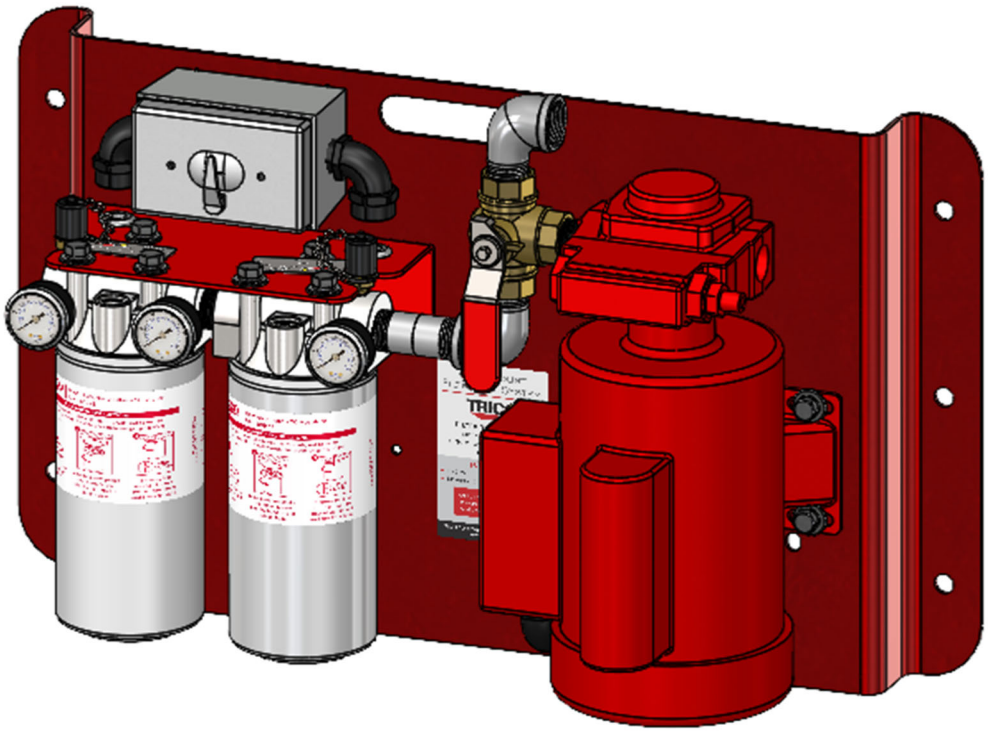
Electric Mini Wall Mount Filtration System

Setup and Operating Instructions



Rev. A 06/09/2025

61274

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For Customer Support: 800-558-7008

Part Number	Description	Maximum Viscosity
37003	Mini Wall Mounted Filtration System, 10Um, 10H2O, 3/4" FNPT	7500 SUS (1600 cSt)

TRICO MINI WALL MOUNT FILTRATION SYSTEM

The Trico Mini Wall Mount Filtration System is designed to transfer and filter hydraulic/lubricating oils with viscosities less than 7500 SUS (1600 cSt). Filter media is designed to be used with *hydrocarbon-based fluids* and **should NOT be used with potentially flammable fluids** such as diesel fuel or alcohols. Before operating this equipment, the operator should thoroughly read all instructions before proceeding.

NOTE: The Trico Mini Wall Mount Filtration System is a self-priming unit. Lubrication is not provided to the pump gears at the factory before the units are shipped. Before operating for the first time, it is recommended to place a small amount of oil that is intended to be pumped into the suction line and allow the fluid to enter the pump gears by elevating the suction line higher than the pump head. This should also be done whenever the units have been stationery for over a month or have been cleaned or serviced. ***Running the pump gears dry will cause premature wear and shorten the life of your filtration system.***

WARNING

Always use safety around electrical equipment, follow instructions to prevent electrical shock. Electrical shock may cause death or other serious bodily harm. Although the Wall Mount Filtration System is designed with a Totally Enclosed, Fan-Cooled (TEFC) motor, it cannot be submersed into liquids. Use precautions when operating in wet environments and do not allow excess fluids to encounter electrical components. Do not allow for the spill containment to overflow and fill the motor's fan shroud. If fluid does encounter electrical components immediately disconnect the power by removing the electrical plug at the outlet or turn the power off at the breaker.

