

THERMOSTATIC EQUIPMENT:

**WATER BATHS,
ORBITAL/LINEAR SHAKING BATHS,
UNSTIRRED WATER BATHS,
HEATING/COOLING CIRCULATORS**



Optima™ Series
Stirred Thermostatic Baths
and Heating Circulators

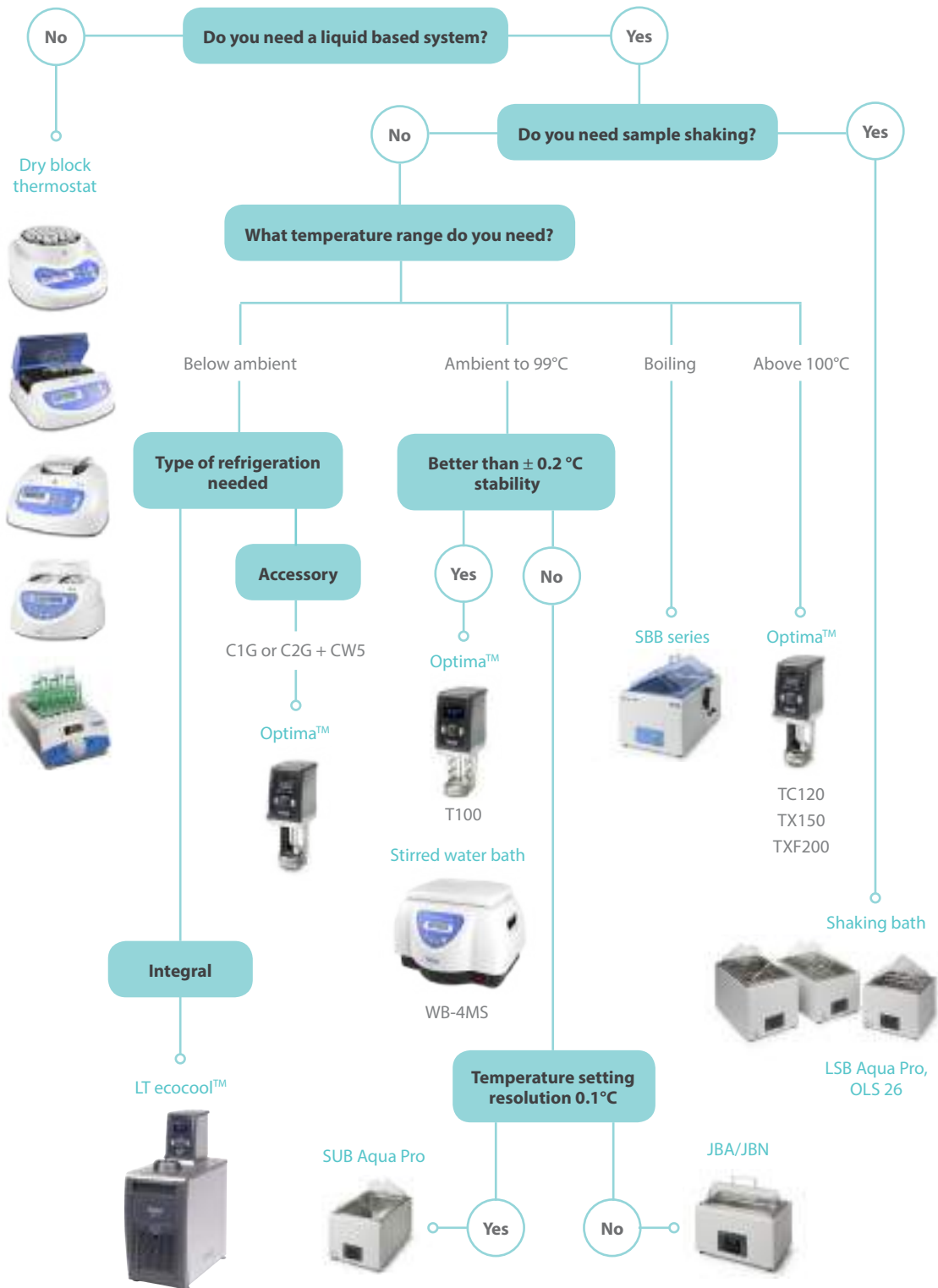


LT ecocool™
Energy Efficient Refrigerated /
Heating Circulating Baths



WB-4MS
Stirred water bath

How to choose thermostat?



