

Section 6

Immersion heaters with plastic connection box

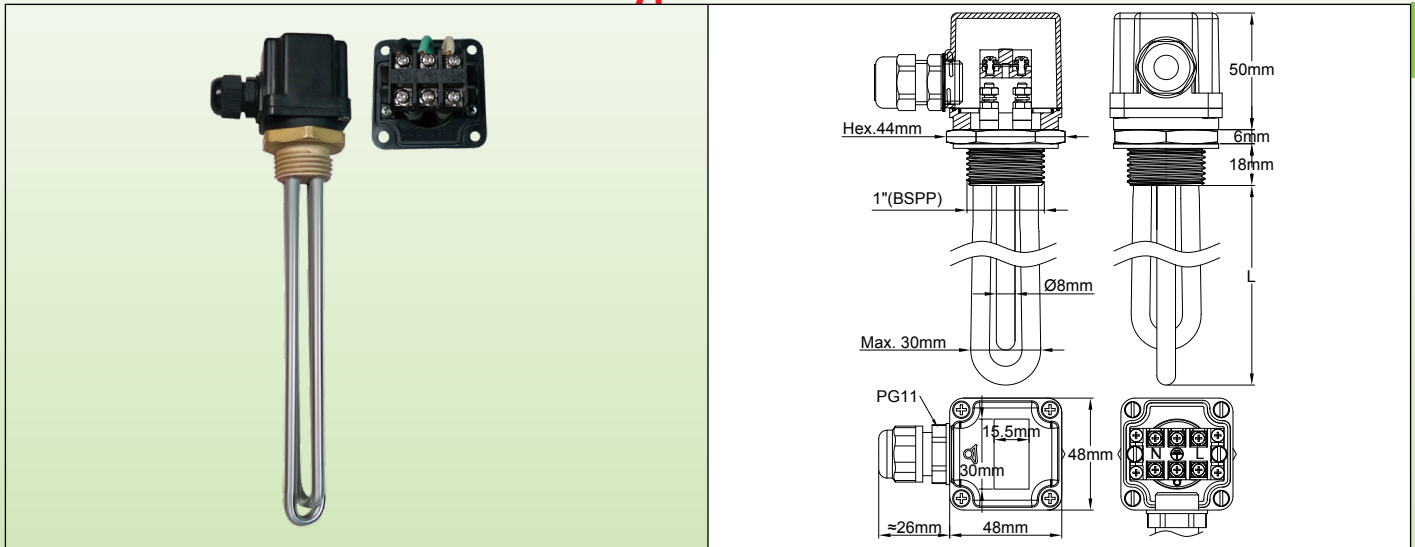




Immersion heaters with plastic connection box

Immersion heaters with 48 × 48 × 50mm PA66 connection box and 1"BSPP thread

Type 9ST1



Main applications: liquid heating, hot water circuits, containers and buffer tanks.

It has 2 heating elements dia. 8mm, 230V, connected in parallel. Serial connection of these elements allows using them in 115V.

These immersion heaters are the smallest with a connection box.

They have been designed with a built-in connection block for easier wiring. Their small size does not allow having a thermostat inside.

They exist in:

- 5 standard power levels: 500W; 1kW; 1.5kW; 2kW; 3kW

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: brass, non-swiveling, brazed on tubes. (AISI 304 or AISI 316, TIG welded or brazed models are available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1" BSPP (ISO 228).

Enclosure: 48 × 48 × 50mm, black PA66 fiber glass reinforced.

Ingress protection class: IP54.

Cable gland: PG11, PA66. Nickel-plated brass on request.

Thermowell: not available on these types.

Heating elements connections: Built-in plastic connection block, 3 screw terminals, 2.5mm².

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², others values on request.

Voltage: 220-240V single phase (parallel wiring) or 115V (serial wiring)

Option: Only one heating element.

Main references

Power	5W/cm ²			10W/cm ²		
	500w	1kW	1.5kW	1kW	2kW	3kW
Length (mm)	135	240	340	135	240	340
AISI 304 Reference	9ST1A310005B8130	9ST1A310010B8240	9ST1A310015B8340	9ST1A310010B8130	9ST1A310020B8240	9ST1A310030B8340
Incolloy 800 reference	9ST1A310005BK130	9ST1A310010BK240	9ST1A310015BK340	9ST1A310010BK130	9ST1A310020BK240	9ST1A310030BK340

References of accessories in option (not included in the product, must be ordered separately):

	1" Nuts			Gaskets	
	Brass	9BBRA3000ELH047A		NBR	9BRJO3000ELH210A
	AISI 304	9BBRA3000ELH257A		Fiber	9BRJO3000ELH209A
	AISI 316	9BBRA3000ELH258A		Viton	9BBJO3000000005A

Other accessories and drawings: see last section of this catalogue



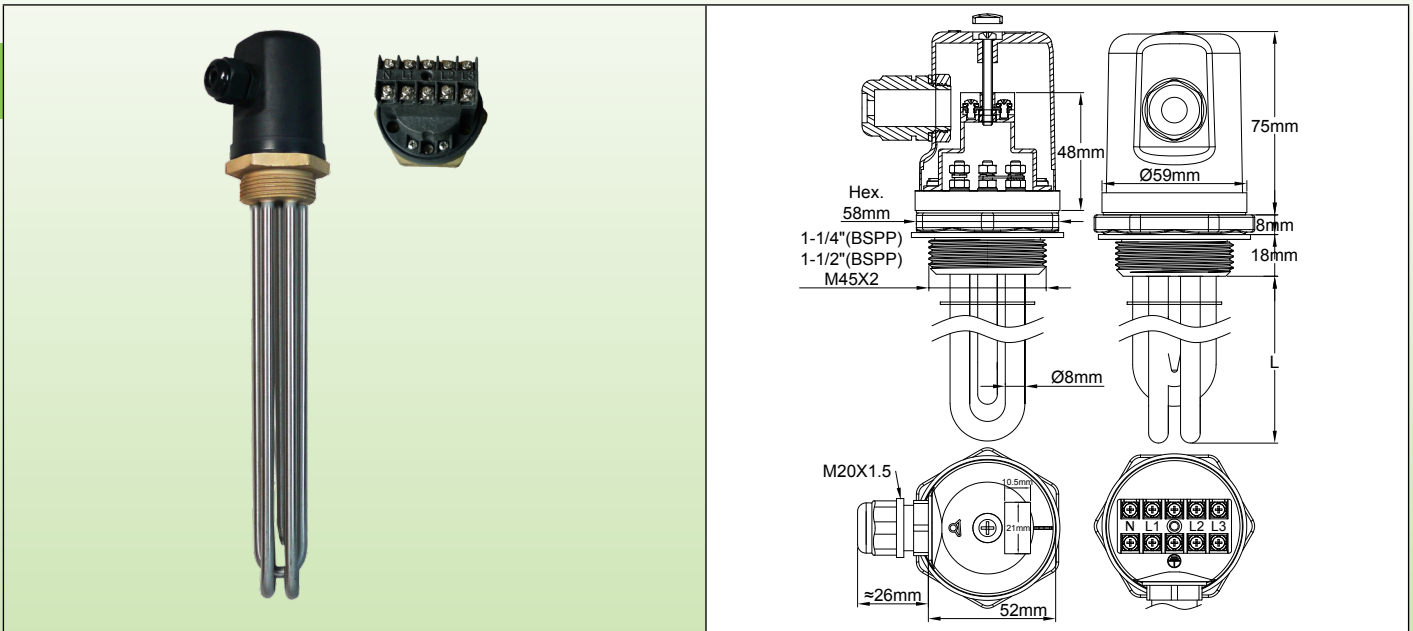
Contact us

Web: www.ultimheat.co.th

Cat22-4-6-3

Immersion heaters with plastic connection box

Immersion heater with round enclosure, dia. 58 × 75mm. 1"1/4, 1"1/2, M45x2 fittings. **Type 9ST2**



Main applications: liquid heating, hot water circuits, containers and buffer tanks.

These immersion heaters are the smallest with connection box and 3 heating elements. They have been designed with a built-in connection block for easier wiring. Their small size does not allow having a thermostat inside.

They exist in:

- 5 standard power levels: 1kW - 1,5kW - 2kW - 3kW - 4kW.
- 3 types of standard fittings: 1"1/4, 1"1/2 and M45x2.
- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 3 heating elements dia. 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: Brass, not swiveling, brazed on tubes. (AISI 304 or AISI 316, TIG welded, or brazed, models are available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1"1/4, 1"1/2 BSPP (ISO 228) and Metric thread M45x2.

Enclosure: dia. 58mm × 75mm, black PA66 fiber glass reinforced, with gasket. Opening by center M4 screw without access to end user.

Ingress protection class: IP54.

Cable gland: M20, PA66. Nickel-plated brass on request.

Thermowell: On request.

Heating element connections: Terminals with stainless steel screw, nut and stainless steel washer. Switching straps for single phase/ 3 phases.

Heating elements are connected on a built-in 5 ways connection block, for wires up to 2.5mm².

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: 220-240V single phase or three phases 380-400V (Star connection with neutral)

Variants on request:

- Only one or only 2 heating elements.
- M45x2 brass fitting.

Electric Wiring



Straps position in 220-240V single phase

Straps position in 380-400V 3 phases



Immersion heaters with plastic connection box

Main references 5W/cm², 1"1/2* brass fitting

Power	1kW	1.5kW	2kW	3kW	4kW
Length (mm)	170	240	300	440	570
Reference in AISI 304	9ST2A5E0010U8170	9ST2A5E0015U8240	9ST2A5E0020U8300	9ST2A5E0030U8440	9ST2A5E0040U8570
Reference in Incolloy 800	9ST2A5E0010UK170	9ST2A5E0015UK240	9ST2A5E0020UK300	9ST2A5E0030UK440	9ST2A5E0040UK570

10W/cm², 1"1/2* brass fitting


Power	1kW**	1.5kW	2kW	3kW	4kW
Length (mm)	135	135	170	240	300
Reference in AISI 304	9ST2A5E0010BK130	9ST2A5E0015U8130	9ST2A5E0020U8170	9ST2A5E0030U8240	9ST2A5E0040U8300
Reference in Incolloy 800	9ST2A5E0010BK130	9ST2A5E0015UK130	9ST2A5E0020UK170	9ST2A5E0030UK240	9ST2A5E0040UK300

* 1"1/4 brass fitting instead of 1"1/2, replace A5 by A4 in the reference. M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.


