BOISWOOD
GAS AND LIQUID CONTROL TECHNOLOGIES

Pressure & Vacuum
Flow
Level & Temperature
Tube & Fittings
HVACR
Custom Services

ROTAREX
PURETEC

VALVES FOR ULTRA-HIGH PURITY & SPECIALTY GASES

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WHAT IS PURETEC | THE WORLD LEADER IN UHP CYLINDER VALVES

Rotarex Puretec manufactures and provides Ultra High Purity cylinder valves for

★ Technical & Inert gases
★ Reactive gases
★ Corrosive gases
★ Toxic gases

With the highest level of Purity Rotarex offers you the highest tightness technology.

With the highest expectation of safety, Rotarex offers you the "finest" UHP cylinder valves.

A FULLY CONTROLLED PROCESS TO INSURE PURITY AND RELIABILITY

PURETEC CARRIES OUT PRODUCTION WITH CLEANROOM MANUFACTURING

★ Certified clean room: ISO 4 under the laminar flows under request (ISO 14644-1 cleanroom standards) and ISO 7 outside the laminar flows.

★ 100% helium leak testing

STRICT QUALITY CONTROLS FOR EACH SINGLE VALVE

★ More than 14 visual, tactile or microscope controls realized on each valve

★ Microscope Toroids controls before and after the valve mounting

★ Internal & External tightness tests registered in the traceability system

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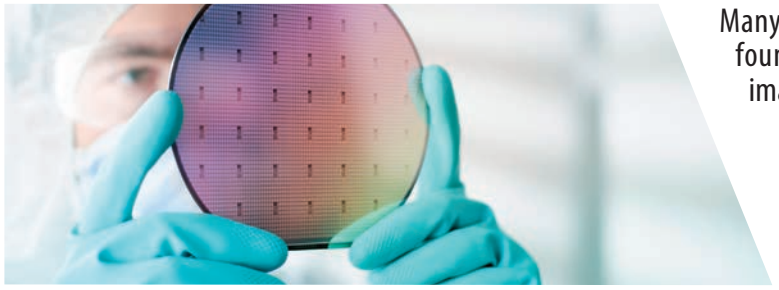
PURETEC VALVES APPLICATIONS

GASES FOR THE ELECTRONIC INDUSTRY

SEMICONDUCTORS, FLAT PANEL DISPLAYS & PHOTOVOLTAICS



Many specific gases are used to manufacture processors found inside smartphones or computers, micro chips, image sensors and many other electronic devices.

Rotarex Puretec provides high performance UHP valves to ensure semiconductor companies to keep their **manufacturing processes clean, safe and stable** over time.

GASES FOR THE CHEMICAL INDUSTRY

PETROCHEMICAL, COSMETICS OR RESEARCH CENTERS

The chemicals industry requires Rotarex high quality valves for high purity gases and mixtures. These gases are important in **refining processes**, to **protect substances** from **humidity** or oxygen, for **inerting**, reactor **cooling**, or **pH control**, and even to perform **tests** or **measurements** in research centers.

CALIBRATION

A calibration gas is a reference gas or gas mixture used as a comparative standard in the calibration of analytical instruments, like gas analyzers or gas detectors.

The calibration gas itself must **maintain a precisely defined composition**, like zero gas or span gas (for example, 500 ppm carbon monoxide in nitrogen).

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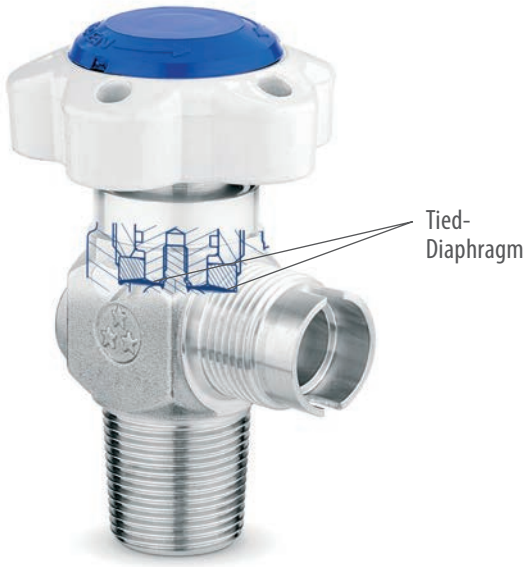
TECHNOLOGY OVERVIEW

TIED DIAPHRAGM SEAL



Gas Type: High, Ultra High purity, toxic & corrosive gases

Applications: Electronics manufacturing, Chemical industry

Purity grade: >8.0

Advantages:

★ Reduced dead spaces and gas wetted volumes allow easy purging process

★ Freedom of internal threads and springs insures minimum particles generation

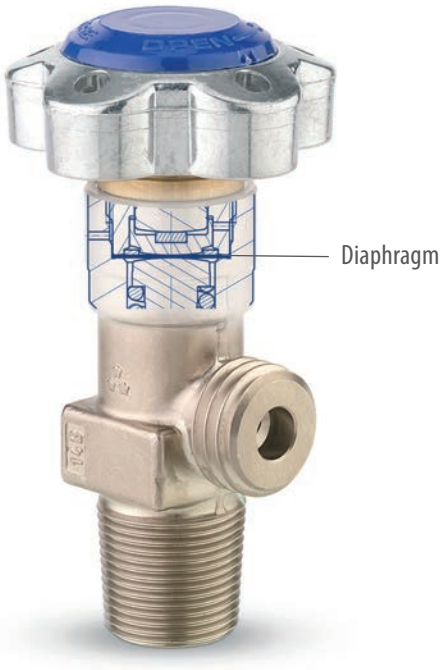
★ Very low internal volume with minimum dead spaces. Particularly beneficial for hygroscopic, corrosive, pyrophoric or high purity gases where inert gas purging is necessary before opening or after closing the valve

★ Freedom from seizure when used with corrosive gases. Gas does not come into contact with the valve operating mechanism

★ Positive and effective operation, valve lower spindle is mechanically linked to the upper spindle and operating handwheel

★ Backed up welded diaphragms provide a permanent and durable gas tight seal

DIAPHRAGM SEAL



Gas Type: High purity, flammable & toxic gases

Applications: Calibration, Laboratories, food industry

Purity grade: >5.0

Advantages:

★ The gas does not come into contact with the valve operating mechanism

★ High leak tightness through diaphragm sealing

★ Low operating torque

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PACKED SEAL

Gas Type: Corrosive, toxic gases & liquids

Applications: Chemical industry

Purity grade: >3.0

Advantages:

- ★ Freedom from seizure when use with corrosive gases – gas does not come into contact with the valve operating system
- ★ Positive and effective operation - valve spindle is mechanically linked to the operating handwheel, which only requires low closing torque
- ★ Long life - valve spindle and seat are replaceable
- ★ Adjustable gland packing
- ★ Low internal volume - this is particularly beneficial, when using the valve for hygroscopic, corrosive or high purity gases, where inert gas purging may be necessary before opening or after closing the valve
- ★ Left hand threaded counter screw to secure sealing mechanism even under excessive torque

INTEGRATED VALVE

Gas types: High purity gases

Application: Calibration

Purity grade: >5.0

Advantages:

- ★ All in one design, a complete pre-engineered solution
- ★ Premium materials and components ensure purity of gas mixtures for precise calibration application
- ★ High outlet flow stability and performance
- ★ Less potential leak points
- ★ Ergonomics, compact and lightweight design for mobile applications

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TECHNOLOGY OVERVIEW

O-RING SEAL

Gas type: Inert & Mixtures, Flammable, Oxygen, Carbon Dioxide, Hydrogen, Methane and Acetylene

Applications: Industrial

Purity grade: >3.0

Advantages:

★ Standard Open/Close functionality

★ High life cycle thanks to a smart choice of materials

★ Safe, long, trouble free life under all service conditions

BELLOWS SEAL

Gas Type: High, Ultra High purity, toxic, corrosive gases & Liquids

Applications: Electronics manufacturing, Chemical industry

Purity grade: >3.0

Advantages:

★ High safety level thanks to sustainable metallicbellows, providing a high internal and external tightness (1.10^{-9} mbar.l/s)

★ 100% Helium leak test performed on all valves

★ 100% degreased for Oxygen use

★ TPED approved according to international transport regulation

★ Welding, Face seal and Flange end connections as standard option

★ Fluid specific seat & body material and design

★ High Cv Value

★ Electropolished surface roughness

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NEW! OPEN-CLOSE INDICATOR

EFFICIENCY & SAFETY BY KNOWING THE VALVE POSITION AT-A-GLANCE

★ EASY-TO-SEE INDICATOR IF THE VALVE IS OPEN OR CLOSED

★ VISIBLE FROM A DISTANCE THANKS TO COLOR CODING AND SIDE VIEW

★ MORE ERGONOMIC HANDWHEEL

★ TESTED UP TO 2,000 VALVE CYCLES ACCORDING TO EN ISO 10297-2014 STANDARD

★ THE STANDARD COLORS ARE DEFINED AS GREEN-OPEN / RED-CLOSED*

★ AVAILABLE AS AN OPTION FOR ALL PURETEC™ ULTRA HIGH PURITY MANUAL VALVES (series D300)

CLOSED POSITION: The open indicator is totally hidden under the skirt. The valve is transportable.

INTERMEDIARY POSITION: The open indicator doesn't entirely cover the closed indicator. Tightness is no longer guaranteed.

PARTIALLY OPEN POSITION: The open indicator covers the closed indicator after 70° handwheel rotation but the valve is not yet fully opened.

FULLY OPEN POSITION: The valve is fully opened once the mechanical stop is reached (270° rotation).

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ULTRA HIGH PURITY GASES | ELECTRONIC GASES

TIED DIAPHRAGM SEAL TYPE CYLINDER VALVES

4mm orifice / 200 Bar	D304 P. 016	D385S P. 017	D354 P. 017	D340S P. 018	D306 P. 018	D356 P. 019
Internal tightness	Soft	Soft	Soft	Soft	Metal / Metal	Metal / Metal
Pressure	200 bar	200 bar	200 bar	200 bar	150 bar	150 bar
Orifice	4 mm	4 mm	4 mm	4 mm	3,5 mm	3,5 mm
Cv	0.35	0.35	0.35	0.29	0.28	0.28
Actuator	Manual	Pneumatic	Pneumatic	Manual	Manual	Pneumatic

NB:For specific electronic gases (Nitrous Oxyde, Silane, Diborane), D388. For Tone Tank tube trailer, D334 (manual) or D382 (pneumatic)

6mm orifice / 200 Bar	D339S P. 020	D389S P. 021	D349 P. 021
Internal tightness	Soft	Soft	Soft
Pressure	200 bar	200 bar	200 bar
Orifice	6 mm	6 mm	6 mm
Cv	0.55	0.55	0.55
Actuator	Manual	Pneumatic	Manual

8mm orifice / 45 Bar	D337 P. 022	D387 P. 023	D342 P. 023
Internal tightness	Soft	Soft	Soft
Pressure	45 bar	45 bar	45 bar
Orifice	8 mm	8 mm	8 mm
Cv	0.7	0.7	0.55
Actuator	Manual	Pneumatic	Manual

VALVES WITH INTEGRATED PRESSURE REGULATOR (VIPR)

	D551 - DUCAL P. 024	D553 - FLOWCAL P. 025
Internal tightness	Soft	Soft
Inlet Pressure	200 bar	200 bar
Outlet Pressure	1-4 bar	4.5 bar
Actuator	Manual	Manual with flow selector
Material	Stainless steel	Stainless steel

For calibration application, refer to "Solution for Calibration Gas mixture" catalog: D00006

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ULTRA HIGH PURITY GASES | ELECTRONIC GASES

