

Operating & Maintenance Instructions Parts List S2TC-2 Pump (Iron Body) S2TCAL-2 Pump (Aluminum Body)







Certificate of Conformity

CERTIFICATE OF CONFORMITY
UBEREINSTIMMUNGS-ZERTIFIKAT
CERTIFICAT DE CONFORMITE CEE
CERTIFICADO DE CONFORMIDAD
CERTIFICATO DI CONFORMITA

I, the undersigned:	Andrew J. Falco		
lch, der Unterzeichnende: Je soussigné: El abajo firmante:	Surname and First Names/Familienname und Vornamen/Nom et prénom/Nombre y apellido/Cognome e nome		
o sottoscritto:			

hereby certify that the construction plant or equipment specified hereunder: bestätige hiermit, dass das in folgenden genannten Werk oder Gerät: certifies par ceci que l' usine ou l' équipement de construction indiqué cidessous: por el presente certifico que la fabrica o el equipo especificado a continuacion: certifico che l'implanto o l'attrezzatura sotto specifica:

1. Category: Submersible Pump

Kategorie: Catégorie: Categoria: Categoria:

2. Make/Ausführung/Marque/Marca/Marca

Hydra-Tech

3. Type/Typ/Type/Tipo/Tipo:

Group 1: S2T-2, S2TCAL-2, S3T, S3TC, S3TR, S8T, S10T,

\$6105, \$6150, \$6200, \$6250, \$6300, \$3VHL, \$4VHL, \$4THL, \$6T, \$6V, \$6TC, \$4T, \$4SHR,

S3CHL, S3CML

Group 1 variants: S2TSS-2, S2TDI-2, S2TCSS-2, S2TCDI-2,

S3TSS, S3TDI, S3TRDI, S3TCSS, S3TCDI, S3TRSS, S3CHLSS, S3CHLDI, S3CMLSS, S3CMLDI, S3VHLDI, S4TSS, S4THLSS,

S4VHLDI, S4THLDI, S6TSS, S6TDI

Group 2: S4SCR, S3SCR

Group 3: S310, S1.5A, S3A, S6P, S8M, S12M, S18M

Group 3 variant: S310SS

Group 4: S3CSL, S4CSL, S6CSL

Serial number of equipment:
 Seriennummer des Geräts:
 Numéro de série de l' équipement:
 Numero de serie del equipo:
 Matricola dell'attrezzatura:

ALL

5. Year of manufacture/Baujahr/anne de fabrication/Año de fabricacion/Anno di fabbricazione

Has been manufactured in conformity with - EEC Type examination as shown.

Wurde hergestellt in Übereinstummung mit – EEC Typ-Prüfung nach.

Est fabriqué conformément – au(x) type(s) examine(s) comme indiqué dans le tableau ci-apreés.

Ha sido fabricado de acuerdo con - tipo examen EEC como dice.

E' stata costruita in conformitá con – le norme CEE come illustrato

	Examen CEE de type				
Directive Richtlinie Directives particulières Directriz Direttiva	No. Nr Numéro No n.	Date Datum Date Fecha Data	Approved Body Prüfung durch Organisme agréé Aprobado Collaudato	Date of expiry Ablaufdatum Date d'expiration Fecha de caducidad Data di scadenza	
Machinery Directive	98/37/EC	1998	Self	NA	

6. Special Provisions:

Spezielle Bestimmungen:

Dispositions particulières:

Provisiones especiales:

Disposizioni speciali:

Done at/Ort/Fait à/Dado en/Fatto a

Date/Datum/le/Fecha/Data

Signature/Unterschrift/Signature/Firma/Firma

Position/Position/Fonction/Puesto/Posizione

None

Hydra-Tech Pumps, Nesquehoning, Pennsylvania, USA

2009

General Manager



2" HYDRAULIC SUBMERSIBLE UTILITY PUMP

MODELS S2TC-2 (Ductile Iron Body) S2TCAL-2 (Aluminum Body)

2" (5 cm) Discharge

The S2TC-2 is a very portable and versatile all purpose utility pump. The two channel impeller handles solids and offers excellent overall performance. This pump is available with your choice of water or solids handling strainers.





