

CSW

CSW water cassette technical manual

GB



CE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
=ISO 9001/2000=

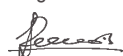
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DECLARATION OF CONFORMITY 

Galletti S.p.A. hereby declares, under its sole responsibility, that CSW water cassette series have been designed, built and tested in conformity with the specifications of European Directives: 73/23, 89/392, 91/368, 93/44, 93/68, 98/37 e 89/336.
Bentivoglio, 02/09/2005

Galletti S.p.A.
Luigi Galletti



OPERATING LIMITS

- > Thermal carrier fluid: **water**
- > Water temperature: **+ 5°C to +80°C**
- > Air temperature: **5°C to +40°C**
- > Supply voltage: **230 V +/-10 %**
- > Max. primary fluid pressure **10 bar**

1 CONSTRUCTIVE FEATURES

Available in 6 models 2 pipes system , and 4 models 4 pipes system, the water cassettes series CSW has the modularity 600x 600 and 900x900 suitable for the standard concealed installation

- > HEAT EXCHANGER with high efficiency, made with copper piping and high efficiency aluminum fins, complete with an air vacuum valve and draining tube, connected to the auxiliary drip tray for the condensate collection.
- > Auxiliary drip tray ,supplied as a standard , collects the water regulation valve condensation.
- > ELECTRICAL MOTOR : 3 speeds with low Rpm ,and thermal protection for the windings.
- > CENTRIFUGAL FAN with backward blades extremely silent, statically and dynamically balanced and coupled directly to the 3 speeds electric motor.
- > BEARING STRUCTURE with internal and external acoustic and thermal insulation.
The basic unit is complete with pre-sheared holes for fresh air intake and air ducting installation.
- > CONDENSATE DRAINAGE PUMP: complete with a flow switch for the collection of the drip tray condensation.
The drainage pump is complete with one way valve and timer to delay the switch off, after receiving the flow switch signal to insure an adequate drainage of the condensate present in the drip tray
- > ELECTRICAL COMPONENTS:
 - Timer for the drainage pump
 - Electrical connection board to the wall mounted panel for the automatic control of the water cassette and water regulation valve.
- > ADJUSTABLE DIFFUSER. The diffusers inclination on the air outtake is manually adjustable for all models
- > FILTER : washable made of synthetic material, inserted in the intake grilles on the front panel ,and is easy to remove for maintenance.
- > OBLIGATORY ACCESSORIES
3 ways valves with hydraulic kit for 2 pipes and/or 4 pipes systems. The water regulation valve are 3 ways /4 connections ,motorized On/Off , 230 V and intercept the hot and cold water after receiving the thermostat signal .
The valves are complete with a hydraulic kit to connect it to the coil.

2 CONSTRUCTIVE VERSIONS:

- | | |
|-------|--|
| CSW | water cassette with 1 heat exchanger (2 pipe system) arranged for wire controller |
| CSWDF | water cassette with 2 heat exchangers (4 pipe system) arranged for wire controller |

3 AVAILABLE ACCESSORIES

- > MICROPROD
Wall mounted panel with microprocessor for the automatic control and regulation of the water cassette according to the room conditions changing.
- > SW
water probe for the microprocessor panel controls
- > MICRONET
Control panel with advanced microprocessor complete with gateway RS 485 for the ERGO system connection
- > KP
power interface to manage up to 4 units with one control only.

4 RATED TECHNICAL DATA

CSW	Fan speed		136	186	246	249	369	489
Total cooling capacity	High	kW	2,88	3,83	4,85	6,50	7,45	8,84
Sensible cooling capacity		kW	2,38	3,11	3,90	5,15	6,11	6,97
Water flow		l/h	494	658	832	1115	1278	1517
Water pressure drop		kPa	9	14	22	28	17	28
Heating capacity	High	kW	6,99	9,07	10,82	13,20	15,86	17,04
Water flow		l/h	613	795	949	1158	1391	1496
Water pressure drop		kPa	10	15	21	18	11	21
Female gas water connection		inches	3/4	3/4	3/4	3/4	1	1
Power supply		V - ph - Hz	230 - 1 - 50					
Drain pump		mm	22	22	22	25	25	25
Drain pump available head		m	0,5	0,5	0,5	0,5	0,5	0,5
Power input	High	W	43	66	104	80	126	145
Current absorbed	High	A	0,17	0,25	0,44	0,36	0,56	0,65
Air flow	High	m ³ /h	550	710	870	1140	1380	1610
	Med	m ³ /h	420	520	630	890	1140	1290
	Low	m ³ /h	240	260	340	770	850	1010
Sound power	High	dB(A)	49	53	61	55	58	60
	Med	dB(A)	40	43	51	51	55	57
	Low	dB(A)	33	33	42	47	53	55
Grille dimensions	H x L x P	mm	40x720x720			20x953x953		
Unit dimensions	H x L x P	mm	310x570x570			300x835x835	365x835x785	
Net weight		kg	22	22	22	37	43	45

CSW DF	Fan speed		136	246	249	489
Total cooling capacity	High	kW	2,64	3,82	4,71	7,24
Sensible cooling capacity		kW	2,15	3,24	3,76	6,18
Water flow		l/h	453	656	808	1243
Water pressure drop		kPa	6	11	8	8
Female gas water connection		inches	3/4	3/4	3/4	1
Heating capacity	High	kW	3,67	5,45	7,18	9,70
Water flow		l/h	322	478	630	851
Water pressure drop		kPa	15	31	9	7
Female gas water connection		inches	1/2	1/2	1/2	3/4
Power supply		V - ph - Hz	230 - 1 - 50			
Drain pump		mm	22	22	25	25
Drain pump available head		m	0,5	0,5	0,5	0,5
Power input	High	W	43	104	80	145
Current absorbed	High	A	0,17	0,44	0,36	0,65
Air flow	High	m ³ /h	550	870	1140	1610
	Med	m ³ /h	420	630	890	1290
	Low	m ³ /h	240	340	770	1010
Sound power	High	dB(A)	49	61	55	60
	Med	dB(A)	40	51	51	57
	Low	dB(A)	33	42	47	55
Grille dimensions	H x L x P	mm	40x720x720		20x953x953	
Unit dimensions	H x L x P	mm	310x570x570		300x835x835	365x835x785
Net weight		kg	22	22	37	45

COOLING MODE: water temperature 7/12°C, air temperature with dry bulb 27°C, air temperature with moist bulb 19°C (47% relative humidity)

HEATING MODE: inlet water temperature 50°C, water flow rate same as in cooling mode, inlet air temperature 20°C

SOUND PRESSURE: Sound power measured according to ISO 3741 and ISO 3742.

5 COOLING CAPACITY

CSW WATER CASSETTE WITH 1 HEAT EXCHANGER

- Tbs₁ Inlet air temperature dry bulb
- Tbu₁ Inlet air temperature wet bulb
- Tw₁ Inlet water temperature
- Tw₂ Outlet water temperature
- Vr Fan speed:
 - max high
 - med medium
 - min low
- PFT Total cooling capacity
- PFS Sensible cooling capacity
- Qw Water flow rate
- Δpw Pressure drop on water side

Tbs ₁ / Tbu ₁ (UR ₁)		25°C / 18°C (51%)																
		6°C / 11°C				7°C / 12°C				8°C / 13°C				9°C / 14°C				
Tw ₁ / Tw ₂		Vr	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw
			W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa
CSW 136	Max	2740	2200	470	8	2320	2040	399	6	1700	1700	291	3	1110	930	191	2	
CSW 136	Med	2220	1740	381	6	1910	1620	329	4	1700	1540	292	3	1300	1050	222	2	
CSW 136	Min	1370	1040	236	2	1240	980	214	2	1110	930	191	2	1650	1360	284	3	
CSW 186	Max	3680	2890	631	14	3230	2720	555	11	2720	2520	468	8	3770	3080	647	11	
CSW 186	Med	2810	2170	481	8	2400	2010	412	6	1720	1720	295	4	3860	3310	663	5	
CSW 186	Min	1600	1180	275	3	1450	1110	249	3	1300	1050	222	2	4840	3970	830	10	
CSW 246	Max	4670	3630	801	21	4140	3420	710	17	3570	3200	613	13	1700	1540	292	3	
CSW 246	Med	3620	2730	621	13	3190	2560	547	10	2690	2370	462	8	1720	1720	295	4	
CSW 246	Min	2050	1530	352	5	1850	1450	318	4	1650	1360	284	3	2690	2370	462	8	
CSW 249	Max	6260	4800	1074	27	5570	4520	955	21	4820	4230	827	17	4210	3500	723	13	
CSW 249	Med	5480	4010	939	21	4870	3760	836	17	4210	3500	723	13	4850	4290	833	8	
CSW 249	Min	4920	3550	843	17	4370	3320	749	14	3770	3080	647	11	5570	4760	955	12	
CSW 369	Max	7150	5670	1227	16	6280	5330	1078	13	5320	4960	913	10	1700	1700	291	3	
CSW 369	Med	6560	4970	1125	14	5760	4640	988	11	4850	4290	833	8	2720	2520	468	8	
CSW 369	Min	5400	3930	927	10	4710	3650	809	8	3860	3310	663	5	3570	3200	613	13	
CSW 489	Max	8510	6500	1458	26	7510	6100	1288	21	6430	5690	1103	16	4820	4230	827	17	
CSW 489	Med	7410	5500	1271	20	6530	5140	1121	16	5570	4760	955	12	5320	4960	913	10	
CSW 489	Min	6490	4640	1113	16	5710	4320	981	13	4840	3970	830	10	6430	5690	1103	16	

