

# Canned Motor Pumps

For zero-leakage operation in applications that demand robust and reliable performance.



## CANNED MOTOR PUMPS

# Sealless. Leak-proof. Reliable. Low maintenance.

Reliability and safety are the core components that drive successful operations. At Hayward Tyler, we are driven by these principals to deliver solutions that meet your operational demands.

Our high-performing, low-maintenance Canned Motor Pumps (CMP) are recognized worldwide as the most reliable and robust available today.

### Features

- High Level of Performance
- Low NPSHr
- Modular Construction and Compact Design
- Interchangeability of Back Pull-out Assemblies
- API685 Design Available
- Global Service Network
- ATEX, CSA GB Certifications

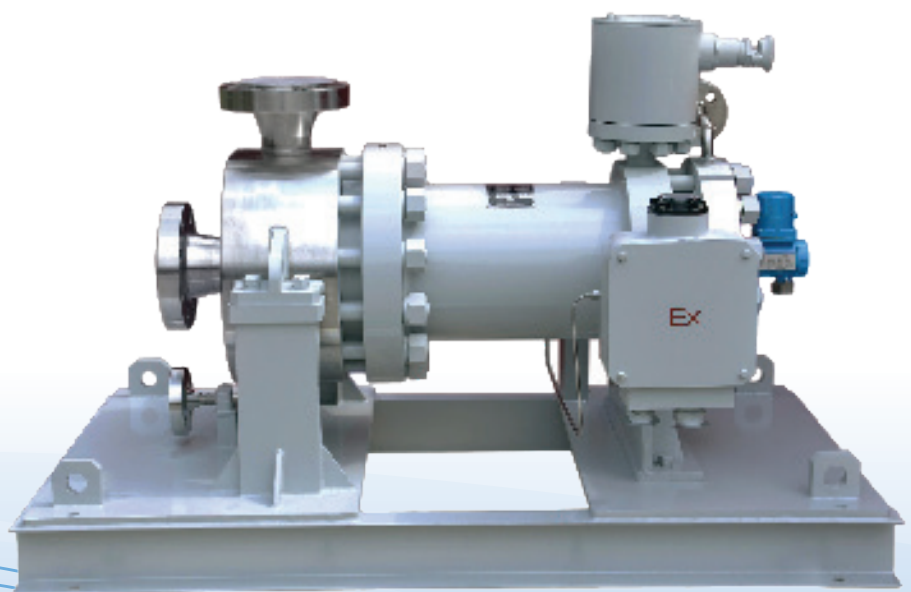
### Benefits

- No Leakage
- No External Lubrication
- Low Noise and Vibration
- Low Power Consumption
- Low Installation Costs
- Increased Lifetime and Longer Maintenance Intervals
- High Level of Availability and Short Supply Times

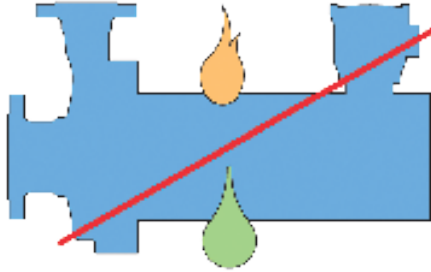
### Industries

Typical industries for our Canned Motor Pumps include:

- Chemical
- Petrochemical
- Hydrogen Production
- Nuclear
- Offshore Oil & Gas
- Aerospace
- HVAC
- Locomotive Cooling System
- Refrigeration
- Pharmaceuticals

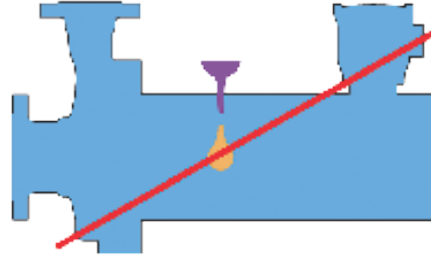


# Key Benefits



## No Leakage

Suitable for handling flammable, explosive, toxic, corrosive and dangerous fluids.



## No External Lubrication

Self lubricated bearings eliminate the need for external fluid supply and reduce maintenance.



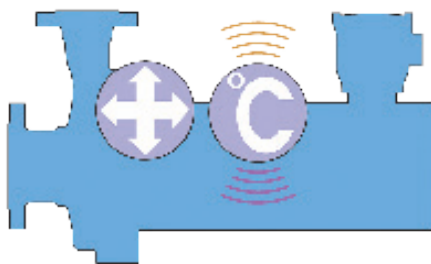
## Airtight

Hermetically sealed and suitable for handling pressures from vacuum to high pressure conditions.



## Compact Design

Small footprint and compact design reduces installation costs and requires minimal foundation requirements.



## No Shaft Seal

Suitable for pumping in high pressure systems, high or low temperature fluids and high melting point fluids.