C€

FEATURES

- Efficient Two Channel Impeller will pass 1" (2.5 cm) semi-solids
- Variable Speed hydraulic drive
- Rugged and Reliable gerotor motor
- Small, lightweight and versatile
- Can be bolted directly to a tank or truck
- Safe Hydraulic Drive can be used where electric power is hazardous or impractical
- Operates with our HT6 through HT13 power units or other hydraulic power sources capable of flows to 5 GPM
- Stainless Steel model available

SPECIFICATIONS

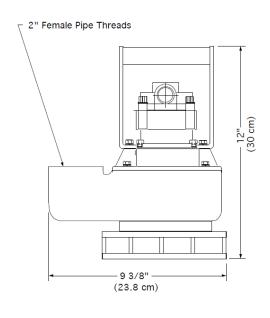
MEIOLIT. (Alimaticum Darks) 40 lbs. (7.7 km)			
WEIGHT: (Aluminum Body)18 lbs. (7.7 kg)			
(Ductile Iron Body) 25 lbs. (11 kg)			
HEIGHT: 13" (33 cm)			
WIDTH (@ widest point): 9 3/8" (24 cm)			
DISCHARGE:2" NPT(F)			
INLET FLANGE: 1 1/2" 125#			
SOLIDS HANDLING: 1" (2.5 cm)			
HOSE PORTS: (Pressure) 7/8-14 (-10) SAE			
PUMP BODY: S2TCAL-2 Aluminum			
S2TC-2 Ductile Iron			
IMPELLER:Ductile Iron			
SHAFT: Heat Treated Steel Alloy			
SHAFT SEAL:Carbon/Ceramic(Std)			
ELASTOMERS: Buna N (Std)			
HYDRAULIC OIL: 214-320 s.s.u. @ 100°F (64°C)			
INPUT FLOW: Max. 5 GPM (18 LPM)			
OPERATING PRESSURE:Cont. Max. 2000 PSI (136 Bar)			
Int. Max: 2500 PSI (172 Bar)			
POWER SOURCE: Any Open Center Hydraulic System			

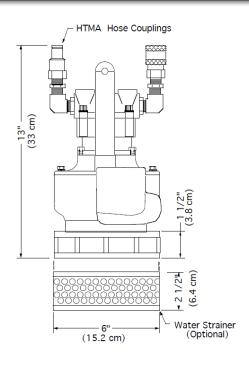
Specifications are subject to change without notice



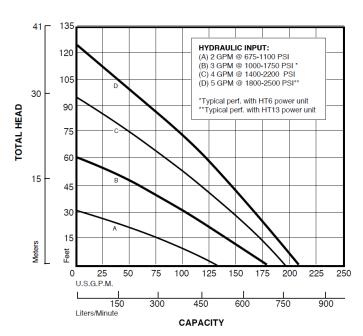
D0516

Model S2TC-2 Overall Dimensions





S2TC-2 Typical Performance



Curves are based on pumping water at 60°F. For performance curves other than shown above, consult factory.



IMPORTANT SAFETY INFORMATION



SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

ADANGER

Immediate hazards which, if not avoided, WILL result in severe injury or death.

AWARNING

Hazards which, if not avoided, COULD result in severe injury or death.

ACAUTION

Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.

AWARNING

Before operating this tool, see the safety information and operating instructions in the Operation Manual.

AWARNING

Do not operate the pump if the impeller blades are exposed. After assembly, install the inlet screen before operating the pump.

Failure to observe this warning could result in severe injury or death.

AWARNING

Do not inspect, adjust, or clean tool when it is connected to a power source. Accidental startup could result in serious injury.

