

SITINDUSTRIE VALVO[®] METAL



M A D E I N I T A L Y



ALL CARBON STEEL, STAINLESS STEEL & SPECIAL ALLOY VALVES

SITINDUSTRIE VALVOMETAL

■ ■ ■ ALL CARBON STEEL, STAINLESS STEEL, SPECIAL ALLOY VALVES



We are pleased to introduce to you the valves manufactured in our VALVOMetal production unit.

VALVOMetal started manufacturing valves for the industry in 1955 in its plant in Valduggia, Italy, and today is regarded as a very important supplier of ball valves in all its configuration, through conduit and wedge gate valves, globe and check valves in both bolted bonnet and pressure seal executions.

The complete range of valves can be produced both in forged and cast material depending on our standard or customer request. Addressed mainly to critical applications in oil & gas, petrochemical, power generation, nuclear, food and dairy industries.

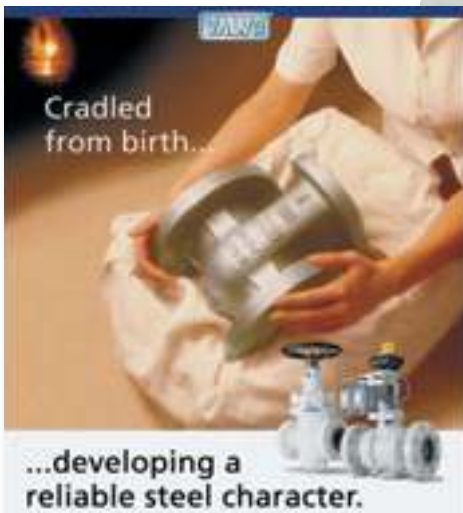
The Company adheres to a Quality Management System in accordance with ISO 9001:2008 and API Q1. Its products follow the guidelines and are certified to API 6D, European Directive 97/23/CE (PED) and ATEX. Products can be tested by other Third Party Agencies like Bureau Veritas, TÜV, RINA, Lloyd's Register, Stoomwezen

and other. Design and manufacturing are carried out in accordance with the main international standards, i.e. ISO, API, ASME, ANSI, ASTM, NACE, BS, AFNOR, DIN and other. Material offered includes carbon steel, stainless steel, exotics and special alloys.

SITINDUSTRIE VALVOMETAL is a manufacturer capable of offering different packages of valves. A lengthy reference list, containing the most respected names in the industries that we serve, guarantees the capabilities and strength of our company in developing and finding solutions in all project areas and specialities.

The strength of the new solutions for projects and special valves is within our technical capabilities linked with full customer satisfaction.

Furthermore, SITINDUSTRIE VALVOMETAL, in response to industry requirements, has launched a "low emission" design range of gate and globe valves, called ECO-VALVO, placing Sitindustrie Valvometal in a unique position, satisfying the most stringent and demanding applications of our customers, world-wide.

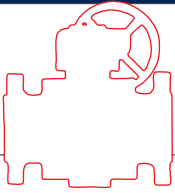


SITINDUSTRIE VALVOMETAL

STANDARD PRODUCTION RANGE

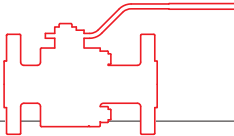
BALL

- Trunnion mounted and Floating ball valves are produced according to API 6D or 5351. Fire safe tested to BS 6755 part 2, API 607 or API 6FA.



TRUNNION

ENDS	R.F. - R.T.J. - B.W. - Full or Reduced Bore					
CLASS	150	300	600	900	1500	2500
NPS	1/2"-60"	1/2"-60"	1/2"-60"	1/2"-48"	1/2"-36"	1/2"-30"

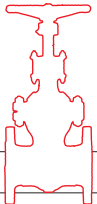


FLOATING

ENDS	R.F. - R.T.J. - B.W. - Full or Reduced Bore					
CLASS	150	300	600	900	1500	2500
NPS	1/2"-10"	1/2"-8"	1/2"-4"	1/2"-2"	1/2"-1 1/2"	1/2"-1"

GATE


- According to API 600 (Size 2" and larger). Outside Screw and Yoke Rising Stem.



