



# KPR Institute of Engineering and Technology

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## **Department of Electrical and Electronics Engineering**

### **L&T Valves Limited- Industry Visit Report**

The PALS is an educational initiative by volunteers from Alumni Fraternity of IITs for the benefit of students, faculty, and management of engineering Institutions. The PALS was organized the L&T Valves limited (LTVL) industrial visit on 11.10.2019. The LTVL team presented about evolutionary of LTVL, products and development, process, safety precaution of the plant in the introductory session. The team of LTVL was carried out all the 15 participation to the plant. The LTVL is a leader in flow control solutions. The LTVL installed 20 million valves for efficient flow control in all industries and the contribution of each sector is 70% in gas and oil, 20% in power plant, 10% in food industry and others across the globe. The size of valve ranges from 0.25 inch to 72 inch and its types are Gate Valves, Globe Valves, Check Valves, Cryogenic Valves, Bellow-sealed Valves. All the valves are designed based on client requirements. The R&D team of LTVL and client have the discussion to select the design, material and other factor to progress. All the necessary raw material brought from different foundry and allied vendors in India after inspecting the standards provided by the client. At this moment, The LTVL starts the manufacturing process in the following stages

- Stage 1:** Loading the valve casting in the job machine and 42 automated task is proceeding concurrently on the valve casting. It is require 14 Hrs -21 Hrs depends on the size and weight of the casting. Carbon steel is used for low/medium pressure valve and stain less steel for high pressure valve. The material selection is also based on the type of flow either liquid or gas.
- Stage 2:** The welding process is carried out manually/semi-automated and tested in the phosphate coating process (upto 5 mm coating). The defected places are identified in the casting after the raw water wash. The tolerable error is permitted in the product and rework is also carried out for defected product (red dot in the welded area).

**Stage 3:** Fixing the valve parts and its accessories like ring, seal, lubrication nipple and etc. This task is manually scheduled and examining in each parts as per the standard.

**Stage 4:** Testing the valve operation as per the standard and zero drop of leakage is assured in the quality process. The LTVL team explained the below listed testing process

- Gate Valves - Bidirectional flow – 90 degree opening/closing – Both side check
- Check Valves – Unidirectional flow – 90 degree opening/ closing – One side check
- Pressure release gate valve check
- Protective components check

The LTVL is interested in digitalization of product, especially IoT and barcoding mechanism is incorporated in High Integrity Pressure Protection System (HIPPS) for customer requirements and satisfactions.

**Stage 5:** Finishing work is carried out including painting color decided by the client and randomly checked quality of final product. The final product is delivered to the client and feedback is collected upto the warranty period. The LTVL is also providing installation and commissioning support to the end customer.

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