

## MAGNETIC DRIVE CENTRIFUGAL PUMP



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

### SERVICE KITS

Refer to Model Chart to match the pump material options.  
AWKXXXLXXX-FXXXC for general pump repair.

### PUMP DATA

**Models** . . . . . see "Model Description Chart" for options.  
**Pump Type** . . . . . Magnetic drive, centrifugal pump.  
**Material** . . . . . see "Model Description Chart".  
**Rated Speed**① . . . . . AWXXXLXXX-FXXXC1 . . . . . 3440 r.p.m.  
AWXXXLXXX-FXXXC2 . . . . . 2860 r.p.m.  
**Weight** . . . . . see pages 4 and 8.  
**Maximum Flow Rate (flooded Inlet)** . . . . . see pages 4 and 8.  
**Maximum Particle Size** . . . . . clean fluid only.  
**Maximum Liquid Temperature Limits**  
AWXXXLXXX-FXXPCXX . . . . . 32 - 158° F (0 - 70° C)  
AWXXXLXXX-FXXCCXX . . . . . 32 - 194° F (0 - 90° C)  
**Dimensional Data** . . . . . see pages 10 and 11.  
**Noise Level** . . . . . see pages 4 and 8.

① Speed data shown at 120V / 60 Hz or 220V / 50 Hz.

**NOTICE:** All possible options are shown in the chart, however, certain combinations may not be recommended, consult a representative or the factory if you have questions concerning availability.

### GENERAL DESCRIPTION

The Aro-Mag Centrifugal pumps are a line of magnetic-drive pumps. The drive magnet is isolated from the impeller magnet by a containment shell, making the pump a sealless design for handling fluids where leakage is intolerable. The impeller magnets are encapsulated in the same material as the pump housing to match the compatibility of the pump. The encapsulated impeller magnet handles corrosive solutions. The design requires the pump inlet to be flooded. Mount the pump in a horizontal position.

The Aro-Mag pump is offered in several materials, providing a broad range of material compatibility. Refer to the "Model Description Chart". The pumps are UL recognized under the Component Recognition Program and are also C-UL Component Certified.

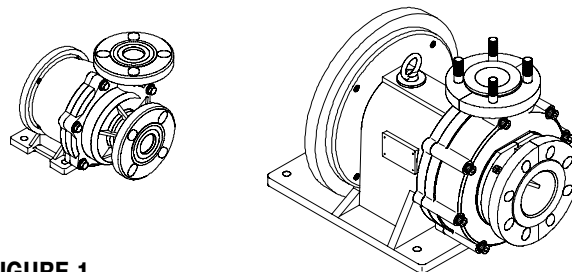


FIGURE 1

### MODEL DESCRIPTION CHART

AW X XX L XXX - F XX X C FX	
<b>MOTOR SPEED / TYPE</b>	
5 - 50 Hz	6 - 60 Hz
<b>CASE SIZE</b>	
59 - 5.9 inches	70 - 7.0 inches
63 - 6.3 inches	83 - 8.3 inches
69 - 6.9 inches	
<b>HORSEPOWER</b>	
005 - 1/2 h.p.	075 - 7-1/5 h.p.
010 - 1 h.p.	100 - 10 h.p.
020 - 2 h.p.	150 - 15 h.p.
030 - 3 h.p.	200 - 20 h.p.
050 - 5 h.p.	
<b>FLUID CONNECTION TYPE</b>	
F - Flange, Universal (A.N.S.I. / DIN)	
<b>FLUID CONNECTION INLET / OUTLET (A.N.S.I. / DIN)</b>	
25 - 1" / 1" (25 / 25)	50 - 2" / 1-1/2" (50 / 40)
32 - 1-1/4" / 1-1/4" (32 / 32)	65 - 2-1/2" / 2" (65 / 50)
40 - 1-1/2" / 1-1/2" (40 / 40)	80 - 3" / 2" (80 / 50)
<b>WETTED MATERIAL</b>	
C - Cast Iron case with PTFE lining	
P - Glass Filled Polypropylene	
<b>BEARING OPTIONS</b>	
C - High Density Carbon	
<b>VOLTAGE</b>	
F1 - NEMA "C" Motor Flange	
F2 - IEC Motor Flange	
<b>SERVICE KIT SELECTION</b>	
Example: Model # AW669L020-F50PCF1	
Service Kit # AWK669L-F50PC	
AW X XX L XXX - F XX X C FX	
AWK X XX L XXX - F XX X C	
Motor Speed / Type	
Case Size	
Horsepower	
Fluid Connection Size	
Wetted Material	

## OPERATING AND SAFETY PRECAUTIONS

READ, UNDERSTAND, AND FOLLOW THIS INFORMATION TO AVOID INJURY AND PROPERTY DAMAGE.



STATIC SPARK  
EXPLOSION HAZARD



HAZARDOUS MATERIALS  
HAZARDOUS PRESSURE

**⚠ WARNING** **STATIC SPARK.** Can cause explosion resulting in severe injury or death. Ground pump and pumping system.

- Sparks can ignite flammable material and vapors.
- The pumping system must be grounded when it is pumping, flushing or recirculating flammable materials such as paints, solvents, lacquers, etc. or used in a location where surrounding atmosphere is conductive to spontaneous combustion. Ground the dispensing valve or device, containers, hoses and any object to which material is being pumped.
- Secure pump, connections and all contact points to avoid vibration and generation of contact or static spark.
- Consult local building codes and electrical codes for specific grounding requirements.
- After grounding, periodically verify continuity of electrical path to ground. Test with an ohmmeter from each component (e.g., hoses, pump, clamps, container, etc.) to ground to insure continuity. Ohmmeter should show 100 ohms or less.
- Submerge the outlet hose end, dispensing valve or device in the material being dispensed if possible. (Avoid free streaming of material being dispensed.)
- Use hoses incorporating a static wire.
- Use proper ventilation.
- Keep inflammables away from heat, open flames and sparks.
- Keep containers closed when not in use.

**⚠ WARNING** **HAZARDOUS PRESSURE.** Can result in serious injury or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.

- Be sure material hoses and other components are able to withstand fluid pressures developed by this pump. Check all hoses for damage or wear. Be certain dispensing device is clean and in proper working condition.
- Disconnect power supply and relieve pressure from the system by opening dispensing valve or device and / or carefully and slowly loosening and removing outlet hose or piping from pump.

**⚠ WARNING** **HAZARDOUS MATERIALS.** Can cause serious injury or property damage. Do not attempt to return a pump to the factory or service center that contains hazardous material. Safe handling practices must comply with local and national laws and safety code requirements.

- Obtain Material Safety Data Sheets on all materials from the supplier for proper handling instructions.

