



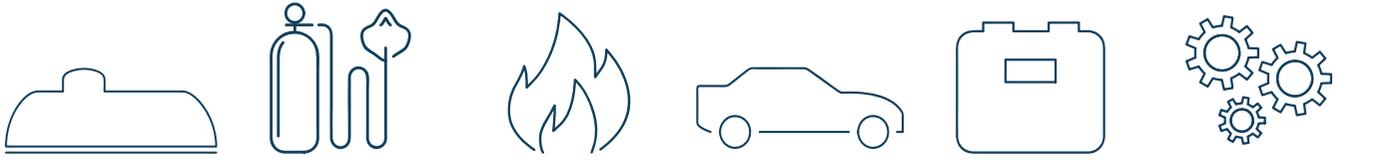
**CAVAGNA group**

Wherever gas is used, we are there

# **Compressed Gas Valves Catalog**

2022 - 2023 EDITION

# Solutions



LPG SOLUTIONS

COMPRESSED GASES SOLUTIONS

NATURAL GAS SOLUTIONS

ALTERNATIVE FUEL SYSTEMS

GAS METERING SOLUTIONS

INDUSTRIAL PROCESS MANAGEMENT



## About CAVAGNA GROUP

Founded and run as a family run business, the Cavagna Group has been in operation since 1949, carrying the mechanical excellence of the 'Made in Italy' essence and authenticity around all continents of the Globe.

Cavagna Group is a key industrial partner and enabler for the regulation, control, Industrial Process Management and metering being safely used in all types of gases, in every step of different supply chains, with a continued 'big picture' view of the Future of Energy. Embedded with the social conscience and responsibility to provide products of the utmost dependable quality whether it be for Energy gases, Renewable, Alternative Fuels, Hydrogen, Compressed or Medical gases.

Using the Group's 70 plus years of experience to drive meaningful innovations in the fields of IoT and digitisation towards a sustainable Energy Transition. Recognizing the importance of the gas molecule in our business practices and vision for the future of gas. Keeping consistency in the presence everywhere gas fuels life, together with a progressive vision on the future Energy Outlook, while staying devoted to our mission: wherever gas is used, we are there.

The Cavagna Group produces a wide range of products meeting international standards including:

- LPG Valves, Equipment and Regulators
- Engineering and Services dedicated to the LPG industry
- ASME, Fork Lift and Motor Fuel Tank Valves
- Natural Gas regulators for domestic and industrial use
- Gas meters
- Compressed Gases Cylinder Valves
- Specialty Gases Cylinder Valves
- Refrigerant Gases Cylinder Valves
- Regulation Equipment for Industrial Gases
- Regulation Equipment for Medical Gases
- Comprehensive Range of Welding, Cutting Equipment
- CNG - H<sub>2</sub> - AUTOGAS cylinder valves and filling valves
- CNG - AUTOGAS systems

The Group's design engineers and laboratory technicians closely cooperate with worldwide regulatory institutions, both in the writing of international performance standards and in the creation of new products.

The Cavagna Group of companies has invested heavily in personnel, individual training, and robotic technology to meet the quality standards required by its customers and the 150 countries it serves.



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# CYLINDER VALVES





## CYLINDER VALVES Standard

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES

### Technical Features

- O-Ring technology provides superior leak integrity
- O-ring seal type up to 300 bar working pressure
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- All markings are located on the valve neck to protect them from damage
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Unique seat holder design

### Options

- Personalized handwheel logo cap
- Chromed or Nickel plating treatment
- Different safety valve setting



### Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297
- "π" marked in accordance with 2010/35/EU

### Standard

Series	Central Pin	Bursting Disk	Orifice Ø	Type of Gas
<b>VCB4</b>			3.5 mm	C <sub>2</sub> H <sub>2</sub>
<b>VCB7</b>			3.5 mm	C <sub>2</sub> H <sub>2</sub>
<b>VGA6</b>		X	4 mm	N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO - Mix SF <sub>6</sub> - Ar - CO <sub>2</sub> mix
<b>VGA7</b>		X	4 mm	H <sub>2</sub> - CH <sub>4</sub>
<b>VGG5</b>		X	8 mm	CO <sub>2</sub> - SF <sub>6</sub>
<b>VGM2</b>			8 mm	SO <sub>2</sub>
<b>VGM7</b>			8 mm	SO <sub>2</sub>
<b>VOA5</b>	X	X	4 mm	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%
<b>VOB2</b>		X	4 mm	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%



## CYLINDER VALVES RPV

### Technical Features

- O-Ring technology provides superior leak integrity
- O-ring seal type up to 300 bar working pressure
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Hot forged brass body

### Options

- Filling adaptor available separately
- Compatible with different adaptors with different nipples length
- Personalized handwheel logo cap
- Dip tube
- Bursting disc safety various settings
- Chromed or Nickel plating treatment
- Different safety valve setting
- Filter
- Parallel thread
- Thread for dip tube installation

### Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297 and EN ISO 15996
- "π" marked in accordance with 2010/35/EU



### RPV Inline

Series	Central Pin	Bursting Disk	Orifice Ø	CV	Type of Gas
<b>VGE2</b>		X	4 mm		N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO - Mix
<b>VGE8</b>			4 mm		N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO - Mix
<b>VGf9</b>		X	8 mm	~ 0.65	CO <sub>2</sub> - SF <sub>6</sub>
<b>VOH2</b>	X	X	4 mm		O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%
<b>VOR8</b>		X	4 mm	~ 0.39	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%
<b>VOR9</b>	X		4 mm	~ 0.39	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%

### RPV Offline

Series	Central Pin	Bursting Disk	Orifice Ø	CV	Type of Gas
<b>VGB6</b>		X	4 mm	~ 0.42	N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO - Mix OP>21% - Mix CO <sub>2</sub> <23%
<b>VGB7</b>			4 mm	~ 0.42	Inert Gases - Ar - NO (<3ppm) CO <sub>2</sub> - Mix
<b>VGB8</b>		X	5 mm	~ 0.56	CO <sub>2</sub>
<b>VGf8</b>		X	8 mm	~ 0.87	N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - Mix - OP>21% CO <sub>2</sub> - SF <sub>6</sub> - R23
<b>VGM8</b>			4 mm	~ 0.42	N <sub>2</sub> - H <sub>2</sub> - Air - CO - CH <sub>4</sub> - Mix - OP<21%
<b>VOG7</b>	X	X	4 mm	~ 0.36	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%
<b>VOG8</b>		X	4 mm	~ 0.42	Industrial O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%

SPECIAL APPLICATIONS  
 INTEGRATED VALVES  
 MAIN VALVES  
 CYLINDER BUNDLE VALVES  
 CYLINDER VALVES



# MIGNON VALVES Standard

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

## Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- All markings are located on the valve neck to protect them from damage
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Unique seat holder design

## Options

- Personalized handwheel logo cap
- Chrome or Nickel plating treatment
- With safety valve
- Oversize

## Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297
- "π" marked in accordance with 2010/35/EU



## Standard

Series	Bursting Disk	Orifice Ø	Type of Gas
<b>VCB8</b>		2.5 mm	C <sub>2</sub> H <sub>2</sub>
<b>VG04</b>		2.5 mm	N <sub>2</sub> - H <sub>2</sub> - Ar - He - CO - Mix OP<21%
<b>VG05</b>	X	4 mm	CO <sub>2</sub> - SF <sub>6</sub>
<b>VOB3</b>		2.5 mm	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%



