

FRONT RETURN AIR HANDLER

Features

- Front or Bottom Return with aluminum tube and fin coil
- Flow Check Piston for cooling or heat pump operation
- Wall-hanging brackets
- Built in Filter Rack
- AHRI Certified
- UL Certified
- Molex Plug Connections for field installed heater kits
- Dual Voltage Direct Drive Blower with multi-speed motor
- Thermoplastic Drain Pan with bottom primary and secondary connections
- Optional Decorative Grill for front return applications
- Optional Factory Installed Condensate Float Switch which shuts off the outdoor unit in event the condensate pan becomes clogged
- Cabinet air leakage less than 2% at 1 inch H₂O when tested in accordance with ASHRAE standard 193



FR***TTS SERIES

X-13 (ECM) Motor

Efficiencies up to 16 SEER

Manufactured for

Fujitsu General America, Inc.

Fairfield, NJ



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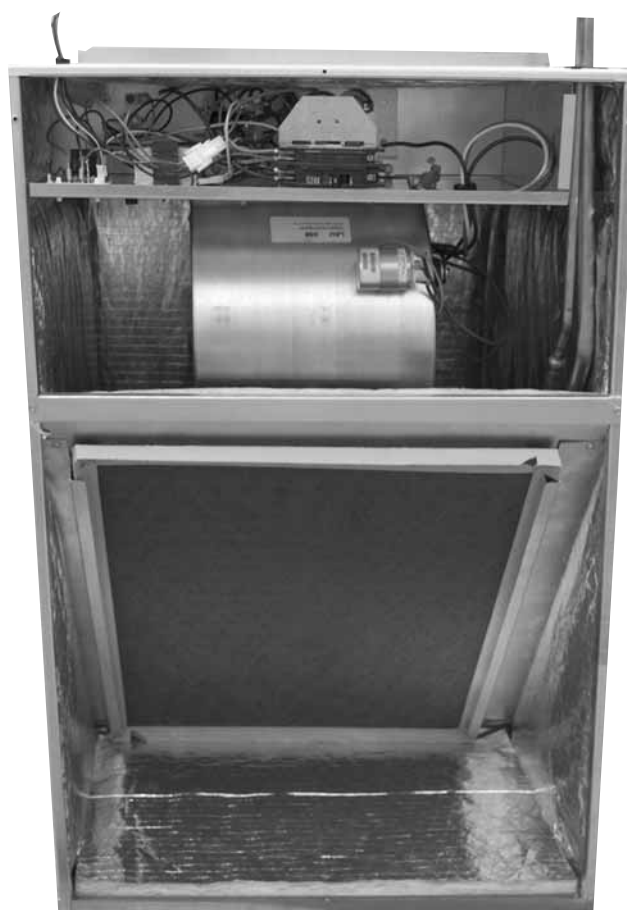
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Engineering Features

FF***TTS- Series

- The most compact unit design available, all standard heat air handler models only 36" [915 mm].
- Rugged wall steel cabinet construction, designed for added strength and versatility.
- 1.0" foil faced insulation for excellent thermal and sound performance.
- Four leg blower motor mount.
- Traditional open wire element design for heat applications.
- Indoor coil design provides low air side pressure drop, high performance and extremely compact size.
- Coils are constructed of aluminum fins and internally grooved aluminum tubing.
- Molded polymer corrosion resistant condensate drain pan is provided for all indoor coils.
- Connection point for high voltage wiring is inside the air handler cabinet. Low voltage connection is made on the outside of the air handler cabinet.
- Concentric knockouts are provided for power connection to cabinet. Installer may pull desired hole size up to 1³/₈ inch inches [35 mm] for 7/8 inch [22 mm] conduit.

