

RAK/dk



Charge < 10 Kg



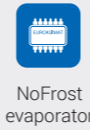
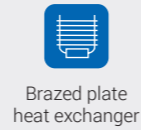
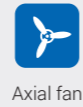
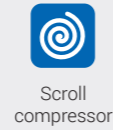
Scroll Water Chillers

Nominal cooling capacity: 5 - 212 kW | 50 Hz



**KØLE
GRUPPEN**





Air cooled water chillers

Air cooled water chillers



Solution

- B - Base
- I - Integrated

Version

- ST - Standard
- LN - Low noise

Equipment

- AS - Standard equipment
- DS - Desuperheater
- HR - Total heat recovery
- BT - Fluid low temperature

Cooling Capacity 5 - 40 kW

Radial plug fan available (RAK.C)

Housing	Base made of painted galvanised steel; panels made of galvanised steel externally coated with plastic (PVC) film and mounted on alu-minium profiles to ensure total weathering resistance. Panels are internally lined to reduce the noise level (LN Accessories only).
Compressor	HERMETIC SCROLL type, complete with thermal protection. Antivibration mountings and oil charge are standard.
Fan	Low speed, axial-flow fans fitted with accident-prevention protective grille; directly coupled motor with built-in thermal cutout and IP 54 protection degree; aerodynamic housing and wing profile blades increase efficiency and decrease noise level.
Air heat exchanger	Finned coil made with copper pipes and aluminium fins offering a high exchange surface area.
Water heat exchanger	INTEGRATED solution NOFROST type: copper tubes in a plastic pipe fitted into a steel tank with shell covered with closed-cell neoprene anti-condensate material; complete with water differential pressure switch. BASE solution: plate-type made of AISI 316 steel complete with water differential pressure switch. Shell covered with closed-cell neoprene anti-condensate material.
Electrical board	Switchboard to standards IEC 204-1/EN60204-1, complete with contactor and protection for compressor and fans. Main isolator and door interlock safety device.
Control	The microprocessor controls the unit capacity by timing the compressors and checks the operating alarms with the possibility to connect to BMS.
Refrigerant circuit	Filter drier, sight glass and liquid moisture, solenoid valve, shut-off valve on the liquid line, equalized thermostatic expansion valve, safety pressure high / low pressure.
Water circuit	(Integrated): safety valve, centrifugal pump suitable for glycol solutions up to 20%, manual air venting valve, differential pressure switch, water tank.

ACCESSORIES

- Vibration isolation mountings
- Modulating fan speed condensing control
- ON/OFF Fan condensing control (5°C) (standard)
- Crankcase electrical heater
- Compressor intercepting valves
- Wall mounted remote control panel
- Sequence phases relay
- Evaporator antifreeze heater(only Base version)
- Refrigerant gas HP and LP pressure gauges
- Electromechanical flow switch
- Pumping group, 1 pump.
- Automatic water filling valve (closed circuit)
- Air flow separate compressor room (standard)
- Coil protection grille (standard)
- Electronic expansion valve
- EC motor fans with condensing control
- Compressor's soft-starter

RAK.E	01C1t	02C1t	03C1	05C1	08C1	09C1	10C1	12C1	15C1
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ST VERSION										
Cooling capacity(1)	kW	5,8	8,0	12,7	16,8	19,3	23,1	27,1	33,0	40,2
Total compressors power input(1)	kW	2,2	3,0	4,4	5,9	6,7	8,0	9,0	11,4	13,9
Water flow(1)	m3/h	1,0	1,4	2,2	2,9	3,3	4,0	4,7	5,7	7,0
External pressure @ Pn(1)	kPa	175	170	160	150	140	140	130	140	130
Total air flow	m3/h	2600	3650	5300	5700	5700	9800	12700	12000	16300
Sound pressure(2)	dB(A)	55	58	55	58	59	65	65	65	67

