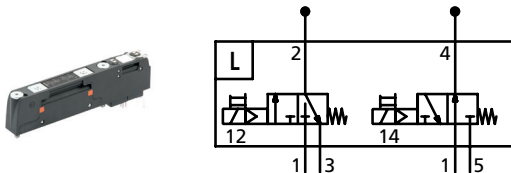


# Valve

Art. No. 153111

Type No. 708203L0



Exemplary illustration

The EB 80 valves deliver high flow in a compact 14 mm format, eliminating the need for larger sizes and supporting component standardisation. Available in all major functions – from 2/2 to 5/3.

Each valve is securely mounted with two M4 captive screws and comes equipped with manual control (monostable or bistable), LED indicator, a plate showing the schematic symbol and technical data, plus white label plates for customer marking.

The following special versions complete the valve range:

- High-flow valves with innovative flow-boosting design
- Bypass element for enhanced supply/relief or custom circuits
- Circuit shut-off valve to connect/disconnect all station valves
- Dummy valve to plug unused base positions

## Technical data

|                                                   |                                                                 |
|---------------------------------------------------|-----------------------------------------------------------------|
| Module type                                       | L                                                               |
| Module description                                | valve                                                           |
| Version                                           | 3/2 NC and 3/2 NO                                               |
| Manual control                                    | monostable                                                      |
| Medium                                            | filtered, unlubricated compressed air                           |
| Required purity class in accordance w. ISO 8573-1 | 4.7.3                                                           |
| Operating pressure min. with internal pilot air   | 3,5 bar                                                         |
| Operating pressure max. with int. pilot air       | 8 bar                                                           |
| Operating pressure min. with external pilot air   | -0,99 bar                                                       |
| Operating pressure max. with external pilot air   | 10 bar                                                          |
| Pilot pressure min.                               | 3-5 bar, dep. on operating pressure (see Metal Work data sheet) |
| Max. pilot pressure                               | 8 bar                                                           |
| Flow rate measurement 1                           | with port 2/4 Ø 4 mm, at 6.3 bar Δp 1 bar                       |
| Flow rate 1                                       | 350 NI/min                                                      |
| Flow rate measurement 2                           | with port 2/4 Ø 6 mm, at 6.3 bar Δp 1 bar                       |
| Flow rate 2                                       | 600 NI/min                                                      |

## Technical data

|                                        |                                                   |
|----------------------------------------|---------------------------------------------------|
| Flow rate measurement 3                | with port 2/4 Ø 8 mm, at 6.3 bar $\Delta p$ 1 bar |
| Flow rate 3                            | 700 NI/min                                        |
| Actuation response time at 6 bar (TRA) | 14                                                |
| Reset response time at 6 bar (TRR)     | 28                                                |
| Min. ambient temperature               | -10 °C                                            |
| Max. ambient temperature               | 50 °C                                             |
| Housing                                | technopolymer                                     |
| Sealant                                | NBR                                               |
| Protection IP                          | IP 65                                             |
| Series                                 | EB 80                                             |

## Commercial data

|                         |                  |
|-------------------------|------------------|
| eCl@ss 5.1.4            | 27291501         |
| eCl@ss 9.0              | 27291390         |
| UNSPSC_Code_v190501     | 40141603         |
| UNSPSC_CodeDesc_v190501 | Pneumatic valves |

B2

# EB 80 VALVES

VALVES

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.

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 B2.57) / max. 8                                |             |             |
|                                                                    | MPa                                              |        | 0.3 to 0.8  |     |             | min. (see graph on page B2.57) / max. 0.8                              |             |             |
|                                                                    | psi                                              |        | 43 to 116   |     |             | min. (see graph on page B2.57) / max. 116                              |             |             |
| Ambient temperature                                                | °C                                               |        |             |     |             | -10 to 50 (at 8 bar)                                                   |             |             |
|                                                                    | °F                                               |        |             |     |             | 14 to 122 (at 8 bar)                                                   |             |             |
| Flow rate at 6.3 bar ΔP 1 bar                                      |                                                  |        | Ø 4 (5/32") | Ø 6 | Ø 8 (5/16") | Ø 1/4"                                                                 | Ø 10 **     | Ø 3/8" **   |
|                                                                    | valve 2/2                                        | Nl/min | 350         | 430 | 500         | 430                                                                    | -           | -           |
|                                                                    | valve 3/2                                        | Nl/min | 350         | 600 | 700         | 600                                                                    | 1250        | 1250        |
|                                                                    | valve 5/2                                        | Nl/min | 350         | 650 | 800         | 650                                                                    | 1250 - 1400 | 1250 - 1400 |
|                                                                    | valve 5/3                                        | Nl/min | 350         | 460 | 500         | 460                                                                    | 1000 - 1250 | 1000 - 1250 |
|                                                                    | valve V3V (R)                                    | Nl/min | -           | -   | -           | -                                                                      | 1000        | 1000        |
| 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                                               | VDC                                              |        |             |     |             | 12 -10% 24 +30%                                                        |             |             |
| Minimum operating voltage                                          | VDC                                              |        |             |     |             | 10.8 *                                                                 |             |             |
| Maximum operating voltage                                          | VDC                                              |        |             |     |             | 31.2                                                                   |             |             |
| Maximum admissible voltage                                         | VDC                                              |        |             |     |             | 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 10.8VDC required at solenoid pilots. Check the minimum voltage at the power pack output using the calculations shown on page B2.28

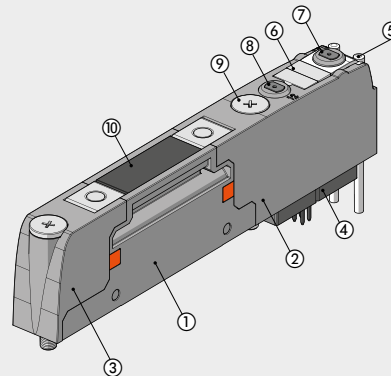
\*\* Using high-flow valves or connected valves - see pages B2.58

