



**Cavagna Group**

Wherever gas is used, we are there



## High Pressure Equipment

2020 - 2021 EDITION 

# Solutions



## LPG SOLUTIONS

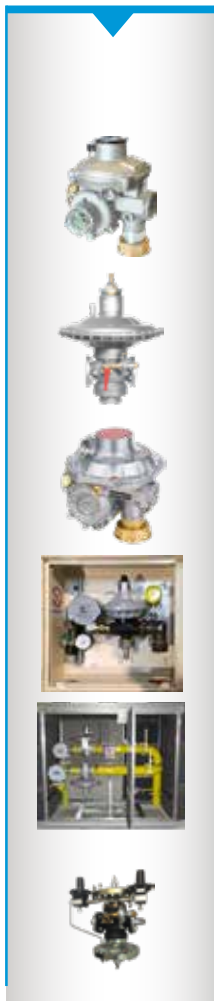
## COMPRESSED GASES SOLUTIONS

## NATURAL GAS SOLUTIONS

## ALTERNATIVE FUEL SYSTEMS

## GAS METERING SOLUTIONS

## OTHER





**cavagna group**

Wherever gas is used, we are there

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# Quality Management and Quality Assurance Conforming to standard ISO 9001

Omeca and Pergola are UNI EN ISO 9001 certified.

This standard has been achieved through the collective efforts of our customers, who have made it possible for us to obtain the goal of "TOTAL QUALITY".

Through our efforts and research we guarantee that Cavagna Group will provide the highest standard of service to ensure success.

Today you can be assured that with Cavagna Group you will have a partner in quality and excellence.



## International Standards

Many products of the Group carry the approval of National and International Organizations. For example:

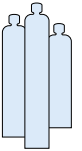
 BELGIUM	 CGA	 CHLORINE INSTITUTE	 CZECH REPUBLIC
 FRANCE	 GERMANY	 GERMANY	 POLAND
 POLAND	 ROMANIA		

Please be so kind to verify with us approvals, accessories (tubes, tubes Material components, tubes fixing, anti-filling devices, tools for anti-filling devices, caps, sealants and settings) and optional features. Approvals of any kind have to be expressly specified on orders or enquires.

For orders please refer to:



50 Napoleon Court Somerset, NJ 08873  
 732-469-2100 • Fax 732-469-3344  
 info@cavagna.com - www.cavagnagroup.com



## Advanced Solutions for Gas Control

Since 1931 the Cavagna Group has been a premier manufacturer of cylinder valves and related equipment. Recognized around the world, Cavagna meets or exceeds the highest industry and regional standards for quality. This commitment has resulted in the expansion of our growing client base to over 140 countries worldwide.

Headquartered in Brescia Italy, Cavagna is a respected global leader in the forging and machining of brass, zinc, alloys and steel. Originally founded in 1931 under another name, today the group produces an enormous variety of gas products at nine production facilities located in Italy and nine others spread across the five continents.

Years of experience and devotion to highly automated and controlled production facilities enabled the group to move into many new market segments through its own research and development activities coupled with several key acquisitions.

Today we offer our customers a complete solution for their gas handling needs. Our product offering includes LP gas valves, ASME, fork lift and motor fuel tank valves, medium and high pressure cylinder valves for industrial, medical and specialty gases and a range of high and low pressure LP and natural gas regulators.

Cavagna is recognized by over 40 national and international standards agencies, including such Canadian and U.S. organizations as the AGA, ASME, CGA, IAS and UL. Most recently Cavagna has secured its approval by the European notified body Apragaz for its High Pressure Industrial and Specialty Gas and LP-Gas Cylinder valve line.

The Cavagna Group operates seventeen world wide operations making it one of the world's largest producers of gas valves, regulators and related equipment. Our North American Distribution



Center was opened in 1997, this 21,000 square feet facility located in Somerset New Jersey provides our customers with immediate on time shipments from our extensive inventories. The group's commitment to local inventory has allowed our sales to both our Canadian and U.S. clients grow as they provide 24 hour order processing.

Our commitment to customer service is paramount to our corporate philosophy of "Think Globally and Act Locally".

We are a dynamic company with a superb safety record. Our various market interests have allowed us to develop a product line unparalleled in our industry.

Growth and service go hand in hand with Cavagna's commitment to total quality. It is this commitment that drove the group's achievement of ISO certification in the early 1990s.

To further our goal in the area of quality and to significantly move ahead of our competition, Cavagna has recently embarked on a six-sigma program to pursue a higher level of overall corporate quality. This program is being supported by our top management and will involve every face of our firm's resources.

Quality and capabilities have certainly paid us dividends over the years. The objective of our R & D group, our quality department and our engineering group are obtained because of Cavagna's corporate philosophy which bases its milestones on the quality of the human resources employed to guarantee the safety and reliability of its products world wide.

We look forward to the privilege to serve your needs in the future.

# Valve Numbering Sequence Guide

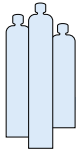
<b>Part Number</b>	C	B	A	1	540	1	3360B	Blank after pressure setting valve not bagged
<b>Sequence</b>	1	2	3	4	5	6	7	"B" valve bagged for medical oxygen service

<b>1</b>	<b>Manufacturer</b>	<b>C</b>	Cavagna
		<b>P</b>	Pergola
<b>2</b>	<b>Body Material</b>	<b>B</b>	Brass
		<b>C</b>	Chromium Plated Brass
		<b>D</b>	Chromium Plated Brass except inlet
		<b>S</b>	Stainless Steel AISI 303
		<b>T</b>	Stainless Steel AISI 316
		<b>N</b>	Nickel Plated Brass
		<b>Z</b>	Aluminium Silicon Bronze
		<b>A</b>	Standard
<b>3</b>	<b>Valve Model</b>	<b>B</b>	B Acetylene Valve
		<b>C</b>	MC Acetylene Valve
		<b>D</b>	Diaspec Diaphragm Valve
		<b>E</b>	Pin Index Wrench Operated
		<b>F</b>	Pin Index Toggle Operated
		<b>G</b>	Standard Valve With Black Lexan Handwheel
		<b>H</b>	B Acetylene Valve With Handwheel
		<b>I</b>	MC Acetylene Valve With Handwheel
		<b>L</b>	Chlorine Institute Valve
		<b>M</b>	Pin Indexed With Handwheel
		<b>O</b>	90° Acetylene Valve
		<b>P</b>	Pin Index With Toggle And Gauge Port
		<b>V</b>	Residual Pressure Valve Series P 1320
		<b>W</b>	WB Acetylene Valve
<b>4</b>	<b>Inlet Thread Size</b>	<b>o</b>	3/4" NGT-CL1
		<b>1</b>	3/4" NGT
		<b>2</b>	.625-16UNF2A
		<b>3</b>	.750-16UNF2A
		<b>4</b>	3/4" NGT 4 O.S.
		<b>5</b>	3/8" NGT
		<b>6</b>	1" NGT
		<b>7</b>	3/4" NGT 7 O.S.
		<b>8</b>	1/2" NGT
		<b>9</b>	1.125" UNF
<b>G</b>	25E		
<b>5</b>	<b>CGA Outlet Standard</b>	<b>3</b>	CGA Designation, example: 320 540 580 870
<b>6</b>	<b>Safety type</b>	<b>o</b>	Without safety
		<b>1</b>	Safety disc
		<b>2</b>	Fuse 165 f
		<b>3</b>	Fuse 212 f
		<b>4</b>	Supplied without safety disc
		<b>5</b>	Fuse 165 f with safety disc
<b>7</b>	<b>Pressure Setting</b>	<b>4</b>	PRD Requirement, example: 3,000 3,360 3,775 4,000 Etc. PSI

Standard carton quantities: Standard A **25** / B Acetylene Series: **40** / MC Acetylene Series: **50** / 800-900 Post Valves: **50**

# High Pressure Cylinder Valves

<b>CBA series</b> Commercial and POL Style Acetylene Cylinder Valves O-Ring seal type	8
<b>CBO series</b> Vertical Outlet Acetylene Valve with Handwheel for Collar Style Cylinders	9
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<b>IVIPR series</b> Valve with Integrated Pressure Regulator for Acetylene	21
<b>NOS series</b> Chromium Plated Brass High Pressure Cylinder Valves for Nitrogen Dioxide	22
<b>NOS series</b> Chromium Plated Brass High Pressure Cylinder Valves for Nitrogen Dioxide	23



# CBA series

## Commercial and POL Style Acetylene Cylinder Valves

O-Ring seal type

### List 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)

### List Technical data

#### Pressure

Maximum Service Pressure	34,5 bar	500 PSI
Test Pressure	60 bar	885 PSI

<b>Temperature - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
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<b>Life Cycle</b>	2,000 minimum	
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#### Torque Values for PBA Acetylene valves

Max Operating torque @ 0 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 240 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 2,900 PSIG inlet pressure	2 N/m	17.7 lbs / inch

<b>Max Overtorque</b>	25 N/m	221 lbs / inch
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<b>Flow Capacity (CV)</b>	n/a	
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<b>Orifice Ø:</b>	3.5 mm	0.137 inch
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### Material components

Valve Body	Forged Brass EN12165 alloy
Back up ring	PTFE
Handwheel	Aluminium
Seat	PA 612-Zytel
O-rings	EPDM
Antifriction ring	Delrin
Bonnet	Brass alloy conforming EN12164

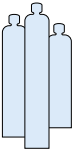
### Conforms to all requirements of:

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

### Ordering Information

Part Number	Type	CGA Outlet	Outlet Thread Size	Inlet Thread Size
<b>CBA 8 300 o</b>	Commercial	300	.825"-14 NGO RH Ext.	1/2" NGT
<b>CBA 1 300 o</b>	Commercial	300	.825"-14 NGO RH Ext.	3/4"-14 NGT
<b>CBA 6 300 o</b>	Commercial	300	.825"-14 NGO RH Ext.	1"-11 1/2 NGT
<b>CBA 1 410 o</b>	Canadian Style	410	.850"-14 NGO LH Int.	3/4"-14 NGT
<b>CBA 8 510 o</b>	P.O.L.	510	.885"-14 NGO LH Int.	1/2" NGT
<b>CBA 1 510 o</b>	P.O.L.	510	.885"-14 NGO LH Int.	3/4"-14 NGT
<b>CBA 6 510 o</b>	P.O.L.	510	.885"-14 NGO LH Int.	1"-11 1/2 NGT





