

# **Cf CHILLER**

## **PRODUCTS RANGES**

TECNOLOGIA

MADE IN ITALY

**PRODUCTS OVERVIEW**

**NOMENCLATURE**

**ZCR32 / ZC454** AIR-COOLED CHILLERS (SCROLL COMPRESSORS) WITH GASES R32 and R454B

**ZC513** AIR-COOLED CHILLERS (SCREW COMPRESSORS) WITH GAS R513A

**ZC123** AIR-COOLED CHILLERS (SCREW COMPRESSORS) WITH GAS R1234ze

**ZC410** NEW LOOK

**DRC** DRY COOLERS

**CRM** REMOTE CONDENSERS

# PRODUCTS OVERVIEW



Air-cooled chillers

## PISTON/ ROTARY/SCROLL



**ZME**

Cooling capacity: 1 - 3 kW



**ZCM**

Cooling capacity: 1,5 - 7 kW



**ZCE**

Cooling capacity: 5 - 20 kW

## SCROLL



**ZCF**

Cooling capacity: 5 - 422 kW



**ZCX**

Cooling capacity: 5 - 420 kW



**ZCF\_MC  
condensing unit**

Cooling capacity: 5 - 422 kW



**ZCF\_FC**

Cooling capacity: 5 - 872 kW



**ZC410**

Cooling capacity: 5 - 872 kW



**ZC513**

Cooling capacity: 310 - 1270 kW



**ZC123**

Cooling capacity: 209 - 1000 kW



**ZCR32**

Cooling capacity: 18 - 884 kW



**ZC454**

Cooling capacity: 26 - 824 kW

## SCREW

# PRODUCTS OVERVIEW



## Water-cooled chillers



**ZC410\_W**

Refrigerant gas R410A



**ZC\_ME**

Condenserless chiller



**ZCR32\_W** 

Refrigerant gas R32

 **ZC454\_W**



Refrigerant gas R454B



**ZC\_W**

With screw compressors

# PRODUCTS OVERVIEW



Heat pumps



ZH

Air-cooled heat pump



ZH\_W

Water-cooled heat pump



ZH410

Refrigerant gas R410A

 ZH454



Refrigerant gas R454B



ZHR32 

Refrigerant gas R32

# PRODUCTS OVERVIEW

## Special units



**ZB**

BRINE CHILLER  
Very low temperature solutions



**ZH**

Heat pump  
air-cooled



**CFBA**

Refrigeration units



**CF\_SKID**

Hydraulic solutions  
as complement to industrial cooling systems

**ZCF\_SP**

Special refrigerators  
built and designed according to customer's specifications



and more...

[www.chiller-frigoriferi.it](http://www.chiller-frigoriferi.it)



# NOMENCLATURE

<b>ZC</b>	<b>R32</b>	<b>_STD_</b>	<b>220.</b>	<b>2</b>	<b>4</b>	
<b>ZC</b> (Chiller)	<b>R32</b> (R32)	<b>_STD_</b> Air-cooled	Cooling capacity @ 12/7°C Tamb35°C	Nr. circuit	Nr. compressor	/ If included in price list
<b>ZH</b> (Heat pump)	<b>452</b> (R452B)	<b>_W_</b> Water-cooled				<b>_SP</b> Extra price list
<b>IC</b> (Chiller Inverter)	<b>454</b> (R454B)	<b>_FC_</b> Free-cooling				
<b>IH</b> (Heat pump Inverter)	<b>410</b> (R410A)	<b>_MC_</b> Evaporatorless unit				
<b>AT</b> (ATEX Chiller)	<b>123</b> (R1234ze)	<b>_ME_</b> Condenserless unit				
<b>ZB</b> (Chiller low temp)	<b>4YF</b> (R1234yf)					
	<b>513</b> (R513a)					
	<b>450</b> (R450A)					
	<b>515</b> (R515B)					
	<b>134</b> (R134a)					
	<b>54C</b> (R454C)					
	<b>448</b> (R448A)					
	<b>449</b> (R449A)					

**ZCR32 – ZC454**  
**AIR-COOLED**  
**CHILLER**

# ZCR32 – ZC454



- Air-cooled chiller
- Gas: **R32**
- GWP: 675
- SCROLL compressors
- AC fans
- Y water filter
- Flow switch
- Dixell control: iChill IC208CX
- RS485
- Electrical supply 400V/3pH/50Hz
- IP54 protection rate



