

WATER CHILLERS R407C – R22

AIR COOLED WATER CHILLERS

WITH SCROLL COMPRESSORS AND AXIAL FANS



RAE 482 K + MV + PT

RAE... Series

2 refrigerant circuits - cooling capacities from 47 to 82 kW

Water chillers suitable for various environments: blocks of flats, offices, shops and factories, etc. etc.

Designed for external installation realized in a strong and compact housing coated with treated and painted zinc steel plate

2 cooling circuits

Operating conditions from +15 °C to +45 °C for standard models

The following versions are also available

RAE...K with ecological gas R407C

RAE...U K ultra silenced version with ecological gas R407C

RAE... standard version

RAE...U ultra silenced version

RAE...F K version with free cooling and ecological gas R407C

RAE...FU K ultra silenced version with free cooling and ecological gas R407C

RAE...F version with free cooling

RAE...FU ultra silenced version with free cooling

Made up of:

High-efficiency scroll compressors (COP 3.37 under ARI conditions), with low sound level (on average 6dB (A) less than the hermetic compressors), internal heat protection, installed on rubber vibration dampers, supplied with oil sump heater when necessary.

Heat-exchange external coil with high-efficiency aluminium fins and copper pipes designed for cooling fluids; independent circuits.

Free cooling Version units are provided with relevant free cooling coil and modulating 3-way valve.

Low rpm axial fans directly coupled provided with heat protection, low sound level blades with wing profile, and safety protection grid.

Weld-brazed plate evaporator with heat insulation.

Electric panel, in compliance with CE norms, supplied with a main switch and both overload and short circuit protections at each electrical components.

The cooling circuit is composed of: thermostatic expansion valve, dehydrating filter, sight glass, safety device, antifreeze thermostat, high and low pressure switches.

Unit management microprocessor for all models.

The available water accessories, like pump and buffer tank, are installed inside the unit including electric control device of the pump.

Compressors hour counter.

Accessories

AE	Electrical power supply different from standard
BT	Low temperature operation (-20 °C) with modulating fan speed regulation
CS	Compressors inrush counter
GP	Condensing coil protection grid
IH	RS 485 serial interface
IM	Seawood packing
MF	Phase monitor
MT	Low and high pressure gauges
MV	Buffer tank/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valves
P1	Pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve
P1H	High head pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve
PT	Twin-pump group/expansion vessel/safety valve /water gauge/water charge and discharge valves/air discharge valve
PA	Rubber-type vibration dampers
PF	Safety water flow switch on evaporator
PQ	Remote microprocessor
RA	Anti-freeze heater on evaporator
RL	Compressors overload relays
RM	Epoxy coating of condensing coil for sea environment
RP	Partial heat recovery
RR	Condensing coil with copper/copper fins
RT	Total heat recovery (it is necessary to order option BT)
RV	Personalized RAL paint
SC	Soundproofed compressors housing (included on ultra-silenced version)
VB	Brine version (water temperature < 0 °C)
VS	Solenoid valve

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RAE... Technical data

MODEL	RAE...	482	562	702	822
Cooling capacity with R407C	kW	45,2	51,0	66,2	77,7
Absorbed power with R407C	kW	16,3	19,6	22,2	28,0
Cooling capacity with R22	kW	47,3	53,8	68,3	81,9
Absorbed power with R22	kW	14,3	16,9	19,9	24,8
Axial fans					
Quantity	n	3	3	3	3
Rotation speed	rpm	860	860	860	860
Motors power	kW	1,9	1,9	1,9	1,9
Total air flow	l/s	7.000	7.000	5.917	5.917
Total air flow	m ³ /h	25.200	25.200	21.300	21.300
Nominal absorbed current	A	9	9	9	9
Sound pressure level 2)	dB(A)	72	72	72	72
Evaporator 3)					
Quantity	n	2	2	2	2
Water flow rate with R407C	l/s	2,17	2,44	3,17	3,69
Water flow rate with R407C	m ³ /h	7,80	8,80	11,40	13,30
Pressure drop with R407C	kPa	44	41	45	63
Water flow rate with R22	l/s	2,26	2,57	3,26	3,91
Water flow rate with R22	m ³ /h	8,10	9,20	11,70	14,10
Pressure drop with R22	kPa	42	43	44	63
Pumps					
Available pressure with P1	kPa	137	130	122	108
Motor power with P1	kW	0,75	0,75	0,75	0,75
Available pressure with P1H	kPa	187	185	172	158
Motor power with P1H	kW	1,1	1,1	1,1	1,1
Available pressure with PT	kPa	137	140	137	120
Motor power with PT	kW	1,5	1,5	1,5	1,5
Buffer tank water volume	l	180	180	180	180
Scroll compressors					
Quantity	n	2	2	2	2
Circuits	n	2	2	2	2
Standard steps capacity	n	62	62	62	62
Optional steps capacity	n	–	–	–	–
Nominal absorbed current	A	29,0	35,0	38,0	49,0
Maximum absorbed current	A	49	67	79	79
Inrush current	A	159	168	219	235
Total absorbed power with R407C	kW	18,2	21,5	24,1	29,9
Total absorbed power with R22	kW	16,2	18,8	21,8	26,7
Dimensions					
Length	mm	2.130	2.130	2.130	2.130
Length with MV included	mm	2.130	2.130	2.130	2.130
Width	mm	1.100	1.100	1.100	1.100
Width with MV included	mm	1.100	1.100	1.100	1.100
Height	mm	1.760	1.760	1.760	1.760
Height with MV included	mm	1.760	1.760	1.760	1.760
Weight	kg	607	611	682	693
Weight with empty MV included	kg	672	676	747	758
Refrigerant charge for each circuit	kg	4,8	4,9	9,2	9,4
Power supply 400V / 50Hz / 3 Ph + T + N					

