



TS-TSH

INSTRUCTIONS



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Safety Warning

1. Disconnect all power sources to ensure the pump will remain inoperative
2. Allow the pump to cool before starting maintenance
3. Close the suction and discharge valves if fitted
4. Vent the pump slowly and cautiously
5. Drain the pump



- When working near the pump, dress appropriately, avoid baggy or loose items which could get caught in moving parts. Always wear safety clothing, gloves, safety glasses, helmet etc.
- This pump is designed to handle mild industrial corrosives, mud and slurries containing solids. Do not attempt to pump volatile, corrosive or flammable liquids that may damage the pump or endanger personnel.
- Use lifting and moving equipment with ample capacity and in good repair. Remove all suction and discharge piping before lifting.
- Do not remove any items from an overheated pump. Pressure build up within the pump can cause parts being disengaged to be ejected with force. Allow the pump to cool before commencing any maintenance.
- Do not operate the pump with a closed discharge valve for any length of time. Running the pump in this configuration could cause the liquid to boil and cause the pump casing to explode.
- Do not operate the pump without all guards in place over rotating parts.
- After the pump has been positioned make sure all the pump mountings and any fixtures are properly secured and supported before operation.



DPS TS Series Trash & Sewage pumps are designed for economical and trouble-free operation in handling solids-laden liquids. Pumps feature a large volute design which allows them to re-prime automatically in a completely open system without the need of suction or discharge check valves. This is workable with the pump only partially filled with liquid and a completely dry suction line. Pumps will be able to handle up to 3" (75mm) spherical solids, depending on the pump model. In case that the pump shaft or bearings need service or repair, the entire rotating assembly can be back pulled out without disturbing the pump casing or pipe work. Rotating assembly is sealed with an o-ring, allowing for external adjustments of the impeller to wear-plate clearance.

Pump Features:

PRIMING IS DONE AUTOMATICALLY

After initial priming TS Series Pumps are designed to re-prime automatically in a completely open system, without the need of a discharge or suction check valve. This can be achieved with the pump casing only partially filled with liquid and with a completely dry suction line. The TS's ability to handle air overcomes priming and vapour handling problems common in conventional centrifugal pumps.

EXTERNAL SHIMLESS ADJUSTMENT

The external shimless cover plate allows for easy adjustment of clearance between the impeller and the wear plate. This eliminates the need to re-align belts and couplings etc. The collar and adjusting screw allow for incremental adjustments of the wear plate clearance. Once the adjustments have been made, the collar locks into place maintaining the clearance settings even if the cover plate is removed.

SOLIDS HANDLING IMPELLER

Two-vane, semi-open, solids handling impeller handles up to 3" dia solids, depending on the pump model. Pump out vanes on the impeller shroud reduce the build-up of foreign material behind the impeller and reduce pressure on the seal.

REMOVABLE COVERPLATE

The removable cover plate provides quick and easy access to the pump interior without disconnecting the piping. Clogs and blocking material fibre can be removed and the pump returned to service within minutes. The impeller, seal, wearplate and flap valve can also be accessed through the cover plate opening.

ABRASIVE HANDLING MECHANICAL SEAL

Double floating, self-aligning, oil lubricated mechanical cartridge seal with stationary and rotating face of silicone carbide

REMOVABLE ROTATING ASSEMBLY

Back pull out removal of the rotating assembly allows for easy inspection of the pump shaft or bearings without disturbing the pump casing or pipe work. Simply remove the bolts for the back of the pump and the rotating assembly slides out

Disassembly and Assembly

Front Cover Wear Plate Removal

The wear plate is easily accessible and may be serviced by removing the front cover assembly. Before attempting to service the pump, remove the pump casing drain plug and drain the pump.

Clean and reinstall the drain plug.

Remove the tighten handles and pull front cover and assembled wear plate from the pump casing.

Inspect the wear plate, and replace if scored or worn. To remove the wear plate, undo the nut. Inspect the front cover o-ring and replace if worn or damaged.

Check Valve Removal

If the check valve assembly requires to be serviced, remove the check valve pin and reach through the front cover opening and remove the complete assembly from the suction flange.

