

INSTALLATION INSTRUCTION MANUAL



Outdoor Condensing Units

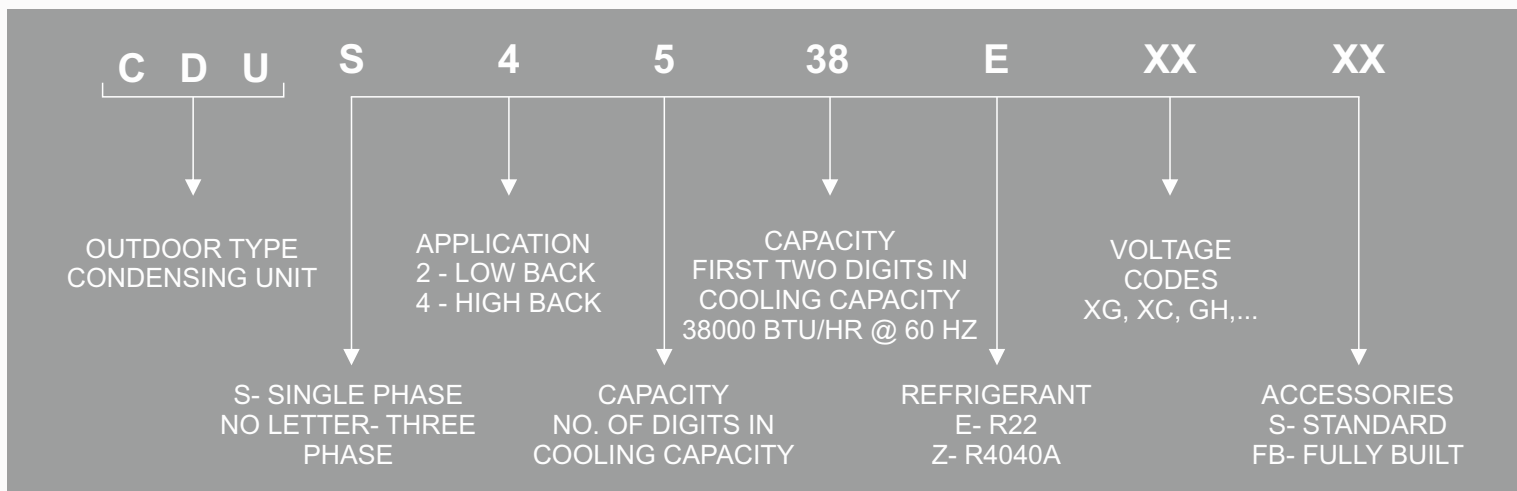
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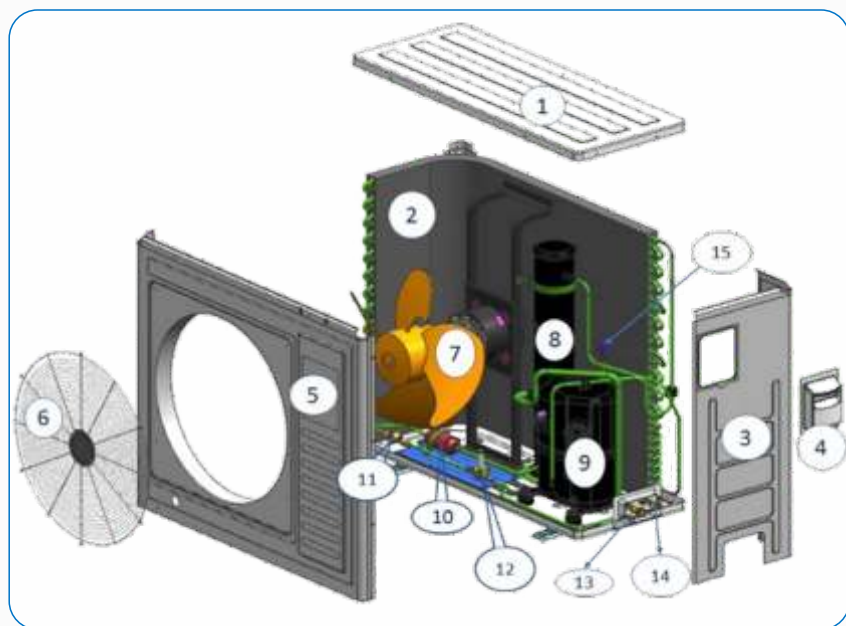
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ODCU NOMENCLATURE



