

Marine Engineering Exam Resource – Coupling Alignment

Coupling Alignment (Temperature Adjustments)

The operating temperature of a pump and a motor are often different. The motor will run at a specific temperature, which is usually indicated, on the motors data plate, and the pumps temperature will depend on the temperature of the fluid being pumped.

This change in temperature will cause the coupling to become misaligned at the units operating temperature. This situation has been compensated for. A few calculations will ensure that the coupling will be aligned when the pump is running.

The formula for this is

Coefficient of expansion X temperature rise X centerline.

Coefficient of Expansion

This is the amount of expansion per unit length, per degree (F) rise or fall in temperature.

Temperature rise is the difference between ambient temperature and running temperature of the pump or motor.

Ambient temperature is the surrounding temperature. The center height is the center height of the pump and motor shafts.