Instructions

E-Flo® DCi 2-Ball Pumps

3A7826C

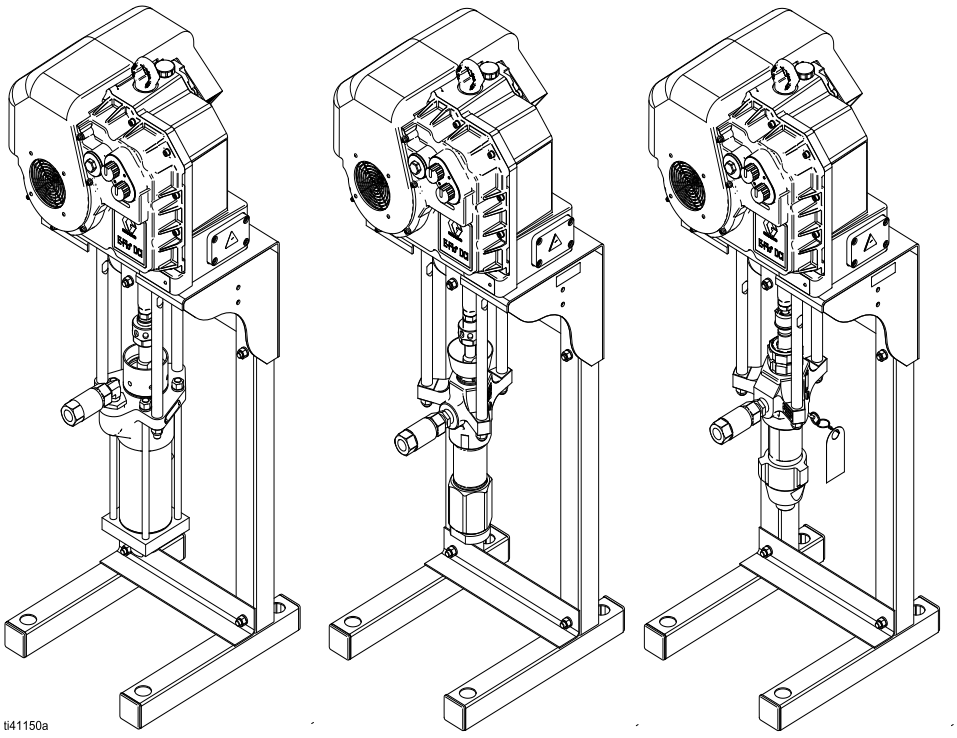
EN

Electric drive piston pumps for high volume paint circulation applications. For professional use only

See page 3 for model description and page 37 for maximum working pressure.

Important Safety Instructions

Read all warnings and instructions in this manual and in the **Related Manuals** before using the equipment. Save all instructions.



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Contents

Related Manuals

Manual No.	Description	Referenced Equipment
3A8352	E-Flo® DCi Motor Installation and Operation Manual	Motor ★
311717	Carbon Steel 1000 cc Lower, Instructions/Parts	Lower ★
311762	Xtreme® Lowers, Repair/Parts Manual	
311825	Dura-Flo® Lowers, Instructions/Parts Manual	
311827	Dura-Flo® Lowers, Repair/Parts Manual	
311619	Pump Mounting Kits Instructions	Pump Mount
3A8471	DCi Link Control Module	Control Module
3A8815	E-Flo Dci Repair Manual	Motor
★ Find your specific motor and lower model in the **Pump Matrix** on page 20.		

Models

The part number for your equipment is printed on the equipment identification label. The part number consists for six alphanumeric digits which are based on pump configuration as shown in the following table. The full pump model numbers and associated motor and lower model numbers are listed in the **Pump Matrix** on page 20. For motor and lower repair manuals, see **Related Manuals** on page 2.

First 5 Digits	Sixth Digit					
Basic, Three Phase Motor	**Mounting Type**	**Horsepower and Lower Size**		**Lower Type**	**Motor Agency Approvals ++**	**Pressure Ratio**
Y06BK	0: No Stand 1: Stand	3 HP	1000cc	UHMW / Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	6:1
Y06DK		3 HP	1000cc	UHMW / Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	6:1
Y06BG		3 HP	1000cc	PTFE / PTFE, Stainless	ATEX, IECEx, MET, UKEx	6:1
Y06DG		3 HP	1000cc	PTFE / PTFE, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	6:1
Y10BK		5 HP	1000cc	UHMW / Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	10:1
Y10DK		5 HP	1000cc	UHMW / Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	10:1
Y12BD		3 HP	580cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	12:1
Y12DD		3 HP	580cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	12:1
Y12BA		3 HP	580cc	3UHMW / 2 PTFE Stainless	ATEX, IECEx, MET, UKEx	12:1
Y12DA		3 HP	580cc	3UHMW / 2 PTFE Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	12:1
Y15BD		3 HP	425cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	15:1
Y15DD		3 HP	425cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	15:1
Y15BB		3 HP	425cc	3 UHMW/2 Tuffstack, Stainless	ATEX, IECEx, MET, UKEx	15:1
Y15DB		3 HP	425cc	3 UHMW/2 Tuffstack, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	15:1
Y23BD		5 HP	580cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	23:1
Y23DD		5 HP	580cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	23:1
Y23BA		5 HP	580cc	3UHMW / 2 PTFE Stainless	ATEX, IECEx, MET, UKEx	23:1

Y23DA		5 HP	580cc	3UHMW / 2 PTFE Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	23:1
Y25B1		3 HP	290cc	3 Xtreme / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	25:1
Y25D1		3 HP	290cc	3 Xtreme / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	25:1
Y25BE		3 HP	290cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, MET, UKEx	25:1
Y25DE		3 HP	290cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	25:1
Y30B1		3 HP	220cc	3 Xtreme / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	30:1
Y30D1		3 HP	220cc	3 Xtreme / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	30:1
Y30BE		3 HP	220cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, MET, UKEx	30:1
Y30DE		3 HP	220cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	30:1
Y32BD		5 HP	425cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, MET, UKEx	32:1
Y32DD		5 HP	425cc	3 PTFE / 2 Leather, Carbon Steel	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	32:1
Y32BB		5 HP	425cc	3 UHMW/2 Tuffstack, Stainless	ATEX, IECEx, MET, UKEx	32:1
Y32DB		5 HP	425cc	3 UHMW/2 Tuffstack, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	32:1
Y40BE		3 HP	180cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, MET, UKEx	40:1
Y40DE		3 HP	180cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	40:1
Y45BE		5 HP	290cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, MET, UKEx	45:1
Y45DE		5 HP	290cc	4 Leather /1 PTFE, Stainless	ATEX, IECEx, JPEx, KCs Ex, CCC-Ex	45:1

‡ Motor approvals are listed in the E-Flo DCi motor manual. See **Related Manuals**, page 2.

Approvals

Pump Model	Pump Approvals
YBxxxx YDxxxx	CE UKCA II 2 G Ex db h IIB T3 Gb 0°C ≤ Ta ≤ 40°C

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.

DANGER

SEVERE ELECTRIC SHOCK HAZARD

This equipment is powered by more than 240V. Contact with this voltage will cause death or serious injury.

- Turn off and disconnect the power at the main switch before disconnecting any cables and before servicing equipment.
- This equipment must be grounded. Connect only to a grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well-ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Keep work area free of debris, including solvent, rags, and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

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 Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) 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.

MOVING PARTS HAZARD

Moving parts can pinch, cut, or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

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 Safety Data Sheets (SDSs) 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.

⚠ WARNING

BURN HAZARD

Equipment surfaces and fluid that is 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. 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.

Typical Installation

The system accessories shown in FIG. 1 are not included. Contact your Graco distributor to design a complete system.

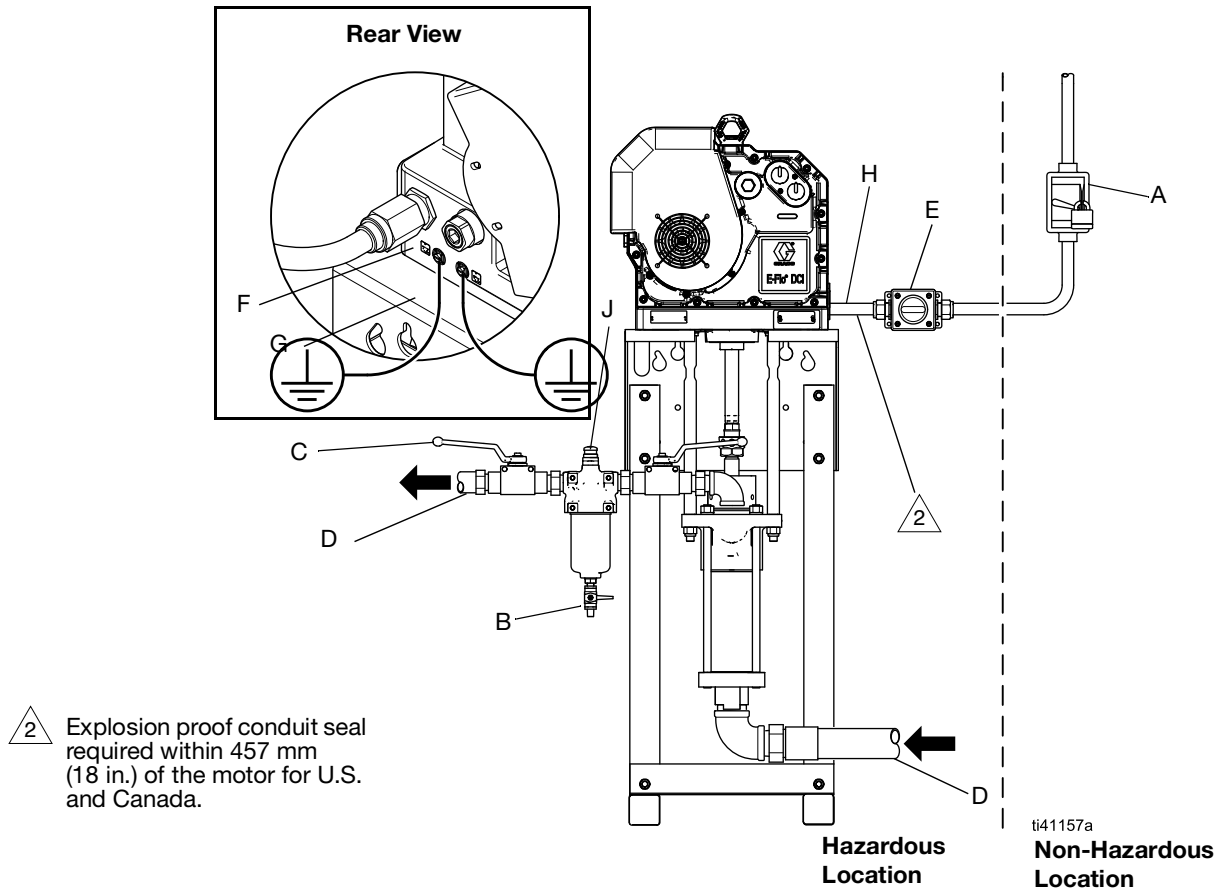


FIG. 1 Typical Installation

Key:

A Electrical disconnect
B Fluid drain valve
C Fluid shutoff valve
D Fluid line
E Start/stop switch
F Ground wire connection
G Static ground wire
H Explosion proof conduit seal
J Fluid filter

Installation

Installation of this equipment involves potentially hazardous procedures. Only trained and qualified personnel who have read and who understand the information in this manual should install this equipment. All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

Hazardous Location Cabling and Conduit Requirements

Explosion Proof Requirements

All electrical wiring in the hazardous locations must be encased in approved explosion-proof conduit that is suitable for Class I, Division I, Group C and D locations. Follow all national, state, and local electrical codes and regulations.

US and Canada Conduit Location Requirement: Install a conduit seal within 457 mm (18 in.) of the motor enclosure.

Cable Rating Requirement: Use cables with a minimum rating of 70°C (158°F).

Flame Proof Requirements

Use appropriate conduit, connectors, and cable glands rated for Ex II 2 G. Follow all national, state, and local electrical codes and regulations.

Cable Rating Requirement: Use cables with a minimum rating of 70°C (158°F). When installing Dci Link, see manual 3A8471 for cable selection.

Power Requirements

The system requires a dedicated circuit protected with a circuit breaker in each ungrounded phase.

Model by Horsepower	Voltage	Phase	Hz	kVA
3 HP (2.24 kW)	380–480 Vac	3	50/60	3.4
5 HP (3.73 kW)	380–480 Vac	3	50/60	5.7

Location Requirements

- There must be sufficient space on all sides of the equipment for installation, operator access, maintenance, and air circulation.
- The mounting surface and mounting hardware must be strong enough to support the weight of the equipment, fluid, hoses, and stress caused during operation.
- There must be an electrical disconnect (A) within easy reach of the equipment. See FIG. 1 **Typical Installation**, page 9.

Mount the Pump

Follow the instructions in the pump mounting kit manual to mount the pump on a stand or on the wall. See **Related Manuals**, page 2.

Stand Mount

1. Use the **Floor Stand Mounting Pattern**, page 38.
2. Bolt the stand to the floor with M19 (5/8 in.) bolts. Use bolts that engage at least 152 mm (6 in.) into the concrete floor to prevent the pump from tipping.
3. Use shims to level the pump if needed.

Wall Mount

1. Purchase a stand mount motor to use the wall bracket.
2. Use the wall mount bracket as a template.

NOTE: The bracket has two mounting hole groups. See **Mounting Bracket Pattern**, page 37.

3. Drill four 7/16 in. (11 mm) holes into the wall. Bolt the bracket securely to the wall. Always use bolts and washers designed to hold in the wall's construction.
4. Attach the pump assembly to the mounting bracket.

Required System Accessories

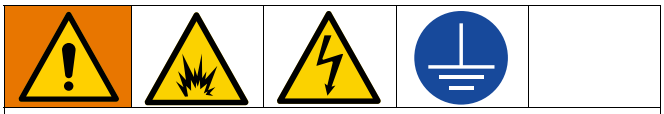
- **Electrical disconnect (A):** Required in the system to disconnect and isolate electricity from the motor.
- **Start stop switch (E):** Temporarily runs or stops the motor. Must be approved for hazardous locations.

Required Fluid Line Accessories

Install accessories as shown in FIG. 1, using adapters as necessary. Make sure they meet the system's size and pressure rating requirements. See **Technical Specifications**, page 37.

- **Fluid drain valve (B):** Required in the system to relieve pressure in the hose and circulation system.
- **Fluid shutoff valve (C):** shuts off fluid flow.

