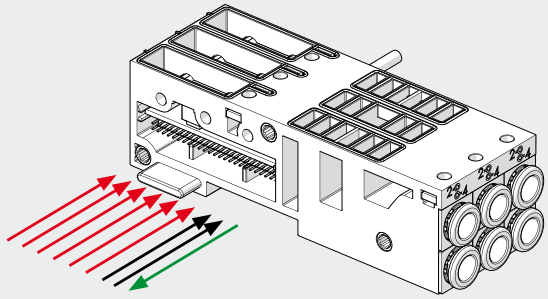
ONE SIZE FITS ALL

- Reduced dimensions
- High flow rate
- One warehouse and spares



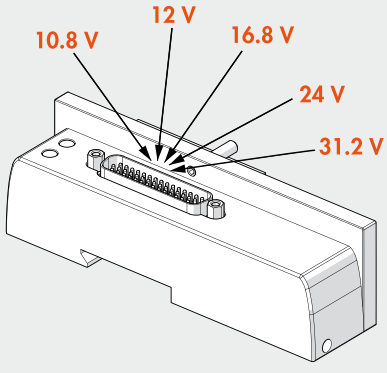
THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES

- Controls from multi-pole connection
- Controls from field buses
- Diagnostics



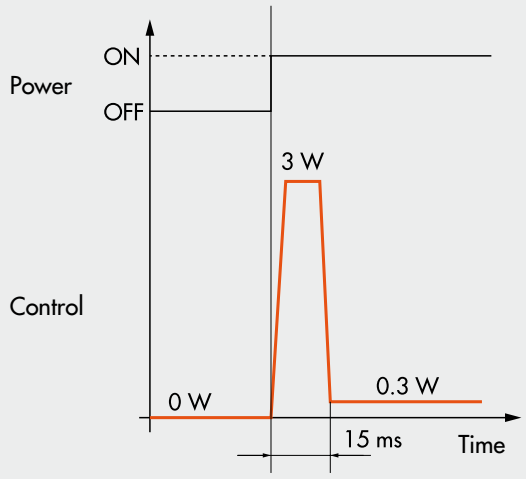
PATENTED

THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC



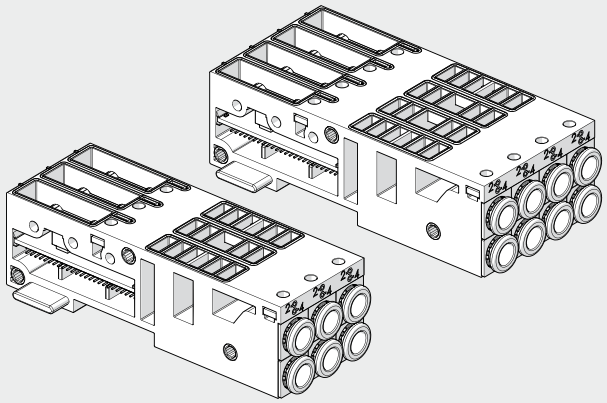
ONLY 0.3 W FOR EACH SOLENOID VALVE

- Speed-up solenoid valve control:
  - high power for a few milliseconds ensures high performance and rapid and safe switching;
  - reduced holding power resulting in reduced temperatures and energy saving.



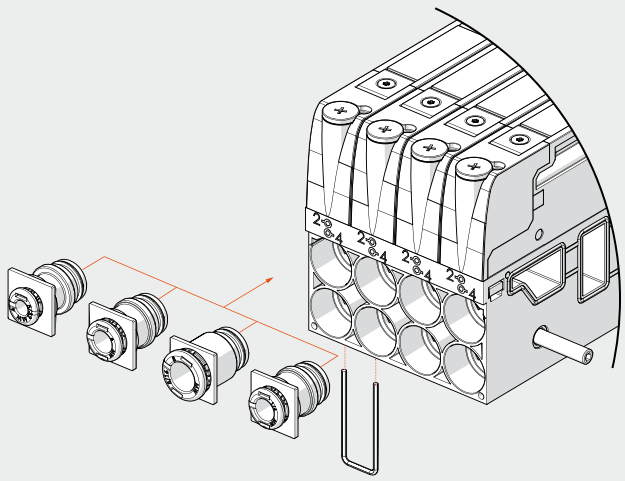
3- OR 4-POSITION BASES FOR VALVES

- Island layout options:
  - **3** 1 base with 3 positions
  - **4** 1 base with 4 positions
  - (**5** 2 bases with 3 positions and 1 dummy valve)
  - **6** 2 bases with 3 positions
  - **7** 1 base with 3 and 1 with 4 positions
  - **8** 2 bases with 4 positions
  - ...
- Compared to single-base solutions, this configuration is advantageous because:
  - just a few bases are required for multiple positions;
  - the base is sturdy and rigid;
  - there is plenty of space to accommodate smart electronics

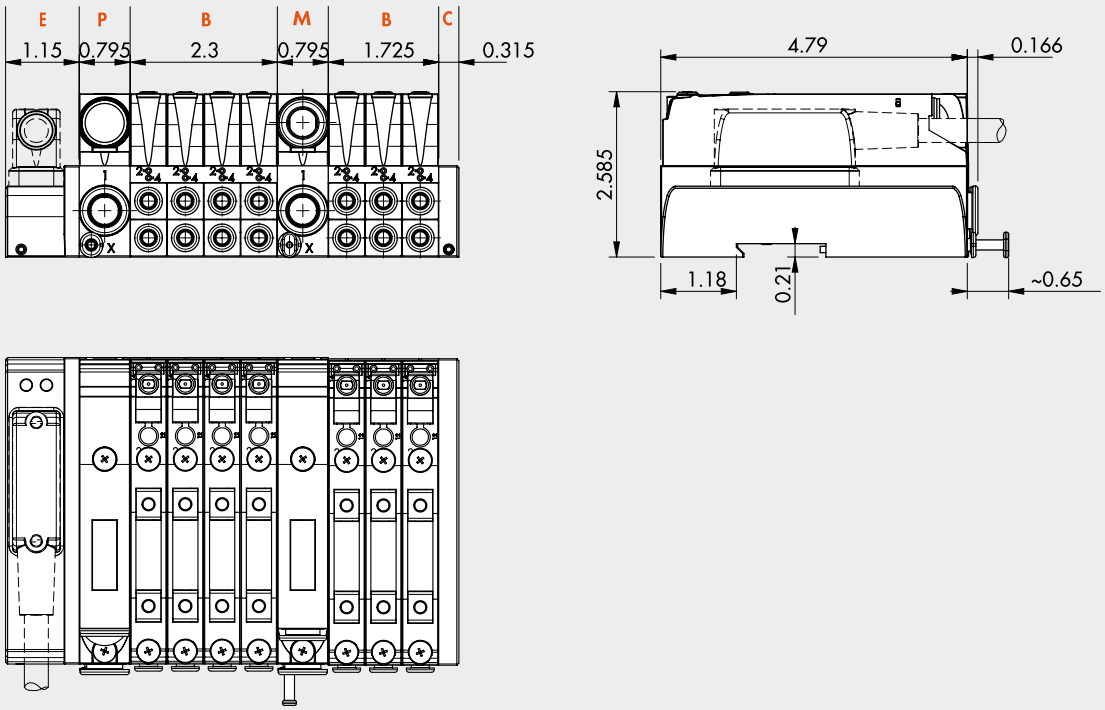


INTERCHANGEABLE CARTRIDGE FITTINGS

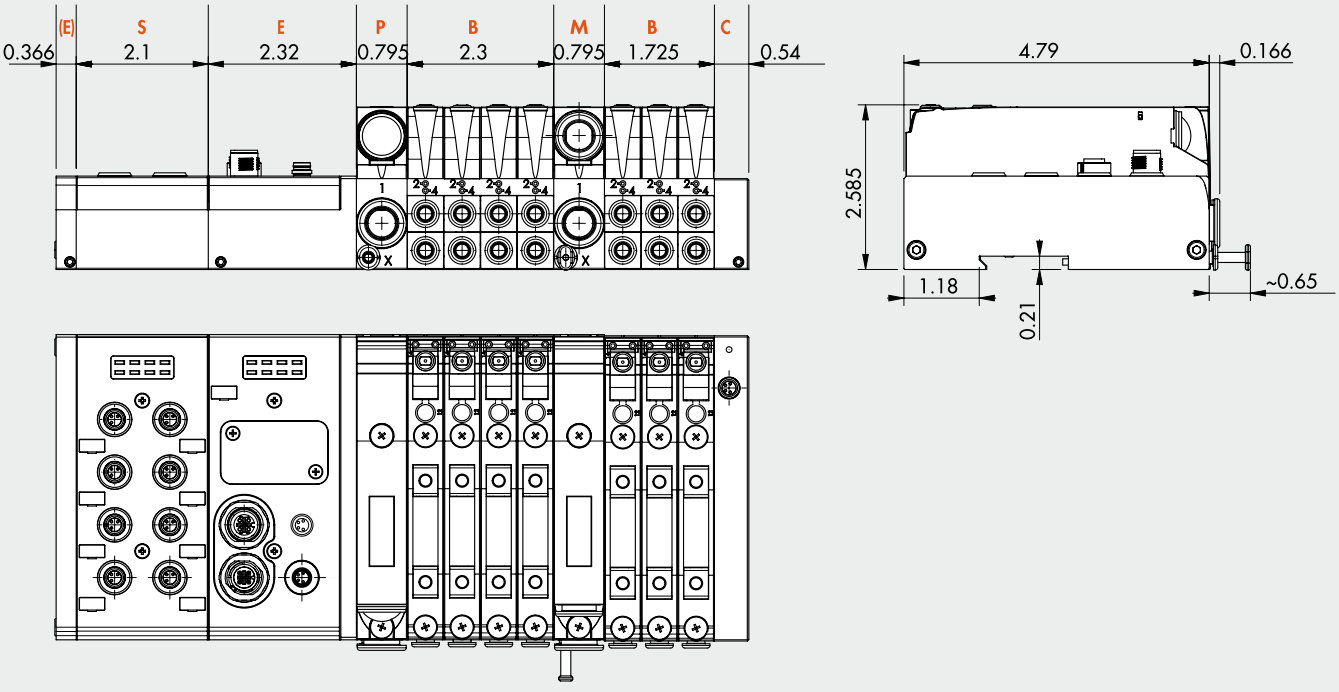
- For pipes Ø 4 mm (5/32″), 6 mm, 8 mm (5/16″), 1/4″



DIMENSION OF VERSIONS WITH MULTI-POLE CONNECTION



DIMENSION OF VERSIONS WITH FIELD BUS OR ADDITIONAL CONNECTION



DESCRIPTION

A complete system has a compound **description** of all its subsystems listed in sequence from left to right, as shown below.
The abbreviation of each subsystem is obtained by taking the code and omitting the first digits 02282.
For example: the digital 8-input signal module is identified with code 02282S01; only write S01 in the description.

The abbreviation of each base for valves consists of:

Abbreviation of the Base	**Manual valve control**	**Type of valves**
Obtained from the code, after removing 02282	0 = monostable 1 = bistable	Valves Dummy valve Bypass
Example		
4-position base, 8 solenoid pilots, Ø 6 pipe; code 02282B4086666	Monostable	2 monostable 5/2 valves - V 1 double 3/2 NO - W 1 dummy valve - F
Abbreviation		
B4086666	0	VVWF

The description is therefore a sequence of this type:

EB 80	**- S_ _**	**- E_ _ _**	**- P_ _ _ _ _**	**- B_ _ _ _ _ _ _ _ _ _ _ _**	**- M_ _ _ _ _ _**	**- C_**
EB 80 system	**Signal module** (if present)	**Electrical connection**	**Compressed air supply**	**Base for valves** (as many as there are) with normal or dummy	**Intermediate** (if present)	**Closed end-plate**
For the codes:	see page 1-110	see page 1-114	see page 1-136	see page 1-139 and 1-144	see page 1-150	see page 1-153

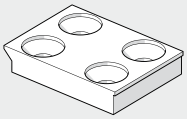
Example:
EB 80-S01-E0EN-P3XZ00-B40866660VWKN-M300Z30-B30388800VVN-C2

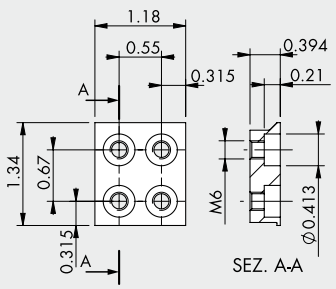
EB 80	**- S01**	**- E0EN**	**- P3XZ00**	**- B40866660VWKN**	**- M300Z30**	**- B30388800VVN**	**- C2**
EB 80 system	**Signal module** complete 8 M8 digital inputs	**Electrical connection** EtherNet/IP	**Compressed air supply** - fitting Ø 12 - pilot servo Ø 4 - silenced relief	**Base for valves** - 4 positions - 8 controls - fittings for pipe Ø 6 - manual monostable control - 5/2 monostable valve - 2 3/2 NO valves - bistable 5/2 valve - dummy valve	**Intermediate** - fittings for pipe Ø 12 - through ports - without supplementary power supply	**Base** - 3 positions - 3 controls - fittings for pipe Ø 8 - manual monostable control - 5/2 monostable valve - 5/2 monostable valve - dummy valve	**Closed end-plate** for valve Island with field bus

Endless number of EB 80 systems can be obtained and their description is variable in length, which can be very extended.
The actual ordering CODE of an EB 80 system is created by Metal Work S.p.A. with a limited number of characters.
The ordering code is not explicative. The description only is univocal, complete and explicative.

ACCESSORIES

FIXING BRACKET





Code	**Description**	**Weight [lb]**
02282R4000	EB 80 base fixing bracket	0.1

Note: 2 pieces per pack complete with 4 M5x20 screws

NOTES

Please refer to the subsystem chapter for other accessories (e.g. connectors) and spare parts.

The new advanced EB 80 diagnostic functions, known as EB 80 I4.0, provide a powerful analysis tool for traditional maintenance operations, ensuring the safe, reliable and lasting operation of production units.
They are available for all electrical connections with fieldbuses and bases marked I4.0, with advanced diagnostics integrated in accordance with Industry 4.0 philosophy.
These functions use the original EB 80 diagnostics, integrating them with the ability of the station itself to control IOs.
They re-organise and optimise maintenance management by developing predictive maintenance in order to:
- predict faults;
- intervene early to avoid system downtime;
- have all information on equipment operation available in real time;
- monitor component end-of-lifetime;
- optimise warehouse spare parts management.

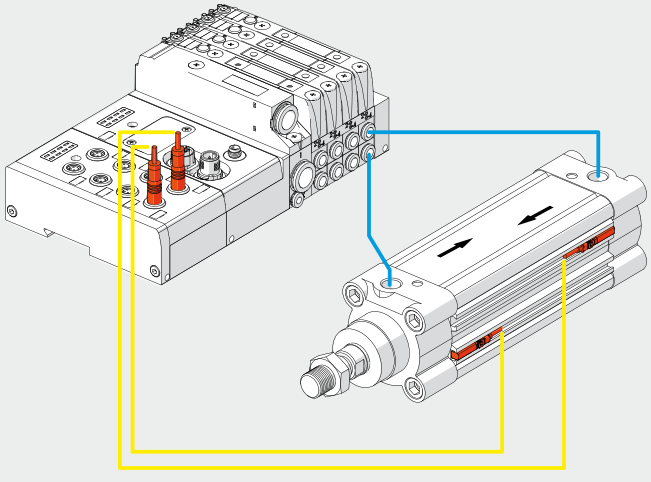
This makes it possible to turn the data collected into concrete actions using standard EB 80 stations without needing additional modules.

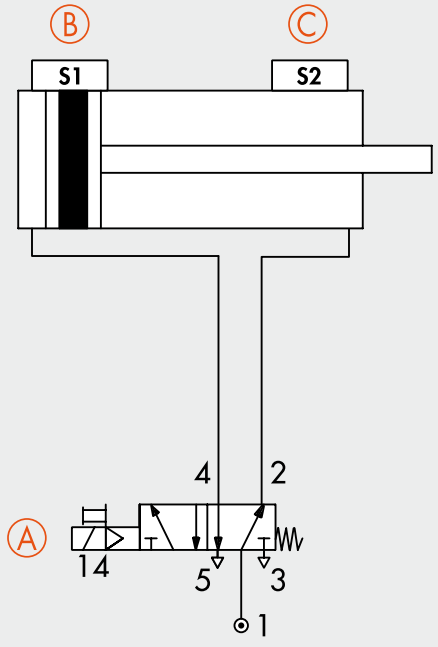
Description of EB 80 I4.0 functions:

• System data:
- EB 80 system startup counter;
- supply alert counter.

• Valve data. Each valve base for each solenoid valve permanently stores the following information:
- cycle counter;
- counter for total solenoid valve excitation time;
- activation of a flag to signal average lifetime exceeded;
- short circuit alert counter;
- open circuit alert counter.

• Electropneumatic system control functions (data updated with each cycle):
- measurement of the delay between activating the solenoid valve "A" and actuator movement commencing via the signal of sensor "B", with delays that exceed the limit flagged;
- measurement of actuator movement time using two linked sensors "B" and "C", with exceeded time limits flagged;
- measurement of the delay between deactivating the solenoid valve "A" (or activating a second valve) and actuator return commencing via the signal of sensor "B", with exceeded time limits flagged;
- measurement of actuator return time using two linked sensors "B" and "C", with exceeded time limits flagged;
- counter for actuator range of motion.

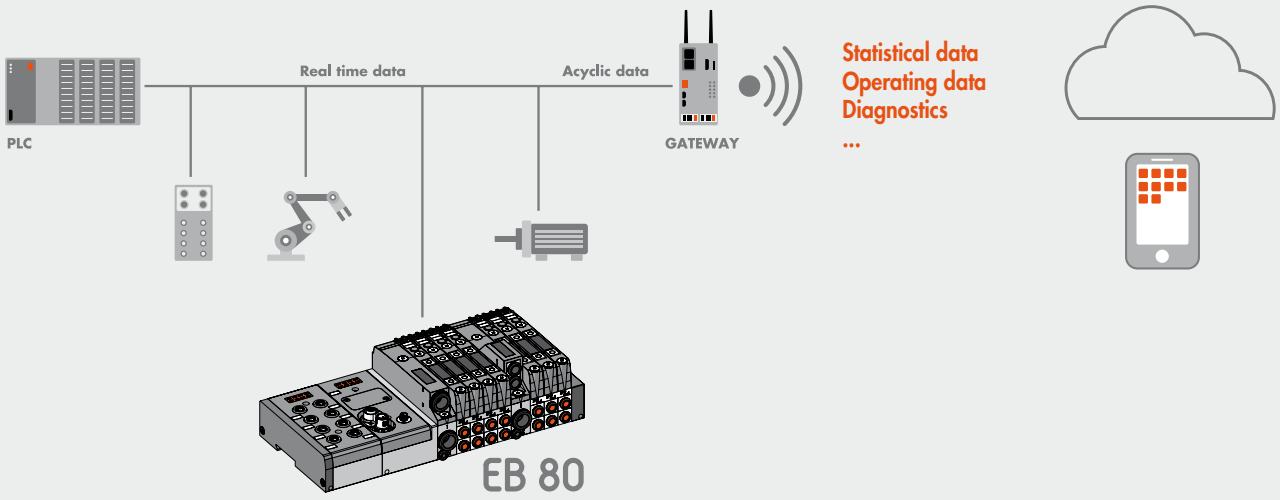




Electrical connection modules can be used to complement the EB 80 with the main field buses available in the market. In this way, the control system (generally a PLC) can handle in real time the behaviour of the solenoid valve island, including signal modules.

With the introduction of the I4.0 version, the field bus connection modules also send to the network the historical and diagnostic data relating to the behaviour of the island (such as the number of cycles for each solenoid pilot, total activation time and alarms) and the controlled pneumatic circuit (such as the delay times in sensor switching and actuator activation times).

This data is also sent to the control system and can be handled differently depending on the situation: in some cases, it can be used in real time, like in the case of fault alarms; in other cases, it can be sent to a storage local unit or one remotely controlled on a cloud server, and is analysed in a subsequent stage; in other cases, the alarms can be sent to a teleservice station that can monitor the state of the system remotely.



The EB 80 systems come with numerous input or output signal modules, which can be mounted on systems with fieldbus electrical connection or additional systems.
The signal modules can be added at any time. You only need to unscrew the aluminium plate to the left side of the "Electrical connection - E" module and install the "Signal Modules - S" (ready fitted with fixing tie rods) and retighten the end plate to the left.
Each signal module consists of two parts: the lower part, which contains transmission electronics of the controls, is unique and valid for all modules; the upper part, which is specific for each type.
This design highlights the modular features of the EB 80 system: the upper part of the "Signal Module - S" can be replaced either with a similar one by simply unscrewing the screws in the event of failure or one of another type.
All this without having to remove anything from the system.

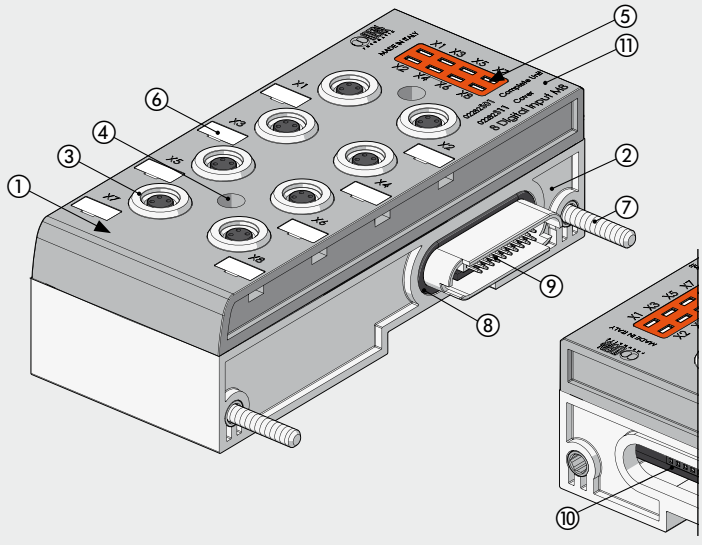
TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power and current		see individual "Signal Modules - S"
Protection		Overload and polarity inversion protection
Diagnostics		Local via LED light and software message
Maximum number of signal modules		Undervoltage, overvoltage, short-circuit and overload of individual connector and the entire module, 16 digital inputs modules 8 M8 + 16 digital outputs modules 8 M8 (or 8 modules with 16 Inputs + 8 modules with 16 Outputs) ** + 4 analogue inputs modules + 4 analogue outputs modules + 4 analogue input modules for temperature measurement
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		digital input, digital output, analogue input, analogue output
Degree of protection		IP65 (with connectors connected or plugged if not used) IP40 for 16-position I/O modules

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**
** **For 16-IN/OUT modules, powered via the fieldbus. Check that the total current of simultaneously connected Inputs and Outputs is not greater than 3.5 A.**
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
N.B.: Refer to the following pages for specific technical data of each module.

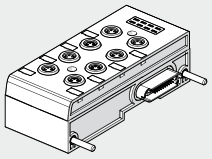
COMPONENTS

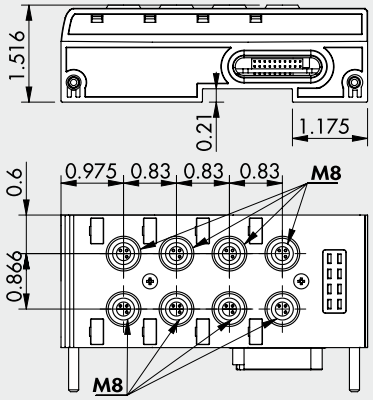
① UPPER PART BODY: technopolymer
② LOWER PART BODY: technopolymer
③ M8 CONNECTOR: signal connection
④ SCREW securing the upper part to the lower part
⑤ LED light
⑥ NAMEPLATE: removable
⑦ TIE ROD to secure modules: galvanized brass and steel
⑧ GASKET: NBR
⑨ MALE CONNECTOR for other modules - S or fieldbus connection - E
⑩ FEMALE CONNECTOR for other modules - S or fieldbus connection - E
⑪ IDENTIFICATION of wording with laser

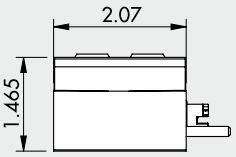


DIMENSIONS - ORDERING CODES

8 M8 DIGITAL INPUTS



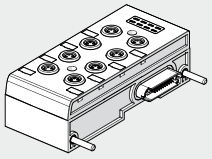


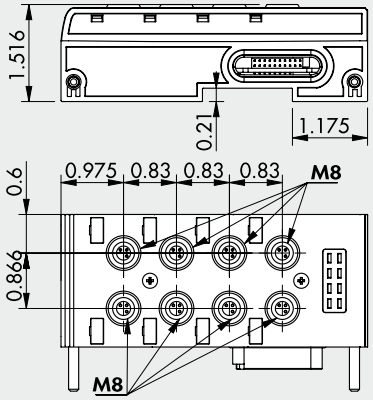


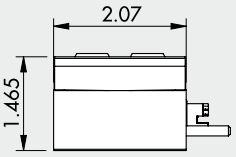
Code	Description	Weight [lb]
02282**S01**	EB 80 module with 8 M8 digital inputs	0.53

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		8 M8 3-pole female connectors
Input active signals		One LED for each input

8 M8 DIGITAL OUTPUTS



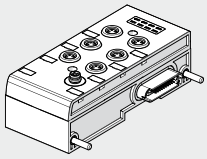


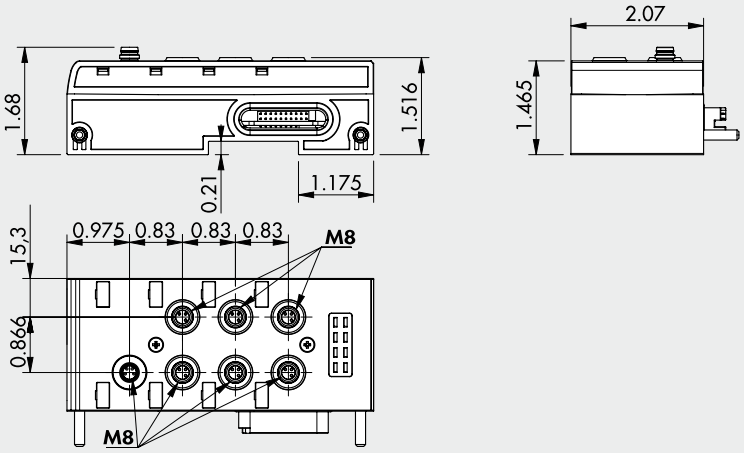


Code	Description	Weight [lb]
02282**S02**	EB 80 module with 8 M8 digital outputs	0.53

TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		8 M8 3-pole female connectors
Input active signals		One LED for each output

6 M8 DIGITAL OUTPUTS + ELECTRICAL POWER SUPPLY





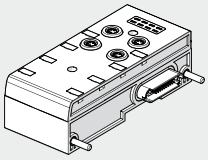
Code	Description	Weight [lb]
02282**S03**	EB 80 module with 6 M8 digital outputs + electrical supply	0.55

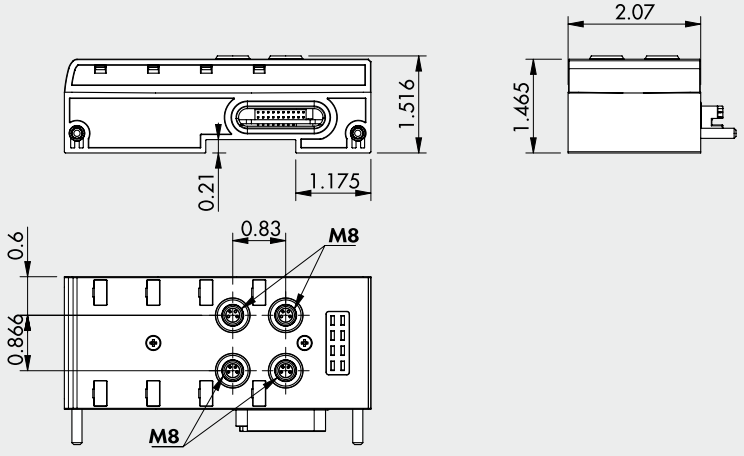
TECHNICAL DATA		
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 1000
Current for each module	mA	max 4000
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		6 M8 3-pole female connectors for Signals
		1 M8 4-pole male connector for Supply
Input active signals		One LED for each input

*** Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

***** IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

4 M8 ANALOGUE INPUTS

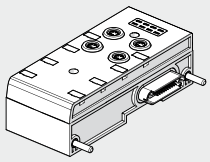


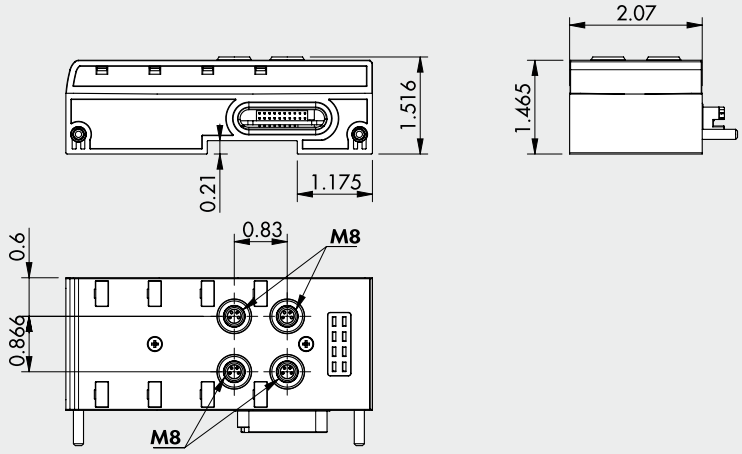


Code	Description	Weight [lb]
02282**S04**	EB 80 module with 4 M8 analogue inputs	0.50

TECHNICAL DATA		
Supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of input, software configurable		0/10 V; 0/5 V; +/-10 V; +/-5 V; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected inputs
Connections		4 M8 4-pin female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of input
		not complying with the configuration
Digital convert resolution		15 bit + prefix

4 M8 ANALOGUE OUTPUTS

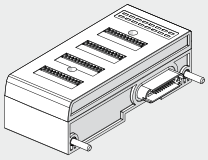


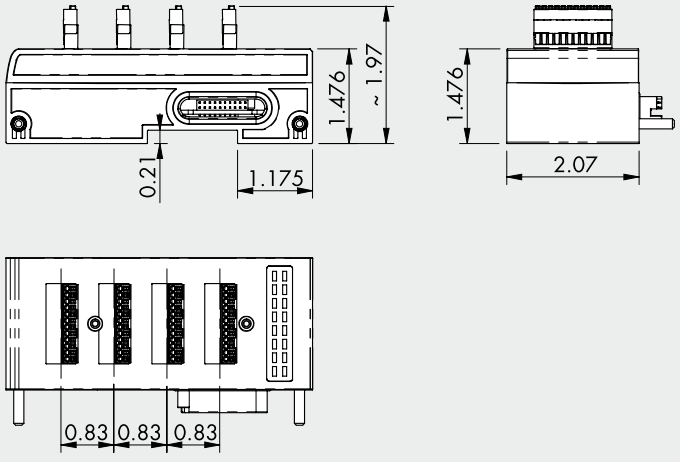


Code	Description	Weight [lb]
02282**S05**	EB 80 module with 4 M8 analogue outputs	0.50

TECHNICAL DATA		
Devices supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of output		0/10 V; 0/5 V; +/-10 V; +/-5 V; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected outputs
Connections		4 M8 4-pole female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of connection not complying with the configuration
Digital convert resolution		15 bit + prefix

16 DIGITAL TERMINAL BLOCK INPUTS

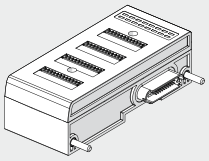


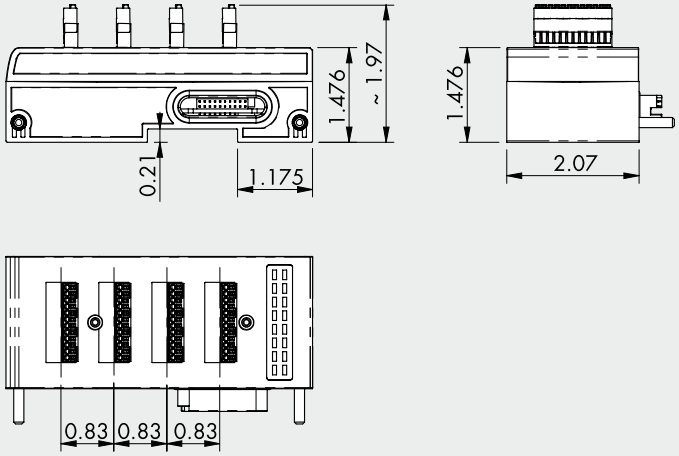


Code	Description	Weight [lb]
02282**S06**	EB 80 module with 16 digital terminal block inputs	0.53