# MIGNON VALVES RPV

## Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation and long service life
- 100% leak test to 1.2 times service pressure
- All markings are located on the valve neck to protect them from damage
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Unique seat holder design
- Available configurations include: Inlet threads (NGT, DIN477, BS, EN, EN ISO)

## Options

- Personalized handwheel logo cap
- Chrome or Nickel plating treatment
- With safety valve
- Oversize

## Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297 and EN ISO 15996
- "π" marked in accordance with 2010/35/EU

### RPV

Series	Bursting Disk	Orifice Ø	Type of Gas
V008	X	2.5 mm	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%



SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES



## Y TYPE VALVES Standard

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES

### Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- All markings are located on the valve neck to protect them from damage
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Unique seat holder design
- Available configurations include: Inlet threads (NGT, DIN477, BS, EN, EN ISO)



### Options

- Personalized handwheel logo cap
- Chrome or Nickel plating treatment
- With safety valve
- Oversize

### Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297
- "π" marked in accordance with 2010/35/EU

### Standard

Series	Bursting Disk	Orifice Ø	Type of Gas
<b>VGM2</b>		8 mm	SO <sub>2</sub>
<b>VGM7</b>		8 mm	SO <sub>2</sub>
<b>VGG5</b>	X	8 mm	CO <sub>2</sub> - SF <sub>6</sub>



## Y TYPE VALVES RPV

### Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- All markings are located on the valve neck to protect them from damage
- Large orifice size provides faster vacuum and filling rates
- Durable forged brass body manufactured by Cavagna Group
- Unique seat holder design
- Available configurations include: Inlet threads (NGT, DIN477, BS, EN, EN ISO)

### Options

- Personalized handwheel logo cap
- Chrome or Nickel plating treatment
- With safety valve
- Oversize

### Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297 and EN ISO 15996
- “π” marked in accordance with 2010/35/EU

RPV

Series	Bursting Disk	Orifice Ø	Type of Gas
<b>VGFB</b>	x	8 mm	CO2 - SF6
<b>VGFB9</b>	x	8 mm	CO2 - SF6



SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES



# PIN INDEX VALVES Standard

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

## Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- High quality Nickel Chromium plating protects against harmful chemicals
- 100% leak test to full cylinder service pressure
- Body made from extruded brass rod - Fits all CGA specified yokes
- Passes stringent oxygen adiabatic compression test
- Unique stem design meets CGA performance criteria; designed shear point allows stem to break above the spindle nut if over torqued or shocked due to careless handling
- Aluminum cylinder valve supplied with Teflon O-Ring for fast and easy installation
- Clean room assembly

## Options

- Wrench operated or toggle operated

## Requirements

- Oxygen cleaned to meet CGA G4.1 specifications
- CGA V 9 Standard for Gas Cylinder Valves
- CGA S-1.1 Standard for Pressure Relief Devices
- CGA V-1 Compressed Gas Cylinder Valve Outlet and Inlet Connections
- ISO 10297 International Standard
- ISO 14246 International Standard
- "π" marked according to 2010/35/EU



Series	Bursting Disk	Orifice Ø	Type of Gas
VPF1	X	2.5 mm	O <sub>2</sub> - N <sub>2</sub> O and all medical gases mixtures



# PIN INDEX VALVES Residual

## Technical Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- High quality Nickel Chromium plating protects against harmful chemicals
- 100% leak test to full cylinder service pressure
- Body made from extruded brass rod - Fits all CGA specified yokes
- Passes stringent oxygen adiabatic compression test
- Unique stem design meets CGA performance criteria; designed shear point allows stem to break above the spindle nut if over torqued or shocked due to careless handling
- Aluminum cylinder valve supplied with Teflon O-Ring for fast and easy installation
- Clean room assembly

## Options

- Wrench operated or toggle operated

## Requirements

- Oxygen cleaned to meet CGA G4.1 specifications
- CGA V 9 Standard for Gas Cylinder Valves
- CGA S-1.1 Standard for Pressure Relief Devices
- CGA V-1 Compressed Gas Cylinder Valve Outlet and Inlet Connections
- ISO 10297 International Standard
- ISO 14246 International Standard
- "π" marked according to 2010/35/EU



Series	Bursting Disk	CV	Type of Gas
VPE2	X	~ 0.1	O <sub>2</sub> - N <sub>2</sub> O and all medical gases mixtures

SPECIAL APPLICATIONS  
 INTEGRATED VALVES  
 MAIN VALVES  
 CYLINDER BUNDLE VALVES  
 CYLINDER VALVES

# CYLINDER BUNDLE VALVES

VEICOLO BATTERIA MODELLO VB/S12/M<sup>1</sup>  
PRODOTTORE: H. C. C. S. M. A. S. P.A.  
N. MATRICOLA VEICOLO BATTERIA: VB/S12/M  
N. MATRICOLA TELAIO SEMBRIMORCHIO: 2001/0001/0001/0001  
SERIA: 2001/0001/0001/0001/0001  
PROPRIETARIO: CTS srl  
CATEGORIA: VE 200 840  
PRESSIONE DI PROVA (SISTEMATI): VE 200 840  
TEST PRELIMINARE: VE 200 840  
NUMERO TOTALE ELEMENTI (NARI): 12  
NUMERO TOTALE ELEMENTI (NARI): 12  
CAPACITA' TOTALE (DM): 2000  
ANNO DI FABBRICAZIONE: 2011  
NORMA DI RIFERIMENTO: UNI EN 12052-1:2000  
FASE DI APPROVAZIONE: LA 104  
N. APPROVAZIONE ADR: LA 104  
ORGANISMO NOTIFICATO: 0211 / 01 P. B.  
RIPERIZIONE INIZIALE: 0211 / 01 P. B.

1 <sup>a</sup> ISPEZIONE	2 <sup>a</sup> ISPEZIONE	3 <sup>a</sup> ISPEZIONE
PRIMO INGRESSO	SECONDO INGRESSO	TERZO INGRESSO
SCADENZA	SCADENZA	SCADENZA
01/01/2011	01/01/2012	01/01/2013
0211 / 01 P. B.	0211 / 01 P. B.	0211 / 01 P. B.
0211 / 01 P. B.	0211 / 01 P. B.	0211 / 01 P. B.

0211 / 01 P. B.





