

OPTIONS:

Single P2 Pump		P2
Single P3 Pump		P3
Compressor(s) shut-off valves - Discharge	[1]	VSCD
Compressor(s) shut-off valves - Suction		VSCS
Evaporator anti-freeze heater		RA1
Evaporator and pump anti-freeze heaters		RA2
Electric switchboard anti-condensation heater		RS
Continuous fan(s) speed control - electronic fan(s) (min. ambient temp. -10.0°C)		CE
Double setpoint (from MODBUS and/or keyboard)		WE
230V electric service socket (in the electric cabinet)		EBS
Gateway for remote communication		ENB
Control panel ventilation		EBV
Electronic controller sun/rain protection		SRP
Compressor(s) acoustic shield(s)		AI1
Condenser(s) air filter(s)		FP
Condensers anticorrosion protection cataphoresys type (not UV protection)		OCT
Condenser anti-corrosion treatment Electrofin® type		OEC
Flanged water connections kit (EN1092-1)		WC1
Water connections kit to be brazed		WC5
Control panel roof kit		FPR
Rubber anti-vibration mountings kit		FA1
Spring anti-vibration mountings kit		FA3
Remote panel kit		ER
External pump relay (clean contact)		REP
External pumps relay (clean contact) run/stand by mode		2REP
Flow switch contact		FSC
Bacnet gateway kit		GBCN
Profibus gateway kit		GPFB
Profinet gateway kit		GPFN
Ethernet port	[2]	ETP
Compressor(s) softstarter(s)	[3]	SFS
Partial heat recovery (desuperheater)	[4]	HRP
Container loading		PCL
Barrier bag		PBB
Wooden base	[1]	PWB

- [1] Contact our company.
- [2] Available only with the GBCN/GPFB/GPFN option.
- [3] Not available on all models. Contact our company.
- [4] Heating power recovered equal to approximately 20% of the cooling power produced.
- Tropicalized version on demand.

OTHER RANGES AVAILABLE IN OUR CATALOGUE



QBE

2 to 25kW
Air-cooled chillers
with rotary and scroll compressors



CWE/HWE

13 to 140kW
Air-cooled scroll compressor
chillers and heat pumps



CWB FC

80 to 240kW
Air-cooled chillers
with integrated freecooling



CDC

300 to 1200 kW
Drycoolers
also adiabatic system available

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Chillers

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MADE IN ITALY

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FRIULAIR
Chillers



CWV

AIR-COOLED SCREW COMPRESSOR CHILLERS

from 280 to 1200 kW



Friulair markets its units in many configurations further than the ones listed in this document. Please contact our sales offices for more information: sales.chiller@friulair.com

DESCRIPTION

CWV series has been engineered to ensure high efficiency and reliability specifically for outdoor installations. The range includes 19 models with cooling capacity from 280 to 1200 kW. All units provide reliable control of the chilled fluid temperature and operation over a long-time period.

UNIT CONSTRUCTION AND MAINTENANCE

- Frame and structure cover made in galvanized steel powder coated
- Easy access for maintenance and repair ensuring safety for operator
- Compressors are easily accessible

FULL LOAD TEST ON ALL CWV UNITS

- Pressurization and helium leak detection of refrigerant circuit
- Pressurization and correct assembly of hydraulic circuit
- Electrical tests in compliance with EN60204
- Check for protection and safety devices and electronic controller correct operation

REFRIGERATION CIRCUIT

- Manufactured conforming to PED directive 2014/68/EU
- Electronic thermostatic valve to ensure operation down to -10°C evaporator outlet water temperature
- Solenoid valve on liquid line
- Sight glass flow indicator
- High pressure switch with manual rearm
- High and low refrigerant pressure transducers
- Refrigerant gauges

TECHNICAL DETAILS

SCREW COMPRESSORS EQUIPPED WITH

- Low noise and efficient operation
- Continuous control stepless type (step control version is available)
- Oil level sensor
- Compressor crankcase heater
- Motor windings thermo-amperometric protection
- Standard refrigerant gas R134a (GWP 1430)

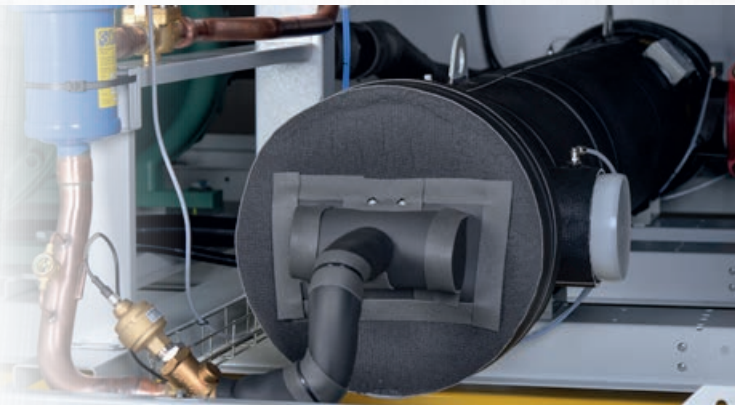
ALTERNATE REFRIGERANT GAS

- Low GWP* R513A (GWP 631)
- *(Global Warming Potential)



EVAPORATOR

- Dry expansion shell & tube heat-exchanger
- Antifreeze protection managed by the electronic controller
- Equipped with water differential pressure switch



FANS

- Axial fans equipped with protection grid and class F insulation
- Fans speed regulation cut-phase type as standard