Tbs ₁ / Tbu ₁ (UR ₁)		27°C / 19°C (47%)																
		6°C / 11°C				7°C / 12°C				8°C / 13°C				9°C / 14°C				
Tw ₁ / Tw ₂		Vr	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw	PFT	PFS	Qw	Δpw
			kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa
CSW 136	Max	3230	2510	553	11	2880	2380	494	9	2490	2230	427	7	1800	1800	310	4	
CSW 136	Med	2710	2030	464	8	2380	1900	409	6	1960	1740	336	4	1580	1580	271	3	
CSW 136	Min	1540	1160	264	3	1410	1100	242	3	1280	1050	219	2	1140	1000	196	2	
CSW 186	Max	4250	3280	729	17	3830	3110	658	14	3380	2940	581	12	2390	2390	411	6	
CSW 186	Med	3290	2480	564	11	2940	2340	505	9	2560	2190	439	7	1830	1830	314	4	
CSW 186	Min	1790	1310	307	4	1640	1250	282	3	1490	1190	255	3	1330	1130	228	2	
CSW 246	Max	5360	4100	919	26	4850	3900	832	22	4310	3690	741	18	3730	3470	641	14	
CSW 246	Med	4180	3100	716	17	3770	2930	647	14	3340	2760	573	11	2850	2580	489	9	
CSW 246	Min	2520	1800	433	7	2210	1670	380	6	1900	1540	326	4	1690	1460	290	3	
CSW 249	Max	7170	5410	1230	34	6500	5150	1115	28	5790	4870	993	23	5020	4580	862	18	
CSW 249	Med	6270	4520	1075	27	5680	4290	975	22	5060	4040	870	18	4400	3780	755	14	
CSW 249	Min	5630	4010	965	22	5100	3790	876	18	4540	3570	780	15	3940	3330	676	12	
CSW 369	Max	8270	6430	1419	21	7450	6110	1278	17	6560	5770	1127	14	4760	4760	817	8	
CSW 369	Med	7580	5630	1301	18	6830	5330	1172	15	6020	5010	1033	12	5120	4670	879	9	
CSW 369	Min	6270	4470	1076	13	5640	4210	968	11	4950	3930	850	8	4140	3620	711	6	
CSW 489	Max	9800	7350	1681	33	8840	6970	1517	28	7820	6580	1343	22	6720	6170	1154	17	
CSW 489	Med	8540	6230	1465	26	7710	5890	1323	22	6820	5540	1170	17	5840	5170	1002	13	
CSW 489	Min	7470	5260	1282	21	6750	4960	1158	17	5970	4640	1024	14	5100	4300	875	10	

5 COOLING CAPACITY

CSW DF WATER CASSETTE WITH 2 HEAT EXCHANGERS

- Tbs₁** Inlet air temperature dry bulb
- Tbu₁** Inlet air temperature wet bulb
- Tw₁** Inlet water temperature
- Tw₂** Outlet water temperature
- Vr** Fan speed:
 - max** high
 - med** medium
 - min** low
- PFT** Total cooling capacity
- PFS** Sensible cooling capacity
- Qw** Water flow rate
- Δpw** Pressure drop on water side

Tbs ₁ / Tbu ₁ (UR ₁)		25°C / 18°C (51%)																
		6°C / 11°C				7°C / 12°C				8°C / 13°C				9°C / 14°C				
Tw ₁ / Tw ₂		Vr	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw
		W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa	
CSW 136DF	Max	3020	2290	518	8	2640	2150	453	6	2090	1940	359	4	1720	1720	296	3	
CSW 136DF	Med	2290	1770	393	5	1940	1640	334	3	1750	1560	300	3	1460	1460	250	2	
CSW 136DF	Min	1410	1050	242	2	1290	1000	222	2	1170	960	201	1	1040	910	179	1	
CSW 246DF	Max	4280	3420	734	14	3820	3240	656	11	3320	3060	570	9	2430	2430	417	5	
CSW 246DF	Med	3540	2700	607	10	3140	2550	539	8	2680	2380	460	6	1920	1920	331	3	
CSW 246DF	Min	1910	1480	327	3	1740	1420	298	3	1570	1350	269	2	1390	1290	239	2	
CSW 249DF	Max	5320	3990	912	10	4710	3760	808	8	4050	3520	695	6	3110	3110	534	4	
CSW 249DF	Med	4670	3440	801	8	4120	3230	708	6	3520	3010	604	5	2700	2700	464	3	
CSW 249DF	Min	4200	3080	720	7	3690	2890	634	5	3110	2670	534	4	2400	2400	412	2	
CSW 489DF	Max	8210	6550	1409	9	7240	6180	1243	8	6170	5790	1058	6	4830	4830	830	4	
CSW 489DF	Med	7190	5570	1234	7	6320	5230	1085	6	5330	4860	915	4	4190	4190	720	3	
CSW 489DF	Min	6320	4720	1085	6	5530	4400	949	5	4580	4040	786	3	3610	3610	620	2	
Tbs ₁ / Tbu ₁ (UR ₁)		27°C / 19°C (47%)																
		6°C / 11°C				7°C / 12°C				8°C / 13°C				9°C / 14°C				
Tw ₁ / Tw ₂		Vr	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw	PFT	PFS	Qw	Δ pw
		W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa	W	W	l/h	kPa	
CSW 136DF	Max	2460	1960	422	5	1950	1770	334	3	1620	1620	278	3	1510	1510	260	2	
CSW 136DF	Med	1900	1530	326	3	1710	1460	294	3	1520	1380	260	2	1280	1280	220	2	
CSW 136DF	Min	1260	940	216	2	1140	900	195	1	1010	850	174	1	890	800	152	1	
CSW 246DF	Max	3650	3000	626	11	3150	2810	540	8	2170	2170	372	4	1930	1930	331	3	
CSW 246DF	Med	2980	2350	511	7	2490	2160	427	5	1810	1810	310	3	1690	1690	289	3	
CSW 246DF	Min	1700	1330	292	3	1530	1260	263	2	1360	1200	234	2	1110	1110	191	1	
CSW 249DF	Max	4490	3480	771	8	3830	3230	658	6	2810	2810	482	3	2540	2540	436	3	
CSW 249DF	Med	3920	2990	673	6	3310	2750	567	4	2410	2410	413	3	2180	2180	375	2	
CSW 249DF	Min	3500	2670	600	5	2880	2430	495	3	2180	2180	374	2	2030	2030	349	2	
CSW 489DF	Max	6890	5700	1182	7	5820	5290	998	5	4350	4350	748	3	3920	3920	674	3	
CSW 489DF	Med	6000	4820	1028	5	4970	4430	853	4	3720	3720	638	2	3310	3310	568	2	
CSW 489DF	Min	5220	4060	895	4	4170	3650	716	3	3270	3270	561	2	3050	3050	524	2	

6 HEATING CAPACITY

MODELS WITH 1 HEAT EXCHANGER

- Tbs₁** Inlet air temperature dry bulb
- Tw₁** Inlet water temperature
- Tw₂** Outlet water temperature
- Vr** Fan speed:
 - max** high
 - med** medium
 - min** low
- PT** Heating capacity
- Qw** Water flow rate
- Δpw** Pressure drop on water side

