1 Medical integrated valve for oxygen air and medical mixture
   1.1 ALIONE
   1.2 ALPINOX-valve
   1.3 ALPINOX-valve compact

2 Cylinder valve with RPV for oxygen and medical gases
   - M510/511
   - M976/978 / C878

3 Cylinder valve with RPV for oxygen and medical gases type Pin Index system (M650)
   - Cylinder valve for oxygen and medical gases (M100)
   - Cylinder valve for oxygen and medical gases type Pin Index system (M966)

4 Stainless steel cylinder valve with RPV for NO mixtures
   - D413
   - D113
Medical integrated valve for Oxygen therapy with medical connector and flowmeter. The new generation of medical integrated valves eliminate the manipulation of the shut off valve and propose a new concept with a combination of the shut off valve and flowmeter function. The new function secures the utilisation by the end user: the shut off valve is automatically opened when the end user turns the flowmeter. This function eliminates the necessity to have an open/close indicator. The valves follow the new EN ISO 10524-3 and are available with different plastic guards. The plastic guards are exclusively designed for this valve and allow to easily carry the valve and cylinder.

**KEY FEATURES**

- One handwheel design.
- Single stage piston regulator ensuring high life cycle.
- Preset integrated pressure relief valve.
- Maximum flow on the outlet pressure connection at 50 bar: 200 lpm (P2 = 2.8 bar).
- Flowmeter 10 positions with stop at 0.
- Minimum flow on flowmeter: 0.25 lpm
- Maximum flow on flowmeter: 25 lpm
Specifications
Gas: Oxygen
Inlet pressure: 200 bar
Nominal outlet pressure: 4.5 bar for EU 3.5 bar (50 psi) for USA
Flow range: 0.1-1.5-2-3-4-6-9-12-15 lpm (EU)
Filling connection: Active filling port with check valve AFNOR, ISO, CGA.
Outlet connection: Hose barb
Materials
Body: Brass with white treatment
O-Ring: EPDM
Seat: Nylon
Filter: Sintered bronze
Gauge: 0-315 bar
Regulatory status: Complies with medical devices directive 93/42/EEC
Complies with EN ISO 10524-1
CE marking: CE0029
Options:
Other handwheel color
Guard
Bed hanger

References:
M74000001 :4,5B(0C)AFNOR/0-15lpm/25E/Type F
AVPINOX Valve

Medical integrated valve with medical connector and flowmeter.

The standard medical integrated valve series M706 is our first generation of integrated valve produced and delivered to the major in the world. This valve is available with a fixed outlet pressure and a flowmeter 12 positions or only with flowmeter for compact packaging. The valve is in compliance with EN ISO 10524-3 and is available with different plastic guards. The plastic guards exclusively designed for this valve permit to carry easily the valve and the cylinder.

KEY FEATURES
- Safe and reliable all-in-one solution
- No high pressure manipulations
- Integrated pressure regulator
- Integrated flowmeter with 12 preset flows and stop at 0.
- Filling port with check valve
- Active gauge
- Single stage piston regulator ensuring high life cycle.
- Preset integrated pressure relief valve.
- Continuous flow between settings.
### Specifications

**Gas:** Oxygen and N2O/O2 mixture  
**Inlet pressure:** 200/300 bar  
**Nominal outlet pressure:** 4.5 bar for EU, 3.5 bar (50 psi) for USA  
**Flow range:** 0-1/2-1-2-3-4-5-6-7-9-12-15 lpm (EU)  
**Temperature range:** -20 °C to +60 °C  
**Inlet pressure:** 200/300 bar  
**Outlet pressure:** 0-315 bar /0-400 bar  
**Filling connection:** ISO, CGA.  
**Outlet connection:** Hose barb  
**Gauge:** 0-315 bar /0-400 bar  
**Regulatory status:** Complies with medical devices directive 93/42/EEC  
**Complies with EN ISO 10524-1**  
**Ce marking:** CE0029

### Material

- **Body:** Brass  
- **Handwheels:** PA  
- **Seats:**  
  - regulator: Nylon  
  - HP valve: Nylon  
  - Check valve: EPDM  
- **O-rings:** EPDM  
- **Filter:** Sintered bronze

