

## Hydraulic Hydra-Clean® Packages

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EN

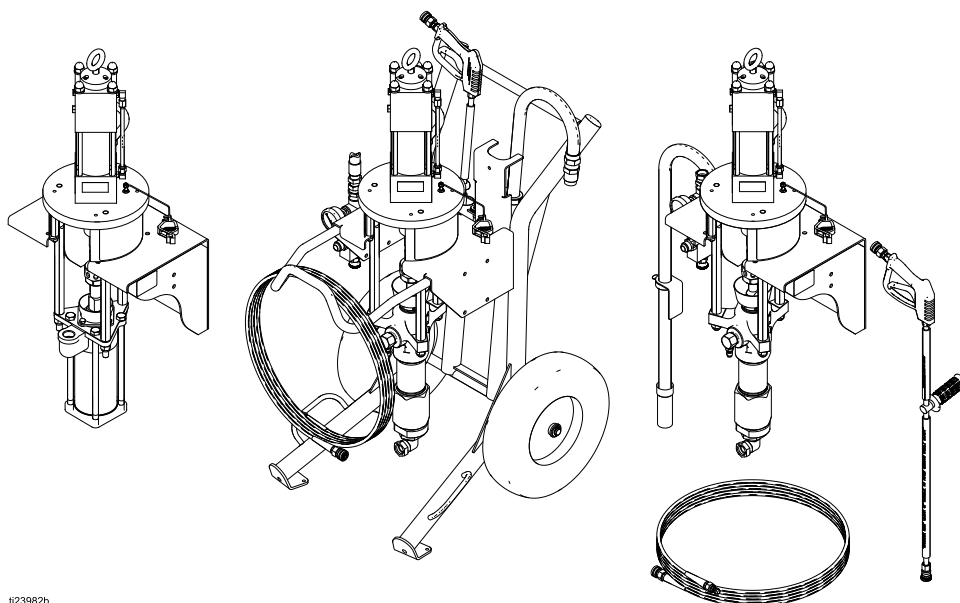
A package solution for pressure washing applications without an air supply. For use only with water and cleaning solutions. For professional use only.



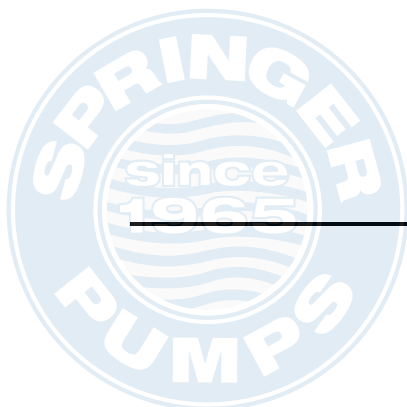
### Important Safety Instructions

Read all warnings and instructions in this manual. **Save these instructions.**

*See page 3 for model information, including the maximum fluid working pressure.*



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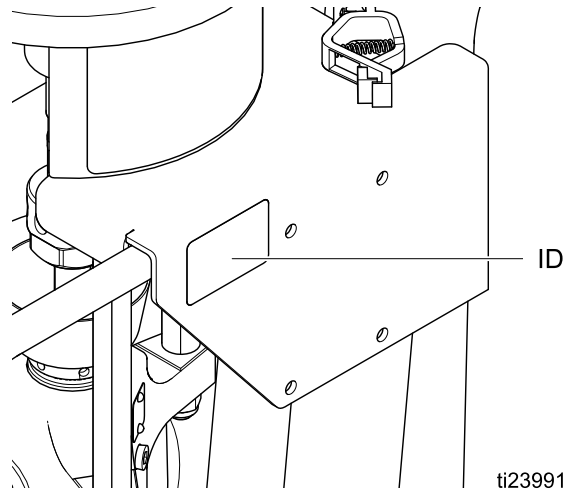
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# Models

Check your package's identification plate (ID) for the 6-digit part number of your package.



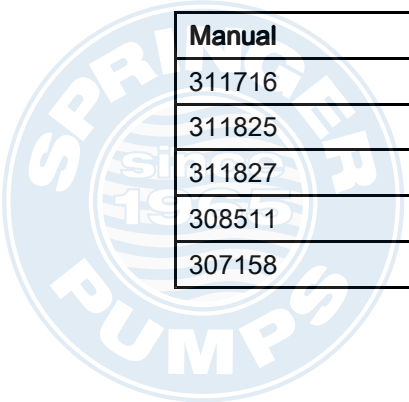
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| Part Number | Maximum Fluid Working Pressure<br>psi (MPa, bar) | Description               |
|-------------|--|---------------------------|
| 24V616      | 3000 (20.7 MPa, 207 bar)                         | Cart Mount                |
| 24V617      | 4300 (29.6 MPa, 296 bar)                         | Cart Mount                |
| 24V628      | 3000 (20.7 MPa, 207 bar)                         | Wall Mount                |
| 24V629      | 4300 (29.6 MPa, 296 bar)                         | Wall Mount                |
| 24W474      | 3000 (20.7 MPa, 207 bar)                         | Cart Mount with Hose Reel |
| 24W891      | 660 psi (4.6 MPa, 46 bar)                        | Wall Mount                |











# Related Manuals

| Manual | Description  |
|--------|--|
| 311716 | Dura-Flo™ Displacement Pump, 1000                    |
| 311825 | Dura-Flo™ Displacement Pump; 1800 and 2400           |
| 311827 | Dura-Flo™ Displacement Pump; 600, 750, 900, and 1200 |
| 308511 | Hydra-Clean® Spray Gun                               |
| 307158 | Viscount® II Hydraulic Motor                         |



# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

|  <h2 style="margin: 0;">WARNING</h2>  |   |
|--|---|
|     | <p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive.</li> <li>• <b>Stop operation immediately</b> if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul> |
|     | <p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Engage trigger lock when not dispensing.</li> <li>• Do not point dispensing device at anyone or at any part of the body.</li> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</li> </ul>   |
|    | <p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> and disconnect all power sources.</li> </ul>   |



# WARNING



## EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



## TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.



- Read MSDSs to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



## BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.



## PERSONAL PROTECTIVE EQUIPMENT




Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

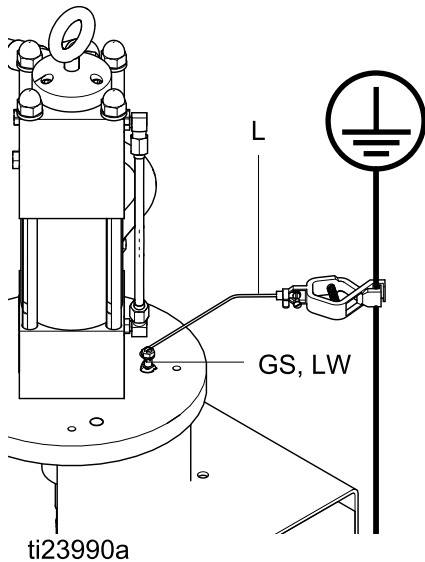
# Installation

When cleaning in enclosed areas, such as storage tanks, locate the pump and hydraulic supply outside the area. Provide adequate ventilation.

## Grounding

|  |   |   |  |  |
|--|---|---|--|--|
|   |  |  |  |  |
| <p>The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.</p> |   |   |  |  |

**Pump:** Use the ground screw (GS) and lock washer (LW) to attach the ground wire (L) to the motor plate. Connect the other end of the ground wire to a true earth ground.



**Fluid and hydraulic hoses:** Use only electrically conductive hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity. Check electrical resistance of hoses. If total resistance to ground exceeds 25 megohms, replace hose immediately.

**Hydraulic Power Supply:** Follow manufacturer's recommendations.

**Spray Gun:** Ground through connection to a properly grounded fluid hose and pump.

**Object being sprayed:** Follow local code.

**Material supply container:** Follow local code.

**Container(s) that receive material:** Follow local code.

**Solvent pails used when flushing:** Follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

**To maintain grounding continuity when flushing or relieving pressure:** Hold metal part of the gun firmly to the side of a grounded metal pail, then trigger the gun.



## Wall Mount Packages

1. Ensure the wall is strong enough to support the weight of the pump assembly and accessories, fluid, hoses, and stress caused during pump operation.
2. Ensure that the mounting location has sufficient clearance for easy operator access.
3. Position the wall bracket at a convenient height ensuring that there is sufficient clearance for the fluid suction line and for servicing the displacement pump.
4. Drill four 7/16 in (11 mm) holes using the bracket as a template. Use any of the three mounting hole groupings in the bracket. See [Mounting Hole Layout, page 32](#).
5. Bolt the bracket securely to the wall using bolts and washers.
6. Attach the pump assembly to the mounting bracket.

## Connect Material Hoses

1. Connect the suction hose (G) between the pump fluid inlet and the suction tube (H), using thread sealant on the male threads.
2. Screw on the suction tube strainer.
3. Place the suction tube in the supply drum, and adjust it so it is 1 in (25 mm) off the bottom of the drum. Tighten the thumbscrew of the pipe hanger onto the drum.
4. Connect the spray hose (J) to the pump outlet manifold.

**NOTE:** For two-gun spraying, remove the plug in the manifold and connect another spray hose.

5. Connect the spray gun (K) to the hose.



## Connect Hydraulic Lines

### NOTICE

The hydraulic supply system must be kept clean at all times to avoid damage to the motor and hydraulic power supply. Blow out all hydraulic lines with air and flush thoroughly with compatible solvent before connecting the lines to the motor.

Always plug the hydraulic inlets, outlets, and lines when disconnecting them for any reason, to avoid introducing dirt and other contaminants into the system.

#### Wall Mount Model 24W891:

1. Connect a 3/4 in (19 mm) minimum ID hydraulic supply line (E) to the inlet port of the hydraulic motor (B)
2. Connect a 3/4 in. (19 mm) minimum ID hydraulic return line (D) to the outlet port of the hydraulic motor (B).

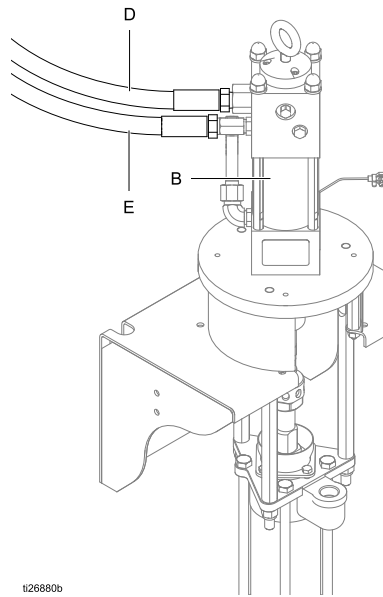


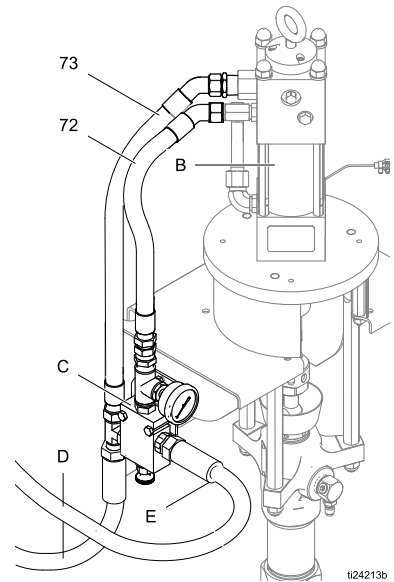
Figure 1

#### All Other Models:

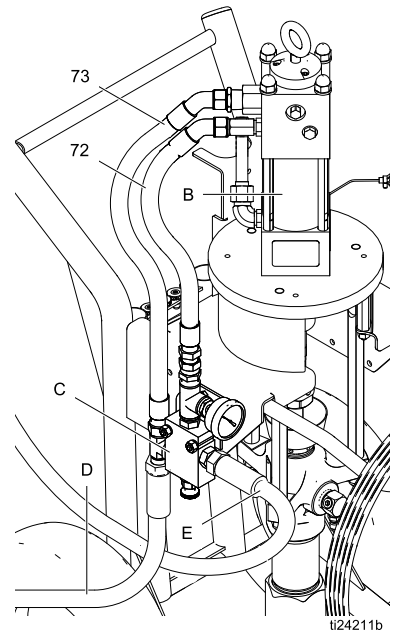
1. Connect a 3/4 in (19 mm) minimum ID hydraulic supply line (E) to the supply inlet port of the hydraulic regulator (C). The system is shipped with a second line (72) connected from the supply outlet port of the regulator (C) to the inlet port of the hydraulic motor (B).

