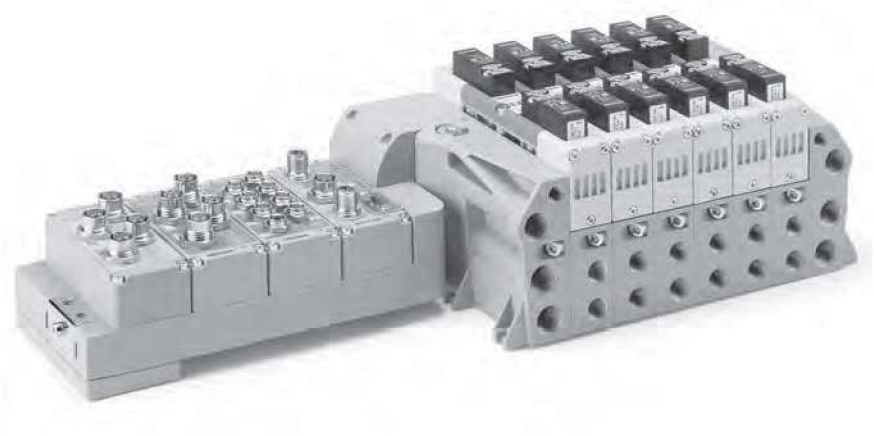
## Series 2700 EVO





### 2700 SERIES EVO SOLENOID VALVES MANIFOLD

- **Increased flexibility**
- **Digital and analogue I/O modules**
- **Manufactured according to ISO 15407-2**
- **Wide range of communication protocols**

### WE SPEAK EVO

The 2700 series becomes EVO and interfaces with the new PX series modular electronic system while still retaining all of its technical advantages. This is enriched with new features that further extend the flexibility of the product:

- Size 26 mm with nominal flow rate up to 1000 Nl/min
- Compliant to directive 2014/30/UE
- Monitored solenoid valves
- Vertical configuration

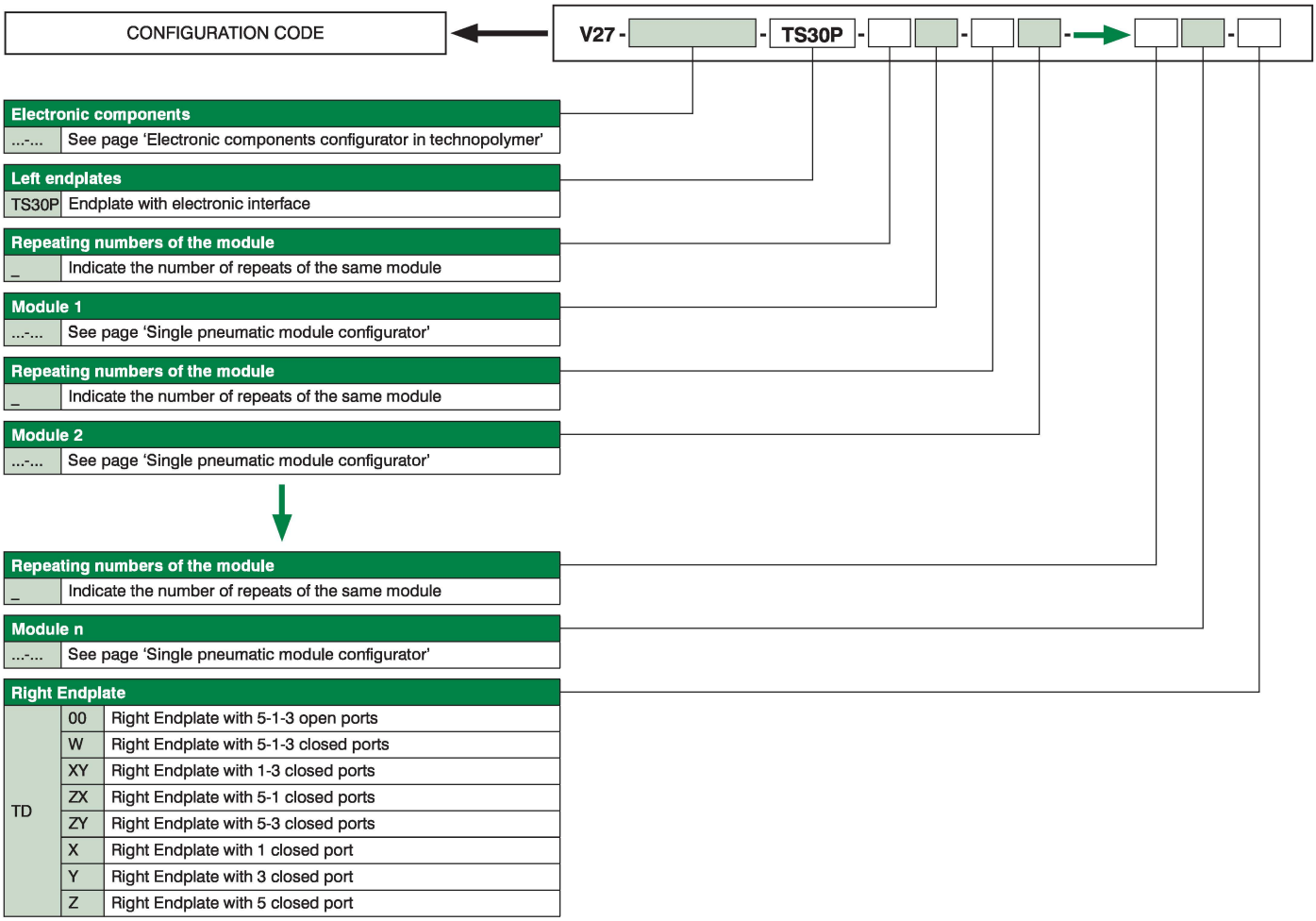
### Construction characteristics

| | |
|---|---|
| Body | Die-cast aluminium |
| Springs | Stainless Steel |
| Operators | Technopolymer |
| Pistons | Technopolymer |
| Spools | Aluminium |

### Operational characteristics

| | |
|---|---|
| Supply voltage | + 24 V DC ±10% PNP |
| Pilot consumption | 1W - 2.3W |
| Valve working pressure [1] | from vacuum to 10 bar max. |
| Operating temperature | from -5°C to +50°C (serial system node version)<br>from -10°C to +50°C (multi-pin version) |
| Protection degree | IP65 |
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |

## Rules and configuration scheme




**Configurable on Cadenas platform**

**Note:**
When composing the configuration, always bear in mind that the maximum number of electrical signals available is:
- 32 if a 37-pole multi-pin module is used, if a node or IO-Link interface is used.
- 24 if a 25-pole multi-pin module is used.

If a monostable valve is used on a bistable type base (2 electrical signals occupied), an electrical signal is lost.
However, this makes it possible to replace the monostable valve with a bistable valve in the same position.
Use bases with dedicated closed ports to interrupt ducts 1, 3 and 5.
If one or more ports must be interrupted more than once, the addition of the intermediate supply/discharge module is necessary.

## Electronic components configurator in technopolymer

| Type | |
|---|---|
| P | Technopolymer |

| Left endplate accessory | |
|---|---|
| | Offset compensation plate |
| G | DIN rail fixing accessory |

| Multi-pin electrical connection | |
|---|---|
| MP2 | Module 25 poles + 24 V DC |
| MP3 | Module 37 poles + 24 V DC |

| Electrical connection | |
|---|---|
| C3 | CANopen® node 64 IN - 64 OUT (32 fixed) |
| P3 | PROFIBUS DP node 64 IN - 64 OUT (32 fixed) |
| I4 | EtherNet/IP node 128 IN - 128 OUT (48 fixed) |
| A4 | EtherCAT® node 128 IN - 128 OUT (48 fixed) |
| N4 | PROFINET IO RT node 128 IN - 128 OUT (48 fixed) |
| G4 | CC-Link IE Field Basic node 128 IN - 128 OUT (48 fixed) |
| K3 | IO-Link interface 64 IN - 64 OUT (32 fixed) |

| Electrical connection accessories | |
|---|---|
| | Without DIN rail fixing |
| G | With DIN rail fixing |

| Repeating numbers of the module | |
|---|---|
| | Indicate the number of repeats of the same module (no value for a single module) |