- Air-cooled chiller
- Gas: **R454B**
- GWP: 466
- SCROLL compressors
- AC fans
- Y water filter
- Flow switch
- Dixell control: iChill IC208CX
- RS485
- Electrical supply 400V/3pH/50Hz
- IP54 protection rate

	MIN	MAX
OUTLET water temperature (°C)	-10	25
Temporary water temperature (°C)	-	35
Δt IN/OUT water (°C)	4	8
Ambient temperature (°C)	0 / -10 / -20	35 / 40 / 45

Notes T<sub>Amb</sub>:

-10°C, with fan speed regulation + electrical board heater  
 -20°C, with fan speed regulation + fans off + electrical board heater  
 35°C, with -10°C ≤ SET < -5°C  
 40°C, with -5°C ≤ SET < 5°C / 15°C < SET ≤ 25°C  
 45°C, with 5°C ≤ SET ≤ 15°C

# ZCR32 – ZC454



	Model	19.11	21.11	24.11	28.11	31.11	36.11	42.11	48.12	56.12	61.12	71.12	83.12	95.12	110.12	120.12	140.12	160.12	180.12
	ZCF equivalent	127	130	135	140	145	150	155	1070	1080	1090	1100	1120	1140	1160	1180	1200	1220	1250
ZCR32_STD_	Cooling capacity (kW) @ 20/15°C - Amb 25°C	26	28	33	38	42	49	57	66	76	85	98	114	130	145	164	182	210	238
	Cooling capacity (kW) @ 12/7°C - Amb 35°	18	21	24	28	30	36	42	48	55	60	71	83	95	106	120	133	153	172
ZC454_STD_	Cooling capacity (kW) @ 20/15°C - Amb 25°C	-	-	-	37	41	46	54	-	73	82	92	108	124	139	158	177	205	234
	Cooling capacity (kW) @ 12/7°C - Amb 35°C	-	-	-	27	30	34	39	-	53	60	67	78	90	102	115	128	149	170
ZC410_STD_	Cooling capacity (kW) @ 20/15°C - Amb 25°C	26	28	-	38	-	47	56	66	76	84	96	113	129	146	163	181	210	239
	Cooling capacity (kW) @ 12/7°C - Amb 35°C	18	20	-	27	-	34	40	47	55	60	67	81	93	105	118	131	151	170
	Circuits nr	1			1			1			1			1			1		
	Compressors nr	1			1			2			2			2			2		
	AC fans nr	2 x Ø400mm			2 x Ø500mm			3 x Ø500mm			2 x Ø800mm			3 x Ø800mm			3 x Ø800mm		
	Evaporators nr	1			1			1			1			1			1		
	Ø water connections (")	1.1/4			1.1/2			2			2.1/2			3			3		
	Water tank (l)	100			200			300			500			500			500		
	Dimensions (mm)	1466x742x1420			1906x912x1557			2716x1112x1944			3476x1142x2293			3776x1142x2293			3776x1142x2293		

# PLUS & ADVANTAGES

Each ZC unit is engineered focusing on the assistance service and the maintenance.