**⚠ WARNING** People who are assisted by a pacemaker or defibrillator may not come near these magnetic drive pumps. The pumps contain powerful magnets.

**⚠ CAUTION** Verify the chemical compatibility of the pump wetted parts and the substance being pumped, flushed or recirculated. Chemical compatibility may change with temperature and concentration of the chemical(s) within the substances being pumped, flushed or circulated. For specific fluid compatibility, consult the chemical manufacturer.

**⚠ CAUTION** Maximum temperatures are based on mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperature. Consult the chemical manufacturer for chemical compatibility and temperature limits. Refer to PUMP DATA on page 1 of this manual.

- Changing the liquid temperature may influence the following parameters: viscosity, vapor pressure, specific gravity, corrosivity, etc.

**⚠ CAUTION** Be certain all operators of this equipment have been trained for safe working practices, understand it's limitations, and wear safety goggles / equipment when required.

**⚠ CAUTION** Do not use the pump for the structural support of the piping system. Be certain the system components are properly supported to prevent stress on the pump parts.

- Suction and discharge connections should be flexible connections (such as hose), not rigid piped, and should be compatible with the substance being pumped.

**⚠ CAUTION** Prevent unnecessary damage to the pump. **DO NOT RUN PUMP DRY!**

- Disconnect power to pump when system sits idle for long periods of time.
- In the event of a power failure, immediately disconnect the pump from the power supply.
- Do not allow liquids to be sprayed toward the motor end of the pump.

**⚠ CAUTION** Cavitation and operation against closed suction and / or discharge valves can damage the pump interior or cause abnormal wear due to the increasing temperature from friction of the contact parts. In such cases, the pump should be stopped within one minute.

**⚠ CAUTION** Should any of the following occur, switch the pump off and locate the cause of the problem. Do not use the pump again until the problem has been identified and resolved.

- Severe vibrations.
- Increase and / or different noise level.
- Leakage.
- Change in discharge and suction pressure.
- No discharge pressure when operational.
- Increase in power consumption.
- Reduced or zero flow.
- Cavitation (closed suction).

**⚠ CAUTION** Use only genuine ARO replacement parts to assure compatible pressure rating and longest service life.

**⚠ WARNING** = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

**⚠ CAUTION** = Hazards or unsafe practices which could result in minor personal injury, product or property damage.

**NOTICE** = Important installation, operation or maintenance information.

## INSTALLATION INSTRUCTIONS

1. NOTE: Models AWXXXLXXX-FXXXCF1 - To insure proper motor alignment, assemble spacer (provided) all the way onto motor shaft.
2. Assemble magnet housing (item 5) to motor shaft and secure by tightening set screws (item 8).
3. Bolt motor to pump.
4. Secure the pump to the floor or platform by bolting down the baseplate.
5. Check the power source for correct voltage and phase. Consult local building and electrical codes for proper installation.
6. Install the pump as close to the fluid source as possible. Suction must be flooded to maintain prime. Pumps are not self-priming.
7. Inlet suction line size must be equal to, or greater than, the pump inlet.
8. Inlet suction should be as short as possible.
9. Available NPSH recommended to be at least 20% higher than required NPSH.
10. A suction strainer is recommended on the inlet suction line if the fluid contains suspended solids.
11. For convenient removal of a pump using rigid piping, install unions near the inlet and outlet of the pump.
12. Piping and valving should be properly supported. Do not use the pump to support piping loads.
13. Install a vacuum gauge near the pump inlet to monitor pump performance.
14. A check valve should be installed between the discharge valve and the pump if the discharge pipe is longer than 49 feet (15 meters).

## OPERATING INSTRUCTIONS

- **DO NOT RUN THE PUMP DRY.**
- Periodically flush the pump with a compatible fluid to prevent crystallization inside the pump chamber and bearing surfaces.
- If the fluid to be pumped contains suspended solids, install a strainer in the inlet plumbing and periodically inspect and remove any debris build-up.
- Do not pump fluids having a high specific gravity.

### START-UP PROCEDURE

1. Prime the pump by flooding the pumping chamber. This can be done by opening the suction and discharge valves, allowing the fluid to enter the pump.
2. Close the discharge valve.
3. Check the rotation of the pump by jogging the motor for 1 - 2 seconds. The rotation should be **clockwise** as viewed from the motor fan end of the pump. Jog the pump a few more times to fully wet the internal moving parts of the pump.
4. Open the suction valve fully and the discharge valve partly.
5. Start the pump.
6. Open the discharge valve fully after the pump has started. Using a pressure gauge and a flowmeter, check if the pump is operating in accordance with proper specifications. NOTE: Pump flow is regulated with discharge valve.

## PARTS AND SERVICE KITS

Refer to the part views and descriptions as provided on pages 4 through 7 for parts identification and service kit information.

## INSPECTION AND MAINTENANCE

- Check for abnormal noise and vibrations.
- Check the flow and head.
- Stop the pump and disconnect the power.
- Close the suction and discharge valves.
- Before removing the pump, bleed the pressure from the system.
- Remove the pump from the piping system.
- Before disassembling, empty captured material by turning the pump upside down to drain material from the pump. Clean the pump of harmful materials.
- **Do not** return a used pump without authorization.
- Provide a clean work surface to protect sensitive internal moving parts from contamination from dirt and foreign matter during service disassembly and reassembly.
- Keep good records of service activity and include pump in preventive maintenance program.
- Check for cracks in ceramic parts.
- Check for signs of melting or deforming in the shaft support, bushing and the socket of the rear casing where the pump shaft is held. Dry running during initial start-up or during operation may cause heat-related deflection or wear of these parts.
- Inspect the casing liner to be sure there are no signs of abrasions or cuts deeper than 0.3 mm. Liner cracks may occur if the lining is corroded or placed in an extremely cold place, or if a chemical penetrates the liner and corrodes the outside metal casing. Most liner damage can be spotted visually. To detect hairline cracks, a 15 - 20 kV electrostatic discharge tester is recommended, which is often used to test lined pipe.
- Check the bushing for wear. Visually inspect the spool groove in the bushing to be sure this is clear of any slurry or foreign objects.
- Check the mouth ring face for wear. The lubrication flutes are reliable indicators of mouth ring wear. If they are not visible, it is time to replace the mouth ring.
- Check the impeller vanes for material trapped inside. If any of the flow paths become clogged, a hydromatic imbalance may cause excessive wear to the mouth ring and main bushing.
- Check the inner magnet encapsulation for cracks or grooves in excess of 1/32" (0.8 mm).
- Check for slurry. If the pumped liquid contains slurry, it may build up near the back of the main bushing. This build up may cause clogging of the journal bearing area of the main bushing and create a dry running condition. Estimate the rate of build up from the first inspection and schedule the unit for future maintenance accordingly.
- Inspect the rear casing (containment shell) for signs of abrasion. Replace if scratches or grooves in the inner surface are deeper than 0.3 mm. Inspect the back thrust ring for chips or cracks.

