

FLOWTRAIN®. Measurement and Control System For Safe Oxygen Metering.



FLOWTRAIN FT300 for use in a Claus plant

Task Numerous oxidation reactions in refineries or in petrochemistry are being carried out with air. In refineries, these are, for example, the Claus process and the FCC process. For petrochemistry, the oxidation of paraxylene to terephthalic acid and of toluene to benzoic acid can be mentioned as examples. Enriching the oxidation air with pure oxygen can increase the capacity of existing plants and make plant operation more flexible. Another advantage is the reduction of the waste gas amount.

Description Depending on the amount of process air, the FLOWTRAIN meters oxygen into the process air until the desired concentration is reached. For the injection itself, an OXYMIX™ oxygen injector is applied, which is dimensioned for the specific type of application. For a liquid supply, a pressure control is installed upstream.

Safety The FLOWTRAIN units are approved for operation in ex-zone 1. They are designed according to ATEX 95. The finished parts are made of stainless steel 1.4571 or similar material. The control cabinet may not be installed in the ex-zone.

To ensure a safe operation, the “block and bleed” concept is applied in case of a shutdown. When a shutdown occurs, a quick-action valve at the inlet closes; and the control valve at the outlet is closed as well. The pipe section between these two valves is ventilated through an open/close valve. This ensures that the gas can neither flow from the air duct nor from the oxygen tank into the other area.

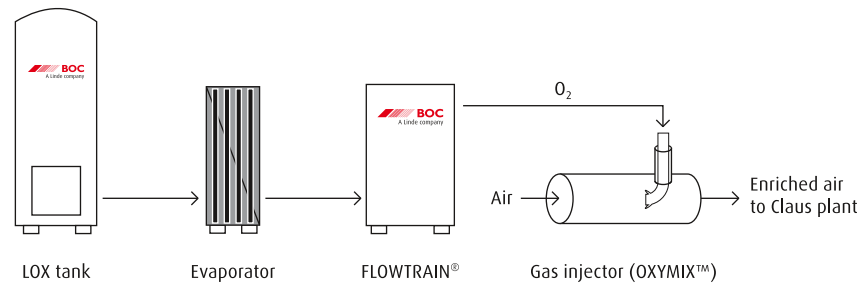
Performance Depending on the oxygen demand, FLOWTRAIN units with an oxygen flow rate of 50 to 5,000 Nm³/h are available.

Automation The unit is fully automated (e. g. Philips KS98). Through a corresponding linkage, the operation can also be carried out with an existing PCS. Switching between manual and automatic operation is possible.

Example FLOWTRAIN for the oxygen supply of a Claus plant for flow rate increase and ammonia decomposition.

Technical data	Flow rate	30 to 300 Nm ³ /h
	Allowable operating pressure	12 bar

System The entire system consists of an oxygen source (e.g. a LOX tank with liquid oxygen), an evaporator, the FLOWTRAIN with the control unit and a gas injector (OXYMIX).



- Characteristics**
- Ex-zone 1
 - Safe and reliable oxygen metering
 - Low required space
 - Switching between manual and automatic operation
 - Automated process flow with pressure and temperature compensation
 - Shutdown in case of too low temperature, too high pressure, too small amounts of air

- Range of services**
- Experimental analyses with the FLOWTRAIN at the customer's site
 - Unit for rent for customers' tests
 - Layout design for the FLOWTRAIN and OXYMIX
 - P&I diagram
 - Project planning
 - Production
 - Documentation
 - Start-up
 - Oxygen supply

Service and know-how With decades of experience in gas supply, cooling technology and plant engineering, we facilitate an efficient and individual project development. High-performance process simulation programs as well as substance databases ensure an optimal design and the safe operation of the facility as well as the efficient oxygen application.



Control unit for a FLOWTRAIN

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