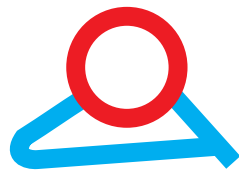


Blue Ink Ltd



Pails, Drums, and Bulk Containers Heating Solutions

Summary

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Selection Guide

Specific and unique features of Blue Ink heaters:

Vertical integration and optimized engineering: The Ultimheat alliance, with more than 60 year experience in controls and heating elements manufacturing, has developed this range of heaters to answer to the most demanding customer requirements. We produce our own core wound heating wires, mold our own silicone parts, mix our own silicone compounds, stamp our own metal parts, produce our own thermostats, and we mold our own plastic housing. By the full knowledge of production capabilities our R&D department optimizes every component for reliability and cost. The result is in products adapted to the application at the best price

Maintenance friendly design: most components of these heaters can be field replaced by a qualified electrician (Use of original manufacturer's spare parts only).

Sustainable development and the limitation of energy consumption: by the use of our range of insulated heating jackets and hot air heaters you'll save 30 to 60% of your electricity bill.

Quality is also in the details: stainless steel clip plates and spring; stainless steel hardware; cord securing saddle; high temperature FEP insulated internal wiring; weather resistant stainless steel engraved identification plates

Silicone belt heaters

Fiber glass core wound heating wire: Provides improved elasticity. Unlike straight wires, the repeated bending of the belt will not kink or break the heating element.

Reinforced silicone fabric: Use of two or 3 ply fiberglass and no metal mesh inside the silicone that kinks, breaks, or short circuits the heater.

Thermal conductive silicone compound: Heat is transferred faster to the container surface, with a more even temperature distribution. Hot spots are reduced because the heat conductive silicone compound provides a more homogenous temperature

Container surface temperature measurement: The thermostat measures the temperature of the container surface, not the belt surface

Anticipation temperature control: A thermal anticipator circuit is used to avoid the temperature overshoot

Wide range of temperature control systems: Built in bimetal thermostat, built in bulb and capillary thermostat or remote electronic temperature control.

Wide range of sizes: Width 100mm, 200mm, 300mm and 400mm, in main drums and containers diameters. This allows optimize the surface power to the application requirements.

Improved comfort by the details: Stainless steel clip plates and spring; stainless steel hardware; cord securing saddle; finger saving spring ring; adjustable spring length, pilot light

Disposable liquid containers heating boards

Fit the application: Very low price and the integration of the heating board in the disposable packaging prior to filling optimize costs.

Elementary use: Just plug in to warm or defrost

Reusable: If needed, it can be removed from the empty container and be placed under another, on a flat surface

Safety: Fixed set point control thermostat and high limit thermostat are built in

Small footprint : Only 7 mm thick

Compressive strength: Withstand a 4 tons load on the board

Insulated jacket heaters

Thermal Insulation: High performance NBR-PVC insulation foam, 25mm thickness, closed cells, non hydrophilic

Thermal resistance: Silicone heating wire on a double Teflon coated high strength PA fabric, without direct stitching on wires.

Oversized heating wires: High density heating web, very low wire watt density : the wire surface temperature do not reach 150°C

Safety: High limit thermostat in standard

Temperature control: Surface or remote electronic temperature control

Mounting : Full circumference straps : no distortion or loosening during heating

Hot air heaters

Multi uses: a single device allows the heating or drying of containers, drums, pails, regardless of the material (wood , metal, corrugated carton, cardboard, plastic) or size: All dimensions below the maximum size can be used

Transportation: Foldable, and collapsible

Durable: No exposed wiring , protected tubular heating elements

Loading: Direct access to the inside with forklift forks, and also allows top loading

Thermal efficiency: Air recirculation, evenly heating on 100% of the surface, no overshoot

Selection Guide

Model	Advantages	Disadvantage
Silicone belt	<ul style="list-style-type: none"> - Lightweight - Easy to put and remove - Can be used on metal drums and, with limited surface power, on plastic containers - One or more band heater can be used on the same drum. - Not affected by flexing, - Precise heating - Comply to UL94-VO (flame retardant) and ROHS - Low Smoke and Low Toxicity - Silicone is non-toxic, moisture and chemical resistant - Adjustable temperature 	<ul style="list-style-type: none"> - Each model is dedicated to only one container diameter - Very hot belt surface - Limited heating surface - Limited to very low surface power on plastic containers - Price per cm² more expensive than blanket heaters. - No thermal insulation=huge heat losses - Destroyed (burned) if used on empty container or on empty zones - Hot spots on places that are not in good thermal contact with heated surface may bring to belt destruction - Not suitable for-prolonged exposure to oil
Disposable carton board heaters	<ul style="list-style-type: none"> - Very low cost - Simple to use - Reduce handling 	<ul style="list-style-type: none"> - Can be used on specific containers only - Must be put at the bottom of the container before filling - Single use recommended - No temperature adjustment
Insulated jacket heater	<ul style="list-style-type: none"> - Very good thermal insulation, - Covers most of the container surface and heating is provided on the full jacket surface - One jacket provides usually 50% more power than a single silicone belt. - Low watt density (0.1W/cm²), can be used on metal or plastic container - Not destroyed if used on empty containers or sections. - Uniform heating without hot spots - Quick release buckles allow diameter adjustment, and fast installation and removal - Adjustable temperature 	<ul style="list-style-type: none"> - Each model is dedicated to only one container diameter - Larger volume than belts.
Hot air drum heater	<ul style="list-style-type: none"> - Multi uses: a single device allows the heating or drying of containers, drums, pails, regardless of the material (wood, metal, corrugated carton, cardboard, plastic) or size: All dimensions below the maximum size can be used - Transportation: Foldable, and collapsible - Durable: no exposed wiring, protected tubular heating elements - Loading: Direct access to the inside with forklift forks, and also allows top loading - Thermal efficiency: full thermal insulation, air recirculation, evenly heating on 100% of the surface, no overshoot 	<ul style="list-style-type: none"> - Heavy - More expensive than drum or IBC jacket heaters

Comparative thermal efficiency tests results (for information only)




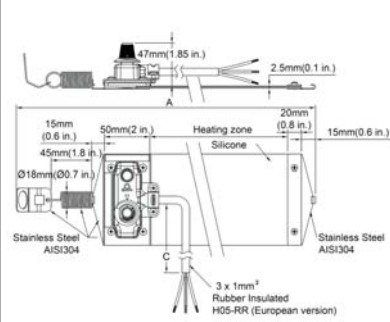
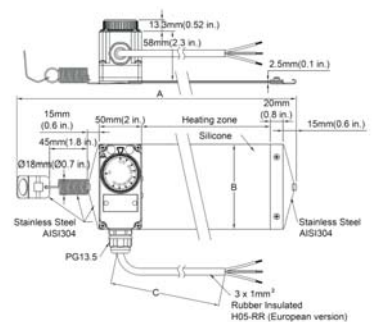
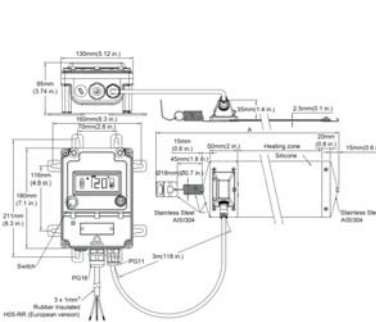
Time needed to heat a 55 gallons (220L) steel drum filled with water from 25°C, to 60°C. To avoid interference by the temperature control proportional action or anticipative action, set point was 70°C. Water temperature is measured at the center of the drum.

Heaters made by Ultimheat. Calculated heating time (without heat loss) is 536 minutes (8h56). Power of the heating elements was exactly adjusted to the nominal value (+/-1%) by means of a stabilized voltage. Ambient temperature stabilized at 25+/-1°C. Air speed was less than 1m/s.

	1000W (10W/cm ²), heating element immersed in water, 5 cm from the bottom (No drum insulation) Used for reference.	1000W Bottom carton board heater (No drum insulation, but carton thickness provides insulation from the floor)	1000W, 100mm wide silicone belt heater, at 5cms from bottom of drum (No drum insulation)	1000W insulated jacket heater, without insulated lid	1000W hot air drum heater
Time (minutes)	715	865	1031	587	564
Efficiency, %	75%	62%	51%	92%	95%
Heating surface (% of the drum surface)	N/A	12%	8%	70%	100%
notes	Only possible on open drums, Limitations are given by heated liquid heat transmission values, -Efficiency can be improved up to 96% with insulated jacket around the drum and a lid	Heat is only transmitted to the bottom. Huge heat losses by the drum walls. Efficiency can be improved by insulated jacket or BIB corrugated carton board frame	The lowest efficiency: More than 25% of the power is radiated by the belt directly to ambient air, and does not reach the drum surface, and 24% more is lost by drum walls	Most of heat losses are coming from the drum top and bottom side. Jacket does not cover 100% of the drum sides (100mm wide gap). Using bigger size jacket and a lid will increase efficiency to 96%	Minor heat losses by air leaks in the jacket.

9AB series Silicone band drum heaters

DIMENSIONS

		
		
<p>9ABE : Bimetal thermostat temperature control</p>	<p>9ABN: Bulb thermostat temperature control</p>	<p>9ABP: Remote electronic temperature control</p>

Main features

ULTIMHEAT silicone belt heaters are made of fiberglass reinforced laminated silicone rubber sheets, vulcanized together through heat and high pressure on both sides of an embedded wire wound heating element. Fiberglass-reinforced silicone rubber gives the heater dimensional stability without sacrificing flexibility.

Silicone is used because of its high temperature resistance (constant temperature up to 200°C (390°F), high thermal conductivity ($\sim 7 \cdot 10^{-4}$ W/cm.K) and good electrical insulation properties (~ 12 KV/mm)

Other general particularities of these heaters are:

- Not affected by vibration or flexing,
- Precise heating and lightweight
- Comply with UL94-VO (flame retardant) and ROHS
- Low Smoke and Low Toxicity
- Silicone is non-toxic, and moisture and chemical resistant
- Very thin profile

Main Applications

The band style drum heater is an easy way to heat up drum contents and can be used on plastic or metal drums. One or more band heater can be used on the same drum. Silicone rubber drum heaters keep products at temperatures or consistencies for process handling. Their uniform heating prevents scorching or degradation of the contents.

Typical examples are:

- Consistency control of paints, oils, greases, fats, molasses, adhesives, plastics, mastics, resins, syrups
- Freeze protection
- Maintaining liquid temperatures at 45-65°C (115-150°F) in food industry water purification systems
- Maintain polyester resin at 20-25°C (70-80°F) for spray and pour equipment

9AB series Silicone band drum heaters

Technical Features

Location on the drum: The silicone rubber band heater must be placed below the level of the fluid, and in full contact with the container surface.