## COMPACT AND SOLID STRUCTURE

easy accessibility and maintenance

**ELECTRICAL BOARD WELL INSULATED AND PROTECTED**

**AC FANS**  
of good quality

**FLOW SWITCH**

**WATER FILTER**  
for evaporator's protection

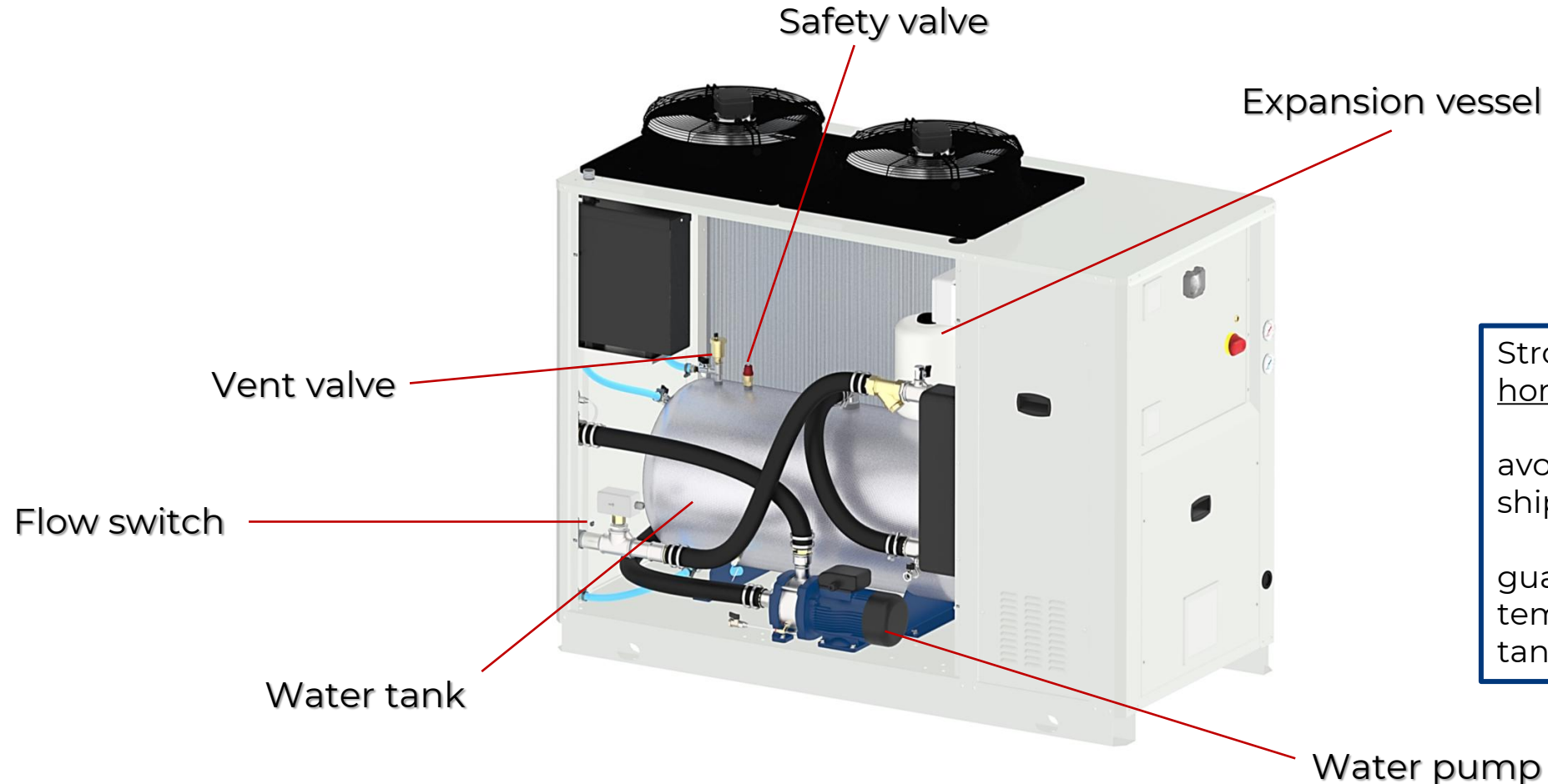
 **TOP BRANDED SCROLL COMPRESSORS**

 **VENTILATION AND GAS LEAK SENSOR**

**CONDENSING COIL WITH LARGER SURFACE**  
+ filters for protection

# PLUS: hydraulic circuit

HYDRAULIC KIT consists of water tank, water pump, expansion vessel, safety valve, air relief valve



