

WALL-MOUNTED FAN COIL CONVECTOR VENTILADOR DE INSTALACIÓN DE PARED

FCW 21 – 31 – 41



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DICHIARAZIONE DI CONFORMITÀ CE

Noi, firmatari della presente, dichiariamo sotto la nostra esclusiva responsabilità, che il prodotto:

VENTILCONVETTORE

serie FCW

al quale questa dichiarazione si riferisce è conforme alle seguenti norme armonizzate:

- CEI EN 60335-2-40
- CEI EN 55014-1
- CEI EN 55014-2
- CEI EN 61000-6-1
- CEI EN 61000-6-2

soddisfando così i requisiti essenziali delle seguenti direttive:

- Direttiva LVD 2006/95/CE
- Direttiva compatibilità elettromagnetica 2004/108/CE
- Direttiva Macchine 98/37/CE

CERTIFICAT DE CONFORMITÉ CE

Nous soussignés déclarons sous notre exclusive responsabilité que le produit :

VENTILO-CONVECTEURS

série FCW

auquel cette déclaration fait référence, est conforme aux normes harmonisées suivantes :

- EN 60335-2-40
- EN 55014-1
- EN 55014-2
- EN 61000-6-1
- EN 61000-6-2

satisfaisant ainsi aux conditions essentielles des directives suivantes:

- Directive LVD 2006/95/CE
- Directive compatibilité électromagnétique 2004/108/CE
- Directive Machines 98/37/CE

DECLARACIÓN DE CONFORMIDAD CE

Los que suscriben la presente declaran bajo la propia y exclusiva responsabilidad que el conjunto en objeto, definido como sigue:

FAN COIL

serie FCW

al que esta declaración se refiere, está en conformidad a las siguientes normas armonizadas:

- EN 60335-2-40
- EN 55014-1
- EN 55014-2
- EN 61000-6-1
- EN 61000-6-2

al que esta declaración se refiere, está en conformidad a las siguientes normas armonizadas:

- Directiva LVD 2006/95/CE
- Directiva compatibilidad electromagnética 2004/108/CE
- Directiva máquinas 98/37/CE

Bevilacqua, 01/10/2007

CE CONFORMITY DECLARATION

We the undersigned declare, under our own exclusive responsibility, that the product:

FAN COIL

FCW series

to which this declaration refers, complies with the following standardised regulations:

- EN 60335-2-40
- EN 55014-1
- EN 55014-2
- EN 61000-6-1
- EN 61000-6-2

thus meeting the essential requisites of the following directives:

- Directive LVD 2006/95/CE
- EMC Electromagnetic Compatibility Directive 2004/108/CE
- Machine Directive 98/37/CE

CE KONFORMITÄTSERKLÄRUNG

Wir, die hier Unterzeichnenden, erklären auf unsere ausschließlich Verantwortung, dass das Produkt:

GEBLÄSEKONVEKTOR

der Serie FCW

auf das sich diese Erklärung bezieht, den folgenden harmonisierten Normen entspricht:

- EN 60335-2-40
- EN 55014-1
- EN 55014-2
- EN 61000-6-1
- EN 61000-6-2

womit die grundlegenden Anforderungen folgender Richtlinien erfüllt werden:

- Richtlinie LVD 2006/95/CE
- Richtlinie zur elektromagnetischen Verträglichkeit 2004/108/CE
- Maschinenrichtlinie 98/37/CE

La Direzione Commerciale - Sales and Marketing Director

LUIGI ZUCCHI

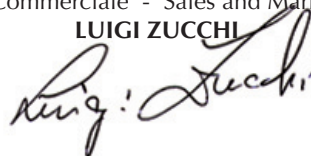


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REMARKS

Store the manuals in a dry location to avoid deterioration, as they must be kept for at least 10 years for any future reference.

Carefully and thoroughly read all the information referred to in this manual. Pay particular attention to the usage regulations accompanied by the words "DANGER" or "WARNING" because, if they are not complied with, damage can be caused to the machine and/or injury to persons or damage to property may result.

If any malfunctions are not included in this manual, contact the local After Sales Service immediately.

The apparatus must be installed in such a way that maintenance and/or repair operations are possible.

The apparatus's warranty does not in any case cover costs due to automatic ladders, scaffolding or other lifting systems necessary for carrying out repairs under guarantee.

AERMEC S.p.A. declines all liability for any damage due to improper use of the machine or the partial or superficial reading of the information contained in this manual.

This manual contains the following number of pages: 56.

TRANSPORT

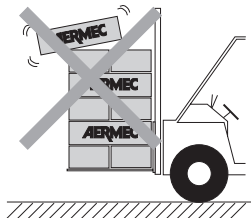
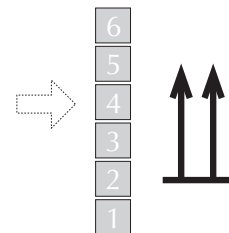
Do NOT wet



Do NOT trample

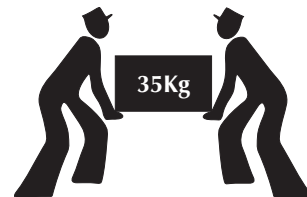


Stacking: control the packing for the arrow position to know the number of machines that can be stacked

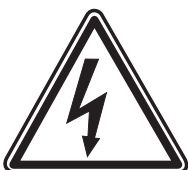


Do NOT leave loose packages during transport

Das Gerät NICHT alleine tragen, wenn sein Gewicht 35 Kg überschreitet.



SAFETY SYMBOL



Danger:
Power supply



Danger:
Movings parts



Danger!!!

MAINTENANCE

ORDINARY MAINTENANCE

The ordinary maintenance, it can also be done by the user, consists of a series of simple operations, thanks to which the fan coil can operate at full efficiency.

Operations:

- External cleaning, weekly, to be done with a damp cloth (soaked in water no hotter than 40 °C) and neutral soap; avoid using any other type of detergent or solvent.

Do not splash water on interior or exterior surfaces of the fan coil (it could cause short circuits).

- Filter cleaning, every two weeks or weekly if installed in very dusty environments. Clean the filter with a vacuum cleaner and possibly with water and neutral detergent, do not use detergents or solvents of any kind.

- Visual inspection of the state of the fan coil for every maintenance operation; every fault must be communicated to the After-Sales Service.

EXTRAORDINARY MAINTENANCE

Extraordinary maintenance can only be performed by Aermec After-Sales Services or by people with the technical and professional requisites qualifying them to undertake installation, conversion, expansion and maintenance of the systems and are able to check them in terms of safety and functionality, in particular with regard to electrical connections the following tests are required relative to:

- Measurement of the electrical system insulation resistance.
- Continuity test of the protection wires.

The extraordinary maintenance consists of a series of complex operations that involve the dismantling of the fan coil or its components thanks to which the condition of maximum fan coil functioning efficiency is restored.

Operations:

- Internal cleaning, annually or after long periods of non use; in environments where a high degree of air cleaning is required, cleaning can be more frequent; consists of the cleaning of the coil, ventilator fins, basin and all the parts in contact with the treated air.

- Repairs and fine tuning, when faults arise look at the "TROUBLESHOOTING" chapter in this manual before calling the After-Sales Service.

TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
Insufficient air flow at outlet	Incorrect speed setting on control panel	Select the correct speed on the control panel
	Blocked filter	Clean the filter
	Obstructed air flow (inlet and/or outlet)	Remove the obstacle
Unit does not heat	No hot water	Check the heater Check the heat pump
	Incorrect control panel setting	Set the control panel properly
	T water > 90°C	Reduce the water temperature, then remove and resupply the unit with voltage.
Unit does not cool	No cold water	Check the chiller
	Incorrect control panel setting	Set the control panel
Fan not turning	No electrical power	Check that there is electrical power
	Water has not reached operating temperature.	Check the boiler or the chiller and/or check the setting
Condensation forming on the external case of the unit	Temperature and humidity limits specified by "MINIMUM MEDIUM WATER TEMPERATURE" have been reached	Raise the water temperature to above the limits specified by "MINIMUM MEDIUM WATER TEMPERATURE"

For any problems not listed, contact the After-Sales Service immediately.

