cavagna group

HIGH PRESSURE EQUIPMENT

DIVISION

HIGH PRESSURE CYLINDER VALVES

Quality Management and Quality Assurance Conforming
to standard ISO 9001 APRAGAZ

We are pleased to announce that **APRAGAZ**, approved Pergola on its final assessment, and that Pergola was granted on March 11, 2003 UNI EN ISO 9001.

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

Through your efforts and research we guarantee that Pergola will provide the highest standard of service to ensure success.

Today you can be assured that with Pergola 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:

APRAGAZ BELGIUM	CGA	CHLORINE INSTITUTE	CZECH REBUBLIC
AIR LIQUIDE FRANCE	DIN-DVGW GERMANY	BAM GERMANY	POLAND
POLAND	ISCIR ROMANIA		

Please be so kind to verify with us approvals, accessories (tubes, tubes materials, 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:

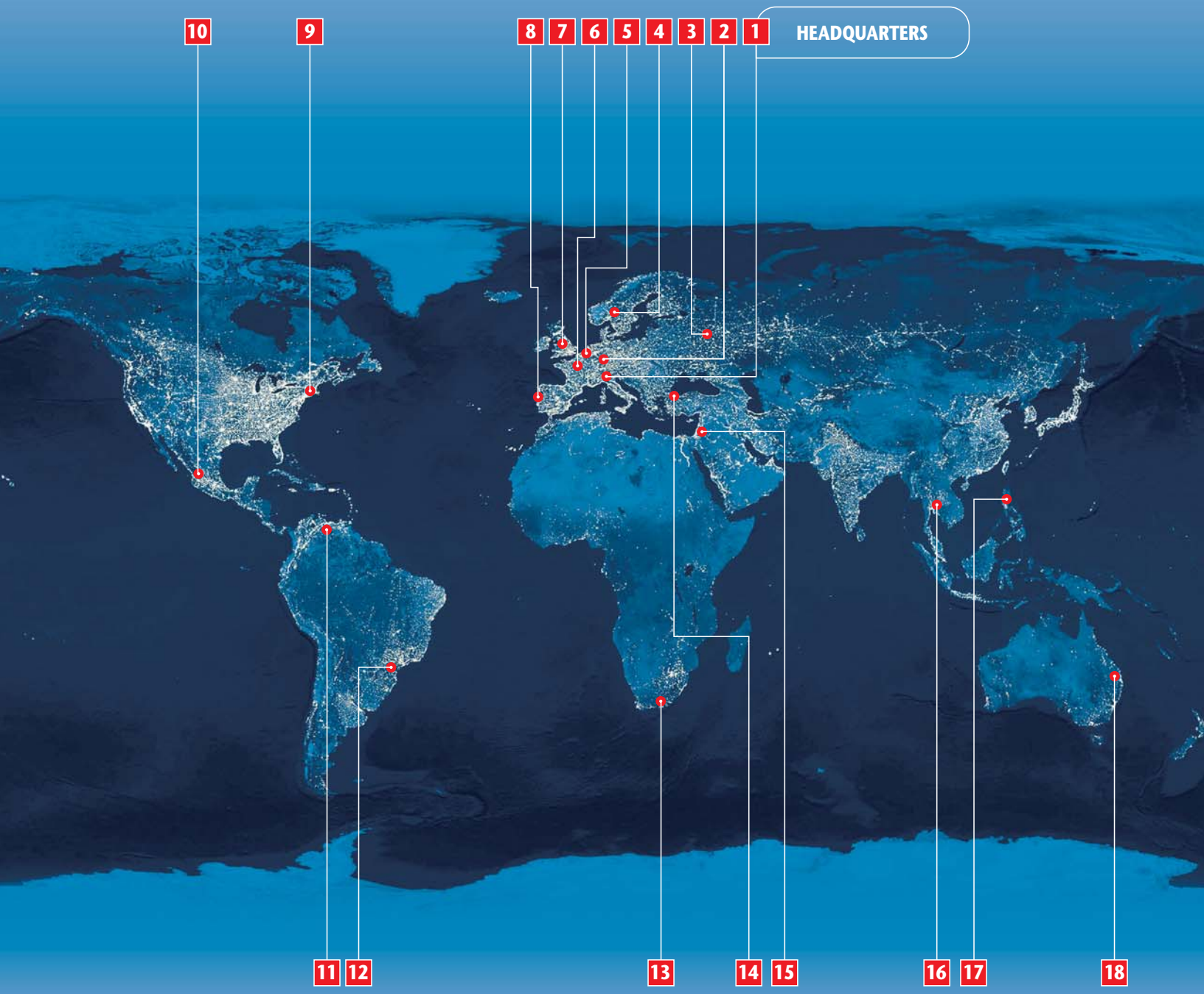
cavagna group
pergola

Via Statale 11, n° 11/13 - 25010 PONTE S. MARCO di CALCINATO (BS) - ITALY
Tel. +39 030 9663.111 - Fax +39 030 9980894
Website: www.cavagnagroup.com

EDITION APRIL 2008

cavagna group

DISTRIBUTION NETWORK



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HIGH PRESSURE EQUIPMENT DIVISION

DISTRIBUTION NETWORK

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1 ITALY

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LPG e Natural Gas Regulators
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4 CAVAGNA GROUP SCANDINAVIA
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THOMAS JANG
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17 CAVAGNA GROUP PHILIPPINES
GAZ PROVIDERS INC.
Tel. 00632 - 92 - 22316 - Fax. 00632 - 92 - 11657
E-mail: gazpro@pldtdsl.net

AUSTRALIA & NEW ZEALAND

18 CAVAGNA GROUP AUSTRALIA
BROMIC PTY Ltd
Tel. 0061-2-97483900 - Fax 0061-2-97484289
E-mail: sales@bromic.com.au

EDITION JUNE 2005

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“CE” and “π” mark Certificate

Cavagna Group High Pressure Equipment Division have been awarded by APRAGAZ (European EC notified body) the certificate “CE” and “π” mark for approved equipment according to Directive 97/23 EC, 99/36 EC, 93/42 EC.

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HIGH PRESSURE EQUIPMENT

DIVISION

1 - Compliance of the products
Subject to the provisions of this article, the seller guarantees the compliance of the products supplied; by the term "compliance of the products" is meant that they correspond in quantity, quality, and type with what was agreed in the contract and that they are without defects that could render them unfit for the use to which they are intended to be put.

2 - Extent of the guarantee
The guarantee against defects is limited only to product defects due to defects in planning, materials or construction that can be attributed to the seller, and does not apply in the case where the buyer is unable to prove a correct preservation of the products, and neither that he has modified them without the agreement of the seller.
Furthermore, the seller is not liable for defects in product compliance due to the normal wear of those parts, which by their nature, are subject to rapid and continuous wear and tear (for example: lining, etc.).
In general, in no case is the seller liable for defects in compliance, whose cause lies in a fact subsequent to the transfer of risk to the buyer.
The present guarantee is valid only when the products are installed, used and maintained in conformity with the instructions furnished by the seller (inserted in the Warning Paper) and with the requests and dispositions of the voluntary or mandatory laws and regulations existing in the country where the products are used or, where there's no laws, in conformity with the good technical work rules of the sector.

3 - Claims
The buyer is required to control the compliance of the products and the absence of flaws. The buyer should report any flaws or defects in product compliance, in the following ways and time:
a) Claims for shortage or damages apparent from exterior examination of package contents must be expedited as soon as the products arrived at their place of destination or risk forfeiture;
b) claims relevant to quantity, colour, quality flaws or defects or non-compliance that the buyer would be able to point out as soon as he takes possession of the goods, must be made shortly after the time when the products arrived at their place of destination and, in any event, on lapse of the guarantee not later than 15 days after that time;
c) hidder flaws, defects or non-compliance (that is, those not identifiable according to the inspection imposed by law and by the preceding subparagraph on the buyer) must be reported shortly after the discovery and in any event, on lapse of the guarantee, not later than 2 years from the delivery date.

Claims must be made by registered letter, addressed to the head office of the seller and must describe in detail the flaws or disputed non-compliance.
In order to preserve this warranty, the buyer will not execute any intervention on the product (disassembling, repair, modification, etc.) without the seller prior written agreement.
The buyer forfeits his guarantee rights if he does not consent to every reasonable control requested by the seller, or if after the seller has requested the return of the defective products at his own expenses, the buyer omits to return them within 5 working days from the request.
In the event that the claim turns out to be unfounded, the buyer will be required to reimburse the seller for all the expenses sustained by him in verifying the 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 seller, within a reasonable period having regard to the context of the claim, may, at his 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 what was agreed; in such a case the seller can require the return or the defective products, which become his property.
b) declare in writing the cancellation of the contract, offering the restitution of the sum paid against the restitution of the supplied products.
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 the seller.

5 - Limit of seller's liability
The guarantee contained in the previous points supersedes all legal warranty for defects and compliance, and excludes any other possible liability of the seller, however originating, from the products supplied. In particular, the buyer can not put forward another claim for compensation in respect of any further damages, reduction of the price or cancellation of the contract. Once the period of the guarantee has expired no valid claim can be made against the seller.
In no event shall seller 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 the provisions of the present point and to the previous ones will be considered valid unless expressly and specifically defined and accepted by the parties in writing.

6 - Technical regulations
Whereas for that which concerns the product characteristics the seller complies with the legislation and the technical regulations prevailing in Italy and the European Directives, and that will be furnished on request, the buyer assumes the whole risk of any difference between the European Directives plus the Italian regulations and those of the country of destination of the products, and indemnifies the seller in respect of it, unless if they have been previously communicated to him.
The seller guarantees the performance of products of his manufacture only and exclusively in relation to uses, destinations, applications, tolerances, capacities, etc.. that have been expressly indicated by him, with the sole exception of uses, destinations and applications that, to the common knowledge acquired by normal users, are clearly and unequivocally attributable to the products in question.
The buyer is not authorised to dispose of the products supplied to him by the seller in a way which does not conform to the indications described in the previous sub-paragraph and in the instruction given by seller.
Where the buyer intends the said products to be resold, it shall be his responsibility:
a) informing his purchasers of the indications in question;
b) any further periods of guarantee he decides to grant to his purchasers exceeding the ones granted to him by Seller according to paragraph 3

7 - Personal injuries and property damages
Seller 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, seller 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 product, the parties 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 seller within the limits, the terms and the conditions set forth in its liability insurance policy, with the exclusion of the costs connected to the finding of the Products in the market, that will be supported by the Buyer.

Compressed Gas Products

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 112 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 six production facilities located in the Lumezzane district of nothern Italy.

Years of experience and devotion to highly automated and controlled production facilities, the group moved 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 twenty-one world wide operations making it one of the world's largest producers of gas valves, regulators and related equipment.

APRAGAZ
Quality Assurance

CEOC
MEMBER

Certificat / Certificate N° : 0511/912-6-Rev 0

APRAGAZ certifie que le Système Qualité adopté par :
APRAGAZ certifies that the Quality System developped by :

PERGOLA S.r.l.

pour les activités suivantes :
for the following activities :

Conception, production et vente de vannes haute pression pour gaz et d'équipements pour applications médicales, industrielles et haute pureté.

Design, production and sales of high pressure gas valves and equipment for medical, industrial and high purity applications.

exercées sur le(s) site(s) suivant(s) :
carried out at the following location(s) :

Via Statale, 11 – 11/13
IT - 25010 Ponte San Marco di Calcinato (Brescia)
ITALY

a été évalué et jugé conforme aux exigences de la norme à l'exclusion du §7.5.4. :
has been assessed and found to perform to the requirements of the standard §7.5.4. excluded :

EN ISO 9001:2000

Date de Certification originale : 10/06/2005
Original Certification date : 10/06/2005

Sous réserve du fonctionnement continu et satisfaisant du système qualité de l'entreprise, ce certificat est valable pour une période de trois ans jusqu'au :
Under the condition the quality system of the company is working satisfactorily, this certificate is valid for three year until :

10/06/2008

Date d'émission : 27/06/2005
Date of issue : 27/06/2005

Le Directeur Général
The General Manager

Ch. Leplat, Jr

Le représentant de l'entreprise
on behalf of the company

BELCERT

Our North America Distribution Center was opened in 1997, this 15,000 square foot facility located in Morrisville New Jersey provides our customer 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 to grow as the provide 24 hour order processing.

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

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

Growth and service go hand in hand with Cavagna's commitment to total quality. It is this commitment that drove the groups achievement of ISO certification in the early 1990's. To further our goal in the area of quality and to significantly move ahead of our competition, Cavagna has recenly embarked on a six-sigma program to pursue a higher level of overall corporated 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 or our engineering group are obtained because of Cavagna's corporate philosophy which grounds his milestones on the quality of the human resources employed to guarantee the safety and reliability of its products world wide.

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

CBA Acetylene series

Commercial and POL Style Acetylene Cylinder Valves

O-Ring seal type

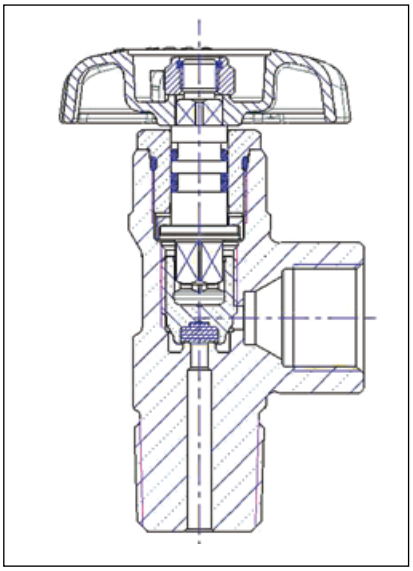
Quality Certification Bureau Inc. ISO 9001:2000 Registered QMS

Key features

- O-Ring technology provides superior leak integrity
- Easy operation and long service life
- 100% leak test to 1,2 times working pressure
- All marking on the valve neck, protects against damage
- Large seat orifice 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)

Technical Specifications

Pressure:		
Max Working Pressure		3300 PSIG
Test Pressure		870 PSIG
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
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 @ 2900 PSIG inlet pressure	2 N/m	17,7 lbs / inch
Max Overtorque	25 N/m	221 lbs / inch
Flow capacity (CV)	n/a	
Seat orifice	3,5 mm	0,137"



Materials

Valve Body	Forged Brass EN12165 alloy
Back up ring	PTFE
Hand wheel	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
EN849	European Norm
CE - π	The Council of European Union

ORDERING INFORMATION

Part Number	Type	CGA Outlet	Outlet Thread Size	Inlet Thread Size
CBA 8 300 0	Commercial	300	.825"-14 NGO RH Ext.	1/2" NGT
CBA 1 300 0	Commercial	300	.825"-14 NGO RH Ext.	3/4"-14 NGT
CBA 6 300 0	Commercial	300	.825"-14 NGO RH Ext.	1"-11 1/2 NGT
CBA 1 415 0	Canadian Style	415	.850"-14 NGO LH Int.	3/4"-14 NGT
CBA 8 510 0	P.O.L.	510	.885"-14 NGO LH Int.	1/2" NGT
CBA 1 510 0	P.O.L.	510	.885"-14 NGO LH Int.	3/4"-14 NGT
CBA 6 510 0	P.O.L.	510	.885"-14 NGO LH Int.	1"-11 1/2 NGT

EDITION JANUARY 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

PBO series

Vertical Outlet Acetylene Valve with Hand Wheel

For Collar Style Cylinders

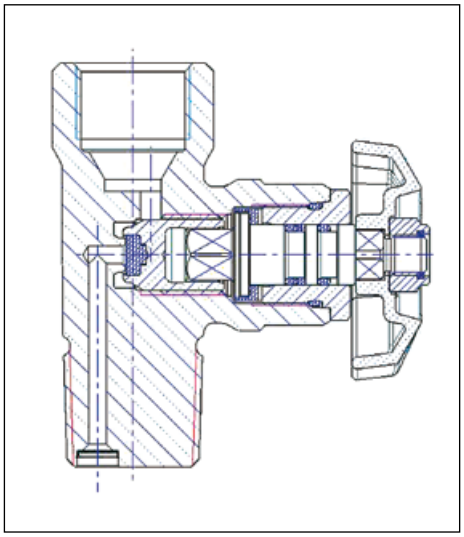
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key 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 eliminated interference with cylinder collar
- Inlet screen prevents filler mass or felts from entering the valve
- Easy to read valve markings roll stamped on the valve neck - not on the wrench flats
- Soft seat design provides positive shut off

Technical Specifications

Pressure:		
Max Working Pressure		3300 PSIG
Test Pressure		870 PSIG
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
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 @ 2900 PSIG inlet pressure	2 N/m	17,7 lbs / inch
MaximumOvertorque	25 N/m	221 lbs / inch
Flow capacity	n/a	
Seat orifice	3,5 mm	0,137"



Materials

Valve Body	Forged Brass EN121645
Hand Wheel	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 S-1.1	Standard for Pressure Relief Devices
CGA V-1	Compressed Gas Cylinder Valve Outlet and Inlet Connections
EN849	European Norm
CE - ϖ	The Council of European Union
CGAV9	Standard for Gas Cylinder valves

ORDERING INFORMATION

Part Number	CGA Outlet	Outlet Thread Size	Inlet Thread Size
PBO 1 510 0	510	.885-14 NGO LH Int.	3/4-14 NGT

The features described in this illustration do not bind the manufacturer.

PBH/PBI series

New Hand Wheel O-ring Seal
B and MC
Acetylene Cylinder Valves

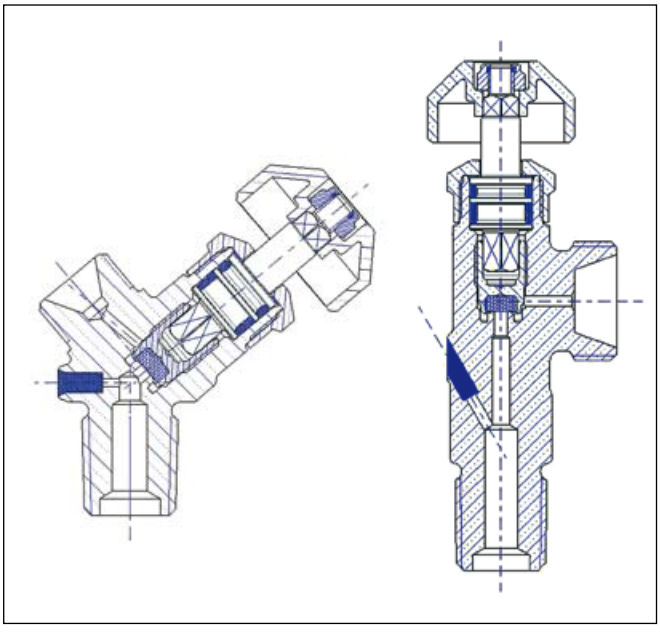
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key 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"

Technical Specifications

Pressure:		
Proof	100 bar min	1450 PSIG min
Test	60 bar	870 PSIG
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
Torque Values for PBH/PBI Acetylene valves		
Operating torque @ 500 PSIG	(200) 3 lbs/inch	(520) 3 lbs/inch
Seat orifice	(200) .133	(520) .133



Materials

Valve Body	Forged Brass EN12165
Hand Wheel	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	CGA Outlet	Outlet Thread Size	Inlet Thread Size
PBH 5 520 3	520	.895-18 NGO RH Ext.	3/8-18 NGT
PBI 5 200 3	200	.625-20 NGO RH Ext.	3/8-18 NGT

EDITION JANUARY 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

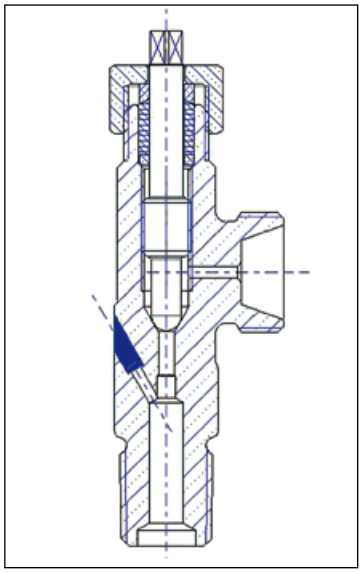
PBB/PBC series

Wrench Operated Acetylene Valves

Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

- Valve body made of rugged forging 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



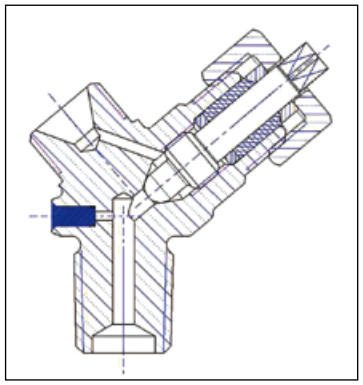
Technical Specifications

Pressure:		
Proof	100 bar min	1450 PSIG
Test	60 bar	870 PSIG
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	

Torque Values for PBB/PBC Acetylene valves:
See Ordering information below.

Materials

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
PBB 5 520 3	Acetylene	520	.895-18 NGO RH Ext.	3/8-18 NGT
PBC 5 200 3	Acetylene	200	.625-20 NGO RH Ext.	3/8-18 NGT

TORQUE VALUES

Description	Torque
Operating Torque @ 0 psig Inlet Pressure	6 to 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
Seat Orifice Diameter (inches)	.133	.133
Flow Constant: Cv - Full Open	n/a	n/a
Flow CFM @ 240 PSIG Inlet	n/a	n/a

The features described in this illustration do not bind the manufacturer.

PBW series

Wrench Operated Valve for "WB" Style Acetylene Cylinders

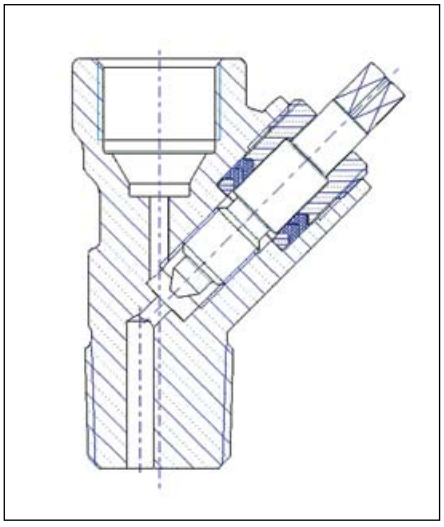
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

- Rugged brass forged body manufactured by Cavagna Group
- Durable stainless steel stem resists corrosion and damage and provides smooth, long term operation
- Unique chevron style packing and specially machined internals keep the stem in constant contact with the packing - Eliminating chronic stem leaks
- Self wiping metal to metal seat design guarantees positive gas shut-off
- Tamper resistant packing nut
- Vertical outlet provides easy access and operation with collar style cylinders

Technical Specifications

Pressure:		
Proof	1500 PSIG	
Test	500 PSIG	
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
Torque Values for PBW Acetylene valves		
Operating torque @ 0 PSIG inlet pressure	0,8 N/m	6 lbs / inch
Closing torque @ 200 PSIG inlet pressure	1 N/m	8,8 lbs / inch
Packing nut installation torque	25 N/m	221 lbs / inch



Materials

Valve Body	Forged Brass EN12165
Bonnet Nut	Brass EN12164
Packing ring	Teflon®
Stem	Stainless steel AISI 303

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	CGA Outlet	Outlet Thread Size	Inlet Thread Size
PBW 1 510 0	510	.885-14 NGO LH Int.	3/4-14 NGT

EDITION JANUARY 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

M 2000 series
Yoke Outlet Cylinder Valves for
Acetylene

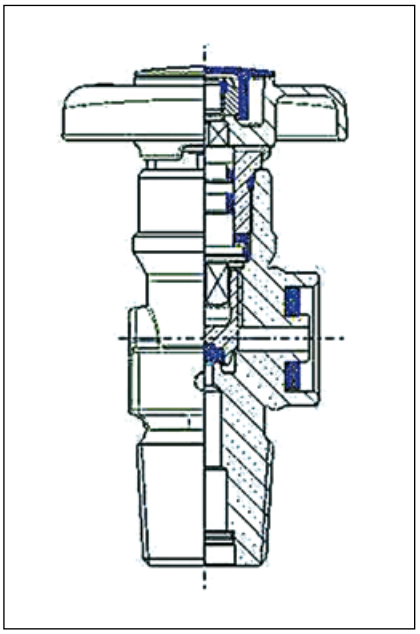
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test according to EN 849
- All marking on the valve neck, protects against damage
- Large seat orifice provides faster vacuum and filling rates
- Durable hot forged brass bodies manufactured by Cavagna Group
- All valves are "ϖ" marked according to 99/36 EC
- Valves designed according to EN 849
- All inlets and outlets standards available
- BAM approved

Technical Specifications

Max Working Pressure:	230 bar	
Temperature operating:	-45°C	+65°C
Orifice size:	4 mm	
Cycle life:	Min 2000 cycles	



Materials

Handwheel	Aluminium or Zamak
Valve Body	Brass alloy conforming to EN12165
Seat pad	PA 612 - Zitel® or ebonite
O-ring	EPDM
Filter	Stainless steel
Spindle	Brass

Options

- Outlet available with yoke configuration
- Stainless steel stem key operated
- Personalized handwheel logo cap
- SS filter available on the inlet

The features described in this illustration do not bind the manufacturer.

M 2000 series
Cylinder Valves for Acetylene

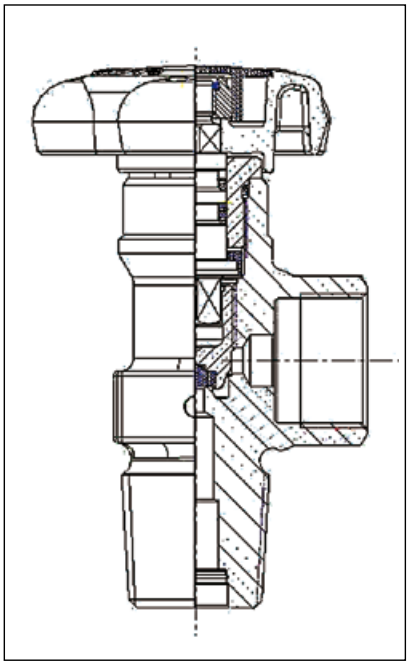
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- 100% leak test according to EN 849
- All marking on the valve neck, protects against damage
- Durable hot forged brass bodies manufactured by Cavagna Group
- All valves are "ϖ" marked according to 99/36 EC
- Valves designed according to EN 849
- All inlets and outlets standards available
- BAM approved

Technical Specifications

Max Working Pressure:	230 bar	
Temperature operating:	-45°C	+65°C
Orifice size:	4 mm	
Cycle life:	Min 2000 cycles	



Materials

Handwheel	Aluminium or Zamak
Valve Body	Brass alloy conforming to EN12165
Seat pad	PA 612 - Zitel® or ebonite
O-ring	EPDM
Filter	Stainless steel
Spindle	Brass

Options

- Outlet available with yoke configuration
- Stainless steel stem key operated
- Personalized handwheel logo cap
- SS filter available on the inlet

CBA series

Brass High Pressure Cylinder Valve for Industrial Gases

O-Ring seal type

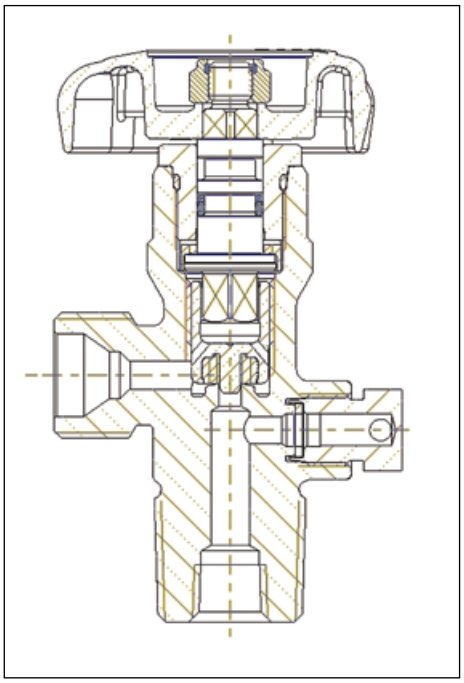
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key 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 seat orifice 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
- Standard pressure relief device thread - .650-19UNS-2B
- Color coded safety device for easy burst disc identification
- 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" bursting disc

Technical Specifications

Pressure:		
Proof	11.520 PSIG	
Test	3000 PSIG	
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
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 @ 2900 PSIG inlet pressure	2 N/m	17,7 lbs / inch
Max Overtorque	25 N/m	221 lbs / inch
Flow capacity CV / Full open	n/a	
Seat orifice	4,5 mm	.177"



Materials

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
EN849	European Norm

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

CBA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
	Hydrogen			
CBA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CBA 1 350 6 xxxx				3/4"-14 NGT
CBA 6 350 6 xxxx				1-11 1/2 NGT
CBA 3 350 6 xxxx				.750"-16 UNF
CBA 9 350 6 xxxx				1.125" -12 UNF
CBA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Krypton			
CBA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CBA 1 580 1 xxxx				3/4"-14 NGT
CBA 6 580 1 xxxx				1-11 1/2 NGT
CBA 3 580 1 xxxx				.750"-16 UNF
CBG 9 580 1 xxxx				1.125" -12 UNF
CBA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT
	Methane (R50)			
CBA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CBA 1 350 6 xxxx				3/4"-14 NGT
CBA 6 350 6 xxxx				1-11 1/2 NGT
CBA 3 350 6 xxxx				.750"-16 UNF
CBA 9 350 6 xxxx				1.125" -12 UNF
CBA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Natural Gas			
CBA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CBA 1 350 6 xxxx				3/4"-14 NGT
CBA 6 350 6 xxxx				1-11 1/2 NGT
CBA 3 350 6 xxxx				.750"-16 UNF
CBA 9 350 6 xxxx				1.125" -12 UNF
CBA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Neon			
CBA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CBA 1 580 1 xxxx				3/4"-14 NGT
CBA 6 580 1 xxxx				1-11 1/2 NGT
CBA 3 580 1 xxxx				.750"-16 UNF
CBA 9 580 1 xxxx				1.125" -12 UNF
CBA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT
	Nitrogen			
CBA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CBA 1 580 1 xxxx				3/4"-14 NGT
CBA 6 580 1 xxxx				1-11 1/2 NGT
CBA 3 580 1 xxxx				.750"-16 UNF
CBA 9 580 1 xxxx				1.125" -12 UNF
CBA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT

The features described in this illustration do not bind the manufacturer.

