

ENVIRONMENTAL

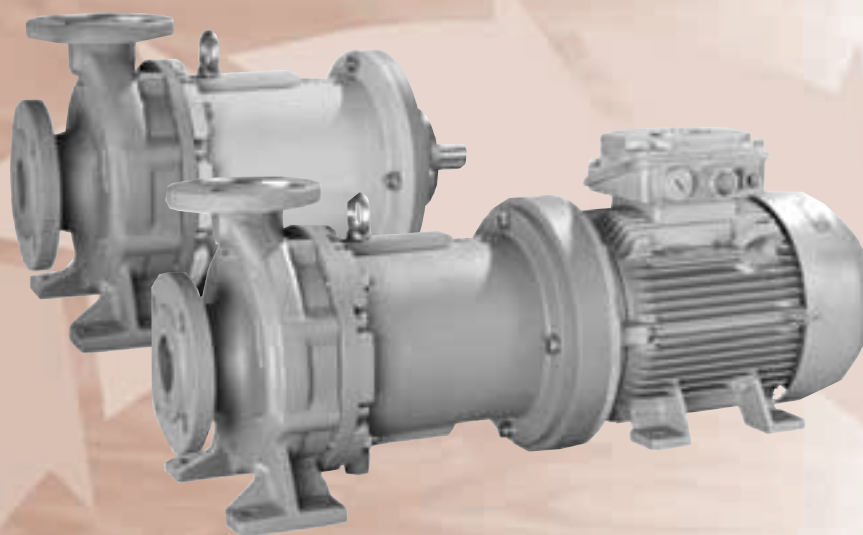
SAFETY AND PROTECTION



MCNn / MCNn close-coupled

MCN / MCN close-coupled

MCNF / MCNF close-coupled



**Single-stage magnetically
coupled pumps conforming to
EN 22858 / ISO 2858 / ISO 5199**

General

Magnetically coupled pumps from HERMETIC are totally enclosed centrifugal pumps without any kind of shaft seals to the atmosphere. They are driven using a permanent magnetic principle. The pumps meet the highest demands in terms of the seal, lack of maintenance required and environment friendliness.

Function 1

■ MCNn / MCNn close-coupled

The medium being pumped runs via the suction chamber into the impeller and is conveyed by the impeller to the discharge nozzle. The slide bearings are lubricated and the rotor compartment is cooled via part of the flow which has been taken from the main pump flow and which is returned to the main flow after moving through the can and the hollow shaft.

Function 2

The medium being pumped runs via the suction chamber into the impeller and is conveyed by the impeller to the discharge nozzle. The lubrication of the slide bearings and the cooling of the rotor compartment is effected differently:

■ MCN / MCN close-coupled

The cooling/lubricating flow is taken from the main pump flow and after being conveyed through the can or the slide bearings is pumped through the hollow shaft on the suction side of the pump. Fluids with a temperature close to boiling point on being pumped or which are already boiling (liquid gases), cannot be pumped using MCN / MCN close-coupled units without overpressure.

■ MCNF / MCNF close-coupled

With boiling or almost boiling fluids, the cooling/lubricating flow is also diverted from the main flow, but is then conveyed back to the pressure side after flowing through the can and the slide bearings. Additional radial holes on the end of the rotor remote from the pump are used to overcome the hydraulic losses which occur on this route.

Design

The construction and ratings scheme of the pumps conform to EN 22858 / ISO 2858 / ISO 5199 and have a permanent magnetic clutch as an integral component. The required output is transferred to the pump via a conventional standard three phase current motor of type B 3 or B 35 with the corresponding intermediate clutch.

The outer magnet carrier can be removed without the pump having to be depressurised or emptied. The entire system is constructed according to a modular principle and permits wide-ranging interchangeability of individual components, meaning that only minimal stocks of spare parts are required. The use of the same dimensions for the outer pump permit the rapid conversion from conventional standard chemical pumps to hermetic magnetically coupled pumps, as required, whilst retaining the drive motor, the clutch and the base plate.

Application sector

For pumping aggressive, poisonous, explosive, valuable, combustible and even slightly volatile fluids.

Magnetic drive

Thanks to the use of new types of permanent magnetic materials with high energy density, it is possible to house a powerful magnetic clutch within the pump bearing support specified in the standard. The magnetic drive is equipped for direct activation when operated using standard three phase current motors and does not require any type of clutch.

