Baths

Optima Series

Grant
IN THE LABORATORY

A comprehensive, modular family of thermostatic controllers, bath tanks and accessories providing a wide range of specifications to meet the majority of laboratory requirements. Sophisticated electronics and the latest materials combine to ensure optimum performance, accuracy and stability.

◆ Choice of four thermostatic controller levels with digital programming

◆ Choice of plastic (P) or stainless steel (S) tanks

◆ Temperature scope of range -15 to +200°C depending on controller, bath and accessory cooling chosen (TX150 and TXF200 controllers can operate down to -50°C if required)

◆ Stirred circulation provides good temperature stability and uniformity

◆ Accessory Labwise™ control software allows remote programming, datalogging and real-time graphing of programmable models

◆ Digital and programmable controllers feature a novel, soft-touch navigator rotor and push-buttons for menu selection and operation

Safety feature include:

◆ Low liquid protection by float switch

◆ Visual alarm (and audible - digital and programmable controllers)

◆ Fixed (T100), or user-adjustable, overtemperature cut-out (TC120, TX150, TXF200 models only)

Thermostatic controllers have an injection moulded case, with heater, stirrer, pump (if provided) and Pt1000 temperature sensor projecting down into the liquid.

Lids are available as accessories. At temperatures below ambient or above +60°C to 100°C a lid should be fitted, or a layer of polypropylene spheres used. Above 100°C only a lid must be used.

Labwise™ control software, available as an accessory for TX150 and TXF200 controllers, can be used to set all parameters, including programmes, via the users' PC running Windows™ software and in English, French, German, Spanish or Italian languages. It also features real-time status windows, a graphical display of the controllers performance during a run, and allows data to be logged for future recall and analysis.

Optima Series Thermostatic Controllers

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Each controller is supplied without clamp. An accessory clamp (BJ180-95) allows the controller to be used with almost any type of vessel where it can be attached to the vessel wall. When the controller is to be used with Optima bath tanks the clamp is unnecessary as a bridge plate is provided.

Model			T100	TC120	TX150	TXF200
Temperature ranges†	without tank	°C	0 to 100*	-25 to 120*	-50 to 150*	-50 to 200*
	using S tanks	°C	0 to 100*	0 to 120*(5/12/18L)	0 to 150* (5/12/18L)	0 to 200* (5/12/18L)
				-15 to 120* (26/38L)	-15 to 150* (26/38L)	-15 to 200* (26/38L)
	using P tanks	°C	ambient +15 to 99 — TC120-P5/TX150-P5/TXF200-P5, ambient +5 to 99 — rest of range			
Stability, S tanks (DIN 58966)	@ 70°C	±°C	0.05	0.05	0.01	0.01
Uniformity, S tanks	@ 70°C	±°C	0.1	0.1	0.05	0.05
Setting resolution		°C	0.1	0.1	0.1 (0.01 using Labwise)	0.1 (0.01 using Labwise)
Display			4 digit LED	4 digit LED	Full colour QVGA TFT	Full colour QVGA TFT
Display resolution		°C	0.1	0.1	0.01	0.01
No. of stored temperature values			3	3	3	3
Two point re-calibration			yes	yes	yes	yes
Offset adjustment			no	no	yes	yes
External probe socket			no	no	yes	yes
USB interface			no	no	yes	yes
Programmable			no	no	yes via PC	yes via PC/direct
No. of stored programmes			none	none	1 x 30 segment	10 x 100 segment
Relays			none	none	1	2
Heater power, 220-240V		kW	1.3	1.3	1.9	1.9
Pump	max. pressure	mbar	no pump	210	310	530
(water)	max. flow	L/min	no pump	16	18	23 adj. flow rate
Inlet/outlet	pipe bores	mm	n/a	6/11	6/11	6/11
Overall dimensions, excluding clamp		mm	115 x 145 x 315 W x D x H — all models			
Height above tank rim		mm	200 — all models			
Depth below tank rim		mm	135 — all models			

†A lid or layer of polypropylene spheres must be used when operating between 60°C and 100°C, and is recommended for use below room temperature. Above 100°C, a lid must always be used.

