



SUN-STAR ELECTRIC, INC.

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December 12, 2003

Mr. Cary Austin
CYCLE-STOP VALVE
10221 CR 6900
Lubbock, TX 79407
Fax: 806-885-1994

Subject: Hitachi motor cooling

Dear Mr. Austin:

All submersible motors require cooling flow past the motor to dissipate heat generated within the motor. Hitachi has a standard for ambient temperature and required flow dependent on load. And although the specifications of your application are not covered on this chart we have performed extensive testing covering rangers outside the chart.

In your application (5 GPM, 7" shroud, 6" motor with an actual O.D. of 5.5") the flow velocity past the motor will be .109 feet per second. At this flow velocity at an ambient temperature of 95°F the service factor of the motor will be .82 and the motor must be de-rated to 24.6 HP with no service factor. Your application of 15 HP at 40°F at this same flow is well within the allowable limits of the motor rating at this reduced flow and temperature. We would expect lower internal motor temperatures, which will actually increase your service factor in this operating temperature range (40°F). We have performed research at temperatures above and below 40°F with "No-Flow" and the motor has performed satisfactory. We anticipate no problem with your operating range.

Thank you for this opportunity to be of service. If you have any questions or desire additional information, please do not hesitate to contact this office.

Sincerely,

SUN-STAR ELECTRIC, INC.

Kevin P. Price
Sales Manager