[] Designates Metric Conversions



FR*TTS Series**

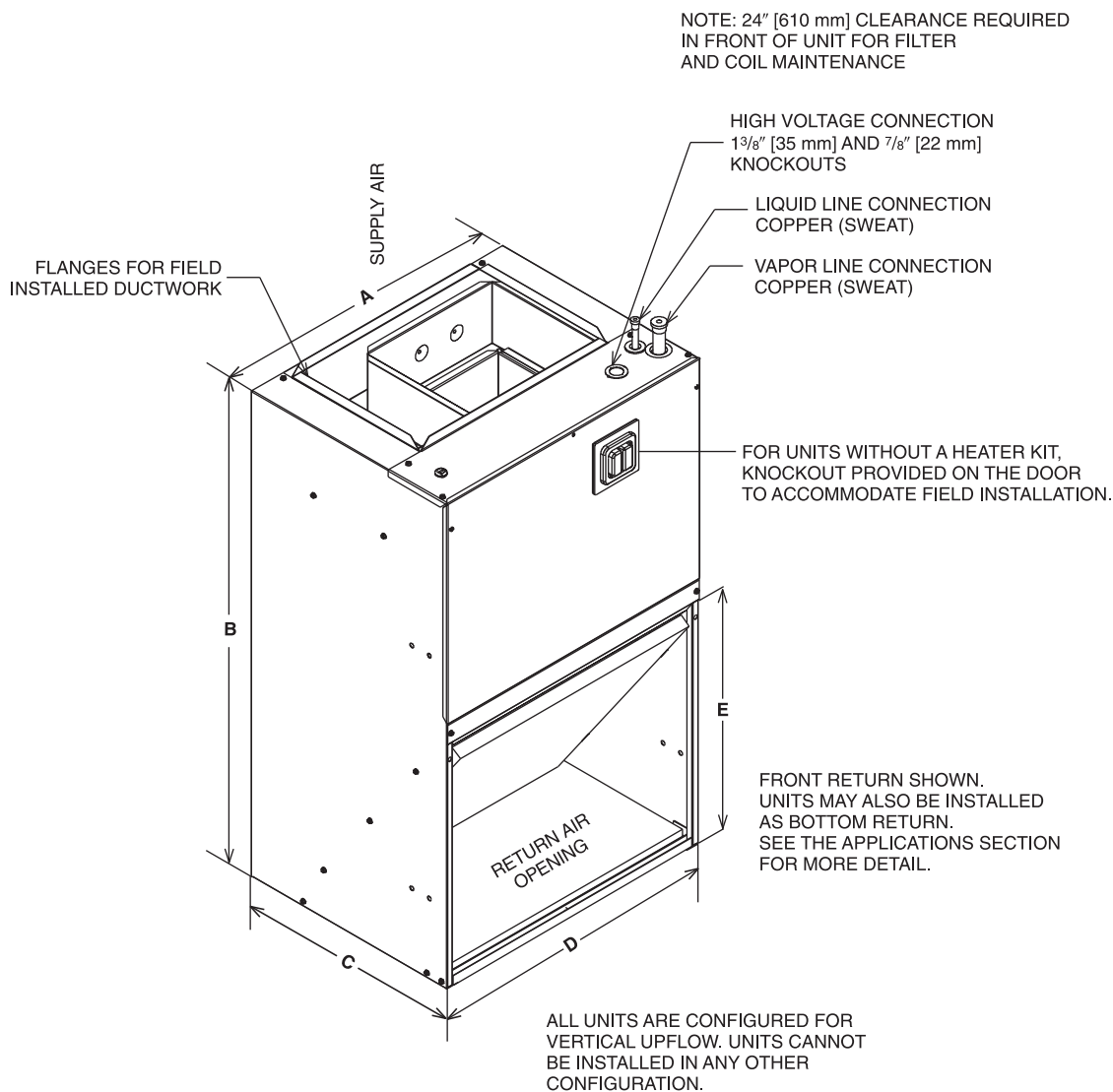
<u>FR</u>	<u>24</u>	<u>21</u>	<u>T</u>	<u>T</u>	<u>S</u>	<u>J</u>	<u>M</u>	<u>08</u>	<u>N</u>	<u>B</u>	<u>F</u>
Brand	Capacity	Width	Metering Device	Motor	Speed	Voltage	Efficiency	Factory Heat	Communication	Disconnect	Option
Fujitsu	24 = 24,000 [7.03 kW]	21 = 20.5"	T = TEV	T = Constant Torque	S = Single	J = 208/240/1/60	M = Medium	00 = No Heat 03 = 3 kW 05 = 5 kW	N = Non-Communicating	N = None B = Breaker	F = Float Switch N = None

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Available SKUs

Available Models
FR2421TTSJM00NNF
FR2421TTSJM00NNN
FR2421TTSJM03NBF
FR2421TTSJM03NBN
FR2421TTSJM05NBF
FR2421TTSJM05NBN
FR2421TTSJM08NBF
FR2421TTSJM08NBN
FR2421TTSJM10NBF
FR2421TTSJM10NBN
FR3624TTSJM00NNF
FR3624TTSJM00NNN
FR3624TTSJM03NBF
FR3624TTSJM03NBN
FR3624TTSJM05NBF
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FR3624TTSJM10NBF
FR3624TTSJM10NBN