– = not available

Nominal condition referred to: air 35 °C - chilled water 7/12 °C

2) Measured at 1 m in open field (ISO 3746)

3) = Brazed plate

WATER CHILLERS R407C – R22

AIR COOLED WATER CHILLERS

WITH SCROLL COMPRESSORS AND AXIAL FANS

RAE...U Technical data

MODEL	RAE...U	482	562	702
Cooling capacity with R407C	kW	43,7	52,9	62,6
Absorbed power with R407C	kW	17,2	18,5	21,0
Cooling capacity with R22	kW	46,2	54,8	66,2
Absorbed power with R22	kW	14,8	16,3	21,0
Axial fans				
Quantity	n	3	3	3
Rotation speed	rpm	650	650	650
Motors power	kW	0,93	0,93	0,93
Total air flow	l/s	4,917	3,945	3,945
Total air flow	m ³ /h	17,700	14,200	14,200
Nominal absorbed current	A	4,7	4,7	4,7
Sound pressure level 2)	dB(A)	64	64	64
Evaporator 3)				
Quantity	n	2	2	2
Water flow rate with R407C	l/s	2,08	2,53	2,97
Water flow rate with R407C	m ³ /h	7,50	9,10	10,70
Pressure drop with R407C	kPa	42	44	41
Water flow rate with R22	l/s	2,19	2,61	3,16
Water flow rate with R22	m ³ /h	7,90	9,40	11,40
Pressure drop with R22	kPa	41	44	42
Pumps				
Available pressure with P1	kPa	140	127	127
Motor power with P1	kW	0,75	0,75	0,75
Available pressure with P1H	kPa	190	177	172
Motor power with P1H	kW	1,1	1,1	1,1
Available pressure with PT	kPa	140	137	142
Motor power with PT	kW	1,5	1,5	1,5
Buffer tank water volume	l	180	180	180
Scroll compressors				
Quantity	n	2	2	2
Circuits	n	2	2	2
Standard steps capacity	n	62	62	62
Optional steps capacity	n	–	–	–
Nominal absorbed current	A	30	33	41
Maximum absorbed current	A	49	67	79
Inrush current	A	159	168	219
Total absorbed power with R407C	kW	18,13	19,43	21,93
Total absorbed power with R22	kW	15,73	17,23	21,93
Dimensions				
Length	mm	2.130	2.130	2.130
Length with MV included	mm	2.130	2.130	2.130
Width	mm	1.100	1.100	1.100
Width with MV included	mm	1.100	1.100	1.100
Height	mm	1.760	1.760	1.760
Height with MV included	mm	1.760	1.760	1.760
Weight	kg	614	618	689
Weight with empty MV included	kg	680	684	754
Refrigerant charge for each circuit	kg	4,8	9	9,2
Power supply			400V / 50Hz / 3 Ph + T + N	

-- = not available

Nominal condition referred to: air 35 °C - chilled water 7/12 °C

2) Measured at 1 m in open field (ISO 3746)