2. Connect a 3/4 in (19 mm) minimum ID return line (D) to the return outlet port on the hydraulic regulator (C). The system is shipped with a second line (73) connected from the return inlet port of the regulator (C) to the outlet port on the hydraulic motor (B).

#### Wall Mount



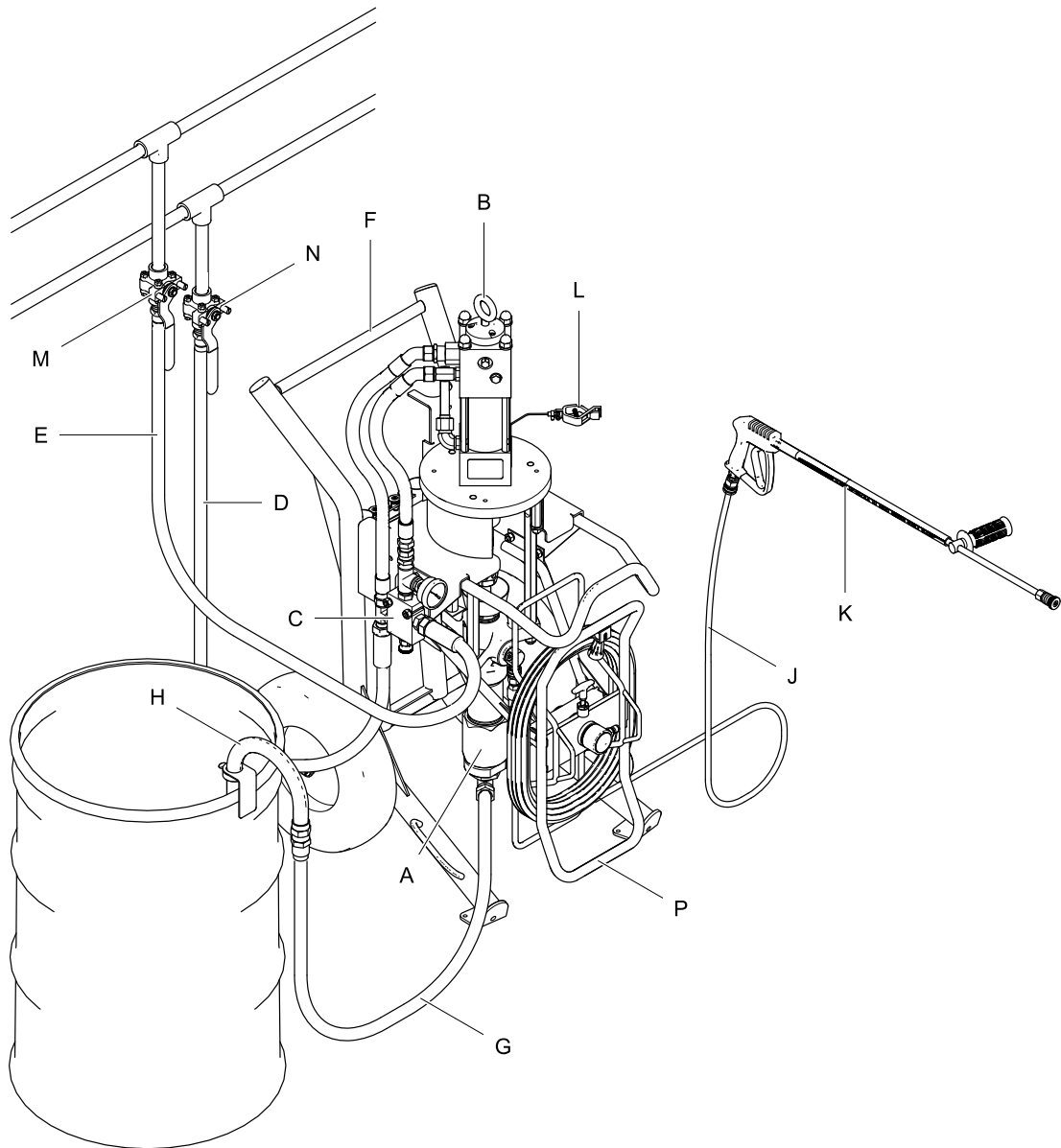
#### Cart Mount





## Typical Installation

### Cart Mount Models



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#### KEY:

- |  |   |
|--|---|
| <b>A</b> Displacement Pump                     | <b>H</b> Fluid Suction Tube and Strainer  |
| <b>B</b> Hydraulic Motor                       | <b>J</b> Fluid Spray Hose   |
| <b>C</b> Hydraulic Regulator                   | <b>K</b> Gun and Wand   |
| <b>D</b> Hydraulic Return Line (user supplied) | <b>L</b> Ground Wire  |
| <b>E</b> Hydraulic Supply Line (user supplied) | <b>M</b> Hydraulic Supply Shutoff Valve (user supplied)   |
| <b>F</b> Portable Cart                         | <b>N</b> Hydraulic Return Shutoff Valve (user supplied)   |
| <b>G</b> Fluid Suction Hose                    | <b>P</b> Hose Reel; included in Model 24W474. Kit 24W471 is available to add a hose reel to other models. |

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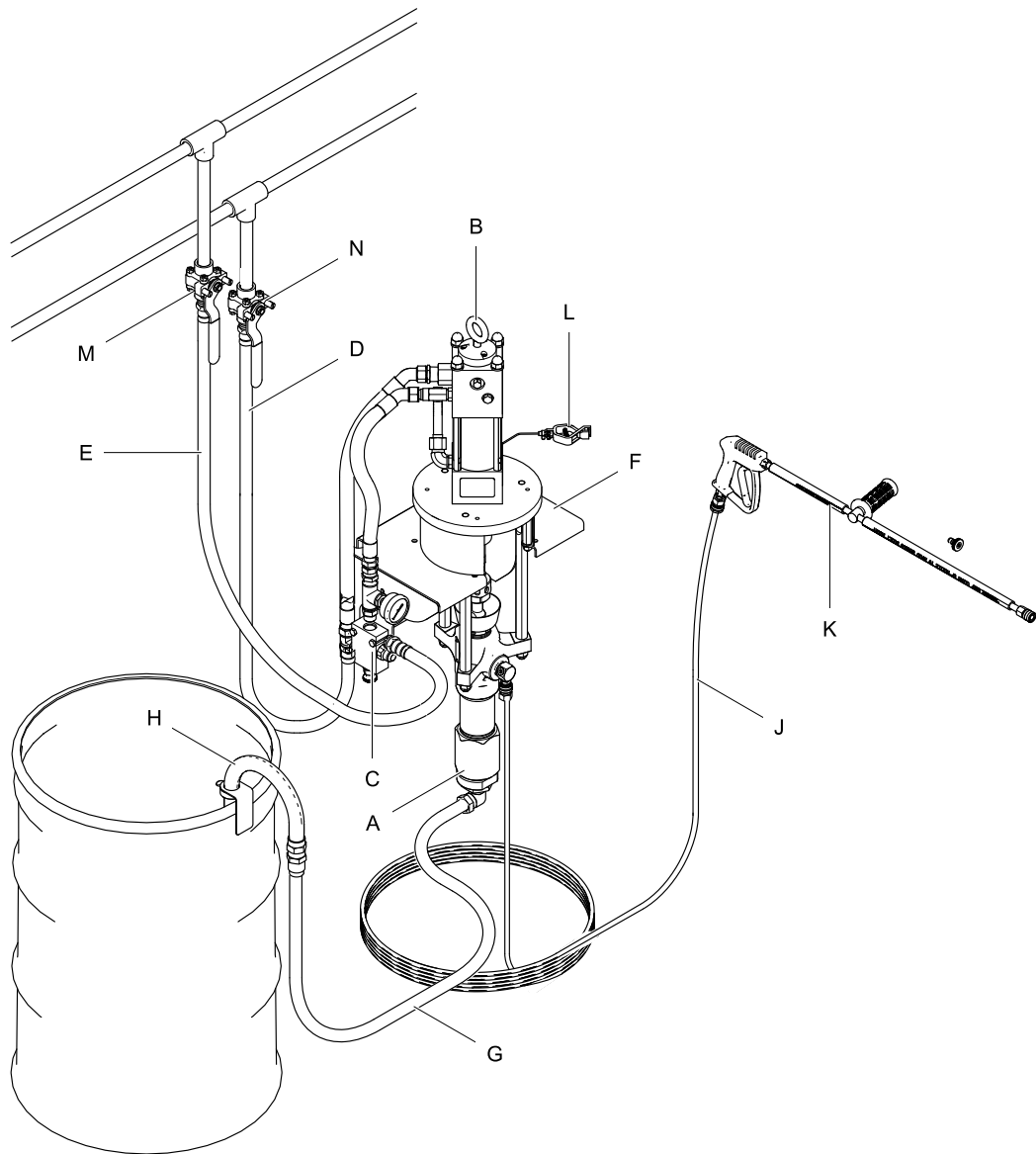
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Fax: 866-777-6383

Springer Pumps, LLC

Website: [www.springerpumps.com](http://www.springerpumps.com)  
Int'l: +001 267 404 2910

## Installation

### Wall Mount Models

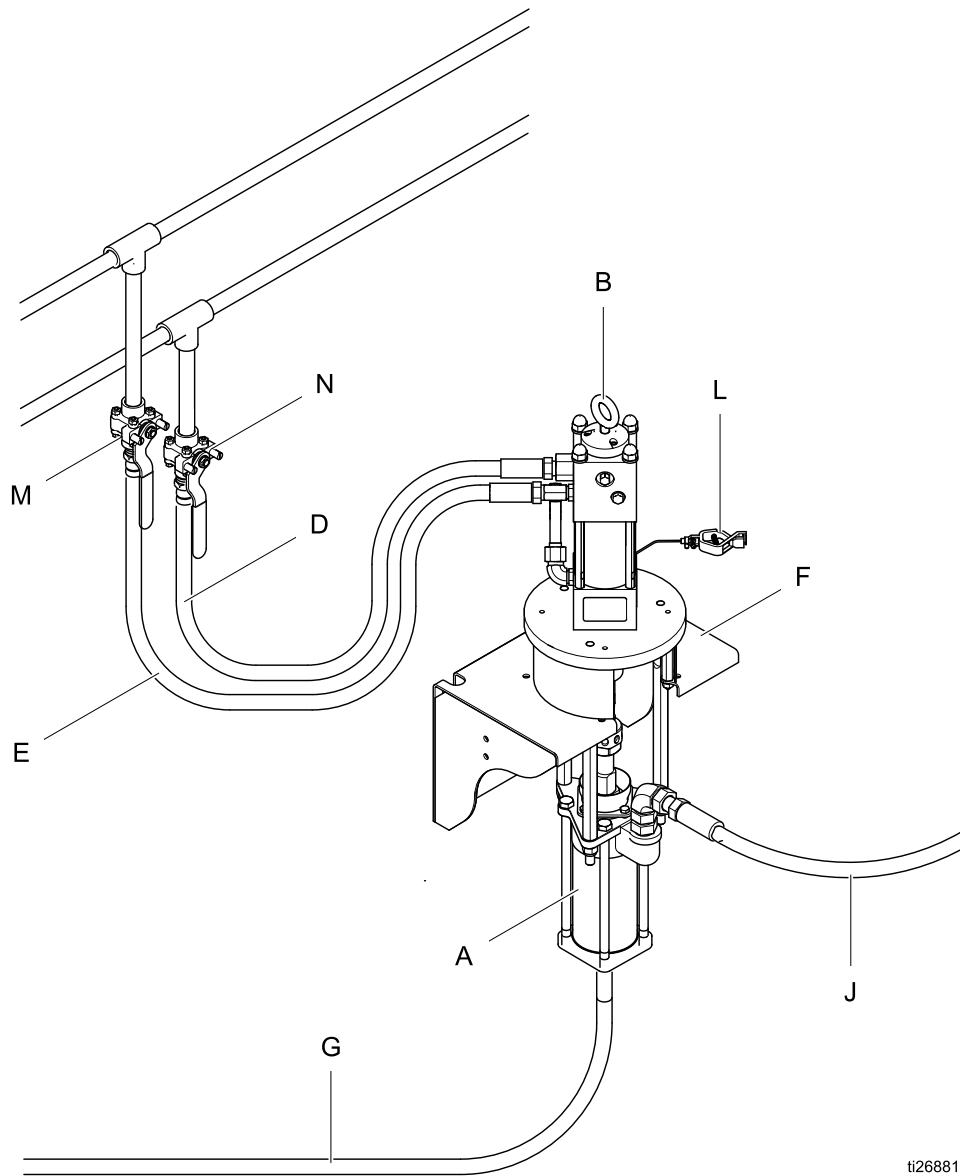


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#### KEY:

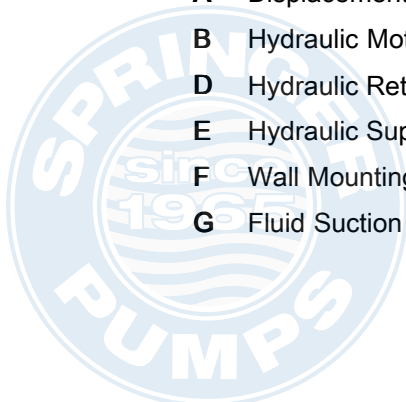
- |  |   |
|--|---|
| <b>A</b> Displacement Pump                     | <b>H</b> Fluid Suction Tube and Strainer                |
| <b>B</b> Hydraulic Motor                       | <b>J</b> Fluid Spray Hose                               |
| <b>C</b> Hydraulic Regulator                   | <b>K</b> Gun and Wand                                   |
| <b>D</b> Hydraulic Return Line (user supplied) | <b>L</b> Ground Wire                                    |
| <b>E</b> Hydraulic Supply Line (user supplied) | <b>M</b> Hydraulic Supply Shutoff Valve (user supplied) |
| <b>F</b> Wall Mounting Bracket                 | <b>N</b> Hydraulic Return Shutoff Valve (user supplied) |
| <b>G</b> Fluid Suction Hose                    |   |

Wall Mount Model 24W891



**KEY:**

- |  |   |
|--|---|
| <b>A</b> Displacement Pump                     | <b>J</b> Fluid Spray Hose                               |
| <b>B</b> Hydraulic Motor                       | <b>L</b> Ground Wire                                    |
| <b>D</b> Hydraulic Return Line (user supplied) | <b>M</b> Hydraulic Supply Shutoff Valve (user supplied) |
| <b>E</b> Hydraulic Supply Line (user supplied) | <b>N</b> Hydraulic Return Shutoff Valve (user supplied) |
| <b>F</b> Wall Mounting Bracket                 |   |
| <b>G</b> Fluid Suction Hose                    |   |



# Operation

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

To reduce the risk of overpressurizing your system, which could cause component rupture and serious injury, follow these precautions:

- Never exceed 1900 psi (13.1 MPa, 131 bar) hydraulic input to the motor.
- Never exceed the maximum fluid working pressure of 3000 psi (20.7 MPa, 207 bar) for low-pressure models or 4300 psi (29.6 MPa, 296 bar) for high-pressure models.
- When starting the hydraulic system, open the return line shutoff valve (N) first, then open the hydraulic supply line valve (M).

1. Engage the gun trigger lock.
2. Close the hydraulic supply shutoff valve (M).
3. Disengage the gun trigger lock.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail. Trigger to relieve pressure.
5. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
  - a. VERY SLOWLY loosen the hose end coupling to relieve pressure gradually.
  - b. Loosen the coupling completely.
  - c. Clear hose or tip obstruction.
6. When all pressure is relieved, close the hydraulic return shutoff valve (N).

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|  |  |  |  |  |

This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from moving parts or from pressurized fluid, such as skin injection or splashing in the eyes or on skin, follow the Pressure Relief Procedure when you stop pumping and before you clean, check, or service the equipment.

## Cleaning Solutions

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

Cleaning chemicals may be toxic. To avoid serious irritation to your eyes or skin, wear appropriate protective clothing, such as waterproof outerwear and eye goggles, according to the cleaner manufacturer's recommendations.



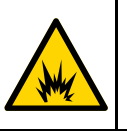


1. Prepare the cleaning solution according to the manufacturer's instructions.
2. If you are using powdered cleaners, mix them thoroughly in a separate pail before adding them to a supply drum.

### NOTICE

Undissolved powders are extremely abrasive and may damage pump parts. Mix powdered cleaners thoroughly.



## Flush the Pump

|   |   |   |   |   |
|---|---|---|---|---|
|    |  |  |  |  |
| To reduce the risk of fluid injection injury, static sparking, or splashing, relieve the pressure and remove the spray tip before flushing. |   |   |   |   |

**NOTE:** Use the lowest possible fluid pressure during flushing.

## Before First Use

The pump was tested in lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment.

1. Engage the trigger lock.
2. Place the suction tube into solvent supply.
3. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail.
4. Disengage the trigger lock. Trigger the gun until clean solvent comes from the gun.
5. Engage the trigger lock.
6. Place the suction tube in the prepared cleaning solution.
7. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail.
8. Disengage the trigger lock. Trigger the gun until cleaning solution comes from the gun.

## Before Shutdown

1. Place the suction tube into the water supply.
2. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail.
3. Disengage the trigger lock. Trigger the gun until clear water with no cleaning solution comes from the gun.
4. Engage the trigger lock.



## Start and Adjust the Pump

**NOTE:** If the pump is not immersed in fluid, fill the wet-cup 1/3 full with Graco Throat Seal Liquid (TSL) or a compatible solvent. The TSL prevents fluid from drying on the displacement rod and damaging the pump packings. Check the tightness of the packing nut/wet-cup weekly. Before adjusting, **relieve the pressure**. The nut should be tight enough to prevent leakage, but no tighter.







1. Check the hydraulic fluid level before each use. Add fluid as needed to the fill lines.
2. Turn on the hydraulic power supply.
3. Open the hydraulic return shutoff valve (N).
4. Slowly open the hydraulic supply shutoff valve (M).
5. Run the pump slowly until all air is pushed out of the lines and fluid is flowing smoothly.
6. Close the spray gun. The pump will stall.

**NOTE:** Use the lowest pressure possible to get the desired results. Higher pressures will cause premature tip and pump wear.

### NOTICE

Never allow the hydraulic fluid temperature to exceed 130°F (54°C). The pump seals will wear faster and leaking may occur at higher temperatures.

## Shutdown

|  |   |   |   |   |
|--|---|---|---|---|
|  |  |  |  |  |
|  |  |   |   |   |

To reduce the risk of overpressurizing your system, which could cause component rupture and serious injury, always shut off the hydraulic supply line shutoff valve (M) first, and then the return line shutoff valve (N).

Follow the Shutdown Procedure at the end of the work shift and before you check, adjust, clean, or repair the system.

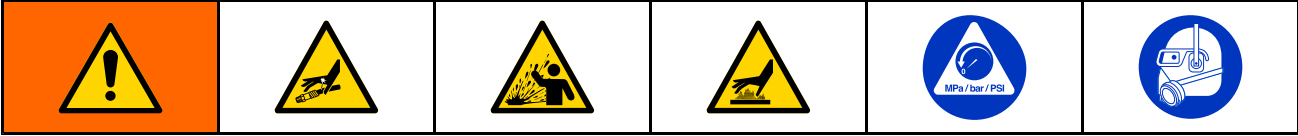
1. Flush the pump with water. See [Flush the Pump, page 13](#).
2. After flushing, flush the pump again with a compatible solvent, such as mineral spirits.
3. Follow the [Pressure Relief Procedure, page 12](#).
4. Always stop the pump at the bottom of its stroke to prevent fluid from drying on the rod and damaging the throat packings.
5. Leave a coating of solvent in the pump and hoses.

### NOTICE

To help prevent corrosion of the pump, never leave the pump filled with water or water-based fluids, or air, during non-use.



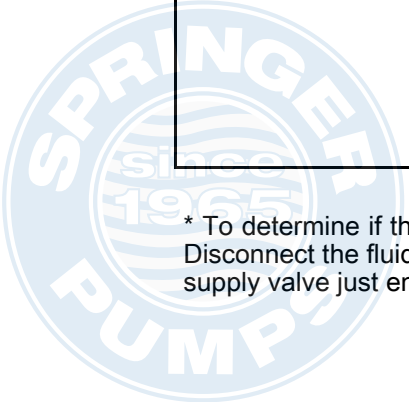
# Troubleshooting





1. Follow the [Pressure Relief Procedure, page 12](#).
2. Check all possible problems and solutions before disassembling the pump.

| Problem   | Cause   | Solution  |
|---|---|---|
| Pump fails to operate.                                  | Restricted hydraulic line or inadequate hydraulic supply; closed or clogged valves. | Clear any obstructions; check that all valves are open; increase hydraulic supply pressure.                   |
|   | Obstructed fluid hose or gun; fluid hose ID is too small.                           | Open, clear*; use a hose with a larger ID.  |
|   | Fluid has dried on the displacement rod.  | Clean; always stop the pump at the bottom of the stroke; keep the wet cup 1/3 filled with compatible solvent. |
|   | Dirty, worn, or damaged motor parts.  | Clean or repair. See Manual 307158.   |
| Pump operates, but the output is low on both strokes.   | Restricted hydraulic line or inadequate hydraulic supply; closed or clogged valves. | Clear any obstructions; check that all valves are open; increase hydraulic supply pressure.                   |
|   | Obstructed fluid hose or gun; fluid hose ID is too small.                           | Open, clear*; use a hose with a larger ID.  |
|   | Bleeder valve is open.  | Close.  |
|   | Worn packings in the displacement pump.   | Replace packings. See displacement pump manual 311825 or 311827.  |
| Pump operates, but the output is low on the downstroke. | Held open or worn intake valve.   | Clear valve; service. See displacement pump manual 311825 or 311827.  |
| Pump operates, but the output is low on the upstroke.   | Held open or worn piston valve or packings.   | Clear valve; replace packings. See displacement pump manual 311825 or 311827.                                 |
| Erratic or accelerated pump speed.                      | Exhausted fluid supply.   | Refill and prime.   |
|   | Held open or worn piston valve or packings.   | Clear valve; replace packings. See displacement pump manual 311825 or 311827.                                 |
|   | Held open or worn intake valve.   | Clear valve; service. See displacement pump manual 311825 or 311827.  |





\* To determine if the fluid hose or gun is obstructed, follow the [Pressure Relief Procedure, page 12](#). Disconnect the fluid hose and place a container at the pump fluid outlet to catch any fluid. Open the hydraulic supply valve just enough to start the pump. If the pump starts, the obstruction is in the fluid hose or gun.



# Repair

|  |   |  |  |  |
|--|---|--|--|--|
|   |  |  |  |  |
| <p>To help prevent injury from a falling pump, use at least two people when lifting, moving or disconnecting the motor and/or the displacement pump.</p> |   |  |  |  |

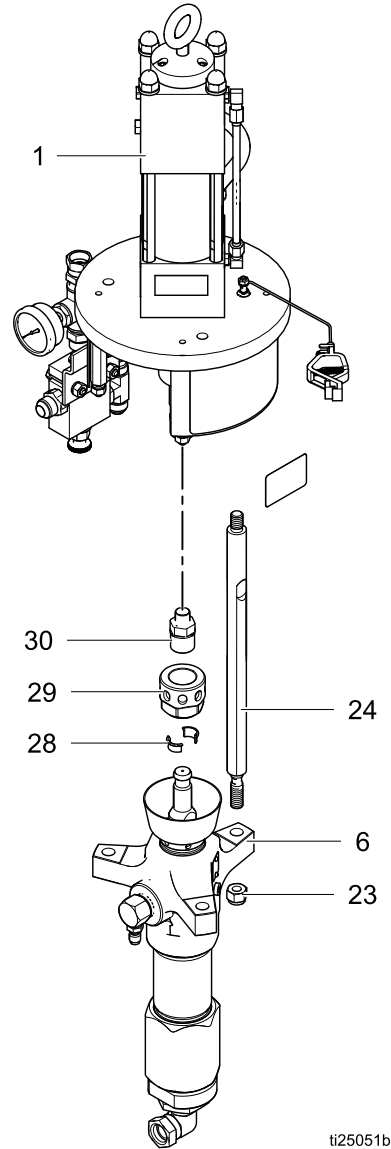
## Disconnect the Displacement Pump

|   |   |   |   |  |
|---|---|---|---|--|
|  |  |  |  |  |
|---|---|---|---|--|

1. Flush the pump, if possible. Stop the pump at the bottom of its stroke.
2. Follow the [Pressure Relief Procedure](#), page 12.
3. Disconnect the fluid and suction hoses.

