CHILLED WATER VERTICAL FAN COILS

Models: MFU-C MFU-H MFC-C MFC-H







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Note: Installation and maintenance are to be performed only by qualified personal who are familiar with local codes and regulations, and experienced with this type of equipment.

Caution: Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

Warning: Moving machinery and electrical power hazards. May cause severe personal injury or death.

Disconnect and lock off power before servicing equipment.

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Vertical Flow Fan Coil

The New Shape Of Wellness

The new series F of fan coil with vertical air flow is characterised by flexibility in performance and quiet operation to offer a total wellness. It represents one of the most cost-effective solutions to provide a comfortable environment for both commercial and residential applications.

The series features 8 sizes, with cabinet for floor or wall installation and chassis for concealed installations.

The units are available in the 2-pipe version with 3 or 4-row coil – nominal cooling capacity from 1.3 to 8.0kW; nominal heating capacity from 2.2 to 12.0kW – or in the 4-pipe version – nominal cooling capacity from 1.2 to 8.0kW; nominal heating capacity from 2.3 to 13.0kW. 2-pipe version models can also be equipped with electrical heaters, from 0.8 to 3.0kW.

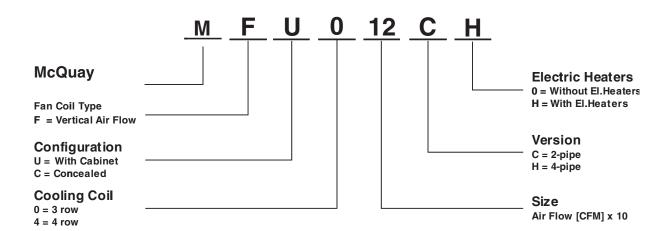
The AC2800/AC2800B controllers have been set according to the unit configuration:

- cooling or heating for 2-pipe application (without auxiliary electrical heater)
- cooling or heating for 2-pipe application (with auxiliary electrical heater)
- cooling or heating for 4-pipe application
- 2-way or 3-way valve with ON/OFF control

Activating all parameters and routines of regulation which optimise the operation of the unit.

Through AC2800 units can also be directly integrated with Smart Manager, McQuay solution for the supervision of hydronic systems. With reference to fan coils, Smart Manager run up to 50 mini-chillers and 120 fan coils.

Nomenclature



Design

The design, elegant and considered in all details, harmonises well with all types of interiors.

Covers, grids and cabinet materials have been selected with a special care to grant both the quality of the finishing and the durability of the product.

Cover and grids are realised in ABS, RAL103; the cabinet is made of pre-painted sheet metal finished with high quality paint, RAL1013.

Filter

The filter, located at the bottom of the unit, is easily accessible and self-locking, therefore no tools are required for removing and re-assembling it.

The filter material grade is G1 and thanks to its pleated surface grants a filtration surface up to 60% greater than traditional filters resulting in lower pressure drop and reduced noise emission.

Connections

Units are available with left or right hand water connections, which can be easily switched in the field if required. Connections are equipped with air vents and drainage valves.

Controllers

AC2800 Electronic Controller (Optional)

Among the features of AC2800 controllers are:

- Selectable temperature range: 10-30°C or 16-30°C (through selecting J4, default: close/16-30°C).
- 2-pipe/4-pipe model (through selecting J1 and J2).
- Auxiliary electrical heater enable/disable (only for 2-pipe model, through selecting J3, default: open/disable, if enable, it output from terminal 5).
- Cool/heat mode.
- Fan speed can be set at high/medium/low.
- Sensor failure alarm.
- LEDs show running state:
 - 1. The three blue LEDs show fan speed high/medium/low.
 - 2. The dichromatic LED shows heat and cool mode: the red LED shows heat mode, the green LED shows cool mode.
 - 3. The red LED shows ON/OFF of the system.
 - 4. The room sensor failure alarm: High speed LED blinks and shuts off all outputs. The water sensor failure alarm: Medium speed LED blinks and shuts off all outputs.
 - 5. Mode conflict: the mode LED blinks and shuts off all outputs.
- Smart manager integration

AC2800B Electronic Controller

Temperature range: 16-30°C.

2-pipe/4-pipe model (through selecting J1 and J2).

Auxiliary electrical heater enable/disable (only for 2-pipe model, through selecting J3, default: open/disable, if enable, it output from terminal 5).

Cool/heat mode.

Fan speed can be set at high/medium/low.

Cold draft protection (under heat mode, the fan can run only when the water temperature is above 30°C).

Sensor failure alarm.

LEDs show running state:

- 1. The three blue LED show fan speed high/medium/low.
- 2. The dichromatic LED shows heat and cool mode: The red LED shows heat mode, the green LED shows cool mode.
- 3. The red LED shows ON/OFF of the system.
- 4. The room sensor failure alarm: High speed LED blinks and shuts off all outputs. The water sensor failure alarm: Medium speed LED blinks and shuts off all outputs.
- 5. Mode conflict: The mode LED blinks and shuts off all outputs.

Notes:

- Mode conflict: For 2-pipe model, when the system works on heat mode and the water temperature is blow 25°C, or when the system works on cool mode and the water temperature is above 25°C, the system considers it fault as the mode conflict. At the same time, the system will shut off all outputs and the mode LED will blink.
- 2. For 4-pipe model, the water sensor is fixed on the pipe of hot water.

The **AC2800** controller can be connected straight to Fan Coil Network, without any further components; in fact the electronic board has integrated the NIM Module [Network Interface Module].

The Network allows to control from a unique place all the operating parameters of the connected units.

The general control is executed through the Master unit and can be carried out through the electronic controller on board, the wall mounted installed thermostat or the infra-red handset.

Across AC2800, the units can be connected straight to Smart Manager, the McQuay hydronic systems supervision solution. With reference to hydronic units, Smart Manger manages up to 50 mini-chillers and 120 fan coils.



AC8000 Electronic Thermostat

The thermostat AC8000 is predisposed for wall mounted and is composed of:

- LCD DISPLAY: back-light and with graphic extremely easy, allows also an easy reading of the operating parameters and auto-diagnosis.
- KEYBOARD: allows to set parameters as: room temperature, fan speed, manual or automatic fan speed setting, operating mode summer/winter, ON/OFF, operating time setting.
- INFRARED HANDSET AC5300: standard, assures a utilization more easy than other thermostat 2.5 meters.

AC512 Mechanical Thermostat [for 2 pipes versions] and Mechanical Thermostat AC513 [for 4 pipe versions]

Easy utilization, allows to set essential operating parameter: room temperature, fan speed, ON/OFF

Accessirues

Valves kit [standard condensate drain panel], 2 or 3 ways Electrical heater (optional) Controllers (optional) Feet (cover and/or support) Base module Frontal air intake module External air intake module

Technical Data

2 PIPES								3 R	ows
Models		012C	020C	025C	035C	050C	060C	080C	090C
Nominal Air Flow (High/Medium/Low)	m³/h	290/245/ 197	380/296/ 210	497/349/ 260	705/565/ 400	853/695/ 465	1141/969/ 705	1360/ 1063/ 824	1500/ 1368/ 1190
Available Static Pressure	Pa								
Total Cooling Capacity ¹	kW	1.3	1.8	2.7	3.6	4.8	5.9	6.9	8.0
Total Sensible Capacity ¹	kW	1.0	1.5	1.9	2.6	3.6	4.6	5.3	5.8
Heating Capacity ²	kW	2.2	2.7	3.6	4.8	6.2	8.1	10.5	12.0
Water Flow Rate	l/s	0.063	0.085	0.129	0.170	0.227	0.282	0.358	0.347
Water Pressure Drop - Cooling	kPa	4	5	10	16	28	33	18	20
Lp (Sound Pressure Level)3	dB(A)	38/35/33	42/37/32	42/35/32	48/44/39	47/39/31	53/48/41	51/47/40	53/51/47
Power Supply	V/ph/Hz		220~240/1/50						
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply ⁴	kW	0.024	0.044	0.044	0.059	0.068	0.102	0.147	0.167
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total Volume	litres	0.7	'92	1.1	158	1.5	525	1.8	39
Weight [with Package]	kg	20	[22]	24	[27]	26	[30]	35	[39]
Weight with Cabinet [with Package]	kg	22 [25]		29 [32]		32 [37]		45 [50]	
Dimens. unit (L x A x P)	mm	704x22	704x224x540 904x)4x224x540 1104x224x540		1304x224x540		
Dimens. with Cabinet (L x A x P)	mm	910x53	39x230	1110x5	39x230	1310x5	39x230	1510x5	39x230

2 PIPES								4 F	ROWS
Models		412C	420C	425C	435C	450C	460C	480C	490C
Nominal Air Flow (High/Medium/Low)	m³/h	254/215/ 176	369/321/ 240	445/330/ 250	677/545/ 380	811/663/ 456	1068/ 915/672	1300/ 1165/ 908	1450/ 1288/ 1120
Available Static Pressure	Pa								
Total Cooling Capacity ¹	kW	1.5	2.7	3.1	4.6	5.3	6.4	7.1	8.3
Total Sensible Capacity ¹	kW	1.1	1.7	2.1	2.8	3.7	5.0	5.5	5.8
Heating Capacity ²	kW	2.3	2.8	4.2	5.3	6.8	8.4	11.0	12.5
Water Flow Rate	l/s	0.073	0.098	0.149	0.193	0.251	0.304	0.397	0.409
Water Pressure Drop - Cooling	kPa	4	5	10	14	21	20	18	17
Lp (Sound Pressure Level)3	dB(A)	38/36/33	42/37/32	41/34/32	47/43/38	47/39/31	53/48/41	51/47/40	53/50/47
Power Supply	V/ph/Hz			220~240/1/50					
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply ⁴	kW	0.021	0.050	0.051	0.056	0.077	0.107	0.143	0.167
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total Volume	litres	1.0	056	1.5	545	2.0)33	2.	52
Weight [with Package]	kg	24	[26]	28	[30]	30	[33]	35	[39]
Weight with Cabinet [with Package]	kg	26	[27]	27] 31 [35		35	[40]	45	[50]
Dimens. unit (L x A x P)	mm	704x2	24x540	904x2	24x540	1104x224x540		1304x224x540	
Dimens. with Cabinet (L x A x P)	mm	910x5	39x230	1110x5	539x230	1310x5	39x230	1510x5	39x230

Notes:

- 1. At the following nominal conditions: nominal air flow; 7/12°C inlet/outlet water temperature; 27°C db/19°C wb inlet air temperature; High speed
- 2. At the following nominal conditions: nominal air flow 50°C inlet water temperature; 20°C inlet air temperature; Same water flow as for cooling; High speed
- 3. At High/Medium/Low speed; Nominal air flow; Measured in a room of 100m volume and 0.5 sec. reverberation time (e.g. office/conference room with carpet on the floor)
- 4. Nominal air flow; High fan speed

Technical Data

4 PIPES								3+1 R	ows
Models		012H	020H	025H	035H	050H	060H	080H	090H
Nominal Air Flow (High/Medium/Low)	m³/h	254/215/ 176	369/321/ 240	445/330/ 250	677/545/ 380	811/663/ 456	1068/ 915/672	1300/ 1063/ 824	1450/ 1248/ 1078
Available Static Pressure	Pa								
Total Cooling Capacity⁵	kW	1.2	1.8	2.5	3.5	4.6	5.7	6.9	8.0
Total Sensible Capacity⁵	kW	0.9	1.4	1.7	2.5	3.4	4.4	4.9	5.2
Water Flow Rate	l/s	0.057	0.084	0.118	0.165	0.219	0.271	0.32	0.345
Water Pressure Drop - Cooling	kPa	4	5	8	15	26	16	15	17
Heating Capacity ⁶	kW	2.3	2.9	4.3	5.6	7.0	8.6	12.0	13.0
Water Flow Rate	l/s	0.057	0.071	0.104	0.137	0.172	0.209	0.216	0.339
Water Pressure Drop - Heating	kPa	11	18	30	18	35	40	24	14
Lp (Sound Pressure Level) ⁷	dB(A)								
Power Supply	V/ph/Hz				220~24	40/1/50			
Fan N°.	n°	1	1	2	2	2	2	3	3
Max Power Supply ⁴	kW	0.021	0.050	0.051	0.056	0.077	0.107	0.140	0.161
Cond. Drain Connections	mm	20	20	20	20	20	20	20	20
Water Connections	inches	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Total Volume	litres	[0.792 +	- 0.264]	[1.158 +	0.386]	[1.525 +	0.508]	[1.89 +	0.63]
Weight [with Package]	kg	24 [26]	28 [30]	30 [33]	35 [39]
Weight with Cabinet [with Package]	kg	26 [27]	31 [35]	35 [40]	45 [50]
Dimens. unit (L x A x P)	mm	704x22	24x540	904x22	4x540	1104x224x540		1304x224x540	
Dimens. with Cabinet (L x A x P)	mm	910x53	39x230	1110x5	39x230	1310x5	39x230	1510x5	39x230

Notes:

- 1. Nominal air flow; High fan speed
- 2. At the following nominal conditions: nominal air flow; 7/12°C inlet/outlet water temperature; 27°C db/19°C wb inlet air temperature; High speed
- 3. At the following nominal conditions: nominal air flow; 70/60 °C inlet/outlet water temperature; 20°C inlet air temperature; High speed
- 4. At High/Medium/Low speed; nominal air flow; measured in a room of 100 m volume and 0.5 sec. reverberation time (e.g. office/conference room with carpet on the floor)

Sound Level

2 PI	PES										3	ROWS
Madal	Connect			1/1 Oct	ave Soun	d Pressui	e Level			Lw	Lp	NR
Model	Speed	63Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	{dB(A)}	{dB(A)}	INH
	High	50.7	50.7	49.2	44.3	39.6	34.7	27.6	23.8	46.0	38.0	33.0
012C	Medium	48.9	48.9	46.7	41.7	36.6	30.2	23.6	22.5	43.5	35.5	30.0
	Low	47.1	47.1	44.4	39.1	32.8	25.8	20.5	22.4	40.5	32.5	28.0
	High	51.3	51.3	51.7	48.6	44.4	38.6	30.8	25.8	50.0	42.0	37.0
020C	Medium	48.0	48.0	47.1	43.8	38.0	30.2	22.8	23.8	44.5	36.5	32.0
	Lo w	45.3	45.3	43.3	39.0	32.2	24.0	19.3	22.8	40.0	32.0	28.0
	High	51.4	51.4	52.0	48.1	44.4	38.6	31.5	26.0	50.0	42.0	37.0
025C	Medium	46.9	46.9	46.1	42.4	36.9	29.2	21.8	22.7	43.0	35.0	31.0
	Low	45.4	45.4	43.6	39.1	32.6	24.5	19.2	22.6	40.0	32.0	28.0
	High	57.1	57.1	57.3	53.3	50.2	45.8	39.4	33.0	55.5	47.5	43.0
035C	Medium	53.2	53.2	53.7	50.0	46.2	41.2	33.8	27.8	51.5	43.5	39.0
	Low	48.9	48.9	49.2	45.6	40.7	34.4	26.0	23.6	47.0	38.5	34.0
	High	54.7	54.7	55.6	53.2	50.8	45.0	34.0	26.4	23.8	47.0	39.0
050C	Medium	48.7	48.7	48.1	45.9	41.4	34.0	26.4	23.8	47.0	39.0	35.0
	Low	47.8	47.8	41.6	37.5	30.1	21.7	19.5	23.1	39.0	31.0	26.0
	High	60.4	60.4	60.5	58.2	57.1	52.2	47.2	40.5	61.0	53.0	51.0
060C	Medium	56.1	56.1	55.4	53.3	51.8	46.4	40.7	33.7	56.0	48.0	44.0
	Low	53.2	53.2	49.5	47.6	44.6	38.1	31.8	26.8	49.0	41.5	38.0
	High	17.6	27.8	41.9	44.7	46.3	45.6	39.5	33.6	43.3	51.3	47.0
080C	Medium	15.9	24.6	38.3	41.4	42.6	41.2	34.4	27.7	39.4	47.4	42.0
	Low	13.6	19.5	32.8	35.4	35.8	33.2	25.2	18.2	32.7	40.7	37.0
	High	17.6	29.5	43.9	46.3	48.2	47.6	41.6	36.6	45.2	53.2	48.0
090C	Medium	16.2	27.2	41.1	44.1	45.7	44.9	38.4	33.1	42.6	50.6	46.0
	Low	16.0	24.3	38.1	41.2	42.2	40.7	33.9	28.0	39.1	47.1	42.0