LN VERSION										
Cooling capacity(1)	kW	5,6	7,8	12,4	16,4	18,7	22,5	26,4	32,1	39,2
Total compressors power input(1)	kW	2,3	3,2	4,5	6,2	7,0	8,4	9,4	11,9	14,5
Water flow(1)	m3/h	1,0	1,3	2,1	2,8	3,2	3,9	4,5	5,5	6,7
External pressure @ Pn(1)	kPa	185	180	170	160	150	150	140	150	140
Total air flow	m3/h	2400	3400	4800	5200	5200	8900	11700	11000	15000
Sound pressure(2)	dB(A)	52	56	53	55	57	62	63	63	66

Scroll										
Compressors type	-									
Compressors quantity	n°	1	1	1	1	1	1	1	1	1
Independent gas circuit	n°	1	1	1	1	1	1	1	1	1
Capacity steps	n°	1	1	1	1	1	1	1	1	1

Axial										
Fans type	-									
Fans quantity	n°	1	1	1	1	1	1	1	1	1
Fans power input	kW	0,12	0,20	0,33	0,63	0,63	0,65	1,0	1,0	2,0

400/3/50 + G										
Power supply	V/ph/Hz									
Maximum absorbed current (pump excluded)	A	4,6	7,3	10,8	13,8	16,3	21,3	24,5	29,5	34,7
Starting current	A	24,4	46,3	50,8	47,8	102,3	124,3	129,5	169,5	200,7
Water fittings	-	1/2"	1/2"	1/2"	1"	1"	1"1/4	1"1/4	1"1/4	1"1/4

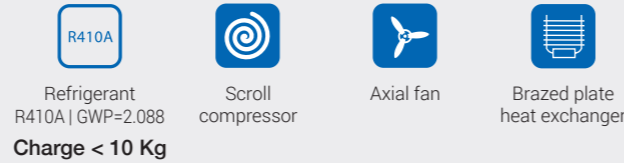
INTEGRATED SOLUTION										
Pump type	-									
Pump power input	kW	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,55	0,55
Water tank content	L	30	30	60	60	60	160	160	160	160
Water expansion tank content	L	2	2	6	6	6	12	12	12	12

DIMENSIONS AND WEIGHT - Base Solution										
Length (L)	mm	830	830	980	980	980	1280	1280	1280	1280
Depth (P)	mm	650	650	800	800	800	990	990	990	990
Height (H)	mm	1320	1320	1785	1785	1785	2055	2075	2075	2075
Shipping weight	Kg	155	170	250	270	285	470	495	500	520

DIMENSIONS AND WEIGHT - Integrated Solution										
Length (L)	mm	830	830	980	980	980	1280	1280	1280	1280
Depth (P)	mm	650	650	800	800	800	990	990	990	990
Height (H)	mm	1320	1320	1785	1785	1785	2055	2075	2075	2075
Shipping weight	Kg	170	190	280	300	315	520	550	560	575

Note:

- (1) Condenser air 35°C - Evaporator water IN/OUT 12/ 7°C
 - (2) Sound pressure measured at 1 m in open field conditions
- Data relating to the pumps are referred to the "Integrated Solution"
THE DECLARED COOLING CAPACITY ARE NOT TAKING INTO ACCOUNT THE PUMP MOTOR POWER INPUT (WHERE PROVIDED).



Air cooled water chillers

Air cooled water chillers



Solution

- B - Base
- I - Integrated

Version

- ST - Standard
- LN - Low noise

Equipment

- AS - Standard equipment

Cooling Capacity 43 - 101 kW

Radial plug fan available (RAK.C)