In addition, the permanent magnets are highly stable against demagnetising effects, such as those which may occur when assembling or disassembling the rotor or if the maximum transmittable torque is exceeded.

Ratings up to 58 kW with motor speeds of 2900 rpm and up to 70 kW with speeds of 1450 rpm.

Larger ratings on request.

Bearing – Rotation unit

Equally-sized slide bearings guide the common pump shaft in a radial direction. This guiding action is only used when starting or stopping the pump as after the nominal motor speed is reached the bearing function is provided hydrodynamically by the rotor. The axial thrust of our pumps is compensated hydraulically.

■ Bearing MCNn / MCN / MCNF:

The drive shaft with the outer magnet carrier has two ball bearings in the bearing support which are permanently lubricated.

■ Bearing MCNn close-coupled / MCN close-coupled / MCNF close-coupled:

With this design, the drive shaft is directly attached to the motor shaft. This means that the support function is provided by the motor.

Application ranges


■ MCNn	- 40 °C to + 250 °C (350 °C)*
■ MCN	- 40 °C to + 250 °C (350 °C)*
■ MCNF	- 40 °C to + 250 °C (350 °C)*
■ MCNn close-coupled	- 40 °C to + 100 °C **
■ MCN close-coupled	- 40 °C to + 100 °C **
■ MCNF close-coupled	- 40 °C to + 100 °C **

(*with MCNnK thermal break) ** ≥ 100 °C on request

Materials and pressure ratings

■ Nodular cast iron	EN-JS1025 (GGG-40.3):	to PN 25
■ Stainless steel	1.4408:	to PN 25
■ Cast iron	GP 240 GH + N (GS-C25N):	to PN 25
■ Special alloys:		to PN 25

Explosion protection

Explosion protection conforming to EC design test certificate in line with Directive 94/9/EG  II 2 G c T3 to T6

Safety devices and monitoring

For trouble-free operation, the permissible flow rate and differential head range must be observed. Minimum and maximum flow rate and differential head can be guaranteed using a Q_{min} or Q_{max} orifice without any external intervention (e.g. by the operating staff). To prevent dry-running, we recommend the NS 30 level monitoring device developed by us at HERMETIC.

PART LIST

■ MCNn / MCNn close-coupled

102	volute casing
146	motor lantern
161	casing cover
183	support foot
211	pump shaft
213	magnet support
213.01	driving shaft
230.01	impeller
321.01	deep groove ball bearing
321.02	deep groove ball bearing
332	pump bracket
360	bearing cover
381	bearing insert
410	profile packing
411.05	joint ring
411.10	joint ring
412.01	o-ring seal
473.01	slide ring
473.02	slide ring
509	intermediate flange
529.01	bearing sleeve
529.02	bearing sleeve
545	bearing bush
553.03	ball bearing shim
673	vent filter
801	flange motor
817	containment shell
818	rotor

■ MCN / MCN close-coupled

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146	motor lantern
161	casing cover
183	support foot
211	pump shaft
213	magnet assembly
230.01	impeller
321.01	deep groove ball bearing
321.02	deep groove ball bearing
332	pump bracket
360	bearing cover
381	bearing insert
391	bearing bracket
400.04	gasket
400.05	gasket
400.06	gasket
410	profile packing
411.05	joint ring
411.10	joint ring
473.01	slide ring
473.02	slide ring
513	wear ring insert
525.01	distance sleeve
525.02	distance sleeve
526.01	balancing sleeve
526.02	balancing sleeve
529.01	bearing sleeve
529.02	bearing sleeve
543	distance bush
545.01	bearing bush
545.02	bearing bush
545.04	bearing bush
553.03	ball bearing shim
673	vent filter
801	flange motor
817	containment shell
818	rotor
900	ring bolt
923	bearing nut