# CBO series

## Vertical Outlet Acetylene Valve with Handwheel

For Collar Style Cylinders

### List Features

- Rugged brass forged body manufactured by Cavagna Group
- O-Ring design provides industries best leak tightness and easy operation
- Compact Handwheel provides better access to the valve Handwheel and eliminates interference with cylinder collar
- Inlet screen prevents filler mass or felts from entering the valve
- Easy to read valve markings are roll stamped on the valve neck - not on the wrench flats
- Soft seat design provides positive shut off

### List Technical data

<b>Pressure</b>		
Maximum Service Pressure	34,5 bar	500 PSI
Test Pressure	60 bar	885 PSI
<b>Temperature - Storage</b>		
	-50° C ÷ 65° C	-60° F ÷ 149° F
<b>Temperature - Operating</b>		
	-45° C ÷ 65° C	-50° F ÷ 149° F
<b>Life Cycle</b>		
	2,000 minimum	
<b>Torque Values for PBA Acetylene valves</b>		
Max Operating torque @ 0 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 240 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 2,900 PSIG inlet pressure	2 N/m	17.7 lbs / inch
<b>Max Overtorque</b>		
	25 N/m	221 lbs / inch
<b>Flow Capacity (CV)</b>		
	n/a	
<b>Orifice Ø:</b>		
	3.5 mm	0.137 inch

### Material components

Valve Body	Forged Brass EN121645
Handwheel	Aluminium
Bonnet	Brass EN12164
Seat	PA 612 Zytel 158
O-Rings	EPDM
Back up Ring	PTFE
Antifriction ring	Delrin
Filter	Stainless Steel

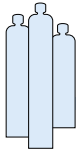
### Conforms to all requirements of:

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

### Ordering Information

Part Number	Type	CGA Outlet	Outlet Thread Size	Inlet Thread Size
<b>CBO 1 510 0</b>	P.O.L.	510	.885"-14 NGO LH Int.	3/4" NGT
<b>CBO 1 300 0</b>	Commercial	300	.825"-14 NGO RH Ext.	3/4" NGT





# CBH/CBI series

## New Handwheel O-ring Seal B and MC

### Acetylene Cylinder Valves

#### List Features

- Handwheel design permits easy access to the valve stem and bonnet to perform leak checks in compliance with DOT requirements
- Positive spindle nut seal with the valve body eliminates the need for constant tightening of packing nuts
- Robust brass Handwheel prevents breakage and corrosion associated with aluminium versions
- Self locking zinc coated steel nut affixes Handwheel to the Sturdy Brass Stem
- Proven double O-Ring technology assures positive leak tight operation extending service life
- Easy low torque operation eliminates the need for wrenches or keys
- Soft seat extends service life and reduces leakage
- Handwheel design eliminates costly valve repairs reducing overall “Cost of Ownership”

#### List Technical data

##### Pressure

Proof	100 bar min	1,465 PSI min
Test	60 bar	885 PSI

<b>Temperature - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
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<b>Life Cycle</b>	2,000 minimum	
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##### Torque Values for PBH/PBI Acetylene valves

Operating torque @ 500 PSIG	3 lbs/inch (CGA 200)	3 lbs/inch (CGA 520)
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<b>Max Overtorque</b>	25 N/m	221 lbs / inch
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<b>Orifice Ø:</b>	(200) .133 inch	(520) .133 inch
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#### Material components

Valve Body	Forged Brass EN12165
Handwheel	Brass EN12164
Bonnet Nut	Brass EN12164
Seat	PA 612 Zytel 158
O-Rings	EPDM
Back up Ring	PTFE
Fusible plug	212° F Integral Fusible metal
Strainer	AISI 304 100 mesh

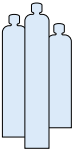
#### Conforms to all requirements of:

CGA S-1.1	Standard for Pressure Relief Devices
CGA V-1	Compressed Gas Cylinder Valve Outlet and Inlet Connections
CGAV9	Standard for Gas Cylinder valves



#### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
<b>CBH 5 520 3</b>	Acetylene	520	.895-18 NGO RH Ext.	3/8-18 NGT
<b>CBI 5 200 3</b>	Acetylene	200	.625-20 NGO RH Ext.	3/8-18 NGT



# CBB/CBC series

## Wrench Operated Acetylene Valves

### List Features

- Valve body made of rugged forged brass produced by Cavagna Group
- Fusible metal pressure relief device
- Large wrench flats for easy installation
- Teflon packing and anti extrusion rings prevent packing leakage
- Plated steel stem resists damage from wrenches and corrosion

### List Technical data

Pressure		
Proof	100 bar min	1,465 PSI min
Test	60 bar	885 PSI
Temperature - Storage		
	-50° C ÷ 65° C	-60° F ÷ 149° F
Temperature - Operating		
	-45° C ÷ 65° C	-50° F ÷ 149° F
Life Cycle		
	2,000 minimum	

### Torque Values for PBB/PBC Acetylene valves:

See Ordering information below.

### Material components

Valve Body	Forged Brass EN12165 alloy
Pressure Relief	212° F Integral Fusible Metal
Packing Nut	Brass EN12164
Packing	Teflon (PTFE)
Packing Gland	Brass EN12164 alloy
Packing Washer	Brass EN12165 alloy
Stem	Steel UNI4838
Strainer	AISI 304 100 mesh

### Conforms to all requirements of:

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

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
<b>CBB 5 520 3</b>	Acetylene	520	.895-18 NGO RH Ext.	3/8-18 NGT
<b>CBC 5 200 3</b>	Acetylene	200	.625-20 NGO RH Ext.	3/8-18 NGT

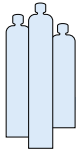
### Torque Values

Description	Torque
Operating Torque @ 0 psig Inlet Pressure	6 - 10 in lbs
Closing Torque @ 500 psig Inlet Pressure	6 - 10 in lbs
Packing Nut Installation Torque	80 - 100 in lbs
Stem Installation Torque	45 ± 5 in lbs

### Flow Data

CGA Outlet Number	200	520
Orifice Ø: Diameter (inches)	.133	.133
Flow Constant: Cv - Full Open	n/a	n/a
Flow CFM @ 240 PSIG Inlet	n/a	n/a





# CBA series

## Brass High Pressure Cylinder Valve for Industrial Gases

O-Ring seal type

### List Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test to 1.2 times cylinder service pressure
- All markings are located on the valve neck to protect them from damage
- Large Orifice Ø: provides faster vacuum and filling rates
- Available bursting discs for all DOT cylinders
- Durable forged brass body manufactured by Cavagna Group
- Passes stringent oxygen adiabatic compression test
- Unique seat holder design
- Available configurations include:  
Inlet threads (NGT, UNF, DIN477, BS, EN, EN ISO)
- **All CGA outlets available**
- Available with inlet thread for DT
- Unitized "plug style" pressure relief device



### List Technical data

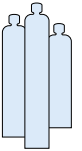
<b>Pressure</b>		
Maximum Service Pressure	276 bar	4,000 PSI
<b>Temperature - Storage</b>		
	-50° C ÷ 65° C	-60° F ÷ 149° F
<b>Temperature - Operating</b>		
	-45° C ÷ 65° C	-50° F ÷ 149° F
<b>Life Cycle</b>		
	2,000 minimum	
<b>Torque Values for PBA Acetylene valves</b>		
Max Operating torque @ 0 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 240 PSIG inlet pressure	1 N/m	8.8 lbs / inch
Max Operating torque @ 2900 PSIG inlet pressure	2 N/m	17.7 lbs / inch
<b>Max Overtorque</b>		
	25 N/m	221 lbs / inch
<b>Flow Capacity CV / Full open</b>		
	n/a	
<b>Orifice Ø:</b>		
	4 mm	.160 inch

### Material components

Valve Body	Forged Brass EN12165 alloy
Bursting disc	Nickel alloy or Stainless Steel
Bursting disc body	Brass (also available with 212°F fusible metal)
Back up Ring	Nylon or PTFE
Bonnet	Brass
Handwheel	Aluminium
Seat	Polyamide
O-rings	EPDM
Antifriction	Delrin
Stem	Brass according to EN 12164 alloy

### Conforms to all requirements of:

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



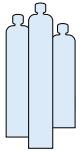
# CBA series

## Brass High Pressure Cylinder Valve for Industrial Gases

O-Ring seal type

**Ordering Information**

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
CBA 8 350 6 xxxx CBA 1 350 6 xxxx CBA 6 350 6 xxxx CBA 3 350 6 xxxx CBA 9 350 6 xxxx CBA 1 695 6 xxxx CBA 1 703 6 xxxx	<b>Hydrogen</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBG 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Krypton</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 350 6 xxxx CBA 1 350 6 xxxx CBA 6 350 6 xxxx CBA 3 350 6 xxxx CBA 9 350 6 xxxx CBA 1 695 6 xxxx CBA 1 703 6 xxxx	<b>Methane (R50)</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 350 6 xxxx CBA 1 350 6 xxxx CBA 6 350 6 xxxx CBA 3 350 6 xxxx CBA 9 350 6 xxxx CBA 1 695 6 xxxx CBA 1 703 6 xxxx	<b>Natural Gas</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBA 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Neon</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBA 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Nitrogen</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 346 1 xxxx CBA 1 346 1 xxxx CBA 6 346 1 xxxx CBA 3 346 1 xxxx CBA 9 346 1 xxxx CBA 1 347 1 xxxx CBA 1 702 1 xxxx	<b>Air (R729)</b> 0 psi to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	346  347 702	.825"- 14 NGO RH Ext.  .825-14 NGO RH Ext. 1.125"-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBA 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Argon</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 555 1 xxxx CBA 1 555 1 xxxx CBA 6 555 1 xxxx CBA 3 555 1 xxxx CBA 9 555 1 xxxx	<b>Butane/Propane</b> Liquid Withdrawal	555	.903-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 8 320 1 xxxx CBA 1 320 1 xxxx CBA 6 320 1 xxxx CBA 3 320 1 xxxx CBG 9 320 1 xxxx	<b>Carbon Dioxide</b> (R744)	320	.825-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF



