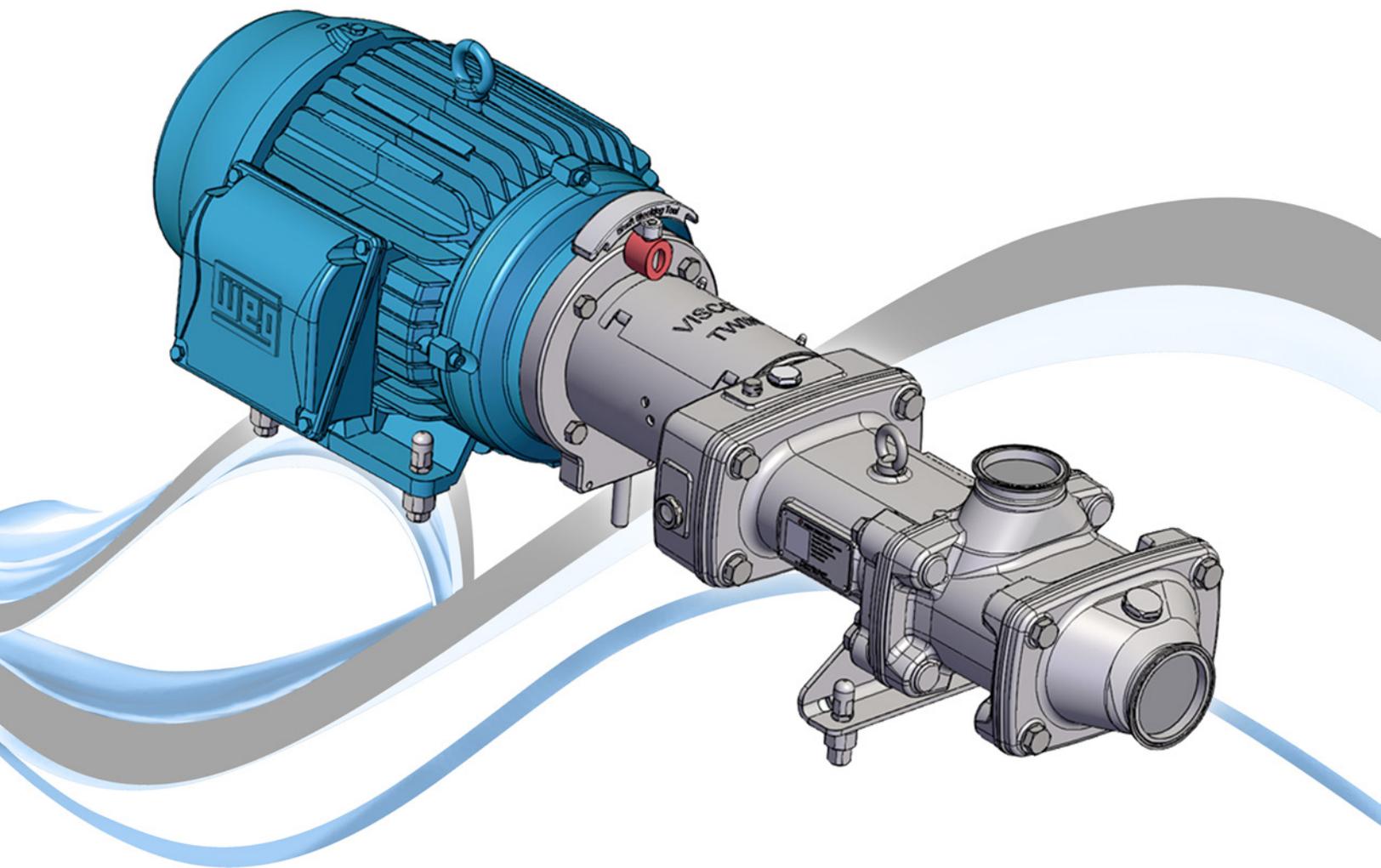


# PROCESSTEC

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## Frame #2 "Basic Frame"

### Operation & Maintenance Manual



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## 1. ABOUT FRAME #2

### 1.1 Safety Notes

This manual contains instructions which should be heeded to ensure personal safety and prevent damage to property. These instructions are highlighted by a warning triangle and a color to indicate the degree of the hazard. The following warnings should be observed when working around Frame #2, as well as when working around twin screw pumps in general:



#### **ROTATING PARTS**

Indicates rotating parts that can cause injury. Only perform work on or near these parts when it is locked to prevent rotation. It is advised to have a protective barrier surrounding the rotating part to prevent injury or property damage during operation.



#### **CRUSHING PARTS**

Indicates moving parts that can crush and cut. Perform work with awareness of how parts move and where these crushing parts can be encountered.



#### **SUSPENDED LOAD**

Indicates a suspended or overhung load, where parts can fall, slip, or tip over if not properly secured. Do no work on any part that is suspended and avoid being directly under or near a suspended load. Do not stand between a stationary object and a suspended load.



#### **LIFTING OBJECTS**

Indicates heavy objects that can cause muscle strain or back injury. Lifting aids and proper lifting techniques should be used to prevent injury.



#### **HOT SURFACE**

Indicates a surface is hot to the touch and can cause burn injury. Do not maintain or touch a hot surface until the pump is turned off and allowed to cool. If immediate repair is necessary, it is advised to wear protective gloves while handling a hot part.



**CAUTION**

When operating Frame #2, it is essential to wear appropriate protective equipment.

**NOTE!**

Commissioning and operating the **ViscoTwin** pump mounted on Frame #2 may only be performed by qualified personnel. Qualified personnel in terms of the safety instructions in this operating and safety manual are persons who have completely read this manual, as well as the **ViscoTwin** Operation & Maintenance Manual that accompanies this Frame and pump.

In addition to this operating manual, general on-site regulations as well as city, state, and federal regulations applicable to accident prevention must be made available and followed.

The **ViscoTwin** may only be used in the applications as specified in Chapter 3 "Operation", in the **ViscoTwin** Operation & Maintenance Manual, and only in connection with the spare parts recommended by **Processtec, Inc.**

## 1.2 Working Principle

Frame #2 was designed to innovate the overall steps of installing, operating and maintaining **ViscoTwin** pumps. This Frame #2 was the culmination of many years of field experience and was developed as a solution to problems that were not being addressed by others in the industry.