CBA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
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	**Air (R729)** 0 psi to 3,000 psi	346	.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 1 347 1 xxxx CBA 1 702 1 xxxx	3,001 to 5,500 psi 5,501 to 7,500 psi	347 702	.825-14 NGO RH Ext. 1.125"-14 NGO RH Ext.	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	**Argon** 0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 1 680 1 xxxx CBA 1 677 1 xxxx	3,001 to 5,500 psi 5,501 to 7,500 psi	680 677	1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	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	**Butane/Propane** 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	**Carbon Dioxide** (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 8 350 6 xxxx CBA 1 350 6 xxxx CBA 6 350 6 xxxx CBA 3 350 6 xxxx CBA 9 350 6 xxxx	**Carbon Monoxide** 0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 1 695 6 xxxx CBA 1 703 6 xxxx	3,001 to 5,500 psi 5,501 to 7,500 psi	695 703	1.045-14 NGO LH Int. 1.125-14 NGO LH Int.	3/4"-14 NGT 3/4"-14 NGT
CBA 8 660 CBA 1 660 CBA 6 660 CBA 3 660 CBA 9 660	**1,2 Dichloroethylene** (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	**Helium** 0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 1 680 1 xxxx CBA 1 677 1 xxxx	3,001 to 5,501 psi 5,501 to 7,500 psi	680 677	1.045-14 NGO RH Int. 1.030-14 NGO LH Ext.	3/4"-14 NGT 3/4"-14 NGT

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

CBA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
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	**Nitrous Oxide** (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
	Oxygen			
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	0 to 3,000 psi	540	.903-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 1 577 1 xxxx	3,001 to 4,000 psi	577	.960-14 NGO RH Ext.	3/4"-14 NGT
CBA 1 701 1 xxxx	4,001 to 5,500 psi	701	1.103-14 NGO RH Ext.	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	**Sulfur Dioxide**	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
	Xenon			
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	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CBA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CBA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	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

Chrome 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 165F and 212F nominal melting temperatures:
To order, change the eigth position in the part number to "5" for 165F and "6" for 212F
example: CBA 1350 1 xxxx becomes CBA 1 350 5 xxxx for 165 or CBA 1 350 6 xxxx for 212F

The features described in this illustration do not bind the manufacturer.

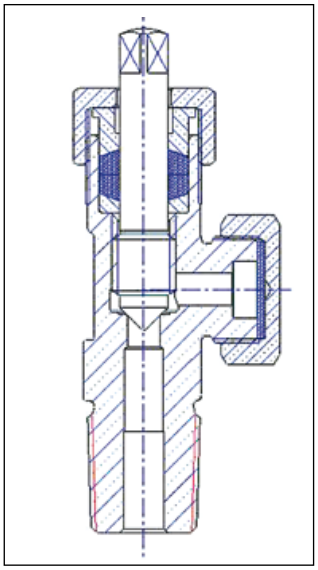
EDITION JANUARY 2006

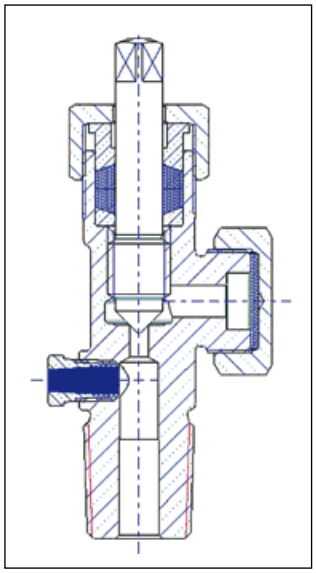
PZL series
Chlorine Cylinder & Ton Container Valves
Wrench Operated / Packed Valve Type

Quality Certification Bureau Inc.
ISO 9001:2000
Registered QMS

Key features

- Valves manufactured to the exacting standards as required by the Chlorine Institute
- Forging body manufactured in aluminium silicon bronze alloy "B"
- Monel one piece stem with self clearing ACME thread
- Chlorine Institute approved Teflon packing





Technical Specifications

Pressure:

Proof	3000 PSIG min
Test	500 PSIG

Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	

Torque Values for PZL Series

Operating torque @ 0 PSIG	3,3 - 3,9 Nm	30 - 35 lbs / inch
Operating torque @ 100 PSIG	3,3 - 3,9 Nm	30 - 35 lbs / inch
Packing Nut Installation Torque	54 - 67,7 Nm	40 - 50 lbs / inch
Stem Nut Installation Torque	4,5 - 5,6 Nm	40 - 50 lbs / inch

Seat orifice Diameter:
Cylinder valve: 0,187 - Ton Container valve: 0,312

Materials

Valve Body	Aluminium Silicon Bronze
Fusible Plug	Naval Brass with 165 F
Outlet Cap	Brass
Packing	Virgin Teflon®
Packing Collar	ALSI bronze
Packing Gland	Brass EN 12164
Stem	Monel 400

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
Chlorine	Institute Pamphlet 17

ORDERING INFORMATION

Part Number	CGA Outlet	Outlet Thread Size	Inlet Thread Size	Pressure Relief Device
PZL 0 820 0	820	1.030-14 NGO RH Ext.	3/4"-14 NGT CL-1	No
PLZ 0 820 2	820	1.030-14 NGO RH Ext.	3/4"-14 NGT CL-1	Yes

Over sized 3/4" inlet threads available: CL-2, CL-3, CL-4
Valves also available with 1" NGT inlet thread.
Spare parts available separately.

Cavagna chlorine valves conform to all specifications as outlined in the Chlorine Institute Pamphlet #17.

The features described in this illustration do not bind the manufacturer.

CDA series

Chrome Plated Brass High Pressure Cylinder Valves for Medical Gases

O-Ring seal type

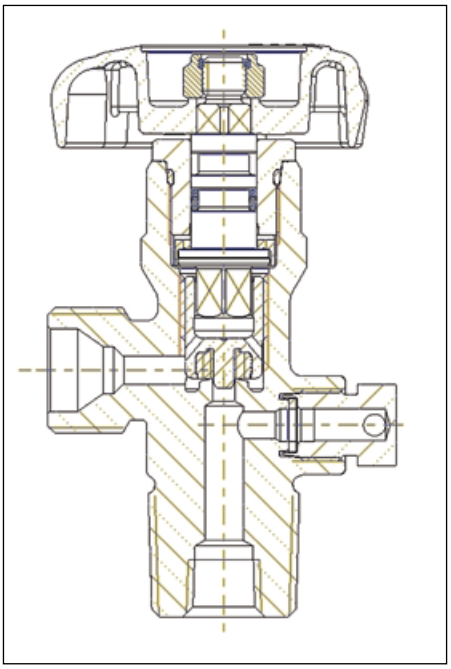
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key 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 Sseat orifice 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
- Standard pressure relief device thread - .650-19UNS-2B
- Color coded safety device for easy burst disc identification
- Available configurations include:
  Inlet threads (NGT, UNF, DIN477, BS, EN, EN ISO)
- All CGA outlets available
- Unitized "plug style" bursting disc

Technical Specifications

Pressure:		
Proof	11.520 PSIG	
Test	3000 PSIG	
Temperature - Storage	Min -65°F	Max 155° F
Temperature Operating	Min -50°F	Max 120° F
Cycle life min	5000	
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 @ 2900 PSIG inlet pressure	2 N/m	17,7 lbs / inch
Max Overtorque	25 N/m	221 lbs / inch
Flow capacity CV / Full open	n/a	
Seat orifice	4,5 mm	.177"



Materials

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
Hand wheel	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
EN849	European Norm

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

CDA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
	Hydrogen			
CDA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CDA 1 350 6 xxxx				3/4"-14 NGT
CDA 6 350 6 xxxx				1-11 1/2 NGT
CDA 3 350 6 xxxx				.750"-16 UNF
CDA 9 350 6 xxxx				1.125" -12 UNF
CDA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Krypton			
CDA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CDA 1 580 1 xxxx				3/4"-14 NGT
CDA 6 580 1 xxxx				1-11 1/2 NGT
CDA 3 580 1 xxxx				.750"-16 UNF
CDG 9 580 1 xxxx				1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT
	Methane (R50)			
CDA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CDA 1 350 6 xxxx				3/4"-14 NGT
CDA 6 350 6 xxxx				1-11 1/2 NGT
CDA 3 350 6 xxxx				.750"-16 UNF
CDA 9 350 6 xxxx				1.125" -12 UNF
CDA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Natural Gas			
CDA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CDA 1 350 6 xxxx				3/4"-14 NGT
CDA 6 350 6 xxxx				1-11 1/2 NGT
CDA 3 350 6 xxxx				.750"-16 UNF
CDA 9 350 6 xxxx				1.125" -12 UNF
CDA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
	Neon			
CDA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CDA 1 580 1 xxxx				3/4"-14 NGT
CDA 6 580 1 xxxx				1-11 1/2 NGT
CDA 3 580 1 xxxx				.750"-16 UNF
CDA 9 580 1 xxxx				1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT
	Nitrogen			
CDA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CDA 1 580 1 xxxx				3/4"-14 NGT
CDA 6 580 1 xxxx				1-11 1/2 NGT
CDA 3 580 1 xxxx				.750"-16 UNF
CDA 9 580 1 xxxx				1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT

The features described in this illustration do not bind the manufacturer.

CDA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
	Air (R729)			
CDA 8 346 1 xxxx	0 psi to 3,000 psi	346	.825"- 14 NGO RH Ext.	1/2"-14 NGT
CDA 1 346 1 xxxx				3/4"-14 NGT
CDA 6 346 1 xxxx				1-11 1/2 NGT
CDA 3 346 1 xxxx				.750"-16 UNF
CDA 9 346 1 xxxx				1.125" -12 UNF
CDA 1 347 1 xxxx	3,001 to 5,500 psi	347	.825-14 NGO RH Ext.	3/4"-14 NGT
CDA 1 702 1 xxxx	5,501 to 7,500 psi	702	1.125"-14 NGO RH Ext.	3/4"-14 NGT
	Argon			
CDA 8 580 1 xxxx	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT
CDA 1 580 1 xxxx				3/4"-14 NGT
CDA 6 580 1 xxxx				1-11 1/2 NGT
CDA 3 580 1 xxxx				.750"-16 UNF
CDA 9 580 1 xxxx				1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,500 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT
	Butane/Propane			
CDA 8 555 1 xxxx	Liquid Withdrawal	555	.903-14 NGO LH Ext.	1/2"-14 NGT
CDA 1 555 1 xxxx				3/4"-14 NGT
CDA 6 555 1 xxxx				1-11 1/2 NGT
CDA 3 555 1 xxxx				.750"-16 UNF
CDA 9 555 1 xxxx				1.125" -12 UNF
CDA 8 320 1 xxxx	**Carbon Dioxide**	320	.825-14 NGO RH Ext.	1/2"-14 NGT
CDA 1 320 1 xxxx	(R744)			3/4"-14 NGT
CDA 6 320 1 xxxx				1-11 1/2 NGT
CDA 3 320 1 xxxx				.750"-16 UNF
CDG 9 320 1 xxxx				1.125" -12 UNF
	Carbon Monoxide			
CDA 8 350 6 xxxx	0 to 3,000 psi	350	.825-14 NGO LH Ext.	1/2"-14 NGT
CDA 1 350 6 xxxx				3/4"-14 NGT
CDA 6 350 6 xxxx				1-11 1/2 NGT
CDA 3 350 6 xxxx				.750"-16 UNF
CDA 9 350 6 xxxx				1.125" -12 UNF
CDA 1 695 6 xxxx	3,001 to 5,500 psi	695	1.045-14 NGO LH Int.	3/4"-14 NGT
CDA 1 703 6 xxxx	5,501 to 7,500 psi	703	1.125-14 NGO LH Int.	3/4"-14 NGT
CDA 8 660	**1,2 Dichloroethylene**	660	1.030-14 NGO RH Ext.	1/2"-14 NGT
CDA 1 660	(R1130)		(Face Washer Seal)	3/4"-14 NGT
CDA 6 660				1-11 1/2 NGT
CDA 3 660				.750"-16 UNF
CDA 9 660				1.125" -12 UNF
CDA 8 580 1 xxxx	**Helium**	580	.965-14 NGO RH Int.	1/2"-14 NGT
CDA 1 580 1 xxxx	0 to 3,000 psi			3/4"-14 NGT
CDA 6 580 1 xxxx				1-11 1/2 NGT
CDA 3 580 1 xxxx				.750"-16 UNF
CDG 9 580 1 xxxx				1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	3/4"-14 NGT

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HIGH PRESSURE EQUIPMENT DIVISION

CDA series

O-ring Industrial Gas Cylinder Valve

ORDERING INFORMATION				
Part Number	**Gas Service**	**CGA Outlet**	**Outlet Thread Size**	**Inlet Thread Size**
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	**Nitrous Oxide** (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"
	Oxygen			
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	0 to 3,000 psi	540	.903-14 NGO RH Ext.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CDA 1 577 1 xxxx	3,001 to 4,000 psi	577	.960-14 NGO RH Ext.	3/4"-14 NGT
CDA 1 701 1 xxxx	4,001 to 5,500 psi	701	1.103-14 NGO RH Ext.	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	**Sulfur Dioxide**	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
	Xenon			
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	0 to 3,000 psi	580	.965-14 NGO RH Int.	1/2"-14 NGT 3/4"-14 NGT 1-11 1/2 NGT .750"-16 UNF 1.125" -12 UNF
CDA 1 680 1 xxxx	3,001 to 5,501 psi	680	1.045-14 NGO RH Int.	3/4"-14 NGT
CDA 1 677 1 xxxx	5,501 to 7,500 psi	677	1.030-14 NGO LH Ext.	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

Chrome 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 165F and 212F nominal melting temperatures:
To order, change the eigth position in the part number to "5" for 165F and "6" for 212F
example: CBA 1350 1 xxxx becomes CBA 1 350 5 xxxx for 165 or CBA 1 350 6 xxxx for 212F

The features described in this illustration do not bind the manufacturer.

M 2000 series

High Pressure valve for Industrial gases

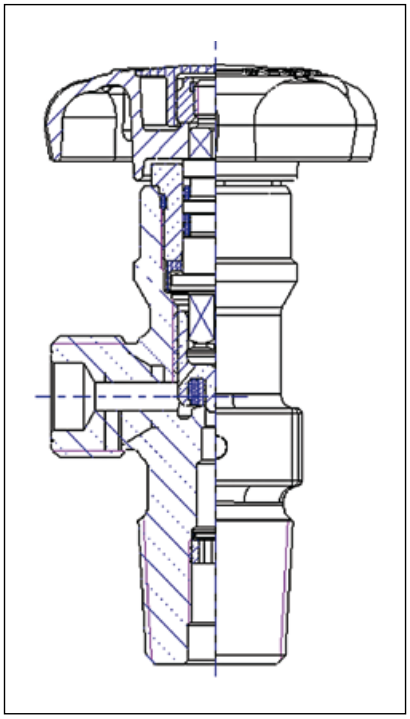
Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

- Valve designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- Easy Handwheel operation under high pressure
- Markings on the neck valve protects against damage
- O-Ring seal type valve
- Hot forged brass body manufactured by Cavagna Group
- All inlets and outlets standards available

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature operating:	-45°C ÷ +65°C
Orifice size:	4,5 mm
Cycle life:	min 2000 cycles



Materials

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	EPDM
Spindle	Brass
Antifriction ring	Delrin

Options

- Personalized Handwheel logo cap
- Bursting disc safety device
- Parallel thread
- Dip tube thread
- Special Packaging
- Chrome plated treatment

EDITION JANUARY 2006

M 2000 series

High Pressure valve for Carbon Dioxide and Nitrous Dioxide

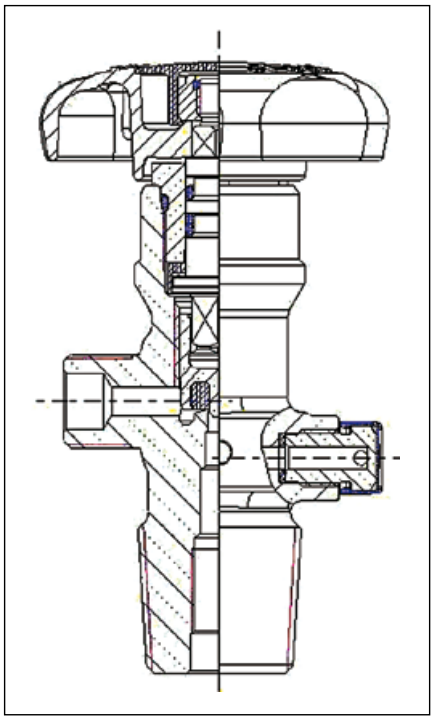
Quality Certification Bureau Inc.
ISO 9001:2000
Registered QMS

Key features

- Valve designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- Easy Handwheel operation under high pressure
- Markings on the neck valve protects against damage
- O-Ring seal type valve
- Hot forged brass body manufactured by Cavagna Group
- All inlets and outlets standards available
- Internal Bursting disc with coloured plastic cap

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	depending on bursting disc
Temperature operating:	-45°C ÷ +65°C
Orifice size:	6 mm ÷ 7,5 mm
Cycle life:	min 2000 cycles



Materials

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	EPDM
Spindle	Brass alloy according to EN12164
Antifriction ring	Delrin
Bursting disc	Nickel

Options

- Personalized Handwheel logo cap
- Bursting disc safety device
- Parallel thread
- Dip tube thread
- Various bursting disc available
- Chrome or Nickel plating treatment
- Coloured plastic cap on the bursting disc
- Plastic Handwheel with metallic insert

The features described in this illustration do not bind the manufacturer.

EDITION JANUARY 2006

M 2000 series

High Pressure valve for SO_2

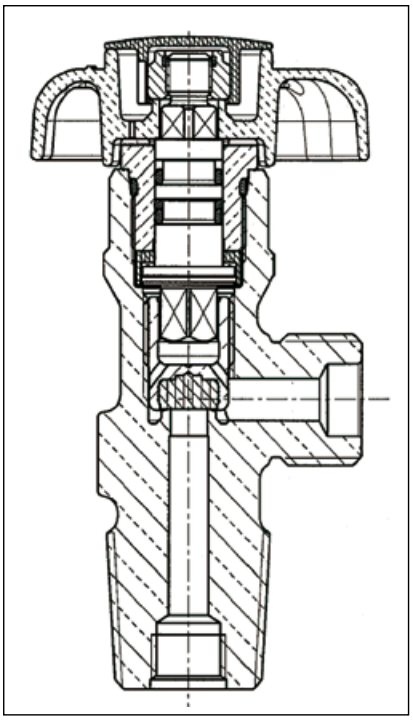
Quality Certification Bureau Inc.
ISO 9001:2000
Registered QMS

Key features

- O-Ring Technology ensure a better level of tightness under vacuum and service
- Every valve is submitted to Leak Test
- Easy operation under high pressure
- All valves are Marked around the neck
- A large seat orifice provides an easier and faster vacuum and filling operation
- Valves could be chromium plated

Technical Specifications

Maximum working pressure:	230 bar
Temperature Range:	-20 +65 °C
Max. Operating Torque:	7 Nm
Max. Overtorque:	25 Nm
Seat Orifice:	1-5 bar
Deep tube connection:	M10 x 1 (M10 x 0,75)



Materials

Valve Body	Brass
Hand wheel	Aluminum
Seat	Kel-F
O-ring	EPDM
Antifriction	PEEK

Options

- Personalized Handwheel logo cap
- Parallel thread
- Dip tube thread
- Chromed or Nickel plating treatment
- Plastic Handwheel with metallic insert
- Sinterized bronze

Conform to all requirements of EN849

Valve issued on cylinder greater than 5 lt. must be protected by a suitable protection cap.

EDITION JANUARY 2006

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HIGH PRESSURE EQUIPMENT DIVISION

M 2000 series

Cylinder Valve
for Refrigerant Gases
O-ring seal type

Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

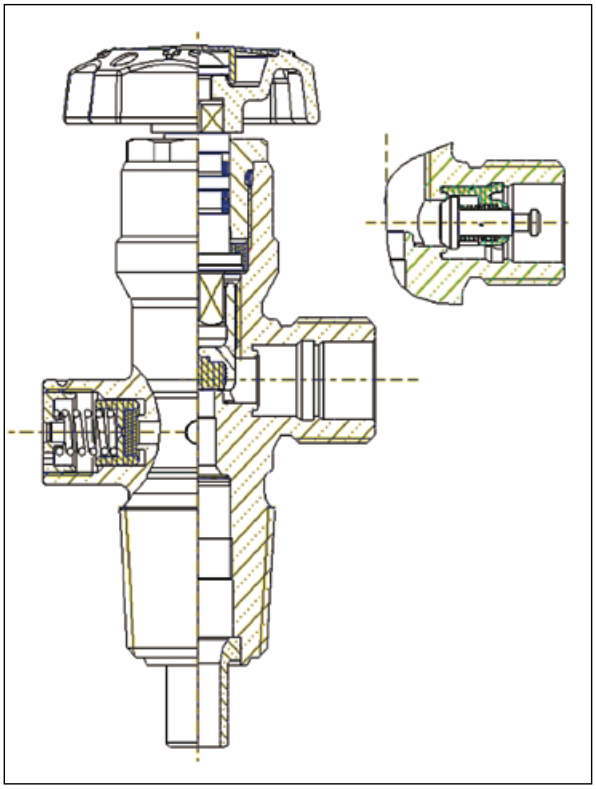
- O-Ring Technology ensure a better level of tightness under vacuum and service
- Every valve is submitted to Leak Test
- Easy operation under high pressure
- All valves are Marked around the neck
- A large seat orifice provides an easier and faster vacuum and filling operation
- Valves could be chromium plated
- On customers request on the exit of the valve is possible to assembly an antifilling device
- With pressure relief device available with different pressure setting
- Stainless steel filter
- Plastic anti-sediment tube installed in the inlet

Technical Specifications

Maximum working pressure:	200 Bar
Temperature Range:	-20 +65 °C
Max. Operating Torque:	7 N/m
Max. Overtorque:	25 N/m
Seat Orifice:	6,5mm.

Materials

Valve Body	Brass
Hand wheel	Aluminum
Seat	Polyammid
O-rings	CR
Antifriction	DELRIN
Spring	Stainless steel



Options

- With antifilling device
- Personalized Handwheel logo cap
- Chromed or Nickel plating treatment
- Without safety valve

Conform to all requirements of EN849 and EN13953

Valve issued on cylinder greater than 5 lt. must be protected by a suitable protection cap.

The features described in this illustration do not bind the manufacturer.

K 2000 series

Cylinder Valves for Industrial and Medical Gases

Key features

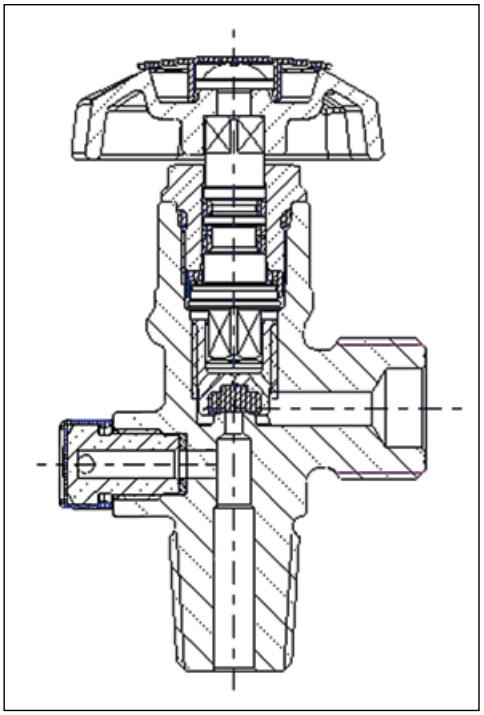
- The **"K 2000"** series are O-ring seal type valves suitable for smaller cylinders
- Suitable for various gases including CO_2 and Oxygen
- Easy handwheel operation under high pressure
- Valves designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- All inlet and outlet standards available

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar / depending on bursting disc pressure
Temperature operating:	-45°C ÷ +65°C
Orifice size:	2,5 ÷ 4 mm

Materials

Valve Body	Hot Forged Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	Various materials
Handwheel	Plastic or Aluminium
Bursting disc	Nickel
Spindle	Brass



Options

- Coloured Handwheel
- Chrome plating treatment
- Bursting disc
- Filter
- Parallel thread
- Plastic Handwheel with metallic insert
- Plastic Handwheel logo cap

EDITION JANUARY 2006

K 2000 series

Cylinder Valves for Industrial and Medical Gases

Key features

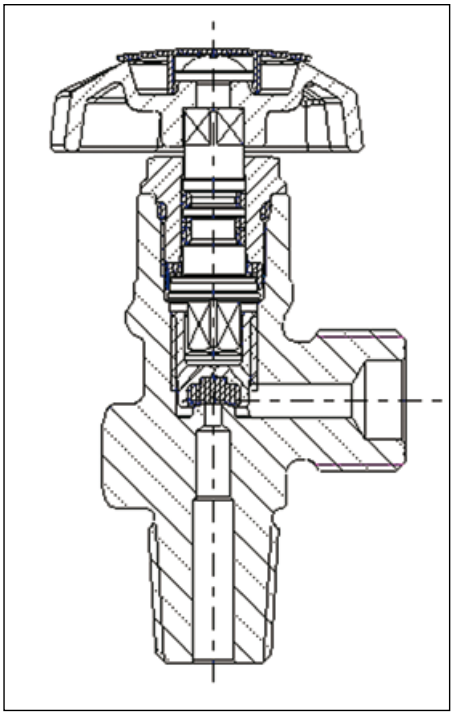
- The **"K 2000"** series are O-ring seal type valves suitable for smaller cylinders
- Suitable for various gases including CO_2 and Oxygen
- Easy handwheel operation under pressure
- Valves designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- All inlet and outlet standards available

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +65°C
Orifice size:	2,5 ÷ 4 mm

Materials

Valve Body	Forged Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	Various materials
Handwheel	Plastic or Aluminium
Spindle	Brass



Options

- Coloured Handwheel
- Chrome plating
- Bursting disc
- Filter
- Parallel thread
- Plastic Handwheel
- Plastic Handwheel logo cap

The features described in this illustration do not bind the manufacturer.

MANIFOLD VALVES FOR CYLINDER BUNDLES
K 4000 series

Key features

- K4000 series, manifold valve for cylinder bundles and high flow systems
- Suitable for several gases
- Available with one, two, or three outlets
- "π" marked according to 99/36 EC

Technical information

• Working pressure:	300 bar
• Test pressure:	360 bar
• Temperature operating:	-46°C + 65°C
• Orifice size:	10 mm.

