



Operating and Maintenance Instructions

VCX ROTARY CLAW VACUUM PUMPS



INSTALLATION & OPERATING MANUAL

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VCX-SERIES ROTARY CLAW VACUUM PUMPS

Please read the manual before operating the vacuum pump.

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INSTALLATION AND OPERATING MANUAL

This manual covers all models of the VCX rotary claw vacuum pump. The model number is printed on the nameplate with the unit's serial number.

Please identify the model number and serial number when ordering parts.

1.0 INSTALLATION

1.1 General description

VCX pumps are dry, contactless machines enclosed in a fan-cooled, ventilated acoustic sound shield. The modular construction consists of two compartments separated by labyrinth seals: a pumping chamber and a gear chamber. In the pump chamber, two rotary claws rotate in opposite directions. The gear chamber contains gears for synchronization of the claw rotation. An anti-suck back valve can be installed in the inlet flange to prevent air from flowing back into the vacuum chamber after the pump is shut down. The pump is directly driven by a flanged motor via a coupling.

1.2 Unpacking

Inspect the box and pump carefully for any signs of damage incurred in transit. Since all pumps are ordinarily shipped F. O. B. from Airtech's factory, such damage is the responsibility of the carrier and should be reported to them.

The vacuum pump is bolted to the skid with studs that are connected through the rubber feet of the pump. Remove the nuts from the underside of the crate and remove the unit from the skid. Unscrew the studs from the rubber feet.

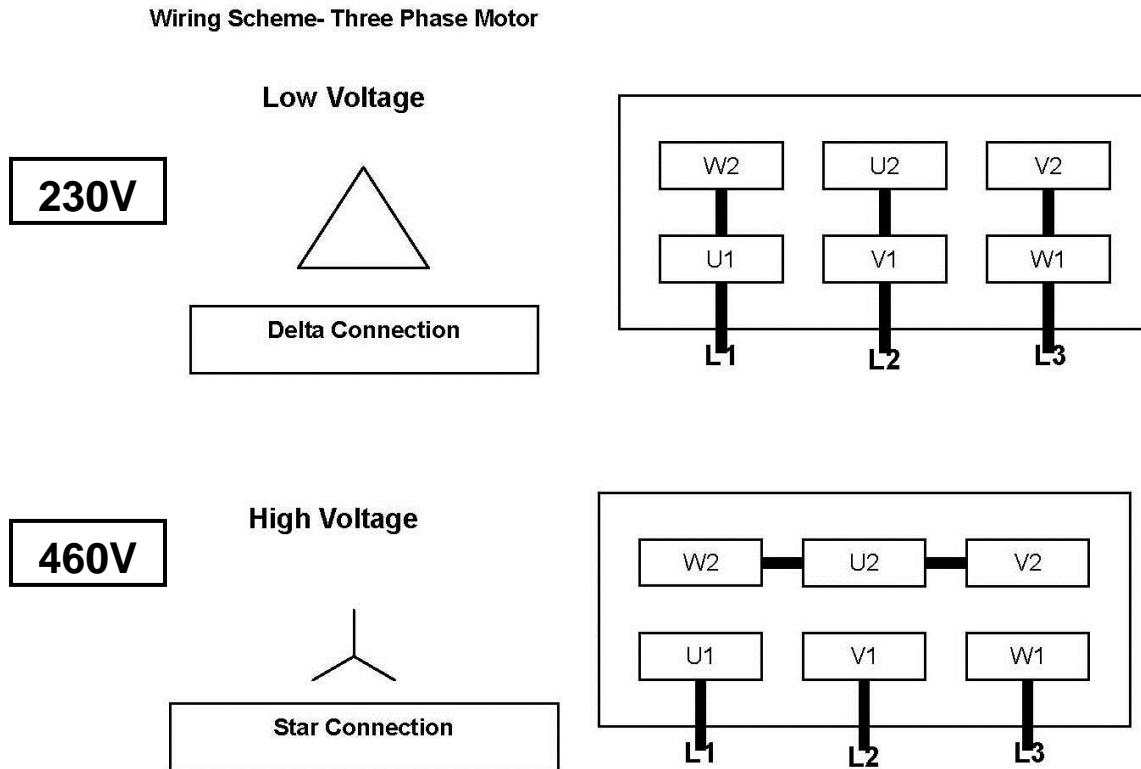
The inlet and exhaust of the vacuum pump are covered with plastic caps to prevent dirt and other foreign substances from entering the unit. Leave these caps in place until you are ready to pipe the unit to your equipment.

1.3 Location

Install the compressor in a horizontal position on a level surface in a well-ventilated area. Leave 8"-10" of access around the pump to allow proper cooling. Allow access to the oil sight glass in order to inspect the oil level regularly, and the oil fill and oil drain port for easy service.

1.4 Power Requirements

A schematic diagram for the electrical motor terminal connections is located in the junction box of the motor or on the motor nameplate. Typical wirings for Three Phase Motors are as below:



The motor must be connected in accordance with electrical codes through a fused switch in order to protect the motor against electrical or mechanical overload conditions. The overload of the motor starter must be set at a level equal to the full load motor current listed on the motor nameplate.

If the pump is supplied with a motor starter, it should be preset according to customer specifications. Please check that these settings are in line with the voltage at your location. If the voltage is different, please contact Airtech for motor and starter information.

Correct direction of rotation is marked by an arrow on the motor fan housing and is counterclockwise when looking at the motor from the motor's fan side.

After electrical connections have been made, the rotation of the motor should be checked. If it is backwards, reverse any two of the three leads at the power connection.

Warning: Motors should only be installed by a qualified electrician, who has experience in wiring three-phase motors. Improper electrical installation can cause injury or death.

Caution: VCX pumps must not be allowed to run backwards. The splash lubrication system is not designed for backward operation and this may result in premature failure of the rotary claw machine.

1.5 Vacuum Connections

Use a pipe size that is at least the size of the pump outlet connection. Smaller pipe lines result in reduced pump capacity.

Pumps operating in parallel on a common main line should have a manual or automatic shut-off valve or positive action check valve installed in the suction line adjacent to the pump suction flange. The built-in anti-suck back valve should not be used as a shut-off valve for the vacuum system. Remove the plastic protective cap from the inlet port prior to connection of pump to the system. Should process gas contain dust or other foreign particles, a suitable in line (inlet) filter should be connected to the inlet port. Contact Airtech for recommendations.

The following thread sizes are standard on the pumps (NPT thread is available upon request)

<u>Pump Model</u>	<u>Inlet Size</u>	<u>Exhaust Size</u>
VCX 60	1"	1"
VCX 100 / VCX 100B	1-1/2"	1-1/2"
VCX 150 / VCX 150B / VCX155	1-1/2"	1-1/2"
VCX 250 / VCX 250B / VCX205	2"	2"
VCX 255 / VCX 305	2"	2"
VCX 300 / VCX 300B	2"	2"
VCX 400 & 505	3"	3"
VCX 515	DN80 PN10	3"

1.6 Oil Filling on Gear Box

After level installation and correct rotation has been established, fill the pump with the recommended gear oil through the oil fill port if it is not shipped without oil. Oil level should be at the 3/4 position on the oil sight glass, as shown:



We recommend using Airtech Part Number ATO-3000-01, which is supplied by Airtech. The following table gives the approximate quantities of oil required for each model.

Pump Model	Capacity (liter)
VCX 60	0.60
VCX 155 / VCX205	0.5
VCX 100 / VCX100B / VCX 150 / VCX150B	0.75
VCX 250 / VCX250B / VCX 300 / VCX300B	1.10
VCX 255 / VCX 305	0.90
VCX 400/ VCX 505	1.10
VCX 515	1.80

Do not add fill oil with pump running! Do not overfill.

Caution: Running the compressor before adding oil to the gearbox could result in severe damage to the unit. Use of oil that does not meet the recommended specification could result in damage to the unit and void the warranty.

1.7 Lubrication of the bearings (VCX 400/505 ONLY)

The bearings on the drive side of the pump must be lubricated by gear oil using a splash lubrication principle. The bearings on the non-drive side need to be greased every 5,000 operating hours (see **Section 4.3** for the maintenance schedule). Airtech supplies grease specifically for this purpose: **Airtech Part Number ATG 5400.**

2.0 SAFETY

Please read the following safety notices carefully before operating the pump.

2.1 General Notices

- Please read the entirety of this installation and operating manual before operating the vacuum pump.
- Airtech shall assume no liability for any accident or failure associated with a failure to comply with instructions in this manual.
- Only a qualified technician should operate the pump
- If the pump is not operating correctly, it must be stopped immediately.

2.2 Warning labels and their explanations

Please check and make sure that the following warning labels are clearly visible on your VCX unit:



2.2.1 Read and Understand the manual:

Read and understand this manual before using this machine

2.2.2 Burn Hazard:

Hot surface. Do not touch.

2.2.3 Loud noise Hazard

Ear protection must be worn.

2.2.4 Hazardous Voltage:

Disconnect power before opening. Contact causes severe electrical shock

2.3 Location of the labels

The warning labels shown above should be affixed on the top of the pump's sound shield, except the "Hazardous Voltage" label, which should appear on the cover of motor's terminal box.

3.0 OPERATION

3.1 Start-up

Check rotation of the motor as described in **Section 1.4** (Power Requirements). Fill the pump with oil as described in **Section 1.5** (Oil Filling).

Start the pump with the inlet closed. Run the pump for a few minutes and then shut down. Check the oil level again and make sure the oil level is over 3/4 position of oil sight glass as shown on the label.

Add oil though oil fill port if necessary. Pump oil should only be added when the pump is off.

3.2 Stopping the pump

To stop the pump, turn off the power. A built in anti-suck back valve installed in inlet flange will prevent air from back flowing into the vacuum chamber after the pump is shutdown.

Caution: *Do not use the anti-suck back valve as a check valve. Consult Airtech for recommendations regarding check valves and other accessories.*

Caution: *The maximum number of motor starts per hour should not exceed 10 per hour. Excessive starting of the motor can cause overheating and premature failure of the motor. A minimum run timer should be used with a control panel to regulate starting and stopping of the pump.*

Caution: *In applications, where the quantity of water vapor is moderate, it is recommended to run the pump for 10 minutes at least with outside air prior to shut down to prevent the vapor from condensing in the pump.*

3.3 Operating Conditions

All VCX units are designed to run at the vacuum levels for continuous operation as stated in **Section 6.0** (Technical Data). Operating above the maximum vacuum level may cause severe damage to the machine. The vacuum regulator installed in inlet flange is set to the maximum allowable vacuum level at the factory, and a desired vacuum level below the maximum level can be achieved by rotating the adjustment knob.

Standard VCX units are for use of dry air only, and should not be used for hazardous areas. Handling of humid air or gases containing aggressive chemicals is possible only with specially configured units. Consult Airtech for assistance.

Excessive back pressure on the unit may result in excessive current draw. Do not operate the vacuum pump over 2 psi back pressure.

For operating personnel working near the pump, ear protection is recommended. If noise below the typical dBA is required, an external sound enclosure can be added to the system, provided adequate ventilation is provided. Please consult Airtech for recommendations.

The ambient and suction air temperature must be between 41° F (5° C) and 104° F (40° C).

Caution: *Failure to ensure proper operating conditions may lead to severe injury to persons and damage to the pump.*

4.0 MAINTENANCE

VCX-Series vacuum pumps require very little maintenance. To ensure optimum performance, the following maintenance steps should be followed:

4.1 Gear Box Lube Oil

4.1.1 Gear Oil Level

Check the oil level on monthly basis. Under normal circumstances it should not be necessary to add oil between oil changes. A significant drop in oil level could indicate an oil leak. If the pump is leaking oil, please check the o-rings, drain plug or oil sight glass.

Check the oil level only when the pump is shut off. Replenish oil if it drops below bottom position of the oil sight glass.

Caution: Do not add oil while the pump is running. Hot oil can escape from the oil fill port.

4.1.2 Gear Oil Type and Quantity

Oil level should be at the 3/4 position on the oil sight glass. **We recommend using Airtech Part Number ATO-3000-01**, which is supplied by Airtech. The following table gives the approximate quantities of oil required for each model.

Pump Model	Capacity (liter)
VCX 60	0.60
VCX 155 / VCX205	0.5
VCX 100 / VCX100B / VCX 150 / VCX150B	0.75
VCX 250 / VCX250B / VCX 300 / VCX300B	1.10
VCX 255 / VCX 305	0.90
VCX 400/ VCX 505	1.10
VCX 515	1.80

Do not add fill oil with pump running! Do not overfill.

4.1.3 Gear Oil Change

Under normal ambient conditions with proper gear oil, oil needs to be changed every 5,000 operating hours. We recommend performing the first oil change after 500 - 1,000 operating hours.

Caution: If different brand of oil is being filled, the old oil must be drained completely from the gear box.