### OPTIONS

- **Flow range:** 0-1/4-1/2-3/4-1-11/2-2-21/2-3-4-5-6  
- **Flow range:** 0-1/2-1-2-3-4-6-8-10-12-15-25  

### References

**M70600132 (ox)**  
**Inlet:** 25E  
**Filling port:** ISO5145  
**Outlet pressure:** 4.5 bar  
**Flow range:** 0-15 lpm  
**Quick release connector:** DIN

**M70600138 (ox)**  
**Inlet:** 17E  
**Filling port:** ISO5145  
**Outlet pressure:** 4.5 bar  
**Flow range:** 0-15 lpm  
**Quick release connector:** BSI

**M70600103 (Mix 50%O2 - 50%N2O)**  
**Inlet:** 17E  
**Filling port:** ISO5145  
**Outlet pressure:** 4.5 bar  
**Flow range:** 0-15 lpm  
**Quick release connector:** Scandinavian

**M70600121 (Mix 50%O2 - 50%N2O)**  
**Inlet:** 25E  
**Filling port:** ISO5145  
**Outlet pressure:** 4.5 bar  
**Flow range:** 0-15 lpm  
**Quick release connector:** AFNOR
Guards and accessories for ALPINOX valve

All valve guards are specifically designed to protect all M706 series medical integrated valves. Fits on cylinders 5 to 15 liters.

- **MIF**
  - 058700067 white with bed hanger

- **CBNE**
  - 058700043 white with bed hanger

- **CSN**
  - 058700037 green
  - 058700060 white
ALPINOX Compact valve

Medical integrated valve exclusively for US market with medical connector and flowmeter.

The new compact medical integrated valve for US market is based on our standard technology used in all medical integrated valves for the last 10 years implemented into the US market.

The valve follows the CGA V-9 standard and is available with a stainless steel hanger which serves as carrying handle and provides some protection to the unit.

**KEY FEATURES**

- Safe and reliable all-in-one solution
- No high pressure manipulations
- Integrated pressure regulator
- Integrated flowmeter with 12 preset flows and stop at 0.
- Active contents gauge
- Single stage piston regulator ensuring high life cycle.
- Preset integrated pressure relief valve.
- MRI compatible
- High flow DISS connection
- Available for steel and aluminum cylinders

**SPECIFICATIONS**

- **Gas:** Oxygen and N2/02 mixture
- **Inlet pressure:** 3000 PSI
- **Nominal outlet pressure:** 50 psi
- **Flow range:** 0.1/4-1/2-1-2-3-4-6-8-12-15-25
- **Temperature range:** -20 °C to +60 °C
- **Filling connection:** CGA 540
- **Outlet connection:** Hose barb
- **Gauge:** 0-3000 PSI

- **Material**
  - Body: Chrome plated brass
  - Handwheels: PA
  - Seats: - regulator (Nylon), HP valve (Nylon), Check valve (EPDM)
  - O-rings: EPDM
  - Filter: Sintered bronze

M74100000
2000 psi
50 psi
3/4" UNF
CGA540
DISS
RPV valves
Small high pressure cylinder valve for medical gases, O-ring seal type, with residual pressure, with or without gauge

**KEY FEATURES**
- Low operating torque under up to 200 bar service pressure
- MRI compatible (M978/979)
- Designed and tested acc. EN ISO 10297, EN ISO 15986
- Residual pressure setting 1-3 bar
- Manufactured in cleanroom
- Inlet with filter
- With gauge (C878)

**SPECIFICATIONS**
- Working pressure p\text{max}
- Temperature range
- Helium leak rate at p\text{max}:
  - external
  - internal
- Seat orifice size
- Residual pressure
- Material:
  - handwheel, aluminium
  - seat, PA 6.6
  - O-ring, EPDM
  - body, chrom plated brass
  - filter, brass sintered

**OPTIONS**
- Inlet: 17E – M18 – M 14
- Without filter
RPV valves

High pressure brass cylinder valve for medical oxygen, O-ring seal type with residual pressure