Housing	Base made of painted galvanised steel; panels made of galvanised steel externally coated with plastic (PVC) film and mounted on alu-minium profiles to ensure total weathering resistance. Panels are internally lined to reduce the noise level (LN Accessories only).
Compressor	HERMETIC SCROLL type, complete with thermal protection. Antivibration mountings and oil charge are standard.
Fan	Low speed, axial-flow fans fitted with accident-prevention protective grille; directly coupled motor with built-in thermal cutout and IP 54 protection degree; aerodynamic housing and wing profile blades increase efficiency and decrease noise level.
Air heat exchanger	Finned coil made with copper pipes and aluminium fins offering a high exchange surface area.
Water heat exchanger	Plate-type made of AISI 316 steel complete with water differential pressure switch. Shell covered with closed-cell neoprene anti-condensate material.
Electrical board	Switchboard to standards IEC 204-1/EN60204-1, complete with contactor and protection for compressor and fans. Main isolator and door interlock safety device.
Control	The microprocessor controls the unit capacity by timing the compressors and checks the operating alarms with the possibility to connect to BMS.
Refrigerant circuit	Filter drier, sight glass and liquid moisture, solenoid valve, shut-off valve on the liquid line, equalized thermostatic expansion valve, safety pressure high/low pressure.
Water circuit	(Integrated): safety valve, centrifugal pump suitable for glycol solutions up to 20%, manual air venting valve, differential pressure switch, water tank.

ACCESSORIES	
<ul style="list-style-type: none"> ■ Vibration isolation mountings ■ Modulating fan speed condensing control ■ ON/OFF Fan condensing control (5°C) (standard) ■ Crankcase electrical heater ■ Compressor intercepting valves ■ Wall mounted remote control panel ■ Max and min voltage relay. ■ Sequence phases relay ■ Evaporator antifreeze heater(only Base version) ■ Refrigerant gas HP and LP pressure gauges 	<ul style="list-style-type: none"> ■ Electromechanical flow switch ■ Pumping group, 1 pump ■ Additional stand-by water pump ■ Automatic water filling valve (closed circuit) ■ Air flow separate compressor room (standard) ■ Coil protection grille (standard) ■ Electronic expansion valve ■ EC motor fans with condensing control ■ Compressor's soft-starter

RAK.E	18C2	20C2	26C2	30C2	35C2	40C2
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ST VERSION							
Cooling capacity(1)	kW	43,2	53,0	62,0	78,1	90,8	101,0
Total compressors power input(1)	kW	16,8	18,6	25,0	29,2	33,0	40,2
Water flow(1)	m3/h	7,4	9,1	10,7	13,4	15,6	17,3
External pressure @ Pn(1)	kPa	120	140	130	130	145	130
Total air flow	m3/h	24500	24500	24500	35000	31800	35000
Sound pressure(2)	dB(A)	68	68	68	70	71	72

LN VERSION							
Cooling capacity(1)	kW	42,2	51,7	60,5	76,2	88,5	98,4
Total compressors power input(1)	kW	17,6	19,5	26,2	30,7	34,5	42,1
Water flow(1)	m3/h	7,3	8,9	10,4	13,1	15,2	16,9
External pressure @ Pn(1)	kPa	130	145	140	140	150	140
Total air flow	m3/h	20800	20800	20800	30000	32000	32000
Sound pressure(2)	dB(A)	66	66	66	67	68	70

Scroll							
Compressors type	-						
Compressors quantity	n°	2	2	2	2	2	2
Independent gas circuit	n°	1	1	1	1	2	2
Capacity steps	n°	2	2	2	2	2	2

Axial							
Fans type	-						
Fans quantity	n°	2	2	2	3	3	3
Fans power input	kW	2,0	2,0	2,0	3,0	3,0	3,0

400/3/50 + G							
Power supply	V/ph/Hz						
Maximum absorbed current (pump excluded)	A	48,7	58,2	65,2	75,2	82,2	94,6
Starting current	A	106,5	127,5	131,0	215,2	266,2	314,6
Water fittings	-	1"1/2	1"1/2	1"1/2	2"	2"	2"





INTEGRATED SOLUTION							
Pump type	-						
Pump power input	kW	0,9	0,9	0,9	1,1	1,5	1,5
Water tank content	L	160	160	160	290	290	290
Water expansion tank content	L	12	12	12	24	24	24