ODCU EXPLODED VIEW



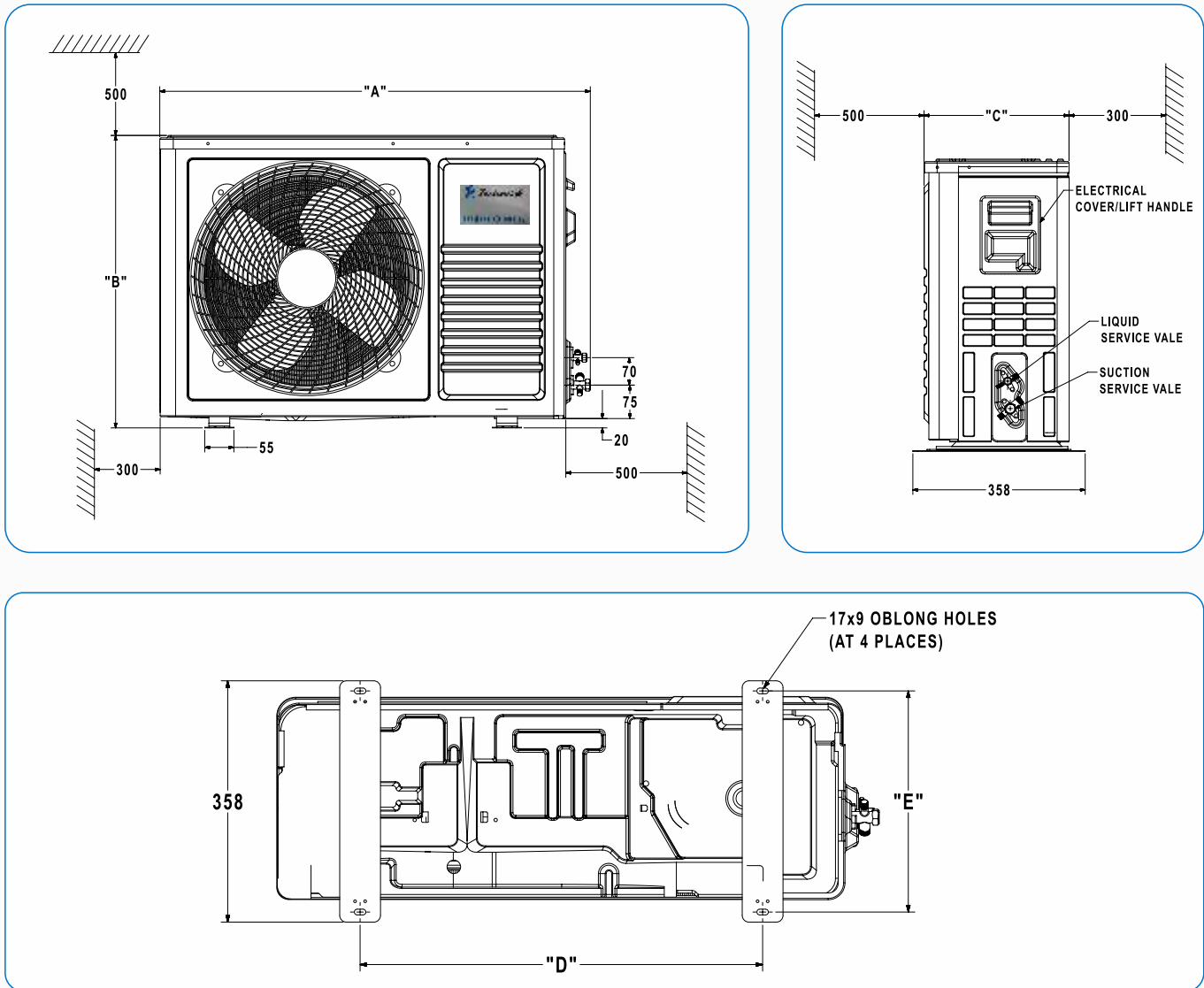
S.N.	ODCU PARTS LIST
1	TOP PANEL
2	CONDENSER COIL
3	RIGHT PANEL
4	ELECL. COVER/LIFT HANDLE
5	FRONT PANEL
6	FAN GRILL
7	FAN MOTER WITH BLADER
8	RECEIVER
9	COMPRESSOR
10	FILTER DRIER
11	SIGHT GLASS
12	SOLENOID VALVE
13	SUCTION SERVICE VALVE
14	LIQUID SERVICE VALVE
15	HP / LP SWITCH

SCOPE OF SUPPLY

TYPES OF MODELS	RECEIVER	FILTER DRIER	SIGHT GLASS	LLSV	HP/LP SWITCH	SERVICE VALVES
CDUS XXXX X XXX-S (STANDARD)		┘			┘	┘
CDUS XXXX X XXX-FB (FULLY BUILT)	┘	┘	┘	┘	┘	┘

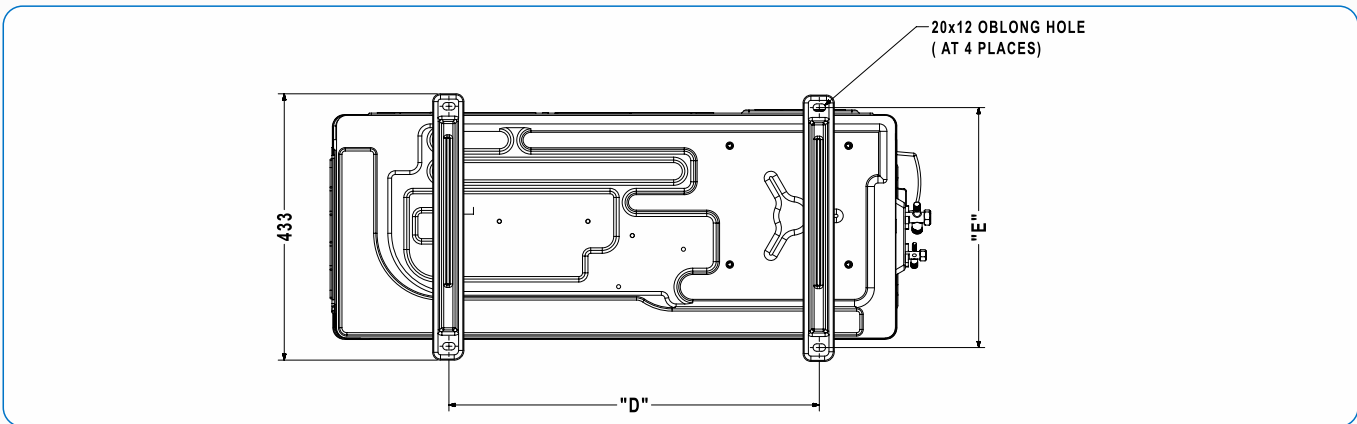
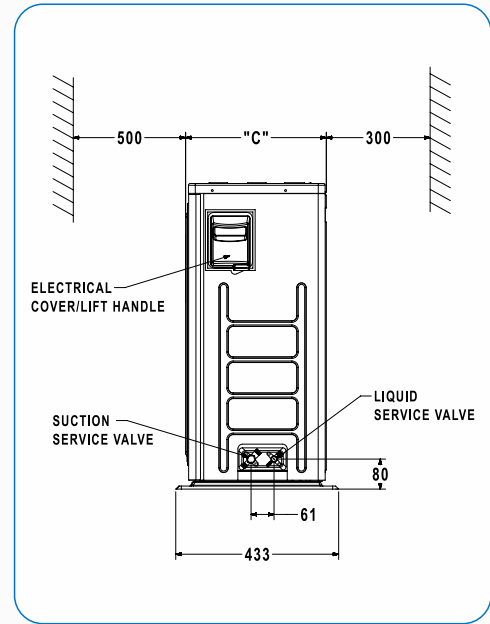
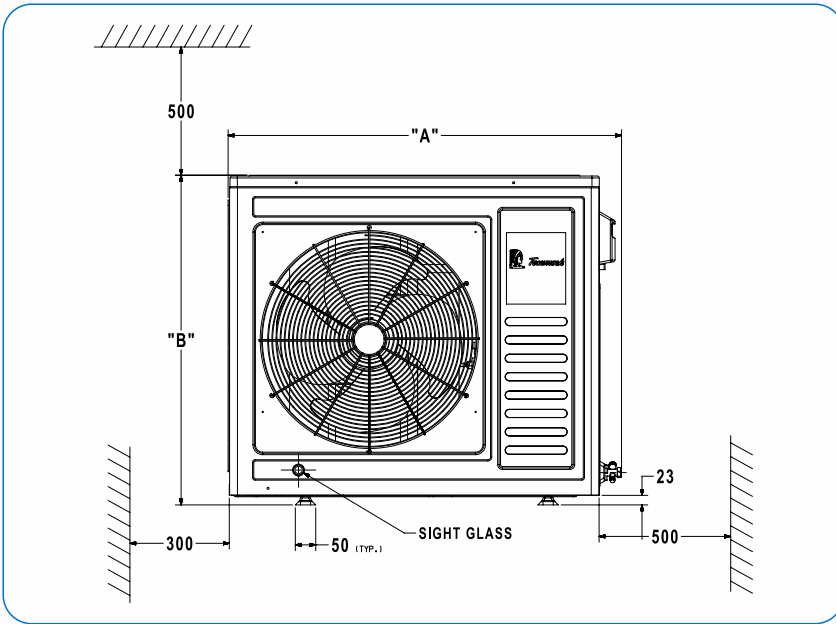
DIMENSIONS & MINIMUM WALL CLEARANCES SUGGESTED FOR INSTALLATION

