



penta s.p.a.



SAT CRIO

MODELLO / MODEL

SAT CRIO



97/23/CE "PED"



II 2 GD c T6 X

94/9/CE "ATEX"

VALVOLE A SFERA PER IMPIEGHI CRIOGENICI BALL VALVES FOR CRYOGENIC SERVICES

PRINCIPALI CARATTERISTICHE - MAIN FEATURES

Tenuta stelo

Tenuta stelo di progetto unico (brevettato). La molla posta all'estremità superiore dello stelo fornisce il precarico per la tenuta alle basse pressioni, recupera usura e giochi dovuti a dilatazioni differenziali tra stelo e coperchio.

Stem tightness

Unique stem seal design (patented). The spring placed at stem top gives the contact load for low pressure tightness and the adjustment for wearing and clearance for different dilatation between stem and cover.

Prolunga Criogenia

Tutte le valvole sono dotate di prolunga stelo con cavità in comunicazione con il corpo valvola di lunghezza in accordo alle specifiche Shell SPE 77/100

Cryogenic Vapour Space

All valves are provided with stem cryogenic elongation communicating with valve body cavities with length in accordance with SHELL SPE 77/100

Seggi

I seggi metallici o polimerici sono precaricati con molle su entrambi i lati della valvola, anche nella versione a sfera flottante, per una completa bi-direzionalità e per lo scarico automatico delle sovrappressioni nel corpo.

Seats

Metallic or polymeric seats are loaded with springs on both Valve sides, also in floating ball construction for a full Bi-directionality and automatic body cavities relief.

Stelo

Gli steli sono 100% sovradimensionati rispetto alla coppia attesa al max. DP di rating.

Stem

Stem are 100% oversized against expected torque at max. rated DP.

Sfera

Sfere rettificate ad alta precisione sono prodotte internamente e quindi indurite superficialmente con riporti a tecnologia avanzata.

Ball

Very high precision grounded balls are produced inside and then hard coated with most advanced system.

Guarnizioni retroseggio

La guarnizione retroseggio in Grafoil ha una sezione brevettata che permette lo scarico automatico della pressione all'interno del corpo valvola.

Backseat gasket

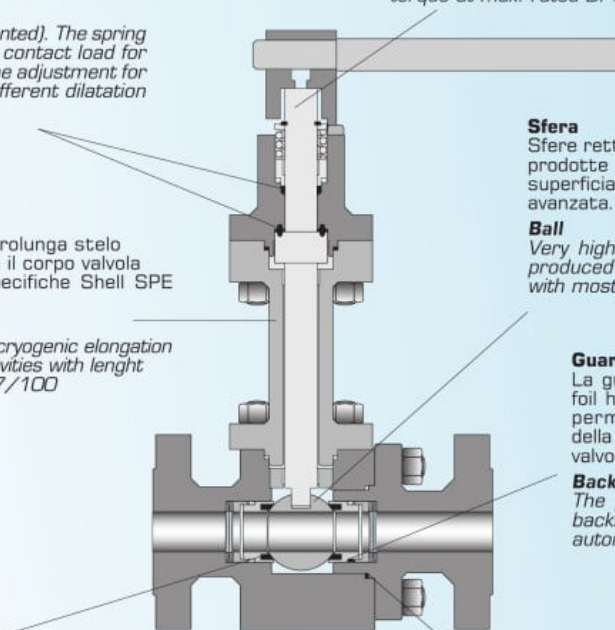
The patented cross-section of the backseat Grafoil gasket allows the automatic body cavity relief.

