DRUM PUMP

FILTRATION SYSTEM

INSTRUCTIONS

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Drum Pump Filtration System Instructions

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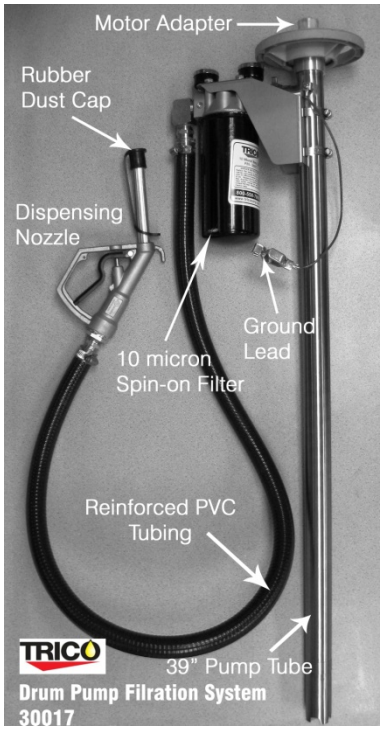
Patent 8,147,684

30017 Trico Drum Pump Filtration System
30018 Trico Electric Pump Motor
30019 Trico Pneumatic Pump Motor

TRICO DRUM PUMP FILTRATION SYSTEM:

Trico Drum Pump Filtration Systems are constructed with high quality stainless steel 316 material used in applications involving solvent based liquids. In addition, stainless steel materials are used in the food/beverage industry because of its resistance to corrosion. Filter media is designed to be used with **hydrocarbon based fluids only**. Before operating this equipment the operator should thoroughly read all instructions before proceeding.



The Trico Drum Pump Filtration System is a self priming unit used in conjunction with 30018 Trico Drum Pump Electric Motor or with 30019 Trico Drum Pump Pneumatic Motor and will fit drum containers up to 39" in length.

WARNING:

The use of 30018 Trico Drum Pump Electric motor is prohibited with flammable or combustible materials and could cause serious injury or death if used.

The Trico Drum Pump Electric or Pneumatic motors can be switched to any of the Trico Drum Pump Filtration Systems without having to remove the whole assembly. Simply remove the motor and attach it to the next unit with the spin on hand wheel connection. It is best industry practice to avoid cross lubrication contamination by providing one Drum Pump Filtration System for each lubricating oil type.

CAUTION:

Bonding and ground safety procedures must be used when operating in hazardous duty environments or when there is a danger of static discharge. See national Fire Protection Code 77 for proper grounding and bonding procedures. It is the responsibility of the operator to properly inspect and ground equipment before use.

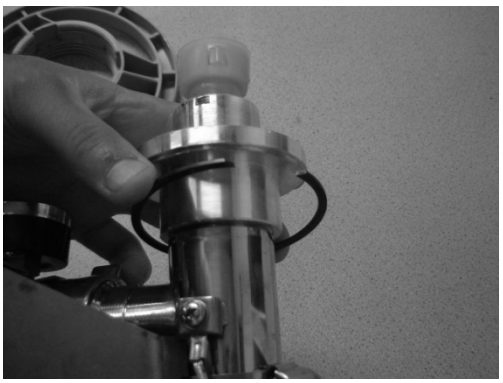
30017 Trico Drum Pump Filtration System	
Type:	Seal-less / Centrifugal
Max Temperature:	190°F/90°C
Discharge Nozzle:	¾”
Discharge line:	1” non-collapsible PVC
Filter Media:	10 micron absolute Beta>200
Replace Element @:	20 psi differential

30018 Trico Electric Pump Motor	
Electric motor:	1.10 hp @ 10,000 rpm
Recommended Max SUS:	7000
Eclectic Motor Rating:	110V, 50-60Hz, 8.5A
Flow Rate:	6.8 gpm

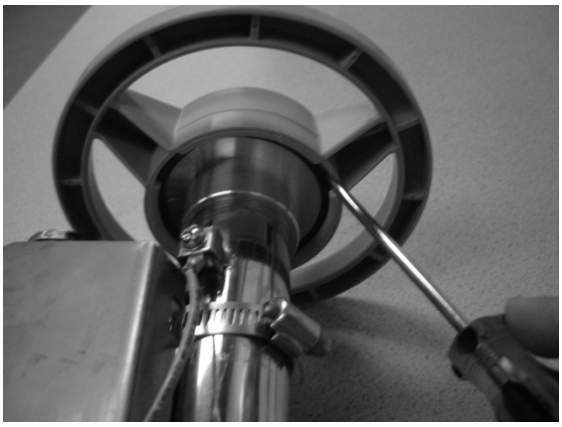
30019 Trico Pneumatic Pump Motor	
Pneumatic motor:	¾ hp @ 8,000rpm
Recommended Max SUS:	3500
Inlet pressure:	100psi max @ 28 CFM
Stall pressure	50 psi
Flow Rate:	4.5 gpm

