



# OIL DISPENSING SYSTEM

## OWNER'S MANUAL



Item#20108



Item#34007



**WARNING:** Read carefully and understand all **INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

**Item#s 20108, 34007**

Thank you very much for choosing a Roughneck™ Product! For future reference, please complete the owner's record below:

Model: \_\_\_\_\_ Purchase Date: \_\_\_\_\_

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. The distributor cannot be responsible for issues arising from modification. We strongly recommend this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted distributor to determine if it can or should be performed on the product.

For technical questions, please call **1-800-222-5381**.

**⚠ WARNING: Read carefully and understand all INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.**

**SAVE THESE INSTRUCTIONS**

## **INTRODUCTION**

Pump: Electric self-priming rotary internal gear pump, equipped with a bypass valve

Motor: Asynchronous motor, 4-pole, closed type (Protection class IP55), self-ventilating, flange-mounted directly to the pump body.

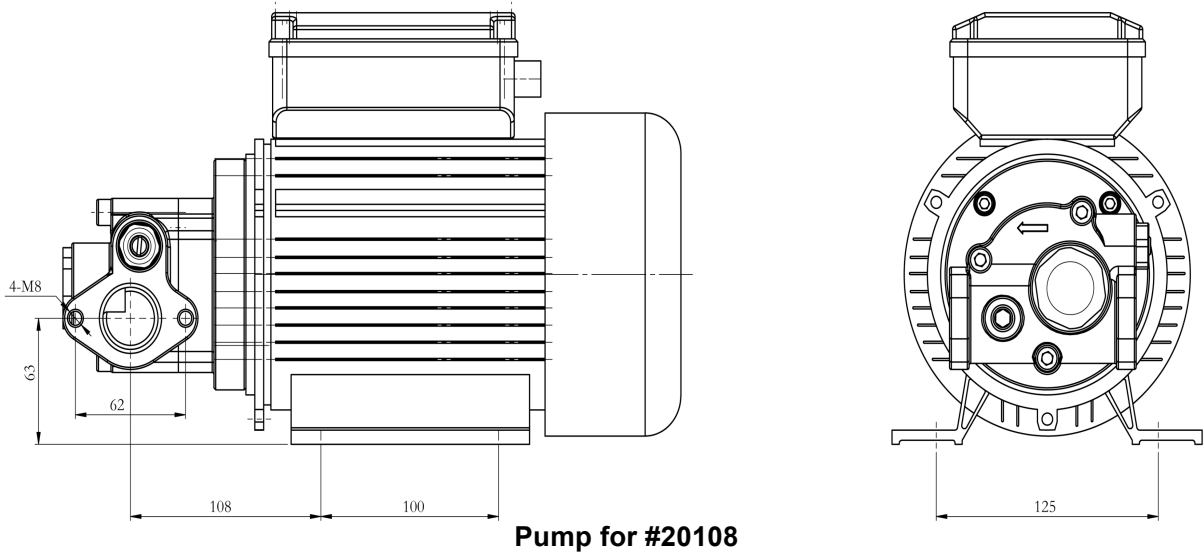
Both systems are designed to run on 115V, 60Hz power and for use with high-viscosity oils and lubricants from a drum anywhere in your shop.