## FERRULE TYPE TIGHTNESS

<b>Compatibility</b>	Suitable for all non corrosive gases
<b>Working Pressure</b>	200 bar
<b>Test Pressure</b>	300 bar
<b>Body Material</b>	Brass alloy
<b>Options</b>	Available for $\varnothing$ 8 and 10 mm. pipes
<b>Accessories</b>	Nut for $\varnothing$ 8 and 10 mm. pipes Ferrule for $\varnothing$ 8 and 10 mm. copper pipes Ferrule for $\varnothing$ 8 and 10 mm. pipe connections



1 WAY



2 STRAIGHT WAYS



2 SQUARE WAYS



3 WAYS



## METAL TO METAL TYPE TIGHTNESS

<b>Compatibility</b>	Suitable for all non corrosive gases
<b>Working Pressure</b>	200 bar
<b>Test Pressure</b>	300 bar
<b>Body Material</b>	Brass alloy
<b>Accessories</b>	Stainless steel or copper pigtails: various dimensions and thread specifications



1 WAY



2 STRAIGHT WAYS



## O-RING TYPE TIGHTNESS

<b>Compatibility</b>	Suitable for all non corrosive gases
<b>Working Pressure</b>	300 bar
<b>Test Pressure</b>	450 bar
<b>Body Material</b>	Brass alloy
<b>Accessories</b>	Stainless steel or copper pigtails: various dimensions and thread specifications



1 WAY



2 STRAIGHT WAYS



SPECIAL APPLICATIONS

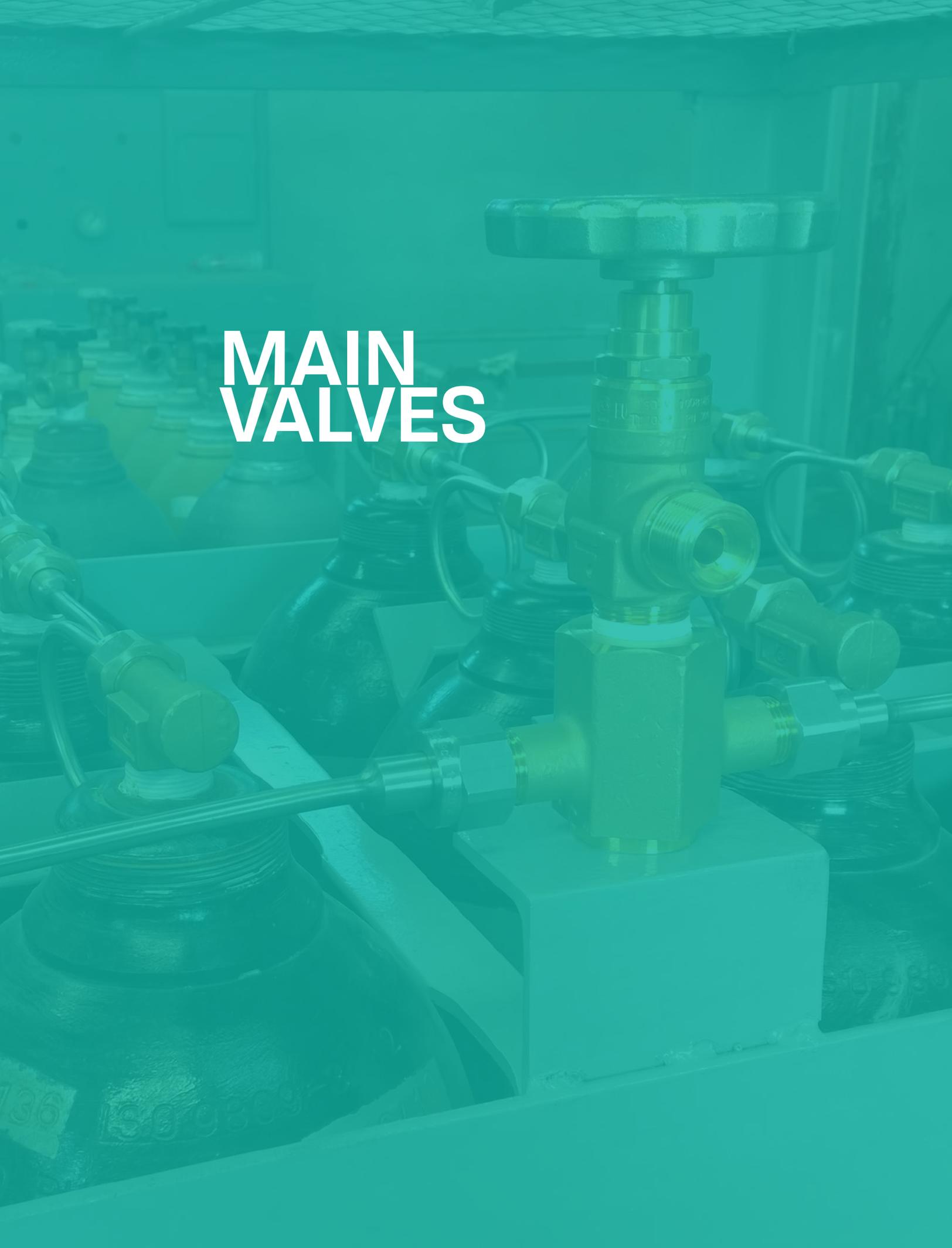
INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

# MAIN VALVES





## MAIN VALVES Standard

### Technical Features

- Working pressure: 300 bar
- Test pressure: 360 bar
- Operating Temperature: -46°C + 65°C
- Suitable for several gases

### Options

- Available models:  
One square way - Two straight ways - Three ways

### Requirements

- “π” marked in accordance with 2010/35/EU

Series	Orifice Ø	Type of Gas
<b>VIA1</b>	7-10 mm	O <sub>2</sub> - N <sub>2</sub> O - N <sub>2</sub> - Ar - He - CO <sub>2</sub> - Air H <sub>2</sub> - Mix
<b>VIA2</b>	10 mm	N <sub>2</sub> - Ar - He - H <sub>2</sub> - CH <sub>4</sub> - C <sub>2</sub> H <sub>4</sub>



SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES



## MAIN VALVES RPV High Flow

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES

### Technical Features

- O-ring seal type for 230 bar working pressure
- Easy operation and long service life
- 100% leak test to 1.2 times working pressure
- Large orifice size provides faster vacuum and filling rates
- Hot forged brass body

### Options

- Filling adaptor available separately
- Compatible with different adaptors with different nipples length
- Personalized handwheel logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome or Nickel plating treatment
- Different safety valve setting
- Filter
- Parallel thread
- Thread for dip tube installation

### Requirements

- Inlets and outlets in accordance with all standards
- Conforming to EN ISO 10297 and EN ISO 15996
- "π" marked in accordance with 2010/35/EU



Series	Central Pin	Bursting Disk	Orifice Ø	Type of Gas
<b>VGU1</b>	X		8 mm	N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO Mix - OP<21%
<b>VGZ1</b>	X	X	8 mm	CO <sub>2</sub> - SF <sub>6</sub>
<b>VOS1</b>	X		8 mm	O <sub>2</sub> - N <sub>2</sub> O - Air - Mix OP>21%



**VIPR**  
**VALVE WITH INTEGRATED**  
**PRESSURE REGULATOR**



## VIPROXY SERIES Viproxy i-1Touch

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES

### Technical Features

- Suitable for up to 300 bar oxygen working pressure (4351 PSI)
- Digital gauge available with bar or PSI scales and backlit dial
- Non return valve in the filling port
- Total weight with protection guard: 1,9 Kg ~ (for the fully equipped version)
- Conforming to the PILL test ASTM G175 (up to 300 bar)
- Estimated minimum battery life span: 4 years (for the IoT version)
- Gauge IP Rate: 65
- Integrated hospital bed hanging device

### Options

- IoT electronic board compliant to Radio Equipment Directive (RED)
- Protection guard conforming to ISO 11117
- Configuration customizable with 1 or 2 outlets. Barbed fitting for 1/4" I.D.
- Hose and quick auxiliary connection with pressure fixed at 4 bar or 50 PSI
- Anti-filling device in the filling port

### Requirements

- Conforms all the requirements of EN ISO 10524-3
- CE and  $\pi$  marked according to the European Directives for Medical Devices and Transportable Pressure Equipment
- MRI conditional certified up to Tesla 3