INSTALLATION INSTRUCTIONS:

1. Remove Drum Pump from shipping container, inventory items and inspect for damage.
2. Remove Hand Wheel and 3” Retaining clip from package.
3. Place Retaining Clip over the top of the Drum Pump Filtration unit and slide over the pump head to the top of tube filter connection.
4. Place Hand Wheel on assembly with retaining ring grove facing down toward the pump foot.
5. While holding the Hand Wheel onto the pump head, slide one end of the retaining ring into the groove on the Hand Wheel.
6. Use a flat headed screw driver to push the rest of the retaining ring into the groove.
7. Test the Hand Wheel operation by turning it in either direction making sure that it turns free.



REMOVAL INSTRUCTIONS:



1. To remove Hand Wheel place flat headed screw driver into one of the slots on the Hand Wheel near one end of the Retaining Clip.
2. Press Retaining clip end toward the pump tube until Retaining Clip end is removed from groove.
3. Pry upward on clip working around the edge to remove from Hand Wheel groove.
4. Remove Hand Wheel and Retaining Clip from pump.

FILTRATION SYSTEM INSTALLATION/ OPERATION:

1. Assemble short grounding lead w/ clamp to the Drum pump side ensuring that the fastener is securely tightened.
2. Thread the white bung adapter into the drum bung until tight. Do not cross thread bung adapter.
3. Insert drum filtration tube into bung adapter hole and slide drum pump filtration assembly into drum until the tube is resting level to the drum bottom.
4. Tighten bung adapter until tight. Drum pump filter assembly should be in a vertical position.
5. Check the filter connection to ensure that the wing adapter nut is tightened. This forces the TFE seal against the filter adapter and drum filtration tube.
6. Check hose connections by tightening clamps.
7. Clamp the short grounding lead from the Drum Pump Filter assembly to the lip of the drum ensuring that there is a positive connection.
8. Use the additional supplied leads to bond the consecutive drums together; making sure that one lead is connected to a grounded source. See NFPA 77.
9. Place the dispensing nozzle on the side of the drum using the provided hook to keep dirt and debris from contaminating the oil.
10. Ensure that the rubber dust cap is placed over the nozzle opening at all times when not dispensing, in order to keep dirt and debris from entering the nozzle.
11. Place Drum pump motor 30018 or 30019 onto the threaded connect and turn the threaded hand wheel until the motor is tightly secured to the motor adapter. Note: if the motor is not securely fastened damage will result to the motor adapter.
12. Before connecting the pump motor to the power or air supply, be sure the switch is in the off position “0” or that the regulated air supply is not above 100psi.
13. Remove the dust cover from the nozzle.

14. Turn the power switch to the on position or pull the trigger on the pneumatic motor handle. No lubricant will dispense from the nozzle until the nozzle handle is pulled.
15. It may take a moment for lubricant to start flowing through the hose since the filter must fill to capacity.
16. Squeeze the nozzle handle to relieve air pressure and close when lubricant starts to flow to the nozzle.
17. Place the nozzle into a Trico Oil Safe or transfer container, squeeze the nozzle handle and fill the container to the desired level. Release the nozzle handle to stop dispensing.
18. Continue filling transfer containers and then turn off the power to the filter system by switching the motor to the off position “0” or releasing the pneumatic trigger.
19. Ensure the dust cover is placed onto the end of the nozzle and hang on the side of the drum.

WARNING:

The Trico Electric Drum Pump motor 30018 is a totally enclosed fan cooled motor (TEFC) with a thermal overload switch. Do not use this motor in conjunction with flammable materials or in hazardous duty areas. Do not submerge motor or let motor come into contact with liquids. If motor stops running turn the power switch to the off position “0” and allow motor to cool. Check the viscosity of lubricant being pumped to remain within limitations and resume operations.

CAUTION:

The Trico Pneumatic Drum Pump motor 30019 has a recommended operating pressure of 90psi @ 28CFM. Do not exceed an inlet pressure of 100psi. Always use a FRL (Filter Lubricator Regulator) to remove water from the air supply and to lubricate the necessary components, use SAE 10 wt oil.

