

VFM



**Instructions for installation,
operation, maintenance
and list of parts**

INTRODUCTION

If you want that your VMF pump works satisfactorily and give the service for which were designed is required to settle and maintain it in appropriate form.

Any person that this familiarized with the installation and the machinery handling in general, you won't have any problem to install the pump.

INSTALLATION INSTRUCTIONS

In most of the cases the pumps will be assembly in the factory but if the unit is too big or the column is too large the assembly will be in the field.

If you receive a pump complete assembly just check it carefully if is something wrong please before install the pump contact the factory. At the same time you should present a formal reclamation to the transport company.

To install the units you should have an appropriate capacity crane to support the total weight of the pump. When you lift the pump place and distribute slings that load the unit evenly. After that descend the pump, to the final place, carefully in such a way the pump doesn't hit the foundation. The pump should be suspended freely and supported by the base, so that the pump will have uniform contact with the foundation to avoid movement or distortions.

If the pump is shipped disassembly and will be assembled in the field you should be careful that all its items are well. All the flanged, pipes, bearing, coupling and shafts should be cleaned carefully. The shafts final points should be perfectly cleaned to assure a firm contact with the faces.

The assembly sequence could vary according to the section numbers that compounds the unit. The bowl assembly always are shipped assembled.

To proceed with the assembly place the bowl assembly with fastener inside the well. Two protection pipes will be assembly screwing half way to a bearing, but first check the pipes are clean. The gaskets will be hermetic putting them in place.

After that slide the shaft inside the protection pipe and both inside the column.

When this assembly is ready, lift it in such a way the protection pipe stand out the column pipe in a such longitude that allows the connection without difficulty. The shaft should stand out the protection pipe the same longitude.

To assembly the shafts will be necessary 2 stillson keys. One tight the coupling and the other one in the shaft up the coupling. Is very important to tight the shafts at the top in the coupling center. Do not bend or twist the shafts.

After that put the protection pipe gasket. For that you should put gasket lacquer in the protection pipe flange or similar and then screw the gasket.

Finally put oil inside the protection pipes. Will be used a special element for the gaskets and then screw (take care that the screw is perfect and even).

Proceed the same way according to the explained before with all the section. Be careful to guide the shaft and protection pipe so that it doesn't suffer any damage when the head be placed.

The top shaft is the one that has the keyway. This shaft stand out the base the appropriate longitude to put the driver.

Follow the sequence: place the stuffing box gasket, then slide the stuffing box and screw it in its place. After that place the packing ring that will be remitted with the unit forming rings with the gaskets and slide the stuffing box bearing over the shaft until place it in the packing rings. After that slide the adjusting bearing in the shaft and screw it (taking care that the protection pipe tension is the correct one).

Then put the bearing retaining to impede the loosening.

For the adjust of the impeller proceed as follows: Once assembly the unit place the key in its place and paint marks that allows know the position of the 4 driver coupling drills when the adjusting nut is its place. Screw the adjusting nut (1) until the shaft turns freely after this point the nut screw one turn more. Check that the nut drills coincide with the coupling drills to place the lock screw.

The discharge pipe should be supported independently of the pump and avoid any effort.

When the retention valves is used in the discharge is recommended to put eliminate air valves that allows purge the piping during the start up.

START UP

The correct rotation of the unit is counter clock wise.

After starting up the pump adjust the lubricator. The lubricator should supply 30 drop/min. Wait 30 or 40 minutes before start up the pump. After start up the pump wait 15 to 20 minutes to reduce the supply to 15 drops/min.

Isn't recommended to fill the protection pipe totally just enough.

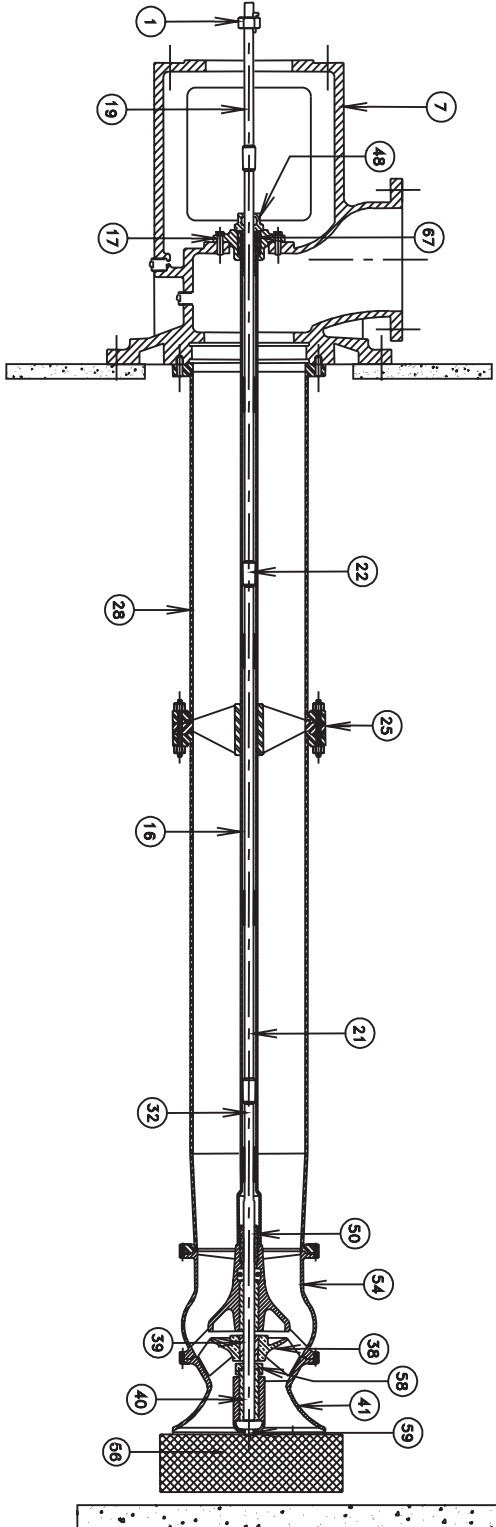
It is recommended to use thin oil (150 SSU) at the liquid pumped temperature. Almost in all the application you can use SAE 10 or SAE 20 oil.

