

# Dripper Flow Tester Operation Manual



Manual Number: DTB107

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April, 2026

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## 1. General Description

Sysmetric Ltd manufactures test benches for testing integrated, regulated drippers, dripper tapes, sprinklers and sprayers. The dripper test bench is computer operated and displays the water flow of each dripper and sprinkler at varying pressures. The dripper test bench is easy to use and is highly accurate.

The dripper test bench is controlled by a standard Omron PLC controller that is the heart of the system. The PLC activates and controls all of the system components.

The test bench is operated and controlled via the Sysmetric TifMan software program installed on a standard PC computer. The TifMan software program provides comprehensive reports and extensive data acquisition.

Sysmetric manufactures test benches for 5, 8 and 10 drippers and test benches for sprayers and sprinklers.

The test bench is user friendly and easy to operate. It is designed for easy and safe maintenance with easy access to all parts.

### 1.1. Features

- Suitable for pipe diameters of 12-25mm.
- Testing at pressure of 0.5m – 60m covering all types of drippers.
- Quick and easy replacement of drippers including adaptor for imbedded drippers.
- Alarms for all system and hardware faults.
- All chambers made of 304 stainless steel.
- Almost all components are standard and easily replaceable.
- Optional temperature control.
- Optional no drip test for testing dripper cut off pressure.

### 1.2. Specifications

- Dimensions: 5 stations – 2250 x 1200 x 750, 8 stations – 2600 x 1200 x 720, 10 stations – 3000 x 1230 x 835
- Weight: 5 stations – 200kgs, 8 stations – 230kgs 10 stations – 250kgs
- Power Supply: North America 3 phases 400 – 480 VAC, 50/60Hz, Europe 3 phases 380 VAC + neutral
- Current consumption (Amps): 16A (connected power), typical operating current 8A
- Air supply: 6.5 bars
- Water Supply: It is recommended to supply treated water at 0-5 bars

### 1.3. Safety

- All service and maintenance should only be carried out by a qualified electrician.
- Disconnect the power supply before carrying out any work on the electric system.
- Disconnect the air pressure supply before carrying out any work on the pneumatic system.

### 1.4. **Safety Symbols**

The following are examples of safety symbols and their meanings. Consider those warning where the symbols appear on the system.

1. Caution – consult accompanying documents



2. Caution – risk of electric shock



3. Ground – connect power supply ground wire here



4. Caution - keep hands clear



### 1.5. **Maintenance**

Please refer to instructions for load cell and pressure transducer calibration as detailed in the “Dripper Test Bench TifMan Software Operation” manual – paragraph 10 “Test Bench Calibrations”.

The Dripper Test Bench should be kept clean. No other maintenance is required. For any malfunction other than those referred to in section 5 (Troubleshooting) please contact Sysmetric.

## 2. Installation Instructions

### 2.1. Overview

The unit is configured at the factory ready to start working as soon as it is “unpacked” However, to ensure proper operation, follow the procedures in this section.

### 2.2. Transportation

The unit is shipped in a protective crate. Transport the unit in the crate until positioned. If the unit is to be moved after original installation, apply the lifting device to according to the lifting signs:



