

## COMMERCIAL SPECIFICATION

### SCOPE OF SUPPLY

The scope of supply for this system is:

- Inspector model “Minos”
- Touch screen with data logging and report generator
- Round disc membrane holder (25mm)
- Tubing, cables and connectors
- Manual, documentation and CE certificate
- Transport box

### SYSTEM DESCRIPTION

#### Liquid entry pressure

With this automated system the liquid entry pressure is measured by using small pressure increment steps. At every step the pressure decay is measured. When there is no wetting/permeation of the membrane the pressure decay will be zero. When wetting starts to occur, fast pressure decay is observed.

The system has the possibility to do a zero calibration, to increase accuracy

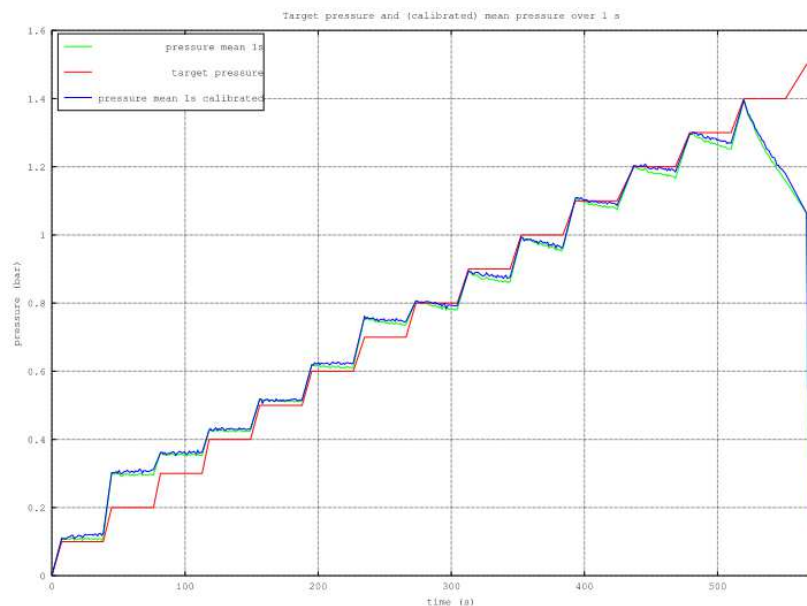
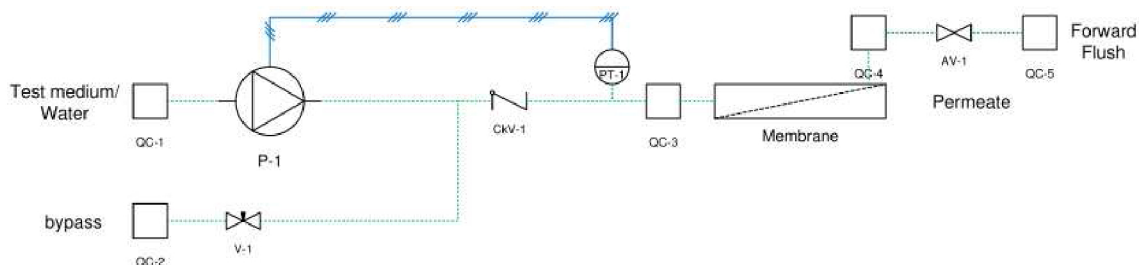


Figure 1 Example LEP measurement

## FLWSHEET & USER REQUIREMENT SPECIFICATION

The following flowsheet and URS are the technical basis of our system..



### TAG LIST (key components)

TAG	Description	Range	Supplier/ Type
P-1	Feed pump	50 L/hr max	NF 1.100
PT-1	Pressure sensor	0.1 – 10 barg	520 series
V-1	needle valve	kV0.0005-.03	Vogtlin NS 2.5

### USER REQUIREMENT SPECIFICATION

- Push-in connectors & tubing
- Feed flow: Pressure range: 0.1 - 10 bar
- 25mm round disc membrane holder included
- 47mm round disc optional

