



**Dickow Pump Company, Inc.**

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ITEM # AMB, SEALLESS MAGNETIC DRIVEN CENTRIFUGAL PUMPS TYPE KML/KMB/KMV

### General

The DICKOW pump series KM are sealless centrifugal pumps. The static containment shell forms a closed system with hermetically sealed liquid end. Model AMB pumps match ANSI casing dimensions.

### Applications

Magnetic driven KM-pumps are designed to improve plant and personnel safety. Especially when handling toxic, explosive or other dangerous liquids which react on contact with the atmosphere. The KM-pumps operate maintenance-free and their containment shells replace double acting [+ MORE](#)



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Specifications	
<b>Maximum Capacity (Flow Rate)</b>	70m <sup>3</sup> /h (300 USgpm)
<b>Differential Head</b>	65 mLC (213 ft)
<b>Maximum Temperature</b>	30°C to 200°C (390°F)
<b>Maximum Allowable Working Pressure</b>	16 bar (232 psi)
<b>Maximum Transmissible Power</b>	17 kW at 2900 rpm (28 HP at 3500 rpm)
<b>Bearing Information</b>	<b>Outer ball bearings</b>

Additional Information	
<b>Containment shell</b>	

The containment shell is designed as a pressurized vessel to separate the pumpage from the atmosphere. The containment shell is bolted to the bearing housing in a manner that allows removal of the bearing bracket including outer magnets and ball bearings without exposing the pumpage to the atmosphere. The shell is made of one piece and has no welds.

### **Magnetic coupling**

The single elements of the multipolar magnetic coupling are manufactured of a permanent magnet material "Cobalt Samarium Rare Earth".

Energy is transmitted to the hermetically sealed liquid end by a bank of external magnets passing motive force through the sealing containment shell to a bank of internal magnets. Inner and outer magnet rings are locked together by magnetic forces and work as a synchronous coupling. The inner magnet ring transmits the required torque direct to the impeller. The rated power of the magnetic coupling is designed such that overload during normal operation is excluded, possible slipping through blocked impeller will not effect demagnetization, if temperature is monitored by sufficient devices. The magnetic drives are designed for electric motors, direct on line starting. In case, a subsequent increase of motor power is required - i.e. when installing a larger impeller to meet changed process conditions - the nominal power of coupling can be increased accordingly by an additional series of magnets. The maximum drive power is approx. 17 kW at 2900 rpm (28 HP at 3500 rpm).

### **Containment shell protection**

The clearances between the bearing bracket and the outer magnet coupling and between the outer magnet coupling and the containment shell are arranged to prevent the outer magnet coupling rubbing on the containment shell, even in the case of ball bearing failure.

### **NPSH-Conditions**

The fact that the internal circulation flow with elevated temperature is led back to discharge has no influence on the NPSH-value. Special impeller design achieves low NPSH-conditions.

### **Balanced thrust loads**

The thrust loads of the closed impellers are hydraulically balanced by impeller back vanes and injection holes. Any remaining loads are absorbed by the thrust bearings.

### **Temperature control**

Connection for temperature monitoring of the surface of the containment shell is available as standard. Monitoring devices for outer ball bearing are available on request.

### **Casing drain**

Complete drainage of casing and magnet end is possible through casing drain. No additional drain in the containment shell area is required.

### **Internal circulation**

Pumps in operation generate eddy currents in the metallic containment shell which heat up the product in the gap between rotor and containment shell. This heat is dissipated through an internal circulation. The internal circulation flows from discharge, directly behind the impeller, through the magnet area and is led through the pump shaft. Shaft bores create a pressure increase forcing the circulation back to the volute casing. The effect of pressurizing the magnet end and the sleeve bearing prevents vaporization of the pumpage in this area.