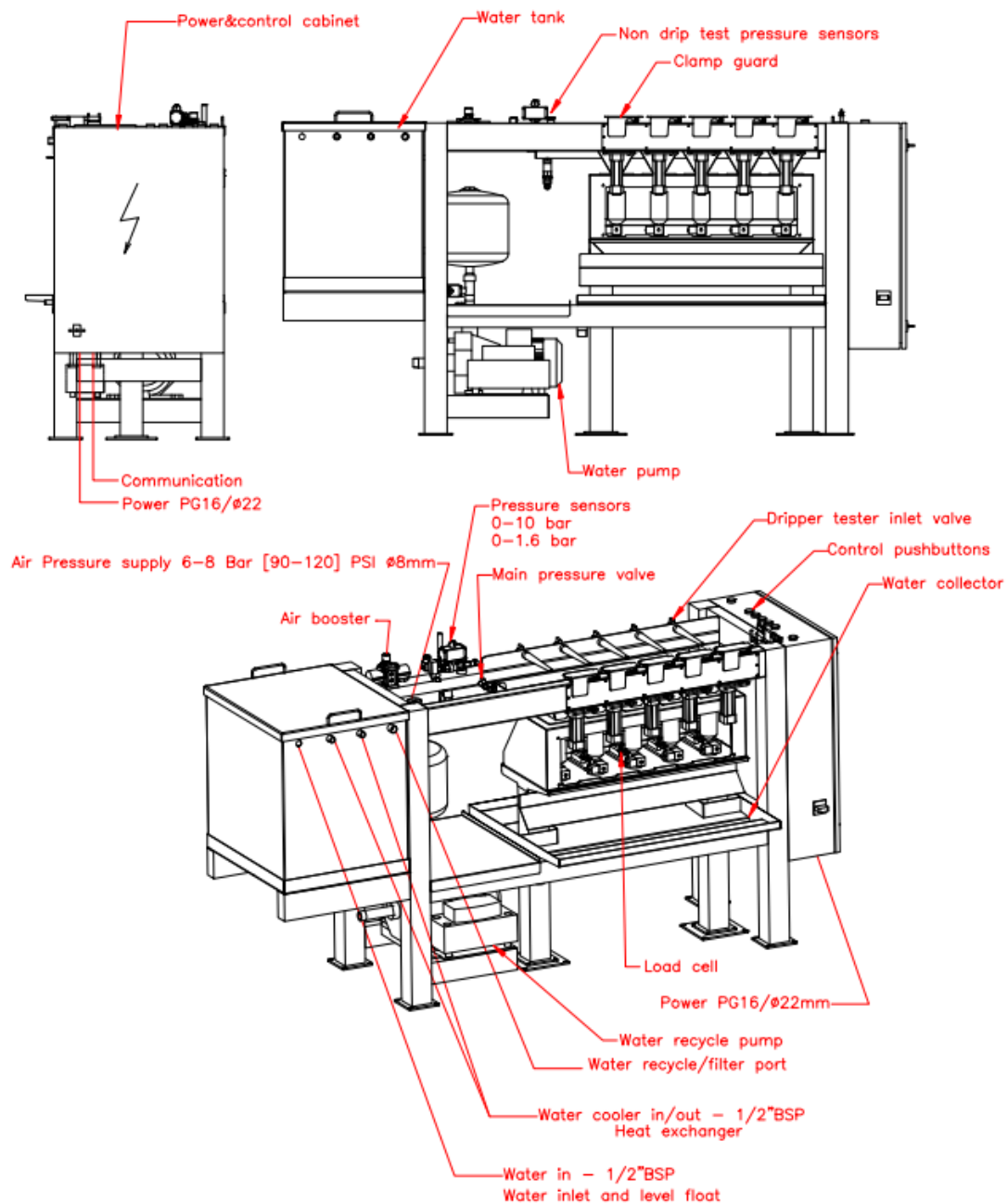
### 2.3. Installation

1. The unit is shipped on a protective galvanized metal base. Remove the unit from the base and bolt firmly to the floor.
2. Connect air pressure supply to the unit through the air filter/regulator with at least 6.5Bar. Lubricated air is NOT recommended. Adjust the pressure regulator to 6Bar.
3. Connect the unit to the power supply (North America 3 phases 400 – 480 VAC, 50/60Hz, Europe 3 phases 380 VAC + neutral)
4. Use an external wall circuit breaker of 20A.
5. Incoming supply shall be connected directly to the machine following local jurisdiction codes and guidelines for proper wire size and connections techniques.
6. The voltage drop from the point of supply to the load shall not exceed 5 % of the nominal voltage under normal operating conditions (12V).
7. Using a ring wrench fasten the ground wire to the screw marked  on the side of the power cabinet.

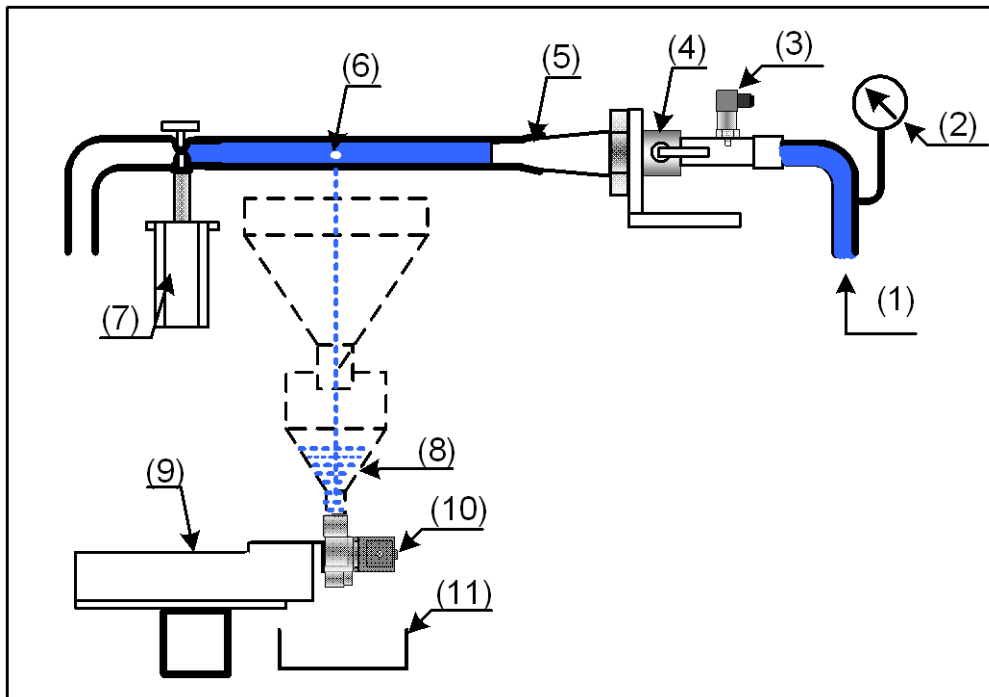
### 3. Operating the System

Each dripper is tested under pre-defined working pressures. The flow rate is measured and displayed on the computer screen in units of liter/hour in accordance with the dripper manufacturer's standards.