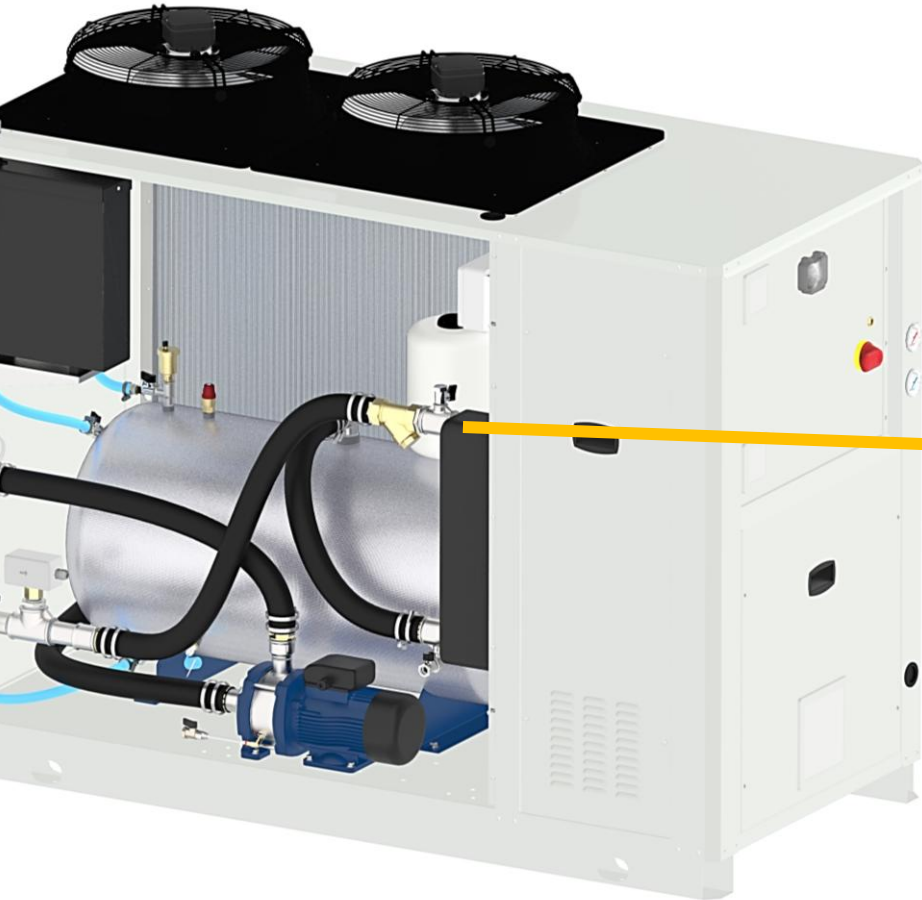
Strong points of a horizontal solution:

- avoids damages during the shipment
- guarantees an even water temperature inside the tank

All the components are assembled, and water tested in CF factory.

[www.chiller-frigoriferi.it](http://www.chiller-frigoriferi.it)

# PLUS: hydraulic circuit



Y water filter  
(STANDARD)

When the water filter is  
dirty alarm on the  
microprocessor FL  
alarm, clean water filter

All the components are assembled, and water tested in CF factory.

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# PLUS: cooling circuit



The cooling circuit is separate from electrical and water circuit; therefore, it is easier to carry out assistance service

- Very clean and accessible
- Pressure switches (with glycerine)
- Evaporator complete with insulation
- Pressure switches
- Compressor
- Crankcase heater on the compressor
- Each component can be easily reached by hands
- Copper thickness is quite generous: to avoid leakages during functioning

# BASE UNIT

## Cooling circuit

Gas refrigerant charge  
Compressors  
Crankcase heater for each compressor  
Refrigerant manometers  
Low pressure switch

## Electrical circuit

RS485 serial card MODBUS communication  
Circuit breakers for each electrical motor  
Phase sequence relay  
Free volts contact for remote on/OFF and general alarm management

