

# **BALUCHISTAN ENERGY COMPANY LIMITED**

## **DEVELOPMENT OF LPG TESTING LABORATORY AT TAFTAN**

### **Scope & Specification for Supply of Valves**



#### **Office Address:**

Balochistan Energy Company Limited  
67-A, Main Jinnah Town Quetta,  
Balochistan, Pakistan

**Phone:** 9281-2863711, 2863712

**E-mail:** [cfo@becl.com.pk](mailto:cfo@becl.com.pk)

[shayan.ali.siddiqui@gmail.com](mailto:shayan.ali.siddiqui@gmail.com)

**Web:** [www.becl.com.pk](http://www.becl.com.pk)



# SCOPE & SPECIFICATION FOR SUPPLY OF VALVES

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# SCOPE & SPECIFICATION FOR SUPPLY OF VALVES

## 1.0 SCOPE

This specification contains minimum requirements for the supply of valves.

## 2.0 CODES STANDARDS, AND REGULATIONS

2.1 Codes, standards, and practices in effect as of to date shall form a part of this specification to the extent specified herein.

The codes that apply are as follows:

### American Society of Mechanical Engineers

ASTM B1.1	-	UNIFIED SCREW THREADS
ASTM B 16.10	-	FACE –TO- FACE AND END-TO-END DIMENSIONS OF FERROUS VALVES
ASTM B16.25-		BUTT WELDING ENDS
ASTM B18.2	-	SQUARE AND HEX BOLTS & NUTS
ASTM B31.1	-	POWER PIPING
ASTM B16.21-		NON METALLIC GASKETS FOR PIPE FLANGES
ASTM B 31.3	-	CHEMICAL PLANT AND PETROLEUM REFINERY PIPING
ASTM B 16.5	-	STEEL PIPE FLANGES FITTINGS
ANSI B16.34	-	VALVES FLANGED, THREADED AND WELDING ENDS

### American Petroleum Institute

API-600	-	STEEL GATE VALVES, FLANGED AND BUTTWELDED
API-598	-	VALVE INSPECTION AND TESTING
API-602	-	COMPACT CARBON STEEL GATE VALVES
API 6D	-	SPECIFICATION FOR PIPELINE VALVES (GATE, PLUG BALL AND CHECK VALVES)



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## Manufacturer's Standardization Society of Valves and Fittings Industry

MSS SP25 Standard marking system for valves, fittings, flanges, and unions.

## National Association of Corrosion Engineers/International Organization for Standardization

NACE MR-0175/ Sulfide Stress Cracking Resistant Metallic Materials  
ISO 15156

2.2 Material Specifications referenced are ASTM unless otherwise noted.

### **3.0 SPECIFIC REQUIREMENTS**

#### **3.1 GENERAL**

3.1.1 Face to Face dimensions of steel flanged valves shall conform to ANSI B16.10 to the extent covered. For valves not covered in ANSI, Vendor shall furnish certified dimension drawings.

3.1.2 Flange dimension of steel flanged valves shall conform to ANSI B16.5.

3.1.3 Flange dimension for cast iron flanged valves shall conform to B16.1 for Class 125 and for Class 250.

3.2 Flange facing finish on flanged valves shall adhere to requirements as set forth in B16.5.

3.3 The surface finish for raised face shall have a roughness of 125 to 200 AARH, unless specifically stated otherwise.

3.4 Hydrostatic testing for valves shall be in accordance with the manufacturer's standard, but in no case less than that specified in ANSI B16.5. In the absence of a specified test procedure, API standard 598 shall be used as a basis.

3.5 Butt welding, socket welding and screwed carbon steel valves shall have a 0.35% maximum carbon content; free machining steel is not acceptable.

3.6 Unless otherwise specified, socket weld bores are to be manufacturer's standard and shall conform to ANSI B16.11.

3.7 Vendor shall comply with "Valve Trim" defined as all wetted internal parts of the valve.



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- 3.8 Unless otherwise specified, valve stem packing shall be John Crane 187-1 or equal.
- 3.9 Iron valves shall have the manufacturer's standard trim and stem packing.
- 3.10 Bonnet gaskets shall be manufacturer's standard, unless otherwise specifically noted.
- 3.11 Where bonnet, cap or gland bolts are normally furnished to A193 Gr.B7, they shall be furnished in the liquid-quenched and tempered condition
- 3.12 Butt weld end valves shall be furnished with ends to match pipe schedule. End preparation shall be in accordance with Fig. 2 of ANSI B16.25. The inside contour shall be-sloped a minimum of 14 degrees (1:4) when the thickness is greater than the matching pipe. After completion of heat treatment and removal of scale, weld ends shall be radiographed at the manufacturer's plant in accordance with the procedure set forth in Section VIII of the ASME code. Acceptance shall be evaluated to criteria of ASTM Specification E71, E186 or E280, whichever is applicable, and shall meet the severity level 2 for discontinuity type A, B and C of these specifications. Defects in type D, E, F and G are unacceptable.
- 3.13 Valves from other manufacturers that can supply equivalent type and quality are acceptable on Buyer's approved vendor's list.
- 3.14 The operators for valves shall be as specified.
- 3.15 All valves, regardless of types (excluding check valves) shall be provided with an arrangement such that they can be locked in open or close position. (Simple lever or hand wheel locally is required, pad locks are not included)



