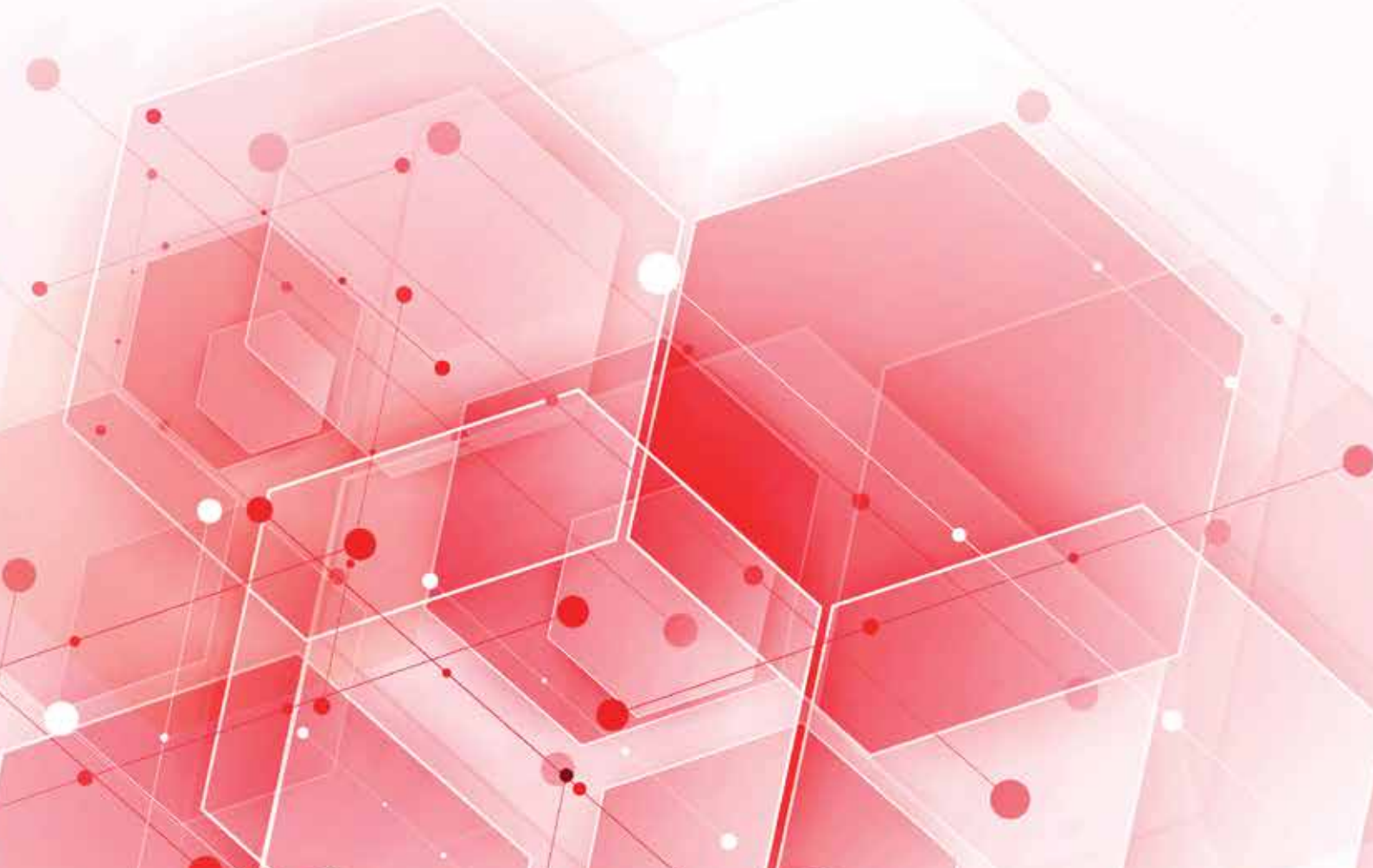
SINCE 1971

EXCEL HEATERS

CE

INNOVATIVE SOLUTIONS FOR
HEATING
& POWER SAVING



OUR CUSTOMERS

AFRICA
- KENYA
- NIGERIA
- SOUTH AFRICA
- TANZANIA
- GHANA
- ALGERIA
- DR CONGO
- SOMALIA
- EGYPT
- ERITREA
- ETHIOPIA
- MAURITIUS
- MADAGASCAR
- MALAWI
- MALI
- MOROCCO
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- SOMALIA
- SUDAN
- UGANDA
- ZAMBIA
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- SURINAME

EUROPE
- UNITED KINGDOM
- NETHERLANDS
- GERMANY

NORTH AMERICA
- USA
- CANADA

SOUTH AMERICA
- ARGENTINA
- BRAZIL
- CHILE

GULF COUNTRIES
- BAHRAIN
- KUWAIT
- OMAN
- QATAR
- SAUDI ARABIA
- UNITED ARAB EMIRATES

CIS COUNTRIES
- RUSSIA

FAR EAST
- INDONESIA
- MALAYSIA
- MYANMAR (BURMA)
- PHILIPPINES
- SINGAPORE
- THAILAND
- VIETNAM
- TAIWAN
- HONGKONG

CONTENTS

COMPANY Profile

Excel Heaters is one of India's **leading manufacturers and exporter** of Industrial Heaters.

Established in 1971, Excel has over **5 decades** of experience through which we have successfully positioned ourselves, both in the domestic as well as international markets as a **market leader**, not only dealing with quality products but by providing cutting edge solutions in the heating space, technical assistance and strong after sales support.

Excel has successfully supplied heating solutions for over **2,00,000 machines** such as extruders, injection and blow moulding for various industrial applications such as plastics, rubber, packaging, pharmaceuticals, aerospace and many more.

Excel Heaters focuses on producing high quality products. Each product goes through rigorous quality inspections and undergoes automatic checks using our **fully automatic, state of the art** German testing equipment. Excel products are manufactured according to the most updated **international standards** and regulations and also bear the **CE certifications**, in order to ensure to our worldwide customers the highest levels of quality.

Our production facility is located at Daman, (about 200 kms Mumbai) is spread across **28,000 sq feet**, and equipped with the latest machinery and equipment to ensure our valued customers get the **highest quality** of products that go beyond their expectations. Our **dedicated Research and Development teams**, work with customers and vendors alike to ensure that the customers needs are understood and fulfilled, by providing them the best solutions Excel can offer, hence making us a preferred **vendor for OEMs** across the globe.

High quality products, professional guidance, continuous innovation, top design, tailored services, and a dedicated team: all these elements make up EXCEL.

Our Motto

"To achieve complete customer satisfaction by supplying superior quality and timely delivery of the product and to be committed in reducing power consumption through experience and knowledge of our technical team, willingness to serving customers and continual research and development."

