



MODELLO / MODEL

SAT



Il modello SAT è la tipologia costruttiva PENTA che meglio si adatta al più ampio spettro di impieghi. La filosofia progettuale ha avuto come primo obiettivo il raggiungimento della massima affidabilità, mediante la realizzazione di soluzioni tecniche che ancora oggi non trovano riscontro sul mercato

Come tutta la produzione PENTA le valvole serie SAT sono progettate per essere equipaggiate con seggi metallici in PENTAFITE permettendo la realizzazione di valvole a seggi metallici con PERDITA ZERO per servizi con temperature di esercizio continuo fino a 780°C (1436°F) o pressioni fino a 720 bar.

Le caratteristiche elasto-plastiche della PENTAFITE e la costruzione interamente bullonata permettono facili interventi di manutenzione, non necessitando di lavoro di adattamento tra sedi di ricambio e sfere.

Sono inoltre disponibili sedi con riporto superficiale in materiali duri.

Le valvole SAT sono disponibili con sfera flottante o con sfera Trunnion mounted, con passaggio ridotto o passaggio pieno e sono tutte provviste di scarico automatico delle sovrappressioni nelle cavità del corpo.

The SAT model is the best design of PENTA to solve the widest range of uses. The main aim in its design philosophy is to achieve the highest reliability using advanced solutions that still has no equal on the market.

Like all PENTA production, SAT valves are equipped with metallic seats in PENTAFITE to allow the manufacturing of metal seated ball valves with absolutely ZERO LEAKAGE suitable for a wide range of services with working temperatures up to 780°C (1436°F) in continuous operation or 720 barg pressure.

The typical elastic properties of PENTAFITE seats and the fully bolted construction allow an easy maintenance without necessity of additional lapping of the seats against the ball.

Hard coated seats are also available.

SAT valves are available with floating or Trunnion mounted ball, with reduced bore or full bore and all valves are provided with automatic body cavity pressure relief arrangement.

Dimensionamenti <i>Design</i>	ANSI B16.34 / API 608 / API 6D / ISO 14313 / EN12569 / EN17292 ASME VIII Div.1 / EN 12516-1
Estremità* <i>Valve Ends</i>	Flangiate ANSI B16.5 / EN 1092-1 / DIN <i>Flanged</i> A saldare ANSI B16.5 <i>Butt weld</i>
Collaudo <i>Testing</i>	ANSI B16.104 API 598 EN 12266-1 ISO 5208 BS 6755-1

* Altre estremità disponibili a richiesta.
Other end connections are available on request.

VALVOLE A SFERA A SEGGI METALLICI METAL SEATED BALL VALVES

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.

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.

Coperchio superiore

Tutte le valvole SAT sono dotate di un coperchio superiore bullonato per una rapida sostituzione del gruppo stelo/guarnizioni.

Upper cover

All SAT valves are provided with bolted upper cover for quick and easy stem assembly maintenance.

Seggi

Le sedi metalliche sono precaricate con molle in entrambi i lati della valvola, anche nella versione flottante, per una completa bi-direzionalità.

Seats

Metallic seats are loaded with springs on both valve side, also for floating ball construction, for a full bi-directionality.

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

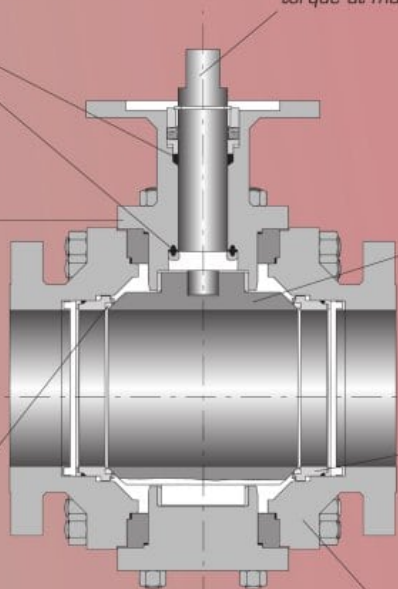
The patented cross-section of the backseat Grafoil gasket allows the automatic body cavity relief.

Flange - Bulloneria

Tutti gli accoppiamenti flangiati sono dimensionati secondo ASME VIII Div. 1.