DESCRIPTION OF THE UNIT

The **FCW** fan coil for wall mounting is a concentration of top level technological and functional features that make it the ideal climate control unit for all environments.

The supply of climate controlled air is immediate and distributed throughout the room; **FCW** generates heat if included in heating system with boiler or heat pump but it may also be used in the summer as an air conditioner if the system has a water chiller.

MAIN CHARACTERISTICS:

- Three-way water valve incorporated inside it
- EUROVENT Certified
- PANTONE colour Cool Grey 1C
- Choice between two different control models (it is not possible to use the two models at the same time).

Infrared remote control unit (TLW1 accessory) with liquid crystal display and support for the wall mounting. The remote control unit enables all the unit's functions to be controlled.

Wired remote panel (PFW accessory) with liquid crystal display with supports to be affixed to the wall, four meter cable. The panel makes it possible to control the main functions of the unit.

The response to the commands is immediate if the

environmental temperature and the temperature of the water in system so allow;

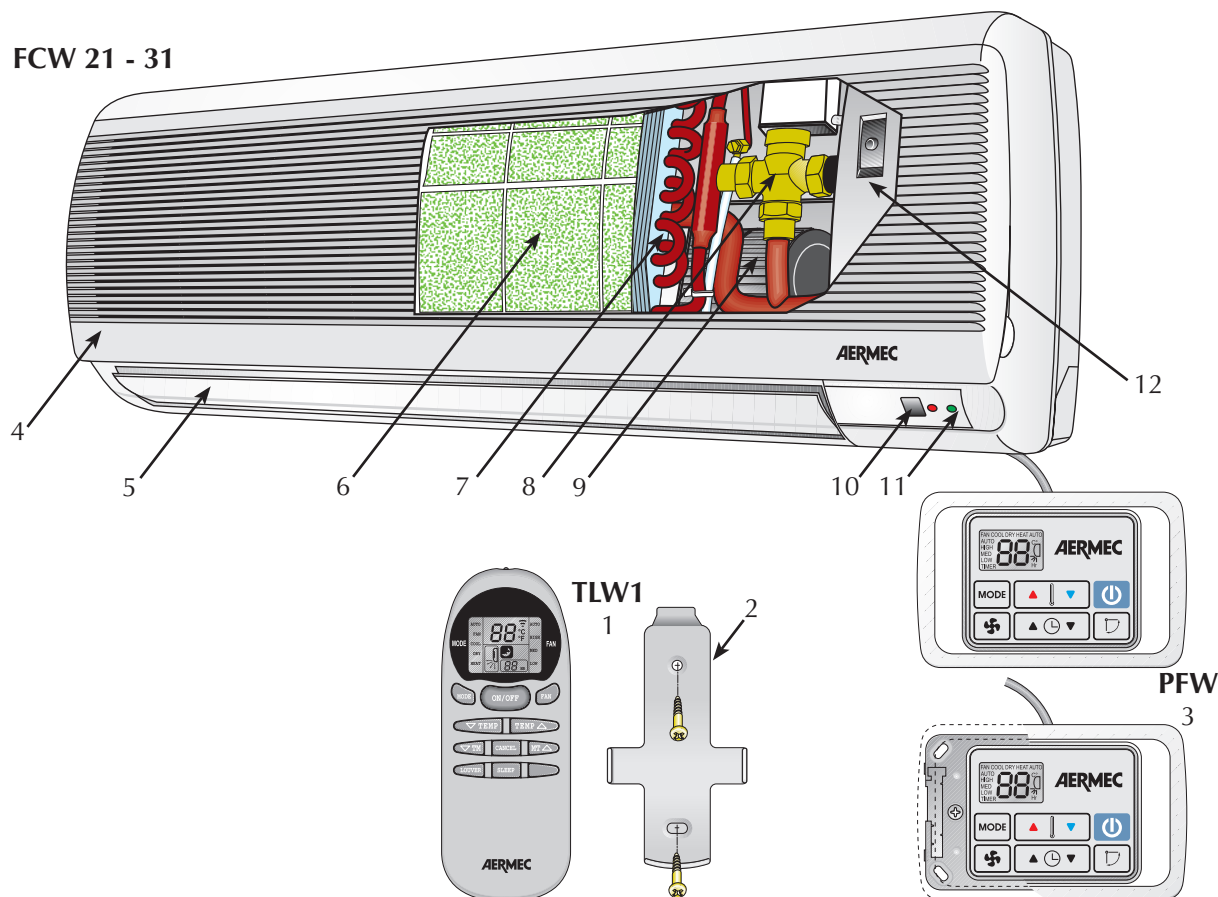
- Three-speed cross flow fan
 - Very quiet operation
 - High-design appearance with rounded lines
 - Air delivery slats with horizontal adjustment facility
 - Motorised horizontal air delivery deflector that may be worked with both the remote control unit or the wired remote control unit for the vertical directioning of the output air with continuous or fixed oscillation that can be selected among the four pre-established positions or any other position as required
 - Microprocessor control
 - Timer for the programming of the turning on or off
 - Automatic functioning programme, cooling, heating, ventilation and dehumidification (only with TLW1 remote control unit)
 - Automatic season change
 - Automatic restart after power outage
 - Ease of installation with plumbing connections and condensate drain that can be placed in several directions
- Routine maintenance is limited to periodic cleaning of the air filter.
- Full compliance with safety regulations.

MAIN COMPONENTS

- | | |
|---|---|
| 1 | TLW1 (remote control unit) accessory |
| 2 | Support for the wall mounting of the TLW1 remote control unit |
| 3 | PFW (wired remote panel) accessory |
| 4 | Front panel |
| 5 | Horizontal air delivery deflector fin |
| 6 | Air filter |

- | | |
|----|----------------------------|
| 7 | Heat exchanger battery |
| 8 | Three-way water valve |
| 9 | Fan unit |
| 10 | Receiver |
| 11 | Lit indicators (LED) |
| 12 | Auxiliary emergency switch |

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DESCRIPTION OF COMPONENTS

TLW1 (ACCESSORY) REMOTE CONTROL UNIT

Accessory essential for fan coil operation, alternative to the PFW wired remote panel.

The TLW1 remote control unit is provided separately from the fan coil. A single remote control unit can control several fan coils.

The remote control unit makes it possible to set all the operating parameters of the apparatus, these parameters are shown on a liquid crystal display thus making programming operations easier.

The remote control unit is fitted with a support allowing it to be hung on the wall.

PFW WIRED REMOTE PANEL (ACCESSORY)

Accessory essential for fan coil operation, alternative to the TLW1 remote control unit

The panel must be installed on the wall and connected to the fan coil with the cable provided.

The panel cable is four meters long.

The PFW makes it possible to set the MAIN operating parameters of the apparatus, these parameters are shown on a liquid crystal display thus making programming operations easier.

A PFW panel is designed to control just one fan coil.

FRONT PANEL

The air is sucked up by the slots. When raising the panel, one has access to the air filter and to the other internal parts.

RECEIVER

Infra red signal receiver.

LIT INDICATORS (LED)

These indicators show the current operating status.

AIR FILTER

Air filters that can be regenerated are easy to extract for cleaning.

THERMAL EXCHANGE BATTERY

This made of a copper tube with turbulented type aluminium slats.

HORIZONTAL AIR DELIVERY DEFLECTOR

The unit is fitted with a motorised air delivery deflector and vertical slats that can be directed manually in such a way as to optimally orient the air flow.

