

## Corrosion Resistant Centrifugal and Wetring Vacuum Pump for the Use in Chemical, Pharmaceutical and Allied Industries

When selecting a pump for a particular use, the following points have to be considered: chemical, its concentration, the temperature during process gravity, viscosity, capacity and head required.

\* M.S. Menon

For all clear liquid chemicals and also chemical with fine slurry centrifugal pump with open impeller is most suitable for all other applications like slurry of heavy nature centrifugal pump is not suitable. While selecting the material of construction (MOC) the alloys like Hastelloy, Monel, inconel worthite etc. are suitable. But all these alloys are imported and names given by the manufacturer of the alloys. All these alloys contain iron less than two per cent. The alloys are very costly and they are imported. If these alloys are manufactured here, it is found that the castings are porous and the alloy composition also change. Therefore as far as possible these alloys are not to be used.

The latest trend in the field of centrifugal pump, the most suitable MOC is Teflon. It has all most all good properties to use as centrifugal pump MOC. It is fully anticorrosive to all most all chemicals, solvents etc. It is non porous. It can with stand temperature to a great extend and best in the category of non metallic material. The price also is moderate. The life is very long-Teflon pumps are available in the following nature (1) Lined Teflon Pump. Lining means, a very thin film of Teflon is adhered to another material. Teflon property is that it will not adhere to any other material in a satisfactory manner. Therefore lining is not a sure method. The lining may peel off at any movement. If once peeled off the pump is unsuitable and cannot be used.

There is a method of fixing moulded Teflon in cast iron housing. The advantage is that Teflon parts are moulded in a thick uses of 6 mm. It is fixed in the hasing as male and female. Therefore it cannot come out at all. In this method By using this type of pumps save cost by one hundred per cent.

As regards the speed a centrifugal pump, generally it is 1450 RPM and 2900 RDM, since motors of this RDM are readily available these speeds are generally used. If any one need a higher head than 2900 RDM, they can use V pully and obtain the desired speed, thus get the desired head within certain limit.

Mech Seal: It is desirable to use mech. seal if the pumping liquid is costly and clear. If the pumping liquid is slurry it is not desirable to use mech. seal. So also if you used acid like sulphuric (Spent acid) the acid many contain lot of impurities like particles of sand etc. it will damage the seal faces. In such cases use only stuffing box packing device and packing material should be resistant to the chemical the pump is pumping.

Wetring V.Pump: This is a rotary pumps similar to centrifugal. It needs water to make vacuum. The pump is useful for chemical, pharmaceutical and allied industry. For the application of corrosive gases like wet-cholrine vapour, cast iron housing with corrosion resistant stone were contact parts are used. The parts are moulded and then inserted in the C.I. housing. In between C.I. and stoneware certain resin is tided with. This is highly a method to prevent any air coming in between the two materials.

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\* Mr. M. S. Menon is an engineer with Suma Pumps (P) Ltd., Kallettumkara – 680 683

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### Reference Book:

Chemical Engineering World,  
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