NEW AND IMPROVED FLOAT GLASS HEATING ELEMENTS WITH 19mm DIAMETER COLD ENDS

STARBAR THREE PHASE FLOAT ELEMENTS ARE THE MOST ENERGY EFFICIENT IN THE WORLD.

For those companies not able to take advantage of our most electrically energy efficient float elements we offer the second most efficient.

The 28mm diameter cold end float element is the most efficient but the cold end is too large in diameter to fit into the terminal holes of some roof modules.

For these roof modules we offer the 19mm cold end. The second most efficient float element in the world.

Stop wasting electrical energy – save thousands of dollars. The Starbar float glass heating elements are the most electrically efficient float tank heating element in the world.

The Starbar float element cold ends have the lowest resistance in the world. The electrical energy consumed in the cold ends heats the roof insulation not the glass, therefore wasted.

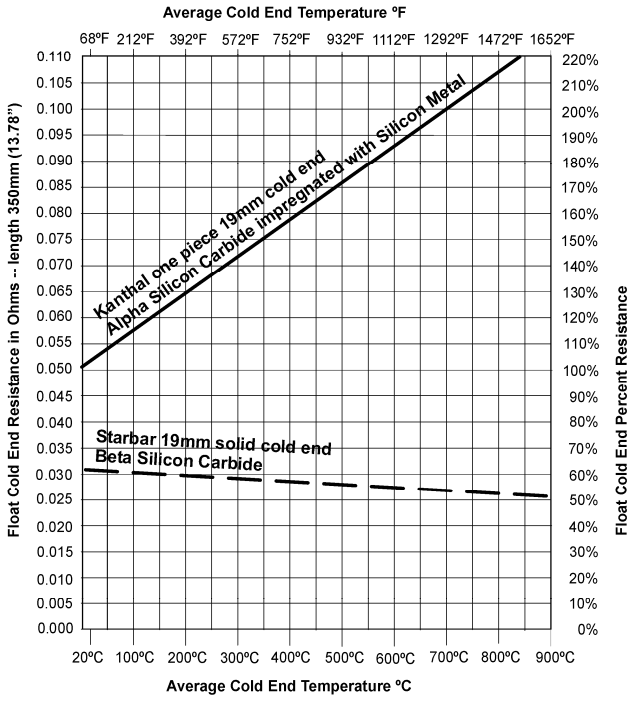
Lowering the resistance of the cold end reduces the amount of the electrical power wasted in the cold end.

The perfect cold end would have zero resistance. The Starbar cold ends are close to perfection.

Each leg of a 3 phase float heating element consists of 2 resistors in series the cold end and the hot section.

The electrical power supply is connected to the cold end. The cold end must be cool enough that it does not melt the aluminum connecting wire. Most of the cold end is in the insulation. It is connected by a weld to the hot section.

Resistance versus Temperature Characteristic of Float Glass Heating Element Cold Ends



The second most efficient Starbar cold ends are 19mm in diameter. The larger electrical conducting surface area over which the electrons flow, the lower the resistance will be. Therefore we use solid rods not tubular cold ends.

Starbar®

Silicon Carbide Heating Elements

The 19mm Starbar cold end is manufactured of low resistance Beta silicon carbide. It decreases in resistance with an increase in temperature.

The 19mm Kanthal float element of one piece construction has a cold end manufactured of high resistance Alpha silicon carbide impregnated with silicon metal. It increases in resistance with an increase in temperature.

The graph on page one illustrates the Resistance versus Temperature Characteristics of Float Glass Heating Element Cold Ends for the Starbar and Kanthal elements.

The 19mm Starbar cold end has a resistance of 0.030Ω at room temperature and a resistance of 0.026Ω at 700°C.

The Kanthal float element has a cold end resistance of 0.050Ω at room temperature and a resistance of 0.100Ω at 700°C.

The following will explain the dollar savings when comparing a Starbar 19mm cold end float element to a Kanthal 19mm cold end one piece float element.

Three phase float elements are rated at 3750 watts. Both the Starbar and Kanthal elements each have a leg resistance of 0.85Ω and rated at 1250 watts. The amperes would be $I=\sqrt{W \div R} = \sqrt{1250 \div 0.85}=38$ amperes.

The Starbar 19mm float element cold end resistance at 700°C is 0.026Ω. The power consumed in the cold end is $W=I^2R = 38^2$ times 0.026 = 37 watts (wasted).

The Kanthal float element cold end resistance at 700°C is 0.10Ω. The power consumed in the cold end is $W=I^2R = 38^2$ times 0.10 = 144 watts (wasted).

One cold end of the 19mm Starbar float element uses 144-37=107 less watts than one cold end of the Kanthal float element. Therefore saves 107 watts per hour.

There are 3 legs to a Starbar float element therefore 107x3=321 watts per hour are saved by using a Starbar 19mm cold end float element.

The average service life of a float element is 15 years, this is 131,400 hours.

One Starbar float element saves 321 watts per hour times 131,400 hours = 42,179,400 watts. Therefore saves 42,179 KW hours in 15 years. This is the same amount of power that three 100 watt light bulbs would use in 15 years. If they were in your basement would you shut them off?

At 0.05 dollars per kilowatt hour times 42,179KW would be 2,108 dollars saved in a 15 year campaign.

This is only one element.
How many elements are in your float tank?

What is your cost per KW hour of electric power?

The electric power savings appear too high to be true, but it is true. The cold end resistance values can be measured at room temperature and at 700°C with an ohm-meter.

I^2R has been manufacturing silicon carbide heating elements since 1964 and float heating since 1986. We sold over 50,000 float elements and millions of single phase silicon carbide heating elements.

We are the largest manufacturer of silicon carbide heating elements in the United States. We ship silicon carbide heating element to all the industrialized nations of the world.

We are the world's expert on silicon carbide heating elements and their applications.

For further information, please contact Jack Davis at jrdavis@isquaredrelement.com or P: 716-542-5511 or F: 716-542-2100.

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