#### 3.1. System Components



### 3.2. Structure of dripper tester:



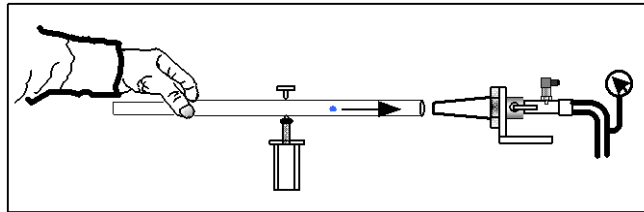
1. Water Inlet for Testing Channel
2. Analog Water Pressure Gauge
3. Digital Pressure Transducer - connected to controller
4. Manual Tap for Testing Channel
5. Hose Fitting Cone
6. Dripper
7. Hose Clamping Air Piston
8. Water Collection Funnel
9. Load Cell
10. Solenoid Valve for Water Draining
11. Water Collection Tray

## 4. Operating the Test Bench

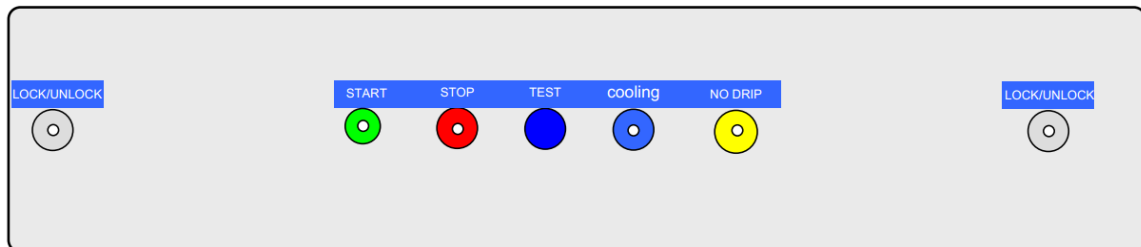
1. Prior to starting the test, type in the product details, manufacturing details and roll number (or the manufacturing series that the sample has been taken from) into the TifMan PC software. When the data has been entered the "Start" lamp turns on.
2. Insert the hoses into the test bench channels until they fit tightly on the cones. Make sure that the dripper aperture is situated above the funnels.
3. Make sure that the taps are open. Close the taps on channels that are not in use, the software will automatically update in turn.
4.  Before pressing the white lock/unlock buttons ensure that there are no personnel working in the Hose Clamping Piston area.

5.  Use both hands to press on the white buttons “Pipe Lock/Unlock” and lock the hoses in place. Before pressing the white buttons ensure that there are no personnel working in the Hose Clamping Piston area.
6. In order to ensure that there are no leaks press on the “Test” button.
7. If a “No Drip Test” is necessary press the “No Drip” button.
8. Press the “Cooling” button to start cooling.
9. Continued pressing on the “Start” button starts the test and all of its defined stages take place automatically.
10. If it is necessary to stop the test, press the “Stop” button. The “Start” button will flash continuously. Press the “Start” button to continue testing. The test will continue from the same position that it was stopped.
11. Pressing the “Stop” button turns off the alarm siren (if connected).
12. In order to cancel the test, press the “Stop” button for several seconds.
13. A test report is generated on the computer screen at the end of the test.

