INSIEME DI RIDUZIONE PER GAS

GAS PRESSURE REDUCING ASSEMBLY

Matr. G4748

Documento originale
Original document

for

GASCONCEPT KURPINSCY S.C.

Your order n°27 of 21/08/2022

PEGORARO GAS TECHNOLOGIES srl - Sede: Via Meucci, 77 - Arcugnano ITALY -- 36057
– Tel.+39 0444 289382 – Fax +39 0444 963056 Internet:www.pegorarogas.com – C.F.e P.IVA 03402960243

PEGORARO GAS TECHNOLOGIES S.R.L.
Via Meucci, 77, 36057 Arcugnano (VI), Italia

DICHIARAZIONE DI CONFORMITA' UE
in accordo all'allegato IV della direttiva 2014/68/UE

EU DECLARATION OF CONFORMITY
in accordance to annex IV of directive 2014/68/EU

N. 238/22

Io sottoscritto, nella figura di rappresentante autorizzato, dichiaro sotto la mia esclusiva responsabilità che la progettazione, la fabbricazione, i controlli e le prove delle attrezzature a pressione sotto specificate sono conformi alle disposizioni applicabili della direttiva 2014/68/UE

I undersigned, in the figure of authorized representative, declare under my responsibility that the design, manufacture, inspections and testing of pressure equipment specified below comply with the applicable provisions of Directive 2014/68 / EU

Descrizione insieme *Assembly description*	**INSIEME DI RIDUZIONE PER GAS** ***GAS PRESSURE REDUCTION ASSEMBLY***		
Famiglia/ tipo *Family/ type*	GR3-B	N. fabbrica *Serial no.*	G4748
Pressione max ammissibile PS *Max allowable pressure PS*	16 bar	Temperatura min/ max TS *min/ max temperature TS*	-10/ +50 °C
Fluido gruppo *Fluid group*	1	Categoria PED *PED category*	*II*
Procedure di valutazione della conformità utilizzate *Conformity assessment procedures used*	Modulo H		
Ente notificato *Notified body*	TUV Italia S.r.l. - n. 0948 Via Carducci,125 - ed.23, 20099 Sesto San Giovanni (MI)		
Modulo *Module*	H	Certificato n. *Certificate n.*	PED-0948-QSH-522-18 Rev.2
Norme tecniche utilizzate *Technical standards used*	VSR-M-S ISPESL Ed.99 integrate da EN 13445-5 D.M. 16/04/08 UNI CIG 8827, 10390, 10619		

Altre direttive applicate
Other directives applied

Attrezzature componenti l'insieme marchiato CE *Other devices data with CE mark*	Costruttore *Producer*	Ente di notifica *Notified body*	Numero di serie *Serial number*	Modulo *Module*
Gas piping	Pegoraro G.T.	CE0948	Dis. 46024748	H
Pressure gauge D63 AISI304 0 - 2,5 bar DN 1/4"G	Wika	CE0036	-	H
Pressure gauge D63 AISI304 0 - 25 bar DN 1/4"G	Wika	CE0036	-	H
Needle valve DN 1/4"MF GRC PN50	Guglielmi.D.	-	-	Art4.3
Safety valve F27 3 bar DN 1/2"M Gas	Nova Comet	CE0497	4315	H1
Butterfly valve G40 THESIS DN40 PN16	Effebi	CE1370	1911 - 1005	E1
Ball valve WAFER LF2/AISI DN25 PN16/40	Crotti.F.	CE0948	H463432	Art4.3
Ball valve FB DN 1/2"MF MOP5	Effebi	CE1370	2021 - 0822	Art4.3
Ball valve FB AISI316 DN 1/4"MF GRC PN100	Effebi	CE1370	19519/22	Art4.3
Pressure regulator APS2000 DN 1"FF BSPP	Nova Comet	CE0497	4321	Art4.3

Luogo e data
Location and date

Vicenza, 31/10/2022

Pegoraro Gas Technologies Srl
Marco Corato

PEGORARO

PEGORARO GAS TECHNOLOGIES S.R.L. *Via Meucci, 77, 36057 Arcugnano (VI), Italia*	**VERBALE DI PROVA IDRAULICA** ***HYDRAULIC TEST REPORT***	Nr del pag	4748-22/A 24/10/2022 1 di 1

CLIENTE/*Customer*	GASCONCEPT KURPINSCY S.C.					
ORDINE NR./ *Job Nr.*	**N°27 of 21/08/2022**		NUMERO DISEGNO/Drawing N.		**46024748**	
Descrizione insieme Assembly description	**TUBAZIONI GRUPPO G4748**					
Famiglia/ tipo Family/ type	**-**		N. fabbrica Serial no.		**G4748**	
	LATO AP/MP PRESSIONE (Monte Risuzione)			***LATO BASSA PRESSIONE (Valle Riduzione)***		
Pressione max ammissibile (PS) Bar Max allowable pressure (PS) Bar	**16**			**0,5**		
Temperatura min/ max (TS) min/ max temperature (TS)	**-10/ +50 °C**					
PRESSIONE DI PROVA IDRAULICA (PT) Hydraulic pressure Test (PT)	**24**			**2,5**		
MANOMETRO (SCALA) Manometer range	**0/10 BAR**	MATRICOLA: *Serial N.*	**115722 (N°15)**	**0/10 BAR**	MATRICOLA: *Serial N.*	**115722 (N°15)**
FLUIDO DI PROVA TEST FLUID	**ACQUA/*WATER***					
VOLUME (LITRI) Volume (Liter)	**DN 25**			**DN 40**		
TEMPERATURA DI PROVA (°C) Test Temperature (°C)	AMBIENTE (25-30°C) Room Temperature (25-30°C)					
TEMPO DI PERMANENZA IN PRESSIONE Test duration at Test Pressure	MIN./MAX: 1 - 4 ORE Min./Max: 1 - 4 Hours					

RISULTATO DELL'ESAME Test Result	**POSITIVO** ***Positive***	**X**	**NEGATIVO** ***Negative***	

NOTE/ NOTE

	EMESSO/ Issued	OPERATORE/ Operator	ISPETTORE/ Inspector
FIRMA /Sign	24/10/2022	Pegoraro Gas Technologies Srl Marco Gerato	

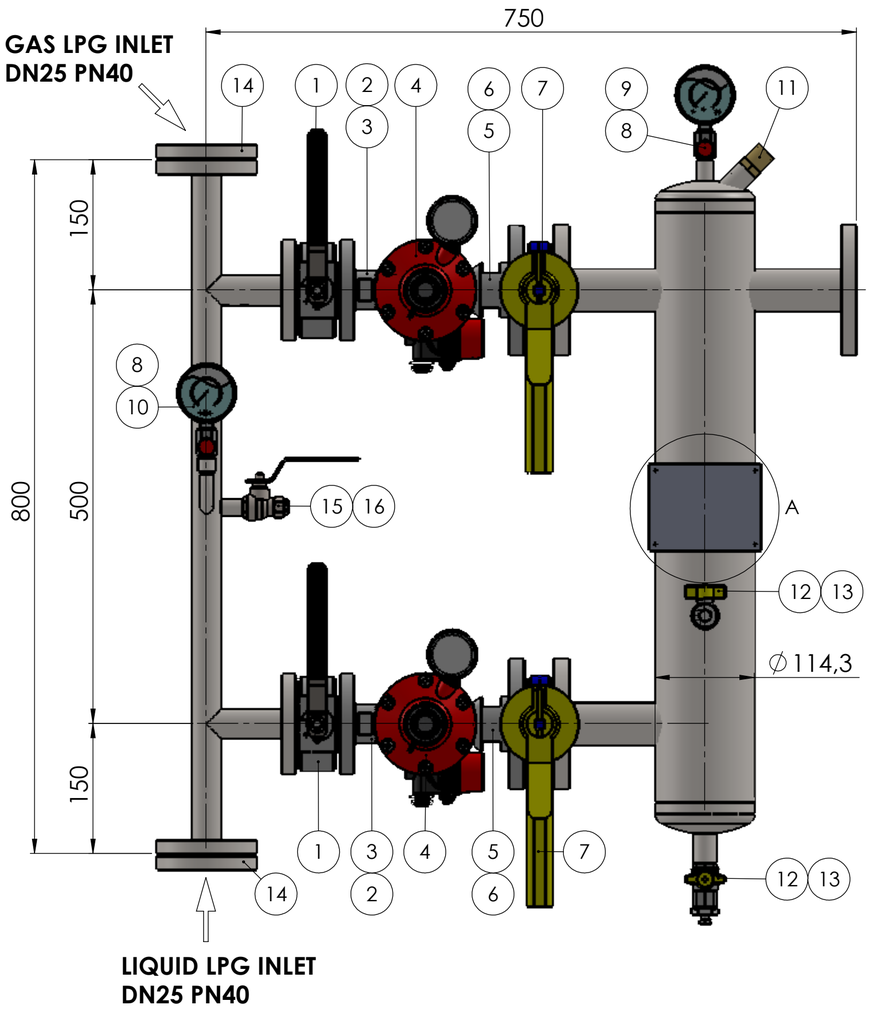
PEGORARO GAS TECHNOLOGIES S.R.L. *Via Meucci, 77, 36057 Arcugnano (VI), Italia*	**VERBALE DI PROVA PNEUMATICA** ***PNEUMATIC TEST REPORT***	Nr del pag	4748-22/B 26/10/2022 1 di 1

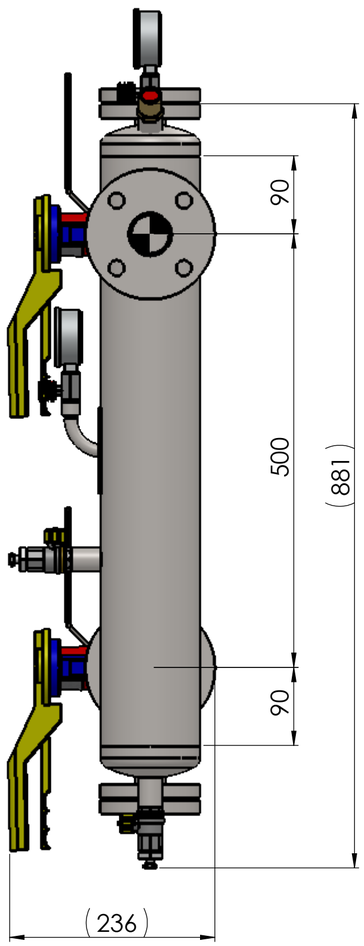
CLIENTE/*Customer*	GASCONCEPT KURPINSCY S.C.				
ORDINE NR./ *Job Nr.*	**N°27 of 21/08/2022**		NUMERO DISEGNO/Drawing N.	**46024748**	
Descrizione insieme Assembly description	**TUBAZIONI GRUPPO G4748**				
Famiglia/ tipo Family/ type	**-**		N. fabbrica Serial no.	**G4748**	
	LATO AP/MP PRESSIONE (Monte Risuzione)		***LATO BASSA PRESSIONE (Valle Riduzione)***		
Pressione max ammissibile (PS) Bar Max allowable pressure (PS) Bar	**16**		**0,5**		
Temperatura min/ max (TS) min/ max temperature (TS)	**-10/ +50 °C**				
PRESSIONE DI PROVA IDRAULICA (PT) bar Hydraulic pressure Test (PT) bar	**24**		**24**		
MANOMETRO (SCALA) Manometer range	**0/10 BAR**	MATRICOLA: *Serial N.*		**0/10 BAR**	MATRICOLA: *Serial N.*
FLUIDO DI PROVA TEST FLUID	**AZOTO/ARIA** **Nitrogen/Air**				
VOLUME (LITRI) Volume (Liter)	**DN 25**		**DN 40**		
TEMPERATURA DI PROVA (°C) Test Temperature (°C)	AMBIENTE (25-30°C) Room Temperature (25-30°C)				
TEMPO DI PERMANENZA IN PRESSIONE Test duration at Test Pressure	MIN.: 30 Minuti Min.: 30 Minutes				

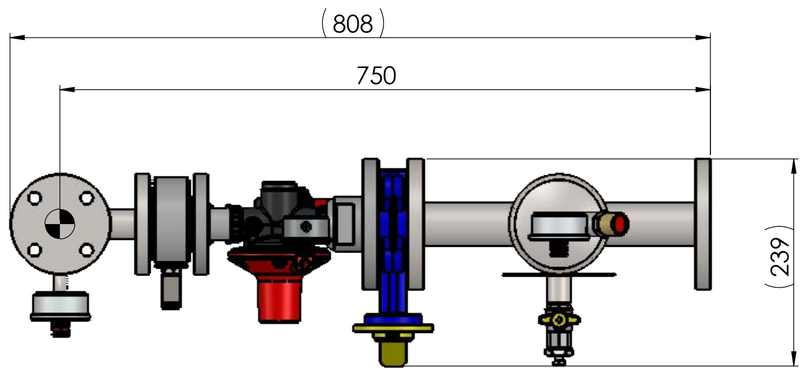
RISULTATO DELL'ESAME Test Result	**POSITIVO** ***Positive***	**X**	**NEGATIVO** ***Negative***	

NOTE/ NOTE

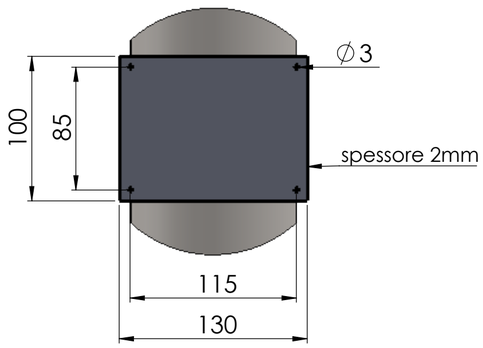
	EMESSO/ Issued	OPERATORE/ Operator	ISPETTORE/ Inspector
FIRMA /Sign	26/10/2022	Pegoraro Gas Technologies Srl Marco Corato	







DETTAGLIO A
SCALA 1 : 3



DATI IMPIANTO/PLANT DATA		
Matricola/Serial Number		G4748
Cliente/Customer		GASCONCEPT KURPINSCY S.C.
Job. Ref.		OCP368
Ref. Norm.		UNI 10682 - 8827 - 2014/68/EU
Fluido/Fluid		GPL/LPG
Portata/Flow		200 Kg/h
Diametro ingresso/Inlet diameter		DN25
Diamtero uscita/Outlet diameter		DN40
Pressione ingresso/ Inlet pressure min/max		2/16 bar
Pressione uscita/Oulet pressure		0,5 bar
Pressione di progetto /Design Pressure [PS]		16 bar
Temperatura di progetto /Design Temperature [TS]		-10/+50°C
TARATURE/ SETTING		
	Linea 1 / Line 1	Linea 2 / Line 2
Riduttore /Regulator	0,5 bar	0,5 bar
Monitor	---	---
SSV MAX	700 mbar	720 mbar
SSV MIN	STD	STD
Valvola di sfioro/Relief Valve	---	
Valvola di sicurezza /safety Valve	3 bar	
COLLAUDO/TESTING		
Collaudo in pressione/Pressure Testing [PT]		24 bar
Prova di tenuta/Functional testing		16 bar
Fluido di collaudo/Testing Fluid		Acqua/azoto -Water/nitrogen
COLORE/COLOR		
Verniciatura RAL/Coating RAL		RAL9010
TOLLERANZE/TOLLERANCE		
Tubazioni/Piping		+/-1.0 mm
Assemblaggio/Assembly		+/-1.0 mm
Tracciabilità per Gr3-B		SI
Categoria PED/PED Category		II
Viteria/Bolts	ISO 4017-ISO4762 Class. 8.8 - Zincate	
Dadi/Nuts	ISO 4032 - Class. 8.8 - Zincate	
Rondelle/Washers	ISO 7089 - Class. 8.8 - Zincate	
Guarnizioni/Gaskets	Piane/flat gasket sp. 2 mm - ASBESTOFREE	

Posiz.	Q.tà	Codice	Descrizione	DN	PN/ANSI
16	1	02150019	Tappo 1/4"Rp inox - SS Plug 1/4"Rp	1/4"Rp	
15	1	25150000	Rubinetto a sfera 1/4" MF PN100 AISI316 - Stainless steel ball valve 1/4" MF PN100	1/4"Rc	100
14	2	02040002	Flangia Cieca DN25 PN16/40 - Blind Flange PN16/40	25	
13	2	02150000	Tappo con catenella 1/2" Rp - Plug 1/2" Rp	1/2"	
12	2	25100001	Valvola a sfera ottone FB 1-2" MF MOP5 - Ball valve Brass FB 1-2" MF MOP5	1/2"	5
11	1	16040001	Valvola sicurezza F27 3barg 1/2"M RC - Safety valve F27 3 barg 1/2" M RC	1/2"	
10	1	09010008	Manometro Ø60 0-25bar G1/4"RP - Pressure gauge Ø60 0-25bar G1/4"RP	1/4"	
9	1	09010005	Manometro Ø60 0-2,5bar G1/4"RP - Pressure gauge Ø60 0-2,5bar G1/4"RP	1/4"RP	
8	2	10020002	Valvola a spillo 1/4"RC M/F PN50 - Needle Valve M/F 1/4"RC PN50	1/4"	PN 50
7	2	24030010	Valvola a farfalla G40 DN40 PN16 - Butterfly Valve G40 DN40 PN16	40	16
6	2	02060003	Flangia scorrevole DN40 PN16/40 - Sliding flange DN40 PN16/40	40	16/40
5	2	02080005	Raccordo fl. scorr. 1"xFl.DN40 - Joint Slid. Fl. 1"xFl.DN40	1"	
4	2	44010064	Riduttore PGT APS2 OPSO DN 1x1 BSPP FF - Regulator PGT - APS2 OPSO DN 1x1 BSPP FF	1"x1"	
3	2	02080001	Raccordo fl. scorr. 1"M RP - Sliding flange coupling 1"M RP	1"	
2	2	02060001	Flangia scorrevole LF2 DN25 PN40 - Sliding flange LF2 DN25 PN40	25	40
1	2	25040002	Valvola a sfera DN25 PN16 - Ball valve wafer DN 25 PN16-40	25	16/40

IND.	MODIFICA / MODIFICATION	DATA / DATE	SIGLA / NAME
C			
B			
A			

TOLLERANZE / TOLERANCES
LUNGH. ANGOLI SMUSSI RAGGI
LENGTH ANGLES BEVELS RADIUS
UNI-ISO 2768 m
FORI HOLES H13 ALBERI SHAFTS h13

SCALA / SCALE 1:10
MATERIALE / MATERIAL
TRATTAMENTO / TREATMENT
RESISTENZA STRENGTH Kg/mm²
DUREZZA HARDNESS HRC
PROFONDITA' DEPTH mm
PESO / WEIGHT 60 Kg

DISEGNATO / DRAWN M.C. DATA / DATE 14/09/2022
CONTROLLATO / CONTROLLED S.C. DATA / DATE 14/09/2022

PEGORARO
36100 VICENZA (VI) ITALY
Tel. +39 0444289382
www.pegorarogas.com

DENOMINAZIONE / DENOMINATION: Stazione di riduzione GPL 2L Q=200 Kg/h - LPG Reducing station 2L Q=200 Kg/h

UNI A2 | FOGLIO / SHEET 1 / 1 | SOSTITUISCE IL / REPLACE THE | SOSTITUITO DAL / REPLACED FROM

CODICE / CODE 46024748 00

PRESSURE REDUCTION STATION PLANT

CONTENTS

1 GENERAL INFORMATION
2 TRANSPORT, INSTALLATION AND ASSEMBLY
3 COMMISSIONING AND MAINTENANCE
4 CONFORMITY
5 SCRAPPING
6 ENCLOSED DOCUMENTATION

1.GENERAL INFORMATION

1.1 INTRODUCTION

1.1.1 IMPORTANT WARNINGS

To guarantee the safety of the operator, to avoid potential damage to the product before carrying out whatsoever operation on the plant it is fundamental to have carefully read the complete instructions manual.

This manual must be complete and readable in all its parts, all operators who use the plant, or the person responsible for maintenance or regulation operations, must know where it is kept and must be able to consult it at any moment.

Pegoraro Gas Technologies S.r.l. declines whatsoever responsibility for any damage to things or persons caused by installation or maintenance of the equipment by non-qualified personnel.

The descriptions and the illustrations provided in the present manual are not binding.
PEGORARO GAS TECHNOLOGIES S.r.l. reserves the right to make any amendments it shall consider necessary.

This manual has been drafted according to the requirements of Directive 2014/68/UE PED

1.2 HOW TO CONSULT THE MANUAL

1.2.2 STRUCTURE OF THE MANUAL

The manual is divided in chapters, that include all necessary information to use the product without any risk. Each chapter is subdivided so as to focalise the essential points in individual paragraphs, each paragraph incudes subtitles and a description.

The beginning of the chapter is distinguished by a number referring to the chapter number and title.

Inside the chapter, for example N°1 we will find:

1	Chapter head-line
1.1	Paragraph title
1.1.1	Subtitle head-line
1.1.1.1	Probable further subtitle

Pages, pictures and table numbering is reset in each chapter, so we will find a prefix indicating the chapter and then the progressive number of the page, figure or table, that will start again from 1 at the beginning of each chapter.

1.2.2 DESCRIPTION OF PICTOGRAMS

In the manual the following symbols are employed to highlight particularly important instructions and warnings:

ATTENTION

This symbol indicates accident-prevention rules for the operator and/or for any exposed persons.

WARNINGS:

This symbol indicates that there is the possibility of causing damage to the product and/or to its components..

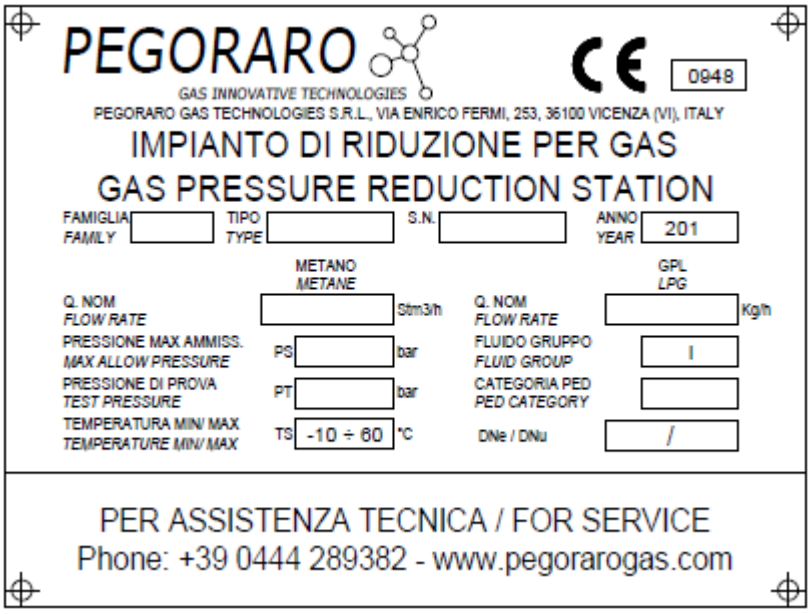
NOTE :
This symbol marks useful information.

1.2.3 PLANT INTENDED PURPOSE

The plant model has been conceived for filtering, reducing and measuring the pressure of Natural Gas or LPG supplying residential or industrial users.

1.3 PLANT MARKING

The plate (ref. A) marked with the PLANT data is applied and fixed in the specific area close to the inlet piping or supports.



Ref. A.

1.4 TECHNICAL DATA AND CHARACTERISTICS

The data are given on the plate.

2 TRANSPORT, INSTALLATION AND ASSEMBLY

2.1 TRANSPORT AND HANDLING

The plant can be transported and handled in two ways:

- If the plant has been supplied complete with its support base (1), it must be slung by means of cables or ropes with a lifting capacity suitable for the weight to be lifted, using the slots (2) provided on the support base itself or using the skids (4) of the base.
- If the plant is not fitted with the above-mentioned support base, it must be slung by means of cables or ropes with a lifting capacity suitable for the weight to be lifted, that will have to be fitted in the provided points, according to the structural shape of the plant that is being installed. The lifting points are indicated by warning plates (3).

ATTENTION
It is good practice to use lifting equipment with sufficient lifting capacity to hold the weight of the plant increased by about 20%.

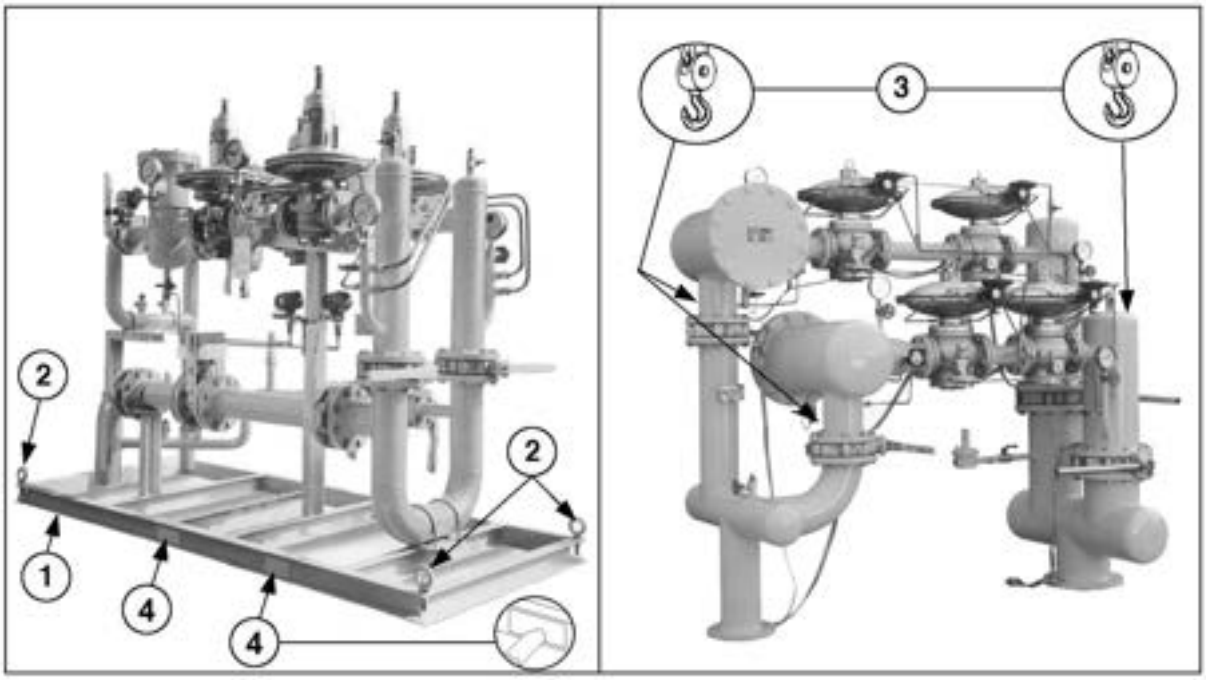


Fig. 2-1

2.2 STORAGE

Before using the plant, or if it is not used for long periods, it must be kept in a closed environment protected from rain, humidity and dust, in order to guarantee its integrity and perfect operation.

WARNING
The plant is supplied painted. However, accidental knocks during installation could cause loss of efficiency of the paint, triggering a slow process of oxidation (rust), so it is recommended to protect it against inclement weather with a canopy or to enclose it in a special cabinet.

2.3 ASSEMBLY AND CONNECTION OPERATIONS

- The plant must be installed in outdoors, or in an ventilated cabinet in a protected area.
- All applicable directives ad safety regulations must be respected
- **Earth connection: the plant must have a suitable earth connection.**
- The installation, assembly and commissioning of the plant must be carried out exclusively by qualified personnel who must issue the of correct installation certification in accordance with the applicable directives (refer to Law 46/90).

ATTENTION
Pegoraro Gas Technologies S.r.l. declines whatsoever responsibility for any damage to things or persons caused by installation or maintenance of the equipment by non-qualified personnel.

For details concerning the main components, refer to the respective instructions, use and maintenance manuals of the individual appliances that form the plant.

3. COMMISSIONING AND MAINTENANCE

3.1 COMMISSIONING

3.1.1 GENERAL WARNINGS FOR CORRECT OPERATION OF THE PLANT

ATTENTION
During the commissioning phase, absolutely avoid smoking and using naked flames, explosion hazard.
Before starting up the plant, ensure that the inlet supply valve and the outlet valve on the reduction unit are perfectly closed. Failure to observe this condition can cause severe damage to the reduction unit.
Pegoraro Gas Technologies S.r.l. declines all responsibility for any damage to property or persons caused by failure to observe these instructions.

The plant is generally operated all year round, it is "out of service" only during scheduled maintenance.

3.1.2 PLANT START-UP

Proceed as follows.
- Before feeding the reduction unit with GAS, ensure that the inlet and outlet valves, when present, are perfectly closed;
- If the filters are fitted with bleed screws, open them to allow the cleaning of the cartridge.
- Open the plant inlet supply valve **slowly**;

ATTENTION
Should one or more reduction valves lock, you must act on the reset valve of the blocked reduction valves, so as to eliminate the cause of the lockage. For the details of this operation refer to the specific instruction manuals supplied enclosed in these documents.

- If the filters are fitted with bleed screws, close them a few seconds after the gas has been fed into the filter;
- Check if there is any leakage from joints and junctions (wet the connections with soapy water; bubbles on the connections shows eventual gas leakage): bubbles forming on the connections will show gas leakage);
- Open the plant outlet valve (if present) slowly to allow the use of gas by the users.