## WEAR CHART

MODEL NUMBER	SPINDLE O.D.		BEARING (11) I.D.		FRONT THRUST PAD IN FRONT CASING
	New	Worn	New	Worn	
AWXXXL005-X	20 mm	19 mm	20 mm	21 mm	when worn 1 mm
AWXXXL010-X	20 mm	19 mm	20 mm	21 mm	when worn 1 mm
AWXXXL020-X	25 mm	24 mm	25 mm	26 mm	when worn 1 mm
AWXXXL030-X	25 mm	24 mm	25 mm	26 mm	when worn 1 mm
AWXXXL050-X	25 mm	24 mm	25 mm	26 mm	when worn 1 mm
AWXXXL075-X	25 mm	24 mm	25 mm	26 mm	when worn 1 mm
AWXXXL100-X	25 mm	24 mm	25 mm	26 mm	when worn 1 mm

Items should be replaced when they reach the "worn" dimension.

When the difference between the spindle and the bearing diameters is greater than 1 mm, replace the item which shows the most wear.

# PARTS LIST / AWXXXLXXX-FXXPCFX

## COMMON PARTS

ITEM	DESCRIPTION (Size in millimeters)	QTY	PART NO.	[MTL]
1	Bracket	(1)		[CI]
★ 2	Front Casing (AWX59L005-X)	(1)	95389	[PPG]
	(AWX63L010-X)	(1)	95390	[PPG]
	(AWX69L0X0-X)	(1)	95391	[PPG]
★ 3	Rear Casing (with ceramic spindle)			
	(AWX59L0X0-X)	(1)	95400	[PPG]
	(AWX63L010-X)	(1)	95401	[PPG]
	(AWX69L0X0-X)	(1)	95402	[PPG]
★ 4	Impeller (AW659L005-X)	(1)	95408	[PPG]
	(AW559L005-X)	(1)	95407	[PPG]
	(AW663L010-X)	(1)	95410	[PPG]
	(AW563L010-X)	(1)	95409	[PPG]
	(AW669L020-X)	(1)	95412	[PPG]
	(AW569L020-X)	(1)	95411	[PPG]
	(AW669L030-X)	(1)	95415	[PPG]
	(AW569L030-X)	(1)	95413	[PPG]
	(AW669L050-X)	(1)	95416	[PPG]
	(AW569L050-X)	(1)	95414	[PPG]
5	Magnet Housing	(1)		---
★ 6	“O” Ring (AWX59L005-X) (5.7 x 160.7 o.d.)	(1)	95384	[V]
	(AWX63L010-X) (5.7 x 170.7 o.d.)	(1)	95385	[V]
	(AWX69L0X0-X) (5.7 x 185.7 o.d.)	(1)	95386	[V]

ITEM	DESCRIPTION (Size in millimeters)	QTY	PART NO.	[MTL]
7	Bolt (AWXXXL0XX-F40PCFX) (M8 x 30)	(5)		[SS]
	(AWXXXL0XX-F50PCFX) (M10 x 40)	(5)		[SS]
8	Set Screw (M8 x 1.25 x 10 mm)	(2)		[C]
9	Bolt (AWXXXL0XX-F40PCFX) (M8 x 55)	(1)		[SS]
	(AWXXXL0XX-F50PCFX) (M10 x 70)	(3)		[SS]
10	Rear Casing Cover	(1)		---
★ 11	Bearing (AWXXXL0XX-F40PCFX)	(1)	95436	[CH]
	(AWXXXL0XX-F50PCFX)	(1)	95437	[CH]
12	Washer (AWXXXL0XX-F40PCFX) (M8)	(6)		[SS]
	(AWXXXL0XX-F50PCFX) (M10)	(8)		[SS]
★ 13	Magnet Capsule	(1)		[PPG]
14	Inlet Flange	(1)		[PPG]
★ 15	“O” Ring (AWX69L0X0-X) (3.1 x 55.6 o.d.)	(1)	95387	[V]
	(AWX59L005-X, AWX63L010-X) (3.1 x 50.6 o.d.)	(1)	95388	[V]
16	Outlet Flange	(1)		[PPG]
★ 17	“O” Ring (3.1 x 50.6 o.d.)	(1)	95387	[V]
★ 18	Thrust Pad	(1)	95397	[CK]
★	Items included in Service Kit	(1)		