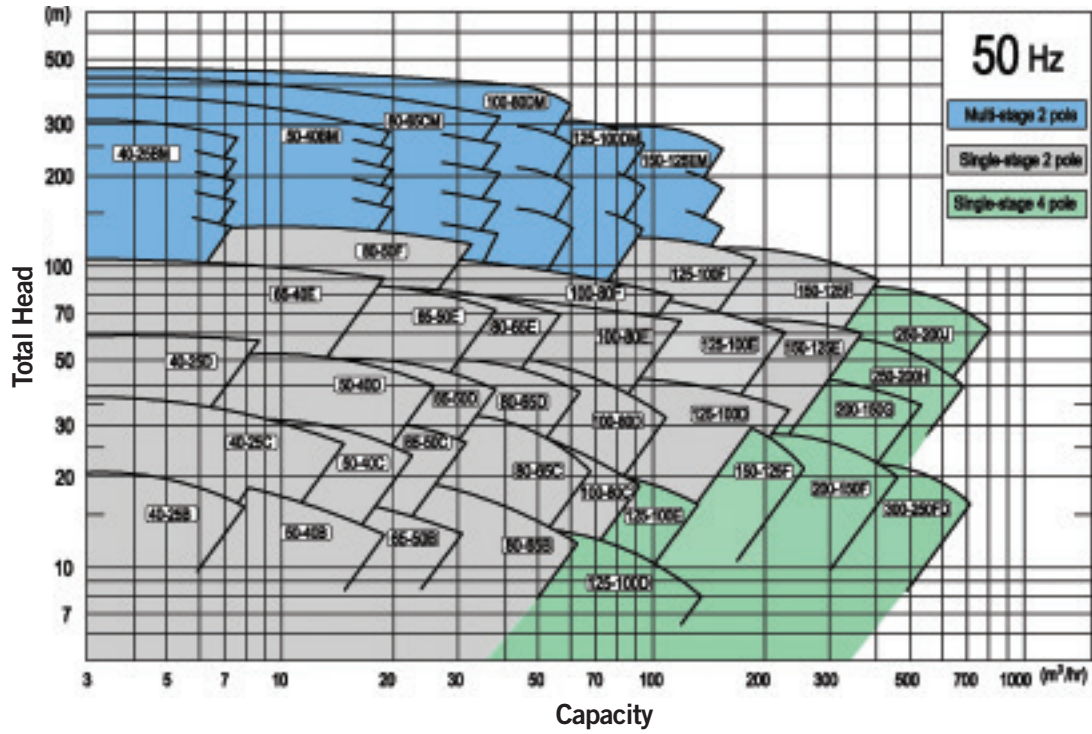


## Low Noise and Vibration

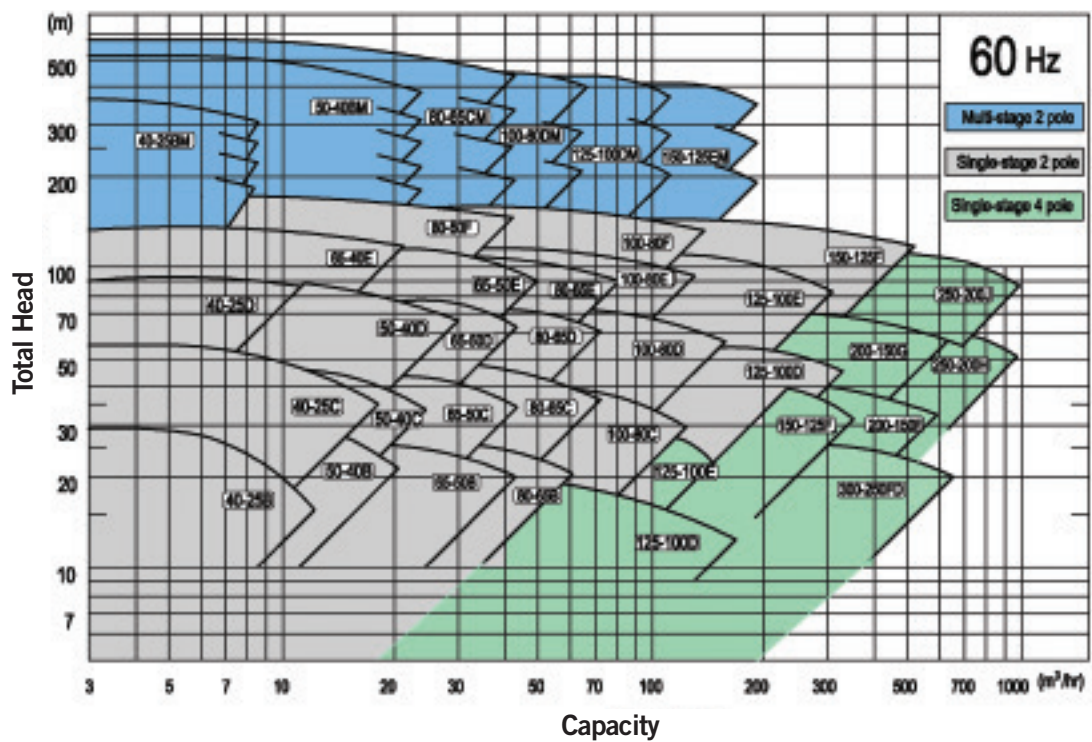
Totally enclosed with neither motor fans nor exposed bearings.

# Performance Curves

2900/1450 rpm



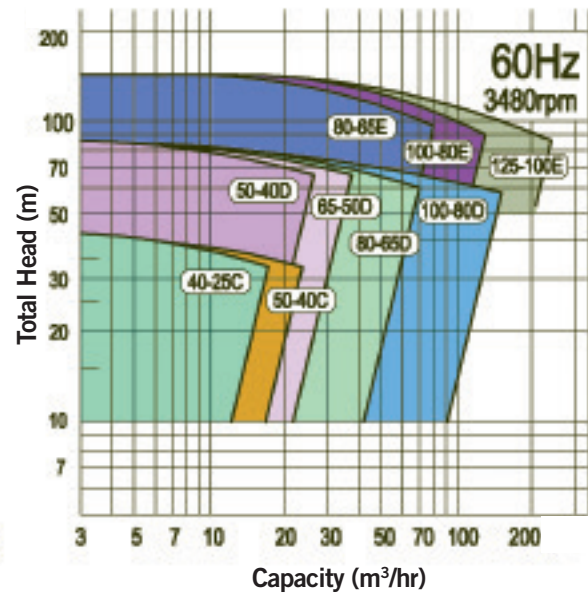
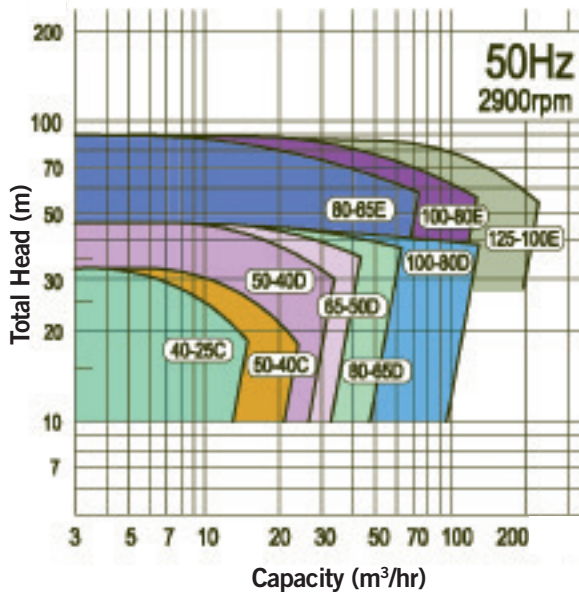
3480/1740 rpm





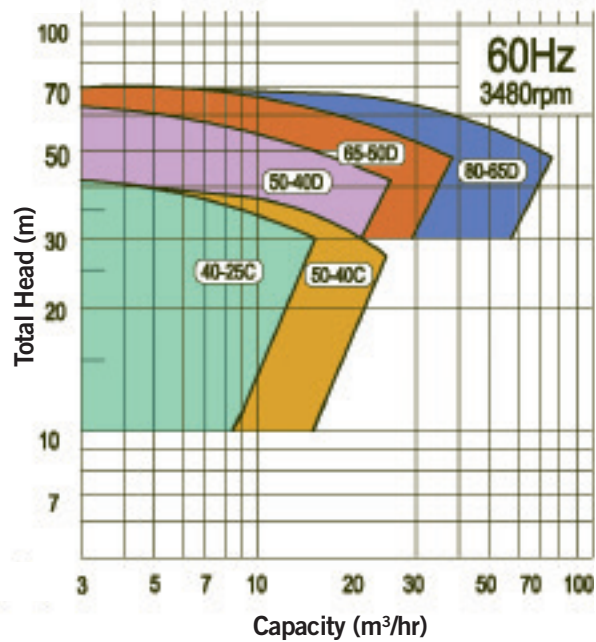
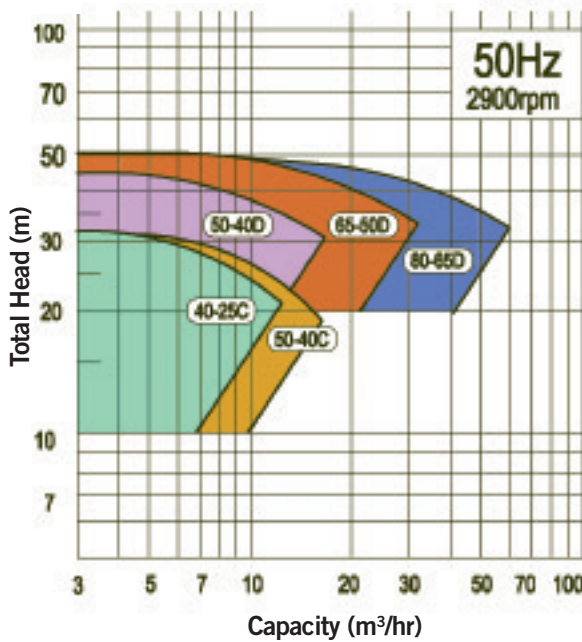
## GAS SEAL SLURRY PUMP