Guarnizioni

Tutte le guarnizioni sono realizzate in Grafite espansa per garantire la loro inalterabilità a qualsiasi temperatura

Gaskets

All gaskets are made in Expanded Graphite for their Unalterability against any temperature conditions





MATERIALI DISPONIBILI PER I SEGGI - AVAILABLE SEAT MATERIALS

Codice Code	Materiale Material	Durezza Hardness	Temperature di lavoro Working temperature	Pressioni di lavoro Working pressure	Servizio Service limits
PTFE	PTFE		-200°C / +200°C (-328°F / +392°F)	ANSI 150 - 1500 PN 10 - 250	For cryogenic services, all temperatures.
PEEK	PoliEter EterKetone		-100°C / +240°C (-148°F / +464°F)	ANSI 150 - 1500 PN 10 - 250	For cryogenic services, down to -100°C only, with high pressures
SO1	SILVER PENTAFITE (Nickel + Graphite)	120 HB	-100°C / +780°C (-148°F / +1436°F)	ANSI 150 - 600 PN 10 - 100	For cryogenic services, down to -100°C only

MATERIALI DISPONIBILI PER RIVESTIMENTO SFERE - AVAILABLE COATING BALL MATERIALS

Codice Code	Materiale Material	Durezza Hardness	Temperature di lavoro Working temperature	Pressioni di lavoro Working pressure	Servizio Service limits
HTC	NITRURI DI TITANIO Titanium Nitride (PVD)	2500 HV	-200°C / +600°C (-148°F / +1112°F)	ANSI 150 - 600 PN 10 - 100	For clean services both liquid or gas. For gas and steam up to 180°C
HCR	NITRURI DI CROMO Chrome- Nitride (PVD)	3000 HV	-100°C / +780°C (-148°F / +1112°F)	ANSI 150 - 300 PN 10 - 100	For clean services both liquid or gas. Best on oxidizing services

GRADO DI TENUTA - TIGHTNESS

Tutte le valvole PENTA modello SAT Crio sono collaudate per verificarne la TENUTA PERFETTA (perdita zero alla prova idraulica dei seggi secondo ANSI B16.34 e a 6 bar con aria).

All PENTA valves SAT Crio model are tested to verify their BUBBLE TIGHTNESS (no visible leakage during hydraulic seat test according to ANSI B 16.34 and during low pressure air seats test at 100 psi).

PROLUNGA CRIOGENICA STELO - STEM CRYOGENIC ELONGATION

DN	15-25	40-50	80-100	150
Lunghezza prolunga Stelo (mm) Stem Vapour length	200	250	300	350

VALVOLE A SFERA PER IMPIEGHI CRIOGENICI BALL VALVES FOR CRYOGENIC SERVICES

INTERVALLO DI PRODUZIONE - PRODUCTION RANGE

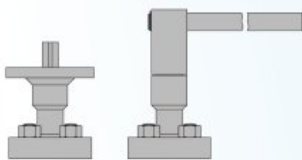
		CLASSI - PRESSURE CLASSES									
ANSI B 16.34	150		300		600		900		1500		
PN	16 - 25		40 - 50		64 - 100		150		250		
Diametri Nominali Nominal diameter	F	T	F	T	F	T	F	T	F	T	
1/2"											
3/4"											
1"											
1 1/2"											
2"											
3"											
4"											
6"											
8"											

F = Sfera flottante - Floating ball

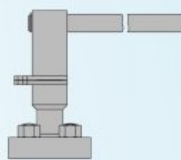
T = Sfera vincolata - Trunnion mounted ball

ACCESSORI DISPONIBILI - AVAILABLE ACCESSORIES

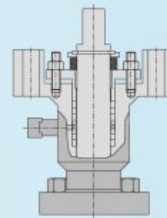
Diversi accessori sono disponibili a richiesta
Many accessories are available on request



Coperchio con flangia o leva
Cover with flange or lever



locking device



Coperchio con baderna
Cover with packing

OPERATORI DISPONIBILI - AVAILABLE OPERATORS

- Riduttori manuali
- Attuatori pneumatici a semplice o doppio effetto
- Attuatori elettrici
- Attuatori idraulici
- Manual gears
- Single or double acting pneumatic actuators
- Electric actuator
- Hydraulic actuators