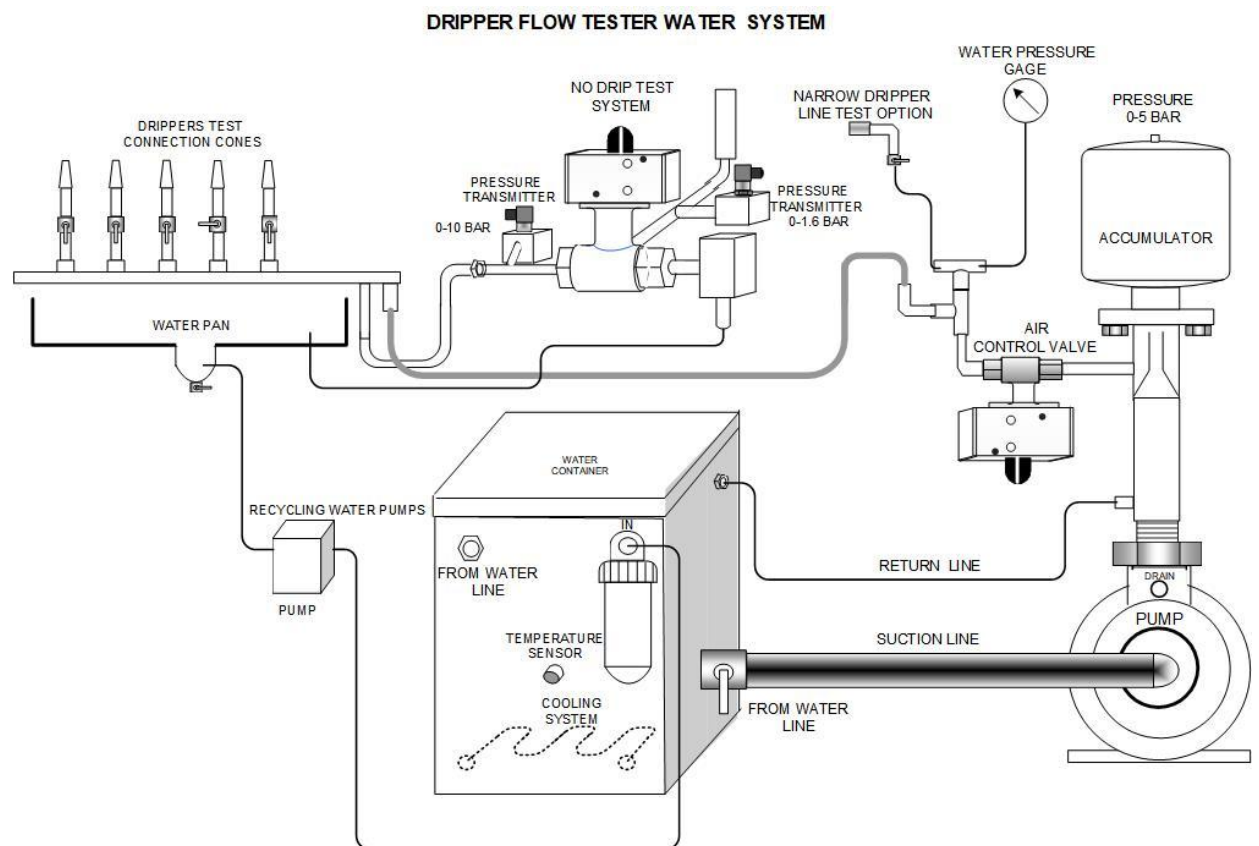
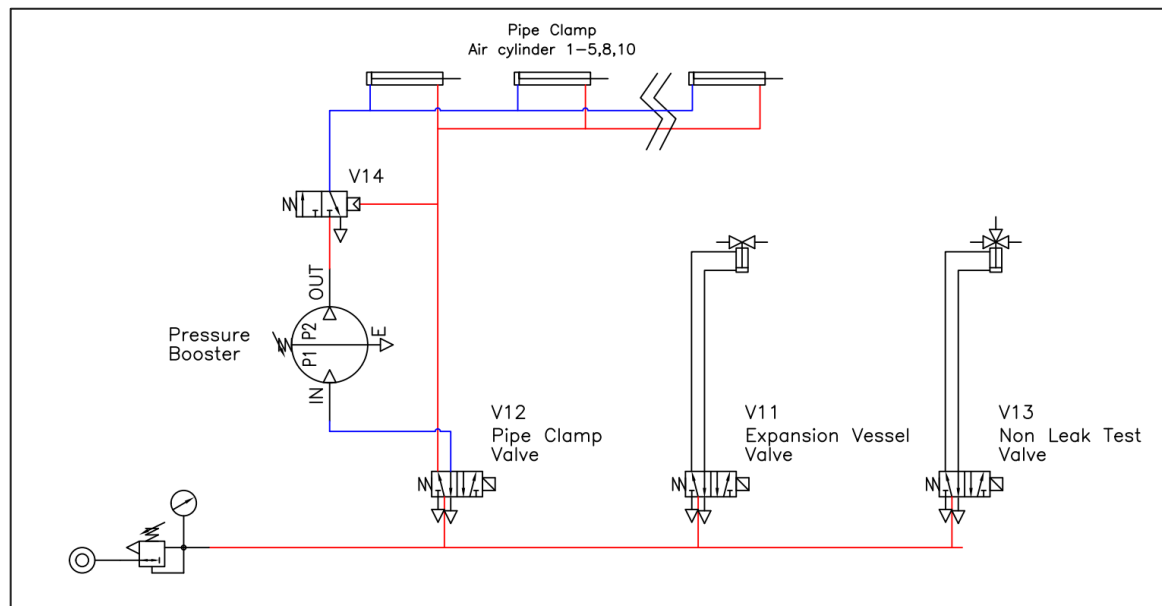
For further details please see the “Test Bench Operation” chapter in the “TifMan Software” manual.