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

B2.56

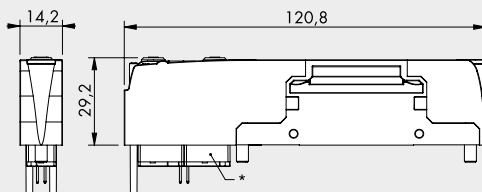
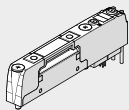
#### COMPONENTS

- 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, zinc-plated steel. Tightening torque: 1.2 Nm
- ⑩ TAG: technopolymer with laser-etched wording



#### DIMENSIONS - ORDERING CODES

##### EB 80 VALVE

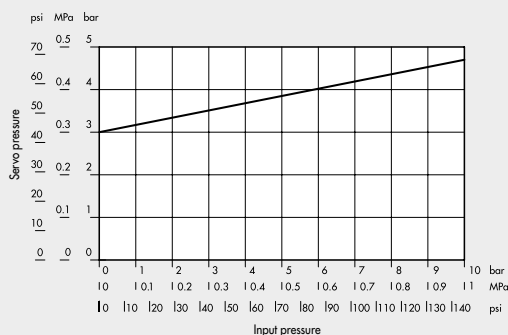


\* The second solenoid pilot is not present in the valves V= 5/2 monostable.

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

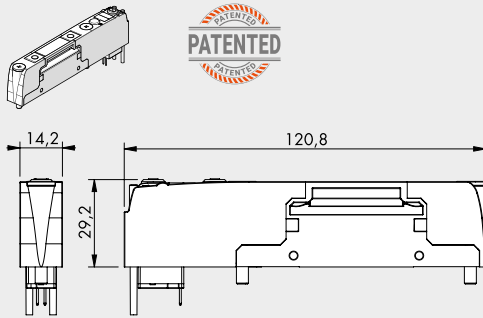


| Symbol   | Type            | Code     | Manual control | Weight [g] |
|----------|-----------------|----------|----------------|------------|
| <b>Z</b> | 2 valves 2/2 NC | 708203Z0 | monostable     | 80         |
|          |                 | 708203Z1 | bistable       | 80         |
| <b>I</b> | 2 valves 3/2 NC | 708203I0 | monostable     | 80         |
|          |                 | 708203I1 | bistable       | 80         |
| <b>W</b> | 2 valves 3/2 NO | 708203W0 | monostable     | 80         |
|          |                 | 708203W1 | bistable       | 80         |
| <b>L</b> | 3/2 NC + 3/2 NO | 708203L0 | monostable     | 80         |
|          |                 | 708203L1 | bistable       | 80         |
| <b>V</b> | monostable 5/2  | 708203V0 | monostable     | 65         |
|          |                 | 708203V1 | bistable       | 65         |
| <b>K</b> | bistable 5/2    | 708203K0 | monostable     | 80         |
|          |                 | 708203K1 | bistable       | 80         |
| <b>O</b> | 5/3 CC          | 708203O0 | monostable     | 80         |
|          |                 | 708203O1 | bistable       | 80         |

VALVES

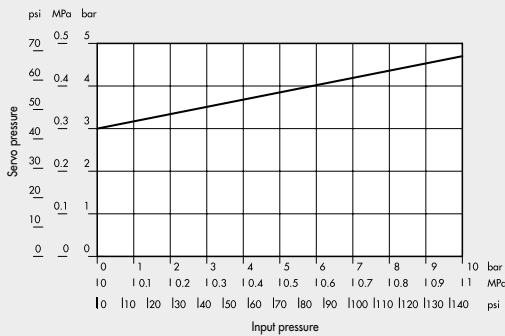
EB 80 - VALVES

# EB 80 HIGH-FLOW VALVE

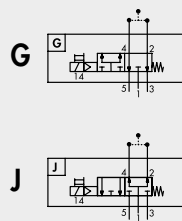


## SERVO MINIMUM PRESSURE

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



## Symbol



| Type             | Code     | Manual control | Weight [g] |
|------------------|----------|----------------|------------|
| 3/2 NC high flow | 708203G0 | monostable     | 65         |
|                  | 708203G1 | bistable       | 65         |
| 3/2 NO high flow | 708203J0 | monostable     | 65         |
|                  | 708203J1 | bistable       | 65         |

## 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 pipe.

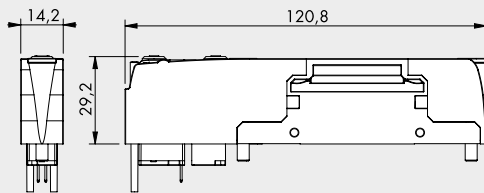
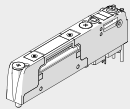
Outputs 2 and 4 must be connected one to the other. To do this, you can use the special Y-fitting.

When connecting one or more valves using the Y-fitting, the pneumatic system functions must be configured according to the following diagram.

