

## INTRODUCTION

It gives us great pleasure to introduce ourselves as one of the leading valve manufacturers. We have been in business for more than thirty-five years. Over the years, we have been highly successful in building healthy business relations with customers in various spheres due to our high quality standards.

Our constant endeavour to improve and enhance our products through research and development has led to our recent achievement — **Zero Leak Valves** — a unique range of valves with an incomparable advantage for the end user. This is our first step in the direction of being an environment friendly organization. We help our customers by helping them save energy. Our speciality product range consists of GATE, GLOBE, CHECK and BALL valves. Enclosed herewith is our detailed product catalogue for your perusal and future reference and records.



**AEW** valves are appreciated for their quality, preferred for their reliability and chosen for their timely deliveries. We look forward to your response for fruitful business in times to come.

**PRODUCT RANGE**

***Cast Carbon Steel/Stainless Steel:***

1. Gate Valve ANSI 150 class 1" NB to 16" NB  
ANSI 300 class 2" NB to 12" NB
2. Globe Valve ANSI 150 class 1" NB to 16" NB  
ANSI 300 class 2" NB to 12" NB
3. Check Valve ANSI 150 class 1" NB to 16" NB  
ANSI 300 class 2" NB to 12" NB
4. Ball Valve ANSI 150 class 1/2" NB to 8" NB  
ANSI 300 class 1/2" NB to 8" NB

***Forged Carbon Steel/Stainless Steel:***

1. Gate Valve ANSI 800 class 1/2" NB to 2" NB
2. Globe Valve ANSI 800 class 1/2" NB to 2" NB
3. Check Valve ANSI 800 class 1/2" NB to 2" NB
4. Ball Valves ANSI 800 class 1/2" NB to 2" NB

## **MATERIAL OF CONSTRUCTION**

### **We offer the following types of material of construction:**

1. Cast Carbon Steel as per ASTM A 216 Gr. WCB.
2. Cast Carbon Steel as per ASTM A 352 Gr. LCB.
3. Cast Stainless Steel as per ATSM A 351 Gr. CF8, CF8M, CF8C, CF3 and CF3M.
4. Alloy-20 as per ASTM A 296 Gr. CN7M.
5. Forged Carbon Steel as per ASTM A105.
6. Forged Stainless Steel as per ASTM A182 Gr. F304, F316, F304L, F316L and F321.

### **Designs:**

We have our own draftsmen for designing various types of valves. Gate valve designs are as per API standards and globe valve and check valve, as per BS standard.

All the valves are cast with uniform wall thickness, smooth flowing contours and generous fillet radii to prevent stress concentrations. Designed for structural stability, mechanical strength and safe weldability. All castings are precision machined. Seating designs are also in accordance to the relevant standards. Adequate wear travel is provided in the seating area. Deep stuffing box is provided, wherever required.

## **QUALITY CONTROL PROCEDURES**

The detail quality control procedure is attached herewith for raw material, inspection, final testing and dispatch.

We keep all books of standards (latest editions in original) in our library for ready reference.

Following are the few important points covered in our Quality Control Procedure.

### **Casting:**

The castings are inspected at the foundries for the following:

1. Blow holes
2. Sand hold-up
3. Rib position
4. Heat numbers
5. Surface finishing
6. Riser cutting
7. Painting line
8. Verification of certificates, etc.

Castings are again inspected at the shop floor visually. Properties mentioned in certificates are verified with applicable standards. Procurement of casting is done from reliable foundries only.

On all the castings, heat numbers are cast/punched by the foundries. The castings are shot blasted and heat treated as per the required heat treatment procedure. Foundries provide us with the certificates for chemical and physical properties of castings from their own/independent laboratories. The test bars of each heat are available with the foundries for verification of physical and chemical properties.

As a system of quality control procedure and cross verification we check the chemical and physical properties of castings at our end of at least 10% of the quantity received by us. The material for checking chemical and physical properties is sent to a reputable laboratory of the customer's choice.

The foundries from where we procure castings or forgings are approved by various inspection agencies such as Engineers India Limited, Lloyds, Bureau Veritas, PDIL, S.G.S., Bax Counsel, TUV, D&V, IRS, IBR, etc.

Since we accept only sound casting, we do not adopt any welding process on pressure withstanding areas. The castings are sent back to the foundries for any welding, if required, and the same is duly stress relieved after welding.

### **Radiography:**

The castings procured by us are of radiographic quality and the foundries supply the radiographic films as and when informed in advance. Moreover, as per our standard quality control procedure we take radiographic test of 10% of our castings on critical areas as per ANSI B 16.34. We have a tie up with a leading metallurgical services provider for carrying out the radiography.