4.1.4 Grease Supply on the bearings (Applies only to VCX 400/500)

Apply fresh grease (**Airtech Part Number ATG 5400**) to the bearings every 5000 operating hours, but check the condition of grease more frequently if the pump is operating in an environment with an ambient temperature over 68° F (20° C) and add grease when necessary. Do not over-grease. About 30 grams of grease should be applied to each bearing. The grease can be applied with a grease gun by opening the front cover.

Caution: The interval of lubrication stated above is based on ambient temperature of 68° F (20° C). At 104° F (40° C) ambient temperature, the interval may be reduced to 2,500 operating hours.

4.2 Inline (Inlet) Filter

Check inline (inlet) filter on a weekly basis. The filter cartridge should be cleaned or replaced if it is dirty. Consult Airtech for replacement elements.

Caution: *Depending on the mounting position of the filter, be careful not to allow accumulated foreign material to fall in the pump suction inlet when removing the filter cartridge. Horizontal filter installation is recommended to prevent this.*

4.3 Maintenance Chart

Weekly	Check inline inlet filter element/mesh. (this might need to be performed more often if there are high particulates in the inlet stream)
Monthly	Check the oil level and protective mesh.
Semi-Annually	Check fans and coupling
Annually	Check Bearings/ Shaft Seals, (this might need to be performed more often if the unit is operating at ambient temperature that exceeds 68° F (20° C).
Every 1500 operating hours	Check grease conditions and add additional grease if necessary, especially if the unit is being operated at an ambient temperature that exceeds 68° F (20° C).
Every 5000 operating hours	Check the gear oil conditions, and if necessary, change the oils.

5.0 Troubleshooting

Problem	Probable Cause	Remedy
Motor Starter Trips	Incorrect voltage (lower than required).	Check voltage at the motor and correct any sources of voltage drop in the system. Check wiring to ensure it is properly sized according to National Electrical Code requirements.
	Incorrect wiring of the motor.	Ensure the motor is wired according to the instructions contained in the motor junction box. Correct placement of the bridges is necessary to configure your motor for the proper voltage.
	Motor starter is not set correctly or is too small for the application.	Check to ensure the motor starter is set for the full load amps at the operating voltage as indicated on the motor nameplate. Be sure to multiply the full load amperage by any service factor that appears on the motor. If the current required is outside the range of adjustability of the starter, replace the starter with a properly sized starter.
	Motor starter trips too fast.	A motor starter with a high current trip delay should be used to avoid nuisance trips on startup.
Insufficient Capacity	Blocked inlet mesh	Check and clean mesh as necessary. Replace damaged mesh. Do not run the machine without the inlet mesh in place, as even small solids entering the pumping chamber can cause the unit to fail.
	Leaks in the vacuum piping	Check process piping for leaks. To confirm the leaks are in the piping, run the pump isolated from the piping and confirm pump reaches ultimate vacuum per the data sheets. If the pump does meet the ultimate vacuum, then there is a problem in the piping that must be corrected. A rate of rise test can be run to determine the leakage rate. Leaks can be found by a soapy water or smoke test..

Problem	Probable Cause	Remedy
Insufficient Capacity (cont'd)	Improperly operating relief valve	Check the adjustment of the relief valve. Under normal conditions, the VCX should not have air flowing into the relief valve if operating in the standard range of pressures. If air is detected entering the relief valve (place a cardboard scrap near the suction of the relief valve and see if vacuum is detected – if the scrap is held to the relief valve by the vacuum, then the relief valve is active). If the relief valve is active, adjust it so that no flow is detected at the operating pressure, which must be in the range of operation shown on the data sheet.
Insufficient Vacuum	Blocked inlet mesh	(See blocked inlet mesh above)
	Improperly operating relief valve	See Improperly operating relief valve, above.
	Bad gauge	Replace the gauge with a good quality vacuum or pressure gauge.
	Leaks in the system piping.	See Leaks in the vacuum piping for VCX operation or leaks in the air piping for PCX operation above.
	Improperly sized piping.	Check the pressure at the pump and at the process with the same gauge. If the pressure drop exceeds the design value (rule of thumb is 10 percent of the operating pressure, maximum) then the piping is too small. Change the piping between the pump and the process to a larger size.
Pump does not achieve ultimate vacuum	Leak on the suction side	Check the piping for leaks as noted above.
	Relief valve set incorrectly.	Reset the relief valve as necessary.
	Bad gauge	Replace the gauge with a better quality vacuum gauge.

Problem	Probable Cause	Remedy
Operating Temperature too High	Ambient temperature too high	Provide adequate ventilation for the installation area so that the ambient temperature never is above 104° F.
	Dirty or Blocked Mesh	(See blocked inlet mesh above)
Pump runs over set pressure.	Vacuum regulator set over the set point or is out of order.	Set the point again or replace it with new one.
Pump making excessive noise	Contamination of the claws	Clean the pumping chamber and rotary claws.
	Coupling insert is worn.	Replace coupling insert in motor/pump coupling.
Pump will not operate (seized up).	Rotary Claws, Bearings or Gears stuck	Call Airtech for service or exchange program (1-888-222-9940)

6.0 TECHNICAL DATA

Specifiacation: Vacuum Application

Model	VCX 60	VCX 100/ VCX 100B	VCX 150/ VCX 150B	VCX 155	VCX 205	VCX 250/ VCX 250B/
Capacity (CFM)	40	70.6	106	106	140	166
Ultimate Vacuum (In. Hg)	28.44	28.44	28.44	28.44	28.44	28.44
Ultimate Vacuum (Cont). (In. Hg)	27	25.5	27	25.5	24	24
Motor Rating (HP)	2	3	5	5	5	7.5
Speed (RPM)	3450					
Voltage Available	208-230/460					
Avg. Noise Level dB(A)	80	82	82	77	79	82
Gear Box Oil Capacity (Quarts)	0.6	0.8	0.8	0.5	0.5	1.16
Inlet/Outlet connections	1"	1.5"	1.5"	1.5"	2"	2"
Weight (lbs.)	132	237	304	302	341	430
Accessories	Non-Return Valve, Vacuum Regulator, Exhaust Silencer, Inlet Filter (if applicable)					

Model	VCX 255	VCX 300/ VCX 300B	VCX 400	VCX 505	VCX 515
Capacity (CFM)	176	212	282	353	353
Ultimate Vacuum (In. Hg)	28.44	28.44	28.44	28.44	28.44
Ultimate Vacuum (Cont). (In. Hg)	24	24	22.5	22.5	24
Motor Rating (HP)	7.5	10	12 (15)	15	15
Speed (RPM)	3450				
Voltage Available	208-230/460				
Avg. Noise Level dB(A)	80	83	84	84	80
Gear Box Oil Capacity (Quarts)	0.95	1.16	1.16	1.16	1.9
Inlet/Outlet connections	2"	2"	3"	3"	3"
Weight (lbs.)	430	495	565	639	
Accessories	Non-Return Valve, Vacuum Regulator, Exhaust Silencer, Inlet Filter (if applicable)				

Note: Ultimate continuous vacuum operation will be possible within ambient operating temperature between 41-104° F.

7.0 Safety

7.1 Before repairs are attempted, be sure the power to the unit is off and locked out so accidental startup cannot occur during repairs or troubleshooting.

7.1 When lifting the VCX pump, use proper and well maintained equipment to avoid injury.

7.3 Some surfaces on the VCX pump can become too hot to touch during normal operation. Do not attempt to service the pump until it has cooled to room temperature.

7.4 Ensure the electrical installation is done by a qualified electrician in compliance with the National Electrical Code and all local laws and regulations. Failure to do so can cause extreme injury including death.

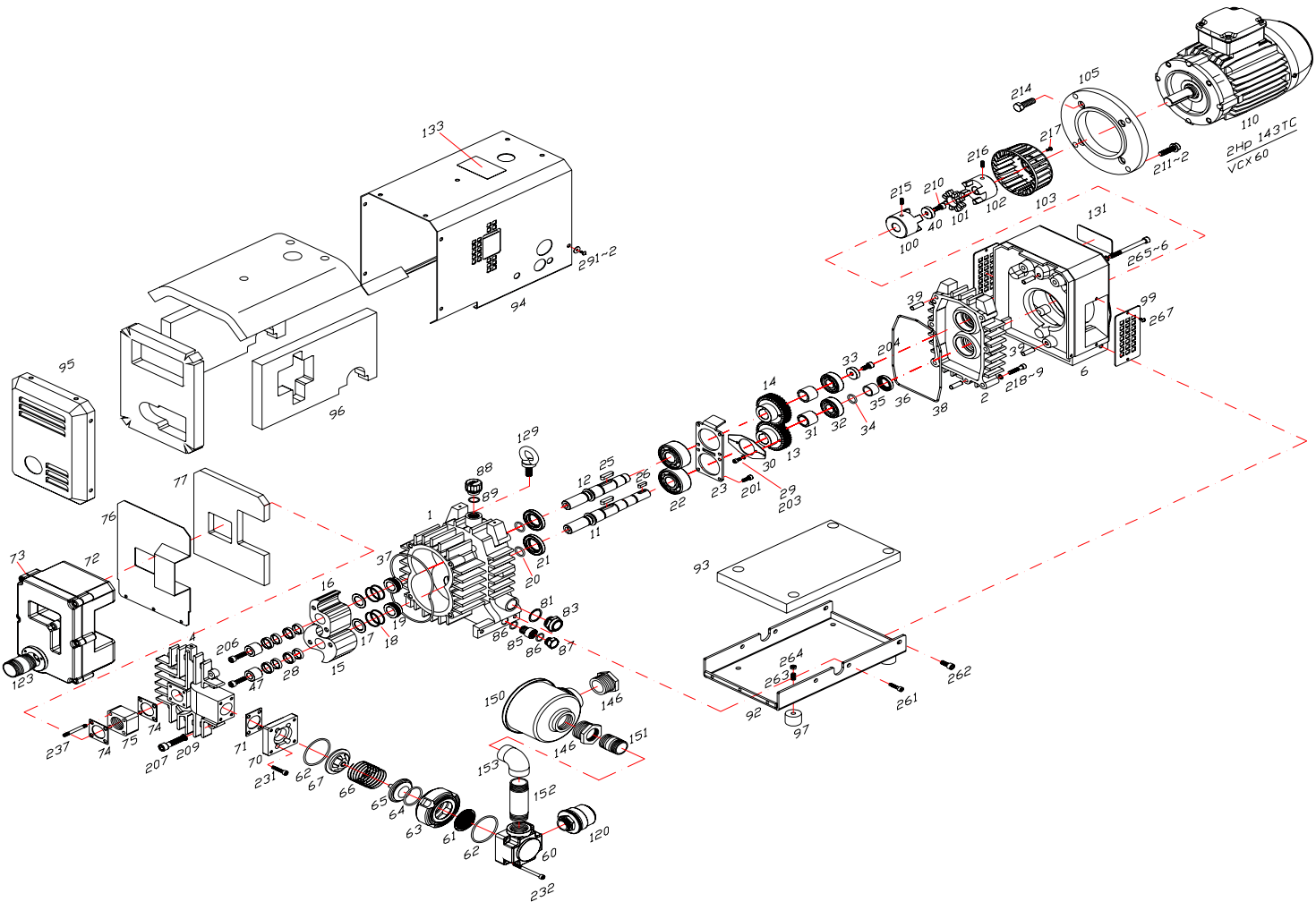
8.0 Storage

8.1 Store the unit in a clean dry place, using desiccant bags if excessive humidity is expected to avoid rusting of the internals of the machine. Rotation of the shaft by hand is recommended if storing for more than 6 months.

