



Multi-pipe Units with Screw Compressors

Model RTMA

Cooling capacity 344 - 661 kW

Heating capacity 361 - 714 kW



RTMA multi-pipe Units

Simultaneous heating and cooling with one product

Unit description

- Semi-hermetic screw compressors
- ECO profile axial fans, statically and dynamically balanced
- Water side evaporator direct expansion shell and tube type with water connections (complete with differential pressure switch and electrical heater)
- Recovery heat exchanger direct expansion shell and tube type with water connections
- High efficiency condenser coils with seamless copper tubes and aluminium fins
- Different built-in hydraulic kits available with cooling and heating circuit pumps of 150/250/450 kPa
- Electronic expansion valve
- Double set point temperature
- Condensing and evaporating pressure control with variable fan speed modulation for external temperature up to -15°C
- Intelligent microprocessor-based controller
- Serial card RS485 for Modbus
- Galvanised steel base frame and panels in powder painted galvanised steel sheet for outdoor installation



Acoustic versions

L = Low noise: condensing control with reduced fan speed and sound insulated compressor box

S = Super low noise: condensing control with variable fan speed modulation, oversized coils, muffler on the compressor intake and delivery lines and sound insulated compressor box.

Options and accessories

Factory-mounted options

- Standby pump for air conditioning circuit + standby pump for heating circuit, 150/250/450 kPa
- High temperature module for hot water up to 65°C
- Automatic circuit breakers
- Softstarter
- Numbered wires
- Gas gauges
- Power factor correction to cos phi 0.91
- Control panel electric heater with thermostat
- Phase failure protection relay
- EC fan motors
- High static pressure (100 Pa) EC fans
- Condensing coil protection grille

- Epoxy coated condensing coils fins
- Copper/copper condensing coils
- Tinned copper/copper condensing coils
- BLYGOLD treated coils
- Pre painted condensing coils

Accessories

- Serial card with BACnet protocol TCP/IP or MS/TP
- Remote control display
- Flow switch
- Automatic water filling
- Threaded stainer
- Water gauges
- Rubber or spring anti vibration mounts

Sustainability

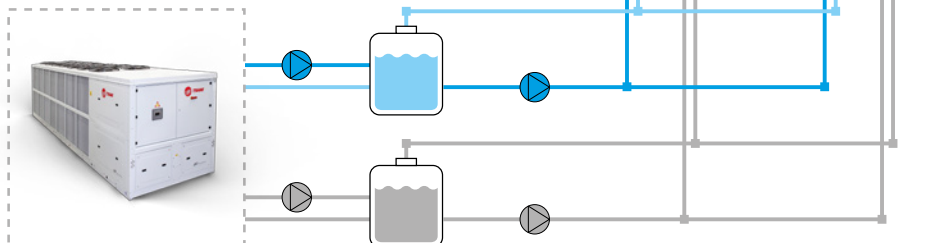
The continuous drive to improve energy efficiency of building systems requires an optimal balancing in the demand and supply of both heating and cooling. Trane's multi-pipe units can simultaneously deliver heating and cooling. A sustainable solution for many applications.



Operating modes

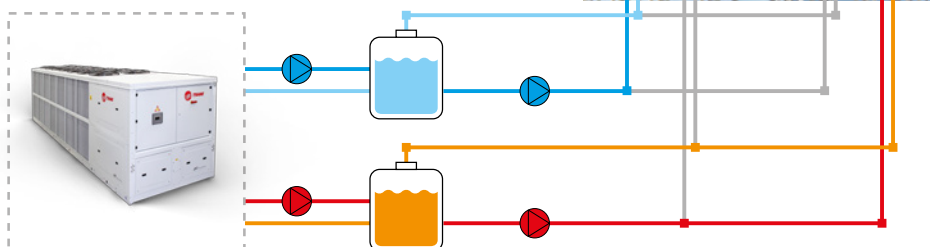
Chiller only

Production of chilled water for air conditioning use.



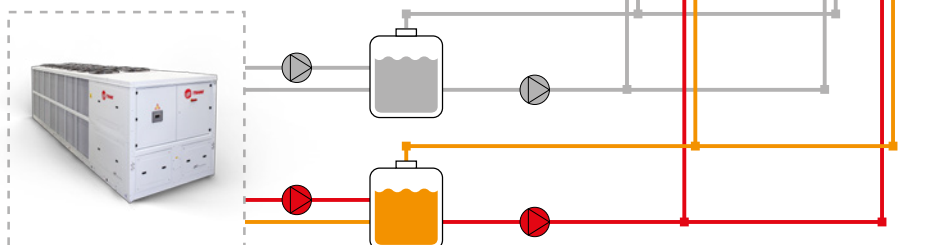
Chiller + partial or total heat recovery

Simultaneous production of chilled water on the evaporator and hot water from heat recovery exchanger.



Heat pump only

Hot water production for air conditioning use.



TEC: Total Efficiency Coefficient

The best coefficient measuring the unit performance during the whole year is the TEC coefficient. It represents the total seasonal efficiency properly developed to measure the multifunction real efficiency. The TEC indicator is calculated on the base of the efficiencies of each operating mode of the unit and properly weighted (cooling, cooling + heating, heating).