WB-4MS, Stirred water bath

DESCRIPTION

Stirred water bath **WB-4MS** is designed for chemical, pharmaceutical, medical and biological laboratory research, for processes requiring constant temperature ranging from ambient temperature to 100°C.

WB-4MS provides increased temperature stabilization (up to 0.1°C) due to a built-in magnetic stirrer (speed control range 250–1000 rpm).

Easy setup, high-temperature maintenance accuracy, compact size and attractive modern design make this water bath widely used.

SPECIFICATIONS

Tank capacity	4 l
Temperature setting range	+25°C ... +100°C
Temperature control range	5 °C above ambient ... +100°C
Temperature setting resolution	0.1°C
Temperature stability	±0.1°C
Temperature uniformity @ +37°C	±0.1°C
Stirring speed control range	250–1000 rpm
Digital time setting	1 min–96 h/non-stop (increment 1 min)
Timer sound signal	yes
Display	LCD, 2 × 16 signs
Digital setting of temperature, time and mixing speed	
Plastic lid with stainless steel interior included	
Quiet operation	
Working volume	235 × 135 × 110 mm
Overall dimensions (W×D×H)	340 × 270 × 250 mm
Weight	3.4 kg
Nominal operating voltage	230 V, 50/60 Hz or 120 V, 50/60 Hz
Power consumption	230 V, 50 Hz/600 W (2.6 A) 120 V, 60 Hz/670 W (5.6 A) 100 V, 50/60 Hz/600 W (6.0 A)
Maximum continuous operation time	24 h

Basic Plus

Product Class



WB-4MS with two adapters



Rack TR-16/19

ORDERING INFORMATION:

WB-4MS with base **BP-1** and lid

Optional accessories:

Cat. number

BS-010406-AAA

Racks:	Diameter/tube volume	Capacity	Cat. number
① TR-5/30	Ø 30 mm	5 tubes	BS-010406-KK
② TR-16/19	Ø 16–19 mm	16 tubes	BS-010406-FK
③ TR-30/13	Ø 10–13 mm	30 tubes	BS-010406-IK
④ TR-44/11	2/1,5 ml	44 tubes	BS-010406-JK

Combined Orbital/Linear Shaking Bath OLS26

DESCRIPTION

SPECIFICATIONS



Patented, combined orbital and linear shaking mechanism of the **OLS26** allows optimisation of aeration and shear forces mixing for reproducible results.

- Precision digital temperature control;
- 0°C to 99°C operating range;
- Stability $\pm 0.1^\circ\text{C}$;
- Easy changeover from linear to orbital shaking;
- Adjustable shaking speed and stroke length;
- Polycarbonate lid included as standard;
- Drain tap for convenient emptying;
- 3 year warranty;
- TU26 included, other trays sold separately.

Tank size	26 l
Minimum working depth	70 mm
Temperature control range	ambient +5 to 99°C. 0 to 99°C with accessory cooling
Temp. uniformity (DIN 12876-3) @ 70°C	$\pm 0.1^\circ\text{C}$
Temp. stability (DIN 12876-3) @ 70°C	$\pm 0.1^\circ\text{C}$
Display	2 x LED (individual displays and controls for temperature and shaking speed)
Orbital and Linear shaking speed	20 to 200 rpm (depending on load)
Orbital shaking radius	9 mm
Shaking speed display resolution	1 rpm
Linear shaking stroke length	18, 28, and 36 mm
Shaking tray area	380 x 235 mm
Timer	1 to 999 min
Dimensions (WxDxH)	335 x 590 x 475 mm
Heater power 120 V/230 V	1.05/1.4 kW
Drain tap	yes
Safety	over temperature protection/low liquid level cut-out
Supply voltage	110–120 V or 220–230 V

ORDERING INFORMATION:

Cat. number 

OLS26 with TU26 tray

OLS26

Equipment presented on pages 60–61, 67–79 is produced by Grant Instruments (Cambridge) Ltd. Biosan is the sole distributor of Grant Instruments products in Russia, CIS and the Baltic States (Latvia, Lithuania, Estonia) and the official distributor for a number of other regions.

Description and pictures of all available accessories can be found on page 69 

Linear shaking bath — LSB Aqua Pro range

DESCRIPTION

World-renowned shaking water baths. High quality, robust design with unique magnetically coupled shaking mechanism for maximum reliability, consistency and quiet operation. Extensive range of accessories to provide the right solution for your application. Varied vessels types can be securely held using high-quality springs, clamps or racks.

