STS TWIN SCREW PUMP

INSTRUCTION MANUAL

TMXFLOW®
let it flow

READ AND UNDERSTAND THIS MANUAL IN ORDER TO INSTALL, OPERATE OR SERVICE TO TMXFLOW STS PUMPS.

TMXFLOW recommends users of Twin Screw Pumps and its designs follow the latest Industrial Safety Standards. At a minimum, these should include the industrial safety requirements established by:

1-Safety and Health Administration (OSHA)
2-Occupational National Fire Protection Association (NFPA)
3-National Electric Code (NEC)
4-American National Standards Institute (ANSI)

Severe injury or death can result from electrical shock, burn or unintended actuation of equipment. Recommended practice is to disconnect and lockout industrial equipment from power sources, and release stored energy, if present. Before putting TMXFLOW equipment into operation, the operator shall analyze the application for all foreseeable risks, their likelihood to occur and the potential consequences of the identified risks as per ISO 31000 and ISO/IEC 31010 in their actual current version.

Locking and Interlocking Devices : These devices should be checked for proper working condition and capability of performing their intended functions. Make replacements only with the original renewal parts or kits. Adjust or repair in accordance with the manufacturer's instructions.

Periodic Inspection : Equipment should be inspected periodically. Inspection intervals should be based on environmental and operating conditions and adjusted as indicated experience. At a minimum, an initial inspection within 3 to 4 months after installation is recommended.

Replacement Equipment: Use only replacement parts and devices recommended by the manufacturer to maintain the integrity of the equipment. Make sure the parts are properly matched to the equipment series model, serial number and revision level of the equipment.

WARNINGS

1- Read the instructions before installing the pump and starting it up. Always follow the guidelines for assembly in order to achieve optimum operational reliability.

2- Always check that the specifications of the motor and the motor control unit are correct, particularly in operating environments where there may be a risk of explosion.

3- Pumps should only be installed, disassembled, repaired and assembled by personnel trained in servicing pumps.

4- Always ensure that all electrical installation is carried out by qualified staff.

5- Never hose down or clean the electric motor directly with water or cleaning fluid. If the motor will be used in a washdown environment a washdown designed motor must be used.

6- Never dismantle the pump before the motor has been disconnected from the power supply. Remove the fuses and disconnect the cable from the motor terminal box.

7- Never dismantle the pump until the isolating valves on the suction and discharge side have been closed.

8- Always ensure that all pipe connections have been fitted and tightened properly before the pump is started. If the pump is used for hot/or hazardous fluids, special precautions must be taken. In such cases follow the local regulations for personal safety when working with these products.

9- Always wear personal protective equipment according to the requirements.

10- Make sure product lines and power cables are laid in suitable guides/trays.

11- Always ensure that no debris of any kind is present in the pump.

12- Always ensure that the pump and the motor shaSTS are properly aligned.

13- Always ensure that suction and discharge valves isolating the pump are fully open before starting the pump.

14- Never close or obstruct the outlet of the pump as the pressure in the system will increase above the specified maximum pressure of the pump and cause damage to the pump.

15- Never put hands or fingers into a pump while it is in operation since there are rotating parts in the pump.

16- The pump components and piping may contain sharp edges. Handle the screws carefully since they may be sharp. Wear gloves while installing and servicing the pump to help avoid injuries from these hazards.

17- Never touch the gear case during operation. The surface temperature of the gear case can get above 70 °C when running at 1000-3500 RPM. The pump cover and the body may be cold or hot depending on the product.

18- Never touch the motor and the motor shroud (if supplied) during operation, it may be very hot.

19- Never drop parts on the floor.

20- Make sure to keep the work area clear of machine parts, tools, product lines, foreign materials, and power cables to avoid potential hazards.

CONTENTS

1. SUMMARIZE

a. ABOUT THE USER MANUAL

Manual is composed of two parts, the text part and the appendix. The text part of the manual contains the general knowledge of the storage, installation, operation and maintenance of STS pump. The appendix of the manual includes the special debugging of this pump and the name of spare parts.

b. SAFETY WARNING SYMBOL


Warning symbol,
Warning you of personal danger.


Warning symbol,
Warning of electrical hazard.


Warning symbol,
Warning of falling objects.


Warning symbol,
Warning the danger of mechanical injury.


Warning symbol,
Ensure security responsibilities.


Warning symbol,
Warning risk of mechanical damage.

2. SAFETY PRECAUTIONS

a. BASIC SAFETY INSTRUCTIONS

Before using the pump, please read this operation manual carefully and save the manual in the pump working area for easy viewing. All pump-related work requires careful operation by experienced person

b.APPLICATION RANGE

STS pumps are commonly used in food, pharmaceutical, biopharmaceutical, daily chemical applications
STS pumps are available in different operating temperature and pressure range depending on different design and model.
STS pumps need choose suitable mechanical seal material according to different media

c.COMMON ERROR OPERATION

Improper media may cause damage to the pump
Impurities present in the media may cause the pump to get stuck or even be damaged.

d. SAFETY INSTRUCTION FOR PUMP

Exceed the working pressure range or exceed the working temperature range
May cause explosion or leakage of pump, resulting in personal and property damage
Running without medium Pump is strictly prohibited to run without medium
If using double mechanical seal, it is allowed to run without medium for a short time.
If using single mechanical seal, short time dry rotation may also cause damage to the mechanical seal.
Pump surface high temperature It will cause high temperature after pump running, do not touch, it will hurt you Check the surface temperature before touching pump

e. WARNING SIGN

Please set warning sign in the pump working area

f. WASTE TREATMENT

Please follow the relevant regulations to dispose of the disassembled waste.

