Enclosed Electric Rotary Screw Compressor

Installation Guide

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician.

Warning: Read all installation steps, compressor package operation manual, notices and warnings prior to beginning compressor package installation. Failure to do so can result in personal injury or damage to compressor package.

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Compressed Air Systems

Simplicity. It's What We Do.

Compressed Air Systems, LLC 2626 Skyway Drive Grand Prairie, TX, 75052 **1-800-531-9656** Fax 972-352-6364

www.compressed-air-systems.com

NEC (National Electric Code) Guide Lines

1 Phase Motor Requirements (Copper wire must be THW, THHN-THWN, XHHW) No solid core wire
NOTE: Wire size is based on being within 30ft of main electrical panel installation further would need a qualified electrician to properly size the wire to account for voltage drop

Horse Power	Voltage	Instantaneous Trip Circuit Breaker Rating	Circuit Breaker Trip Rating	Minimum Wire Size
1.5	115	30	40	12
1.5	230	15	20	14
2	115	50	50	10
2	230	30	30	14
3	115	50	70	8
3	230	30	40	12
5	230	50	60	10
7.5	230	70	80	8
10	230	90	100	4

NOTE: Some rotary screw compressors have additional drive motors for the coolings fans these need to be taken into account when sizing the electrical system

3 Phase Motor Requirements (Copper wire must be THW, THHN-THWN, XHHW) No solid core wire
NOTE: Wire size is based on being within 30ft of main electrical panel installation further would need a qualified electrician to properly size the wire to account for voltage drop

Horse Power	Voltage	Circuit Breaker Trip Rating	Minimum Wire Size	Horse Power	Voltage	Circuit Breaker Trip Rating	Minimum Wire Size
3	200	20	14	30	200	150	2
3	230	20	14	30	230	125	3
3	460	15	14	30	460	80	8
3	575	15	14	30	575	60	8
5	200	35	12	40	200	200	1/0
5	230	30	14	40	230	175	1
5	460	15	14	40	460	100	6
5	575	15	14	40	575	80	6
7.5	200	50	10	50	200	200	3/0
7.5	230	45	10	50	230	200	2/0
7.5	460	20	14	50	460	125	4
7.5	575	20	14	50	575	100	6
10	200	60	8	60	200	250	4/0
10	230	60	10	60	230	225	3/0
10	460	35	14	60	460	125	3
10	575	25	14	60	575	125	4
15	200	90	6	75	200	300	300
15	230	80	6	75	230	300	250
15	460	45	10	75	460	150	1
15	575	40	12	75	575	125	3
20	200	100	4	100	200	400	500
20	230	90	4	100	230	400	350
20	460	60	10	100	460	200	2/0
20	575	50	10	100	575	175	1
25	200	125	3				
25	230	125	4				
25	460	70	8				
25	575	60	10				

NOTE: Some rotary screw compressors have additional drive motors for the coolings fans these need to be taken into account when sizing the electrical system

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Step **1**

Verify compressor package install site can handle weight load of compressor package.

(Note: this should have been done prior to the sale of the compressor package)

Notice: Installing compressors on the roof, mezzanine, 2nd story or higher of a building can result in higher DBA readings for the compressor package as well as additional vibration

Step **2**

Make sure compressor installation site is clear of debris and has adequate space around were the compressor will sit for service (minimum of 24in.) and ventilation (must be able to get clean fresh air through oil/air cooler during operation, without recirculating cooler hot air discharge) If site is excessively dusty or dirty due to grinding, sanding, or due to the nature of the selected application site a new site should be sought out.

Step **3**

Make sure site voltage for compressor installation is correct

(When reading voltage read across the lines to get and exact voltage. On single phase units read across L1 (Line 1) and L2 (Line 2) to get the operational voltage. On 3 phase units read across L1 to L2, then L2 to L3 (Line 3), then from L1 to L3 this gives the most accurate reading of the voltage. It is also recommended to read the voltage at both the main electrical panel and at the compressor disconnect to check for voltage drops prior to installation)

- **A.** 208-230 volt compressors can operate on voltages from 207-253 volts
- **B**. 460-480 volt compressor can operate on voltage from 420-505 volts
- **C.** On either 208-230 or 460-480 volt compressor packages; the lower the site voltage, the more amps the compressor motor will draw. (See electric motor MFG. website for amp draw at 208 volt if applicable)
- **D.** If voltage is lower than 207 on 208-230 or higher than 505 on 460-480 volt package then, a special low or high voltage motor is required as well as a different motor contactor and controls (this should be confirmed prior to compressor sale)
- **E.** If compressor package is being powered by a generator verify generator has enough power to start the compressor package. An easy calculation for the amount of power require to start a compressor is below.