INFRASTRUCTURE








INDUCTION Heaters

Applications: Injection Molding Machines, Blow Moulding Machine & Various Extruder Machines

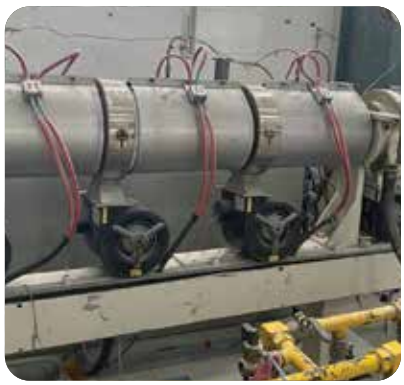
Working Principle

In the current technology of heaters (ceramic/mica heaters), heat is transferred to the barrel by means of conduction. However, the induction heater uses magnetic field to directly generatrs heat in the barrel. In the figure, the blue cable denotes the copper cable with special insulation coating to enhance magnetic field. It is wound around the grey barrel like a solenoid. Cable produces alternating magnetic field, which gets linked with the barrel directly generating heat in the barrel.

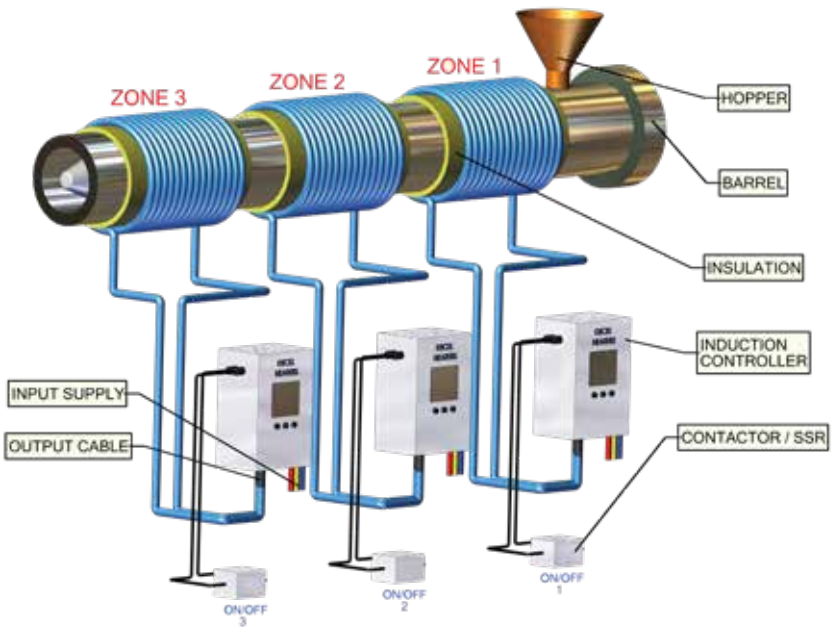
UP TO 70%
POWER SAVER

Note: Blue cable does not get heated, thus keeping the exterior cool and lower the factory ambient temperature IH heater starts producing almost heat instantaneously. Therefore, Induction heater can achieve temperature in half the time as compared to traditional band heaters.

Over 4,500 machines successfully installed

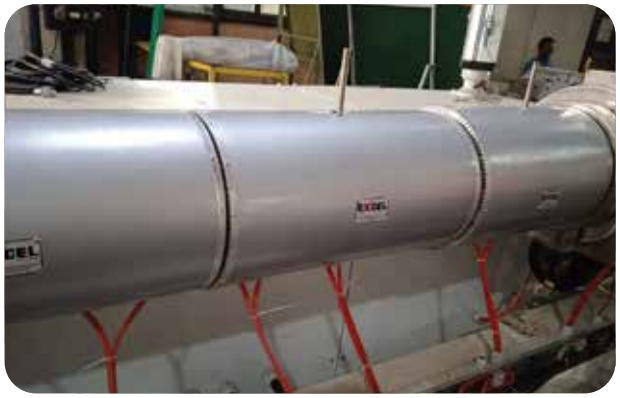


ELECTRICAL CONNECTION Drawing



FEATURES

- Power Saving up to 70%
- Distributes heat uniformly- better quality of output product
- High heating speed- achieves temperature in half the time as compared to band heaters
- Instant heating and cooling response improving quality
- Lowers total harmonic distortion- protects other electronics
- Lowers factory ambient temperature (max sheath temperature of 70°C) reducing air conditioning expenses
- Longer Working Life of the heaters
- Maintenance of the heater is easier-controller will display any fault with the heater and can be easily fixed
- Higher Safety Features



CERAMIC BAND Heaters

Cylinder Heating Application; Operating Temperatures up to 800°C

Applications: Injection Moulding Machine, Extruder Machine, Blow Moulding Machines, Rubber industry, cylindrical heating applications

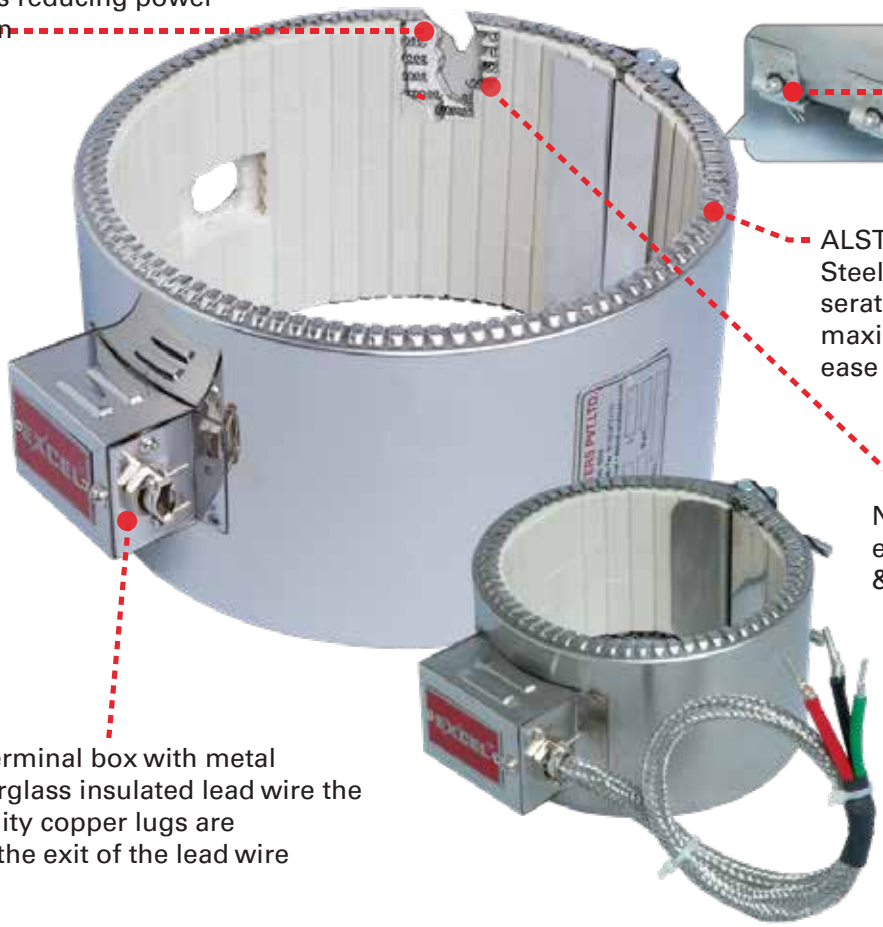
Technical Specifications

Max Operating Temperature	800°C
Heater Inner Diameter	2 ½" or 65mm and up
Width	1½" or 38mm and up
Thickness	12mm
Rated Voltage	Upto 480 V (single or three phase)
Watt Density	Upto 50 W/in^2
Resistance Tolerance	NEMA Standard plus 10% Minus 5%
Wattage Tolerance	NEMA Standard plus 5% Minus 10%
Terminals	Junction Box fitted with braided cable & Post terminals & many more options
Sheath Material	ALSTAR Aluminium coated Steel (rust protection, high heat retention, faster heating)
Clamping Arrangement	M6 & M8 fastner