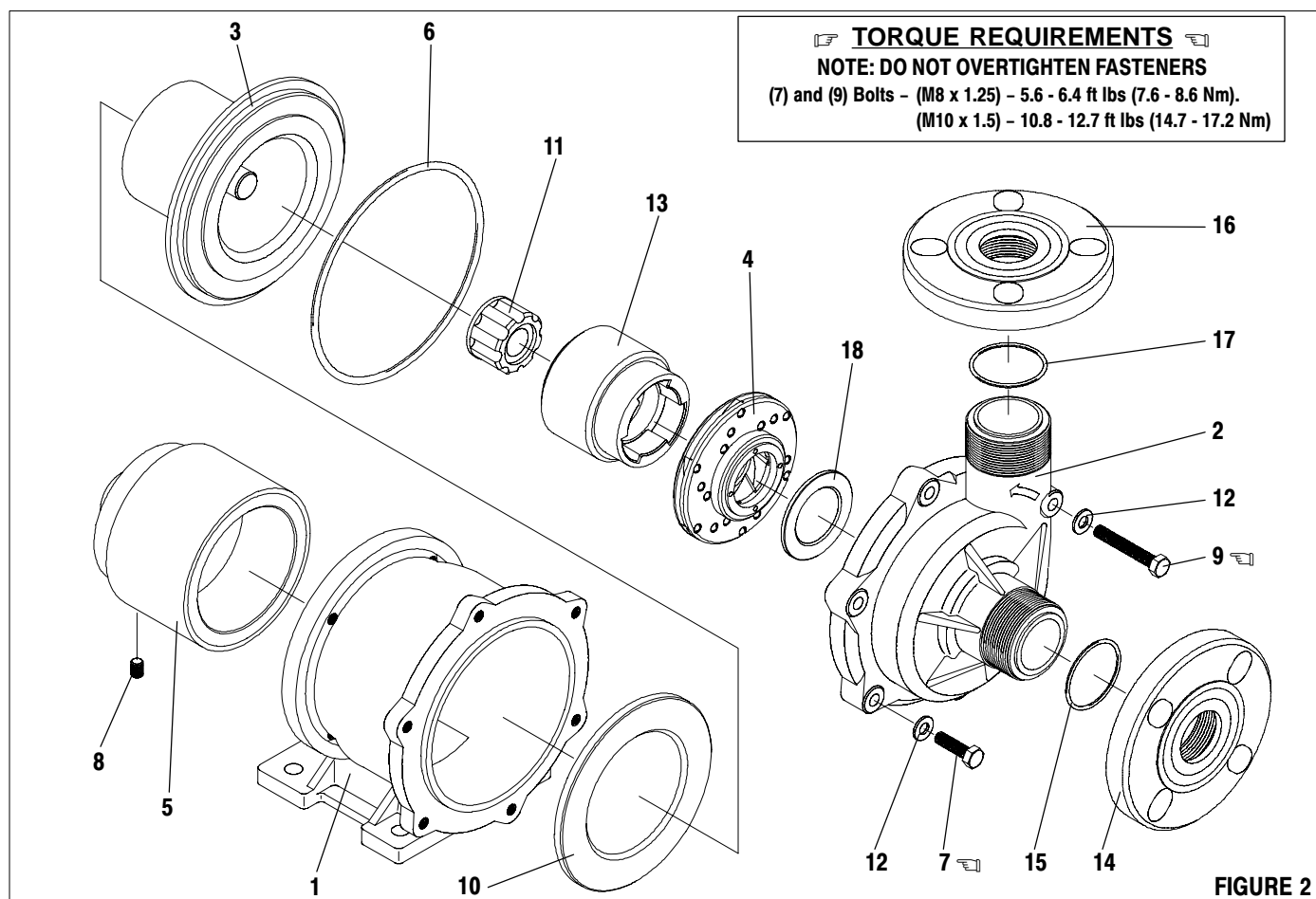
## MATERIAL CODE

[C] = Carbon Steel	[CK] = Ceramic	[V] = Viton
[CH] = High Density Carbon	[PPG] = Glass Filled Polypropylene	
[CI] = Cast Iron	[SS] = Stainless Steel	

# PUMP DATA / AWXXXLXXX-FXXPCFX

MODEL NUMBER	WEIGHT	MAXIMUM HEAD	MAXIMUM FLOW g.p.m. (l.p.m.)	NOISE LEVEL <sup>②</sup>
AW659L005-F40PCF1	19.8 lbs (9 kgs)	36.1' (11 m)	71.3 (270)	79 db(A)
AW559L005-F40PCF2	19.8 lbs (9 kgs)	36.1' (11 m)	71.3 (270)	79 db(A)
AW663L010-F40PCF1	28.7 lbs (13 kgs)	59.1' (18 m)	95.1 (360)	83 db(A)
AW563L010-F40PCF2	28.7 lbs (13 kgs)	55.8' (17 m)	95.1 (360)	83 db(A)
AW669L020-F50PCF1	46.3 lbs (21 kgs)	72.2' (22 m)	126.8 (480)	85 db(A)
AW569L020-F50PCF2	46.3 lbs (21 kgs)	75.5' (23 m)	126.8 (480)	85 db(A)
AW669L030-F50PCF1	46.3 lbs (21 kgs)	82.0' (25 m)	140.0 (530)	87 db(A)
AW569L030-F50PCF2	46.3 lbs (21 kgs)	85.3' (26 m)	140.0 (530)	87 db(A)
AW669L050-F50PCF1	52.9 lbs (24 kgs)	105.0' (32 m)	140.0 (530)	90 db(A)
AW569L050-F50PCF2	52.9 lbs (24 kgs)	105.0' (32 m)	140.0 (530)	90 db(A)

② Microphone located 3.3' (1 m) from the pump.

**PUMP DISASSEMBLY**

1. Disconnect power supply.
2. Unthread and remove (14 and 16) flanges and (15 and 17) "O" rings.
3. Remove (7 and 9) bolts and (12) washers, releasing (2) front casing.
4. Remove (4) impeller, (13) magnet capsule, (11) bearing, (6) "O" ring, (3) rear casing and (10) rear casing cover. NOTE: Be careful when handling (4) impeller and (13) magnet capsule.

**PUMP ASSEMBLY**

1. Clean and inspect all parts. Replace worn or damaged parts with new parts as required.
2. Reassemble in reverse order.
3. Assemble (10) rear casing cover and (6) "O" ring to (3) rear casing and assemble into (1) bracket.
4. Assemble (11) bearing, (13) magnet capsule and (4) impeller into (3) rear casing.
5. Assemble (2) front casing to (1) bracket, securing with (12) washers and (7 and 9) bolts (see "Torque Requirements").
6. Replace "O" rings (15 and 17) and assemble (14 and 16) flanges.