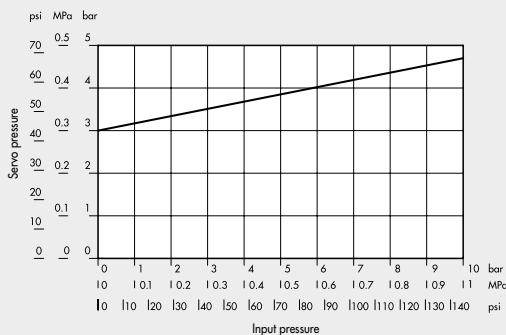
| Pneumatic function                 | 3/2 NC | 3/2 NO | 5/2 monostable | 5/2 * bistable | 5/3 OC | 5/3 PC | 5/3 CC * |
|------------------------------------|--------|--------|----------------|----------------|--------|--------|----------|
| Valves to be used                  | G      | J      | G, J           | K, K           | G, G   | J, J   | O, O     |
| Y-fitting layout                   |        |        |                |                |        |        |          |
| Flow rate at 6.3 ΔP 1 bar [Nl/min] | 1250   | 1250   | 1250           | 1400           | 1250   | 1250   | 1000     |

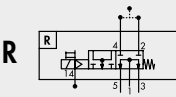
In order to get 5/2 monostable, 5/2 bistable and 5/3 DC high flow, use two parallel valves, by energizing the solenoids simultaneously.

\* 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)**

**SERVO MINIMUM PRESSURE**

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



| Symbol                                                                            | Type           | Code     | Manual control | Weight [g] |
|-----------------------------------------------------------------------------------|----------------|----------|----------------|------------|
|  | Shut-off valve | 708203R0 | monostable     | 65         |
|                                                                                   |                | 708203R1 | bistable       | 65         |

**VALVES**
**EB 80 - VALVES**

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:

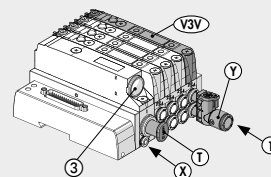
- the valve can be fitted in any position and not necessarily to the left of the others;
- if the station is split into areas with separate channels (1) via intermediate modules M or bases with port 1 selected, the shut-off valve only operates in the area where it is fitted.
- if the capacity of a shut-off valve is not sufficient for its use, two or more can be fitted and operated simultaneously.

**TECHNICAL DATA**

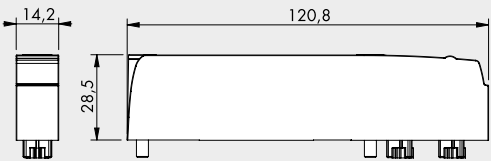
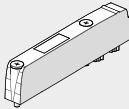
|                                                                    |        |                                                                 |
|--------------------------------------------------------------------|--------|-----------------------------------------------------------------|
| Flow rate at 6.3 bar $\Delta P$ 1 bar                              | Nl/min | 1000 (with 2 Ø 8 fittings or a Y fitting, pipe Ø 10 mm or 3/8") |
| Exhaust flow rate at 6.3 bar                                       | Nl/min | 660                                                             |
| Actuation response time (TRA) / reset response time (TRR) at 6 bar | ms     | 12/45                                                           |
| Servo pressure                                                     |        | See technical data 3/2 valves (page B2.56)                      |

**SHUT-OFF VALVE DIAGRAM**

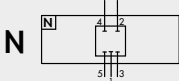
- V3V** Shut-off valve, can be fitted in any position
- 1** Pneumatic supply
  - 3** Relief
  - Y** Y-fitting with black bush (page B2.59)
  - T** Plug port 1 of pneumatic supply P module
  - X** Always use the pneumatic supply servo version



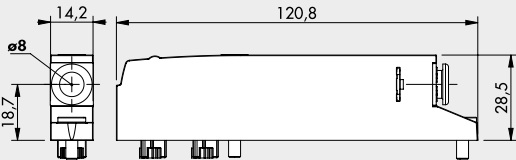
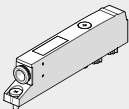
DUMMY VALVE (PLUG)



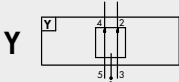
| Symbol | Description | Code | Weight [g] |
|--------|-------------|------|------------|
|--------|-------------|------|------------|

|                                                                                   |             |          |    |
|-----------------------------------------------------------------------------------|-------------|----------|----|
|  | Dummy valve | 708203N0 | 45 |
|-----------------------------------------------------------------------------------|-------------|----------|----|

BYPASS



| Symbol | Description | Code | Weight [g] |
|--------|-------------|------|------------|
|--------|-------------|------|------------|

|                                                                                     |           |          |    |
|-------------------------------------------------------------------------------------|-----------|----------|----|
|  | Bypass Ø8 | 708203Y8 | 45 |
|-------------------------------------------------------------------------------------|-----------|----------|----|

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

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

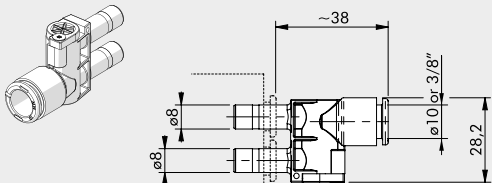
| 7082       | 03                          | V                                                                                                                                                                                                                                                                                                                                                          | 0                                                                                                                            |
|------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| FAMILY     | TYPE                        | SCHEMA                                                                                                                                                                                                                                                                                                                                                     | MANUAL CONTROL                                                                                                               |
| 7082 EB 80 | 03 Electric, servo-assisted | <ul style="list-style-type: none"><li>▲ Z 2 valves 2/2NC</li><li>▲ I 2 valves 3/2 NC</li><li>▲ W 2 valves 3/2 NO</li><li>▲ L 3/2 NC + 3/2 NO</li><li>V 5/2 monostable</li><li>▲ K 5/2 bistable</li><li>▲ O 5/3 CC</li><li>G 3/2 NC high flow</li><li>J 3/2 NO high flow</li><li>+ R Shut-off valve</li><li>Y Bypass</li><li>N Dummy valve (plug)</li></ul> | <ul style="list-style-type: none"><li>0 Monostable or for dummy valve</li><li>1 Bistable</li><li>8 For bypass only</li></ul> |

▲ Can only be used with 6 or 8 control bases.  
+ Requires inlet port X slave synchronisation.