Materials

Body:	Brass alloy
Seat pad:	Polyamide/White metal
Internal tightness:	PTFE
Handwheel:	Tropicalised zamak
Spindle:	Brass

Options

One square way

Two straight ways

Three ways

MAIN VALVE CONNECTOR FOR CYLINDER BUNDLES

Key features

- Suitable for high flow use
- Suitable for all non corrosive gases

Technical specification

• Working pressure:	300 bar
• Test pressure:	360 bar
• Temperature range:	-45°C + 65°C
• Orifice size:	5 mm

Materials

Connector body:	Brass alloy

EDITION JANUARY 2006

MANIFOLD VALVES FOR CYLINDER BUNDLES AND FILLING SYSTEMS

L 2000 series

Key features

- L 2000 series, manifold valve for cylinder bundles and filling systems
- Suitable for several gases
- Available with one, two, or three outlets
- Available with all thread spec configuration

Technical information

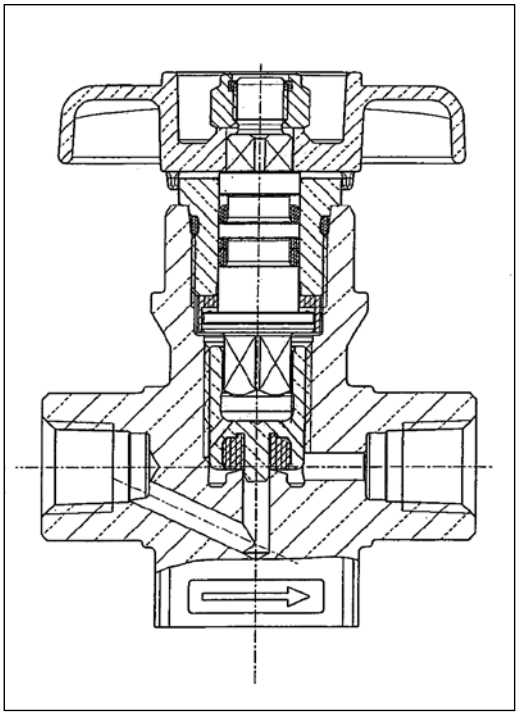
• Working pressure:	230 bar
• Test pressure:	276 bar
• Temperature range:	-45°C + 65°C
• Orifice size:	4-6 mm.

Materials

Body:	Hot forged brass alloy
Seat pad:	Pa 66
Internal tightness:	PTFE
Handwheel:	Aluminium
Spindle:	Brass

Options

- One square way
- Two straight ways
- Three ways
- Plastic logo cap
- Bursting disc
- Logo cap
- Chrome or nickel plating



The features described in this illustration do not bind the manufacturer.

PDE R

Post Medical Residual Pressure Valves
Pin Index System
O-Ring seal type

Quality Certification Bureau Inc.
ISO 9001:2000 Registered QMS

Key features

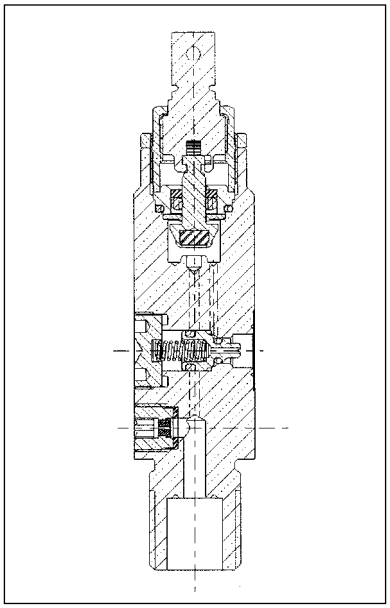
- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- High quality nickel chrome plating protects against harmful chemicals
- 100% leak test to full cylinder service pressure
- Body made from extruded brass rod - Fits all CGA specified yokes
- Passes stringent oxygen 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 easy installation
- Oxygen cleaned to meet CGA G4.1 specifications
- Clean room assembly
- All valves are " π/CE " marked according to 99/36 EC and 93/42 EC

Technical Specifications

Pressure:	**PSIG**	**BAR**
Proof	7500	518
Test (without b. disc)	4000	276
Test with b. disc at 80% of set pressure		
Residual pressure	43,5 ÷ 72,5	3 ÷ 5
Temperature range - Storage	Min-Max -60°F +130° F	-51°C + 68,3°C
Temperature range Operating	Min-Max -50°F + 130°F	-46°C + 68,3°C
Cycle life min	5000	

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



Materials

Valve Body	Chrome plated free Machining Brass rod
Bursting disc (If required)	Nickel alloy 201
Hand wheel or toggle (if required)	Chrome plated brass
Seat	Polyamide
O-Rings	EPDM
Back up ring	Teflon®
Anti Friction Ring	PEEK
Stem	Chrome 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
EN849	European Standard for gas cyl. valves
EN850	Gas cyl. valves outlet connection
EN15996	Test on RP Device

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HIGH PRESSURE EQUIPMENT DIVISION

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 3 973 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), 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 R 8 890 5 3360 changes to PDM 8 890 5 3360
Chrome 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)

The features described in this illustration do not bind the manufacturer.

PDE series

Post Medical Cylinder Valves
Pin Index System
O-Ring seal type

Key features

- O-Ring technology provides superior leak integrity
- Easy operation under high pressure
- High quality nickel chrome 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 easy installation
- Oxygen cleaned to meet CGA G4.1 specifications
- Clean room assembly
- All valves are " π " marked according to 99/36 EC

Technical Specifications

Pressure:

Proof	10000 PSIG	
Test	3000 PSIG	
Temperature range - Storage	Min -65°F	Max 155° F
Temperature range Operating	Min -50°F	Max 120° F
Cycle life min	5000	

Torque Values for PDE series valve

Wrench operated A

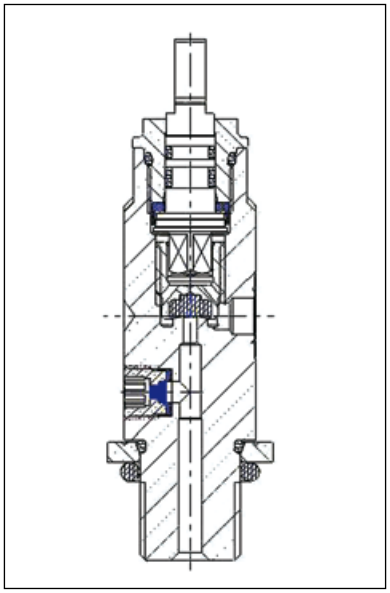
Operating torque @ 0 PSIG inlet pressure	0,3 N/m	3 lbs / inch
Closing torque @ 3000 PSIG inlet pressure	0,9 - 1,3 N/m	8/12 lbs / inch

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

Materials

Valve Body	Chrome plated free Machining Brass rod
Bursting disc	Nickel alloy 201
Hand wheel	Aluminium
Seat	Polyamide
O-Rings	EPDM
Anti Friction Ring	PEEK
Stem	Chrome plated Brass
Inlet O-ring	Teflon®
Back up ring	Teflon®
Toggle	Chrome 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
EN849	European Norm

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

PDE series
Post Medical Cylinder Valves
Pin Index System

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 3 973 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 PDM 8 890 5 3360
Chrome 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)

The features described in this illustration do not bind the manufacturer.

M 2000 series

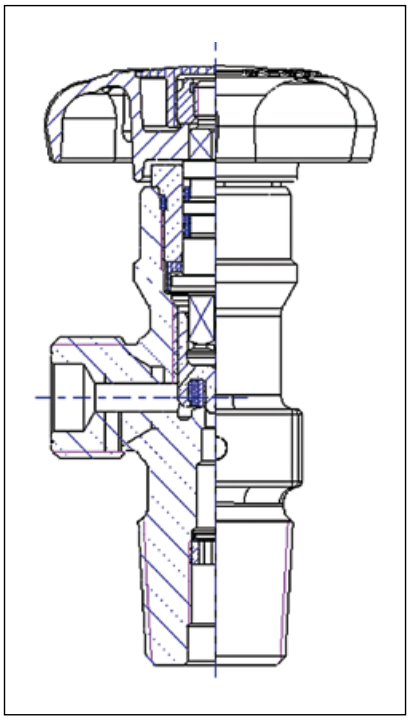
High Pressure valve for Medical gases

Key features

- Clean room Assembly
- Valve designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- Easy Handwheel operation under high pressure
- Markings on the neck valve protects against damage
- O-Ring seal type valve
- Chrome plated body
- Hot forged brass body manufactured by Cavagna Group
- All inlets and outlets standards available
- CE marking according to 93/42 EC Available

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +65°C
Orifice size:	4,5 mm
Cycle life:	min 2000 cycles



Materials

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	EPDM
Spindle	Brass
Antifriction ring	PEEK

Options

- Personalized Handwheel logo cap
- Bursting disc safety device
- Parallel thread
- Dip tube thread
- Special Packaging
- Plastic Handwheel

EDITION JANUARY 2006

M 2000 series

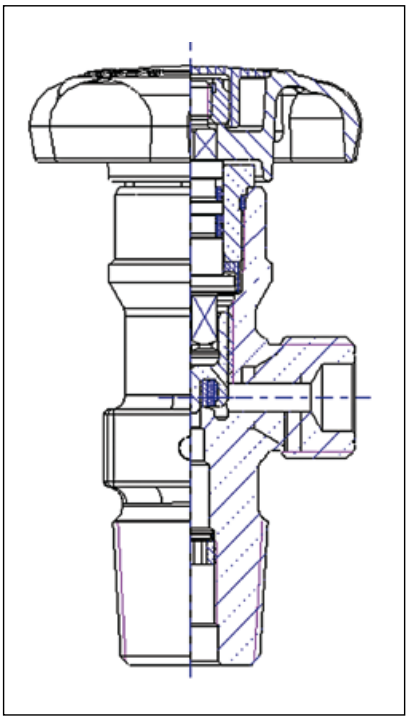
High Pressure valve for Medical gases

Key features

- Clean room Assembly
- Valve designed according to EN 849
- All valves are "π" marked according to 99/36 EC
- Easy Handwheel operation under high pressure
- Markings on the neck valve protects against damage
- O-Ring seal type valve
- Chrome plated body
- Hot forged brass body manufactured by Cavagna Group
- All inlets and outlets standards available
- Plastic Handwheel with metallic insert

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +65°C
Orifice size:	4,5 mm
Cycle life:	min 2000 cycles



Materials

Handwheel	Polycarbonated resin
Valve Body	Brass alloy
Seat Disc	Polyamide
O-Rings	EPDM
Spindle	Brass
Antifriction ring	PEEK

Options

- Personalized Handwheel logo cap
- Bursting disc safety device
- Parallel thread
- Dip tube thread
- Special Packaging

The features described in this illustration do not bind the manufacturer.

VIPROXY series

Valve with Integrated Pressure Reducer for medical OXYgen

- 230 bar -

Technical Features:

- Valve with integrated pressure reducer for Medical OXYgen
- MRI compatible
- Positive pressure device incorporated
- Non return valve with synterized bronze filter integrated in the filling port
- Compensated regulator
- Synterized bronze filter in the cylinder connection
- Tested and approved in accordance with the European norms EN-ISO 10524-3 and EN-ISO 10297
- CE/PI marked in accordance with the European directives 93/42 EC and 99/36 EC
- Maximum working pressure: 230 bar (3350 psi)
- Outlet pressure 4 bar (58 psi) at a flow capacity of 2.400 Nl/m
- Working pressure from -40°C to + 65°C (- 40°F + 149°F)
- Residual positive pressure: 3-5 bar (43 – 72 psi)
- Active gauge with fluorescent scales
- The system of flow selection avoids the positioning in an intermediate position and in case that should happen the oxygen supply will not be discontinued.
- Hose-barb diameter 6 mm

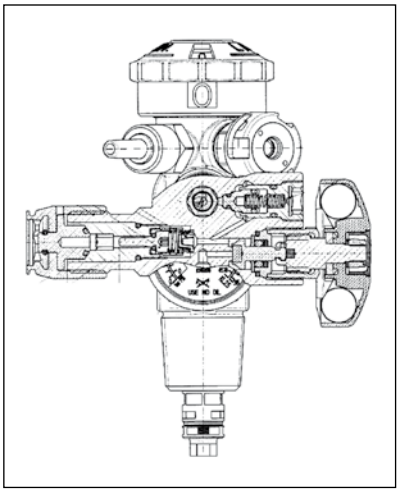
Materials

- 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 and steel

Options

5 different flow scales with the following characteristics:

Application	l/min											
Baby care	0	¼	½	¾	1	1½	2	2½	3	4	5	6
Home care	0	½	1	2	3	4	5	6	8	10	12	15
Home care	0	¼	½	1	2	3	4	6	8	10	12	15
Intensive therapy	0	1	2	3	4	5	6	8	10	12	15	25
Intensive therapy	0	¼	½	1	2	3	4	6	8	10	15	25



Quick hospital connection, with 4 bar (58 psi) outlet pressure, in accordance with the main International Standards (DIN, BS, DISS, AFNOR, UNI)
Excess Flow valve with synterized bronze filter in the valve's inlet
Plastic protection handle complying with EN 962 ISO 11117
Hospital bed handle available
Bursting disc
Antifilling device and non return valve in the filling port

Mantainance

Please strictly rely on the "User maintenance instruction"
It is recommended the valve's replacement when the cylinder is being retested.

EDITION NOVEMBER 2008

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

VIPROXY series

Valve with Integrated Pressure Reducer for medical OXYgen

- 300 bar -

Technical Features:

- Valve with integrated pressure reducer for Medical OXYgen
- MRI compatible
- Positive pressure device incorporated
- Non return valve with synterized bronze filter integrated in the filling port
- Compensated regulator
- Synterized bronze filter in the cylinder connection
- Tested and approved in accordance with the European norms EN-ISO 10524-3 and EN-ISO 10297
- CE/PI marked in accordance with the European directives 93/42 EC and 99/36 EC
- Maximum working pressure: 300 bar (4350 psi)
- Outlet pressure 4 bar (58 psi) at a flow capacity of 2.400 Nl/m
- Working pressure from -40°C to + 65°C (- 40°F + 149°F)
- Residual positive pressure: 3-5 bar (43 – 72 psi)
- Active gauge with fluorescent scales
- The system of flow selection avoids the positioning in an intermediate position and in case that should happen the oxygen supply will not be discontinued.
- Hose-barb diameter 6 mm

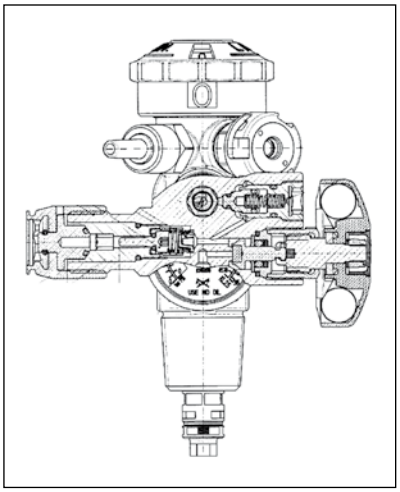
Materials

- 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 and steel

Options

5 different flow scales with the following characteristics:

Application	l/min											
Baby care	0	¼	½	¾	1	1½	2	2½	3	4	5	6
Home care	0	½	1	2	3	4	5	6	8	10	12	15
Home care	0	¼	½	1	2	3	4	6	8	10	12	15
Intensive therapy	0	1	2	3	4	5	6	8	10	12	15	25
Intensive therapy	0	¼	½	1	2	3	4	6	8	10	15	25



Quick hospital connection, with 4 bar (58 psi) outlet pressure, in accordance with the main International Standards (DIN, BS, DISS, AFNOR, UNI)
Excess Flow valve with synterized bronze filter in the valve's inlet
Plastic protection handle complying with EN 962 ISO 11117
Hospital bed handle available
Bursting disc
Antifilling device and non return valve in the filling port

Mantainance

Please strictly rely on the "User maintenance instruction"
It is recommended the valve's replacement when the cylinder is being retested.

The features described in this illustration do not bind the manufacturer.

PK2000 series

Small Body Residual Pressure Valve for various gases, including Carbon Dioxide and Medical Oxygen

FILLING ADAPTOR

Key features

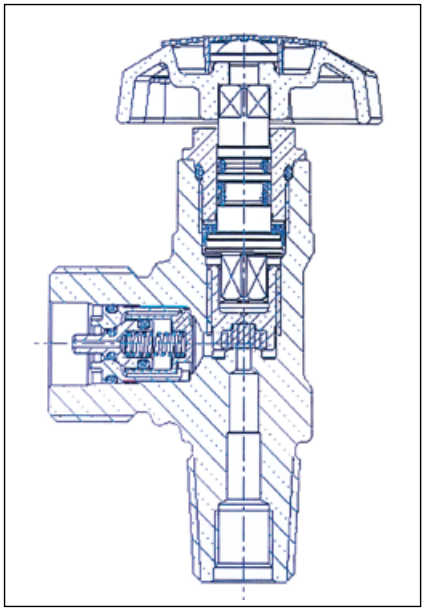
- O-Ring Technology ensure a better level of tightness under vacuum and service.
- Every valve is submitted to Leak Test.
- Easy operation under high pressure.
- All valves are Marked around the neck.
- Valves could be chromium plated.
- All inlet and outlet standards available.
- Conform to EU Directives 99/36 EC - 93/42 EC.

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-20 +65°C
Max. Operating Torque:	7 N/m
Max. Overtorque:	14 N/m
Residual pressure:	1-5 bar
Seat orifice:	2,5 mm
Deep tube connection:	M10 x 1 (M10 x 0,75)

Materials

Valve Body	Hot Forget Brass alloy according to EN12165
Handwheel	Plastic or Aluminium
Seat	Polyammid
O-ring	EPDM
Antifriction	DELRIN



Options

- Coloured Handwheel
- Chrome plating treatment
- Bursting disc
- Filter
- Parallel thread
- Plastic Handwheel
- Personalized logo

EDITION JANUARY 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

P-1320 series

Residual Pressure Valve for various gases, including Carbon Dioxide and Medical Oxygen

FILLING ADAPTOR

Key features

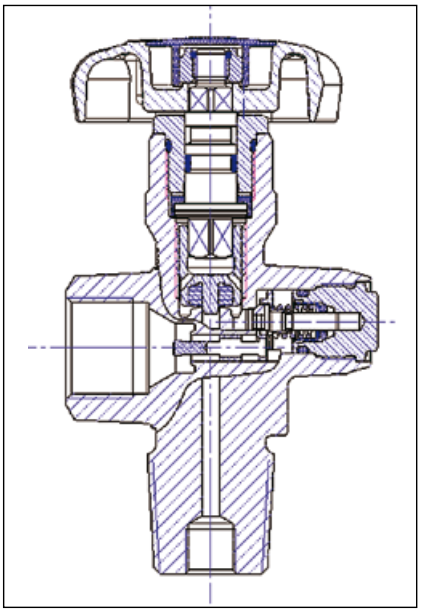
- Residual pressure valve o-ring seal type for 230 bar working pressure. The valve is conforming to EN 849 and PR-EN ISO 15996
- Suitable for various gases including CO_2 and Oxygen
- **Very low ΔP**
  With this valve the ΔP value between the closing and opening pressure of the residual device is very low (order of size: two-three tenth of bar) and is not affected by the working pressure of 200 bar.
- Hot forged brass body manufactured by Cavagna Group
- Filling adaptor available separately
- This valve allows to use different adaptors with different nipples length
- Inlets and outlets in accordance with all standards
- All valves "π" marked in accordance with 99/36 EC
- Valves can be marked with CE according to 93/42 EC

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +70°C
Seat orifice size:	4 ÷ 6 mm
Guaranteed External Tightness leak rate	≤ 6 cm^3/h (0,11 Nml/min)
Guaranteed Internal Tightness	≤ 6 cm^3/h (0,11 Nml/min)
Residual pressure	2,5 ÷ 4 bar (according to customer specifications)

Materials

Handwheel	Aluminium
Seat pad	Polyamide
O-ring	EPDM
Valve Body	Brass alloy according to EN12165
Spring	Stainless steel or copper beryllium
Spindle	Brass



Options

- Personalized logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Key operated handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

The features described in this illustration do not bind the manufacturer.

P-1320 Plus series

High flow Residual Pressure Valve for various gases, O-ring seal type

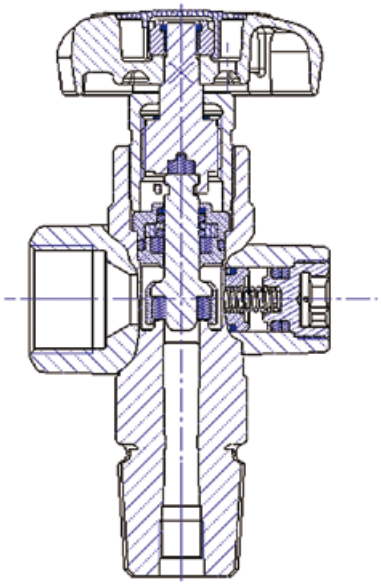
FILLING ADAPTOR

Key features

- Residual pressure valve o-ring seal type for 230 bar working pressure. The valve is conforming to EN 849 and PR-EN ISO 15996
- Suitable for various gases including CO_2 and Oxygen
- **Very low ΔP**
  With this valve the ΔP value between the closing and opening pressure of the residual device is very low (order of size: two-three tenth of bar) and is not affected by the working pressure of 230 bar.
- Hot forged brass body manufactured by Cavagna Group
- Filling adaptor available separately
- This valve allows to use different adaptors with different nipples length
- Inlets and outlets in accordance with all standards

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +70°C
Seat orifice size:	9,5 mm
Guaranteed External Tightness leak rate	≤ 6 cm^3/h (0,11 Nml/min)
Guaranteed Internal Tightness	≤ 6 cm^3/h (0,11 Nml/min)
Residual pressure	2,5 ÷ 4 bar (according to customer specifications)



Materials

Handwheel	Aluminium
Seat pad	Polyamide
O-ring	EPDM
Valve Body	Brass alloy according to EN12165
Spring	Stainless steel or copper beryllium
Spindle	Brass alloy according to EN12164

Options

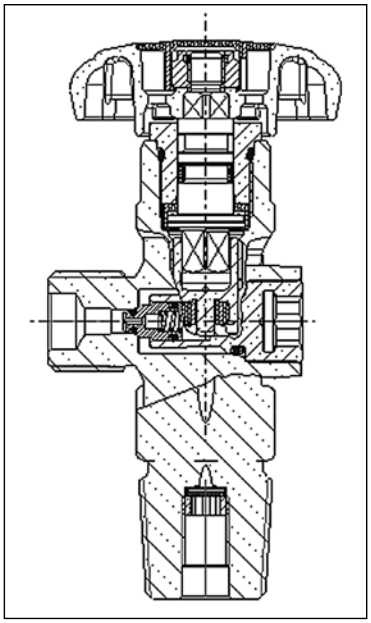
- Personalized logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Key operation
- Filter
- Parallel thread
- Thread for dip tube installation

EDITION JANUARY 2006

P2004 series

Residual Pressure Valve for various gases, including Carbon Dioxide and Medical Oxygen

FILLING ADAPTOR



Key features

- Residual pressure valve o-ring seal type for 230 bar working pressure. The valve is conforming to EN 849 and PR-EN ISO 15996
- Suitable for various gases including CO_2 and Oxygen
- **Very low ΔP**
  With this valve the ΔP value between the closing and opening pressure of the residual device is very low (order of size: two-three tenth of bar) and is not affected by the working pressure of 200 bar.
- Hot forged brass body manufactured by Cavagna Group
- Filling adaptor available separately
- This valve allows to use different adaptors with different nipples length
- Inlets and outlets in accordance with all standards
- All valves "π" marked in accordance with 99/36 EC
- Valves can be marked with CE according to 93/42 EC

Technical Specifications

Maximum working pressure:	230 bar
Temperature range:	-20 +65°C
Max. Operating Torque:	7 N/m
Max. Overtorque:	25 N/m
Residual pressure:	1-5 bar
Seat orifice:	4 mm
Deep tube connection:	M10 x 1 (M10 x 0,75)

Materials

Valve Body	Brass
Handwheel	Aluminium
Seat	Polyammid
O-ring	EPDM
Antifriction	DELRIN

Options

- Personalized logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Key operated handwheel
- Filter
- Thread for dip tube installation

The features described in this illustration do not bind the manufacturer.

P-770 series
Residual Pressure Valve

Key features

• Working Pressure up to 200 bar
The valve body and all the internal components are designed to work easily and safely at this pressure. All tests scheduled in the new EN 849 have been carried out with reference to 200 bar working pressure.

• Not Rotary Spindle
When turning the handwheel the spindle only goes up and down, therefore there is no friction on the seal element which is made in two parts. One for main tightness operated by the handwheel. The second, softer, exploits the calibration of a spring to retain the positive residual low pressure (about 3 bar).

• No Requirement for special Nipples or Tool for Refilling
Unlike other types of residual pressure valves which require special filling heads, any standard filling station can recharge cylinders which have these valves fitted.

• Security seal
A distinctive, simple plastic seal guarantees that the gas inside the cylinder is completely free of pollution and that the bottle has not been refilled by unauthorised operators. In order to refill or remove the residual gas from the bottle, it is necessary to break the seal. Security seals can be personalised.

• Axial inlet stem
In order to accommodate the antifilling and residual pressure device, all the valves have an off set inlet connection to allow the application of a protective shroud on the cylinder. In this way the use of another special protection shroud (ie. a tulip one) may become necessary, whilst with the P-770 all protection guards are suitable.

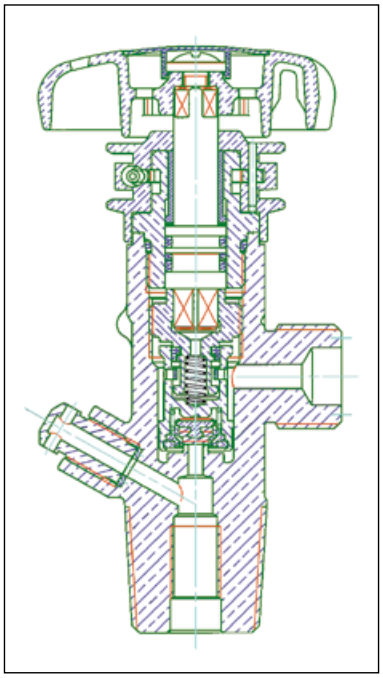
• Standard Filling Speed
Normally to fill a cylinder fitted with a residual valve a special adapter with a needle is needed to open the gas passage. It takes a longer time than that of a standard valve and for some gases, like CO_2, it is not acceptable. This does not occur with P-770, because when the seal is removed the valve is completetely opened and no obstruction interferes with the flow of the gas.

• All valves "π" marked in accordance with 99/36 EC

Technical Specifications

Working pressure:	230 bar
Guaranteed External Tightness:	leakage ≤ 6 cm³/h (0,11 Nml/min)
Guaranteed Internal Tightness:	leakage ≤ 6 cm³/h (0,11 Nml/min)
Residual pressure:	2,5 ÷ 4 bar (according to customer requirement)
Working Temperature*:	-45°C ÷ +65°C
Seat orifice:	3 mm

* In some European Countries and for special applications a working temperature range -30°C ÷ +65°C can be considered.



Materials

Handwheel	Aluminium
Body	Brass
O-ring	EPDM
Seat disc	Polyamide
Bursting disc	Nickel
Spindle	Brass

Options

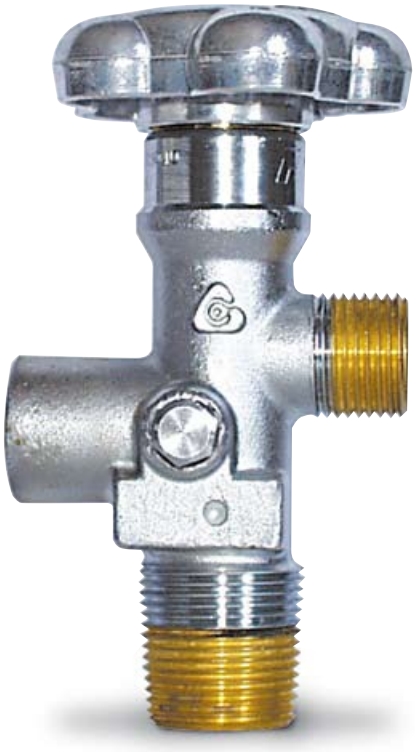
- Personalized handwheel logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Key operation
- Filter
- Parallel thread
- Thread for dip tube installation

EDITION JANUARY 2006

P-2000 series

Residual Pressure Valve

Key features



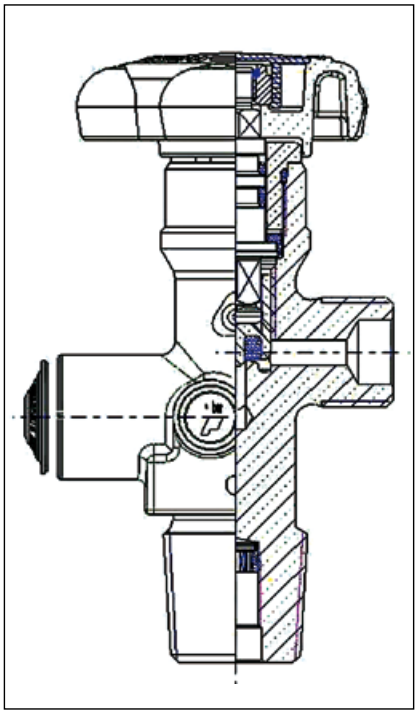
- Residual pressure valve, o-ring seal type for various gases including CO_2 and Oxygen.
- No requirement for adaptors or special nipples for refilling.
- Manually operated with a special tool available separately.
- **Security seal**
  A distinctive, personalised and simple seal guarantees that the gas inside the cylinder is free of contamination in order to refill or remove the residual gas from the bottle, it is necessary to break the seal.
- All valves are "π" marked according to 99/36 EC

Technical Specifications

Working pressure max:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +70°C
Guaranteed External Tightness	leakage ≤ 6 cm^3/h (0,11 Nml/min)
Guaranteed Internal Tightness	leakage ≤ 6 cm^3/h (0,11 Nml/min)
Residual pressure device	2,5 ÷ 4 bar (according to customer specifications)

Materials

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



Options

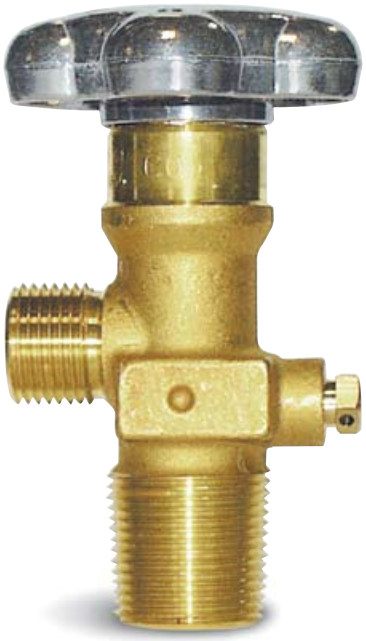
- Personalized handwheel logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

The features described in this illustration do not bind the manufacturer.