3. STRUCTURAL FEATURE AND WORKING PRINCIPLE

a. BASIC STRUCTURE

A- Twin Screw Pump
B- Coupling and Coupling Cover
C- Gear Reducer & Motor

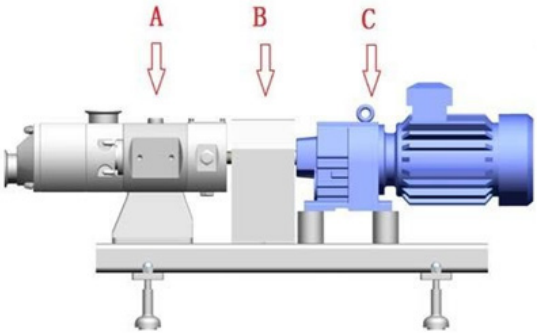


Figure 1 pump with motor

Twin Screw Pump Basic Structure
Part-1 Front Cover
Part-2 Rotor Box
Part-3 Mechanical Seal Box
Part-4 Gear Box
Part-5 Back Cover of Gear Box
Part-6 Drive Shaft

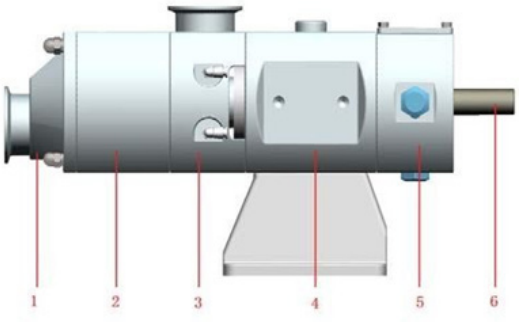


Figure 1 pump with motor

COUPLING

Coupling use to connect motor shaft and pump drive shaft (Part #6)

a.GEAR REDUCER OR MOTOR

The motor is fixedly mounted on the base plate using a fixed speed or variable speed motor

b. GENEREAL CONFIGURATION

Single mechanical or double mechanical seal (double mechanical seal recommended)
Horizontal or vertical inlet and outlet direction

c.MODEL

STS A-18	STS B-26	STS C-32
STS A-26	STS A-36	STS C-48
STS A-48	STS A-60	STS C-80

d. Model Description

S T S - A - 1 8 . S S . 1 . C . E . J

Pump Model
STS A-18
STS A-26
STS A-48
STS B-26
STS B-36
STS B-60
STS C-32
STS C-48
STS C-80

Pitch Size
18
26
32
36
48
60
80

	Hardening
1	Casing Only (Armoloy)
2	Casing (Armoloy) And Rotors
3	Without Hardening
4	Rotors Only

	SEAL TYPE
SS	Single Seal (Sic/Carbon)
SC	Single Seal (Sic/Sic)
DSC	Double (Sic/Carbon-Sic/Carbon)
DSS	Double (Sic/Sic-Sic/Carbon)
ST	Single Seal (Tungsten/Tungsten)
DTS	Double (Tungsten/Tungsten-Sic/Carbon)
LS	Lip Seal
PC	Single Seal(Stainless Steel/Carbon)
DPC	Double (Stainless Steel/Carbon)
F	Flushing (Add Beginning Of Letter)
Y	Gland Packing
G	Garlock
O	O-Ring

	Jacket Options
J	Rotor Casing Jacket
J1	Fully Jacket
J2	Front Cover Heating Jacket
JX	Future Options

	Elastomer
E	EPDM (Standard)
V	Viton (FKM)
N	NBR

	Port Options
C	Tri Clamp
S	SMS
F	Flanged
W	Weld
S	Union
G	Gear
K	Camlock

4. TRANSPORTATION

Trained person is required to transport the pump The complete set pump can be handled by forklift or crane

a.SAFETY INSTRUCTIONS

Be careful to drop or unfixed parts that can cause severe abrasions.
Do not remove the inlet and outlet end caps of the pump until the piping is connected

b.FORKLIFT TRANSPORTATION INSTRUCTIONS

Pay attention to parts falling, which may cause serious injury and bruises on your hands and feet. To prevent rollover during transportation, use a convey-or belt or bolt to fix the plate

c.CRANE TRANSPORTATION INSTRUCTION

-"Warning", pay attention to parts falling, which may cause serious injury, bruises and even death. To prevent falling during trans-portation, use a suitable lifting tool.
-Do not transport the complete set pump only through pump head or the swinging ring of motor. Because the swinging ring of pump head & motor are not designed according to the weight of whole pump.
-Make sure nobody stays under pump

5. STORAGE

a. STORAGE ENVIRONMENT OF THE PUMP

-The pump shall be stored according to the following procedures:
-Drain the pump medium and keep it dry. Store it in a dry environment.
-Storage temperature should not be too high or too low,
-Suitable for storing temperature is 20oC to 25oC (normal temperature).
-The storage environment shall be ventilated and dust-free.
-All parts of the pump are required to rotate regularly (three months)

b. LONG-TERM STORAGE

-If the storage time is more than six months, please follow the following procedures:
-Before storing the pump, remove the mechanical seal and store it independently.
-Add lubricating oil to the gear box, and the gear should be completely immersed by lubricating oil

c.Restart to use

--After storage, please check the mechanical seal and lubricating oil level before restart to use.