** This model has only 2 heating elements.

References of accessories in option (not included in the product, must be ordered separately):

Nuts

	Thread	1"1/4	1"1/2	M45x200
	Brass	9BRR3000ELH302A	9BRR3000ELH303A	9BRR3000ELH305A
	AISI304	9BRR3000ELH032A	9BRR3000ELH006A	9BRR3000ELH049A
	AISI316	9BRR3000ELH202A	9BRR3000ELH203A	9BRR3000ELH205A

Gaskets

	Thread	1"1/4	1"1/2 - M45x200
	NBR	9BRJ03000ELH206A	9BRJ03000ELH205A
	Fiber	9BRJ03000ELH052A	9BRJ03000ELH007A
	PTFE	9BRJ03000ELH032A	9BRJ03000ELH033A

Other accessories and drawings: see last section of this catalogue




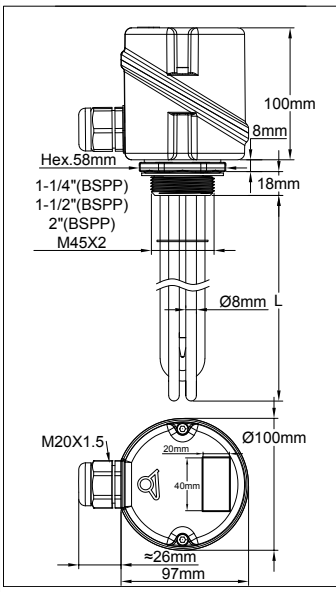
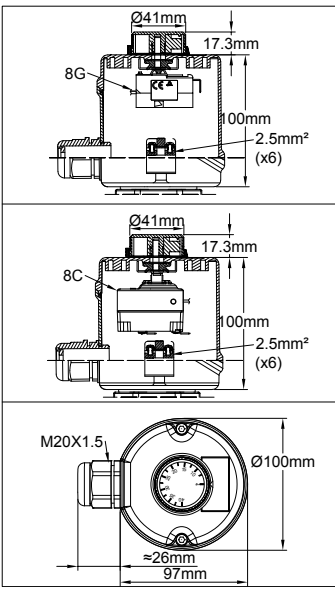
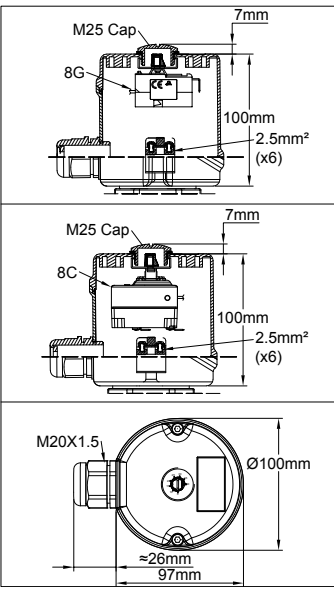
Contact us

Web: www.ultimheat.co.th

Cat22-4-6-5

Immersion heaters with plastic connection box

Immersion heater with dia. 100mm × 100mm plastic enclosure. 1"1/4 to 2" fittings. **With or without thermostat.**
Type 9ST6

			
	<p>Without thermostat</p>	<p>Single pole and 3 pole thermostats with outside knob adjustment (Option)</p>	<p>Single pole and 3 pole thermostats with inside knob adjustment, M25 cap access. (standard)</p>

Main applications: liquid heating, hot water circuits, containers and buffer tanks.

These heaters can be fitted with the same equipment than the 9ST5 type, (thermostats, limiters, pilot lights etc.), but their plastic enclosure is more convenient for corrosive surrounding.

They exist in:

- 6 standard power levels: 1kW - 2kW - 3kW - 4kW - 6kW- 8kW.

- 4 types of standard fittings: 1"1/4; 1"1/2; M45x2; 2".

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request). 10mm dia. heating elements on model with 2" fitting.

Fitting material: brass, swiveling on housing, brazed on tubes. (AISI 304 or AISI 316, TIG welded, or brazed, models are available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1"1/4 ; 1"1/2 BSPP (ISO 228); M45x2; 2".

Enclosure: Dia. 100mm × 100mm, black PA66 fiberglass reinforced. Silicone foam gasket. Stainless steel cover screws with locking nuts

Adjustment range: 30-90°C (85-195°F)

Ingress protection class: Water and dust: IP65; shock resistance: IK 8 (with metal cable glands and M25 metal plug).

Cable glands: M20, PA66. Nickel-plated brass on request.

Thermowell: In standard one thermowell in AISI304, dia.8 × 7mm, 135mm length.

Electrical connections: tubular heater terminals with stainless steel screw, nut and stainless steel washer. Switching straps on 3 phases models.

Models with thermostats have a built in connection block, 3 × 2.5mm² for single phase units and 5 × 2.5mm² for 3 phases units. One more M4 grounding terminal available.

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: 220-240V single phase or three phases 380-400V (Star connection with neutral).

Standard options:

- Thermostat knob accessible under the cover by a M25 removable plug, adjustable from 30°C to 90°C (85-195°F). 230V single phase thermostat for power up to 3kW. 3 phases thermostat for 4kW, 6kW and 8kW models.

Variants on request:

- 4-40°C (40-105°F), 0-60°C (32-140°F), or 30-110°C (86-230°F) thermostat.

- Additional cable gland output for electronic control sensor.

- Thermostat with external knob.

- One or two pilot lights and a power cord.

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice



Immersion heaters with plastic connection box

Electric Wiring

220-240V single phase (Without thermostat)	220-240V single phase (With single pole thermostat)	380-400V 3 phases (without thermostat)	380-400V 3 phases (with 3 poles thermostat)

Main references

5W/cm², 1"1/2* brass fitting, without thermostat.

Heating element dia.	8mm						10mm (2" only)
Power	1kW	2kW	3kW	4kW	6kW	8kW	
Length (mm)	170	300	440	570	840	880	
AISI 304 Reference	9ST6A5E1010U8170	9ST6A5E1020U8300	9ST6A5E1030U8440	9ST6A5E1040U8570	9ST6A5E1060U8840	9ST6A6E1080U1880	
Incolloy 800 reference	9ST6A5E1010UK170	9ST6A5E1020UK300	9ST6A5E1030UK440	9ST6A5E1040UK570	9ST6A5E1060UK840	9ST6A6E1000UL880	

10W/cm², 1"1/2* brass fitting, without thermostat.

Heating element dia.	8mm						10mm (2" only)
Power	1kW**	2kW	3kW	4kW	6kW	8kW	
Length (mm)	135	170	240	300	440	450	
AISI 304 Reference	9ST6A5E1010B8130	9ST6A5E1020U8170	9ST6A5E1030U8240	9ST6A5E1040U8300	9ST6A5E1060U8440	9ST6A6E1080U1450	
Incolloy 800 reference	9ST6A5E1010BK130	9ST6A5E1020UK170	9ST6A5E1030UK240	9ST6A5E1040UK300	9ST6A5E1060UK440	9ST6A6E1000UL450	

5W/cm², 1"1/2* brass fitting, with 30-90°C (84-194°F) thermostat, adjustable under M25 cap (single phase up to 3kW, 3 phases for 4kW, 6kW and 8kW models)

Heating element dia.	8mm						10mm (2" only)
Power	1kW	2kW	3kW	4kW	6kW	8kW	
Length (mm)	170	300	440	570	840	880	
AISI 304 Reference	9ST6A5ES010V8170	9ST6A5ES020V8300	9ST6A5ES030V8440	9ST6A5ES040U8570	9ST6A5ES060U8840	9ST6A6ES080U1880	
Incolloy 800 reference	9ST6A5ES010VK170	9ST6A5ES020VK300	9ST6A5ES030VK440	9ST6A5ES040UK570	9ST6A5ES060UK840	9ST6A6ES000UL880	


10W/cm², 1"1/2* brass fitting, with 30-90°C (85-195°F) thermostat adjustable under M25 cap (single phase up to 3kW, 3 phases for 4kW, 6kW and 8kW models)

Heating element dia.	8mm						10mm (2" only)
Power	1kW**	2kW	3kW	4kW	6kW	8kW	
Length (mm)	135	170	240	300	440	450	
AISI 304 Reference	9ST6A5ES010B8130	9ST6A5ES020V8170	9ST6A5ES030V8240	9ST6A5ES040U8300	9ST6A5ES060U8440	9ST6A6ES080U1450	
Incolloy 800 reference	9ST6A5ES010BK130	9ST6A5ES020VK170	9ST6A5ES030VK240	9ST6A5ES040UK300	9ST6A5ES060UK440	9ST6A6ES000UL450	


* 1"1/4 brass fitting instead of 1"1/2, replace A5 by A4 in the reference. M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.
 ** This model has only 2 heating elements.