Unit Dimensions

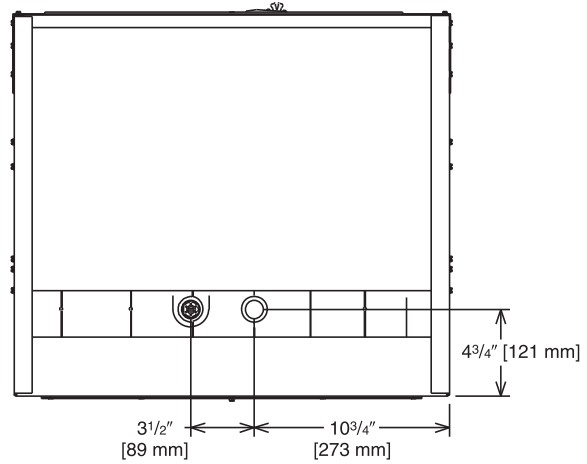
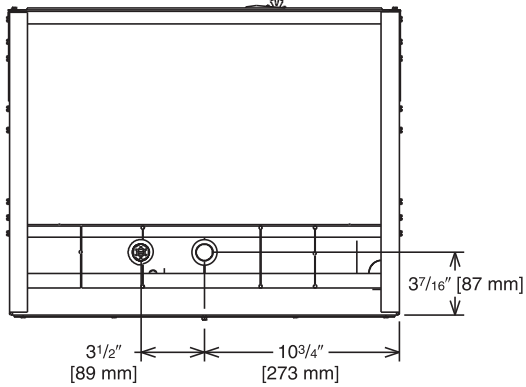
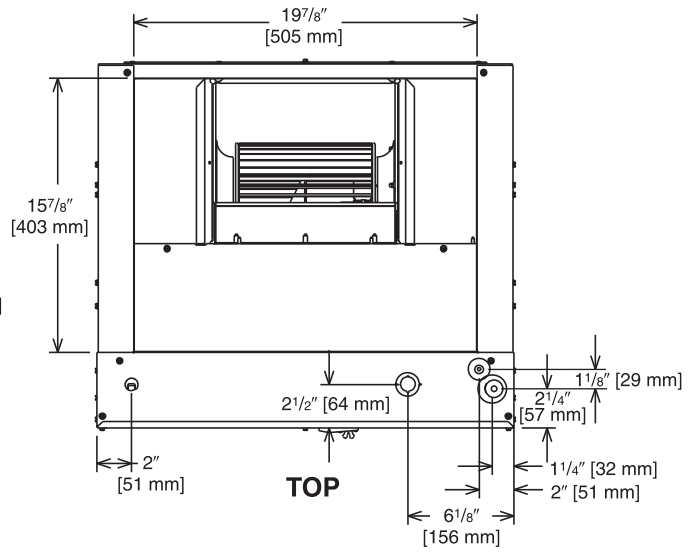
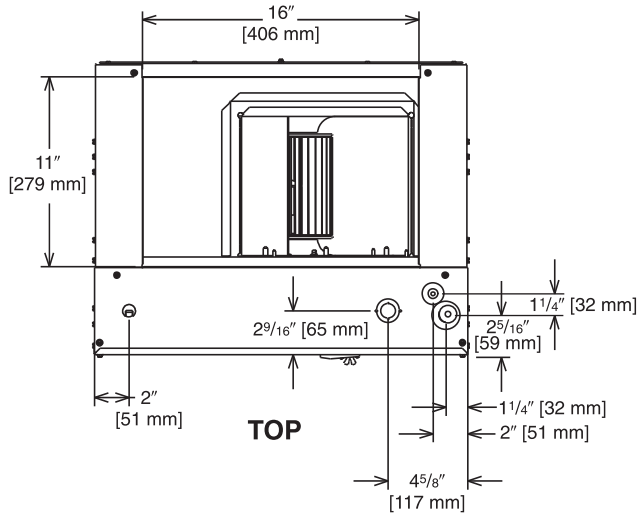