ACCESSORIES

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

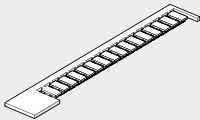
BASE FIXING SCREW



| 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

VALVES

EB 80 - VALVES

# 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                                               | VDC                                              | 12 -10% 24 +30%                                            |
| Minimum operating voltage                                          | VDC                                              | 10.8 *                                                     |
| Maximum operating voltage                                          | VDC                                              | 31.2                                                       |
| Maximum admissible voltage                                         | VDC                                              | 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 8 bar)                                      |
|                                                                    | °F                                               | 14 to 122 (at 8 bar)                                       |
| Operating pressure                                                 |                                                  | 5/2 and 5/3                                                |
| Non-assisted valves                                                | bar                                              | 3 to 8                                                     |
|                                                                    | MPa                                              | 0.3 to 0.8                                                 |
|                                                                    | psi                                              | 43 to 116                                                  |
| Assisted valves                                                    | bar                                              | Vacuum to 10                                               |
|                                                                    | MPa                                              | Vacuum to 1                                                |
|                                                                    | psi                                              | Vacuum to 145                                              |
| Servo pressure                                                     | bar                                              | 3 to 8                                                     |
|                                                                    | MPa                                              | 0.3 to 0.8                                                 |
|                                                                    | psi                                              | 43 to 116                                                  |
| Valve flow rate, at 6.3 bar ΔP 1 bar                               |                                                  | Ø 4 (5/32") Ø 6 Ø 8 (5/16") Ø 1 1/4" Ø 10 ** Ø 3/8" **     |
|                                                                    | valve 2/2 NI/min                                 | 350 430 500 430 - -                                        |
|                                                                    | valve 3/2 NI/min                                 | 350 600 700 600 1250 1250                                  |
|                                                                    | valve 5/2 NI/min                                 | 350 650 800 650 1250 - 1400 1250 - 1400                    |
|                                                                    | valve 5/3 NI/min                                 | 350 460 500 460 1000 - 1250 1000 - 1250                    |
|                                                                    | valve V3V (R) NI/min                             | - - - - 1000 1000                                          |
| 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)    |
| Category ATEX                                                      |                                                  | Ex II 3G Ex ec IIC T5 Gc X -10°C<Ta<50°C                   |
|                                                                    |                                                  | Ex II 3D Ex tc IIIC T100°C Dc X                            |
| Certifications                                                     |                                                  | CE - ENEC - cRUus - Ex                                     |

\* Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.28

\*\* Using high-flow valves or connected valves - see pages B2.58

\*\*\* 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.

### CERTIFICATIONS

The **CE** certification for the part concerning only CSA (Canadian market) is bound to the following conditions of use:

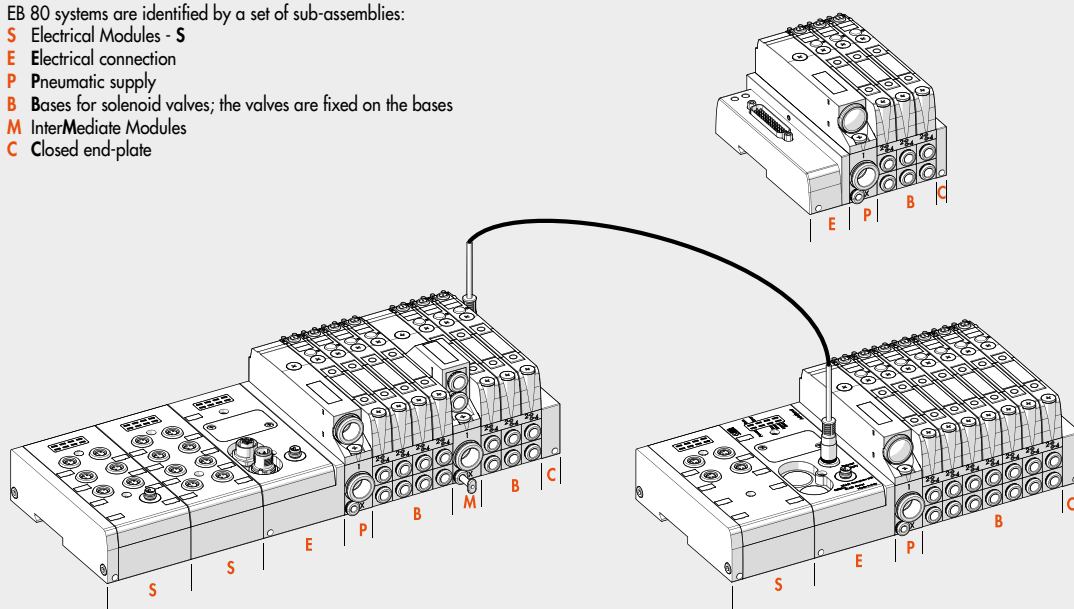
- environment temperature: max 45°C
- ED max 70%

If non-adjoining valves are used, ED max can reach 100% (environment temperature max 45°C)

### COMPONENTS

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

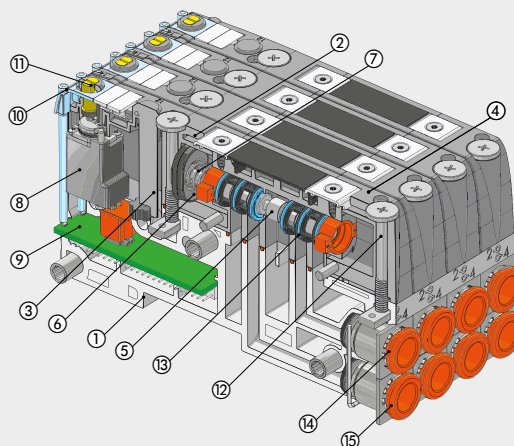
- S** Electrical Modules - **S**
- E** Electrical connection
- P** Pneumatic supply
- B** Bases for solenoid valves; the valves are fixed on the bases
- M** InterMediate Modules
- C** Closed end-plate