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		4 12-pin connectors with spring clamping
Input active signals		One LED for each input
Degree of protection		IP40

16 DIGITAL TERMINAL BLOCK OUTPUTS



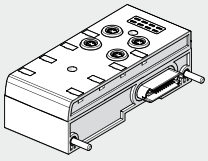


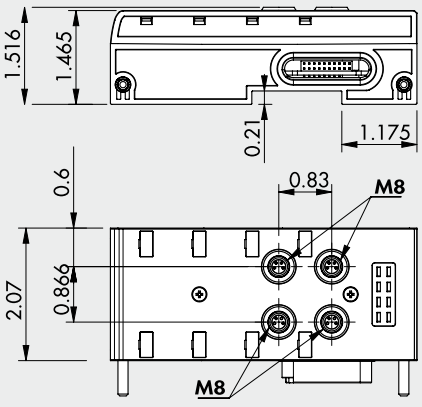
Code	Description	Weight [lb]
02282**S07**	EB 80 module with 16 digital terminal block outputs	0.53

TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000 *
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected outputs
Connections		4 12-pin connectors with spring clamping
Outputs active signals		One LED for each Output
Degree of protection		IP40

*** IMPORTANT: the module is powered via the fieldbus. Check that the total current of connected outputs is not greater than 3.5A.**

4 M8 ANALOGUE INPUTS FOR TEMPERATURE MEASUREMENT





Code	Description	Weight [lb]
02282**S08**	EB 80 module with 4 M8 analogue inputs for temperature measurement	0.50

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Maximum input voltage	VDC	30
Sensor type (RTD)		
platinum (-200 to +850°C)		Pt100, Pt200, Pt500, Pt1000 (TK = 0.00385 and TK = 0.00391)
nickel (-60 to +180°C)		Ni100, Ni120, Ni500, Ni1000 (TK = 0.00618)
Connections type (RTD)		2, 3 or 4-wire
Type of thermocouple (TC)		J, E, T, K, N, S, B, R
Cold junction compensation for thermocouples		
internal		With internal electronic sensor included
external (recommended in case of sudden changes in the ambient temperature)		PT1000 sensor for connection with the M8 thermocouple connector
Temperature range	°C	– 200 to + 800
	°F	– 328 to + 1472
Digital convert resolution		15 bit + prefix
Max error compared to ambient temperature		±0.5% (TC)
		±0.06% (RTD)
Max. basic error (ambient T 25°C)		±0.4% (TC)
	°C	±0.6 (with 4-wire RTD with 0.1 resolution)
	°C	±0.2 (with 4-wire RTD with 0.01 resolution)
Repeatability (ambient T 25°C)		±0.03%
Address employment		2 bytes for each input - 8 bytes per module
Cycle time (module)	ms	240
Software linearization		
for RTD		Piecewise linear approximation
for TC		NIST (National Institute of Standards and Technology) Linearization based on ITS-90 scale (International Temperature Scale of 1990) for the thermocouple linearization
Maximum length of shielded cable for the connection	m	< 30
Diagnostics		One LED for each input and reporting to the Master

KEY TO CODES

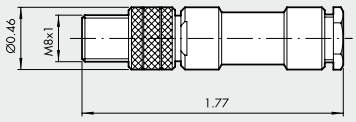
02282	S	0	1
FAMILY	**SUBSYSTEM**	**SUPPLY**	**TYPE**
02282 EB 80	**S** Signals	**0** Complete	**1** 8 M8 digital inputs **2** 8 M8 digital outputs **3** 6 M8 digitaloutputs + electrical supply **4** 4 M8 analogue inputs **5** 4 M8 analogue outputs **6** 16 digital terminal block inputs **7** 16 digital terminal block outputs **8** 4 M8 analogue inputs for temperature measurement

ACCESSORIES

M8 PLUG

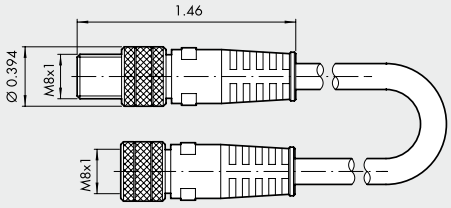
Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR FOR DIGITAL INPUTS / OUTPUTS



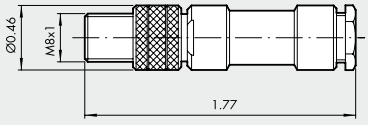
Code	Description
0240009010	M8 3-pin straight connector

M8 CONNECTOR WITH CABLE FOR DIGITAL INPUTS /OUTPUTS



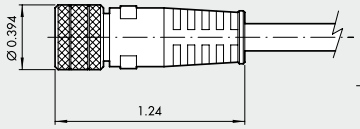
Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 118 inch

M8 MALE CONNECTOR FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240010300	M8 4-pin male connector

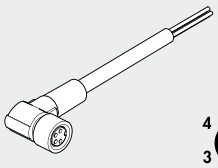
M8 CONNECTOR FOR POWER SUPPLY



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 118 inch
0240009037	M8 4-pin female connector for power supply, cable L = 197 inch
0240009058	M8 4-pin female connector for power supply, cable L = 394 inch
0240009059	M8 4-pin female connector for power supply, cable L = 590 inch

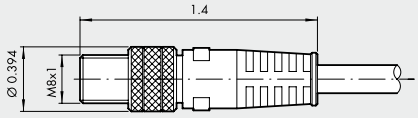
90° M8 CONNECTORS



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009102	M8 4-pin connector - female, 90° angle L = 79 inch
0240009103	M8 4-pin connector - female, 90° angle L = 197 inch

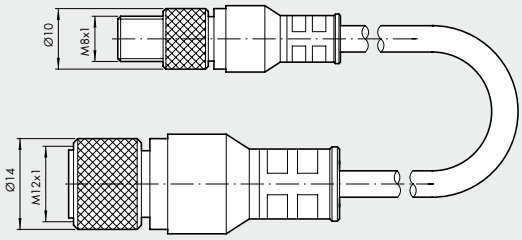
M8 4-POLE MALE CONNECTOR



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240010105	M8 4-pin connector shielded cable L = 197 inch

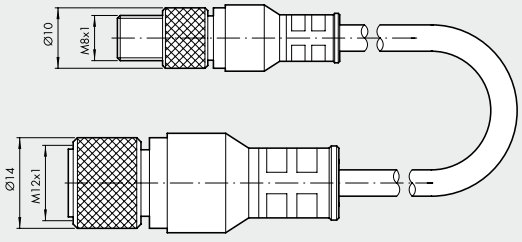
M8 3-POLE MALE – M12 5-POLE FEMALE CONNECTOR WITH CABLE FOR DIGITAL INPUTS/OUTPUTS



Code	Description
0240009045	M8 3-pole male straight - M12 5-pole female connector with cable L = 8 inch

M8	M12
pin 1	pin 1
pin 2	pin 2
pin 3	pin 3

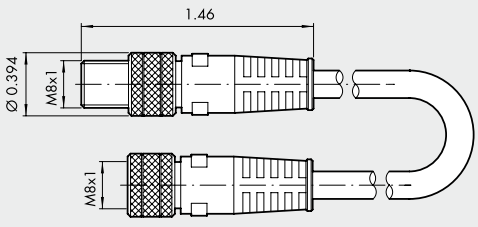
M8 4-POLE MALE – M12 8-POLE FEMALE CONNECTOR WITH CABLE FOR REGTRONIC CONNECTION



Code	Description
0240009046	M8 4-pole male straight - M12 8-pole female connector with cable L = 39 inch

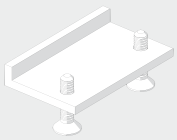
M8	M12
pin 1	pin 8
pin 2	pin 3
pin 3	pin 7
pin 4	disconnect

M8 CONNECTOR WITH SHIELDED CABLE FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240005005	M8-M, M8-F 4-pole straight connector with shielded cable L = 39 inch
0240005006	M8-M, M8-F 4-pole straight connector with shielded cable L = 79 inch
0240005003	M8-M, M8-F 4-pole straight connector with shielded cable L = 197 inch
0240005008	M8-M, M8-F 4-pole straight connector with shielded cable L = 394 inch

ADDITIONAL FIXING BRACKET TO OMEGA BAR



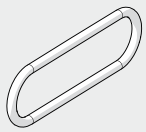
Code	Description	Weight [lb]
02282R4001	Additional fixing bar accessory to EB 80 omega bar	0.01

Individually packed

N.B.: to be used to improve the fixing to Omega bars of islands with more than 40 valves. The bracket must be positioned every 20-25 valves.

SPARE PARTS

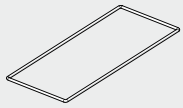
EB 80 BUS/SIGNAL INTERFACE OR SEAL



Code	Description
02282R1005	EB 80 BUS/Signal interface OR seal

Comes in 10-pc. packs

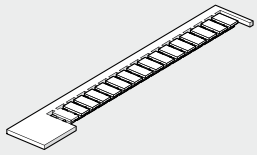
EB 80 GASKET BETWEEN BASE AND BUS/SIGNAL COVER



Code	Description
02282R1004	Kit of gaskets between base and BUS/Signal cover

Comes in 10-pc. packs

IDENTIFICATION PLATE KIT



Code	Description
0226107000	Identification plate kit

Comes in 10-pc. packs

NOTES

The job of the "Electrical Connection - E" subsystem is to power the EB 80 systems, transmit control signals for the solenoid valves, send and receive signals for the input/output management modules and control diagnostics. Versions with a multi-pole connector or fieldbus are also available.
It is worth noting that the island of solenoid valves functions equally with both systems. This means that all the valves, bases and intermediate elements can work both with parallel and serial controls (patented).
Smart electronics of all electrical connection modules, including multi-pole ones, can be used to control unexpected functions, including very interesting diagnostics.
The system can be supplied with a very wide voltage range, so much so that the EB 80 island can be controlled either at 12VDC or 24VDC (patented).
Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for solenoid pilots can be 10.8V, i.e. 12V-10%.
The body of the multi-pole version is made of metal in one piece.
Versions with a fieldbus instead consist of two parts: a lower part, with a single metal body separate from the bus protocol; an upper part with a technopolymer body dedicated to each specific bus protocol.

TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%			
Minimum operating voltage	V	10.8 *			
Maximum operating voltage	V	31.2			
Maximum admissible voltage	V	32 ***			
Drive (for multi-pole)		PNP or NPN			
Solenoid rating		100% ED			
Power supply without controlled valves:					
steady rate, with multi-pole connection	W	0.1 for "Electrical connection - E" + 0.25 for each "Base - B"			
steady rate, with fieldbus connection	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"			
Signal module supply power		See chapter "Signal module - S"			
Maximum operating power supply	W	3.15 for each solenoid pilot operated simultaneously + input and output			
(data useful for the sizing of the power supply unit)					
Maximum current admissible					
with multi-pole connection	A	6 continuous, 9 instantaneous			
with fieldbus connection	A	4 continuous, 6 instantaneous for valve supply			
		4 continuous, 6 instantaneous for bus and signal supply			
Protection		Overload and short-circuit protected solenoid pilot Output			
Diagnostics		LED signal on valve, LED light on electrical connection.			
		With multi-pole: fault signal OUT activation.			
		With field bus: software message.			
Faults signalled		Short-circuited solenoid pilot; Solenoid pilot broken or missing			
		Power supply out of range (under-voltage or over-voltage)			
		With fieldbus only, different configuration, on switching on, compared to that stored; communication control between modules			
Ambient temperature	°C	-10 to + 50			
	°F	14 to 122			
Versions		Plug connectors, fieldbus with various protocols, additional island			
		25-pin connector	44-pin connector	Fieldbus	additional island
Maximum number of controllable solenoid pilots		21	38	128	128
Maximum number of controllable solenoid valves		Ditto as above, depending on the number of solenoid pilots and type of base			
Degree of protection		IP65 (with connectors connected or plugged if not used)			
Weight	lb	0.4	0.4	0.77	0.7

*** Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page 1-114.**

***** IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

SYSTEM VOLTAGE DROP

Voltage drop depends on the input maximum current drawn by the system and the length of the cable for connection to the system.
In a 24VDC-powered system, with cable lengths up to 20 m, voltage drops do not need to be taken into account.
In a 12VDC-powered system, there must be enough voltage to ensure correct operation. It is necessary to take into account any voltage drops due to the number of active solenoid valves, the number of valves controlled simultaneously and the cable length.
The actual voltage supplied to the solenoid pilots must be at least 10.8 V.
More details are given in the instruction manual (please refer to the Metal Work website).
A synthesis of the verification algorithm is shown here below.

$$\text{Maximum current: I max [A]} = \frac{\text{no. of solenoid pilots controlled simultaneously x 4 + no. of active solenoid valves x 0.5}}{\text{VDC}}$$

Voltage drop: with a 25-pole connector: $\Delta V = Imax [A] \times Rs [0.067\Omega/m] \times 2L [m]$
Voltage drop: with a 44-pole connector: $\Delta V = Imax [A] \times Rs [0.067\Omega/m] \times L [m]$
Where Rs is the cable resistance and L its length.

The voltage at the cable inlet, Vin must be at least $10.8 V + \Delta V$

Example:
12V supply voltage, 5 m cable, 25-pin connector, 3 pilots activate while other 10 are already active:

$$I max = \frac{3x4 + 10x0.5}{12} = 1.41 A$$

$\Delta V = (1.41 \times 0.067 \times 2x5) = 0.95 V$

This means that at the power supply voltage greater than or equal to 10.8 + 0.95 = 11.75 V is required.
Vin =12 V > 11.75 --> OK

KEY TO CODES

02282	E	0	25
FAMILY	**SUBSYSTEM**	**SUPPLY**	**TYPE**
02282 EB 80	**E** Electrical connection	**0** Complete	**25** 25-pin connector **44** 44-pin connector **EN** EtherNet/IP **EC** EtherCAT **PN** Profinet IO **CN** CANopen **PB** Profibus-DP **PL** Ethernet POWERLINK **IO** IO-Link **AD** Additional island

NOTE

The job of the multi-pole version of the electrical connection subsystem is to power the EB solenoid valve islands. The system accepts to be supplied with a very wide range of voltages, to such an extent that the EB 80 island alone can be controlled at either 12VDC or 24VDC (patented). Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for the solenoid pilots can be 10.8 V, i.e. 12 V - 10%.
The body of the multi-pole version is made of metal in a single piece.

TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%	
Minimum operating voltage	V	10.8 *	
Maximum operating voltage	V	31.2	
Maximum admissible voltage	V	32 ***	
Drive		Configurable PNP or NPN	
Power supply without controlled valves	W	0.1 for "Electrical connection - E" + 0.25 for each "Base - B"	
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec	
Solenoid pilot power after start-up (holding)	W	0.3	
Maximum admissible current	A	6 continuous, 9 instantaneous	
Protection		System protected against overload	
		short-circuit protected solenoid pilot Output	
Diagnostics		FAULT signal red light and Out signal on "Electrical connection - E"	
		LED light signal on valve	
Faults signalled		Short-circuited solenoid pilot; Solenoid pilot broken or missing	
		Power supply out of range (under-voltage or over-voltage)	
Ambient temperature	°C	-10 to + 50	
	°F	14 to 122	
Electrical connection		Plug connectors	
		25-pin connector	44-pin connector
Maximum number of controllable solenoid pilots **		21	38
Maximum number of controllable solenoid valves		Ditto as above, depending on the number of solenoid pilots and type of base	
Maximum number of simultaneously controllable solenoid pilots:			
at 24VDC		21	38
at 12VDC		Depending on the voltage drop – see page 1-109	
Maximum current at 24VDC	A	3	5
Maximum current at 12VDC	A	6	9
Degree of protection		IP65 (with connectors connected or plugged if not used)	
Weight	lb	0.4	0.4

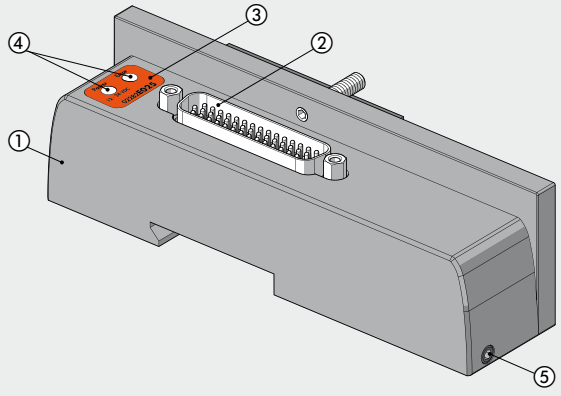
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114.**

** If the units are made up of bases exceeding the maximum number of controllable solenoid pilots (by mounting a dummy valve N or a bypass Y in the excess positions), operation is only possible on the islands with a positive signal (PNP), conversely (with an NPN signal), an error message is generated by the diagnostic system.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

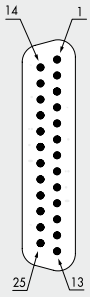
COMPONENTS

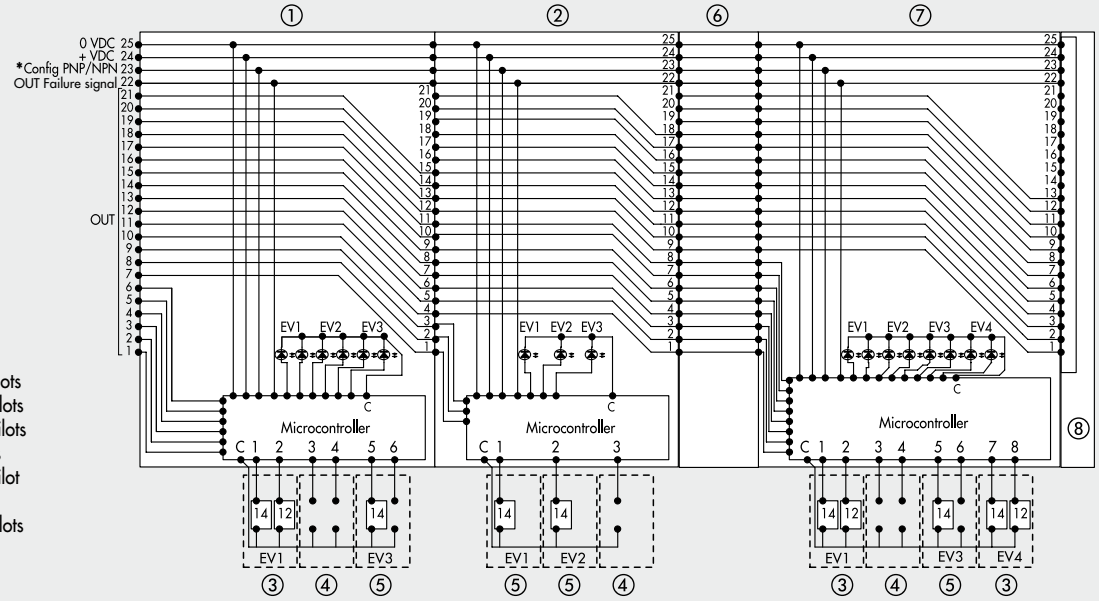
① BODY: painted metal
② CONNECTOR: plug type
③ NAMEPLATE: with product code
④ LED: signal on and alarm
⑤ GRUB SCREW securing the DIN bar or bracket: galvanized steel



WIRING DIAGRAM

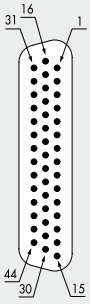
D-Sub 25-pin CONNECTOR

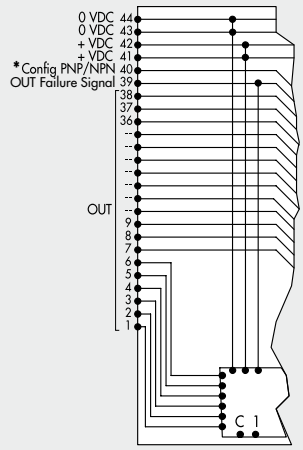




① 3-position base for 6 pilots
② 3-position base for 3 pilots
③ Valve with 2 solenoid pilots
④ Dummy valve or bypass
⑤ Valve with 1 solenoid pilot
⑥ Intermediate module
⑦ 4-position base for 8 pilots
⑧ Closed end-plate

D-Sub 44-pin CONNECTOR

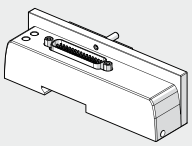


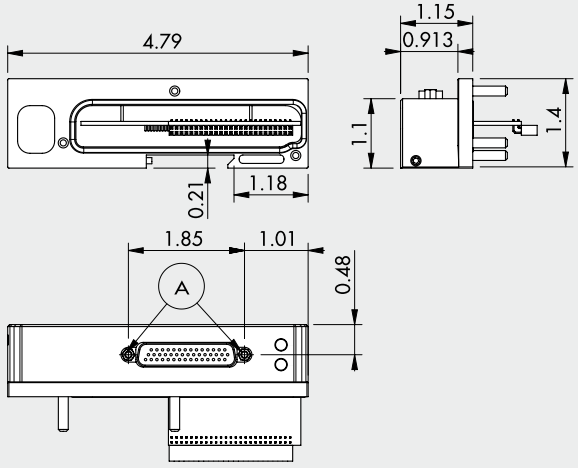


* Connect to +VDC if (OUT) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (OUT) valves with a NEGATIVE signal are to be controlled

DIMENSIONS - ORDERING CODES

DIMENSION OF A MULTI-POLE ELECTRICAL CONNECTION

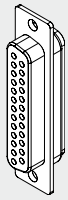


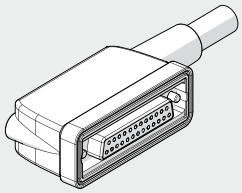


Ⓐ = Holes for D-Sub connector 25-pin or 44-pin

Code	Description	Weight [lb]
02282**E025**	EB 80 25-pin electrical connection	0.4
02282**E044**	EB 80 44-pin electrical connection	0.4

25-PIN PRE-WIRED PLUG CONNECTOR





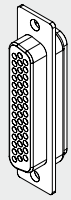
Code	Description	Weight [lb]
02269A0100	IP65 25-pin 90° connector, UL cable L = 40 inch	0.4
02269A0250	IP65 25-pin 90° connector, UL cable L = 98.5 inch	0.8
02269A0500	IP65 25-pin 90° connector, UL cable L = 197 inch	1.5
02269A1000	IP65 25-pin 90° connector, UL cable L = 394 inch	2.7
02269A2000	IP65 25-pin 90° connector, UL cable L = 788 inch	5.2
02269C0100 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 40 inch	0.4
02269C0250 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 98.5 inch	0.8
02269C0500 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 197 inch	1.5
02269C1000 **	IP65 25-pin 90° connector, UL H-FLEX CL6, cable L = 394 inch	2.7

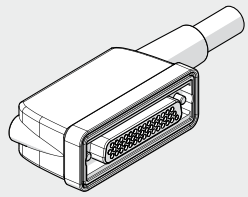
** Mobile laying cable, class 6 according to IEC 60228

Position of electrical contact	Colour of the corresponding wire	Function
1	White	Out 1
2	Brown	Out 2
3	Green	Out 3
4	Yellow	Out 4
5	Grey	Out 5
6	Pink	Out 6
7	Blue	Out 7
8	Red	Out 8
9	Black	Out 9
10	Violet	Out 10
11	Grey + Pink ring	Out 11
12	Red + Blue ring	Out 12
13	White + Green ring	Out 13
14	Brown + Green ring	Out 14
15	White + Yellow ring	Out 15
16	Yellow + Brown ring	Out 16
17	White + Grey ring	Out 17
18	Grey + Brown ring	Out 18
19	White + Pink ring	Out 19
20	Pink + Brown ring	Out 20
21	White + Blue ring	Out 21
22	Brown + Blue ring	Fault reporting
23	White + Red ring	Config. PNP/NPN *
24	Brown + Red ring	+VDC
25	White + Black ring	0VDC

* Connect to +VDC if (Out) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (Out) valves with a NEGATIVE signal are to be controlled

44-PIN PRE-WIRED PLUG CONNECTOR





Code	Description	Weight [lb]
02269B0100	IP65 44-pin 90° connector, UL cable L = 40 inch	0.6
02269B0250	IP65 44-pin 90° connector, UL cable L = 98.5 inch	1.4
02269B0500	IP65 44-pin 90° connector, UL cable L = 197 inch	2.6
02269B1000	IP65 44-pin 90° connector, UL cable L = 394 inch	4.9
02269B2000	IP65 44-pin 90° connector, UL cable L = 788 inch	9.5
02269D0100 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 40 inch	0.6
02269D0250 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 98.5 inch	1.4
02269D0500 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 197 inch	2.6
02269D1000 **	IP65 44-pin 90° connector, UL H-FLEX CL6, cable L = 394 inch	4.9

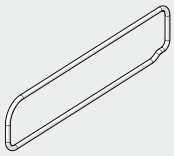
** Mobile laying cable, class 6 according to IEC 60228

Position of electrical contact	Colour of the corresponding wire	Function
1	White	Out 1
2	Brown	Out 2
3	Green	Out 3
4	Yellow	Out 4
5	Grey	Out 5
6	Pink	Out 6
7	Blue	Out 7
8	Red	Out 8
9	Black	Out 9
10	Violet	Out 10
11	Grey + Pink ring	Out 11
12	Red + Blue ring	Out 12
13	White + Green ring	Out 13
14	Brown + Green ring	Out 14
15	White + Yellow ring	Out 15
16	Yellow + Brown ring	Out 16
17	White + Grey ring	Out 17
18	Grey + Brown ring	Out 18
19	White + Pink ring	Out 19
20	Pink + Brown ring	Out 20
21	White + Blue ring	Out 21
22	Brown + Blue ring	Out 22
23	White + Red ring	Out 23
24	Brown + Red ring	Out 24
25	White + Black ring	Out 25
26	Brown + Black ring	Out 26
27	Grey + Green ring	Out 27
28	Yellow + Grey ring	Out 28
29	Pink + Green ring	Out 29
30	Yellow + Pink ring	Out 30
31	Green + Blue ring	Out 31
32	Yellow + Blue ring	Out 32
33	Green + Red ring	Out 33
34	Yellow + Red ring	Out 34
35	Green + Black ring	Out 35
36	Yellow + Black ring	Out 36
37	Grey + Blue ring	Out 37
38	Pink + Blue ring	Out 38
39	Grey + Red ring	Fault reporting
40	Pink + Red ring	Config. PNP/NPN *
41	Grey + Black ring	+VDC
42	Pink + Black ring	+VDC
43	Blue + Black ring	0VDC
44	Red + Black ring	0VDC

* Connect to +VDC if (Out) valves with a POSITIVE signal are to be controlled
Connect to 0VDC if (Out) valves with a NEGATIVE signal are to be controlled

SPARE PARTS

EB 80 ELECTRICAL CONNECTION INTERFACE OR SEAL



Code	Description
02282R1003	EB80 electrical connection interface OR seal

Comes in 10-pc. packs

NOTES

The job of the electrical connection with fieldbus is to power the EB 80 systems, transmit control signals for the solenoid valves, send or receive signals for input/output management modules and control diagnostics.
The system can be supplied with a very wide voltage range, so much so that the EB 80 island can be controlled either at 12VDC or 24VDC (patented).
Overvoltages up to 30% of the rated value, i.e. up to 31.2V, are admitted.
The minimum voltage for solenoid pilots can be 10.8V, i.e. 12V-10%.
The modules come into parts: a lower part, with a single aluminium body separate from the bus protocol; an upper part with a technopolymer body dedicated to each specific bus protocol.

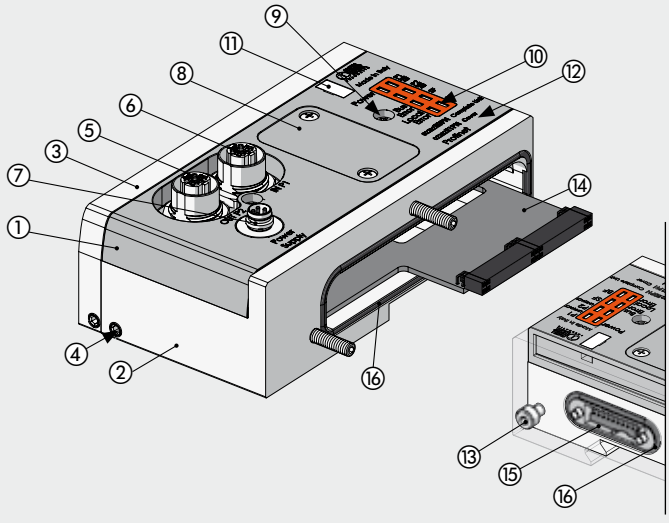
TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power supply without controlled valves	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec
Solenoid pilot power after start-up (holding)	W	0.3
Maximum admissible current	A	4 continuous, 6 instantaneous for valve supply
		4 continuous, 6 instantaneous for bus and signal supply
Protection		Overload and short-circuit protected solenoid pilot Output
Diagnostics		LED signal on valve, LED on electrical connection and software message regarding:
		short-circuited solenoid pilot; solenoid pilot with coil failure;
		voltage out of range (undervoltage and overvoltage); module communication control;
		on switching, configuration other than that stored
Maximum number of solenoid pilots		128
Maximum number of simultaneously controllable solenoid pilots		38
to actuate a greater number of solenoid pilots at the same time,		
add "Intermediate modules - M" with electrical connection		
Maximum number of signals **		128 digital inputs, 128 digital outputs, 16 analogue inputs, 16 analogue outputs
Maximum number of nodes **		40 Bases for valves + 16 digital inputs+ 16 digital outputs+ 4 analogue inputs + 4 analogue outputs
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		EtherNet/IP, EtherCAT, CANopen, Profinet IO, Profibus-DP, Ethernet POWERLINK, IO-Link
Degree of protection		IP65 (with connectors connected or plugged if not used)
Weight	lb	0.77

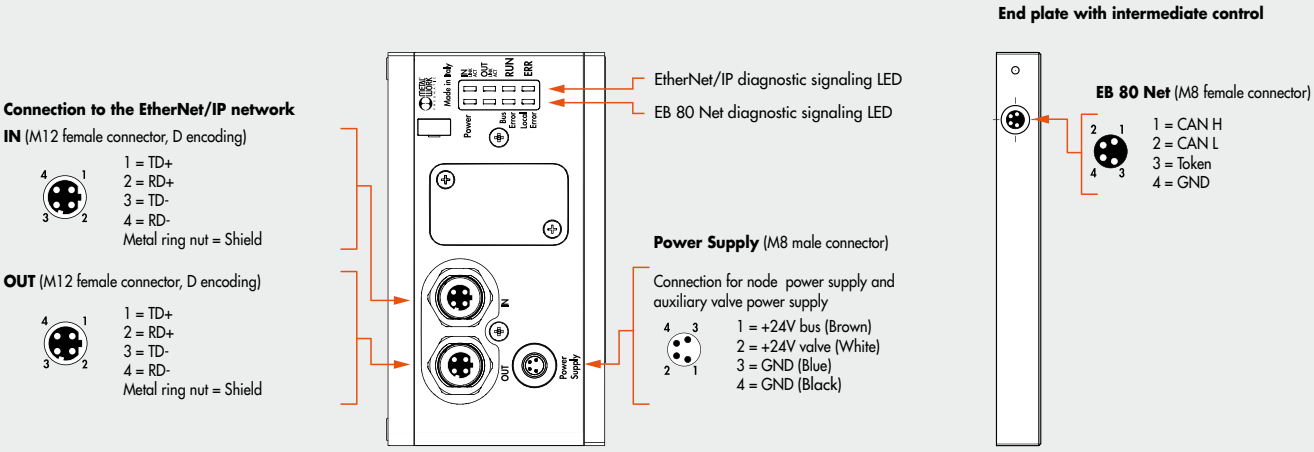
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**
** For topological limits (maximum lengths, etc.) see the instructions.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: painted aluminium
③ END PLATE: painted aluminium
④ GRUB SCREW securing the DIN bar or bracket: galvanised steel
⑤ Fieldbus signal receive CONNECTOR
⑥ Fieldbus signal send CONNECTOR
⑦ M8 power supply CONNECTOR
⑧ COVER for access to bus address switches: technopolymer
⑨ SCREW securing the upper part to the lower part
⑩ LED light
⑪ NAMEPLATE: removable
⑫ IDENTIFICATION wording: laser etched
⑬ SCREW securing the end plate
⑭ CONNECTOR for solenoid valve base modules
⑮ CONNECTOR for input/output signal modules
⑯ GASKETS interfacing: NBR