TIED DIAPHRAGM SEAL TYPE LINE VALVES FOR TRANSPORTATION

4mm orifice / 200 Bar	D604 P. 026	D654 P. 027	D688 P. 027
Internal tightness	Soft seat	Soft	Soft (knife edge seat)
Pressure	200 bar	200 bar	200 bar
Orifice	4 mm	4 mm	4 mm
Cv	0.3	0.3	0.20
Actuator	Manual	Pneumatic	Pneumatic

6mm orifice / 200 Bar	D639S P. 028	D689S P. 028
Internal tightness	Soft	Soft
Pressure	200 bar	200 bar
Orifice	6 mm	6 mm
Cv	0.5	0.5
Actuator	Manual	Pneumatic

BELLOWS VALVE*

	HP 2008/2012	HP 2008/2012 CN
Internal tightness	Bellow sealing	Bellow sealing
Max. working pressure	240 bar (24 MPA)	240 bar (24 MPA)
Orifice	8 / 12mm	8 / 12mm
Cv	Between 0.77 and 2.15 depending on seat diameter	Between 0.77 and 2.15 depending on seat diameter
Actuator	Manual	Pneumatic

	K300	K300
Internal tightness	Bellow sealing	Bellow sealing
Max. working pressure	Between 15 and 100 bar depending on seat diameter	Between 15 and 100 bar depending on seat diameter
Orifice	8 /12 / 20 / 32 / 50 / 80mm	8 /12 / 20 / 32 / 50 / 80mm
Cv	Between 0.78 and 114 depending on seat diameter	Between 0.78 and 114 depending on seat diameter
Actuator	Manual	Pneumatic

*for detailled informations, refer to catalog E04015 - Line valves UHP cryogenic

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HIGH PURITY GASES | CALIBRATION

DIAPHRAGM SEAL TYPE CYLINDER VALVES

4mm orifice / 200 Bar	**D200** P. 029	**D250** P. 030	**D265** P. 030	**D283** (RPV inline) P. 031	**D282** (RPV offline) P. 031
Internal tightness	Soft	Soft (lecture bottles)	Soft	Soft	Soft
Pressure	200 bar	200 bar	200 bar	200 bar	200 bar
Orifice	4 mm	4 mm	3,5 mm	3,5 mm	3,5 mm
Cv	0.35	0.25	0.3	0.2	0.21
Actuator	Manual	Manual	Manual	Manual	Manual

3,5mm orifice / 315 Bar	**D203** P. 032
Internal tightness	Soft
Pressure	315 bar
Orifice	3,5 mm
Cv	0.35
Actuator	Manual

8mm orifice / 45 Bar	**D285** (Dual port with RPV) P. 032
Internal tightness	Soft
Pressure	45 bar
Orifice	8 mm
Cv	1
Actuator	Manual

For other calibration application (Constant flow valve,regulators...), refer to "Solution for Calibration Gas mixture" catalog: D00000

SPECIFIC APPLICATIONS | HYDROGEN, METHANE AND ACETYLENE

O-RING SEAL TYPE

	D605 P. 033	**D488** P. 034
Internal tightness	Soft	Soft
Pressure	300 bar	300 bar
Orifice	12 mm	6 mm
Cv	1.8	0.8
Actuator	Manual	Manual

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CORROSIVE AND TOXIC GASES

PACKED TYPE CYLINDER VALVES

3mm orifice / 200 bar	**D100** P. 035	**D131** P. 036
Internal tightness	Metal / Metal	Metal / Metal
Pressure	200 bar	200 bar
Orifice	3,3 mm	2,8 mm
Cv	0.3	0.25
Actuator	Manual	Pneumatic

6mm orifice / 200 bar	**D160S** P. 037	**D156S** P. 038	**D195S** P. 038	**D161S** P. 039
Internal tightness	Soft	Soft	Soft	Metal / Metal
Pressure	200 bar	200 bar	200 bar	200 bar
Orifice	6 mm	6 mm	6 mm	6 mm
Cv	0.9	0.9	0.9	0.9
Actuator	Manual	Pneumatic	Manual	Manual

	D154S (Drum valve) P. 039	**D167S** (RPV offline) P. 040
Internal tightness	Soft	Soft
Pressure	200 bar	200 bar
Orifice	6 mm	6 mm
Cv	1.1	0.3
Actuator	Manual/ Key operated	Manual

12mm orifice / 200 bar	**D158** (Drum valve) P. 041	**D183** (with non-return valve) P. 042
Internal tightness	Soft seat	Soft (reversed seat)
Pressure	200 bar	200 bar
Orifice	12 mm	12 mm
Cv	2.9	1.1
Actuator	Manual/ Key operated	Manual

All valves are available in brass, chrome plated brass, stainless steel or Monel

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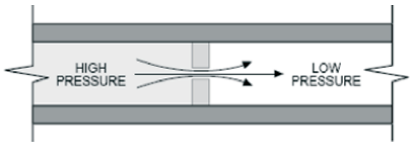
ACCESSORIES

FILLING PORT (service oxygen clean)

CALIBRATED FLOW RESTRICTOR



TUBE (service oxygen clean)

CYLINDER CONNECTORS & FILLING CONNECTORS

Connects regulators, supply boards or switch over boards to gas cylinders directly, or via a flexible hose or pigtail

CYLINDER FITTINGS

★ High pressure
★ 300 bar / 4350 psig
★ Chrome plated brass or stainless steel

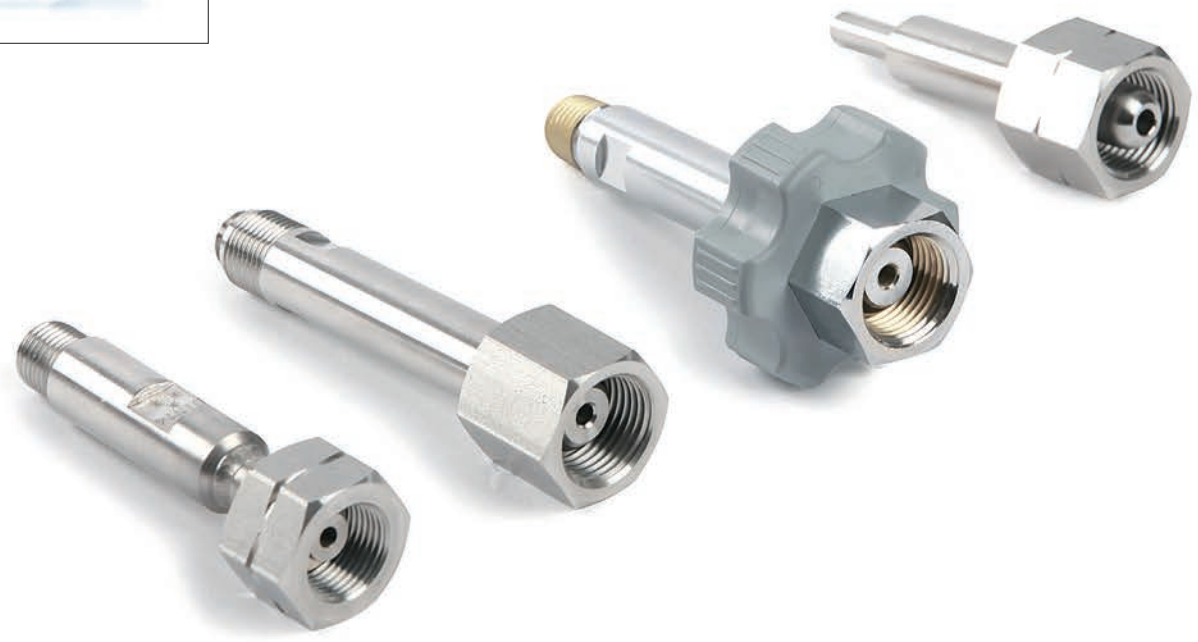
Special requirements on request

KEY FEATURES

- Cylinder connector according to the following standards: AFNOR, DIN, BS, CGA, NEN, UNI, FTSC 300 bar …
- Other connections on demand
- Outlet connection: 16 x 1.336 - Male or ¼ NPT - Male
- Material: chrome plated brass or stainless steel

OPTIONS

- 300 bar (FTSC) version
- Raw brass version
- Mounted on flexible hose or pigtail



*For detailled information, refer to the catalog E03000 - MTA

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DIAPHRAGM VALVES

	M4SI
Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.2
Material	Stainless steel 316L / VAR

	M8SI
Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.5
Material	Stainless steel 316L / VAR

	M8.1
Technology	Diaphragm
Max. Working Pressure	240 bar (3481 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	0.35
Material	Stainless steel 316L

	M12
Technology	Diaphragm
Max. Working Pressure	15 bar (218 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	1.75
Material	Stainless steel 316L / VAR

	M20
Technology	Diaphragm
Max. Working Pressure	15 bar (218 psig)
Temperature Range	-40°C to +150°C (-40°F to 302°F)
Flow Capacity (Cv)	3.5
Material	Stainless steel 316L / VAR

PRESSURE REGULATORS

	RX1000
Technology	Diaphragm
Inlet Pressure	Standard: 200 bar (2901 psig) HF: 50 bar (725 psig)
Outlet Pressure	2/4/7/10 bar (29/58/102/145 psig)
Temperature Range	-20°C to +65°C (-4°F to +149°F)
Flow Capacity (Cv)	Standard: 0.09 HF: 0.2
Material	Stainless steel 316L / VAR
SLPM	Up to 100

	RX2200
Technology	Diaphragm
Inlet Pressure	240 bar (3481 psig)
Outlet Pressure	3/8/10/15/25/50 bar (44/116/145/218/363/725 psig)
Temperature Range	-20°C to +65°C (-4°F to +149°F)
Flow Capacity (Cv)	0.2
Material	Stainless steel 316L / VAR
SLPM	Up to 1150

	RX2400
Technology	Diaphragm
Inlet Pressure	240 bar (3481 psig)
Outlet Pressure	2/4/7/10 bar (29/58/102/145 psig)
Temperature Range	-20°C to +65°C (-4°F to +149°F)
Flow Capacity (Cv)	Standard: 0.09 HF: 0.2
Material	Stainless steel 316L / VAR
SLPM	Up to 300

	RX2500
Technology	Diaphragm
Inlet Pressure	Stanard: 240 bar (3481 psig) HF: 50 bar (725 psig)
Outlet Pressure	5/8/10 bar (73/116/145 psig)
Temperature Range	-20°C to +65°C (-4°F to +149°F)
Flow Capacity (Cv)	Standard: 0.45 HF: 1.2
Material	Stainless steel 316L / VAR

*For detailled information, refer to E00015 - UHP valves & regulators

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ULTRA HIGH PURITY GASES | ELECTRONIC GASES

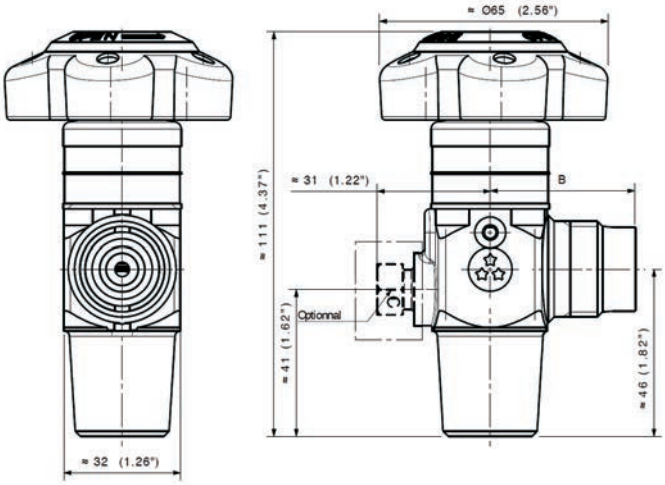
TIED DIAPHRAGM SEAL TYPE CYLINDER VALVES | 4MM ORIFICE / 200 BAR

- Cylinder valves for UHP corrosive, reactive and toxic gases
- 200 bar
- 4mm orifice size
- available with open/close indicator for manual valves

