



LARGE COMMERCIAL

*Large Commercial
Split System
20-55 Tons 50 Hz
RAUP - TTV/CLCP
Systems*

Split System 20-55 Tons 50 Hz



General Data 20-55 Ton Condensing Units

		RAUP 250	RAUP 300	RAUP 400	RAUP 500	RAUP 600
Performances (1)						
Gross Cooling Capacity [R22] ⁽¹⁾	(kW)/(MBH)	74/253	90/308	114/390	148/505	181/617
Gross Cooling Capacity [R407C]	(kW)/(MBH)	70/240	86/293	108/370	141/480	172/586
Unit Capacity Steps (%)		100-50	100-50	100-75-50-25	100-75-50-25	100-75-50-25
Total Compressor Power Input ⁽¹⁾	(kW)	25.2	26.8	36.2	50.4	53.6
Main Power Supply		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Utilization Range				400V +/- 10%		
Sound Power Level	(dB(A))	87	89	89	90	92
Compressor						
Number		2	2	4	4	4
Type		Scroll				
Model		2x13T	2 x15T	2x(10T+10T)	2 x (13T+13T)	2 x (15T+15T)
Speeds Number		1				
Motors Number		1				
Unit MCA Amps ⁽⁵⁾	(A)	55	59	93	104	107
RLA / LRA ⁽²⁾	(A)	22.9/135	24.2/175	20.7/130	22.9/135	24.2/175
Motor RPM	(rpm)	2900				
Sump Heater (Optional) per compressor	(W)	65W - 240V	75W - 240V	65W - 240V	65W - 240V	75W - 240V
Liquid and Suction connection						
Suction Connection	brazed	2 1/8"	2 1/8"	1 5/8"	2 1/8"	2 1/8"
Liquid Connection	brazed	7/8"	7/8"	7/8"	7/8"	7/8"
Coil						
Type		Plate Fin				
Tube Size	(mm)	9.52				
Tube Type		Smooth				
Height	(mm)	1860	1860	1860	1860	1860
Length	(mm)	1782	1782	1782	1782	1782
Quantity		1	1	2	2	2
Face Area	(m2)	3.3	3.3	6.6	6.6	6.6
Rows		2+3	3	2	2+3	3
Fins Per Foot (fpf)		144	144	144	144	144
Fan						
Type		Propeller				
Number		2	2	3	4	4
Diameter	(mm)/(in)	711/28				
Drive Type		Direct				
Speeds Number		1				
Motors Quantity		2	2	3	4	4
Motors kW ⁽²⁾	kw/hp	0.55/0.75				
FLA/LRA ⁽²⁾	(A)	1.8/5.7				
Motor RPM	(rpm)	900				
Dimensions						
Height	(mm)	1911	1911	1911	1911	1911
Width	(mm)	1002	1002	1992	1992	1992
Length	(mm)	2264	2264	2264	2264	2264
Weight Uncrated	(kg)	583	593	990	1153	1177
Weight Crated	(kg)	603	613	1025	1188	1212
System Data						
Refrigerant Circuit		1	1	2	2	2
Refrigerant Charge ⁽⁶⁾						
Approximate per circuit	(kg)	12.0	15.0	10.0	12.0	15.0
Minimum Outdoor Air Temperature for Mechanical Cooling						
Standard Ambient Operating Range [5]	(F)	59-109 F	59-109 F	59-109 F	59-109 F	59-109 F
	(C)	15-43 C	15-43 C	15-43 C	15-43 C	15-43 C
High Ambient Option Ambient Range						