Fixing: By a spring lock-up that allows adjusting the band to the drum diameter; change position to the right place as content levels fluctuate; and also keeps the band tight to the drum surface, providing good thermal contact.

Lengths (Dimension A on drawing): designed to be used on standard container diameters. Consult factory if a custom size is requested.

Widths (dimension B on drawing): comes in standard 100mm (4"), and 200mm (8") sizes. Dimensions of 300mm (12"), and 400 mm (16") are available on special order.

Silicone foil minimum bending radius: 3.2 mm (0.125")

Ingress protection: IP51

Minimum ambient temperature: -10°C (+15°F)

Voltage: 110-120V or 220-240VAC

Resistance tolerance: ±10%

Power tolerance: ±10% (at 115Vac and 230Vac nominal)

Heating Element: Spiral wound resistance element

Control: 3 different types of temperature control are available:

- Model 9ABE: slow make and break surface control bimetal thermostat with pilot light, adjustable from ambient to 150°C /300°F.

- Model 9ABN: bulb thermostat, adjustable from +10°C to +110°C (+50~230°F), with pilot lights for power supply and heater on. The thermostat knob has an internal adjustable stop that allows limiting the maximum set point

- Model 9APB: 0-120°C /30-250°F electronic remote temperature control with digital display.

Power Cable: Oil resistant 3 meters (9'10") cable, AWG16 (3x1.5 mm²). Cable termination: 15A UL plug for 110-120V models, no plug on 220-240V models.

Safety standards:

The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Standard watt density:

- ≤ 0.2 w/cm² (≤1.3 w/inch²) for plastic containers

- 0.45 to 0.8 w/cm² (2.9 to 5.2 w/inch²) for steel containers

- 0.95 w/cm² (6.15 w/inch²) for steel containers (for aggressive or high temperature uses)

Quality control routine tests: Each element is 100% tested for continuity, resistance and insulation.

Tests are made according to EN 60335-1 and EN 50106 standards

Dielectric Strength: 1500V AC, 2s, 0.5mA or the typical approval agency recommendation of 2 x input voltage +1000 volts.

Insulation resistance: More than 10 Mohms

Maximum operating temperature on the silicone band: 200°C (390°F)

The belt will not reach the maximum temperature under normal use if the heater is correctly installed on the drum and the temperature control thermostat is adjusted to the right value.

The silicone heater's maximum surface temperature can be quickly reached when improperly used or installed.

Operating surface temperature:

The surface temperature reached by heating belts in operation mainly depends on:

-The watt density,

-The quality of thermal contact with the container,

-The heated product (and its presence at the belt level), -The type of temperature control used (on-off, on-off with anticipation or PID action)

-The set point value and the ambient temperature.

For reference, when 0.6W/cm² belt is properly installed on a full container, using an anticipating action temperature control set at 80°C (176°F), with an ambient temperature of about 25°C (75°F), the temperature of the outer surface of the belt is 40 to 50°C (70 to 110°F) above the temperature of the container wall.

The table below gives an example of the temperatures reached in the open air on silicone belt heaters. It reflects the temperature a silicone belt heater will reach if it is incorrectly installed (for example: with poor thermal contact, empty container, wrong set point or temperature control)

Surface temperature after stabilization /watt density													
W/cm²	0.05	0.10	0.15	0.20	0.30	0.40	0.45	0.50	0.60	0.70	0.8	0.9	1.0
Stabilization Temperature °C	40	70	90	105	135	165	175	190	210	230	250	260	270
W/inch²	0.32	0.64	0.97	1.3	1.9	2.6	2.9	3.2	3.9	4.8	5.2	5.8	6.5
Stabilization Temperature °F	104	158	194	221	275	329	320	347	410	446	482	500	518

Installation: Download installation instructions manual at: <http://www.ultimheat.com/blueink/insinsman.html>

Warning: Silicone heating belts are not suitable for prolonged exposure to oil

9AB series Silicone band drum heaters

Main references

Width 100 mm, 3 meters (9'10") cord without plug for 220-240V models,
3 meters cord (9'10") with 15A UL plug on 110/120V models

Warning: these heating values have been optimized to apply a maximum of 0.2W/cm² on the plastic container heated surface and 0.45 to 0.8W/cm² on the steel container's surface. The reduced value of 0.2 W/cm² is also recommended for low temperature heating or low temperature resistant liquids. Models with 0.95 W/cm² must be carefully used as they can reach much higher temperatures if improperly installed than other silicone band heaters.

Belts Drawings Available at: [http://www.ultimheat.com/blueink/Band drum.html](http://www.ultimheat.com/blueink/Band%20drum.html)

Description	10-150°C(50-300°F)bimetal thermostat	10-110°C(50-230°F) bulb and capillary thermostat*	0-120°C(30-250°F) remote electronic control	W/cm ²	Drum Dia. (mm) ±12 mm	Drum Dia. (inch) ± 0.5"	Total length mm (A)	Total length Inches (A)	Power Watts	Voltage
5-gal. (19 L.) Plastic pail	9ABEA0H78140VC0P	9ABNA0H78140VC0P	9ABPA0H78140VC0P	0,2	290,0	11,4	871	34,3	140	220/240
5-gal. (19 L.) metal pail	9ABEA0H78300VC00	9ABNA0H78300VC00	9ABPA0H78300VC00	0.45	290,0	11,4	871	34,3	300	220/240
5-gal. (19 L.) Metal pail	9ABEA0H78560VC00	9ABNA0H78560VC00	9ABPA0H78560VC00	0,8	290,0	11,4	871	34,3	560	220/240
15-gal. (57 L.) plastic drum	9ABEA0J18180VC0P	9ABNA0J18180VC0P	9ABPA0J18180VC0P	0,2	356,0	14,0	1078	42,4	180	220/240
15-gal. (57 L.) Steeldrum	9ABEA0J18730VC00	9ABNA0J18730VC00	9ABPA0J18730VC00	0,8	356,0	14,0	1078	42,4	730	220/240
30-gal. (114 L.) Plastic drum	9ABEA0N08250VC0P	9ABNA0N08250VC0P	9ABPA0N08250VC0P	0,2	460,0	18,1	1404	55,3	250	220/240
30-gal. (114 L.) Steeldrum	9ABEA0N08990VC00	9ABNA0N08990VC00	9ABPA0N08990VC00	0,8	460,0	18,1	1404	55,3	990	220/240
55-gal. (208 L.) Plastic drum	9ABEA0Q58320VC0P	9ABNA0Q58320VC0P	9ABPA0Q58320VC0P	0,2	570,0	22,4	1750	68,9	320	220/240
55-gal. (208 L.) Steeldrum	9ABEA0Q58A00VC00	9ABNA0Q58A00VC00	9ABPA0Q58A00VC00	0.65	570,0	22,4	1750	68,9	1000	220/240
55-gal. (208 L.) Steeldrum	9ABEA0Q58A25VC0	9ABNA0Q58A25VC00	9ABPA0Q58A25VC00	0,8	570,0	22,4	1750	68,9	1250	220/240
High power Heater for 55-gal. (208 L.) Steel drum	9ABEA0Q58A50VC00	9ABNA0Q58A50VC00	9ABPA0Q58A50VC00	0,95	570,0	22,4	1750	68,9	1500	220/240
5-gal. (19 L.) Plastic pail	9ABEA0H75140WC0P	9ABNA0H75140WC0P	9ABPA0H75140WC0P	0,2	290,0	11,4	871	34,3	140	110 /120
5-gal. (19 L.) Metalpail	9ABEA0H75300WC00	9ABNA0H75300WC00	9ABPA0H75300WC00	0.45	290,0	11,4	871	34,3	300	110 /120
5-gal. (19 L.) Metalpail	9ABEA0H75560WC00	9ABNA0H75560WC00	9ABPA0H75560WC00	0,8	290,0	11,4	871	34,3	560	110 /120
15-gal. (57 L.) plastic drum	9ABEA0J15180WC0P	9ABNA0J15180WC0P	9ABPA0J15180WC0P	0,2	356,0	14,0	1078	42,4	180	110 /120
15-gal. (57 L.) Steeldrum	9ABEA0J18730WC00	9ABNA0J18730WC00	9ABPA0J18730WC00	0,8	356,0	14,0	1078	42,4	730	110 /120
30-gal. (114 L.) Plastic drum	9ABEA0N05250WC0P	9ABNA0N05250WC0P	9ABPA0N05250WC0P	0,2	460,0	18,1	1404	55,3	250	110 /120
30-gal. (114 L.) Steeldrum	9ABEA0N05990WC00	9ABNA0N05990WC00	9ABPA0N05990WC00	0,8	460,0	18,1	1404	55,3	990	110 /120
55-gal. (208 L.) Plastic drum	9ABEA0Q55320WC0P	9ABNA0Q55320WC0P	9ABPA0Q55320WC0P	0,2	570,0	22,4	1750	68,9	320	110 /120
55-gal. (208 L.) Steeldrum	9ABEA0Q55A00WC00	9ABNA0Q55A00WC00	9ABPA0Q55A00WC00	0.65	570,0	22,4	1750	68,9	1000	110 /120
55-gal. (208 L.) Steeldrum	9ABEA0Q55A25WC00	9ABNA0Q55A25WC00	9ABPA0Q55A25WC00	0,8	570,0	22,4	1750	68,9	1250	110 /120
High power heater for 55-gal. (208 L.) Steel drum	9ABEA0Q55A50WC00	9ABNA0Q55A50WC00	9ABPA0Q55A50WC00	0,95	570,0	22,4	1750	68,9	1500	110 /120

*Bulb thermostat knob printed in °F = 9ABN xxxxxxxxxxxx, Bulb thermostat knob printed in °C= 9ABTxxxxxxxxxxxx

Options available on request:

- 200mm (8"), 300mm (12"), 400 mm (16") width belts,
- Bimetal control with ambient to 200°C (390°F) temperature range,
- Bulb thermostat with 4-40°C (40-100°F) or -35+35°C (-30+95°F) temperature range,
- Bulb and capillary thermostat with remote bulb for immersion inside the container,
- PID auto-tune electronic temperature control with immersed or surface temperature sensor.

- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>

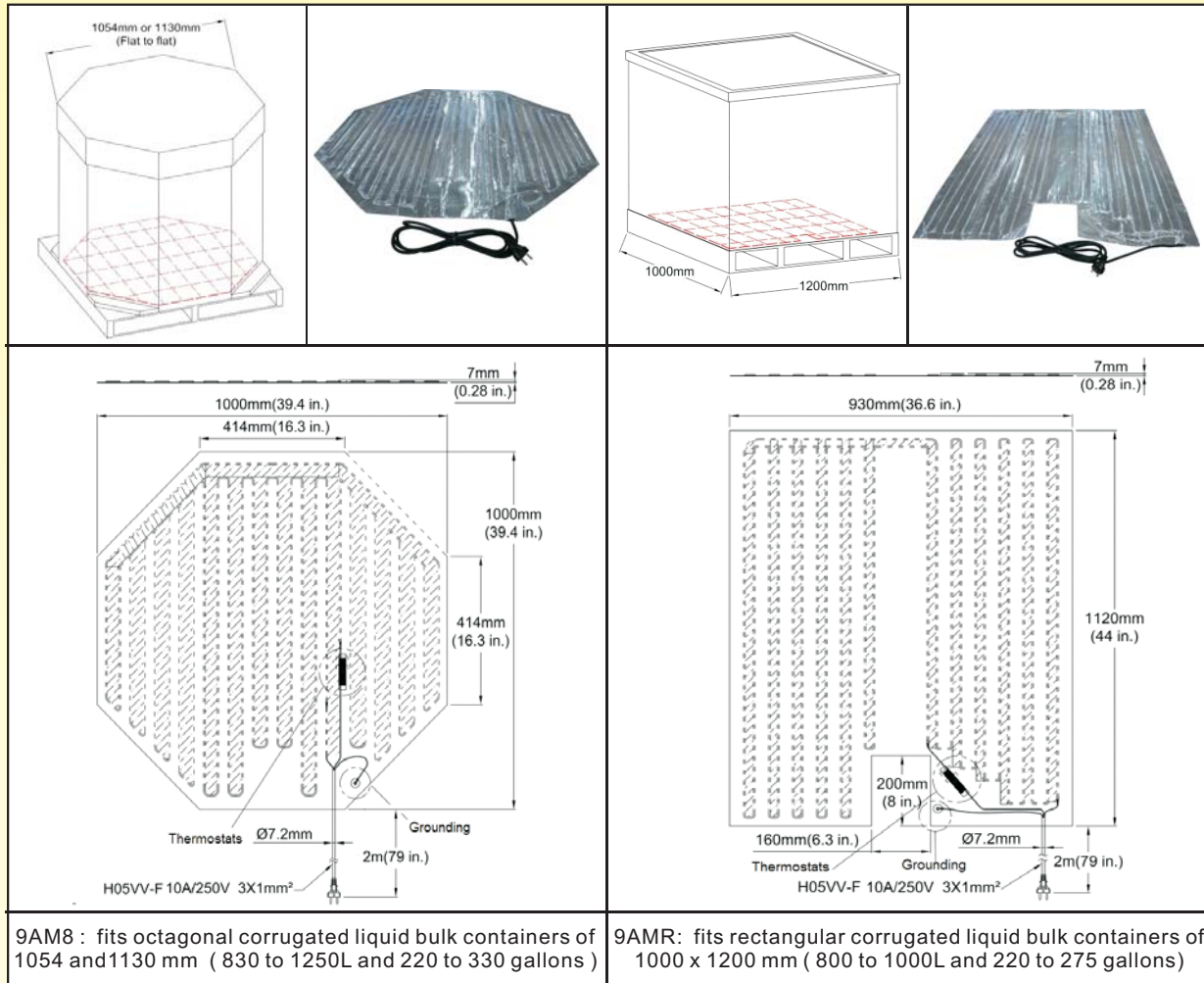
- Addresses for Distributors, including stocking locations at:

<http://www.ultimheat.com/contact1.html>

- To inquire about becoming a member of the stocking distributor alliance and to find out about its benefits: contact us at info@ultimheat.com

9AM series Disposable bulk containers heaters

DIMENSIONS



Applications

In alternative to drums, bottle-in-cage, and other “heavy footprint” types of intermediate bulk containers, some manufacturers have developed a dependable, economical and environmentally responsible alternative: corrugated IBC, also named Bag-in-Box (BIB). They are constructed of a renewable resource and are completely recyclable. The container is a “one-way” package, so there are no fossil fuels, (and no cost) consumed to return the package.

Blue Ink disposable carton board heaters have been developed to provide an economical heating solution to these liquid containers. They are inserted at the bottom of the container, under the carton or between the carton and liner, before the filling. No costly and risky handling when warming is needed at destination.

Technical Features

Electrical connection: 2 meters cord with Euro plug for 220/230V, and 2 m+ 15A UL plug on 115-/120V models

Operation: just plug in to warm or defrost

Material: hard carton board frame, silicone heating wires net, covered by heat conductive aluminum foil.

Safety: fixed set point control thermostat set at 50°C and high limit thermostat set at 80° are built in (other values on special request)

Footprint: only 7 mm thick. Other dimensions (L, W) or square pattern are available on request (MOQ apply)

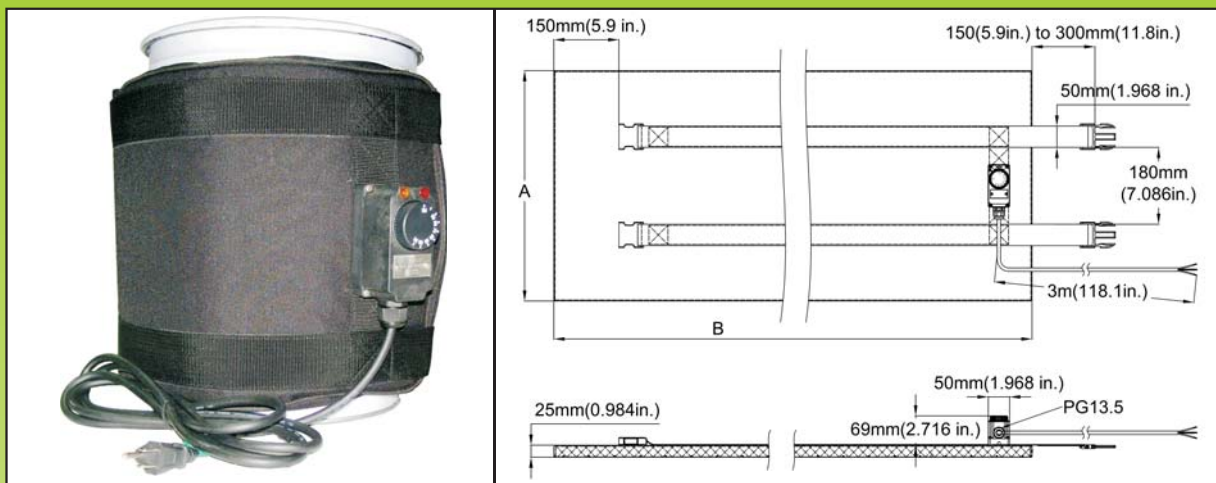
Compressive strength: withstand a 4 tons load on the board

Main references (download drawings and instruction manual at: <http://www.ultimheat.com/blueink/disposable.html>)

Voltage	Octagonal model, 500W	Octagonal model, 1000W	Rectangular model, 700W	Rectangular model, 1400W
115/120V, cord with 15A UL plug	9AM807J0005500G0	9AM807J0005A00G0	9AMR0793K25700G0	9AMR0793K25A40G0
220/240 V, cord with euro plug	9AM807J0008500E0	9AM807J0008A00E0	9AMR0793K28700E0	9AMR0793K28A40E0

9VJC Flexible jacket pails heaters, 110°C (230°F) thermostat control

DIMENSIONS



MAIN FEATURES

ULTIMHEAT Flexible jacket heaters are the most effective solution of applying heat to pails. They are available for 5 gallon (± 19 liter) pail and 15 gallon (± 57 liter) pails, and their European equivalents of 20 and 60 L. The jacket covers most of the container surface, and heating is provided on the full jacket surface, providing a watt density of $\pm 0.1\text{W}/\text{cm}^2$, which is 4 to 8 times less than rubber band heaters, and the result is uniform heating without hot spots, therefore they can be used on plastic or metal containers, even with empty sections.

MAIN APPLICATIONS

Flexible jacket pails heaters can be used for frost protection, heat up, temperature maintenance, viscosity control or for the melting of soaps, greases, varnishes, oils, surfactants, fats (animal & vegetable), foodstuffs, chemicals, etc.... They are thermally insulated to improve thermal efficiency.

TECHNICAL FEATURES

The heating element of the flexible jacket drum heaters is a silicone insulated heating wire mat, protected by a stitched high strength and water resistant PU/Polyester or Teflon/polyester envelope. 25 mm thick, high temperature resistant foam is put between the heater and the external envelope. This insulation foam has a thermal insulation coefficient ($\text{Lambda } \lambda$) of $0.039\text{W}/\text{mK}$, and therefore its thermal efficiency is about 3 times higher than the usual 10 mm fiberglass insulated jacket. Quick release buckles allow diameter adjustment, and fast installation and removal.

Jacket:

- Heated Face: 1000D Teflon coated Nylon fabric.
- External face: 1000D polyurethane coated Nylon fabric
- Jacket Ingress protection class: IP51

Thermal Insulation: 25 mm NBR-PVC closed cells high temperature resistance foam

Heating Element: Silicone insulated spiral wound resistance element stitched on Teflon/PA66 fabric, thermally protected by high limit thermostat

Control: Bulb and capillary thermostat, adjustment range 10 to 110°C (80 to 230°F), with knob printed In $^\circ\text{C}$ or in $^\circ\text{F}$.

The knob is equipped with a rotation limit cam located inside the knob. It allows to reduce the available temperature setting (high or low stop)

Control housing: IP65, 100 x 50 x 69 mm (4" x 2" x 2.7") with connection block, PG13.5 cable gland, power supply on and output power on pilot lights.

Power Cable: Oil resistant 3 meters (9'10") cable, AWG16 (3x1.5 mm²). Cable termination: 15A UL plug for 110-120V models, no plug on 220-240V models. It may be replaced to comply with local electrical standards. Internal connection block is suitable for cables up to 3x 6 mm² (3 x AWG10).

Fixing on the container: Full circumference 50 mm (2") wide nylon straps webbing with quick release adjustable buckles allow circumference adjustment

Safety standards: The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Installation instructions: Download installation instructions manual on:

<http://www.ultimheat.com/blueink/insinsman.html>

9VJC Flexible Jacket pails heaters, 110°C thermostat control

Main References

Power has been optimized to apply maximum 0.1W/cm² (0.64W/in²) on the container heated surface; this makes the jacket compatible with metal or plastic containers.

