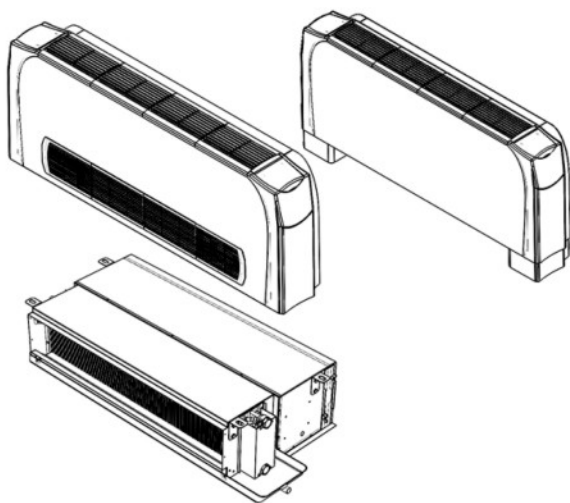


UNTES[®]

HEATING VENTILATING AIR CONDITIONING



CE

UNFC SERIES FAN COIL UNIT
ASSEMBLING, START UP, MAINTENANCE and USER MANUAL

Please read this manual first!

Dear Customer,

Thank you for preferring UNTES. We hope that your product which has been manufactured in modern facilities and passed through a strict quality control procedure will give you the best results. Therefore, we advise you to read through this manual carefully before using your product and keep it for future reference.

- Please read the Operation Manual before installing and starting your machine
- Particularly follow the instructions related to safety.
- Keep this Operating Manual within easy reach. You may need it in the future.

Sincerely,

UNTES Heating Ventilating Air Conditioning Inc.

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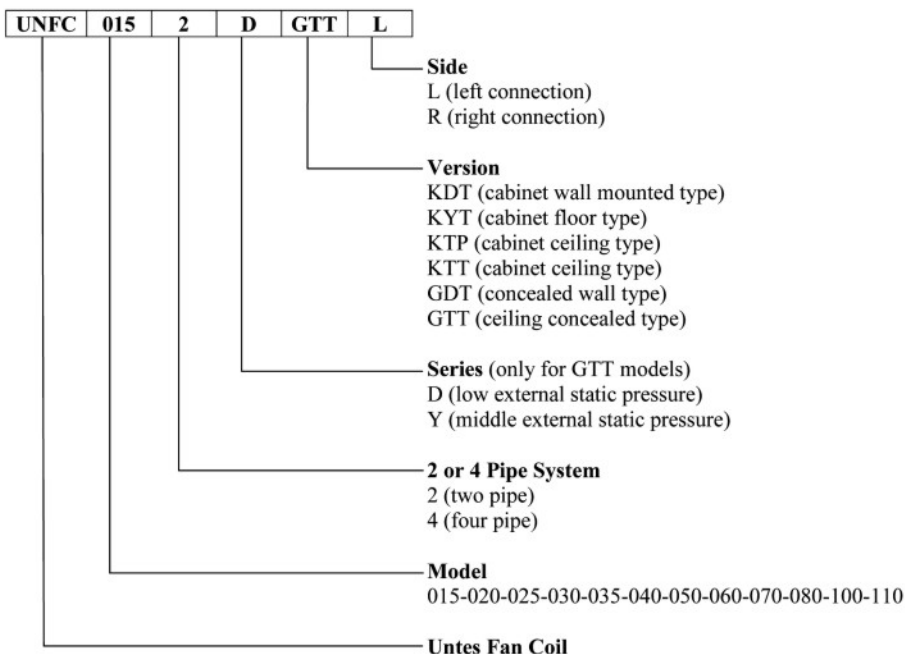
1. GENERAL FEATURES

UNFC series fan coils are two types, one of them is cabinet and the other is without cabinet type. They are composed with galvanized sheet metal which is high protected against corrosion. External surface of cabinet floor mounted type fan coils is composed with painted sheet metal which is high protected against corrosion. On the side wall surfaces are composed with painted ABS material which has an esthetic view. Also, on the air inlet and outlet grills are composed with same ABS material. During the design stage CFD and strength analysis were made to catch the best performance. Ergonomics and easy cleanable was taken to consideration on the filter design.







To provide easy mounting on site, the mounting holes are drilled beforehand and the power connections are designed in an easily accessible way. In fancoil units 3 speed 220V / 1 phase / 50 Hz. radial fans are used.

The fans appeal to customer satisfaction with their low noise levels. Coils are produced by passing the seamless pipes tightly through the high efficiency aluminum plates. Each battery is tested up to 24 Bar pressure under the factory conditions. Provided that it is specified in the order, the units can be produced with right or left connection. Drain pans are produced from coated metal material to protect condensing out of the surface of drain pan.

Cabinet type fan coils are produced in two different type according to mounting base and mounting option. Front and bottom air inlet options are available. For the bottom inlet model feet are used.



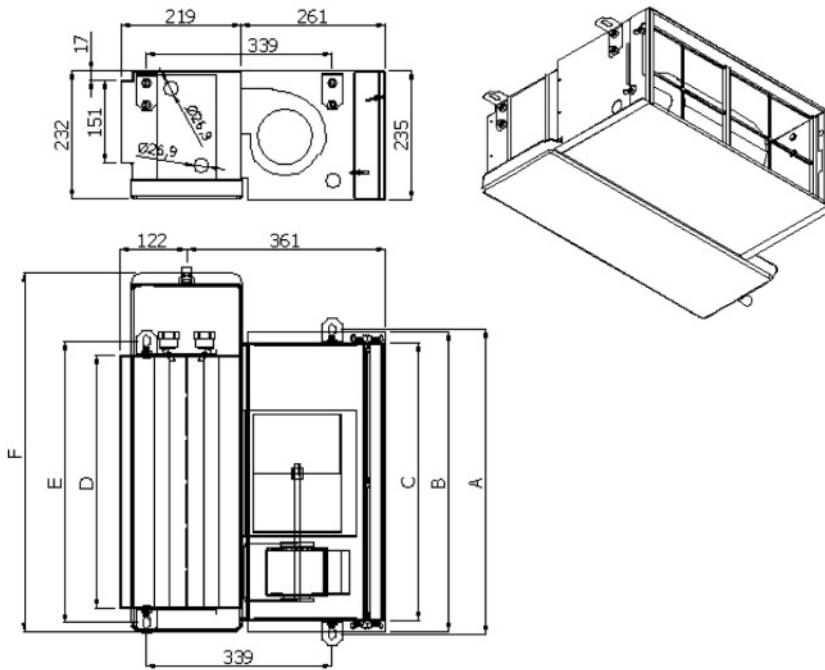
1.1. Fan Coil Types

 <p>KDT (Cabinet wall mounted type, bottom inlet, upper outlet, foot is optional)</p>	 <p>KYT (Cabinet floor type, front inlet, upper outlet)</p>	 <p>KTP (Cabinet ceiling type, bottom inlet, front outlet)</p>	 <p>KTT (Cabinet ceiling type, rear inlet, front outlet)</p>
 <p>GDT (Without cabinet concealed wall type, bottom inlet, upper outlet)</p>	 <p>GTT (Without cabinet, ceiling type, rear inlet, front outlet)</p>		

Drain pans are produced from coated metal material to protect condensing out of the surface of drain pan. The outer surfaces of the drain pans, which are corrosion-resistant, are isolated with closed cell insulation material which prevents drops. Drain pans are curvedly mounted on the water outlet direction.

All technical service and spare parts requirements can be providing during 10 years with fee. Periodic maintain madden by technical person can be increase unit's performance.

