

THE OPTIMUM RANGE FROM REFCOOL



RAK

THE ENERGY REVOLUTION

Industrial chillers - 0 to 200 kW

YOUR SOLUTION



REFCOOL

REFRIGERATION LTD



WELCOME TO REFCOOL

With over 30 years of experience in the industrial water chiller industry, we understand the demanding environment in which our clients operate, and the necessity for professional chilled water service to limit your production down time. Refcool believe that only through the promotion of high engineering standards can a cost effective service be delivered. Our approach is to work with our clients in longer term service management contracts to ensure we thoroughly understand our clients requirements and always present the correct engineering solution for their requirements.

OUR SERVICES

We are here to serve. Whether it be through a service inspections contract, or a preventative maintenance contract. These are designed to fulfil the twin objectives of fulfilling the legal requirement of the F gas Regulations and ensuring your cooling plant is running as efficiently as possible.

SERVICE & MAINTENANCE

Refcool Refrigeration(Refcool) is a UK based, privately owned specialist heat transfer, refrigeration and cooling company, trading since 1996. We have a well deserved reputation for servicing and maintenance work. This arises not only from the strong customer service ethic but also the depth of knowledge and expertise in providing cost effective solutions.

THE PRODUCTS

We have sourced a range of energy efficient cooling plant to cover the full spectrum of cooling requirements from Chillers, to closed loop Air Blast Coolers to Adiabatic Air Blast Coolers and Cooling Towers. Consideration in product selection will be given to running cost, global warming potential and efficiency as well as upfront capital cost.

REFCOOL
REFRIGERATION

OUR MANUFACTURING FACILITIES

Refcool Refrigeration is built on an engineering team comprising of both electrical and mechanical expertise, establishing an outstanding manufacturing facility. The company designs and manufacture small chillers and air blast heat exchangers and other cooling equipment for Original Equipment Manufacturers.

As experts in process cooling and heat transfer solutions, Refcool engages with major OEM and blue chip clients in developing tailored solutions backed up by contract manufacturing supply agreements. Its practical engineering approach, supported by advanced design capabilities, ensures energy efficiency and cost effectiveness are trademarks by which Refcool is recognised.

Where a standard or tailored standard unit is not sufficient, Refcool can offer a bespoke design and manufacturing service to maximise added product efficiency



REFCOOL
ATION LTD



RAK « OPTIMUM »

Industrial Process equipment Optimum is the new gold standard in industrial cooling.

The best that current technology has to offer to guarantee energy efficiency for Optimum performance.

A COMPLETE SOLUTION TO MEET ALL YOUR REQUIREMENTS

> Automotive industry

> Food industry

> Chemistry

> Plastics technology

> Nuclear energy

> Textiles

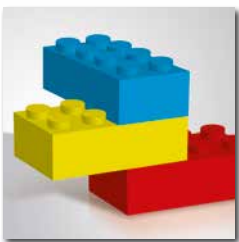
> Iron and steel industry

> Surface treatment

> Wine producing



RAK, A CONCENTRATION OF TECHNOLOGIES COMBINING ALL THE BEST ADVANTAGES



EASY
TO INSTALL



ENERGY
REVOLUTION



THE COMBINATION
OF THE BEST
COMPONENTS



EASY
MAINTENANCE



EASY
TO USE

RAK: THE COOLING UNIT THAT HAS REVOLUTIONISED THE PRODUCTION OF CHILLED WATER

• OPTIMUM ENERGY EFFICIENCY

For lower electricity consumption, compared with other machines on the market, RAK produces the same refrigerating yield.

• ENERGY SAVING

Owing to the efficiency of the OPTIFLUX exchanger, patented by the CTA group.

• A MACHINE THAT PAYS FOR ITSELF

Because of the energy saved, you recoup the cost of your machine quickly.

• PROTECTING THE ENVIRONMENT

Owing to the use of environmentally-friendly refrigerant, reduced electricity consumption and a closed water circuit.

• ONLY THE BEST COMPONENTS SELECTED

CAREL regulation, FRASCOLD semi-hermetic, SANYO or COPELAND Scroll compressor...