**KEY FEATURES**
- Low operating torque
- MRI compatible
- Safe, long, trouble free life under all service conditions
- Designed and tested according EN ISO 10297 and EN ISO 15996
- Offset version M510 (residual pressure: 3-8 bar)
- Inline version M511 (residual pressure: 1-3 bar)

**OPTIONS**
- Filter
- Burst disc safety device
- Thread for dip tube connection
- Chrome plating

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working pressure p_{max}</td>
<td>232 bar</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-25°C... +70°C</td>
</tr>
<tr>
<td>Helium leak rate at p_{max}</td>
<td>10^-3 mbar/sec</td>
</tr>
<tr>
<td>Internal</td>
<td>10^-3 mbar/sec</td>
</tr>
<tr>
<td>External</td>
<td>10^-3 mbar/sec</td>
</tr>
<tr>
<td>Seat orifice size</td>
<td>4 mm</td>
</tr>
<tr>
<td>Material</td>
<td></td>
</tr>
<tr>
<td>Handwheel</td>
<td>aluminium</td>
</tr>
<tr>
<td>Seat</td>
<td>polyamid</td>
</tr>
<tr>
<td>O-ring</td>
<td>EPDM</td>
</tr>
<tr>
<td>Body</td>
<td>chrom plated brass</td>
</tr>
</tbody>
</table>

M510 / M511
Pin Index valves
PIN INDEX valve for medical gases with active residual pressure function

KEY FEATURES
- High tensile brass (CZ115)
- Low operating torque
- MRI compatible
- Key-operated or handwheel operating system
- Design and tested acc. EN849, EN ISO407, EN ISO15996 and CGA V9
- Residual pressure
- Manufacturing in clean room

OPTIONS
- Natural brass
- Burst disc safety device
- Fusible metal safety device
- Other filter (lang)
## SPECIFICATIONS

<table>
<thead>
<tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>Temperature range</td>
<td>(-25°C \text{ to } +70°C)</td>
</tr>
<tr>
<td>Helium leak rate at ( p_{\text{max}} ):</td>
<td>10⁻³ mbar/sec</td>
</tr>
<tr>
<td>- Internal</td>
<td>10⁻³ mbar/sec</td>
</tr>
<tr>
<td>- External</td>
<td>10⁻³ mbar/sec</td>
</tr>
<tr>
<td>Seat orifice size</td>
<td>2.5 mm</td>
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<tr>
<td>( C_v )</td>
<td>0.08</td>
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</table>

### Magnetic compatibility

<table>
<thead>
<tr>
<th>Material</th>
<th>Chrome plated</th>
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</thead>
<tbody>
<tr>
<td>Key - operated</td>
<td>Chrome plated</td>
</tr>
<tr>
<td>Handwheel</td>
<td>Removable plastic</td>
</tr>
<tr>
<td>Switch blade</td>
<td>PA 6.6</td>
</tr>
<tr>
<td>Seat</td>
<td>EPDM</td>
</tr>
<tr>
<td>O-ring</td>
<td>EPDM</td>
</tr>
<tr>
<td>Body</td>
<td>Chrome plated / Natural brass</td>
</tr>
<tr>
<td>Filter</td>
<td>Brass sintered</td>
</tr>
</tbody>
</table>
## Standard cylinder valve

High pressure brass cylinder valve for medical oxygen, O-ring seal type

### KEY FEATURES
- Low operating torque
- MRI compatible
- Safe, long, trouble free life under all service conditions
- Approved valve design
- Testing according ISO 10297 and CGA UB Standard

### OPTIONS
- Filter
- Burst disc safety device
- Thread for dip tube connection
- Chrome plating
### SPECIFICATIONS

<table>
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<tr>
<td>Working pressure p\text{max}</td>
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<tr>
<td>Helium leak rate at p\text{max}</td>
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</tr>
<tr>
<td>• internal</td>
<td>10^-3 mbar/sec</td>
</tr>
<tr>
<td>• external</td>
<td>10^-3 mbar/sec</td>
</tr>
<tr>
<td>Seat orifice size</td>
<td>4 mm</td>
</tr>
<tr>
<td>Magnetic compatibility</td>
<td></td>
</tr>
</tbody>
</table>