EtherNet/IP WIRING DIAGRAM



TECHNICAL DATA		
Fieldbus		10 - 100 Mbit/S - Full-duplex - Half-duplex - Supports auto-negotiation and Quick Connect
Factory settings		IP address: 192.168.193.32
Addressing		Software - DHCP hardware
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 F, D encoding, internal switch. Power supply: M8, 4-pin
Diagnostics **		EtherNet/IP: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Maximum number of inputs for temperatures		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

EtherCAT WIRING DIAGRAM

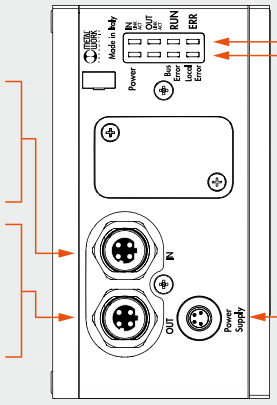
Connection to the EtherCAT network

IN (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

OUT (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



EtherCAT diagnostic signaling LED

EB 80 Net diagnostic signaling LED

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

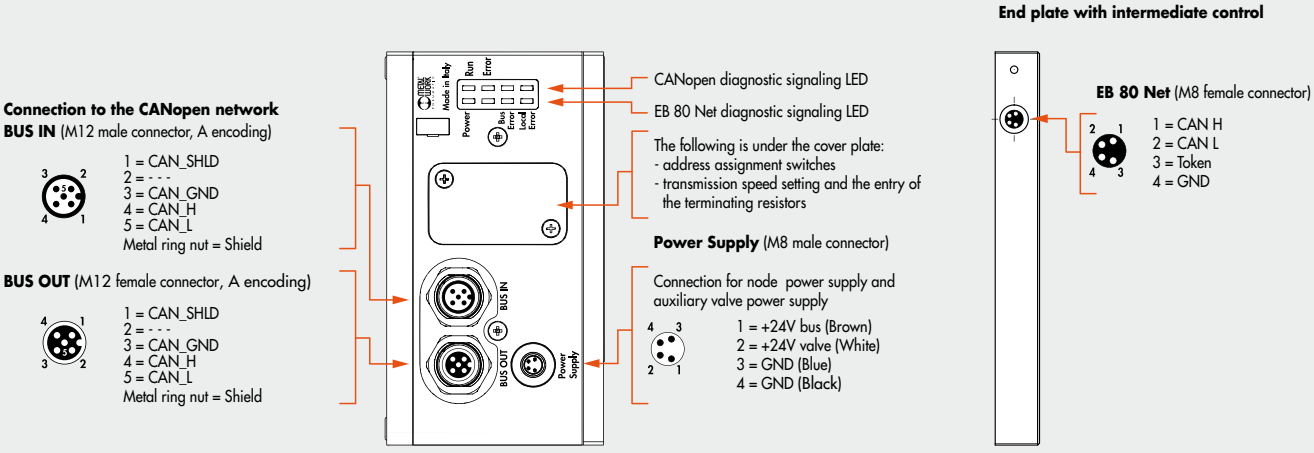
TECHNICAL DATA		
Fieldbus		100 Mbit/S - Full-duplex - Supports auto-negotiation
Factory settings		module denomination: EB80series
Addressing		Automatic from the master depending on its topological position. Fixes with the second slave address function
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 F D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **		EtherCAT: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Maximum number of inputs for temperatures		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

CANopen WIRING DIAGRAM



TECHNICAL DATA		
Fieldbus		Complying with CiA DS401 specification
Factory settings		Module denomination: EB80series - Address 5
Addressing		Hardware via DIP SWITCH
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: BUS IN M12 Male, 5 poles, A encoding - BUS OUT M12 Female, 5 poles, encoding A - Power supply: M8, 4-PIN
Diagnostics**		CANopen: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Maximum number of inputs for temperatures		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

Profinet IO WIRING DIAGRAM

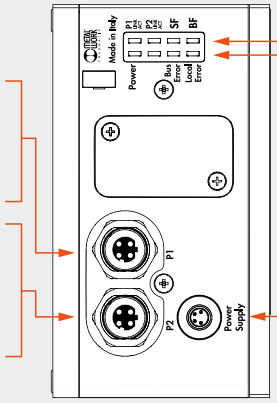
Connection to the Profinet IO network

P1 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

P2 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



Profinet IO diagnostic signaling LED

EB 80 Net diagnostic signaling LED

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

TECHNICAL DATA		
Fieldbus		100 Mbit/s - Full-duplex – Supports Fast Start Up, RT communication, Shared Device, Identification & Maintenance 1-4
Factory settings		Module denomination: EB80series – IP address: 0.0.0.0
Addressing		DCP Software
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: 2 M12 Female, D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **		Profinet IO: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption		nominal Icc 180 mA at 24 V
Maximum number of pilots		128
Maximum number of digital inputs		128
Maximum number of digital outputs		128
Maximum number of analogue inputs		16
Maximum number of analogue outputs		16
Maximum number of inputs for temperatures		16
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

Profibus-DP WIRING DIAGRAM

Connection to the Profibus-DP network

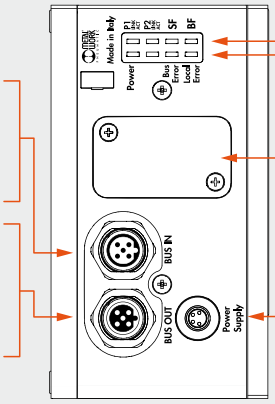
BUS IN (M12 Male Connector, B encoding)

1 = 5 V*
2 = A
3 = 0 V*
4 = B
5 = Shield

BUS OUT (M12 female connector, B encoding)

1 = 5 V*
2 = A
3 = 0 V*
4 = B
5 = Shield

* DO NOT CONNECT PIN 1 and PIN 3:
Only the power supply of external terminating resistors must be used.



Profibus-DP diagnostic signaling LED

EB 80 Net diagnostic signaling LED

The following is under the cover plate:
- address assignment switches
- the entry of the terminating resistors

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

TECHNICAL DATA	
Fieldbus	Complying with Profibus-DP DIN E 1924 specification
Factory settings	Module denomination: EB80series - Address 5
Addressing	Hardware via ROTARY SWITCH
Supply voltage range	12 -10% 24 +30%
Minimum operating voltage	10.8 *
Maximum operating voltage	31.2
Maximum admissible voltage	32 ***
Protection	Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections	Fieldbus: BUS IN M12 Male, 5 poles, B encoding - BUS OUT M12 Female, 5 poles, B encoding - Power supply: M8, 4-PIN
Diagnostics **	Profibus-DP: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption	nominal Icc 180 mA at 24 V
Maximum number of pilots	128
Maximum number of digital inputs	128
Maximum number of digital outputs	128
Maximum number of analogue inputs	16
Maximum number of analogue outputs	16
Maximum number of inputs for temperatures	16
Data bit value	0 = non-active; 1= active
State of outputs in the absence of communication	Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

Ethernet POWERLINK WIRING DIAGRAM

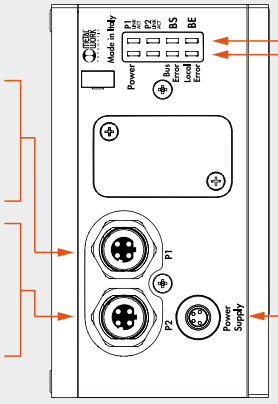
Connection to the Ethernet POWERLINK network

P1 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield

P2 (M12 female connector, D encoding)

1 = TD+
2 = RD+
3 = TD-
4 = RD-
Metal ring nut = Shield



Ethernet POWERLINK diagnostic signaling LED

EB 80 Net diagnostic signaling LED

Power Supply (M8 male connector)

Connection for node power supply and auxiliary valve power supply

1 = +24V bus (Brown)
2 = +24V valve (White)
3 = GND (Blue)
4 = GND (Black)

End plate with intermediate control

EB 80 Net (M8 female connector)

1 = CAN H
2 = CAN L
3 = Token
4 = GND

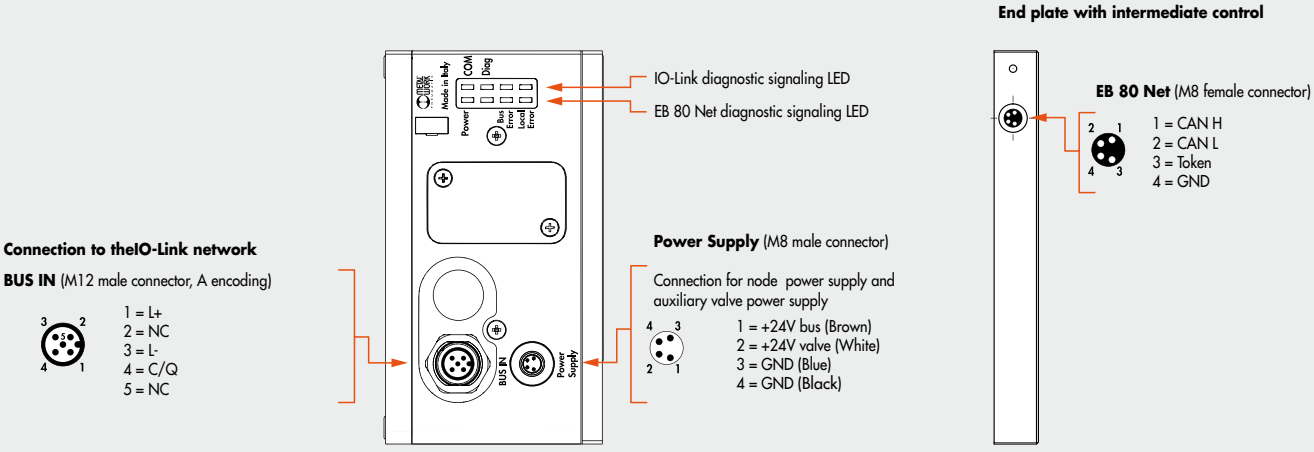
TECHNICAL DATA	
Fieldbus	100 Mbit/S - Half-duplex - Supports auto-negotiation
Factory settings	module denomination: EB80series address number 2
Addressing	Hardware by rotary switch
Supply voltage range	12 -10% 24 +30%
Minimum operating voltage	10.8 *
Maximum operating voltage	31.2
Maximum admissible voltage	32 ***
Protection	Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections	Fieldbus: 2 M12 Female, D encoding, internal switch. Power supply: M8, 4-PIN
Diagnostics **	Ethernet POWERLINK: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Bus power supply current absorption	nominal Icc 180 mA at 24 V
Maximum number of pilots	128
Maximum number of digital inputs	128
Maximum number of digital outputs	128
Maximum number of analogue inputs	16
Maximum number of analogue outputs	16
Maximum number of inputs for temperatures	16
Data bit value	0 = non-active; 1= active
State of outputs in the absence of communication	Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Refer to the user manual for a detailed description.

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

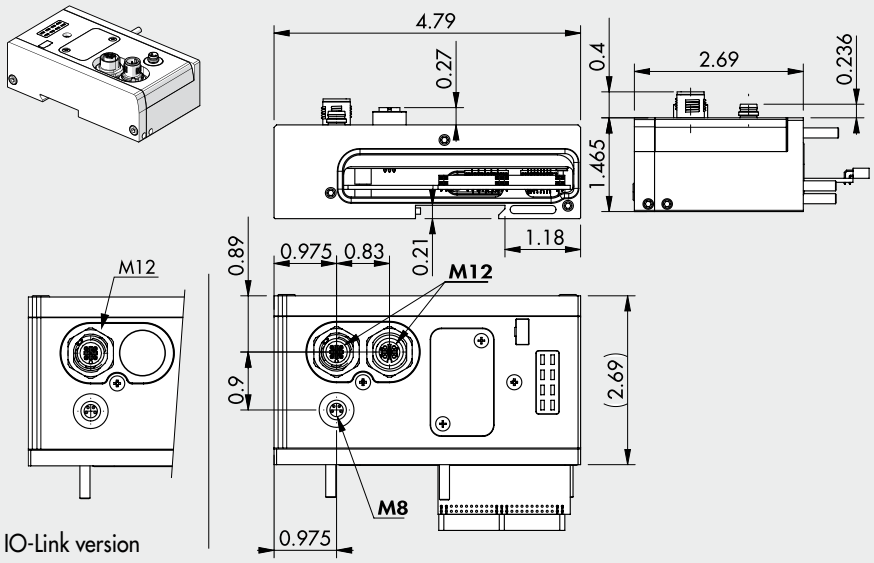
IO-Link WIRING DIAGRAM



TECHNICAL DATA		
Fieldbus		IO-Link version 1.1
Communication speed	Kbps	230.4 (COM3)
Vendor ID / Device ID		1046 (hex 0x0416) / 32 (hex 0x000020)
Minimum cycle time	ms	2.8
Process data length		5 byte of Input / 4 byte of Output
Supply voltage range (M8 connector)	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
IO-Link power supply (L+L - Bus IN connector)	VDC	min 20, max 30
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		Fieldbus: M12 male, A-coded - port class A. Power supply: M8, 4-PIN
Diagnostics **		IO-Link: via local LED lights and software messages. Outputs: via local LED lights and state bytes
Power supply current absorption		See IO-Link instruction manual
Maximum number of pilots		32
Maximum number of digital inputs		32
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**
** Refer to the user manual for a detailed description.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

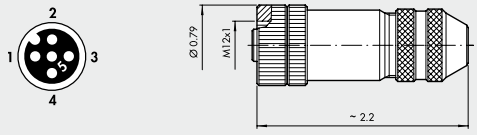
ELECTRICAL CONNECTION FIELDBUS DIMENSION



Code	Description	Weight [lb]
02282**E0EN**	EB 80 Electrical connection EtherNet/IP	0.77
02282**E0EC**	EB 80 Electrical connection EtherCAT	0.77
02282**E0PN**	EB 80 Electrical connection Profinet IO	0.77
02282**E0CN**	EB 80 Electrical connection CANopen	0.77
02282**E0PB**	EB 80 Electrical connection Profibus-DP	0.77
02282**E0PL**	EB 80 Electrical connection Ethernet POWERLINK	0.77
02282**E0I0**	EB 80 Electrical connection IO-Link	0.77

ACCESSORIES

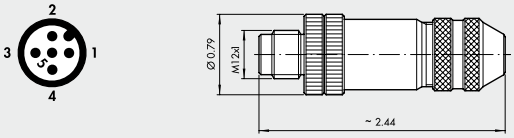
M12 FEMALE CONNECTOR FOR BUS-IN, A ENCODING



Code	Description
0240009055	M12 5-pin female connector, encoding A

Note: Can be used for Bus CANopen and IO-Link

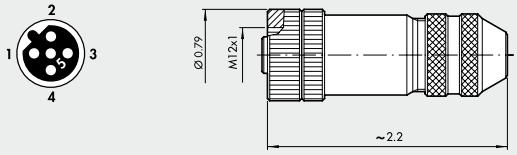
M12 MALE CONNECTOR FOR BUS-IN, A ENCODING



Code	Description
0240009038	M12 5-pin male connector, encoding A

Note: Can be used for Bus CANopen

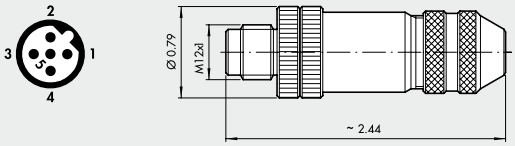
M12 FEMALE CONNECTOR FOR BUS-IN, B ENCODING



Code	Description
0240009036	M12 5-pin female connector, encoding B

Note: Can be used for Profibus-DP

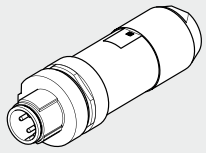
M12 MALE CONNECTOR FOR BUS-IN, B ENCODING



Code	Description
0240009035	M12 5-pin male connector, encoding B

Note: Can be used for Profibus-DP

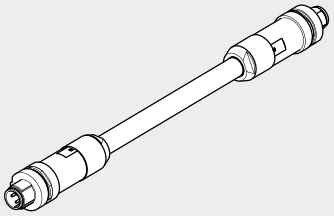
M12 BUS CONNECTOR, D ENCODING



Code	Description
0240005051	M12 4-pin BUS connector, D-coded

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

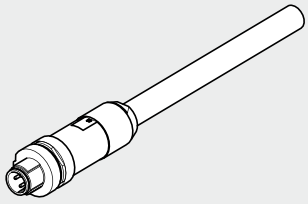
STRAIGHT CONNECTOR FOR M12-M12 BUS, D-CODED



Code	Description
0240005103	Straight connector for M12-M12 4-pin BUS, D-coded, with 118 inch cable
0240005105	Straight connector for M12-M12 4-pin BUS, D-coded, with 197 inch cable
0240005110	Straight connector for M12-M12 4-pin BUS, D-coded, with 394 inch cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

STRAIGHT CONNECTOR FOR M12 BUS, D-CODED

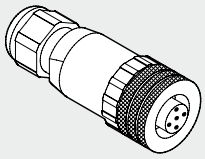


Pin	Cable color
1	Yellow
2	White
3	Red
4	Blue

Code	Description
0240005093	Straight connector for M12 4-pin BUS, D-coded, with 118 inch cable
0240005095	Straight connector for M12 4-pin BUS, D-coded, with 197 inch cable
0240005100	Straight connector for M12 4-pin BUS, D-coded, with 394 inch cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

STRAIGHT CONNECTOR FOR M12, A-CODED

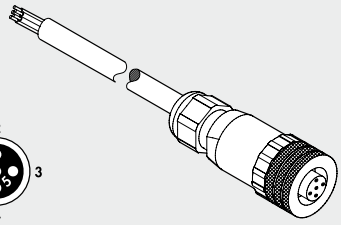


Code	Description
W0970513001	5-PIN M12x1 straight connector

Note: Can be used for IO-Link

STRAIGHT CONNECTOR WITH WIRE FOR M12, A-CODED

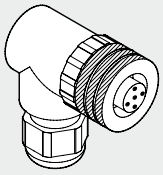
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513002	5-PIN M12x1 straight connector with wire L = 197 inch

Note: Can be used for IO-Link

90° CONNECTOR FOR M12, A-CODED

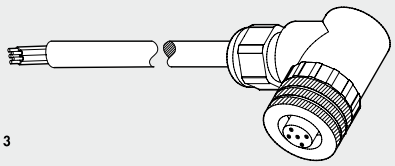


Code	Description
W0970513003	M12x1 5-PIN 90° connector

Note: Can be used for IO-Link

90° CONNECTOR WITH WIRE FOR M12, A-CODED

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513004	M12x1 5-PIN 90° connector with wire L = 197 inch

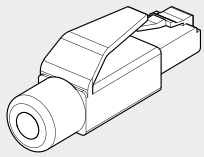
Note: Can be used for IO-Link

CABLE FOR BUS

Code	Description
0240005220*	Cable for BUS 788 inch
0240005250	Cable for BUS CANopen BUS 788 inch

* Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP, Ethernet POWERLINK)

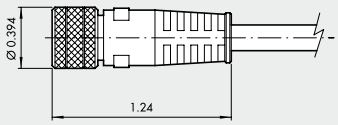
RJ45 CONNECTOR



Code	Description
0240005050	RJ45 connector with 4 contacts according to IEC 60 603-7

M8 CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 118 inch
0240009037	M8 4-pin female connector for power supply, cable L = 197 inch
0240009058	M8 4-pin female connector for power supply, cable L = 394 inch
0240009059	M8 4-pin female connector for power supply, cable L = 590 inch

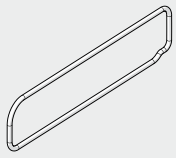
M8-M12 PLUG

Code	Description
0240009039	Plug for M8 connector
0240009040	Plug for M12 connector

NOTES

SPARE PARTS

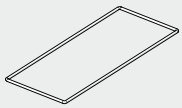
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



Code	Description
02282R1003	EB 80 electrical connection interface or-seal

Comes in 10-pc. packs

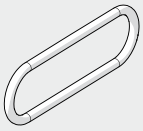
GASKET BETWEEN EB 80 BASE AND COVER BUS/SIGNALS



Code	Description
02282R1004	Kit of gaskets between EB 80 base and cover bus/signals

Comes in 10-pc. packs

EB 80 BUS/SIGNAL INTERFACE OR-SEAL



Code	Description
02282R1005	EB 80 BUS/Signal interface OR-seal

Comes in 10-pc. packs

NOTES

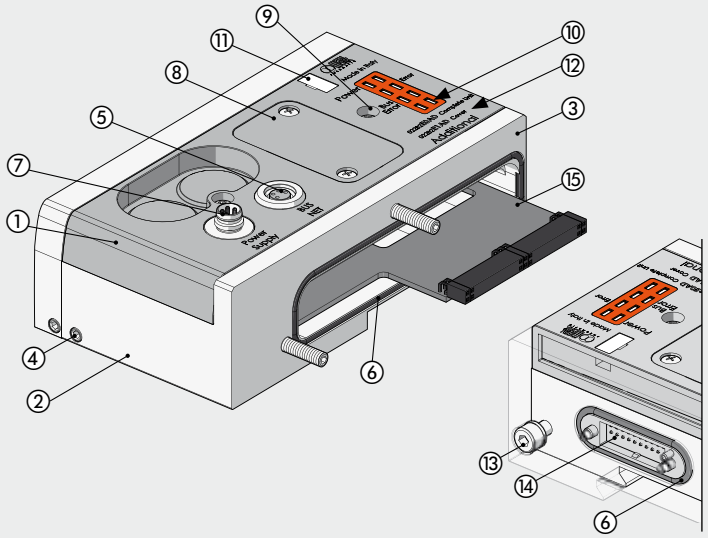
The additional electrical connection can be used to connect different EB 80 systems to a single bus node. To do this, the main island is equipped with a C3-type closed end plate, equipped with an M8 connector.
An M8-M8 connected cable relays the signal to the additional system.
The system can be supplied with a very wide range of voltages, so much so that the EB 80 island can be controlled at either 12VDC or 24VDC (patented). Overvoltages up to 30% of the nominal value are admitted, i.e. up to 31.2V. The minimum voltage for the solenoid pilots can be 10.8V, i.e. 12V-10%.
The modules consist of two parts: a lower part with a single aluminium body similar to that used for fieldbuses; an upper part with a technopolymer body specific for the additional model.

TECHNICAL DATA		
Supply voltage range	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
Power supply without controlled valves	W	4 for "Electrical connection - E" + 0.25 for each "Base - B"
Solenoid pilot power on start-up (Speed Up)	W	3 for 15 msec
Solenoid pilot power after start-up (holding)	W	0.3
Maximum admissible current	A	4 continuous, 6 instantaneous for valve supply
		4 continuous, 6 instantaneous for bus and signal supply
Protection		Overload and short-circuit protected solenoid pilot Output
Diagnostics		LED signal on valve, LED on electrical connection and software message regarding:
		short-circuited solenoid pilot; solenoid pilot with coil failure;
		voltage out of range (undervoltage and overvoltage);
		module communication control; on switching, configuration other than that stored.
Maximum number of solenoid pilots		128 **
Maximum number of simultaneously controllable solenoid pilots		38
(to actuate a greater number of pilots at the same time, add		
"Intermediate modules - M" with "Electrical connection - E")		
Maximum number of signals **		128 digital inputs, 128 digital outputs, 16 analogue inputs, 16 analogue outputs
Maximum number of nodes **		40 Bases for valves + 16 Digital inputs + 16 Digital outputs + 4 Analogue inputs + 4 Analogue outputs
Maximum length of the connection cables ***	inch	1575
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Degree of protection		IP65 (with connectors connected or plugged if not used)
Weight	lb	0.7

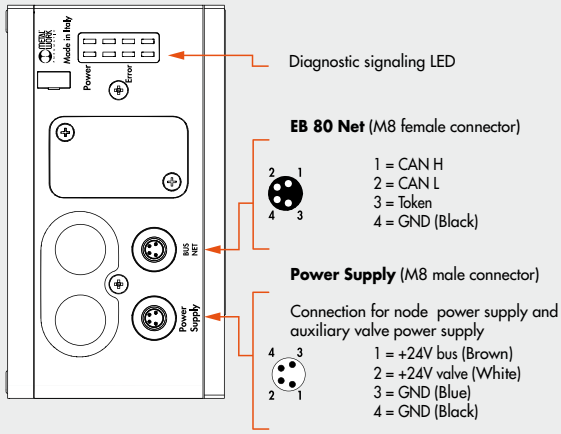
* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**
** Total numbers, by summing up those of the fieldbus connection and all additional connections.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
**** Sum of the lengths of the cables between the fieldbus electrical connection and any additional electrical connections.

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: painted aluminium
③ END PLATE: painted aluminium
④ GRUB SCREW securing the DIN bar or bracket: galvanised steel
⑤ CONNECTOR for connection to the valve island (main one)
⑥ GASKETS interfacing: NBR
⑦ M8 power supply CONNECTOR
⑧ COVER for access to bus address switches: technopolymer
⑨ SCREW securing the upper part to the lower part
⑩ LED light
⑪ NAMEPLATE: removable
⑫ IDENTIFICATION wording: laser etched
⑬ SCREW securing the end plate
⑭ CONNECTOR for solenoid valve base modules
⑮ CONNECTOR for Input/Output signal modules

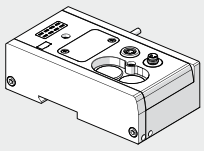


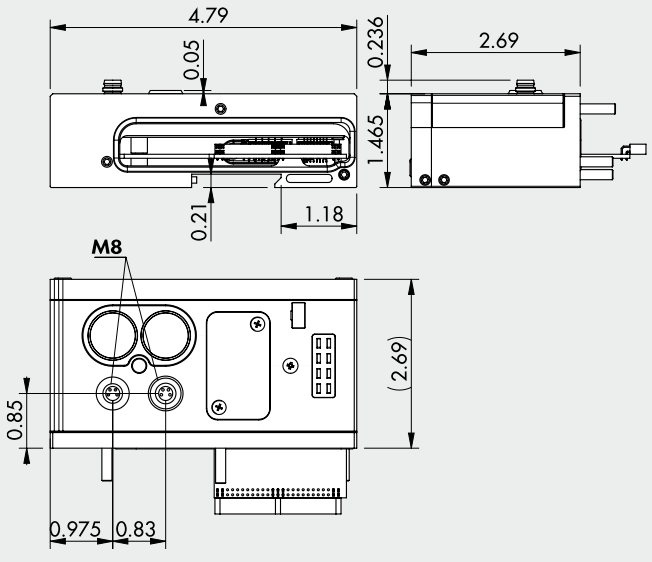
WIRING DIAGRAM



DIMENSIONS - ORDERING CODES

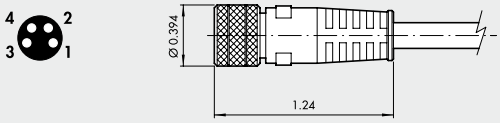
DIMENSION OF ADDITIONAL ELECTRICAL CONNECTION





Code	Description	Weight [lb]
02282**E0AD**	Additional electrical connection EB 80	0.7

M8 CONNECTOR FOR POWER SUPPLY



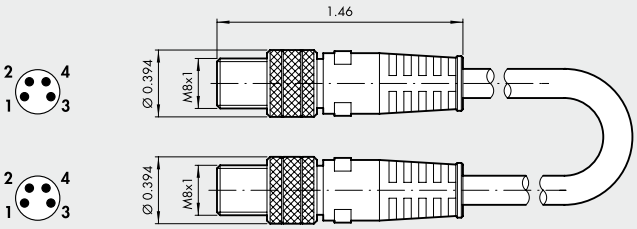
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 118 inch
0240009037	M8 4-pin female connector for power supply, cable L = 197 inch
0240009058	M8 4-pin female connector for power supply, cable L = 394 inch
0240009059	M8 4-pin female connector for power supply, cable L = 590 inch

M8 PLUG

Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR WITH CABLE FOR CONNECTION BETWEEN EB 80 ISLANDS

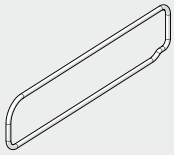


Code	Description	Weight [lb]
0240010201	M8-M8 4-pin male shielded cable L = 40 inch	0.09
0240010205	M8-M8 4-pin male shielded cable L = 197 inch	0.4
0240010210	M8-M8 4-pin male shielded cable L = 394 inch	0.73
0240010215	M8-M8 4-pin male shielded cable L = 590 inch	1
0240010220	M8-M8 4-pin male shielded cable L = 788 inch	1.36

N.B.: For correct operation of the entire EB 80 system, use M8-M8 pre-wired, twisted and shielded cables only.

SPARE PARTS

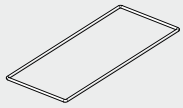
EB 80 ELECTRICAL CONNECTION INTERFACE OR-SEAL



Code	Description
02282R1003	EB 80 electrical connection interface OR-seal

Comes in 10-pc. packs

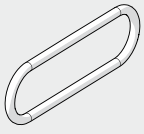
GASKET BETWEEN EB 80 BASE AND COVER BUS/SIGNALS



Code	Description
02282R1004	Kit of gaskets between EB 80 base and cover bus/signals

Comes in 10-pc. packs

EB 80 BUS/SIGNAL INTERFACE OR-SEAL

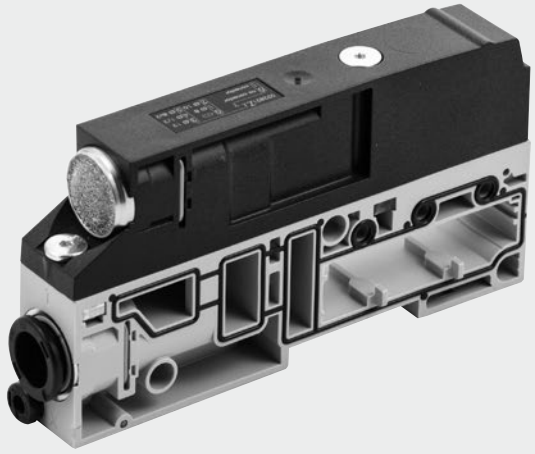


Code	Description
02282R1005	EB 80 BUS/Signal interface OR-seal

Comes in 10-pc. packs

EB 80 COMPRESSED-AIR SUPPLY - P

The Compressed air supply - P modules power the valve base and collect the air coming from the relief ports. Various versions are available, with pipe fittings of different diameter. The product code also identifies whether the module is set to supply the pilots without servo-assistance, in which case you only need to connect compressed air to the supply fitting; or with servo-assistance (recommended), in which case you only need to connect the compressed air to the Ø 4 mm (5/32") pilot fitting. Switching from servo to non-servo operation or vice versa is possible, however, by changing the position of the orange gasket situated between the lower and the upper part of the module; the configuration is identified by a tab protruding at the back. Relief ports 3 and 5 can be either connected using a silencer or conveyed via a fitting.
A version with separate ports 3 and 5 is also available. This feature is useful in versions with pilot servo-assistance to power the valves from ports 3 and 5, at different pressures from vacuum to 8 bar - 116 psi, including the version to configure a fieldbus island with signal modules only, without the pneumatic part.