Unit Dimensions & Weights

Dimensional Data									
Model	(A) Unit Width In. [mm]	(B) Unit Height In. [mm]	(C) Unit Depth In. [mm]	(D) Return Air Opening Width In. [mm]	(E) Return Air Opening Height In. [mm]	Filter Size in. x in. x in. [mm x mm x mm]	Air Flow CFM (Nom.) [L/s]		Unit Weight/ Shipping Weight (Lbs.) [kg]
							Low	High	
FR24	21 ¹ / ₂ [546.1]	36 [914.4]	17 [431.8]	20 [508]	17 ⁷ / ₁₆ [442.9]	20 X 20 X 1 [508 X 508 X 25.4]	600 [283]	800 [378]	95 [43] x 105 [48]
FR36	24 [609.6]	36 [914.4]	21 [533.4]	23 [584.2]	21 ³ / ₈ [542.9]	20 X 25 X 1 [508 X 635 X 25.4]	1000 [472]	1200 [566]	95 [43] x 105 [48]

[] Designates Metric Conversions

Unit Dimensions (con't.)



1 1/2 & 2 TON [5.28 & 7.03 kW] MODELS

2 1/2 & 3 TON [8.79 & 10.6 kW] MODELS

[] Designates Metric Conversions

Airflow Performance

Airflow performance data is based on cooling performance with a coil and filter in place. Select performance table for appropriate unit size, voltage and number of electric heaters to be used. Make sure external static applied to unit allows operation within the minimum and maximum limits shown in table

below for both cooling and electric heat operation. For optimum blower performance, operate the unit in the .3 [8 mm] to .7 inches [18 mm] W.C. external static range. Units with coils should be applied with a minimum of .1 inch [3 mm] W.C. external static range.

Airflow Operating Limits

Cooling BTUH x 1,000 Cooling Tons Nominal	-18 1.5	-24 2	-30 2.5	-36 3
Heat Pump or Air Conditioning Maximum Heat/Cool CFM [L/s] (37.5 CFM [18 L/s]/1,000 BTUH) (450 CFM [212 L/s]/Ton Nominal)	675 [319]	900 [425]	1125 [531]	1350 [637]
Heat Pump or Air Conditioning Nominal Heat/Cool CFM [L/s] (33.3 CFM [16 L/s]/1,000 BTUH) (400 CFM [189 L/s]/Ton Nominal)	600 [283]	800 [378]	1000 [472]	1200 [566]
Heat Pump or Air Conditioning Minimum Heat/Cool CFM [L/s] (30.0 CFM [14 L/s]/1,255 BTUH) (360 CFM [170 L/s]/Ton Nominal)	540 [255]	720 [340]	900 [425]	1080 [510]
Maximum kW Electric Heating & Minimum Electric Heat CFM [L/s]	8 450 [212]	10 690 [326]	10 808 [381]	10 976 [461]
Maximum Electric Heat Rise °F [°C]	54 [12]	44 [7]	44 [7]	44 [7]

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208V/240V Airflow Performance Data—FR Air Handlers (X-13 (ECM) Motor)

Nominal Cooling Capacity Tons [kW]	Manufacturer Recommended Air-Flow Range (Min/Max) CFM	Blower Size/ Motor HP [W] & # of Speeds	Motor Speed from Factory	Motor Speed	X-13							
					CFM Dry Delivery/filter/heaters/RPM/Watts							
					External Static Pressure-Inches W.C.							
					0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	
1.5	852/510	10X6 1/3 Hp 2 speed dual voltage	5	3	CFM	852	823	792	770	738	713	690
					RPM	847	881	915	949	989	1026	1057
					Watts	162	151	144	168	182	196	178
			5	2	CFM	669	628	593	552	510	—	—
					RPM	669	713	760	806	852	—	—
					Watts	80	87	82	94	86	—	—
2	973/733	10X6 1/3 Hp 2 speed dual voltage	5	5	CFM	973	945	922	896	872	852	833
					RPM	956	991	1020	1054	1083	1117	1145
					Watts	222	221	247	256	253	261	260
			5	4	CFM	841	807	780	753	733	—	—
					RPM	849	890	925	957	992	—	—
					Watts	160	168	179	187	187	—	—
2.5	1145/894	10X8 1/2 Hp 2 speed dual voltage	5	3	CFM	1145	1122	1084	1064	1055	1025	1002
					RPM	767	780	797	820	855	900	954
					Watts	240	237	239	245	274	276	306
			5	2	CFM	1037	1005	956	924	894	—	—
					RPM	798	845	901	945	980	—	—
					Watts	199	213	196	226	237	—	—
3	1306/1040	10X8 1/2 Hp 2 speed dual voltage	5	5	CFM	1306	1268	1223	1195	1162	1128	1093
					RPM	887	933	986	1019	1056	1096	1133
					Watts	307	313	313	339	373	356	370
			5	4	CFM	1201	1163	1129	1094	1065	1040	—
					RPM	866	914	964	999	1032	—	—
					Watts	278	286	301	324	348	—	—

Notes: X-13 motor speed changes.

