



Outdoor unit for the production of chilled water, equipped with oil-free centrifugal compressors, R513A refrigerant, axial EC fans, condensing coil with copper tubes and aluminum fins, shell and tube flooded evaporator and electronic expansion valve. Base, supporting structure and panels are of galvanized epoxy powder coated steel. The unit is supplied with refrigerant and has been factory tested. In free cooling mode, the liquid is cooled by outdoor air, thus lowering the load of the compressors until it is reduced to zero. The NG configuration complies with applications where it is not allowed or desired the use of ethylene glycol.

Control



Electronic control W3000 TE

W3000TE features a large keyboard and wide LCD display for 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. 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. Complete alarm management system is available, with the "black-box" and the alarm history display functions. 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 and supervision can be developed via proprietary devices or the integration in third party systems by means of the most common protocols ModBus, Bacnet, Bacnet-over-IP, LonWorks.

Compatibility with remote keyboard (up to 8 units). The programmable timer allows the creation of an operating profile up to 4 typical days and 10 time bands. Continuous modulation of the unit capacity, based on PID algorithms and referring to the water delivery temperature.

Refrigerant



Versions

K Key efficiency, compact version CA High energy efficiency units

Configurations

- Basic function NG Function for free-cooling without use of glycole

Features

ENERGY SAVING

Energy saving guaranteed by free-cooling, which exploits the low external air temperatures; free-cooling control with optional modulating valve.

VERY HIGH EFFICIENCY

Top-level seasonal efficiency thanks to technological solutions at the forefront: magnetic levitation centrifugal compressors, flooded evaporator, EC fans and advanced control algorithms.

WIDE RANGE

Extended capacity range.

LOW INRUSH CURRENTS

Reduced breakaway starting currents thanks to the revolutionary centrifugal compressor.

EXTREMELY SILENT OPERATION

Extremely silent operation in line with the best on the market, and highly reduced vibrations

INTEGRATED HYDRONIC GROUP

It consists of 2 pumps with 4-pole motor, fixed or variable speed, with high or low head options to satisfy the different installation requirements.

Accessories

- Modulating valve for water temperature control in Free-Cooling mode
- Compressor power factor correction
- Hydronic group
- Set-up for remote connectivity with ModBus/Echelon protocol cards
- VPF (Variable Primary Flow) kit: variable flow pumps with on board regulation
- Touch Screen visual display
- Remote control keyboard (distance to 200m and to 500m)



TECS-FC-G05/K		0211	0351	0452	0552	0652	0712
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	299,2	479,3	590,0	682,1	932,1	969,4
Total power input	(1) kW	87,50	140,4	177,9	180,1	284,6	275,0
EER	(1) kW/kW	3,419	3,414	3,316	3,787	3,275	3,525
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2) kW	297,1	475,7	586,0	677,0	925,4	962,2
EER	(1)(2) kW/kW	3,310	3,300	3,220	3,650	3,180	3,410
TOTAL FREE-COOLING (GROSS VALUE)							
Cooling capacity	(3) kW	299,2	479,3	590,0	682,1	932,1	969,4
EER	(3) kW/kW	58,67	49,93	49,17	66,87	55,48	50,49
Total free-cooling temperature	(3) °C	-1,8	-2,4	-1,8	-1,3	-2,5	-1,3
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(8) kW	258	411	504	602	790	842
SEER	(8)(9)	4,88	4,63	4,64	5,20	4,70	4,74
Performance ηs	(8)(10) %	192	182	183	205	185	186
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1) l/s	15,85	25,39	31,26	36,14	49,38	51,36
Pressure drop	(1) kPa	84,3	97,2	88,0	102	101	105
REFRIGERANT CIRCUIT							
Compressors nr.	N°	1	1	2	2	2	2
No. Circuits	N°	1	1	1	1	1	1
Refrigerant charge	kg	120	140	260	260	320	320
NOISE LEVEL							
Sound Pressure	(4) dB(A)	56	61	62	58	63	63
Sound power level in cooling	(5)(6) dB(A)	88	93	94	91	96	96
SIZE AND WEIGHT							
A	(7) mm	4000	4000	4900	6400	7000	7900
B	(7) mm	2260	2260	2260	2260	2260	2260
H	(7) mm	2500	2500	2500	2500	2500	2500
Operating weight	(7) kg	3430	3850	5080	5820	6340	6900

