PRB050

RECIPE PREPARATION UNIT

PEDAGOGICAL APPLICATIONS

- **Setting up ingredients for recipe preparation**
- **Programming the recipe sequence**
- **Follow-up of production processes**
- **Fluid Management**
- **Cleaning operation**
- **Assembly / dismantling**
- **Effect of improper cleaning ("polluted" headline)**
- **How a CIP (Clean In Place) works**
- **Production launch**
- **Product Control**

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

PRINCIPLE OF OPERATION

The PRB 050 bench can be used to prepare recipes according to the instructions given.
The recipe preparation line consists of the following units:

- Feed tanks: the two tanks can hold different liquids to feed the recipe tank. Depending on the recipe, single and 3-way valves are used to select the tanks. This part allows learners to familiarize themselves with a valve game and understand the interest of each of them.
- A recipe tank: it allows you to mix several liquid or solid products. From an HMI you can create the recipe you want by configuring the following parameters: temperature, volume of each liquid product, amount of solid product and agitation. All you have to do is set up the steps in the sequence and start the cycle. You have the option to operate in Manual or Automatic mode.
- A transfer pump: this is used to convey the product from the recipe to the storage tank. It can also be used to empty or fill tanks.
- A storage tank: this keeps the product in the right conditions. You can adjust the stirring as well as the temperature of the product.
- CIP (Cleaning In Place): the interest of a CIP is the cleaning of an entire installation. It has two tanks that can hold water or chemicals. One of the tanks has an immersion heater to increase the temperature of the liquid injected into the installation and increase the efficiency of cleaning.
  Here it can be connected to different specific points in the system to clean tanks and pipes. A valve set allows you to choose different types of operating mode: feeding, recirculation, rinsing, etc.

The purpose of the entire installation is for the user to prepare and configure his equipment according to the type of recipe to be carried out.
The user will have to start his production and enter the steps of the acceptance sequence on a touch HMI. It is possible to take samples at certain stages of production. As soon as this is completed, the operator will have to carry out a complete cleaning of his installation using the CIP system. On the recipe unit, it is possible to replace a part of the cleaned pipe with a polluted pipe to visualize the effects of improper cleaning of the pipes.

The rugged design of this equipment makes it perfectly suited for use in a school setting.
Its anodized aluminum structure on wheels gives it great robustness as well as great flexibility of integration into your premises.
The manufacture of this equipment complies with the European Machinery Directive.