All X-13 motors have 5 speed taps. Speed tap 1 is for continuous fan. Speed tap 2 (low static) and speed tap 3 (high static) are for lower tonnage. Speed tap 4 (low static) and speed tap 5 (high static) are for higher tonnage.

X-13 air handlers are always shipped from factory at speed tap 5. To change to 1.5-ton or 2.5-ton airflow, move the blue wire to speed tap 2 or 3 on the X-13 motor. The low static speed tap 2 (lower tonnage) and 4 (higher tonnage) are used for external static below 0.5" WC. The high static speed tap 3 (lower tonnage) and 5 (higher tonnage) are used for external static exceeding 0.5" WC. Move the blue wire to the appropriate speed tap as required by the application needs.

- The airflow for continuous fan (speed tap 1) is 50% of the speed tap 4 airflow.
- The above airflow table lists the airflow information for air handlers with maximum heater allowed for each model.

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FR Air Handler Electrical Data – Blower Motor Only – No Electric Heat

Model/Nominal Cooling Tons	Voltage	Phase	Hertz	HP [W]	RPM	Speeds	Circuit Amps.	Minimum Circuit Ampacity	Maximum Circuit Protector
FR2421	208/230	1	60	1/3 [249]	300-1100	4	1.6	3	15
FR3624	208/230	1	60	1/2 [373]	300-1100	4	2.7	4	15

*Blower motors are all single phase motors.

FR Air Handler Electrical Data – with Electric Heat

Installation of the U.L. Listed original equipment manufacturer provided heater kits listed in the table below is recommended for all auxiliary heating requirements.

Cooling Capacity Tons	Model No.	Heater kW (208/240V)	PH/Hz	No. Elements - kW Per	Type Supply Circuit	Circuit Amps.	Motor Ampacity	Minimum Circuit Ampacity	Maximum Circuit Protection
FR 24	RXHJ-21B/T03J	2.25/3.0	1/60	1-3.0	Single	10.8/12.5	1.5	16/18	20/20
	RXHJ-21B/T05J	3.6/4.8	1/60	1-4.8	Single	17.3/20.0	1.5	24/27	25/30
	RXHJ-21B/T08J	5.4/7.2	1/60	2-3.6	Single	26.0/30.0	1.5	35/40	35/40
	RXHJ-21B/T10J	7.2/9.6	1/60	2-4.8	Single	34.6/40.0	1.5	46/52	50/60
FR 36	RXHJ-24B/T03J	2.25/3.0	1/60	1-3.0	Single	10.8/12.5	2.5	17/19	20/20
	RXHJ-24B/T05J	3.6/4.8	1/60	1-4.8	Single	17.3/20.0	2.5	25/29	25/30
	RXHJ-24B/T08J	5.4/7.2	1/60	2-3.6	Single	26.0/30.0	2.5	36/41	40/45
	RXHJ-24B/T10J	7.2/9.6	1/60	2-4.8	Single	34.6/40.0	2.5	47/54	50/60

- Electric heater BTUH - (heater watts + motor watts) x 3.414 (see airflow table for motor watts.)
- Supply circuit protective devices may be fused or "HACR" type circuit breakers.
- If non-standard fuse size is specified, use next size larger standard fuse size.
- Largest motor load is included in single circuit or circuit 1 of multiple circuits.
- No electrical heating elements are permitted to be used with A Voltage (115V) air handler.

- J voltage (230V) single phase air handler is designed to be used with single or three phase 230 volt electric heaters. In the case of connecting 3 phase power to air handler terminal block without the heater, bring only two leads to terminal block, cap, insulate and fully secure the third lead.
- Do not use 480 volts electrical heaters on 230 volts air handler.

Electrical Wiring:

Power Wiring

- Field wiring must comply with the National Electrical Code (C.E.C. in Canada) and any applicable local ordinance.
- Supply wiring must be 75°C minimum copper conductors only.
- See electrical data for product Ampacity rating and Circuit Protector requirement.