5.1.1 CHECKS AND CONTROLS

Check all plant connection points by means of suitable equipment for leaks.
In the event of leakage:
- Close the plant inlet stop valve and, if present, also the outlet valve,
- If the filter is fitted with a bleed screw, release the pressure present in the filter,
- eliminate the leaks,
- repeat the commissioning operations as indicated by point 3.1.2

3.2 REGULATION AND MAINTENANCE

ATTENTION

During maintenance, absolutely avoid smoking or using naked flames: risk of explosion.

Have the appliance and connections checked by expert, qualified personnel.

NEVER try to repair or restart the appliance on your own.

Pegoraro Gas Technologies S.r.l. declines all responsibility for any damage to things or persons caused by inadequate repair of the equipment by non-qualified personnel.

For details concerning the operating and maintenance operations, refer to the local regulations in force and to what is indicated by the manuals of the individual appliances that form the plant, which are supplied attached to this document.

4. CONFORMITY:

This filtering, pressure reduction and measurement for natural gas and/or LPG has been made by the manufacturer in conformity with Directive 2014/68/UE PED and is certified and bears the CE mark (notified body no. 0948) if marking is envisaged.
In the appendix of this manual the manufacturer has included a facsimile of a the declaration of conformity that is issued with this product.

5. SCRAPPING

At the end of its working life, refer to the applicable regulations of the country where the plant is installed.

6. ENCLOSED DOCUMENTATION

5. 1 LIST OF ENCLOSED DOCUMENTS

List of enclosures

- Valves / pressure regulator valves (where fitted);
- Filter instruction manual (where fitted);
- Safety valve and touch valve instruction manual (where fitted)
- Pressure and flowrate measurement devices instruction manuals (where fitted);

PEGORARO GAS INNOVATIVE TECHNOLOGIES

PEGORARO GAS TECHNOLOGIES S.R.L.
sede legale: Via E. Fermi, 253, 36100 Vicenza (VI), Italia
sede operativa: Viale Della Tecnica, 26, 36100 Vicenza (VI), Italia

TÜV SÜD ISO 9001

BOZZA DICHIARAZIONE DI CONFORMITA' UE
in accordo all'allegato IV della direttiva 2014/68/UE
DRAFT EU DECLARATION OF CONFORMITY
in accordance to annex IV of directive 2014/68/EU

N. xxx/18

Io sottoscritto, nella figura di rappresentante autorizzato, dichiaro sotto la mia esclusiva responsabilità che la progettazione, la fabbricazione, i controlli e le prove delle attrezzature a pressione sotto specificate sono conformi alle disposizioni applicabili della direttiva 2014/68/UE
I undersigned, in the figure of authorized representative, declare under my responsibility that the design, manufacture, inspections and testing of pressure equipment specified below comply with the applicable provisions of Directive 2014/68 / EU

Descrizione insieme *Assembly description*	**INSIEME DI RIDUZIONE PER GAS** ***GAS PRESSURE ASSEMBLIG***		
Famiglia/ tipo *Family/ type*	GR3A/B/C	N. fabbrica *Serial no.*	Gxxxx
Pressione max ammissibile PS *Max allowable pressure PS*	5/12/24 bar	Temperatura min/ max TS *min/ max temperature TS*	-40/ +120 °C
Capacità fluido (GPL) *Fluid volume (GPL)*	xx l		
Fluido gruppo *Fluid group*	1	Categoria PED *PED category*	Prima/Seconda/Terza First/Second/Third

DRAFT

Procedure di valutazione della conformità utilizzate *Conformity assessment procedures used*	Modulo H
Ente notificato *Notified body*	TUV Italia S.r.l. - n. 0948 Via Carducci, 125 - ed. 23, 20099 Sesto San Giovanni (MI)
Modulo *Module*	H — Certificato n. / *Certificate n.*: PED-0948-QSH-522-18
Norme tecniche utilizzate *Technical standards used*	VSR-M-5 ISPESL Ed.99 integrate da EN 13445-5 ASME VIII div.1
Altre direttive applicate *Other directives applied*	

Attrezzature componenti l'insieme machiato CE *Other devices data with CE mark*	Costruttore *Producer*	Ente di notifica *Notified body*	Numero di serie *Serial number*	Modulo *Module*
Tubazioni/Piping	Pegoraro G.T.	CE 0948	xxxxx	H
xxxxxxxxx	xxxxx	CE xxxx	xxxxx	xx

*** I certificati originali dei singoli componenti sono disponibili a richiesta
On request, original components's certificates

Luogo e data *Location and date*	Vicenza, xx/xx/2018	Pegoraro Gas Technologies Srl Marco Corato (Presidente / Owner) (Quality Manager)

Declaration of Conformity draft pursuant to Dir. 2014/68/UE PED

Bourdon tube pressure gauge
Model 213.53, liquid filling, stainless steel case

for further approvals
see page 2

Applications

- For measuring points with high dynamic pressure loads or vibrations
- For gaseous and liquid media that are not highly viscous or crystallising and will not attack copper alloy parts
- Hydraulics
- Compressors, shipbuilding

Special features

- Vibration and shock resistant
- Especially sturdy design
- NS 63 and 100 with German Lloyd and Gosstandart approval
- Scale ranges up to 0 ... 1,000 bar

Bourdon tube pressure gauge, model 213.53.100, lower mount

Description

Design
EN 837-1

Nominal size in mm
50, 63, 100

Accuracy class
NS 50, 63: 1.6
NS 100: 1.0

Scale ranges
NS 50: 0 ... 1 to 0 ... 400 bar
NS 63, 100: 0 ... 0.6 to 0 ... 1,000 bar
or all other equivalent vacuum or combined pressure and vacuum ranges

Pressure limitation

NS 50, 63:	Steady:	3/4 x full scale value
	Fluctuating:	2/3 x full scale value
	Short time:	Full scale value
NS 100:	Steady:	Full scale value
	Fluctuating:	0.9 x full scale value
	Short time:	1.3 x full scale value

Permissible temperature
Ambient: -20 ... +60 °C
Medium: +60 °C maximum

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C):
Max. ±0.4 %/10 K of the span

Ingress protection
IP 65 per EN 60529 / IEC 60529

Data sheets showing similar products:
Standard version with liquid filling; model 113.53; see data sheet PM 01.08

Standard version

Process connection
Copper alloy,
lower mount (LM) or back mount (BM),
NS 50, 63: G ¼ B (male), 14 mm flats
NS 100: G ½ B (male), 22 mm flats

Pressure element
NS 50:
Copper alloy, C-type or helical type

NS 63:
≤ 400 bar: Copper alloy, C-type or helical type
> 400 bar: Stainless steel 316L, helical type

NS 100:
< 100 bar: Copper alloy, C-type
≥ 100 bar: Stainless steel 316L, helical type

Movement
Copper alloy

Dial
NS 50, 63: Plastic ABS, white, with pointer stop pin
NS 100: Aluminium, white, black lettering

Pointer
NS 50, 63: Plastic, black
NS 100: Aluminium, black

Window
Plastic, crystal-clear

Case
Natural finish stainless steel, with blow-out device with
NS 50: in case back, 12 o'clock
NS 63, 100: at case circumference, 12 o'clock
O-ring seal between case and connection.
Scale ranges ≤ 0 ... 16 bar with compensating valve to vent case.

Bezel ring
Crimp ring, glossy finish stainless steel, triangular bezel

Filling liquid
Glycerine

Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Measuring system and movement from stainless steel (model 233.53)
- NS 100: Zero adjustment (in front)
- Increased medium temperature with special soft solder
  - NS 50, 63: 100 °C
  - NS 100: 150 °C
- Ambient temperature resistant -40 ... +60 °C with silicone oil filling
- NS 50: Higher scale ranges up to 0 ... 1,000 bar
- Panel mounting flange, stainless steel, for back connection
- Surface mounting flange, stainless steel (not NS 50)
- Mounting clamp (for back connection)

CE conformity

Pressure equipment directive
97/23/EC, PS > 200 bar, module A, pressure accessory

Approvals

- **GL**, ships, shipbuilding (e.g. offshore), Germany
- **EAC**, import certificate, customs union Russia/Belarus/Kazakhstan
- **GOST**, metrology/measurement technology, Russia
- **KBA,** automotive, European Community
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada

Certificates [1)]

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)

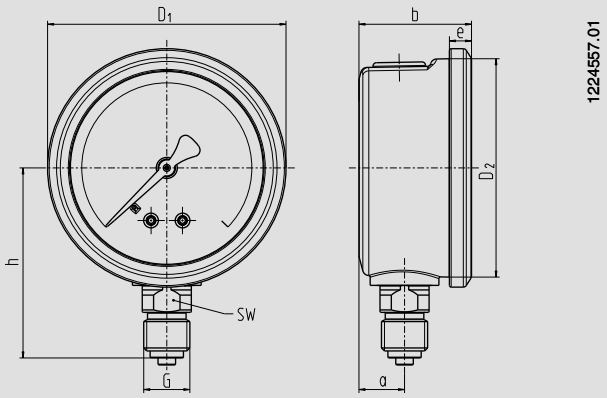
1) Option

Approvals and certificates, see website

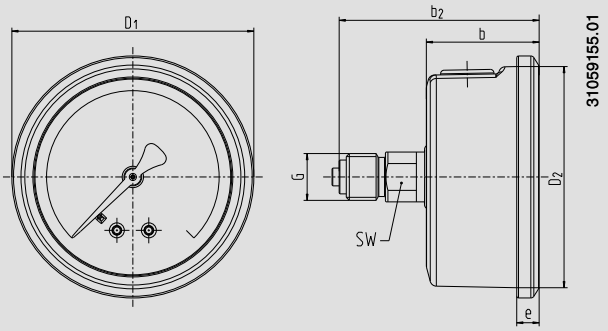
Dimensions in mm

Standard version

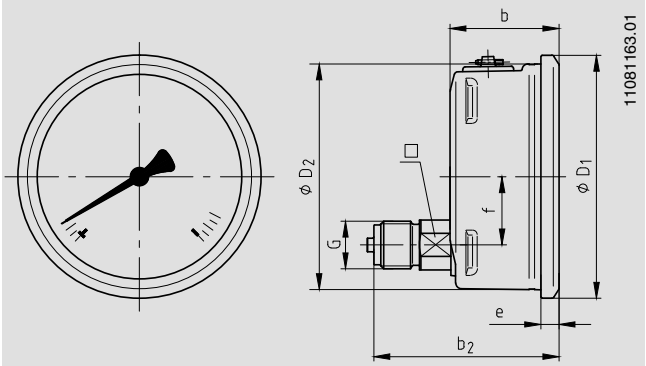
Lower mount (LM)



NS 50, 63, centre back mount (CBM)



NS 100, lower back mount (LBM)



NS	Dimensions in mm										Weight in kg
	a	b ±0.5	b_2 ±0.5	D_1	D_2	e	f	G	h ±1	SW	
50	12	30	55	55	50	5.5	-	G ¼ B	48	14	0.15
63	13	32	56	68	62	6.5	-	G ¼ B	54	14	0.21
100	15.5	48	81.5	107	100	8	30	G ½ B	87	22	0.80

Process connection per EN 837-1 / 7.3

Ordering information

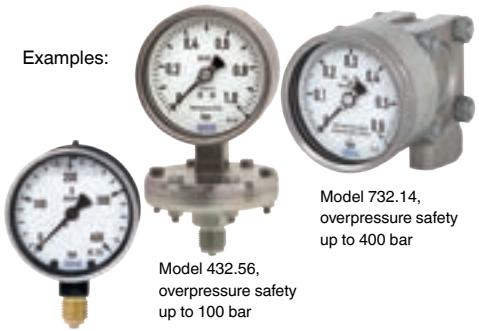
Model / Nominal size / Scale range / Connection size / Connection location / Options

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de

Operating instructions EN

Pressure gauges

Examples:



Model 213.40

Model 432.56, overpressure safety up to 100 bar

Model 732.14, overpressure safety up to 400 bar

WIKA

Part of your business

Notes per current pressure equipment directive

- The pressure gauges are defined as “pressure accessories”
- The volume of the “pressure-bearing housings” of WIKA pressure gauges is < 0.1 L
- The pressure gauges carry CE marking for fluid group 1 per annex II, diagram 1 when their permissible working pressure is > 200 bar

Instruments that do not carry the mark are manufactured per article 4, paragraph 3 “sound engineering practice”.

Applicable standards (depending on model)

EN 837-1	Bourdon tube pressure gauges, dimensions, metrology, requirements and testing
EN 837-2	Selection and installation recommendations for pressure gauges
EN 837-3	Diaphragm and capsule pressure gauges, dimensions, metrology, requirements and testing

Specifications: See data sheet at www.wika.de

Subject to technical modifications.

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de

2408976.06 12/2016

1. Safety

WARNING!
Before installation, commissioning and operation, ensure that the appropriate pressure gauge has been selected in terms of measuring range, design and suitable wetted material (corrosion) for the specific measuring conditions. In order to guarantee the measurement accuracy and long-term stability specified, the corresponding load limits must be observed.

Only qualified persons authorised by the plant manager are permitted to install, maintain and service the pressure gauges.

For hazardous media such as oxygen, acetylene, flammable or toxic gases or liquids, and refrigeration plants, compressors, etc., in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.

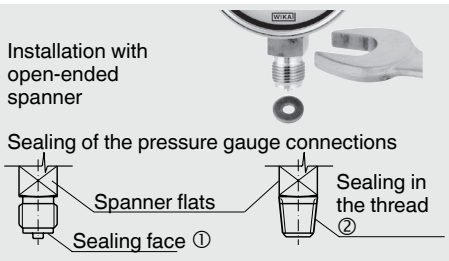
From pressure gauges which do not correspond to a safety version per EN 837 highly pressurised media might leak out through the possibly bursting window in case of a component failure. For gaseous media and working pressures > 25 bar a pressure gauge with safety version S3 is recommended per EN 837-2.

After an external fire, pressure media can leak out, particularly at soft solder joints. All instruments must be checked and, if necessary, replaced before recommissioning the plant.

Non-observance of the respective regulations can cause serious injuries and/or damage to the equipment.

2. Mechanical connection

In accordance with the general technical regulations for pressure gauges (e.g. EN 837-2). When screwing the instruments in, the force required to do this must not be applied through the case, but only through the spanner flats provided for this purpose, and using a suitable tool.
For parallel threads, use flat gaskets, lens-type sealing rings or WIKA profile sealings at the



sealing face ①. With tapered threads (e.g. NPT threads), sealing is made in the threads ② using additional sealing materials, e.g. PTFE tape (EN 837-2).
The torque depends on the sealing used. In order to orientate the measuring instrument so that it can be read as well as possible, a connection with clamp socket or union nut should be used.
When a blow-out device is fitted to a pressure gauge, it must be protected against being blocked by debris and dirt. With safety pressure gauges (see Ⓢ) there must be a free space of > 15 mm behind the blow-out back.
After installation, open the vent valve (if available)

or set from CLOSE to OPEN. With models 4 and 7, do not open the flange mounting screws. The version of the vent valve depends on the model and can deviate from the above illustration!

Requirements for the installation point

If the line to the measuring instrument is not adequately stable, a measuring instrument holder should be used for fastening (and possibly via a flexible capillary). If vibrations cannot be avoided by means of suitable installation, instruments with liquid filling should be used. The instruments should be protected against coarse dirt and wide fluctuations in ambient temperature.
Note for model 732.14, for front bezel mounting: The front bezel serves as centring and as the aperture in the mounting panel. Securing and thus the weight-bearing must be made via the pressure connection piping.

3. Permissible ambient and operating temperatures

When mounting the pressure gauge it must be ensured that, taking into consideration the influence of convection and heat radiation, no deviation above or below the permissible temperature limits can occur. Observe the influence of temperature on the indication accuracy!

4. Storage

To protect the pressure gauges from mechanical damage keep them in the original packaging until installation.
Protect the measuring instruments from humidity and dust.
Storage temperature range: -40 ... +70 °C
Storage temperature range model PG23LT: -70 ... +70 °C

5. Maintenance and repairs

The pressure gauges are maintenance-free. Regular checks should be carried out to ensure the measurement accuracy. Checks or recalibrations must only be carried out by qualified skilled personnel with the appropriate equipment. When dismounting, close the vent valve (if available).

WARNING! Residual media in dismounted pressure gauges can result in a risk to persons, the environment and equipment. Take sufficient precautionary measures.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

CERTIFICATE

The Certification Body of
TÜV SÜD Industrie Service GmbH,
a Notified Body of the Pressure Equipment Directive (PED),

certifies that

Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße
63911 Klingenberg, Germany

implemented, operates and maintains a quality assurance system as described in the Pressure Equipment Directive 2014/68/EU Annex III, Module H

for the scope of

design, manufacture and sales of

- **Equipment**
- **Pressure-containing thermowells with or without thermometer DN > 25**
- **Diaphragm seals**
- **Flange mounting components for temperature measuring points DN > 25**

The audit with the report number Q-IS-TAF-MUC-PED-461882-001-19 proves that the quality assurance system fulfils the PED requirements.

The manufacturer is authorized to provide the pressure equipment produced within the scope of the assessed quality assurance system with the following Notified Body number:

CE 0036

Certificate No.: DGR-0036-QS-1036-20

valid until October 29th, 2023

provided that annual surveillance audits have been performed successfully

Filderstadt, November 04th, 2020

Martina John
Notified Body No.: 0036

TÜV SÜD Industrie Service GmbH
Westendstraße 199
80686 München
Germany

Tel.: +49 711 70 05 289
Fax: +49 711 70 05 582
e-mail: martina.john@tuvsud.com

TÜV®

GUGLIELMI DANILO

ISO 9001 : 2008
Certificato n° 30700388 QM/08

Guglielmi Danilo S.r.l.
Via dell'Artigianato, 31 - 36050 Bolzano Vicentino (VI) - Italia
Tel. 0444/350025 - Fax 0444/351250
E-mail: guglielmi.danilo@artigiani.vi.it - Web Site: www.guglielmidanilo.it
Reg.Imp.Vicenza, Cod.Fisc.e Part. IVA:02951940242
Cap.Soc.Euro 60,000,00 i.v.

-COSTRUZIONI APPAR. E ACCESSORI PER IL GAS
-MANUFACTURING OF EQUIPMENT AND DEVICES FOR GAS
-VALVOLE E FILTRI
-VALVES AND FILTERS
-LAVORAZIONI MECCANICHE
-MACHINING

CERTIFICATO DI COLLAUDO CONFORME A: UNI EN 10204 - 3.1
TESTING CERTIFICATE ACCORDING TO: UNI EN 10204 - 3.1

VALVOLA PORTA MANOMETRO A SPILLO
NEEDLE COCK VALVE

ART./*ITEM CODE:* **14030 - 14032**

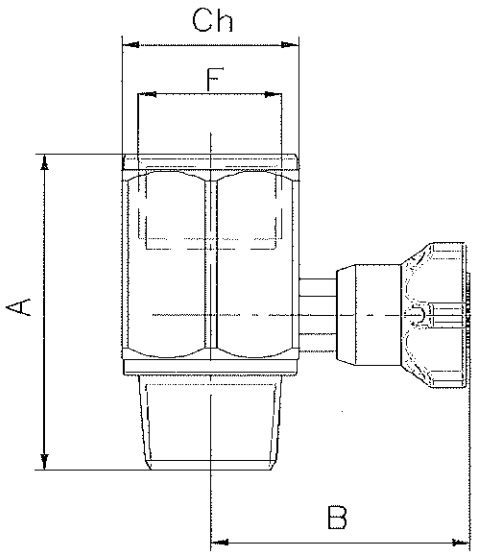
Cliente/*Customer*: **PEGORARO GAS TECHNOLOGIES SRL**
Ordine/*Order*: **209**

Data/*Date*: **02/03/2022**

CARATTERISTICHE GENERALI/
MAIN SPECIFICATIONS

Connessioni/*Connections:* **R, Rp 1/4" - 1/2" UNI-ISO 7/1**
Press.Max.di eserc./*Max working Pres.*: **50 bar**

CORPO/*BODY:* **11SMnPb37 UNI EN 10277**
PERNO/*PIN:* **CW614N UNI EN 12164:98**
ANELLI OR/*RING OR:* **NBR**



Prova pneumatica/*Pneumatic test:* **55 bar**

CODE	A	B	F	Ch
14030	47	37	G 1/4"	20
14032	50	40	G 1/2"	26

NOTE/*NOTES:*

Firma del cliente/*Customer signature*

Firma del costruttore/*Manufacturer signature*

GUGLIELMIDANILO S.R.L.
Via dell'Artigianato, 31
Tel/Fax 0444/350025 - 36050 CRETAZZO VIC.NO
Codice Fisc. e Partita IVA 02951940242

NOVACOMET

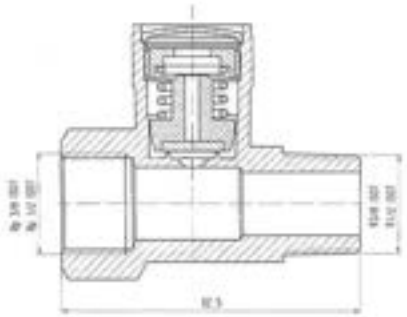
Via Castel Mella, 55/57 - 25030 TORBOLE CASAGLIA (BS) - Italy
Tel.: +39 030 2159111 - Fax: +39 030 2650717 - email: info@novacomet.it

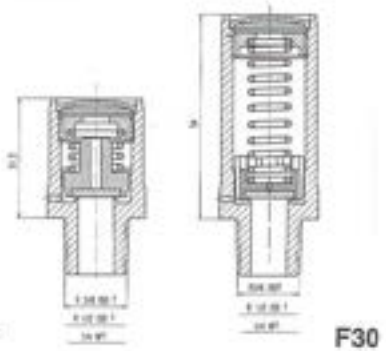
Serie 4250 - 4300

VALVOLE DI SICUREZZA MOD. V3-F27-F30
SAFETY VALVES mod. V3-F27-F30

CE 0497

V3





F27 F30

DATI DI PROGETTO

- PRESSIONE NOMINALE ENTRATA - USCITA: PN 25
- DIAMETRO NOMINALE DI SFIATO: DN 20
- PRESSIONE NOMINALE SFIATO: PN 10/20
- DIAMETRO ORIFIZIO: 9,5 mm
- AREA SEZIONE NETTA: 0,70 cm²
- ALZATA: 2,5 mm
- CONNESSIONI: Filettature 1/4 - 3/8 - 1/2 tipo ISO 7 o NPT
- PRESSIONE NOMINALE DI TARATURA: (vedi etichetta sul prodotto)
- SOVRAPRESSIONE MAX: +14%
- SCARTO DI CHIUSURA: -15%
- CAMPO DI TEMPERATURA: -30 +60°C
- STATO FISICO DEL FLUIDO: Gassoso (Butano, Propano)

PROJECT DATA

- NOMINAL PRESSURE INLET - OUTLET: PN 25
- NOMINAL DISCHARGE DIAMETER: DN 20
- NOMINAL DISCHARGE PRESSURE: PN 10/20
- ORIFICE DIAMETER: 9.5 mm
- ORIFICE NET AREA: 0.70 cm²
- VALVE LIFT: 2.5 mm
- FITTINGS: Threads 1/4 - 3/8 - 1/2 type ISO 7 or NPT
- NOMINAL PRESSURE SETTING: (See label on product)
- OVERPRESSURE MAX: +14%
- CLOSING PRESSURE: -15%
- TEMPERATURE RANGE: -30 +60°C
- PHYSICAL STATE OF FLUID: Gaseous (Butane, Propane)

NOVACOMET

DICHIARAZIONE DI CONFORMITA' UE
EU DECLARATION OF CONFORMITY

CE 0497

Tipo : **4250-4300 Nova Comet**
Type : 4250-4300 Nova Comet

Descrizione : **Valvola di Sicurezza V3-F27-F30**
Description : Safety valve V3-F27-F30

Categoria : IV
Category : IV

Procedura di valutazione utilizzata : modulo H1+H1 prog.
Applied conformity evaluation procedure :module H1+H1 des.

Nome e numero dell'Organismo Notificato: **CSI S.p.A. - 0497**
Name and number of the notified body : CSI S.p.A - 0497

Certificati di conformità e progetto n°: PED/0497/048/02 (conformità) e PED/0497/048-1/02
Certificates of conformity and design nr: PED/0497/048/02 and PED/0497/048-1/02

Pressione massima: 25 bar
Over pressure : 25 bar

Temperatura di utilizzo : Min – 30°C / Max + 60°C
Operating temperature : - 30 °C up to + 60°C

Lotto di fabbricazione : 0043022720
Manufacturing N° :

Anno di Fabbricazione : 2020
Year of construction :

Quantità : 100
Quantity :

Noi dichiariamo, sotto nostra responsabilità, che il prodotto sopra indicato è conforme alle disposizioni della Direttiva europea **2014/68/UE** relativa agli Apparecchi a pressione.
Le prove eseguite sul prodotto hanno avuto esito positivo in accordo alle specifiche tecniche in vigore.

*We hereby declare under our own responsibility, that the product detailed here were manufactured in accordance with the technical specifications of the contract complies with directive **2014/68/EU** concerning pressure vessels.*
All inspection operations and tests having been completed this product comply with the relevant particular specifications, drawings, and relevant standards and regulations in force.

Cazzago San Martino (BS), 30/06/20

NOVA COMET è certificata ISO9001 dal **bsi**.
*NOVA COMET is certified ISO9001 by **bsi**.*

NOVA COMET Technical Dpt.
Marco Pasini

NOVA COMET S.r.l.
Via E. Mattei, 28 – 25046 Cazzago San Martino (Brescia) Italia
Tel: + 39 030 2159111 – Fax: +39 030 2650717
info@novacomet.it – www.novacomet.it
Cap. Soc. 10.000€ i.v. (Unico socio)
Reg. Imprese BS CF 01446400358 – N. REA BS 340855 – P. IVA 03189630175
Società soggetta a direzione e coordinamento da parte di CLESSE INDUSTRIES SAS con sede a Cournon d'Auvergne (FR) CF 93113460178, ex art. 2497 e SS. del C.C. di Brescia

THESIS®

ALU LEVER
ALU HANDHEBEL

Atex CE Ex II 2 G D*

* *on request* * *auf Anfrage*

art. A201	from DN 40 to DN 200 - GG25 / 304 / EPDM

art. A201	from DN 40 to DN 200 **GG25** / 304 / EPDM
art. A406	from DN 40 to DN 200 **GGG40** / 316 / EPDM
art. A407	from DN 40 to DN 200 **GGG40** / 316 / NBR
art. A506	from DN 40 to DN 200 **GGG40** / 316 / EPDM (PN16)

art. A221	from DN 250 to DN 300 **GG25** / 304 / EPDM
art. A426	from DN 250 to DN 300 **GGG40** / 316 / EPDM
art. A427	from DN 250 to DN 300 **GGG40** / 316 / NBR
art. A526	from DN 250 to DN 300 **GGG40** / 316 / EPDM (PN16)

art. A402	from DN 40 to DN 200 **GGG40** / 304 / NBR
art. A422	from DN 40 to DN 200 **GGG40** / 304 / NBR

art. A40F	from DN 40 to DN 200 **GGG40** / 304 / EPDM - HT
art. A42F	from DN 250 to DN 300 **GGG40** / 304 / EPDM - HT

THESIS®

MAIN STANDARD FEATURES:

CONSTRUCTION:

- **GENERAL SPECIFICATIONS:** BS EN 593 - (BS 5155) - MSS SP67 - API 609. According to UNI TR 11 354
- **CONNECTION WITH FLANGES UNI EN 1092:**
  PN10 - PN16 DN40 - DN150
  PN10 DN200 - DN600.
- **MAXIMUM WORKING PRESSURE:**
  PN16 DN40 - DN150
  PN10 DN200 - DN600.
- **TEMPERATURE LIMITS WITH SEALING SEATS IN:**
  EPDM -20°C / +110°C for fluids
  EPDM-HT -20°C / +130°C for fluids
  NBR -20°C / +90°C for fluids
  NBR -20°C / +60°C for gas
- **FACE TO FACE DIMENSIONS IN CONFORMITY WITH:**
  BS EN 558 - ISO5752 - MSS SP67 - API609 - DIN3202/3-K1.
- **TOP FLANGE:** drilling ISO5211.
- **OPERATION DEVICE:** lever DN40 - DN200, gear DN250 - DN600.
- Tested for vacuum at 900mbar
- Shiny epoxy.

- **NB:** for material compatibility please check the table with corrosion resistance at the end of the catalogue.

SPECIAL OPTIONS:

- Reduction gear with manual operation also for small DN.

ON REQUEST:

- Kit to convert from a manual valve to an actuated valve.
- For further special requests please consult our technical/ commercial service.

ALLGEMEINE DATEN DER STANDARDAUSFÜHRUNG:

BAUFORM:

- **PALLGEMEINE VORSCHRIFTEN:** BS EN 593 - (BS 5155) - MSS SP67 - API 609. Nach UNI TR 11 354
- **AUFFLANSCHBAR UNI EN 1092:**
  PN10 - PN16 DN40 - DN150
  PN10 DN200 - DN600.
- **MAXIMALER BETRIEBSDRUCK:**
  PN16 DN40 - DN150
  PN10 DN200 - DN600.
- **TEMPERATURBEREICH MIT DICHTUNGSSITZEN AUS:**
  EPDM -20°C / +110°C für Flüssigkeiten
  EPDM-HT -20°C / +130°C für Flüssigkeiten
  NBR -20°C / +90°C für Flüssigkeiten
  NBR -20°C / +60°C für Gas
- **BAULÄNGEN IN ÜBEREINSTIMMUNG MIT:**
  BS5155 - ISO5752 - MSS SP67 - API609 - DIN3202/3-K1.
- **OBERER FLANSCH:** mit Anschluss ISO5211.
- **BETÄTIGUNGSELEMENT:** Handhebel von DN40 - DN200, Schneckengetriebe von DN250 - DN600.
- Geeignet für Vakuum bis 900mbar.
- Glänzend epoxy.