FEATURES

- Ambient +5°C to 99°C operation;
- Stability $\pm 0.1^\circ\text{C}$;
- Choice of two models — 12 and 18 litres;
- Drain tap for convenient emptying;
- 3 year warranty;
- Polycarbonate lid included;
- Extensive choice of accessory shaking trays. Tray sold separately.



SPECIFICATIONS

	LSB12	LSB18
	9.2 kg W: 360 mm D: 385 mm H: 425 mm	11.2 kg W: 335 mm D: 565 mm H: 425 mm
Tank size	12 l	18 l
Minimum working depth	60 mm	
Temperature range	ambient +5 to 99°C	
Uniformity (DIN 12876-3) @ 70°C	$\pm 0.1^\circ\text{C}$	
Stability (DIN 12876-3) @ 70°C	$\pm 0.1^\circ\text{C}$	
Display	LED	
Linear shaking speed	20 to 200 strokes/min (depending on load)	
Shaking speed display resolution	1 strokes/min	
Linear shaking stroke length	20 mm	
Shaking tray area	240 × 235 mm	420 × 235 mm
Timer	1 to 999 min	
Heater power 120/230V	0.8/0.8 kW	1.05/1.4 kW
Drain tap	yes	
Safety	over-temperature protection/low liquid cut-out	
Supply voltage	110–120 V or 220–230 V	



ORDERING INFORMATION:

Cat. number

LSB12, Linear shaking bath 12 l with TU12 tray

LSB12

LSB18, Linear shaking bath 18 l with TU18 tray

LSB18

Description and pictures of all available accessories can be found on next page

Accessories for Shaking Baths: LSB 12, LSB 18 & OLS 26

Accessories LSB and OLS Aqua Pro Product/description		OLS26	LSB12	LSB18
		Catalogue number		
	Universal tray with adjustable springs. Highly versatile for a variety of vessel types.	TU26	TU12	TU18
	Flask/plate tray — with threaded holes to accept flask clamps or holder for deep well plates (≥ 2 ml). See option below.	TF26	TF12	TF18
	Test tube tray — compatible with SR racks or can be used alone to accommodate bags and miscellaneous vessels. See rack option below.	TS26 (holds up to 5 SR racks)	TS12 (holds up to 3 SR racks)	TS18 (holds up to 5 SR racks)
	Base tray — perforated stainless steel, allows bath to be used as an unstirred bath.	SBT26	SBT12	SBT26
	Cooling coil — the source of constant cooling to enable bath to be operated at or below ambient, down to 0 °C. LS200 lid (with an access hole for cooling coil) recommended.	CC26	—	—
	Heat exchange coil — attach to a cold water supply or refrigerated circulator. Can be used down to 2°C above the temperature of the coolant. LS200 lid (with an access hole for cooling coil) recommended.	CW26	—	—
	Stainless steel sloping lid, gabled.	LS200	LU14	LU28
	Replacement polycarbonate lid, clear, gabled.	AQL26	AQL12	AQL26

Flask clamps and plate holder for TF tray

Cat. number	Description	OLS26 Capacity	LSB12 Capacity	LSB18 Capacity
SC-25	for 25 ml flask	28	18	33
SC-50	for 50 ml flask	24	14	26
SC-100	for 100 ml flask	15	9	17
SC-250	for 250 ml flask	8	5	14
SC-500	for 500 ml flask	6	4	6
SC-1000	for 1,000 ml flask	3	2	4
SH-DWP	1 x deep well plate	4	1	4

Test tube racks / microtube racks for TS tray

Cat. number	Tube diameter (mm)	Rack capacity
SR-10	10	48
SR-13	13	44
SR-16	16	24
SR-19	19	21
SR-25	25	12
SR-30	30	10
Cat. number	Microtube size (ml)	Rack capacity
SR-SE	0.5	119
SR-LE	1.5	48

ORDERING INFORMATION:

Catalogue number matches the name of the product 

Unstirred Water Bath



SUB Aqua Pro — advanced water bath range with a choice of eight models. Supplied with a base tray, lid and drain on larger bath.



JB Nova - general purpose water bath range with a choice of four models. Supplied with a base tray, lid and drain on larger bath.



JB Academy — basic range with a choice of three models. Supplied with a base tray.



SBB Aqua Plus boiling bath range - basic range with a choice of three models. Supplied with a base tray.