Bolting and Flanges

All flanges connections are designed according to ASME VIII Div. 1



**SAT****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.
SO1	SILVER PENTAFITE (Nickel + Graphite)		120 HB-100°C / +780°C (-148°F / +1436°F)	ANSI 150 - 2500 PN 10 - 420	For clean services both liquid or gas. For use with HTC, HTCN, HCR, WC, CRC, ST6 ball coated
RO1	RED PENTAFITE (Cu + Graphite)	100 HB	-100°C / +500°C (-148°F / +932°F)	ANSI 150 - 600 PN 10 - 100	For clean services both liquid or gas. Lower friction factors in dry gas or steam service. For use with HTC, HTCN, HCR, ST6 ball coated
BO1	BLACK PENTAFITE (Carbon + Graphite)	80 HB	Amb. / +400°C (Amb. / +752°F)	ANSI 150 - 300 PN 10 - 40	For low pressure specific services where SO1 and RO1 cannot be used due to corrosion problems. A ball coat is not strictly necessary and should be evaluated time to time
WC	CARBURO DI TUNGSTENO Tungsten Carbide Coat (Detonation Gun/HVDF)	1100 HV	Amb. / +350°C (Amb. / +662°F)	ANSI 150 - 600 PN 10 - 100	For liquid or gas services with high presence of solids. Not suitable when small presence of caustic soda is expected. For use with WC ball coat
CRC	CARBURO DI CROMO Chrome Carbide (Detonation Gun)	800 HV	Amb. / +750°C (Amb. / +1382°F)	ANSI 150 - 600 PN 10 - 100	For liquid or gas services with small presence of solids. Not suitable when small presence of caustic soda is expected.
ST6	STELLITE Gr.6 (Detonation Gun/HVDF)	1000 HV	Amb. / +350°C (Amb. / +662°F)	ANSI 150 - 600 PN 10 - 100	For liquid or gas services with small presence of solids. Suitable when small presence of caustic soda is expected. Best on dry gas or steam services. For use with WC, CRC ball coat

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	-100°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
HTCN	CARBO-NITRURI DI TITANIO Carbo-Titanium Nitride (PVD)	3500 HV	-100°C / +400°C (-148°F / +752°F)	ANSI 150 - 2500 PN 10 - 420	For liquid or gas services with small presence of solids. For gas and steam up to 180°C
HCR	NITRURI DI CROMO Chrome- Nitride (PVD)	3000 HV	Amb. / +750°C (Amb. / +1382°F)	ANSI 150 - 2500 PN 10 - 420	For clean services both liquid or gas. Best on oxidizing services
WC	CARBURO DI TUNGSTENO Tungsten Carbide (Detonation Gun/HVDF)	1100 HV	Amb. / +350°C (Amb. / +662°F)	ANSI 150 - 2500 PN 10 - 420	For liquid or gas services with high presence of solids. Not suitable when small presence of caustic soda is expected
CRC	CARBURO DI CROMO Chrome Carbide (Detonation Gun/HVDF)	800 HV	Amb. / +750°C (Amb. / +1382°F)	ANSI 150 - 2500 PN 10 - 420	For liquid or gas services with small presence of solids. Not suitable when small presence of caustic soda is expected.
ST6	STELLITE GR.6 (Detonation Gun/HVDF)	1000 HV	Amb. / +350°C (Amb. / +662°F)	ANSI 150 - 2500 PN 10 - 420	For liquid or gas services with small presence of solids. Suitable when small presence of caustic soda is expected. Best on dry or steam services.

VALVOLE A SFERA A SEGGI METALLICI METAL SEATED BALL VALVES

GRADO DI TENUTA - TIGHTNESS

Tutte le valvole PENTA modello SAT 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 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).