- **NB:** Für die Werkstoffkompatibilität wird auf die Tabelle mit den Korrosionsbeständigkeitswerten am Ende des Katalogs verwiesen.

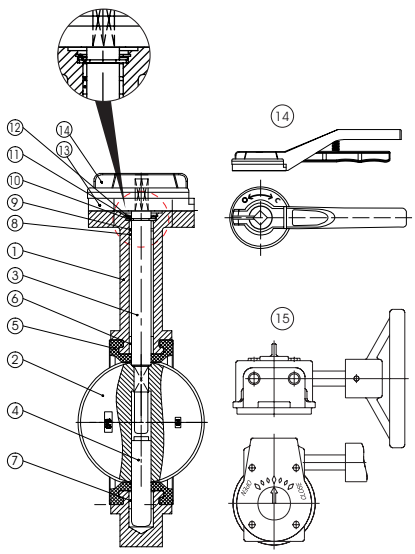
SONDERAUSFÜHRUNGEN:

- Schneckengetriebe mit Handbetätigung auch für kleine DN.

AUF ANFRAGE:

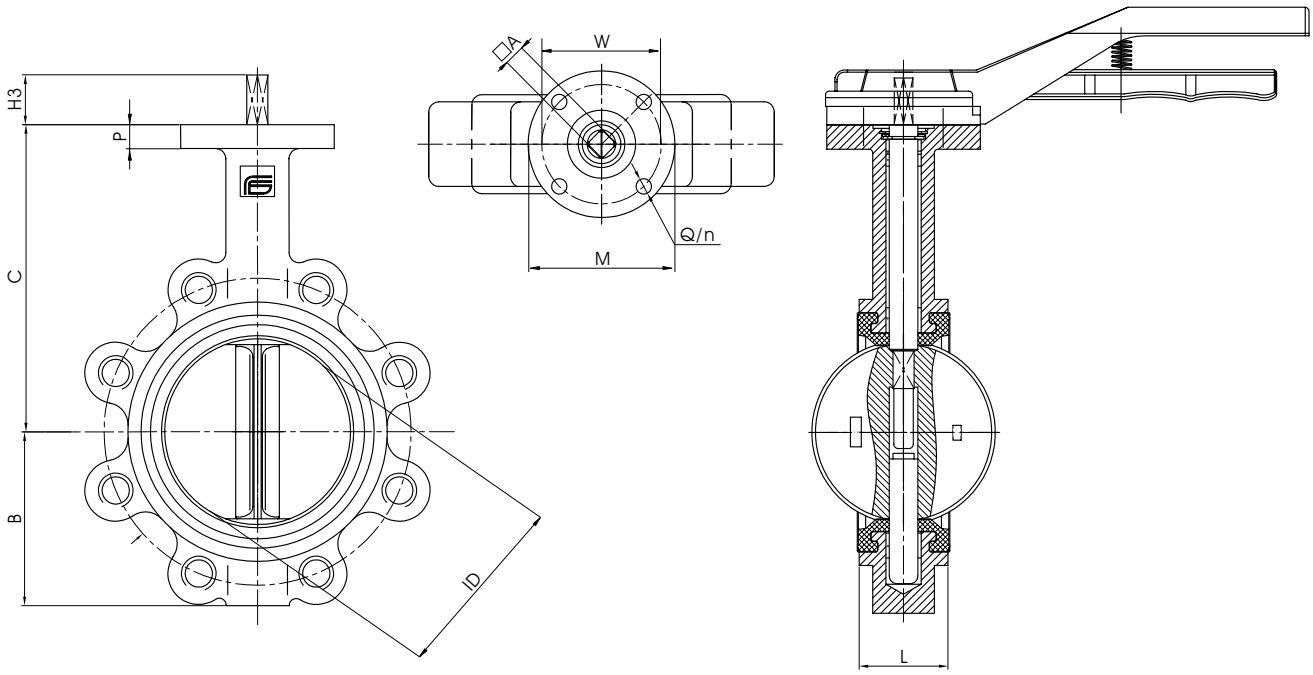
- Umbaukit von Rasthandhebel auf Klappe für Stellantriebe.
- Für weitere Sonderanfragen bitte unsere Vertriebsabteilung kontaktieren.

LIST OF VALVE COMPONENTS AND MATERIALS / TEILE- UND WERKSTOFFLISTE DES VENTILS ARTIKEL



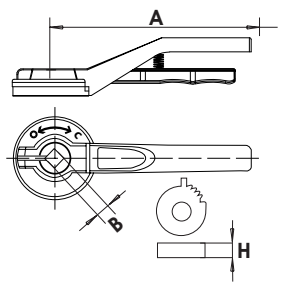
ARTICLES / ARTIKEL			A201 / A221	A406 / A426	A407 / A427	A40F / A42F	A506 / A526	
REF.	PART. / TEIL	Q.TY MENGE	MATERIALS / WERKSTOFFE					
1	BODY / GEHÄUSE	1	GG25	GGG40	GGG40	GGG40	GGG40	
2	DISC / SCHEIBE	1	CF8	CF8M	CF8M	CF8	CF8M	
3	UPPER SHAFT / WELLE	1	SS416	SS316	SS316	SS416	SS316	
4	LOWER SHAFT / UNTERWELLE	1	SS416	SS316	SS316	SS416	SS316	
5	SEAT / SITZRING	1	EPDM	EPDM	NBR	EPDM-HT	EPDM	
6	LONG BUSHING / STOPFBUCHSE	1	PTFE	PTFE	PTFE	PTFE	PTFE	
7	LONG BUSHING / STOPFBUCHSE	1	PTFE	PTFE	PTFE	PTFE	PTFE	
8	SHORT BUSHING / STOPFBUCHSE	2	PTFE	PTFE	PTFE	PTFE	PTFE	
9	O-RING / RING	1	EPDM	EPDM	NBR	EPDM-HT	EPDM	
10	SPLIT WASHER / U-SCHEIBE	1	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	
11	RETAINING RING / RING	1	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	STEEL 65 Mn	
12	GASKET / DICHTUNG	1	Q235 AISI1010	Q235 AISI1010	Q235 AISI1010	Q235 AISI1010	Q235 AISI1010	
13	TOOTH PLATE / PLATTE	1	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	
14	HANDLE / HANDHEBEL	1	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	CAST ALLUMIN.	
15	REDUCTION GEAR / SCHNECKENGETRIEBE MIT HANDRAD	1	GG25	GG25	GG25	GG25	GG25	

SECTION / QUERSCHNITT

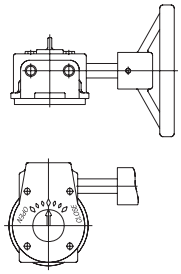


SIZE		BODY / GEHÄUSE					SHAFT / WELLE		ISO5211 CONNECTION / ANSCHLUSS ISO 5211					*
		ID	L	B	C	P	H3	□A	ATT. ISO	M	W	n	Q	KG
1"1/2	40	40	33	70	133	12	25	11	F07	90	70	4	10	3
2"	50	50	43	61	141	12	25	11	F07	90	70	4	10	3,5
2"1/2	65	63	46	72	153	12	25	11	F07	90	70	4	10	4,7
3"	80	77	46	87	161	12	25	11	F07	90	70	4	10	5
4"	100	100	52	106	176	12	25	11	F07	90	70	4	10	5,5
5"	125	125	56	123	193	12	25	14	F07	90	70	4	10	7
6"	150	147	56	137	204	12	25	14	F07	90	70	4	10	9
8"	200	198	60	174	247	12	35	17	F10	125	102	4	12	13,3
10"	250	244	68	209	280	16	65	17	F10	125	102	4	12	21
12"	300	298	78	253	324	16	65	22	F10	125	102	4	12	32

* Weights refer to valve with bare shaft. / * Die Gewichte beziehen sich auf ein Ventil mit freier Achse.

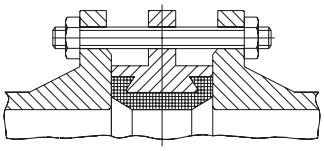


SIZE		A	B	H	KG
1"1/2	40	210	11	10	0,6
2"	50	210	11	10	0,6
2"1/2	65	210	11	10	0,6
3"	80	210	11	10	0,6
4"	100	210	11	10	0,6
5"	125	210	14	10	0,6
6"	150	210	14	10	0,6
8"	200	340	17	12	0,7

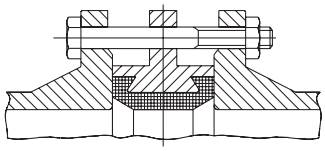


SIZE DN			COD.
40	50	65	RDQ2Y608
80	100		RDQ2Y608
125	150		RDQ2Y613
200			RDQ2Y615
250			RDQ2Y616
300			RDQ2Y617

NUTS AND STUD DIMENSIONS / ABMESSUNGEN BOLZEN UND ZUGSTANGEN



SIZE		PN10		PN16		ANSI150	
		Ø / L	N°	Ø / L	N°	Ø / L	N°
1"1/2	40	M16X110	4	M16X110	4	1/2" X 4"5/16	4
2"	50	M16X130	4	M16X130	4	5/8" X 5"1/8	4
2"1/2	65	M16X130	4	M16X130	4	5/8" X 5"1/8	4
3"	80	M16X140	8	M16X140	8	5/8" X 5"1/2	4
4"	100	M16X150	8	M16X150	8	5/8" X 5"1/2	8
5"	125	M16X150	8	M16X150	8	3/4" X 6"3/8	8
6"	150	M20X160	8	M20X160	8	3/4" X 6"3/8	8
8"	200	M20X170	8	M20X170	12	3/4" X 6"1/4	8
10"	250	M20X180	12	M24X190	12	7/8" X 7"1/2	12
12"	300	M20X190	12	M24X200	12	7/8" X 8"3/8	12
14"	350	M20X190	16	M24X220	16	1" X 8"3/4	12
16"	400	M24X230	16	M27X240	16	1" X 10"	16
20"	500	M24X250	20	M30X280	20	1"1/8 X 12"	20
24"	600	M24X300	20	M33X300	20	1"1/4 X 13"13/16	20



SIZE		PN10		PN16		ANSI150	
		Ø / L	N°	Ø / L	N°	Ø / L	N°
1"1/2	40	M16X90	4	M16X90	4	1/2" X 4"1/8	4
2"	50	M16X100	4	M16X100	4	5/8" X 4"1/4	4
2"1/2	65	M16X100	4	M16X100	4	5/8" X 4"3/4	4
3"	80	M16X100	8	M16X100	8	5/8" X 5"	4
4"	100	M16X110	8	M16X110	8	5/8" X 5"1/4	8
5"	125	M16X120	8	M16X120	8	3/4" X 5"1/2	8
6"	150	M20X120	8	M20X120	8	3/4" X 5"1/2	8
8"	200	M20X130	8	M20X130	12	3/4" X 6"	8
10"	250	M20X140	12	M24X150	12	7/8" X 6"1/2	12
12"	300	M20X160	12	M24X160	12	7/8" X 7"1/4	12
14"	350	M20X160	16	M24X170	16	1" X 8"	12
16"	400	M24X190	16	M27X200	16	1" X 8"3/4	16
20"	500	M24X200	20	M30X230	20	1"1/8 X 10"1/2	20
24"	600	M24X260	20	M33X270	20	1"1/4 X 12"	20

BREAKAWAY TORQUES in Nm / ANLAUFMOMENTE (LOSBRECHMOMENT) in Nm

PN - bar	DN size	40 1"1/2	50 2"	65 2"1/2	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
	0	11	14	18	27	40	59	88	157	248	343
	6	11	20	25	32	41	62	92	173	275	382
	10	12	23	27	34	54	71	106	186	321	551
	16	14	25	29	37	56	86	123	262	392	576

The values in Nm may vary as a function of the seals material, temperature and type of medium. For a firm operation of the various types of actuators, in the different working conditions it is necessary to consider a safety factor of 1,5.

Die Nm-Werte sind abhängig von dem Material der Sitzringe, der Temperatur und Art von Flüssigkeit. Für die Gewährleistung der Funktionssicherheit der verschiedenen Arten von Servosteuerung unter verschiedenen Einsatzbedingungen ist ein Sicherheitsfaktor von = 1,5 zu berücksichtigen.

Kv AND Cv VALUES AS A FUNCTION OF OPENING ANGLE / Kv- UND Cv-WERTE IN ABHÄNGIGKEIT DES ÖFFNUNGSWINKELS

SIZE		20°		30°		40°		50°		60°		70°		80°		90°	
		Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv
1"1/2	40	2,6	3	4,3	5	9,5	11	16	18	22	26	39	45	60	70	69	80
2"	50	6,7	8	7,8	9	16	18	24	28	48	55	62	72	95	110	116	135
2"1/2	65	8,6	10	13	15	23	27	38	44	73	85	95	110	145	168	181	210
3"	80	13	15	20	23	34	39	56	65	112	130	142	165	216	250	267	310
4"	100	23	27	35	41	61	71	99	115	198	230	259	300	401	465	466	540
5"	125	50	58	74	86	129	150	211	245	414	480	526	610	845	980	948	1100
6"	150	83	96	121	140	211	245	345	400	677	785	871	1010	1392	1615	1647	1910
8"	200	142	165	211	245	354	410	591	685	1099	1275	1478	1715	2302	2670	2746	3185
10"	250	220	255	328	380	560	650	974	1130	1810	2100	2328	2700	3664	4250	4224	4900
12"	300	319	370	466	540	819	950	1353	1570	2629	3050	3405	3950	5129	5950	6336	7350
14"	350	388	450	647	750	1120	1300	1905	2210	3517	4080	4836	5610	6964	8078	9655	11200
16"	400	552	640	776	900	1483	1720	2405	2790	4310	5000	6336	7650	9284	10770	11121	12900
20"	500	785	910	1375	1595	2457	2850	3991	4630	7414	8600	9914	11500	15121	17540	19310	22400
24"	600	1078	1250	1974	2290	3448	4000	5250	6090	10776	12500	14224	16500	20336	23590	24397	28300

EFFEBI

ARTEMIS -THESIS

Instructions for use and maintenance of DN40 - DN300 butterfly valves

MAX Working pressure 1.6Mpa = 16bar
REV.A 01/03/2012

ARTEMIS®/ARTEMIS®40

THESIS®/THESIS®40

FOB30100AA REV.A

PRODUCT CHARACTERISTICS:

ARTEMIS- THESIS are butterfly valves with resilient seal suitable for use with the following applications:
Food –medical-petrochemical-textile sector, paper-engineering, etc.
These valves are used as ON/OFF valves and to regulate fluids and media flow rates.
Working pressure: = 1.6 Mpa (16 bar)
Working temperature: = < 130°C (according to the elastomer used for the seal)
The main features of ARTEMIS / THESIS valves are:
Modern design, body cast in a single block, light weight
Reduced torque for easier opening and closing of the valve;
Can be mounted in all positions– the valve can be oriented in all directions;
Replacement of seat seals–the seat can be replaced when worn.
Long-lasting seal materials resistant to aging.
Class vi seal for both directions of use
Design specification: API 609
Design and production: API 609 ISO 2084 PN16
Flanges: UNI EN ISO 1092
Face to face dimensions of valve: ISO 5752-20 ISO 5208
Tests and checks: ISO 5208 API STD 598

DATA ON VALVE LABEL:
Valve **BODY:** Valve **DISC:**
Valve **SEAT:** Certification body: **PED CE 1370**
Connection type (flange coupling) **FLG:**

DIRECT CASTING DATA ON THE VALVE BODY:
FB / DN / PN Mark Valve production batch no.

DATA ON VALVE DISC:
Disc material Production batch no.

SHIPMENT AND STORAGE

Preparation before transport **SHIPMENT**
After visual tests a nd pressure checks, the following operations must be carried out on the valves:
-Remove any trace of grease from the valve
-Grease the valve with lubricant and anticorrosive oil.
-Place the valve lever/disc in semi-open position to protect the valve seal.
-Put the valves in special bags with the corresponding instruction sheet.
-Place the valve in a special box, if necessary

STORAGE

Store the valves in a sheltered place not exposed to weather
Storage temperature: -10 °C / +50 °C

TRANSPORT

The valves must be handled with care to avoid any drop. The valves with large diameters (from dn100>) must not be lifted taking them by the lever to avoid the lever slips off and falls.

PROTECTION

After sale, the valve protection is the responsibility of the customer who must make sure the valve is stored in a place:
-Not exposed to weather
-Not exposed to heat sources
-Not exposed to direct sunlight
-Storage temperature: -10 °C / +50 °C
-Protection from dust or any other volatile substance which may settle on the valve surface
- The valve disc must be set to the semi-closed position during storage, 8° to 10° before the closing position and making sure the disc is within the seat overall dimensions.
-In case of inactivity of the lines on which the valve is installed, lubricate the seats using a lubricant suitable for valve seals.

MAINTENANCE AND INSTALLATION

GENERAL INSTRUCTIONS

The valve installation is extremely important for its life. A wrong installation might shorten the life and performances of the valve.
For correct installation of the valve on the flanges follow the instructions for installation on the line.
-In case of special applications of the valves, such as with chlorine, oxygen, hydrogen, etc., they must be first degreased and perfectly cleaned using a solvent or other suitable products.
-The valves can be installed in any position on the plant's pipes; in case of muddy fluids, install the valves with the stem in horizontal position to allow the mud to flow out every time the valve opens.
- Check that the pipe is perfectly clean and free from grease and welding residues before installing the valves, to protect the seats from dirt and damages.
-Make sure the pipes are not energized.
- WAFER and LUG valves must be directly installed between the flanges without gaskets

MAINTENANCE

Plan a valve inspection (every 6 months) to check all components of the valve which are subject to wear and abrasion. In case of a worn or abraded component, apply to the manufacturer for the original spare parts.

CAUSES / REMEDIES

Cause: The valve does not close properly due to long operation or incorrect use or damaged surface of the seal caused by dirt accumulation.
Remedy: Replace the seat gasket
Cause: Spill from the valve caused by long installation or incorrect use
Remedy: Replace the valve

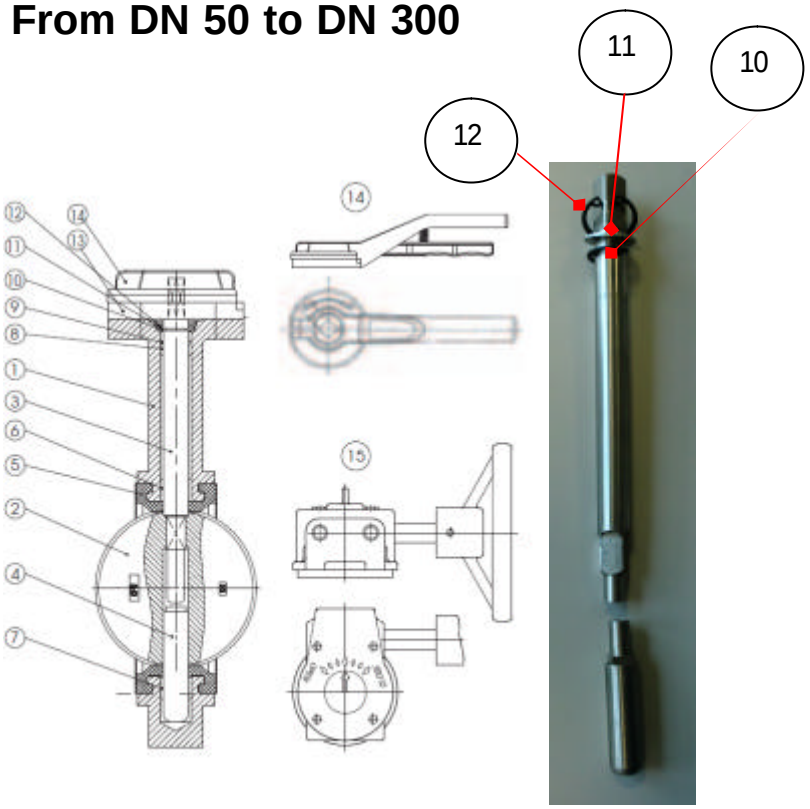
INSTALLATION

-Remove the valve from its packing with care, check the label and that the list of material specifications is in compliance with the purchase order.
-Check any additional plates, items or special applications
-Check the flow direction marked on the stem
-The mark on the stem must show the flow direction
// Mark in line with the pipe open valve // Mark transversal to the pipe closed valve
-Check the valve and seat surfaces are clean, they are free from suspended particles or substances which may cause corrosion or wear.
-Check that the threaded holes of the LUG valve crowns are not obstructed
After all these checks are carried out:
The valve is ready to be installed

Note: Important! Check there is no pressure and fluids into the pipes where the valve is installed before the valve is disassembled for maintenance.

Butterfly valves
Installation and Maintenance
THESIS- ARTEMIS valves

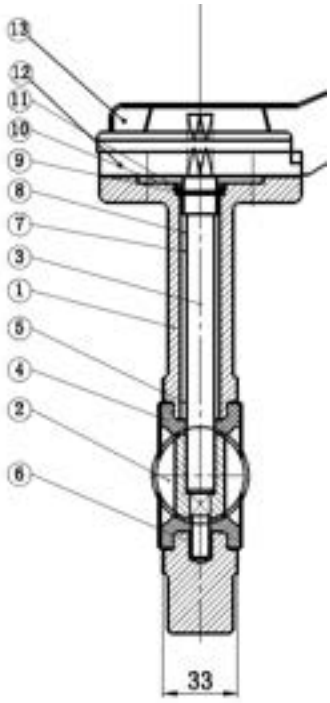
From DN 50 to DN 300



List of components

1 Body
2 Disc
3 Upper stem
4 Lower stem
5 Seat gasket
6 Upper stem bushing
7 Lower stem bushing
8 Upper seal bushings
9 O.R.
10 Stop ring
11 Anti-blowout device
12 Seeger ring
13 Toothed disc
14 Lever
15 Reduction gear

DN 40



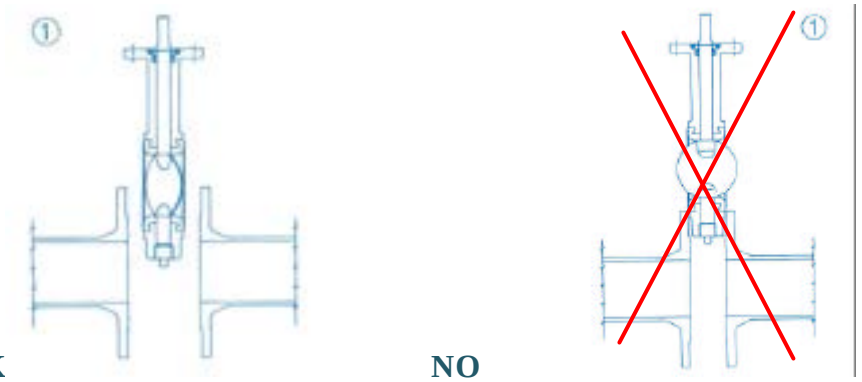
List of components

1 Body
2 Disc
3 Upper stem
4 Seat gasket
5 Upper stem bushing
6 Lower stem bushing
7 Upper seal bushings
8 O.R.
9 Stop ring
10 Anti-blowout device
11 Seeger ring
12 Toothed disc
13 Lever

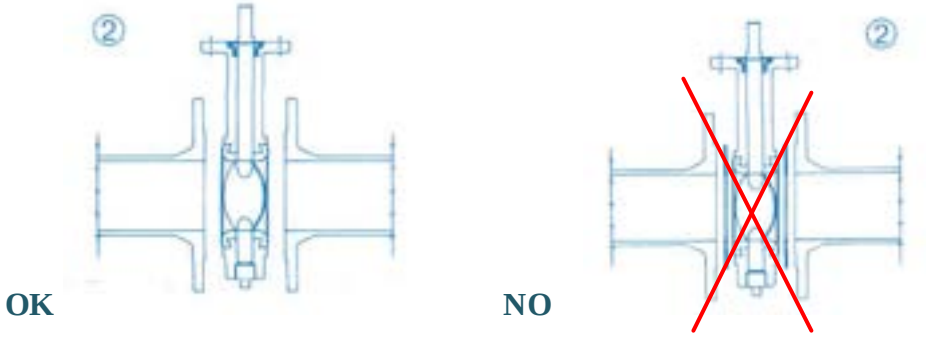
INSTALLATION ON THE LINE

-Check that the distance between the flanges corresponds to the valve face to face dimension. Space the flanges properly for easier installation of the valve during assembly, and make sure the external/internal parts of the seal are not damaged.

-Insert the valve with the disc in semi-closed position but always within the body, to avoid:
damages to the seal surface
swollen seat when the stay bolts are tightened



-do not install gaskets between the flanges



-Put the valve in central position between the pipe flanges

-Insert 2 bolts in the lower part between the flanges to make the valve rest

-Insert the remaining bolts paying attention the valve is aligned with the flanges

-Slightly preload the stay bolts to clamp the valve between the flanges (the force exerted on the screws must be sufficient to fix the valve) (the screws must be cross-tightened according to the closing order shown in PICT.1)

-Open and close the valve to test the valve operation

- Cross-tighten the stay bolts or the screws using the torques shown in TABLE 1 below to prevent any leaks (the screws must be cross-tightened according to the closing order shown in PICT.1)

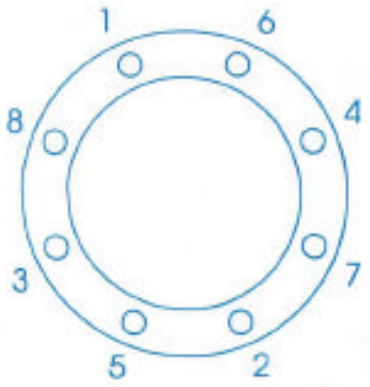


FIG.1

Torque of stay bolts or screws of ARTEMIS THESIS valves for flange sealing

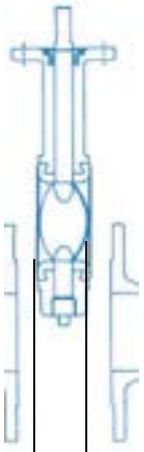
DN		PN10		PN16		ANSI UNC		ANSI metr.	
[mm]	[inch]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]
32	1 ¼"	40	357	40	357	33	288	31	271
40	1 ½"	40	357	40	357	33	288	31	271
50	2"	52	460	52	460	52	462	52	460
65	2 ½"	52	460	52	460	52	462	52	460
80	3"	32	285	32	285	65	573	64	571
100	4"	45	396	45	396	45	398	45	396
125	5"	55	483	55	483	65	578	68	603
150	6"	90	794	90	794	86	760	90	794
200	8"	112	993	75	662	107	950	112	993
250	10"	116	1028	139	1234	129	1144	127	1124
300	12"	137	1209	164	1451	152	1345	149	1321

TABLE 1

VALVE MAINTENANCE

-Stop the line before and after the valve which needs to be repaired and make sure there is no pressure into the pipe.

-Close the valve so that the disc is within the overall dimensions of the valve body



Overall dimensions of valve body

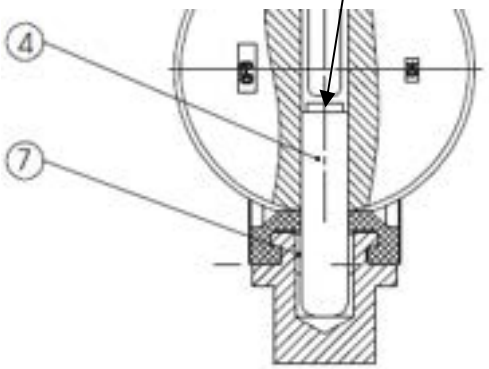
FOR VALVES FROM DN 50 TO DN300

-Loosen and remove the stay bolts, except the two lower stay bolts.
-Open the flanges by means of suitable tools and hold the valve to prevent it from dropping.
-Remove the last two stay bolts.
-Remove the valve.
-After the valve is removed from the flanges, set the valve in semi-open position.
-Remove the lever **14.**
-Remove the indicator disc **13.**
-Remove the seeger ring **12** (using a suitable tool) placed inside the valve hole (protect yourself during removal of the seeger ring as it could come out abruptly).

-Use a suitable tool to lock the stem **3** near the square head, pull the stem upwards and tangentially to the valve axis until it comes out.
-Insert a threaded puller into the valve hole and push it down until it touches the lower stem **4**

Thread on the lower stem 4 for disc 2 extraction

M4 DN 40
M6 DN 50-65-80-100-125
M8 DN 150-200-250-300



-Now make sure the threaded part (male) of the puller is centred with the threaded part of the lower stem **4** (female).

-Turn the puller clockwise until the male thread of the puller goes into the female thread of the lower stem **4**.

-Pull upwards and turn the lower stem **4** clockwise until it reaches the seat inside the disc.

-Now the disc **2** can be removed from seat **5**.

-With small strokes of a rubber hammer, remove the disc from seat **5.**

-Unscrew the puller from the lower stem **4** and remove it.

-Remove the lower stem **4**

- Use a screwdriver to remove the rubber seat of gasket **5**

-Replace the worn rubber seat with a new one making sure it is properly installed into the new seat

N.B. Use only EFFEBI original spare parts.

Reinstall the valve by repeating the same operations in the reverse order and test the seal

N.B. The puller used for maintenance is not supplied with the valve

FOR VALVE DN 40

-Loosen and remove the stay bolts except the two lower stay bolts,

-Open the flanges by means of suitable tools and hold the valve to prevent it from dropping.

-Remove the last two stay bolts

-Remove the valve.

