

## THE ANT – WEB BASED CONTROL OF YOUR FERMENTATION

- Top-of-the-line 2-3 L bioreactor
- Designed for high-density sterile microbial cultivation
- Powerful stirrer with adjustable and replaceable impeller/propellers
- Temperature control with heating/cooling finger
- Inlet and outlet gas system for aeration and DO-control
- 3 peristaltic pumps for pH (acid and base) and foam control
- System includes pH, level and temperature control
- Sensor package includes sensors, cables, filters and hoses
- Can be operated where ever you have an internet connection even with your cell phone

## OPTIONS

- Optical DO-electrode
- Feed Pump
- Balance

## WEBANT® CONTROL

- Easy control with Belach Bioteknik´s WebAnt® control software
- Web based interface
- Control and regulation easy-to-use displayed
- Follow your cultures parameter trends
- History, export and report function



## THE ANT TECHNICAL SPECIFICATION

<b>BIOREACTOR</b>	
Volume	0.2-5 L
Vessel Material	Duran glass w. Stainless steel lid / 316 L stainless steel vessel
Top Connections	PG13.5
Process applications	Microbial and Cells or customized (e.g. Biogas/Bioethanol)
<b>CONTROL SYSTEM</b>	
WebAnt® Possible Number of Reactors	Infinite
<b>TEMPERATURE</b>	
Temperature Sensor	Pt 100
Measuring Range	0-100°C
Regulation Range	10-70°C
Regulation	Proportional-time-regulator for heat and cool (DB±0.1°C, PB±0.3°C)
Heating Element	100W or 150W (24V) heating band
Cooling Element	Tap water (max 12°C) in cooling finger probe
<b>TOP STIRRER</b>	
Speed Ranges	150-1500 rpm or 20-300 rpm
Impeller	Customer choice
Baffles	4
<b>LEVEL</b>	
Level Sensor	Resistive probe ø6mm
Addition Pump	Fixed speed (10 rpm), built-in peristaltic
Regulation	Adjustable-pause-time
<b>DISSOLVED OXYGEN (DO)</b>	
DO Sensor	Optical or Electrochemical polarographic
Measuring Range	0-100% - air saturation
Regulation	Stirrer speed, gas control, pump
<b>pH</b>	
pH Sensor	Electrochemical gel electrode
Measuring Range	pH 2-12
Addition pumps (acid and base)	Constant speed, built-in peristaltic
Regulation	Two point proportional time regulation for acid/base addition
<b>GAS</b>	
Sensor and control	Purge meter for Air (O <sub>2</sub> / N <sub>2</sub> / CO <sub>2</sub> )
Air Mesurment Range	0.2-5, 0.5-10 or 0.7-20 L Nlmin
Gas Treatment	Sterile inlet filter and Outlet gas condenser
<b>EXTERNAL</b>	
Extra Input signals	15 digital
Extra Output signals	7 digital
<b>MEDIA</b>	
Power supply	230V AC±10V or 110V AC 60Hz
Water	Tap water
<b>DIMENSIONS</b>	
Height / Width / Diameter	650 / 300 / 450 mm
Weight	18 kg
<b>OPTIONAL EQUIPMENT</b>	
Speed controlled pump	Watson Marlow Alitea 0.5-200 rpm
Gas analyzer O <sub>2</sub> / CO <sub>2</sub>	CP460-O <sub>2</sub> / CO <sub>2</sub> gas reading
Gas mixer station for top & sparger Air / O <sub>2</sub> / CO <sub>2</sub> / N <sub>2</sub>	CP470-Air / O <sub>2</sub> / CO <sub>2</sub> / N <sub>2</sub> gas mixing station
Gas mix option 1	Mass flow meter with for O <sub>2</sub> / N <sub>2</sub> / CO <sub>2</sub> control
Gas mix option 2	Proportional time regulation valve control for air / O <sub>2</sub> / N <sub>2</sub> / CO <sub>2</sub> with calibrated mass flow meter

