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NIKKISO API 685 Canned Motor Pump

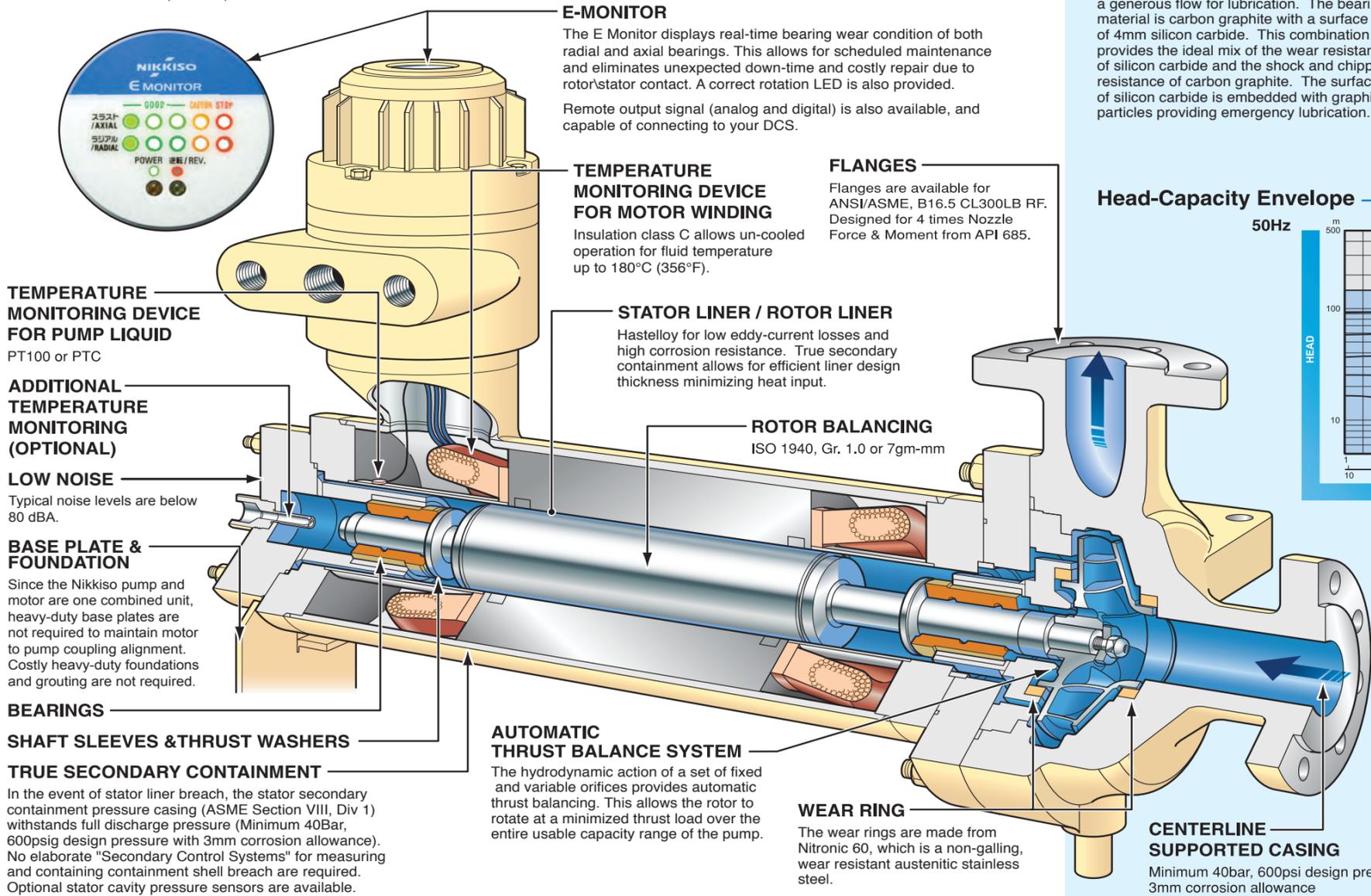


NIKKISO CO., LTD.