# CBA series

## Brass High Pressure Cylinder Valves

for Industrial Gases

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
CBA 8 350 6 xxxx CBA 1 350 6 xxxx CBA 6 350 6 xxxx CBA 3 350 6 xxxx CBA 9 350 6 xxxx CBA 1 695 6 xxxx CBA 1 703 6 xxxx	<b>Carbon Monoxide</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO LH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 660 CBA 1 660 CBA 6 660 CBA 3 660 CBA 9 660	<b>1,2 Dichloroethylene</b> (R1130)	660	1.030-14 NGO RH Ext. (Face Washer Seal)	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 8 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBG 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Helium</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 326 1 xxxx CBA 1 326 1 xxxx CBA 6 326 1 xxxx CBA 3 326 1 xxxx CBA 9 326 1 xxxx	<b>Nitrous Oxide</b> (R744a)	326	.825-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 8 540 1 xxxx CBA 1 540 1 xxxx CBA 6 540 1 xxxx CBA 3 540 1 xxxx CBA 9 540 1 xxxx CBA 1 577 1 xxxx CBA 1 701 1 xxxx	<b>Oxygen</b> 0 to 3,000 psi  3,000 to 4,000 psi 4,000 to 5,500 psi	540  577 701	.903-14 NGO RH Ext.  .960-14 NGO RH Ext. 1.103-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CBA 8 660 1 xxxx CBA 1 660 1 xxxx CBA 6 660 1 xxxx CBA 3 660 1 xxxx CBA 9 660 1 xxxx	<b>Sulfur Dioxide</b>	660	1.030-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 8 580 1 xxxx CBA 1 580 1 xxxx CBA 6 580 1 xxxx CBA 3 580 1 xxxx CBA 9 580 1 xxxx CBA 1 680 1 xxxx CBA 1 677 1 xxxx	<b>Xenon</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT

**xxxx Denotes Pressure Relief Device burst disc rupture pressure.**

**Available with:**

4 and 7 thread oversize inlets: To order change the first number "1" in the part number to "4" or "7"

example: CBA 1 320 1 xxxx becomes CBA 4 320 1 xxxx

Chromium plating: To order, change the letter "B" in the part number to letter "D"

example: CBA 1 540 1 xxxx becomes CDA 1 540 1 xxxx

Fusible backed pressure relief devices in 165° F and 212° F nominal melting temperatures:

To order, change the eighth position in the part number to "5" for 165° F and "6" for 212° F

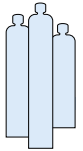
example: CBA 1350 1 xxxx becomes CBA 1 350 5 xxxx for 165° F or CBA 1 350 6 xxxx for 212° F

## Pressure Relief Device Selection Guide

**TABLE 2.0 PRESSURE RELIEF DEVICE SELECTION CHART FOR CBA/CBO/CDA CYLINDER VALVES SERIES**

Cylinder Service Pressure			Disc Rupture Range Psig @ 165° F		Pressure Relief Device Cap Stamping	Pressure Relief Device Replacement Part Number		
D.O.T. Spec. 3A, 3AA, 3AL Cylinders In Psig	D.O.T. Spec. Exemption Cylinders In Psig	ISO/UN Cylinders	Minimum	Maximum		CG-1 Style Frangible Disc Only	CG-4 Style Frangible Disc & 165° F Fuse Metal	CG-5 Style Frangible Disc & 212° F Fuse Metal
1665			2500	2775	2775	CS1 2775	CS3 2775	CS4 2775
1800			2700	3000	3000	CS1 3000	CS3 3000	CS4 3000
2015			3025	3360	3360	CS1 3360	CS3 3360	CS4 3360
2265			3400	3775	3775	CS1 3775	CS3 3775	CS4 3775
2400			3600	4000	4000	CS1 4000	CS3 4000	CS4 4000
		200	3915	4350	4350	CS1 4350	CS3 4350	CS4 4350
2670			4005	4450	4450	CS1 4450	CS3 4450	CS4 4450
2900			4350	4833	4833	CS1 4833	CS3 4833	CS4 4833
2950			4425	4917	4917	CS1 4917	CS3 4917	CS4 4917
3000			4500	5000	5000	CS1 5000	CS3 5000	CS4 5000
	3600		4860	5400	5400	CS1 5600	CS3 5600	CS4 5600
3500/3600			5250	5833	5833	CS1 5833	CS3 5833	CS4 5833
4000			6000	6665	6665	CS1 6665	CS3 6665	CS4 6665
	4500		6075	6750	6750	CS1 6750	CS3 6750	CS4 6750
5000			7500	8333	8333	CS1 8333	CS3 8333	CS4 8333
	6000		8100	9000	9000	CS1 9000	CS3 9000	CS4 9000
6000			9000	10000	10000	CS1 10000	CS310000	CS410000
		230	4500	5000	5000	CS1 5000	CS3 5000	CS4 5000
		300	5875	6525	6525	CS1 6750	CS3 6750	CS4 6750
	5000		6750	7500	7500	CS1 7500	CS3 7500	CS4 7500

To order chromium plated device caps CG-1 style please order CS2 + (xxxx) (Setting pressure of the rupture disc).



## P 2009 series

### Residual High Pressure Cylinder Valves for Industrial Gases

#### List Features

- Residual pressure valve, o-ring seal type for various gases including CO<sub>2</sub>
- Filling connector available separately

#### List Technical data

##### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
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<b>Life Cycle</b>	2,000 minimum	
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<b>Guaranteed External Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm
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<b>Guaranteed Internal Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm
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<b>Residual pressure device</b>	2.5 to 4 bar	35 to 58 PSI
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(according to customer's specifications)



#### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Seat pad	Polyamide
Bursting disc	Nickel alloy or Stainless Steel
Spring	Stainless steel or copper beryllium
Seal	Plastic
Bursting disc body	Brass
Spindle	Brass
Spring retainer	Brass

#### Options

- Customized Handwheel logo cap
- Dip tube
- Bursting disc safety available in various settings
- Chromium plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

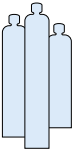
#### Conforms to all requirements of:

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
ISO 15996	International Standard

#### FILLING ADAPTOR







# P 1020 series

## Residual High Pressure Cylinder Valves for Industrial Gases

**List Features**

- Residual pressure valve, o-ring seal type for various gases including CO2
- Filling connector available separately

**List Technical data**
**Pressure**

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

**Temperature Range**

-40°C ÷ +65°C	-40°F ÷ +149°F
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**Life Cycle**

2,000 minimum

**Guaranteed External Tightness**

leakage ≤ 6 cm<sup>3</sup>/h      0.788 scfm

**Guaranteed Internal Tightness**

leakage ≤ 6 cm<sup>3</sup>/h      0.788 scfm

**Residual pressure device**

2.5 to 4 bar      35 to 58 PSI

(according to customer's specifications)


**Material components**

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Seat pad	Polyamide
Bursting disc	Nickel alloy or Stainless Steel
Spring	Stainless steel or copper beryllium
Seal	Plastic
Bursting disc body	Brass
Spindle	Brass
Spring retainer	Brass

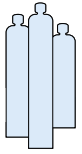
**Options**

- Customized Handwheel logo cap
- Dip tube
- Bursting disc safety available in various settings
- Chromium plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

**Conforms to all requirements of:**

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
ISO 15996	International Standard





# FILLING CONNECTORS

for Residual Pressure valves

## List Features

- The filling connectors are available in brass, in accordance with all CGA standardized cylinder valve outlets
- The connectors can be used with all the different types of residual pressure valves:

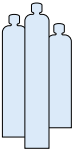
- P2009 series
- P1020 series

- The design with a special retractile pin is also available, to allow the connectors to be used with the standard valves series.

## Options

Chromium plating





## IVIPR *series*

### Valve with Integrated Pressure Regulator for Oxygen

#### List 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
- Suitable for Oxygen
- Meets all the requirements of ISO 22435, EN-ISO 15996

#### List Technical data

##### Pressure

Service Pressure up to	4,350 PSI
Test Pressure	7,250 PSI
Outlet pressure	adjustable 0 to 145 PSI

##### Temperature Range

-40°F ÷ +149°F

##### Life Cycle

2,000 minimum

##### Guaranteed External Tightness

0.788 scfm

##### Guaranteed Internal Tightness

0.788 scfm

##### Residual pressure range

35 to 58 PSI

(according to customer's specifications)

##### Flow Rate

Q1 30 m<sup>3</sup>/h

##### Flow Coefficient

0.1 Cv

#### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Main shut off seat pad	PA66
Spring	Stainless steel AISI 302
Sealing cap	Acetal resin
Spring regulator	Cu Be, AISI
Filter	Sintered Bronze
Diaphragms pressure reducer seat	HYTREL 5526
Toroidal ring	EPDM

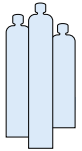
#### Options

Customized Handwheel logo cap

Threaded connection and quick connection available according to EN 561







## IVIPR series

### Valve with Integrated Pressure Regulator for Ar/CO<sub>2</sub> Mix and Inert Gases Mix

#### List 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
- Suitable for Ar/CO<sub>2</sub> mix and Inert Gases Mix
- Meets all the requirements of ISO 22435, EN-ISO 15996

#### List Technical data

##### Pressure

Service Pressure up to	4,350 PSI
Test Pressure	7,250 PSI

##### Temperature Range

-40°F ÷ +149°F

##### Life Cycle

2,000 minimum

##### Guaranteed External Tightness

0.788 scfm

##### Guaranteed Internal Tightness

0.788 scfm

##### Residual pressure range

35 to 58 PSI

(according to customer's specifications)

