C.A.Technologies

DOUBLE DIAPHRAGM

PRODUCT INFORMATION

70-254 - DD PUMP
70-1101-5 - 5 GAL WALL MOUNT
70-1101-55 - 55 GAL WALL MOUNT
70-1103 - 5 GAL PAIL MOUNT
70-1104 - 5 GAL PAIL MOUNT W/ AGITATOR
70-1105 - 55 GAL DRUM MOUNT
70-1106 - 55 GAL DRUM MOUNT W/ AGITATOR

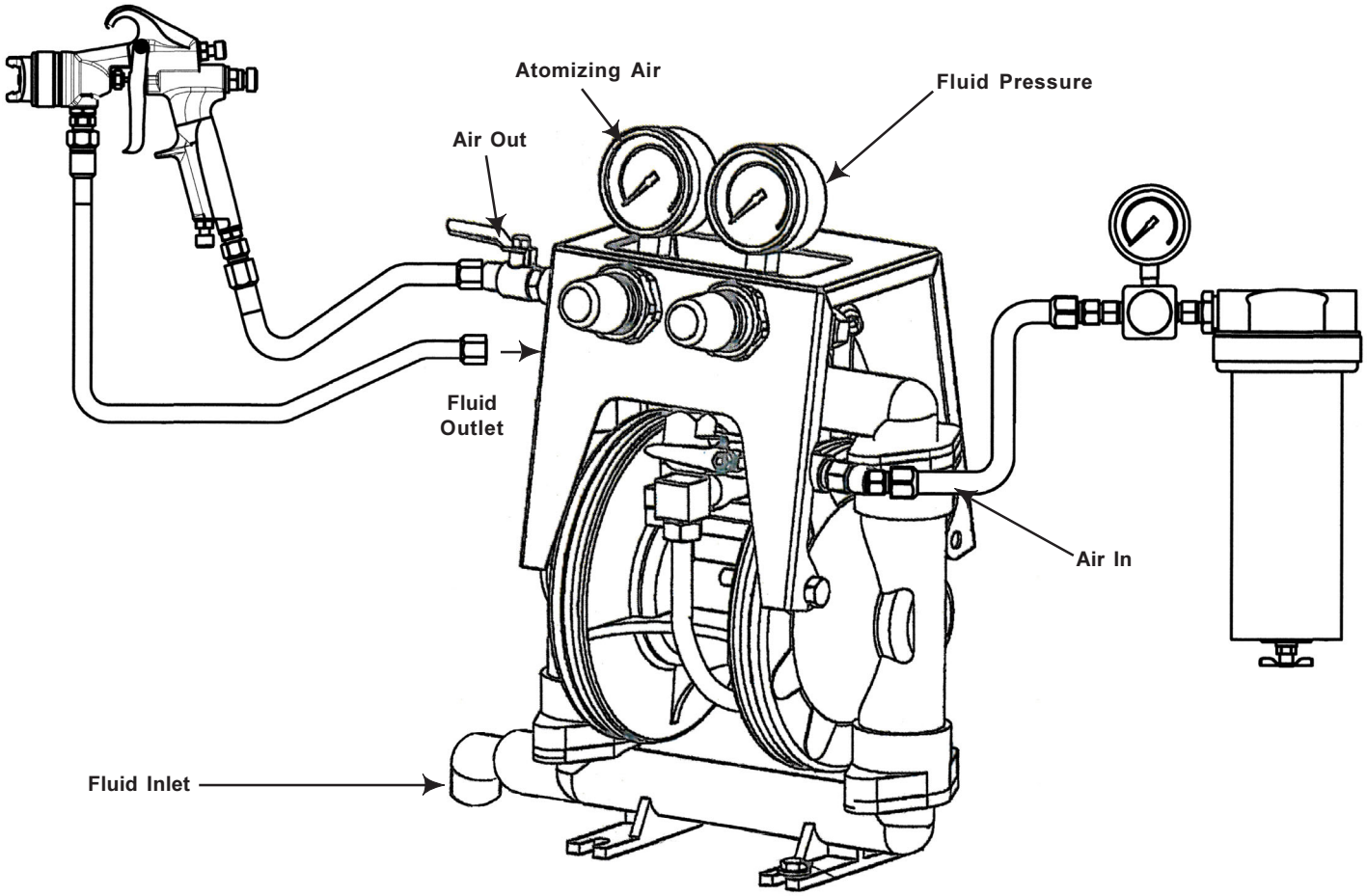
Coating Atomization Technology P.O. Box 17820 Boulder CO 80308 (888) 820-4498 Fax (303) 438-5708
www.spraycat.com

Installation

The CAT Pump comes with a footed base for easy mounting in permanent installations. The pump should be mounted in a vertical position. In permanent installations, the pump should be attached to plant piping using flexible coupling on both the intake and discharge connections to reduce vibration to the pump and piping. To further reduce vibration, a surge suppressor next to the pump may be used.