Equation For TEC calculation

$$TEC = EER_{COOLING} * \alpha + DMEC_{COOLING+HEATING} * \beta + COP_{HEATING} * \gamma$$

α, β, γ = weight for operating modes (%)

DMEC = Dual Mode Efficiency Coefficient

DMEC = sum of the heating plus cooling capacity divided by total compressors power input (in chiller + recovery mode)

Max. value is reached when heating and cooling loads are fully balanced.

Possible operating combinations

Circuit 1	Circuit 2	Cooling capacity	Heating capacity
Chiller	Off	50%	0%
Chiller	Chiller	100%	0%
Chiller	Chiller + total recovery	100%	50%
Chiller + total recovery	Chiller + total recovery	100%	100%
Heat pump	Chiller + total recovery	50%	100%
Chiller + total recovery	Off	50%	50%
Heat pump	Heat pump	0%	100%
Off	Heat pump	0%	50%



Sophisticated and user-friendly microprocessor-based controller, available with a choice of several optional serial cards for BMS connection.

General technical data

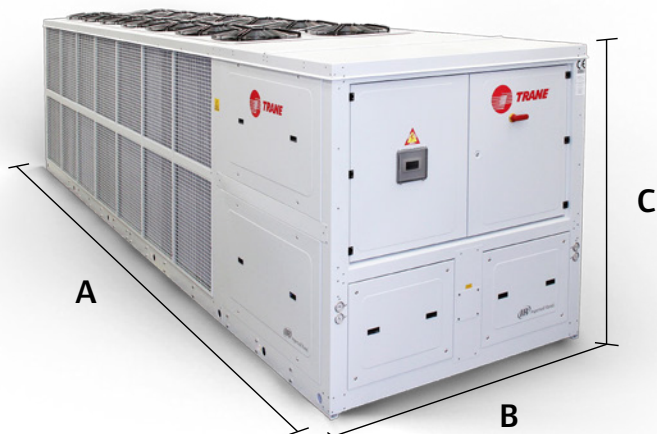
RTMA		105	115	120	130	150	170	180	190	210
Cooling (1)										
Cooling capacity	kW	344.30	380.70	397.70	431.40	491.10	558.30	598.50	621.60	661.20
Compressors power input	kW	126.60	142.80	135	148.50	165.80	199.50	218	208	227.20
Total EER (incl. fans)		2.48	2.46	2.65	2.64	2.67	2.57	2.54	2.71	2.66
Heating (2)										
Heating capacity	kW	361.20	381	435.90	470.50	513.80	562.40	582.40	659.60	713.90
Compressors power input	kW	116.80	119.40	128	138.50	154.30	178.80	189.40	193	205.30
Total COP (incl. fans)		2.80	2.90	3.05	3.06	2.98	2.86	2.81	3.08	3.16
Simultaneous cooling + heating										
Cooling capacity (1)	kW	344.10	388.30	388.30	435.30	490.40	565.90	596	599.20	684.60
Heating capacity (2)	kW	470.60	523.90	523.90	582.60	657.60	759.80	801.60	805	905.60
Compressors power input	kW	126.50	135.60	135.60	147.20	167.20	193.90	205.70	205.70	221
Dual mode efficiency coefficient DMEC		6.44	6.73	6.73	6.91	6.87	6.84	6.80	6.82	7.20
Total energy coefficient TEC		4.56	4.73	4.81	4.90	4.86	4.79	4.75	4.88	5.08
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of screw compressors		2	2	2	2	2	2	2	2	2
Sound pressure level (3)	dB(A)	60	60	60	60	62	62	62	63	63
Power sound level (4)	dB(A)	92	92	93	93	95	95	95	96	96
Sound pressure level SL (3)	dB(A)	55	55	55	55	57	57	57	58	58
Power sound level SL (4)	dB(A)	87	87	88	88	90	90	90	91	91
Maximum power input	kW	202.35	214.20	217.65	229.41	254.12	281.18	317.65	321.18	357.65
Maximum full load current	A	344	364	370	390	432	478	540	546	608
Full load starting current	A	589	618	624	644	764	844	906	912	761
Electrical power supply	V/Ph/Hz	400/3+n/50								

- (1) Outdoor temperature 35°C - chilled water temperature 12/7°C
 (2) Outdoor temperature 7°C 90% R.H. - hot water temperature 40/45°C
 (3) Calculated according to ISO 3744 at 10 m distance from the unit
 (4) Calculated according to ISO 3744

Dimensions and weights

RTMA		105	115	120	130	150	170	180	190	210
A	mm	5431	5431	6601	6601	7572	7572	7572	8892	8892
B	mm	2250	2250	2250	2250	2250	2250	2250	2250	2250
C	mm	2400	2400	2400	2400	2400	2400	2400	2400	2400
Shipping weight	kg	5242	5449	5728	5792	6580	6925	6945	7200	7794
Shipping weight (1)	Single pump 150 kPa pressure head	kg	311	311	311	396	432	486	534	534
Shipping weight (1)	Single pump 250 kPa pressure head	kg	357	357	357	408	408	574	622	622
Shipping weight (1)	Single pump 450 kPa pressure head	kg	399	399	399	450	450	844	844	892

- (1) Extra weight for hydraulic versions





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