		53 C [127 F]				
Notes						
[1]	at 7deg C SST and 35 deg C Ambient, 400V, Subcooling 8.3K, Superheat 1.1K		[4]	Minimum Circuit Ampacity (MCA) is 125% of the largest compressor RLA plus 100% of the other compressor RLA plus the sum of the condenser fan FLA. High Ambient and Low Ambient Options Available.		
[2]	Per Motor @ 400V					
[3]	Per Circuit					
[5]						
General Data Blower Coil Units						
		TTV 250	TTV 300	TTV 400	TTV 500	TTV 600
Evaporator Coil	Rows/FPF	3/144	3/144	3/144	4/144	4/144
Evaporator Rated Air Flow	Cfm	7760	9240	12120	15130	18080
	Cmh	13180	15700	20590	25700	30720
Configuration		Vertical with vertical fan discharge configurations				
Face Area	Sq. ft/m2	16.7/1.55	19.2/1.78	26.2/2.44	34.8/3.24	37.9/3.53
Tube Material		Copper				
Tube Type		Smooth				
Tube Size (OD)	in/mm	3/8 / 9.5	3/8 / 9.5	3/8 / 9.5	0.5 / 12.7	0.5 / 12.7
No. Of Circuits		1	1	2	2	2
Refrigerant Flow Control		TXV				
Drain Connection Size	in	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Evaporator Fan/Motor						
Drive Type		Belt				
FLA/LRA (each) ⁽²⁾		8/42	12/82	12/82	16/104	23/153
No of Motors	Std. HP(kw)	1-5(3.7kw)	1-7.5(5.5kw)	1-7.5(5.5kw)	1-10(7.5kw)	1-15(11kw)
	Hi Static	10(7.5)	15(11)	15(11)	20(15)	20(15)
Diameter of Fan	in/mm	15.7/400	15.7/400	15.4/390	17.7/450	17.7/450
Width of Fan	in/mm	12.6/320	12.6/320	15.4/390	14.2/360	14.2/360
No of Fans		1	1	2	2	2
Indoor Fan Type		Centrifugal FC				
Fan Pulley Pitch Diameter	mm	224	224	224	250	250
Air Qty. - Max	cfm	8900	10600	13800	16700	21800
- Min	cfm	5900	7000	9100	11000	14400
Fan Motor Type		TEFC 400V/ 3P/ 50Hz				
Std. Fan Speed (Std. Factory Set)		850	900	900	760	760
@ ESP including filters in /Pa		1.1/275	1/250	0.9/225	1.5/375	1.1/275
Max. Allowable Fan RPM		1100	1100	1200	1000	1000
Motor Pulley Pitch Diameter	mm	140.0	140.0	140.0	132	132
Filters						
Size	(Qty) in	(8) 16x20 (4) 15x20, (2) 16x20		(6) 16x25 (2) 16x20, (1) 20x25		(3) 20x20
Std. 1" Washable		(1) 16x25, (2) 5x25		(3) 20x25 (6) 16x25, (3) 25x25		(6) 20x25
Suction Line OD	in	2 1/8"	2 1/8"	1 5/8"	2 1/8"	2 1/8"
Liquid Line OD	in	7/8"	7/8"	7/8"	7/8"	7/8"
Approx. Operating Weight	lbs/kg	778/353	928/421	1073/487	1510/685	1651/749
Unit Dimensions	HxWxD mm	1219x1808x1040	1372x1808x1040	1520x2088x1040	1653x2596x1275	1777x2596x1275