**NOTE:** Before disconnecting the displacement pump from the motor, note the relative position of the pump's fluid outlet to the hydraulic inlet of the motor. If the motor does not require service, leave it attached to its mounting.

4. Unscrew the coupling nut (29) from the connecting rod adapter (30). Remove the coupling collars (28). Do not lose or drop them.
5. Securely brace the displacement pump (6), or have two people hold it. Hold the tie rod flats with a wrench to keep the rods from turning. Unscrew the nuts (23). Remove the displacement pump. Remove the tie rods (24).



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## Service the Displacement Pump

Refer to the displacement pump manual (supplied and also available at [www.graco.com](http://www.graco.com)). The following table shows the correct manual for your pump model.

| Package | Displacement Pump | Manual |
|---------|-------------------|--------|
| 24V616  | 687055            | 311825 |
| 24V617  | 24B923            | 311827 |
| 24V628  | 687055            | 311825 |
| 24V629  | 24B923            | 311827 |
| 24W474  | 687055            | 311825 |
| 24W891  | 253596            | 311716 |



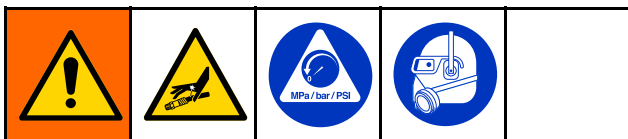


## Reconnect the Displacement Pump

1. Install the connecting rod adapter (30) on the motor shaft. Torque to 115–126 ft-lb (156–170 N•m)
2. Lubricate the threads of the tie rods (24) and tighten them securely into the motor (1).
3. Make sure the coupling nut (29) and coupling collars (28) are in place on the displacement rod.
4. Use at least two people to hold the displacement pump while another reconnects it to the motor. Orient the pump's fluid outlet to the hydraulic inlet as noted under [Disconnect the Displacement Pump, page 16](#). Place the displacement pump (6) on the tie rods (24).
5. Screw the nuts (23) onto the tie rods (24) and torque to 50-60 ft-lb (68-81 N•m).
6. Screw the coupling nut (29) onto the connecting rod adapter (30) loosely. Hold the connecting rod adapter flats with a wrench to keep it from turning. Use an adjustable wrench to tighten the coupling nut. Torque to 145–155 ft-lb (197–210 N•m).
7. Reconnect all hoses. Reconnect the ground wire if it was disconnected. Fill the wet-cup 1/3 full of Graco Throat Seal Liquid or compatible solvent.
8. Open the hydraulic return shutoff valve (N). This valve must be opened before the supply valve (M).
9. Slowly open the hydraulic supply shutoff valve (M). Run the pump slowly to ensure that it operates properly.



## Disconnect the Hydraulic Motor



1. Flush the pump, if possible. Stop the pump at the bottom of its stroke.
2. Follow the [Pressure Relief Procedure, page 12](#).
3. Disconnect the displacement pump hoses. Disconnect the hydraulic hoses and plug all hydraulic connections and lines to prevent contamination.
4. Follow all steps under [Disconnect the Displacement Pump, page 16](#).
5. Unscrew the nuts (14) and remove the washers (13).
6. Use a lift or two people to lift the motor (1) off the mounting bracket.
7. Unscrew four mounting spacers (12). Remove the standoff bracket (3).

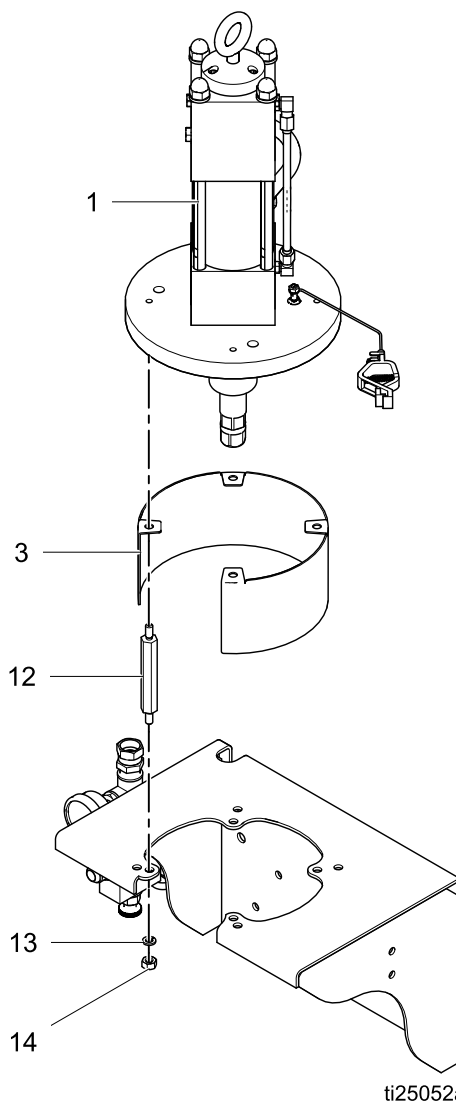
## Service the Hydraulic Motor

Refer to Motor Manual 307158 (supplied and also available at [www.graco.com](http://www.graco.com)).

## Reconnect the Hydraulic Motor

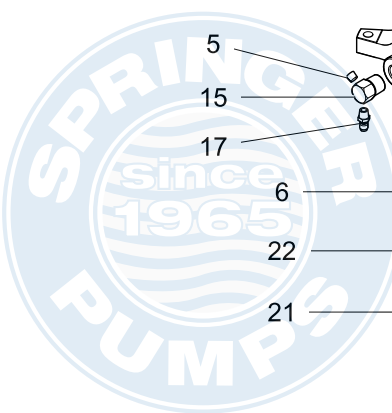
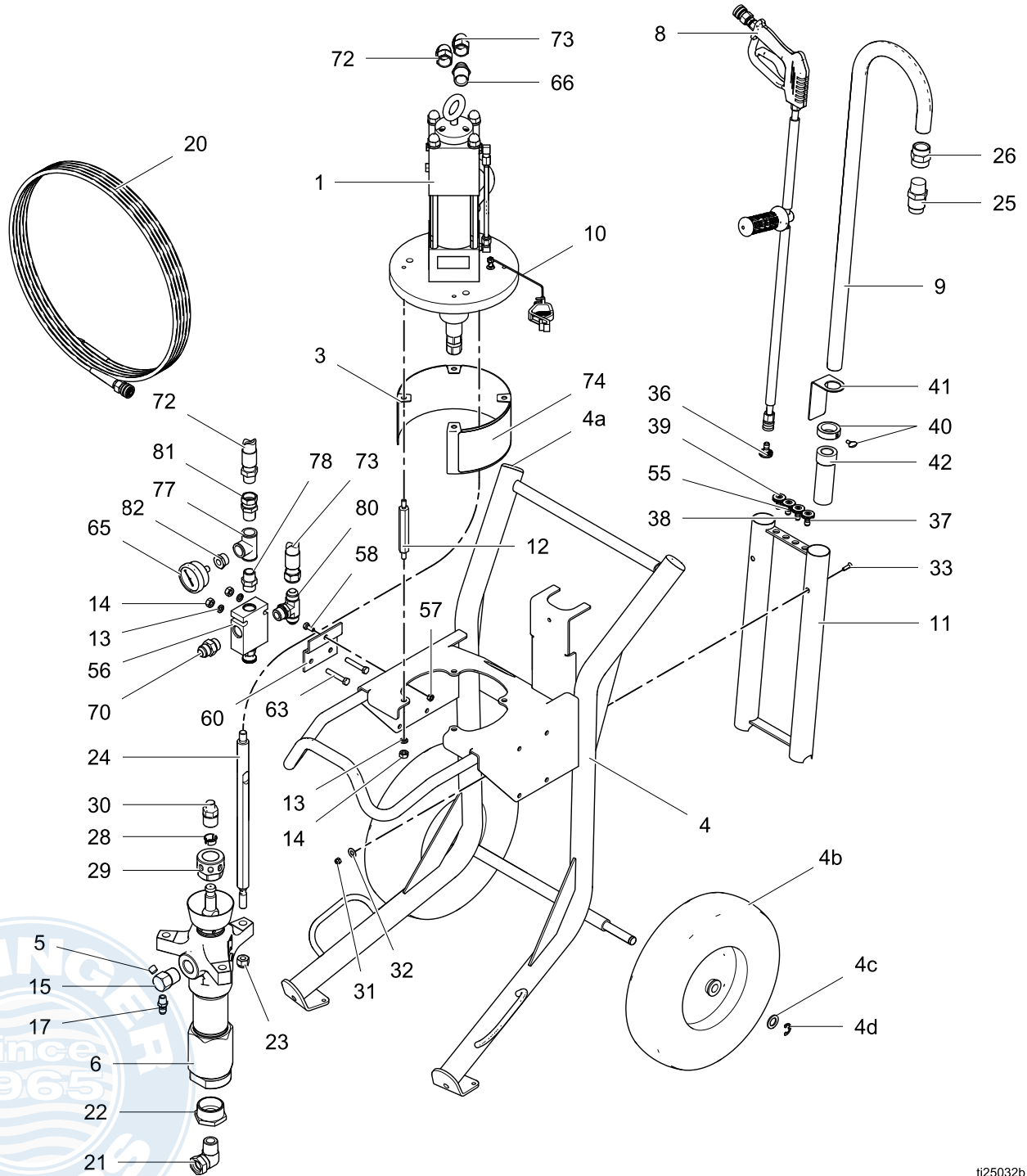
1. Align the holes and use the four mounting spacers (12) to attach the standoff bracket (3) to the motor.
2. Use two people to lift the motor (1) onto the mounting bracket. Align the hydraulic fittings with the controls.

3. Install a washer (13) and nut (14) on each mounting spacer (12). Tighten nut securely.
4. Follow all steps in [Reconnect the Displacement Pump, page 17](#).