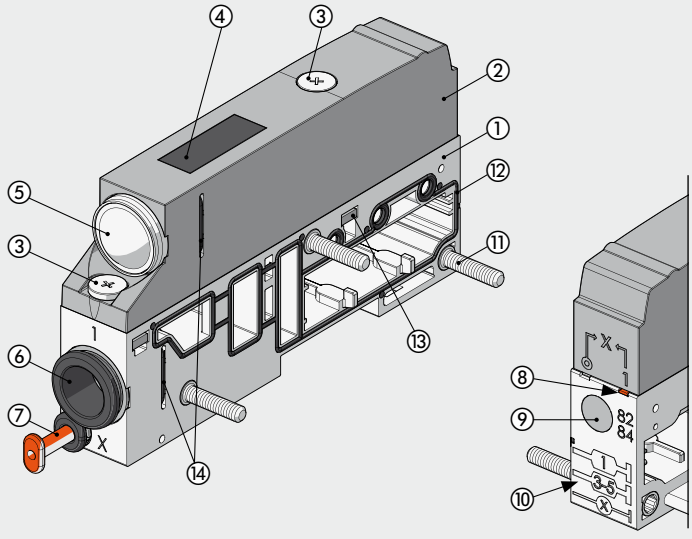


TECHNICAL DATA

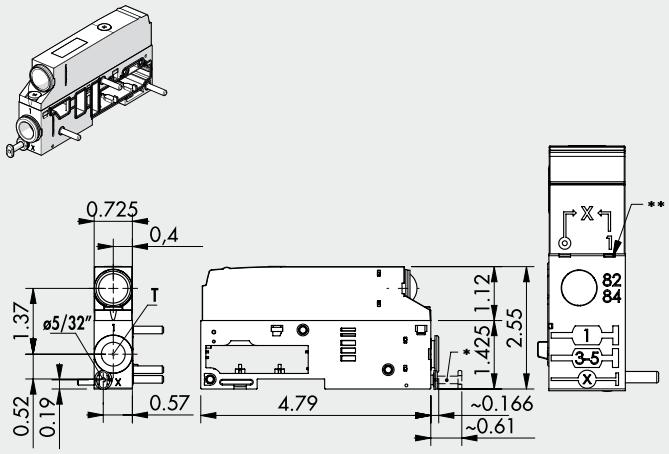
Operating pressure					
Non-servo versions and solenoid pilot servo pressure		**5/2 and 5/3**		**2/2 and 3/2**	
	bar	3 to 8		min. (see graph on page 1-141) / max. 8	
	MPa	0.3 to 0.8		min. (see graph on page 1-141) / max. 0.8	
	psi	43 to 116		min. (see graph on page 1-141) / max. 116	
Assisted valves	bar	Vacuum to 10			
	MPa	Vacuum to 1			
	psi	Vacuum to 145			
Ambient temperature	°C	-10 to + 50			
	°F	14 to 122			
Flow rate at 91 psi ΔP 14.5 psi		**Ø 8 mm (5/16")**	**Ø 10 mm**	**Ø 12 mm**	**Ø 1/2"**
Feeding (port 1)	scfm	63.69	99	123.8	123.8
Exhaust with fitting (ports 3 and 5)	scfm	70.8	113.2	155.7	155.7
Separate exhausts Ø 5/16" (8 mm) (N.B.: Pmax 116 psi)	scfm	63.69 x 2	-	-	-
Flow rate at 91 psi free exhaust					
Exhaust with fitting (ports 3 and 5)	scfm	95.5	138	215.8	215.8
Silenced exhaust	scfm	127.4			
Exhaust with fitting Ø12 and silencer W0970530086	scfm	122.3			
Separate exhausts Ø 5/16" (8 mm) (N.B.: Pmax 116 psi)	scfm	95.5 x 2	-	-	-
Fluid		Unlubricated air			
Versions		Silenced relief or conveyed relief, fittings for pipes Ø 8 mm (5/16"), Ø 10 mm, Ø 12 mm, 1/2"			
Degree of protection		IP65			
Weight	lb	0.31	0.28	0.27	0.27

COMPONENTS

① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS securing the island bodies: galvanised steel (Tightening torque: 0.74 lbf ft)
④ TAG: with laser etched wording - technopolymer
⑤ RELIEF: silencer or pipe fitting
⑥ POWER SUPPLY: pipe fitting
⑦ PILOTING (X): Ø 4 mm (5/32") pipe fitting
⑧ INDICATOR: indicaes whether pilot power supply is separate or not
⑨ PILOT RELIEF: HDPE silencer
⑩ PICTOGRAM: showing compressed air system layout
⑪ TIE ROD: nickel-plated steel
⑫ GASKET: NBR
⑬ THREADED PLATE: galvanised steel
⑭ CARTRIDGE FIXING CLIP: stainless steel

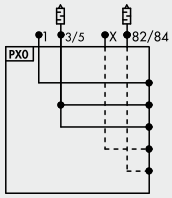


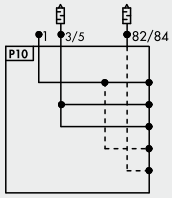
COMPRESSED AIR SUPPLY - SILENCED RELIEF



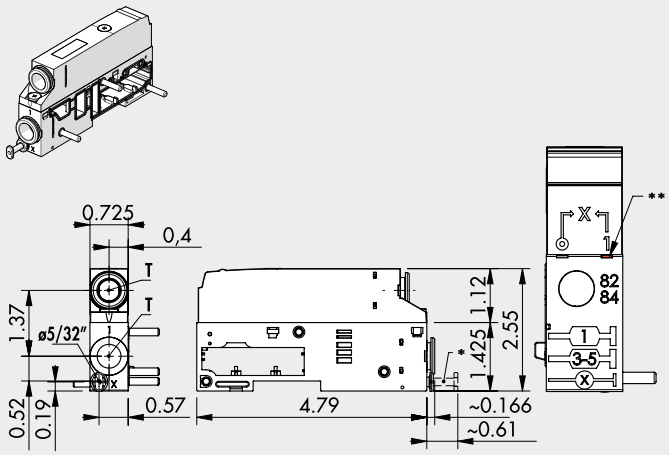
* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [lb]
Servo-assisted	Ø 8 mm (5/16")	02282**P1XZ00**	0.31
	Ø 10 mm	02282**P2XZ00**	0.28
	Ø 12 mm	02282**P3XZ00**	0.27
	Ø 1/2"	02282**P5XZ00**	0.27
Non-servo-assisted	Ø 8 mm (5/16")	02282**P11Z00**	0.31
	Ø 10 mm	02282**P21Z00**	0.28
	Ø 12 mm	02282**P31Z00**	0.27
	Ø 1/2"	02282**P51Z00**	0.27



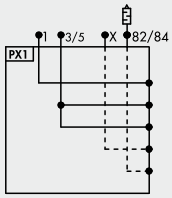


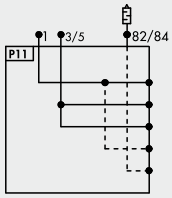
COMPRESSED AIR SUPPLY - CONVEYED RELIEF



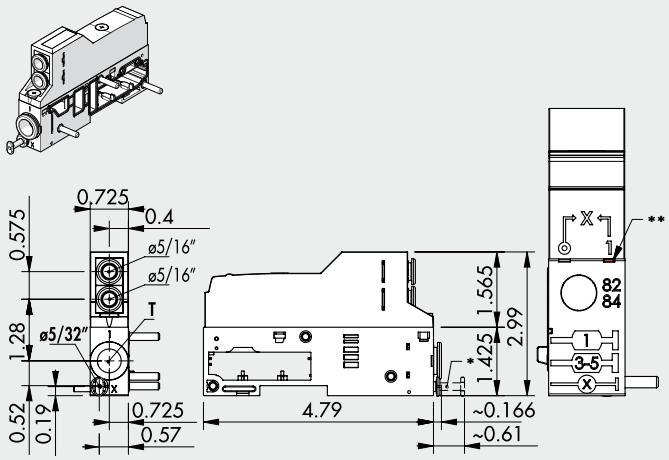
* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

Symbol	T - Pipe fitting	Code	Weight [lb]
Servo-assisted	Ø 8 mm (5/16")	02282**P1XZ10**	0.31
	Ø 10 mm	02282**P2XZ20**	0.28
	Ø 12 mm	02282**P3XZ30**	0.27
	Ø 1/2"	02282**P5XZ50**	0.27
Non-servo-assisted	Ø 8 mm (5/16")	02282**P11Z10**	0.31
	Ø 10 mm	02282**P21Z20**	0.28
	Ø 12 mm	02282**P31Z30**	0.27
	Ø 1/2"	02282**P51Z50**	0.27



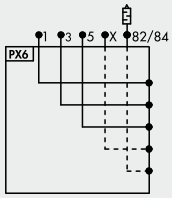


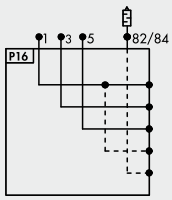
COMPRESSED AIR SUPPLY - SEPARATE RELIEFS



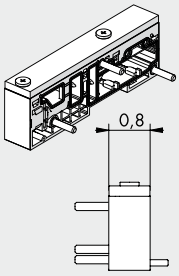
* R9 plug for NON-SERVOASSISTED versions
** Orange tab in SERVO-ASSISTED (◎) or NON-SERVO-ASSISTED (1) position

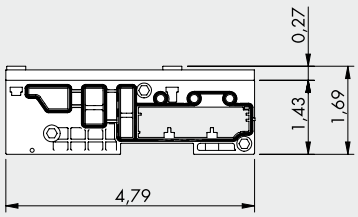
Symbol	T - Pipe fitting	Code	Weight [lb]
Servo-assisted	Ø 8 mm (5/16")	02282**P1XZ60**	0.34
	Ø 10 mm	02282**P2XZ60**	0.32
	Ø 12 mm	02282**P3XZ60**	0.31
	Ø 1/2"	02282**P5XZ60**	0.31
	N.B.: Maximum pressure in the ports 3 and 5: 8 bar - 116 psi		
Non-servo-assisted	Ø 8 mm (5/16")	02282**P11Z60**	0.34
	Ø 10 mm	02282**P21Z60**	0.32
	Ø 12 mm	02282**P31Z60**	0.31
	Ø 1/2"	02282**P51Z60**	0.31
	N.B.: Maximum pressure in the ports 3 and 5: 8 bar - 116 psi		





MODULE FOR ELECTRIC VERSION ONLY





Code	Description	Weight [lb]
02282**P91Z90**	Module for electric version only	0.26

N.B.: Version used to make up an EB 80 island without pneumatic part, but only with "S" signal modules and fieldbus or additional electrical connection "E". Bases and valves cannot be added.

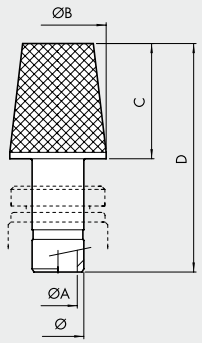
KEY TO CODES

02282	P	3	1	Z	3	0
FAMILY	**SUBSYSTEM**	**PORT PIPE 1**	**PILOT SERVO-ASSISTED**	**UPPER PART**	**PORTS 3 AND 5 CONNECTION**	**SPECIALTY**
02282 EB 80	**P** Compressed air supply	**1** Pipe Ø 8 mm (5/16") **2** Pipe Ø 10 mm **3** Pipe Ø 12 mm **5** Pipe Ø 1/2" **9** Module for electric version only	**1** Non-servo-assisted **X** Servo-assisted **1** Non-servo-assisted	**Z** The upper part is present	**0** Silencer ▲ **1** Pipe Ø 8 mm (5/16") ▲ **2** Pipe Ø 10 mm ▲ **3** Pipe Ø 12 mm ▲ **5** Pipe Ø 1/2" **6** 2 pipes Ø 8 mm (5/16") (one for port 3, one for port 5) **9** Without connection	**0** Standard

▲ For ports 3 and 5 use the same pipe Ø of port 1.

ACCESSORIES

SILENCER FOR FITTING

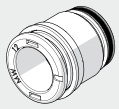


Ø	Ø A	Ø B	C	D
5/16"	1/4	0.59	0.71	1.4
12 mm	0.394	0.54	1.14	2.03

Code	Description	Weight [lb]
W0970530084	Silencer for fitting, Ø 8 mm (5/16")	0.033
W0970530086	Silencer for fitting, Ø 12 mm	0.053

SPARE PARTS

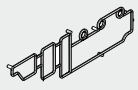
CARTRIDGE



Code	Description	Ø
02282R2110	EB 80 silencer cartridge kit	silencer
02282R2113	EB 80 Ø 8 power supply round cartridge kit	8 mm (5/16")
02282R2114	EB 80 Ø 10 power supply round cartridge kit	10 mm
02282R2115	EB 80 Ø 12 power supply round cartridge kit	12 mm
02282R2118	EB 80 Ø 1/2 power supply round cartridge kit	1/2"

Comes in 10-pc. packs

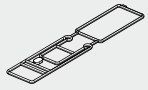
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

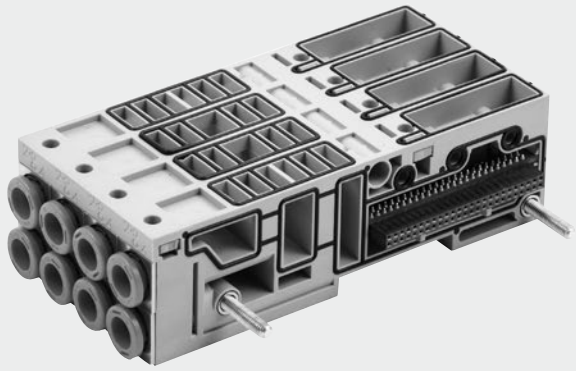
LOWER /UPPER BODY GASKET



Code	Description
02282R1001	EB 80 lower/upper body gasket kit

Comes in 10-pc. packs

The EB 80 "Bases for valves - B" can be provided with 3 or 4 positions.
A version is available with an electrical connection for a single control of each position, suitable for 5/2 monostable solenoid valves (physically impossible to install other valves). Another version comes with two electrical connections for each position and is suitable for all types of valves.
The electronics in the base controls the signal coming from both the multi-pole connector and the fieldbus, so the base is the same, regardless of the control system of the island.
The air delivery ducts (ports 2 and 4) are made up of cartridge-type push-in fittings. The cartridge can be replaced, for example when the pipe diameter needs to be changed, by pulling out the clip placed under the base.
The air flow ducts (ports 1, 3, 5, X) of the 4-position base are the full flow type. For the 3-position base, either full-flow or one or more sectioned ports can be mounted. With this solution, islands with zones with differentiated pressure can be created.



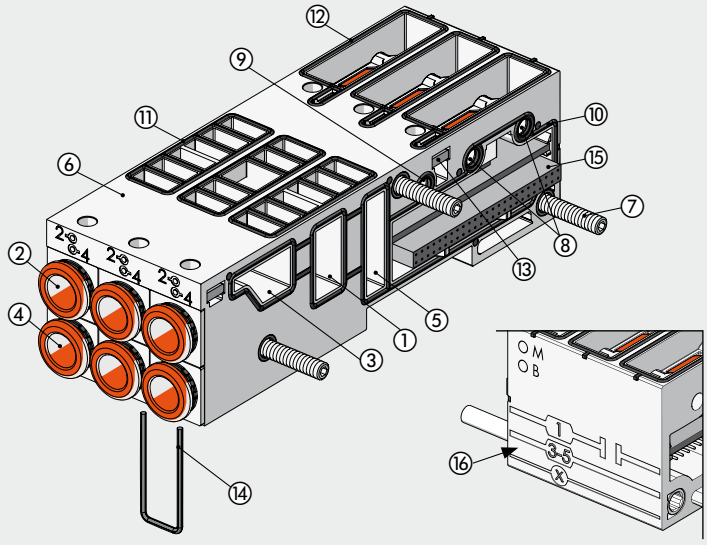
PATENTED

TECHNICAL DATA

Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Fluid		Unlubricated air
Versions		3-position base for controlling 3 solenoid pilots; 3 positions for 6 solenoid pilots; 4 positions for 4 solenoid pilots; 4 positions for 8 solenoid pilots.
		Pipe fittings Ø 4 mm (5/32"), 6 mm, 8 (5/16"), 1/4" Ducts
		1, 3, 5 and X full flow
		3-position base with 1 sectioned duct; 1, 3 a 5 sectioned; 3 and 5 sectioned (after the first position)
Degree of protection		IP65

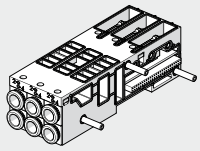
COMPONENTS

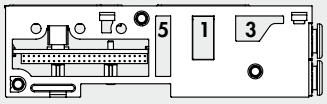
① PORT 1 DUCT
② PORT 2 CARTRIDGE: push-in fitting
③ PORT 3 DUCT
④ PORT 4 CARTRIDGE: push-in fitting
⑤ PORT 5 DUCT
⑥ BODY: technopolymer
⑦ TIE ROD: nickel-plated brass and galvanised steel threading
⑧ 82/84 DUCT: pilot air relief
⑨ X DUCT: pilot control
⑩ GASKET BETWEEN BASES: NBR
⑪ GASKET FOR THE VALVE: NBR
⑫ GASKET FOR IP65:NBR
⑬ THREADED PLATE for securing the valves: galvanised steel
⑭ CLIP for securing the cartridge: stainless steel
⑮ ELECTRONIC BOARD
⑯ PICTOGRAM: indication of compressed air system layout

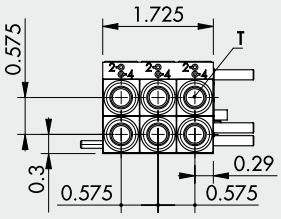


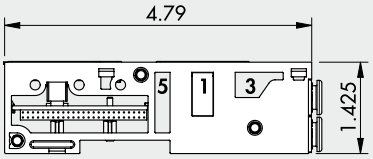
DIMENSIONS - ORDERING CODES

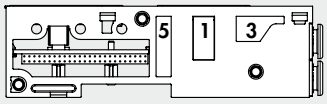
3-POSITION BASE FOR VALVES

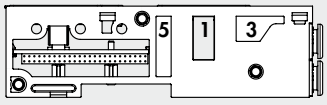






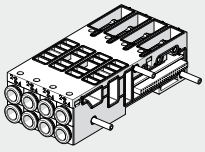


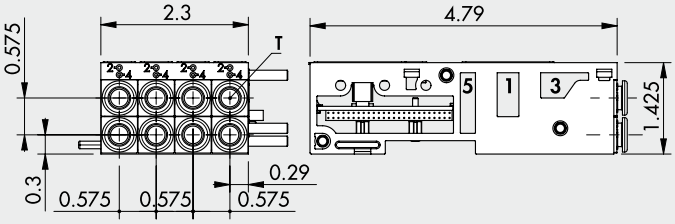




Symbol	T - Pipe fitting	Code 3 CONTROLS	Code 6 CONTROLS	Weight [lb]
Full-flow ports	without cartridges	02282**B3031110**	02282**B3061110**	0.326
	Ø 4 mm (5/32")	02282**B3034440**	02282**B3064440**	0.463
	Ø 6 mm	02282**B3036660**	02282**B3066660**	0.441
	Ø 8 mm (5/16")	02282**B3038880**	02282**B3068880**	0.403
	Ø 1/4"	02282**B3032220**	02282**B3062220**	0.441
Port 1 sectioned after the first position	without cartridges	02282**B3131110**	02282**B3161110**	0.326
	Ø 4 mm (5/32")	02282**B3134440**	02282**B3164440**	0.463
	Ø 6 mm	02282**B3136660**	02282**B3166660**	0.441
	Ø 8 mm (5/16")	02282**B3138880**	02282**B3168880**	0.403
	Ø 1/4"	02282**B3132220**	02282**B3162220**	0.441
Ports 1, 3 and 5 sectioned after the first position	without cartridges	02282**B3231110**	02282**B3261110**	0.326
	Ø 4 mm (5/32")	02282**B3234440**	02282**B3264440**	0.463
	Ø 6 mm	02282**B3236660**	02282**B3266660**	0.441
	Ø 8 mm (5/16")	02282**B3238880**	02282**B3268880**	0.403
	Ø 1/4"	02282**B3232220**	02282**B3262220**	0.441
Ports 3 and 5 sectioned after the first position	without cartridges	02282**B3331110**	02282**B3361110**	0.326
	Ø 4 mm (5/32")	02282**B3334440**	02282**B3364440**	0.463
	Ø 6 mm	02282**B3336660**	02282**B3366660**	0.441
	Ø 8 mm (5/16")	02282**B3338880**	02282**B3368880**	0.403
	Ø 1/4"	02282**B3332220**	02282**B3362220**	0.441

4-POSITION BASE FOR VALVES





Symbol	T - Pipe fitting	Code 4 CONTROLS	Code 8 CONTROLS	Weight [lb]
Full-flow ports	without cartridges	02282**B4041111**	02282**B4081111**	0.432
	Ø 4 mm (5/32")	02282**B4044444**	02282**B4084444**	0.608
	Ø 6 mm	02282**B4046666**	02282**B4086666**	0.564
	Ø 8 mm (5/16")	02282**B4048888**	02282**B4088888**	0.538
	Ø 1/4"	02282**B4042222**	02282**B4082222**	0.564

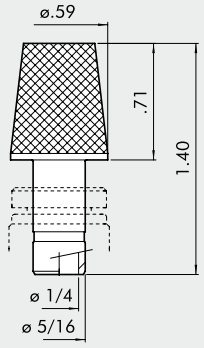
KEY TO CODES

02282	B	3	0	6	8	8	8	0
FAMILY	SUBSYSTEM	NUMBER OF POSITIONS	PORTS IN THE BASE	NUMBER OF SOLENOID PILOT CONTROLS	FITTINGS 1st position (from left)	FITTINGS 2nd position	FITTINGS 3rd position	FITTINGS 4TH position
02282 EB 80	**B** Base for valve	**3** 3 positions **4** 4 positions	**0** Full-flow ports ▲ **1** Port 1 sectioned ▲ **2** Ports 1, 3 and 5 sectioned ▲ **3** Ports 3 and 5 sectioned	▲ **3** 3 controls ■ **4** 4 controls ▲ **6** 6 controls ■ **8** 8 controls	**1** Without cartridges **2** Pipe fitting Ø 1/4" **4** Pipe fitting Ø 4 mm (5/32") **6** Pipe fitting Ø 6 mm **8** Pipe fitting Ø 8 mm (5/16")			▲ **0** (for 3-position base) ■ **1** Without cartridges ■ **2** Pipe fitting Ø 1/4" ■ **4** Pipe fitting Ø 4 mm (5/32") ■ **6** Pipe fitting Ø 6 mm ■ **8** Pipe fitting Ø 8 mm (5/16")

▲ For 3-position base only. ■ For 4-position base only.

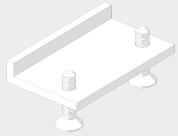
ACCESSORIES

SILENCER FOR FITTING, Ø 8



Code	Description	Weight [lb]
W0970530084	Silencer for fitting, Ø 8 mm (5/16")	0.033

ADDITIONAL FIXING BRACKET TO OMEGA BAR



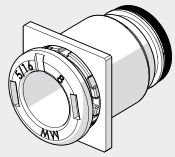
Code	Description	Weight [lb]
02282R4001	Additional fixing bar accessory to EB 80 omega bar	0.01

Individually packed

N.B.: to be used to improve the fixing to Omega bars of islands with more than 40 valves. The bracket must be positioned every 20-25 valves.

SPARE PARTS

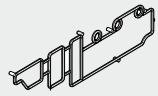
CARTRIDGE



Code	Description	Ø
02282R2001	EB 80 Ø 4 base square cartridge kit	4 mm (5/32")
02282R2002	EB 80 Ø 6 base square cartridge kit	6 mm
02282R2003	EB 80 Ø 8 base square cartridge kit	8 mm (5/16")
02282R2006	EB 80 Ø 1/4 base square cartridge kit	1/4"

Comes in 10-pc. packs

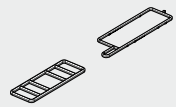
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

BASE-VALVE GASKET

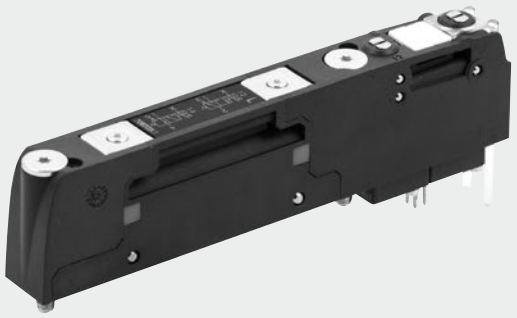


Code	Description
02282R1002	EB 80 base-valve gasket kit

Comes in 10-pc. packs

EB 80 VALVES

The valves in the EB 80 series are designed to ensure high flow using only one small size valve (14 mm wide), without the need of installing a larger size one, to the benefit of component standardisation.
Versions are available with all the main air supply diagrams - from 2/2 to 5/3. The valves are secured to the base with two sturdy M4 captive screws. They come with all the accessories that facilitate their use: manual control, monostable or bistable, LED light, plate with air supply diagram and technical data, white plates available to the customer.
This family also includes a dummy valve that is used to plug unused positions of the base, and a bypass element to enhance relief and supply or to create special compressed air circuits.
The range also includes:
- High-flow valves which have an innovative system that reaches flow rates that are uncommon for this size of valve.
- Bypass element that makes it possible to boost supply and reliefs or create special pneumatic circuits.
- Circuit shut-off valve (V3V) to connect/disconnect all station valves.
- Dummy valve to plug blank base positions.



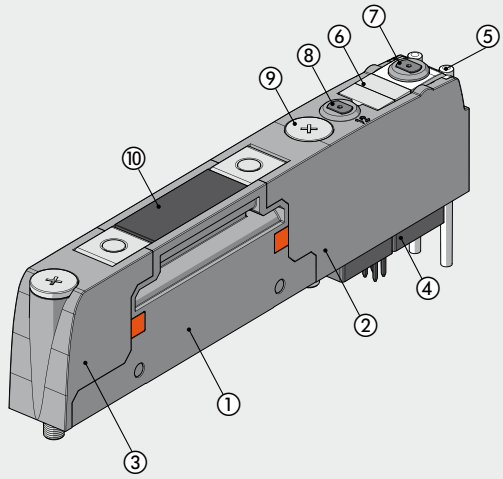
TECHNICAL DATA

Operating pressure			**5/2 and 5/3**			**2/2 and 3/2**	
Non-assisted valves	bar		3 to 8			3.5 to 8	
	MPa		0.3 to 0.8			0.35 to 0.8	
	psi		43 to 116			51 to 116	
Assisted valves	bar		Vacuum to 10				
	MPa		Vacuum to 1				
	psi		Vacuum to 145				
Servo pressure	bar		3 to 8			min. (see graph on page 1-141) / max. 8	
	MPa		0.3 to 0.8			min. (see graph on page 1-141) / max. 0.8	
	psi		43 to 116			min. (see graph on page 1-141) / max. 116	
Ambient temperature	°C		-10 to 50 (at 116 psi)				
	°F		14 to 122 (at 116 psi)				
Flow rate at 91 psi ΔP 14.5 psi		**Ø 4 (5/32")**	**Ø 6**	**Ø 8 (5/16")**	**Ø 1/4"**	**Ø 10 ****	**Ø 3/8" ****
valve 2/2	Nl/min	12.4	15.2	17.7	15.2	-	-
valve 3/2	Nl/min	12.4	21.2	24.8	21.2	44.2	44.2
valve 5/2	Nl/min	12.4	23.0	28.3	23.0	44.2 - 49.5	44.2 - 49.5
valve 5/3	Nl/min	12.4	16.3	17.7	16.3	35.3 - 44.2	35.3 - 44.2
valve V3V (R)	Nl/min	-	-	-	-	35.3	35.3
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valves 2/2 and 3/2	ms			14 /28			
TRA/TRR valves 5/2 monostable and shut-off valve	ms			12/45			
TRA/TRR valve 5/2 bistable	ms			12 / 14			
TRA/TRR valve 5/3	ms			15 / 45			
TRA/TRR valve 3/2 high flow	ms			13 / 36			
Fluid				Unlubricated air			
Air quality required				ISO 8573-1 class 4-7-3			
Supply voltage range	V			12 -10% 24 +30%			
Minimum operating voltage	V			10.8 *			
Maximum operating voltage	V			31.2			
Maximum admissible voltage	V			32 ***			
Power for each valve	W			3 for a few milliseconds. Holding 0.3			
Drive				PNP or NPN			
Solenoid rating				100% ED			
Versions				Manual monostable or bistable control. Various compressed air diagrams			
Degree of protection				IP65			

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page 1-114**
** Using high-flow valves or connected valves - see pages 1-142
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

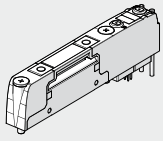
COMPONENTS

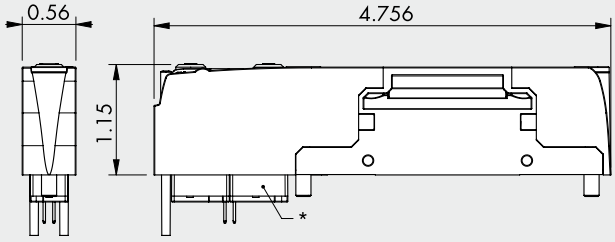
① BODY: technopolymer
② CONTROL: technopolymer
③ BASE: technopolymer
④ SOLENOID PILOT
⑤ DISPLAY: LED light and optical tester in technopolymer
⑥ TAG: removable
⑦ MANUAL CONTROL 14, FOR PORT 4: monostable or bistable, in brass
⑧ MANUAL CONTROL 12, FOR PORT 2: monostable or bistable, in brass
⑨ SCREW FOR FIXING TO THE BASE: M4 with PH 1 cross-head, galvanised steel (Tightening torque: 0.74 lbƒ ft).
⑩ TAG: technopolymer with laser-etched wording



DIMENSIONS - ORDERING CODES

EB 80 VALVE



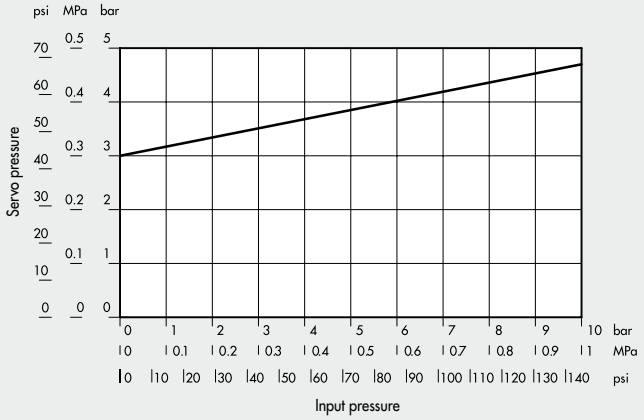


* The second solenoid pilot is not present in the valves V= 5/2 monostable.

N.B.: The valves Z, I, W, L, K, O can be mounted only on bases having 6 or 8 controls.

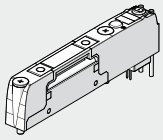
SERVO MINIMUM PRESSURE FOR VALVES 2/2 AND 3/2

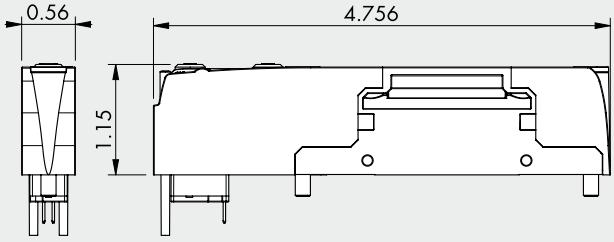
If the island is configured without servo, minimum pressure 3.5 bar



Symbol	Type	Code	Manual control	Weight [lb]
Z	2 valves 2/2 NC	708203**Z0**	monostable	0.18
		708203**Z1**	bistable	0.18
I	2 valves 3/2 NC	708203**I0**	monostable	0.18
		708203**I1**	bistable	0.18
	valid as 5/3 OC			
W	2 valves 3/2 NO	708203**W0**	monostable	0.18
		708203**W1**	bistable	0.18
	valid as 5/3 PC			
L	3/2 NC + 3/2 NO	708203**L0**	monostable	0.18
		708203**L1**	bistable	0.18
V	monostable 5/2	708203**V0**	monostable	0.152
		708203**V1**	bistable	0.152
K	bistable 5/2	708203**K0**	monostable	0.178
		708203**K1**	bistable	0.178
O	5/3 CC	708203**O0**	monostable	0.18
		708203**O1**	bistable	0.18

EB 80 HIGH-FLOW VALVE

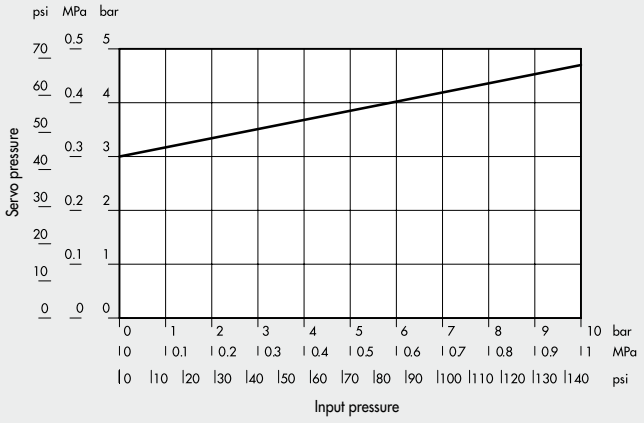




Symbol	Type	Code	Manual control	Weight [lb]
G	3/2 NC high flow	708203**G0**	monostable	0.15
		708203**G1**	bistable	0.15
J	3/2 NO high flow	708203**J0**	monostable	0.15
		708203**J1**	bistable	0.15

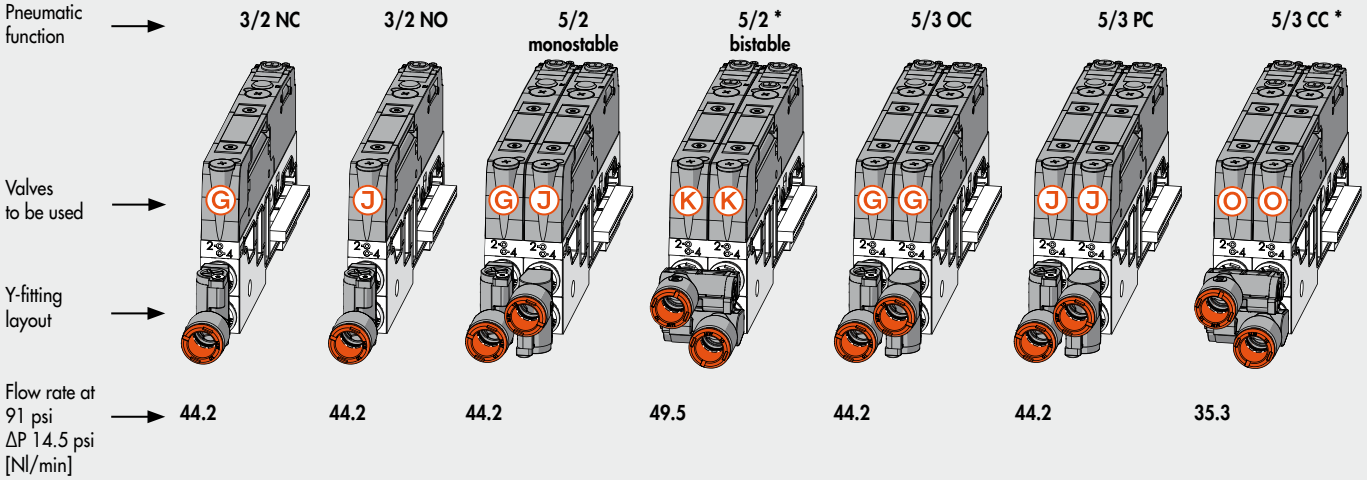
SERVO MINIMUM PRESSURE

If the island is configured without servo, minimum pressure 3.5 bar



HOW TO GET HIGH-FLOW RATE FOR EACH PNEUMATIC FUNCTION

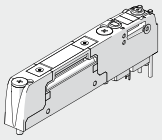
N.B. The two cartridges on the base (2 and 4) must fit the Ø 8 mm (5/16") pipe.
Outputs 2 and 4 must be connected one to the other. To do this, you can use the special Y-fitting.
When connecting one or more valves using the Y-fitting, the pneumatic system functions must be configured according to the following diagram.

