

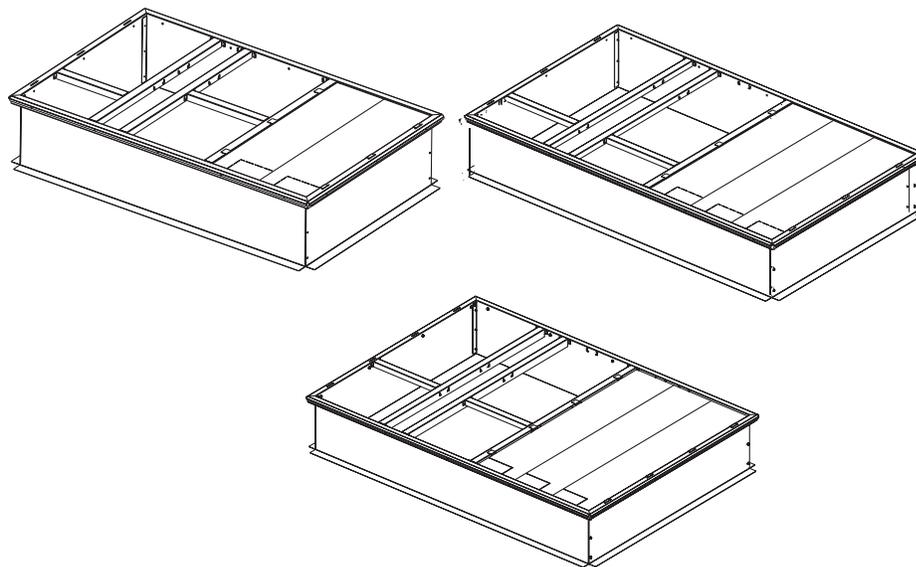


Installation Instructions

Roof Curb

Axiom™ Rooftop Water Source Heat Pump

12.5 to 25 Tons



Model Numbers: Used With:

FIACURB404* WSHP D Cabinet (Digit 39 = D) with 14-inch curb

FIACURB804* WSHP D Cabinet (Digit 39 = D) with 18-inch curb

▲ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.



Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

⚠ WARNING**R-454B Flammable A2L Refrigerant!**

Failure to use proper equipment or components as described below could result in equipment failure, and possibly fire, which could result in death, serious injury, or equipment damage.

The equipment described in this manual uses R-454B refrigerant which is flammable (A2L). Use **ONLY** R-454B rated service equipment and components. For specific handling concerns with R-454B, contact your local representative.

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General Information

Carefully review installation instructions.

- This manual describes the layout and installation procedures required to properly assemble and install the roof curb.
- See [Figure 7, p. 8](#) are provided for dimensional data regarding roof opening construction.
- Each curb package ships un-assembled, along with the required hardware and gasketing material.
- Roof insulation, cant strips, flashing (if desired) and nails must be furnished by the installing contractor.

Inspection

1. Unpack all components of the kit.
2. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company.

Parts List

Table 1. Parts list

Qty	Description
2	Side rails
2	End rails
2	Side curb flanges
1	End curb flange
4	Insulated block-off panels on FIACURB404*, FIACURB804*
1	Gasketing material
1	Bag of required fasteners
6	Insulation divider/support panels on FIACURB404*, FIACURB804*

Roof Opening

For safety and sound considerations, do not cut out the entire roof deck within the curb area.

Roof Support

⚠ WARNING

Risk of Roof Collapsing!
 Failure to ensure proper structural roof support could cause the roof to collapse, which could result in death or serious injury and property damage. Confirm with a structural engineer that the roof structure is strong enough to support the combined weight of the roofcurb, the unit, and any accessories.

⚠ WARNING

Heavy Object!
 Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage. Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

Refer to [Table 4, p. 9](#) and [Table 6, p. 11](#) for typical unit and curb weights. The roof must be capable of adequately supporting the weight of the rooftop unit and accessories, as well as that of the curb. See and for specific center-of-gravity and corner weight information.