# Parts

## Cart Mount Models 24V616 and 24V617



ti25032b

334187H

Tel: 866-777-6060  
Fax: 866-777-6383

Springer Pumps, LLC

Website: [www.springerpumps.com](http://www.springerpumps.com)  
Int'l: +001 267 404 2910

## Cart Mount Models 24V616 and 24V617

| Ref | Part   | Description  | Qty |
|-----|--------|--|-----|
| 1   | 24W139 | MOTOR, includes Warning label 15E564▲  | 1   |
| 3   | 15K296 | BRACKET, standoff  | 1   |
| 4   | 287884 | CART ASSEMBLY, includes 4a-4d  | 1   |
| 4a  | 113361 | CAP, tube, round   | 2   |
| 4b  | 113362 | WHEEL  | 2   |
| 4c  | 154628 | WASHER, 3/4 in. (19 mm) ID   | 2   |
| 4d  | 113436 | RING, retaining  | 2   |
| 5   | 101748 | PLUG, pipe, stainless steel  | 1   |
| 6   |        | DISPLACEMENT PUMP, stainless steel, includes Warning tags 172479 and 184474▲ | 1   |
|     | 687055 | Dura-Flo 1800, 430 cc, for Model 24V616                                      |     |
|     | 24B923 | Dura-Flo 1200, 290 cc, for Model 24V617                                      |     |
| 8   | 17B529 | GUN, high-pressure   | 1   |
| 9   | 166630 | TUBE   | 1   |
| 10  | 238909 | GROUNDING WIRE, assembly, includes Warning tag 290079▲                       | 1   |
| 11  | 247622 | HOLDER, tube and gun, includes refs. 31 and 33                               | 1   |
| 12  | 120465 | SPACER, mounting, threaded   | 4   |
| 13  | 100133 | WASHER, lock, 3/8 in.  | 6   |
| 14  | 100131 | NUT, hex   | 6   |
| 15  |        | ELBOW, 90° reducing  | 1   |
|     | 15R305 | 3/4 npt to 3/8 npt, for Model 24V616   |     |
|     | 166444 | 1 in. npt(m) x 3/8 in. npt(f) for Model 24V617                               |     |
| 17  | 121240 | COUPLING, quick-release, 3/8–18 npt  | 1   |
| 20  | 24W280 | HOSE, assembly, 50 ft (15 m)   | 1   |
| 21  | 121245 | SWIVEL, 1 x 1 npt  | 1   |
| 22  | 102283 | BUSHING, brass, 2 in. npt x 1 in. npt  | 1   |
| 23  | 101712 | NUT, lock, 5/8–11 UNC  | 3   |
| 24  | 15H562 | ROD, tie,  | 3   |
| 25  | 214959 | HOSE, coupled, 6 ft. (1.8 m)   | 1   |
| 26  | 166629 | COUPLING   | 1   |

| Ref | Part   | Description                                       | Qty |
|-----|--------|---|-----|
| 28  |        | COLLAR, COUPLING                                  | 2   |
|     | 184130 | For Model 24V616                                  |     |
|     | 184129 | For Model 24V617                                  |     |
| 29  |        | NUT, coupling                                     | 1   |
|     | 184096 | For Model 24V616                                  |     |
|     | 186925 | For Model 24V617                                  |     |
| 30  |        | ADAPTER   | 1   |
|     | 15H371 | M38 x 2, for Model 24V616                         |     |
|     | 15H370 | 1 1/4–12, for Model 24V617                        |     |
| 31  | 109478 | NUT, lock, hex                                    | 2   |
| 32  | 111743 | WASHER, flat                                      | 2   |
| 33  | 113428 | SCREW, hex head, 1/4–20 x 1                       | 2   |
| 36  | 805584 | TIP, spray, Q-type, 15090†                        | 1   |
| 37  | 805538 | TIP, spray, Q-type, 40030†                        | 1   |
| 38  | 805549 | TIP, spray, Q-type, 25045†                        | 1   |
| 39  |        | TIP, spray, Q-type                                |     |
|     | 805566 | 40065†, for Model 24V616                          | 1   |
|     | 805566 | 40065†, for Model 24V617                          | 2   |
| 40  | 100085 | SCREW, thumb                                      | 1   |
| 41  | 205770 | HANGER, pipe                                      | 1   |
| 42  | 15R411 | STRAINER, inlet                                   | 1   |
| 55  | 805575 | TIP, spray, Q-type, for Model 24V616, 00080†      | 1   |
| 56  | 17B532 | REGULATOR, hydraulic                              | 1   |
| 57  | 113761 | NUT, keps, hex head                               | 1   |
| 58  | 105328 | SCREW, cap, hex head,                             | 1   |
| 60  | 17C091 | BRACKET, mounting                                 | 1   |
| 63  | 107144 | SCREW, cap, hex head                              | 1   |
| 65  | 113641 | GAUGE, pressure, fluid, stainless steel           | 1   |
| 66  | — — —  | ADAPTER, 1 npt(m) x 3/4 JIC                       | 1   |
| 70  | 17C987 | ADAPTER, #12 JIC x 1 1/16–12 UN                   | 1   |
| 72  | 17C537 | HOSE, hydraulic supply, coupled, 18.5 in. (47 cm) | 1   |
| 73  | 17C538 | HOSE, hydraulic return, coupled, 27.5 in. (70 cm) | 1   |
| 74▲ | 15F674 | LABEL, warning                                    | 1   |
| 77  | 166466 | TEE, 3/4–14 npt(f)                                | 1   |
| 78  | 17C770 | CONNECTOR, 3/4 npt x 1 1/16 —12 UNF               | 1   |

| Ref | Part   | Description                           | Qty |
|-----|--------|---------------------------------------|-----|
| 80  | 17C986 | TEE,<br>1 1/16-12 UN x #12 JIC        | 1   |
| 81  | 118459 | SWIVEL, 3/4-14 npt(m) x 3/4-14 npt(f) | 1   |
| 82  | C19681 | BUSHING, pipe                         | 1   |

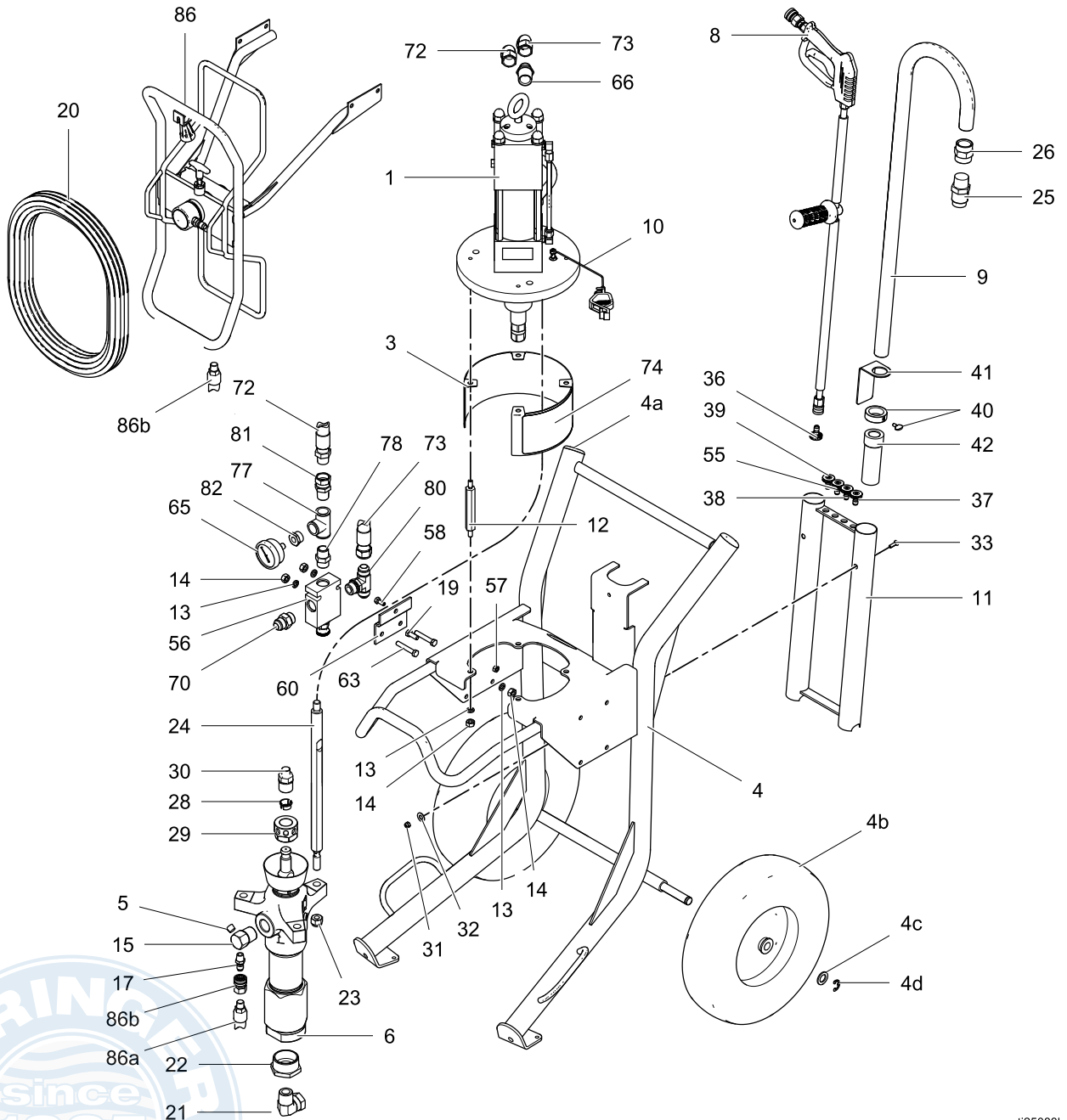
— — — Part is not sold separately.

† The first two digits designate the fan angle. The last three digits designate the orifice size in thousandths of an inch.

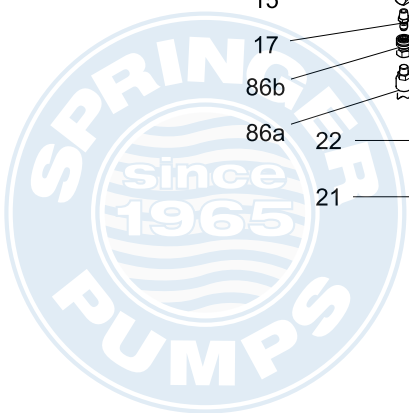
▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.



# Cart Mount Model 24W474 (with hose reel)



ti25083b



## Cart Mount Model 24W474

| Ref | Part   | Description  | Qty |
|-----|--------|--|-----|
| 1   | 24W139 | MOTOR, includes Warning label 15E564▲  | 1   |
| 3   | 15K296 | BRACKET, standoff  | 1   |
| 4   | 287884 | CART ASSEMBLY, includes 4a-4d  | 1   |
| 4a  | 113361 | CAP, tube, round   | 2   |
| 4b  | 113362 | WHEEL  | 2   |
| 4c  | 154628 | WASHER, 3/4 in. (19 mm) ID   | 2   |
| 4d  | 113436 | RING, retaining  | 2   |
| 5   | 101748 | PLUG, pipe, stainless steel  | 1   |
| 6   | 24B923 | DISPLACEMENT PUMP, stainless steel, includes Warning tags 172479 and 184474▲ | 1   |
| 8   | 17B529 | GUN, high-pressure   | 1   |
| 9   | 166630 | TUBE   | 1   |
| 10  | 238909 | GROUNDING WIRE, assembly, includes Warning tag 290079▲                       | 1   |
| 11  | 247622 | HOLDER, tube and gun, includes refs. 31 and 33                               | 1   |
| 12  | 120465 | SPACER, mounting, threaded   | 4   |
| 13  | 100133 | WASHER, lock, 3/8 in.  | 6   |
| 14  | 100131 | NUT, hex   | 6   |
| 15  | 166444 | ELBOW, 90° reducing, 1 in. npt(m) x 3/8 in. npt(f)                           | 1   |
| 17  | 121240 | COUPLING, quick-release, 3/8–18 npt  | 1   |
| 19  | 100101 | SCREW, cap, hex head, 3/8–16 x 1 in.   | 4   |
| 20  | 24W280 | HOSE, assembly, 50 ft (15 m)   | 1   |
| 21  | 121245 | SWIVEL, 1 x 1 npt  | 1   |
| 22  | 102283 | BUSHING, brass, 2 in. npt x 1 in. npt  | 1   |
| 23  | 101712 | NUT, lock, 5/8–11 UNC  | 3   |
| 24  | 15H562 | ROD, tie,  | 3   |
| 25  | 214959 | HOSE, coupled, 6 ft. (1.8 m)   | 1   |
| 26  | 166629 | COUPLING   | 1   |
| 28  | 184129 | COLLAR, COUPLING   | 2   |
| 29  | 186925 | NUT, coupling  | 1   |
| 30  | 15H370 | ADAPTER, 1 1/4–12  | 1   |
| 31  | 109478 | NUT, lock, hex   | 2   |
| 32  | 111743 | WASHER, flat   | 2   |
| 33  | 113428 | SCREW, hex head, 1/4–20 x 1  | 2   |
| 36  | 805584 | TIP, spray, Q-type, 15090†   | 1   |