DIMENSIONS AND WEIGHT - Base Solution							
Length (L)	mm	1930	1930	1930	2580	2580	2580
Depth (P)	mm	990	990	990	990	990	990
Height (H)	mm	2155	2155	2155	2155	2155	2155
Shipping weight	Kg	700	725	770	890	980	1050

DIMENSIONS AND WEIGHT - Integrated Solution							
Length (L)	mm	1930	1930	1930	2580	2580	2580
Depth (P)	mm	990	990	990	990	990	990
Height (H)	mm	2155	2155	2155	2155	2155	2155
Shipping weight	Kg	765	790	840	990	1080	1150

Note:
 (1) Condenser air 35°C - Evaporator water IN/OUT 12/ 7°C
 (2) Sound pressure measured at 1 m in open field conditions
 Data relating to the pumps are referred to the "Integrated Solution"
 THE DECLARED COOLING CAPACITY ARE NOT TAKING INTO ACCOUNT THE PUMP MOTOR POWER INPUT (WHERE PROVIDED).



- 
 Refrigerant
 R410A | GWP=2.088
Charge < 10 Kg
- 
 Scroll
 compressor
- 
 Braze plate
 heat exchanger
- 
 NoFrost
 evaporator

Solution

- B - Base
- I - Integrated

Version

- ST - Standard
- LN - Low noise

Equipment

- AS - Standard equipment
- DS - Desuperheater
- HR - Total heat recovery
- BT - Fluid low temperature

Cooling Capacity 4 - 39 kW

Housing	Base made of painted galvanised steel; panels made of galvanised steel externally coated with plastic (PVC) film and mounted on alu-minium profiles to ensure total weathering resistance. Panels are internally lined to reduce the noise level (LN Accessories only).
Compressor	HERMETIC SCROLL type, complete with thermal protection. Antivibration mountings and oil charge are standard.
Water heat exchanger	INTEGRATED solution NOFROST type: copper tubes in a plastic pipe fitted into a steel tank with shell covered with closed-cell neoprene anti-condensate material; complete with water differential pressure switch. BASE solution: plate-type made of AISI 316 steel complete with water differential pressure switch. Shell covered with closed-cell neoprene anti-condensate material.
Source heat exchanger	Plate-type made of AISI 316 stainless steel.
Electrical board	Switchboard to standards IEC 204-1/EN60204-1, complete with con tactor and protection for compressor and fans. Main isolator and door interlock safety device.
Control	The microprocessor controls the unit capacity by timing the com-pressors and checks the operating alarms with the possibility to connect to BMS.
Refrigerant circuit	Filter drier, sight glass and liquid moisture, solenoid valve, shut-off valve on the liquid line, equalized thermostatic expansion valve, safety pressure high / low pressure.
Water circuit	(Integrated): safety valve, centrifugal pump suitable for glycol solutions up to 20%, manual air venting valve, differential pressure switch, water tank.

- ACCESSORIES**
- Pressostatic condenser water valve (20K ΔT)
 - Vibration isolation mountings
 - Crankcase compressor oil heater
 - Wall mounted remote control panel
 - Compressor intercepting valves
 - Sequence phases relay
 - Evaporator electrical heater
 - Refrigerant gas HP and LP pressure gauges
 - Electronic expansion valve
 - Compressor's soft-starter

RAK.W	02C1t	03C1t	04C1	06C1	08C1	10C1	11C1	12C1	15C1
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ST - LN VERSION										
Cooling capacity(1)	kW	5,7	7,8	10,3	14,8	19,6	22,8	26,1	28,7	39,5
Total compressors power input(1)	kW	2,2	2,8	3,6	5,2	6,7	7,9	9,1	9,9	12,5
Water flow(1)	m3/h	1,0	1,3	1,8	2,5	3,4	3,9	4,5	4,9	6,8
External pressure @ Pn(1)	kPa	170	160	160	150	140	130	140	130	120
Condenser Water flow(1)	m3/h	1,2	1,7	2,2	3,2	4,1	4,8	5,5	6,1	8,2
Condenser pressure drop @ Pnc(1)	kPa	30	35	40	42	42	46	46	48	49
Sound pressure ST Version(2)	dB(A)	53	53	57	57	57	59	59	60	63
Sound pressure LN Version(2)	dB(A)	49	49	53	53	53	55	55	56	59