Drawings Available http://www.ultimheat.com/blueink/pail_drum.html

Container volume	10 to 110°C printed knob	90 to 230°F printed knob	Drum Dia. mm ±12 mm	Drum Dia. inch ± 0.5"	Flat length mm (B)	Flat length Inch (B)	Jacket height mm (A)	Jacket height Inch (A)	Power Watts	Voltage
5-gal. (20-25 L.)	9VJCP300908270W0	9VJCN300908270W0	290,0	11,4	975	38.4	300	11.8	270	220/240
15-gal. (50-60 L.)	9VJCP541108600W0	9VJCN541108600W0	356,0	14,0	1175	46.3	540	21.3	600	220/240
5-gal. (20-25 L.)	9VJCP300905270X0	9VJCN300905270X0	290,0	11,4	975	38.4	300	11.8	270	110 /120
15-gal. (50-60 L.)	9VJCP541105600X0	9VJCN541105600X0	356,0	14,0	1175	46.3	540	11.8	600	110 /120

Options available on request:

- Electronic temperature control drum jacket heaters (see 9VJA catalogues)
- IBC jacket heaters (see 9VJB catalogues)
- Special size or power,
- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>
- Addresses for Distributors, including stocking locations at: <http://www.ultimheat.com/contact1.html>
- To inquire about becoming a member of the stocking distributor alliance and to find out about its benefits: contact us at info@ultimheat.com

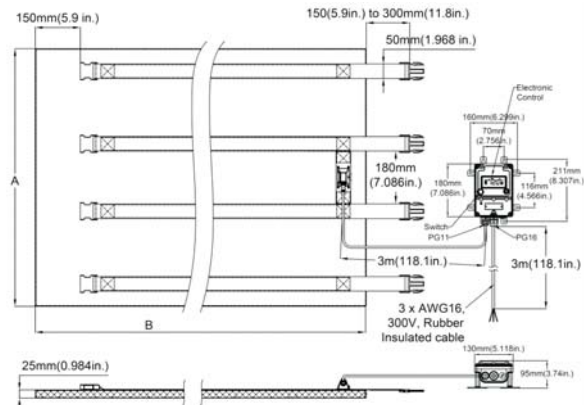
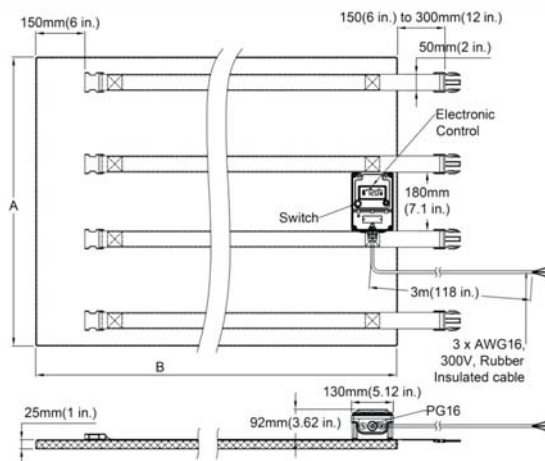
9VJA/ 9VJR Flexible Jacket drums heaters, 120°C electronic control

DIMENSIONS

9VJA: Jacket surface mounted electronic temperature control



9VJR: Remote electronic temperature control



MAIN FEATURES

ULTIMHEAT Flexible jacket heaters are the most effective solution of applying heat to drums. They are available for 5 gallon (± 19 liter) pail, 15 gallon (± 57 liter), 30 gallon (± 114 liter), 55/gallon (± 208 liter) drums, and their European equivalents of 20, 30, 60, 120, 200, 220L. The jacket covers most of the container surface, and heating is provided on the full jacket surface, providing a watt density of $\pm 0.1 \text{ W/cm}^2$, which is 4 to 8 times less than rubber band heaters, and the result is uniform heating without hot spots, therefore they can be used on plastic or metal containers, even with empty sections.

MAIN APPLICATIONS

Flexible jacket drum heaters can be used for frost protection, heat up, temperature maintenance, viscosity control or for the melting of soaps, greases, varnishes, oils, surfactants, fats (animal & vegetable), foodstuffs, chemicals, etc.... They are thermally insulated to improve thermal efficiency.

9VJA/ 9VJR Flexible Jacket drums heaters, 120°C electronic control

TECHNICAL FEATURES

The heating element of the flexible jacket drum heaters is a silicone insulated heating wire mat, protected by a stitched high strength and water resistant PU/Polyester or Teflon/polyester envelope. 25 mm thick, high temperature resistant foam is put between the heater and the external envelope. This insulation foam has a thermal insulation coefficient (Lambda λ) of 0,039W/m.K, and therefore its thermal efficiency is about 3 times higher than the usual 10 mm fiberglass insulated jacket. Quick release buckles allow diameter adjustment, and fast installation and removal.

Jacket:

- Heated Face: 1000D Teflon coated Nylon fabric.
- External face: 1000D polyurethane coated Nylon fabric
- Jacket Ingress protection class: IP51

Thermal Insulation: 25 mm NBR-PVC closed cells high temperature resistance foam

Heating Element: Silicone insulated spiral wound resistance element stitched on Teflon/PA66 fabric, thermally protected by high limit thermostat

Control housing: IP65, 180 x 130 x 92 mm with transparent door, finger access protected connection block, cable gland output, built in fuse and on off switch.

Remote control models are supplied with a 3 meters (9'10") cable for connection to the jacket connector.



Control: Electronic temperature control is provided by a simple to use digital display (1) and set point adjustment (2) from -45°C to +120°C (41~248°F); It uses a NTC sensor. (Main features: Adjustable differential; 0.1 ° resolution up to 99.9; °C (3) or °F display (4); parameters locking function, Power supply on and output on pilot lights (5).

Power Cable: Oil resistant 3 meters (9'10") cable, AWG16 (3x1.5 mm²). Cable termination: 15A UL plug for 110-120V models, no plug on 220-240V models. It may be replaced to comply with local electrical standards. Internal connection block is suitable for cables up to 3x 6 mm² (3 x AWG10).

Fixing on the container: Full circumference 50 mm (2") wide nylon straps webbing with quick release adjustable buckles allow circumference adjustment

Safety standards: The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Installation instructions: Download installation instructions manual on:

<http://www.ultimheat.com/blueink/insinsman.html>

Main References

Power has been optimized to apply maximum 0.1W/cm² (0.64W/in²) on the container heated surface; this makes the jacket compatible with metal or plastic containers.

Drawings Available at: [http://www.ultimheat.com/blueink/Jacket drum.html](http://www.ultimheat.com/blueink/Jacket%20drum.html)

Container volume	Jacket surface mounted electronic temperature control	Remote electronic temperature control	Drum Dia. mm ±12 mm	Drum Dia. inch ± 0.5"	Flat length mm (B)	Flat length Inch (B)	Jacket height mm (A)	Jacket height Inch (A)	Power Watts	Voltage
5-gal. (20-25 L.)	N/A	9VJRE300908270W0	290,0	11,4	975	38.4	300	11.8	270	220/240
15-gal. (50-60 L.)	N/A	9VJRE541108600W0	356,0	14,0	1175	46.3	540	21.3	600	220/240
30-gal. (105-120 L.)	9VJAE751438A10W0	9VJRE751438A10W0	460,0	8,1	1505	59,3	750	29.5	1100	220/240
55-gal. (200-220 L.)	9VJAE881788A50W0	9VJRE881788A50W0	570,0	22,4	1855	73,0	880	34.6	1500	220/240
5-gal. (20-25 L.)	N/A	9VJRE300905270X0	290,0	11,4	975	38.4	300	11.8	270	110 /120
15-gal. (50-60 L.)	N/A	9VJRE541105600X0	356,0	14,0	1175	46.3	540	11.8	600	110 /120
30-gal. (105-120 L.)	9VJAE751435A10X0	9VJRE751435A10X0	460,0	18,1	1505	59,3	750	29.5	1100	110 /120
55-gal. (200-220 L.)	9VJAE881785A50X0	9VJRE881785A50X0	570,0	22,4	1855	73,0	880	34.6	1500	110 /120

Options available on request:

- Mechanical thermostat temperature control drum jacket heaters (see 9VJC catalogues)
- IBC jacket heaters (see 9VJB catalogues)
- Special size or power,
- 2 independent heating circuits
- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>
- Addresses for Distributors, including stocking locations at: <http://www.ultimheat.com/contact1.html>

- To inquire about becoming a member of the stocking distributor alliance and to find out about its benefits: contact us at info@ultimheat.com

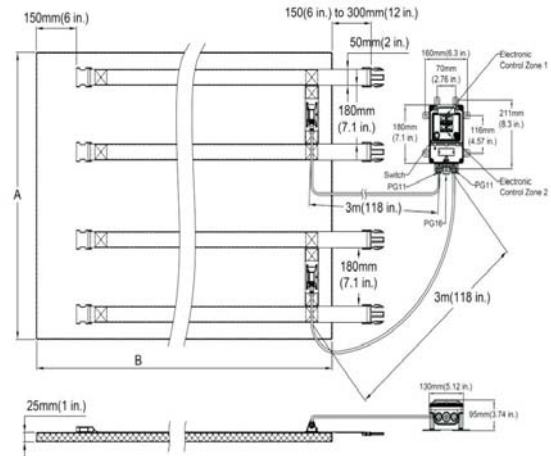
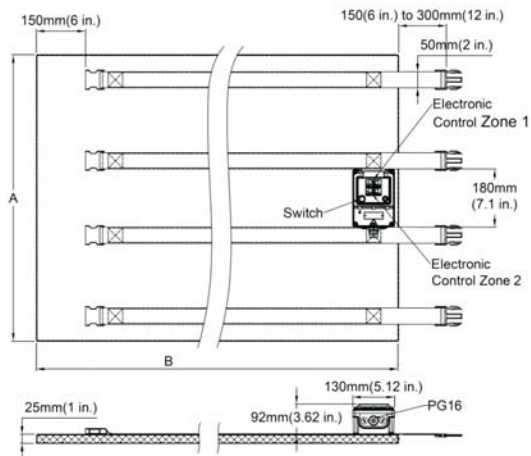
9VJB/ 9VJS Flexible jacket IBC heaters, double electronic control

DIMENSIONS

9VJB: Jacket surface mounted double electronic temperature control



9VJS: Remote double electronic temperature control



MAIN FEATURES

ULTIMHEAT Flexible jacket heaters are the most effective solution of applying heat to IBC (intermediate Bulk Containers), metal cage plastic or full metal, of 1000 liters, 275 and 330 gallons. The jacket covers most of the container surface, and heating is provided on the full jacket surface, providing a watt density of $\pm 0.1 \text{ W/cm}^2$, which is 4 to 8 times less than rubber band heaters, and the result is uniform heating without hot spots, therefore they can be used on plastic or metal containers, even with empty sections.

