



VALCO

# SNRI & MALBRANQUE VALVES

## GATE VALVES

- Parallel Seat
- Flex Wedge
- Double Block & Bleed

## GLOBE VALVES

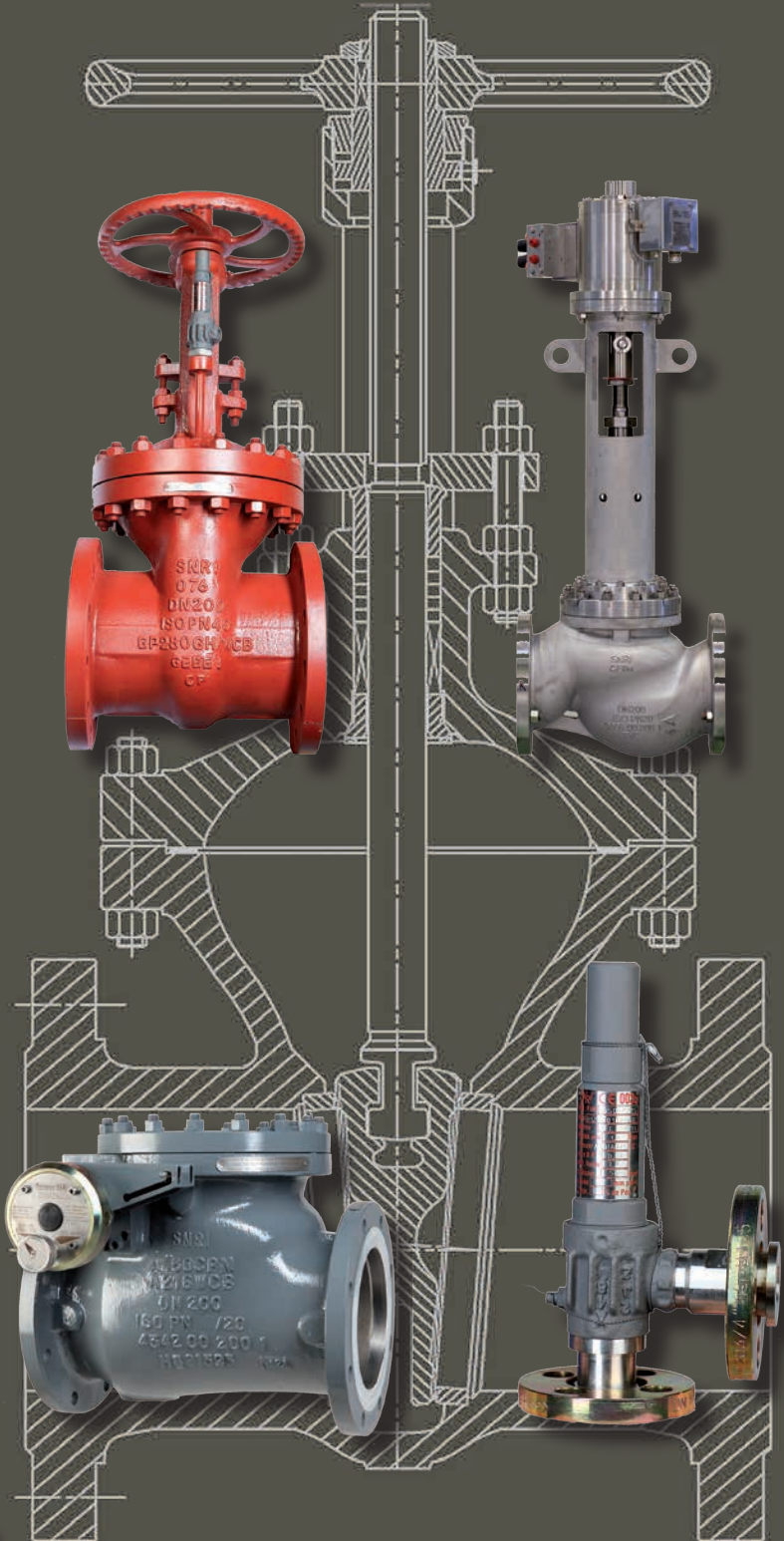
## CRYOGENIC APPLICATIONS

## CHECK VALVES

- Swing Check
- Piston type Lift Check valves
- Positive Safety Swing Check
- Non-Slam Tilting Check

## OTHER ASSEMBLIES

- Safety Valves
- Pressure Reducing Valves
- Regulating Valves
- Jet Water Ejectors
- Water Heaters



## VALCO GROUP



GUICHON



MALBRANQUE



SNRI



VVS

Made in France

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Ruffec, France factory site 1h30 from Bordeaux



# OUR COMPANY

## Our History

Successors of companies founded respectively in 1829 and 1949, VALCO Group via its' brand names SNRI and Malbranque, have actively participated in the evolution of industrial growth and progress over the last 180 years. Starting with the development for Steam applications in the 19th century up to recent great LNG adventures and new nuclear valve applications, SNRI & Malbranque product ranges have been acclaimed by many users world-wide. Expertise acquired within SCHLUMBERGER Group in the 1980's permitted optimization of the Malbranque "Oil & Gas" valve product range to technical requirements for refining processes and harshest applications in upstream oil operations.

With a strong technical base, French fabrication along with European industrial partners, VALCO Group is proud to actively participate in widely innovating international projects and to be a world leader within different markets.