DIAGRAM - 1



UNIT MODEL	DIAGRAM	DIMENSIONS ARE IN MM					SUCTION LINE FLARE NUT TYPE	LIQUID LINE FLARE NUT TYPE	WEIGHT KGS
		LENGTH	HEIGHT	WIDTH	HORIZONTAL MOUNTING PITCH	UPTO VERTICAL MOUNTING PITCH			
		"A"	"B"	"C"	"D"	"E"			
CDU4524EGF-S	1	670	607	300	520	328	1/2"	1/4"	53
CDUS4524EGE-S	1	670	607	300	520	328	1/2"	1/4"	53
CDU4532EGF-S	1	670	607	300	520	328	5/8"	3/8"	53
CD454532EGH-S	1	670	607	300	520	328	5/8"	3/8"	53

DIAGRAM - 2



UNIT MODEL	DIAGRAM	DIMENSIONS ARE IN MM					SUCTION LINE FLARE NUT TYPE	LIQUID LINE FLARE NUT TYPE	WEIGHT KGS
		LENGTH	HEIGHT	WIDTH	HORIZONTAL MOUNTING PITCH	UPTO VERTICAL MOUNTING PITCH			
		"A"	"B"	"C"	"D"	"E"			
CDU4542EXG-S	2	975	810	400	675	395	5/8"	3/8"	68
CDUS4538EXCS-S	2	975	810	400	675	395	5/8"	3/8"	68
CDU4538EGF-S	2	975	810	400	675	395	5/8"	3/8"	68
CDU4542EXG-FB	2	975	810	400	675	395	*5/8"	3/8"	75
CDUS4538EXC-FB	2	975	810	400	675	395	*5/8"	3/8"	75
CDU4538EGF-FB	2	975	810	400	675	395	*5/8"	3/8"	75

* ADAPTOR NUT 3/4 TO 5/8

INSTALLATION INSTRUCTIONS

TO PROPERLY LOCATE THESE OUTDOOR CONDENSING UNITS, CAREFULLY CONSIDER THESE IMPORTANT FACTORS:

- ▶ **Weight Of The Unit.** If units are installed on the roof, their weight and weight distribution should be checked against the building specifications and the building codes.
- ▶ **Distance Of The Unit** to the refrigerated cabinet and power supply socket.
- ▶ **Space Around The Unit** and in between adjacent units. This should consider prevention of the re-circulation of the air and ensure enough airflow through the unit. (Refer Drg.1 in page no. 4)
- ▶ These distances should also provide enough room around the units so that enclosure panels may be removed and that adequate accessibility is provided to the compressor, electrical boxes and other controls for maintenance.
- ▶ Orientation of the units should consider the prevailing wind direction. It is recommended not to position the units in such a way that the airflow direction through the unit faces to prevailing wind direction for the area. The units should be mounted securely on adequate rigid and leveled bases, to avoid improper lubrication conditions for the compressor. Never use the shipment pallet as a permanent mounting base. If vibrations is a concern, then proper vibration insulators should be installed under the mounting base.

UNPACKING, LIFTING/HANDLING INSTRUCTION

- ▶ Don't remove the carton box until the unit arrives at the destination.
- ▶ Verify the shipping symbols on the packing box are in right direction.
- ▶ Cut the packing straps and remove the packing carton box. (refer the Picture-1 Picture-2)
- ▶ While lifting proper measures should be taken to protect the enclosure panels.
- ▶ Always keep the unit upright, laying the unit on its side or top may cause the unit damage.
- ▶ Care should be taken to locate the center of gravity of the unit before lifting, as the compressor is the heaviest part of the unit may not be located in the center of the unit base.
- ▶ Never lift or displace the units with enclosure panels removed.
- ▶ All the panels should be in place and properly tightened.

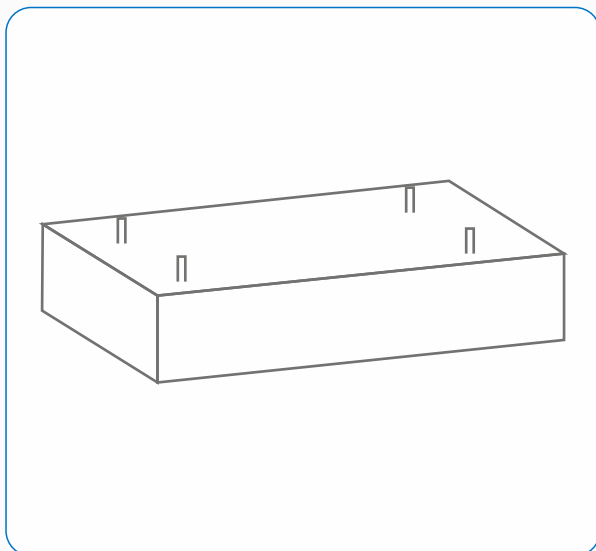




ODCU MOUNTING OPTIONS.

7.1 FLOOR MOUNTING:

- ▶ Make a concrete platform to the mounting dimension of M8 anchor bolt 4 Nos with M8 Plain washers.
- ▶ Base surface should be leveled properly. (for mounting pitch dimensions refer drawing.No. 1 & 2 on the page No. 4 & 5 of this booklet)



7.2 WALL MOUNTING:

- ▶ ODCU unit can be mounted on the wall by using the M.S.Angle L – 2’x2’x8’ Frame and fix to the wall.
- ▶ M.S.Angle L – 2’x2’x8’ Frame not in the manufacturer’s scope of supply.