**VIPROXY**<sup>®</sup>  
**i-1touch**



## VIPROXY SERIES Viproxy 1Touch

### Technical Features

- Suitable for up to 300 bar oxygen working pressure
- Active gauge available with PSI or bar scales and fluorescent dial
- Non return valve in the filling port
- Total weight with protection guard: 1.500 gr. ~ (for the fully equipped version)

### Options

- Integrated hospital bed hanging device
- Protection guard conforming to ISO 11117
- Non-active gauge
- Configuration customizable with 1 or 2 outlets. Barbed fitting for 1/4" I.D. hose and quick auxiliary connection with pressure fixed at 4 bar or 50 PSI
- Antifilling device in the filling port
- Filling port protection nut
- Bursting disc device
- Excess flow device
- Special smart filter

### Requirements

- Conforms all the requirements of EN ISO 10524-3
- CE and  $\pi$  marked according to the European Directives for Medical Devices and Transportable Pressure Equipment
- MRI compatible certified up to Tesla 3
- Conforming to the PILL test ASTM G175 (up to 300 bar)



**VIPROXY**<sup>®</sup>  
1 touch

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES



## VIPROXY SERIES Viproxy Atom

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES

### Technical Features

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- Suitable for <5L capacity cylinders
- Suitable for up to 300 bar oxygen working pressure (4350 PSI)
- Active gauge available with PSI or bar scales and fluorescent dial
- Non return valve in the filling port
- Total weight with protection guard: 900 gr. ~
- Inlet connection available: 17E, 25E, M18

### Options

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- Custom Flow Scales available upon request
- Antifilling device available upon request
- Excess flow device available upon request
- Special dip tube or special smart filter

### Requirements

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- Conforms all the requirement of EN ISO 10524-3
- CE and π marked according to the European Directives for Medical Devices and Transportable Pressure Equipment



**VIPROXY**<sup>®</sup>  
**ATOM**



## VIPROXY SERIES Viproxy

### Technical Features

- Suitable for up to 300 bar oxygen working pressure (4351 PSI)
- Active gauge available with PSI or bar scales and fluorescent dial
- Non return valve in the filling port
- Total weight with protection guard: 1.500 gr. ~ (for the fully equipped version)

### Options

- Integrated hospital bed hanging device
- Protection guard conforming to ISO 11117
- Non-active gauge
- Configuration customizable with 1 or 2 outlets. Barbed fitting for 1/4" I.D. hose and quick auxiliary connection with pressure fixed at 4 bar or 50 PSI
- Antifilling device in the filling port
- Filling port protection nut
- Bursting disc device
- Excess flow device
- Special smart filter

### Requirements

- Conforms all the requirement of EN ISO 10524-3
- CE and π marked according to the European Directives for Medical Devices and Transportable Pressure Equipment.
- MRI compatible certified up to Tesla 3
- Conforming to the PILL test ASTM G175 (up to 300 bar)



**VIPROXY**®

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES



# INDUSTRIAL VIPR I-VIPR for Oxygen, Acetylene and Inert and Mix gases

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

## Technical Features

- Residual pressure valve with integrated Pressure Regulator
- Ergonomically designed with a compact, user friendly casing
- All of the user's primary functions are visible and accessible from one side without turning the cylinder

## Options

- Customized Handwheel logo cap
- Threaded connection and quick connection available according to EN 561

## Requirements

- Meets all the requirements of EN ISO 10297, EN ISO 22435, EN ISO 15996



# iVIPR

Valve with integrated pressure regulator

Series	Bursting Disk	Type of Gas
<b>MRA1</b>	X	O <sub>2</sub> - N <sub>2</sub>
<b>MRA2</b>	X	Ar - 80% Ar - 20% CO <sub>2</sub> Mix
<b>MRA3</b>		C <sub>2</sub> H <sub>2</sub>



# SPECIAL APPLICATIONS



# DIAPHRAGM VALVES

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

## Technical Features

- Low operating torque guaranteed due to soft sealing
- Valve seat secured against extrusion
- Extreme leak tightness achieved by diaphragm sealing
- High flow capacity to allow a fast filling and vacuum
- Clean room assembly
- All markings on the valve neck protected against damage
- All components in contact with the gas are electrochemically polished

## Options

- All inlets and outlets standards available
- Different dip tube threads connections available
- Personalized handwheel logo cap
- Various bursting disc settings available
- Cleaned for UHP/ECD applications
- Prepared for flow restrictor attachment

## Requirements

- Designed according to EN ISO 10297
- "π" marked according to 2010/35/EU



Series	Body Material	Bursting Disk	Orifice Ø	Type of Gas
VDA5	AISI 316L	X	4 mm	Toxic and corrosive gases OP>21% - Inert Gases (N <sub>2</sub> - H <sub>2</sub> -Ar He - Air - CO Mix - OP<21% - SF <sub>6</sub> )
VDA6	AISI 304L	X	4 mm	



# SCUBA VALVES

## Technical Features

- High quality chrome plated body with excellent resistance to salt spray test
- Safe and long life under all service conditions are guaranteed by the solid design and the quality of the materials of the internal components
- Large internal orifice ensures a high gas flow capacity
- Handwheel closing torque: 0,9 Nm @ 230 Bar
- Ergonomic handwheel designed to be operated with thick protective gloves
- Permanent gas tight seal
- OPEN and CLOSE printed on the handwheel
- Dip tube installed in the valve inlet to ensure greater respiration
- Working pressure: 230 or 300 bar
- Leak test: less than 6 cc<sup>3</sup>/h
- Temperature range: -20°C / +65°C
- Inlet thread M25x2 EN144-1 or G 3/4 NPSM
- Outlet thread for 230 bar W.P. G 5/8 ISO12209-2 with removable yoke connection according to ISO 12209-3 CGA 850
- Outlet thread for 300 bar W.P. G 5/8 ISO12209-2
- Nautilus Series is also compatible with EAN, NITROX and TRIMIX
- Individually packed and cleaned for oxygen service

## Options

- Different bursting disc pressure settings are available
- Left hand or Right hand handwheel
- Black or Green rubber handwheel

## Requirements

- CE marked in accordance with the European Directive 2014/68/EU (PED)
- Complying with the requirement of the EN ISO 10207 standard



Series	Bursting Disk	Orifice Ø	Type of Gas
VSBI	X	3.5 mm	Oxidant gases OP>21% Breathing air

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES



# GUN CHARGING VALVES

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

## Technical Features

- High quality chrome plated body with excellent resistance to salt spray test
- Safe and long life under all service conditions are guaranteed by the solid design and the quality of the materials of the internal components
- Large internal orifice ensures a high gas flow capacity
- Handwheel closing torque: 0,9 Nm @ 230 Bar
- Ergonomic handwheel designed to be operated with thick protective gloves
- Permanent gas tight seal
- OPEN and CLOSE printed on the handwheel
- Dip tube installed in the valve inlet to ensure greater respiration
- Working pressure: 230 or 300 bar
- Leak test: less than 6 cc<sup>3</sup>/h
- Temperature range: -20°C / +65°C
- Inlet thread M25x2 EN144-1 or G 3/4 NPSM
- Outlet thread for 230 bar W.P. G 5/8 ISO12209-2 with removable yoke connection according to ISO 12209-3 CGA 850
- Outlet thread for 300 bar W.P. G 5/8 ISO12209-2



## Options

- Different bursting disc pressure settings are available
- Left hand or Right hand handwheel
- Black or Green rubber handwheel