1.2. Dimensions and Capacities of Without Cabinet Types Fan Coils



UNFC D & Y SERIES	A	B	C	D	E	F	d	d' (additional coil)
015-020-025	554	544	506	462	510	650	3/4"	1/2"
030-035-040	834	824	786	742	790	930	3/4"	1/2"
050	969	959	921	877	925	1065	3/4"	1/2"
060	1054	1044	1006	962	1010	1150	3/4"	1/2"
070	1224	1214	1176	1132	1180	1320	3/4"	1/2"
080	1274	1264	1226	1182	1230	1370	3/4"	1/2"
100	1614	1604	1566	1522	1570	1710	3/4"	1/2"
110	1734	1724	1686	1642	1690	1830	3/4"	1/2"

Units are mm (except pipe dimensions)
 d = water inlet & water outlet and drainage pipe

UNFC D SERIES, 2 PIPE ¹		015 2D	020 2D	025 2D	030 2D	035 2D	040 2D
Air Flow (High)	m ³ /h	370	357	537	771	744	865
Air Flow (Mid)	m ³ /h	304	290	427	605	591	686
Air Flow (Low)	m ³ /h	185	179	240	416	396	450
Total Cooling Capacity*	kW	1,45	2,12	2,84	3,31	4,18	4,64
Sensible Cooling Capacity *	kW	1,18	1,52	2,08	2,49	3,02	3,38
Heating Capacity **	kW	5,20	6,32	8,70	10,39	12,52	14,05
Water Flow (cooling)	m ³ /h	0,25	0,36	0,49	0,57	0,72	0,80
Water Pressure Drop	kPa	3,21	9,02	15,19	19,12	14,26	17,17
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	21/32/36	24/32/36	28/37/42	30/37/41	29/36/40	33/39/44
Two Way Valve		2VM 2-15	2VM 2-15	2VM 2-15	2VM 2-20	2VM 2-20	2VM 2-20
Three Way Valve		3VM 4-15	3VM 4-15	3VM 4-15	3VM 4-20	3VM 4-20	3VM 4-20
Max Absorbed Power (230V/50Hz/1ph)	W	34,8	34,6	64,6	64,4	63,9	79,1
Dimension (WxHxD)	mm	685x235x483			965x235x483		
Packaged Dimension (WxHxD)	mm	720x255x507			1010x255x507		
Net/Gross Weight	kg	13,8/15,3	14,6/16,1	14,6/16,1	20,0/21,9	21,1/23,0	21,1/23,0
Control Type		Wall type room thermostat (Optional)					

UNFC D SERIES, 2 PIPE ¹		050 2D	060 2D	070 2D	080 2D	100 2D	110 2D
Air Flow (High)	m ³ /h	888	1058	1300	1475	1737	2145
Air Flow (Mid)	m ³ /h	717	840	1005	1163	1380	1695
Air Flow (Low)	m ³ /h	466	479	607	677	904	1088
Total Cooling Capacity*	kW	5,14	6,06	7,20	8,02	9,44	11,33
Sensible Cooling Capacity *	kW	3,66	4,31	5,18	5,77	6,85	8,23
Heating Capacity **	kW	15,03	17,63	21,33	23,76	28,41	34,05
Water Flow (cooling)	m ³ /h	0,88	1,04	1,24	1,38	1,62	1,95
Water Pressure Drop	kPa	23,24	33,41	24,50	30,63	18,73	27,35
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	31/38/43	31/40/45	32/42/47	33/43/48	32/42/48	33/42/49
Two Way Valve		2VM 2-20	2VM 2-20	2VM 2-25	2VM 2-25	2VM 2-25	2VM 2-25
Three Way Valve		3VM 4-20	3VM 4-20	3VM 4-21	3VM 4-21	3VM 4-21	3VM 4-21
Max Absorbed Power (230V/50Hz/1ph)	W	80,0	125,7	124,6	154,4	158,5	203,2
Dimension (WxHxD)	mm	1100x235x483	1185x235x483	1355x235x483	1405x235x483	1745x235x483	1830x235x483
Packaged Dimension (WxHxD)	mm	1145x255x507	1230x255x507	1400x255x507	1450x255x507	1790x255x507	1875x255x507
Net/Gross Weight	kg	24,0/26,2	25,6/27,8	31,8/34,4	32,1/34,7	40,2/43,5	42,3/45,6
Control Type		Wall type room thermostat (Optional)					

¹) External static pressure is 0 Pa. 2D: 2 pipe low pressure series

²) At 1 m from air outlet with directionality factor of Q=1

* On high speed, 27°C DB, 50% RH room condition and 7/12 °C water temperature

** On high speed, 20°C DB room condition and 90/70°C water temperature

NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

UNFC Y SERIES, 2 PIPE ¹		015 2Y	020 2Y	025 2Y	030 2Y	035 2Y	040 2Y
Air Flow (High)	m ³ /h	394	378	481	822	787	880
Air Flow (Mid)	m ³ /h	320	309	381	678	655	730
Air Flow (Low)	m ³ /h	183	177	228	408	395	498
Total Cooling Capacity*	kW	1,52	2,21	2,63	3,45	4,35	4,70
Sensible Cooling Capacity *	kW	1,24	1,59	1,92	2,60	3,15	3,43
Heating Capacity **	kW	5,45	6,61	7,99	10,86	13,07	14,24
Water Flow (cooling)	m ³ /h	0,26	0,38	0,45	0,59	0,75	0,81
Water Pressure Drop	kPa	3,49	9,73	13,25	20,57	15,29	17,54
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	24/36/40	28/36/40	32/40/45	29/40/45	31/40/45	35/41/47
Two Way Valve		2VM 2-15	2VM 2-15	2VM 2-15	2VM 2-20	2VM 2-20	2VM 2-20
Three Way Valve		3VM 4-15	3VM 4-15	3VM 4-15	3VM 4-20	3VM 4-20	3VM 4-20
Max Absorbed Power (230V/50Hz/1ph)	W	46,3	45,8	62	84,6	82,5	92,1
Dimension (WxHxD)	mm	685x235x483			965x235x483		
Packaged Dimension (WxHxD)	mm	720x255x507			1010x255x507		
Net/Gross Weight	kg	13,9/15,4	14,7/16,2	14,8/16,3	20,1/22,0	21,2/23,1	21,3/23,2
Control Type		Wall type room thermostat (Optional)					

UNFC Y SERIES, 2 PIPE ¹		050 2Y	060 2Y	070 2Y	080 2Y	100 2Y	110 2Y
Air Flow (High)	m ³ /h	918	1117	1236	1519	1767	2165
Air Flow (Mid)	m ³ /h	759	929	1016	1265	1467	1834
Air Flow (Low)	m ³ /h	519	525	669	719	1001	1006
Total Cooling Capacity*	kW	5,26	6,29	6,95	8,18	9,55	11,40
Sensible Cooling Capacity *	kW	3,76	4,49	4,99	5,90	6,94	8,28
Heating Capacity **	kW	15,41	18,37	20,52	24,29	28,78	34,29
Water Flow (cooling)	m ³ /h	0,90	1,08	1,20	1,41	1,64	1,96
Water Pressure Drop	kPa	24,22	35,71	23,03	31,73	19,12	27,66
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	34/41/47	35/43/48	36/43/48	39/45/50	37/46/51	39/47/52
Two Way Valve		2VM 2-20	2VM 2-20	2VM 2-25	2VM 2-25	2VM 2-25	2VM 2-25
Three Way Valve		3VM 4-20	3VM 4-20	3VM 4-21	3VM 4-21	3VM 4-21	3VM 4-21
Max Absorbed Power (230V/50Hz/1ph)	W	94,9	126	137,9	182,2	184,8	242
Dimension (WxHxD)	mm	1100x235x483	1185x235x483	1355x235x483	1405x235x483	1745x235x483	1830x235x483
Packaged Dimension (WxHxD)	mm	1145x255x507	1230x255x507	1400x255x507	1450x255x507	1790x255x507	1875x255x507
Net/Gross Weight	kg	24,3/26,5	25,7/27,9	31,8/34,4	33,0/35,6	40,3/43,6	42,4/45,7
Control Type		Wall type room thermostat (Optional)					

¹) External static pressure is 30 Pa. 2Y: 2 pipe middle pressure series.

²) At 1 m from air outlet with directionality factor of Q=1

*

** On high speed, 20°C DB room condition and 90/70°C water temperature.

(NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

UNFC D SERIES, 4 PIPE ¹		015 4D	020 4D	025 4D	030 4D	035 4D	040 4D
Air Flow (High)	m ³ /h	359	352	527	747	721	838
Air Flow (Mid)	m ³ /h	292	279	410	593	574	659
Air Flow (Low)	m ³ /h	180	174	232	397	380	438
Total Cooling Capacity*	kW	1,42	2,09	2,80	3,24	4,09	4,54
Sensible Cooling Capacity *	kW	1,15	1,50	2,05	2,43	2,95	3,30
Additional Coil Capacity**	kW	3,23	3,19	4,10	6,32	6,18	6,78
Water Flow (cooling)	m ³ /h	0,24	0,36	0,48	0,56	0,70	0,78
Water Flow (additional coil)	m ³ /h	0,14	0,14	0,18	0,27	0,27	0,29
Water Pressure Drop (cooling)	kPa	3,07	8,86	14,84	18,44	13,70	16,52
Water Pressure Drop (additional coil)	kPa	2,52	2,46	3,89	12,01	11,54	13,66
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	21/32/36	24/32/36	28/37/42	30/37/41	29/36/40	33/39/44
Two way valve (Cooling/Heat)		2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15
Three way valve (Cooling/Heat)		4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15
Max Absorbed Power (230V/50Hz/1ph)	W	34,6	34,4	64,3	64,0	63,6	78,6
Dimension (WxHxD)	mm	685x235x483			965x235x483		
Packaged Dimension (WxHxD)	mm	720x255x507			1010x255x507		
Net/Gross Weight	kg	15,1/16,6	16,9/18,4	15,5/17,4	21,4/23,3	23,2/25,1	22,1/24,0
Control Type		Wall type room thermostat (Optional)					

