



Cartridge Heaters

Immersion

U.L. Recognized-E56973
C.S.A. Certified – 016386-0-000

IMMERSION

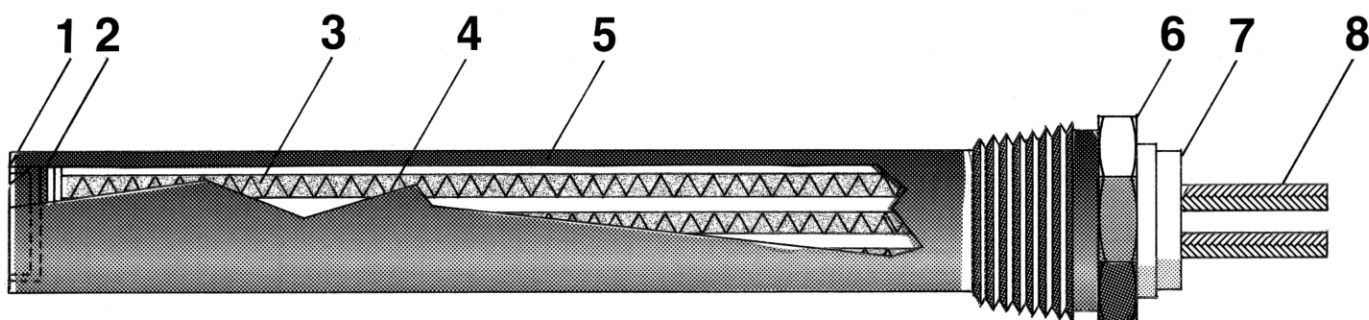


Features:

- The Hotwatt Immersion Heater may be supplied with various junction boxes for additional terminal or lead protection.
- For corrosive environments, units can be supplied in other special alloys best suited to the operating conditions.
- The lead end of the unit may be sealed for extreme environmental conditions.
- Units may be supplied for three phase or three heat operation.
- Made in U.S.A.

Construction:

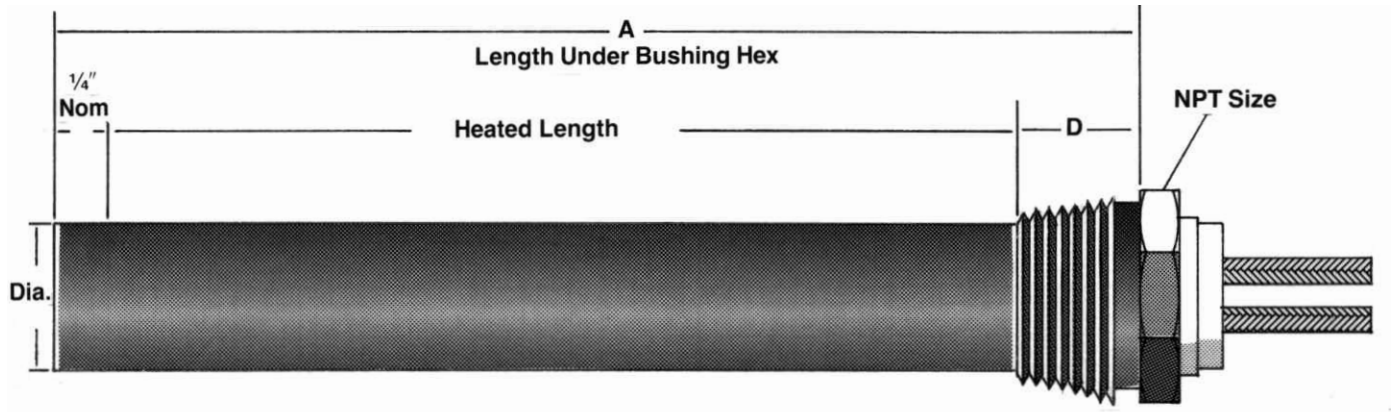
- 1 Welded end.
- 2 Mica.
- 3 Magnesium oxide packing.
- 4 Element wire situated in close proximity to outside surface for maximum heat transfer and minimum internal temperature while preserving good dielectric qualities.
- 5 Series 316 stainless steel sheath.
- 6 Mounting bushing.
- 7 Ceramic cap.
- 8 Flexible stranded nickel alloy insulated leads or rust resistant post terminals.





