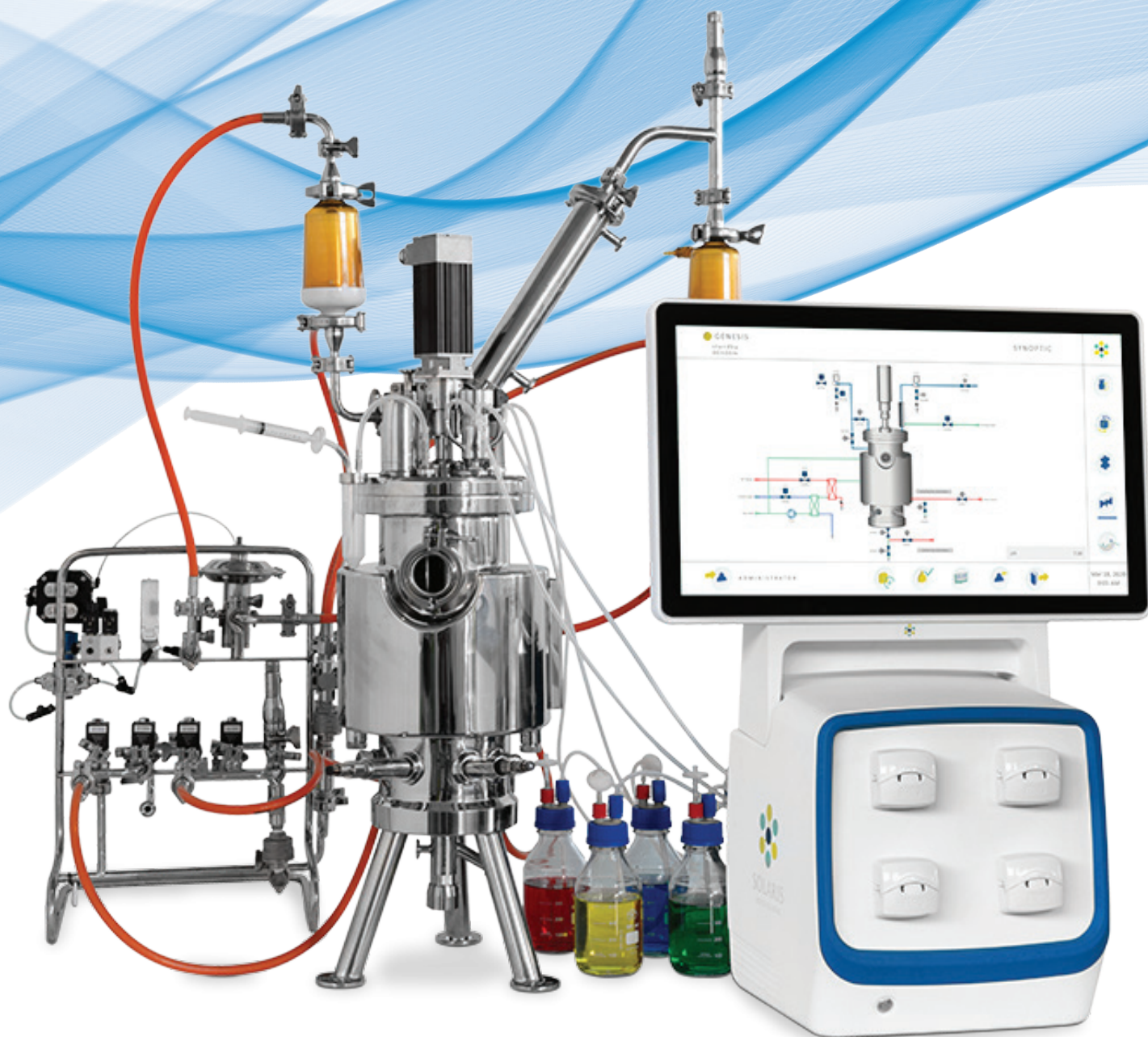




SOLARIS™
BIOTECH

By Donaldson



GENESIS

CATALOGUE





GENESIS

pilot SIP fermenter bioreactor

GENESIS is a compact benchtop SIP fermenter / bioreactor, available from 7.5 up to 20 L total volume.

Automatic sterilization with steam, electrical heaters or hybrid system.

“Having the opportunity to extract real time process data with the lowest step time of 1 second remotely offers to our customer a powerful monitoring tool.”