## **TECHNICAL SPECIFICATIONS**

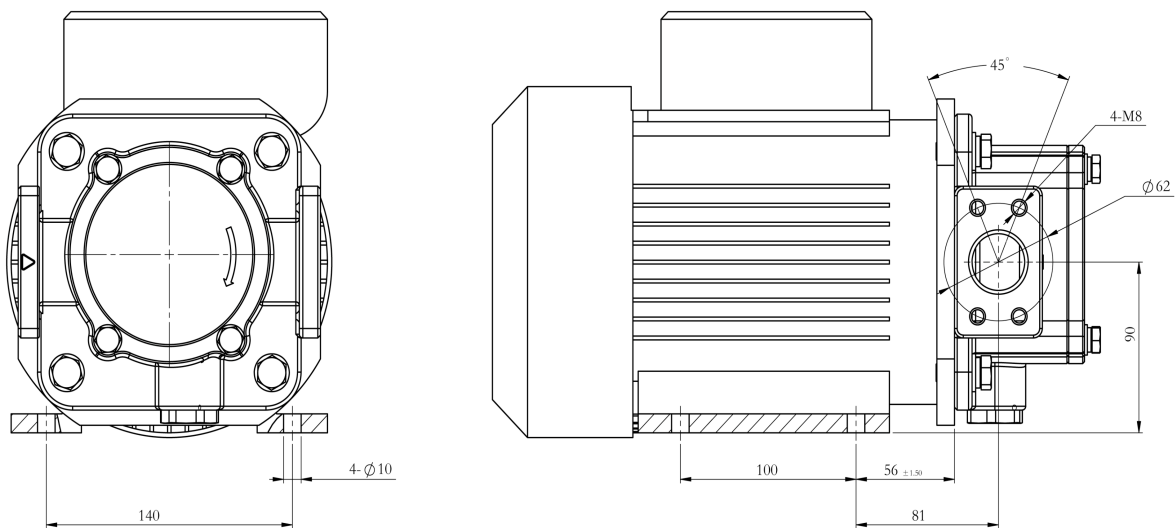
<b>Model</b>	<b>20108</b>	<b>34007</b>
<b>PUMP</b>		
<b>Voltage</b>	115 Volts	115 Volts
<b>Frequency</b>	60Hz	60Hz
<b>Power</b>	900 Watts	1500 Watts
<b>Flow Rate</b>	18 quarts/min. (4.5 GPM)	52 quarts/min. (13 GPM)
<b>Pressure</b>	175 PSI	145 PSI
<b>Inlet/Outlet</b>	1in.	1in.
<b>Oil Viscosity</b>	Up to 10,000 SUS	Up to 10,000 SUS
<b>Delivery Hose</b>	1/2in.x13ft.	3/4in.x13ft.
<b>CONTROL VALVE</b>		
<b>Flow rate range</b>	0.3 - 9.2 GPM	0.3 - 16 GPM
<b>Pressure range</b>	7 - 750 PSI	7 - 750 PSI
<b>Working Temperature</b>	Max. 140° F	Max. 140° F
<b>Accuracy</b>	±0.5%	±0.5%
<b>Viscosity of Fluid</b>	8-5000 mPas	8-5000 mPas
<b>5-Digit LCD display</b>	Liter, Quarts, Pints, Gallons	Liter, Quarts, Pints, Gallons
<b>Inlet connection</b>	1/2in. NPT Female	1/2in. NPT Female
<b>Spout</b>	Rigid, Manual tip	Rigid, Automatic tip
<b>Power source</b>	(1) 3V CR2 battery	(1) 3V CR2 battery
<b>Cart Capacity</b>	484 lbs.	484 lbs.

**NOTE:** The power absorbed by the pump depends on the functioning point and the viscosity of the oil being pumped.

**Installation Dimension**



**Pump for #20108**



**Pump for #34007**

**GENERAL SAFETY REGULATIONS**

**⚠ WARNING:** Read and understand all instructions.

**⚠ WARNING:** The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors that cannot be built into this product, but must be supplied by the operator.

- 1. Keep the work area clean and dry.** Damp or wet work areas can result in injury.
- 2. Keep children away from work area.** Do not allow children to handle this product.
- 3. Store idle equipment.** When not in use, tools and equipment should be stored in a dry location to inhibit rust. Always lock up tools and equipment, and keep out of reach of children.

**4. Use the right tool for the job.** Do not attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. It will do the job better and more safely at the capacity for which it was intended. Do not modify this equipment, and do not use this equipment for a purpose for which it was not intended.



**5. Check for damaged parts.** Before using this product, carefully check that it will operate properly and perform its intended function. Check for damaged parts and any other conditions that may affect the operation of this product. Replace damaged or worn parts immediately.

**6. Do not overreach.** Keep proper footing and balance at all times to prevent tripping, falling, back injury, etc.

**7. DO NOT use the equipment when tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating this equipment may result in serious personal injury.

**8. Industrial applications must follow OSHA requirements.**

## SPECIFIC OPERATION WARNINGS

	 <b>DANGER</b>
	Electrical shock hazard. Electrical wiring should be done by a licensed electrician in compliance with local, state and national electrical code, ANSI/NFPA 70, 30, 30A as appropriate. Proper ground must be provided to avoid the possibility of electrical shock. Failure to comply with this warning could result in serious injury and/or loss of property.

 **WARNING:** Improper use or installation of this product can cause serious bodily injury or death.

### **NOT FOR USE WITH LIQUIDS AS GASOLINE, ALCOHOL, EXPLOSIVES, CORROSIVES AND FLAMMABLE, ALIMENTARY LIQUIDS.**

Do not use the unit in an explosive environment.