Units may be set either perpendicular or parallel to roof support members. The combined weight of the unit, accessories, and curb should be evenly spaced between a minimum of two supports.

Confirm the position of the curb on the roof support does not interfere with the clearance required for the supply/return ductwork. See [Figure 6, p. 7](#) for ductwork location.



Installation

Read the entire manual carefully to become familiar with the roof curb installation procedures. If the roof curb will be mounted on a new building, it can be assembled at any convenient location and installed as soon as the roof support members are in place. The curb should be placed directly on the roof support members.

Use tack welding or other suitable fastening method to secure the roof curb in place. The curb can also be mounted on a roof deck. In this case, additional nailing plates must be provided directly below the flanges of the curb to give further support, and to minimize vibration.

Figure 1, p. 6 and Figure 2, p. 6.

Supply and Return Air Ductwork

Before setting the unit in place, run ductwork and attach to the curb.

All ductwork must be fabricated and installed by the installing contractor. To verify proper duct construction and installation, SMACNA recommendations should be closely followed.

Note: All field fabricated panels used must be insulated.

Roof Curb Assembly

1. Break the bands and remove the wood holding the curb assembly together.
2. Set the four perimeter pieces, (two end rails and two side rails), together to form the curb.
3. Using screws provided, attach the corners by allowing the angle of the side rail to fit inside the end rail. Insert three screws in each corner (see Figure 3, p. 6).
4. Insert screws through the end rails and into the corner angle of the side rails.
5. Mount duct flanges on the two side rails and one of the end rails. Mount with screws provided through the exterior panel and into the flange. The duct flanges should be mounted with the flange next to the rails pointing down (see Figure 4, p. 6).

Important: The end of the curb with curb flange attached **MUST** be used as the return air end.

6. Locate the cross support pieces with the curb flange down. See dimensional drawings in Figure 7, p. 8. The flanges on the cross supports must match the duct.
7. Use three screws at the end of each cross support. Screws must enter from the exterior of the curb.

Note: Measure supply and return dimensions to ensure that the correct holes in the side rails are used.

8. Lay the three or four insulated block-offs, (with the insulation side up), cross ways in the section of the curb that will support the compressor end of the unit. They will rest on the duct flanges.

Important: If the cross members have been located on the wrong end of the curb, the insulated block-off next to the end of the curb will not lie flat. Apply the provided gasket material directly to the rails and cross members as shown in Figure 5, p. 6. Gasket should be cut and put together at the corners.

Note: Do not round the corners with the gasket material.

9. Curb is now ready to be installed around the roof opening.

Roof Curb Installation

1. Set the curb in the proper position around the roof opening.
2. The curb must be leveled to ensure proper flow of condensate from the unit. The maximum pitch of the roof curb down from the access side of the unit is 1/16 inch per foot. See Figure 7, p. 8. To check the flatness of the curb, stretch lines diagonally between opposite corners of the assembled curb. The distance between the lines (at their point of intersection) should not exceed 1/4 inch. If the lines touch, reverse them (place the top line on the bottom and the bottom line on top), and recheck the point of intersection. Shim under the curb as necessary.
3. Check the curb assembly for squareness by measuring diagonally between opposite corners of the curb. The distance indicated by these measurements should be the same.
4. Fasten the curb to the roof support members, or roof deck. See Figure 1, p. 6 and Figure 2, p. 6.
5. Bring the roof material up to the curb as shown in Figure 1, p. 6 and Figure 2, p. 6. Place a piece of rigid insulation around the curb and fasten it (from the inside), with nails.
6. Install cant strips as shown in Figure 1, p. 6 of either 4 inch x 4 inch wood (cut diagonally in half), or other suitable material. With the cant strips in place, bring the roofing felts up to the top of the curb nailing strips. Push the felts up under the lip of the curb and nail them tightly into position.
Note: Any pipes or electrical conduits which extend through the roof must be flashed with a sleeve and roof flange extending a minimum of 8 inches above the roof surface.
7. The roof curb installation is now complete and ready for ductwork and unit installation.