AUXILIARY EMERGENCY SWITCH

The auxiliary emergency switch makes it possible to turn the fan coil on or off in the absence of a wired remote panel or remote control unit. To access it, raise the front panel

FAN UNIT

The fan unit consists of an extremely small, quiet tangential type fan.

THREE-WAY WATER VALVE

The FCW fan unit comes with a three-way water valve of the all or nothing type with electrothermal actuator controlled by the fan coil card in accordance with the water temperature and the temperature of the ambient air.

GENERAL INFORMATION

The two available command models (PFW and TLW1) provided as required as an obligatory accessory for the functioning allow the turning on, the turning off and all the fan coil control and programming operations.

The two command models cannot be used at the same time on the same fan coil.

The control system checks all the functioning parameters and carries out all the operations necessary to enable the required environmental conditions to be maintained.

The control system also provides some automatic functions to increase comfort and make the most frequently repeated operations easier:

- Minimum temperature sensor, in order to avoid cold air blasts in the winter mode allows ventilation only if the water in the system is hot.

- **Auto Restart mode, after a power outage the FCW unit starts again automatically with the same settings that it had at the time of the stop (with the exception of the Timer).**

- Type of operation.

- Programming of the timer for turning on or turning off.

Fan speed

- Activation of the motorised air delivery deflector.

- Three-way water valve control.

Turning the unit on and off.

SELECTION CRITERIA

FCW is fitted with a standard internal three-way valve.

To function the FCW fan coil requires combination with the remote control (TLW1 accessory) or alternatively the wired remote panel (accessory PFW).

The tables in TAB 1 to 3 show the total chilling yield and sensible to the maximum speed in accordance with the inlet water temperature of its thermal change and air temperature with dry or wet bulb, performance at medium and minimum speeds are obtained by applying the relative correction coefficients.

The diagrams of the tables in TAB. 4 to 6 show the thermal capacity at top speed in accordance with the water flowrate and the inlet water and inlet air temperature difference, for lower speeds refer to the relative correction coefficients.

The diagram in TAB. 7 shows the coil pressure drop in function of the flow rate at a medium temperature of 10°C, for water circulating at different temperatures refer to the relative correction coefficients.

The diagrams in TAB. 8 show the correction factors for fan coils installed in systems with glycoled water.

Tables TAB. 9 and TAB. 10 show the level of sound power of the fan coils at different speeds.

IMPORTANT INFORMATION

WARNING: The fan coil is connected to the power supply and a water circuit. Operations performed by persons without the required technical skills can lead to personal injury to the operator or damage to the unit and surrounding objects.

MALFUNCTIONING

In the case of malfunctioning remove the power to the unit then rewire it and start the apparatus up again. If the problem occurs again, call your areas After-Sales Service promptly.

POWER THE FAN COIL ONLY WITH 230 VOLT, SINGLE PHASE, 50 HZ

Use of other power supplies could cause permanent damage to the fan coil.

USE THE (TLW1) REMOTE CONTROL UNIT OR THE WIRED REMOTE PANEL (PFW) TO TURN THE FAN COIL ON AND OFF

Do not turn the fan coil on or off using the auxiliary switch unless it is an emergency.

DO NOT TUG THE ELECTRICAL CABLE

It is very dangerous to pull, tread on or crush the electrical power cable or fix it with nails or drawing pins. A damaged power cable can cause short circuits and personal injury.

DO NOT PUT ANYTHING IN THE AIR OUTLETS

Do not put anything at all in the air outlet slots. This could cause injury to people and damage to the fan.

DO NOT USE THE FAN COIL IMPROPERLY

Do not use the fan coil in animal husbandry applications (e.g. incubation).

AIRING THE ROOM

Periodically air the room in which the fan coil has been installed; this is particularly important if the room is occupied by many people, or if gas appliances or sources of odours are present.

CORRECTLY REGULATING THE TEMPERATURE

The room temperature should be regulated in order to provide maximum comfort to the people in the room, especially if they are elderly, children or ill, avoiding sudden changes in temperature between the outside and inside above 7 °C in summer.

Careful choice of the room temperature will lead to energy savings.

CORRECTLY ADJUSTING THE AIR JET

The area coming out of the fan coil must not strike people directly; in fact, even if at a temperature that is higher than the room temperature, it could cause a cold sensation and resulting discomfort. Only adjust the vertical slats by hand.

For the horizontal air delivery deflector, use the LOUVRE key of the remote control unit or SWING key of the LOUVRE remote panel.

DURING OPERATIONS

Always leave the filter on the fan coil during operation (otherwise dust in the air could soil the coil surface area).

WHAT IS NORMAL

During cooling function, water vapour may be present in the air delivery.

In heating function it might be possible to hear a slight hiss around the fan coil. Sometimes the fan coil might give off unpleasant smells due to the accumulation of dirt in the air of the environment (especially if the room is not ventilated regularly, clean the filter more often).

OPERATING LIMITS

Maximum water inlet temperature 70 °C

Maximum working pressure 13 bar

The assembly site must be chosen in such a way that the maximum and minimum ambient temperature limits Ta are respected 0°C < Ta < 45°C ; R.H. < 85%.

The fan coils are powered with a voltage of 230V monophasic at 50 Hz and ground connection, in any case the power of the line must remain within the limit of ±10% with respect to the nominal value.

Water flow limits:

MOD.	FCW	21	31	41
Minimum water flow	[l/h]	100	100	150
Maximum water flow	[l/h]	750	750	1100

Average minimum water temperature

To prevent the formation of condensation on the exterior of the unit while the fan is operating, the average water temperature should not drop beneath the limits shown in the table below, determined by the ambient conditions. These limits refer to unit operation with fan at minimum speed.

MINIMUM AVERAGE WATER TEMPERATURE	Dry bulb temperature °C					
	21	23	25	27	29	31
Wet bulb temperature °C	15	3	3	3	3	3
	17	3	3	3	3	3
	19	3	3	3	3	3
	21	6	5	4	3	3
	23	-	8	7	6	5

TECHNICAL DATA

Mod.		FCW	21	31	41
* Heating capacity	max.	[W]	4000	5200	7600
	med.	[W]	3600	4600	6800
	min.	[W]	3000	3950	5700
* Water flow		[l/h]	344	447	654
* Water pressure drops (maximum speed)		[kPa]	18,5	23	23
** Heating capacity (water in 50°C) (E)		[W]	2500	3300	4500
* Total cooling capacity	max. (E)	[W]	1900	2700	3800
	med.	[W]	1700	2200	3450
	min.	[W]	1450	1850	3000
* Sensible cooling capacity	max. (E)	[W]	1550	2150	2850
	med.	[W]	1350	1700	2500
	min.	[W]	1100	1400	2150
* Water flow		[l/h]	327	464	654
* Water pressure drops (maximum speed) (E)		[kPa]	20	27	31,4
Air flow	max.	[m ³ /h]	380	470	540
	med.	[m ³ /h]	280	360	440
	min.	[m ³ /h]	220	295	370
Number of fans	n		1	1	1
♪ Sound pressure level	max.	[dB (A)]	42,5	43,0	43,5
	med.	[dB (A)]	38,5	35,5	38,5
	min.	[dB (A)]	31,0	28,5	35,5
Sound power level	max. (E)	[dB (A)]	51,0	51,5	52
	med. (E)	[dB (A)]	47,0	44,0	47
	min. (E)	[dB (A)]	39,5	37,0	44
Max. motor power (E)		[W]	23	25	43,7
Max. input current		[A]	0,1	0,11	0,19
Peak current		[A]	0,3	0,33	0,6
Valve input power		[W]	2,5	2,5	2,5
Maximum input power		[W]	26	28	47
Water content		[l]	0,7	0,8	1,6
Coil connections (flat plate)		∅	1/2" F	1/2" F	1/2" F
Dimensions	Height	[mm]	298	305	360
	Width	[mm]	880	990	1170
	Depth	[mm]	180	180	210
Net weight		[kg]	9	10	19
Gross weight		[kg]	10	11	22

Power supply = 230 V ~ 50 Hz (± 10 %).

