



**BALANCE**™



**Air-cooled scroll multi-pipe units**



CMAC SE/HE  
50-880 kW

**TRANE**  
TECHNOLOGIES

# Trane Balance™ multi-pipe units

## Air-cooled scroll multi-pipe units

You can be sure Trane Balance™ multi-pipe units with high performing scroll compressors will deliver what you need: **simultaneous cooling and heating**, precise temperature control, safe and sustainable system with low operating costs.

Trane multi-pipe units deliver real value for you – and real comfort for your customer.



### Innovative and versatile solution

- Simultaneous cooling and heating with one compact unit
- Trane Tracer™ UC800 controller with unique software designed for multi-pipe units
- Suits new construction and building renovation – from office buildings and hospitals to places of entertainment and hotels
- W-shape condenser coils to reduce unit footprint and optimize unit performance and efficiency
- High performing DSH scroll compressors, AC fans or energy saving EC fans



### High efficiency and lowest cost of ownership

- Optimal use of renewable and recovered energy
- Full energy recovery for the best return on every kilowatt-hour of electricity
- Exceeds energy efficiency benchmarks based on Total Efficiency Ratio
- Quality and reliability to count on. Professional support by 24/7 Trane Service



### Optimized comfort, simple and safe

- Designed for superior performance, serviceability and durability
- Safe water-based system with no refrigerant inside the building
- Industry leading acoustic comfort levels with optional low noise or super low noise version



### 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.

## Unit description

- Simultaneous cooling and heating with two completely independent water circuits, one for chilled water and one for hot water
- Precise leaving chilled/hot water temperature control
- 6 different operating modes available to optimize performance according specific customer application requirements
- High performing scroll compressors and low speed fans
- Intelligent Tracer™ UC800 controller with “state-of-the-art” software developed for multi-pipe units
- One to four refrigerant circuits with precise electronic expansion valves
- W-shape coils for improved air flow and easy access
- Patented self-adaptive defrosting system reducing number of defrost cycles by 50%
- Stainless steel (AISI 316) brazed plate evaporator and recovery heat exchanger, externally insulated, including a water pressure differential switch and anti-freeze protection electric heater
- Smart pump management for outdoor freeze protection

## Factory-mounted options

- Different built-in hydraulic kits available with cooling and heating circuit pumps of 150/250/450 kPa
- Super low noise or low noise version
- SmartCom interface for full interoperability with BACnet™ Protocol MS/TP or TCP/IP, Modbus or LonTalk™
- Soft starter
- Automatic circuit breakers
- Power factor correction to cos phi 0.91
- Control panel electric heater with thermostat
- EC fans for external static pressure up to 100 Pa
- Condensing control with variable fan speed modulation



Trane Tracer® UC800 and TD7 touch screen

# Designed to be the best



- tested to prove it

Trane European HVAC Research and Development Testing Facilities fully comply with the latest European EN 14511 and EN 14825 standards, meaning that procedures, measurements and conditions are respected to provide our customers with trustworthy and certified performances.

## Experience performance validation of your unit – before shipment

Schedule an optional witness test in our testing facility in France before the unit ships to the jobsite. Trane's test facility is capable of evaluating the performance of your Multi-pipe unit - based on customer-defined parameters. Contact your local sales office for more information.

## Trane European Large HVAC Test Facility

A 5000m<sup>3</sup> climate chamber with advanced ambient air temperature and humidity control. Regardless of outdoor air conditions, a wide range of operating conditions can be simulated within this range:

- Air temperature: -25°C/+55°C
- Leaving water temperature: -12°C/+65°C (Below 4°C with glycol)
- Humidity: 10 – 90% max @ 7°C dry bulb.