| Inputs module - Analogue / Digital (EXCLUDED WITH MP) | |
|---|---|
| D8 | 8 M8 digital inputs module |
| D12 | 8 M12 digital inputs module |
| D3 | 32 digital inputs SUB-D 37 poles |
| T1 | 2 analogue inputs 0-5V module (voltage signal) |
| T2 | 2 analogue inputs 0-10V module (voltage signal) |
| T3 | 4 analogue inputs 0-5V module (voltage signal) |
| T4 | 4 analogue inputs 0-10V module (voltage signal) |
| C1 | 2 analogue inputs 0-20mA module (current signal) |
| C2 | 2 analogue inputs 4-20mA module (current signal) |
| C3 | 4 analogue inputs 0-20mA module (current signal) |
| C4 | 4 analogue inputs 4-20mA module (current signal) |
| P1 | 2 Pt100 2 wires inputs module |
| P2 | 2 Pt100 3 wires inputs module |
| P3 | 2 Pt100 4 wires inputs module |
| P4 | 4 Pt100 2 wires inputs module |
| P5 | 4 Pt100 3 wires inputs module |
| P6 | 4 Pt100 4 wires inputs module |
| **Outputs module - Analogue / Digital** | |
| M8 | 8 M8 digital outputs module |
| M12 | 8 M12 digital outputs module |
| M3 | 32 digital outputs SUB-D 37 poles |
| V1 | 2 analogue outputs 0-5V module (voltage signal) |
| V2 | 2 analogue outputs 0-10V module (voltage signal) |
| V3 | 4 analogue outputs 0-5V module (voltage signal) |
| V4 | 4 analogue outputs 0-10V module (voltage signal) |
| L1 | 2 analogue outputs 0-20mA module (current signal) |
| L2 | 2 analogue outputs 4-20mA module (current signal) |
| L3 | 4 analogue outputs 0-20mA module (current signal) |
| L4 | 4 analogue outputs 4-20mA module (current signal) |
| **Additional module (Optional)** | |
| P12 | M12 additional power supply module |

| Module accessories | |
|---|---|
| | Without DIN rail fixing |
| G | With DIN rail fixing |

SINGLE ELECTRIC MODULE CONFIGURATION

**Refer to the current limits indicated in the pages relating to the nodes / IO-Link interface**

## Modules configurator:

### 1) Complete module configurator

**Intermediate Inlet/Exhaust module**

| | | | | | | |
|---|---|---|---|---|---|---|
| W | U | 5-3 Common | _ | 5-1-3 open | _ | 14-12 open |
| | S | 5-3 Separated | W | 5-1-3 closed | 2 | 12 closed |
| | | | XY | 1-3 closed | 4 | 14 closed |
| | | | ZX | 5-1 closed | | |
| | | | ZY | 5-3 closed | | |
| | | | X | 1 closed | | |
| | | | Y | 3 closed | | |
| | | | Z | 5 closed | | |

**Monitored 3/2 Sol-Spring pilot 14 control solenoid valve**

| | | | | | | |
|---|---|---|---|---|---|---|
| P | A | Internal Supply | M8 | Proximity M8x1 | 02 | 24 V DC |
| | E | External Supply | M12 | Proximity M12x1 | 08 | 24 V DC 1W |

**Monitored redundant 5/2 Sol-Spring solenoid valve**

| | | | | | | |
|---|---|---|---|---|---|---|
| V2S | A | Internal Supply | M8 | Proximity M8x1 | 02 | 24 V DC |
| | E | External Supply | M12 | Proximity M12x1 | 08 | 24 V DC 1W |

**Solenoid valve for progressive start**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP | M8 | Proximity M8x1 | 01 | 12 V DC | W | 5-1-3 closed | 4 | 14 closed | - | Standard |
| | M12 | Proximity M12x1 | 02 | 24 V DC | | | | | M | Machinery directive |
| | | | 08 | 24 V DC 1W | | | | | | |

### 2) Modular module configurator

**Base**

| | | | | | | |
|---|---|---|---|---|---|---|
| B | M | Monostable | _ | 5-1-3 open | _ | 14-12 open |
| | B | Bistable | W | 5-1-3 closed | 2 | 12 closed |
| | P | Pass-through | XY | 1-3 closed | 4 | 14 closed |
| | | | ZX | 5-1 closed | | |
| | | | ZY | 5-3 closed | | |
| | | | X | 1 closed | | |
| | | | Y | 3 closed | | |
| | | | Z | 5 closed | | |

**External supply valve**

| | | |
|---|---|---|
| AS | 11 | External Supply |
| | 14 | External Supply with piloting 14 |

**Shut-off valve**

| | | | | |
|---|---|---|---|---|
| VL | 141 | 1-14 Exhaust | _ | Not lockable |
| | | | K | Lockable |

**Flow regulator**

| | | |
|---|---|---|
| RF | 35 | Exhaust flow regulator |

**Solenoid valves**

| | | | | | |
|---|---|---|---|---|---|
| A | S.V. 5/2 SOL-SPRING | A | Self Supply | 12 | 24 V DC |
| B | S.V. 5/2 SOL-DIFFERENTIAL | E | External Supply | 18 | 24 V DC 1W |
| C | S.V. 5/2 SOL-SOL | | | | |
| E | S.V. 5/3 CC SOL-SOL | | | | |
| F | S.V. 2x3/2 NC-NC | | | | |
| G | S.V. 2x3/2 NO-NO | | | | |
| H | S.V. 2x3/2 NC-NO | | | | |
| I | S.V. 2x3/2 NO-NC | | | | |
| T00 | Free valve space plug | | | | |

**Monitored 5/2 Sol-Spring solenoid valve**

| | | | | | | |
|---|---|---|---|---|---|---|
| VS | A | Self Supply | M8 | Proximity M8x1 | 02 | 24 V DC |
| | E | External Supply | M12 | Proximity M12x1 | 08 | 24 V DC 1W |

**5/3 Solenoid valve with self-retention**

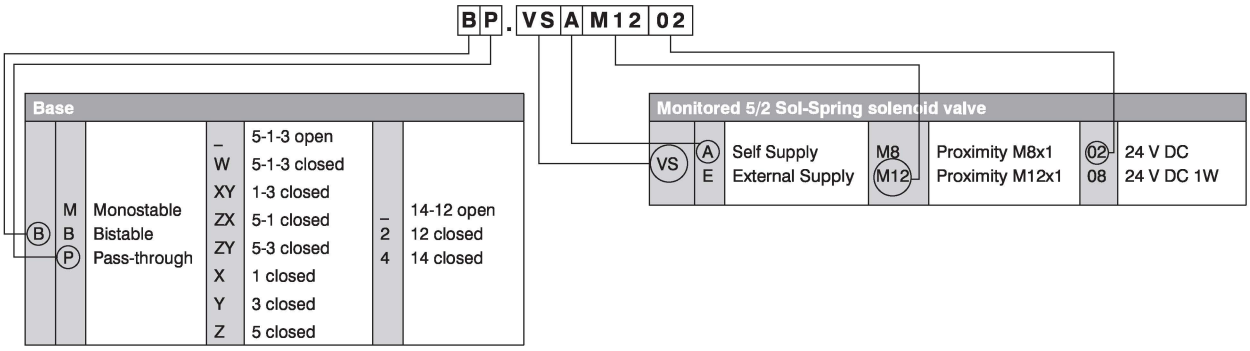
| | | | | | | |
|---|---|---|---|---|---|---|
| D | 1 | Closed centres | A | Self Supply | 12 | 24 V DC |
| | 2 | Open centres | E | External Supply | 18 | 24 V DC 1W |
| | 3 | Pressured centres | | | | |

**Pressure regulator**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | C | Compact | D | Downstream | 2 | Single L12 | A | 0-2 Bar | A | With relieving | V | RAL6032 green | _ | Adjustable gauge |
| | P | Extended | U | Upstream | 4 | Single L14 | B | 0-4 Bar | | | G | RAL7004 gray | M | Fixed gauge |
| | | | | | 24 | Double L12-L14 | C | 0-8 Bar | | | | | | |

**Configuration example of single module:**

Signal pass-through base, ports 5-1-3 open, ports 14-12 open with monitored S.V. internal supply, M12 connector, 24 V DC is identified as:

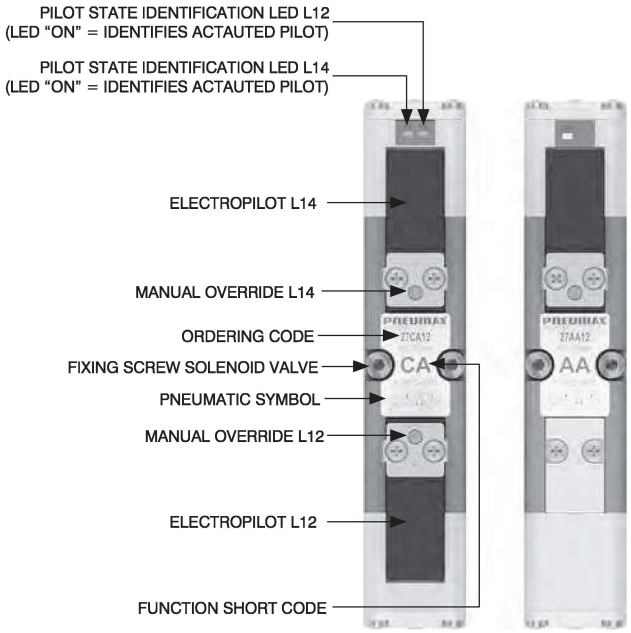



**Configuration example of complete group:**

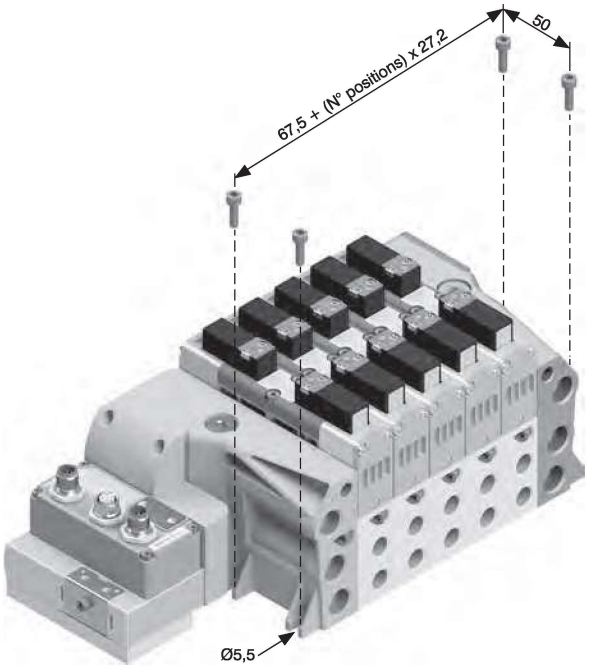
- Technopolymer PX3 serial system (P-C3-2M8-D12)
- Left endplate with interface (TS30P)
- Bistable base with S.V. 5/3 CC Sol-Sol (BB.EE12)
- Bistable base with S.V. 2X3/2 NC-NC (BB.FE12)
- Bistable base with S.V. 5/2 Sol-Sol (BB.CE12)
- Bistable base with S.V. 2X3/2 NC-NC (BB.FE12)
- N°2 bistable bases with S.V. 5/2 Sol-Sol (2BB.CE12)
- Right endplate with open ports 1 - 3 - 5 (TD00)

**V27-P-C3-2M8-D12-TS30P-BB.EE12-BB.FE12-BB.CE12-BB.FE12-2BB.CE12-TD00**

## Solenoid valve description

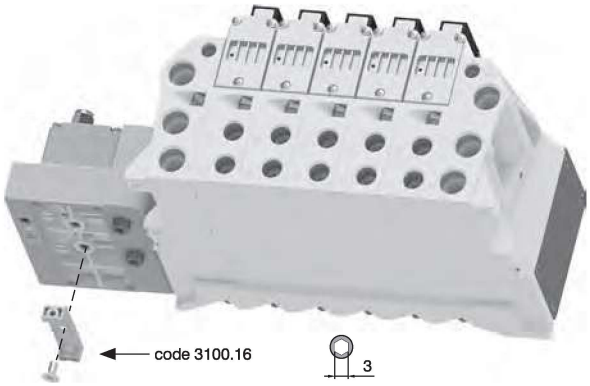



## From the top



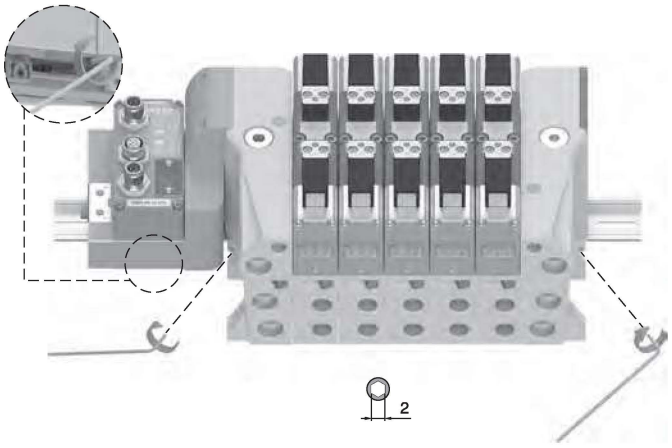

**Attention:** The overall dimensions shown refer to the modular (valve) sub-bases, and may differ when manifold accessories are included.

## DIN rail mounting support plate

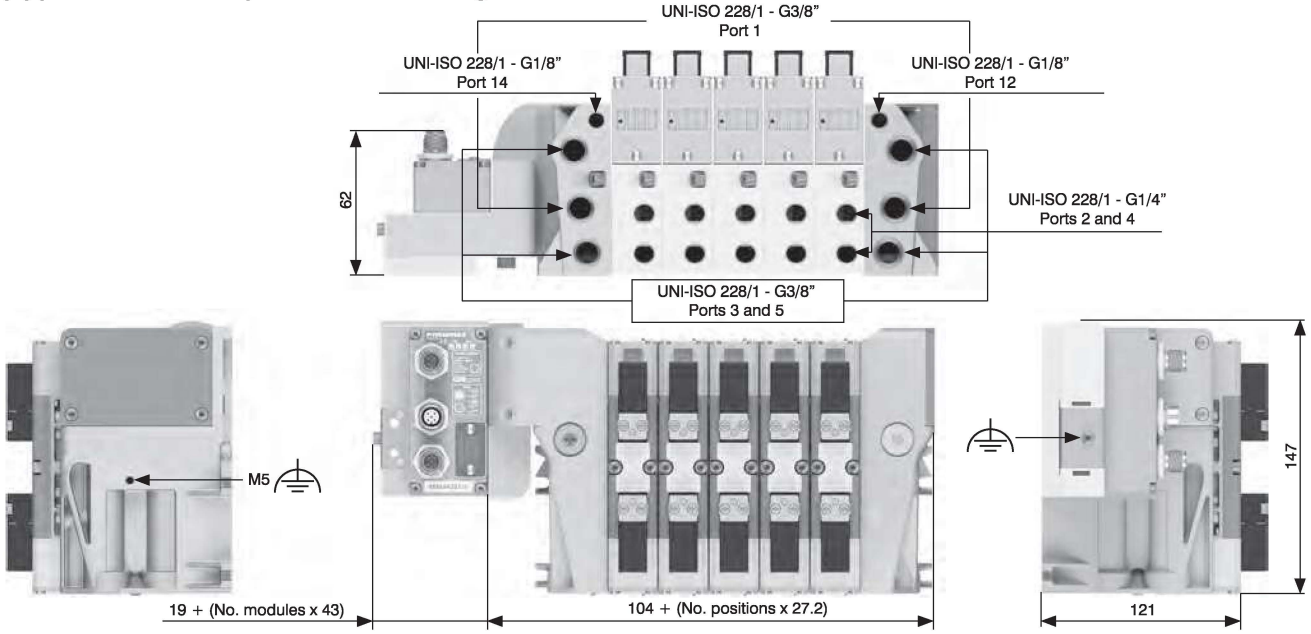



**Attention:** This must be included when creating the manifold configuration. Exclude the offset compensation plate.

## DIN rail fixing




## Supply ports and maximum possible size according to valves used

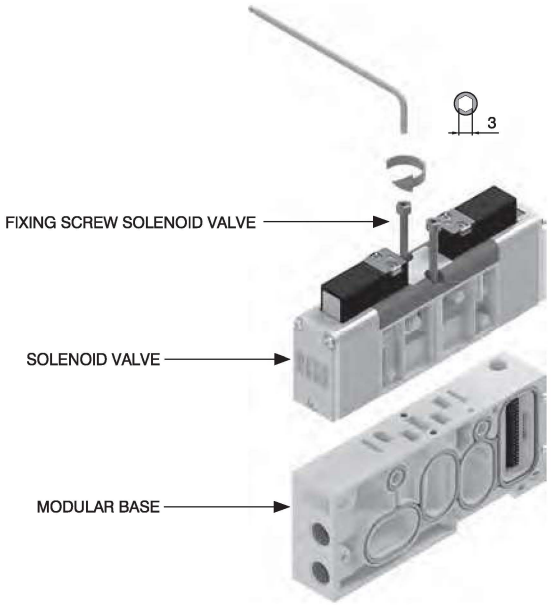



**Attention:** The overall dimensions shown refer to the modular (valve) sub-bases, and may differ when manifold accessories are included.