9.0 Disposal

9.1 Dispose of any waste oil in compliance with local codes and regulations.

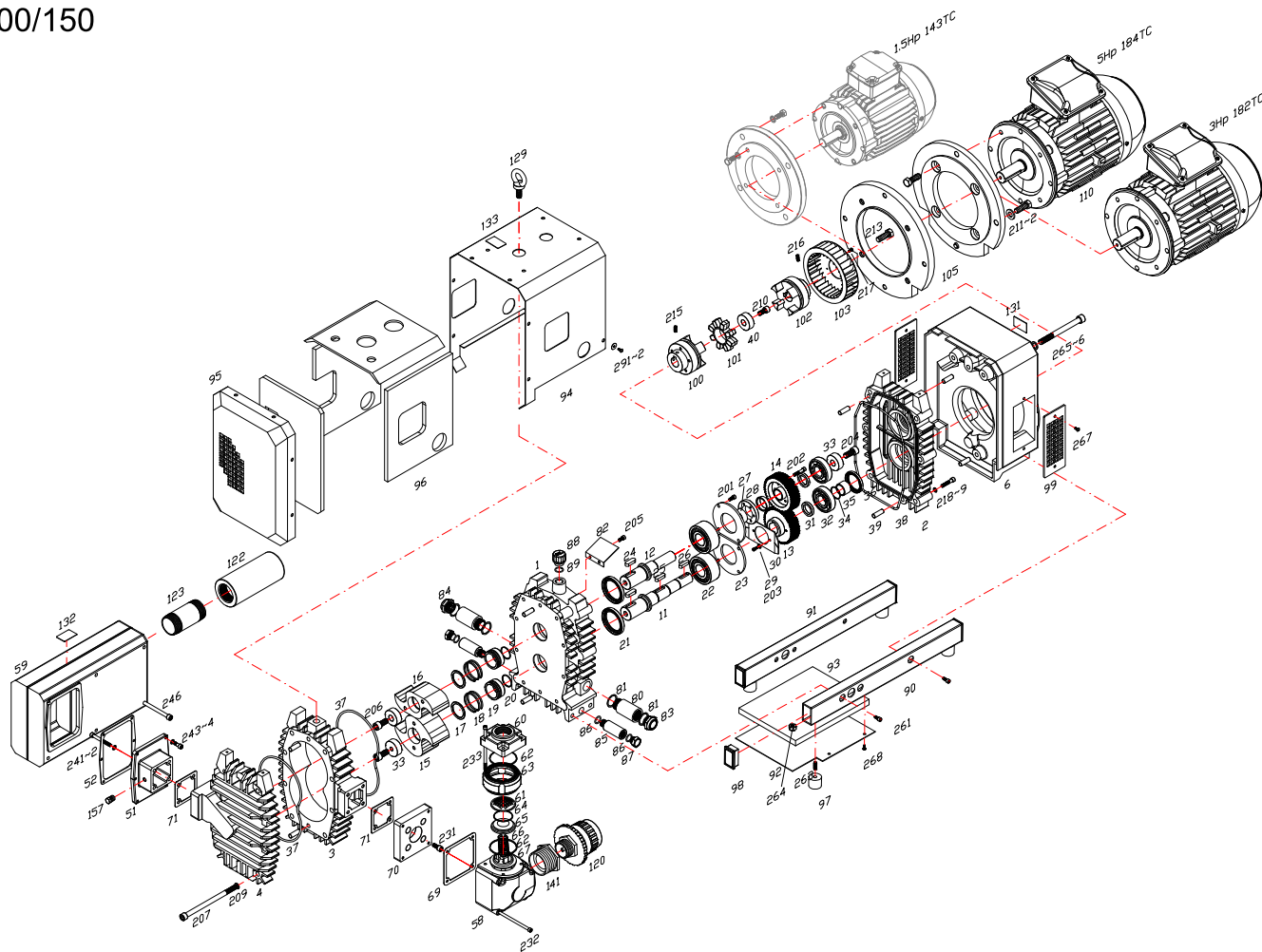
Exploded View
VCX-60



VCX 60 PART LIST

Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty
1	Gear Box Housing	1	63	Inlet flange, Lower housing	1	130	Label, Direction Arrow	1
2	Gear Box Cover (rear)	1	64	O-Ring, Check valve plate	1	131	Name Plate	1
4	Pump Housing Cover 1 (End Plate)	1	65	Check valve plate	1	133	Lable, read manul	1
6	Fan Housing	1	66	Spring, Check valve	1	146	Bushing 1-1/4" x 1"	2
11	Shaft 1	1	67	Check valve guide	1	150	Inlet Filter, IF-130	1
12	Shaft 2	1	70	Flange Adapter, Inlet	1	151	Pipe, extension, Short, inlet 1"	1
13	Gear 1	1	71	Gasket, Flange	1	152	Pipe, extension, inlet 1'	1
14	Gear 2	1	72	Exhaust Silencer assembly (ES type)	1	153	Elbow 1"	1
15	Rotor 1	1	73	Gasket, Silencer assembly (ES type)	1	201	Hex. Socket Head Cap Screw / M16 x 15	8
16	Rotor 2	1	74	Gasket, Silencer	2	203	Hex. Socket Head Cap Screw / M5 x 12	2
17	Spacer	2	75	Spacer, block	1	204	Hex. Socket Head Cap Screw / M8 x 25	1
18	Piston Ring	4	76	Plate (ES Type)	1	206	Hex. Socket Head Cap Screw / M8 x 25	2
19	Sleeve	2	77	Accoustic mat (ES Type)	1	207	Hex. Socket Head Cap Screw / M10 x 100	4
20	O-Ring	2	81	Gasket, Oil Sight Glass	2	209	Washer, Spring Lock, 10mm	4
21	Shaft Seal,	2	83	Oil Sight Glass	2	210	Hex. Socket Head Cap Screw / M8 x 25	1
22	Bearing,	2	85	Pipe, for Drain Pulg	1	211	Hexagon Bolt / M12 x 35	4
23	Bearing cover	1	86	O-ring, Drain Plug	2	212	Washer, Spring Lock, 12mm	4
25	Key, for Gear	2	87	Drain Plug	1	214	Hexagon Bolt (NEMA only)	4
26	Key, for Coupling	1	88	Oil filler Breather, Plastic	1	215	Set Screw / M8 x 10	2
28	Power Lock	4	89	O-Ring for Oil filler	1	216	Set Screw / M8 x 10	2
29	Washer, Spring Lock, 6mm	2	92	Shield Cover, Bottom	1	217	Round Head Bolt / M5 x 12	5
30	Flinger	1	93	Accoustic Mat for Shield Cover, Bottom	1	218	Hex. Socket Head Cap Screw / M10 x 60	6
31	Sleeve	2	94	Shield Cover, Side (VCX)	1	219	Washer, Spring Lock, 10mm	6
32	Bearing,	2	95	Shield Cover, Front (VCX)	1	231	Hex. Socket Head Cap Screw / M8 x 20	4
33	Locking Disk	1	96	Accoustic Mat for Shield Cover, front and Side	1	232	Hex. Socket Head Cap Screw / M6 x 80	4
34	O-Ring	1	97	Foot, Rubber	4	237	Stud / M6 x 70	4
35	Sleeve	1	99	Grill for Fan	2	261	Hex. Socket Head Cap Screw / M10 x 15	4
36	Shaft Seal,	1	100	Coupling, Pump Side	1	262	Hex. Socket Head Cap Screw / M x	2
37	O-Ring, Compressor cover	1	101	Insert, Coupling	1	263	Set Screw / M8 x 20	4
38	O-Ring, Gear Box cover	1	102	Coupling, Motor Side	1	264	Hexagon Nut / M8	4
39	Dowel Pin	4	103	Fan, new, Plastic	1	265	Hex. Socket Head Cap Screw / M10 x 110	2
40	Locking Disk	1	105	Flange Adapter	1	266	Washer, Spring Lock, 10mm	2
47	Locking Disk, side Rotor	2	110	Motor	1	267	Round Head Bolt/ M5 x 10	4
60	Inlet flange, Upper Housing	1	120	Vacuum Regulator	1	291	Round Head Bolt / M5 x 10	11
61	Inlet screen (Conical)	1	123	Pipe, extension, medium, exhaust 1"	1	292	Washer, Flat, 5mm	11
62	O-Ring, Inlet Flange, low and upper part	2	129	Eye Bolt	1			