- The reliability, quality and consistent performance of Grant products have made Grant a leading manufacturer of water baths for decades;
- A new era for Grant water baths — now all models from basic to advanced with digital controls;
- Proven performance — technology to deliver temperature control you can rely on;
- Set and Forget™ technology — minimal bath setup, maximum time for your work.

More information about offered Grant Instruments products can be found on Biosan web-site www.biosan.lv

SUB Aqua Pro Digital Unstirred Water Bath











Built to the highest standard and specifications and incorporating the latest technology, the SUB Aqua Pro advanced water bath range supports even the most demanding applications, that require accurate temperature control. Choose from eight models with base tray and lid included as standard.

- Ambient +5°C to 99°C operation;
- Set and Forget™ technology — fast heat-up, accurate temperature control;
- Stability $\pm 0.2^\circ$;
- Adjustable over temperature alarm — protect samples from overheating;
- Advanced dry start and run-dry protection;
- Three programmable temperature presets;
- 3 year warranty.

DESCRIPTION

SPECIFICATIONS

	SUB Aqua Pro digital unstirred water bath range – summary of specifications							
	SAP2	SAP2S	SAP5	SAP12	SAP18	SAP26	SAP34	SAPD
								
	2.5 kg W: 185 mm D: 200 mm H: 200 mm	3 kg W: 335 mm D: 215 mm H: 150 mm	3 kg W: 335 mm D: 215 mm H: 200 mm	6 kg W: 360 mm D: 380 mm H: 225 mm	9.5 kg W: 335 mm D: 590 mm H: 275 mm	9 kg W: 335 mm D: 590 mm H: 275 mm	14.5 kg W: 335 mm D: 590 mm H: 275 mm	9 kg W: 545 mm D: 380 mm H: 225 mm
Tank capacity	2 l	2 l (shallow)	5 l	12 l	18 l	26 l	34 l	5 l & 12 l
Temperature range	ambient t°C + 5 to 99							
Temp. display and setting resolution	0.1°C							
Temp stability (DIN 12876) @ 70 °C	$\pm 0.2^\circ\text{C}$							
Temperature setting/energy regulation	digital							
User adjustable over temp. alarm	+							
Fixed thermal cut-out	+							
Dry start/boil dry protection	+							
Programmable temp. presets	3							
Countdown timer with audible alarm	1 to 999 min							
Working area D×W (mm)	117 × 131	139 × 289	131 × 281	281 × 306	485 × 281	481 × 278	635 × 281	131 × 281 & 281 × 306
Minimum fill level	50 mm	32 mm	50 mm	50 mm	50 mm	70 mm	70 mm	50 mm
Maximum fill level	25 mm below the top of the tank							
Drain tap included	-	-	-	+	+	+	+	+
Heater power 120 V/230 V kW	0.25/0.25	0.35/0.35	0.35/0.35	0.8/0.8	1.4/1.05	1.4/1.05	1.8/1.3	1.15/1.15
Supply voltage V	120 or 230							

ORDERING INFORMATION:

Catalogue number matches the name of the product



SUB Aqua Pro Digital Unstirred Water Bath

OPTIONS AND ACCESSORIES

SAP2	SAP25	SAP5	SAP12	SAP18	SAP26	SAP34	SAPD
2 l	2 l (shallow)	5 l	12 l	18 l	26 l	34 l	5 l & 12 l

Replacement polycarbonate transparent lids*

AQL2	AQL5	AQL5	AQL12	AQL26	AQL26	—	AQL5, AQL12

Directs condensation away from immersed vessels, avoids contamination, reduces evaporation and saves energy

Stainless steel sloping lids*

—	LU6	LU6	LU14	LU28	LU28	LU36	LU6 & LU14

Flat lids*

—	—	LF6 (2 ring sets)	LF14 (4 ring sets)	LF28 (6 ring sets)	LF28 (6 ring sets)	LF36 (8 ring sets)	LF6 / LF14

With ring sets of variable hole diameter to accommodate tall vessels whilst reducing evaporation

Polypropylene spheres* (packs per bath)

1 × PS20	1 × PS20	1 × PS20	1 × PS20	2 × PS20	2 × PS20	3 × PS20	2 × PS20

Useful alternative to a lid, minimises evaporation and heat loss whilst allowing easy access to vessels in the bath; particularly useful for tall vessels

Raised shelves – reversible, allows two shelf depths. h = shelf height above tank base (mm)