**VALVES**

EB 80 ELECTRO-PNEUMATIC SYSTEM

### 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: zinc-plated 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                                                                              | E0LK                                                                               | E0CC                                                                                | E0AD                                                                                |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |  |  |  |  |  |
| 25 PIN                                                                            | 44 PIN                                                                            | EtherNet/IP                                                                       | EtherCAT                                                                          | Profinet IO                                                                       | CANopen                                                                           | Profibus-DP                                                                       | Ethernet POWERLINK                                                                | IO-Link 32 IN/32 OUT                                                              | IO-Link 64 OUT                                                                     | CC-Link IE Field Basic                                                              | Additional                                                                          |
| page B2.30                                                                        | page B2.30                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                        | page B2.43                                                                         | page B2.43                                                                          | page B2.48                                                                          |

**SIGNAL MODULE - S**

| S01                                                                                 | S02                                                                                 | S03                                                                                 | S04                                                                                 | S05                                                                                 | S06                                                                                 | S07                                                                                 | S08                                                                                 | S21                                                                                  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |  |  |
| 8 M8 digital inputs                                                                 | 8 M8 digital outputs                                                                | 6 M8 digital outputs + electrical supply                                            | 4 M8 analogue inputs                                                                | 4 M8 analogue outputs                                                               | 16 digital terminal block inputs                                                    | 16 digital terminal block outputs                                                   | 4 M8 analogue inputs for temperature measurement                                    | 16 M8 configurable digital inputs/outputs                                            |
| page B2.18                                                                          | page B2.18                                                                          | page B2.19                                                                          | page B2.19                                                                          | page B2.20                                                                          | page B2.20                                                                          | page B2.21                                                                          | page B2.21                                                                          | page B2.22                                                                           |

**WIRELESS MODULE - S**

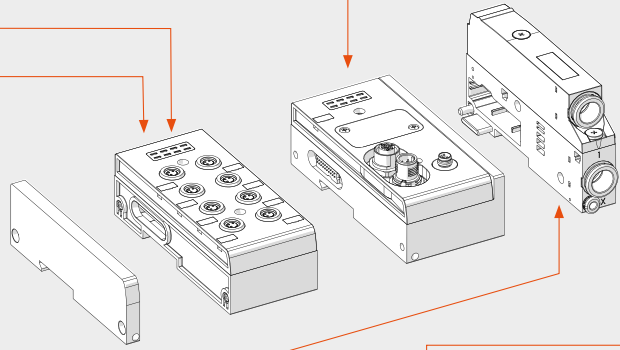
**S20**



Wireless connection module

page B2.16

Part included in the ELECTRICAL CONNECTION - E with Fieldbus



**COMPRESSED-AIR SUPPLY - P**

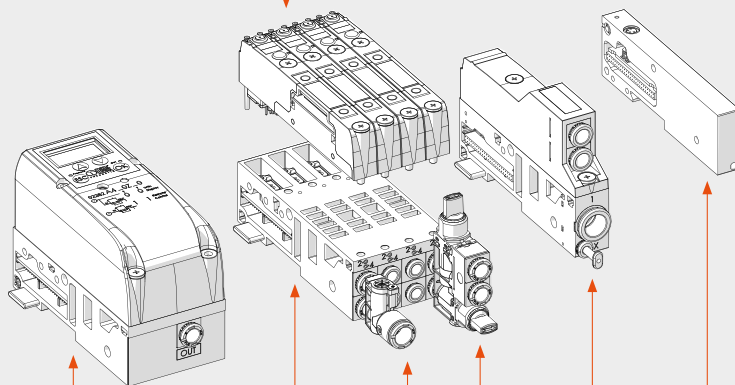
| P__Z00                                                                              | P__Z__                                                                              | P__Z_0                                                                              | P91Z90                                                                              |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| Silenced relief                                                                     | Conveyed relief                                                                     | Separate reliefs                                                                    | Module for electric version only                                                    |
| page B2.51                                                                          | page B2.51                                                                          | page B2.51                                                                          | page B2.52                                                                          |

**PROPORTIONAL PRESSURE REGULATOR - A**

| A40_Z_0                                                                               | A41_Z_0                                                                               |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |
| Base port 1 pass-through local outlet                                                 | Base port 1 sectioned in-series regulation                                            |
| page B2.65                                                                            | page B2.65                                                                            |

| 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                                                                              |
| page B2.57                                                                        | page B2.57                                                                        | page B2.57                                                                        | page B2.57                                                                        | page B2.57                                                                        | page B2.57                                                                        | page B2.57                                                                        | page B2.58                                                                        | page B2.58                                                                        | page B2.59                                                                          | page B2.60                                                                          | page B2.60                                                                          |

▲ Can only be used with 6 or 8 control bases.  
+ Requires inlet port X slave synchronisation.



| CLOSED END-PLATE - C                                                                 |                                                                                       |                                                                                       |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| C1                                                                                   | C2                                                                                    | C3                                                                                    |
|  |  |  |
| For islands with multi-pole connector                                                | For islands with fieldbus                                                             | For electrical connection of islands with fieldbus to additional islands              |
| page B2.74                                                                           | page B2.74                                                                            | page B2.74                                                                            |

**BASES FOR VALVES - B**

| B3_ _ _ 0                                                                           | B4_ _ _ _                                                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |
| 3-position base for valves                                                          | 4-position base for valves                                                          |
| page B2.54                                                                          | page B2.54                                                                          |

**Y-FITTING**

| R2                                                                                  |
|-------------------------------------------------------------------------------------|
|  |
| Y-fitting                                                                           |
| page B2.61                                                                          |