Compressors type										
Compressors type	-	Scroll								
Compressors quantity	n°	1	1	1	1	1	1	1	1	1
Independent gas circuit	n°	1	1	1	1	1	1	1	1	1
Capacity steps	n°	1	1	1	1	1	1	1	1	1

Power supply										
Power supply	V/ph/Hz	400/3/50 + G								
Maximum absorbed current (pump excluded)	A	7,0	8,2	8,6	12,2	16,0	18,1	20,5	22,2	29,0
Starting current (pump excluded)	A	46,0	48,0	66,0	73,0	102,0	102,0	102,0	102,0	145,0

INTEGRATED SOLUTION										
Pump type	-	Centrifugal								
Pump power input	kW	0,37	0,37	0,6	0,6	0,6	0,6	0,8	0,8	0,8
Water tank content	L	30	30	30	60	60	160	160	160	160
Water expansion tank content	L	2	2	2	6	6	12	12	12	12

DIMENSIONS AND WEIGHT - Base Solution										
Lenght (L)	mm	830	830	830	830	830	980	980	980	980
Depth (P)	mm	650	650	650	650	650	800	800	800	800
Height (H)	mm	800	800	800	800	800	900	900	900	1.650
Shipping weight	Kg	120	130	150	160	170	250	260	270	300

DIMENSIONS AND WEIGHT - Integrated Solution										
Lenght (L)	mm	830	830	980	980	980	1280	1280	1280	1280
Depth (P)	mm	650	650	800	800	800	990	990	990	990
Height (H)	mm	1.350	1.350	1.650	1.650	1.650	1190	1190	1190	1190
Shipping weight	Kg	150	160	250	260	270	450	460	470	500

Note:
 (1) Condenser water IN/OUT 39/45°C (30% Ethylene Glicol) - Evaporator water IN/OUT 12/ 7°C
 (2) Sound pressure measured at 1 m in open field conditions
 Data relating to the pumps are referred to the "Integrated Solution"
 THE DECLARED COOLING CAPACITY ARE NOT TAKING INTO ACCOUNT THE PUMP MOTOR POWER INPUT (WHERE PROVIDED).



Refrigerant
R410A | GWP=2.088
Charge < 10 Kg



Scroll
compressor



Braze plate
heat exchanger

Water cooled water chillers

Water cooled water chillers



Solution

- B - Base
- I - Integrated

Version

- ST - Standard
- LN - Low noise

Equipment

- AS - Standard equipment

Cooling Capacity 39 - 212 kW

Housing	Base Solution: Frame made of painted galvanised steel heavy profiles to ensure total mechanical and corrosion resistance. Integrated solution: Base made of painted galvanised steel; panels made of galvanised steel externally coated with plastic (PVC) film fixed in a aluminum frame. Panels are internally lined to reduce the noise level (LN Accessories only).
Compressor	HERMETIC SCROLL type, complete with thermal protection. Antivibration mountings and oil charge are standard.
Water heat exchanger	Plate-type made of AISI 316 steel complete with water differential pressure switch. Shell covered with closed-cell neoprene anti-condensate material.
Source heat exchanger	Plate-type made of AISI 316 stainless steel.
Electrical board	Switchboard to standards IEC 204-1/EN60204-1, complete with con factor and protection for compressor and fans. Main isolator and door interlock safety device.
Control	The microprocessor controls the unit capacity by timing the com-compressors and checks the operating alarms with the possibility to connect to BMS.
Refrigerant circuit	Filter drier, sight glass and liquid moisture, solenoid valve, shut-off valve on the liquid line, equalized thermostatic expansion valve, safety pressure high / low pressure.
Water circuit	(Integrated): safety valve, expansion tank, water pump, water tank.