#### 4.1. Operating Panel



## 5. Dripper Test Bench Pneumatic & Water Systems



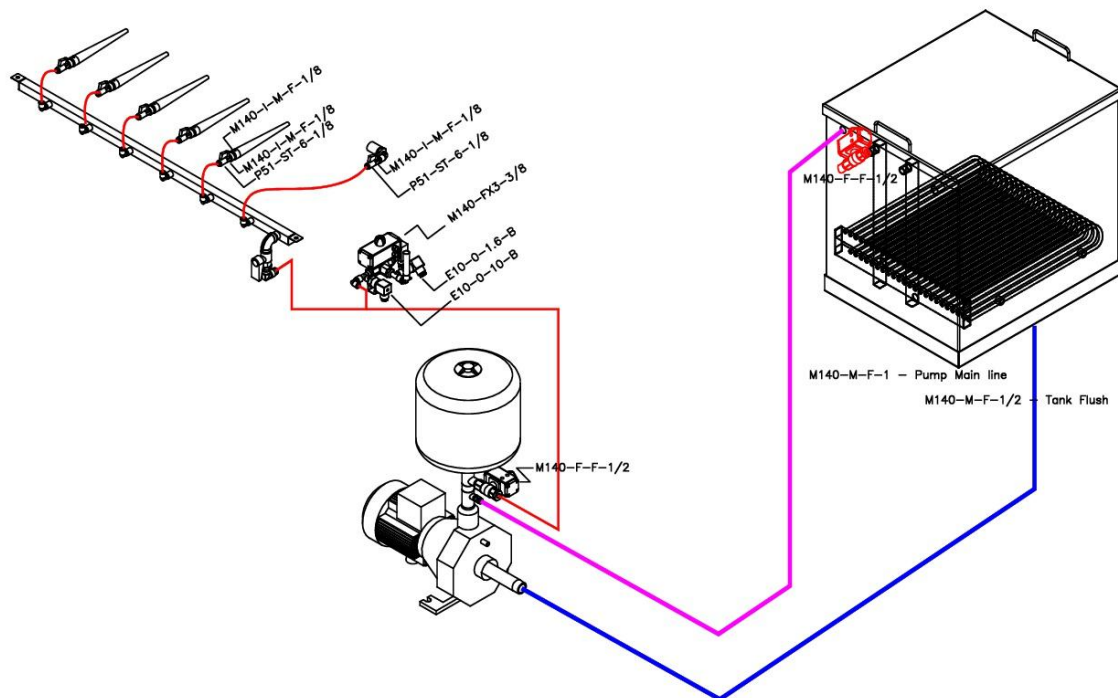
## **6. Troubleshooting**

1. Weighing problems: Mechanical blockages and corrosion are the most common causes of weighing faults.
2. Incorrect or fluctuating water pressure: Can be seen via the pressure gauge. Check that the water in the water container reaches the float. Check that the suction line is open. Check the suction line connections. Open the air drainage cap to drain excess air from the pump.
3. Faulty water pressure sensor as a result of water penetrating the electrical system.
4. Pistons are not sealed due to low air pressure causing the weakening of the air pistons.
5. The controller back up battery has a shelf life of 7 years. It is important to replace the battery every 7 years. Replace the battery when the test bench is plugged in to the mains.

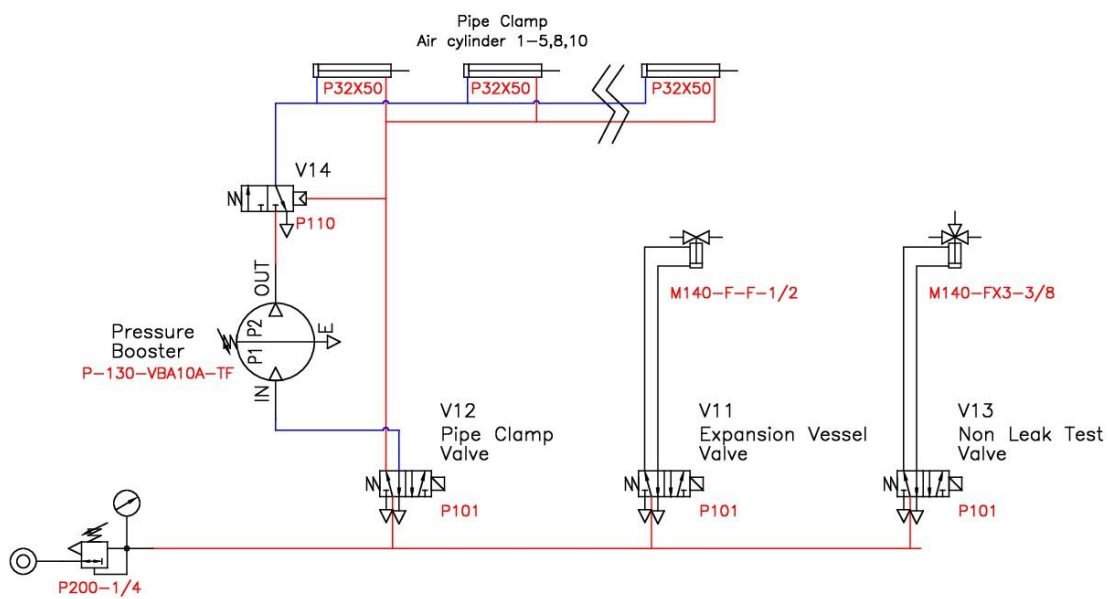
For further details about troubleshooting and calibration please see chapters 9 and 10 in the TifMan Software User Manual.