Skin injection hazard:

AWARNING



Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.

- Do not use fingers or hands to check for leaks.
- Do not hold hose or couplers while operating the power source.
- Depressurize the hydraulic system before servicing.



IMPORTANT SAFETY INFORMATION

AWARNING



Wear eye protection when operating or servicing this tool.

Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.

AWARNING

Do not exceed the maximum hydraulic flow, pressure relief or back pressure listed in the Specifications and Parts manual.

Failure to observe this warning could result in severe injury or death.

AWARNING

Do not disconnect tool, hoses, or fittings while the power source is running or if the hydraulic fluid is hot. Hot hydraulic fluid could cause serious burns.

ACAUTION

Hydraulic oil can cause skin irritation.

- Handle the tool and hoses with care to prevent skin contact with hydraulic oil.
- In case of accidental skin contact with hydraulic oil, wash the affected area immediately to remove the oil.

Failure to observe these precautions may result in injury.

IMPORTANT

Do not reverse hydraulic flow. Operation with hydraulic flow reversed can cause tool malfunction. Connect the supply (pressure) hose and return (tank) hose to the proper tool ports.

IMPORTANT

Procedure for disconnecting hydraulic hoses, fittings or components:

- Move the flow lever on the hydraulic power source to the OFF position.
- 2. Stop the power source.
- Follow the sequence under Disconnecting Hoses to prevent pressure buildup. In case some pressure has built up, loosen hoses, fittings or components slowly.



167 Stock Street, Nesquehoning, PA 18240 **Phone:** 570-645-3779 **Fax:** 570-645-4061

Website: www.hydra-tech.com E-Mail: htpump@hydra-tech.com

PUMP SAFETY PRECAUTIONS

Pump operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the pump and hose. These safety precautions are given for your safety. Review them carefully before operating the pump and before performing general maintenance or repairs. Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided in this manual.

All Hydra-Tech submersible pumps will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the pump and hoses before operation. Failure to do so could result in personal injury or equipment damage.

- Operator must start in a work area without bystanders. The operator must be familiar with all prohibited work areas such as excessive slopes, dangerous terrain conditions, and confined spaces.
- Establish a training program for all operators to ensure safe operations.
- Do not operate the pump unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, head protection, hearing protection, and safety shoes at all times when operating the pump.
- Do not inspect or clean the pump while the hydraulic power source is engaged. Disconnect both hydraulic hoses before attempting to clean or inspect the pump. Accidental engagement of the pump can cause serious injury.
- Do not operate this pump without first reading the Operating Instructions.
- Do not install or remove this pump while the hydraulic power source is connected. Accidental engagement of the pump can cause serious injury.
- Never operate the pump near energized transmission lines. Know the location of buried or covered services before starting work.
- Do not wear loose fitting clothing when operating the pump. Loose fitting clothing may get entangled with the pump and cause serious injury.
- Supply hoses must have a minimum working pressure rating of 3000 psi/ 206 bar or higher depending on model.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling the pump. Wipe all couplers clean before connecting. Failure to do so may result in damage to the quick couplers and cause overheating. Use only lint-free cloths.
- Be sure all hose connections are tight.
- Do not operate the pump at oil temperatures above 140° F/60° C. Operation at higher oil temperatures can cause operator discomfort and may cause damage to the pump.
- Do not operate a damaged, improperly adjusted, or incompletely assembled pump.
- To avoid personal injury or equipment damage, all pump repair, maintenance and service must only be performed by authorized and properly trained personnel.
- Do not exceed the rated limits of the pump or use the pump for applications beyond its design capacity.
- Always keep critical pump markings, such as labels and warning stickers legible.
- Always replace parts with replacement parts recommended by Hydra-Tech Pumps.
- Check fastener tightness often and before each daily use.
- NEVER put your hands or any other body part into the volute or discharge outlet while the pump is running. Do not operate pump without the strainer and discharge lines in place.
- Do not lift the pump by pulling on the hydraulic hoses. Use a suitable line or chain fastened to the pump handle or lifting point. Always use appropriate lifting equipment to locate or move the pump.
- Do not point water discharge toward bystanders or property.
- DO NOT PUMP FLAMABLE LIQUIDS.