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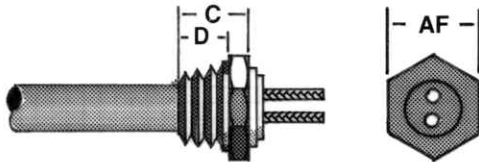
Immersion



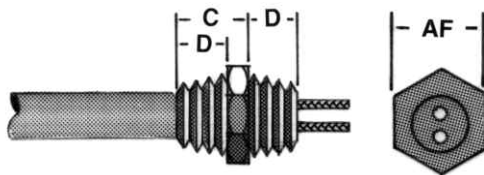
Available Bushings: Must be specified after catalog number.

Brass Bushings

SF25A: Single

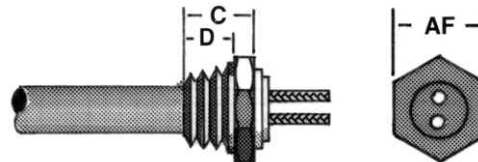


SF25B: Coupling Head

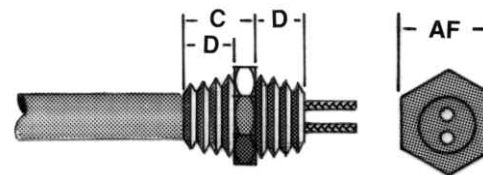


Stainless Steel Bushings

SF25C: Single



SF25D: Coupling Head



▼ Manufactured Items ▼

1/4" Diameter

NPT Size: 1/8"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 3.5

AF: 7/16"

C: 1/2"

D: 3/8"

Length A	Catalog Number	Maximum Wattage in Water
2"	EM25-2	115
3"	EM25-3	185
4"	EM25-4	255
5"	EM25-5	325
6"	EM25-6	395
7"	EM25-7	465

3/8" Diameter

NPT Size: 1/4"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 6.0

AF: 5/8"

C: 5/16"

D: 7/16"

Length A	Catalog Number	Maximum Wattage in Water
2"	EM37-2	130
3"	EM37-3	240
4"	EM37-4	345
5"	EM37-5	450
6"	EM37-6	555
7"	EM37-7	660



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▼ Manufactured Items ▼

½" Diameter

NPT Size: ⅜"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 10

AF: ⅛" C: ⅝" D: ⅞"

Length A	Catalog Number	Maximum Wattage in Water
3"	EM50-3	360
4"	EM50-4	505
5"	EM50-5	635
6"	EM50-6	765
7"	EM50-7	895
8"	EM50-8	1030

⅝" Diameter

NPT Size: ½"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 10

AF: ⅜" C: ¾" D: ⅞"

Length A	Catalog Number	Maximum Wattage in Water
3"	EM62-3	430
4"	EM62-4	605
5"	EM62-5	785
6"	EM62-6	1060
7"	EM62-7	1135
8"	EM62-8	1310

¾" Diameter

NPT Size: ¾"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 15

AF: 1⅜" C: ⅞" D: 1⅞"

Length A	Catalog Number	Maximum Wattage in Water
4"	EM75-4	705
5"	EM75-5	915
6"	EM75-6	1130
7"	EM75-7	1340
8"	EM75-8	1555
9"	EM75-9	1765

1" Diameter

NPT Size: 1"

Standard Termination: 8-32 Screw and Nut (SF3)

Maximum Amperage: 25

AF: 1⅜" C: 1⅝" D: 1⅞"

Length A	Catalog Number	Maximum Wattage in Water
5"	EM1.0-5	1195
6"	EM1.0-6	1495
7"	EM1.0-7	1795
8"	EM1.0-8	2095
9"	EM1.0-9	2395
10"	EM1.0-10	2695

1¼" Diameter

NPT Size: 1¼"

Standard Termination: 8-32 Screw and Nut (SF3)

Maximum Amperage: 30

AF: 1¾" C: 1⅞" D: 2⅜"

Length A	Catalog Number	Maximum Wattage in Water
6"	EM1.2-6	1690
7"	EM1.2-7	2145
8"	EM1.2-8	2600
10"	EM1.2-10	3055
12"	EM1.2-12	3505
14"	EM1.2-14	3960

1.9" Diameter

NPT Size: 2"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 40

AF: 2½" C: 1⅞" D: 1⅞"

Length A	Catalog Number	Maximum Wattage in Water
10"	EM1.9-10	4200
12"	EM1.9-12	5000
16"	EM1.9-16	6700
20"	EM1.9-20	8400
24"	EM1.9-24	10000
30"	EM1.9-30	12600

2.3" Diameter

NPT Size: 2½"

Standard Termination: 6" Leads (SF1-6)