2900 – 3480 rpm



## SELF-PRIMING PUMP

2900 – 3480 rpm



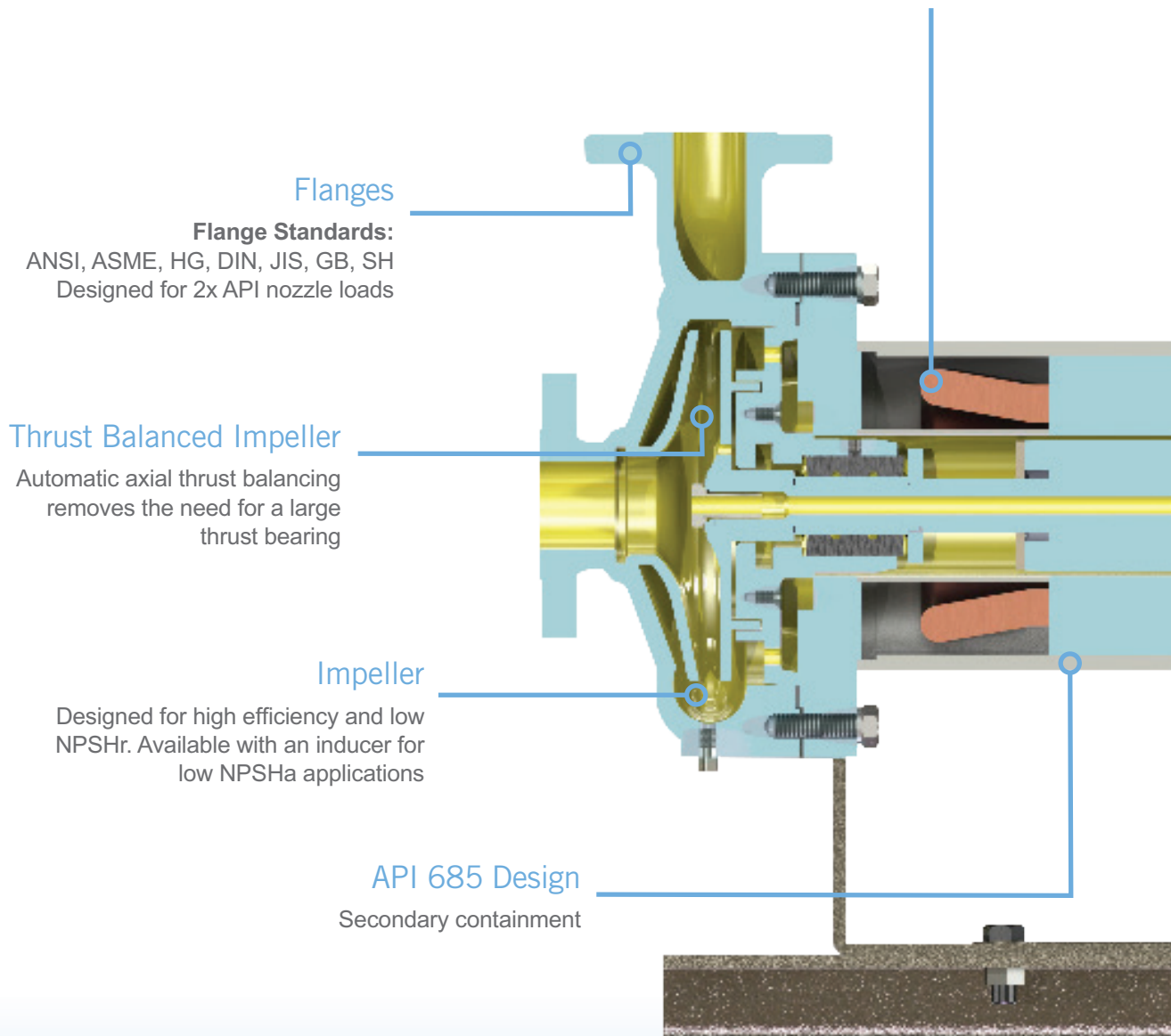
## SECTIONAL DIAGRAM

# Canned Motor Pump Structure

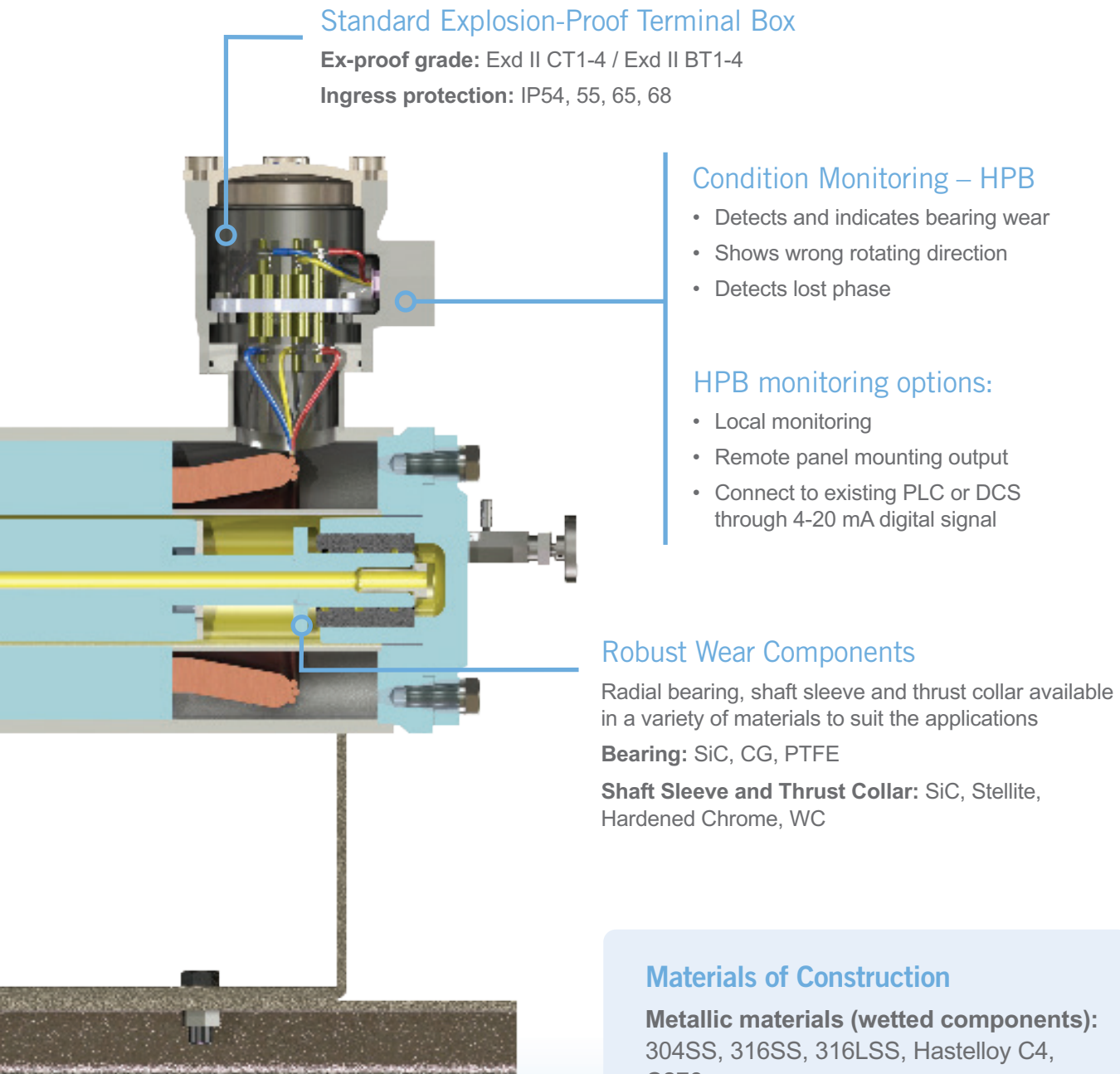
We offer a variety of standard motor frame and pump hydraulic combinations to match your system need. This allows for cost optimization and industry leading delivery times.