—	—	—	RS14H (h 40 or 78) shelf covers half area of SAP12	RS18H (h 40 or 135) shelf covers half area of SAP18	RS28H (h 45 or 135) shelf covers half area of SAP26	RS36H (h 45 or 135) shelf covers half area of SAP34	RS14H (h 40 or 78) shelf covers half area of SAPD

Racks (no. per bath)

—	—	1 × J2	2 × J2	4 × J2	4 × J2	6 × J2	1 + 2 × J2

Choice of eight variants to accommodate different tube diameters and microtubes (see below)

Replacement base trays

AQBT2	AQBT5	AQBT5	AQBT12	AQBT26	AQBT26	SBT36	AQBT5 & AQBT12

Required if flat-bottomed flasks are to be placed directly on the base of the bath and to promote thermal convection in the bath

* — Lid or spheres recommended for use above 60°C

Unstirred Bath Racks

J2 Racks	Tube size Ø	Capacity	J2 Racks	Tube size Ø	Capacity
J2-10	10 mm	84	J2-25	25 mm	18
J2-13	13 mm	55	J2-30	30 mm	12
J2-16	16 mm	36	J2-SE	0.5 ml	105
J2-19	19 mm	32	J2-LE	1.5 ml	65

Optima™ Series, Stirred Thermostatic Baths and Heating Circulators



A cost-effective range of multi-purpose systems combining Grant's legendary quality and reliability. Precise temperature control for a wide range of laboratory applications.

- **Accurate and safe temperature control** — for samples and users;
- **Intuitive programming and thoughtful design features** — makes working with Grant heated baths and circulators easy;
- **Robust, durable construction** — for longevity, reliability and long-term low cost of ownership;
- **A complete range** — 32 models to cover basic through to sophisticated needs, each model represents excellent value for money.

APPLICATIONS

Grant stirred baths and circulators provide a source of precision heating and cooling for many routines and sensitive analytical procedures including sample incubation, calibration and quality control testing. All models from the **TC120** upwards are suitable for unnecessary both open and closed-loop circulators (i.e. remote vessel open or closed).

For more powerful heating requirements, i.e. above 200 °C, contact marketing@biosan.lv for advice.

Heating Circulators Specifications on page 74 and all available accessories on page 76

Model selection (see next page):

Any of the four **Grant Optima™** digital thermostats can be combined with any of eight Grant tanks (five stainless steel and three plastic) to provide a choice of 32 models.

Optima™ Series, Heating Circulators Specifications


SPECIFICATIONS

Grant Optima™ Heating Circulators Specifications		General purpose Digital		Digital High Performance	
		T100	TC120	TX150	TXF200
Stability (DIN 12876) @ 70°C	°C	±0.05	±0.05	±0.01	±0.01
Uniformity (DIN 12876) @ 70°C	°C	±0.1	±0.1	±0.05	±0.05
Setting resolution	°C	0.1	0.1	0.1 (0.01 with Labwise™)	
Display		4 digit LED		full colour QVGA TFT	
Timer function		—	1 to 6,000 min	1 min to 99 h 59 min	
No. preset temperatures		3	3	3	3
Re-calibration points		2	2	5	5
Offset adjustment		—	—	+	+
Socket for external probe (TXPEP, TXSEP)		—	—	+	+
Communication interface		—	—	USB & RS232	USB & RS232
Programmable		—	—	remote via PC/laptop 1 program/ 30 segments	direct via user interface or remote via PC/laptop 10 programs / 100 segments
Relays		—	—	1	1
Safety	overtemperature	fixed	adjustable cut-out		
Safety	fluid level — float switch	+	+	+	+
Alarms (can be configured to switch a relay)		—	high, without relay	high and low	high and low
Heater power 230 V	kW	1.3	1.3	1.9	1.9
Electrical power 230 V	kW	1.4 (50–60 Hz)	1.4 (50 Hz)	2.0 (50 Hz)	2.0 (50–60 Hz)
Height above tank rim	mm	200	200	200	200
Depth below tank rim	mm	135	135	135	135
Grant Optima™ thermostat pumps (integral)					
Maximum pressure	water, mbar	—	210	310	530
Maximum flow	water, l/min	—	16	18	23 (adjusted flow rate)
Pipe bore	inlet/outlet, mm	—	6/11	6/11	6/11
Dimensions (HxDxW)	mm	315 × 145 × 115			

ORDERING INFORMATION:

Cat. number:

T100 EURO

TC120 EURO

TX150 EURO













TXF200 EURO

Optima™ Series, Water Bath Combinations and Accessories

Capacity (l)	Outer tank dimensions 1. Dimensions (HxDxW) Weight (kg) 2. Working area (DxW) 3. Min/max fluid depths 4. Inner tank dimensions (HxDxW)	T100	TC120	TX150	TXF200
		Temperature setting range	Temperature setting range	Temperature setting range	Temperature setting range
ST5 – 5 l Stainless steel	1. 215 × 335 × 187 mm, 2.9 kg 2. 150 × 260 mm 3. 85/140 mm 4. 150 × 300 × 150 mm	T100–ST5 amb.+15 to 100 °C	TC120–ST5 0 to 120 °C	TX150–ST5 0 to 150 °C	TXF200–ST5 0 to 200 °C
ST12 – 12 l Stainless steel	1. 215 × 332 × 360 mm, 4.5 kg 2. 205 × 300 mm 3. 85/140 mm 4. 150 × 325 × 300 mm	T100–ST12 0 to 100 °C	TC120–ST12 0 to 120 °C	TX150–ST12 0 to 150 °C	TXF200–ST12 0 to 200 °C
ST18 – 18 l Stainless steel	1. 215 × 545 × 340 mm, 7.3 kg 2. 385 × 300 mm 3. 75/130 mm 4. 150 × 505 × 300 mm	T100–ST18 0 to 100 °C	TC120–ST18 0 to 120 °C	TX150–ST18 0 to 150 °C	TXF200–ST18 0 to 200 °C
ST26 – 26 l Stainless steel	1. 270 × 535 × 340 mm, 7.7 kg 2. 385 × 300 mm 3. 125/180 mm 4. 200 × 505 × 300 mm	T100–ST26 0 to 100 °C	TC120–ST26 –15 to 120 °C	TX150–ST26 –15 to 150 °C	TXF200–ST26 –15 to 200 °C
ST38 – 38 l Stainless steel	1. 260 × 733 × 338 mm, 11.9 kg 2. 575 × 300 mm 3. 125/180 mm 4. 200 × 690 × 300 mm	T100–S38 0 to 100 °C	TC120–S38 –15 to 120 °C	TX150–S38 –15 to 150 °C	TXF200–S38 –15 to 200 °C
P5 – 5 l Plastic	1. 180 × 323 × 220 mm, 2.2 kg 2. 120 × 150 mm 3. 85/140 mm 4. 155 × 240 × 160 mm	T100–P5 amb.+15 to 99 °C	TC120–P5 amb.+15 to 99 °C	TX150–P5 amb.+15 to 99 °C	TXF200–P5 amb.+15 to 99 °C
P12 – 12 l Plastic	1. 180 × 412 × 340 mm, 3.4 kg 2. 210 × 280 mm 3. 85/140 mm 4. 155 × 325 × 280 mm	T100–P12 amb.+5 to 99 °C	TC120–P12 amb.+5 to 99 °C	TX150–P12 amb.+5 to 99 °C	TXF200–P12 amb.+5 to 99 °C
P18 – 18 l Plastic	1. 180 × 589 × 340 mm, 5.1 kg 2. 375 × 280 mm 3. 85/140 mm 4. 155 × 510 × 290 mm	T100–P18 amb.+5 to 99 °C	TC120–P18 amb.+5 to 99 °C	TX150–P18 amb.+5 to 99 °C	TXF200–P18 amb.+5 to 99 °C
OPTIONS AND ACCESSORIES					
Labwise™ PC software (optional)					
Allows two-way communication for status display, programming and data capture		—	—	+	+
External probes (optional)					
TXPEP flexible plastic probe, 3 m cable		—	—	+	+
TXSEP stainless steel probe, 3 m cable		—	—	+	+
Remote switching device (optional)					
For switching appliances on and off (up to max. 8 Amps)		—	—	1	2
Vertical turbine pumps (optional)					
Low noise, compact design. Supplied with pipe connections and special lid for fitting to tank, pipe bore 12.7 mm					
VTP 1	max. pressure 1,000 mbar max. flow 9 l/min	+	Required only where application demands a higher pressure than that delivered by the internal pump to maintain flow		
VTP 2	max. pressure 1,650 mbar max. flow 12 l/min	+			