Do not use with flammable liquids or in areas where there is presence of large amounts of flammable fumes. Failure to comply may cause an explosion. Always take precautions when working around open fuel sources.

Due to the rate of flow of oils across different materials there is always a potential to build up a static charge. Static discharge can cause an explosion if near, or around, open flammable fluids. 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.

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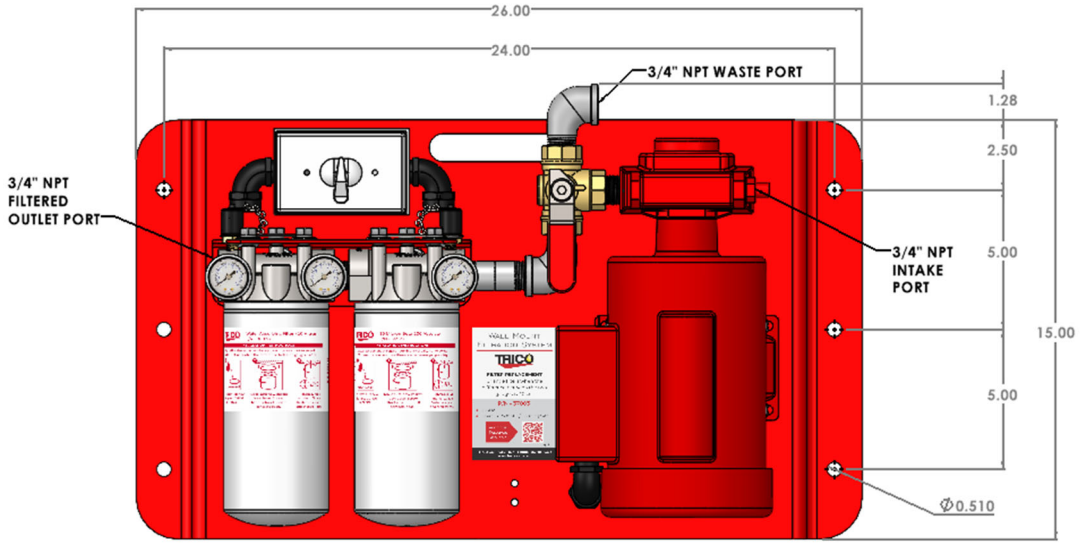
PERFORMANCE DATA

37004 Mini Wall Mount Filtration System	
Type:	Industrial Grade Gear Pump
Max Temperature:	200°F/93°C
Suction/ Discharge Port:	3/4” Female NPT
Filter Type:	Spin-on
Filter Head By-Pass Pressure:	43 psi differential
Filter 1 Media:	10 Micron absolute Beta>200
Filter 2 Media:	10 Micron Nominal Water
Replace Element @:	40 psi differential
Max Viscosity:	7500 SUS (1600 cSt)
Max Flow Rate:	1.0 GPM
Electric motor:	3/4" hp @ 1725 rpm
Electric Motor Rating:	115V, 60Hz, 10.8A
Pump Relief:	85 psi
Suction / Lift:	20 ft
Filter Collapse Rating:	80 psi differential
Maximum Filter Operating Pressure:	120 psi
Wetted Parts Material Composition:	Steel – Stainless, Galvanized & Zinc Platted; Viton; Buna; Brass; Bronze; Iron – Galvanized & Black-Coated; PVC; Aluminum
Overall Dry Weight:	60 pounds

MOUNTING THE MINI WALL MOUNT FILTRATION SYSTEM

The Trico Mini Wall Mount Filtration System is designed to be mounted to a fixed, solid object like a wall, or concrete foundation. The following is only a suggested way to mount the Wall Mount Filtration System. Contact a professional to handle mounting this equipment if needed.



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Make sure there is enough room for the Mini Wall Mount Filtration System and the required intake and discharge plumbing, as well as the power requirements are available nearby before mounting. For a solid object, please use anchors that have a minimum weight capacity of at least 100 pounds, preferably 250 pounds for a better factor of safety. The Mini Wall Mount Filtration System has six 1/2" diameter mounting holes on the exterior edges of the system.