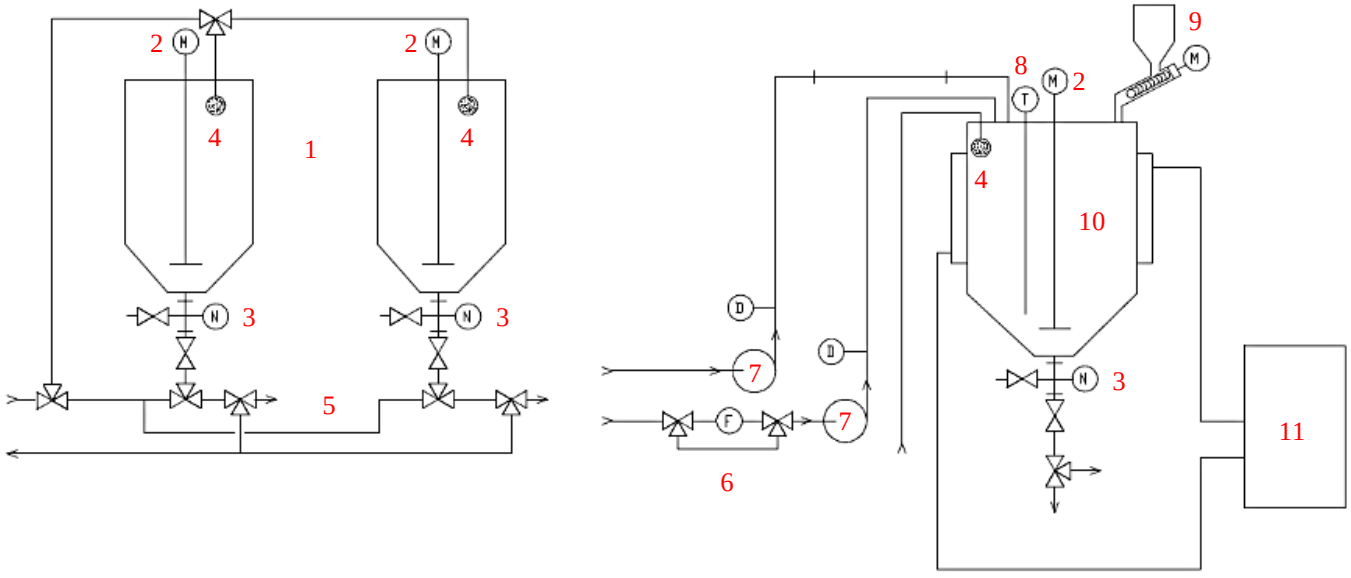
PRB050

Feed tanks and mixing tank

Illustrations

Photo of feeding tanks

Photo of mixing tank



Hydraulic diagram of feed tanks and recipe tank

PRB050

Technical Specifications

1. **Two Feed Tanks**
   - Material: Stainless steel
   - Volume: 100 L
   - Conical bottom
   - Sampling Valve
   - Lid with porthole for viewing the inside of the tank

2. **Geared motorcycle agitators**
   - Maximum rotation speed: 200 rpm
   - Speed adjustment knob
   - Shaft & Blade: Stainless Steel

3. **Pressure Sensors**
   - Allowing you to know the level in the tank
   - Analog output 4-20 mA

4. **Washing Ball**
   - For tank cleaning: CIP supply
   - Stainless steel
   - Multidirectional

5. **Single valve set and 3-way valves**
   - CLAMP type fittings
   - Stainless steel
   - Easy to disassemble

6. **Screen Filter**
   - En Y
   - Stainless steel
   - CLAMP type fittings
   - Bypass valves
   - Mesh dimensions in the filter: 300 microns

7. **Positive displacement pumps**
   - CLAMP type fittings
   - Maximum flow rate: 23 L/min
   - Seal: NBR

8. **Temperature probe**
   - Type: PT100
   - Shaft: Stainless Steel

9. **Adipowder**
   - Allows you to add solid products: powder
   - Borosilicate glass
   - Worm screw

10. **Mixing tank**
    - Stainless steel
    - Volume: 50 L
    - Conical bottom
    - Sampling Valve
    - Lid with porthole for viewing the inside of the tank
    - Double Envelope

11. **Temperature regulator**
    - Heating power: 6 KW
    - Maximum temperature: 90 °C
    - Heat transfer fluid: water
    - PID control of heating and cooling temperature.
    - Autofill
    - Level sensor
    - Safety thermostat
    - Stainless steel tank and heating element
    - Pump 60 L/min, 3.8 bar

Automate
- Brand: Schneider
- Model: M221

Security:
- **Magnetically coded lid opening detector:** Shutdown of the system due to rotation of the agitators
- **Flow Controller:** Type: calorimetric Shaft: Stainless steel Shutting down pumps
- **An electrical box**: with general power supply disconnect, 30mA residual current circuit breaker and punch type emergency stop.

The bench is installed on an aluminum profile structure equipped with high-load, directional castors with brakes. Measurements are displayed on a 7" color touch screen.