Do not use the unit next to flammable liquids (gasoline, alcohol, etc.).

Do not use the unit in closed environments in presence of gasoline, LPG, methane fuelled vehicles.

Always wear suitable clothes and use suitable protective devices when cleaning, especially when removing dust or waste. Use aspirators as needed.

Never place hands or limbs under moving parts.

Disconnect power to pump before servicing pump.

NEVER overload.

## OPERATING CONDITIONS

### 1. ENVIRONMENTAL CONDITIONS

**Temperature:** Min 14°F (-10°C) / Max +140°F (+60°C)

**Relative Humidity:** Max 90%

 **WARNING:**

The temperature limits should be applied to the pump components and must be respected to avoid possible damage or malfunction.

Nevertheless, it should be understood that for a given oil, the real functioning temperature range also depends on the variability of the viscosity of the oil itself with different temperatures. Specifically:

- Under the temperature below 14°F, the viscosity of some oils can greatly exceed the maximum allowed by this pump, which will cause that the static torque required to start the pump would be excessive, and the pump may overload and damage.
- Under the temperature above +140°F, on the other hand, the viscosity of some oils can drop well below the minimum allowed by this pump, which will cause that the back pressure increases, and the pump may degrade in performance with obvious reductions in flow rate.

## 2. ELECTRICAL POWER SUPPLY

The AC pump must be supplied by a single-phase alternating current line whose nominal values are shown in the table TECHNICAL SPECIFICATIONS above. The maximum acceptable variations from the electrical parameters are:

**Voltage:** ± 5% of the nominal value

**Frequency:** ± 2% of the nominal value

**⚠ WARNING:**

Power from lines with values outside the indicated limits can damage the electrical components.

## 3. WORKING CYCLE

Under normal operating conditions they can function continuously with no limitations.

**⚠ WARNING:**

DO NOT KEEP THE PUMP WORK IN BYPASS CONDITION MORE THAN 2 MINUTES.

Whenever a particular installation carries the risk of functioning in bypass mode for longer periods of time, it is necessary to return the bypassed flow to the suction tank, but not recirculated inside the pump.

## 4. FLUID ALLOWED / FLUIDS NOT ALLOWED

**ALLOWED:** Oil with a Viscosity from 500 to 2000 Cst (at working temperature)

NOT ALLOWED	RELATED DANGER
Gasoline	Fire - explosion
Inflammable liquids with PM < 55°C	Fire - explosion
Water	Oxidation of the pump
Liquid food products	Contamination
Corrosive Chemicals	Corrosion of the pump Injury to people
Solvents	Fire – explosion Damage to gasket seals

**⚠ WARNING:** The gear pump is sensitive to polluted fluids; avoid dispensing fluids with impurities.

## INSTALLATION

**NOTE:** Apply Teflon® to all connecting fittings.

Unpack the package, and take out the mobile body, handle and accessories.

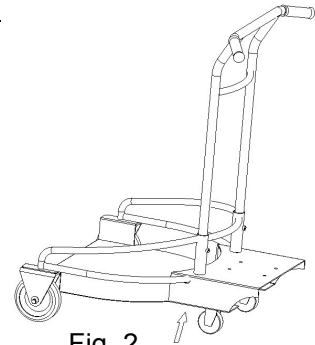
1. Take out the up handle, insert it on the trolley (See Fig. 1)



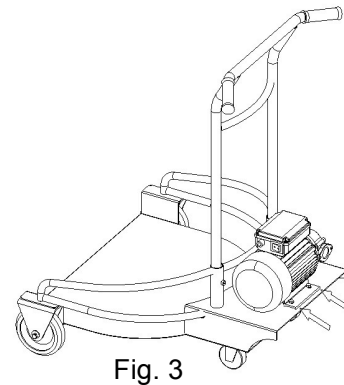
Fig. 1

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2. Screw & fix the handle tightly. (See Fig. 2)



3. Install the pump on the plate, tightly screwed, Screw the suction hose & delivery hose on the pump, Connect the nozzle with the pump. (See Fig. 3)



## HYDRAULIC CONNECTION

- Before connection, make sure that the hoses and the suction tank are free of dirt and thread residue that could damage the pump and its accessories.
- Always install a metal mesh filter in the suction hose.
- Before connecting the delivery hose, partially fill the pump body with oil to avoid the pump running dry during the priming phase.

### Suction Hose

- Minimum nominal recommended diameter: 1in.
- Use a hose suitable for functioning under suction pressure.