## Requirements

- “π” marked according to 2010/35/EU (TPED)
- Compliant to EN ISO 10207 standard

Series	Bursting Disk	Orifice Ø	Type of Gas
VSC1	X	3.5 mm	Compressed Air



# SCBA VALVES

## Technical Features

- Maximum working pressure: 230 bar and 300 bar
- Temperature range: -40° ÷ +65°C
- Seat disc: Nylon PA66
- O-rings: EPDM
- Ergonomic and anti-rolling handwheel, to prevent accidental closing
- Low torque and easy operation
- Outlet: designed in accordance with ISO 12209

## Options

- Rubber/Plastic handwheel with custom logo
- Custom logo on the body
- Sintered bronze filter mounted on the valve inlet
- Bursting disc
- Aluminium body
- Different outlets available upon request
- Different inlet connection accessories:  
Dip Tube - Excess Flow - Sintered filter

## Requirements

- CE marked according to 2014/68/EU directive
- Tested according to EN ISO 10297, EN144



SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

Series	Central Pin	Bursting Disk	Orifice Ø	Type of Gas
<b>VOA6</b>	X	X	4 mm	Breathing air
<b>VGB2</b>		X	4 mm	Breathing air



# SELF CLOSING VALVES FOR CO<sub>2</sub> APPLICATIONS

## Fizzy Valves

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

### Technical Features

- Inlet Connection: M18 x 1,5
- Outlet Connection: Ø 21 ACME
- Burst Pressure: 250 bar
- Length: 51 mm
- Diameter: SW27
- For alimentary use

### Options

- Customizable inlet and outlet thread and Burst Pressure

### Requirements

- EN ISO 17879
- "π" marked according to 2010/35/EU



Series	Central Pin	Bursting Disk	Orifice Ø
768590XXXX	X	X	4.2 mm



## PAM VALVES

### Technical Features

- Body materials compatible with corrosive gases: carbon steel and stainless steel
- Stainless steel spindles with lead seat disc or metal to metal tightness
- Double lock nut in the bonnet system

### Options

- Personalized handwheel logo cap
- Dip tube inlet thread
- Stainless steel chain on the outlet
- Nickel plating
- Dip tube various lengths
- Nickel plated nut

### Requirements

- Conforming to EN ISO 10297
- "π" marked in accordance with 2010/35/EU



Series	Body Material	Orifice Ø	Type of Gas
VGD4	Carbon Steel - Stainless Steel	8.2 mm	NH <sub>3</sub> - C <sub>2</sub> H <sub>4</sub> O - SO <sub>2</sub>

SPECIAL  
APPLICATIONS

INTEGRATED  
VALVES

MAIN  
VALVES

CYLINDER BUNDLE  
VALVES

CYLINDER  
VALVES



## PCO VALVES

SPECIAL APPLICATIONS

INTEGRATED VALVES

MAIN VALVES

CYLINDER BUNDLE VALVES

CYLINDER VALVES

### Technical Features

- Body materials compatible with corrosive gases: carbon steel and stainless steel
- Stainless steel spindles with lead seat disc or metal to metal tightness
- Double lock nut in the bonnet system

### Options

- Personalized handwheel logo cap
- Dip tube inlet thread
- Stainless steel chain on the outlet
- Nickel plating
- Dip tube various lengths
- Nickel plated nut

### Requirements

- Conforming to EN ISO 10297
- "π" marked in accordance with 2010/35/EU



Series	Body Material	Orifice Ø	Type of Gas
VGS1	Carbon Steel - Stainless Steel	2.5 mm	SO <sub>2</sub> - HCl - H <sub>2</sub> S - Mix corrosive gas
VGS2		2.5 mm	NO - NO <sub>2</sub> - Mix corrosive gas
VGS4		2.5 mm	N <sub>2</sub> - H <sub>2</sub> - Ar - He - Air - CO - Mix OP <21% - Mix corrosive gas



## INLET CONNECTION

Valves can be made with different inlet connections, depending on the customer's requirements and/or the application for which the valve is intended.

- 3/8" NGT
- 17E
- 1/2" NGT (08N)
- 25E-25T-28.8 NBN
- 28.8 NF E29-680
- 3/4" NGT (12N)
- 1" BS341
- 31.3 DIN
- 1" 11.5 NGT (16N)
- 34NF
- 1 1/4 - 11.5 NGT
- 34NF
- 1 1/4 - 11.5 NGT
- 1 1/2 - 11.5 NGT
- 39 JIS B8244
- M18 (18P)
- M25 (25P)
- M30 (30P)
- .750" - 16UNF (U12)
- 1.125" - 12 UNF (U18)



## OUTLET CONNECTION

### ABNT (Associação Brasileira de Normas Técnicas)

<b>ABNT 172-1</b>	3/8"-18 NGT INT	Toxic	Ammonia
<b>ABNT 218-1</b>	W 21.8 x1/14" INT	Oxidiser	Air, Oxygen, Oxygen Mix >20%
<b>ABNT 218-2</b>	W 21.8 x1/14" LH INT	Flammable	Hydrogen, Methane
<b>ABNT 225-2</b>	0.885" - 14 NGO LH	Flammable	Acetylene, Butane
<b>ABNT 245-1</b>	0.960" - 14 NGO	Inert	Argon, Helium, Nitrogen
<b>ABNT 245-1</b>	0.960" - 14 NGO	Inert	Inert Gases + Oxygen Mixture <20%
<b>ABNT 245-2</b>	0.960" - 14 NGO LH	Non Flammable	Sulphur Hexafluoride
<b>ABNT 262-1</b>	1.035" - 14 NGO INT	Toxic	Sulphur Dioxide, Chlorine
<b>ABNT 209-1</b>	0.830" - 14 NGO INT	Non Flammable	Carbon Dioxide
<b>ABNT 209-2</b>	0.830" - 14 NGO LH INT (Round Nipple)	Toxic, Flammable	Carbon Monoxide, Phosphine, Silane
<b>ABNT 209-4</b>	0.830" - 14 NGO LH INT (Flat Nipple)	Toxic	Hydrogen Chloride, Hydrogen Sulphide
<b>ABNT 166-1</b>	G 3/8" A - ISO 228-1	Oxidiser	Nitrous Oxide

### AFNOR (Association Française de Normalisation)

Connector type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>NF B</b>	W30 x 1.75	Oxidiser	Industrial Air
<b>NF C</b>	SI 21.7 x 1.814	Inert Gases	Argon, Helium, Nitrogen
<b>NF E</b>	SI 21.7 x 1.814 LH	Flammable	Hydrogen, Hydrogen mix >4%
<b>NF F</b>	SI 22.94 x 1.814 INT	Oxidiser	Oxygen
<b>NF G</b>	SI 26 x 1.5 INT	Oxidiser	Nitrous Oxide
<b>NF H</b>	W 22.91 x 1.814 LH INT	Flammable	Acetylene
<b>NF J</b>	W 25.4 x 3.175	Corrosive	Chlorine
<b>NF K</b>	W 27 x 2	Corrosive	Hydrogen Chloride
<b>NF L</b>	W 27 x 2	Oxidiser	Inert Gases + Oxygen Mix >21%
<b>NF M</b>	W 30 x 2	Oxidiser	Inert gases + Oxygen Mix >21% & CO <sub>2</sub> <7%
<b>NF P</b>	W27 x 2	Oxidiser or Corrosive	Nitric Oxide, Nitrogen Dioxide