## COMPARISON BETWEEN ALL PRODUCT LINES TECHNICAL SPECIFICATION

BIOREACTOR	ANT	JENNY	HANNA	LARS	GUSTAV	GRETA	DOLLY
Volume (L)	0.2-5	0.2-2	1-10	3-30	50-1000	6x0.2-1.0	2x2-6
Vessel Material:							
ASTM 316 L	□	□	□	•	•	•	□
Glass	•	•	•	□	□	□	•
<b>APPLICATION</b>							
Microbial	•	•	•	•	•	•	□
Cell	□	□	•	•	□	□	□
Funghi / Yeast	•	•	•	•	•	•	□
Biofuel	□	□	□	□	□	□	•
Parallel	□	□	□	□	□	•	•
Fed-batch	•	•	•	•	•	•	•
Continuous cultivation	•/□	•/□	•/□	•/□	•/□	□	□
Perfusion with e.g. ATF	•	•	•	•	•	□	□
<b>CONTROL SYSTEM</b>							
BioPhantom	□	•	•	•	•	•	•
WebAnt	•	□	□	□	□	□	□
<b>TEMPERATURE</b>							
Temperature Sensor:							
Pt 100 in probe		•	•	□	□	□	•
Pt 100 in pocket	•	□	□	•	•	•	□
Regulation Range (°C)	10-70	10-70	10-70				•
Proportional-time-regulator for heat and cool	•	•	•	•	•	•	•
Heating:							
Heating element	□	□	□	•	•	□	□
100-150W heating band	•	•	•	□			•
Jacket by steam heat exchanger	□	□	□	•	•	□	□
Hot water through jacket	□	□	□	□	□	•	□
Cooling:							
Tap water in cooling finger	•	□	•	□	□	□	•
Tap water in jacket	□	•	□	•	•	•	□
<b>STIRRER</b>							
Speed Ranges (rpm):	150-1500	150-1500	150-1500 (20-300)	150-1500	50-800	50-1500	20-250
Motor (Watt / Nm):	40 / 0.3	40 / 0.3	40 / 0.3	750 / 2	5000 / 3	30 / 0.2	40 / 1.5
Magnet coupled bottom stirrer	□	□	•	•	•	•	□
Lip sealed top stirrer	•	•	□	□	□	□	•
Location:							
Top mounted (lip seal)	•	□	•	□	•/□	□	•
Bottom mounted (magnetic coupling)	□	•	□	•	•	•	□
<b>PRESSURE</b>							
Reading	□	□	□	•	•	• (common) •/□ (ind)	□
Regulation valve	□	□	□	•/□	•/□	•/□ (ind)	□
<b>CLEANING IN PLACE (CIP)</b>							
	□	□	□	•/□	•/□	•	□
<b>STERILIZATION (SIP)</b>							
	□	□	□	•	•	•	□

LEVEL	ANT	JENNY	HANNA	LARS	GUSTAV	GRETA	DOLLY
Level Sensor Resistive probe Ø6mm	•	•	•	•	•	•	□
Addition Pump	•	•	•	•	•	•	□
Adjustable-pause-time regulation	•	•	•	•	•	•	□
<b>DISSOLVED OXYGEN (DO)</b>							
DO Sensor:							
Electrochemical polarographic	•/□	•/□	•/□	•/□	•/□	•/□	•/□
Optical	•/□	•/□	•/□	•/□	•/□	•/□	□
Measuring Range 0-200% - air saturation	•	•	•	•	•	•	□
DO regulation:							
Feed Pump	•/□	•	•	•	•	•	□
Gas control	•	•	•	•	•	•	□
Stirrer speed	•	•	•	•	•	•	□
<b>pH</b>							
pH Sensor Electrochemical gel electrode	•	•	•	•	•	•	•/□
Addition pumps (acid and base)	•	•	•	•	•	•	•/□
Regulation: two point proportional time regulation for acid/base addition	•	•	•	•	•	•	•/□
<b>GAS SYSTEM</b>							
Rotameter fixed regulation	•	•	•	□	□	□	•/□
Mass flow meter for Air	•	•/□	•/□	•	•	•	□
Mass flow meter for O <sub>2</sub> / N <sub>2</sub> / CO <sub>2</sub>	□	•/□	•/□	•/□	•/□	•	□
Outlet gas condenser	•	•	•	•	•	•	•
Inlet filter	•	•	•	•	•	•	•/□
Outlet filter	•	•	•	•	•	•	•/□
Volumetric Gas Measurement	□	□	□	□	□	□	•
<b>CONTROL CONNECTIONS</b>							
Extra Input signals	-	6 analog	6 analog	6 analog	6 analog	8 analog 8 digital	6 analog
Extra Output signals	-	4 analog 6 digital	4 analog 6 digital	4 analog 6 digital	4 analog 6 digital	4 analog 12 digital	4 analog 6 digital
<b>MEDIA REQUIRMENTS</b>							
Electric Power 230V AC±10V	230V	230V	230V	230V	3phase	3phase	230V
Tap Water	•	•	•	•	•	•	•
Hot Water (55°C)	□	□	□	□	□	□	□
Pressurized Air	•/□	•	•	•	•	•	•/□
Steam	□	□	□	•	•	•	□
<b>DIMENSIONS</b>							
Height (mm)	650	330	360	1650	2250	1800	1500
Width (mm)	300	360	450	1045	1900	1300	600
Length (mm)	450	430	520	600	1050	800	600
Weight (kg)	18	16	18	-	-	220	70

• – Standard Equipment, □ – Not standard Equipment, •/□ – Optional Equipment