6. INSTALLATION AND USE PROCEDURES

a.INSTALLATION SAFETY INSTRUCTIONS

Make sure that each part is fixed during installation, falling parts may cause damage to the pump, as well as injury to personnel.
Please wear labor protection shoes when installing.
Fix bolt according to the specified torque
Use a torque wrench

b. PRECUTIONS FOR PUMP INSTALLATION

Confirm the installation environment of the pump, explo-sion-proof pump should be used in the explosion-proof environment. The environment must be dust-free.Work-ing environment temperature at -20oC to 40oC. The installation platform must be strong enough to support the whole pump. The installation platform must be horizontal. Sufficient maintenance space must be guaran-teed. Ensure the air circulation of the installation environ-ment and promote the heat dissipation of the motor.

-Reduce pipe resistance as much as possible and avoid to use unnecessary elbows and valves.
-When designing piping connection, try to avoid causing pressure loss and avoid cavita-tion caused by inhalation end
-The inlet and outlet control valves should be as close as possible to the inlet and outlet end.
-Inhalation end pipeline should be as short as possible
-The inlet end pipeline should be installed horizontally to reduce the possibility of residual air in the pipeline.
-Design pipeline reasonably according to pressure, temperature and medium charac-teristics.
-Avoid stress from pipes to pumps (pipes must be supported independently)

c.REDUCE NOISE AND VIBRATION

Main measures

Operate in optimum working conditions to avoid cavitation.
Avoid resonance of inlet and outlet pipeline.
Fix inlet and outlet pipelines.

Auxiliary measures

Isolation measures can be used to isolate noise, such as sound insulation coverage, space isolation, etc.

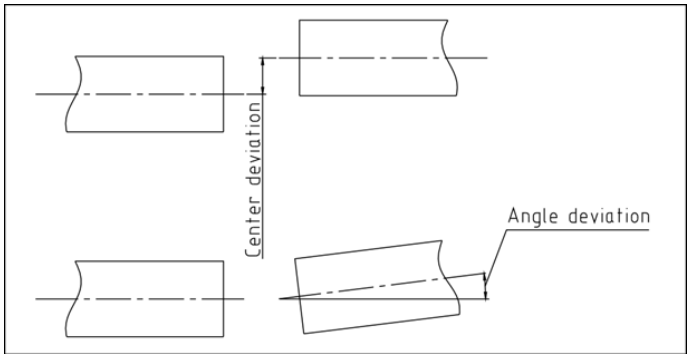
d.INSTALLATION METHOD

Use base mounting to install the pump, and the pump is mounted on a fixed mounting platform.
Use base mounting to install (with adjustable support foot), the height of the support foot can be adjusted freely to ensure the stable installation of the pump.

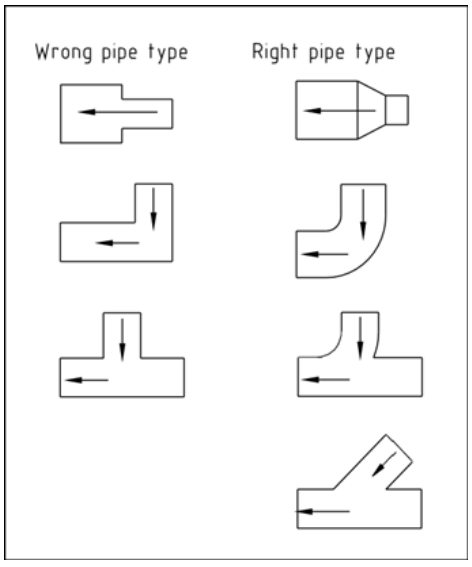
e.COUPLING INSTALLATION

Check the center deviation and angle deviation between the drive shaft of the pump and the motor shaft Adjust the coaxially of the shaft so that the two sha STS are aligned (adjustable with pad block)

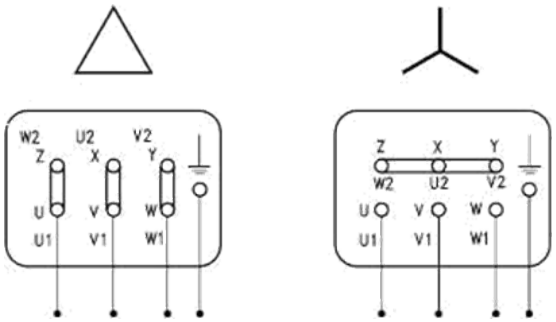
f.PIPELINE INSTALLATION



g.ELECTRIC POWER INSTALLATION



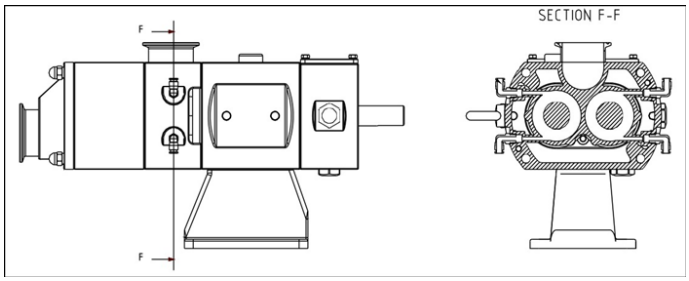
ELECTRICAL CONNECTIONS



	Connection U=...	
	3x220	3x380
motor		
220/380	Δ	Y
380	-	Δ

h.WATER FLUSHING PIPELINE CONNECTION (DOUBLE MACHINE SEAL)

-Pumps with double mechanical seals must be connected to water flushing lines and supplied with cooling water.



Model	Can connect OD of the hose	Gas nozzle Thread
STS A	6 mm	G 1/8
STS A	6 mm	G 1/8
STS A	6 mm	G 1/8

-It is recommended that the flushing water should be entered from below and discharged from the top.