API 685 CANNED MOTOR PUMP

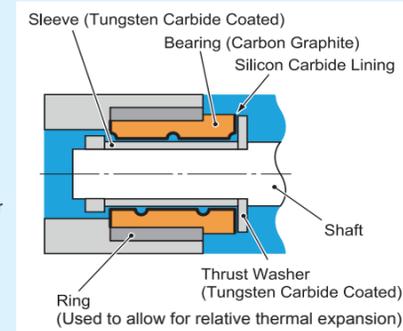
NIKKISO Canned Motor Pumps that comply with both API 685* and ATEX* is developed for the heavy duty requirements in the refinery and petrochemical industries.

*API 685 : Sealless Centrifugal Pumps for Petroleum, Heavy Duty Chemical, and Gas Industry Services
 *ATEX : ATEX Directive (94/9/EC)



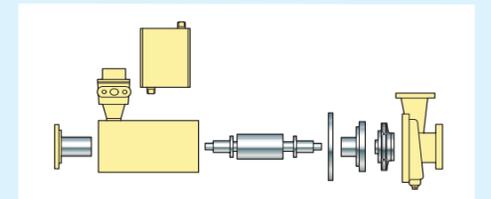
BEARINGS / SHAFT SLEEVES & THRUST WASHERS

Bearings are product lubricated sliding contact type. Spiral grooves are standard and provide a generous flow for lubrication. The bearing material is carbon graphite with a surface layer of 4mm silicon carbide. This combination provides the ideal mix of the wear resistance of silicon carbide and the shock and chipping resistance of carbon graphite. The surface layer of silicon carbide is embedded with graphite particles providing emergency lubrication.

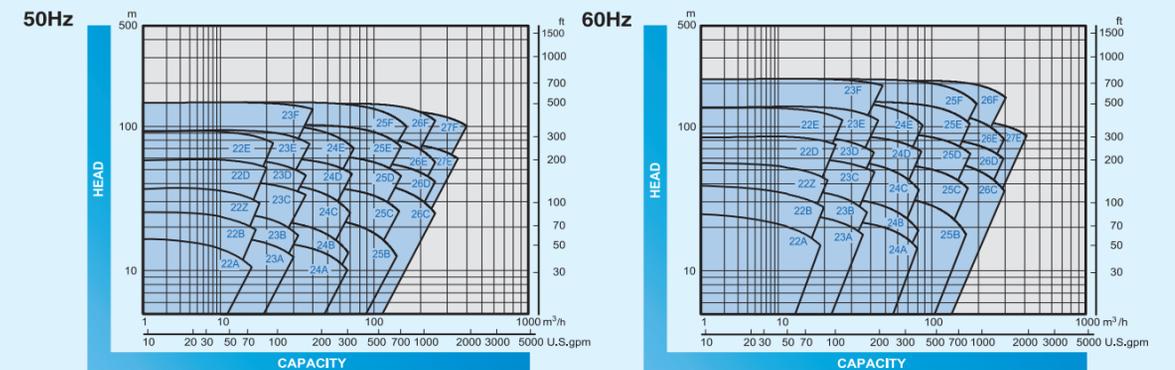


BUILDING BLOCK SYSTEM

Wide interchangeabilities of pump modules and motor modules are available and these modules can be freely combined, so it is possible to minimize number of spare pumps, motors and numbers of parts in stock. This also makes on site repair possible.



Head-Capacity Envelope



Technical Data

Pump Size (Discharge Nozzle Diameter)	40mm to 150mm	1 1/2" to 6"
Capacity *	up to 360m³/h	up to 1600U.S.gpm
Head	up to 220m	up to 720feet
Motor Rating	up to 132kW	up to 180HP
Design Pressure	40 Bar	600 psi
Pumping Temperature	up to +450°C	up to +840°F
Insulation	Class C	
Explosion Protection	ATEX Directive (94/9/EC)	

* Higher capacities upon request.

