PENTAIR

PWTNC SERIES

SUBMERSIBLE SEWAGE PUMP

www.pentair.com

PRODUCT OVERVIEW

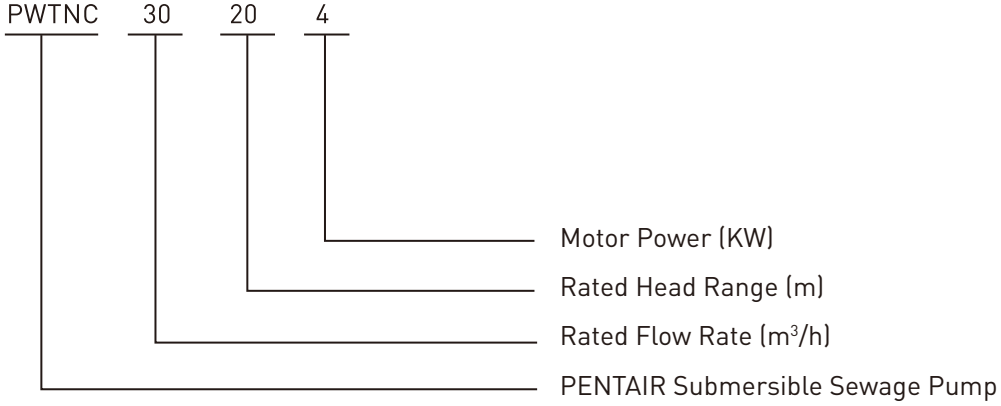
The Pentair PWTNC Series Submersible Sewage Pumps are characterised by their compact structure, reliable sealing design, high performance, energy efficiency with a breakthrough in minimizing blockages. Our adaptive design also enables different modes of installation which allows simplification at pumping stations and cutting down installation cost.

MAIN APPLICATIONS	SERVING INDUSTRIES
Rainwater Discharge	Hospitals, Hotels, Office Buildings
Ground Water Handling	Mining and Construction Sites
Runoff Water from Sites	Livestock Farms, Septic Pool and Rural Marshland
Industrial Wastewater and Sewage	Sewage Treatment Plants
Enhancement of Drainage Systems	

