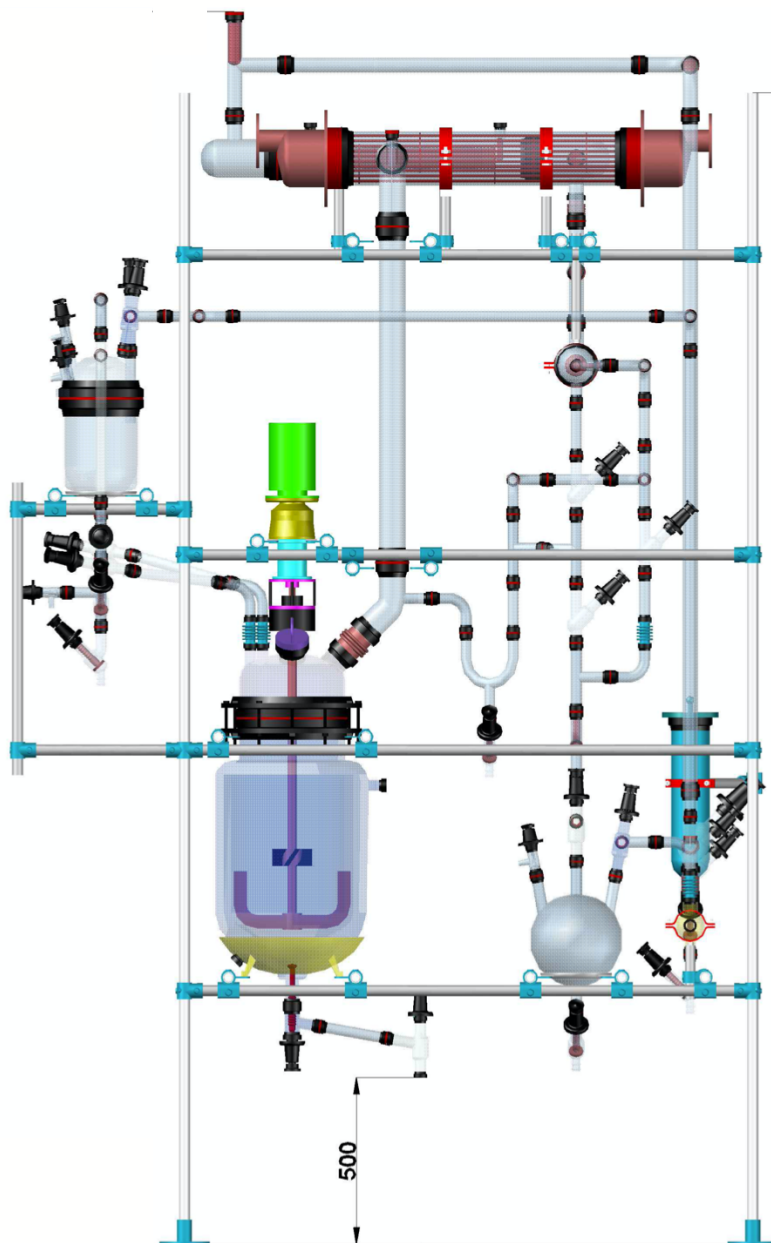




JAGDAMBA ENTERPRISE

A Representation of Engineering and Technology



KILO LAB REACTOR SYSTEMS

INTRODUCTION

JAGDAMBA ENTERPRISE multipurpose kilo lab systems are highly engineered and has a very sophisticated user friendly design.

These kilo lab systems are mainly used in Pharma and chemical companies where there is a use of highly corrosive chemicals.

Our kilo lab systems are as per GMP standards and comes with / without automation as per CFR21 Part 11 compliance. Certifications for the same shall be provided with the supply of the assembly