-After the valve is removed from the flanges, set the valve in semi-open position

-Remove the lever **13**

-Remove the indicator disc **12**

-Remove the seeger ring **11** (using a suitable tool) placed inside the valve hole (protect yourself during removal of the seeger ring as it could come out abruptly).

-Use a suitable tool to lock the stem **3** near the square head, pull the stem upwards and tangentially to the valve axis until it comes out.

- Now the disc **2** can be removed from seat **4**.

-With small strokes of a rubber hammer, remove the disc from seat **4**

- Use a screwdriver to remove the rubber seat of gasket **4**

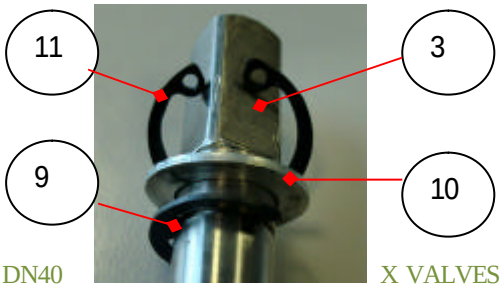
- Replace the worn rubber seat with a new one making sure it is properly installed into the new seat

N.B. Use only EFFEBI original spare parts.

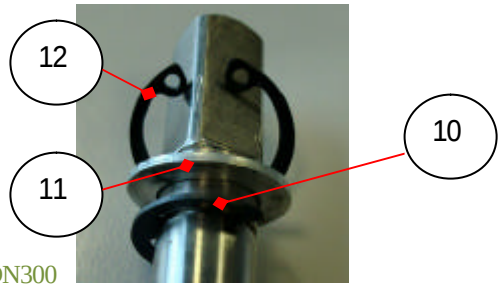
-Reinstall the valve by repeating the same operations in the reverse order and test the seal

Maintenance operations must be carried out only for the following components:
SEAT/DISC/LEVER/THREADED DISC
The upper seal needs no maintenance and the spare parts for bushings / upper seal O.R. are not supplied.

N.B.: the mechanical components of the upper seal must be installed according to the order shown below



X VALVES DN40

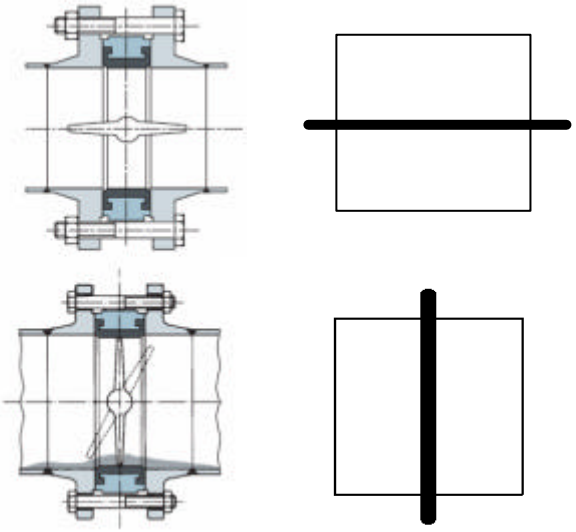


X VALVES FOR DN50 TO DN300

Important = when the valve is reinstalled, the flow direction mark shown on the stem must be oriented according to the correct position of the disc.

The mark on the stem must indicate the flow direction as shown below.

Stem mark with open valve



Stem mark with closed valve

-Reinstall the valve in the line following the installation procedure

CERTIFICATO DI APPROVAZIONE DEL SISTEMA DI QUALITA

CERTIFICATE OF QUALITY SYSTEM APPROVAL

N° CE-1370-PED-E1-EFB 001-20-ITA

Bureau Veritas Italia SpA, agendo nell'ambito della notifica (numero dell'organismo notificato 1370), attesta che il sistema di qualità applicato dal fabbricante per la produzione, per l'ispezione finale e per le prove sull'attrezzatura a pressione identificata di seguito è stato esaminato secondo le prescrizioni del modulo E1 dell'allegato III della direttiva « Attrezzature a Pressione » n. 2014/68/UE ed è conforme alle disposizioni della Direttiva.

Bureau Veritas Italia SpA, acting within the scope of its notification (notified body number 1370), attests that the quality system operated by the manufacturer for final product inspection and testing of the pressure equipment identified hereunder has been examined against the provisions of annex III, module E1, of the Pressure Equipment Directive n° 2014/68/EU, and found to satisfy the provisions of the directive which apply to it.

Fabbricante (Nome) */ Manufacturer (Name):*	EFFEBI S.p.A
Indirizzo */ Address:*	Via Giuseppe Verdi, n° 68 25073, Bovezzo, Italy
Nome - Marchio commerciale: *Trading Name - Mark*	EFFEBI SPA
Descrizione dell'attrezzatura */ Equipment description:*	PRESSURE ACCESSORY
Identificazione delle attrezzature (o elenco in allegato, se necessario): *Identification of equipment concerned (or list on the back or attached where necessary)*	BALL and BUTTERFLY VALVES (see 2nd page for more details)
Questo certificato scadrà il (gg/mm/aaaa): *This certificate will expire on (dd/mm/yyyy)*	19/01/2023

L'approvazione è subordinata agli audit di sorveglianza, visite, prove e verifiche condotte da Bureau Veritas Italia SpA che ha stipulato un contratto con il fabbricante, in base alle disposizioni di tale contratto

The approval is conditional upon the surveillance audits, visits, tests and verifications to be carried out by the local Bureau Veritas entity that entered into a contract with the manufacturer, pursuant to the provisions of such contract.

Questo certificato è presunto nullo ed il fabbricante si farà esclusivo carico delle conseguenze del suo utilizzo, qualora questi non rispettasse gli impegni assunti nel sottoscrivere il contratto con Bureau Veritas Italia SpA con particolare riferimento a: (a) applicazione del sistema di qualità approvato, (b) conformità dell'attrezzatura con la sua documentazione tecnica e (c) l'ispezione finale e le prove sull'attrezzatura e, in generale, se il fabbricante non rispettasse uno qualsiasi degli obblighi imposti a suo carico dalla direttiva N° 2014/68/UE del 15 maggio 2014 così come trasposta nelle leggi nazionali applicabili.

This certificate shall be deemed to be void and the manufacturer shall alone bear any consequences pursuant to its use, where the manufacturer fails to comply with his undertakings as per the agreement with Bureau Veritas Italia SpA in respect of (a) implementation of the approved quality system and (b) inspection and tests on the final product, and generally where the manufacturer fails in particular to comply with any of his obligations under directive nr 2014/68/EU of 15 may 2014 as transposed in the applicable law(s).

Fatto a *Made at*	Il (gg/mm/aaaa) *On (dd/mm/yyyy)*	Approvato e Registrato in *Approved and Recorded in*	Firmato da *Signed by*	Firma autorizzata dall'Organismo Notificato N 1370 *Signature Authorized by Notified Body No 1370*
Milan	20/01/2020	Italy	CARLO ALBERTO PANDOLFI	

Codice di Registrazione */ Registration Code :* 2020/000990/CE-1370-PED

Il presente documento è soggetto ai termini delle Condizioni Generali di Vendita allegate al contratto firmato dal richiedente.
The present document is subject to the terms of General Conditions of Service attached to the agreement signed by the applicant.
Il presente documento non può essere riprodotto, se non dal fabbricante nel rispetto delle disposizioni del contratto stipulatocon Bureau Veritas Italia SpA.
The present document shall not be reproduced, except by the manufacturer in compliance with the provisions of the contract entered into between the local Bureau Veritas entity and the manufacturer.

PED - E1 - Rev. 06/2016 E1

N° CE-1370-PED-E1-EFB 001-20-ITA

Esistenza di un allegato al certificato di approvazione del sistema di qualità / *Existence of an annex to the certificate of quality system approval*	N.A.
Altre informazioni (se applicabile) : *Other information (where applicable)*	see List of Equipments for more details

Elenco delle attrezzature

List of the concerned equipment

BALL VALVES

DN32 PN100 MOP5-20
DN40 PN100 MOP5-20
DN50 PN80 MOP5-20
DN65 PN40 MOP5
DN80 PN40 MOP5
DN100 PN40 MOP5
DN32 PN100 1500WOG
DN40 PN100 1500WOG
DN50 PN100 1500WOG
DN65 PN100 1500WOG
DN80 PN100 1500WOG
DN100 PN100 1500WOG

BUTTERFLY VALVES

DN40 PN16
DN50 PN16
DN465 PN16
DN80 PN16
DN100 PN16
DN125 PN16
DN150 PN16
DN200 PN16
DN250 PN10
DN300 PN10
DN350 PN10
DN400 PN10
DN450 PN10
DN500 PN10
DN550 PN10
DN600 PN10
DN700 PN10
DN750 PN10

"PN lower than those indicated are also allowed,except for those valves falling under Art.4 para.3 of Directive 2014/68/UE"

PED - E1 - Rev. 06/2016 E1

EFFEBI SPA
25073 Bovezzo (BS) Italia
Via Giuseppe Verdi, 68 Tel. 03021101
Fax 0302110301/302

VALVOLE A SFERA / INDUSTRIAL BALL VALVES
VALVOLE A FARFALLA / BUTTERFLY VALVES

Articolo / Item	**A40BYG08**		Qta / Q.ty	**1**	Certificato di collaudo Test certificate
Descrizione / Type	**DN 40 THES 40/40N/NB P16 LV RAL1021**				**N. 22CERT04544 del / of 04/03/2022**
Cliente / Customer	**PEGORARO GAS TECHNOLOGIES SRL**				
DDT Nr. / Delivery note	**22DDT006424 del / of 04/03/2022**	Ordine Nr. / Order No.	**123 REV.01+AGG. del / of 09/02/2022**		**EN 10204 - 3.1**

PARTICOLARE Part Number	MATERIALE Material	COLATA Heat	CARATTERISTICHE MECCANICHE Mechanical Properties										ANALISI CHIMICA Chemical Analysis										
			R T.S. N/mm²	RS YS N/mm²	A E %	Z R.A. %	Hardnes Brinell Durezza	KV 1	KV 2	KV 3	T°C	KV	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	N %	Al %	Fe %	Cu %
Corpo Body	GGG40	1911	467,00	265,00	16,60								3,6900	2,5700	0,4100	0,0620	0,0220							
Disco Disk	GGG40	92	456,00	279,00	16,90								3,6900	2,4700	0,3100	0,0610	0,0160							

TEST IN PRESSIONE SECONDO API STD 598
PRESSURE TEST API STD 598

UNIT:BAR

CLASSE RATING	HYDROSTATIC TEST		PNEUMATIC TEST	ESITO COLLAUDO TEST RESULT	UFFICIO COLLAUDI QUALITY DPT
	CORPO / SHELL TEST	SEGGIO / HIGH PRESSURE CLOSURE	SEGGIO / LOW PRESSURE CLOSURE		**Merlo Oliviero**
PN16	**24**	**18**	**6**	SATISFACTORY	Documento emesso da sistema informatico controllato e valido come firma Document issued by computer system and valid as signature of approval
ESEGUITO IL CONTROLLO VISIVO E DIMENSIONALE VISION AND DIMENSIONAL CHECK PERFORMED				SATISFACTORY	

Legenda Particolare / Part Number: Corpo / Body - Sfera / Ball - Manic. Threaded end - Flangia / Flange - Disco / Disc - Ghiera / Nut - Ghiera / F / Nut / Flange - Stelo - Stern

EFFEBI SPA
25073 Bovezzo (BS) Italia
Via Giuseppe Verdi, 68 Tel. 03021101
Fax 0302110301/302

VALVOLE A SFERA / INDUSTRIAL BALL VALVES
VALVOLE A FARFALLA / BUTTERFLY VALVES

Articolo / Item	**A40BYG08**		Qta / Q.ty	**1**	Certificato di collaudo Test certificate
Descrizione / Type	**DN 40 THES 40/40N/NB P16 LV RAL1021**				**N. 22CERT04543 del / of 04/03/2022**
Cliente / Customer	**PEGORARO GAS TECHNOLOGIES SRL**				
DDT Nr. / Delivery note	**22DDT006424 del / of 04/03/2022**	Ordine Nr. / Order No.	**123 REV.01+AGG. del / of 09/02/2022**		**EN 10204 - 3.1**

PARTICOLARE Part Number	MATERIALE Material	COLATA Heat	CARATTERISTICHE MECCANICHE Mechanical Properties										ANALISI CHIMICA Chemical Analysis										
			R T.S. N/mm²	RS YS N/mm²	A E %	Z R.A. %	Hardnes Brinell Durezza	KV 1	KV 2	KV 3	T°C	KV	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	N %	Al %	Fe %	Cu %
Corpo Body	GGG40	1005	462,00	271,00	16,60								3,7100	2,4800	0,3800	0,0580	0,0170							
Disco Disk	GGG40	92	456,00	279,00	16,90								3,6900	2,4700	0,3100	0,0610	0,0160							

TEST IN PRESSIONE SECONDO API STD 598
PRESSURE TEST API STD 598

UNIT:BAR

CLASSE RATING	HYDROSTATIC TEST		PNEUMATIC TEST
	CORPO / SHELL TEST	SEGGIO / HIGH PRESSURE CLOSURE	SEGGIO / LOW PRESSURE CLOSURE
PN16	**24**	**18**	**6**

ESITO COLLAUDO
TEST RESULT

SATISFACTORY

ESEGUITO IL CONTROLLO VISIVO E DIMENSIONALE
VISION AND DIMENSIONAL CHECK PERFORMED

SATISFACTORY

UFFICIO COLLAUDI
QUALITY DPT

Merlo Oliviero

Documento emesso da sistema informatico controllato e valido come firma

Document issued by computer system and valid as signature of approval

Legenda Particolare / Part Number: Corpo / Body - Sfera / Ball - Manic. Threaded end - Flangia / Flange - Disco / Disc - Ghiera / Nut - Ghiera / F / Nut / Flange - Stelo - Stern

MANUALE OPERATIVO DI USO E MANUTENZIONE IN ACCORDO ALLA DIRETTIVA 2014/68/UE

DATA	REV.	DESCRIZIONE	EMISSIONE	APPROVAZIONE
04-11-20	10	REVISIONE GENERALE	DIR. TECNICA	DIR. GENERALE
				

DESCRIZIONE ED ELENCO ARTICOLI

VALVOLE A SFERA TRUNNION	ART.90/95
VALVOLE A SFERA FLOTTANTI	ART.10 WAFER
	ART. 23 SPLIT WAFER
	ART. 33 SPLIT BODY
	ART. 37 SPLIT BODY
	ART. 35SPLIT BODY RED. BORE
	ART. 45 THREE WAY
	ART. 50 / 51 / 52 MONOBLOCK
	ART. 65 DOUBLE BLOCK AND BLEED
	ART. 70 SINGLE BLOCK AND BLEED

CLASSIFICAZIONE SECONDO PED

Secondo la DIRETTIVA 2014/68/UE– PED le valvole a sfera sono divise nelle seguenti categorie:	
ART.4.3	Le attrezzature sono fabbricate secondo una corretta prassi costruttiva e non recano la marcatura CE. Non devono essere usate per fluidi gruppo 1 e cioè: esplosivi, estremamente infiammabili, facilmente infiammabili, infiammabili (quando la Temperatura massima ammissibile è superiore al punto d'infiammabilità), altamente tossici, tossici, comburenti, gas instabili Le valvole di DN ≤25(DN 1") rientrano sempre in Art. 4.3. e possono essere usate indistintamente per fluidi del gruppo 1 e del gruppo 2.
CATEGORIA I	Valutate secondo il modulo A dell'Allegato II . Dichiarazione di conformità secondo Allegato IV. Tabella 6 All. II PED – tabella 7 All. II PED — tabella 8 All. II PED - tabella 9 All. II PED
CATEGORIA II	Valutate secondo il modulo H dell'Allegato II. Dichiarazione di conformità secondo Allegato IV. Tabella 6 All. II – tabella 7 All. II – tabella 8 All. II PED
CATEGORIA III	Valutate secondo il modulo H dell'Allegato II . Dichiarazione di conformità secondo Allegato IV. Tabella 6 All. II PED

CONDIZIONI DI UTILIZZO E INFORMAZIONI PER LA SICUREZZA

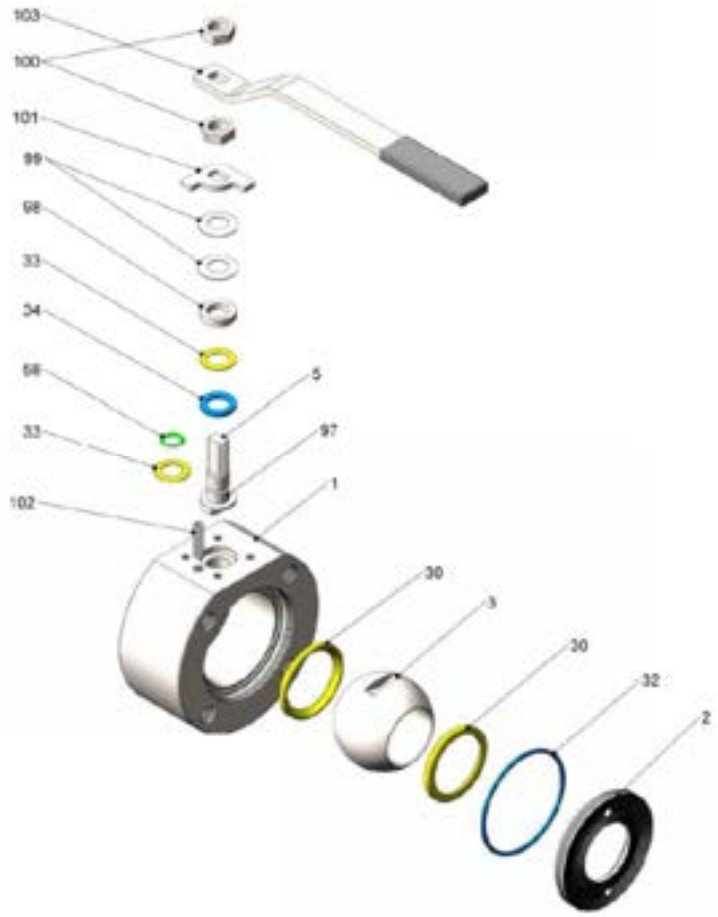
1. La temperatura e la pressione di utilizzo non devono superare i limiti marcati sulla valvola.
2. Se nella valvola fluiscono fluidi aggressivi, corrosivi, ad alta o a bassa temperatura, che potrebbero provocare danni al contatto è consigliabile ed opportuno che l'operatore, durante qualsiasi intervento, sia dotato di tutte le protezioni adeguate: guanti, occhiali, indumenti specifici.
3. Non devono essere usate con gas instabili.
4. Sono valvole di intercettazione, non sono valvole di sicurezza pertanto non devono essere usate come tali .
5. Devono essere installate ed usate da personale qualificato.
6. Nel caso di utilizzo con Ossigeno, nonostante che le valvole siano fornite sgrassate e racchiuse in sacchetti si consiglia, di eseguire uno sgrassaggio finale in opera per eliminare qualsiasi traccia di contaminanti eventualmente accumulatesi durante lo stoccaggio o il montaggio.
7. Le valvole "Crotti" devono essere usate esclusivamente in posizione di "aperto" o "chiuso", perché un uso prolungato in posizione di semi-apertura potrebbe causare una deformazione permanente delle sedi della sfera, compromettendo la tenuta.
8. Le manovre di apertura e di chiusura devono essere effettuate esclusivamente per mezzo della leva o altri dispositivi forniti unitamente alla valvola applicati dalla casa costruttrice Crotti stessa.
9. Non si accettano responsabilità per attuatori che siano stati applicati a posteriori da terzi.
10. Assicurarsi che non ci sia alcuna leva di manovra montata sugli attuatori pneumatici.
11. Non occorre procedere ad alcun tipo di lubrificazione, perché i seggi di tenuta in PTFE sono autolubrificanti. Fanno eccezione quelle valvole dove sono previsti dispositivi di ingrassaggio.
12. Le guarnizioni, suscettibili di usura, possono essere sostituite, previo smontaggio della valvola. Le parti di ricambio devono essere fornite esclusivamente dalla Crotti.
13. Per lo smontaggio e montaggio seguire le istruzioni sotto riportate.
14. La sostituzione delle valvole (per usura o corrosione) deve essere prevista qualora si raggiungano gli spessori minimi previsti dalla norma EN 12516 Part.1. È a cura del possessore delle valvole tale stima. La Crotti garantisce comunque che le valvole hanno spessori adatti a sopportare le condizioni di utilizzo per cui sono state costruite.
15. Lo spessore minimo è comprensivo 3 mm aggiuntivi per prevenire danni derivanti dalla corrosione.
16. Le valvole Crotti devono essere utilizzate in un intervallo di temperatura e pressione come indicati in tab.1 che si riferisce a valvole che hanno guarnizioni in PTFE o RPTFE.
17. I corpi valvola in acciaio inossidabile da getto (fusione) non possono essere saldati.
18. Apertura e chiusura devono essere fatte gradualmente per evitare colpi d'ariete
19. Utilizzare nella pulizia manutentiva solo prodotti compatibili con i materiali che compongono la valvola.
20. Nel montaggio delle valvole alla tubatura si prega di porre attenzione al peso delle stesse e prevedere mezzi di sollevamento idonei e predisporre opportuni sostegni ove necessario.
21. Durata media prevista: 10 anni.
22. Manutenzione media prevista ogni 5 anni.

CONDIZIONI P/T

TABELLA 1	Range Temperatura/Pressione per valvole floating con guarnizioni in PTFE ; in caso di valvole in passaggio ridotto considerare la colonna del DN precedente.						
	DN 10 - 20	DN 25 – 40	DN 50 - 65	DN 80	DN 100 - 125	DN 150 - 200	DN 250
	P (bar)	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**
T °C							
-100	2	1,8	1,6	1,4	1,2	1	1
-90	3,5	3	2,5	2	1,7	1,5	1
-80	5	4,5	4	3	2,5	2	1.2
-70	10	8	7	5	4,5	4	2
-60	15	13	11	8	7	6	3.5
-50	60	49	40	35	28	18	13
-40	105	85	70	62	50	30	20
-30	105	85	70	62	50	30	20
-20	105	85	70	62	50	30	20
-10	105	85	70	62	50	30	20
0	105	85	70	62	50	30	20
10	105	85	70	62	50	30	20
20	105	85	70	62	50	30	20
30	105	85	70	62	50	30	20
40	105	85	70	62	50	30	20
45	105	85	70	62	50	30	20
50	95	80	65	56	46	28	18
62	73	63	56	46	34	23	15
70	62,5	58	51	41	30	20	12
80	55	52	45	36	27	17	10
90	50	47	41	32	24	15	8
100	45	42	37	28	20	13	6
110	41	38	32	25	17	11	5
120	37	33	27	22	15	8	1
130	33	29	24	18	12	6	0
140	28	25	22	16	10	5	0
150	25	21	18	13	8	4	0
160	22	18	15	10	6	3	0
170	18	15	11	8	5	1	0
180	14	12	8	5	3	0	0
190	11	9	6	3	2	0	0
200	8	6	4	2	0	0	0

ANALISI DEI RISCHI			
RISCHIO	**ANALISI /CAUSA**	**CONSEGUENZA**	**AVVERTENZA**
Cadute accidentali	Peso delle valvole	Danni al personale. Perdita o cattivo funzionamento.	Movimentare le valvole con adeguati mezzi relativamente al loro peso
Corrosione galvanica	Incompatibilità tra materiali diversi a contatto	Cattivo funzionamento della valvola e precoce usura della stessa	Assicurarsi di montare la valvola su tubature in materiale compatibile con la stessa
Passaggio di particelle solide abrasive nelle valvole (sabbia, frustoli di ruggine...)	Fluido di passaggio non puro. Pulizia non adeguata nel luogo del montaggio della valvola sull'impianto;	Danneggiamento delle sedi e della sfera. Si verificheranno perdite dalla valvola.	Montare a monte dell'impianto un filtro che mantenga pulite le tubature.
			I montaggio delle v. alla linea deve essere fatto in condizioni di buon grado di pulizia per evitare che entrino nella valvola frammenti di sporco.
Sovrappressione	Condizioni di lavoro dell'impianto non adeguate.	Malfunzionamento della valvola con conseguenti perdite.	Installare sulla linea delle valvole di sicurezza.
Disallineamento della valvola dall'impianto	Peso della valvola. Momento torcente troppo elevato.	Disallineamento della valvola dalla linea stessa. Malfunzionamento della valvola con conseguenti perdite. In casi estremi caduta e danni al personale.	Installare la valvola su impianti che possono reggerne il peso e sopportare momenti torcenti di apertura e chiusura.
Danneggiamento della valvola	Utilizzo di fluidi non compatibili con i materiali che compongono la valvola.	Perdita dalla valvola	Utilizzare fluidi compatibili con i materiali di cui è composta la valvola, anche negli eventuali lavaggi e manutenzione dell'impianto
Deformazioni parti meccaniche	Urto accidentale o "colpo d'ariete"	Perdita dalla valvola	Manovrare in modo graduale l'apertura e la chiusura della valvola.
Scottature o ustioni	Fluido a temperature elevate passante nella valvola.	Scottatura o ustioni dell'utilizzatore	Si invita ad apporre il simbolo 5041 della norma CEI 3-27:1995 "ATTENZIONE PARTI CALDE" 
Infortunio dell'utilizzatore	Uso valvola a pressione oltre quelle consentite dalla marcatura.	Esplosione dalla valvola	Verificare attraverso opportuni indicatori di pressione, inseriti sulla linea, il livello di pressione
Corrosione componenti valvola.	Fluidi corrosivi o incompatibili con i materiali costruttivi.	Erosione o usura precoce dei componenti fondamentali della valvola a contatto col fluido. In caso di perdita danni al personale.	L'utilizzatore deve verificare la compatibilità chimico-fisica del fluido con i componenti della valvola. In presenza di fluidi aggressivi avvisare dli operatori.
Rimontaggio scorretto	Disallineamento dei componenti interni. Errato serraggio tiranti	Perdita.	Utilizzare le istruzioni elencate in apposito paragrafo.
Ossigeno	Contaminazione.	Rischio esplosione, incendi.	Assicurarsi che le valvole siano perfettamente sgrassate prima dell'utilizzo.