Suction pipe size should be at least 1/2 inch in diameter or even larger if highly viscous fluid is to be pumped. If suction hose is used, it must be of a non-collapsible reinforced type. Discharge piping should be of at least 1/2 inch. It is critical, especially on the suction side of the pump, that all fittings and connections are airtight or pumping will be reduced and priming will be difficult.

The air supply line should be at least 3/8-inch diameter. Make certain the supplying line and compressor are capable of supplying the required pressure and volume of air to operate the pump at the desired flow rate. The quality of the compressed air source should be considered. Air that is contaminated with moisture and dirt may result in erratic pump performance and increased maintenance cost as well as frequent process “down time” when the pump fails to operated properly.



Flow Rate Adjustable 0-12 gpm (45 Lpm)

Port Size:
Inlet & Outlet..... 1/2" NPT
AIr Inlet..... 1/4" NPT
Air Exhaust..... 1/4" NPT

Suction Lift..... 20'(6.09m) Wet

Max. Particle Dia..... (.0625") (1.6mm)

Pump Operation

The pump is powered by compressed air. Compressed air is directed to the pump air chamber by the main air valve. The compressed air is separated from the fluid by a membrane called a diaphragm. The diaphragm in turn applies pressure on the fluid and forces it out of the pump discharge. While this is occurring, the opposite air chamber is depressurized and exhausted to atmosphere and fluid is drawn into the pump suction. The cycle again repeats, thus creating a constant reciprocating action that maintains flow through the pump. The flow is always in through the bottom suction connection and out through the top discharge connection. Since the air pressure acts directly on the diaphragms, the pressure applied to the fluid roughly approximates the air supply pressure supplied to the main air valve.

Trouble Shooting

The pump will not run, or runs slowly:

1. Check the sticking air valve. Remove air valve from pump and flush with solvent to remove dirt and debris. Check spool, u-cup, and air valve bore for nicks and scratches; replace if needed. Clean all ports and replace air valve gaskets and u-cups.
2. Check pilot shaft and main shaft for scoring and scratches; replace if needed. Replace the pilot shaft and main shaft o-ring if they are worn, flat, or torn.

The pump runs, but little material flows:

1. Check for pump cavitation, slow the pump speed down to match the thickness of the material being pumped.
2. Look for sticking ball checks. If the material being pumped is not compatible with the ball material, the elastomer may swell. Replace the balls and seats with a compatible elastomer type. Check valve seats and if worn or damaged replace with new ones.
3. Make sure all the suction line fittings and connections are airtight.

Air bubbles in pump discharge

1. Look for ruptured diaphragm.
2. Check for suction leaks in pump manifolds and piping.

Material comes out of the pump air exhaust

1. Inspect the diaphragm for rupture.
2. Check the tightness of the diaphragm plates to the pump shaft.

HAZARD WARNINGS

This equipment may generate fluid pressures equal to the air supply pressure. **NEVER** exceed the recommended air supply pressure of 100 psi (6.8 bar).

ALWAYS shut-off air supply and disconnect from the pump before performing repair or maintenance to the pump.

DO NOT put your face or body near the pump air exhaust while the pump is operating.

Bleed all pressure from the discharge and suction lines before disconnecting the fluid suction or discharge lines from pump.

DO NOT operate a pump that is leaking, damaged, corroded or otherwise unable to contain the internal fluid pressure.

ALWAYS make sure safety shut-off valves, regulators, pressure relief valves, etc. are working properly before starting pump.

DO NOT pump incompatible fluids through the pump. Consult your distributor or the factory if you are unsure of compatibility of fluids with pumps materials of construction.

C.A. TECHNOLOGIES pumps are designed to operate on compressed air. Other gases have not been tested and may be unsafe to use.

Before starting a pump make certain the discharge point of the piping system is not obstructed and all persons have been warned to stand clear.