Installation Specifications

- Power supply: 400 Vac – 50 Hz – 20 A
- Power Supply Type: 3 Phase + Neutral + Ground
- Temperature-regulating water supply: 15 L/min – 3 bar
- Water drainage: at ground level
- Dimensions of the feeding tanks: (LxWxH mm): 2100 x 850 x 1450
- Recipe vat dimensions: (LxWxH mm): 2150 x 850 x 1850
- Weight of Empty Feed Tanks (Kg): 250
- Empty Recipe Tank Weight (Kg): 180

Note: When installing equipment by us, all network connections must be located within 2m of the machine

Documentation

- Instruction Leaflet
- Technical file of components
- Practical work
- Electrical Diagram
- Hydaulic Diagram
- CE Certificate of Conformity

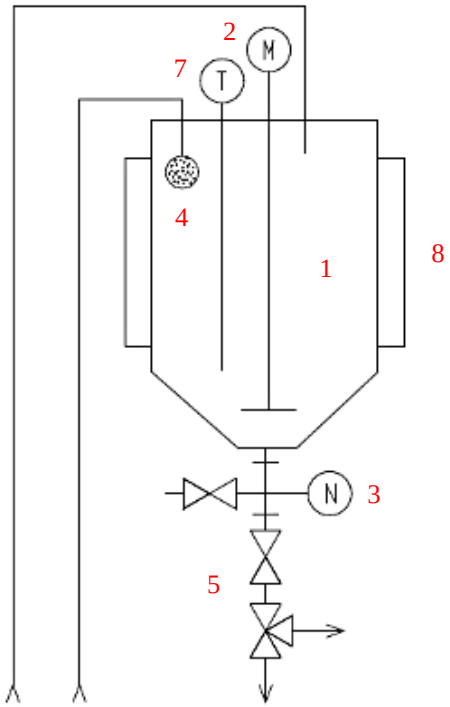
DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

PRB050

Storage tank and transfer pump

Illustrations

Photo of storage tank



Hydraulic diagram of the storage tank

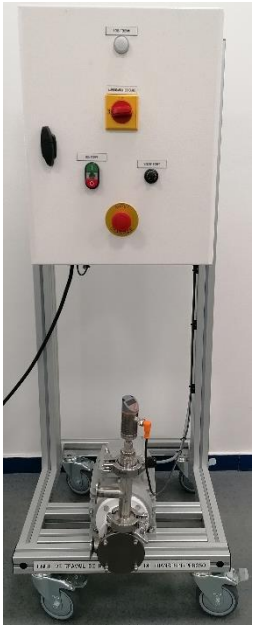
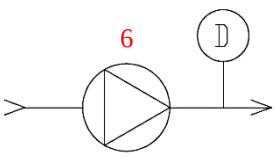


Photo Transfer Pump



Hydraulic Diagram of the Transfer Pump

The transfer pump allows the preparation to be drawn from the recipe tank and fed into the storage tank.

PRB050

Technical Specifications

1. **Storage tank**
   - Material: Stainless steel
   - Volume: 100 L
   - Conical bottom
   - Sampling Valve
   - Lid with porthole for viewing the inside of the tank

2. **Geared motorcycle agitators**
   - Maximum rotation speed: 200 rpm
   - Speed adjustment knob
   - Shaft & Blade: Stainless Steel

3. **Pressure Sensors**
   - Allowing you to know the level in the tank
   - Analog output 4-20 mA

4. **Washing Ball**
   - For tank cleaning: CIP power supply
   - Stainless steel
   - Multidirectional

5. **Single valve set and 3-way valves**
   - CLAMP type fittings
   - Stainless steel
   - Easy to disassemble

6. **Positive displacement pump**
   - CLAMP type fittings
   - Maximum flow rate: 23 L/min
   - Seal: NBR

7. **Temperature probe**
   - Type: PT100
   - Shaft: Stainless Steel

8. **Heating belt**
   - Allows you to maintain the temperature of the preparation
   - Power: 2000 W
   - Thermocouple type T

9. **Automate**
   - Brand: Schneider
   - Model: M221

Security:
   - **Magnetically coded lid opening detector:** Shutdown of the system due to rotation of the agitators
   - **An electrical box**: with general power supply disconnect, 30mA residual current circuit breaker and punch type emergency stop.

The bench is installed on an aluminum profile structure equipped with high-load, directional castors with brakes. Measurements are displayed on a 7" color touch screen.
.