References of accessories in option (not included in the product, must be ordered separately):

Nuts

	Thread	1"1/4	1"1/2	M45x200	2"
	Brass		9BRRA3000ELH302A	9BRRA3000ELH303A	9BRRA3000ELH305A
AISI304		9BRRA3000ELH032A	9BRRA3000ELH006A	9BRRA3000ELH049A	9BRRA3000ELH348A
AISI316		9BRRA3000ELH202A	9BRRA3000ELH203A	9BRRA3000ELH205A	9BRRA3000ELH204A

Gaskets

	Thread	1"1/4	1"1/2 - M45x200	2"
	NBR	9BRJ03000ELH206A	9BRJ03000ELH205A	9BRJ03000ELH203A
	Fiber	9BRJ03000ELH052A	9BRJ03000ELH007A	9BRJ03000ELH028A
	PTFE	9BRJ03000ELH032A	9BRJ03000ELH033A	9BRJ03000ELH034A

Other accessories and drawings: see last section of this catalogue



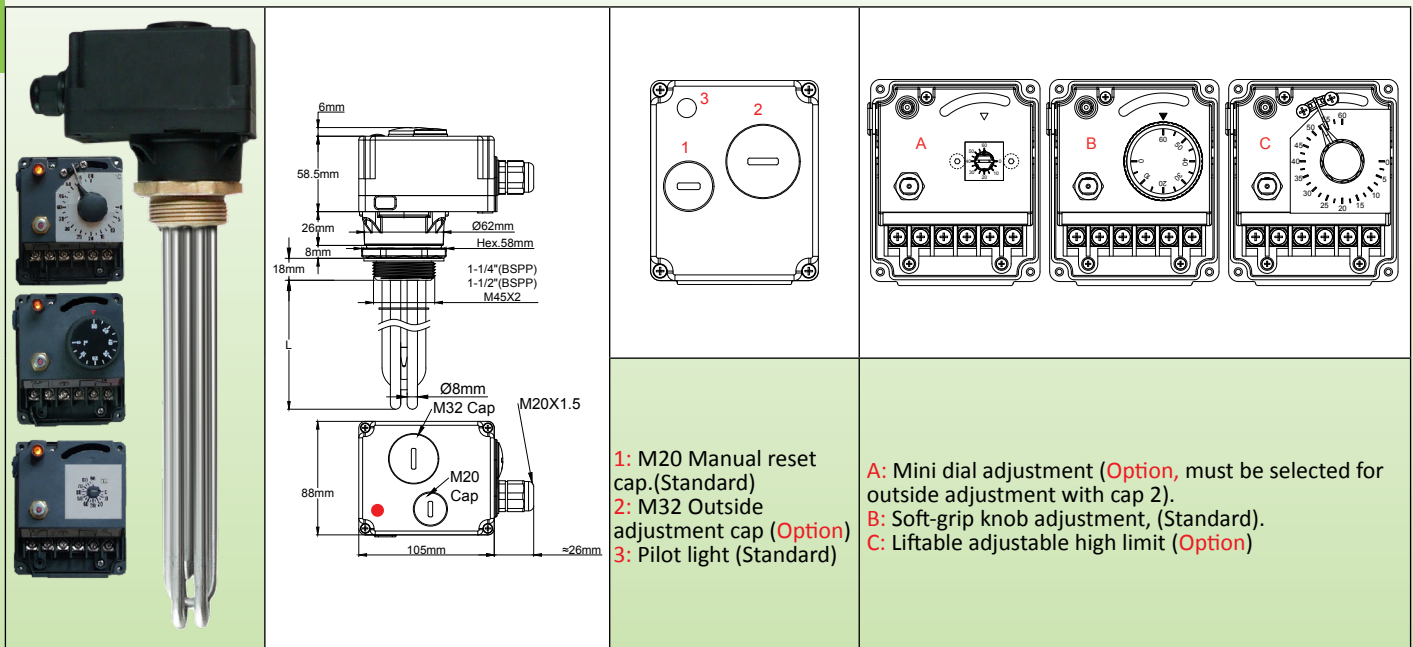
Contact us

Web: www.ultimheat.co.th

Cat22-4-6-7

Immersion heaters with plastic connection box

Immersion heater with 105mm × 88mm × 58.5mm plastic enclosure.
 1"1/2, M45x2 fittings. **With control thermostat and manual reset thermostat. Type 9STC**



Main applications: liquid heating, hot water circuits, containers and buffer tanks.

These heaters are specifically designed for domestic and commercial hot water tanks, as well as auxiliary heating systems of solar energy buffer tanks, and auxiliary heaters for heat pumps.

The housing is offset by 30mm for tank thermal insulation.

They exist in:

- 5 standard power levels: 1kW – 1.5kW - 2kW - 3kW - 3.5kW

- 2 types of standard fittings: 1"1/2, M45x2

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

The 5W/cm² surface load can meet the recommendations of the "NFC Performance" Standard, Class C (LCIE 103-14), for storage water heaters.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: brass, swiveling on housing, brazed on tubes. Supplied without gasket and without nut. See accessories below.

Thread: 1"1/2 BSPP (ISO 228), and metric thread M45x2.

Enclosure: IP54, 105 × 88 × 84.5mm, (Cap, accessories and cable gland not included), black PA66, fiber glass reinforced.

Product including an adjustable temperature control thermostat and a fixed setting high limit manual reset thermostat. Manual reset has access from outside, by removing a screwed cap.

Electrical input: One M20 cable gland in PA66. A second hole for M20 cable gland is closed by a cap.

Temperature Adjustment: Inside, with °C printed knob. (°F printed knobs available in option)

Thermowell: One thermowell in AISI304, dia.10mm

Standard set point adjustment ranges:

- 30-90°C (85-195°F) with manual reset at 100°C (212°F)

- 0-60°C (32-140°F with manual reset at 80°C (176°F)

Electrical connections:

- Power supply (Neutral, Line, Ground), on 6mm² screw terminals.

- Immersion heater: 3 wires, FEP 180°C insulated, 2.5mm², equipped with ring terminals, length 50mm on the immersion heater connection side, for direct connection on heating elements M4 terminals.(Neutral wire is blue color)

- Pilot light: can be connected by a strap on power supply, or on control thermostat output, or on safety thermostat output.

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: 220-240V single phase only.

Standard options:

- Thermostat knob accessible under the cover by a M32 removable cap.

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

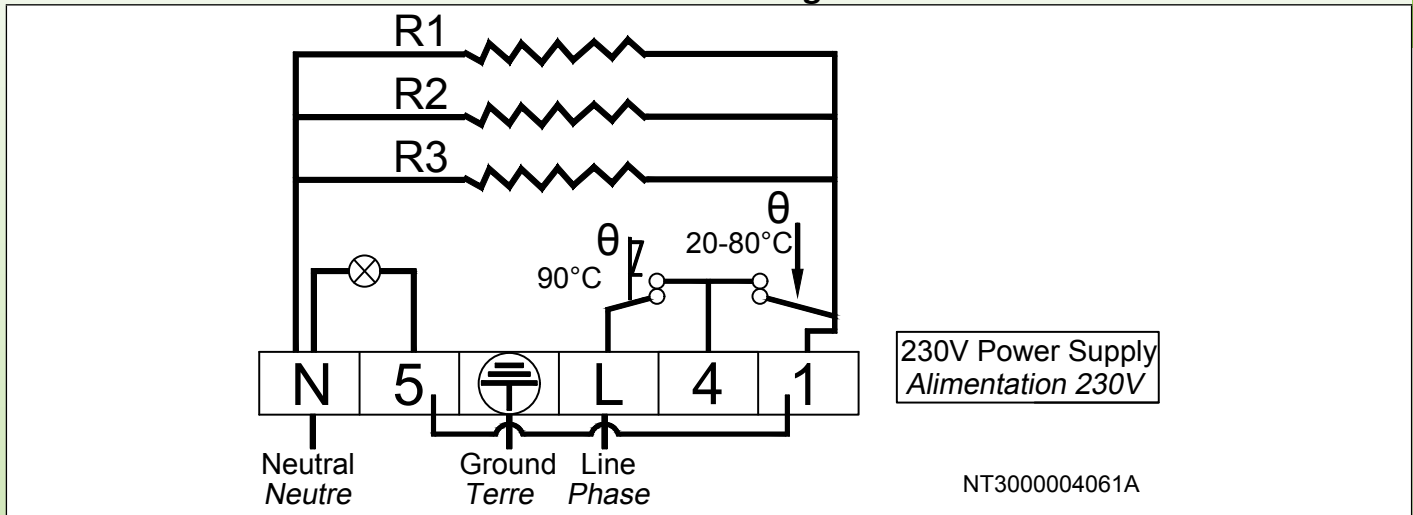


Immersion heaters with plastic connection box

Variants on request:

- 4-40°C (40-105°F), 30-110°C (85-230°F) thermostats.
- Lifiable adjustable high end adjustment on control thermostat.
- TIG welded fitting.

Electric Wiring



Main references

5W/cm², 1"1/2* brass fitting, with 0-60°C (30-140°F) adjustable thermostat. Manual reset at 80°C (176°F)

Power	1kW	1.5kW	2kW	3kW	3,5kW
Length (mm)	170	240	300	440	500
AISI 304 Reference	9STCA5EN010V817J	9STCA5EN015V824J	9STCA5EN020V830J	9STCA5EN030V844J	9STCA5EN035V850J
Incolloy 800 reference	9STCA5EN010VK17J	9STCA5EN015VK24J	9STCA5EN020VK30J	9STCA5EN030VK44J	9STCA5EN035VK50J

10W/cm², 1"1/2* brass fitting, with 0-60°C (30-140°F) adjustable thermostat. Manual reset at 80°C (176°F)

Power	1kW**	1.5k	2kW	3kW	3,5kW
Length (mm)	135	135	170	240	270
AISI 304 Reference	9STCA5EN010B813J	9STCA5EN015V813J	9STCA5EN020V817J	9STCA5EN030V824J	9STCA5EN035V827J
Incolloy 800 reference	9STCA5EN010BK13J	9STCA5EN015VK13J	9STCA5EN020VK17J	9STCA5EN030VK24J	9STCA5EN035VK27J

5W/cm², 1"1/2* brass fitting, with 30-90°C (85-195°F) adjustable thermostat. Manual reset at 100°C (212°F)

Power	1kW	1.5kW	2kW	3kW	3,5kW
Length (mm)	170	240	300	440	500
AISI 304 Reference	9STCA5ES010V817N	9STCA5ES015V824N	9STCA5ES020V830N	9STCA5ES030V844N	9STCA5ES035V850N
Incolloy 800 reference	9STCA5ES010VK17N	9STCA5ES015VK24N	9STCA5ES020VK30N	9STCA5ES030VK44N	9STCA5ES035VK50N

10W/cm², 1"1/2* brass fitting, with 30-90°C (85-195°F) adjustable thermostat. Manual reset at 100°C (212°F)

Power	1kW**	1.5kW	2kW	3kW	3,5kW
Length (mm)	135	135	170	240	270
AISI 304 Reference	9STCA5ES010B813N	9STCA5ES015V813N	9STCA5ES020V817N	9STCA5ES030V824N	9STCA5ES035V827N
Incolloy 800 reference	9STCA5ES010BK13N	9STCA5ES015VK13N	9STCA5ES020VK17N	9STCA5ES030VK24N	9STCA5ES035VK27N

* M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.