Max running amps X operating voltage = running kilowatts (then) Running Kilowatts x 4= Starting Kilowatts required to start the compressors drive motor.

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Step **4**

Verify that main power wires leading to compressor disconnect are proper size per National Electric Code (NEC) and local applicable standards. Failure to have properly sized wire can cause damage to the electrical components of the compressor package. Incorrect wire size for the compressor package may also result in the loss of electric component warranty.

Step **5**

Verify that the breaker for the compressor is properly sized for the compressor total full load amps. NEC and local applicable standards should be followed. Failure to do so will result in damage to electrical components. Incorrect breaker size for the compressor package may also result in the loss of electric component warranty.

STOP **Warning:** Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **6**

Uncrate compressor package (verify package is intact and not missing parts).

Step **7**

Remove compressor shipping pallet.

(Warning: Only use forklift or approved lifting device to remove compressor from shipping pallet)

Step **8**

Set compressor into place on vibration isolation pads.

Step **9**

Drill holes in floor through vibration pads and mounting location on compressor package to set compressor package anchors in place.

Step **10**

Tighten compressor package anchor nuts to set anchors in floor.

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **11**

Back anchor nuts off to ½ to ¾ turn past hand tight.

Step **12**

Connect airline to compressor package air discharge. (Note: It is recommended to use a flexible line between the compressor package and the system piping to avoid damage due to compressor vibration)

Step **13**

Remove knock out on compressor operation panel or drill/cut hole for main electrical power wires for compressor. (No connections are to be made on the pressure switch during standard installation. Pressure switch's are pre-set from the factory)

Step **14**

Attach incoming compressor package wire conduit to compressor operation panel.

Step **15**

Install compressor package incoming power wires to proper terminal on main motor contactor.

A. On single phase compressor packages ports L1(line 1) and L2 (line 2)

B. On 3 phase compressor packages ports L1 L2 L3 (line 3)

Note: Make sure incoming power wires are properly torqued into place. This is also a good time to verify all electrical power wires are torqued properly.

Step **16**

Install ground wire in compressor panel.

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **17**

Verify all wire terminal connections in compressor package are torqued to proper specs,

Step **18**

Turn power on to the compressor package

Step **19**

Verify voltage of incoming power on the main drive motor starter

Step **20**

Wait for green light on compressor smart contactor to come on.

Step **21**

With green light on smart contactor on, turn compressor package on for 1-3 seconds to verify for proper compressor rotation and cooling fan rotation (When facing the front of the compressor airend opposite the motor shaft, the compressor should turn clockwise on standard belt drive compressors, verify direction on direct drive units with directional arrows)

Notice: Do not allow compressor to run for more than 3 seconds on this step, doing so may cause damage to compressor air end

Step **22**

If rotation is incorrect, turn power off to compressor package.

- **A.** On 3 phase compressors; once power is confirmed to be off, switch incoming power wire from L1 to L3 position and place L3 incoming power wire in L1 position.
- **B.** On single phase compressor packages; if rotation is incorrect, check motor wiring diagram for proper rotation wiring diagram.

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **23**

Close ball valve on compressor storage tank discharge.

Step **24**

Turn power back on to compressor package.

Step **25**

(If rotation was incorrect) Turn compressor back on for 1-3 seconds to verify that rotation is now correct if needed.

Step **26**

(**Read 26A, 26B, 26C prior to starting Step 26)**

Turn compressor package on with correct rotation and allow package to build to maximum operating pressure, and unload.

- **A.** Check voltage on main motor contactor prior to starting.
- **B**. Continue to check voltage on motor contactor as compressor package starts.
- **C.** If voltage drops more than 5% or below 207 on 208-230 volt packages or below 420 on 460-480 volt packages; and does not immediately return to original voltage, then check power supply.