■ MCNF / MCNF close-coupled

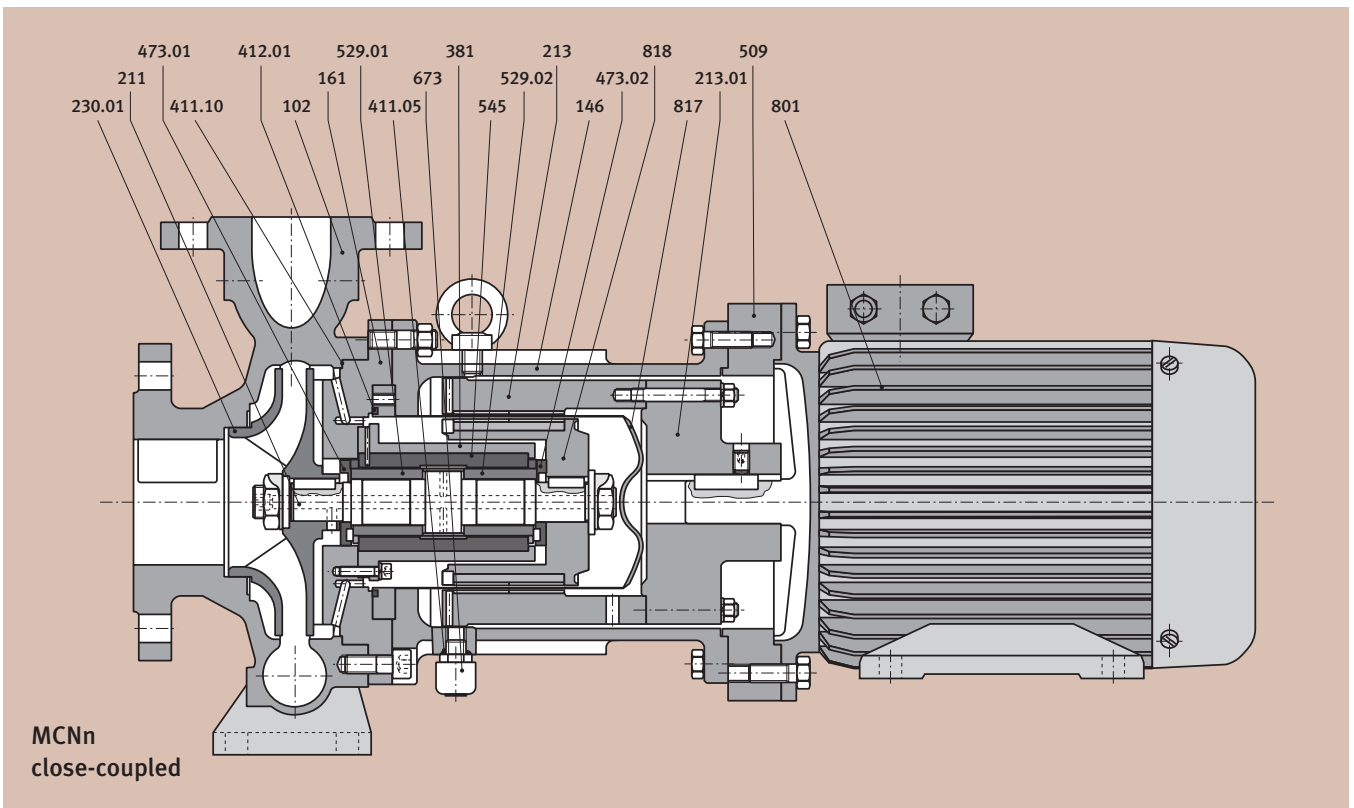
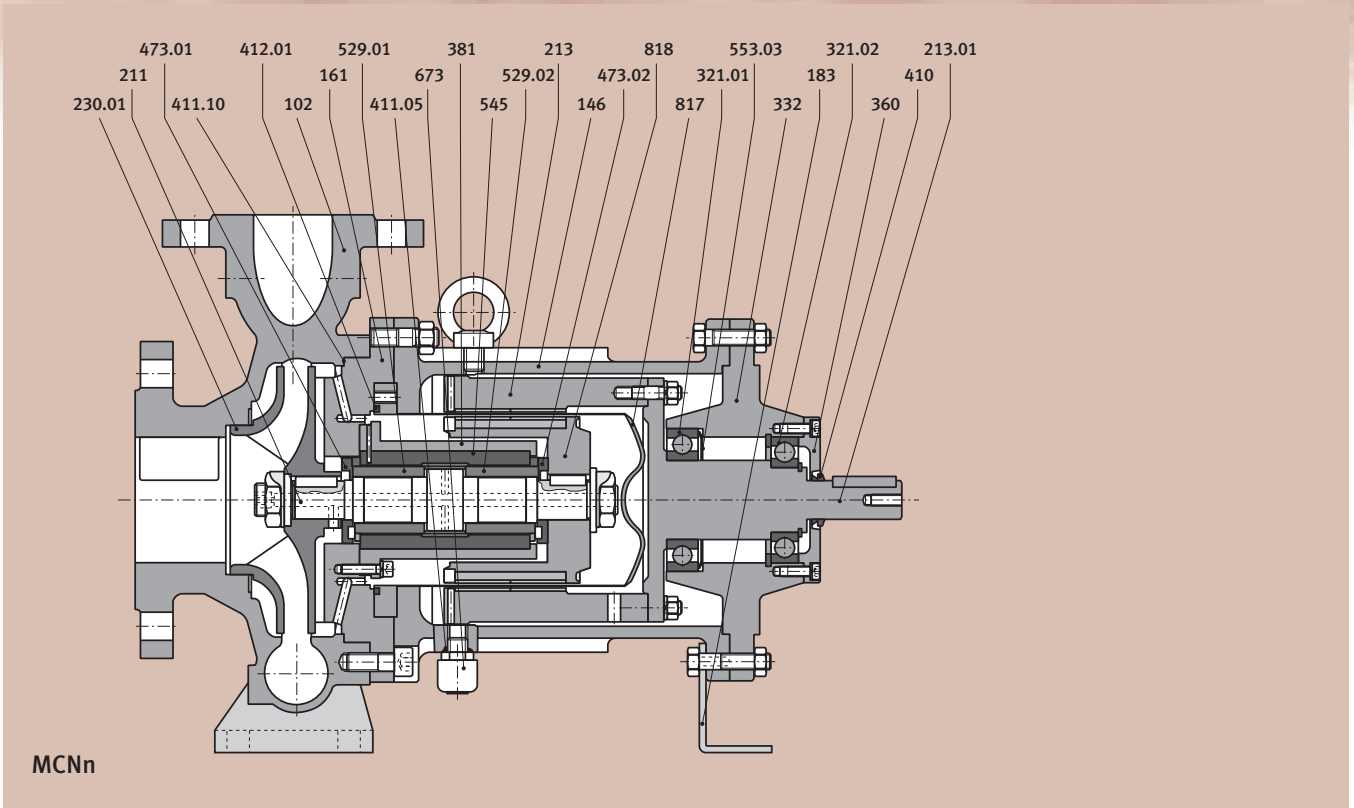
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for both pumps
 only MCNn
 only MCNn close-coupled

