

CIP lab-scale test rig

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System Data

- Lab-scale test rig to perform Cleaning-in-Place (CIP) experiments inside a modular flow channel (18 x 7.3 mm)
- Exchangeable sample plates (80 x 20 x 2 mm)
- Test rig supports a wide parameter range regarding flow rate, temperature and pH-Value

Test rig

- Storage tank exhibits a volume of 6 L
- Jacketed tank and heat exchanger for continuous heating/cooling
- Volume flow controlled frequency converter allows stepless variable pump settings
- Flow channel bypass allows a continuous (pre)-heating of the test rig
- Sensors for the continuous measurement of pH-value and conductivity
- Dosing pump for continuous dosage of e. g. acid/leach
- Three temperature sensors
 - Before the flow channel
 - Behind the flow channel
 - Inside the storage tank

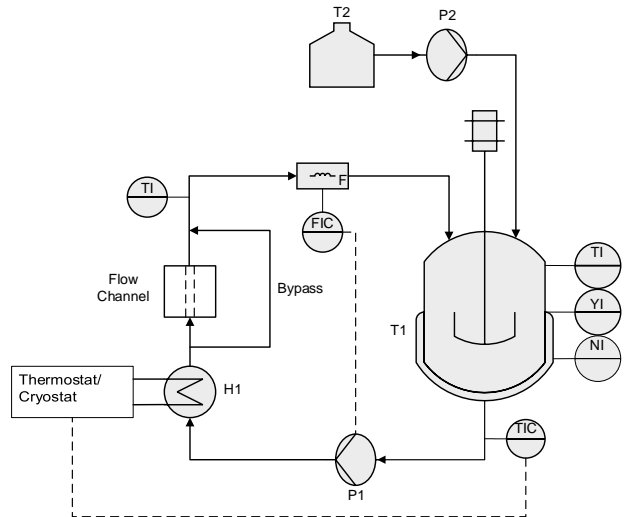
Operation Range

Process parameter	Unit	Range
Volume flow	L/min	0 ... 4
Flow rate	m/s	0 ... 0.5
Max. Reynolds number	-	~ 7,800
Temperature	°C	~ 15 ... 70
pH-Value	-	1 ... 13

Substance Systems

- Whey protein concentrate (WPC)
- Simulated milk ultra filtrate (SMUF)
- Sodium hydroxide (diluted)
- Phosphoric acid (diluted)

Process Flow Diagram



Photograph