Grounding



The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

Static Grounding

Use a ground wire (G) to connect the motor to a true earth ground.

1. Loosen the ground screw.
2. Insert a ground wire (G).

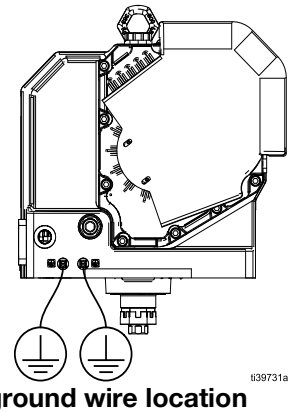


FIG. 2 Motor ground wire location

3. Tighten the ground screw securely.
4. Connect the other end of the ground wire (G) to a true earth ground.

Electrical Grounding

1. Ensure that the electrical disconnect (A) is shut off and locked out.

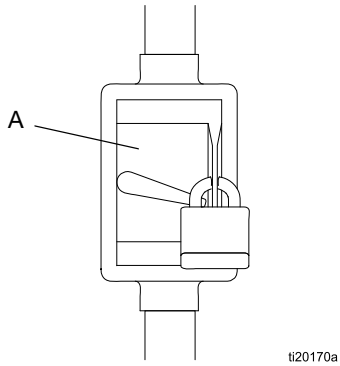


FIG. 3 Locked out disconnect example

2. Remove the cover to access the motor electrical wiring compartment (EC).

3. Connect the supply ground wire to GND.

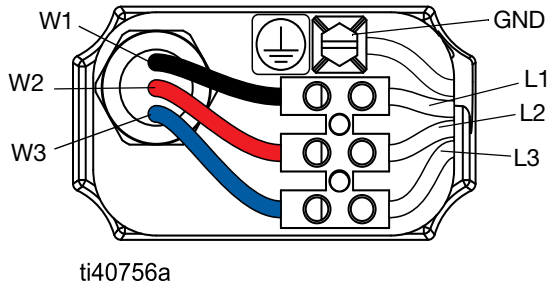


FIG. 4 Motor wiring

4. Connect the other end of the supply ground wire to a true earth ground.

Component Grounding

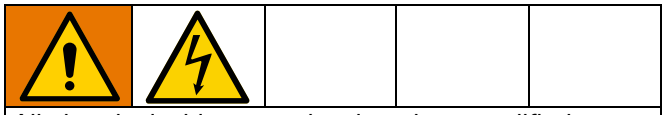
Fluid hoses: Use only electrically conductive hoses with a maximum of 500 ft. (150 m) combined hose length to ensure grounding continuity. Check the electrical resistance of hoses. If total resistance to ground exceeds 25 megohms, replace hose immediately.

Fluid supply container: Follow your 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 non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.

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

Connect Supply Wiring



All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

1. Ensure that the electrical disconnect (A) is shut off and locked out. See FIG. 3.

2. Bring the power wires (L1, L2, and L3) through the 3/4-14npt(f) inlet port of the electrical wiring compartment. Connect the wires to the terminal blocks.

3. Torque terminal screws (TS) to 7 in-lb (0.79 N•m). **Do not over-torque.**

4. Close the electrical wiring compartment (EC). Torque the cover screws (CS) to 15 ft-lb (20 N•m).

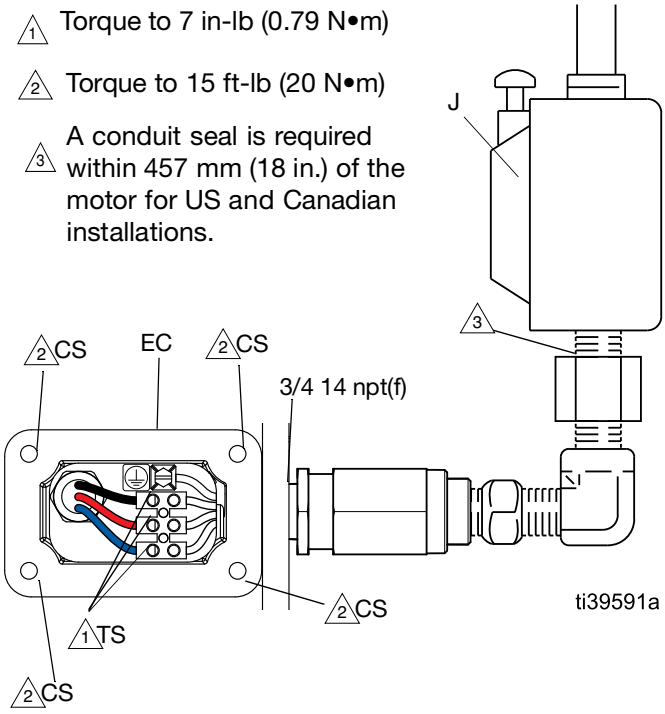


FIG. 5 Motor electrical compartment wires

Install the Fill Cap

The motor is pre-filled with oil. Replace the shipping plug with the fill cap (FC) before first use. Install fill cap and hand tight.

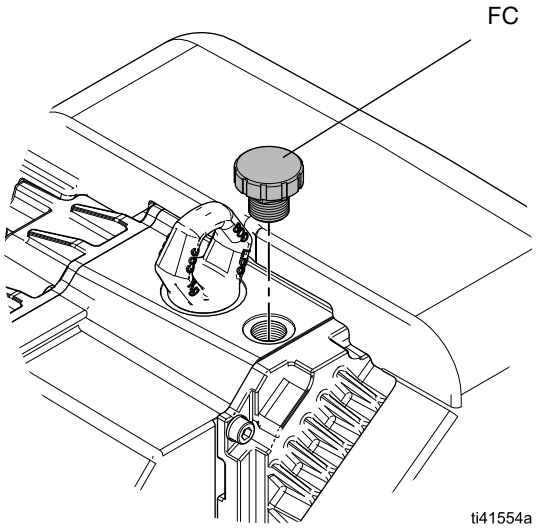


FIG. 6 Fill cap

Flush Before Using the Equipment

The pump fluid section was tested with 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.

Operation

Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing the equipment.

1. Shut off the start/stop switch (E).
2. Shut off and lock out the electrical disconnect (A).
3. Open the fluid drain valve (B), having a grounded waste container ready to catch drainage. Leave open until you are ready to pressurize the system again.

Startup

1. Follow the motor start up instructions in the motor operation manual. See **Related Manuals**, page 2
2. Run the pump at a slow speed until the pump primes the fluid lines and forces air out of the system.

Shutdown

1. Follow the **Pressure Relief Procedure**, page 14.
2. Follow the shutdown instructions in the motor manual. See **Related Manuals**, page 2

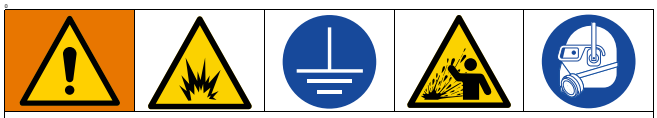
Maintenance

Preventive Maintenance Schedule

The operating conditions of your particular system determine how often maintenance is required.

Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

Flushing Procedure



To avoid fire and explosion, always ground equipment and waste container. To avoid static sparking and injury from splashing, always flush at the lowest possible pressure.

- Flush before changing fluids, before fluid can dry in the equipment, before storing, and before repairing equipment.
- Flush at the lowest pressure possible. Check connectors for leaks and tighten as necessary.
- Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts

1. Follow the **Pressure Relief Procedure** on page 14.
2. Supply a compatible flushing material to the system.
3. Set pump to lowest possible fluid pressure, and start the pump.
4. Flush long enough to thoroughly clean the system.
5. Follow the **Pressure Relief Procedure** on page 14.

Change the Oil

Change the oil after a break-in period of 200,000–300,000 cycles. After the break-in period, change the oil once a year.

1. Place a minimum 2 quart (1.9 liter) container under the oil drain port.
2. Remove the oil drain plug.
3. Allow all oil to drain from the motor.
4. Reinstall the oil drain plug. Torque to 15–20 ft-lb (20–27 N•m).
5. **Add Oil**, page 16.

Check Oil Level

Check the oil level in the sight glass (SG). The oil level should be near the halfway point of the sight glass when the unit is not running.

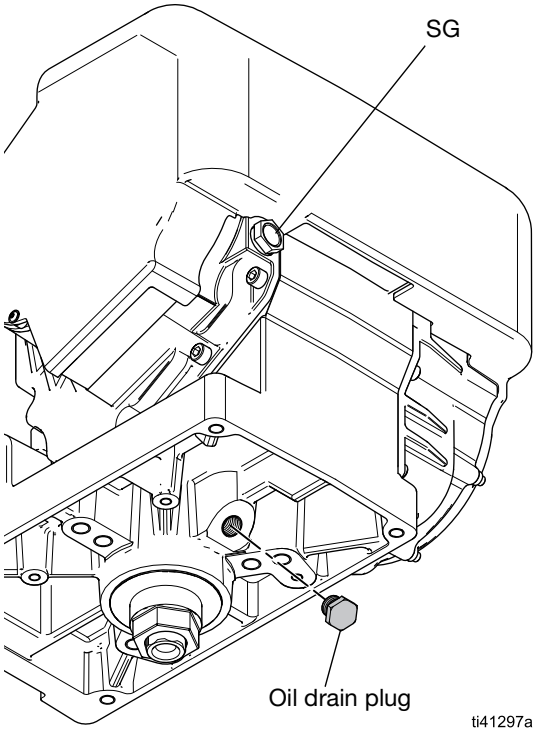


FIG. 7 Oil drain plug and sight glass

Add Oil

1. Open the fill cap (FC).
2. Add a compatible oil. See **Technical Specifications** on page 37.

NOTE: The oil capacity is 2.0 quarts (1.9 liters). Do not overfill.

3. Reinstall the fill cap (FC)- Hand tight

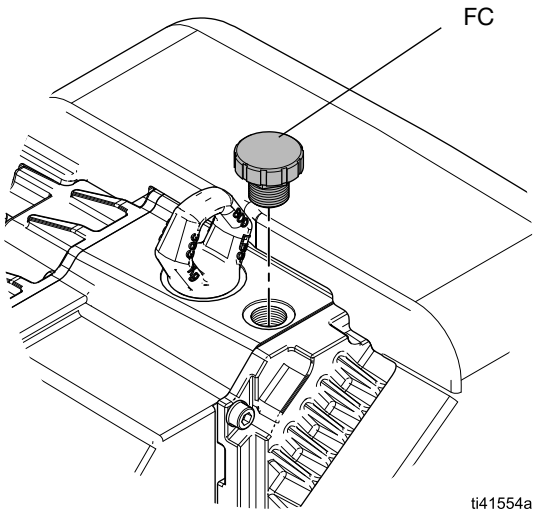
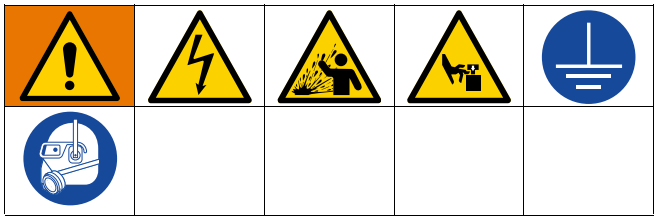


FIG. 8 Fill cap location

Troubleshooting

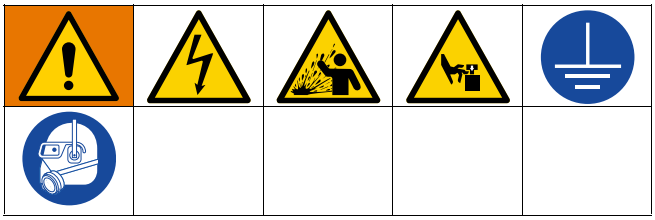


1. Follow the **Pressure Relief Procedure** on page 14, before checking or repairing the equipment.
2. Check all possible remedies before disassembling the pump.

NOTE: The LED on the motor will blink if an error is detected. Refer to the motor manual for Error Code Troubleshooting.

Problem	Cause	Solution
Pump output low on both strokes.	Inadequate supply voltage	Verify supply voltage. See **Technical Specifications**, page 37.
	Exhausted or inadequate fluid supply	Refill the pump fluid supply.
	Clogged fluid components	Clear clogged components.
	Worn piston seal	Replace piston seal. ✓
Pump output low on only one stroke.	Held open or worn ball check valves	Check and repair ball check valves. ✓
	Worn piston packing	Replace packings. ✓
No output.	Improperly installed ball check valves	Check and repair the ball check valves. ✓
Pump operates erratically.	Exhausted or inadequate fluid supply	Refill the pump fluid supply.
	Held open or worn ball check valves	Check and repair the ball check valves. ✓
	Worn piston seal	Replace piston seal. ✓
Pump will not operate.	Inadequate supply voltage	Verify supply voltage. See **Technical Specifications**, page 37.
	Clogged fluid components	Clear the clogged components.
	Fluid dried on piston rod	Disassemble and clean pump. ✓ **NOTE:** Stop pump at bottom of stroke to avoid piston rod damage.
✓ See your lower repair manual that corresponds with your model. Repair manuals vary by model. Find your specific lower model in the **Pump Matrix** on page 20.		

Repair



Prepare Equipment for Service

1. Stop the pump at the bottom of its stroke.
2. Shut off and lock out the electrical disconnect (A).
3. Follow the **Pressure Relief Procedure**, page 14.
4. Follow the **Flushing Procedure**, page 15.
5. Disconnect the hoses from the lower and plug the ends to prevent fluid contamination.

Disconnect the Pump Lower

Disconnect the lower from the motor. Use a repair manual that corresponds with your pump model. Identify pump models with carbon or stainless steel lowers in **Models** on page 3. Find your specific lower model in the **Pump Matrix** on page 20.

