STANDARD ASSEMBLY

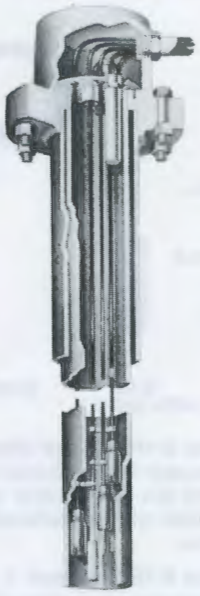
B|W ice-free electrode units are designed to provide positive, reliable pump control in areas where severe winter temperatures cause icing conditions which would normally interfere with or prevent proper pump operation.

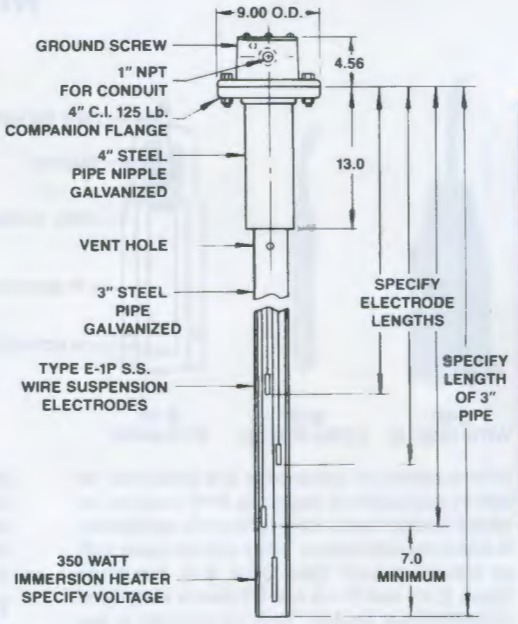
The assembly consists of a Type E-55-4 cast iron flanged electrode holder threaded onto a 3" steel pipe and details are illustrated at the right. The thermostat is factory set to close at 32°F (0°C), and the heater will keep the water inside the 3" pipe free of ice even when heavy ice forms on the surface of the water surrounding the ice-free electrode assembly. The 4" pipe nipple with companion flange is provided to mount the unit. The nipple must be attached vertically to the tank top, and the rest of the assembly is then lowered and bolted into place.

When designing the control system, provisions must be made to cut-off the power to the immersion heater whenever the water level falls below the lowest electrode because the heater will burn out if it is energized when exposed to air.

A single pump, pump up system requires a B|W Type 1500-G relay with the NC contact controlling the pump, and the NO contact providing cut-off for the heater. See Catalog Sections 8040 and 8044 for information on standard and custom control panels.

TYPE IFW





6012—IFW—4—L1——8——X

CATALOG SECION

	LINE VOLTAGE	LIST PRICE
L1	115 Volt-50/60 Hz	~~$000.00~~
L2	230 Volt-50/60 Hz	~~$000.00~~

E-IF Old Part Number 12-041500

Other voltages not available.

The type IFW is for non-pressure applications. Contact factory if a pressure-tight ice-free unit is required.

	SPECIFY QUANTITY AND LENGTH OF ELECTRODES	LIST PRICE
	Type W2 E-1P 304SS Wire Suspension Electrodes 1 to 9 (Maximum)	ADD ~~$00.00~~ ~~EACH~~

	SPECIFY LENGTH OF 3 INCH PIPE — FEET	LIST PRICE
	2 ft. (Minimum) to 6 ft.	NO ADDITION
	7 ft. to 21 ft.	ADD ~~$0.00~~ per ft.
	Over 21 ft.	CONTACT FACTORY

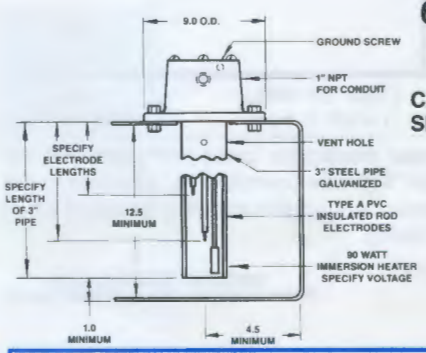
If electrode lengths are not specified, they will be factory set at maximum length based on the 3" pipe length.

DISCOUNT SCHEDULE LL1
Prices Subject to Change Without Notice

	OPTIONAL FEATURES	LIST PRICE
X	None	
LP	Omit 3 inch Pipe Old Part No. 01-226000	DEDUCT ~~$000.00~~
LN	Omit 4 inch Pipe Nipple Old Part No. 09-155600	DEDUCT ~~$00.00~~
LF	Omit 4 inch Companion Flange, Bolts, & Nuts Old Part No. 04-105400	DEDUCT ~~$00.00~~

NOTE — if more than one item is to be omitted, include the symbol for each item deducted. Example — LP-LN-LF

TYPE IFR



SHALLOW TANK ASSEMBLY

Some applications such as cooling tower basins require short electrode lengths, and as shown at the left, the Type IFR will mount directly on a tank top, or on a bracket inside the basin.

These assemblies have electrode plug and stainless PVC insulated solid rod electrodes. The 115 volt ac heater is designed for operation in air and low level cut-off provision should not be provided.