Any misuse of this equipment such as over pressurization, modifying parts, pumping incompatible liquids, using worn or damaged parts or using gases other than compressed air to power the pump is not recommended. Any of these circumstances could result in splashing or spraying into the eyes, skin or possible serious bodily injury, fire, explosion or property damage.

NOISE - Wear proper ear protection when working or standing near A.O.D. Pumps.

Pump Diaphragm Failure - A.O.D. Pumps utilize an elastometric diaphragm to separate the pumping liquid from the air supply.

When this membrane ruptures pumping fluid may be expelled from the air exhaust port. Always pipe the air exhaust to a safe location or suitable container if dangerous liquids are being pumped.

Installation - Never allow the piping system to be supported by the pump manifolds or valve housing. The use of flexible piping connections is highly recommended.

Temperature Limits - The groundable acetal pump is designed to run between 10° and 180° F.

Static Electricity - Static electricity can be created by the flow of fluid through the pump or by the reciprocating action. The groundable acetal pump is provided with a groundable cable to eliminate the potential for static buildup. This cable must be grounded to an appropriate earth ground source for safe operation.

Fire or Explosion Hazard

Static electricity can be created by the flow of fluid through the pump or by the reciprocating action of A.O.D. Pumps. If the pump is not properly grounded, sparking may occur, and the system may become hazardous. Sparks can ignite fumes or vapor and cause an explosion.

If you experience static sparking or even a slight shock when using the pump do not continue to operate the pump until the pump is properly grounded.

Proper Grounding

Pump, valves, discharge and supply lines as well as containers must be grounded. These items must be grounded when handling flammable fluids and when static electricity discharge is a hazard.
To ground metallic pumps, connect a ground wire to any accessible point of attachment such as clamp band or mounting base.

Sound Level Ratings

The following table lists the sound level ratings of C.A. Technologies pumps equipped with factory installed air exhaust mufflers. The readings were obtained with a Pacer Industries model SL-120 sound level indicator “A” scale. Readings were made at a distance of 1 meter from the pump and a height of 1.6 meters above the floor using a factory supplied air exhaust muffler. It is assumed the pumps will be installed at floor level.

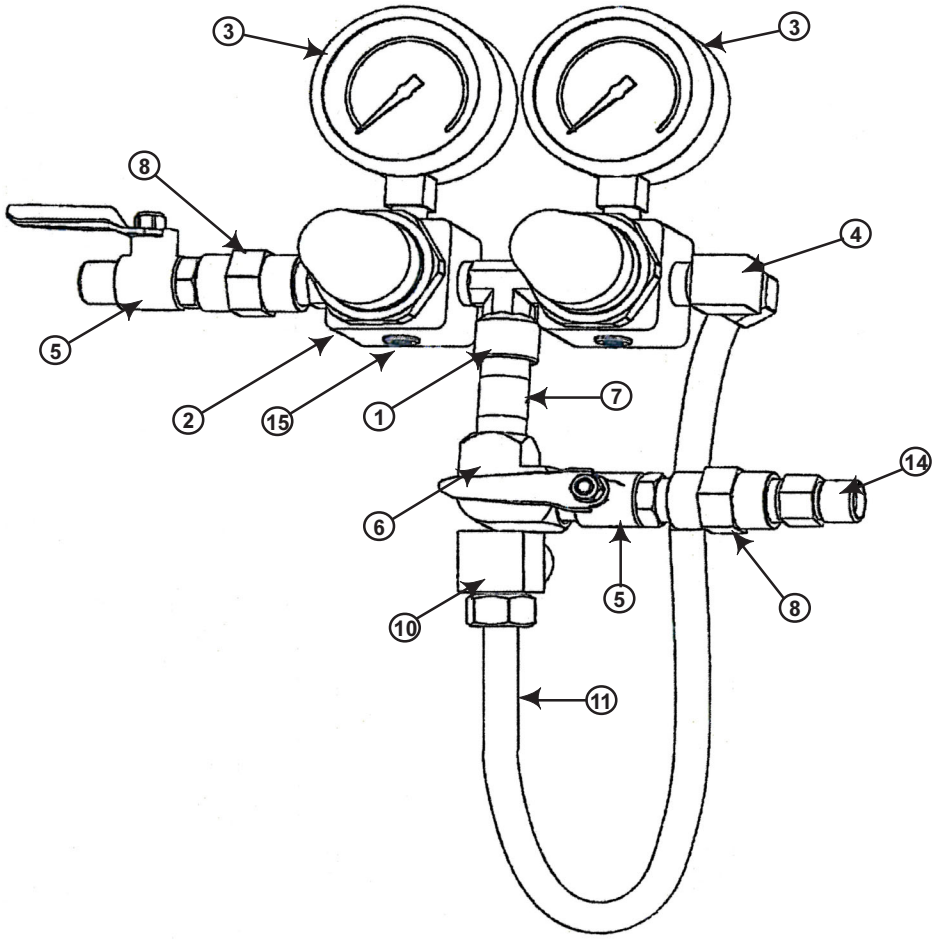
Pump Series	dB(A) reading
E5, ½” pump	78.0 dB(A)