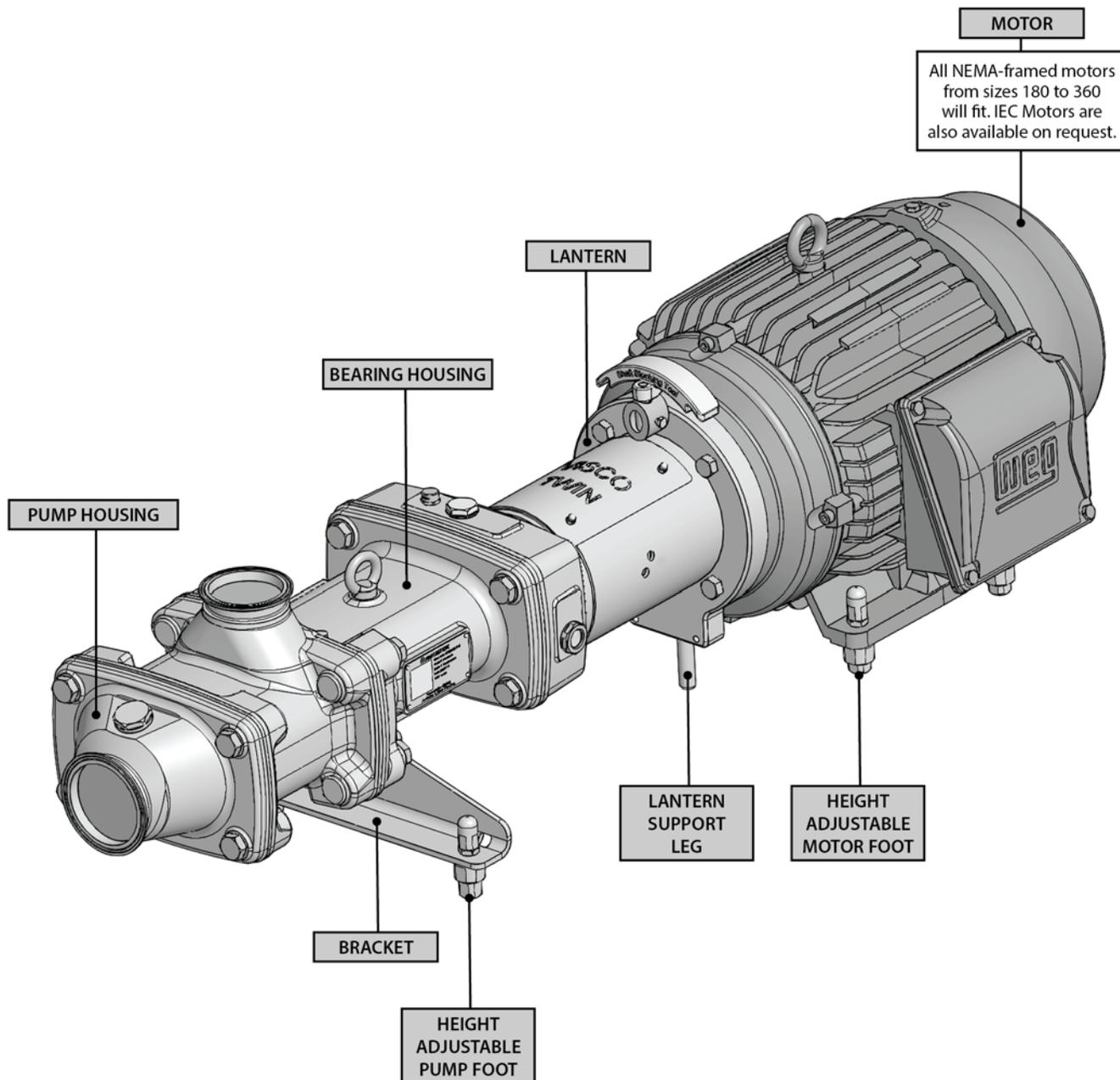
First, we wanted to engineer a simple solution for keeping pumpheads and motors aligned and level, while using the least amount of material. Second, we wanted something that was sanitary and took up very little space.

An added bonus to this design is that the removal and re-installation of the spindles can now be achieved with only one technician on site! Since Frame #2 facilitates the use of **Processtec's** Shaft Blocking Tool (a custom tool designed to lock the drive shaft in place), the spindle screw bolts can be removed without the need of decoupling the motor, thus eliminating the need for a 2nd technician to hold a locking bar in place on the coupler.

In addition to these features, all G10 **ViscoTwin** pumps include **Processtec's** latest innovation, the **Gapping Port**. This access port is machined into the back of the gear housing and allows for gapping and timing of the **ViscoTwin** pumps without the need to remove the gear housing, or even drain the gear oil - this is a huge time saver!

Finally, since Frame #2 is easily accessible from either side, it allows for pump inspection or maintenance from all possible angles without having to transport the pump to another location.