Trane double walled Quantum Climate Changer Air Handlers are available for semi custom configurations and specialized indoor conditions.

Mechanical Specifications

Air Cooled Condensing Unit

- The contractor shall furnish and install a split air cooled condensing unit of size and capacity scheduled at the required working condition.
- The unit shall operate with either a R22 or R407C refrigerant.
- The unit shall be fully wired with starters and controller at the factory.
- All units shall be furnished with hermetic scroll compressors, air cooled condenser and microprocessor control panel.
- Unit shall be able to operate down to 15 °C as standard and lower with a low ambient control option..
- Unit shall be able to operate up to 43 °C as standard and up to 53 °C with a high ambient option.
- The airflow through the condenser shall be handled by multiple direct drive fans. Each fan shall be statically and dynamically balanced. Fan motors shall be with permanently lubricated ball bearings, protected by thermal overloads.
- Units shall be designed and manufactured in accordance with the quality insurance ISO 9001.

Unit Construction

- The unit shall be designed for outdoor application and rust protected with polyester powder paint.
- The unit base, shall be manufactured with GI steel.
- Unit panels shall be removable to facilitate easy service with Allen Key locks.
- Compressor, air intake sections shall be protected with intake grilles as standard.
- Each unit shall be modular in design to facilitate a modular installation to minimize installed space.

Condenser Coils

- Air cooled condenser coils shall be smooth bore with 3/8" copper tubes mechanically bonded to configured aluminium W3BS slit fins as standard.
- Coils shall be factory leak tested up to 450psig.
- Higher corrosion resistant fins shall be available as an option.

Refrigerant Circuit

- All units shall have 1 or 2 refrigeration circuits with a minimum of 2 manifolded compressors on each circuit for staging control, and high efficient part loads.
- The manifolding piping shall be designed to ensure reliable oil return management.
- Each circuit shall be provided with factory set high and low pressure switches.

Electrical

- Electrical panels shall be fully mounted and wired in the factory with full opening access panel.
- The starting mechanism of the fans and compressors shall be provide by the factory.
- A DOL starting mechanism shall be provided and installed by the factory.

Control System

- Units shall be completely factory wired with microprocessor based controls, starters and terminal block for power wiring.
- Control wiring shall be 230V.
- Compressor overheat , overcurrent and phase loss protection shall be provided.
- High and low pressure safety switches to protect the system against operations outside recommended pressure limits.
- Reverse rotation protection on compressors through safeties that trip the system on high temperature.
- Compressor time delays and on-off sequencing logic that is built into the microprocessor algorithm for maximum protection.
- A dry contact shall be available for remote signalling of general faults.
- Segment LED Display shall provide diagnostics for troubleshooting and setpoint temperatures as well as actual zone temperatures.
- A multi stage with zone sensors temperature control shall be standard factory installed.

Indoor Unit Air Handler

Unit Casing

- The unit framework shall be constructed of GI steel. Exterior panels shall be fabricated from galvanized steel sheets, cleaned and coated with a baked polyester powder paint.
- All panels in contact with the air stream shall be insulated with closed cell PE insulation.
- All panels shall be removable to ensure proper access for servicing and maintenance. Removable panels shall be secured with bolts.

Cooling Coil

- The evaporator coil shall be 1/2" or 3/8"OD seamless copper tubes, mechanically expanded into aluminium fins.
- Coils shall have at least 2 independent circuits for good part load capability (matched with RAUP 400-600).
- Coils shall be leak and proof tested up to 375psig.
- Expansion devices shall be thermal expansion valves.

- Drain pans shall be fabricated of GI, insulated with PE and corrosion resistant coated with a corrosion resistant coating.

Fans

- Supply fans shall be double width double inlet forward curve centrifugal fans, statically and dynamically balanced.
- The drive components shall be fixed pitch drives with multiple V belts. The supply fan motor shall be of a TEFC type, with built in thermal overloads.
- DOL Fan motor starters shall be provided as standard.

System Performance Matrix

R22								Condenser Fan Motor kW x Qty	Indoor Fan Motor kW	Total Compressor Motor kW
MODEL		Evaporator Airflow		Total Capacity		Sensible Capacity				
Outdoor	Indoor	CFM	CMH	MBH	kW	MBH	kW			
RAUP 250	TTV 250	7760	13184	278	81	197	58	0.55 x 2	3.7	21
RAUP 300	TTV 300	9240	15699	333	98	237	69	0.55 x 2	5.5	25.2
RAUP 400	TTV 400	12120	20592	421	123	303	89	0.55 x 3	5.5	33.6
RAUP 500	TTV 500	15130	25706	541	159	395	116	0.55 x 4	7.5	42
RAUP 600	TTV 600	18080	30718	658	193	493	144	0.55 x 4	11	50.4