#### Material
- handwheel: aluminium
- seat: polyamid
- O-ring: EPDM
- body: chrom plated brass
Standard Pin Index valve

High pressure brass cylinder valve for medical gases and oxygen, with yoke outlet connection (PIN INDEX System), O-ring-seal

KEY FEATURES

• Low operating torque
• MRI compatible
• Key-operated or handwheel operating system
• Safe, long, trouble-free life under all service conditions
• Testing according EN ISO 10297 and CGA U9 Standard

OPTIONS

• Natural brass
• Burst disc safety device
• Fusible metal safety device
• Other filter (lang)
SPECIFICATIONS

Working pressure $p_{\text{max}}$ 232 bar
Temperature range $-25^\circ\text{C}$ to $+70^\circ\text{C}$
Helium leak rate at $p_{\text{max}}$
• internal 10-3 mbarl/sec
• external 10-3 mbarl/sec
Seat orifice size 2.5 mm

Magnetic compatibility

Material
• Key – operated chrome plated
or
• handwheel plastic switch blade
• seat PA 6.6
• O-ring EPDM
• body chrome plated brass
• filter brass sintered
## RPV valve for NO mixture

High flow cylinder valves with RPV, tied diaphragm seal type, for NO mixtures

### Key Features
- Reduced dead spaces and gas wetted volumes allow easy purging process
- Freedom of internal threads and springs insures minimum particulate generation
- Very low internal volume with minimum dead spaces. This is particularly beneficial, when using the valve for hygroscopic, corrosive, pyrophoric or high purity gases where inert gas purging is necessary before opening or after closing the valve
- Freedom from seizure where used with corrosive gases. Gas does not come into contact with the valve operating mechanism
- Positive and effective operation, valve lower spindle is mechanically linked to the upper spindle and the operating handwheel
- Backed up welded diaphragms provide a permanent and durable gas tight seal
- O-Rings in the gland and on spindle guarantee a secondary sealing
- Threaded vent hole

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working pressure $p_{max}$</td>
<td>200 bar/3000psi</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C to +70°C</td>
</tr>
<tr>
<td>Helium leak rate</td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>at $p_{max}$</td>
</tr>
<tr>
<td>External</td>
<td>10⁻⁸ mbar/sec</td>
</tr>
<tr>
<td>Safety</td>
<td>10⁻⁸ mbar/sec</td>
</tr>
<tr>
<td>Flow coefficient $C_v$</td>
<td>0.35</td>
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<td>Seat orifice size</td>
<td>4 mm</td>
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<tr>
<td>Gas wetted materials</td>
<td>PCTFE</td>
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<tr>
<td>Body material</td>
<td>316L</td>
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<tr>
<td>Residual pressure</td>
<td>1 to 5 bar</td>
</tr>
<tr>
<td>RPV seat material</td>
<td>Viton®</td>
</tr>
</tbody>
</table>

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![Image of RPV valve](image-url)
RPV valve for NO mixture

High pressure cylinder valve with RPV, packed needle stem design, for NO mixtures

KEY FEATURES
- Freedom from seizure when used with corrosive gases - gas does not come into contact with the valve operating mechanism
- Positive and effective operation - valve spindle is mechanically linked to the operating handwheel, which only requires low closing torque
- Long life - valve spindle and seat are replaceable
- Adjustable gland packing - in the unlikely event of a leakage occurring past the valve spindle, when opening the valve, rectification is readily achieved by retightening the gland packing nut
- Low internal volume - this is particularly beneficial, when using the valve for hygroscopic, corrosive or high purity gases, here inert gas purging may be necessary before opening or after closing the valve
- Left hand threaded counter screw to secure sealing mechanism even under excessive torque

SPECIFICATIONS
- Working pressure pmax: 200 bar/3000psi
- Temperature range: -40°C to +70°C
- Helium leak rate: at pmax
  - internal: 10^-6 mbarl/sec
  - external: 10^-5 mbarl/sec
  - safety: 10^-8 mbarl/sec
- Flow coefficient Cv: 0.3
- Seat orifice size: 3.3 mm
- Body material: SS
- Residual pressure: 1 to 5 bar
- RPV seat material: Viton®