## Our Business Markets

French fabricant SNRI designs and produces valves for Oil, Gas, Power, Marine, Petrochemical and diverse industrial processes under their **Malbranque and SNRI brand names**.

Our Design dept. elaborates and creates new products using latest computer-aided technologies that optimize and adapt the designing of Globe, Gate and Check valves according to customer needs.

A range of Security equipment (Safety valve, Relief valve et Fire-Clap for tank storage) makes SNRI a choice partner to assure your installations top conformity.

Our range includes all pressures up to very high level (class 2500), compatible with very low temperatures (-196°C) to very high (+650°C) that covers all needs for the following applications:

### Oil & Gas applications

**Malbranque** brand, recognized and approved by the most important refining companies and engineering centers are designed and fabricated for the harshest environmental conditions in exploration operations, refining and petrochemical. These products are particularly adapted for gas treatment and corrosive fluids. On-site maintenance, repair and renewal can be executed by our "Valco-Valves-Services" teams to guarantee all of the products' initial performance levels no matter whatever the date of their being put into service.

### Cryogenic applications

**SNRI** is a world-leader since 50 years for on-board methane carriers. It's range covers up to High Pressure valves for floating terminals and Off-shore LNG units. Our expertise has enabled SNRI to be partners to the naval industry for the development of valves for propulsion systems using LNG.

**Malbranque**, due to industrial expertise of cryogenic applications type Cold box, is an acknowledged partner of Air Liquid units and industrial gas treatment designers and engineers, also for LNG terminals.

### Steam, Nuclear & Industry applications

Mastery of material structure and their optimal concept confirms SNRI to stand out as a prevailing fabricant specialist of Steam applications, for all types of industry.

SNRI is an active partner in Nuclear industry early on at the end of the 1960's. The whole range offers a line of casted and forged valves relevant to different quality levels and standards as well as specific product such as Free Flow Reverse Current valve for turbine protection.

Our products are also present on many conventional type Boilers or cogenerations, as well as many various steam networks. SNRI also develops products according to severe industry standards such as for the industrial processes of juices and pulp.



Oil & Gas/Petrochemical



Marine/LNG

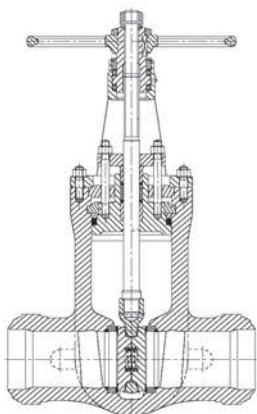


Power Energy/Industry



VALCO

# PARALLEL SLIDE GATE VALVES



ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
15 - 400	16	-	Welded ends / Flange	x	x	x	x	x
15 - 900	20	150 #	Welded ends / Flange	x	x	x	x	x
15 - 900	25 - 40	-	Welded ends / Flange	x	x	x	x	x
15 - 900	50	300 #	Welded ends / Flange	x	x	x	x	x
15 - 900	100	600 #	Welded ends / Flange	x	x	x	x	x
Bolted or pressure seal bonnet								
50 - 900	150	900 #	Welded ends / Flange	x	x	x	x	x
50 - 900	250	1500 #	Welded ends / Flange	x	x	x	x	x
50 - 900	420	2500 #	Welded ends / Flange	x	x	x	x	x



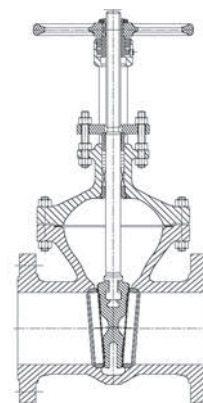
Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M / CF3M / CF8 / CF3
Seat	Stellite / AISI 316 / AISI 410			
Disc	Stellite / AISI 316 / AISI 410			
Stem	AISI 420	AISI 316 / Gr 660		
Stud Bolt	A 193 Gr B7	A 193 Gr B16		A 193 Gr B8M CL 2
Screw	A 194 Gr 2H	A 194 Gr 4		A 194 Gr 8M
Gasket	150#: Graphite 300#: Spiral wound stainless steel /graphite 600#: RTJ			
Packing	Graphite			



# FLEXIBLE WEDGE GATE VALVES



ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
15 - 400	10	-	Welded ends / Flange	Cast Iron				
15 - 400	16	-	Welded ends / Flange	x	x	x	x	x
15 - 900	20	150 #	Welded ends / Flange	x	x	x	x	x
15 - 900	50	300 #	Welded ends / Flange	x	x	x	x	x
15 - 900	100	600 #	Welded ends / Flange	x	x	x	x	x
Bolted or pressure seal bonnet								
50 - 900	150	900 #	Welded ends / Flange	x	x	x	x	x
50 - 900	250	1500 #	Welded ends / Flange	x	x	x	x	x
50 - 900	420	2500 #	Welded ends / Flange	x	x	x	x	x

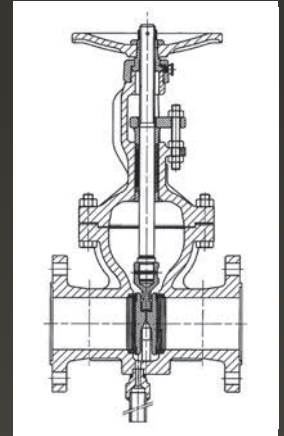


Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M CF3M / CF8 / CF3	Cast Iron (NP 10)
Seat	Stellite / AISI 316 / AISI 410				AISI 316L
Disc	Stellite / AISI 316 / AISI 410				AISI 316L
Stem	AISI 420	AISI 316 / Gr 660			AISI 316L
Stud Bolt	A 193 Gr B7	A 193 Gr B16		A 193 Gr B8M CL 2	AISI 316L
Screw	A 194 Gr 2H	A 194 Gr 4		A 194 Gr 8M	AISI 316L
Gasket	150#: Graphite	300#: Spiral wound stainless steel /graphite			600#: RTJ
Packing	Graphite				