Articolo 10

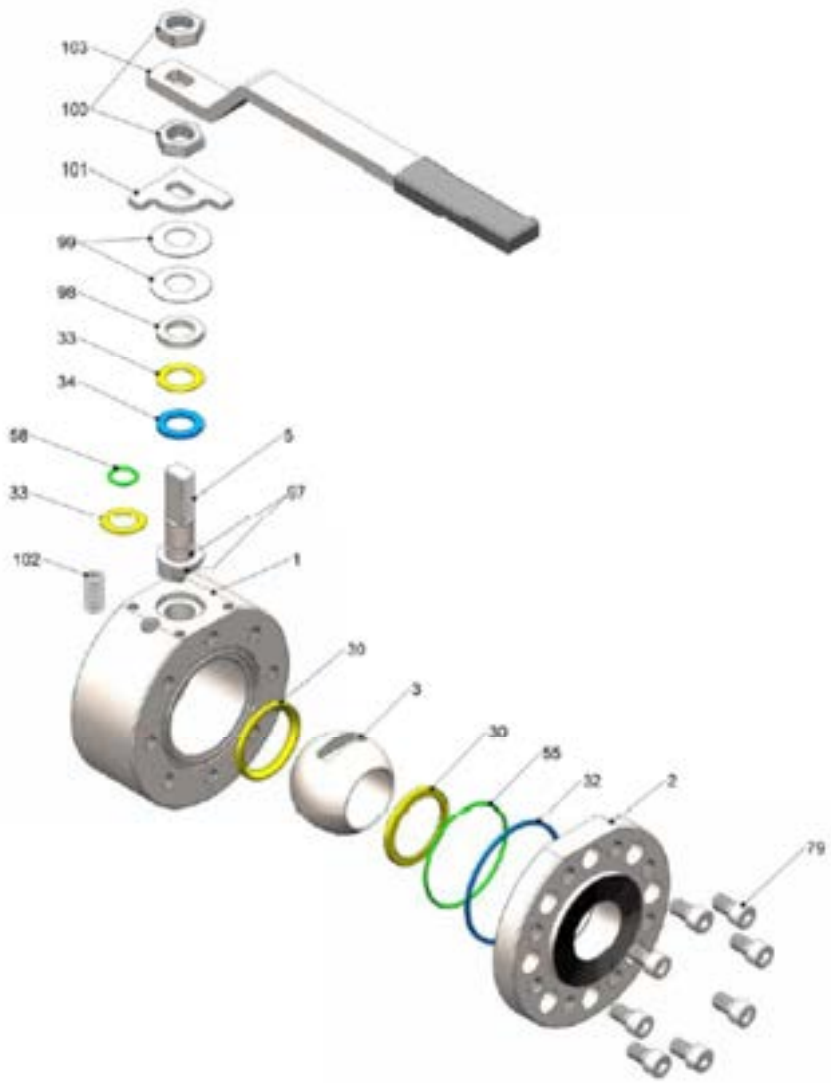


Part list

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
■	58	O-ring stelo	Stem o-ring	FKM	FKM
■	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
■	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
■	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

■ Parti di ricambio/Spare parts

Articolo 23

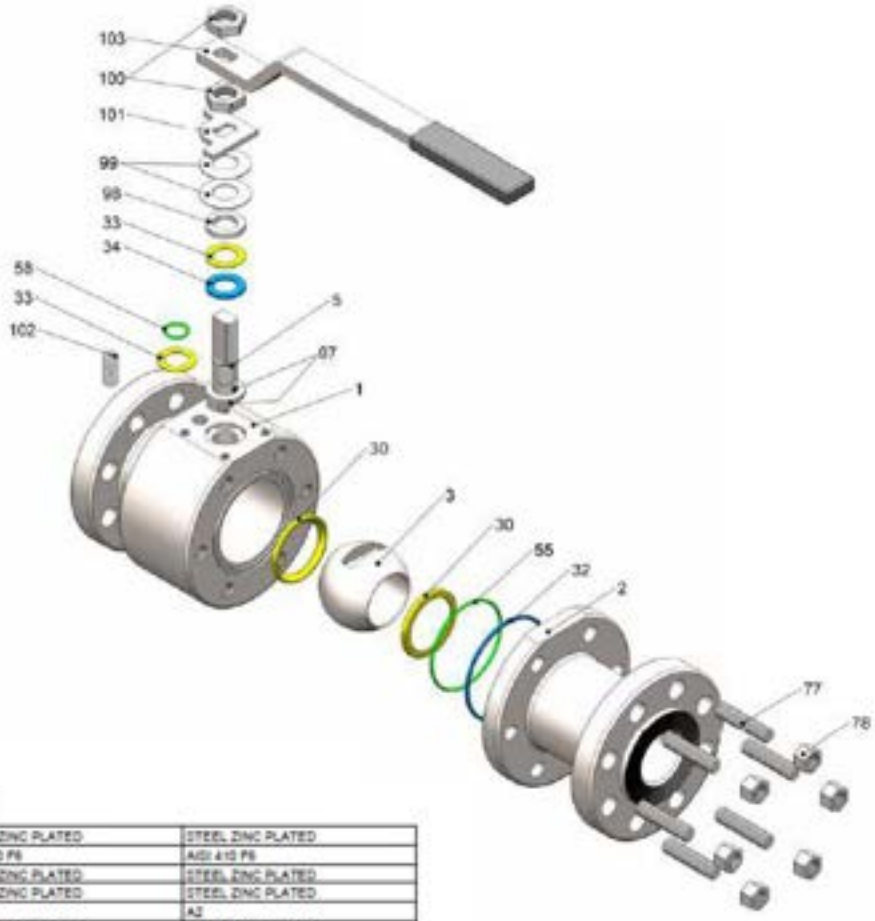


Part list

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	79	Vite Co/Cs	Screw	8.8 Zn	A2
	58	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

Parti di ricambio/Spare parts

Articolo 33 - 35 - 37



Part list class 150-600/PN 16-160

	108	Riduttore	Gear	STEEL ZINC PLATED	STEEL ZINC PLATED
	107	Giunto	Joint	AISI 410 P6	AISI 410 P6
	106	Castelletto	Bracket	STEEL ZINC PLATED	STEEL ZINC PLATED
	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	79 *	Vite corpo	Body screw	8.8 Zn	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	58	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

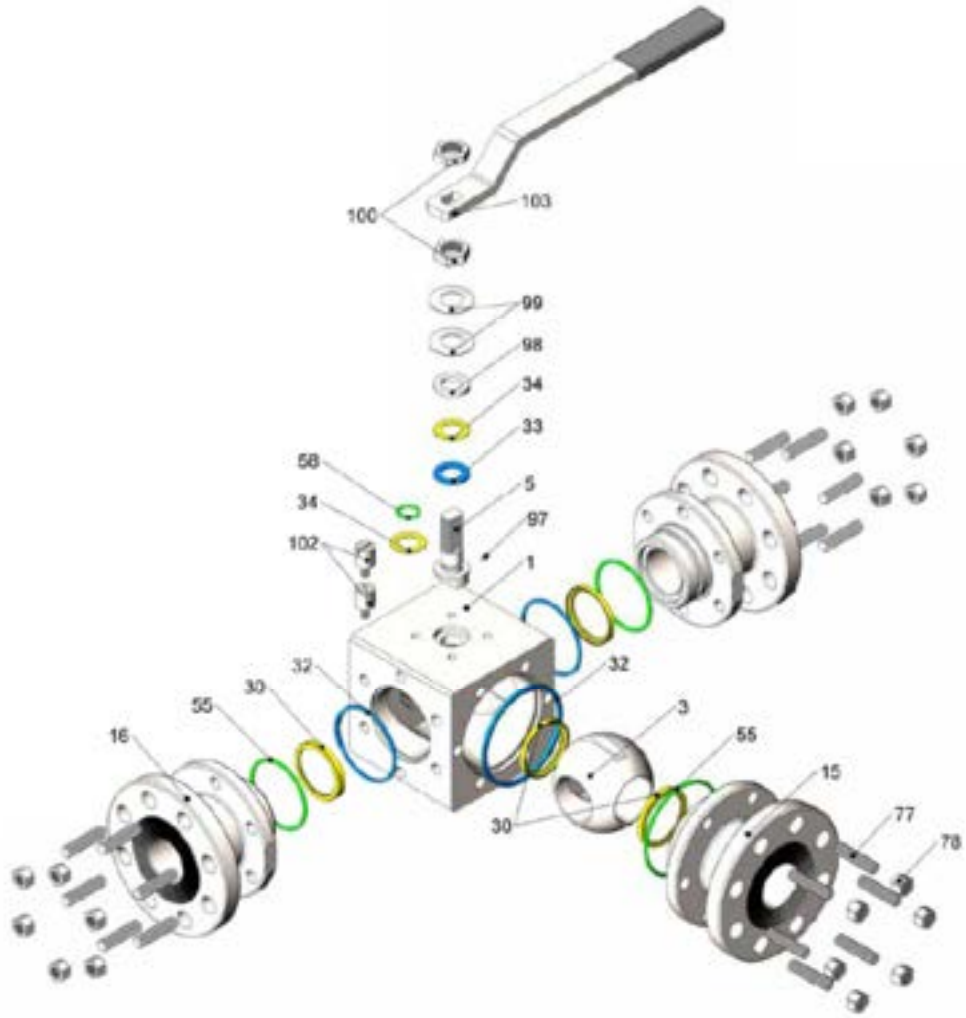
* Valido solo per valvole designate per PN - Valid only for PN designated valves

Part list class 900-2500

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	100	Dado	Handle nut	8.8 Zn	A2
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	80	Vite premitreccia	Cap screw	8.8 Zn	A2
	79	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	73	Boccola stelo	Bearing du-dry	AISI 316	AISI 316
	58	O-ring stelo	Stem o-ring	FKM AED	FKM AED
	55	O-ring corpo	Body o-ring	FKM AED	FKM AED
	45	Rondella	Washer	R-PTFE	R-PTFE
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sede	Seat rings	PEEK	PEEK
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

Parti di ricambio/Spare parts

Articolo 45

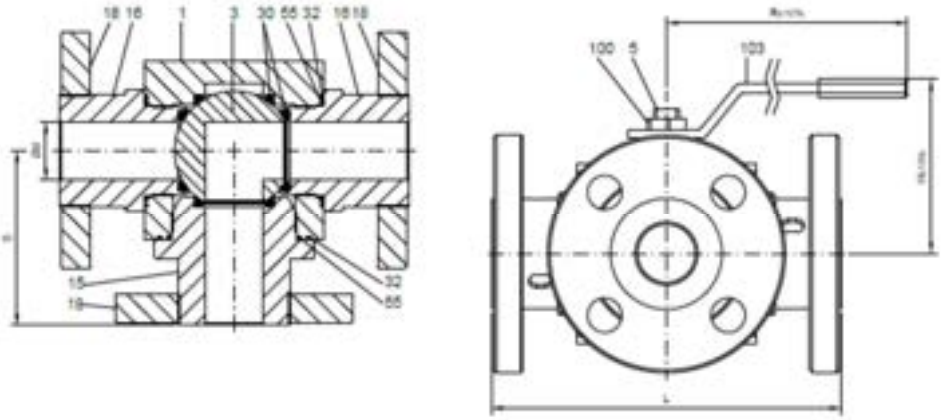


Part list valvola con chiusure imbullonate
Bolted body integral flange

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
■	58	O-ring stelo	Stem o-ring	FKM	FKM
■	55	O-ring corpo	Body o-ring	FKM	FKM
■	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
■	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
■	30	Sedi	Seat rings	PTFE	PTFE
	16	Chiusura laterale	Lateral closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	15	Chiusura centrale	Central closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

■ Parti di ricambio/Spare parts

Articolo 45



Part list valvola con chiusure avvitate flange girevoli

Screwed closures flange slip on

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	56	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	18	Flangia	Flange	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	16	Chiusura laterale	Lateral closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	15	Chiusura centrale	Central closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

ASSEMBLAGGIO E SMONTAGGIO VALVOLE FLOTTANTI

Generalità
Le seguenti istruzioni si applicano a tutta le valvole a sfera flottanti, tranne piccole differenze, per manutenzione ordinaria e straordinaria, ad esempio per sostituire le parti soggette ad usura (es. guarnizioni).
Le operazioni di smontaggio e rimontaggio devono essere effettuate da personale qualificato ed in luogo pulito.

Preliminari
Rimuovere la valvola dall'impianto, ma prima assicurarsi che:
1. L'impianto sia depressurizzato;
2. Non ci siano parti surriscaldate o congelate;
3. La valvola da smontare sia in posizione di "aperto" (la leva deve essere parallela alla linea);
4. Disporre di una superficie piana, pulita ed asciutta di adeguate dimensioni su cui appoggiare le parti della valvola;
5. Disporre di ricambi originali Crotti per la sostituzione e che siano stati conservati correttamente.

Smontaggio
1. Svitare i tiranti (la ghiera nella wafer, art. 10) di assemblaggio corpo-chiusura e separare le due parti;
2. Posizionare la leva in posizione chiusura (perpendicolare alla linea) ed estrarre la sfera dal corpo verificarne la sfericità e conservarla in maniera opportuna perchè non subisca urti che la possono danneggiare, compromettendo la tenuta successiva;
3. Estrarre le sedi;
4. Estrarre le guarnizioni del corpo;
5. Smontare la leva;
6. Smontare tutta la guarnitura dello stelo;
7. Estrarre lo stelo facendolo scivolare dentro il corpo valvola;
8. Rimuovere le ultime guarnizioni dello stelo.

Montaggio
Per rimontare la valvola procedere in senso inverso; prestando attenzione ai seguenti accorgimenti:
1. Durante l'accoppiamento corpo-chiusura la sfera deve essere in posizione di chiusura: in questo modo la sede si adatta perfettamente alla sfera senza deformarsi;
2. Assicurarsi di aver allineato perfettamente la sfera alle sedi;
3. Per il serraggio dei tiranti utilizzare la tabella allegata per le coppie di serraggio corrette .

ASSEMBLAGGIO E SMONTAGGIO VALVOLE TRUNNION CON SUPPORTO ESTERNO

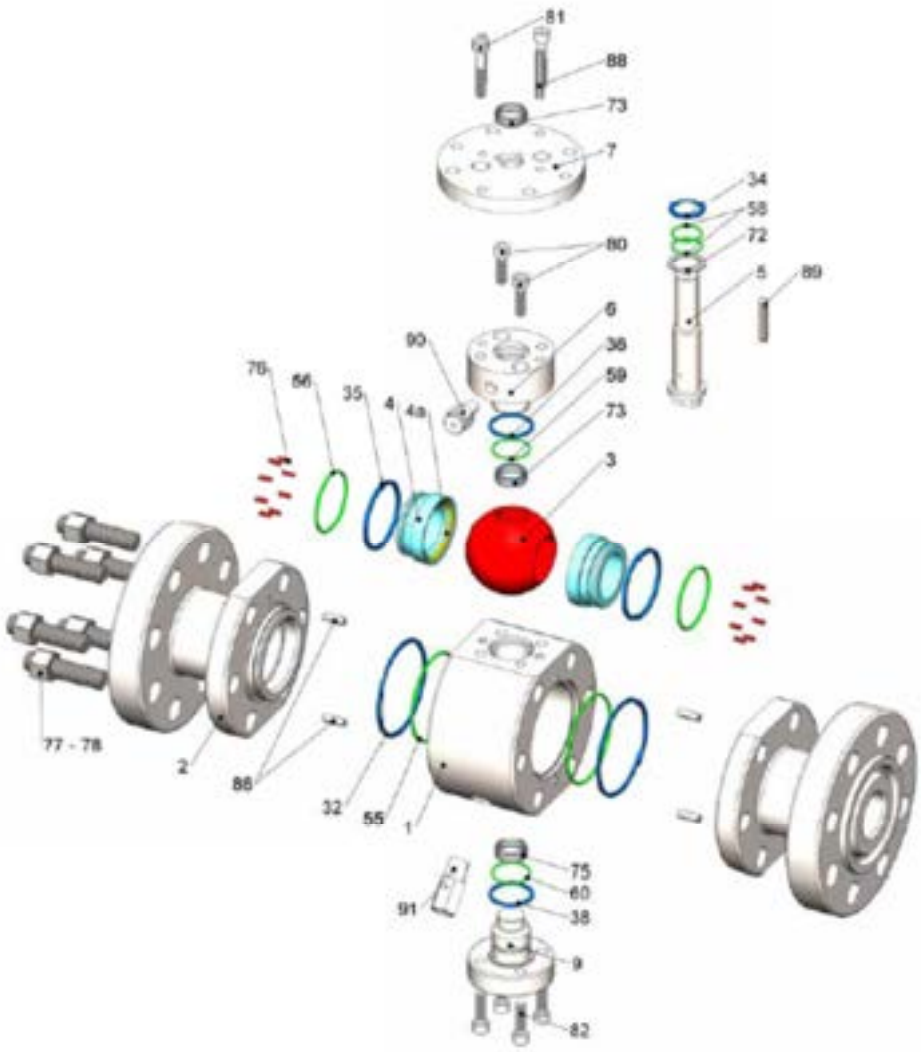
Generalità
Le seguenti istruzioni si applicano a tutta le valvole a sfera trunnion, tranne piccole differenze, per manutenzione ordinaria e straordinaria, ad esempio per sostituire le parti soggette ad usura (es. guarnizioni). Queste valvole possono avere un corpo centrale e due chiusure, oppure un corpo ed una chiusura.
Le operazioni di smontaggio e rimontaggio devono essere effettuate da personale qualificato ed in luogo pulito.

Preliminari
Rimuovere la valvola dall'impianto, ma prima assicurarsi che:
1. L'impianto sia depressurizzato;
2. Non ci siano parti surriscaldate o congelate;
3. La valvola da smontare sia in posizione di "aperto" (la leva deve essere parallela alla linea);
4. Disporre di una superficie piana, pulita ed asciutta di adeguate dimensioni su cui appoggiare le parti della valvola ;
5. Disporre di ricambi originali Crotti per la sostituzione e che sian stati conservati correttamente;
6. La valvola può essere pesante, predisporre opportuni mezzi di sollevamento e appoggi.

Smontaggio
1. Rimuovere la chiavetta dallo stelo;
2. Svitare i bulloni che fissano la flangia motore, e rimuoverla;
3. Svitare i bulloni che fissano la flangia premitreccia, e rimuoverla;
4. Rimuovere lo stelo;
5. Svitare i tiranti di assemblaggio del supporto inferiore e rimuoverlo;
6. Svitare i tiranti di assemblaggio corpo-chiusura e separare le due parti;
7. Estrarre la sfera, segnalare il lato di inserimento (ad esempio con un pennarello segnare lato A e B);
8. Estrarre il seggio, come per la sfera segnate il lato di inserimento, normalmente rimane posizionato nella chiusura;
9. Ogni componente ha le sue guarnizioni che devono essere opportunamente sostituite/conservate.

Montaggio
Per rimontare la valvola, procedere in senso inverso alle istruzioni di smontaggio.
1. Durante l'accoppiamento corpo/chiusura, la sfera deve essere in posizione di chiusura: in questo modo la sede si adatta perfettamente alla sfera senza deformarsi.
2. Assicurarsi di aver allineato perfettamente la sfera alle sedi.
3. Durante l'assemblaggio è preferibile per le valvole soft seat (e obbligatorio nelle valvole metal) il corretto riposizionamento seggio-sfera iniziale.
4. Per il serraggio dei tiranti utilizzare la tabella allegata per le coppie di serraggio corrette.

Articolo 90 con supporto



Part list Trunnion con supporto ≤ DN4"

	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	94	Ingrassatore seggio	Seat grease	STEEL ZINC PLATED	STAINLESS STEEL
	91	Drenaggio	Drain/plug	STEEL ZINC PLATED	STAINLESS STEEL
	90	Ingrassatore stelo	Stem grease	STEEL ZINC PLATED	STAINLESS STEEL
	89	Chiavetta	Key	AISI 410 F6	AISI 410 F6
	88	Spina flangia/prem.	Flange pin	AISI 410 F6	AISI 410 F6
	87	Spina supporto	Support pin	AISI 410 F6	AISI 410 F6
	86	Spina corpo/chiusura	Body pin	AISI 410 F6	AISI 410 F6
	85	Dado riduttore	Nut bolt	ASTM A194 GR.7	ASTM A194 GR.8
	84	Tirante riduttore	Gear bolt	ASTM A320 L7	ASTM A193 B8
	81	Vite flangia	Flange screw	8.8	A2
	80	Vite premitreccia	Cap screw	8.8	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	76	Molla seggio	Spring	INC - 750	INC - 750
■	73	Boccola (stelo)	Bearing (su-dry (stem)	GS PTFE	GS PTFE
■	72	Rasia (stelo)	Bearing disc (stem)	GS PTFE	GS PTFE
■	71	Boccola (sfera)	Bearing (su-dry (ball)	GS PTFE	GS PTFE
■	60	O-ring Trunnion	Trunnion O-ring	FKM	FKM
■	59	O-ring flangia	Flange O-ring	FKM	FKM
■	58	O-ring premitreccia	Cap O-ring	FKM	FKM
■	56	O-ring seggio	Seat O-ring	FKM	FKM
■	55	O-ring corpo	Body O-ring	FKM	FKM
■	38	Guarnizione Trunnion	Trunnion gasket	GRAPHITE	GRAPHITE
■	37	Guarnizione flangia	Flange gasket	GRAPHITE	GRAPHITE
■	36	Guarnizione prem.	Cap gasket	GRAPHITE	GRAPHITE
■	35	Guarnizione seggio	Seat gasket	GRAPHITE	GRAPHITE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	12	Estensione stelo	Stem extension	AISI 410 F6	AISI 410 F6
	11	Orecchia sollevamento	Lifting lug	Fe 360	Fe 360 Zn
	10	Piede di sostegno	Support leg	Fe 360	Fe 360 Zn
	9	Trunnion	Trunnion	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	7	Flangia ISO	Operator flange	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	5	Stelo	Stem	ASTM A182 316/316L	ASTM A182 316/316L
	4a	Inserto	Insert	R-PTFE	R-PTFE
	4	Seggio	Seat	ASTM A182 316/316L	ASTM A182 316/316L
	3	Sfera	Ball	ASTM A182 316/316L	ASTM A182 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

■ Parti di ricambio/Spare parts

ASSEMBLAGGIO E SMONTAGGIO VALVOLE TRUNNION SENZA SUPPORTO ESTERNO

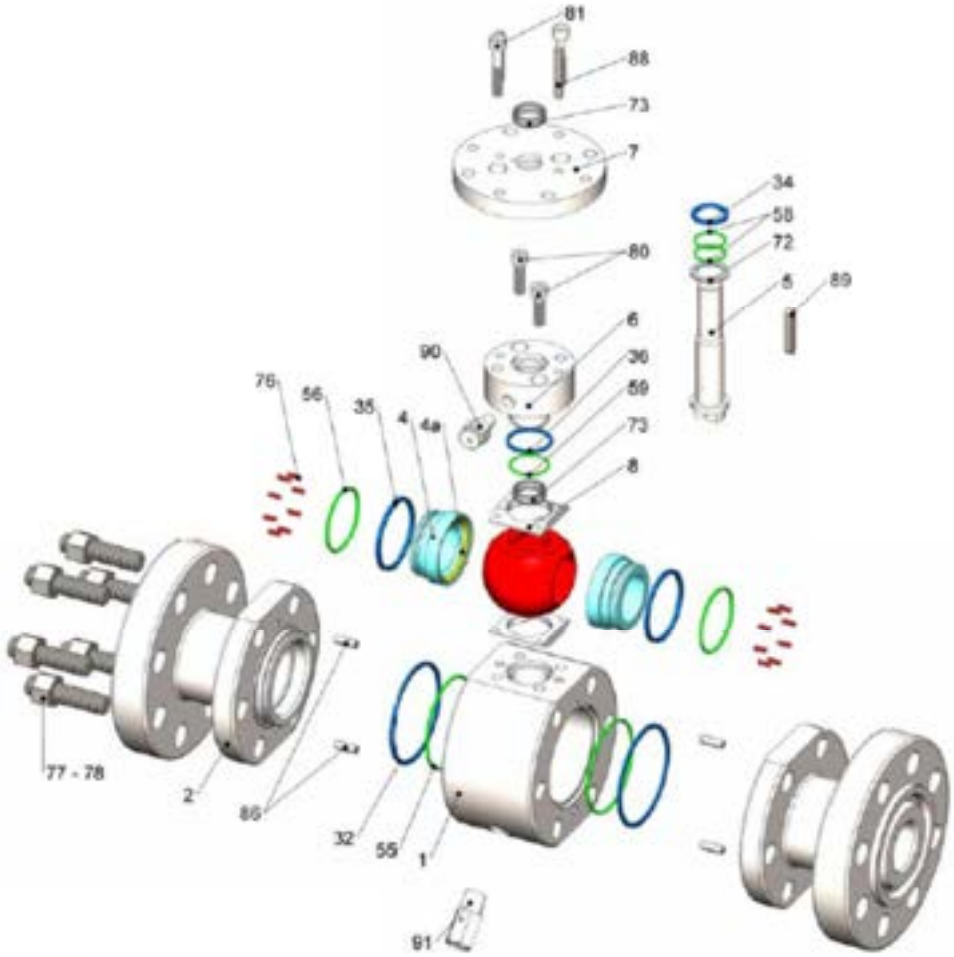
Generalità
Le seguenti istruzioni si applicano a tutta le valvole a sfera trunnion, tranne piccole differenze, per manutenzione ordinaria e straordinaria, ad esempio per sostituire le parti soggette ad usura (es. guarnizioni). Queste valvole possono avere un corpo centrale e due chiusure, oppure un corpo ed una chiusura.
Le operazioni di smontaggio e rimontaggio devono essere effettuate da personale qualificato ed in luogo pulito.

Preliminari
Rimuovere la valvola dall'impianto, ma prima assicurarsi che:
1. L'impianto sia depressurizzato;
2. Non ci siano parti surriscaldate o congelate;
3. La valvola da smontare sia in posizione di "aperto" (la leva deve essere parallela alla linea);
4. Disporre di una superficie piana, pulita ed asciutta di adeguate dimensioni su cui appoggiare le parti della valvola ;
5. Disporre di ricambi originali Crotti per la sostituzione e che sian stati conservati correttamente;
6. La valvola può essere pesante, predisporre opportuni mezzi di sollevamento e appoggi.

Smontaggio
1. Rimuovere la chiavetta dallo stelo;
2. Svitare i bulloni che fissano la flangia motore, e rimuoverla;
3. Svitare i bulloni che fissano la flangia premitreccia, e rimuoverla;
4. Rimuovere lo stelo;
5. Svitare i tiranti di assemblaggio corpo-chiusura e separare le due parti;
6. Estrarre la sfera con le selle, segnalare il lato di inserimento (ad esempio con un pennarello segnare lato A e B);
7. Estrarre il seggio, come per la sfera segnate il lato di inserimento, normalmente rimane posizionato nella chiusura;
8. Ogni componente ha le sue guarnizioni che devono essere opportunamente sostituite/conservate.

Montaggio
Per rimontare la valvola, procedere in senso inverso alle istruzioni di smontaggio.
1. Durante l'accoppiamento corpo/chiusura, la sfera deve essere in posizione di chiusura: in questo modo la sede si adatta perfettamente alla sfera senza deformarsi;
2. Assicurarsi di aver allineato perfettamente la sfera alle sedi;
3. Durante l'assemblaggio è preferibile per le valvole soft seat (e obbligatorio nelle valvole metal) il corretto riposizionamento seggio-sfera iniziale;
4. Per il serraggio dei tiranti utilizzare la tabella allegata per le coppie di serraggio corrette.

Articolo 90 con selle



Part list Trunnion con selle ≥ DN6"

	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	94	Ingrassatore seggio	Seat grease	STEEL ZINC PLATED	STAINLESS STEEL
	92	Sfiato	Vent	STEEL ZINC PLATED	STAINLESS STEEL
	91	Drenaggio	Drainplug	STEEL ZINC PLATED	STAINLESS STEEL
	90	Ingrassatore stelo	Stem grease	STEEL ZINC PLATED	STAINLESS STEEL
	89	Chiavetta	Key	AISI 410 F6	AISI 410 F6
	88	Spina flangia/prem.	Flange pin	AISI 410 F6	AISI 410 F6
	87	Spina supporto	Support pin	AISI 410 F6	AISI 410 F6
	86	Spina corpo/chiusura	Body pin	AISI 410 F6	AISI 410 F6
	85	Dado riduttore	Nut bolt	ASTM A194 GR.7	ASTM A194 GR.8
	84	Tirante riduttore	Gear bolt	ASTM A320 L7	ASTM A193 B8
	81	Vite flangia	Flange screw	8.8	A2
	80	Vite premitreccia	Cap screw	8.8	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	76	Molla seggio	Spring	INC - 750	INC - 750
	73	Boccola (stelo)	Bearing du-dry (stem)	GG PTFE	GG PTFE
	72	Rasta (stelo)	Bearing disc (stem)	GG PTFE	GG PTFE
	71	Boccola (sfera)	Bearing du-dry (ball)	GG PTFE	GG PTFE
	70	Rasta (sfera)	Bearing disc (ball)	GG PTFE	GG PTFE
	59	O-ring flangia	Flange O-ring	FKM	FKM
	58	O-ring premitreccia	Cap O-ring	FKM	FKM
	56	O-ring seggio	Seat O-ring	FKM	FKM
	55	O-ring corpo	Body O-ring	FKM	FKM
	37	Guarnizione flangia	Flange gasket	GRAPHITE	GRAPHITE
	36	Guarnizione prem.	Cap gasket	GRAPHITE	GRAPHITE
	35	Guarnizione seggio	Seat gasket	GRAPHITE	GRAPHITE
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	12	Estensione stelo	Stem extension	AISI 410 F6	AISI 410 F6
	11	Orecchia sollevamento	Lifting lug	Fe 360	Fe 360 Zn
	10	Piede di sostegno	Support leg	Fe 360	Fe 360 Zn
	8	Supporto sfera	Support	Fe 5108 ENP	ASTM A240 F316
	7	Flangia ISO	Operator flange	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	5	Stelo	Stem	ASTM A182 316/316L	ASTM A182 316/316L
	4a	Inserto	Insert	R-PTFE	R-PTFE
	4	Seggio	Seat	ASTM A182 316/316L	ASTM A182 316/316L
	3	Sfera	Ball	ASTM A182 316/316L	ASTM A182 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

Parti di ricambio/Spare parts

TABELLA COPPIE DI SERRAGGIO

COPPIA / TORQUE 1 valida per B7,L7, B7M, L7M, Gr.660, Duplex
COPPIA / TORQUE 2 valida per B8, B8M e loro derivati

Diametro Metrico	Passo	Sezione Resistente	TORQUE 1	TORQUE 2
			B7-L7-B7M-L7M-Gr 660,DUPLEX	B8 - B8M – e derivati
D	p	Sr		
[mm]	[mm]	[mm2]	[N/m]	[N/m]
10	1.5	58	32	16
12	1.75	84.3	56	28
14	2	115	89	45
16	2	157	138	70
18	2.5	192	190	97
20	2.5	245	270	137
22	2.5	303	367	187
24	3	353	466	237
27	3	459	682	347
30	3.5	561	926	471
33	3.5	694	1260	641
36	3	865	1713	872
39	3	1030	2209	1125
42	3	1210	2795	1423
45	3	1400	3465	1764
48	3	1600	4224	2150
52	3	1900	5434	2766
56	4	2140	6591	3356
60	4	2480	8184	4166
64	4	2850	10032	5107
68	4	3240	12118	6169
72	4	3660	14494	7379
76	4	4100	17138	8725
80	4	4570	20108	10237
85	4	5180	24217	12328
95	4	6540	34172	17396
100	4	7280	40040	20384
105	4	8050	46489	23667
125	4	11500	79063	40250

Sommario

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OPERATING MANUAL– USE AND MAINTENANCE IN ACC.TO 2014/68/UE

DATE	REV.	DESCRIPTION	ISSUED	APPROVED
04-11-2020	10	GENERAL REVISION	DIR. TECNICA	DIR. GENERALE
				

Description of Articles

TRUNNION	ART.90/95
FLOATING	ART.10 WAFER
	ART. 23 SPLIT WAFER
	ART. 33 SPLIT BODY
	ART. 37 SPLIT BODY
	ART. 35SPLIT BODY RED. BORE
	ART. 45 THREE WAY
	ART. 50 / 51 / 52 MONOBLOCK
	ART. 65 DOUBLE BLOCK AND BLEED
	ART. 70 SINGLE BLOCK AND BLEED