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### **4.0 DETAILED MATERIAL SPECIFICATIONS**

- 4.1 The individual class of the materials specified shall be strictly adhered to in the design, requisitioning, purchasing, fabrication and testing of the valves.
- 4.2 Deviations of the material from specifications may occur. These deviations are permissible only in case if they equal or better than the specified.
- 4.3 Pressure/Temperature Limits are specified for each valve. These limits are based on the weakest component specified. These pressure/temperature limits must be adhered to in the proposed valve.

### **5.0 GATE VALVES**

- 5.1 Where solid wedge gate valves are specified, the flexible solid wedge type may be substituted. The two-piece or split wedge may be used if approved, but in no event in steam service 300# or over.
- 5.2 1-1/2" and smaller carbon steel gate valves in piping classes covering ratings 800# and under shall be in accordance with API 602, unless otherwise specified.
- 5.3 2" thru 24" carbon steel gate valves in ratings 150 # through 2500 # shall be in accordance with API-600, unless otherwise specified.

### **6.0 CHECK VALVES**

- 6.1 Swing check valves shall be provided with a boss at location "G" when the wall thickness is insufficient to permit a drain tap (1/2" for valve size 3" and 4", and 3/4" for valves-6" and larger). Bosses and taps shall comply with the requirements of Par. 6.11 of ANSI B16.5. Valves shall not be tapped unless specified on the purchase order.
- 6.2 Swing check valves shall be provided with limit stops to prevent discs from remaining in the open position.



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### **7.0 BALL VALVES**

- 7.1 Stems of ball valves shall be blowout-proof (contained within the valve body casting)
- 7.2 The operating levers or handles on ball valves shall indicate, by their position, whether the valve is open or closed. The open position shall be indicated when the lever or handle points in a direction parallel to the flow through the valve. In addition, it shall be impossible to reverse the indicating position inadvertently during reassembly of the valve.
- 7.3 Ball valves shall be suitable for reverse flow.

### **8.0 LUBRICANT PLUG VALVES**

- 8.1 Lubricant plug valves shall be furnished with combination button head fitting and lubricant screw. Wrench-operated plug valves shall be furnished with suitable operating wrench, unless otherwise specified.
- 8.2 All lubricant plug valves shall be tested and shipped with proper factory sealant, unless service conditions require special lubricants.

### **9.0 BOLTING**

- 9.1 Bolts and nuts shall conform to ANSI B18.2.1 and B18.2.2, respectively. Threads shall be to Coarse Thread Series, ANSI B1.1. Tolerance shall be Class 2A and 2B for bolts and nuts, respectively. Nuts for bolts and studs shall be American Heavy Hexagon Series.
- 9.2 Where stud bolts are specified to A193 Gr.B7, they shall be in the liquid quenched and tempered condition.



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### **10.0 TAGGING**

- 10.1 To each valve, Vendor shall securely attach with corrosion resistant wire a stainless steel tag. The tag nos. shall be agreed at a later stage after the placement of order. The code number shall be legible and conspicuous.
- 10.1 For valves which compliance with NACE standard, clear identification of NACE shall be mentioned on the stainless steel tag.

### **11.0 INSPECTION REQUIREMENTS**

- 11.1 All inspection requirements shall be as per applicable code / standard. Where no code has been specified API 598 will be used.
- 11.2 Mill test reports shall be furnished.
- 11.3 Reports of other tests as carried out as per the applicable code shall also be furnished.

### **12.0 PREPARATION FOR SHIPMENT**

- 12.1 After inspection and test, valves shall be completely freed of water, dried and prepared for shipment. Adequate protection shall be provided against mechanical damage and atmospheric corrosion in transit.
- 12.2 Exposed finished and machined surfaces, including bolting, shall be given a heavy coating of rust inhibition compound, Mobil Kote No. 302 or equivalent. Internal metal surfaces shall be sprayed or coated with suitable rust preventive, and tagged at openings to indicate so. Application of rust prevention is generally not required for alloy and non-corrodible materials. Special treatment will be required for items of stainless steel to prevent stress corrosion due to exposure to salty atmosphere.
- 12.3 All openings shall be covered or plugged with substantial wood, metal, or plastic closures, securely fastened and suitable for prolonged exposure prior to final installation



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- 12.4 All fittings after necessary preparation shall be packed in the sea worthy crates. Crates shall be constructed of well-seasoned sound lumber that has no splits or rotted sections. All material shall be secured to the base of the container and braced or blocked within the container. The supplier shall consider that the material can be involved in several loading and unloading operations; that the shipment may involve truck, rail, ship, and barge or air transportation; and that there may be prolonged periods of storage or idleness before these items are put into service.