I.CLEANING

-Before cleaning, make sure there is no impurities in the pump chamber and pipeline.
-Confirm that the pump is in the stop state.
-Connecting the pipeline.
-Before the first use, please thoroughly clean the pump and pipeline

7. RUNNING OPERATION

a.SAFETY INSTRUCTIONS

-Please confirm outlet valve has been opened when turning on pump and in operation. In order to avoid overhigh outlet pressure,
-it could be added with bypass line or safety valve etc. protective measures.
-Please confirm inlet valve has been opened when turning on pump.
If inlet valve is closed, will be occurred with idling, and mechanical seal will be damaged.
-Please confirm pump chamber has been full filled with liquid before turning on pump.
If without liquid in pump chamber, will be occurred with idling, and mechanical seal will be damaged.

b.ADVANCE PREPARATION

Double mechanical seal: to confirm cooling water has been connected.

Note: cooling water temperature <70oC; to adjust the pressure of wash water <1 bar.

To open inlet valve.
To open outlet valve.
Waiting for a while to confirm the pump chamber and inlet pipeline has been full filled with liquid.

c.CRANE TRANSPORTATION INSTRUCTION

Safety Instruction in pump operation:
Pump was stuck or damaged: there might be with impurity in your media.
It's prohibited to close outlet valve in pump operation, if not, will be caused with moment over high pressure and damage on pump.
It's prohibited to close inlet valve in pump operation, if not, will be caused with cavitation and idling and damage on mechanical seal.

d.FINISH OPERATION

To turn off motor.
To close inlet valve, to avoid idling in next operation.
To close outlet valve

8. CLEANING

a.CIP CLEANING

--STS twin screw pump is supported with CIP cleaning.

b.SIP CLEANING

-Note: Do not turn on pump in SIP sterilization,
-Allow with max. steam temperature 145oC

9. COMMON FAULT AND REMOVAL

--See appendix 12.b (Common Fault and Removal)

10. MAINTENANCE

--See appendix 12.a (Maintenance Periodic Table)

a.SAFETY INSTRCUTION

-To confirm the motor has been turned off and powered off when touch pump.
-Please wear safety shoes, to avoid unnecessary damage.
-To close inlet and outlet valve.

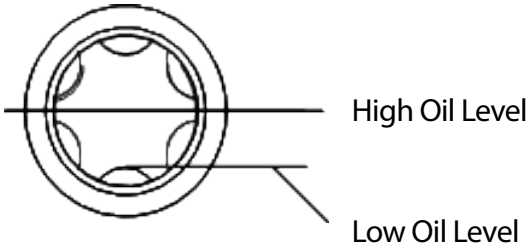
-Double mechanical seal pump: to switch off wash water.
-To fully discharge liquid in pump chamber before separating pump.

a.TO INSPECT WASH WATER (DOUBLE MECHANICAL SEAL) IF CHOOSE DOUBLE MECHANICAL SEAL PUMP

-To inspect wash water pressure <1bar.
-To confirm wash water temperature <70oC.

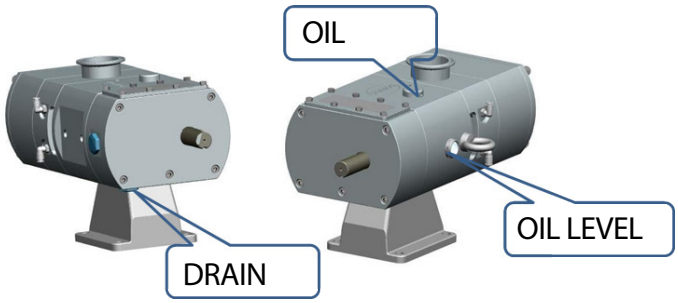
c.CHECH THE OIL LEVEL

-To see the height of oil level by sight glass, to confirm oil level is within normal range.



d.CHANGE OIL

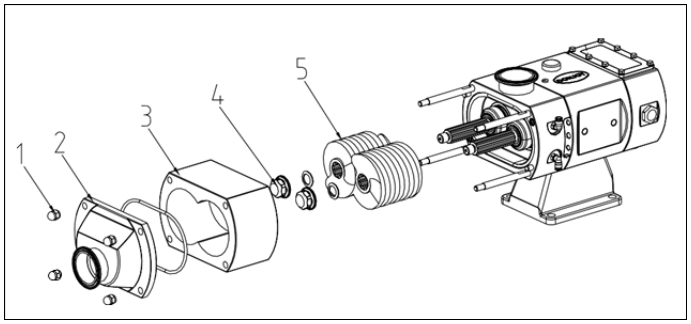
-To replace lubricating oil regularly: every 6 months or 2000 hours.
-Extreme condition such as high temperature, humid environment: every 1000 hours.



e.TO REPLACE MECHANICAL SEAL

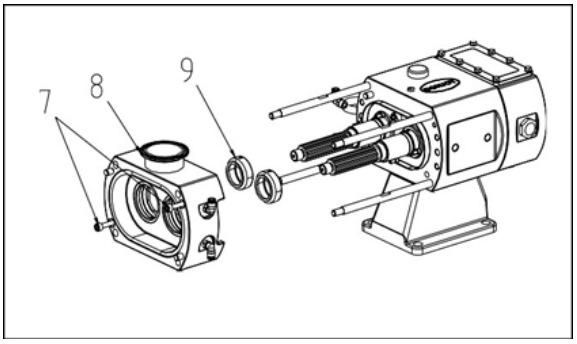
Need to replace mechanical seal in the following situation:
-When conveying media, with leakage.
-When conveying media, with leakage of wash water.
-When conveying media, wash water was into conveying liquid.
Please refer to the chapter of disassembly and installation of pump head -- mechanical seal, when to replace

f.DISASSEMBLY OF TWIN SCREW PUMP TO DISASSEMBLE PUMP HEAD AND SCREW



-To disassemble the nut (part 1) of front cover.
-To disassemble front cover (part 2), rotor casing (part 3).
-To disassemble locknut (part 4), take out O-ring.