Installation Specifications

- Power supply: 400 Vac – 50 Hz – 20 A
- Power Supply Type: 3 Phase + Neutral + Ground
- Transfer pump dimensions: (LxWxH mm): 500 x 550 x 1300
- Storage tank dimensions: (LxWxH mm): 1300 x 850 x 1900
- Transfer Pump Weight (Kg): 20
- Storage tank weight (Kg): 150

Note: When installing equipment by us, all network connections must be located within 2m of the machine

Documentation

- Instruction Leaflet
- Technical file of components
- Practical work
- Electrical Diagram
- Hydaulic Diagram
- CE Certificate of Conformity

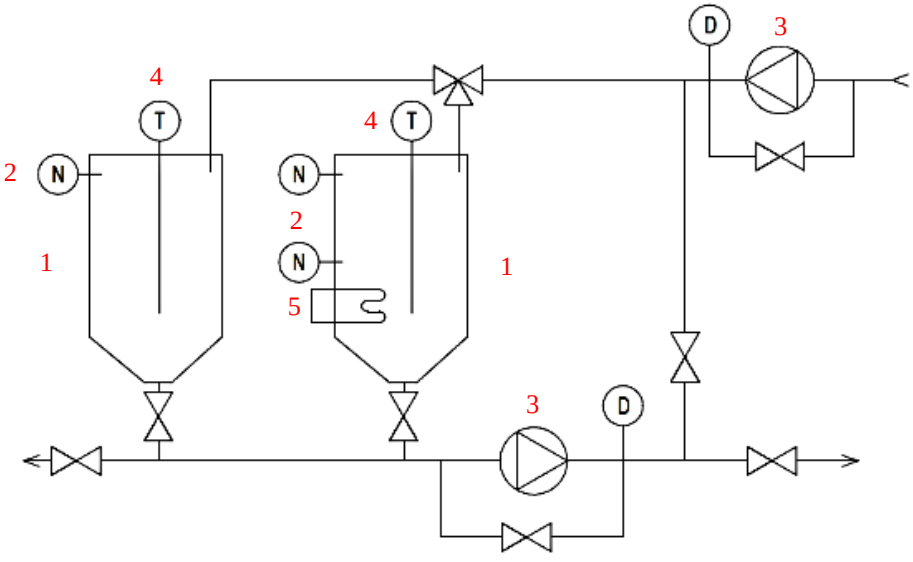
DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

PRB050

CIP (Cleaning In Place)

Illustrations

Photo CIP



CIP Hydraulic Diagram

PRB050

Technical Specifications

1. **2 tanks**
   - Material: Stainless steel
   - Volume: 100 L
   - Conical bottom
   - Hatches for viewing the inside of the tank

2. **Level switch**
   - Type: impedance spectroscopy

3. **Positive displacement pumps**
   - CLAMP type fittings
   - Maximum flow rate: 23 L/min
   - Seal: NBR

4. **Temperature probe**
   - Type: PT100
   - Shaft: Stainless Steel

5. **Immersion heater**
   - Power: 6KW
   - Stainless steel
   - With safety thermostat

6. **Automate**
   - Brand: Schneider
   - Model: M221

Security:

- **Flow Controller:**
  Type: calorimetric
  Shaft: Stainless steel
  Shutting down pumps

- **An electrical box**: with general power supply disconnect, 30mA residual current circuit breaker and punch type emergency stop.

The bench is installed on an aluminum profile structure equipped with high-load, directional castors with brakes. Measurements are displayed on a 7" color touch screen.

Installation Specifications

- Power supply: 400 Vac – 50 Hz – 20 A
- Power Supply Type: 3 Phase + Neutral + Ground
- Dimensions: (LxWxH mm): 2500 x 850 x 1900
- Curb weight (Kg): 250

Note: When installing equipment by us, all network connections must be located within 2m of the machine

Documentation

- Instruction Leaflet
- Technical file of components
- Practical work
- Electrical Diagram
- Hydaulic Diagram
- CE Certificate of Conformity

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com