**1.3 General Overview**



**1.4 Options**

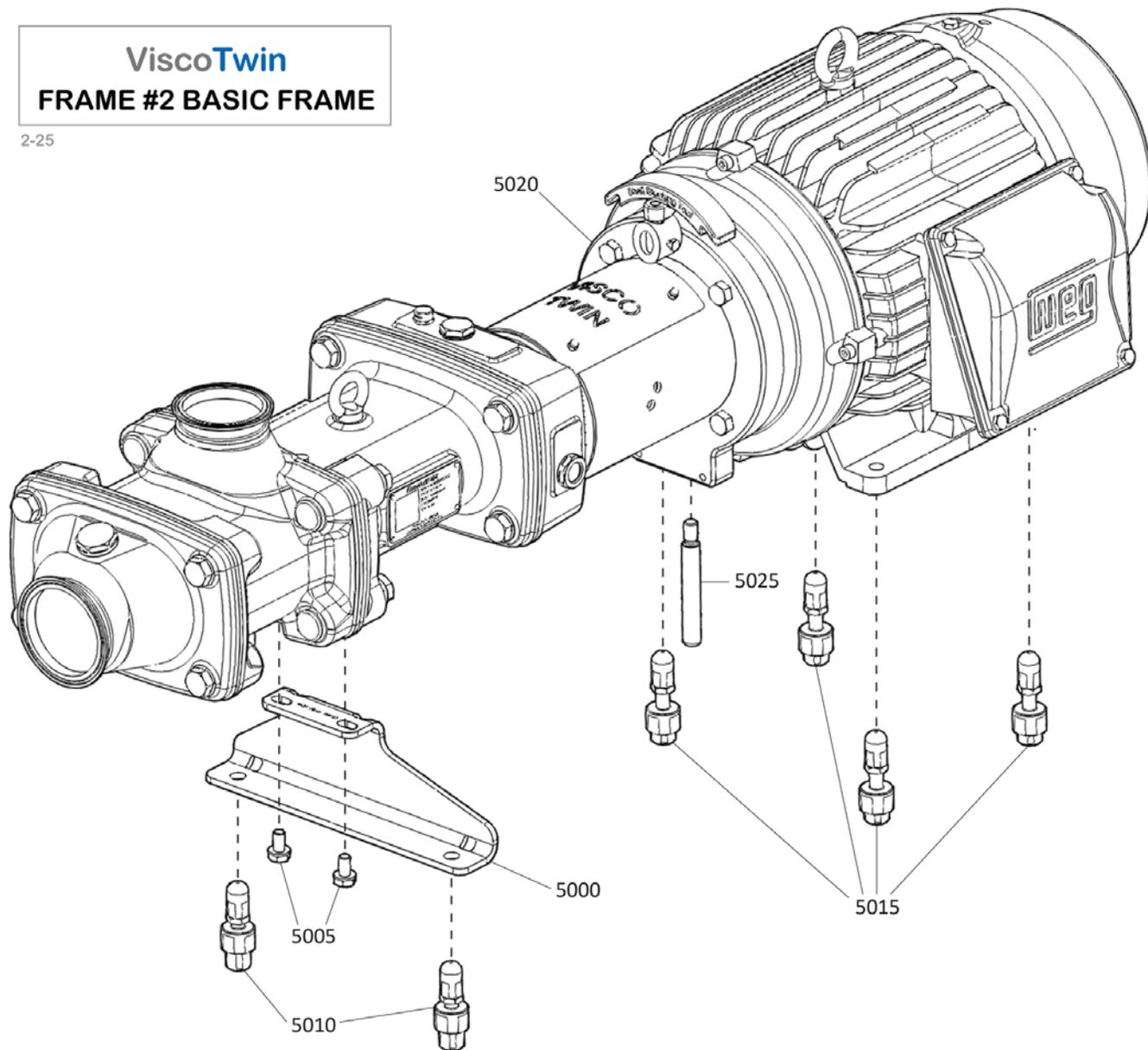
There are a variety of Leg and Bracket options for Frame #2 that will allow you to dial in the desired height depending on your combination of pumphead and motor. Different pumphead and motor sizes require different combinations of Height Adjustable Feet and Brackets to keep the entire assembly aligned and level.

	Part #	Motor Size	Bracket	Motor Foot (4x)	Pump Foot (2x)	Size
<b>VT70</b>	<b>7083</b>	NEMA 180	21509	24936	24936	M10
	<b>19207</b>	NEMA 210	21510	24936	24936	M10
	<b>18350</b>	NEMA 250	21511	24944	24947	M12
	<b>18352</b>	NEMA 280	21512	24944	24947	M12
<b>VT104</b>	<b>18353</b>	NEMA 210	21517	24936	24936	M10
	<b>21897</b>	NEMA 250	21536	24944	24947	M12
	<b>21893</b>	NEMA 280	21537	24944	24947	M12
	<b>18354</b>	NEMA 320	21538	24950	24951	M16
<b>VT130</b>	<b>18355</b>	NEMA 250	21648	24944	24947	M12
	<b>18356</b>	NEMA 280	21667	24944	24947	M12
	<b>21895</b>	NEMA 320	21668	24950	24951	M16
	<b>18357</b>	NEMA 360	21669	24950	24951	M16

**1.5 Explosion Drawing**

**ViscoTwin**  
**FRAME #2 BASIC FRAME**

2-25



## 2. INSTALLATION

### 2.1 Unpacking

Check the contents and all wrapping when unpacking the pump. Inspect the entire shipment carefully for any damage that may have occurred during shipping. Immediately report any damage to the carrier. Keep the protective caps over the pump inlet and outlet in place until the pump is installed.

If possible, save the wooden crate that Frame #2 arrived in for potential future use, in case the frame and pump will need to be shipped back to **Processtec** for special services.

### 2.2 Inspection / Technical Documentation

Inspect the pump after unwrapping for visible shipping damages on pump head, lantern with coupling, motor, and frame. Locate the technical documentation that is shipped with pump and Frame #2 including:

0. Pump Shipping Documents
1. **ViscoTwin** Configuration Key
2. Commissioning Protocol
3. Pictures
  - 3.1 Pin Installation (1/2/3)
  - 3.2 Spindle Arrangement (V/A)
  - 3.3 Pump Housing (FH/HF)
4. Spindle and Pin Configuration
5. User Manuals
  - 5.1 Frame #2 Manual
  - 5.2 **ViscoTwin** Manual
6. Spare Parts Catalog
7. Recommended Tools Catalog

Use these documents to ensure the pump on Frame #2 is shipped as ordered and store these documents safely for future reference.

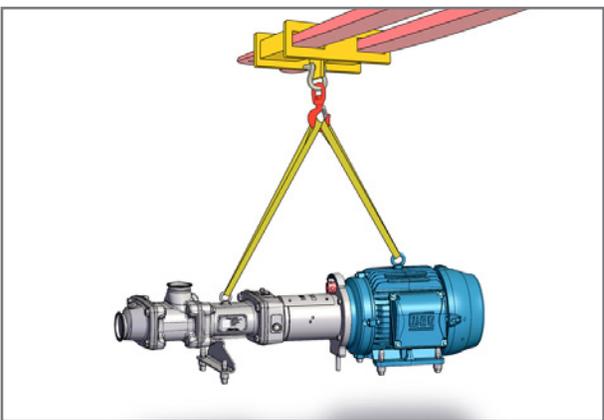
**2.3 Hoisting and Transportation**

Frame #2, along with the **ViscoTwin** pump that is mounted to it, were designed to be transported as one entire unit, without needing to move the pump and the frame independently from each other, except when warranted by the circumstances.

**LIFTING FRAME #2 WITH EYEBOLTS**

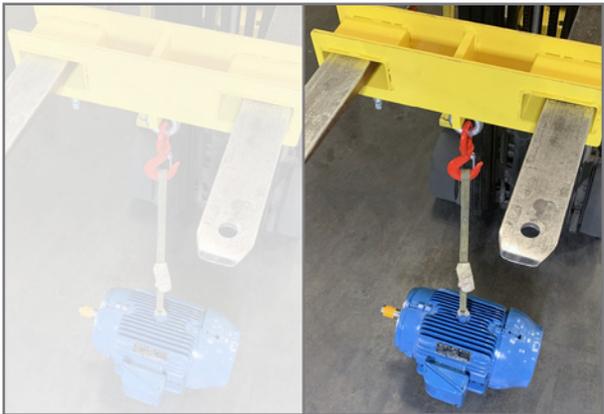
**IMPORTANT SAFETY FEATURE** - The eyebolts on the motor and **ViscoTwin** pumphead are the proper way to lift and move the Frame #2 Assembly. Thread lifting straps through the eyebolts on the pumphead and the motor, and secure them to a suitable lifting device, like a forklift hoist.

