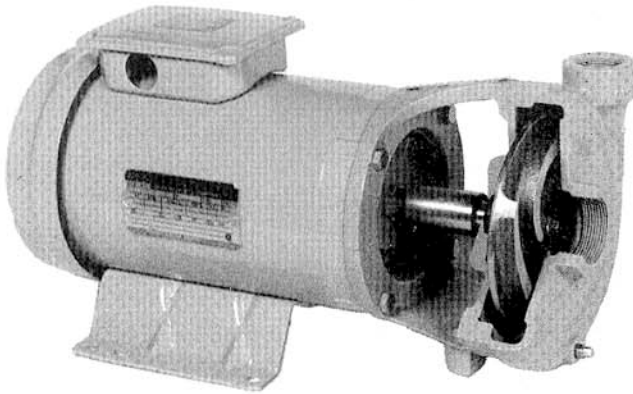


### MODEL 1312 - Horizontal Motor Pumps



#### I. Installation Instructions

Vertiflo Model 1312 Horizontal Motor-Mounted Pumps are completely assembled and carefully adjusted before shipment.

- A. Carefully set pump at the required location. Check for full contact of the motor base to the foundation.
- B. Secure pump to the foundation by bolting, etc.; whatever is convenient or required for the installer.
- C. Connect the system piping to the pump casing (1). A check valve and gate valve should be installed in the discharge piping and a gate valve in the suction piping. An elbow in the suction piping should not be closer to the pump than the equivalent of 5 times the suction pipe diameter.

**NOTE: ALL PIPING IS TO BE SUPPORTED INDEPENDENT OF THE PUMP. NO PIPING STRAIN IS TO BE IMPOSED ON THE PUMP.**

- D. Connect power lines to motor leads as shown on the wiring diagram of the motor for specific line voltage used.

#### **FOLLOW ALL STATE AND LOCAL WIRING CODES.**

Check and be sure starter and overload protection is proper for specific voltage and amperage rating.

Check for free rotation by turning shaft (3) by hand. Binding in the pump can be caused by either piping strain or the impeller (2) is out of adjustment. Make necessary piping correction or impeller adjustment. (See paragraph V.)

- G. Jog motor quickly to check for proper rotation. Shaft rotation should be clockwise when looking from the motor end. A rotation arrow is also on the pump case. If rotation is incorrect, contact a qualified electrician to make necessary corrections.
- H. Open suction gate valve. Close discharge gate valve and start pump. Open discharge line gate valve slowly until desired capacity is obtained. Pump should now operate smoothly. If vibration occurs, check for pipe stress or incorrect impeller adjustment.

#### II. Disassembly and Inspection

**NOTE: BEFORE DISASSEMBLY, MATCH MARK PARTS FOR EASE IN REASSEMBLY.**

- A. Turn off electrical supply to the MOTOR and all CONTROLS. Close suction and discharge valves. Remove drain plug( 1 C) for pump casing and drain pump.
- B. Remove the hold-down bolts in motor or adaptor foot.
- C. Remove the four capscrews (1B) holding the motor I adaptor (4) to casing (1).
- D. Pull motor and rotating assembly backwards leaving the casing connected to the piping.
- E. Remove case gasket( 1 A).
- F. To remove impeller (2), hold stub shaft (3) tightly and unscrew impeller. (Standard right-hand thread)

**BE CAREFUL AS SEAL SPRING WILL HAVE A TENDENCY TO PUSH IMPELLER QUICKLY OFF WHEN IMPELLER BECOMES FREE FROM THE SHAFT.**

- G. Carefully remove the spring, retainer and rotating seal head from the stub shaft (3). Inspect the stub shaft at the seal area and thread area for any unusual wear-Replace if necessary.

#### III. Unit Assembly

- A. Thread dog point set screw (3B) into center hole of stub shaft (3) allowing about 1/8" protrusion inside I.D. bore.
- B. Slide stub shaft (3) with protruding dog point set screw, over the motor shaft, aligning the set screw (3B) with the I motor shaft keyway. The stub shaft should SLIDE EASILY ON THE MOTOR SHAFT.
- C. Thread two cup point set screws (3A) into the stub shaft (3), but do not tighten.
- D. When using the large motor adaptor (6) (frame 182TC and larger) fasten adaptor (4) by bolting with the socket head capscrews (6C) hex nuts (6E), and lockwashers (6D).
- E. When using Foot Kit (7), attach to small motor adaptor (4) with flat head socket head capscrews (7A).

#### IV. Mechanical Seal Installation

- A. Lubricate the stationary seal cup (5) with a suitable lubricant and press into motor adaptor (4) until contact is made with the back of the seal bore

**BE CAREFUL NOT TO GET ANY LUBRICANT ON THE SEAL FACE**

- B. Slide motor adaptor (4) over stub shaft (3).