UNFC D SERIES, 4 PIPE ¹		050 4D	060 4D	070 4D	080 4D	100 4D	110 4D
Air Flow (High)	m ³ /h	874	1038	1252	1425	1687	2091
Air Flow (Mid)	m ³ /h	696	832	975	1125	1328	1660
Air Flow (Low)	m ³ /h	454	471	587	656	879	1096
Total Cooling Capacity*	kW	5,08	5,98	7,02	7,83	9,25	11,14
Sensible Cooling Capacity *	kW	3,62	4,25	5,04	5,63	6,71	8,08
Additional Coil Capacity**	kW	7,48	8,66	10,03	11,07	13,77	16,23
Water Flow (cooling)	m ³ /h	0,87	1,03	1,21	1,35	1,59	1,92
Water Flow (additional coil)	m ³ /h	0,32	0,37	0,43	0,48	0,59	0,70
Water Pressure Drop (cooling)	kPa	22,78	32,63	23,40	29,38	18,06	26,53
Water Pressure Drop (additional coil)	kPa	18,63	26,20	7,11	8,77	15,56	22,21
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	31/38/43	31/40/45	32/42/47	33/43/48	32/42/48	33/42/49
Two way valve (Cooling/Heat)		2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20
Three way valve (Cooling/Heat)		4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20
Max Absorbed Power (230V/50Hz/1ph)	W	79,4	123,4	123,5	152,4	157,4	201,1
Dimension (WxHxD)	mm	1100x235x483	1185x235x483	1355x235x483	1405x235x483	1745x235x483	1830x235x483
Packaged Dimension (WxHxD)	mm	1145x255x507	1230x255x507	1400x255x507	1450x255x507	1790x255x507	1875x255x507
Net/Gross Weight	kg	25,5/27,7	27,3/29,5	33,6/36,2	34,4/37,0	42,5/45,8	45,5/48,8
Control Type		Wall type room thermostat (Optional)					

¹) External static pressure is 0 Pa. 4D: 4 pipe low pressure series.

²) At 1 m from air outlet with directionality factor of Q=1

* On high speed, 27°C DB, 50% RH room condition and 7/12 °C water temperature.

** On high speed, 20°C DB room condition and 90/70°C water temperature.

(NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

UNFC Y SERIES, 4 PIPE ¹		015 4Y	020 4Y	025 4Y	030 4Y	035 4Y	040 4Y
Air Flow (High)	m ³ /h	381	367	467	791	757	854
Air Flow (Mid)	m ³ /h	311	299	373	657	635	708
Air Flow (Low)	m ³ /h	177	172	224	396	384	480
Total Cooling Capacity*	kW	1,48	2,16	2,57	3,36	4,23	4,60
Sensible Cooling Capacity *	kW	1,21	1,56	1,88	2,53	3,06	3,35
Additional Coil Capacity**	kW	3,35	3,27	3,81	6,54	6,37	6,85
Water Flow (cooling)	m ³ /h	0,26	0,37	0,44	0,58	0,73	0,79
Water Flow (additional coil)	m ³ /h	0,14	0,14	0,16	0,28	0,27	0,29
Water Pressure Drop (cooling)	kPa	3,34	9,36	12,77	19,69	14,57	16,91
Water Pressure Drop (additional coil)	kPa	2,70	2,59	3,40	12,81	12,19	13,95
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	24/36/40	28/36/40	32/40/45	29/40/45	31/40/45	35/41/47
Two way valve (Cooling/Heat)		2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15
Three way valve (Cooling/Heat)		4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15
Max Absorbed Power (230V/50Hz/1ph)	W	45,9	45,5	61,6	82,7	80,8	90,2
Dimension (WxHxD)	mm	685x235x483			965x235x483		
Packaged Dimension (WxHxD)	mm	720x255x507					
Net/Gross Weight	kg	15,2/16,7	17,0/18,5	15,7/17,2	21,5/23,4	23,3/25,2	22,3/24,2
Control Type		Wall type room thermostat (Optional)					

UNFC Y SERIES, 4 PIPE ¹		050 4Y	060 4Y	070 4Y	080 4Y	100 4Y	110 4Y
Air Flow (High)	m ³ /h	891	1100	1198	1451	1718	2066
Air Flow (Mid)	m ³ /h	739	922	983	1234	1425	1799
Air Flow (Low)	m ³ /h	504	510	650	693	967	968
Total Cooling Capacity*	kW	5,15	6,23	6,80	7,93	9,37	11,05
Sensible Cooling Capacity *	kW	3,67	4,44	4,88	5,70	6,80	8,01
Additional Coil Capacity**	kW	7,57	8,98	9,77	11,19	13,93	16,11
Water Flow (cooling)	m ³ /h	0,89	1,07	1,17	1,36	1,61	1,90
Water Flow (additional coil)	m ³ /h	0,33	0,39	0,42	0,48	0,60	0,69
Water Pressure Drop (cooling)	kPa	23,34	35,05	22,16	30,03	18,47	26,15
Water Pressure Drop (additional coil)	kPa	19,05	27,97	6,77	8,95	15,88	21,92
Sound Pressure Level ² (Low/Mid/ High)	dB(A)	34/41/47	35/43/48	36/43/48	39/45/50	37/46/51	39/47/52
Two way valve (Cooling/Heat)		2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20
Three way valve (Cooling/Heat)		4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20
Max Absorbed Power (230V/50Hz/1ph)	W	93,0	122,8	135,2	178,1	180,9	235,4
Dimension (WxHxD)	mm	1100x235x483		1355x235x483		1405x235x483	
Packaged Dimension (WxHxD)	mm	1145x255x507					
Net/Gross Weight	kg	25,8/28,0	27,4/29,6	33,6/36,2	34,5/37,1	42,6/45,9	45,6/48,9
Control Type		Wall type room thermostat (Optional)					

¹) External static pressure is 30 Pa. 4Y: 4 pipe middle pressure series.

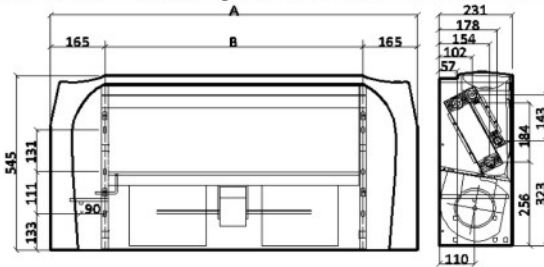
²) At 1 m from air outlet with directionality factor of Q=1

* On high speed, 27°C DB, 50% RH room condition and 7/12 °C water temperature.

** On high speed, 20°C DB room condition and 90/70°C water temperature.

(NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

1.3. Dimensions and Capacities of Cabinet Version Fan Coils



MODEL	UNFC 15-20-25	UNFC 30-35-40	UNFC 50-60	UNFC 70-80	UNFC 100-110
A [mm]	850	1110	1370	1630	1890
B [mm]	520	780	1040	1300	1560
Pipe	Water inlet & outlet and drainage 3/4"				
	Additional coil water inlet & outlet 3/4"				

*For all models of concealed wall type units, height, depth dimensions are respectively 513 mm, 219 mm and B dimension was given in the table.