• MANUFACTURING QUALITY

The RAK manufacturing process meets strict ISO 9001 certified specifications.

• THE SOLUTION YOU CAN TRUST

We are committed to providing you with the best technical expertise from the moment you request information until your RAK is commissioned.

EASY TO INSTALL AND START-UP

Compact and designed with a condenser located on one side only, the RAK cooler adapts to any installation constraints, both inside and outside.

With its built-in hydraulic component, RAK is ready to use. A kit is available to facilitate filling the unit with water.

TOTAL ACCESSIBILITY AT THE FRONT

All the panels can be removed to facilitate maintenance.

DOES NOT REQUIRE A LOT OF STORAGE SPACE

RAK was designed to fit into even the smallest spaces.



> Pharmaceutical industry
> Electronics
> Laser

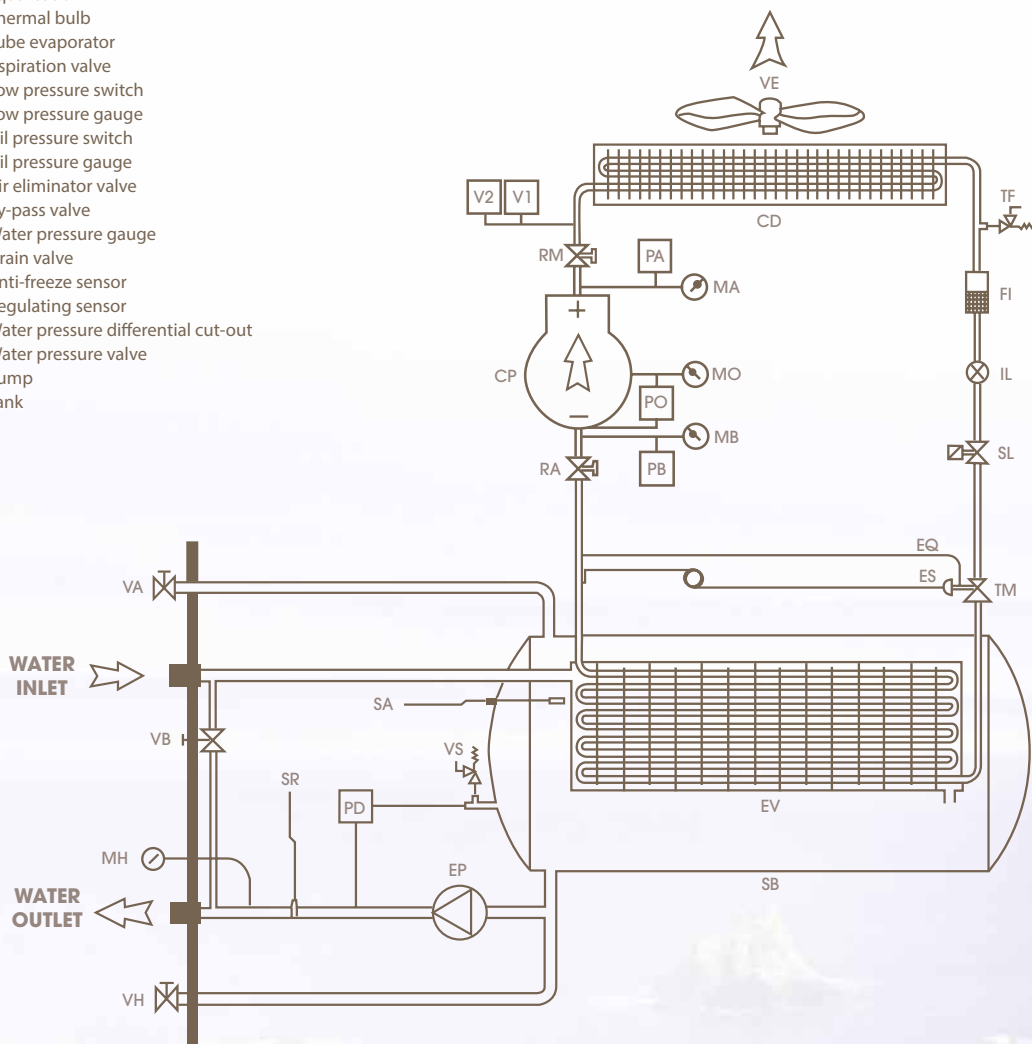


REFRIGERATING CIRCUIT

The refrigerating circuit is in a **COPPER PIPE SOLDERED WITH SILVER ALLOY** and has a thermostatic expansion valve.

