



## Endeavor™ Line Air Handlers



### RF2TZ

Constant Torque Motor (ECM)

Two-Stage Airflow

Thermal Expansion Valve (TXV)

Efficiencies: 13.4 to 14.3 SEER2



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## Features and Benefits

- **Quiet Operation<sup>1</sup>:** Provided by a cabinet construction with 1.0 inch of foil faced insulation for quieter sound characteristics
- **Front or Bottom Return with Aluminum Indoor Coil Design:** Constructed of aluminum fins bonded to internally grooved aluminum tubing and are more corrosion resistant
- **Rugged Steel Cabinet Construction:** Designed for added strength and versatility
- **Most Compact Unit Design Available:** All Standard air handler models are only 36" [915 mm] in height

[ ] Designates Metric Conversions

<sup>1</sup>Based on manufacturer's furnace offering, and the product's heating stages, motor type and cabinet insulation. Sound levels are also dependent on furnace location and installation.

# Air Handlers

<u>R</u>	<u>F</u>	<u>2</u>	<u>T</u>	<u>Z</u>	<u>24</u>	<u>21</u>	<u>S</u>	<u>T</u>	<u>A</u>	<u>N</u>	<u>S</u>	<u>J</u>	<u>B</u>	<u>0</u>	<u>417</u>
Brand	Product Category	Stages Of Airflow	Motor Type	Refrigerant	Capacity	Width	Efficiency	Metering	Major Series	Controls	Coil Series	Voltage	Disconnect	Factory Heat	Option Code
R - Ruud	F - Front Return	2 - 2-Stage	T - Constant Torque	Z - R-410A	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW]	21 - 21" 24 - 24.5"	S - Standard	T - TXV	A - 1st Design	N - Non-Communicating	S - Slab	J - 208-240/1/60	B - Breaker N - None	0 - No Heat 3 - 3 kW 5 - 5 kW 8 - 8 kW 10 - 10 kW	417 - Float Switch

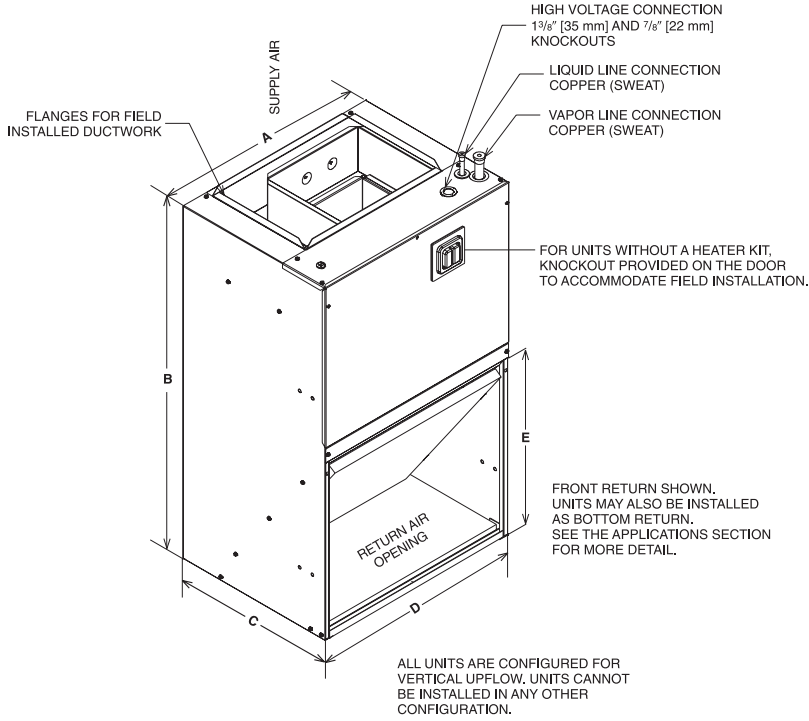
Available Models	Description
RF2TZ2421STANSJB03	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB03417	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB05	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB05417	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB08	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB08417	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB10	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJB10417	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJN00	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ2421STANSJN00417	Endeavor™ Line 2 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB03	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB03417	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB05	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB05417	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB08	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB08417	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB10	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJB10417	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJN00	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler
RF2TZ3624STANSJN00417	Endeavor™ Line 3 ton Two-Stage Front Return 208-240V Air Handler