All the round bars, plates, etc., which are used for trim are thoroughly inspected and tests are conducted for surface defects, cracks, laminations, etc., by doing ultrasonic inspection done in a reputable laboratory. The material is also checked for the chemical and physical properties, which is all done in a laboratory.

Castings as well as other materials are inspected thoroughly at various stages of machining.

The valve shell, seat (both sides) and back seat are hydrostatically/pneumatically tested as per the approved standards.

We provide back seat arrangement for all gate/globe valves and therefore, repacking of gland packing under full working pressure is possible, i.e., without disturbing the working conditions.

Swing check and lift check valves are subjected to hydrostatic test.

Drilling operations are done with the help of hardened and ground drilling jigs and templates; hence, there is no problem during installation. All the spindles are hardened and ground.

Spindle diameters, threading tolerances, etc., are all according to relevant standards. Go and No Go gauges are employed for checking the threading diameter. Spindles are constantly checked on line during machining.

Wall thickness of the valve body, flange diameter, flange thickness, spindle diameter are maintained as per standard specifications and all such dimensions are checked stage wise during machining.

### **Quality Control plan for checking of raw material/finished items/individual components:**

#### **a) Cast products**

All the coupon plates of CAST products such as body, bonnet, cover, yoke, hinge, bracket, wedge, disc, yoke sleeve and seat rings are subjected to these metallurgical tests as per the requirement of the client/third party inspection agency. The results are compared with the foundry test certificates. Various castings are checked for dye-penetrant test, ultrasonic testing and magnetic particle check test.

#### **b) Stainless steel bars/plates/rods**

All stainless steel products are 100% checked for chemical/corrosion and microstructure qualities before machining. The items made from these stainless steel products include spindle, bonnet bush, gland bush, ball, washers, etc.

#### **c) Fasteners**

All fasteners, stud bolts, nuts made of carbon steel (A193 Gr. B7, ANSI B 1.1 Class 2A and ASTM A194 Gr. 2H, heavy series) and stainless steel are initially visually checked. Later about 10% are checked for their metallurgical properties and 100% testing is carried on. The fasteners are also bought from approved vendors along with the manufacturers test and guarantee certificates. Other hardware items such as eyebolts, cross bolts, nuts are also checked at 10%, randomly.

#### **d) Gaskets and Packing material**

All gaskets are checked for dimensions and manufacturers test certificate is acceptable. The various gaskets used are compressed asbestos fiber, stainless steel 304/316 spiral wound gasket, etc., procured from a reputed manufacturer. 10% of packing material is checked for wire insert.

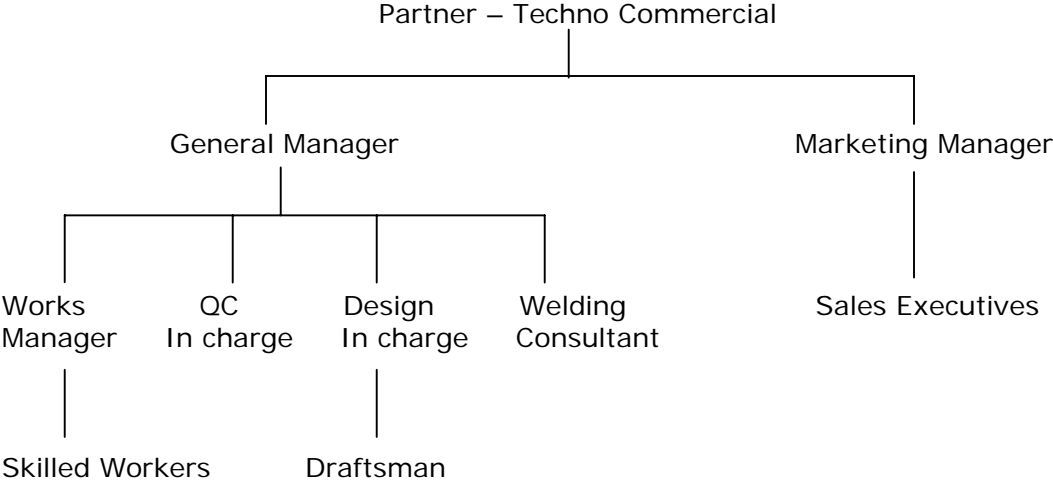
**Quality Control plan for machining components:**

All the drawings and dimensions of internal construction are computerized. When an order is received, a fresh print out is handed over every time to the workshop for the machining of the various components. This reduces the chances of faulty machining which results in timely deliveries. Since the production slip is also maintained in the computer, it is updated daily and the traceability and stage of the order is known and evaluated daily.