DISASSEMBLY OF DOUBLE MECHANICAL SEAL



-To take out single mechanical seal as picture at right.
-To disassemble tightening screw.
-To take out mechanical seal casing.
-To take out the O-ring of double mechanical seal.

Screw pump head assembly
Preparing before assembly
-Cleaning the component
-If there is some part to replace
-Please note that it should be assemble in an clean environment while the mechanical seal is easy to damaged
-Please use water or lubricating grease to clean the mechanical seal before assembly
-Please do not touch after cleaning

Mechanical seal assembly
In accordance with the disassembly steps of the mechanical seal can be installed after the reverse. (Mechanical seal structure refer to mechanical seal structure diagram)

Pump head and shaft assembly
-In accordance with the disassembly steps of the pump head can be installed after the reverse.
-Locked nut mounting torque as the following table

Type	Thread Specification	Fastener Torque (NM)±15%
STS A	M14X1.5	STS C-48
STS B	M16X1.5	STS C-80
STS C	M20X1.5	STS C-80

Pump head and shaft assembly

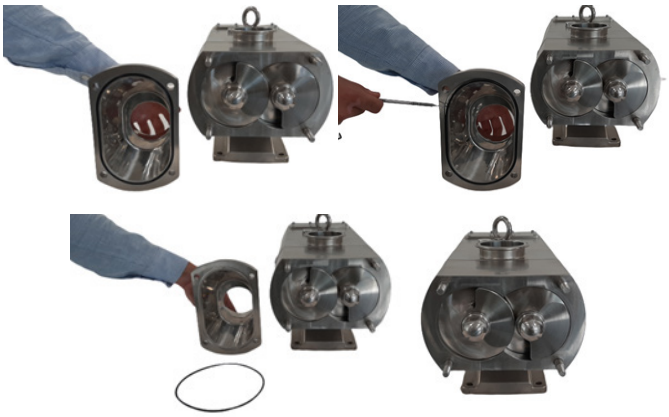
-In accordance with the disassembly steps of the pump head can be installed after the reverse.
-Locked nut mounting torque as the following table

Disassembly of mechanical seal

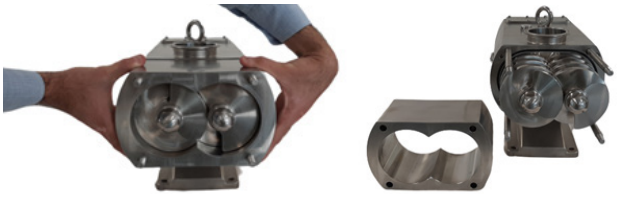
Remove to the front cover hex nut.

Remove to t he front cover hex nut.