P-1020 series

Residual Pressure Valve for Industrial and Medical gases

FILLING ADAPTOR



Key features

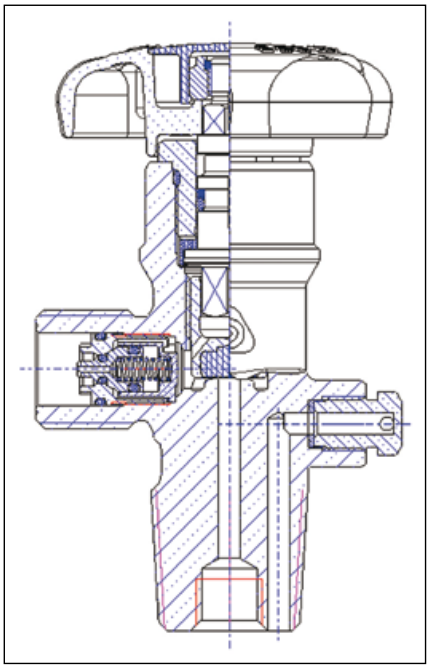
- Residual pressure valve, o-ring seal type for various gases including CO_2 and Oxygen. The valve is conforming to EN 849 for a working pressure of 230 bar.
- No requirement for adaptors or special nipples for refilling.
- All valves are "π" marked according to 99/36 EC
- Filling connector available separately

Technical Specifications

Working pressure max:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +70°C
Guaranteed External Tightness	leakage ≤ 6 cm^3/h (0,11 Nml/min)
Guaranteed Internal Tightness	leakage ≤ 6 cm^3/h (0,11 Nml/min)
Residual pressure device	2,5 ÷ 4 bar (according to customer specifications)

Materials

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



Options

- Personalized handwheel logo cap
- Dip tube
- Bursting disc safety various settings
- Chrome plating
- Plastic Handwheel
- Filter
- Parallel thread
- Thread for dip tube installation

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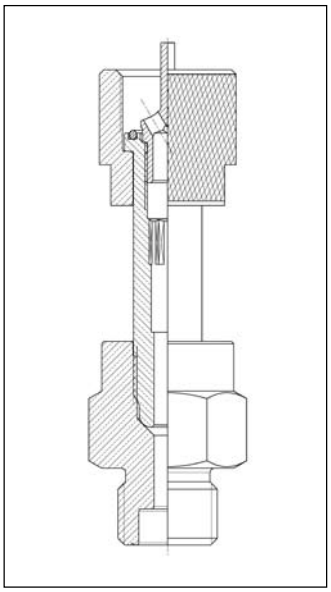
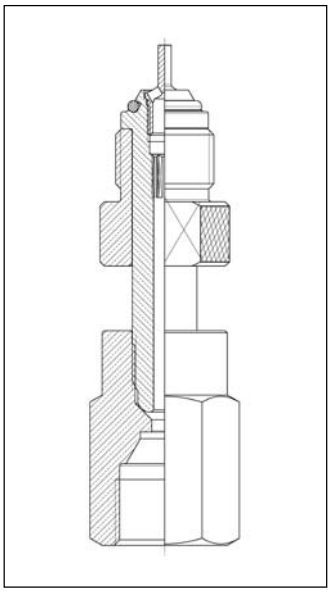
HIGH PRESSURE EQUIPMENT DIVISION

FILLING CONNECTOR

for Residual Pressure valves





Key features

- Are available in brass, stainless steel AISI 303-316, in accordance with all international standardized cylinder valves outlets such as DIN - NF - NEN - BS - CGA, as per customer specification.

- The connectors can be used with all the different types of residual pressure valves:

- P1320 PLUS series
- P1320 series
- P1010 series

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

Options

- Aluminium Handwheel
- Chrome plating

The features described in this illustration do not bind the manufacturer.

PRR series

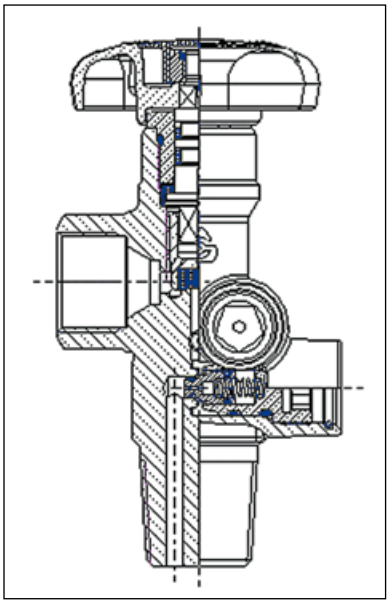
High Pressure Industrial Valve for various gases with integrated regulator and residual pressure device

Key features

- High pressure valve , o-ring seal type for industrial gases including oxygen, up to 300 bar working pressure.
- Valve designed in accordance to EN 849
- Integrated pressure regulator reduces cylinder pressure feam 300 bar to 150-100 bar Mange depending on customer requirements.
- Residual pressure device incorporated into the valve.
- Bursting disc safety device protects the line and the equipment downstream.
- All inlets and outlets standard available.

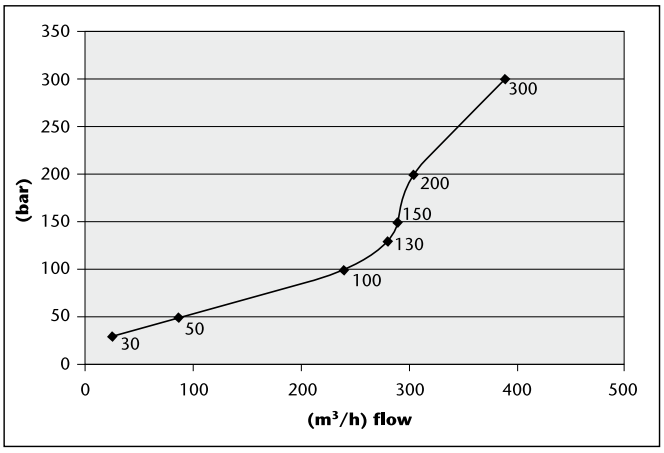
Technical Specifications

Maximum working pressure:	300 bar
Test pressure:	360 bar
Temperature range:	-45°C ÷ +70°C
Pressure regulator reducing range	150-100 bar
Residual pressure device	2 ÷ 4,5 bar



Materials

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
Bursting disc	Nickel
Bursting body	Brass
O-Rings	EPDM
Seat Disc	Polyamide
Regulator O-Rings	EPDM
Spindle	Brass



Options

- Dip tube thread
- Personalized Handwheel logo cap
- Syntherized filter
- Chrome plating
- Bursting disc various setting
- Parallel thread

EDITION NOVEMBER 2007

cavagna group

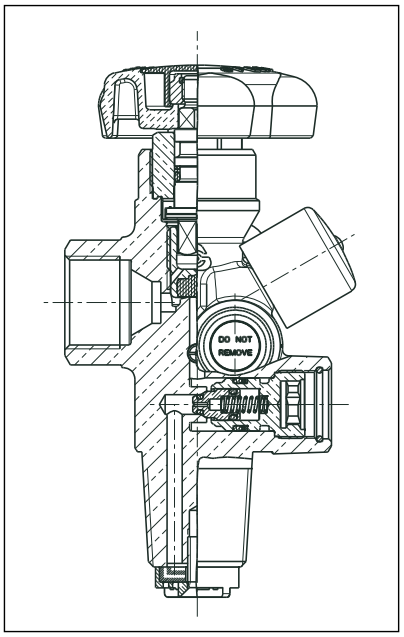
HIGH PRESSURE EQUIPMENT DIVISION

PRR G series

High pressure Industrial valve for various gases with integrated pressure reducer, Residual pressure device Active gauge

Key features

- High pressure valve, o-ring seal type for industrial gases including oxygen, up to 300 bar working pressure.
- Valve designed in accordance to EN-ISO 10297
- Integrated pressure reducer from 300 bar to 150-100 bar Mange depending on customer requirements.
- Residual pressure device incorporated into the valve
- Safety relief valve protect the line and the equipment downstream
- Active gauge
- All inlet and outlet standard available

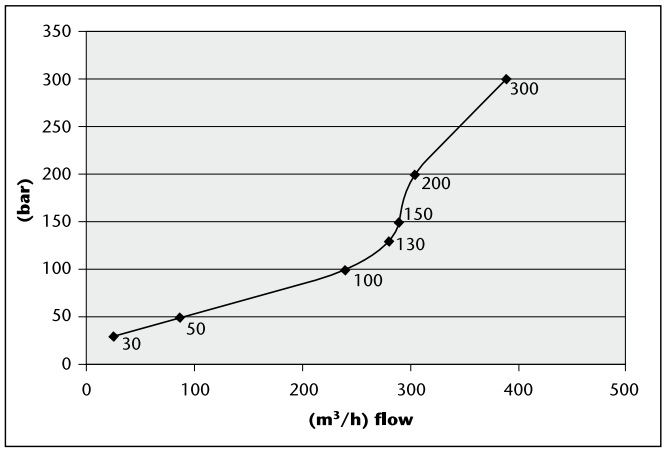


Technical Specifications

Maximum working pressure:	300 bar
Test pressure:	360 bar
Temperature range:	-45°C ÷ +70°C
Pressure regulator reducing range	150-100 bar
Residual pressure device	2 ÷ 4,5 bar
Safety relief valve setted at	160 bar

Materials

Handwheel	Aluminium
Valve Body	Brass alloy according to EN12165
O-Rings	EPDM
Seat Disc	Polyamide
Regulator O-Rings	EPDM
Spindle	Brass



Options

- Active gauge
- Dip tube thread
- Personalized Handwheel logo cap
- Syntherized filter
- Chrome plating
- Safety relief valve various setting
- Parallel thread

The features described in this illustration do not bind the manufacturer.

M 3000 series

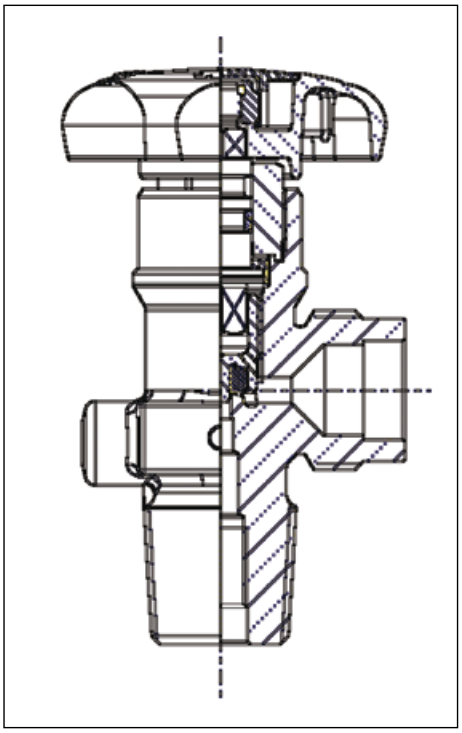
Cylinder Valves up 300 bar Working Pressure

Key features

- These valves are suitable for various industrial gases including Oxygen. Designed according to EN 849
- O-Ring seal type valves
- Easy handwheel operation under high pressure
- Marking on the valve neck protects against damage
- Large seat orifice provides faster vacuum and filling rates
- Outlets in accordance to ISO 5145
- Hot forged brass body manufactured by Cavagna Group
- All inlets and outlets standards available
- All valves "π" marked in accordance with 99/36 EC
- Non rotating spindle

Technical Specifications

Maximum working pressure:	300 bar
Test pressure:	360 bar
Temperature range:	-45°C ÷ +65°C
Orifice size:	3,5 mm



Materials

Valve body	Brass alloy according to EN12165
Seat Disc	Polyamide
O-Rings	Various materials
Handwheel	Aluminium
Spindle	Brass

Options

- Personalized Handwheel logo cap
- Filter
- Chrome plating
- Bursting disc
- Inlet Dip tube thread
- Plastic Handwheel

PCO series

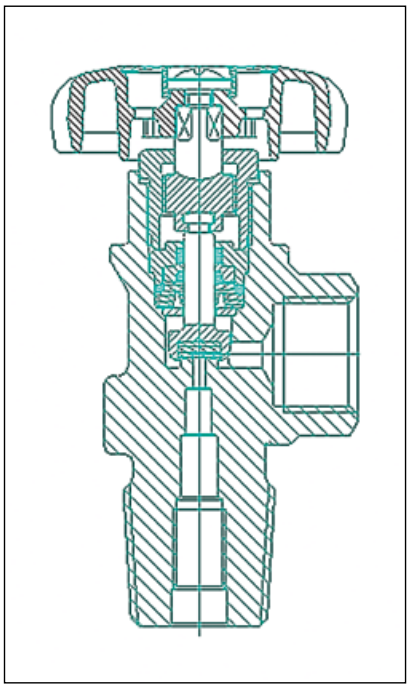
Stainless Steel Cylinder Valves for Corrosive and Specialty Gases

Key features

- Valve designed in accordance to EN 849.
- Body materials compatible with corrosive gases: carbon steel and stainless steel.
- Stainless steel spindles with PTCFE seat disc.
- Easy handwheel operation under high pressure
- Not rotating spindle
- Markings on the valve neck protects against domage
- All valves "π" marked in accordance with 99/36 EC
- All inlet and outlet standards available

Technical Specifications

Maximum working pressure:	230 bar
Test pressure:	276 bar
Temperature range:	-45°C ÷ +65°C
Orifice size:	4 mm
Cycle life:	min 2000 cycles



Materials

Handwheel	Aluminium
Body	Stainless steel
Seat disc	PCTFE
O-Ring	Various
Spindle	Stainless steel

Options

- Personalized Handwheel logo cap
- Dip tube Inlet thread
- Chrome Nickel or Plating
- Plastic Handwheel
- Bursting disc
- Stainless steel cap with chain on the outlet

EDITION JANUARY 2006

PAM series

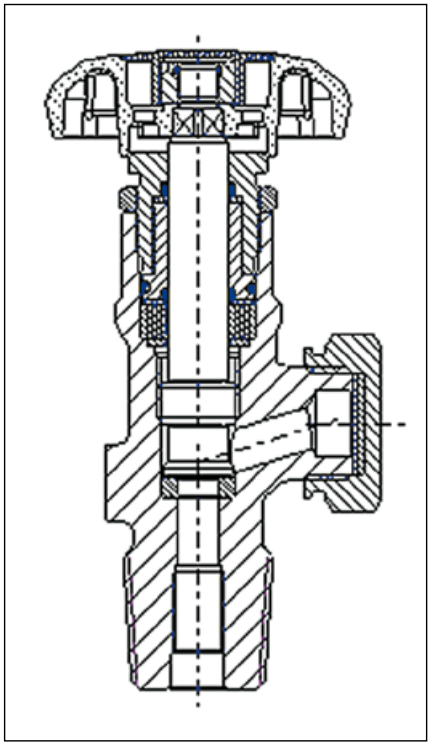
Carbon Steel Cylinder Valve for Corrosive Gases

Key features

- Valve designed in accordance to EN 849.
- Body materials compatible with corrosive gases: carbon steel and stainless steel.
- Stainless steel spindles with lead seat disc or metal to metal tightness.
- Double lock nut in the bonnet system.
- All valves "π" marked in accordance with 99/36 EC

Technical Specifications

Maximum working pressure:	200 bar
Test pressure:	240 bar
Temperature range:	-25°C ÷ +65°C
Orifice size:	8 mm
Cycle life:	min 2000 cycles



Materials

Body	Carbon steel or Stainless steel
Seat disc	Kel-f
O-Ring	Teflon
Handwheel	Aluminium
Spindle	Stainless steel

Options

- Personalized Handwheel logo cap
- Dip tube Inlet thread
- Stainless steel chain on the outlet
- Nickel plating
- Dip tube various lengths
- Nickel plating nut

The features described in this illustration do not bind the manufacturer.

CLO series

Brass cylinder valves

For corrosive gases

Key features

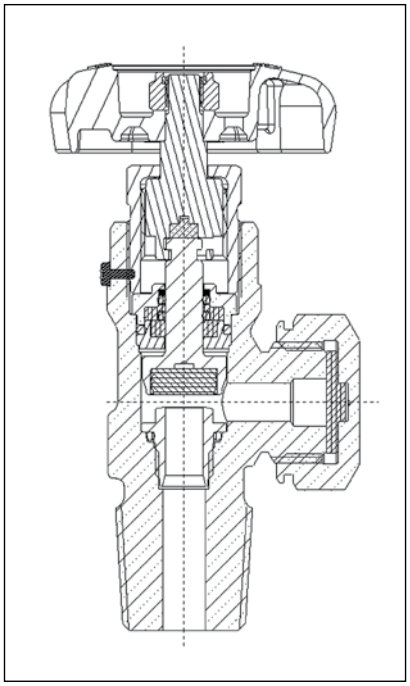
- Valve designed in accordance to ISO EN 10297
- Body materials compatible with chlorine gas
- Stainless steel spindle and valve seat
- Safety lock system on the gland nut

Technical Specifications

Maximum Working Pressure:	30 bar
Test pressure:	60 bar
Temperature range:	-20°C - +65°C
Orifice diameter size:	8 mm
Cycle life:	min 2000 open/close cycles

Materials

Body:	nickel plated brass
Seat pad:	PTCFE
Valve seat:	S.S. Aisi 316
O-ring:	Viton
Spindle:	S.S. Aisi 316
Backup ring:	PTFE



Options

- Body materials: carbon steel or stainless steel
- Personalized Handwheel logo cap
- Stainless steel chain and nut on the valve outlet
- Deep tube
- Filter

CYLINDER BUNDLE CONNECTORS

FERRULE TYPE TIGHTNESS

Compatibility: Suitable for all non corrosive gases

Technical information:
Working pressure: 200 bar
Test pressure: 300 bar

Materials:
Body: Brass alloy

Options: Available for ø 8 and 10 mm. pipes

Accessories: Nut for ø 8 and 10 mm. pipes
Ferrule for ø 8 and 10 mm. copper pipes
ø 8 and 10 mm. pipe connections


1 WAY


2 STRAIGHT WAYS


2 SQUARE WAYS


3 WAYS

METAL TO METAL TYPE TIGHTNESS

Compatibility: Suitable for all non corrosive gases

Technical information:
Working pressure: 200 bar
Test pressure: 300 bar

Materials:
Body: Brass alloy

Accessories: Stainless steel or copper pigtails various dimensions and thread specifications


1 WAY


2 STRAIGHT WAYS

O-RING TYPE TIGHTNESS

Compatibility: Available for all non corrosive gases

Technical informations:
Working pressure: 300 bar
Test pressure: 450 bar

Materials:
Body: Brass alloy

Accessories: Stainless steel or copper pigtails various dimensions and thread specifications


1 WAY


2 STRAIGHT WAYS

CBD series

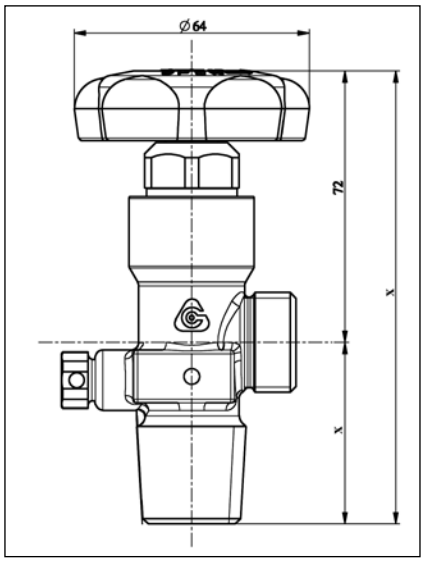
Brass High Pressure Packless Diaphragm Seal Valve for High Purity Gases

Key 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% leak test to 1.2 times cylinder service pressure
- All markings on the valve neck protected against damage
- Durable forged brass body manufactured by Cavagna Group
- Unitized "plug style" bursting disc
- All CGA outlets available
- Different inlet threads available according to customer requirements

Options

Chrome or nickel plated treatment
Different diptube threads connections available
Personalized handwheel logocap
Various bursting disc settings available
Cleaned for UHP/ECD applications
Prepared for flow restrictor attachment



Technical Specifications

Maximum Working pressure:	230 bar / 3360 PSI
Test Pressure:	276 bar / 4000 PSI
Storage Temperature:	-65°F +155°F
Operating temperature:	-50°F +120°F
Helium leak rate:	- internal: 10^{-7} mbar/sec = 1,45 x 10^{-9} PSI/sec
	- external: 10^{-7} mbar/sec = 1,45 x 10^{-9} PSI/sec
	- safety: 10^{-8} mbar/sec = 1,45 x 10^{-10} PSI/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm / 0,157"
Cycle life:	min 5000 cycles

Materials

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

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
EN849	European Norm
ISO 10297	

Ordering information

C= Cavagna valve
B= Brass
D= packless diaphragm valve

INLET: 1 = 3/4" NGT
4 = 3/4 " NGT 4 O.S
6 = 1 " NGT
7 = 3/4" NGT 7 O.S
8 = 1/2 " NGT

OUTLET: CGA

SAFETY TYPE : 1- bursting disc
5- bursting disc and fusible plug 165°F
6 - bursting disc and fuse 212°F

BURSTING DISC SETTING PRESSURE

EX: CBD166013360

EDITION OCTOBER 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

CSD series

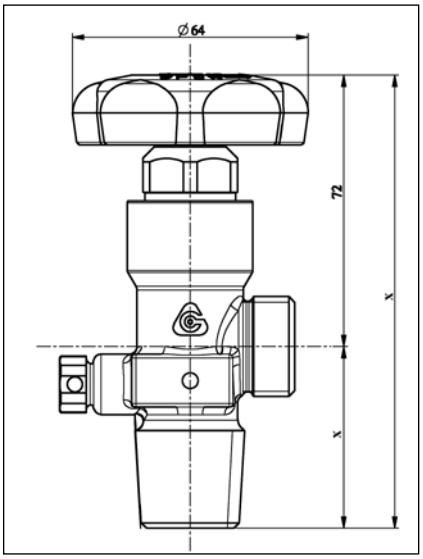
Stainless Steel High Pressure Packless Diaphragm Seal Valve for High Purity Gases

Key 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% leak test to 1.2 times cylinder service pressure
- All markings on the valve neck protected against damage
- Unitized "plug style" bursting disc
- All CGA outlets available
- Different inlet threads available according to customer requirements

Options

Different diptube threads connections available
Personalized 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



Technical Specifications

Maximum Working pressure:	230 bar / 3360 PSI
Test Pressure:	276 bar / 4000 PSI
Storage Temperature:	-65°F +155°F
Operating temperature:	-50°F +120°F
Helium leak rate:	- internal: 10^{-7} mbar/sec = 1,45 x 10^{-9} PSI/sec
	- external: 10^{-7} mbar/sec = 1,45 x 10^{-9} PSI/sec
	- safety: 10^{-8} mbar/sec = 1,45 x 10^{-10} PSI/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm / 0,157"
Cycle life:	min 5000 cycles

Materials

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

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
EN849	European Norm
ISO 10297	

Ordering information

C= Cavagna valve
B= Brass
D= packless diaphragm valve

INLET: 1 = 3/4" NGT
4 = 3/4 " NGT 4 O.S
6 = 1 " NGT
7 = 3/4" NGT 7 O.S
8 = 1/2 " NGT

OUTLET: CGA

SAFETY TYPE : 1- bursting disc
5- bursting disc and fusible plug 165°F
6 - bursting disc and fuse 212°F

BURSTING DISC SETTING PRESSURE

EX: CSD166013360

The features described in this illustration do not bind the manufacturer.

DIAB series

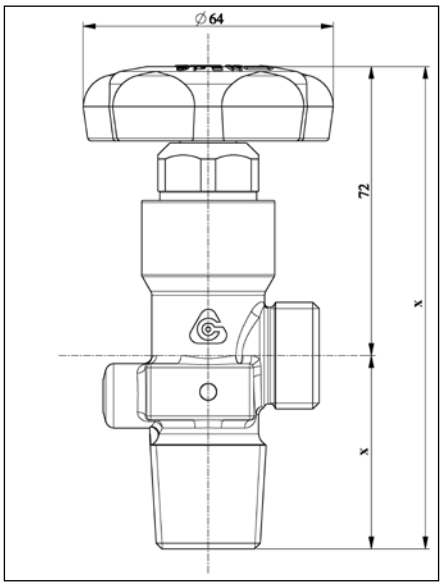
Brass High Pressure Diaphragm Seal Valve for High Purity Gases

Key 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% leak test according to EN 849
- All markings on the valve neck protected against damage
- Durable forged brass bodies manufactured by Cavagna Group
- All valves are "π" marked according to 99/36 EC
- Valves designed according to EN 849
- All inlets and outlets standards available

Options

Chrome or nickel plated treatment
Different diptube connections available
Personalized handwheel logocap
Various bursting disc settings available
Cleaned for UHP/ECD applications
Prepared for flow restrictor attachment



Technical Specifications

Maximum Working pressure:	230 bar
Test Pressure:	276 bar
Temperature Rage:	-40°C +65°C
Helium leak rate:	- internal: 10^{-7} mbar/sec
	- external: 10^{-7} mbar/sec
	- safety: 10^{-8} mbar/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm
Cycle life:	2000 cycles

Materials

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

Conforms to all requirements of EN 849

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

EDITION OCTOBER 2006

DIAS series

Stainless Steel High Pressure Diaphragm Seal Valve for High Purity Gases

Key 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% leak test according to EN 849
- All markings on the valve neck protected against damage
- All valves are "π" marked according to 99/36 EC
- Valves designed according to EN 849
- All inlets and outlets standards available

Options

Different diptube threads connections available

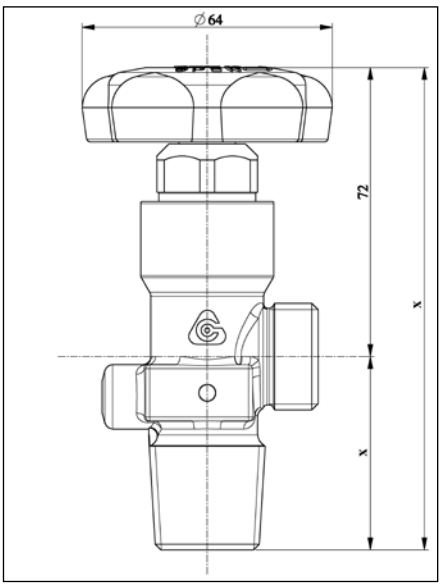
Personalized handwheel logocap

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



Technical Specifications

Maximum Working pressure:	230 bar
Test Pressure:	276 bar
Temperature Rage:	-40°C +65°C
Helium leak rate:	- internal: 10^{-7} mbar/sec
	- external: 10^{-7} mbar/sec
	- safety: 10^{-8} mbar/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm
Cycle life:	2000 cycles

Materials

Body Material:	AISI 304 AISI 316 L
Diaphragm:	Hastelloy Stainless Steel
Spindle:	AISI 304 AISI 316 L
Seat Disc:	PA 6,6 PCTFE
Bursting disc:	nickel AISI 316 L

Conforms to all requirements of EN 849

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.

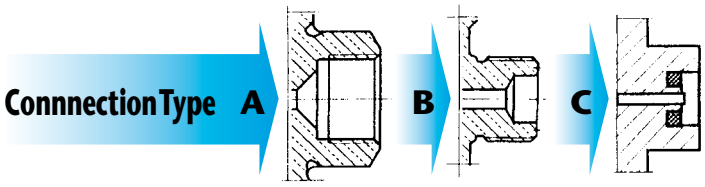
Example: VDA2NOS001

The features described in this illustration do not bind the manufacturer.

