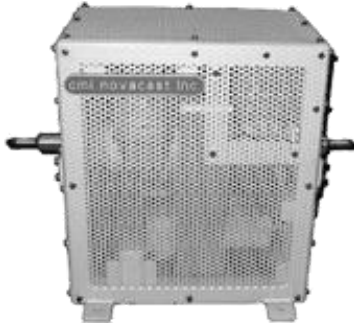


CMI Novacast CA Series Electromagnetic Liquid Metal Pumps

The CMI Novacast CA series of electromagnetic pumps are typically made of stainless steel. Force is imparted to the metal in the pump according to the Left Hand Rule for motors, where if there is a current carrying conductor that is in a magnetic field, the conductor experiences a force which is perpendicular to the flow of current and the magnetic flux.

The metal flows through a straight pipe which is partially flattened over part of its length, where the faces of an electromagnet are placed (keeping the gap between the pole faces small). There are also electrical connections to the side of the pipe in this same area that introduce an electrical current flow into the molten metal. The electrical current flows across the flattened section while the magnetic flux passes through the flattened section at right angles to the current flow, and this produces a force on the metal that is at right angles to the current and magnetic flux. These pumps may operate on direct current or (more frequently) alternating current. When operated with alternating current, the direction of the flow of electricity in the metal changes every half-cycle, and since the electromagnets are also powered by the same alternating current the magnetic field also changes direction every half-cycle, so the force on the metal pulsates but is always in the same direction. These pumps are generally convection cooled, although if the pumped metal temperature is quite high, supplemental cooling may be required.

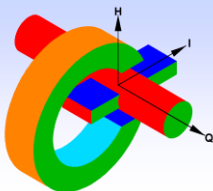
Currently for use with liquid sodium. For all other metals, contact CMI Novacast.



CMI Novacast CA15 Electromagnetic Liquid Metal Pump

Specifications for Sodium

Frequency: 60 Hz
Voltage: 0-240
Amperage: 0-35
Max temperature: 600° C
Max pressure: 10 bar
Max flow rate at 3 bar: 1.2 kg/sec



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