OPERATION

PREOPERATION PROCEDURES

CHECK HYDRAULIC POWER SOURCE

- 1. Using a calibrated flow meter and pressure gauge, make sure the hydraulic power source develops flow and pressure that is appropriate for the pump.
- 2. Make certain that the hydraulic power source is equipped with a relief valve set to open at 10% above rated operating pressure.
- 3. Make certain that the power source return pressure does not exceed 100 psi/7 bar.
- 4. Make sure the pump inlet is clear of debris. Remove any obstruction before connecting the hydraulic hoses.

CONNECTING HYDRAULIC HOSES

- 1. Wipe all hose couplers with a clean lint free cloth before making connections. Do not connect pressure to the return port. Motor shaft seal limit Is 100 psi/7 bar.
- 2. Connect the hoses from the hydraulic power source to the couplers on the pump or pump hoses. It is a good practice to connect return hose first and disconnect it last to minimize or avoid trapped pressure within the pump motor.

Note: If uncoupled hoses are left in the sun, pressure increase inside the hoses might make them difficult to connect. Whenever possible, connect the free ends of the hoses together.

3. Make sure the hydraulic hoses are connected to ensure that the flow is in the proper direction. The female coupler on the submersible pump is the inlet (pressure) coupler.

PUMP OPERATION

- 1. Observe all safety precautions.
- 2. Attach discharge hose to the pump outlet. For best performance, keep the discharge hose as short as possible and lay it out to avoid sharp bends or kinks.
- 3. Attach a chain or cable to the pump's handle or lifting point. Use suitable lifting equipment to lower the pump into the liquid to be pumped. Do not raise or lower the pump by its hoses or couplers to avoid damage to the hoses or couplers. Never point the discharge hose at bystanders or property.
- 4. Turn on the hydraulic power source. Watch for solids in the liquid being pumped. If solids or semi-solids are excessive, the discharge flow might decrease. If this happens, stop the pump and check for the cause of the problem. Under some conditions, the liquid being pumped might be slowed enough so that it can no longer push particles in the liquid. If this happens, particles can accumulate in the pumping chamber, causing further restriction and damage. The impeller then acts as a "grinding wheel: which causes accelerated pump wear.

Reduced liquid flow can be caused by the following:

- The pump sinks into solids at the bottom of the hole blocking the inlet.
- The end of the discharge hose is too high, causing an excessive lift height for the column of liquid being pushed by the pump. This slows the flow of liquid to a level where it can no longer carry solids. Kinks in the discharge line will reduce flow and increase demand on the power unit.
- The flow and pressure of hydraulic fluid to the pump is too low, which reduces impeller speed. A 20 percent decrease in hydraulic fluid flow can reduce pump performance by 50 percent. When operating at reduced hydraulic flow and pressure, keep the end of the discharge line as low as possible.

Note: It will not damage the pump to operate it "dry."

- 5. The pump must maintain a minimum impeller speed in order to move semi-solid particles through the pump. While pumping liquids containing large semi-solids, monitor the flow from the outlet of the discharge hose. If it begins to slow, turn off the hydraulic power source and lift the pump from the work area. Disconnect the hydraulic hoses and clean at the water hose and the pumping chamber. Pumping liquids with a solids to liquid ratio greater than 30 per cent solids to 70 percent liquid will cause accelerated impeller wear.
- 6. When pumping is complete, set the hydraulic control valve to the "OFF" position. Lift the pump from the work area using the chain or cable to avoid damage to the hoses or couplers.
- 7. To maintain optimum performance, it is good practice to periodically inspect the impeller and wear components for wear or damage. This is especially important following the pumping of liquids containing sharp, abrasive solids. ALWAYS DISCONNECT THE HYDRAULIC HOSES BEFORE ATTEMPTING INSPECTION OF THE IMPELLER.