PED CLASSIFICATION

According to Directive 2014/68/UE – PED ball valves are divided in to these categories:	
ART.4.3	Valves ≤ DN 25(DN 1") always fall under Art. 4.3. and can be used indiscriminately for group 1 and group 2 fluids, are manufactured in Sound Engineer Practice and do not bear CE marking. The upper DN valves that fall under Art 4.3 should not be used for group 1 (dangerous) fluids, i.e.: explosive, extremely flammable, easily flammable, flammable (when the maximum allowable temperature is higher than the maximum point highly toxic, toxic, combustible, unstable gases.
CATEGORY I	Valued according to the module A of Annex II. Conformity declaration according annex IV. table 6 All. II PED – table 7 All. II PED — table 8 All. II PED – table 9 All. II PED
CATEGORY II	Valued according to the module H allegato II . Conformity declaration according annex IV. Tabella 6 All. II – tabella 7 All. II – tabella 8 All. II PED
CATEGORY III	Valued according to the module H allegato II. Conformity declaration according annex IV. Tabella 6 All. II PED

SAFETY INFORMATIONS AND USE CONDITIONS

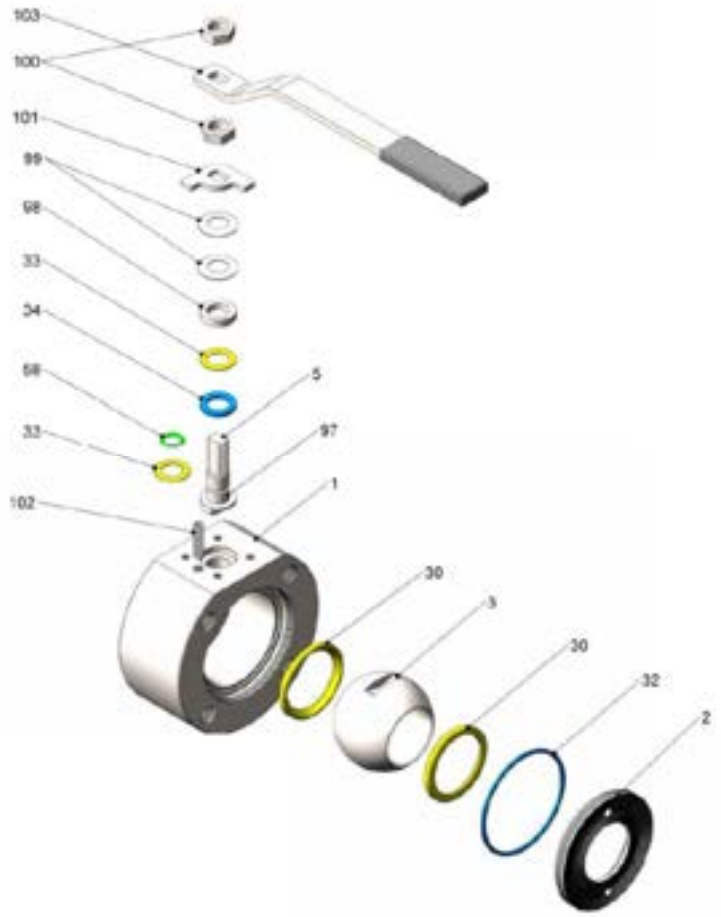
1. Working temperature and pressure must not be higher than the marked on the BV.
2. When the valve is used with aggressive and corrosive fluids, with high or low temperature that could cause damages at touch, it is advisable and appropriate that the users wear the correct protections dur-ing the work: gloves, goggles, specific clothes.
3. Valves must not be used with unstable gases.
4. On-off valves, not security valves: they must not be used such as.
5. The valves must be used and installed by qualified worker .
6. For Oxygen use, the valves are supplied degreased and closed in plastic envelope, but please take care to make final degreasing before using to erase any trace of contamination eventually created during the storage.
7. Crotti valves must be used only in the “open” or “closed” position, because the protract use in a half-open position could cause the permanent buckling of the seat rings, causing leakage.
8. Open-close movements must be done only by the hand lever or other devices applied by Crotti; or assembled by Crotti.
9. Crotti doesn’t accept any responsibility for actuators applied back by third person.
10. Be sure that no hand lever is mounted on the pneumatic actuators.
11. It’s not necessary to oil, because the gaskets are self-lubricated PTFE, unless for those ball valves where grease device is foreseen.
12. Damaged parts or wearing parts can be replaced, after dismantling. Genuine spare parts must be used only.
13. The instruction for dismantling are listed below
14. The substitution of the ball valves because of wear and tear or corrosion must be considered when the minimum thickness indicated in the standard EN 12516 part 1 is reached. It’s up to the owner of the valve to take care of it. Anyway, Crotti guarantee that the thickness of the ball valves is adapt for the use they have been built for.
15. Minimum corrosion allowance is 3 mm.
16. Crotti valves must be used in the range of temperature and pressure indicated in tab. 1; it concerns valves with PTFE or RPTFE gasket.
17. Ball valve body built from casting stainless steel can’t be welded.
18. Opening and closing must be done gradually to avoid water hammer.
19. If it is necessary to clean the valve, please use only compatible substance with the material of the valve...
20. During assembly of the valve to the pipe please pay attention to the weight of the same and provide adequate lifting tackle and arrange appropriate support where necessary.
21. Expected average life: 10 years
22. Expected average maintenance every 5 years.

P/T CONDITIONS

TABLE 1		Range Temperature/Pression floating ball valves with PTFE gaskets; If reduce bore consider previuous column.					
	DN 10 - 20	DN 25 – 40	DN 50 - 65	DN 80	DN 100 - 125	DN 150 - 200	DN 250
	P (bar)	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**	**P (bar)**
T °C							
-100	2	1,8	1,6	1,4	1,2	1	1
-90	3,5	3	2,5	2	1,7	1,5	1
-80	5	4,5	4	3	2,5	2	1.2
-70	10	8	7	5	4,5	4	2
-60	15	13	11	8	7	6	3.5
-50	60	49	40	35	28	18	13
-40	105	85	70	62	50	30	20
-30	105	85	70	62	50	30	20
-20	105	85	70	62	50	30	20
-10	105	85	70	62	50	30	20
0	105	85	70	62	50	30	20
10	105	85	70	62	50	30	20
20	105	85	70	62	50	30	20
30	105	85	70	62	50	30	20
40	105	85	70	62	50	30	20
45	105	85	70	62	50	30	20
50	95	80	65	56	46	28	18
62	73	63	56	46	34	23	15
70	62,5	58	51	41	30	20	12
80	55	52	45	36	27	17	10
90	50	47	41	32	24	15	8
100	45	42	37	28	20	13	6
110	41	38	32	25	17	11	5
120	37	33	27	22	15	8	1
130	33	29	24	18	12	6	0
140	28	25	22	16	10	5	0
150	25	21	18	13	8	4	0
160	22	18	15	10	6	3	0
170	18	15	11	8	5	1	0
180	14	12	8	5	3	0	0
190	11	9	6	3	2	0	0
200	8	6	4	2	0	0	0

RISK	ANALYSIS/CAUSE	CONSEQUENCES	INSTRUCTION
Accidental falls	Valves weight	Damages to the workers. Leakage or malfunction.	Handle valves with adequate means in relation to their weight
Galvanic corrosion	Incompatibility between different materials	Leakage or malfunction of the valve, and premature galling.	Be sure to assemble valves in a compatible material with the pipe-line.
Flow of solid particles such as sand etc.	Impure fluid. Non correct cleaning where the valve has been mounted on the pipeline	Seats and ball damages: there will be leakage.	It's advisable to assemble a filter at the beginning of the plant The assembly and the dismantling of the valves must be done in conditions of extremely cleanliness.
Overpressure	Non adequate work condition on the plant.	Leakage or malfunction of the valve.	Install on the pipeline safety valves.
Misalignment of the valve from the pipe line	Weight of the valve. Highest operating torque	Misalignment of the valve from the pipeline. Leakage and malfunction of the valve. Fall and injury to personnel at extremes.	Be sure to install the valve on a pipeline that can support the weight of it and the operating torque. (open and close).
Damage of the ball valve	Incompatibility between fluid and material of gaskets and metallic parts	Leakage of the valve	Use compatible fluids with the material of the valve also during eventually washing and plant servicing.
Buckling of mechanical parts	Accidental crash or water hammer	Leakage of the valve	Open and close the valve must be done gradually.
Scalds or burns	Superheated or cold fluid flowing through the valve.	Burn of user.	Use the symbol 5041 of standard CEI 3-27:1995 "*WARNING BURNING SURFACE"* 
Accident of the user	Over pressure.	Explosion of the valve	Control the pressure of the pipe line with pressure gauge.
Corrosion of the components of the valve.	Fluids are not compatible with raw materials.	Premature wear or corrosion of the main components of the valve in contact with the fluid. In case of leakage injury to personnel.	The user must verify the physical and chemical compatibility of the fluid with the components of the valve.
Wrong assembly	Misalignment of the components. Incorrect tightening bolts.	Leakage of the valve	Use the instruction listed below.
Oxygen	Contamination.	Risk of explosion and fire.	Be sure that the valves are completely clean and oil free before using.

Article 10

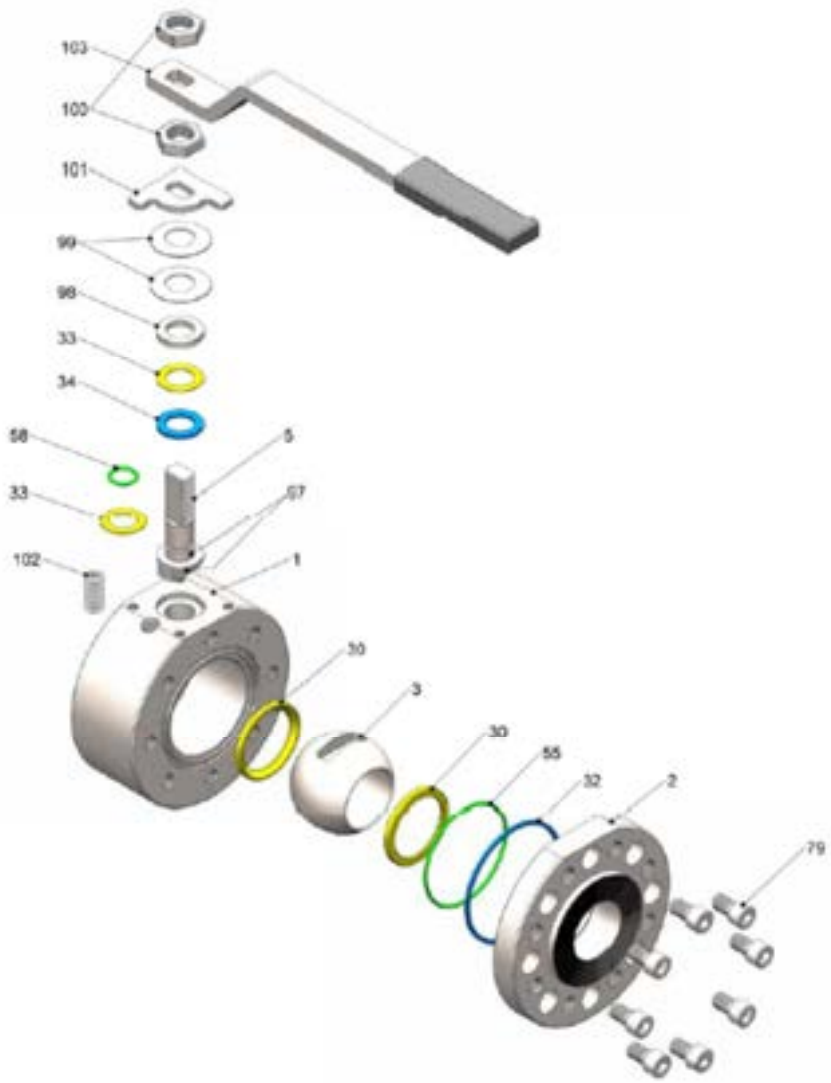


Part list

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
■	58	O-ring stelo	Stem o-ring	FKM	FKM
■	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
■	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
■	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

■ Parti di ricambio/Spare parts

Article 23

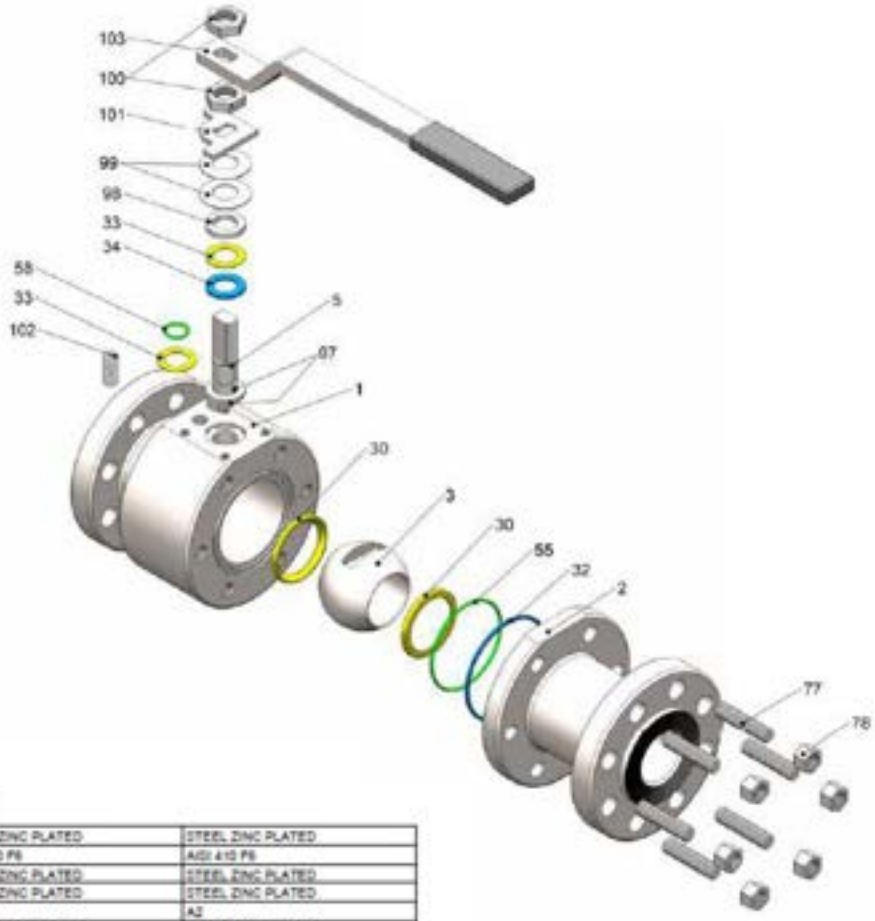


Part list

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	79	Vite Co/Cs	Screw	8.8 Zn	A2
	58	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

Parti di ricambio/Spare parts

Article 33 - 35 - 37



Part list class 150-600/PN 16-160

	108	Riduttore	Gear	STEEL ZINC PLATED	STEEL ZINC PLATED
	107	Giunto	Joint	AISI 410 P6	AISI 410 P6
	106	Castelletto	Bracket	STEEL ZINC PLATED	STEEL ZINC PLATED
	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	79 *	Vite corpo	Body screw	8.8 Zn	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	58	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

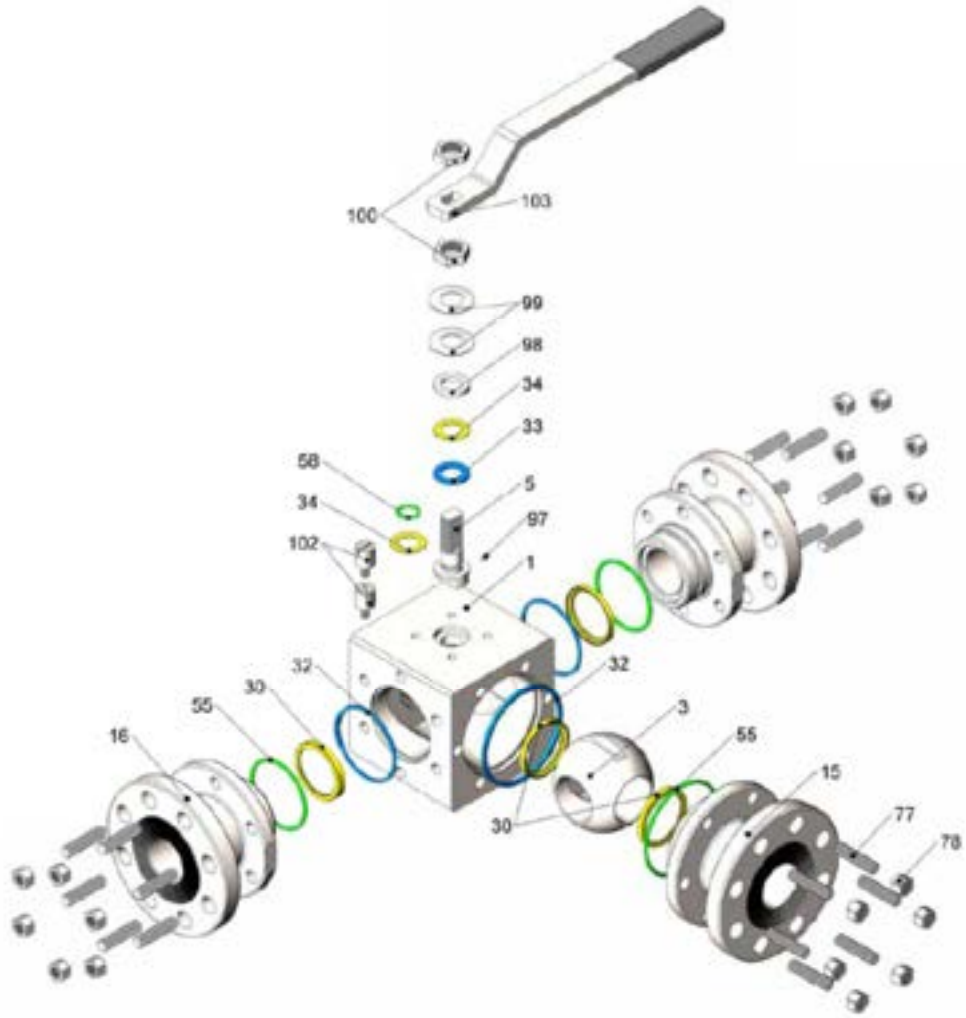
* Valido solo per valvole designate per PN - Valid only for PN designated valves

Part list class 900-2500

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	100	Dado	Handle nut	8.8 Zn	A2
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	80	Vite premitreccia	Cap screw	8.8 Zn	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	73	Bocciola stelo	Bearing du-dry	AISI 316	AISI 316
	58	O-ring stelo	Stem o-ring	FKM AED	FKM AED
	55	O-ring corpo	Body o-ring	FKM AED	FKM AED
	45	Rondella	Washer	R-PTFE	R-PTFE
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sede	Seat rings	PEEK	PEEK
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

Parti di ricambio/Spare parts

Article 45



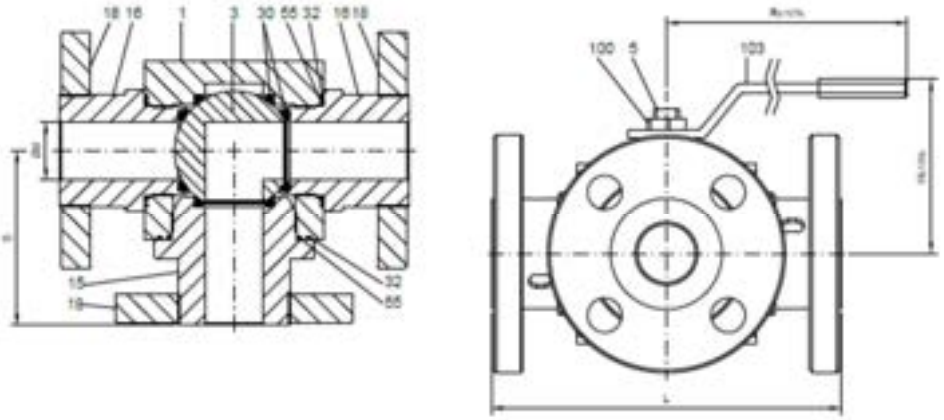
Part list valvola con chiusure imbullonate

Bolted body integral flange

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
■	58	O-ring stelo	Stem o-ring	FKM	FKM
■	55	O-ring corpo	Body o-ring	FKM	FKM
■	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
■	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
■	30	Sedi	Seat rings	PTFE	PTFE
	16	Chiusura laterale	Lateral closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	15	Chiusura centrale	Central closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

■ Parti di ricambio/Spare parts

Article 45



Part list valvola con chiusure avvitate flange girevoli

Screwed closures flange slip on

	103	Leva	Handle	STEEL ZINC PLATED	STEEL ZINC PLATED
	102	Stop pin	Stop pin	8.8 Zn	A2
	101	Stop	Stop	STEEL ZINC PLATED	STEEL ZINC PLATED
	100	Dado	Handle nut	8.8 Zn	A2
	99	Molle a tazza	Disc spring	50 Cr V4	50 Cr V4 + 25 µm ENP
	98	Premibussola	Pressing bush	STEEL ZINC PLATED	STAINLESS STEEL
	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	56	O-ring stelo	Stem o-ring	FKM	FKM
	55	O-ring corpo	Body o-ring	FKM	FKM
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	33	Guarnizione stelo	Stem gasket	PTFE	PTFE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	30	Sedi	Seat rings	PTFE	PTFE
	18	Flangia	Flange	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	16	Chiusura laterale	Lateral closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	15	Chiusura centrale	Central closure	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	5	Stelo	Stem	ASTM A479 316/316L	ASTM A479 316/316L
	3	Sfera	Ball	ASTM A479 316/316L	ASTM A479 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A479 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	ABBINAMENTO MATERIALI STD.	STD. MATERIAL COMBINATION

ASSEMBLY AND DISMANTLING OF FLOATING BALL VALVES

General
The following instructions apply to all floating ball valves, except small differences, for ordinary and extraordinary maintenance, for example to replace wear-and-tear parts (e.g. seals).
Dismantling and reassembly operations must be carried out by qualified personnel and in a clean place.

Preliminary
Remove valve from the plant, but before making sure that:
1. Depressurezed plant;
2. There are no overheated or frozen parts;
3. Valve to be disassembled shall be in "open" position (lever must be parallel to the line);
4. You have a level, clean, dry surface of right size where you put parts of valve;
5. You have original parts for replacement and stored properly.

Dismantling
1. Turn off bolts (closure wafer, art. 10) and remove closure from body;
2. Put lever in close position (perpendicular to pipe line) and pull out from body and check its roundness and store in proper manner in order to avoid damages compromising tightness;
3. Pull off seat rings;
4. Pull off body gaskets;
5. Remove lever;
6. Disassembly stem packing;
7. Pull off stem sliding into body valve;
8. Remove last stem seals.

Assembly
To assembly again valve follow reverse instructions; pay attention to:
1. Ball shall be in close postion when you pair body-closure, in this way seat rings can fit perfectly to ball without deformation;
2. Make sure you have a perfect alignment between ball and seat rings;
3. To guarantee perfect bolts tight refers to following table.

ASSEMBLY AND DISMANTLING OF TRUNNION WITH OUTSIDE SUPPORT

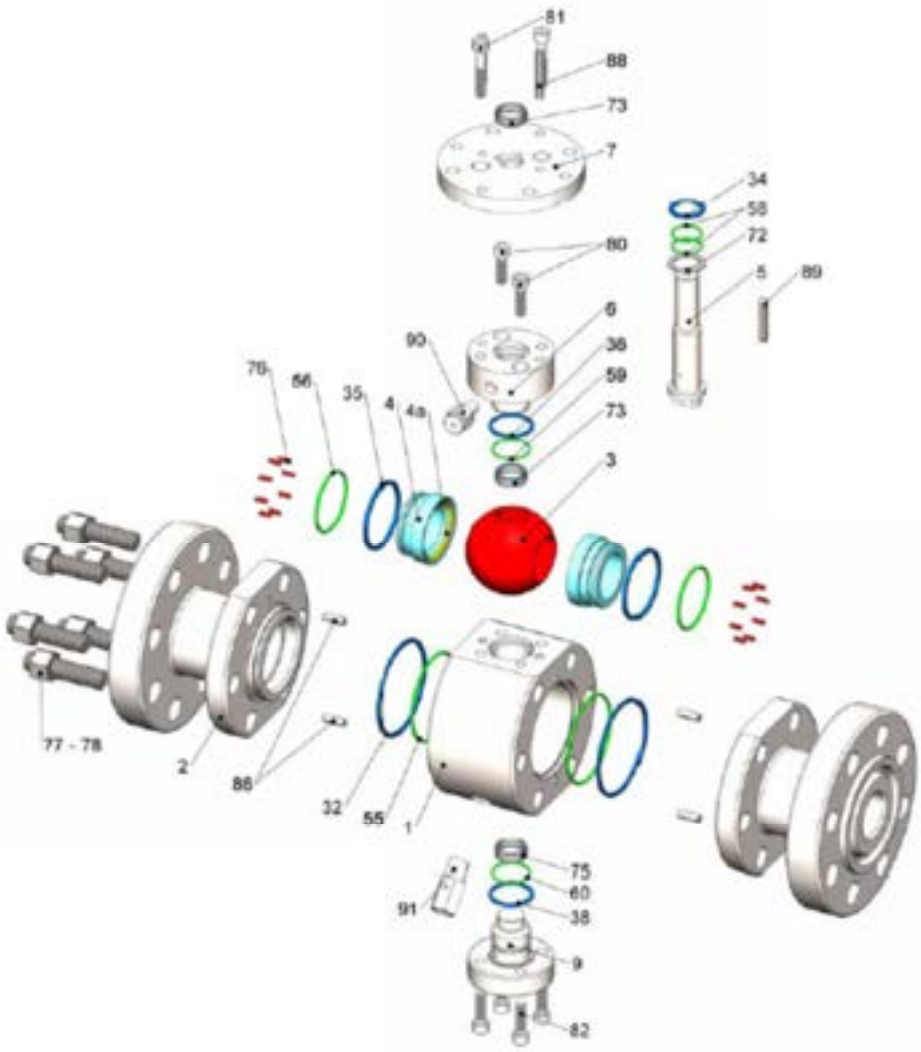
General
The following instructions apply to all trunnion ball valves, except small differences, for ordinary and extraordinary maintenance, for example to replace wear-and-tear parts (e.g. seals). These valves can have a central body and two closures, or a body and a closure.
Dismantling and reassembly operations must be carried out by qualified personnel and in a clean place.

Preliminary
Remove valve from the plant, but before making sure that:
1. Depressurezed plant;
2. There are no overheated or frozen parts;
3. Valve to be disassembled shall be in "open" position (lever must be parallel to the line);
4. You have a level, clean, dry surface of right size where you put parts of valve;
5. You have original parts for replacement and stored properly.
6. The valve can be heavy, arrange appropriate lifting equipment and supports.

Dismantling
1. Turn off stem key;
2. Turn off bolts flange and remove it;
3. Turn off bolts cap and remove it;
4. Remove stem;
5. Turn off support bolts and remove them;
6. Turn off body-closure bolts and split them;
7. Pull off ball and indicate side on which ball is placed (e.g. marking side A or B);
8. Pull off seat rings, generally seat rings get stuck in the closure, pay attention to mark side on which rings were mounted;
9. Each component has its own seals that need to be properly replaced/preserved.

Assembly
To assembly again valve follow reverse instructions; pay attention to:
1. During body/closing coupling, ball shall be in the close position, so the seat fits perfectly into ball without deforming.
2. Make sure you have a perfect alignment between ball and seat rings.
3. During assembly, the correct repositioning of the initial seat-ball is preferable for soft seat valves (mandatory in metal valves).
4. To guarantee perfect bolts tight refers to following table.