##### Flow Rate

Q1 0-40 L/min

##### Flow Coefficient

0.1 Cv

#### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Main shut off seat pad	PA66
Spring	Stainless steel AISI 302
Sealing cap	Acetal resin
Spring regulator	Cu Be, AISI
Filter	Sintered Bronze
Diaphragms pressure reducer seat	HYTREL 5526
Toroidal ring	EPDM

#### Options

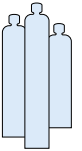
Customized Handwheel logo cap

Threaded connection and quick connection available according to EN 561



iVIPR





# IVIPR *series*

## Valve with Integrated Pressure Regulator for Acetylene

### List Features

- 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
- Suitable for Acetylene
- Meets all the requirements of ISO 22435 (except acetylene decomposition test)

### List Technical data

#### Pressure

Service Pressure up to	363 PSI
Test Pressure	435 PSI
Outlet Pressure	adjustable 0 to 17.4 PSI

#### Temperature Range

-40°F ÷ +149°F

#### Life Cycle

2,000 minimum

#### Guaranteed External Tightness

0.788 scfm

#### Guaranteed Internal Tightness

0.788 scfm

#### Flow Rate

Q1 1 m<sup>3</sup>/h

#### Flow Coefficient

0.1 Cv

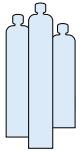
### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Main shut off seat pad	PEEK
Spring	Stainless steel AISI 302
Sealing cap	Acetal resin
Spring regulator	AISI
Filter	Sintered Bronze
Diaphragms pressure reducer seat	HYTREL 5526
Toroidal Ring	EPDM

### Options

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





# NOS series

## Chromium Plated Brass High Pressure Cylinder Valves for Nitrogen Dioxide - O-Ring seal type

### List Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test to 1.2 times cylinder service pressure
- Available bursting discs for all DOT cylinders
- Different inlet threads available upon request

### List Technical data

#### Pressure

Maximum Service Pressure	124 bar	1,800 PSI
Test	149 bar	2,161 PSI

<b>Temperature - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
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<b>Life Cycle</b>	2,000 minimum	
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<b>Max Overtorque</b>	9 N/m	79 lbs / inch
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<b>Flow Capacity CV / Full open</b>	n/a	
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<b>Orifice Ø:</b>	6 mm	.260"
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### Material components

Valve Body	Brass according to EN12164 alloy
Bursting disc	Nickel alloy
Bursting disc body	Brass
Back up Ring	PTFE
Bonnet	Brass
Handwheel	Plastic
Seat	Polyamide
O-rings	EPDM
Stem	Brass according to EN 12164 alloy

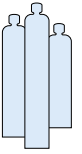
### Conforms to all requirements of:

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



### Ordering Information

Part Number	Gas Service	Outlet Thread Size	Inlet Thread Size
CCS300013000	Nitrous Dioxide	1/4-27 NPT	.625-18 UNF 2A
			.750-16 UNF 2A



# NOS series

## Chromium Plated Brass High Pressure Cylinder Valves for Nitrogen Dioxide - O-Ring seal type

### List Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test to 1.2 times cylinder service pressure
- All marking on the valve neck, protects against damage
- Large Orifice Ø: provides faster vacuum and filling rates
- Gauge port available
- Bursting discs available for all DOT cylinders
- Available configurations include:  
Inlet threads (NGT, UNF, DIN477, BS, EN, EN ISO)



### List Technical data

#### Pressure

Maximum Service Pressure	207 bar	3,000 PSI
Test	249 bar	3,597 PSI

<b>Temperature - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
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<b>Life Cycle</b>	2,000 minimum	
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<b>Max Overtorque</b>	25 N/m	221 lbs / inch
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<b>Flow Capacity CV / Full open</b>	n/a	
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<b>Orifice Ø:</b>	8 mm	.315"
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### Material components

Valve Body	Forged Brass according to EN12165 alloy
Bursting disc	Nickel alloy
Bursting disc body	Brass (also available with 212°F fusible metal)
Back up Ring	Polyamide
Bonnet	Brass
Handwheel	Aluminium
Seat	Polyamide
O-rings	EPDM
Antifriction	Polyamide
Stem	Brass according to EN 12164 alloy

### Conforms to all requirements of:

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

### Ordering Information

Part Number	Gas Service	Outlet Thread Size	Inlet Thread Size
VOA9APA001	Nitrous Dioxide	CGA 660	1.125-12 UNF 2A



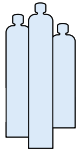
**CAVAGNA group**

Wherever gas is used, we are there



# Corrosive, Pure and Ultrapure Gases

<b>DIASPEC B200 series</b> Brass High Pressure Diaphragm Seal Valve for High Purity Gases	26
<b>DIASPEC S200 series</b> Stainless Steel High Pressure Diaphragm Seal Valve for High Purity Gases	27
<b>DIASPEC TD S200 series</b> Stainless Steel High Pressure Tied Diaphragm Seal Valve for High Purity Gases	28



# DIASPEC B200 series

## Brass High Pressure Diaphragm Seal Valve

for High Purity Gases

### List 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
- 100% helium leak test
- All markings on the valve neck protected against damage
- Durable forged brass bodies manufactured by Cavagna Group
- All inlets and outlets standards available

### List Technical data

#### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature - Storage</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
------------------------------	---------------	----------------

<b>Temperature - Operating</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
--------------------------------	---------------	----------------

<b>Life Cycle</b>	2,000 minimum
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<b>Helium leak rate</b>	Internal	10E-7 atm cc/s
	External	10E-7 atm cc/s
	Safety	10E-8 atm cc/s

<b>Flow coefficient CV</b>	0.4
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<b>Seat orifice dimension</b>	4 mm
-------------------------------	------

### Material components

Body Material:	Brass
Diaphragm:	Stainless steel Hastelloy
Spindle:	Brass
Seat Disc:	PA 6,6 PCTFE
Bursting Disc:	Nickel AISI 316 L

### Options

- Chrome or Nickel plated treatment
- Different diptube connections available
- Customized Handwheel logocap
- Various bursting disc settings available
- Cleaned for UHP/ECD applications
- Prepared for flow restrictor attachment

### Ordering information

V= valve	
D= diaphragm	
A1= brass body	
Seat disc:	PCTFE
Diaphragm:	Stainless steel
Hastelloy	
N= Family	

Gas Identification

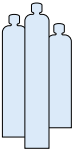
Progressive number: to identify customer personalization, different inlet and outlet threads, bursting disc setting pressure.

Example: VDA1NOS001



### Conforms to all requirements of:

CGA V 9 CGA S-1.1 CGA V-1  ISO 10297 ISO 14246	Standard for Gas Cylinder Valves Standard for Pressure Relief Devices Compressed Gas Cylinder Valve Outlet and Inlet Connections International Standard International Standard
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# DIASPEC S200 series

## Stainless Steel High Pressure Diaphragm Seal Valve for High Purity Gases

### List 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
- 100% helium leak test
- All markings on the valve neck protected against damage
- All inlets and outlets standards available

### List Technical data

<b>Pressure</b>		
Maximum Service Pressure	200 bar	2,900 PSI
Test	240 bar	3,480 PSI
<b>Temperature - Storage</b>		
	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Temperature - Operating</b>		
	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>		
	2,000 minimum	
<b>Helium leak rate</b>		
	Internal	10E-7 atm cc/s
	External	10E-7 atm cc/s
	Safety	10E-8 atm cc/s
<b>Flow coefficient CV</b>		
	0.4	
<b>Seat orifice dimension</b>		
	4 mm	



### Material components

Body Material:	AISI 316 L
Diaphragm:	Hastelloy Stainless Steel
Spindle:	AISI 316 L
Seat Disc:	PA 6,6 PCTFE
Bursting disc:	Nickel AISI 316 L

### Options

Different diptube threads connections available  
 Customized Handwheel logocap  
 Various bursting disc settings available  
 All components in contact with the gas are electrochemically polished.  
 Cleaned for UHP/ECD applications  
 Prepared for flow restrictor attachment

### Ordering information

V= valve  
 D= diaphragm  
 A1= AISI 316 L body  
     Seat disc: PCTFE  
     Diaphragm: AISI 316 L  
                   Hastelloy or Stainless steel

N= Family

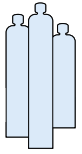
Gas Identification

Progressive number: to identify customer personalization, different inlet and outlet threads, bursting disc setting pressure.

Example: VDA2NOS001

### Conforms to all requirements of:

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



# DIASPEC TD S200 series

## Steel High Pressure Tied Diaphragm Seal Valve

for High Purity Gases

### List Features

- Low operating torque guaranteed thanks to the teflon coating upper stem
- Valve seat pad secured against extrusion
- Extreme leak tightness achieved by back-up welded diaphragm sealing
- High Flow Capacity to allow a fast filling and vacuum purging
- Clean room assembly
- 100% helium leak test
- All markings on the valve neck protected against damage
- All inlets and outlets standards available
- Easy purging process allowed by reduced dead spaces and gas wetted volumes
- Lock of threads and springs in the wet area ensures minimum particulate generation
- Gas doesn't contact with the valve operating mechanism

### List Technical data

#### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature - Storage</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
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<b>Temperature - Operating</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
--------------------------------	---------------	----------------

<b>Life Cycle</b>	2,000 minimum
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<b>Helium leak rate</b>	Internal	10E-8 atm cc/s
	External	10E-8 atm cc/s
	Safety	10E-8 atm cc/s

<b>Flow coefficient CV</b>	0.4
----------------------------	-----

### Material components

Body Material:	AISI 316 L
Diaphragm:	Hastelloy Stainless Steel
Spindle:	AISI 430F AISI 316 L
Seat Disc:	PCTFE
Bursting disc:	Nickel - AISI 316L AISI 316 L

### Options

- Different dip tube thread connections available
- Customized Handwheel logocap
- Various bursting disc settings available
- Gas tight outlet cap & chain
- Cleaned for UHP/ECD applications
- Prepared for flow restrictor attachment (DISS)

### Ordering information

V=	valve
D=	diaphragm
A1=	brass body
	Seat disc: PCTFE
	Diaphragm: Stainless steel
	Hastelloy
N=	Family

Gas Identification

Progressive number: to identify customer personalization, different inlet and outlet threads, bursting disc setting pressure.