EDITION JANUARY 2006

Table of outlet connections for the most significant gases

ITALY



GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		W 30 x 1/14"	UNI 4410	B
NITROGEN	N_2	W 21,7 x 1/14"	UNI 4409	A
ARGON	Ar	W 24,5 x 1/14"	UNI 4412	A
HELIUM	He	W 24,5 x 1/14"	UNI4412	A
HYDROGEN	H_2	W 20 x 1/14" Sin.	UNI 4405/H	B
METHANE	CH_4	W 20 x 1/14" Sin.	UNI 4405/H	B
CARBON MONOXIDE	CO	W 20 x 1/14" Sin.	UNI 4405/H	B
OXYGEN	O_2	W 21,7 x 1/14"	UNI 4406	B
CARBON DIOXIDE	CO_2	W 21,7 x 1/14" * Ø 27 x 2	UNI 4406 ISO 5145 Gr. 2	B
NITROUS OXIDE	N_2O	G 3/8" A	UNI 9097	B
ACETYLENE	C_2H_2	Ø 20 x Ø 10 mm. G 5/8" Sin.	UNI 4411/1 UNI 4411/2	C A
AMMONIA	NH_3	W 30 x 1/14" Sin.	UNI 4407	B
SULPHUR DIOXIDE	SO_2	W 21,7 x 1/14"	UNI 4406	B
PROPANE	C_3H_8	W 20 x 1/14" Sin.	UNI 4405/P	B
BUTANE	C_4H_{10}	W 20 x 1/14" Sin.	UNI 4405/P	B
CHLORINE	Cl_2	W 1" x 1/8"	UNI 4408	B
ETHYLENE OXIDE	C_2H_4O	W 20 x 1/14" Sin.	UNI 4405/H	B
PHOSGENE	$COCl_2$	W 21,7 x 1/14"	UNI 4406	B
REFRIGERANT		W 21,7 x 1/14"	UNI4406	B

* Only medical gases.

The features described in this illustration do not bind the manufacturer.

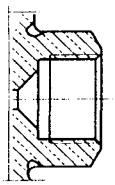
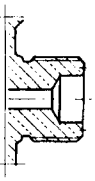
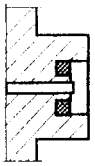
EDITION JANUARY 2006

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

Table of outlet connections for the most significant gases

FRANCE

Connnection Type A  B  C 

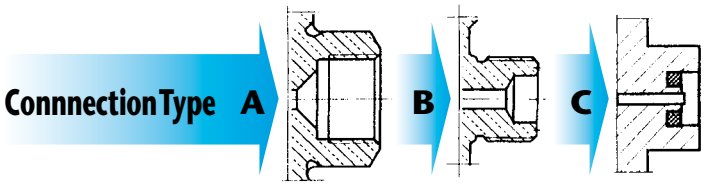
GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		* Ø 24 x 2 Ø 30 x 1,75	NF E 29-650/D NF E 29-650/B	B B
NITROGEN	N_2	Ø 21,7 x 1,814	NF E 29-650/C	B
ARGON	Ar	Ø 21,7 x 1,814	NF E 29-650/C	B
HELIUM	He	Ø 21,7 x 1,814	NF E 29-650/C	B
HYDROGEN	H_2	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
METHANE	CH_4	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
CARBON MONOXIDE	CO	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
OXYGEN	O_2	Ø 22,91 x 1,814	NF E 29-650/F	A
CARBON DIOXIDE	CO_2	Ø 21,7 x 1,814	NF E 29-650/C	B
NITROUS OXIDE	N_2O	Ø 26 x 1,5	NF E 29-650/G	A
ACETYLENE	C_2H_2	Ø 21 x Ø 10 mm. Ø 22,91 x 1,814 LH	NF E 29-650/A NF E 29-650/H	C A
AMMONIA	NH_3	Ø 21,7 x 1,814	NF E 29-650/C	B
SULPHUR DIOXIDE	SO_2	Ø 27 x 2	NF E 29-650/K	B
PROPANE	C_3H_8	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
BUTANE	C_4H_{10}	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
CHLORINE	Cl_2	Ø 25,4 x 31,75	NF E 29-650/J	B
ETHYLENE OXIDE	C_2H_4O	Ø 21,7 x 1,814 LH	NF E 29-650/E	B
PHOSGENE	$COCl_2$	Ø 27 x 2	NF E 29-650/K	B
REFRIGERANT		Ø 21,7 x 1,814	NF E 29-650/C	B

* Only medical gases.

The features described in this illustration do not bind the manufacturer.

Table of outlet connections for the most significant gases

NETHERLANDS



GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		W 28,8 x 1/14"	NEN3268 RU 6	B
NITROGEN	N_2	W 24,32 x 1/14"	NEN3268 RU 3	B
ARGON	Ar	W 24,32 x 1/14"	NEN3268 RU 3	B
HELIUM	He	W 24,32 x 1/14"	NEN3268 RU 3	B
HYDROGEN	H_2	W 21,8 x 1/14" LH	NEN3268 LU 1	B
METHANE	CH_4	W 21,8 x 1/14" LH	NEN3268 LU 1	B
CARBON MONOXIDE	CO	W 1" x 1/8" LH	NEN3268 LU 4	B
OXYGEN	O_2	G 5/8"	NEN3268 RI 2	A
CARBON DIOXIDE	CO_2	W 21,8 x 1/14"	NEN3268 RU 1	B
NITROUS OXIDE	N_2O	W 21,8 x 1/14"	NEN3268 RU 1	B
ACETYLENE	C_2H_2	Ø 20 x Ø9 G 5/8" LH	NEN3268 YOKE NEN3268 LI 2	C A
AMMONIA	NH_3	W 1" x 1/8"	NEN3268 RU 4	B
SULPHUR DIOXIDE	SO_2	W 1" x 1/8"	NEN3268 RU 4	B
PROPANE	C_3H_8	W 21,8 x 1/14" LH	NEN3268 LU 1	B
BUTANE	C_4H_{10}	W 21,8 x 1/14" LH	NEN3268 LU 1	B
CHLORINE	Cl_2	W 1" x 1/8"	NEN3268 RU 4	B
ETHYLENE OXIDE	C_2H_4O	W 1" x 1/8" LH	NEN3268 LU 4	B
PHOSGENE	$COCl_2$	W 1" x 1/8"	NEN3268 RU 4	B
REFRIGERANT		W 21,8 x 1/14"	NEN3268 RU 1	B

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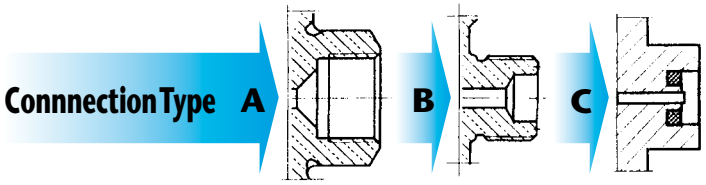
HIGH PRESSURE EQUIPMENT DIVISION

Table of outlet connections for the most significant gases

UNITED STATES

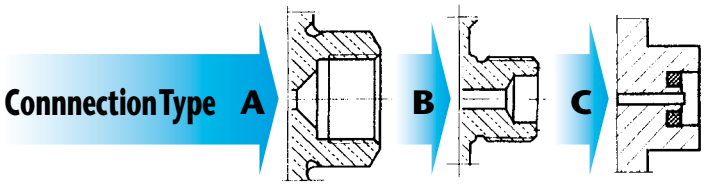


GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		.825" - 14 NGO RH EXT	CGA 346	B
NITROGEN	N_2	.965" - 14 NGO RH INT	CGA 580	A
ARGON	Ar	.965" - 14 NGO RH INT	CGA 580	A
HELIUM	He	.965" - 14 NGO RH INT	CGA 580	A
HYDROGEN	H_2	.825" - 14 NGO LH EXT	CGA 350	B
METHANE	CH_4	.825" - 14 NGO LH EXT	CGA 350	B
CARBON MONOXIDE	CO	.825" - 14 NGO LH EXT	CGA 350	B
OXYGEN	O_2	.903" - 14 NGO RH EXT	CGA 540	B
CARBON DIOXIDE	CO_2	.825" - 14 NGO RH EXT	CGA 320	B
NITROUS OXIDE	N_2O	.825" - 14 NGO RH EXT	CGA 326	B
ACETYLENE	C_2H_2	.885" - 14 NGO LH INT	CGA 510	A
AMMONIA	NH_3	3/8" - 18 NGT RH INT	CGA 240	A
SULPHUR DIOXIDE	SO_2	1.030" - 14 NGO RH EXT	CGA 660	B
PROPANE	C_3H_8	.885" - 14 NGO LH INT	CGA 510	A
BUTANE	C_4H_{10}	.885" - 14 NGO LH INT	CGA 510	A
CHLORINE	Cl_2	1.030" - 14 NGO RH EXT	CGA 660	B
ETHYLENE OXIDE	C_2H_4O	.885" - 14 NGO LH INT	CGA 510	A
PHOSGENE	$COCl_2$	1/8" - 27 NGT RH INT	CGA 160	A
REFRIGERANT		1.030" - 14 NGO RH EXT	CGA 660	B

The features described in this illustration do not bind the manufacturer.

Table of outlet connections for the most significant gases

UNITED KINGDOM



GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		G 5/8"	BS 341 nr.3	A
NITROGEN	N_2	G 5/8"	BS 341 nr.3	A
ARGON	Ar	G 5/8"	BS 341 nr.3	A
HELIUM	He	G 5/8"	BS 341 nr.3	A
HYDROGEN	H_2	G 5/8" LH	BS 341 nr.2	A
METHANE	CH_4	G 5/8" LH	BS 341 nr.2	A
CARBON MONOXIDE	CO	G 5/8" LH	BS 341 nr.4	A
OXYGEN	O_2	G 5/8"	BS 341 nr.3	A
CARBON DIOXIDE	CO_2	0,860" x 14 TPI	BS 341 nr.8	B
NITROUS OXIDE	N_2O	11/16" x 20 TPI	BS 341 nr.13	B
ACETYLENE	C_2H_2	G 5/8" LH	BS 341 nr.2	A
AMMONIA	NH_3	G 1/2" A	BS 341 nr.10	B
SULPHUR DIOXIDE	SO_2	G 1/2" A	BS 341 nr.10	B
PROPANE	C_3H_8	G 5/8" LH	BS 341 nr.4	A
BUTANE	C_4H_{10}	G 5/8" LH	BS 341 nr.4	A
CHLORINE	Cl_2	G 5/8" A	BS 341 nr.6	B
ETHYLENE OXIDE	C_2H_4O	G 5/8" A LH	BS 341 nr.7	B
PHOSGENE	$COCl_2$	G 5/8" A	BS 341 nr.6	B
REFRIGERANT		G 5/8" A	BS 341 nr.6	B

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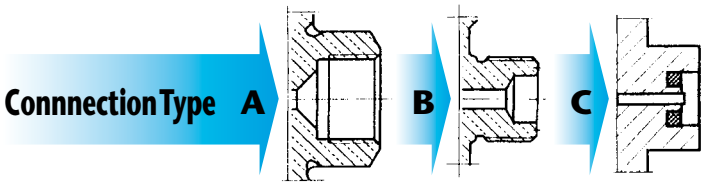
Table of outlet connections for the most significant gases

GERMANY

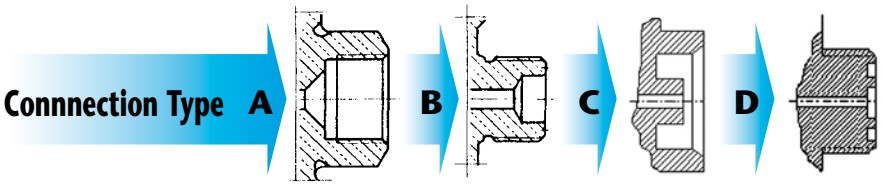


GAS	Chemical symbol	Dimensions	Standard	Type
COMPRESSED AIR		G 5/8"	DIN 477 nr.13	A
NITROGEN	N_2	W 24,32 x 1/14"	DIN 477 nr.10	B
ARGON	Ar	W 21,8 x 1/14"	DIN 477 nr.6	B
HELIUM	He	W 21,8 x 1/14"	DIN 477 nr.6	B
HYDROGEN	H_2	W 21,8 x 1/14" LH	DIN 477 nr.1	B
METHANE	CH_4	W 21,8 x 1/14" LH	DIN 477 nr.1	B
CARBON MONOXIDE	CO	W 1" x 1/8" LH	DIN 477 nr.5	B
OXYGEN	O_2	G 3/4"	DIN 477 nr.9	B
CARBON DIOXIDE	CO_2	W 21,8 x 1/14"	DIN 477 nr.6	B
NITROUS OXIDE	N_2O	G 3/8"	DIN 477 nr.11	B
ACETYLENE	C_2H_2	Ø 15,3 x Ø 7,5	DIN 477 nr.3	C
AMMONIA	NH_3	W 21,8 x 1/14"	DIN 477 nr.6	B
SULPHUR DIOXIDE	SO_2	G 5/8"	DIN 477 nr.7	B
PROPANE	C_3H_8	W 21,8 x 1/14" LH	DIN 477 nr.1	B
BUTANE	C_4H_{10}	W 21,8 x 1/14" LH	DIN 477 nr.1	B
CHLORINE	Cl_2	W 1" x 1/8"	DIN 477 nr.8	B
ETHYLENE OXIDE	C_2H_4O	W 21,8 x 1/14" LH	DIN 477 nr.1	B
PHOSGENE	$COCl_2$	W 1" x 1/8"	DIN 477 nr.8	B
REFRIGERANT		W 21,8 x 1/14"	DIN 477 nr.6	B

The features described in this illustration do not bind the manufacturer.

Table of outlet connections for the most significant gases

ESPAÑA



GAS	SIMBOLO QUIMICO	DIMENSIONES	NORMA	TIPO
AIRE COMPRIMIDO		M Ø 30 x 1,75 - DERECHA	MIE AP 7 - B	D - MACHO
NITROGENO	N_2	W Ø 21,7 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
ARGON	Ar	W 21,7 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
HELIO	He	W 21,7 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
HIDROGENO	H_2	W 21,7 x 1/14 - IZQUIERDA	MIE AP 7 - E	B - MACHO
OXIGENO	O_2	W Ø 22,91 x 1/14 - DERECHA	MIE AP 7 - F	A - HEMBRA
ANHIDRIDO CARBONICO	CO_2	W 21,7 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
PROTOXIDO DE NITROGENO	N_20	W Ø 16,66 x 19 - DERECHA	MIE AP 7 - U	B - MACHO
ACETILENO	C_2H_2	W Ø 22,91 x 1/14 - IZQUIERDA W Ø 26,44 x 1/14 - IZQUIERDA	MIE AP 7 - H	A - HEMBRA C - ESTRIBO
AMONIACO	NH_3	W 21,7 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
ANHIDRIDO SOLFUROSO	SO_2	W Ø 22,91 x 1/14 - DERECHA	MIE AO 7 - S	B - MACHO
PROPANO	C_3H_8	W 21,7 x 1/14 - IZQUIERDA	MIE AP 7 - E	B - MACHO
BUTANO	C_4H_{10}	W 21,7 x 1/14 - IZQUIERDA	MIE AP 7 - E	B - MACHO
CLORO	CL_2	W Ø 25,4 x 1/8 - DERECHA	MIE AP 7 - J	B - MACHO
CLORO - BOTELLONES	CL_2	W Ø 31,75 x 1/7 - DERECHA	MIE AP 7 - T	B - MACHO
REFRIGERANTES		W Ø 21,7 x 1/14 - DERECHA W Ø 21,8 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
CRIOGENICOS		W Ø 21,7 x 1/14 - DERECHA W Ø 21,8 x 1/14 - DERECHA	MIE AP 7 - C	B - MACHO
CALIBRACION		M Ø 19 x 1,5 - IZQUIERDA	MIE AP 7 - M	B - MACHO
AIRE COMPRIMIDO PARA APARATOS DE RESPIRACION E INMERSION		W Ø 22,91 x 14 - DERECHA	MIE AP 7 - V2	A - HEMBRA

The features described in this illustration do not bind the manufacturer.


HIGH PRESSURE EQUIPMENT
DIVISION
NAUTILUS SERIES
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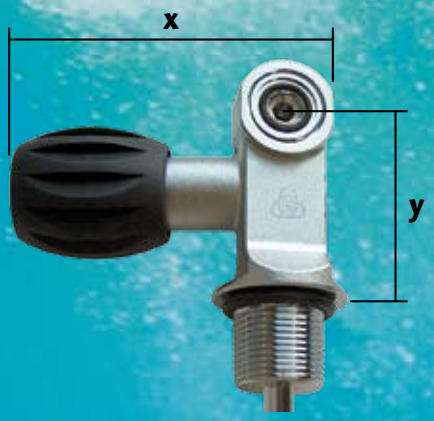
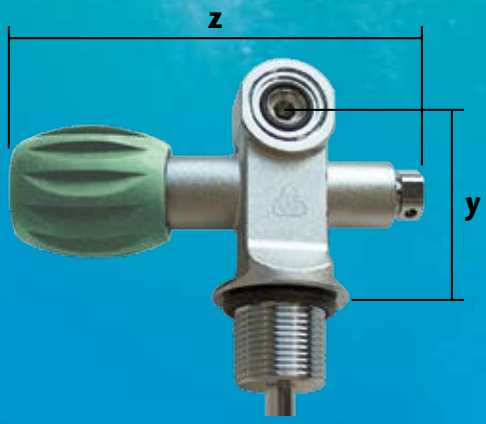
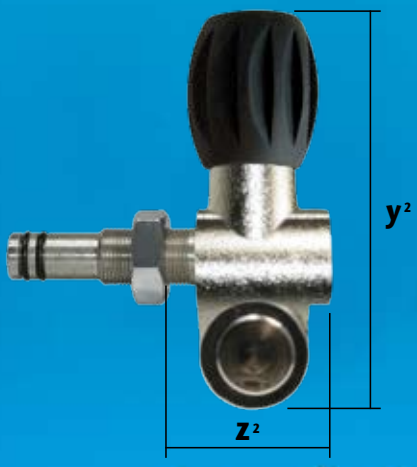
pergola

NAUTILUS SERIES

Single outlet with/without bursting disc
Second outlet







KEY FEATURES FOR ALL NAUTILUS SERIES

- Valves CE marked in accordance with the European Directive 97/23 EC
- (PED) complying the requirement of the EN 250 standard
- High quality chrome plated body with excellent resistance to salt spray test
- Safe and long life under all service conditions is guaranteed by the solid design and the quality of the materials of the internal components
- Large internal orifice ensure a high gas flow capacity
- Handwheel closing torque: 0,9 Nm @ 230 Bar
- Ergonomic Handwheel conceived to be manipulated also with thick protective gloves
- Permanent gas tight seal
- OPEN and CLOSE stamped on the Handwheel
- Dip tube installed in the valve inlet to ensure a better breathing
- Working pressure: 230 or 300 bar
- Seat orifice 3,5 mm
- Helium leak rate: less than 10-3 mbar l/s
- Temperature range: -20°C / +65°C
- Inlet thread M25x2 EN144-1 or G ¾ NPSM
- Outlet thread for 230 bar W.P. G 5/8 ISO12209-2 with removable yoke connection according to ISO 12209-3 CGA 850
- Outlet thread for 300 bar W.P. G 5/8 ISO12209-2
- Nautilus Series is also compatible with EAN, NITROX and TRIMIX
- Different setting pressure of bursting disc are available
- Single packaged and cleaned for oxygen service

MATERIALS

Body:	Chrome plated brass
O-ring:	EPDM
Backup ring:	PTFE
Seat pad:	PA 6.6
Handwheel:	Black or Green Rubber with plastic insert

DIMENSIONS

	mm	inches
x	93	3,66
y	55	2,16
z	121,7	4,79
y^2	90	3,54
z^2	35	1,37

ORDERING INFORMATION

VS=	SCUBA VALVE
A1= B1=	230 bar WORKING PRESSURE 300 bar WORKING PRESSURE
D=	FAMILY
LH= RH= CE=	LEFT HAND RIGHT HAND MANIFOLD WITH SHUT OFF
XXX=	PROGRESSIVE NUMBERS TO IDENTIFY THE DIFFERENT INLETS, BURSTING DISC SETTING PRESSURE AND PERSONALIZATIONS

EXAMPLE: VSA1DLH001

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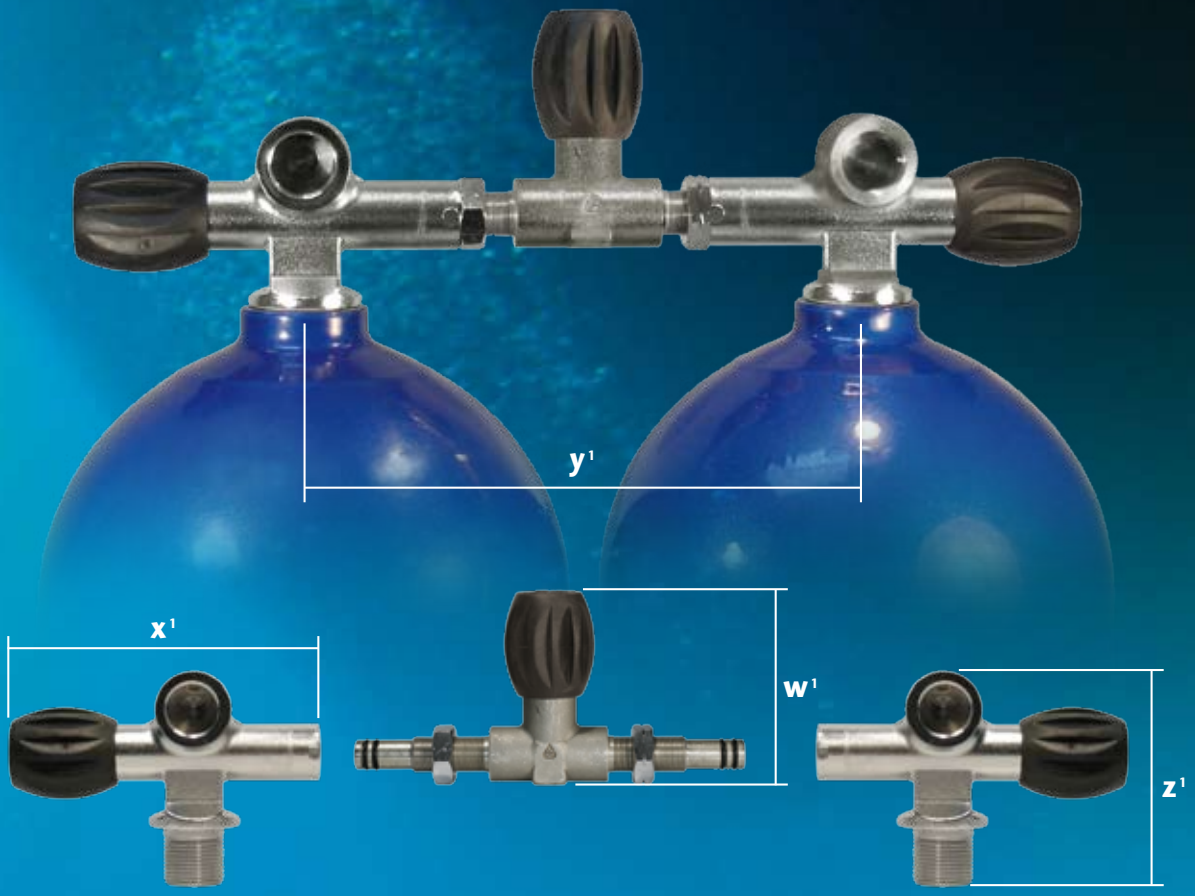
pergola

NAUTILUS SERIES

Manifold with Isolator



MATERIALS	
Body:	Chrome plated brass
O-ring:	EPDM
Backup ring:	PTFE
Seat pad:	PA 6.6
Handwheel:	Black or Green Rubber with plastic insert

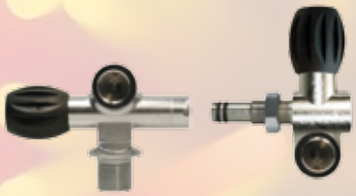
DIMENSIONS	mm	inches
x¹	130	5,11
y¹	168/178	6,61/7
	178/188	7/7,40
	188/198	7,40/7,79
	210/220	8,26/8,66
w¹	81	3,18
z¹	90	3,54

ORDERING INFORMATION	
VS=	SCUBA VALVE
A1= B1=	230 bar WORKING PRESSURE 300 bar WORKING PRESSURE
D=	FAMILY
LH= RH= CE=	LEFT HAND RIGHT HAND MANIFOLD WITH SHUT OFF
XXX=	PROGRESSIVE NUMBERS TO IDENTIFY THE DIFFERENT INLETS, BURSTING DISC SETTING PRESSURE AND PERSONALIZATIONS
EXAMPLE: VSA1DLH001	

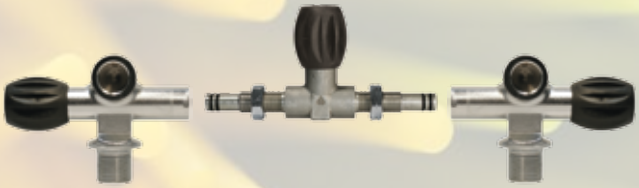
ASSEMBLY SOLUTIONS

Single CYLINDER
Single OUTLET

Single CYLINDER
Twin OUTLET



Twin CYLINDER
Twin OUTLET



DISTRIBUTION NETWORK

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VIPROXY™

Valve with **I**ntegrated **P**ressure **R**egulator for medical **OXY**gen.

- Handling and performing ALL IN ONE solution
- Compact and light design
- User friendly
- Suitable for home care, intensive and baby care
- Balanced diaphragm pressure regulator

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230 bar

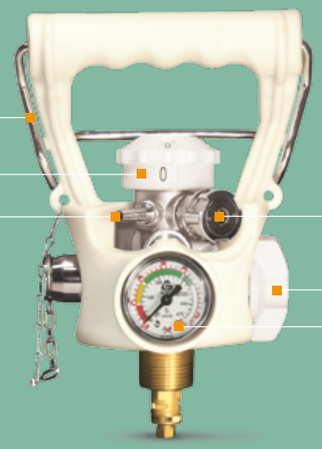
300 bar

VIPROXY™

Valve with **I**ntegrated **P**ressure **R**egulator for medical **OXY**gen.

A user friendly design allows access to the main functions from one side without having to turn the cylinder.

PLASTIC PROTECTION HANDLE MOUNTED ON THE VALVE



PLASTIC PROTECTION HANDLE MOUNTED ON THE CYLINDER NECK RING

Plastic handle also available in green colour.

VIPROXY™ incorporates an Active Gauge that allows pressure reading, when the cylinder is closed. This will prevent accidental opening of the cylinder without knowing the pressure contained in the cylinder. Special fluorescent dial allows reading even in nigth conditions.

VIPROXY™ is the first VIPR to incorporate a balanced regulator oriented in the orizontal way. Balanced regulator allows extreme better flow rate accuracy (+/- 5% of dial at setting) different service pressures. Horizontal orientation of the regulator reduces the overall height of the valve improvings its resistance to lateral impact.

A spring loaded pressure relief device is located in the low pressure section of the regulator to discharge accidental overpressures.

Dual outlet (hose barb and fixed high pressure) and dual flow reading windows covers all the possible applications of the **VIPROXY™**

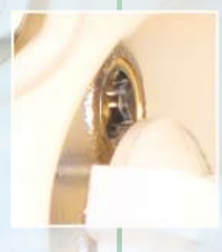
Dual reading dials on the side on the and top of the flow selector allows easy reading from different angle perspectives.

Filling port.
With Protection Nut and chain.

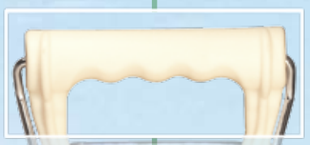
VIPROXY™ incorporates a low torque non rotating spindle shut off valve for lower torques at high service pressure. Maximum torque at 300 bar working pressure is 1,2 N/m.
The On-Off Handwheel can allocate a transponder for cylinder data tracking.

VIPROXY™ can be equipped with bursting disc device on the high pressure side depending on customer requirements. Various Pressure ratings are available.

VIPROXY™ incorporate also a residual pressure device, to protect cylinder from accidental contamination. Different residual pressure device setting are available depending on customer requirements.



Plastic protection handle complying with impact test requirements of EN 962

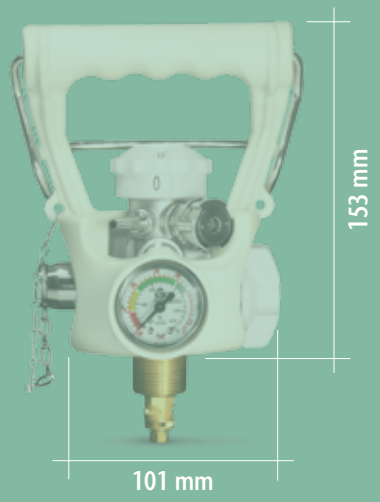


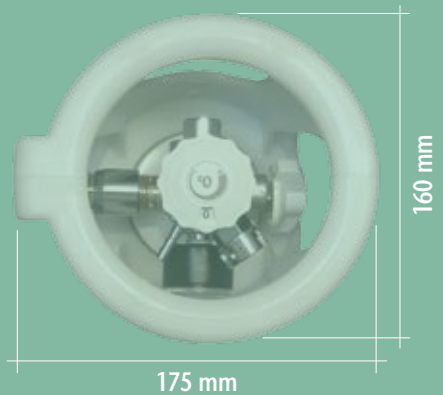
A synterized bronze filter is incorporated in the inlet of the valve preventing particles from entering into the valve. All thread configurations are available.