2 PIP	ES										4	ROWS
Madal	Casad			1/1 Oct	ave Soun	d Pressui	e Level			T m(dD(V))	L n(dD(A))	NR
Model	Speed	63Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Lw{dB(A)}	Lp{dB(A)}	INK
	High	50.3	50.3	48.8	43.9	39.2	34.3	27.2	23.4	46.0	38.0	33.0
412C	Medium	48.9	48.9	46.7	41.7	36.6	30.2	23.6	22.5	43.5	35.5	30.0
	Low	46.9	46.9	44.2	38.9	32.6	25.6	20.3	22.2	40.5	32.5	27.0
	High	51.5	51.5	51.9	48.8	44.6	38.8	31.0	26.0	50.0	42.0	38.0
420C	Medium	48.7	48.7	47.8	44.5	38.7	30.9	23.5	24.5	45.0	37.0	33.0
	Low	45.7	45.7	43.7	39.4	32.6	24.4	19.7	23.2	40.5	37.0	33.0
	High	50.7	50.7	.51.1	48.0	43.8	38.0	30.2	25.2	49.0	41.0	37.0
425C	Medium	46.2	46.2	45.3	42.0	36.2	28.4	21.0	22.0	43.0	34.5	31.0
	Low	45.0	45.0	43.0	38.7	31.9	23.7	19.0	22.5	39.5	31.5	27.0
	High	56.5	56.5	57.3	52.8	49.5	44.8	38.4	32.1	55.0	47.0	42.0
435C	Medium	52.9	52.9	53.7	49.5	45.5	40.2	33.0	27.3	51.5	43.0	38.0
	Low	48.7	48.7	49.0	45.2	40.2	33.6	25.7	24.1	46.0	38.0	34.0
	High	54.7	54.7	55.6	53.2	50.8	45.0	38.7	31.2	55.5	47.0	43.0
450C	Medium	48.7	48.7	48.1	45.9	41.4	34.0	26.4	23.8	47.0	39.0	35.0
	Low	48.1	48.1	41.9	37.8	30.4	22.0	19.8	23.4	39.0	31.0	26.0
	High	60.4	60.4	60.5	58.2	57.1	52.2	47.2	40.5	61.0	53.0	51.0
460C	Medium	56.1	56.1	55.4	53.3	51.8	46.4	40.7	33.7	56.0	48.0	44.0
	Low	53.2	53.2	49.5	47.6	44.6	38.1	31.8	26.8	49.0	41.5	38.0
	High	19.2	27.6	41.6	44.8	46.2	45.1	39.0	33.9	43.1	51.1	46.0
480C	Medium	18.6	24.5	37.9	41.7	42.2	40.7	34.1	28.3	39.2	47.2	42.0
	Low	14.8	19.6	32.3	35.6	35.6	32.9	25.3	18.9	32.6	40.6	36.0
	High	19.6	28.8	43.4	45.7	47.7	46.8	40.8	35.4	44.6	52.6	47.0
490C	Medium	18.9	26.9	40.7	43.6	45.3	44.1	37.8	31.8	42.1	50.1	45.0
	Low	16.8	24.5	37.7	40.9	41.9	40.3	33.5	27.1	38.8	46.8	42.0

Sound Level

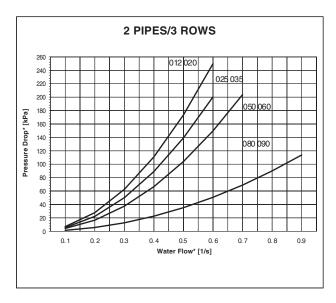
4 PIP	ES										3+1	ROWS
Madal	Conned			1/1 Oct	ave Soun	d Pressur	e Level			L(4D(A))	T = (= D(A))	ND
Model	Speed	63Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Lw{dB(A)}	Lp{dB(A)}	NR
	High	50.3	50.3	48.8	43.9	39.2	34.3	27.2	23.4	46.0	38.0	33.0
412C	Medium	48.9	48.9	46.7	41.7	36.6	30.2	23.6	22.5	43.5	35.5	30.0
	Low	46.9	46.9	44.2	38.9	32.6	25.6	20.3	22.2	40.5	32.5	27.0
	High	51.5	51.5	51.9	48.8	44.6	38.8	31.0	26.0	50.0	42.0	38.0
420C	Medium	48.7	48.7	47.8	44.5	38.7	30.9	23.5	24.5	45.0	37.0	33.0
	Low	45.7	45.7	43.7	39.4	32.6	24.4	19.7	23.2	40.5	37.0	33.0
	High	50.7	50.7	.51.1	48.0	43.8	38.0	30.2	25.2	49.0	41.0	37.0
425C	Medium	46.2	46.2	45.3	42.0	36.2	28.4	21.0	22.0	43.0	34.5	31.0
	Low	45.0	45.0	43.0	38.7	31.9	23.7	19.0	22.5	39.5	31.5	27.0
	High	56.5	56.5	57.3	52.8	49.5	44.8	38.4	32.1	55.0	47.0	42.0
435C	Medium	52.9	52.9	53.7	49.5	45.5	40.2	33.0	27.3	51.5	43.0	38.0
	Low	48.7	48.7	49.0	45.2	40.2	33.6	25.7	24.1	46.0	38.0	34.0
	High	54.7	54.7	55.6	53.2	50.8	45.0	38.7	31.2	55.5	47.0	43.0
450C	Medium	48.7	48.7	48.1	45.9	41.4	34.0	26.4	23.8	47.0	39.0	35.0
	Low	48.1	48.1	41.9	37.8	30.4	22.0	19.8	23.4	39.0	31.0	26.0
	High	60.4	60.4	60.5	58.2	57.1	52.2	47.2	40.5	61.0	53.0	51.0
460C	Medium	56.1	56.1	55.4	53.3	51.8	46.4	40.7	33.7	56.0	48.0	44.0
	Low	53.2	53.2	49.5	47.6	44.6	38.1	31.8	26.8	49.0	41.5	38.0
	High	19.2	27.6	41.6	44.8	46.2	45.1	39.0	33.9	43.1	51.1	46.0
480C	Medium	18.6	24.5	37.9	41.7	42.2	40.7	34.1	28.3	39.2	47.2	42.0
	Low	14.8	19.6	32.3	35.6	35.6	32.9	25.3	18.9	32.6	40.6	36.0
	High	19.6	28.8	43.4	45.7	47.7	46.8	40.8	35.4	44.6	52.6	47.0
490C	Medium	18.9	26.9	40.7	43.6	45.3	44.1	37.8	31.8	42.1	50.1	45.0
	Low	16.8	24.5	37.7	40.9	41.9	40.3	33.5	27.1	38.8	46.8	42.0

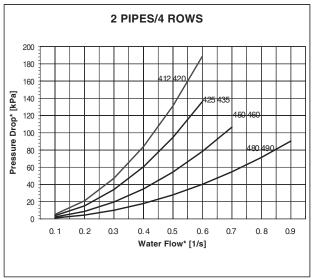
Sound pressure level and NR are measured to a room of 100m³ volume and 0.5 sec. reverberation time (e.g. office/conference room with carpet on the floor).

Operating Limits and Pressure Drops

OPERATING LIMITS	MFU/MFC
Water circuit	
Maximum water-side pressure	16.4 kg/cm2
Minimum entering water temperature	3°C (cooling)
Maximum entering water temperature	80°C (heating)
Room air	
Minimum temperature	16°C (10°C opational for MFU)
Maximum temperature	30°C
Power supply	
Nominal single-phase voltage	220~240 V/50 Hz
Wire size	AWG18 (or 1mm²)

Pressyre Drops

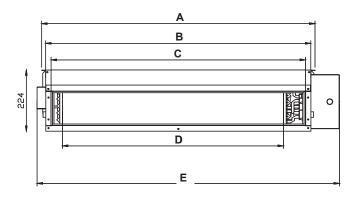


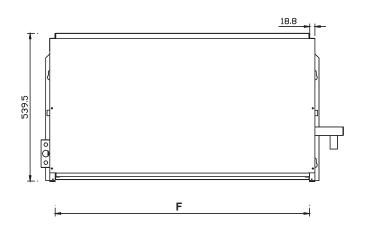


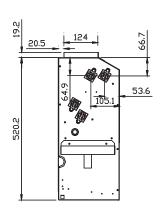
^{*}The pressure drop is for coil only and excludes water connections and valves.

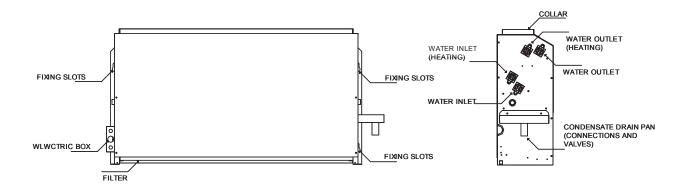
Outlines and Dimensions

MFC – C/H	012/020 412/420	025/035 425/435	050/060 450/460	080/090 480/490
А	598	798	998	1198
В	568	768	968	1168
С	526	726	926	1126
D	407	607	807	1007
E	704	904	1104	1304
F	529	729	929	1129



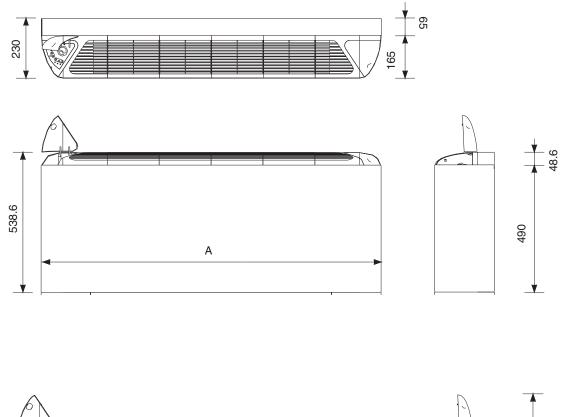


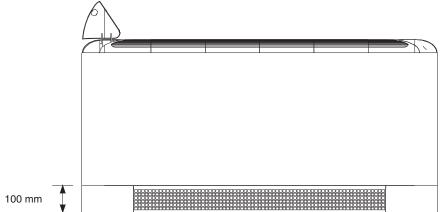


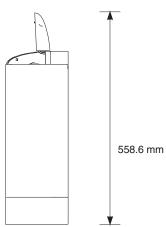


Outlines and Dimensions

MFU – C/H	012/020	025/035	050/060	080/090
	412/420	425/435	450/460	480/490
Α	910	1110	1310	1510







Height = 100 mm from the wall for:
- Feet (cover and/or support)

- Base module
- Frontal air intake module
- External air intake module

Installation of MFU/MFC Unit

Portage

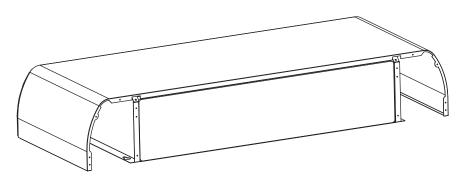
- 1. When unpacking, Units can not be taken out, instead to pull out the carton box upwards; Please do not lay the unit down or turn the unit up and down; Do not handle the unit through the cabinet, which will cause the damage of cabinet;
- 2. When moving the unit , please to handle it through the cross beam; Do not try to move the unit through the cabinet , which will cause the damage of cabinet;
- 3. After the unit is moved in position for installation, start to install the aesthetic feet, support (refer to the accessory installation instruction);

Accessory list of MFU/MFC series

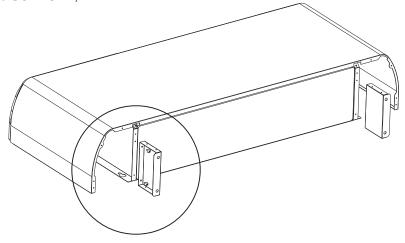
Access	ory Box	MFU-AC-FT-O MFU-AC-FT-S		MFU-	AC-GR	
Installatio	Installation Method Aesthetic Feet L/R		Support	M4 Selftappping Screw	Inlet Grille	M5 finepitch Screw
NATIL	Type A	1 SET(L/R)	2 EA	12 EA	1 EA	2 EA
MFU	Type B	1 SET(L/R)	2 EA	12 EA		
MFC			2 EA	4 EA		

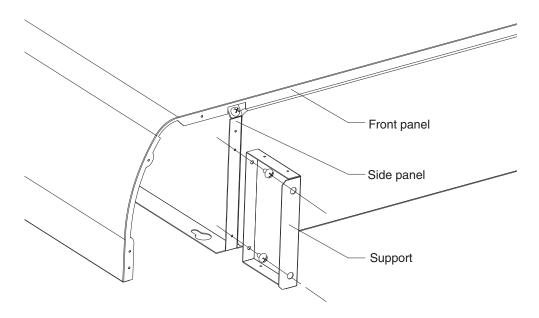
· Accessory installation of MFU/MFC unit

1. Before installation, lay down the unit with cabinet upwards;



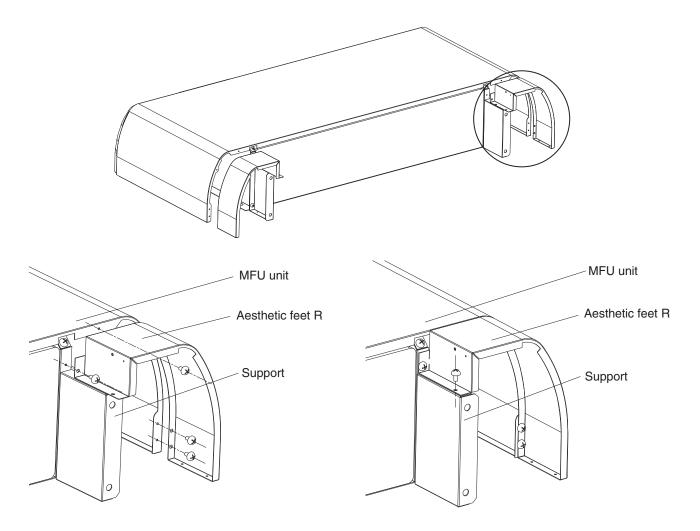
2. Step one: Install the SUPPORT;





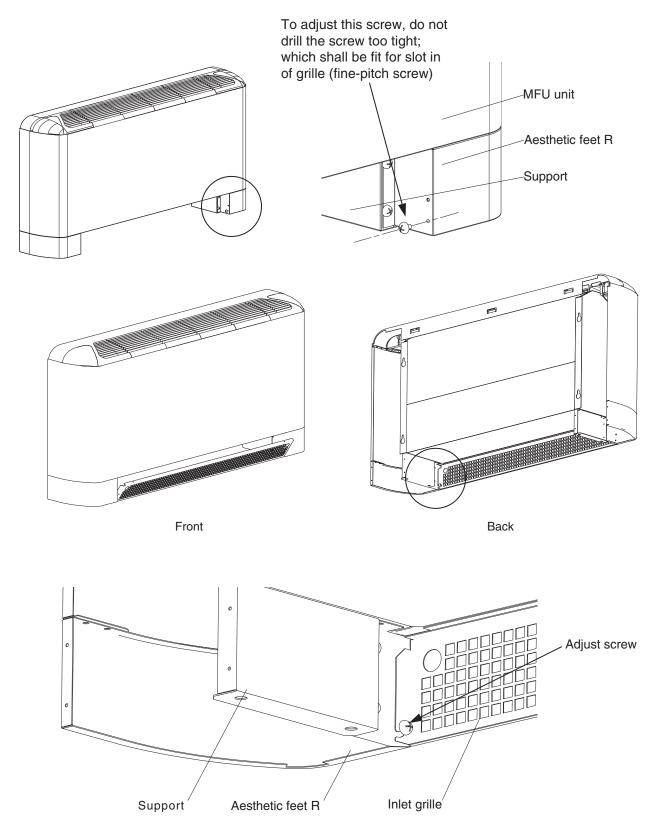
As shown as the above drawings, to drill the screw to fix the support with core units;

3. Step two: To install the AESTHETIC FEET (L/R);



As shown as above, to connect the aesthetic feet and support as above; (Left and right are the same way);

4. Step 3: to install the GRILLE (only applied for type A);

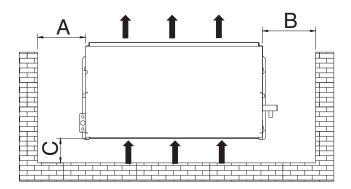


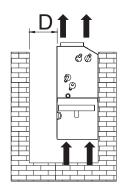
To fix the grille please slot the grille into the fixing screw (shown as the above view) , to adjust the tightness of screw and ensure the rotate of grille fixed with screw;

Preliminary Site Survey

- A place protected from rain, direct sunlight and well-ventilated wherever practicable.
- A place capable of bearing the weight of the outdoor unit and isolating noise and vibration.
- A place where there are no obstruction of air flow into or out the unit.
- Do not put any object which may become obstacle for the air flow into or out the unit.
- The location must not be susceptible to high concentration dust, oil, salt or sulfide gas.