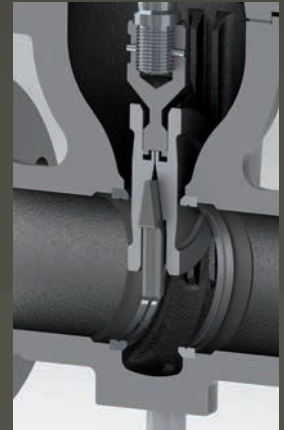
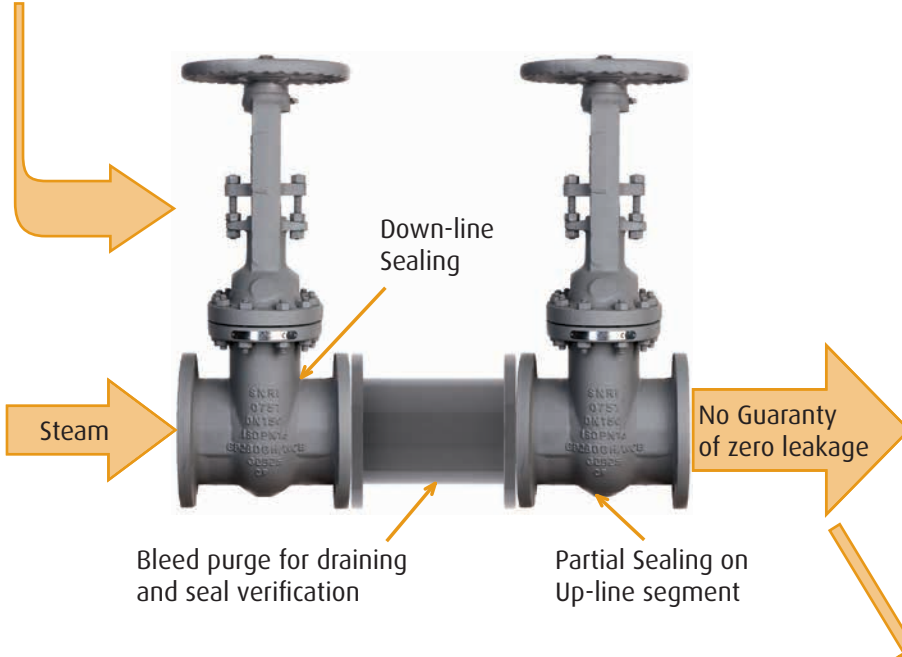


# DOUBLE BLOCK & BLEED VALVES

ND	NP	Type of Connection	Body Material				
			Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
15 - 300	40	Welded ends / Flange	x	x	x	x	x



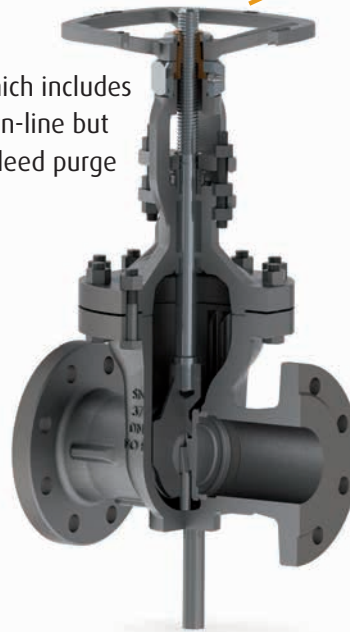
## OTHER SUPPLIERS TYPICAL PIPING ARRANGEMENT



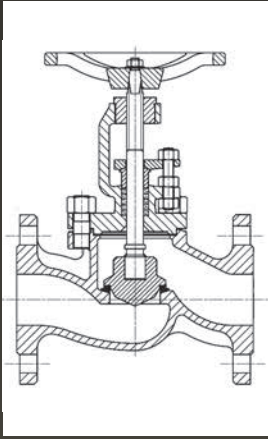
## OUR SOLUTION

Body & Bonnet	A 216 WCB
Seat	Stellite / AISI 410
Disc	Stellite / AISI 410
Stem	AISI 420
Stud Bolt	A 193 Gr B7
Screw	A 194 Gr 2H
Gasket	PN 40: Graphite
Packing	Graphite

One unique valve which includes sealing not only Down-line but also Up-line with a bleed purge completely built-in.