Rotating Assembly Removal

The rotating assembly may be removed without disconnection of the suction and discharge piping; however the engine and spacer coupling and stubshaft must be removed to provide clearance.

The impeller should be loosened whilst the rotating assembly is still mounted to the pump casing.

Before loosening the impeller, remove the seal cavity drain plug (square headed) and drain the seal lubricant. This will prevent the oil in the seal cavity escaping when the impeller is loosened. Dispose of seal oil lubricant in accordance with your local regulations.

Clean and reinstall the seal cavity drain plug. Remove the impeller cap-screw and washer. NOTE: do not remove the impeller until the rotating assembly has been removed from the pump casing.

Remove bolt and washer holding the rotating assembly to the pump casing.

Separate the rotating assembly by pulling straight out of the pump casing.

Removing the Impeller

With the rotating assembly removed from the pump casing, unscrew the impeller from the shaft.

Beware when unscrewing the impeller; tension on the shaft seal spring will be released as the impeller is removed.

Inspect the impeller for damage or wear and replace if necessary.

Seal Removal

Slide the integral shaft sleeve and rotating portion of the seal off the shaft as a unit.

Use a pair of stiff wires with hooked ends to remove the stationary element and seat.

An alternate method of removing the stationary seal components is to remove the screws and separate sealing seat and sealing washer from bearing housing.

Position the seal plate on a flat surface with the impeller side down.

Press down on the back of the stationary seat until the seat, o-rings and stationary element can be removed.

A new seal assembly should be installed anytime the old seal is removed from the pump.

Shaft and Bearing Removal

Remove the bearing housing drain plug and drain the oil lubricant.

Dispose of all oil in accordance with your local regulations.

Clean and reinstall the drain plug.

Undo the housing bolts and slide off bearing gland and oil seal off the shaft.

Remove the oil seal from the bearing cap.

Remove bearings from the bearing housing.

Inspect shaft, bearings and oil seal for damage and replace if necessary.

It is recommended you replace the oil seal and bearings when you have dismantled the pump to this stage.

Shaft and Bearing Fitment

Clean the bearing housing, shaft and all components (except bearings).

Press the new bearings on to shaft. Slide the shaft and assembled bearings into the bearing housing until the outer ring of the bearing seats against the bearing housing.

Press the oil seal into the bearing gland with the spring on the oil seal facing the oil side.

Replace the bearing cap gasket and secure the bearing cap with bolts.

Lubricate the bearing housing with SAE-30 oil. Check oil level through site gauge whilst filling.

Fill over site glass

Seal Installation

Clean the seal cavity and shaft. Inspect the stationary seat bore in the seal plate for dirt, nicks and burrs. Remove any that may exist.

A new seal assembly should be installed anytime the old seal is removed from the pump.

If the sealing seat was removed, install the sealing seat gasket.

Position the sealing seat over the shaft and secure it to the bearing housing with bolts and washers.

For ease of installation of the seal, lubricate the shaft sleeve and external stationary seat o-ring with small amount of oil. Slide the seal assembly onto the shaft until the external stationary seat o-ring engages the bore in the seal plate

Clean and inspect impeller (refer Impeller Installation).

Install the full set of impeller shims provided with the seal, and screw the impeller onto the shaft until it is seated against the seal.

Continue to screw the impeller onto the shaft. This will press the stationary seat into the seal plate bore. As the stationary seat becomes fully seated the seal spring compresses, and the shaft sleeve will break the nylon shear ring. This allows the sleeve to slide down the shaft until seated against the shaft shoulder.

Continue to screw the impeller on to the shaft until the impeller, shims and sleeve are fully seated against the shaft shoulder.

Measure the impeller to seal plate clearance and remove impeller shims to obtain the proper clearance as described in impeller installation and adjustment.

Lubricate the seal assembly with SAE30 oil. Fill cavity with lube oil.

Impeller Installation

The shaft impeller threads must be totally clean before installing the impeller. The slightest amount of dirt on the threads can cause the impeller to seize to the shaft, making future repairs difficult.