KEY FEATURES

- Tied diaphragm design with minimal gas wetted volume.
- Combined soft and metal seat design with low permeation rate.
- Positive operation due to mechanical link of the upper and lower spindle.
- Patented operating mechanism.
- Threaded weep hole for leak test and pipe away connection.
- No particle generating threads in the gas wetted part
- Optional pressure relief device (PRD)

D304



SPECIFICATIONS

Connections	Standard Specific (e.i: DISS)
Working pressure	200 bar 3000 psig

Nominal flow rate	CV = 0.35
Temperature range	-40°C to +65°C -40°F to +149 °F
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy® C22, Nickel 200, Monel® 2.4375 (Monel 500 K)

Leak rate	1.10^{-8} m bar L/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED) 3 stars, valve number, manufacturing date

NB:For Tone Tank tube trailer, D334 (manual)

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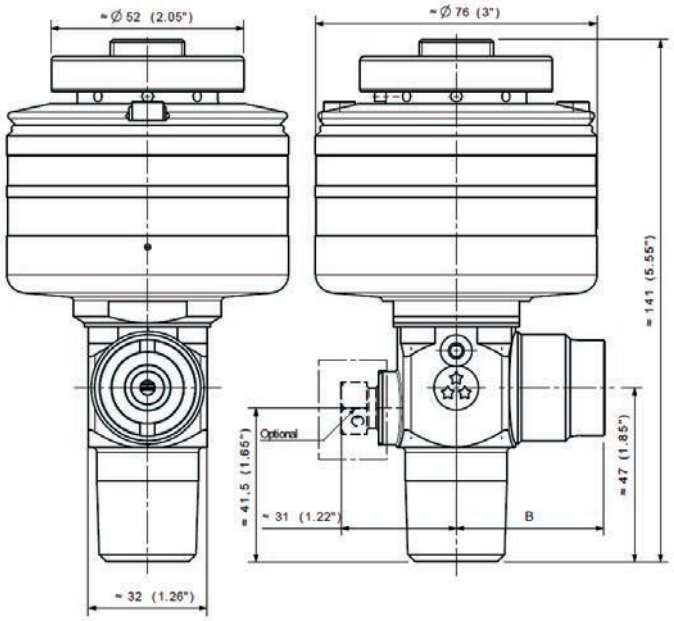
D385S

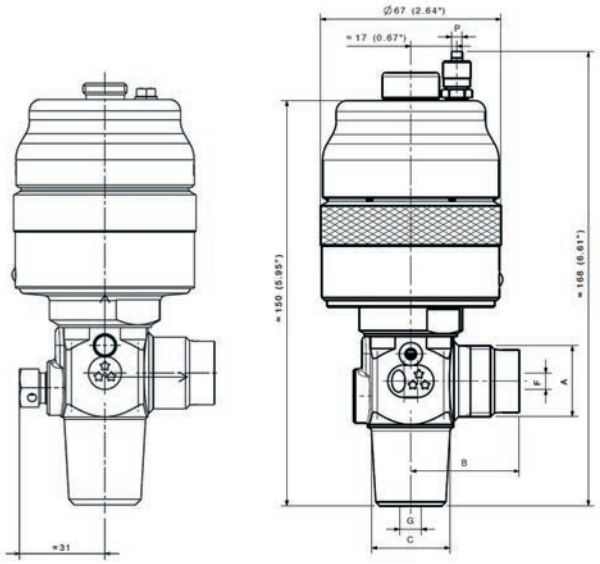


SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psig
Nominal flow rate	CV = 0.35
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy® C22, Nickel 200, Monel® 2.4375 (Monel 500 K)
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date

NB:For specific electronic gases (Nitrous Oxyde, Silane, Diborane), D388.

D354



SPECIFICATIONS

Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar 3000 psig
Nominal flow rate	CV = 0.35
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L)/option Hastelloy 2.4602 (UNS N 06022)
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), valve number, manufacturing date, Connections, seat material, 3 stars

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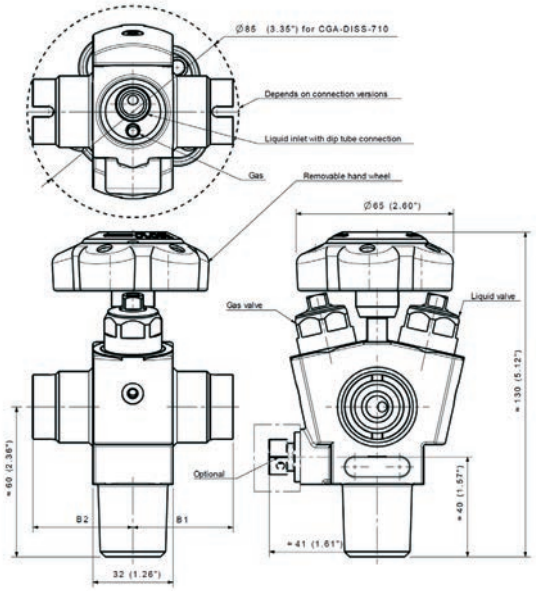
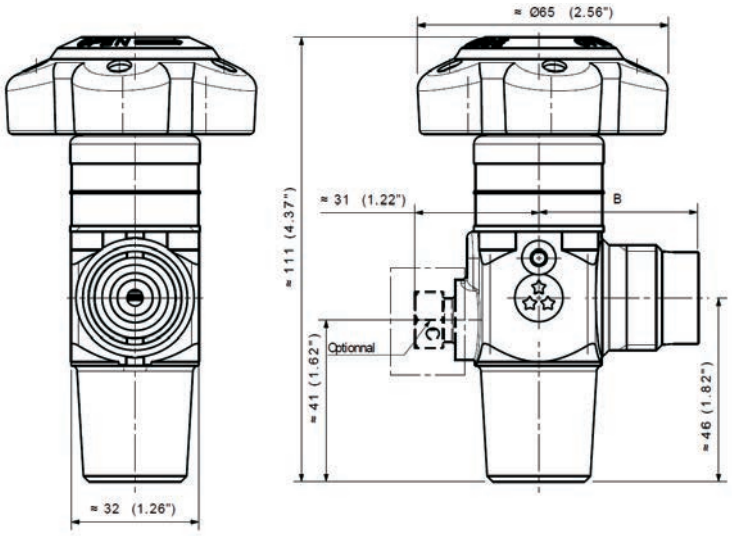
D340S



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psig
Nominal flow rate	CV = 0.35
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy C22
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date

D306



SPECIFICATIONS

Connections	According (inter-)national standards, customer's specifications
Working pressure	150 bar 2175 psi
Nominal flow rate	CV = 0.28
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy C22
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	3.5 mm
Marking	π (according to TPED), 3 stars, valve number, manufacturing date

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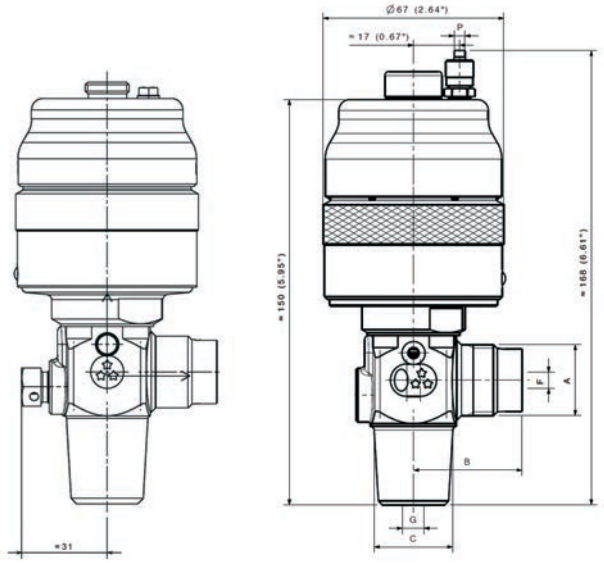
D356



SPECIFICATIONS

Connections	According (inter-)national standards, customer's specifications
Working pressure	150 bar 2175 psi

Nominal flow rate	CV = 0.28
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L)/ Hastelloy 2.4602 (UNS N06022)

Leak rate	1.10^{-8} m bar l/s
Seat orifice size	3.5 mm
Marking	π (according to TPED), valve number, Manufacturing date, Connections, 3 stars

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ULTRA HIGH PURITY GASES | ELECTRONIC GASES

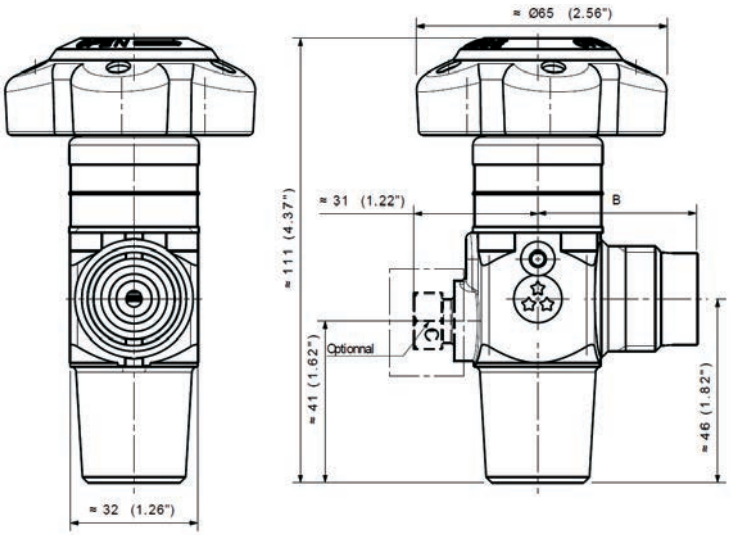
TIED DIAPHRAGM SEAL TYPE CYLINDER VALVES | 6MM ORIFICE / 200 BAR

- Cylinder valves for UHP gases
- 200 bar
- 6mm orifice size
- available with open/close indicator for manual valves

KEY FEATURES

- Tied diaphragm design with minimal gas wetted volume.
- Combined soft and metal seat design with low permeation rate.
- The valve allows a high Cv value at high pressure.
- Positive operation due to mechanical link of the upper and lower spindle.
- Threaded weep hole for leak test and pipe away connection.
- No particle generating threads in the gas wetted part
- Optional pressure relief device (PRD)

D339S



SPECIFICATIONS

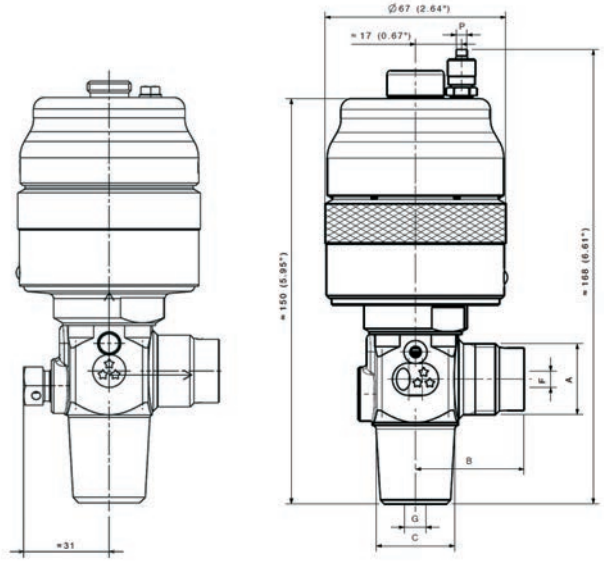
Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar 3000 psi