UNFC CABINET VERSION 2 PIPES		015	020	025	030	035	040
Air Flow (High Speed)	m ³ /h	346	342	482	681	666	821
Air Flow (Mid Speed)	m ³ /h	268	259	374	543	529	677
Air Flow (Low Speed)	m ³ /h	170	165	217	362	353	406
Total Cooling Capacity*	kW	1,47	2,12	2,73	3,22	4,04	4,70
Sensible Cooling Capacity*	kW	1,16	1,51	1,97	2,23	2,87	3,37
Heating Capacity**	kW	4,97	6,11	8,04	9,61	11,58	13,65
Water Flow (cooling)	m ³ /h	0,25	0,36	0,47	0,55	0,70	0,81
Water Side Pressure Drop	kPa	3,66	10,17	15,95	20,53	15,17	19,82
Sound Pressure Level (Low/Mid/ High)***	dB(A)	19/32/36	23/32/36	27/38/42	29/36/40	29/35/40	32/43/46
Two Way Valve Code		2VM 2-15	2VM 2-15	2VM 2-15	2VM 2-20	2VM 2-20	2VM 2-20
Three Way Valve Code		3VM 4-15	3VM 4-15	3VM 4-15	3VM 4-20	3VM 4-20	3VM 4-20
MaxAbs.Power (230V/50Hz/1ph)	W	34,2	34,0	63,2	63,0	62,5	84,4
Dimensions (WxDxH)	mm	850x231x545		1110x231x545			
Packaged Dimensions (WxDxH)	mm	885x250x560		1145x250x560			
Net-Total Weight	kg	20,6/23,6	21,2/24,2	21,2/24,2	26,9/29,9	27,8/30,8	28,8/31,8
Control Type		Room thermostat (optional)					

UNFC CABINET VERSION 2 PIPES		050	060	070	080	100	110
Air Flow (High Speed)	m ³ /h	855	1135	1131	1408	1537	1811
Air Flow (Mid Speed)	m ³ /h	679	941	885	1143	1230	1502
Air Flow (Low Speed)	m ³ /h	450	548	581	735	838	1028
Total Cooling Capacity*	kW	5,58	6,27	7,05	8,27	9,60	10,79
Sensible Cooling Capacity*	kW	3,86	4,57	4,96	5,88	6,70	7,59
Heating Capacity**	kW	15,27	18,75	19,91	23,69	26,68	30,34
Water Flow (cooling)	m ³ /h	0,96	1,08	1,21	1,42	1,65	1,86
Water Side Pressure Drop	kPa	34,28	11,62	17,06	22,62	34,16	42,08
Sound Pressure Level (Low/Mid/ High)***	dB(A)	30/37/42	30/39/44	30/39/45	32/42/47	32/43/49	32/42/48
Two Way Valve Code		2VM 2-20	2VM 2-20	2VM 2-25	2VM 2-25	2VM 2-25	2VM 2-25
Three Way Valve Code		3VM 4-20	3VM 4-20	3VM 4-21	3VM 4-21	3VM 4-21	3VM 4-21
MaxAbs.Power (230V/50Hz/1ph)	W	78,9	127,8	111,6	159,6	155,3	188,1
Dimensions (WxDxH)	mm	1370x231x545	1370x231x545	1630x231x545	1630x231x545	1890x231x545	1890x231x545
Packaged Dimensions (WxDxH)	mm	1405x250x560	1405x250x560	1695x250x560	1695x250x560	1955x250x560	1955x250x560
Net-Total Weight	kg	31,7/35,7	33,4/37,4	41,5/45,5	42,5/46,5	50,6/54,6	52,9/56,9
Control Type		Room thermostat (optional)					

* On high speed, 27°C DB, 50% RH room condition and 7/12 °C water temperature.

** On high speed, 20°C DB room condition and 90/70°C water temperature.

*** At 1 m from air outlet with directionality factor of Q=1

NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

UNFC CABINET VERSION 4 PIPES		015	020	025	030	035	040
Air Flow (High Speed)	m3/h	340	334	464	662	648	794
Air Flow (Mid Speed)	m3/h	257	250	362	525	513	659
Air Flow (Low Speed)	m3/h	164	159	210	349	341	395
Total Cooling Capacity*	kW	1,45	2,08	2,66	3,15	3,96	4,59
Sensible Cooling Capacity*	kW	1,15	1,48	1,91	2,32	2,81	3,28
Additional Heating Capacity**	kW	2,83	2,80	3,43	5,39	5,32	6,03
Water Flow (cooling)	m3/h	0,25	0,36	0,46	0,54	0,68	0,79
Water Flow (additional heating)	m3/h	0,12	0,12	0,15	0,23	0,23	0,26
Water Side Pressure Drop	kPa	3,57	9,85	15,19	19,85	14,64	19,00
Water Side Pressure Drop (additional coil)	kPa	1,81	1,78	2,57	8,27	8,07	10,14
Sound Pressure Level (Low/Mid/ High)***	dB(A)	19/32/36	23/32/36	27/38/42	29/36/40	29/35/40	32/43/46
Two way valve (Cooling/Heat)		2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-15 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-20 / 2-15
Three way valve (Cooling/Heat)		4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-15 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-20 / 4-15
Max Absorbed Power (230V/50Hz/1ph)	W	33,9	33,7	62,8	62,4	61,9	82,8
Dimensions (WxDxH)	mm	850x231x545			1110x231x545		
Packaged Dimensions (WxDxH)	mm	885x250x560			1145x250x560		
Net-Total Weight	kg	20,6/23,6	21,2/24,2	21,2/24,2	26,9/29,9	27,8/30,8	28,8/31,8
Control Type		Room thermostat (optional)					

UNFC CABINET VERSION 4 PIPES		050	060	070	080	100	110
Air Flow (High Speed)	m3/h	836	1119	1097	1362	1489	1762
Air Flow (Mid Speed)	m3/h	661	932	860	1118	1201	1462
Air Flow (Low Speed)	m3/h	441	530	566	722	820	996
Total Cooling Capacity*	kW	5,49	6,21	6,89	8,07	9,38	10,58
Sensible Cooling Capacity*	kW	3,79	4,52	4,84	5,73	6,54	7,44
Additional Heating Capacity**	kW	7,19	8,62	9,13	10,43	12,05	13,36
Water Flow (cooling)	m3/h	0,94	1,07	1,19	1,39	1,61	1,82
Water Flow (additional heating)	m3/h	0,31	0,37	0,39	0,45	0,52	0,57
Water Side Pressure Drop	kPa	33,28	11,41	16,39	21,68	32,79	40,65
Water Side Pressure Drop (additional coil)	kPa	18,04	25,12	6,15	7,87	11,72	14,17
Sound Pressure Level (Low/Mid/ High)***	dB(A)	30/37/42	30/39/44	30/39/45	32/42/47	32/43/49	32/42/48
Two way valve (Cooling/Heat)		2VM 2-20 / 2-15	2VM 2-20 / 2-15	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20	2VM 2-25 / 2-20
Three way valve (Cooling/Heat)		4VM 4-20 / 4-15	4VM 4-20 / 4-15	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20	4VM 4-21 / 4-20
Max Absorbed Power (230V/50Hz/1ph)	W	78,6	126,5	111,1	157,8	154,2	184,2
Dimensions (WxDxH)	mm	1370x231x545	1370x231x545	1630x231x545	1630x231x545	1890x231x545	1890x231x545
Packaged Dimensions (WxDxH)	mm	1405x250x560	1405x250x560	1695x250x560	1695x250x560	1955x250x560	1955x250x560
Net-Total Weight	kg	31,7/35,7	33,4/37,4	41,5/45,5	42,5/46,5	50,6/54,6	52,9/56,9
Control Type		Room thermostat (optional)					

* On high speed, 27°C DB, 50% RH room condition and 7/12 °C water temperature.

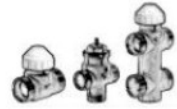
** On high speed, 20°C DB room condition and 90/70°C water temperature.

*** At 1 m from air outlet with directionality factor of Q=1

(NOTE) All values are based on 0 m altitude and 230 Volt, 50 Hz electrical supply

1.4. Two And Three Way Valve Options (For All Versions)

Two and three way valves are given as an optional part and supplied loose. They are used for controlling the flow in the coils with thermostatic control. Three way valves are offered with 4 ports to make easy connection.

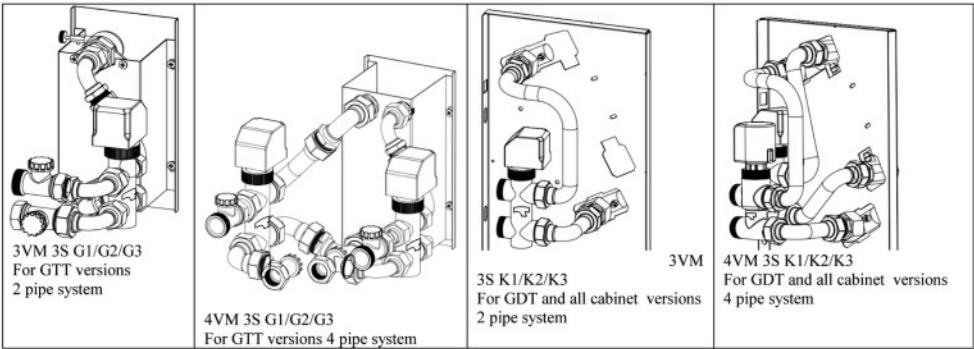


1.4.1. ON/OFF Two and Three Way Valve Pressure Drops

MODE L	Explanation	Unit	100 l/h	150 l/h	200 l/h	250 l/h	300 l/h	400 l/h	500 l/h	600 l/h	700 l/h	800 l/h	1000 l/h	1500 l/h	2000 l/h
2VM 2-15	2 way valve ø 15	kPa	0,4	0,8	1,5	2,5	3,5	6,0	10,0	14,0					
2VM 2-20	2 way valve ø 20	kPa			0,7	0,9	1,3	2,3	3,5	5,0	7,5	10,0	14,0		
2VM 2-25	2 way valve ø 25	kPa						1,0	1,5	2,1	3,0	4,0	7,0	16,0	24,0
3VM 4-15	3 way 4 port valve ø 15	kPa	0,4	0,8	1,5	2,5	3,5	6,0	10,0	14,0					
3VM 4-20	3 way 4 port valve ø 20	kPa			0,7	0,9	1,3	2,3	3,5	5,0	7,5	10,0	14,0		
3VM 4-21	3 way 4 port valve ø 20	kPa						1,0	1,5	2,2	3,0	4,0	6,5	15,0	25,0

1.4.2. Three Way Valve And Installation Kit

Installation kits include 3 way 4 ports valves, valve motors and copper coupling pipes. They could be supplied as a factory fitted or supplied loose.