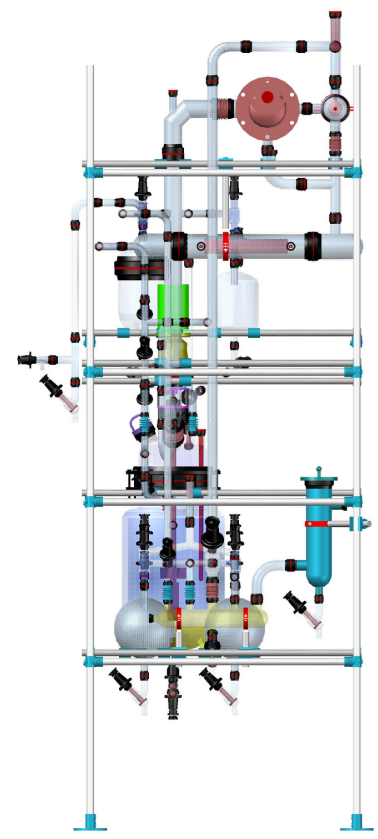
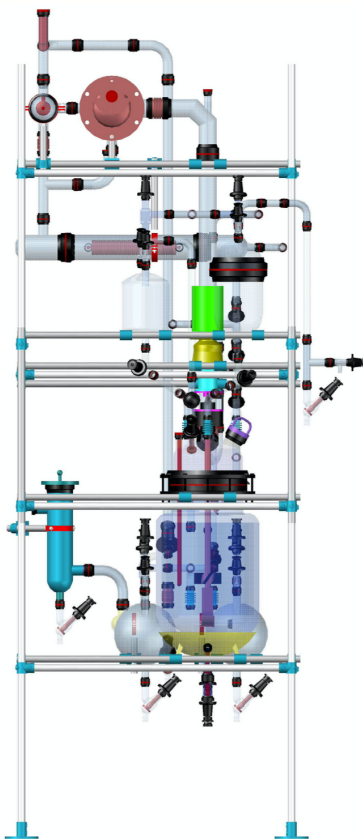
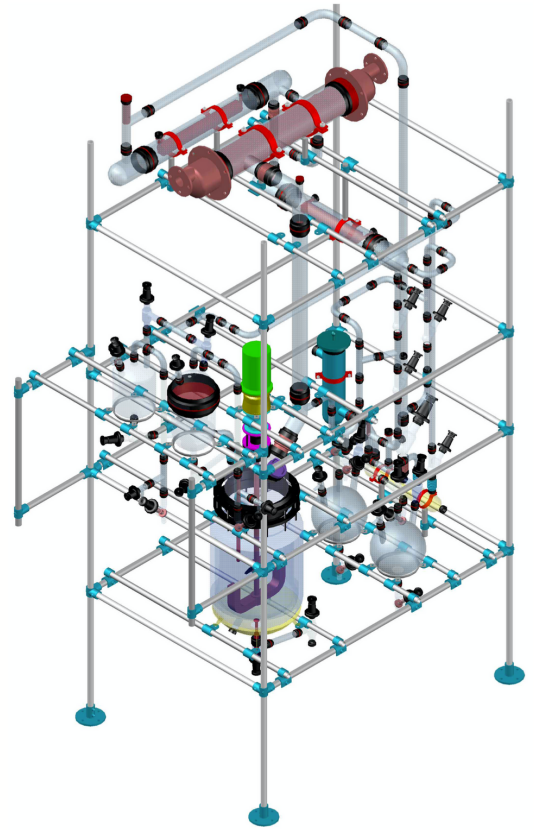
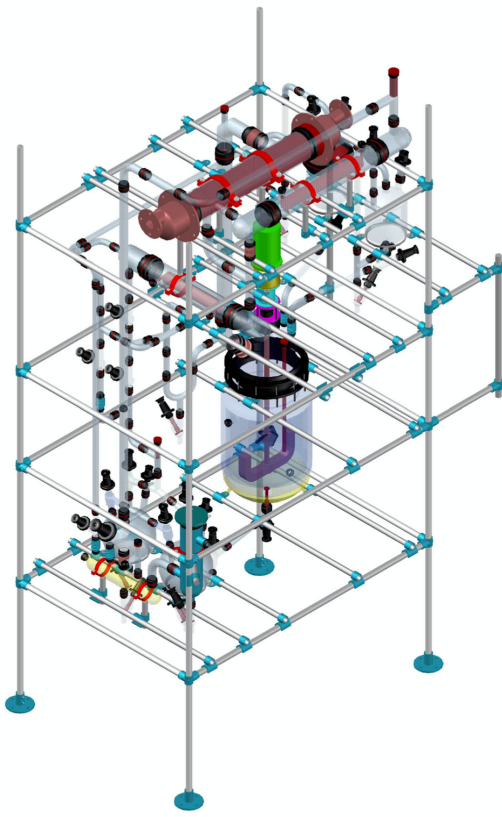
MULTIPURPOSE KILO LAB GENERAL SPECIFICATIONS