# PARTS LIST / AWXXXLXXX-FXXCCFX

## COMMON PARTS

ITEM	DESCRIPTION (Size in millimeters)	QTY	PART NO.	[MTL]	ITEM	DESCRIPTION (Size in millimeters)	QTY	PART NO.	[MTL]
1	Bracket	(1)		[CI]	7	Bolt (AWX59L005-X, AWX63L010-X) (M8 x 40)	(5)		[SS]
★ 2	Front Casing (AWX59L005-X)	(1)	95392	[T]		(AWX69L0X0-X, AWX70L050-X) (M8 x 40)	(7)		[SS]
	(AWX63L010-X)	(1)	95393	[T]		(AWX83LXXX-X) (M10 x 100)	(7)		[SS]
	(AWX69L0X0-X)	(1)	95394	[T]	8	Set Screw (M8 x 1.25 x 10)	(2)		[C]
	(AWX70L050-X)	(1)	95395	[T]	9	Bolt (AWX59L005-X, AWX63L010-X) (M8 x 65)	(1)		[SS]
	(AWX83LXXX-X)	(1)	95396	[T]		(AWX69L0X0-X, AWX70L050-X) (M8 x 40)	(1)		[SS]
★ 3	Rear Casing (with ceramic spindle)					(AWX83LXXX-X) (M10 x 100)	(1)		[SS]
	(AWX59L005-X)	(1)	95403	[T]	10a	Rear Casing Cover (AW683LXXX-X)	(1)		---
	(AWX63L010-X)	(1)	95404	[T]	10b	Rear Casing Cover (AWXXXL005-X, L010)	(1)		---
	(AWX69L0X0-X, AWX70L050-X)	(1)	95405	[T]	★ 11	Bearing (AWX59L005-X, AWX63L010-X)	(1)	95436	[CH]
	(AWX83LXXX-X)	(1)	95406	[T]		(AWX69L0X0-X, AWX70L050-X, AWX83LXXX-X)	(1)	95437	[CH]
★ 4	Impeller (AW559L005-X)	(1)	95417	[T]	12	Washer (AWX59L005-X, AWX63L010-X) (M8)	(6)		[SS]
	(AW659L005-X)	(1)	95418	[T]		(AWX69L0X0-X, AWX70L050-X) (M8)	(8)		[SS]
	(AW663L010-X)	(1)	95420	[T]		(AWX83LXXX-X) (M10)	(8)		[SS]
	(AW563L010-X)	(1)	95419	[T]	★ 13	Magnet Capsule	(1)		[T]
	(AW669L020-X)	(1)	95422	[T]	14	Cover	(1)		[CI]
	(AW569L020-X)	(1)	95421	[T]	15	Cover	(1)		[CI]
	(AW669L030-X)	(1)	95425	[T]	16	Cover	(1)		[CI]
	(AW569L030-X)	(1)	95423	[T]	17	Bolt (AWX59L005-X, AWX63L010-X) (M6 x 15)	(3)		[SS]
	(AW669L050-X)	(1)	95426	[T]		(AWX69L0X0-X, AWX70L050-X) (M6 x 20)	(3)		[SS]
	(AW569L050-X)	(1)	95424	[T]		(AWX83LXXX-X) (M6 x 25)	(2)		[SS]
	(AW670L050-X)	(1)	95428	[T]	18	Bolt (AWX59L005-X, AWX63L010-X) (M6 x 15)	(2)		[SS]
	(AW570L050-X)	(1)	95427	[T]		(AWX69L0X0-X, AWX70L050-X) (M6 x 20)	(2)		[SS]
	(AW683L075-X)	(1)	95432	[T]		(AWX83LXXX-X) (M8 x 15)	(2)		[SS]
	(AW583L075-X)	(1)	95429	[T]	19	Bolt (AWX59L005-X, AWX63L010-X) (M8 x 15)	(4)		[SS]
	(AW683L100-X)	(1)	95433	[T]		(AWX69L0X0-X, AWX70L050-X) (M8 x 15)	(4)		[SS]
	(AW583L100-X)	(1)	95430	[T]		(AWX83LXXX-X) (M8 x 20)	(4)		[SS]
	(AW683L150-X)	(1)	95434	[T]	20	Transition Flange	(1)		[CI]
	(AW583L150-X)	(1)	95431	[T]	21	Set Screw (AW669L050-F50CCF1) (M10 x 20)	(1)		[C]
	(AW683L200-X)	(1)	95435	[T]		(AW683L150-X, AW683L200-X) (M12 x 30)	(4)		[SS]
5	Magnet Housing	(1)		---	22	Screw (AW683LXXX-X) (M12 x 1.75)	(1)		[C]
★ 6	“O” Ring (AWX59L005-X) (5.7 x 160.7 o.d.)	(1)	95384	[V]	23	Screw (AW683LXXX-X) (M16 x 45)	(4)		[SS]
	(AWX63L010-X) (5.7 x 170.7 o.d.)	(1)	95385	[V]	★ 24	Thrust Pad (AWX59L005-X, 63L, 69L)	(4)	95397	[CK]
	(AWX69L0X0-X) (5.7 x 185.7 o.d.)	(1)	95386	[V]		(AWX70L050-X)	(4)	95398	[CK]
	(AWX70L0X0-X) (5.7 x 185.7 o.d.)	(1)	95387	[V]		(AWX83LXXX-X)	(4)	95399	[CK]
	(AWX83LXXX-X) (5.7 x 230.7 o.d.)	(1)	95388	[V]	★	Items included in Service Kit	(1)		

### MATERIAL CODE

[C] = Carbon Steel      [CK] = Ceramic      [V] = Viton  
 [CH] = High Density Carbon      [SS] = Stainless Steel  
 [CI] = Cast Iron      [T] = PTFE

