

Electro-pneumatic control valves

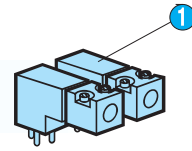


Visit our website for further information www.crouzet.com

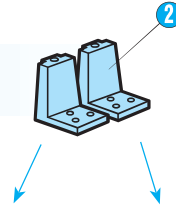


Miniature solenoid valves

- Terminals
- Wires
- Connector

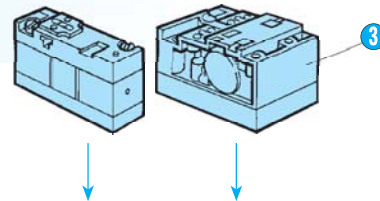


LED indicators



Valve modules

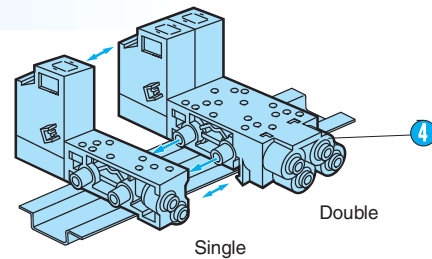
- **Poppet valve**
 - 3/2 monostable (17.5 mm)
 - 4/2 monostable (17.5 mm)
- **With slide valve**
 - 4/2 bistable (35 mm)
 - 4/2 spring monostable (35 mm)



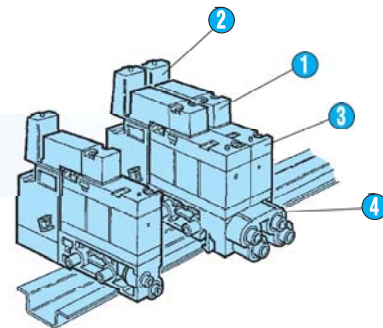
Modular sub-bases

- Single
- Double
- End bases
- Intermediate supply module

For valve modules



Complete product



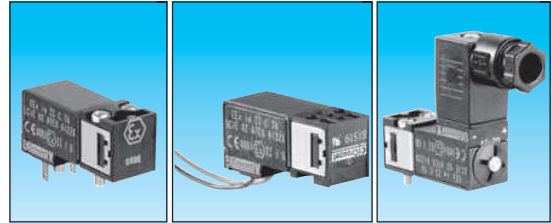
Our assemblies are certified category 2



Miniature solenoid valves

LCIE notification
no. LCIE 03 ATEX Q8002

EC Type Examination Certificate LCIE 02 ATEX 6122X
Conforming to the Low Voltage Directive 73/23/EEC
modified by Directive 93/68/EEC



| Type | Terminal | Wire | Connector |
|--|---------------------------|------------|--|
| Degree of protection (CEI 529) | IP 20 | | IP 65 |
| Classification | CE Ex II 1 G Ex Ia II CT6 | | CE Ex II 1 GD Ex Ia II CT6 Ex Ia D20T80°C |
| Voltage | 12 Vdc | | 24 Vdc |
| Max. power consumption | 0.70 W | | 0.70 W |
| Manual override | Without | | With |
| U nominale | Without | | With |
| Power source (barrier or interface output) between 5 and 18 Vdc | Impulse | 81 519 034 | 81 519 047 |
| | Maintained | 81 519 334 | 81 519 347 |
| | | 81 519 634 | 81 519 647 |
| U nominale | Without | | With |
| Power source (barrier or interface output) between 12 and 28 Vdc | Impulse | 81 519 035 | 81 519 037 |
| | Maintained | 81 519 335 | 81 519 348 |
| | | 81 519 635 | 81 519 648 |
| Function | | | 3/2 NC |