ODCU SERIAL/SPEC. LABEL & LOCATION



OUTDOOR CONDENSING UNIT (CDU)	
CDU Model	CDU4542EXG-S
Compressor Model	AWS4542EXG
Power Supply	3 Ph - 400 V - 50 Hz
Cooling Capacity (btu/hr)	35660
Nominal Current (a)	6.8
Power Input (w)	3635
Max. Refrigerant Chargeable	R- 22 / 3500g
HP Pr. Switch Cut In/Cut Out (Bar)	26.7 / 18.8
LP Pr. Switch Cut In/Cut Out (Bar)	0.65 / 2.6
Outdoor Unit Dimension (mm)	900x360x805
Packing dimension (mm)	1059x500x875
Outdoor Unit Weight (kg)	68
TECUMSEH PRODUCTS INDIA PVT.LTD BALANAGAR TOWNSHIP, BALA NAGAR www.tecumsehindia.com	

WARNING

Main power supply should always be disconnected and locked off to avoid accidental start up or electric shock. Failure to do so could result in injury or death.

Some parts like condenser fins or some corners on the sheet metal parts are sharp and may potentially cause injury. Use extra caution

ELECTRICALS

- ▶ To access the electrical connector, please unscrew the cover (As shown in the picture-3)
- ▶ In order that these units have the starting, operating and dependability characteristics required of them, the compressor and its protective devices are designed for operation within a specific minimum 90% and maximum 110% of the rated voltage. This voltage range is defined in the following table



- ▶ Verify before any electrical installation if the voltage and phases of the supply satisfy those required of the unit. Refer the below table for voltage code details.
- ▶ Refer to “Maximum Continuous Current” to size the electrical wires, fuses and over current protection devices.
- ▶ A pump down cycle should be employed to control all these units as per the application requirement. That is, solenoid valve for the liquid line. (Applicable for fully built models only).
- ▶ Room thermostat is the scope of customer and installed by the qualified technician.
- ▶ The wiring diagram shows all electrical components connected to the system. And in case any component be added to the unit as a field supplied option then, the wiring should follow the given wiring diagrams (shown in the page no. 10 & Affixed inside the electrical cabinet/cover (See Picture-4)

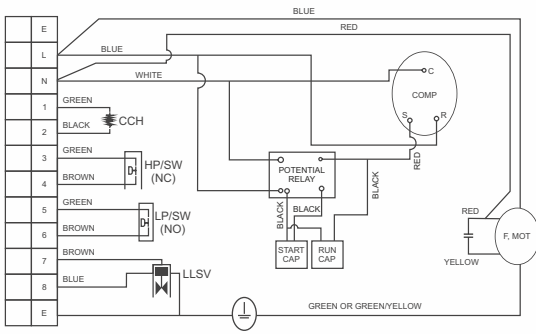
CAUTION: Any non-compliance with voltage ranges and phase balances or any altering of electrical components without Tecumseh written approval will void the warranty.

VOLTAGE CODE	RATED VOLTAGE
XC	220-240V @ 50 Hz 1 Ø
XG*	380-420V @ 50 Hz 3 Ø ; 460V @ 60 Hz 3 Ø *
GH	230V @ 50 Hz 1 Ø
GE	230V @ 50 Hz 1 Ø
GF	400V @ 50Hz 3 Ø

* **Compressor Voltage Code:** Operating frequency is 50/60 Hz but condensing unit is compatible for 50 Hz only

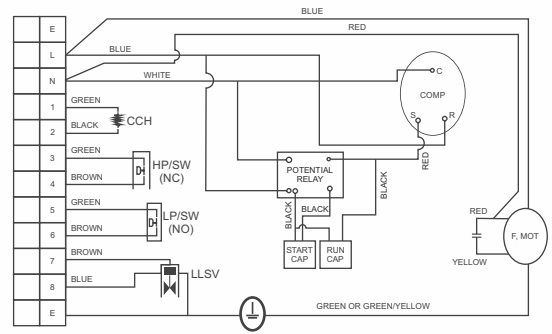
WIRING DIAGRAMS

WIRING DIAGRAM FOR ODCU-FB 1 PHASE MODEL



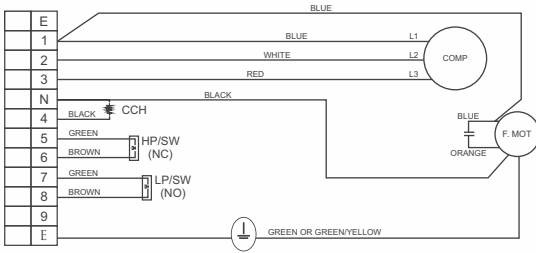
Legend.: Comp- Compressor, RU-Potential Relay, F, Mot-fan Motor, CCH-Crankcase HPSW-High Pressure Switch, LPSW-Low Pressure Switch, LLSV-Liquid Line Solenoid Valve

WIRING DIAGRAM FOR ODCU - STANDARD 1 PHASE MODEL



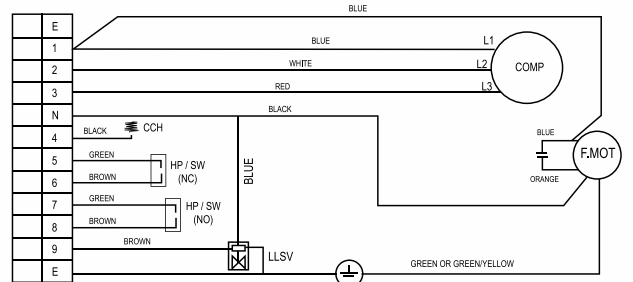
Legend.: COMP- Compressor, RU-Potential relay, F.MOT-Fan Motor, CCH- Crankcase Heater, HP SW-High Pressure Switch, LP SW-Low Pressure Switch, LLSV- Liquid Line Solenoid Valve,

WIRING DIAGRAM FOR ODCU - STANDARD 3 PHASE MODEL



LEGEND.: COMP- Compressor, F.MOT - Fan Motor, CCH - Crankcase Heater, HP SW - High Pressure Switch, LP SW - Low Pressure Switch, LLSV - Liquid Line Solenoid Valve.

WIRING DIAGRAM FOR ODCU - FB 3 PHASE MODEL



LEGEND.: COMP- Compressor, F.MOT - Fan Motor, CCH - Crankcase Heater, HP SW - High Pressure Switch, LP SW - Low Pressure Switch, LLSV - Liquid Line Solenoid Valve.



CONNECTIONS OF SUCTION & LIQUID LINE AND REFRIGERANT PIPING.

- ▶ For the service end refrigerant piping connections for the evaporator or unit cooler, 3-way service valves are used. The details of service valve is given in the page No. 4 & 5 of this booklet.