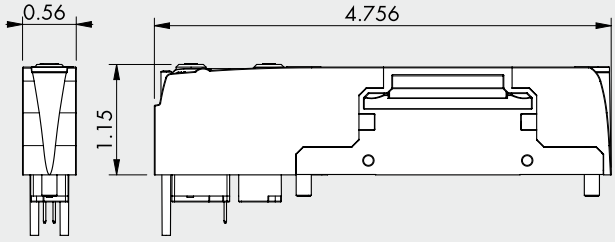


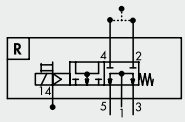
In order to get 5/2 monostable, 5/2 bistable and 5/3 DC high flow, use two parallel valves, by energizing the solenoids simultaneously.

* The Y-fittings of this valve must be installed longitudinally with one Y-fitting connecting the two outputs (2) and the other the two outputs (4).
The solenoid pilots must be operated simultaneously.

EB 80 SHUT-OFF VALVE (V3V)

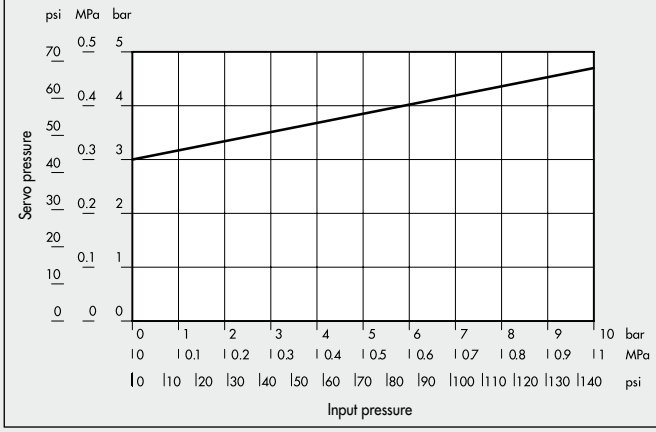




Symbol	Type	Code	Manual control	Weight [lb]
R 	Shut-off valve	708203**R0**	monostable	0.15
		708203**R1**	bistable	0.15

SERVO MINIMUM PRESSURE

If the island is configured without servo, minimum pressure 3.5 bar

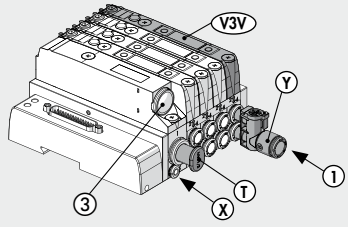


This valve enables the supply/relief of all station valves. The pneumatic supply is delivered via ports 2 and 4 on the base underneath the valve. It is discharged via ports 3 and 5 with general station discharge. Port 1 on pneumatic supply module P must be plugged for the system to operate and slave the island by supplying continuous pressure to port X.
The shut-off valve is designed for the following uses and benefits:
- the valve can be fitted in any position and not necessarily to the left of the others;
- if the station is split into areas with separate channels (1) via intermediate modules M or bases with port 1 selected, the shut-off valve only operates in the area where it is fitted.
- if the capacity of a shut-off valve is not sufficient for its use, two or more can be fitted and operated simultaneously.

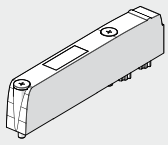
TECHNICAL DATA		
Flow rate at 91 psi ΔP 14.5 psi	scfm	35.3 [with 2 Ø 8 (5/16") fittings or a Y fitting, pipe Ø 10 mm or 3/8"]
Exhaust flow rate at 91 psi	scfm	23.3
Actuation response time (TRA) / reset response time (TRR) at 6 bar	ms	12/45
Servo pressure		See technical data 3/2 valves (page 1-140)

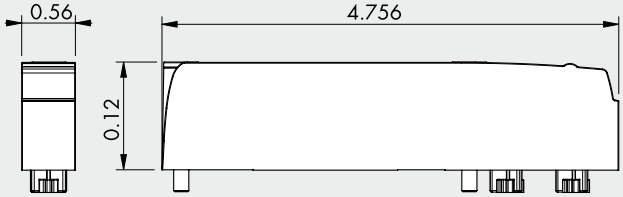
SHUT-OFF VALVE DIAGRAM

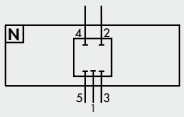
V3V Shut-off valve, can be fitted in any position
1 Pneumatic supply
3 Relief
Y Y-fitting with black bush (page 1-145)
T Plug port 1 of pneumatic supply P module
X Always use the pneumatic supply servo version



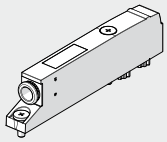
DUMMY VALVE (PLUG)

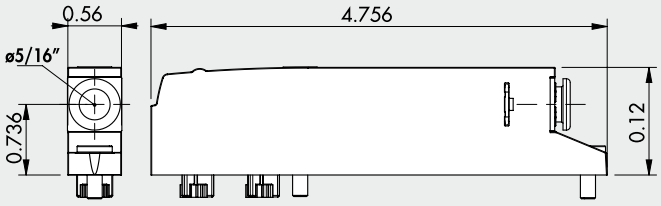


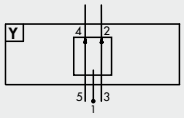


Symbol	Description	Code	Weight [lb]
N 	Dummy valve	708203**N0**	0.1

BYPASS





Symbol	Description	Code	Weight [lb]
Y 	Bypass Ø 8	708203**Y8**	0.11

N.B.: Maximum pressure in the ports 2 and 4:
8 bar - 116 psi

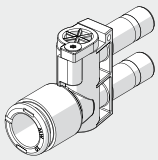
Connects port 3 of the base to port 2 and port 5 to port 4.
The fitting present is connected to port 1.

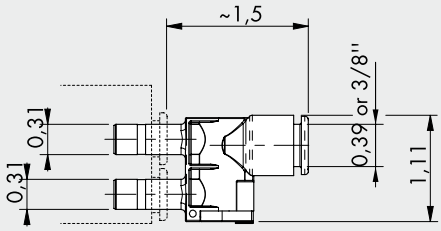
KEY TO CODES

7082	03	V	0
FAMILY	**TYPE**	**SCHEMA**	**MANUAL CONTROL**
7082 EB 80	**03** Electric, servo-assisted	▲ **Z** 2 valves 2/2NC ▲ **I** 2 valves 3/2 NC ▲ **W** 2 valves 3/2 NO ▲ **L** 3/2 NC + 3/2 NO ▲ **V** 5/2 monostable ▲ **K** 5/2 bistable ▲ **O** 5/3 CC **G** 3/2 NC high flow **J** 3/2 NO high flow ✚ **R** Shut-off valve **Y** Bypass **N** Dummy valve (plug)	**0** Monostable or for dummy valve **1** Bistable **8** For bypass only

▲ Can only be used with 8-control bases.
✚ Requires inlet port X slave synchronisation.

Y-FITTING





Code	Description	Release bushing color
02282R2Y04	Y-fitting for EB 80 Ø 8 (5/16") - Ø 10	Orange
02282R2Y14	Y-fitting for EB 80 Ø 8 (5/16") - Ø 10	Black
02282R2Y07	Y-fitting for EB 80 Ø 8 (5/16") - Ø 3/8"	Orange
02282R2Y17	Y-fitting for EB 80 Ø 8 (5/16") - Ø 3/8"	Black

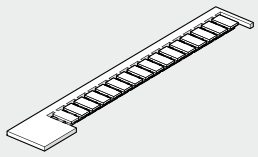
SPARE PARTS

BASE FIXING SCREW

Code	Description
02282R3000	Kit of screws for fixing the EB 80 base

Comes in 10-pc. packs

IDENTIFICATION PLATE KIT



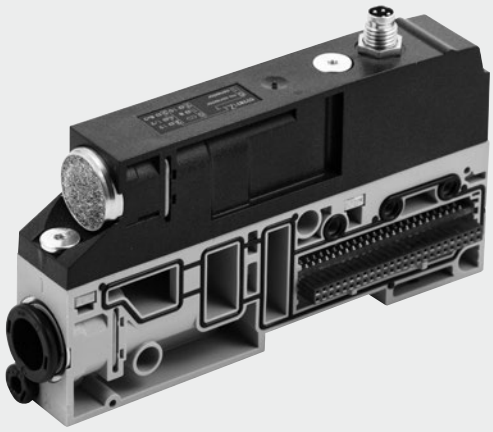
Code	Description
0226107000	Identification plate kit

Comes in 16-pc. packs

NOTES

EB 80 INTERMEDIATE SUPPORT - M

The "Intermediate modules - M" perform a series of functions.
They can help increase the flow rate available in an EB 80 island, when various valves are used at the same time. They can be used to divide an island in areas of different pressures.
They can also be used as additional electrical power supply, when there is a high number of solenoid pilots actuated simultaneously; or to electrically separate and cut out a part of the island, in the event of an emergency, for example.
Intermediate modules can be placed in any position in the EB 80 island.
Several versions are available, with fittings for pipes of different diameter.
Relief ports 3 and 5 can be either connected using a silencer or conveyed via a fitting.
A version with separate ports 3 and 5 is also available. This feature is useful in versions with pilot servo-assistance to power the valves from ports 3 and 5, at different pressures, from vacuum to 8 bar - 116 psi.
The lower body of the intermediate plate comes with different air flow ducts: with full flow ports or one or more closed ports.



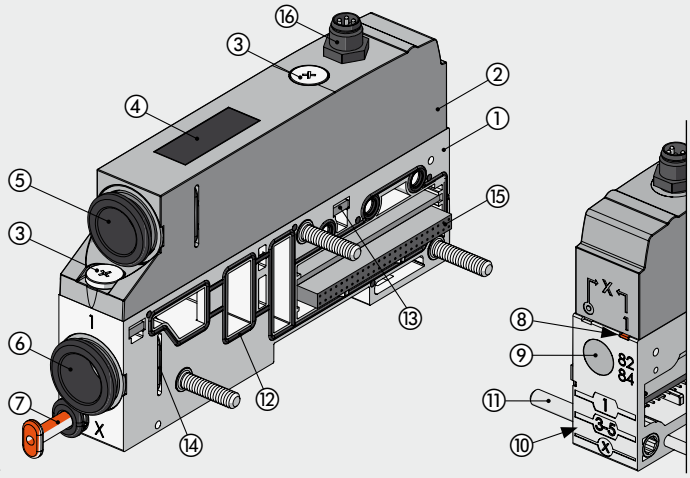
TECHNICAL DATA

Operating pressure		Vacuum to 10 bar / Vacuum to 1 MPa / Vacuum to 145 psi			
Ambient temperature		-10 to + 50 °C / 14 to 122 °F			
Flow rate at 91 psi ΔP 14.5 psi		Ø 8 mm (5/16")	Ø 10 mm	Ø 12 mm	Ø 1/2"
Feeding (port 1)	scfm	63.69	99	123.8	123.8
Exhaust with fitting (ports 3 and 5)	scfm	70.8	113.2	155.7	155.7
Separate exhausts Ø 8 mm (5/16")	scfm	63.69 x 2	-	-	-
Flow rate at 91 psi free exhaust					
Exhaust with fitting (ports 3 and 5)	scfm	95.5	138	215.8	215.8
Silenced exhaust	scfm	127.4			
Exhaust with fitting Ø 12 mm and silencer W0970530086	scfm	122.3			
Separate exhausts Ø 8 mm (5/16") (N.B.: Pmax 116 psi)	scfm	95.5 x 2	-	-	-
Fluid		Unlubricated air			
Additional electrical power supply		M8 4-pin connector *			
Voltage range	V	12 to 31.2			
Maximum number of solenoid pilots that can be actuated simultaneously					
from the additional electrical connection:					
at 24VDC		With 100% simultaneity: 48 / With 60% simultaneity: 80			
at 12VDC		With 100% simultaneity: 32 / With 60% simultaneity: 64			
Versions		Pipe fittings Ø 8 mm (5/16"), Ø 10 mm, Ø 12 mm, 1/2"; Silenced relief, conveyed relief, ports 3 and 5 separate			
		Full-flow ports in the base, 1 closed, 1, 3 and 5 closed, 3 and 5 closed, 1, 3, 5 and X closed			
		With or without additional electrical power supply			
Degree of protection		IP65 (with connectors connected or plugged if not used)			

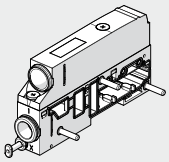
IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.
* If electric power is not supplied: the red power LED light comes on and the LEDs at the base keep flashing (voltage out of range);
in the version with multi-pin electrical connection, the "OUT" fault signal is triggered; in the version with fieldbus, a software message is sent.

COMPONENTS

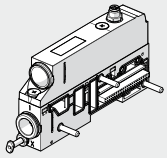
① LOWER PART BODY: technopolymer
② UPPER PART BODY: technopolymer
③ SCREWS for fixing between the bodies: galvanised steel (Tightening torque: 0.74 lbf ft)
④ TAG with laser-etched wording: technopolymer
⑤ AIR RELIEF: silencer or pipe fitting
⑥ POWER SUPPLY: pipe fitting
⑦ PILOTING (X): pipe fitting Ø 4 mm (5/32")
⑧ INDICATOR: indicating whether power supply to pilots is separate or not
⑨ PILOT RELIEF: silencer in HDPE
⑩ PICTOGRAM: indication of compressed air system layout
⑪ TIE RODS: nickel-plated steel
⑫ GASKET: NBR
⑬ THREADED PLATE: galvanised steel
⑭ CARTRIDGE FIXING CLIP: stainless steel
⑮ ELECTRONIC BOARD
⑯ M8 CONNECTOR: only for version with additional electrical power supply



INTERMEDIATE MODULE - SILENCED RELIEF



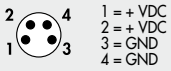
WITHOUT additional electrical power supply

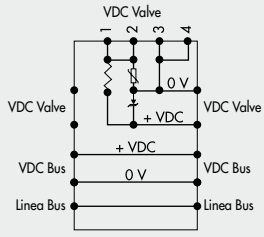


WITH additional electric power supply

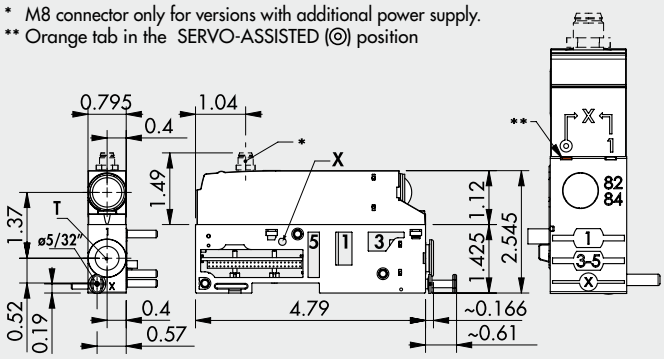
WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

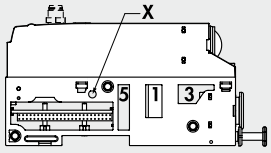
M8 male connector

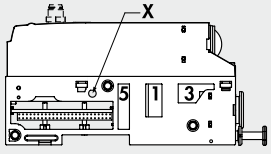


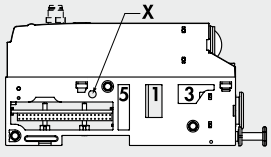


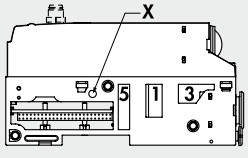
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position





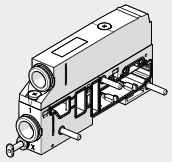




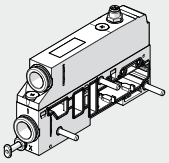


Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weight [lb]
Full-flow ports	Ø 8 mm (5/16″)	02282**M100Z00**	02282**M101Z01**	0.37
	Ø 10 mm	02282**M200Z00**	02282**M201Z01**	0.36
	Ø 12 mm	02282**M300Z00**	02282**M301Z01**	0.35
	Ø 1/2″	02282**M500Z00**	02282**M501Z01**	0.35
Port 1 closed	Ø 8 mm (5/16″)	02282**M110Z00**	02282**M111Z01**	0.37
	Ø 10 mm	02282**M210Z00**	02282**M211Z01**	0.36
	Ø 12 mm	02282**M310Z00**	02282**M311Z01**	0.35
	Ø 1/2″	02282**M510Z00**	02282**M511Z01**	0.35
Ports 1, 3 and 5 closed	Ø 8 mm (5/16″)	02282**M120Z00**	02282**M121Z01**	0.37
	Ø 10 mm	02282**M220Z00**	02282**M221Z01**	0.36
	Ø 12 mm	02282**M320Z00**	02282**M321Z01**	0.35
	Ø 1/2″	02282**M520Z00**	02282**M521Z01**	0.35
Ports 3 and 5 closed	Ø 8 mm (5/16″)	02282**M130Z00**	02282**M131Z01**	0.37
	Ø 10 mm	02282**M230Z00**	02282**M231Z01**	0.36
	Ø 12 mm	02282**M330Z00**	02282**M331Z01**	0.35
	Ø 1/2″	02282**M530Z00**	02282**M531Z01**	0.35
Ports 1, 3, 5 and X closed	Ø 8 mm (5/16″)	02282**M140Z00**	02282**M141Z01**	0.37
	Ø 10 mm	02282**M240Z00**	02282**M241Z01**	0.36
	Ø 12 mm	02282**M340Z00**	02282**M341Z01**	0.35
	Ø 1/2″	02282**M540Z00**	02282**M541Z01**	0.35

INTERMEDIATE MODULE - CONVEYED RELIEF



WITHOUT additional electrical power supply

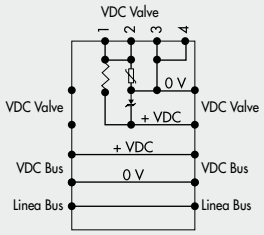


WITH additional electric power supply

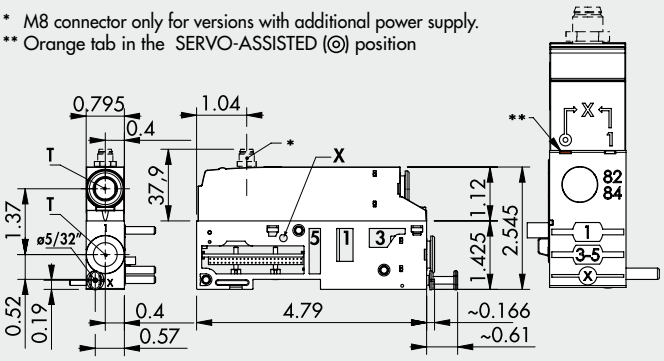
WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

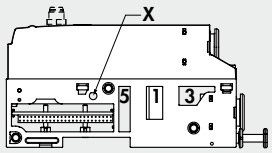
M8 male connector

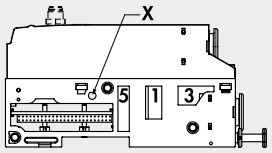
1 = + VDC
2 = + VDC
3 = GND
4 = GND

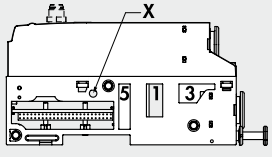


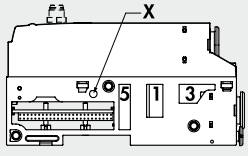
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position





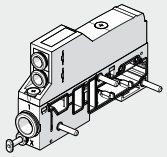




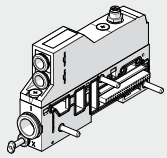


Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	 WITH	Weigh [lb]
Full-flow ports	Ø 8 mm (5/16")	02282**M100Z10**	02282**M101Z11**	0.37
	Ø 10 mm	02282**M200Z20**	02282**M201Z21**	0.36
	Ø 12 mm	02282**M300Z30**	02282**M301Z31**	0.35
	Ø 1/2"	02282**M500Z50**	02282**M501Z51**	0.35
Port 1 closed	Ø 8 mm (5/16")	02282**M110Z10**	02282**M111Z11**	0.37
	Ø 10 mm	02282**M210Z20**	02282**M211Z21**	0.36
	Ø 12 mm	02282**M310Z30**	02282**M311Z31**	0.35
	Ø 1/2"	02282**M510Z50**	02282**M511Z51**	0.35
Ports 1, 3 and 5 closed	Ø 8 mm (5/16")	02282**M120Z10**	02282**M121Z11**	0.37
	Ø 10 mm	02282**M220Z20**	02282**M221Z21**	0.36
	Ø 12 mm	02282**M320Z30**	02282**M321Z31**	0.35
	Ø 1/2"	02282**M520Z50**	02282**M521Z51**	0.35
Ports 3 and 5 closed	Ø 8 mm (5/16")	02282**M130Z10**	02282**M131Z11**	0.37
	Ø 10 mm	02282**M230Z20**	02282**M231Z21**	0.36
	Ø 12 mm	02282**M330Z30**	02282**M331Z31**	0.35
	Ø 1/2"	02282**M530Z50**	02282**M531Z51**	0.35
Ports 1, 3, 5 and X closed	Ø 8 mm (5/16")	02282**M140Z10**	02282**M141Z11**	0.37
	Ø 10 mm	02282**M240Z20**	02282**M241Z21**	0.36
	Ø 12 mm	02282**M340Z30**	02282**M341Z31**	0.35
	Ø 1/2"	02282**M540Z50**	02282**M541Z51**	0.35

INTERMEDIATE MODULE - SEPARATE RELIEF



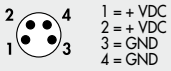
WITHOUT additional electrical power supply

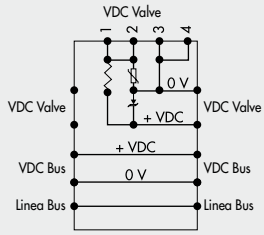


WITH additional electrical power supply

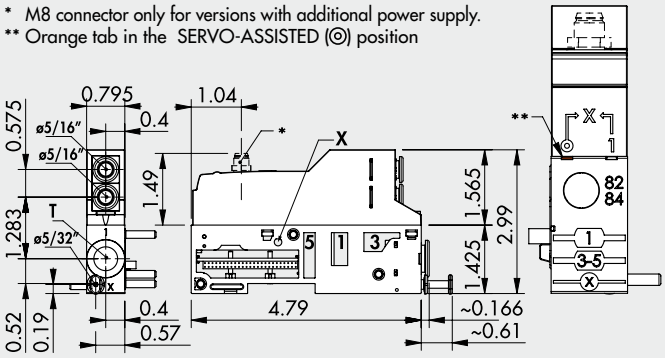
WIRING DIAGRAM NTERMEDIATE MODULE - M, WITH ADDITIONAL POWER SUPPLY

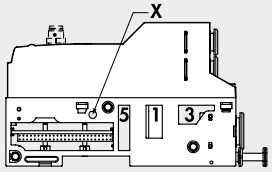
M8 male connector

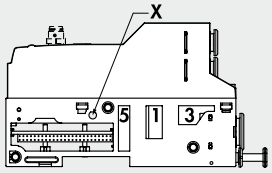


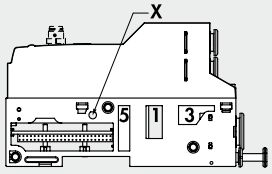


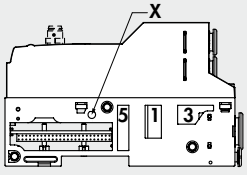
* M8 connector only for versions with additional power supply.
** Orange tab in the SERVO-ASSISTED (◎) position











N.B.: Maximum pressure in the ports 3 and 5: 8 bar - 116 psi

Symbol	T Pipe fitting	Code Additional electric power supply WITHOUT	WITH	Weight [lb]
Full-flow ports	Ø 8 mm (5/16")	02282**M100Z60**	02282**M101Z61**	0.39
	Ø 10 mm	02282**M200Z60**	02282**M201Z61**	0.38
	Ø 12 mm	02282**M300Z60**	02282**M301Z61**	0.37
	Ø 1/2"	02282**M500Z60**	02282**M501Z61**	0.37
Port 1 closed	Ø 8 mm (5/16")	02282**M110Z60**	02282**M111Z61**	0.39
	Ø 10 mm	02282**M210Z60**	02282**M211Z61**	0.38
	Ø 12 mm	02282**M310Z60**	02282**M311Z61**	0.37
	Ø 1/2"	02282**M510Z60**	02282**M511Z61**	0.37
Ports 1, 3 and 5 closed	Ø 8 mm (5/16")	02282**M120Z60**	02282**M121Z61**	0.39
	Ø 10 mm	02282**M220Z60**	02282**M221Z61**	0.38
	Ø 12 mm	02282**M320Z60**	02282**M321Z61**	0.37
	Ø 1/2"	02282**M520Z60**	02282**M521Z61**	0.37
Ports 3 and 5 closed	Ø 8 mm (5/16")	02282**M130Z60**	02282**M131Z61**	0.39
	Ø 10 mm	02282**M230Z60**	02282**M231Z61**	0.38
	Ø 12 mm	02282**M330Z60**	02282**M331Z61**	0.37
	Ø 1/2"	02282**M530Z60**	02282**M531Z61**	0.37
Ports 1, 3, 5 and X closed	Ø 8 mm (5/16")	02282**M140Z60**	02282**M141Z61**	0.39
	Ø 10 mm	02282**M240Z60**	02282**M241Z61**	0.38
	Ø 12 mm	02282**M340Z60**	02282**M341Z61**	0.37
	Ø 1/2"	02282**M540Z60**	02282**M541Z61**	0.37

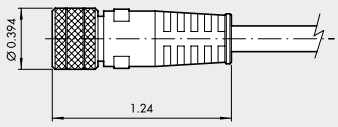
KEY TO CODES

02282	M	3	0	0	Z	3	0
FAMILY	SUBSYSTEM	PORT FITTING 1	PORTS IN THE BASE	ADDITIONAL ELECTRICAL POWER SUPPLY	UPPER PART	PORTS 3 AND 5 FITTING	ELECTRICAL CONNECTOR
02282 EB 80	**M** Intermediate	**1** Pipe fitting Ø 8 mm (5/16") **2** Pipe fitting Ø 10 mm **3** Pipe fitting Ø 12 mm **5** Pipe fitting Ø 1/2"	**0** Full-flow ports **1** Port 1 closed **2** Ports 1, 3 and 5 closed **3** Ports 3 and 5 closed **4** Ports 1, 3, 5 and X closed	■ **0** Without ● **1** With	**Z** The upper part is present	**0** Silencer ▲ **1** Pipe fitting Ø 8 mm (5/16") ▲ **2** Pipe fitting Ø 10 mm ▲ **3** Pipe fitting Ø 12 mm ▲ **5** Pipe fitting Ø 1/2" **6** 2 pipes fitting Ø 8 mm (5/16") (one for port 3, one for port 5)	■ **0** Without ● **1** With

▲ For ports 3/5, use the same Ø pipe as port 1.
■ Same number for both positions.
● Same number for both positions.

ACCESSORIES

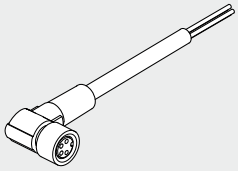
M8 CONNECTOR FOR POWER SUPPLY



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 118 inch
0240009037	M8 4-pin female connector for power supply, cable L = 197 inch
0240009058	M8 4-pin female connector for power supply, cable L = 394 inch
0240009059	M8 4-pin female connector for power supply, cable L = 590 inch

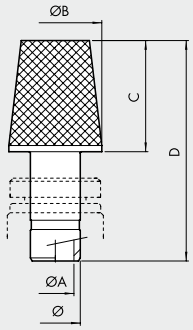
M8 90° CONNECTOR FOR POWER SUPPLY



Pin	Cable color
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240009103	M8 4-pin connector - female, 90° angle L = 197 inch

SILENCER FOR FITTING

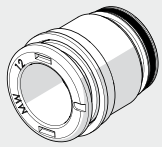


Ø	Ø A	Ø B	C	D
5/16"	1/4	0.59	0.71	1.4
12 mm	0.394	0.54	1.14	2.03

Code	Description	Weight [lb]
W0970530084	Silencer for fitting, Ø 8 mm (5/16")	0.033
W0970530086	Silencer for fitting, Ø 12 mm	0.053

SPARE PARTS

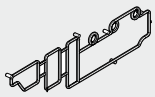
CARTRIDGE



Code	Description	Ø
02282R2110	EB 80 silencer cartridge kit	silencer
02282R2113	EB 80 Ø 8 power supply round cartridge kit	8 mm (5/16")
02282R2114	EB 80 Ø 10 power supply round cartridge kit	10 mm
02282R2115	EB 80 Ø 12 power supply round cartridge kit	12 mm
02282R2118	EB 80 Ø 1/2 power supply round cartridge kit	1/2"

Comes in 10-pc. packs

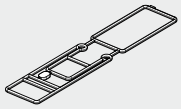
BASE INTERFACE GASKET



Code	Description
02282R1000	EB 80 base interface gasket kit

Comes in 10-pc. packs

LOWER /UPPER BODY GASKET



Code	Description
02282R1001	EB 80 lower/upper body gasket kit

Comes in 10-pc. packs

EB 80 CLOSED END-PLATE - C

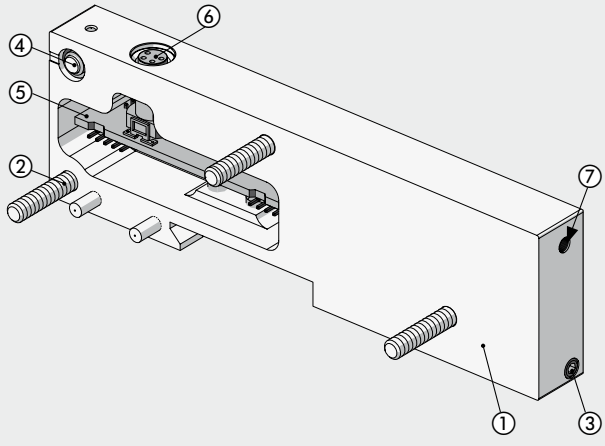
The "Closed end plate - C" is the last element of each EB 80 system.
A version for islands with multi-pole connector is available.
One for islands with fieldbus, containing a small electronic board; one for connection to other additional EB 80 islands (only for systems with fieldbus).
The end plate houses the system for mechanically fixing the island to external supports.

TECHNICAL DATA

Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		For islands with multi-pole connection. For island with fieldbus. For connection to additional islands.
Degree of protection		IP65 (with connectors connected or plugged if not used)
Notes		All valve units (including multi-pole versions) require grounding protection. Use M4 thread on the end plate with braided cable code 02282R6000 provided or, when fixing the unit onto a DIN bar, connect the bar to grounding.