CMAC unit on our Charmes (F) laboratory test loop

## CMAC HE Standard Noise\*



Unit size		50	60	70	90	120	130	145	165	180	220	260	320	355
<b>Cooling (1)</b>														
Total cooling capacity	kW	48.2	55.1	65.2	84.9	111	122	131	151	165	200	239	291	321
Total power input	kW	16.3	18.3	21.7	28.2	37.7	43.0	47.6	54.3	60.2	74.3	89.2	108	118
Total EER	kW/kW	2.95	3.01	3.00	3.01	2.93	2.84	2.76	2.78	2.74	2.69	2.68	2.70	2.73
ESEER	kW/kW	3.39	3.58	3.71	3.49	3.56	3.41	3.41	3.35	3.40	3.45	3.57	3.82	3.56
<b>Heating (2)</b>														
Total heating capacity	kW	50.6	57.9	69.2	90.6	119	132	144	162	178	217	260	320	355
Total power input	kW	16.7	18.7	21.9	29.4	38.1	43.4	46.0	53.5	58.8	70.8	83.5	102	112
Total COP	kW/kW	3.03	3.10	3.16	3.08	3.11	3.03	3.14	3.03	3.04	3.07	3.12	3.15	3.16
<b>Seasonal efficiency in heating mode (4)</b>														
P rated	kW	41.0	46.8	55.8	75.3	98	111	122	133	147	179	215	258	298
$\eta_s$	%	125	127	130	125	129	125	130	125	125	127	129	130	130
SCOP	kW/kW	3.19	3.24	3.32	3.20	3.29	3.20	3.32	3.19	3.19	3.24	3.31	3.33	3.33
Energy efficiency class		A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+
<b>Cooling + Heating (3)</b>														
Total cooling capacity	kW	46.0	52.8	62.9	79.9	108	118	131	150	165	200	242	298	322
Total heating capacity	kW	60.3	69.1	82.6	106	142	157	172	196	216	264	319	345	426
Total power input	kW	14.3	16.3	19.7	25.8	34.6	38.8	41.1	46.0	51.4	63.4	76.7	86.4	104
Total Efficiency Ratio	kW/kW	7.45	7.48	7.38	7.19	7.21	7.09	7.37	7.54	7.42	7.32	7.32	13.85	7.19
<b>Compressors</b>														
Number of scroll compressors		2	2	2	2	2	2	2	2	4	4	4	4	4
Number of refrigerant circuits		1	1	1	1	1	1	1	2	2	2	2	2	2
Number of part load steps		3	3	2	2	2	3	2	3	2	7	7	8	4
Minimum capacity step	%	45	39	50	50	50	45	50	45	50	8	14	23	25
<b>Fans</b>														
Number of fans		2	2	2	3	3	4	4	6	6	6	6	8	8
Air flow	m <sup>3</sup> /h	35588	35588	35588	53380	53380	71808	71808	118168	118168	113416	107712	144628	144628
<b>Sound level</b>														
Sound power level (ISO 3744)	dB(A)	82	82	82	84	88	88	88	89	89	90	91	91	92
Sound pressure level at 10 m (ISO 3744)	dB(A)	50	50	50	52	56	56	56	57	57	58	59	59	59
<b>Dimensions and weight</b>														
Length	mm	2560	2560	2560	3559	3559	2617	2617	3565	3565	3565	3565	4535	4535
Width	mm	1100	1100	1100	1100	1100	2201	2201	2260	2260	2260	2260	2260	2260
Height	mm	2131	2131	2131	2179	2179	2175	2175	2400	2400	2400	2400	2400	2400
Operating weight	kg	1030	1034	1043	1289	1381	1466	1608	2202	2255	2401	2709	3144	3382

(1) According EN 14511-2018. Outdoor air temperature 35°C – Chilled water temperature 12/7°C

(2) According EN 14511-2018. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN 14825-2018. Ecodesign rating at low temperature conditions. Outdoor air temperature 7°C dry bulb/6°C wet bulb - Hot water temperature 30/35°C

\* CMAC HE units are also available in Super Low Noise. For a detailed selection please contact your Trane sales office.