Figure 1. Typical installation on new construction

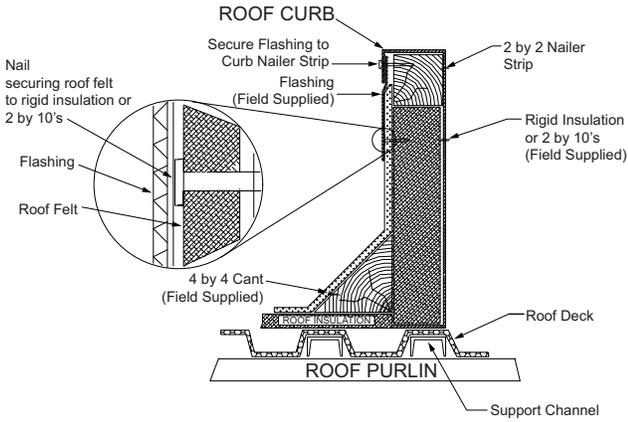


Figure 2. Typical installation on existing construction

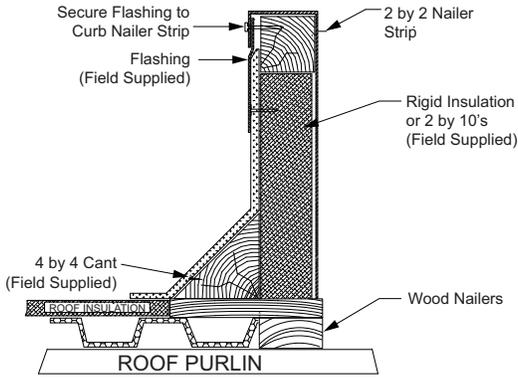


Figure 3. Curb rail assembly A

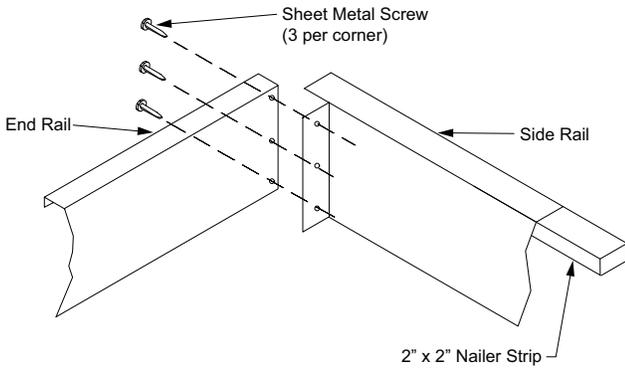


Figure 4. Curb rail assembly B

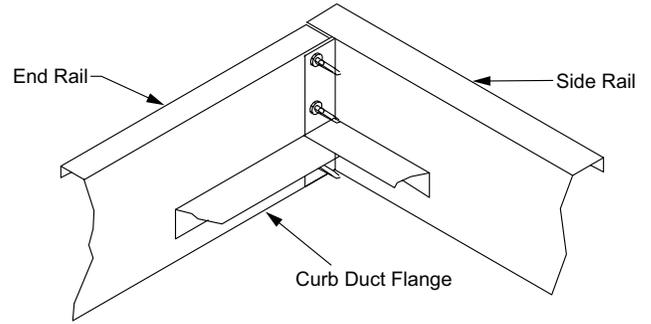
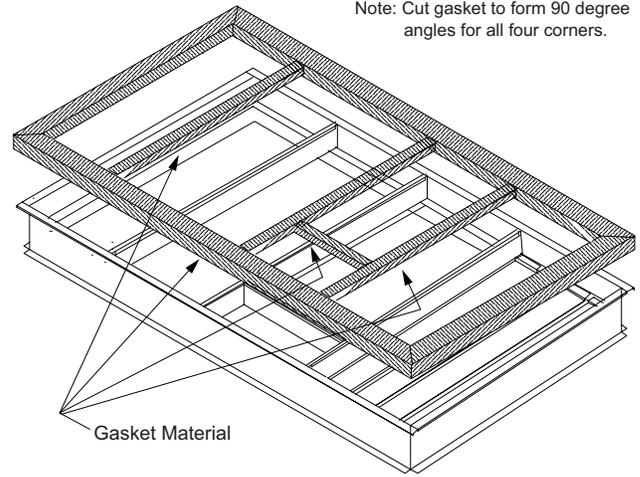


Figure 5. Installing gasket material

Note: Cut gasket to form 90 degree angles for all four corners.