- ▶ Please use only refrigeration grade copper tubes & flare nuts.
- ▶ Always keep the tubes free of moisture and dirt and remove any burrs present on the tube.
- ▶ The selection of the suction line sizes should be guided by the following criteria:
 - ▶ Assurance of adequate velocity, thus ensuring oil return capability (the tube size must be limited to maintain velocities no less than 750 fpm for horizontal and down flow and no less than 1500 fpm for up flow)
 - ▶ Assurance of acceptable pressure drop (The tube size should be limited to maintain pressure drop no greater than the equivalent of a 2°F temperature drop.)
 - ▶ Assurance of satisfactory sound level (the tube size should be limited to maintain velocities no greater than 3000 fpm.)
 - ▶ Horizontal suction lines should be sloped downward in the direction of the compressor at least 1/2" per 10' of line.
 - ▶ In case, the suction line is up flow, then use one standard size smaller. A suction trap should be installed at the base of suction risers. Long radius elbows should be employed to minimize pressure losses.
 - ▶ To prevent oxidation and scale forming inside the tubes it is recommended to flow dry nitrogen through the tubing during the brazing operations. A light flow of about 1/4 CFM is sufficient.
- ▶ After all leak check procedures are completed, refrigerant lines that may be exposed to high and low ambient temperatures should be insulated. The suction lines should be insulated with an industry accepted material of no less than 3/4" wall thickness.
- ▶ In case, need more information, please contact Tecumseh representative.

PRESSURE CONTROLS (MINI PRESSURE SWITCHES)



REFRIGERANT	ITEM CODE	CUT IN		CUT OUT		HP/LP	BODY	CONTACT
		BAR	PSIG	BAR	PSIG			
R22	580066	18.8+1	276.4	26.7 + 0.7	392.5	HP	BLACK	CLOSED
R22	580070	2.6 + 0.3	38.22	0.65 + 0.2	9.555	LP	GREEN	OPENED

Always protect low (or dual) pressure control from excessive high pressure. It is recommended to disconnect the low-pressure (or the low side of the dual pressure) control prior to pressurization.

WARRANTY

Follow the leak check procedure very carefully. **Warranty will be voided if compressor fails as a result of refrigerant leakage related problems.** Leakage of refrigerant to the atmosphere has been identified as a major source of global warming and ozone depletion.

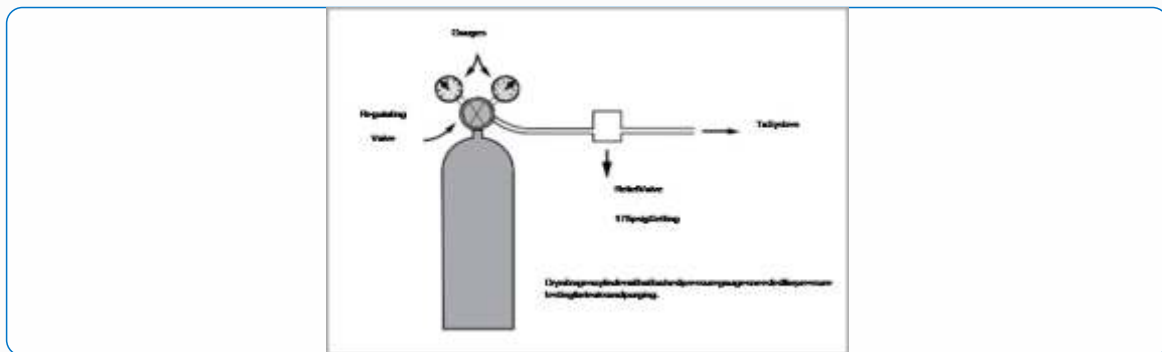
SYSTEM FLUSHING, PURGING, AND PRESSURE TESTING FOR LEAKS

- ▶ A pressure leak test is mandatory and is to be performed for the complete refrigeration system, including the ODCU, prior to system charging.
- ▶ To thoroughly leak check the system, the system should be pressurized to a maximum of 150 psig with dry nitrogen to the high and low side of the system. With the pressure equalized at 150 psig, a leak check should be performed on EVERY joint in the system to ensure that no leaks are present. The initial charge may be released.
- ▶ The leak check procedure should then be repeated using a much more accurate means to determine that the system is 100% free of leaks. Use of electronic leak detection equipment is highly recommended due to its potential accuracy when used correctly in accordance with the manufacturer's instructions. If trace amounts of refrigerant are used, use only the refrigerant indicated on the serial label of the ODCU.
- ▶ If trace amounts of refrigerant are used during the leak check procedure, this must be properly recovered and disposed of in an appropriate manner to protect the environment.
- ▶ As an added precaution, the leak check charge should be left in the system for no less than 12 hours without loss of pressure.
- ▶ Every joint in the system including, but not limited to, factory welds, flare nuts and pressure controls must be leak checked. A leak free system is required for the installation to function correctly.

NOTE: odcu is leak checked by helium leak detection (HLD).

- ▶ Failure to properly flush, purge, or pressure test a system for leaks can result in serious injury or death from explosion, fire, or contact with acid-saturated refrigerant or oil mists.
- ▶ Follow these precautions when flushing, purging or pressure testing a system for leaks:

- ▶ Use flushing products according to the manufacturer's instructions
- ▶ To flush a system, use only dry nitrogen.
- ▶ When pressure testing for leaks, use only regulated dry nitrogen or dry nitrogen plus trace amounts of serial label refrigerant.
- ▶ When purging or pressure testing any refrigeration or air conditioning system for leaks, never use air, oxygen or acetylene. Oxygen can explode on contact with oil.
- ▶ Acetylene can decompose and explode when exposed to pressures greater than approximately 15 psig.
- ▶ Combining an oxidizing gas, such as oxygen or air, with an HCFC or HFC refrigerant under pressure can result in a fire or explosion. Use a pressure regulating valve and pressure gauges.



- ▶ Commercial Cylinders of nitrogen contain pressures in excess of 2000 psig at 70°F. At pressures much lower than 2000 psig, compressors can explode and cause serious injury or death. To avoid over pressurizing the system, always use a pressure-regulating valve on the nitrogen cylinder discharge. The pressure regulator must be able to reduce the pressure down to 1 to 2 psig and maintain this pressure.
- ▶ The regulating valve must be equipped with two pressure gauges:
 - ▶ One gauge to measure cylinder pressure
 - ▶ One gauge to measure discharge or downstream pressure
- ▶ Use a pressure relief valve. (Not in the scope of manufacturer)
- ▶ In addition to pressure regulating valve and gauges, always install a pressure relief valve. This can also be frangible disc type pressure relief device. This device should have a discharge port at least ½" NPT size. The valve or frangible disc device must be set to 175 psig.