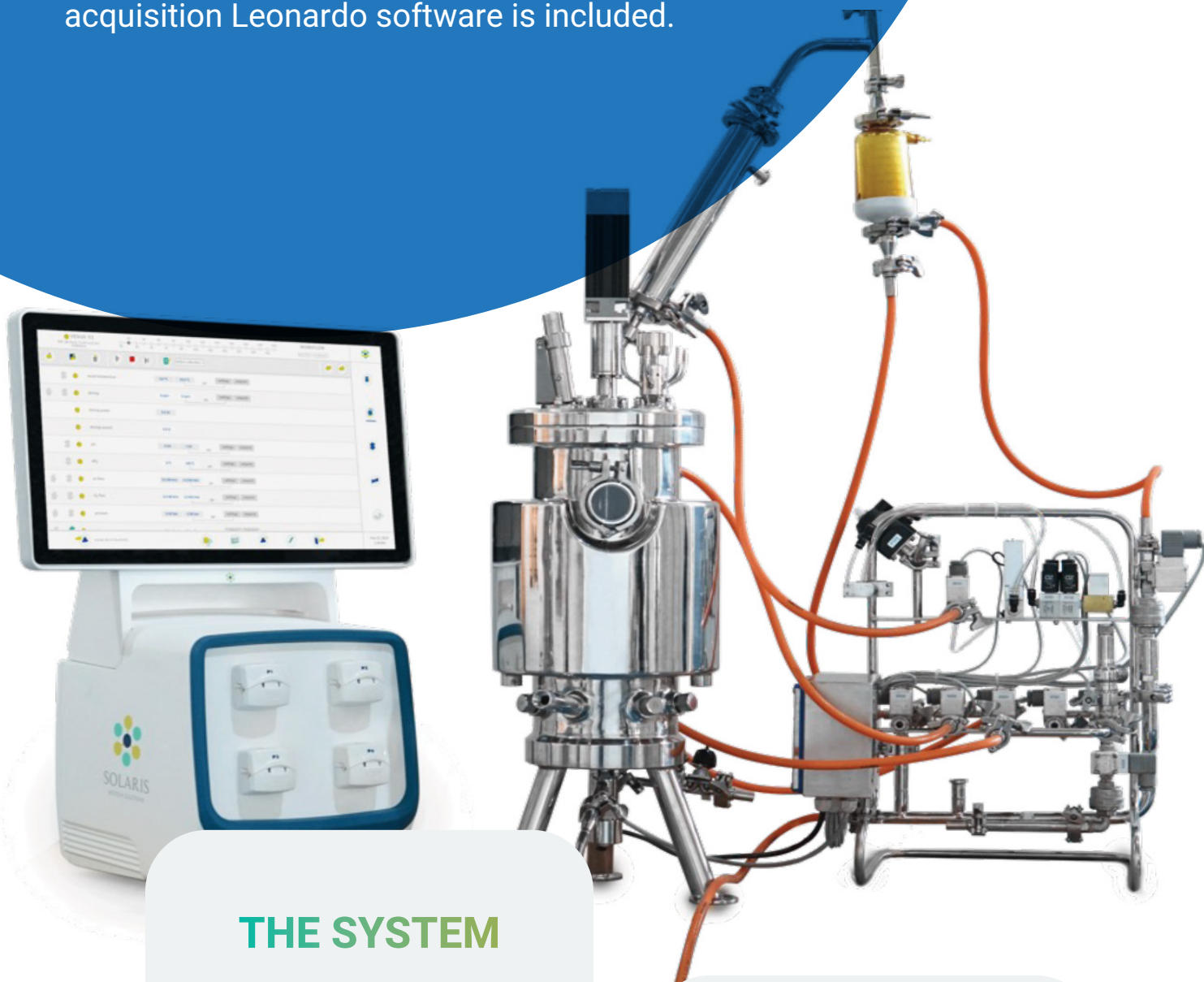
APPLICATIONS

Our products are utilized across various sectors including **pharmaceuticals**, **food production**, **agriculture**, **biomanufacturing**, **bioplastics**, **biofuels**, **cosmeceuticals**, catering to both research and development and lab production needs.

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Our Product Genesis

This catalogue describes a Solaris GENESIS. For supervisory control and data acquisition Leonardo software is included.