### BS 341 (British Standard)

Connector type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>BS 341 No. 2</b>	G 5/8" LH	Flammable	Acetylene
<b>BS 341 No. 3</b>	G 5/8" LH	Inert	Air, Argon, Neon, Nitrogen
<b>BS 341 No. 3</b>	G 5/8" LH	Oxidiser	Oxygen
<b>BS 341 No. 4</b>	G 5/8" LH INT	Flammable	Acetylene, Hydrogen
<b>BS 341 No. 4</b>	G 5/8" LH INT	Flammable	Carbon Monoxide, Methane, Natural Gas
<b>BS 341 No. 6</b>	G 5/8"	Toxic	Chlorine, Hydrogen Chloride
<b>BS 341 No. 7</b>	G 5/8" LH	Flammable Refrigerants	Flammable Refrigerants
<b>BS 341 No. 8</b>	W 0.860" x 14 TPI	Non Flammable	Carbon Dioxide
<b>BS 341 No. 10</b>	G 1/2"	Toxic	Ammonia
<b>BS 341 No. 12</b>	G 1/2"	Toxic	Sulphur Dioxide
<b>BS 341 No. 13</b>	W 11/16" - 20 TPI	Oxidiser	Nitrous Oxide
<b>BS 341 No. 14</b>	G 3/8"	Toxic	Hydrogen Cyanide, Nitric Oxide
<b>BS 341 No. 15</b>	G 3/8" LH	Toxic	Carbonyl Sulphide, Hydrogen Sulphide



## OUTLET CONNECTION

### CGA (US Compressed Gas Association)

Connector type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>CGA 110</b>	0.3125" - 32 UNEF INT	Small Cylinders	All Gases
<b>CGA 170</b>	9/16" - 18 UNF INT	Non Corrosive, Small Cylinders	Argon Helium
<b>CGA 180</b>	5/8" - 18 UNF INT	Small Cylinders	All Gases
<b>CGA 240</b>	3/8" - 18 NPT	Toxic	Ammonia
<b>CGA 296</b>	0.803" - 14 UNS INT	Oxidising Mixtures	Oxygen Mix > 23%
<b>CGA 300</b>	0.825" - 14 NGO	Refrigerant	Ethyl Chloride
<b>CGA 320</b>	0.825" - 14 NGO	Non Flammable	Carbon Dioxide
<b>CGA 326</b>	0.825" - 14 NGO	Oxidiser	Air
<b>CGA 330</b>	0.825" - 14 NGO LH	Toxic	Hydrogen Chloride
<b>CGA 346</b>	0.825" - 14 NGO	Oxidiser	Air
<b>CGA 350</b>	0.825" - 14 NGO LH	Flammable	Hydrogen, Methane
<b>CGA 510</b>	0.825" - 14 NGO LH INT	Flammable	Propane
<b>CGA 540</b>	0.903" - 14 NGO	Oxidiser	Oxygen
<b>CGA 580</b>	0.965" - 14 NGO INT	Inert	Argon, Nitrogen
<b>CGA 590</b>	0.965" - 14 NGO LM INT	Oxidiser	Air
<b>CGA 330</b>	1.030" - 14 NGO	Toxic	Hydrogen Sulphide
<b>CGA 679</b>	1.030" - 14 NGO LH	High Pressure	Nitrogen
<b>CGA 705</b>	1.125" - 14 UNS LH	Toxic	Ammonia

### DIN 477 (Deutsche Industrie Norm)

Connector type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>DIN 477 No. 1</b>	W 21.8 x 1/14" LH	Flammable	Hydrogen, Propane
<b>DIN 477 No. 2</b>	W 21.8 x 1/14" LH	Flammable	Propane
<b>DIN 477 No. 3</b>	Yoke	Flammable	Acetylene
<b>DIN 477 No. 3.1</b>	M 24 x 2" LH	Flammable	Acetylene
<b>DIN 477 No. 5</b>	W 1" x 1/8" LH	Toxic	Carbon Monoxide
<b>DIN 477 No. 6</b>	W 21.8 x 1/14"	Various	Argon, Helium, Carbon Dioxide
<b>DIN 477 No. 7</b>	G 5/8"	Toxic	Sulphur Dioxide
<b>DIN 477 No. 8</b>	W 1" x 1/8"	Toxic	Boron Trichloride
<b>DIN 477 No. 9</b>	G 3/4"	Oxidiser	Oxygen
<b>DIN 477 No. 10</b>	W 24.32 x 1/14" RH	Inerts	Nitrogen
<b>DIN 477 No. 11</b>	G 3/8"	Oxidiser	Nitrous Oxide (>3 l size)
<b>DIN 477 No. 12</b>	G 3/4" INT	Oxidiser	Nitrous Oxide (<3 l size)
<b>DIN 477 No. 13</b>	G 5/8" INT	Non Flammable	Air
<b>DIN 477 No. 14</b>	M 19 x 1.5 LH	Various	Mixtures



## OUTLET CONNECTION

### IRAM 2539 (Instituto Argentino de Racionalización de Materiales)

Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>IRAM 2539 No. 1</b>	3/4" BSP x 1/14" - INT	Flammable	Acetylene
<b>IRAM 2539 No. 2</b>	W 21.8 - 11/4	Various	Oxygen, Sulphur Hexafluoride
<b>IRAM 2539 No. 3</b>	5/8" BSP - INT	Non Flammable	Argon, Nitrogen
<b>IRAM 2539 No. 4</b>	W 21.8 - 1/4	Flammable	Ethane, Hydrogen
<b>IRAM 2539 No. 5</b>	3/8" BSP - INT	Oxidiser	Nitrous Oxide

### ISO 5145 (Provisional standard, previously NEVOC)

Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>ISO 5145 No.1</b>	W 24 x 2 11,2 - 16,8 RH	Inert	Medical Helium & Xenon
<b>ISO 5145 No.2</b>	W 24 x 2 11,9 - 16,1 RH	Oxidiser	Oxygen
<b>ISO 5145 No.4</b>	W 24 x 2 13,3 - 14,7 RH	Inert	Inert gases & mixes, except He & Xe
<b>ISO 5145 No.9</b>	W 24 x 2 13,3 - 14,7 LH	Flammable	Mixes with a flammable gas, except Hydrogen
<b>ISO 5145 No.10</b>	W 24 x 2 14 - 14 LH	Flammable	Hydrogen
<b>ISO 5145 No.11</b>	W 27 x 2 11,8 - 20,2 RH	Inert	Nitrogen
<b>ISO 5145 No.17</b>	W 27 x 2 16 - 16 RH	Inert	Carbon Dioxide
<b>ISO 5145 No.24</b>	W 27 x 2 16 - 16 LH	Flammable	LPG
<b>ISO 5145 No.30</b>	W 30 x 2 15,9 - 20,1 RH	Inert	Helium, Argon, Nitrogen, inert mixes*
<b>ISO 5145 No.32</b>	W 30 x 2 17,3 - 18,7 RH	Oxidiser	Oxygen*
<b>ISO 5145 No.38</b>	W 30 x 2 15,2 - 20,8 LH	Flammable	Mixes with a flammable gas*
<b>ISO 5145 No.41</b>	W 30 x 2 17,3 - 18,7 LH	Refrigerants	Refrigerant gases**

\* Working pressure above 250 bar in Europe and 182 bar in USA

\*\* Flammable according to ISO 5145, for inert No. 4 can be used when FTSC codes fit with the mixture