Optima™ Series, Water Bath Accessories

ACCESSORIES							
	Lids to help reduce evaporation/heat loss and avoid sample contamination	Polypropylene spheres (no. of packs required, 300 spheres in one pack)	Rack systems to optimise use of available bath capacity (no. of racks accommodated)	Raised shelves to allow shallow vessels to be accommodated	Accessory cooling systems to allow systems to operate at or below room temperature by means of cooling coil dipped into the bath; designed for minimal impact on working area		
					Refrigerated immersion coolers Consist of a cooling coil connected to a refrigeration unit by a flexible pipe. Extract heat continuously, with the bath control unit controlling temperature	Heat exchange coil Designed to be attached to a supply of cooling tap water or a refrigerated circulator	
					C1G (0 to 40°C)	C2G (-15 to 40°C)	CW5 (2°C above coolant temperature)
ST5 – 5 L stainless steel	STL5 flat stainless steel	1 × PS20	1 × QR	—		—	
ST12 – 12 L stainless steel	STL12 gabled, hinged (removable) stainless steel	1 × PS20	2 × VR	RS14		—	
ST18 – 18 L stainless steel	STL26 gabled, hinged (removable) stainless steel	2 × PS20	4 × VR	RS22		—	
ST26 – 26 L stainless steel	STL26 gabled, hinged (removable) stainless steel	2 × PS20	4 × VR	RS28			
ST38 – 38 L stainless steel	STL38 gabled, hinged (removable) stainless steel	3 × PS20	6 × VR	RS28 or RS38			
P5 – 5 L plastic	PL5 flat, stainless steel	1 × PS20	1 × QR	—	—	—	—
P12 – 12 L plastic	PL12 curved plastic	1 × PS20	2 × VR	RS14	—	—	—
P18 – 18 L plastic	PL18 curved plastic	2 × PS20	4 × VR	RS22	—	—	—

LT ecocool™

Energy Efficient Refrigerated / Heating Circulating Baths



- Choice of three models, temperature range -30 °C to +200 °C (model dependent);
- Industry-leading 4 year warranty with renowned service and support, no registration required;
- Active cooling through the whole temperature range;
- True energy saving of up to 80% against standard compressor units.

A new range of innovative, eco-friendly, refrigerated heating circulating baths offering significant running cost savings whilst delivering powerful cooling.

All products in the LT ecocool™ range are supplied assembled as ready to use kits, complete with accessory hoses, clips and connectors as standard.

DESCRIPTION

SPECIFICATIONS

29 kg H: 640 mm D: 430 mm W: 245 mm		LT ecocool™ 100	LT ecocool™150
Temperature range	°C	-20 to 100	-25 to 150
Temperature stability	°C	±0.05	±0.02
Flow rate (max)	l/min	17	14-22 (adjustable)
Pump pressure (max)	mbar	250	530
Tank volume	l	5	6
Calibration points		2	5
Cooling power (typical)	@ 20°C W	240	385
	@ 0°C W	200	205
	@ -10°C W	100	105
	@ -20°C W	30	60
Programs		—	1 × 30 segments via Labwise™
Communication interface		—	USB
Temperature probe socket		—	6 pin mini DIN
Display		4 digit LED	Full colour QVGA TFT
Languages		—	5 (EN, FR, DE, IT, ES)
Weight	kg	29	
Timer		1 min to 99 h 59 min	
Temperature presets		3	
Alarms		High	High and low
Electrical power (max) kW	120V/230V	2.16/2.07 (50-60 Hz)	2.28/2.76 (50-60 Hz)
Safety		Adjustable over temperature cut-out	
Ready to use kits		Assembled and supplied with standard tubing, insulation, clips and connectors	





LT ecocool™

Energy Efficient Refrigerated / Heating Circulating Baths

APPLICATIONS

- **PHARMACEUTICAL** — Mini pilot plant reactors
- **EDUCATION** — Rotary evaporator cooling, replacement of running tap water cooling, immersing small samples, photometry, chromatography systems
- **INDUSTRIAL** — QC testing, sample preparation, general cooling, reaction chemistry, temperature control, semi-conductor manufacturing, rheometry
- **FOOD** — Refractometry
- **LIFE-SCIENCE** — Electrophoresis cooling
- **HIGH TEMPERATURE COOLING** — Active up to 200°C