** This model has only 2 heating elements.


References of accessories in option

(not included in the product, must be ordered separately):

Nuts

	Thread	1"1/2	M45x200
	Brass	9BRRA3000ELH303A	9BRRA3000ELH305A
	AISI304	9BRRA3000ELH006A	9BRRA3000ELH049A
	AISI316	9BRRA3000ELH203A	9BRRA3000ELH205A

Gaskets

	Thread	1"1/2 - M45x200
	NBR	9BRJ03000ELH205A
	Fiber	9BRJ03000ELH007A
	PTFE	9BRJ03000ELH033A

Other accessories and drawings: see last section of this catalogue



Contact us


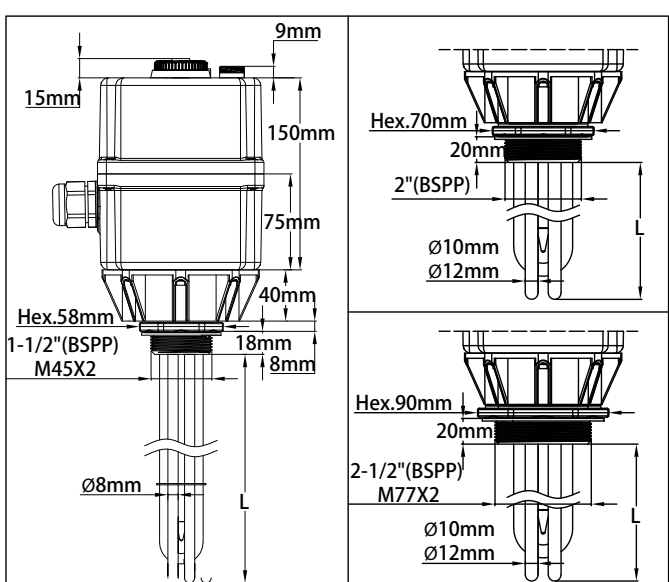
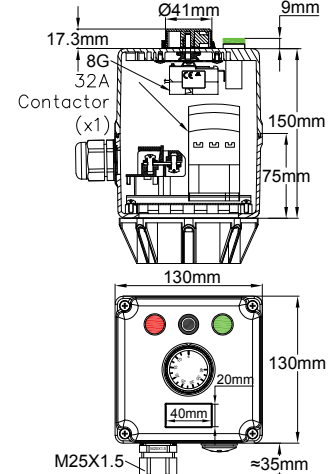
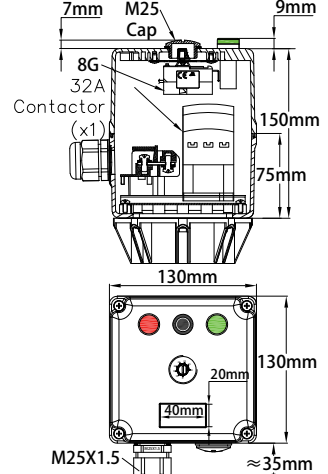
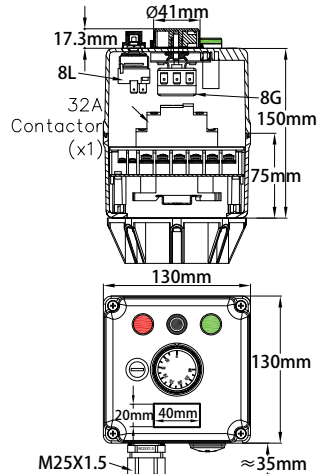
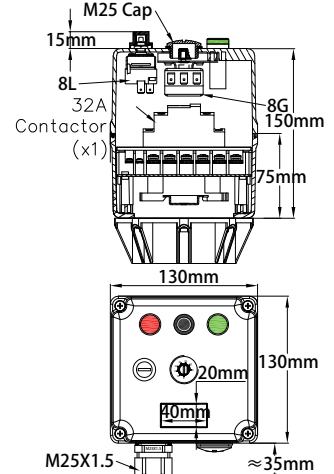
Web: www.ultimheat.co.th

Cat22-4-6-9

Immersion heaters with plastic connection box

Immersion heater with 130mm × 130mm × 190mm plastic enclosure.
 Fittings from 1"1/2 to M77x2. With control thermostat. With or without and manual reset. Power up to 21kW with one built-in power relay. Heating elements dia. 8, 10 and 12mm.

Type 9STM

			
			
<p>External knob control thermostat (standard), 2 pilot lights, one main switch</p>	<p>Internal knob (option) control thermostat, 2 pilot lights, one main switch</p>	<p>External knob (standard) control thermostat, manual reset thermostat, 2 pilot lights, one main switch</p>	<p>Internal knob (option) control thermostat, manual reset thermostat, 2 pilot lights, one main switch</p>

Main applications: Industrial liquid heating, hot water circuits, containers and buffer tanks.

These immersion heaters are designed for medium power applications, requesting power relays. They are fitted with one relay, 3 pole, 32A res. They have in standard two pilot lights and one main switch. They are intended for indoor use.

These enclosures have a 40mm offset to go through tank thermal insulation.

They exist in:

- 6 standard power levels: 4kW; 6kW; 8kW; 10kW; 12kW; 14kW.

(on request, it is possible to reach 21kW with dia.12mm heating elements)

- 2 types of standard fittings with dia. 8mm heating elements: 1"1/2; M45x2.

- 3 types of standard fittings with dia. 10mm heating elements: 2", 2"1/2; M77x2

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. or 10mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: brass, swiveling on housing, brazed on tubes. (AISI 304 or AISI 316, TIG welded, or brazed, models are



Immersion heaters with plastic connection box

available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1"1/2 BSPP (ISO 228), and metric thread M45x2 (dia. 8 heating elements), and 2", 2"1/2, M77x2 (dia. 10mm heating elements).

Enclosure: 130mm × 130mm, 150mm height, black PA66 fiberglass reinforced. Silicone foam gasket. Stainless steel cover screws with locking nuts.

Ingress protection class: Water and dust: IP54; shock resistance: IK 8 (with metal cable glands and M25 metal plug).

Temperature control: by 30-90°C (85-195°F) bulb and capillary thermostat, with outside knob access. Thermostat shaft has a waterproof gasket. Other temperature ranges available. See options hereunder.

Cable gland: M25, PA66. Mounted on a removable board for easier wiring access. A second hole for M25 cable gland is available, closed by a screwed cap.

Thermowell: one thermowell in AISI304, dia.10mm, for M45 and 1"1/2 fittings, 2 thermowells for larger sizes.

Heating elements connections: terminals with stainless steel screw, nut and stainless steel washer.

Designed for applications in three-phase with neutral, however, these devices are equipped with straps for switching to single-phase supply. This change must be made by the professional technical staff able to calculate and observe the maximum permissible intensities on power relays.

Power supply connection:

- on built in connection block, 6 × 10mm² for power connection and 2 × 2.5mm² for optional external remote control

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², others values on request.

Voltage: three phases 380-400V (Star connection with neutral). Single pole 230V is possible.

Standard equipment:

- Manual reset thermostat, reset access by M25 screwed cap, preset at 100°C (212°F).

- Main power switch.

- Large size (dia. 16mm) LED pilot lights. Green illuminated when heating is on. Red illuminated when manual reset is triggered.

Variants on request:

- Thermostat knob accessible under the cover by a M25 removable plug (on request).

- 4-40°C, 0-60°C or 30-110°C thermostats. Higher range on request.

- 4-40°C (40-105°F) temperature range with manual reset at 60°C (140°F).

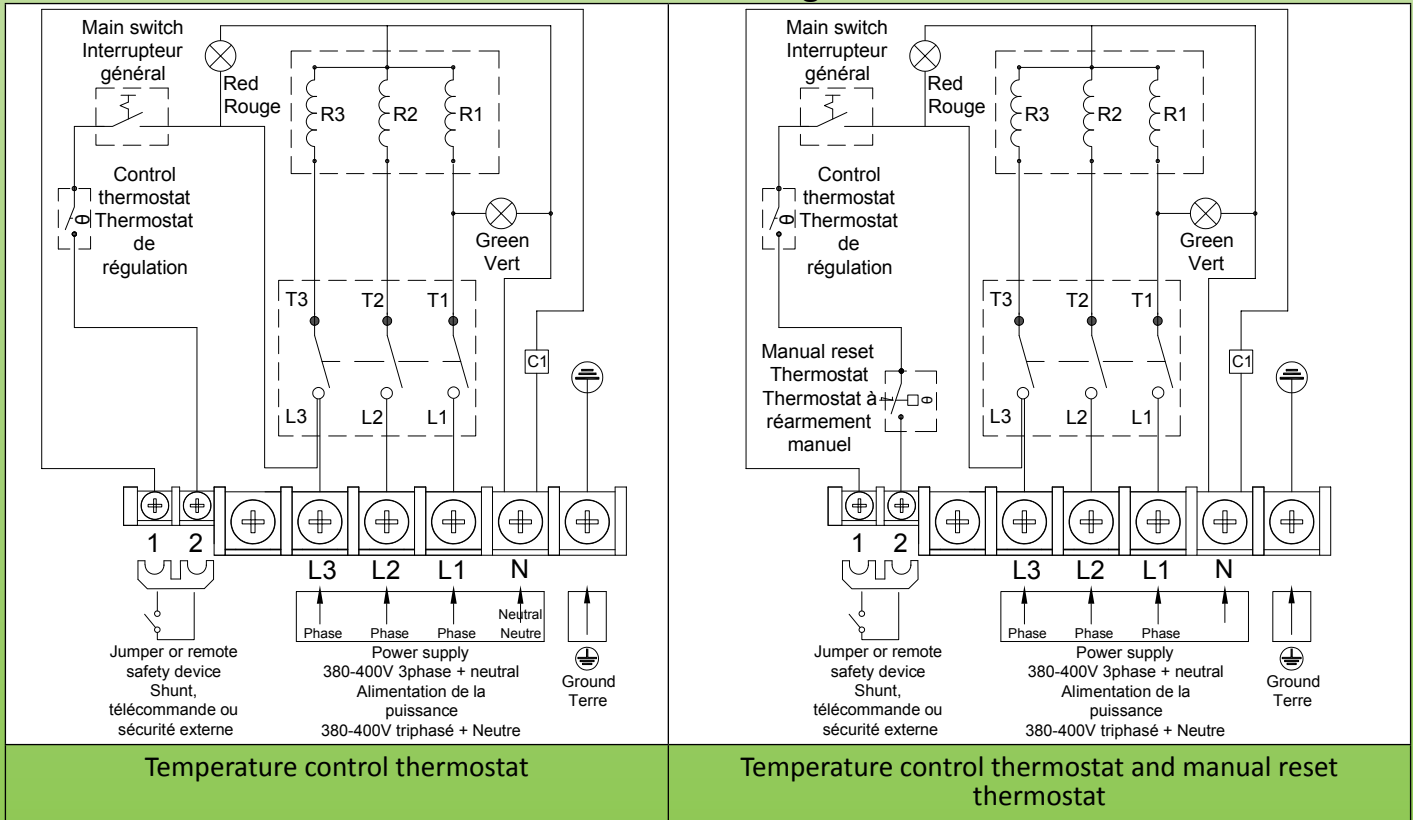
- 0-60°C (32-140°F) temperature range with manual reset at 80°C (176°F).