## CMAC HE Standard Noise\*



Unit size		375	455	500	535	575	600	660	710	755	800	840	880
<b>Cooling (1)</b>													
Total cooling capacity	kW	341	406	451	474	513	533	582	643	678	713	746	779
Total power input	kW	126	148	165	177	194	203	231	235	253	271	289	308
Total EER	kW/kW	2.70	2.74	2.74	2.67	2.64	2.63	2.52	2.73	2.68	2.63	2.58	2.53
ESEER	kW/kW	3.58	3.98	3.47	3.42	3.51	3.48	3.67	3.56	3.54	3.48	3.40	3.66
<b>Heating (2)</b>													
Total heating capacity	kW	377	455	501	534	576	598	662	710	754	797	839	881
Total power input	kW	120	145	161	173	187	193	215	224	239	253	268	282
Total COP	kW/kW	3.15	3.14	3.10	3.09	3.08	3.09	3.07	3.17	3.16	3.15	3.14	3.13
<b>Seasonal efficiency in heating mode (4)</b>													
P rated	kW	316	371	-	-	-	-	-	-	-	-	-	-
$\eta_s$	%	130	130	-	-	-	-	-	-	-	-	-	-
SCOP	kW/kW	3.33	3.32	-	-	-	-	-	-	-	-	-	-
Energy efficiency class		A+	A+	-	-	-	-	-	-	-	-	-	-
<b>Cooling + Heating (3)</b>													
Total cooling capacity	kW	342	406	449	473	521	543	600	652	692	733	772	812
Total heating capacity	kW	454	540	596	631	694	723	804	860	916	971	1026	1080
Total power input	kW	112	134	146	158	173	181	204	208	223	238	253	268
Total Efficiency Ratio	kW/kW	7.14	7.05	7.13	6.97	7.02	7.01	6.89	7.26	7.21	7.16	7.10	7.05
<b>Compressors</b>													
Number of scroll compressors		4	4	6	6	6	6	6	8	8	8	8	8
Number of refrigerant circuits		2	2	3	3	3	3	3	4	4	4	4	4
Number of part load steps		7	4	14	6	14	15	6	8	20	30	20	8
Minimum capacity step	%	13	25	21	17	19	19	17	13	15	14	15	13
<b>Fans</b>													
Number of fans		8	10	12	12	12	12	12	16	16	16	16	16
Air flow	m <sup>3</sup> /h	144628	181104	219608	219608	219608	219608	219608	289256	289256	289256	289256	289256
<b>Sound level</b>													
Sound power level (ISO 3744)	dB(A)	94	97	93	94	96	97	98	95	97	98	99	100
Sound pressure level at 10 m (ISO 3744)	dB(A)	61	64	61	61	63	64	66	62	64	65	66	67
<b>Dimensions and weight</b>													
Length	mm	4535	5505	7038	7038	7038	7038	7038	8155	8155	8155	8155	8155
Width	mm	2260	2260	2170	2170	2170	2170	2170	2170	2170	2170	2170	2170
Height	mm	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
Operating weight	kg	3401	3836	4572	4678	4845	4882	4935	6157	6193	6228	6263	6298

(1) According EN 14511-2018. Outdoor air temperature 35°C – Chilled water temperature 12/7°C

(2) According EN 14511-2018. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN 14825-2018. Ecodesign rating at low temperature conditions. Outdoor air temperature 7°C dry bulb/6°C wet bulb - Hot water temperature 30/35°C

\* CMAC HE units are also available in Super Low Noise. For a detailed selection please contact your Trane sales office.

## CMAC SE Standard Noise\*



Unit size		50	55	65	85	110	140	155	175
<b>Cooling (1)</b>									
Total cooling capacity	kW	45.2	51.2	59.9	77.7	103	126	139	159
Total power input	kW	17.1	19.3	23.3	29.8	41.0	49.7	56.9	62.6
Total EER	kW/kW	2.64	2.65	2.57	2.60	2.51	2.55	2.44	2.53
ESEER	kW/kW	3.16	3.30	3.42	3.15	3.22	3.27	2.89	3.04
<b>Heating (2)</b>									
Total heating capacity	kW	49.1	55.8	65.7	86.2	110	138	152	174
Total power input	kW	17.1	19.2	22.5	30.0	38.3	47.9	53.0	61.9
Total COP	kW/kW	2.88	2.91	2.92	2.87	2.86	2.89	2.86	2.82
<b>Seasonal efficiency (4)</b>									
P rated	kW	41.8	46.9	54.8	75.4	94.6	118.9	139.9	155.8
$\eta_s$	%	115	115	115	115	115	115	115	115
SCOP	kW/kW	2.95	2.95	2.96	2.95	2.95	2.96	2.95	2.95
Energy efficiency class		A	A	A	A	A	A	A	A
<b>Heating + Cooling (3)</b>									
Total cooling capacity	kW	43.8	50.2	59.9	75.0	106	127	143	157
Total heating capacity	kW	58.5	67.0	80.0	102	141	170	191	211
Total power input	kW	14.7	16.8	20.2	26.5	35.1	43.2	48.7	54.2
Total Efficiency Ratio	kW/kW	6.95	6.99	6.94	6.66	7.02	6.89	6.85	6.78
<b>Compressors</b>									
Number of scroll compressors		2	2	2	2	2	2	2	2
Number of refrigerant circuits		1	1	1	1	1	1	1	1
Number of part load steps		3	3	2	2	2	2	3	2
Minimum capacity step	%	45	39	50	50	50	50	45	50
<b>Fans</b>									
Number of fans		2	2	2	3	3	4	4	6
Air flow	m <sup>3</sup> /h	39388	39388	39388	58988	58988	79031	79031	118168
Power input for each fan	kW	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
<b>Sound level</b>									
Sound power level (ISO 3744)	db(A)	81	81	81	83	87	87	87	88
Sound pressure level at 10 m (ISO 3744)	db(A)	50	50	51	53	56	56	57	58
<b>Dimensions and weight</b>									
Length	mm	2560	2560	2560	3559	3559	2617	2617	3565
Width	mm	1100	1100	1100	1100	1100	2200	2200	2260
Height	mm	2131	2131	2131	2179	2179	2175	2175	2400
Operating Weight	kg	909	913	922	1117	1199	1470	1563	2038