### ITC EP-6 (Instrucción Técnica Complementaria - Equipos Presión)

Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>TIPO B</b>	M 30 x 1.75	Non Flammable	Air
<b>TIPO C</b>	W 21.7 x 1/14"	Inert	Argon, Helium, Nitrogen
<b>TIPO E</b>	W 21.7 x 1/14" LH	Flammable	Hydrogen, Methane, Propane
<b>TIPO F</b>	G 5/8" INT	Oxidiser	Oxygen
<b>TIPO G</b>	M 26 x 1.5 INT	Oxidising mixtures	Oxygen Mix > 23%
<b>TIPO H</b>	G 5/8" LH INT	Flammable	Acetylene
<b>TIPO J</b>	W 1"	Toxic and Corrosive	Hydrogen Chloride, Hydrogen Bromide
<b>TIPO M</b>	M 19 x 1.5 LH	Mixtures	Calibration Gas Mixtures
<b>TIPO T</b>	W 31.75 x 1/7" 237	Toxic or Corrosive	Chlorine Drum Tanks
<b>TIPO U</b>	G 3/8"	Oxidiser	Nitrous Oxide



## OUTLET CONNECTION

### NEN 3268 (Nederlandse Norm)

Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>LU 0</b>	M 19 x 1.5 LH	Flammable Mixtures	Flammable Mixtures
<b>LU 1</b>	W 21.8 - 1/14" LH	Flammable	Hydrogen, Methane
<b>LU 4</b>	W 25.4 x 3.175" LH	Toxic	Hydrogen Cyanide
<b>RI 2</b>	G 22.91 x 1.814" RH	Oxidiser	Oxygen
<b>RU 1</b>	W 21.8 - 1/14"	Refrigerants	Ammonia, Carbon Dioxide
<b>RU 3</b>	W 24.32 - 1/14"	Inert	Argon, Helium, Nitrogen
<b>RU 4</b>	W 25.4 x 3.175" RH	Toxic	Chlorine, Hydrogen Chloride, Sulphur Dioxide
<b>RU 6</b>	W 28.81 x 1.814" RH	Oxidiser	Air

### UNI (Ente Nazionale Italiano di Unificazione)

Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>UNI 4405</b>	W 20 x 1/14" LH	Flammable	Hydrogen
<b>UNI 4406</b>	W 21.7 x 1/14"	Non Flammable / Oxidiser	Carbon Dioxide, Oxygen
<b>UNI 4407</b>	W 30 x 1/14"	Toxic	Ammonia
<b>UNI 4408</b>	W 1" x 1/8"	Toxic	Chlorine
<b>UNI 4409</b>	W 21.7 x 1/14"	Inert	Nitrogen
<b>UNI 4410</b>	W 30 x 1/14"	Non Flammable	Air
<b>UNI 4411</b>	W 22.9 x 1/14"	Flammable	Acetylene
<b>UNI 4412</b>	W 24.5 x 1/14"	Inert	Argon, Helium
<b>UNI 9097</b>	G 3/8" EXT	Oxidiser	Nitrous Oxide

### AS 2473.2 (Australian Standard)

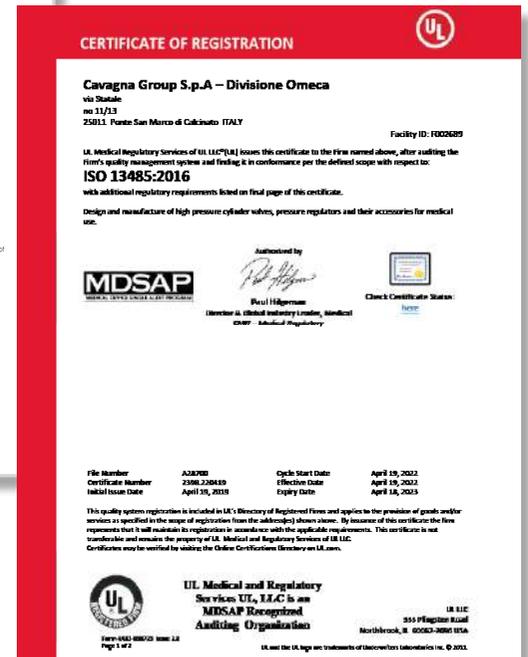
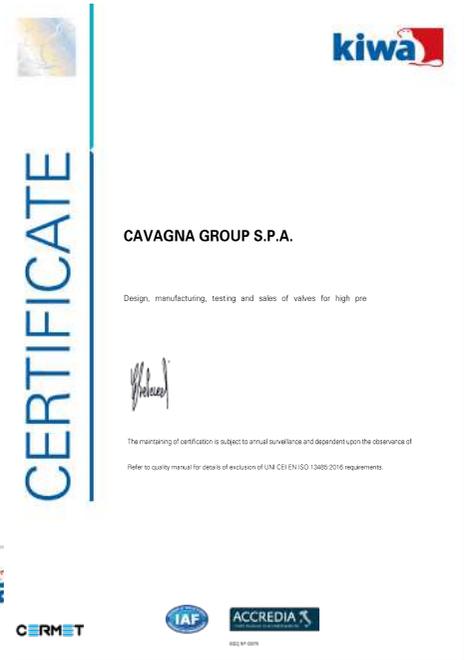
Connector Type	Connector Description	Generic Gas Property	Example Gases or Mixtures Components
<b>Type 10</b>	G 5/8" RH INT	Non Flammable	Argon, Helium, Oxygen =< 20,000 kPa
<b>Type 11</b>	G 5/8" RH INT Extended nipple	Oxidiser	Oxygen >20,000 kPa, =< 25,000 kPa
<b>Type 20</b>	G 5/8" LH INT	Flammable	Acetylene, Hydrogen, Ethylene, Methane
<b>Type 21</b>	0.885" - 14 NGO LH INT	Flammable	LPG, Propane
<b>Type 30</b>	0.860" - 14 BSW RH EXT	Non Flammable / Oxidiser	Carbon Dioxide, Nitrous Oxide
<b>Type 31</b>	G 5/8"	Chemical Gases	Sulphur Hexafluoride, Phosgene, Methyl Bromide
<b>Type 32</b>	G 1/2"	Toxic	Ammonia, Sulphur Dioxide
<b>Type 33</b>	G 1/4"	Non Toxic, Non Flammable Mixtures	Small clys <4.5l water capacity
<b>Type 34</b>	G 3/4"	Refrigerants	R134a
<b>Type 40</b>	G 5/8" LH EXT	Toxic	Ethylene Oxide
<b>Type 41</b>	G 3/8" BSP LH EXT	Flammable	LPG, Propane
<b>Type 42</b>	G 1/2" LH EXT	Toxic	Methylamine
<b>Type 43</b>	0.825" - 14 NGO LH EXT	Toxic / Corrosive	Hydrogen Chloride, Hydrogen Sulphide
<b>Type 44</b>	G 3/8" BSP	Toxic, Non Flammable Mixtures	Calibration gas mixtures
<b>Type 50</b>	24x2 Whit	Inert	Nitrogen =<20,000 kPa
<b>Type 51</b>	1.045" - 14 NGO RH INT	Inert	Nitrogen >20,000 kPa
<b>Type 60</b>	27x2 Whit	Non Flammable	Air =<20,000 kPa
<b>Type 61</b>	0.825" - 14 NGO	Non Flammable	Air >20,000 kPa







Wherever gas is used, we are there



## ISO-compliant Quality Management System

### Quality: our priority!

Aiming to guarantee the utmost customers' satisfaction and to always be up to their expectations, the Cavagna Group focuses its efforts on the continuous improvement of its processes, by means of an effective and efficient Quality Management Systems.