MAIN APPLICATIONS

Flexible jacket IBC heaters can be used for frost protection, heat up, temperature maintenance, or viscosity control for the melting of soaps, greases, varnishes, oils, surfactants, fats (animal & vegetable), foodstuffs, chemicals, etc.... They are thermally insulated to improve thermal efficiency.

9VJB/ 9VJS Flexible Jacket IBC heaters, twin electronic control

TECHNICAL FEATURES

The heating element of the flexible jacket IBC heaters is a silicone insulated heating wire mat, protected by a stitched high strength and water resistant PU/Polyester or Teflon/polyester envelope. 25 mm thick, high temperature resistant foam is put between the heater and the external envelope. This insulation foam has a thermal insulation coefficient (Lambda λ) of 0.039W/mK, and therefore its thermal efficiency is about 3 times higher than the usual 10 mm fiberglass insulated jacket. Quick release buckles allow diameter adjustment, and fast installation and removal.

IBC jackets are supplied with two heating circuits, enabling the top and bottom halves of the jackets to be separately controlled.

Jacket:

- Heated Face: 1000D Teflon coated Nylon fabric.
- External face: 1000D polyurethane coated Nylon fabric
- Jacket Ingress protection class: IP51

Thermal Insulation: 25 mm NBR-PVC closed cells high temperature resistance foam

Heating Element: 2 independent heating zones made with silicone insulated spiral wound resistance element stitched on Teflon/PA66fabric, each zone thermally protected by high limit thermostat

Control housing: IP65, 180 x130 x 92 mm with transparent door, finger access protected connection block, cable gland output, built in fuse and on off switch.

Remote control models are supplied with a 3 meters (9'10") cable for connection to the jacket connector.

Control



The 2 independent zones temperature control is provided by two intelligent electronic controllers, PID auto-tune. Display in °C or °F, with decimal point and Pt100 resistance temperature sensor.

Electrical connection: Internal connection block is suitable for cables up to 3 x 6 mm² (3 x AWG10).

Fixing on the container: Full circumference 50 mm (2") wide nylon straps webbing with quick release adjustable buckles allow circumference adjustment

Safety standards: The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Installation instructions: Download installation instructions manual on:

<http://www.ultimheat.com/blueink/insinsman.html>

Main References

Power has been optimized to apply maximum 0.1W/cm² (0.64W/in²) on the container heated surface; this makes the jacket compatible with metal or plastic containers.

Download drawings at <http://www.ultimheat.com/blueink/JacketIBC.html>

Reference with surface temperature control	Reference with remote temperature control	Vol. (Liters)	Vol. (gal)	Dimensions L x W x H mm(in)	Height A mm(in)	Flat length (B) mm(in)	Watt	Voltage
9VJBKA04408D4000	9VJSRA04408D4000	1000	265	1200 x 1000 x 1000 (48x40x40)	1000 (40)	4475 (176.2)	2 x 2200	220/240
9VJBKB64408D4000	9VJSRB64408D4000	1100	275	1200 x 1000 x 1160 (48x40x46)	1150 (46)	4475 (176.2)	2 x 2200	220/240
9VJBKC54408D4000	9VJSRC54408D4000	1250	330	1200 x 1000 x 1350 (48x40x54)	1350 (54)	4475 (176.2)	2 x 2200	220/240
25 mm thickness Insulated lid	9VJBKA04408LID00			1200 x 1000 x 25 (48x40x1)				

Options available on request:

- Special size or power,
- Single heating circuit, split electronic controls (1 electronic control enclosure per heating zone)
- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>

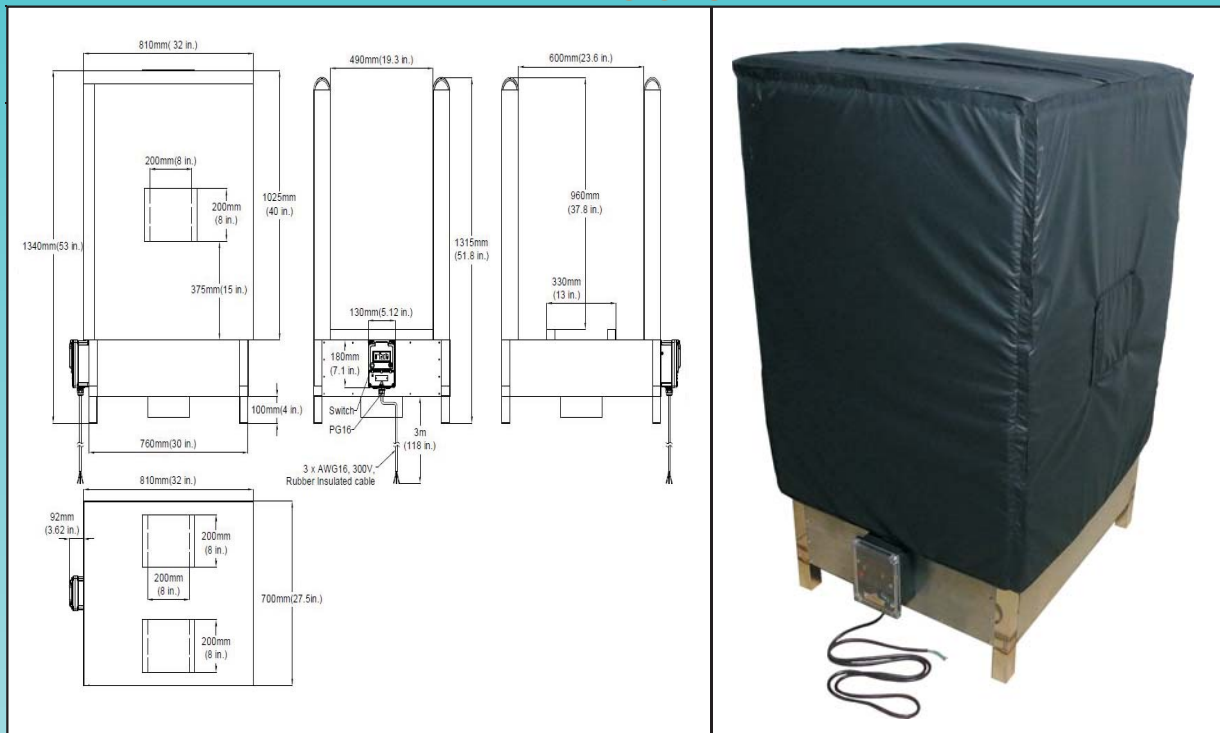
- Addresses for Distributors, including stocking locations at:

<http://www.ultimheat.com/contact1.html>

- To inquire about becoming a member of the stocking distributor alliance and to find out about its benefits: contact us at info@ultimheat.com

9VHS Hot air drum heaters, 120°C electronic control

DIMENSIONS



MAIN FEATURES

ULTIMHEAT hot air drum heaters are the most professional and universal solution of applying heat to drums and smaller containers. They provide two times faster heating than jacket heaters, because heat is evenly distributed on 100% of the container surface. Only one heater can be used for heating any size of drums from 5 to 55 gallons. Pails and small drums can be stacked inside until the cavity is full. They can be used on plastic or metal containers, full or with empty sections or to heat or dry any other product in bags or containers.

They are covered by a removable insulated jacket. Electronic temperature control and fans provide evenly, fast and soft heating, without overshoot or hot points. The jacket concept is like a tent: 4 stakes in the 4 corners, and the Teflon coated insulated jacket is hanged on them. This jacket can be open with Velcro or buckles. Hot air is blown by the fan to the bottom of the container(s), swirls around up to the top where it is sucked back inside of the 4 stakes to the cold side of the air circulation circuit. It is easy to put and remove drum or other containers just by opening the jacket's door or, if it is needed by a special size container or to provide easier handling, it is easy to remove the full jacket (the 4 stakes can also be removed).

MAIN APPLICATIONS

Hot air drum heaters can be used for heat up, temperature maintenance, viscosity control or for the melting of soaps, greases, varnishes, oils, surfactants, fats (animal & vegetable), foodstuffs, chemicals, etc.... They are thermally insulated to improve thermal efficiency. They can also be used to dry vegetables, fruits, clothes and fabrics, and any process that need smooth and low temperature heating (maximum is 120°C).

9VHS Hot air drum heaters, 120°C electronic control

TECHNICAL FEATURES

Cavity dimension: L= 0.71 m x W= 0.60 m x H=1 m (0.42 m³)

Jacket: Fully removable. Quick release buckles and Velcro provide fast installation and removal. (Buckles are used for doors and venting holes and Velcro for side and top panels). Small door at the bottom of main door provides access to the drum or container valve, if any.

Jacket protection: High strength and water resistant PU coated polyester is used for outside and double layer Teflon coated polyester for inside.

Jacket thermal Insulation: 25 mm NBR-PVC closed cells high temperature resistance foam. Thermal insulation coefficient (λ) of 0,039W/mK, and therefore its thermal efficiency is about 3 times higher than the usual 10 mm fiberglass insulated jackets

Heating Elements: 304 Stainless steel tubular sheathed heating elements, 304 stainless steel fins, with extra low surface temperature. Forced air fan is located under heating elements.

Base: water protected against liquids drops and leaks. If there is spillage or leak, the liquid will go to a recuperation orifice under the base.

Ventilation: Full hot air recirculation circuit provided by a 50W fan. If used for hot air drying, venting holes are provided at the top.

Frame and base: 2 versions are available

- Full stainless steel: Aisi 304 stainless steel, TIG welded, high strength, superior corrosion resistance.

In this version all components and walls inside heating cavity are only stainless steel and Teflon.

- Epoxy painted steel: In this version frame is made of epoxy painted steel, but heating elements remains in stainless steel.

The 4 stakes can be removed, and jacket is foldable to reduce volume for transportation.

Casters: 4 casters are in options (threads for casters provided in the legs)

Access: two rails inside allow to drop the 55-gallon drums with a forklift

Control housing: Ingress protection class IP65, 180 x 130 x 92 mm with transparent door, finger access protected connection block, cable gland output, built in fuse and on off switch.

Control:



Electronic temperature control is provided by a simple to use digital display (1) and set point adjustment (2) from -45°C to +120°C (41~248°F); It uses a NTC sensor. (Main features: Adjustable differential; 0.1 ° resolution up to 99.9; °C (3) or °F display (4); parameters locking function, Power supply on and output on pilot lights (5).

Power: 3000W+/-10%, 220/240V single phase 50/60Hz or 380/400V 3 phases+ neutral 50/60Hz.

Grounding wire is mandatory. Commutation from single to 3 phases is made by straps on the electrical connection block.

