CHILLERS

FOCS2-W 1301 - 9604

High efficiency water cooled chiller 306-2416 kW

Version

CA	High efficiency version
CA-E	Premium efficiency version: Class A enhanced

Configurations

-	Basic function
D	Partial condensing heat recovery function
R	Total condensing heat recovery function

Features

HIGH EFFICIENCY

The version ´CA-E´ is characterized by efficiency beyond the ´Class A´ for Eurovent. The technological choices adopted assure the minimization of 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.

SILENT OPERATION

Extremely silent operation thanks to the accurate unit's design. Optional integral acoustic enclosure, reduces more the sound level beyond the best on market

Accessory

- Integral acoustical enclosure (type base or plus)
- VPF (Variable Primary Flow) system
- Set-up for remote connectivity with ModBus/Echelon protocol cards

Unit for indoor installation for chilled water production. Semihermetic screw compressors optimized to operate with low compression ratio and R134a; shell and tubes condenser and direct expansion evaporator; electronic expansion valve. Frame in polyester-painted galvanized steel. High efficiency unit: the innovative optimized compressors and the high performing heat exchangers enhance EER values up to 5,1 (CA version) and even up to 5,6 (CA-E version) at Eurovent standars conditions.

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 staus. 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.

FOCS2-W /CA			1301	1401	3202	3602	4202	4502	4802
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	306	348	844	957	1071	1145	1213
Total power input	(1)	kW	60,5	68,7	167	189	212	226	240
EER	(1)	kW/kW	5,06	5,07	5,06	5,07	5,06	5,06	5,06
ESEER	(1)	kW/kW	5,94	5,95	5,87	6,14	6,08	6,23	6,17
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	305	347	841	954	1069	1142	1210
EER	(1)(2)	kW/kW	4,86	4,87	4,89	4,90	4,92	4,91	4,90
ESEER	(1)(2)	kW/kW	5,45	5,45	5,41	5,63	5,67	5,78	5,70
Cooling energy class			B	B	B	B	B	B	B
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)									
Ambient refrigeration									
Prated,c	(7)	kW	305	347	841	954	1069	1142	1210
SEER	(7)(8)		5,55	5,58	5,88	5,89	5,89	5,97	5,90
Performance ηs	(7)(9)	%	214	215	227	228	228	231	228
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	14,64	16,66	40,35	45,78	51,23	54,74	58,02
Pressure drop	(1)	kPa	41,9	45,0	45,4	46,4	30,6	34,2	38,4
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION									
Water flow	(1)	l/s	17,46	19,87	48,14	54,60	61,11	65,30	69,22
Pressure drop	(1)	kPa	35,9	35,0	34,8	34,8	34,4	35,4	36,0
REFRIGERANT CIRCUIT									
Compressors nr.		N°	1	1	2	2	2	2	2
No. Circuits		N°	1	1	2	2	2	2	2
Refrigerant charge		kg	42,0	43,0	126	130	130	125	140
NOISE LEVEL									
Sound Pressure	(3)	dB(A)	79	79	80	80	80	80	80
Sound power level in cooling	(4)(5)	dB(A)	97	97	99	99	99	99	99
SIZE AND WEIGHT									
A	(6)	mm	3830	3830	4750	4750	4750	4750	4750
B	(6)	mm	900	900	1150	1150	1150	1150	1150
H	(6)	mm	1700	1700	2050	2050	2200	2200	2200
Operating weight	(6)	kg	2050	2110	5110	5400	6070	6120	6180

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_{100} 1430] fluorinated greenhouse gases.

FOCS2-W /CA			5402	6002	8103	9003	9004	9604
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	1348	1490	2024	2236	2278	2416
Total power input	(1)	kW	267	295	400	442	451	478
EER	(1)	kW/kW	5,05	5,05	5,05	5,06	5,05	5,05
ESEER	(1)	kW/kW	6,00	6,09	6,09	6,14	6,23	6,17
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	1344	1485	2018	2228	2273	2410
EER	(1)(2)	kW/kW	4,88	4,87	4,90	4,89	4,92	4,91
ESEER	(1)(2)	kW/kW	5,54	5,57	5,61	5,60	5,80	5,71
Cooling energy class			B	B	B	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(7)	kW	1344	1485	-	-	-	-
SEER	(7)(8)		5,89	5,88	-	-	-	-
Performance ηs	(7)(9)	%	228	227	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	64,47	71,27	96,81	106,91	108,94	115,54
Pressure drop	(1)	kPa	47,4	54,6	43,7	53,3	32,3	36,3
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	76,93	85,04	115,51	127,55	129,98	137,87
Pressure drop	(1)	kPa	34,5	36,6	34,6	35,8	35,0	37,0
REFRIGERANT CIRCUIT								
Compressors nr.		N°	2	2	3	3	4	4
No. Circuits		N°	2	2	3	3	4	4
Refrigerant charge		kg	164	180	269	261	267	260
NOISE LEVEL								
Sound Pressure	(3)	dB(A)	82	82	82	82	82	82
Sound power level in cooling	(4)(5)	dB(A)	101	101	102	102	102	102
SIZE AND WEIGHT								
A	(6)	mm	4850	4850	4950	4950	4650	4650
B	(6)	mm	1150	1150	1700	1700	2250	2250
H	(6)	mm	2200	2200	2150	2150	2230	2230
Operating weight	(6)	kg	6950	7090	10170	10350	14330	14390