1.4.3. On/Off 3 Way 4 Port Valve And Installation Kit Pressure Drop

MODEL	UNFC Model	Unit	100 l/h	200 l/h	300 l/h	400 l/h	500 l/h	600 l/h	700 l/h	800 l/h	900 l/h	1000 l/h	1200 l/h	1400 l/h	1600 l/h	2000 l/h
3VM 3S G1	15-20-25	kPa	1	4	10	18	28	40								
3VM 3S G2	30-35-40-50-60	kPa			8	14	22	32	43	57	72	88	127	175	230	180
3VM 3S G3	70-80-100-110	kPa							43	57	72	88	127	175	230	180
4VM 3S G1	15-20-25	kPa	1	4	10	18	28	40								
4VM 3S G2	30-35-40-50-60	kPa			8	14	22	32	43	57	72	88	127	175	230	180
4VM 3S G3	70-80-100-110	kPa							43	57	72	88	127	175	230	180
3VM 3S K1	15-20-25	kPa	1	4	10	18	28	40								
3VM 3S K2	30-35-40-50-60	kPa			8	14	22	32	43	57	72	88	127	175	230	180
3VM 3S K3	70-80-100-110	kPa							43	57	72	88	127	175	230	180
4VM 3S K1	15-20-25	kPa	1	4	10	18	28	40								
4VM 3S K2	30-35-40-50-60	kPa			8	14	22	32	43	57	72	88	127	175	230	180
4VM 3S K3	70-80-100-110	kPa							43	57	72	88	127	175	230	180

2. TRANSPORTATION and STORAGE

- Units shouldn't be removed from package and not be exposed to hard knocks and not drop.
- Use the holes on the unit for transporting and lifting.
- The units wasn't installed should be stored with their package in indoor environments.
- Chemical substances and other hazardous gas or burn steams should be kept out of touch with the unit itself and unit equipments.
- Generally transport the unit with hand, if using a forklift or crane is must, take precautions to avoid damage. (Silk rope or the use of transport, such as using palettes).

3. INSTALLATION

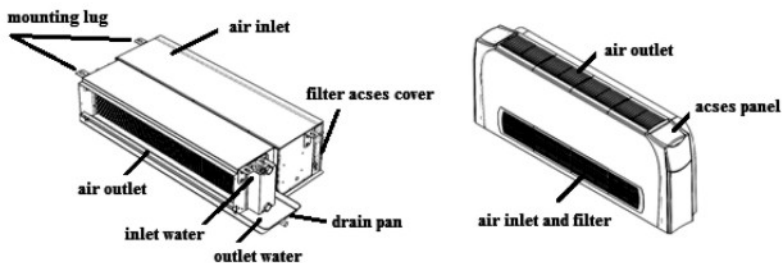
3.1. Installing Site

- Install the unit where enough space of installation and maintenance is available.
- Install the unit where the ceiling is horizontal and enough for bearing the weight of the indoor unit.
- Install the unit where the air inlet and outlet are not baffled and are the least affected by external air.
- Install the unit where the supply air flow can be sent to all parts in the room.
- Install the unit where it is easy to lead out the connective pipe and the drain pipe.
- Install the unit where connotative heat is emitted from a heat source directly.

3.2. Potential Faults' Reasons

Installing the equipment in any of the following places may lead to faults of the equipment (if that is inevitable, consult the supplier);

- The site contains mineral oils such as cutting lubricant.
- Seaside where the air contains much salt.
- Hot spring area where corrosive gases exist, e.g., sulphide gas.
- Factories where the supply voltage fluctuates seriously.
- Inside a car or cabin.
- Place like kitchen where oil permeates.
- Place where strong electromagnetic waves exist.
- Place where flammable gases or materials exist.
- Place where acid or alkali gases evaporate.
- Other special environments.



3.3. Installation Of The Fan Coil Unit

Suggested installation procedure for floor and wall mounted cabinet type of fan-coil units were given below;

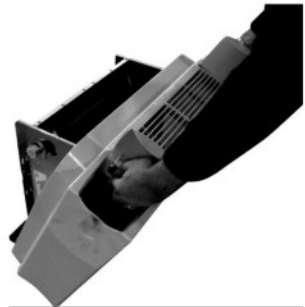
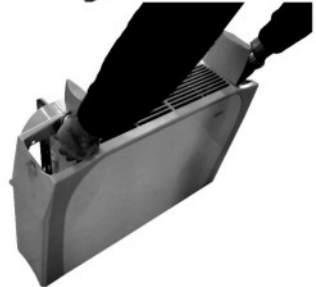
Please check all parts of unit while opening the box on clean and dry floor!

At first, the screws which connect inner sheet body to outer cabinet must be removed. The outer cabinet cannot be unconnected unless removing these screws. By looking at unit from top, you can find 4 screws located beside side feet under louvers. It's recommended to remove the screws by magnetic screwdrivers.

Appropriate place for catching the unit can be generated by taking thermostat doors up. If there is a thermostat in your unit, do not forget removing thermostat electrical cable socket before taking off the outer cabinet.

Tilt the outer cabinet 10-15 ° forward as showned in the picture. This function would makes easier removing the cabinet slots from the leaf shapped nails located at the bottom of the inner body. The interval obtained from this inclination would give you ability to see the nail conveniently to determine the best angle for taking the outer cabinet off.

The cabinet rescued from the nail can be seprated easily by pulling it upward.



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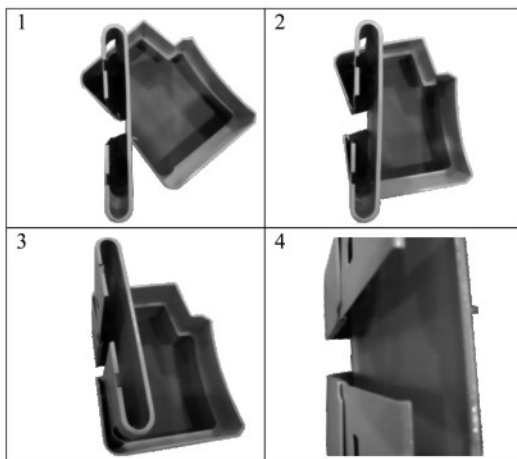
Metal feet have to be infixed in guide nails located on left and right sheets of inner body. There are 4 guide nails, pay attention to infix metal feet in all guide nails.

Getting help of any person makes easy doing these operations and also prevents damaging the unit.



Installation orders of ABS foot cover were given below respectively.

- 1) At first, place the hook of back side of foot cover.
- 2) Pull and place front side of foot cover.
- 3) The camber of metal foot should be placed in recess of inner side of foot cover.
- 4) Place front side hook of foot cover.



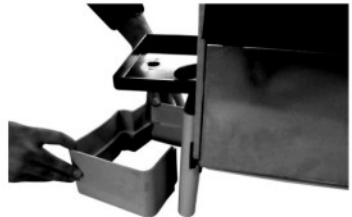
The last operation should be done about feet is dealing with wedges presented in box. There are two different wedges for each unit. The one which there is "L" letter on it is for tightening left foot and the other one with "R" letter is for right foot.



Insert the wedge between metal foot and ABS foot cover as seen in the picture.



Push the wedge with your finger or a long apparatus down to make sure that it is fixed in its place.



Repeat the same operations likewise for the other foot.



Place the unit with mounted feet in considered location. Carry out the plumbing connections, then connect the electrical junctions without powering the unit.



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After finishing connections, install the outer cabinet. If there is a thermostat in your unit, do not forget connecting the electrical cable socket before installing the outer cabinet.