Supplied with Oil resistant 3 meters (9'10") cable, AWG16 (3x1.5 mm²). It must be replaced for 3 phases supply or to comply with local electrical standards. Connection block is suitable for power cables up to 6 mm² (AWG10).

Net weight: 48 kg

Safety standards: The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Installation instructions: Download installation instructions manual on:

<http://www.ultimheat.com/blueink/insinsman.html>

Main References

Drawings Available <http://www.ultimheat.com/blueink/hotair.html>

Reference	Material	Power, Watts	Voltage
9VHS100A300E4SW0	Stainless steel	3000	One phase 220/240, 3 phases 380/400C
9VHS100A300E4AW0	Red Epoxy painted steel	3000	One phase 220/240, 3 phases 380/400C

Options available on request:

- 4 casters
- Special height or power,
- PID temperature control
- Remote control

- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>

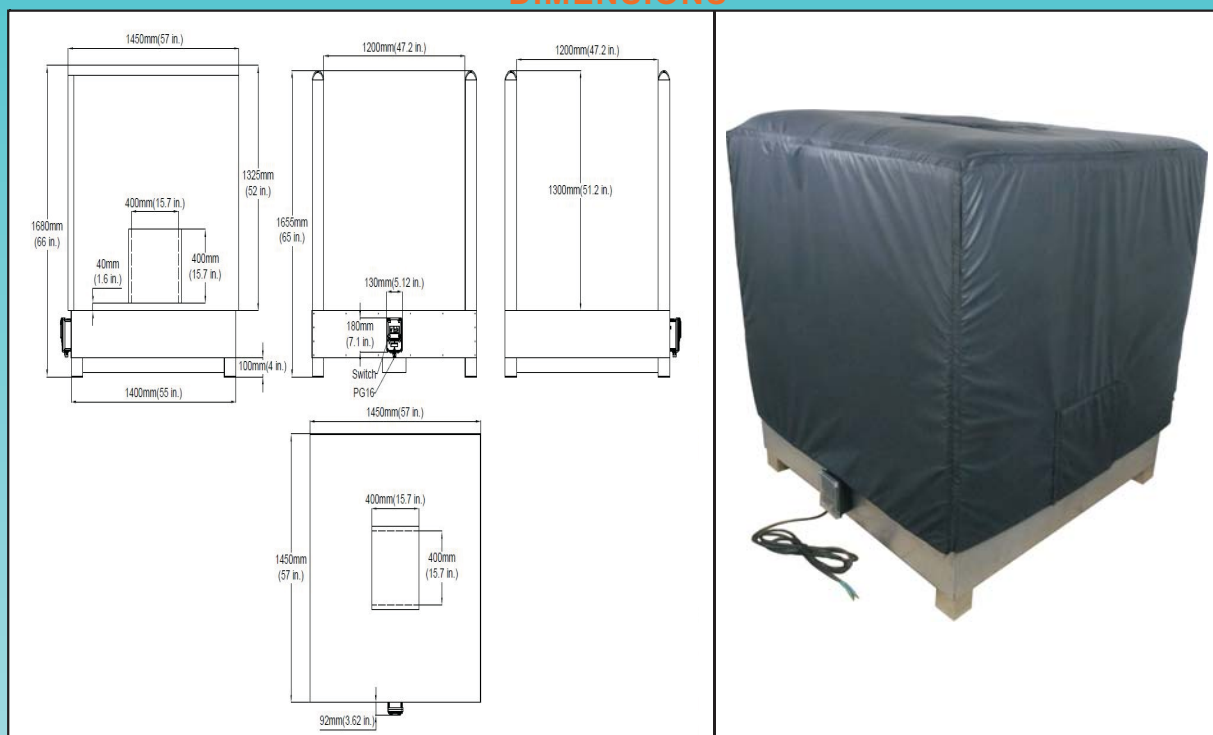
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9VHB Hot air IBC and containers heaters, 120°C electronic control

DIMENSIONS



MAIN FEATURES

ULTIMHEAT hot air drum heaters are the most professional and universal solution of applying heat to IBC, loaded pallets and other bulk containers. They provide two times faster heating than jacket heaters, because heat is evenly distributed on 100% of the container surface. This heater can be used for heating any size of IBC for liquids (1000L, 330Gal, including corrugated bag-in box, and metal totes), fully loaded pallets (max 1.2m x 1.2m) and any drum from 5 to 55 gallons. Pails and drums can be stacked inside until the cavity is full. They can be used on plastic or metal containers, full or with empty sections or to heat or dry any other product in bags or containers.

They are covered by a removable insulated jacket. Electronic temperature control and fans provide evenly, fast and soft heating, without overshoot or hot points. The jacket concept is like a tent: 4 stakes in the 4 corners, and the Teflon coated insulated jacket is hanged on them. This jacket can be open with Velcro or buckles. Hot air is blown by the fan to the bottom of the container(s), swirls around up to the top where it is sucked back inside of the 4 stakes to the cold side of the air circulation circuit. It is easy to put and remove drum or other containers just by opening the jacket's door or, if it is needed by a special size container or to provide easier handling, it is easy to remove the full jacket (the 4 stakes can also be removed).

MAIN APPLICATIONS

Hot air drum heaters can be used for heat up, temperature maintenance, viscosity control or for the melting of soaps, greases, varnishes, oils, surfactants, fats (animal & vegetable), foodstuffs, chemicals, etc.... They are thermally insulated to improve thermal efficiency. They can also be used to dry vegetables, fruits, clothes and fabrics, and any process that need smooth and low temperature heating (maximum is 120°C)

9VHB hot air IBC and containers heaters, 120°C electronic control

TECHNICAL FEATURES

Cavity dimension: L= 1.40 m x W= 1.40 m x H=1.30 m (2.5 m³)

Jacket: Fully removable. Quick release buckles and Velcro provide fast installation and removal. (Buckles are used for doors and venting holes and Velcro for side and top panels). Small door at the bottom of main door provides access to the drum or container valve, if any.

Jacket protection: High strength and water resistant PU coated polyester is used for outside and double layer Teflon coated polyester for inside.

Jacket thermal Insulation: 25 mm NBR-PVC closed cells high temperature resistance foam. Thermal insulation coefficient (λ) of 0,039W/mK, and therefore its thermal efficiency is about 3 times higher than the usual 10 mm fiberglass insulated jackets

Heating Elements: 304 Stainless steel tubular sheathed heating elements, 304 stainless steel fins, with extra low surface temperature. Forced air fan is located under heating elements.

Base: water protected against liquids drops and leaks. If there is spillage or leak, the liquid will go to a recuperation orifice under the base.

Ventilation: Full hot air recirculation circuit provided by a 50W fan. If used for hot air drying, venting holes are provided at the top.

Frame and base: 2 versions are available

- Full stainless steel: Aisi 304 stainless steel, TIG welded, high strength, superior corrosion resistance. In this version all components and walls inside heating cavity are only stainless steel and Teflon.

- Epoxy painted steel: In this version frame is made of epoxy painted steel, but heating elements remains in stainless steel.

The 4 stakes can be removed, and jacket is foldable to reduce volume for transportation.

Casters: 4 casters are in options (threads for casters provided in the legs)

Access: full opening door provide access to forklift, for 1.2 x 1.2 x 1.3 maximum volume loads

Control housing: Ingress protection class IP65, 180 x 130 x 92 mm with transparent door, finger access protected connection block, cable gland output, built in fuse and on off switch.

Control:



Electronic temperature control is provided by a simple to use digital display (1) and set point adjustment (2) from -45°C to +120°C (41~248°F); It uses a NTC sensor. (Main features: Adjustable differential; 0.1 ° resolution up to 99.9; °C (3) or °F display (4); parameters locking function, Power supply on and output on pilot lights (5)).

Power: 6000W+/-10%, 220/240V single phase 50/60Hz or 380/400V 3 phases+ neutral 50/60Hz.

Grounding wire is mandatory. Commutation from single to 3 phases is made by straps on the electrical connection block.

Supplied without power cable. Internal connection block is suitable for power cables up to 6 mm² (AWG10).

Net weight: 149 kg

Safety standards: The heaters have been designed in compliance with EEC Low Voltage Directive (LVD) 2006/95/EC and EMC directive 2004/108/EC. They must be installed in accordance with all local applicable instructions, codes, and regulations.

Installation instructions: Download installation instructions manual on:

<http://www.ultimheat.com/blueink/insinsman.html>

Main References

Drawings Available <http://www.ultimheat.com/blueink/hotair.html>

Reference	Material	Power, Watts	Voltage
9VHB130A600E4S00	Stainless steel	3000	One phase 220/240, 3 phases 380/400C
9VHB130A600E4A00	Red Epoxy painted steel	3000	One phase 220/240, 3 phases 380/400C

Options available on request:

- 4 casters
- Special height or power,
- PID temperature control
- Remote control

- You can download other heaters catalogues at: <http://www.ultimheat.com/cataloglink19.html>

- Addresses for Distributors, including stocking locations at:

<http://www.ultimheat.com/contact1.html>

- To inquire about becoming a member of the stocking distributor alliance and to find out about its benefits: contact us at info@ultimheat.com

Blue Ink General Sales Conditions

1. GENERAL

1.1. The General Sales Conditions shall apply to all sales and supplies executed by Blue Ink Co. Ltd. (hereinafter the "Seller") to the purchaser (hereinafter the "Purchaser") in regards to the products, equipment, materials, supplies, and services (hereinafter the "Products" or the "Product"), as well as, the installation and operations of such Products. These General Sales Conditions shall apply unless otherwise expressly stated in the relevant offer (hereinafter the "Offer") or in acceptance or confirmation of the order (hereinafter the "Order Acceptance"), and in accordance to the conditions specified. Consequently, any conditions not expressly accepted by Blue Ink Co. Ltd. shall not be binding and shall not have any legal effect.

1.2. All orders or issuing of a purchase order (hereinafter the "Order"), as well as the acceptance of the Products and the conditions shall be acknowledged and accepted by the Purchaser, expressly renouncing his own conditions and/or any other similar documentation. It is deemed that Purchaser is informed of the General Sales Conditions upon receipt of the Offer from the Seller together with these General Sales Conditions. Alternatively, it shall be deemed duly communicated if the Purchaser is informed of the General Sales Conditions during the business relationship with the Seller and, in such case, it is considered that the General Sales Conditions are accepted by the Purchaser when the Purchaser issues an Order.

1.3. Until the Contract (hereinafter the "Contract") is duly entered and signed by both parties or there is an Order Acceptance the Seller may modify or remove the Offer, at any time, with prior written notice to the Purchaser.