Exploded View
VCX-100/150



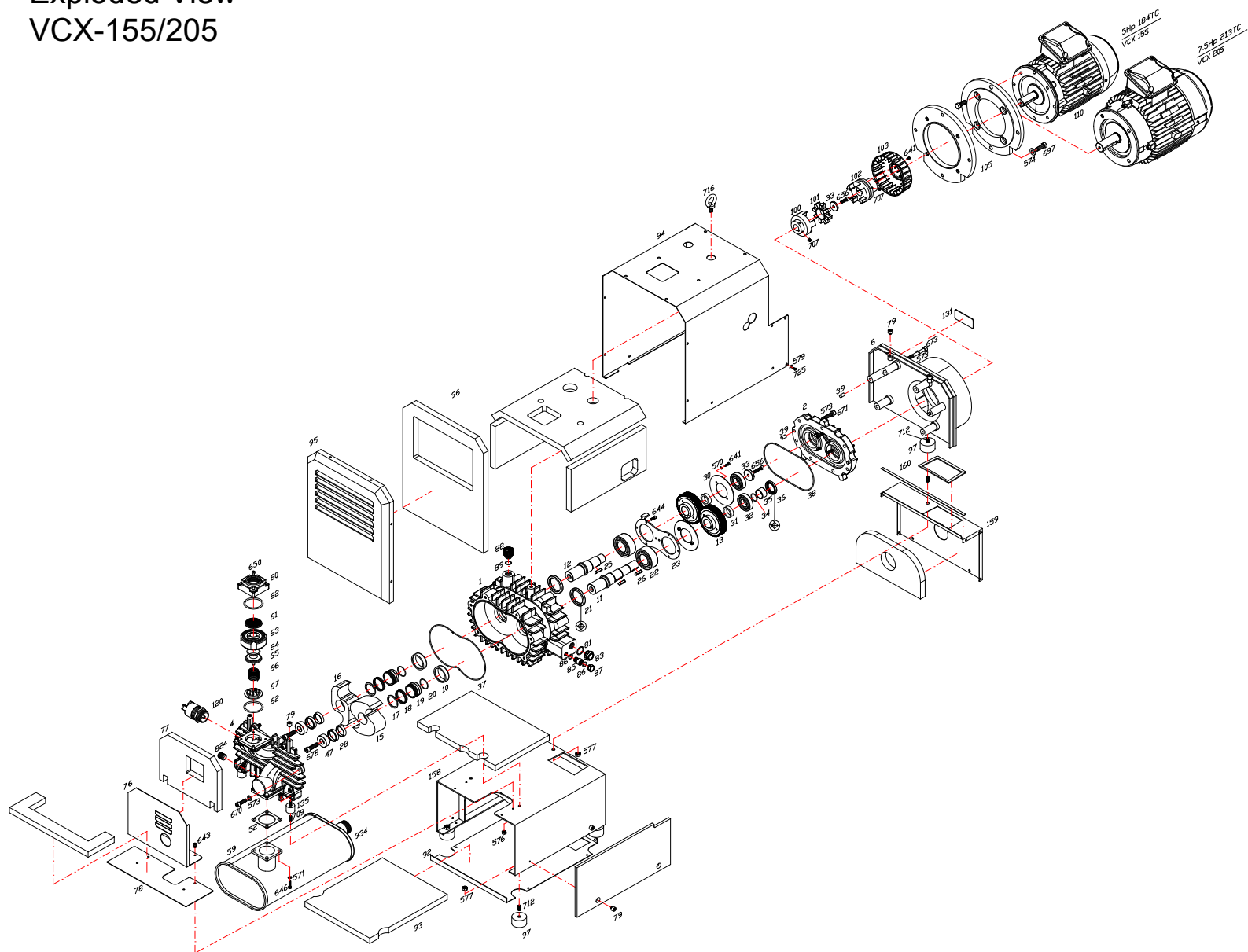
VCX 100/150 PARTS LIST

Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty
1	Gear Box Housing (NEW)	1	37	O-Ring, Compressor cover	2	92	Shield Cover, Bottom with mat	1	207	Hex. Socket Head Cap Screw / M10 x 100	8
2	Gear Box Cover (rear)	1	38	O-Ring, Gear Box cover	1	93	Accoustic Mat for Shield Cover, Bottom	1	207	Hex. Socket Head Cap Screw / M10 x 130	8
3	Pump Housing	1	39	Dowel Pin	8	94	Shield Cover, Side, with mat (NEW GB)	1	209	Washer, Spring Lock, 10mm	1
4	Pump Housing Cover 1 (End Plate)	1	40	Locking Disk	1	95	Shield Cover, Front with mat	1	210	Hex. Socket Head Cap Screw / M8 x 25	1
6	Fan Housing	1	51	Inlet flange, Exhaust Silencer	1	96	Accoustic Mat for Shield Cover, front and Side	1	211	Hexagon Bolt / M12 x 35	4
11	Shaft 1	1	52	Gasket, Exhaust Silencer	1	97	Foot, Rubber	4	212	Washer, Spring Lock, 12mm	4
12	Shaft 2	1	58	Inlet Connection Housing	1	98	Cover, Plastic Foot Mount	4	213	Hexagon Bolt / M12 x 25	4
13	Gear 1	1	59	Exhaust Silencer assembly	1	99	Grill for Fan	2	214	Hexagon Bolt / M12 x 45	2
14	Gear 2	1	60	Inlet flange, Upper Housing	1	100	Coupling, Pump Side	1	215	Set Screw / M8 x 10	2
15	Rotor 1	1	61	Inlet screen (Conical)	1	101	Insert, Coupling	1	216	Set Screw / M8 x 10	2
16	Rotor 2	1	62	O-Ring, Inlet Flange, low and upper part	2	102	Coupling, Motor Side	1	217	Round Head Bolt / M5 x 12	5
17	Spacer	2	63	Inlet flange, Lower housing	1	103	Fan, new, Plastic	1	218	Hex. Socket Head Cap Screw / M10 x 60	6
18	Piston Ring	4	64	O-Ring, Check valve plate	1	105	Flange Adapter	1	219	Washer, Spring Lock, 10mm	6
19	Sleeve	2	65	Check valve plate	1	110	Motor	1	231	Hex. Socket Head Cap Screw / M8 x 20	4
20	O-Ring	2	66	Spring, Check valve	1	120	Vacuum Regulator	1	232	Hex. Socket Head Cap Screw / M6 x 80	4
21	Shaft Seal,	2	67	Check valve guide	1	122	Silencer, exhaust	1	233	Hex. Socket Head Cap Screw / M6 x 65	4
22	Bearing,	2	69	Gasket, Inlet Connection Housing	1	122.1	Baffle, for Exhaust Silencer	1	241	Hex. Socket Head Cap Screw / M8 x 60	4
23	Bearing cover	2	70	Flange Adapter, Inlet	1	123	Pipe, extension, medium, exhaust	1	242	Washer, Spring Lock, 8 mm	4
24	Key, for Rotor	2	71	Gasket, Flange	2	129	Eye Bolt	1	243	Hex. Socket Head Cap Screw / M6 x 25	6
25	Key, for Gear	1	80	Pipe, for Oil sight glass	2	130	Label, Direction Arrow	1	244	Washer, Spring Lock, 6mm	6
26	Key, for Coupling	1	81	Gasket, Oil Sight Glass	4	131	Name Plate	1	246	Hex. Socket Head Cap Screw / M6 x 60	6
27	Sleeve	2	82	Plate	1	132	Lable, Hot	1	261	Hex. Socket Head Cap Screw / M10 x 15	6
28	Power Lock	1	83	Oil Sight Glass	1	133	Lable, read manul	1	263	Set Screw / M8 x 20	4
29	Washer, Spring Lock, 6mm	2	84	Plug for oil Sight Glass	1	141	Bushing 2" x 1_1/2"	1	264	Hexagon Nut / M8	4
30	Flinger	1	85	Pipe, for Drain Pulg	2	157	Plug 1/8"	1	265	Hex. Socket Head Cap Screw / M10 x 110	2
31	Sleeve	2	86	O-ring, Drain Plug	4	201	Hex. Socket Head Cap Screw / M6 x 15	8	266	Washer, Spring Lock, 10mm	2
32	Bearing,	2	87	Drain Plug	2	202	Hex. Socket Head Cap Screw / M6 x 25	6	267	Round Head Bolt/ M5 x 10	4
33	Locking Disk	3	88	Oil filler Breather, Plastic	1	203	Hex. Socket Head Cap Screw / M4 x 12	2	268	Round Head Bolt / M5 x 10	4
34	O-Ring	1	89	O-Ring for Oil filler	1	204	Hex. Socket Head Cap Screw / M8 x 25	1	291	Round Head Bolt / M5 x 10	12
35	Sleeve	1	90	Foot Mount, Right	1	205	Hex. Socket Head Cap Screw / M5 x 8	2	292	Washer, Flat, 5mm	12
36	Shaft Seal,	1	91	Foot Mount, Left	1	206	Hex. Socket Head Cap Screw / M8 x 25	8			

This exploded view diagram illustrates the assembly of the VEX 100B/100D robot chassis. The components are organized into several main sections:

- Motor and Gearbox Assembly (Bottom Left):** Includes the motor (110), gearbox (111), and various gears (214, 213, 216, 217, 215, 212, 211-2).
- Transmission and Drive Shaft Assembly (Bottom Center):** Shows the drive shaft (215), gears (216, 217, 213, 214), and bearings (212, 211-2).
- Chassis and Structural Components (Bottom Right):** Includes the main chassis plate (94), side plates (96, 95), and various mounting brackets (133, 129, 132, 154, 59, 547, 543-4, 51, 71, 207, 209, 4, 37, 3, 70, 69, 141, 232, 120, 87, 86, 81, 80, 84, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779

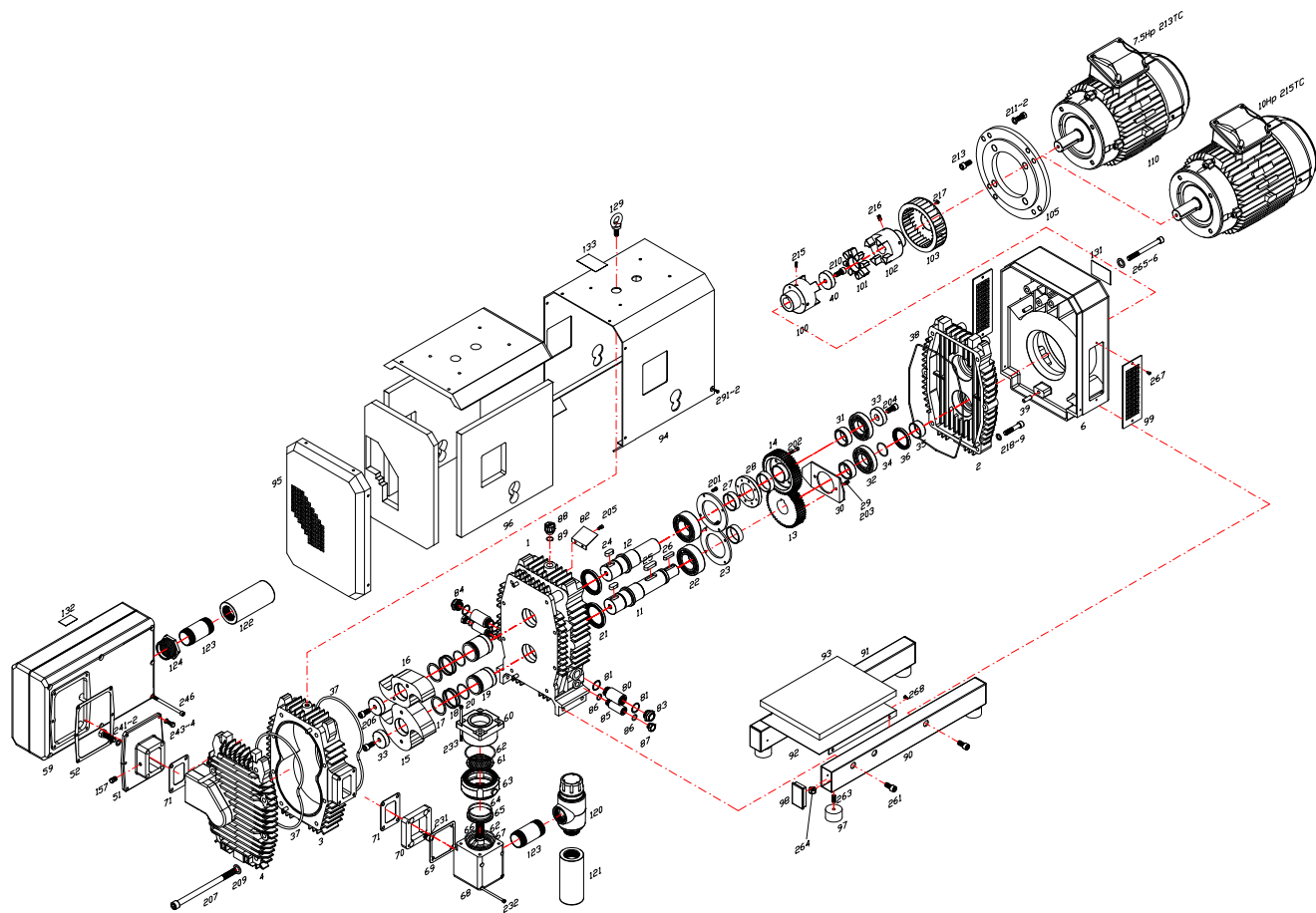
Exploded View VCX-155/205



VCX 155 / 205 PART LIST

POS#	Description	Q'ty	POS#	Description	Q'ty	POS#	Description	Q'ty
1	Gear Box Housing	1	60	Inlet flange, Upper Housing	1	131	Name Plate	1
2	Gear Box Cover (rear)	1	61	Inlet screen (Conical)	1	135	Foot, Rubber, 30x20xM8	2
4	Pump Housing Cover 1 (End Plate)	1	62	O-Ring, Inlet Flange, low and upper part	2	158	Base	1
6	Fan Housing	1	63	Inlet flange, Lower housing	1	159	Cover, Exhaust	1
10	Sleeve	2	64	O-Ring, Check valve plate	1	160	Seal	1
11	Shaft 1	1	65	Check valve plate	1	570	Washer, Spring Lock, 5mm	4
12	Shaft 2	1	66	Spring, Check valve	1	571	Washer, Spring Lock, 6mm	4
13	Gear 1	2	67	Check valve guide	1	573	Washer, Spring Lock, 10mm	18
15	Rotor 1	1	76	Plate (vertical)	1	574	Washer, Spring Lock, 12mm	4
16	Rotor 2	1	77	Accoustic mat	1	576	Hexagon Nut M8	4
17	Spacer	2	78	Plate (horizontal)	1	577	Hexagon Nut M10	5
18	Piston Ring	4	79	Support isolator	8	579	Washer, Flat, 5mm	26
19	Sleeve	2	81	Gasket, Oil Sight Glass	1	641	Hex. Socket Head Cap Screw / M5 x 15	9
20	O-Ring	2	83	Oil Sight Glass	1	643	Hex. Socket Head Cap Screw / M6 x 10	4
21	Shaft Seal,	2	85	Pipe, for Drain Pulg	1	644	Hex. Socket Head Cap Screw / M6 x 15	8
22	Bearing,	2	86	O-ring, Drain Plug	2	646	Hex. Socket Head Cap Screw / M6 x 25	4
23	Bearing cover	1	87	Drain Plug	1	650	Hex. Socket Head Cap Screw / M6 x 65	4
25	Key, for Gear 8x7x30	2	88	Oil filler Breather, Plastic	1	656	Hex. Socket Head Cap Screw / M8 x 25	2
26	Key, for Coupling 8x7x30	1	89	O-Ring for Oil filler	1	670	Hex. Socket Head Cap Screw / M10 x 35	7
28	Power Lock	2	92	Shield Cover, Bottom	1	671	Hex. Socket Head Cap Screw / M10 x 50	7
30	Flinger	2	93	Accoustic Mat for Shield Cover, Bottom	1	673	Hex. Socket Head Cap Screw / M10 x 85	4
31	Sleeve	2	94	Shield Cover, Side	1	678	Hex. Socket Head Cap Screw / M12 x 45	2
32	Bearing,	2	95	Shield Cover, Front	1	695	Hexagon Bolt / M12 x 25	4
33	Locking Disk	2	96	Accoustic Mat for Shield Cover, front and Side	1	697	Hexagon Bolt / M12 x 35	4
34	O-Ring	1	97	Foot, Rubber, 52x30xM10	5	707	Set Screw / M8 x 15	4
35	Sleeve	1	100	Coupling, Pump Side	1	709	Set Screw / M8 x 20	4
36	Shaft Seal,	1	101	Insert, Coupling	1	712	Set Screw / M10 x 25	6
37	O-Ring, Compressor cover	1	102	Coupling, Motor Side	1	716	Eye Bolt M12	1
38	O-Ring, Gear Box cover	1	103	Fan, new, Plastic	1	725	Round Head Bolt / M5 x 10	26
39	Dowel Pin	4	105	Flange Adapter (IEC 132, NEMA only)	1	824	Plug 1/2"	1
47	Locking Disk, side Rotor	2	110	Motor	1	934 / 940	Pipe 1-1/2" x 100 / 2" x 100 (VCX-205)	1
52	Gasket, Exhaust Silencer	1	120	Vacuum Regulator	1			
59	Silencer assembly	1	130	Label, Direction Arrow	1			