Standard Equipment
Exclusive Incoloy sheath type electric heating elements
Field convertible air supply
Durable framed cleanable air filter
Indoor coil design provides low air side pressure drop, high performance and compact size
PVC condensate elbow is standard on all coils
All indoor coils have aluminum tubing and aluminum fins
Molded polymer corrosion resistant condensate drain pan
Supply and return duct flanges
High and low voltage connection points inside cabinet
Concentric knockouts provided for power connection with hole size up to 2 inches [51 mm] for 1 1/2 inch [38mm] conduit
Internal checked TX valves for quiet refrigerant metering
Front refrigerant and drain connection
Fresh air knockouts

[ ] Designates Metric Conversions

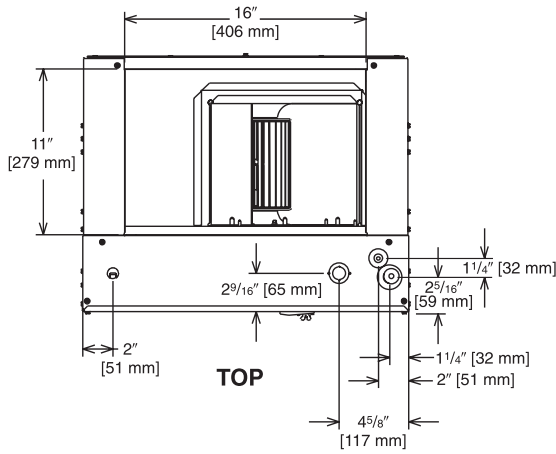
# Unit Dimensions

NOTE: 24" [610 mm] CLEARANCE REQUIRED IN FRONT OF UNIT FOR FILTER AND COIL MAINTENANCE

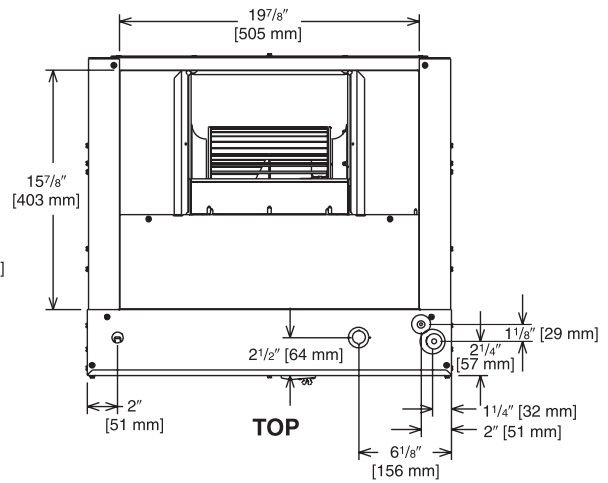


## Return Air Opening Dimensions

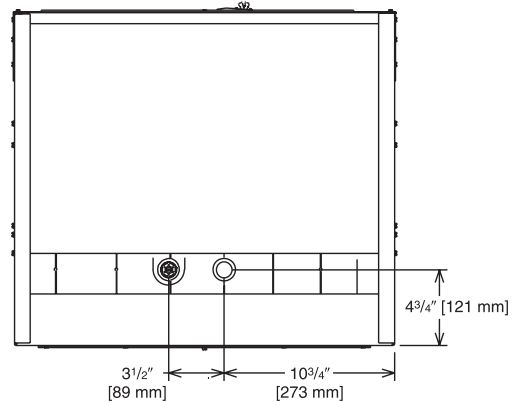
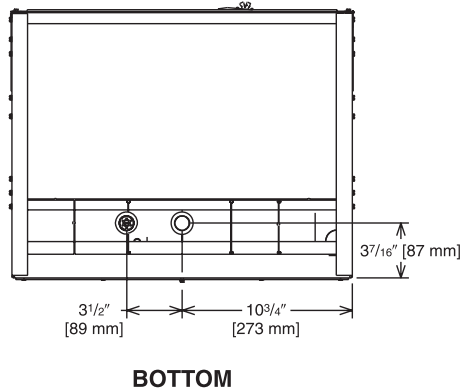
Model Cabinet Size	Return Air Opening Width (Inches)	Return Air Opening Depth/Length (Inches)
17	15 <sup>7</sup> / <sub>8</sub>	19 <sup>3</sup> / <sub>4</sub>
21	19 <sup>3</sup> / <sub>8</sub>	19 <sup>3</sup> / <sub>4</sub>
24	22 <sup>7</sup> / <sub>8</sub>	19 <sup>3</sup> / <sub>4</sub>



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



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



## Unit Dimensions & Weights

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	
RF2TZ2421	21 <sup>1</sup> / <sub>2</sub> [546.1]	36 [914.4]	17 [431.8]	20 [508.0]	17 <sup>7</sup> / <sub>16</sub> [442.9]	20 X 20 X 1 [508 X 508 X 25.4]	600 [283]	800 [378]	95 [43] x 105 [48]
RF2TZ3624	24 [609.6]	36 [914.4]	21 [533.4]	23 [584.2]	21 <sup>3</sup> / <sub>8</sub> [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

## Airflow Performance

**Airflow performance data is based on cooling performance with a coil and no 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

Model Cabinet Size	21	24