### Delivery Hose

- Minimum nominal recommended diameter: 1in.

### WARNING:

1. Hoses and/or line components unsuitable for use with oil or with inadequate nominal pressures can cause damage to objects or people, as well as pollution.
2. Use oil resistant pipe sealant or Teflon® Tape on all pipe threads.
3. Check all the connections before each use. Tighten them if necessary. Loosening of the connections (threaded connections, flanging, gasket seals) can cause serious ecological and safety problems.

## SUCTION AND DELIVERY LINES

### DELIVERY

The proper pump should be chosen considering the viscosity of the oil to be pumped and the characteristics of the system attached to the delivery of the pump. The improper application of the oil viscosity and the characteristics of the system could create unexpected large back pressure which may cause the (partial) opening of the pump bypass and consequently reduce the flow rate.

It is recommended to use shorter tubing and/or tubing with a larger diameter to reduce system resistance, so that the pump would function equally to the viscosity of the oil being pumped.

## SUCTION

The gear-type oil pumps are characterized by excellent suction capacity. In fact, the characteristic flow rate/back pressure curve remains unchanged even at high pump suction pressure values.

The pump will prime to a height of 6.5 feet (2 meters) when the suction hose is empty and the pump is filled with fluid. On tanks with a suction height over 6.5 feet, a foot valve may be required on the bottom of the suction tube to hold the fluid in the tube. Do not install the pump with a height higher than 9.8 feet (3 meters), or the pump will lose its prime.

**⚠ WARNING:** In cases where the suction tank is installed higher than the pump installation, it is recommended to install an anti-siphon valve to prevent accidental diesel fuel leaks. Care should be taken during the installation process in order to control back pressure.

## DAILY USE

**NOTE:** Before use, make sure all the connections are sealed well.

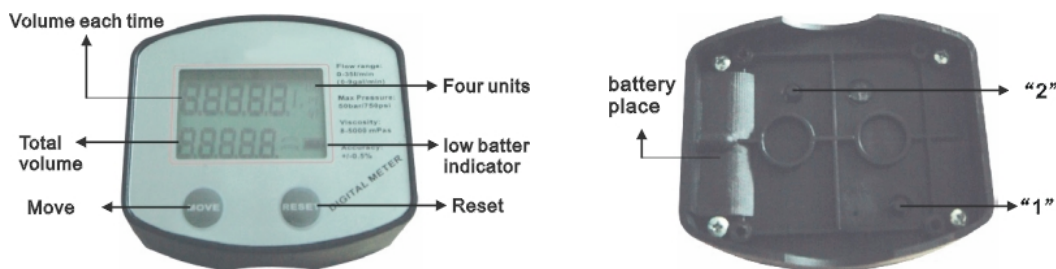
1. Place the drum on the trolley.
2. Put the suction hose into the drum. Move the mobile unit to where you need to dispense.
3. Put the nozzle to where you need to dispense, then connect the power cord. Turn on the switch, and start dispensing.
4. After dispensing, close the pump, and take back the nozzle.

**⚠ WARNING:** Running in bypass mode with the delivery closed is only allowed for brief periods (2 minutes maximum).

## USAGE OF THE OIL DIGITAL CONTROL VALVE

### 1. Button usage

- (1) "1"  This button re-activates the meter
- (2) "2"  This button is used when changing the measurement unit and/or the Correction Factor
- (3) Move  Press the Move button to change the digit of correction factor or the measuring unit
- (4) Reset  This button resets the meter to 0.00
- (5) Press **Move + Reset** for 5 seconds: This displays the current correction factor



### 2. Changing Measurement Unit

Follow these steps to modify the measurement unit:

- (1) Press "2" two times for 1 second: this activates the Measurement Unit Change mode
- (2) Press **Move** to choose the unit wanted to change
- (3) Press **Reset** to switch between the four units (L, GAL, PT and QT)
- (4) Press "2" for 1 second to quit Measurement Unit Change mode

### 3. Correction Factor Modification

The default is preset as 1.000. As different fluids have different viscosity, users need to modify the correction factor to get the accurate volume. Follow these steps to modify the correction factor:

- 
- (1) Press **"2"** once for 1 second: this activates Correction Factor Change mode
  - (2) Press **Reset** to choose the right numerical value from 0 to 9
  - (3) Press **Move** to start the next digit
  - (4) Press **"2"** for 1 second to quit Correction Factor mode

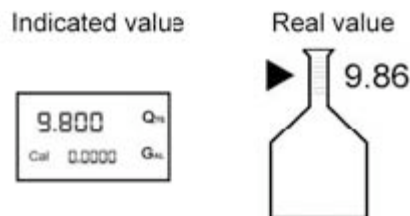
#### 4. Calculating the correction factor

To determine the correction factor, follow these steps:

- (1) **Dispensing into a sample container.** Without pressing any key, start dispensing into any graduated container.