MODELS	CWV	281	282	331	332	381	382	451	452	521	522	601	602	652	702	762	832	902	1052	1202
PERFORMANCES [1]																				
Cooling capacity	[kW]	263.57	251.47	314.87	303.57	371.97	370.07	434.65	425.03	501.51	483.96	574.36	557.83	626.33	702.86	755.87	821.53	876.23	988.44	1151.58
Compressors power input	[kW]	102.12	94.73	115.42	110.52	125.94	135.19	140.31	143.43	157.59	159.09	195.34	188.39	218.69	243.87	253.80	270.52	284.66	309.58	399.40
Total power input	[kW]	109.32	101.93	124.42	119.52	136.74	145.99	152.91	156.03	171.99	173.49	211.54	204.59	236.69	263.67	275.40	293.92	309.86	338.38	431.80
Total absorbed current	[A]	186.08	175.31	208.26	203.03	226.41	251.67	259.14	266.46	289.79	300.11	358.37	347.54	396.73	438.51	455.75	492.39	524.80	570.63	731.08
Energy efficiency (pump excluded)	EER	2.41	2.47	2.53	2.54	2.72	2.53	2.84	2.72	2.92	2.79	2.72	2.73	2.65	2.67	2.74	2.80	2.83	2.92	2.67
Seasonal energy efficiency (pump excluded)	[*]	SEPR HT	5.17	5.03	5.35	5.20	5.49	5.08	5.52	5.53	5.52	5.56	5.50	5.54	5.60	5.60	5.52	5.51	5.52	5.50
Water flow	[l/h]	45 334	43 252	54 158	52 214	63 979	63 652	74 761	73 105	86 259	83 242	98 790	95 946	107 729	120 892	130 010	141 303	150 712	170 011	198 072
Evaporator pressure drop	[kPa]	42.0	38.8	45.5	33.2	46.3	27.7	36.1	29.8	39.1	36.9	45.6	32.9	39.8	37.0	41.7	34.3	38.2	43.5	56.9
ELECTRICAL DATA [2] [3]																				
Maximum power input (total)	[kW]	134.75	132.20	152.99	152.32	172.65	185.38	200.28	205.50	226.56	238.56	274.70	272.27	305.99	325.04	344.09	372.33	400.57	453.13	549.40
Maximum absorbed current (total)	[A]	224.26	219.41	252.57	251.09	280.69	309.59	332.42	341.26	375.48	399.76	456.23	452.45	505.14	533.27	561.39	613.12	664.84	750.96	912.46
Starting current	[A]	356.60	280.51	455.50	364.29	488.40	480.49	613.30	498.28	681.20	529.48	952.10	679.78	708.07	753.08	769.09	917.91	945.72	1056.68	1408.33
Fan power	[kW]	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Fan current	[A]	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
Fans quantity	[#]	4	4	5	5	6	6	7	7	8	8	9	9	10	11	12	13	14	16	18
Power supply	[V/Ph/Hz]	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
IP protection degree	---	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54
TECHNICAL DATA																				
Compressors quantity	[#]	1	2	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2
Refrigeration circuits quantity	[#]	1	2	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2
Air flow	[m³/h]	72 000	72 000	90 000	90 000	108 000	108 000	126 000	126 000	144 000	144 000	162 000	162 000	180 000	198 000	216 000	234 000	252 000	288 000	324 000
Sound pressure level	[4] [dBa]	59.5	59.5	60.5	60.5	61	61	62	62	62.5	62.5	63.5	63.5	63.5	64	64	64.5	65	65.5	66.5
Water connections size (grooved)	[inch]	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	6"	6"	6"	6"	6"	6"	8"
Width	[mm]	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250	2 250
Depth	[mm]	3 600	3 600	3 600	3 600	3 600	3 600	4 600	4 600	4 600	4 600	5 600	5 600	6 600	6 600	6 600	7 600	8 600	8 600	10 600
Height	[mm]	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300
Net weight	[kg]	2 717	2 800	3 180	3 300	3 247	3 420	3 592	3 830	3 758	3 950	4 200	4 450	6 057	6 135	6 191	6 564	6 925	7 089	8 172
OPTIONS																				
Pump power input P2	[kW]	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	15.00	15.00	15.00	15.00	15.00	15.00	15.00	18.50	18.50
Pump absorbed current P2	[A]	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	27.70	27.70	27.70	27.70	27.70	27.70	27.70	33.50	33.50
Pump power input P3	[kW]	9.20	9.20	9.20	9.20	11.00	11.00	11.00	11.00	11.00	11.00	18.50	18.50	18.50	18.50	18.50	18.50	18.50	30.00	30.00
Pump absorbed current P3	[A]	16.60	16.60	16.60	16.60	20.00	20.00	20.00	20.00	20.00	20.00	33.50	33.50	33.50	33.50	33.50	33.50	33.50	54.50	54.50

NOTES

[*] Data in accordance with European Regulation (EU)

2016/2281 for eco-design requirements.

[1] Data referred to: water temp. in/out: 12/7°C ambient air temp. 35°C

[2] Data referred to the unit without pump.

[3] Data related to the heaviest condition allowed without the intervention of the safety devices.

[4] Data referred to 10m and at an height of 1,5 m in open field.

OPERATING LIMITS

Refer to the operating limits in the last release of the CWV technical manual. >> Contact the company.

ELECTRONIC CIRCUIT AND CONTROLLER

- Identified conductors, cables and probes/transducers for standard
- Fuses and thermal overload relay to protect compressors
- Easily accessible and intuitive user interface for menus and submenus navigation installed in front of the electronic panel
- Alarm history of up to ten events recorded on the Master Board or unlimited records if the gateway for remote communication (ENB option) is installed
- RS485 connection with standard MODBUS RTU communication protocol.

The electronic controller can handle up to four multi-unit installation: one "master" unit and three "Slaves" units via RS485 connection.