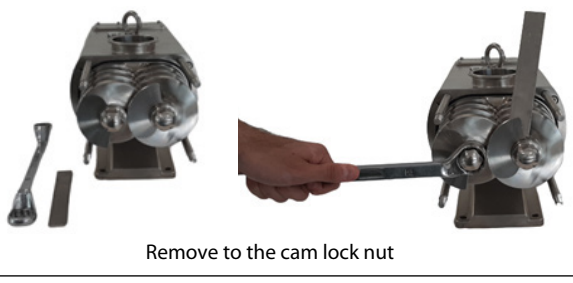
Remove to the front cover



Remove to the O-ring



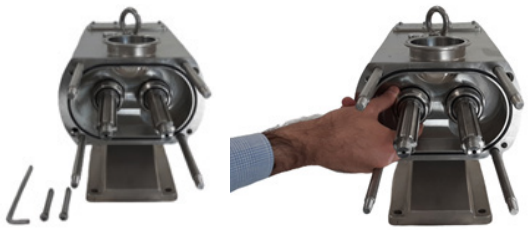
Remove to the rotor case



Remove to the cam lock nut

Remove the screws

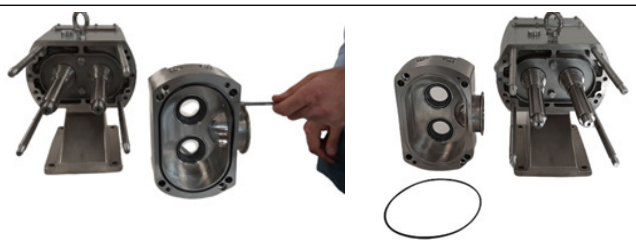
Hexagon socket cap screw are removed



Remove to the mechanical seal

Mechanical seal inside o-ring removed

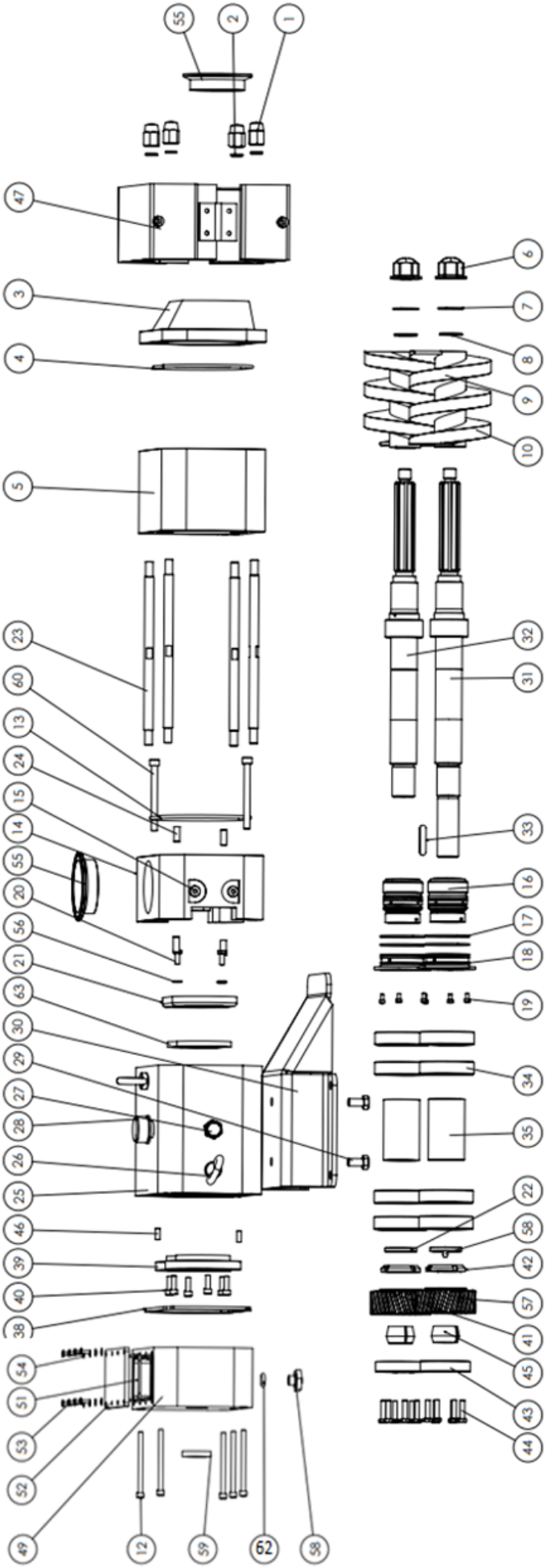
Remove to the mechanical seal housing



Remove to the o-ring

Remove to the machine sealing shell

11. PART LIST OF TWIN SCREW



PART LIST OF TWIN SCREW

(Item No.)	(Description)	Specification STS-A	STS-B	STS-C	(Qty.)	Material
1	Front cover hex nut	T1A0000-000.01	T2A0000-000.01	T3A0000-000.01	4	A-304
2	O ring	T1A0000-000.02.XV	T2A0000-000.02.XV	T3A0000-000.02.XV	4	VITON
3	Front cover	T1A0000-000.03	T2A0000-000.03	T3A0000-000.03	1	A-316L
4	O ring	T1A0000-000.04.XV	T2A0000-000.04.XV	T3A0000-000.04.XV	1	VITON
5	Rotor case	T1A0000-000.05	T2A0000-000.05	T3A0000-000.05	1	A-316
6	Cam lock nut	T1A0000-000.06	T2A0000-000.06	T3A0000-000.06	2	A-316L
7	O ring	T1A0000-000.07.XV	T2A0000-000.07.XV	T3A0000-000.07.XV	2	VITON
8	Washer	T1A0000-000.08	T2A0000-000.08	T3A0000-000.08	2	A-316L
9	Screw-R	T1A0000-000.09	T2A0000-000.09	T3A0000-000.09	1	A-316L
10	Screw-L	T1A0000-000.10	T2A0000-000.10	T3A0000-000.10	1	A-316L
12	Imbus	T1A0000-000.12	T2A0000-000.12	T3A0000-000.12	5	A-304
13	O ring	T1A0000-000.13.XV	T2A0000-000.13.XV	T3A0000-000.13.XV	1	VITON
14	Mechanical seal housing	T1A0000-000.14	T2A0000-000.14	T3A0000-000.14	1	A-316L
15	Mechanical Seal Water Tap	T1A0000-000.15	T2A0000-000.15	T3A0000-000.15	4	A-304
*16	Mechanical Seal	T1A0000-000.16	T2A0000-000.16	T3A0000-000.16	2	
17	Machine sealing shell O-Ring	T1A0000-000.17.XV	T2A0000-000.17.XV	T3A0000-000.17.XV	4	VITON
18	Machine sealing shell	T1A0000-000.18	T2A0000-000.18	T3A0000-000.18	2	A-304
19	Imbus Screw	T1A0000-000.19	T2A0000-000.19	T3A0000-000.19	6	A2-70
20	Imbus Screw	T1A0000-000.20	T2A0000-000.20	T3A0000-000.20	2	A2-70
21	Oil seal limited board	T1A0000-000.21	T2A0000-000.21	T3A0000-000.21	1	A-304
22	Oil seal	T1A0000-000.22	T2A0000-000.22	T3A0000-000.22	2	NBR
23	Stud bolt	T1A0000-000.23	T2A0000-000.23	T3A0000-000.23	4	A-304
24	Cylindrical pin	T1A0000-000.24	T2A0000-000.24	T3A0000-000.24	4	A-304
25	Gear case	T1A0000-000.25	T2A0000-000.25	T3A0000-000.25	1	A-304
26	Eyebolt	T1A0000-000.26	T2A0000-000.26	T3A0000-000.26	2	A2-70
27	Oil level sight glass	T1A0000-000.27	T2A0000-000.27	T3A0000-000.27	1	
28	Oil plug	T1A0000-000.28	T2A0000-000.28	T3A0000-000.28	1	