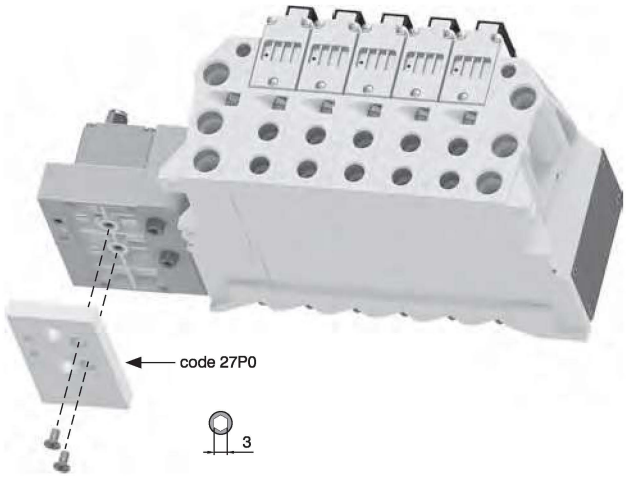
### Manual override actuation

**Instable function:**
Push to actuate
(when released it moves back to the original position)

### Solenoid valves installation

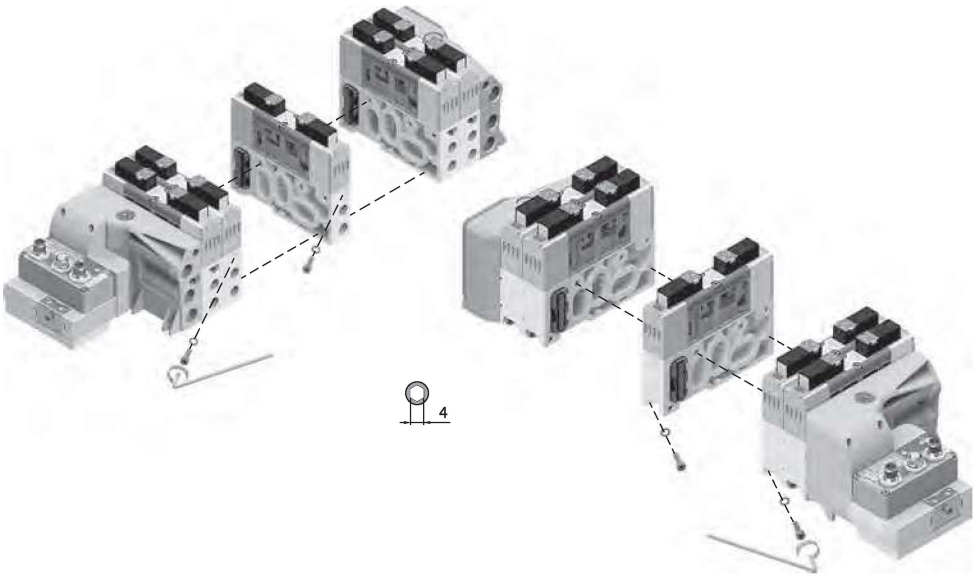



### Offset compensation plate



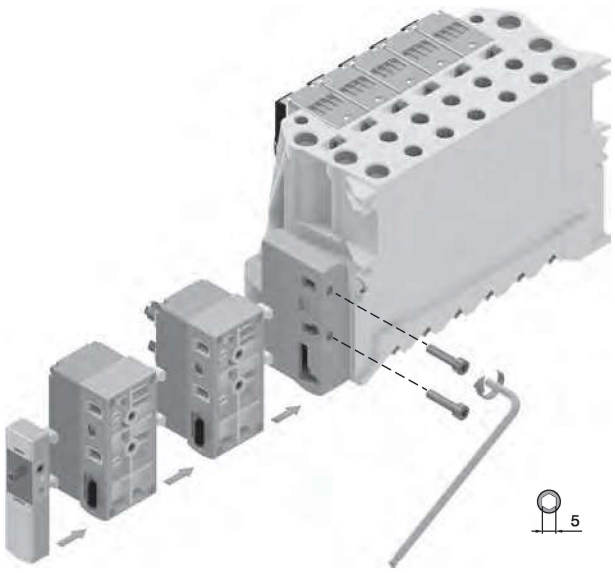

**Attention**: This accessory is supplied on the manifold unless otherwise stated. This is not compatible for DIN rail mounting.

### Sub-base assembly

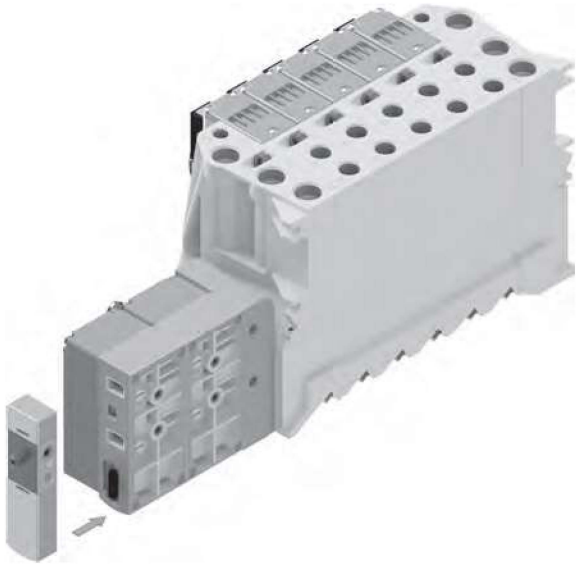



**Note**: Torque moment 4 Nm
**Attention**: Ensure the washer is mounted on the screw before tightening

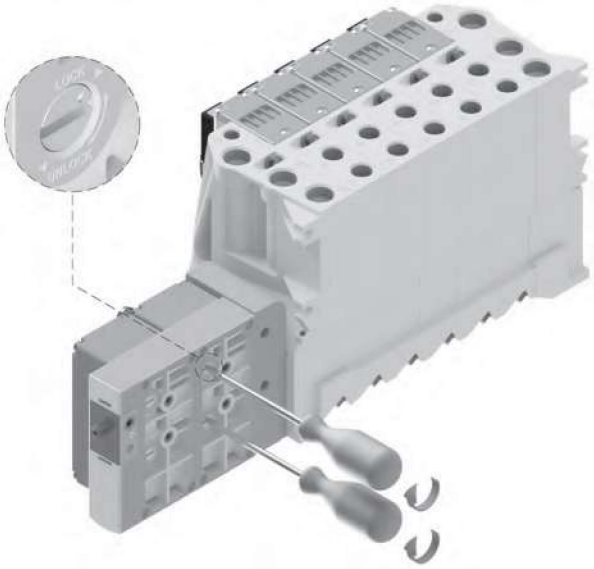
**1.** Assemble the desired modules and tighten the fixing screws as shown in the figure below.



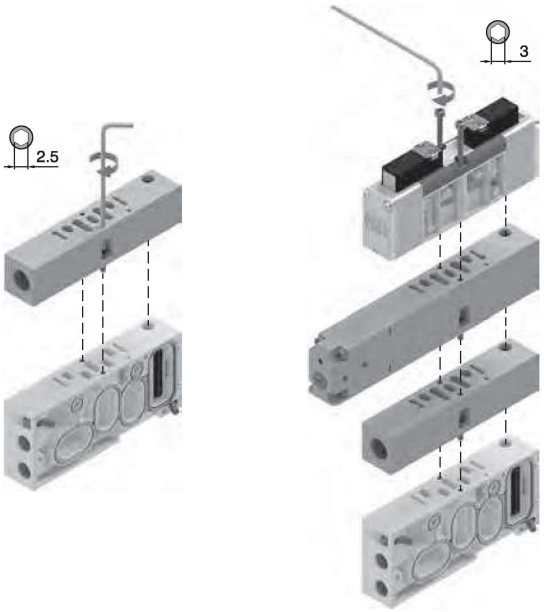

**2.** Complete the assembly with the 3100.KT.00 left endplate kit.



**3.** To lock: rotate anticlockwise (in the direction of the LOCK print on the case).
To unlock: rotate clockwise (in the direction of the UNLOCK print on the case).
The same procedure shall be used to add or remove any module.



**Modules assembled for vertical configuration**




Modules for vertical configuration are as follows:
- Single external supply module
- Flow regulator module
- Shut-off and exhaust module
- Pressure regulator

**Attention**: The flow rate of the solenoid valve will be reduced compared to that shown in the general catalogue

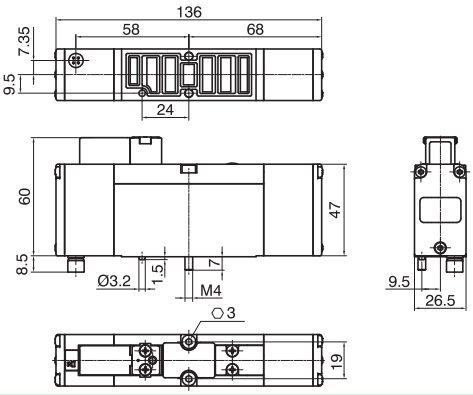
## Solenoid-Spring 5/2

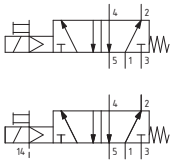
**Coding:** 27A(P)(T)

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 1000 |
| Response time according to ISO 12238, activation time (ms) | 20 |
| Response time according to ISO 12238, deactivation time (ms) | 38 |

| | |
|---|---|
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 309 g



The "Activations time" values, are valid only for the 24 V DC 2,3W versions

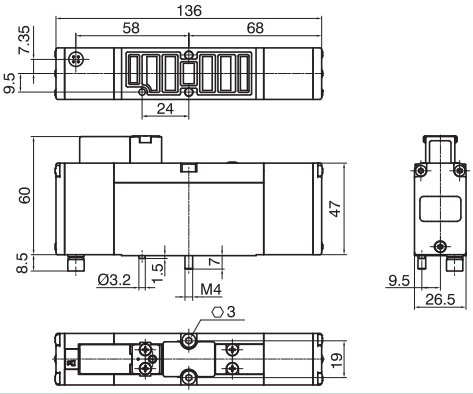
## Solenoid-Differential 5/2

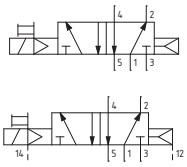
**Coding:** 27B(P)(T)