Install the same thickness impeller shims as previously removed.

Apply Bostik Never –Seize or equivalent to the shaft threads and screw the impeller onto the shaft until tight. Be sure the seal spring seats squarely over the shoulder on the back of the impeller.

A clearance of 0.010 to 0.020 inch (0.25 to 0.50mm) between the seal seat is recommended for maximum pump efficiency.

Measure the clearance and add or remove shims to suit.

Before installing the impeller cap screw and washer the rotating assembly must be installed in the pump casing in order to torque the impeller cap screw.

After the rotating assembly is installed in the pump casing, coat the cap screw with 242 Loctite and install the impeller washer and cap screw; Torque the cap screw to 90 ft/lbs.

Check Valve Installation

Reach through the front cover opening with the check valve and position the check valve adaptor in the mounting slot in the suction flange.

Align the adaptor with the flange hole and secure with check valve pin.

Front Cover Installation

If the wear plate was removed for replacement, carefully centre it on the front cover and secure it with screw and washer.

The wear plate must be concentric to prevent binding when the front cover is installed.

Replace the front cover o-ring.

Slide the front cover assembly into the pump casing being sure the wear plate doesn't bind against the impeller.

Secure the front cover assembly by tightening the tighten handles (14) evenly.

Do not over tighten the tighten handles, they should be just tight enough to ensure a good seal.

Be sure the wear plate doesn't bind against the casing.

Rotating Assembly Installation

Install the bearing housing and seal seat o-rings.

Slide the rotating assembly into the pump casing into the pump.

Install the adjusting screws using the same thickness as removed.

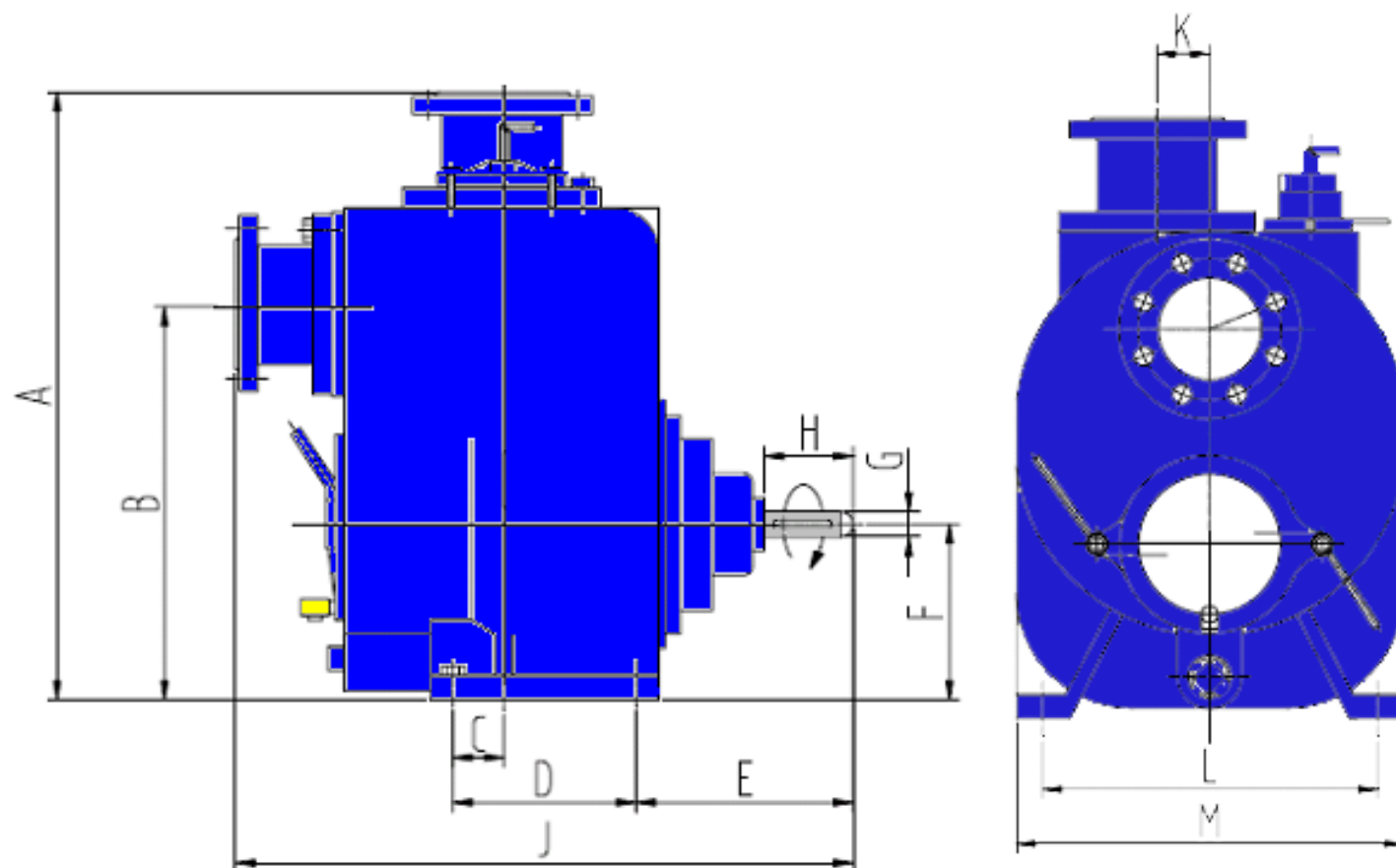
Secure the rotating assembly to the pump casing