*Minimum operating temperature without accessory cooling is ambient plus 5°C, except in the 5 litre tanks, in which it is ambient plus 15°C. Minimum and maximum temperatures achievable are dependent upon the tank insulation and the minimum operating temperature depends on the accessory immersion cooler selected.

BJ180-18

BJ180-28 in use on tank with lid

BJ180-28

Optima Series Thermostatic Controllers continued

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Digital model, T100
Operating range 0 to +100˚C. With PID control, soft-touch rotary selector and push-button setting, LED display and simple user interface with fault indication and visual alarm. Supplied without clamp. For 230V 50/60Hz single phase supplies.

BJ180-18   T100

Digital model, TC120
Operating range -25 to +120˚C. Generally as TC100 but with powerful external circulation pump, timer function for reaction timing from 0 to 9999 minutes, and variable high temperature alarm setting. Supplied with two pump connector plates with outlets for 6mm or 11mm tubing bores. Supplied without clamp. For 230V 50Hz single phase supplies.

BJ180-28   TC120

Programmable model, TX150
Operating range -50 to +150˚C. Full colour QVGA TFT screen which displays actual and set temperatures, pump speed and memory icons for programming with choice of operating languages (English, French, German, Spanish and Italian). With 99 hours 59 minute timer function and heater control fault indicator, audible and visual alarms, USB interface allowing remote control via an external PC, accessory Labwise™ software, programmable relay for ancillary equipment switching during a procedure (external cooling or remote alarm for example), high/low temperature alarm setting and temperature limiting for selected liquid type. Also includes memory storage of 10 programmes each of up to 100 segments. A built-in, powerful external circulation pump is provided with two pump connection plates with outlets for 6mm or 11mm tubing bores, and a socket for an accessory external Pt1000 temperature probe. Supplied without clamp. For 230V 50Hz single phase supplies.

BJ180-37   TX150

Programmable model, TXF200
Operating range -50 to +200˚C. Generally as TX150-series but with variable flow rate, external circulation pump, on-board programming facility via the control panel, including temperature ramping rate to target temperature, storage of 10 programmes, each of up to 100 segments, USB interface, and additional programmable relay for ancillary equipment switching during a procedure. Supplied without clamp. For 230V 50/60Hz single phase supplies.

BJ180-49   TXF200

Clamp
For use with BJ180-series to enable attachment of thermostatic controllers to alternative models/makes of bath (not required when used with Optima P- or ST-series tanks). The maximum vessel wall thickness is 35mm for rectangular and 30mm for circular (300mm diameter) tanks. Maximum vessel volume is 50 litres.

BJ180-95   Clamp

BJ180-18 in use on tank with lid

BJ180-37

BJ180-49

BJ180-49 in use on tank with lid

Optima Series Bath Tanks

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P series tanks

Cost effective, robust plastic tanks for applications in the range ambient +5°C to +99°C. Supplied with bridge mounting plate for Optima T-series controllers without clamps and carrying handles recessed into the ends of the case.

Ref.			P5	P12	P18
Tank capacity		litres	5	12	18
Top opening	L x W	mm	120 x 150	210 x 280	280 x 325
Liquid depth	min/max	mm	80/140	80/140	80/140
Inner tank dimensions	L x W x H	mm	240 x 160 x 150	325 x 280 x 150	510 x 290 x 150
Outer case dimensions	L x W x H	mm	330 x 240 x 180	415 x 350 x 870	600 x 365 x 180
Overall dimensions (including controller)	L x W x H	mm	390 x 200 x 360	415 x 350 x 360	600 x 350 x 360

BJ182-05   Tank only, P5
BJ182-10   Tank only, P12
BJ182-15   Tank only, P18

ST series tanks

Stainless steel tanks with outer cases of glass-reinforced plastic which has excellent insulating properties and is resistant to acids and laboratory solvents. Operating temperature ranges are as indicated. Supplied with bridge mounting plate for Optima T-series controllers and configured to allow dual-positioning, either facing along the length or away from the width of the bath, for convenient access. Also include a recessed drain tap (except 5 litre size).

