

## Air cooled chiller with scroll compressors and axial fans

Cooling capacity from 5 to 588,1 kW

# RAE Kc



### Versions

<b>RAE</b>	Standard
<b>RAE S</b>	Low noise
<b>RAE U</b>	Ultra low noise
<b>RAE F</b>	Standard with free cooling
<b>RAE FS</b>	Low noise with free cooling
<b>RAE MC</b>	Standard with microchannel coil aluminum/aluminum
<b>RAE MC S</b>	Low noise with microchannel coil aluminum/aluminum
<b>RAE MC HE</b>	High efficiency with microchannel coil aluminum/aluminum

Version with copper/aluminum coil arranged as an inverted "M" (RAE)

### Operation limits

#### Standard unit

Air: from 10 to 42°C; Water (out from evaporator): from 5 to 15°C

#### Free Cooling unit

Air: from 0 to 42°C; Water (out from evaporator): from 5 to 15°C (from -5 to 15°C with glycol)

RAE		901	951	1101	1201	1401	1602	1902	2402	2802	3102	3512	4002	4602	5102	5502	5902
Cooling capacity	kW	87,0	95,0	108,2	121,7	139,1	153,3	194,1	240,9	277,6	312,1	355,5	399,5	465,4	501,4	551,8	588,1
Absorbed power	kW	31,1	36,0	40,1	44,6	50,6	54,2	71,2	89,4	103,2	114,2	131,3	144,2	171,3	187,5	198,4	215,6
EER	kW/kW	2,8	2,64	2,7	2,73	2,75	2,83	2,73	2,69	2,69	2,73	2,76	2,77	2,72	2,67	2,78	2,73
Water flow	m³/h	15,0	16,4	18,7	21,0	24,0	26,4	33,5	41,5	47,9	53,8	61,3	68,9	80,2	86,4	95,1	101,4
Pressure drop	kPa	26,1	30,5	29,7	30,0	31,1	31,0	48,0	58,0	56,0	71,0	58,5	53,5	47,5	55,0	62,0	73,0
Fans	n°	3	3	3	4	4	2	3	3	4	4	5	5	8	8	8	10
Sound pressure	dB(A)	65	66	68	69	69	69	69	70	71	71	71	72	72	72	72	73

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



## Air cooled chillers

### with screw compressors and axial fans

Cooling capacity from 387 to 1220 kW



# RAH Ka RAH Kh

### Versions

**RAH** Standard  
**RAH S** Low noise  
**RAH F** Standard with free cooling

**ERAH MC** With microchannel coil aluminum/aluminum  
**ERAH MC HE** High efficiency with microchannel coil aluminum/aluminum

Version with copper/aluminum coil arranged as an inverted "M" (RAH)

### Operation limits

#### Standard unit

Air: from 15 to 45°C - Water (out from evaporator): from 5 to 15°C

#### Low noise unit:

Air: from 15 to 40°C - Water (out from evaporator): from 5 to 15°C

#### Free Cooling unit:

Air: from 0 to 42°C - Water (out from evaporator): from 5 to 15°C (from -5 to 15°C with glycol)

#### MC Unit:

Air: from 15 to 48°C - Water (out from evaporator): from 5 to 15°C



RAH		431	521	602	702	802	922	1032	1102	1202
Cooling capacity	kW	401,4	518,6	579,4	672,7	768,2	883,2	1015,6	1102,4	1187,0
Absorbed power	kW	117,8	156,6	181,2	217,4	247,2	289,2	321,8	359,2	395,6
EER	kW/kW	3,41	3,31	3,20	3,09	3,11	3,05	3,16	3,07	3,00
Water flow	m <sup>3</sup> /h	69,0	89,1	99,6	115,7	132,3	152,0	174,6	189,5	204,1
Pressure drop	kPa	30	32	31	27	28	30	35	41	41
Fans	n°	8	8	10	10	10	12	14	16	16
Sound pressure	dB(A)	78	80	80	80	80	81	82	82	82

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

## Air cooled chillers with brushless oil-free compressors and axial fans

Cooling capacity from 359 to 1398 kW

# RAC Ka



### Versions

- RAC** Standard
- RAC U** Ultra low noise
- RAC HE** High-efficiency
- RAC FS** Low noise with Free Cooling

### Operation limits

AIR: from -8°C to +42°C

AIR: from -20°C to +42°C with EC brushless fans (option)

