

# **Oxygen Gas Flow Monitoring Station**

To monitor the oxygen gas flow consumption for furnace and other processes



Oxygen supports burning. Hence, oxygen is added to air to increase the temperature of the flame. This is oxygen enriched air.

Each furnace has multiple ignition points. To have uniform heating in all areas of the furnace, flow metering and control is required at each set of ignition point.

As the number of furnaces are high, it is essential to have an economic solution for this application. Furnaces also have a restriction on gas pressure as they require gas pressure to be in the range of 0.2 - 0.5 bar g. Higher pressure may damage the nozzle and disturb the flame as well.

An orifice based flow monitoring system is preferred for this application. However, an orifice is a mechanical type flow monitoring device, hence the piping needs to be done carefully taking into consideration the velocity, cleanliness and surface finish required for oxygen gas.

A separate PT compensation is required for accurate flow computation at actual working condition.

# **Benefits**

Improves product consistency and plant efficiency

Flexibility of generating various reports for maintenance management, planning and process optimisation

Specific safety interlocks to maximise plant safety

Project documentation for complete automation package

### **Case Study**

### **Initial Problem**

A steel plant in Western India faced problems like inaccuracies in reading, incorrect installation and improper cleanliness for the oxygen gas line which was a high risk for the operator.

## **Root Cause**

Faulty installation practice followed for orifice flow meters. Operation and maintenance personnel not adequately trained in oxygen gas handling.

#### Solution

Forbes Marshall designed and manufactured an economic solution for gas flow monitoring consisting assembled unit orifice, DPT, PT and TT alongwith flow computer panel and straight length piping mounted on a free standing skid. The piping is done keeping in mind the velocity restrictions, surface finish and cleaning required for oxygen gas. It is an easy to install solution - only end flanges need to be connected. Implementing predictive maintenance leads to a substantial increase in productivity (upto 35%) on the one hand preventing unpredicted shutdowns while on the other, anticipating corrective operations so that they can be carried out under the best conditions.

We offer similar systems for other furnace gases like air and natural gas.





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