A palette jack can be used to lift Frame #2 if space constraints are an issue.



**STRAP PLACEMENT FOR HOISTING WITH A FORKLIFT LIFTING HOIST**

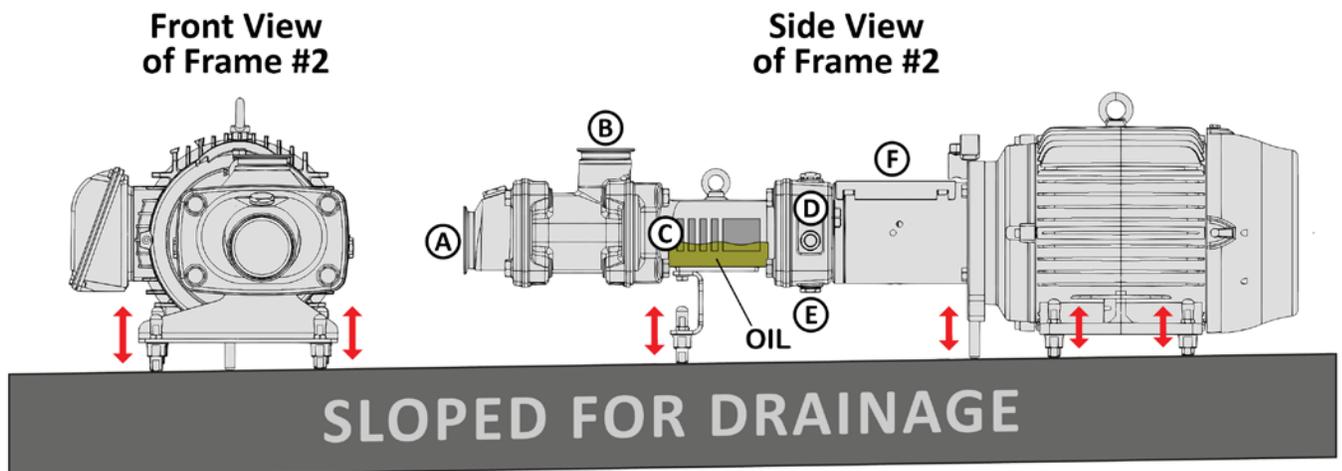
Forklift forks with a forklift lifting hoist can also be used for lifting the **ViscoTwin** pumphead or motor once detached, in conjunction with a hoisting strap. Make sure that the **ViscoTwin** pumphead or motor is completely supported and that the forklift lifting hoist is firmly secured to both forks before lifting.



## 2.4 Installation

The following points need to be considered while installing the pump in the system:

1. Frame #2 is delivered with height adjustable feet to accommodate sloped floors for drainage. The entire frame and pump system should be level, so the pump operates even with a low oil level, ensuring the oil is still able to reach all of the bearings. To level the frame, adjust the height adjustable feet on the frame individually (see red arrows), until the entire frame is level.

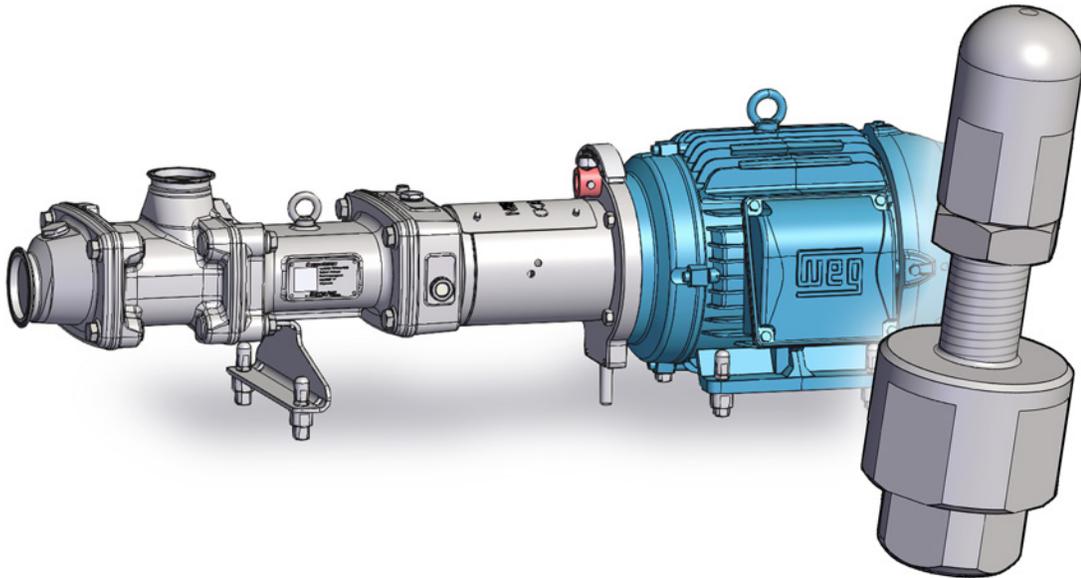


2. No excess forces should be exerted on the pump from piping systems, platforms etc.
3. Ensure good access to the Pump Face and Pump Housing (A & B) so that piping can be easily attached and removed as needed.
4. Ensure good access to the Pump Housing bolts (C) to easily remove the Pump Housing with an extended torque wrench for sanitary inspection.
5. Ensure good access to at least one side of the pump, so that the oil sight glass at the gear housing (D) is accessible for regular inspection from operators and maintenance personnel.
6. Ensure that the whole pump can be easily accessed from at least one side, to allow for maximum ease during pump maintenance, sanitary inspection, and oil changes (E).
7. Ensure access to the Lantern and Lantern Shield (F) as this is the only way to access the couplers.
8. Connect the seal water if the pump is equipped with a double seal that requires seal water. It is recommended that the seal water automatically starts and stops with the pump to save water.
9. Ensure that the electric wiring can easily be disconnected for maintenance and is not a safety hazard or dirt trap. Also ensure that no wiring is capable of being pinched or crushed as the motor assembly is moved or shifted in position.

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## 3. OPERATION

### 3.1 Operating Frame #2



The design of the Frame #2 is centered around the direct mounted **Height Adjustable Foot** by **Processtec**, which was designed to support and level both motor and pumphead. Each one can be individually adjusted to accommodate sloped floors, while keeping the pumphead and motor level.