## 7. Appendix I – Spare Parts List

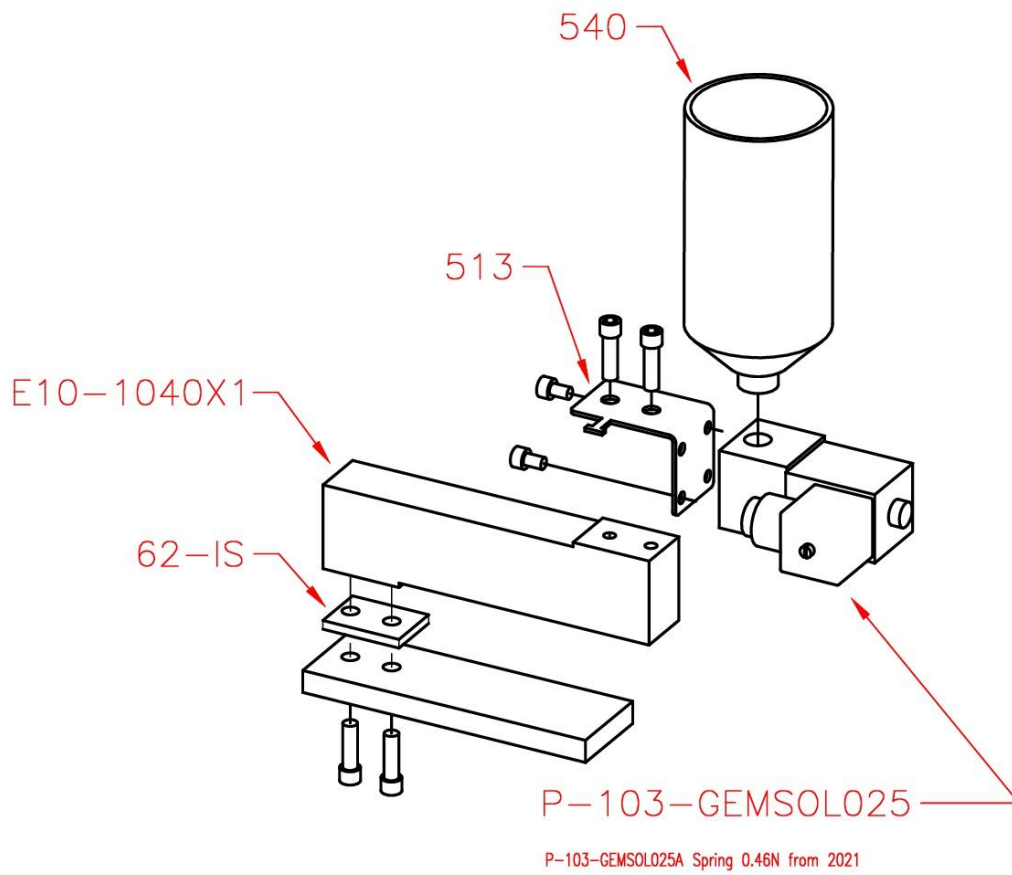
Schematic water piping



Drippers flow tester Pneumatic schematic

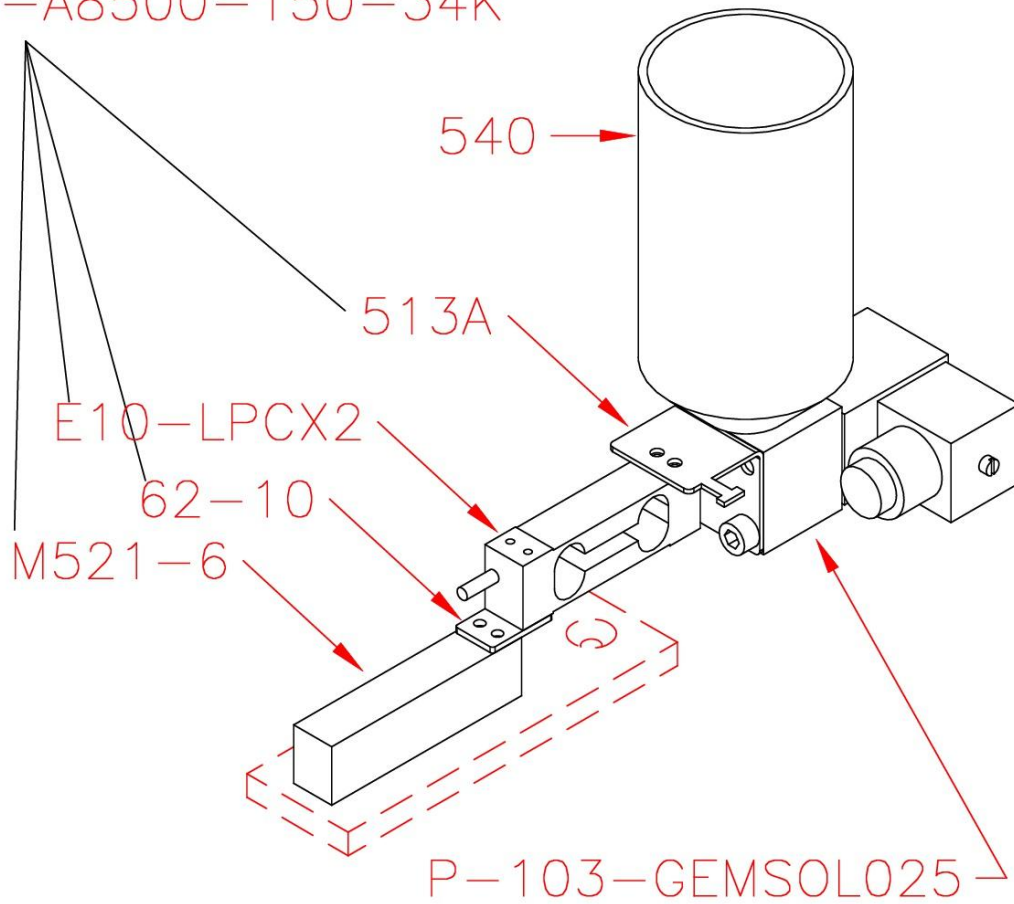