Tbs ₁	20°C												
	Tw ₁ / Tw ₂	45 / 40°C			50°C / 40°C			60°C / 50°C			70°C / 60°C		
		Vr	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw
	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	
CSW 136	Max	3470	603	10	3820	333	4	5440	475	6	6990	613	10
CSW 136	Med	2800	486	7	3080	268	2	4390	384	4	5650	495	7
CSW 136	Min	1610	280	3	1710	149	1	2530	221	2	3270	287	3
CSW 186	Max	4500	783	16	5000	435	6	7060	617	10	9070	795	15
CSW 186	Med	3230	563	9	3560	309	3	5070	443	6	6530	572	9
CSW 186	Min	1920	334	4	2110	184	1	3020	264	2	3880	340	3
CSW 246	Max	5370	934	22	5970	519	8	8420	736	14	10820	949	21
CSW 246	Med	4220	734	15	4700	409	5	6640	580	9	8500	745	14
CSW 246	Min	2440	425	6	2710	236	2	3850	336	4	4930	433	5
CSW 249	Max	6540	1138	19	7240	630	7	10230	894	12	13200	1158	18
CSW 249	Med	5720	994	15	6360	553	5	8970	783	9	11520	1011	14
CSW 249	Min	5130	893	12	5720	498	4	8060	705	8	10350	908	12
CSW 369	Max	7850	1366	11	8610	749	4	12280	1073	7	15860	1391	11
CSW 369	Med	7120	1239	10	7840	682	3	11160	975	6	14370	1261	9
CSW 369	Min	6140	1067	7	6840	595	3	9660	845	5	12360	1084	7
CSW 489	Max	8440	1468	22	9220	803	8	13170	1151	14	17040	1496	21
CSW 489	Med	7660	1333	19	8410	732	7	11990	1047	12	15460	1357	18
CSW 489	Min	6440	1120	14	7080	616	5	10100	883	9	13000	1140	13
Tbs ₁	22°C												
Tw ₁ / Tw ₂	45 / 40°C			50°C / 40°C			60°C / 50°C			70°C / 60°C			
Vr	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw	Δpw	
	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	
CSW 136	Max	3150	547	9	3490	303	3	5110	446	6	6660	584	9
CSW 136	Med	2540	441	6	2810	244	2	4120	360	4	5380	472	6
CSW 136	Min	1460	254	2	1570	137	1	2370	207	2	3110	273	2
CSW 186	Max	4090	712	14	4570	397	5	6640	580	9	8640	758	14
CSW 186	Med	2940	510	8	3240	282	3	4760	416	5	6220	545	8
CSW 186	Min	1740	303	3	1910	167	1	2840	248	2	3690	324	3
CSW 246	Max	4880	849	19	5460	475	7	7920	692	12	10300	904	19
CSW 246	Med	3840	667	12	4300	374	4	6240	545	8	8090	710	13
CSW 246	Min	2220	386	5	2470	215	2	3610	316	3	4700	412	5
CSW 249	Max	5940	1033	16	6610	575	6	9620	840	10	12570	1103	16
CSW 249	Med	5190	903	13	5810	506	4	8420	736	8	10970	963	13
CSW 249	Min	4670	811	10	5230	455	4	7580	662	7	9850	865	11
CSW 369	Max	7130	1240	10	7840	682	3	11540	1008	6	15100	1325	10
CSW 369	Med	6470	1125	8	7140	622	3	10490	916	5	13690	1201	8
CSW 369	Min	5580	970	6	6240	544	2	9090	794	4	11770	1033	6
CSW 489	Max	7660	1331	19	8400	731	7	12380	1081	12	16240	1424	20
CSW 489	Med	6960	1209	16	7670	667	6	11270	984	11	14730	1292	16
CSW 489	Min	5850	1017	12	6450	561	4	9500	829	8	12370	1086	12

6 HEATING CAPACITY

MODELS WITH 2 HEAT EXCHANGERS

- Tbs₁** Inlet air temperature dry bulb
- Tw₁** Inlet water temperature
- Tw₂** Outlet water temperature
- Vr** Fan speed:
 - max** high
 - med** medium
 - min** low
- PT** Heating capacity
- Qw** Water flow rate
- Δpw** Pressure drop on water side

Tbs ₁	20°C												
	Tw ₁ / Tw ₂	45 / 40°C			50°C / 40°C			50°C / 50°C			70°C / 60°C		
		Vr	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw
		W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa
CSW 136DF	Max	1810	315	16	1920	167	5	2810	246	10	3670	322	15
CSW 136DF	Med	1440	251	11	1520	132	4	2240	196	7	2930	257	10
CSW 136DF	Min	880	153	5	900	78	1	1360	119	3	1800	158	4
CSW 246DF	Max	2690	467	32	2870	249	11	4160	364	20	5450	478	31
CSW 246DF	Med	2080	362	21	2220	193	7	3230	283	13	4230	371	20
CSW 246DF	Min	1220	213	8	1280	111	3	1900	166	5	2480	218	8
CSW 249DF	Max	3520	612	9	3560	310	3	5440	475	6	7180	630	9
CSW 249DF	Med	3090	537	7	3100	270	2	4780	417	5	6300	552	7
CSW 249DF	Min	2760	479	6	2740	239	2	4260	372	4	5630	494	6
CSW 489DF	Max	4750	826	7	4810	419	2	7340	641	4	9700	851	7
CSW 489DF	Med	4150	721	5	4160	362	2	6410	560	3	8460	742	5
CSW 489DF	Min	3630	631	4	3610	314	1	5610	490	3	7410	650	4
Tbs ₁	22°C												
	Tw ₁ / Tw ₂	45 / 40°C			50°C / 40°C			50°C / 50°C			70°C / 60°C		
		Vr	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw	Δpw	PT	Qw
		W	l/h	kPa	W	l/h	kPa	W	l/h	kPa	W	l/h	kPa
CSW 136DF	Max	1640	285	14	1740	151	4	2640	230	9	3500	307	14
CSW 136DF	Med	1310	228	9	1370	119	3	2100	184	6	2790	244	10
CSW 136DF	Min	790	138	4	800	70	1	1280	112	3	1710	150	4
CSW 246DF	Max	2430	423	27	2610	227	9	3900	341	18	5190	455	28
CSW 246DF	Med	1890	328	17	2010	175	6	3030	265	11	4020	353	18
CSW 246DF	Min	1110	192	7	1150	100	2	1780	155	4	2360	207	7
CSW 249DF	Max	3180	553	8	3180	277	2	5090	445	5	6830	600	8
CSW 249DF	Med	2780	484	6	2760	240	2	4470	390	4	5990	526	7
CSW 249DF	Min	2480	431	5	2430	211	1	3970	347	3	5350	470	5
CSW 489DF	Max	4290	746	6	4300	374	2	6870	600	4	9230	810	6
CSW 489DF	Med	3740	650	4	3700	322	1	6000	524	3	8050	706	5
CSW 489DF	Min	3260	567	4	3200	278	1	5230	457	2	7050	619	4

7 SOUND LEVELS

- Vr** Fan speed:
 3=maximum
 2=medium
 1=minimum
- Lw** Octave band sound power level
Lw_A A - weighted sound power level
Lp_A A - weighted sound pressure level (1m distance, 4 directional factor)

CSW - CSW DF	Vr	Lw								LpA
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	LwA	
		dB	dB	dB	dB	dB	dB	dB	dB/A	dB/A
CSW 136 - CSW 136DF	max	50,3	50,1	47,7	43,3	38,4	28,4	18,8	49,0	44
	med	40,2	42,1	38,8	32,9	29,7	17,5	17,7	40,0	35
	min	32,6	34,0	30,9	22,7	26,8	15,8	16,9	33,0	28
CSW 186	max	54,7	53,5	52,3	47,7	41,9	32,1	22,8	53,0	48
	med	44,8	44,3	41,9	36,1	31,5	18,6	17,8	42,0	37
	min	36,8	36,2	31,8	23,2	25,8	15,4	16,7	33,0	28
CSW 246 - CSW 246DF	max	57,5	60,3	59,5	55,7	50,3	43,7	34,0	61,0	56
	med	53,9	51,2	50,4	45,8	38,9	29,0	20,8	51,0	46
	min	42,0	43,9	42,0	36,1	29,8	17,5	18,0	42,0	37
CSW 249 - CSW 249DF	max	58,8	54,8	50,2	46,7	50,0	31,9	19,7	55,0	50
	med	53,1	49,3	45,9	44,5	45,6	26,8	18,0	51,0	46
	min	49,8	46,7	42,6	43,2	40,0	21,4	17,7	47,0	42
CSW 369	max	57,5	57,9	52,7	49,3	54,4	42,7	30,0	58,0	53
	med	54,0	53,4	49,7	46,3	52,1	36,5	23,6	55,0	50
	min	54,0	50,3	46,6	44,2	49,7	32,1	20,3	53,0	48
CSW 489 - CSW 489DF	max	63,4	66,0	53,8	50,7	52,3	42,9	32,5	60,0	55
	med	59,6	62,6	51,3	47,7	50,5	37,5	26,3	57,0	52
	min	56,9	61,0	48,8	45,4	48,6	33,5	22,8	55,0	50

8 HYDRAULIC CONNECTIONS

Position and diameter are reported as shown in the picture below.