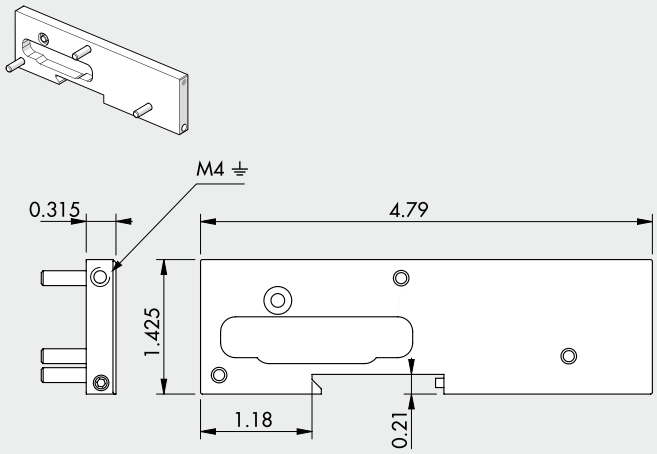
COMPONENTS

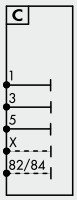
① BODY: painted metal
② FIXING SCREW: TCE M4x20 galvanised steel
③ GRUB SCREW securing the DIN bar or bracket: galvanized steel
④ RELIEF VALVE: safety in case of internal pressure increase due to temperature or losses
⑤ ELECTRONIC BOARD: none in the Closed end plate for islands with multi-pole connector
⑥ M8 CONNECTOR: only in the Closed end plate for connection with additional islands
⑦ GROUNDING ⏚



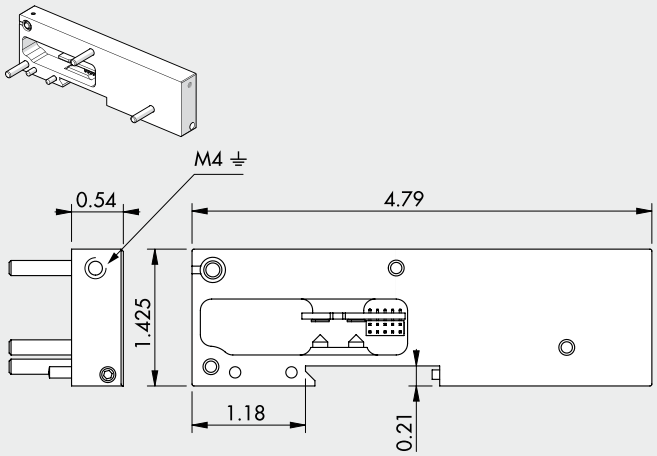
DIMENSIONS - ORDERING CODES

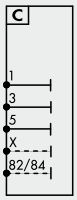
CLOSED END PLATE FOR ISLANDS WITH MULTI-POLE CONNECTOR



Symbol	Code	Description	Weight [lb]
	02282**C1**	Closed end-plate for islands with multi-pole connector	0.2

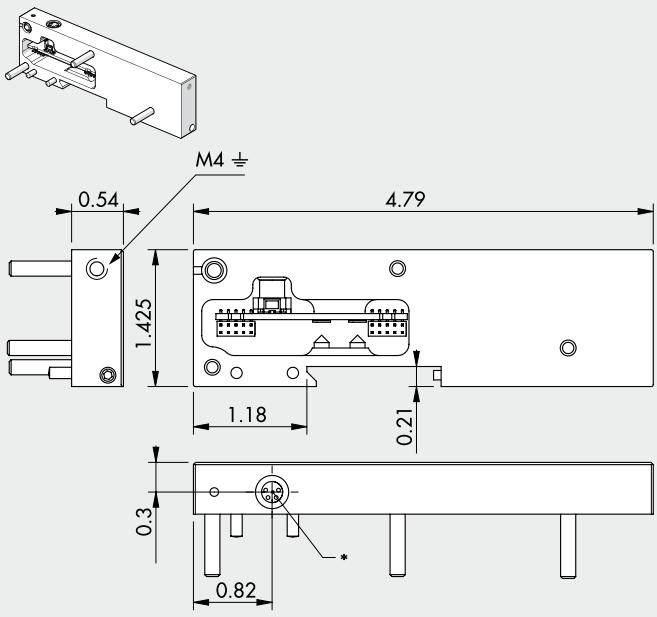
CLOSED END-PLATE FOR ISLANDS WITH FIELDBUS

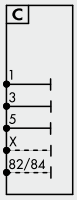


Symbol	Code	Description	Weight [lb]
	02282**C2**	Closed end-plate for islands with fieldbus	0.32

Note: also usable for islands with multi-pole connector

CLOSED END PLATE FOR ELECTRICAL CONNECTION TO ADDITIONAL ISLANDS



Symbol	Code	Description	Weight [lb]
	02282**C3**	Closed end-plate for electrical connection to additional islands	0.32

Note: if you do not connect additional island you must mount the M8 end connector

* M8 connector for connection to additional islands.

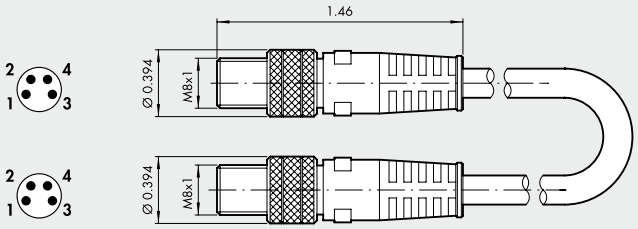
N.B.: The system does not work until the connector is connected to the "Additional electrical connection - E" module.

KEY TO CODES

02282	C	1
FAMILY	**SUBSYSTEM**	**TYPE**
02282 EB 80	**C** Closed end-plate	**1** For islands with multi-pole connection **2** For islands with fieldbus **3** For connection to additional islands

ACCESSORIES

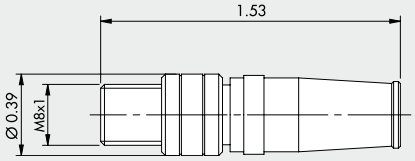
M8 CONNECTOR WITH CABLE FOR CONNECTION BETWEEN EB 80 ISLANDS



Code	Description	Weight [lb]
0240010201	M8-M8 4-pin male shielded cable L = 40 inch	0.09
0240010205	M8-M8 4-pin male shielded cable L = 197 inch	0.4
0240010210	M8-M8 4-pin male shielded cable L = 394 inch	0.73
0240010215	M8-M8 4-pin male shielded cable L = 590 inch	1
0240010220	M8-M8 4-pin male shielded cable L = 788 inch	1.36

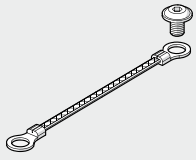
N.B.: For correct operation of the entire EB 80 system, use M8-M8 pre-wired, twisted and shielded cables only.

M8 END CONNECTOR FOR EB 80 VALVES



Code	Description
02282R5000	M8 end connector for EB 80 valves

BRAIDED GROUNDING CABLE



Code	Description
02282R6000	Braided grounding cable

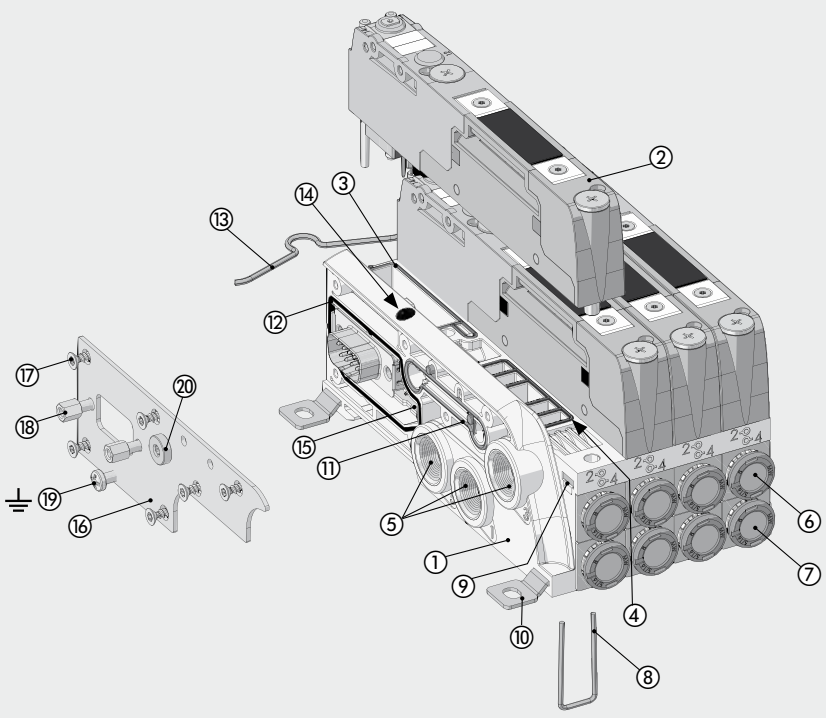
NOTES

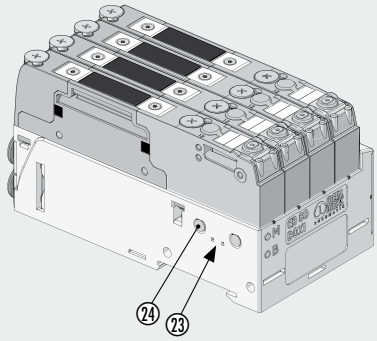
EB 80 BOXI - 4-POSITION VALVE ISLAND

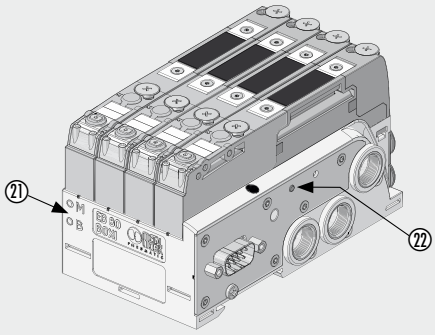
The EB 80 electro-pneumatic system features the utmost modularity and allows the construction of all types of valve island and size. This enormous potential is not exploited to the full, however, when only a few valves are needed and there is no need to manage input or output signals.
BOXI was designed to best meet this requirement for simplicity.
It consists of a solid base that accommodates pneumatic and electrical connections, the electronics and up to 4 valves.
A comparison with a modular EB 80 for 4 valve shows that BOXI weighs 35% less and saves 30% space, in addition of its competitive price, while maintaining many of the advantages that have made the EB 80 so popular, namely:

- All the EB 80 valves, from the twin 2/2 to the high-flow models, can be installed.
- Can be powered at 12VDC or 24VDC.
- Interchangeable cartridge fittings.
- Only 0.3W to control each valve.
- Diagnostics (open circuit, over-under, voltage short-circuit) with LED signal lights.
- Possibility of connecting multifunction modules to the outputs.

COMPONENTS







① BASE: technopolymer
② EB 80 VALVE (see page 1-95 and page 1-140)
③ GASKET: NBR
④ VALVE GASKET: NBR
⑤ PORTS 1-3-5: brass threaded element
⑥ PORT 2 CARTRIDGE: push-in fitting
⑦ PORT 4 CARTRIDGE: push-in fitting
⑧ CLIP for securing the cartridge: stainless steel
⑨ THREADED PLATE for securing the valves: galvanised steel
⑩ FIXING PIN: galvanised steel
⑪ GASKET FOR SERVO-ASSISTING: NBR
⑫ GASKET FOR IP65: NBR
⑬ SPRING CLIP for omega bar: stainless steel
⑭ Alarm LED light display: technopolymer
⑮ ELECTRONIC BOARD
⑯ END PLATE: stainless steel
⑰ SCREW FOR FIXING THE CLOSING PLATE TO THE BASE: galvanised steel
⑱ ELECTRIC CONNECTOR FIXING COLUMNS: nickel-plated brass
⑲ GROUNDING SCREW: galvanized steel
⑳ A7/M5 PLUG (in the non-servo-assisted version only): nickel-plated brass
㉑ PICTOGRAM indication of the type of electronic board:
M = to 4 controls - B = to 8 controls
㉒ INDICATOR: indicaes whether pilot power supply is separate or not
㉓ RELIEF VALVE: safety in case of internal pressure increase due to temperature or losses
㉔ PILOT RELIEF: HDPE silencer

TECHNICAL DATA

Supply voltage range	V	12 -10% 24 +30%					
Minimum operating voltage	V	10.8 *					
Maximum operating voltage	V	31.2					
Maximum admissible voltage	V	32 ***					
Power for each controlled pilot	W	3 for 15 ms, then holding 0.3					
Drive		PNP					
Solenoid rating		100% ED					
Protection		Overload and short-circuit protected solenoid pilot Output					
Grounding		With a Ø3 mm screw on a metal closing plate					
Diagnostics		LED light signal on the base					
Faults signalled		Solenoid pilot broken or missing; short-circuited solenoid pilot; power supply out of range					
Maximum number of controls (solenoid pilots)		4-control version, 5/2 monostable valves; 8-control version, for each type of valve.					
Electrical connection		Multipole with D-Sub 9-pin connector; I/O Link with M12x1 connector.					
Ambient temperature	°C	-10 to + 50 (at 8 bar)					
	°F	14 to 122 (at 8 bar)					
Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min (see graph on page 1-141) / max. 8		
	MPa	0.3 to 0.8			min (see graph on page 1-141) / max. 0.8		
	psi	43 to 116			min (see graph on page 1-141) / max. 116		
Pneumatic fittings		Supply (port 1) and exhaust (ports 3 and 5): 1/4" BSP or 1/4" NPT. Piloting (X): M5					
Pneumatic outputs		Pipe fittings Ø 4 (5/32"), 6, 8 (5/16"), 1/4"					
Flow rate at 91 psi ΔP 14.5 psi Feeding (port 1)	scfm	159.2					
91 psi flow rate with free exhaust from ports 3 and 5	scfm	194.6 + 194.6					
Valve flow rate, at 6.3 bar ΔP 1 bar		**Ø 4 mm (5/32")**	**Ø mm 6**	**Ø 8 mm (5/16")**	**Ø 1/4"**	**Ø 10 mm ****	**Ø 3/8" ****
valve 2/2	scfm	12.4	15.2	17.7	15.2	-	-
valve 3/2	scfm	12.4	21.2	24.8	21.2	44.2	44.2
valve 5/2	scfm	12.4	23.0	28.3	23.0	44.2 - 49.5	44.2 - 49.5
valve 5/3	scfm	12.4	16.3	17.7	16.3	35.3 - 44.2	35.3 - 44.2
valve V3V (R)	scfm	-	-	-	-	35.3	35.3
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valve 2/2 and 3/2	ms	14 / 28					
TRA/TRR valves 5/2 monostable and shut-off valve	ms	12 / 45					
TRA/TRR valve 5/2 bistable	ms	12 / 14					
TRA/TRR valve 5/3	ms	15 / 45					
TRA/TRR valve 3/2 high flow	ms	13 / 36					
Fluid		Unlubricated air					
Air quality required		ISO 8573-1 class 4-7-3					
Degree of protection		IP65					
Weight (without valves)	g	330					

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**

** Using high-flow valves or connected valves - see pages 1-142

*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably**.

VIDEO

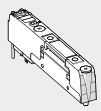
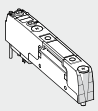
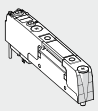
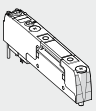
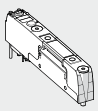
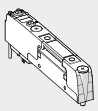
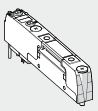
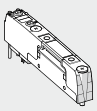
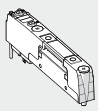
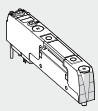
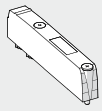
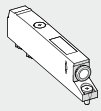
This video shows the advantages of the EB 80 BOXI.

English

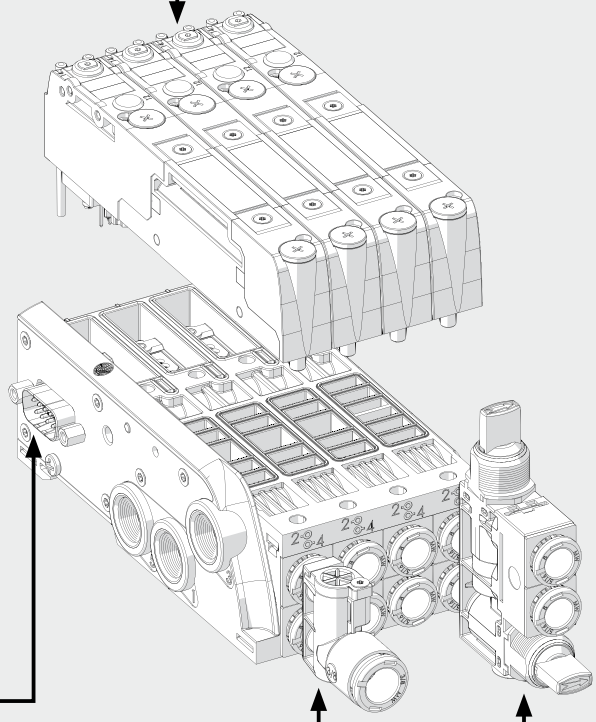
Italian

THE EB 80 BOXI WORLD

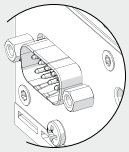
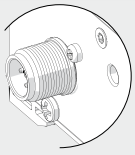
VALVES

Z_ ▲	I_ ▲	W_ ▲	L_ ▲	V_ ▲	K_ ▲	O_	G_	J_	R_ ✚	N0	Y8
											
2 valves 2/2 NC	2 valves 3/2 NC (valid as 5/3 OC)	2 valves 3/2 NO (valid as 5/3 PC)	3/2 NC + 3/2 NO	Monostable 5/2	Bistable 5/2	5/3 CC	3/2 NC high flow	3/2 NO high flow	Shut-off valve	Dummy valve	Bypass
See page 1.141	See page 1.141	See page 1.141	See page 1.141	See page 1.141	See page 1.141	See page 1.141	See page 1.142	See page 1.142	See page 1.143	See page 1.144	See page 1.144

▲ Can only be used with 8-control bases.
✚ Requires inlet port X slave synchronisation.

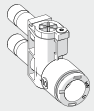


ELECTRICAL CONNECTION

	
D-Sub 9-pin multipole	I/O link M12x15 pin coding A
See page 1-160	See page 1-160

Y-FITTING

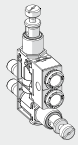
R2



Y-fitting

See page 1-145

MULTI-FUNCTION MODULE

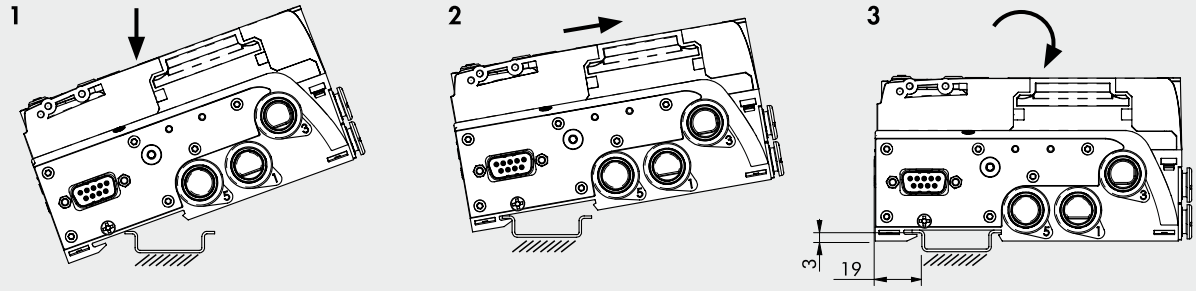


Fittings with pneumatic functions

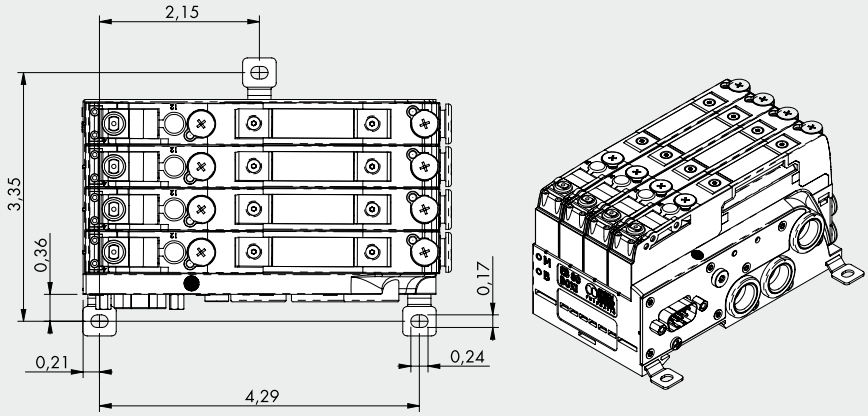
See page 1-166

FIXING OPTIONS

Fixing on a DIN bar: fixing on a DIN bar in the sequence indicated.



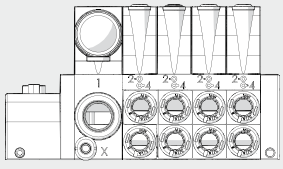
Fixing by means of brackets: the 3 brackets are already included in each EB 80 BOXI pack. Push them firmly into the appropriate seats on the base up to the "click".



SOME CHARACTERISTICS OF EB 80 BOXI SYSTEMS

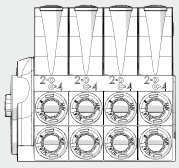
SMALLER IN SIZE THAN THE EB 80 MODULAR

EB 80 STANDARD



4.56

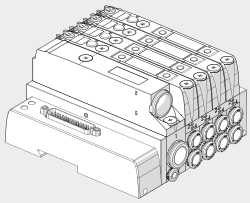
EB 80 BOXI



2.71

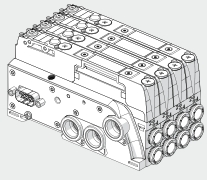
LIGHTER THAN THE EB 80 MODULAR

EB 80 STANDARD



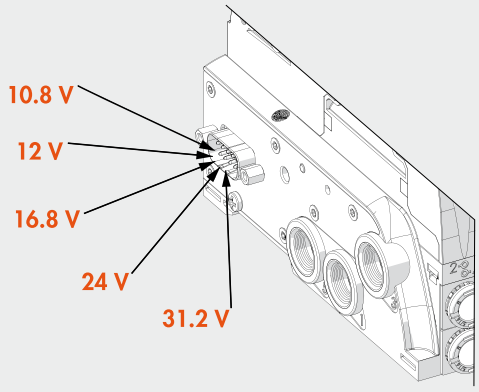
2.2 lb

EB 80 BOXI



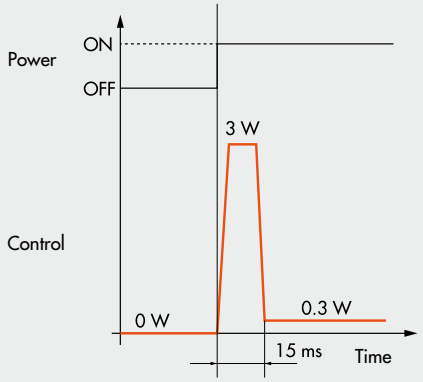
1.3 lb

THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC



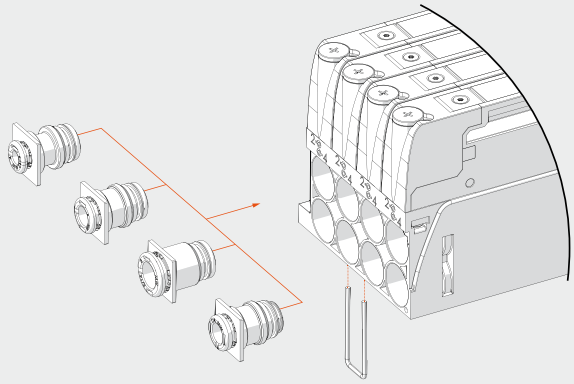
ONLY 0.3 W FOR EACH SOLENOID VALVE

- Speed-up solenoid valve control:
  - high power for a few milliseconds ensures high performance and rapid and safe switching;
  - reduced holding power resulting in reduced temperatures and energy saving.



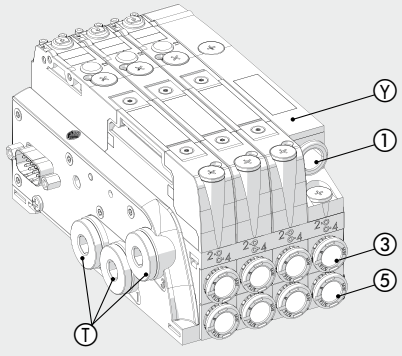
INTERCHANGEABLE CARTRIDGE FITTINGS

- For pipes Ø 4 (5/32"), 6, 8 (5/16"), 1/4"



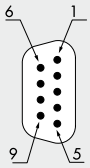
FRONT SUPPLY AND EXHAUSTS

This solution can only be applied when using 3 valves, which means that one of the four positions at the base is not used.
Install a bypass Ⓨ in a position, we recommend the fourth position so as to maintain the matching of the numbering of the electrical connector with that of the valves. Plug the side inputs wit A7 1/4 Ⓣ stoppers.
The pneumatic supply ① is in the bypass fitting, while exhausts ③ and ⑤ are on the base.



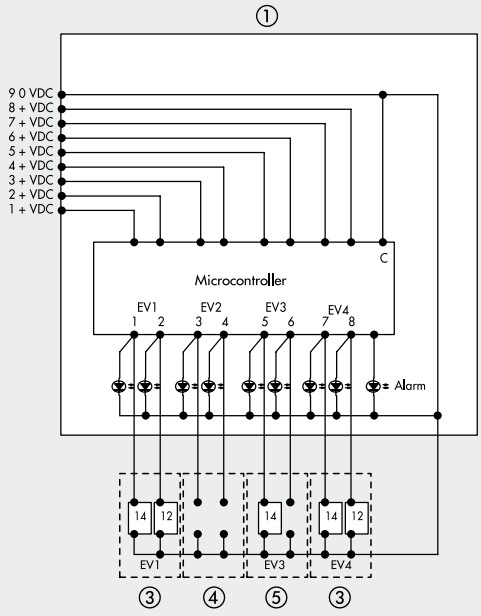
EB 80 BOXI WIRING DIAGRAM

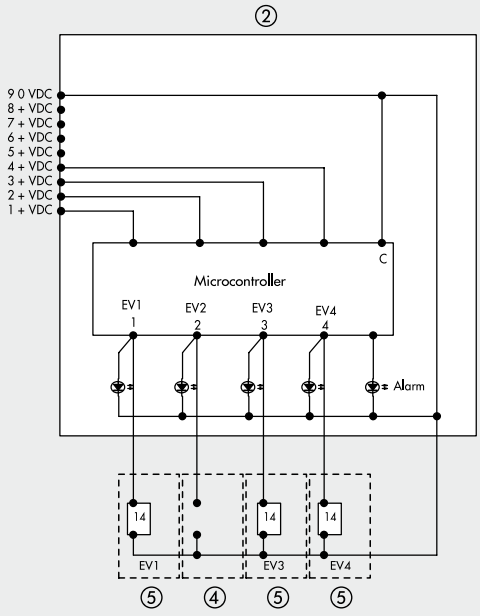
D-Sub 9-PIN CONNECTOR



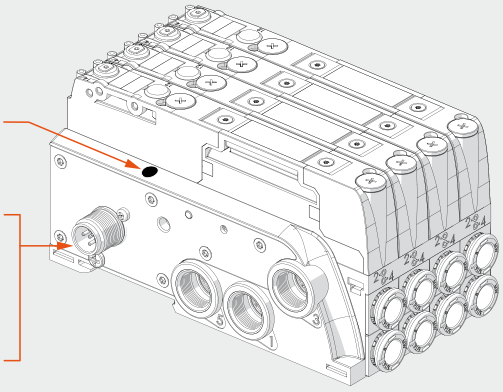
① 4-position base for 8 pilots
② 4-position base for 4 pilots

Examples of types of valves:
③ Valve with 2 solenoid pilots
④ Dummy valve or bypass
⑤ Valve with 1 solenoid pilot



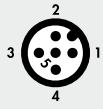


EB 80 BOXI IO-Link WIRING DIAGRAM



Connection to the EB 80 IO-Link network

BUS IN (M12 male connector, A encoding)



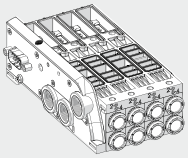
Port Class A	Port Class B
1 = L+	1 = L+
2 = NC	2 = 2L+
3 = L-	3 = L-
4 = Q	4 = Q
5 = NC	5 = 2L-

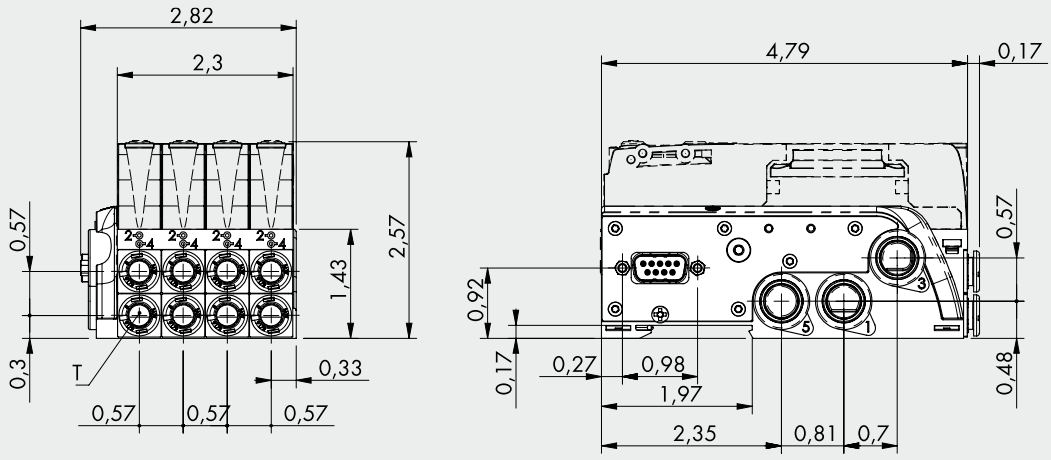
TECHNICAL DATA		
Fieldbus		IO-Link version 1.1
Communication speed	Kbps	230.4 (COM3)
Vendor ID / Device ID		1046 (hex 0x0416) / 8 (hex 0x000008)
Minimum cycle time	ms	2.8
Process data length		1 byte of Input / 1 byte of Output
Supply voltage range (M8 connector)	V	12 -10% 24 +30%
Minimum operating voltage	V	10.8 *
Maximum operating voltage	V	31.2
Maximum admissible voltage	V	32 ***
IO-Link power supply (L+L - Bus IN connector)	VDC	min 20, max 30
Protection		Module protected from overload and polarity inversion. Outputs protected from overloads and short-circuits.
Connections		M12 male, A-coded - Port Class A - Port Class B.
Diagnostics**		IO-Link: via local LED lights and software messages. Outputs: via local LED
Power supply current absorption		See EB 80 Boxi IO-Link instruction manual
Maximum number of pilots		8
Data bit value		0 = non-active; 1= active
State of outputs in the absence of communication		Configurable for each output: non-active, holding of the state, setting of a preset state

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page 1-114**
** Refer to the user manual for a detailed description.
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

DIMENSIONS - ORDERING CODES

EB 80 BOXI WITH D-Sub 9-PIN MULTIPOLE ELECTRICAL CONNECTION





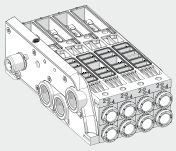
Port threads 1, 3, 5 in G (BSP)

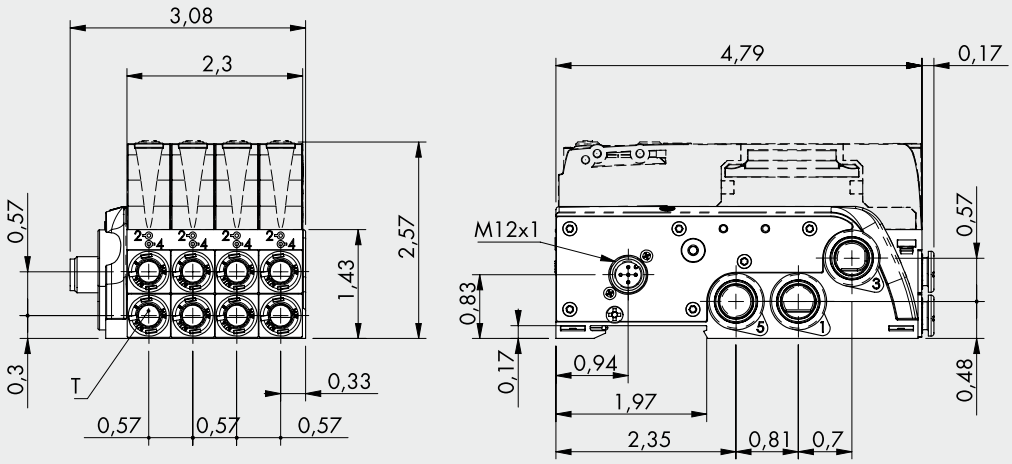
		Code	
	T - Pipe fitting	4 CONTROLS	8 CONTROLS
Servo-assisted	without cartridges	0228**BGX4M1111**	0228**BGX8M1111**
	Ø 4 mm (5/32")	0228**BGX4M4444**	0228**BGX8M4444**
	Ø 6 mm	0228**BGX4M6666**	0228**BGX8M6666**
	Ø 8 mm (5/16")	0228**BGX4M8888**	0228**BGX8M8888**
	Ø 1/4"	0228**BGX4M2222**	0228**BGX8M2222**
Non-servo-assisted	without cartridges	0228**BG14M1111**	0228**BG18M1111**
	Ø 4 mm (5/32")	0228**BG14M4444**	0228**BG18M4444**
	Ø 6 mm	0228**BG14M6666**	0228**BG18M6666**
	Ø 8 mm (5/16")	0228**BG14M8888**	0228**BG18M8888**
	Ø 1/4"	0228**BG14M2222**	0228**BG18M2222**

Port threads 1, 3, 5 in NPT

		Code	
	T - Pipe fitting	4 CONTROLS	8 CONTROLS
Servo-assisted	without cartridges	0228**BUX4M1111**	0228**BUX8M1111**
	Ø 4 mm (5/32")	0228**BUX4M4444**	0228**BUX8M4444**
	Ø 6 mm	0228**BUX4M6666**	0228**BUX8M6666**
	Ø 8 mm (5/16")	0228**BUX4M8888**	0228**BUX8M8888**
	Ø 1/4"	0228**BUX4M2222**	0228**BUX8M2222**
Non-servo-assisted	without cartridges	0228**BU14M1111**	0228**BU18M1111**
	Ø 4 mm (5/32")	0228**BU14M4444**	0228**BU18M4444**
	Ø 6 mm	0228**BU14M6666**	0228**BU18M6666**
	Ø 8 mm (5/16")	0228**BU14M8888**	0228**BU18M8888**
	Ø 1/4"	0228**BU14M2222**	0228**BU18M2222**

EB 80 BOXI WITH ELECTRICAL CONNECTION I/O link (M12x1)





Port threads 1, 3, 5 in G (BSP)

		Code
	T - Pipe fitting	8 CONTROLS
Servo-assisted	without cartridges	0228**BGX8L1111**
	Ø 4 mm (5/32")	0228**BGX8L4444**
	Ø 6 mm	0228**BGX8L6666**
	Ø 8 mm (5/16")	0228**BGX8L8888**
	Ø 1/4"	0228**BGX8L2222**
Non-servo-assisted	without cartridges	0228**BG18L1111**
	Ø 4 mm (5/32")	0228**BG18L4444**
	Ø 6 mm	0228**BG18L6666**
	Ø 8 mm (5/16")	0228**BG18L8888**
	Ø 1/4"	0228**BG18L2222**

Port threads 1, 3, 5 in NPT

		Code
	T - Pipe fitting	8 CONTROLS
Servo-assisted	without cartridges	0228**BUX8L1111**
	Ø 4 mm (5/32")	0228**BUX8L4444**
	Ø 6 mm	0228**BUX8L6666**
	Ø 8 mm (5/16")	0228**BUX8L8888**
	Ø 1/4"	0228**BUX8L2222**
Non-servo-assisted	without cartridges	0228**BU18L1111**
	Ø 4 mm (5/32")	0228**BU18L4444**
	Ø 6 mm	0228**BU18L6666**
	Ø 8 mm (5/16")	0228**BU18L8888**
	Ø 1/4"	0228**BU18L2222**

KEY TO CODING OF THE EB 80 BOXI WITHOUT VALVES

0228B	G	1	8	M	4	4	4	4
FAMILY	PORT THREADS 1, 3, 5	PILOTING	NUMBER OF SOLENOID PILOT CONTROLS	ELECTRICAL CONNECTION	FITTINGS 1ª position (from left)	2ª position	3ª position	4ª position
0228B EB 80 BOXI	**G** 1/4" BSP **U** 1/4" NPT	**1** Non-servo-assisted **X** Servo-assisted	**4** 4 controls **8** 8 controls	**M** D-Sub 9-pin multipole connection ▲ **L** I/O link, M12x1	**1** Without cartridges **2** Pipe fitting Ø 1/4" **4** Pipe fitting Ø 4 mm (5/32") **6** Pipe fitting Ø 6 mm **8** Pipe fitting Ø 8 mm (5/16")			

▲ Only for version with 8 commands.