Cooling BTUH x 1,000	-24	-36
Cooling Tons Nominal	2	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)	900 [425]	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)	800 [378]	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)	720 [340]	1080 [510]
Maximum kW Electric Heating & Minimum Electric Heat CFM [L/s]	10 690 [326]	10 :976 [461]
Maximum Electric Heat Rise °F [°C]	44 [7]	44 [7]

[ ] Designates Metric Conversions

## 115V/208V/240V Airflow Performance Data—RF2TZ (Constant Torque (ECM) Motor)

Model/ Nominal Cooling Capacity	Air-Flow Range (Max/Min) CFM	Manufacturer Recommended Blower Size/ Motor HP # of Speeds	Motor Speed From Factory	Motor Speed	CFM Dry Delivery/filter/heaters/RPM/Watts							
					External Static Pressure-Inches W.C.							
						0.1	0.2	0.3	0.4	0.5	0.6	0.7
(-)F2TZ24 1.5 Tons	825/510	10x6 1/3 Hp 2 speed dual voltage	5	2	CFM	537	495	451	404	343	286	252
					RPM	608	656	702	752	826	879	935
					Watts	51.2	54.5	57.6	60.9	65.9	69.5	73.2
			5	3	CFM	735	702	666	634	600	565	528
					RPM	757	794	836	872	905	942	981
					Watts	99.1	103.2	107.7	112	115.6	119.6	124.1
(-)F2TZ24 2 Tons	973/733	10x6 1/3 Hp 2 speed dual voltage	5	4	CFM	654	616	581	542	503	463	399
					RPM	694	736	777	818	858	899	971
					Watts	76.4	80.1	83.7	87.6	91.3	95.1	101.6
			5	5	CFM	887	858	830	802	771	743	717
					RPM	876	914	945	976	1014	1044	1070
					Watts	156	161.8	166.8	171.5	177.5	182.3	186.2
(-)F2TZ36 2.5 Tons	1145/894	10x8 1/2 Hp 2 speed dual voltage	5	2	CFM	772	698	635	569	497	438	366
					RPM	595	639	698	771	821	866	933
					Watts	82.9	84.9	91.6	100	105.8	110.7	118.3
			5	3	CFM	1106	1053	1004	962	918	864	814
					RPM	776	816	838	862	901	955	1007
					Watts	183.3	191.4	195.7	200.5	208.4	219.3	230.2
(-)F2TZ36 3 Tons	1306/1040	10x8 1/2 Hp 2 speed dual voltage	5	4	CFM	808	750	698	633	568	504	448
					RPM	615	665	713	780	842	884	929
					Watts	91.4	97.7	103.9	112.4	120.2	125.5	131.2
			5	5	CFM	1241	1201	1148	1109	1065	1028	983
					RPM	847	880	905	916	955	991	1035
					Watts	246.3	254.9	260.9	263.8	273.1	282.5	293.3