Example: VDA1NOS001



**DIASPEC TD S200**  
Diaphragm Valves for Specialty Gases Applications

# Medical Equipment

<b>CDA series</b> Chromium Plated Brass High Pressure Cylinder Valves for Medical Gases O-Ring seal type	30
<b>CDA series</b> O-ring Industrial Gas Cylinder Valve	32
<b>P 2000 series</b> Residual Pressure Valve for Medical gases	33
<b>P 1020 series</b> Residual Pressure Valve for Medical gases	34
<b>PDE series</b> Post Medical Cylinder Valves Pin Index System O-Ring seal type	35
<b>PDE R</b> Post Medical Residual Pressure Valves Pin Index System O-Ring seal type	37
<b>VIPROXY 1 Touch series</b> Valve with Integrated Pressure Reducer for medical Oxygen	39
<b>VIPROXY NEOS</b> Valve with Integrated Pressure Reducer for medical Oxygen	40



## CDA series

### Chromium Plated Brass High Pressure Cylinder Valves for Medical Gases - O-Ring seal type

#### List Features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test to 1.2 times cylinder service pressure
- All marking on the valve neck, protects against damage
- Large Orifice Ø: provides faster vacuum and filling rates
- Available bursting discs for all DOT cylinders
- Durable forged brass body manufactured by Cavagna Group
- Passes stringent oxygen adiabatic compression test
- Available configurations include:
  - Inlet threads (NGT, UNF, DIN477, BS, EN, EN ISO)
  - All CGA outlets available
  - Unitized "plug style" bursting disc

#### List Technical data

##### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
--------------------------------	----------------	-----------------

<b>Life Cycle</b>	2,000 minimum	
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<b>Max Overtorque</b>	25 N/m	221 lbs / inch
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<b>Flow Capacity CV / Full open</b>	n/a	
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<b>Orifice Ø:</b>	4 mm	.160"
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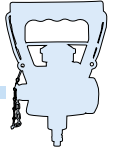
#### Material components

Valve Body	Forged Brass according to EN12165 alloy
Bursting disc	Nickel alloy
Bursting disc body	Brass (also available with 212°F fusible metal)
Back up Ring	PTFE
Bonnet	Brass
Handwheel	Aluminium
Seat	Polyamide
O-rings	EPDM
Antifriction	Delrin
Stem	Brass according to EN 12164 alloy

#### Conforms to all requirements of:

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



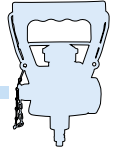


# CDA series

## Chromium Plated Brass High Pressure Cylinder Valves

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
CDA 8 350 6 xxxx CDA 1 350 6 xxxx CDA 6 350 6 xxxx CDA 3 350 6 xxxx CDA 9 350 6 xxxx CDA 1 695 6 xxxx CDA 1 703 6 xxxx	<b>Hydrogen</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDG 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Krypton</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 350 6 xxxx CDA 1 350 6 xxxx CDA 6 350 6 xxxx CDA 3 350 6 xxxx CDA 9 350 6 xxxx CDA 1 695 6 xxxx CDA 1 703 6 xxxx	<b>Methane (R50)</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 350 6 xxxx CDA 1 350 6 xxxx CDA 6 350 6 xxxx CDA 3 350 6 xxxx CDA 9 350 6 xxxx CDA 1 695 6 xxxx CDA 1 703 6 xxxx	<b>Natural Gas</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO RH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDA 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Neon</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDA 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Nitrogen</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 346 1 xxxx CDA 1 346 1 xxxx CDA 6 346 1 xxxx CDA 3 346 1 xxxx CDA 9 346 1 xxxx CDA 1 347 1 xxxx CDA 1 702 1 xxxx	<b>Air (R729)</b> 0 psi to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	346  347 702	.825"- 14 NGO RH Ext.  .825-14 NGO RH Ext. 1.125"-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDA 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Argon</b> 0 to 3,000 psi  3,000 to 5,500 psi ,501 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 555 1 xxxx CDA 1 555 1 xxxx CDA 6 555 1 xxxx CDA 3 555 1 xxxx CDA 9 555 1 xxxx	<b>Butane/Propane</b> Liquid Withdrawal	555	.903-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CDA 8 320 1 xxxx CDA 1 320 1 xxxx CDA 6 320 1 xxxx CDA 3 320 1 xxxx CDG 9 320 1 xxxx	<b>Carbon Dioxide</b> (R744)	320	.825-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF



# CDA series

## O-ring Industrial Gas Cylinder Valve

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
CDA 8 350 6 xxxx CDA 1 350 6 xxxx CDA 6 350 6 xxxx CDA 3 350 6 xxxx CDA 9 350 6 xxxx CDA 1 695 6 xxxx CDA 1 703 6 xxxx	<b>Carbon Monoxide</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	350  695 703	.825-14 NGO LH Ext.  1.045-14 NGO LH Int. 1.125-14 NGO LH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 660 CDA 1 660 CDA 6 660 CDA 3 660 CDA 9 660	<b>1,2 Dichloroethylene</b> (R1130)	660	1.030-14 NGO RH Ext. (Face Washer Seal)	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDG 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Helium</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 326 1 xxxx CDA 1 326 1 xxxx CDA 6 326 1 xxxx CDA 3 326 1 xxxx CDA 9 326 1 xxxx	<b>Nitrous Oxide</b> (R744a)	326	.825-14 NGO RH Ext.	1/2"-14 NGT" 3/4"-14 NGT" 1-11 1/2 NGT .750"-16 UNF" 1.125" -12 UNF"
CDA 8 540 1 xxxx CDA 1 540 1 xxxx CDA 6 540 1 xxxx CDA 3 540 1 xxxx CDA 9 540 1 xxxx CDA 1 577 1 xxxx CDA 1 701 1 xxxx	<b>Oxygen</b> 0 to 3,000 psi  3,000 to 4,000 psi 4,000 to 5,500 psi	540  577 701	.903-14 NGO RH Ext.  .960-14 NGO RH Ext. 1.103-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT
CDA 8 660 1 xxxx CDA 1 660 1 xxxx CDA 6 660 1 xxxx CDA 3 660 1 xxxx CDA 9 660 1 xxxx	<b>Sulfur Dioxide</b>	660	1.030-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CDA 8 580 1 xxxx CDA 1 580 1 xxxx CDA 6 580 1 xxxx CDA 3 580 1 xxxx CDA 9 580 1 xxxx CDA 1 680 1 xxxx CDA 1 677 1 xxxx	<b>Xenon</b> 0 to 3,000 psi  3,000 to 5,500 psi 5,500 to 7,500 psi	580  680 677	.965-14 NGO RH Int.  1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF 3/4"-14 NGT 3/4"-14 NGT

**xxxx Denotes Pressure Relief Device burst disc rupture pressure.**

**Available with:**

"4 and 7 thread oversize inlets: To order change the first number "1" in the part number to "4" or "7"

example: CBA 1 320 1 xxxx becomes CBA 4 320 1 xxxx

Chromium plating: To order, change the letter "B" in the part number to letter "D"

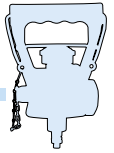
example: CBA 1 540 1 xxxx becomes CDA 1 540 1 xxxx

Fusible backed pressure relief devices in 165 °F and 212 °F nominal melting temperatures:

To order, change the eighth position in the part number to "5" for 165 °F and "6" for 212 °F

example: CBA 1350 1 xxxx becomes CBA 1 350 5 xxxx for 165 °F or CBA 1 350 6 xxxx for 212 °F





## P2009 series

### Residual Pressure Valve for Medical gases

#### List Features

- Residual pressure valve, o-ring seal type for various gases including Oxygen.
- Filling connector available separately

#### List Technical data

##### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
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<b>Life Cycle</b>	2,000 minimum	
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<b>Guaranteed External Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm
<b>Guaranteed Internal Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm

<b>Residual pressure device</b>	2.5 to 4 bar	35 to 58 PSI
---------------------------------	--------------	--------------

(according to customer's specifications)

#### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Seat pad	Polyamide
Bursting disc	Nickel alloy or Stainless Steel
Spring	Stainless steel or copper beryllium
Seal	Plastic
Bursting disc body	Brass
Spindle	Brass
Spring retainer	Brass

#### Options

- Customized Handwheel logo cap
- Dip tube
- Bursting disc safety available in various settings
- Chromium plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

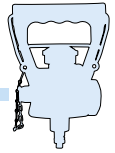
#### Conforms to all requirements of:

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
ISO 15996	International Standard



**FILLING ADAPTOR**





# P1020 series

## Residual Pressure Valve for Medical gases

### List Features

- Residual pressure valve, o-ring seal type for various gases including Oxygen.
- Filling connector available separately

### List Technical data

#### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
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<b>Life Cycle</b>	2,000 minimum	
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<b>Guaranteed External Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm
<b>Guaranteed Internal Tightness</b>	leakage ≤ 6 cm <sup>3</sup> /h	0.788 scfm

<b>Residual pressure device</b>	2.5 to 4 bar	35 to 58 PSI
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(according to customer's specifications)

### Material components

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-ring	EPDM
Seat pad	Polyamide
Bursting disc	Nickel alloy or Stainless Steel
Spring	Stainless steel or copper beryllium
Seal	Plastic
Bursting disc body	Brass
Spindle	Brass
Spring retainer	Brass

### Options

- Customized Handwheel logo cap
- Dip tube
- Bursting disc safety available in various settings
- Chromium plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

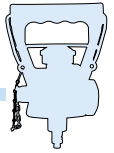
### Conforms to all requirements of:

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
ISO 15996	International Standard