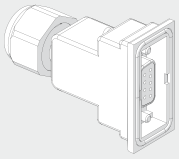
KEY TO CODING OF THE EB 80 BOXI COMPLETE WITH VALVES

0228B	G	1	8	M	4	4	4	4	0	V V K I
FAMILY	PORT THREADS 1, 3, 5	PILOTING	NUMBER OF SOLENOID PILOT CONTROLS	ELECTRICAL CONNECTION	FITTINGS 1ª position (from left)	2ª position	3ª position	4ª position	MANUAL CONTROL	VALVES
0228B EB 80 BOXI	**G** 1/4" G (BSP) **U** 1/4" NPT	**1** Non-servo-assisted **X** Servo-assisted	**4** 4 controls **8** 8 controls	**M** D-Sub 9-pin multipole connection ▲ **L** I/O link, M12x1	**1** Without cartridges **2** Pipe fitting Ø 1/4" **4** Pipe fitting Ø 4 mm (5/32") **6** Pipe fitting Ø 6 mm **8** Pipe fitting Ø 8 mm (5/16")				**0** Monostable **1** Bistable	▲ **Z** 2 valves 2/2 NC ▲ **I** 2 valves 3/2 NC ▲ **W** 2 valves 3/2 NO ▲ **L** 3/2 NC + 3/2 NO ▲ **V** 5/2 monostable ▲ **K** 5/2 bistable ▲ **O** 5/3 CC **G** 3/2 NC high flow **J** 3/2 NO high flow ✚ **R** Shut-off valve **Y** Bypass **N** Dummy valve (plug)

▲ Only for version with 8 commands.
✚ Requires inlet port X slave synchronisation.

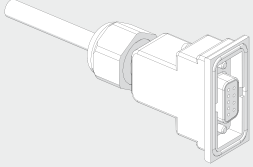
ACCESSORIES

STRAIGHT IP65 9-PIN PLUG CONNECTOR KIT



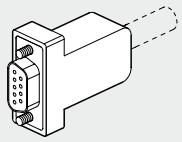
Code	Description	Weight [lb]
02269G0000	Straight D-Sub 9-PIN IP65 connector kit	0.04

PRE-WIRED STRAIGHT IP65 9-PIN PLUG CONNECTOR KIT



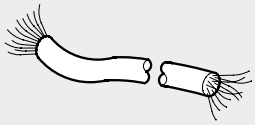
Code	Description	Weight [lb]
02269G0100	Straight D-Sub 9-PIN IP65 connector + cable L = 35 inch	0.17
02269G0250	Straight D-Sub 9-PIN IP65 connector + cable L = 99 inch	0.37
02269G0500	Straight D-Sub 9-PIN IP65 connector + cable L = 197 inch	0.70
02269G1000	Straight D-Sub 9-PIN IP65 connector + cable L = 295 inch	1.37

STRAIGHT IP40 9-PIN PLUG CONNECTOR KIT



Code	Description	Weight [lb]
0226180102	Straight D-Sub 9-PIN connector kit	0.04

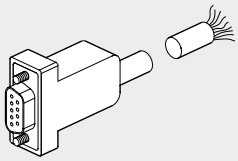
CABLE



Code	Description	Weight [lb]
0226107201	10-PIN cable	0.13

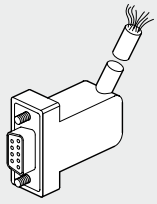
Specify the number of metres desired.

PRE-WIRED STRAIGHT IP40 9-PIN PLUG CONNECTOR KIT



Code	Description	Weight [lb]
0226900100	Straight D-Sub 9-PIN connector + cable L = 35 inch	0.17
0226900250	Straight D-Sub 9-PIN connector + cable L = 99 inch	0.37
0226900500	Straight D-Sub 9-PIN connector + cable L = 197 inch	0.70
0226900750	Straight D-Sub 9-PIN connector + cable L = 295 inch	1.03
0226901000	Straight D-Sub 9-PIN connector + cable L = 394 inch	1.36
0226901500	Straight D-Sub 9-PIN connector + cable L = 590 inch	2.02
0226902000	Straight D-Sub 9-PIN connector + cable L = 788 inch	2.70
0226905000	Straight D-Sub 9-PIN connector + cable L = 1.968 inch	6.65

PRE-WIRED 90° IP40 9-PIN PLUG CONNECTOR



Code	Description	Weight [lb]
0226910100	90° D-Sub 9-PIN connector + cable L = 35 inch	0.17
0226910250	90° D-Sub 9-PIN connector + cable L = 99 inch	0.37
0226910500	90° D-Sub 9-PIN connector + cable L = 197 inch	0.70
0226910750	90° D-Sub 9-PIN connector + cable L = 295 inch	1.03
0226911000	90° D-Sub 9-PIN connector + cable L = 394 inch	1.36
0226911500	90° D-Sub 9-PIN connector + cable L = 590 inch	2.02

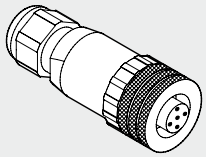
WIRING DIAGRAM FOR PRE-WIRED PLUG CONNECTORS

9 PIN

Position of electrical contact	Colour of the corresponding wire	Function
1	green/black	Out 1 +
2	white	Out 2 +
3	blue/black	Out 3 +
4	blue	Out 4 +
5	yellow/black	Out 5 +
6	yellow	Out 6 +
7	red/black	Out 7 +
8	green	Out 8 +
9	white/black	0VDC

NOTES

STRAIGHT CONNECTOR FOR M12, A-CODED

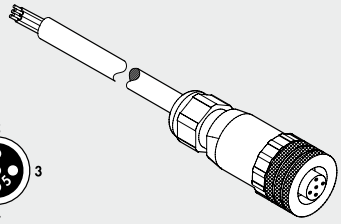


Code	Description
W0970513001	5-PIN M12x1 straight connector

Note: Can be used for IO-Link

STRAIGHT CONNECTOR WITH WIRE FOR M12, A-CODED

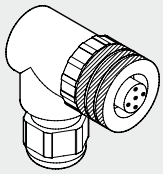
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray



Code	Description
W0970513002	5-PIN M12x1 straight connector with wire L = 197 inch

Note: Can be used for IO-Link

90° CONNECTOR FOR M12, A-CODED

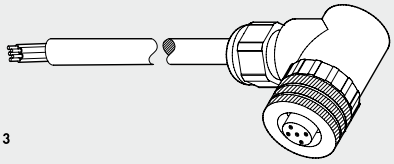


Code	Description
W0970513003	M12x1 5-PIN 90° connector

Note: Can be used for IO-Link

90° CONNECTOR WITH WIRE FOR M12, A-CODED

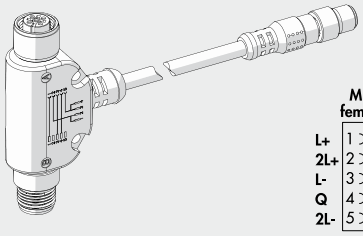
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black
5	Gray

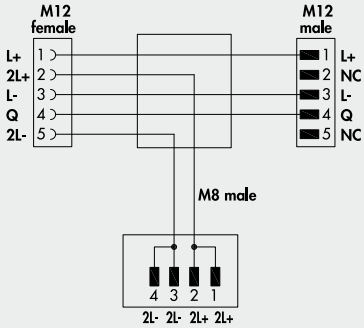


Code	Description
W0970513004	M12x1 5-PIN 90° connector with wire L = 197 inch

Note: Can be used for IO-Link

T CONNECTOR FOR AUXILIARY POWER



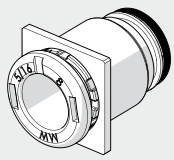


Code	Description
0240009070	T connector for auxiliary power

Note: Can be used for IO-Link

SPARE PARTS

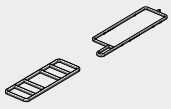
CARTRIDGE



Code	Description	Ø
02282R2001	EB 80 Ø 4 base square cartridge kit	4 (5/32")
02282R2002	EB 80 Ø 6 base square cartridge kit	6
02282R2003	EB 80 Ø 8 base square cartridge kit	8 (5/16")
02282R2006	EB 80 Ø 1/4 base square cartridge kit	1/4"

Comes in 10-pc. packs

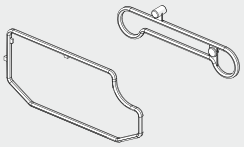
BASE-VALVE GASKET



Code	Description
02282R1002	EB 80 base-valve gasket kit

Comes in 10-pc. packs

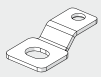
GASKETS BETWEEN BASE AND COVER SHEET METAL



Code	Description
02282R1006	EB 80 BOXI kit of gaskets between base and cover sheet metal

Comes in 10-pc. packs

FOOT



Code	Description
02282R4002	EB 80 BOXI fixing foot

Comes in 3-pc. packs

NOTES

The EB 80 BOXI complete with electrical connector, cable, fittings and silencers can be supplied under one ordering code only.

REQUEST THE KIT CODE BY SPECIFYING:

	Example
• The EB 80 BOXI code	0228BG18M66660KKKK
• The code of the single connector or pre-wired connector	02269G0250
• The fitting and the quantity desired. We suggest choosing one among those listed below ▲	n° 1 2L01010
• The silencer and the quantity desired. We suggest choosing one among those listed below ◆	n° 2 W0970530053

▲ 1/4" FITTINGS FOR BOXI PNEUMATIC SUPPLIES *

Ø Pipe	**Straight male cylindrical code (R1)**	**L rotary elbow, male, code (R34)**
4	2L01003	2L34003
6	2L01008	2L34008
8	2L01010	2L34010
10	2L01012	2L34013
12	2001019	-

* Normally, one is used for port 1

◆ 1/4" SILENCERS FOR EB 80 BOXI OUTLET PORTS **

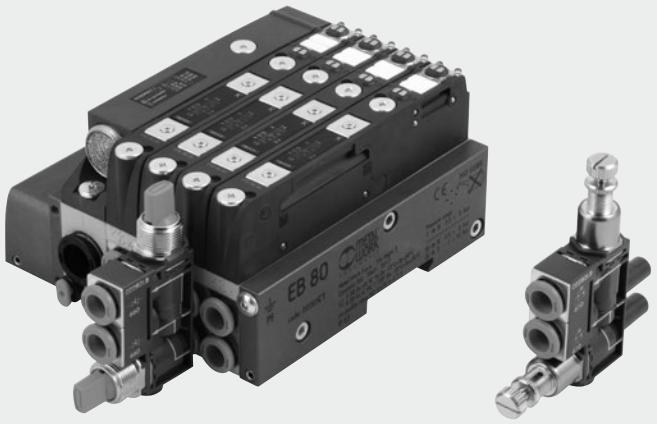
	Code
SFE silencer with stainless steel mesh	W0970530053
SPLF silencer made of resin with felt	W0970530073

** Normally, two are used for ports 3 and 5

NOTES

EB 80 MULTI-FUNCTION MODULE

The multi-function module is an important extension of the possibilities offered by the EB 80 systems to manage the performance of actuators controlled by individual solenoid valves. For each port, it can regulate the pressure and the flow rate, provide manual sectioning, display the presence of pressurized air and much more besides.
In line with the modular EB 80 configuration, the multi-function module is designed to ensure maximum flexibility: it can be installed at any time; the function connected to port 2 may differ from that connected to port 4 (e.g. regulating the pressure at output 2 and the air flow at port 4);
the modules can be mounted in series one after the other; the cartridge fittings for the pipes can be replaced at any time and are the same as those used in the EB 80 valve bases.
Given that the air input pipes have a Ø 8 mm, the multi-function module must be inserted in the EB 80 bases with cartridges suitable for Ø 8 fittings; but if the base to which you want to connect has a cartridge of a different diameter, you only need to buy a multi-function fitting with Ø 8 cartridges and replace those of the base with those of the module.
The code and the pneumatic diagram are laser etched on the technopolymer body.



PATENTED

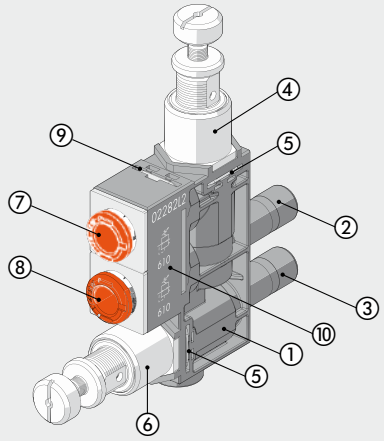
TECHNICAL DATA

Operating pressure	bar	10
	MPa	1
	psi	145
Temperature range	°C	-10 to + 50
	°F	14 to 122
Fluid		Unlubricated air
Air quality required		ISO 8573-1 class 4-7-3
Functions		Unidirectional flow regulator, bidirectional flow regulator, pressure regulator, quick-relief valve, check valve, 2- or 3-way shut-off valve, pneumatic valve, pressure display, calibrated choke.
Air inlet		Tubes for Ø 8 mm fittings
Air delivery		Cartridge fittings for pipes Ø 4 (5/32"), Ø 6, Ø 1/4", Ø 8 (5/16")
Recommended pipe		Rilsan PA 11 - Nylon 6 - Polyamide 12 - Polypropylene

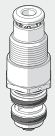
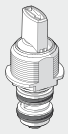
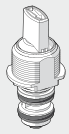
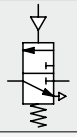
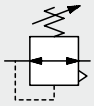
N.B.: For more specific technical data, please refer to the chapters for individual function-modules

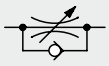
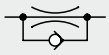
COMPONENTS

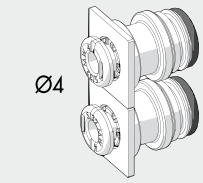
① BODY: technopolymer
② TUBE to be inserted into port 2 of the EB 80 base
③ TUBE to be inserted into port 4 of the EB 80 base
④ PNEUMATIC FUNCTION relating to port 2
⑤ CLIP for the pneumatic function, steel
⑥ PNEUMATIC FUNCTION relating to port 4
⑦ Cartridge FITTING for port 2
⑧ Cartridge FITTING for port 4
⑨ CLIP for the cartridges
⑩ CODE AND DIAGRAM, laser etched

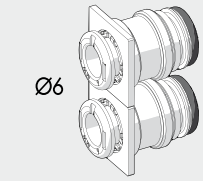


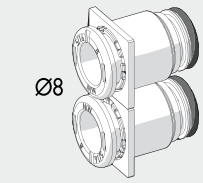
EXPLODED FUNCTION DIAGRAM

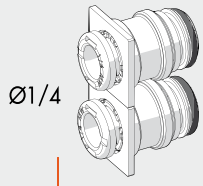
PNV	REG	LAM	V2V	V3V
				
3-way pneumatic valve	Pressure regulator	Pressure indicator	Shut-off valve 2-way	Shut-off valve 3-way
				
Code **670**	Code **610**	Code **680 / 682**	Code **650**	Code **660**
See page 1-170	See page 1-171	See page 1-172	See page 1-173	See page 1-173

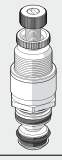
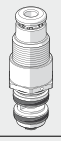
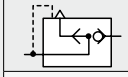
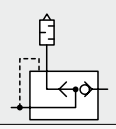
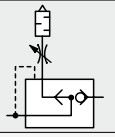
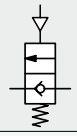
RFL		RFF	
			
Flow regulator unidirectional	Flow regulator bidirectional	Calibrated choke unidirectional type V	Calibrated choke bidirectional type B
			
Code **410**	Code **411**	Code **7_ _**	Code **8_ _**
See page 1-174		See page 1-176	



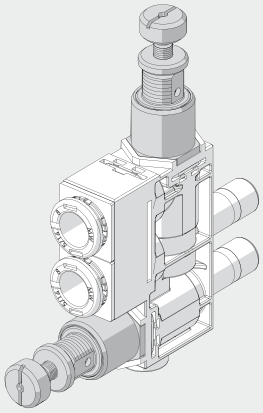




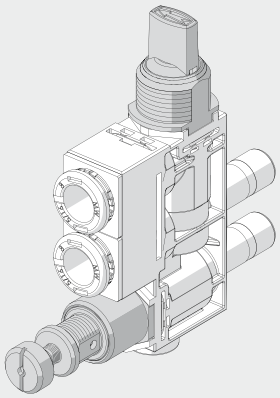


VSRC	VSRS	VSRR	P2V	VNR	NF
					
Quick-exhaust valve conveyed	Quick-exhaust valve silenced	Quick-exhaust valve regulated	Unidirectional 2-way pneumatic valve	Check valve	No function
					
Code **630**	Code **631**	Code **632**	Code **671**	Code **640**	Code **000**
See page 1-177	See page 1-177	See page 1-178	See page 1-180	See page 1-181	See page 1-182

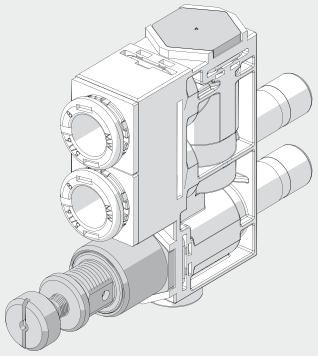
EXAMPLES OF MODULARITY



SAME FUNCTIONS ON PORTS 2 AND 4

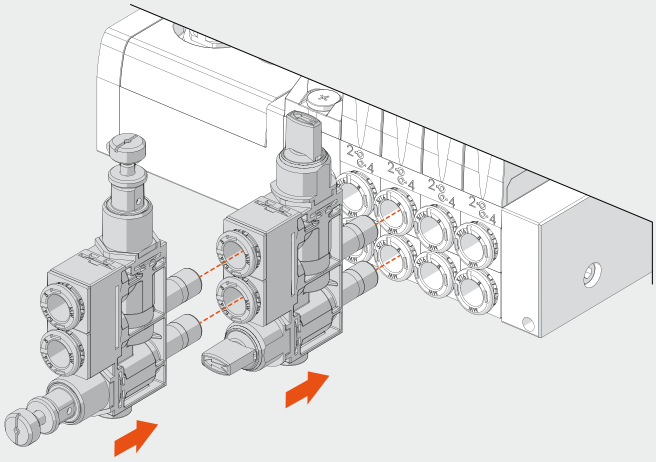


FUNCTION ON PORT 2 DIFFERENT FROM THAT ON PORT 4



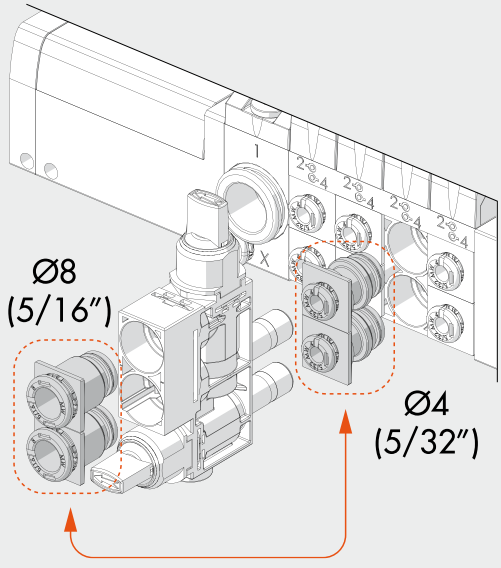
FUNCTION ON ONE PORT ONLY

SERIES ASSEMBLING



REPLACING THE CARTRIDGES

When fittings for pipes other than Ø 8 (5/16") pipes are mounted on the base, choose a multi-function module with Ø (5/16") 8 fittings and invert them with those of the base.



KEY TO CODES

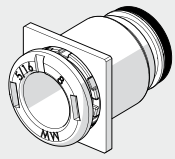
02282	L	6	610	410
FAMILY	**SUBSYSTEM**	**FITTINGS**	**FUNCTION PORT 2 (Top)**	**FUNCTION PORT 4 (Bottom)**
02282 EB 80	**L** Multi-function module	**2** Pipe fitting Ø 1/4" **4** Pipe fitting Ø 4 mm (5/32") **6** Pipe fitting Ø 6 mm **8** Pipe fitting Ø 8 mm (5/16")	**000** NF - No function **410** RFL - Flow regulator unidirectional **411** RFL - Flow regulator bidirectional **610** REG - Pressure regulator **630** VSRC - Quick-exhaust valve, conveyed **631** VSRS - Quick-exhaust valve, silenced **632** VSRR - Quick-exhaust valve, regulated **640** VNR - Check valve **650** V2V - 2-way shut-off valve **660** V3V - 3-way shut-off valve **670** PNV - 3-way pneumatic valve **671** P2V - Unidirectional 2-way pneumatic valve **680** LAM - Orange pressure indicator **682** LAM - Green pressure indicator **7_ _*** RFF - Calibrated choke unidirectional - type V **8_ _*** RFF - Calibrated choke bidirectional - type B	**000** NF - No function **410** RFL - Flow regulator unidirectional **411** RFL - Flow regulator bidirectional **610** REG - Pressure regulator **630** VSRC - Quick-exhaust valve, conveyed **631** VSRS - Quick-exhaust valve, silenced **632** VSRR - Quick-exhaust valve, regulated **640** VNR - Check valve **650** V2V - 2-way shut-off valve **660** V3V - 3-way shut-off valve **670** PNV - 3-way pneumatic valve **671** P2V - Unidirectional 2-way pneumatic valve **680** LAM - Orange pressure indicator **682** LAM - Green pressure indicator **7_ _*** RFF - Calibrated choke unidirectional - type V **8_ _*** RFF - Calibrated choke bidirectional - type B

***** The last two digits indicate the narrowing Ø.

02 = Ø 0.2 mm **05** = Ø 0.5 mm **10** = Ø 1.0 mm
03 = Ø 0.3 mm **06** = Ø 0.6 mm **13** = Ø 1.3 mm
04 = Ø 0.4 mm **08** = Ø 0.8 mm **15** = Ø 1.5 mm

SPARE PARTS

CARTRIDGE



Code	Description	Ø
02282R2001	EB 80 Ø 4 base square cartridge kit	4 (5/32")
02282R2002	EB 80 Ø 6 base square cartridge kit	6
02282R2003	EB 80 Ø 8 base square cartridge kit	8 (5/16")
02282R2006	EB 80 Ø 1/4 base square cartridge kit	1/4"

Comes in 10-pc. packs

NOTES

EB 80 3-WAY PNEUMATIC VALVE – PNV

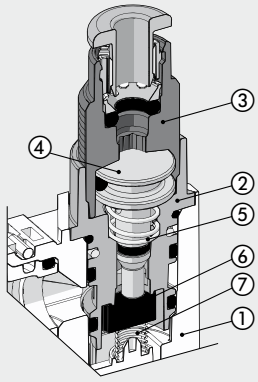
It is a normally closed 3/2 valve driven pneumatically via a Ø 4 pipe.
It intercepts the air flow leaving the EB 80 valve. If the PNV is activated, the flow opens up, when it is de-activated the pressure is discharged downstream.

TECHNICAL DATA

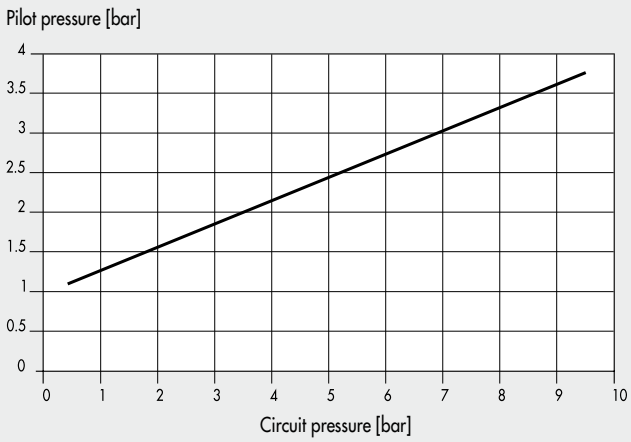
Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar	10			
	MPa	1			
	psi	145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	3.9	13.4	14.8	13.4
Flow rate at 91 psi free exhaust	scfm	2.83			
Minimum pilot pressure		See graph			

COMPONENTS

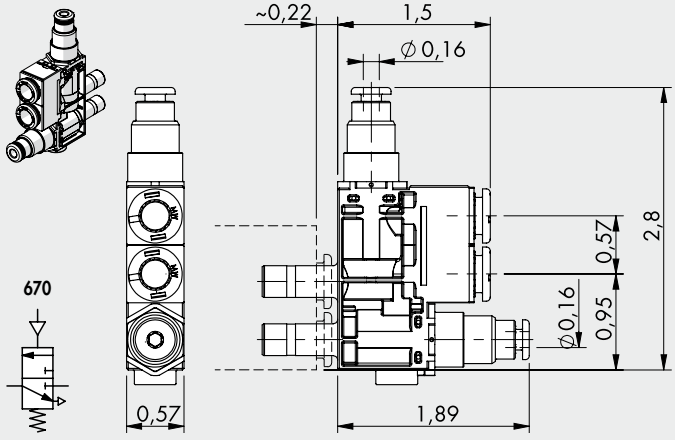
① BODY: technopolymer
② INSERT: nickel-plated brass
③ PILOT INSERT: nickel-plated brass
④ PISTON ROD: brass
⑤ CLAMPING SPRING: stainless steel
⑥ SEAL: NBR
⑦ POPPET SPRING: stainless steel



MINIMUM PILOT PRESSURE



DIMENSIONS



EB 80 PRESSURE REGULATOR - REG

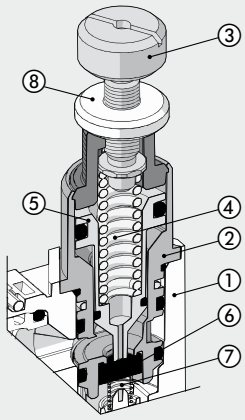
It regulates the pressure coming from the EB 80 base to individual branches.
It comes with an overpressure relief device.
It can be used as an economizer: if the thrust in a cylinder must be exerted in one direction, e.g. at the piston rod output, while a lower thrust is required in the other direction, a lot of energy can be saved by inserting the pressure regulator into the port connected to piston rod retraction.

TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Setting range		1 to 8 bar - 0.1 to 0.8 MPa - 14.5 to 116 psi			
Input pressure	bar	2 to 10			
	MPa	0.2 to 1			
	psi	30 to 145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	2.83	4.60	5.30	4.60
Flow rate on exhaust at 91 psi	scfm	10.61	13.4	14.15	13.4
Adjustment		Manual or using a screwdriver			
Notes on use		The pressure must always be set upwards			

COMPONENTS

① BODY: technopolymer
② INSERT: nickel-plated brass
③ ADJUSTING SCREW: nickel-plated brass
④ ADJUSTING SPRING: steel
⑤ PISTON ROD: brass
⑥ SHUTTER: NBR
⑦ POPPET SPRING: stainless steel
⑧ ADJUSTING SCREW RING NUT: nickel-plated brass



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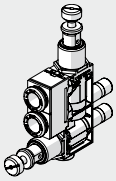
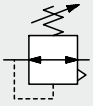
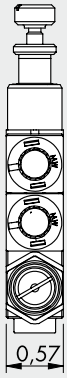
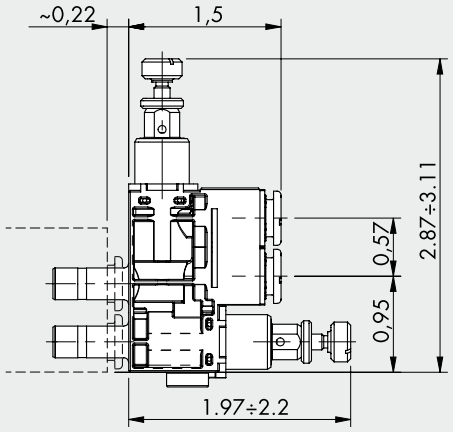


610







EB 80 PRESSURE INDICATOR - LAM

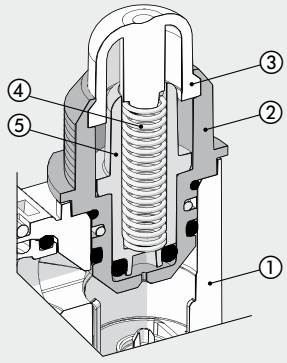
Also called pneumatic lamp, it optically indicate the presence of compressed air in the circuit.
If there is no pressure, the transparent technopolymer bell is empty; if there is pressure an orange or a green sign is indicated.