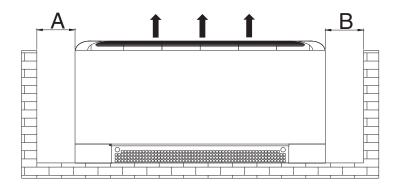
MFC Series

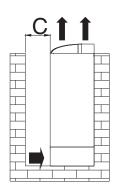




ALL UNITS	Α	В	С	D
Min. Distance (mm)	500	500	100	500

MFU Series





ALL UNITS	А	В	С
Min. Distance (mm)	300	300	500

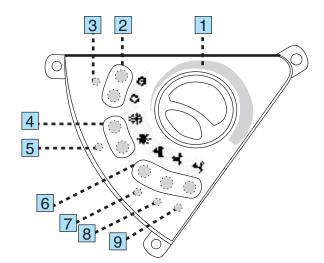
Control Features

Electronic Controller AC2800B



Location	On board
Models	Standard for MFU series, all versions
Davamatava	Temperature operation range:
Parameters	16-30°C
	On/Off
	Cool/Heat Mode
Main Franchisms	Fan speed (HIGH/MEDIUM/LOW)
Main Functions	Cold draft protection (Heat Mode)
	Sensor failure alarm (auto-diagnosis)
	2 or 3 ways valve with ON/OFF control
Integration into FCU Network	
Integration with Smart Manager	

- 1. Potentiometer for temperature regulation
- 2. On/Off keys
- 3. On/Off LED
- 4. Heating/Cooling mode keys
- 5. Heating/Cooling mode LED
- 6. Fan Speed selection keys
- 7. Fan Speed LED (HIGH)
- 8. Fan Speed LED (MEDIUM)
 9. Fan Speed LED (LOW)

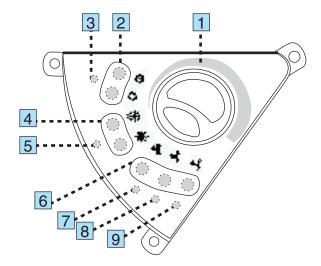


Electronic Controller AC2800 (Optional)



Location	On board
Models	MFU series, all versions
Parameters	Selectable temperature operation range:
Farameters	10-30°C or 16-30°C
	On/Off
	Cool/Heat mode
Main Functions	Fan speed (HIGH/MEDIUM/LOW)
	Sensor failure alarm (auto-diagnosis)
	2 or 3 ways valve with ON/OFF control
Integration into FCU Network	Direct connection
Integration with Smart Manager	Direct connection

- 1. Potentiometer for temperature regulation
- 2. On/Off keys
- 3. On/Off LED
- 4. Heating/Cooling mode keys5. Heating/Cooling mode LED
- 6. Fan Speed selection keys
- 7. Fan Speed LED (HIGH)
- 8. Fan Speed LED (MEDIUM)
- 9. Fan Speed LED (LOW)



Auto-diagnosis

LED Blinking 7: Ambient temperature sensor incorrect operation.

LED Blinking 8: Water temperature sensor incorrect operation.

LED Blinking 5: Fan Coil/Chiller conflicting mode selection (when the system works on cool mode and the water temperature is above 25°C, or when the system works on heat mode and the water temperature is blow 25°C, the system conside it as the mode conflict, at the same time, the system will shut off all outputs and the LED will blink.)

Electronic Thermostat AC8000 + Remote Controller AC5300



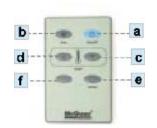


Location	Wall mounted
Models	All models; All versions
Darameters	Temperature operation range:
Parameters	16-30°C
	On/Off
	Cool/Heat mode
	Fan speed (HIGH/MEDIUM/LOW)
	Auto Fan Speed selection
	[available from December 2004]
Main Functions	Date/Time setting
	Sensor failure alarm (auto-diagnosis)
	Timer with 2 daily setting (14 weekly)
	Cold draft protection
	2 or 3 ways valve with ON/OFF control
	Remote control – max. distance: 2.5 meters
Integration into FCU Network	Connection through AC8000C controller
integration into 1 CO Network	Direct connection [available from December 2004]
Integration with Smart Manager	Connection through AC8000C controller
integration with Smart Manager	Direct connection [available from December 2004]

- 1. On/Off key
- 2. Heating/Cooling mode key
- 3. Clock/Timer setting
- 4. Fan speed selection key (HIGH/MEDIUM/LOW)
- 5. Temperature up key
- 6. Temperature down key
- 7. Back-light LCD display
- a. On/Off key
- b. Fan speed selection key (HIGH/MEDIUM/LOW)
- c. Temperature up key
- d. Temperature down key
- e. Heating/Cooling mode key
- f. Clock/Timer setting

E00: Ambient temperature sensor open E01: Ambient temperature sensor short





Mechanical Thermostat AC512/AC513



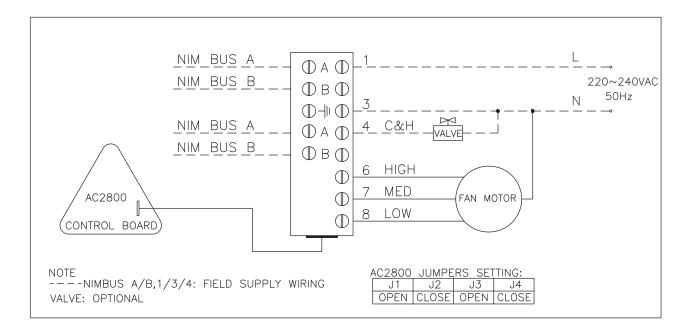
Location	Wall mounted
	All models
Models	AC512: 2 Pipes version
	AC513: 4 Pipes version
Dorometers	Temperature operation range:
Parameters	10-30°C
Main Functions	On/Off
Main Functions	2 or 3 ways valve with ON/OFF control
Integration into FCU Network	
Integration with Smart Manager	

- Potentiometer for temperature regulation
 Fan speed keys (HIGH/MEDIUM/LOW)
 Heating/Cooling mode buttons

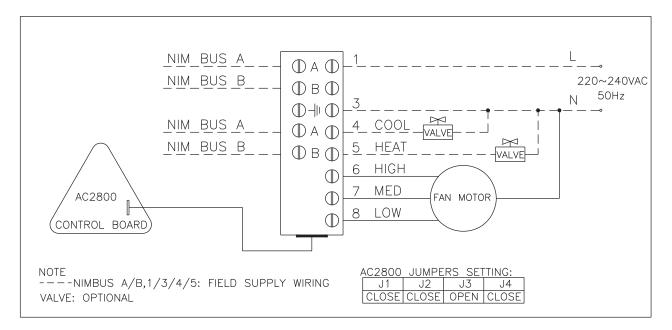


Wiring Diagrams

MFU - C0 - BCE	012/020/025/035/050/060/080/090
MFU - CU - BCE	412/420/425/435/450/460/480/490

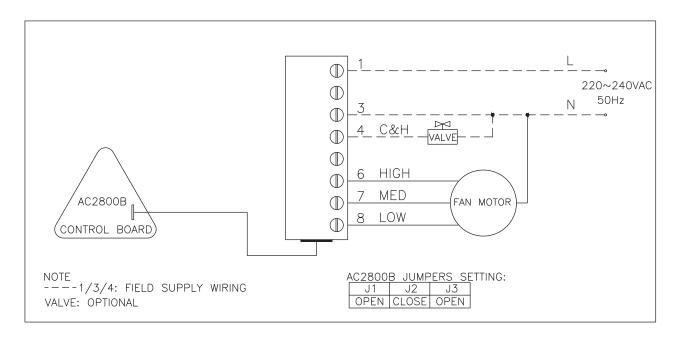


MFU – H0 – BCE 012/020/025/035/050/060/080/090

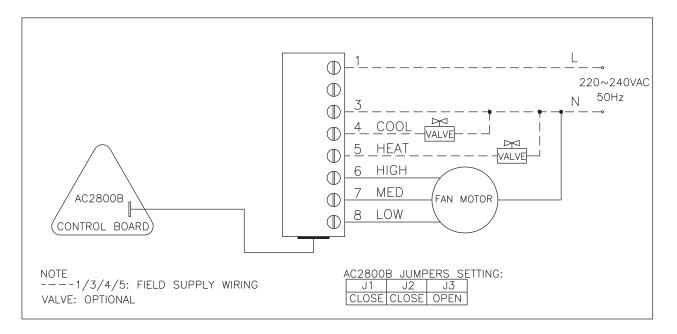


Wiring Diagrams

MFU - C0 - BCM	012/020/025/035/050/060/080/090
WFU - CU - BCW	412/420/425/435/450/460/480/490



MFU - H0 - BCM	012/020/025/035/050/060/080/090
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Water Temperature Air Temperature			12	02			25		35		50		60		80		90		
Water Te	mperature	Air Tem	perature	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity								
IN	Out	DB	WB	Total	Sens	Total	Sens	Total	Sens	Total	Sens								
°C	°C	°C	°C	[kW]	[kW]	[kW]	[k W]	[kW]	[k W]	[kW]	[kW]	[kW]	[kW]	[kW]	[k W]	[kW]	[k W]	[kW]	[k W]
3	6	21	15	1.40 1.22	1.02 0.89	1.91 1.57	1.42 1.15	2.66 1.96	1.80	3.58 3.00	1.49 2.08	4.72 4.01	3.40 2.87	6.00 5.33	4.43 3.89	6.96 6.18	5.05 4.43	8.10 7.20	5.54 4.86
<u> </u>	0	21	13	1.01	0.74	1.50	0.86	1.50	1.03	2.25	1.56	2.87	2.03	4.17	2.99	4.84	3.41	5.63	3.74
3	8	21	15	1.05 0.93	0.86 0.75	1.44	1.20 0.99	2.22 1.66	1.57 1.19	2.91 2.47	2.17 1.83	4.03 3.47	3.07 2.61	5.03 4.52	3.98 3.51	5.83 5.24	4.54 4.00	6.79 6.10	4.98 4.39
	0	21	13	0.93	0.73	0.93	0.76	1.29	0.93	1.89	1.39	2.55	1.87	3.62	2.73	4.20	3.11	4.89	3.41
3	10	21	15	0.68	0.68	0.98	0.98	1.70	1.33	2.15	1.82	3.24	2.71	3.95	3.51	4.58	4.00	5.33	4.39
3	10	21	13	0.61 0.52	0.61 0.52	0.82	0.82	1.30	1.02 0.81	1.87 1.47	1.55 1.20	2.84	2.32 1.69	3.62 2.99	3.11 2.44	4.20 3.47	3.55 2.78	4.89 4.04	3.89
5	8	21	15	1.14 0.99	0.90 0.78	1.54 1.28	1.25	2.25 1.65	0.59 1.18	2.97 2.50	2.20 1.84	3.91 3.34	3.01 2.55	4.91 4.39	3.93 3.45	5.70 5.09	4.48 3.93	6.63 5.93	4.91 4.31
	0	21	13	0.83	0.65	0.98	0.77	1.26	0.92	1.88	1.39	2.41	1.81	3.46	2.66	4.01	3.03	4.67	3.33
5	10	21	15	0.59	0.74 0.65	1.06 0.92	1.04 0.86	1.78	1.36	2.27 1.95	1.88 1.59	3.17 2.76	2.69 2.29	3.89 3.54	3.48 3.08	4.51 4.11	3.97 3.51	5.25 4.78	4.35 3.85
	10	21	10	0.09	0.55	0.52	0.66	1.04	0.81	1.51	1.21	2.06	1.65	2.89	2.40	3.35	2.74	3.90	3.00
5	12	21	15	0.55	0.55 0.49	0.80	0.80	1.20 0.93	1.11 0.86	1.52 1.30	1.52 1.30	2.32	2.32 1.99	2.98 2.65	2.98 2.65	3.46	3.40	4.02 3.58	3.73 3.31
	12	21	15	0.49	0.49	0.53	0.53	0.93	0.68	1.04	1.01	1.62	1.45	2.05	2.00	2.54	2.39	2.96	2.63
7	10	21	15	0.86 0.75	0.77 0.68	1.15 0.97	1.08 0.88	1.80 1.32	1.37	2.33 1.96	1.90 1.59	3.02 2.61	2.62	3.72 3.36	3.42 3.00	4.32 3.90	3.90 3.42	5.02 4.54	4.28 3.75
	10	21	15	0.75	0.56	0.97	0.66	1.00	0.80	1.48	1.20	1.90	1.58	2.70	2.32	3.13	2.64	3.65	2.90
7	12	21	15	0.60 0.53	0.60	0.86 0.71	0.86 0.71	1.28 0.96	1.14 0.87	1.57	1.57	2.28 1.98	2.28 1.95	2.94 2.61	2.94	3.41	3.35	3.97	3.68
	14	۷1	10	0.45	0.52 0.45	0.55	0.55	0.75	0.69	1.36 1.07	1.33	1.51	1.41	2.07	2.61 2.07	3.03 2.40	2.98 2.36	3.52 2.79	3.26 2.59
7	14	21	15	0.41 0.37	0.41	0.62	0.62 0.52	0.86	0.86	1.18	1.18 1.02	1.87 1.61	1.87	2.40	2.40 2.15	2.78 2.49	2.74	3.24 2.90	3.00
	14	۷۱	10	0.32	0.37	0.52 0.41	0.41	0.67 0.54	0.67 0.54	1.02 0.80	0.50	1.19	1.61 1.19	2.15 1.71	1.71	1.98	2.45 1.95	2.31	2.69 2.14
9	12	21	15	0.64	0.64	0.89 0.73	0.89 0.73	1.30 0.95	1.15	1.60 1.36	1.60 1.34	2.21 1.87	2.21 1.87	2.86 2.52	2.86 2.52	3.32	3.26 2.87	3.86	3.58 3.15
	12	۷۱	10	0.56 0.47	0.56 0.47	0.73	0.73	0.95	0.86 0.67	1.36	1.34	1.87	1.87	1.96	1.96	2.92 2.27	2.23	3.40 2.65	2.45
9	14	21	15	0.46 0.41	0.46	0.67	0.67	0.90	0.90	1.23	1.23	1.84	1.84	2.37	2.37	2.75	2.70	3.20	2.96
9	14	21	15	0.41	0.41	0.56 0.43	0.56	0.69 0.55	0.69 0.55	1.05 0.82	1.05 0.82	1.57 1.15	1.57 1.15	2.10 1.66	2.10 1.66	2.44 1.93	2.39 1.89	2.84	2.63
	10	21	15	0.26	0.26	0.42	0.42	0.59	0.59	0.82	0.82	1.39	1.39	1.79	1.79	2.08	2.04	2.42	2.24
9	16	21	15	0.24	0.24	0.36 0.29	0.36	0.47	0.47	0.72 0.57	0.72 0.57	1.21 0.90	1.21 0.90	1.61 1.29	1.61 1.29	1.87 1.50	1.84 1.47	2.17 1.74	2.01
	14	21	15	0.50	0.50	0.70	0.70	0.91	0.91	1.25	1.25	1.77	1.77	2.28	2.28	2.64	2.60 2.30	3.08	2.85 2.53
11	14	21	15	0.44	0.44	0.58 0.44	0.58	0.69 0.54	0.69 0.54	1.06 0.81	1.06 0.81	1.50 1.08	1.50 1.08	1.57	1.57	2.34 1.82	1.79	2.73	1.96
11	16	21	15	0.88	0.80	1.37	1.37	1.77	1.77	0.31	0.31	0.47	0.47	0.64	0.64	0.74	0.73	0.86	0.80
- 11	10	21	15	0.76 0.60	0.76 0.60	1.18 0.87	1.18 0.87	1.58 1.25	1.58 1.25	0.28 0.24	0.28 0.24	0.40	0.40 0.31	0.50 0.40	0.50 0.40	0.58 0.46	0.57	0.68 0.54	0.63 0.50
11	18	21	15	0.11	0.11	0.21 0.19	0.21	0.28	0.28	0.42	0.42	0.85 0.75	0.85 0.75	1.12	1.12	1.30 1.18	1.28 1.16	1.51	1.40 1.28
- ''	10	21	13	0.10	0.10	0.19	0.19	0.23	0.19	0.31	0.31	0.75	0.58	0.83	0.83	0.96	0.95	1.12	1.26
3	6	23	17	1.77 1.54	1.14 0.99	2.42 1.98	1.58 1.29	3.26 2.39	2.00 1.48	4.43 3.70	2.78 2.32	5.85 4.96	3.76 3.17	7.51 6.63	4.91 4.30	8.71 7.69	5.60 4.90	10.14 8.95	6.14 5.38
3	0	23	17	1.27	0.82	1.49	0.96	1.83	1.15	2.76	1.74	3.52	2.24	5.15	3.30	5.97	3.76	6.95	4.13
3	8	23	17	1.43 1.26	0.99	1.96 1.64	1.38	2.84	1.79	3.79 3.20	2.47	5.19 4.44	3.45 2.92	6.57 5.86	4.49 3.95	7.62 6.80	5.12 4.50	8.87 7.91	5.61 4.94
		20	.,	1.06	0.72	1.27	0.86	1.64	1.05	2.43	1.57	3.21	2.09	4.63	3.06	5.37	3.49	6.25	3.83
3	10	23	17	1.05 0.94	0.82 0.73	1.47 1.27	1.17 0.97	2.35 1.78	1.56 1.19	3.07 2.64	2.14 1.82	4.45 3.85	3.12 2.66	5.54 5.01	4.04 3.57	6.43 5.81	4.61 4.07	7.48 6.76	5.05 4.46
	10	20	.,	0.81	0.62	1.01	0.75	1.40	0.94	2.04	1.40	2.85	1.92	4.04	2.79	4.69	3.18	5.45	3.49
5	8	23	17	1.52	1.02 0.89	2.06 1.70	1.42	2.86	1.80	3.85 3.22	2.50 2.09	5.06 4.30	3.39 2.86	6.44 5.71	4.43 3.88	7.47 6.62	5.05 4.42	8.69 7.71	5.54 4.85
		20	17	1.09	0.74	1.28	0.87	1.60	1.03	2.41	1.56	3.07	2.02	4.46	2.89	5.17	3.29	6.02	3.61
5	10	23	17	1.16 1.03	0.87 0.77	1.60 1.35	1.22 1.01	2.42 1.80	1.59 1.20	3.18 2.70	2.19 1.85	4.36 3.76	3.08 2.62	5.47 4.91	4.01 3.53	6.35 5.70	4.57 4.02	7.38 6.63	5.01 4.41
	.0	20	.,	0.87	0.64	1.05	0.76	1.40	0.94	2.06	1.40	2.74	1.87	3.91	2.74	4.54	3.12	5.28	3.43
5	12	23	17	0.75 0.68	0.71 0.63	1.07 0.95	1.01 0.84	1.89 1.44	1.35	2.40	1.86 1.58	3.56 3.12	2.74 2.34	4.36 3.99	3.55 3.15	5.06 4.63	4.05 3.59	5.89 5.39	4.44 3.94
			.,	0.60	0.53	0.78	0.65	1.13	0.82	1.63	1.22	2.34	1.70	3.27	2.46	3.79	2.80	4.41	3.08
7	10	23	17	1.24	0.90 0.79	1.68	1.26	2.42 1.77	1.59 1.18	3.22 2.70	2.21 1.85	4.20 3.59	3.01 2.54	5.29 4.72	3.93 3.45	6.14 5.48	4.48 3.93	7.14 6.37	4.91 4.31
		_~	••	0.90	0.66	1.06	0.77	1.35	0.92	2.02	1.39	2.58	1.80	3.72	2.65	4.32	3.02	5.02	3.31
7	12	23	17	0.86	0.75 0.66	1.18	1.06 0.87	1.94 1.45	1.38	2.50 2.13	1.90 1.60	3.45 3.00	2.70 2.30	4.25 3.86	3.51 3.09	4.93 4.48	4.00 3.52	5.74 5.21	4.39 3.86
			.,	0.66	0.56	0.81	0.67	1.13	0.82	1.64	1.22	2.22	1.65	3.13	2.41	3.63	2.75	4.23	3.01
7	14	23	17	0.57 0.51	0.57 0.51	0.83 0.70	0.83	1.35 1.04	1.13 0.87	1.64 1.45	1.56 1.33	2.56 2.29	2.35	3.03 2.84	3.03 2.70	3.51 3.29	3.45	4.09 3.83	3.79 3.38
			.,	0.44	0.44	0.55	0.55	0.83	0.70	1.17	1.03	1.78	1.47	2.42	2.12	2.81	2.42	3.27	2.65
9	12	23	17	0.94	0.78 0.68	1.26 1.06	1.09 0.89	1.94 1.42	1.38	2.52 2.12	1.91 1.60	3.27 2.81	2.62	4.04 3.64	3.42 3.01	4.69 4.22	3.90 3.43	5.45 4.91	4.28 3.76
			••	0.69	0.57	0.82	0.67	1.08	0.80	1.60	1.21	2.04	1.58	2.91	2.32	3.38	2.64	3.93	2.90
9	14	23	17	0.62	0.62 0.55	0.88	0.88	1.42 1.06	1.16 0.88	1.74 1.51	1.59 1.35	2.45 2.17	2.30 1.96	2.98 2.70	2.98 2.64	3.46 3.13	3.40	4.02 3.65	3.73 3.30
	17	2.0	17	0.46	0.46	0.56	0.56	0.83	0.70	1.18	1.04	1.65	1.42	2.27	2.06	2.63	2.35	3.06	2.58
9	16	23	17	0.43	0.43	0.64 0.54	0.64	0.89	0.89	1.22	1.22	1.90 1.64	1.90 1.64	2.45 2.19	2.45 2.19	2.84 2.54	2.79	3.31 2.96	3.06 2.74
-	10	20	17	0.33	0.33	0.43	0.43	0.56	0.56	0.82	0.82	1.21	1.21	1.74	1.74	2.02	1.98	2.35	2.18
11	14	23	17	2.24 1.96	2.24 1.88	2.88 2.54	2.88	0.65 0.57	0.65 0.57	0.90 0.74	0.90 0.74	1.41	1.16 0.87	1.76 1.49	1.60 1.35	2.04 1.73	1.82 1.54	2.38	2.00 1.69
	17	2.0	17	1.46	1.34	2.03	1.97	0.47	0.47	0.56	0.56	0.78	0.68	1.13	1.02	1.31	1.16	1.53	1.28
11	16	23	17	0.48	0.48 0.42	0.68 0.57	0.68	0.92 0.71	0.92	1.26 1.08	1.26 1.08	1.86 1.59	1.86 1.59	2.40	2.40 2.13	2.78	2.74	3.24 2.88	3.00 2.66
	.0		.,	0.36	0.36	0.44	0.44	0.56	0.56	0.83	0.83	1.16	1.16	1.68	1.68	1.95	1.92	2.27	2.10
11	18	23	17	0.28	0.28 0.25	0.44	0.44	0.62	0.62	0.85 0.74	0.85 0.74	1.42	1.42 1.213	1.83 1.65	1.83 1.65	2.12 1.91	2.09 1.88	2.47	2.29
		~	••	0.23	0.23	0.30	0.30	0.49	0.49	0.74	0.59	0.92	0.92	1.32	1.32	1.53	1.50	1.78	1.65