Carbon Steel Lowers

1. Remove the hairpin clip (23) and slide the coupling cover (22) up to remove the coupling assembly (14).

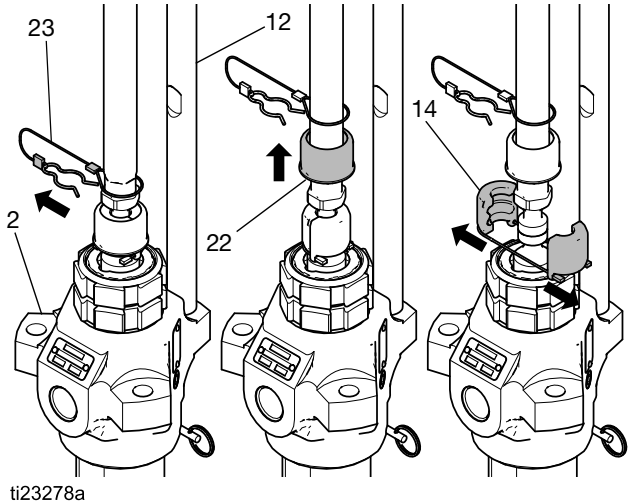


FIG. 9 Loosen the coupler

2. Unscrew the locknuts (20) from the tie rods (12).
3. Separate the lower (2) from the tie rods (12).

Stainless Steel Lowers

1. Loosen the coupling nut (16) from the coupling adapter (13), and remove the coupling collar (15).

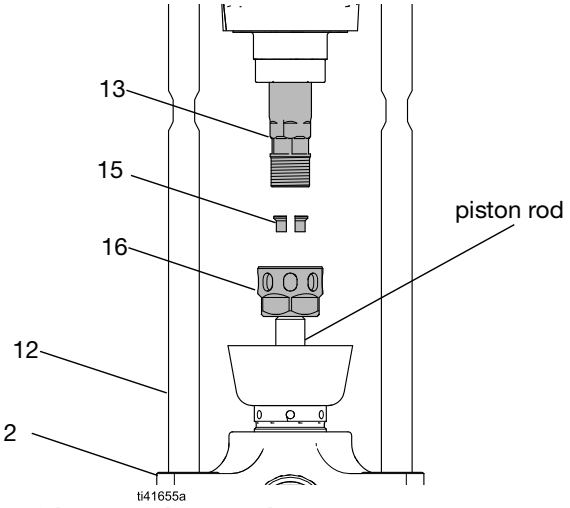


FIG. 10 Loosen the coupler

2. Remove the coupling nut (16) from the piston rod.
3. Unscrew the locknuts (20) from the tie rods (12).
4. Separate the lower (2) from the tie rods (12).

Reconnect the Lower and Motor

If the coupling adapter (13) and tie rods (12) have not been disassembled from the motor (1), skip to **Carbon Steel Lowers**, page 19, or **Stainless Steel Lowers**, page 19.

If the coupling adapter (13) and tie rods (12) have been disassembled from the motor (1), follow these steps:

1. Screw the tie rods (12) into the motor (1) and torque to 50-60 ft-lb (68-81 N•m).
2. Apply red thread locker to the coupling adapter (13).
3. Screw the coupling adapter (13) into the motor shaft and torque to 90–100 ft-lb (122–135 N•m).

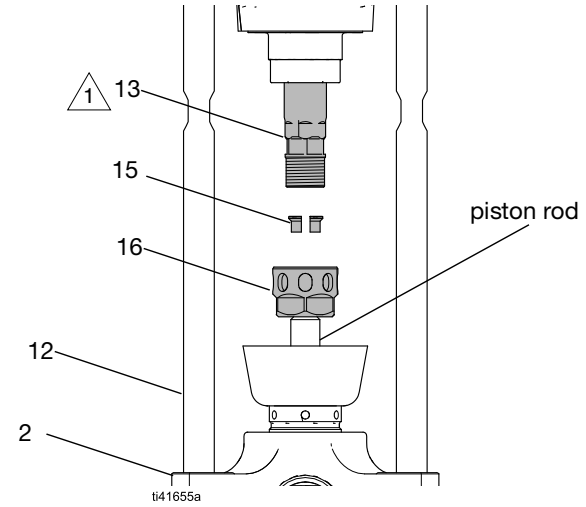
4. Continue to **Carbon Steel Lowers**, page 19, or **Stainless Steel Lowers**, page 19.

Carbon Steel Lowers

1. Orient the lower (2) to the motor (1). Position the lower on the tie rods (12).
2. If you are reusing lock nuts (20) and the nylon of the lock nut is worn or cut, add blue thread locker to the tie rod threads.
3. Screw the lock nuts (20) onto the tie rods (12). Tighten the lock nuts (20) and torque to 50–60 ft-lb (68–81 N•m).
4. Raise the motor shaft. Place the coupling cover (22) on the coupling adapter (13) and lower the motor shaft. Place the coupling assembly (14) onto the lower (2) and slide the coupling cover (22) over the coupling assembly (14). Insert the hairpin clip (23).
5. Tighten the lock nuts (6) and torque to 50-60 ft-lb (68-81 N•m).
6. Continue to **Test Pump Operation**, page 19.

Stainless Steel Lowers

1. Assemble the coupling nut (13) over the piston rod.
2. Orient the lower (2) to the motor (1). Position the lower on the tie rods (4).
3. If you are reusing lock nuts (20) and the nylon of the lock nut is worn or cut, add blue thread locker to the tie rod threads.
4. Screw the lock nuts (20) onto the tie rods (12). Leave the lock nuts (20) loose enough to allow the lower to move so that it can be aligned correctly.



1 Apply red thread locker.

FIG. 11 Attach the coupler

5. Insert the coupling collars (15) into the coupling nut (16). Tighten the coupling nut (16) onto the coupling adapter (13) and torque to 90–100 ft-lb (122–135 N•m) to align the motor shaft with the piston rod.
6. Tighten the lock nuts (6) and torque to 50-60 ft-lb (68-81 N•m).
7. Continue to **Test Pump Operation**, page 19.

Test Pump Operation

1. Test the pump operation before reinstalling it in the system.
   a. Connect hoses and flush the pump. See **Flushing Procedure**, page 15.
   b. Check for smooth operation and leaks while flushing.
   c. Adjust or repair as necessary before reinstalling in the system.
2. Reconnect the pump ground wire before operating.

Pump Matrix

Y40xxx

Pumps with 3 HP motors and 180 cc Lowers

Pump Model	Motor	Lower
Y40BE0	YM1132	236456
Y40DE0	YM1134	236456
Y40BE1	YM1132	236456
Y40DE1	YM1134	236456

Y30xxx

Pumps with 3 HP motors and 220 cc lower displacement

Pump Model	Motor	Lower
Y30B10	YM1132	L220C1
Y30D10	YM1134	L220C1
Y30BE0	YM1132	236470
Y30DE0	YM1134	236470
Y30B11	YM1132	L220C1
Y30D11	YM1134	L220C1
Y30BE1	YM1132	236470
Y30DE1	YM1134	236470

Y25xxx

Pumps with 3 HP motor and 290 cc lower displacement

Pump Model	Motor	Lower
Y25B10	YM1132	L290C1
Y25D10	YM1134	L290C1
Y25BE0	YM1132	237514
Y25DE0	YM1134	237514
Y25B11	YM1132	L290C1
Y25D11	YM1134	L290C1
Y25BE1	YM1132	237514
Y25DE1	YM1134	237514

Y45xxx

Pumps with 5 HP motor and 290 cc lower displacement

Pump Model	Motor	Lower
Y45BE0	YM1152	237514
Y45DE0	YM1154	237514
Y45BE1	YM1152	237514
Y45DE1	YM1154	237514

Y32xxx

Pumps with 5 HP motors and 430 cc Lowers

Pump Model	Motor	Lower
Y32BD0	YM1152	20B119
Y32DD0	YM1154	20B119
Y32BB0	YM1152	687055
Y32DB0	YM1154	687055
Y32BD1	YM1152	20B119
Y32DD1	YM1154	20B119
Y32BB1	YM1152	687055
Y32DB1	YM1154	687055

Y15xxx

Pumps with 3 HP motor and 430 cc lower displacement

Pump Model	Motor	Lower
Y15BD0	YM1132	20B119
Y15DD0	YM1134	20B119
Y15BD1	YM1132	20B119
Y15DD1	YM1134	20B119
Y15BB1	YM1132	687055
Y15DB1	YM1134	687055
Y15BB0	YM1132	687055
Y15DB0	YM1134	687055

Y12xxx

Pumps with 3HP motor and 580 cc lower displacement

Pump Model	Motor	Lower
Y12BD0	YM1132	20B120
Y12DD0	YM1134	20B120
Y12BA0	YM1132	20B121
Y12DA0	YM1134	20B121
Y12BD1	YM1132	20B120
Y12DD1	YM1134	20B120
Y12BA1	YM1132	20B121
Y12DA1	YM1134	20B121

Y23xxx

Pumps with 5 HP motor and 580 cc lower displacement

Pump Model	Motor	Lower
Y23BD0	YM1152	20B120
Y23DD0	YM1154	20B120
Y23BA0	YM1152	20B121
Y23DA0	YM1154	20B121
Y23BD1	YM1152	20B120
Y23DD1	YM1154	20B120
Y23BA1	YM1152	20B121
Y23DA1	YM1154	20B121

Y06xxx

Pumps with 3 HP motor and 1000 cc lower displacement

Pump Model	Motor	Lower
Y06BK0	YM1132	253597
Y06DK0	YM1134	253597
Y06BG0	YM1132	253596
Y06DG0	YM1134	253596
Y06BK1	YM1132	253597
Y06DK1	YM1134	253597
Y06BG1	YM1132	253596
Y06DG1	YM1134	253596