THE SYSTEM

The system consists of 7.5 L fermenter/bioreactor (total volume), benchtop, pre-assembled unit, supplied with all necessary tubes, valves, piping and instruments, auto-mation, control panel (HMI).

THE DESIGN

The system is designed for aerobic and anaerobic fermentations, closed aseptic operations.

Customizable Configuration

SIP
Stainless Steel vessel
Modular Platform
benchtop or wheeled skid options



BASIC
RESEARCH



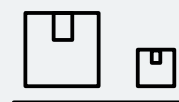
EDUCATION



PROCESS
DEVELOPMENT &
OPTIMIZATION



SCALE UP &
SCALE-DOWN
STUDIES



SMALL
PRODUCTION



Sterilization with steam, electrical heaters or hybrid (steam/electrical).

Double jacket (side-bottom) for greater heat transfer efficiency and optimal temperature control.

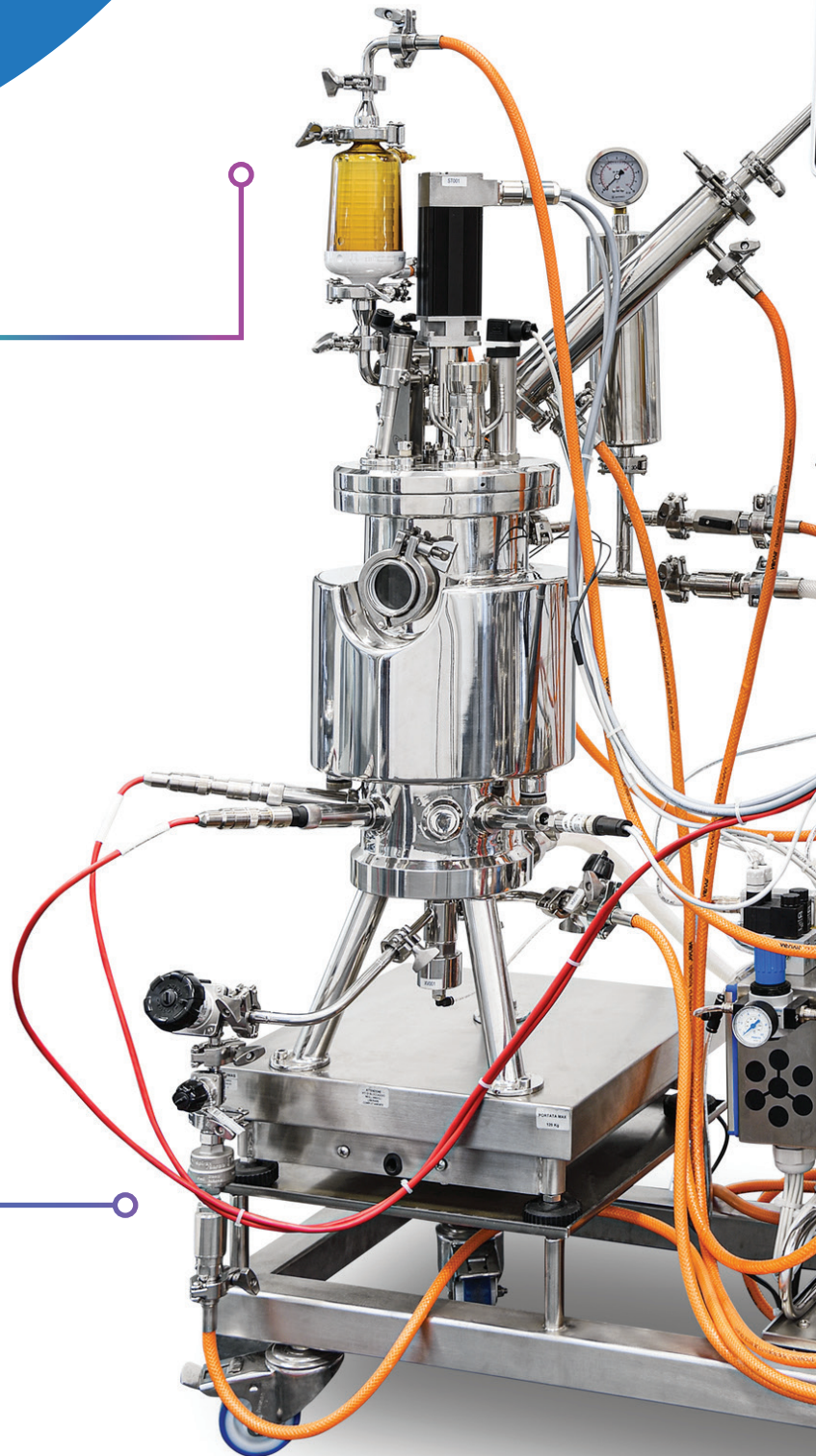
AISI 316L vessel.