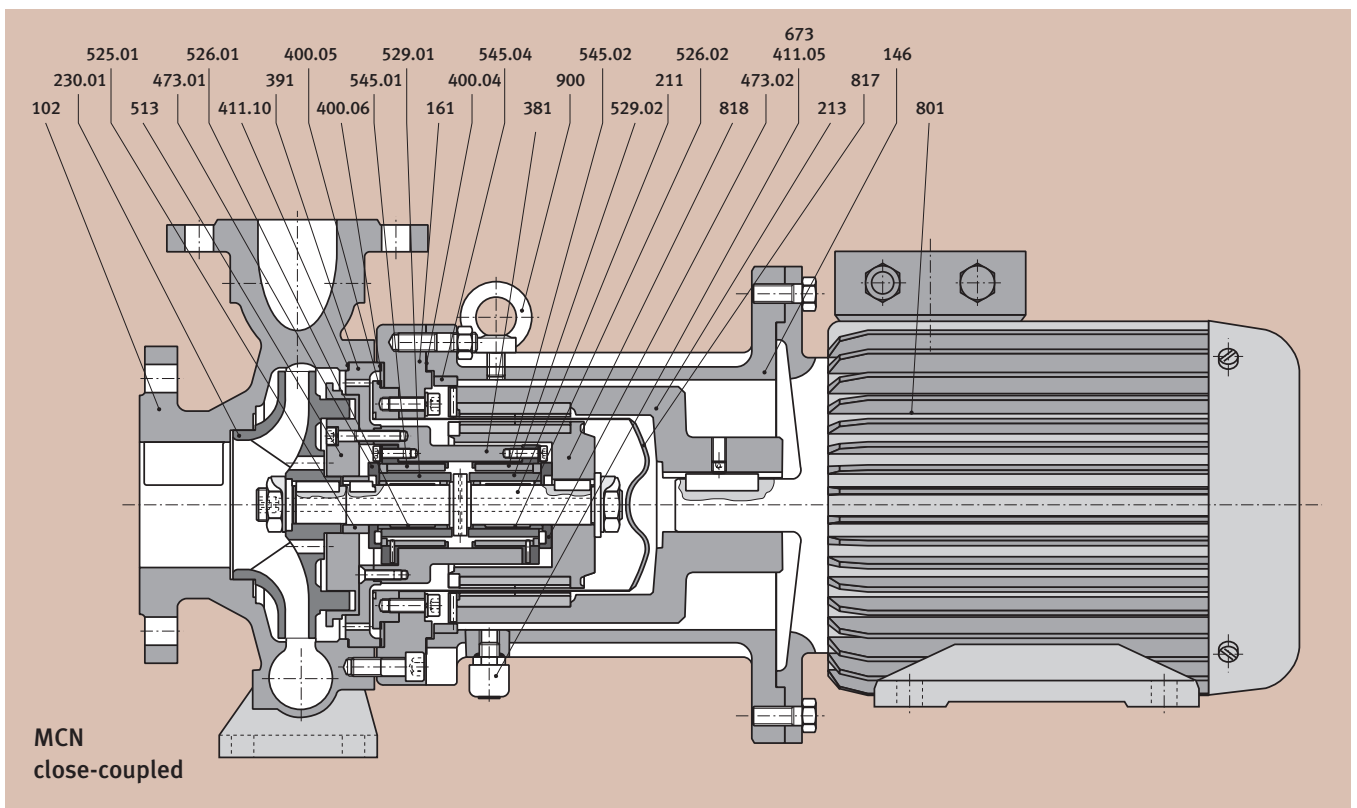
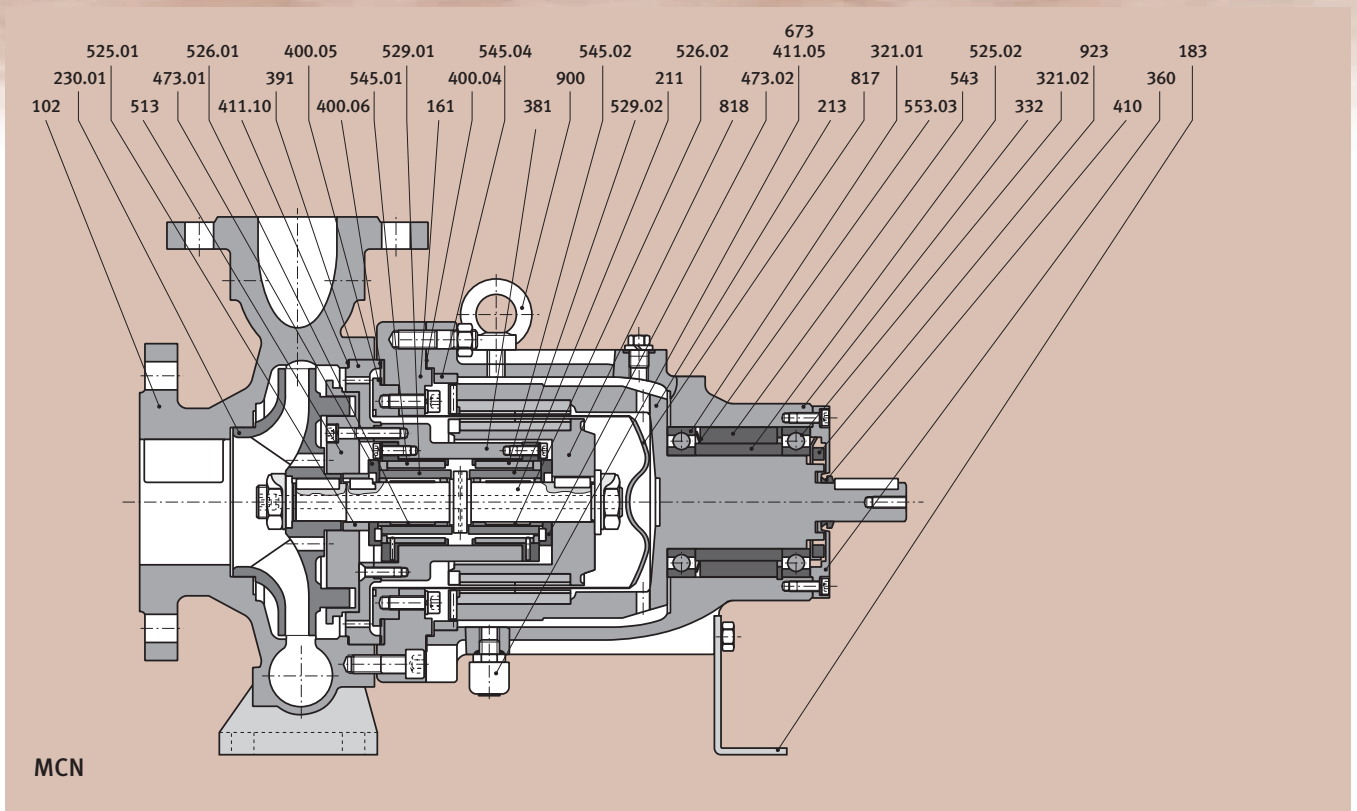