29	Hexagon Head Bold	T1A0000-000.29	T2A0000-000.29	T3A0000-000.29	2	A2-70
30	Gear Case Legg	T1A0000-000.30	T2A0000-000.30	T3A0000-000.30	1	A-304
31	Long drive shaft	T1A0000-000.31	T2A0000-000.31	T3A0000-000.31	1	A-316L
32	Short drive shaft	T1A0000-000.32	T2A0000-000.32	T3A0000-000.32	1	A-316L
33	Wedge	T1A0000-000.33	T2A0000-000.33	T3A0000-000.33	1	A-304
34	Bearing	T1A0000-000.34	T2A0000-000.34	T3A0000-000.34	8	
35	Bearing locating	T1A0000-000.35	T2A0000-000.35	T3A0000-000.35	2	A-304
38	O ring	T1A0000-000.38.XV	T2A0000-000.38.XV	T3A0000-000.38.XV	1	VITON
39	Bed Bracelet	T1A0000-000.39	T2A0000-000.39	T3A0000-000.39	2	A-304
40	Cylindrical Head Bolt	T1A0000-000.40	T2A0000-000.40	T3A0000-000.40	6	A2-70
41	Gear Right	T1A0000-000.41	T2A0000-000.41	T3A0000-000.41	1	20Cr
42	Gear tight bushing	T1A0000-000.42	T2A0000-000.42	T3A0000-000.42	2	20Cr
43	Gear gland	T1A0000-000.43	T2A0000-000.43	T3A0000-000.43	2	20Cr
44	Imbus Screw	T1A0000-000.44	T2A0000-000.44	T3A0000-000.44	12	A2-70
45	Oil seal	T1A0000-000.45	T2A0000-000.45	T3A0000-000.45	2	NBR
46	Cylindrical pin	T1A0000-000.46	T2A0000-000.46	T3A0000-000.46	2	A2-70
47	Body Heating Jacket	T1A0000-000.47	T2A0000-000.47	T3A0000-000.47	1	A-304
49	Gear case rear cover	T1A0000-000.49	T2A0000-000.49	T3A0000-000.49	1	A-304
51	O ring	T1A0000-000.51.XV	T2A0000-000.51.XV	T3A0000-000.51.XV	1	VITON
52	Upper cover	T1A0000-000.52	T2A0000-000.52	T3A0000-000.52	1	A-304
53	Hexagon Head Bolt	T1A0000-000.53	T2A0000-000.53	T3A0000-000.53	8	A2-70
54	Spring washer	T1A0000-000.54	T2A0000-000.54	T3A0000-000.54	8	A-304
55	Ferrule	T1A0000-000.55	T2A0000-000.55	T3A0000-000.55	2	A-316L
56	Washer	T1A0000-000.56	T2A0000-000.56	T3A0000-000.56	2	A-304
57	Gear Left	T1A0000-000.57	T2A0000-000.57	T3A0000-000.57	1	20Cr
58	Six Corner Plug	T1A0000-000.58	T2A0000-000.58	T3A0000-000.58	2	
59	Oil Seal	T1A0000-000.59	T2A0000-000.59	T3A0000-000.59	1	
60	Imbus Screw	T1A0000-000.60	T2A0000-000.60	T3A0000-000.60	2	A-304
62	O-Ring	T1A0000-000.62.XV	T2A0000-000.62.XV	T3A0000-000.62.XV	2	VITON
63	Oil Seal	T1A0000-000.63	T2A0000-000.63	T3A0000-000.63	2	NBR

12. APPENDIX

a.Maintenance period

Maintenance period	Applicable working conditions	Maintenance operations
routine maintenance	All working conditions	Check lubricating oil level
routine maintenance	Double mechanical seal	Check the rinse solution
1000hours	Extreme operating condition	Replace the lubricating oil
2000hours	Normal working condition	Replace the lubricating oil
According to requirements	All working conditions	Replace the mechanical seals