When a piping is connected to the unit main body or removed from it, be sure to use two wrenches to fasten it.

Carefully insulate pipes, valve assemblies and coil connections to avoid condensation forming on the pipes and dripping on the false ceiling.

CSW 136-186-246

CSWDF 136-246

CSW 249-369-489

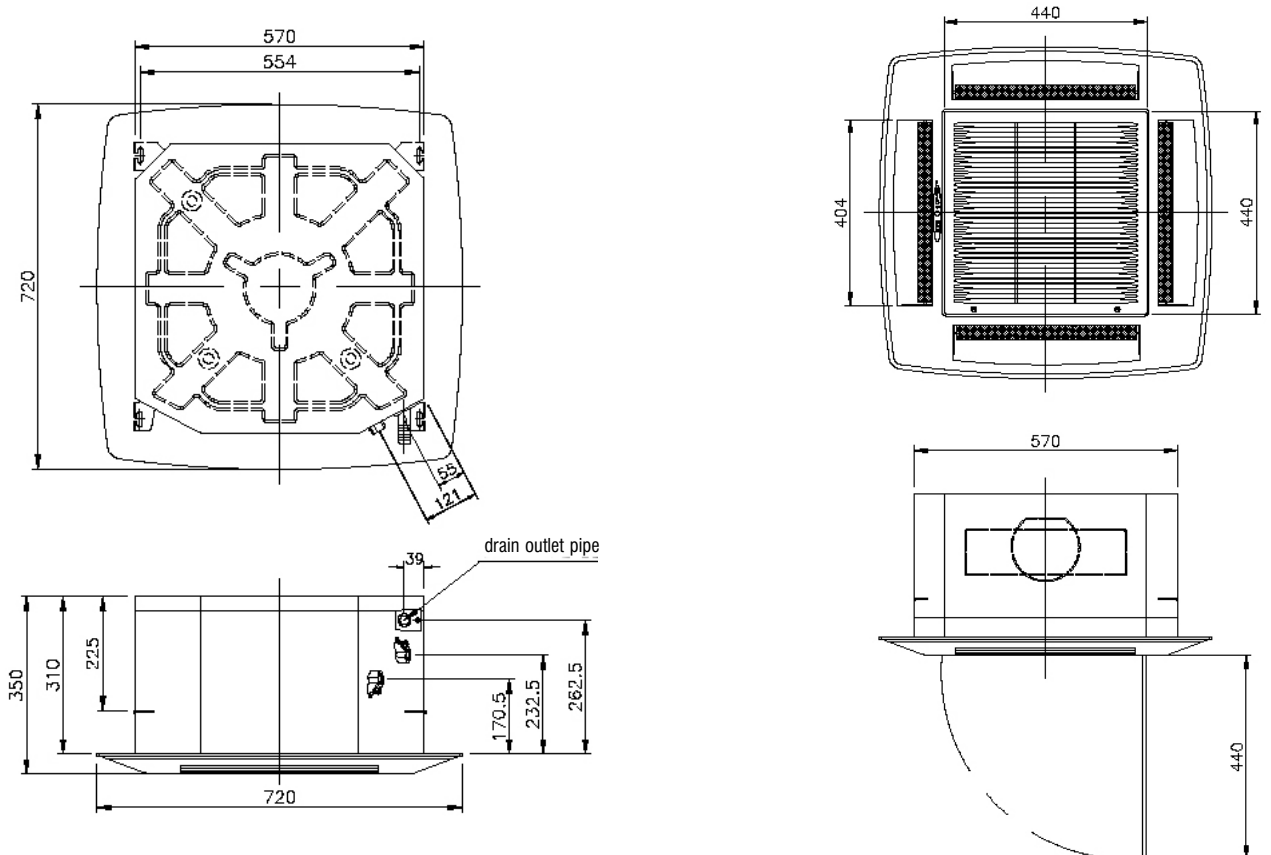
CSWDF 249-489

MODELS	water inlet	water outlet
CSW 136	3/4"	3/4"
CSW 186	3/4"	3/4"
CSW 246	3/4"	3/4"
CSW 249	3/4"	3/4"
CSW 369	1"	1"
CSW 489	1"	1"

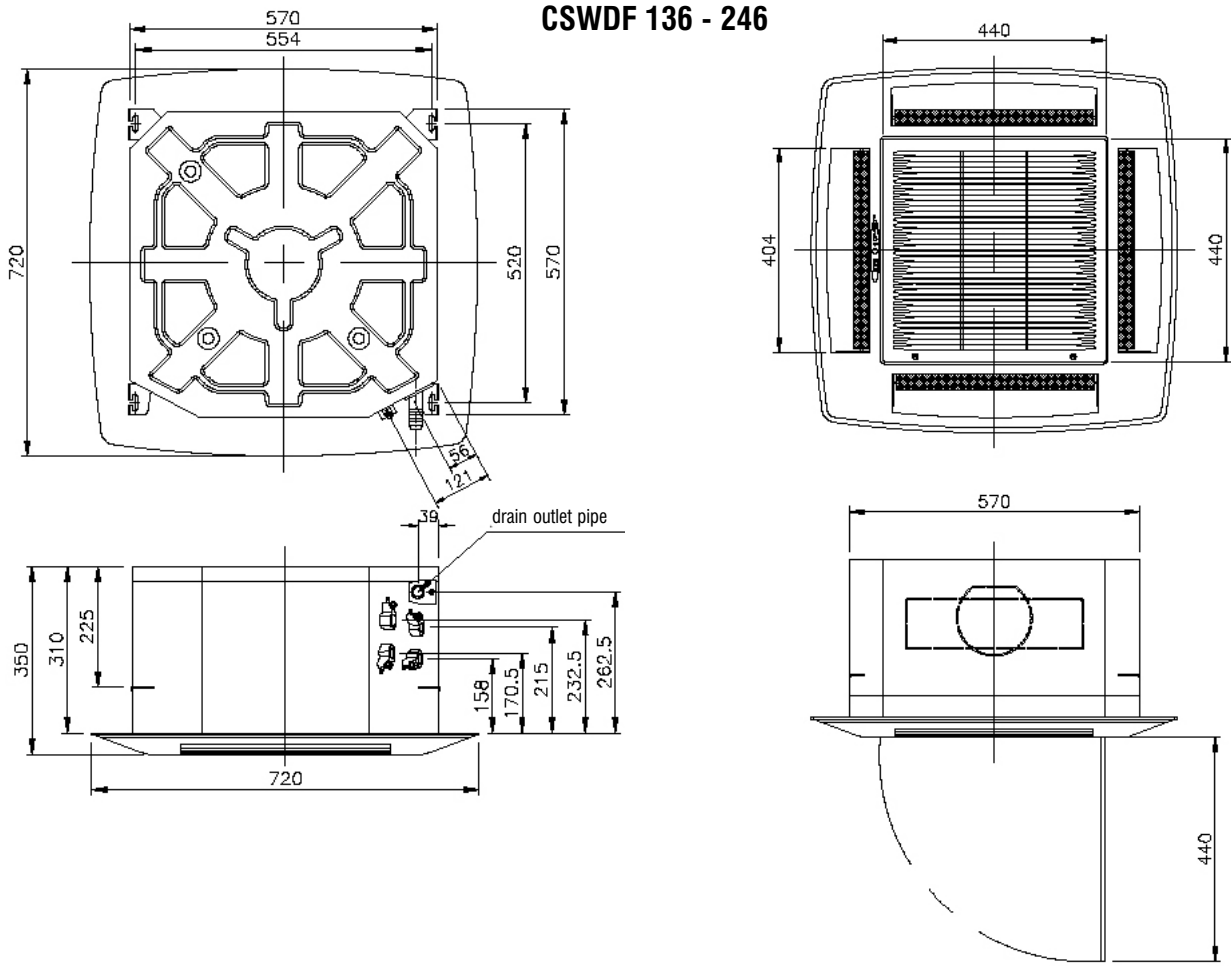
MODELS	chilled water inlet	chilled water outlet	hot water inlet	hot water outlet
CSW 136 DF	3/4"	3/4"	1/2"	1/2"
CSW 246 DF	3/4"	3/4"	1/2"	1/2"
CSW 249 DF	3/4"	1/4"	1/2"	1/2"
CSW 489 DF	1"	1"	3/4"	3/4"