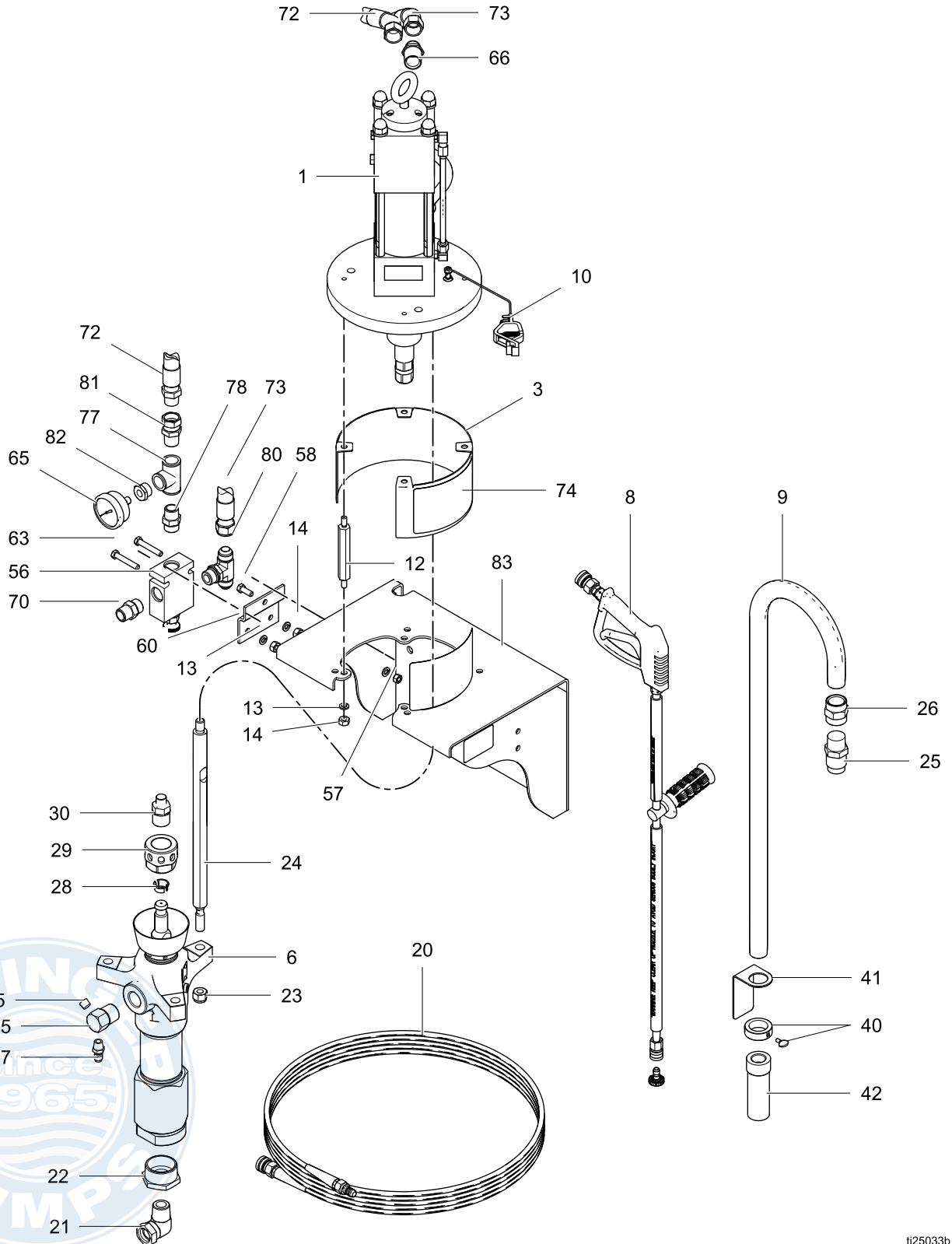
| Ref | Part   | Description   | Qty |
|-----|--------|---|-----|
| 37  | 805538 | TIP, spray, Q-type, 40030†  | 1   |
| 38  | 805549 | TIP, spray, Q-type, 25045†  | 1   |
| 39  | 805566 | TIP, spray, Q-type, 40065†  | 1   |
| 40  | 100085 | SCREW, thumb  | 1   |
| 41  | 205770 | HANGER, pipe  | 1   |
| 42  | 15R411 | STRAINER, inlet   | 1   |
| 55  | 805575 | TIP, spray, Q-type, 00080†  | 1   |
| 56  | 17B532 | REGULATOR, hydraulic  | 1   |
| 57  | 113761 | NUT, keps, hex head   | 1   |
| 58  | 105328 | SCREW, cap, hex head,   | 1   |
| 60  | 17C091 | BRACKET, mounting   | 1   |
| 63  | 107144 | SCREW, cap, hex head  | 1   |
| 65  | 113641 | GAUGE, pressure, fluid, stainless steel                                 | 1   |
| 66  | — — —  | ADAPTER, 1 npt (m) x 3/4 JIC  | 1   |
| 70  | 17C987 | ADAPTER, #12 JIC x 1 1/16–12 UN   | 1   |
| 72  | 17C537 | HOSE, hydraulic supply, coupled, 18.5 in. (47 cm)                       | 1   |
| 73  | 17C538 | HOSE, hydraulic return, coupled, 27.5 in. (70 cm)                       | 1   |
| 74▲ | 15F674 | LABEL, warning  | 1   |
| 77  | 166466 | TEE, 3/4–14 npt(f)  | 1   |
| 78  | 17C770 | CONNECTOR, 3/4 npt x 1 1/16 —12 UNF                                     | 1   |
| 80  | 17C986 | TEE, 1 1/16–12 UN x #12 JIC   | 1   |
| 81  | 118459 | SWIVEL, 3/4–14 npt(m) x 3/4–14 npt(f)                                   | 1   |
| 82  | C19681 | BUSHING, pipe   | 1   |
| 86  | 24W471 | KIT, hose reel, hydraulic, includes 86a and 86b, plus mounting hardware | 1   |
| 86a | 17B530 | HOSE; high pressure, 13.5 in (34 cm)                                    | 1   |
| 86b | 121240 | COUPLING, quick release, 3/8–18 npt                                     | 2   |

— — — Part is not sold separately.

† The first two digits designate the fan angle. The last three digits designate the orifice size in thousandths of an inch.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

# Wall Mount Models 24V628 and 24V629



ti25033b



## Wall Mount Models 24V628 and 24V629

| Ref | Part   | Description  | Qty |
|-----|--------|--|-----|
| 1   | 24W139 | MOTOR, includes Warning label 15E564▲  | 1   |
| 3   | 15K296 | BRACKET, standoff  | 1   |
| 5   | 101748 | PLUG, pipe, stainless steel  | 1   |
| 6   |        | DISPLACEMENT PUMP, stainless steel, includes Warning tags 172479 and 184474▲ | 1   |
|     | 687055 | Dura-Flo 1800, 430 cc, for Model 24V628                                      |     |
|     | 24B923 | Dura-Flo 1200, 290 cc, for Model 24V629                                      |     |
| 8   | 17B529 | GUN, high-pressure   | 1   |
| 9   | 166630 | TUBE   | 1   |
| 10  | 238909 | GROUNDING WIRE, assembly, includes Warning tag 290079▲                       | 1   |
| 12  | 120465 | SPACER, mounting, threaded   | 4   |
| 13  | 100133 | WASHER, lock, 3/8 in.  | 6   |
| 14  | 100131 | NUT, hex   | 6   |
| 15  |        | ELBOW, 90° reducing  | 1   |
|     | 15R305 | 3/4 npt to 3/8 npt, for Model 24V616   |     |
|     | 166444 | 1 in. npt(m) x 3/8 in. npt(f) for Model 24V617                               |     |
| 17  | 121240 | COUPLING, quick-release, 3/8–18 npt  | 1   |
| 20  | 24W280 | HOSE, assembly, 50 ft (15 m)   | 1   |
| 21  | 121245 | SWIVEL, 1 x 1 npt  | 1   |
| 22  | 102283 | BUSHING, brass, 2 in. npt x 1 in. npt  | 1   |
| 23  | 101712 | NUT, lock, 5/8–11 UNC  | 3   |
| 24  | 15H562 | ROD, tie,  | 3   |
| 25  | 214959 | HOSE, coupled, 6 ft. (1.8 m)   | 1   |
| 26  | 166629 | COUPLING   | 1   |
| 28  |        | COLLAR, COUPLING   | 2   |
|     | 184130 | For Model 24V616   |     |
|     | 184129 | For Model 24V617   |     |
| 29  |        | NUT, coupling  | 1   |
|     | 184096 | For Model 24V616   |     |
|     | 186925 | For Model 24V617   |     |
| 30  |        | ADAPTER  | 1   |
|     | 15H371 | M38 x 2, for Model 24V616  |     |
|     | 15H370 | 1 1/4–12, for Model 24V617   |     |

| Ref | Part   | Description                                       | Qty |
|-----|--------|---|-----|
| 33  | 113428 | SCREW, hex head, 1/4–20 x 1                       | 2   |
| 36  | 805584 | TIP, spray, Q-type, 15090†                        | 1   |
| 37  | 805538 | TIP, spray, Q-type, 40030†                        | 1   |
| 38  | 805547 | TIP, spray, Q-type, 00045†                        | 1   |
| 39  |        | TIP, spray, Q-type                                |     |
|     | 805566 | 40065†, for Model 24V616                          | 1   |
|     | 805566 | 40065†, for Model 24V617                          | 2   |
| 40  | 100085 | SCREW, thumb                                      | 1   |
| 41  | 205770 | HANGER, pipe                                      | 1   |
| 42  | 15R411 | STRAINER, inlet                                   | 1   |
| 55  | 805575 | TIP, spray, Q-type, for Model 24V616              | 1   |
| 56  | 17B532 | REGULATOR, hydraulic                              | 1   |
| 57  | 113761 | NUT, keps, hex head                               | 1   |
| 58  | 105328 | SCREW, cap, hex head,                             | 1   |
| 60  | 17C091 | BRACKET, mounting                                 | 1   |
| 63  | 107144 | SCREW, cap, hex head                              | 1   |
| 65  | 113641 | GAUGE, pressure, fluid, stainless steel           | 1   |
| 66  | — — —  | ADAPTER, 1 npt(m) x 3/4 JIC                       | 1   |
| 70  | 17C987 | ADAPTER, #12 JIC x 1 1/16–12 UN                   | 1   |
| 71  | 24X285 | ELBOW, 1 1/16–12 UN 2A(m) x 3/4 npt(f)            | 1   |
| 72  | 17C537 | HOSE, hydraulic supply, coupled, 18.5 in. (47 cm) | 1   |
| 73  | 17C538 | HOSE, hydraulic return, coupled, 27 5 in. (70 cm) | 1   |
| 74▲ | 15F674 | LABEL, warning                                    | 1   |
| 77  | 166466 | TEE, 3/4–14 npt(f)                                | 1   |
| 78  | 17C770 | CONNECTOR, 3/4 npt x 1 1/16–12 UNF                | 1   |
| 80  | 17C986 | TEE, 1 1/16–12 UN x #12 JIC                       | 1   |
| 81  | 118459 | SWIVEL, 3/4–14 npt(m) x 3/4–14 npt(f)             | 1   |
| 82  | C19681 | BUSHING, pipe                                     | 1   |
| 83  | 255143 | BRACKET, mounting                                 | 1   |

— — — Part is not sold separately.

