

# Cable Entrance

The Tsurumi design prevents the following problems that may occur during installation and operation:

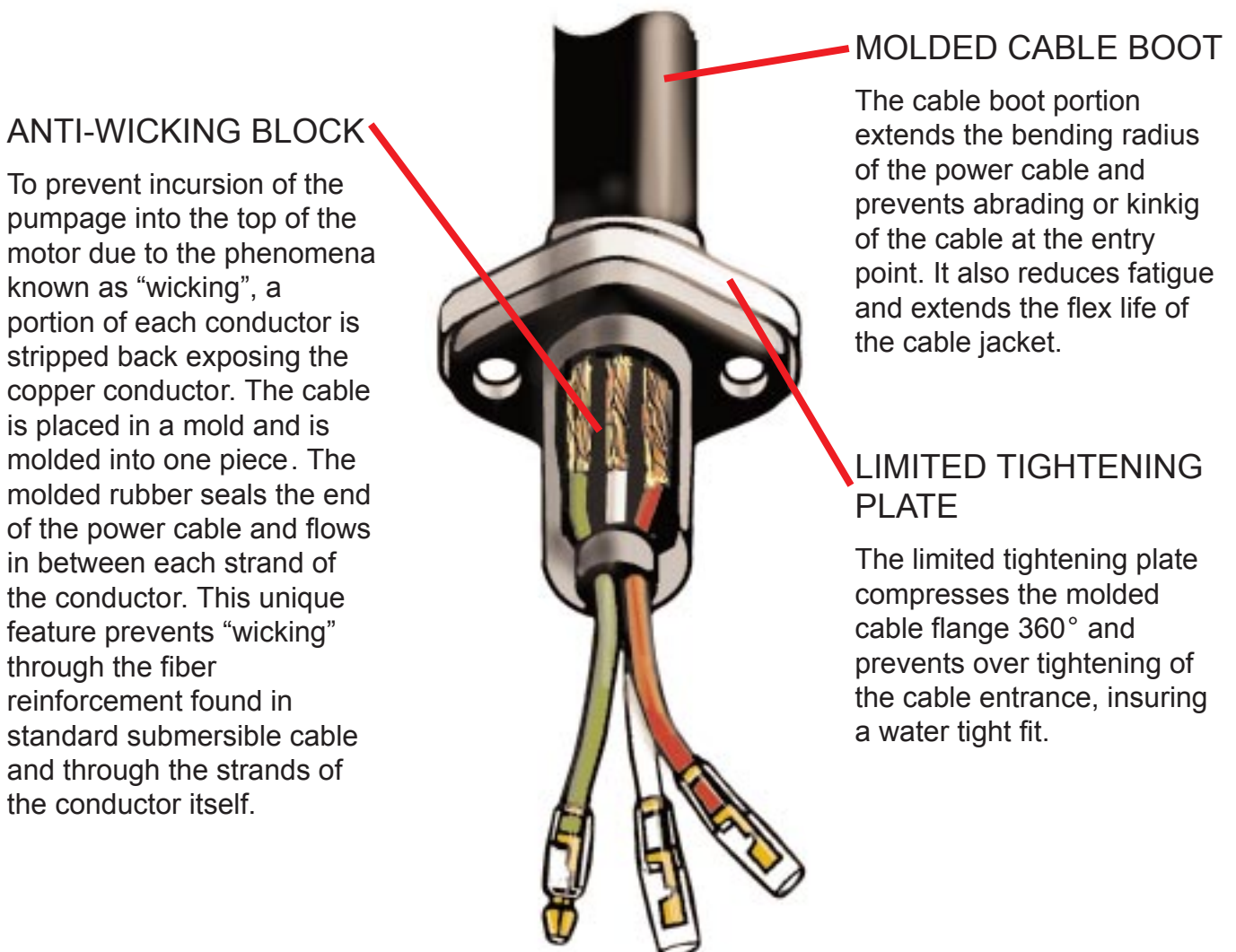
1. Kinking or cracking of the cable jacket due to turbulence in the sump
2. Abrading of the power cable at point of entry into the pump
3. 360° compression sealing prevents incursion of water into the top of the motor
4. Wicking of the pumpage into the motor should the power cable be damaged or the end be accidentally submerged prior to or during installation
5. Quick and easy repair, utilizing in stock cables available from your local Tsurumi distributor

## Note:

All Tsurumi submersible pumps are provided with built in Strain Relief for the power and control cables. This is a separate feature from the cable entrance and provides protection of the cable entrance, should exceptional force be applied to the cable.

## A. Pump Models 0,4kW to 3,7kW

Incorporated in the Tsurumi design are the following features:



# Cable Entrance

## B. Pump Models 5,5kW to 11kW

### CABLE BOOT

The cable boot portion extends the bending radius of the power cable and prevents abrading or kinking of the cable at the entry point. It also reduces fatigue and extends the flex life of the cable jacket.

Circumstances are such that a submersible pump motor is continually heating up and cooling down. Epoxy and cast iron have a large difference in coefficients of expansion, the thermal expansion boot absorbs the difference and prevents the epoxy from cracking.

### UPPER CHAMBER

Insures an area around the thermal expansion boot allowing it to expand freely without contacting the cast iron walls or the chamber.