Symbols



Characteristics

| | | | | |
|--------------------------------------|--|-------------------------|----|----|
| Permitted fluids | Wiretered 50 µ, lubricated (ASTM2) or no | air or inert gases | | |
| Working pressure | bars | 1 → 7 | | |
| Orifice diameter | mm | 0.5 | | |
| Flow at 6 bars | NL/mn | 12 | | |
| Flow rate | KV | 0.12 | | |
| Operating temperature | °C | - 10 at + 50 | | |
| Switching time | ms | 8 at 15 | | |
| Mechanical life (at 4 bars and 20°C) | operations | ≤ 1.5 · 10 ⁷ | | |
| Construction | st. steel, NBR brass, PA 66 | ● | | |
| Duty factor | | 100% ED | | |
| Insulation class | CEI 85 | F | | |
| Weight | g | 35 | 38 | 45 |

Pneumatic connections

| | |
|------------------|----------------------------|
| On Valve modules | types 81 513 196 /234 /612 |
| | types 81 516 107 /208 |

Electrical connections

| | 2 Terminals | 2 Wires | Connector |
|--|-----------------|---------|-----------|
| With 4 possible positions | ● | ● | ● |
| Via modular sub-bases | 81 513 075 /076 | — | — |
| Via wires - 300 mm long - cross-section 0.22 mm ² | 81 517 106 /206 | — | — |

Dimensions

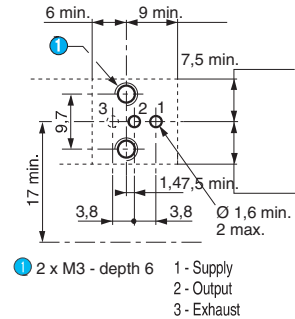
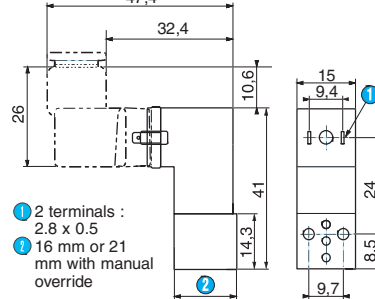
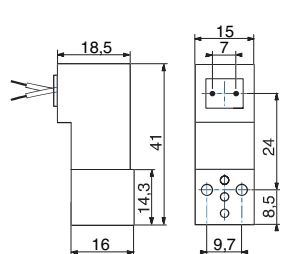
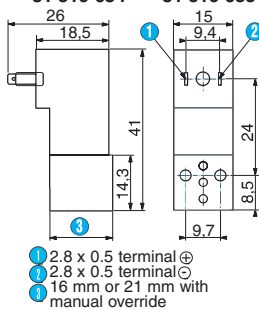
Terminals
 81 519 034 81 519 035
 81 519 334 81 519 335
 81 519 634 81 519 635

Wires
 81 519 037

Connectors 81 519 047 81 519 048
 81 519 347 81 519 348
 81 519 647 81 519 648

15 x 15 mm footprint

According to CNOMO E 06-36-120V



Other information

Note:
 Our IP20 miniature solenoid valves (except for those using wire connections) have a location-coding pin, which prevents them from being mounted on our standard sub-bases. They must only be used with the sub-bases mentioned on page 8 of this catalogue.
 If they are being installed with a separate electrical connector, only our 81 516 082 connector should be used in order to comply with safety level EEx ia II CT6.

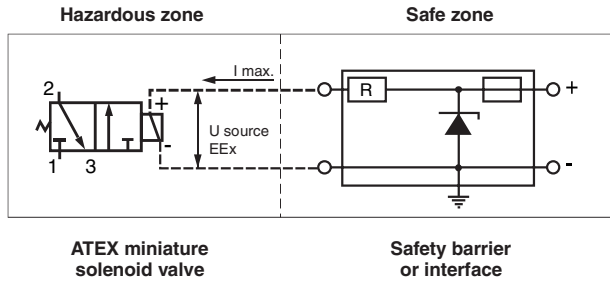
To order an product, you must complete the form on page 53.



Miniature solenoid valves

Important

These ATEX miniature solenoid valves must be connected individually to an approved safety barrier. Placed in a safe zone, these safety barriers can be used to supply power to ATEX miniature solenoid valves installed in a hazardous zone.