WEDGE

ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-56"	2"-48"	2"-48"	2"-24"	2"-24"	2"-12"

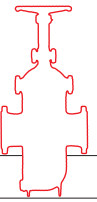
- Designed, rated, manufactured and tested according to API 6D and ASME B 16.34.



PRESSURE SEAL

ENDS	R.F. - R.T.J. - B.W.		
CLASS	900	1500	2500
NPS	3"-24"	3"-14"	3"-20"

- Rated, manufactured, tested according to API 6D and designed to ASME Code.



THROUGH CONDUIT - SLAB GATE

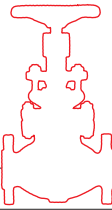
ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-60"	2"-48"	2"-48"	2"-24"	2"-16"	2"-16"

THROUGH CONDUIT - EXPANDING GATE

ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-36"	2"-36"	2"-36"	2"-24"	2"-16"	2"-12"

GLOBE

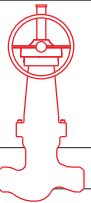
- According to BS 1873 (Size 2" and larger). Outside Screw and Yoke Rising Stem.



GLOBE

ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-24"	2"-24"	2"-24"	2"-16"	2"-12"	2"-12"

- Designed, rated, manufactured and tested according to API 6D and ASME B 16.34.

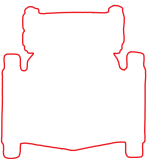


PRESSURE SEAL

ENDS	R.F. - R.T.J. - B.W.		
CLASS	900	1500	2500
NPS	3"-16"	3"-16"	3"-16"

SWING CHECK

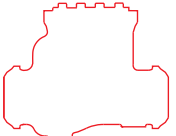
- According to API 6D and BS 1868 (Size 2" and larger).



SWING CHECK

ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-56"	2"-48"	2"-42"	2"-24"	2"-24"	2"-12"

- Designed, rated, manufactured and tested according to API 6D and ASME B 16.34.



PRESSURE SEAL

ENDS	R.F. - R.T.J. - B.W.		
CLASS	900	1500	2500
NPS	3"-16"	3"-16"	3"-16"



OTHER SIZES AND RATING AVAILABLE ON REQUEST

SITINDUSTRIE VALVOMETAL

MATERIALS

- Carbon Steel
- Stainless Steel
- Special Alloy Steel
- Exotic Alloy



QUALITY ASSURANCE

The Valduggia (VC) plant of SITINDUSTRIE VALVOMETAL adheres to a quality program in accordance to ISO 9001 and API Q1. This facility's quality program is continually subjected to review and audit by internal QA personnel and by independent authorities, thereby assuring the highest level of engineering design control, contract management and production control.

- Material identification and material traceability are standard elements of the manufacturing program
- Only superior quality materials from qualified suppliers are used
- Valves are fully tested according to main standards and specifications
- The credentials of each and every facility, as a manufacturer of quality valves, are respected in the industries which it serves
- ISO 9001:2008
- API spec Q1

APPROVALS

- Dir. 97/23/CE (PED) module H
- API spec. 6D
- STOOMWEZEN
- TÜV Ta-Luft
- Fire test accreditations: API 607 – BS 6755 part 2
- Sil 3



TESTING & INSPECTION

EXECUTED IN OUR FACTORIES:	
1	Dimensional & visual testing
2	Hardness testing
3	Magnetic particle inspection
4	Dye-penetrant inspection
5	Paint thickness testing
6	Surface finishing testing
7	Manometer calibration
8	Shell - Seat are tested hydrostatic and pneumatic
9	Tensile testing
10	Impact testing
11	Micrographic examination
12	Macrographic examination
13	Linearity & cylindrical testing
14	Helium testing
15	Cryogenic gas testing

EXECUTED BY OUR SPECIALISED EXTERNAL PARTNERS:	
1	X-Ray inspection
2	Ultrasonic inspection
3	Corrosion testing
4	Micrographic and macrographic examination
5	Positive material identification
6	Chemical analysis



SITINDUSTRIE VALVOMETAL

ENGINEERING

SITINDUSTRIE VALVOMETAL is structured to address the current and future requirements of the industry. Our engineering staff is experienced in problem solving and developing new answers to the challenges presented by our customers.

The technical department utilises 3D CAD techniques to predict the stress and to design appropriate solutions for each valve as a function of the unique combination of pressure and temperature of each different plant application. Further development work is also being conducted into the potential of cam concepts, such as the fast valve bodies prototyping at the foundry. All this work is interrelated, with the clear objective of closing the circle of the product quality.



