



## OZC-224 MANUAL

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\* For all pump parts refer to parts illustration sheet

### A. General Operations Characteristics

1. The ozone pump normally runs at 130°F to 150° F. It is not an indication of trouble if the outer surfaces of the ozone pump or motor are hot to the touch.
2. The OZC-224 is configured so it is operating with two heads in series and two in parallel. DO NOT connect all the heads in series as this may rupture the Teflon diaphragms. Special ozone compatible fittings are used for connecting the heads. Contact Ozone Solutions if extra parts are needed. The heads may be configured so they are all in parallel for high flow. See chart below.

NOTE: Check each separately, one or the other port must be open during this test. Use 0-60 PSI pressure gauge. 0-30 inch hg. Vacuum gauge, (or mercury manometer.) Minimum pressure should be 40 PSIG. Minimum vacuum should be 22 inches hg.
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3. To check pumping efficiency, employ suitably damped gauges connected so as to dead-end either pressure or vacuum.
4. The ozone pump normally runs quietly, especially when both pressure and vacuum ports are connected into a closed system. An obvious knock or rattle could indicate a problem. Check through "Disassembly and Inspection Procedures" with particular attention to the tightness of all screw fasteners.
5. All bolts and screws should have one drop of Loctite Removable 242 on threads before tightening.

### B. Maintenance Procedures

1. Motor oiling: No oiling or other lubrication addition is necessary. All bearings are pre-lubricated and sealed.
2. Diaphragm Replacement (See also Maintenance Procedure Below)
  - a) 3-Ply PTFE Teflon (part A04011 or the more complete Teflon repair kit 11011)

The degree of usage and condition of operating temperatures or pressure will determine the rate of replacement of part or parts. For heavy loads (20-50 PSI) and constant operation the diaphragm should be inspected at least every six months.

For lighter loads (0-15 PSI or up to maximum vacuum) the diaphragm may operate successfully for a year or more. The corrosive content of the gas media being pumped can affect the recommended inspection and replacement cycle of the diaphragm.

### C. Disassembly of Head Section and Service Diaphragm

1. Remove head section by unscrewing the four large bolts. A flat-bladed screw driver may be needed to gently pry the head free of the service diaphragm. \*\*If you have Teflon coating on the heads use caution not to scratch the surface.
2. The valve body can then be removed by unscrewing the two smaller screws (also accessible on the top of the head section). This part may be freed by gently tapping on these two screws after they have been loosened about three or four turns.

When the valve body is removed, check all internal surfaces for any accumulation of dirt. The two valve discs can be wiped clean and replaced as long as they appear unaffected by usage. The valve gasket can be easily removed and should be inspected. As a matter of good practice, the valve discs and valve gasket should be replaced during any routine maintenance check of the head section. A once a year routine procedure is recommended.

3. The service diaphragm is secured by the single screw in its center. Remove this screw with a 5/32-in Allen wrench. The diaphragm and its clamping plate should be easily lifted off. Some slight adherence to the metal may occur if the diaphragm has been in use for a long period. Before inserting the diaphragm cap screw (19007) apply a small amount of Teflon paste or a Teflon Washer seal (23001), (do not use Teflon tape), and then tighten the cap screw.

NOTE: When replacing the service diaphragm, be sure the four projecting studs of the base casting are properly located in the four outer holes provided in the diaphragm before the part is clamped in place. Be sure the diaphragm plate is firmly replaced with its center screw.

#### D. Disassembly of the Connecting Rod

1. Remove head section and service diaphragm as described in (C) above.
2. Remove the front plate from the face of the base casting by removing the four retaining screws.
3. Using a hex socket wrench, remove the hex head bolt on the connecting rod top surface. This will release the connecting rod cap (3001) which may then be lifted off. Some models may require additional steps. (See exploded view diagram for clarification).
4. The connecting rod assembly on single head units, including the counterweight, is held in place by the counterweight screw. This can be loosened by a 3/16" Allen wrench. The connecting rod assembly may then be slid off the motor shaft. On the dual and quad head units the assembly is held in place by the set screw. This can be loosened by a 1/8" Allen wrench and the assembly may then be slid off the motor shaft.