SR NO	DESCRIPTION	JE-KL-10	JE-KL-20	JE-KL-50	JE-KL-100	JE-KL-200	REMARKS
A)	GLASS MAIN PARTS						
1	Glass Cylindrical Reactor	10L	20L	50L	100L	200L	Option available for Jacketed and Triple Wall available only upto 100L reactor
2	SS-PTFE Lined Agitator with PBT Impeller	1	1	1	1	1	Option available for Anchor, CBT impeller in single as well as dual stage. Proper L/D ratio shall be maintained
3	Ex-proof Motor, Gearbox and Mechanical Seal	0.25 HP	0.25 HP	0.5 HP	1 HP	1 HP	Option available for ATEX Certified
4	Glass Feed Vessel - Cylindrical & Graduated	2L	5L	10L	20L	20L	Option available for twin vessel
5	Glass Receiver Twin Vessels - Spherical & Graduated	5L	5L	10L	20L	20L	Option available for single vessel
6	Glass Vapour Line	DN40	DN50	DN80	DN100	DN150	Option available for packed column - Raschig rings / structured packing
7	Glass Primary Condenser	DN80-C	DN80-C	DN100-S	DN150-S	DN150-S	S - Shell & Tube Type C - Coil Type
8	Glass Secondary Condenser	DN80-C	DN80-C	DN80-C	DN80-C	DN80-C	
9	Glass Phase Separator	1L	2L	2L	2L	2L	Provision of refluxing / collecting either heavy or light phase as per the demand of the process
10	Glass Vacuum Manifold	DN50	DN50	DN80	DN80	DN80	5 Nozzles, drain and vent
11	Glass Ice Trap	DN80	DN80	DN100	DN100	DN100	
12	Glass Internal Process Pipelines	DN15 / DN25	DN25	DN40 / DN25	DN40 / DN25	DN40 / DN25	
13	Glass Main Vacuum Line	DN25	DN25	DN40	DN40	DN40	
14	Glass Vacuum Balance Line to Receivers / Feed Vessels	DN15	DN15	DN25	DN25	DN25	
15	Hardware - Plastic flanges, Inserts , SS Nuts, bolts, washers and springs	SET	SET	SET	SET	SET	Plastic flanges used as per DIN standard
16	Structure - Main Frame - SS304	DN25	DN25	DN30	DN30	DN30	Option available for Vessel lifting and lowering with limit switches.
B)	SAFETY FEATURES						
17	Pressure Safety Valve	DN40	DN40	DN50	DN50	DN50	
18	Rupture Disc	DN50	DN50	DN50	DN50	DN50	Suitable to withstand vacuum and burst under set pressure
C)	AUTOMATION AND INSTRUMENTATION						
19	Temperature Sensors	4	4	4	4	4	Reactor temp, Vapour temp, Vent temp and Product temp
20	Pressure Transmitter	1	1	1	1	1	Option available for dial gauge instead of transmitter
21	Agitator RPM controller (VFD)	1	1	1	1	1	
22	Operation Panel : Simple panel for process parameters indications and Agitator control	1	1	1	1	1	Option available for : 1) Ex d enclosure (Ex II 2GD Ex DB) 2) PLC with ATEX / NON-ATEX approved HMI
23	SCADA Automation Solution (Optional)	Available	Available	Available	Available	Available	CFR21 PART 11 compliant SCADA automation solutions
24	Heating & Cooling System	TCU-535W	TCU-555W	TCU-575W	TCU-5A10W	TCU-5A25W	Temp range: -45 DegC to +250 DegC. Options available for different temp ranges as well
25	Documentation (Optional)	SET	SET	SET	SET	SET	DQ,IQ,OQ, 3D GA drawings of the assembly and relevant certifications of the instruments
26	Approximate Foot Print - L X W X H (In mm)	1500 X 800 X 2400	1650 X 900 X 2450	1700 X 900 X 3600	1800 X 1000 X 3800	2000 X 1100 X 4000	Can be fit in a small footprint, final GA drawings can be approved before manufacturing