Supply and Return Air Ductwork

Before setting the unit in place, run ductwork and attach to the curb. All ductwork must be fabricated and installed by the installing contractor. To verify proper duct construction and installation, SMACNA recommendations must be closely followed.

- When flexible duct is not desired, metal or fiberboard duct may be installed.
- The metal or fiberboard duct must conform to all local building codes.
- The duct must be hung from the curb flanges inside the curb walls.

Important: Duct work must be hung from the curb flanges. It must not be installed over the top edges of the curb.

- Duct must be large enough to cover the openings for the return and supply sides of the unit. Flanges must be narrow enough to slide down inside the curb.

Notes:

- All field fabricated panels used must be insulated.
- Fabricated duct flange must rest on inside of curb on flange, as shown, after installation.

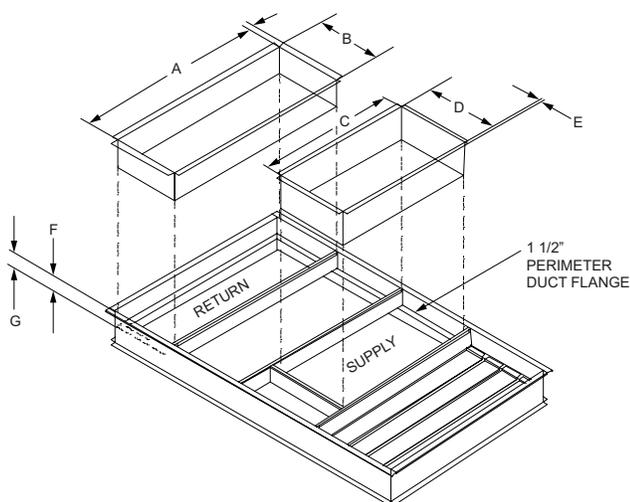
Table 2. Supply and return air ductwork dimensions

Units	A	B	C	D	E	F	G
FIACURB404*/FIACURB804*	73 7/16	19 5/16	66 1/2	26 5/16	1	14 1/16 ^(a) (b)	7 7/16

^(a) FIACURB404* dimension (F) 14 1/16

^(b) FIACURB804* dimension (F) 18 1/16

Figure 6. Duct dimensions



Clearances

Recommended clearances for single-unit installation are illustrated in [Figure 7, p. 8](#). These minimum requirements are not only an important consideration when determining unit placement, but are also essential to ensure adequate serviceability.

Any reduction of the unit clearances indicated in this illustration which appear to be inadequate should be reviewed with a local sales engineer.