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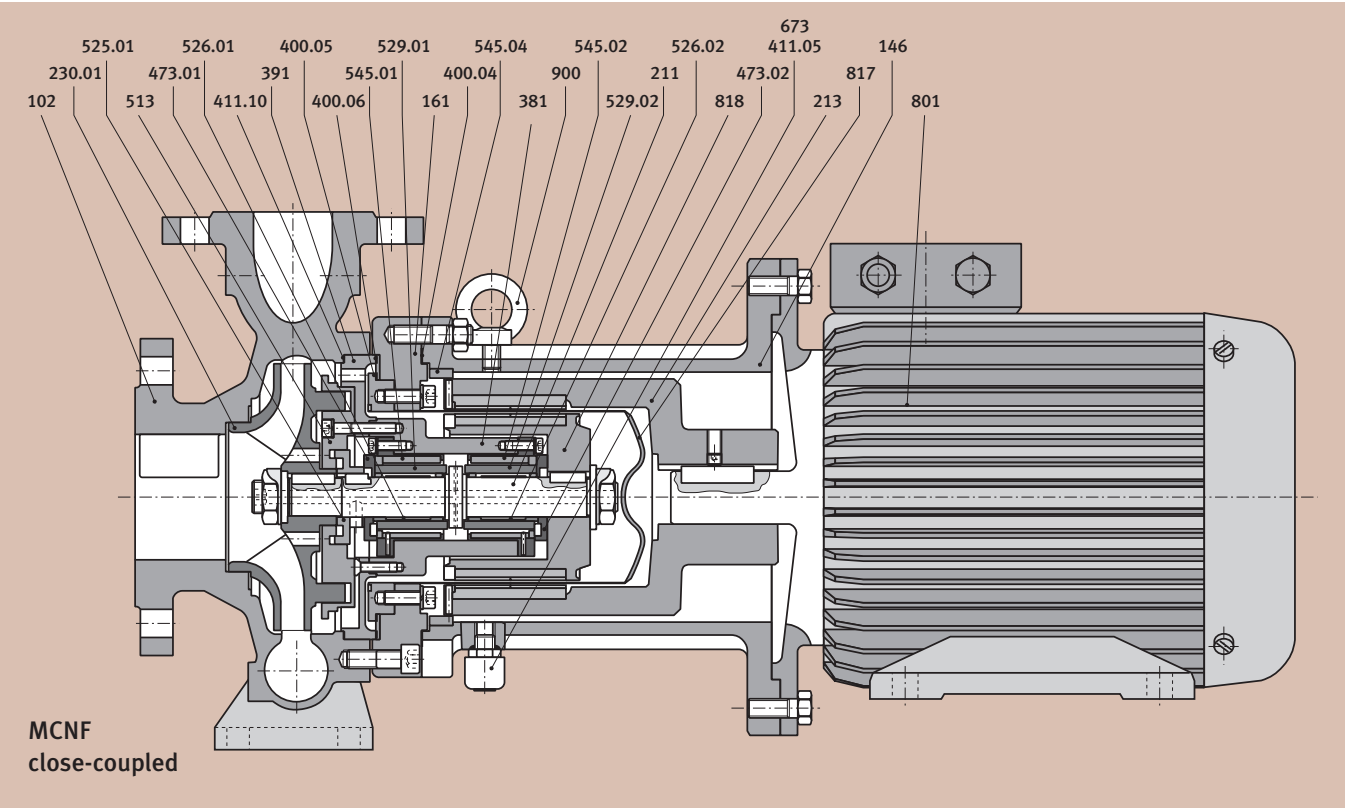