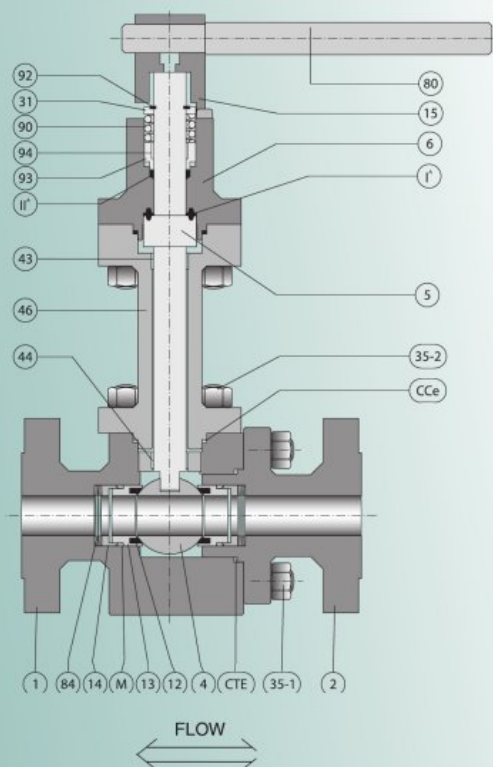


Materiali base - base materials

CCe	Body Cover gasket	Grafoil	Grafoil
CTe	Body Connector gasket	Grafoil	Grafoil
M	Backseat gasket	Grafoil	Grafoil
II ^A	Secondary Stem seal	Grafoil	Grafoil
I ^A	Primary stem seal	Grafoil	Grafoil
93	Gland	304 s.s.	304 s.s.
92	Stop Ring	304 s.s.	304 s.s.
90	Stem spring	UNS S30100	UNS S30100
84	Seat spring	UNS S30100	UNS S30100
80	Handle	Fe37 UNI 7070	Fe37 UNI 7070
46	Cryogenic Elongation	A479 Tp.304	A479 Tp.316
44	Lower Stem Bearing	DU	DU
43	Upper Stem Bearing	DU	DU
35-2	Cover Boltings	B8 / Gr.8	B8M / Gr.8M
35-1	Body Boltings	B8 / Gr.8	B8M / Gr.8M
31	Stem Spring Ring	304 s.s.	304 s.s.
15	Wrench	A479 Tp.304	A479 Tp.316
14	Compression ring	A479 Tp.316	A479 Tp.316
13	Seat holder	A479 Tp.316	A479 Tp.316
12	Seat	PENTAFITE PTFE PEEK	PENTAFITE PTFE PEEK
5	Stem	A479 Tp.316 Duplex s.s. UNS S31803	A479 Tp.316 Duplex s.s. UNS S31803
-	Ball coating	-- / HTC / HCR	-- / HTC / HCR
4	Ball	A479 Tp.316 Duplex s.s. UNS S31803	A479 Tp.316 Duplex s.s. UNS S31803
2	Connector	A479 Tp.304	A479 Tp.316
1	Body	A479 Tp.304	A479 Tp.316

P. No. Parte - Part Name Materiale - Material

Tipica Valvola Crio Flottante
Typical SAT Crio with Floating Ball



TA-LUFT
APPROVED
(CON PROLUNGA 100 MM)
C/W 100 MM STEM ELONGATION

CE
97/23/CE "PED"
CAT III

Ex II 2 GD c T6 X
94/9/CE "ATEX"

Le valvole possono essere realizzate in qualsiasi materiale in accordo ai requisiti del Committente purchè in barre, barre o anelli fucinati e forgiati
Valves can be manufactured in all materials according Customer requirements when available in form of bars, forged bars or rings