**MULTI-FUNCTION MODULE**

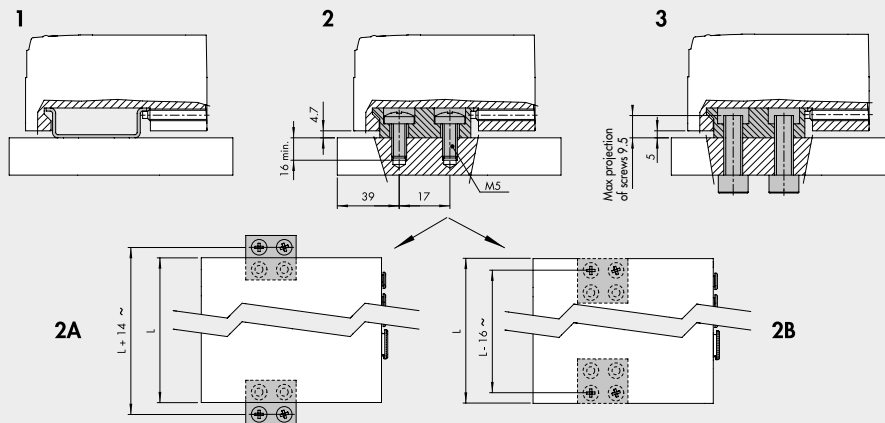
|                                                                                     |
|-------------------------------------------------------------------------------------|
|  |
| Fittings with pneumatic functions                                                   |
| page B2.92                                                                          |

**INTERMEDIATE SUPPORT - M**

| M_ _ _ Z0                                                                            | M_ _ _ Z_                                                                             | M_ _ _ Z_                                                                             |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |
| Silenced relief                                                                      | Conveyed relief                                                                       | Separate relief                                                                       |
| page B2.69                                                                           | page B2.70                                                                            | page B2.71                                                                            |

## 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 be fixed either protruded or concealed.
- N.B.:** Planar surfaces are required to ensure correct fixing. Avoid twisting or bending the valve units.



## LUBRICATION

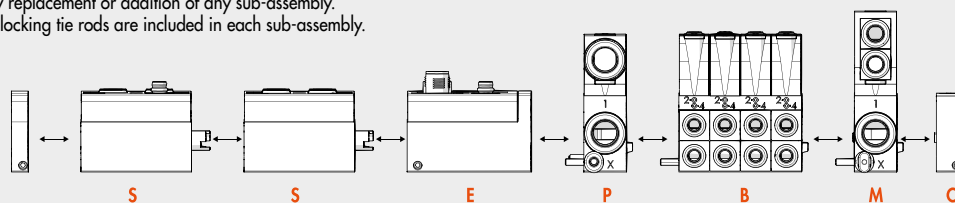


The EB 80 electro-pneumatic system is designed to run millions of cycles without the need for any lubrication. This is possible thanks to the optimisation of its components and the use of a special grease with excellent properties and NSF H1 certified. To avoid removing the grease, it is highly recommended 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

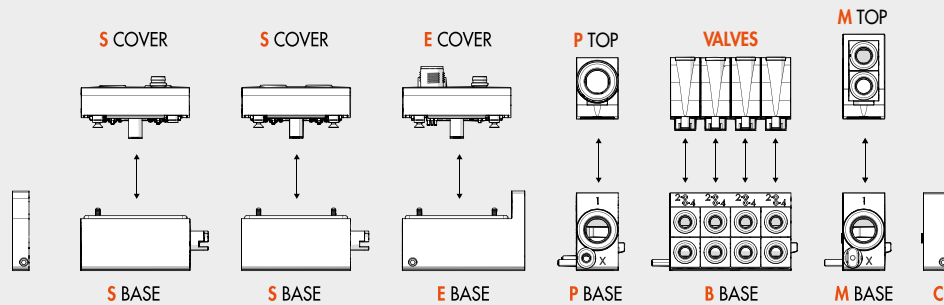
- Easy replacement or addition of any sub-assembly.  
The locking tie rods are included in each sub-assembly.



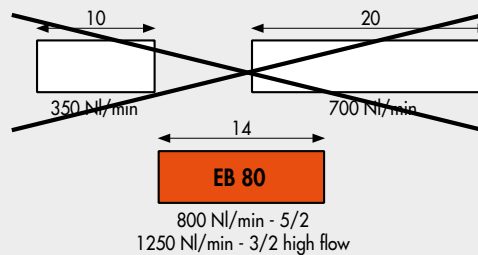
**VERTICAL MODULARITY**

- 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.

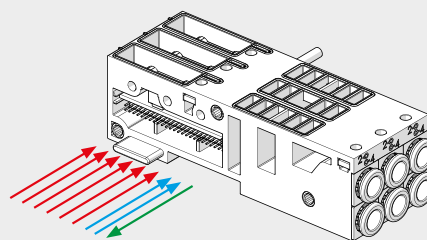
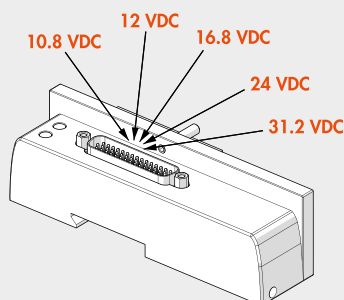
**N.B.:** All protocols can be mounted on the base for field buses and all input or output modules can be mounted on the same base for signals.