9 DIMENSIONS

CSW 136 - 186 - 246

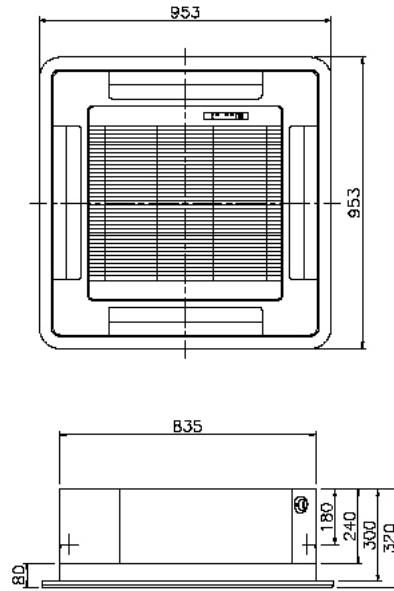
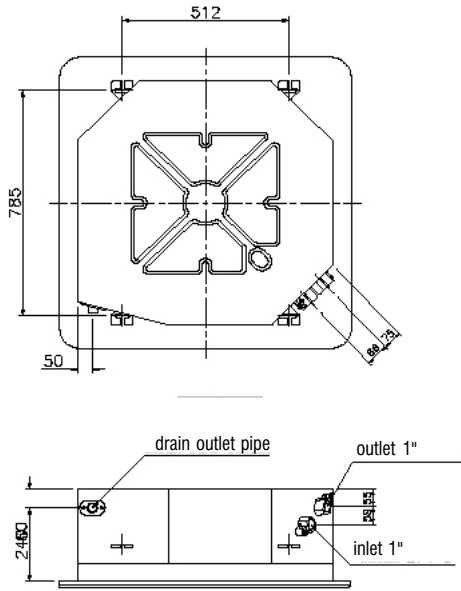


CSWDF 136 - 246

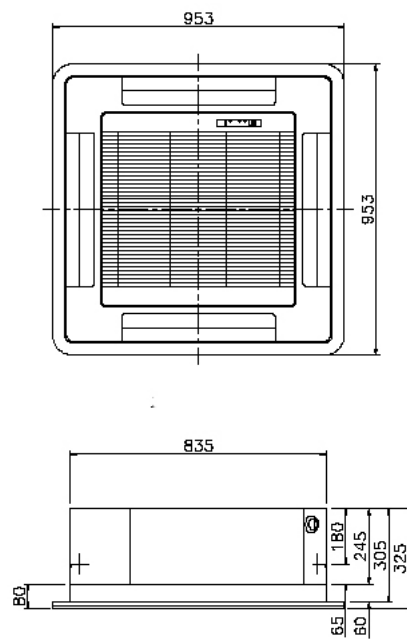
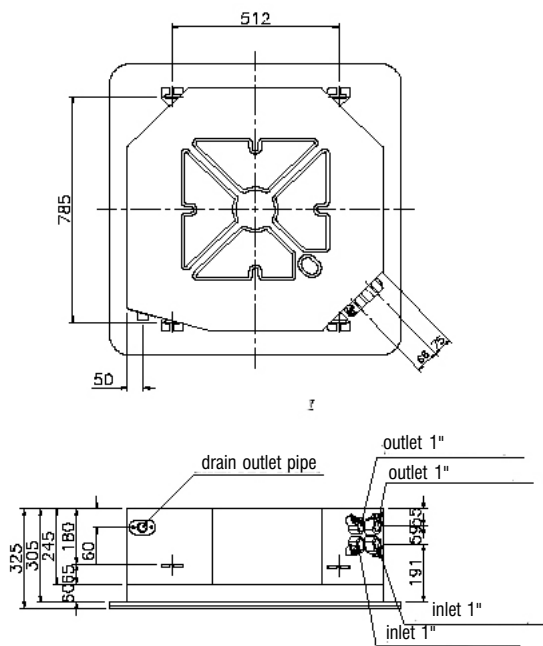