# GLOBE VALVES



## FORGED



**Option:**  
Locking Chain Device



## CASTED



**Possible Option:**  
Bellow Seal

ND	NP	Type of Connection	Body Material				
			Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
08 - 50	100 - 160	Welded ends / Flange	x	x	x	x	x
08 - 50	250	Welded ends / Flange	x	x	x	x	x

ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
15 - 400	16	-	Welded ends / Flange	x	x	x	x	x
15 - 900	20	150 #	Welded ends / Flange	x	x	x	x	x
15 - 900	25 - 40	-	Welded ends / Flange	x	x	x	x	x
15 - 900	50	300 #	Welded ends / Flange	x	x	x	x	x
15 - 900	100	600 #	Welded ends / Flange	x	x	x	x	x
Bolted or pressure seal bonnet								
50 - 900	150	900 #	Welded ends / Flange	x	x	x	x	x
50 - 900	250	1500 #	Welded ends / Flange	x	x	x	x	x
50 - 350	420	2500 #	Welded ends / Flange	x	x	x	x	x

Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M / CF3M / CF8 / CF3
Seat	Stellite / AISI 316 / AISI 410			
Disc	Stellite / AISI 316 / AISI 410			
Stem	AISI 420	AISI 316 / Gr 660		
Stud Bolt	A 193 Gr B7	A 193 Gr B16	A 193 Gr B8M CL 2	
Screw	A 194 Gr 2H	A 194 Gr 4	A 194 Gr 8M	
Gasket	150#: Graphite 300#: Spiral wound stainless steel /graphite 600#: RTJ			
Packing	Graphite			

**The valves can be of 2 different designs:**

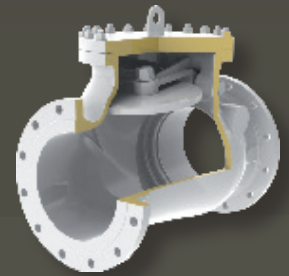
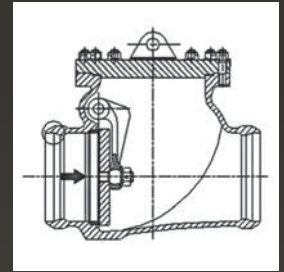
- Straight Body
- "Y" Body



# CHECK VALVES



ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
40 - 400	16	-	Welded ends / Flange	x	x	x	x	x
40 - 900	20	150 #	Welded ends / Flange	x	x	x	x	x
40 - 900	25 - 40	-	Welded ends / Flange	x	x	x	x	x
40 - 900	50	300 #	Welded ends / Flange	x	x	x	x	x
40 - 900	100	600 #	Welded ends / Flange	x	x	x	x	x
Bolted or pressure seal bonnet								
50 - 600	150	900 #	Welded ends / Flange	x	x	x	x	x
50 - 600	250	1500 #	Welded ends / Flange	x	x	x	x	x
50 - 600	420	2500 #	Welded ends / Flange	x	x	x	x	x



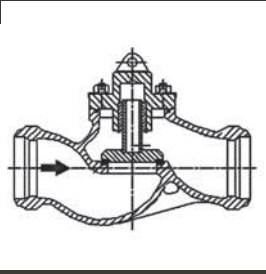
**Options:** Lever + Counter-weight, Dash Pots, Rotating Dampers.

Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M / CF3M / CF8 / CF3	Cast Iron (NP 16)
Seat	Stellite / AISI 316 / AISI 410				AISI 316L
Disc	Stellite / AISI 316 / AISI 410				AISI 316L
Axe Hinge	AISI 420	AISI 316			AISI 316L
Stud Bolt	A 193 Gr B7	A 193 Gr B16		A 193 Gr B8M CL 2	A 193 Gr B7
Nut	A 194 Gr 2H	A 194 Gr 4		A 194 Gr 8M	A 194 Gr 2H
Gasket	150#: Graphite    300#: Spiral wound stainless steel /graphite 600#: RTJ				





# PISTON TYPE LIFT CHECK VALVES

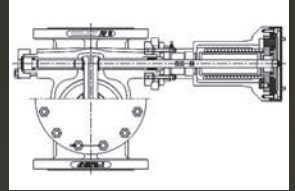


ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
15 - 400	16	-	Welded ends / Flange	x	x	x	x	x
15 - 900	20	150 #	Welded ends / Flange	x	x	x	x	x
15 - 900	25 - 40	-	Welded ends / Flange	x	x	x	x	x
15 - 900	50	300 #	Welded ends / Flange	x	x	x	x	x
15 - 900	100	600 #	Welded ends / Flange	x	x	x	x	x
Bolted or pressure Seal Bonnet								
50 - 600	150	900 #	Welded ends / Flange	x	x	x	x	x
50 - 600	250	1500 #	Welded ends / Flange	x	x	x	x	x
50 - 350	420	2500 #	Welded ends / Flange	x	x	x	x	x



Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M / CF3M / CF8 / CF3
Seat	Stellite / AISI 316 / AISI 410			
Disc	Stellite / AISI 316 / AISI 410			
Piston	AISI 420	AISI 316		
Stud Bolt	A 193 Gr B7	A 193 Gr B16		A 193 Gr B8M CL 2
Nut	A 194 Gr 2H	A 194 Gr 4		A 194 Gr 8M
Gasket	150#: Graphite 300#: Spiral wound stainless steel /graphite 600#: RTJ			