TECS-FC-G05/K		0903	0953	1003	1164	1204
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE						
COOLING ONLY (GROSS VALUE)						
Cooling capacity	(1) kW	1173	1238	1409	1558	1627
Total power input	(1) kW	319,5	372,8	425,0	456,2	459,3
EER	(1) kW/kW	3,671	3,321	3,315	3,415	3,542
COOLING ONLY (EN14511 VALUE)						
Cooling capacity	(1)(2) kW	1166	1231	1399	1547	1615
EER	(1)(2) kW/kW	3,570	3,240	3,220	3,310	3,430
TOTAL FREE-COOLING (GROSS VALUE)						
Cooling capacity	(3) kW	1173	1238	1409	1558	1627
EER	(3) kW/kW	48,88	51,58	53,37	49,94	52,15
Total free-cooling temperature	(3) °C	-1,1	-2,5	-2,4	-1,5	-1,6
ENERGY EFFICIENCY						
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)						
Ambient refrigeration						
Prated,c	(8) kW	1035	1056	1201	1343	1416
SEER	(8)(9)	4,59	4,42	4,50	4,33	4,37
Performance ηs	(8)(10) %	181	174	177	170	172
EXCHANGERS						
HEAT EXCHANGER USER SIDE IN REFRIGERATION						
Water flow	(1) l/s	62,16	65,59	74,62	82,52	86,21
Pressure drop	(1) kPa	90,0	78,3	101	103	112
REFRIGERANT CIRCUIT						
Compressors nr.	N°	3	3	3	4	4
No. Circuits	N°	2	2	2	2	2
Refrigerant charge	kg	430	520	520	540	540
NOISE LEVEL						
Sound Pressure	(4) dB(A)	64	64	65	65	65
Sound power level in cooling	(5)(6) dB(A)	97	97	98	98	98
SIZE AND WEIGHT						
A	(7) mm	10600	11200	11200	13000	13600
B	(7) mm	2260	2260	2260	2260	2260
H	(7) mm	2500	2500	2500	2500	2500
Operating weight	(7) kg	9750	10260	10530	12290	12350

Notes

- Plant (side) cooling exchanger water (in/out) 15°C/10°C; Source (side) heat exchanger air (in) 30°C; Ethylene glycol 30%.
- Values in compliance with EN14511
- Plant (side) cooling exchanger water (in/out) 15°C/10°C; Ethylene glycol 30%.
- Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Unit in standard configuration/execution, without optional accessories.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
- Seasonal space cooling energy efficiency

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

TECS-FC-G05/CA		0211	0251	0351	0452	0552	0712	0803	0903	1003	
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	306,5	351,4	492,6	609,7	705,6	979,4	1058	1195	1433
Total power input	(1)	kW	85,80	89,50	133,8	172,4	176,9	268,1	266,3	308,1	412,7
EER	(1)	kW/kW	3,572	3,926	3,682	3,537	3,989	3,653	3,973	3,879	3,472
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	304,2	348,7	488,7	605,3	700,0	972,0	1052	1187	1423
EER	(1)(2)	kW/kW	3,450	3,780	3,550	3,420	3,840	3,530	3,870	3,760	3,370
TOTAL FREE-COOLING (GROSS VALUE)											
Cooling capacity	(3)	kW	306,5	351,4	492,6	609,7	705,6	979,4	1058	1195	1433
EER	(3)	kW/kW	60,10	51,68	57,95	59,77	51,88	57,61	51,86	54,07	64,84
Total free-cooling temperature	(3)	°C	0,0	-0,1	-0,9	-0,4	0,5	-0,8	0,3	0,1	-1,5
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(8)	kW	268	317	431	529	642	857	962	1073	1233
SEER	(8)(9)		5,02	4,94	5,04	5,17	5,22	5,13	5,18	5,01	4,90
Performance ηs	(8)(10)	%	198	195	199	204	206	202	204	198	193
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	16,24	18,62	26,10	32,30	37,38	51,89	56,04	63,28	75,91
Pressure drop	(1)	kPa	88,5	94,9	103	94,0	109	107	73,1	93,3	105
REFRIGERANT CIRCUIT											
Compressors nr.		N°	1	1	1	2	2	2	3	3	3
No. Circuits		N°	1	1	1	1	1	1	2	2	2
Refrigerant charge		kg	120	120	140	260	280	320	430	430	520
NOISE LEVEL											
Sound Pressure	(4)	dB(A)	56	57	58	58	59	60	61	61	61
Sound power level in cooling	(5)(6)	dB(A)	88	89	90	91	92	93	94	94	94
SIZE AND WEIGHT											
A	(7)	mm	4000	4000	4900	6400	7900	10000	12100	13000	13000
B	(7)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(7)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(7)	kg	3660	3790	4380	5720	6770	8870	10530	11370	11730