WARNING:

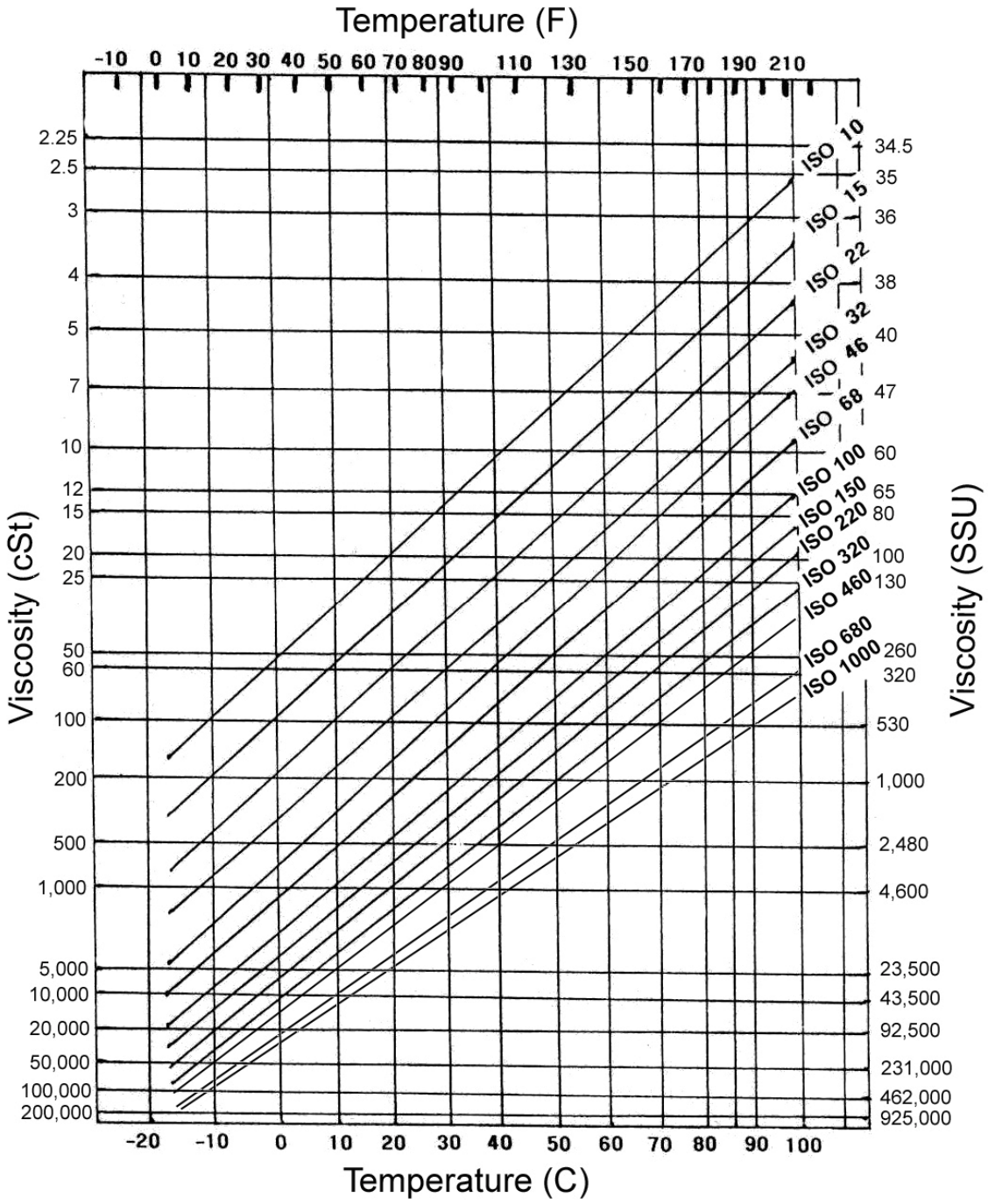
When pumping flammables or in a hazardous duty environment use proper bonding and grounding according to NFPA 77 to avoid static discharge. A ***Bonding*** system connects various pieces of conductive equipment together to keep them at the same potential. Static sparking cannot take place between objects that are the same potential. ***Grounding*** is a special form of bonding in which conductive equipment is connected to an earthing electrode or to the building grounding system in order to prevent sparking between conductive equipment and grounded structures.