Notes:
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FOCS2-W / CA-E			1301	1401	1601	1801	2101	2401	2802	3202	3602
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
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	321	365	442	506	574	649	729	884	1012
Total power input	(1)	kW	57,3	65,1	79,1	90,3	103	116	130	158	180
EER	(1)	kW/kW	5,60	5,60	5,59	5,61	5,59	5,59	5,60	5,59	5,61
ESEER	(1)	kW/kW	6,49	6,50	6,30	6,40	6,37	6,40	6,66	6,57	6,73
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	320	363	440	504	571	646	727	880	1009
EER	(1)(2)	kW/kW	5,32	5,33	5,30	5,32	5,31	5,30	5,34	5,32	5,37
ESEER	(1)(2)	kW/kW	5,83	5,83	5,65	5,72	5,72	5,70	5,96	5,84	6,06
Cooling energy class			A	A	A	A	A	A	A	A	A
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(7)	kW	320	363	440	504	571	646	727	880	1009
SEER	(7)(8)		5,88	5,90	5,88	5,89	5,88	5,89	6,16	6,08	6,31
Performance ηs	(7)(9)	%	227	228	227	228	227	228	238	235	244
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	15,33	17,44	21,13	24,21	27,44	31,06	34,88	42,28	48,41
Pressure drop	(1)	kPa	45,7	47,7	53,5	53,4	52,8	60,2	51,9	58,6	41,3
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION											
Water flow	(1)	l/s	18,02	20,49	24,84	28,44	32,24	36,50	40,99	49,69	56,86
Pressure drop	(1)	kPa	48,4	46,6	51,6	52,6	54,3	56,3	46,6	51,5	52,8
REFRIGERANT CIRCUIT											
Compressors nr.		N°	1	1	1	1	1	1	2	2	2
No. Circuits		N°	1	1	1	1	1	1	2	2	2
Refrigerant charge		kg	50,0	60,0	75,0	72,0	80,0	100	124	140	160
NOISE LEVEL											
Sound Pressure	(3)	dB(A)	79	78	78	78	78	78	80	80	80
Sound power level in cooling	(4)(5)	dB(A)	97	97	97	97	97	97	99	99	99
SIZE AND WEIGHT											
A	(6)	mm	4250	4250	4150	4150	4130	4350	4550	4950	5170
B	(6)	mm	900	900	900	900	900	900	1150	1150	1150
H	(6)	mm	1815	1910	1990	1990	1990	2090	2050	2200	2200
Operating weight	(6)	kg	2470	2770	3570	3750	3790	4230	5390	6460	6920

Notes:
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FOCS2-W / CA-E			4202	4802	2701	3001	5402	7204	7804	8404
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
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	1147	1299	707	781	1411	2025	2157	2294
Total power input	(1)	kW	205	232	128	141	256	361	386	410
EER	(1)	kW/kW	5,59	5,59	5,53	5,55	5,52	5,61	5,60	5,59
ESEER	(1)	kW/kW	6,64	6,66	6,38	6,41	6,66	6,75	6,64	6,65
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	1143	1293	704	779	1407	2019	2149	2286
EER	(1)(2)	kW/kW	5,33	5,31	5,27	5,30	5,29	5,40	5,35	5,35
ESEER	(1)(2)	kW/kW	5,91	5,87	5,76	5,81	6,00	6,13	5,94	5,97
Cooling energy class			A	A	A	A	A	A	A	A
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(7)	kW	1143	1293	704	779	1407	-	-	-
SEER	(7)(8)		6,18	6,16	5,89	5,90	6,23	-	-	-
Performance ηs	(7)(9)	%	239	238	228	228	241	-	-	-
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	54,85	62,10	33,80	37,36	67,48	96,82	103,15	109,69
Pressure drop	(1)	kPa	55,0	65,0	51,5	47,2	46,0	41,3	59,3	54,6
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1)	l/s	64,46	72,98	39,78	43,96	79,45	113,72	121,21	128,92
Pressure drop	(1)	kPa	54,4	56,6	51,7	49,3	51,5	52,0	53,3	53,8
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	1	1	2	4	4	4
No. Circuits		N°	2	2	1	1	2	4	4	4
Refrigerant charge		kg	174	210	115	105	220	320	348	348
NOISE LEVEL										
Sound Pressure	(3)	dB(A)	79	79	80	80	81	82	82	82
Sound power level in cooling	(4)(5)	dB(A)	99	99	99	99	101	102	102	102
SIZE AND WEIGHT										
A	(6)	mm	4920	4920	4350	4350	5200	5220	4900	4900
B	(6)	mm	1150	1285	900	900	1285	2250	2250	2250
H	(6)	mm	2350	2430	2180	2180	2440	2305	2455	2455
Operating weight	(6)	kg	7900	8560	4760	4870	8850	13720	15850	16100

Notes:
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