Maximum Amperage: 50

AF: 3" C: 1⅞" D: ⅞"

Length A	Catalog Number	Maximum Wattage in Water
12"	EM2.3-12	6000
18"	EM2.3-18	9000
24"	EM2.3-24	12000
30"	EM2.3-30	15000
36"	EM2.3-36	18000
42"	EM2.3-42	21000

- Above wattages are based on a unit operating immersed in water. For heating other materials, see table for recommended maximum watt densities.
- Lengths between and longer than those listed may be ordered.
- See page 148 for Suggested Watt Density and see page 152-155 for Sheath Materials.
- See next page for stock items



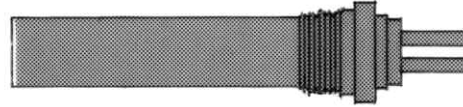
Cartridge Heaters

Immersion

▼ IN STOCK ITEMS ▼

Immersion Heaters

Supplied with: Type SF1 leads, Type SF3S terminals
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Length	Cat. No.	Dia.	Wattage	Voltage	Watts/in ²	Weight	Lead Const.	Fittings
6"	EM62-6/SF25C	5/8"	100	120	9	.40	12" w/epoxy seal	1/2" NPT
6"	EM62-6/SF25C	5/8"	400	120	37	.40	12" w/epoxy seal	1/2" NPT
6"	EM62-6/SF25C	5/8"	400	240	37	.40	12" w/epoxy seal	1/2" NPT
6"	EM75-6/SF25C	3/4"	125	120	9	.50	12" w/epoxy seal	3/4" NPT
6"	EM75-6/SF25C	3/4"	500	120	38	.50	12" w/epoxy seal	3/4" NPT
6"	EM75-6/SF25C	3/4"	500	240	38	.50	12" w/epoxy seal	3/4" NPT
11"	EM1.2-11/SF25C	1 1/4"	250	120	6	2.75	S&N w/box & epoxy seal	1 1/4" NPT
11"	EM1.2-11/SF25C	1 1/4"	1000	120	24	2.75	S&N w/box & epoxy seal	1 1/4" NPT
11"	EM1.2-11/SF25C	1 1/4"	1000	240	24	2.75	S&N w/box & epoxy seal	1 1/4" NPT

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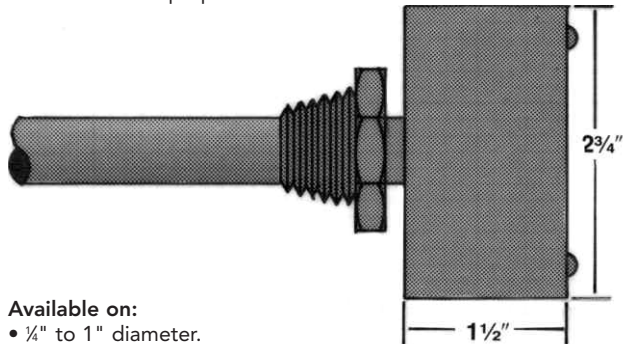
Cartridge Heaters

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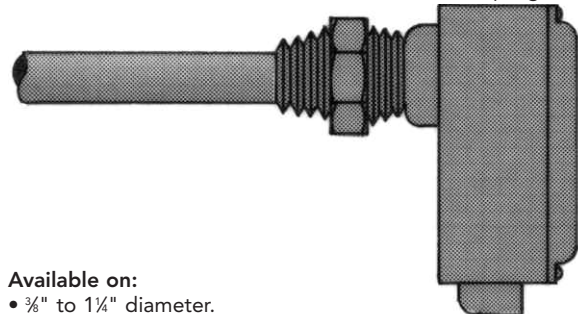
Terminal Enclosure Options

SF13A: General purpose box. NEMA No. 1. 2 3/4" x 1 1/2" x 1 1/2".



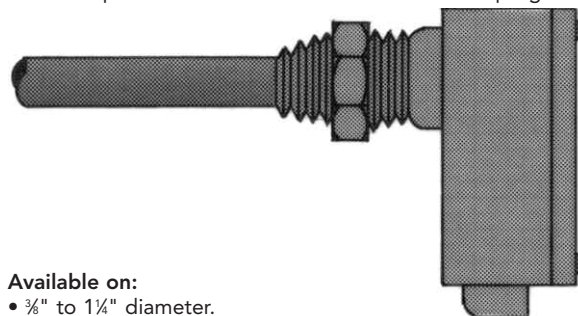
Available on:
• 1/4" to 1" diameter.