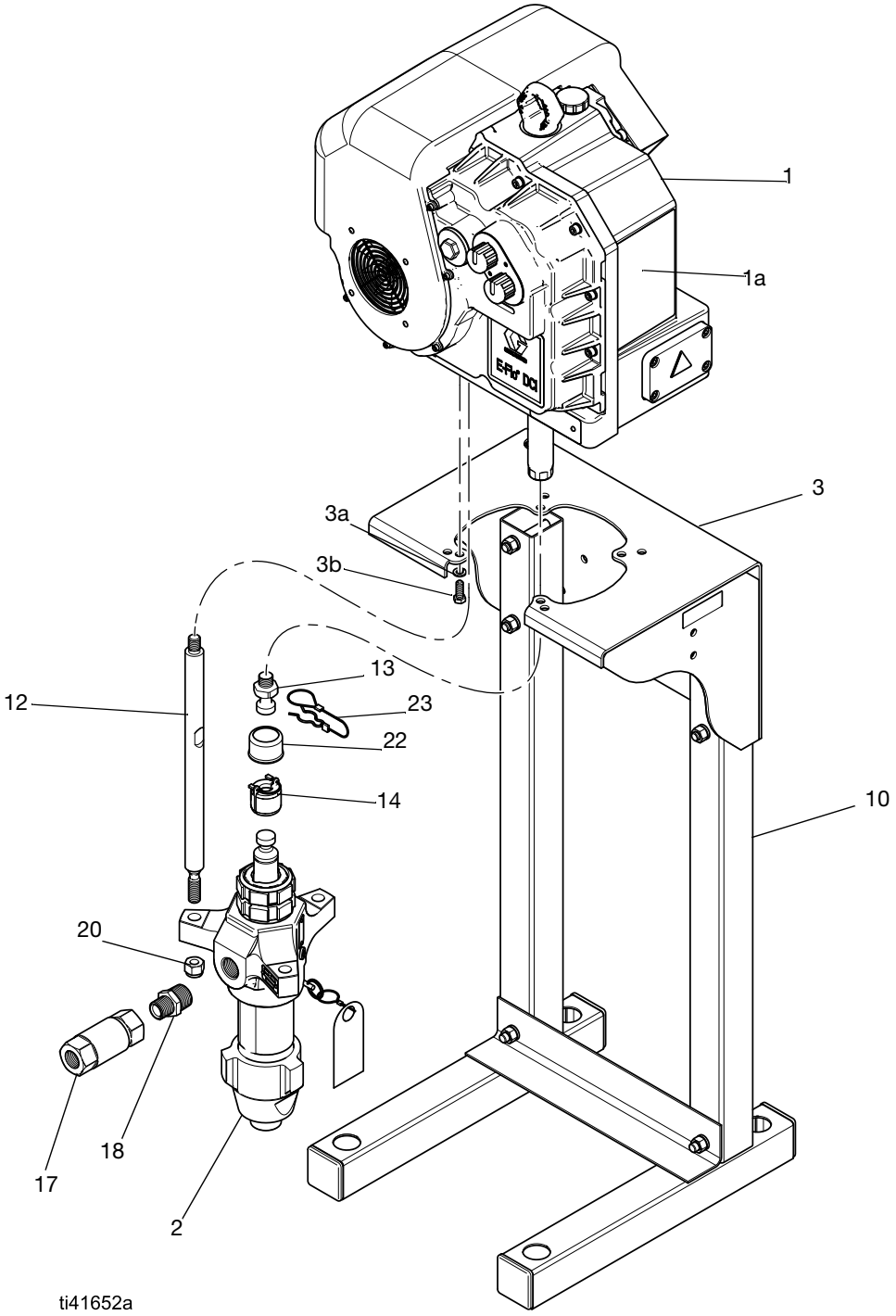
Y10xxx

Pumps with 5 HP motor and 1000 cc lower displacement

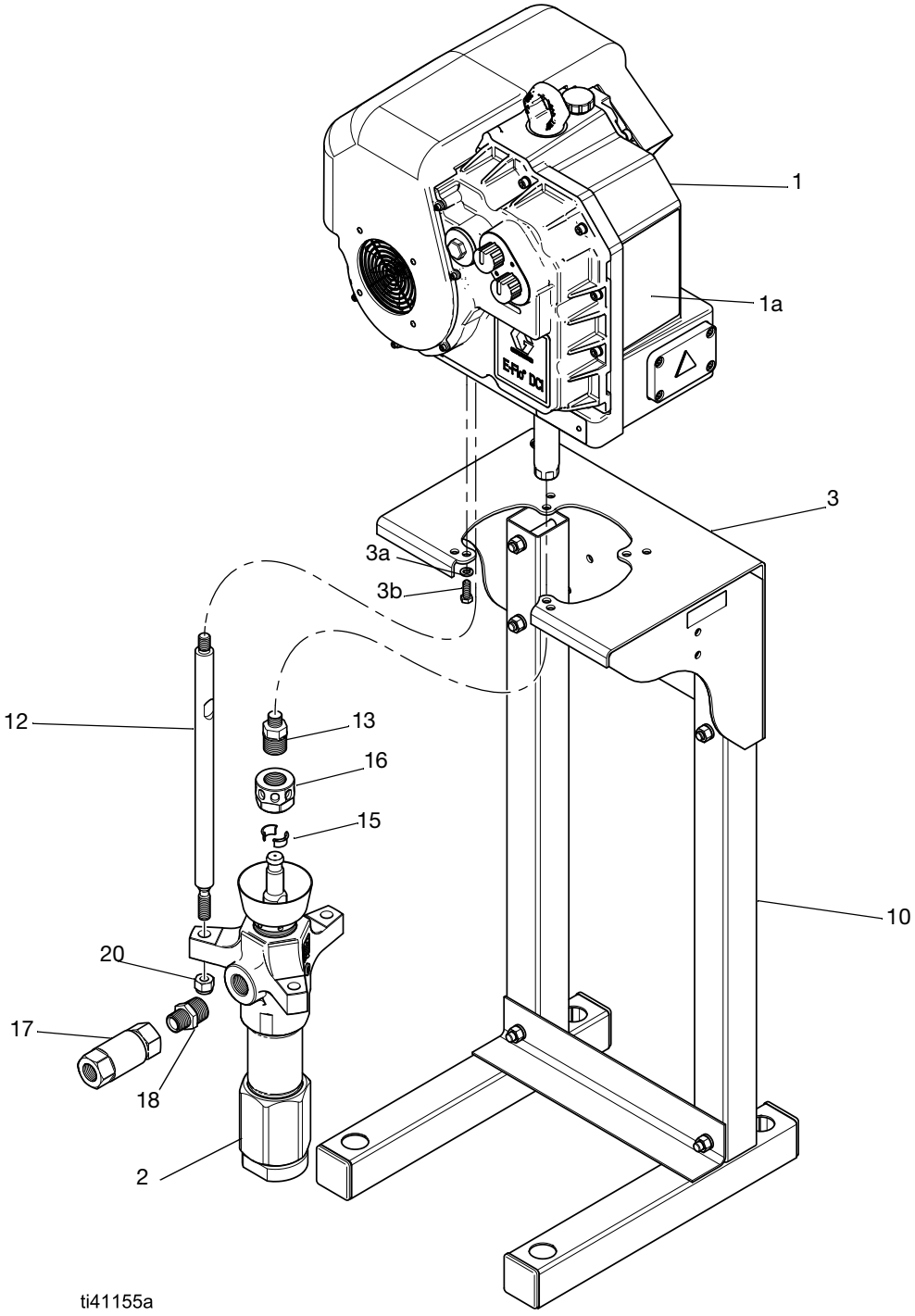
Pump Model	Motor	Lower
Y10BK0	YM1152	253597
Y10DK0	YM1154	253597
Y10BK1	YM1152	253597
Y10DK1	YM1154	253597

Parts

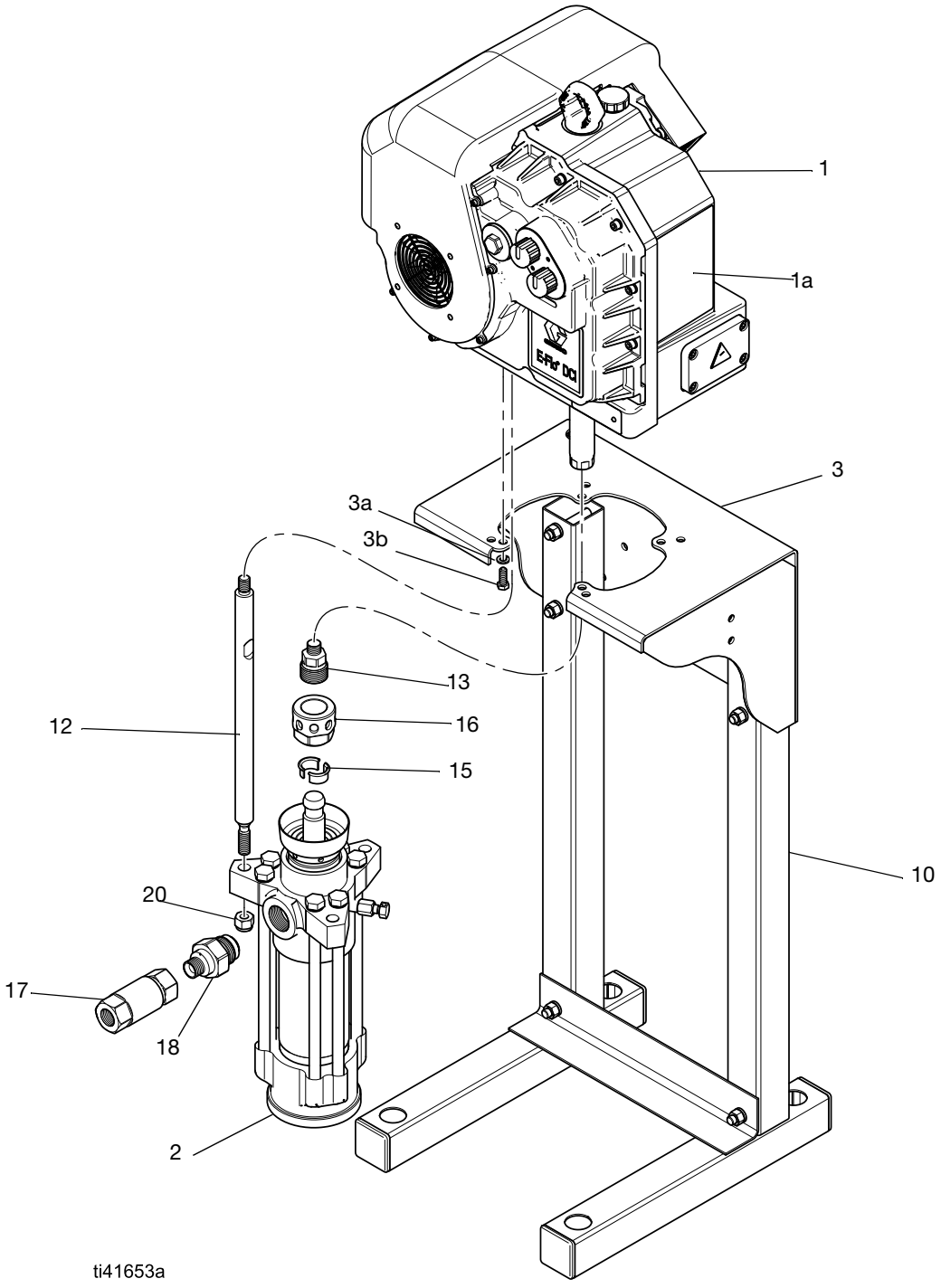
Y30x1x, Y25x1x



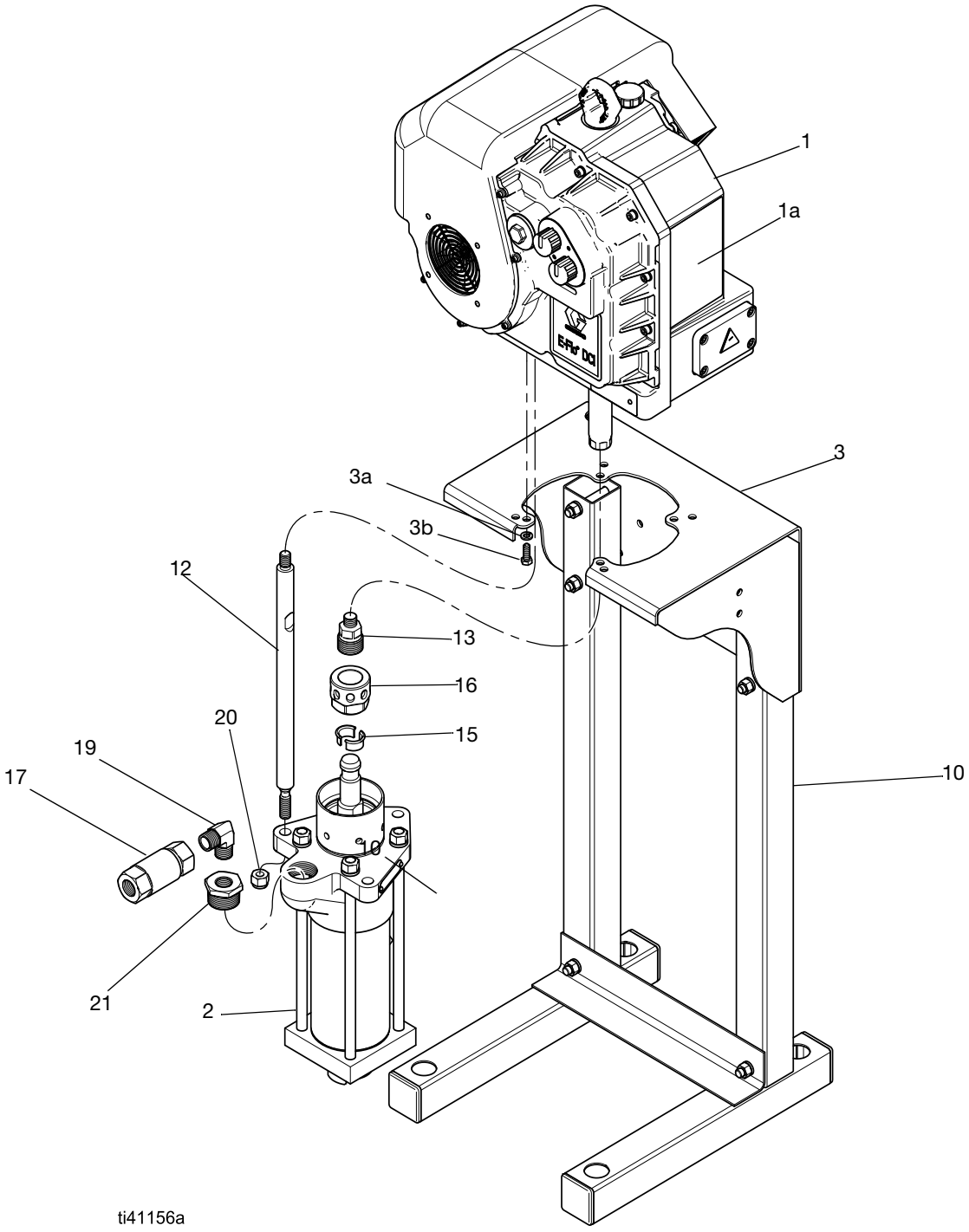
Y40xEx, Y30xEx, Y25xEx, Y45xEx



Y32xxx, Y15xxx, Y12xxx, Y23xxx



Y06xxx, Y10xxx

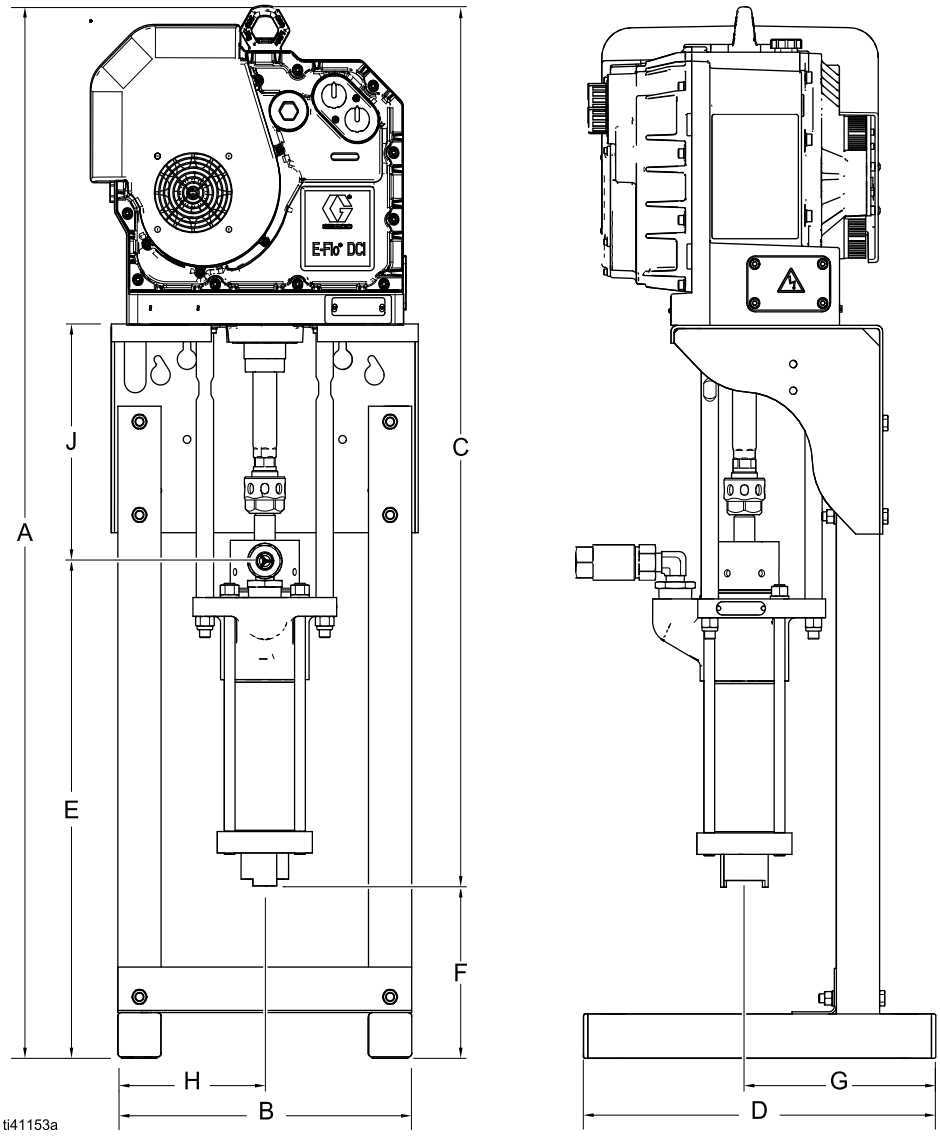


Parts List

Ref.	Part No.	Description	Qty.
1	-	Motor; see **Pump Matrix**, page 20 and the motor manual	1
1a▲	20A695	Safety Label	1
2	-	Lower. See **Pump Matrix**, page 20 and lower manual.	1
3	255143	Mounting Hardware Bracket Kit (includes items 3a and 3b); models Yxxxx1 and Yxxxx2 only	1
3a	-	Washer (included with item 3)	4
3b	-	Bolt (included with item 3)	4
10	256193	Floor Stand; models Yxxxx1 only	1
12		Tie Rod	
	15F837	14.25” length (models Yxxx1x only)	3
	15H562	15.40” length (all models except Yxxx1x)	3
13		Rod Adapter	
	15H370	1 1/4”-12 thread (models Y31xHx, Y31xSx, Y46xxx, Y24xEx, Y40xxx, Y21xEx, Y30xEx, Y30xSx, Y25xEx, Y45xxx only)	1
	15H371	M38 x 2 thread (models Y32xxx, Y15xxx, Y12xxx, Y23xxx, Y06xxx, Y10xxx only)	1
	15H392	Xtreme (models Yxxx1x only)	1
14	244819	Assembly Coupling (models Yxxx1x only)	1
15		Collar	
	184129	20.20 inside diameter (models Y40xxx, Y30xEx, Y25xEx, Y45xxx only)	2
	184130	25.96 inside diameter (models Y32xxx, Y15xxx, Y12xxx, Y23xxx, Y06xxx, Y10xxx only)	2
16		Coupler	
	184096	2.375” (models Y32xxx, Y15xxx, Y12xxx, Y23xxx, Y06xxx, Y10xxx only)	1
	186925	2.175” (models Y40xxx, Y30xEx, Y25xEx, Y45xxx only)	1
17		Check Valve	
	16T480	models Y30x1x, Y25x1x, Y32xDx, Y15xDx, Y12xDx, Y23xDx, Y06xKx, Y10xxx only	1
	24S039	models Y31xHx, Y31xSx, Y46xxx, Y24xEx, Y40xxx, Y21xEx, Y30xEx, Y30xSx, Y57xxx, Y16xEx, Y25xEx, Y45xxx, Y32xBx, Y32xLx, Y32xMx, Y15xBx, Y15xMx, Y12xAx, Y12xMx, Y23xAx, Y23xMx, Y06xGx only	1
18		Nipple Outlet Fitting	
	171439	Pipe, RDCG (models Y30xxx, Y25xxx, Y45xxx only)	1
	190724	Stainless Steel (model Y40xxx only)	1
19		Elbow Outlet Fitting	
	121116	3/4 npt m-m rt angle (models Y06xGx only)	1
	295847	90, 3/4 mpt (models Y06xKx, Y10xxx only)	1
20	101712	Lock Nut	3
21		Bushing	
	101496	Pipe (Y06xKx, Y10xxx pumps only)	1
	502851	Hex Head (Y06xGx pumps only)	1
22	197340	Coupling Cover (models Yxxx1x only)	1
23	244820	Hairpin Clip (w/lanyard) (models Yxxx1x only)	1
▲ Replacement safety labels, tags and cards are available at no cost.			