FEATURES

Ceramic fiber insulation to reduce heat loss through radiation on the outside, thus reducing power consumption

Spot welded "Clamp bars" provide uniform clamping force



ALSTAR Aluminium coated Steel from Japan with serated edges provide maximum flexibility for ease of installation

Nichrome heating element from Germany & Sweden

Protective terminal box with metal braided fiberglass insulated lead wire the high electrolity copper lugs are crimped on the exit of the lead wire

CERAMIC JACKETED Heaters

Cylindrical Barrel Heating For Saving Power

Applications: Plastic processing machinery, cylindrical heating applications. Typically used where power consumption and energy costs are high.

Technical Specifications

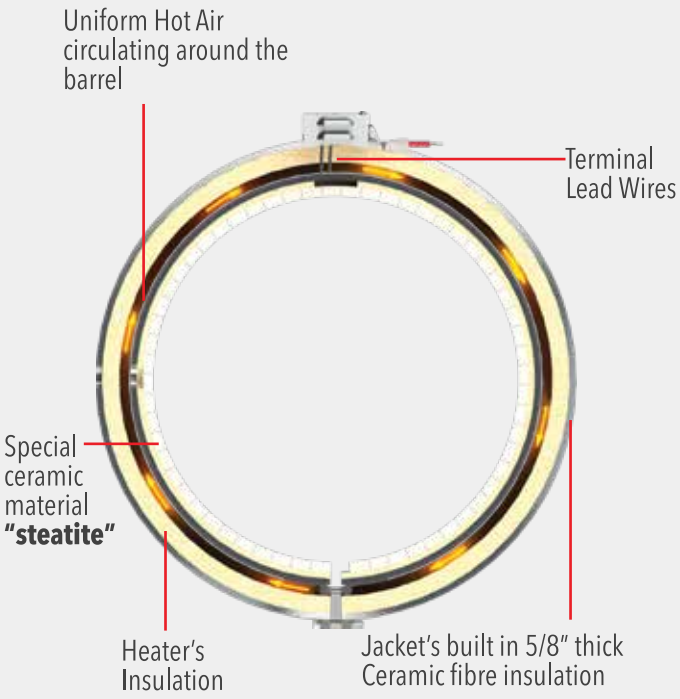
Max Operating Temperature	800°C
Heater Inner Diameter	2½" or 65mm and up
Width	1½" in or 38mm and up
Thickness	3/8" or 10 mm and up
Insulation Material	Ceramic Fiber Blanket or Superior Aerogel
Rated Voltage	Upto 480 V (single or three phase)
Watt Density	Upto 50 W/in^2
Resistance Tolerance	NEMA Standard plus 10% Minus 5%
Wattage Tolerance	NEMA Standard plus 5% Minus 10%
Terminals	Junction Box fitted with braided cable & Post terminals & many more options
Sheath Material	ALSTAR Aluminium coated Steel (rust protection, high heat retention, faster heating)
Clamping Arrangement	M6 & M8 fastner

UP TO 20%
POWER SAVER

REDUCE HEAT LOSS | **MAXIMIZE OPERATOR COMFORT** | **CONSERVE ENERGY** | **REDUCE OVERALL OPERATION COST**

FEATURES

- Ceramic Jacketed Heaters are EXCEL's premium product since three decades
- The key to the ceramic- jacketed heater is its superior design to save power
- Up to 20% reduction in power consumption
- The model is designed & constructed with special effective dual insulation which reduces the rate of heat radiation/loss, resulting in swift rise in the temperatures of the object to be heated
- Uniform heat distribution throughout the barrel
- Reduction of thermal shocks on polymer melt, resulting in improved quality
- Improves finished product's quality by providing better shine
- Increases productivity



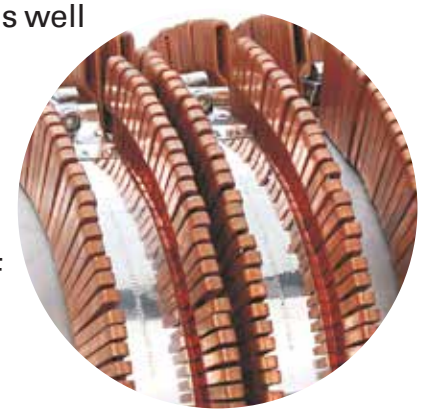
Working Principle

The key to the Ceramic-Jacketed Heater is its superior design to save the power. It is constructed with EXCEL's exclusive DUAL INSULATION-first is the heater's built-in insulation & second is the jacket's insulation. The heat transfer in the ceramic heater is by conduction.
The heat dissipation from the heater's built-in insulation will be prevented by its outer jacket. Hot air will be trapped between the gap. The process of heat exchange is making a uniform layer of heat all over the barrel. The jacket has insulation lining which further prevents the heat loss. This process reduces the rate of heat radiation, resulting in swift development of temperature. Quick response to temperature controller will have more 'off' cycles at maintained set tempreatures. Result is saving of electric power.

HEAT COOL COMBINATION Heaters

Cylinder Barrel Heating For Temperature Sensitive Application

Applications: Plastic Processing Machines where heating as well as cooling is important along with precise temperature control requirement.



Technical Specifications

Max Operating Temperature	upto 800°C or 1500° F
Heater Inner Diameter	4" or 100mm and up
Width	4" or 100mm and up
Voltage	Up to 480 V (single or three phase)
Resistance tolerance	NEMA Standard plus 10% Minus 5%
Wattage tolerance	NEMA Standard plus 5% Minus 10%
Terminals	As per requirement
Outside Metal Body Material	Stainless Steel SS304
Clamping Arrangement	M6 fastner

FEATURES

- Perforated Ceramic Heaters are used on the inside with 60% open space for more efficient cooling, thus maintaining precise temperatures
- The Heater band is covered with an external SS enclosure for mounting the blower. Advantages of air cooled operations include: lower cost, easy replacement, low maintenance, no leakages and precise temperature control

- Copper and Aluminium is used for fins since these material are really good conductors of heat, which helps in quick response to temperature changes and helps in applications where precise temperature control is required
- The outer cover casing of the heater is made from stainless steel sheet, with detachable cover for simple assembly & mounting flange for cooling fan
- Specially designed internal air distribution channels and exhaust vents for uniform blower cooling
- Spacious terminal box for electrical connection