Because the **Height Adjustable Feet** are machined from Stainless Steel and will sit in place for long periods of time, it is recommended to use Anti-Seize on all threads, to prevent galling/ cold welding of the threads.

### 3.1.1 Height Adjustable Feet

The ACTION STEPS for installing a Height Adjustable Foot are as follows:

#### STEP 1)

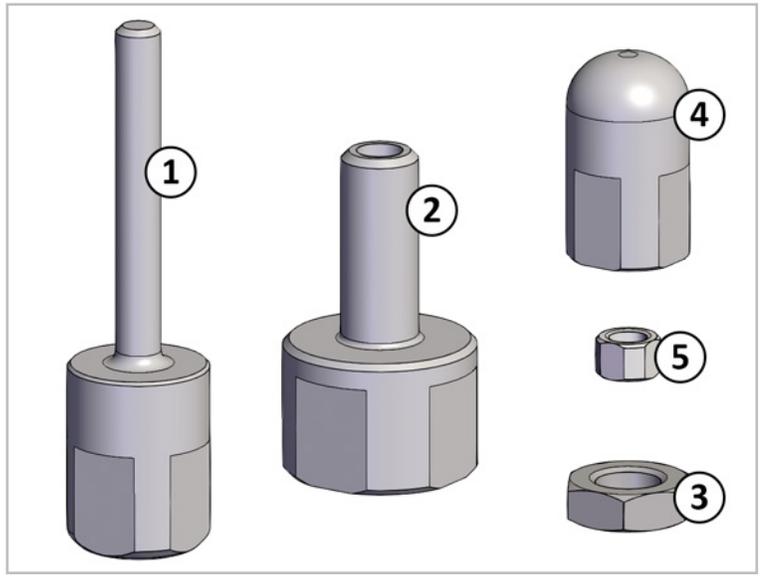
##### DISASSEMBLE

Disassemble the Height Adjustable Foot to single parts.

LEFT: Insert (Pos. 1)

CENTER: Housing (Pos. 2)

RIGHT: Cap (Pos. 4), Lock Nut (Pos. 5),  
Fixation Nut (Pos. 3)

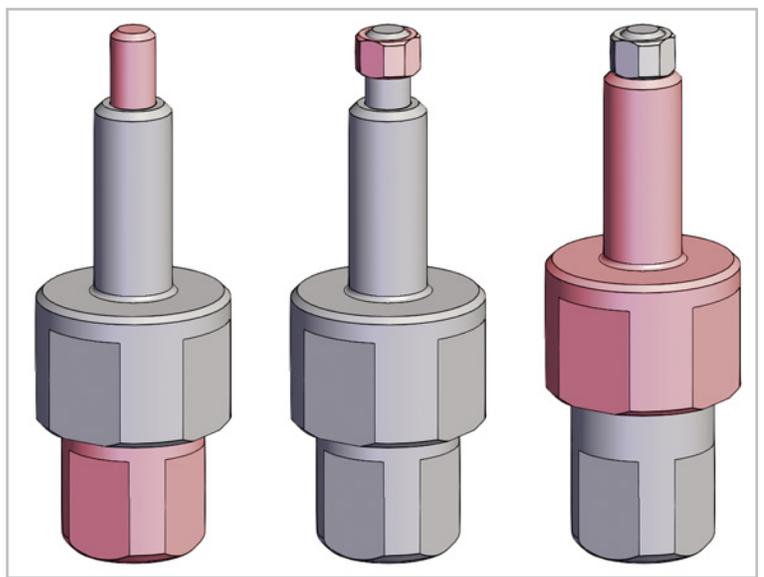


#### STEP 2)

##### SET THE MAXIMUM HEIGHT

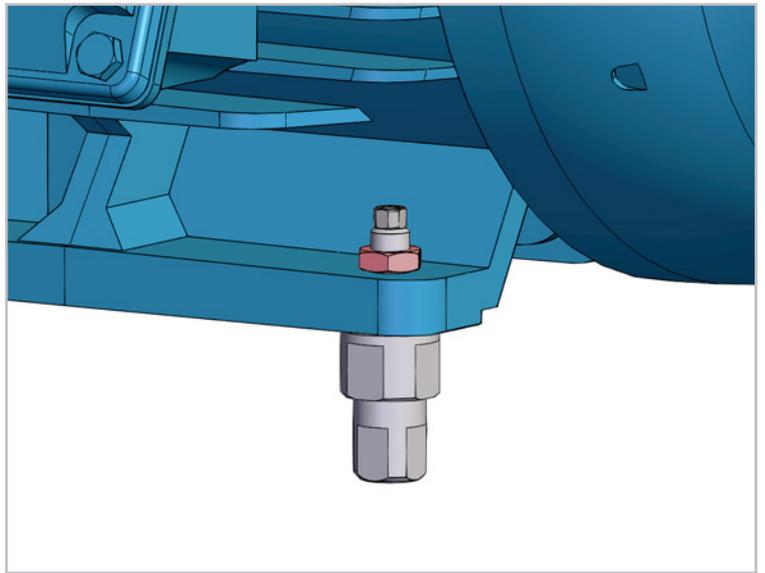
Thread the Insert into the Housing (left), and then thread the Lock Nut onto the threaded end of the Insert (center). Now spin the Housing until it is flush against the bottom end of the Lock Nut (right). The Height Adjustable Foot is now set to the Maximum Height.

Now, repeat this with all the other uninstalled Height Adjustable Feet.



**STEP 3)**  
**ATTACH THE FOOT**

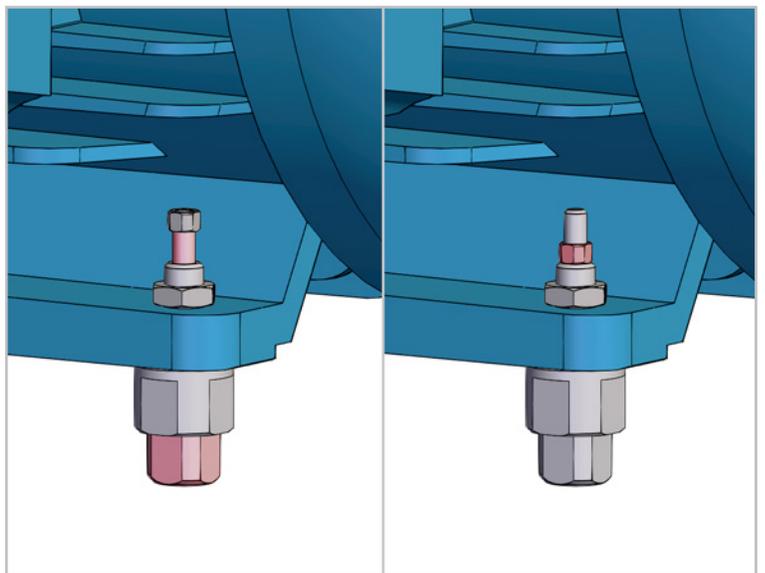
Place the Insert/Housing/LockNut into the underside of either the Pump Bracket Foot, or Lantern Foot, and secure on the top side with the Fixation Nut. Tighten the Fixation Nut to secure the Housing in place.