MAIN APPLICATIONS: OIL & GAS

APPLICATION	TYPE	GOALS
OFFSHORE/ONSHORE	<ul style="list-style-type: none"> ■ Ball valves ■ Cast steel gate, globe, check valves ■ Through conduit ■ Eco valvo 	Warranty of a long term high quality performance in critical condition of exercise.
GAS TRANSMISSION	<ul style="list-style-type: none"> ■ Ball valves ■ Through conduit valves 	Warranty of a long term high quality performance with the possibility of quick and easy maintenance.
REFINERY	<ul style="list-style-type: none"> ■ Ball valves ■ Cast steel gate, globe, check valves ■ Eco valvo 	Warranty of low maintenance and high environmental compatibility thanks to extremely low and controlled fugitive emissions.
POWER GENERATION	<ul style="list-style-type: none"> ■ Ball valves ■ Cast steel gate, globe, check valves 	Warranty of a long term high quality performance in critical conditions of temperature.
CRYOGENIC SERVICE	<ul style="list-style-type: none"> ■ Ball valves ■ Cast steel gate, globe, check valves 	Warranty of a long term high quality performance with low temperature.



SITINDUSTRIE VALVOMETAL

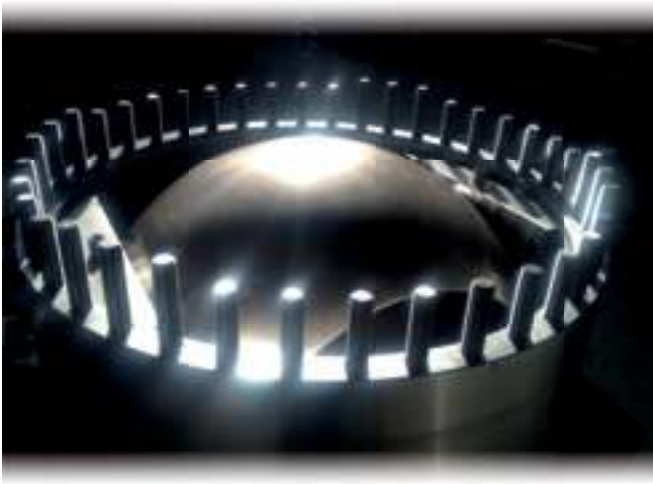
■ ■ ■ BALL VALVES

CHARACTERISTICS & APPLICATIONS

Steel ball valves are used where fast operation is required in the petrochemical, chemical, gas and oil industries, for pipeline service, power generation, water treatment and cryogenic applications.

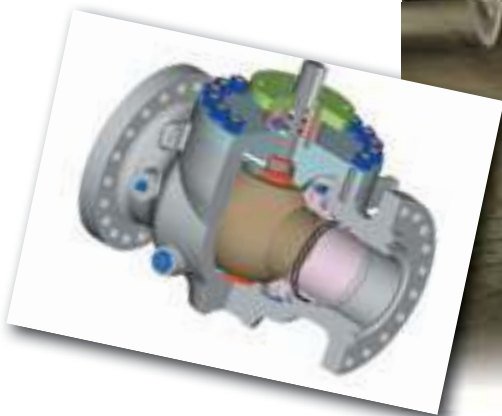
These valves can either be supplied in trunnion mounted or floating ball execution, side entry, top entry, soft or metal seated as well as sub-sea designs.

We can supply these valves with manual levers, gear operators or electric, pneumatic or hydraulic actuator.



TRUNNION						
ENDS	R.F. - R.T.J. - B.W. - Full or Reduced Bore					
CLASS	150	300	600	900	1500	2500
NPS	1/2"-60"	1/2"-60"	1/2"-60"	1/2"-48"	1/2"-36"	1/2"-30"

FLOATING						
ENDS	R.F. - R.T.J. - B.W. - Full or Reduced Bore					
CLASS	150	300	600	900	1500	2500
NPS	1/2"-10"	1/2"-8"	1/2"-4"	1/2"-2"	1/2"-1 1/2"	1/2"-1"



SITINDUSTRIE VALVOMETAL

DESIGN & MANUFACTURING STANDARDS

Ball valves are designed and manufactured according to the following standards and specifications:

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> ■ API 6A ■ BS 5351 ■ ASME Sec. VIII div. 1 app. Y ■ ASME B 16.25
(butt welding dimensions) ■ MSS SP 44
(flange dimensions) | <ul style="list-style-type: none"> ■ API 6D ■ BS 5500 ■ ASME B 16.5 (flange dimensions) ■ ASME B 16.34 | <ul style="list-style-type: none"> ■ BS 3293 (flange dimensions) ■ BS 6364 ■ ASME B 16.10 (end to end dimensions) ■ ASME B 16.47 A-B
(flange dimensions) |
|---|--|--|

TESTS

Tests are carried out according to:

- **API 6D**
- **BS 6755**
- **API 598**
- **FCI 70-2** (metal seated)



MATERIALS

SITINDUSTRIE VALVOMETAL utilises several type of material, all complying to ASTM & ASME standards and in accordance to customer needs and specifications (NACE standard included).

Here below we indicate a list and the main cast and forged materials utilised:

COMPONENTS	MATERIAL
BODY	Forged carbon steel, stainless steel, special alloy steel, exotic alloys; All cast steel materials for "top entry" type.
TRIM	Forged or pressed carbon steel, stainless steel, alloy steel, exotic alloys.

CRYOGENIC SERVICES

Ball valves are also suitable for cryogenic services. Specially adapted extension offers safe and efficient service for the transport and storage of liquefied gases such as oxygen, natural gas, hydrogen or helium, down to -196°C .

HIGH TEMPERATURE SERVICES

SUBSEA SERVICE

If requested, ball valves are also suitable for sub-sea service. SITINDUSTRIE VALVOMETAL special materials are utilised to give long term performance to its ball valves.

LEGEND:

A.P.I.	= American Petroleum Institute	A.S.T.M.	= American Society for Testing and Materials
BS	= British Standards	MSS	= Manufacturers Standardisation Society
A.S.M.E.	= American Society of Mechanical Engineers	N.A.C.E.	= National Association of Corrosion Engineers
FCI	= Fluid Control Institute		



SITINDUSTRIE VALVOMETAL

■ ■ ■ GATE, GLOBE & CHECK VALVES

CHARACTERISTICS & APPLICATIONS

Gate, Globe and Check valves are manufactured in either bolted bonnet or pressure seal execution, for use in the chemical and petrochemical industries, power generation, oil and gas applications both on-shore and off-shore, cryogenic services and water treatment applications. Bolted bonnet valves are usually for pressure classes 150 to 600 and pressure seal for classes 900 to 2500.

We can supply these valves with manual handwheels, gear operators or electric, pneumatic or hydraulic actuators.



TYPE OF VALVES	EXECUTION	SIZES NPS	RATING ASME CLASS	ENDS
GATE	Bolted Bonnet	2" to 56"	150 to 2500	R.F. – B.W. – R.T.J.
	Pressure Seal	3" to 20"	900 to 2500	
	Through Conduit	2" to 60"	150 to 2500	
GLOBE	Bolted Bonnet	2" to 24"	150 to 2500	R.F. – B.W. – R.T.J.
	Pressure Seal	3" to 16"	900 to 2500	
CHECK	Bolted Bonnet	2" to 56"	150 to 2500	R.F. – B.W. – R.T.J.
	Pressure Seal	3" to 16"	900 to 2500	



SITINDUSTRIE VALVOMETAL

DESIGN & MANUFACTURING STANDARDS

Valves are designed and manufactured according to the following standards and specifications:

- API 600
- BS 1414
- BS 1873
- BS 6364
- ASME Sec. IX
- ASME B 16.10
(end to end dimensions)
- ASME B 16.34
- MSS SP 44 (flange dimensions)
- API 6D
- BS 1868
- BS 3293 (flange dimensions)
- ASME Sec. VIII div. 1
- ASME B 16.5 (flange dimensions)
- ASME B 16.25
(butt welding dimensions)
- ASME B 16.47 A-B
(flange dimensions)

TESTS

Tests are carried out according to:

- API 598
- BS 6755
- API 6D
- FCI 70-2



MATERIALS

SITINDUSTRIE VALVOMETAL utilises several type of material, all complying to ASTM & ASME standards and in accordance to customer needs and specifications (NACE standard included).