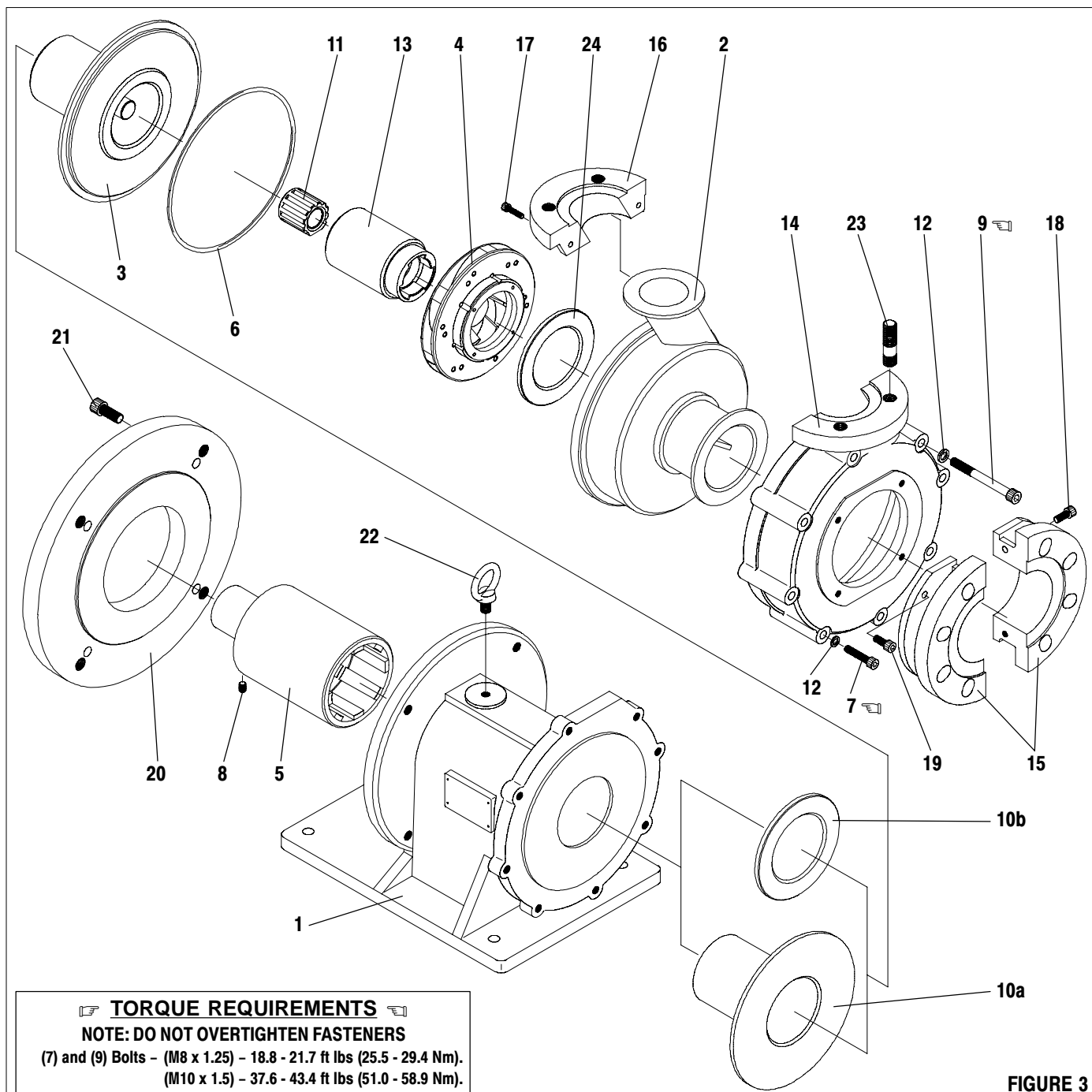


FIGURE 3

**PUMP DISASSEMBLY**

1. Disconnect power supply.
2. Remove (17) bolts, releasing (16) cover.
3. Remove (18 and 19) bolts, releasing (15) cover.
4. Remove (7 and 9) bolts and (12) washers, releasing (14) cover and (2) front casing.
5. Remove (4) impeller, (13) magnet capsule, (11) bearing, (6) "O" ring, (3) rear casing and (10a or 10b) rear casing cover. NOTE: Be careful when handling (4) impeller and (13) magnet capsule.

**PUMP ASSEMBLY**

1. Clean and inspect all parts. Replace worn or damaged parts with new parts as required.
2. Reassemble in reverse order.
3. Assemble (10a or 10b) rear casing cover and (6) "O" ring to (3) rear casing and assemble into (1) bracket.
4. Assemble (11) bearing, (13) magnet capsule and (4) impeller into (3) rear casing.
5. Assemble (2) front casing and (14) cover to (1) bracket, securing with (12) washers and (7 and 9) bolts (see "Torque Requirements").
6. Assemble (15) cover to (14) cover, securing with (18 and 19) bolts.
7. Assemble (16) cover to (14) cover, securing with (17) bolts.

## PUMP DATA / AWXXXLXXX-FXXCCFX

MODEL NUMBER	WEIGHT	MAXIMUM HEAD	MAXIMUM FLOW g.p.m. (l.p.m.)	NOISE LEVEL <sup>③</sup>
AW559L005-F25CCF2	39.7 lbs (18 kgs)	32.2' (9.8 m)	60.8 (230)	79 db(A)
AW659L005-F32CCF1	39.7 lbs (18 kgs)	32.8' (10 m)	56.8 (215)	79 db(A)
AW663L010-F40CCF1	50.7 lbs (23 kgs)	46.6' (14.2 m)	79.3 (300)	83 db(A)
AW563L010-F40CCF2	50.7 lbs (23 kgs)	42.7' (13 m)	79.3 (300)	83 db(A)
AW669L020-F50CCF1	57.3 lbs (26 kgs)	78.1' (23.8 m)	108.3 (410)	85 db(A)
AW569L020-F50CCF2	57.3 lbs (26 kgs)	73.8' (22.5 m)	116.2 (440)	85 db(A)
AW669L030-F50CCF1	57.3 lbs (26 kgs)	86.6' (26.4 m)	140.0 (530)	87 db(A)
AW569L030-F50CCF2	57.3 lbs (26 kgs)	82.0' (25 m)	140.0 (530)	87 db(A)
AW669L050-F50CCF1	70.5 lbs (32 kgs)	104.7' (31.9 m)	150.6 (570)	90 db(A)
AW569L050-F50CCF2	70.5 lbs (32 kgs)	111.6' (34 m)	150.6 (570)	90 db(A)
AW670L050-F65CCF1	88.2 lbs (40 kgs)	72.2' (22 m)	211.4 (800)	90 db(A)
AW570L050-F65CCF2	88.2 lbs (40 kgs)	70.9' (21.6 m)	211.4 (800)	90 db(A)
AW683L075-F80CCF1	125.7 lbs (57 kgs)	86.3' (26.3 m)	317.0 (1200)	93 db(A)
AW583L075-F80CCF2	125.7 lbs (57 kgs)	86.6' (26.4 m)	317.0 (1200)	93 db(A)
AW683L100-F80CCF1	152.1 lbs (69 kgs)	106.3' (32.4 m)	343.5 (1300)	94 db(A)
AW583L100-F80CCF2	152.1 lbs (69 kgs)	106.6' (32.5 m)	343.5 (1300)	94 db(A)
AW683L150-F80CCF1	152.1 lbs (69 kgs)	145.0' (44.2 m)	343.5 (1300)	97 db(A)
AW583L150-F80CCF2	152.1 lbs (69 kgs)	132.9' (40.5 m)	396.3 (1500)	97 db(A)
AW683L200-F80CCF1	152.1 lbs (69 kgs)	170.9' (52.1 m)	369.9 (1400)	97 db(A)

③ Microphone located 3.3' (1 m) from the pump.



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## TROUBLE SHOOTING

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### Liquid is not being pumped.

1. Pump will not prime.
  - a. Insufficient priming liquid. Suction must be flooded. Stop the pump and reprime with sufficient priming liquid.
  - b. Pump is dry running.
2. Priming liquid level drops quickly.
  - a. Strainer is clogged. Clean or replace strainer.
3. Liquid level in the pump drops when the discharge valve is opened after starting the pump.
  - a. Air is entering through the suction (inlet) pipe.
    - Check that the flanges are sealed airtight.
    - Check that the suction (inlet) liquid level is sufficient.
  - b. Magnet has become disconnected.
    - Stop the pump. Rotate the motor using a screwdriver, checking for smooth rotation.
    - Check for foreign matter in the pump cavity and around the bearing.
    - Check for overload or incorrect voltage.
4. The pressure gauge stays at a low reading.
  - a. The pump is running at too low a speed. Check motor, wiring and power supply.
  - b. Pump rotation is reversed. Replace or correct the wiring.

### Discharge capacity is too low.

1. The vacuum gauge indicates a high reading.
  - a. Check for clogged strainer.
  - b. Check for trapped air in the suction pipe and make adjustments if necessary.
  - c. Check for clogged inlet section of impeller.
2. The pressure and vacuum gauges fluctuate.
  - a. Air is entering through the suction pipe. Check that the flanges are sealed airtight.

- b. Check that the discharge side of the pump is not clogged.
3. The vacuum gauge indicates a high reading while the pressure gauge indicates a normal reading.
  - a. Check for air pocket or resistance in the suction pipe.
4. The pressure gauge indicates a high reading while the vacuum gauge indicates a normal reading.
  - a. Check for resistance in discharge pipe.
  - b. Total dynamic head is higher than planned values.
5. The pressure and vacuum gauges indicate low readings.
  - a. Pump rotation is reversed. Replace or correct the wiring.