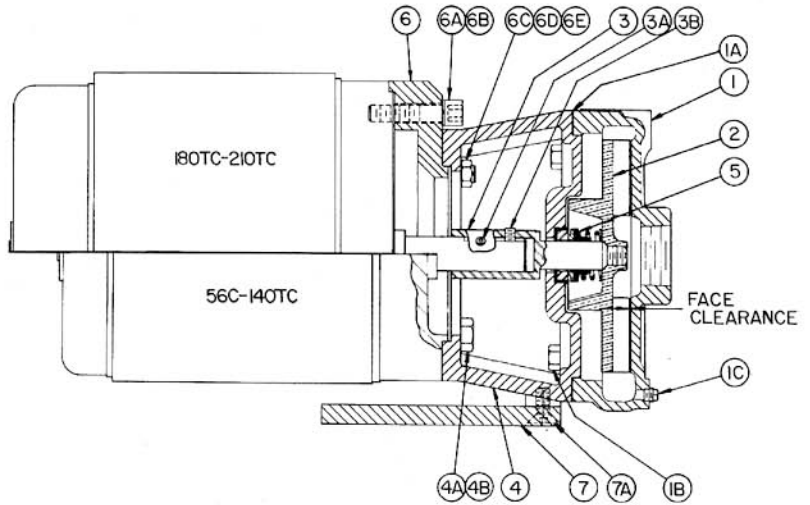
**BE CAREFUL NOT TO DAMAGE SEAL STATIONARY**

Fasten to motor with capscrews (4A) or (6A).

- C. Lubricate seal head elastomer (5) where it contacts the shaft.

**BE CAREFUL NOT TO GET ANY LUBRICANT ON THE SEAL FACE**

- Slide seal head over stub shaft (3) until contact is made with the stationary seal face.
- D. Slide seal spring and retainer over the shaft(3).
- E. Put a drop of Loctite on the inside impeller (2) threads. Hold stub shaft(3) securely and thread impeller (2) tightly onto stub shaft(3).
- F. Slide case gasket (1A) into position on motor adaptor (4).
- G. Bolt case( 1 ) to motor adaptor (4) and fasten tightly with four 5/16" capscrews (1 B).
- H. Set impeller face clearance.



**V. Setting Impeller Face Clearance**

Since the 1312 utilizes a semi-open impeller, the face clearance must be set properly for optimum performance. The FACE CLEARANCE IS THE DISTANCE BETWEEN THE IMPELLER FACE AND THE CASING SURFACE. SEE DRAWING FACE CLEARANCE SETTINGS:

**Model 1312 Parts Information**

Item	Description	Pump Size	56C	140TC	180TC	210TC
1	Case <sup>1</sup>	1½x1x6	11-2403-01-10			
		2x1½x6	11-2404-01-10			
1A	Gasket, Case	All	50-2825-01-10			
1B	Capscrew (4)	All	CS-0503H-01-30			
1C	Pipe Plug <sup>1</sup>	All	PP-0200-01-30			
2	Impeller <sup>1</sup>	1½x1xx6	10-2403-11-10			
		2x1½x6	10-2404-11-10			
3	Stub Shaft <sup>1</sup>	All	20-1312-56-23	20-1312-45-23	20-1312-84-23	20-1312-15-23
3A	Set Screw, Cup Point(2)	All	SC-0401-01-30			
3B	Set Screw, Dog Point	All	SD-0401H-01-10			
4	Small Motor Adaptor <sup>1</sup>	All	35-1312-01-10			
4A	Capscrew (4)	All	CS-0604-01-30	Not Required		
4B	Lockwasher (4)	All	WL-0600-01-30	Not Required		
5	Seal	All	SJ-2112-C1-00			
6	Large Motor Adaptor	All	Not Required	35-1312-50-10		
6A	Capscrew, Socket Head(4)	All	Not Required	CA-0807-01-30		
6B	Lockwasher (4)	All	Not Required	WL-0800-01-30		
6C	Capscrew, Socket Head(4)	All	Not Required	CA-0606-01-30		
6D	Lockwasher (4)	All	Not Required	WL-0600-01-30		
6E	Hex Nut (4)	All	Not Required	NH-0600-01-30		
7	Pump Foot	All	42-1312-01-30	Not Required		
7A	Capscrew (2)	All	CC-0604-01-30	Not Required		

Cast Iron Units .010"-.015"

316ss Units .015"-.020"

**BENCH ADJUSTMENT**

Insert feeler gauge into the suction port between the impeller face and case.

Slide stub shaft toward the pump casing, thus setting recommended impeller face clearance. Tighten the middle (dog point) set screw (3B) with an Allen wrench. Remove the feeler gauge and check for free rotation. Then tighten the other two set screws (cup point) (3A) and again check for free rotation.

**RECHECK ALL SET SCREWS FOR TIGHTNESS FIELD ADJUSTMENT**

Loosen all three set screws on the stub shaft. Put a screw driver between the stub shaft shoulder and the motor adaptor, moving the stub shaft toward the motor slightly (estimating recommended impeller face clearance). Retighten the middle (dog point) set screw (3B). Check for free rotation. Retighten the two set screws (cup point) (3A).

Check for free rotation.

**RECHECK ALL SETSCREWS FOR TIGHTNESS**

If performance is lower than anticipated, the clearance is too great and must be reset.

<sup>1</sup>For 316SS change last two numbers to -20 ( ) indicates quantity required

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