SF13B: Moisture resistant box. Mounted on NPT coupling head fitting.



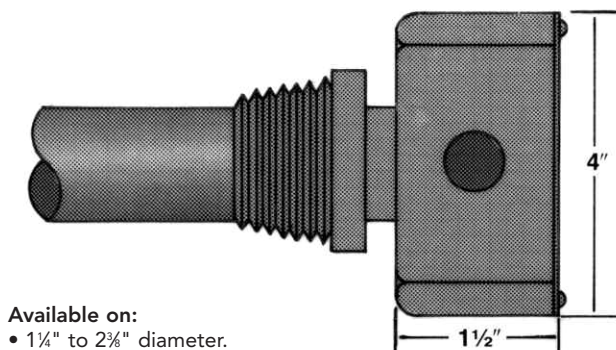
Available on:
• 3/8" to 1 1/4" diameter.

SF13C: Explosion resistant box. Mounted on NPT coupling head fitting.



Available on:
• 3/8" to 1 1/4" diameter.

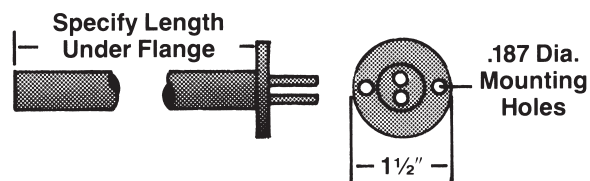
SF13D: General purpose box. NEMA No. 1. Rust resistant steel 4" octagonal.



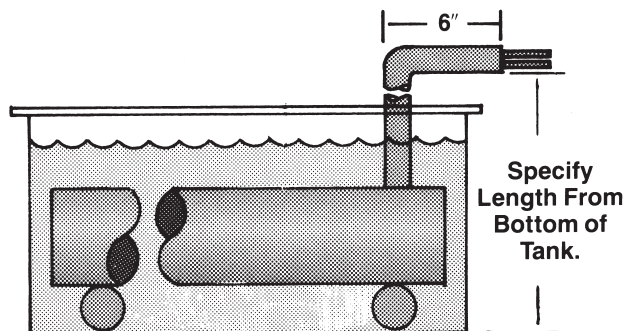
Available on:
• 1 1/4" to 2 1/2" diameter.

Installation Options

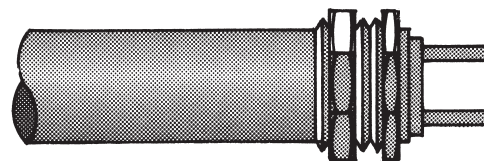
SF26: Stainless steel flange. Mounting hole centers for 1/4" to 3/8" diameters is 1 1/2" and for 3/4" diameter is 1 3/2". Special flange sizes available upon request.



SF27: Stainless steel riser and support feet for over the side immersion heaters. Consult factory for availability.



XS76: Straight thread with nut. Specify thread size and if bushing is to be standard (hex outside vessel) or inverted (hex inside vessel).



Voltage

Standard voltages are either 120V or 240V. Other voltages are available.

Tolerances

Wattage tolerance is +5%, -10% at rated voltage.

Length tolerances are $\pm 2\%$ with a $\pm 1/16$ " minimum.

How to Order

After determining the wattage required and the line voltage available, determine the physical space available for heaters and the numbers of heaters required.

Review page 31 for stock items.

Review other special features, see page 22-27.

Specify: catalog number, wattage, voltage, lead type, bushing type, and special features required.