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 1000 |
| Response time according to ISO 12238, activation time (ms) | 20 |
| Response time according to ISO 12238, deactivation time (ms) | 38 |

| | |
|---|---|
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 274 g



The "Activations time" values, are valid only for the 24 V DC 2,3W versions

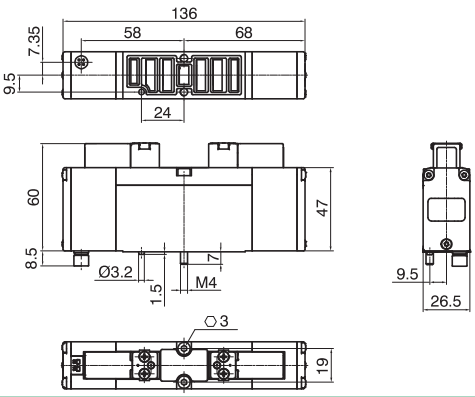
## Solenoid-Solenoid 5/2

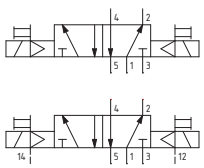
**Coding:** 27C(P)(T)

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 1000 |
| Response time according to ISO 12238, activation time (ms) | 12 |
| Response time according to ISO 12238, deactivation time (ms) | 14 |

| | |
|---|---|
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 309 g



The "Activations time" values, are valid only for the 24 V DC 2,3W versions

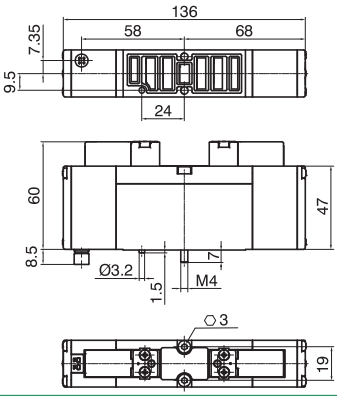
## Solenoid-Solenoid 5/3

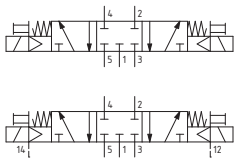
**Coding:** 27E(P)(T)

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>3 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 3 |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 660 |
| Response time according to ISO 12238, activation time (ms) | 12 |
| Response time according to ISO 12238, deactivation time (ms) | 60 |

| | |
|---|---|
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 309 g



The "Activations time" values, are valid only for the 24 V DC 2,3W versions

## Solenoid-Solenoid 5/3 with auto-retaining function

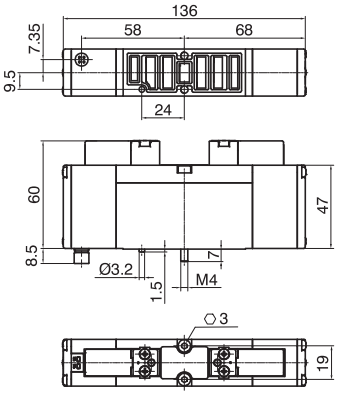
**Coding:** 27D(F)(P)(T)

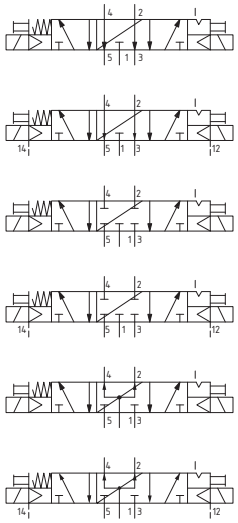
| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>3 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 3 |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 700 |
| Response time according to ISO 12238, activation time (ms) | 15 |
| Response time according to ISO 12238, deactivation time (ms) | 80 |

| | |
|---|---|
| (F) | FUNCTION |
| | **1** = S.V. 5/3 C.C. |
| | **2** = S.V. 5/3 O.C. |
| | **3** = S.V. 5/3 P.C. |
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 309 g

- Maintains the valve state without an electric or pneumatic signal after the activation of L14 (self-retention).
- Valve state changes by activating L12.
- Mechanical spring return.



The "Activations time" values, are valid only for the 24 V DC 2,3W versions

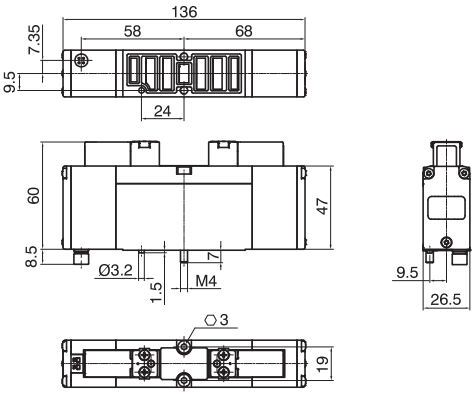
## Solenoid-Spring 2x3/2

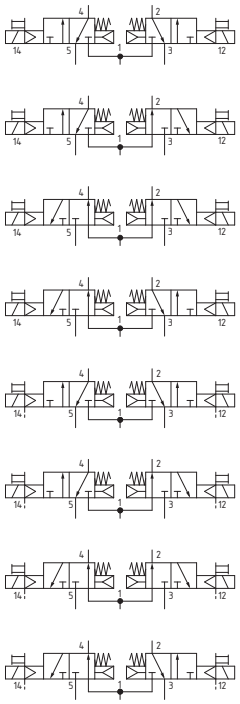
**Coding:** 27 (F) (P) (T)

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>3,5 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | ≥2+(0.3 x Inlet pressure) |
| Temperature °C | -10 ... +50 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 550 |
| Response time according to ISO 12238, activation time (ms) | 12 (external feeding version)<br>15 (self feeding version) |
| Response time according to ISO 12238, deactivation time (ms) | 60 (external feeding version)<br>15 (self feeding version) |

| | |
|---|---|
| (F) | FUNCTION |
| | **F** = NC-NC (5/3 Open centres) |
| | **G** = NO-NO (5/3 Pressured centres) |
| | **H** = NC-NO |
| | **I** = NO-NC |
| (P) | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| (T) | VOLTAGE |
| | **12** = 24 V DC |
| | **18** = 24 V DC 1 W |

Weight 309 g



The "Activations time" values, are valid only for the 24 V DC 2,3W versions
Example: If inlet pressure is set at 5 bar then pilot pressure must be at least
Pp=2+(0,3*5)=3,5 bar

## Solenoid-Spring monitored (VS)

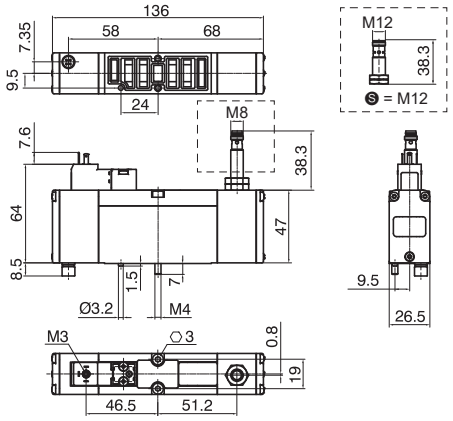
**Coding:** 27VS Ⓟ Ⓢ Ⓣ

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Response time according to ISO 12238, deactivation time (ms) | 70 |
| Response time according to ISO 12238, activation time (ms) | 15 |
| Flow rate from 1 to 2 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 1 to 4 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 2 to 3 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 4 to 5 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 2 to 3 at 6 bar with free exhaust (Nl/min) | 1700 |
| Flow rate from 4 to 5 at 6 bar with free exhaust (Nl/min) | 1700 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Function | 5/2 N.C. Monostable |
| Noise level (dB) | 75 |

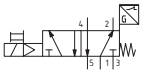
| | |
|---|---|
| Ⓟ | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| Ⓢ | SENSOR |
| | **M8** = M8x1 Proximity Sensor |
| | **M12** = M12x1 Proximity Sensor |
| Ⓣ | VOLTAGE |
| | **02** = 24 V DC |
| | **08** = 24 V DC 1 W |

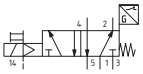
Weight 312 g

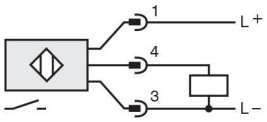
-Monostable with mechanical spring return and proximity sensor
-Safety component according to annex V of 2006/42/EC directive
-Diagnostic system that monitors the state of the valve:
Sensor ON: Valve at rest
Sensor OFF: Valve activated