WATER (out from evaporator): from 4 to 25°C

### Features

- External installation with very low sound level
- Cooling circuit with no lubricating oil entrainment
- High capacities and compact design
- Frequency controlled capacity regulation with a remarkable precision on the adjustment of the discharge temperature
- Slight inrush current
- Maximum efficiency with remarkable ESEER values

RAC		351	411	451	512	562	602	642	682	752	812	853	893	983	1083	1203	1283	1404
Cooling capacity	kW	359	410	445	510	560	604	640	680	750	810	850	892	984	1084	1190	1280	1398
Absorbed power	kW	92,3	113,0	121,0	135,8	151,0	159,2	161,4	173,4	195,0	220,6	221,1	237,9	245,1	271,8	308,7	350,1	367,6
EER	kW/kW	3,89	3,63	3,68	3,76	3,71	3,79	3,97	3,92	3,85	3,67	3,84	3,75	4,01	3,99	3,85	3,66	3,80
Water flow	m <sup>3</sup> /h	61,7	70,5	76,5	87,7	96,3	103,9	110,1	117,0	129,0	139,3	146,2	153,4	169,2	186,4	204,7	220,2	240,5
Pressure drop	kPa	26	21	24	60	68	52	59	65	64	73	53	58	69	61	73	68	81
Fans	n°	8	8	8	8	10	10	10	10	12	12	14	14	14	16	20	20	20
Sound pressure	dB(A)	71	71	71	72	74	74	74	74	74	74	74	74	74	76	75	75	75

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



## Water cooled water chillers

Potenza frigorifera da 5 A 2104 kW

### RWE Kc - RWE Ka - With SCROLL compressors (from 5 to 475 kW)

#### Versions

**RWE Ka** with ecological refrigerant charge R134a

**RWE Kc** with ecological refrigerant charge R410A

#### Operation limits

EVAPORATOR (OUT): from 5 to 15°C

CONDENSER (OUT): from 30 to 55°C



RW Kc  
RW Ka

### RWH Ka - with SCREW compressors (from 280 to 1228 kW)

**RWH Ka** with ecological refrigerant charge R134a

#### Operation limits

(standard units)

EVAPORATOR (out): from 5 to 15°C

CONDENSER (out): from 30 to 58°C



### RWC Ka - With brushless oil-free compressors (da 282 a 2104 kW)

**RWC Ka** with ecological refrigerant charge R134a

#### Operation limits

(standard units)

EVAPORATOR (out): from 5 to 20°C

CONDENSER (out): from 25°C to 50°C



RWH Ka		281	321	361	421	452	491	562	551	601	642	732	852	992	1102	1202
Cooling capacity	kW	279,9	321,1	365,5	424,4	448,6	489,0	558,3	551,4	601,5	654,8	731,4	848,3	994,3	1111,3	1227,6
Absorbed power	kW	56,4	64,7	74,2	86,2	94,4	97,4	111,9	113,3	124,1	129,9	148,1	170,3	192,8	226,2	245,8
EER	kW/kW	4,96	4,96	4,93	4,92	4,75	5,02	4,99	4,87	4,85	4,97	4,94	4,98	5,16	4,91	4,99
Water flow	m³h	48,0	55,1	62,7	72,8	77,0	83,9	95,8	94,6	103,2	110,8	125,5	145,6	170,7	190,7	210,7
Pressure drop	kPa	15,6	18,0	22,3	29,9	22,7	19,9	32,1	23,9	28,8	38,7	30,8	36,5	43,3	50,1	36,3
Sound pressure	dB(A)	75,5	75,7	75,6	75,7	75,4	75,4	78,8	75,7	77,8	77,6	77,8	77,8	77,7	78,1	78,8

## Air cooled water chillers

with semi-hermetic reciprocating compressors and axial fans, with natural refrigerant

Cooling capacity from 56 to 426 kW

# RAS Kp



### Versions

- RAS** Standard
- RAS S** Low noise
- RAS F** Standard with free cooling

### Operation limits

#### Standard unit

AIR: from 10°C to +40°C WATER (out from evaporator): from 5 to 15°C.

#### Free Cooling unit:

AIR: from 0°C to +40°C WATER: from 5 to 15°C (from -5 to +15°C with glycol).

### Features

- Liquid solution chillers.
- Outdoor installation.
- ATEX Semi-hermetic reciprocating compressors.
- Axial fans.
- Natural refrigerant units with no environmental impact.
- Maximum efficiency, minimum sound emissions.
- Wide range of options.