COLD WEATHER OPERATION

If the pump is to be used during cold weather, preheat the hydraulic fluid at low power source speed. When using the normally recommended fluids, fluid should be at or above 50°F/10° C (400 ssu/82 centistokes) before use. Damage to the hydraulic system or pump motor seals can result from use with fluid that is too viscous or thick.

EQUIPMENT PROTECTION & CARE

- Make sure all couplers are wiped clean before connection.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling the pump. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.
- Make sure the circuit PRESSURE hose (with male quick disconnect) is connected to the "IN" (female quick disconnect) port on the submersible pump. The circuit RETURN hose (with female quick disconnect) is connected to the opposite port. Do not reverse circuit flow. This can cause damage to internal seals.
- Always replace hoses, couplings and other parts with replacement parts recommended by Hydra-Tech Pumps. Supply hoses must have a minimum working pressure rating of 3000 psi/206 bar.
- Do not exceed the maximum rated flow or pressure for the submersible pump (refer to Specifications in this manual for correct flow rate and pressure). If specifications are exceeded, rapid failure of the internal seals will result.
- Always keep critical labels and markings, such as warning stickers and tags legible.
- Pump repair should be performed by experienced personnel only.
- Make certain that the recommended relief valves are installed in the pressure side of the system.

9/28/09

Operating Instructions

S2TC-2 Pump

- Connect this pump to an <u>open center</u> hydraulic power source rated at a maximum flow of 5 G.P.M. at a maximum pressure of 2500 P.S.I. If you are connecting to a larger power source or are using a bi-directional control valve, a flow control and/or check valve may be required. Overspeeding or reversing flow to this pump will cause damage to the unit and will void the warranty.
- 2. Always be sure to use only clean, filtered hydraulic oil to drive the hydraulic motor. Your hydraulic system should have a filter and it should be rated at 10 micron.
- 3. When connecting hydraulic hoses to the pump, be sure to keep hose connections clean.
- 4. Use hydraulic oils with anti-wear additives such as these recommended oils or their equivalent:

Pennzoil AW46 Hydraulic Oil

Texaco Rando HDAZ

Shell Tellus Hydraulic Oils

Mobil D.T.E. 20 Series

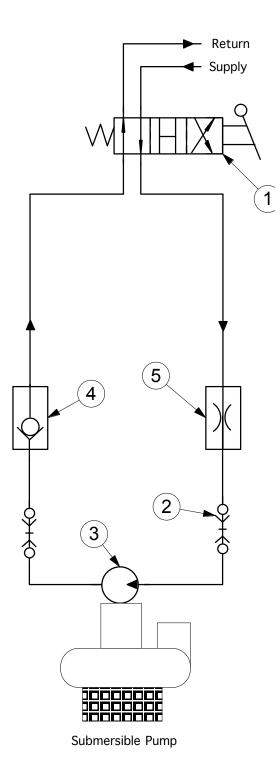
Chevron EP Hydraulic Oils

Exxon Univis N Hydraulic Oils

Note: When using this equipment in environmentally sensitive areas we recommend using biodegradable oil such as Chevron Clarity, Terresolve EnviroLogic 146, or Exxon Univis Bio 40.

Note: When using this equipment in high temperature environments we recommend using Dexron Automatic Transmission fluid.

TYPICAL HYDRAULIC SCHEMATIC FOR CUSTOMER SUPPLIED HYDRAULIC POWER SOURCE





Do Not Use Closed Center Valves!

Return flow from the hydraulic motor must be allowed to return to the oil reservoir to enable the pump impeller to gradually slow to a stop. Blocking this flow will cause damage to the hydraulic motor and pump seal!!