VIPROXY™

Valve with **I**ntegrated **P**ressure **R**egulator for medical **OXY**gen.

DIMENSIONS:





TECHNICAL FEATURES:

- Suitable for up to 300 bar oxygen service pressure (4351 PSI)
- Incorporates balanced regulator for better performance.
- Active gauge available with PSI or Bar scales and fluorescent dial
- **Viproxy™** is available also integral protection handle cap conforming EN 962
- Total weight with protection cap: 1.500 gr. ~ (for the fully equipped version)
- Conforms all the requirement of EN-ISO 10524-3 and EN-ISO 10297
- CE and π marked according to the European Directives 93/42 EC and 99/36 EC
- MRI compatible certified up to Tesla 3
- Conforming to the PILL test ASME G175

Optional features

- Hospital Bed Handle
- Protection handle conforming to EN962 up to 26,2 Kg
- Non-active gauge
- Configuration available with 1 or 2 outlet. Barbed fitting for 1/4" I.D. hose and Quick connection with pressure fixed at 4 bar (58 PSI)
- Antifilling device and non return valve in the filling port
- Filling port protection nut
- Bursting disc device

Available with different flowmeter ranges:

Application	l/min											
Baby care	0	¼	½	¾	1	1 ½	2	2 ½	3	4	5	6
Home care	0	½	1	2	3	4	5	6	8	10	12	15
Home care	0	¼	½	1	2	3	4	6	8	10	12	15
Intensive therapy	0	1	2	3	4	5	6	8	10	12	15	25
Intensive therapy	0	¼	½	1	2	3	4	6	8	10	15	25

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Cylinder Valves and Regulators for Medical Gases

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

PIN-INDEX valves

PDE series

- Handwheel wrench or toggle operated pin index valves
- Rotating spindle
- MRI compatible
- Complies with all ISO, EN, CGA standards
- Different inlet connections available

PDE-R series

- Handwheel wrench or toggle operated pin index valves
- Residual pressure functions

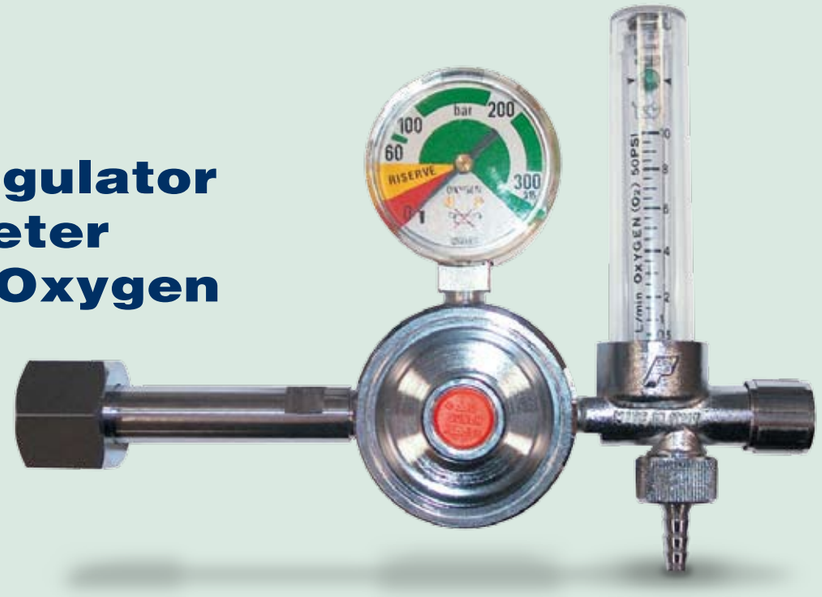
Technical Specifications

• Working pressure:	230 bar or 3300 PSI
• Cleaned of Oxygen service	
• Residual pressure device:	3 +/- 1 bar (43,5 +/- 14 PSI)

VIPROXY™

Valve with Integrated Pressure Reducer for medical OXYgen.

Pressure Regulator with Flowmeter for Medical Oxygen



Technical Specifications

- ***Performances***
  Flow Capacity: 40 l/m
  Precision of the regulator: conforming to EN 738 -1
  Precision of the flux meter: +/- 10%
  Inlet Pressure: 230 bar
  Safety relief valve setting pressure: 6 bar
- ***Weight:*** 950 gr

- ***Materials:***
  Regulator body: Chrome plated brass
  Inlet filter: sintered bronze - 80 micron
  Diaphragm: EPDM
  Shutter: brass
  Shutter seat: PA66
  Cylinder connection sealing: PA66
  Flux meter: polycarbonate
- ***Connection:***
  Inlet: according to the main international standards
  Outlet: hose holder for 5-8 mm hose diameters

P 2004

- High pressure valve with residual pressure device

M 2000

High pressure cylinder valve for O2 and various medical gases.

K 2000
PK 2000

Compact high pressure cylinder valve for Oxygen and Medical Gases available also with residual pressure device in the outlet connection.

Standard specifications

- High pressure cylinder valve for O2 and various Medical gases.
- Available with aluminium or plastic handwheel with metallic insert.
- MRI compatible

DISTRIBUTION NETWORK

■	Factories
●	Offices
▲	Distribution Network

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www.cavagnagroup.com

X-treme AIR VALVE

High Pressure Cylinder Valves for Self Contained Breathing Apparatus

- Impact test resistance in accordance with requirement of EN144, hot for Low and High tensile brass body
- Low torque and easy operation
- Ergonomic and antirolling handwheel, to prevent accidental closing
- CE marked according to 93/27 EC directive
- Tested according to EN ISO 10297, EN144 and CGA-V9 standard
- Available for 230-300 bar working pressure (3336 PSI - 4351 PSI)

Cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

X-treme AIR VALVE

High Pressure Cylinder Valves for Self Contained Breathing Apparatus

ERGONOMIC handwheel

...with ACS handwheel (Anti Closing System)

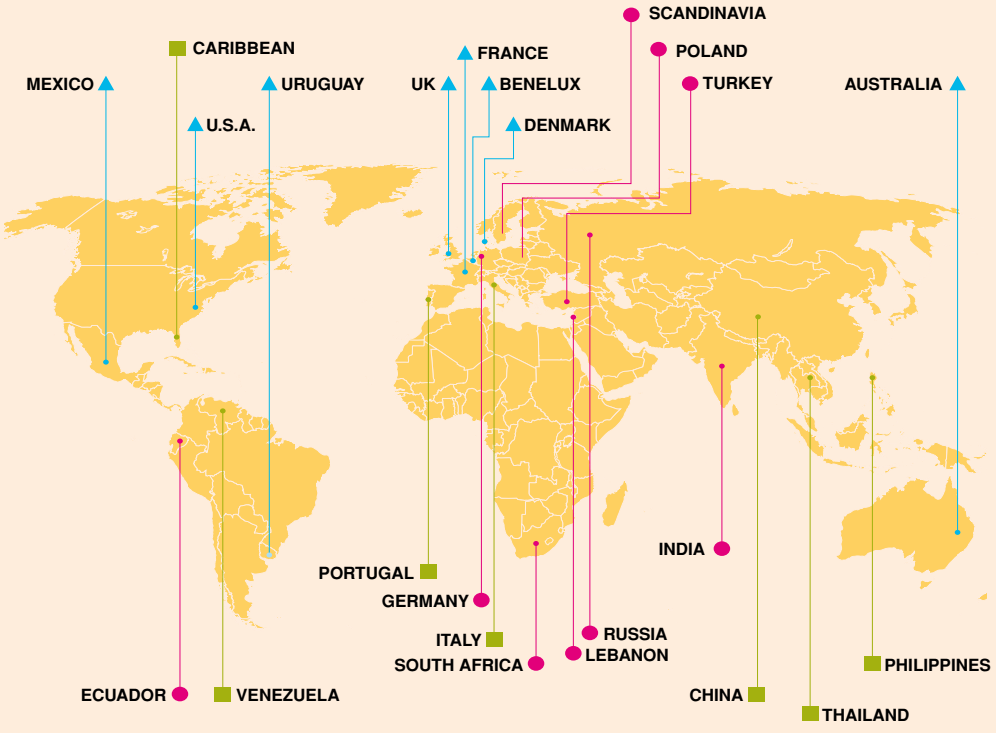
...also with pressure gauge

TECHNICAL SPECIFICATIONS

- **Working Pressure p max:** 230 bar (3336 PSI) and 300 bar (4351 PSI)
- **Temperature range:** -40° + 65°C (-40° + 149°F)
- **Seat orifice size:** 4mm
- **Material valve body:** Low tensile - High tensile (CZ115) brass
- **Seat disc:** Nylon PA66
- **O-rings:** EPDM
- **Handwheel:** Rubber
- Different inlet available upon request
- Outlet in accordance with EN144 and CGA V9 different outlet available upon request.

OPTIONS

- **Aluminium HDW**
- **Rubber handwheel with customer logo**
- **Customer logo on the body**
- **Sinter bronze filter mounted to the valve inlet**
- **Bursting disc**
- **Excess flow limiter**
- **Dip tube**
- **Aluminium body**
- **Different inlet available**



DISTRIBUTION NETWORK

■	Factories
●	Offices
▲	Distribution Network

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HIGH PRESSURE EQUIPMENT DIVISION

PERGOLA s.r.l. - Via Statale n.11/13
25010 Ponte S.Marco di Calcinato (BS) - Italy
Tel. +39 030 9663111 - Fax +39 030 9980894

www.cavagnagroup.com

DIASPEC

Diaphragm **V**alves for **S**pecialty **G**ases **A**pplications

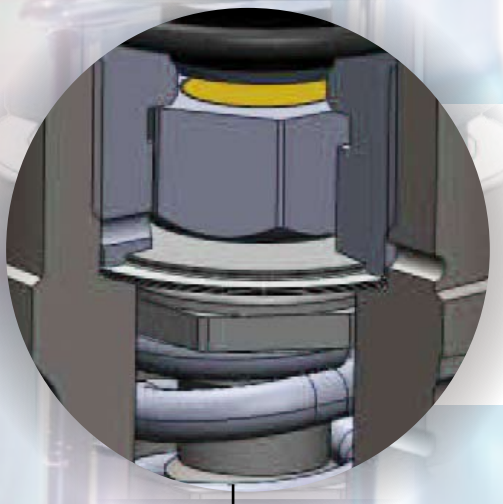
- **For High Purity and Corrosive Gases**
- **Extended life cycle resistance**
- **Upper Spindle Teflon coated**
- **Multi-Diaphragms patented system**
- **Extremely low leak rates**

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

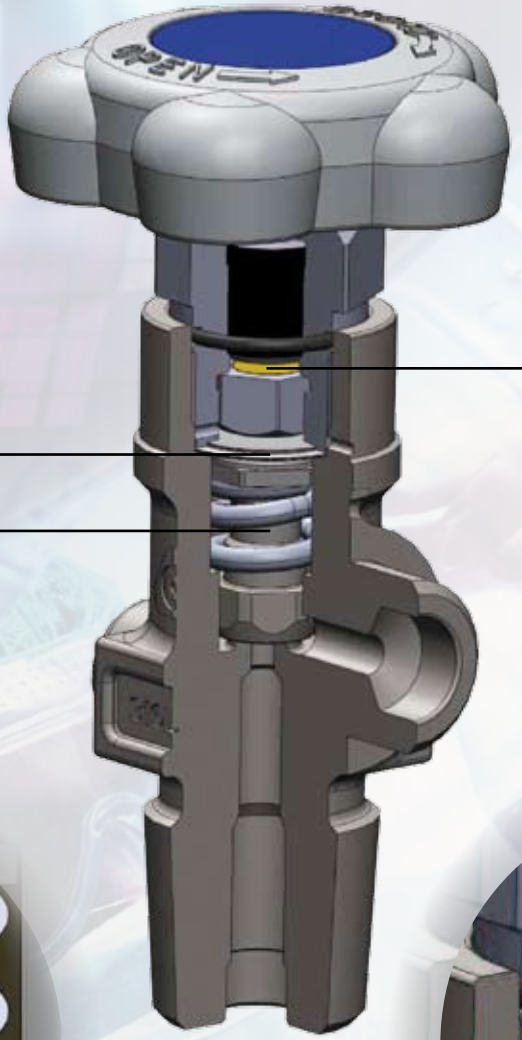
DIASPEC

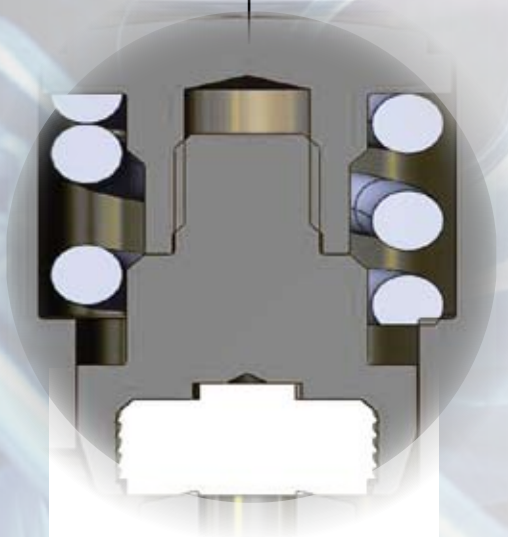
Diaphragm Valves for Specialty Gases Applications



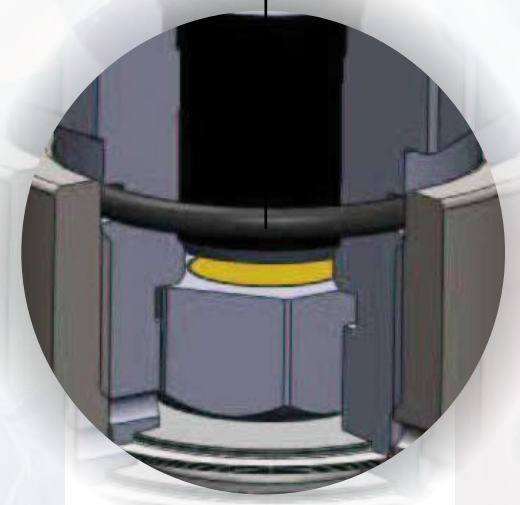
PATENTED SYSTEM

- Two unbounded supporting disks to reduce the deformation of the diaphragms
- Four bound diaphragms positioned between the gland nut and the valve body.
- The material of the wet diaphragms can be: Hastelloy® Elgiloy® or Stainless steel AISI 316





Seat Pad is not Bored to avoid the exstrusion of the pad from its seat



NON ROTATING SPINDLE: hexagonal sliding geometry for better guidance

HIGH PRESSURE EQUIPMENT DIVISION

DIASPEC S200

Stainless Steel High Pressure Diaphragm Seal Valve for High Purity Gases

Key features

- Low operating torque guaranteed thanks to the teflon coating upper stem
- Valve seat pad 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 valves are "π" marked according to 99/36 EC Directive
- Valves designed according to EN 10297
- All inlets and outlets standards available

Options

Different diptube thread connections available
Personalized handwheel logocap
Various bursting disc settings available
Gas tight outlet cap & chain
Cleaned for UHP/ECD applications
Prepared for flow restrictor attachment (DISS)

Technical Specifications

Maximum working pressure:	200 bar
Test Pressure:	240 bar
Temperature Range:	-40°C +65°C
Helium leak rate:	- internal: < 10^{-7} mbar/sec
	- external: < 10^{-7} mbar/sec
	- safety: < 10^{-8} mbar/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm
Cycle life:	> 2000 cycles

Materials

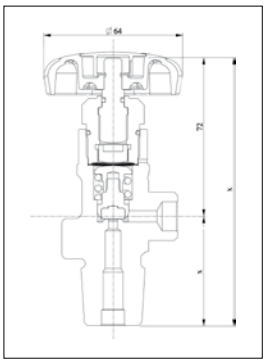
Body Material:	AISI 303 AISI 316 L
Diaphragm:	Hastelloy Stainless Steel
Spindle:	AISI 430F AISI 316 L
Seat Disc:	PA 6,6 PCTFE
Bursting disc:	nickel - AISI 316L AISI 316 L

Conforms to all EN 10297 requirements

Ordering information

V= valve
D= Diaphragm
A5= AISI 316 L body
Seat disc: PCTFE
Diaphragm: AISI 316 L
Hastelloy or Stainless steel
N= Family
OS= Gas Identification
Progressive number: to identify customer personalization, different inlet and outlet threads, bursting disc setting pressure.

Example: VDA5NOS001



HIGH PRESSURE EQUIPMENT DIVISION

DIASPEC B200

Brass High Pressure Diaphragm Seal Valve for High Purity Gases

Key features

- Low operating torque guaranteed thanks to the teflon coating upper stem
- 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 valves are "π" marked according to 99/36 EC
- Valves designed according to EN 10297
- All inlets and outlets standards available

Options

Chrome or nickel plated treatment
Different diptube thread connections available
Personalized handwheel logocap
Various bursting disc settings available
Cleaned for UHP/ECD applications
Prepared for flow restrictor attachment (DISS)
Gas tight outlet cap & chain

Technical Specifications

Maximum working pressure:	230 bar
Test Pressure:	276 bar
Temperature Range:	-40°C +65°C
Helium leak rate:	- internal: < 10^{-7} mbar/sec
	- external: < 10^{-7} mbar/sec
	- safety: < 10^{-8} mbar/sec
Flow coefficient CV:	0,4
Seat orifice dimension:	4 mm
Cycle life:	> 2000 cycles

Materials

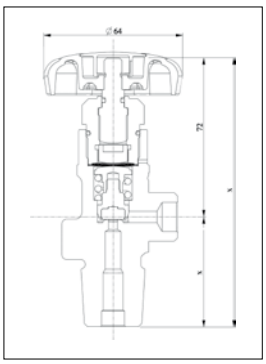
Body Material:	Brass
Diaphragm:	Stainless steel Hastelloy
Spindle:	Brass
Seat Disc:	PA 6,6 PCTFE
Bursting disc:	Nickel AISI 316 L

Conforms to all EN 10297 requirements

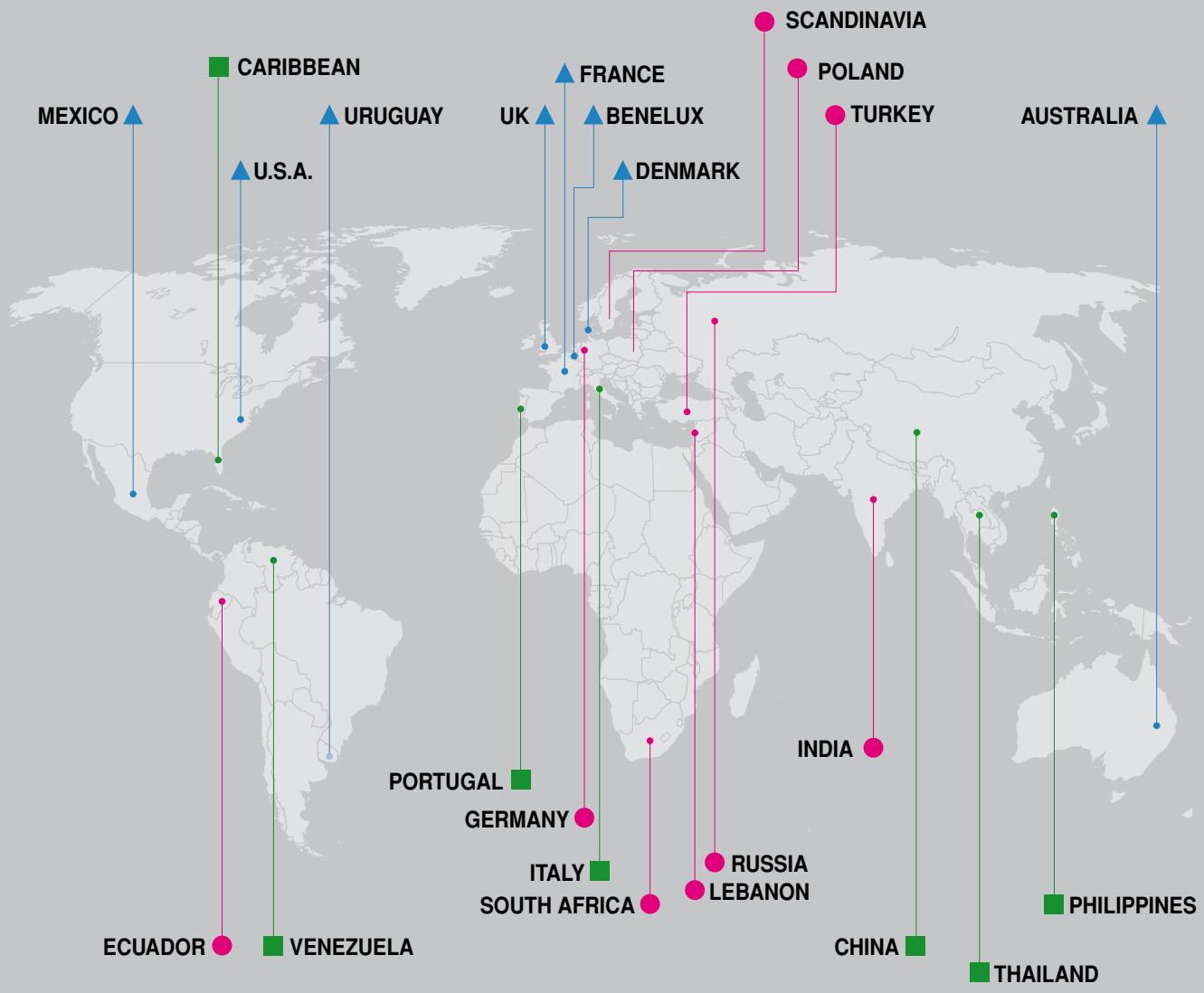
Ordering information

V= valve
D= Diaphragm
A3= brass body
Seat disc: PCTFE
Diaphragm: Stainless steel
Hastelloy
N= Family
OS= Gas Identification
Progressive number: to identify customer personalization, different inlet and outlet threads, bursting disc setting pressure.

Example: VDA3NOS001



DISTRIBUTION NETWORK



EDITION JANUARY 2009

- Factories
- Offices
- Distribution Network

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Advanced Environment Friendly Alternative Fuel Components

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Solutions for a cleaner world

Advanced Environment Friendly Alternative Fuel Components

IT

VALVOLA MANUALE AUTOVENTILATA PER METANO

- Valvola ventilata manuale che non necessita di camera stagna
- Sicurezza termica (PRD) e disco di rottura disponibile su richiesta
- Eccesso di flusso disponibile su richiesta

INFORMAZIONI GENERALI	
Applicazione	Tutti i tipi di serbatoio
Procedura di montaggio	ISO 13341
Materiale	Ottone

DESCRIZIONE TECNICA		
	Caratteristica	**Valore**
PRESSIONE	Massima Pressione di Esercizio	260 bar
	Pressione di Collaudo	275 bar con disco di rottura
		330 bar senza disco di rottura
	Pressione di Collaudo Idraulico	> 800 bar
TEMPERATURA	Temperatura di Esercizio	-40°C / +85°C
	Temperatura di Intervento Sicurezza Termica	+108°C ±6°C
SICUREZZA TERMICA	Sezione minima di passaggio del Gas	28,3 mm^2
	Tempo si svuotamento serbatoio (V 100 litri, Pressione interna 220 bar, Pressione esterna 1 bar, Temperatura 15°C, mezzi CNG)	2 min 21 sec - 141 sec
	Tempo di Attivazione Termica (Fiamma Libera diretta sul PRD)	10 sec
DISCO DI ROTTURA	Sezione minima di passaggio del Gas	28,3 mm^2
	Pressione di Intervento (T 20°C)	410 bar 0% / +10% - 300 bar 0% / +10%
PORTATA VALVOLA	Sezione minima di passaggio del Gas (Interno valvola)	38,5 mm^2
RUBINETTO DI CHIUSURA	Coppia di serraggio a 360 bar	4 ± 1 Nm
	Angolo di Apertura - Chiusura	360° ± 90°
VALVOLA ECCESSO DI FLUSSO	Intervento ad una pressione differenziale di:	6,5 bar

EN

VENTED MANUAL CNG CYLINDER VALVE

- Manual vented valve that avoids the need of gas tight housing
- Thermal safety (PRD) and burst disk available upon request
- Excess flow valve available upon request

GENERAL INFORMATION	
Application	All types of tanks
Installation Procedure	ISO 13341
Material	Brass

TECHNICAL DATA SHEET		
	Description	**Value**
PRESSURE	Max. Working Pressure	260 bar
	Test Pressure	275 bar with burst disk
		330 bar without burst disk
	Hydraulic Collapse Pressure	> 800 bar
TEMPERATURE	Working Temperature	-40°C / +85°C
	PRD activation Temperature	+108°C ±6°C
PRD SAFETY VALVE	Minimum area of Gas Flow	28,3 mm^2
	Emptying Tank time (V 100 liters, Internal Pressure 220 bar, External Pressure 1 bar, T 15°C, CNG)	2 min 21 sec - 141 sec
	PRD Activation Time (With fire directed on PRD valve)	10 sec
BURST DISK	Minimum area of Gas Flow	28,3 mm^2
	Burst Pressure (T 20°C)	410 bar 0% / +10% - 300 bar 0% / +10%
MANUAL VALVE FLOW CAPACITY	Minimum area of Gas Flow (Inside Valve)	38,5 mm^2
OPENING-CLOSING MANUAL SECURITY TAP	Tightening Torque at 360 bar Pressure	4 ± 1 Nm
	Opening - closing angle	360° ± 90°
EXCESS FLOW VALVE	ΔP Valve activation	6,5 bar

FR

VANNE MANUELLE AUTO-VENTILEE POUR CNG

- Soupape manuelle ventilée pour éviter l'emploi d'un siège étanche
- Sécurité thermique (PRD) et disque de rupture disponibles sur demande
- Soupape d'excès de débit disponible sur demande

INFORMATIONS GENERALES	
Application	Tout type de réservoir
Procédure de Montage	ISO 13341
Matériel	Laiton

FICHE TECHNIQUE		
	Description	**Valeur**
PRESSION	Pression d'exercice maximum	260 bar
	Pression d'essai	275 bar avec disque de rupture
		330 bar sans disque de rupture
	Pression de chute hydraulique	> 800 bar
TEMPERATURE	Température d'exercice	-40°C / +85°C
	Température d'activation sécurité thermique	+108°C ±6°C
SECURITE THERMIQUE	Section minimum de passage du gaz	28,3 mm2
	Temps de vidage réservoir (V 100 litres, Pression int. 220 bar, Pression ext. 1 bar, T 15°C, CNG)	2 min 21 sec - 141 sec
	Temps d'activation thermique (Flamme libre sur PRD)	10 sec
DISQUE DE RUPTURE	Section minimum de passage du gaz	28,3 mm2
	Pression d'activation (T 20°C)	410 bar 0% / +10% - 300 bar 0% / +10%
DEBIT VANNE MANUELLE	Section minimum de passage du gaz (Inter. Vanne)	38,5 mm2
ROBINET DE FERMETURE	Couple de serrage à une pression de 360 bar	4 ± 1 Nm
	Angle d'ouverture - fermeture	360° ± 90°
VANNE D'EXCES DE DEBIT	Activation à une pression différentielle de:	6,5 bar

DE

HANDBETÄTIGTES UND SELBSTENTLÜFTENDES VENTIL FÜR CNG

- Autoventiliertes Handventil, der Entlüftungsbehälter ist nicht notwending
- Thermische Sicherung (PRD) und Berstscheibe auf Anfrage verfügbar
- Überschussventil auf Anfrage verfügbar

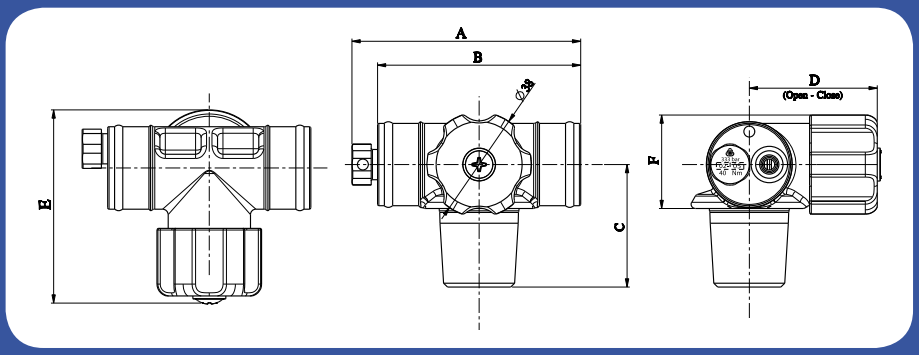
ALLGEMEINE INFORMATIONEN	
Anwendung	Alle Arten von Behältern
Montageanweisung	ISO 13341
Werkstoff	Messing