(E) =  Eurovent Certified Performance

Performance values refer to the following conditions:

- supply voltage 230 V ~ 50 Hz;
- ♪ level of sound pressure (weighted A) measured in the environment with volume V = 85 m³, reverberation time t = 0.5 s, direction factor Q = 2, distance r = 2.5 m.

* heating:

- Inlet Water temperature 70°C room air temperature = 20°C B.S.;
- maximum ventilation speed: Δt water= 10°C ;
- medium and minimum ventilation speed: water flow rate as maximum ventilation speed;

** heating (water inlet 50°C)

- water inlet temperature 50°C room air temperature = 20°C B.S.;
- maximum ventilation speed: water flow rate in cooling mode at maximum ventilation speed;

* cooling:

- inlet water temperature = 7°C room air temperature = 27°C B.S.; 19°C B.U.;
- maximum ventilation speed: Δt water= 5°C ;
- medium and minimum ventilation speed: water flow rate as maximum ventilation speed;

COOLING CAPACITY

TAV.1 FCW 21

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps
		21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
5	3	15	1386	1098	1870	1656	2038	1890	2284	2118	2526	2342	2768	2567
		17	2479	1425	2453	1647	2457	1878	2505	2116	2582	2348	2772	2571
		19	3217	1446	3204	1652	3192	1875	3179	2102	3160	2327	3167	2554
		21			3990	1674	3971	1870	3958	2089	3939	2313	3927	2539
		23					4800	1889	4781	2080	4762	2291	4750	2516
	5	15	1200	1088	1375	1275	1598	1482	1900	1762	2176	2019	2441	2264
		17	1464	997	1529	1233	1706	1501	1922	1767	2181	2023	2444	2267
		19	2453	1115	2436	1329	2410	1549	2427	1780	2496	2022	2617	2272
		21			3330	1389	3314	1595	3299	1816	3280	2039	3261	2260
		23					4209	1635	4182	1828	4171	2047	4159	2272
	7	15	1041	963	1230	1141	1420	1317	1611	1494	1805	1674	1999	1854
		17	1200	881	1300	1110	1438	1320	1615	1498	1805	1674	2003	1858
		19	1606	783	1598	1004	1641	1231	1736	1460	1852	1670	2008	1862
		21			2185	942	2168	1160	2142	1377	2194	1611	2323	1865
		23					3368	1303	3355	1511	3343	1734	3304	1948
7	3	15	1332	1182	1533	1422	1796	1665	2047	1898	2289	2123	2531	2347
		17	1939	1194	1926	1419	1991	1661	2092	1899	2293	2127	2535	2351
		19	2699	1217	2686	1430	2677	1659	2651	1880	2669	2111	2734	2353
		21			3481	1451	3525	1656	3449	1877	3430	2100	3418	2325
		23					4297	1672	4285	1903	4266	2085	4247	2309
	5	15	987	915	1179	1093	1373	1273	1645	1526	1935	1794	2207	2047
		17	1118	850	1226	1077	1377	1277	1649	1530	1939	1798	2211	2051
		19	1744	834	1710	1048	1770	1291	1900	1550	2055	1805	2237	2033
		21			2738	1150	2729	1365	2712	1588	2695	1810	2721	2040
		23					2809	1090	2809	1090	2809	1090	2809	1090
	7	15	844	783	1036	961	1228	1139	1418	1316	1611	1494	1801	1670
		17	904	744	1053	960	1231	1141	1421	1317	1611	1494	1803	1672
		19	1200	633	1240	864	1334	1093	1459	1308	1615	1497	1805	1674
		21			1675	762	1667	983	1701	1209	1779	1434	1891	1654
		23					2651	1041	2634	1256	2608	1475	2617	1701
9	3	15	1008	935	1291	1197	1555	1442	1805	1674	2051	1902	2293	2127
		17	1321	942	1416	1191	1583	1445	1809	1678	2055	1906	2298	2131
		19	2133	984	2120	1204	2099	1428	2129	1661	2211	1902	2336	1985
		21			2928	1223	2915	1435	2903	1662	2884	1884	2878	2110
		23					3757	1451	3757	1451	3757	1451	3757	1451
	5	15	883	819	984	913	1177	1091	1390	1289	1688	1566	1965	1822
		17	831	712	984	913	1179	1093	1390	1289	1693	1570	1968	1825
		19	1127	606	1157	834	1254	1062	1421	1296	1697	1574	1973	1830
		21			2055	894	2045	1117	2030	1336	2099	1577	2211	1825
		23					3035	1177	3016	1387	3003	1611	2984	1833
	7	15												
		17	660	599	844	783	1036	961	1228	1139	1418	1316	1611	1494
		19	821	495	926	731	1064	950	1231	1141	1421	1317	1611	1494
		21			1250	617	1282	845	1369	1074	1490	1294	1632	1497
		23					1762	744	1749	966	1788	1196	1874	1428
11	3	15	740	687	1030	955	1304	1209	1563	1449	1811	1680	2055	1906
		17	762	682	1032	957	1308	1213	1565	1452	1814	1682	2060	1910
		19	1490	737	1468	958	1537	1201	1649	1446	1818	1686	2064	1914
		21			2328	993	2315	1212	2302	2077	2297	1663	2341	1894
		23					3173	1226	3160	1437	3142	1660	3129	1884
	5	15												
		17	598	554	792	735	984	913	1177	1091	1429	1326	1723	1598
		19	743	468	848	700	993	912	1179	1093	1434	1330	1727	1602
		21			1179	592	1200	818	1304	1055	1532	1327	1775	1607
		23					2332	930	2315	1147	2289	1367	2332	1602
	7	15												
		17												
		19	502	368	666	593	846	785	1036	961	1228	1139	1418	1316
		21			846	482	948	716	1084	939	1235	1138	1421	1317
		23					1308	602	1330	828	1408	1055	1520	1276

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	
			21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
13	3	15													
		17	540	501	745	691	1049	973	1317	1221	1572	1458	1818	1686	
		19	668	443	820	696	1071	977	1321	1225	1576	1462	1822	1690	
		21			1654	752	1632	973	1667	1206	1757	1449	1891	1691	
		23					2539	1000	2522	1216	2509	1440	2496	1662	
	5	15													
		17													
		19	434	342	601	509	792	735	984	913	1179	1093	1472	1365	
		21			770	457	868	688	1008	905	1181	1095	1477	1370	
		23					1356	615	1364	842	1492	1083	1710	1371	
	7	15													
		17													
		19													
		21			511	359	676	586	846	785	1036	961	1228	1139	
		23					876	470	971	701	1101	924	1252	1133	
15	3	15													
		17													
		19	365	313	545	505	771	715	1066	989	1330	1233	1580	1466	
		21			704	436	915	717	1123	985	1332	1235	1585	1470	
		23					1822	761	1814	985	1814	1210	1878	1446	
	5	15													
		17													
		19													
		21			442	334	606	551	792	735	984	913	1196	1109	
		23					794	445	889	675	1023	895	1213	1118	
	7	15													
		17													
		19													
		21													
		23					521	350	684	577	853	781	1036	961	

Cooling capacities are referred to high speed.

To obtain values for other speed, multiply the values read by following factors:

MOD.		FCW 21
Medium speed	total capacity	0,89
	sensible capacity	0,87
Minimum speed	total capacity	0,76
	sensible capacity	0,71

Water flow rate as at maximum ventilation speed;

Tw [°C] = Inlet water temperature

Ta w.b. [°C] = Inlet wet bulbe air temperature

Ta b.s. [°C] = Dry bulbe air temperature

Pc [W] = Total cooling capacity

Ps [W] = Sensible cooling capacity

NOTE: Values of capacity in bold face refer to nominal value.