CAUTION

- ▶ Do not pressurize the system beyond 150 psig field leak test pressure.
- ▶ Disconnect nitrogen cylinder and release the pressure in the system before evacuating and connecting a refrigerant container.
- ▶ Nitrogen pressurizing method can be used for gross leak detection.
- ▶ A more detailed leak check with refrigerant leak detectors is necessary.
- ▶ Use only the refrigerant noted on the serial label of the unit.

SYSTEM EVACUATION

Following the pressure testing for leaks, the system must be evacuated.

Use a vacuum pump (not a compressor) to draw a vacuum of 200 microns or less from both sides of the system. Do not attempt to draw a vacuum on the system with the pump connected only on the low side. The high side of the system should be interconnected with the low side by using a minimum 3/8" OD copper tube. Use an electronic gauge to measure the vacuum because a refrigeration gauge cannot provide an accurate reading at this resolution.

Break the vacuum with dry nitrogen. These procedures should be performed at ambient temperature above 18.33°C.

Note: Never use a compressor to evacuate a system. Instead, use a high-pressure vacuum pump specifically designed for that purpose. Never start the compressor while it is under a deep vacuum. Always break the vacuum with a refrigerant charge before energizing the compressor. Failure to follow these instructions can damage the hermetic terminal. As always, to avoid serious injury or death from terminal venting with ignition, never energize the compressor unless the terminal cover is securely fastened.

WARRANTY

Follow the evacuation procedure very carefully. *Warranty will be voided if compressor fails as a result of moisture related problems.*

SYSTEM CHARGING

- ▶ Failure to properly charge the system can result in serious injury or death from explosion or fire. Follow these precautions when charging a system:
- ▶ Do not operate the compressor without charge in the system.
- ▶ Operating the compressor without a charge in the system can damage the hermetic terminal. To avoid serious injury or death from terminal venting with ignition, never energize the compressor unless the protective terminal cover is securely fastened.
- ▶ Use only the serial label refrigerant when charging the system. Using a different refrigerant can lead to excess system pressure and an explosion. Use of a refrigerant other than the serial label refrigerant will void the compressor warranty.
- ▶ Do not overcharge a refrigeration or air conditioning system.
- ▶ Overcharging a refrigeration or air conditioning system can result in explosion. To avoid serious injury or death, never overcharge the system. Always use proper charging techniques.
- ▶ Limit charge amounts to those specified on the system equipment serial label or in the original equipment manufacturer's service information.
- ▶ Overcharging the system immerses the compressor motor, piston, connecting rods, and cylinders in liquid refrigerant. This creates a hydraulic block preventing the compressor from starting. The hydraulic block is also known as locked rotor.

WARRANTY

Use of a refrigerant other than those listed on the serial label will void the compressor warranty.



APPROVED HERMETIC COMPRESSOR OILS

Hermetic compressors are charged with optimum oil that will be adequate for close-coupled systems designed in accordance with good engineering practice.

REFRIGERANT	APPROVED COMPRESSOR OILS
R404A	Polyol Ester (POE)
R22	Mineral Oil

Some System designs containing unusual evaporators or extensive interconnecting pipes, may require additional oil. However, since excess oil can also damage compressors, care should be taken not to exceed the oil charge amounts specified. For more detail contact Tecumseh sales representative.

SYSTEM START-UP PROCEDURE

- ▶ Check the electrical connections if they are properly attached and secured.
- ▶ Check the electrical supply versus nameplate specifications.
- ▶ Check if the Voltage deviation is within the specified range.
- ▶ Check all mechanical and electrical connections if they are properly tightened and secured. Compressor mounting parts, fan motor mounting screws, fan blade tightening screw, shroud electrical boxes etc.
- ▶ Check that the safety and pressure controls are connected and set correctly.
- ▶ Check that the suction and liquid Service valves are connected properly.
- ▶ Check by isolating the compressor motor if the control circuit including thermostat and solenoid valve (if used) is wired and operates correctly.
- ▶ Confirm that the system has been properly leak tested, evacuated and charged. If the system has been previously charged then make sure that the crank case heater is turned on at least 24 hours prior to start up, otherwise warm up the compressor bottom shell to assure that the refrigerant will not cause damage to the compressor due to the slugging condition. Do not attempt to warm up the compressor by applying a flame to the crankcase.
- ▶ Turn on the electrical power to the condensing unit and unit cooler(s) or freezer(s). The compressor will start when the low-pressure control closes.
- ▶ Always re-assemble the enclosure panels when start-up job is completed. Make sure all panels are secure and panel screws are properly tightened

OPERATIONAL CHECKOUT PROCEDURE

- ▶ Check if the voltage deviation is within the specified range.
- ▶ Check that the ampere draw doesn't exceed the amperage specified on the nameplate.
- ▶ Check the phase unbalance if there is a three-phase connection. Unbalance should not exceed 2%.
- ▶ Check proper phase connections on three phase models only.
- ▶ Check that the discharge and suction pressures are within limits.
- ▶ Check the liquid flow in the liquid sight glass. (For fully built models only)
- ▶ Measure compressor and evaporator superheats. Make proper adjustments if necessary.
- ▶ Check (if equipped) the defrost and timer controls for proper initiation and termination settings.
- ▶ If any malfunction is observed at any time during either start-up or operational checkout procedures, stop the unit, disconnect power and correct the malfunction accordingly.
- ▶ Re-check after 48 hours of operation for loose electrical connections, abnormal vibrations that may have developed, refrigerant charge and correct any probable malfunction observed.
- ▶ Always re-assemble the enclosure panels when operational check out procedure is completed. Never leave loose or not properly tightened panels.

MAINTENANCE (ODCU)

The refrigeration systems should be scheduled for check-up, inspection and maintenance service, at least twice a year, in order to assure a trouble-free operation for many years.

CAUTION: When servicing these systems, the main power supply must be disconnected and locked off. Extreme care must be used when servicing a unit that requires the power to be "ON".

- ▶ Inspect for abnormal indications, vibration, noise.
- ▶ Inspect and measure temperature of lower housing and determine that it is warm. Make sure that the upper housing is not sweating.
- ▶ Inspect all electrical parts for loose connections. Tighten them if necessary
- ▶ Inspect insulation status of all wires.
- ▶ Inspect contactors and make sure that they are functioning correctly.
- ▶ Inspect the fan motors, make sure that the fan blades are tight and all mounting joints are tight.
- ▶ Check the crankcase heaters for proper operation. Use an ampere meter to check for current draw.