RAS		601	801	1301	1601	1701	2002	2302	2502	2802	3002	3302	3502	4304
Cooling capacity	kW	57,7	79,2	114,1	150,5	171,1	190,9	225,3	244,5	276,3	300,6	326,1	342,6	426,5
Absorbed power	kW	15,6	21,9	32,1	46,0	51,5	55,0	65,3	75,5	86,5	93,4	99,8	103,1	133,3
EER	kW/kW	3,70	3,62	3,55	3,27	3,32	3,47	3,45	3,24	3,19	3,22	3,27	3,32	3,20
Water flow	m³h	9,9	13,7	19,6	25,8	29,4	32,8	38,7	42,0	47,5	51,7	56,0	58,9	73,3
Pressure drop	kPa	56	33	46	57	56	32	35	36	38	39	36	36	35
Fans	n°	1	1	2	2	2	2	3	3	3	3	4	4	4
Sound pressure	dB(A)	68	70	72	74	75	74	73	75	76	76	76	76	76

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



## Air and water cooled chiller with brushless oil-free compressors and axial fans

RAC Kh: Cooling capacity from 320 to 1258 kW • RWC Kh: Cooling capacity from 250 to 1890 kW



# RAC Kh RWC Kh



### Versions

- RAC** Standard
- RAC U** Ultra low noise
- RAC HE** High efficiency
- RAC FS** Ultra low noise with Free Cooling

### Operation limits RAC Kh

AIR: from -8°C to +42°C with fans regulated by inverter  
 AIR: from -20°C to +42°C with EC brushless fans (option)  
 WATER (out from evaporator): from 4 to 25°C

### Operation limit for free-cooling version: RAC FS Kh

AIR: from -8°C a +42°C with fans regulated by inverter  
 AIR: from -20°C a +42°C with EC brushless fans (option)  
 WATER (out from evaporator): from 4 to 25°C

### Features

- External installation with very low sound level
- Cooling circuit with no lubricating oil entrainment
- High capacities and compact design
- Frequency controlled capacity regulation with a remarkable precision on the adjustment of the discharge temperature
- Slight inrush current
- Maximum efficiency with remarkable ESEER values

### Operation limits RAC Kh

EVAPORATOR: Max water temperature inlet 25°C  
 CONDENSER: Min. /max. inlet water temperature 20°C / 50°C



RAC Kh		512	562	602	853	893		
Cooling capacity (air 35°C - water 7/12°C)	kW	460	504	544	765	803		
Absorbed power (air 35°C - water 7/12°C)	kW	135,8	151,0	159,2	221,1	237,9		
EER	kW/kW	3,39	3,34	3,42	3,46	3,38		
Sound pressure	dB(A)	72	74	74	74	74		
RWC Kh		281	502	562	602	702	863	923
Cooling capacity (water 30/35°C - water 7/12°C)	kW	254,0	452,4	502,2	544,4	634,6	776,4	808,2
Absorbed power (water 30/35°C - water 7/12°C)	kW	52,6	91,4	103,8	116,6	127,0	161,7	177,9
EER	kW/kW	4,83	4,95	4,84	4,67	5,00	4,80	4,66
Sound pressure	dB(A)	75	78	78	78	79	80	80

**Air cooled heat pumps  
with SCROLL or SCREW compressors and axial fans**

PAE Kc Heating capacity from 99 to 782 kW · PAH Ka Heating capacity from 197 to 778 kW