- 30-110°C (85-230°F) temperature range with manual reset at 130°C (266°F).

- Thermal cut out located inside immersion heater pocket.

- 400V power supply without neutral: consult us.

Electric Wiring



Contact us

Web: www.ultimheat.co.th

Cat22-4-6-11

Immersion heaters with plastic connection box

Main references

5W/cm², with 30-90°C (85-195°F) thermostat, external knob, without manual reset.

	1"1/2* brass fitting, dia. 8mm heating elements			2"1/2** brass fitting, dia. 10mm heating elements	
Power	4kW	6kW	8kW	10kW	12kW
Length (mm)	570	840	1100	1100	1300
AISI 304 Reference	9STMA5QT040U8570	9STMA5QT060U8840	9STMA5QT080U8J00	9STMA7QT100U1K00	9STMA7QT120U1M00
Incolloy 800 reference	9STMA5QT040UK570	9STMA5QT060UK840	9STMA5QT080UKJ00	9STMA7QT100ULK00	9STMA7QT120ULM00

10W/cm², with 30-90°C (85-195°F) thermostat, external knob, without manual reset.

	1"1/2* brass fitting, dia. 8mm heating elements			2"1/2** brass fitting, dia. 10mm heating elements	
Power	4kW	6kW	8kW	10kW	12kW
Length (mm)	300	440	570	540	660
AISI 304 Reference	9STMA5QT040U8300	9STMA5QT060U8440	9STMA5QT080U8570	9STMA7QT100U1540	9STMA7QT120U1660
Incolloy 800 reference	9STMA5QT040UK300	9STMA5QT060UK440	9STMA5QT080UK570	9STMA7QT100UL540	9STMA7QT120UL660

5W/cm², with 30-90°C (85-195°F) adjustable thermostat, external knob. Manual reset at 100°C (212°F)

Threads and heating elements diameters	1"1/2* brass fitting, dia. 8mm heating elements			2"1/2** brass fitting, dia. 10mm heating elements	
Power	4kW	6kW	8kW	10kW	12kW
Length (mm)	570	840	1100	1100	1300
AISI 304 Reference	9STMA5QT040U857N	9STMA5QT060U884N	9STMA5QT080U8J0N	9STMA7QT100U1K0N	9STMA7QT120U1M0N
Incolloy 800 reference	9STMA5QT040UK57N	9STMA5QT060UK84N	9STMA5QT080UKJ0N	9STMA7QT100ULK0N	9STMA7QT120ULM0N

10W/cm², with 30-90°C (85-195°F) adjustable thermostat, external knob. Manual reset at 100°C (212°F)


Threads and heating elements diameters	1"1/2* brass fitting, dia. 8mm heating elements			2"1/2** brass fitting, dia. 10mm heating elements		
Power	4kW	6kW	8kW	10kW	12kW	14kW
Length (mm)	300	440	570	540	660	770
AISI 304 Reference	9STMA5QT040U830N	9STMA5QT060U844N	9STMA5QT080U857N	9STMA7QT100U154N	9STMA7QT120U166N	9STMA7QT120U177N
Incolloy 800 reference	9STMA5QT040UK30N	9STMA5QT060UK44N	9STMA5QT080UK57N	9STMA7QT100UL54N	9STMA7QT120UL66N	9STMA7QT120UL77N

* In dia. 8mm: M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.


** In dia. 10mm: 2" brass fitting instead of 2"1/2, replace A7 by A6 in the reference. M77x2 brass fitting instead of 2"1/2, replace A7 by A8 in the reference.

References of accessories in option (not included in the product, must be ordered separately):

Nuts

	Thread	1"1/2	M45x2	2"	2"1/2	M77x2
	Brass	9BRRA3000ELH303A	9BRRA3000ELH305A	9BRRA3000ELH304A	9BRRA3000ELH314A	9BRRA3000ELH306A
	Inox 304	9BRRA3000ELH006A	9BRRA3000ELH049A	9BRRA3000ELH348A	9BRRA3000ELH142A	9BRRA3000ELH150A
	Inox 316	9BRRA3000ELH203A	9BRRA3000ELH205A	9BRRA3000ELH204A	9BRRA3000ELH214A	9BRRA3000ELH206A

Gaskets

	Thread	1"1/2 - M45x200	2"	2"1/2 - M77x2
	NBR	9BRJ03000ELH205A	9BRJ03000ELH203A	9BRJ03000ELH201A
	Fiber	9BRJ03000ELH007A	9BRJ03000ELH028A	9BRJ03000ELH030A
	PTFE	9BRJ03000ELH033A	9BRJ03000ELH034A	9BRJ03000ELH036A

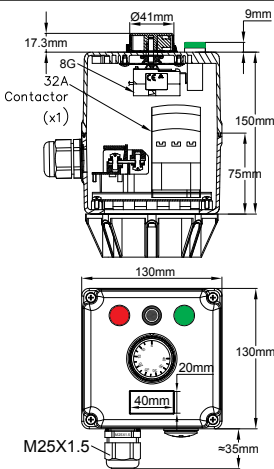
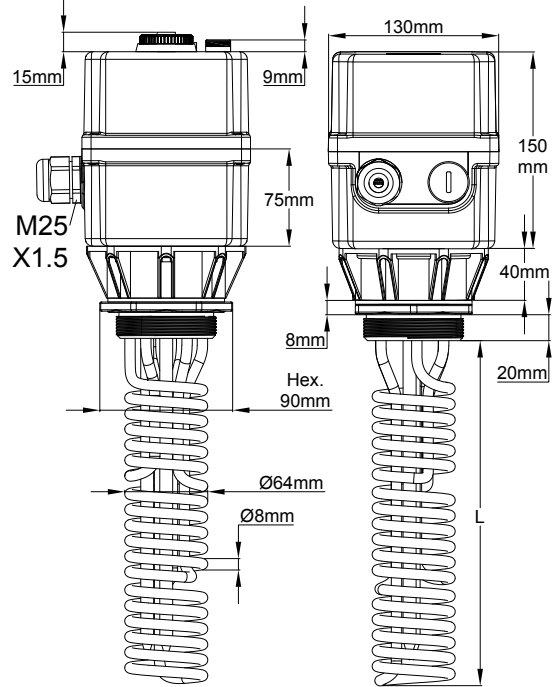
Other accessories and drawings: see last section of this catalogue.



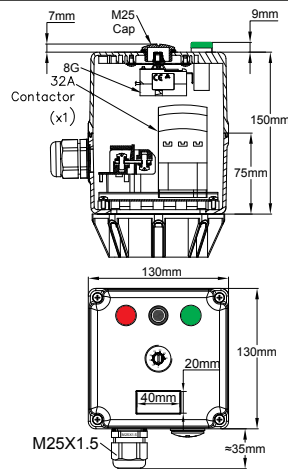
Immersion heaters with plastic connection box

Extra short Immersion heater with 130mm × 130mm × 190mm plastic enclosure. M77x2 or 2"1/2 fittings. With control thermostat. With or without manual reset thermostat. Power up to **9kW** with one built-in power relay. Coiled Heating elements dia. 8mm.

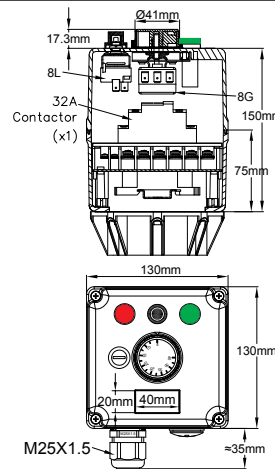
Type 9SWM



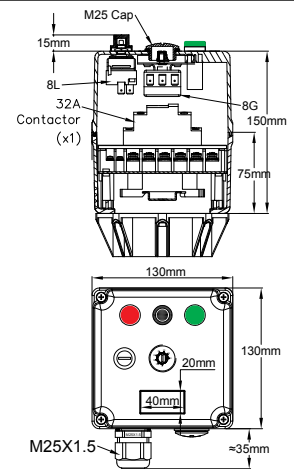
External knob control thermostat (**standard**), main switch and 2 pilot lights



Internal knob (**option**) control thermostat, one main switch and 2 pilot lights



External knob (**standard**) control thermostat, main switch and 2 pilot lights, manual reset thermostat



Internal knob (**option**) control thermostat, main switch and 2 pilot lights, manual reset thermostat

Main applications: Industrial liquid heating, hot water circuits, containers and buffer tanks, **in applications where the heating elements immersed length must be as short as possible.**

They can be fitted with one or two. They have in standard one 32A res relay, 3 pole, two pilot lights and one main switch. They are intended for indoor use.

These enclosures have a 40mm offset to go through tank thermal insulation.

- 5 standard power levels: 1,5kW; 3kW; 4,5kW; 6kW; 9kW. On request, it is possible to reach 21kW by increasing the L length).

- 2 types of standard fittings: 2"1/2; M77x2.

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: brass, swiveling on housing, brazed on tubes. Supplied without gasket and without nut. See accessories below.