# POSITIVE SAFETY SWING CHECK VALVES



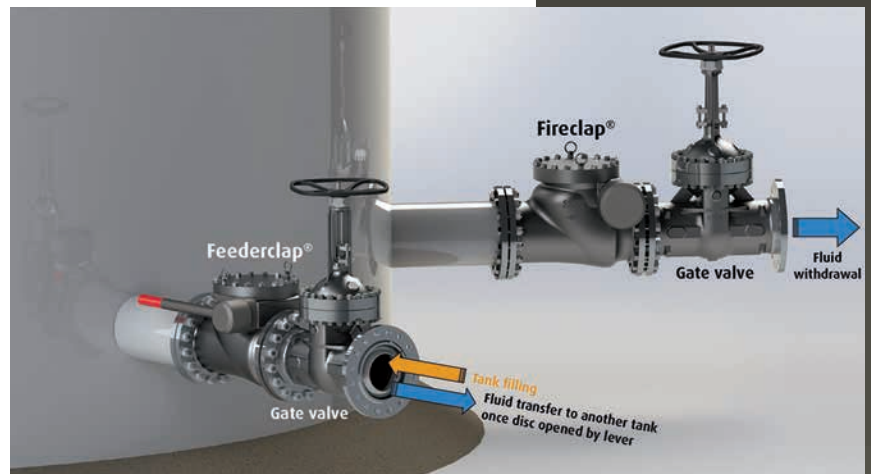
## FIRECLAP® (Tank Outlet)

ND	NP	Type of Connection	Body Material	
			Steel	Stainless Steel
50 - 600	16	Welded ends or Flanged	x	x
50 - 600	20	Welded ends or Flanged	x	x

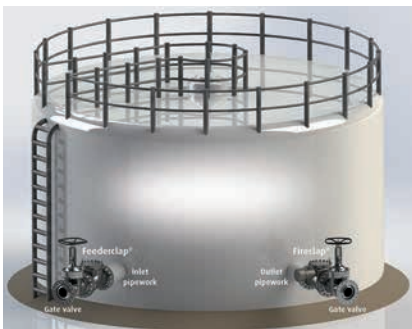
Security equipment normally open, with automatic quick closing device in case of FIRE.

Destined for Tank Storage of Hydrocarbons and other flammable liquids, via the tank outlet.

Its function is to contain the fluid inside the tank to NOT feed further a Fire.



## FEEDERCLAP® (Tank Inlet)



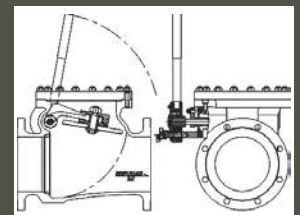
ND	NP	Type of Connection	Body Material	
			Steel	Stainless Steel
50 - 500	16	Welded ends or Flanged	x	x
50 - 500	20	Welded ends or Flanged	x	x



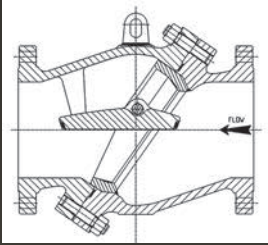
Security equipment for the Tank Inlet, it can be locked in the open position, manually operated by a lever.

When mounted on piping used for tank filling, its function is the same as for the FireClap, to NOT feed the Fire.

**Option:** Limit Switches, Remote Controls and ATEX 2014 / 34 / UE



# NON-SLAM (Tilting Disc) CHECK VALVES



ND	NP	Class	Type of Connection	Body Material				
				Steel	Alloy Steel	Stainless Steel	Duplex	Super Duplex
50 - 750	20 - 420	150 # 2500 #	Welded ends or Flanged	x	x	x	x	x

The closing is done by a Disc which turns around a tilted axis. There is only one unique Seat.

In normal use, the valve is open because of the fluid's flow action.

The disc remains parallel in the fluid's canal pump flow.

The opening's pressure level is sensitive to even the smallest pressure differences.

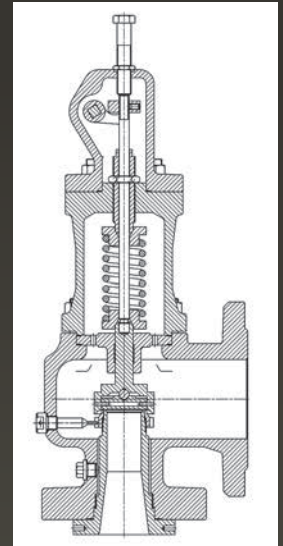


2 part body - Flanged.

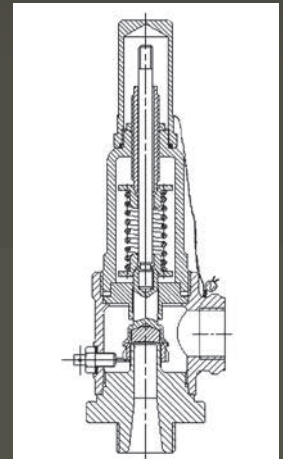
Body & Bonnet	A 216 WCB	A 217 WC6	A 217 WC9	A 351 CF8M / CF3M / CF8 / CF3
Seat	Stellite / AISI 316 / AISI 410			
Disc	Stellite / AISI 316 / AISI 410			
Axe Hinge	AISI 420	AISI 316		
Stud Bolt	A 193 Gr B7	A 193 Gr B16		A 193 Gr B8M CL 2
Nut	A 194 Gr 2H	A 194 Gr 4		A 194 Gr 8M
Gasket	Graphite or PTFE			