PERFORATED CERAMIC Heaters

Cylindrical Heating Applications where cooling efficiency is critical

Applications: Extruders and Blow Moulding Machines

Technical Specifications

Max Operating Temperature	upto 800°C or 1500° F
Heater Inner Diameter	2½"or 65mm and up
Width	1½" or 38mm and up
Thickness	12mm
Rated Voltage	Upto 480 V (single or three phase)
Watt Density	Upto 50 W/in^2
Resistance Tolerance	NEMA Standard plus 10% Minus 5%
Terminals	Junction Box fitted with braided cable & Post terminals & many more options
Sheath Material	ALSTAR Aluminium coated steel (rust protection, high heat retention, faster heating)
Clamping Arrangement	M6 & M8 fastner

FEATURES

- EXCEL's Perforated Ceramic heater is used where the cooling is more important than heating. It features 60% open perforated metal sheath, which assures maximum surface area exposure for cooling
- They also provide the user with a more economical operation, via a rapid heat-up and cool-down feature include lower cost, replaceable heaters, low maintenance and precise temperature control
- Petforated ceramic heater bands are available in various sizes to either accommodate new designs or to replace less efficient, more expensive cast aluminum heaters

CERAMIC FLANGE Heaters

Cylindrical Heating Applications for quick response to over-shooting temperatures

Applications: Plastic Processing Machines esp. Extruders, Blow Moulding for extremely precise temperature control for heat sensitive polymers

Technical Specifications

Max Operating Temperature	upto 800°C or 1500° F
Heater Inner Diameter	2½"or 65mm and up
Width	1½" or 38mm and up
Thickness	12mm
Rated Voltage	Upto 480 V (single or three phase)
Watt Density	Upto 50 W/in^2
Resistance Tolerance	NEMA Standard plus 10% Minus 5%
Terminals	Junction Box fitted with braided cable & Post terminals & many more options
Sheath Material	ALSTAR Aluminium coated steel (rust protection, high heat retention, faster heating)
Clamping Arrangement	M6 & M8 fastner

FEATURES

- Working Principal: forced convection by blower air for quicker response to overheating, thus accurately controls temperature of the barrel

- Mounting Arrangement: Separate blower is fitted on the bottom of the flange of heater. Heater along with blower is mounted on an aluminum perforated ring(high thermal conductivity) which in turn, is mounted on barrel. Aluminum ring provide air distribution channel

- Function: As soon as barrel exceeds set temperature, blower is turned on. Excess heat from barrel is carried away by the air through forced convection. Via rapid heat up and accelerated cool down feature, it responds very quickly in case of even a minute deviation from set
temperature. Thus, it reduces thermal shocks, material burn-out problem and maintenance related problems

MICA BAND Heaters

Cylindrical & Flat Heating Applications; up to 400°C

Applications: Mould heating, die heating, nozzle heating, injection, injection moulding, extruders, blow moulding machines

Technical Specifications

Max Operating Temperature	400° C (750° F)
Heater Inner Diameter	2" or 50mm and up
Width	1" or 25mm and up
Voltage	Upto 480V (single or three Phase)
Watt Density	Upto 25 W/in²
Resistance Tolerance	NEMA Standard plus 10% Minus 5%
Wattage Tolerance	NEMA Standard plus 5%, Minus 10%
Terminals	Junction Box fitted with braided cable & Post terminals & Many more options
Sheath	ALSTAR Aluminium coated steel (rust protection, high heat retention, faster heating)
Insulation Material	Mica
Clamping Arrangement	M6 fastner & nut-bolt
Standard gap when tightened	3/8" to ½"

FEATURES

- Due to its high heat transfer capability, faster heating up & cooling down is possible
- The built in insulation is specially formulated for the excellent heat reflection & performance capabilities
- The low mass heaters give the best controllability. The lower the thermal mass, lesser time required to deliver the heat to the object to be heated. Due to low mass and high conductivity, the "Polymer Melt" is heated quickly. Resulting autotune function on a control works best
- Flexible one or two - piece design makes installation faster & easier. Its flexible construction also allows the heater to be opened to the full diameter of the cylinder
- The most common square, rectangular and hex-shaped mica heaters can be manufactured as per your specifications in one or two piece units. Available with leads or terminals
- EXCEL's exclusive method of designing, maximizes the element wire coverage of the heated area.
- This results in uniform heat distribution & longer heater life

MICA BAND Heaters

Design & Construction Variations

XL MH-1

XL MH-2

XL MH-3

XL MH-4

XL MH-5

XL MH-6

XL MH-7

XL MH-8

XL MH-9

Right Mounting of Band Heaters - Installation Procedure

- In order to enquire a long and reliable working life, it is necessary that the band heaters are properly fitted
- Install the heaters over a clean surface of the cylinder (barrel) to be heated
- The band heaters should be clamped (with nuts & bolts or welded clamp bars) securely to the object to be heated
- Switch "on" the heater
- Important: The retightening of the nuts & bolts must be done frequently starting from the initial heat up until it reaches to the set operating temperature. At the right stage, no more retightening is possible. Go-ahead for further operations
- This procedure will remove the effects of "thermal expansion) between the inner surface of heater & the cylinder(barrel), resulting in proper heat transfer to the object to be heated and longer heater life