## Hydraulic circuit

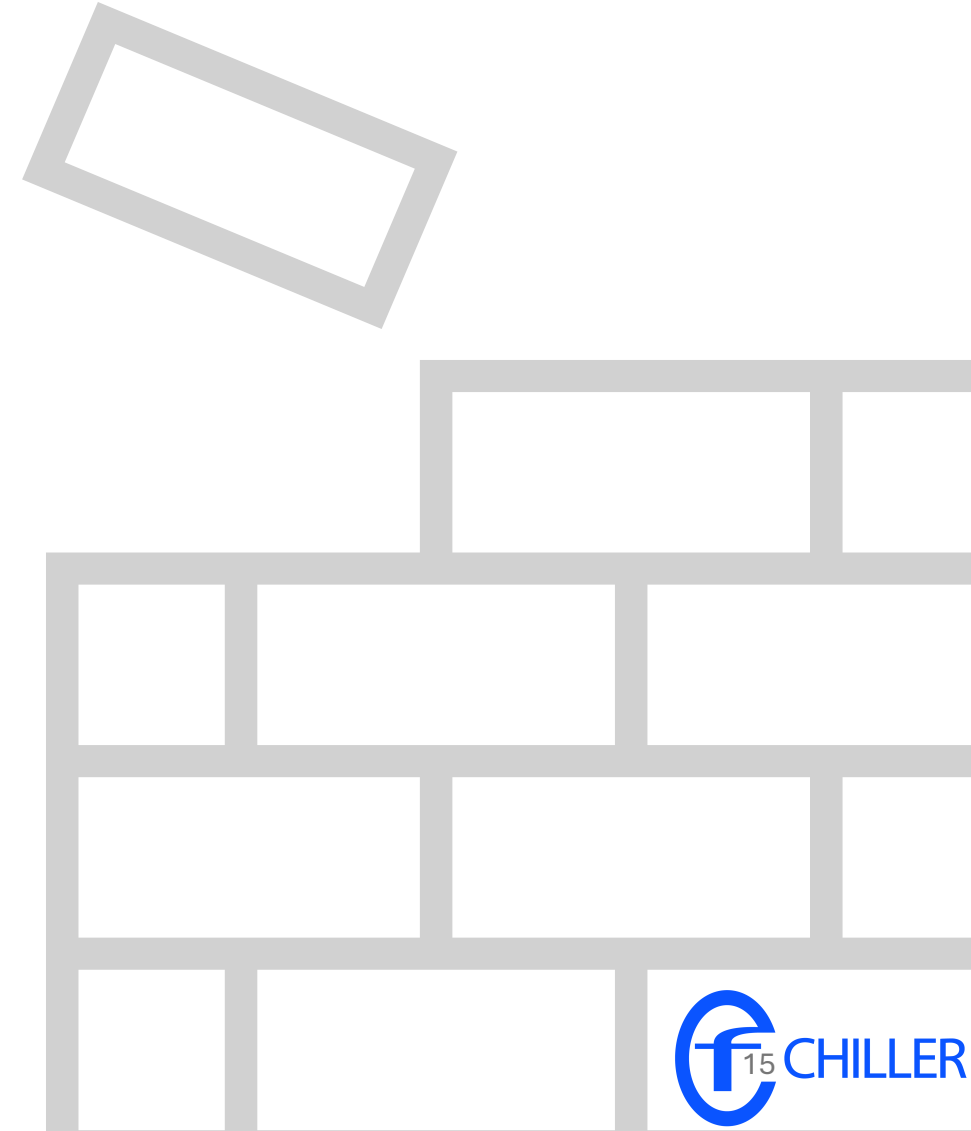
Flow switch  
Y water for evaporator's protection  
Obstruct water filter alarm  
Water inlet/outlet temperature probe and reading

## OTHER PLUS

IP54 protection rate  
Panels easy to open (fixed with screw)  
Galvanized and oven-painted panels with epoxy powder

## PLUG&PLAY CONFIGURATION

## EASY MAINTENANCE



# STOCK CONFIGURATION



**BASE UNIT** +

CODE	Description
<b>P3</b>	P3 water pump
<b>AFIP</b>	Water tank
<b>KFA</b>	Pressurized water-filling system
<b>FRS</b>	Fan speed regulation
<b>KCF</b>	Air filter for condensing coils

Guarantees:



AVAILABILITY & FASTER DELIVERY



VERSATILITY & PERFECT SOLUTION FOR EACH PROJECT

# OPTIONS

- Electrical supply 460V/3pH/60Hz
- UL components
- Electronic thermostatic valve
- Desuperheater
- Water tank («hot»/«cold» side)
- Single/double pump
- P2/P3/P5 pump with gauge
- Inverter water pump
- Pressurized water-filling system
- Atmospheric water-filling system
- Manual/automatic water by-pass
- Stainless steel hydraulic circuit
- Double set point
- Touch screen control Dixell Visotouch VTIPG
- Electrical heater (pump, evaporator, tank, electrical board)
- Ventilation on electrical board
- Soft starter compressor
- Communication module ModBus – TCP/IP
- Speed regulation on AC fans
- EC fans
- C4 chemical protection for condensing coils and panels
- Reinforce frame (rental configuration)