**STEP 4)**  
**ADJUST FOR HEIGHT**

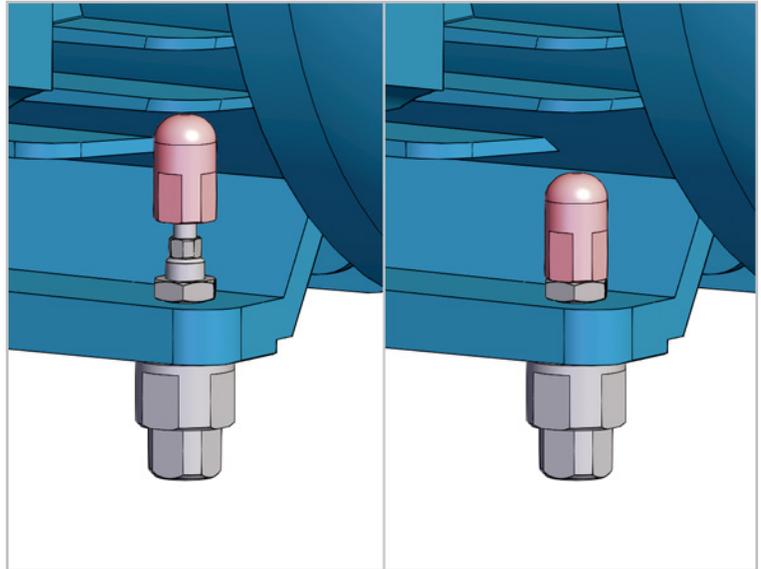
Now that the foot is installed at Maximum Height, you can turn the Insert to raise the Height Adjustable Foot to the desired height (left), and then turn the Lock Nut in the opposite direction to lock that height in place (right).

Note that raising the foot has the end-result of lowering the pump.



**STEP 5)**  
**ATTACH THE CAP**

Once the Height Adjustable Foot has been secured in place, and the height has been adjusted to the desired level, you can add the Cap over the top of the threads on the housing and turn until it is tightened onto the Housing threads.



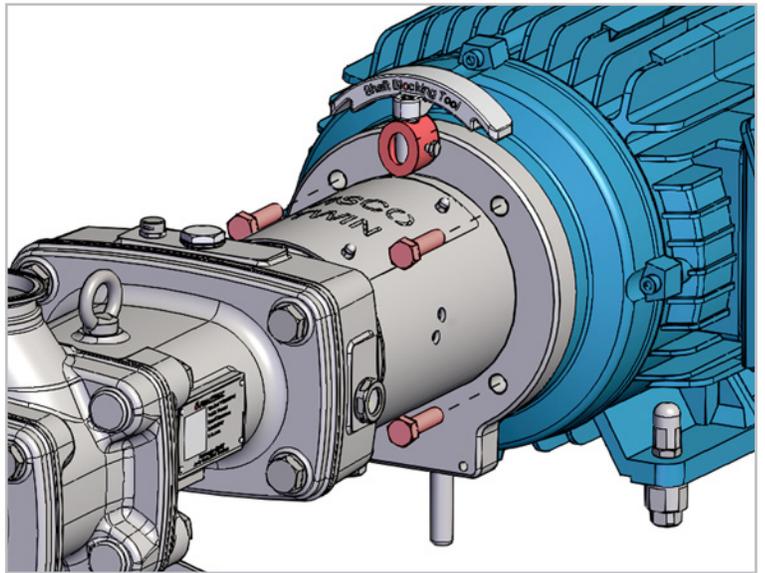
### 3.1.2 Decoupling Frame #2

The ACTION STEPS for DECOUPLING Frame #2 are as follows:

#### STEP 1)

##### REMOVE LANTERN BOLTS

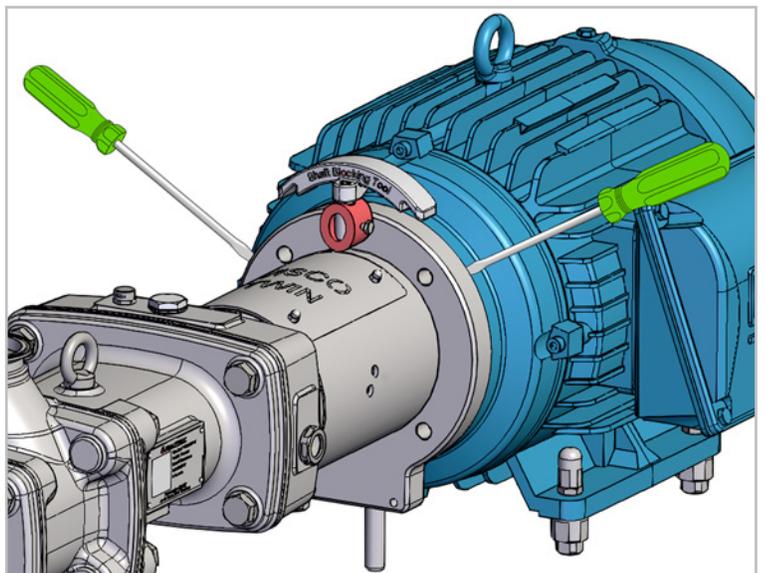
Remove the FOUR (4) Lantern Flange Bolts that secure the Pumphead to the Motor.