### Motor overheats.

1. Voltage is insufficient.
  - a. Check whether voltage and frequency levels are adequate.
2. Overload.
  - a. Check whether specific gravity and viscosity of liquid are above specification.
  - b. Stop the pump. Rotate the motor fan using a screwdriver, checking for smooth rotation.
3. Ambient temperature is high.
  - a. Improve air ventilation.

### Discharge capacity suddenly drops.

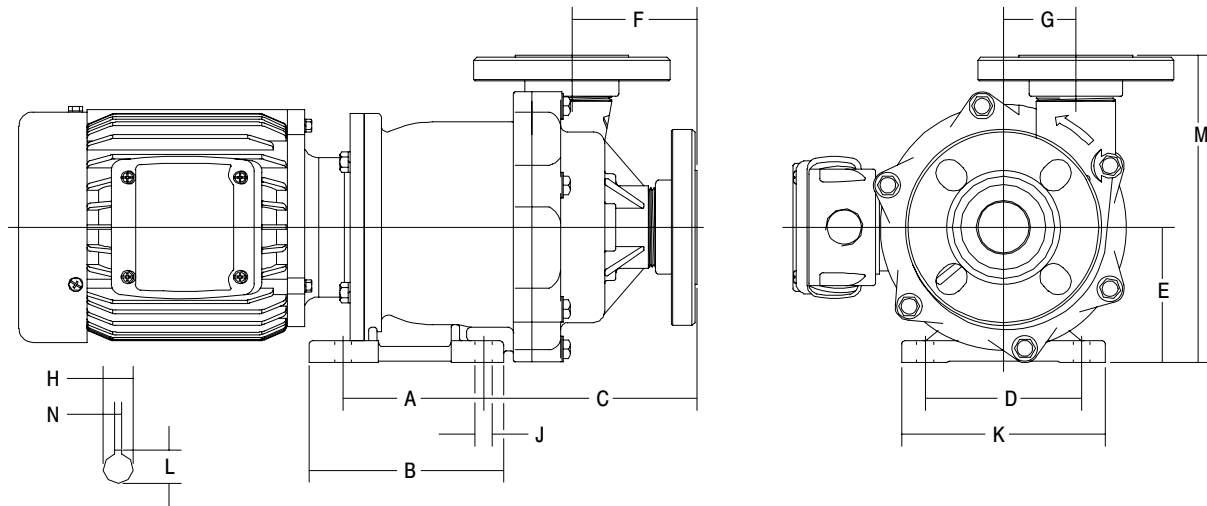
1. Vacuum gauge indicates a high reading.
  - a. Check for clogged strainer.

### Pump vibrates

1. Check for loose mounting bolts.
2. Check for pump cavitation.
3. Check for worn or damaged bearing, spindle or magnet capsule. Replace if necessary.
4. Check for damaged drive magnet.

## DIMENSIONAL DATA / AWXXXLXXX-FXXPCFX

(Dimensions shown are for reference only, they are displayed in inches and millimeters (mm)).



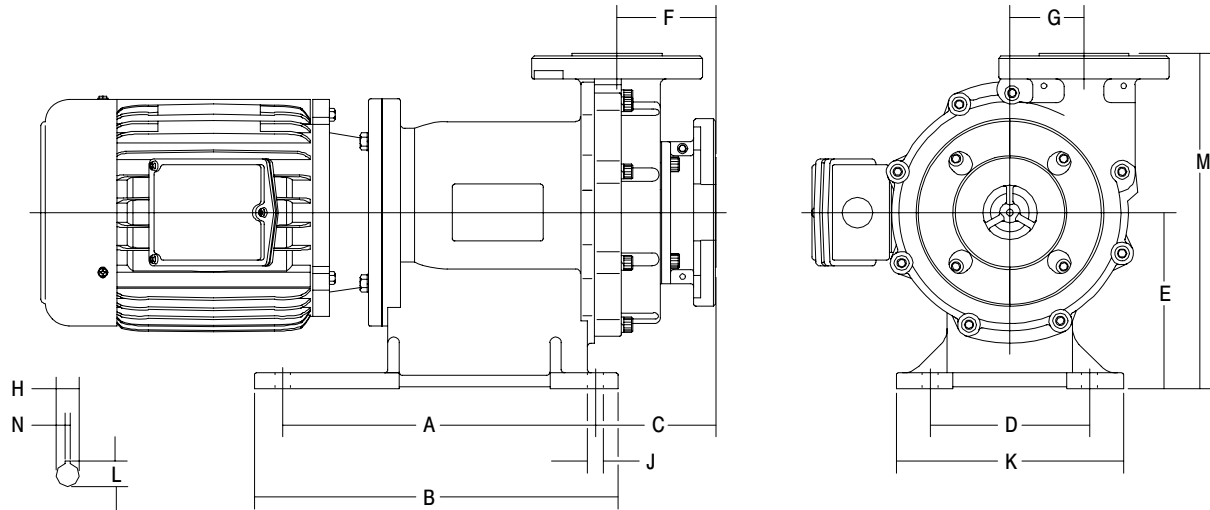
**FIGURE 4**

MODEL NUMBER	"A"	"B"	"C"	"D"	"E"	"F"
AWX59L005-F40PCFX	3-7/8" (98 mm)	5-13/32" (137 mm)	5-29/32" (150 mm)	4-11/32" (110 mm)	3-3/4" (95 mm)	3-7/16" (87 mm)
AWX63L010-F40PCFX	5-1/8" (130 mm)	6-13/16" (173 mm)	7-1/4" (184 mm)	5-1/8" (130 mm)	4-17/32" (115 mm)	4-1/32" (102.5 mm)
AWX69L020-F50PCFX	7-7/8" (200 mm)	9-17/32" (242 mm)	6-1/4" (158 mm)	8-3/16" (208 mm)	4-17/32" (115 mm)	3-1/2" (89 mm)
AWX69L030-F50PCFX	7-7/8" (200 mm)	9-17/32" (242 mm)	6-1/4" (158 mm)	8-3/16" (208 mm)	4-17/32" (115 mm)	3-1/2" (89 mm)
AWX69L050-F50PCFX	7-7/8" (200 mm)	9-17/32" (242 mm)	6-1/4" (158 mm)	8-3/16" (208 mm)	5-1/2" (130 mm)	3-1/2" (89 mm)