Figure 7. Clearances

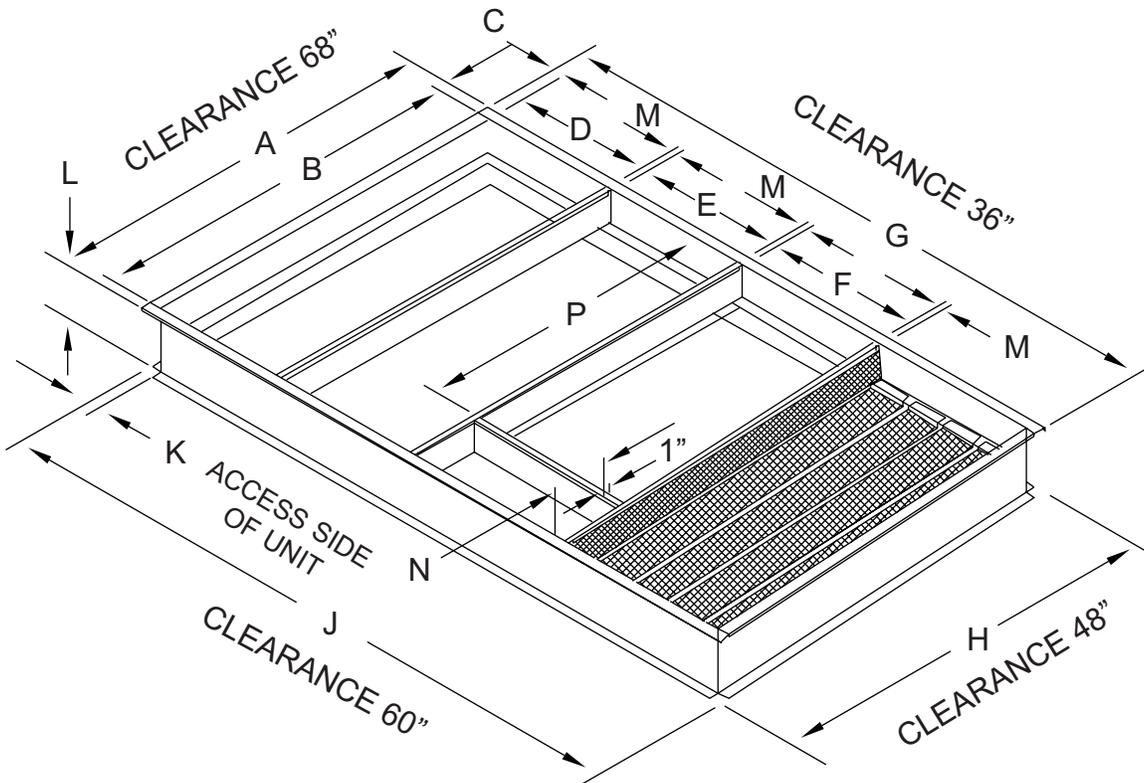


Table 3. Dimensional data (inches)

Units	A	B	C	D	E	F	G	H	J	K	L	M	N	P
FIACURB404* FIACURB804*	80 5/8	77	1 13/16	22 1/4	23 1/4	28 9/16	116 7/8	81	117 3/16	2	14 1/16 ^{(a)(b)}	1	7 1/2	69 1/2

^(a) FIACURB404* dimension (L) 14 1/16

^(b) FIACURB804* dimension (L) 18 1/16



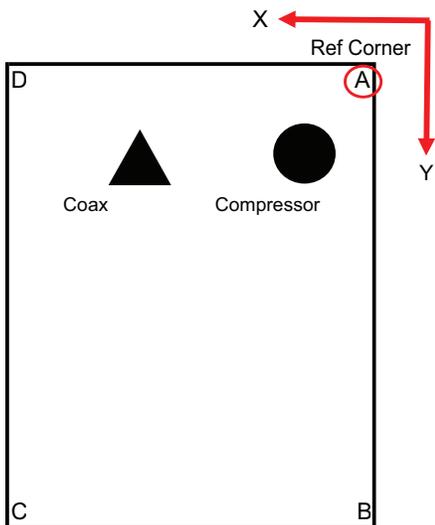
Weights and Center of Gravity

Table 4. Dimensions and weights

Model	Width (inches)	Depth (inches)	Height (inches)	Weight (lbs)	Shipping Weight (lbs)	Corner Weights				Center of Gravity		Water In / Out NPTI (inches)
						A	B	C	D	X (inches)	Y (inches)	
GSK150	123.0	87.0	59.0	1969	2219	675	370	429	495	50	70	1.50 NPTI
GSK180	123.0	87.0	59.0	1969	2219	675	370	429	495	50	70	
GSK210	123.0	87.0	59.0	1969	2219	675	370	429	495	50	70	
GSK240	123.0	87.0	66.0	2210	2460	680	550	528	537	50	71	2.00 NPTI
GSK300	123.0	87.0	66.0	2210	2460	680	550	528	537	50	71	

Note: Corner weights are for reference only. Unit must be supported full perimeter by a curb or equivalent frame support.