Temperature Limitations

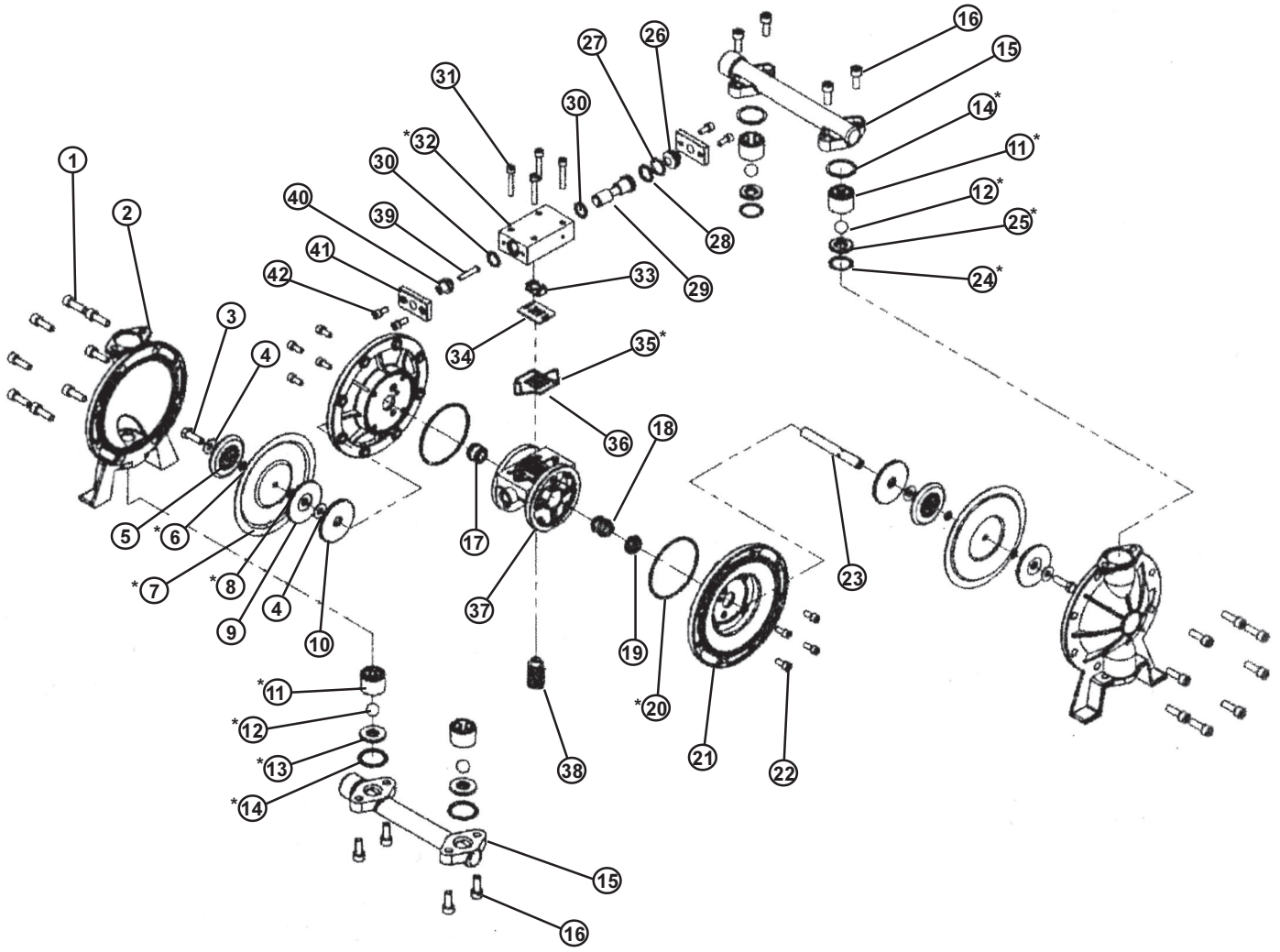
Maximum Temperature limitations are based on mechanical stress only. Certain chemicals will reduce the maximum safe operating temperatures of A.O.D. Pumps. Consult your dealer or Chemical Resistance Guide for compatibility and temperature limits.