Cavagna Group's Quality Management System conforms to ISO 9001 standards, and it is also ISO 13485 and MDSAP certified for processes concerning medical devices.

In addition, the Cavagna Group's Environment Management System complies with the international standard ISO 14001.



# WARRANTY AND LIABILITY CONDITIONS (Not Valid for USA and Canada)

## 1 - Compliance of the brand new products

The original seller of the brand new product (hereinafter referred to as Product) hereby warrants that the Product corresponds in quantity, quality, and type as specified in the sales contract (or, if missing, in the order's confirmation) for the Product and that the Product is without defects that could render it unfit for the use to which it is intended. The original seller of the Product is identified on the invoice for the Product and is referred to herein as the "Warrantor."

## 2 - Extent of the guarantee

The warranty is limited only to defects in a) the design of the Product, b) the materials in the Product or c) the construction of the Product, which can be attributed to the Warrantor. The warranty does not apply in the case where the buyer is unable to prove correct storage and maintenance of the brand new products, or in the case the buyer has modified the Product without the prior written agreement of the Warrantor.

Furthermore, the Warrantor is not liable for defects in the brand new product due to the normal wear and deterioration of those parts of the Product, which by their nature, are subject to rapid and continuous wear and tear (e.g.: lining, etc.).

In general, in no case shall the Warrantor be liable for defects in compliance that arise after the transfer of risk or possession of the Product to the buyer has taken place.

The warranty is valid only when the brand new products are installed, used and maintained in conformity with the warnings and instructions provided by the Warrantor in the instruction manual or other Product literature and in conformity with the applicable laws, standards or regulations existing in the location where the brand new products are used or, in the absence of any applicable laws, standards or regulations, in conformity with the best practices in the applicable industry or trade.

## 3 - Claim

The buyer is required to check the compliance of the brand new Products and confirm the absence of flaws. The buyer should report any flaws or defects in brand new Products, in the following ways and time. Failure to properly and timely report a defect will void the warranty:

a) Claims for shortage or damages that could have been apparent from an examination of the exterior of the Product's packaging contents must be reported as soon as the brand new Products arrive at their place of destination or, in any event, no more than 5 days after that time.

b) Claims relevant to quantity, colour, quality flaws or defects or non-compliance that the buyer should have been able to identify as soon as it took possession of the Product, must be made shortly after the time when the brand new Product arrives at its place of destination or, in any event, no more than 15 days after that time;

c) Hidden flaws, defects or non-compliance (that is, those not identifiable according to the inspection imposed by law and by the preceding subparagraphs) must be reported within 30 days after the discovery or in any event, no more than 2 years from the delivery date.

Claims must be sent by registered letter, addressed to the head office of the Warrantor and must describe in detail the alleged defect, flaw or non-compliance.

In order to preserve this warranty, the buyer must not attempt any disassembly repairs or modifications on the brand new product without the Warrantor's prior written agreement.

The buyer forfeits and waives its rights under this

warranty if the buyer does not consent to every reasonable request of the Warrantor, or if after the Warrantor has requested the return of the defective brand new products at buyer's own expenses, the buyer fails to return the Product within 5 working days from the request.

In the event that the warranty claim is ultimately determined, in the sole discretion of Warrantor, to be unfounded, the buyer will reimburse the Warrantor all expenses incurred by Warrantor in evaluating the warranty claim (travel, expert valuations, transport expenses etc.).

## 4 - Remedies

Following a report by the buyer duly made in accordance with the previous point 3, the Warrantor, within a reasonable period depending on the type of claim, may, at Warrantor's sole reasonable discretion:

a) Supply to the buyer products of the same kind and quantity as those that have been proven to be defective or not in compliance with the contract: in such a case the Warrantor can require the return of the defective product, which becomes property of the Warrantor. Such products will be supplied FCA Warrantor's facility (Incoterms @ 2020);

b) Communicate in writing the cancellation of the contract and offering a refund of the amount paid for the replaced product;

c) Repair the products proven to be defective at its premises and supply the repaired products to the buyer FCA Warrantor's facility (Incoterms @ 2020).

No other cost (such as disassembling and/or reassembling of the products, transportation from/to the premises of buyer's customers, etc.) shall be charged to or paid by the Warrantor, unless previously expressly agreed in writing by the Warrantor.

## 5 - Limit of seller's liability

The Warranty provided herein supersedes all legal warranty for defects and compliance, and excludes any other possible liability of the Warrantor, however originating, from the brand new products supplied by Warrantor. In particular, the buyer cannot put forward another claim for compensation in respect of any further damages, request any reduction of the contract price or cancellation of the contract. Once the period of the Warranty has expired no claim can be made against the Warrantor.

In no event shall Warrantor be liable to buyer for any direct, incidental, indirect, consequential or exemplary damages, including without limitation any claim for damages based on lost revenues or profits, however caused.

No exceptions to or modification of this Warranty will be permitted unless expressly and specifically defined and accepted by the parties in writing.

## 6 - Technical regulations

As far as the brand new product characteristics and specifications are concerned, the Warrantor complies with the legislation and the technical regulations prevailing in Italy and the European Directives, unless otherwise specified in the contractual documentation (i.e. contract, order's confirmation, invoice, installation/fitting, use and maintenance manual); The buyer assumes the risk of any difference between the European Directives plus the Italian regulations and those of the country of destination, regarding the use or installation of the Products, and indemnifies the Warrantor for any such differences it. The Warrantor guarantees the performance of brand new products manufactured by Warrantor only and exclusively in relation to uses, destinations, applications, tolerances, capacities, etc. that have been expressly indicated

by Warrantor and that are incorporated in the contractual documentation (i.e. contract, order's confirmation, invoice, installation/fitting, use and maintenance manual).

The buyer is not authorised to dispose of the brand new Products supplied to him by the Warrantor in a way which does not conform to the indications described in the previous sub-paragraph and in the instructions given by Warrantor.

Where the buyer intends the said products to be resold, it shall be buyer's responsibility:

a) to inform the purchasers of the Product from buyer of the correct specifications and uses of the Product;

b) to grant any further periods or extended terms of any warranty provided by buyer only to buyer's purchasers that exceed the warranty granted to buyer by Warrantor according to paragraph 3.

c) the buyer shall not grant or extend any warranty on behalf of Warrantor to any third party.

## 7 - Personal injuries and property damages

Warrantor shall indemnify buyer from and against any and all claims, demands, losses, liabilities alleged by third parties relating to personal injuries and property damages suffered as a result of a defective product. In such event, Warrantor will exclusively be responsible within the limits (of deductible), terms and conditions of the product liability insurance policy held by it (a copy of the related insurance declaration is available upon request).

In case of potential damages to third parties that may arise from a defective brand new product, the buyer and Warrantor shall work together in good faith to determine the nature and extent of the appropriate measures to be taken, including recall operations. It is understood that the costs and expenses associated with the recall or other measures shall be paid by Warrantor within the limits, the terms and the conditions set forth in Warrantor's liability insurance policy, with the exclusion of the costs connected to the locating and retrieving the Products in the market, which will be paid by the Buyer.



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# Manufacturing Facilities





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