INTERVALLO DI PRODUZIONE - PRODUCTION RANGE

CLASSI - PRESSURE CLASSES												
ANSI B 16.34	150		300		600		900		1500		2500	
PN	16 - 25		40 - 50		64 - 100		150		250		420	
Diametri Nominali Nominal diameter	F	T	F	T	F	T	F	T	F	T	F	T
1/2"												
3/4"												
1"												
1 1/2"												
2"												
3"												
4"												
6"												
8"												
10"												
12"												
14"												
16"												
18"												
20"												
22"												
24"												

F = Sfera flottante - Floating ball

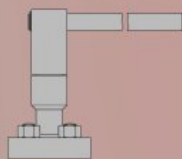
T = Sfera vincolata - Trunnion mounted ball

ACCESSORI DISPONIBILI - AVAILABLE ACCESSORIES

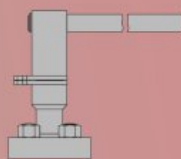
Diversi accessori sono disponibili a richiesta
Many accessories are available on request



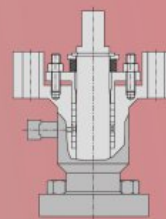
Coperchio con flangia o leva
Cover with flange or lever



Coperchio allungato per alta temperatura
Elongated cover for high temperatures



locking device



Coperchio con baiderna
Cover with packing



Coperchio alettato
Finned cover

OPERATORI DISPONIBILI - AVAILABLE OPERATORS

- Riduttori manuali

- Manual gears

- Attuatori pneumatici a semplice o doppio effetto

- Single or double acting pneumatic actuators

- Attuatori elettrici

- Electric actuator

- Attuatori idraulici

- Hydraulic actuators



SAT

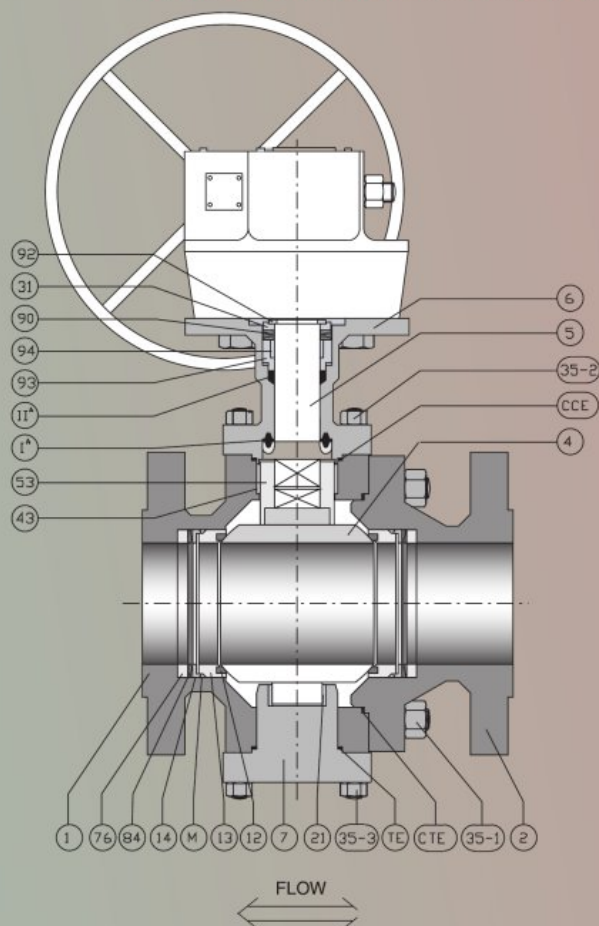
-100 °C +720 °C

Materiali base - base materials

TE	Lower cover gasket	Grafoil	Grafoil
CCE	Upper cover gasket	Grafoil	Grafoil
CTE	Body-Connector gasket	Grafoil	Grafoil
M	Seat gasket	Grafoil	Grafoil
II ^A	Secondary stem seal	Grafoil	Grafoil
I ^A	Primary stem seal	Grafoil	Grafoil
94	Stem plain bearing	DU	DU
93	Gland	316 s.s.	316 s.s.
92	Stem retaining ring	316 s.s.	316 s.s.
90	Stem spring	AISI 301	X750
84	Seat spring	AISI 301	AISI 301
76	Distance	316 s.s.	316 s.s.
53	Coupling	316 s.s.	316 s.s.
43	Stem gland	DU or BM	DU or BM
35-3	Lower cover Bolts	B7 / 2H	B8 / Gr.8
35-2	Upper cover Bolts	B7 / 2H	B8 / Gr.8
35-1	Body/Connector Bolts	B7 / 2H	B8 / Gr.8
21	Trunnion plain bearing	DU or BM	DU or BM
14	Compression ring	316 s.s.	316 s.s.
13	Seat holder	316 s.s.	316 s.s.
12	Seat insert	PENTAFITE ST6 WC/CRC	PENTAFITE ST6 WC/CRC
7	Lower cover	A105	316 s.s.
6	Upper cover	A105	316 s.s.
5	Stem	410 s.s.	316 s.s.
-	Ball coating	HTC/HCR ST6 WC/CRC	HTC/HCR ST6 WC/CRC
4	Ball	316 s.s.	316 s.s.
2	Body Connector	A105	316 s.s.
1	Body	A105	316 s.s.