**Quality Control plan for final inspection:**

During the course of final inspection, the third party inspector checks the raw material records and the machining records that will be crossed checked again. Before painting, third party inspection is shown unpainted valves for final dimension check and hydro/pneumatic testing. After being approved and stamped by the third party inspection authority, they are taken up for final cleaning, greasing, painting, labeling of nameplates and packing for dispatch. All gland packings are removed and fresh gland packings are inserted. The end flanges of the painted valves are fitted with wooden flanges bolted to the valve flanges and then packed in wooden boxes. For smaller size valves, plastic/rubber end caps are used to protect the valve. Each valve is tagged by an aluminum tag fastened to the hand wheel with an aluminum wire, referring to the size, class, material and client reference number. Every client for every purchase order will be given an easy valve handling and maintenance instruction manual.

**ORGANIZATIONAL CHART:**



## **GATE VALVES**

### **ONE-PIECE DESIGN BONNET**

Cast steel O S & Y type. The one-piece design aligns stem accurately, eliminating excessive weight and unnecessary working parts. The bonnet is equipped with stainless bushing which serves as a guide for the stem and provides back seating when the valve is wide open under pressure. All the components are precision machined.

### **SOLID WEDGE/SPLIT WEDGE**

The low center stem to wedge contact in the gate valve reduces the torque considerably. Operation is easy and the wedge does not stick when the valve is closed hot and allowed to cool. The split-wedge design compensates for minor misalignments of seals due to pipe stresses and makes the valve tight on both seating faces over a wide range of pressures. Thus we have established long cycle life.

### **EFFICIENT WEDGE GUIDING**

Long, smooth ribs are lined up with seat rings and wedge. Seating faces do not contact each other until the valve is virtually closed. T-head wedge-stem connection with an unusual low point contact reduces torque and prevents lateral stresses on the stem.

### **CA 15/STELLITE FACED LEAK PROOF SEATS FOR LONG LIFE**

Hard faced with CA 15/stellite ensures long seat life. Hard seat concept is advantageous since seat faces are exposed to live fluid in open condition. This results in on-line impingement on seat faces. Stellite facing reduces on-line seat wear. Seating faces are ground and lapped to mirror finish.

### **STEM**

Heat-treated 13% Cr. Stainless steel with precision square thread. A heavy, T-head holds the wedge at full contact for uniform pull of the wedge in operation. Self-adjusting radial back seating shoulder engages with the back seat in the bonnet. Ground mirror like finish assures long life of packing that drastically reduces friction and ensures no leakages.

### **STRONGER, LEAK PROOF, BODY-BONNET JOINT, FULLY ENCASED GASKET**

For cast steel valves we use C.A.F./spiral wound/gaskets, soft iron gaskets. For stainless steel valves we use teflon/spiral wound stainless steel gaskets. We use different types of gland packing. Special gland packing has been imported from USA ensuring zero leakage from the gland through out the life of the valve. The design of the gasket joint is critical. Its compression is better controlled in a fully encased cavity. Also the possibility of unwinding of the SS spiral metal is eliminated.





**STUFFING BOX**

In all valves the stuffing box is deep, has high quality finish and holds high pressure or temperature packing rings ensuring tightness and long packing life. Asbestos free graphoil packing is available.

**FLANGE FACING**

Flanges of class 150 and 300 valves have 1/16" raised face and serrated finish.

## **GLOBE VALVES**

### **DESIGN TO BS 1873**

Cast steel with uniform wall thickness smooth flowing contours and generous fillet radii to prevent stress concentrations. Designed for structural stability, mechanical strength and safe weld ability. Precision machined.

### **ONE PIECE DESIGN BONNET**

Cast steel O S & Y type. The one-piece design aligns stem accurately, eliminating excessive weight and unnecessary working parts. All bonnets are equipped with a stainless steel bushing which serves as a guide for the stem and provides back seating when the valve is wide open under pressure.

### **EFFICIENT DISC GUIDING**

Fully guided disc ensures no chatter on seat face during closure and eliminates undue side thrust on stem.

### **CA 15/STELLITE FACED LEAK PROOF SEATS FOR LONG SERVICE**

Hard faced with CA 15/stellite for longer seat life. Suitable for steam, oil and gas at higher temperatures. Seating faces are ground and lapped.

### **STEM**

Heat-treated 13% Cr. stainless steel, with precision square threads. Self-adjusting radial back seating shoulder engages with the back seat in the bonnet. Ground to mirror-like finish assures long life of packing, which drastically reduces friction and ensures no leakage.