- 1) 4 Way Open Center Directional Valve (Must by operated in forward direction only or use check valve (4) to prevent reversing)
- 2) Valved Quick Disconnect Coupling
- 3) Hydraulic Motor Driving Submersible Pump
- 4) Check Valve (Recommended)
- 5) Flow Control (Recommended if Hydraulic Flow is Greater than Flow Required By Sub. Pump)



MAINTENANCE INSTRUCTIONS

S2TC-2 Pump

GENERAL:

The S2T-2 Pump does not require routine maintenance as long as:

- 1. Pump does not run dry continuously.
- 2. Pump discharge volume is adequate.
- 3. No oil leakage is present.

If maintenance becomes necessary, follow this procedure:

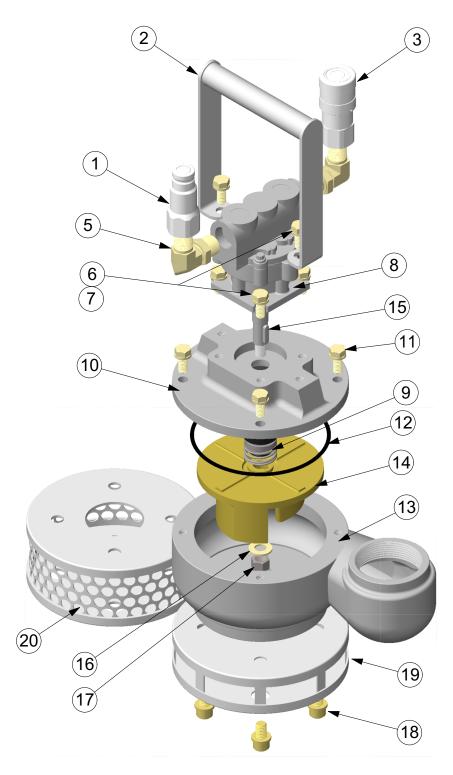
DISSASEMBLY:

- Remove hydraulic hoses from pump.
- 2. Remove four 5/16" bolts (#11) from top cover (#10).
- 3. Remove top cover and motor assembly from volute (#13).
- 4. Check for debris and wear in volute and clean or replace if wear is excessive.
- 5. Inspect 'O' ring (#12) and replace if worn.
- 6. Hold impeller (#14) secure and remove lock nut (#17) and washer (#16) from motor shaft (Right hand threads).
- 7. Evenly pry impeller off of motor shaft. (This may require use of a puller) and remove shaft key (#15).
- 8. Check impeller for wear and replace if necessary.
- 9. Remove 2 handle bolts (#6) and remove handle (#2).
- 10. Remove 4 motor flange bolts (#6)
- 11. Pry motor (#8) from top cover (#10). This will allow shaft seal to slide off.

- 12. Inspect shaft seal assembly (#9). Seal should be replaced whenever maintenance is performed.
- 13. Check top cover for wear and replace if wear is extreme.
- 14. Do not disassemble hydraulic motor (#8). If the hydraulic motor needs service, it should be performed by a qualified Hydra-Tech dealer or replaced.

REASSEMBLY:

- 1. To re-assemble pump: Attach the top cover to the motor. Use a light coating of silicone sealant on motor mounting flange.
- 2. Install handle onto top cover.
- 3. Lightly lubricate mechanical shaft seal with rubber lube and install stationary seat into top cover and rotating assembly onto motor shaft. (Be sure to keep seal parts extremely clean and install correctly).
- 4. Install shaft key (#15) and slide on impeller.
- 5. Install retaining washer (#16) and locknut (#17). Torque to 25 Ft. Lb.
- 6. Install 'O' ring (#12) onto top cover.
- 7. Install completed drive assembly into volute using (4) bolts (#11) and lockwashers (#7).
- 8. Connect hydraulic hoses to pump (Inlet port on motor is marked 'A'). Test run and check for oil leakage before putting pump into operation.