# NEW LOOK

PLUS & ADVANTAGES

**COMPACT STRUCTURE**  
to save space

Electrical board is placed  
lower, so the unit can  
«breathe» better

**TOUCHSCREEN  
CONTROL**

 **VENTILATION AND  
GAS LEAK SENSOR**



**EC FANS**  
to improve efficiency

**V-SHAPED  
CONDENSING COILS**

**EASY MAINTENANCE**  
each component can be easily reached

✓ FOR RANGES ZCR32, ZC454, ZC410, ZC123 with 2+ circuits

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# NEW LOOK

## PLUS & ADVANTAGES

**V-SHAPED  
CONDENSING COILS**

**THERMOSTATIC VALVE**  
electronic

**WATER FILTER**  
for evaporator's protection  
from impurities

**FLOW SWITCH**  
to support water pump

**EC FANS**  
to improve efficiency

**EASY ACCESSIBILITY**  
for technical assistants

**DOUBLE-SIDED CONNECTIONS**  
to meet system's needs



✓ FOR RANGES ZCR32, ZC454, ZC410, ZC123 with 2+ circuits

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# NEW LOOK

PLUS & ADVANTAGES



**EC FANS**  
to improve efficiency

**PRESSURE GAUGES**

**V-SHAPED CONDENSING COILS**

**TOP BRANDED SCROLL COMPRESSORS**

**WATER FILTER**  
for evaporator's protection from impurities

**HIGH-QUALITY EVAPORATOR**

✓ FOR RANGES ZCR32, ZC454, ZC410, ZC123 with 2+ circuits

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CHILLER

**ZC513**  
**AIR-COOLED**  
**CHILLER**



- Air-cooled chiller
- Gas: **R513A**
- GWP: 631
- SCREW compressors
- EC fans
- Shell&tube evaporator
- CAREL control
- Touch screen display
- Electrical supply 400V/3pH/50Hz
- IP54 protection rate



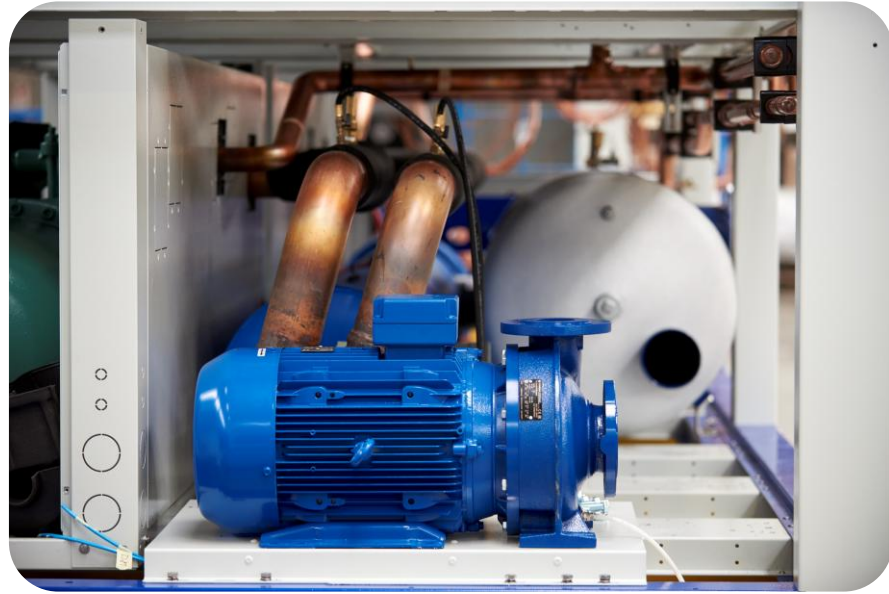
Model	320.22	360.22	410.22	500.22	570.22	650.22	760.22	870.22	1010.22	1150.22	1240.22	1370.22				
Cooling capacity (kW) @ 20/15°C - Amb 25°C	454	520	594	720	814	928	1088	1242	1434	1624	1774	1962				
Cooling capacity (kW) @ 12/7°C - Amb 35°C	311	359	410	500	564	644	760	866	1008	1142	1238	1370				
Circuits nr	2		2		2	2		2	2	2	2					
Compressors nr	2		2		2	2		2	2	2	2					
EC fans nr	6 x Ø800mm		8 x Ø800mm		10 x Ø800mm		12 x Ø800mm		14 x Ø800mm		16 x Ø800mm		18 x Ø800mm		20 x Ø800mm	
Ø water connections (DN)	150		150		200		200		200		250		250		250	
Water tank (l)	520		900		1250		1250		1250		1500		1500		1500	
Dimensions (mm)	4250x2220x2500		5550x2220x2500		6750x2220x2500		7950x2220x2500		9250x2220x2500		10450x2220x2500		11650x2220x2500		12950x2220x2500	

	MIN	MAX
OUTLET water temperature (°C)	-8	23
Temporary water temperature (°C)	-	35
Ambient temperature (°C)	0 / -10 / -20	40 / 45

Notes T<sub>Amb</sub>:

- 10°C, with electrical board heater
- 20°C, with fans off + electrical board heater
- 40°C, with 15°C ≤ SET < 23°C
- 45°C, with -8°C ≤ SET ≤ 15°C