The "Activations time" values, are valid only for the 24 V DC 2,3W versions
**Note**: Overall noise level depends on the final application of the device
**Note**: The noise level indicated on the table is obtained without using silencers





| Sensor | Out | Pin-out | Wiring diagram |
|---|---|---|---|
| M8 Male 3P type A | N.O. |  |  |
| M12 Male 3P type A | N.O. |  | |



Pin 1= Brown - Pin 4= Black - Pin 3= Blue

| Electrical characteristics: Electropilot | |
|---|---|
| Electropilot | Series 300 Size 15 mm |
| Electrical connection | Earth Faston / Series 300 connectors |
| Solenoid coils features | 24 V DC 2.3 W<br>24 V DC 1 W |
| Supply voltage allowance | -5% ... 10% |
| Manual override Integrated | Yes |
| Protection degree | IP65 (with mounted connector) |

**Note**: Refer to the Pneumax general catalogue for detailed information regarding the electropilot

| Electrical characteristics: Proximity sensor | | |
|---|---|---|
| Type | Single channel | Single channel |
| Thread | M8X1 | M12X1 |
| Electrical design | PNP | PNP |
| Output function | N.O. | N.O. |
| Operating voltage | 10 ... 30 VDC | 10 ... 30 VDC |
| Current consumption (mA) | < 20 | < 20 |
| Isolating class | III | III |
| Display | Switching status 4x90° Yellow LEDs | Switching status 4x90° Yellow LEDs |
| Protection degree | IP65 (with mounted connector) | IP65 (with mounted connector) |

**Note**: Manufacturer and model of proximity sensors could be changed at the discretion of Pneumax S.p.A.

| Safety characteristics | | |
|---|---|---|
| Standards compliancies | EN ISO 13849-1:2015 | |
| | EN ISO 13849-2:2012 | |
| Performed Safety Function | Interruption of supply and discharge of a pneumatic circuit connected to port 4 | |
| Sensor feedback | Valve at REST | ON |
| | Valve ACTIVATED | OFF |
| MTTFd Sensor | Single Channel M8 | 1088 years |
| | Single Channel M12 | 932 years |
| Performance Level (PL) | Up to PL=d | |
| Category | Up to 2 | |
| B10d | 630.000 cycles | |

**Note B10d**:
General Procedures for assessing pneumatic component reliability by testing performed in accordance with ISO 19973-1, Pneumatic fluid power - Assessment of component reliability by testing - Part 1: General Procedures.
Reliability and lifetime of pneumatic valves assessed in accordance with ISO 19973-2: Pneumatic fluid power – Assessment of component reliability by testing – Part 2: Directional control valves.

Activities regarding the identification of the safety function, the estimation of the required reliability level (e.g. estimation of the PLr according to EN ISO 13849-1), the design and the production of the related safety circuit, its verification and validation are responsibilities of the operator who uses the device in its final application.
The choice of the category and the satisfaction of its requirements according to EN ISO 13849-1 is in charge of the end-user who integrates the device in its final application while considering the final configuration of the safety circuit.
The diagnostic coverage value guaranteed by the sensor must be calculated by the end-user in function of the final configuration of the safety circuit (e.g. in function of the PLC for safety design which controls the solenoid valve and acquires the state of the sensor).
The estimation of the diagnostic coverage must satisfy the requirements of EN ISO 13849-1.
According to EN ISO 13849-1, T10D value must be calculated by the enduser in function of the annual operation number in which the device will be subjected to; in any case, the device must be substituted every 20 years.

## Solenoid-Spring monitored redundant (V2S)

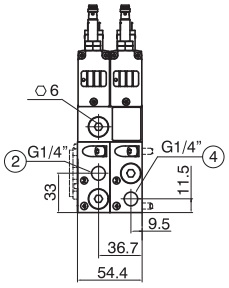
**Coding:** 27V2S Ⓟ Ⓢ Ⓣ

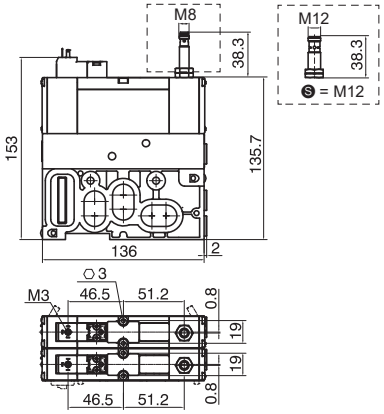
| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Response time according to ISO 12238, deactivation time (ms) | 70 |
| Response time according to ISO 12238, activation time (ms) | 25 |
| Flow rate from 1 to 2 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 1 to 4 at 6 bar with Δp=1 (Nl/min) | 500 |
| Flow rate from 2 to 3 at 6 bar with Δp=1 (Nl/min) | 500 |
| Flow rate from 4 to 5 at 6 bar with Δp=1 (Nl/min) | 1000 |
| Flow rate from 2 to 3 at 6 bar with free exhaust (Nl/min) | 900 |
| Flow rate from 4 to 5 at 6 bar with free exhaust (Nl/min) | 1700 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | From vacuum to 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Function | 5/2 N.C. Monostable |
| Noise level (dB) | 75 |

| | |
|---|---|
| Ⓟ | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| Ⓢ | SENSOR |
| | **M8** = M8x1 Proximity Sensor |
| | **M12** = M12x1 Proximity Sensor |
| Ⓣ | VOLTAGE |
| | **02** = 24 V DC |
| | **08** = 24 V DC 1 W |

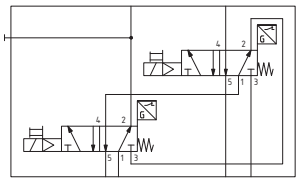
Weight 1786 g

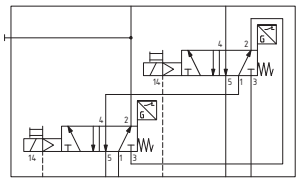
-Double monostable with mechanical spring return and proximity sensor
-Double redundant channel which guarantees that a pneumatic circuit is safely exhausted in case of failure of one of the valves
-Safety component according to annex V of 2006/42/EC directive
-Diagnostic system that monitors the state of the valve:
Sensor ON: Valve at rest
Sensor OFF: Valve activated

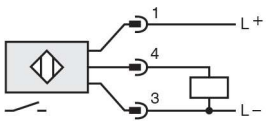



The "Activations time" values, are valid only for the 24 V DC 2,3W versions
**Note**: Overall noise level depends on the final application of the device
**Note**: The noise level indicated on the table is obtained without using silencers





| Sensor | Out | Pin-out | Wiring diagram |
|---|---|---|---|
| M8 Male 3P type A | N.O. |  |  |
| M12 Male 3P type A | N.O. |  | |



Pin 1= Brown - Pin 4= Black - Pin 3= Blue

| Electrical characteristics: Electropilot | |
|---|---|
| Electropilot | Series 300 Size 15 mm |
| Electrical connection | Earth Faston / Series 300 connectors |
| Solenoid coils features | 24 V DC 2.3 W<br>24 V DC 1 W |
| Supply voltage allowance | -5% ... 10% |
| Manual override Integrated | Yes |
| Protection degree | IP65 (with mounted connector) |

**Note**: Refer to the Pneumax general catalogue for detailed information regarding the electropilot

| Electrical characteristics: Proximity sensor | | |
|---|---|---|
| Type | Single channel | Single channel |
| Thread | M8X1 | M12X1 |
| Electrical design | PNP | PNP |
| Output function | N.O. | N.O. |
| Operating voltage | 10 ... 30 VDC | 10 ... 30 VDC |
| Current consumption (mA) | < 20 | < 20 |
| Isolating class | III | III |
| Display | Switching status 4x90° Yellow LEDs | Switching status 4x90° Yellow LEDs |
| Protection degree | IP65 (with mounted connector) | IP65 (with mounted connector) |

**Note**: Manufacturer and model of proximity sensors could be changed at the discretion of Pneumax S.p.A.

| Safety characteristics | | |
|---|---|---|
| Standards compliancies | EN ISO 13849-1:2015 | |
| | EN ISO 13849-2:2012 | |
| Performed Safety Function | Interruption of supply and discharge of a pneumatic circuit connected to port 4 | |
| Sensor feedback | Valve at REST | ON |
| | Valve ACTIVATED | OFF |
| MTTFd Sensor | Single Channel M8 | 1088 years |
| | Single Channel M12 | 932 years |
| Performance Level (PL) | Up to PL=e | |
| Category | Up to 4 | |
| B10d | 630.000 cycles (referred to a single valve) | |

**Note B10d**:
General Procedures for assessing pneumatic component reliability by testing performed in accordance with ISO 19973-1, Pneumatic fluid power - Assessment of component reliability by testing - Part 1: General Procedures.
Reliability and lifetime of pneumatic valves assessed in accordance with ISO 19973-2: Pneumatic fluid power – Assessment of component reliability by testing – Part 2: Directional control valves.