Values of sensible capacity higher than values of total capacity mean that cooling is without dehumidification in this case consider only the values of sensible capacity.

COOLING CAPACITY

TAV.2 FCW 31

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps
		21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
5	3	15	1969	1524	2657	2297	2896	2621	3245	2938	3589	3249	3933	3561
		17	3522	1976	3486	2285	3492	2606	3559	2935	3670	3256	3940	3567
		19	4571	2005	4553	2292	4536	2601	4518	2916	4491	3228	4500	3543
		21			5669	2322	5643	2593	5625	2897	5598	3209	5580	3521
		23					6821	2621	6794	2885	6767	3178	6750	3490
	5	15	1705	1509	1954	1769	2270	2055	2700	2444	3093	2800	3469	3141
		17	2080	1383	2172	1710	2424	2081	2731	2451	3099	2805	3473	3144
		19	3486	1546	3461	1843	3424	2149	3449	2470	3547	2804	3719	3151
		21			4732	1926	4709	2212	4687	2518	4661	2828	4634	3135
		23					5982	2268	5942	2535	5928	2839	5910	3152
	7	15	1479	1335	1748	1582	2018	1827	2289	2072	2565	2322	2841	2572
		17	1705	1223	1847	1540	2043	1831	2295	2078	2565	2322	2846	2577
		19	2283	1087	2270	1392	2332	1708	2467	2025	2632	2316	2853	2583
		21			3105	1307	3080	1609	3044	1910	3117	2235	3301	2587
		23					4786	1807	4768	2096	4750	2405	4695	2703
7	3	15	1893	1640	2179	1973	2552	2310	2909	2633	3252	2944	3596	3256
		17	2755	1656	2737	1968	2829	2304	2973	2635	3258	2950	3602	3261
		19	3835	1687	3817	1983	3805	2301	3767	2607	3792	2928	3885	3264
		21			4946	2013	5009	2297	4902	2604	4875	2914	4857	3225
		23					6107	2319	6089	2640	6062	2893	6035	3202
	5	15	1402	1269	1675	1516	1951	1766	2338	2116	2749	2489	3136	2839
		17	1589	1179	1742	1494	1957	1772	2344	2122	2755	2494	3142	2844
		19	2479	1156	2430	1453	2516	1791	2700	2150	2921	2504	3179	2820
		21			3891	1595	3878	1894	3854	2203	3829	2511	3866	2830
		23					3992	1511	5161	2237	5143	2544	5116	2853
	7	15	1199	1086	1473	1333	1746	1580	2016	1825	2289	2072	2559	2316
		17	1285	1032	1497	1332	1749	1583	2019	1827	2289	2072	2562	2319
		19	1706	878	1762	1199	1896	1516	2074	1815	2294	2077	2565	2322
		21			2381	1057	2368	1364	2418	1677	2528	1989	2688	2295
		23					3767	1444	3743	1742	3706	2046	3719	2360
9	3	15	1433	1297	1835	1661	2209	2000	2565	2322	2915	2639	3258	2950
		17	1878	1306	2013	1653	2249	2004	2571	2328	2921	2644	3265	2956
		19	3031	1365	3013	1670	2982	1980	3025	2304	3142	2639	3320	2754
		21			4160	1696	4143	1991	4125	2305	4098	2613	4089	2927
		23					5339	2013	1970	850	5294	2601	5277	2914
	5	15	1255	1136	1399	1266	1672	1514	1976	1789	2399	2172	2792	2528
		17	1181	987	1399	1266	1675	1516	1976	1789	2405	2178	2797	2532
		19	1601	841	1644	1157	1782	1473	2019	1797	2411	2183	2803	2538
		21			2921	1240	2905	1549	2884	1853	2982	2188	3142	2531
		23					4312	1633	4286	1924	4268	2235	4241	2542
	7	15												
		17	938	831	1199	1086	1473	1333	1746	1580	2016	1825	2289	2072
		19	1166	686	1316	1014	1512	1317	1749	1583	2019	1827	2289	2072
		21			1776	856	1822	1172	1945	1490	2117	1796	2319	2076
		23					2504	1032	2485	1339	2541	1659	2663	1981
11	3	15	1052	952	1463	1325	1853	1677	2220	2010	2574	2330	2921	2644
		17	1083	945	1466	1327	1859	1683	2224	2014	2577	2333	2927	2650
		19	2117	1023	2086	1329	2184	1666	2344	2006	2583	2339	2933	2655
		21			3308	1377	3289	1681	3271	2881	3265	2306	3326	2627
		23					4509	1701	4491	1993	4464	2303	4446	2613
	5	15												
		17	849	769	1126	1019	1399	1266	1672	1514	2031	1839	2448	2216
		19	1055	649	1206	971	1411	1265	1675	1516	2037	1844	2454	2222
		21			1675	822	1706	1135	1853	1464	2178	1840	2522	2229
		23					3314	1290	3289	1592	3252	1896	3314	2222
	7	15												
		17												
		19	714	511	946	823	1202	1089	1473	1333	1746	1580	2016	1825
		21			1202	668	1347	993	1540	1303	1755	1579	2019	1827
		23					1859	835	1890	1148	2000	1464	2160	1770

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	
			21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
13	3	15													
		17	768	695	1058	958	1491	1350	1871	1694	2234	2022	2583	2339	
		19	949	614	1166	966	1522	1355	1878	1700	2240	2028	2589	2344	
		21			2350	1043	2319	1349	2368	1674	2497	2009	2688	2346	
	23					3608	1387	3584	1687	3565	1998	3547	2305		
	5	15													
		17													
		19	617	474	854	706	1126	1019	1399	1266	1675	1516	2092	1894	
		21			1095	634	1233	954	1433	1256	1678	1519	2098	1900	
	23					1927	854	1939	1167	2121	1503	2430	1902		
	7	15													
		17													
		19													
		21			726	498	960	813	1202	1089	1473	1333	1746	1580	
	23					1245	651	1380	973	1565	1282	1779	1572		
	15	3	15												
17															
19			518	434	774	701	1095	991	1515	1372	1890	1711	2246	2033	
21					1000	605	1301	994	1595	1366	1893	1714	2252	2039	
23						2589	1056	2577	1366	2577	1678	2669	2006		
5		15													
		17													
		19													
		21			629	464	862	765	1126	1019	1399	1266	1699	1539	
23						1129	617	1264	937	1454	1241	1724	1551		
7		15													
		17													
		19													
		21													
23						740	486	972	800	1212	1084	1473	1333		

Cooling capacities are referred to high speed.

To obtain values for other speed, multiply the values read by following factors:

MOD.		FCW 31
Medium speed	total capacity	0,81
	sensible capacity	0,79
Minimum speed	total capacity	0,68
	sensible capacity	0,65

Water flow rate as at maximum ventilation speed;

Tw [°C] = Inlet water temperature

Ta w.b. [°C] = Inlet wet bulbe air temperature

Ta b.s. [°C] = Dry bulbe air temperature

Pc [W] = Total cooling capacity

Ps [W] = Sensible cooling capacity

NOTE: Values of capacity in bold face refer to nominal value.

Values of sensible capacity higher than values of total capacity mean that cooling is without dehumidification in this case consider only the values of sensible capacity.