CASTING Heaters

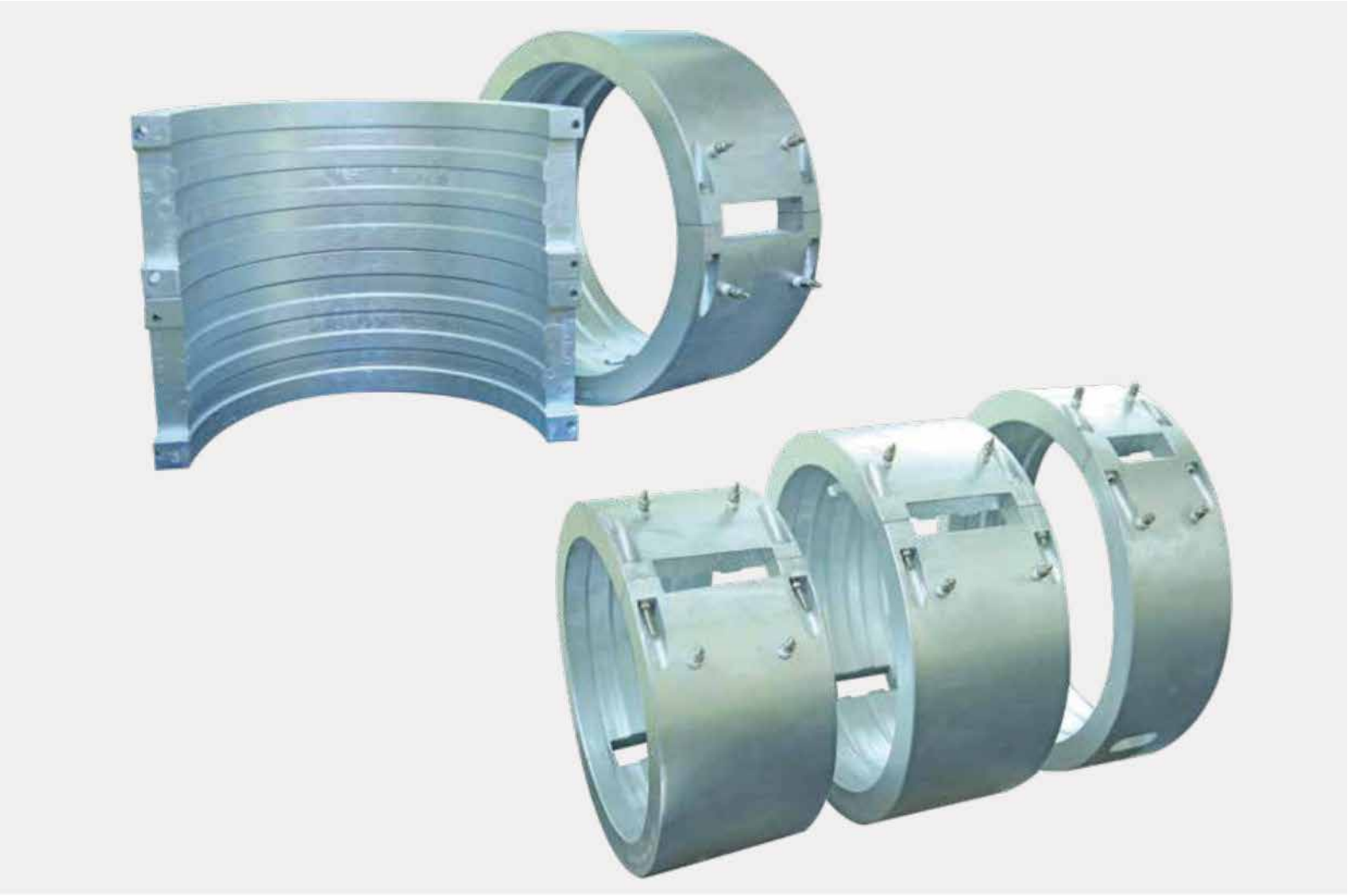
Precise and Long Lasting for temperatures up to 750°C

Applications: Extruders, Compression Molding Platens, Heat Sealers, Vacuum Forming Platens, any other heating application of any size and shape

Technical Specifications

Casting Material	Aluminium or Brass
Max Operating Temperatures	Aluminium - 400°C/750°F Brass - 7 50°C/1400°F
Size	As per requirement (any size or shape)
Voltage	Up to 480 V (single or three phase)
Wattage	Aluminum upto 35W/in^2 Bronze upto 50 W/in
Wattage tolerance	NEMA Standard plus 5% Minus 10%
Termination(s)	Leads, Terminal Boxes, Screw/Threaded Studs
Machining Tolerance	0.005 in
Other Options	Holes, Grooves, Notches, Cutouts as per requirement

CASTING Heaters



FEATURES

- High operating temperatures which can withstand high temperatures and pressures in harsh environment with years of trouble free service
- Accurate temperature control of+/- 2^0C
- Liquid cooling pipe or air-cooling fins to enhance cooling efficiency
- Any size or shape available
- Pressure casted ensures porosity free high density casting
- High resistance to damage, contamination and corrosion resistant
- Precise and accurate control of temperature due to heat cool action

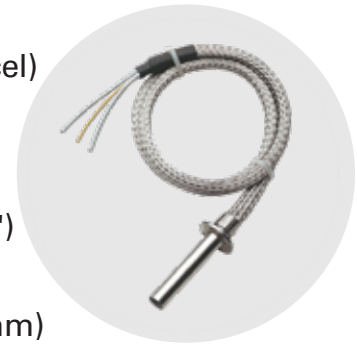
HIGH DENSITY CARTRIDGE Heaters

EXCEL's HIGH-DENSITY cartridge heaters are among the most versatile and widely used cartridge heaters throughout the industry. They are valuable for alleviating problems created by high watt densities, high wattage, excessive vibration, poor fit, or where short heater life is a constant problem.

Applications: Plastic Injection Moulds, Dies, Hot Plates, Fluid heating, Sealing, Platens.

Technical Specifications

Maximum Operating Temperature	For Incoloy- 800°C (1400° F) For 5S304- 500°((950° F)
Maximum Volts	A240 (440 volt when applicable, consult Excel)
Maximum Watt Density	200 W/in
Outer Diameter Tolerance inches	±.002 (upto dia:5/8") & ± .004 (above dia: ¾")
Outer Diameter Tolerance MM	±.050 (upto dia:16mm) & ± .80(above dia: 20mm)
Resistance Tolerance	NEMA standard plus 10% minus 5%
Wattage Tolerance	NEMA standard plus 5% minus 10%



Inch	1/8"	¼"	3/8"	5/16"	½"	5/8"	¾"	1"	
Metric:	6.5	8	9.5	10	12	12.5	16	19	25.4

- **HIGHER RELIABILITY**
- **HIGHER TEMPERATURE**
- **HIGHER WATT DENSITY**
- **LONGER HEATER LIFE**

FEATURES

Specially fabricated flexible lead wire

Ceramic end cap and swaged-in lava plug protects the internal cartridge from outer contamination. Various types of seals can also be provided

Nickel-chrome resistance wire is precisely wound on a high purity magnesium oxide core placing the resistance wire as close to the inside sheath as possible. This provides excellent heat transfer, and results in highest possible watt densities and longer heater life

High temperature alloy sheath material is used on all HIGH-DENSITY cartridge heaters to provide the best combination of physical strength and resistance to high temperature

Specially selected grain size and high purity magnesium oxide is used to fill all remaining space inside the sheath. Heater assembly is then compacted by a swaging operation, which crushes the ceramic core and compacts the magnesium oxide grains into a solid mass, thereby increasing thermal conductivity and dielectric strength

HIGH DENSITY CARTRIDGE Heaters

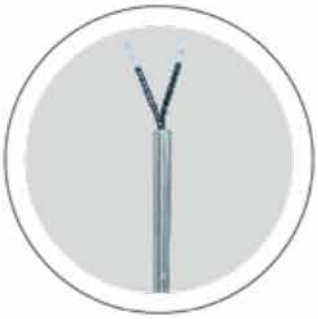
XL HD1

XL HD2

XL HD3

XL HD4

XL HD5

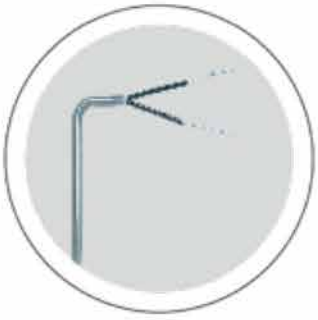


XL HD6

XL HD7

XL HD8

XL HD9



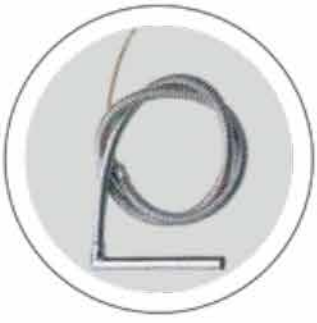
XL HD10

XL HD11

XL HD12

XL HD13

XL HD14



XL HD15

For more details about the product, visit our website www.excelheaters.com or contact our technical team