# SAFETY VALVES

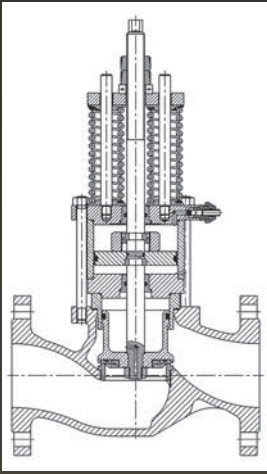
TYPE	ND	NP	Pressure range	Temp. Range C°	Connection	Body Material			
						Steel	Stainless steel	Bronze	Brass
Safety valve ERBLO	08 - 15	16	0.25 to 14 bar	-10°C to 100°C	Threaded		Special		x
Safety valve BRADLEY	15 - 65	25	0.3 to 25 bar	-10°C to 150°C	Flanged or threaded			x	
Safety valve BRADLEY MAJOR	15 - 65	50	0.3 to 50 bar	-196°C to 550°C	Flanged or threaded	x	x		
Safety valve MACH 1 & 2	25 - 200	16 - 100	0.3 to 100 bar	-196°C to 550°C	Flanged	x	x		



TYPE	Fluids according to Pressure Equipment Directive (DESP) 2014 / 68 / EU
Safety valve ERBLO	Gas G2
Safety valve BRADLEY	Liquid G1 & G2, Steam and Gas G1 & G2
Safety valve BRADLEY MAJOR	Cryogenic, liquid G1 & G2, Steam and Gas G1 & G2
Safety valve MACH 1 & 2	Cryogenic, liquid G1 & G2, Steam and Gas G1 & G2
INDEX	G1: Dangerous / G2: Non dangerous / Steam: overheated or saturated water

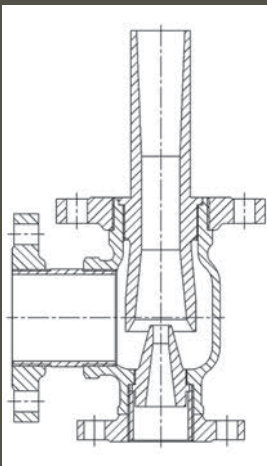


## PRESSURE REDUCING / REGULATING VALVES



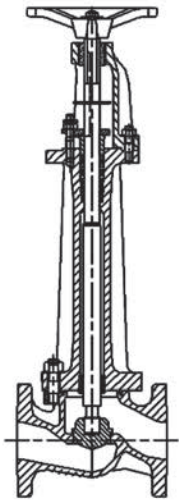
TYPE	ND	NP	Pressure range	Temperature Range C°	Connection	Body Material			
						Steel	Stainless Steel	Bronze	Brass
Outlet pressure regulator valve BLACKWELL	20 - 200	40	40 bar inlet 0.8 to 15 bar outlet	-10°C to 80°C	Flanged or threaded ends	x	Special	x	x
Outlet pressure regulator valve GAZOFIX	20 - 50	16	10 bar inlet 0.05 to 0.8 bar outlet	-10°C to 80°C	Flanged or threaded ends			x	
Outlet pressure reducing valve SERGOWATT	10 - 25	16	15 bar inlet 0.05 to 10 bar outlet	-10°C to 80°C	Threaded ends			x	
Inlet pressure regulator valve BLACKFLO	20 - 200	16	0.8 to 15 bar inlet	-10°C to 80°C	Flanged	x	Special	x	x

## JET WATER EJECTORS / WATER HEATERS

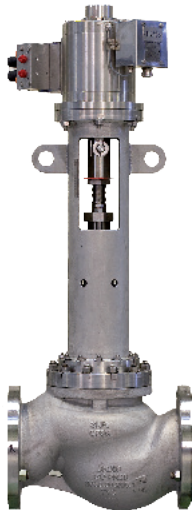


TYPE	Functions	ND	NP	Pressure Range (bar)	Temperature range (°C)	Connection	Body Material	
							Stainless Steel	Bronze
Water elevator, steam vapour FLUXOVAP	Direct liquid pumping	15 - 50	16	2 to 10	-10°C to 260°C	Flanged or threaded ends	x	x
Liquid elevator, water jet FLUXO	Direct liquid pumping	15 - 50	16	1 to 8	-10°C to 260°C	Flanged or threaded ends	x	x
Ejector via water jet FLUXERO	Direct suction of air, gas, steam or indirect liquid suctioning	15 - 50	16	1.5 to 10	-10°C to 260°C	Flanged or threaded ends	x	x
Steam heater THERMOFLUX	Exterior type via recirculation	15 - 50	16	1.5 to 10	-10°C to 260°C	Flanged or threaded ends	x	x
Steam water heater THERMOVAP	Submerged type; water Heater and all other types of liquid	15 - 50	16	10 maxi	-10°C to 184°C	Threaded ends	x	x

# CRYOGENIC APPLICATIONS – Marine LNG



ND	NP	Class	Type of Connection	Body Material
				Stainless Steel
15 - 400	16	-	Welded ends / Flange	x
15 - 900	20	150 #	Welded ends / Flange	x
15 - 900	25 - 40	-	Welded ends / Flange	x
15 - 900	50	300 #	Welded ends / Flange	x
15 - 900	100 - 150 250 - 420	600 # - 900 # 1 500 # - 2 500 #	Welded ends / Flange	x



Gate Valve  
Globe Valve  
Swing Check Valve  
Piston type Lift Check Valve  
Safety Valve



Body & Bonnet	A 351 CF3M	A 351 CF8M / CF3M / CF8 / CF3
Seat	Stellite / AISI 316 / 316L	
Disc	Stellite / AISI 316L	
Stem	AISI 316L / Gr 660	
Stud Bolt	A 320 Gr B8M CL 2	
Nut	A 194 Gr 8M	
Gasket	Graphite	
Packing	Graphite / PTFE	



**SNRI range of Cryogenic & Ambient High Pressure valves,**  
meets the high quality standards of LNG Fuel Gas Supply System requirements.  
Working closely with Shipyards, Skid integrators & Class societies, products were  
improved in order to offer best efficiency & integration  
in the FGSS.