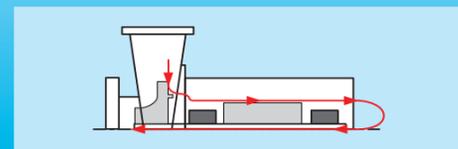
Standard Materials

Parts Name	Material	Remarks
Volute Casing (Pressure Casing)	SCS14	equivalent to A351 CF3M / 1.4409
Secondary Containment	SCPH2	equivalent to A216 WCB / 1.0619
Impeller	SCS14	equivalent to A351 CF3M / 1.4409
Casing Wear Rings	Nitronic60	Nongalling Material
Impeller Wear Rings	SUS316	Installed by Option
Shaft	SUS316	equivalent to A479 Type316 / 1.4409
Shaft (Bearing) Sleeve / Thrust Washer	SUS316/WC-N	SUS316 coated with Tungsten Carbide
Bearing	CG93	Carbon Graphite with Silicon Carbide Linig.
Stator & Rotor Liner	HC-N	equivalent to Hastelloy® C

Typical Flow Path and Applications

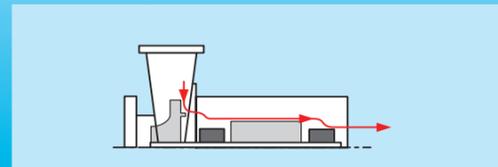
Type HN, Type HV

Fluid at approximately 60 % of discharge pressure is circulated through the bearings and over the rotor for cooling and lubrication and returns through the hollow shaft to suction. Type HN is the basic type and is suitable for a broad range of clean and nonvolatile liquids with moderate temperatures. Type HV has similar flow path of Type HN, is suitable for the high viscous liquids (80cp to 200cp).



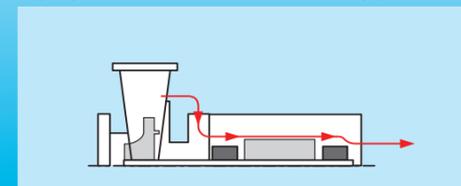
Type HQ

The type HQ utilizes a flow through the motor to the vapor zone of the suction vessel. It is for fluid that would tend to vaporize if returned to impeller eye after picking up motor heat. The return line is throttled to maintain high pressure liquid within the motor and also serves as a vent line normally installed for this type fluid. This type is suitable for fluids with high vapor pressure.



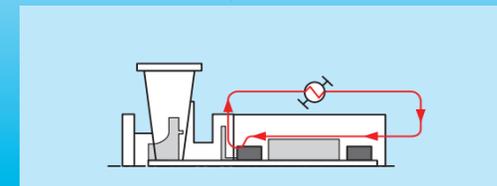
Type HR

Pressure in rotor chamber is the same as discharge pressure to avoid vaporization and then the flow is returned to the vapor zone of the suction vessel similar to Type HQ. Type HR is suitable for fluids (i.e. liquefied gases, VCM, hydrocarbons, chlorine) with vapor pressure curve that increases steeply.



Type HT

Designed for hot fluid applications. Process fluid is recirculated within the motor with an auxiliary impeller. An integral shell and tube heat exchanger and thermal isolation spacer are provided to maintain cool fluid temperatures within the motor, and maintain an acceptable motor winding temperature.



Type HS, Type HM

A clean, compatible flush fluid supply is required and is constantly recirculated within the motor section to prevent solids or high vapor pressure liquids from migrating into the motor chamber. In case of Type HS, flush fluid loss to the process stream is minimized by closed clearance bushing between the motor and pump end. Type HM utilizes a mechanical seal for reduced flush rates. These Types are designed for fluid with slurries up to 30wt % solids.