**PAE Kc  
PAH Ka**

**Versions**

- PAE Kc** Standard
- PAE S Kc** Low noise



**Operation limits**

**Summer mode:**

AIR: from 10°C to +42°C WATER (out from evaporator): from 5 to 15°C

**Winter mode:**

AIR: from 20°C to -8°C WATER: (out from evaporator): max 40°C

AIR: from 20°C to -5°C WATER: (out from evaporator): max 45°C

AIR: from 20°C to 0°C WATER: (out from evaporator): max 50°C

**Versions**

- PAH Ka** Standard
- PAH S Ka** Low noise
- PAH U Ka** Ultra low noise



**Operation limits**

**Summer mode:**

AIR: from 10°C to +42°C WATER: (out from evaporator): from 5 to 15°C

**Winter mode:**

AIR: from 20°C to -8°C WATER: (out from evaporator): max 40°C

AIR: from 20°C to -5°C WATER: (out from evaporator): max 45°C

AIR: from 20°C to 0°C WATER: (out from evaporator): max 50°C



PAE Kc		801	1002	1302	1502	1702	2002	2302	2502	2902	3202	3402	3602	3802	4102	4902	5202	5602	6102
Heating capacity	kW	99,3	132,8	162,4	187,9	213,4	262,9	293,7	326,9	373,3	411,0	433,9	462,9	486,1	504,4	619,9	684,5	720,3	782,2
COP	kW/kW	3,5	3,1	3,2	3,4	3,4	3,4	3,4	3,4	3,5	3,5	3,4	3,5	3,5	3,6	3,5	3,5	3,5	3,6
Sound pressure	dB(A)	75	78	78	79	79	80	80	80	82	81	82	83	83	84	82	81	84	84
PAH Ka						431	521	602	702	802	922	1032	1102						
Cooling capacity	kW					463,8	595,0	678,6	795,6	901,3	1050,2	1189,1	1297,4						
COP	kW/kW					4,17	4,08	3,95	4,00	4,06	4,06	4,07	3,90						
Sound pressure	dB(A)					78	80	80	80	80	81	81	82						

Nominal condition referred to: air 10°C - water 40/45°C.



# Packaged air to air and air to water roof-top units with scroll compressors

Cooling capacity from 64 to 406 kW



## ROOF TOP K

### Versions

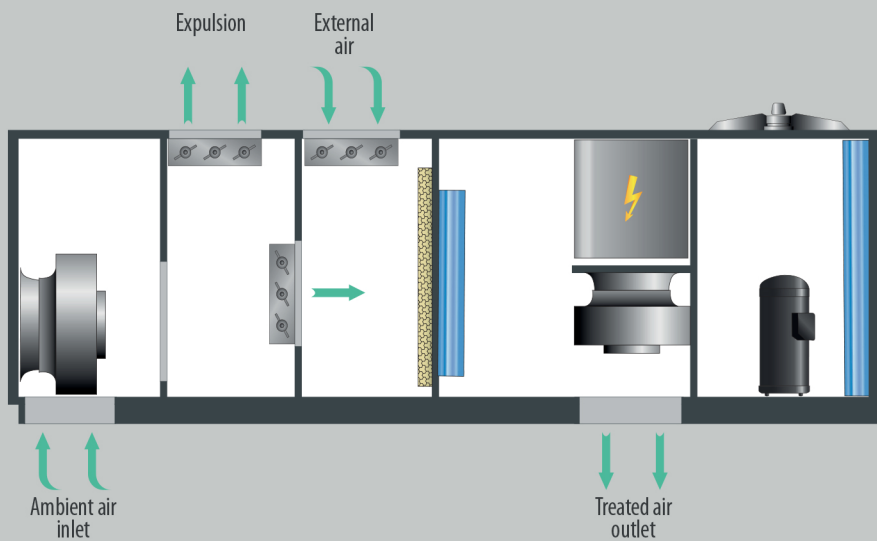
- RTR** Only cooling
- RTR W** Only cooling, water condensed
  
- RTP** Heat pump version heating/cooling mode
- RTP W** Heat pump version heating/cooling mode, water condensed

### Configurations

- 2S** Mixing of re-circulating and external air (2 dampers)
- 3S** Mixing of re-circulating and fresh air and exhaust of the exceeding internal air through a suitable fan (3 dampers)
- TR** All re-circulating air (no mixing between re-circulating and external air)
- TES** Possible mixing with heat recovery and free-cooling (not available for all units)



3S Configuration



RTR 2S		572	692	842	812	992	1102	1302	1292	1472	1662	1992	2322	2492	2802	3102	3662
Total cooling capacity *	kW	57,4	68,9	83,6	81,4	99,4	111,0	130,0	129,0	140,0	166,0	199,0	229,0	249,0	286,0	310,0	366,0
Sensible cooling capacity *	kW	40,8	51,6	62,8	58,2	73,6	79,1	92,7	91,9	105,7	129,6	146,5	168,6	178,5	202,7	219,3	253,0
Total absorbed power	kW	16,3	18,6	24,4	22,6	29,2	35,0	38,0	39,4	44,6	48,8	61,0	71,1	80,8	86,0	93,2	117,0
Air flow	m <sup>3</sup> h	11000	13200	15400	17600	19800	20900	22000	27500	30800	33000	38500	41000	44000	49500	55000	66000
Available pressure	kPa	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Sound pressure	dB(A)	73	74	75	76	76	76	77	76	77	78	78	79	80	82	82	84

\* Ambient air temperature 27°C / 50% HR - External air 35°C