Double Diaphragm Fluid Regulator Information

70-240



Item	Part Number	Description
1	98-0225	Tee - Couplings 127VC
2	52-6	Regulator
3	52-59	Gauge 0-100 PSI
4	98-0166	Elbow
5	52-150	Ball Valve 1/4 NPT
6	98-0176	Elbow 1/4 NPT
7	98-0163	Nipple
8	98-0159	Coupling
9	98-0215	Nipple 1/4 NPT
10	95-0226	Elbow 3/8 comp x 3/8 NPT
11	53-23-18	Hose
12	70-247	Panel Nut
13	98-0218	Insert Sleeve
14	53-562 or 53-552	Nipple 1/4 NPT
15	98-0121	Plug 1/8 NPT
16	98-0163	Copy Nipple 1/4 NPT x 1 1.15

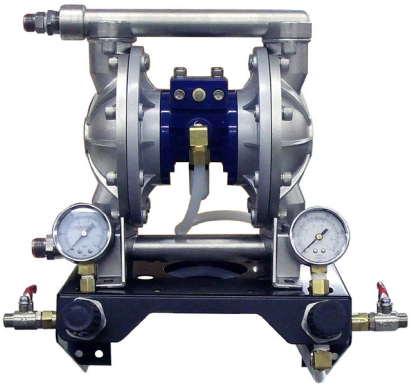


Item	Part #	Qty	Description
1	PC000018SW	16	Hex Screw
2	PA000048	2	Pump Chamber
3	PC000025	2	Steel Hex Screw
4	PC000057	4	Steel Washer
5	PA000060	2	Diaphragm Pad
6	PB000001	2	O-Ring
7	PB000026	2	Diaphragm Pad
8	PD000001	2	O-Ring
9	PA000059	2	Diaphragm Pad
10	PD000056	2	Diaphragm Plate
11	PB000129	4	Ball Cage (TSS)
	PB000127	4	Ball Cage (TTS)
12	PA000001	4	SS Ball (TSS)
	PB000039	4	Teflon Ball (TTS)
13	PA000015	2	Lower Ball Seat
14	PB000083	4	O-Ring
15	PA000128	2	Pipe
16	PC000015SW	8	Hex Screw
17	A16-19-28	1	Shaft Cover
18	A16-21-29	1	Axis Switch
19	A16-20-28	1	Shaft Cover
20	PD000011	2	O-Ring

Item	Part #	Qty	Description
21	PA000215	2	Air Chamber
22	PC000004SW	8	Hex Screw
23	PA000114	1	Diaphragm Shaft
24	PB000013	2	Pad
25	PA000025	2	Upper Ball Seat
26	PB000021	1	Air Valve Cover
27	PD000030	1	O-Ring
28	PDAP0023	1	O-Ring
29	PA000141	1	Air Valve Piston
30	PDR00016	2	O-Ring
31	PC000005SW	4	Hex Screw
32	PA000102	1	Air Valve Body
33	PB000334	1	Valve Insert
34	PB000072	1	Divider
35	PD000139	1	O-Ring
36	PD000140	1	O-Ring
37	PA000143	1	Cylinder Body
38	PB000046	1	Muffler
39	PA000112	1	Copper Latch
40	PD000080	1	Air Valve Cover
41	PA000117	2	Air Valve Housing
42	PC000004SW	4	Air Valve Plate

CAT DOUBLE DIAPHRAGM PUMPS

70-254
DD Pump



70-1101
DD Pump
Wall Mount

70-1105
DD Pump
55 Gal Cover
Mount
70-1104
With Agitator

70-1105
DD Pump
55 Gal Drum
Mount
70-1106
Wlth Agitator

Accessories

Color Change Manifold
70-266SS
(1/2" Stainless)

Back Pressure Regulator
52-210 Brass
52-210SS

Fluid Regulator
52-203

Siphon Hose Assy
74-538 - 3/8"x3'
74-520 - 1/2"x3'
74-524 - 1/2"x5'

Pulse Chamber
70-271