Notes

- 1 Plant (side) cooling exchanger water (in/out) 15°C/10°C; Source (side) heat exchanger air (in) 30°C; Ethylene glycol 30%.
- 2 Values in compliance with EN14511
- 3 Plant (side) cooling exchanger water (in/out) 15°C/10°C; Ethylene glycol 30%.
- 4 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- 5 Sound power on the basis of measurements made in compliance with ISO 9614.
- 6 Sound power level in cooling, outdoors.
- 7 Unit in standard configuration/execution, without optional accessories.
- 8 Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- 9 Seasonal energy efficiency ratio
- 10 Seasonal space cooling energy efficiency

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TECS-FC-G05/NG/K		0211	0351	0452	0552	0652	0712
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	307,3	492,2	605,9	700,6	957,3	995,6
Total power input	(1) kW	88,00	141,1	178,8	181,0	286,1	276,4
EER	(1) kW/kW	3,492	3,488	3,389	3,871	3,346	3,602
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2) kW	305,0	487,9	601,3	694,5	949,4	987,6
EER	(1)(2) kW/kW	3,380	3,360	3,280	3,710	3,230	3,470
TOTAL FREE-COOLING (GROSS VALUE)							
Cooling capacity	(3) kW	307,3	492,2	605,9	700,6	957,3	995,6
EER	(3) kW/kW	37,94	32,60	31,07	39,58	30,10	29,11
Total free-cooling temperature	(3) °C	-4,8	-5,4	-4,9	-4,4	-5,6	-4,4
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(8) kW	258	410	502	600	789	840
SEER	(8)(9)	4,72	4,43	4,46	4,90	4,49	4,54
Performance ηs	(8)(10) %	186	174	175	193	177	178
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1) l/s	14,70	23,56	29,00	33,52	45,81	47,64
Pressure drop	(1) kPa	96,2	126	111	135	132	127
REFRIGERANT CIRCUIT							
Compressors nr.	N°	1	1	2	2	2	2
No. Circuits	N°	1	1	1	1	1	1
Refrigerant charge	kg	120	140	260	260	320	320
NOISE LEVEL							
Sound Pressure	(4) dB(A)	56	61	62	58	63	63
Sound power level in cooling	(5)(6) dB(A)	88	93	94	91	96	96
SIZE AND WEIGHT							
A	(7) mm	4000	4000	4900	6400	7000	7900
B	(7) mm	2260	2260	2260	2260	2260	2260
H	(7) mm	2500	2500	2500	2500	2500	2500
Operating weight	(7) kg	4120	4620	6100	6990	7610	8280

TECS-FC-G05/NG/K		0903	0953	1003	1164	1204
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE						
COOLING ONLY (GROSS VALUE)						
Cooling capacity	(1) kW	1205	1271	1447	1600	1671
Total power input	(1) kW	321,1	374,7	427,1	458,5	461,6
EER	(1) kW/kW	3,753	3,392	3,388	3,490	3,620
COOLING ONLY (EN14511 VALUE)						
Cooling capacity	(1)(2) kW	1197	1263	1435	1586	1655
EER	(1)(2) kW/kW	3,630	3,290	3,270	3,360	3,470
TOTAL FREE-COOLING (GROSS VALUE)						
Cooling capacity	(3) kW	1205	1271	1447	1600	1671
EER	(3) kW/kW	30,90	29,91	29,90	26,14	27,30
Total free-cooling temperature	(3) °C	-4,2	-5,5	-5,5	-4,5	-4,7
ENERGY EFFICIENCY						
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)						
Ambient refrigeration						
Prated,c	(8) kW	1033	1054	1198	1339	1412
SEER	(8)(9)	4,42	4,25	4,28	4,10	4,12
Performance ηs	(8)(10) %	174	167	168	161	162
EXCHANGERS						
HEAT EXCHANGER USER SIDE IN REFRIGERATION						
Water flow	(1) l/s	57,66	60,84	69,22	76,55	79,97
Pressure drop	(1) kPa	111	107	138	150	165
REFRIGERANT CIRCUIT						
Compressors nr.	N°	3	3	3	4	4
No. Circuits	N°	2	2	2	2	2
Refrigerant charge	kg	430	520	520	540	540
NOISE LEVEL						
Sound Pressure	(4) dB(A)	64	64	65	65	65
Sound power level in cooling	(5)(6) dB(A)	97	97	98	98	98
SIZE AND WEIGHT						
A	(7) mm	10600	11200	11200	13000	13600
B	(7) mm	2260	2260	2260	2260	2260
H	(7) mm	2500	2500	2500	2500	2500
Operating weight	(7) kg	11700	12320	12640	14750	14820