Drippers flow tester  
1 Kg load cell assembly

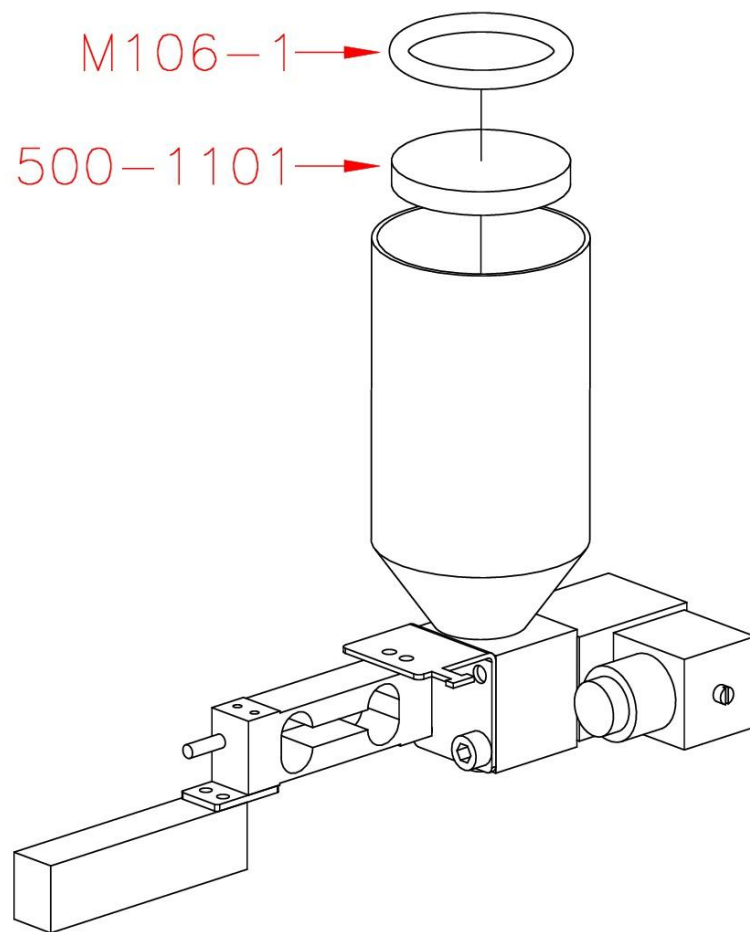


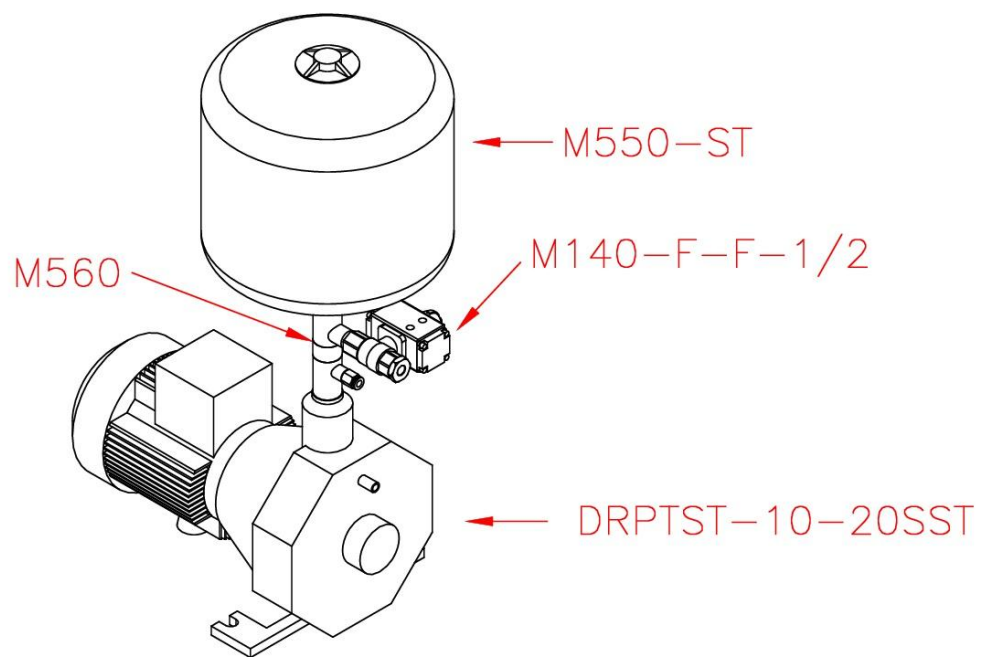
# Drippers flow tester 2 Kg load cell assembly