Specifications for loop calculation

| | 12 Vdc | 24 Vdc |
|-------------------------|-------------------|----------------------------|
| | 81519034 81519047 | 81519035 81519037 81519048 |
| | 81519334 81519347 | 81519335 81519348 |
| | 81519634 81519647 | 81519635 81519648 |
| U source EEx | < 18 V | < 28 V |
| I _{max} / coil | < 74 mA | < 37 mA |
| C _{int} | 0 | 0 |
| R at + 20° C | 147 Ohm +/- 7 % | 580 Ohm +/- 7 % |
| R at - 10° C | > 119 Ohm | > 476 Ohm |
| R at + 50° C | < 174 Ohm | < 690 Ohm |

U source EEx = intrinsically safe power source at the terminals of the miniature solenoid valve
 I_{max}/coil = maximum current through the coil
 C_{int} = internal capacity of the solenoid valve
 R = internal resistance of the solenoid valve

The electrical connection between the safety barrier (or interface) and the miniature solenoid valve can be made using ordinary wires or cables.
 The inductance of the connecting line between the safety barrier and the miniature solenoid valve must be less than 0.5 mH.

Recommended barriers and interfaces

These safety barriers and interfaces, recommended by CROUZET, should be obtained from one of the manufacturers indicated below, specifying that they are to be used to supply power to miniature solenoid valves Type 81 519, CE 0081 II 1 G, approval no. LCIE 02 ATEX 6122 X OR type 81 519, CE 0081 II 1 GD, approval no. LCIE 02 ATEX 6122 X.

| Crouzet product | Barriers / Interface | Group of Gas | Part number | Manufacturer | Certificate | Um (V) | I _{cc} (mA) | C (nC) | L (mH) | Loop calculation | Barrier supply voltage |
|-----------------|----------------------|--------------|-----------------|--------------|----------------|--------|----------------------|--------|--------|------------------|------------------------|
| 12 Vdc | Barriers | IIC | BZC13/100/1/179 | Georgin | O1ATEX 6070X | 17.6 | 124 | 300 | 2.2 | conforms | 12 Vdc +/-10% |
| | Barriers | IIC | MTL 7715+ | MTL | BASO1ATEX 7217 | 15 | 150 | 580 | 1.45 | conforms | 12 Vdc+10% ; -15% |
| 24 Vdc | Barriers | IIC | 24/50/1/A1 | Georgin | O1ATEX 6070X | 28 | 93 | 83 | 4.4 | conforms | 24 Vdc +/-10% |
| | Barriers | IIC | MTL 7728+ | MTL | BASO1ATEX 7217 | 28 | 93 | 83 | 1.82 | conforms | 20 to 26,6 Vdc |
| | Interface | IIC | BXNE 09 | Georgin | O2ATEX 6104X | 23.5 | 64 | 13200 | 9 | conforms | 24 dc +/-10% |

CAUTION: When being used in zone 0 a system certificate supplied by an approved body must be obtained. In zones 1 and 2, the system integrity should be checked with a loop calculation; given that our product C = 0, cable C must be less than barrier C.



Valve modules in potentially explosive atmospheres ATEX Directive 94/9/EC

FILE No. C.PN.HOM.00004.FR
 INERIS No. 17564/04
 for 81 516 107 and 81 516 208

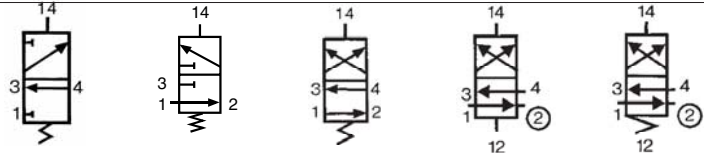
FILE No. C.PN.HOM.00005.FR
 INERIS No. 17567/04
 for 81 513 196, 81 513 612 and 81 513 234

Equipment intended for use in potentially explosive atmospheres conforming to Directive 94/9/EC



| Type | 3/2 NC monostable | 3/2 NO monostable | 4/2 monostable | 4/2 bistable | 4/2 monostable |
|----------------|----------------------------|-------------------|----------------|--------------|---------------------------|
| Classification | 81 513 196 | 81 513 612 | 81 513 234 | 81 516 208 | 81 516 107 |
| | CE II 2 GD c II B 55°C T6X | | | | CE II 2 G c II B 55 °CT6X |