Wilst Temperature Mart Temperature Mart Temperature Coloring Capachy Colo			012			0	20	0	25	035 050					60	08	30	0 90		
C	Water 7	Temperature	Air Tem	perature																
Section Proceeding	IN	Out					_				Ü		_		_			. ,	_	. ,
S	°C	°C	°C	°C	[k W]	[kW]	[kW]	[kW]	[k W]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
S	2	6	25	10			2.95													6.69
S	3	U	25	13																
1	2	0	OF.	10	12.83	1.11	2.52	1.54	3.48	1.99	4.72	2.75	6.41	3.80	8.20	4.95	9.51	5.64	11.07	6.19
10	3	8	25	19			2.09 1.59	1.26 0.95	2.59		3.97 2.99		5.45 3.91	3.21 2.29	7.27 5.68	4.35 3.35		4.96 3.82	9.81 7.67	
S					1.47	0.95	2.04	1.34	3.03	1.77	4.04	2.44	5.71	3.49	7.22	4.53	8.38	5.16	9.75	5.66
6 25 19 131 114 251 138 4.86 200 4.77 277 628 321 168 185 185 188 185 188 186 188 186 188 186 188 186 189 182 189 182 189 182 189 182 189 188 182 188 183 182 183	3	10	25	19																
5 8 8 8 9 19 166 099 144 158 126 146 138 20 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 6 7 5 1 5 6 6 7 5 1 5 6 6 7 5 1 5 6 6 7 5 1 5 6 6 7 5 1 5 6 7 5 6 7 5 7 5 6 7 5 7 5 6 7 5 7 5 7																				
S	5	8	25	19																5.35
S																				
S	5	10	25	19				1.14					4.79							4.94
5 12 25 19 10 0.72 1-22 390 186 120 220 18																				
7	5	12	25	19		0.74	1.42	0.99		1.20			4.20	2.67	5.48	3.59	6.36	4.09	7.40	4.49
Tol. Part																				
7 12 25 19 128 008 177 122 263 159 347 220 473 360 565 431 683 477 800 561 77 122 77 140 77 1	7	10	25	19	1.43	0.78	1.84	1.16	2.25	1.33	3.47	2.03	4.61	2.84	6.15	3.87	7.13	4.41	8.30	4.84
7 12																				
7 14 25 19 0.07 172 123 130 200 1377 208 188 331 278 488 338 5.59 4.09 5.51 4.68 3.68 1.09 1.00 1.00 1.00 1.00 1.00 1.00 1.00	7	12	25	19	1.14	0.77	1.49	1.02	1.95	1.20	2.94	1.86	4.07	2.61	5.33	3.53	6.18	4.02	7.20	4.41
7 14 25 19 0.776 0.64 10.80 0.68 1.59 10.50 2.21 10.0 3.42 2.28 4.38 3.17 5.59 3.81 5.50 3.56 1.67 1.67 1.67 1.67 1.67 1.67 1.67 1.6																				
9 12	7	14	25	19	0.78	0.64	1.08	0.86	1.59	1.05	2.31	1.60	3.42	2.36	4.39	3.17	5.09	3.61	5.93	3.96
9 12 25 19 108 079 152 103 191 118 222 155 337 233 510 344 522 32 689 439 439 191 118 222 155 337 233 510 344 522 32 689 439 439 191 191 191 191 191 191 191 191 191 1	<u> </u>																			
9 14 25 19 000 000 000 15 100 000 000 15 100 000 0	9	12	25	19																
9 14 25 19 0.66 0.67 1.14 0.89 1.59 1.05 2.34 1.62 3.27 2.30 4.27 3.10 4.90 3.33 5.70 3.88 1.07 1.25 0.62 1.50 1.50 1.25 0.62 1.50 1.25 0.62 1.50 1.25 0.62 1.50 1.25 0.62 1.50 1.50 1.50 1.25 0.62 1.50 1.50 1.25 0.62 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50					0.98	0.66	1.15	0.77	1.46	0.91	2.18	1.38	2.77	1.79	4.01	2.64	4.65	3.01	5.41	3.30
9 16 25 19 0.69 0.90 0.67 123 0.08 130 132 241 1.66 3.41 241 3.39 275 4.60 3.01 3.01 9 16 25 19 0.08 0.08 0.08 1.08 1.07 1.08 1.07 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08	9	14	25	19										2./1						
9 16 25 19 0.63 0.35 0.72 0.72 1.17 0.89 1.65 1.35 2.55 2.03 3.18 2.72 3.99 3.10 4.29 3.40 1.11 1.4 25 19 1.00 0.08 1.30 1.00 1.00 1.00 1.00 1.00 1.00 1.00					0.73	0.56	0.90	0.67	1.23	0.82	1.80	1.23	2.41	1.65	3.41	2.41	3.96	2.75	4.60	3.01
11 14 25 19 0.66 0.65 0.69 0.70 1.32 1.16 1.58 1.48 2.89 2.14 3.12 2.44 3.83 2.89 11 14 25 19 0.00 0.68 1.16 0.89 1.54 1.03 2.71 1.15 2.16 1.05 1.58 2.89 1.48 2.89 2.14 3.12 2.44 3.12 2.44 3.12 2.44 3.12 2.44 3.12 3.14 1.05 1.05 2.14 1.05 1.05 2.14 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05	9	16	25	19																3.84
11 14 25 19 0.90 0.68 1.16 0.89 1.54 1.03 2.31 1.60 3.05 2.21 3.86 3.00 4.59 3.42 5.35 3.75 11 16 25 19 0.66 0.67 0.67 1.77 1.08 1.18 1.12 2.21 1.28 1.27 3.16 2.31 3.67 2.68 4.27 3.35 11 16 25 19 0.66 0.67 0.67 0.77 1.77 1.18 1.18 1.27 2.29 2.27 3.60 3.00 3.00 3.00 3.00 3.00 3.00 11 18 25 19 0.66 0.67 0.67 0.67 0.97 0.97 0.97 0.97 0.97 0.97 11 18 25 19 0.66 0.45 0.67 0.67 0.97 0.97 0.97 0.97 0.97 0.97 10 0.67 0.68 0.47 0.68 0.67 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 10 0.68 0.47 0.68 0.67 0.67 0.67 0.67 0.67 0.67 0.67 0.67 0.67 11 18 25 19 0.46 0.45 0.56 0.65 0.67 0.67 0.67 0.67 0.67 0.67 10 0.68 0.47 0.48 0.44 0.44 0.57 0.68 0.6					0.45	0.45	0.60	0.56	0.93	0.70	1.32	1.05	1.96	1.48	2.69	2.14	3.12	2.44	3.63	2.68
11 16 25 19 0.63 0.63 0.90 0.00 1.57 1.77 0.80 1.74 1.21 2.21 1.57 1.86 2.31 3.67 2.03 4.22 2.28 1.17 1.17 1.06 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0	11	14	25	19			1.39							2.62						
11							0.90	0.67			1.74		2.21	1.57	3.16				4.27	2.89
11 18 25 19 0.46 0.47 0.62 0.57 0.91 0.70 1.31 1.05 1.91 1.42 2.50 2.07 2.00 2.38 3.38 2.29 1.00 1	11	16	25	19										2.32	3.24					
11 18 25 19 0.45 0.46 0.67 0.67 0.97 0.91 0.91 1.25 1.25 1.34 1.94 2.49 2.49 2.49 2.48 3.36 3.31 1.77 1.05 1			20				0.75						1.81		2.50	2.03			3.38	2.59
0.35 0.36 0.44 0.044 0.057 0.084 0.084 0.084 1.28 1.23 1.77 1.77 2.06 2.02 2.99 2.21 3 6 27 19 1.08 1.22 2.41 1.58 2.89 1.80 4.49 2.83 5.95 3.83 7.99 5.52 9.27 5.95 10.79 6.35 3 8 27 19 1.05 1.10 1.1	11	18	25	19		0.45	0.67	0.67	0.91		1.25	1.25	1.94	1.94	2.49	2.49	2.89	2.84	3.36	
Second Process of Second Pro			20												1.77				2.39	
1,55	2	6	07	10	2.17	1.40	2.96	1.94	3.95	2.44	5.40	3.40	7.05	4.56	9.06	5.97	10.51	6.81	12.23	7.46
8	3	0	21	19									5.95 4.20							4.99
1.55	2	0	07	10	1.85	1.26	2.53	1.75	3.56	2.24	4.79	3.10	6.42	4.27	8.16	5.57	9.47	6.35	11.02	6.96
1	3	0	21	19				1.43						2.56	7.25 5.68	4.89 3.77		5.57 4.30		
1.12		40	07	40	1.50	1.11	2.06	1.56	3.12	2.03	4.13	2.80	5.74	3.97	7.20	5.16	8.35	5.88	9.72	6.45
5 8 27 19 1.92 1.29 2.62 1.79 3.56 2.24 4.83 3.12 6.28 4.21 8.02 5.51 9.30 6.28 10.83 6.89 5 10 27 19 1.60 1.10 1.98 1.28 2.99 1.94 3.77 2.49 5.51 3.99 6.30 4.21 7.44 4.61 5 10 27 19 1.40 1.01 1.82 1.31 2.34 1.53 3.54 2.38 4.81 3.32 6.34 4.49 7.35 5.12 8.86 5.51 117 0.84 1.44 1.40 0.99 1.80 1.19 2.67 1.80 3.47 2.36 5.50 3.44 4.49 7.35 5.12 8.86 5.51 5 12 27 19 1.69 1.88 1.41 2.20 1.84 3.51 2.53 4.90 3.62 6.08 4.77	3	10	2/	19																5.69
138	_	_	07	- 10	1.92	1.29	2.62	1.79	3.56	2.24	4.83	3.12	6.28	4.21	8.02	5.51	9.30	6.28	10.83	6.89
5 10 27 19 160 1.15 2.18 1.60 3.16 2.05 4.21 2.84 5.63 3.92 7.10 5.12 8.24 5.84 9.59 6.40 1.17 1.18 1.18 1.15 2.18 1.16 0.1.18 2.13 1.23 3.54 2.38 4.21 3.82 6.34 4.49 7.35 5.12 8.65 5.61 1.17 0.84 1.40 1.09 1.18 1.19 2.67 1.18 0.347 2.36 5.00 3.46 5.80 3.94 6.75 4.33 1.23 1.23 1.23 1.23 1.23 1.23 1.23 1	5	8	2/	19	1.67	1.12	2.14	1.45	2.60	1.66	4.03	2.60	5.31	3.54	7.09	4.82	8.22	5.49	9.57	6.03
5 10 27 19 1.40 1.01 1.82 1.31 2.34 1.53 3.54 2.38 4.81 3.32 6.34 4.49 7.35 5.12 8.56 5.61 5 12 27 19 1.02 1.00 1.68 1.41 2.70 1.84 3.51 2.53 4.90 3.62 6.08 4.70 7.05 5.36 8.21 5.58 5 12 19 1.09 0.88 1.45 1.17 2.02 1.39 2.99 2.14 4.24 3.07 5.50 4.15 6.38 4.73 7.73 7.73 7.73 7.73 7.73 7.73 7.73 7.79 7.70 5.38 8.21 5.58 4.41 7.70 7.75 5.98 4.03 7.75 1.11 1.00 1.11 2.00 1.11 2.20 1.33 2.29 1.21 4.43 3.22 5.14 3.67 5.98 4.03 4.03 1.11 <td>_</td> <td></td> <td></td> <td></td> <td>1.60</td> <td>1.15</td> <td>2.18</td> <td>1.60</td> <td>3.16</td> <td>2.05</td> <td>4.21</td> <td>2.84</td> <td>5.63</td> <td>3.92</td> <td>7.10</td> <td>5.12</td> <td>8.24</td> <td>5.84</td> <td>9.59</td> <td>6.40</td>	_				1.60	1.15	2.18	1.60	3.16	2.05	4.21	2.84	5.63	3.92	7.10	5.12	8.24	5.84	9.59	6.40
5 12 27 19 100 1.88 1.41 2.70 1.84 3.51 2.53 4.90 3.62 6.08 4.70 7.05 5.36 8.21 5.58 9 1.09 0.93 0.74 1.15 0.09 1.57 1.09 2.30 1.63 3.13 2.21 4.43 3.22 5.14 3.67 5.98 4.03 7 10 27 19 1.44 1.02 1.83 3.15 2.04 4.23 3.85 6.91 5.04 8.02 5.75 9.33 6.30 7 10 27 19 1.44 1.02 1.83 3.29 1.17 2.62 1.77 3.30 2.28 4.63 3.24 4.61 3.44 7.11 7.11 9.33 9.099 1.74 1.17 2.62 1.77 3.30 2.28 4.79 3.37 5.56 3.84 6.47 4.21 7 12 27 19 </td <td>5</td> <td>10</td> <td>27</td> <td>19</td> <td></td> <td></td> <td>1.82</td> <td>1.31</td> <td>2.34</td> <td>1.53</td> <td>3.54</td> <td>2.38</td> <td>4.81</td> <td>3.32</td> <td>6.34</td> <td>4.49</td> <td>7.35</td> <td>5.12</td> <td>8.56</td> <td>5.61</td>	5	10	27	19			1.82	1.31	2.34	1.53	3.54	2.38	4.81	3.32	6.34	4.49	7.35	5.12	8.56	5.61
5 12 27 19 1.09 0.88 1.45 1.17 2.02 1.39 2.99 2.14 4.24 3.07 5.50 4.15 6.38 4.73 7.43 5.19 7 10 27 19 1.66 1.18 2.25 1.63 3.15 2.04 4.23 2.85 5345 3.85 6.91 5.04 8.02 5.75 9.33 6.30 7 10 27 19 1.44 1.02 1.85 1.33 2.29 1.51 3.52 2.27 4.63 3.24 6.13 4.41 7.11 5.03 8.28 5.51 7 12 27 19 1.16 0.91 1.51 1.19 2.01 1.39 3.01 2.15 4.10 3.37 5.56 3.84 4.67 7.20 4.71 3.30 2.21 4.77 3.30 2.215 4.26 3.75 5.56 3.84 4.27 1.91 4.66 <th< td=""><td></td><td></td><td></td><td></td><td>1.22</td><td>1.00</td><td>1.68</td><td></td><td>2.70</td><td>1.84</td><td>3.51</td><td>2.53</td><td>4.90</td><td>3.62</td><td>6.08</td><td>4.70</td><td>7.05</td><td>5.36</td><td>8.21</td><td>5.88</td></th<>					1.22	1.00	1.68		2.70	1.84	3.51	2.53	4.90	3.62	6.08	4.70	7.05	5.36	8.21	5.88
7 10 27 19 1.44 1.02 1.85 1.33 2.29 1.51 3.52 2.37 4.63 3.24 6.13 4.41 7.11 5.03 8.28 5.51 1.19 0.85 1.39 0.99 1.74 1.17 2.62 1.77 3.30 2.28 4.79 3.37 5.56 3.84 6.47 421 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.	5	12	27	19			1.45		2.02	1.39	2.99	2.14	4.24	3.07	5.50	4.15	6.38	4.73	7.43	5.19
7 10 27 19 1.44 1.02 1.85 1.33 2.29 1.51 3.52 2.37 4.63 3.24 6.13 4.41 7.11 5.03 8.28 5.51 1.19 0.85 1.39 0.99 1.74 1.17 2.62 1.77 3.30 2.28 4.79 3.37 5.56 3.84 6.47 421 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.					1.66		2.25	1.63	3.15	2.04	4.23	2.85	5345	3.85	6.91	5.04	8.02	5.75	9.33	6.30
7 12 27 19 1.16 0.91 1.51 1.19 2.01 1.39 3.01 2.15 4.10 3.01 5.33 4.64 6.88 5.29 8.01 5.80 0.97 0.76 1.17 0.90 1.55 1.08 2.28 1.63 2.98 2.15 4.26 3.15 4.26 3.15 4.94 3.59 5.75 3.94 0.92 0.98 1.27 1.28 2.22 1.63 2.81 2.26 3.98 3.25 4.85 4.22 5.63 4.81 6.55 5.28 0.71 0.92 1.93 1.93 1.93 1.93 1.93 1.93 1.93 1.93	7	10	27	19	1.44	1.02	1.85	1.33	2.29	1.51	3.52	2.37	4.63	3.24	6.13	4.41	7.11	5.03	8.28	5.51
7 12 27 19 1.16 0.91 1.51 1.19 2.01 1.39 3.01 2.15 4.10 3.01 5.33 4.08 6.18 4.65 7.20 5.10 0.97 0.76 1.17 0.90 1.55 1.08 2.28 1.63 2.98 2.15 4.26 3.15 4.94 3.59 5.75 3.94 0.92 0.89 1.27 1.28 2.22 1.63 2.81 2.26 3.98 3.25 4.65 4.22 5.63 4.81 6.55 5.28 0.92 0.89 1.27 1.28 1.24 2.42 1.91 3.48 2.77 4.43 3.73 5.14 4.25 5.99 4.66 1.07 1.07 1.06 0.91 0.89 1.30 0.98 1.88 1.46 3.61 1.99 3.64 2.90 4.22 3.31 4.91 3.63 0.99 1.27 1.91 1.91 0.93 1.55 1.20 1.96 1.36 2.98 2.14 3.88 2.93 5.09 3.98 5.90 4.54 6.67 4.98 0.99 0.76 1.16 0.89 1.57 1.05 2.22 1.60 2.79 2.07 4.02 3.05 4.66 3.48 5.43 3.81 0.99 0.76 1.16 0.89 1.57 1.05 2.22 1.60 2.79 2.07 4.02 3.05 4.66 3.48 5.43 3.81 0.99 0.76 0.68 0.93 0.80 1.57 1.06 2.22 1.60 2.79 2.07 4.02 3.05 4.66 3.48 5.43 3.81 0.99 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.76 0.68 0.93 0.80 0.90 1.27 1.09 1.78 1.68 1.45 2.45 1.39 3.45 2.83 4.00 3.23 4.66 3.54 0.75 0.75 0.75 0.67 0.69 0.69 1.00 0.86 1.41 1.28 2.03 1.77 2.77 2.57 3.21 2.93 3.74 3.21 0.90 0.97 0.76 0.68 0.94 1.41 1.31 2.21 1.63 2.85 2.27 3.58 3.10 4.99 4.05 5.09 4.65 5.39 5.06 4.43 1.41 1.41 1.41 1.41 1.41 1.41 1.41																				
7 14 27 19 0.82 0.78 11.27 12.8 2.22 1.63 2.81 2.26 3.98 3.25 4.85 4.22 5.63 4.81 6.55 5.28 4.66 0.71 0.66 0.91 0.89 1.30 0.98 1.88 1.46 3.61 1.99 3.64 2.90 4.22 3.31 4.91 3.63 1.99 1.27 1.90 1.96 1.96 1.96 1.96 1.96 1.96 1.96 1.96	7	12	27	19	1.16	0.91	1.51	1.19	2.01	1.39	3.01	2.15	4.10	3.01	5.33	4.08	6.18	4.65	7.20	5.10
7 14 27 19 0.82 0.78 1.12 1.04 1.67 1.24 2.42 1.91 3.48 2.77 4.43 3.73 5.14 4.25 5.98 4.66 1.07 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08									1.55 2.22	1.08 1.63										
9 12 27 19 1.19 0.33 1.53 1.20 1.96 1.36 2.98 2.14 3.88 2.93 5.00 3.98 5.90 4.54 6.87 4.98 0.99 0.76 1.16 0.89 1.57 1.05 2.22 1.60 2.79 2.07 4.02 3.05 4.66 3.48 5.43 3.81 9 1.4 27 19 0.89 0.80 1.17 1.06 1.65 1.24 2.43 1.92 3.32 2.70 4.25 3.66 4.93 4.17 5.74 4.58 0.76 0.88 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.93 3.45 2.83 4.00 3.23 4.66 3.54 4.68 3.54 1.92 3.25 1.94 1.94 1.95 2.94 1.95 2.94 1.95 2.94 1.95 2.94 1.95 2.94 1.95 2.95 2.95 3.95 3.99 3.82 3.75 4.44 4.11 1.11 1.11 1.11 1.11 1.11 1.1	7	14	27	19	0.82	0.78	1.12	1.04	1.67	1.24	2.42	1.91	3.48	2.77	4.43	3.73	5.14	4.25	5.98	4.66
9 12 27 19 1.19 0.93 1.53 1.20 1.96 1.36 2.98 2.14 3.88 2.93 5.09 3.98 5.90 4.54 6.87 4.98 9 14 27 19 0.89 0.76 1.16 0.89 1.57 1.05 2.22 1.60 2.79 2.07 4.02 3.05 4.66 3.48 5.43 3.81 9 14 27 19 0.89 0.80 1.17 1.06 1.65 1.24 2.43 1.92 3.32 2.70 4.25 3.66 4.93 4.17 5.74 4.58 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.93 3.45 2.83 4.00 3.23 4.66 3.54 9 16 27 19 0.67 0.67 0.90 0.90 1.27 1.09 1.78 1.68 2.64 2.28 2.70 4.25 3.66 4.93 4.17 5.74 4.58 10 0.67 0.67 0.67 0.90 0.90 1.27 1.99 1.78 1.88 2.64 2.45 3.29 3.29 3.82 3.75 4.44 4.11 11 14 27 19 0.60 0.94 1.41 1.31 2.21 1.63 2.85 2.27 3.58 3.10 4.39 4.05 5.09 4.62 5.93 5.06 1.11 1.11 1.11 1.11 1.11 1.11 1.11 1																				
9 14 27 19 0.89 0.80 1.17 1.06 1.65 1.29 2.24 1.64 2.86 2.28 3.82 3.19 4.66 4.15 5.41 4.73 6.29 5.19 9 16 27 19 0.67 0.67 0.90 0.90 1.27 1.90 1.78 1.86 1.45 2.45 1.93 3.45 2.83 4.00 3.23 4.66 3.54 9 16 27 19 0.67 0.67 0.90 0.90 1.27 1.90 1.78 1.88 2.64 2.45 3.29 3.29 3.82 3.76 4.44 4.11 14 27 19 0.92 0.82 1.18 1.06 1.59 1.21 2.39 1.90 3.08 2.61 3.97 3.55 4.61 4.05 5.36 4.49 11 14 27 19 0.92 0.82 1.18 1.06 1.59 1.21 2.39 1.90 3.08 2.61 3.97 3.55 4.61 4.05 5.36 4.44 11 16 27 19 0.69 0.69 0.91 0.78 1.20 0.94 1.41 1.71 1.43 2.09 1.98 2.80 2.80 3.62 4.20 4.13 4.89 4.53 11 18 27 19 0.69 0.69 0.91 0.97 0.97 0.97 1.28 1.08 1.09 1.29 1.29 1.38 1.30 3.63 3.57 4.23 3.91 11 18 27 19 0.64 0.68 0.91 0.78 0.99 0.99 1.28 1.90 1.88 2.80 2.80 2.80 3.62 3.62 4.20 4.13 4.89 4.53 11 18 27 19 0.66 0.68 0.91 0.78 0.97 0.97 0.97 0.97 1.28 1.08 1.09 1.29 1.39 1.39 1.20 3.30 3.20 3.20 3.71 3.65 4.32 4.00 1.90 0.69 0.99 0.99 0.99 1.28 1.09 1.28 1.09 1.98 2.80 2.80 3.62 3.62 4.20 4.13 4.89 4.53 1.90 0.69 0.69 0.99 0.99 0.99 1.28 1.09 1.28 1.09 1.29 1.39 1.27 1.87 1.79 2.60 2.50 2.59 2.59 3.44 3.31 11 18 27 19 0.64 0.68 0.88 0.88 1.19 1.19 1.65 1.68 1.63 2.43 3.13 3.13 3.63 3.57 4.23 3.91 11 18 27 19 0.64 0.65 0.88 0.88 1.19 1.19 1.68 1.63 1.63 2.43 3.13 3.13 3.63 3.57 4.23 3.91 11 18 27 19 0.65 0.65 0.74 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.78 3.22 3.17 3.75 3.48	9	12	27	19	1.19	0.93	1.53	1.20	1.96	1.36	2.98	2.14	3.88	2.93	5.09	3.98	5.90	4.54	6.87	4.98
9 14 27 19 0.89 0.80 1.17 106 1.65 1.24 2.43 1.92 3.32 2.70 4.25 3.66 4.93 4.17 5.74 4.58 0.76 0.68 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.93 3.45 2.83 4.00 3.23 4.66 3.54 9 16 27 19 0.67 0.67 0.90 0.90 1.27 1.99 1.78 1.86 2.45 3.29 3.29 3.29 3.22 3.75 4.44 4.11 0.57 0.57 0.57 0.69 0.69 1.00 0.86 1.41 1.28 2.03 1.77 2.77 2.57 2.57 3.21 2.93 3.74 3.21 11 14 27 19 0.92 0.82 1.18 1.06 1.59 1.21 2.39 1.90 3.08 2.61 3.97 3.55 4.61 4.05 5.39 5.06 11 16 27 19 0.69 0.69 0.79 1.11 1.11 1.71 1.43 2.09 1.98 1.80 2.80 2.80 3.82 3.70 3.11 4.31 3.41 11 18 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.87 1.87 1.87 1.77 2.76 2.38 3.20 3.20 3.20 3.73 3.65 4.32 4.00 1.77 0.85 0.89 0.91 0.91 1.28 1.09 1.78 1.82 2.85 2.87 3.71 3.71 3.71 3.71 3.41 11 18 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.79 1.87 1.77 2.76 2.38 3.20 3.20 3.20 3.71 3.65 4.32 4.00 1.84 0.85 0.88 0.91 0.91 0.91 1.26 1.08 1.79 1.87 1.77 2.76 2.38 3.20 3.20 3.71 3.65 4.32 4.00 1.85 0.85 0.70 0.70 0.97 0.85 1.39 1.27 1.87 1.77 2.66 2.50 2.97 2.85 3.46 3.13 1.86 0.81 0.81 0.88 0.88 0.19 1.19 1.19 1.63 1.63 2.43 2.43 3.13 3.13 3.63 3.57 4.23 3.91 1.87 0.54 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.08 2.78 3.22 3.78 3.42 3.41 3.48										1.05										
9 16 27 19 0.76 0.88 0.93 0.80 1.27 0.97 1.86 1.45 2.45 1.93 3.45 2.83 4.00 3.23 4.66 3.54 4.61 4.65 1.75 1.75 1.75 1.75 1.75 1.75 1.75 1.7	9	14	27	19																
9 16 27 19 0.67 0.90 0.90 1.27 1.09 1.78 1.68 2.64 2.45 3.29 3.29 3.82 3.75 4.44 4.11 11 14 27 19 0.67 0.69 0.69 1.00 0.86 1.41 1.28 2.03 1.77 2.77 2.57 3.21 2.93 3.74 3.21 11 14 27 19 0.92 0.82 1.18 1.06 1.59 1.21 2.39 1.90 3.08 2.61 3.97 3.55 4.61 4.05 5.93 4.62 5.53 5.06 11 16 27 19 0.69 0.69 0.91 0.78 1.20 0.94 1.78 1.42 2.24 1.85 3.19 2.73 3.70 3.11 4.31 3.41 11 16 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.67 2.46 2.38 3.20 3.20 3.71 3.65 4.32 4.00 11 18 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.67 2.46 2.38 3.20 3.20 3.71 3.65 4.32 4.00 11 18 27 19 0.69 0.69 0.69 0.88 0.88 1.19 1.19 1.63 1.63 2.43 2.43 3.13 3.13 3.63 3.57 4.23 3.91 11 18 27 19 0.64 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.78 3.22 3.78 3.42 3.43 3.48					0.76	0.68	0.93	0.80	1.27	0.97	1.86	1.45	2.45	1.93	3.45	2.83	4.00	3.23	4.66	3.54
11 14 27 19 106 0.94 1.41 1.31 2.21 1.63 2.85 2.27 3.58 3.10 4.39 4.05 5.09 4.62 5.93 5.06 1.07 1.06 0.94 1.41 1.31 2.21 1.63 2.85 2.27 3.58 3.10 4.39 4.05 5.09 4.62 5.93 5.06 1.07 1.07 1.08 1.09 1.09 1.09 1.09 1.09 1.09 1.09 1.09	9	16	27	19																
11 14 27 19 0.92 0.82 1.18 1.06 1.59 1.21 2.39 1.90 3.08 2.61 3.37 3.55 4.61 4.05 5.36 4.44 10 0.76 0.68 0.91 0.78 1.20 0.94 1.78 1.42 2.24 1.85 3.19 2.73 3.70 3.11 4.31 3.41 11 16 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.67 2.46 2.38 3.20 3.20 3.71 3.55 4.62 4.20 4.13 4.89 4.53 11 18 27 19 0.61 0.61 0.88 0.88 1.19 1.19 1.63 1.63 1.63 2.43 2.43 3.13 3.13 3.63 3.57 4.23 3.91 11 18 27 19 0.54 0.54 0.74 0.74 0.82 0.82 0.82 0.82 0.82 0.82 0.80 2.78 3.22 3.17 3.75 3.48					0.57	0.57	0.69	0.69	1.00	0.86	1.41	1.28	2.03	1.77	2.77	2.57	3.21	2.93	3.74	3.21
11 18 27 19 0.54 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.08 2.78 3.70 3.11 3.57 3.48	11	14	27	19							2.85									
11 16 27 19 0.69 0.69 0.91 0.91 1.26 1.08 1.79 1.67 2.46 2.38 3.20 3.20 3.71 3.65 4.32 4.00 0.58 0.58 0.70 0.70 0.97 0.85 1.39 1.27 1.87 1.71 2.56 2.50 2.97 2.85 3.46 3.13 1.1 18 27 19 0.64 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.08 2.78 3.22 3.17 3.75 3.48					0.76	0.68	0.91	0.78	1.20	0.94	1.78	1.42	2.24	1.85	3.19	2.73	3.70	3.11	4.31	3.41
0.58 0.58 0.70 0.70 0.97 0.85 1.39 1.27 1.87 1.71 2.56 2.50 2.97 2.85 3.46 3.13 11 18 27 19 0.54 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.08 2.78 3.22 3.17 3.75 3.48	11	16	27	19																
11 18 27 19 0.61 0.61 0.88 0.88 1.19 1.19 1.63 1.63 2.43 2.43 3.13 3.13 3.63 3.57 4.23 3.91 11 18 27 19 0.54 0.54 0.74 0.74 0.82 0.92 1.40 1.40 2.08 2.08 2.78 2.78 3.22 3.17 3.75 3.48						0.58	0.70	0.70		0.85	1.39		1.87	1.71	2.56	2.50	2.97	2.85	3.46	3.13
	11	18	97	19						1.19					3.13		3.63	3.57	4.23	3.91
		10		10									1.52	1,52	2.78	2.78	2.55	2.51	2,97	2.75