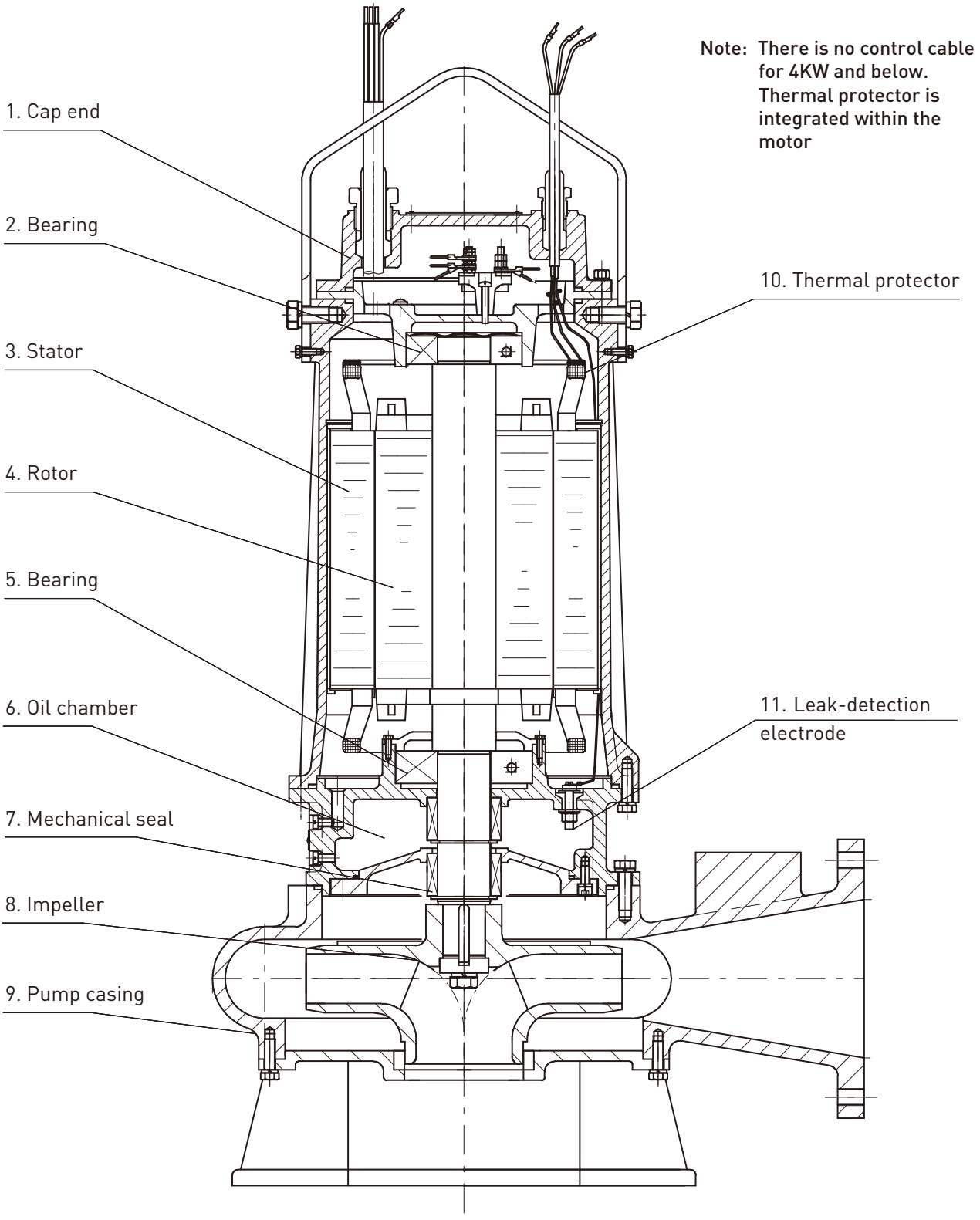
OPERATING CONDITIONS

- Flow rate: 0 - 4000m^3/h
- Head range: 0 - 70m
- The electric pump should be used within the specified head range (recommended at between -25%±10% of the specified head range
- Fluid Medium Conditions: Temperature ≤ 40^{0}C; density ≤ 1050kg/m^3; pH value between 6 - 9
- The diameter of solids in the medium should not exceed the recommended pass-through value (see performance curve tables)
- Rated voltage of the motor: 380V, rated frequency: 50Hz (60 Hz is available as option), voltage fluctuation range: ±5%
- Water Level Instructions: The pump should be submerged in water during long-term operation. The depth of submersion should not exceed 10m. While in operation, no more than half of the electric motor should be exposed above the water level. The motor component of pumps rated 30KW and above (or 11KW and above as requested by the customer) may be operated above water level (out of water) over the long-term, but the pump must still be operated within its minimum water level requirement (For detailed installation dimensions, please contact your Pentair sales representative).