Figure 8. Center of gravity





Weights and Center of Gravity

Figure 9. Rigging and center of gravity — 12.5 to 25 tons

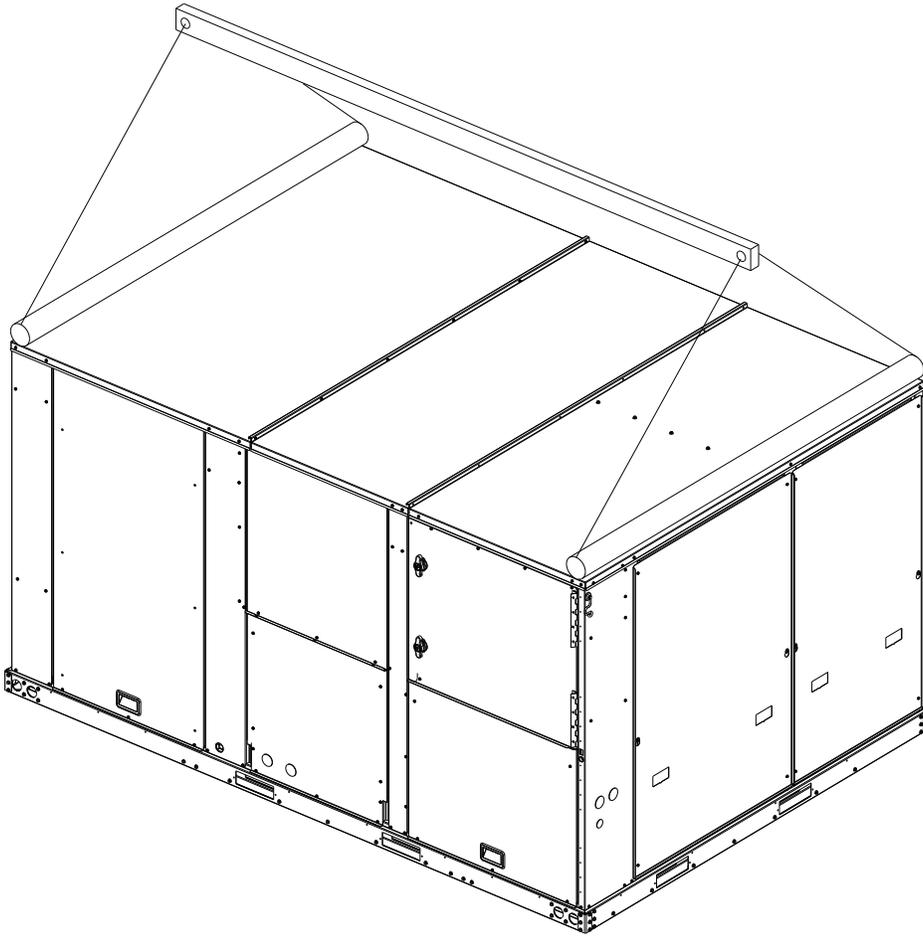


Table 5. Factory installed options (fiops)/accessory net weights (lbs)

Accessory	GSK150-300
Barometric Relief	40
Economizer	91
Electric Heaters	75
Hinged Doors	20
Low Leak Economizer - Downflow	150
Low Leak Economizer - Horizontal	180
Manual Outside Air Damper	15
Motorized Outside Air Damper	82
Oversized Motor ^(a)	30
Powered Convenience Outlet	50
Powered Exhaust	110
Reheat Coil	100
Roof Curb	235
Smoke Detector, Supply ^(a)	5
Smoke Detector, Return	5

Table 5. Factory installed options (fiops)/accessory net weights (lbs) (continued)

Accessory	GSK150-300
Through-the-Base Electrical	10
Unit Mounted Circuit Breaker	10
Unit Mounted Disconnect	10

Notes:

- *Weights for options not listed are less than 5 pounds.*
- *Net weight should be added to unit weight when ordering factory-installed accessories.*
- *Weights are approximate.*

^(a) Not available on all models.

Table 6. Curbs weight (net lbs)

Curb	Weight
FIACURB404*	235
FIACURB804*	265

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