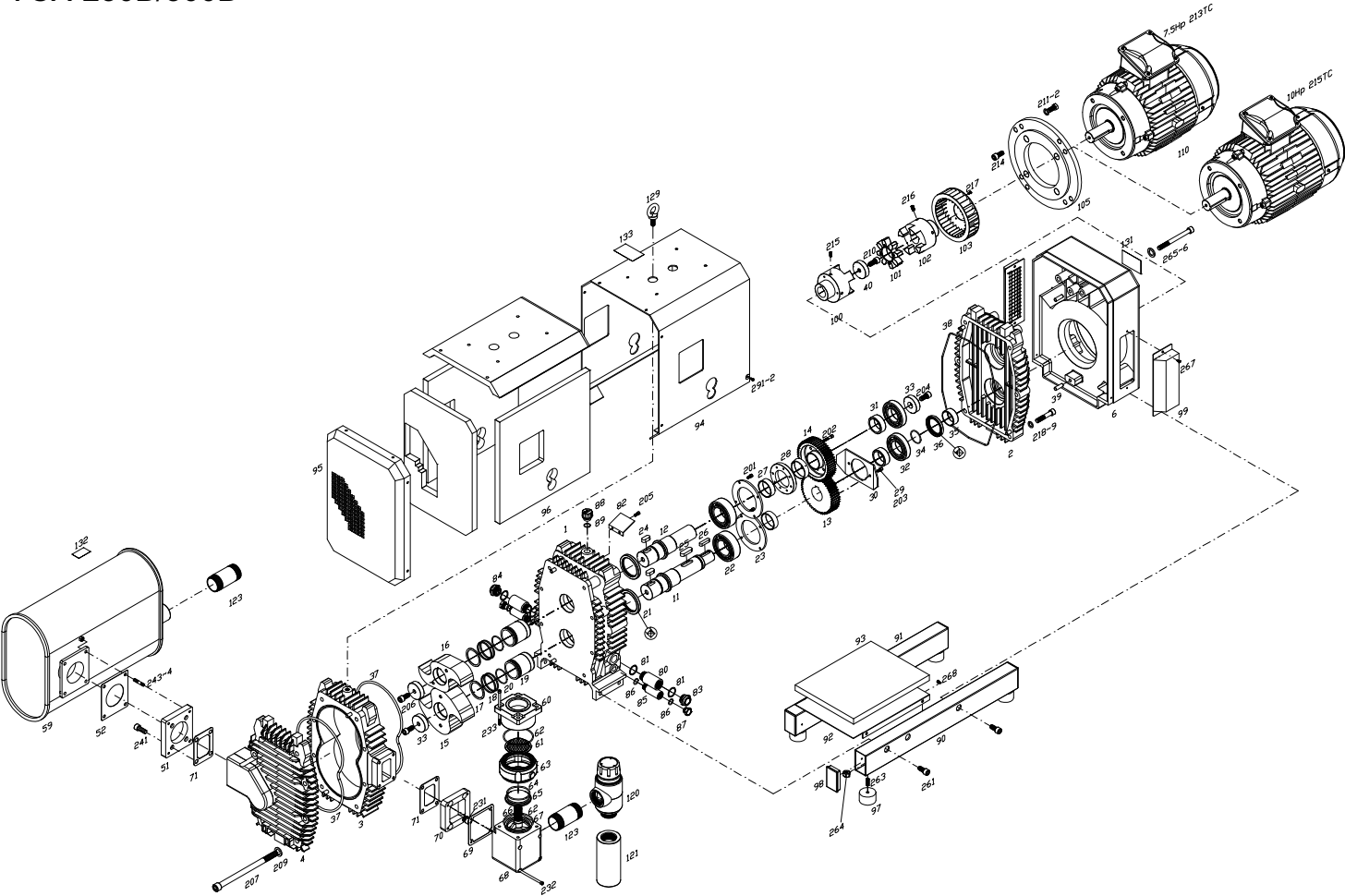
Exploded View
VCX-250/300



VCX 250/300 PARTS LIST

Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty
1	Gear Box Housing (NEW)	1	37	O-Ring, Compressor cover,	2	92	Shield Cover, Bottom, with mat	1	207	Hex. Socket Head Cap Screw / M12 x 100 / 120	8
2	Gear Box Cover (rear)	1	38	O-Ring, Gear Box cover,	1	93	Accoustic Mat for Shield Cover, Bottom	1	209	Washer, Spring Lock, 12mm	8
3	Pump Housing	1	39	Dowel Pin	8	94	Shield Cover, Side, with mat (NEW GB)	1	210	Hex. Socket Head Cap Screw / M12 x 25	1
4	Pump Housing Cover 1 (End Plate)	1	40	Locking Disk	1	95	Shield Cover, Front with mat	1	211	Hexagon Bolt / M12 x 35	4
6	Fan Housing	1	51	flange, Exhaust Silencer	1	96	Accoustic Mat for Shield Cover, Front & Side	1	212	Washer, Spring Lock, 12mm	4
11	Shaft 1	1	52	Gasket, Exhaust Silencer	1	97	Foot, Rubber	4	213	Hexagon Bolt / M12 x 25	4
12	Shaft 2	1	59	Exhaust Silencer assembly	1	98	Cover, Plastic Foot Mount	4	215	Set Screw / M8 x 15	2
13	Gear 1	1	60	Inlet flange, Upper Housing, G 2"	1	99	Grill for Fan	2	216	Set Screw / M8 x 15	2
14	Gear 2	1	61	Inlet screen (Conical)	1	100	Coupling, Pump Side	1	217	Round Head Bolt / M5 x 10	5
15	Rotor 1	1	62	O-Ring, Inlet Flange, low and upper part	2	101	Insert, Coupling	1	218	Hex. Socket Head Cap Screw / M12 x 60	6
16	Rotor 2	1	63	Inlet flange, Lower housing	1	102	Coupling, Motor Side	1	219	Washer, Spring Lock, 12mm	6
17	Spacer	2	64	O-Ring, Check valve plate	1	103	Fan, new, Plastic	1	231	Hex. Socket Head Cap Screw / M12 x 25	4
18	Piston Ring	2	65	Check valve plate	1	105	Flange Adapter	1	232	Hex. Socket Head Cap Screw / M6 x 120	4
19	Sleeve	2	66	Spring, Check valve	1	110	Motor	1	233	Hex. Socket Head Cap Screw / M8 x 115	4
20	O-Ring	2	67	Check valve guide	1	120	Vacuum Regulator	1	241	Hex. Socket Head Cap Screw / M12 x 70	4
21	Shaft Seal	2	68	Inlet Connection Housing	1	121	Silencer, Inlet	1	242	Washer, Spring Lock, 12mm	4
22	Bearing,	2	69	Gasket, Inlet Connection Housing	1	122	Silencer, exhaust	1	243	Hex. Socket Head Cap Screw / M8 x 30	6
23	Bearing cover	2	70	Flange Adapter, Inlet	1	123	Pipe, extension, medium, 1_1/2"	2	244	Washer, Spring Lock, 8mm	6
24	Key, for Rotor	2	71	Gasket, Flange	2	124	Bushing, Exhaust 2" x 1_1/2"	1	246	Hex. Socket Head Cap Screw / M8 x 90	9
25	Key, for Gear	1	80	Pipe, for Oil sight glass	2	129	Eye Bolt	1	261	Hex. Socket Head Cap Screw / M12 x 25	6
26	Key, for Coupling	1	81	Gasket, Oil Sight Glass	4	130	Label, Direction Arrow	1	263	Set Screw / M10 x 20	4
27	Sleeve	2	82	Plate	1	131	Name Plate	1	264	Hexagon Nut / M10	4
28	Power Lock	1	83	Oil Sight Glass	1	132	Lable, Hot	1	265	Hex. Socket Head Cap Screw / M12 x 140	2
29	Washer, Spring Lock, 6mm	2	84	Plug for oil Sight Glass	1	133	Lable, read manul	1	266	Washer, Spring Lock, 12mm	2
30	Flinger	1	85	Pipe, for Drain Plug	2	157	Plug 1/8"	1	267	Round Head Bolt/ M5 x 10	4
31	Sleeve	2	86	O-ring, Drain Plug	4	201	Hex. Socket Head Cap Screw / M6 x 15	8	268	Round Head Bolt / M5 x 10	4
32	Bearing,	2	87	Drain Plug	2	202	Hex. Socket Head Cap Screw / M6 x 30	8	291	Round Head Bolt / M5 x 10	12
33	Locking Disk	3	88	Oil filler Breather, Plastic	1	203	Hex. Socket Head Cap Screw / M6 x 15	2	292	Washer, Flat, 5mm	12
34	O-Ring	1	89	O-Ring for Oil filler, for PN 100.088.01	1	204	Hex. Socket Head Cap Screw / M12 x 25	1			
35	Sleeve	1	90	Foot Mount, Right	1	205	Hex. Socket Head Cap Screw / M5 x 8	2			
36	Shaft Seal,	1	91	Foot Mount, Left	1	206	Hex. Socket Head Cap Screw / M12 x 25	2			