Whate Temperature Whate Temperature Whate Temperature Whate Temperature Whate What					0	112	(020)25	()35	C	050	0	60	0	180	0	90
To To To To Pow Eve Pow Eve Pow Eve Pow Eve Pow Eve Ev	Water Te	emperature	Air Tem	nperature	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity
C	1		1		_ ~		ı ~		_ ~		Ĭ								"	
S	°C	°C	°C	°C																
Section Sect					2.56	1.51	3.50	2.08	4.59	2.62	6.32	3.64	8.26	4.86	10.68	6.36	12.39	7.25	14.42	7.95
Section Part	3	6	29	21																
18					2.26	1.37	3.09	1.90	4.21	2.43	5.73	3.36	7.66	4.58	9.80	5.98	11.37	6.82	13.23	7.48
1	3	8	29	21																
1.6					1.92	1.23	2.64	1.71	3.80	2.23	5.10	3.07	7.00	4.30	8.89	5.59	10.31	6.37	12.00	6.99
Section Part	3	10	29	21																
The color The					2.33	1.40	3.17	1.93	4.21	2.42	5.77	3.38	7.51	4.52	9.67	5.92	11.22	6.75	13.05	7.40
S	5	8	29	21																
1.					2.02	1.27	2.75	1.76	3.83	2.24	5.17	3.10	6.89	4.25	8.78	5.55	10.18	6.33	11.85	6.94
S	5	10	29	21																
The color of the					1.66	1.12	2.29	1.57	3.39	2.04	4.50	2.82	6.20	3.96	7.81	5.16	9.06	5.88	10.54	6.45
The color of the	5	12	29	21							3.81					4.54				
14					2.07	1.29	2.82	1.78	3.81	2.23	5.18	3.11	6.71	4.17	8.59	5.47	9.96	6.24	11.60	6.84
The color of the	7	10	29	21																
Table Tabl	_			<u> </u>	1.74	1.16	2.38	1.61	3.41	2.05	4.55	2.84	6.05	3.90	7.65	5.10	8.87	5.81	10.33	6.38
Table Tabl	7	12	29	21																
1					1.37	1.01	1.89	1.43	2.94	1.85	3.84	2.55	5.32	3.62	6.62	4.71	7.68	5.37	8.94	5.89
Part	7	14	29	21																
1.8	_				1.79	1.17	2.43	1.63	3.37	2.03	4.54	2.83	5.84	3.82	7.41	5.00	8.60	5.70	10.00	6.25
Part	9	12	29	21																
1	_				1.45	1.04	1.97	1.46	2.95	1.85	3.88	2.56	5.15	3.55	6.43	4.63	7.46	5.28	8.68	5.79
9 16 29 21 100 030 1.44 127 2.45 1.66 311 2.27 4.35 3.36 5.32 4.48 6.77 4.68 7.16 5.36 4.80 11 1 44 29 21 120 030 0.67 100 0.00 1.00 0.00 1.00 1.00 1.00 1.00	9	14	29	21																
11					1.04	0.90	1.44	1.27	2.43	1.65	3.11	2.27	4.35	3.26	5.32	4.24	6.17	4.83	7.18	5.30
11	9	16	29	21																
11					1.49	1.06	2.01	1.47	2.90	1.83	3.85			3.46		4.53	7.13	5.16		5.66
11	11	14	29	21																
11					1.12					1.65	3.13				5.10	4.16				5.20
11	11	16	29	21																
1 1 1 1 1 1 1 1 1 1					1.77	0.77	1.10	1.10	1.87	1.44	2.29	1.99	3.28	2.88	3.89	3.75	4.51	4.28	5.25	4.69
Second Part	11	18	29	21																
1					2.98	1.59	4.08	2.20	5.26	2.77	7.30	3.86	9.54	5.11	12.39	6.70	14.37	7.64	16.73	8.38
Second Process of Second Pro	3	6	31	23																
194 116 226 148 278 148 279 224 536 88 7.75 425 911 485 1100 531 3					2.69	1.46	3.68	2.02	4.90	2.59	6.73	3359	8.95	4.85	11.54	6.33	13.39	7.22	15.58	7.91
1	3	8	31	23																
178 0.97 2.05 1.14 2.60 1.40 3.88 2.10 5.07 2.75 7.36 4.04 8.54 4.61 9.44 5.05 5	_	40	0.4		2.39	1.30	3.25	1.85	4.51	2.40	6.12	3.31	8.33	4.58	10.66	5.97	12.37	6.81	14.39	7.46
Second Process of Second Pro	3	10	31	23												5.24 4.04				
196 1.06 2.26 1.23 2.73 1.46 4.15 2.22 5.19 2.81 7.67 4.17 8.90 4.75 1.036 5.21 5			24		2.75	1.49	3.76	2.06	4.90	2.59	6.76	3.60	8.80	4.79	11.40	6.27	13.22	7.15	15.39	7.84
Table Tabl	5	8	31	23																
Total Property	-	40	04	00	2.45	1.37	3.35	1.89	4.53	2.41	6.18	4.53	8.21	4.53	10.54	5.92	12.23	6.75	14.23	7.40
Table Tabl	5	10	31	23																
Table Tabl	-	40	04	20	2.11	1.23	2.90	1.72	4.12	2.22	5.54	3.07	7.55	4.27	9.61	5.56	11.15	6.34	12.97	6.95
Table Tabl	5	12	31	23																
1.78	7	10	91	22	2.50	1.39	3.41	1.92	4.51	2.40	4.51	2.40	6.19	3.34	8.02	4.46	9.30	5.08	10.83	5.58
Table Tabl	_ ′	10	اد ا	۷۵																
1.59	7	10	91	22	2.19	1.26	2.99	1.75	4.12	2.23	5.58	3.09	7.40	4.21	9.45	5.50	10.96	6.27	12.76	6.88
7 14 31 23 1.83 1.13 2.52 1.58 3.88 2.04 4.91 2.82 6.70 3.94 8.47 5.13 9.83 5.65 11.43 6.41 7 14 31 23 1.61 0.99 2.12 1.30 2.74 1.53 4.15 2.37 5.74 3.34 7.56 4.51 8.77 5.14 10.21 5.64 9 12 31 23 1.28 3.03 1.77 4.08 2.21 5.57 3.08 7.18 4.12 9.21 5.41 10.08 6.67 12.43 6.66 4.62 2.56 6.06 3.46 8.12 4.72 9.42 5.38 10.96 5.59 5.90 5.90 5.90 1.91 1.16 2.60 1.61 3.82 2.44 4.62 2.56 6.06 3.46 8.12 4.72 9.42 5.38 10.96 2.90 1.16 3.62 2.44 4.23	_ ′	12	اد ا	۷۵																
1.36	7	4.4	04	22	1.83	1.13	2.52	1.58	3.68	2.04	4.91	2.82	6.70	3.94	8.47	5.13	9.83	5.85	11.43	6.41
9 12 31 23 1.28 3.03 1.77 4.08 2.21 5.57 3.08 7.18 4.12 9.21 5.41 10.68 6.77 12.43 6.76 1.09 1.09 1.09 1.09 1.00 1.00 1.00 1.00	′	14	ا ا	۷۵																
9 14 31 23 1.66 1.01 2.15 1.31 2.71 1.52 4.14 2.37 5.56 3.27 7.36 4.44 8.54 5.06 9.59 5.77 11.16 6.33 9.4 5.55 1.39 0.84 1.64 0.98 2.08 1.18 3.10 1.78 3.98 2.31 5.77 3.41 6.69 3.89 7.79 4.26 1.39 0.84 1.64 0.98 2.08 1.18 3.10 1.78 3.98 2.31 5.77 3.41 6.69 3.89 7.79 4.26 1.39 0.84 1.64 0.98 2.08 1.18 3.10 1.78 3.98 2.31 5.77 3.41 6.69 3.89 7.79 4.26 1.39 0.84 1.64 0.98 2.08 1.18 3.10 1.78 3.98 2.31 5.77 3.41 6.69 3.89 7.79 4.26 1.39 1.39 0.84 1.64 0.98 2.08 1.18 3.10 1.78 3.98 2.31 5.77 3.41 6.69 3.89 7.79 4.26 1.39 1.39 1.35 1.02 2.10 1.44 3.21 1.85 4.21 2.56 5.78 3.00 7.23 4.69 8.39 5.55 9.76 5.86 1.31 1.41 0.75 1.39 0.90 1.88 1.39 3.57 2.16 4.98 3.05 6.50 4.13 7.54 4.71 8.78 5.16 1.31 2.31 1.44 0.75 1.39 0.90 1.85 1.09 2.73 1.64 3.64 2.18 5.19 2.30 6.02 2.62 7.01 2.88 1.31 1.32 1.33 1.32 1.33 1.32 1.33 1.33	0	10	91	22	2.23	1.28	3.03	1.77	4.08	2.21	5.57	3.08	7.18	4.12	9.21	5.41	10.68	6.17	12.43	6.76
9 14 31 23 1.16 2.60 1.61 3.88 2.04 4.93 2.28 6.53 3.67 8.27 5.06 9.59 5.77 11.16 6.33 1.02 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05		12	اد ا	۷۵																
1.39	0	1.4	04	22	1.91	1.16	2.60	1.61	3.68	2.04	4.93	2.83	6.53	3.87	8.27	5.06	9.59	5.77	11.16	6.33
9 16 31 23 1.53 1.02 2.10 1.44 3.21 1.85 4.21 2.56 5.78 3.60 7.23 4.69 8.39 5.35 9.76 5.86 1.09 1.07 1.00 1.00 1.00 1.00 1.00 1.00 1.00	_ 9	14	اد ا	۷۵																
11	0	16	91	22	1.53	1.02	2.10	1.44	3.21	1.85	4.21	2.56	5.78	3.60	7.23	4.69	8.39	5.35	9.76	5.86
11	9	10	اد ا	۷۵																
1.38	-11	1.1	91	22	1.94	1.17	2.63	1.62	3.63	2.02	4.90	2.81	6.27	3.78	7.99	4.96	9.27	5.65	10.79	6.20
11 16 21 23 1.59 1.05 2.17 1.46 3.19 1.85 4.22 2.56 5.58 3.53 6.99 4.61 8.11 5.26 9.44 5.76 1.95 1.95 1.95 1.95 1.95 1.95 1.95 1.95	''	14	31	23																
1.17 0.76 1.39 0.89 1.80 1.07 2.68 1.62 3.45 2.12 4.96 3.11 5.75 3.55 6.70 3.89 1.18 0.91 1.64 1.29 2.68 1.65 3.44 2.29 4.77 3.25 5.87 4.24 6.81 4.83 7.92 5.30 1.1 18 31 23 1.05 0.80 1.41 1.06 2.00 1.25 2.94 1.93 4.14 2.76 5.33 3.73 6.18 4.25 7.20 4.66	11	16	21	23	1.59	1.05	2.17	1.46	3.19	1.85	4.22	2.56	5.58	3.53	6.99	4.61	8.11	5.26	9.44	5.76
11 18 31 23 1.18 0.91 1.64 1.29 2.68 1.65 3.44 2.29 4.77 3.25 5.87 4.24 6.81 4.83 7.92 5.30 1.05 0.80 1.41 1.06 2.00 1.25 2.94 1.93 4.14 2.76 5.33 3.73 6.18 4.25 7.20 4.66	''	10	ان	20																
	11	1Ω	21	23	1.18	0.91	1.64	1.29	2.68	1.65	3.44	2.29	4.77	3.25	5.87	4.24	6.81	4.83	7.92	5.30
		10	UI.	20	0.90	0.80	1.41	1.06 0.81	2.00 1.55	1.25 0.98	2.94	1.93	4.14 3.07	2.76 1.98	5.33 4.33	3.73 2.89	6.18 5.02	4.25 3.29	7.20 5.85	4.66 3.61