NOMENCLATURE OF MODELS

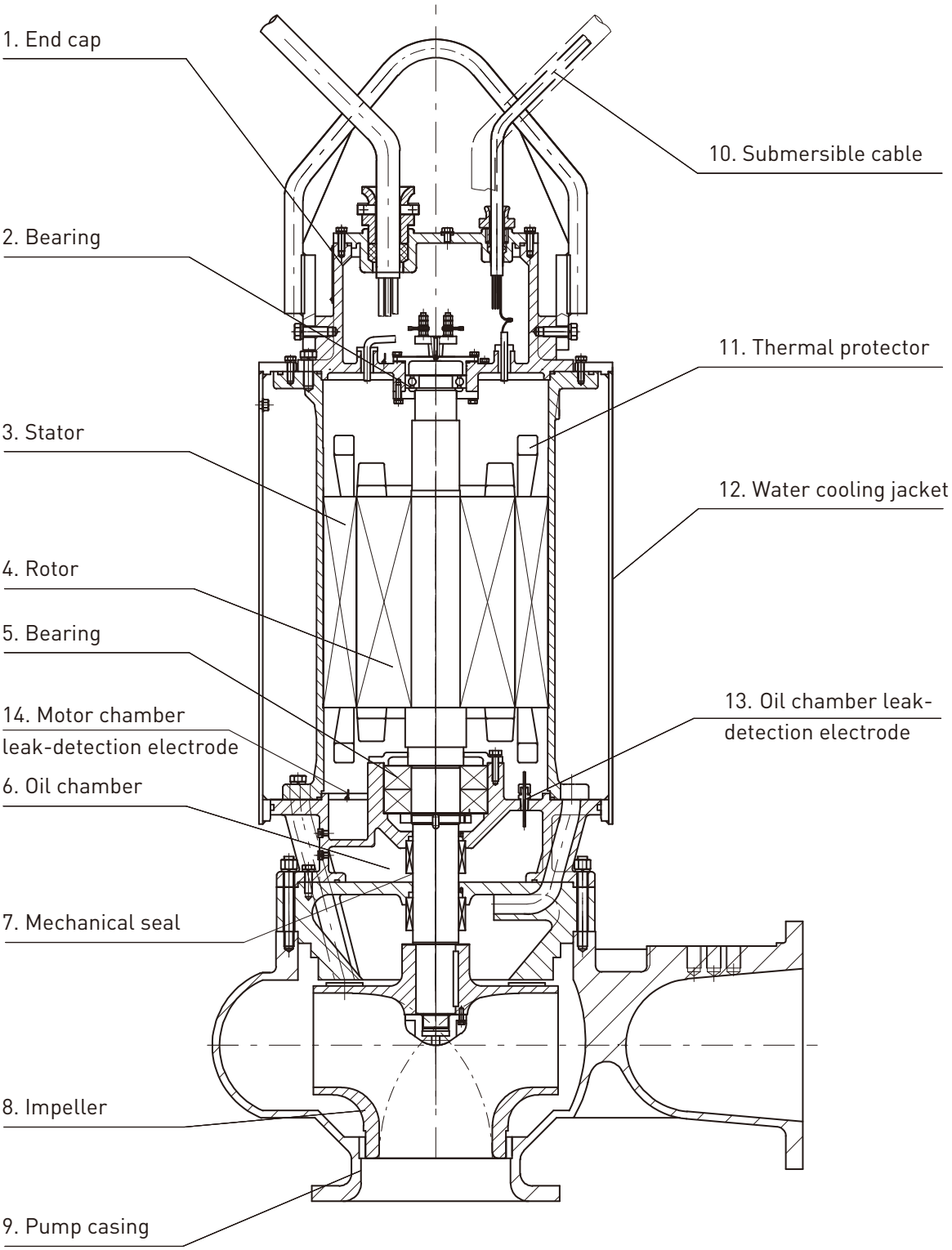


CENTRIFUGAL IMPELLER SUBMERSIBLE SEWAGE PUMP STRUCTURAL DIAGRAM (22KW and Below)



Note: There is no control cable for 4KW and below. Thermal protector is integrated within the motor

CENTRIFUGAL IMPELLER SUBMERSIBLE SEWAGE PUMP STRUCTURAL DIAGRAM (30KW and Above)



Motor

- The motor has Class F insulation and an enclosure with IP68 rating.
- The motor has a built-in thermal overload protector. Motors rated above 5.5KW have a built-in PTC element protection device, while motors rated below 4KW come with built-in thermal protector to prevent overheating of the motor during operation and to prevent burning of equipment.

Impeller

- Uniquely designed impellers that pass dynamic and static balancing tests ensure stable operation with minimal vibration and hence allow good throughput performance.
- The impeller mouth ring is made of replaceable copper alloy/SS304 to ensure minimal leakage of the pump.
- The impellers and pump housing can be made of corrosion-resistant materials in accordance with the requirements of the customer.
- The impeller is double channel type.

Seal

- Double mechanical seal is adopted such that proper installation will ensure the best sealing effect and optimal lifespan of the equipment.

Bearing

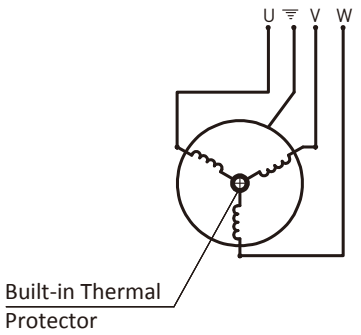
- High-quality bearing is adopted to support loads in all directions, which enhances operational reliability and lifespan.