### **STRONG, LEAK PROOF, BODY BONNET JOINT, FULLY ENCASED GASKET**

The design of the gasket joint is critical. Its compression is better controlled in a fully enclosed cavity. Also the possibility of unwinding the SS spiral metal is eliminated.

### **STUFFING BOX**

In all valves the stuffing box is deep, has high quality finish and holds high pressure/temperature packing rings ensuring leak tightness and long packing life. Asbestos free graphoil packing is available.

### **FLANGE FACING**

Flanges of class 150 and 300 have a 1/16" raised face.

## **CHECK VALVES**

### **DESIGN TO BS 1868**

Cast steel with uniform wall thickness smooth flowing contours and generous fillet radii to prevent stress concentrations. Designed for structural stability, mechanical strength and safe weld ability. Precision machined.

### **BODY AND COVER**

Male/Female type. Bolted cover.

### **DISC**

Disc design is free floating enabling rotation to avoid localised wear.

### **DISC ASSEMBLY**

Disc to disc carrier design enables opening of the valve with low differential pressure. Disc is fastened securely to disc carrier by means of a lock nut and cotter pin. Disc carrier is supported on a sturdy hinge pin of excellent bearing qualities. All parts are accessible from top for easy servicing.

### **CA 15/STELLITE FACED LEAK PROOF SEATS FOR LONG SERVICE**

Hard seat concept is advantageous since seat faces are exposed to live fluid in open condition. This results in on-line impingement on seat faces. CA 15/Stellite facing reduces on-line seat wear.

### **STRONG, LEAK PROOF, BODY COVER JOINT, FULLY ENCASED GASKET**

The design of the gasket joint is critical. Its compression is better controlled in a fully enclosed cavity. Also the possibility of unwinding the SS spiral metal is eliminated.

### **FLANGE FACING**

Flanges of class 150 and 300 have a 1/16" raised face.

## **BALL VALVES**

### **DESIGN TO BS 5351**

Cast with uniform wall thickness, smooth flowing contours and generous fillet radii to prevent stress concentrations. Designed for structural stability, mechanical strength and safe weld ability. Precision machined.

### **TWO/THREE PIECE DESIGN CONSTRUCTION**

All ball valves are designed with either two-piece construction or three-piece construction.

### **MIRROR FINISH BALL**

Precision machined and buffed to produce mirror like finish, minimum wear on the seat. All balls are designed to withstand the full hydrostatic body pressure.

### **REGULAR/REINFORCED, PTFE SEATS AND SEALS**

Soft seat rings processed from PTFE oil free granular resins of virgin material completely free of reclaimed processed material is used. Reinforced PTFE seats can be provided on request.

### **STEM**

Blow out proof stem is sized so that its connection to the ball is capable of withstanding, satisfactorily the maximum operating torque.

### **LEVER OPERATED**

All valves are lever operated with quick quarter turn on-off operation.

### **STRONGER, LEAK PROOF BODY, END CONNECTION JOINT**

The design of the body-end connection gasket joint is critical. Its compression is better controlled in a fully enclosed cavity.

### **FLANGE FACING**

Flange on class 150 and 300 valves have 1/16" raised face.

## **FIRE SAFE BALL VALVES**

### **MIRROR FINISHED STAINLESS STEEL BALLS**

The stainless steel balls are manufactured to very close sphericity tolerances and mirror finished which result in considerably reducing the operating torque. This also ensures that the sealing is bubble tight.

### **BLOWOUT PROOF STEM**

The stem is bottom entry, providing maximum safety. An integral shoulder on the stem comes up against a shoulder in the body. Internal pressure works to help make the seal, rather than to break it as is the case in a top entry design. This design ensures that stem blowout does not take place, safe guarding personnel working in its vicinity. In smaller sizes, opposed Belleville washers are provided which act as a spring to compensate for wear and thermal expansion and contraction.

### **BUBBLE TIGHT DOWNSTREAM SEALING**

The ball is floated downstream under pressure and forced against the downstream seat to effect and maintain a seal. Since only one seat is in tight contact with the ball, the valve can operate even at higher pressure differential with lower torques.

### **ANTISTATIC FEATURE**

Due to the rubbing of the ball against the PTFE seats there can be a build up of static electricity, which can be a potential fire hazard especially while handling inflammable fluids. The 35% carbon filled PTFE stem seal and the graphite gland packing provides electrical continuity with the body and discharges any build up of static electricity. In the larger sizes where there is a possibility of play between the stem and ball, an additional spring and plunger arrangement is provided on the stem to ensure that electrical continuity is maintained at all times.