Microbial (Toro sparger, Rushton impellers, baffles) and cell cultures (Sintered sparger, Marine impellers) configurations available.

Wide range of measurement and control options.

Modbus digital sensors reduce background noise and guarantee quick response time.

Suitable for batch, fed-batch and continuous processes.



Product Description



Different gas mixing strategies
with up to 5 TMFC.

Powerful and accurate
brushless motor.

Optional integration of up to 4
analog input/output connections,
choosing between 0 - 10 V and 0 -
20 mA / 4 - 20 mA.

Wheeled skid option available.

The thermoregulation and
aeration loops are external from
the PCS, on a dedicated support
with a combination of
stainlesssteel
and flexible tubing.

Circular sight glass on vessel side.

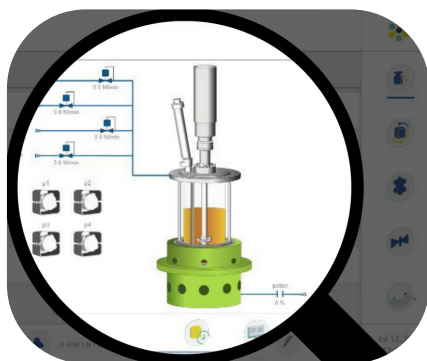
Leonardo Software



Software The innovative SCADA software Leonardo has a smart and user-friendly controller designed to provide a high level of automated management of the fermentation/cultivation processes.

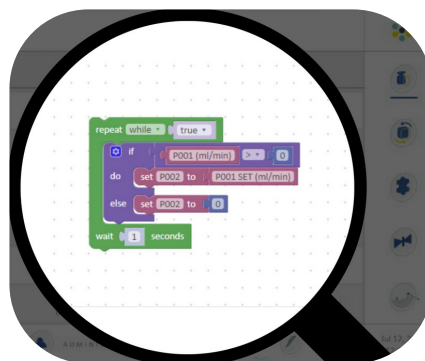
Full version included in the equipment supply. Up to 24 units managed in parallel with a unique HMI (24"). Data extraction in .csv format.

Remote control and access via PC, tablet or smartphone, with QR code scanning or dedicated portal.



SYNOPTIC

- Real time 3D view
- Parallel control
- Manual control



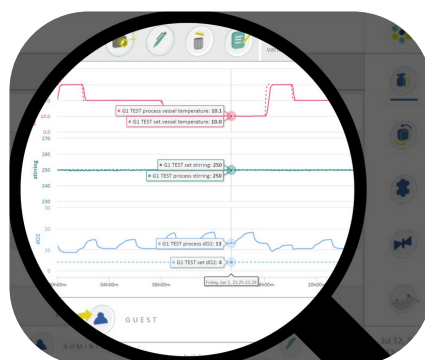
LOGIC PARCEL

- Customized logic functions
- Parallel logic blocks and functions



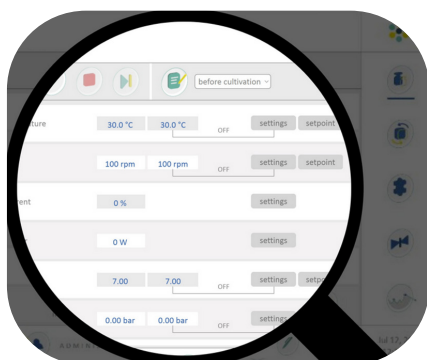
REMOTE CONTROL

- Unlimited number of profiles editor
- Unlimited number of devices to be associated



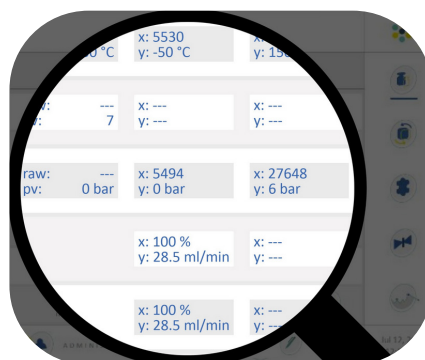
TRENDS

- Custom acquisition time
- Up to 6 values simultaneously display
- Automatic graph comparison