Model RAK:

- CP Compressor
- RM Pressure relief valve
- PA High pressure switch
- MA High pressure gauge
- V1 1st stage fan pressure controller
- V2 2nd stage fan pressure controller
- CD Condenser battery
- VE Fan
- TF Water pressure valve
- FI Filter-drier
- IL Moisture/liquid indicator
- SL Liquid solenoid valve
- TM Thermostatic expansion valve
- EQ Equalisation
- ES Thermal bulb
- EV Tube evaporator
- RA Aspiration valve
- PB Low pressure switch
- MB Low pressure gauge
- PO Oil pressure switch
- MO Oil pressure gauge
- VA Air eliminator valve
- VB By-pass valve
- MH Water pressure gauge
- VH Drain valve
- SA Anti-freeze sensor
- SR Regulating sensor
- PD Water pressure differential cut-out
- VS Water pressure valve
- EP Pump
- SB Tank



THE OPTIFLUX EXCHANGER

REDUCE YOUR ENERGY CONSUMPTION WITH THE OPTIFLUX EXCHANGER.

The Optiflux exchanger, patented by the CTA group and developed in partnership with Alfa Laval, the world leader in exchangers, makes RAK a chiller with amazing performance which allows you to save energy whilst protecting the environment.

HELP TO PROTECT THE ENVIRONMENT

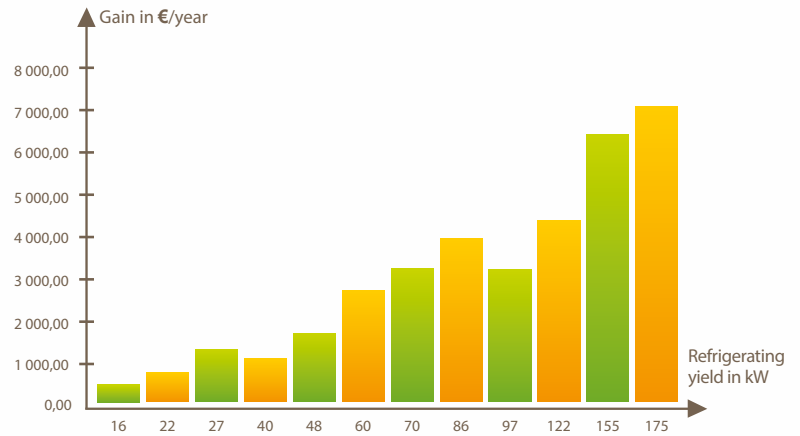
Recool is committed to caring for the environment; RAK complies with current regulations by using **AN ENVIRONMENTALLY-FRIENDLY REFRIGERANT, R410A**

But RAK goes **BEYOND LEGAL REQUIREMENTS:**

- The HYDRAULIC CIRCUIT IS ENCLOSED and therefore does not involve pumping or water discharge so there is **NO RISK OF LEGIONELLOSIS.**
- The quality of the cooler can be attributed to **OPTIMISATION OF THE EXCHANGER** combined with components selected for their **ENERGY EFFICIENCY** whilst allowing **LOWER ELECTRICITY CONSUMPTION.**

BENEFIT FROM A RETURN ON INVESTMENT

Thanks to the Optiflux exchanger, you will save money each year, which will allow you to quickly recoup the cost of the machine.



Data calculated based on 16 hrs / days – 220 days / year of operation and a cost in kWh of €0.15.



