

**Water cooled chiller  
188-1693 kW****Version**

CA High energy efficiency units

**Features****HIGH EFFICIENCY**

Very high efficiency at full and partial load, at the highest market levels, thanks to the adopted technological solutions. These units ensure low operating costs and therefore a quick payback time.

**ADAPTABILITY**

Adaptability at the building's cooling request thanks to the continuous capacity regulation, assured by sophisticated control's logic.

**MAXIMUM COMPACTNESS**

Maximum compactness to achieve a very high flexibility in the design process and installation operations, offering a premium solution in case of reduced clearances or when retrofitting existing installations.

**Accessory**

- Touch Screen visual display
- VPF (Variable Primary Flow) system
- Set-up for remote connectivity with ModBus/Echelon protocol cards
- Several devices for condensation's control

High efficiency unit for indoor installation for chilled water production. Semihermetic screw compressors optimized to operate with low compression ratio and R134a; shell and tubes condenser, flooded evaporator and electronic expansion valve. High efficiency unit thanks to the innovative optimized compressors and the high performing heat exchangers.

**Controls****W3000TE**

The brand new W3000TE controller offers advanced functions and algorithms. The large format keyboard and the wide LCD display favour an easy and safe access to the machine setup and a complete view of unit's status. The assessment and intervention on the unit is managed through a multi-level menu, with selectable user's language. The led icons immediately show the operating status of the circuits, as well as of the fans and of the water pumps (if present). An optional extra is the touch screen interface: 7.0" WVGA colour display with adjustable LED backlight and front USB port. The touch screen technology allows intuitive navigation between the various screens, safe access to the data with a three-level password protection as well as the graphic display of the performance of some monitored measurements.

The diagnostics comprises a complete alarm management system, with "black box" (via PC) and alarm log functions (via display or also PC) for a better analysis of the unit performance.

For the systems made of several units, the adjustment of the resources is performed by optional proprietary devices.

Consumption metering and performance measurement are possible as well. Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet-over-IP, Echelon LonWorks, Bacnet MS/TP protocols.

Compatibility with the remote keyboard managing up to 8 units.

The presence of the programmable timer allows the creation of an operating profile containing up to 4 typical days and 10 time bands.

The control is characterized by the continuous modulation of the unit capacity, based on PID algorithms and referring to the water delivery temperature.

Optionally (VPF package), capacity modulation can be integrated with hydraulic flow modulation, thanks to inverter-driven pumps and to specific resources for the hydraulic circuit.





FOCS3-W			0551	0701	0851	0951	1101	1301	1401
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
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1)	kW	188	250	306	338	384	460	524
Total power input	(1)	kW	34,9	45,9	56,1	61,2	69,8	82,5	93,0
EER	(1)	kW/kW	5,39	5,45	5,45	5,52	5,49	5,57	5,63
ESEER	(1)	kW/kW	6,84	7,09	6,55	6,85	6,80	6,73	6,90
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2)	kW	187	249	305	336	382	458	522
EER	(1)(2)	kW/kW	5,09	5,15	5,16	5,21	5,20	5,30	5,40
ESEER	(1)(2)	kW/kW	6,14	6,31	5,94	6,16	6,14	6,15	6,09
Cooling energy class			A	A	A	A	A	A	A
<b>ENERGY EFFICIENCY</b>									
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>									
<b>Ambient refrigeration</b>									
Prated,c	(7)	kW	187	249	305	336	382	458	522
SEER	(7)(8)		5,92	6,15	5,72	5,88	5,90	5,94	6,55
Performance ηs	(7)(9)	%	229	238	221	227	228	230	254
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1)	l/s	9,00	11,95	14,63	16,15	18,34	21,99	25,06
Pressure drop	(1)	kPa	42,0	48,7	49,1	52,4	52,8	47,5	39,9
<b>HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION</b>									
Water flow	(1)	l/s	10,64	14,10	17,26	19,01	21,61	25,86	29,42
Pressure drop	(1)	kPa	56,7	57,2	56,0	58,6	57,4	54,5	44,3
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.		N°	1	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1	1
Refrigerant charge		kg	75,0	86,0	95,0	94,0	86,0	100	110
<b>NOISE LEVEL</b>									
Sound Pressure	(3)	dB(A)	77	77	80	80	80	80	80
Sound power level in cooling	(4)(5)	dB(A)	95	95	98	98	98	98	98
<b>SIZE AND WEIGHT</b>									
A	(6)	mm	2920	2920	2920	2920	2920	2900	2900
B	(6)	mm	1180	1180	1180	1180	1180	1180	1180
H	(6)	mm	1870	1870	1870	1870	1870	1960	1970
Operating weight	(6)	kg	1740	1790	2170	2200	2260	2940	3020

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
  - 2 Values in compliance with EN14511-3:2013.
  - 3 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
  - 4 Sound power on the basis of measurements made in compliance with ISO 9614.
  - 5 Sound power level in cooling, indoors.
  - 6 Unit in standard configuration/execution, without optional accessories.
  - 7 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
  - 8 Seasonal space heating energy index
  - 9 Seasonal energy efficiency of the space cooling
- The units highlighted in this publication contain HFC R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