P. No. **Parte - Part Name** **Materiale - Material**

Tipica Valvola SAT Trunnion
Typical SAT with Trunnion mounted ball



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

CE
97/23/CE "PED"
CAT III



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 A SEGGI METALLICI

METAL SEATED BALL VALVES

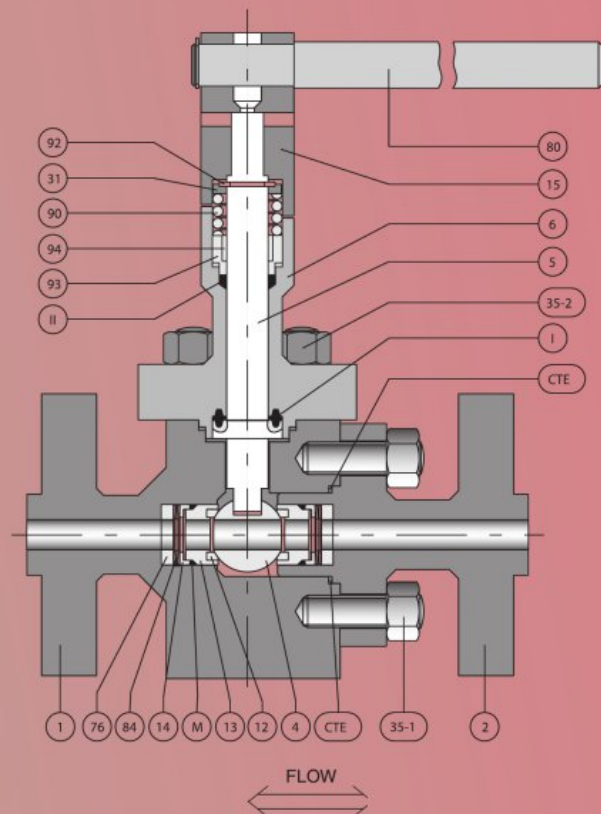
-100 °C +720 °C

Materiali base - base materials

CCE	Upper cover gasket	Grafoil	Grafoil
CTE	Body-Connector gasket	Grafoil	Grafoil
M	Seat gasket	Grafoil	Grafoil
II ^A	Secondary stem seal	Grafoil	Grafoil
I ^A	Primary stem seal	Grafoil	Grafoil
94	Stem plain bearing	DU	DU
93	Gland	316 s.s.	316 s.s.
92	Stem retaining ring	316 s.s.	316 s.s.
90	Stem spring	AISI 301	AISI 301
84	Seat spring	AISI 301	X750
80	Handle	Fe37 UNI 7070	Fe37 UNI 7070
76	Distance	316 s.s.	316 s.s.
35-2	Upper cover Bolts	B7 / 2H	B8 / Gr.8
35-1	Body/Connector Bolts	B7 / 2H	B8 / Gr.8
31	Stem spring comp. ring	316 s.s.	316 s.s.
15	Wrench head	A105	316 s.s.
14	Compression ring	316 s.s.	316 s.s.
13	Seat holder	316 s.s.	316 s.s.
12	Seat insert	PENTAFITE ST6 WC/CRC	PENTAFITE ST6 WC/CRC
6	Upper cover	A105	316 s.s.
5	Stem	410 s.s.	316 s.s.
-	Ball coating	HTC/HCR ST6 WC/CRC	HTC/HCR ST6 WC/CRC
4	Ball	316 s.s.	316 s.s.
2	Body Connector	A105	316 s.s.
1	Body	A105	316 s.s.

P. No. Parte - Part Name Materiale - Material

Tipica Valvola SAT a sfera flottante
Typical SAT 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



SAT