RAK BRINGS TOGETHER ALL THE BEST COMPONENTS



OPTIFLUX EXCHANGER

The Optiflux exchanger, patented by the CTA group, developed in partnership with Alfa laval, the world leader in exchangers. The tubular heat exchanger with direct expansion, in PVC covering, submerged in the surge tank.



FAN WITH STREAMLINED BLADES AND AIR-COOLED CONDENSER

RAK is fitted with propeller fans with balanced aluminium blades and a battery type air-cooled condenser in copper pipes and aluminium vanes. They allow noise levels to be reduced for improved ventilation air flow. Variable speed control or Latest energy efficient EC fan motors available on certain models.

BODY

It is made up of a frame in aluminium sections and panels in PVC plastic coated galvanised steel.

Optional: aluminium panels



HYDRAULIC KIT

It is made up of a steel storage tank, avoiding the risk of short cycles, and a 3 bar centrifugal pump as standard, with a pressure gauge and pressure differential cut-out on the water circuit.

An adjustable by-pass valve allows the pressure of the water supply flowing out of the unit to be regulated.

REAR VENTILATION GRILLE



CAREL REGULATION

RAK operation is controlled by microprocessor according to the starting temperature of the water, monitored by sensors. The digital interface continuously indicates the water outlet temperature. It also displays the operating instructions and the various adjustment parameters.



SCROLL COMPRESSOR

RAK is fitted with a high efficiency scroll compressor.



WHEN YOU OPT FOR REFCOOL
YOU ARE SELECTING THE EXPERTISE
OF A MANUFACTURER SPECIALISED IN
INDUSTRIAL PROCESSES.

WITH REFCOOL, BENEFIT FROM THE BEST SERVICES



COMMISSIONING

Refcool Refrigeration can provide a full turnkey design and installation service or a commissioning only service. We recommend taking advantage of our ongoing inspection service contracts to ensure compliance with the latest F Gas regulations, and to maintain maximum energy efficiency and reliability. We also offer a 24 hour service support if required. We can also offer Tax efficient lease options if required.

Refcool offer a full range of chiller products and services and this document covers the small end of our product range for details on larger models or complete projects please contact our head office.

All specifications are subject to change due to our policy of continually improving our product range.

100 % RELIABILITY

All our machines are fully tested in our factory before despatch.

EXPRESS DELIVERY

In order to best meet your requirements we hold stock of common model sizes in the UK and at the CTA factory. If necessary we can offer an intermediate hire/loan service if the situation is critical.