3) = Brazed plate

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RAE...F Technical data

MODEL	RAE...F	482	562	702	822
Cooling capacity with R407C	kW	42,2	48,7	63,0	73,9
Absorbed power with R407C	kW	15,8	18,0	22,2	28,0
Cooling capacity with R22	kW	44,9	52,9	67,2	80,5
Absorbed power with R22	kW	14,1	16,0	19,9	24,8
Cooling capacity in free cooling	kW	32,2	40,0	41,4	45,4
Axial fans					
Quantity	n	3	3	3	3
Rotation speed	rpm	860	860	860	860
Motors power	kW	1,9	1,9	1,9	1,9
Total air flow	l/s	6.250	54.167	5.056	5.056
Total air flow	m ³ /h	22.500	19.500	18.200	18.200
Nominal absorbed current	A	9	9	9	9
Sound pressure level 2)	dB(A)	72	72	72	73
Shall and tube evaporator					
Quantity	n	1	1	1	1
Water flow rate with R407C	l/s	2,00	2,33	3,00	3,53
Water flow rate with R407C	m ³ /h	7,2	8,4	10,8	12,7
Pressure drop with R407C	kPa	24	21	17	22
Water flow rate with R22	l/s	2,1	2,5	3,2	3,8
Water flow rate with R22	m ³ /h	7,7	9,1	11,5	13,8
Pressure drop with R22	kPa	29	27	21	29
Free cooling pressure drop	kPa	51	57	50	71
Water volume	l	12	15	16	16
Free cooling coil water volume	l	18,6	28	37,2	37,2
Pumps					
Available pressure with P1	kPa	129	118	115	88
Motor power with P1	kW	0,75	0,75	0,75	1,1
Available pressure with P1H	kPa	179	168	165	147
Motor power with P1H	kW	1,1	1,1	1,1	1,5
Available pressure with PT	kPa	134	123	130	70
Motor power with PT	kW	1,5	1,5	1,5	1,5
Buffer tank water volume	l	460	460	460	460
Scroll compressors					
Quantity	n	2	2	2	2
Circuits	n	2	2	2	2
Standard steps capacity	n	G2	G2	G2	G2
Optional steps capacity	n	–	–	–	–
Nominal absorbed current	A	29	33	38	48
Maximum absorbed current	A	49	67	79	89
Inrush current	A	159	168	219	255
Total absorbed power with R407C	kW	17,7	19,9	24,1	29,9
Total absorbed power with R22	kW	16,0	17,9	21,8	26,7
Dimensions					
Length	mm	3.000	3.000	3.000	3.000
Length with MV included	mm	3.000	3.000	3.000	3.000
Width	mm	1.080	1.080	1.080	1.080
Width with MV included	mm	1.080	1.080	1.080	1.080
Height	mm	1.870	1.870	1.870	1.870
Height with MV included	mm	1.870	1.870	1.870	1.870
Weight	kg	863	870	885	997
Weight with empty MV included	kg	973	980	995	1107
Refrigerant charge for each circuit	kg	5,7	8,4	11	11
Power supply		400V / 50Hz / 3Ph + T + N			

– = not available

Nominal condition referred to: air 35 °C - chilled water 7/12 °C

For free-cooling work mode: air 5 °C - unit's inlet water 15 °C - glycol 20 %

2) Measured at 1 m in open field (ISO 3746)

RAE...FU Technical data

MODEL	RAE...FU	482	562	702
Cooling capacity with R407C	kW	41,6	46,8	58,8
Absorbed power with R407C	kW	16,2	19,3	24,0
Cooling capacity with R22	kW	45,6	52,3	66,2
Absorbed power with R22	kW	16,2	19,3	24,0
Cooling capacity in free cooling	kW	32,0	33,0	32
Axial fans				
Quantity	n	3	3	3
Rotation speed	rpm	650	650	650
Motors power	kW	0,93	0,93	0,93
Total air flow	l/s	3.667	3.667	3.333
Total air flow	m ³ /h	13.200	13.200	12.000
Nominal absorbed current	A	4,6	4,6	4,6
Sound pressure level 2)	dB(A)	64	64	64
Shall and tube evaporator				
Quantity	n	1	1	1
Water flow rate with R407C	l/s	1,97	2,22	2,81
Water flow rate with R407C	m ³ /h	7,10	8,00	10,10
Pressure drop with R407C	kPa	23	19	15
Water flow rate with R22	l/s	2,17	2,50	3,17
Water flow rate with R22	m ³ /h	7,80	9,00	11,40
Pressure drop with R22	kPa	30	26	20
Free cooling pressure drop	kPa	49	53	44
Water volume	l	12	15	16
Free cooling coil water volume	l	28	28	37,2
Pumps				
Available pressure with P1	kPa	131	122	126
Motor power with P1	kW	0,75	0,75	0,75
Available pressure with P1H	kPa	181	172	166
Motor power with P1H	kW	1,1	1,1	1,1
Available pressure with PT	kPa	136	125	136
Motor power with PT	kW	1,5	1,5	1,5
Buffer tank water volume	l	460	460	460
Scroll compressors				
Quantity	n	2	2	2
Circuits	n	2	2	2
Standard steps capacity	n	G2	G2	G2
Optional steps capacity	n	–	–	–
Nominal absorbed current	A	29	34	41
Maximum absorbed current	A	49	67	79
Inrush current	A	159	168	219
Total absorbed power with R407C	kW	17,1	20,2	24,9
Total absorbed power with R22	kW	17,1	20,2	24,9
Dimensions				
Length	mm	3.000	3.000	3.000
Length with MV included	mm	3.000	3.000	3.000
Width	mm	1.080	1.080	1.080
Width with MV included	mm	1.080	1.080	1.080
Height	mm	1.870	1.870	1.870
Height with MV included	mm	1.870	1.870	1.870
Weight	kg	868	870	890
Weight with empty MV included	kg	978	980	1.000
Refrigerant charge for each circuit	kg	8,1	8,4	11
Power supply		400V / 50Hz / 3 Ph + T + N		

– = not available

Nominal condition referred to: air 35 °C - chilled water 7/12 °C

For free-cooling work mode: air 5 °C - unit's inlet water 15 °C - glycol 20 %

2) Measured at 1 m in open field (ISO 3746)