Other Safety Features

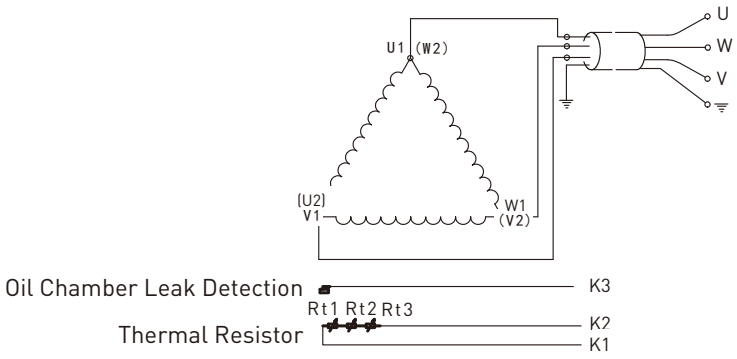
- The pump rated between 5.5 and 22KW comes with a shared leak-detection electrode for both the oil chamber and the motor chamber. When a leak is detected, the control console will sound an alarm to inform the management personnel to perform maintenance actions. Pump rated 30KW and above comes with separate leak-detection electrodes for oil chamber and motor chamber. When water enters the motor chamber, the control console will cut the power supply. Simultaneously, there is also a leak-detection electrode in the wiring chamber which will sound an alarm for leaks detected in the wiring chamber.
- The pump rated 30KW and above adopts special cable terminal processing techniques to ensure that no water will leak into the motor chamber in the event of damages in the cable sheath, which enhances the reliability of the pump.
- The pump rated 30KW and above (or 11KW and above as requested by the customer) is equipped with a mandatory water circulation cooling system, i.e. water is propelled with the back blade of the impellers to circulate within the water-cooling jacket to dissipate heat from the operating motor. In this way, the electric pump is able to operate normally even at a very low water level.
- For the pump rated 30KW and above, an electric heating device may be incorporated into the motor chamber where necessary.
- The unique oil chamber design ensures the safe and reliable operation of the pump, and enables easy maintenance.