**NOTE:** All (-)F2TZ air-handlers have 5 speed constant torque motors.

Speed tap 1 is for continuous fan. Speed tap 2 (low static) and speed tap 3 (high static) are for lower tonnage (1.5 or 2.5 tons). Speed tap 4 (low static) and speed tap 5 (high static) are for higher tonnage (2.0 or 3.0 tons).

(-)F2TZ air handlers are always shipped from factory at speed tap 5.

The low static speed tap 2 (lower tonnage) and 4 (higher tonnage) are for external static pressures 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 on the motor terminal block as required by the application needs.

The airflow for continuous fan (speed tap 1) is always set at 50% of the speed tap 4.

- The above airflow table lists the airflow information for air handlers with maximum heater allowed for each model.



## 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
RF2TZ2421	208/230	1	60	1/3 [249]	300-1100	4	1.9	3	15
RF2TZ3624	208/230	1	60	1/2 [373]	300-1100	4	2.7	4	15

\*Blower motors are all single phase motors.

## 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	PH/Hz	No. Elements - kW Per	(208/240V) Type Supply Circuit	Circuit Amps.	Motor Ampacity	Minimum Circuit Ampacity	Maximum Circuit Protection
RF2TZ24	RXHJ-21B/T03J	2.25/3.0	1/60	1-3.0	Single	10.8/12.5	1.9	16/18	20/20
	RXHJ-21B/T05J	3.6/4.8	1/60	1-4.8	Single	17.3/20.0	1.9	0.9	25/30
	RXHJ-21B/T08J	5.4/7.2	1/60	2-3.6	Single	26.0/30.0	1.9	35/40	35/40
	RXHJ-21B/T10J	7.2/9.6	1/60	2-4.8	Single	34.6/40.0	1.9	0.9	50/60
RF2TZ36	RXHJ-24B/T03J	2.25/3.0	1/60	1-3.0	Single	10.8/12.5	2.7	17/19	20/20
	RXHJ-24B/T05J	3.6/4.8	1/60	1-4.8	Single	17.3/20.0	2.7	25/29	25/30
	RXHJ-24B/T08J	5.4/7.2	1/60	2-3.6	Single	26.0/30.0	2.7	36/41	40/45
	RXHJ-24B/T10J	7.2/9.6	1/60	2-4.8	Single	34.6/40.0	2.7	47/54	50/60

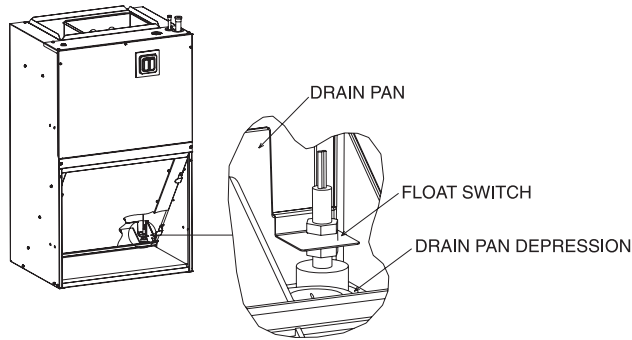
- Electric heater BTUH - (heater watts + motor watts) x 3.414 (see airflow table for motor watts.)
- J voltage (230V) single phase air handler is designed to be used with single or three phase.
- Supply circuit protective devices may be fused or "HACR" type circuit breakers.
- If non-standard fuse size is specified, use next size larger standard fuse size. Without the heater, bring only two leads to terminal block, cap, insulate and fully secure the third lead.
- Largest motor load is included in single circuit or circuit 1 of multiple circuits.
- Do not use 480 volts electrical heaters on 230 volts air handler.