GLASS OVERHEAD ASSEMBLY ON GLASS LINED REACTORS

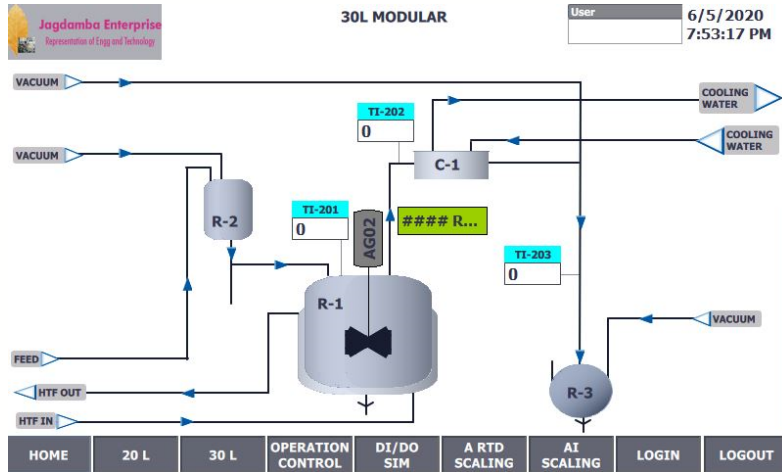
SR NO	DESCRIPTION	JE-KL-63	JE-KL-100	JE-KL-160	JE-KL-250	REMARKS
A)	GLASS AND GLR MAIN PARTS					
1	Glass Lined Reactor with glass top cover	63L	100L	160L	250L	Option for jacketed, insulated and SSGL available
2	SS-PTFE Lined Agitator with PBT Impeller	1	1	1	1	Option available for Anchor, CBT impeller in single as well as dual stage. Proper L/D ratio shall be maintained ; SS-PTFE lined thermowell with tantalum tip
3	Ex-proof Motor, Gearbox and Mechanical Seal	0.5 HP	1 HP	1 HP	1 HP	Option available for ATEX Certified
4	Glass Feed Vessel - Cylindrical & Graduated	10L	10L	20L	20L	Option available for twin vessel
5	Glass Receiver Twin Vessels - Spherical & Graduated	10L	20L	50L	50L	Option available for single vessel
6	Glass Vapour Line	DN80	DN100	DN100	DN150	Option available for packed column - Raschig rings / structured packing
7	Glass Primary Condenser	DN100-S	DN150-S	DN225-S	DN225-S	S - Shell & Tube Type
8	Glass Secondary Condenser	DN80-C	DN80-C	DN100-C	DN100-C	C - Coil Type
9	Glass Phase Separator	2L	2L	2L	5L	Provision of refluxing / collecting either heavy or light phase as per the demand of the process
10	Glass Vacuum Manifold	DN80	DN80	DN80	DN100	5 Nozzles, drain and vent
11	Glass Ice Trap	DN100	DN100	DN100	DN100	
12	Glass Internal Process Pipelines	DN40 / DN25	DN40 / DN25	DN40 / DN25	DN40 / DN25	
13	Glass Main Vacuum Line	DN40	DN40	DN40	DN40	
14	Glass Vacuum Balance Line to Receivers / Feed Vessels	DN25	DN25	DN25	DN25	
15	Hardware - Plastic flanges, Inserts , SS Nuts, bolts, washers and springs	SET	SET	SET	SET	Plastic flanges used as per DIN standard ; Option available for SS flanges as well
16	Structure - Main Frame - SS304	DN30	DN30	DN30	DN30	Option available for Vessel lifting and lowering with limit switches.
B)	SAFETY FEATURES					
17	Pressure Safety Valve	DN50	DN50	DN50	DN50	
18	Rupture Disc	DN50	DN50	DN50	DN50	Suitable to withstand vacuum and burst under set pressure
C)	AUTOMATION AND INSTRUMENTATION					
19	Temperature Sensors	4	4	4	4	Reactor temp, Vapour temp, Vent temp and Product temp
20	Pressure Transmitter	1	1	1	1	Option available for dial gauge instead of transmitter
21	Agitator RPM controller (VFD)	1	1	1	1	
22	Operation Panel : Simple panel for process parameters indications and Agitator control	1	1	1	1	Option available for : 1) Ex d enclosure (Ex II 2GD Ex DB) 2) PLC with ATEX / NON-ATEX approved HMI
23	SCADA Automation Solution (Optional)	Available	Available	Available	Available	CFR21 PART 11 compliant SCADA automation solutions
24	Heating & Cooling System	TCU-575W	TCU-5A10W	TCU-5A15W	TCU-5A25W	Temp range: -45 DegC to +250 DegC. Options available for different temp ranges as well
25	Documentation (Optional)	SET	SET	SET	SET	DQ,IQ,OQ, 3D GA drawings of the assembly and relevant certifications of the instruments
26	Approximate Foot Print - L X W X H (In mm)	1800 X 1000 X 3800	1850 X 1000 X 3800	1850 X 1000 X 4000	2000 X 1050 X 4000	Can be fit in a small footprint, final GA drawings can be approved before manufacturing