WORKFLOW

- Custom phase manager
- Parallel visualization
 - Cascade settings
- Peristaltic pumps function assignable from software



CALIBRATION

- Up to three-point calibration
- Simultaneous calibration values for parallel work

Technical Data

VESSEL

Solaris Code	Genesis 7.5	Genesis 10.0	Genesis 15.0	Genesis 20.0
Total Volume (L)	7.5	10.0	15.0	20.0
Ratio D/H	1:2,5			
Min. Working Volume (L)	1.8	2.5	3.7	5
Max. Working Volume (L)	5.6	7.5	11.25	15
Max. temperature	0-135 °C			
Operating pressure	Max 1.9 bar(g) controllable up to 1.6 bar(g)			
Design	Stainless Steel Jacketed Vessel			
Materials	Parts in contact with the process AISI 316 L - other parts AISI 304			
Finishing	All parts in contact with the culture: Ra < 0.4 µm External: Ra < 0.6 µm Mirror polished			

PORTS AND CONNECTIONS

CONNECTION

Vessel lid	Antifoam. sensor (optional), level sensor (optional), safety valve + gas out, SALAS, stirrer, sparger, pressure sensor, 3 removable baffles, glass window + lamp, spare ports
Upper side wall	Overlay gas inlet, circular sight glass
Lower side wall	2 hygienic socket pH and dO ₂ , 2 spare probes, sampling valve, sensor PT100
Vessel bottom	Harvest valve
Jacket in-out	Steam in, steam out, water in, jacket in/out, 3 electrical heaters in, PT100 for jacket

STIRRINGS

Drive	Brushless Motor, Direct Assembly
Speed (rpm)	1 - 1500 rpm
Torque (Nm)	0.8 (7.5 and 10 L) or 1.9 (15 and 20 L)
Impellers	Rushton, Marine, Pitched blade

THERMOREGULATION

Control	PID Control - Accuracy 0.1 °C Heat exchangers and/or electrical heaters External steam generator and/or chiller required
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GAS CONTROL & GAS MIXING

Sparger and overlay Gas Control	TMFC
Gas Mixing (Air, CO ₂ , O ₂ , N ₂)	Up to 5 TMFCs in total
Sparger type	Toro type (ring), Sintered microbubbling
Gas Out	Condenser

CONTROLLER

Master Control Module	From 1 to 24 units - 35 x 35 x 35 cm
HMI with Leonardo software	Touch screen PC, 24" color monitor, power consumption 200 W

TEMPERATURE

Sensor	PT100
Measuring range	0 - 150 °C

pH

Sensor	Digital sensor
Measuring range	0 - 14 pH
Operating temperature	Up to 130 °C
Pressure range	1 - 6 bar
Actuator	Cascade to stirring, gas control, feedings, ect

dO₂

Sensor	Digital Optical sensor
Accuracy	1 ± 0.05 %-vol, 21 ± 0.2 %-vol, 50 ± 0.5 %-vol
Measuring range	0 - 300 % saturation
Operating temperature	Up to 130 °C
Pressure range	0 - 12 bar

ANTIFOAM/LEVEL

Sensor	Solaris sensor: conductivity-based
Actuator	Assignable peristaltic pumps

TECHNICAL DATA

REDOX (ORP)

Sensor	Digital sensor
Measuring range	± 1500 mV
Operating temperature	up to 140 °C

CONDUCTIVITY

Sensor	Digital sensor
Measuring range	1 - 300 000 µS/cm
Operating temperature	0 - 140 °C
Pressure range	0 - 20 bar(g)

dCO₂

Sensor	Digital sensor
Control range	0.5 to 100 %-Vol
Operating temperature	0 - 130° C (autoclavable)

TCD (Total Cell Density)

Sensor	Digital sensor
Measuring range	0 - 4 AU
Operating temperature	0 - 140°C, no TCD reading above 80°C
Pressure range	0 - 12 bar(g)

WEIGHT

Sensor	Digital balance
Measuring range	0 - 4.5 Kg/ 0 - 42 Kg / 0 - 150 Kg

PERISTALTIC PUMPS

WM 120 U Brushless	1 - 100 rpm
WM 313 FDM/D	175 rpm
WM 313 OEM VBM-D	175 rpm

Get in touch



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