9 DIMENSIONS

CSW 249

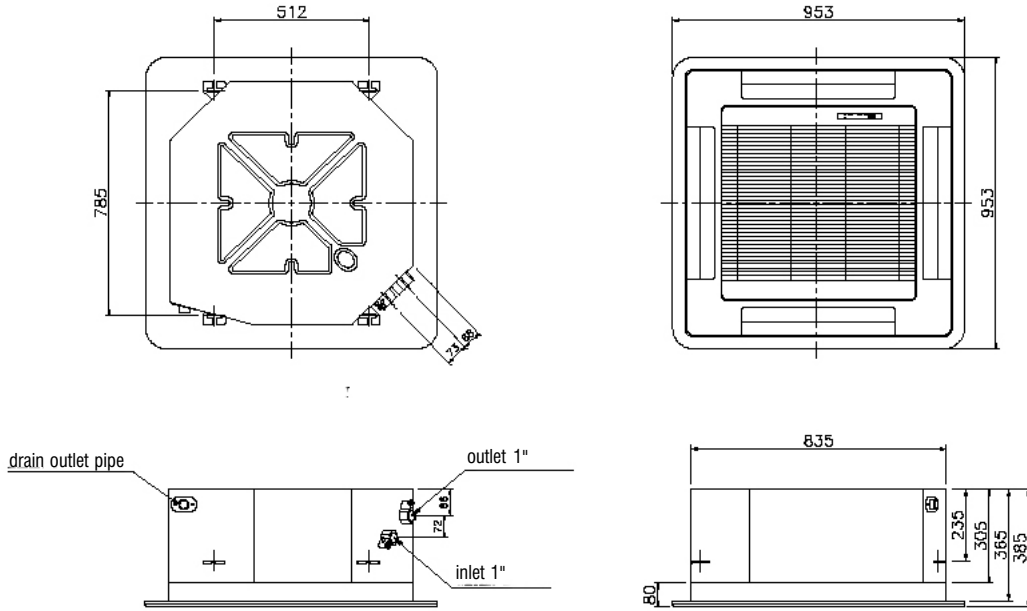


CSWDF 249

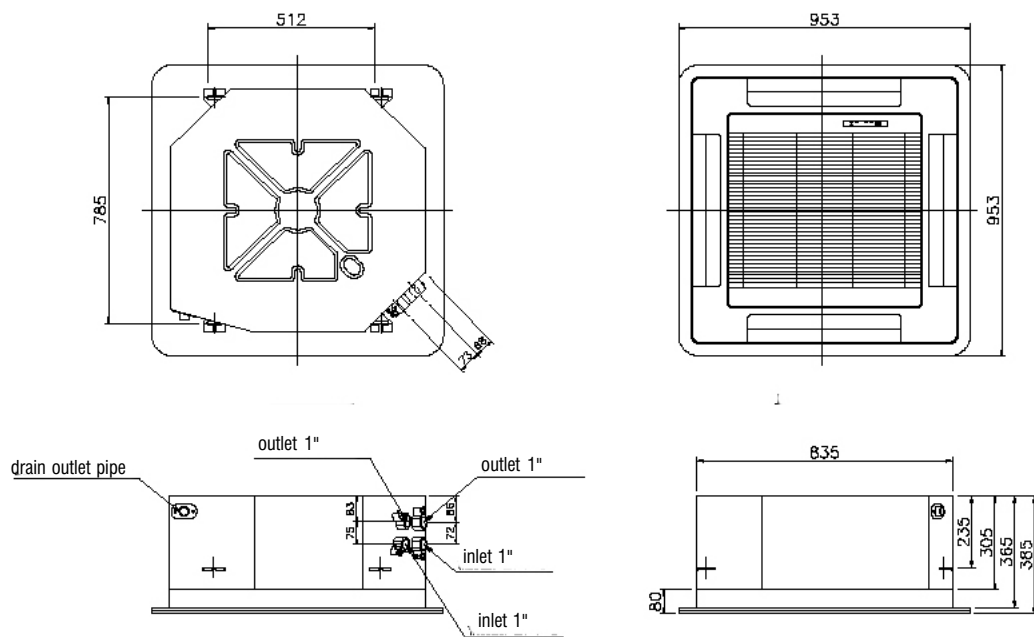


9 DIMENSIONS

CSW 369 - 489

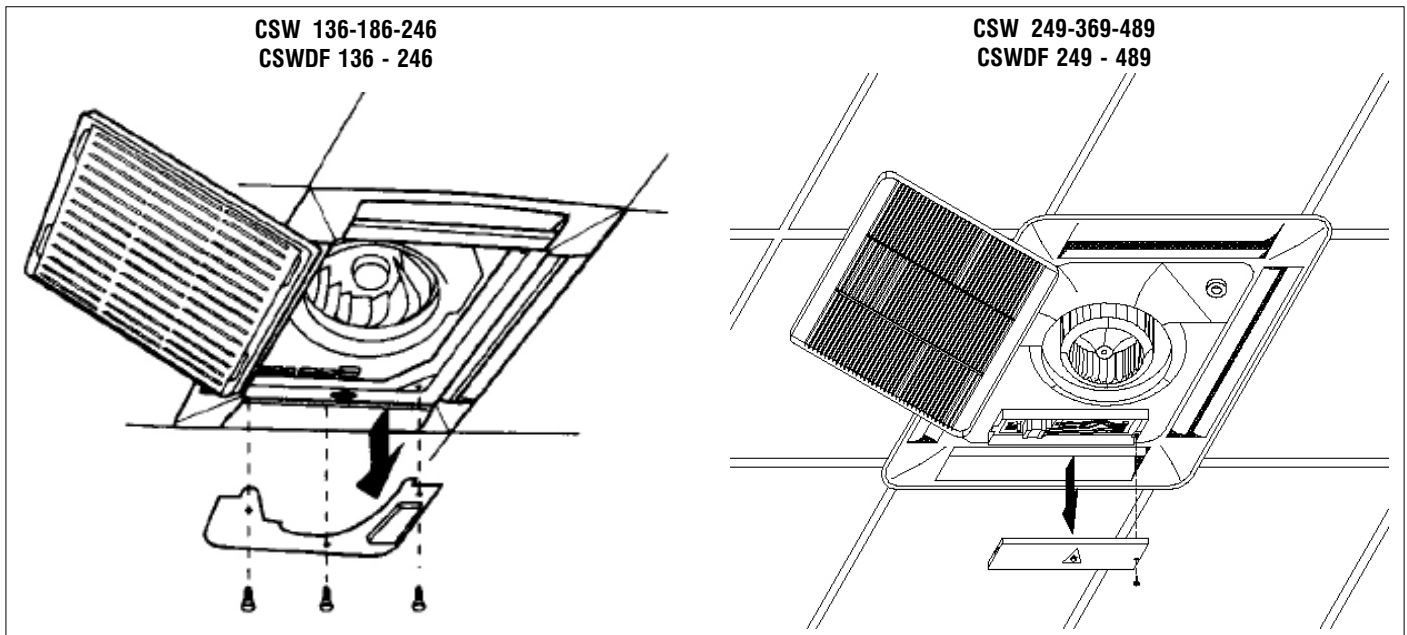


CSWDF 489



10 WIRING DIAGRAMS

The control panel can be reached by opening the grille and removing the metal covers as shown in the picture below.



For each unit provide a mains circuit breaker (IL), with opening contacts separated by at least 3 mm and an adequate protection fuse (F).

Connect the power cables to terminal box connectors in accordance with the wiring diagrams and tighten firmly.

Make the electrical connections with the power supply disconnected, in accordance with current safety regulations.

All the wiring must be done by qualified personnel.

Power inputs are shown on the rating labels on the units.

In the next pages you can find the following wiring diagrams:

- diagram 1 CSW and CSWDF wiring diagrams
- diagram 2 CSW with MICROPROD control panel, SW probe and VK valve
- diagram 3 CSWDF with MICROPROD control panel, SW probe and VK valves
- diagram 4 CSW with MICROPROD control panel, SW probe, VK valve and KP power interface to control up to 4 units with 1 control panel.
- diagram 5 CSWDF with MICROPROD control panel, SW probe, VK valves and KP power interface to control up to 4 units with 1 control panel.

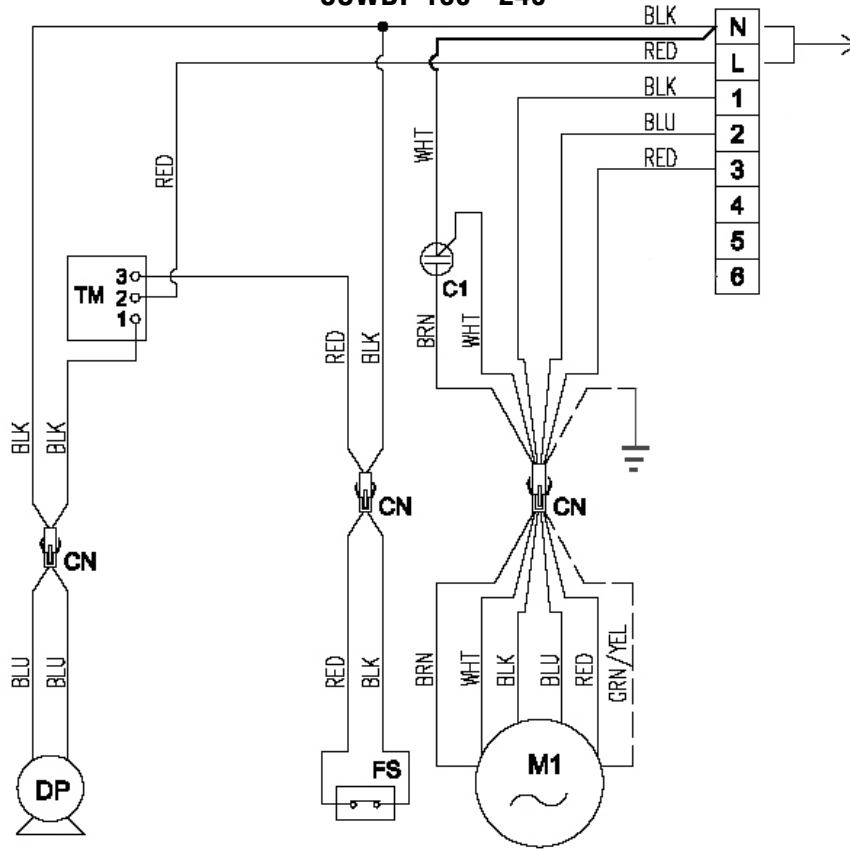
The following abbreviations are used in the wiring diagrams:

FS	Condensate drainage pump float
DP	Condensate drainage pump
M	Fan motor
TM	Drain pump timer
CN	Connector
CSW	water cassette, 2 pipe system
CSWDF	water cassette, 4 pipe system
VHC	3-way motor driven valve, 4 connections
KVHC	valve relay (not supplied)
MICROPROD	wall-mounted control panel
SW	water temperature probe
EXT	external auxiliary contact
F	protection fuse
IL	main switch
RHC	remote manual summer/winter selecting switch
KP	power interface
KVH	hot water valve relay (not supplied)
KVC	cold water valve relay (not supplied)
VC	cold water valve
VH	hot water valve