MOTOR WIRING DIAGRAM

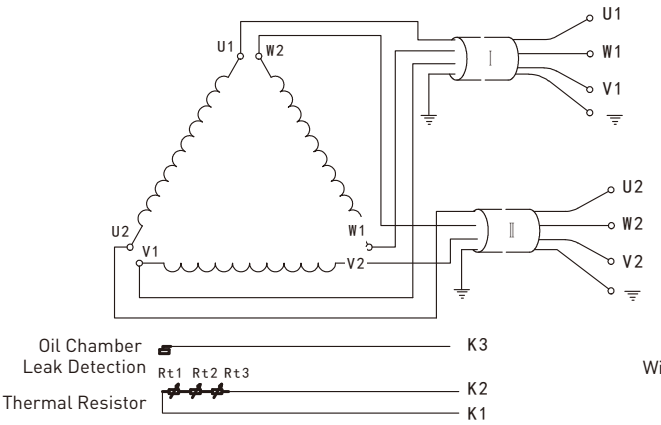
≤4KW Motor Wiring Diagram



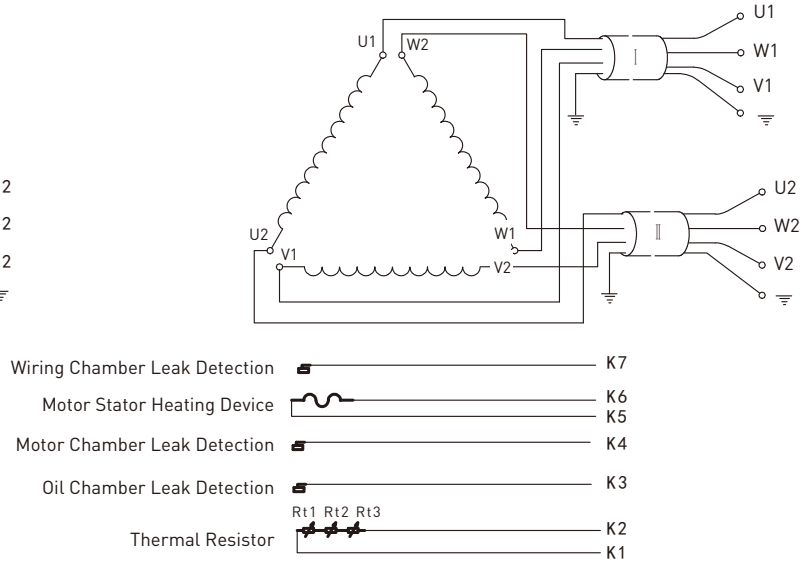
5.5~15KW Motor Wiring Diagram



18.5~22KW Motor Wiring Diagram



≥30KW Motor Wiring Diagram

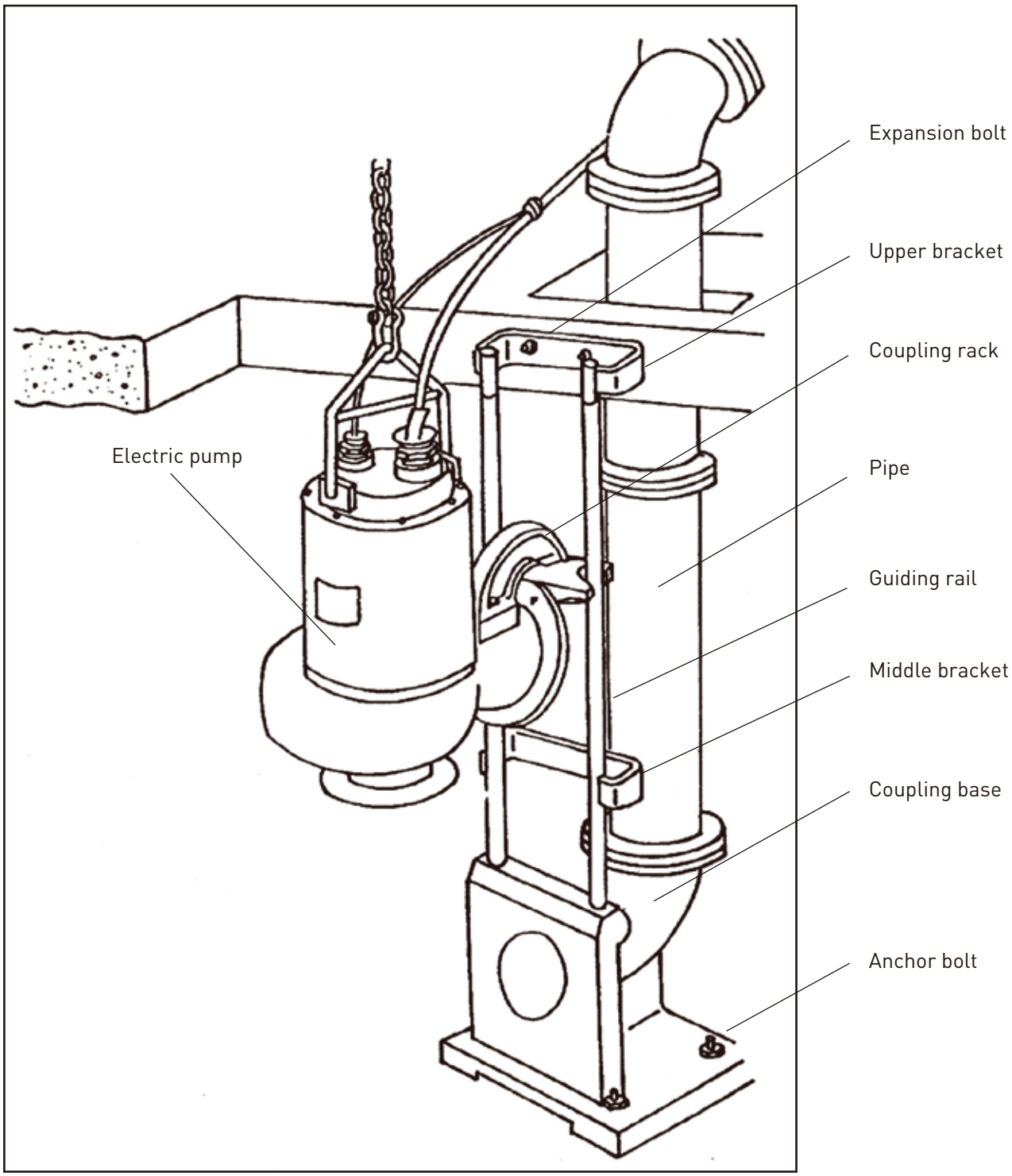


PUMP MATERIAL OF CONSTRUCTION

Name of Parts	Standard Configuration	Optional Configuration
Bearing	2Cr13	-
Pump body	ASTM A48 Class 35 Cast Iron	SS304
Shaft	SS420	-
Impeller	Ductile Iron	SS304
Mouth ring	SS304	Copper alloy
Motor housing	ASTM A48 Class 35 Cast Iron	SS304
Pump-side mechanical seal	Silicon carbide	Silicon carbide
Motor-side mechanical seal	Silicon carbide	Silicon carbide