Activities regarding the identification of the safety function, the estimation of the required reliability level (e.g. estimation of the PLr according to EN ISO 13849-1), the design and the production of the related safety circuit, its verification and validation are responsibilities of the operator who uses the device in its final application.
The choice of the category and the satisfaction of its requirements according to EN ISO 13849-1 is in charge of the end-user who integrates the device in its final application while considering the final configuration of the safety circuit.
The diagnostic coverage value guaranteed by the sensor must be calculated by the end-user in function of the final configuration of the safety circuit (e.g. in function of the PLC for safety design which controls the solenoid valve and acquires the state of the sensor).
The estimation of the diagnostic coverage must satisfy the requirements of EN ISO 13849-1.
According to EN ISO 13849-1, T10D value must be calculated by the enduser in function of the annual operation number in which the device will be subjected to; in any case, the device must be substituted every 20 years.

## Solenoid-Spring monitored for pilot control 14 (P)

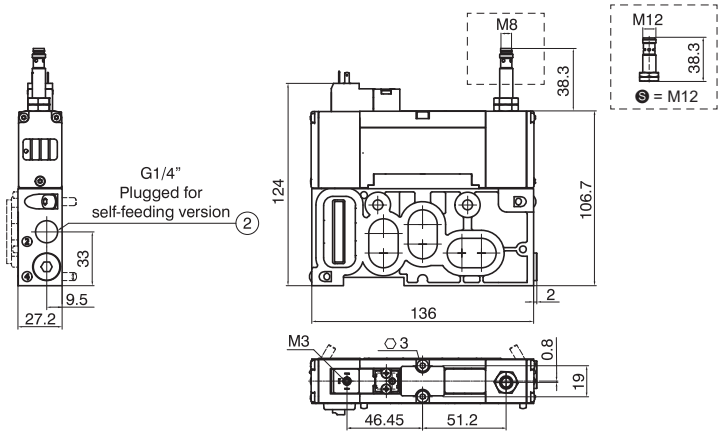
**Coding:** 27PⓅⓈⓉ

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Response time according to ISO 12238, deactivation time (ms) | 70 |
| Response time according to ISO 12238, activation time (ms) | 15 |
| Flow rate from 1 to 2(14) at 6 bar with Δp=1 (Nl/min) | 250 |
| Flow rate from 2(14) to 3(5) at 6 bar with Δp=1 (Nl/min) | 250 |
| Flow rate from 2(14) to 3(5) at 6 bar with free exhaust (Nl/min) | 500 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | 2 ... 10 (external feeding version)<br>2 ... 10 (self feeding version) |
| Minimum pilot pressure (bar) | 2 |
| Function | 3/2 N.C. Monostable |

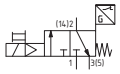
| | |
|---|---|
| Ⓟ | PILOTING |
| | **A** = Self feeding |
| | **E** = External feeding |
| Ⓢ | SENSOR |
| | **M8** = M8x1 Proximity Sensor |
| | **M12** = M12x1 Proximity Sensor |
| Ⓣ | VOLTAGE |
| | **02** = 24 V DC |
| | **08** = 24 V DC 1 W |

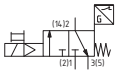
Weight 615 g

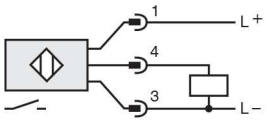
-Monostable with mechanical spring return and proximity sensor
-Control of downstream pressure in pilot channel 14
-Safety component according to annex V of 2006/42/EC directive
-Diagnostic system that monitors the state of the valve:
Sensor ON: Valve at rest
Sensor OFF: Valve activated




The "Activations time" values, are valid only for the 24 V DC 2,3W versions
**Note**: Overall noise level depends on the final application of the device





| Sensor | Out | Pin-out | Wiring diagram |
|---|---|---|---|
| M8 Male 3P type A | N.O. |  |  |
| M12 Male 3P type A | N.O. |  | |



Pin 1= Brown - Pin 4= Black - Pin 3= Blue

| Electrical characteristics: Electropilot | |
|---|---|
| Electropilot | Series 300 Size 15 mm |
| Electrical connection | Earth Faston / Series 300 connectors |
| Solenoid coils features | 24 V DC 2.3 W<br>24 V DC 1 W |
| Supply voltage allowance | -5% ... 10% |
| Manual override Integrated | Yes |
| Protection degree | IP65 (with mounted connector) |

**Note**: Refer to the Pneumax general catalogue for detailed information regarding the electropilot

| Electrical characteristics: Proximity sensor | | |
|---|---|---|
| Type | Single channel | Single channel |
| Thread | M8X1 | M12X1 |
| Electrical design | PNP | PNP |
| Output function | N.O. | N.O. |
| Operating voltage | 10 ... 30 VDC | 10 ... 30 VDC |
| Current consumption (mA) | < 20 | < 20 |
| Isolating class | III | III |
| Display | Switching status 4x90° Yellow LEDs | Switching status 4x90° Yellow LEDs |
| Protection degree | IP65 (with mounted connector) | IP65 (with mounted connector) |

**Note**: Manufacturer and model of proximity sensors could be changed at the discretion of Pneumax S.p.A.

| Safety characteristics | | |
|---|---|---|
| Standards compliancies | EN ISO 13849-1:2015 | |
| | EN ISO 13849-2:2012 | |
| Performed Safety Function | Interruption of supply and exhaust of a pneumatic channel to port 2 (14) | |
| Sensor feedback | Valve at REST | ON |
| | Valve ACTIVATED | OFF |
| MTTFd Sensor | Single Channel M8 | 1088 years |
| | Single Channel M12 | 932 years |
| Performance Level (PL) | Up to PL=d | |
| Category | Up to 2 | |
| B10d | 1.100.000 cycles | |

**Note B10d**:
General Procedures for assessing pneumatic component reliability by testing performed in accordance with ISO 19973-1, Pneumatic fluid power - Assessment of component reliability by testing - Part 1: General Procedures.
Reliability and lifetime of pneumatic valves assessed in accordance with ISO 19973-2: Pneumatic fluid power – Assessment of component reliability by testing – Part 2: Directional control valves.

Activities regarding the identification of the safety function, the estimation of the required reliability level (e.g. estimation of the PLr according to EN ISO 13849-1), the design and the production of the related safety circuit, its verification and validation are responsibilities of the operator who uses the device in its final application.
The choice of the category and the satisfaction of its requirements according to EN ISO 13849-1 is in charge of the end-user who integrates the device in its final application while considering the final configuration of the safety circuit.
The diagnostic coverage value guaranteed by the sensor must be calculated by the end-user in function of the final configuration of the safety circuit (e.g. in function of the PLC for safety design which controls the solenoid valve and acquires the state of the sensor).
The estimation of the diagnostic coverage must satisfy the requirements of EN ISO 13849-1.
According to EN ISO 13849-1, T10D value must be calculated by the enduser in function of the annual operation number in which the device will be subjected to; in any case, the device must be substituted every 20 years.

## Solenoid valve for progressive start (EP)

**Coding:** 27EP Ⓢ Ⓣ Ⓒ Ⓟ Ⓥ

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Response time according to ISO 12238, deactivation time (ms) | 70 |
| Response time according to ISO 12238, activation time (ms) | 15 |
| Flow rate from 1 to 2(1) at 6 bar with Δp=1 (Nl/min) | 2200 |
| Flow rate from 2(1) to 3 at 6 bar with Δp=1 (Nl/min) | 2000 |
| Flow rate from 2(1) to 3 at 6 bar with free exhaust (Nl/min) | 4000 |
| Temperature °C | -10 ... +50 |
| Preset switchover pressure (bar) | ~ 4 |
| Working pressure (bar) | 2 ... 10 |
| Function | 5/2 N.C. Monostable |
| Noise level (dB) | 75 |

| | |
|---|---|
| Ⓢ | SENSOR |
| | **M8** = M8x1 Proximity Sensor |
| | **M12** = M12x1 Proximity Sensor |
| Ⓣ | VOLTAGE |
| | **02** = 24 V DC |
| | **08** = 24 V DC 1 W |
| Ⓒ | SUPPLY AND EXHAUST PORTS |
| | **W** = Ports 5, 1 and 3 closed |
| Ⓟ | PILOT PORTS |
| | **4** = Port 14 closed |
| Ⓥ | VERSION |
| | = Standard |
| | **M** = Machinery directive |