Do not fully tighten until the back cover has been set.

A clearance of .010 to .020 inch between the impeller and the wear plate is also recommended. This clearance can be obtained by adjusting an equal amount of screw from each rotating assembly screw set until the impeller scrap against the wear plate when the shaft is turned. After the impeller scrap , adjust approximately 0.15 inch of clearance with the adjusting screws.

Lubrication

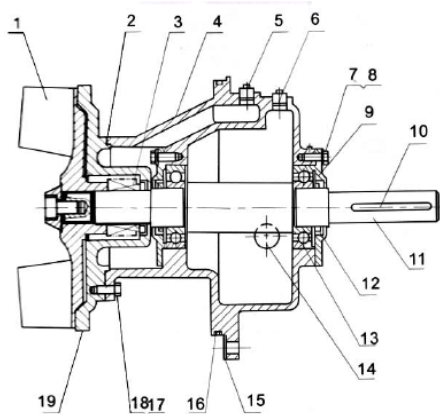
Use SAE-30 oil for the seal assembly and bearing housing lubrication



DIMENSIONAL DATA

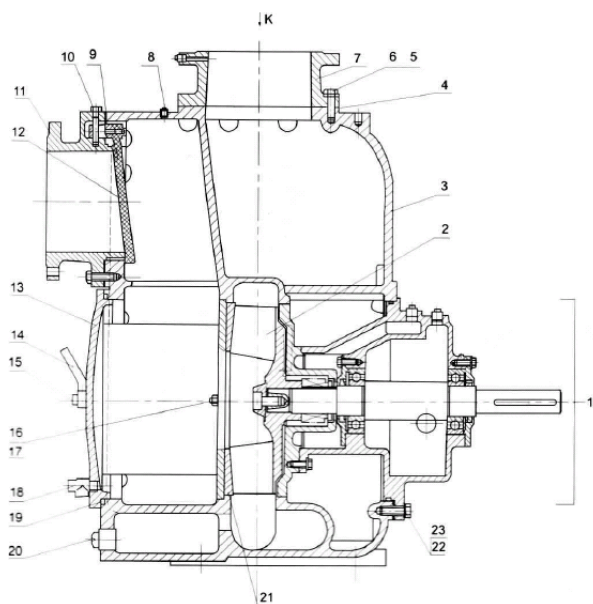
Standard	A	B	C	D	E	F	G	H	J	K	L	M
TS-50	522	318	54	163	248	154	38.1	104	621	70	281	310
TS-80	658	432	76.2	230	284	190	38.1	103	741	70	394	438
TS-100	744	492	75	280	292	217	38.1	126	836	70	450	500
TS-150	889	568	70	280	283	253	38.1	126	884	70	528	580
TS-200	1075	726	102	305	410	330	44.5	170	1025	0	635	700
TS-80H	659	432	76.2	227	283	190.5	38.1	100	721	69.8	393.6	437
TS-100H	745	490	96.8	280	297	222	38.1	126	817	69.8	457	510
TS-150H	883	658	77.7	280	336	257	44.45	117	945	69.8	527	510