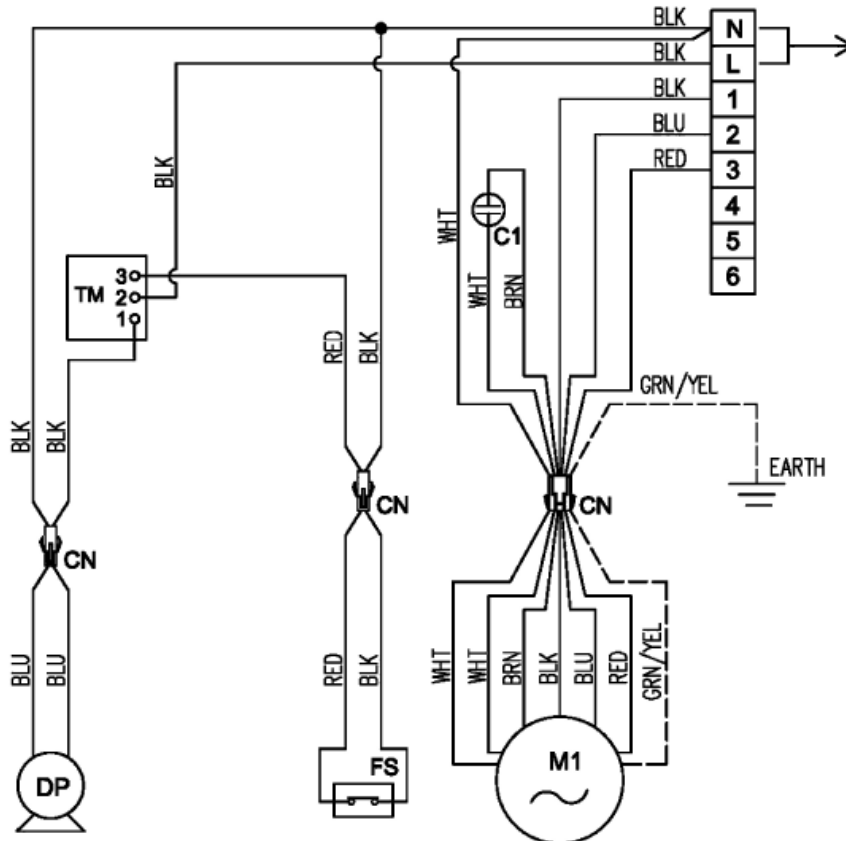
10 WIRING DIAGRAMS

1

CSW 136 - 186 - 246
CSWDF 136 - 246

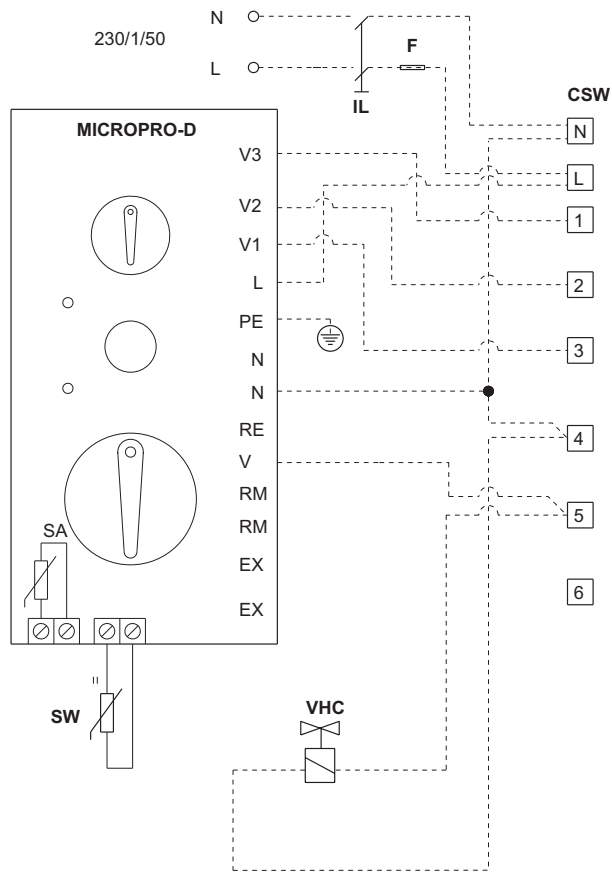


CSW 249 - 369 - 489
CSWDF 249 - 489

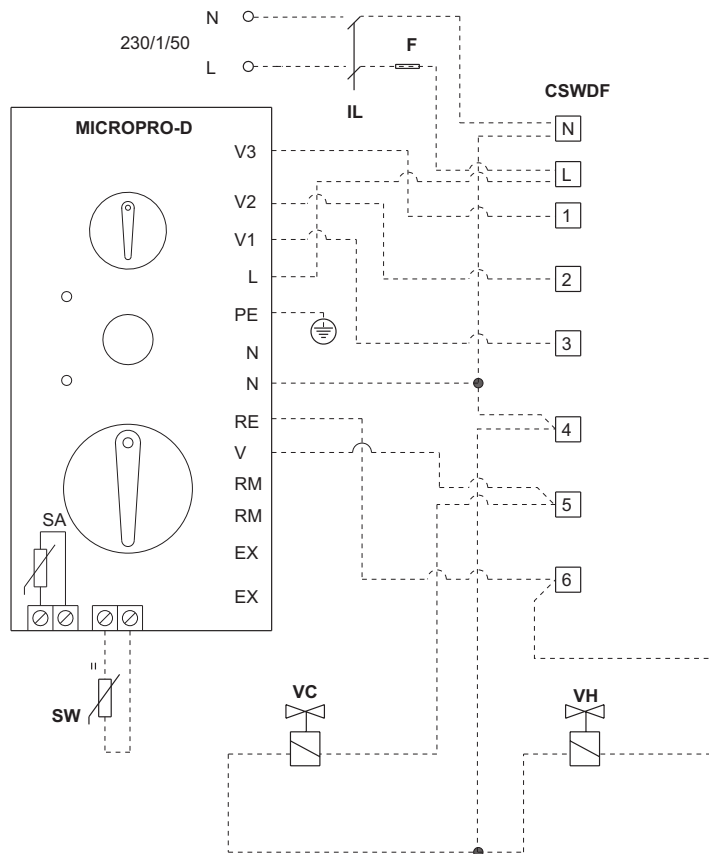


10 WIRING DIAGRAMS

2

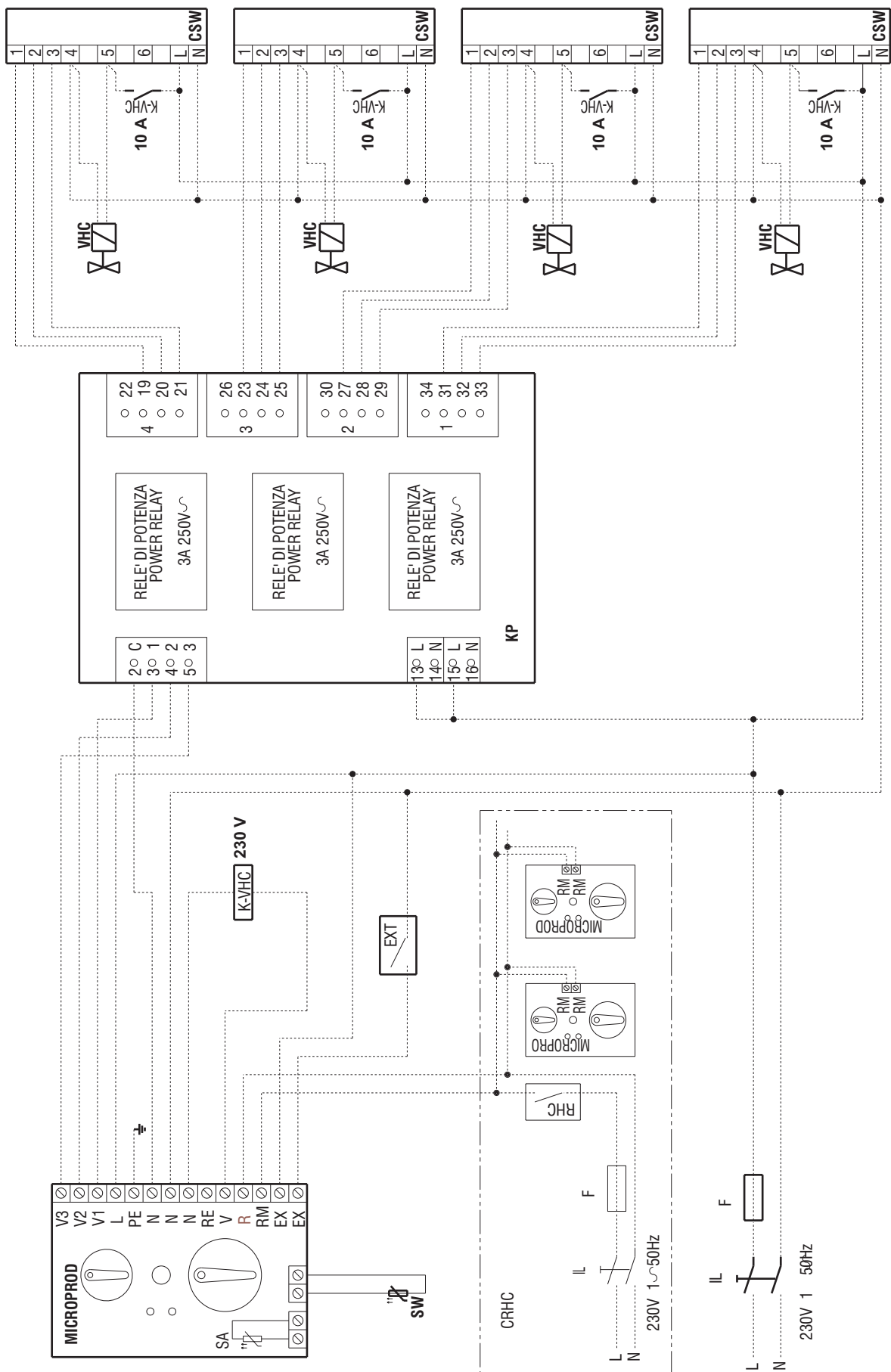


3

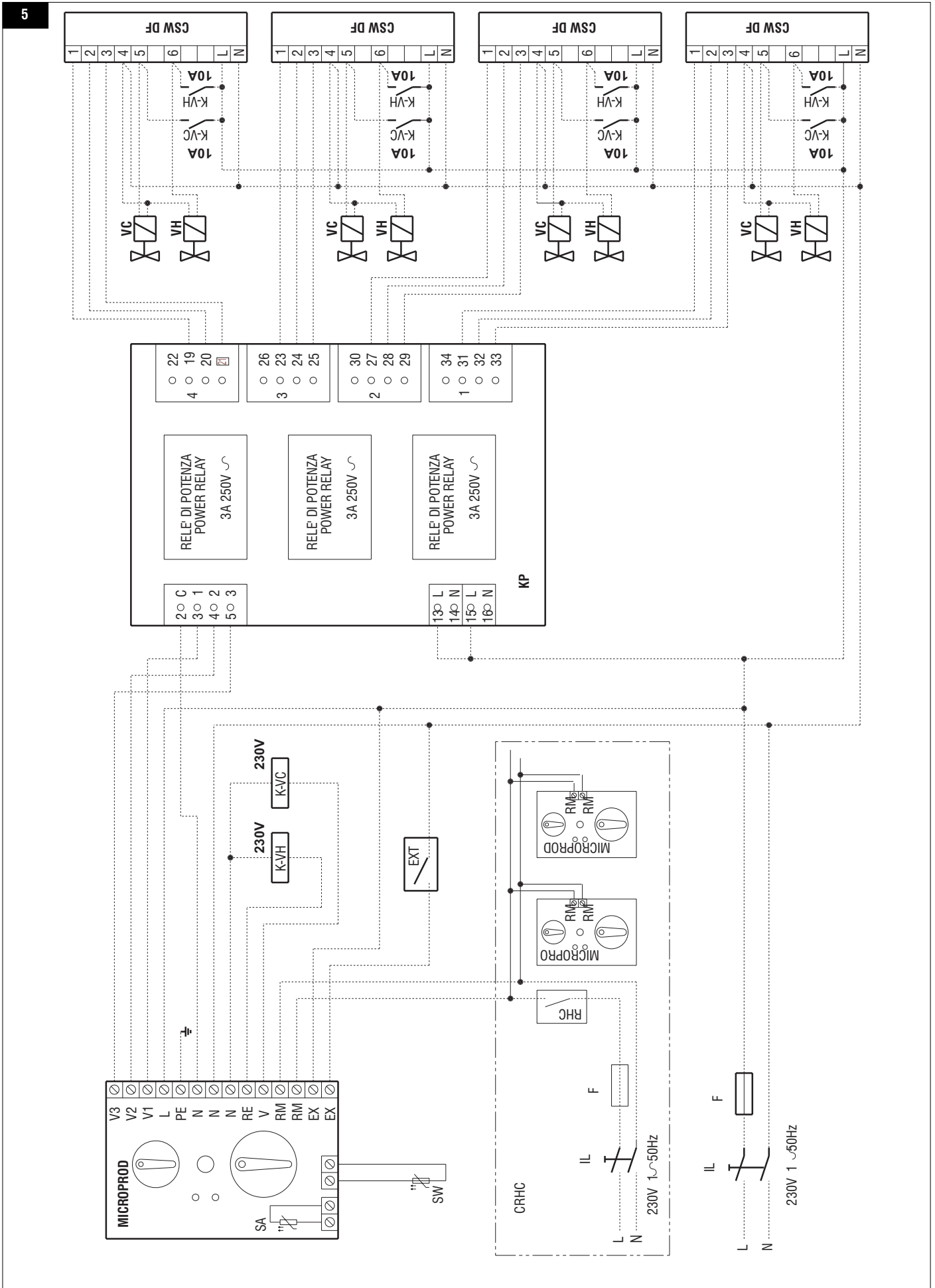


10 WIRING DIAGRAMS

4



10 WIRING DIAGRAMS



11 ACCESSORIES

MICROPROD - Microprocessor control (in built or wall mounted), automatic control of the fan coil and valves.

Microprocessor control panel for wall installation complete with fan speed selector, electronic thermostat and cooling/heating mode selector; for the automatic control of the fan coil and valves.



Fan speed control, room temperature regulation and cooling/heating mode selection.

- Room temperature regulation both in the cooling and heating mode, by means of fan start/stop, at a manually set speed.
- Room temperature regulation both in the cooling and heating mode, by means of the automatic regulation of the fan speed.
- Cooling / heating mode selection in the following way: manual in built; manual remote (centralized); automatic according to the water temperature (with the SW water probe, option); automatic according to the room temperature.
- Control of the on-off valves for 2 or 4 pipe systems.

The control panel are provided also with:

- contacts for external signals in order to enable or disable the unit operation;

MICRONET- Advanced microprocessor control panels for ergo solution

MICRONET is the control panel suitable for the connection to the ERGO SOLUTION. Microprocessor control panels for wall installation complete with fan speed selector, electronic thermostat and cooling / heating mode selector; for the automatic control of the fan working on the valves.



Fan speed control, room temperature regulation and cooling / heating mode selection:

- room temperature regulation both in the cooling and heating mode, by means of fan start/stop, at a manually set speed;
- room temperature regulation both in the cooling and heating mode, by means of the automatic regulation of the fan speed;
- cooling / heating mode selection in the following way:
 - manual;
 - automatic according to the water temperature;
 - automatic according to the room temperature;
- control of the ON/OFF valves for 2 or 4 pipe system;

The MICRONET control panels are provided also with contacts for external signals in order to enable or disable the unit operation.