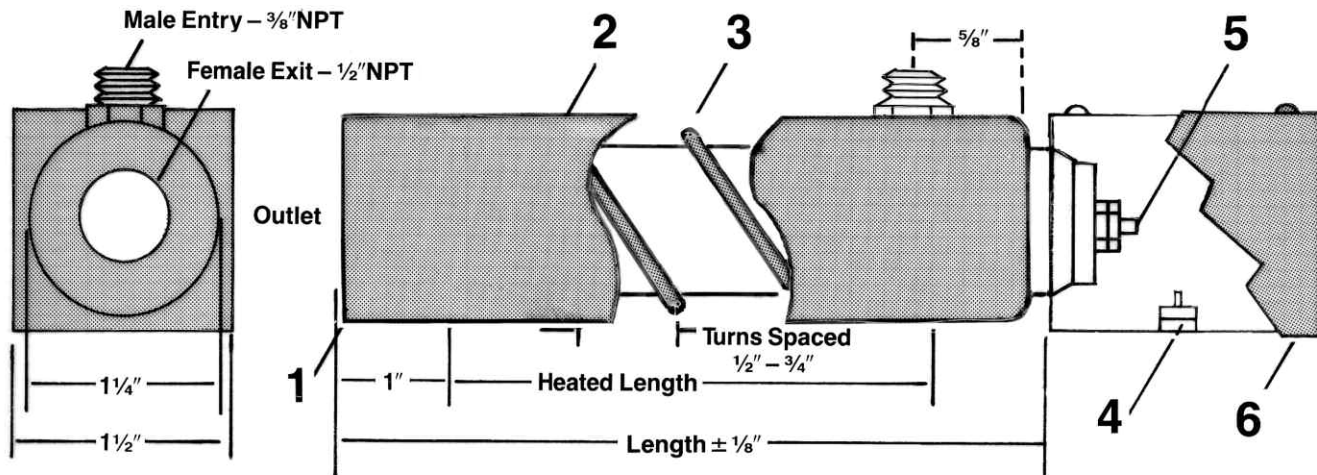
Example: EM62-6/700W240V/SF1-12/SF13A/SF25B.



Cartridge Heaters

Special Immersion

Mini Circulation



IMMERSION

Features:

- The Miniature Circulation Heater is a packaged heater for heating small volumes of liquids as in photographic developer solutions, chemicals, dyes and inks.
- Constructed of 316 series stainless steel.
- Pressures to 100 psig.

Construction:

- 1 Heliarc weld.
- 2 Stainless steel sheath.
- 3 Liquid tubular wire.
- 4 Ground post.
- 5 Post terminals.
- 6 Connection box. 2 3/4" x 1 1/2" x 1 1/2".

Specifications

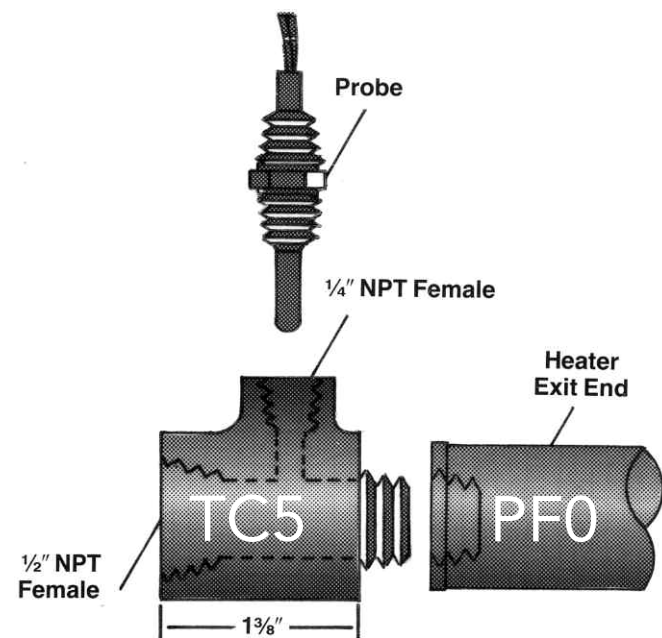
▼ Manufactured Items ▼			
Maximum Amperage: 20			
Cross Sectional Flow Area: 152 Sq. In.			
Sizes: Length	Heated Length	Catalog No.	Maximum Wattage
6"	4"	PFO-6	600
8"	6"	PFO-8	900
10"	8"	PFO-10	1200
12"	10"	PFO-12	1500
18"	16"	PFO-18	2400

Above wattages area based on 50 watts per square inch for use with water at low flow. Higher flow rates and/or different liquids will effect allowable watt densities. Consult factory.

Sizes between those listed and larger in diameter are available. Consult factory.

Temperature Control

Thermocouple mounting fitting is available for use with the standard miniature circulation heater. The fitting is threaded into the exit end as shown below. Specify TC-5 fitting. See pages 131-134 for details on temperature controllers and probes.



* Thermistor adapter and catalog number TH-1 must be used for thermistor probe mounting in the TC5 fitting.