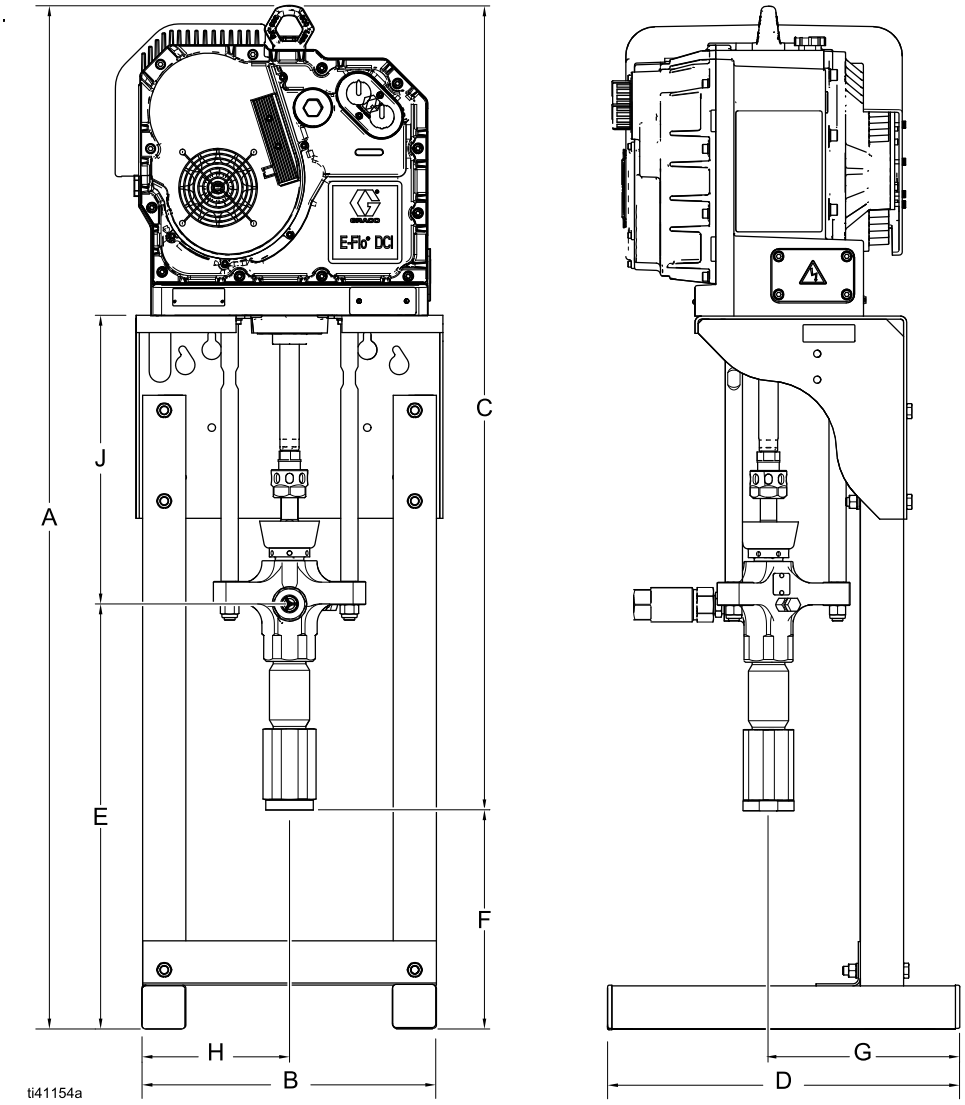
Dimensions

Y10BK1



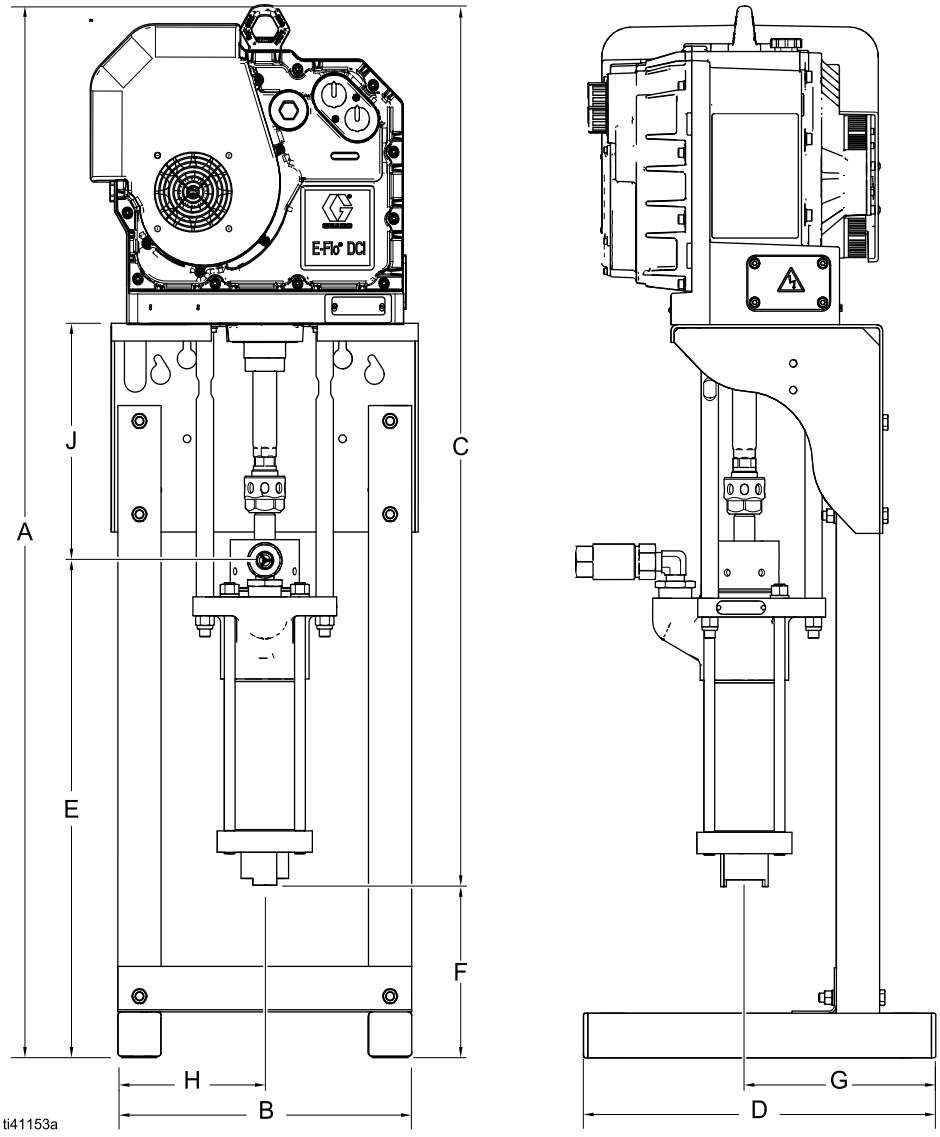
	(in.)	(cm)
A	59.2	150.4
B	17.0	43.2
C	49.6	126.0
D	20.4	51.8
E	27.9	70.9
F	9.6	24.4
G	11.1	28.2

Y30BE1



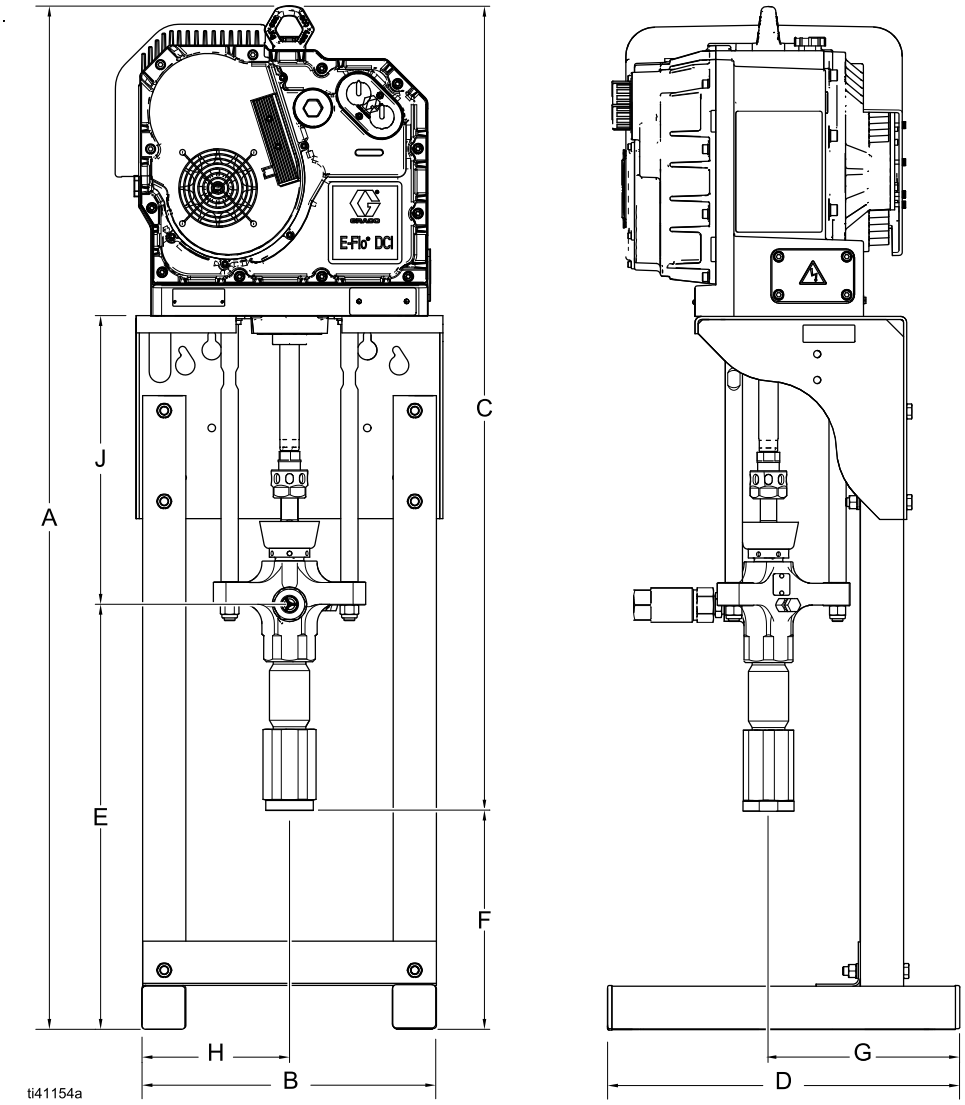
	(in.)	(cm)
A	59.2	150.4
B	17.0	43.2
C	47.7	121.2
D	20.4	51.8
E	24.6	62.5
F	11.5	24.4
G	11.1	28.2

Y30B11



	(in.)	(cm)
A	59.2	150.4
B	17.0	43.2
C	45.0	114.3
D	20.4	51.8
E	25.8	65.5
F	14.2	36.1
G	11.1	28.2

Y32BB1



	(in.)	(cm)
A	59.2	150.4
B	17.0	43.2
C	48.5	123.2
D	20.4	51.8
E	24.5	62.2
F	10.7	27.2
G	11.1	28.2

Performance Charts

To find the fluid pressure (psi/bar/MPa) at a specific fluid flow (gpm/lpm) and percentage of maximum force:

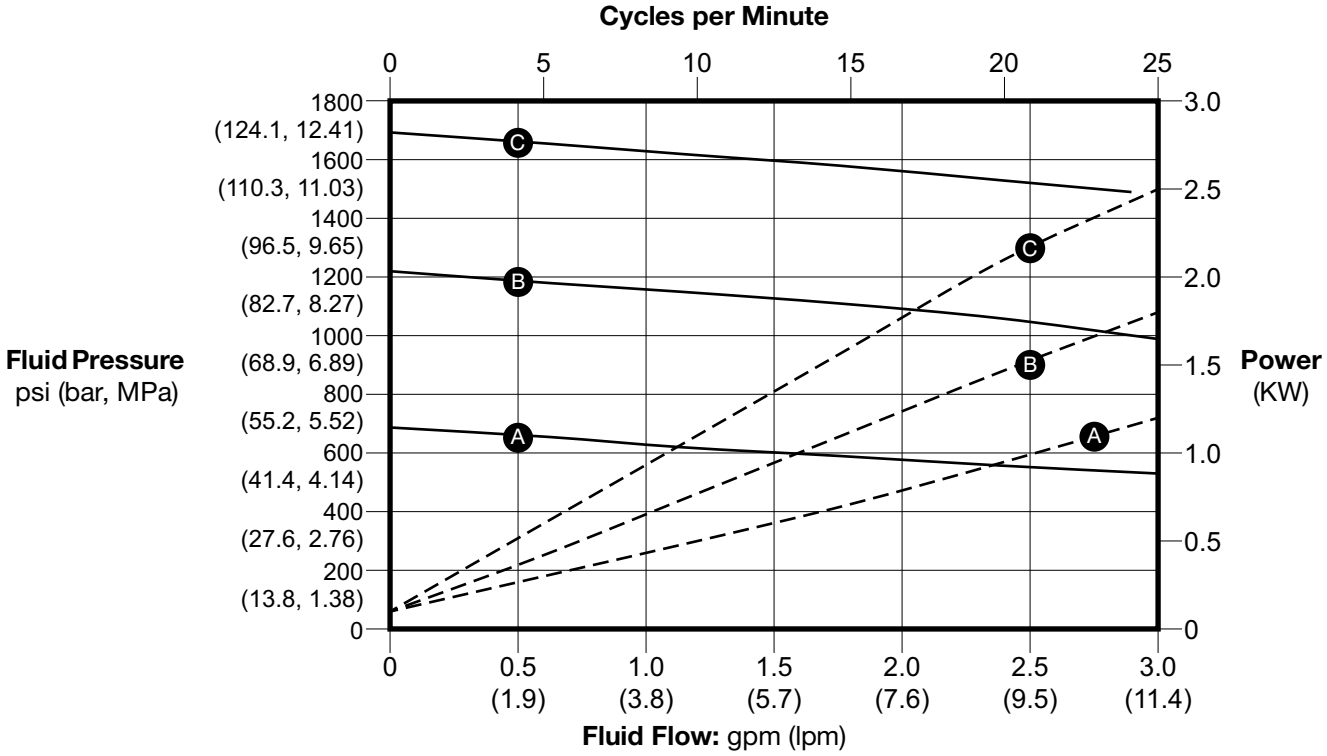
1. Locate the desired fluid flow in the scale at the bottom of the chart.
2. Follow the vertical line up to the intersection with the selected percentage of maximum force.
3. Follow left to the vertical scale to read the fluid outlet pressure.

Performance Chart Key:

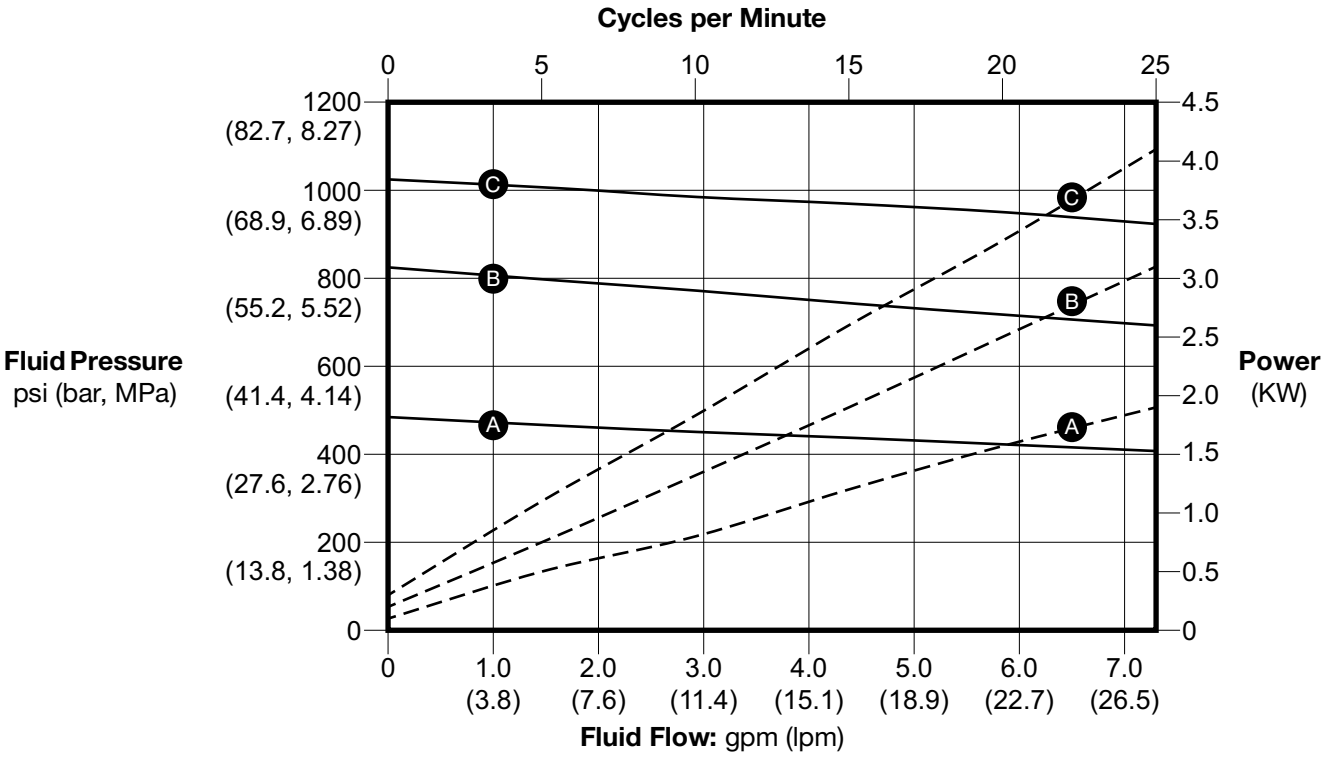
	Maximum Force Percentage
A	40%
B	70%
C	100%

NOTE: The charts show the motor operating at 40%, 70%, and 100% of maximum force. These values are approximately equivalent to an air motor operating at 40, 70, and 100 psi. Dashed lines are the power usage at the operating point and motor force. Pumps tested with 10 weight hydraulic oil.

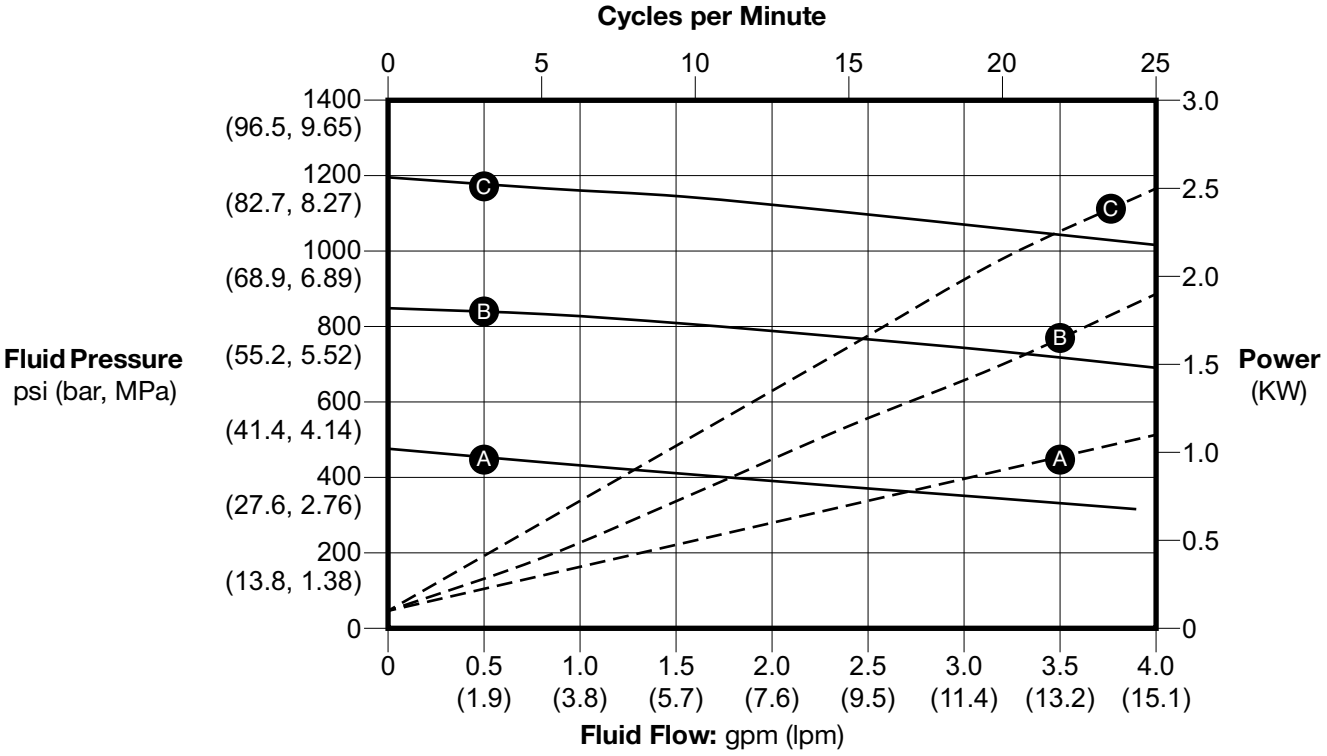
Y15xxx: Pumps with 3 HP motors and 430cc lower displacement



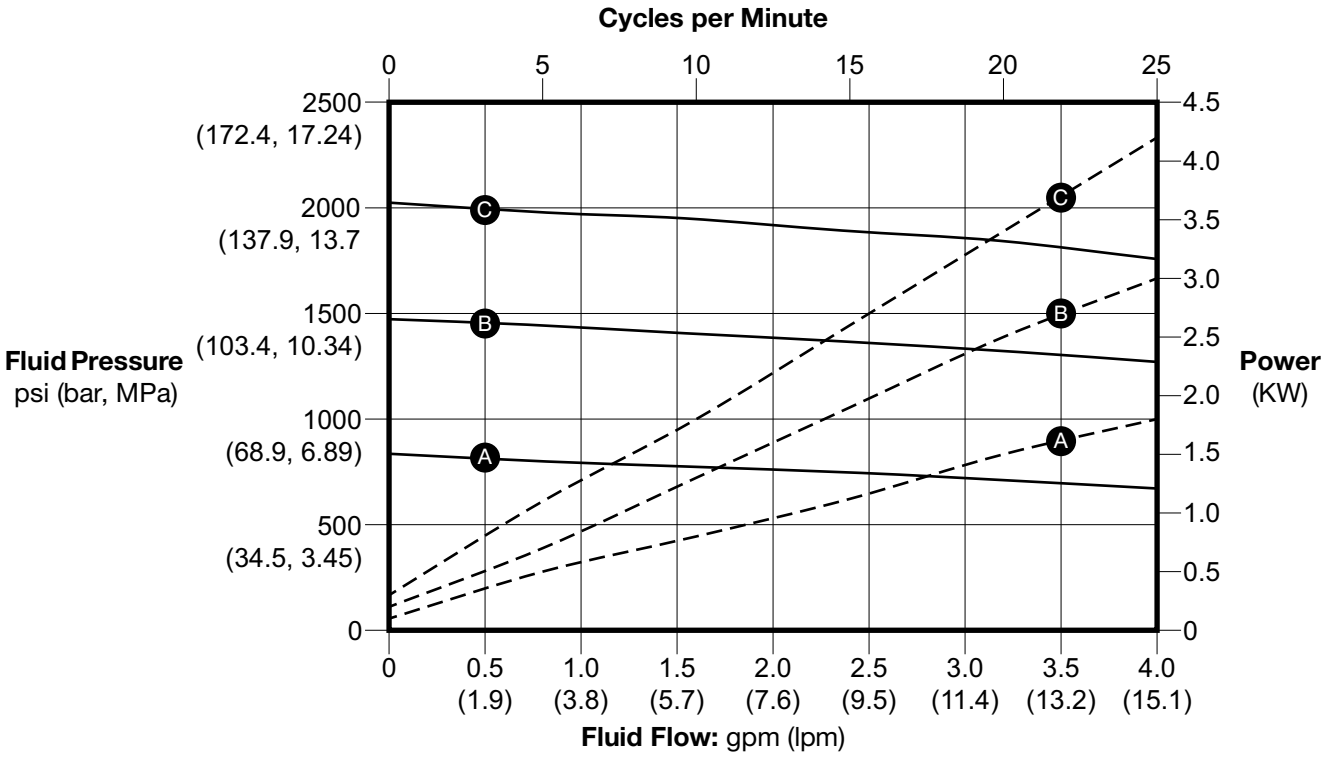
Y10xxx: Pumps with 5 HP motor and 1000 cc lower displacement



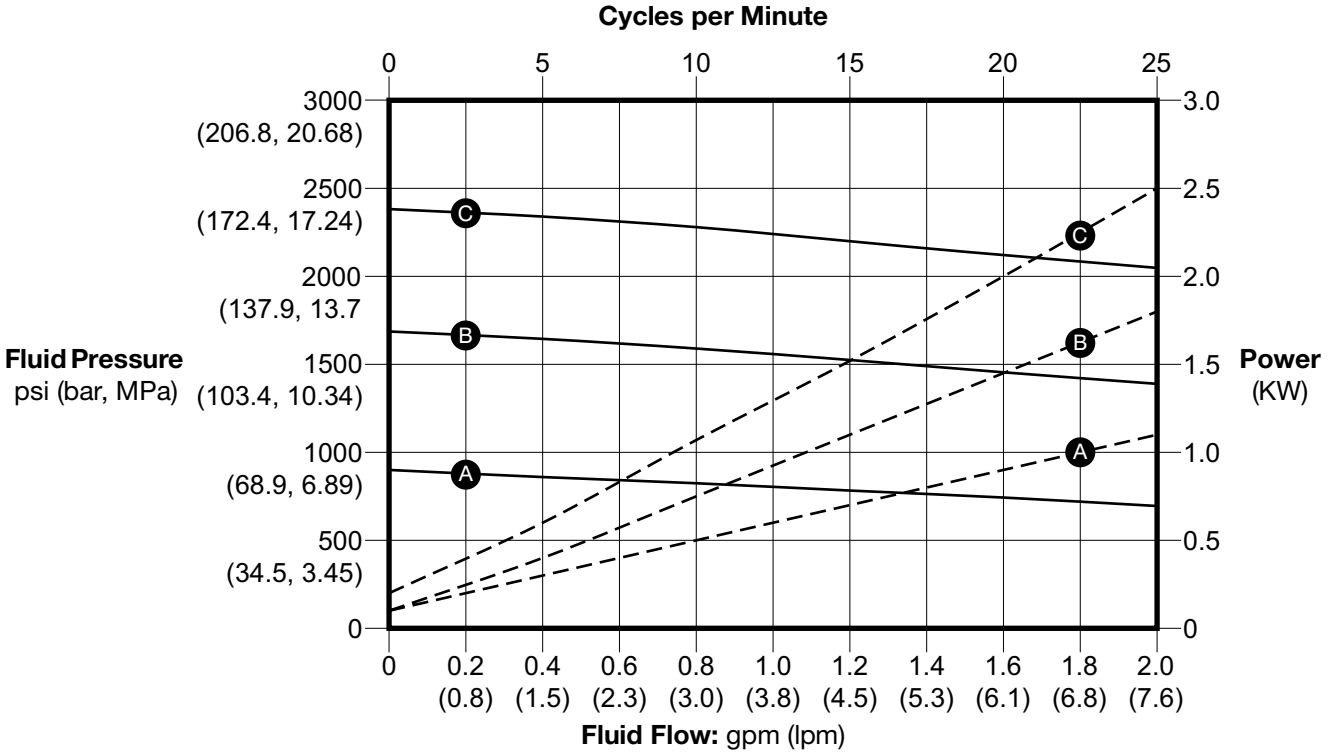
Y12xxx: Pumps with 3 HP motor and 580 cc lower displacement



