

SELECTION CRITERIA

Out Flow	Inline	Mat./Floor
1. Fluid to be handled.	1. Fluid to be handled.	1. Capacity and dimensions of tank.
2. Flow rate and specific heat.	2. Flow rate and specific heat.	2. Fluid stored and its specific heat.
3. Temperature rise.	3. Temperature rise and pressure.	3. Desired temperature rise (if any) and time required for rise.
4. Size of Tank / Vessel.	4. Whether horizontal or vertical mounting.	4. Minimum ambient temperature for heater design.
		5. Insulation details on tank.

Note : As per client request we can supply control panel for heater also.

In our Constant efforts in updating technology, we reserve the right to change specification without notice.



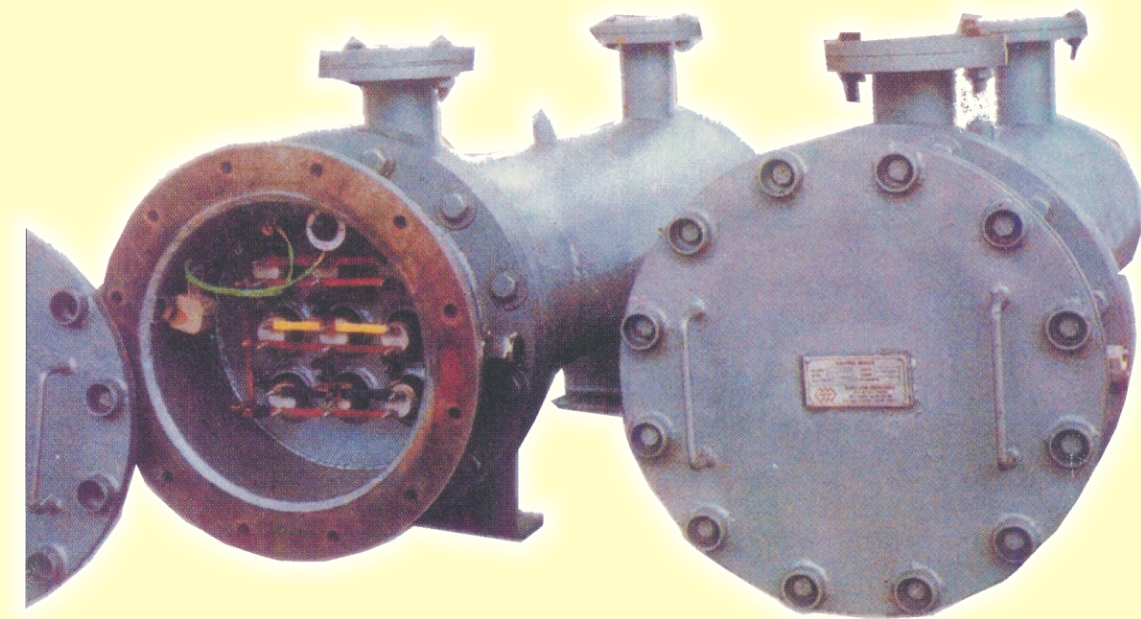
SHIVAM ENTERPRISES

Work & Marketing Office :

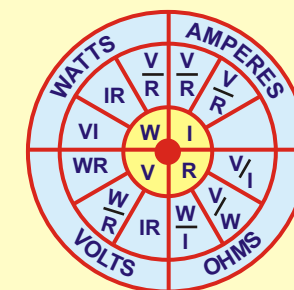
Akash communication, Near Nocil Colony, Talawali Village, P. O. Ghansoli, Thane Belapur Road,
Navi Mumbai 400 701. **Mobile : 9819867639 / 9867802183**