b.Common operating problem and troubleshooting

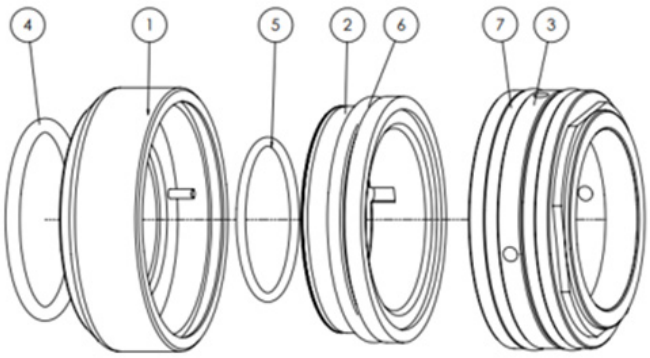
Operating problems	Usual causes problems	Solutions
No flow rate or flow rate instability	The pump cavity is not filled with liquid	Fill up with liquid
	The outlet valve is closed	Open the outlet valve
	The inlet pipe is closed or blocked	Open the inlet pipe or clean
	Inlet pipe leaking and pump cover leaked into the gas	Repair of inlet line and replace the pump cover O-ring
	There is retention gas in the inlet pipe	Raise the inlet line so that there is no gas in the pipe
	The pump is stuck	Clean the pump cavity and check for foreign bodies
	Wrong operate direction	Adjust the motor rotation direction
	The viscosity of the media is too high to be sucked	Increase the diameter of the inlet pipe and shorten pipe
Flow rate is high.	The type of pump is too large	Contact TMXFLOW
	The revolving speed is too high	Reduce the revolving speed
Flow rate and head is too low.	The type of pump is too small.	Contact TMXFLOW
	Leakage at the suction of the pipe or pump	Check and repair piping
	The the media is hard to flow because of the high viscosity	Increase the diameter of the inlet pipe and shorten pipe
	Screw spacing is over because of the wear	Repair or replace the screw
	Low revolving speed	Improve revolving speed
	The installation position is over than the suction capacity of pump	Reduce the sucked height and sucked resistance of the pipe
Mechanical noise	There are hard objects in the pump cavity	Eliminate foreign body
	The bolt and nut are loose.	Retighten according to specified torque
	Screw pump overload or lack of lubrication resulting in gear wear	Check, repair or replace the gear
	The revolving speed is too high	Contact TMXFLOW
	Suction pipe obstructed.	Check and clear blockages
Shake	Pipe weight and pressure act directly on the pump	Add pipe holder to eliminate resonance
	Wrong assembly for the coupling	Adjust coupling coaxially
	Not enough strength for the baseplate	Strengthen the baseplate
Temperature of the pump gearbox is too high. V	Damaged bearing	Replace the bearing
	Lack of lubricating oil	Fill up with oil or change oil
	Wrong assembly for the coupling	Adjust coupling coaxially
The shaft power increased suddenly	The back pressure of the outlet is too high (low flow rate)	Increase the outlet pipe diameter
	The viscosity of the pumped medium is too high	Contact TMXFLOW
	Bearing or motor is damaged	Check and repair
Mechanical seal leaked	Damaged mechanical seal(wear)	Replace the mechanical seal
	Mechanical seal rotates without lubrication, the medium's temperature is too high.	Suggest to use double mechanical seal
	Mechanical seal is corroded	Contact TMXFLOW
	The flushing circulation run without lubrication because of blocked pipe.	Check and repair

c.MECHANICAL SEAL DETAILS

Single Mechanical Seal

Specification :

STS-A : T1A0000-000.16.XS
STS-B : T2A0000-000.16.XS
STS-C : T3A0000-000.16.XS



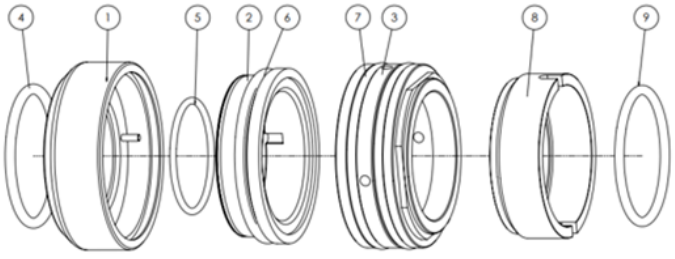
Part List :

Item No	Description	Material	QTY
16.1	Nose Bushing	A-316L	1
16.2	Moving Face	Tungsten	1
16.3	Fixed Face	Tungsten	1
16.4	Nose Bushing Outer O-Ring	Viton	1
16.5	Nose Bushing Inner O-Ring	Viton	1
16.6	Moving Face O-Ring	Viton	1
16.7	Fixed Face O-Ring	Viton	2

Double Mechanical Seal

Specification :

STS-A : T1A0000-000.16.XD
STS-B : T2A0000-000.16.XD
STS-C : T3A0000-000.16.XD

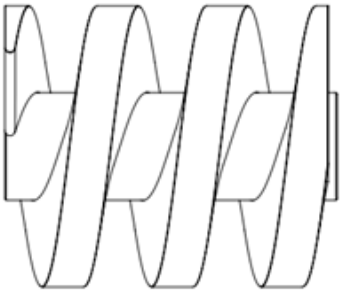


Part List :

Item No	Description	Material	QTY
16.1	Nose Bushing	A-316L	1
16.2	Moving Face	Tungsten	1
16.3	Fixed Face	Tungsten	1
16.4	Nose Bushing Outer O-Ring	Viton	1
16.5	Nose Bushing Inner O-Ring	Viton	1
16.6	Moving Face O-Ring	Viton	1
16.7	Fixed Face O-Ring	Viton	2
16.8	Double Moving Face	Tungsten	1
16.9	Double Moving Face O-Ring	Viton	1

d.SCREW TYPES

STS-A/B/C



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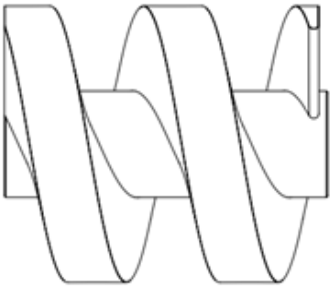
T1A0000-000.10.X1

T2A0000 -000.09.X1
T2A0000-000.10.X1

T3A0000 -000.09.X1
T3A0000-000.10.X1

STS-A/B/C



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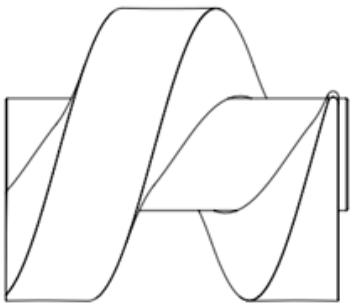
T2A0000-000.10.X2

T3A0000 -000.09.X2
T3A0000-000.10.X2

STS-A/B/C



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T1A0000-000.10.X3

T2A0000-000.09.X3
T2A0000-000.10.X3

T3A0000-000.09.X3
T3A0000-000.10.X3