(A drop of 5% or more; or below the minimum operating voltage of the electric motor can cause damage to the electrical components of the compressor package resulting in loss of electrical component warranty. If drop occurs, contact electrician and compressor package owner to notify them of power issues that need to be corrected for proper operation.)

Step **27**

Once compressor is running unloaded, wait 10 minutes to verify that compressor package unloaded power save feature is properly functioning. Compressor package should turn off after 10 minute of running unloaded. (Compressor package will unload automatically at maximum operating pressure. Compressor package pressure switch has been pre-set at factory during testing. Do not adjust compressor package pressure switch without consulting factory.)

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **28**

Once compressor has shut down after running unloaded for 10 minutes, open compressor storage tank ball valve to pressurize piping system.

Step **29**

Using either the compressor tank safety relief valve or tank discharge drain, release air pressure until compressor package re-starts from unloaded timer stopping package. (Note: In most cases pressurizing the air piping system releases enough air from the system to re-start the compressor) (Warning: When releasing air from compressor safety relief valve or tank drain DO NOT look at valve or drain.)

Step **30**

Perform function test on compressor package operating system. Using STEP 29, allow the compressor package to build up to maximum operating pressure and unload. Once unloaded release air from the system to cause the compressor package to re-load and compress air. Repeat this process a minimum of 6 times.

Step **31**

Check compressor temperature gauge for current operating temperature. (Note on installation sheet)

Step **32**

Check all compressor air and oil lines for leaks, tighten fittings as needed.

Step **33**

Check compressor tank drain for proper function. If drain has a timer feature, set timer to appropriate setting. Timer operated drains have a test button, use this to test for proper function. (Warning: Never look directly at compressor drain when testing or during drain operation)

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

Warning: Always wear proper protective eye wear, hearing protection, and other mandated safety clothing and devices when installing compressor packages

ATTENTION: All incoming electrical power connections are to be made on the main motor contactor(s) DO NOT attach incoming power wires to package pressure switch. This will result in electrical component damage not covered under warranty.

NOTICE: To ensure full compressor tank warranty all tank mounted compressor packages must be mounted on factory supplied vibration isolation pads.

Notice: Compressor package should not be mounted to a moving piece of equipment that will be moving while the compressor package is in operation. The compressor package should not be mounted to a piece of equipment that adds additional vibration to the compressor package. The compressor package is only designed to handle its own organic vibration during operation. Failure to follow either one of these guidelines may result in pre-mature failure of compressor package, components and/or personal injury.

Warning: Before beginning steps 6-17 verify power supply is off to compressor disconnect, and compressor package

Step **34**

Make sure compressor installation sheet is properly & completely filled out to be sent in for warranty registration.

Step **35**

Go over general operation and maintenance instructions of compressor package with owner and other personal that work around the compressor package. Verify if a maintenance agreement has already been set up or if one needs to be established.

Step **36**

Once steps 1-35 have been completed, turn compressor package off. Allow air end sump pressure to bleed off. (Complete sump depressurization takes approximately 5-10 minutes)

Step **37**

Once sump pressure has bled off, pull sump safety relief valve to verify sump pressure is gone.

Step **38**

Remove air end oil fill cap slowly (If hissing or air is coming out around oil cap, tighten back down and verify sump pressure has been relived). Verify proper oil level in compressor package, add oil as needed.

Step **39**

Turn compressor back on, wipe down surfaces and make sure installation sheet is complete. Compressor is now ready for full operation.

Notice: Air compressors should only be installed trained installation personnel call 800-531-9656 to find a local trained air compressor service technician

COMPRESSSED AIR SYSTEMS, LLC.

WARRANTY

CERTIFICATE OF LIMITED WARRANTY

Rotary Screw Compressors

All component parts on this compressor installed by the manufacturer are warranted to be free of defects, workmanship and material for a period of one year. Transportation charges are the responsibility of the purchaser. This warranty extends to the original purchaser of the compressor only.

There are NO express warranties except other than those contained in this limited warranty statement

Covered in the one year period of the warranty are defective parts due to defects in the original part only.

The compressor warranty is void in the cases of abuse, lack of proper service, in correct application, in correct installation, and neglect

Standard compressor warranty covers defective parts and labor for the one year period.