Nominal flow rate	CV = 0.55
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy C22

Leak rate	1.10^{-8} m bar l/s
Seat orifice size	6 mm
Marking	⊓0029 (according to TPED), 3 stars, valve number, manufacturing date

ALL RIGHTS OF CHANGE RESERVED

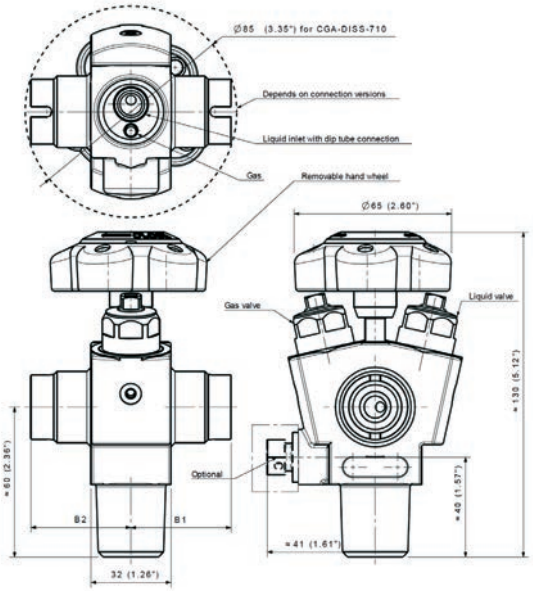
D389S



SPECIFICATIONS

Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar 3000 psig
Nominal flow rate	CV = 0.55
Temperature range	-40°C to +65°C -40°F to + 149 °F
Body materials	Stainless steel 1.4435 (AISI 316L)/ Hastelloy 2.4602 (UNS N 06022)
Leak rate	1.10^{-8} m bar L/s
Seat orifice size	6 mm
Marking	π0029 (according to TPED), valve part number, Manufacturing date, Connections, seat material, 3 stars
Options	Accessories like mechanical and electronic position indicators are available on request

D349



SPECIFICATIONS

Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.5
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L)
Leak rate	1.10^{-8} m bar L/s
Seat orifice size	6 mm
Marking	π0029 (according to TPED), valve number, Manufacturing date, 3 stars

ALL RIGHTS OF CHANGE RESERVED

ULTRA HIGH PURITY GASES | ELECTRONIC GASES

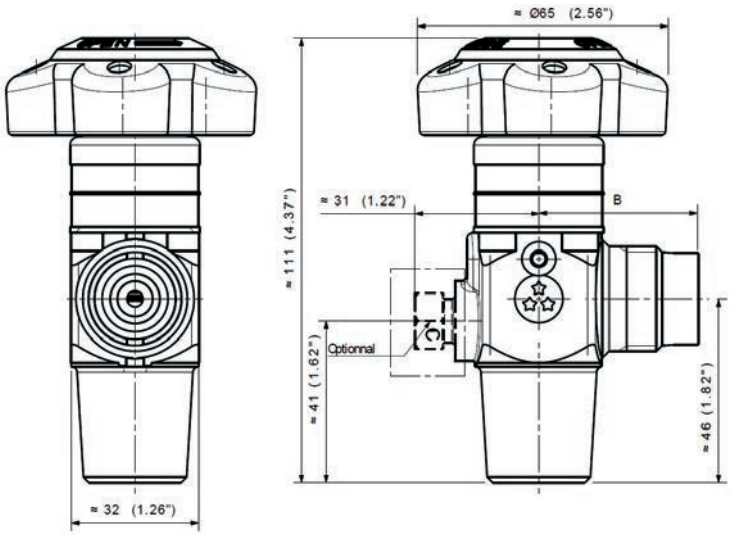
TIED DIAPHRAGM SEAL TYPE CYLINDER VALVES | 8MM ORIFICE / 45 BAR

- Cylinder valves for UHP corrosive, reactive and toxic gases
- 45 bar
- 8mm orifice size
- available with open/close indicator for manual valves

KEY FEATURES

- Backed up welded diaphragms provide a high leak tightness integrity
- Reduced dead spaces and gas wetted volumes allow easy purging process
- No particle generating threads in the gas wetted part
- Gas will not come in contact with the valve operating system
- Positive and effective operation, valve lower spindle is mechanically linked to the upper spindle and operating hand wheel
- Optional pressure relief device (PRD)
- The tapped vent hole (M4 thread) allows the connection of a leak detector

D337



SPECIFICATIONS

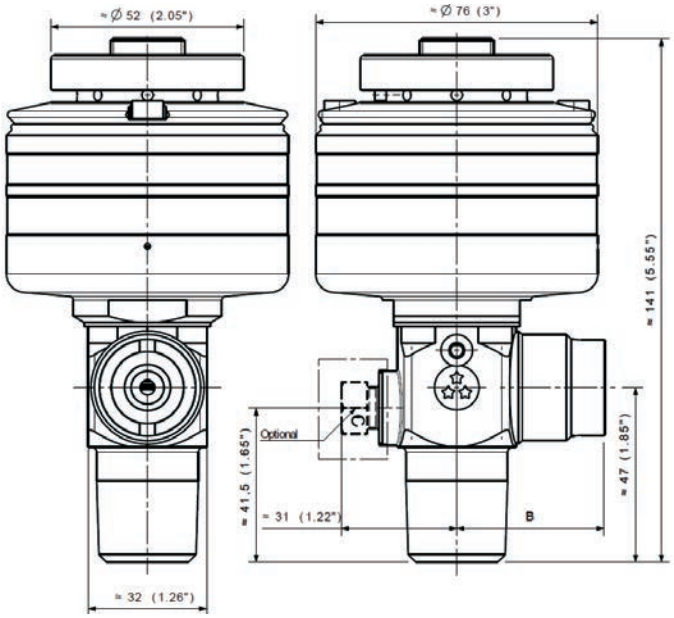
Connections	According (inter-)national standards and customer's specifications
Working pressure	45 bar 652 psi
Nominal flow rate	CV = 0.7

Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy C22, Nickel 200,Monel 2.4360 (Monel 400)
Leak rate	1.10^{-8} m bar l/s

Seat orifice size	8 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date

ALL RIGHTS OF CHANGE RESERVED

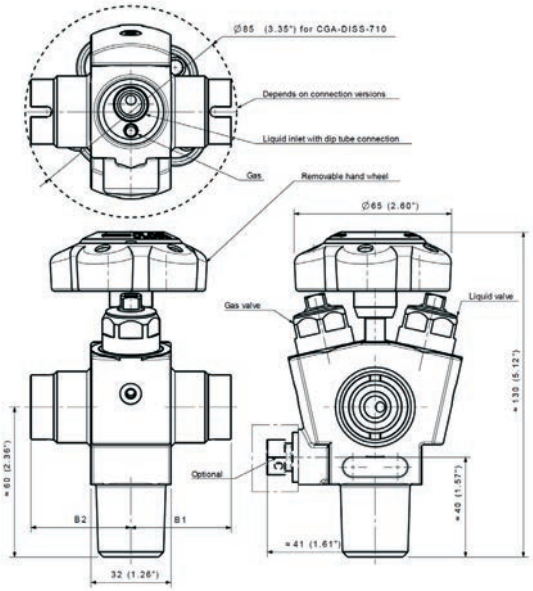
D387



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	45 bar 652 psi
Nominal flow rate	CV = 0.7
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), Hastelloy® C22, Nickel 200, Monel® 2.4375 (Monel 500 K)
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	8 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date

D342



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	45 bar 652 psi
Nominal flow rate	CV = 0.55
Temperature range	-40°C to +65°C -40°F to +149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L), astelloy C22
Leak rate	1.10^{-8} m bar l/s
Seat orifice size	8 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date

ALL RIGHTS OF CHANGE RESERVED

D551 - DUCAL | INTEGRATED VALVE WITH ADJUSTABLE PRESSURE REGULATOR

- Designed for wide range of specialty gases
- Used to calibrate analyzers
- Cylinder valve with adjustable pressure regulator.

FILLING OPERATIONS

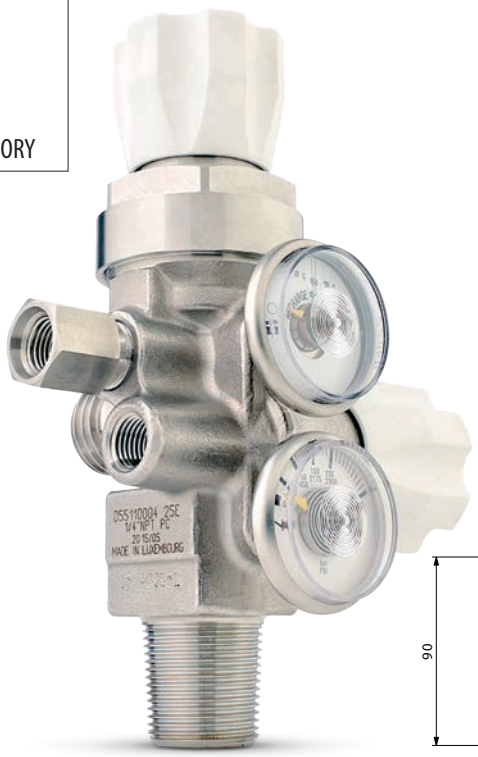
PLASTIC GUARD ACCESSORY

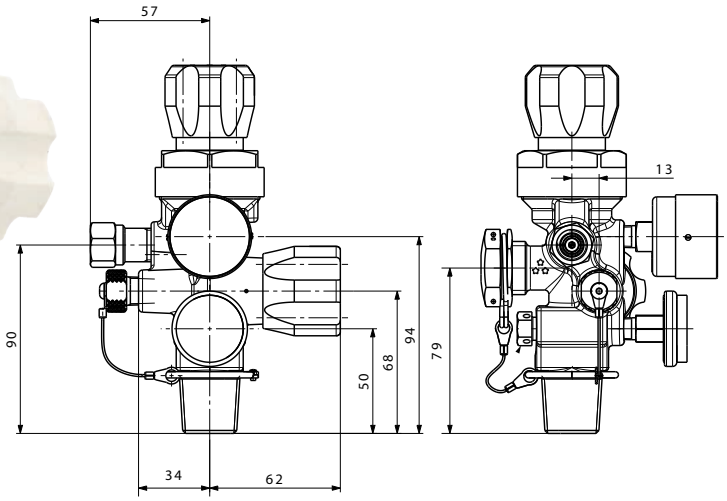
KEY FEATURES

All-in one design
- Pre-engineered complete solution to optimize your calibrated gas supply
- Fully protected & integrated solution with ergonomic and aesthetic design
- Superior productivity and better sealing due to reduction of potential leak points

Easier and safer
- Easy handling and better protection thanks to plastic guard
- Compact and light weight design ideal for mobile applications key features
- High outlet flow stability and performance thanks to diaphragm technology
- Premium material and components ensure quality of gas mixtures to preserve required properties for calibration application

Higher productivity
- Buy one complete system instead of many individual components
- Save your time and be much more effective with built-in solution





SPECIFICATIONS

Connections	25E – ISO 11363 ¾" NGT CGA-V1
Working pressure	Inlet : 200 Bar / 3000 psig Outlet:1-4Bar(14- 65 psig)
Nominal flow rate	1L/min at 3 bars Max flow rate 10 L/min at 4bars

Temperature range	-20°C to +60°C -5°F to + 140 °C
Seat seal	PA - PCTFE
O-ring	EPDM or FPM depending of application

Internal components	Stainless Steel
Leak rate	1.10^{-7} m bar L/s HEL
Property level	Cleaned for oxygen service
Filling Tool connection	To be defined according to norms and gas types