### **SECONDARY METAL SEATS**

The secondary metal seats make the valve fire safe. The metal seats are machined into the seat area of the body cavity in the form of raised metal lips. If the valve is subjected to a fire, the lip prevents the softening downstream seat from being forced into the port and creating a leak. When the seat is totally sublimated in a fire, the ball goes and rests against the lip forming a metal-to-metal seal ensuring leak tightness.

**CUSTOMER LIST**

1. ADANI PORT LTD.
2. ASHIMA SYNTEX LTD.
3. AVENTIS PHARMA LIMITED
4. BHABHA ATOMIC RESEARCH CENTRE (BARC)
5. BHARAT ALUMINIUM COMPANY LIMITED
6. BHARAT VIJAY MILLS LTD.
7. COLOUR - CHEM LTD.
8. CORE HEALTHCARE LTD.
9. DODSAL LIMITED
10. GAS AUTHORITY OF INDIA LTD.
11. GUJARAT STATE ENERGY GENERATION LTD.
12. HINDUSTAN DORRO LEVER LTD.
13. HINDUSTAN INSECTICIDES LTD.
14. INGERSOLL RAND (India) LTD.
15. JOHNSON PUMP (INDIA) LTD.
16. MUKESH INDUSTRIES LTD.
17. O.N.G.C. – SABARMATI/CAMBAY
18. PATEL FILTERS LTD.
19. PAHARPUR COOLING TOWERS LTD.
20. RALLIS INDIA LTD.
21. RELIANCE INDUSTRIES LTD.
22. SAW PIPES LTD.
23. TRANS ERECTORS PVT. LTD.
24. VIKAS WSP LTD.
25. WADIA BODY BUILDERS



### **THE ZERO LEAK ADVANTAGE**

Ajit engineering works, the manufacturers of **AEW** brand valves, has developed a valve with a specialised unique American Gland packing which is non asbestos, preloaded, selfmoulding, which takes the shape of the valve stem and retains it at all times. It is compatible with most chemicals and works with the same efficiency at very high temperature (400°C) and pressure (1500 psi).

This gland packing has unlimited shelf life and needs no cooling. It has special grease, which provides for easy rotation of the stem and does not decompose at high temperatures.

**AEW** GATE/GLOBE valves are guaranteed to prevent leaks of all kinds thus saving material maintenance, down time and replacement expense.

**AEW** VALVES ARE GUARANTEED FOR A PERIOD OF 18 MONTHS FROM THE DATE OF SUPPLY OR 12 MONTHS FROM COMMISSIONING; WHICHEVER IS EARLIER AGAINST DEFECTIVE WORKMANSHIP.

**LIST OF MACHINERY**

|     | <b>Description</b>  | <b>Nos.</b> |
|-----|---|-------------|
| 1.  | <b>Heavy Duty Center Lathes</b>                                       |             |
|     | 14" H x 6 Ft L  | 1           |
|     | 14" H x 7 Ft L  | 1           |
|     | 12" H x 7 Ft L  | 1           |
|     | 9" H x 6 Ft L   | 1           |
|     | 8 1/2" H x 6 Ft L   | 1           |
| 2.  | <b>Drilling Machine</b>   |             |
|     | 1 1/2" Spindle Size   | 1           |
| 3.  | <b>Flexible Grinder</b>   |             |
|     | 3 Phase 1 HP  | 2           |
| 4.  | <b>Tool Grinder</b>   |             |
|     | 3/4 HP Cinni  | 1           |
|     | 1 HP Panchal  | 1           |
| 5.  | <b>Bench Grinder</b>  | 1           |
| 6.  | <b>MRJ Hack-Saw Machine 16"</b>                                       | 1           |
| 7.  | <b>Buffing Attachment</b>   | 1           |
| 8.  | <b>Manual Lapping Plate</b>   | 1           |
| 9.  | <b>Hydraulic/Air Test Pumps with multiple valves testing facility</b> | 2           |
| 10. | <b>Chain Pulley Block</b>   | 1           |
| 11. | <b>Verneir Calipers</b>   |             |
|     | 8"  | 5           |
|     | 12"   | 1           |
| 12. | <b>Digital Vernier Calipers</b>                                       | 1           |
| 13. | <b>Height Gauge</b>   | 1           |
| 14. | <b>Depth Gauge</b>  | 1           |
| 15. | <b>Air Compressor IR</b>  | 1           |
| 16. | <b>Pneumatic Die Grinder</b>  | 3           |
| 17. | <b>Weighing Scale</b>   | 1           |



- 18. **Dies and Jigs**
- 19. **Tools and Cutting Tools**
- 20. **Patterns and Dies**
- 21 **Motorized Test Pump** 1