- terminals for the connections with external signals in order to enable or disable the unit operation;
- terminals for the connections with external signals in order to enable or disable the ECONOMY set point (only if combined with ERGO software)
- air temperature probe
- water temperature probe
- RS485
- built-in MODBUS communication protocol
- Built-in Polarity and termination resistance

SW - Water temperature electronic probe for MICROPROD

Water probe for the MICROPROD control panels: automatic selection of the cooling/heating operation mode.



Connected directly to the microprocessor control panels, this probe measures the water temperature inside the heat exchanger.

If the temperature registered is lower than 17°C the unit works in cooling mode and the temperature range of the control panel will be referred to the cooling mode (19 / 31°C); if the temperature registered is higher than 37°C the unit works in heating mode and the temperature range of the control panel will be referred to the heating mode (14 / 26°C).

If the temperature registered is between 17°C e 37°C the control panel will disable the unit operation.

The SW water probe is included in the MICRONET kit.

VK - 3-way valve with ON-OFF motor and hydraulic kit

The VK motor driven 3 way / 4 ports ON/OFF valve kit, connected to the control panels for éstro fan coil units allows the regulation of the room temperature stopping the water flow into the heat exchanger.



The VK kit is available in various versions for all the CSW both for the standard (VK S) and for the additional DF (VK DF) heat exchangers.

The kit is made of:

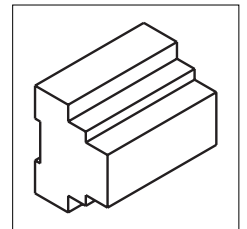
3 way /4 ports valve with incorporated by-pass , made of brass, with maximum operation pressure 16 bar.

Electrothermal actuator with ON/OFF action (total opening period 4 min.), power supply 230 V.

Hydraulic connections kit for the connection of the valve onto the heat exchanger, complete with 2 holders for the balancing and the interception of the fan coil unit.

KP - Power interface for connection of up to 4 units to a single control panel

The KP master sleeve can be installed to control with a single control panel up to 4 units (connected in parallel).



This accessory is designed for installation on a DIN drive, usually placed on electric board, can be matched with all the CSW fan coil versions.



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