**FILLING ADAPTOR**





## PDE series

### Post Medical Cylinder Valves Pin Index System

O-Ring seal type

#### List 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
- Oxygen cleaned to meet CGA G4.1 specifications
- Clean room assembly

#### List Technical data

##### Pressure

Maximum Service Pressure	230 bar	3,336 PSI
Test	276 bar	4,000 PSI

<b>Temperature range - Storage</b>	-50° C ÷ 65° C	-60° F ÷ 149° F
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<b>Temperature range - Operating</b>	-45° C ÷ 65° C	-50° F ÷ 149° F
--------------------------------------	----------------	-----------------

<b>Life Cycle</b>	2,000 minimum	
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#### Torque Values for PDE series valve

##### Wrench operated **A**

Operating torque @ 0 PSIG inlet pressure	0.3 N/m	3 lbs/inch
Closing torque @ 3000 PSIG inlet pressure	0.9 - 1.3 N/m	8 - 12 lbs/inc

##### Toggle **B**

Operating torque @ 0 PSIG inlet pressure	0.2 N/m	2 lbs/inch
Closing torque @ 2000 PSIG inlet pressure	0.9 - 1.1 N/m	8 - 10 lbs/inch

##### Z Valve w/ Handwheel **C**

Operating torque @ 0 PSIG inlet pressure	0,2 N/m	2 lbs/inch
Closing torque @ 2000 PSIG inlet pressure	0.9 - 1.1 N/m	8 - 10 lbs/inch

#### Material components

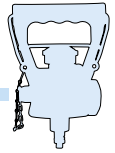
Valve Body	Chromium plated Brass
Bursting disc	Nickel alloy 201
Handwheel	Aluminium
Seat	Polyamide
O-Rings	EPDM
Anti Friction Ring	PEEK
Stem	Chromium plated Brass
Inlet O-ring	PTFE
Back up ring	Nylon
Toggle	Chromium Plated Brass

#### Conforms to all requirements of:

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


**A**

**B**
**C**

# PDE series

## Post Medical Cylinder Valves Pin Index System

### O-Ring seal type

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
PDE 8 950 5 3360 PDE 3 950 5 3360	Air	950	Pins #1 and #5	1/2-14 NGT .750-16 UNF-2A
PDE 8 940 1 3360 PDE 3 940 1 3360	Carbon Dioxide	940	Pins #1 and #6	1/2-14 NGT .750-16 UNF-2A
PDE 8 920 1 3360 PDE 3 920 1 3360	Cyclopropane	920	Pins #3 and #6	1/2-14 NGT .750-16 UNF-2A
PDE 8 900 5 3360 PDE 3 900 5 3360	Ethylene	900	Pins #1 and #3	1/2-14 NGT .750-16 UNF-2A
PDE 8 930 5 3360 PDE 3 930 5 3360	Helium	930	Pins #4 and #6	1/2-14 NGT .750-16 UNF-2A
PDE 8 973 5 3360 PDE 3 973 5 3360	Medical Gas Mixtures	973	Pins #11 and #24	1/2-14 NGT .750-16 UNF-2A
PDE 8 960 5 3360 PDE 3 960 5 3360	Nitrogen	960	Pins # 1 and #4	1/2-14 NGT .750-16 UNF-2A
PDE 8 910 1 3360 PDE 3 910 1 3360	Nitrous Oxide	910	Pins # 3 and #5	1/2-14 NGT .750-16 UNF-2A
PDE 8 965 5 3360 PDE 3 965 5 3360	Nitrous Oxide & Oxygen Mixtures	965	Pin #7	1/2-14 NGT .750-16 UNF-2A
PDE 8 870 5 3360 PDE 3 870 5 3360	Oxygen	870	Pins #2 and #5	1/2-14 NGT .750-16 UNF-2A
PDE 8 880 5 3360 PDE 3 880 5 3360	Oxygen & Carbon Dioxide Mixtures	880	Pins # 2 and #6	1/2-14 NGT .750-16 UNF-2A
PDE 8 890 5 3360 PDE 3 890 5 3360	Oxygen & Helium Mixtures	890	Pins # 2 and #4	1/2-14 NGT .750-16 UNF-2A

All valves are supplied with safety relief devices as specified by the Compressed Gas Association Standard S1.1. Safety relief devices are flush style CG-4 devices backed by 165 F fuse metal, except valves specified for Carbon Dioxide (CGA 940), Cyclopropane (CGA 920) and Nitrous Oxide (CGA 940), where a CG-1 hex style pressure relief device without fuse metal is required.

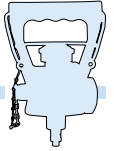
All valves are supplied with rupture discs rated for cylinders with a service pressure of 2,015 psig. Rupture discs rated for other cylinder service pressures are available upon request.

#### Optional Features:

Handwheel - example: PDE 8 890 5 3360 changes to PDU 8 890 5 3360

Chromium Plated Toggle- example: PDE 8 890 5 3360 changes to PDF 8 890 5 3360

1/8"-27 NPT gauge port - example: PDE 8 890 5 3360 changes to PDP 8 890 5 3360 (only available with toggle)



# PDE R

## Post Medical Residual Pressure Valves Pin Index System

O-Ring seal type

### List 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
- Oxygen cleaned to meet CGA G4.1 specifications
- Clean room assembly

### List Technical data

#### Pressure

Test (without b. disc)	518 bar	7,500 PSI
Test with b. disc at 80% of set pressure	276 bar	4,000 PSI
Residual pressure	43.5 to 72.5	3 to 5

**Temperature range - Storage**      -50° C ÷ 65° C      -60° F ÷ 149° F

**Temperature range - Operating**      -45° C ÷ 65° C      -50° F ÷ 149° F

**Life Cycle**      2,000 minimum

### Torque Values for PDE series valve

#### Wrench operated **A**

Operating torque @ 0 PSIG inlet pressure	3 lbs/inch	0.3 N/m
Closing torque @ 3000 PSIG inlet pressure	8 - 12 lbs/inch	0.9 - 1.3 N/m

#### Toggle **B**

Operating torque @ 0 PSIG inlet pressure	2 lbs/inch	0.2 N/m
Closing torque @ 2000 PSIG inlet pressure	8 - 10 lbs/inch	0.9 - 1.1 N/m

#### PDU **C**

Operating torque @ 0 PSIG inlet pressure	2 lbs/inch	0,2 N/m
Closing torque @ 2000 PSIG inlet pressure	8 - 10 lbs/inch	0.9 - 1.1 N/m

### Material components

Valve Body	Chromium plated Brass
Bursting disc (If required)	Nickel alloy 201
Handwheel or toggle (if required)	Chromium Plated brass
Seat	Polyamide
O-Rings	EPDM
Back up ring	Teflon®
Anti Friction Ring	PEEK
Stem	Chromium Plated Brass
Inlet O-ring	Teflon®

### Conforms to all requirements of:

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
ISO 15996	Test on RP Device



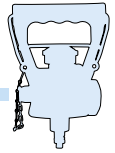
**A**



**B**



**C**



# PDE R

## Post Medical Residual Pressure Valves Pin Index System

O-Ring seal type

### Ordering Information

Part Number	Gas Service	CGA Outlet	Outlet Thread Size	Inlet Thread Size
PDE R 8 950 5 3360 PDE R 3 950 5 3360	Air	950	Pins #1 and #5	1/2-14 NGT .750-16 UNF-2A
PDE R 8 940 1 3360 PDE R 3 940 1 3360	Carbon Dioxide	940	Pins #1 and #6	1/2-14 NGT .750-16 UNF-2A
PDE R 8 920 1 3360 PDE R 3 920 1 3360	Cyclopropane	920	Pins #3 and #6	1/2-14 NGT .750-16 UNF-2A
PDE R 8 900 5 3360 PDE R 3 900 5 3360	Ethylene	900	Pins #1 and #3	1/2-14 NGT .750-16 UNF-2A
PDE R 8 930 5 3360 PDE R 3 930 5 3360	Helium	930	Pins #4 and #6	1/2-14 NGT .750-16 UNF-2A
PDE R 8 973 5 3360 PDE R 3 973 5 3360	Medical Gas Mixtures	973	Pins #11 and #24	1/2-14 NGT .750-16 UNF-2A
PDE R 8 960 5 3360 PDE R 3 960 5 3360	Nitrogen	960	Pins #1 and #4	1/2-14 NGT .750-16 UNF-2A
PDE R 8 910 1 3360 PDE R 3 910 1 3360	Nitrous Oxide	910	Pins #3 and #5	1/2-14 NGT .750-16 UNF-2A
PDE R 8 965 5 3360 PDE R 3 965 5 3360	Nitrous Oxide & Oxygen Mixtures	965	Pin #7	1/2-14 NGT .750-16 UNF-2A
PDE R 8 870 5 3360 PDE R 3 870 5 3360	Oxygen	870	Pins #2 and #5	1/2-14 NGT .750-16 UNF-2A
PDE R 8 880 5 3360 PDE R 3 880 5 3360	Oxygen & Carbon Dioxide Mixtures	880	Pins #2 and #6	1/2-14 NGT .750-16 UNF-2A
PDE R 8 890 5 3360 PDE R 3 890 5 3360	Oxygen & Helium Mixtures	890	Pins #2 and #4	1/2-14 NGT .750-16 UNF-2A

All valves are supplied with safety relief devices as specified by the Compressed Gas Association Standard S1.1. Safety relief devices are flush style CG-4 devices backed by 165 °F fuse metal, except valves specified for Carbon Dioxide (CGA 940) and Nitrous Oxide (CGA 940), where a CG-1 hex style pressure relief device without fuse metal is required.

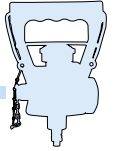
All valves are supplied with rupture discs rated for cylinders with a service pressure of 2,015 psig. Rupture discs rated for other cylinder service pressures are available upon request.