Options and accessories	LT ecocool™ 100	LT ecocool™150
Labwise™ PC software (optional)		
Allows two-way communication for status display, programming and data capture + USB cable provided	—	
External probes (optional)		
PEP plastic probe	—	+
SEP stainless steel probe	—	+
Vertical turbine pumps (optional) when pump is fitted, available working area is reduced.		
Low noise, compact design. Supplied with pipe connections and special lid for fitting to tank, pipe bore 12.7 mm		Required only where application demands higher pressure than that delivered by the internal to maintain flow.
VTP1-LT max. pressure 1,000 mbar; max. flow 9 l/min		Note: The optional VTP pumps will transfer additional heat to the baths and reduce the net cooling power of the refrigeration unit. The above figures must be taken into consideration when choosing the refrigeration unit, when ordering a VTP pump, please specify which refrigeration base unit it is to be used with.
VTP2-LT max. pressure 1,650 mbar; max. flow 12 l/min		Note: Other sizes of heat exchange coil can be made to your specification. Contact us for further information.
Hose Kits		
HOSE100 General purpose hose kit: -40 to 100 °C HOSE200 High temperature hose kit: -50 to 200 °C		Hose kit 2 x 2 m, assembled with Optima™ pump outlet plate and simple hose clips, no tools required.

Optima™ R series, Refrigerated Thermostatic Baths and Circulators



Cost-effective and efficient multi-purpose systems for low-temperature applications.

- Powerful precision cooling, whether used in open-loop or closed-loop format
- Combining legendary quality, reliability and design for everyday usage — useful features, straightforward maintenance, compact design
- Robust, durable construction for longevity, reliability and long-term low cost of ownership
- Up to 4 years warranty

We recommend using the following liquids with refrigerated thermostatic baths and circulators:

- **-50 to 50°C:** Silicone oil — low viscosity (Bayer silicone M3);
- **-30 to 30°C:** 50% water 50% antifreeze (inhibited ethylene glycol);
- **0 to 30°C:** 80% water 20% antifreeze (inhibited ethylene glycol);
- **5 to 99.9°C:** Water.

Grant low-temperature circulators provide a source of precision cooling for many sensitive analytical procedures, including spectrophotometry, viscometry, refractometry and electrophoresis. They are suitable for use in both open and closed-loop circulation (i.e. remote vessel open or closed).

Alternatively, Grant RC series of recirculating chillers (closed circulators) can be used. These are generally needed for more powerful cooling requirements, e.g. the removal of mechanical or electrical heat produced in apparatus or machinery. Please contact marketing@biosan.lv for advice.

Model selection:

The R4 and R5 refrigeration ranges consist of two refrigeration units which can be combined with four heating circulators to offer a temperature range of -47°C to 100°C.

Capacity (l) Outer tank dimensions	• Working area (LxW) • Min/max liquid depths • Weight	T100	TC120	TX150	TXF200
		H: 333 mm D: 172 mm W: 120 mm	H: 333 mm D: 172 mm W: 141 mm	H: 342 mm D: 172 mm W: 141 mm	H: 342 mm D: 172 mm W: 141 mm
R4 – 20 l stainless steel H: 550 mm D: 515 mm W: 393 mm; <i>Cat.num.: R4</i>	• 230 × 305 mm • 80/140 mm • 40.6 kg	T100-R4 0°C to 100°C	TC120-R4 -25°C to 100°C	TX150-R4 -30°C to 100°C	TXF200-R4 -30°C to 100°C
R5 – 12 L stainless steel H: 610 mm D: 590 mm W: 414 mm; <i>Cat.num.: R5</i>	• 260 × 115 mm • 120/180 mm • 48.3 kg	T100-R5 0°C to 100°C	TC120-R5 -25°C to 100°C	TX150-R5 -47°C to 100°C	TXF200-R5 -47°C to 100°C
Options and accessories					
Labwise™ PC software (optional)					
Allows two-way communication for status display, programming and data capture + USB cable provided		—	—	+	+
External probes (optional)					
TXPEP flexible plastic probe, 3 m cable		—	—	+	+
TXSEP stainless steel probe, 3 m cable		—	—	+	+
Remote switching device (optional)					
For switching mains power appliances on and off (up to max. 8 Amps)		—	—	1	1
Vertical turbine pumps (optional)					
Low noise, compact design. Supplied with pipe connections and special lid for fitting to tank, pipe bore 12.7 mm		Required only where application demands a higher pressure than that delivered by the internal pump to maintain flow			
VTP 1 max. pressure 1,000 mbar; max. flow 9 l/min	+				
VTP 2 max. pressure 1,650 mbar; max. flow 12 l/min	+				