#### E. Replacement of the Connecting Rod

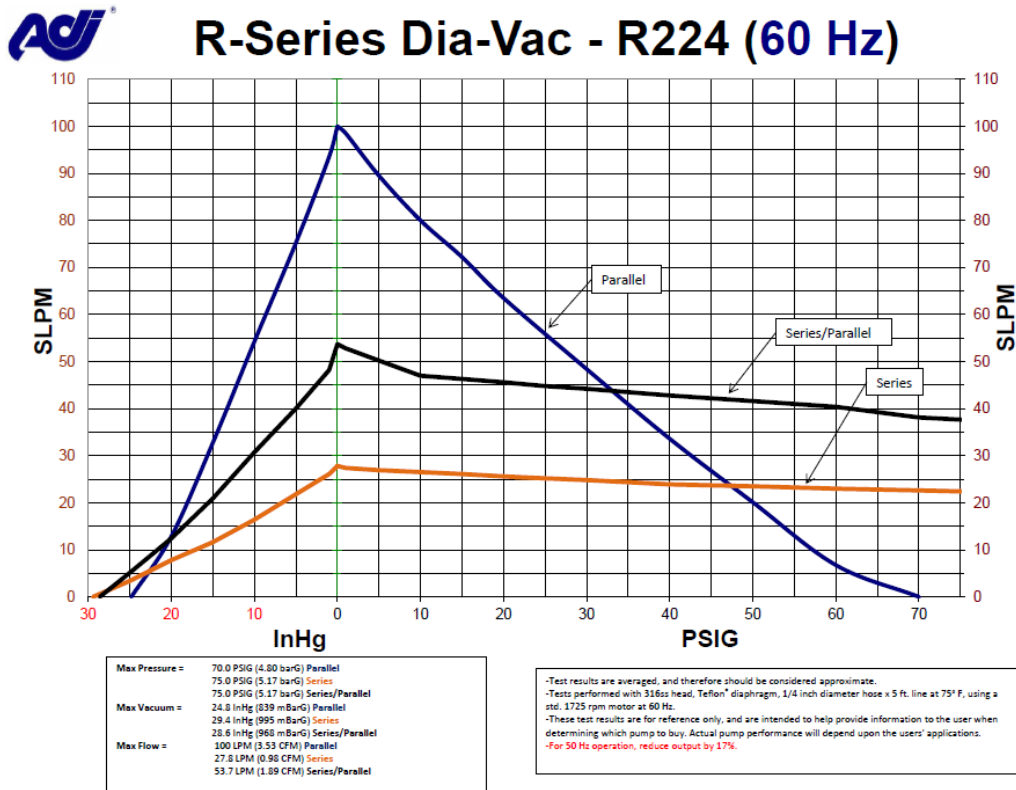
1. Replace the connecting rod assembly on the motor shaft, taking care to align set screw or counterweight screw as squarely as possible on the flat of the motor shaft.
2. Replace the connecting rod cap and connecting rod bolt. Tighten this assembly firmly with the hex socket wrench.
3. Put a new Service Diaphragm in place taking care to locate it over the four projecting studs on the top face of the base casting.

#### F. Related Torque Values

1. Head bolts - 110 inch pounds.
2. Valve body screws and Diaphragm plate screws - 70 inch pounds.
3. Connecting rod bolt - 250 inch pounds.

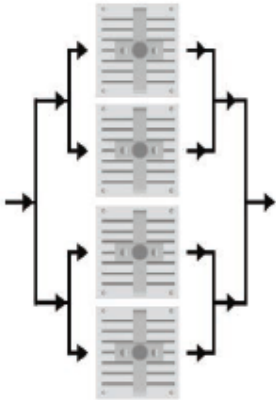
The performance chart below shows you that you can obtain different flow rates and pressures based on how the heads of the compressor are plumbed together.

OZC-224 Pressure vs. Flowrate Curve



Once you have reviewed the chart above and decided on which plumbing method of the compressor heads you need to use, the picture below shows you how the heads have to be plumbed together to achieve the desired flow-rate and PSI.