R 407C								Condenser Fan Motor kW x Qty	Indoor Fan Motor kW	Total Compressor Motor kW
MODEL		Evaporator Airflow		Total Capacity		Sensible Capacity				
Outdoor	Indoor	CFM	CMH	MBH	kW	MBH	kW			
RAUP 250	TTV 250	7760	13184	264	77	187	55	0.55 x 2	3.7	21
RAUP 300	TTV 300	9240	15699	316	93	225	66	0.55 x 2	5.5	25.2
RAUP 400	TTV 400	12120	20592	400	117	288	84	0.55 x 3	5.5	33.6
RAUP 500	TTV 500	15130	25706	514	151	375	110	0.55 x 4	7.5	42
RAUP 600	TTV 600	18080	30718	625	183	468	137	0.55 x 4	11	50.4



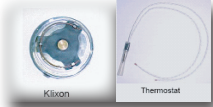



Capacities based on ambient temperature of 95 F [35 C]. Coil on coil temperature of 80 / 67 F [26 / 19 C] EDB/EWB.

Rated at 400V / 3P / 50Hz

Capacities are gross and do not include the evaporator fan motor heat deduction

Custom Matches & configuration are available with the Trane Quantum Climate Changer air handler.

Features Summary

Features	Benefits
Scroll Compressors 	<ul style="list-style-type: none"> o Less vibration and a Quieter Operation o Durability / Extended Life Built in dirt separator to prevent dirt reaching the bearings High volume oil sump prevents excessive oil loss. o Comprehensive Compressor Protection for added reliability. o Tandem Capability Achieves high part load efficiencies and additional part load control. o High energy efficiency ratio and outstanding endurance
Smart Controls 	<ul style="list-style-type: none"> o Simple but sophisticated control using microprocessor technology enables: <ul style="list-style-type: none"> * temperature setpoints and zone temperatures to be fed to the controller for optimized comfort cooling with minimum installation downtime. * Diagnose problems accurately and swiftly minimizing downtime. * Preprogrammed compressor sequencing
Safeties & Protection 	<ul style="list-style-type: none"> o All condensing units come standard with: <ul style="list-style-type: none"> o Compressor overheat , overcurrent and phase loss protection . o High and low pressure safety switches to protect the system against operations outside recommended pressure limits.
Robust Casing 	<ul style="list-style-type: none"> o Stainless Steel & Corrosion Resistant Coated external bolts. o High efficiency Trane slit fin coils. o Weather resistant baked matt polyester powder painted GI panels. o Heavy gauge welded steel base with mounting holes.
Modular Installation	<ul style="list-style-type: none"> o Modular designs allow for side by side installation to save valuable space. o Small footprint saves valuable footprint and costly transportation.
Wide Application Envelope	<ul style="list-style-type: none"> o High and Low ambient options are available for wider operational envelopes.
Pre Matched Compact Air Handlers 	<ul style="list-style-type: none"> o Small foot print o Multiple fan arrangements. Vertical or horizontal discharge configurations. o Up to 2.5"[625Pa] ESP o Baked Polyester Powder Painted GI panels for an attractive long lasting finish.
Custom Matched Quantum Climate Changer 	<ul style="list-style-type: none"> o Highly flexible double walled 25mm or 50 mm indoor or outdoor Quantum Climate Changer Air Handler (QCC) o 100% fresh air selections possible with the QCC.

* Some items are optional and not standard.



www.trane.com

For more information, contact your local district office

Literature Order Number MUL-SLB008-E4 (December 2008)

File Number

Supersedes MUL-SLB008-E4 (October 2007)

Stocking Location Malaysia

Since The Trane Company has a policy of continuous product improvement, it reserves the right to change design and specifications without notice.