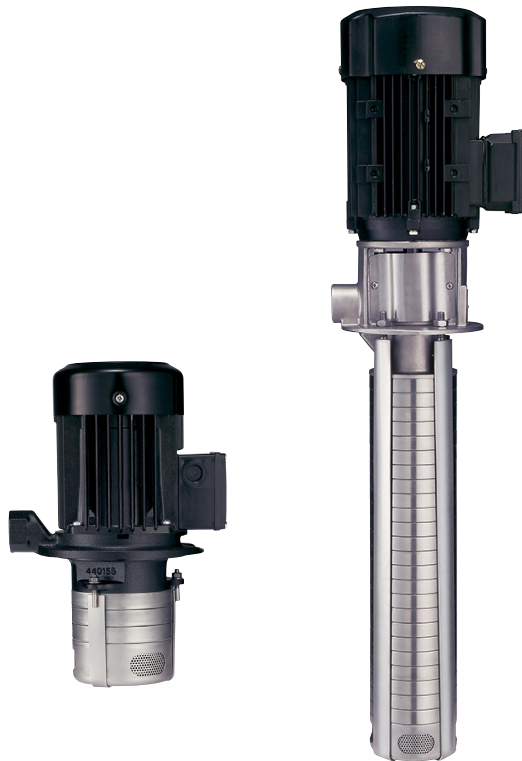




SYSTEMFLO

Installation and Operation Manual
SCK & SHK SERIES
IMMERSIBLE PUMPS



⚠ Please read these installation and operation instructions carefully before beginning installation.

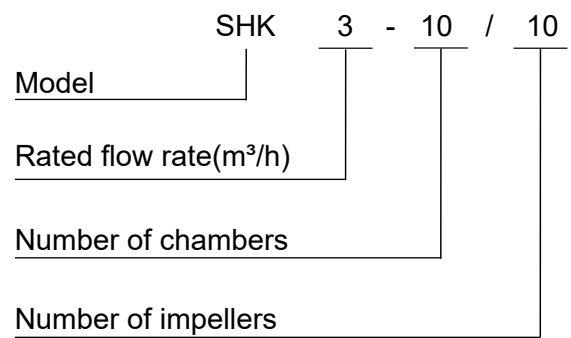
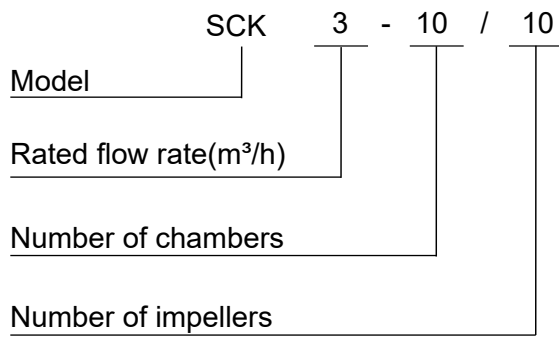
1. Application

The SCK, SHK Series is multi-stage centrifugal pump designed for transferring liquid used in machine tools.

The pump cannot be used to transfer explosive liquids, such as gasoline, diesel oil and other similar liquids. It is only suitable for water-diluted, low viscosity, non-corrosive cooling or lubricant liquids.

2. Type Keys

The pump models are coded based on the number of pump stages. Standard stages consist of diffuser chambers and impellers. Another type of stage is called null stage that contains diffuser chambers only. The purpose of null stage is to increase the immersion depth.



3. Technical Data

Liquid Temperature: -10°C ~ +90°C

Ambient Temperature: +50°C

Enclosure Class: IP55

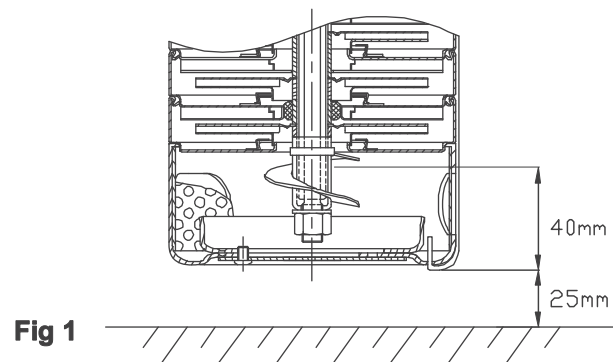
Insulation class: F

4. Installation

- ⚠ The pump has hot surfaces on the motor. It must be installed so that persons cannot accidentally come into contact with hot surfaces.