### Overheating Protection

Embedded thermal cutout or RTD's in the hottest area of the motor provide protection against overheating



Canned motor designs with key features for your specific application.



### Standard Explosion-Proof Terminal Box

**Ex-proof grade:** Exd II CT1-4 / Exd II BT1-4

**Ingress protection:** IP54, 55, 65, 68

### Condition Monitoring – HPB

- Detects and indicates bearing wear
- Shows wrong rotating direction
- Detects lost phase

### HPB monitoring options:

- Local monitoring
- Remote panel mounting output
- Connect to existing PLC or DCS through 4-20 mA digital signal

### Robust Wear Components

Radial bearing, shaft sleeve and thrust collar available in a variety of materials to suit the applications

**Bearing:** SiC, CG, PTFE

**Shaft Sleeve and Thrust Collar:** SiC, Stellite, Hardened Chrome, WC

### Materials of Construction

**Metallic materials (wetted components):**

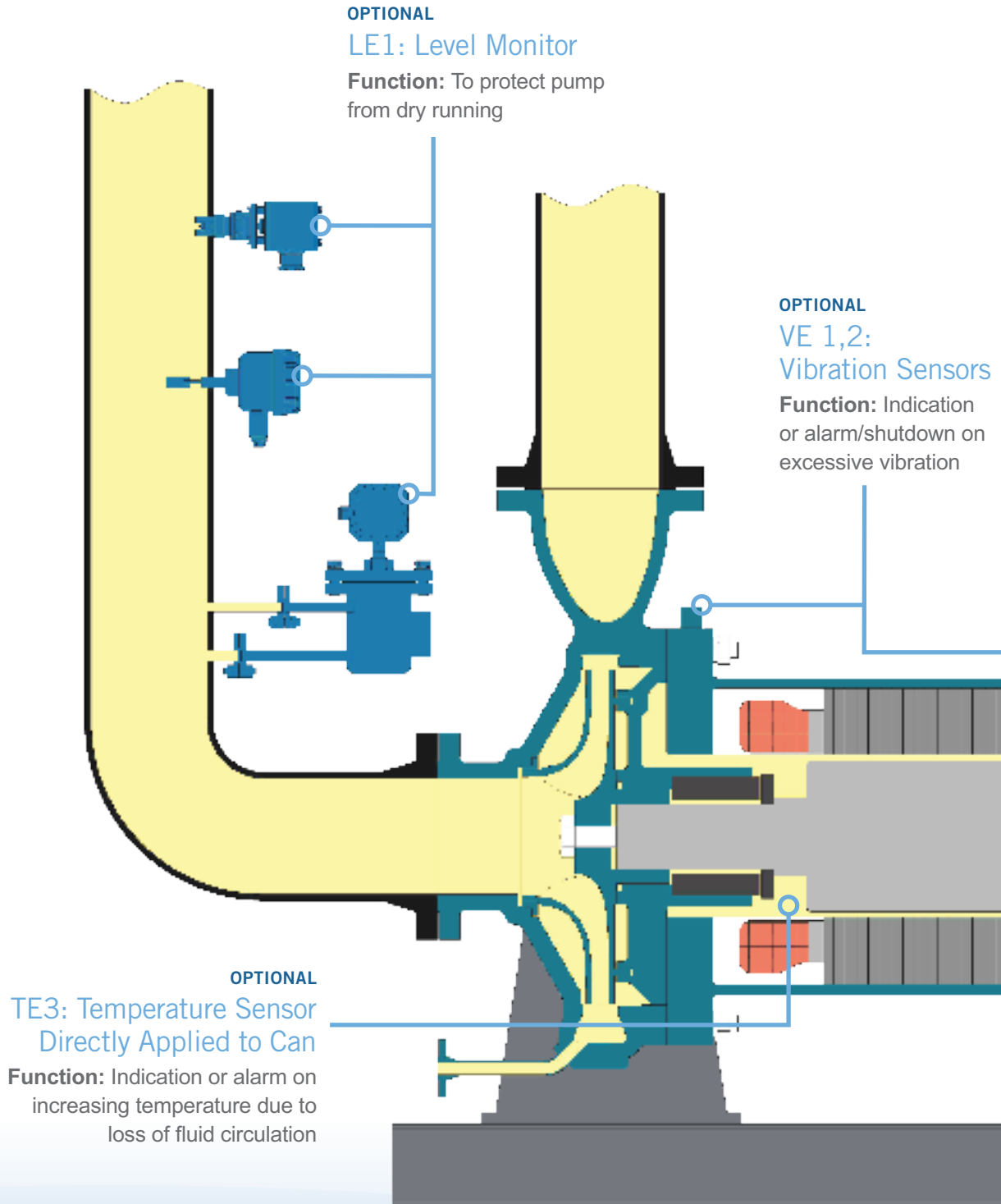
304SS, 316SS, 316LSS, Hastelloy C4, C276