TYPICAL MULTIPURPOSE KILO LAB SYSTEM DIFFERENT VIEWS

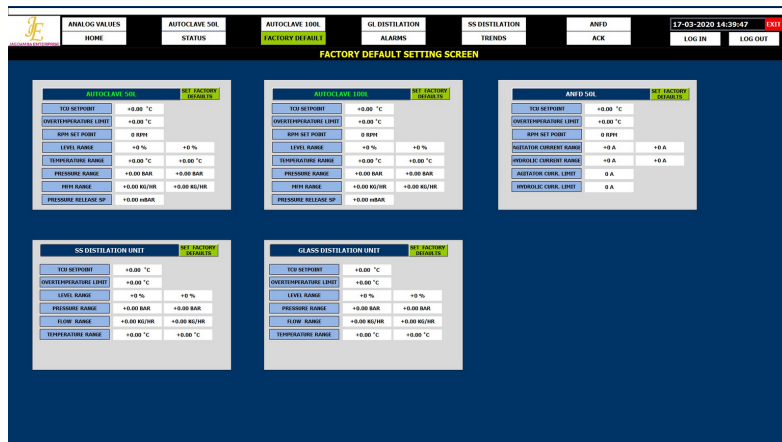


- The above drawings are only for your reference from our past projects. We reserve the right to modify our design and specifications as and when required

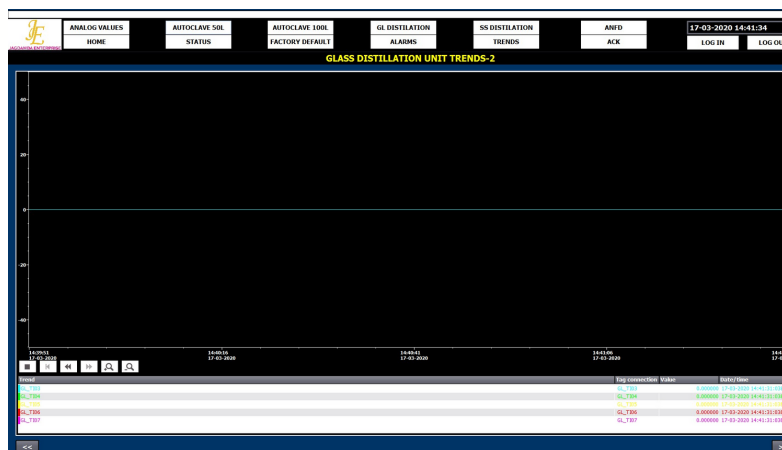
AUTOMATION AND INSTRUMENTATION



Graphical View with flow diagram of plant



PLC Controller parameter setting screen



Online graph of process parameters

AUTOMATION AND INSTRUMENTATION

Automation from Single process plant to Multiple Plants with common controller, multiple screens & with 21CFR part 11 compliant SCADA solutions.

Automation increases the reproducibility and productivity of complete chemical processes by automated runs.

Jagdamba Enterprise adapts and integrates commercially available up-to-date technology of leading suppliers which fulfill current technical guidelines and directives as per 94/9/EC regarding flame proof or ex proof equipment for installation in chemical plants and laboratories where Ex Zone specifications are required.

Non Ex proof IP65 panel solutions with various MOC options like SS, GRP, MS powder coated is also provided as per requirement.

Automation is often customized as per the complexity requirement of process plants.

Jagdamba provides solutions which cover control of single and multiple processes & devices.