Article 90 with outside



Part list Trunnion con supporto ≤ DN4"

	97	Dispositivo anticaduta	Anticadic device	AISI 316	AISI 316
	94	Ingrassatore seggio	Seat grease	STEEL ZINC PLATED	STAINLESS STEEL
	91	Drenaggio	Drain/plug	STEEL ZINC PLATED	STAINLESS STEEL
	90	Ingrassatore stelo	Stem grease	STEEL ZINC PLATED	STAINLESS STEEL
	89	Chiavetta	Key	AISI 410 F6	AISI 410 F6
	88	Spina flangia/prem.	Flange pin	AISI 410 F6	AISI 410 F6
	87	Spina supporto	Support pin	AISI 410 F6	AISI 410 F6
	86	Spina corpo/chiusura	Body pin	AISI 410 F6	AISI 410 F6
	85	Dado riduttore	Nut bolt	ASTM A194 GR.7	ASTM A194 GR.8
	84	Tirante riduttore	Gear bolt	ASTM A320 L7	ASTM A193 B8
	81	Vite flangia	Flange screw	8.8	A2
	80	Vite premitreccia	Cap screw	8.8	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	76	Molla seggio	Spring	INC - 750	INC - 750
■	73	Boccola (stelo)	Bearing (by-dry (stem)	GS PTFE	GS PTFE
■	72	Rasa (stelo)	Bearing disc (stem)	GS PTFE	GS PTFE
■	71	Boccola (sfera)	Bearing (by-dry (ball)	GS PTFE	GS PTFE
■	60	O-ring Trunnion	Trunnion O-ring	FKM	FKM
■	59	O-ring flangia	Flange O-ring	FKM	FKM
■	58	O-ring premitreccia	Cap O-ring	FKM	FKM
■	56	O-ring seggio	Seat O-ring	FKM	FKM
■	55	O-ring corpo	Body O-ring	FKM	FKM
■	38	Guarnizione Trunnion	Trunnion gasket	GRAPHITE	GRAPHITE
■	37	Guarnizione flangia	Flange gasket	GRAPHITE	GRAPHITE
■	36	Guarnizione prem.	Cap gasket	GRAPHITE	GRAPHITE
■	35	Guarnizione seggio	Seat gasket	GRAPHITE	GRAPHITE
■	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	12	Estensione stelo	Stem extension	AISI 410 F6	AISI 410 F6
	11	Orecchia sollevamento	Lifting lug	Fe 360	Fe 360 Zn
	10	Piede di sostegno	Support leg	Fe 360	Fe 360 Zn
	9	Trunnion	Trunnion	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	7	Flangia ISO	Operator flange	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	5	Stelo	Stem	ASTM A182 316/316L	ASTM A182 316/316L
	4a	Inserto	Insert	R-PTFE	R-PTFE
	4	Seggio	Seat	ASTM A182 316/316L	ASTM A182 316/316L
	3	Sfera	Ball	ASTM A182 316/316L	ASTM A182 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

■ Parti di ricambio/Spare parts

ASSEMBLY AND DISMANTLING OF TRUNNION WITHOUT OUTSIDE SUPPORT

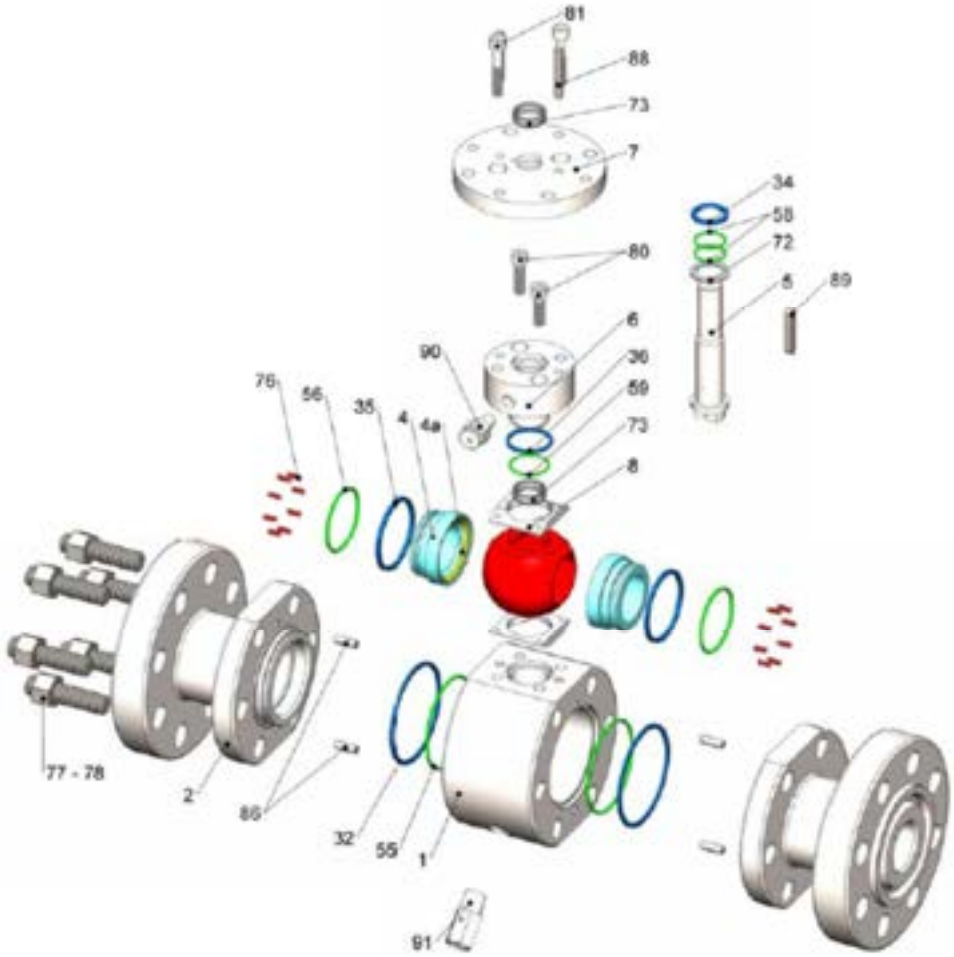
General
The following instructions apply to all trunnion ball valves, except small differences, for ordinary and extraordinary maintenance, for example to replace wear-and-tear parts (e.g. seals). These valves can have a central body and two closures, or a body and a closure.
Dismantling and reassembly operations must be carried out by qualified personnel and in a clean place.

Preliminary
Remove valve from the plant, but before making sure that:
1. Depressurezed plant;
2. There are no overheated or frozen parts;
3. Valve to be disassembled shall be in "open" position (lever must be parallel to the line);
4. You have a level, clean, dry surface of right size where you put parts of valve;
5. You have original parts for replacement and stored properly.
6. The valve can be heavy, arrange appropriate lifting equipment and supports.

Dismantling
1. Turn off stem key;
2. Turn off bolts flange and remove it;
3. Turn off bolts cap and remove it;
4. Remove stem;
5. Turn off support bolts and remove them;
6. Pull off bal with support, marking mounting side A and B;
7. Pull off seat rings, generally seat rings get stuck in the closure, pay attention to mark side on which rings were mounted;
8. Each component has its own seals that need to be properly replaced/preserved.

Assembly
To assembly again valve follow reverse instructions; pay attention to:
1. During body/closing coupling, ball shall be in the close position, so the seat fits perfectly into ball without deforming.
2. Make sure you have a perfect alignment between ball and seat rings.
3. During assembly, the correct repositioning of the initial seat-ball is preferable for soft seat valves (mandatory in metal valves).
4. To guarantee perfect bolts tight refers to following table.

Article 90 without outside support



Part list Trunnion con selle ≥ DN6"

	97	Dispositivo antistatico	Antistatic device	AISI 316	AISI 316
	94	Ingrassatore seggio	Seat grease	STEEL ZINC PLATED	STAINLESS STEEL
	92	Sfiato	Vent	STEEL ZINC PLATED	STAINLESS STEEL
	91	Drenaggio	Drainplug	STEEL ZINC PLATED	STAINLESS STEEL
	90	Ingrassatore stelo	Stem grease	STEEL ZINC PLATED	STAINLESS STEEL
	89	Chiavetta	Key	AISI 410 F6	AISI 410 F6
	88	Spina flangia/prem.	Flange pin	AISI 410 F6	AISI 410 F6
	87	Spina supporto	Support pin	AISI 410 F6	AISI 410 F6
	86	Spina corpo/chiusura	Body pin	AISI 410 F6	AISI 410 F6
	85	Dado riduttore	Nut bolt	ASTM A194 GR.7	ASTM A194 GR.8
	84	Tirante riduttore	Gear bolt	ASTM A320 L7	ASTM A193 B8
	81	Vite flangia	Flange screw	8.8	A2
	80	Vite premitreccia	Cap screw	8.8	A2
	78	Dado corpo	Body nut	ASTM A194 GR.7	ASTM A194 GR.8
	77	Tirante corpo	Body bolt	ASTM A320 L7	ASTM A193 B8
	76	Molla seggio	Spring	INC - 750	INC - 750
	73	Boccola (stelo)	Bearing du-dry (stem)	GG PTFE	GG PTFE
	72	Rasa (stelo)	Bearing disc (stem)	GG PTFE	GG PTFE
	71	Boccola (sfera)	Bearing du-dry (ball)	GG PTFE	GG PTFE
	70	Rasa (sfera)	Bearing disc (ball)	GG PTFE	GG PTFE
	59	O-ring flangia	Flange O-ring	FKM	FKM
	58	O-ring premitreccia	Cap O-ring	FKM	FKM
	56	O-ring seggio	Seat O-ring	FKM	FKM
	55	O-ring corpo	Body O-ring	FKM	FKM
	37	Guarnizione flangia	Flange gasket	GRAPHITE	GRAPHITE
	36	Guarnizione prem.	Cap gasket	GRAPHITE	GRAPHITE
	35	Guarnizione seggio	Seat gasket	GRAPHITE	GRAPHITE
	34	Guarnizione stelo	Stem gasket	GRAPHITE	GRAPHITE
	32	Guarnizione corpo	Body gasket	GRAPHITE	GRAPHITE
	12	Estensione stelo	Stem extension	AISI 410 F6	AISI 410 F6
	11	Orecchia sollevamento	Lifting lug	Fe 360	Fe 360 Zn
	10	Piede di sostegno	Support leg	Fe 360	Fe 360 Zn
	8	Supporto sfera	Support	Fe 5108 ENP	ASTM A240 F316
	7	Flangia ISO	Operator flange	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	6	Premitreccia	Cap	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	5	Stelo	Stem	ASTM A182 316/316L	ASTM A182 316/316L
	4a	Inserto	Insert	R-PTFE	R-PTFE
	4	Seggio	Seat	ASTM A182 316/316L	ASTM A182 316/316L
	3	Sfera	Ball	ASTM A182 316/316L	ASTM A182 316/316L
	2	Chiusura	Closure	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	1	Corpo	Body	ASTM A350 LF2 cl.1	ASTM A182 316/316L
	ITEM	DESCRIZIONE	DESCRIPTION	MATERIALI STANDARD	STANDARD MATERIAL

Parti di ricambio/Spare parts

TORQUE TABLE

TORQUE 1 valid for B7,L7, B7M, L7M, Gr.660, Duplex
TORQUE 2 valid for B8, B8M and similar

Diameter	Thread	Section Strenght	TORQUE 1	TORQUE 2
			B7-L7-B7M-L7M-Gr 660,DUPLEX	B8 - B8M – and similar
D	p	Sr		
[mm]	[mm]	[mm2]	[N/m]	[N/m]
10	1.5	58	32	16
12	1.75	84.3	56	28
14	2	115	89	45
16	2	157	138	70
18	2.5	192	190	97
20	2.5	245	270	137
22	2.5	303	367	187
24	3	353	466	237
27	3	459	682	347
30	3.5	561	926	471
33	3.5	694	1260	641
36	3	865	1713	872
39	3	1030	2209	1125
42	3	1210	2795	1423
45	3	1400	3465	1764
48	3	1600	4224	2150
52	3	1900	5434	2766
56	4	2140	6591	3356
60	4	2480	8184	4166
64	4	2850	10032	5107
68	4	3240	12118	6169
72	4	3660	14494	7379
76	4	4100	17138	8725
80	4	4570	20108	10237
85	4	5180	24217	12328
95	4	6540	34172	17396
100	4	7280	40040	20384
105	4	8050	46489	23667
125	4	11500	79063	40250

Summary

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CROTTI valvole

www.crottivalvole.it

Test certificate acc. to EN 10204:2004 3.1 and Conformity Declaration acc. to 2014/68/EU

N. 26251 date: 19/10/2022

CROTTI REFERENCES: JOB N° 252

TAG: U0412-31%U0412-70

PEGORARO GAS TECHNOLOGIES S.R.

VIA A. MEUCCI, 77

ITA 36057 ARCUGNANO VI

PO N° 941

DESCRIPTION OF THE VALVES :

QUANTITY: 40 WAFER DN 25 CLASS: PN16/40 PORT: FULL

MATERIAL							
BODY	A350 LF2	HEAT N.	463432	CLOSURE	A350 LF2	HEAT N.	463432
BALL	316/316L	HEAT N.	278415	STEM	316/316L	HEAT N.	278689
SEATS	PTFE	HEAT N.		CAP		HEAT N.	
BOLT		HEAT N.		NUT		HEAT N.	

HEAT N.	C	Mn	Si	P	S	Cr	Ni	Mo	R/t	RS/y	A/E%	Z%	KV (J)
463432	0,183	0,97	0,23	0,01	0,004	0,13	0,1	0,02	532	377	32,8	71	(-50°C) 150 155 156J
278415	0,016	1,52	0,38	0,034	0,027	16,79	10,12	2,04	576	282	52	69	
(CHEMICAL ANALYSIS AND MECHANICAL CHARACTERISTIC ISSUED BY SUPPLIER)													

NOTE: T. -29°/+150°C

PRESSURE TEST ACCORDING: API 6D /EN 12266-1/ ISO5208

P.GAUGE Nr.:	84		DURATION	
HYDRAULIC SHELL TEST	bar	60	Min	2
HYDRAULIC SEATS TEST	bar	44	Min	2
PNEUMATIC SEATS TEST	bar	7	Min	2

Test Results : SATISFACTORY .
Visual and Dimensional Inspection: SATISFACTORY.

Functional Test: SATISFACTORY
Goods are in compliance with P.O.

EU DECLARATION OF CONFORMITY ACCORDING TO DIRECTIVE 2014/68/UE ANNEX IV-PED

This declaration of conformity is issued under the sole responsability of the manufacturer, Crotti Valvole srl, Who declares that the products to which this declaration is referring to are in compliance to Directive 2014/68/UE -PED code EN 12516/ANSI B16.34/ASME VIII div. 1 and were subjected to the following conformity assessment:

PROCEDURE: Category : ART. 4.3 Module: SEP

Machining step: 138/22

The assessment has been performed by:

Crotti Maria Grazia

VENUS®

REGULATION (UE) 305/2011 CPR

GEPRÜFT

* Until 2" - Bis 2" EN 331

NF ROB - GAZ

* Until 2" - Bis 2" DIN DVGW product GAS

Atex CE II 2 G D

** Marking Atex on request*
** Atex Markierung auf Anfrage*

art. 1001	F/F with aluminium lever from 1/4" to 4" F/F mit Alu-Handhebel von 1/4" bis 4"

art. 1002	M/F with aluminium lever from 1/4" to 2"1/2 M/F mit Alu-Handhebel von 1/4" bis 2"1/2

art. 1011	F/F with steel lever from 1/4" to 4" F/F mit Stahlhandhebel von 1/4" bis 4"
art. 1012	M/F with steel lever from 1/4" to 2"1/2 M/F mit Stahlhandhebel von 1/4" bis 2"1/2

art. 1021	F/F with T-handle from 1/4" to 1" F/F mit Flügelgriff von 1/4" bis 1"
art. 1022	M/F with T-handle from 1/4" to 1" M/F mit Flügelgriff von 1/4" bis 1"

art. 1041	F/F with square cap from 1/4" to 4" F/F mit Vierkantkappe von 1/4" bis 4"
art. 1042	M/F with square cap from 1/4" to 2"1/2 M/F mit Vierkantkappe von 1/4" bis 2"1/2

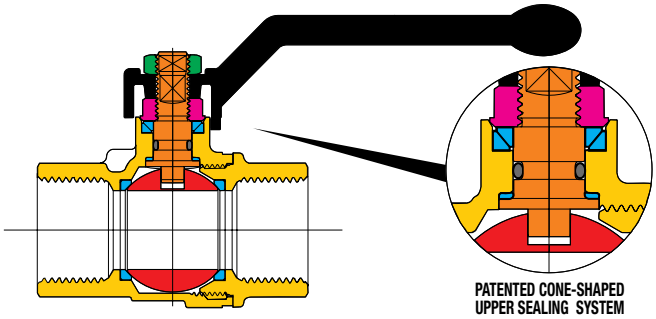
art. 1051	F/F with cap for buried service from 1/4" to 4" F/F mit Kappe für Straßenanschlüsse von 1/4" bis 4"
art. 1052	M/F with cap for buried service from 1/4" to 2"1/2 M/F mit Kappe für Straßenanschlüsse von 1/4" bis 2"1/2

art. 1061	F/F with sealing cap from 1/2" to 4" F/F mit plombierbarer Kappe von 1/2" bis 4"
art. 1062	M/F with sealing cap from 1/2" to 2"1/2 M/F mit plombierbarer Kappe von 1/2" bis 2"1/2

art. 1021..F	F/F with sealing drilling F/F mit plombierbarer Öffnung
art. 1022..F	M/F with sealing drilling M/F mit plombierbarer Öffnung

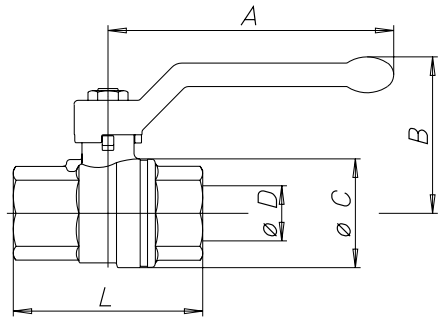
VENUS®

SECTION / QUERSCHNITT



LIST OF COMPONENTS: description/materials/treatments TEILELISTE: Beschreibung / Werkstoffe / Behandlungen		
Body and threaded end Gehäuse und Gewindemuffe		**CW617N (Pb ≤ 2,2% DIN 50930T6)**
Gland Stopfbuchse		**CW617N**
Stem Betätigungsspindel		**CW617N (Pb ≤ 2,2% DIN 50930T6)**
Chromium pl. polished ball Blank verchromte Kugel		**CW617N (Pb ≤ 2,2% DIN 50930T6)**
Seats Dichtungen		**PTFE**
Stem packing O-ring O-Ring Schaltwellenabdichtung		**NBR**
Operating device Betätigungselement		**aluminium alloy** / Alu-Legierung
Fixing screw Befestigungsmutter		**zinc plated steel** / Zinkstahl
Surface treatment Außenbehandlung	-	**Brilliant nickel-plating, two colours** glänzend vernickelte Oberfläche, zweifarbig

DIMENSIONS / ABMESSUNGEN



VALVE DIMENSIONS PER TYPE AND SIZE KUGELHAHNGRÖSSE NACH TYP UND MASS											
nominal diameter mm Nenndurchmesser mm	8	10	15	20	25	32	40	50	65	80	100
size in inches Zoll Abmessung	1/4"	3/8"	1/2"	3/4"	1"	1"1/4	1"1/2	2"	2"1/2	3"	4"
Ø D bore mm Ø D durchgang mm	10	10	15	20	25	32	40	50	65	80	100
A mm	85	85	85	105	105	130	130	165	260	260	260
B mm	42	42	49	57	61	75	81	97	116	127	142
Ø C mm	23/24*	24/24*	32	40	48	57,5	70	85,5	111	135	167
F/F - L mm	49/46*	51/50*	61	70	84	96	106,5	127,5	159	182	219
M/F - L mm	52/51*	54/54*	67	78	89	103	113	134,5	162	-	-

*** Dimensions of the new version** - Abmessungen der neuen Version

TECHNICAL FEATURES:
Temperature limits: for gas from –20°C to +60°C
Pressure limits: for gas MOP5 (20)

SPECIFIC FEATURES:

- The VENUS valve, with full bore, has been designed to comply with European regulation EN331 covering gas ball valves. Its construction guarantees excellent reliability at low and very low pressures which are typical in gas installations.
- The VENUS series complies to the regulation (UE) 305/2011 CPR (Building Material)

Bore: full.
Stem: anti blow out.
Seats: high resistance virgin PTFE.
Upper seal: **4 seals**
1 PTFE ring - high pressure
2 anti-friction self-adjusting cone shaped seals, in PTFE - medium and low pressure
1 O-Ring - low pressure

Application fields:
The VENUS series is particularly recommended in gas installations families 1°, 2°, 3° (EN437).

- The VENUS valve complies to the Norm ATEX 94/9/CE concerning the protection of systems for use in potentially explosive athmospheres (group II category 2) ATEX marking is at customer's request (please specify when ordering).

* On request the valve is available with **ATEX** certificate.

Threaded end connections:
- Standard female and male according to UNI ISO 7/1 (UNI ISO 10226).

Operation devices:
Aluminium lever, aluminium T-handle, steel lever, square cap, adaptor for buried service, sealing cap sealable T-handle.
Available colours: yellow.

All the valves comply with the regulation CE 2014/68/CE and are tested 100% on pneumatic seal with electronic control.

ALLGEMEINE DATEN DER STANDARDAUSFÜHRUNG:
Temperaturbereich: für Gas von -20°C bis +60°C
Betriebsdruck: für Gas MOP5 (20)

SONSTIGE VORTEILE DER STANDARDAUSFÜHRUNG:

- Der Kugelhahn VENUS wurde gemäß der europäischen Vorschrift EN331 über Gaskugelhähne bis 2" entwickelt.
  Dank seiner baulichen Eigenschaften gewährleistet es eine hohe Betriebssicherheit bei sehr niedrigem und niedrigem Druck in den Gasanlagen.
- Die Baureihe, VENUS hielt mit der Regelung (UE) 305/2011 CPR (Baustoff) ein

Durchgang: voll.
Spindel: Ausblasesicherheitsspindel.
Sitzdichtungen: reines, hochfestes PTFE.
Obere Abdichtung: **4 Dichtungen**
1 PTFE-Ring – Hochdruck.
2 konische, reibungsverhindernde PTFE gegen PTFE Dichtungen - bei Mittel- und Niederdruck.
1 O-Ring – Niederdruck.

Anwendungsbereich:
- Die Baureihe VENUS ist besonders für Gasversorgungsanlagen der 1.-2.-3. Familie (EN 437) geeignet.
  VENUS erfüllt die Norm ATEX 94/9/EG über den Schutz von Anlagen, die in explosionsgefährdeten Bereichen eingesetzt sind (Gruppe II, Kategorie 2). Die ATEX-Kennzeichnung ist auf Kundenwunsch (bitte bei Bestellung angeben)

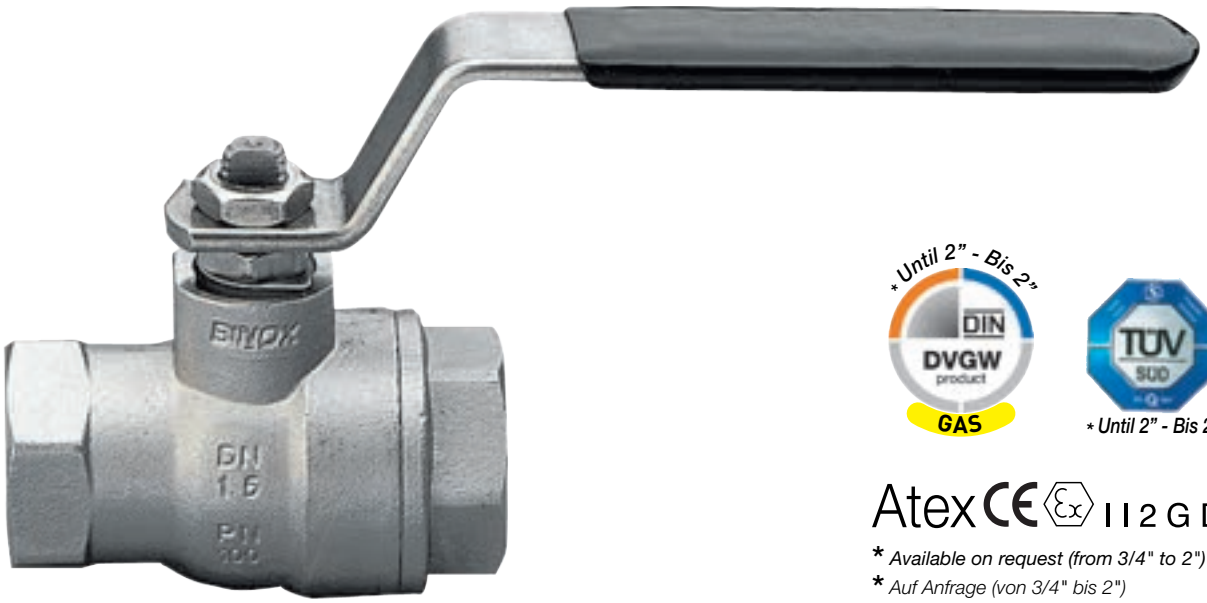
* Auf Anfrage ist der Kugelhahn mit **ATEX**-Zertifizierung erhältlich.

Gewindeanschlüsse:
- Innen- und Außengewinde nach UNI ISO 7/1 (UNI EN 10226).

Betätigungselemente:
Alu-Handhebel, Alu-Flügelgriff, Stahlhandhebel, Vierkantkappe, Kappe für Straßenanschluss, plombierbare Kappe, siegelbarer Flügelgriff.
Erhältliche Farben: gelb

Alle Kugelhähne berücksichtigen die EG-Richtlinie 2014/68/EG und werden 100% mit einem Verfahren kontrolliert, das eine elektronisch gesteuerte Luftdichtheitsprüfung vorsieht.

ALBA®



* Until 2" - Bis 2"

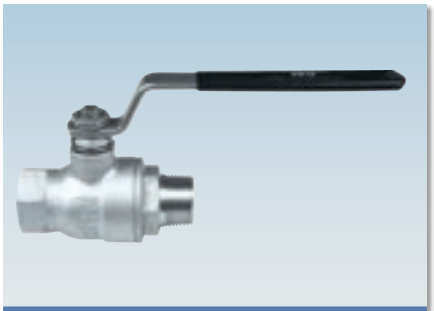
* Until 2" - Bis 2"

Atex CE Ex II 2 G D*

* *Available on request (from 3/4" to 2")*

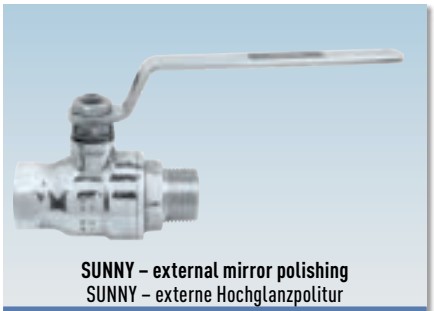
* *Auf Anfrage (von 3/4" bis 2")*

art. 2601	F / F 1/4" - 3"



art. 2602	M/F 1/4" - 2"

art. 2611	F/F 1/4" - 1"
art. 2612	M/F 1/4" - 1"



SUNNY – external mirror polishing
SUNNY – externe Hochglanzpolitur

art. 2621	F/F 1/4" - 2"
art. 2622	M/F 1/4" - 2"

MAIN STANDARD FEATURES:
- **CONSTRUCTION:** A351 - CF8M (AISI 316).
- **CERTIFICATION:** DVGW for gas up to 2" (only PTFE) MOP5
  TUV for TA Luft up to 2" (only PTFE).
- **CONNECTIONS:** F/F Rp UNI-ISO 7/1 (UNI EN 10226)
  (DIN2999 parallel)
  M/F up to 2" (male R UNI-ISO 7/1 (UNI EN 10226),
  (female parallel).
- **PRESSURES:** 100 bar - 40 bar.
- **TEMPERATURE LIMITS:** -20°C / +150°C.
- **STEM:** Anti blow out.
- **UPPER SEAL:** TRIPLE stem-packing with labyrinth effect and automatic adjustment by Belleville washers.
- **OPERATOR:** lever. Available colours: black, yellow.
- **TESTED FOR VACUUM:** (800 mbar).
- Art. 2"1/2 - 3": with locking device and mounting plate ISO 5211

GENERAL APPLICATIONS:
ON-OFF valve for: chemical products, for water and pneumatic installations, gas, water, vacuum. For steam applications, working pressures may be reduced and special seals required.
For special applications please check the suitability of the valve for the process and the required corrosion resistancy using the relevant table.

SPECIAL EXECUTIONS:
- **PTFE +15% GLASS FIBRE:** -20°C + 175°C.
- **PTFE+CARBOGRAPHITE:** -20°C + 180°C, (optimum from 60°C to 180°C).
- **PE HD:** -20°C + 70°C
- **FF:** NPT ANSI B1.20.1.
- Ball with relief hole.
- **DEGREASED VALVES:** For oxygen service (max W.P. 20 bar).
- **STEM EXTENSION:** 50 mm up to 2".
- For further special requests please consult our technical/ commercial service.

ON REQUEST:
The ball valve corresponds to the Italian standard, DM 174 about materials and articles which can be used with facilities for the supply and distribution of drinking water.

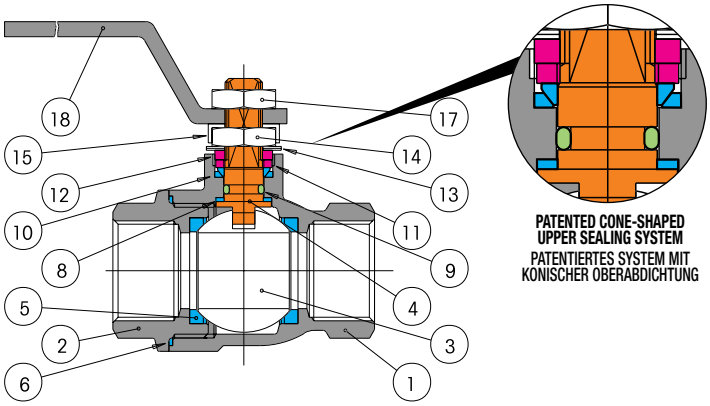
ALLGEMEINE DATEN DER STANDARDAUSFÜHRUNG:
- **BAUFORM:** A351 - CF8M (AISI 316).
- **ZERTIFIZIERUNGEN:** DVGW für Gas bis 2" (Nur PTFE) MOP5
  TÜV für TA Luft bis 2" (Nur PTFE).
- **ANSCHLÜSSE:** F/F UNI-ISO 7/1Rp (UNI EN 10226)
  (DIN2999 zylinderförmig)
  M/F bis 2" (Außengewinde UNI-ISO 7/1 R
  (UNI EN 10226), Innengewinde zylinderförmig).
- **DRUCKBEREICH:** von 100 bar bis 40 bar.
- **TEMPERATURBEREICH:** -20°C / +150°C.
- **AUSBLASESICHERHEITSSPINDEL.**
- **OBERE ABDICHTUNG:** DREIFACHE Schaltwellenabdichtung mit Labyrintheffekt und automatische Regelung des Dichtsystems mit Tellerfedern.
- **BETÄTIGUNGSELEMENT:** Handhebel. Erhältliche Farben: schwarz, gelb.
- **ANGEGEBENES VAKUUM:** (800 mbar).
- Art. 2"1/2 - 3": mit Sperrvorrichtung und Sockel ISO 5211

ALLGEMEINE ANWENDUNGEN:
Anwendung als Absperrventil (ON-OFF) für: Chemische Produkte, für hydraulische und pneumatische Anlagen, für Gas, Wasser, Vakuum. Für Dampf beschränkt auf mäßige Betriebsbedingungen und bei besonderen Dichten. Für Spezialanwendungen sind die Kompatibilität mit den Prozesseigenschaften sowie die Korrosionsbeständigkeit auch anhand der entsprechenden Tabelle zu prüfen.