(1) According EN 14511-2018. Outdoor air temperature 35°C – Chilled water temperature 12/7°C

(2) According EN 14511-2018. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN 14825-2018. Ecodesign rating at low temperature conditions. Outdoor air temperature 7°C dry bulb/6°C wet bulb - Hot water temperature 30°C/35°C

\* CMAC SE units are also available in Low Noise and Super Low Noise. For a detailed selection please contact your Trane sales office.



## CMAC SE Standard Noise\*



Unit size		210	260	305	350	370	435	495	525
<b>Cooling (1)</b>									
Total cooling capacity	kW	187	227	268	313	331	382	431	454
Total power input	kW	78.1	91.4	114.7	120.9	130.3	159.7	167.7	180.6
Total EER	kW/kW	2.39	2.48	2.34	2.59	2.54	2.39	2.57	2.52
ESEER	kW/kW	3.17	3.40	3.46	3.47	3.48	3.58	3.34	3.31
<b>Heating (2)</b>									
Total heating capacity	kW	212	259	306	351	371	434	493	524
Total power input	kW	71.3	84.3	99.2	112	119	140	168	179
Total COP	kW/kW	2.97	3.07	3.08	3.12	3.11	3.09	2.94	2.92
<b>Seasonal efficiency (4)</b>									
P rated	kW	177.4	213.8	254.3	292.8	309.0	360.0	-	-
$\eta_s$	%	116	118	119	120	120	119	-	-
SCOP	kW/kW	2.97	3.04	3.06	3.08	3.07	3.06	-	-
Energy efficiency class		A	A	A	A	A	A	-	-
<b>Heating + Cooling (3)</b>									
Total cooling capacity	kW	195	234	290	319	341	403	428	453
Total heating capacity	kW	259	313	384	424	453	537	579	615
Total power input	kW	64.8	78.3	94.0	104.7	112	134	150	162
Total Efficiency Ratio	kW/kW	7.01	6.99	7.16	7.10	7.09	7.03	6.70	6.57
<b>Compressors</b>									
Number of scroll compressors		4	4	4	4	4	4	6	6
Number of refrigerant circuits		2	2	2	2	2	2	3	3
Number of part load steps		7	7	8	4	7	4	14	6
Minimum capacity step	%	14	14	23	25	13	25	21	17
<b>Fans</b>									
Number of fans		6	6	6	8	8	8	12	12
Air flow	m <sup>3</sup> /h	118168	113416	113416	152488	152488	152488	229108	229108
Power input for each fan	kW	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
<b>Sound level</b>									
Sound power level (ISO 3744)	db(A)	89	90	90	91	93	96	92	93
Sound pressure level at 10 m (ISO 3744)	db(A)	59	59	59	60	62	65	62	62
<b>Dimensions and weight</b>									
Length	mm	3565	3565	3565	4535	4535	4535	7038	7038
Width	mm	2260	2260	2260	2260	2260	2260	2170	2170
Height	mm	2400	2400	2400	2400	2400	2400	2400	2400
Operating Weight	kg	2241	2415	2556	3136	3153	3227	4357	4379

(1) According EN 14511-2018. Outdoor air temperature 35°C – Chilled water temperature 12/7°C

(2) According EN 14511-2018. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN 14825-2018. Ecodesign rating at low temperature conditions. Outdoor air temperature 7°C dry bulb/6°C wet bulb - Hot water temperature 30°C/35°C

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Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit [trane.eu](http://trane.eu) or [tranetechnologies.com](http://tranetechnologies.com).

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