MODEL NUMBER	"G"	"H"	"J"	"K"	"L"	"M"	"N"
AWX59L005-F40PCFX	2" (51 mm)	5/8" (15.9 mm)	1/2" (12 mm)	5-17/32" (140 mm)	23/32" (18.3 mm)	8-1/2" (216 mm)	3/16" (4.8 mm)
AWX63L010-F40PCFX	2-9/32" (57.5 mm)	5/8" (15.9 mm)	1/2" (12 mm)	6-5/16" (160 mm)	23/32" (18.3 mm)	10" (254 mm)	3/16" (4.8 mm)
AWX69L020-F50PCFX	2-9/16" (65 mm)	7/8" (22.2 mm)	9/16" (14 mm)	10-1/4" (260 mm)	31/32" (24.6 mm)	10-1/16" (255 mm)	3/16" (4.8 mm)
AWX69L030-F50PCFX	2-9/16" (65 mm)	7/8" (22.2 mm)	9/16" (14 mm)	10-1/4" (260 mm)	31/32" (24.6 mm)	10-1/16" (255 mm)	3/16" (4.8 mm)
AWX69L050-F50PCFX	2-9/16" (65 mm)	1-1/8" (28.6 mm)	9/16" (14 mm)	10-1/4" (260 mm)	1-1/4" (31.8 mm)	10-21/32" (270 mm)	1/4" (6.4 mm)

## DIMENSIONAL DATA / AWXXXLXXX-FXXCCFX

(Dimensions shown are for reference only, they are displayed in inches and millimeters (mm).)



**FIGURE 5**

MODEL NUMBER	"A"	"B"	"C"	"D"	"E"	"F"
AW559L005-F25CCF2	5-3/4" (146 mm)	9-15/32" (240 mm)	3-3/4" (95 mm)	4-11/32" (110 mm)	4-17/32" (115 mm)	3-15/32" (88 mm)
AW659L005-F32CCF1	5-3/4" (146 mm)	9-15/32" (240 mm)	3-3/4" (95 mm)	4-11/32" (110 mm)	4-17/32" (115 mm)	3-15/32" (88 mm)
AWX63L010-F50CCFX	9-27/32" (250 mm)	11-7/32" (285 mm)	4-3/8" (111 mm)	5-1/8" (130 mm)	5-11/32" (135 mm)	4-1/8" (104.5 mm)
AWX69L020-F50CCFX	10-27/32" (275 mm)	12-5/8" (320 mm)	4-3/16" (106 mm)	5-17/32" (140 mm)	6-1/8" (155 mm)	3-7/16" (87 mm)
AWX69L030-F50CCFX	10-27/32" (275 mm)	12-5/8" (320 mm)	4-3/16" (106 mm)	5-17/32" (140 mm)	6-1/8" (155 mm)	3-7/16" (87 mm)
AWX69L050-F50CCFX	10-27/32" (275 mm)	12-5/8" (320 mm)	4-3/16" (106 mm)	5-17/32" (140 mm)	6-1/8" (155 mm)	3-7/16" (87 mm)
AWX70L050-F65CCFX	12-1/32" (305 mm)	13-25/32" (350 mm)	5-1/8" (130 mm)	8-9/32" (210 mm)	6-29/32" (175 mm)	4-11/32" (110 mm)
AWX83L075-F80CCFX	12-5/8" (320 mm)	15-5/32" (385 mm)	7-11/16" (195 mm)	8-11/16" (220 mm)	6-29/32" (175 mm)	4-21/32" (118 mm)
AWX83L100-F80CCFX	12-5/8" (320 mm)	15-5/32" (385 mm)	7-11/16" (195 mm)	8-11/16" (220 mm)	6-29/32" (175 mm)	4-21/32" (118 mm)
AWX83L150-F80CCFX	12-5/8" (320 mm)	15-5/32" (385 mm)	7-11/16" (195 mm)	11-13/16" (300 mm)	7-7/8" (200 mm)	4-21/32" (118 mm)
AWX83L200-F80CCFX	12-5/8" (320 mm)	15-5/32" (385 mm)	7-11/16" (195 mm)	11-13/16" (300 mm)	7-7/8" (200 mm)	4-21/32" (118 mm)

MODEL NUMBER	"G"	"H"	"J"	"K"	"L"	"M"	"N"
AW559L005-F25CCF2	2" (51 mm)	5/8" (15.9 mm)	9/16" (14 mm)	6-1/8" (155 mm)	23/32" (18.3 mm)	9-11/32" (237 mm)	3/16" (4.8 mm)
AW659L005-F32CCF1	2" (51 mm)	5/8" (15.9 mm)	9/16" (14 mm)	6-1/8" (155 mm)	23/32" (18.3 mm)	9-11/32" (237 mm)	3/16" (4.8 mm)
AWX63L010-F50CCFX	2-9/32" (57.5 mm)	5/8" (15.9 mm)	9/16" (14 mm)	7-11/16" (195 mm)	23/32" (18.3 mm)	10-27/32" (275 mm)	3/16" (4.8 mm)
AWX69L020-F50CCFX	2-9/16" (65 mm)	7/8" (22.2 mm)	9/16" (14 mm)	7-7/8" (200 mm)	31/32" (24.6 mm)	11-5/8" (295 mm)	3/16" (4.8 mm)
AWX69L030-F50CCFX	2-9/16" (65 mm)	7/8" (22.2 mm)	9/16" (14 mm)	7-7/8" (200 mm)	31/32" (24.6 mm)	11-5/8" (295 mm)	3/16" (4.8 mm)
AWX69L050-F50CCFX	2-9/16" (65 mm)	1-1/8" (28.6 mm)	9/16" (14 mm)	7-7/8" (200 mm)	1-1/4" (31.8 mm)	11-5/8" (295 mm)	1/4" (6.4 mm)
AWX70L050-F65CCFX	2-15/32" (62 mm)	1-1/8" (28.6 mm)	9/16" (14 mm)	10-1/4" (260 mm)	1-1/4" (31.8 mm)	12-13/16" (325 mm)	1/4" (6.4 mm)
AWX83L075-F80CCFX	④	1-3/8" (34.9 mm)	9/16" (14 mm)	11-1/32" (280 mm)	1-17/32" (38.9 mm)	14-3/16" (360 mm)	5/16" (7.9 mm)
AWX83L100-F80CCFX	④	1-3/8" (34.9 mm)	9/16" (14 mm)	11-1/32" (280 mm)	1-17/32" (38.9 mm)	14-3/16" (360 mm)	5/16" (7.9 mm)
AWX83L150-F80CCFX	④	1-5/8" (41.3 mm)	9/16" (14 mm)	13-25/32" (350 mm)	1-13/16" (46.0 mm)	15-5/32" (385 mm)	3/8" (9.5 mm)
AWX83L200-F80CCFX	④	1-5/8" (41.3 mm)	9/16" (14 mm)	13-25/32" (350 mm)	1-13/16" (46.0 mm)	15-5/32" (385 mm)	3/8" (9.5 mm)

④ These pumps have top center discharge.