POWER CHART

TECHNICAL DATA

RAK.E		01C1m	02C1m	01C1t	02C1t	03C1	05C1	08C1	09C1	10C1	12C1	15C1
ST VERSION												
Cooling capacity(1)	kW	5,8	8,0	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	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	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	175	170	160	150	140	140	130	140	130
Total air flow	m3/h	2600	3650	2600	3650	5300	5700	5700	9800	12700	12000	16300
Sound pressure(2)	dB(A)	55	58	55	58	55	58	59	65	65	65	67
LN VERSION												
Cooling capacity(1)	kW	5,6	7,8	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	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	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	185	180	170	160	150	150	140	150	140
Total air flow	m3/h	2400	3400	2400	3400	4800	5200	5200	8900	11700	11000	15000
Sound pressure(2)	dB(A)	52	56	52	56	53	55	57	62	63	63	66
Compressors type	-	Scroll										
Compressors quantity	n°	1	1	1	1	1	1	1	1	1	1	1
Independent gas circuit	n°	1	1	1	1	1	1	1	1	1	1	1
Capacity steps	n°	1	1	1	1	1	1	1	1	1	1	1
Fans type	-	Axial										
Fans quantity	n°	1	1	1	1	1	1	1	1	1	1	1
Fans power input	kW	0,12	0,20	0,12	0,20	0,33	0,63	0,63	0,65	1,0	1,0	2,0
Power supply	V/ph/Hz + T	230/1/50										
Maximum absorbed current (pump excluded)	A	14,7	16,5	4,6	7,3	10,8	13,8	16,3	21,3	24,5	29,5	34,7
Starting current (pump excluded)	A	88,0	96,0	24,4	46,3	50,8	47,8	102,3	124,3	129,5	169,5	200,7
INTEGRATED SOLUTION												
Pump type	-	Centrifugal										
Pump power input	kW	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,55	0,55
Water tank content	L	27	27	27	27	65	65	65	160	160	160	160
DESUPERHEATER (DS Equipment)												
Heat capacity (3)	kW	1,6	2,2	1,6	2,2	3,5	4,9	5,3	6,2	7,0	9,1	11,1
Water flow	m3/h	0,3	0,4	0,3	0,4	0,6	0,8	0,9	1,1	1,2	1,6	1,9
Pressure drop	kPa	25	28	25	28	33	27	29	24	28	32	35
TOTAL HEAT RECOVERY (HR Equipment)												
Heat capacity (3)	kW	8,0	11,0	8,0	11,0	17,1	22,7	26,0	31,1	36,1	44,4	54,1
Water flow	m3/h	1,4	1,9	1,4	1,9	2,9	3,9	4,5	5,3	6,2	7,6	9,3
Pressure drop	kPa	28	30	28	30	32	27	29	33	36	28	31
DIMENSIONS AND WEIGHT - BASE Solution												
Length (L)	mm	830	830	830	830	980	980	980	1280	1280	1280	1280
Depth (P)	mm	650	650	650	650	800	800	800	990	990	990	990
Height (H)	mm	1320	1320	1320	1320	1785	1785	1785	2055	2075	2075	2075
Shipping weight	Kg	155	170	155	170	250	270	285	470	495	500	520
Dimension drawing		E_830x650	E_830x650	E_830x650	E_830x650	E_980x800	E_980x800	E_980x800	E_1280x990	E_1280x990	E_1280x990	E_1280x990
DIMENSIONS AND WEIGHT - INTEGRATED Solution												
Length (L)	mm	830	830	830	830	980	980	980	1280	1280	1280	1280
Depth (P)	mm	650	650	650	650	800	800	800	990	990	990	990
Height (H)	mm	1320	1320	1320	1320	1785	1785	1785	2055	2075	2075	2075
Shipping weight	Kg	170	190	170	190	280	300	315	520	550	560	575
Dimension drawing		E_830x650	E_830x650	E_830x650	E_830x650	E_980x800	E_980x800	E_980x800	E_1280x990	E_1280x990	E_1280x990	E_1280x990

Note:

- (1) Condenser air 35°C - Evaporator water IN/OUT 12/ 7°C
 - (2) Sound pressure measured at 1 m in open field conditions
 - (3) Water IN/OUT 40/45°C - Evaporator water IN/OUT 12/ 7°C
- Data relating to the pumps are referred to the "Integrated Solution"