TECHNICAL DATA

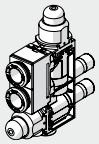
Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Operating pressure	bar	2 to 10			
	MPa	0.2 to 1			
	psi	29 to 145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	4.60	17.69	21.22	17.69
Colour with pressure		Orange - Green			

COMPONENTS

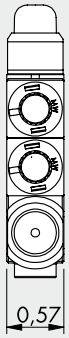
① BODY: technopolymer
② INSERT: nickel-plated brass
③ COVER: clear technopolymer
④ RETURN SPRING: stainless steel
⑤ MOBILE INDICATOR: technopolymer

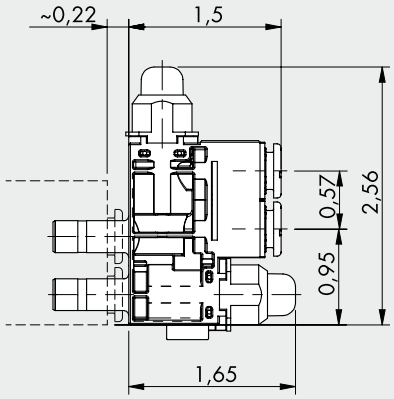


DIMENSIONS



680/682





EB 80 SHUT-OFF VALVE - V2V-V3V

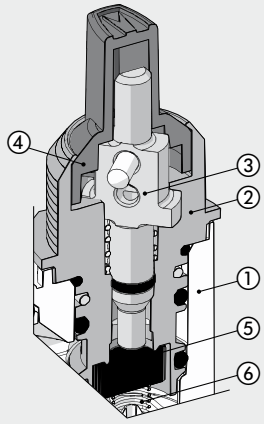
It shuts off the flow of air coming from the EB 80 via a manual command. Two versions are available: the two-way unidirectional V2V valve and the V3V 3-way valve. The latter, when deactivated, intercepts the flow from the EB 80 valve and relieves downstream pressure.

TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar	10			
	MPa	1			
	psi	145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	4.24	13.09	14.85	13.09
Flow rate of the V3V when relieving at 91 psi	scfm	3.90			

COMPONENTS

① BODY: technopolymer
② INSERT: nickel-plated brass
③ ROD: brass
④ KNOB: technopolymer
⑤ VALVE: NBR
⑥ VALVE COMPRESSION SPRING: stainless steel



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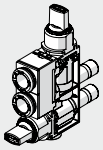
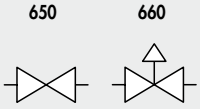
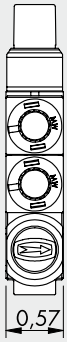
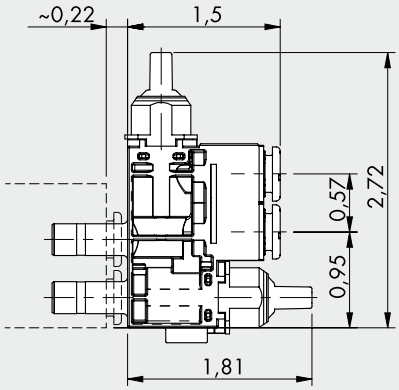


650 660







EB 80 FLOW REGULATOR - RFL

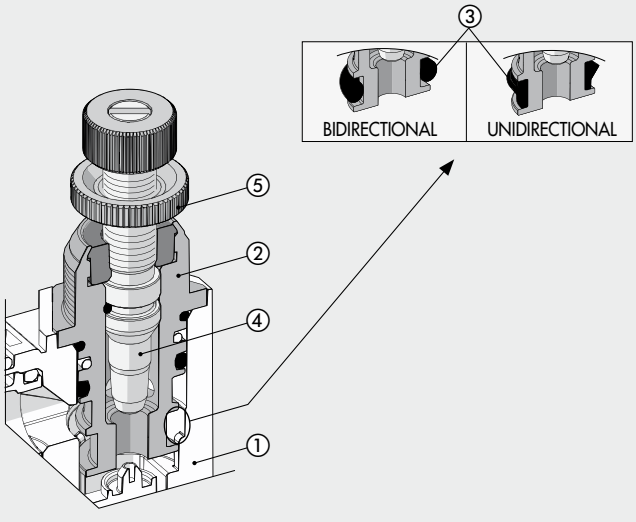
It regulates the air flow rate, and hence the speed, in pneumatic actuators. Two versions are available: the bidirectional one regulating the flow in both directions and the unidirectional one regulating the flow when the EB 80 valve is relieving.

TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar	10			
	MPa	1			
	psi	145			
Maximum flow rate during regulation at 91 psi	scfm	15.56	23	25.11	23
Exhaust flow rate (unidirectional version)	scfm	15.92	25.47	28.30	25.47
Adjustment		Manual or using a screwdriver			
Operating system		Tapered needle			

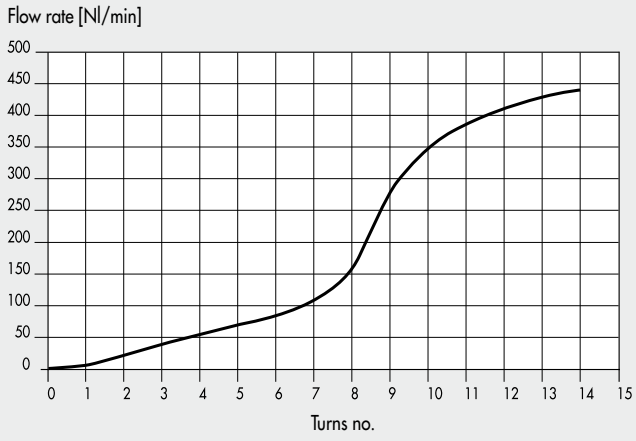
COMPONENTS

① BODY: technopolymer
② SEAL SUPPORT: nickel-plated brass
③ GASKET: NBR
④ ADJUSTING NEEDLE: brass
⑤ NEEDLE RING NUT: nickel-plated brass

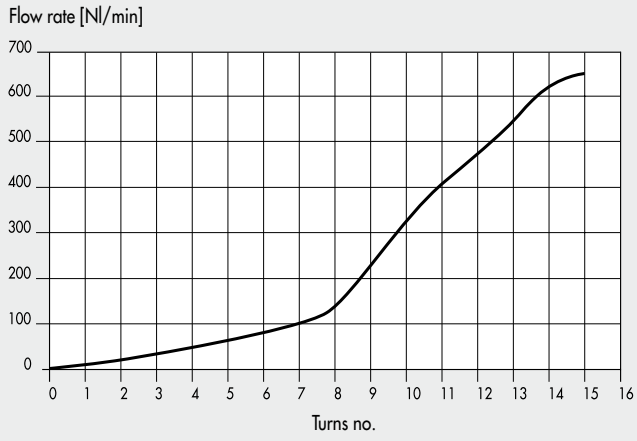


FLOW RATE CHARTS AT 6.3 bar DEPENDING ON THE TURNS EFFECTED BY THE REGULATION OF THE NEDDLE

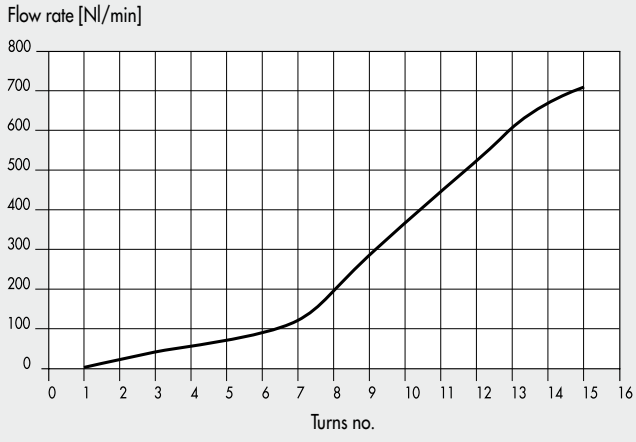
RFL Ø4



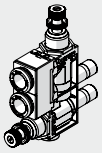
RFL Ø6 - Ø1/4

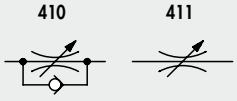


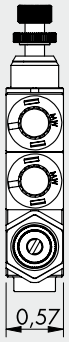
RFL Ø8

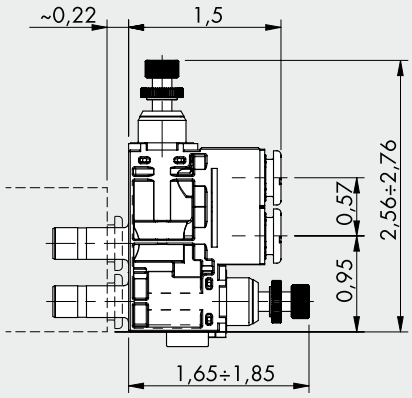


DIMENSIONS









EB 80 CALIBRATED CHOKE - RFF

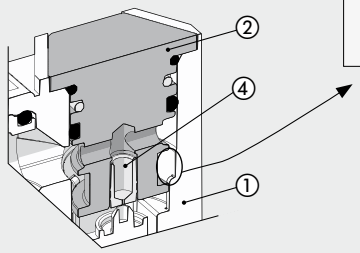
It regulates the air flow rate, and hence the speed, in pneumatic actuators. This is done by means of a choke of a calibrated diameter. In order to obtain the desired air flow rate, you can choose different choking diameters. Compared to adjustable versions, the main advantage is that it does not require any adjustments during the assembly of the machine and prevents from subsequent tampering.
Two versions are available: the bidirectional one regulating the flow in both directions and the unidirectional one regulating the flow when the EB 80 valve is relieving.

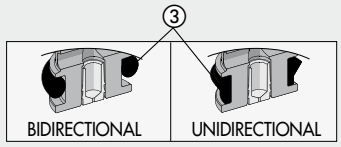
TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar	10			
	MPa	1			
	psi	145			
Flow rates		See tables			
Adjustment		Fixed			
Operating system		Calibrated hole			

COMPONENTS

① BODY: technopolymer
② SEAL SUPPORT: nickel-plated brass
③ GASKET: NBR
④ THROTTLE CARTRIDGE: brass





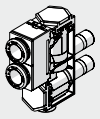
EXHAUST FLOW RATE AT 6.3 bar UNIDIRECTIONAL VERSION [Nl/min]

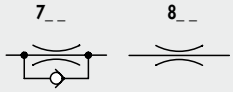
Choke [mm]	Ø 4 mm	Ø 6 mm - Ø 1/4	Ø 8 mm
Ø 0.2	240	550	640
Ø 0.3	242	552	642
Ø 0.4	245	555	645
Ø 0.5	250	560	650
Ø 0.6	255	565	660
Ø 0.8	265	570	690
Ø 1.0	275	580	710
Ø 1.3	290	610	750
Ø 1.5	300	620	800

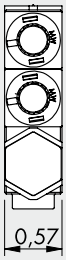
CHOKE FLOW-RATE AT 6 bar WITH FREE EXHAUST

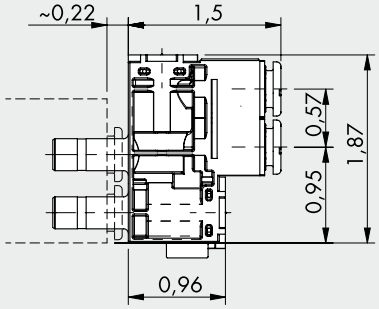
Choke [mm]	Flow rate [Nl/min]
Ø 0.2	2
Ø 0.3	4
Ø 0.4	7
Ø 0.5	13
Ø 0.6	15
Ø 0.8	32
Ø 1.0	50
Ø 1.3	85
Ø 1.5	110

DIMENSIONS









EB 80 QUICK-EXHAUST VALVE - VSR

It speeds up the relieving of air coming from the actuators to the EB 80 and releases it into the atmosphere.
If the air coming from the actuators is polluted, it prevents it from entering into the EB 80 island, where it could risk to damage the valves.
Air relieving can be either silenced with a stainless steel wire or conveyed via an automatic fitting.

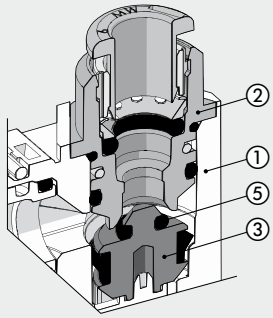
TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Operating pressure	bar	1 to 10			
	MPa	0.1 to 1			
	psi	14.5 to 145			
Inlet flow rate at 91 psi ΔP 14.5 psi	scfm	3.18	7.42	9.55	7.42
Exhaust flow rate at 91 psi	scfm	11.67	24.76	26.53	24.76

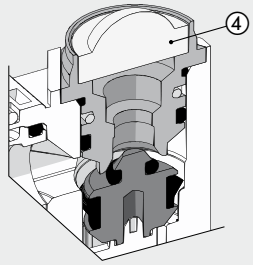
COMPONENTS

① BODY: technopolymer
② INSERT: nickel-plated brass
③ VALVE: brass
④ SILENCER: stainless steel wire
⑤ GASKET: NBR

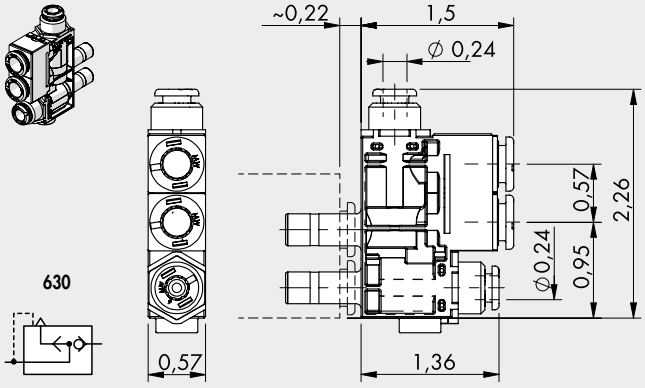
CONVEYED VERSION



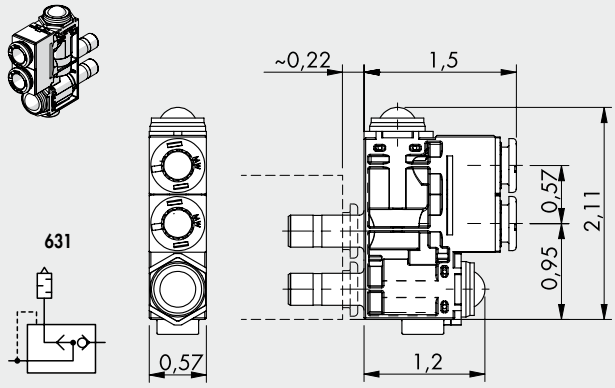
SILENCED VERSION



CONVEYED VERSION DIMENSIONS



SILENCED VERSION DIMENSIONS



EB 80 QUICK-EXHAUST VALVE WITH FLOW REGULATOR - VSRR

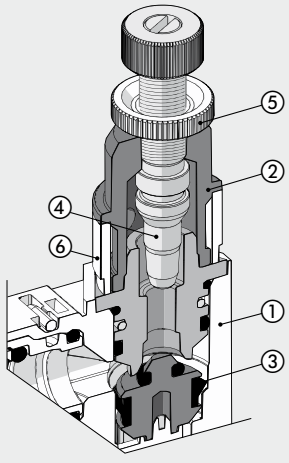
It speeds up the relieving of air coming from the actuators to the EB 80, releases it into the atmosphere and regulates the flow rate. It relieves the air coming from the utilities and regulates the quality of flow precisely by operating the knob provided.

TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Operating pressure	bar	1 to 10			
	MPa	0.1 to 1			
	psi	14.5 to 145			
Inlet flow rate at 91 psi ΔP 14.5 psi	scfm	3.18	7.42	9.55	7.42
Max flow rate on exhaust at 91 psi	scfm	15.92	18.75	19.81	18.75
Adjustment		Manual or using a screwdriver			
Internal system		Tapered needle			

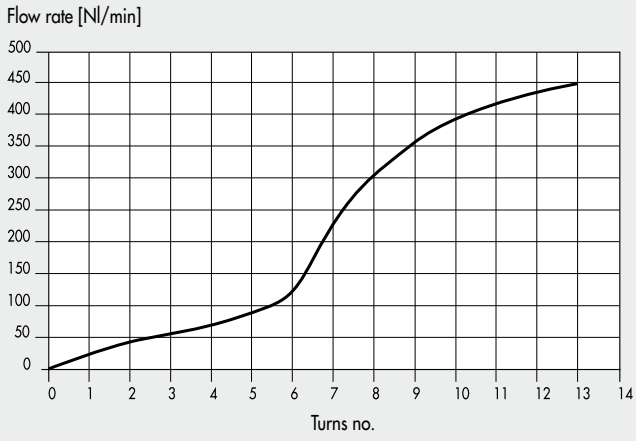
COMPONENTS

① BODY: technopolymer
② SEAL SUPPORT: nickel-plated brass
③ GASKET: NBR
④ ADJUSTING NEEDLE: brass
⑤ NEEDLE RING NUT: nickel-plated brass
⑥ SILENCER: sintered bronze

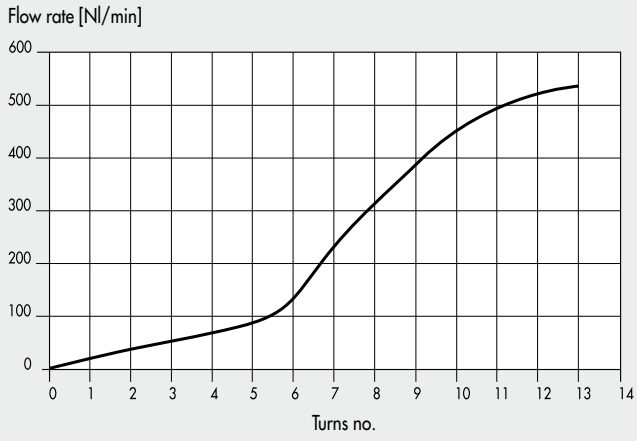


EXHAUST FLOW CHARTS AT 6.3 bar DEPENDING ON THE TURNS EFFECTED BY THE REGULATION OF THE NEDDLE

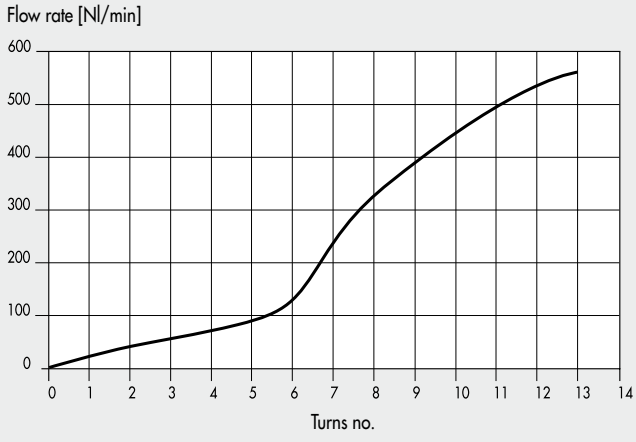
VSRR Ø4



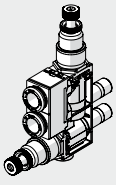
VSRR Ø6 - Ø1/4



VSRR Ø8



DIMENSIONS



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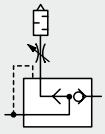
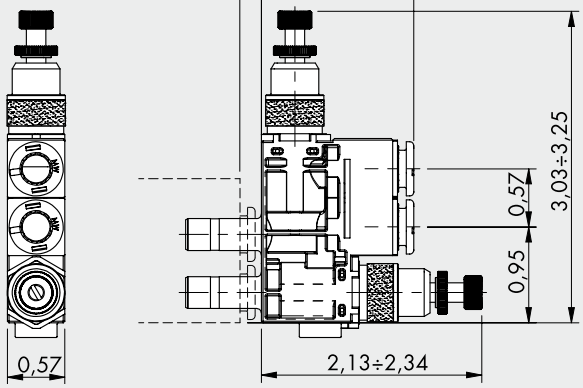




EB 80 UNIDIRECTIONAL 2-WAY PNEUMATIC VALVE – P2V

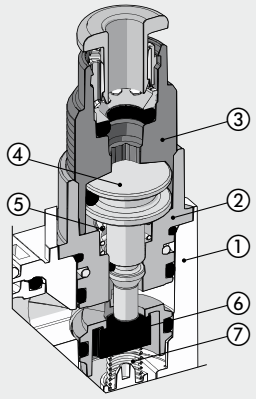
Unidirectional normally closed 2/2 valve pneumatically driven via a Ø 4 pipe.
Can intercept the flow of air coming from the EB 80 valve.
When enabled, it opens the flow; when disabled it closes the pressurised circuit.
N.B.: Given the direction of the flow, it cannot be used to block the flow of air coming out of a cylinder.

TECHNICAL DATA

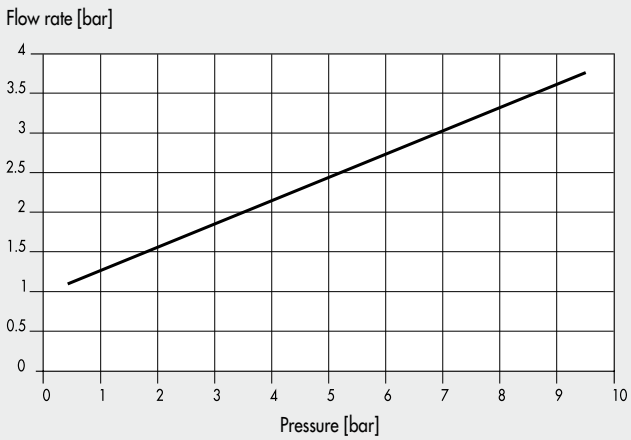
Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar	10			
	MPa	1			
	psi	145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	3.9	13.09	14.8	13.09
Minimum pilot pressure		See graph			

COMPONENTS

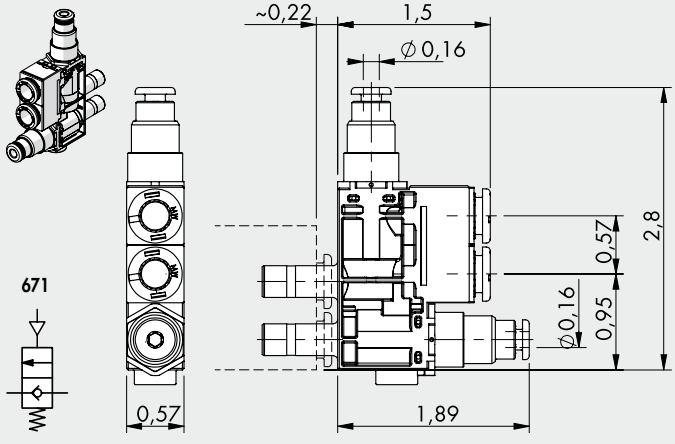
① BODY: technopolymer
② INSERT: nickel-plated brass
③ PILOT INSERT: nickel-plated brass
④ PISTON ROD: brass
⑤ CLAMPING SPRING: stainless steel
⑥ SEAL: NBR
⑦ POPPET SPRING: stainless steel



MINIMUM PILOT PRESSURE



DIMENSIONS



EB 80 CHECK VALVE - VNR

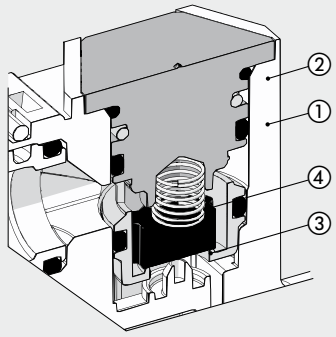
Check valve. Full flow from the EB 80 valve to the utility. It prevents the air flow from reversing downstream the VNR.

TECHNICAL DATA

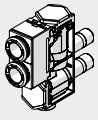
Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Operating pressure	bar	0.5 to 10			
	MPa	0.05 to 1			
	psi	7.2 to 145			
Flow rate at 91 psi ΔP 14.5 psi	scfm	12.38	14.8	15.92	14.8

COMPONENTS

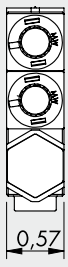
① BODY: technopolymer
② INSERT: nickel-plated brass
③ VALVE: NBR
④ VALVE COMPRESSION SPRING: stainless steel

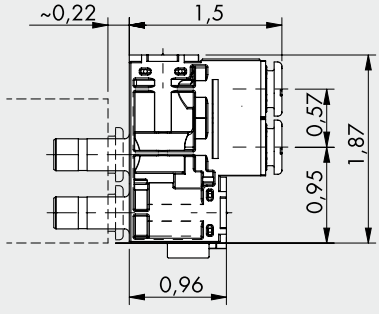


DIMENSIONS



640





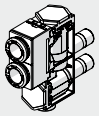
EB 80 NO FUNCTION - NF

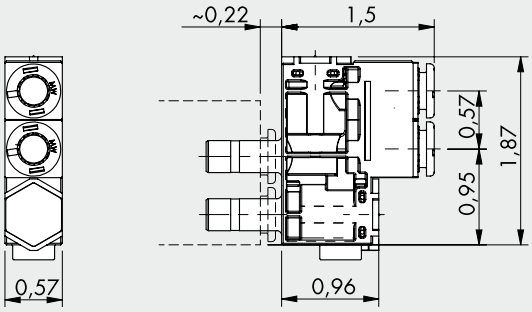
To be used when, on one of the two-way network, no pneumatic function is required.
The flow conveys directly from the inlet to the output fitting without any variation.

TECHNICAL DATA

Ø of cartridge fitting		Ø 4 mm (5/32")	Ø 6 mm	Ø 8 mm (5/16")	Ø 1/4"
Max. operating pressure	bar		10		
	MPa		1		
	psi		145		
Flow rate at 91 psi ΔP 14.5 psi	scfm	4.6	17.7	21.22	17.7

DIMENSIONS





NOTES

EB 80 SPLASH AREA

The splash-area assembly kits have been designed and developed for the Food & Beverage industry and, in general, for use in all the situations in which it is advisable to separate the solenoid valves from areas where there are fluids.
The kit can be used to fix a standard EB 80 island to a sheet metal plate, perforated by the customer, with compressed air fittings and pipes installed downstream.
Two models are available, one designed to accommodate 3-8 valves and one 8-12 valves. Other configurations can be made on specific request.
The plate is available in two optional materials: anticorodal 6082 anodized aluminium and AISI 304 stainless steel.
Threaded holes are provided in the splash-area side of the plate for air supply, relief, control and utilities.
The EB 80 islands of any type can be fixed to the kit, with either multi-pin or fieldbus connection and signal modules, provided that they have one pneumatic supply source to avoid changing the pitch between valves, and the ports 2 and 4 have Ø 8 fittings and the ports 1 and 3 have Ø 12 fittings.
The valve island can be used with silenced relief provided that the threaded port of the plate is closed.

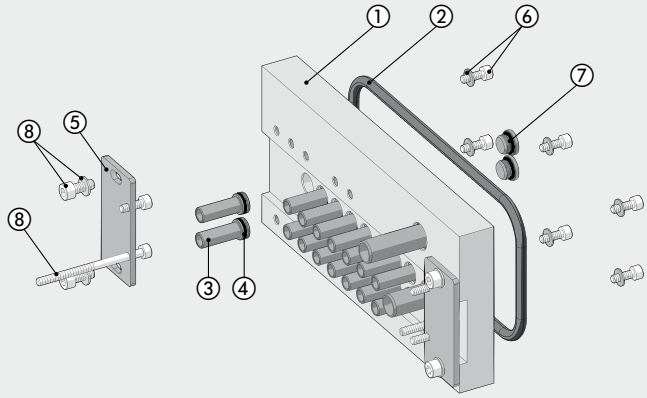
TECHNICAL DATA

General technical data	See page 1-94
Protection rating at the splash-area side	IP67
Versions	3 to 8 positions; 8 to 12 positions
Bases configurable with this number of valves	For maximum 8-position version: 3, 4, 6, 7, 8 valves
	For the maximum 12-position version: 8, 9, 10, 11, 12 valves
Pneumatic fittings	1/4" supply and discharge
	M5 piloting
	1/8" delivery

N.B.: The valve island to be used with the splash-area must be configured with Ø 8 mm fittings on ports 2 and 4 and Ø 12 mm fittings on ports 1, 3 and 5.

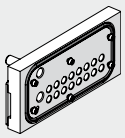
COMPONENTS

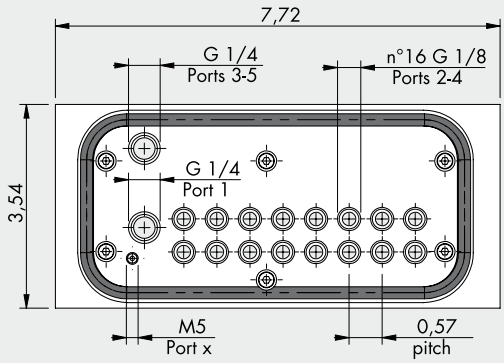
① SPLASH-AREA PLATE: 6082 anodized aluminium or AISI 304 stainless steel
② SPLASH-AREA GASKET: NBR
③ EXTENSIONS: nickel-plated brass
④ GASKETS: NBR
⑤ FIXING BRACKET: AISI 304 stainless steel
⑥ SCREWS AND WASHERS: stainless steel
⑦ 1/8" PLUGS: nickel-plated brass (to cover unused outputs)
⑧ SCREWS AND WASHERS: galvanized steel

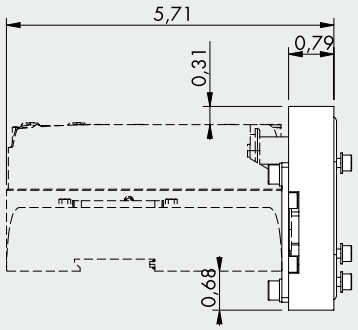


DIMENSIONS AND ORDERING CODES

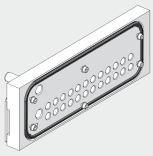
3 to 8 POSITION

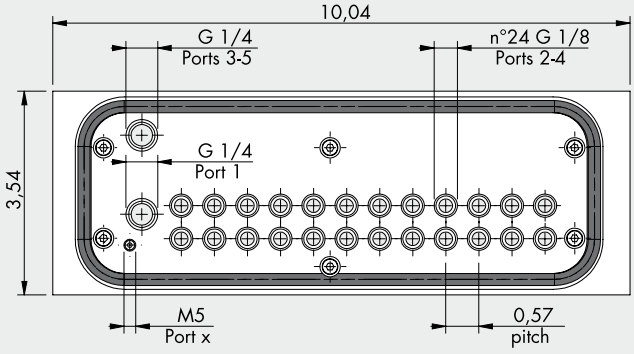






8 to 12 POSITION





Code	Description	Weight [lb]
02282**R7080**	EB 80 splash-area kit 3-8 positions aluminum	2.026
02282**R7081**	EB 80 splash-area kit 3-8 positions stainless steel	5.190
02282**R7120**	EB 80 splash-area kit 8-12 positions aluminum	2.621
02282**R7121**	EB 80 splash-area kit 8-12 positions stainless steel	6.716

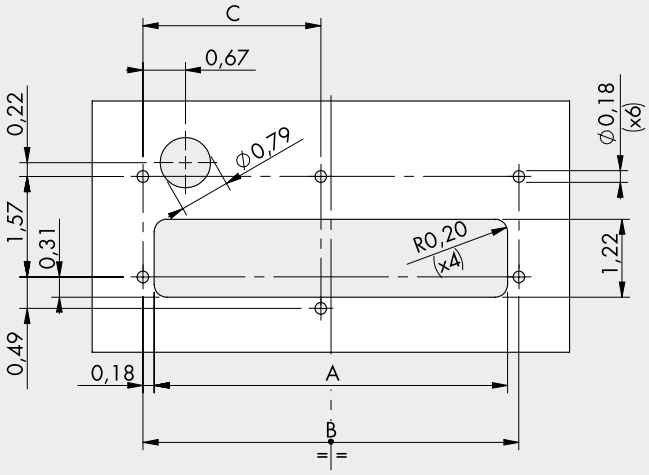
DIMENSIONS FOR THE DRILLING OF THE FIXING INTERFACE

3 to 8 POSITION

A	B	C
5.535	5.9	2.787

8 to 12 POSITION

A	B	C
7.834	8.189	3.937



KEY TO CODES

02282	R	7	08	0
FAMILY	CATEGORY	SUBSYSTEM	NUMBER OF POSITIONS	MATERIAL
02282 EB 80	**R** Spares and accessories	**7** Splash-area	**08** 8 positions **12** 12 positions	**0** Anodized aluminum plate 6082 **1** Plate AISI 304