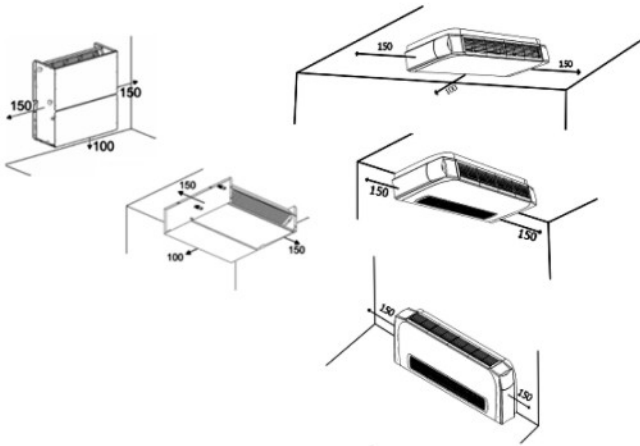


Take the cabinet as seen in the picture, first place the bottom of cabinet, then cover the inner body by cabinet (follow the procedure described in removing operation in reverse order).



At last, finish the installation by tightening the screws of cabinet.

The suggested free zones for fan coils are given below pictures.

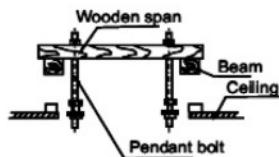


For Ceiling type units

- ❖ Confirm the dimensions of the indoor unit against the following figure.
 - ❖ Install $\Phi 10$ pendant bolts (4 bolts)
 - ❖ The intervals of the pendant bolts are shown in the following figure.
 - ❖ Use the $\Phi 10$ pendant bolts.
 - ❖ The treatment of the ceiling varies between buildings. For detailed measures, negotiate with the construction and fit-out staff.
- Scope of dismantling the ceiling.
- Please keep the ceiling horizontal. Reinforce the beams and girders of the ceiling lest vibration of the ceiling.
 - Cut off the beams and girders of the ceiling.
 - Reinforce the cut-off part, beams and girders of the ceiling.
- ❖ After the main body is suspended, work on the pipes and wires in the ceiling. Decide the lead-out direction of the pipes after selecting the installation site. Especially, in a circumstance where a ceiling is available, extend the refrigerant pipe; drain pipe, indoor/outdoor connection wires and wire controller lines to the connection position before suspending the unit.
- Procedure of installing the pendant bolts.

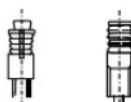
a) Wooden structure

Put rectangular sticks across the beams, and set pendant bolts.



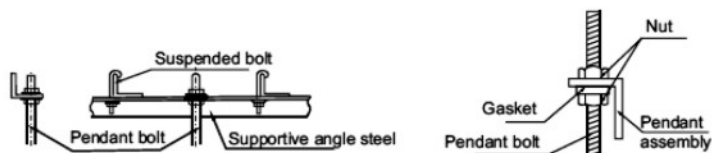
b) Old concrete roughcast

Use embedded bolts and embedded pulling plugs.



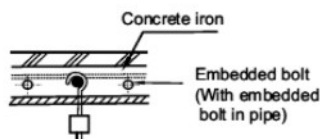
c) Steel beam and girder structure

Set and use supportive angle steel.



d) New concrete roughcast

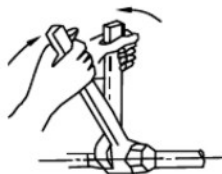
Set it with embedded bushes or embedded bolts.



- Connect the duct. The external static pressure is 30Pa, and the duct length is determined according to this parameter.
- Install the wire control switch for installation of the wire control switch; see the installation manual of the wire controller.

3.4. Pipes Connection

1. With air release valve, the other side is water inlet pipe.
2. When connect water collector, set the tightening torque to 6180~7540N.cm (630~770kgf.cm), and use a spanner to tighten it as shown in figure.
3. The diameter of connective junction in water inlet pipe and water outlet pipe is RC3/4 taper pipe thread inside.
4. The diameter of condensate pipe is ZG3/4 taper pipe thread outside.



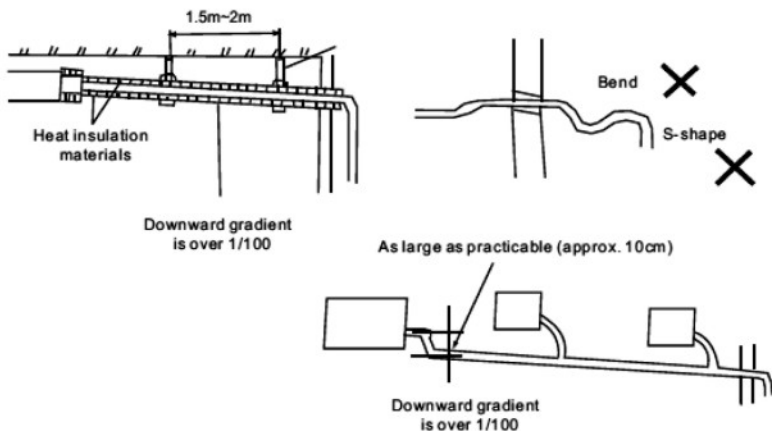
3.5. Installation Drainage Pipe

Before out from factory, the scupper adopts the pipe thread.



CAUTION

- Be sure to perform heat insulation for the drain pipe of the indoor unit. Otherwise, condensate will occur. The joint of the indoor unit should also undergo heat insulation treatment.
- When performing the pipes connection, use the rigid PVC binder, and make sure that no leak exists.
- Same as the joint of the indoor unit. Be careful not to apply force at the pipe side of the indoor unit.
- The downward gradient of the drain pipe should be higher than (1/100), without bend in the middle.
- The width wise stretch of the drain pipe should be within 2110m. If the drain pipe is long, set up brackets to support it.
- The centralized pipes should be distributed against the figure shown on the right side.

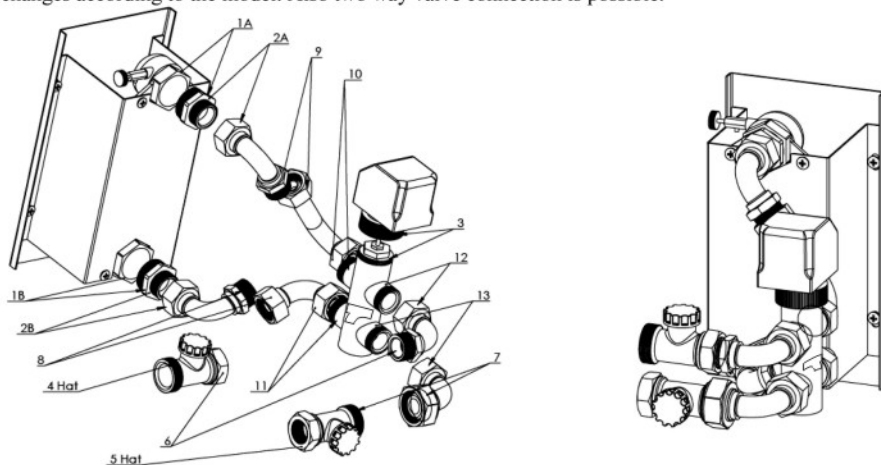


3.5.1. Drain Test

- Before the test, ensure that the drain pipes are smooth and the adapters are sealed.
- Newly built rooms should undergo the drain test before the ceiling is laid.

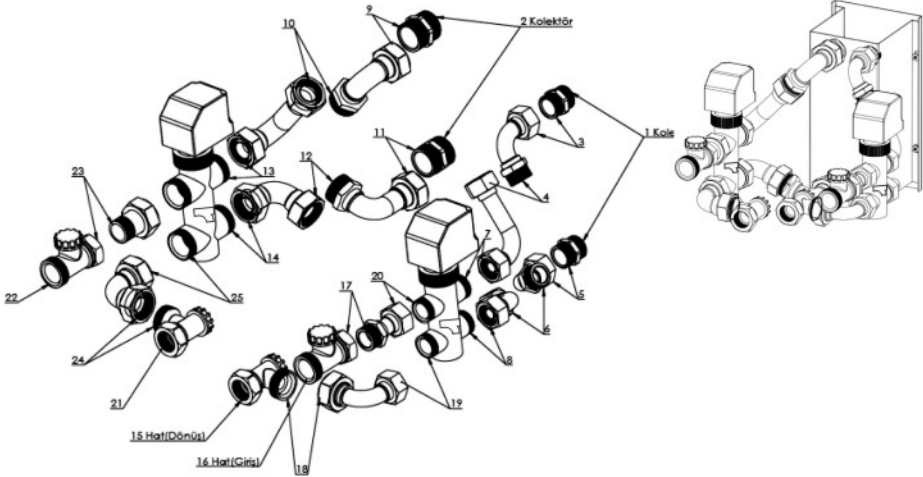
3.6. Three Way Valve Connection of Ceiling Type Units

The installation shams of three way valve motor and bends are given below. There can be some small changes according to the model. Also two way valve connection is possible.