PARTS LIST



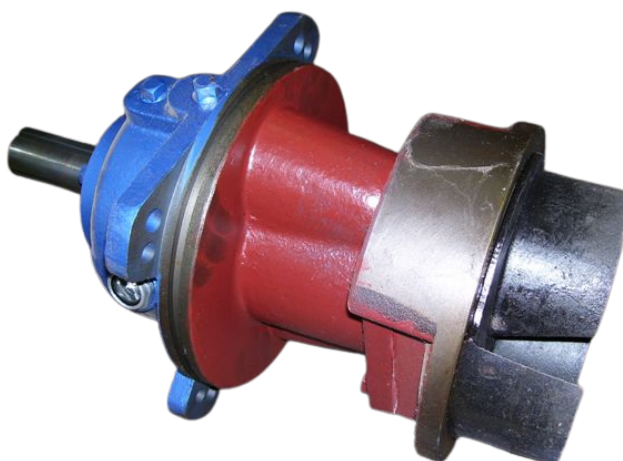
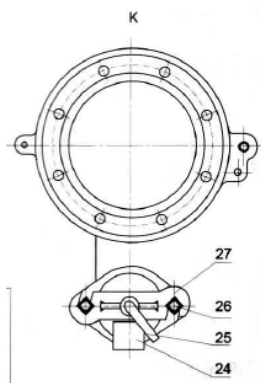
PEDESTAL

1	IMPELLER	11	PUMP SHAFT
2	SEALING WASHER	12	OIL SEAL
3	MECHANICAL SEAL	13	BEARING
4	BEARING	14	SITE GLASS
5	BREATHER	15	ADJUSTING WASHER
6	BREATHER	16	O-RING
7	BOLT	17	BOLT
8	LOCK WASHER	18	WASHER
9	BEARING GLAND	19	SEAL SEAT
10	KEY	20	



PUMP BODY

1	PEDESTAL ASSY	14	TIGHTEN HANDLE
2	NAME PLATE	15	BOLT
3	PUMP CASING	16	NUT
4	DISCHARGE WASHER	17	WASHER
5	BOLT	18	VENT VALVE
6	WASHER	19	O-RING
7	DISCHARGE OUTLET	20	PLUG
8	PLUG	21	WEAR PLATE
9	SUCTION WASHER	22	BOLT
10	PIN FLAP VALVE	23	WAHER
11	SUCTION INLET	24	SEAL COVER
12	FLAP VALVE	25	LOCKING HANDLE
13	FRONT COVER	26	SCREW PLUG
		27	LOCKING PLATE



TROUBLE SHOOTING

Troubles	Causes
Pump fails to prime	<ul style="list-style-type: none"> • Not enough water in casing • Check valve damaged • Air leak in suction line • leaking or worn seal • Suction lift to high • Strainer clogged
Pump fails to deliver rated flow or pressure or stops	<ul style="list-style-type: none"> • Air leak in suction line • Leaking or worn seal • Strainer clogged • Suction line not submerged or water level to low • Impeller clogged • Pump speed to slow • Discharge head to high • Suction lift to high
Pump requires to much power	<ul style="list-style-type: none"> • Pump speed to high • Discharge head to low • Pumped product to thick • Bearings failed
Pump clogs frequently	<ul style="list-style-type: none"> • Liquid is to thick • Discharge flow to slow • check valve shut or clogged
Noise and vibration	<ul style="list-style-type: none"> • Cavitation in pump • Air in system • drive not aligned properly

Please note all information contained in this publication is a guide only