Ref.			ST5	ST12	ST18	ST26	ST38
Operating range		°C	0 to 200	0 to 200	0 to 200	-15* to 200	-15* to 200
Suitable immersion cooler			C1G	C1G	C1G	C1G, C2G	C1G, C2G
Tank capacity		litres	5	12	18	26	38
Top opening	L x W	mm	150 x 150	205 x 300	385 x 300	385 x 300	575 x 300
Liquid depth	min/max	mm	85/140	85/140	75/130	125/180	125/180
Inner tank dimensions	L x W x H	mm	300 x 150 x 150	325 x 300 x 150	505 x 300 x 150	505 x 300 x 200	690 x 300 x 200
Outer case dimensions	L x W x H	mm	330 x 180 x 180	360 x 330 x 180	540 x 330 x 230	540 x 330 x 230	730 x 333 x 230
Overall dimensions (including controller) L x W x H		mm	330 x 180 x 395	360 x 330 x 395	540 x 330 x 395	540 x 330 x 405	730 x 333 x 405

*Using C2G immersion cooler, BJ240-52.

BJ182-36   Tank only, 5 litres, ST5
BJ182-41   Tank only, 12 litres, ST12
BJ182-46   Tank only, 18 litres, ST18
BJ182-51   Tank only, 26 litres, ST26
BJ182-56   Tank only, 38 litres, ST38

Recessed drain tap

BJ182-10

BJ182-51

Optima Series Thermostatic Baths

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Complete units including plastic or stainless steel tank, bridge mounting plate and controller. Please refer to controller specifications for supply requirements. Accessory cooling as appropriate is required at low temperature. Accessory polypropylene spheres or a lid should be used at temperatures between +60 and +100°C. Above 100°C only a lid must be used.

	Ref.	Tank cap. litres	Tank material*	Temp. range °C
BJ185-48	T100-P5	5	P	ambient +5 to +99
BJ185-51	T100-P12	12	P	ambient +5 to +99
BJ185-53	T100-P18	18	P	ambient +5 to +99
BJ185-55	T100-ST5	5	S	0 to +100
BJ185-57	T100-ST12	12	S	0 to +100
BJ185-60	T100-ST18	18	S	0 to +100
BJ185-63	T100-ST26	26	S	0 to +100
BJ185-66	T100-ST38	38	S	0 to +100
BJ185-67	TC120-P5	5	P	ambient +5 to +99
BJ185-70	TC120-P12	12	P	ambient +5 to +99
BJ185-72	TC120-P18	18	P	ambient +5 to +99
BJ185-73	TC120-ST5	5	S	0 to +120
BJ185-76	TC120-ST12	12	S	0 to +120
BJ185-78	TC120-ST18	18	S	0 to +120
BJ185-80	TC120-ST26	26	S	-15 to +120
BJ185-82	TC120-ST38	38	S	-15 to +120

* P = plastic, S = stainless steel.

	Ref.	Tank cap. litres	Tank material*	Temp. range °C
BJ186-06	TX150-P5	5	P	ambient +5 to +99
BJ186-11	TX150-P12	12	P	ambient +5 to +99
BJ186-16	TX150-P18	18	P	ambient +5 to +99
BJ186-21	TX150-ST5	5	S	0 to +150
BJ186-26	TX150-ST12	12	S	0 to +150
BJ186-31	TX150-ST18	18	S	0 to +150
BJ186-36	TX150-ST26	26	S	-15 to +150
BJ186-41	TX150-ST38	38	S	-15 to +150
BJ186-46	TXF200-P5	5	P	ambient +5 to +99
BJ186-51	TXF200-P12	12	P	ambient +5 to +99
BJ186-56	TXF200-P18	18	P	ambient +5 to +99
BJ186-61	TXF200-ST5	5	S	0 to +200
BJ186-68	TXF200-ST12	12	S	0 to +200
BJ186-71	TXF200-ST18	18	S	0 to +200
BJ186-76	TXF200-ST26	26	S	-15 to +200
BJ186-81	TXF200-ST38	38	S	-15 to +200

* P = plastic, S = stainless steel.

BJ185-53

BJ186-76 in use

Optima Series - Accessories

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Lids
Available in moulded plastic or stainless steel, either curved, flat, or gabled with hinge as indicated.