Two important point should be consider, suction conditions and excessive discharge high.

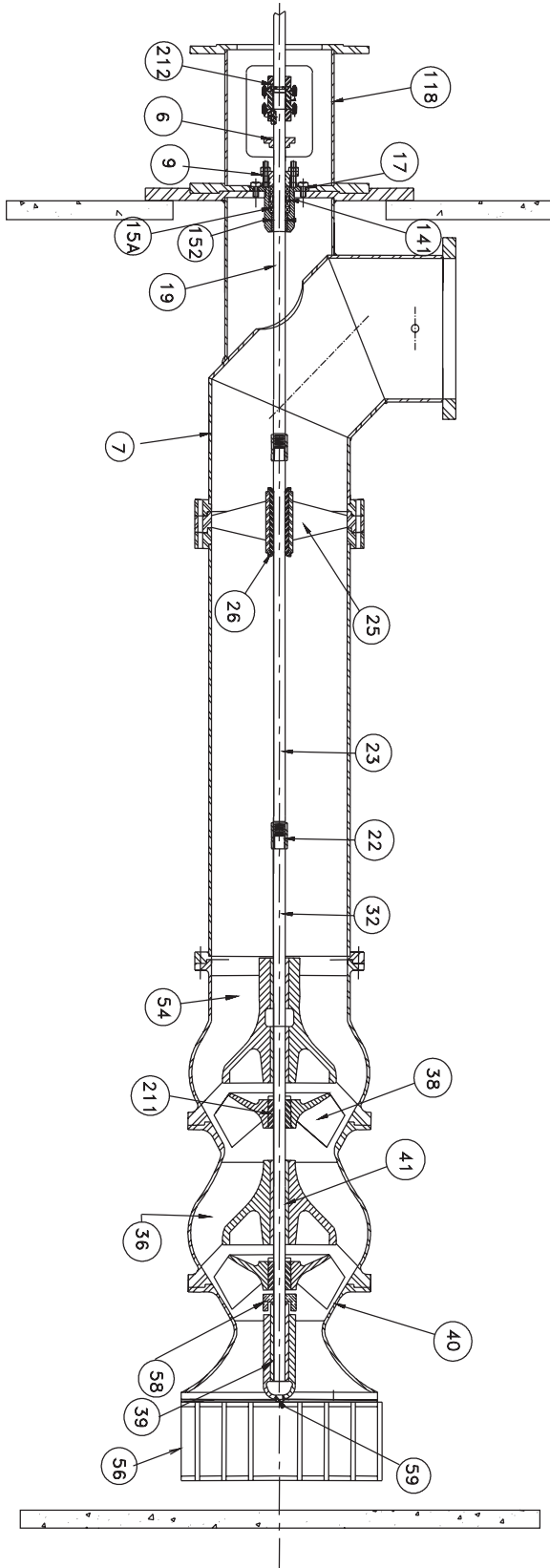
The bowl assembly should be submerge all the time. The distance between the bottom and the walls of the well to the suction bell should not be less than the half diameter of this. An obstruction in the suction bell can cause the cavitation of the pump with the following consequence:

if for some circumstance it is necessary to increase the height of the discharge consults the problem with us.

For the lubrication and maintenance of the drivers you should follow the instructions of the manufacturer.

OIL LUBRICATION


Ref No.	Description
1	Adjusting nut
7	Discharge head
16	Inner column
17	Stuffing Box
19	Driver shaft
21	Line shaft
22	Line shaft Coupling
25	Spider bearing Assy
28	Flange column pipe
32	Pump shaft
38	Impeller
39	Lock collet
40	Suction bell bearing
41	Suction bell
48	Tension nut
50	T or jump bearing
54	Top case
56	Basket strainer
58	Sand collar
59	Pipe plug
67	Sleeve

WATER LUBRICATION


Ref No.	Description
6	Deflector
7	Underground discharge
9	Packing gland
15A	Packing
17	Stuffing box
19	Adjusting shaft
22	Coupling shaft
23	Line shaft
25	Bearing retainer
26	Column bearing
32	Pump shaft
36	Series case
38	Impeller
39	Suction bell bearing
40	Suction bell
41	Intermediate bowl bearing
54	Discharge bowl
56	Basket strainer
58	Sand collar
59	Pipe plug
118	Motor pedestal
141	Lantern ring
152	Stuffing box bearing
211	Lock collet
212	Coupling assembly

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