4.1 Suction conditions

To avoid dry running and damaging the pump during operation, the minimum pump immersion depth is 40 mm, as shown in Fig 1. In addition, the bottom of the pump strainer must be at least 25 mm above the bottom of the tank.



5. Electrical Connection

- ⚠ **5.1** The electrical connection should be carried out in accordance with local regulations. Never make any connections unless the power supply has been switched off.
- ⚠ **5.2** The electrical hazard warning mark is placed outside the terminal box.
- 5.3** Electrical data (voltage and frequency) are shown on the pump nameplate. Verify that the data match your power supply. A circuit breaker should be installed and the grounding should be properly connected for your safety.
- 5.4** Make electrical connections in accordance with the connecting diagram located inside the terminal box. The motor current must be within the rated amps range indicated on the nameplate. The three phase motor requires a magnetic starter for safety.
- 5.5** It's necessary to check the rotation direction of the three phase motor. Check if the rotation is consistent with the direction marked on the fan cover. Interchanging any two leads with the power off can reverse the pump rotation.

6. Start-up

Before starting the pump, make sure of the following:

- 6.1** Start the pump and check the direction of rotation.
- 6.2** Check that all piping joints are completely tightened. Leakage in piping may cause the pump hydraulic loss.
- 6.3** Ensure that the pump is filled with liquid.
- 6.4** Check that the suction filter is not blocked by any foreign objects.

7. Start-up

- ⚠** It is dangerous to operate the pump against a closed discharge outlet because it will cause extremely high liquid flow temperature and damage the pump within minutes.

7.1 Lubrication

The mechanical seal and shaft sleeves should be lubricated by the pumped liquid.

7.2 Filter

Always keep suction filter clean and make sure it is not blocked.

7.3 Periodic checks

The following checks should be carried out periodically to ensure normal operation.

- 7.3.1** The liquid level and operating pressure should be within the specifications.
- 7.3.2** There should be no leaks on piping and joints.
- 7.3.3** Check the tripping of the motor starter.
- 7.3.4** Check that all controls are functional.

7.4

The pump must not be used to transfer explosive liquids. In systems with hot liquids (over 60 °C), extra caution should be exercised to prevent from personal injury.

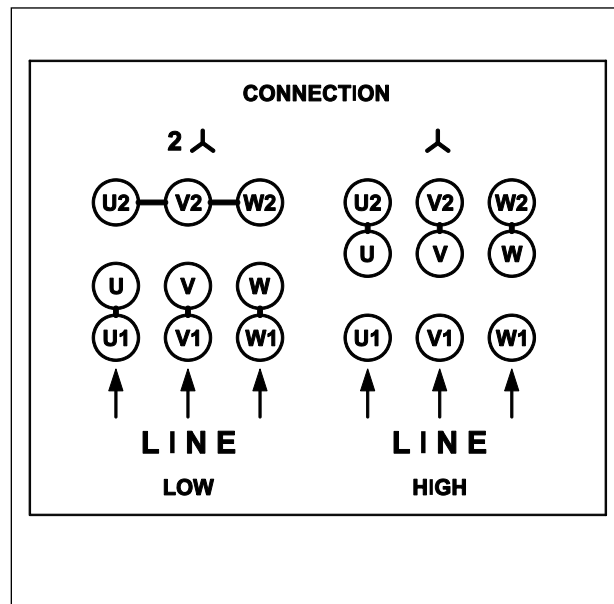
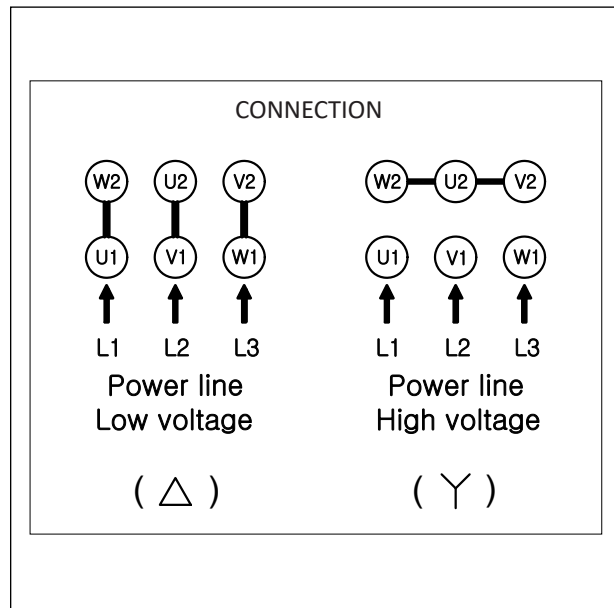
7.5