ALL RIGHTS OF CHANGE RESERVED

FLOWCAL - SERIES D553 | INTEGRATED VALVE WITH FLOW SELECTOR

Designed for wide range of specialty gases

FILLING OPERATIONS

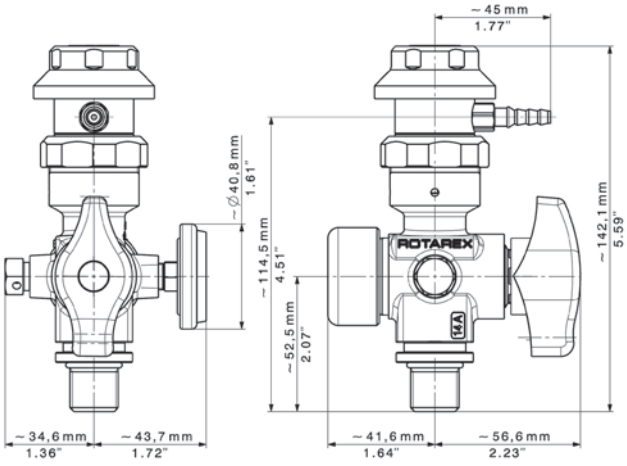
PLASTIC GUARD ACCESSORY

KEY FEATURES

All-in one design
- Pre-engineered complete solution to optimize your calibrated gas supply
- Ready to be used system, just take it and use it. No more components assembly and settings before use
- Fully protected & integrated solution with ergonomic and design
- Productivity and with integrated design

Easier and safer
- Easy handling and better protection thanks to plastic guard
- Integrated solution to reduce leak points risks. The valve is designed to have directly used pressure at the outlet without any additional connection on high pressure ports.
- Universal hose barb connection to ensure easy "plug-in" system
- Compact and light weight design ideal for mobile applications

Higher productivity
- Buy one complete system instead of many individual components



SPECIFICATIONS

Connections	According to local standard	**Temperature range**	-20°C to +60°C -5°F to + 140°C	**Body + internal parts**	Stainless Steel
Working pressure	200 bar / 3000 psig	**Seat seal**	PCTFE	**Leak rate**	1.10^{-4} m bar L/s. HEL
Nominal flow rate	0,5 - 15 L/min. Others on request	**O-ring**	EPDM - FPM	**Property level**	Cleaned for oxygen service

ALL RIGHTS OF CHANGE RESERVED

ULTRA HIGH PURITY GASES | ELECTRONIC GASES

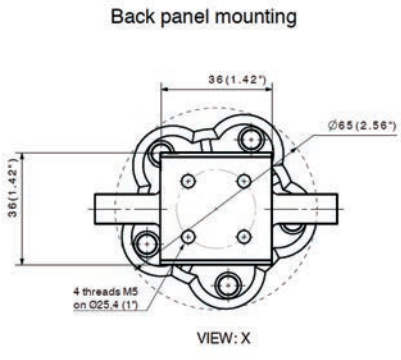
TIED DIAPHRAGM SEAL TYPE LINE VALVES FOR TRANSPORTATION

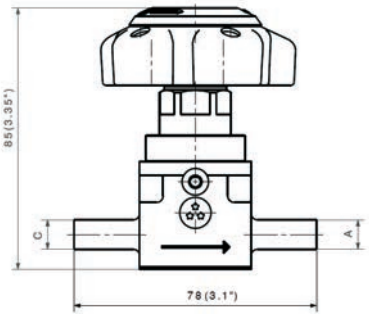
- Line valves for UHP gas distribution systems
- available with open/close indicator for manual valves

KEY FEATURES

- Combined soft and metal seat design with low permeation rate.
- Welded diaphragms provide a high leak tightness integrity
- Tied diaphragm design which minimizes gas wetted volume to allow easy purging.
- No moving components in the gas wetted area to not generate particles.
- Secondary sealing to prevent the gas coming in contact with actuator in the case of diaphragm failure.
- Threaded weep hole for leak test and pipe away connection (M4 thread), allows the connection
- to a leak detector.
- Front and back panel valve fixation

D604





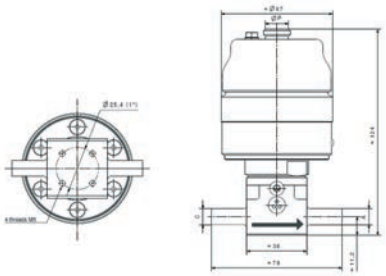
SPECIFICATIONS

Connections	Welded connection according to standards
Working pressure	200 bar 3000 psig
Nominal flow rate	CV = 0.3
Temperature range	-40°C to +65°C -40°F to + 149 °F
Body materials	Stainless steel 1.4435 (AISI 316L)
Leak rate	1.10^{-8} m bar L/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), Manufacturing date, 3 stars, valve part number, Nominal pressure and flow direction

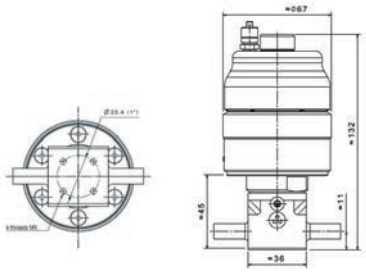
ALL RIGHTS OF CHANGE RESERVED

D654

Standard valve



Valve with locking function



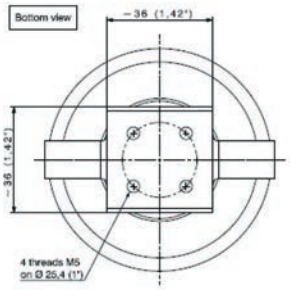
SPECIFICATIONS

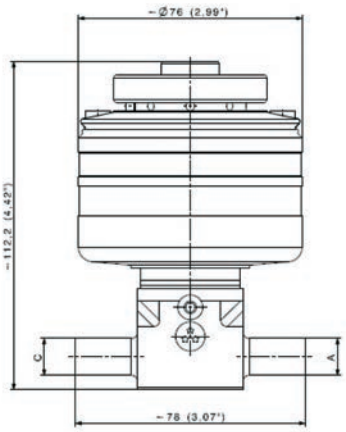
Connections	Butt welding or welded with nipples defined by standard or by customers
Working pressure	200 bar 3000 psi (up to 240 bar for filling pressure)

Nominal flow rate	CV = 0.3
Temperature range	-40°C to +65°C -40°F to + 149 °C
Body materials	Stainless steel 1.4435 (AISI 316L)

Leak rate	1.10^{-8} m bar L/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), Valve part number, manufacturing date, nominal pressure and flow direction, Connections - seat material, 3 stars

D688





SPECIFICATIONS

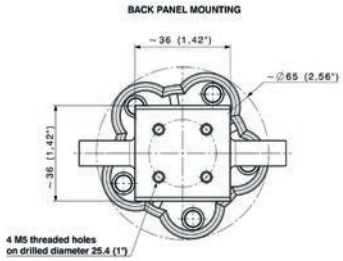
Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar 3000 psig

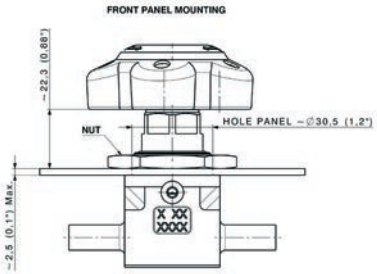
Nominal flow rate	CV = 0.25
Temperature range	-40°C to +65°C -40°F to + 149 °F (without PRD)
Body materials	Stainless steel 1.4435 (AISI 316L)

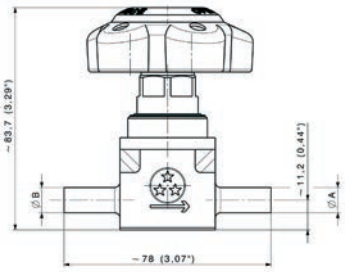
Leak rate	1.10^{-8} m bar L/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), 3 stars, valve number, manufacturing date, Nominal pressure and flow direction

ALL RIGHTS OF CHANGE RESERVED

D639S







SPECIFICATIONS

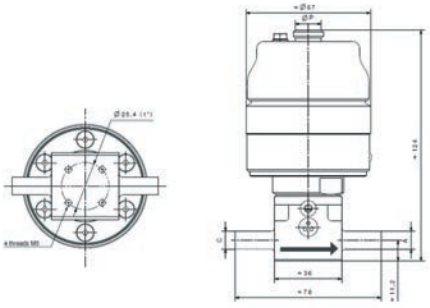
Connections	According (inter-)national standards, customer's specifications
Working pressure	200 bar / 3000 psig
Nominal flow rate	CV = 0.5

Temperature range	-40°C to +65°C -40°F to + 149 °F
Body materials	SS AISI 316L (standard)
Leak rate	1.10^{-8} m bar L/s

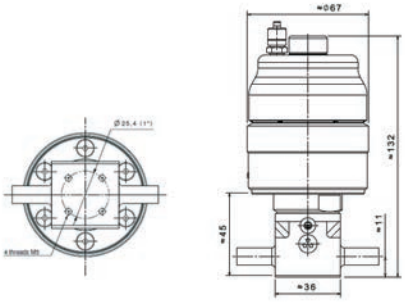
Seat orifice size	6 mm
Marking	3 stars, valve number, manufacturing date, Nominal pressure and flow direction, π0029 (if according to TPED)

D689S

Standard valve



Valve with locking function



SPECIFICATIONS

Connections	Welded connection according to standards
Working pressure	200 bar / 3000 psig
Nominal flow rate	CV = 0.5

Temperature range	-40°C to +65°C -40°F to + 149 °F
Body materials	SS AISI 316L (standard)
Leak rate	1.10^{-8} m bar L/s

Seat orifice size	6 mm
Marking	π0029 (according to TPED), Valve part number, manufacturing date, nominal pressure and flow direction, Connections - seat material, 3 stars

ALL RIGHTS OF CHANGE RESERVED

HIGH PURITY GASES | CALIBRATION

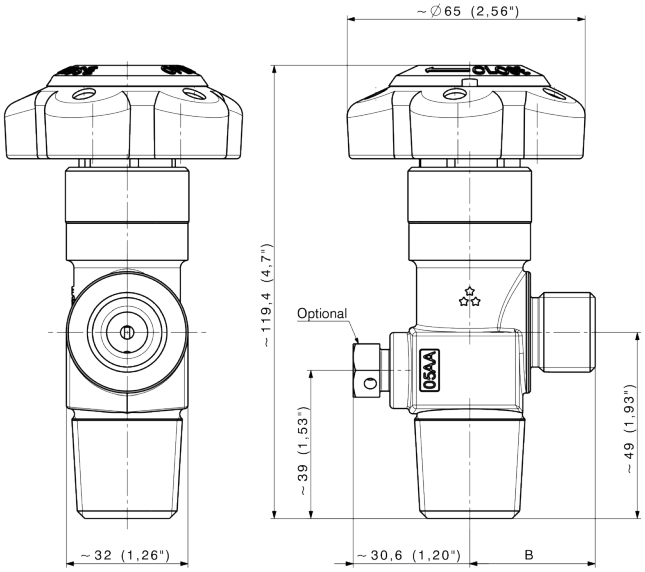
DIAPHRAGM SEAL TYPE CYLINDER VALVES

- Cylinder valves for High Purity gases, flammable & toxic gases
- for calibration, laboratories and food industry applications

KEY FEATURES

- Soft seat sealing arrangement offers low operating torque
- Valve seat captivated to avoid extrusion and blockage of the valve
- High leak tightness integrity through diaphragm sealing
- High performance thrust pad