These holes are spaced 24” apart horizontally, and 5” vertically, with three on each side. Please either set the Mini Wall Mount Filtration system on the wall/object and mark the holes for mounting, or use the provided dimensions, and pre-drill the mounting holes for the Wall Mount Filtration System. Once the holes are pre-drilled, then mount the system to the wall/object through the six provided 1/2" diameter mounting holes on the edges on the Mini Wall Mount Filtration System.

The Mini Wall Mount Filtration System must be mounted permanently before operation. Please mount the system before continuing. The instructions are for inline applications where the filtered product is returned to the reservoir it is taken from.

MINI WALL MOUNT FILTRATION SYSTEM OPERATION

1. The system has three 3/4” female NPT ports to connect to. These ports are noted as: the Intake Port, the Waste Port, and the Filtered Outlet Port
2. Before permanently attaching any fixed piping to any of the ports, for initial startup of the unit, place a small amount of fluid into the Intake Port and allow the fluid to enter the pump head by raising the assembly. This will help lubricate the internal gears of the pump and prevent dry running that can cause gear wear. Once gears are lubricated this step is not necessary to repeat unless the unit has not been used for over a month or has been cleaned during maintenance.
3. Remove the plastic cap from the Intake Port.
4. Connect one 3/4” male NPT end to the Intake Port from the reservoir containing oil that needs to be filtered. Use hydraulic thread sealant and tighten. A union may be the best option, if not using flexible hose or a JIC connection.
5. Remove the plastic cap from the Filtered Discharge Port.
6. Connect one 3/4” male NPT end to the Filtered Discharge Port to the same reservoir. Use hydraulic thread sealant and tighten. A union may be the best option, if not using flexible hose or a JIC connection.
7. The Waste Discharge Port has two possible uses. Please connect it in one of these ways:
    a. Piped as power discharge or waste emptying method for fluid changes. This can be done by leaving the port open, or a Quick Connection attached for future fluid changes and an easy empty method.
    b. An inline bypass method to avoid the filters. This could be used if the filters need to be changed, or happen to be clogged, or if the power cannot be turned off on the system. This bypass can be accomplished by attaching this Waste Discharge Port back to the reservoir.

8. Spin-on filters are hand tightened during assembly at the Trico factory, tighten filters with filter/strap wrench, at the top of the filter where they are the strongest, to form a proper seal with the gasket around the filter and filter head.
9. Check to make sure motor switch is in the “Off” position, and the three-way valve is positioned correctly for either inline filtration or bypass/non-filtration.
10. Plug the electrical cord into the outlet and turn the Mini Wall Mount Filtration System to the “On” position. Fluid will begin to be drawn through the Intake Port, into the pump, through the 3-way valve, then onto the filters, and into the Filtered Discharge Port.
11. As filter elements become clogged the pressure differential between the first and second gauges (First Filter), second and third gauges (Second Filter) increases. When the differential pressure between these gauges equals 40 psi, the filter element needs to be changed out. If filter elements are not changed before the specified pressure, the system pressure will continue to increase until the built-in pressure relief valve opens. The filter heads go into bypass at 43 psi differential and at this point oil is bypassing the filter media and is no longer being filtered. The pump has a built-in pressure relief at 85psi at the inlet, at this point the pump will run in bypass relieving the built-up pressure.

Warning: Failure to monitor the system and change filter elements may cause filter media to collapse at 80psi differential which may produce further contamination by inducing filter media into reservoir or container at fluid exit point. Maintain monitoring of the Filtration System while in operation. Continued running of the pump in pump bypass due to pressure will cause excess heat generation and/or cavitation, reducing the life of the filtration system.

12. The Mini Wall Mount Filtration System is also equipped with two sample ports located before filters and after the second filter. Fluid samples may be extracted at these points to monitor fluid conditioning.
13. When finished filtering fluid, turn the power switch to the “Off” position, unplug the cord and wrap around motor for storage. Wipe any excess oil from the unit that might have spilled during the filtering process. An absorbent pad can be placed into the spill containment tray to absorb any fluids spilled.