FOCS3-W		1651	1901	2101	2501	2602	3002	3152
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
<b>PERFORMANCE</b>								
<b>COOLING ONLY (GROSS VALUE)</b>								
Cooling capacity	(1) kW	592	682	741	837	916	1062	1140
Total power input	(1) kW	104	122	133	149	164	187	196
EER	(1) kW/kW	5,70	5,59	5,57	5,61	5,58	5,68	5,82
ESEER	(1) kW/kW	7,00	6,90	6,89	6,94	7,35	7,43	7,46
<b>COOLING ONLY (EN14511 VALUE)</b>								
Cooling capacity	(1)(2) kW	590	679	739	834	913	1058	1137
EER	(1)(2) kW/kW	5,41	5,33	5,34	5,37	5,37	5,42	5,62
ESEER	(1)(2) kW/kW	6,35	6,10	6,19	6,23	6,44	6,56	6,80
Cooling energy class		A	A	A	A	A	A	A
<b>ENERGY EFFICIENCY</b>								
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>								
<b>Ambient refrigeration</b>								
Prated,c	(7) kW	590	679	739	834	913	1058	1137
SEER	(7)(8)	6,16	6,25	6,39	6,31	6,34	6,47	7,03
Performance ηs	(7)(9) %	239	242	248	244	246	251	273
<b>EXCHANGERS</b>								
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>								
Water flow	(1) l/s	28,30	32,59	35,45	40,03	43,80	50,79	54,53
Pressure drop	(1) kPa	50,9	42,0	42,7	42,8	40,0	51,5	37,4
<b>HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION</b>								
Water flow	(1) l/s	33,17	38,31	41,69	47,02	51,49	59,55	63,73
Pressure drop	(1) kPa	55,2	59,7	45,3	47,6	44,0	53,8	31,6
<b>REFRIGERANT CIRCUIT</b>								
Compressors nr.	N°	1	1	1	1	2	2	2
No. Circuits	N°	1	1	1	1	2	2	2
Refrigerant charge	kg	112	121	147	182	210	249	270
<b>NOISE LEVEL</b>								
Sound Pressure	(3) dB(A)	80	80	82	82	81	81	81
Sound power level in cooling	(4)(5) dB(A)	98	98	100	100	100	100	100
<b>SIZE AND WEIGHT</b>								
A	(6) mm	2900	2930	2980	2990	4430	4430	4440
B	(6) mm	1180	1180	1190	1280	1270	1270	1270
H	(6) mm	1960	2050	2100	2200	2210	2210	2280
Operating weight	(6) kg	3150	3270	3570	3960	6200	6430	7080

Notes:

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FOCS3-W		3502	3652	4002	4102	4502	4602	4752
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
<b>PERFORMANCE</b>								
<b>COOLING ONLY (GROSS VALUE)</b>								
Cooling capacity	(1) kW	1218	1303	1382	1450	1522	1614	1693
Total power input	(1) kW	214	225	242	253	268	284	292
EER	(1) kW/kW	5,69	5,80	5,72	5,74	5,68	5,68	5,80
ESEER	(1) kW/kW	7,24	7,32	7,28	7,27	7,12	7,39	7,39
<b>COOLING ONLY (EN14511 VALUE)</b>								
Cooling capacity	(1)(2) kW	1214	1299	1377	1445	1517	1609	1688
EER	(1)(2) kW/kW	5,43	5,60	5,46	5,50	5,42	5,45	5,54
ESEER	(1)(2) kW/kW	6,41	6,67	6,47	6,49	6,36	6,58	6,58
Cooling energy class		A	A	A	A	-	-	-
<b>ENERGY EFFICIENCY</b>								
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>								
<b>Ambient refrigeration</b>								
Prated,c	(7) kW	1214	1299	1377	1445	1517	1609	1688
SEER	(7)(8)	6,34	6,89	6,43	6,50	6,35	6,50	6,75
Performance ηs	(7)(9) %	246	267	249	252	246	252	262
<b>EXCHANGERS</b>								
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>								
Water flow	(1) l/s	58,23	62,33	66,11	69,33	72,76	77,20	80,94
Pressure drop	(1) kPa	51,4	39,8	50,4	46,7	51,5	42,5	46,7
<b>HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION</b>								
Water flow	(1) l/s	68,26	72,87	77,45	81,18	85,33	90,51	94,64
Pressure drop	(1) kPa	56,2	33,7	52,9	49,5	54,7	53,1	58,0
<b>REFRIGERANT CIRCUIT</b>								
Compressors nr.	N°	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2
Refrigerant charge	kg	270	280	280	288	297	341	341
<b>NOISE LEVEL</b>								
Sound Pressure	(3) dB(A)	81	81	81	82	82	82	82
Sound power level in cooling	(4)(5) dB(A)	100	100	100	101	102	102	102
<b>SIZE AND WEIGHT</b>								
A	(6) mm	4470	4470	4470	4565	4650	5270	5270
B	(6) mm	1270	1320	1270	1320	1320	1320	1320
H	(6) mm	2250	2330	2280	2380	2380	2380	2380
Operating weight	(6) kg	7160	7560	7280	7850	7940	8420	8950

Notes:

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