- Notes**
- Plant (side) cooling exchanger water (in/out) 15°C/10°C; Source (side) heat exchanger air (in) 30°C; Ethylene glycol 0%.
 - Values in compliance with EN14511
 - Plant (side) cooling exchanger water (in/out) 15°C/10°C; Ethylene glycol 0%.
 - Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
 - Sound power on the basis of measurements made in compliance with ISO 9614.
 - Sound power level in cooling, outdoors.
 - Unit in standard configuration/execution, without optional accessories.
 - Parameter calculated according to [REGULATION (EU) N. 2016/2281]
 - Seasonal energy efficiency ratio
 - Seasonal space cooling energy efficiency

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TECS-FC-G05/NG/CA		0211	0251	0351	0452	0552	0712	0803	0903	1003	
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	314,8	360,9	505,9	626,1	724,6	1006	1086	1227	1472
Total power input	(1)	kW	86,30	89,90	134,4	173,3	177,8	269,4	267,6	309,7	414,8
EER	(1)	kW/kW	3,648	4,014	3,764	3,613	4,075	3,734	4,058	3,962	3,549
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	312,4	357,8	501,4	621,1	717,9	997,8	1080	1218	1460
EER	(1)(2)	kW/kW	3,520	3,850	3,610	3,480	3,890	3,590	3,940	3,830	3,420
TOTAL FREE-COOLING (GROSS VALUE)											
Cooling capacity	(3)	kW	314,8	360,9	505,9	626,1	724,6	1006	1086	1227	1472
EER	(3)	kW/kW	38,86	29,34	36,14	39,88	29,46	31,44	30,68	30,22	33,38
Total free-cooling temperature	(3)	°C	-3,1	-3,2	-4,0	-3,5	-2,6	-3,9	-2,8	-3,0	-4,6
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(8)	kW	268	316	430	528	640	855	960	1071	1230
SEER	(8)(9)		4,84	4,70	4,81	4,93	4,89	4,89	4,97	4,79	4,64
Performance ηs	(8)(10)	%	191	185	189	194	193	193	196	189	182
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	15,06	17,27	24,21	29,96	34,68	48,13	51,98	58,71	70,42
Pressure drop	(1)	kPa	101	118	130	118	144	130	90,3	114	143
REFRIGERANT CIRCUIT											
Compressors nr.		N°	1	1	1	2	2	2	3	3	3
No. Circuits		N°	1	1	1	1	1	1	2	2	2
Refrigerant charge		kg	120	120	140	260	280	320	430	430	520
NOISE LEVEL											
Sound Pressure	(4)	dB(A)	56	57	58	58	59	60	61	61	61
Sound power level in cooling	(5)(6)	dB(A)	88	89	90	91	92	93	94	94	94
SIZE AND WEIGHT											
A	(7)	mm	4000	4000	4900	6400	7900	10000	12100	13000	13000
B	(7)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(7)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(7)	kg	4400	4550	5260	6870	8130	10650	12640	13650	14080

Notes

- Plant (side) cooling exchanger water (in/out) 15°C/10°C; Source (side) heat exchanger air (in) 30°C; Ethylene glycol 0%.
- Values in compliance with EN14511
- Plant (side) cooling exchanger water (in/out) 15°C/10°C; Ethylene glycol 0%.
- Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Unit in standard configuration/execution, without optional accessories.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
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Dimensional drawing