- (2) **Dispensing can be interrupted and started again at will.** Continue dispensing until the level of the fluid in the sample container has reached the graduated area (for example 9.86).



- (3) **Calculation.** Please input the correction factor when you have calculated the number  $9.86/9.8=1.015$

#### 5. Changing the battery

- (1) The digital oil control valve uses a lithium CR2, 3V/1400 mAh battery
- (2) When the battery signal is flashing on the display, change the battery as follows:
  - a. Remove the protector cover by unscrewing the screw holding it in place
  - b. Change the battery and replace the cover



## MAINTENANCE

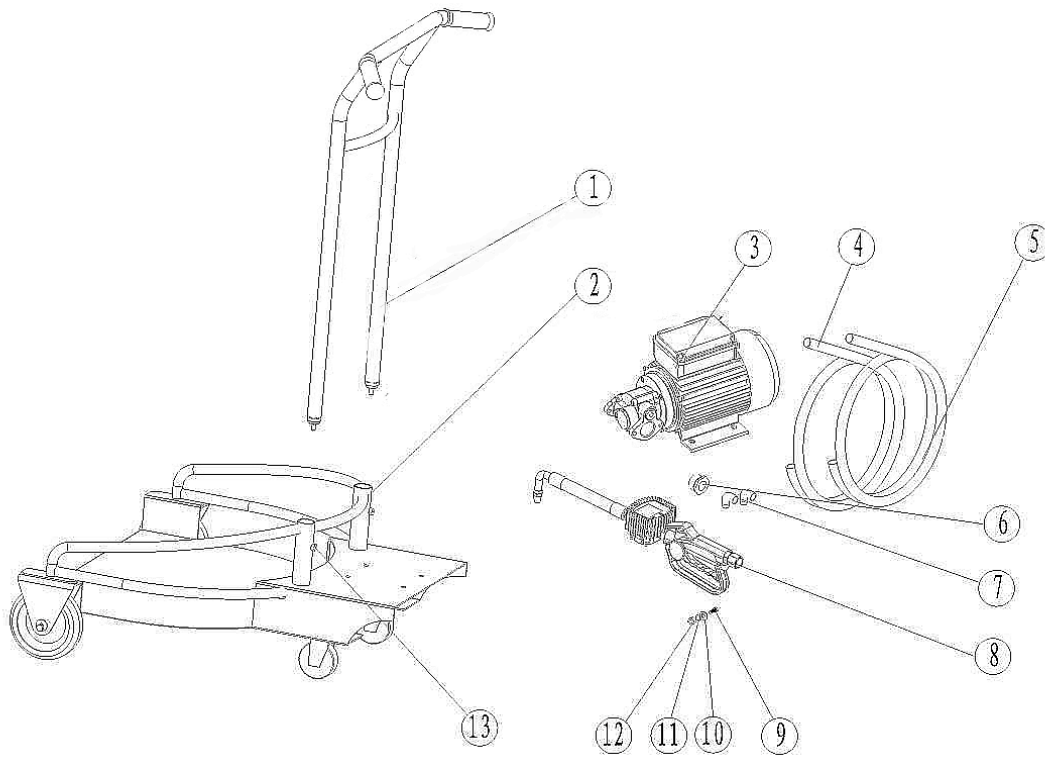
The pumps are designed and constructed to require a minimum of maintenance.

- On a weekly basis, check that the tubing joints have not loosened, to avoid any leakage.
- On a monthly basis, check the pump body and keep it clean of any impurities.
- On a monthly basis, check and keep the pump filter clean and any other filters installed.
- On a monthly basis, check that the electric power supply cables are in good condition.
- Under normal working conditions, the noise emission from all models does not exceed the value of 70 dB at a distance of 1 meter from the electric pump.