**Insulation materials:** H, C, Super-C

**Gasket:** PTFE, metal spiral wound

SECTIONAL DIAGRAM

# Instrumentation Options





**OPTIONAL**

**JE: Power Monitor**

**Function:** Indication or alarm/shutdown on abnormal power due to running, excess load, or single phasing

**STANDARD**

**RE: Rotation Monitor**

**Function:** Indication on motor rotation direction

**STANDARD**

**ZE1: Bearing Radial Wear Monitor**

**Function:** Indication or alarm/shutdown on bearings radial wear

**STANDARD**

**PE: Pressure Monitor**

**Function:** Shutdown on rising pressure due to containment shell leakage

**STANDARD**

**TE1: Motor Thermal Protection**

**Function:** Alarm shutdown on excessive temperature in windings due to loss of circulation fluid or over load

**OPTIONAL**

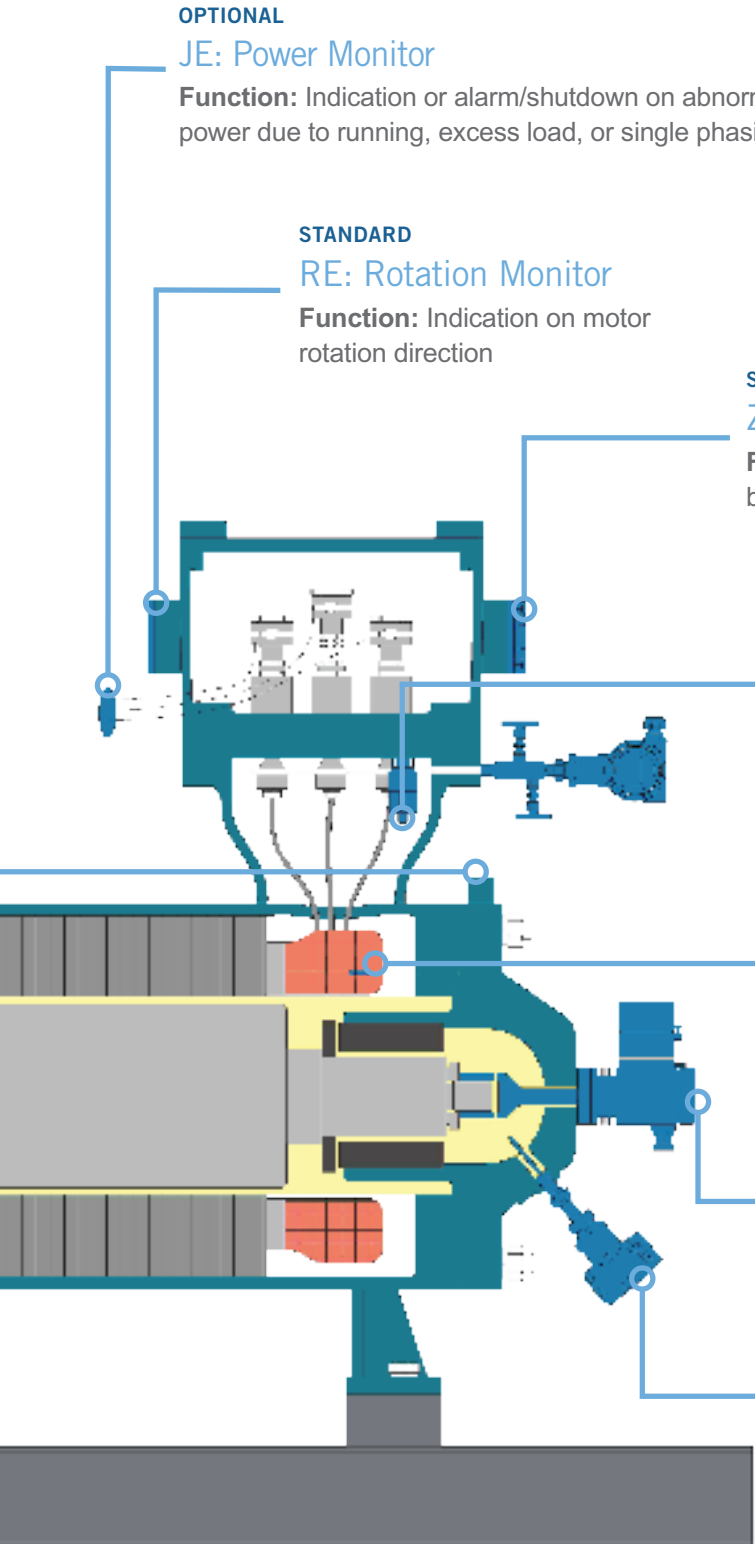
**ZE2: Axial Shaft Position Monitor**

**Function:** Indication or alarm/shutdown on excessive change in axial shaft position

**STANDARD**

**TE2: Temperature Monitor**

**Function:** Indication or alarm/shutdown on increasing temperature on circulation flow path



**HV**

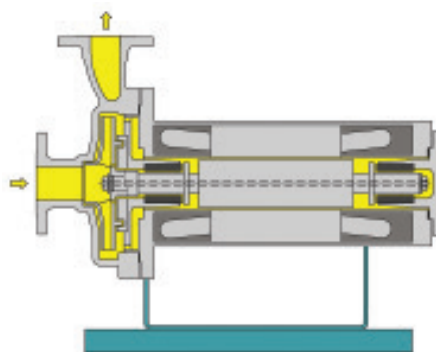
# Hollow Shaft

Operation Parameters

	SI	US
<b>Capacity</b>	Max: 600 m <sup>3</sup> /h	2650 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Output</b>	Max: 132 kW	177 hp

Features / Use

Basic design using a hollow shaft for inner circulation.



**HP**

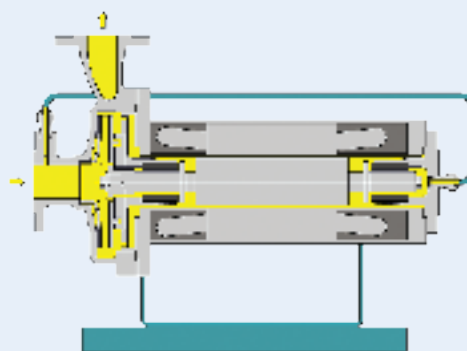
# Standard

Operation Parameters

	SI	US
<b>Capacity</b>	Max: 750 m <sup>3</sup> /h	3300 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Output</b>	Max: 315 kW	420 hp

Features / Use

Solid shaft construction with an external recirculation line for cooling.



## HN

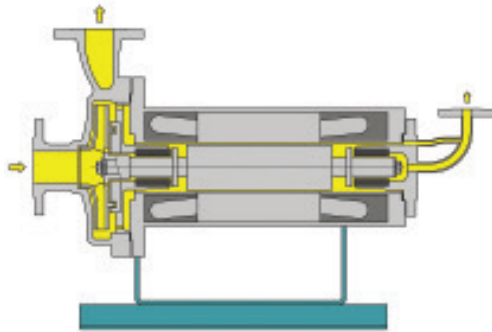
# Reverse Circulation

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 600 m <sup>3</sup> /h	2650 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Output</b>	Max: 315 kW	420 hp

### Features / Use

Uses a reverse circulation flow path and is self-venting. Suitable for fluids with a low vapor pressure.



## HW

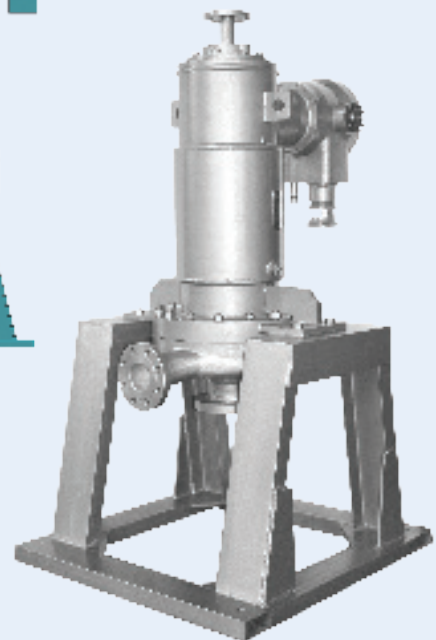
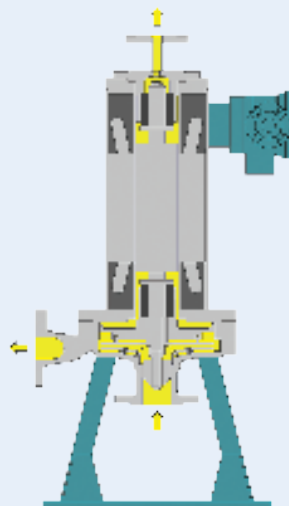
# Vertical Reverse Circulation

### Operation Parameters

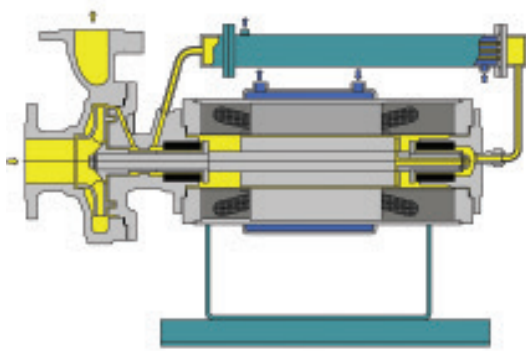
	SI	US
<b>Capacity</b>	Max: 750 m <sup>3</sup> /h	2650 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Output</b>	Max: 315 kW	420 hp

### Features / Use

Vertical orientation Reverse Circulation. Typical applications include liquefied gases (LPG, LNG etc.) and refrigerants (Ammonia, etc).