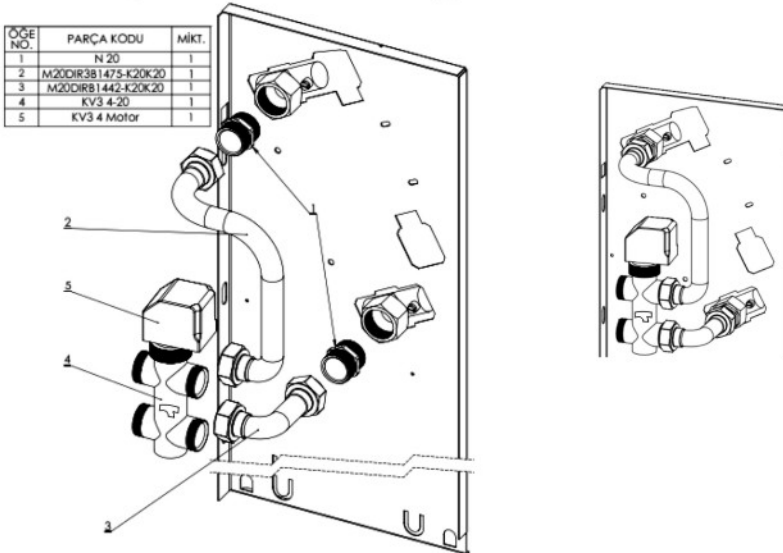
Three way valve connection detail for two pipe models

➤ For four pipes models, please follow the picture given below.

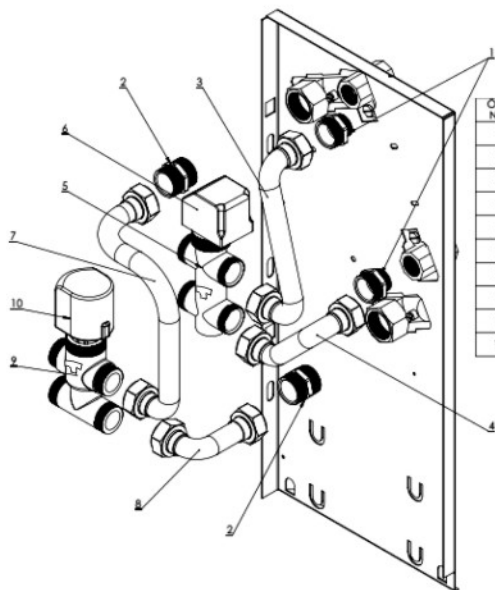


Three way valve connection detail for four pipe models

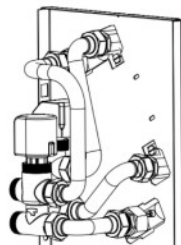
3.7. Three Way Valve Connection of Cabinet Type Units



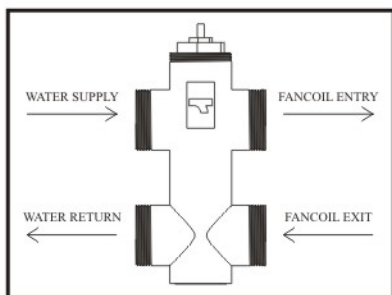
Three way valve connection detail for two pipe models



OGE NO.	PARÇA KODU	MİK.
1	N 20-15	2
2	N 20	2
3	M20DIR2B14110-K20K20	1
4	M20DIR2BE1449-K20K20	1
5	KV3 4-20	1
6	KV3 4-20 Motoru	1
7	M20DIR3B1485-K20K520	1
8	M20DIRB1442-KS20K20	1
9	KV3 4-21	1
10	STP 21 Motor	1



Three way valve connection detail for four pipe models



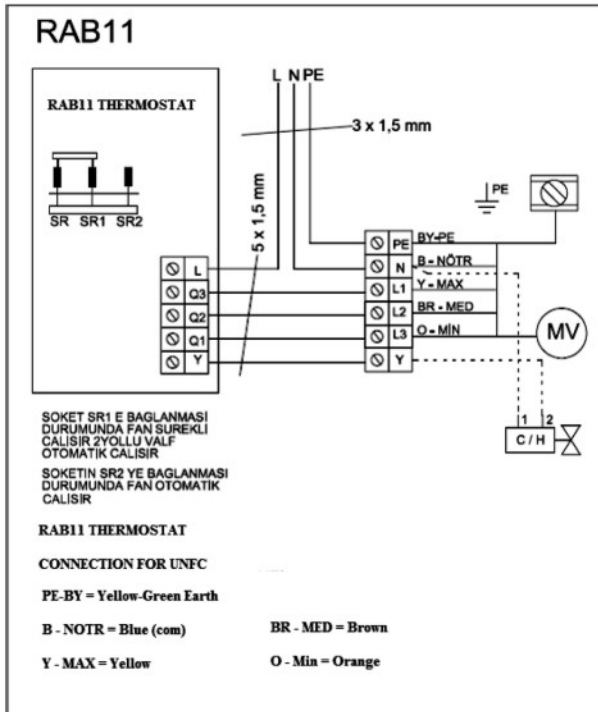
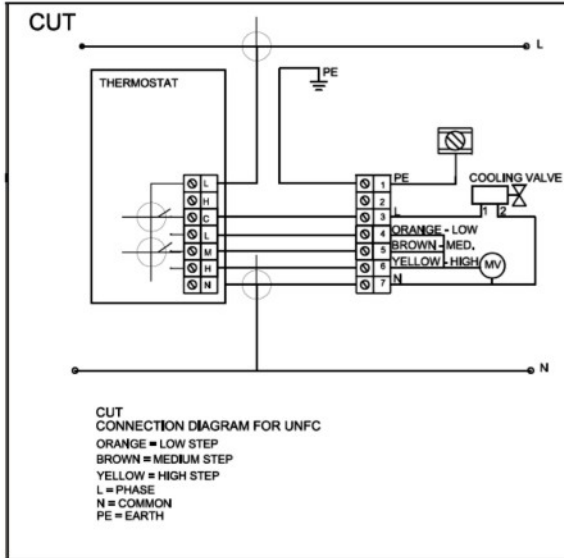
During mounting the three way vale, pay attentionto the direction of the valve/valves as shown in the figures.

3.8. Wiring

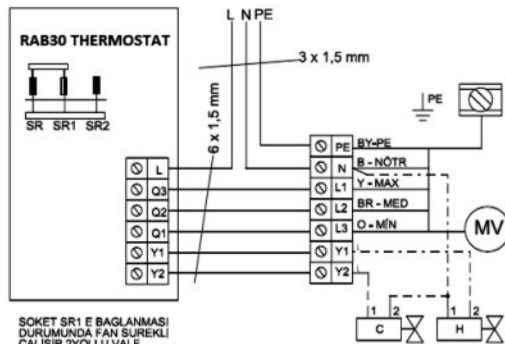
The required wiring shame of thermostat is given below.



In case a thermostat used, you should connect each fan coil with a separate thermostat.



RAB30



SOKET SR1'E BAGLANMASI DURUMUNDA FAN SUREKLI CALISIR ZYOLLU VALF OTOMATIK CALISIR

SOKETIN SR2 YE BAGLANMASI DURUMUNDA FAN OTOMATIK CALISIR

RAB 30

CONNECTION DETAIL FOR UNFC

PE-BY = Yellow-Green Earth

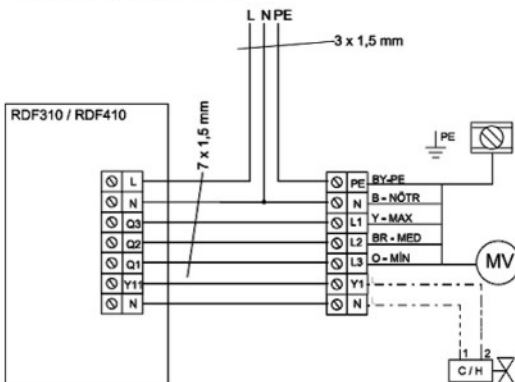
B - NOTR = Blue (com)