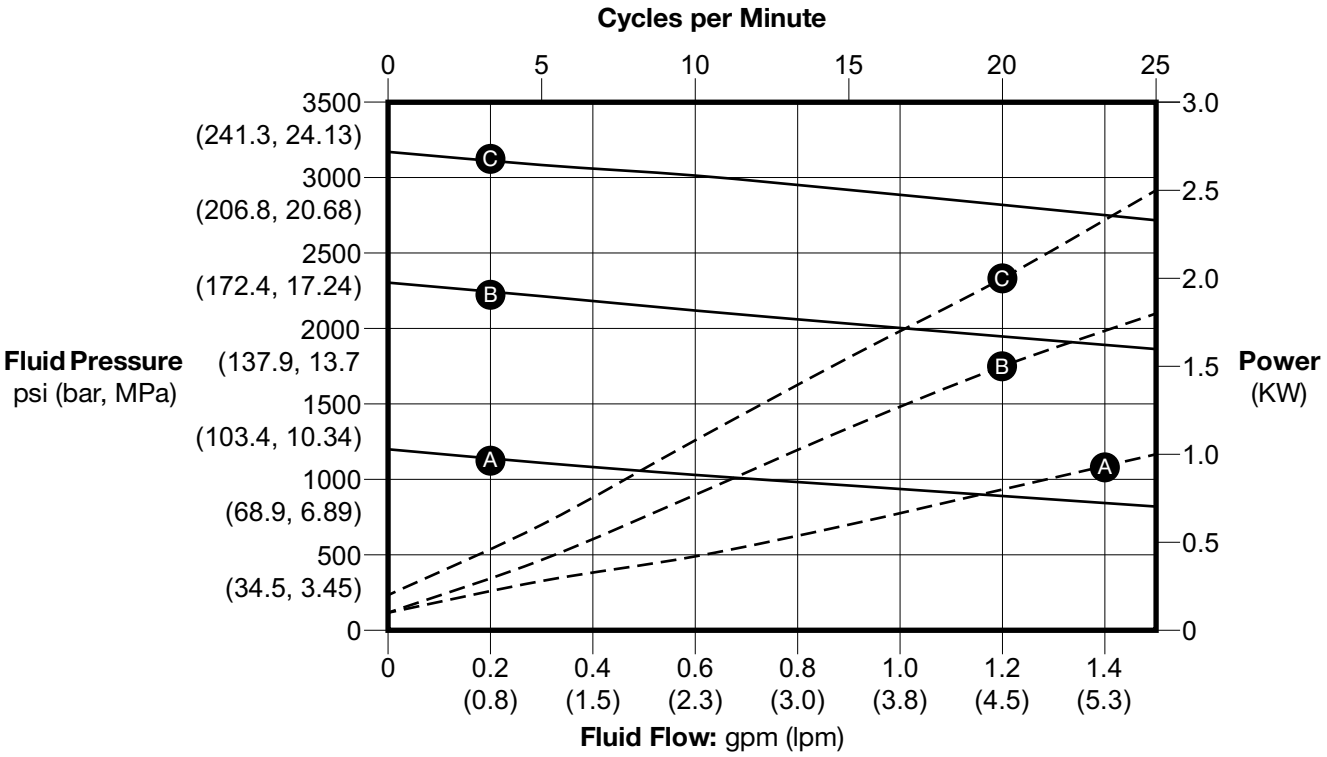
Y23xxx: Pumps with 5 HP motor and 580 cc lower displacement



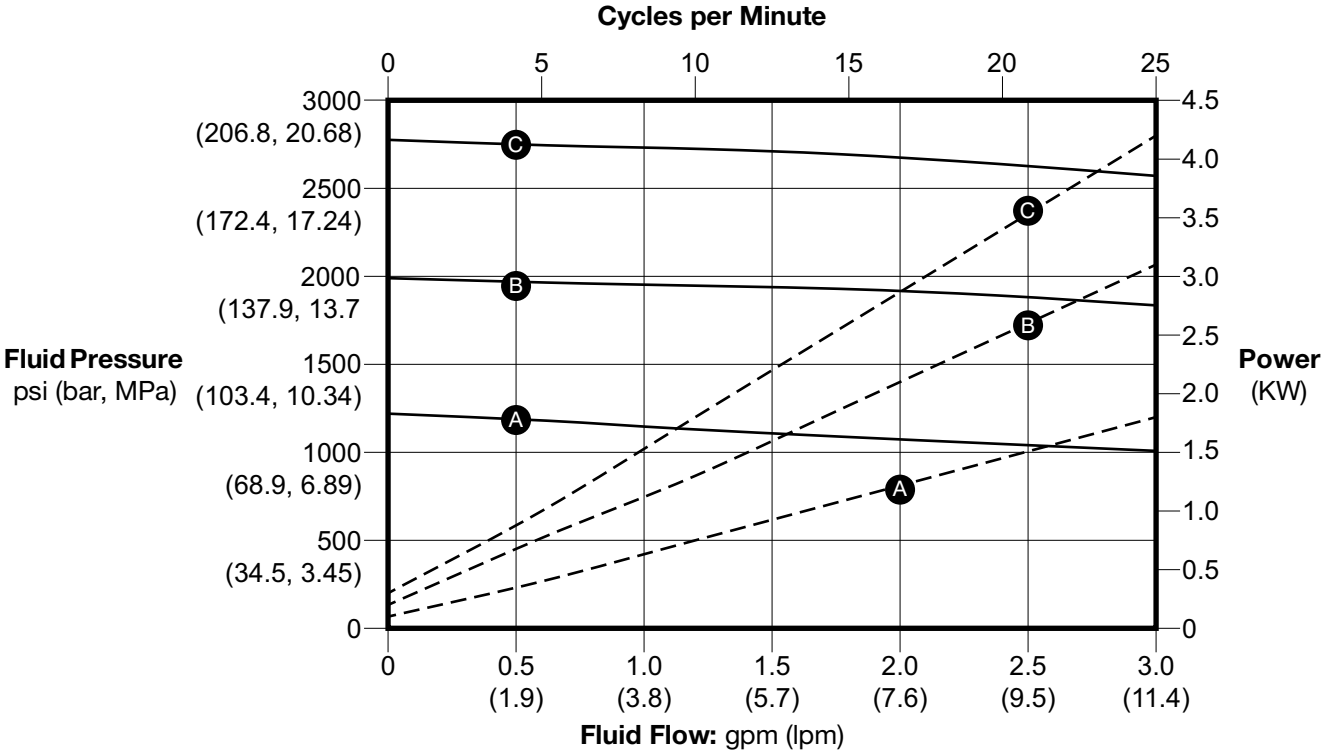
Y25xxx: Pumps with 3 HP motor and 290 cc lower displacement



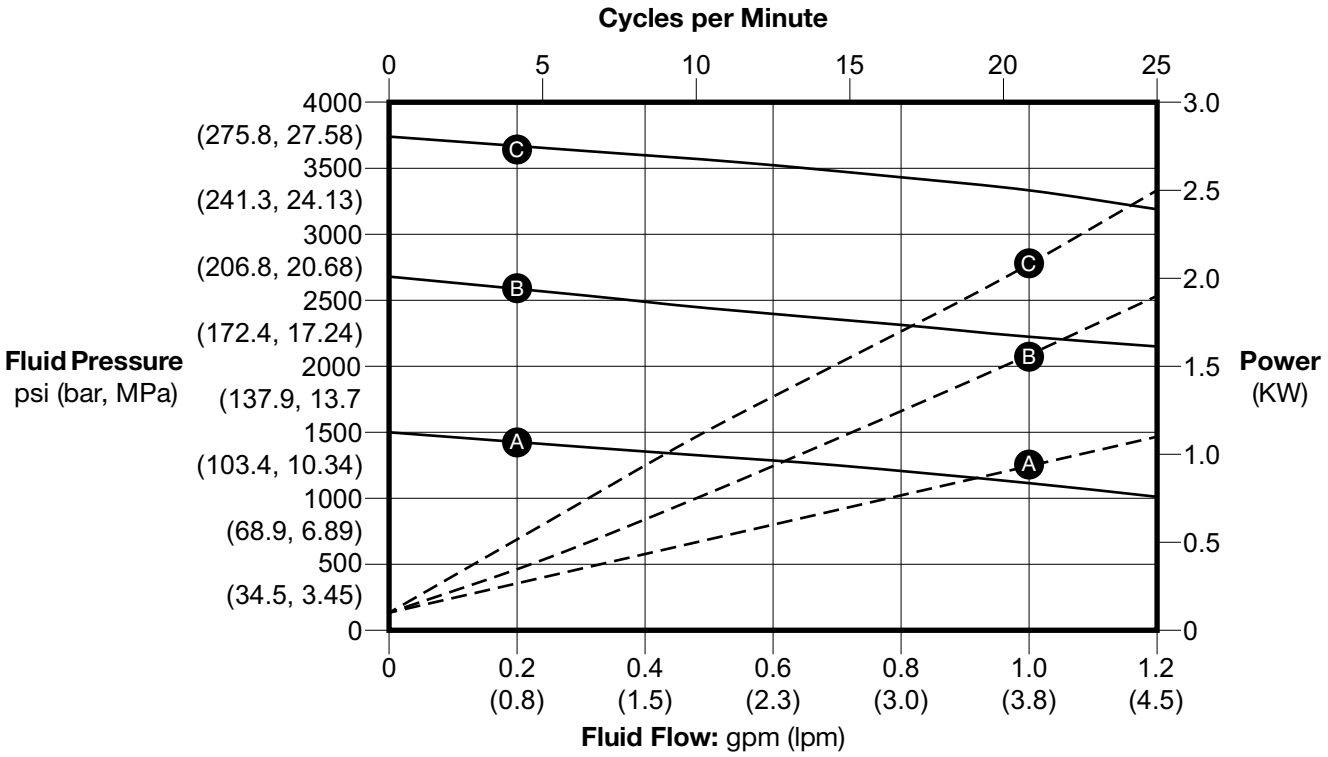
Y30xxx: Pumps with 3 HP motor and 220 cc lower displacement



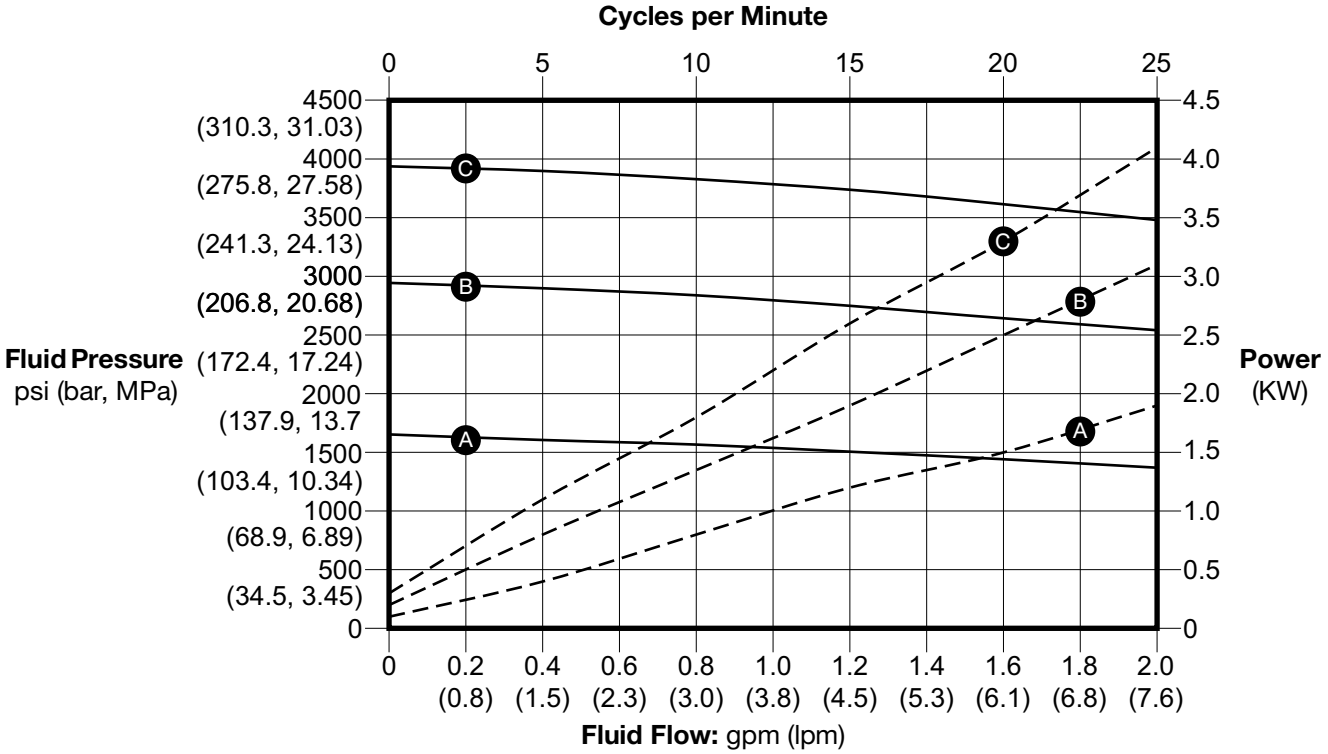
Y32xxx: Pumps with 5 HP motor and 430 cc lower displacement