FIXED AUTO-COUPLING INSTALLATION

Schematic Diagram



For installation dimensions, please contact your PENTAIR sales representative.

PROTECTION FEATURES OF MOTOR

≤4KW: Protection from overloading, phase loss, low voltage and short circuit

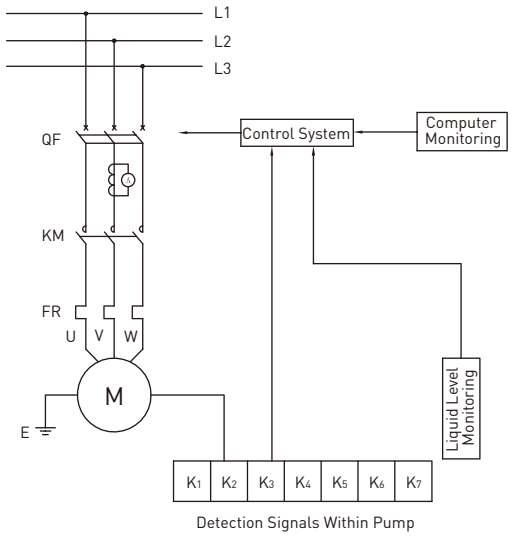
≥5.5KW: Protection from overloading, phase loss, low voltage, short circuit, water leakage and overheating

≥30KW: Protection from overloading, phase loss, low voltage, short circuit, water leakage, overheating and condensation

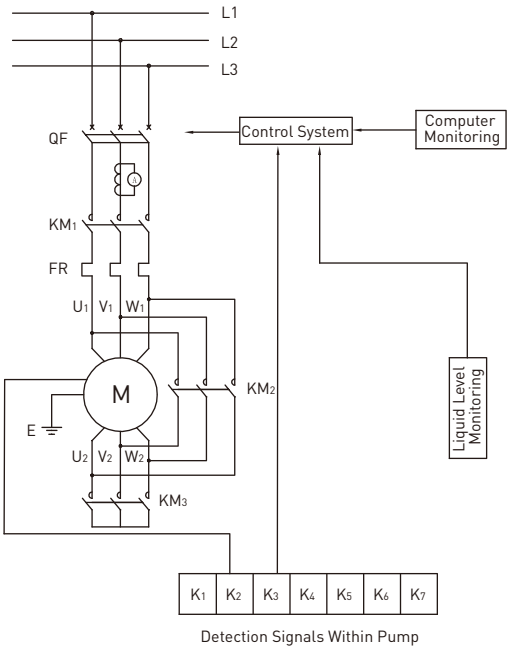
START-UP METHODS

Start-Up methods of the pump include Direct Start-up and Y/Δ Start-Up. Customers may choose one of the start-up methods according to their needs.

Schematic Diagram for Direct Start-Up



Schematic Diagram for Y/Δ Start-Up



SCOPE OF SUPPLY

Scope Of Supply		Installation Mode	Remarks
		Fixed Auto–Coupling Installation	
Set Components	Main pump	√	
	Auto-coupling device	√	
	Expansion bolt	√	
	Anchor bolt	√	
	Cable (10m)	√	
Optional Add-ons	Guide rail		Customer's choice
	Pipe joint		Customer's choice
Optional Accessories	O-ring		Customer's choice
	Bearing		Customer's choice
	Impeller		Customer's choice
	Sealing ring		Customer's choice
	Mechanical seal		Customer's choice

NOTES ON ORDERING

The following parameters must be provided when ordering:

- Model number of the pump; flow rate and head range at the project site of the user.
- Temperature and density of medium to be transported.
- Appropriate optional add-on items and required accessories.
- The pump is normally supplied with a 10m cable. Please indicate if a longer length is needed.
- Mode of start-up for the pump

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