The pump should not be used to transfer toxic or contaminated liquids. Please carefully follow all instructions in the manual as Systemflo may refuse to accept the contaminated pump for servicing.

8. Troubleshooting

Make sure the power supply has been switched off before trouble shooting

Fault	Cause	Remedy
Motor does not run when started	Supply failure	Connect the electricity supply
	Fuses are blown	Replace fuses
	Motor starter overload has tripped out	Reactivate the motor protection
	Thermal protection has tripped out	Reactivate the thermal protection
	Main contacts in motor starter are not making contact or the coil is faulty	Replace contacts or magnetic coil
	Control circuit is defective	Repair the control circuit
	Motor is defective	Replace the motor
Motor starter overload trips out immediately when power supply is switched on	One fusel automatic circuit breaker is blown	Cut in the fuse
	Contacts in motor starter overload are faulty	Replace motor starter contacts
	Cable connection is loose or faulty	Fasten or replace the cable connection
	Motor winding is defective	Replace the motor
	Pump is mechanically blocked	Remove the mechanical blocking of the pump
	Overload setting is too low	Set the motor starter correctly
Motor starter overload trips out occasionally	Overload setting is too low	Set the motor starter correctly
	Low voltage at peak times	Check the power supply
Motor starter has not tripped out but the pump does not run	Supply failure	Connect the power supply
	Fuses are blown	Replace fuses
	Thermal protection has tripped out	Reactivate the thermal protection
	Main contacts in motor starter are not making contact or the coil is faulty	Replace contacts or magnetic coil
Pump runs but no liquid at discharge or pump capacity is not constant	Pump strainer partly blocked by impurities	Clean the strainer
	Liquid level in tank is too low	Increase the liquid level
	Pump draws in air	Check the suction conditions
Leakage in shaft seal	Shaft seal is defective	Replace the shaft seal
Noise	Cavitation occurs in the pump	Check the suction conditions
	Pump does not rotate freely (frictional resistance) because of incorrect pump shaft position	Adjust the pump shaft



Not applicable from 25HP (Including) motors and above.

LIMITED WARRANTY

Systemflo pumps are warranted to the first user only to be free of defects in material and workmanship for a period of 12 months from date of installation, but no more than 24 months from date of shipment. Systemflo's liability under this warranty shall be limited to repairing or replacing at our discretion, without charges, FOB Systemflo's distribution center or authorized service agent. Systemflo will not be liable for any cost of removal, installation, transportation, or any other charges that may arise in connection with warranty claim.

The warranty period commences on the date of original purchase of the equipment. Proof of purchase and installation date, failure date, and supporting installation data must be provided when claiming repairs under warranty.

This warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the installation and operating instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals, or additive in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under warranty.

Systemflo will not be liable for any incidental or consequential damages, losses, or expenses arising from installation, use, or any other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty, therefore, the limitations or exclusions herein may not apply. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from state to state.



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