VALVOLE A SFERA PER IMPIEGHI CRIOGENICI

BALL VALVES FOR CRYOGENIC SERVICES

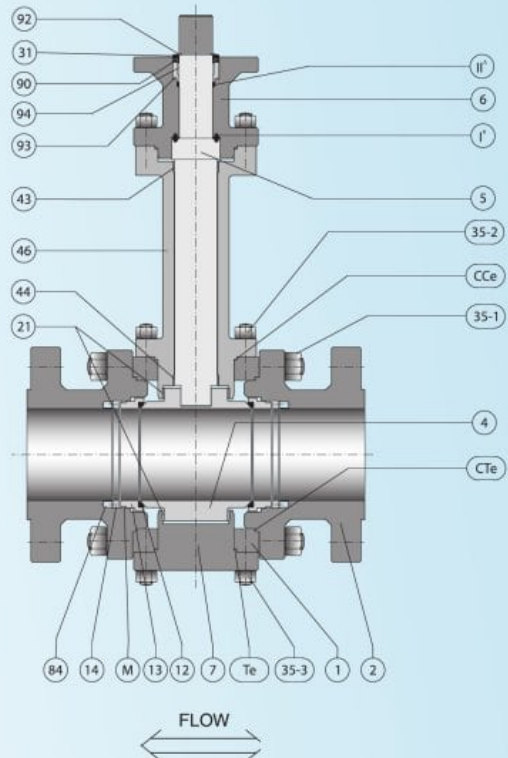
-196 °C +200 °C

Materiali base - base materials

Te	Body Cover gasket	Grafoil	Grafoil
CCe	Body Cover gasket	Grafoil	Grafoil
CTe	Body Connector gasket	Grafoil	Grafoil
M	Backseat gasket	Grafoil	Grafoil
IA	Secondary Stem seal	Grafoil	Grafoil
IA	Primary stem seal	Grafoil	Grafoil
93	Gland	304 s.s.	304 s.s.
92	Stop Ring	304 s.s.	304 s.s.
90	Stem spring	UNS S30100	UNS S30100
84	Seat spring	UNS S30100	UNS S30100
80	Handle	Fe37 UNI 7070	Fe37 UNI 7070
46	Cryogenic Elongation	A479 Tp.304	A479 Tp.316
44	Lower Stem Bearing	DU	DU
43	Upper Stem Bearing	DU	DU
35-3	Cover Boltings	B8 / Gr.8	B8M / Gr.8M
35-2	Cover Boltings	B8 / Gr.8	B8M / Gr.8M
35-1	Body Boltings	B8 / Gr.8	B8M / Gr.8M
31	Stem Spring Ring	304 s.s.	304 s.s.
21	Ball Bearings	DU	DU
15	Wrench	A479 Tp.304	A479 Tp.316
14	Compression ring	A479 Tp.316	A479 Tp.316
13	Seat holder	A479 Tp.316	A479 Tp.316
12	Seat	PENTAFITE PTFE PEEK	PENTAFITE PTFE PEEK
7	Lower Cover	A479 Tp.304	A479 Tp.316
5	Stem	A479 Tp.316 Duplex s.s. UNS S31803	A479 Tp.316 Duplex s.s. UNS S31803
-	Ball coating	-- / HTC / HCR	-- / HTC / HCR
4	Ball	A479 Tp.316 Duplex s.s. UNS S31803	A479 Tp.316 Duplex s.s. UNS S31803
2	Connector	A479 Tp.304	A479 Tp.316
1	Body	A479 Tp.304	A479 Tp.316

P. No. Parte - Part Name Materiale - Material

Tipica valvola SAT Crio Trunnion
Typical SAT Crio with Trunnion Ball



SAT CRIO

TA-LUFT
APPROVED
(CON PROLUNGA 100 MM)
C/W 100 MM STEM ELONGATION

CE
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CAT III

Ex II 2 GD c T6 X
94/9/CE "ATEX"

FLOW

Le valvole possono essere realizzate in qualsiasi materiale in accordo ai requisiti del Committente purchè in barre, barre o anelli fucinati e forgiati
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