BR - MED = Brown

Y - MAX = Yellow

O - Min = Orange

RDF310 / RDF410



RDF310 / RDF410
CONNECTION FOR UNFC

PE-BY = Yellow-Green Earth

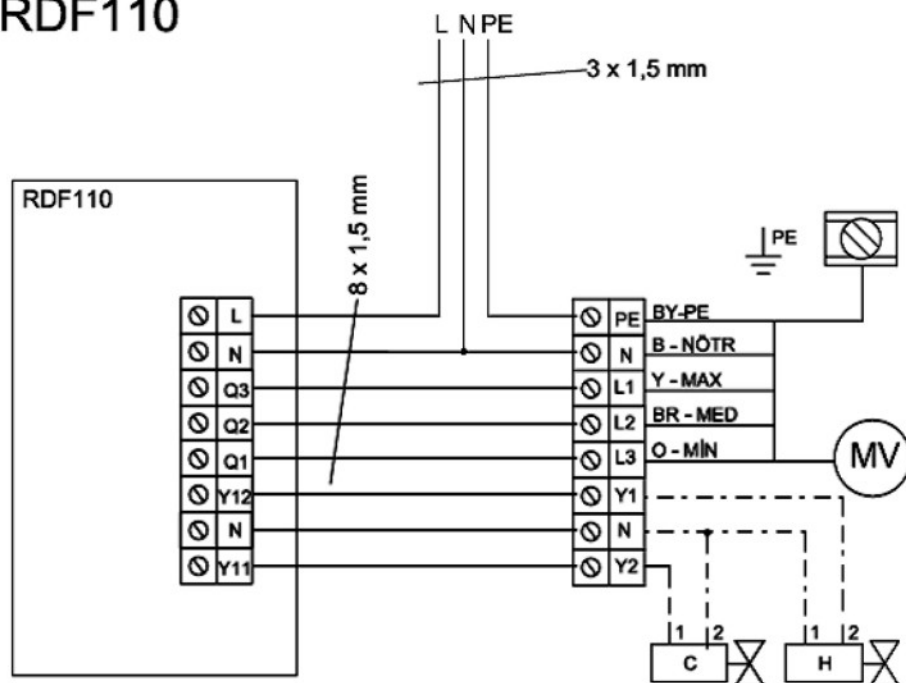
B - NOTR = Blue (com)

BR - MED = Brown

Y - MAX = Yellow

O - Min = Orange

RDF110



RDF110 CONNECTION FOR UNFC

PE-BY = Yellow-Green Earth

B - NOTR = Blue (com)

Y - MAX = Yellow

BR - MED = Brown

O - Min = Orange

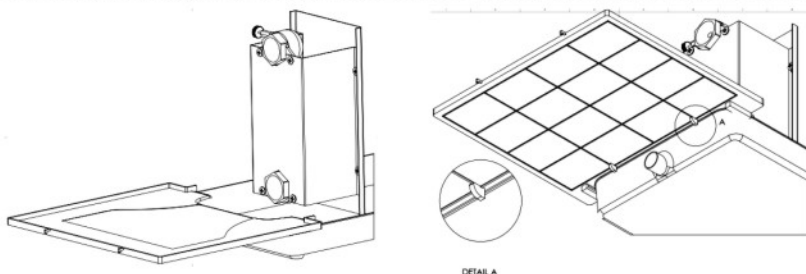
3.9. Start Up

Before starting the unit, ensure that;

- The unit is positioned correctly
- The water system delivery and return pipes are correctly connected and insulated
- The pipes are clean and free of air
- The heat-exchangers are clean
- The electrical connections are correct
- The screws holding the cables are well tightened
- The supply voltage is as required

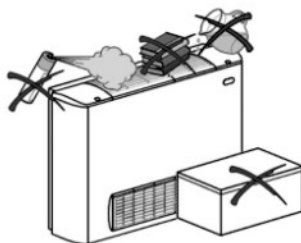
3.10. Drop Pan

Drop pans that will be connected with drainage pan and used on GTT versions under water collectors, are transported with the unit without connected. The connection details are given in the picture below. It is forced fit to the drainage pan. The nail shown in the "A" detail picture should be connected with drain pan.



4. MAINTENANCE and CLEANING

- Always use the mains switch to disconnect the unit from the mains before carrying out any maintenance work on the unit, even if it is for inspection purposes only. Make sure that no one accidentally supplies power to the machine, lock the mains switch in the OFF position.
- The use of water or aerosol sprays in proximity to the unit can cause electric shocks and malfunctions.

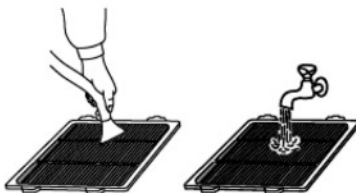


4.1. Cleaning The Air Filters

- The air filters are made of fibre and are washable in water. The state of cleanliness of the filters must be checked regularly at the start of the operating season and on a monthly basis. Cleaning can be much more for heavy dirty environments. During the cleaning firstly use vacuum cleaner than wash by water. Before install the filter wait until be dry.

4.2. Monthly

- Check the state of cleanliness of the air filters. The air filters are made of fibre and are washable in water. The state of cleanliness of the filters must be checked regularly at the start of the operating season and on a monthly basis.



4.3. Every Six Months

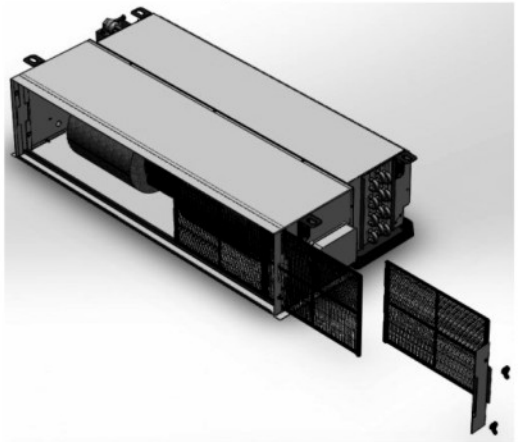
- Check the state of cleanliness of the heat-exchanger and the condensation drain. With the unit switched off, check the conditions of the heat exchanger and condensation drain.
 - remove any foreign bodies from the finned surface which may obstruct the air flow;
 - clean off the dust with a jet of compressed air;
- Check for the presence of air in the water system.
 - start the system and run for a few minutes;
 - stop the system;
 - Loosen the bleed screw on the inlet manifold and bleed the air.
 - Repeat the operation several times until no more air comes out of the system.

4.4. At The End Of The Season

- Drain the water system (for all heat exchangers). To avoid the risk of rupture due to freezing, it is advisable to drain the water from the system at the end of every season.

This picture can help you to remove the filters

Filter montaging/demontaging detail



5. WARNINGS

- Be sure only trained and qualified service personnel to install, repair or service the equipment.
- Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.
- Please carry and move the unit gently, do not press it. Lift the fan wheel or casing to move is forbidden.
- During installation, any damage of the fan, unit surface or piping will cause malfunction.
- The installation must be kept in horizon and standing firmly. Enough maintenance space must be left when installing the unit.
- The unit only can stand its own weight, cannot stand the weight from coil and water piping.
- When doing the pipe connection, please avoid any distortion of the piping joint.
- Seal the joint part of water piping.

- The coil must be adding warm-keeping material. Valves must be fixed in the intake and output water piping.
- Keep the condensate water in the pipes flowingly. Ensure the water drain slope degree is more than 0.005.
- Be strict to identify the connective wires of the units, and wiring according to wiring diagram. The grounding bolts from the units spare accessory are for grounding protection.
- After finishing installation, please turn the impeller of the fan gently. The unit can be connected to the power without scraping sound.
- Please clean the water piping inside thoroughly before operating the unit.
- When the first time operating the unit, and during the exchange of the cool and hot water, the air valve must be opened and discharge the air from the coil; the valve could not be closed Install the wiring. Use tools such as gradient to settle the indoor unit horizontally. Lack of horizontality may cause water leak. Be control switch until water flow from the valve, or heating exchange will be failed.
- The cool water in the unit is not lower than 3 °C, hot water is not higher than 90 °C.
- Clean the casing of the fan coil unit by dry towel.
- During the units is not used period, the unit must be discharged water completely for prevent copper pipe from rust eaten.
- Please maintain the unit by qualified persons when malfunction is caused. Entrust professional personnel to detect the motor, once the motor is in abnormal condition. Do not replace the capacity in the motor by yourself.
- The wiring work must be done by qualified person.
- All the wiring must be performed according to safety rules.
- Switch off the power before all the maintenance and cleaning.
- Do not use water or spray directly to the unit.
- If required to control more than one fan coil with one thermostat additional switching module must be used.

This warranty given by ÜNTES is out of scope, if the unit is used out of its purpose and the following cases come happen:

1. Damage and failures resulting from incorrect use.
2. Damages and failures while loading, unloading and transporting after delivery of the production.
3. Damage and failures resulting from low or high voltage; faulty electrical wiring; using different voltage from written value in the product label or user manual.
4. Failures and damage caused by lightning, fire and future.
5. Failures resulting from using contrary to the user manual.
6. Failures resulting from interference to the defective product by other than authorized service personnel.

The mentioned defects can be repaired by charging the cost to you and product warranty starts from date of invoice.

UNTES®

HEATING VENTILATING AIR CONDITIONING

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