SONDERAUSFÜHRUNGEN:
- **PTFE+15% Glasfaser:** -20°C + 175°C.
- **PTFE+CARBOGRAFIT:** -20°C + 180°C, (optimal von 60°C bis 180°C).
- **PE HD:** -20°C + 70°C
- **INNENGEWINDEANSCHLÜSSE:** NPT ANSI B1.20.1.
- Kugel mit Entlassungsloch.
- **FETTFREIE KUGELHÄHNE:** Sauerstoffventile max. 20 bar.
- **SPINDELVERLÄNGERUNG:** 50 mm bis 2".
- Für weitere Sonderanfragen bitte unsere Vertriebsabteilung kontaktieren.

AUF ANFRAGE:
Der Kugelhahn entspricht zu der italienischen Norm, DM 174 hinsichtlich der Materialien und Gegenstände, die bei Anlagen zur Versorgung und Zuleitung des Trinkwassers verwendet werden können.

CONSTRUCTION / AUFBAU



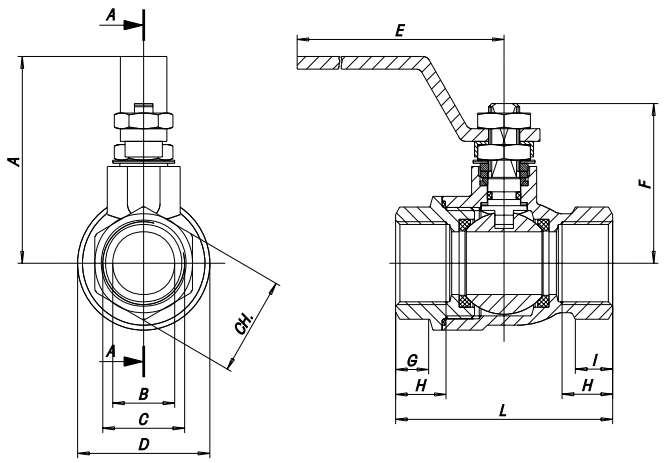
PATENTED CONE-SHAPED UPPER SEALING SYSTEM
PATENTIERTES SYSTEM MIT KONISCHER OBERABDICHTUNG

LIST OF COMPONENTS AND MATERIALS - TEILE- UND WERKSTOFFLISTE

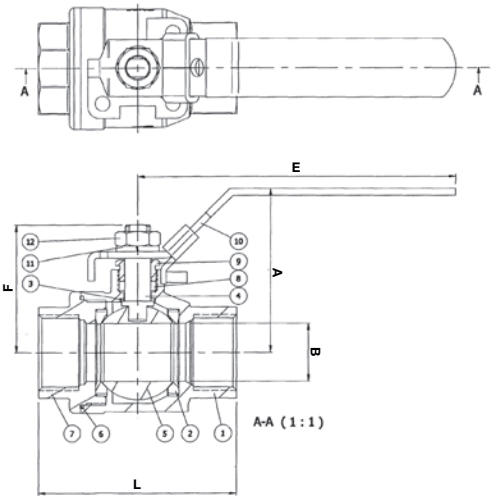
1		BODY / GEHÄUSE	AISI 316	1.4408	1
2		FEMALE END / MUFFE INNENGEWINDE	AISI 316	1.4408	1
3		BALL / KUGEL	AISI 316	1.4401	1
4		STEM / SPINDEL	AISI 316	1.4401	1
5		SEAT / SITZRING	PTFE	-	2
6		SIDE SEALING RING / SITZDICHTUNG	PTFE	-	1
8		UPPER SEALING RING / OBERE ABDICHTUNG	PTFE	-	2
9		STEM O-RING / O-RING SPINDEL	VITON	-	1
10		UPPER SEALING COUPLE / OBERE DOPPELABDICHTUNG	PTFE	-	1
11		GLAND WASHER / SCHEIBE STOPFBUCHSE	AISI 304	1.4301	1
12		STOP / ANSCHLAGBOLZEN	AISI 304	1.4301	1
13		BELLEVILLE WASHERS / TELLERFEDERN	AISI 301	1.4310	2
14		STEM RETAINING NUT / GEGENMUTTER	AISI 304	1.4301	1
15		FIXING NUT PLATE / MUTTERHALTEPLATTE	AISI 304	1.4301	1
17		LOCKING NUT / MUTTER HEBELSPERRE	AISI 304	1.4301	1
18		LEVER / BETÄTIGUNGSHEBEL	AISI 304	1.4301	1

SECTION / QUERSCHNITT

1/4" ÷ 2"



2"1/2 ÷ 3"



SIZE	A	B	D	E	F	G	H	I	L	HEX.KEY	OCT. KEY	WEIGHT g. MF	WEIGHT g. FF	Kv
1/4"	52	8	29	110	37	8,5	11,4	8	55	21,5	-	230	220	11
3/8"	52	10	29	110	37	8,5	11,4	8	55	21,5	-	230	205	11
1/2"	55	15	34	110	42	10	15	9,5	65	26,5	-	315	275	20
3/4"	66	20	42,5	140	52	11,5	16,3	11,5	70	31,5	-	535	465	60
1"	70	25	50,5	140	56	14	19,1	13,5	85	40,5	-	805	710	100
1"1/4	85	32	63	180	68	15,5	21,4	16	95	-	49,5	1320	1180	130
1"1/2	91	40	75,5	180	74	18,5	21,4	16	105	-	54,5	1875	1740	170
2"	105	50	91	230	87	22,5	25,7	23,5	125	-	69,5	3130	2930	280
2"1/2	133	65	117	250	114	30	31,5	32,5	167	86	-	-	6420	510
3"	143	76	138,5	250	124,5	32,5	34,5	39	192	-	-	-	9580	770

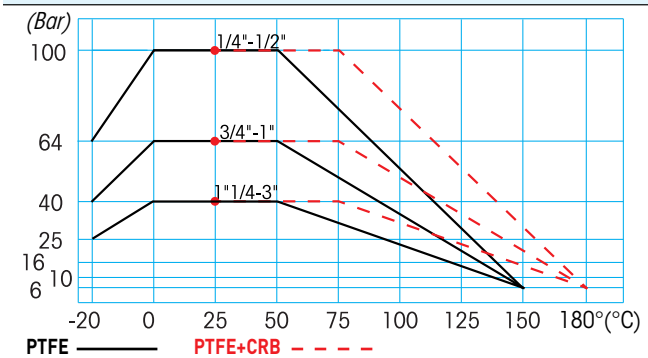
BREAKAWAY TORQUES in Nm / ANLAUFMOMENTE (BREAKAWAY) in Nm

	DN size	10 1/4"3/8"	15 1/2"	20 3/4"	25 1"	32 1"1/4	40 1"1/2	50 2"	65 2"1/2	80 3"
PN - bar	0	1.6	3.2	3.6	4.6	11.5	19	27.5	50	65
	16	1.8	4.3	4.9	5.9	15	24	38	65	80
	40	2.5	5.1	6	6.9	16.7	28.6	42	75	90
	64	3.2	5.6	6.8	8					
	100	3.8	6.5							

The values in NM may vary depending on the seat material, temperature and type of fluid.
A safety factor of 1,5 should be used (for PTFE).

Die Nm-Werte hängen von dem Sitzringe-Material, der Temperatur und dem Flüssigkeitstyp ab. Bei den verschiedenen Einsatzbedingungen muss man einen Sicherheitskoeffizient von 1,5 berücksichtigen, um einen betriebssicheren Betrieb zu gewährleisten (für PTFE).

PRESSURE/TEMPERATURE DIAGRAM - DRUCK- / TEMPERATURDIAGRAMM



For Specifications about the Pressure-temperature Diagram and installation instructions, see page 460
Für Spezifizierungen bezüglich des Diagrammes Druck-Temperatur und Verwendungsvorschriften, siehe Seite 460

EFFEBI SPA
25073 Bovezzo (BS) Italia
Via Giuseppe Verdi, 68 Tel. 03021101
Fax 0302110301/302

VALVOLE A SFERA / INDUSTRIAL BALL VALVES
VALVOLE A FARFALLA / BUTTERFLY VALVES

Articolo / Item	**2602XG62**	Rif.	**I019519**	Qta / Q.ty **25**	Certificato di collaudo Test certificate
Descrizione / Type	**1/4 ALBA-DVGW MF INOX C/LEVA GIA.**				**N. 22CERT04542 del / of 04/03/2022**
Cliente / Customer	**PEGORARO GAS TECHNOLOGIES SRL**				
DDT Nr. / Delivery note	**22DDT006424 del / of 04/03/2022**	Ordine Nr. / Order No.	**123 REV.01+AGG. del / of 09/02/2022**		**EN 10204 - 3.1**

PARTICOLARE Part Number	MATERIALE Material	COLATA Heat	CARATTERISTICHE MECCANICHE Mechanical Properties										ANALISI CHIMICA Chemical Analysis										
			R T.S. N/mm²	RS YS N/mm²	A E %	Z R.A. %	Hardnes Brinell Durezza	KV 1	KV 2	KV 3	T°C	KV	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	N %	Al %	Fe %	Cu %
Corpo Body	1.4408	X1127H	516,00	214,00	43,00								0,0280	0,7020	0,9670	0,0230	0,0010	18,2600	9,2200	2,2290				
Sfera Ball	AISI 316	2003242085	580,00	250,00	53,00		159,00						0,0430	0,6620	0,9960	0,0350	0,0140	18,2450	9,0570	2,0580				
Stelo Stem	AISI 316L	S38173	575,00	230,00	58,00	79,00	127,00						0,0160	0,4640	1,3550	0,0310	0,0182	16,6470	10,0230	2,0330				

TEST IN PRESSIONE SECONDO API STD 598
PRESSURE TEST API STD 598

UNIT:BAR

CLASSE RATING	HYDROSTATIC TEST		PNEUMATIC TEST	ESITO COLLAUDO TEST RESULT	UFFICIO COLLAUDI QUALITY DPT
	CORPO / SHELL TEST	SEGGIO / HIGH PRESSURE CLOSURE	SEGGIO / LOW PRESSURE CLOSURE		**Merlo Oliviero**
PN 100	**150**	**110**	**6**	SATISFACTORY	Documento emesso da sistema informatico controllato e valido come firma Document issued by computer system and valid as signature of approval
ESEGUITO IL CONTROLLO VISIVO E DIMENSIONALE VISION AND DIMENSIONAL CHECK PERFORMED				SATISFACTORY	

Legenda Particolare / Part Number: Corpo / Body - Sfera / Ball - Manic. Threaded end - Flangia / Flange - Disco / Disc - Ghiera / Nut - Ghiera / F / Nut / Flange - Stelo - Stern

Regolatore primo stadio Serie APS2000

Art. 2560BH

Art. 2560BC

Art. 2514AA

Applicazione

Il nuovo regolatore di alta pressione NOVACOMET APS2000 è progettato e costruito per essere impiegato con gas combustibili, in particolare GPL , Gas Naturale e fluidi non domestici (aria, azoto, ecc..)

Il principale utilizzo è come primo stadio, installato direttamente sul serbatoio GPL. Rispetto allo "storico" APS100 che lo ha preceduto, questo nuovo modello è stato concepito per prestazioni conformi alla normativa europea EN13785 e alla futura EN16129

I punti di forza sono:

- intercambiabilità con la serie precedente
- Sede bilanciata per una pressione di uscita più stabile
- Disponibile sia a taratura fissa che variabile
- Possibilità di essere fornito con attacchi da 1"F
- Possibilità di installare le flange DN25 in ingresso e uscita

Informazioni Tecniche

- Nuovo design
- Portata: 150 kg/h
- Corpo e coperchio in lega di alluminio
- Conformità alla EN 13785 - EN16129
- Membrana e otturatore in gomma sintetica resistente agli idrocarburi in conformità alla EN549
- Temperature d'esercizio : -20° +50° C
- "Made in Italy" prodotto da NOVACOMET

Codice	Vecchio codice	Entrata - Uscita	Pe max	Pu	Portata	Note
002560BF	2500	3/4 F - 3/4 F	16 bar	0,5-2bar	150 kg/h	-
002560BE	2510	3/4 F - 3/4 F	16 bar	0,5-2bar	150 kg/h	n.1 Man in uscita
002560BG	2530	3/4 F - 3/4 F	16 bar	0,5-2bar	150 kg/h	n.2 Man entrata/uscita
002560BH	2540	3/4 F - 3/4 F	16 bar	0,5-2bar	150 kg/h	n.2 Man bagno olio entrata/uscita
002560BC	-	1 F - 1 F	16 bar	0,75 bar	150 kg/h	-
002514AA	-	FL DN25 - FL DN25	16 bar	0,75 bar	150 kg/h	-

NOVA COMET Srl – Via Castel Mella, n.55-57 Torbole Casaglia (Brescia) Italia
Tel:+39 030 2159111 r.a. Fax: +39 030 2650717 info@novacomet.it

NOVACOMET

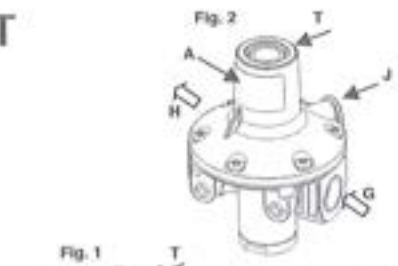
APS2000 *EN 16129*

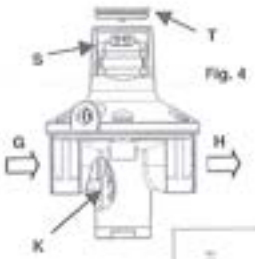
NOVA COMET S.r.l.
Via Castel Mella, 55/57
25030 Torbole Casaglia (BS) - ITALIA
Tel.: +39 030 2155111
Fax: +39 030 2650717
E-mail: info@novacomet.it

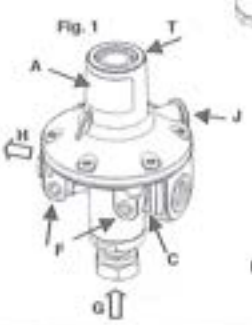
CLESSE Industries
Rue du Bois Joli BP 118
63308 Cournon d'Auvergne - FRANCE
Tel.: +33 (0)4 73 69 29 00
Fax: +33 (0)4 73 84 73 36
E-mail: commercial@clesse-industries.com

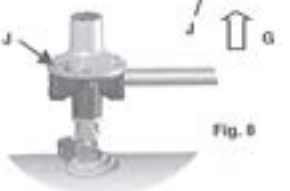
CLESSE (UK) Ltd
Drakes Broughton Business Park
Worcester Road, Drakes Broughton
Pershore, Worcestershire WR10 2AG. - U.K.
Tel.: +44 (0) 1905 842020
Fax: +44 (0) 1905 842021
E-mail: sales@clesse.co.uk

CLESSE Brasil
COMAP do Brasil Ltda,
Av. Rudolf Dafferner, 601, Bloco C1
Alto de Boa Vista – Sorocaba (SP)
CEP 18085-005 - BRASIL
Tel.: +55 15 3218 1222
Fax: +55 15 3218 1299
Email: vendas@clesse.com.br









English

HIGH PRESSURE REGULATOR

Application

This pressure regulator is mainly used for LPG (butane, propane and their mixes) in vapour service. Do not use in liquid LPG service.

It may also be used with other non-aggressive gases: natural gas, air, nitrogen,... .

In order to ensure that the regulator works correctly for its entire life, the gas used must be pure and not contain aggressive substances.

In an LPG system, it is mainly used to regulate the first stage and it is generally installed onto the gas off-take tank valve.

Operating temperature range: -20°C/+60°C

The following operating parameters are displayed on the label (A):

- range of inlet pressure
- nominal outlet pressure, and/or, for adjustable and variable models, the range of outlet pressures.
- guaranteed flow rate and the reference gas
- type of thread ISO7 or NPT (on models with female connections).

Construction

Connections

Depending on models the inlet connection is:

- in line with the outlet connection (fig. 2 & 3).
- 90° from the outlet connection (fig. 1).

Certain models are equipped with a rotating-nut inlet connector or flange connections.

Outlet pressure adjustment

Depending on the models the outlet pressure can be fix, adjustable (internal adjustment) or variable (external adjustment).

Direction of flow

The arrows, stamped under the body (C), indicates the direction of flow of gas.

Materials:

- body and cover in aluminium alloy.
- diaphragm and valve pad in an elastomer resistant to LPG and natural gas.

Accessories

- Pressure gauge

Certain models are equipped with pressure gauges which displays the outlet (D) and inlet pressure (E).

Others models are equipped with plugs (F) which can be removed in order to connect a pressure gauge or a fitting device to link the sensing tube of an independent Over Pressure Shut Off (OPSO) safety device.

Warnings before installation

Note that pressurised gases must be treated with care and can be dangerous. They may cause serious injury and fatal accidents.

Installation, inspection and maintenance must be performed by persons with the necessary competence, in relation to the type of gas and required usage.

The installation must be performed, inspected, used and maintained in conformity with the laws in force in the country of installation.

Make sure that the installation valves are closed before fitting this regulator and that no sources of ignition are nearby.

Ensure that the types of connection of the elements to join to the inlet (G) and outlet (H), are compatible with those of the regulator, and that the flow direction defined by the arrows (G & H) is respected.

If couplings are used in the installation (connector with a nut), check the presence of the gasket and its integrity. Replace it if necessary.

Thoroughly clean (blow through) upstream tubing, if any.

Regulator installation

The regulator should preferably be installed outdoors (see local legislation) and be protected from rain, rain splatters and from all other agents (i.e. snow, dust, mortar,...) which could obstruct the vent (J).

We recommend positioning the vent (J) down to prevent water entering and allow any internal atmospheric moisture or condensation to drain freely away from the regulator. Examples of recommended positions are displayed in fig 6, 7 and 8.

Note that water collected in the regulator may freeze, in cold weather condition; this can lead to incorrect pressure control and possible escape of gas from the pressure relief valve, if fitted.

In the case of indoor or underground installation, we recommend connecting the vent (J) to the outdoors, using a Ø6 mm pipe (fig. 5-a) with seal on rubber bush (P). If necessary this connection can be secured using a G1/4 threaded connector (R), removing the bush (P) enlarging the tube at end to make the seal (fig. 5-b)

When the regulator is used as a first stage regulator in an LPG installation, and when it is not directly fitted onto the tank service valve, the regulator should be installed higher than this valve and the connecting pipe shall have a steady fall back to the tank.

Where possible, we recommend positioning the regulator in such a way that possible liquefied LPG cannot be trapped upstream the seat (K).

Where possible we recommend to install a filter upstream the regulator. When the regulator is installed onto gas cylinder valve, there shall be a filter in the connector.

After the installation is completed, open the upstream valve and check the sealing of the connections using a relevant soapy solution. Never use a flame.

Outlet pressure adjustment

For "variable" models (fig. 3):

- loose the locknut (L)
- turn the adjustment screw (M) clockwise to increase the pressure or counter-clockwise to decrease it,
- lock the locknut (L)

For "adjustable" models (fig. 4):

- Remove the black cap by the cover (T) using special key (code 004503), turn the internal screw ring to give the desired outlet pressure.
- Reset the cap on the cover.

Warning:

- the adjustment screw (M) and the locknut (L) must not be changed or altered. Any other screw or nut may affect the regulation function and lead to dangerous operation.
- the adjustment must not be used as a mean for closing the gas flow
- the pressure setting must be done within the outlet pressure range displayed on the label (A).

Note that higher is the setting, greater is the risk to get liquid LPG formation downstream the regulator.

Information to the user

The user must be informed about:

- the location and operation of the main shut off valve, capable to be closed in case of smell of gas or first signs appliance combustion trouble,
- the vent opening (J) that must remain free and cleaned from any obstruction and checked mainly after severe climatic conditions (snow, freezing rain, heavy rain, dust, mud, etc.),
- the servicing that must be carried out only by qualified persons.

Maintenance

The operation of the regulator and the gas installation shall be checked periodically.

In ideal use conditions and in order to guarantee the correct operation of the installation, we recommend replacing the regulator within 10 years of use.

In severe service conditions it shall be inspected frequently and replaced sooner.

INSTRUCTION TO BE KEPT BY THE USER

The content of this instruction sheet is presented solely as information, as despite efforts to ensure its correctness, it should not be interpreted as an explicit or implicit cover guarantee for the products or services described or for their use or applicability. We reserve the right to change or improve product design or specifications at any moment and without notice.

Italiano

REGOLATORE DI ALTA PRESSIONE

Applicazione

Questo regolatore è principalmente impiegato per GPL (butano, propano e loro miscele) in fase gas. Non usare con GPL in fase liquida.

Può essere inoltre utilizzato con altri gas non corrosivi, quali metano, aria, azoto,...

Per permettere il corretto funzionamento durante tutto il periodo della sua vita, il gas utilizzato deve essere puro e non contenere sostanze aggressive.

In un impianto GPL, è principalmente adoperato come regolatore di primo stadio ed è generalmente installato sulla valvola di servizio del serbatoio.

Campo di temperatura di impiego: -20°C/+60°C

Sull'etichetta (A) sono indicate le seguenti caratteristiche di funzionamento:

- campo della pressione di entrata
- pressione di uscita nominale, o, per i modelli regolabili, il campo della pressione di uscita.
- portata garantita e gas di riferimento
- tipo di filettatura ISO7, o NPT (sui modelli con connessioni filettate femmina).

Costruzione

Attacchi:

In funzione dei modelli, l'attacco di entrata è:

- in linea con l'attacco di uscita (fig. 2 & 3);
- a 90° rispetto all'attacco di uscita (fig. 1).

Alcuni modelli sono dotati di un raccordo di entrata con dado a girello o di attacchi flangiati.

Regolazione della pressione di uscita

In funzione dei modelli, la pressione di uscita può essere fissa, aggiustabile (regolazione interna), o variabile (regolazione esterna)

Direzione del flusso

Le frecce, stampigliate sotto il corpo (C), indicano il senso del flusso del gas.

Materiali:

- corpo e coperchio in lega di alluminio.
- membrana e pasticca otturatore in gomma sintetica resistente al GPL e al gas naturale.

Accessori

- Manometro

Alcuni modelli sono dotati di manometri che rilevano le pressioni di uscita (D) e di entrata (E).

Altri modelli sono forniti di tappi (F) che possono essere svitati per collegare un manometro o la presa di pressione di una indipendente valvola di sicurezza di sovrapressione (OPSO).

Avvertenze prima del montaggio

Tenere presente che i gas devono essere trattati con cura perchè possono essere pericolosi. Essi possono provocare ustioni o lesioni mortali.

Il montaggio, la verifica e la manutenzione dell'impianto devono essere effettuate da persone con la necessaria competenza, in relazione al tipo di gas e alla funzione richiesta.

L'installazione, deve essere realizzata, verificata, utilizzata e mantenuta in servizio in conformità con le leggi vigenti del proprio paese.

Assicurarsi che le valvole di intercettazione siano chiuse e che intorno non sia presente nessuna fonte di accensione.

Assicurarsi che le connessioni di entrata (G) e di uscita (H) utilizzate, siano compatibili con quelle del regolatore e che il senso del flusso definito dalle frecce (G & H) sia rispettato.

Se sono utilizzati dei raccordi (iniettore e dado), controllare la presenza e l'integrità della guarnizione, e sostituirla se necessario.

Pulire accuratamente (con soffio) la tubazione a monte del regolatore, se presente.

Montaggio del regolatore

Il regolatore deve essere preferibilmente installato all'esterno (vedi legislazione locale), protetto dalla pioggia o getti d'acqua e da tutti quegli agenti (p.e. neve, polvere, cemento, ...) che potrebbero ostruire il foro di sfiato (J).

Si raccomanda di posizionare lo sfiato (J) in basso in modo da prevenire l'entrata di acqua e permettere che l'eventuale ristagno di umidità o di condensa possa liberamente defluire all'esterno del regolatore. Esempi di posizioni raccomandate sono illustrate in fig. 6, 7 e 8.

Nota che l'eventuale acqua presente all'interno del regolatore può gelare in condizioni di ambiente gelido; questo può compromettere il regolare funzionamento del regolatore e creare la condizione di intervento della valvola di sfioro (se presente) con relativa fuoriuscita di gas.

In caso di installazione interna o interrata si raccomanda di collegare lo sfiato (J) all'aperto con un tubo Ø6 mm (fig. 5-a) a tenuta sul manicotto di gomma (P). Se necessario tale connessione può essere assicurata da un collegamento filettato G1/4 (R), togliendo il manicotto (P) e scartellando il tubo Ø8 ad una estremità per ottenere la tenuta (fig.5-b).

Quando il regolatore è utilizzato come primo stadio di regolazione in un impianto GPL, e quando non è direttamente collegato alla valvola di servizio del serbatoio, il regolatore deve essere posizionato più in alto di questa valvola e la tubazione che le collega deve presentare una pendenza continua che scenda verso il serbatoio.

posizionare il regolatore in modo tale che del GPL liquido non possa rimanere bloccato a monte della sede (K).

Se possibile, raccomandiamo di installare un filtro a monte del regolatore. Se il regolatore è installato su una bombola, assicurarsi che nella connessione sia presente un filtro .

Al termine dell'installazione, aprire la valvola di intercettazione a monte e controllare la tenuta delle connessioni utilizzando una soluzione schiumosa rivelatrice di fughe. Non usare la fiamma.

Regolazione della pressione di uscita

Nei modelli "variabili" (fig. 3):

- sbloccare il dado di fermo (L)
- ruotare la chiave di regolazione (M): in senso orario per aumentare la pressione o anti-orario per diminuirla,
- riavvitare a battuta il dado di fermo (L).

Nei modelli "aggiustabili" (fig. 4)

- svitare il tappo nero dal coperchio (N) usando la speciale chiave (rif. 004503), e regolare la ghiera interna fino ad ottenere la pressione di uscita desiderata.
- riavvitare il tappo sul coperchio.

Attenzione:

- la vite di regolazione (M) e il dado di fermo (L) non devono essere cambiati o modificati. Ogni altra vite o dado possono influenzare il funzionamento e creare situazioni di pericolo.
- la regolazione non deve essere utilizzata come mezzo per chiudere il flusso del gas.
- la messa a punto della pressione deve essere eseguita all'interno del campo indicato nell'etichetta (A).

Da considerare che più alto è il settaggio, maggiore è il rischio di ottenere GPL liquido a valle del regolatore.

Informazioni da comunicare all'utente

L'utilizzatore deve essere informato per quanto segue:

- l'ubicazione e la manovra da effettuare per chiudere la principale valvola di servizio in caso di odore di gas o ai primi problemi di combustione dell'apparecchiatura,
- il foro di sfiato (J) che deve essere libero e pulito da qualsiasi ostruzione e principalmente controllato dopo gravose condizioni climatiche (neve, grandine, tempesta, polvere, fango, ecc.),
- l'assistenza che deve essere effettuata solo da persone qualificate.

Manuterzione

Il regolatore e l'impianto del gas devono essere controllati periodicamente.

In condizioni ideali e per garantire la corretta operazione di installazione, consigliamo di sostituire il regolatore dopo 10 anni di utilizzo.

In gravose condizioni di servizio è meglio ispezionarlo frequentemente e sostituirlo a più breve termine.

ISTRUZIONI DA CONSERVARE DALL' UTENTE

Il contenuto di questo foglio di istruzioni è presentato unicamente a titolo informativo e, nonostante lo sforzo di assicurarne la correttezza, non deve essere interpretato come uno strumento di garanzia esplicita o implicita di copertura per i prodotti o i servizi descritti o loro uso o applicabilità. Ci riserviamo il diritto di modificare o migliorare la progettazione o le specifiche dei prodotti in qualsiasi momento e senza preavviso.

DECLARATION OF CONFORMITY

(According to ISO/CEI 17050-1 2011-09)

NOVA COMET declares that the following items to which this declaration refers:

Model	Description	Série
APS2000	**HIGH PRESSURE REGULATOR**	**002500**

- Are designed, manufactured and tested in accordance to the EN 16129 (and UL 144 where appropriate).
- Comply with the European Directive PED 2014_68_EU-EN (06-2014), are classified Article 4.3, no CE marking (diameter of connections < DN25, inlet pressure > 0,5bar).
- Are not included in the scope of the European Directive 2014/34/UE (ATEX) – (regulators without any source of ignition which could start a dangerous situation in potentially explosive atmosphere).
- Are not included in the scope of the regulation (UE) 2016/426 (GAD) – (regulators not intended to be integrated in gas appliances or assembled to form a gas appliance).

All the items are 100% tested according to the internal QC instructions.

To ensure the correct operation of items declared in this document, the installation and use of such equipment must strictly be in accordance with the manufacturer's instructions provided, installed by a suitably qualified installer to the current local / country rules of standards in installation and use applicable.

NOVA COMET è certificata ISO9001 dal **bsi**.

NOVA COMET
Savoie Mathieu
Group Quality Manager

DCO-APS2000_002500_2023-10-20 DATE : 20/10/2021 Validity : 2 years

NOVA COMET S.r.l.
Via E. Mattei, 28 – 25046 Cazzago San Martino (Brescia) Italia
Tel: + 39 030 2159111 – Fax: +39 030 2650717
info@novacomet.it – www.clesse.eu

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