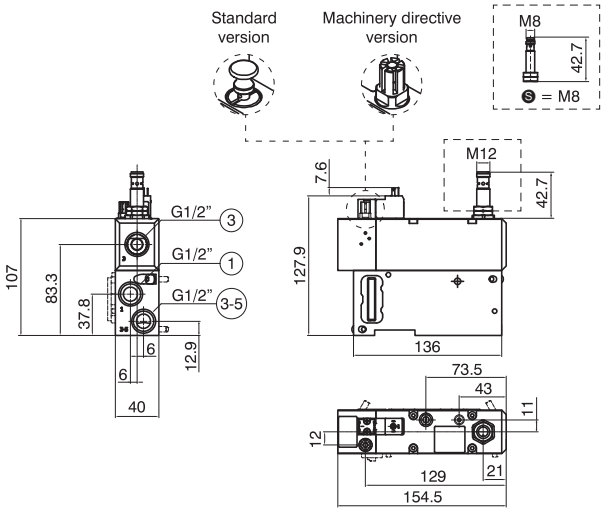
-It allow slow and gradual increase in pressure to the supply port and rapid exhaust
-Available version as a safety component according to annex V of 2006/42/EC directive
-Pressure zone exhaust ports 3 and 5 available
-Diagnostic system that monitors the state of the valve:
Sensor ON: Valve activated
Sensor OFF: Valve at rest

Weight 1360 g

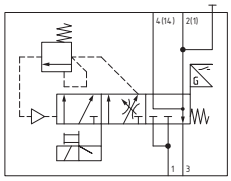
27EP Ⓢ Ⓣ Ⓒ Ⓟ

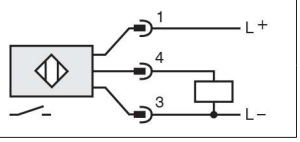
Weight 1360 g

27EP Ⓢ Ⓣ Ⓒ Ⓟ M




The "Activations time" values, are valid only for the 24 V DC 2,3W versions
**Note**: Overall noise level depends on the final application of the device
**Note**: The noise level indicated on the table is obtained without using silencers



| Sensor | Out | Pin-out | Wiring diagram |
|---|---|---|---|
| M8 Male 3P type A | N.O. |  |  |
| M12 Male 3P type A | N.O. |  | |



Pin 1= Brown - Pin 4= Black - Pin 3= Blue

| Electrical characteristics: Electropilot | |
|---|---|
| Electropilot | Series 300 Size 15 mm |
| Electrical connection | Earth Faston / Series 300 connectors |
| Solenoid coils features | 24 V DC 2.3 W<br>24 V DC 1 W |
| Supply voltage allowance | -5% ... 10% |
| Manual override Integrated | No (separated from the electropilot) |
| Protection degree | IP65 (with mounted connector) |

**Note**: Refer to the Pneumax general catalogue for detailed information regarding the electropilot

| Electrical characteristics: Proximity sensor | | |
|---|---|---|
| Type | Single channel | Single channel |
| Thread | M8X1 | M12X1 |
| Electrical design | PNP | PNP |
| Output function | N.O. | N.O. |
| Operating voltage | 10 ... 30 VDC | 10 ... 30 VDC |
| Current consumption (mA) | < 20 | < 20 |
| Isolating class | III | III |
| Display | Switching status 4x90° Yellow LEDs | Switching status 4x90° Yellow LEDs |
| Protection degree | IP65 (with mounted connector) | IP65 (with mounted connector) |

**Note**: Manufacturer and model of proximity sensors could be changed at the discretion of Pneumax S.p.A.

| Safety characteristics | | |
|---|---|---|
| Standards compliancies | EN ISO 13849-1:2015 | |
| | EN ISO 13849-2:2012 | |
| Performed Safety Function | Interruption of supply and exhaust of pneumatic channels connected to port 2 (1) and port 4 (14) | |
| Sensor feedback | Valve at REST | OFF |
| | Valve ACTIVATED | ON |
| MTTFd Sensor | Single Channel M8 | 1088 years |
| | Single Channel M12 | 932 years |
| Performance Level (PL) | Up to PL=d | |
| Category | Up to 2 | |
| B10d | 2.000.000 cycles | |

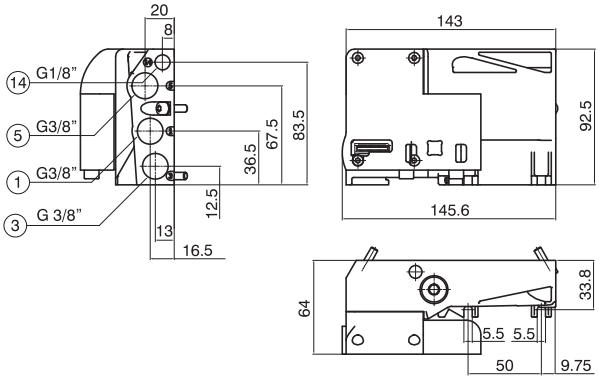
**Note B10d**:
General Procedures for assessing pneumatic component reliability by testing performed in accordance with ISO 19973-1, Pneumatic fluid power - Assessment of component reliability by testing - Part 1: General Procedures.
Reliability and lifetime of pneumatic valves assessed in accordance with ISO 19973-2: Pneumatic fluid power – Assessment of component reliability by testing – Part 2: Directional control valves.

Activities regarding the identification of the safety function, the estimation of the required reliability level (e.g. estimation of the PLr according to EN ISO 13849-1), the design and the production of the related safety circuit, its verification and validation are responsibilities of the operator who uses the device in its final application.
The choice of the category and the satisfaction of its requirements according to EN ISO 13849-1 is in charge of the end-user who integrates the device in its final application while considering the final configuration of the safety circuit.
The diagnostic coverage value guaranteed by the sensor must be calculated by the end-user in function of the final configuration of the safety circuit (e.g. in function of the PLC for safety design which controls the solenoid valve and acquires the state of the sensor).
The estimation of the diagnostic coverage must satisfy the requirements of EN ISO 13849-1.
According to EN ISO 13849-1, T10D value must be calculated by the enduser in function of the annual operation number in which the device will be subjected to; in any case, the device must be substituted every 20 years.

## Left Endplate

**Coding:** 27TS30P

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | From vacuum to 10 |
| Pilot pressure port 14 (bar) | 3 ... 7 |



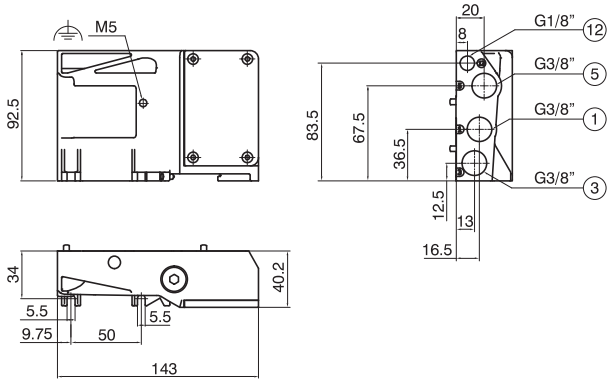

Weight 815 g

## Right Endplate

**Coding:** 27TDⓒ

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | From vacuum to 10 |
| Pilot pressure port 12 (bar) | 3 ... 7 |

| | |
|---|---|
| ⓒ | SUPPLY AND EXHAUST PORTS |
| | **00** = Ports 5, 1 and 3 open |
| | **W** = Ports 5, 1 and 3 closed |
| | **XY** = Ports 1-3 closed |
| | **ZX** = Ports 5-1 closed |
| | **ZY** = Ports 5-3 closed |
| | **X** = Port 1 closed |
| | **Y** = Port 3 closed |
| | **Z** = Port 5 closed |



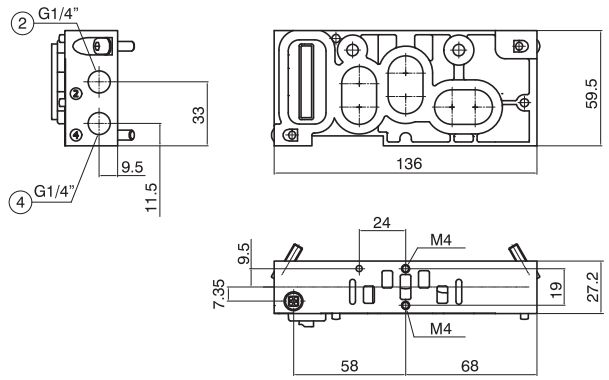

Weight 560 g

## Modular base

**Coding:** 27BⓋⓒⓅ

| Technical characteristics | |
|---|---|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous<br>Recommended purity class [5:4:4] according to ISO 8573-1:2010 |
| Temperature °C | -10 ... +50 |
| Working pressure (bar) | 3 ... 10 |

| | |
|---|---|
| Ⓥ | VERSION |
| | **M** = Monostable |
| | **B** = Bistable |
| | **P** = Pass-through signal |
| ⓒ | SUPPLY AND EXHAUST PORTS |
| | = Ports 5, 1 and 3 open |
| | **W** = Ports 5, 1 and 3 closed |
| | **XY** = Ports 1-3 closed |
| | **ZX** = Ports 5-1 closed |
| | **ZY** = Ports 5-3 closed |
| | **X** = Port 1 closed |
| | **Y** = Port 3 closed |
| | **Z** = Port 5 closed |
| Ⓟ | PILOT PORTS |
| | = Ports 14-12 open |
| | **4** = Port 14 closed |
| | **2** = Port 12 closed |




Weight 298 g