1.4. Such Contract shall comprise an agreement signed by both Parties, and/or an Order with the respective Acceptance (including, if any, particular conditions in the purchase and any corresponding specifications). The General Sales Conditions and Annexes are in full a part of the Contract.

2. INTELLECTUAL AND INDUSTRIAL PROPERTY RIGHTS.

2.1. The intellectual and/or industrial property of the Offer and its attached information, including among others, brochures, catalogues, prospectus, technical and/or commercial documents (hereinafter the "Documents") and the Products, as well as the components, plans, designs, "software", etc. any other relating to or likewise, trademarks, patents, industrial designs, business name, domain name, and any other rights and distinguishing marks that hold or may hold any other present or future product, are owned by the Seller or the supplier. The sale of the Products during the execution of the Contract will not derive any right or ownership of the Purchaser.

2.2. It is expressly forbidden for the Purchaser to use Documents for any other purpose than to carry out the Order, including all or partial copy Documents or assign use to a third party, without the prior written consent of the Seller. Likewise, the Purchaser is obliged to not alter, remove, cover and/or destroy any emblem, trademark and/or any other distinguishing mark incorporated in Products.

2.3. The Seller shall keep the information in the Documents confidential and shall not disclose any information unless the person is employed by the Purchaser and is authorized to access information on the Contract and use of the Products. Any disclosure not mentioned above shall require the Seller's express prior written consent.

3. EXECUTION OF THE ORDER AND SCOPE OF SUPPLY.

3.1. The Purchaser shall submit the purchase orders or Orders in writing to the Seller. The Seller will only be bound to the Purchaser if he totally accepts the order in writing, without any amendments, whether an Offer exists or not and according to the abovementioned Order Acceptance. The Order will be considered legally binding if the Purchaser does not receive an expressed rejection from the Seller within fifteen (15) days.

3.2. Supply only includes the equipment and material stated in the Order, except in the case that the Seller accepts the Order with documents, information, support or any other additional service included.

3.3. The weights, dimensions, capacities, working, technical specifications and shapes of the Products included in the Documents (brochures, catalogues, prospectus, technical literature, etc.) shall be informative and not binding, except in the case that the Seller accepts a closed specification from the Purchaser, incorporated in the Order's documents, or when set forth by the Seller in the Acceptance order.

3.4. The Seller must be given written notice of any modifications, and/or alterations, and accepted in writing by the Seller. No Order shall be cancelled or modified after the date the Order Acceptance is issued, unless the Seller gives prior written consent. In such case, the Purchaser shall bear all costs arising from the cancellation or modification.

4. PRICES.

4.1. Unless otherwise expressly stated in the Acceptance Order, the sale price is the price set forth in the Offer and/or in such Acceptance Order. The Product price shall be the price on the date of the purchase order, unless otherwise expressly agreed between the Seller and the Purchaser.

4.2. All prices are considered Ex Works Incoterms 2000, unless otherwise expressly stated in the particular conditions.

4.3. Without prejudice of the abovementioned Incoterm, the prices of the Products are based on a net amount, without including VAT or any other tax, rights or fees, which will be added to the invoice with the relevant rates. Unless otherwise expressly agreed in the Acceptance Order, or in an agreement between the Seller and the Purchaser resulting from the business relationship, the prices shall not include packing, transport, shipment, or insurances, and also considered to be placed at the factory of the Seller. Such prices are only valid when all materials are specified in the Order.

4.4. The prices proposed before issuing the Order on the Offers, as well as the commercial, technical and financial documents sent to the Purchaser jointly with the General Sales Conditions, are valid for a period of thirty (30) days from the date of its issue, unless a written notice from the Seller to the Purchaser states an extension period. During this period, prices and conditions of the payment set forth in the Offer are fixed, except if the Product offered consists of imported equipment which may be subject to contingencies in the exchange of currency or subject to the payment of tax and duties, in such case, the prices of the Offer shall be adjusted accordingly.

4.5. The prices set forth in the Offer are composed depending on the conditions of payment specified in the Offer. If such conditions of payment are modified, the Seller may review these prices.

4.6. Unless otherwise agreed in the Order Acceptance, all prices quoted do not include taxes and any payments shall be made in the invoicing currency at on the bank account specified on invoice.

4.7. Once the Order is accepted by the Seller, the Products prices are considered fixed and not subject to review. However, prices may be adjusted when:

- The Seller and the Purchaser by mutual agreement decide to review prices.

1. - There is a delay in the delivery date or in the acceptance, directly or indirectly due to the Purchaser.

2. - The scope of the supply is modified due to a Purchaser's request.

3. - In the event that the prices are not quoted in RMB, the price shall be reviewed as a monetary parity variation of the currency in respect of the RMB may occur during the date of the Order to the delivery date.

5. CONDITIONS OF PAYMENT.

5.1. The Purchaser accepts to pay according to the conditions of payment included in the Offer, or if such Offer does not exist, or in the Purchaser's Order accepted by the Seller. The conditions of payment previously agreed within an ongoing business relationship agreement between the Seller and the Purchaser may also be applied. Alternatively, the payment shall be made under the agreed conditions within the maximum period of thirty (30) days following the date of the invoice.

5.2. The payment shall be made under the agreed conditions, either in the Seller's bank account or by other means of payment agreed. The payment shall be made without any deductions, including non-agreed stoppages, discounts, expenses, taxes, rates, or any other. Bank transfer charges and other Bank expenses related to payment are heard by Purchaser.

5.3. Any advanced payment made by the Purchaser shall not include a discount or reduction in the price fixed in the Contract, unless prior agreement in written between both Parties.

5.4. If the delivery date, installation, operation or the receipt of the Products is delayed due to a foreign reason not caused by the Seller, the conditions of payment shall be kept enforceable.

5.5. In the event of that payment is delayed by the purchaser, the Purchaser shall pay the Seller, without request and from the date that the payment matures, any interest for delayed payment due to the delayed payments. Such interest penalty is based on the legal interest rate or a substitute rate plus a quarterly rate of 2% (two per cent). The Purchaser shall bear all financial and/or bank costs arising from any payment made to the Seller. The payment of such interest shall not release the Purchaser to make the remaining payments as stated in agreed conditions.

5.6. In the event that the Purchaser delays payment, the Seller shall stop the shipment of the Products or the execution of the services related to such Products, without prejudice the Seller may request the Purchaser to pay the delayed payments and demand, where necessary, any additional compensation for stoppage of the Products or execution of the agreed services. Moreover, the Seller may terminate the Contract beforehand, by written notice to the Purchaser sent seven (7) days in advance.

5.7. In the event of a delayed payment of the Purchaser, the Seller shall request payment in advance for any new delivery of Products (independent to the agreed conditions).

5.8. In the event of a complaint made by the Purchaser, the Purchaser is not permitted to stop or deduct any amount from the payments agreed.

5.9. If the Seller executes, by expressed request from the Purchaser, any different activities than those stated in the Contract, no modification to the terms nor conditions of the Contract, sale, or Incoterm shall be made. The costs of such additional activities shall be invoiced to the Purchaser separately.

6. RETENTION OF PROPERTY.

6.1. Unless otherwise agreed, the Products and its possession shall be transferred to the Purchaser at the time such Products are delivered. It shall not be neither returned nor changed, unless otherwise stated in this General Sales Conditions.

6.2. The Seller shall keep the ownership of the Products until the full payment of the agreed price is made including any other payments outstanding, if any, from the Purchaser to the Seller.

7. TERM AND DELIVERY CONDITIONS.

7.1. The delivery of the sold Products shall be made at the date, place, term and conditions set forth in the Offer or in the Order Acceptance. If the delivery place is not specified in the Order Acceptance, then it shall be understood that the Products shall be in the factory or the warehouse of the Seller. The delivery date binds the Seller, only if the Purchaser has strictly fulfilled the payment schedule, if any. The Purchaser shall bear the risk of the loss, damages, harms, deterioration or destruction of the sold Products since such Products are at the disposal of the Purchaser.

If an income quality control inspection is asked by the Purchaser, it must be made on products before shipment. If a modification for any reason is requested on them, no compensation will be made for products yet shipped and not yet received by Purchaser at the date this modification is requested.

7.2. The delivery date shall be modified when:

a) The Purchaser shall not provide the necessary documents to execute the supply in time.

b) The Purchaser requests modifications in the Order, such modifications are accepted by the Seller and, at the Sellers discretion an extension to the delivery term may be requested.

c) In order to complete the supply, it is indispensable for the Purchaser or its subcontractors to carry out works within the time period.

d) The Purchaser shall not fulfill any of the contractual obligations of the Order, especially those related to payments.

e) There is a production or disposal delay of all or any Products items, not directly due to the Seller. In an informative and not limitative way, the following delayed causes are included: suppliers, transport and services strike, failures in the supplies of third parties, failures in transport, flood, storms, disturbs, strikes, lockout in the staff of the Seller or its subcontractors, sabotage, accidental stops in Seller's workshop caused by a break-down, etc.

In cases a), b), c), and d), the postponement in the delivery date shall not modify the schedule of the supply payments due.

Blue Ink heating solutions

8. TRANSPORT AND DEPOSIT.

8.1. Unless otherwise previously agreed with the Purchaser, the Purchaser shall organize the transport, including loading and unloading, independently and at his own costs and risk, meaning that the Seller is free to any claim or complaint regarding damages or defaults in the Products. The Purchaser shall bear such risks and shall contract the relevant insurance policies.

8.2. If the Products are ready to be supplied or, alternatively, waiting to pass the agreed tests, and the Purchaser, shall not collect them or not agree with the Seller to store them in Seller's premises as stated in the terms and conditions of the deposit agreement, all deposit and storage costs and expenses arising from such delay, shall be borne by the Purchaser, including all the stored material risks, as well as damages, harms and loss of profits that the Seller may suffer. It shall be considered that the initial date of deposit be the foreseen delivery.

9. INSPECTION AND RECEPTION.

9.1. Unless when specified in the Order, inspections and tests during the performance and the final inspection prior to the delivery shall be made by the Seller. Any additional tests requested by the Purchaser shall be specified in the Order, stating conditions, the place and company where such test shall be made, if applicable. Such additional tests shall be approved by the Seller and shall be made on the behalf and at the own risk and costs of the Purchaser.

9.2. Once the Products are at the Purchaser disposal, the Purchaser shall verify their content in a term no higher than fifteen (15) days from the receipt, so to check possible defects and/or failures due to the Seller, to check that the Products are in a perfect material estate, and as well as, to verify that Products are in accordance with the delivery note specifications. The Seller shall be informed immediately on the existence of such defects and/or failures.