Warning: Do not allow the spill containment to overflow and fill the motor’s fan

FILTER ELEMENT TECHNICAL DATA

Filter element life varies with the true dirt-holding capacity of the element under dynamic flow conditions and the amount of contamination introduced into the Filtration System. Choosing the right media for the correct application is determined by the rate of ingestion with the desired ISO cleanliness level. The amount of dirt can vary from day to day and hour to hour, making it difficult to predict when an element will become fully loaded. Increasing the rate of fluid flow increases the ability of the filter to trap particles. The effectiveness of the filter elements should be determined by contamination monitoring. Our oil analysis laboratory has a wide range of oil analysis capabilities to help determine and trend fluid conditions.

High Water Content Fluids

High water content fluids consist of either water and soluble mineral based oil, or water and soluble synthetic oil. The oil proportion is usually 5% but may vary from 2% to 10%. All Trico particulate filter medias are compatible with these types of fluids and should be used in leu of the Trico water removal filters. However, the high specific gravity and low vapor pressure of these fluids can create potential for severe cavitation; therefore, monitoring of the Filtration System with the use of these fluids is highly recommended. Failure to identify cavitation will lead to destruction of the pump valves and filter media.

Inverted Emulsions

Inverted Emulsions consist of a mixture of petroleum-based oil and water. Typically, the proportions are 60% oil and 40% water. All Trico particulate filter medias are compatible with these types of fluids and should be used in lieu of the Trico water removal filters. Filters should be sized conservatively for water emulsions since they are non-Newtonian and their viscosities are a function of shear. Potentials do exist for cavitation similar to high water-based fluids; therefore, monitoring of the Filtration System with the use of these fluids is highly recommended. Failure to identify cavitation will lead to destruction of the pump valves and filter media.

Water Glycols

Water glycols consist of a mixture of water, glycol, and various additives. All Trico particulate filter medias are compatible with these types of fluids and should be used in lieu of the Trico water removal filters. Potentials do exist for cavitation similar to high water-based fluids; therefore, monitoring of the Filtration System with the use of these fluids is highly recommended. Failure to identify cavitation will lead to destruction of the pump valves and filter media

Phosphate Esters

Phosphate Esters are classified as synthetic fluids. All Trico particulate and water removal filter medias are compatible with these types of fluids.

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WHEN TO CHANGE THE FILTER AND PROCEDURE

The filter head is outfitted with three pressure gauges. The first gauge nearest to the pump output indicates the pressure being produced by the pump. The second gauge between the filter heads indicates the pressure between the two filters. The third gauge near the filtered discharge port indicates the pressure after the second filter element. To determine when each filter element is at its maximum holding capacity, calculate the differential pressure by subtracting the higher pressure from the lower pressure to get the total differential pressure across the filter head. Differential pressure is used to determine filter usage. Filters should be changed at ***40 psi*** differential.

Example:

P1 (Pressure Produced by Pump) = 43 psi P2 (Between Filters) = 35 psi
Differential Pressure= P1-P2 = 43psi - 35psi = 8psi (filter still has remaining life)

<u>To change the filter:</u>

1. Place an oil catch pan beneath the filter to catch the remaining oil in the filter and head that will come out during the filter change.
2. Using a strap wrench at the top of the filter, turn the filter counterclockwise and unthread the filter from the head.
3. Dispose of remaining oil in the filter and the used filter in accordance with local environmental laws and practices.
4. Remove the old gasket from the filter head and wipe excess oil residue from the head.
5. Remove the new filter from its packaging and insert the new gasket provided with the filter into the gasket groove of the head.
6. Wet the gasket with oil before setting it into the gasket groove in the filter head.
7. Thread the new filter onto the head turning it counterclockwise and hand tighten
8. Using the strap wrench, place the strap near the top of the filter, to prevent collapsing, and turn the filter 1/4 turn to tighten.
9. Turn on, dispense fluid, and observe the filter gasket checking for leaks.
10. If leaking is noticed around the filter head, tighten the filter another 1/4 turn with the strap wrench and repeat the procedure to check for leaks.