HIGH DENSITY CARTRIDGE Heaters

XL HD16

XL HD17

XL HD18

XL HD19

XL HD20

XL HD21

XL HD22

XL HD23

XL HD24

XL HD25

XL HD26

XL HD27

XL HD28

XL HD29

XL HD30

For more details about the product, visit our website www.excelheaters.com or contact our technical team

COIL AND CASTING Heaters

Applications: Hot runner molds, sprue brush, nozzle, pipe forming

Technical Specifications

Sheath Material	SS304 & SS316L
Maximum Operating Temperature	700°C (1300°F)
Insulation Material	High Purity MgO
Heating Elements	NiCr 80:20
In-built Thermocouple	"J" type (FE, K) / "K" type (Cr Al)
Connecting Wires	Stranded Bickel wires with PTFE coating
Different types of Termination Exits	Tangential, Radial &Axial
Voltage Range	Max.: 250V, Standard: 230 V
Power tolerance	± 10%
High Voltage Strength	Min. B00V-AC
Insulation Resistance	≥ 5Ω
Current Leakage	≥0.5mA

FEATURES

- A very wide contact surface results in exceptionally high levels of thermal conductivity towards the body that needs to be heated
- Optimal insulation results in a very long life duration
- Heavy-duty construction results in very high resistance to mechanical shocks
- Optional built-in thermocouple for high-resolution temperature measuring (J-type standard; K-type on request)
- Heaters can be incorporated into brass or aluminum castings
- Wide range of straight standard heaters normally in stock, ready for coiling/shaping; Cross section available: 3mmx3.3mm and 2.2mm x 4mm. Other options are available as per requirement

MICRO TUBULAR COIL Heaters

Micro Tubular Coil Heaters are manufactured in Round & Rectangular section. In round section available diameters are 1 mm, 1.5mm & 1.8mm. In rectangular section available diameters 1.3 x 2.1. These heaters are swaged and compacted to these diameters and fitted into special clamps to tighten over circulars parts for heating purpose.

Technical Specifications

Sheath Material	SS304
Insulation Material	High Purity MgO
Heating Elements	NiCr 80:20
Voltage Range	220V to 240V
Power Rating	168Wto 300W
Power Tolerance	±5%
High Voltage Strength	Min. S00V-AC
Insulation Resistance	≥ 5 Ω
Sheath Temperature of Heating Element	Max.750°C
Variation	Round-1 mm, 1.5mm & 1.8mm & Rectangular-1.3 x 2.1
Clamping	Screw Clamp &Axial Clamp
Unheated Length	5" & 7"

STANDARD READY STOCK HEATERS OFØ1.8

Inner Diameter(mm)	Outer Diameter(mm)	Length L (mm)	Volt (V)	Watt (W)	Lead Length
19.1	23.5	30.5	240	268	1000mm
19.1	23.5	30.5	240	149	1000mm
22.2	26.6	30.5	240	268	1000mm

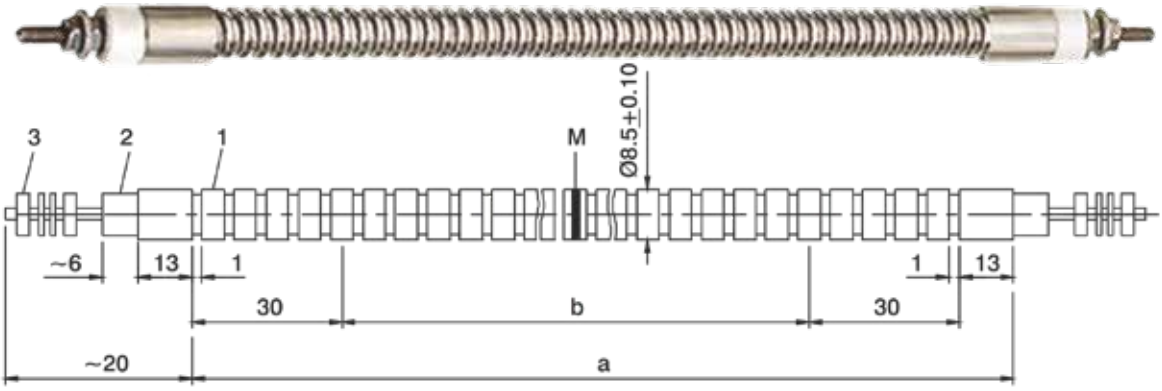
For faster heat up time we can offer similar heaters with a flat cross section of 1.3mm x 2.1 mm. The cold leads have a diameter of 1.8mm whereas the heated area has a flat cross section for better contact area and faster heat transfer. Standard sizes & both types of clamping i.e. screw & axial clamp available are mentioned below.

STANDARD READY STOCK HEATERS OF RECTANGUALR SECTION 1.3 X 2.1

Inner Diameter(mm)	Outer Diameter(mm)	Length L (mm)	Volt (V)	Watt (W)	Lead Length
19.1	23.5	30.5	240	268	1000mm
19.1	23.5	30.5	240	149	1000mm

FLEXIBLE Heaters

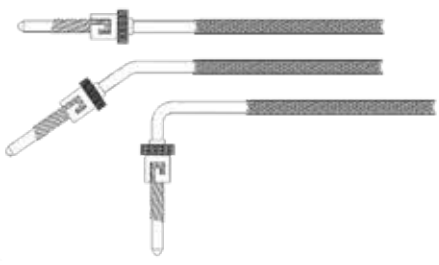
Flexible heaters use for hot runner moulds available diameter Ø8+0.10 and Ø 8.5+0.10mm. Ex-stock available for more detail visit our website www.excelheaters.com



THERMOCOUPLES

- Standard thermocouples
- Bayonet adjustable spring type
- Washer & nozzle types
- Teflon coated & Stainless steel braided
- Mineral insulated for hot runner molds available diameter 0.5mm, 1 mm & 1.5mm
- Many more varieties with your specifications

Bayonet Adjustable Spring Type



Washer Type

Nozzle Thermocouple

For more details about the product, visit our website **www.excelheaters.com** or contact our technical team

SEALED NOZZLE Heaters

For Better Heat Transfer & Long Life of the Heater

Applications: Plastic Processing Machines for nozzle heating where heating as well as cooling is important along with precise temperature control requirement.