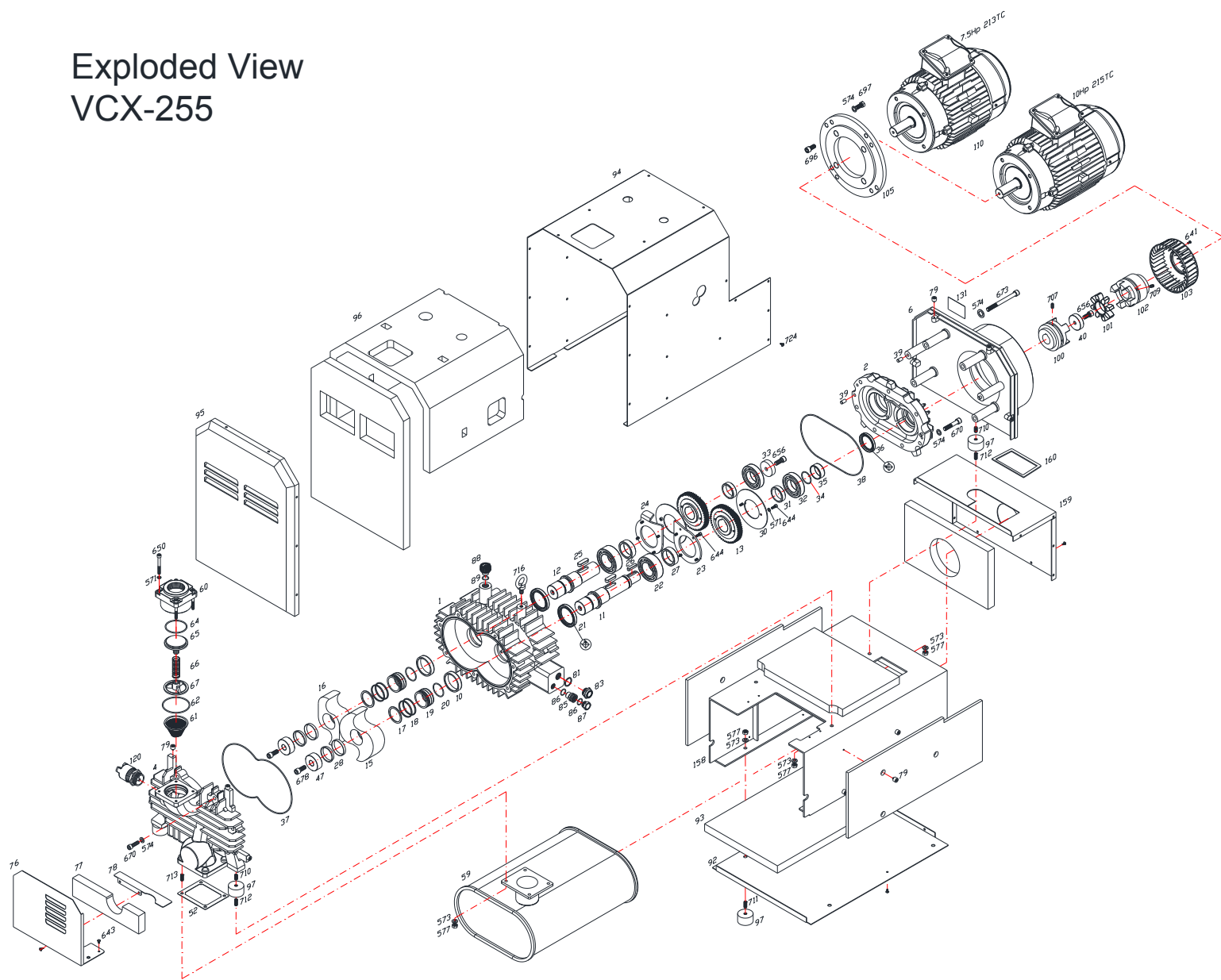
Exploded View
VCX-250B/300B



VCX 250B / 300B PART LIST

Pos.#	Description	Qty	Pos.#	Description	Qty	Pos.#	Description	Qty
1	Gear Box Housing (NEW)	1	62	O-Ring, Inlet Flange, low and upper part	2	130	Label, Direction Arrow	1
2	Gear Box Cover (rear)	1	63	Inlet flange, Lower housing	1	131	Name Plate	1
3	Pump Housing	1	64	O-Ring, Check valve plate	1	132	Lable, Hot	1
4	Pump Housing Cover 1 (End Plate)	1	65	Check valve plate	1	133	Lable, read manul	1
6	Fan Housing	1	66	Spring, Check valve	1	134	Pipe, extension, medium, 2"	1
11	Shaft 1	1	67	Check valve guide	1	201	Hex. Socket Head Cap Screw / M6 x 15	8
12	Shaft 2	1	68	Inlet Connection Housing	1	202	Hex. Socket Head Cap Screw / M6 x 30	8
13	Gear 1	1	69	Gasket, Inlet Connection Housing	1	203	Hex. Socket Head Cap Screw / M6 x 15	2
14	Gear 2	1	70	Flange Adapter, Inlet	1	204	Hex. Socket Head Cap Screw / M12 x 25	1
15	Rotor 1	1	71	Gasket, Flange	2	205	Hex. Socket Head Cap Screw / M5 x 8	2
16	Rotor 2	1	80	Pipe, for Oil sight glass	2	206	Hex. Socket Head Cap Screw / M12 x 25	2
17	Spacer	2	81	Gasket, Oil Sight Glass	4	207	Hex. Socket Head Cap Screw / M12 x 100 / 120	8
18	Piston Ring	4	82	Plate	1	209	Washer, Spring Lock, 12mm	8
19	Sleeve	2	83	Oil Sight Glass	1	210	Hex. Socket Head Cap Screw / M12 x 25	1
20	O-Ring	2	84	Plug for oil Sight Glass	1	211	Hexagon Bolt / M12 x 35	4
21	Shaft Seal	2	85	Pipe, for Drain Plug	2	212	Washer, Spring Lock, 12mm	4
22	Bearing,	2	86	O-ring, Drain Plug	4	213	Hexagon Bolt / M12 x 25	4
23	Bearing cover	2	87	Drain Plug	2	214	Hexagon Bolt / (NEMA only)	4
24	Key, for Rotor	2	88	Oil filler Breather, Plastic	1	215	Set Screw / M8 x 15	2
25	Key, for Gear	1	89	O-Ring for Oil filler, for PN 100.088.01	1	216	Set Screw / M8 x 15	2
26	Key, for Coupling	1	90	Foot Mount, Right	1	217	Round Head Bolt / M5 x 10	5
27	Sleeve	2	91	Foot Mount, Left	1	218	Hex. Socket Head Cap Screw / M12 x 60	6
28	Power Lock	1	92	Shield Cover, Bottom	1	219	Washer, Spring Lock, 12mm	6
29	Washer, Spring Lock, 6mm	2	93	Accoustic Mat for Shield Cover, Bottom	1	231	Hex. Socket Head Cap Screw / M12 x 25	4
30	Flinger	1	94	Shield Cover, Side, (NEW GB)	1	232	Hex. Socket Head Cap Screw / M6 x 120	4
31	Sleeve	2	95	Shield Cover, Front	1	233	Hex. Socket Head Cap Screw / M8 x 115	4
32	Bearing,	2	96	Accoustic Mat for Shield Cover, Front & Side	1	241	Hex. Socket Head Cap Screw / M12 x 20	4
33	Locking Disk	3	97	Foot, Rubber	4	243	Stud / M8 x 40	4
34	O-Ring	1	98	Cover, Plastic Foot Mount	4	244	Nut / M8	4
35	Sleeve	1	99	Grill for Fan	2	261	Hex. Socket Head Cap Screw / M12 x 25	6
36	Shaft Seal,	1	100	Coupling, Pump Side	1	263	Set Screw / M10 x 20	4
37	O-Ring, Compressor cover,	2	101	Insert, Coupling	1	264	Hexagon Nut / M10	4
38	O-Ring, Gear Box cover,	1	102	Coupling, Motor Side	1	265	Hex. Socket Head Cap Screw / M12 x 140	2
39	Dowel Pin	8	103	Fan, new, Plastic	1	266	Washer, Spring Lock, 12mm	2
40	Locking Pin	1	105	Flange Adapter	1	267	Round Head Bolt/ M5 x 10	4
51	flange, Exhaust Silencer	1	110	Motor	1	268	Round Head Bolt / M5 x 10	4
52	Gasket, Exhaust Silencer	1	120	Vacuum Regulator	1	291	Round Head Bolt / M5 x 10	12
59	Silencer assembly	1	121	Silencer, Inlet	1	292	Washer, Flat, 5mm	12
60	Inlet flange, Upper Housing, G 2"	1	123	Pipe, extension, medium, 1 1/2"	1			
61	Inlet screen (Conical)	1	129	Eye Bolt	1			

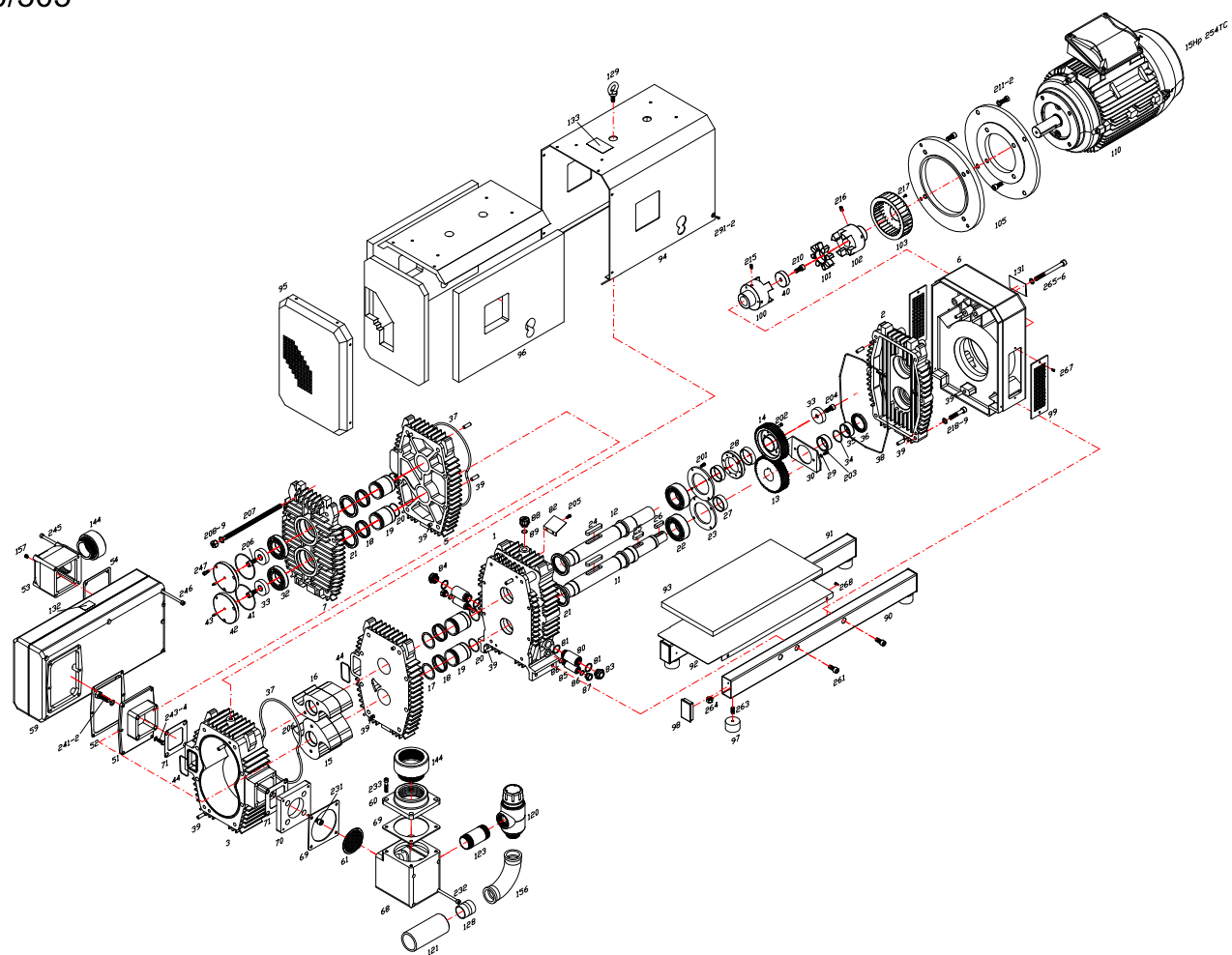
Exploded View
VCX-255



VCX 255 PARTS LIST

<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>	<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>	<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>
1	Gear Box Housing	1	40	Locking Disk	1	105	Flange Adapter (IEC 112M, NEMA 213TC, 215TC)	1
2	Gear Box Cover (rear)	1	47	Locking Disk, side Rotor	2	110	Motor	1
4	Pump Housing Cover 1 (End Plate)	1	52	Gasket, Exhaust Silencer, Steel Silencer	1	120	Vacuum Regulator	1
6	Fan Housing	1	59	Silencer assembly steel	1	130	Label, Direction Arrow	1
10	Sleeve	2	60	Inlet flange, Upper Housing, G 2"	1	131	Name Plate	1
11	Shaft 1	1	61	Inlet screen (Conical)	1	158	Base	1
12	Shaft 2	1	62	O-Ring, Inlet Flange, upper part	1	159	Cover, Exhaust	1
13	Gear 1	2	64	O-Ring, Check valve plate	1	160	Seal	1
15	Rotor 1	1	65	Check valve plate	1	571	Washer, Spring Lock, 6mm	8
16	Rotor 2	1	66	Spring, Check valve	1	573	Washer, Spring Lock, 10mm	11
17	Spacer	2	67	Check valve guide	1	574	Washer, Spring Lock, 12mm	22
18	Piston Ring	4	76	Plate (vertical)	1	577	Hexagon Nut M10	11
19	Sleeve	2	77	Accoustic mat	1	641	Hex. Socket Head Cap Screw / M5 x 15	5
20	O-Ring	2	78	Plate (horizontal)	1	643	Hex. Socket Head Cap Screw / M6 x 10	4
21	Shaft Seal,	2	79	Support isolator	14	644	Hex. Socket Head Cap Screw / M6 x 15	12
22	Bearing,	2	81	Gasket, Oil Sight Glass	1	650	Hex. Socket Head Cap Screw / M6 x 65	4
23	Bearing cover (Plate)	1	83	Oil Sight Glass	1	656	Hex. Socket Head Cap Screw / M12 x 25	2
24	Bearing cover	1	85	Pipe, for Drain Pulg	1	670	Hex. Socket Head Cap Screw / M12 x 50	14
25	Key, for Gear	2	86	O-ring, Drain Plug	2	673	Hex. Socket Head Cap Screw / M12 x 110	4
26	Key, for Coupling	1	87	Drain Plug	1	678	Hex. Socket Head Cap Screw / M12 x 25	2
27	Sleeve	2	88	Oil filler Breather, Plastic	1	695	Hexagon Bolt / M12 x 25 (IEC 112M, NEMA 213TC, 215TC)	4
28	Power Lock (VCX-305)	2 (4)	89	O-Ring for Oil filler	1	696	Hexagon Bolt (NEMA only)	4
30	Flinger	2	92	Shield Cover, Bottom	1	697	Hexagon Bolt / M12 x 35	4
31	Sleeve	2	93	Accoustic Mat for Shield Cover, Bottom	1	707	Set Screw / M8 x 15	2
32	Bearing,	2	94	Shield Cover, Side	1	709	Set Screw / M8 x 10	2
33	Locking Disk	1	95	Shield Cover, Front	1	710	Set Screw / M10 x 15	3
34	O-Ring	1	96	Accoustic Mat for Shield Cover, front and Side	1	711	Set Screw / M10 x 20	4
35	Sleeve	1	97	Foot, Rubber	7	712	Set Screw / M10 x 25	3
36	Shaft Seal,	1	100	Coupling, Pump Side	1	713	Set Screw / M10 x 35	4
37	O-Ring, Compressor cover,	1	101	Insert, Coupling	1	716	Eye Bolt M12	1
38	O-Ring, Gear Box cover,	1	102	Coupling, Motor Side	1	724	Botton Flange Bolt M5x8	44
39	Dowel Pin	4	103	Fan, new, Plastic	1			