#### STEP 2)

##### PRY THE LANTERN FROM THE MOTOR

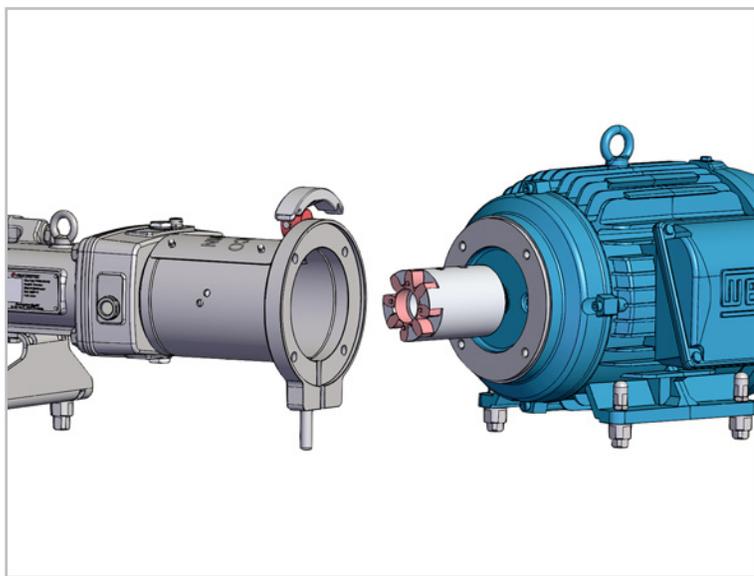
Using TWO (2) flat-head screwdrivers, push them into the gap between the Lantern and Motor C-face flange, and pry the Lantern away from the Motor C-face Flange.



**STEP 3)**

**SEPARATE MOTOR AND PUMP**

Now you can fully separate the motor from the Pumphead.



### 3.1.3 Recoupling Frame #2

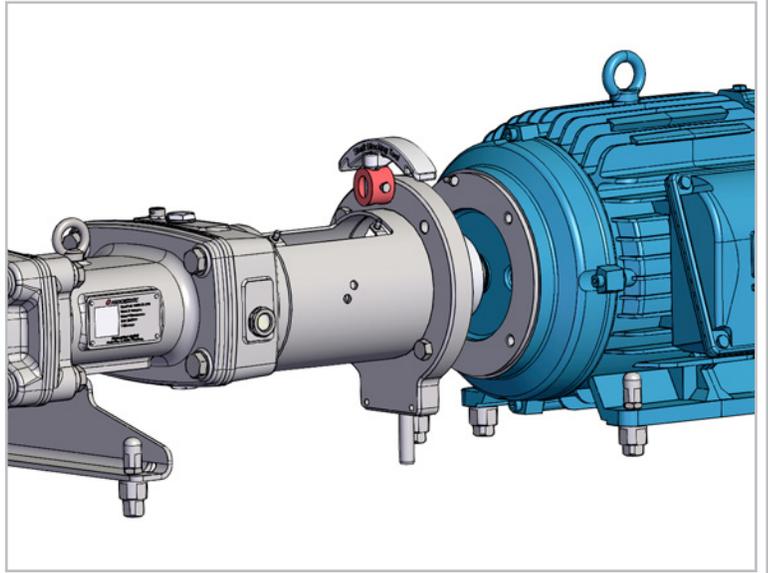
The ACTION STEPS for RECOUPLING Frame #2 are as follows:

#### STEP 1)

##### RE-ASSEMBLE ON A FLAT SURFACE

This step is best accomplished on a smooth flat surface, such as a metal-topped work bench, or similar.

Orient the Pump and Lantern towards the motor and slide them together until the Lantern Flange is fully seated on the Motor C-face flange.

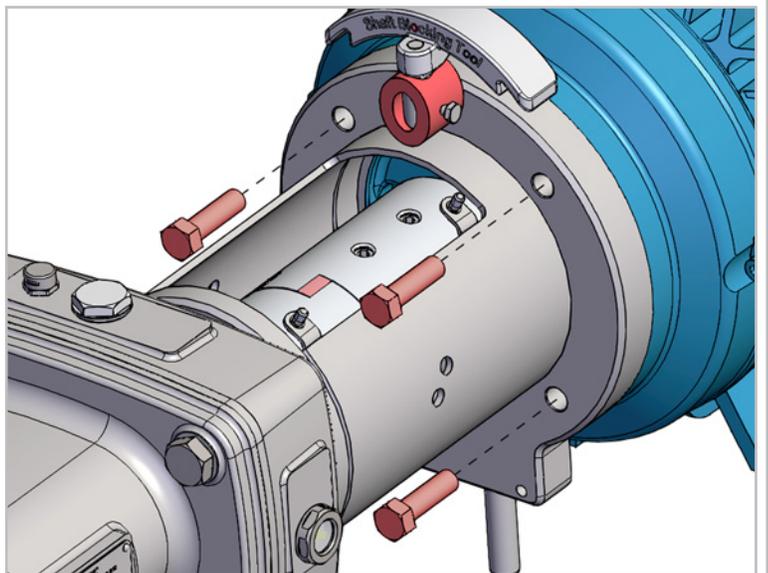


#### STEP 2)

##### ATTACH LANTERN BOLTS

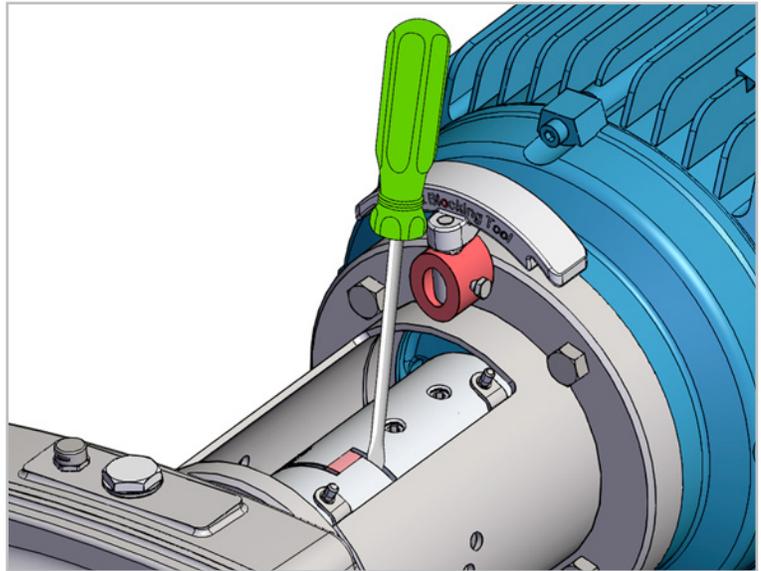
Coat FOUR (4) Lantern Bolt threads with a small amount of anti-seize and then thread them through the Lantern and into the Motor C-face flange.

Tighten in a star pattern.