- ▶ Inspect refrigerant charge in the in the system for any leakages by measuring suction & liquid line pressures.
- ▶ Check and make sure that the condenser surface is clean and free of dirt and debris.
- ▶ Check all refrigeration piping. Make sure that all mechanical joints and flare nuts are tight.
- ▶ Always re-assemble the enclosure panels when maintenance job is completed. Never leave loose or not properly tightened panels.



ATTENTION!

Make sure all screws are re-tightened before start-up
Make sure all wires are connected as per wiring diagram

TROUBLE SHOOTING

Basic troubleshooting tips for compressor are provided in the appendix. For more more help, please contact application engineering or Tecumseh sales representative.

The unit should be inspected before unpacking for signs of damage or loss and packing list should be checked against material received to ensure shipment is complete. A report should be compiled and a claim must be filed with the freight carrier if shipping damage is discovered.

If damages to the packing are obvious but no visible damage on the unit or the parts are noted then a report should be compiled and a claim for “probable hidden damages” should be filed with the transportation carrier. The manufacturer is not responsible for damages or loss caused by the transportation carrier.

NOTE: Tecumseh reserves the right to change any information in this publication at any time. This document is not intended to replace the training required for professional service personnel, replace other information available from refrigeration and air conditioning equipment manufacturers. This trouble-shooting chart is not designed to replace the training required for a professional refrigeration service person, nor is it comprehensive. As a trained professional, for your safety and others always be aware of the following issues:

- ▶ Terminal venting and electrocution
- ▶ Properties of refrigerant and other chemicals involved
- ▶ Proper compressor removal methods
- ▶ Proper system flushing, purging and leak testing methods
- ▶ Proper system evacuation method
- ▶ Proper system charging methods
- ▶ Start capacitor overheating issues



TROUBLESHOOTING CHART

Complaint

Possible Causes

A, COMPRESSOR NOT STARTING – NOT HUMMING.

- ▶ System component not functioning properly:
 - ▶ Control/contactor stuck in open position
 - ▶ Control off due to cold location
 - ▶ Thermostat not functioning properly
- ▶ Line disconnect switch open
- ▶ Circuit breaker tripped or fuse open or removed
- ▶ Compressor motor winding open or short
- ▶ Wiring improper or loose
- ▶ Compressor motor has a ground fault (also known as short circuit to ground)

B, COMPRESSOR NOT STARTING HUMS BUT TRIPS ON THERMAL PROTECTOR

- ▶ Improperly wired
- ▶ Low voltage to compressor
- ▶ System component, such as thermostat or contractor may not function properly
- ▶ Compressor electrical problems
 - ▶ Compressor motor winding open or shorted
 - ▶ Faulty relay. Or not functioning properly.
 - ▶ Faulty start capacitor or Not working properly
- ▶ Liquid refrigerant in compressor.

C. COMPRESSOR STARTS AND RUNS, BUT SHORT CYCLES ON THERMAL PROTECTOR

- ▶ Too much current passing through thermal protector
 - ▶ Extra sources of current draw
 - ▶ Compressor motor winding shorted



- ▶ Low voltage to compressor (single phase) or unbalanced voltage (three-phase)
- ▶ Compressor electrical problems, such as thermal protector or run capacitor not working properly
Discharge pressure too high
- ▶ Suction pressure too high
- ▶ Return gas too warm


▶ D. UNIT RUNS OK BUT RUN CYCLE IS SHORTER THAN NORMAL (DUE TO HP/LP CUT OUT SWITCHES)

- ▶ System components, such as thermostat, control or contactor, not functioning properly and extra sources of current draw.
- ▶ High pressure cut-out due to
 - ▶ Insufficient air or water supply
 - ▶ Overcharge of refrigerant
 - ▶ Air in system
 - ▶ Water leak into refrigerant side of a water-utilizing system
- ▶ Low pressure cut-out due to
 - ▶ Liquid line solenoid leaking
 - ▶ Undercharge of refrigerant
 - ▶ Restriction in expansion device

REFRIGERATION ACCESSORIES. INSTRUCTIONS FOR THE FILTER DRIER SOLDER TYPE.

Instructions

DML
Filter Drier



DML: R134a, R900a, R407c, R410a, R407R, R22 et al. DCL: R12, R22, R902 et al.																																																																										
<p>Специальные указания по монтажу:</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Чистота и влажность воздуха должны быть в норме.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p>	<p>Специальные указания по монтажу:</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Чистота и влажность воздуха должны быть в норме.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p> <p>Установка в систему должна осуществляться в чистом месте.</p>	<p>Max. working pressure Max. Z.B. Betriebsdruck Pression de service maximale Presión de trabajo máx. Maximal operating pressure</p> <p>Model This working pressure (BAR/MPa) shall not be less than the pressure indicated in table 2 of ISO 14469-1 for the refrigerant used in the system. After charging the system it will be marked with the refrigerant and the code.</p>																																																																								
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Pure copper connectors.
Always wet wrap the connector.

Copper plated steel connectors.

WARNING

Potential Harmful Fumes During Soldering


Only solder in a WELL-VENTILATED area. When soldering, only apply heat to the connection with the flame pointed away from the Filter Drier. Excess heating of the paint may cause toxic fumes. Exposure to these fumes may cause skin and eye irritation, and damage internal organs. For pure copper connectors, always wet wrap the connector.

IINSTRUCTIONS FOR THE SIGHT GLASS SOLDER TYPE


<p>Refrigerants: SGP: HCFC, HFC, HC and R264 (CO2) SG: HCFC / Non-Flammable HFC</p>	<p>Media temperature: T_{min}: -50 °C / -58 °F T_{max}: 80 °C / 175 °F</p>	<p>Max. working Pressure: SGP: PS/MWP = 52 bar / 754 psig SG: PS/RWP = 35 bar / 508 psig</p>
	<p style="text-align: center;">⚠</p> <p style="text-align: center;">SGP/S/GP N, SGP R/S/GP RL, SG/S/GN, SG/R/S/GRN</p>	
<p>SGP/SG solder</p> <p>d > 22 mm = 7/8 in.</p>	<p>SGP/SG solder</p> <p>Max. 600 °C (1220 °F)</p> <p>Min. 3% Ag</p>	

INSTRUCTIONS FOR THE SOLENOID VALVE (SOLDERING TYPE)

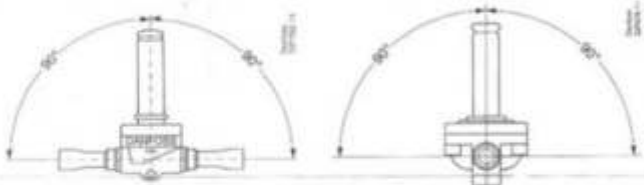
Refrigerants:
 R22/R407C, R404A/R507, R410A, R134a, R407A, R23.
 For other refrigerants, please contact Danfoss.



