



Notes

P&ID prior to HAZOP review and LOPA

Legend

- Main process stream
- Utility stream
- Drainage stream
- Control valve
- Solenoid valve
- Pressure relief valve
- Instrument in field
- Interlock
- Electrical signal
- Standby electrical signals
- Pressure regulating valve
- Gate valve
- Three way valve
- Operator accessible controller system mounted in control room
- Alarm

ID for Instruments

Letter	First	Second	Third
A	Composition analyser	Alarm	
C		Control	Controller
F	Flow		
H			High
I	Interlock	Indicator	
L	Level		Low
M	Motor		
P	Pressure		
R		Relief	
S	Solenoid	Switch	
T	Temperature		
V	Valve	Valve	Valve
Y		Multiplier	
Z		Interlock computer	



**P&ID description:**  
O-nitrotoluene hydrogenation reactor and solvent distillation

Equipment tag	R201	P201	F201	H201	H202	S203	H203	S204	H204
Description	Trickle Bed Reactor	Centrifugal Pump	Centrifugal Fan	Electric heater	Electric heater	Packed column	Plate&Frame Condenser	Reflux drum	Kettle Reboiler
Material of construction	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	Copper heating element	Copper heating element	304-S71 Stainless Steel	304-S71 Stainless Steel	304-S71 Stainless Steel	304-S71 Stainless Steel
Design pressure (atm)	5	5	5	5	5	1	1	1	1
Design temperature (°C)	60	60	60	60	60	175	67	67	175
Capacity	3.93 m <sup>3</sup>	0.66 m <sup>3</sup> /h	0.67 m <sup>3</sup> /h	6.38 kW	6.38 kW	0.31 m <sup>3</sup>	-38.96 kW	0.15 m <sup>3</sup>	127.96 kW

	NAME	DATE
DRAWN	SKT, MJ	01/03/2021
CHECKED	MJ, SKT	03/03/2021
APPROVED	HO	05/03/2021