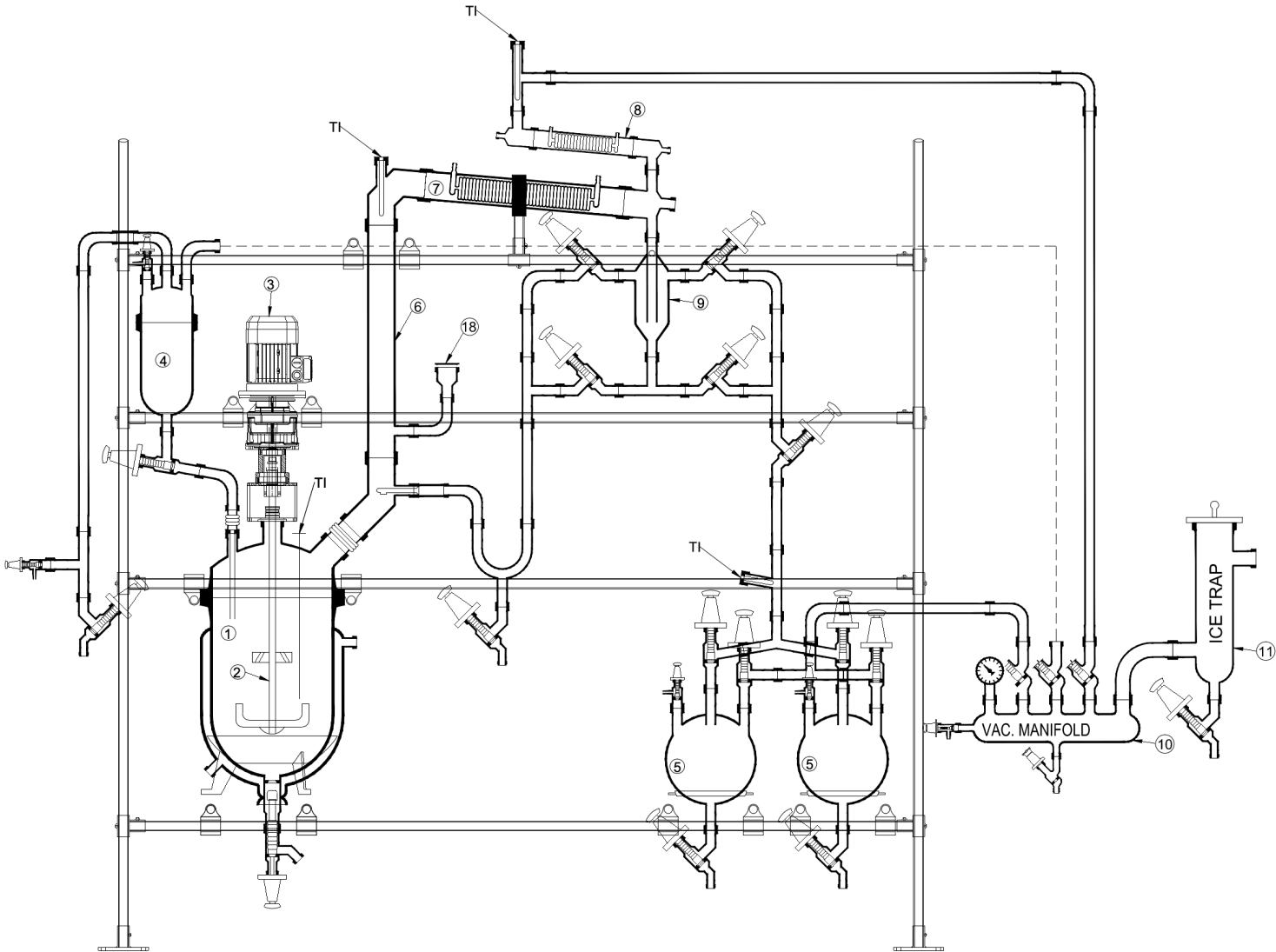
Customized PLC for chemical plants cover basic control functions:

- Stirrer Speed
- Vacuum / Pressure
- Temperature Control
- Temperature Control Unit
- Data logging with export in ASCII format (*.csv)
- Customized reporting

We also provide Advance measurement & control functions depending on the requirement as:

- Level / Volume
- Flow
- pH
- Dosing pump
- Reactor Weighing
- Gas mass flow measurements & control

JAGDAMBA ENTERPRISE



Address: 504- Aurum Building, Near HP Petrol Pump,
Iskon Vasna Road, Vadodara- 390007, India

Phone: (M) +91-9924376558

Website: www.jagdamba-enterprise.in

Email: sales@jagdamba-enterprise.com