#### Optional Features:

Handwheel - example: PDE R 8 890 5 3360 changes to PDU 8 890 5 3360

Chromium Plated Toggle- example: PDE R 8 890 5 3360 changes to PDF 8 890 5 3360

1/8"-27 NPT gauge port - example: PDE R 8 890 5 3360 changes to PDP 8 890 5 3360 (only available with toggle)



# VIPROXY 1 Touch series

Valve with Integrated Pressure Reducer for medical Oxygen

3336 PSI - 4350 PSI

### Features

- 1 Touch incorporates a low torque non rotating spindle shut off valve with an integrated ten position flow setting device
- Valve with integrated pressure reducer for Medical Oxygen, MRI compatible
- Non-return valve with synerized bronze filter integrated in the filling port
- Compensated regulator
- Synerized bronze smart filter in the cylinder connection
- Tested and approved in accordance with the International Standards EN-ISO 10524-3, CGA E-18
- Positive pressure device incorporated
- Active gauge with fluorescent screen

### Technical data

#### Pressure

Maximum Service Pressure	3,360 PSI
Outlet Pressure	50 PSI
Test	4,000 PSI
Residual Positive Pressure	43 - 72 psi

<b>Temperature Range</b>	-40°F ÷ +149°F
--------------------------	----------------

<b>Life Cycle</b>	4,000 minimum
-------------------	---------------

<b>Flow Rate</b>	2,400 NI/m
------------------	------------

<b>Hose-barb Ø</b>	1/4"
--------------------	------

<b>Flow Rates</b>	0.5, 1, 1.5, 2, 3, 4, 6, 8, 10, 15, 25 l/m
-------------------	--

### Material components

Body in forged brass  
 Valve Main Sealing in Nylon  
 Regulator Sealing in Nylon  
 Elastomer in EPDM  
 The valve is not made of any ferrous material or steel

Code	MVA2UOS001	MVA2UOS002	MVA2UOS012	MVA2UOS010
<b>Inlet</b>	3/4" NGT	.750 UNF	3/4" NGT	.750 UNF
<b>Outlet</b>	CGA 540	CGA 540	CGA 540	CGA 540
<b>Bursting Disc</b>	3360 PSI	3360 PSI	4000 PSI	3360 PSI
<b>Cylinder Type</b>	K - T	ME	K - T	ME



### FILLING ADAPTERS



Code PBX55400



Code PBX65400



Code PBX85400



Code 3079500050



Code 3079500112

# VIPROXY NEOS series

*Valve with Integrated Pressure Reducer for medical Oxygen*

3336 PSI - 4350 PSI

**Features**

- NEOS incorporates a low torque non rotating spindle shut off valve with an integrated ten position flow setting device
- Valve with integrated pressure reducer for Medical Oxygen, MRI compatible
- Non-return valve with sintered bronze filter integrated in the filling port
- Compensated regulator
- Sintered bronze smart filter in the cylinder connection
- Tested and approved in accordance with the International Standards EN-ISO 10524-3, CGA E-18
- Positive pressure device incorporated
- Digital gauge with backlight display

**Technical data**

<b>Pressure</b>	
Maximum Service Pressure	3,360 PSI
Outlet Pressure	50 PSI
Test	4,000 PSI
Residual Positive Pressure	43 - 72 psi
<b>Temperature Range</b>	
	-40°F ÷ +149°F
<b>Life Cycle</b>	
	4,000 minimum
<b>Flow Rate</b>	
	2,400 NI/m
<b>Hose-barb Ø</b>	
	6 mm
<b>Flow Rates</b>	
	0.5, 1, 1.5, 2, 3, 4, 6, 8, 10, 15, 25 l/m

**Material components**

Body in forged brass  
 Valve Main Sealing in Nylon  
 Regulator Sealing in Nylon  
 Elastomer in EPDM  
 The valve is not made of any ferrous material or steel



<b>Code</b>	MVA2UOS001	MVA2UOS002	MVA2UOS012
<b>Inlet</b>	3/4" NGT	.750 UNF	3/4" NGT
<b>Outlet</b>	CGA 540	CGA 540	CGA 540
<b>Bursting Disc</b>	3360 PSI	3360 PSI	4000 PSI

**FILLING ADAPTERS**



**Code** PBX55400



**Code** PBX65400

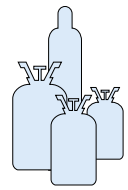


**Code** PBX85400



# Refrigerant Gases Valves

<b>RUS series</b> Single Outlet Compact Refrigerant Recovery Valves	42
<b>RDU series</b> Diaphragm Packless Multivalves for Refrigerant Gases	43
<b>RBV series</b> Single Outlet Diaphragm Packless Valves	44
<b>ROB series</b> O-ring style Refrigerant Cylinder Valves	45
<b>ROY series</b> O-ring style Double Outlet Compact Refrigerant Recovery Valves	46
<b>RIV series</b> O-ring style High Flow Rate Refrigerant gases valves	47



# RUS series

## Single Outlet Compact Refrigerant Recovery Valves

*O-Ring Cylinder Valves for Refrigerant Gases Liquid/Vapor*

### List Features

- Tamper proof gland nut cannot be removed
- Non-refillable outlet feature, protects cylinder from contamination (Removable and fixed versions available)
- Hose barb supplied for easy assembling of the Dip Tube
- CGA-7 pressure relief devices - various settings available
- Various soft seat Material components assures positive leak tight shut-off
  
- Inlet threads available with ever seal insuring leak tight cylinder connection and reduced friction during installation
- UL Listed

### List Technical data

<b>Maximum Service Pressure</b>	45 bar	650 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	6,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =525 PSI</b>	208 CFM Air @ 700 PSI	



### Material components

Valve Body	Brass EN 12165 alloy
Spring	Stainless Steel
Handwheel	Plastic
Seat	Various PA
O-Rings	Various CR

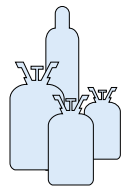
### Options

Various Dt lengths and Material components  
 Inverted Handwheels for liquid and vapour  
 PRD seal cap  
 Pressure relief device cartridge style  
 Everseal preapplied on the inlet

### Conforms to all requirements of:

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

Various inlet and outlet configurations available



# RDU series

## Diaphragm Packless Multivalves

for Refrigerant Gases

### List Features

- Diaphragm packless style valves
- Non-refillable outlet feature, protects cylinder from contamination (Removable and fixed versions available)
- Single or dual outlet available
- All valves are 100% leak test to full cylinder service pressure
- Hose barb supplied for easy assembling of the Dip Tube
- CGA-7 pressure relief devices - various settings available
- Various soft seat Material components assures positive leak tight shut-off
- Inlet threads available with ever seal insuring leak tight cylinder connection and reduced friction during installation
- UL listed

### List Technical data

<b>Maximum Service Pressure</b>	55 bar	800 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	6,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =600 PSI</b>	240 CFM Air @ 800 PSI	

### Material components

Valve Body	Brass EN 12165 alloy
Handwheel	Plastic
Diaphragm	Stainless steel
Spring	Stainless steel

### Options

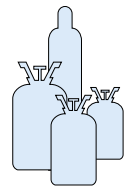
Various Dt lengths and Material components  
 Inverted Handwheels for liquid and vapour  
 PRD seal cap  
 Pressure relief device cartridge style  
 Stainless steel body for special applications  
 Everseal preapplied on the inlet  
 Antifilling devices available on some models

### Conforms to all requirements of:

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

Various inlet and outlet configurations available





# RBV series

## Single Outlet Diaphragm Packless Valves

*for Refrigerant Gases*

### List Features

- Diaphragm packless style valves
- Non-refillable outlet feature, protects cylinder from contamination (Removable and fixed versions available)
- CGA-7 pressure relief devices - various settings available
- Various soft seat Material components assures positive leak tight shut-off
- Inlet threads available with ever seal insuring leak tight cylinder connection and reduced friction during installation

### List Technical data

<b>Maximum Service Pressure</b>	55 bar	800 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	6,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =600 PSI</b>	240 CFM Air @ 800 PSI	



### Material components

Valve Body	Brass EN 12165 alloy
Handwheel	Plastic
Diaphragm	Stainless steel
Spring	Stainless steel

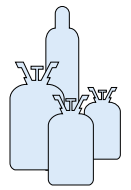
### Options

- Colored Handwheel
- PRD seal cap
- Everseal preapplied on the inlet

### Conforms to all requirements of:

ISO 10297                      International Standard

Various inlet and outlet configurations available



# ROB series Refrigerant Cylinder Valves *O-Ring seal type*

**List Features**

- These valves are double o-ring seal type valves
- Double o-ring Material components technology reduces the possibility of leaks
- Robust brass handwheel united with the original Qualihandwheel® Cavagna system. Brass handwheels are a more resistant than common aluminium or zamak handwheel
- O-ring Material components compatible with all different type of Refrigerant gases
- All inlets and outlets standard available
- Different handwheel sizes available

**List Technical data**

<b>Maximum Service Pressure</b>	55 bar	800 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	10,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =600 PSI</b>	240 CFM Air @ 800 PSI	

**Material components**

Valve Body	Brass EN 12165 alloy
Spindle	Brass EN 12164 alloy
Handwheel	Brass EN 12165 alloy
O-rings	Various CR
PRD Spring	Stainless steel
Seat Pad	Various PA

**Options**

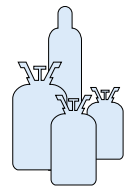
- Customized handwheel logo
- Dip tube thread
- Dip tube material based on customer requirements
- Pressure relief devices various sett pressure
- Antifilling devices available on some models
- Everseal preapplied on the inlets

**Conforms to all requirements of:**

EN 15995	International Standard
ISO 10297	International Standard

Various inlet and outlet configurations available





# ROY series

## Double Outlet Compact Refrigerant Recovery Valves

O-Ring Cylinder Valves for Refrigerant Gases Liquid/Vapor

**List Features**

- Tamper proof gland nut cannot be removed
- Hose barb supplied for easy assembling of the Dip Tube
- CGA-7 pressure relief devices - various settings available
- Various soft seat Material components assures positive leak tight shut-off
- Inlet threads available with ever seal insuring leak tight cylinder connection and reduced friction during installation
- UL Listed

**List Technical data**

<b>Maximum Service Pressure</b>	45 bar	650 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	6,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =525 PSI</b>	208 CFM Air @ 700 PSI	



**Material components**

Valve Body	Brass EN 12165 alloy
Spring	Stainless Steel
Handwheel	Plastic
Seat	Various PA
O-Rings	Various CR

**Options**

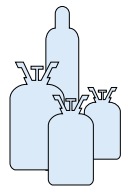
- Various Dt lengths and Material components
- Inverted Handwheels for liquid and vapour
- PRD seal cap
- Pressure relief device cartridge style

**Conforms to all requirements of:**

- 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

Various inlet and outlet configurations available

\* Valve Handwheels are reversed - **Red** is vapor withdrawal and **Blue** is liquid withdrawal. Various dip tube material and lengths are available on request - Please consult the manufacturer for details.



