

# TYTAN

CROSS FLOW  
FILTRATION  
WHEELED SKIDS





## TYTAN

TYTAN is Solaris' completely customisable pilot / industrial scale Cross Flow Filtration System based on microfiltration and ultrafiltration techniques and operating at low pressure ranges (1-5 bar).

Starting from the clients' URS, Solaris manufactures tailored TFF solutions, to be applied to the recovery and separation of biotechnological products in downstream operations.

With TYTAN, customers can opt for custom-designed vessels with smart sensor technology integrated for optimal process workflow.

## Cross Flow Filtration equipment

Fixed or wheeled skid options

## Applications:



Upstream and Downstream filtration processes: Brewery,  
Wines, Cider, Concentrate juice and more

- The Tytan configuration includes:
  - spiral wound
  - hollow fiber (polymeric)
  - cassettes (polymeric)
  - tubular (ceramic)
- Group of impulsive counter-washing (BACK FLUSH SYSTEM) for the periodic and automatic counter-washing of the membranes.
- Instrumentation control, transducers of pressure for the maintenance of the PTM pressure.
- Buffer tank with level control and automatic product inlet system control with the relevant pump.

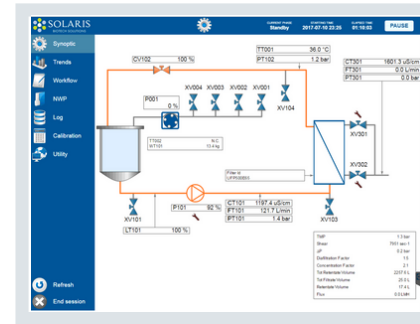


- System for the automatic washing phase control.
- Instrumentation for the control of pressures, temperatures, output, level in the buffer tank with a PLC "touch-screen" system.
- The measurement and control system is based on a SCADA supervisory Lab View, SFC-10, connected to the PLC.
- Operational device for the final unloading of the filter.
- The systems are fully suitable for inline CIP and compliant to GMP regulations, and to PED standards.

<b>Filter area / m<sup>2</sup></b>	30	40	60	80	120
<b>N° of modules</b>	3	4	6	8	12
<b>Module type: ceramic</b>	X	X	X	X	X
<b>Module type: Hollowfiber</b>	X	X	X	X	X
<b>Semi Automated</b>	X	X	X	X	X
<b>Fully Automated</b>			X	X	X

# Leonardo

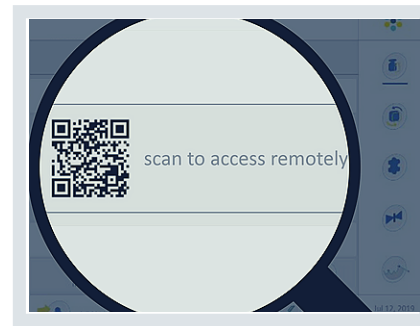
- Innovative SCADA software LEONARDO: a smart and user-friendly controller designed to provide a high level of complete automated monitoring of the process
- Full version included in the equipment supply
- Data extraction in .csv format
- Remote access via PC, tablet or smartphone, with QR code scanning or dedicated portal
- Remote control



## Synoptic

A screenshot of the Solaris CIP configuration screen. It shows various parameters for CIP, including 'On Rate Limit', 'On Rate', 'Time', 'Concentration', 'Rate Limit', 'Rate', 'Initial sample volume', 'Reservoir volume', 'Wash filtrate with', 'Concentration Factor', and 'Recirculation Time after concentration'. There are 'Confirm' and 'Cancel' buttons at the bottom.

## Filtration management and controls



## Remote Control



## Trends

A screenshot of the Solaris Workflow view. It shows a table of process parameters and a control panel. The table has columns for 'Process', 'Unit', 'Value', 'Unit', 'Status', and 'Action'. The control panel includes checkboxes for 'Water Flush', 'NWP', 'CIP', 'Water Flush', 'Buffer Conditioning', 'Pause', 'Concentration1', 'Diffiltration', 'Concentration2', 'Product Recovery', 'Buffer Flush', 'Pause', 'NWP', and 'Storage Conditioning'. There are 'Start' and 'Stop' buttons at the bottom.

Process	Unit	Value	Unit	Status	Action
LFPROD55	kg	4.4	kg	1%	2000
XV001	ON(OFF)	0%	0%		
XV002	OFF	0%	0%		
XV003	ON(PRODUCT)	0%	0%		
XV004	OFF	0%	0%		
Empty Time		0.0 min	0.0 min		

## Workflow

A screenshot of the Solaris Calibration view. It shows a table of calibration data with columns for 'Process', 'Unit', 'Value', 'Unit', 'Status', and 'Action'. The table contains data for various processes and their calibration status.

Process	Unit	Value	Unit	Status	Action
Temp 01	0.0	0.0	100%	1.0	10.0
Feed Pump	0.0 °C	100%	---	Continue	Mark History...
Feed Pump	0.0 bar	100%	---	Continue	Mark History...
Weight	-12.200 g	100%	---	Continue	Mark History...
Material Pressure	0.0 bar	100%	---	Continue	Mark History...
Asset Conductivity	4.13670 mS/cm	100%	3.148 mS/cm	---	Continue
Filtrate Pressure	0.0 bar	100%	---	Continue	Mark History...
Wash Cond	0.00 mS/cm	100%	---	Continue	Mark History...
Water Temperature	0.00 °C	100%	---	Continue	Mark History...

## Calibration

**THOUGHT**



**BASIC  
ENGINEERING**



**FEASIBILITY  
STUDY**



**MANUFACTURING**

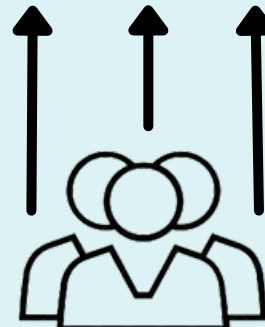
**DELIVERY**



**PERSONEL  
TRAINING**



**INSTALLATION**



**FOOD & BEV and  
PHARMA  
VALIDATION**