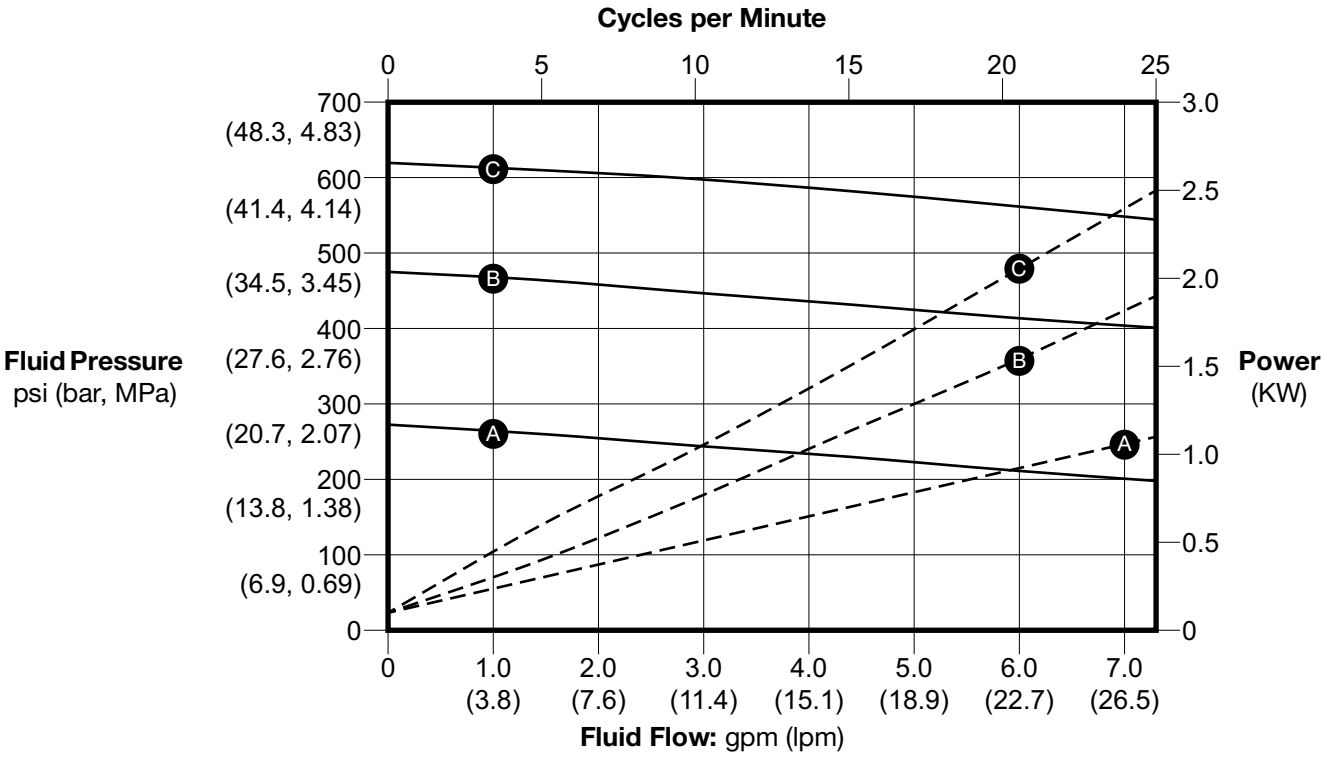
Y40xxx: Pumps with 3 HP motor and 180 cc lower displacement



Y45xxx: Pumps with 5 HP motor and 290 cc lower displacement

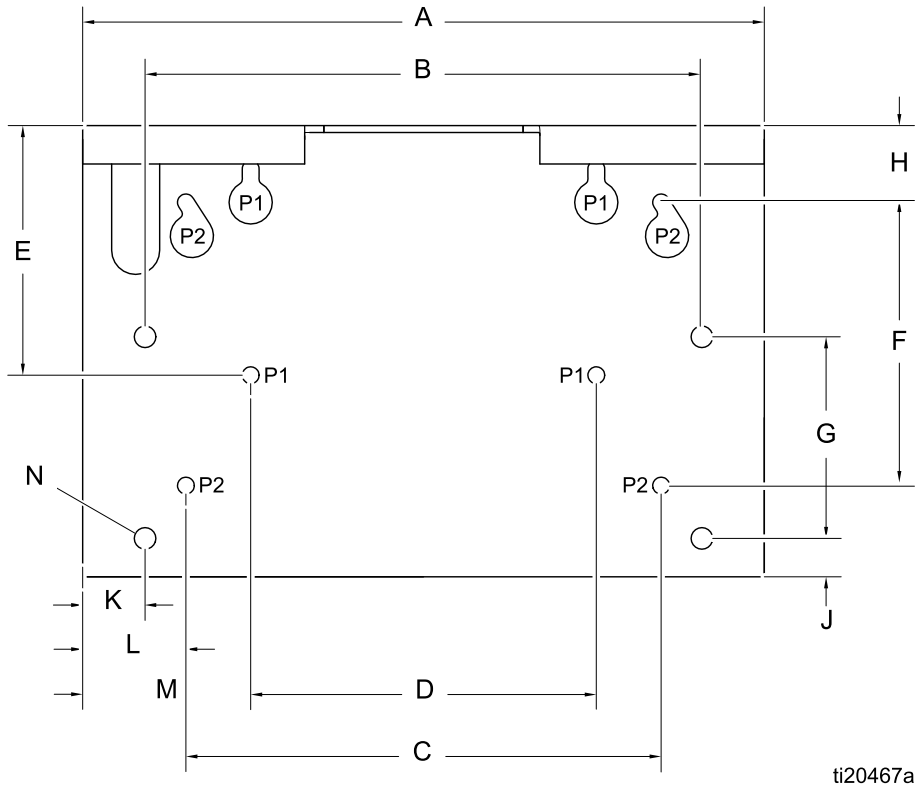


Y06xxx: Pumps with 3 HP motor and 1000 cc lower displacement



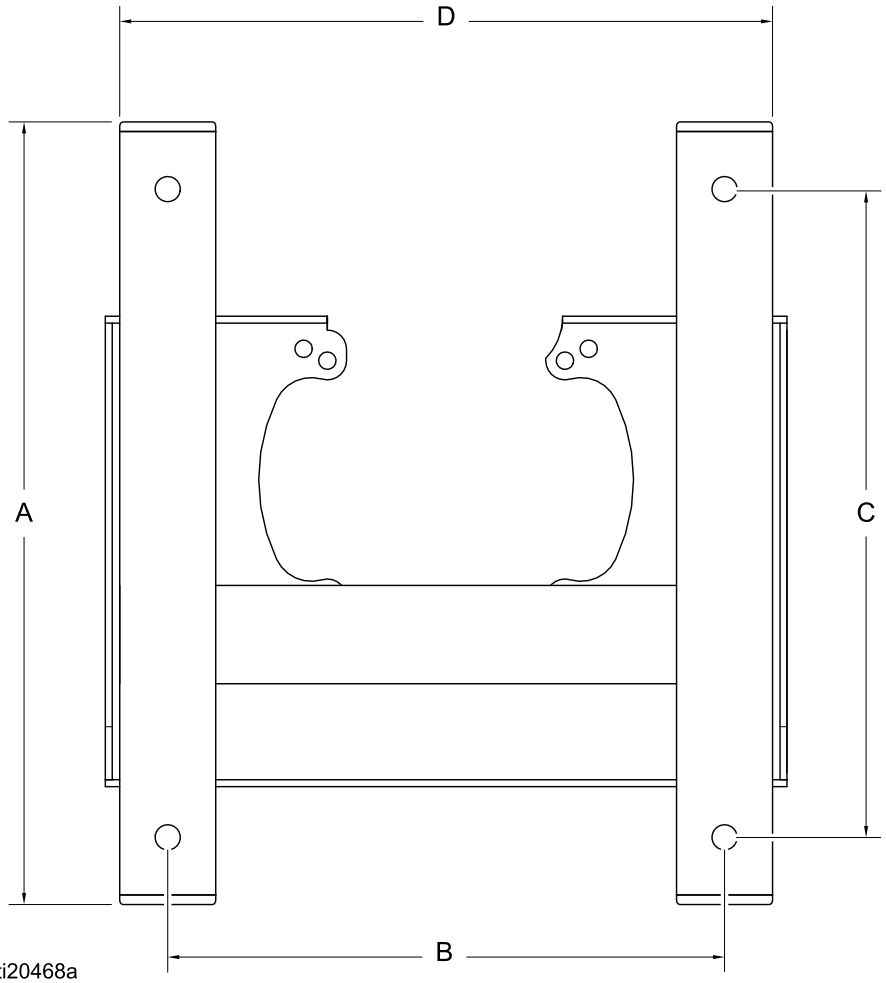
Mounting Hole Patterns

Mounting Bracket Pattern



A	17.8 in. (451 mm)
B	14.5 in. (368 mm)
C	12.4 in. (314 mm)
D	9.0 in. (229 mm)
E	5.4 in. (137 mm)
F	7.4 in. (187 mm)
G	5.3 in. (133 mm)
H	2.0 in. (51 mm)
J	1.0 in. (25 mm)
K	1.6 in. (41 mm)
L	2.7 in. (69 mm)
M	4.4 in. (112 mm)
N	Four 0.562 in. (14 mm) diameter holes for mounting to stand
P	Four 0.438 in. (11 mm) diameter holes for mounting to wall

Floor Stand Mounting Pattern



ti20468a

A	19.88 in. (505.0 mm)
B	14.50 in. (368.3 mm)
C	16.88 in. (428.8 mm)
D	17.0 in. (431.8 mm)

Technical Specifications

E-Flo DCi 2-Ball Pumps

Models	Motor Rating	Lower Displacement	Flow Rate at 20 cpm	Maximum Fluid Working Pressure	Pump Weight	Fluid Inlet Connection	Fluid Outlet Connection
Y40xxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	180 cc	1.0 gpm (3.6 lpm)	3800 psi (262 bar, 26.2 mPa)	206 lb (93 kg)	1 1/4” NPT (m) CS Lower 1 1/2” NPT (f) SS Lower	3/4” NPT (f)
Y30xxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	220 cc	1.2 gpm (4.3 lpm)	3200 psi (221 bar, 22.1 mPa)	w/CS Lower 218 lb (99 kg) w/SS Lower 239 lb (108 kg)	1 1/4” NPT (m) CS Lower 2” NPT (f) SS Lower	3/4” NPT (f)
Y25xxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	290 cc	1.5 gpm (5.8 lpm)	2400 psi (165 bar, 16.5 mPa)	w/CS Lower 219 lb (99 kg) w/SS Lower 239 lb (108 kg)	1 1/4” NPT (m) CS Lower 2” NPT (f) SS Lower	3/4” NPT (f)
Y45xxx	5 HP (3.73 kW) 5.7 kVA 380–480 Vac 3 phase 50/60 Hz	290 cc	1.5 gpm (5.8 lpm)	4200 psi (290 bar, 29.0 mPa)	247 lb (112 kg)	1 1/4” NPT (m) CS Lower 2” NPT (f) SS Lower	3/4” NPT (f)
Y15xxxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	430 cc	1.2 gpm (4.3 lpm)	1600 psi (110 bar, 11.0 mPa)	w/CS Lower 248 lb (112 kg) w/SS Lower 248 lb (112 kg)	2” NPT (f)	3/4” NPT (f)
Y32xxx	5 HP (3.73 kW) 5.7 kVA 380–480 Vac 3 phase 50/60 Hz	430 cc	2.3 gpm (8.6 lpm)	2900 psi (200 bar, 20.0 mPa)	256 lb (116 kg)	2” NPT (f)	3/4” NPT (f)

Models	Motor Rating	Lower Displacement	Flow Rate at 20 cpm	Maximum Fluid Working Pressure	Pump Weight	Fluid Inlet Connection	Fluid Outlet Connection
Y12xxxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	580 cc	3.1 gpm (11.6 lpm)	1200 psi (83 bar, 8.3 mPa)	w/CS Lower 249 lb (113 kg) w/SS Lower 248 lb (112 kg)	2” NPT (f)	3/4” NPT (f)
Y23xxxx	5 HP (3.73 kW) 5.7 kVA 380–480 Vac 3 phase 50/60 Hz	580 cc	3.1 gpm (11.6 lpm)	2100 psi (145 bar, 14.5 mPa)	w/CS Lower 257 lb (117 kg) w/SS Lower 257 lb (117 kg)	2” NPT (f)	3/4” NPT (f)
Y06xxxx	3 HP (2.24 kW) 3.4 kVA 380–480 Vac 3 phase 50/60 Hz	1000 cc	5.8 gpm (22 lpm)	650 psi (45 bar, 4.5 mPa)	w/CS Lower 226 lb (103 kg) w/SS Lower 226 lb (103 kg)	2” NPT (f)	3/4” NPT (f)
Y10xxxx	5 HP (3.73 kW) 5.7 kVA 380–480 Vac 3 phase 50/60 Hz	1000 cc	5.8 gpm (22 lpm)	1100 psi (76 bar, 7.6 mPa)	w/CS Lower xxx lb (xxx kg) w/SS Lower 234 lb (106 kg)	2” NPT (f)	3/4” NPT (f)

Recommended Maximum Continuous Cycle Rate	20 cpm
Sound Data†	Less than 80 dB(A)
Ambient Temperature Range	32–104°F (0–40°C)
Floor stand weight❖	65 lb (29.5 kg)
Wall mount weight ❖	20 lb (9.1 kg)
Oil capacity	2.0 quarts (1.9 liters)
Oil specification	Graco Part Number 20A933 ISO 460 silicone-free high-pressure synthetic gear oil
Wetted Parts	See lower manual. Find your lower part number in the **Pump Matrix**, page 20.

❖Add to the pump weight to determine total weight.

† Sound data measured 1 meter from a 5 HP motor with a 20 cpm flow rate.

California Proposition 65

CALIFORNIA RESIDENTS

⚠ **WARNING:** Cancer and reproductive harm. – www.P65warnings.ca.gov.

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.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

For the latest information about Graco products, visit www.graco.com.
For patent information, see www.graco.com/patents.
TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Toll Free Phone Number: 1-800-328-0211

Original instructions. This manual contains English. MM 3A7826
Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

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