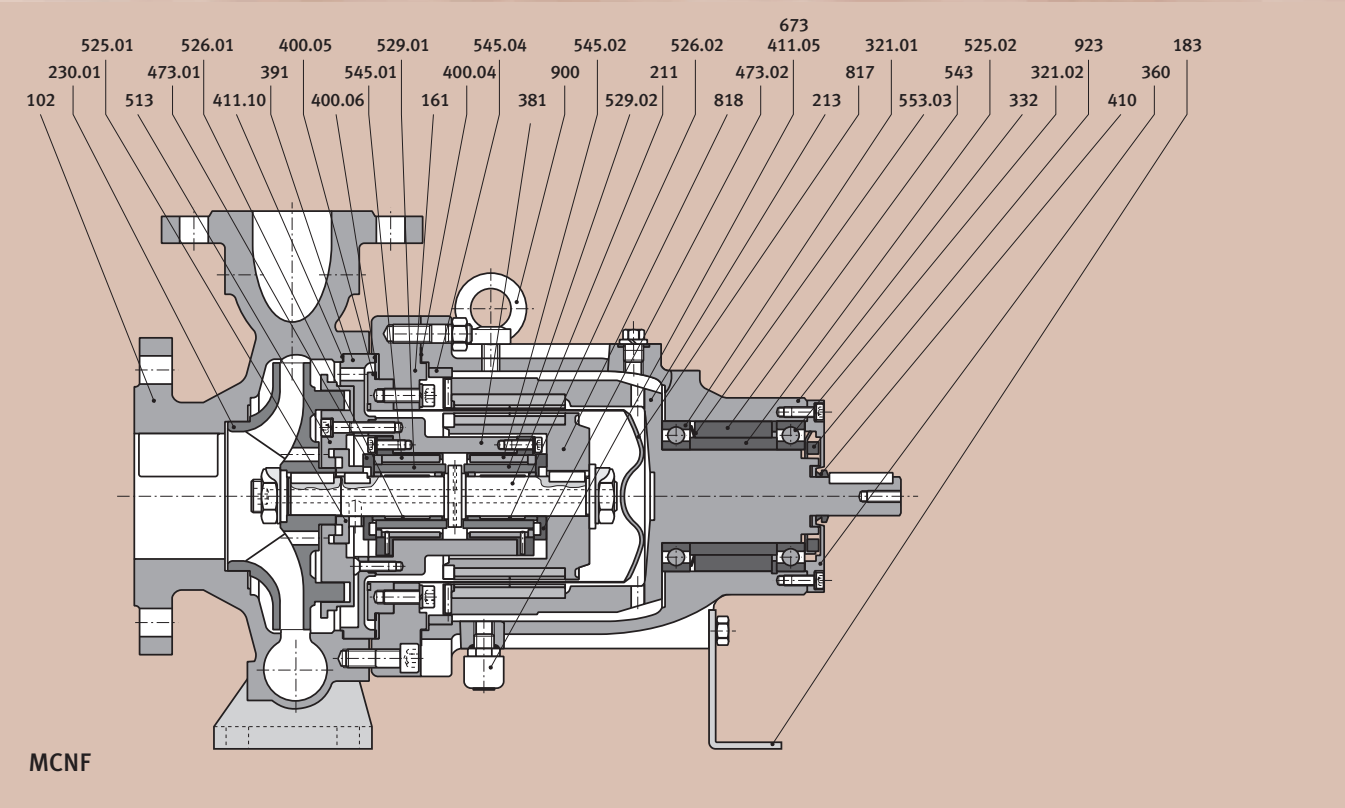
SECTIONAL DRAWING MCNn & MCNn CLOSE-COUPLED