Contact us

Web: www.ultimheat.co.th

Cat22-4-6-13

Immersion heaters with plastic connection box

Thread: 2"1/2, or M77x2

Enclosure: 130mm × 130mm, 150mm height, black PA66 fiberglass reinforced. Silicone foam gasket. Stainless steel cover screws with locking nuts.

Ingress protection class: Water and dust: IP54; shock resistance: IK 8 (with metal cable glands and M25 metal plug).

Temperature control: by 30-90°C (85-195°F) bulb and capillary thermostat, with outside knob access. Thermostat shaft has a waterproof gasket. Other temperature ranges available. See options hereunder.

Cable gland: M25, PA66. Mounted on a removable board for easier wiring access. A second hole for M25 cable gland is available, closed by a screwed cap.

Thermowell: two thermowells in AISI304, dia.10mm × 8.4mm.

Heating elements connections: terminals with stainless steel screw, nut and stainless steel washer.

Three-phase models are equipped with straps for switching to single-phase supply. This change must be made by the professional technical staff able to calculate and observe the maximum permissible rating on power relay.

Power supply connection: on built in connection block, 6 × 10mm² for power connection and 2 × 2.5mm² for remote safety device or remote control.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: Single pole 230V or three phases 380-400V (Star connection with neutral).

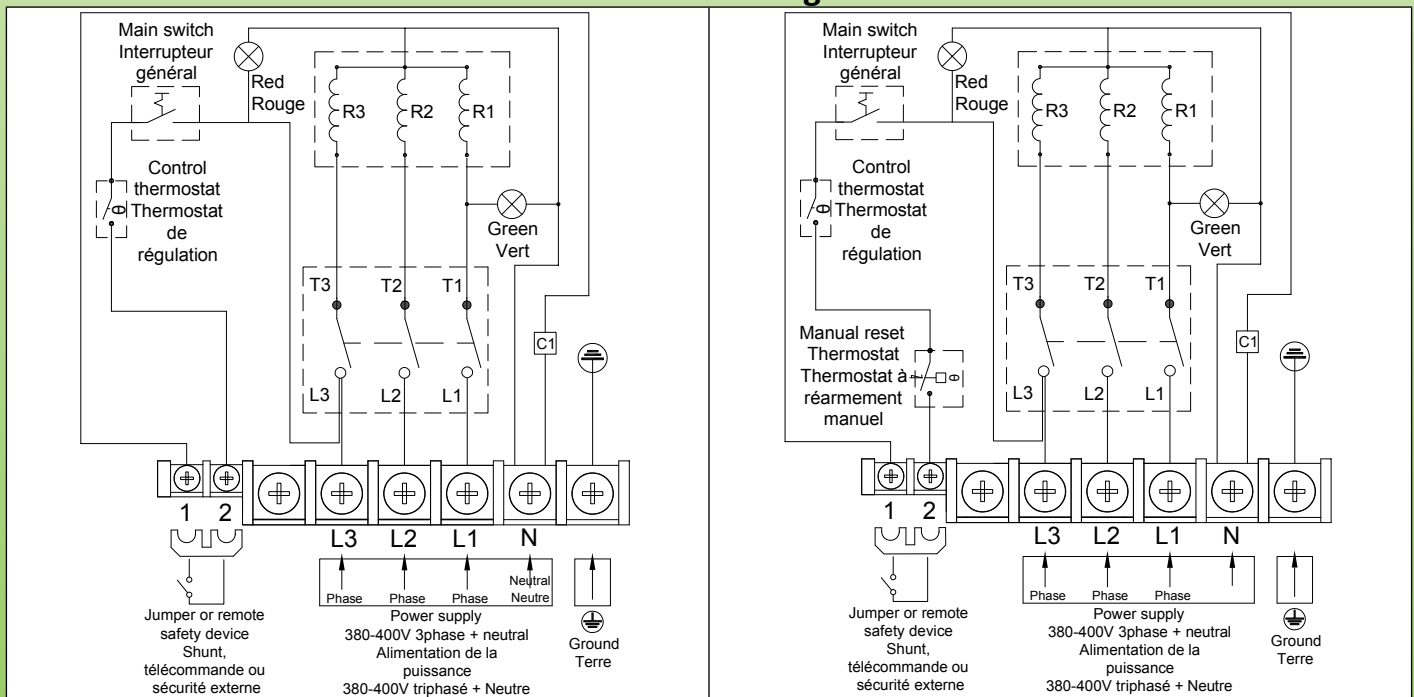
Standard equipment:

- Thermostat with outside knob.
- Main power switch.
- Large size (dia. 16mm) green and red LED pilot lights.
- On models with manual reset: reset access by M25 screwed cap, preset at 100°C (212°F).

Variants on request:

- Thermostat adjustment access under the screwed M25 cap.
- Thermostat without limiter, ranges 4-40°C (40-105°F), 0-60°C (30-140°F) or 30-110°C (85-230°F) Higher range on request.
- 4-40°C (40-105°F) temperature range with manual reset at 60°C (140°F)
- 0-60°C (32-140°F) temperature range with manual reset at 80°C (176°F)
- 30-110°C (85-230°F) temperature range with manual reset at 130°C (266°F)
- Thermal cut out (TCO) located inside immersion heater pocket.
- 400V power supply without neutral: consult us.

Electric Wiring



Temperature control thermostat

(Types with one heater: phases L1 and L2 are removed, and power supply is single phase 230V.
Types with two heaters: phase L1 is removed, terminals L2 and L3 are connected together, and power supply is single phase 230V.)

Temperature control thermostat and manual reset thermostat

Types with one heater: phases L1 and L2 are removed, and power supply is single phase 230V.
Types with two heaters: phase L1 is removed, terminals L2 and L3 are connected together, and power supply is single phase 230V.)



Immersion heaters with plastic connection box

Main references

With 30-90°C (85-195°F) thermostat, external knob **, without manual reset. M77x2 fitting*

	5W/cm ²			10W/cm ²		
	1 heating element	2 heating elements	3 heating elements	1 heating element	2 heating elements	3 heating elements
L (mm)	110	188	265	110	188	265
Power (Watt)	1500	3000	4500	3000	6000	9000
References, AISI 304	9SWMA8QT01525110	9SWMA8QT030B5190	9SWMA8QT045U5270	9SWMA8QT03025110	9SWMA8QT060B5190	9SWMA8QT090U5270
References, Incolloy 800	9SWMA8QT01527110	9SWMA8QT030B7190	9SWMA8QT045U7270	9SWMA8QT03027110	9SWMA8QT060B7190	9SWMA8QT090U7270

With 30-90°C (85-195°F) adjustable thermostat, external knob **, M77x2 fitting*, Manual reset at 100°C (212°F)

	5W/cm ²			10W/cm ²		
	1 heating element	2 heating elements	3 heating elements	1 heating element	2 heating elements	3 heating elements
L (mm)	110	188	265	110	188	265
Power (Watt)	1500	3000	4500	3000	6000	9000
References, AISI 304	9SWMA8QT0152511N	9SWMA8QT030B519N	9SWMA8QT045U527N	9SWMA8QT0302511N	9SWMA8QT060B519N	9SWMA8QT090U527N
References, Incolloy 800	9SWMA8QT0152711N	9SWMA8QT030B719N	9SWMA8QT045U727N	9SWMA8QT0302711N	9SWMA8QT060B719N	9SWMA8QT090U727N

* 2"1/2 brass fitting instead of M77x2, replace A8 by A7 in the reference


** Option with thermostat inside set point adjustment, replace QT by QR in the reference

References of accessories in option (Not included in the product, must be ordered separately):

Nuts

	Thread	2"1/2	M77x2
	Brass	9BRRA3000ELH314A	9BRRA3000ELH306A
	AISI304	9BRRA3000ELH142A	9BRRA3000ELH150A
	AISI316	9BRRA3000ELH214A	9BRRA3000ELH206A

Gaskets

	Thread	2"1/2- M77x2
	NBR	9BRJ03000ELH201A
	Fiber	9BRJ03000ELH030A
	PTFE	9BRJ03000ELH036A

Other accessories and drawings: see last section of this catalogue.



Contact us

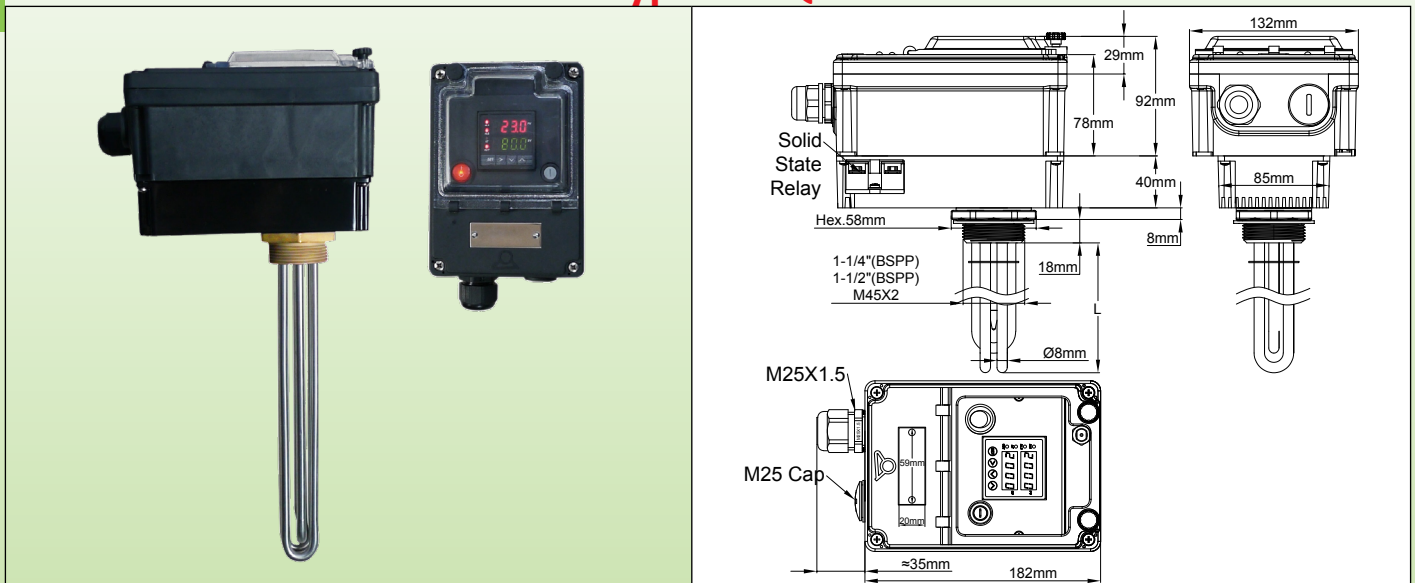
Web: www.ultimheat.co.th

Cat22-4-6-15

Immersion heaters with plastic connection box

Immersion heaters with 182mm × 130mm × 132mm plastic enclosure. Fittings 1"1/4, 1"1/2, M45x2. With electronic PID temperature control, with or without manual reset thermostat. Built-in cooled SSR.