				4	412 420		420	425		4	35	45	50	460		480		4	90
Water	Temperature	Air Ten	nperature	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling C	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity
IN	Out	DB	WB	Total	Sens	Total	Sens												
°C	°C	°C	°C	[kW]	[kW]														
3	6	21	15	1.51 1.30	1.04 0.90	2.13 1.90	1.59 1.41	2.95 2.24	1.97 1.51	3.93 3.26	2.68 2.23	5.05 4.24	3.54 2.97	6.32 5.60	4.68 4.10	7.02 6.22	5.19 4.55	8.22 7.28	5.48 4.80
		21	13	1.08	0.75	1.50	1.09	1.73	1.17	2.36	1.62	3.03	2.12	4.34	3.12	4.82	3.46	5.64	3.65
3	8	21	15	1.25	0.91 0379	1.69 1.54	1.39	2.62	1.80 1.39	3.34 2.80	2.38	4.47 3.80	3.26 2.75	5.47 4.90	4.29 3.77	6.07 5.44	4.76 4.18	7.11 6.37	5.02 4.41
				0.91	0.67	1.25	0.97	1.57	1.09	2.06	1.48	2.77	1.98	3.88	2.91	4.31	3.23	5.04	3.40
3	10	21	15	0.93 0.82	0.76 0.67	1.19 1.12	1.18	2.22 1.73	1.60 1.25	2.63 2.24	2.05 1.74	3.77 3.25	2.93 2.49	4.48 4.08	3.85 3.40	4.97 4.53	4.27 3.77	5.82 5.30	4.50 3.98
				0.70 1.27	0.57 0.92	0.95 1.73	0.84 1.41	1.37 2.53	0.99 1.75	1.70 3.32	1.30 2.37	2.42 4.25	1.82 3.15	3.32 5.20	2.65 4.17	3.69 5.77	2.94 4.63	4.32 6.76	3.10 4.88
5	8	21	15	1.09	0.80	1.56	1.25	1.92	1.34	2.75	1.98	3.58	2.64	4.63	3.65	5.14	4.05	6.02	4.27
				0.91	0.67 0.79	1.24 1.28	0.97 1.21	1.48 2.17	1.04 1.58	1.99 2.69	1.44 2.08	2.57 3.62	1.89 2.86	3.62 4.30	2.79 3.77	4.02 4.77	3.10 4.18	4.71 5.59	3.26 4.41
5	10	21	15	0.86 0.73	0.69 0.58	1.18 0.97	1.09 0.85	1.68	1.23 0.96	2.26 1.68	1.74	3.10 2.28	2.42 1.75	3.89 3.13	3.32 2.56	4.32 3.47	3.69 2.84	5.06 4.07	3.88 3.00
_				0.64	0.64	0.98	0.98	1.72	1.37	1.90	1.73	2.84	2.52	3.30	3.30	3.66	3.66	4.29	3.86
5	12	21	15	0.57 0.49	0.56 0.48	0.89 0.71	0.89	1.36 1.08	1.08 0.86	1.64 1.26	1.47	2.48 1.89	2.14 1.58	2.98 2.50	2.93	3.31 2.78	3.25 2.54	3.87 3.25	3.43 2.68
7	10	21	15	1.01 0.87	0.80 0.69	1.30 1.18	1.23 1.09	2.07 1.57	1.53 1.17	2.65 2.20	2.06 1.72	3.37 2.85	2.75 2.31	3.99 3.58	3.64 3.19	4.43 3.97	4.04 3.54	5.19 4.65	4.26 3.73
,	10	21	10	0.72	0.58	0.96	0.85	1.20	0.91	1.59	1.26	2.06	1.65	2.84	2.44	3.15	2.71	3.69	2.85
7	12	21	15	0.70 0.61	0.66 0.58	1.01 0.91	1.01 0.91	1.67 1.29	1.35 1.05	1.96 1.66	1.75 1.48	2.68	2.45	3.21 2.84	3.21 2.84	3.56 3.15	3.56 3.15	4.17 3.69	3.76 3.32
			-	0.52	0.49	0.72	0.72	1.01	0.83	1.24	1.10	1.73	1.51	2.29	2.21	2.54 2.99	2.45	2.98	2.59
7	14	21	15	0.44	0.49 0.44	0.77 0.70	0.70	1.15 0.92	0.89	1.17	1.17	1.77	1.77	2.40	2.40	2.66	2.66	3.50 3.12	2.81
				0.38 0.72	0.38	0.57 1.02	0.57 1.02	1.74 1.56	0.71 1.30	0.90 1.92	0.90 1.74	0.31 2.41	1.31 2.34	1.89 3.06	1.89 3.06	2.10 3.40	2.10 3.40	2.46 3.98	2.21 3.58
9	12	21	15	0.62	0.58	0.91	0.91	1.18	1.00	1.60	1.45	2.06	1.97	2.70	2.70	3.00	3.00	3.51	3.16
				0.51 0.52	0.49 0.52	0.71 0.80	0.71 0.80	0.91 1.11	0.78 1.11	1.16 1.40	1.07 1.40	1.51 2.00	1.41 2.00	2.08 2.60	2.08 2.60	2.31 2.89	2.31 2.89	2.70 3.38	2.43 3.04
9	14	21	15	0.46	0.46	0.72 0.58	0.72 0.58	0.87 0.69	0.87 0.69	1.19 0.89	1.19 0.89	1.70 1.25	1.70 1.25	2.31	2.31 1.81	2.56 2.01	2.56 2.01	3.00 2.35	2.70 2.12
	40	04	45	0.34	0.34	0.55	0.55	0.84	0.84	0.98	0.98	1.56	1.56	2.04	2.04	2.26	2.26	2.65	2.39
9	16	21	15	0.30 0.26	0.30 0.26	0.50 0.41	0.50 0.41	0.67 0.54	0.67 0.54	0.84 0.65	0.84	1.34	1.34	1.82 1.45	1.82 1.45	2.02	2.02 1.61	2.37 1.89	2.13 1.70
11	14	21	15	0.53 0.46	0.53 0.46	0.81 0.72	0.81 0.72	1.05 0.82	1.05 0.82	1.39 1.16	1.39 1.16	1.89 1.59	1.89 1.59	2.46 2.17	2.46 2.17	2.73 2.41	2.73 2.41	3.20 2.82	2.88 2.54
				0.39	0.39	0.57	0.57	0.64	0.64	0.86	0.86	1.15	1.15	1.68	1.68	1.86	1.86	2.18	1.97
11	16	21	15	0.37	0.37	0.58 0.52	0.58 0.52	0.83 0.65	0.83 0.65	1.02 0.87	1.02 0.87	1.51 1.29	1.51 1.29	1.97 1.76	1.97 1.76	2.19 1.95	2.19 1.95	2.56 2.29	2.30 2.06
				0.28 0.16	0.28 0.16	0.42	0.42	0.52 0.51	0.52 0.51	0.66 0.52	0.66 0.52	0.96 0.98	0.96 0.98	1.38	1.38	1.53 1.45	1.53 1.45	1.79	1.61 1.53
11	18	21	15	0.15	0.15	0.28	0.28	0.42	0.42	0.46	0.46	0.86	0.86	1.19	1.19	1.32	1.32	1.55	1.39
				0.13 1.86	0.13 1.15	0.24 2.67	0.24 1.76	0.34 3.56	0.34 2.18	0.37 4.81	0.37 2.98	0.66 6.18	0.66 3.90	0.96 7.86	0.96 5.16	1.07 8.72	1.07 5.73	1.25 10.22	1.12 6.04
3	6	23	17	1.59	0.99	2.38 1.86	1.56	2.70	1.66 1.29	3.98 2.87	2.47 1.79	5.18 3.69	3.26 2.32	6.92 5.33	4.51 3.43	7.68 5.92	5.01 3.81	9.00 6.93	5.28 4.01
3	8	23	17	1.61 1.39	1.03 0.90	2.26 2.04	1.58 1.41	3.25 2.50	2.02 1.56	4.25 3.55	2.69	5.63 4.76	3.64 3.06	7.05 6.27	4.79 4.21	7.83 6.96	5.32 4.67	9.17 8.15	5.60 4.93
		20	17	1.17	0.76	1.63	1.10	1.94	1.21	2.60	2.25 1.66	3.44	2.20	4.90	3.23	5.44	3.59	6.37	3.78
3	10	23	17	1.31	0.90 0.78	1.79 1.64	1.80	2.88	1.83	3.59	2.38	1.99 4.26	3.34 2.83	6.12 5.50	4.39 3.87	6.79 6.11	4.87 4.30	7.96 7.15	5.14 4.53
				0.98 1.62	0.67 1.04	1.35 2.29	0.98 1.59	1.76 3.15	1.13 1.97	2.27 4.21	1.50 2.68	3.13 5.40	2.06 3.53	4.38 6.77	3.00 4.67	4.86 7.51	3.33 5.18	5.69 8.80	3.51 5.46
5	8	23	17	1.39	0.90	2.05	1.41	2.39	1.50	3.49	2.22	4.53	2.95	5.98	4.08	6.64	4.53	7.77	4.77
				1.16 1.37	0.75 0.92	1.61 1.87	1.09 1.41	1.84 2.82	1.16 1.81	2.52 3.62	1.65 2.40	3.23 4.82	2.10 3.26	4.63 5.92	3.11 4.30	5.14 6.57	3.45 4.77	6.02 7.70	3.64 5.03
5	10	23	17	1.18 0.99	0.80 0.67	1.87 1.69	1.26 0.98	2.17 1.69	1.40 1.09	3.03 2.23	2.01 1.48	4.08 2.97	2.75 1.98	5.29 4.17	3.78 2.90	5.87 4.63	4.20 3.22	6.88 5.42	4.42 3.39
<u> </u>			4-	1.04	0.78	1.36	1.21	2.42	1.62	2.90	2.08	4.11	2.95	4.91	3.88	5.45	4.31	6.38	4.54
5	12	23	17	0.92 0.78	0.68 0.58	1.26 1.06	1.08 0.86	1.88 1.49	1.26 1.00	2.47 1.86	1.76 1.32	3.53 2.62	2.50 1.83	4.46 3.61	3.43 2.66	4.95 4.01	3.81 2.95	5.80 4.69	4.01 3.11
7	10	23	17	1.37 1.18	0.92 0.80	1.88 1.69	1.41	2.70 2.05	1.75 1.34	3.57 2.95	2.38 1.98	4.55 3.83	3.14 2.63	5.59 4.97	4.16 3.64	6.20 5.52	4.62 4.04	7.27 6.46	4.87 4.26
<u> </u>				0.98	0.67	1.33	0.97	1.58	1.04	2.13	1.44	2.74	1.88	3.87	2.78	4.30	3.09	5.03	3.25
7	12	23	17	1.09 0.95	0.80	1.42	1.23 1.10	2.35 1.81	1.59 1.23	2.93 2.46	2.09 1.76	3.92 3.34	2.87 2.42	4.67 4.22	3.78 3.33	5.18 4.68	4.20 3.70	6.07 5.49	4.42 3.90
-				0.80 0.73	0.59 0.65	1.07	0.86 1.01	1.41 1.89	0.96 1.39	1.82 2.13	1.30 1.76	2.45 3.12	1.75 2.54	3.38 3.56	2.57 3.34	3.75 3.95	2.85 3.71	4.39 4.63	3.01 3.91
7	14	23	17	0.65	0.57	0.91	0.91	1.48	1.09	1.83	1.50	2.71	2.16	3.29	2.96	3.65	3.29	4.28	3.46
				0.56 1.09	0.49 0.80	0.74 1.42	0.74 1.23	1.18 2.22	0.86 1.53	1.40 2.86	1.13 2.06	2.06 3.63	2.59 2.75	2.74 4.31	2.31 3.64	3.04 4.78	2.56 4.04	3.56 5.60	2.70 4.26
9	12	23	17	0.94 0.78	0.69 0.58	1.29 1.04	1.09 0.85	1.68 1.29	1.17 0.91	2.37 1.71	1.72 1.26	3.06 2.21	2.31 1.65	3.86 3.06	3.19 2.44	4.28 3.40	3.54 2.71	5.02 3.98	3.73 2.85
9	14	23	17	0.78	0.67	1.03	1.03	1.82	1.36	2.16	1.77	2.92	2.46	3.30	3.25	3.66	3.61	4.29	3.80
9	14	23	1/	0.68 0.58	0.59 0.50	0.93 0.75	0.93 0.73	1.41 1.10	1.06 0.83	1.82 1.36	1.49 1.11	2.52 1.88	2.08 1.51	3.04 2.50	2.86 2.22	3.37 2.78	3.17 2.46	3.95 3.25	3.35 2.60
9	16	23	17	0.51 0.45	0.51 0.45	0.80 0.72	0.80 0.72	1.29	1.14 0.90	1.41 1.20	1.41	2.10 1.80	2.10 1.80	2.74 2.44	2.74 2.44	3.04 2.71	3.04 2.71	3.56 3.17	3.21 2.85
			•••	0.39	0.39	0.58	0.58	0.82	0.72	0.92	0.92	1.41	1.33	1.92	1.92	2.13	2.13	2.50	2.25
11	14	23	17	1.03 0.92	1.03 0.92	1.68 1.27	1.30	2.09 1.73	1.74 1.46	2.61	2.34 1.97	3.09 2.71	3.09 2.70	0.78 0.68	0.68 0.59	0.87 0.75	0.75 0.65	1.01 0.88	0.80
-				0.72 0.54	0.72 0.54	0.98 0.82	0.78 0.82	1.25 1.22	1.07 1.12	1.62 1.43	1.41	2.16 2.02	2.09	0.56 2.64	0.49 2.64	0.62 2.93	0.54 2.93	0.73 3.43	0.57 3.09
11	16	23	17	0.47	0.47	0.74	0.74	0.95	0.87	1.21	1.21	1.72	1.82	2.34	2.34	2.60	2.60	3.04	2.74
				0.40 0.35	0.40	0.59 0.57	0.59 0.57	0.75 0.86	0.69 0.86	0.91 1.01	0.91 1.01	1.26 1.59	1.26 1.59	1.83 2.08	1.83 2.08	2.03	2.03	2.38	2.14
11	18	23	17	0.32 0.27	0.32 0.27	0.52 0.43	0.52 0.43	0.69 0.55	0.69 0.55	0.87 0.67	0.87 0.67	1.37 1.03	1.37	1.86 1.48	1.86 1.48	2.06 1.64	2.06 1.64	2.42 1.92	2.18 1.73
L		l		V.Z1	0.21	0.40	U.+U	0.00	0.00	0.07	0.07	1.00	1.00	1.40	1.40	1.04	1.04	1.32	1.10