D200



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.35

Temperature range	-40°C to +65°C -40°F to + 149 °F
Body materials	Brass, stainless steel, nickel
Leak rate	1.10^{-7} m bar L/s

Seat orifice size	3.5 mm
Marking	π0029 (according to TPED), Valve part number, manufacturing date, nominal pressure and flow direction, Connections - seat material, 3 stars

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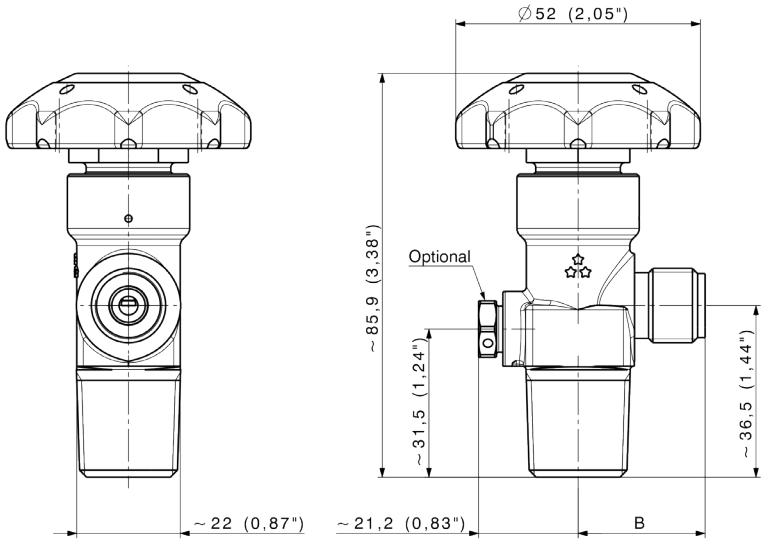
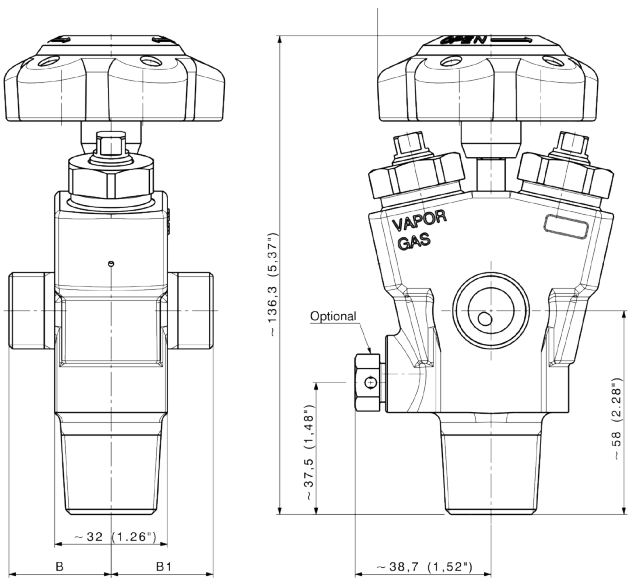
D250



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.25
Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel, Brass, AlSiBz
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	4 mm
Marking	π0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

D265

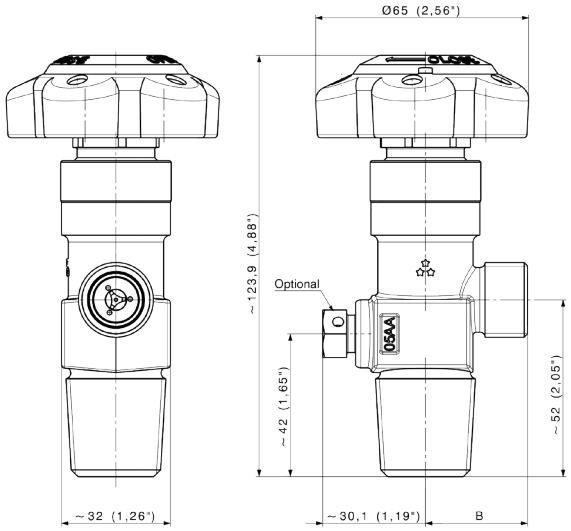


SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.35
Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Brass, stainless steel
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	3.5 mm
Marking	π0029 (according to TPED), manufacturing date, 3 stars, valve number

ALL RIGHTS OF CHANGE RESERVED

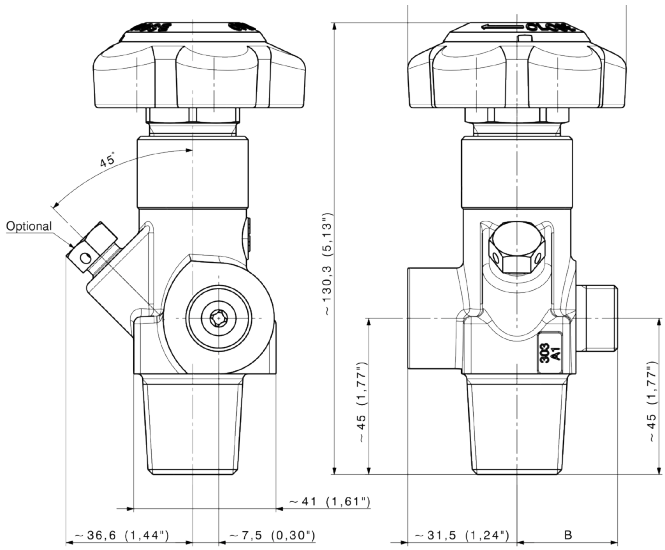
D283 (RPV inline)



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.2
Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Brass CW617N
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	3.5 mm
Marking	π0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

D282 (RPV offline)

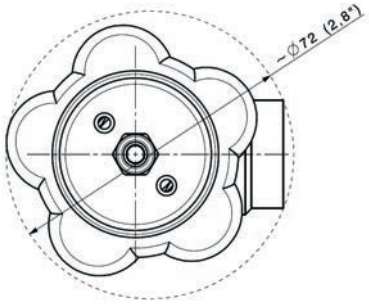


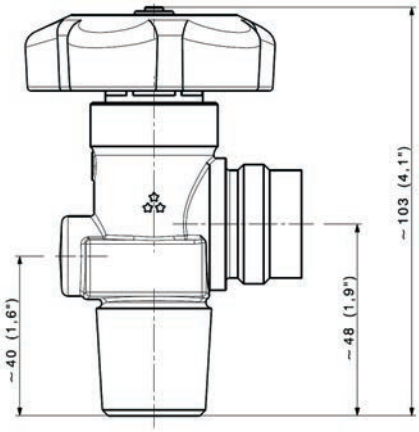
SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.21
Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4435 (AISI 316L), Stainless steel 1.4305 (AISI 303), Brass
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	3.5 mm
Marking	π (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

ALL RIGHTS OF CHANGE RESERVED

D203 (3,5mm orifice / 300 bar)

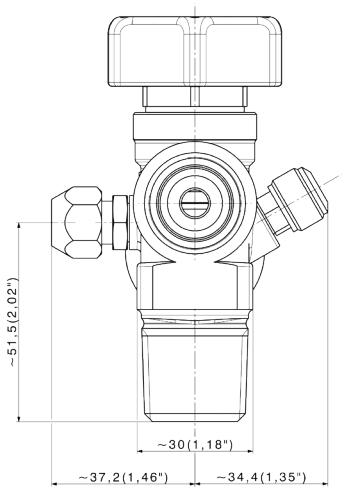


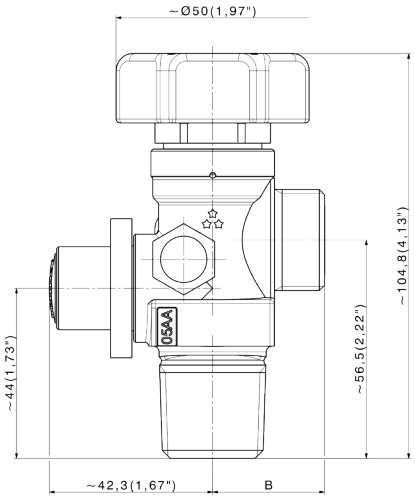


SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	315 bar 4583 psi
Nominal flow rate	CV = 0.35
Temperature range	-40°C up to +65°C -40°F up to +149°F
Body materials	Brass CW617N according to EN 12420
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	3.5 mm
Marking	π (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet, V-9

D285 (Dual port with RPV - 8mm orifice / 45 bar)





SPECIFICATIONS

Connections	¼" SAE
Working pressure	45 bar 650 psi
Nominal flow rate	CV = 1.0
Temperature range	-40°C up to +65°C -40°F up to +149°F
Body materials	Brass CW617N or stainless steel 1.4305 (AISI 303)
Leak rate	1.10^{-7} m bar L/s
Seat orifice size	8 mm
Safety	CG1 – 2- 3 -4 -5 – 7

ALL RIGHTS OF CHANGE RESERVED

SPECIFIC APPLICATIONS | HYDROGEN, METHANE AND ACETYLENE

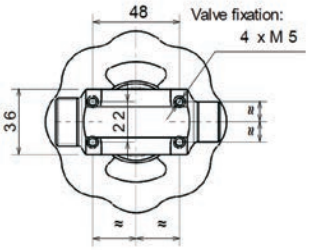
O-RING SEAL TYPE

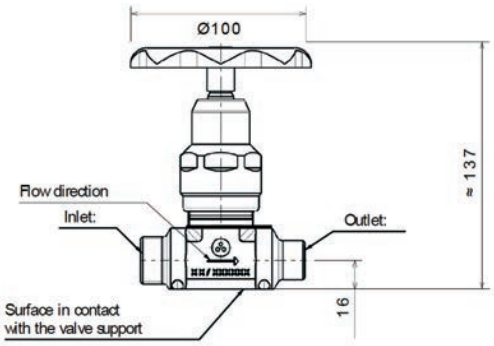
Cylinder, tube trailer or bundle valves for specific Hydrogenm mathane and acetylene applications

KEY FEATURES

- Non-rotating, thread less lower spindle.
- No particle shedding in gas wetted valve cavity.
- ring and fitted into gland nut guarantee a secondary sealing and exclude humidity
- Soft seat captivated to avoid extrusion and good sealing performances.
- Lower spindle design allows a smooth opening of the valve, and prevents adiabatic compression.
- Possibility to add a Residual Pressure Valve (RPV)

D605





SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	300 bar 4350 psi
Nominal flow rate	CV = max. 1.8 or 1.5

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4435 (AISI 316L)
Leak rate	$<1.10^{-3}$ m bar L/s

Seat orifice size	12 mm
Marking	π0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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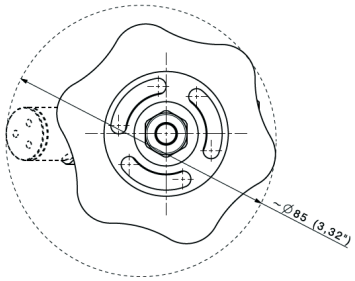
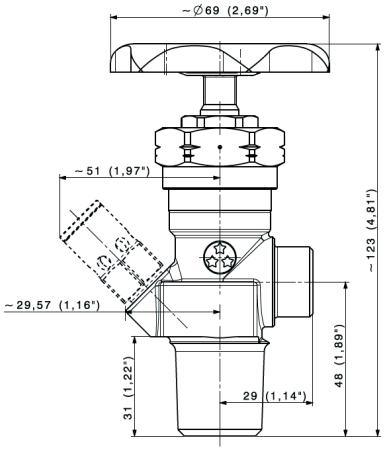
D488





SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	300 bar 4350 psi
Nominal flow rate	CV = 0.8

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4435 (AISI 316L)
Leak rate	$<1.10^{-3}$ m bar L/s

Seat orifice size	6 mm
Marking	π (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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CORROSIVE AND TOXIC GASES