Here below we indicate a list and the main cast and forged materials utilised for body, bonnet and trim:

COMPONENTS	MATERIAL
BODY & BONNET	Cast carbon steel, low temperature carbon steel, alloy steel, stainless steel, exotic alloys.
TRIM	Forged or pressed carbon steel, low temperature carbon steel, alloy steel, stainless steel, exotic alloys.

CRYOGENIC SERVICES / HIGH TEMPERATURE SERVICES

SITINDUSTRIE VALVOMETAL gate, globe and check valves are also suitable for cryogenic services. Specially adapted extended bonnets offer safe and efficient service for the transport and storage of liquefied gases such as oxygen, natural gas, hydrogen or helium, nitrogen down to -196°C .

H.T.S.

Stellite, Tcc, Cromium corbide



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FCI	= Fluid Control Institute		

SITINDUSTRIE VALVOMETAL

THROUGH CONDUIT VALVES

CHARACTERISTICS & APPLICATIONS

This type of valve can be either expanding or slab gate through conduit design. The main areas of application are chemical, petrochemical and oil and gas transmission.

We can supply these valves with manual handwheels, gear operators or electric, pneumatic or hydraulic actuators.



THROUGH CONDUIT - SLAB GATE						
ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-60"	2"-48"	2"-48"	2"-24"	2"-16"	2"-16"

THROUGH CONDUIT - EXPANDING GATE						
ENDS	R.F. - R.T.J. - B.W.					
CLASS	150	300	600	900	1500	2500
NPS	2"-36"	2"-36"	2"-36"	2"-24"	2"-16"	2"-12"



SITINDUSTRIE VALVOMETAL

DESIGN & MANUFACTURING STANDARDS

Through Conduit gate valves are designed and manufactured according to the following standards and specifications:

- **API 6D**
- **ASME B 16.5**
(flange dimensions)
- **ASME B 16.34**
- **BS 3293**
(flange dimensions)
- **ASME B 16.10**
(end to end dimensions)
- **ASME B 16.47 A-B**
(flange dimensions)
- **ASME Sec. VIII div. 1**
- **ASME B 16.25**
(butt welding dimensions)
- **MSS SP 44**
(flange dimensions)

TESTS

Tests are carried out according to:

- **API 6D**
- **BS 6755**



MATERIALS

SITINDUSTRIE VALVOMETAL utilises several type of material, all complying to ASTM & ASME standards and in accordance to customer needs and specifications (NACE standard included).

Here below we indicate a list and the main cast and forged materials utilised:

COMPONENTS	MATERIAL
BODY & BONNET	Cast carbon steel, low temperature carbon steel, special alloy steel, stainless steel, exotic alloys.
TRIM	Forged carbon steel, low temperature carbon steel, special alloy steel, stainless steel, exotic alloys.

LEGEND:

- | | |
|--|--|
| <p>A.P.I. = American Petroleum Institute
 BS = British Standards
 A.S.M.E. = American Society of Mechanical Engineers
 A.S.T.M. = American Society for Testing and Materials</p> | <p>MSS = Manufacturers Standardisation Society
 N.A.C.E. = National Association of Corrosion Engineers</p> |
|--|--|



SITINDUSTRIE VALVOMETAL

ECO-VALVO VALVES

CHARACTERISTICS

SITINDUSTRIE VALVOMETAL has developed a new system for low level controlled fugitive emission in its valves product line.

The "ECO-VALVO" system provides for effective fugitive emission control in applications as severe as 1×10^{-6} mbarl/sec, thus ensuring a greater level of safety and performance.

This system can be incorporated with our gate and globe valves:



TYPE OF VALVES	EXECUTION	SIZES NPS	RATING ASME CLASS	ENDS
GATE	Bolted Bonnet Pressure Seal	2" to 12"	150 to 2500	R.F. – B.W. – R.T.J.
GLOBE	Bolted Bonnet Pressure Seal	2" to 12"	150 to 2500	R.F. – B.W. – R.T.J.

Inherently, high Quality and low maintenance provide the client with lower costs. Both the stem and stuffing box surfaces are finished to tolerance limits that exceed current standards for critical service valves.