Type 9STQ



Main applications: Liquid heating, hot water circuits, containers and buffer tanks.

These products have been engineered for precision liquid heating. The initial setting of the PID controller, however, is intended for a professional. The best results are obtained in stirred tanks.

They exist in:

- 5 standard power levels: 1kW; 1,5kW; 2kW; 3kW; 4kW

- 2 types of standard fittings: 1"1/2 and M45x2

- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: Brass, swiveling on housing, brazed on tubes. (AISI 304 or AISI 316, TIG welded, or brazed, models are available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1 "1/4 or 1 1/2" BSPP (ISO 228). Metric thread M45x2 available on request.

Temperature control:

- Electronic temperature controller with double digital display of temperature set point and measured value. This microprocessor controller uses Fuzzy Logic technology. It reaches a predetermined set point more quickly, with minimal overshoot during the disturbances related to the rise or external load. It regulates with PID action, whose setting is simplified by the auto-tune function that automatically adjusts the parameters P, I and D (A clear User Manual is supplied). If the temperature sensor is broken, the output power is cut off and the error is displayed.

- Temperature display Accuracy: 0.2% of full scale.

- Temperature sensor: Pt100

- Display is configurable in degree or tenth of a degree.

- The two high or low alarm outputs can be set over the entire range of adjustment and have an adjustable differential.

Enclosure: Extremely robust, in thick PA66, designed for outdoor installation, IP65 and IK10. It also includes:

- A fuse to protect internal circuits.

- An illuminated on- off switch

- A polycarbonate transparent window allowing access to the settings. This window can be secured with seals. This case also includes a separate lid, with independent seals, providing access to electrical connections

- On the rear side is located an aluminum housing with cooling fins for a built in 25A SSR.

In models with failsafe manual reset limiter, reset can be accessed after opening the window.

Cable glands: Located on a removable mounting board, providing easier access for connections, fitted with one M25, PA66, and one more hole for M25, closed by a plastic cap.

Thermowell: In standard, one thermowell in AISI304, dia. 10mm, 135mm length.

Electric connections:

- Built-in terminal block, with 5 terminals 6mm² and 5 terminals 2.5mm².

This terminal block is provided with a strap between terminals 1 and 2. By removing this strap, it is possible to connect an additional safety device, a remote control, or a timer.

- Auxiliary high alarm and low alarm contacts (3A 250V max.)

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Immersion heaters with plastic connection box

Not heating immersed zone: 50mm.

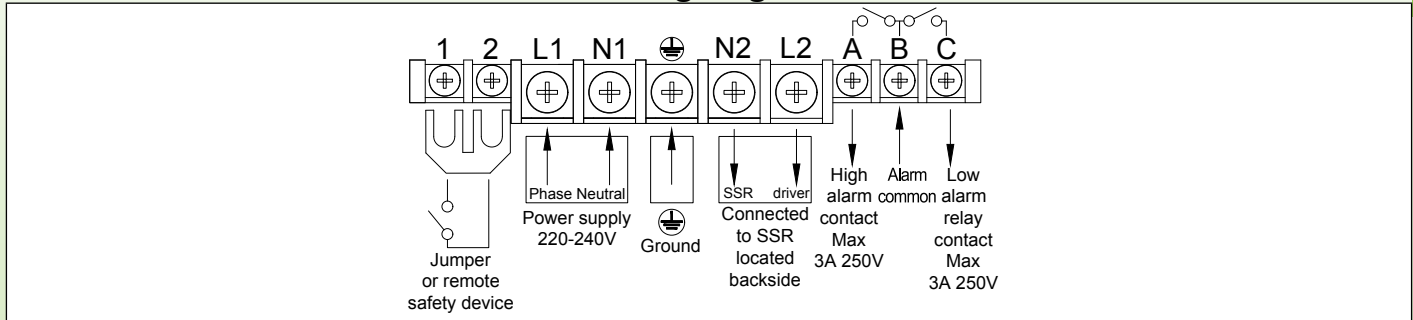
Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: 220-240V single phase only.

Standard options:

Manual reset limiter, preset at: 60°C, 80°C, 100°C, 110°C, 130°C. (140°F, 176°F, 212°F, 230°F, 266°F).

Wiring diagram



Main references

55W/cm²; 1"1/2 brass fitting, without manual reset thermostat.**

Power	1kW	1.5kW	2kW	3kW	4kW
Length (mm)	170	240	300	440	570
AISI 304 Reference	9STQA5QZ010V8170	9STQA5QZ015V8240	9STQA5QZ020V8300	9STQA5QZ030V8440	9STQA5QZ040V8570
Incolloy 800 reference	9STQA5QZ010VK170	9STQA5QZ015VK240	9STQA5QZ020VK300	9STQA5QZ030VK440	9STQA5QZ040VK570

10W/cm², 1"1/2* brass fitting, without manual reset thermostat.

Power	1kW**	1.5kW	2kW	3kW	4kW
Length (mm)	135	135	170	240	300
AISI 304 Reference	9STQA5QZ010B8130	9STQA5QZ015V8130	9STQA5QZ020V8170	9STQA5QZ030V8240	9STQA5QZ040V8300
Incolloy 800 reference	9STQA5QZ010BK130	9STQA5QZ015VK130	9STQA5QZ020VK170	9STQA5QZ030VK240	9STQA5QZ040VK300

5W/cm², 1"1/2* brass fitting, with manual reset thermostat set at 100°C (212°F)**

Power	1kW	1.5kW	2kW	3kW	4kW
Length (mm)	170	240	300	440	570
AISI 304 Reference	9STQA5QZ010V817N	9STQA5QZ015V824N	9STQA5QZ020V830N	9STQA5QZ030V844N	9STQA5QZ040V857N
Incolloy 800 reference	9STQA5QZ010VK17N	9STQA5QZ015VK24N	9STQA5QZ015VK30N	9STQA5QZ030VK44N	9STQA5QZ040VK57N

10W/cm², 1"1/2* brass fitting, with manual reset thermostat set at 100°C (212°F)**


Power	1kW	1.5kW	2kW	3kW	4kW
Length (mm)	135	135	170	240	300
AISI 304 Reference	9STQA5QZ010B813N	9STQA5QZ015V813N	9STQA5QZ020V817N	9STQA5QZ030V824N	9STQA5QZ040V830N
Incolloy 800 reference	9STQA5QZ010BK13N	9STQA5QZ015VK13N	9STQA5QZ020VK17N	9STQA5QZ030VK24N	9STQA5QZ040VK30N

* M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.


** Manual reset thermostat set at 60°C, 80°C, 110°C, 130°C. (140°F, 176°F, 230°F, 266°F), replace the last character N by E, J, Q, U.

References of accessories in option (not included in the product, must be ordered separately):

Nuts

	Thread	1"1/2	M45x200
	Brass	9BRRA3000ELH303A	9BRRA3000ELH305A
	AISI304	9BRRA3000ELH006A	9BRRA3000ELH049A
	AISI316	9BRRA3000ELH203A	9BRRA3000ELH205A

Gaskets

	Thread	1"1/2 - M45x200
	NBR	9BRJ03000ELH205A
	Fiber	9BRJ03000ELH007A
	PTFE	9BRJ03000ELH033A