### LOWER CHAMBER

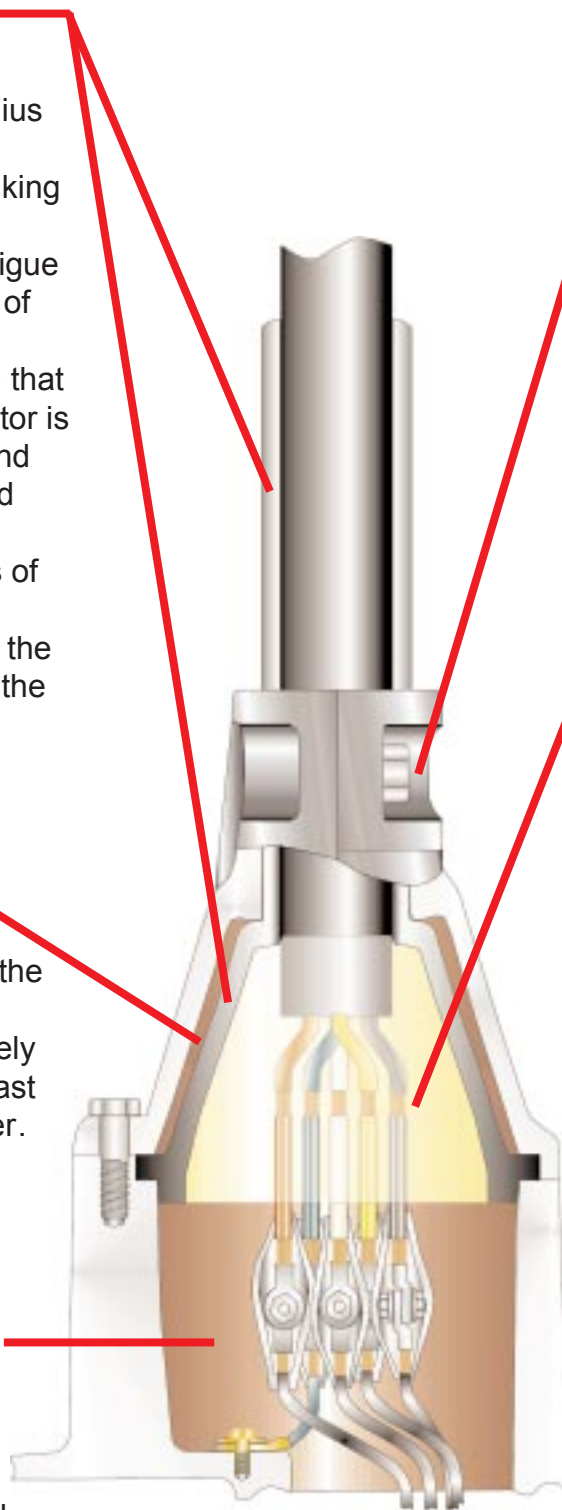
Provides a water tight junction box for the motor terminals. It also allows for quick and easy voltage change or replacement of the power cable. There is no need to remove the heavy and awkward motor cover.

### CABLE GLAND

The cable gland is the primary seal. It compresses the cable boot a full 360° around the power cable insuring a water tight fit.

### ANTI-WICKING BLOCK

To prevent incursion or the pumpage into the top of the motor due to the phenomena known as "wicking" a portion of each conductor is stripped back exposing the copper conductor. Each conductor is then fed through a fiber conductor spacer, which fits into the bottom of the thermal expansion portion of the boot. Epoxy potting is then poured into the thermal expansion boot through a hole in the center of the conductor spacer. The epoxy seals the end of the power cable and flows in between each strand of the conductor. This unique feature prevents "wicking", through the fibre reinforcement found in standard submersible cable and through the strands of the conductor itself.



# Cable Entrance

## C. Pump Models 15kW and above

### CABLE BOOT

The cable boot extends the bending radius of the power cable and prevents abrading or kinking of the cable at the entry point. It also reduces fatigue and extends the flex life of the cable jacket.

### CABLE GLAND

The cable gland compresses the bottom of the cable boot and the cable grommet against three sides of the cable entrance and against the power cable for a water tight fit.

### CABLE GROMMET

This is the primary seal. Flanked by two stainless steel washers the rubber cable grommet is compressed by the cable gland and provides triple compression sealing.

### UPPER CHAMBER

Insures an area around the thermal expansion boot allowing it to expand freely, without contacting the cast iron walls of the chamber.

### LOWER CHAMBER

Provides a water tight junction box for the motor terminals. It also allows for quick and easy voltage change or replacement of the power cable. There is no need to remove the heavy and awkward motor cover.

### THERMAL EXPANSION BOOT / ANTI-WICKING BLOCK

To prevent incursion of the pumpage into the top of the motor due to the phenomena known as "wicking" a portion of each conductor is stripped back exposing the copper conductor. Each conductor is then fed through a fiber conductor spacer, which fits into the bottom of the thermal expansion boot. Epoxy potting is then poured into the thermal expansion boot through a hole in the center of the conductor spacer. The epoxy seals the end of the power cable and flows in between each strand of the conductor. This unique feature prevents "wicking" through the fibre reinforcement found in standard submersible cables and through the strands of the conductor itself. Circumstances are such that a submersible pump motor is continually heating up and cooling down. Epoxy and cast iron have a large difference in coefficients of expansion, the thermal expansion boot absorbs the difference and prevents the epoxy from cracking.