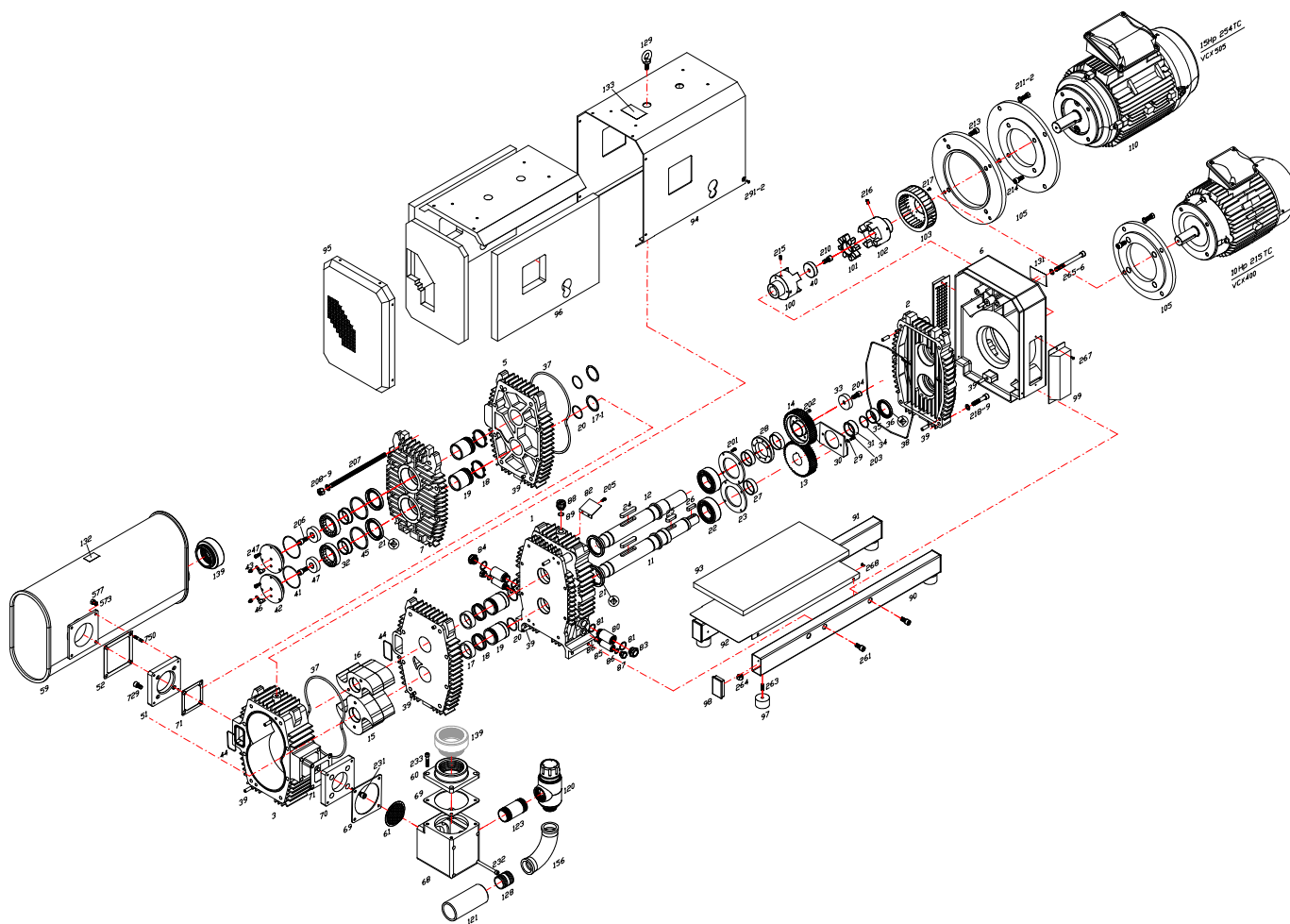
Exploded View
VCX-400/505



VCX 400/505 PARTS LIST

Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty
1	Gear Box Housing (NEW)	1	38	O-Ring, Gear Box cover,	1	96	Acoustic Mat for Shield Cover, Front & Side	1	212	Washer, Spring Lock, 12mm	4
2	Gear Box Cover (rear)	1	39	Dowel Pin	12	97	Foot, Rubber	4	213	Hexagon Bolt / M12 x 25	4
3	Pump Housing	1	40	Locking Disk	1	98	Cover, Plastic Foot Mount	4	215	Set Screw / M8 x 15	2
4	Pump Housing Cover 1 (End Plate)	1	41	O-ring, Bearing cover	2	99	Grill for Fan	2	216	Set Screw / M8 x 15	2
5	Pump Housing Cover 2 (End Plate)	1	42	Cover, Bearing	2	100	Coupling, Pump Side	1	217	Round Head Bolt / M5 x 12	5
6	Fan Housing	1	43	Nipple set, grease	2	101	Insert, Coupling	1	218	Hex. Socket Head Cap Screw / M10 x 60	6
7	Pump Housing Cover (front)	1	44	O-Ring	2	102	Coupling, Motor Side	1	219	Washer, Spring Lock, 10mm	6
11	Shaft 1	1	51	Exhaust Silencer, Inlet Flange	1	103	Fan, new, Plastic	1	231	Hex. Socket Head Cap Screw / M12 x 25	4
12	Shaft 2	1	52	Gasket, Exhaust Silencer	1	105	Flange Adapter	1	232	Hex. Socket Head Cap Screw / M8 x 160	4
13	Gear 1	1	53	Exhaust Silencer, Outlet Flange (Threaded)	1	110	Motor	1	233	Hex. Socket Head Cap Screw / M8 x 20	4
14	Gear 2	1	54	Gasket, ES Outlet Flange	1	115	Base W/Bolt, Nut for Motor	1	241	Hex. Socket Head Cap Screw / M12 x 70	4
15	Rotor 1	1	59	Exhaust Silencer assembly	1	120	Vacuum Regulator	1	242	Washer, Spring Lock, 12mm	4
16	Rotor 2	1	60	Inlet flange, Upper Housing (Threaded), G 3"	1	121	Silencer, Inlet	1	243	Hex. Socket Head Cap Screw / M8 x 30	6
17	Spacer	2	61	Inlet screen (Conical)	1	123	Pipe, extension, medium, Inlet, 1_1/2"	1	244	Washer, Spring Lock, 8mm	6
18	Piston Ring	8	68	Inlet Connection Housing	1	128	Pipe, extension, shor, Inlet, 1_1/2"	1	245	Hex. Socket Head Cap Screw / M8 x 120	4
19	Sleeve	4	69	Gasket, Connection Housing	2	129	Eye Bolt	1	246	Hex. Socket Head Cap Screw / M8 x 90	11
20	O-Ring	4	70	Flange Adapter, Inlet	1	130	Label, Direction Arrow	1	247	Hex. Socket Head Cap Screw / M6 x 20	6
21	Shaft Seal	4	71	Gasket, Flange	2	131	Name Plate	1	261	Hex. Socket Head Cap Screw / M12 x 25	6
22	Bearing,	2	80	Pipe, for Oil sight glass	2	132	Lable, Hot	1	263	Set Screw / M12 x 30	4
23	Bearing cover	2	81	Gasket, Oil Sight Glass	4	133	Lable, read manul	1	264	Hexagon Nut / M12	4
24	Key, for Rotor	2	82	Plate	1	144	Bushing 3"	2	265	Hex. Socket Head Cap Screw / M12 x 140	2
25	Key, for Gear	1	83	Oil Sight Glass	1	156	Elbow 1_1/2"	1	266	Washer, Spring Lock, 12mm	2
26	Key, for Coupling	1	84	Plug for oil Sight Glass	1	157	Plug 1/8"	1	267	Round Head Bolt/ M5 x 10	4
27	Sleeve	2	85	Pipe, for Drain Plug	2	201	Hex. Socket Head Cap Screw / M6 x 15	8	268	Round Head Bolt / M5 x 10	4
28	Power Lock	1	86	Gasket, Drain Plug	2	202	Hex. Socket Head Cap Screw / M6 x 30	8	269	Bolt / M14 x 130	1
29	Wahser, Spring	2	87	Drain Plug	2	203	Hex. Socket Head Cap Screw / M6 x 15	2	270	Hexagon Nut / M14	2
30	Flinger	1	88	Oil filler Breather, Plastic	1	204	Hex. Socket Head Cap Screw / M12 x25	1	291	Round Head Bolt / M5 x 10	12
31	Sleeve,	1	89	O-Ring for Oil filler, for PN 100.088.00	1	205	Hex. Socket Head Cap Screw / M5 x 8	2	292	Washer, Flat, 5mm	12
32	Bearing,	2	90	Foot Mount, Right	1	206	Hex. Socket Head Cap Screw / M12 x25	2			
33	Locking Disk	3	91	Foot Mount, Left	1	207	Stud Bolt / M12 x 275 / 290	8			
34	O-Ring	1	92	Shield Cover, Bottom, with mat	1	208	Hexagon Nut / M12	8			
35	Sleeve,	1	93	Acoustic Mat for Shield Cover, Bottom	1	209	Washer, Spring Lock, 12mm	8			
36	Shaft Seal,	1	94	Shield Cover, Side, with mat (NEW GB)	1	210	Hex. Socket Head Cap Screw / M12 x 25	1			
37	O-Ring, Compressor cover,	2	95	Shield Cover, Front with mat	1	211	Hexagon Bolt / M12 x 35	4			