Symbol

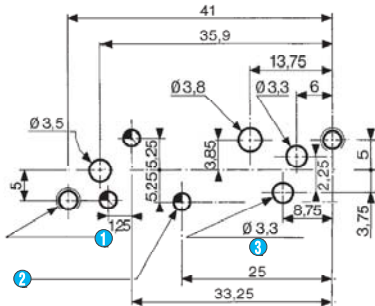


Characteristics

| | | | | | | |
|-----------------------------------|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------|-----------------|
| Width | mm | 17.5 | 17.5 | 17.5 | 35 | 35 |
| Working pressure | bars | 3-8 | 3-8 | 3-8 | 2-8 | 3.5-8 |
| Orifice diameter | mm | 3 | 3 | 3 | 4 | 4 |
| Flow at 6 bars | with Ø 4 mm sub-base (page 44) | 200 | 200 | 200 | 300 | 300 |
| | with Ø 6 mm sub-base (page 44) | 300 | 300 | 300 | 400 | 400 |
| Flow Rate | with Ø 4 mm sub-base (page 44) | 2.2 | 2.2 | 2.2 | 4 | 4 |
| | with Ø 6 mm sub-base (page 44) | 2.5 | 2.5 | 4 | 5 | 5 |
| Operating temperature | ° C | -10 at +50 | -10 at +50 | -10 at +50 | -10 at +50 | -10 at +50 |
| Switching time for the valve only | ms | 15 | 15 | 15 | 50 | 50 |
| Mechanical life | operations | 1.5 x 10 ⁷ | 1.5 x 10 ⁷ | 1.5 x 10 ⁷ | 10 ⁷ | 10 ⁷ |
| Weight | g | 38 | 38 | 38 | 106 | 106 |

Valve module footprint (pitch 17.5 mm)

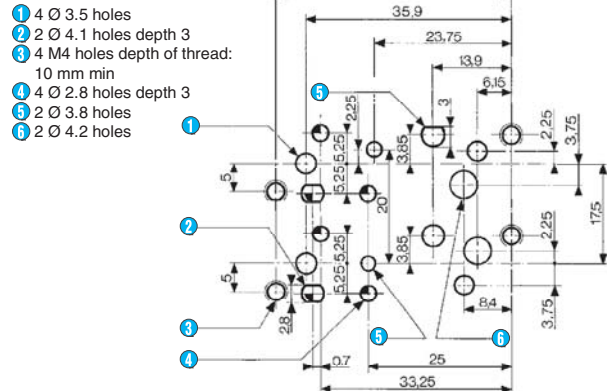
81 513 196 - 81 513 234 - 81 513 612



- 1 2 M4 holes – depth of thread: 10 mm min.
- 2 3 Ø 2.8 holes - depth: 3
- 3 4/2 only

Valve module footprint (pitch 35 mm)

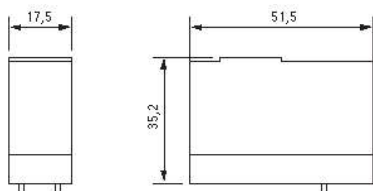
81 516 107 - 81 516 208



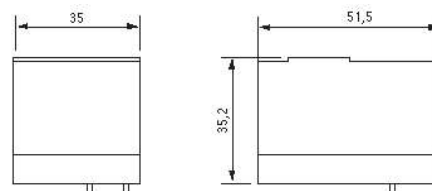
- 1 4 Ø 3.5 holes
- 2 2 Ø 4.1 holes depth 3
- 3 4 M4 holes depth of thread: 10 mm min
- 4 4 Ø 2.8 holes depth 3
- 5 2 Ø 3.8 holes
- 6 2 Ø 4.2 holes

Dimensions

81 513



81 516



Other information

If mounted in a bank, this should consist of no more than four 81 516 107/208 products or no more than eight 81 513 196/234/612 products

To order an product, you must complete the form on page 53.