COOLING CAPACITY

TAV.3 FCW 41

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps
		21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
5	3	15	2772	2020	3739	3045	4075	3475	4567	3894	5051	4307	5536	4720
		17	4957	2619	4906	3029	4914	3454	5009	3891	5165	4316	5545	4728
		19	6434	2658	6409	3038	6384	3448	6358	3866	6321	4279	6333	4696
		21			7979	3079	7942	3438	7916	3841	7879	4254	7853	4668
		23					9600	3474	9562	3824	9525	4212	9500	4627
	5	15	2400	2000	2750	2345	3195	2724	3800	3240	4353	3711	4883	4163
		17	2928	1833	3057	2267	3411	2759	3843	3249	4361	3719	4888	4168
		19	4906	2050	4871	2443	4819	2848	4854	3274	4992	3718	5234	4177
		21			6660	2554	6628	2932	6597	3338	6559	3748	6522	4156
		23					8419	3007	8363	3361	8343	3764	8318	4178
	7	15	2081	1770	2460	2097	2840	2422	3221	2747	3610	3078	3999	3409
		17	2400	1621	2599	2041	2876	2427	3230	2754	3610	3078	4006	3416
		19	3213	1440	3195	1846	3282	2264	3472	2684	3705	3070	4015	3424
		21			4370	1733	4335	2133	4284	2532	4387	2962	4646	3429
		23					6735	2395	6710	2779	6685	3188	6608	3583
7	3	15	2664	2174	3067	2615	3591	3062	4094	3491	4577	3903	5061	4315
		17	3878	2195	3852	2609	3981	3054	4184	3493	4586	3910	5070	4323
		19	5398	2237	5372	2629	5355	3050	5302	3456	5338	3881	5468	4327
		21			6961	2669	7049	3045	6899	3452	6861	3862	6836	4275
		23					8595	3074	8570	3499	8532	3835	8494	4245
	5	15	1973	1682	2357	2010	2746	2341	3290	2806	3869	3299	4413	3763
		17	2237	1563	2452	1980	2755	2349	3299	2813	3878	3306	4422	3770
		19	3489	1533	3420	1926	3541	2374	3800	2850	4111	3320	4474	3738
		21			5476	2114	5458	2510	5424	2921	5389	3328	5441	3751
		23					5618	2003	5618	2003	5618	2003	5618	2003
	7	15	1688	1439	2072	1767	2457	2095	2837	2419	3221	2747	3601	3071
		17	1809	1369	2107	1766	2461	2099	2841	2422	3221	2747	3606	3074
		19	2401	1164	2480	1589	2668	2010	2919	2406	3229	2753	3610	3078
		21			3351	1401	3333	1808	3403	2224	3558	2636	3783	3042
		23					5302	1914	5268	2309	5217	2712	5234	3128
9	3	15	2016	1719	2582	2202	3109	2651	3610	3078	4102	3498	4586	3910
		17	2642	1732	2833	2191	3165	2656	3619	3085	4111	3505	4596	3919
		19	4266	1810	4240	2214	4197	2625	4258	3054	4422	3498	4672	3650
		21			5855	2249	5831	2639	5806	3055	5768	3463	5755	3880
		23					7514	2668	7514	2668	7514	2668	7514	2668
	5	15	1766	1506	1969	1679	2353	2006	2781	2371	3377	2879	3930	3351
		17	1662	1309	1969	1679	2357	2010	2781	2371	3385	2887	3937	3357
		19	2254	1115	2314	1534	2509	1953	2841	2382	3394	2894	3946	3364
		21			4111	1644	4089	2054	4059	2456	4197	2900	4422	3355
		23					6069	2164	6032	2550	6007	2962	5969	3370
	7	15												
		17	1319	1101	1688	1439	2072	1767	2457	2095	2837	2419	3221	2747
		19	1641	909	1852	1344	2129	1746	2461	2099	2841	2422	3221	2747
		21			2500	1135	2565	1554	2737	1975	2979	2380	3264	2752
		23					3523	1368	3498	1775	3576	2199	3748	2626
11	3	15	1481	1263	2059	1756	2608	2224	3125	2665	3623	3089	4111	3505
		17	1524	1253	2064	1760	2616	2231	3131	2669	3627	3093	4120	3513
		19	2979	1356	2936	1761	3074	2209	3299	2660	3636	3100	4128	3520
		21			4655	1825	4629	2228	4603	3819	4595	3057	4681	3483
		23					6346	2255	6321	2642	6283	3053	6258	3464
	5	15												
		17	1196	1019	1584	1351	1969	1679	2353	2006	2858	2437	3446	2938
		19	1485	860	1697	1288	1986	1677	2357	2010	2867	2445	3454	2945
		21			2357	1089	2401	1505	2608	1941	3065	2439	3550	2955
		23					4664	1710	4629	2110	4577	2513	4664	2945
	7	15												
		17												
		19	1005	677	1332	1091	1692	1443	2072	1767	2457	2095	2837	2419
		21			1692	886	1895	1317	2167	1727	2470	2093	2841	2422
		23					2616	1107	2660	1522	2815	1940	3040	2346

Tw [°C]	Δt	Ta b.u. [°C]	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	Pc	Ps	
			21°C Ta b.s.		23°C Ta b.s.		25°C Ta b.s.		27°C Ta b.s.		29°C Ta b.s.		31°C Ta b.s.		
13	3	15													
		17	1080	921	1489	1270	2098	1789	2634	2246	3144	2680	3636	3100	
		19	1336	814	1640	1280	2142	1796	2642	2253	3152	2688	3644	3108	
		21			3308	1383	3264	1788	3333	2218	3515	2664	3783	3110	
	23					5078	1838	5044	2236	5018	2648	4992	3056		
	5	15													
		17													
		19	868	628	1202	936	1584	1351	1969	1679	2357	2010	2944	2510	
		21			1541	840	1735	1265	2016	1665	2362	2014	2953	2518	
	23					2712	1131	2729	1547	2985	1992	3420	2521		
	7	15													
		17													
		19													
		21			1022	660	1351	1077	1692	1443	2072	1767	2457	2095	
	23					1753	864	1943	1290	2202	1699	2504	2084		
	15	3	15												
17															
19			730	575	1089	929	1541	1314	2133	1819	2660	2268	3161	2695	
21					1407	802	1830	1318	2245	1811	2664	2271	3169	2702	
23						3644	1399	3627	1811	3627	2224	3757	2659		
5		15													
		17													
		19													
		21			885	615	1213	1014	1584	1351	1969	1679	2392	2039	
23						1589	818	1779	1242	2046	1646	2427	2056		
7		15													
		17													
		19													
		21													
23						1042	644	1368	1061	1705	1437	2072	1767		

Cooling capacities are referred to high speed.

To obtain values for other speed, multiply the values read by following factors:

MOD.		FCW 41
Medium speed	total capacity	0.91
	sensible capacity	0.88
Minimum speed	total capacity	0.79
	sensible capacity	0.75

Water flow rate as at maximum ventilation speed;

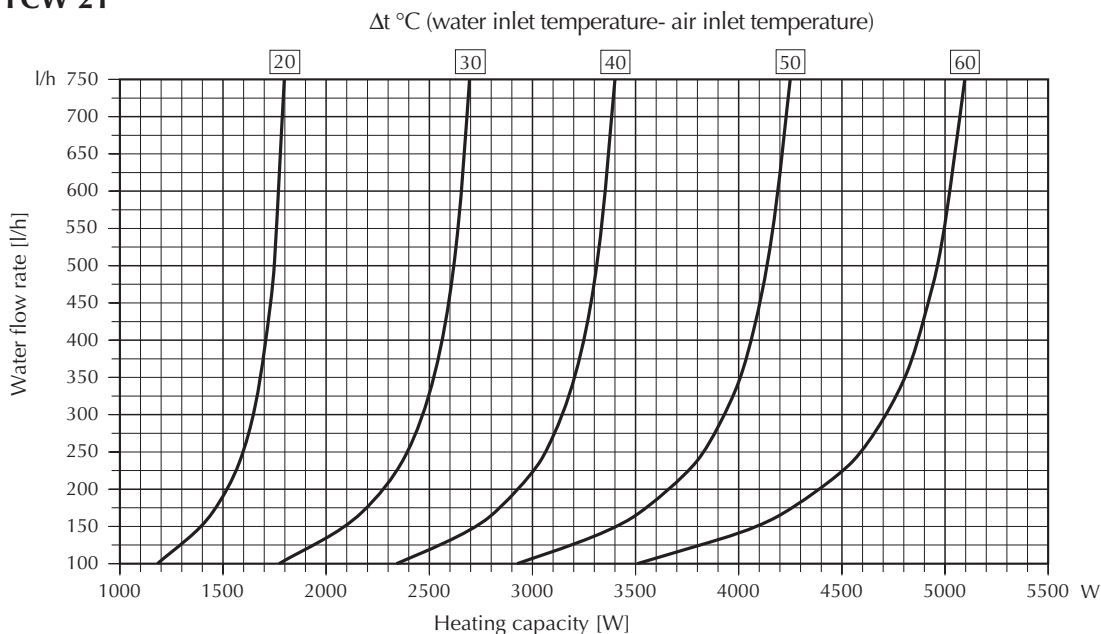
Tw [°C] = Inlet water temperature
Ta w.b. [°C] = Inlet wet bulbe air temperature
Ta b.s. [°C] = Dry bulbe air temperature
Pc [W] = Total cooling capacity
Ps [W] = Sensible cooling capacity