				412		420		425		435		450		460		480		490	
	Temperature	1	perature	Cooling (Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity
IN	Out	DB	WB	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens
°C	°C	°C	°C	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
	0	05	40	2.21	1.26	3.24	1.92	4.19	2.37	5.73	3.25	7.37	4.23	9.48	5.59	10.52	6.20	12.32	6.54
3	6	25	19	1.90 1.58	1.08 0.90	2.88	1.70	3.18 2.45	1.80	4.73 3.41	2.69 1.95	6.16 4.37	3.53 2.51	8.32 6.36	4.88 3.71	9.24 7.06	5.42 4.12	10.82 8.27	5.71 4.34
3	8	25	19	1.98	1.15	2.86	1.75	3.91	2.22	5.19	2.98	6.85	3.99	8.70	5.25	9.66	5.83	11.31	6.14
3	0	25	19	1.72 1.44	0.99	2.56	1.55	2.99	1.70 1.33	4.33 3.16	2.49 1.82	5.76 4.14	3.35 2.40	7.69 5.96	4.60 3.52	8.54 6.62	5.11 3.91	10.00 7.75	5.38 4.12
3	10	25	19	1.71	1.02	2.42	1.56	3.56	2.05	4.58	2.69	6.25	3.71	7.83	4.87	8.69	5.41	10.18	5.70
3	10	25	19	1.49 1.26	0.89 0.75	2.19 1.76	1.40	2.76 2.16	1.59 1.25	3.85 2.85	2.26 1.68	5.30 3.86	3.13 2.27	6.98 5.48	4.29 3.31	7.75 6.08	4.76 3.67	9.07 7.12	5.02 3.87
5	8	25	19	1.99 1.71	1.15	2.88 2.56	1.76	3.80 2.88	2.16	5.15	2.96 2.45	6.60 5.52	3.87	8.41	5.12 4.47	9.34	5.68	10.93	5.99 5.23
5	0	25	19	1.71	0.99	1.99	1.55 1.20	2.88	1.65 1.27	4.25 3.07	1.78	3.93	3.24 2.30	7.40 5.68	3.40	8.21 6.30	4.96 3.77	9.62 7.38	3.98
5	10	25	19	1.75	1.04	2.47	1.59 1.41	3.50	2.01	4.60	2.70	6.06	3.63 3.05	7.61	4.78	8.45	5.31	9.89	5.59 4.90
5	10	25	19	1.51 1.27	0.90 0.76	2.23 1.77	1.10	12.68 2.08	1.55 1.21	3.83 2.80	2.26 1.66	5.11 3.69	2.19	6.75 5.26	4.19 3.21	7.49 5.84	4.65 3.56	8.78 6.84	3.76
-	12	25	19	1.45 1.27	0.91	2.00	1.40 1.25	3.12	1.84	3.93	2.41	5.41	2.05 2.83	6.68	4.40	7.41	4.88	8.68	5.15 4.54
5	12	25	19	1.08	0.80 0.67	1.83	0.99	2.42 1.90	1.43	3.32 2.47	2.03 1.51	4.61 3.38	3.34	5.98 4.74	3.88 2.99	6.64 5.26	4.31 3.32	7.77 6.16	3.50
7	10	25	19	1.75	1.04	2.48	1.59	3.37	1.95	4.53	2.67	5.78	3.50	7.27	4.64	8.07	5.15	9.45	5.43
,	10	25	19	1.50 1.24	0.89 0.75	2.21 1.73	1.40	2.55 1.96	1.49 1.15	3.74 2.70	2.21 1.61	4.84 3.45	2.93	6.42 4.95	4.05 3.08	7.13 5.49	4.50 3.42	8.35 6.44	4.74 3.60
7	12	25	19 19	1.49	0.92	2.05	1.42	3.04	1.80	3.93	2.41	5.20	3.25	6.41	4.29	7.12	4.76	8.33	5.02
7	12	25		1.29 1.08	0.80	1.85 1.49	1.26 0.99	2.33 1.81	1.39	3.28 2.41	2.01 1.48	4.40 3.19	2.74 1.97	5.72 4.50	3.77 2.89	6.35 5.00	4.18 3.21	7.44 5.85	4.41 3.38
7	14	25		1.16	0.79	1.54	1.23	2.63 2.05	1.63	3.21	2.11	4.48 3.84	2.96 2.51	5.40 4.88	3.90 3.44	5.99	4.33	7.02	4.56 4.02
L '		20	19	1.02 0.87	0.69 0.59	1.43 1.19	1.10 0.87	1.61	1.27 1.00	2.72 2.04	1.78	2.84	1.83	3.93	2.67	5.42 4.36	3.82 2.96	6.34 5.11	3.12
9	12	25	19	1.48 1.27	0.92 0.79	2.04 1.83	1.41 1.25	2.90 2.20	1.74 1.33	3.85 3.18	2.37 1.97	4.89 4.11	3.13 2.62	6.03 5.35	4.14 3.62	6.69 5.94	4.60 4.02	7.84 6.96	4.84 4.24
9	14	25	19	1.05	0.66	1.44	0.97	1.69	1.03	2.29	1.43	2.94	1.87	4.17	2.76	4.63	3.06	5.42	3.23
9	14	25	19	1.20 1.04	0.81 0.70	1.58 1.45	1.24 1.11	2.55 1.96	1.59 1.23	3.20 2.68	2.10 1.76	4.25 3.62	2.87 2.42	5.11 4.60	3.79 3.33	5.67 5.11	4.21 3.70	6.64 5.98	4.43 3.90
	14	25	10	0.88	0.70	1.18	0.87	1.52	0.96	1.98	1.30	2.65	1.75	3.67	2.56	4.07	2.84	4.77	3.00
9	16	25	19	0.83 0.74	0.67 0.59	1.04 0.97	1.04 0.94	2.08 1.63	1.40	2.39 2.04	1.79 1.52	3.44 2.99	2.56 2.17	3.97 3.65	3.37 2.98	4.41 4.05	3.74 3.31	5.16 4.75	3.94 3.49
9	10			0.74	0.59	0.85	0.94	1.03	0.87	1.55	1.14	2.25	1.59	3.02	2.32	3.35	2.58	3.93	2.71
11	14	25	19	1.19	0.80	1.56 1.41	1.23	2.39	1.52 1.17	3.11 2.57	2.06 1.72	3.92 3.31	2.74	4.69 4.20	3.63 3.18	5.21 4.66	4.03 3.53	6.10 5.46	4.25 3.72
	1.7		13	0.84	0.58	1.13	0.85	1.39	0.91	1.85	1.26	2.38	1.64	3.31	2.43	3.67	2.70	4.30	2.84
11	16	25	19	0.87 0.76	0.68	1.06 0.99	1.06 0.94	1.99 1.53	1.36 1.06	2.38	1.79 1.50	3.21 2.76	2.47	3.66 3.35	3.26 2.87	4.06 3.72	3.62 3.19	4.76 4.36	3.81 3.36
	10		10	0.64	0.50	0.84	0.74	1.20	0.83	1.50	1.12	2.05	1.51	2.75	2.22	3.05	2.46	3.58	2.60
11	18	25	19	0.53 0.47	0.53 0.47	0.82	0.82	1.44	1.16 0.91	1.44 1.26	1.44	2.25	2.13 1.82	2.78 2.48	2.78 2.48	3.09 2.75	3.09 2.75	3.61	3.25 2.90
				0.40	0.40	0.60	0.60	0.92	0.73	0.99	0.94	1.57	1.34	1.99	1.95	2.21	2.16	2.59	2.28
3	6	27	19	2.24 1.92	1.40 1.21	3.23 2.87	2.15 1.90	4.26 3.22	2.63	5.80 4.78	3.61 2.99	7.39 6.17	4.71 3.93	9.41 8.27	6.24 5.45	10.45 9.18	6.93 6.05	12.23 10.75	7.30 6.38
Ů			10	1.59	1.00	2.23	1.46	2.47	1.54	3.44	2.16	4.38	2.78	6.34	4.13	7.04	4.58	8.24	4.83
3	8	27	19	2.02 1.74	1.29 1.12	2.85 2.56	1.98	3.98 3.04	2.48 1.90	5.29 4.39	3.35 2.79	6.89 5.80	4.47 3.75	8.65 7.66	5.90 5.17	9.60 8.50	6.55 5.74	11.25 9.96	6.90 6.05
				1.45	0.94	2.02	1.36	2.35	1.48	3.19	2.04	4.16	2.68	5.95	3.95	6.60	4.38	7.74	4.62
3	10	27	19	1.76 1.53	1.17	2.43 2.20	1.80	3.66 2.82	2.32 1.79	4.70 3.94	3.07 2.58	6.31 5.35	4.20 3.54	7.81 6.97	5.54 4.87	8.67 7.74	6.15 5.41	10.15 9.06	6.48 5.70
				1.29	0.86	1.78	1.26	2.20	1.40	2.90	1.91	3.89	2.55	5.49	3.74	6.09	4.15	7.14	4.38
5	8	27	19	2.02 1.73	1.29 1.11	2.87 2.55	1.98	3.87 2.92	2.42 1.84	5.23 4.31	3.33 2.75	6.63 5.55	4.35 3.63	8.35 7.36	5.77 5.04	9.27 8.17	6.40 5.59	10.86 9.57	6.75 5.90
<u></u>	-		-	1.43	0.93	1.99	1.35	2.24	1.42	3.09	1.99	3.94	2.57	5.66	3.82	6.28	4.24	7.36	4.47
5	10	27	19	1.79 1.55	1.19	2.48	1.82	3.58 2.73	2.28 1.75	4.70 3.91	3.07 2.58	6.11 5.15	4.11 3.45	7.57 6.73	5.43 4.76	8.40 7.47	6.03 5.28	9.84 8.75	6.35 5.57
<u> </u>				1.29	0.86	1.78	1.26	2.11	1.36	2.84	1.88	3.71	2.47	5.26	3.64	5.84	4.04	6.84	4.26
5	12	27	19	1.51	1.06 0.93	2.03 1.85	1.64 1.46	3.23 2.49	2.12 1.64	4.07 3.42	2.79 2.35	5.49 4.68	3.84 3.24	6.67 5.99	5.07 4.46	7.40 6.65	5.63 4.95	8.67 7.79	5.93 5.22
<u> </u>				1.11	0.78	1.51 2.47	1.15	1.95 3.44	1.29 2.21	2.53	1.74 3.04	3.42	2.34	4.77 7.21	3.43	5.29	3.81	6.20 9.37	4.01
7	10	27	19	1.78 1.52	1.18	2.47	1.82	2.60	1.69	4.62 3.80	2.52	5.82 4.87	3.98 3.32	6.38	5.29 4.62	8.00 7.08	5.87 5.13	9.37 8.29	6.19 5.41
<u> </u>				1.26 1.54	0.85 1.07	1.73 2.06	1.24 1.65	1.99 3.14	1.31 2.07	2.73 4.05	1.83 2.78	3.47 5.26	2.36 3.74	4.94 6.38	3.50 4.95	5.48 7.08	3.89	6.42 8.29	4.10 5.79
7	12	27	19	1.33	0.93	1.87	1.47	2.39	1.59	3.37	2.78	4.45	3.14	5.71	4.34	6.34	5.49 4.82	7.42	5.08
<u> </u>				1.11 1.24	0.78 0.95	1.50 1.58	1.14 1.47	1.85 2.76	1.24 1.90	2.46 3.37	1.71 2.50	3.22 4.59	2.26 3.46	4.51 5.42	3.32 4.58	5.01 6.02	3.69 5.08	5.86 7.05	3.88 5.36
7	14	27	19	1.08	0.95	1.46	1.31	1.13	1.48	2.85	2.10	3.94	2.93	4.92	4.03	5.46	4.47	6.40	4.72
<u> </u>				0.91 1.52	0.70 1.07	1.22 2.04	1.03 1.65	1.67 2.99	1.16 2.00	2.12	1.56 2.74	2.91 4.94	2.12 3.61	3.98 5.98	3.11 4.79	4.42 6.64	3.45 5.32	5.17 7.77	3.64 5.60
9	12	27	19	1.30	0.92	1.83	1.46	2.25	1.53	3.95 3.25	2.27	4.15	3.01	5.32	4.19	5.91	4.65	6.92	4.90
<u> </u>				1.07 1.26	0.77 0.96	1.45 1.60	1.12 1.48	1.72 2.66	1.18	2.33 3.34	1.65 2.48	2.96 4.34	2.14 3.36	4.16 5.09	3.18 4.45	4.62 5.65	3.53 4.94	5.41 6.62	3.72 5.21
9	14	27	19	1.09	0.83	1.47	1.32	2.03	1.43	2.79	2.08	3.69	2.83	4.60	3.91	5.11	4.34	5.98	4.57
-				0.91	0.70 0.83	1.20 1.28	1.03	1.57 2.24	1.12	2.04 2.59	1.53 2.19	2.69 3.60	2.04 3.07	3.69 4.06	3.00 4.06	4.10 4.51	3.33 4.51	4.80 5.28	3.51 4.75
9	16	27	19	0.81	0.73	1.15	1.15	1.74	1.31	21.20	1.85	3.11	2.60	3.73	3.59	4.14	3.98	4.85	4.20
-				0.69 1.24	0.62 0.95	0.91 1.57	0.91 1.47	1.36 2.49	1.04	1.66 3.23	1.38 2.44	2.34 3.99	1.89 3.22	3.10 4.65	2.77 4.29	3.44 5.16	3.07 4.76	4.03 6.05	3.24 5.02
11	14	27	19	1.05	0.82	1.42	1.30	1.87	1.37	2.66	2.02	3.36	2.70	4.18	3.75	4.64	4.16	5.43	4.39
-				0.87 0.95	0.69 0.84	1.14 1.28	1.00	1.43 2.12	1.06	1.90 2.56	1.48 2.17	2.41 3.32	1.92 2.97	3.31 3.91	2.85 3.91	3.67 4.34	3.16 4.34	4.30 5.08	3.33 4.57
11	16	27	19	0.82	0.73	1.15	1.15	1.62	1.27	2.14	1.82	2.85	2.50	3.45	3.45	3.83	3.83	4.49	4.04
-				0.69	0.62	0.90 1.07	0.90 1.07	1.26 1.65	0.99 1.45	1.58 1.85	1.35 1.85	2.11	1.81 2.65	2.79 3.45	2.66 3.45	3.10	2.95 3.83	3.63 4.49	3.11 4.04
11	18	27	19	0.61	0.61	0.96	0.96	1.29	1.14	1.57	1.57	2.25	2.25	3.06	3.06	3.40	3.40	3.98	3.58
Ц		l		0.52	0.52	0.77	0.77	1.02	0.90	1.18	1.18	1.70	1.65	2.40	2.40	2.66	2.66	3.12	2.81