### Electrical Wiring: Power Wiring Grounding

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

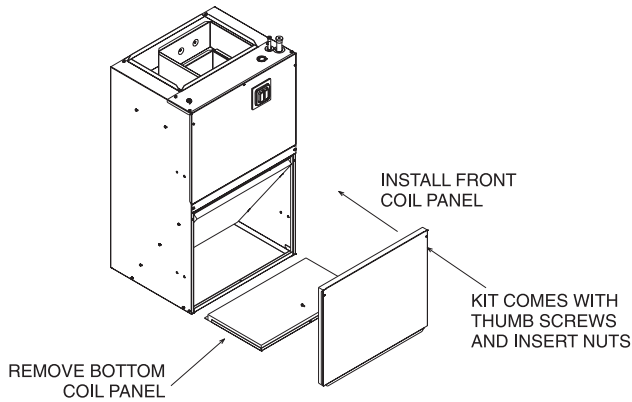
## 16.0 Accessories-Kits-Parts

- **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.



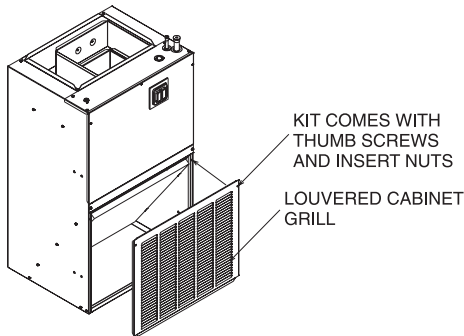
- **Bottom Return Conversion Kit RXHK-** is used to divert the return air from the factory standard front return to a bottom return.

Accessory Number	Indoor Unit
RXHK-B01	RF1P-FR18
	RF1P-FR24
	RF1T-FR24
RXHK-B02	RF1P-FR30
	RF1P-FR36
	RF1T-FR36

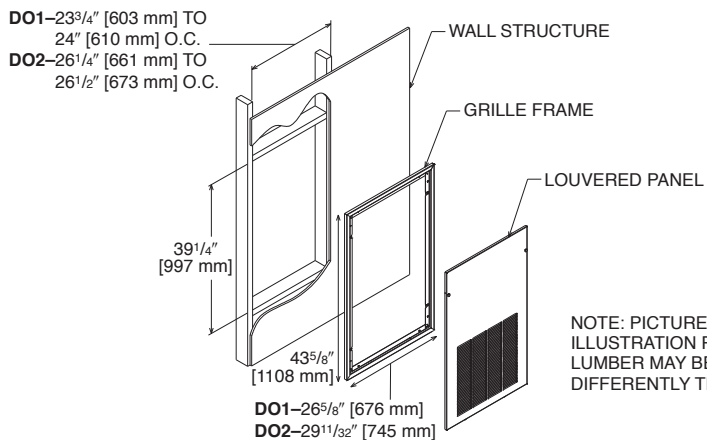


- **Louvered Cabinet Grill RXHK-** is used as decorative grill which covers the return air opening of the front return air handler.

Accessory Number	Indoor Unit
RXHK-C01	RF1P-FR18
	RF1P-FR24
	RF1T-FR24
RXHK-C02	RF1P-FR30
	RF1P-FR36
	RF1T-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.



[ ] Designates Metric Conversions





**GENERAL TERMS OF LIMITED WARRANTY\***

Ruud will furnish a replacement for any part of this product which fails in normal use and service within the applicable periods 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.**

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*In keeping with its policy of continuous progress and product improvement, Ruud reserves the right to make changes without notice.*

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