## PARALLEL QUAD HEADED

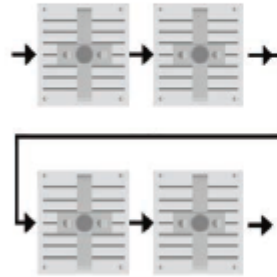


**DESCRIPTION**  
 Quad headed pump, all heads in parallel

**STANDARD ECCENTRIC**  
 Minimum Pressure: 40 PSIG Pressure  
 Minimum Vacuum: 25 InHg Vacuum  
 CFM at 0 PSIG: 0.9 CFM / head

**SYSTEMS APPLICATIONS**  
 For higher capacity of flow

## SERIES QUAD HEADED

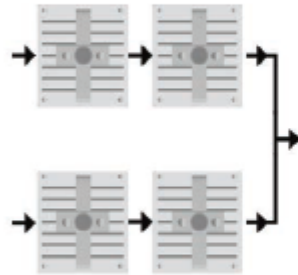


**DESCRIPTION**  
 Quad headed pump, all heads in series

**STANDARD ECCENTRIC**  
 Minimum Pressure: 60 PSIG Pressure Limited\*  
 Minimum Vacuum: 29.5 InHg Vacuum  
 CFM at 0 PSIG: 0.9 CFM

**SYSTEMS APPLICATIONS**  
 For higher capacity of vacuum

## DOUBLE PARALLEL QUAD HEADED



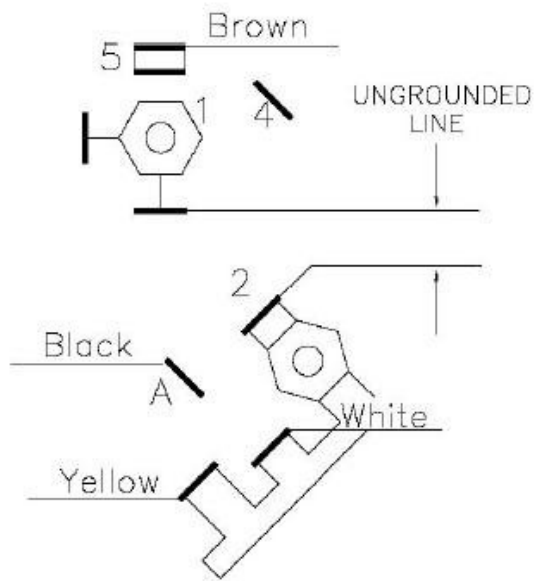
**DESCRIPTION**  
 Quad headed pump, parallel connection of two pairs of heads in series

**STANDARD ECCENTRIC**  
 Minimum Pressure: 75 PSIG Pressure Limited\*  
 Minimum Vacuum: 28 InHg Vacuum  
 CFM at 0 PSIG: 1.7 CFM