6012—IFR—3—L1——26

CATALOG SECTION

	LINE VOLTAGE	LIST PRICE
L1	115 Volt-50/60 Hz	~~$000.00~~

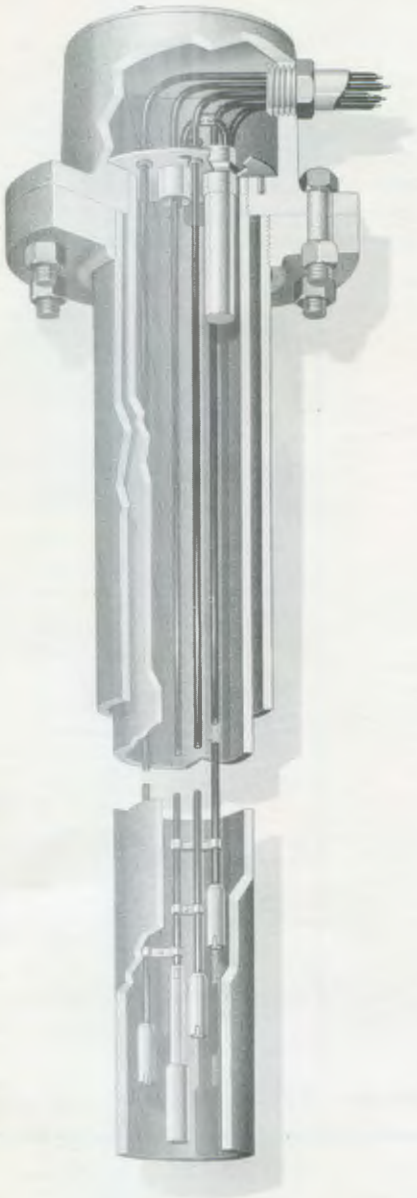
E-IF Old Part Number 12-074400

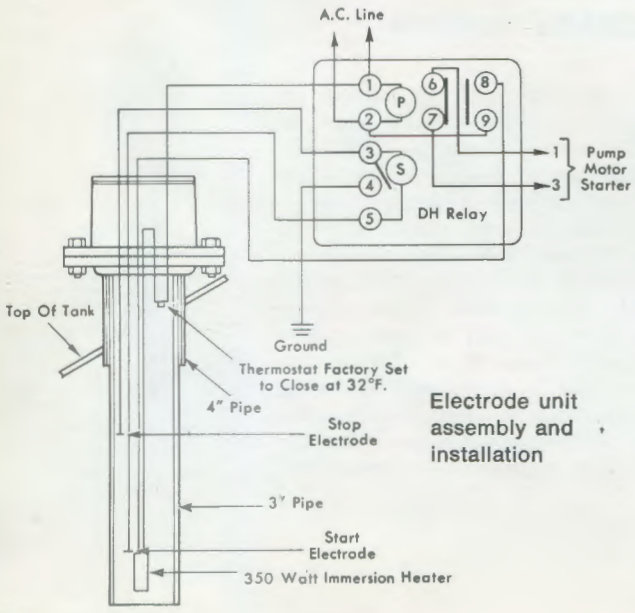
	SPECIFY QUANTITY AND LENGTH OF ELECTRODES	LIST PRICE
	Type A 316SS PVC Ins. Solid Rod Electrodes 1 to 4 (Maximum)	ADD ~~$00.00~~ each

	SPECIFY LENGTH OF 3 INCH PIPE-INCHES	LIST PRICE
	12 inch minimum to 48 inch maximum	NO ADDITION

1. Other voltages not available.
2. Order cannot be processed without length of each electrode and length of the 3 inch pipe.
3. The Type IFR is for non-pressure applications. Contact factory if a pressure-tight ice-free unti is required.

Ice-Free Electrode Unit





Electrode unit assembly and installation

The B/W Type E-IF ice-free electrode unit is designed to provide positive, reliable pump control in areas where severe winter temperatures cause icing conditions which would normally interfere with or prevent proper pump operation. As illustrated at left, this assembly consists of a special cast flanged holder threaded onto a 3″ diameter inner pipe which can be supplied to any specified length. Installed inside the pipe are the required number of wire suspension electrodes plus a thermostatically controlled 350 watt immersion heater. A companion flange assembled to a short length of 4″ diameter pipe is provided to support the entire assembly in the roof of the tank.

Pump Control Package

When 110 or 220 volt current is available, the pump control package recommended for use with this ice-free electrode assembly consists of a standard B/W Type DH induction relay. The thermostatically controlled heating element is wired in series with normally open contacts of the relay so that current to the heater will be interrupted whenever the pump is in operation. If it is desired to operate on either 440 or 550 volt current, a 350 VA transformer must be added to the control package in order to supply the 110 or 220 volt current required for the immersion heater.

Installation Procedure

B/W ice-free electrode units can be quickly and easily installed simply by welding the short outer pipe in a vertical position through an opening in the top of the tank so that electrodes will be suspended at right angles to the surface of the water. Then slip the 3″ pipe down through the 4″ pipe into tank and bolt the flanges together.

Since the over-all length of the assembly is governed by the electrode settings desired, definite electrode lengths must be specified. Measurements should be made from the point in the roof of the tank where the holder is to be mounted down to the desired operating levels. In installations subject to severe freezing, the distances between the "start" and "stop" levels should be reduced as much as possible to admit warmer water into the tank at more frequent intervals. This lessens the possibility of water freezing to appreciable depths—and the more frequent movement caused by incoming water tends to break up any ice that may have formed on the surface.

Principles of Operation

The E-IF ice free electrode assembly can be furnished for control of one or more pumps or signals and will operate reliably under all weather conditions so long as 110 or 220 volt current is supplied to the immersion heater unit. As shown in the diagram at left, when the water level falls below the lower or "start" electrode, the load contacts in the Type DH relay will close the control circuit to a motor starter and the pump will operate until the water level reaches the upper or "stop" electrode. Also, when the water level falls below the start electrode, the current to the immersion heater is turned off and will remain off until the water level reaches the stop electrode. This prevents the heater element from burning out if for some reason the water level cannot be maintained and the immersion heater is out of the water.