TECHNISCHES DATENBLATT		
	Beschreibung	**Wert**
DRUCK	Max Betriebsdruckbelastung	260 bar
	Testdruck	275 bar ohne Berstscheibe
		330 bar mit Berstscheibe
	Hydraulischer Kollapsdruck	> 800 bar
TEMPERATUR	Betriebstemperatur	-40°C / +85°C
	Aktivierungstemperatur für thermische Sicherung	+108°C ±6°C
SICHERHEITSVENTIL	Minimum Gas-Durchflussektion	28,3 mm2
	Tankentleerungszeit (V 100 Liter, Innendruck 220 bar, Aussendruck 1 bar, T 15°C, CNG)	2 min 21 sec - 141 sec
	Thermische Aktivierungszeit (Flamme auf PRD gerichtet)	10 sec
BERSTSCHEIBE	Minimum Gas-Durchflussektion	28,3 mm2
	Ansprechdruck (T 20°C)	410 bar 0% / +10% - 300 bar 0% / +10%
HANDVENTILKAPAZITÄT	Minimum Gas-Durchflussektion (im Ventil)	38,5 mm2
ABSPERRHAHN	Anziehmoment bei 360 bar	4 ± 1 Nm
	Öffnungs- und Schliesswinkel	360° ± 90°
ÜBERSCHUSSVENTIL	Ventilwirkung bei Differenzialdruck von:	6,5 bar

Versioni disponibili

Available versions
Versions disponibles
Verfuegbare ausfuehrungen

Attacco bombola Cylinder connections Connexion Réservoir Tankanschluss	Connessione Interna Inlet pipe connections Raccord intérier Innenverbindung	Connessione Esterna Outlet pipe connections Raccord extérieur Aussenanschluss
W28.8	M12X1	SMOOTH / LISCI D30
	1/4" - 18NPT	SMOOTH / LISCI D30
1" 1/8 UNF	M12X1	SMOOTH / LISCI D30
1" BS 341	M12X1	SMOOTH / LISCI D30
3/4" NGT	M12X1	SMOOTH / LISCI D30



Distribution Network

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HIGH PRESSURE EQUIPMENT

DIVISION

CRYOGENIC EQUIPMENT

EDITION NOVEMBER 2007

KRYOS LINE

Short Stem Shut Off Valves

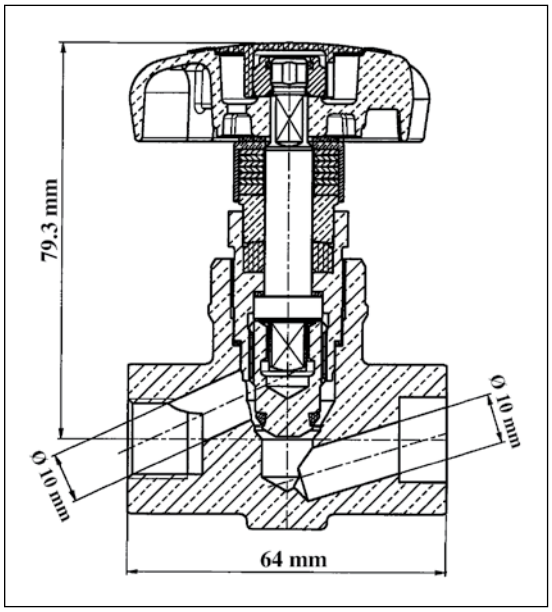
Key features

- The valves are conceived for use on portable cryogenic cylinders and other in-line shut-off valve applications.
- Spring loaded stem.
- Low profile allows the valve to fit into tight areas.
- Cleaned for Oxygen service as per CGA G- 4.1.
- Valve body geometry is compatible with the antiremoval devices for CGA fittings.
- Valves and internal components parts interchangeable with existing equipment.
- Conical swivel seal design helps prevent seat galling from overtorquing.
- In order to avoid constantly retightening the packing nut, the valve has a spring loaded stem seal automatically adjust for any gasket wear.
- 100% leak tested

Technical Specifications

Working Temperature:	-320° F to + 165° F
Maximum working pressure is 600 PSIG=	(41 Bar)
Test Pressure is 720 PSIG=	49 Bar
Gland nut closure torque:	45-60 Nm

Tightness in accordance with EN 1626	
External Helium Leak rate at 600 PSIG (41 Bar)=	9 $mm^3 \cdot S^{-1}$
Maximum value admitted by the standard:	14 $mm^3 \cdot S^{-1}$
Internal Helium Leak rate at 600 PSIG (41 Bar)=	800 $mm^3 \cdot S^{-1}$
Maximum value admitted by the standard:	10000 $mm^3 \cdot S^{-1}$



Materials

Body:	brass
Bonnet:	brass
Piston:	special brass
Spindle:	brass
Hand wheel:	aluminium
Spring:	stainless steel
Stem seal gasket:	PTFE
Seat disc:	PTCFE

Conforms to all requirements of:

Pi marked in accordance with European Directive 99/36 EC
Designed in accordance with EN 1626

ORDERING INFORMATION

Part Number	Inlet	Outlet	CV factor	Tube
CRT1V11XXX	1/4" F.NPT	1/4" F.NPT	0,73	NO
CRT1V22XXX	3/8" F.NPT	3/8" F.NPT	1,09	
CRT1V33XXX	1/2" F.NPT	1/2" F.NPT	1,11	
CRT1V92XXX	.675 Tube	3/8" F.NPT	1,09	YES

According to customer's requirements are available:
Different Tube lenght
Different Hight of the stem
Different orifice dimensions
Personalization

EDITION FEBRUARY 2006

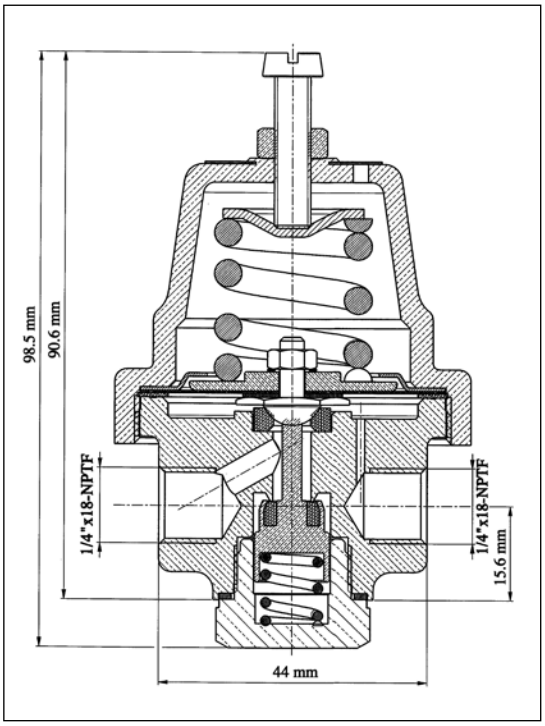
cavagna group

HIGH PRESSURE EQUIPMENT DIVISION
pergola

KRYOREG series
Cryogenic Regulator

Key features

- The cryogenic economizer regulator has been conceived to maintain pressure on cryogenic liquid within cryogenic container.
- Interchangeable with existing regulators.
- Made from solid brass.
- Compact size to fit any installation.
- Inlet filter to prevent external materials from entering into the regulator.
- Locknut is provided to maintain adjusting screw setting.



Technical Specifications

Maximum inlet pressure:	350 PSIG
Test pressure:	420 PSIG
Working Temperature range is	-320° F +165° F

Materials

Body:	Brass
Bonnet:	Brass
Seat Retainer:	Brass
Diaphragm Gasket:	PTFE
Springs:	Stainless Steel

ORDERING INFORMATION

Part Number	Inlet/Outlet Connections	Pressure Setting PSIG	Operating Range PSIG
RGCR125	1/4"	125	25-250
RGCR150	1/4"	150	125-350
RGCR300	1/4"	300	125-350

The features described in this illustration do not bind the manufacturer.

EDITION FEBRUARY 2006

KRYOP series
Cryogenic Pressure Relief Valves

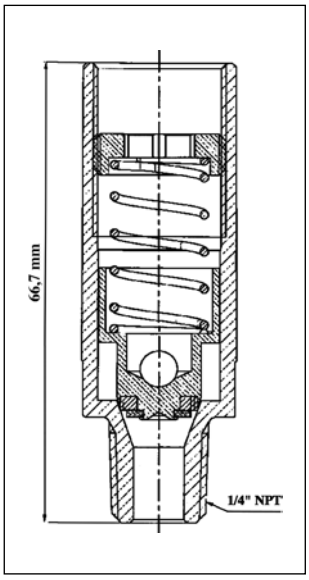
Key features

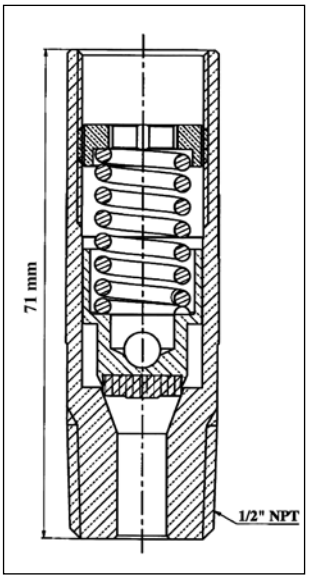
- The cryogenic Pressure relief valves is designed to open and reseal at low pressure.
- Minimizes gas loss.
- Various thread sizes available.
- Cleaned and packaged for O2 service per CGA-4.1.
- 100% factory tested.
- Pipe away option if required.
- Drain Hole option if required.
- Colour labels to identify the discharge pressure settings available.

Technical Specifications

Various pressure setting available in 25 psi increments

Temperature range -320° F +165° F





Materials

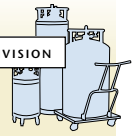
Body:	brass or stainless steel
Adjusting screw:	brass
Spring:	stainless steel

Seat Material options:
- Fluorosilicone for SVB and SVS styles for 15-139 PSIG (1 - 9,6 Bar)
- PTFE for SVB and SVS styles for 140 - 600 PSIG (9,7 - 41 Bar)

WARNING

The maintenance of the pressure relief valve is really important and if not properly performed can cause injuries or property damage, therefore the valve has to be constantly inspected.
The service environment may affect the safe service life of the pressure relief valve.

EDITION FEBRUARY 2006



KRYOP series

Cryogenic Pressure Relief Valves

ORDERING INFORMATION

Part number	Body and valve material	Inlet	Pressure Setting Range PSIG	Height	Wrenching Hex	Flow Performance SCFM Air/PSIA	Flow Performance m^3 Air/min
SVB16XXXXX	Brass	1/8"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVS16XXXXX	Stainless steel	1/8"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVB11XXXXX	Brass	1/4"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVS11XXXXX	Stainless steel	1/4"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVB13XXXXX	Brass	1/2"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVS13XXXXX	Stainless steel	1/2"	17-600 (1-41)	2,6	7/8" (22mm)	0,794	0,022
SVB21XXXXX	Brass	1/4"	17-600 (1-41)	2,8	7/8" (22mm)	0,794	0,022
SVS21XXXXX	Stainless steel	1/4"	17-600 (1-41)	2,8	7/8" (22mm)	0,794	0,022
SVB24XXXXX	Brass	3/4"	50-300 (3,4-20)	3,3	1-3/4"(44mm)	6,85	0,194
SVS25XXXXX	Stainless steel	1"	100-300(3,4-20)	5,3	2-3/8"(60mm)	11,1	0,315

SV Safety valve

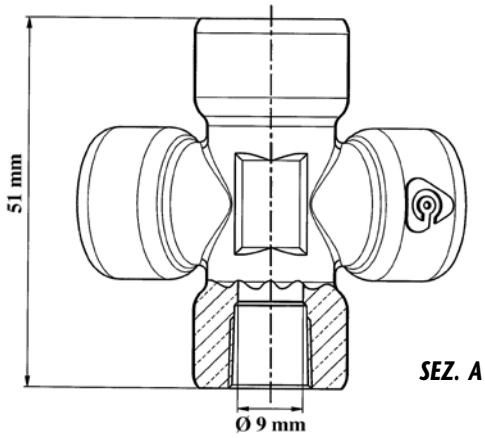
MATERIAL
B= body - brass B1
S= body - stainless steel B2
1 = fluorosilicone seat S1
2 = PTFE seat S2

INLET:
1 = 1/4" NPT
2 = 3/8" NPT
3 = 1/2" NPT
4 = 3/4" NPT
5 = 1" NPT
6 = 1/8" NPT

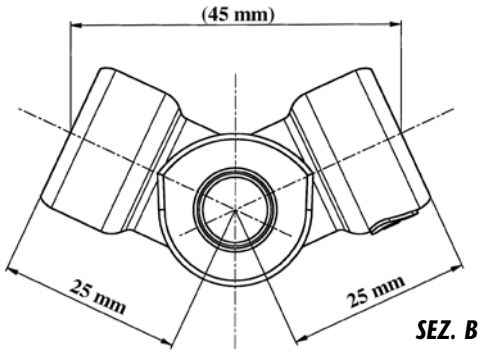
XXX = setting pressure available in 25 PSIG increments
XX =personalizations - Drain Hole option - Pipe Away Option

Example: SVB1102501 = safety valve - brass body - fluorosilicone seat - 1/4" NPT - setting pressure 25 PSIG

Fitting to mount pressure relief devices and gauges, available with different thread connections



SEZ. A



SEZ. B

The features described in this illustration do not bind the manufacturer.

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HIGH PRESSURE EQUIPMENT

DIVISION

HIGH PRESSURE REGULATORS

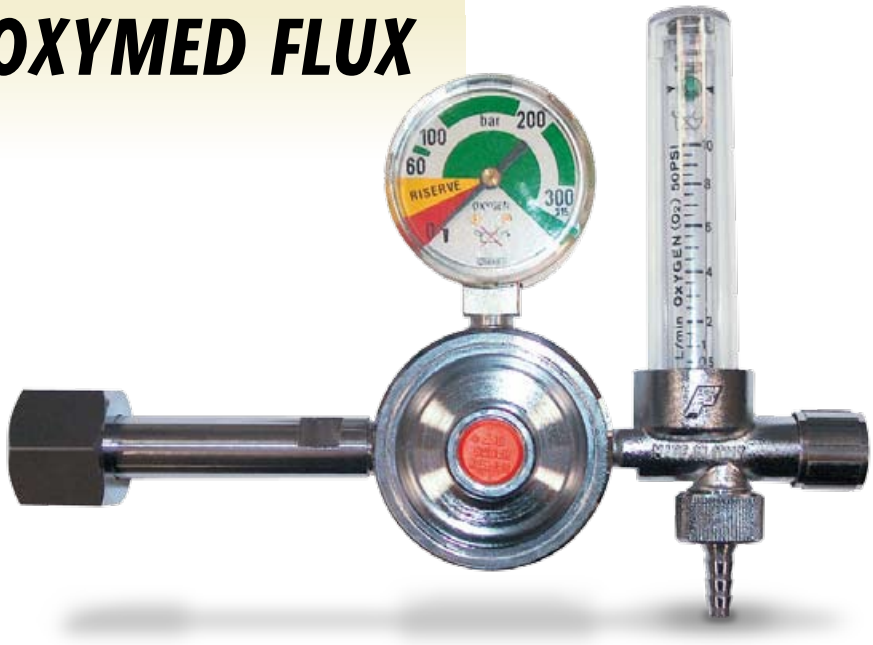
EDITION NOVEMBER 2007

OXYMED FLUX

Pressure Regulator with Flowmeter for Medical Oxygen

Balanced model

CONFORMING
EN738-1



Type of gas: Medical Oxygen

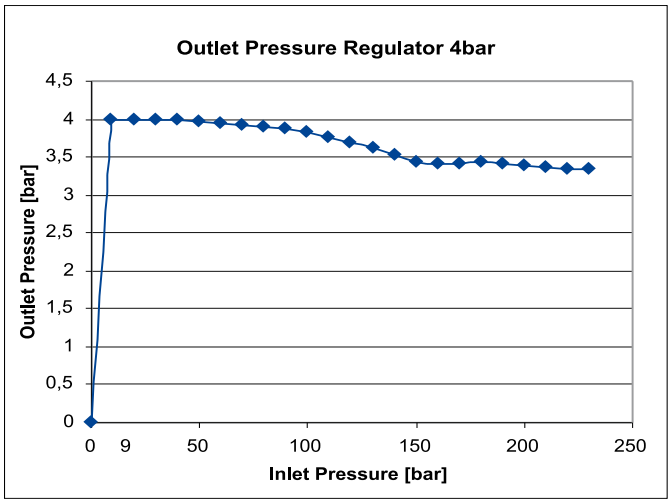
Technical Specifications

Performances:
Flow Capacity: 40 l/m
Precision of the regulator: conforming to EN 738 -1
Precision of the flux meter: +/- 10%
Inlet Pressure: 230 bar
Safety relief valve setting pressure: 6 bar

Weight: 950 gr

Materials:
Regulator body: Chrome plated brass
Inlet filter: sintered bronze - 80 micron
Diaphragm: EPDM
Shutter: brass
Shutter seat: PA66
Cylinder connection sealing: PA66
Flux meter: polycarbonate

Connection:
Inlet: according to the main international standards
Outlet: hose holder for 5-8 mm hose diameters



Safety:
- Sintered bronze inlet filter
- Safety relief valve
- Robustness of components
- High accuracy on all the regulation scale

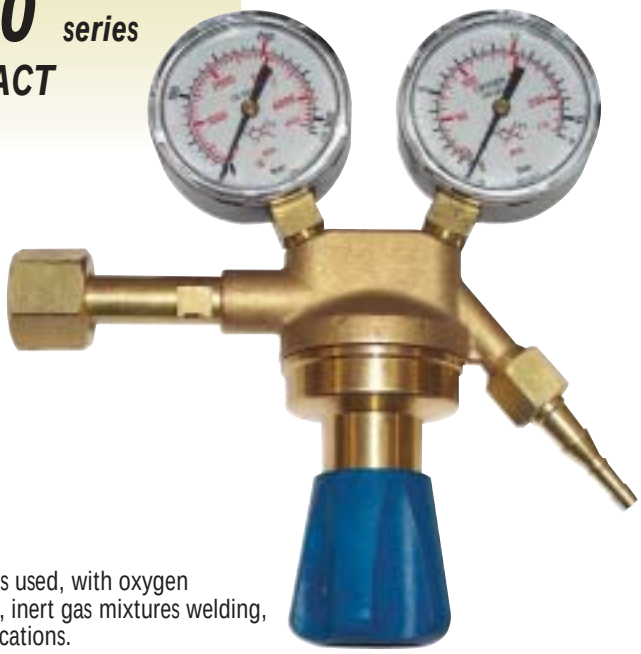
Traceability
Batch number marked on the regulator body

ORDERING INFORMATION

Models	Part number	Gas	Inlet max pressure (bar) max	Outlet max flow lt/min.
ROM8F (with fluxmeter)	ROM8FOS001	Medical Oxygen	230	0 - 40
ROM8A (without fluxmeter)	ROM8AOS001	Medical Oxygen	230	0 - 40

The features described in this illustration do not bind the manufacturer.

R 2000 series
COMPACT



High Pressure Regulator for Compressed Gases

ACCORDING TO

EN ISO 2503

Designed for working pressure up to 230 bar

Type of Gas:	For all non corrosive industrial gases.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass. Stainless steel filter at the inlet. Pressure gauges with safety window as required by EN 562. Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8"nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor. Items manufactured in accordance with the main International Standards.
Options:	Chromium plated - Coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases)

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 2 gauges		Oxygen O_2	230	10	30
		Compressed Air	230	10	30
		Nitrogen N_2	230	10	30
		Hydrogen H_2	230	10	30
		Nitrous oxide N_2O	230	10	30
Flowgauge on outlet		Carbon dioxide CO_2	160	3,52	30 Nlt / min
		Argon Ar	230	3,52	30 Nlt / min

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

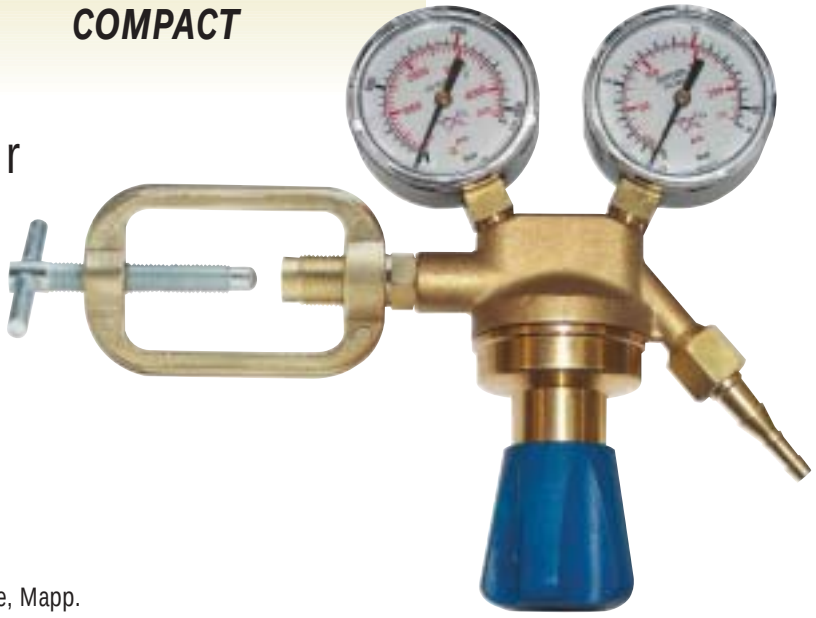
** Max. flow at 2WP + 1 bar

EDITION JUNE 2005

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

R 200105 series
COMPACT



High Pressure Regulator for Acetylene

ACCORDING TO
EN ISO 2503
Designed for working pressure up to 230 bar

Type of Gas:	For Acetylen, LPG, Tetrene, Mapp.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass. Stainless steel filter at the inlet. Pressure gauges with safety window as required by EN 562. Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor.
	Items manufactured in accordance with the main International Standards.
Options:	Chromium plated - Coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases).

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 2 gauges		Acetylene joke C_2H_2 Acetylene nut C_2H_2	25 25	1,5 1,5	15 15
With 1 gauge		Propane LPG Propane LPG	6 6	3 1,5	20 10.5

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

The features described in this illustration do not bind the manufacturer.

R 200400 FLUX
COMPACT

Pressure Regulator with Flowmeter for Compressed Gases

ACCORDING TO
EN ISO 2503
Designed for working pressure up to 230 bar

Type of Gas:	Argon, carbon dioxide and all the AR / CO_2 mixtures for welding.
Application range:	In all the several applications where an inert atmosphere for protect the welding action. TIG, MIG, MAG, welding plasma torch and electrical welding.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass. Stainless steel filter at the inlet. Pressure gauges with safety window as required by EN 562. Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8"nut. Hose holder for 5÷8 mm hose diameters (EN 560). Items manufactured in accordance with the main International Standards.
Options:	Chromium plated - Coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases)

ORDERING INFORMATION

Models	Part number	Gas	Inlet max pressure (bar) max	Outlet max flow** lt/min.
R 200400 COMPACT		Carbon Dioxide CO_2	160	Adjustable 0 ÷ 30
R 200400 COMPACT		Argon Ar	200	Adjustable 0 ÷ 30

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

** Max. flow at 2WP + 1 bar

IMPORTANT - For a right reading of flow, the regulator is pre-arrange at 50 PSI (3.5 bar) pressure and only with this regulation we can have a perfect reading of outlet gas.

EDITION JUNE 2005

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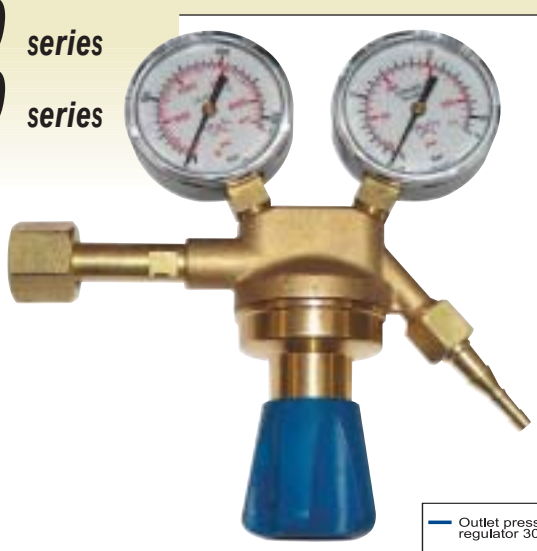
HIGH PRESSURE EQUIPMENT DIVISION

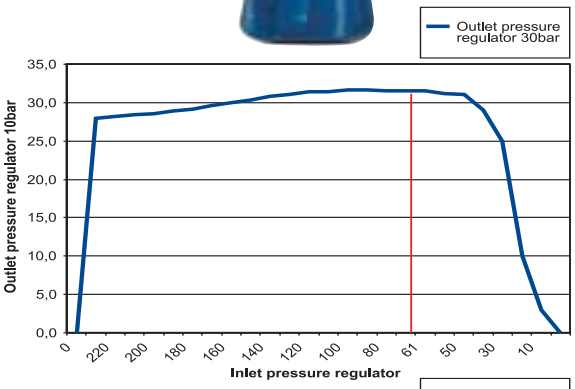
R 203000 series
R 206000 series
COMPACT

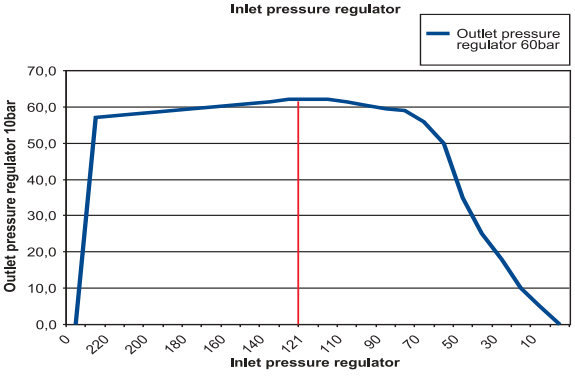


Pressure Regulator for Compressed Gases

Designed for working pressure up to 300 bar

Type of Gas:	For all non corrosive industrial gases.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass. Stainless steel filter at the inlet. Pressure gauges with safety window as required by EN 562. Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor. Items manufactured in accordance with the main International Standards.
Options:	Chromium plated - Coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases).





ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
R203000 COMPACT		Oxygen O_2	230	30	110
		Air	230	30	110
		Nitrogen N_2	230	30	110
		Hydrogen H_2	230	30	110
		Argon Ar	230	30	110
R206000 COMPACT		Oxygen O_2	230	60	220
		Air	230	60	220
		Nitrogen N_2	230	60	220
		Hydrogen H_2	230	60	220
		Argon Ar	230	60	220

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

The features described in this illustration do not bind the manufacturer.

R 2000 series

High Pressure Regulator for Compressed Gases

CONFORMING
EN ISO 2503

Designed for working pressure up to 300 bar

Type of Gas:	For all non corrosive industrial gases.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum constance of flow rate at all inlet pressures. Pressure gauges with safety window as required by EN 562, and coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases). Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8"nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor.
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 2 gauges	RI0S000502	Oxygen O_2	200	10	40
	RIAI000502	Compressed Air	200	10	40
	RIAZ000502	Nitrogen N_2	200	10	40
	RIID000502	Hydrogen H_2	200	10	40
	RIPA000502	Nitrous oxide N_2O	200	10	40
Flowgauge on outlet	RIAC000502	Carbon dioxide CO_2	160	3,52	30 Nlt / min
	RIAR000502	Argon Ar	200	3,52	30 Nlt / min

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

EDITION JUNE 2005

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

R 200105 series

High Pressure Regulator for Acetylene

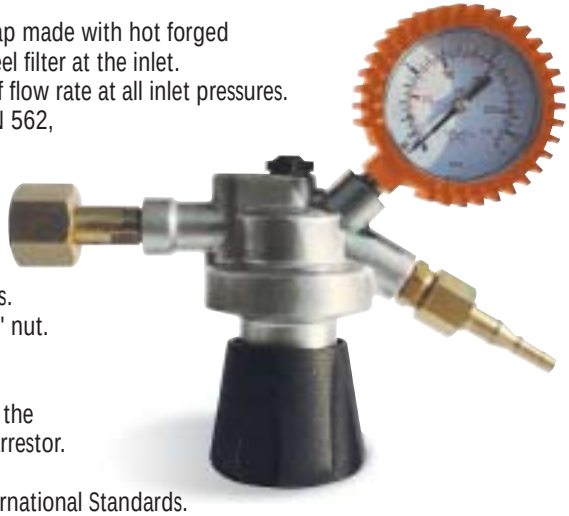
Balanced model

CONFORMING
EN ISO 2503

Type of Gas: For Acetylene, LPG, Tetrene, Mapp.

Application range: For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, and many other applications.

Constructional features: The regulator complies the EN ISO 2503. Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum constance of flow rate at all inlet pressures. Pressure gauges with safety window as required by EN 562, and coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases). Safety pressure relief valve.



Connections: At inlet: according to the main International Standards. At outlet: with left - hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).

Accessories: Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor.

Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 2 gauges	RIAD000502 RIAD010502	Acetylene joke C_2H_2 Acetylene nut C_2H_2	25 25	1,5 1,5	15 15
With 1 gauge	RXGP000502 RXGP010502	Propane LPG Propane LPG	6 6	3 1,5	20 10.5

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

The features described in this illustration do not bind the manufacturer.

R 200400 FLUX

Pressure Regulator with Flowmeter for Compressed Gases

Balanced model

Type of Gas:	Argon, carbon dioxide and all the AR / CO_2 mixtures for welding.
Application range:	In all the several applications where an inert atmosphere for protect the welding action. TIG, MIG, MAG, welding plasma torch and electrical welding.
Constructional features:	Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum constance of flow rate at all inlet pressures. Pressure gauge with safety window according to EN 562, and coloured protection cap (black: inert gases). Safety pressure relief valve. Flowmeter body in chromium plated hot forged brass and reading scale up to 30 lt/min adjustable flow.
Connections:	At inlet: according to the main International Standards. At outlet: with left - hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	Inlet max pressure (bar) max	Outlet max flow** lt/min.
R 200400	RIAC010502	Carbon Dioxide CO_2	160	Adjustable 0 ÷ 30
R 200400	RIAR010502	Argon Ar	200	Adjustable 0 ÷ 30

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

** Max. flow at 2WP + 1 bar

IMPORTANT - For a right reading of flow, the regulator is pre-arrange at 50 PSI (3.5 bar) pressure and only with this regulation we can have a perfect reading of outlet gas.

EDITION JUNE 2005

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

R 203000 series
R 206000 series

Pressure Regulator for Compressed Gases

Designed for working pressure up to 300 bar

Type of Gas:	For all non corrosive industrial gases.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum constance of flow rate at all inlet pressures. Pressure gauges with safety window as required by EN 562, and coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases). Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor.
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
R 203000	RI0S010402	Oxygen O_2	200	30	
	RIAI010402	Air	200	30	
	RIAZ010402	Nitrogen N_2	200	30	
	RIID010402	Hydrogen H_2	200	30	
	RIAR010402	Argon Ar	200	30	
R 206000	RI0S000402	Oxygen O_2	200	60	
	RIAI000402	Air	200	60	
	RIAZ000402	Nitrogen N_2	200	60	
	RIID000402	Hydrogen H_2	200	60	
	RIAR000402	Argon Ar	200	60	

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

The features described in this illustration do not bind the manufacturer.

R 210000 series

Pressure Regulator for Compressed Gases in Cylinders

Balanced model

CONFORMING

EN ISO 2503

Designed for working pressure up to 300 bar

Type of Gas:	For all non corrosive industrial gases.
Application range:	For the regulation and safe utilization of gases used, with oxygen and acetylene welding and cutting processes, inert gas mixtures welding, for carbonating liquids and many other applications.
Constructional features:	The regulator complies the EN ISO 2503. Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum constance of flow rate at all inlet pressures. Pressure gauges with safety window as required by EN 562, and coloured protection cap according to the gas to be used (blue: oxidizing gases, orange: flammable gases, black: inert gases). Safety pressure relief valve.
Connections:	At inlet: according to the main International Standards. At outlet: with right hand or left hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
Accessories:	Shut-off valve to be fitted on the outlet connection of the regulator, two or three protections, safety flash back arrestor.
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 2 gauges		Oxygen O_2	200	10	40
		Compressed Air	200	10	40
		Nitrogen N_2	200	10	40
		Hydrogen H_2	200	10	40
		Nitrous oxide N_2O	200	10	40
		Acetylene nut C_2H_2	25	1,5	7
Flowgauge on outlet		Carbon dioxide CO_2	160	3,52	30 Nlt / min
		Argon Ar	200	3,52	30 Nlt / min

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

** Max. flow at 2WP + 1 bar

EDITION JUNE 2005

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

R 210400 FLUX

Pressure Regulator with Flowmeter for Compressed Gases in Cylinders

Balanced model

Type of Gas:	Argon, carbon dioxide and all AR / CO_2 mixtures for welding.
Application range:	In all the several applications having inert atmosphere to protect the welding action. TIG, MIG, MAG, welding plasma torch and electrical welding.
Constructional features:	Body and cap made with hot forged brass, shot-blasted and chromium plated. Stainless steel filter at the inlet. Balanced model, to assure the maximum discharge flow constance whichever is the inlet pressure. Pressure gauge with safety window according to EN 562, with coloured protection cap (black: inert gases). Safety pressure relief valve. Flowmeter body in hot forged brass chromium plated. Reading scale up to 30 lt/min adjustable outlet flow.
Connections:	At inlet: according to the main International Standards. At outlet: with left - hand thread connection for G3/8" nut. Hose holder for 5÷8 mm hose diameters (EN 560).
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	Inlet max pressure (bar) max	Outlet max flow** lt/min
R 200400		Carbon Dioxide CO_2	160	Adjustable 0 ÷ 30
R 200400		Argon Ar	200	Adjustable 0 ÷ 30

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

** Max. flow at 2WP + 1 bar

IMPORTANT - For a right reading of flow, the regulator is pre-arrange at 50 PSI (3.5 bar) pressure and only with this regulation we can have a perfect reading of outlet gas.

The features described in this illustration do not bind the manufacturer.

EUROMINI series

Presetted Pressure Regulator for Compressed Gases in Cylinders

Type of Gas:	For oxygen, acetylene and LPG only.
Application range:	Perfect to be used for small and medium welding and cutting appliances. Pre-set regulation to guaranty an easy use.
Constructional features:	Body and cap made of hot forged brass, shot-blasted and chromium-plated. Stainless steel filter at the inlet. Piston gas pressure reducing system. Gauge for cylinder pressure reading with safety bursting window (EN 562). Coloured protection cap according to specific code colours of gases (blue: oxidizing gases, orange: flammable gases, black: inert gases). Safety pressure relief valve.
Connections:	Inlet: according to the main international standards. Outlet: ø 5 mm hose tail.
	Items manufactured in accordance with the main International Standards.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. flow** Nm^3 / h
With 1 gauge	RX 0S000102	Oxygen O_2	200	6	8
	RXAD000102	Acetylene joke C_2H_2	25	0,8	1,5
	RXAD010102	Acetylene nut C_2H_2	25	0,8	1,5
	RXGP000102	Propane LPG	6	3	

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

** Max. flow at 2WP + 1 bar

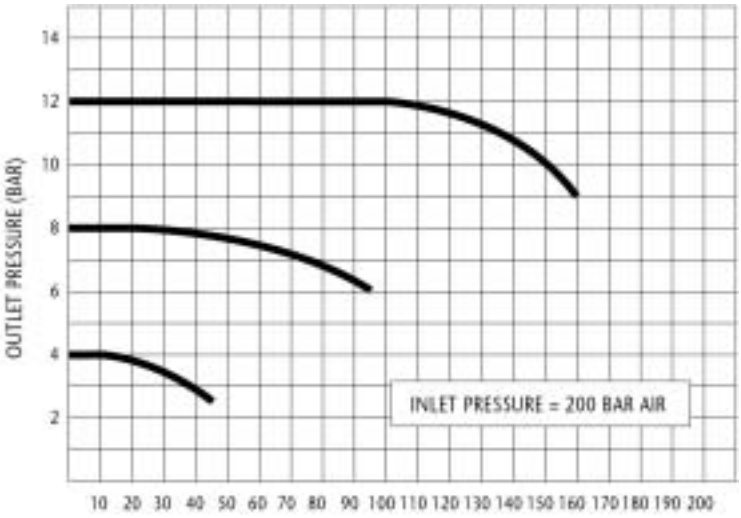
EDITION JUNE 2005

cavagna group

HIGH PRESSURE EQUIPMENT DIVISION

TITANUS series

High Flow Capacity Regulator



Type of Gas:	For all non-corrosive gases for industrial use.
Application range:	For centralized systems supplied from cylinder clusters and distribution manifolds.
Constructional features:	Body and cap made of hot forged brass. Stainless steel filter at the inlet. Motion by opposed springs. Internal gasket in accordance to the type of gas to be used. Pressure gauges with a safety window as required by EN 562 Coloured protection cap according to specific code colours of gases (blue: oxidizing gases, orange: flammable gases, black: inert gases).
Connections:	Inlet: in compliance with international standards or with union nut for connection to the shutoff valve of the cylinder cluster. Outlet: detachable hose fitting for 15 mm ø pipe.
Accessories: (on request)	1 / 2" ø ball valve.

ORDERING INFORMATION

Part number	Gas	Inlet Press.	Outlet Press. max bar	Discharge flow max bar	Connection Nm^3 / h air
X010040	Oxygen	200	0 - 12	160	Ø 3/4" R.H (right)
X010042	Oxygen	200	0 - 12	160	UNI 4406
X010041	Acetylene	20	0 - 1,5	18	Ø 3/4" R.H (right)
X010043	Acetylene	20	0 - 1,5	18	Ø 5/8" L. H (left)
X010049	Air	200	0- 12	160	UNI 4410
X010057	Nitrogen	200	0 - 12	160	UNI 4409
X010058	Hydrogen	200	0 - 12	160	UNI 4405
X010059	Argon	200	0 - 12	160	UNI 4412

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

The features described in this illustration do not bind the manufacturer.

INOX series

Pressure Regulator for Pure and/or Corrosive Compressed Gases

3 Bar
1,5 Bar

Type of Gas: All pure and/or corrosive gases.

Application range: In test laboratories where accurate regulation is carried out with repetitive constant reading values of the reduced pressure. Corrosive gases in cylinders for industrial use.
Also suitable for metal surface treatment. Anti-pollution technology, combustion furnaces.

Constructional features: All parts are made of electropolished stainless steel, different gaskets for each type of gas; pressure gauges entirely made of stainless steel; relief valve against overpressures.
The reducers come in two different models: with bellows or diaphragm type operation. The main difference is that the bellows version gives more accurate control of delivery with the same outside dimensions of the equipment. This is because the bellows model has a wider regulation surface given by the sum of the number of undulations, the result being greater accuracy.
In the diaphragm model the regulation surface area is determined by the diameter of the diaphragm itself.

Connections: Inlet: in compliance with major international standards
Outlet: G1/ 4" RH nut; hose fitting for 6 mm pipe.

Accessories: (optional) Micrometric relief valve on the flow outlet; compression fittings with olive for 6, 8 and 10 mm pipes.

ORDERING INFORMATION

Models	Part number	Gas	Inlet Press. max bar	Outlet Press. max bar	Discharge flow Nl/min. air
Diaphragm-type operation	RXAM002009	Ammonia	60	0 - 1,5	120
	RXAS002009	Sulph. dioxide	60	0 - 1,5	120
	RACL002009	Chlorine	60	0 - 3	200
	RXOE002009	Eth. oxide	60	0 - 3	200
	RXIS002009	Hydrog. sulph.	60	0 - 3	200

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

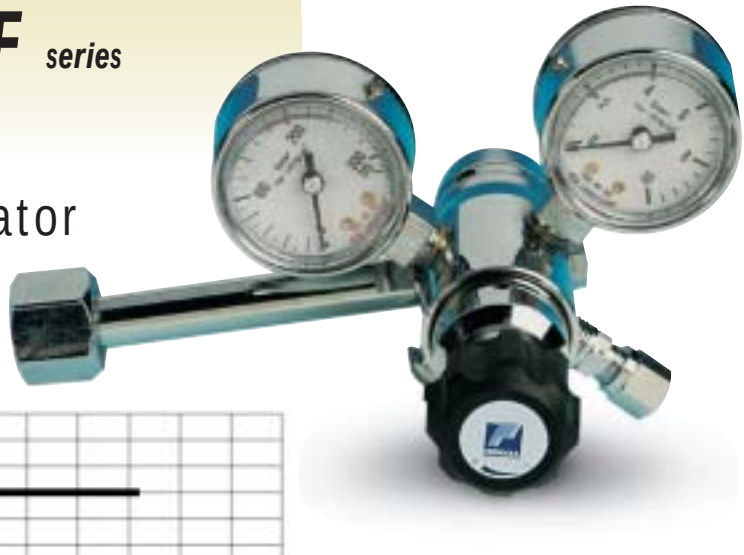
EDITION JUNE 2005

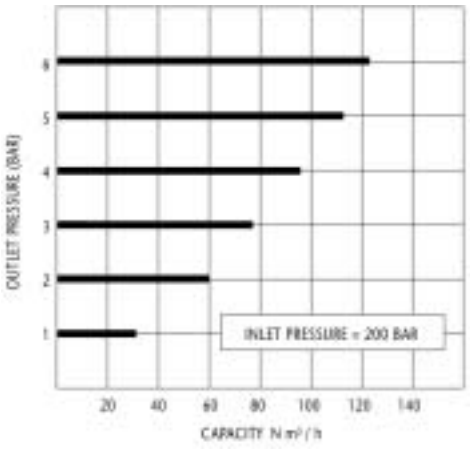
cavagna group

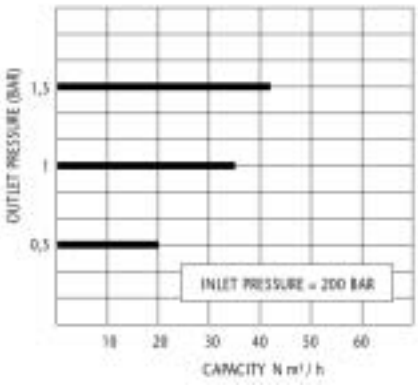
HIGH PRESSURE EQUIPMENT DIVISION

VF series

Gas Double Expansion Regulator







Type of Gas:	All non corrosive gases.
Application range:	In analysis laboratories for scientific applications requiring the use of highly pure gases and an absolutely correct regulation of delivery pressure and hence of flow rate.
Constructional features:	Chromium plated brass body including two reducers, first stage by stem, second stage by tombac bellows. Gaskets made of viton. Safety pressure gauges with dial. Pressure relief valve.
Connections:	Inlet: depending on gas according to international Standards. Outlet: with taper bush for 6 mm. ø tube.
Accessories: (optional)	Micrometer control valve for delivery flow. Safety flashback and reverse gas flow check valve. Outlet connections 8 ø - 10 ø.

ORDERING INFORMATION

Part number	Gas	IN Press. max bar	OUT Press. max bar	Max. capacity Nl/min. air
X010607	Oxygen	200	0 - 1,5	40
X010608	Nitrogen	200	0 - 1,5	40
X010609	Argon, Helium	200	0 - 1,5	40
X010610	Hydrogen	200	0 - 1,5	40
X010611	Air	200	0 - 1,5	40
X010600	Oxygen	200	0 - 6	120
X010601	Nitrogen	200	0 - 6	120
X010602	Argon, Helium	200	0 - 6	120
X010603	Hydrogen	200	0 - 6	120
X010604	Air	200	0 - 6	120
X010605	Nitrous oxide	70	0 - 6	120

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

The features described in this illustration do not bind the manufacturer.

VB 7 series

High Pressure Regulator for Industrial Gases

Type of Gas: Chromium plated brass models for all non corrosive gases - Stainless steel models for all pure gases, including corrosive gases use under particular operating conditions.

Application range: For refilling small oxygen cylinders for medical use, cylinders for aeronautical or underwater purposes, shock absorbers, compressed air circuits and many other applications requiring a controlled supply from cylinder.

Constructional features: Reduction occurs by means of stem operated by handwheel to allow high outlet pressures at flow rates which are adjustable with accuracy even at the lowest values. Body in chromium plated brass, steel for stainless steel models. Viton Gaskets; pressure gauges at inlet and outlet.
The regulator has an integral delivery pressure relief device (not provided on models intended for corrosive or flammable gases).

Connections: Inlet: depending on gas according to international Standards.
Outlet: with ø 6 taper bush or in other sizes.

Accessories: Outlet union connections according to different uses are supplied as standard.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max capacity Nl/min. air
Chromed brass	X010180	Oxygen	200	0 - 200	270
	X010181	Argon / Helium	200	0 - 200	270
	X010182	Hydrogen	200	0 - 200	270
	X010183	Nitrogen	200	0 - 200	270
	X010184	Air	200	0 - 200	270
Stainless steel	X010480	Oxygen	200	0 - 200	270
	X010481	Argon / Helium	200	0 - 200	270
	X010482	Hydrogen	200	0 - 200	270
	X010483	Nitrogen	200	0 - 200	270
	X010484	Air	200	0 - 200	270

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

EDITION JUNE 2005

cavagna group

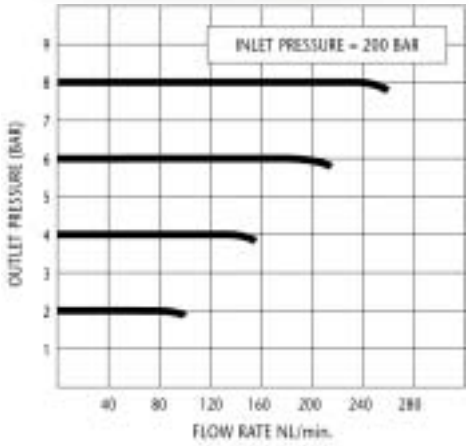
HIGH PRESSURE EQUIPMENT DIVISION

VB 1 series

Single-Stage Regulator with Metal Bellows Diaphragm

For use on cylinder

Type of Gas:	Chromium plated brass models for all non corrosive gases Stainless steel models for all pure gases including the corrosive gases under particular operating conditions.
Application range:	In analysis laboratories for control and accurate regulations with repeatable constant readings of reduced pressure.
Constructional features:	Chromium plated brass or steel body, shut-off stem in Kel-F. Bellows made of tombac or stainless steel. Safety pressure gauges. Viton gaskets. Adjustment by handwheel.
Connections:	Inlet: depending on gas (UNI and ISO Standards). Outlet: with 6 mm ø pipe taper bush.
Accessories:	Micrometer control valve for outlet flow. Safety flashback and reverse gas flow check valve. Device for producing vacuum in the low pressure circuit.



ORDERING INFORMATION

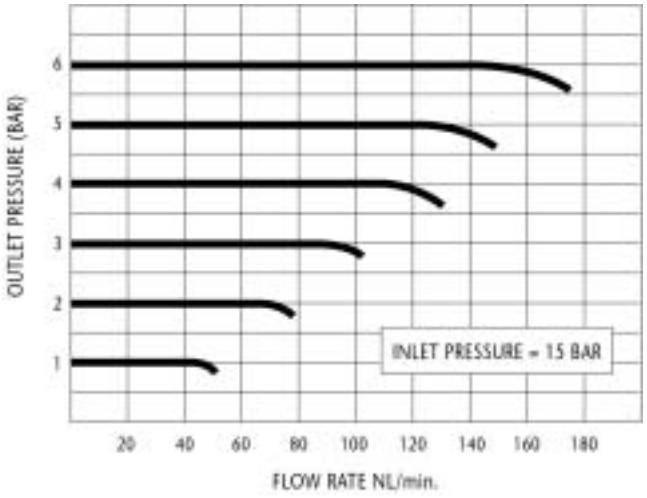
Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max capacity Nl/min. air
Chromed brass with 2 gauges	X010360	Oxygen O_2	200	Adj. 0 - 8	270
	X010361	Argon Ar	200	Adj. 0 - 8	270
	X010362	Hydrogen H_2	200	Adj. 0 - 8	270
	X010363	Nitrogen N_2	200	Adj. 0 - 8	270
	X010364	Air	200	Adj. 0 - 8	270
	X010365	Acetylene	25	Adj. 0 - 1,5	75
	X010366	Acet., yoke conn.	25	Adj. 0 - 1,5	75
	X010367	Nitrous oxide N_2O	25	Adj. 0,5 - 8	270
	X010368	Other gases	25	Adj. 0,5 - 8	270
Stainless steel	X010460	Oxygen O_2	200	Adj. 0 - 8	270
	X010461	Argon Ar - Helium He	200	Adj. 0 - 8	270
	X010462	Hydrogen H_2	200	Adj. 0 - 8	270
	X010463	Nitrogen N_2	200	Adj. 0 - 8	270
	X010464	Air	15	Adj. 0 - 8	270
	X010467	Nitrous oxide N_2O	25	Adj. 0 - 8	270

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

The features described in this illustration do not bind the manufacturer.

VB 4 - VB 9 series

Pressure Regulator for Mounting on Wall Socket



Type of Gas: Chromium plated brass for all non corrosive gases - Stainless steel models for all pure gases, including the corrosive gases under particular operating conditions.

Application range: For controlling low or medium pressure gas feed lines and where a perfect stability of out-going pressure is required even with changing inlet pressure.

Constructional features: Pressure reduction by bellows through mere expansions of gas with adjustable pressure.
Body made in chromium plated brass and bellows in tombac (stainless steel for acetylene), steel for stainless steel models. Viton Gaskets. Solid-Front type manometer for outlet pressure.
Delivery pressure adjustment by handwheel with preset stop for maximum opening.

Connections: Inlet: bayonet connection for ON-OFF wall sockets.
Outlet: with taper bush for 6 mm ø metal tube.

Accessories: Fixed inlet connection with 3/8" nipple. Outlet connection for 6-8-10 ø pipes.
Micrometer control valve for delivery flow.

ORDERING INFORMATION

Models	Part number	Gas	IN Press. max bar	OUT Press. max bar	Max capacity Nl/min. air
VB 9 chromed brass	X010358 X010352 X010353	Miscellaneous Acetylene Miscellaneous	20 1,5 20	0 - 6 0 - 1 0 - 1,5	172 50 60
stainless steel	X010458 X010452 X010453	Miscellaneous Acetylene Miscellaneous	20 105 20	0 - 6 0 - 1 0 - 1,5	172 50 60
VB 4 chromed brass	X010301 X010302 X010303	Various	1 PLACES SUPPLY 2 PLACES SUPPLY 3 PLACES SUPPLY		
stainless steel	X010307	Various	1 PLACES SUPPLY		

N.B. Codes refer to UNI connections, please apply to our dept. for different connections. Tests made with air.

cavagna group

HIGH PRESSURE EQUIPMENT

DIVISION

MANIFOLD EQUIPMENT

DECOMPRESSION MODULAR MANIFOLD

Industrial gases

With quick non pouring device

Type of Gas: All industrial non corrosive gases.

Application range: Modular manifolds for collection and central supply of gases.
With service valve and non pouring device.

Constructional features: Valve body made with hot pressed CuZn40Pb2 EN 12165 brass, sand-blasted and chromium plated.
All components are compatible with service gas. Metal to metal connection between valve and pipe.
Bow for connection valves with compression fittings with olive. Sintered filter at the inlet. Angle stainless steel.
Anodized and screen printed frontal panel. The manifold could be installed right or left hand.
Inlet / outlet connections are according to the national standards.

Connections: Inlet and outlet:

Oxygen; Carbon dioxide	UNI 4406	W21,7 x 1/14”
Argon; Helium	UNI 4412	W24,5 x 1/14”
Nitrogen	UNI 4409	W21,7 x 1/14”
Air	UNI 4410	W30 x 1/14”
Hydrogen; propane; methane	UNI 4405	W20 x 1/14” L
Acetylene	UNI4411/II	G 5/8” L

Accessories: Racks for cylinders, flexible or stiff bows, discharge flow regulators, single and double stage high pressure boards, supply reducing boards, two ways offtake with high pressure service valves.

ORDERING INFORMATION

Code	Gas	
LIOS120102	Oxygen O_2	UNI4406
LIAR120102	Argon Ar	UNI4412
	Helium He	UNI4412
LIAZ120102	Nitrogen N_2	UNI4409
LIAI120102	Air	UNI4410
LIID120102	Hydrogen H_2	UNI4405
	Propano LPG	UNI4405
	Metane	UNI4405
LIAC120102	Carbon dioxide CO_2	UNI4406
LIAD120102	Acetylene G5/8” S C_2H_2	UNI4411/II

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

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CONNECTION BOWS

Industrial gases

Type of Gas: All industrial non corrosive gases.

Service: For connection between manifolds, manifolds and distribution boards and between manifolds and cylinders.

Constructional features: Copper tube metallic bows, nipples in brass (CuZn40Pb2 - UNI 5705)
Materials for flexible pipes compatible with service gas.

ORDERING INFORMATION

STIFF BOWS - Bow for the estension of the manifold

Code	Gas	
2879500014	for all gases	

STIFF BOWS - Bow for connection manifold - pressure reducing central boards

Code	Gas	
	Oxygen O_2 Argon Ar Nitrogen N_2 Air Hydrogen / Propano H_2 / LPG Nitrous Oxyde N_2O	UNI4406 UNI4412 UNI4409 UNI4410 UNI4405 UNI9097

STIFF BOWS - To connect manifold to cylinders, 1 m. length - max inlet P 200 bar

Code	Gas	
SIOS000001 SIAR000001 SIAZ000001 SIAI000001 SIID000001 SIPA000001	Oxygen O_2 Argon Ar Nitrogen N_2 Air Hydrogen / Propano H_2 / LPG Nitrous Oxyde N_2O	UNI4406 UNI4412 UNI4409 UNI4410 UNI4405 UNI9097

FLEXIBLE BOWS - To connect manifold to cylinders, 1 m. length

Code	Gas	
SIOS000301 SIAR000301 SIAZ000301 SIAI000301 SIID000301 SIPA000301 SIAD000301 SIAD010301	Oxygen O_2 Argon Ar Nitrogen N_2 Air Hydrogen / Propano H_2 / GPL Nitrous Oxyde N_2O Acetylene C_2H_2 Acetylene C_2H_2	UNI4406 UNI4412 UNI4409 UNI4410 UNI4405 UNI9097 UNI4411/II UNI4411/II

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

The features described in this illustration do not bind the manufacturer.

MAIN PRESSURE REDUCING BOARD

Industrial gases

Type of Gas:	All industrial non corrosive gases.
Service:	For the first reduction of the high pressure of industrial gases.
Construction characteristics:	Single stage expansion boards: steel painted plate frame, high flow discharge regulator “TITANUS" model for Oxygen and non corrosive gases, and "EB 200" model for Acetylene. Double stage expansion boards: steel painted plate frame, high flow discharge regulators “TITANUS" and “EB 200" models.
Connections:	Inlet and outlet 1/2"G Right.
Accessories: (on request)	High and low pressure alarms, flash back protections.

ORDERING INFORMATION

Single stage expansion boards.

Code	Gas max bar	IN Press. max bar	OUT Press. max Nm^3 / h	Discharge flow
X011201	Oxygen O_2	200	12	160
X011202Acetylene C_2H_2	20	1,5	95	
X011203	Non corrosive gases	200	12	160

Double stage expansion boards.

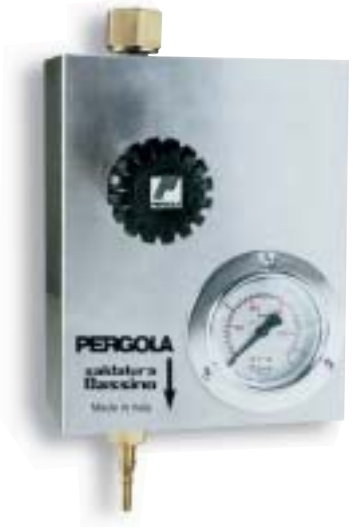
X011211	Oxygen O_2	200	12	160

N.B. Codes refer to UNI connections, please apply to our dept. for different connections.

EDITION JUNE 2005

PRESSURE REDUCING SUPPLY BOARD

Industrial gases



Type of Gas:	All industrial non corrosive gases.
Service:	Used at the end of a central installation plant to supply gas for: Oxi-gas welding and cutting equipments, baiting small furnaces with flammable gases, heating treatments, flowing protecting gas mixtures during electric welding processes etc.
Constructional characteristics:	Stainless steel box. Medium discharge flow regulator with safety relief valve to discharge overpressures, body and cap in hot forged brass (CuZn40Pb2 - EN 12165), stainless steel filter at the inlet. Balanced model, to assure the maximum discharge flow constance whichever is the inlet pressure. Pressure gauges with safety window according to EN 562. Safety pressure relief valve.
Connections:	Inlet connection: 1/2" G Right hand female. Outlet connection: 3/8" G Right hand male.
Accessories: (on request)	1/2" G male Globe valve, three protection safety flash back arrestor to connect on the outlet, two ways offtake with service valves.

ORDERING INFORMATION

Models	Code	Gas	Inlet press. max bar	Outlet press. max bar	Discharge flow max Nm^3 / h
Gauge	QXOS010000	Oxygen O_2	40	8	60
		Technical Air	40	8	60
		Nitrous oxide N_2O	40	8	60
		Nitrogen N_2	40	8	60
		Helium He	40	8	60
	QXAD010000	Acetylene C_2H_2	1,5	1,2	1,5
		Propane LPG	20	1,5	1,5
		Methane CH_4	20	1,5	1,5
		Hydrogen H_2	40	1,5	1,5
Flowmeter	QXAC010000	Carbon dioxide CO_2	40	3,52	30 NL / min
		CO_2 / Ar mixture	40	3,52	30 NL / min
Flowgauge	QXAC020000	Carbon dioxide CO_2	40	3,52	30 NL / min
		CO_2 / Ar mixture	40	3,52	30 NL / min

The features described in this illustration do not bind the manufacturer.