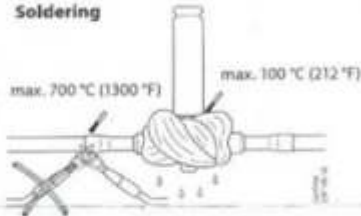
EV (NC flare) EV (NC solder) EV (NC flange) EV (NO solder)



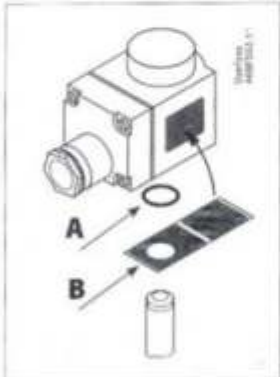
Mounting directions



Soldering



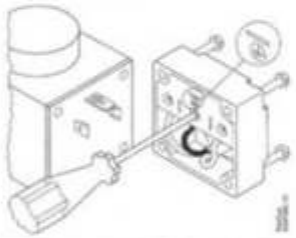
Coil and O-ring



A: Be sure that the O-ring is in place
B: Sticker applies only to UL products

Warning
 Never switch on power to the coil when the coil is dismantled from the valve. Otherwise the coil may be damaged and there is risk of injuries and burns.

Electrical connections

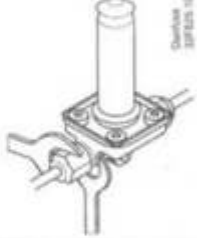


Max. coil temperature	
9 W a.c. (EVR 2)	$t_{max} = 40^{\circ}\text{C}$ (105 °F)
10/12 W a.c.	$t_{max} = 80^{\circ}\text{C}$ (175 °F)
30 W d.c.	$t_{max} = 50^{\circ}\text{C}$ (120 °F)
10 W a.c.	$t_{max} = 55^{\circ}\text{C}$ (130 °F)

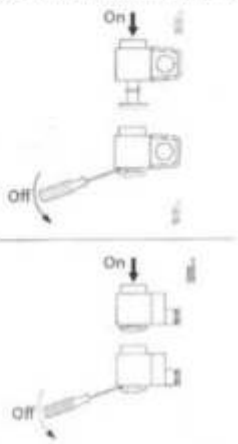
Media temperature	
Min. medium temperature	$t_{min} = -40^{\circ}\text{C}$ (-40 °F)
Max. medium temperature	$t_{max} = 105^{\circ}\text{C}$ (221 °F)

	EVR 2 - 8	EVR 10 PB	EVR 15 - 22 PB
Max. working pressure PS/MWP	45.2 bar (656 psig)	35 bar (508 psig)	32 bar (464 psig)
Max. operating diff. pressure (MOPD)	UL products - see sticker Non UL - see armature tube		

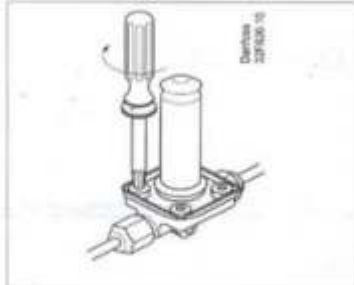
Flare mounting



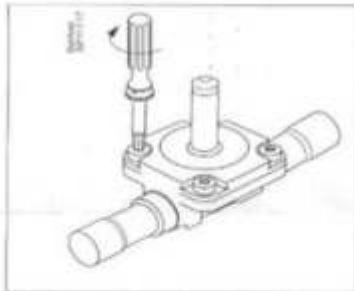
Mounting / dismantling coil



Mounting / dismounting of top part

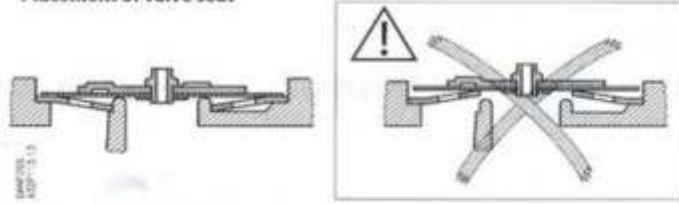


Type	(Nm)	(kgm)	(ft-lbs)	Torx size
EVR 2, EVR 3	1,4	0,15	1	T15
EVR 4, EVR 6, EVR 8	2,0	0,2	1,44	T15/T20

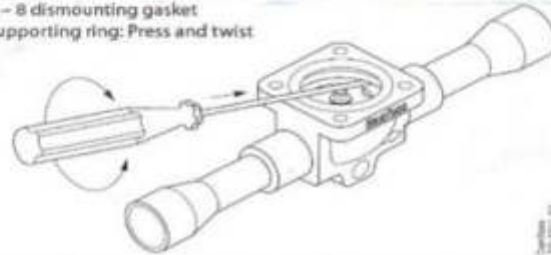


Type	(Nm)	(kgm)	(ft-lbs)	Torx size
EVR 10, EVR 15, EVR 16	2,8	0,3	2	T25
EVR 20, EVR 22	12	1,2	9	T40

Placement of valve seat



EVR 4 – 8 dismounting gasket and supporting ring: Press and twist



EVR 10 – 22 (NC)



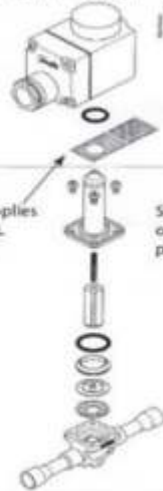
EVR 2 – 8 (NC)



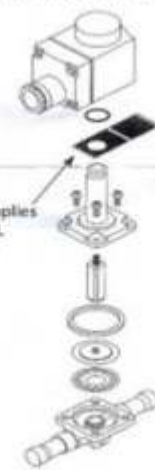
EVR 2 – 3 (NC)



EVR 4 – 8 (NC)



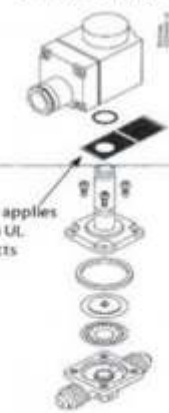
EVR 10 – 22 (NC)



EVR 4 – 8 (NO)



EVR 10 – 20 (NO)



STACKING OF THE UNIT

- !. For transportation and storage the maximum stack limit is 1+1 only
- !!. Care must be taken while transportation. If require, additional wooden board to be nailed.



CONTACT INFORMATION

Please write us back with your valuable Feedback to our sales representative The information in this booklet are Subjected to change without notice due To continous improvements.

Mail your feedback to: info@tecumsehindia.com

TECUMSEH INDIA

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