Replacement Filters for 37004 Mini Wall Mount Filtration System	**Part Number**
Particulate Filter – Mini – Microglass - 3Um Beta200, White	36976
Particulate Filter – Mini – Microglass - 10Um Beta200, White	36977
Water Filter – Mini – Cellulose - 10 Micron Aqua Nominal, White	36978

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TROUBLESHOOTING

Symptom	Possible Cause(s)	Corrective Action
Pump system does not prime	Clogged intake line and/or filter	Clean intake line and/or replace filter
Insufficient Flow	Clogged filter	Check differential pressure between gauges, if 40 psi or greater, change filter element
	Clogged/ kinked discharge line	Remove and flush discharge line and inspect for damage
	Fluid viscosity exceeds recommended viscosity for motor	Check the viscosity of fluid at temperature. See Temp. Vs Viscosity chart or contact fluid supplier. If viscosity exceeds maximum cSt, fluid must be warmed to reduce viscosity
Fluid Leaking from filter area	Loose filter and or connections	Check tightness of filter element to ensure proper seal, check hose/fitting connections
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 “off” position, allow motor to cool, turn back to “on” position and resume filtering
	Unit generates excessive heat	Fluid viscosity exceeds maximum recommended viscosity

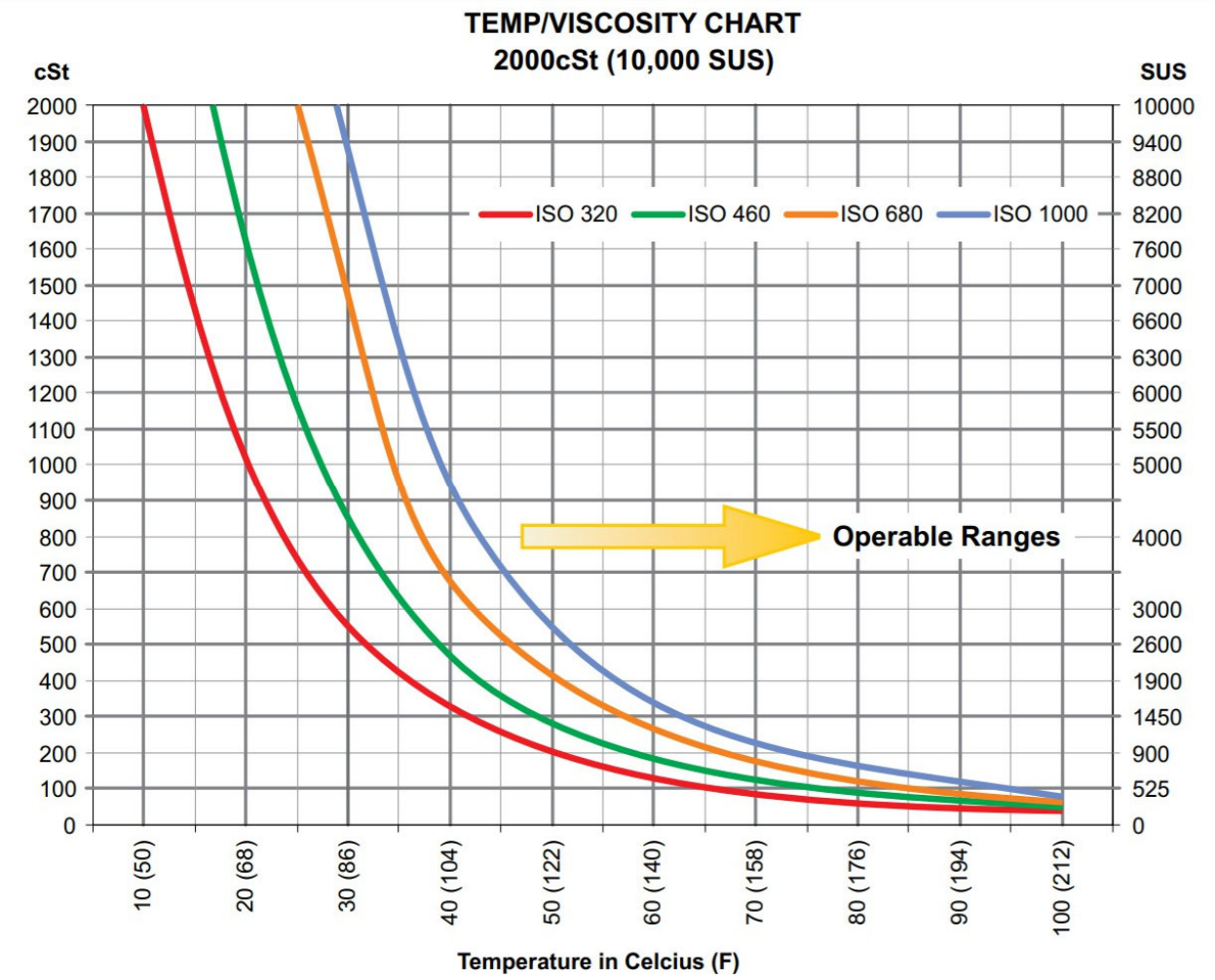
GROUNDING AND BINDING

The Trico Mini Wall Mount Filtration Systems are not rated for a hazardous duty environment due to possible static discharge, use proper bonding and grounding per National Fire Protection Code

77. 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 have 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, to prevent sparking between conductive equipment and grounded structures.

