CSTRPP PILOT PLANT
CONTINUOUS STIRRED TANK REACTOR

This “Owner Configured” Computerized and automatic pilot plant is based on a CSTR (from 100cc up to 4L and many different alternatives) and the operation is supported by many optional devices as MFC’s, pumps, pre-heaters, separators, pressure control systems,...

Customer can design his own pilot plant using for it so many options as required for his operation needed, using for it a configuration sheet. Technology applied is at the top worldwide. Standarized system becomes short production delivery time and confidence on his performances. The Plant will be High Pressure Certified PED/97/23/EC.

MAIN FEATURES

Gases
Until six (n) continuous gases feed lines to reactor. Flow control system by Mass Flow Controllers (Bronkhost High-Tech), including manual valves, check valves, fitting and accessories (P&ID diagram). Gases line preheating system including temperature control loop can be installed.

Liquids
Up to two liquid feed lines can be installed as standard. Pumps can be selected for micro-flow (HPLC from Gilson) or standard process pumps (Dosapro) for different pressures and flows. Relief valves for calibration, check valves, manometers and usual safety devices will be installed. Liquid lines preheating/evaporating systems can be selected. Inertized vessels, tracings and all usual features can be installed.

Stirred Tank Reactor
A stirred tank reactor from Autoclave Engineers; Magndrive agitator, is the main device of the plant. MOC (SS316, Hastelloy C,...), P@T and volume will be selected by the customer using the configuration sheet. All safety or operational devices as manometers rupture disk, safety valve and vent valves or sample valves will be included. Also other extra options can be selected. Motor is 3PH but operate with 1PH 220VAC.

The temperature control system for reactor, by electrical oven (220 VAC) and alarm cooling system is included. Reaction temperature is measured inside the reactor through a type K thermocouple. Power control is based on Phase Angle Control (PAC) voltage supply. Overtemperature alarm is also included.

Wax Collector at high pressure
Fisher-Tropsch reactions (GTL) can be conducted at this CSTR pilot plant using the waxes SS316 temperature controlled separator system and an optional switching valve for avoid plugging at the liquid outlet filter. This L/G separator system includes level control based on a differential pressure meter and liquid outlet control valve, also includes heating tracing lines. Also weight scale can be selected on the configuration sheet for real time acquisition on computer.

The Two Liquid phases–Gas Separator at high pressure
A SS316 liquid1-liquid2-gas patented separator system with no dead volume (HPLC from Gilson) or standard process pumps and the operation is supported by many optional devices as MFC’s, check valves, manometers and usual safety devices will be installed.

Computer System
Control system based on distributed PID controllers and remote computerized supervision automation (for process recipes). PC and Process@ software is included. Engineering and documentation is shared with Microactivity reactor, 15 years worldwide experienced.
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PROCESS@ SOFTWARE

CSTR PILOT PLANT P&I DIAGRAM