SITINDUSTRIE VALVOMETAL is committed to supply an environmentally friendly product that is safe and reliable. The client is assured of a substantial decrease in product loss from a state-of-the-art product.

PARAMETERS*	NORMAL VALVE	ECO VALVO
Max. leakage	100	1
Mechanical cycles	2.500	2.500
Packing adjustments allowed	H3	H1
Stem surface finishing	max 0.8	max 0.4
Stuffing box surface finishing	max 3.2	max 1.6

*These values have been empirically verified after tests executed in our facilities in order to give valid support to the engineering of the product.

"ECO-VALVO" valves are manufactured in accordance with API 600 and TÜV Ta-Luft (the most stringent European standard certifying low emission valves) and comply with the U.S. EPA fugitive emission regulations.



121

DESIGN & MANUFACTURING STANDARDS

- API 600
- API 6D
- BS 6364
- BS 1414
- BS 1873
- ASME B 16.10 (end to end dimensions)
- ASME Sec. VIII div. 1
- ASME B 16.5 (flange dimensions)
- ASME B 16.34
- ASME B 16.25 (butt welding dimensions)

TESTS

Tests are carried out according to:

- API 598
- API 6D
- BS 6755
- FCI 70-2

SITINDUSTRIE VALVOMETAL

ECO VALVO BENEFITS

We have developed this new system in order to guarantee our customers more:

- **ON-LINE SAVINGS** of liquid and gas losses against valves with standard sealing; savings on environmental insurance costs and operative security management required by restrictive environmental legislation.
- **SECURITY STANDARDS** higher than normal, checking and inspection of all the materials used, with particular attention to the castings.
- **LOW LEVEL CONTROLLED** fugitive emission of dangerous, injurious, flammable gases and liquids; safer check of valves.
- **CONTROL ON ENVIRONMENTAL** pollution with warranty for the Public Health, and warranty against the restrictive environmental legislation that requires, especially in the E.U. and in the U.S.A. for safer equipment and installations.
- **ENVIRONMENTAL COMPATIBILITY**, a subject that affects the decision making process as regards investments and entrepreneurial strategies. We have decided to give our clients an element of advantage especially from the point of view of environmental legal obligation and, moreover, **customer satisfaction**.
- **SAFER MAINTENANCE** for problems and for spare parts changing; springs can be used in order to ensure constant tightness pressure upon the packing and consequently reduce maintenance intervention.

AVAILABLE FEATURES

Live-Loading utilising the latest technology in spring washers, the packing is under constant load so as to maintain tightness. Hence compensation for packing wear and tear as well as ageing.

EMISSION MONITORING

Starting from the standard ECO-VALVO solution, a comprehensive range of applications may be engineered in accordance to the requirements of the client.

Experience in the field demonstrates the importance of monitoring the fugitive emissions in the line.

Good results on monitoring of fugitive emissions have been obtained with:

- a manometer applied to the lantern ring with two pointers able to detect the highest point of the leakage and the current leakage;
- a sensor applied to the lantern ring with a red light alerting when the leakages, due to wear and tear and ageing, exceeds the leakage security level;
- a sensor applied to the lantern ring, connected to a remote PC supplied with software able to alert when the leakage exceeds the leakage security level.



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SITINDUSTRIE VALVOMETAL

■ ■ ■ COMPLETE PRODUCT TRACEABILITY



141



SITINDUSTRIE VALVOMETAL

APPROVALS & ACCREDITATIONS

The experience, the quality and the reliability demonstrated during the years, let the production unit VALVOMETAL receive several customers and third party approvals and accreditations.

Adco,
Adnoc,
Agip,
Al Furat,
Bhpv,
Eil,
Enelpower,
Eni,
Erg,
Exxon,
Iocl,
Knpcc,
Koc,
Nam,
Nioc,
Occidental Petroleum Qatar,
Orascom
PDO Oman,
Petrojet,
Petronas,
Qatar petroleum,
Saras,
Shell Brunei,
Shell France,
Shell International,
Shell UK,
Statoil,
Technint,
Tecnimont,
Urea Casale,
Zadco,





www.sitindustrievalvometal.com

Via Orlonghetto, 3 - 13018 Valduggia (VC) - Italy
Tel. +39 0163 4361 - Fax +39 0163 436405 - E-mail: info@sitindustrievalvometal.com