RAK.E		15C2	18C2	20C2	26C2	30C2	35C2	40C2	50C2	55C2	60C2	70C2	80C2
ST VERSION													
Cooling capacity(1)	kW	38,3	43,2	53,0	62,0	78,1	90,8	101,0	128,0	143,0	156,0	180,0	208,0
Total compressors power input(1)	kW	13,4	16,8	18,6	25,0	29,2	33,0	40,2	46,6	51,6	58,0	66,4	81,2
Water flow(1)	m3/h	6,6	7,4	9,1	10,7	13,4	15,6	17,3	21,9	24,5	26,9	30,9	35,7
External pressure @ Pn(1)	kPa	135	120	140	130	130	145	130	170	160	150	100	80
Total air flow	m3/h	16400	16400	24500	24500	35000	31800	35000	45200	51300	51300	60700	60700
Sound pressure(2)	dB(A)	67	67	68	68	70	71	72	73	74	74	75	75
LN VERSION													
Cooling capacity(1)	kW	372	42,2	51,7	60,5	76,2	88,5	98,4	125,0	139,5	151,8	175,1	202,3
Total compressors power input(1)	kW	14,1	17,6	19,5	26,2	30,7	34,5	42,1	48,8	54,0	60,7	69,5	85,0
Water flow(1)	m3/h	6,4	7,3	8,9	10,4	13,1	15,2	16,9	21,5	24,0	26,1	30,1	34,8
External pressure @ Pn(1)	kPa	140	130	145	140	140	150	140	175	170	155	105	90
Total air flow	m3/h	14000	14000	20800	20800	30000	28000	30000	38500	43700	43700	52000	52000
Sound pressure(2)	dB(A)	66	66	66	66	67	68	70	70	71	72	72	72
Compressors type	-	Scroll											
Compressors quantity	n°	2	2	2	2	2	2	2	2	2	2	2	2
Independent gas circuit	n°	1	1	1	1	1	1	1	2	2	2	2	2
Capacity steps	n°	2	2	2	2	2	2	2	2	2	2	2	2
Fans type	-	Axial											
Fans quantity	n°	1	1	2	2	3	3	2	4	3	3	3	3
Fans power input	kW	2,0	2,0	2,0	2,0	3,0	3,0	4,0	4,0	6,0	6,0	6,0	6,0
Power supply	V/ph/Hz + T	400/3/50+T											
Maximum absorbed current (pump excluded)	A	48,7	48,7	58,2	65,2	75,2	82,2	94,6	113,6	127,4	137,9	146,8	160,1
Starting current (pump excluded)	A	106,5	106,5	127,5	131,0	215,2	266,2	314,6	333,6	374,9	385,4	410,2	435,6
INTEGRATED SOLUTION													
Pump type	-	Centrifugal											
Pump power input	kW	0,55	0,55	0,9	0,9	1,1	1,5	1,5	2,2	2,2	2,2	1,5	1,5
Water tank content	L	160	160	290	290	460	460	460	480	480	480	500	500
DESUPERHEATER (DS Equipment)													
Heat capacity (3)	kW	10,5	11,2	13,4	16,1	19,9	25,0	25,5	33,9	37,7	42,7	46,9	54,1
Water flow	m3/h	1,8	1,9	2,3	2,8	3,4	4,3	4,4	5,8	6,5	7,3	8,1	9,3
Pressure drop	kPa	28	30	33	26	29	31	34	28	32	38	29	33
TOTAL HEAT RECOVERY (HR Equipment)													
Heat capacity (3)	kW	51,7	60,0	71,6	87,0	107,3	123,8	141,2	174,6	194,6	214,0	246,4	289,2
Water flow	m3/h	8,9	10,3	12,3	15,0	18,5	21,3	24,3	30,0	33,5	36,8	42,4	49,7
Pressure drop	kPa	24	27	31	36	29	33	37	25	28	32	33	35
DIMENSIONS AND WEIGHT - BASE Solution													
Length (L)	mm	1280	1280	1930	1930	2580	2580	2580	3520	3520	3520	3800	3800
Depth (P)	mm	990	990	990	990	990	990	990	990	990	990	1150	1150
Height (H)	mm	2075	2075	2155	2155	2155	2155	2155	2215	2215	2215	2250	2250
Shipping weight	Kg	510	560	725	770	890	980	1050	1530	1620	1640	1700	1730
Dimension drawing		E_1280x990	E_1280x990	E_1930x990	E_1930x990	E_2580x990	E_2580x990	E_2580x990	E_3520x990	E_3520x990	E_3520x990	E_3800x1150	E_3800x1150
DIMENSIONS AND WEIGHT - INTEGRATED Solution													
Length (L)	mm	1280	1280	1930	1930	2580	2580	2580	3520	3520	3520	4600	4600
Depth (P)	mm	990	990	990	990	990	990	990	990	990	990	1150	1150
Height (H)	mm	2075	2075	2155	2155	2155	2155	2155	2215	2215	2215	2250	2250
Shipping weight	Kg	575	620	810	860	1010	1100	1170	1720	1810	1850	1880	1920
Dimension drawing		E_1280x990	E_1280x990	E_1930x990	E_1930x990	E_2580x990	E_2580x990	E_2580x990	E_3520x990	E_3520x990	E_3520x990	E_4600x1150	E_4600x1150



REFCOOL

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