S2TC-2 Parts

PARTS LIST

S2TC-2 Pump (Always mention serial # when ordering parts)

Item	Part #	Description
1	QD-1227	Male Quick Disconnect Coupler
2.	PS-2002	Handle
3.	QD-9321	Female Quick Disconnect Coupler
4.	HF-0298	Hex Nipple (2 req.)
5.	HF-9323M	Elbow (2 req.)
6.	HW-2009	Hex Bolt SS (6 req.)
7.	HW-2011	Lockwasher SS (6 req.)
8.	HM-2000C	Hydraulic Motor
9.	PPP-9311	Mechanical Seal Assembly
10.	MC-2005	Top Cover (Ductile Iron)
	MC-2004	Top Cover (Aluminum)
11.	HW-2010	Hex Bolt SS (4 req.)
12.	PPP-2001	'O' Ring, Top Cover
13.	MC-0132	Volute (Ductile Iron)
	MC-0133	Volute (Aluminum)
14.	MC-2012	Channel Impeller
15.	PPP-2008	Shaft Key
16.	HW-2006	Retaining Washer SS
17.	HW-2007	Impeller Locking Nut SS
18.	HW-0109	Socket Head Bolt (4 req.)
19.	PS-0129	Strainer (Trash Type)
20.	PS-0116	Strainer (Water Type)



167 Stock Street, Nesquehoning PA 18240 Phone: (570) 645-3779 Fax: (570) 645-4061 Email: httpump@hydra-tech.com Website: www.hydra-tech.com

Hydra-Tech Pumps Limited Warranty Submersible Pumps Only

Hydra-Tech Pumps warrants to the original purchaser only that this product is free from defects in material and workmanship, and agrees to repair or replace, at Hydra-Tech's option, any submersible pump part found to be defective within **24 months from the date of purchase.**This warranty is not transferable.

THIS WARRANTY DOES NOT COVER DAMAGES RESULTING FROM CARELESS HANDLING, IMPROPER INSTALLATION, LACK OF SERVICE, INCORRECT POWER OR FAULTY APPLICATION SUCH AS PUMPING ABRASIVES, CORROSIVES, OR FLUIDS IN EXCESS OF 160 DEGREES F. WARRANTY COVERAGE IS NORMALLY NOT AVAILABLE FOR WEAR ITEMS SUCH AS: Wear Rings; Wear Plates; Impellers, and Mechanical Seals.

Any modification or alteration of this equipment will void the warranty. Any claim for warranty damage must be accompanied by digital photos of the defective part or parts, the serial number from the equipment, and a detailed description of the defect and possible causes. All warranty claims should be emailed to httpump@hydra-tech.com or mailed to Hydra-Tech Pumps, 167 Stock Street, Nesquehoning, Pennsylvania 18240 USA.

Submersible Pumps judged by Hydra-Tech Pumps to have been defective in workmanship or materials when shipped from the factory and within the warranty period will be either repaired or replaced at Hydra-Tech's option free of charge including motor freight both ways, within the continental United States.

HYDRA-TECH MAKES NO WARRANTY EXPRESSED OR IMPLIED INCLUDING WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE EXCEPT AS STATED ABOVE. HYDRA-TECH SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES ARISING OUT OF ANY BREACH OF WARRANTY AND WHETHER OR NOT ARISING OUT OF OR BASED ON HYDRA-TECH'S NEGLIGENCE, WHETHER ACTUAL OR IMPLIED, AND FOR DAMAGES TO ANY PROPERTY OR PERSON ARISING OUT OF THE PURCHASE OR THE USE, OPERATION OR MAINTENANCE OF THE EQUIPMENT. HYDRA-TECH SHALL NOT BE RESPONSIBLE FOR REPAIRS OR ALTERATIONS MADE BY OTHERS.

No person is authorized to make any representations or warranties on behalf of Hydra-Tech and no other person is authorized to alter or extend any of the conditions contained in this warranty.

December 2016