TROUBLE SHOOTING:

Symptom	Possible Cause(s)	Corrective Action
Pump system does not prime	Suction tube above liquid	Ensure that open end of suction tube remains completely below surface of liquid
	Clogged suction tube/ discharge line and/or filter	Clean suction tube/ discharge line and/or replace filter
	Damaged/worn pump impeller	Remove pump foot and inspect impeller, replace if damaged
	Motor adapter worn, damaged or detached	Inspect adapter for wear and/or damage, replace if necessary
Insufficient flow	Clogged filter	Check differential pressure between gages 20psi change filter element
	Clogged/ kinked discharge line or nozzle	Remove and flush discharge line and nozzle, inspect for damage
	Fluid viscosity exceeds recommended viscosity for motor	Check viscosity of fluid at temperature. See SUS vs. Temp. Chart or contact fluid supplier.
	Air supply for Pneumatic motor low	Check air supply and ensure pressure is 90psi
Fluid Leaking from filter area	Loose filter and or connections	Check tightness of filter element and wing nut to ensure proper seal. Check hose connections
Fluid Leaking from Top of pump	TFE Seal worn	Remove motor adapter, hand Wheel and bearing assembly and replace TFE seal
Pneumatic motor turns slowly or does not function	Air supply low	Check air supply and ensure inlet pressure is 90psi
	Pneumatic motor improperly lubricated and or corroded	Ensure a FRL is installed in line of air supply, use SAE 10wt oil
	Fluid viscosity exceeds recommended viscosity for Pneumatic motor	Check viscosity of fluid at temperature. If viscosity exceeds 3600 SUS. Fluid must be warmed to reduce viscosity. See SUS vs. Temp. Chart or contact fluid supplier.
Electric motor does not function/ or stops working while filtering	Power On/Off switch not fully switched	Check On/Off switch
	No power to receptacle	Check outlet for power and breaker
	Unit has overheated tripping internal overload breaker	Turn unit power to the “0” position, allow motor to cool, turn back to “on” position and resume filtering
	Unit generates excessive heat >140°F	Fluid viscosity exceeds maximum recommended viscosity 7000 SUS

Optional / Replacement parts	QTY	Part Number
Filter -10 Micron Microglass Spin On	12	36964
Filter -10 Micron Microglass Spin On	1	36964-1
Electric Pump Motor	1	30018
Pneumatic Pump Motor	1	30019

TEMPERATURE VS. VISCOSITY



ISO CLEANLINESS RATING

Lubricating oils stored in bulk containers can contain contaminates. Ordinarily it has been thought that lubricant stored in drums prior to use were contaminant-free. However, it is now been learned that it is beneficial to filter lubricant even prior to its use as the original container can impart impurities to the lubricant prior to its first use. The majority of rotating equipment is manufactured to a class 2 or class 3 fit typical of most industrial operations. Hydraulic components and rotary screw compressors tend to have tighter tolerances in the sliding and rotating elements. Clearances in components are used to establish cleanliness requirements. The best source for cleanliness requirements is from the equipment manufacturer. In general, as the viscosity of the oil increases the cleanliness level decreases. Below is a general guideline for cleanliness levels.

ISO Oil Grade Classification	Cleanliness Code (R4/R6/R14)
32	16/14/11
46	16/14/11
68	17/14/12
100	18/15/13
150	18/15/13
220	19/16/14
320	19/16/14
460	19/16/14
680	20/18/14

Determining the ISO Cleanliness level of equipment requires analysis of the running lubricating oil. Our **Predict** analysis laboratories can provide you with an accurate indication of the ISO Cleanliness level of your lubricating oil before and after filtration. Each number in the ISO code represents the micron range of particulate in which the count lies within ($R_{4\ microns}$/ $R_{6\ microns}$/ $R_{14\ microns}$). ***Example: 19/16/14, the 19 code shows that count of 4 micron particle lies between 5,000 and 2,500 per ml of fluid.***

ISO 320
19/16/14

ISO Number	Particle Count per ml of fluid		
25	160,000	to	320,000
24	80,000	to	160,000
23	40,000	to	80,000
22	20,000	to	40,000
21	10,000	to	20,000
20	5,000	to	10,000
19	2,500	to	5,000
18	1,300	to	2,500
17	640	to	1,300
16	320	to	640
15	160	to	320
14	80	to	160
13	40	to	80
12	20	to	40
11	10	to	20
10	5	to	10
9	2.5	to	5
8	1.3	to	2.5

TRICO DRUM PUMP FILTRATION SYSTEM CONFIGURATION