† The first two digits designate the fan angle. The last three digits designate the orifice size in thousandths of an inch.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

# Wall Mount Model 24W891

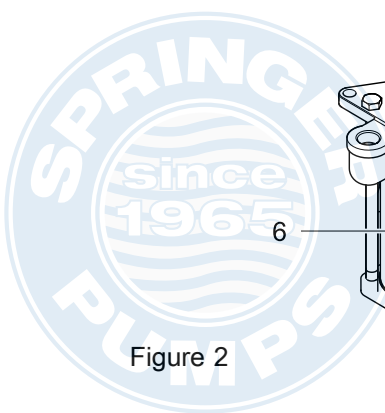
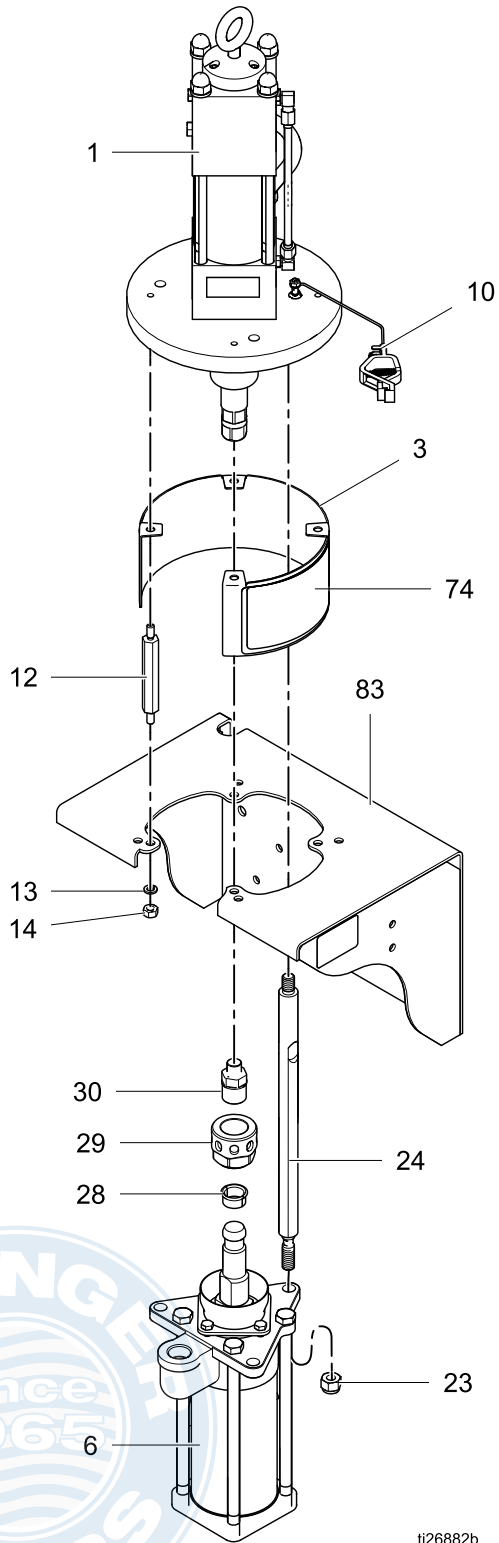


Figure 2

ti26882b

## Wall Mount Models 24W891

| Ref | Part   | Description  | Qty |
|-----|--------|--|-----|
| 1   | 24W139 | MOTOR, includes Warning label 15E564s  | 1   |
| 3   | 15K296 | BRACKET, standoff  | 1   |
| 6   | 253596 | DISPLACEMENT PUMP, stainless steel, includes Warning tags 172479 and 184474▲ | 1   |
| 10  | 238909 | GROUNDING WIRE, assembly, includes Warning tag 290079▲                       | 1   |
| 12  | 120465 | SPACER, mounting, threaded   | 4   |
| 13  | 100133 | WASHER, lock, 3/8 in.  | 6   |
| 14  | 100131 | NUT, hex   | 6   |

| Ref | Part   | Description           | Qty |
|-----|--------|-----------------------|-----|
| 23  | 101712 | NUT, lock, 5/8–11 UNC | 3   |
| 24  | 15H562 | ROD, tie,             | 3   |
| 28  | 184130 | COLLAR, COUPLING      | 2   |
| 29  | 184096 | NUT, coupling         | 1   |
| 30  | 15H371 | ADAPTER               | 1   |
| 74▲ | 15F674 | LABEL, warning        | 1   |
| 83  | 255143 | BRACKET, mounting     | 1   |

— — — Part is not sold separately.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.



334187H

Tel: 866-777-6060  
Fax: 866-777-6383

Springer Pumps, LLC

Website: [www.springerpumps.com](http://www.springerpumps.com)  
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27

## Kits

### Bare Gun Replacement Kits

- **24X295** Spray Gun (standard)
- **15T282** Stainless Steel Spray Gun (optional)

### Stainless Steel Fitting Kit for Gun

- **247880**, includes stainless steel gun inlet and outlet fittings

### Gun Wand Replacement Kits

- **15T280**, 32 in. (813 mm) Stainless Steel Wand (standard)
- **15T279** 10 in. (254 mm) Stainless Steel Wand (optional)

### Hose Reel Kit

- **24W471**, for use with any model, wall mount or cart mount. Includes hose reel, hose, fittings, brackets, and mounting hardware.

### Pulsation Dampener Kits

- **24Y435** Forged Steel Pulsation Dampener; Maximum fluid pressure: 4750 psi (32.7 MPa, 327.5 bar)
- **24X732** Stainless Steel Pulsation Dampener; Maximum fluid pressure: 3000 psi (20.7 MPa, 206.8 bar)

### Chemical Injector Kit

- **24W670**: To be attached between the pump outlet and the gun inlet. Maximum fluid pressure 4,500 psi (31.0 MPa, 310 bar)

### Foaming Attachment Kit

- **24W436**: Bottle type foaming attachment, to be attached at the end of the gun wand.



# Pump Performance Tables

## Hydra-Clean 3000H

| 1000 psi (6.9 MPa, 69 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                      |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 2.3            | 8.7  | 1.2        | 4.4  | 1760           | 12.1, 121 | 1600             | 11.0, 110 |
| .025  | 0.64 | 2.8            | 10.4 | 1.4        | 5.4  | 1760           | 12.1, 121 | 1560             | 10.8, 108 |
| .030  | 0.76 | 3.5            | 13.1 | 1.8        | 6.6  | 1760           | 12.1, 121 | 1530             | 10.5, 105 |
| .045  | 1.14 | 4.9            | 18.4 | 2.6        | 9.7  | 1760           | 12.1, 121 | 1500             | 10.3, 103 |
| .065  | 1.65 | 6.8            | 25.7 | 3.5        | 13.4 | 1760           | 12.1, 121 | 1475             | 10.2, 102 |
| .080  | 2.03 | 8.1            | 30.7 | 4.2        | 15.7 | 1760           | 12.1, 121 | 1425             | 9.8, 98   |
| .090  | 2.29 | 8.6            | 32.6 | 4.5        | 16.8 | 1760           | 12.1, 121 | 1350             | 9.3, 93   |

| 1500 psi (10.3 MPa, 103 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                        |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 2.7            | 10.2 | 1.4        | 5.3  | 2580           | 17.8, 178 | 2370             | 16.3, 163 |
| .025  | 0.64 | 3.4            | 12.9 | 1.7        | 6.4  | 2580           | 17.8, 178 | 2350             | 16.2, 162 |
| .030  | 0.76 | 4.2            | 15.9 | 2.1        | 7.9  | 2600           | 17.9, 179 | 2300             | 15.9, 159 |
| .045  | 1.14 | 6.1            | 23.1 | 3.2        | 12.1 | 2590           | 17.9, 179 | 2260             | 15.6, 156 |
| .065  | 1.65 | 8.4            | 31.8 | 4.3        | 16.3 | 2615           | 18.0, 180 | 2190             | 15.1, 151 |
| .080  | 2.03 | 9.5            | 36.0 | 5.1        | 19.3 | 2580           | 17.8, 178 | 2050             | 14.1, 141 |
| .090  | 2.29 | 10.5           | 39.7 | 5.5        | 20.8 | 2580           | 17.8, 178 | 2015             | 13.9, 139 |

| 1900 psi (13.1 MPa, 131 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                        |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 3.0            | 11.5 | 1.6        | 6.1  | 3236           | 22.3, 223 | 3030             | 20.9, 209 |
| .025  | 0.64 | 3.7            | 13.9 | 1.9        | 7.3  | 3236           | 22.3, 223 | 2989             | 20.6, 206 |
| .030  | 0.76 | 4.7            | 17.8 | 2.4        | 9.2  | 3279           | 22.6, 226 | 2920             | 20.1, 201 |
| .045  | 1.14 | 6.8            | 25.6 | 3.5        | 13.1 | 3298           | 22.7, 227 | 2892             | 19.9, 199 |
| .065  | 1.65 | 9.4            | 35.6 | 4.8        | 18.2 | 3284           | 22.6, 226 | 2795             | 19.3, 193 |
| .080  | 2.03 | 11.2           | 42.5 | 5.7        | 21.7 | 3265           | 22.5, 225 | 2730             | 18.8, 188 |
| .090  | 2.29 | 12.1           | 45.9 | 6.1        | 23.2 | 3280           | 22.6, 226 | 2686             | 18.5, 185 |

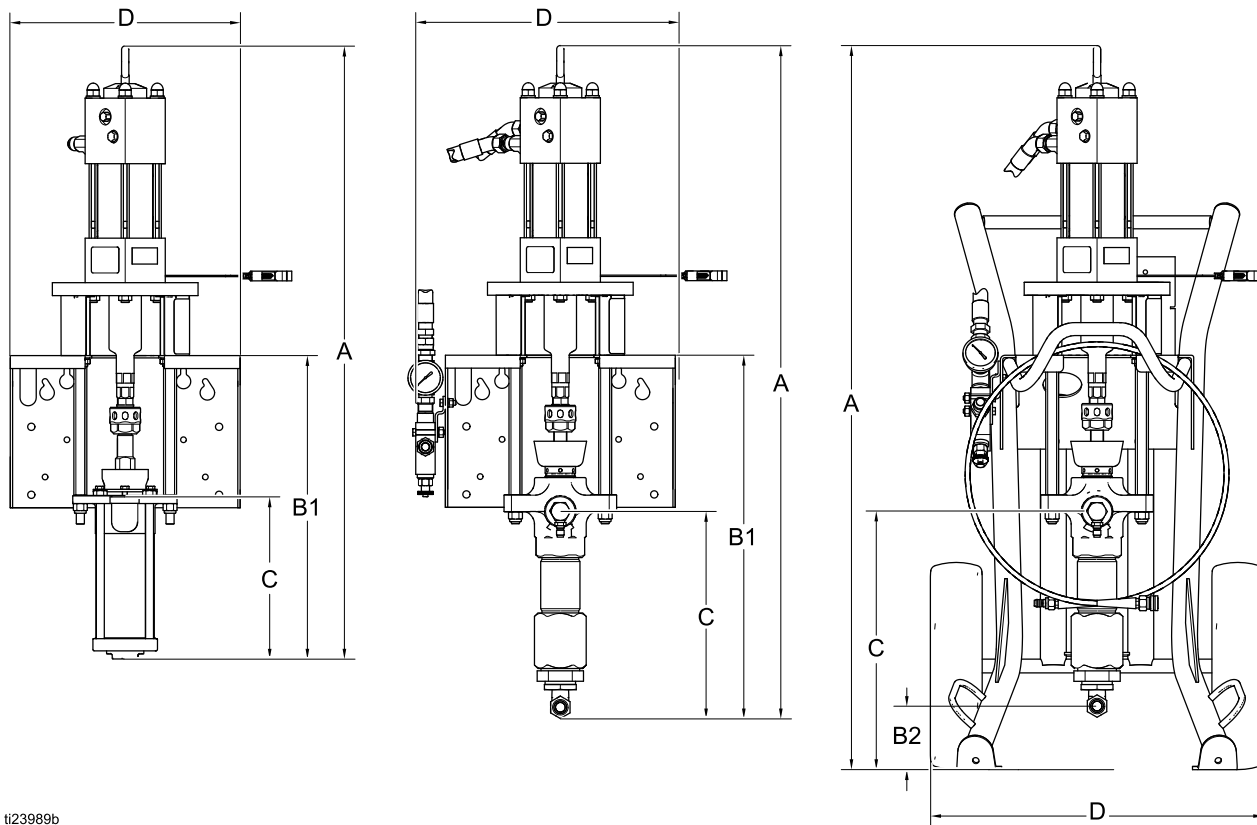
## Hydra-Clean 4300H

| 1000 psi (6.9 MPa, 69 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                      |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 4.0            | 15.1 | 1.4        | 5.3  | 2670           | 18.4, 184 | 2275             | 15.7, 157 |
| .025  | 0.64 | 4.8            | 18.2 | 1.7        | 6.4  | 2620           | 18.1, 181 | 2250             | 15.5, 155 |
| .030  | 0.76 | 6.0            | 22.7 | 2.1        | 7.9  | 2620           | 18.1, 181 | 2220             | 15.3, 153 |
| .045  | 1.14 | 8.3            | 31.4 | 3.0        | 11.4 | 2640           | 18.2, 182 | 2075             | 14.3, 143 |
| .065  | 1.65 | 11.0           | 41.6 | 3.9        | 14.8 | 2620           | 18.1, 181 | 1890             | 13.0, 130 |
| .080  | 2.03 | 13.4           | 50.7 | 4.6        | 17.4 | 2630           | 18.1, 181 | 1705             | 11.8, 118 |
| .090  | 2.29 | 14.2           | 53.8 | 4.8        | 18.2 | 2620           | 18.1, 181 | 1640             | 11.3, 113 |

| 1500 psi (10.3 MPa, 103 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                        |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 4.9            | 18.5 | 1.7        | 6.4  | 3930           | 27.1, 271 | 3550             | 24.5, 245 |
| .025  | 0.64 | 6.1            | 23.0 | 2.1        | 7.9  | 3950           | 27.2, 272 | 3485             | 24.0, 240 |
| .030  | 0.76 | 7.0            | 26.5 | 2.7        | 10.2 | 4000           | 27.6, 276 | 3450             | 23.8, 238 |
| .045  | 1.14 | 11.2           | 42.4 | 3.7        | 14.0 | 3975           | 27.4, 274 | 3250             | 22.4, 224 |
| .065  | 1.65 | 14.2           | 53.8 | 5.0        | 18.9 | 4000           | 27.6, 276 | 2920             | 20.1, 201 |
| .080  | 2.03 | 16.8           | 63.6 | 5.8        | 21.9 | 4000           | 27.6, 276 | 2650             | 18.3, 183 |
| .090  | 2.29 | 17.6           | 66.6 | 6.2        | 23.5 | 4050           | 27.9, 279 | 2575             | 17.8, 178 |