Exploded View
VCX-400B/505B



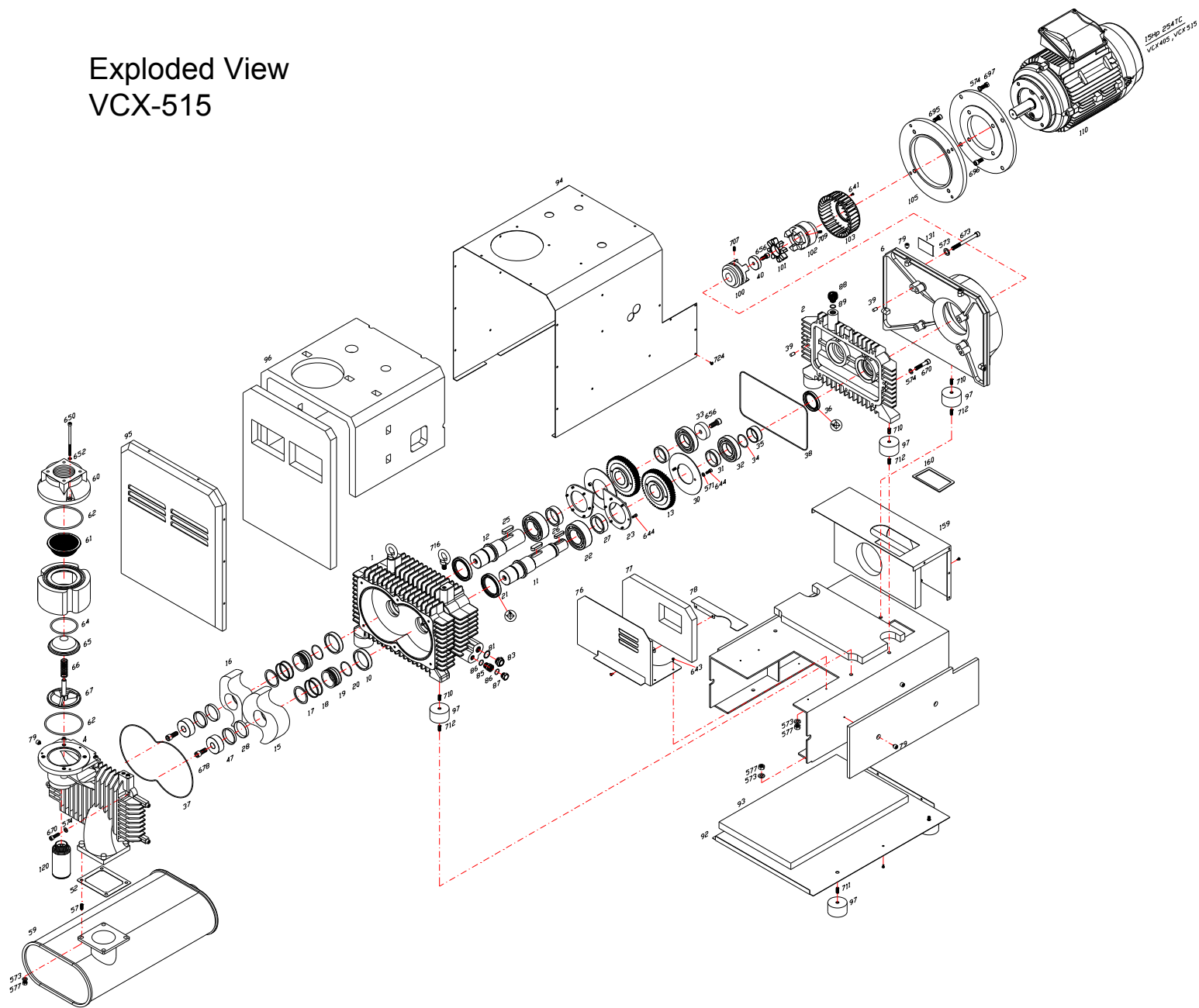
VCX 400B / 505B PART LIST

Pos.#	Description	Qty.	Pos.#	Description	Qty.	Pos.#	Description	Qty.
1	Gear Box Housing (NEW)	1	46	fitting for vents	2	131	Name Plate	1
2	Gear Box Cover (rear)	1	47	Locking Disk, Front	2	132	Label, Hot	1
3	Pump Housing	1	51	Silencer Ass'y Flange	1	133	Label, read manul	1
4	Pump Housing Cover 1 (End Plate)	1	52	Gasket, Silencer Ass'y	1	139	NPT Adapter 3" (NEMA Only)	2
5	Pump Housing Cover 2 (End Plate)	1	59	Silencer assembly	1	156	Elbow 1_1/2"	1
6	Fan Housing	1	60	Upper Housing (Threaded), G 3"	1	201	Hex. Socket Head Cap Screw / M6 x 15	8
7	Pump Housing Cover (front)	1	61	Inlet screen (Conical)	1	202	Hex. Socket Head Cap Screw / M6 x 30	8
11	Shaft 1	1	68	Connection Housing	1	203	Hex. Socket Head Cap Screw / M6 x 15	2
12	Shaft 2	1	69	Gasket, Connection Housing	2	204	Hex. Socket Head Cap Screw / M12 x25	1
13	Gear 1	1	70	Flange Adapter	1	205	Hex. Socket Head Cap Screw / M5 x 8	2
14	Gear 2	1	71	Gasket, Flange Adapter	2	206	Hex. Socket Head Cap Screw / M12 x25	2
15	Rotor 1	1	80	Pipe, for Oil sight glass	2	207	Stud Bolt / M12 x 275 / 290	8
16	Rotor 2	1	81	Gasket, Oil Sight Glass	4	208	Hexagon Nut / M12	8
17	Spacer	2	82	Plate	1	209	Washer, Spring Lock, 12mm	8
17-1	Spacer	2	83	Oil Sight Glass	1	210	Hex. Socket Head Cap Screw / M12 x 25	1
18	Piston Ring	8	84	Plug for oil Sight Glass	1	211	Hexagon Bolt / M12 x 35	4
19	Sleeve	4	85	Pipe, for Drain Plug	2	212	Washer, Spring Lock, 12mm	4
20	O-Ring	4	86	Gasket, Drain Plug	4	214	Hexagon Bolt (NEMA only)	4
21	Shaft Seal	4	87	Drain Plug	2	215	Set Screw / M8 x 15	2
22	Bearing,	2	88	Oil filler Breather, Plastic	1	216	Set Screw / M8 x 15	2
23	Bearing cover	2	89	O-Ring for Oil filler, for PN 100.088.00	1	217	Round Head Bolt / M5 x 12	5
24	Key, for Rotor	2	90	Foot Mount, Right	1	218	Hex. Socket Head Cap Screw / M10 x 60	6
25	Key, for Gear	1	91	Foot Mount, Left	1	219	Washer, Spring Lock, 10mm	6
26	Key, for Coupling	1	92	Shield Cover, Bottom	1	231	Hex. Socket Head Cap Screw / M12 x 25	4
27	Sleeve	2	93	Accoustic Mat for Shield Cover, Bottom	1	232	Hex. Socket Head Cap Screw / M8 x 160	4
28	Power Lock	1	94	Shield Cover, Side, (NEW GB)	1	233	Hex. Socket Head Cap Screw / M8 x 20	4
29	Wahser, Spring	2	95	Shield Cover, Front	1	247	Hex. Socket Head Cap Screw / M6 x 20	6
30	Flinger	1	96	Accoustic Mat for Shield Cover, Front & Side	1	261	Hex. Socket Head Cap Screw / M12 x 25	6
31	Sleeve,	1	97	Foot, Rubber	4	263	Set Screw / M12 x 30	4
32	Roller Bearing	2	98	Cover, Plastic Foot Mount	4	264	Hexagon Nut / M12	4
33	Locking Disk	1	99	Grill for Fan	2	265	Hex. Socket Head Cap Screw / M12 x 140	2
34	O-Ring	1	100	Coupling, Pump Side	1	266	Washer, Spring Lock, 12mm	2
35	Sleeve,	1	101	Insert, Coupling	1	267	Round Head Bolt/ M5 x 10	4
36	Shaft Seal,	1	102	Coupling, Motor Side	1	268	Round Head Bolt / M5 x 10	4
37	O-Ring, Compressor cover,	2	103	Fan, New, Plastic	1	291	Round Head Bolt / M5 x 10	12
38	O-Ring, Gear Box cover,	1	105	Flange Adapter set (NEMA only)	1	292	Washer, Flat, 5mm	12
39	Dowel Pin	12	110	Motor	1	573	Washer, Spring Lock, 10mm	4
40	Locking Disk	1	120	Regulator	1	577	Hexagon Nut M10 (vcx only)	4
41	O-ring, Bearing cover	2	121	Silencer, Inlet 1_1/2"	1	729	Hex. Socket Head Cap Screw / M10 x 20	4
42	Cover, Roller Bearing	2	123	Pipe, extension, medium, Inlet, 1_1/2"	1	750	Stud M10 x 40	4
43	Nipple set, grease	2	128	Pipe, extension, shor, Inlet, 1_1/2"	1	945	Pipe 3" Short (IEC only)	1
44	O-Ring	2	129	Eye Bolt	1			
45	Spacer Ring, Roller Bearing	2	130	Label, Direction Arrow	1			

VCX 100B / 150B PART LIST

Pos. #	Description	Qty	Pos. #	Description	Qty	Pos. #	Description	Qty
1	Gear Box Housing (NEW)	1	60	Inlet flange, Upper Housing	1	130	Label, Direction Arrow	1
2	Gear Box Cover (rear)	1	61	Inlet screen (Conical)	1	131	Name Plate	1
3	Pump Housing	1	62	O-Ring, Inlet Flange, low and upper part	2	132	Label, Hot	1
4	Pump Housing Cover 1 (End Plate)	1	63	Inlet flange, Lower housing	1	133	Label, read manual	1
6	Fan Housing	1	64	O-Ring, Check valve plate	1	141	Bushing 2" x 1_1/4"	1
11	Shaft 1	1	65	Check valve plate	1	154	Pipe, extension, inlet 1_1/2"	1
12	Shaft 2	1	66	Spring, Check valve	1	201	Hex. Socket Head Cap Screw / M6 x 15	8
13	Gear 1	1	67	Check valve guide	1	202	Hex. Socket Head Cap Screw / M6 x 25	6
14	Gear 2	1	69	Gasket, Inlet Connection Housing	1	203	Hex. Socket Head Cap Screw / M4 x 12	2
15	Rotor 1	1	70	Flange Adapter, Inlet	1	204	Hex. Socket Head Cap Screw / M8 x 25	1
16	Rotor 2	1	71	Gasket, Flange	2	205	Hex. Socket Head Cap Screw / M5 x 8	2
17	Spacer	2	80	Pipe, for Oil sight glass	2	206	Hex. Socket Head Cap Screw / M8 x 25	2
18	Piston Ring	4	81	Gasket, Oil Sight Glass	4	207	Hex. Socket Head Cap Screw / M10 x 100(100), 120(150)	8
19	Sleeve	2	82	Plate	1	209	Washer, Spring Lock, 10mm	8
20	O-Ring	2	83	Oil Sight Glass	1	210	Hex. Socket Head Cap Screw / M8 x 25	1
21	Shaft Seal,	2	84	Plug for oil Sight Glass	1	211	Hexagon Bolt / M12 x 35	4
22	Bearing,	2	85	Pipe, for Drain Pulg	2	212	Washer, Spring Lock, 12mm	4
23	Bearing cover	2	86	O-ring, Drain Plug	4	213	Hexagon Bolt / M12 x 25 (NEMA only)	4
24	Key, for Rotor	2	87	Drain Plug	2	214	Hexagon Bolt / M12 x 25(IEC) / (NEMA)	4
25	Key, for Gear	1	88	Oil filler Breather, Plastic	1	215	Set Screw / M8 x 10	2
26	Key, for Coupling	1	89	O-Ring for Oil filler	1	216	Set Screw / M8 x 10	2
27	Sleeve	1	90	Foot Mount, Right	1	217	Round Head Bolt / M5 x 12	5
28	Power Lock	1	91	Foot Mount, Left	1	218	Hex. Socket Head Cap Screw / M10 x 60	6
29	Washer, Spring Lock, 6mm	2	92	Shield Cover, Bottom	1	219	Washer, Spring Lock, 10mm	6
30	Flinger	1	93	Accoustic Mat for Shield Cover, Bottom	1	231	Hex. Socket Head Cap Screw / M8 x 20	8
31	Sleeve	2	94	Shield Cover, Side, with mat (NEW GB)	1	232	Hex. Socket Head Cap Screw / M6 x 80	4
32	Bearing,	2	95	Shield Cover, Front with mat	1	243	Stud / M8 x 40	4
33	Locking Disk	3	96	Accoustic Mat for Shield Cover, front and Side	1	244	Washer, Spring Lock, 8mm	4
34	O-Ring	1	97	Foot, Rubber, 30x20xM8	4	261	Hex. Socket Head Cap Screw / M10 x 15	6
35	Sleeve	1	98	Cover, Plastic Foot Mount	4	263	Set Screw / M8 x 20	4
36	Shaft Seal,	1	99	Grill for Fan	2	264	Hexagon Nut / M8	4
37	O-Ring, Compressor cover	2	100	Coupling, Pump Side	1	265	Hex. Socket Head Cap Screw / M10 x 110	2
38	O-Ring, Gear Box cover	1	101	Insert, Coupling	1	266	Washer, Spring Lock, 10mm	2
39	Dowel Pin	8	102	Coupling, Motor Side	1	267	Round Head Bolt/ M5 x 10	4
40	Locking Disk	1	103	Fan, new, Plastic	1	268	Round Head Bolt / M5 x 10	4
51	flange, Exhaust Silencer	1	105	Flange Adapter	1	291	Round Head Bolt / M5 x 10	12
52	Gasket, Exhaust Silencer	1	110	Motor	1	292	Washer, Flat, 5mm	12
58	Inlet Connection Housing	1	120	Vacuum Regulator	1	574	Hexagon Nut M8	4
59	Silencer assembly	1	129	Eye Bolt	1			

Exploded View
VCX-515



VCX 515 PARTS LIST

<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>	<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>	<i>POS#</i>	<i>Description</i>	<i>Q'ty</i>
1	Gear Box Housing	1	47	Locking Disk, Front	2	105	Flange Adapter	1
2	Gear Box Cover (rear)	1	52	Gasket, Exhaust	1	110	Motor	1
4	Pump Housing Cover (End Plate)	1	57	Stud Bolt	4	120	Vacuum Regulator	1
6	Fan Housing	1	59	Silencer assembly steel	1	130	Label, Direction Arrow	1
10	Sleeve	2	60	Inlet Flang	1	131	Name Plate	1
11	Shaft 1	1	61	Inlet screen (Conical)	1	158	Base	1
12	Shaft 2	1	62	O-Ring, Inlet Flange	2	159	Cover, Exhaust	1
13	Gear	2	64	O-Ring, Check valve plate	1	160	Seal	1
15	Rotor 1	1	65	Check valve plate	1	571	Washer, Spring Lock, 6mm	16
16	Rotor 2	1	66	Spring, Check valve	1	573	Washer, Spring Lock, 12mm	17
17	Spacer	2	67	Check valve guide	1	574	Washer, Spring Lock, 10mm	14
18	Piston Ring	4	76	Plate (vertical)	1	577	Hexagon Nut M12	13
19	Sleeve	2	77	Accoustic mat	1	641	Hex. Socket Head Cap Screw / M5	5
20	O-Ring	2	78	Plate (horizontal)	1	643	Hex. Socket Head Cap Screw / M5	4
21	Shaft Seal	2	79	Support isolator	15	644	Hex. Socket Head Cap Screw / M6	16
22	Bearing,	2	81	Gasket, Oil Sight Glass	1	650	Hex. Socket Head Cap Screw / M8	3
23	Bearing cover	2	83	Oil Sight Glass	1	652	Washer, Spring Lock, 8mm	3
25	Key, for Gear	2	85	Pipe, for Drain Pulg	1	656	Hex. Socket Head Cap Screw / M12	2
26	Key, for Coupling	1	86	O-ring, Drain Plug	2	670	Hex. Socket Head Cap Screw / M10	14
27	Sleeve	2	87	Drain Plug	1	673	Hex. Socket Head Cap Screw / M12	4
28	Power Lock (VCX-515)	2(4)	88	Oil filler Breather, Plastic	1	678	Hex. Socket Head Cap Screw / M16	2
30	Flinger	2	89	O-Ring for Oil filler	1	695	Hexagon Bolt / M12	4
31	Sleeve,	2	92	Shield Cover, Bottom	1	696	Hexagon Bolt (NEMA only)	4
32	Bearing	2	93	Accoustic Mat for Shield Cover, Bottom	1	697	Hexagon Bolt / M12	4
33	Locking Disk	1	94	Shield Cover, Side	1	707	Set Screw / M8	2
34	O-Ring	1	95	Shield Cover, Front	1	709	Set Screw / M8	2
35	Sleeve,	1	96	Accoustic Mat for Shield Cover, front and Side	1	710	Set Screw / M12	5
36	Shaft Seal	1	97	Foot, Rubber	9	711	Set Screw / M12	4
37	O-Ring, Compressor cover,	1	100	Coupling, Pump Side	1	712	Set Screw / M12	5
38	O-Ring, Gear Box cover,	1	101	Insert, Coupling	1	716	Eye Bolt M16	2
39	Dowel Pin	4	102	Coupling, Motor Side	1	724	Botton Flange Bolt M5	37
40	Locking Disk	1	103	Fan, new, Plastic	1			



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