## **TROUBLE SHOOTING**

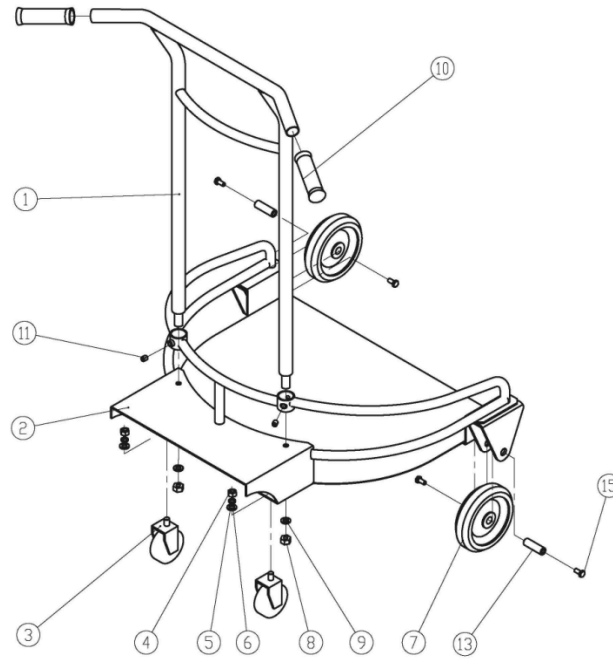
<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
Motor does not turn	Lack of power	Check electrical connections and safety systems
	Rotor jams	Check for possible damage or obstruction to rotating parts
	Thermal motor protector has triggered	Wait until the motor cools, verify that it starts again, look for the cause of overheating
	Problems with the motor	Contact technical support
Motor turns slowly when starting	Low voltage from the electrical power supply	Adjust the voltage within anticipated limits
	Excessive oil viscosity	Verify oil temperature and warm it to reduce excessive viscosity
Little or no flow	Low level in the suction tank	Fill in the tank
	Foot valve blocked	Clean and/or replace valve
	Filter blocked	Clean the filter
	Excessive suction pressure	Lower the pump with respect to the level of the tank or increase the cross-section of the hose
	High load loss in the delivery circuit (running with by-pass open)	Use shorter hose or of wider diameter
	Bypass valve blocked	Detach the valve, clean or replace it
	Air in the pump or suction hose	Check the seal of the connection
	Narrowing of the suction hose	Use a hose appropriate for working under suction pressure
	Low rotation speed	Check the voltage at the pump. Adjust the voltage or use cables of greater cross-section
	Excessive oil viscosity	Verify the oil temperature and warm it to reduce the excessive viscosity
Higher pump noise	Capitation	Reduce the suction pressure
	Irregular bypass functioning	Deliver until the air in the by-pass system is purged
	Presence of the air in the oil	Wait for the oil in the tank to settle
Leakage from the pump body	Damage to the mechanical seal	Check and replace the mechanical seal

# DIAGRAMS AND PARTS LIST



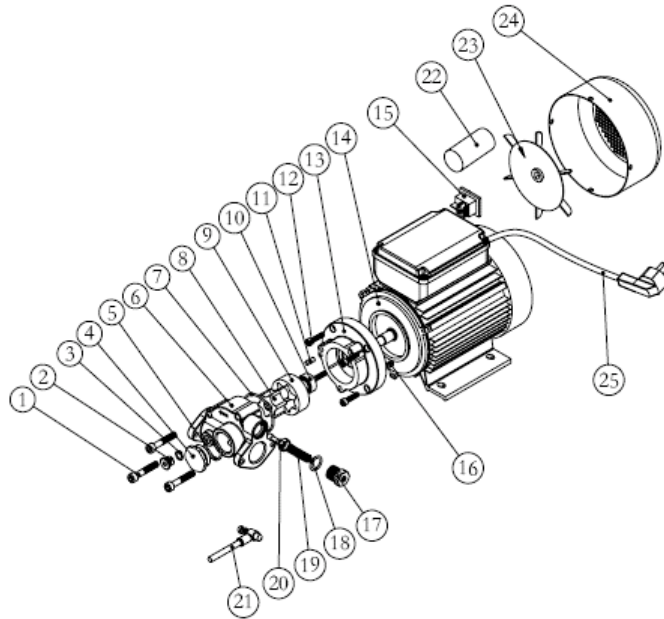
No.	Description	Quantity	No.	Description	Quantity
1	Handle	1	8	Dispensing Nozzle	1
2	Trolley	1	9	Bolt M8	4
3	Gear Pump	1	10	Flat Washer	6
4	PVC Suction Hose	1	11	Washer	4
5	Rubber Delivery Hose	1	12	Bolt M8	6
6	Hose Tail	1	13	Nut	2
7	1in. Elbow	2			