ACCESSORIES	
■ Pressostatic condenser water valve (20K ΔT)	■ Evaporator electrical heater
■ Vibration isolation mountings	■ Refrigerant gas HP and LP pressure gauges
■ Crankcase compressor oil heater	■ Electromechanical flow switch
■ Wall mounted remote control panel	■ Electronic expansion valve
■ Compressor intercepting valves	■ Evaporator and condenser manifolds (Base solution, from size 45C2)
■ Max and min voltage relay	■ Compressor's soft-starter
■ Sequence phases relay	

RAK.W	16C2	18C2	20C2	26C2	30C2	35C2	40C2	45C2	50C2	60C2	70C2	80C2
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ST - LN VERSION												
Cooling capacity(1)	kW	39,3	42,5	47,0	59,2	78,3	92,6	107,3	120,4	133,6	171,9	212,6
Total compressors power input(1)	kW	13,4	14,6	15,2	19,3	24,8	29,5	34,1	37,7	41,4	52,2	64,2
Water flow(1)	m ³ /h	6,8	7,3	8,1	10,2	13,5	15,9	18,4	20,7	23,0	29,6	36,6
External pressure @ Pn(1)	kPa	150	130	100	100	70	100	110	150	130	100	75
Condenser Water flow(1)	m ³ /h	8,3	9,0	9,8	12,4	16,3	19,2	22,3	24,9	27,6	35,3	43,6
Condenser pressure drop @ Pnc(1)	kPa	25	28	27	31	33	37	36	40	43	47	55
Sound pressure ST Version(2)	dB(A)	61	64	64	66	66	67	68	71	72	74	75
Sound pressure LN Version(2)	dB(A)	56	60	60	62	62	63	64	67	68	70	71

Scroll												
Compressors type	-											
Compressors quantity & independent gas circuits	n°	2	2	2	2	2	2	2	2	2	2	2
Condenser & Evaporator	n°	1+1	1+1	1+1	1+1	1+1	1+1	1+1	2+2	2+2	2+2	2+2
Capacity steps	n°	2	2	2	2	2	2	2	2	2	2	2

400/3/50 + G												
Power supply	V/ph/Hz											
Maximum absorbed current (pump excluded)	A	32,0	34,1	37,0	46,0	58,0	73,0	88,0	97,0	106,0	132,0	162,0
Starting current (pump excluded)	A	118,0	118,0	118,0	123,0	173,0	239,0	254,0	254,0	263,0	353,0	379,0

Centrifugal												
Pump type	-											
Pump power input	kW	0,8	0,8	0,8	1,1	1,1	1,1	1,1	1,1	1,1	1,5	1,5
Water tank content	L	220	220	220	220	300	300	300	300	300	500	500

DIMENSIONS AND WEIGHT - Base Solution												
Lenght (L)	mm	1000	1000	1000	1000	1000	1300	1300	1500	1500	1750	1750
Depth (P)	mm	650	650	650	650	650	650	650	800	800	800	820
Height (H)	mm	1300	1300	1300	1300	1300	1750	1750	1600	1600	1600	1400
Shipping weight	Kg	350	370	390	420	500	580	640	880	960	1260	1400

DIMENSIONS AND WEIGHT - Integrated Solution												
Lenght (L)	mm	2250	2250	2250	2250	2580	2580	2580	3520	3520	3520	3800
Depth (P)	mm	820	820	820	820	990	990	990	990	990	990	1150
Height (H)	mm	1400	1400	1400	1400	1400	1400	1400	1950	1950	1950	1970
Shipping weight	Kg	600	620	640	660	800	830	900	980	1050	1350	1520

Note:
 (1) Condenser water IN/OUT 39/45°C (30% Ethylen glycol) - Evaporator water IN/OUT 12/ 7°C
 (2) Sound pressure measured at 1 m in open field conditions
 Data relating to the pumps are referred to the "Integrated Solution"
 THE DECLARED COOLING CAPACITY ARE NOT TAKING INTO ACCOUNT THE PUMP MOTOR POWER INPUT (WHERE PROVIDED).



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