	Ref.	For baths	Material*	Type
BJ187-62	PL5	P5	S	Flat
BJ187-64	PL12	P12	P	Curved
BJ187-66	PL18	P18	P	Curved
BJ187-67	STL5	ST5	S	Flat
BJ187-71	STL12	ST12	S	Gabled
BJ187-73	STL26	ST18/ST26	S	Gabled
BJ187-77	STL38	ST38	S	Gabled

*S = stainless steel   P = moulded plastic.

Spheres provide an alternative to a lid at temperatures between +60°C and +100°C. Packs required to provide a single layer.

5 litre tank: 1 pack   18 litre tank: 2 packs   38 litre tank: 3 packs
12 litre tank: 1 pack   26 litre tank: 2 packs

Polypropylene spheres - see BJ177-03.

Raised shelves
These reduce the effective liquid depth to allow shallow vessels to be placed in the baths. The effective liquid depth can be between 0 and 90mm only in 12 and 18 litre baths, and between 0 and 50mm or 85 and 135mm in 26 and 38 litre baths, achieved by inverting the shelf as required.

BJ226-14   RS14 for 12 litre baths
BJ226-22   RS22 for 18 litre baths
BJ226-28   RS28 for 26 litre baths
BJ226-38   RS38 for 38 litre baths

Draining Syphon
Enables bath to be emptied quickly.
BJ242-12   Ref. SY1

Remote Temperature Probes
Pt1000 external temperature probes for use with TX150 and TXF200 thermostat controllers in remote heating/cooling applications. With 3 metres of cable.
BJ242-20   TXPEP, fast response, nylon, 100mm x 4.5mm length x dia.
BJ242-25   TXSEP, robust, stainless steel, 125mm x 5mm length x dia.

Tube Racks
Stainless steel, with lifting handles, available for 10 to 13mm, 16 to 19mm or 24mm o.d. test tubes, 0.5ml or 1.5ml microcentrifuge tubes. QR racks can only be used with 5 litre baths. VR racks can be used with 12, 18, 22, 26 and 38 litre baths.

Maximum number of racks per bath:

5 litre:	1 x QR	18 litre:	4 x VR	38 litre:	6 x VR
12 litre:	2 x VR	26 litre:	4 x VR		

Maximum number of tubes per rack

Tube dia. mm	VR	QR	Tube dia. mm	VR	QR
10 - 13	65	30	24	23	10
16 - 19	36	16	30	14	5

QR-series for 5 litre Baths only

	Ref.	Holes
BJ188-10	QR-13	30 x 10/13mm
BJ188-13	QR-19	16 x 16/19mm
BJ188-16	QR-24	10 x 24mm
BJ188-18	QR-30	5 x 30mm
BJ188-20	QR-SE	44 x 0.5ml microtubes
BJ188-23	QR-LE	35 x 1.5ml microtubes

VR-series for 12, 18, 26 and 38 litre baths only

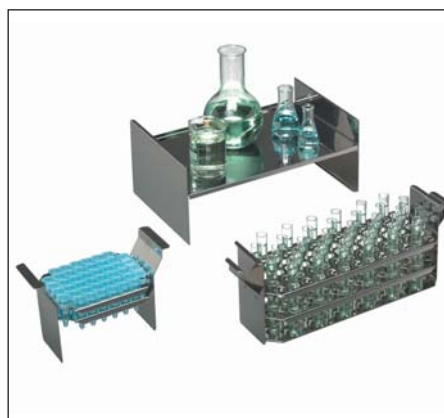|	Ref.	Holes
BJ188-30	VR-13	65 x 10/13mm
BJ188-33	VR-19	36 x 16/19mm
BJ188-36	VR-24	23 x 24mm
BJ188-38	VR-30	14 x 30mm
BJ188-40	VR-SE	102 x 0.5ml microtubes
BJ188-43	VR-LE	75 x 1.5ml microtubes

Labwise software
Allows remote set-up and programming of the TX150 and TXF200 thermostat controllers from the users' PC, real-time temperature/time profiles and graphical representation of process to be displayed, logging of profiles and programme storage to disk. Requires Windows™ software. Supplied with connection cable.
BJ189-75   Labwise software

BJ187-71

BJ188 and BJ226 in use

BJ189-75