# RIV series

## High Flow Rate Refrigerant gases valves

### O-Ring seal type

#### List Features

- High Flow Rate refrigerant gases valve
- Easy handwheel operation under pressure
- Pressure relief devices - various settings available
- Double o-ring seal type valve
- Non-refillable outlet feature, protects cylinder from contamination (Removable and fixed versions available)

#### List Technical data

<b>Maximum Service Pressure</b>	45 bar	650 PSI
<b>Temperature Range</b>	-40°C ÷ +65°C	-40°F ÷ +149°F
<b>Life Cycle</b>	2,000 minimum	
<b>Flow rate (CV):</b>	n/a	
<b>Discharge flow capacity for PRD start to discharge =500 PSI</b>	262 CFM Air @ 660 PSI	



#### Material components

Valve Body	Brass EN 12165 alloy
Handwheel	Aluminum
O-ring	Various CR
Spindle	Brass
Antifilling device	Plastic / Brass / Stainless Steel
PRD Spring	Stainless steel

#### Options

- Available with antifilling device
- Everseal preapplied on the inlet
- Dip tube various Material components
- Colored Handwheel
- Customized Handwheel logo cap

#### Conforms to all requirements of:

ISO 10297                      International Standard

Various inlet and outlet configurations available



**CAVAGNA group**

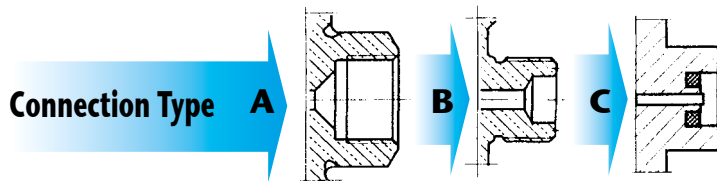
Wherever gas is used, we are there





# **Table Of Outlet Connections For The Most Significant Gases**

## Table of outlet connections for the most significant gases



GAS	Chemical Symbol	Dimensions	Standard	Type
COMPRESSED AIR		.825" - 14 NGO TH EXT	CGA 346	B
NITROGEN	N <sub>2</sub>	.965" - 14 NGO RH INT	CGA 580	A
ARGON	Ar	.965" - 14 NGO RH INT	CGA 580	A
HELIUM	He	.965" - 14 NGO RH INT	CGA 580	A
HYDROGEN	H <sub>2</sub>	.825" - 14 NGO LH EXT	CGA 350	B
METHANE	CH <sub>4</sub>	.825" - 14 NGO LH EXT	CGA 350	B
CARBON MONOXIDE	CO	.825" - 14 NGO LH EXT	CGA 350	B
OXYGEN	O <sub>2</sub>	.903" - 14 NGO RH EXT	CGA 540	B
CARBON DIOXIDE	CO <sub>2</sub>	.825" - 14 NGO LH EXT	CGA 320	B
NITROUS OXIDE	N <sub>2</sub> O	.825" - 14 NGO LH EXT	CGA 326	B
ACETYLENE	C <sub>2</sub> H <sub>2</sub>	.885" - 14 NGO LH INT	CGA 510	A
AMMONIA	NH <sub>3</sub>	3/8" - 18 NGT RH INT	CGA 240	A
SULPHUR DIOXIDE	SO <sub>2</sub>	1.030" - 14 NGO RH EXT	CGA 660	B
PROPANE	C <sub>3</sub> H <sub>8</sub>	.885" - 14 NGO LH INT	CGA 510	A
BUTANE	C <sub>4</sub> H <sub>10</sub>	.885" - 14 NGO LH INT	CGA 510	A
CHLORINE	Cl <sub>2</sub>	1.030" - 14 NGO RH EXT	CGA 660	B
ETHYLENE OXIDE	C <sub>2</sub> H <sub>4</sub> O	.885" - 14 NGO LH INT	CGA 510	A
PHOSGENE	COCl <sub>2</sub>	1/8" - 27 NGT RH INT	CGA 160	A
REFRIGERANT		1.030" - 14 NGO RH EXT	CGA 660	B

## **WARRANTY AND LIABILITY CONDITIONS (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 the design of, materials in or construction of the Product that 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 product is 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 - Claims**

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 arrives 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 EXW to the buyer products of the same kind and quantity as those that have been proved 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 become property of the Warrantor. In case of additional costs related to the replacement of a product proved to be defective or not in compliance, Warrantor and buyer shall jointly and previously agree how

to apportion the costs.

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

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, or invoice); The buyer assumes the risk of any difference between the European Directives plus the Italian regulations and those of the country of destination, use or installation of the Products, and indemnifies the Warrantor for any such differences it.

The Warrantor guarantees the performance of brand new products of 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). 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
- 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, terms and conditions of the product liability insurance policy held by it (a copy of the current policy 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.









**CAVAGNA group**

Wherever gas is used, we are there

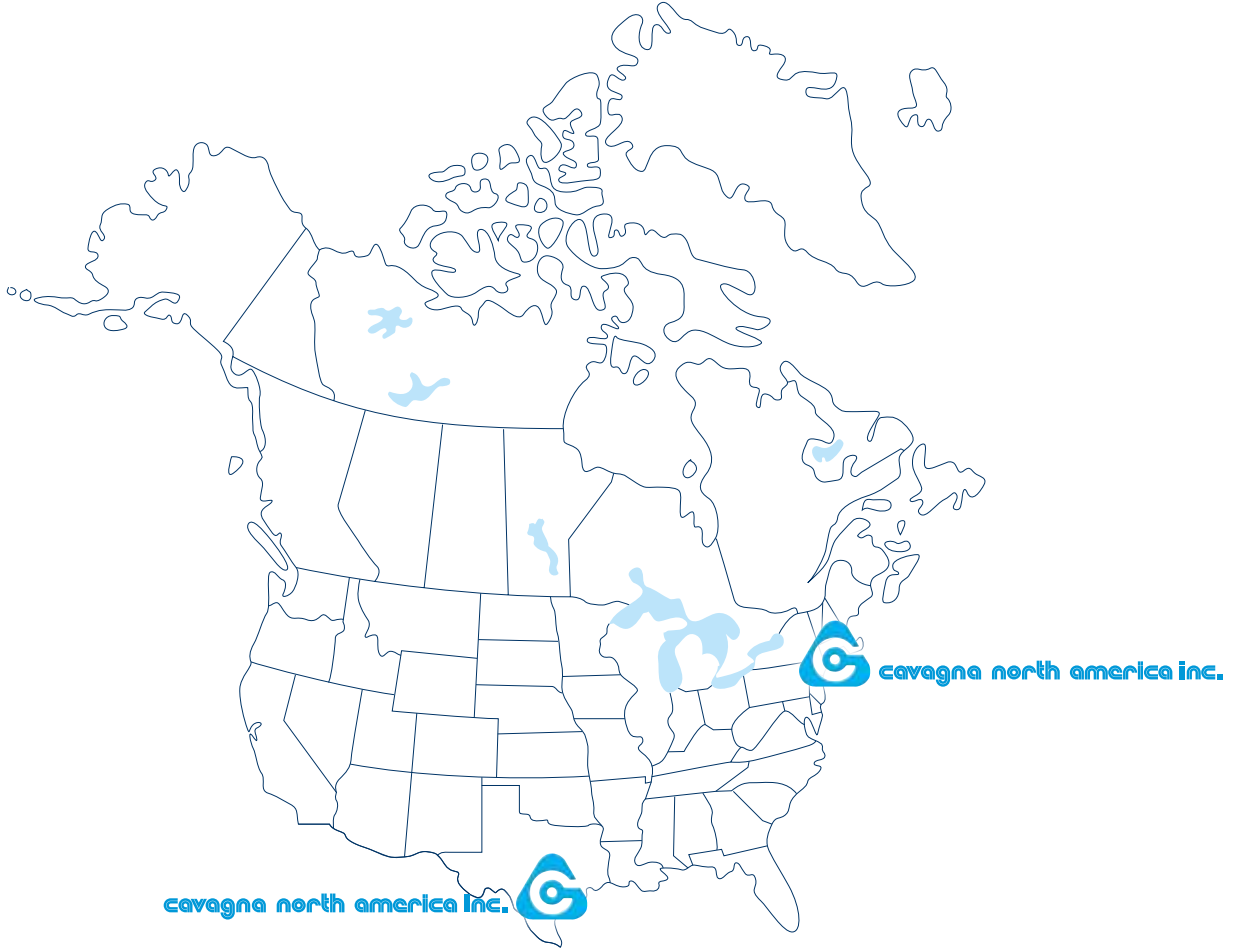
# Manufacturing Facilities



# Cavagna Group's HP stocking locations

**Cavagna North America, Inc**  
50 Napoleon Court  
Somerset, NJ 08873  
Phone: 001-732-4692100  
Fax: 001-732-4693344  
Email: info@cavagna.com

**Distribution Center:**  
**Cavagna North America, Inc**  
5910 W By Northwest Blvd.  
Houston, TX 77040  
Email: info@cavagna.com



**cavagna north america inc.**

50 Napoleon Court Somerset, NJ 08873  
732-469-2100 • Fax 732-469-3344

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