Sub and end bases for miniature solenoid valves and valve modules

LCIE notification

no. LCIE 03 ATEX Q8002

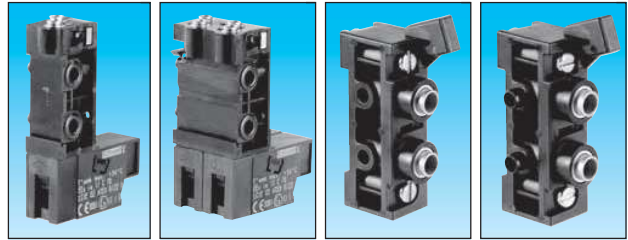
Sub-base for use with miniature solenoid valves conforming to CE type examination certificate LCIE 02 ATEX 6122X

FILE No. C.PN.HOM.00004.FR

INERIS No. 17564/04

for 81 513 040 and 81 513 039

Equipment intended for use in potentially explosive atmospheres conforming to Directive 94/9/EC



| Type | 17.5 sub-base | 35 sub-base | 17.5 end bases | 17.5 intermediate supply module |
|----------------|-------------------------|-------------|-----------------------|---------------------------------|
| Outer tube Ø | 4 mm | 6 mm | — | — |
| Width | mm | 17.5 | 35 | 2 x 17.5 |
| Classification | CE II 1 G Ex ia II C T6 | | CE II 2 GD c II B T6X | |

Characteristics

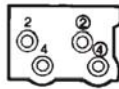
| | | | | |
|----------------------|---|--------------------|--------|----|
| Permitted fluids | lubricated (ASTM2) or not | Air or inert gases | | |
| Working pressure | (bars) | 3 at 8 | | |
| Temperature | operating (°C) | - 10 at + 50 | | |
| | fluid (°C) | -10 at + 30 | | |
| Sub-base fixing | | Clips | Screws | |
| Fixing | on support using rail EN 50022 - 35 mm wide | ● | ● | ● |
| Construction | NBR, flame-retarded PA 66, brass | ● | ● | ● |
| Weight | (g) | 55 | 110 | 86 |
| Degree of protection | | IP20 | | |

Connections

Pneumatic

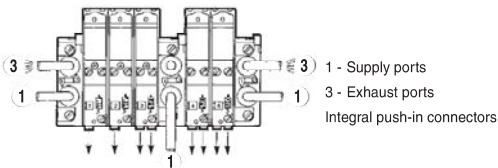


2 - Output active when de-energized for 3/2 NO or 4/2 17.5 mm
4 - Output active when energized for 3/2 NC or 4/2 17.5 mm



2 - Output active when de-energized for 4/2 35 mm
4 - not used in this case

81 513 040 - 81 513 039



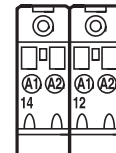
Note:

Each sub-base can be fitted with:
- 81 513 075-076 sub-base: one 3/2 or 4/2 valve, 17.5 mm wide.
- 81 517 106-206 sub-base: one 4/2 bistable valve, 35 mm wide or two 3/2 or 4/2 valves, 17.5 mm wide.

Electrical

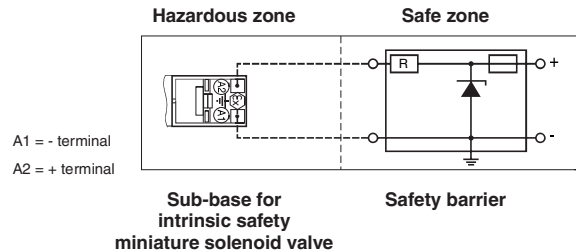


A1 - Control signal
A2 - Common

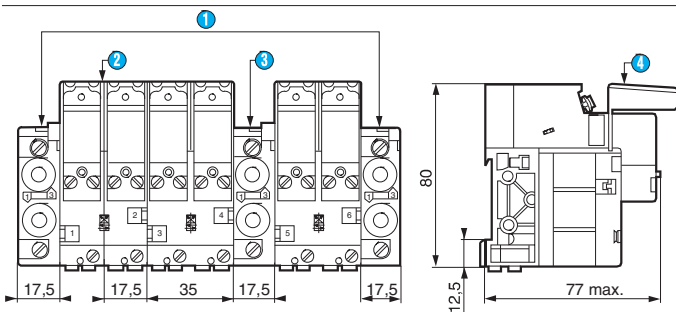


A1 - Operated control signal (14)
A2 - Common
A1 - Rest control signal (12)
A2 - Common

These sub-bases must be connected individually to an approved safety barrier (see recommended barriers and interfaces page 7).