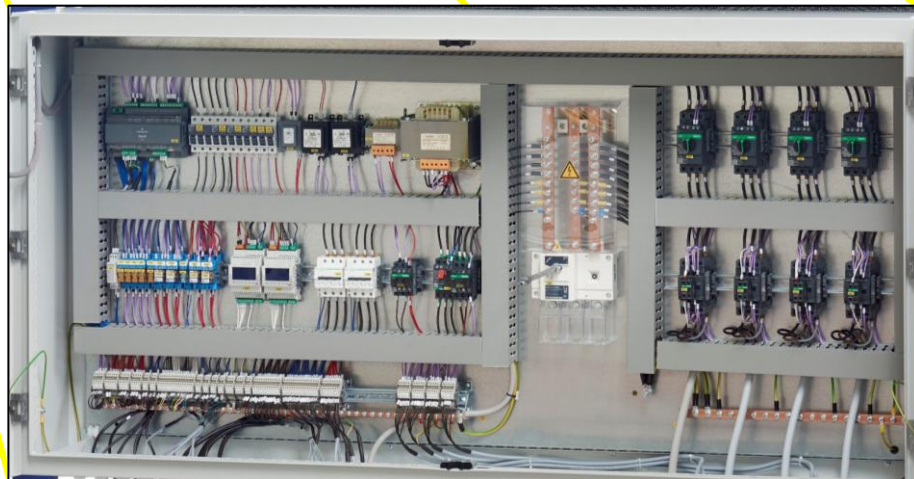
# PLUS: hydraulic circuit



- HIGH-EFFICIENCY components
- Pipes → iron
- Victaulic connections
- Easy access to each component
- Hydronic module on board
- Components are assembled, and water tested in CF factory



# PLUS: electrical circuit



- TOP quality components
- Clean and tidy
- Easy to indentify each part
- Located into a big cabinet, with its own door, completely separate from the other components
- Designed have a big size and generous spaces for any further electrical devices

# OPTIONS



- Electrical supply 460V/3pH/60Hz
- UL components
- Desuperheater
- Water tank («hot»/«cold» side)
- Single/double pump
- P2/P3/P5 pump with gauge
- Inverter water pump
- Water filter
- Stainless steel hydraulic circuit
- Ventilation on electrical board
- Electrical heater (pump, evaporator, tank, electrical board)
- C4 chemical protection for condensing coils / panels
- Reinforce frame (rental configuration)
- Soundproof box for compressors
- Remote web service
- Air filters for condensing coils

CHILLER

**ZC123**  
**AIR-COOLED**  
**CHILLER**



- Air-cooled chiller
- Gas: **R1234ze**
- GWP: 7
- SCREW compressors
- EC fans
- Shell&tube evaporator
- CAREL control
- Touch screen display
- Electrical supply 400V/3pH/50Hz
- IP54 protection rate



Model	310.22	380.22	430.22	480.22	560.22	640.22	740.22	840.22	920.22	1030.22
Cooling capacity (kW) @ 20/15°C - Amb 25°C	440	536	612	694	804	918	1056	1196	1318	1462
Cooling capacity (kW) @ 12/7°C - Amb 35°C	304	372	424	478	558	638	740	838	916	1026
Circuits nr	2		2		2	2		2	2	2
Compressors nr	2		2		2	2		2	2	2
EC fans number	6 x Ø800mm		8 x Ø800mm		10 x Ø800mm	12 x Ø800mm		14 x Ø800mm	16 x Ø800mm	18 x Ø800mm
Ø water connections (DN)	150		150		200	200		200	250	250
Water tank (l)	520		900		1250	1250		1250	1500	1500
Dimensions (mm)	4250x2220x2500		5550x2220x2500		6750x2220x2500	7950x2220x2500		9250x2220x2500	10450x2220x2500	11650x2220x2500

	MIN	MAX
OUTLET water temperature (°C)	-8	23
Temporary water temperature (°C)	-	35
Ambient temperature (°C)	0 / -10 / -20	40 / 45

Notes T<sub>Amb</sub>:

-10°C, with electrical board heater  
 -20°C, with fans off + electrical board heater  
 40°C, with 15°C ≤ SET < 23°C  
 45°C, with -8°C ≤ SET ≤ 15°C

# OPTIONS



- Electrical supply 460V/3pH/60Hz
- UL components
- Desuperheater
- Water tank («hot»/«cold» side)
- Single/double pump
- P2/P3/P5 pump with gauge
- Inverter water pump
- Water filter
- Stainless steel hydraulic circuit
- Ventilation on electrical board
- Electrical heater (pump, evaporator, tank, electrical board)
- C4 chemical protection for condensing coils / panels
- Reinforce frame (rental configuration)
- Soundproof box for compressors
- Remote Web Service
- Air filters for condensing coils