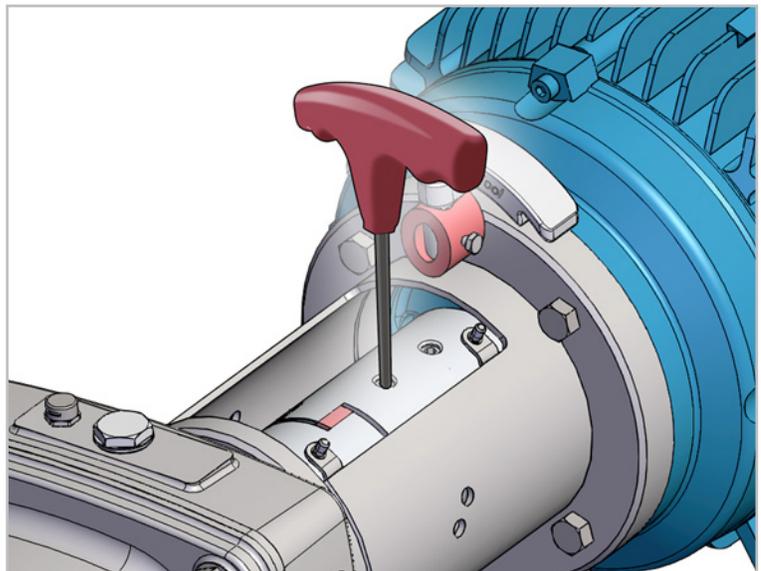
**STEP 3)**  
GAP SPIDER BY 1MM

Using a flat-head screwdriver, wedge it down in between the Pump coupler and the Motor coupler to open a 1mm gap. This small gap ensures that the couplers never touch each other directly during operation.



**STEP 4)**  
SECURE THE COUPLING

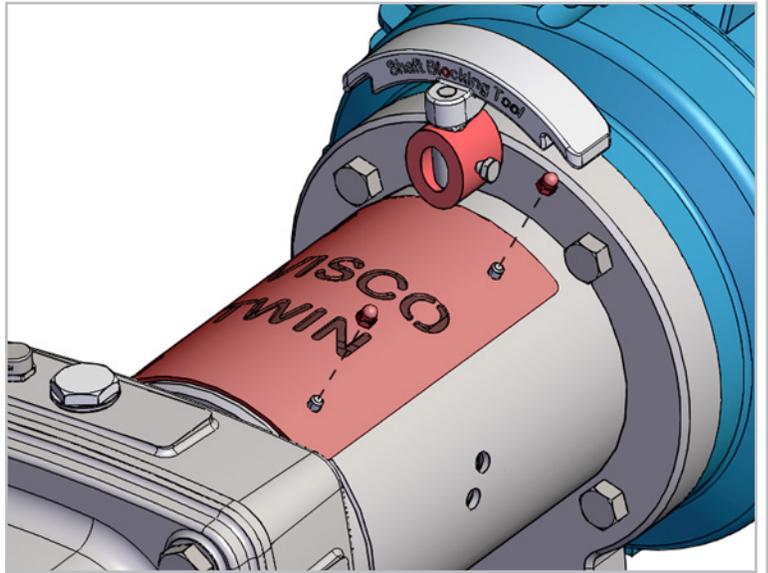
Tighten the set screw on the Motor Coupling, making sure that it secures the Motor Coupling from moving along the shaft.



**STEP 5)**

**REATTACH THE LANTERN SHIELD**

Re-attach the Lantern Shield and secure it to the Lantern with the TWO (2) cap nuts.



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## **4. MAINTENANCE**

### **4.1 Maintenance Preparation**

Before doing Maintenance on the **ViscoTwin** attached to Frame #2, please observe the following precautions:

- Follow LOTO (Lock Out, Tag Out) Procedure.
- Practice workplace safety AT ALL TIMES.
- Observe the immediate area for potential spills and leakages that may create slip hazards, or electrical hazards.
- Read through the entire steps of the Maintenance Procedure to ensure a full understanding before beginning on step 1.
- Have the proper tools neatly arranged for quick and easy access.

### **4.2 Cleaning Frame #2**

Frame #2 itself can be cleaned and sanitized by using standard cleaning chemicals for the surface cleaning of Stainless Steel. Complete attention to detail is recommended for maintaining overall pump hygiene.

Standard CIP procedures can be carried out on the **ViscoTwin** Pump when attached to Frame #2. Consult the Operational Manual for **ViscoTwin** Pumps for detailed cleaning procedures.

### **4.3 Notes About Longevity**

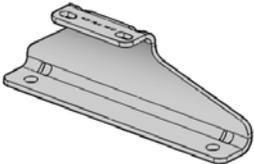
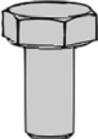
Following specified operating procedures will ensure that your **ViscoTwin** Pump has a maximum lifespan. Improperly trained technicians, unsafe shortcuts, and other improper uses of the pump may contribute to an overall shorter lifespan. Take proper care of the pump to maximize its operational longevity.

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5. TOOL-BOX

5.1 Spare Parts for Frame #4

Below are all the Spare Parts available from **Processtec** for use on Frame #2.

PART #	REQUIRED PER FRAME	DESCRIPTION	POSITION #	IMAGE
--	1	Bracket (Various)	5000	
24979	2	Bracket Bolt (M10 -1.25 x 15mm)	5005	
24936	2	Height Adjustable Pump Foot M10	5010	
24947		Height Adjustable Pump Foot M12	5010	
24951		Height Adjustable Pump Foot M16	5010	
--		Height Adjustable Pump Foot M20	5010	
--				

PART #	REQUIRED PER FRAME	DESCRIPTION	POSITION #	IMAGE
24936	4	Height Adjustable Motor Foot M10	5015	
24944		Height Adjustable Motor Foot M12	5015	
24950		Height Adjustable Motor Foot M16	5015	
--		Height Adjustable Motor Foot M20	5015	
	1	Lantern with Support Flange	5020	
	1	Lantern Support Post	5025	

PART #	Foot Size	DESCRIPTION	POSITION #	IMAGE
24959 24962 24948	M10 M12 M16	Foot Insert for Motor (Short)	1	
24959 24940 24956	M10 M12 M16	Foot Insert for Pump (Short)	1	
24949 24943 24953	M10 M12 M16	Foot Housing for Motor	2	
24949 20191 24957	M10 M12 M16	Foot Housing for Pump	2	
-- -- 24958	M10 M12 M16	Foot Insert (Long)	2	
24937 20194 24955	M10 M12 M16	Foot Fixation Nut	3	
24938 21892 24952	M10 M12 M16	Foot Cap Nut	4	
24939 21894 24954	M10 M12 M16	Foot Lock Nut	5	