Dimensions



- 1 End bases - one pairs
- 2 Assembly of solenoid valve + valve module
- 3 Intermediary supply module
- 4 Display module

To order an Ex product, you must complete the form on page 53.

Accessories

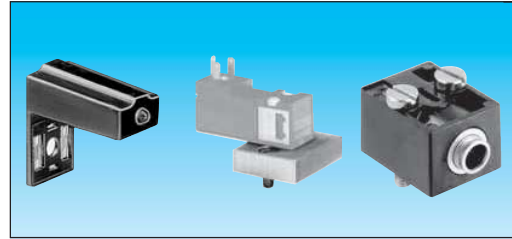
→ For LED indicator and connector:

LCIE notification
no. LCIE 03 ATEX Q8002

Equipment for use with miniature solenoid valves according to
CE Type Examination Certificate LCIE 02 ATEX 6122X

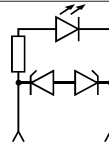
FILE No. C.PN.HOM.00004.FR
INERIS No. 17564/04
for 79 453 569 and 81 516 093

Equipment intended for use in potentially explosive
atmospheres conforming to Directive 94/9/EC



| Type | | LED indicator | CNOMO adapter | Pneumatic pilot |
|--|-------------------|-------------------------|---------------|-------------------------|
| Power supply | 24 V - 50-60 Hz ~ | 81 513 052 | — | — |
| Electrical connection for solenoid valve | | — | — | — |
| CNOMO 05-8 footprint | | — | 79 453 569 | — |
| Push-in connector Ø 4 ext. | | — | — | 81 516 093 |
| Classification | | CE Ex II 1 GD Ex ia CT6 | — | CE Ex II 2 GD c II BT6X |

Diagram

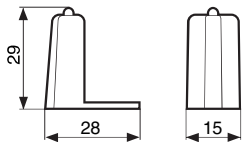


Characteristics

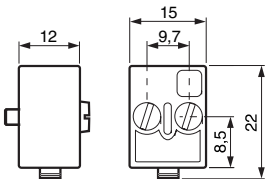
| | | | | |
|---|--------------|--------|----------------|----------------|
| For mounting between the pilot solenoid valve and the module body | | • | — | — |
| Sold in packs | of 5 pieces | • | — | — |
| | of 10 pieces | — | — | — |
| Fixing | | — | 2 M4x10 screws | 2 M3x16 screws |
| Weight | (g) | 6 | 5 | 5 |
| Operating temperature | (°C) | -5 +50 | -5 +50 | -5 +50 |

Dimensions

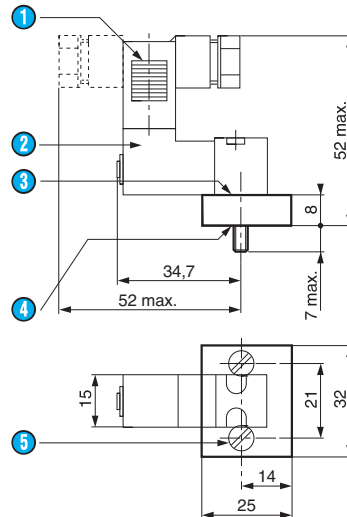
81 513 052



81 516 093



79 453 569



- ① Connector part no. 81 516 082 (with 4 possible positions)
- ② Miniature solenoid valve 81 519 etc
- ③ CNOMO E 06-36-12ON footprint for mounting miniature solenoid valve 81 519
- ④ Mounting on CNOMO 06-05-80/NF E 49-066 footprint

To order an Ex product, you must complete the form on page 53.