ELECTRICAL CARTRIDGE HEATERS

FOR INDUSTRIAL APPLICATIONS



◆ **MAT / FLOOR HEATERS**
◆ **OUTFLOW HEATERS** ◆ **INLINEHEATERS**



**FOR EFFECTIVE
HEATING OF
FUEL OILS,
INDUSTRIAL
LIQUIDS, GASES
AND AIR.**

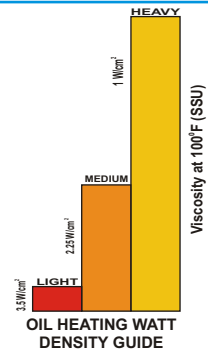


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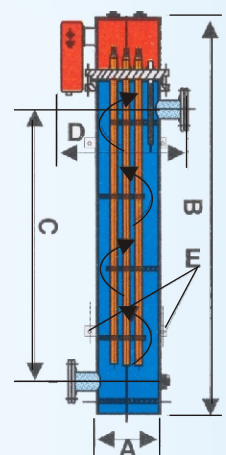
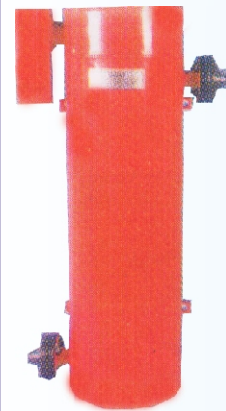
Shivam Enterprises Unique Advantages

- ◆ Selection of appropriate watt densities.
 - ◆ Long life metallic cartridges / open bobbin elements used.
 - ◆ Longer cartridges upto 4 meters used to cover large surface in tanks and vessels.
 - ◆ Easy replacement of cartridges without oil shutdown.
 - ◆ Precise temperature regulation for optimum performance achieved through capillary thermostats.
 - ◆ Custom - Designing, Fabrication and testing facilities.
- ❖ Watt density is heating density expressed in watt / cm² experienced by oil over the outside surface area of encasing metallic pipe.



INTRODUCING COMPACT VERTICAL / HORIZONTAL TYPE HEATERS WITH UNIQUE OPEN ROBBIN TYPE ELEMENTS

INTRODUCING



- ◆ INSULATORS MADE FROM TYPICAL PROPERTIES OF CERAMICS SUCH AS CORDIERITE, STEATITE, ETC.
- ◆ EXCELLENT PHYSICAL, THERMAL & ELECTRICAL PROPERTIES.
- ◆ EASY REPLACEMENT.
- ◆ VERY LOW WATT DENSITY ON CASING PIPES ENSURES LONGER LIFE OF ELEMENT
- ◆ AVAILABLE FROM 3KW TO 120KW.

Few Capacity wise Dimensions

HEATER CAPACITY	NO. OF ELEMENTS	A	B	C	D	E
12	12	200	1175	850	495	575
18	18	220	1175	850	520	575
30	30	275	1175	850	575	575
48	48	355	1175	850	655	575
63	42	325	1615	1290	625	1015
81	54	355	1615	1290	655	1015
99	66	406	1615	1290	706	1015
108	72	457	1615	1290	757	1015

METAL SHEATHED MINERAL FILLED CARTRIDGES A UNIQUE CONCEPT



Rugged Construction :

Rugged Metal Sheathed cartridges of 30/45/50mm are used.

High Conductivity :

The Cartridges are filled with thermally conductive magnesium oxide (MgO) thoroughly compacted to high density to ensure maximum thermal conductivity, high electrical resistance & better life

Parallel Coil Design :

The internal heating coils are arranged with suitable number or parallel coils instead of a singly coil of rated wattage. This results in more number of heating coils inside the cartridges, lower watt density on heating coil, uniform cartridges heating and eliminates chances of total burnout of cartridge.

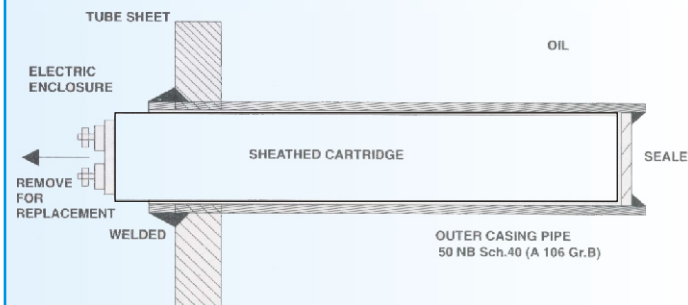
For example : A 3 kw rated cartridge is normally provided with 3 coils of 1 kw each in parallel.

Tamper proof :

The cartridge is factory sealed and is completely tamper proof.

Ease of Replacement :

The cartridge can be replaced without any removal of heater body or shutdown.



TYPICAL CARTRIDGE & CASING ARRANGEMENT

MATT / FLOOR HEATER

Watt density offered : 0.5 w/cm².

Capacity : 3KW to 24KW

Used to heat or maintain temperature of liquids in tanks or process vessels. Preferably Installed at a level below the outlet of the tank / vessel so that heater is fully submerge in liquid.