**ONE SIZE FITS ALL**

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

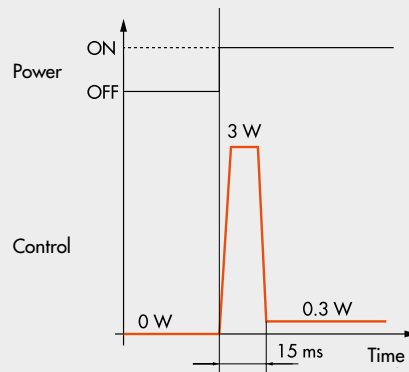

**THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES**

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


**THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC**


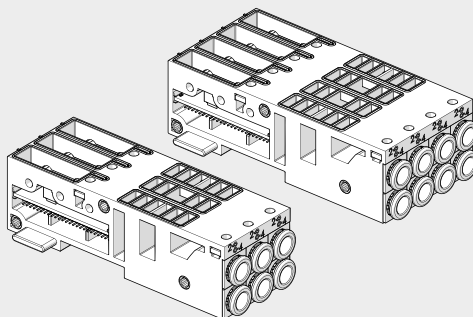
### ONLY 0.3 W FOR EACH SOLENOID VALVE

- 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.



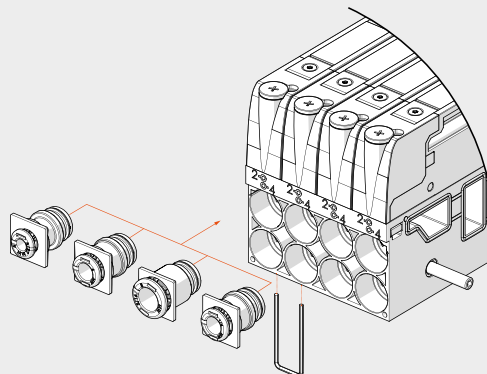
### 3- OR 4-POSITION BASES FOR VALVES

- 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



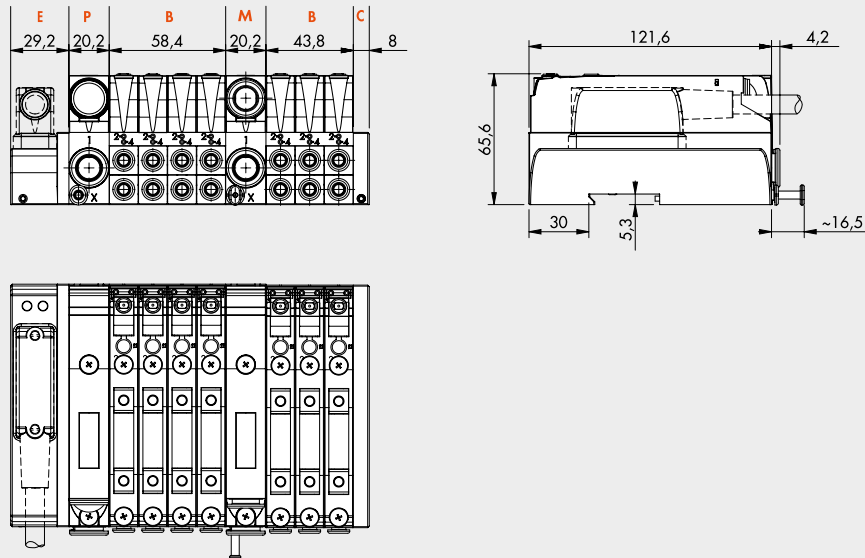
### INTERCHANGEABLE CARTRIDGE FITTINGS

- For pipes  $\varnothing$  4 (5/32"), 6, 8 (5/16"), 1/4"

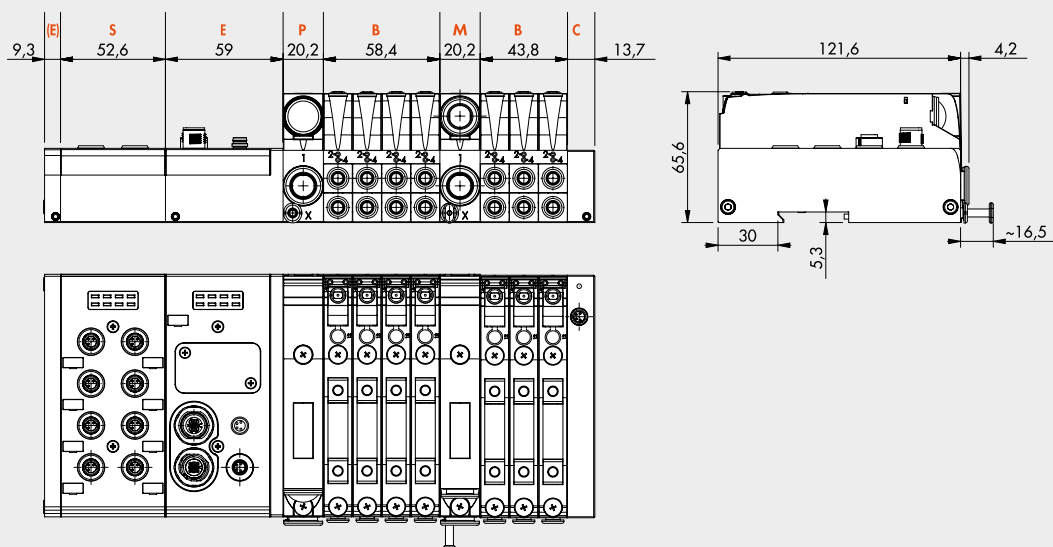


## DIMENSIONS

### DIMENSION OF VERSIONS WITH MULTI-POLE CONNECTION



### DIMENSION OF VERSIONS WITH FIELD BUS OR ADDITIONAL CONNECTION



VALVES

EB 80 ELECTRO-PNEUMATIC SYSTEM

The abbreviation of each base for valves consists of:

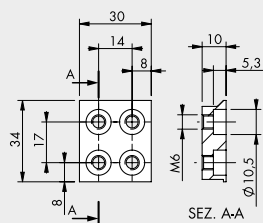
The description is therefore a sequence of this type:

**Example:**

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

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.