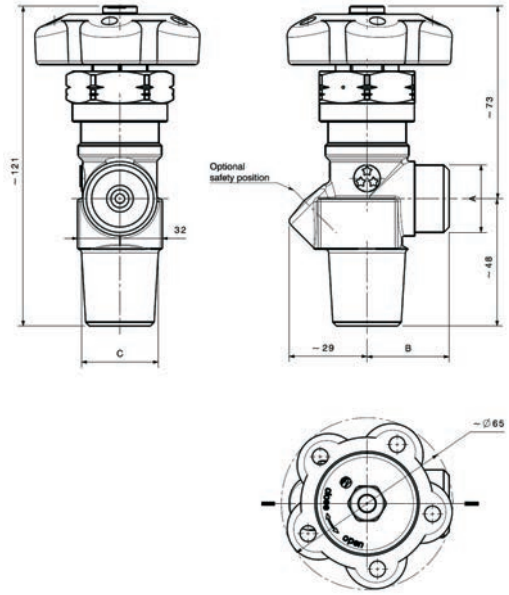
PACKED TYPE CYLINDER VALVES | 3MM ORIFICE / 200 BAR

- Cylinder valves for high purity corrosive gases
- 200bar

KEY FEATURES

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

D100



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.3

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4305 (AISI 303), 1.4435 (AISI 316L), Brass CW617N, ASB CW302G

Leak rate	$<1.10^{-6}$ m bar L/s
Seat orifice size	3.3 mm
Marking	π 0029(according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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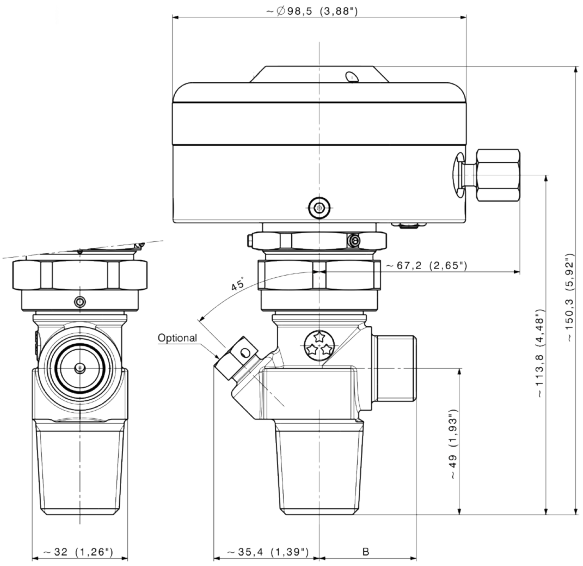
D131



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.25

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steels 1.4305 (AISI 303) and 1.4435 (AISI 316L), AlSiBz and brass
Leak rate	$<1.10^{-5}$ m bar L/s

Seat orifice size	2.8 mm
Marking	π 0029(according to TPED), manufacturing date, 3 stars, valve number

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CORROSIVE AND TOXIC GASES

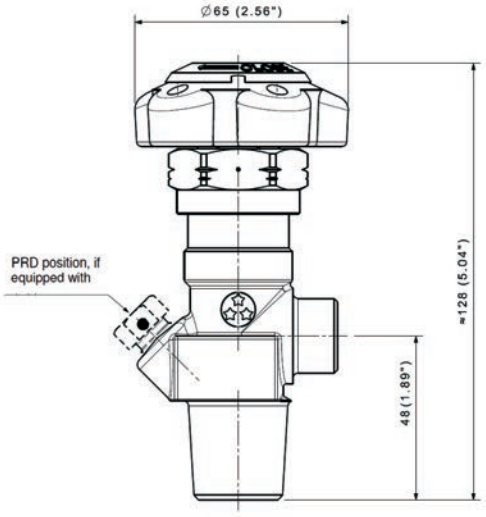
PACKED TYPE CYLINDER VALVES | 6 MM ORIFICE / 200 BAR

- Cylinder valves for high purity, corrosive and toxic gases
- 200 bar
- 6mm orifice size

KEY FEATURES

- 2-piece sturdy stem design in order to reduce particle generation.
- Non rotating lower spindle for increasing tightness during life time.
- No particle shedding threading in gas wetted areas.
- Self-adjusting compression of V-packings using disc springs, allowing a service temperature range from -40° to +65°C.
- Locking nut having left-hand thread that secures the valve mechanism, even if excessive torques are applied.
- O-rings fitted behind V-packings guarantee a secondary sealing, and they avoid the risk of humidity coming in contact with the gas wetted areas.
- Soft seat induces low operating torque.
- Soft seat is fixed with a special screw and its design improves the valve's robustness against over torques.

D160S



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.9

Temperature range	-40°C up to +65°C -40°F up to +149°F
Body materials	Stainless steel 1.4305 (AISI 303), 1.4435 (AISI 316L), Brass CW617N, ASB
Leak rate	$<1.10^{-5}$ m bar L/s

Seat orifice size	6 mm
Marking	π 0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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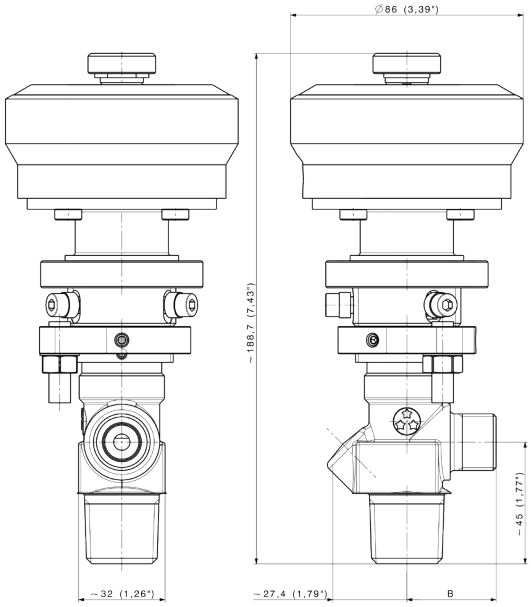
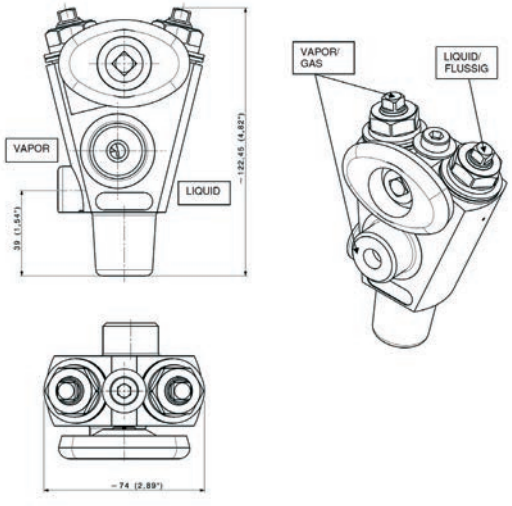
D156S



SPECIFICATIONS

Connections	Standards
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 1.1
Temperature range	- 40°C + 70°C -40°F up to +158°F
Body materials	AISI 303, AISI 316L
Leak rate	$<1.10^{-5}$ m bar L/s
Seat orifice size	6 mm
Marking	Production date, 3 stars, valve number

D195S



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.9
Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4305 (AISI 303), 1.4435 (AISI 316L)
Leak rate	$<1.10^{-5}$ m bar L/s
Seat orifice size	6 mm
Marking	π 0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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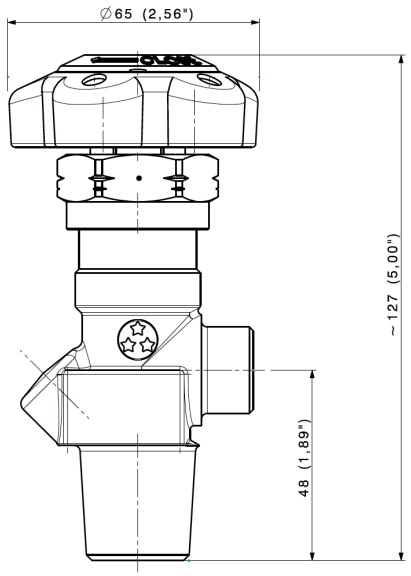
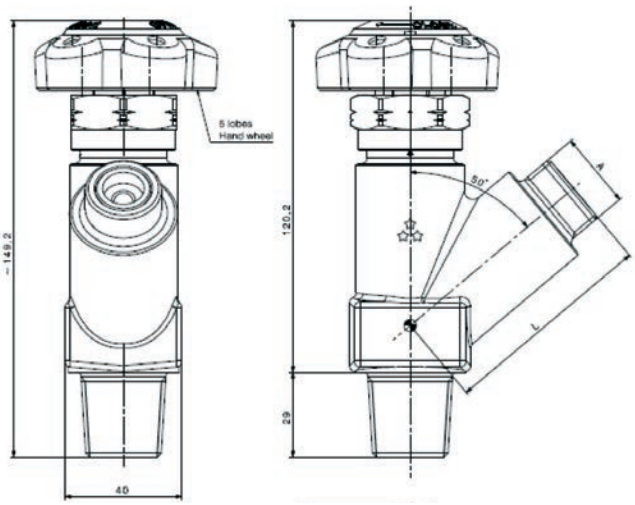
D161S



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications	**Temperature range**	-40°C up to +65°C -40°F up to +149°F	**Leak rate**	$<1.10^{-5}$ m bar L/s
Working pressure	200 bar 3000 psi	**Body materials**	Stainless steel 1.4305 (AISI 303), 1.4435 (AISI 316L), Brass CW617N, ASB	**Seat orifice size**	6 mm
Nominal flow rate	CV = 0.9				

D154S (Drum valve)



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications	**Temperature range**	-20°C up to +65°C -4°F up to +149°F	**Seat orifice size**	6 mm
Working pressure	200 bar 3000 psi	**Body materials**	Stainless steel 1.4435 (AISI 316L)	**Handwheel type**	Manual or Key operated
Nominal flow rate	1 – D154S / TDB – D154S-KEY	**Leak rate**	$<1.10^{-5}$ m bar L/s	**Marking**	π 0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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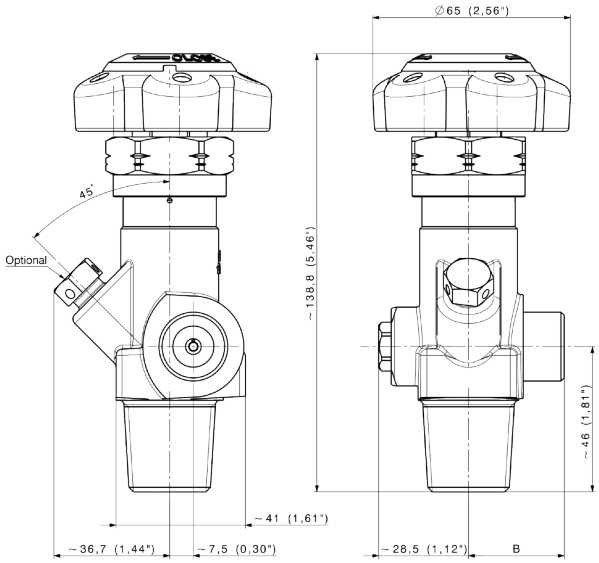
D167S (Offline RPV)



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 0.3

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4305 (AISI 303), 1.4435 (AISI 316L)
Leak rate	$<1.10^{-6}$ m bar L/s

Seat orifice size	6 mm
Marking	π (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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CORROSIVE AND TOXIC GASES

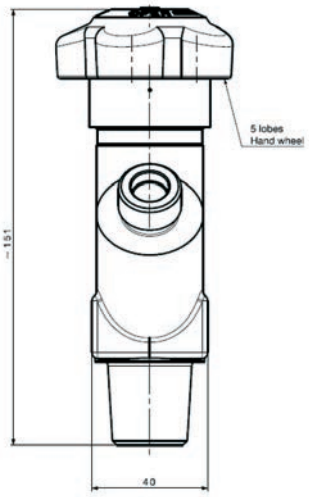
PACKED TYPE CYLINDER VALVES | 12MM ORIFICE / 200 BAR

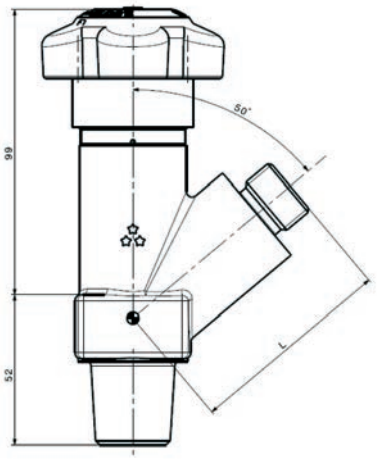
- Cylinder valves for high purity, corrosive and toxic gases
- 200 bar
- 6mm orifice size

KEY FEATURES

- 2-piece sturdy stem design.
- Non-rotating, thread less lower spindle
- No particle shedding threading in gas wetted valve cavity.
- Self-adjusting, spring-loaded V-ring gland packing
- Metal to metal sealing by a nickel ring
- Left hand threaded counter nut to secure sealing mechanism even under excessive torque.
- O-ring fitted into gland nut guarantee a secondary sealing and exclude humidity.
- Soft seat offers low operating torque and is captivated to avoid extrusion and blockage of the valve.