# DRC

dry cooler

# CRM

remote condenser

Cooling capacity 50 – 500 kW

- EC fans
- Electrical panel on board
- Dixell control: iChill IC208CX
- Compact and solid structure
- P3 pump on board (option)

✓ **FREE COOLING OPTION**  
Stand-alone configuration



Cooling capacity 70 – 1200 kW

- EC fans
- Electrical panel on board
- IP54 for external application
- Compact and solid structure



Model	50	100	150	200	300	400	500
Cooling capacity (kW) @ 45/40°C - Amb 35°C	51	103	154	206	308	411	514
Cooling capacity (kW) @ 25/20°C - Amb 15°C	48	96	144	192	289	385	481
Circuits nr	1	1	1	1	1	1	1
EC fans	1 x Ø800mm	2 x Ø800mm	3 x Ø800mm	4 x Ø800mm	6 x Ø800mm	8 x Ø800mm	10 x Ø800mm
Ø water connections (")	2	2.1/2	3	4	5	6	6
Dimensions (mm)	1300x1320x2400	1300x2320x2400	3900x1320x2400	2600x2320x2400	3900x2320x2400	5200x2320x2400	6500x2320x2400

	MIN	MAX
OUTLET water temperature (°C)	-10	60
INLET water temperature (°C)	-	70
Ambient temperature (°C)	0 / -20	45

Notes T<sub>Amb</sub>:

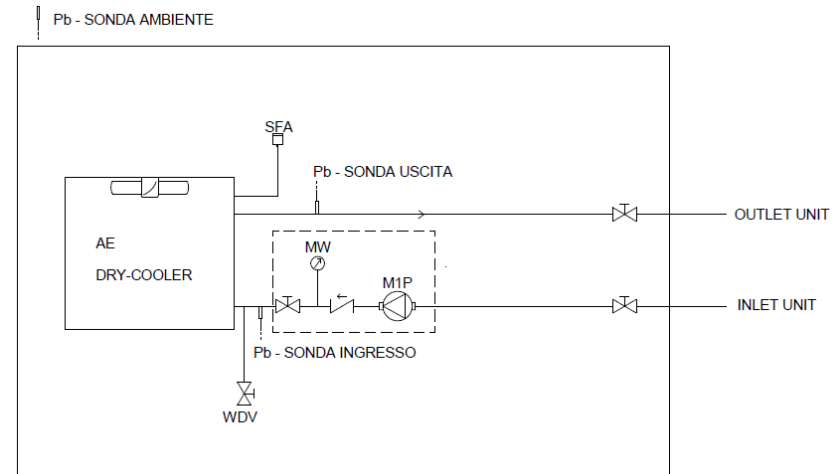
-20°C, with electrical board heater  
(standard on FREE COOLING option)

# OPTIONS

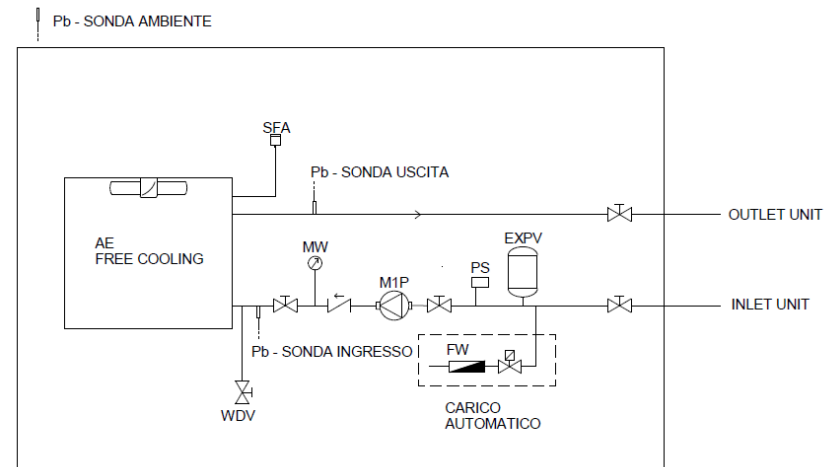
- P3 water pump (with flow switch and water gauge)
- Electrical heater on pump and electrical board
- Air filter on condensing coils
- C4 protection for condensing coils and panels
- Remote web service
- Rubber anti-vibration kit
- Remote control kit Dixell VICX620



## DRC



## DRC\_FC





**THANK YOU  
FOR THE ATTENTION!**

**CF Chiller Frigoriferi srl**

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TECNOLOGIA

MADE IN ITALY