## FIXING BRACKET



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.

## EB 80 INDUSTRY 4.0

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.

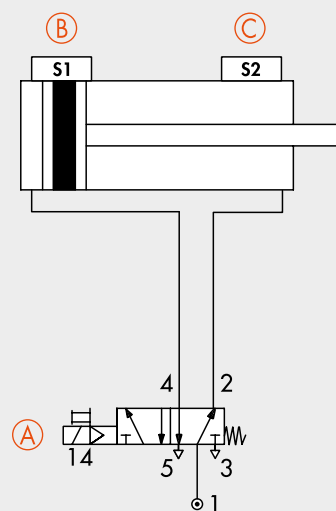
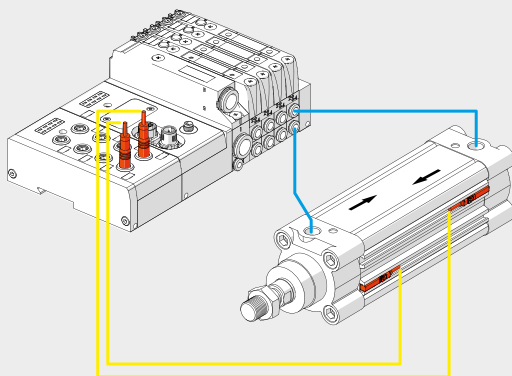
They re-organise and optimise maintenance management by developing predictive maintenance in order to:

- 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.

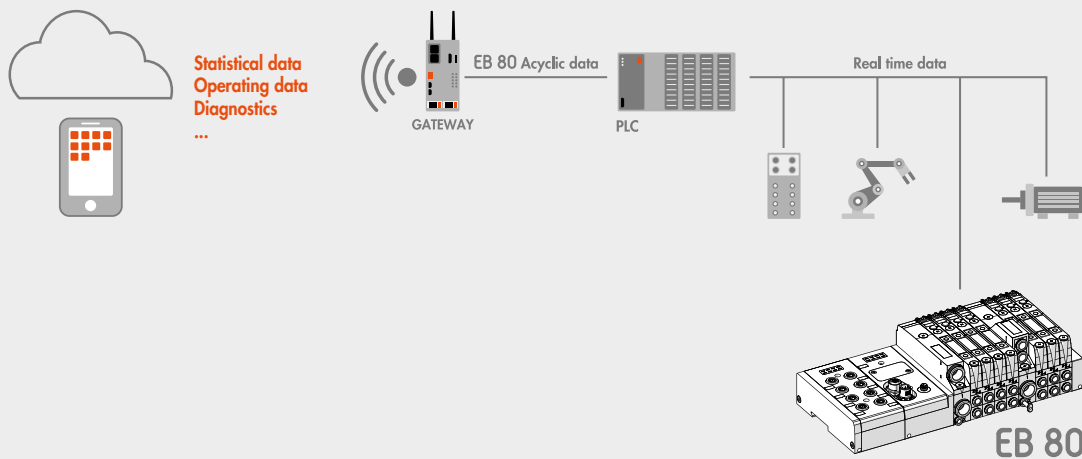


### PLC-BASED DATA COLLECTION

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.

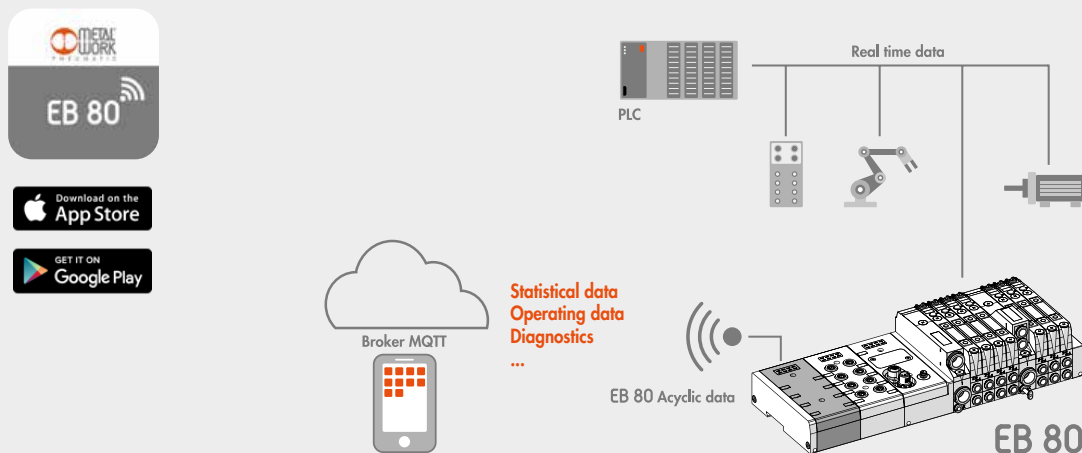
With the introduction of the I4.0 version, the field bus connection modules also send to the network the historical and diagnostic data relating to the behaviour of the island (such as the number of cycles for each solenoid pilot, total activation time and alarms) and the controlled pneumatic circuit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



### EB 80 WIRELESS DATA COLLECTION

Integrated into the EB 80, this module provides connection to Wi-Fi networks and Bluetooth® devices to display diagnostic and operating data. The APP specifically developed by Metal Work, called EB80Up, can connect Android and IOS devices for easy viewing of diagnostic and operating data plus the setting of network parameters.



## Spareparts

|                                                                            | Art. No. | Type No.   |
|----------------------------------------------------------------------------|----------|------------|
| EB 80 Schraube zur Befestigung des Ventils auf der Grundplatte, PU 10 pcs. | 153920   | 02282R3000 |
| Identification plate, strip of 16 pcs.                                     | 153922   | 0226107000 |