## Trolley



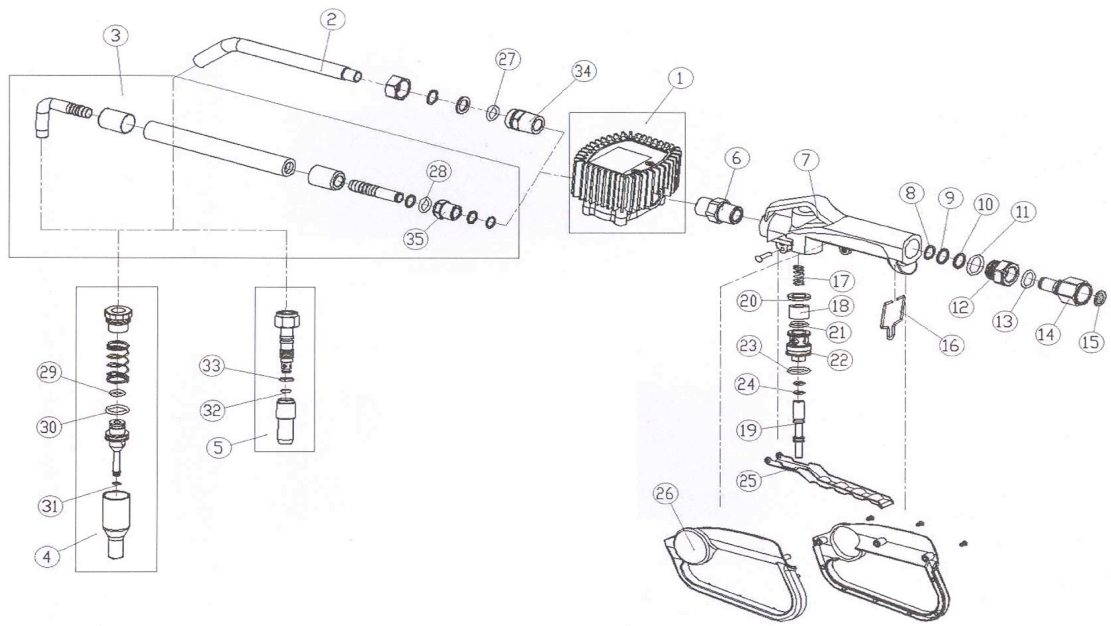
No.	Description	Quantity
1	Handle	1
2	Trolley Top	1
3	Swivel Wheels	2
4	Acorn Nut M12	2
5	Washer 12	2
6	Spring Washer 12	2
7	Wheels	2
8	Nut M10	2
9	WASHER 10	2
10	Handle Cover	2
11	Screw M10	2
13	Hexagon Bolt	2
15	Bolt M8x16	4

**Pump for #20108**



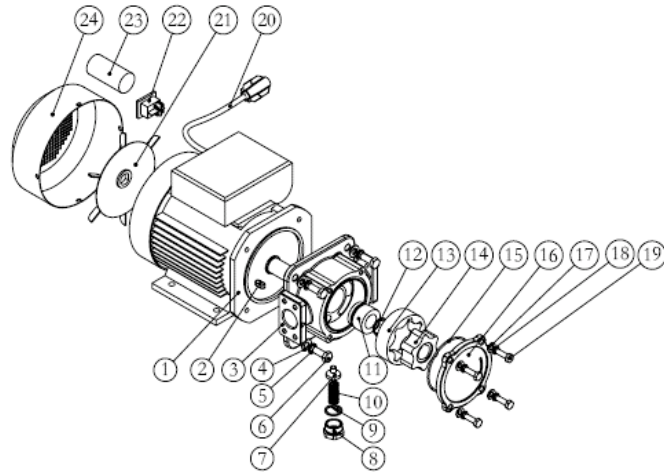
No.	Description	Quantity	No.	Description	Quantity
1	Screw M8X50	3	14	Motor	1
2	Overfall plug	1	15	Water proof switch	1
3	O-ring 11.1*1.78	1	16	Tongue	1
4	Plug G1"	1	17	By-pass plug	1
5	O-ring 29.82x2.62	1	18	O-ring 17.12x2.62	1
6	Machined pump head	1	19	Compression helical spring	1
7	O-ring 58.42x2.62	1	20	By-pass valve	1
8	Internal rotor	1	21	Venting kit	1
9	External rotor	1	22	Capacitor	1
10	Fexiseal rotry	1	23	Fan	1
11	Pin 5x15	2	24	Fan cover	1
12	Screw M6X25	4	25	Power cord	1
13	Pump flange	1			