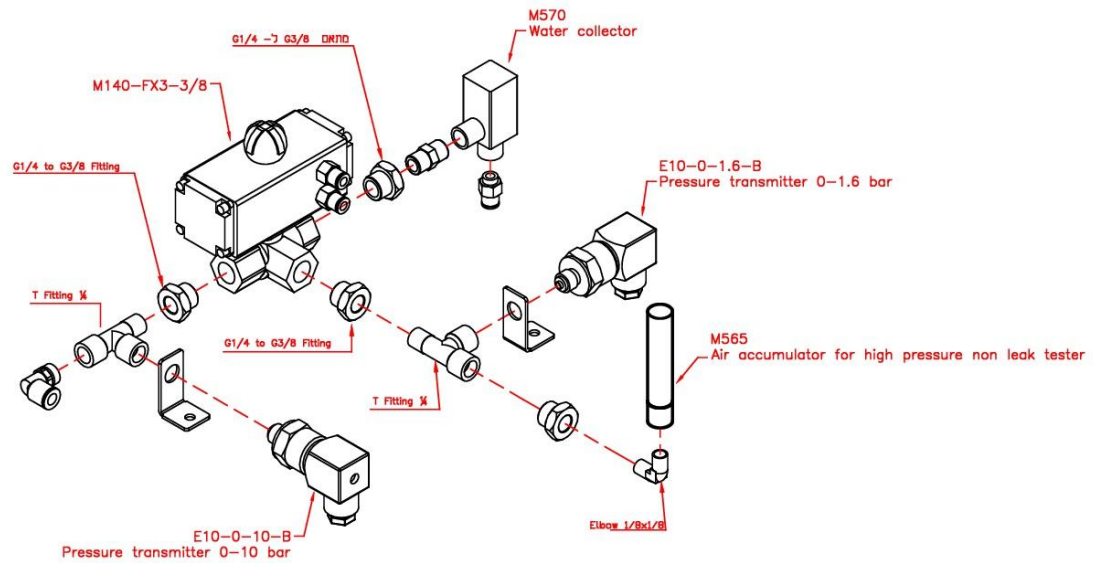
M-A8500-150-34K



P-103-GEMSOL025A Spring 0.46N From 2021

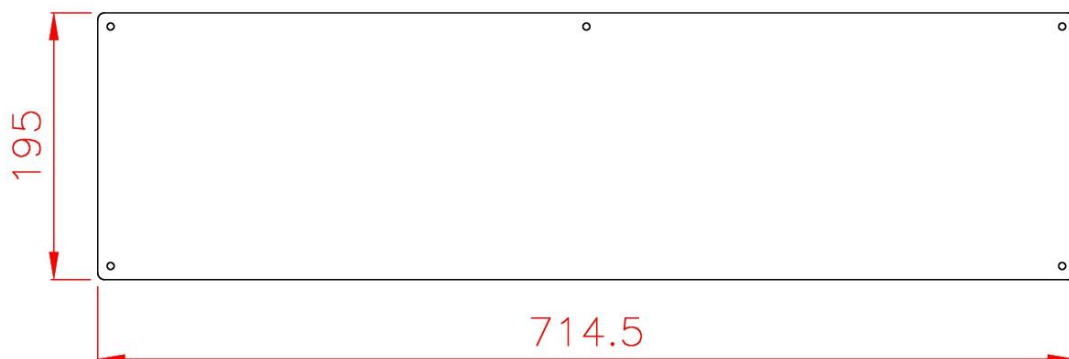






Part No. 532-150-10

Viewing acrylic window for flow tester bench weighing caps



| Catalog Number       | Description                                         |
|----------------------|-----------------------------------------------------|
| DRPTST-10-20A        | Pump for water recycling TYPE EC-200                |
| E50 * up to 2019     | Weighing load cell amplifier                        |
| E50-DLC ** from 2019 | Weighing load cell amplifier type II for DIN socket |

## 8. Appendix II – Certificate of Conformity



HERMON LABORATORIES

### CERTIFICATE OF CONFORMITY

With EN 60204-1:2006/AC: 2010, IEC 60204-1:2005,  
EN ISO 12100:2010

Certificate Number SYSSAF\_EN.23925C

This certificate of conformity has been granted to the applicant based on the results of tests and evaluations, performed by Hermon Laboratories from January 23, 2013 to May 13, 2013 on a representative sample of the specified product.

#### Product description

**Product definition:** Dripper Test Bench  
**Models:** DR-5, DR-8, DR-10

#### Applicant details

**Name:** Sysmetric Ltd  
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**Fax number:** +972-4-6405911

#### Manufacturer details

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**Telephone number:** +972-4-6405857  
**Fax number:** +972-4-6405911

This is to certify that the tested product sample satisfy the requirements of the above listed standards.

**Mr. Amos Maor,**  
**Product Safety Team Leader**  
**Hermon Laboratories Ltd.**  
**May 13, 2013**

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#### EXPERTS IN GLOBAL COMPLIANCE SOLUTIONS



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