Other accessories and drawings: see last section of this catalogue



Contact us

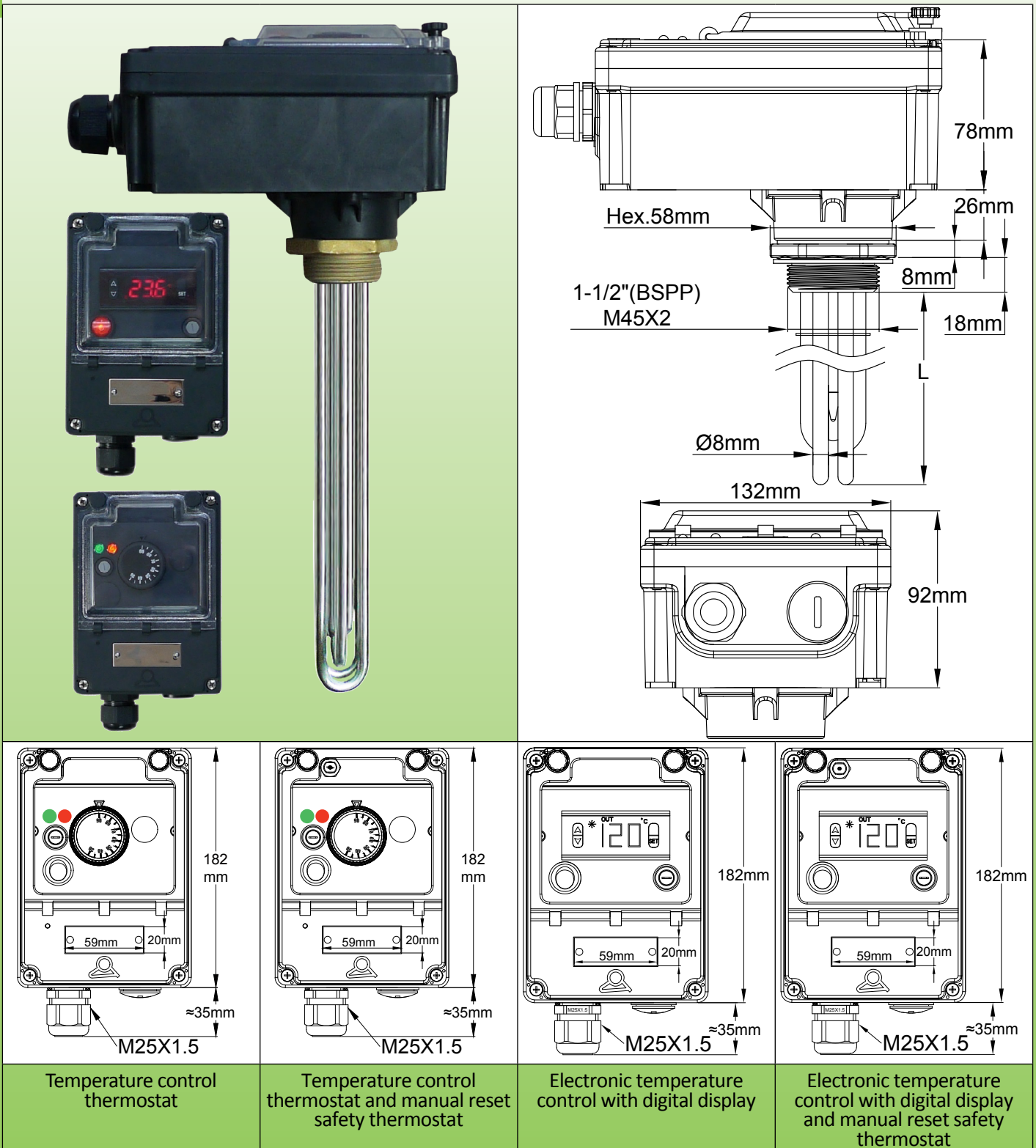
Web: www.ultimheat.co.th

Cat22-4-6-17

Immersion heaters with plastic connection box

Immersion heaters with 182mm × 130mm × 120mm plastic enclosure. Fittings 1"1/2, M45x2. With mechanical thermostat or electronic temperature control. With or without manual reset thermostat.

Type 9STB



Main applications: Liquid heating, hot water circuits, containers and buffer tanks.

This series is intended for high-end low-power devices, single phase. It combines a modern aesthetic, a waterproof plastic housing, shock resistant, and settings viewing through a transparent window in polycarbonate. It is available with thermostat control or with an easy-to-use electronic controller, both of them with or without safety limiter.

Immersion heaters with plastic connection box

They exist in:

- 4 standard power levels: 1kW; 1,5kW; 2kW; 3kW.
- 2 types of standard fittings: 1"1/2 and M45x2.
- 2 types of surface load density: 5W/cm² and 10W/cm². See technical introduction to optimize the surface load.

Heater tube material: 8mm dia. AISI 304 or Incolloy 800 (AISI 316; AISI 321; Incolloy 825 on request).

Fitting material: brass, swiveling on housing, brazed on tubes. (AISI 304 or AISI 316, TIG welded, or brazed, models are available on request). Supplied without gasket and without nut. See accessories below.

Thread: 1 "1/4 or 1 1/2" BSPP (ISO 228). Metric thread M45x2 available on request.

Temperature control, 2 types available:

1/ Electronic temperature controller with permanent digital display of temperature measured value.

- Temperature display Accuracy: $\pm 1^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$) \pm one digit.
- Temperature range 0 to 120°C (-32+250°F).
- Temperature sensor: NTC
- Display is configurable in degree or tenth of a degree.
- On-off temperature control action (relay output).
- Adjustable differential.
- If the temperature sensor is broken, the output power is cut off and the error is displayed.

2/ Mechanical thermostat, temperature range 30-90°C (85-195°F).

Enclosure: extremely robust, in thick PA66, designed for outdoor installation, IP65 and IK10. It also includes:

- A fuse to protect internal circuits (only in electronic version).
 - An on- off switch (Built on thermostat shaft on thermostat version).
 - A polycarbonate transparent window allowing access to the settings. This window can be secured with seals. This case also includes a separate lid, with independent seals, providing access to electrical connections.
- In models with failsafe manual reset limiter, reset can be accessed after opening the window.

Cable glands: Located on a removable mounting board, providing easier access for connections, fitted with one M25, PA66, and one more hole for M25, closed by a plastic cap.

Thermowell: in standard two thermowells in AISI304, dia.8 x 7mm, 135mm length.

Electric connections:

Made on a built-in terminal block, with 5 terminals 6mm² and 5 terminals 2.5mm².

This terminal block is provided with a strap between terminals 1 and 2. By removing this strap, it is possible to connect an additional safety device, a remote control, or a timer.

Support grid: 1 grid AISI 304 for lengths from 400 to 600mm, 2 grids above.

Not heating immersed zone: 50mm.

Surface load: standard 5W/cm² or 10W/cm², other values on request.

Voltage: 220-240V single phase only.

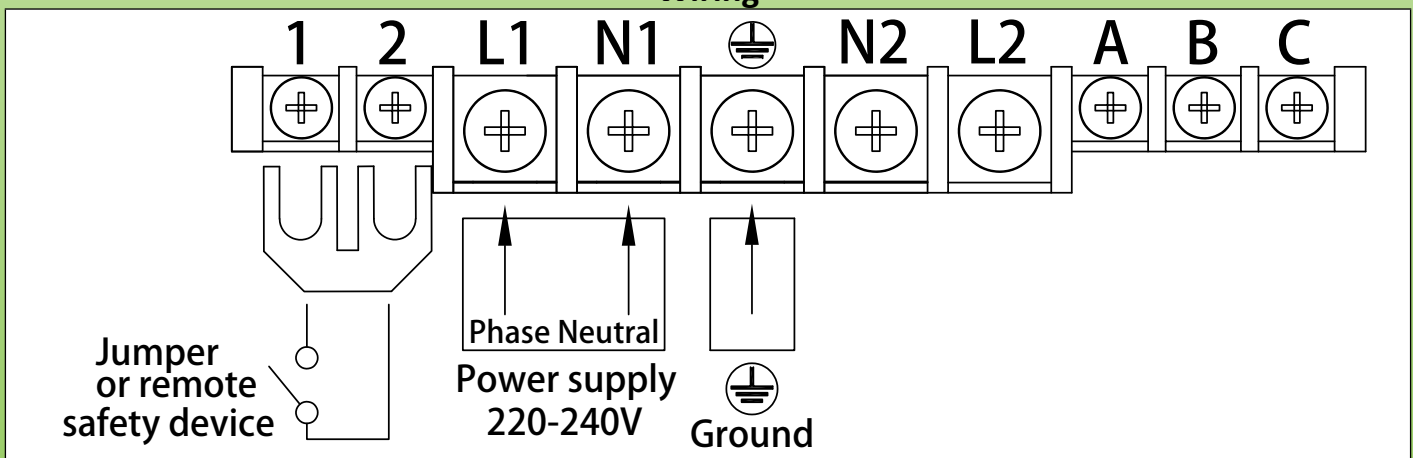
Standard options:

Manual reset limiter, preset at : 60°C, 80°C, 100°C, 110°C, 130°C. (140°F, 176°F, 212°F, 230°F, 266°F).

Variants on request:

- 30-110°C adjustable thermostat (85-230°F).
- Thermal cut out inside a thermowell.

Wiring



Main references with 30-90°C (85-195°F) adjustable thermostat*

5W/cm²; 1"1/2** brass fitting, without manual reset thermostat.

Power	1kW	1.5kW	2kW	3kW
Length (mm)	170	240	300	440
AISI 304 Reference	9STBA5HV010V8170	9STBA5HV015V8240	9STBA5HV020V8300	9STBA5HV030V8440
Incolloy 800 reference	9STBA5HV010VK170	9STBA5HV015VK240	9STBA5HV020VK300	9STBA5HV030VK440



Contact us

Web: www.ultimheat.co.th

Cat22-4-6-19

Immersion heaters with plastic connection box

10W/cm², 1"1/2** brass fitting, without manual reset thermostat.

Power	1kW***	1.5kW	2kW	3kW
Length (mm)	135	135	170	240
AISI 304 Reference	9STBA5HV010B8130	9STBA5HV015V8130	9STBA5HV020V8170	9STBA5HV030V8240
Incolloy 800 reference	9STBA5HV010BK130	9STBA5HV015VK130	9STBA5HV020VK170	9STBA5HV030VK240

5W/cm², 1"1/2** brass fitting, with manual reset thermostat set at 100°C (212°F)****

Power	1kW	1.5kW	2kW	3kW
Length (mm)	170	240	300	440
AISI 304 Reference	9STBA5HV010V817N	9STBA5HV015V824N	9STBA5HV020V830N	9STBA5HV030V844N
Incolloy 800 reference	9STBA5HV010VK17N	9STBA5HV015VK24N	9STBA5HV015VK30N	9STBA5HV030VK44N

10W/cm², 1"1/2** brass fitting, with manual reset thermostat set at 100°C (212°F)****

Power	1kW***	1.5kW	2kW	3kW
Length (mm)	135	135	170	240
AISI 304 Reference	9STBA5HV010B813N	9STBA5HV015V813N	9STBA5HV020V817N	9STBA5HV030V824N
Incolloy 800 reference	9STBA5HV010BK13N	9STBA5HV015VK13N	9STBA5HV020VK17N	9STBA5HV030VK24N

*Type with electronic temperature control: replace HV by HY in the reference.


** M45x2 brass fitting instead of 1"1/2, replace A5 by A9 in the reference.

***: only two heating elements.


**** Manual reset thermostat set at 60°C, 80°C, 110°C, 130°C. (140°F, 176°F, 230°F, 266°F), replace the last character N by E, J, Q, U.

References of accessories in option (not included in the product, must be ordered separately):

Nuts

	Thread	1"1/2	M45x200
	Brass	9BRRA3000ELH303A	9BRRA3000ELH305A
	AISI304	9BRRA3000ELH006A	9BRRA3000ELH049A
	AISI316	9BRRA3000ELH203A	9BRRA3000ELH205A

Gaskets

	Thread	1"1/2 - M45x200
	NBR	9BRJ03000ELH205A
	Fiber	9BRJ03000ELH007A
	PTFE	9BRJ03000ELH033A

Other accessories and drawings: see last section of this catalogue