Grounding is an electrical connection between a metal vessel, pump, motor and a constant ground, i.e. a metal rod driven into the earth. Failure to bond and ground properly can cause a discharge of static electricity resulting in fire, injury, or death. If in doubt, do not start the pump! Be sure bonding and grounding wires are secure before starting operation. (Ground and bond wires ***must have less than one-ohm resistance*** for safe usage. Check continuity before starting.) Always check with a safety engineer when any question arises and periodically check safety procedures with a safety engineer.

TEMPERATURE VS. VISCOSITY



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ISO CLEANLINESS RATING

Lubricating oils stored in bulk containers may contain contamination. Ordinarily it has been thought lubricants stored in drums prior to use were contaminant-free; however, it has now been learned it is beneficial to filter lubricants even prior to its use as the original container may impart impurities to the lubricants prior to its first use. Most 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. Trico's oil analysis laboratories can provide an accurate indication of the ISO Cleanliness level of 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 the count of 4-micron particles 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

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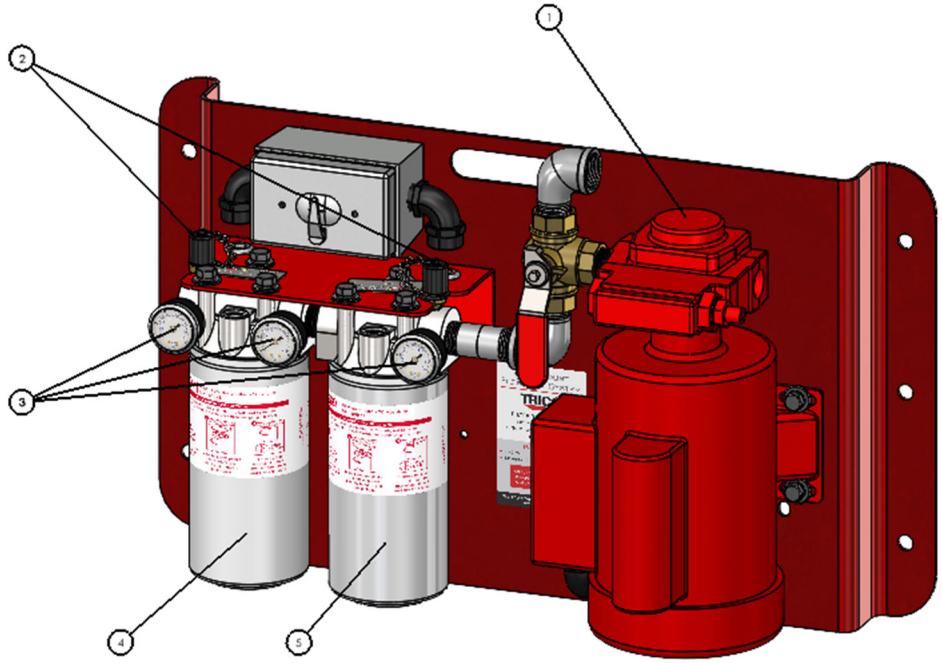

Item #	Part Number	Description	Qty
1	20203	Pump and Motor Assembly	1
2	36100	1/8” MNPT Sample Port	2
3	16183	Filter Gauge, 100 PSI, U-Clamp, 1/8” MNPT	3
4	36978	Water Filter – Mini 10 Micron Nominal Cellulose	1
5	36977	Particulate Filter, Mini 10 Micron Beta≥200 Absolute	1

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