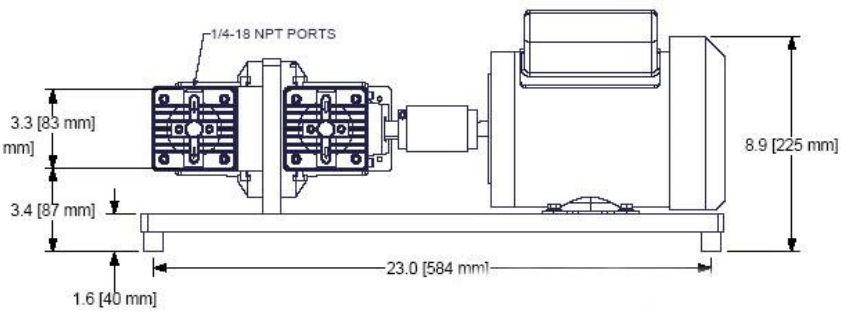
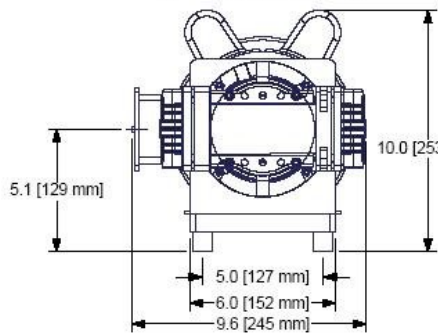
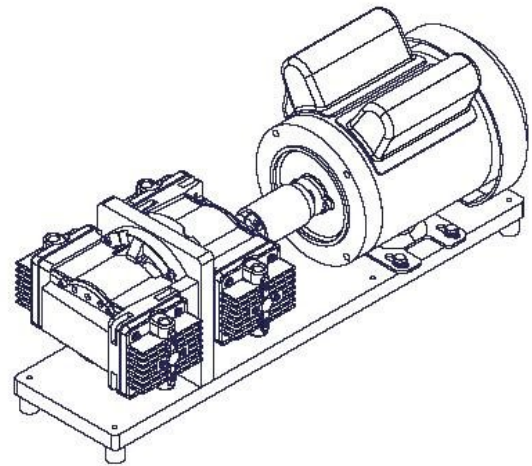
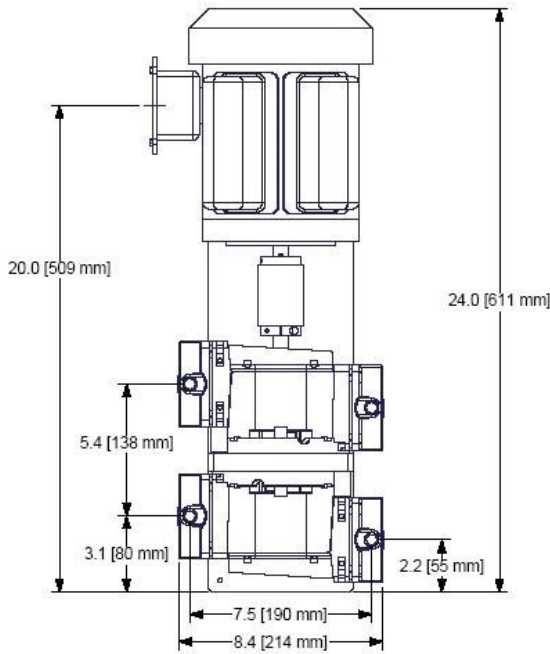
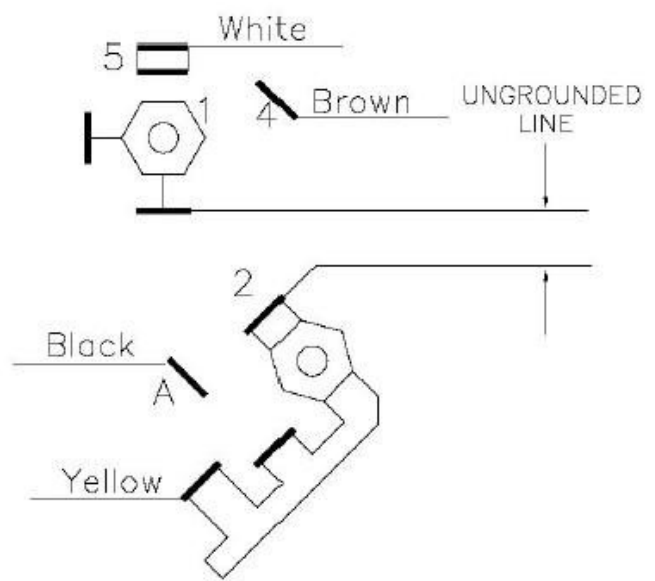
**SYSTEMS APPLICATIONS**  
 For higher capacity of vacuum and flow

The picture below shows the wiring diagram for low (110V) or High (230V) voltage.