Cartridge Heaters

Special Immersion

▼ IN STOCK ITEMS ▼

Pure Flow Air Heaters

Supplied with: Type SF3S terminals Type SF13A enclosure

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Length	Cat. No.	Dia.	Wattage	Voltage	Watts/ Linear Inch	Weight	Terminals
6"	PFO-6	1¼"	100	120	23	1.00	S&N w/enclosure
6"	PFO-6	1¼"	400	120	91	1.00	S&N w/enclosure
6"	PFO-6	1¼"	400	240	91	1.00	S&N w/enclosure
8"	PFO-8	1¼"	150	120	23	1.18	S&N w/enclosure
8"	PFO-8	1¼"	600	120	94	1.18	S&N w/enclosure
8"	PFO-8	1¼"	600	240	94	1.18	S&N w/enclosure
10"	PFO-10	1¼"	250	120	30	1.37	S&N w/enclosure
10"	PFO-10	1¼"	1000	120	120	1.37	S&N w/enclosure
10"	PFO-10	1¼"	1000	240	120	1.37	S&N w/enclosure
12"	PFO-12	1¼"	300	120	29	1.55	S&N w/enclosure
12"	PFO-12	1¼"	1200	120	115	1.55	S&N w/enclosure
12"	PFO-12	1¼"	1200	240	115	1.55	S&N w/enclosure

← LENGTH →





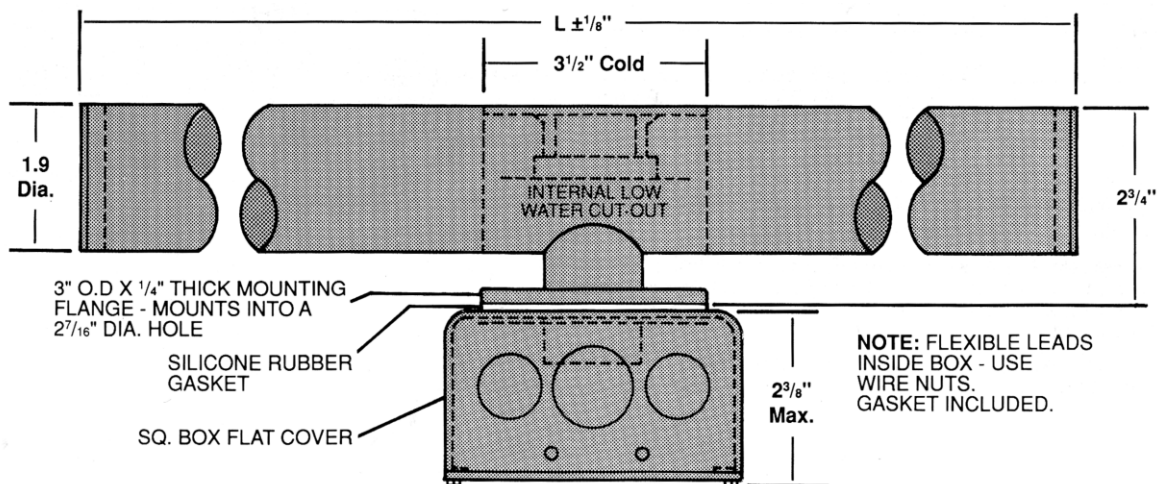
Cartridge Heaters

Special Immersion

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IMMERSION



Applications:

- Restaurant Steam Tables
- Humidifiers
- Water Tanks
- UL Recognized component. - E56973
- Food Cookers
- Process Water Heaters

Features:

- All stainless steel with heliarc welds — No copper or braze material in contact with water.
- Patented—Low water protected—Automatic internal high limit—Shuts off heater, then resets itself.
- Flexible hook-up leads for wire nuts.
- Easy to clean.
- Easy mounting through a 2 3/8" diameter (2" knockout) hole in bottom or side of tank — No need for mounting fittings.
- Other sizes and ratings available — Consult factory.

▼ Manufactured Items ▼					
L Dim	Catalog Number	K.W.	Volts	Line Amps	Phase
8	WB1511	1.5	120	12.5	1
8	WB1521	1.5	208	7.2	1
8	WB1541	1.5	240	6.3	1
12	WB3011	3	120	25.0	1
12	WB3021	3	208	14.4	1
12	WB3041	3	240	12.5	1
14	WB4021	4	208	19.2	1
14	WB4041	4	240	16.7	1
14	WB4051	4	480	8.3	1
18	WB5021	5	208	24.0	1
18	WB5041	5	240	20.8	1
18	WB5051	5	480	10.4	1
18	WB5023	5	208	13.9	3
18	WB5043	5	240	12.0	3
18	WB5053	5	480	6.0	3
22	WB7023	7	208	19.4	3
22	WB7043	7	240	16.8	3
22	WB7053	7	480	8.4	3

How To Order

- Specify Catalog Number from table above.