HT  
High Temperature



Operation Parameters

	SI	US
<b>Capacity</b>	Max: 800 m <sup>3</sup> /h	3520 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Temperature</b>	Max: 450° C	840° F
<b>Output</b>	Max: 315 kW	420 hp

Features / Use

This model uses a thermal barrier between the pump case and motor to thermally isolate the motor.

Suitable for high temperature applications including hot oils and hot water. This model has an external heat exchanger to keep the motor temperature regulated.



## HZ

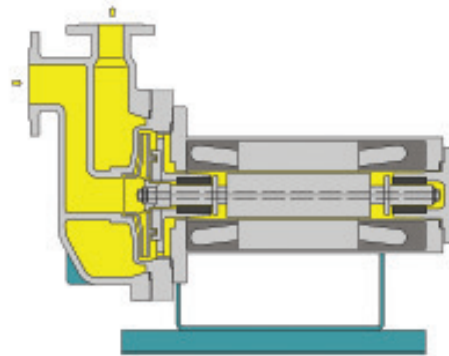
# Self-Priming

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 50 m <sup>3</sup> /h	220 USgpm
<b>Total Head</b>	Max: 50 m	164 ft
<b>Output</b>	Max: 45 kW	60 hp

### Features / Use

Has a chamber that allows for self priming. Particularly suitable for pumping from underground tanks and applications with entrained gases.



## HS

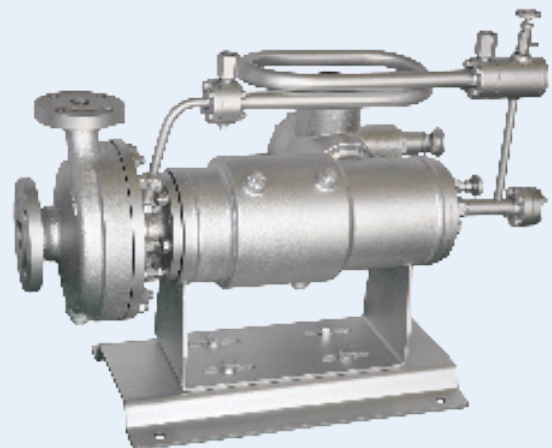
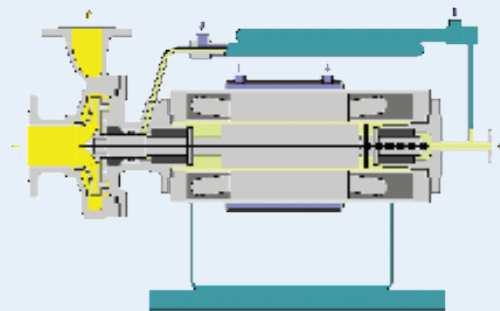
# Slurry Handling

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 750 m <sup>3</sup> /h	3300 USgpm
<b>Total Head</b>	Max: 130 m	427 ft
<b>Output</b>	Max: 220 kW	295 hp

### Features / Use

An internal mechanical seal allows the handling of fluids with a small amount of fine particles.



## PRODUCTS

### HR

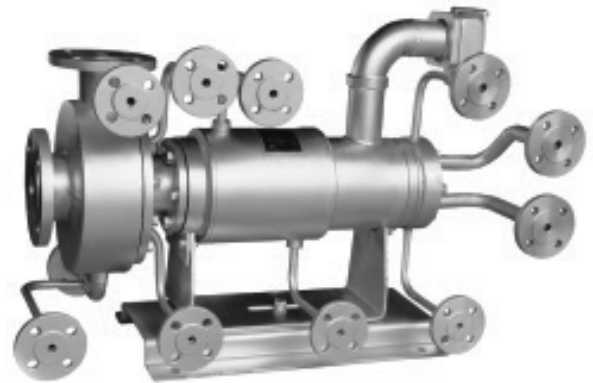
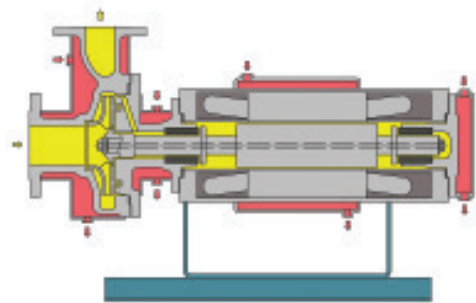
# High Melting Point

#### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 300 m <sup>3</sup> /h	1320 USgpm
<b>Total Head</b>	Max: 90 m	295 ft
<b>Output</b>	Max: 135 kW	180 hp

#### Features / Use

Uses a series of heating jackets to maintain an increased temperature around the motor. Ideal for handling liquids with high melting points.



### HR-Y

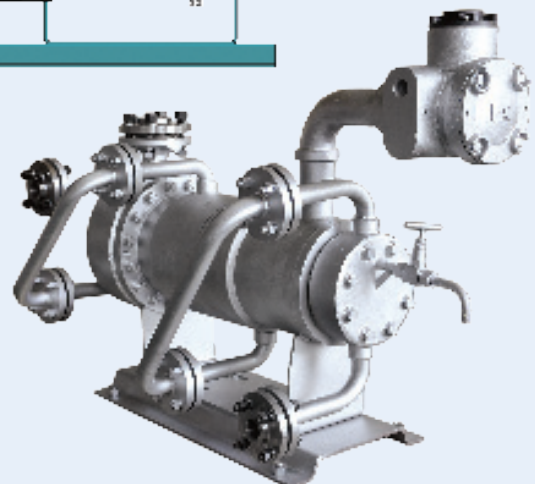
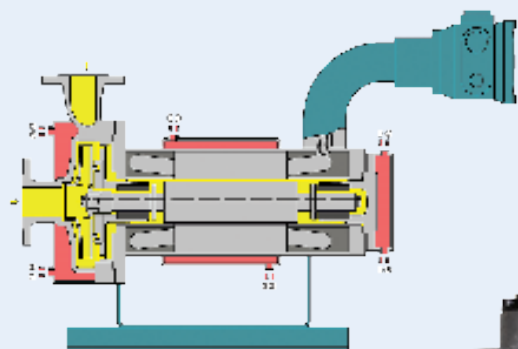
# High Temperature, High Melting Point

#### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 300 m <sup>3</sup> /h	1320 USgpm
<b>Total Head</b>	Max: 120 m	395 ft
<b>Temperature</b>	Max: 300° C	572° F
<b>Output</b>	Max: 110 kW	150 hp

#### Features / Use

Similar to model HR, however can handle higher motor temperatures.