*LOW VOLTAGE*



*HIGH VOLTAGE*



# Replacement Parts List

<b>PART</b>	<b>DESCRIPTION</b>	<b>PART</b>	<b>DESCRIPTION</b>
1001	ADAPTOR, XP	8007	HEAD, 316 S/S TEES CO
1002	ADAPTOR, XP4HD	8008	HEAD, ALUMINUM TFE® CO
1003	ADAPTOR, AIR MOTOR	8009	HEAD, CARP 20 TFE®
01005	ASSY., CON ROD SINGLE	8020	HEAD, HASTELLOY C
01005-5	ASSY., CON ROD SGL. LOW FLOW	11001	KIT, CONV. SINGLE TO DBL. S/S
01006	ASSY., CON ROD DOUBLE	11005	KIT, REPAIR - TEFLON®/EPDM
01006-5	ASSY.- CON ROD DBL. LOW FLOW	11006	KIT, REPAIR - TEFLON®/VITON
01103	ASSEMBLY, BASE STANDARD	11007	KIT, REPAIR - VITON®
01104	ASSEMBLY, BASE X-P	11009	KIT, REPAIR - EPDM
01105	ASSEMBLY, BASE 4FID X-P	11011	KIT, REPAIR - ALL TEFLON®
2005	BODY, VALVE 316 S/S	12001	LUBRICATOR & OIL, AIR MOTOR
2006	BODY, VALVE ALUMINUM	12002	LUBRICATOR, AIR MOTOR
2007	BODY, VALVE CARP 20	13001	MOTOR, 118 HI' S/8 SHAFT
2009	BODY, VALVE 316 S/S TFE® CO	13002	MOTOR, 1/6 HP XP, GRP. C & D
2010	BODY, VALVE ALUMINUM TFE® CO	13003	MOTOR, 1/3 HE DOUBLE SHAFT
2011	BEARING, STD. 6205	13010	MOTOR, AIR
2012	BEARING, HI-TEMP 2055	13014	MOTOR, 3400 RPM 1/4 HP 115/ 60
2014	BOLT, CONNECTING ROD	13024	MOTOR, 1/2 HP XP 115/230 4HD C&D
2019	BODY- VALVE CARP 20 TEES CO	14001	NUT, CAP 1/4-20
2023	BODY, VALVE HASTELLOY C	14002	NUT, HEX 1/4-20
2033	BUSHING, SHAFT	14003	NUT, HEX 8-32
3001	CAP, CONNECTING ROD	15001	OIL, SAE 10
3002	COUNTERWEIGHT	16001	PLATE, DIAPHRAGM. 316 S/S
3003	CLAMP, HOSE	16002	PLATE, DIAPHRAGM. ALUM
3045	CORD, POWER 115V/60HZ	16003	PLATE, DIAPHRAGM. CARP 20
4001	DIAPHRAGM, TEFLON®/EPDM	16005	PLATE, DIAPHRAGM. 316 SS TFE® CO
4002	DIAPHRAGM, EPDM	16006	PLATE, DIAPHRAGM. ALUM TFE® CO
4003	DIAPHRAGM, HI-TEMP VITON®	16007	PLATE, COVER
4004	DISC, VALVE TEFLON*	16008	PLATE, SECOND STAGE COVER
4007	DISC, VALVE 416 S/S	16019	PLATE; DIAPHRAGM. CARP 20 TFE® CO
4009	DIAPHRAGM, TEFLON®/VITON®	16020	PLATE, DIAPHRAGM. HASTELLOY C
4011	DIAPHRAGM, ALL TEFLON 3 PLY	18001	ROD, CONNECTING
5001	ECCENTRIC, SINGLE	18002	RING, STAR TOLERANCE
50015	ECCENTRIC, SINGLE-SPECIAL	19001	SHAFT EXTENSION
5002	ECCENTRIC, DOUBLE	19002	SHAFT EXTENSION, AIR MOTOR
50025	ECCENTRIC, DOUBLE-SPECIAL	19003	SHAFT EXTENSION- XP EXT HD
5003	ENCLOSURE, MOTOR XP	19004	STANDOFF, XP EXT HD
6001	FOOT, RUBBER	19005	SCREW, SOCKET READ & BASE
6002	FOOT. DBL. STUDDER RUBBER	19006	SCREW, SOCKET VALVE BODY
7001	GASKET, VALVE	19007	SCREW, SOCKET DIAPI-IIt4GM CAP
7005	GASKET, VITON	19008	SCREW; SOCKET SET
8001	HOUSING, BODY STD	19009	SCREW. SOCKET COUNTERWEIGHT
8002	HOUSING, BODY EXP. PROOF	19010	SCREW, SOCKET
8003	HEAD, 316 S/S	19011	SCREW, DIAPHRAGM CAP TFE(R) CO
8004	HEAD, ALUMINUM	19015	SCREW, DIAPHRAGM CAP HAST C
8005	HEAD, CARP 20	23001	WASHER, TEFLON* SEAL

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