Industrial Electric stationary compressors may be repaired on site as long as the compressor is not located further than 50 miles from the service center. The purchaser is responsible for any additional travel expense past 50 miles from the service center.

Gas/Diesel engine driven compressors must be repaired at the closest service center to the compressor. The purchaser is responsible for any travel expense if they do not wish to bring the compressor to the service center.

ALL "SPECIALTY COMPRESSOR" WARRANTY SERVICE MUST BE PERFORMED AT THE CLOSEST SERVICE CENTER TO THE COMPRESSOR

Specialty compressor-any compressor package with options other than those that apply to the standard model number in the catalog

The compressor "airend" is covered by a 2 year warranty to be free from defects from manufacturing. This does not cover abuse, neglect, improper service, misapplication, or improper installation. An oil sample must be submitted with any airend warranty claim for verification. The purchaser must use only Compressed Air Systems synthetic rotary screw oil in the compressor for the duration of the warranty.

Airend- the rotors and bearings of the compressor

BEFORE WARRANTY SERVICE IS PERFORMED CONTACT MANUFACTURER TECH SUPPORT FOR FASTEST SOLUTION

Warranty labor for the first year is only covered for work performed Monday-Friday 8am-5pm excluding all major US holidays

Optional 5 year "airend" warranty

To be applicable for this option the purchaser must purchase a Full year Rotary Screw compressor service kit at the same time as the compressor and a subsequent kit every year afterwards for a total of 5 kits during the compressor warranty period. The purchaser must use only Compressed Air Systems synthetic rotary screw oil in the compressor for the duration of the warranty.

The warranty covers the "airend" of the compressor for a period of 5 years parts replacement only, from any defect due to manufacturing. The warranty does not cover wear and tear, abuse, neglect, improper service, misapplication, or improper application.

BEFORE WARRANTY SERVICE IS PERFORMED CONTACT MANUFACTURER TECH SUPPORT FOR FASTEST SOLUTION.

Rotary Screw Compressor Installation Sheet

Date of Installation _____ Compressor Model# _____

Installation Company _____ Compressor Serial # _____ _____

Installation Technician _____ Compressor Voltage _____ _____

Site Electrical Phase _____ Site Voltage L1 _____ L2 _____ L3 _____

Compressor Electrical breaker size _____

Incoming Voltage at motor start up L1 _____ L2 _____ L3 _____

Incoming Voltage at max operating pressure L1 _____ L2 _____ L3 _____

Incoming power connected to Magnetic Starter _____

Breaker size for the compressor _____AMPS Wire size for the compressor _____ _____

Distance from main electric panel _____ Disconnect installed at the compressors site _____ _____

If Duplex compressor separate disconnects for each drive motor: ☐ Yes ☐ No

Compressor Rotation Correct ☐ Yes ☐ No

Motor amps at Max operating Pressure L1 _____ L2 _____ L3 _____

Compressor Max Operating Pressure _____ Compressor tank drain functional _____

Unit inspected for Air leaks _____ Unit inspected for oil leaks _____

Unit location: ☐ Indoors ☐ Outdoors

Unit tank fill time 0-125psi _____ (Put N/A if pressure not applicable to installed unit)

Unit tank fill time 0-150psi _____ (Put N/A if pressure not applicable to installed unit)

Unit tank fill time 0-175psi _____ (Put N/A if pressure not applicable to installed unit)

Unit Cooling Fan (Pulls air through cooler) (Push's air through cooler)

Compressor Temperature switch reading (Before install) _____ (After install) _____

Unit unloads at max operating pressure and begins to release sump pressure _____-

Belt tension checked: ☐ Yes ☐ No Vibration Pads properly installed: ☐ Yes ☐ No

All installation steps completed: ☐ Yes ☐ No If no, reason: _____

_____

_____

Send copy of completed installation sheet to manufacture to begin warranty

Compressed Air Systems, LLC

2626 Skyway Drive

Grand Prairie, TX, 75052

Compressed Air Systems, LLC

2626 Skyway Drive

Grand Prairie, TX, 75052

1-800-531-9656

Fax 972-352-6364

Simplicity. It's What We Do.