## HV-X

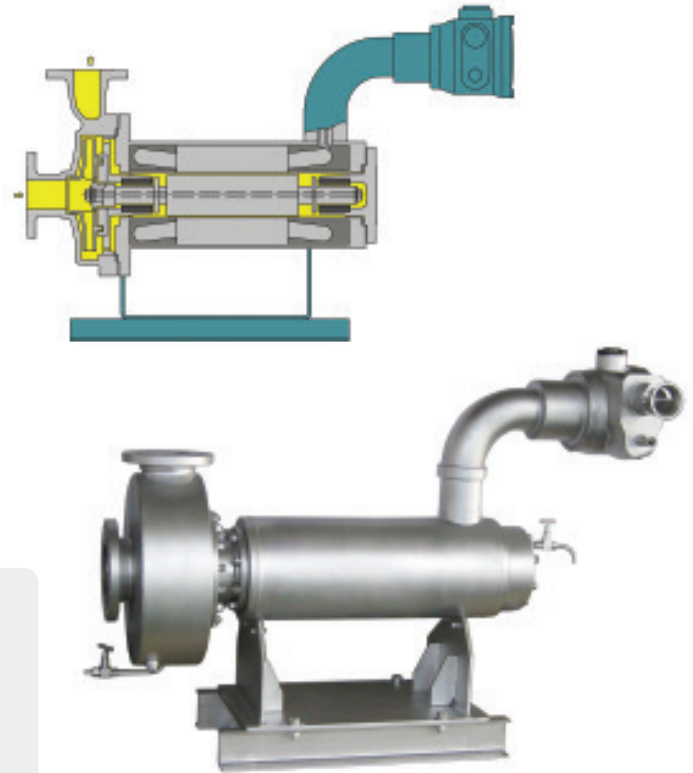
# High Temperature

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 350 m <sup>3</sup> /h	1540 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Temperature</b>	Max: 400° C	750° F
<b>Output</b>	Max: 110 kW	150 hp

### Features / Use

Excellent for high temperature applications where no cooling water is available. This model uses non-organic insulation materials allowing for higher motor operating temperatures.



## HJ HG

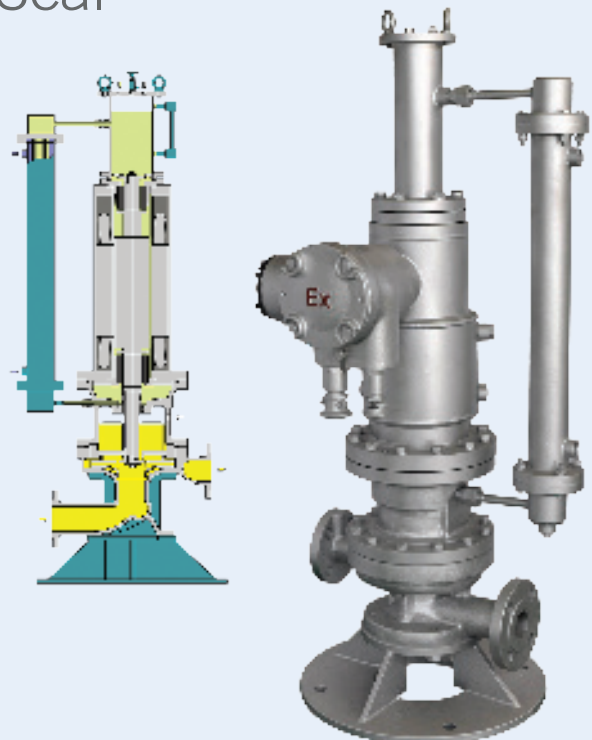
# Slurry Handling with Gas Seal

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 300 m <sup>3</sup> /h	1320 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Temperature</b>	Max: 400° C	750° F
<b>Output</b>	Max: 110 kW	150 hp

### Features / Use

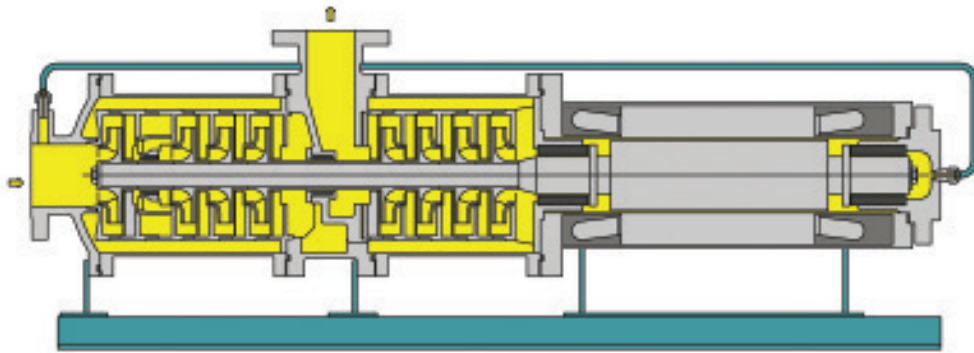
Vertical design with the ability to handle solid content up to 30%wt. The design uses an internal mechanical seal and a gas chamber between the pump and motor for isolation.



# PRODUCTS

HP-M / HN-M / HT-M / HW-M

## Multi-Stage

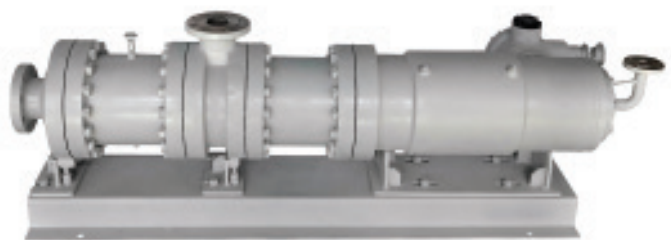
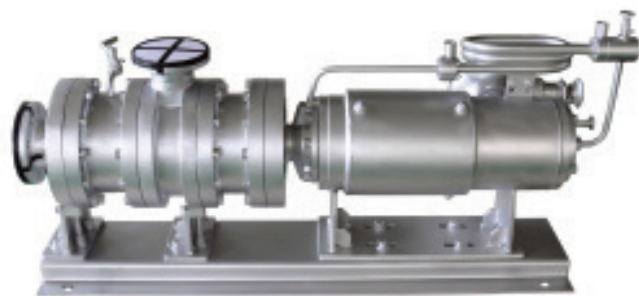


### Features / Use

Standard, Reverse Circulation and High Temperature designs are available in multi-stage configuration for high head applications.

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 280 m <sup>3</sup> /h	1230 USgpm
<b>Total Head</b>	Max: 800 m	2625 ft
<b>Temperature</b>	Min: -165° C Max: 400° C	Min: -265° F Max: 750° F
<b>Output</b>	Max: 315 kW	425 hp



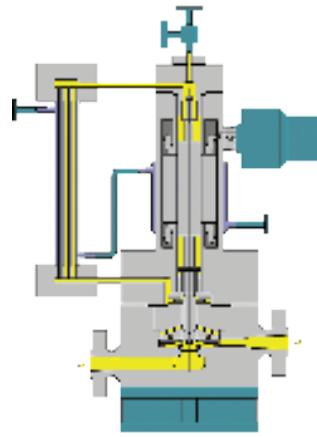


## HTM

# High Pressure, High Temperature

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 600 m <sup>3</sup> /h	2640 USgpm
<b>Total Head</b>	Max: 160 m	525 ft
<b>Temperature</b>	Max: 400° C	Max: 750° F
<b>Pressure</b>	Max: 40 MPa	6000 psig
<b>Output</b>	Max: 315 kW	Max: 425 hp



### Features / Use

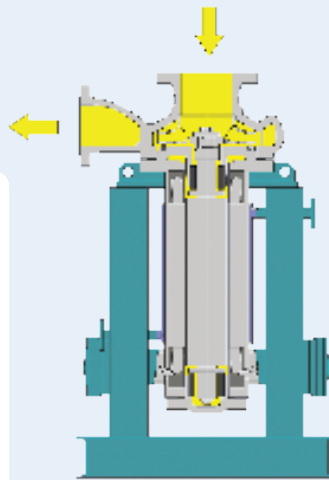
High temperature and high pressure design. Suitable for applications with a high system pressure such as chemical reactors, test loops and boiler circulation.