9.3. If the Products have any defect and/or failure due to the Seller, the Seller shall take the necessary measures to eliminate them. The Seller takes responsibility of the recovery costs of any defective Products, and shall replace them with products of similar characteristics at his own cost as soon as possible, provided that the defect is verified once the Purchaser files the pertinent complaint and form in duly time and before using the purchased Products.

9.4. Unless the Order set forth specifies the test on reception within the terms and conditions agreed by the Seller and the Purchaser, after fifteen (15) days following the receipt of the Products by the Purchaser and if the Seller does not receive any written notice regarding defects or failures, it shall be considered that the Products are accepted, and the warranty period shall start.

9.5. When, the parties agree to make the test on reception, it shall be considered that the Purchaser has received the Products in good conditions, if the tests on reception are not carried out in the agreed period due to the Seller, or if the Purchaser starts to use the Products.

10. RETURN OF MATERIALS. COMPLAINS.

10.1. In any case, the Seller shall accept the return of materials without a prior consent from the Purchaser. The Purchaser, shall notify the Seller that he desires to make a return within a term of fifteen (15) days from the receipt of the Products, providing that he justifies such return, and agrees with the Seller on the return procedure. In all cases, the Purchaser's complaints against the Seller shall be made in writing and in a certified way.

10.2. The returns or shipment of material to the Seller's installations shall be always made by freight prepaid in the case of reimbursement, substitution or reparation.

10.3. The Seller shall not admit any return of Orders for reasons beyond his control.

10.4. The Seller shall not admit any return of used materials, assembled or modified in other equipment or installations, or subject to be disassembled.

10.5. Likewise, the Seller shall not admit any return of products designed or manufactured specially for the Order.

11. WARRANTY.

11.1. Unless otherwise agreed in the Offer or in the Order Acceptance, the Seller guarantees to supply the Products free from defects in materials, workmanship or joint for two (2) years from the date of receipt, such date being explicit (overcoming the test on receipt agreed by the Seller and the Purchaser, and sending written notice accepting the Products), or tacit (fifteen (15) days after the shipment to the Purchaser, without any written notice receipt by the Seller to inform any nonconformity, or fifteen (15) days from the date in which the Seller notifies that the Product is available to be sent, whatever occurs before). The abovementioned warranty shall apply providing that the complaint is submitted in written to the Seller within fifteen (15) days from the date in which the Purchaser is aware or knows that there is a default in the Product/s.

11.2. Samples supplied to the Purchaser prior to mass production must be used by him to check the product compliance to his application and relevant standards or regulation. No complain, return, reimbursement, indemnity, or any compensation of any type will be accepted for non-compliance to application or standards after sample acceptance.

11.3. The warranty set forth in the aforesaid clause 1, consists of repairs or replacement (at Seller convenience) of elements recognized as faulty, due to defects in material, defects in workmanship, operation or assembly. The property of the repaired or replaced pieces shall be transferred to the Purchaser at the time of its delivery. The repairs or the replacements are considered to be made in the Seller's workshops, and the Purchaser shall bear all costs and risk of the disassembling, packing, shipment, transport, customs, tax, a.s.o, arising from the repair or replacement of the faulty material in the Seller's workshop. The cost of the disassembling, packing, shipment, transport, customs, tax, a.s.o, arising from the repair or replacement of pieces is borne by the Seller. However, the Seller and the Purchaser may agree to repair or replace faulty elements in the premises of the Purchaser.

11.4. The warranty set forth in the aforesaid clauses 1 and 2, is limited to the repair or replacement of the faulty parties, and it shall only be applicable if the Products have been use and maintained according to the specifications provided by the Seller.

11.5. The repair or replacement of a faulty element of the Product shall not change the commencement date of the whole Product warranty period, stated in clause 1 of this Warranty. However, the repaired or replaced element shall have six (6) months of warranty from the date of its repair or replacement.

11.6. In any case, the Seller shall not bear the repairs made by non-authorized people.

11.7. This warranty shall not apply to damages and/or defects resulting from normal wear of the Products. Moreover, the warranty shall not apply, being considered expired, to damages, defects and failures arising from:

- a) the improper preservation or maintenance;
- b) the storage and handling when incorrect or negligent;
- c) the abuse, misuse or improper use of the Products for the Purchaser or the person in charge, for negligence or disrespect of the recommendations or technical instructions provided by the Seller, or its operating manuals;
- d) the use of inappropriate liquids and gas;
- e) the inappropriate flow or pressure, faulty assembly, variations in the quality of electrical supply (voltage, frequency, disturbances, etc);
- f) any modification introduced in the supply, or made in Products by the Purchaser or by a third party not involved with the Seller and without the Sellers approval, installations made or later modified not respecting the technical specifications of the Products;
- g) any combination of Products with materials or equipment not approved or expressly recommended by the Seller,
- h) and in general, any cause not due to the Seller. The Seller's warranty for Products or components of such Products acquired from a third party is strictly limited to the terms and conditions stated by the suppliers to the Seller.

11.8. Likewise, the warranty shall be considered expired, if both Parties agree to start a Product assisted by the Seller's collaborators, and this Product is able to work without such assistance or, if in case of failure, measures to mitigate damages are not taken.

11.9. When the warranty set forth in clause 1 of this Warranty consists of a replacement, that due to its urgency shall be made immediately, the Purchaser is obliged to return the faulty piece or element no later than fifteen (15) days from the delivery date of the new piece or element. In case of a non-returnable replacement piece or element, the delivered piece or element shall be invoiced.

12. LIMITATION OF LIABILITY.

12.1. As far as allowed by Law in force, the Seller will not be responsible for any direct or indirect damages that the Purchaser, its employees, directors, successors and/or assignees suffered, in regards to the Contract and as a consequence of the supply or the faulty Products; including but not limited damages, damages for loss of profit, capital cost, cost of breaks, breaks or stops in the supplied equipment or in other equipment different than those supplied, deterioration or actions in equipment, systems and Purchaser's or third party buildings, labor accidents, accidents and incidences against the Environmental, a.s.o, even if the Seller is informed about the possibility of such damages. The Purchaser shall release, indemnify and warrant to the Seller on any claim or complaint based on such damages, loss or harm.

12.2. The complete responsibility of the Seller arising from the supply is limited to the value of the Products causing the complaint.

12.3. The Seller shall not be liable in any way for any damages and/or loss of profits when: a) it shall not be solely and exclusively caused by the Products or by the Seller; b) the Purchaser or persons in charge are responsible for such damages and/or loss of profits; c) caused to third parties; d) loss of profits or non-earned incomes of the Purchaser or third parties.

12.4. The Purchaser shall bear all damages, including the loss of profits to the Seller caused by: a) the request by the Purchaser to postponement the date of the delivery of Products; b) the total or partial cancellation of the ordered Products; c) delay or not provide the Purchaser with the necessary information, instructions and/or documents to carry out the delivery of the Products, making such delivery impossible or delaying it.

13. EXPORT LIMITATIONS.

Some of the Products supplied by the Seller may be subject to export control regulations. For such reason, the Purchaser accepts not to sell, lend or deliver to any third party, with or without compensation, temporal or permanently, direct or indirectly by the Purchaser or third parties, the Products and/or elements supplied by the Seller, documents, operating handbooks, and information regarding the Products, unless the prior written approval of the Seller and the relevant authorities. The Purchaser is liable for the fulfillment of such requirement.

14. FORCE MAJEURE.

14.1. Neither Seller nor the Purchaser shall be liable to each other or third party, for any damages or losses due to the delay, failure or the impossibility to complete its obligations resulting from a force majeure cause, including strikes, lockout, floods, weather, natural disasters, distraint, governments restrictions, delay of a subcontracted supplier or collaborator, epidemic, light, water and oil supply disturbances, etc.

14.2. In the event of force majeure cause, the Seller shall send the Purchaser a notice to inform such circumstances and set forth the time estimated to solve the problem and fulfill the Contract.

14.3. If the fulfillment of all or any of the Seller's obligations arising from the Contract are delayed or postponed for any force majeure cause, for a period more than three (3) months, the Seller shall decide, at any time, without any responsibility to terminate the Contract or the pertinent part of it. The Parties shall try to set an amicable termination of the Contract by mutual consent. If such amicable settlement cannot be reached, the provisions stated in clause 17 of these General Sales Conditions shall be applicable. In any case, the force majeure shall neither obstruct nor delay the payment of any amount owed by both Parties.

15. TERMINATION.

The purchase may be automatically terminated within full rights at the Seller's choice one (1) month after the payment demand, without payment, and in the event that the Purchaser delays to fulfill its payment obligation, the Purchaser shall immediately return all sold Products to the Seller or the Seller shall take them from the address of the Purchaser, in such case the Purchaser shall bear all cost. The amount already paid, shall be kept by the Seller as a penalty clause, expressly accepted by the Purchaser.

16. MISCELLANEOUS.

16.1. If part or all of any provision included in the General Sales Conditions shall be declared to be illegal, void or unenforceable, such part or provision will be omitted, and all the other provisions of this General Sales Conditions shall not be affected and shall remain in full force and effect.

16.2. Any of the Product models offered by the Seller shall be modified and/or redesigned in any way, and/or stopped to be manufactured and/or commercialized, at any time, at Seller's convenience due to business, production and/or market reasons.

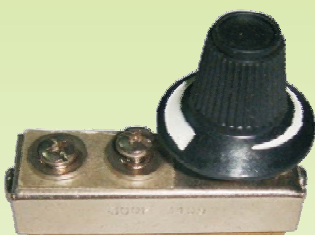
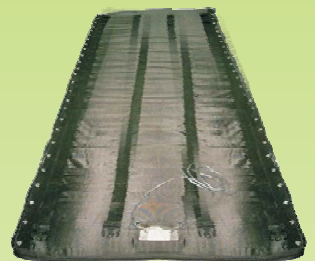
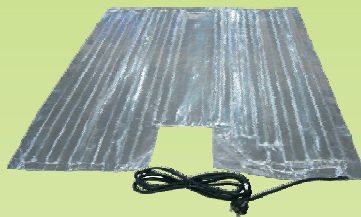
16.3. The Seller shall provide together with the Products the pertinent invoice related to the purchase, technical documents, if any, and documents to certify the relevant homologation and/or certification of the Products.

17. GOVERNING LAW AND JURISDICTION.

17.1. These General Sales Conditions are subject to relevant Laws of the Kingdom of Thailand.

17.2. All claims and disputes arising or related to these General Sales Conditions shall be settled amicably by negotiation between both Parties. If such amicable settlement cannot be reached, the Parties shall agree to submit all claims or disputes resulting from the interpretation, enforceability and execution of these General Sales Conditions to the courts of the city of Bangkok (Kingdom of Thailand), with express waiver of their own forum or other forum which they may recourse.

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