NOTE: Values of capacity in bold face refer to nominal value.

Values of sensible capacity higher than values of total capacity mean that cooling is without dehumidification in this case consider only the values of sensible capacity.

HEATING CAPACITY

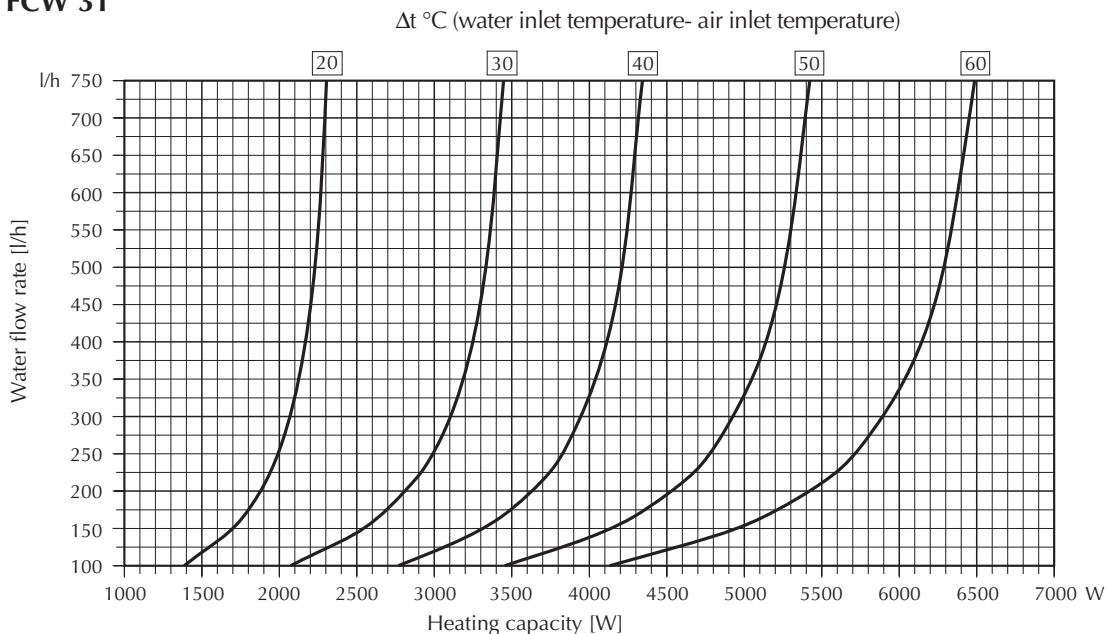
TAV. 4 FCW 21



Heating capacity figures refer to maximum fan speed. Performance for other fan speeds can be obtained by multiplying these figures by the following correction factors:

MOD.	FCW 21	Medium speed	Minimum speed
		0,90	0,75

TAV. 5 FCW 31

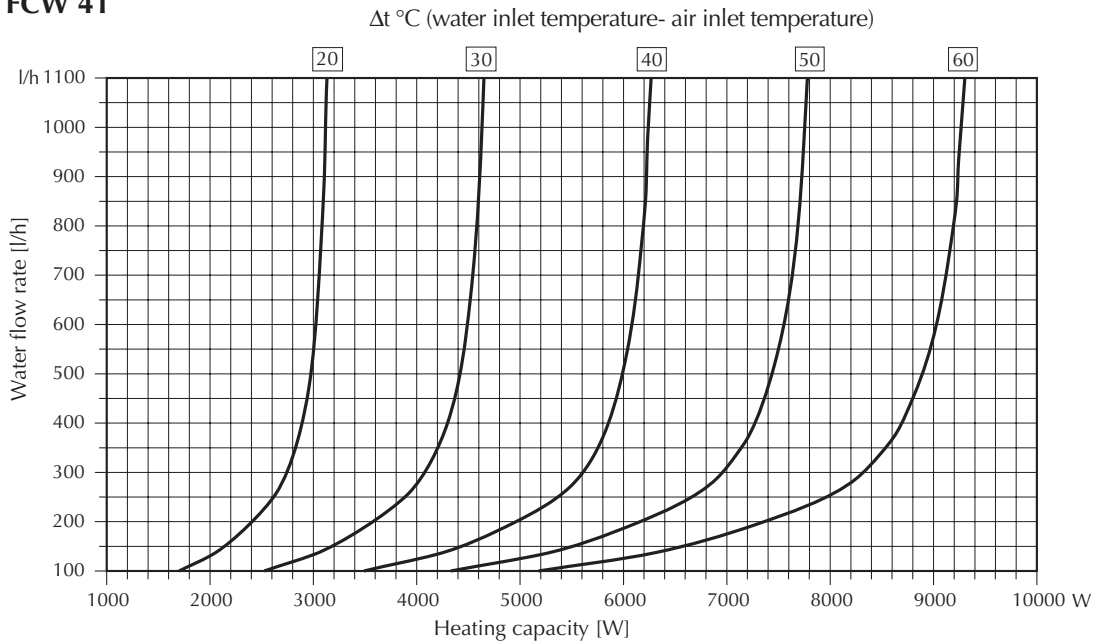


Heating capacity figures refer to maximum fan speed. Performance for other fan speeds can be obtained by multiplying these figures by the following correction factors:

MOD.	FCW 31	Medium speed	Minimum speed
		0,88	0,76

HEATING CAPACITY

TAV. 6 FCW 41

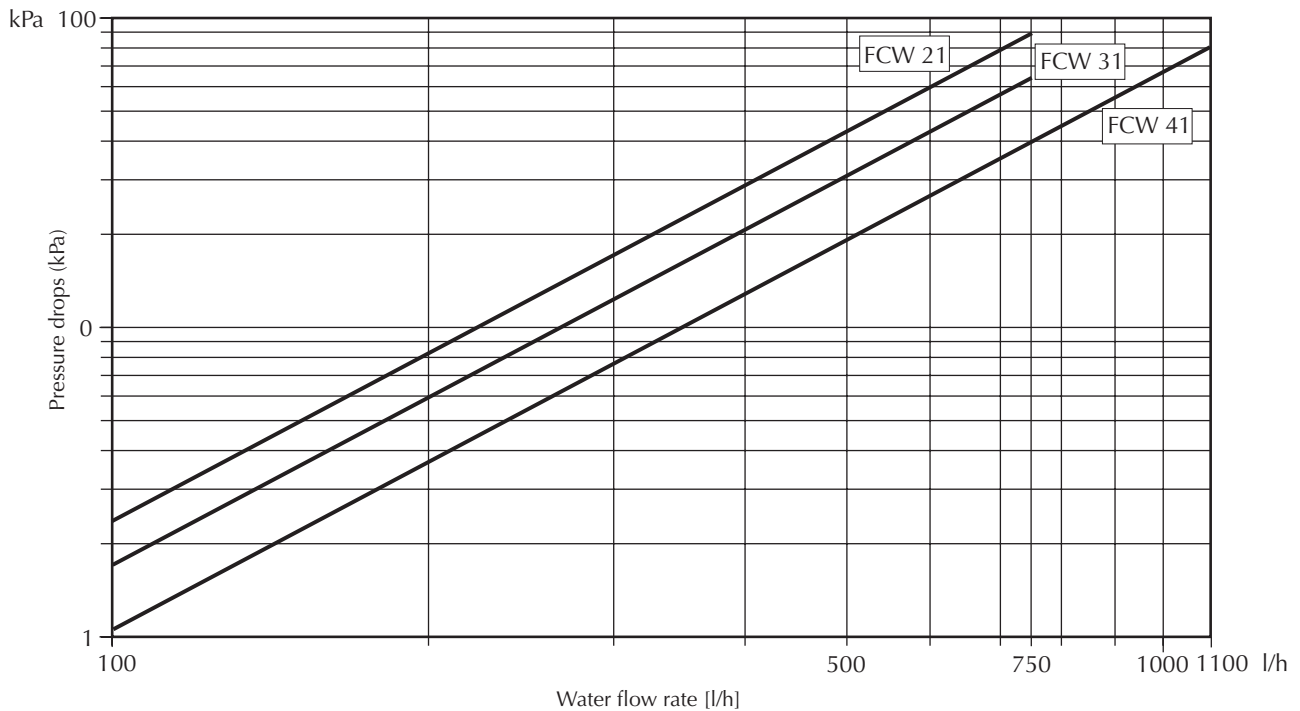


Heating capacity figures refer to maximum fan speed. Performance for other fan speeds can be obtained by multiplying these figures by the following correction factors:

MOD.	FCW 41	Medium speed	Minimum speed
		0,75	0,90

COIL PRESSURE DROPS

TAV. 7



The pressure drops in the diagram refer to the average water temperature of 10 °C. The following table shows the correction to apply to the pressure drops when the medium water temperature varies.

Medium water temperature	°C	5	10	15	20	50	60	70
Multiplicational coefficient		1,03	1	0,96	0,91	0,78	0,75	0,72

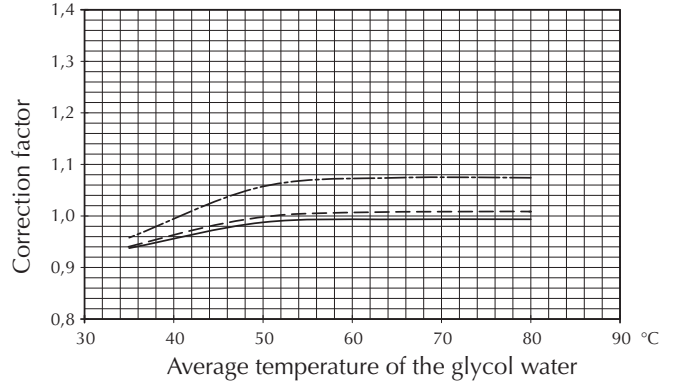
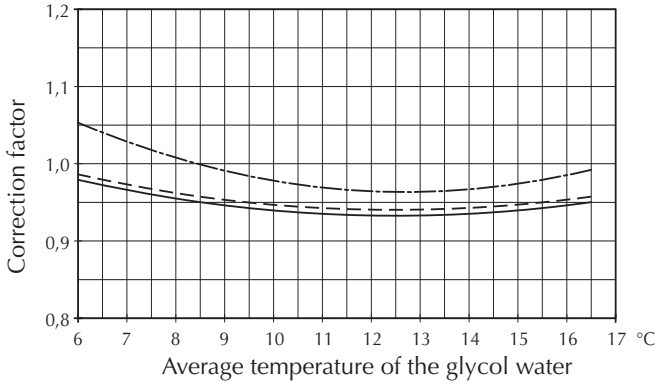
CORRECTION FACTORS WITH GLYCOL WATER

TAV. 8

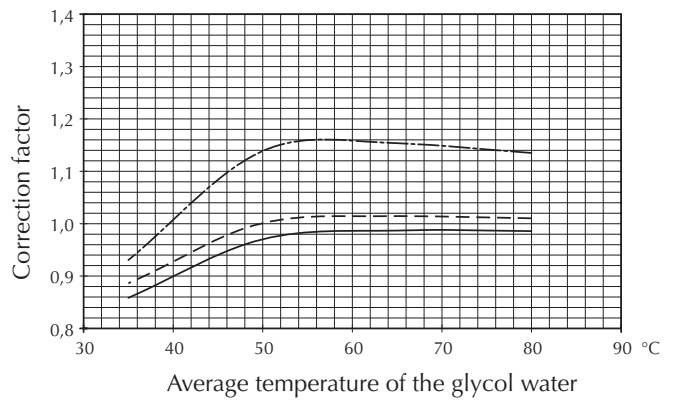
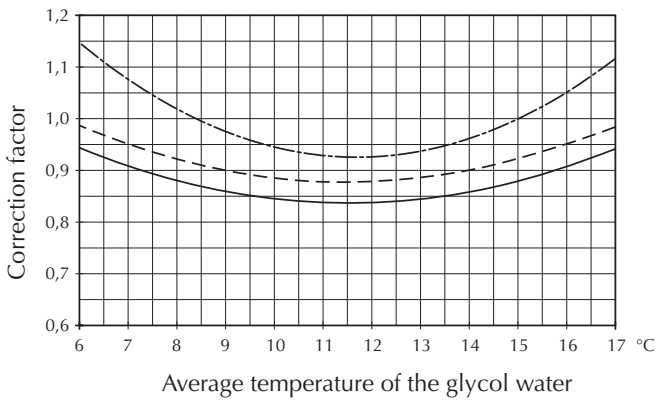
COOLING

HEATING

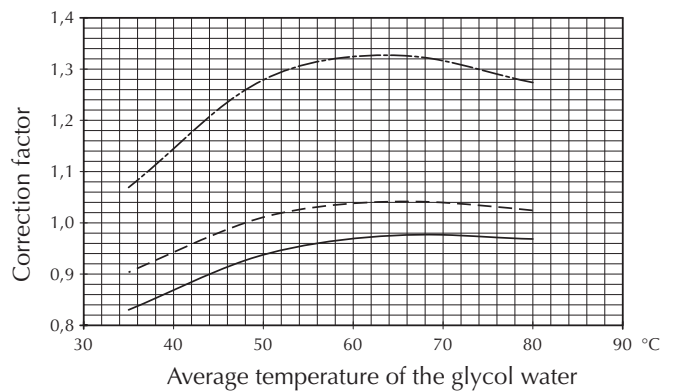
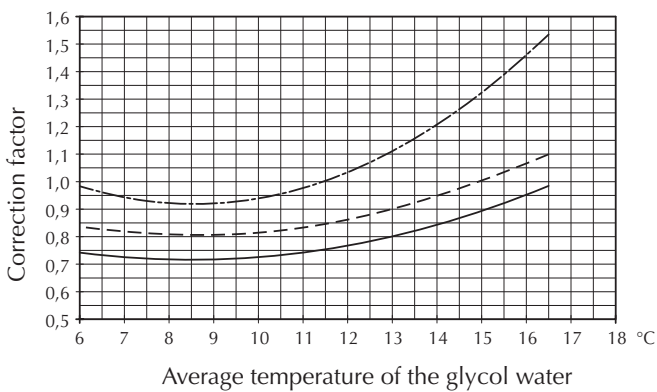
GLYCOL WATER AT 10%



GLYCOL WATER AT 20%



GLYCOL WATER AT 35%



Reading key:

- · — · — · Pressure drops
- — — Water flow
- Capacity



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