Technical Specifications

Sheath Material	Brass tubular sheath
Maximum Operating Temperatures	300°C (550°F)
Heating Elements	Ni Cr 80:20
Volt Range	220V to 240V
Watt Density	Up to 6W/cm^2
Clamping	M4 Screw Clamping
Minimum Heater Inner Diameter	30mm
Minimum Length	30mm

- **MINIMUM MATERIAL WASTE**
- **NO FREEZE OFF OF THE PLASTIC**

FEATURES

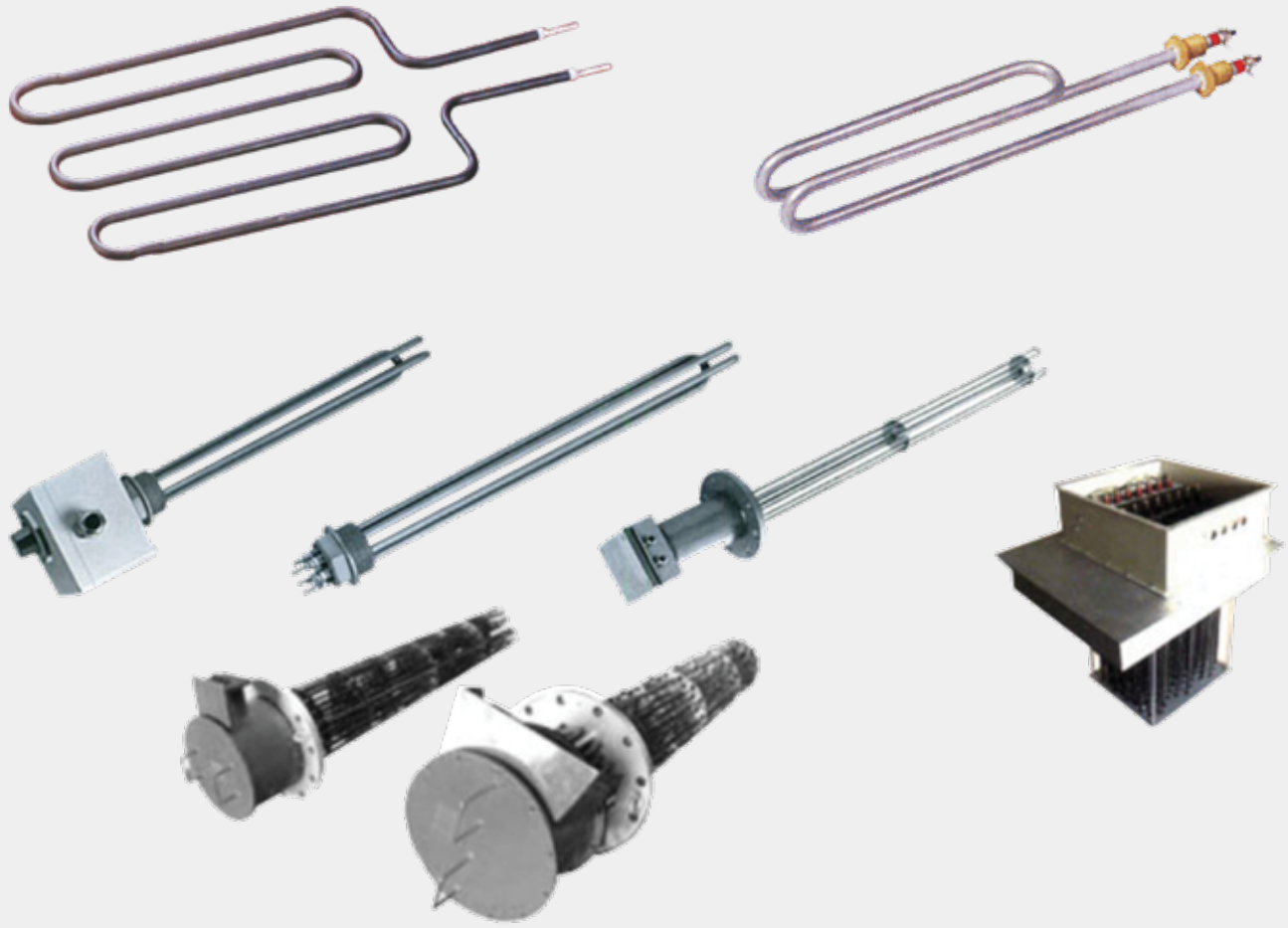
- Sealed Brass Nozzle Heaters are completely immune to external factors such as melted plastics, oil, gas, etc
- Sealed Brass Nozzle heaters are very sturdy & the high watt density per square centimeter provides the required working temperature with a fast and safe means
- During manufacturing process, the heaters are subjected to very high pressure that gives them high insulation, excellent thermal exchange, lack of internal voids, perfect smooth contact area for optimum and uniform heat transfer to every point of nozzle

TUBULAR Heaters

Applications: Plastic Industries, Foundry, Packaging Industries, Engineering Industries, Labs Equipments, Domestic Application, Air Conditioning System, Recalculating Draying Oven, Forced Air Duct Heaters, Boiler Equipments, Freeze Protection, Hot Water Storage Tank, Food Processing Units, Warming Equipments.

Technical Specifications

Outer Diameter	8 mm & 10.5 mm
Sheath Material	SS304, SS321, SS316, Incoloy800, Incoloy840, ncloly600
Maximum Watt Density	Up to 100 W/in^2

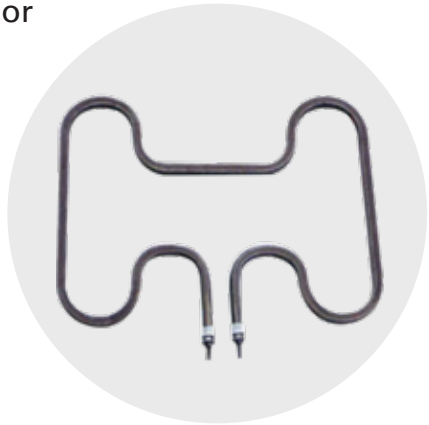


FEATURES

Finned Tubular Heater

It is ideal for transferring heat to air or other gases. Finned tubular heaters are manufactured in a very wide range of dimension and power ratings. They can be shaped into any pattern, depending on the application. Complete air heating batteries that incorporate finned tubular heaters are designed and built to meet the requirements.

Water & Oil Immersion Heater



Efficient, compact heating units designed to provide bulk heat flow system processing fluids or for liquid accumulators. Normal and certified hazardous area constructions very widely used to heat water, oil, gases or for heat transfers

We can supply standard as well as custom built purposes. Available in both round and square flange with built in probe and thermostats on request.

Alkaline /Titanium Heater

Made by nickel chrome sheeted heating elements, mounting one side of the vessel, easy to remove and clean.
It is used in Alkaline cleaning solution, detergent and other alkaline solution normally corrosive to mild up to 90°C.

AEROGELTHERMAL INSULATION Jacket

Power saving upto 20%

UP TO 20%
POWER SAVER

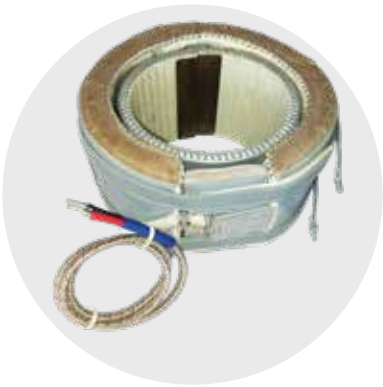
Applications: Extruder and Extruder Heads, Blow Molders, Turbine Heaters, Injection Machines, Exhuasted Pipes, Chemical Industry

Technical Specifications

- Custom made as per your requirements
- Insulation material cera wool or aerogel

FEATURES

- Power Saving up to 20%
- Special insulation material -Aerogel has superior thermal performance and reduced thickness
- Aerogel is used by NASA for space technology
- Work surrounding temperature is greatly reduced, saving air conditioning fee
- Outer cover temperature is greatly reduced making it safer for the operator
- It can withstand temperature up to 1000 degree Celsius
- Every product is custom designed as per customer specifications
- Increases the off cycle time of heaters, thus saving energy
- Shortens the injection of standby time
- It is an environment friendly product- the insulation is landfill disposable
- Easy to install and long lasting



WHYTHE HEATERS Fail?