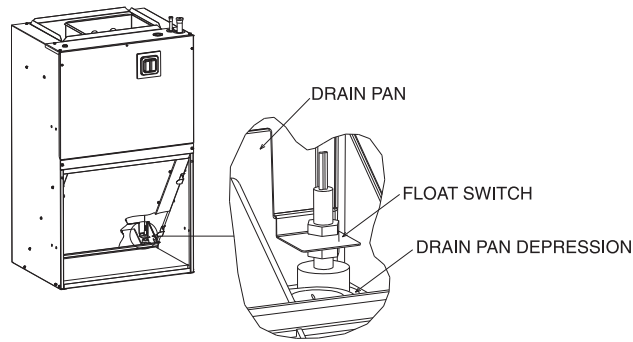
Grounding

- This product must be sufficiently grounded in accordance with National Electrical Code (C.E.C. in Canada) and any applicable local ordinance.
- A grounding lug is provided.

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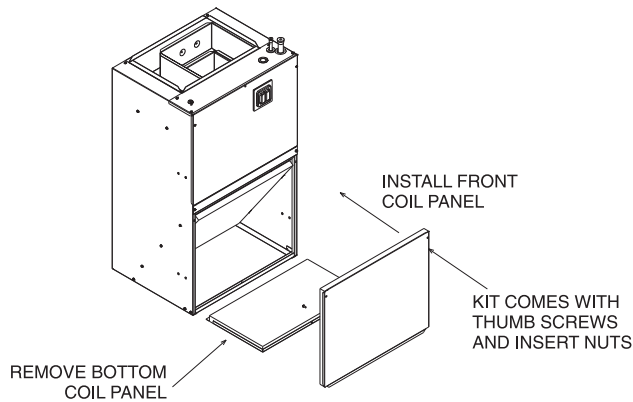
16.0 Accessories-Kits-Parts

- **Drain Pan Over Flow Switch RXHK-A01** is used to detect condensate drain blockage and will shut down the outdoor unit in order to prevent structural damage to the surrounding structures of the air handler.



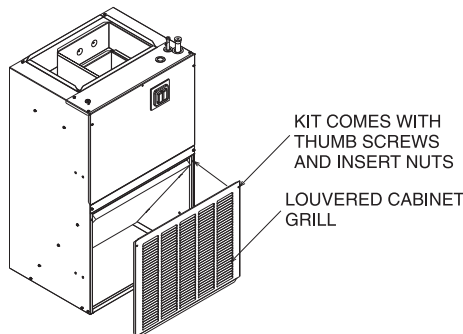
- **Bottom Return Conversion Kit RXHK-** is used to divert the return air from the factory standard front return to a bottom return.

Accessory Number	Indoor Unit
RXHK-B01	FR24
RXHK-B02	FR36

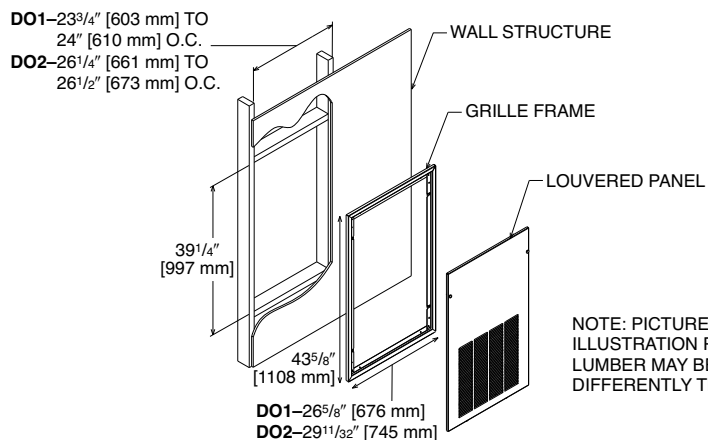


- **Louvered Cabinet Grill RXHK-** is used as decorative grill which covers the return air opening of the front return air handler.

Accessory Number	Indoor Unit
RXHK-C01	FR24
RXHK-C02	FR36



- **Decorative Wall Grill RXHK-D01** or **RXHK-D02** is used in applications where the air handler is installed in a closet or interior wall and allows adequate return air back to the unit. Please refer to RXHD-D01/RXHK-D02 installation instructions for complete dimensional information when selecting a decorative wall grill.



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GENERAL TERMS OF LIMITED WARRANTY*

Fujitsu General America, Inc. will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

Conditional Parts
(Registration Required)Ten (10) Years

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

"In keeping with its policy of continuous progress and product improvement, the right is reserved to make changes without notice."