D158 (Drum valve)





SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 2.9

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body materials	Stainless steel 1.4435 (AISI 316L)
Leak rate	$<1.10^{-5}$ m bar L/s

Seat orifice size	12 mm
Marking	π 0029 (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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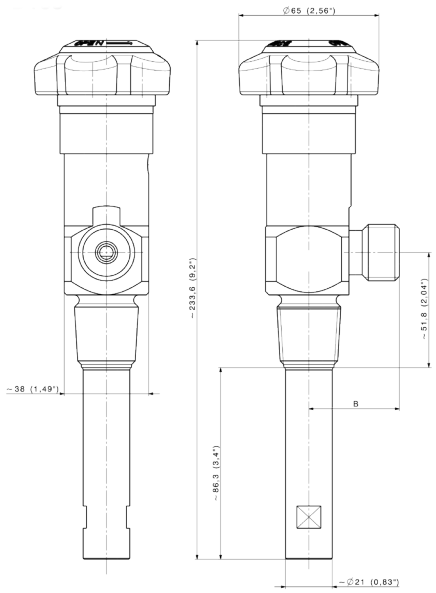
D183 (with non-return valve)



SPECIFICATIONS

Connections	According (inter-)national standards and customer's specifications
Working pressure	200 bar 3000 psi
Nominal flow rate	CV = 1.1

Temperature range	-20°C up to +65°C -4°F up to +149°F
Body material	Stainless steel 1.4471 (AISI 316Ti), 1.4435 (AISI 316L)
Leak rate	$<1.10^{-5}$ m bar L/s

Seat orifice size	12 mm
Marking	π (according to TPED), manufacturing date, 3 stars, valve part number, valve inlet, valve outlet

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CORROSION PROTECTION SOLUTIONS FROM ROTAREX

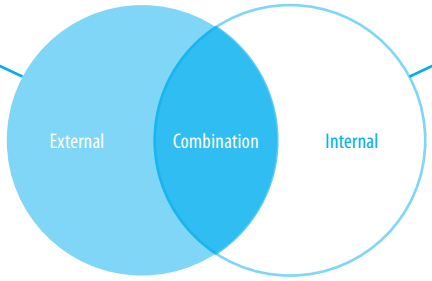
CORROSION PHENOMENONS ON GAS VALVES & EQUIPMENT

The word corrosive refers to any chemical that will dissolve the structure of an object. They can be acids, oxidizers, or bases. When they come in contact with a surface, the surface deteriorates.

Some compressed gases are corrosive. Corrosive gases can attack and corrode metals. They can also burn and destroy body tissues on contact. Common corrosive gases include ammonia, hydrogen chloride, chlorine, methylamine, diborane, bromine trichloride, hydrogen bromide and bromine trifluoride.

EXTERNAL CORROSION

Corrosion due to atmospheric conditions, as humidity & warm or marine salty environment, or acid environment wich could exist in some factories, as chemical industries.



INTERNAL CORROSION

Corrosion due to the used gas, attacking & corroding the valve internal parts .

ROTAREX SOLUTIONS AND EXPERTISE TO PREVENT CORROSION

ASSESSMENT ON BODY MATERIALS

Brass - good mechanical & marine resistance
Stainless steel - Good marine resistance
Aluminum - High resistance to corrosion

External Corrosion

SURFACE PROTECTION COATING

Nickel Coating
Chrome Coating
PTFE Coating
Anodization
Painting

Rotarex knowledge
Internal data base with compatibilities between materials and 1081 fluids

SPECIFIC SURFACE COMPONENT COATING

SiO2 coating
Gold platting
Platinum platting
Silver coating

ASSESSMENT ON BODY MATERIALS

Brass CW617 - Chemically neutral gases and/or oxidizing gases
Stainless Steel: 303/316L - Chemical resistance/ UHP applications
Hastelloy - C22 Very corrosives applications
Nickel 200 for specific electronic applications

Internal Corrosion

SPECIFIC SURFACE BODY COATING

Multilayer silicon chemical vapor deposited (CVD) coating specifically designed to improve corrosion resistance of stainless steel

ASSESSMENT ON COMPONENTS MATERIALS

Brass CuBe - Heating diffusion for oxidizing gases
Stainless Steel: 316L - Chemical resistance/ UHP applications
Hastelloy C276 - Chemical resistance/ UHP applications
Nickel 200 - On specific demand in electronic domain

SURFACE FINISHING

Different surface roughness for each part/component of the valve

SURFACE TREATMENT

Passivation - chemical process to create an outer protective layer on material.
Electro polishing - electrochemical process that removes material from a metallic workpiece.

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NOTES

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NOTES

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A FULL LINE OF GAS CONTROL SOLUTIONS

COMPLETE SOLUTIONS FROM SOURCE TO PROCESS.

ROTAREX is helping engineers worldwide to get better gas results: from ultra high purity production and medical care facilities to industrial and LPG applications, as well as alternative energy vehicles, fire suppression, diving, aerospace, cryogenics, laboratory, petro-chemical and welding. ROTAREX applies almost 100 years of know-how and experience to custom design, develop and manufacture the high performance valves, regulators and fittings to suit your needs, all in one hand. Discover the difference ROTAREX can make in your world.

CYLINDER VALVES | **EQUIPMENT** | **FIRETEC** | **AUTOMOTIVE** | **LPG/SRG** | **MEDITEC**

ROTAREX
VALVES - FITTINGS - REGULATORS

ULTRA HIGH PURITY VALVES

MEDICAL VALVES & EQUIPMENT

INDUSTRIAL CYLINDER VALVES

REFRIGERANT CYLINDER VALVES

PRESSURE REGULATORS

SUPPLY & SWITCH OVER BOARDS

LINE VALVES

FITTINGS & ADAPTORS

FIXED INSTALLATION
FIRE SYSTEMS

OBJECT FIRE SUPPRESSION
SYSTEMS

AUTOMOTIVE VALVES
& REGULATORS

WATER CARBONATION

LPG TANK VALVES
& REGULATORS

LPG CYLINDER VALVES
& REGULATORS

DIGITAL MEASUREMENT
SYSTEMS

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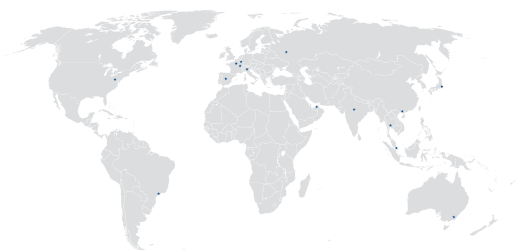

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VALVES - FITTINGS - REGULATORS

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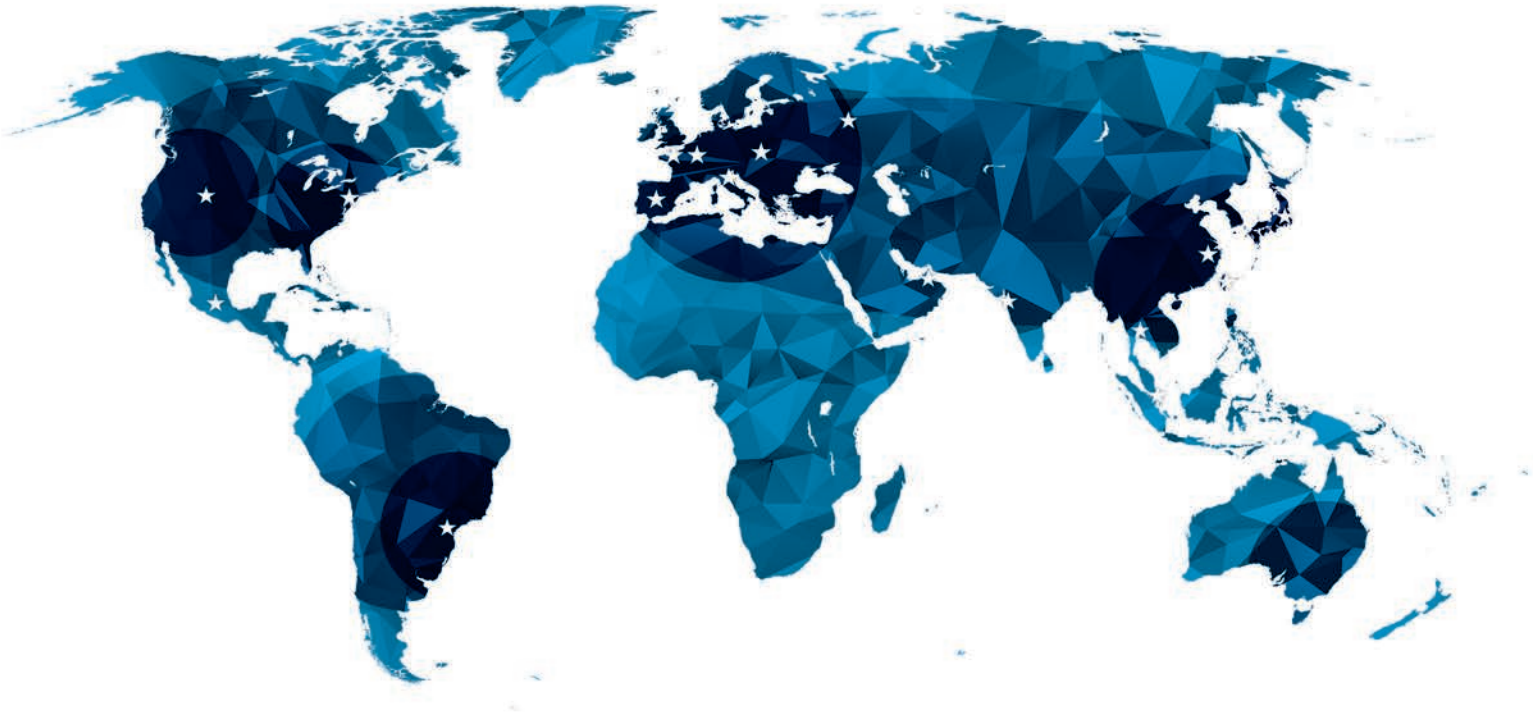

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