**Control valve for #20108**



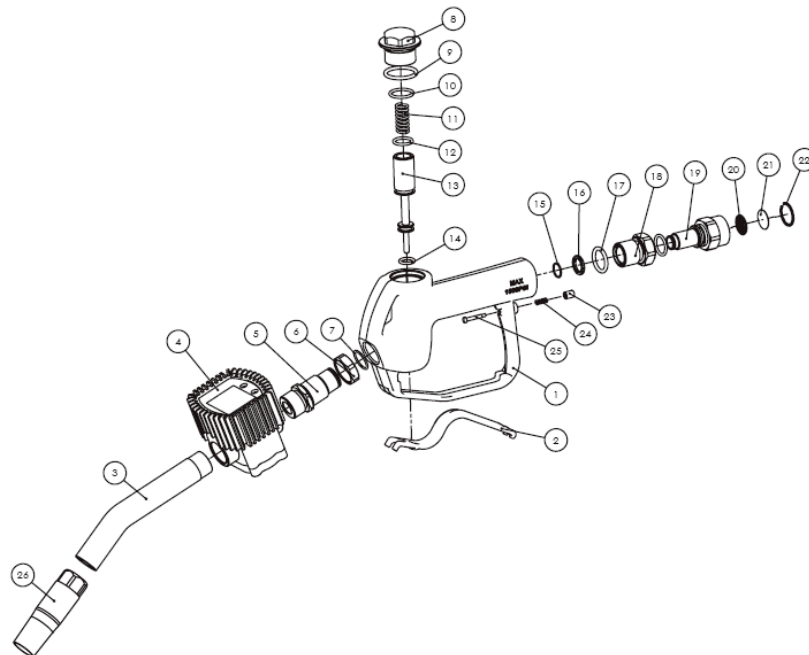
No.	Description	Quantity	No.	Description	Quantity
1	Electronic meter	1	19	Mandril	1
2	Bent tubing B	1	20	Gasket	1
3	Flexible terminal	Not Applied	21	O-ring	1
4	Big automatic nozzle	Not Applied	22	Mount	1
2+5	Rigid spout	1	23	O-ring	2
6	Adaptor	1	24	O-ring	2
7	Oil gun body	1	25	Handle	1
8	Spring lock washer	Not Applied	26	Cover	1
9	Plain washers	1	27	O-ring	1
10	Plain washers	1	28	O-ring	Not Applied
11	O-ring	2	29	O-ring	Not Applied
12	Link block	1	30	O-ring	Not Applied
13	O-ring	1	31	O-ring	Not Applied
14	1/2" oil joint	1	32	O-ring	1
15	Filter	1	33	O-ring	2
16	Flying rings	1	34	Adapter	1
17	Spring	1	35	Adapter	Not Applied
18	Circle	1			

**Pump for #34007**



No.	Description	Quantity	No.	Description	Quantity
1	Motor	1	13	External rotor	1
2	Key	1	14	Internal rotor	1
3	Machined pump head	1	15	O-ring	1
4	Flat Washer	4	16	Pump Cover	1
5	Spring washer	4	17	Flat Washer	4
6	Hex Bolt	4	18	Spring Washer	4
7	By-pass valve	1	19	Hex Bolt M8x15	4
8	By-pass plug	1	20	Power cord	1
9	O-Ring 22.4X2.65	1	21	Fan	1
10	Spring	1	22	Water proof switch	1
11	Machine Seal	1	23	Capacitor	1
12	Circlip	1	24	Fan cover	1

**Control valve for #34007**



No.	Description	Quantity	No.	Description	Quantity
1	Gun body	1	14	O ring	1
2	Trigger	1	15	Retainer	1

3	Discharging hose	1	16	Washer	1
4	Meter	1	17	O ring	1
5	3/4" swivel	1	18	Joint nut	1
6	Hexagon nut	1	19	Rotating swivel	1
7	O ring	1	20	Filter	1
8	Nut	1	21	Filter	1
9	O ring	1	22	Retainer	1
10	O ring	1	23	Button	1
11	Spring	1	24	Spring	1
12	O ring	1	25	Lock Pin	1
13	Slip Pole	1	26	Nozzle	1

For replacement parts and technical questions, please call **1-800-222-5381**.

## **WARRANTY**

One-Year Limited Warranty



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 Northern Tool + Equipment Co., Inc.  
 Burnsville, MN 55306  
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