For over 5 decades, EXCEL has been solving complex and unique application problems of heaters. We are continuously improving our design and application knowledge through our engineering expertise and our experience with end-user applications, resulting in the best heating solutions.

The following are some helpful hints to keep the heaters running smoothly.

WHY HEATERS FAIL?

REASONS	SOLUTIONS
Loose filling on the cylinder (barrel)	▪ Refer "right mounting of band heaters – installation procedure"
The selection of the wrong watt densities	▪ Match the heater wattage as closely as possible to the actual load requirements to limit ON / OFF cycling ▪ The watt densities shouldn't exceed recommended limit
Defective temperature sense by the thermocouple	▪ The "below" (tip) of thermocouple should be inserted deeply in the cylinder ▪ The "below" (tip) should not vibrate ▪ Check the polarity of thermocouple with temperature controllers
Leakage of polymer melt or oil	▪ Rectify the leakage immediately
Voltage fluctuation	▪ Check the voltage regularly
Heaters that are forced to operate beyond its maximum capacity to operate at the required temperatures	▪ To prevent premature failure, the heaters shouldn't operate beyond its maximum recommended temperatures
The wrong reading of the temperature controllers	▪ Check ON /OFF cycles of temperature controller ▪ It is important that all heaters should be used with appropriate, approved and precise temperature control/sensor device(s)
The smallest amount of contamination can cause electrical shorts creating heater failure	▪ Before installation & during operation, the outer surface of the barrel and inside surface of band heater must be cleaned & should be free of all contamination.
Serrated edges may begin to collapse and thrust outwards	▪ Tighten the Allen bolt until the serrated edges become firmly in direct contact with the barrel.
Incorrect wiring and loose contacts leads to sparks resulting in fire or heater failure.	▪ Keep all electrical connections properly protected to avoid electrical hazards to machine operators.
Terminals not well insulated and protected from moisture	▪ Ensure that the terminals are well insulated and protected since the heater terminals are prone to attracting moisture.
Use of substandard raw material & manufacturing defects	▪ Standard raw material should be used & without any manufacturing default.
Combustible gases or vapours	▪ Avoid using heaters in an atmosphere containing combustible gases or vapours.
Incorrect wiring	▪ Electrical wiring on any type of heaters should be done by a qualified person complying with local electrical codes.

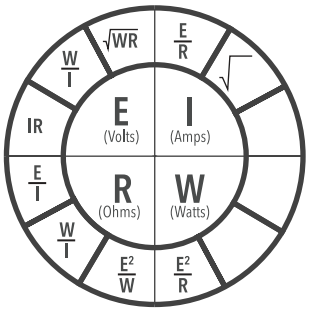
REFERENCE Data

OHMS LAW

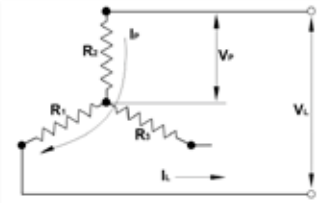
Wattage varies directly as ratio of voltages squared

$$W_2 = W_1 X \left(\frac{E_2}{E_1}\right)$$

$$\text{3 Phase Amperes} = \frac{\text{Total Watts}}{\text{Volts X 1.732}}$$

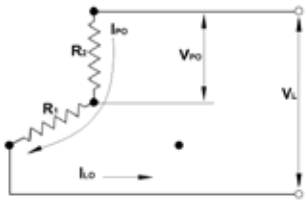


3-Phase Wye (Balanced Load)



$V_P = V_L$
$I_P = I_L / 1.73$
$W_{WYE} = V_L^2/R = 3(V_P^2)/R$
$W_{WYE} = 1.73 V_L I_L$

3-Phase Wye (Balanced Load)



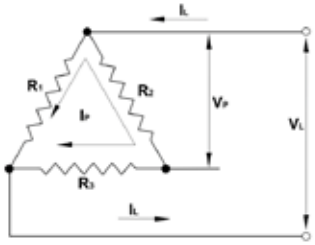
$I_P = I_{LO}$
$V_{PO} = V_L / 2$
$W_{OWYE} = 1/2(V_L^2)/R$
$W_{OWYE} = 2(V_{PO}^2/R)$

DEFINATIONS

For Both Wye and Delta (Balanced Loads)

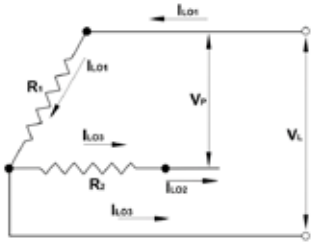
V_P = Phase voltage
V_L = Line voltage
I_P = Phase Current
R =R1 =R2= R3= Resistance of each branch
W = Wattage

3-Phase Delta (Balanced Load)



$I_P = I_L / 1.73$
$V_P = V_L$
$W_{DELTA} = 3(V_L^2)/R$
$W_{DELTA} = 1.73 V_L I_L$

3-Phase Open Delta



$I_P = I_L / 1.73$
$V_P = V_L$
$W_{DELTA} = 3(V_L^2)/R$
$W_{DELTA} = 1.73 V_L I$

DEFINATIONS

Wye and Delta Equivalants

$W_{DELTA} = 3\ W_{WYE}$
$W_{ODELTA} = 2/3 W_{DELTA}$
$W_{OWYE} = 1/2 W_{WYE}$

ESTEEMED Clients

NOTES

INDUSTRIAL HEATERS

- Induction Heaters (Power Saving upto 70%)
- Ceramic Heaters
- Ceramic Jacketed Heaters (Power Saving upto 20%)
- Ceramic Flange Heaters
- Perforated Ceramic Heaters
- Heat Cool Combination Heaters
- Mica Insulated Band & Strip Heaters
- Sealed Brass Nozzle Heaters
- High Watt Density Cartridge Heaters
- Coil & Flexible Heaters for Hot Runner Moulds
- Casting Heaters
- Infrared Heaters
- Tubular Heaters and Thermocouples
- Aerogel Thermal Insulation Jacket (Power Saving upto 20%)

APPLICATIONS

- Plastic Processing Machinery
- Injection Moulding Machines
- Blow Moulding Machines
- Plastics Extruders & Extrusion Dies
- Cylinder Heating Applications
- Hot Runner Molds for Plastic Industry
- Packaging Equipment
- Hot Plates & Ovens
- Chemical Industries
- Rubber Industry
- Aerospace Industry
- Pharmaceuticals Industry

SATISFIED CLIENTELE IN MORE THAN 45 COUNTRIES

EXCEL HEATERS

An ISO 9001: 2015 Certified Company

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