**Products:**  
Globe, Check valves & Actuators  
Forged range from 1/2'' to 1 1/4''



**Specific Types:**  
Full Bore design → low pressure drop with better CV Value  
Pressure Seal Bonnet from 900lbs → weight & cost saving  
Compact 316L Hydraulic actuators → Weight, Size & Maintenance savings  
Available in Y Pattern upon request → optimized pressure drop.



**Working Conditions:**  
From -196°C up to 500° C  
From Class 600 Lbs up to 4500 Lbs

**Certification:**  
LRS, KR, BV, ABS, DNV...



**SNRI & MALBRANQUE have huge historical track records supplying  
HP valves to different industries.**  
Special attention is made to ensure full compliance with international standards,  
class society rules, customer's specifications and also process compliance.

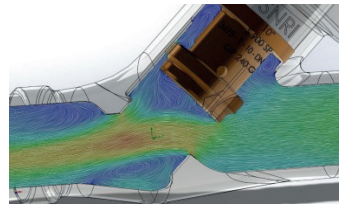
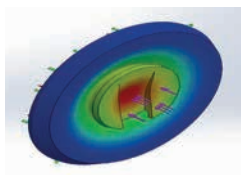
# DESIGN & ENGINEERING / R&D

- ✓ Experienced staff in valve industry
- ✓ Involved in National valves workshops (CETIM, Profluid, ...)
- ✓ Strong collaboration between design office and workshop provides expertise, precise feedback and service.
- ✓ Many products have Fire Safe Design, "sealing" is done by contact metal to metal to ensure long-life capacity in severe conditions.

## Tools:

- 2D and 3D software: SolidWorks, Autocad
- Fluid Dynamics Calculation: FloWorks
- Mechanical Finite Element Analysis
- Calculation notes to international standards (NF EN 12516, ASME VIII, RCC-M...)
- API standard, ASME standard (B16.34)

Ex: Strength resistance simulation to define suitable material / Flow simulation to optimize CV for Y Globe Valve



## TESTING CAPACITIES IN-HOUSE

### Test benches at ambient temperature:

*Water / Air / Helium / Nitrogen tests*

*HP Cryo and ambient testing*

*Cryogenic & Helium leak-tests*

*Bunker*

### NDE INSTRUMENTATION

*Dye Penetrant*

*Ultrasonic testing*

*Magnetic Particle Examination*

*Positive Material Identification*

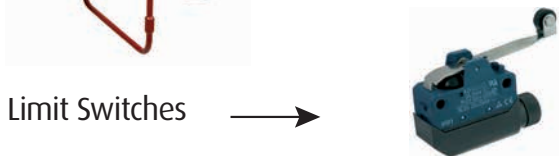
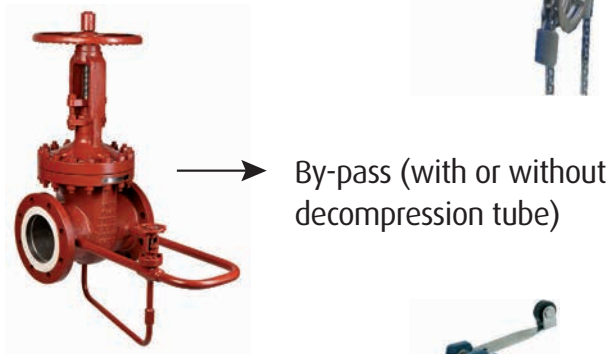
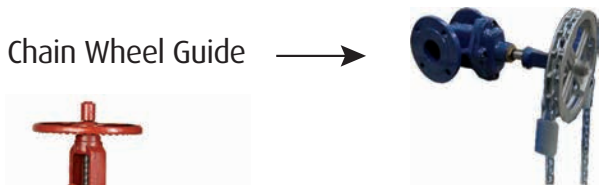
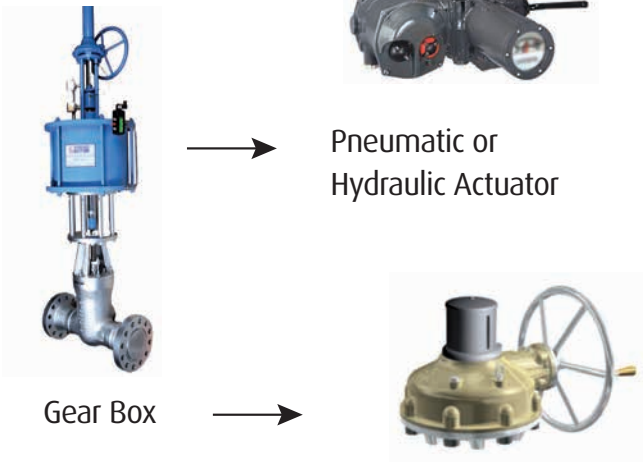
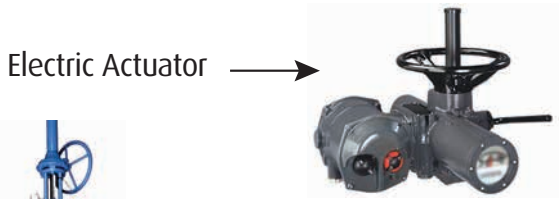
*Tightness, thickness, hardness measures*