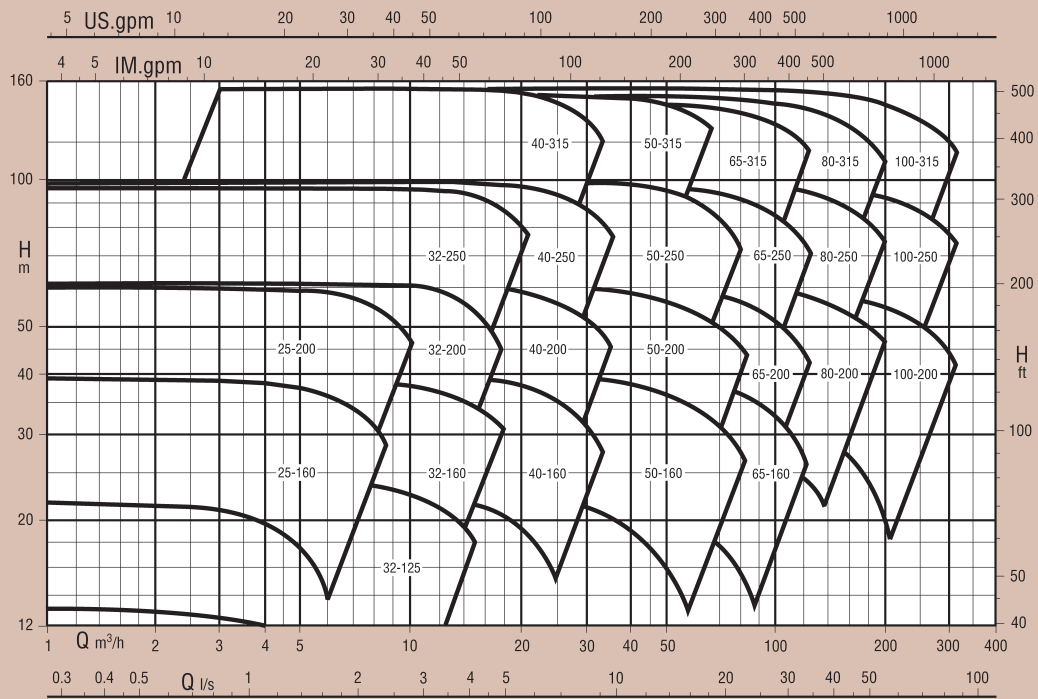
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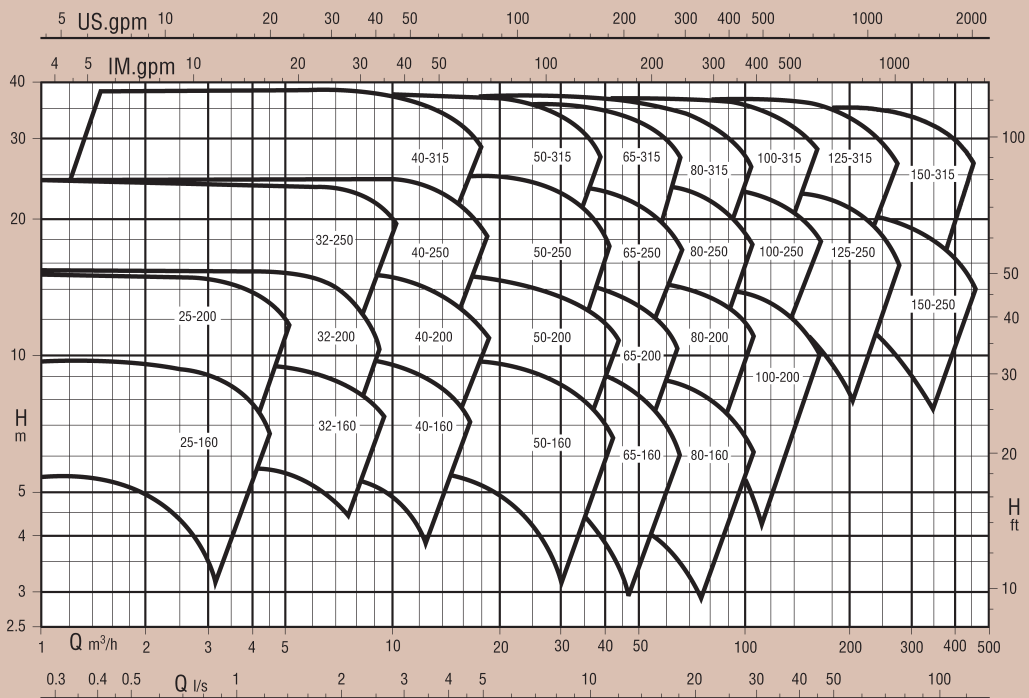
SECTIONAL DRAWING MCNF & MCNF CLOSE-COUPLED



Characteristics diagram 2900 rpm



Characteristics diagram 1450 rpm



Hermetic®

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