Special capacities can be custom-built as per process requirement.



MATT / FLOOR HEATER

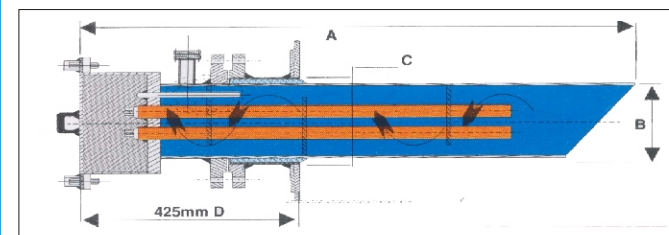
CAPACITY WISE DIMENSIONS FOR CIRCULAR MOUNTING FLANGE

Heater Capacity KW	No. of Element	Element Capacity KW	Tank noz A	Total length B
3	3	1	273	1285
6	3	2	273	2335
9	3	3	273	3385
12	3	4	273	4435

CAPACITY WISE DIMENSIONS FOR ELLIPTICAL MOUNTING FLANGE

12	6	2	203	2310
18	6	3	203	3360
24	6	4	203	4410

OUT FLOW HEATER



Watt Density : 0.75 to 1 W/cm²

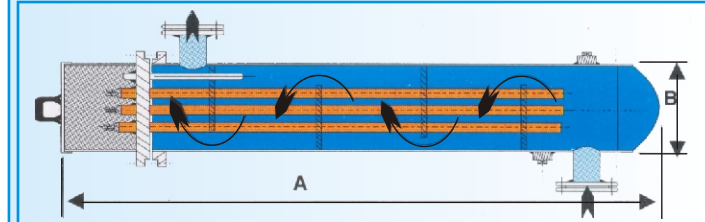
Capacity : 3kw to 72kw

Ideal for storage tanks. Used to draw viscous liquids / oils at controlled temperature. For large tanks a number of heaters are provided radially. Heaters are capable of maintaining tank temperature when heated oil is circulated back to tank. Instant heating - within minutes from cold start.

FEW STANDRD HEATER DIMENSIONS

Heater Capacity KW	No. of Elements	A	B	C	D
12	3	3125	273	219	425
18	6	2425	324	273	425
27	9	2425	356	324	425
36	9	3125	356	324	425
48	12	3125	457	406	425
72	18	3125	457	406	425

METAL SHEATHED MINERAL FILLED CARTRIDGES A UNIQUE CONCEPT



Used for inline heating of oils or other viscous liquids to desired elevated temperatures. Fuel oils are heated to pumping temperature or higher temperatures for firing. Easy to handle. Safe to operate.

Watt density : 1.2 W/cm² to 1.5 W/cm²

HEATER	No. Of ELEMENTS	DIMENSIONS IN MM	
		A	B
36	9	1750	324
48	12	1750	407
72	18	1750	525
84	21	1750	600
96	24	1750	625
108	27	1750	650
120	30	1750	675
144	36	1750	700

GENERAL SPECIFICATION :

- Material of Construction for Elements Assembly.**
Casing pipe C. S. Seamless Pipes
Cartridge Sheath : Stainless Steel
Element Wire : Kanthal DSD
- Tamper Proof Construction**
Kanthal DSD wire coils are fitted on ceramic fluted bobbins in parallel. Magnesia powder is filled in Stainless steel sheathing Both ends are factory sealed. This ensures tamper proof construction and maximum safety in operation.
- Size**
Cartridge dia : 30mm / 45mm / 50mm
Casing Dia : 40NB / 50 NB Sch. 40 seamless pipe.
- Terminal Controls**
Bolted type, fabricated out of general purpose sheet metal. Liberal electrical clearances are provided in terminal enclosure. For hazardous areas FLP junction box can be offered.
- Temperature controls**
The Heaters are provided with 2 nos. thermostats / temp. controllers with suitable thermowells, one for control and the other for safety.
- Grounding Connector**
A solid grounding connector is provided as standard on all heaters.
- Standards / Codes**
Manufactured as per good engineering practice Coded construction based on international standards on all heaters.
- Finned Tube Heaters**
Cartridge can be provided with finned tube casings. This will result in larger heating surface area and low watt density.
- Control panel**
Complete panel including switch fuse unit indicating lamps, ON-OFF switch, Voltmeter, Ammeter, Contractor etc., can be supplied on request as an optional feature.