TECNIC eLAB TANGENTIAL FLOW FILTRATION

eLAB Control Unit

Hardware	
Housing	Stainless Steel, AISI 304L (SF4 according to ASME BPE)
Display	Capacitive touch Screen, 15”, glass
Software	
eSCADA Basic	Included
eSCADA Advanced	Optional
CFR 21.11	Optional
Remote access	Optional
Documentation Package	
GMP	Optional
Built-in peristaltic pumps	
Fixed speed	1x fixed speed: 90 rpm
**Feed, permeate, diafiltration*	
Variable speed	1x variable speed: 100 rpm
**Feed, permeate, diafiltration*	
Recirculation pump	1x sanitary four-piston pump: up to 1400 L/h
**External pumps optional*	
Process Control Sensors	
Level (vessel)	Guided radar sensor
Flow sensor	2x flow sensor for feed/permeate
Pressure	3x pressure sensor for feed/retentate/permeate
Temperature (vessel)	Optional (Pt100 / Pt1000)
Load Cells (vessel)	Optional
pH Sensor (feed)	Optional
Conductivity (feed)	Optional
Magnetic agitation (vessel)	Optional
Temperature module	
Single wall	No temperature control. Visualization
Double wall	Thermostat system with external chiller for cooling
Tangential Flow Filtration System	
Holder	Sartocon Slice (Sartorius) | Centramate (Pall) Sartocon 2 Plus (Sartorius) | Centrasette (Pall)
Porous membrane	Microfiltration / Ultrafiltration
Cut off	0.2 | 0.45 µm / 2 |5 | 10 | 30 | 100 | 300 kD
Filter area	0.1 – 0.5 m2
Cassettes	1 to 5 cassettes
**Typology depends on product*	
Minimum recirculation volume	~ 150 mL
Maximum inlet pressure (SS piping)	4 bar
Addition valve	Automatic Manual (optional)
Other filtration modules	
Ceramic membranes	Optional
Hollow Fiber	Optional
Utilities	
Power supply	230 V
Water for cooling	Water supply pressure 1 bar
Vessel (optional)	
Stainless Steel	Optional
eLAB Material	Wetted parts: SS AISI 316L (SF1 according to ASME BPE) Other parts: SS AISI 304L (SF4 according ASME BPE)
Volume	5 L
**Customized volume available*	10 L
Bottom	Conical, 45º
Single wall	Without temperature control loop
Double wall	Optional
Lightning	Optional
Sight glass	Optional
Single Use	Optional

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eLAB TANGENTIAL FLOW FILTRATION

TECNIC's fully automatic tangential flow filtration equipment has a control unit for processing and a vessel (optional) for media concentration or diafiltration. This vessel is available in stainless steel for reusable or in polycarbonate for single-use applications. The full design and production process is performed at our facilities in Riudarenes (Girona), Spain.

Available for laboratory, pilot and production applications, our equipment fit in all processes from small scale to final product production.

eSCADA

One of the most outstanding parts of our equipment. This software, built on the AVEVA formerly Wonderware System Platform architecture, is designed to facilitate the recording and control of all process parameters in an intuitive and easy-to-use way.

eSCADA is integrated into all of our equipment, which means that interconnectivity between them may be considered. No external software is required to control the process. It can also be remotely controlled from an external PC or tablet.

eSCADA Basic is the software included in the equipment where the process can be visualized and graphed, as well as export results in an efficient way.

Transmembrane Pressure (TMP) Control

This process parameter is the average applied pressure from the feed on the permeate side of the membrane.

$$TMP\ [bar] = \left(\frac{P_{feed} + P_{retentate}}{2} \right) - P_{permeate}$$

This eLAB crossflow system is fully automated, so TMP can be defined previously and will be controlled by acting on the retentate valve throughout the process.

DeltaP Control

DeltaP is a process parameter that is defined as the difference between feed inlet and retentate outlet pressure of the membrane.

$$\Delta P\ [bar] = P_{feed} - P_{retentate}$$

This value is controlled automatically once the setpoint is set by the recirculation pump.

Permeate flow constant

Filtrate flux is the filtrate flow rate normalized for the area of the porous membrane through which it passes. By controlling permeate valve, the system will automatically regulate all the process.

● STD
○ OPT

TANGENCIAL FLOW FILTRATION CONFIGURATION *Other customized options available	eLAB		ePILOT
	MANUAL	AUTO	AUTO
1.VESSEL			
Without	00 ●	00	●
Standard 5 / 10L (h:d, 3:1)	01, 05, 10 ○	05, 10	
Customized (> 10L)	○		○ Permeat Tank optional (See Buffers datasheet) Agitation (Optional)
Single Wall	●		●
Double Wall	○		○
2.FILTER			
Cassette	MF, UF ●	#01, 02, 03, 04, 05	●
Ceramic	○		○
Hollow Fiber	○		○
3.TEMPERATURE			
Pt100 Sensor	○		○
Pt1000 Sensor	○		○
4.ADDITION VALVES			
Manual	●		○
Automatic		●	●
5.CONTROL			
Level Sensor	●		○
Load Cells	○		●
Flow Sensor (2x)	●		●
Pressure (3x)	●		●
pH Sensor	○		○
Conductivity	○		○
Agitation	○		●
6.SOFTWARE			
eSCADA Basic	●		●
SCADA Advanced	○		○
CFR21.11	○		○
Remote Access	○		○
7.DOCUMENTATION			
GMP	○		○

Digital Control Unit

Automatic control valves

Sartocon Slice (Sartorius) holder or similar with filter area cassettes from 0.1 to 0.5 m^2

10" Capacitive touch screen

Sanitary multi-piston pump to control the flow rate of the filtration process

Two peristaltic pumps: one has fixed speed and another one variable speed (Watson Marlow, 313/314 FAM, FDM; high performance easy load flip-top pumphead; flow rates up to 1800 mL/min)

eLAB Vessel (optional)

The vessel is made of stainless steel and is available in 5 and 10 litres. Its bottom has been designed to optimize the minimum volume when harvesting. As the temperature is an important process parameter, double wall tanks are also available. Double wall temperature is regulated by a thermostat system with external chiller for cooling.

Stainless steel vessels are self-cleaning as 360º spray balls are integrated so Cleaning in Place (CIP) module is included in the TFF system.

Polycarbonate vessels are also available if the process requires Single-Use containers.