## HP / HT / HN

# High Capacity

### Operation Parameters

	SI	US
<b>Capacity</b>	Max: 1200 m <sup>3</sup> /h	5285 USgpm
<b>Total Head</b>	Max: 200 m	656 ft
<b>Temperature</b>	Max: 400° C	Max: 750° F
<b>Pressure</b>	Max: 25 MPa	3600 psig
<b>Output</b>	Max: 315 kW	Max: 425 hp



### Features / Use

High flow capacity at high pressure and temperature. Typical applications include boiler circulation, syngas cooling and nuclear circulation.

# Common Applications and Fluids

Hayward Tyler Canned Motor Pumps are installed across multiple industries and applications with a proven track record of successful operation.

We have experience working with over 600 fluids in the most difficult applications that demand a zero-leakage solution. Hayward Tyler Canned Motor Pumps are ideal solutions when zero-leakage along with compactness, low noise and ease of maintenance are essential to your operation.

Our Canned Motor Pumps can be installed to replace existing API610 pumps, offering improved reliability and reduced maintenance.

## Designed for Demanding Conditions

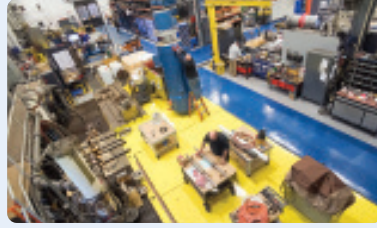
Hayward Tyler Canned Motor Pumps are ideal for applications that:

- Pose a pollution hazard to the surrounding environment
- Have a fire or explosion risk
- Can cause a public hazard due to toxicity or related properties
- Use fluids that react with air to form dangerous fluids, or air interferes with the system process
- Use fluids that solidify easily, are at high-temperature or cryogenic
- Use fluids that contain solid particles
- Utilize high system pressure or severe conditions



## TYPICAL FLUIDS HANDLED BY HAYWARD TYLER CANNED MOTOR PUMPS

<b>Acids</b>	Sulphuric acid, Hydraulic acid, Nitric acid, Mixed acids, Phosphoric acid, Hydrofluoric acid, Hydrocyanic acid, Acetic acid, Chromic acid, Formic acid, Oxalic acid, Lactic acid, Methacrylic acid, Chlorosulfonic acid, Fatty acid, Propionic acid, Boric acid, Sulfurous acid, Stearic acid, Maleic acid, Oleic acid
<b>Alkalis</b>	Caustic soda, Caustic potash, Potassium hydroxide, Sodium hydroxide, Calcium hydroxide, Ammonia water
<b>Salts</b>	Calcium chloride, Sodium chloride, Sodium carbonate, Ammonium sulfate, Sodium Cyanide, Potassium bichromate, Lithium chloride, Ammonium sulphite, Sodium hypochlorite, Sodium chlorate, Lithium bromide, Aluminum sulfate, Sodium silicate, Sodium sulfide, Ammonium sulfide, Ammonium copper acetate
<b>Esters</b>	Methyl acetate, Ethyl acetate, Amyl acetate, Methyl acrylate, Methyl methacrylate
<b>Aromatic Compounds</b>	Benzene, Toluene, Xylene, Phenol, Naphthalene, Dichlorobenzene, Cresol, TDI, Methyl naphthalene, TPA slurry, Alkylbenzenes
<b>Hydrocarbons (other than aromatics)</b>	Butane, Nonane, Cyclohexane, Cyclohexanol, Hexane, Anol
<b>Monomers and Polymers</b>	PVC, PVA, Styrene, Caprolactam, Chloroprene, Butadiene, Vinyl ether, Acrylonitrile, Acetonitrile
<b>Alcohols</b>	Methanol, Ethanol, Butanol, Hexanol, Isopropyl alcohol, Octyl alcohol, Glycerine, Ethylene glycol, Propylene glycol
<b>Oxo-Compounds and Ethers</b>	Formaldehyde, Acetaldehyde, Benzaldehyde, Methyl ethers, Ethyl ethers, Methyl ether ketone, Acetone, Ethylene oxide, Propylene oxide, Acrolein, Crotonaldehyde, Allyl acetone, Acetic anhydride, Hexanone, Furfural
<b>Halogenides</b>	Carbon tetrachloride, Trichloroethylene, Allyl chloride, Phosgene, Liquid chlorine, Anhydrous hydrogen chloride, Anhydrous hydrogen fluoride, Methylene chloride, Methyl chloride, Titanium tetrachloride, Silicon tetrachloride, Phosphorus oxychloride, Phosphorus trichloride, Ethylene dichloride (EDC), Propylene dichloride, Tetrachloroethylene, Chloroform, Silicochloroform, Diethyl aluminum chloride, PAC
<b>Nitrogen and Sulfur Compounds</b>	Carbon disulfide, Anhydrous sulfur dioxide, Anhydrous ammonia, Pyridine, Hydrazine, Methyl hydrazine, Aniline, Amidol, Lactonitrile, Acetone cyanohydrin, Acrylamide, Dimethyl formamide, Ethanol amine and other amines, Methyl sulfoxide
<b>Cryogenic Liquids</b>	Freon, Liquid carbon dioxide, Liquid methane, Liquid ethylene, LPG, Liquid propane, Liquid propylene, Liquid ammonia
<b>Oils</b>	Petroleum (Naphtha, Crude oil, Gasoline), Transformer oil, Cooking oil, Lubricants
<b>Heat Transfer Mediums</b>	Dowtherm, Mobiltherm and other heat transfer media, KC, SK oil
<b>Water</b>	Sea water, Demineralized water, Boiler feed water, Waste water and other types of treated water
<b>Coolants</b>	Freon, Liquified ammonia, Lithium bromide, Methyl chloride and other coolants
<b>Others</b>	Mercury, Tetraethyl lead, Triethyl aluminum silane, Methyl silane, Hydrogen peroxide, Plasticizers, Developers, Gelatine, Detergents, Syrups, Paints, Various solvents, Various polymer slurry, Various catalyst slurry, Silane, Fermentation solution



## Our global facilities

We have manufacturing facilities across the globe to provide reliable and timely support to our customers.

Each location offers repair services and field service support capable of providing technical expertise to you, no matter where your location. Additionally, we have a network of partners across the globe to allow us to provide the most convenient options for your aftermarket support. We offer a wide range of repair options for all planned and predictive maintenance cycles, as well as comprehensive electrical and mechanical inspection capabilities.

Our field service support teams can be used on a supervisory or turnkey basis. With turnkey growing in popularity as an effective means of reducing staff overhead, Hayward Tyler is there to meet industry needs.



For further information on Hayward Tyler's Canned Motor Pumps, please contact us at a location below:



**HAYWARD TYLER**

Engineered solutions for the global energy sector

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