### SYSTEM



**Bubble point Tester**

## TECHNICAL SPECIFICATION

### BASE SYSTEM

The price includes the following Base system items

- Base system MINOS

Dimensions (cm) : 40 x 21 x 29 (LxWxH)  
 Typical weight : 10 kg  
 Touch screen : Included



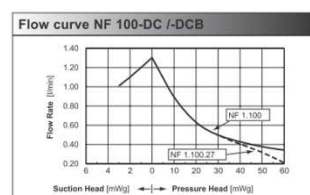
### PUMPS

The price includes the following pumps items for the Convergence Inspector

- Membrane Pump NF 1.00

Material : PTFE, PVDF, FFKM

More details, see spec sheet or manual



### PRESSURE CONTROL

The price includes the following pressure items for the Convergence Inspector

- Pressure sensor High-end 528 series

Pressure range : See flowsheet  
 Accuracy : +/- 0,1% of FS  
 Material : Stainless steel/FPM seal



More details, see spec sheet or manual

### VALVES

The price includes all necessary electronically controlled valves. In case of the flowsheet for the Convergence Inspector:

- 1 x Solenoid 2/2

Control range : See flowsheet  
 Material : Stainless steel/EPDM seals

More details, see spec sheet or manual



## FILTER HOLDER:

The price includes 1 DELRIN filter holder 25mm.



## COMMUNICATION

The price includes all necessary Input/output modules to control and read out all components in the requested flowsheet. This can included, but is not limited to the following items and completely depend on the model, functionality and desires.

- Modbus Gateway
- Digital inputs/outputs
- Analogue inputs/outputs (4 – 20 ma / 0 – 5V / Frequency / Etc)
- Serial interface modules (RS232 / etc) for external equipment
- PWM modules

## TUBING

The price includes all necessary high and low pressure tubing to connect all the components. Sizes are based on flow range and pressure drops.

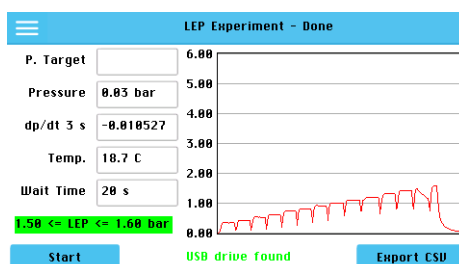
- Swagelok/JG tubing and fittings
- Check valves
- Pressure reliefs

## SOFTWARE SPECIFICATION

- Touchscreen HMI embedded
- USB data export of results & PDFs possible

LEP Settings	
Deaeration Time	40 seconds
Deaeration Power	25 %
dp/dt LEP Lower Threshold	-0.015 bar/s
dp/dt LEP Upper Threshold	-0.05 bar/s
Step Size	0.1 bar
Waiting Time per Step	6 seconds
<div>Back Shutdown Save</div>	

LEP Settings	
Start Pressure	0.9 bar
Stop Pressure	5.9 bar
dp/dt Experiment End Threshold	-0.01 bar/s
Use Calibration	Enabled
Max Pump Time	10 seconds
<div>Back Shutdown Save</div>	



## TERMS & CONDITIONS

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### PAYMENT CONDITIONS

100% before shipment

### TERMS AND CONDITIONS

The general terms and conditions of Convergence are applicable to all products and services (separately enclosed), unless otherwise stated in this quote or mutually agreed upon by written forms.

### DELIVERY TERMS

All prices are Ex Works (EXW) according to Incoterms 2010.

### DELIVERY TIME

Production time is scheduled at around 4 weeks after order confirmation and receipt of down-payment.

### WARRANTY

Convergence ensures the proper functioning of the system and the components supplied under the terms of the contract. The warranty period is 1 year after delivery. The warranty is only valid if the instrument is installed and operated in accordance with the requirements of operating and maintenance instructions as required and set by Convergence. During the warranty period, an operation and service log must be kept. Normal wear and tear and defects caused by improper actions are excluded. Repairs and replacement parts will not extend the warranty period.

### VALIDITY

This offer is valid for 90 days after quotation date.

### CANCELLATION

In case of customer cancellation during any time of the production, Convergence will charge the made costs: 10% of PO if canceled within the first week, 30% of PO if canceled within 5 weeks and 80% of PO if canceled later.