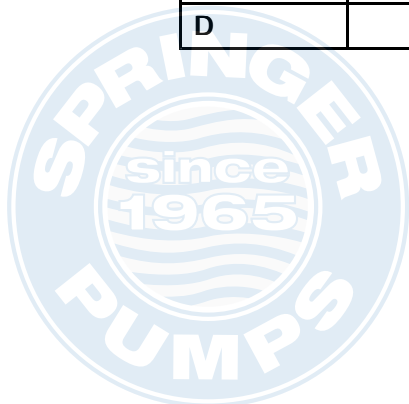
| 1900 psi (13.1 MPa, 131 bar) Hydraulic Supply |      |                |      |            |      |                |           |                  |           |
|---|------|----------------|------|------------|------|----------------|-----------|------------------|-----------|
| Spray Tip Orifice Size                        |      | Hydraulic Flow |      | Water Flow |      | Stall Pressure |           | Working Pressure |           |
| in.   | mm   | gpm            | lpm  | gpm        | lpm  | psi            | MPa, bar  | psi              | MPa, bar  |
| .020  | 0.51 | 5.8            | 22.0 | 1.9        | 7.2  | 4845           | 33.4, 334 | 4300             | 29.6, 296 |
| .025  | 0.64 | 6.8            | 25.7 | 2.3        | 8.7  | 4783           | 33.4, 334 | 4200             | 29.0, 290 |
| .030  | 0.76 | 8.3            | 31.4 | 2.8        | 10.6 | 4860           | 33.0, 330 | 4100             | 28.3, 283 |
| .045  | 1.14 | 11.8           | 44.7 | 4.0        | 15.1 | 4928           | 34.0, 340 | 3750             | 25.9, 259 |
| .065  | 1.65 | 15.5           | 58.7 | 5.3        | 20.1 | 4950           | 34.1, 341 | 3350             | 23.1, 231 |
| .080  | 2.03 | 18.0           | 68.1 | 6.0        | 22.7 | 4997           | 34.5, 345 | 3000             | 20.7, 207 |
| .090  | 2.29 | 19.0           | 71.9 | 6.5        | 24.6 | 4999           | 34.5, 345 | 2800             | 19.3, 193 |

# Dimensions



ti23989b

| Dimension | Wall Mount (24W891) |       | Wall Mount |       | Cart Mount |       |
|-----------|---------------------|-------|------------|-------|------------|-------|
|           | in.                 | cm    | in.        | cm    | in.        | cm    |
| A         | 47.3                | 120.1 | 52.0       | 132.1 | 55.9       | 142.0 |
| B1        | 23.4                | 59.4  | 28.4       | 72.1  |            |       |
| B2        |                     |       |            |       | 3.7        | 9.4   |
| C         | 12.6                | 32.0  | 12.7       | 32.3  | 12.7       | 32.3  |
| D         | 17.7                | 45.0  | 20.4       | 51.8  | 25.7       | 65.3  |



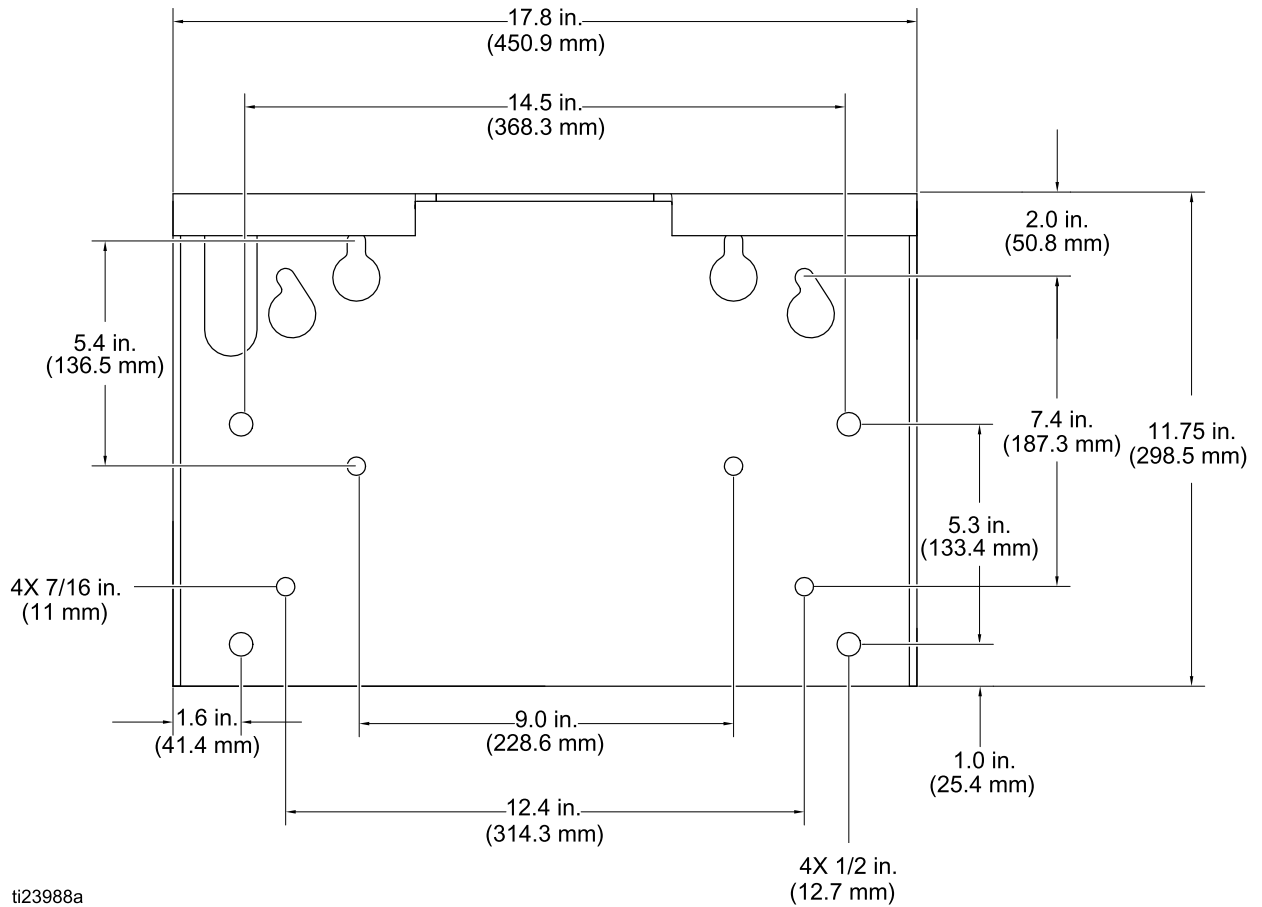
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# Mounting Hole Layout



ti23988a

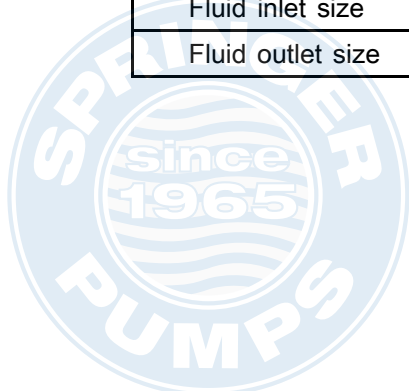






# Technical Data

| <b>Hydraulic Hydra-Clean Packages</b>   |  |                    |
|---|--|--------------------|
|   | <b>US</b>  | <b>Metric</b>      |
| <b>Maximum Hydraulic Input Pressure</b> |  |                    |
| Model 24W891                            | 865 psi  | 5.96 MPa, 59.6 bar |
| All Other Models                        | 1900 psi   | 13.1 MPa, 131 bar  |
| <b>Maximum Pump Output Pressure</b>     |  |                    |
| High-Pressure Models                    | 4300 psi   | 29.6 MPa, 296 bar  |
| Low-Pressure Models                     | 3000 psi   | 20.7 MPa, 207 bar  |
| Model 24W891                            | 660 psi  | 4.6 MPa, 46 bar    |
| Hydraulic Fluid Consumption             | 0.2 g per cycle  | 0.75 l per cycle   |
| Maximum Recommended Pump Speed          | 90 cpm, 6.5 gpm  | 90 cpm, 24.6 lpm   |
| Maximum Operating Temperature           | 180°F  | 82°C               |
| Maximum Hydraulic Fluid Temperature     | 130°F  | 54°C               |
| <b>Wetted Parts</b>                     |  |                    |
| High-Pressure Models                    | 304, 316, 440, and 17-4 PH grades of stainless steel, tungsten carbide, PTFE, glass-filled PTFE. Packings: CF-PTFE, UHMWPE |                    |
| Low-Pressure Models                     | 304, 329, 440, and 17-4 PH grades of stainless steel, tungsten carbide, acetal, and PTFE. Packings: graphite/PTFE, UHMWPE  |                    |
| <b>Fluid Flow</b>                       |  |                    |
| Maximum Fluid Flow (at 90 cpm)          | 6.5 gpm  | 24.6 lpm           |
| Fluid Flow at 60 cpm                    | 4.5 gpm  | 17.0 lpm           |
| <b>Inlet/Outlet Sizes</b>               |  |                    |
| Hydraulic inlet size                    | 3/4 in. #12 JIC  |                    |
| Hydraulic outlet size                   |  |                    |
| Model 24W891                            | 1 in. npt  |                    |
| All other models                        | 3/4 in. #12 JIC  |                    |
| Fluid inlet size                        | 1 in NPSM  |                    |
| Fluid outlet size                       | 3/8 QC   |                    |



| Weight                              |  |        |
|-------------------------------------|--|--------|
| 24V616, 3000H Cart                  | 392 lb.  | 178 kg |
| 24V628, 3000H Wall                  | 311 lb.  | 141 kg |
| 24V617, 4300H Cart                  | 384 lb.  | 174 kg |
| 24V629, 4300H Wall                  | 305 lb.  | 138 kg |
| 24W474, 3000H Cart, with hose reel. | 412 lb.  | 187 kg |
| 24W891, 660H Wall                   | 295 lb.  | 134 kg |
| Sound pressure                      | 88 dB(A) at 1450 psi hydraulic pressure, 25 cycles/min, tested in accordance with ISO 3744). |        |
| Sound power                         | 103 dB(A) at 1450 psi hydraulic pressure, 25 cycles/min. tested in accordance with ISO 3744  |        |



# Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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**International Offices:** Belgium, China, Japan, Korea

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