# ACCESSORIES

## Optional Accessories



# CERTIFICATIONS

## Quality Certification:

- Certificate according to Directive 2014/68/UE
- Certificate ISO 9001

## Production Certification:

- Fugitive Emissions - Valve 4" 2500#
- Fugitive Emissions - Valve 8" 600#
- Fire Safe design : API 6FA, ISO 10497

## Cryogenic Certification:

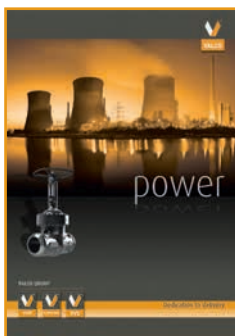
- Certification ABS, BV, DNV, KR, LR and NKK



## Qualification EDF:



# OTHER BROCHURES AVAILABLE



Power



High Pressure Valves



Fireclap® & Feederclap®



Marine



**WE THANK OUR FAITHFULL, AND ALSO NEW CUSTOMERS WHO HAVE SHOWN THEIR CONFIDENCE AND PARTNERSHIP RECENTLY AND OVER MANY YEARS :**

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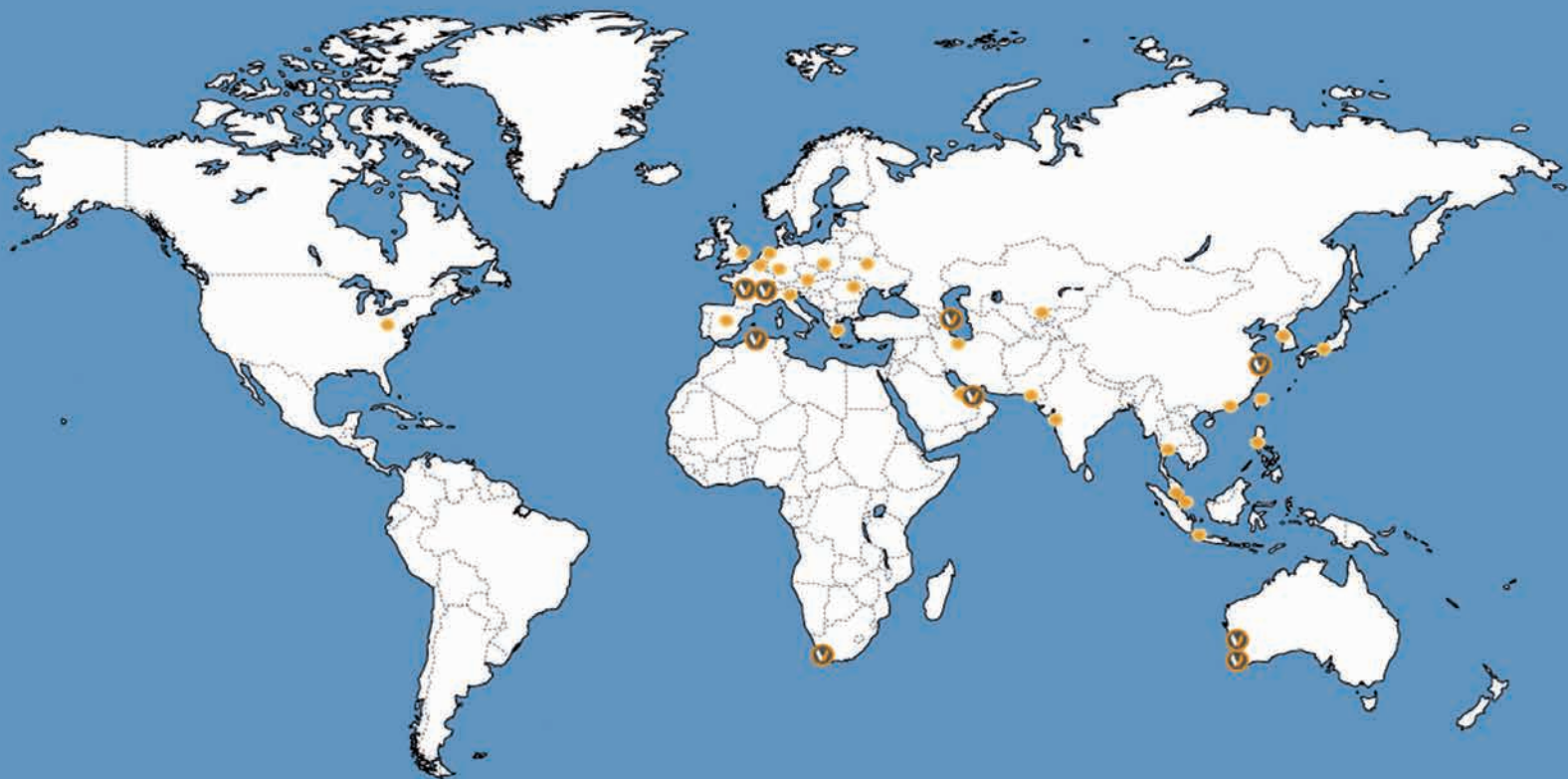
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# NOTES

A series of horizontal dotted lines for writing notes.





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#### Videos You Tube



Swing Check valve



Double Seal Isolating valve



Fire / Feederlap



VALCO

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Valco Group based in Ruffec & Chambéry France, includes 4 brand names (Guichon, Malbranque, SNRI & Valco Valves Services) dedicated to service, innovation and delivery.

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