			412		420		425		435		450		460		480		490		
1	Water Temperature Air Temperature		Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	Cooling	Capacity	
IN	Out	DB	WB	Total	Sens	Total	Sens	Total	Sens	Total	Sens								
°C	°C	°C	°C	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]										
3	6	29	21	2.61	1.50 1.29	3.81 3.38	2.28	4.90 3.71	2.79	3.86 3.19	3.86 3.19	8.59 7.16	4.99 4.16	11.04 9.68	6.61 5.77	12.25 10.74	7.34 6.40	14.35 12.58	7.73 6.75
				1.85	1.07	2.61	1.55	2.85	2.66	2.30	2.30	5.06	2.94	7.38	4.36	8.19	4.84	9.59	5.10
3	8	29	21	2.40	1.39	3.45 3.08	2.13 1.88	4.64 3.54	2.66	3.61	3.61	8.11 6.80	4.77 3.99	10.31 9.09	6.29 5.51	11.44 10.09	6.98 6.12	13.40 11.82	7.36 6.45
				1.72	1.01	2.41	1.46	2.73	1.58	2.19	2.19	4.86	2.85	7.01	4.20	7.78	4.66	9.11	4.91
3	10	29	21	2.15 1.86	1.28 1.11	3.05 2.74	1.96 1.74	4.34 3.33	2.51 1.93	3.35 2.80	3.35 2.80	7.57 6.39	4.52 3.90	9.51 8.45	5.96 5.23	10.56 9.38	6.62 5.81	12.36 10.99	6.97 6.12
		29	21	1.57 2.39	0.94 1.39	2.18 3.45	1.35 2.13	2.59 4.52	1.51 2.60	2.06 3.58	2.06 3.58	4.61 7.85	2.73 4.65	6.58 10.01	4.01 6.16	7.30 11.11	4.45 6.84	8.55 13.01	4.69 7.21
5	8			2.05	1.20	3.07	1.88	3.42	1.97	2.96	2.96	6.55	3.88	8.79	5.38	9.76	5.97	11.43	6.29
				1.69 2.18	0.99 1.29	2.37 3.09	1.44	2.63 4.25	1.52 2.46	2.14 3.34	2.14 3.34	4.64 7.36	2.74 4.43	6.72 9.26	4.07 5.85	7.46 10.28	4.52 6.49	8.74 12.04	4.76 6.84
5	10	29	21	1.87 1.56	1.12 0.94	2.76 2.17	1.75 1.36	3.24 2.50	1.89 1.46	2.78	2.78	6.18 4.43	3.71 2.65	8.19 6.34	5.13 3.91	9.09 7.04	5.69 4.34	10.65 8.24	6.00 4.57
				1.92	1.18	2.66	1.81	3.93	2.31	3.08	3.08	6.78	4.18	8.42	5.52	9.35	6.13	10.95	6.46
5	12	29	21	1.66	1.02 0.86	2.41 1.93	1.61	3.02 2.35	1.78 1.40	2.58 1.90	2.58 1.90	5.74 4.16	3.52 2.53	7.51 5.89	4.85 3.72	8.34 6.54	5.38 4.13	9.76 7.66	5.67 4.35
7	10	29	0.4	2.16	1.28	3.07	1.97	4.11	2.40	3.30	3.30	7.06	4.30	8.90	5.71	9.88	6.34	11.57	6.68
7	10	29	21	1.85	1.10 0.92	2.73	1.74	3.10 2.38	1.82	2.73 1.97	2.73 1.97	5.90 4.18	3.59 2.54	7.84 6.02	4.98 3.77	8.70 6.68	5.53 4.18	10.19 7.83	5.83 4.41
7	12	29	21	1.93 1.66	1.18	2.68 2.41	1.82 1.61	3.83 2.91	2.26 1.74	3.06 2.55	3.06 2.55	6.54 5.51	4.08 3.42	8.12 7.21	5.40 4.73	9.01 8.00	5.99 5.25	10.56 9.37	6.32 5.53
	12	23		1.39	0.86	1.91	1.25	2.25	1.35	1.87	1.87	3.96	2.45	5.62	3.61	6.24	4.01	7.31	4.22
7	14	29	21	1.66	1.07 0.93	2.24	1.65 1.47	3.48 2.68	2.11	2.80	2.80	5.92 5.03	3.83 3.23	7.22 6.48	5.60 4.44	8.01 7.19	6.22 4.93	9.39 8.42	6.55 5.19
				1.21	0.79	1.66	1.15	2.09	1.28	1.74	1.74	3.67	2.33	5.13	3.42	5.69	3.80	6.67	4.00
9	12	29	21	1.91 1.63	1.17 1.01	2.65 2.37	1.81 1.60	2.77	2.19 1.67	3.02 2.50	3.02 2.50	6.21 5.20	3.94 3.29	7.73 6.82	5.24 4.58	8.58 7.57	5.82 5.08	10.05 8.87	6.13 5.36
-				1.35 1.67	0.84 1.07	1.85 2.25	1.23 1.66	2.12 3.37	1.29 2.06	1.71 2.78	1.81 2.78	3.69 5.66	2.34 3.72	5.27 6.89	3.47 4.93	5.85 7.65	3.85 5.47	6.85 8.96	4.06 5.77
9	14	29	21	1.44	0.93	2.03	1.47	2.56	1.58	2.32	2.32	4.78	3.12	6.15	4.32	6.83	4.80	8.00	5.05
		29	21	1.20	0.78 0.96	1.63 1.77	1.14	1.98 2.99	1.23	1.70 2.51	1.70 2.51	3.45 4.98	2.24 3.46	4.84 5.91	3.30 4.58	5.37 6.56	3.66 5.08	6.29 7.68	3.86 5.36
9	16			1.19	0.84	1.63	1.33	2.31	1.48	2.11	2.11	4.26	2.92	5.35	4.03	5.94	4.47	6.96	4.72
				1.00 1.63	0.71 1.06	1.35 2.21	1.04 1.64	1.80 3.19	1.16 1.99	1.57 2.73	1.57 2.73	3.13 5.29	2.11 3.58	4.31 6.43	3.10 4.76	4.78 7.14	3.44 5.28	5.60 8.36	3.63 5.57
11	14	29	21	1.39	0.92 0.76	1.98 1.56	1.45 1.12	2.40 1.83	1.52 1.17	2.26 1.64	2.26 1.64	4.44 3.16	2.99 2.13	5.72 4.46	4.16 3.16	6.35 4.95	4.62 3.51	7.44 5.80	4.87 3.70
11				1.70	0.96	1.77	1.49	2.86	1.85	2.49	2.49	4.69	3.35	5.54	4.45	6.15	4.94	7.20	5.21
	16	29	21	1.18 0.99	0.83 0.70	1.62 1.32	1.32	2.18 1.68	1.43	2.08 1.53	2.08 1.53	3.98 2.89	2.82	4.99 3.99	3.90 2.68	5.54 4.43	4.33 2.97	6.49 5.19	4.56 3.14
11	18	29	21	1.04 0.91	0.84 0.73	1.30	1.30	2.44 1.89	1.69	2.21 1.86	2.21	3.93 3.40	3.08 2.61	4.46 4.11	4.08	4.95 4.56	4.53	5.80	4.77 4.20
	10	20		0.77	0.62	1.17	0.92	1.58	1.32	1.39	1.86	2.54	1.89	3.39	3.59 2.78	3.76	3.98	5.34 4.41	3.25
3	6	31	23	2.99 2.56	1.58 1.35	4.40 3.90	2.39 2.11	5.58 4.22	2.94	4.07 3.35	4.07 3.35	9.84 8.19	5.23 4.36	12.72 11.13	6.92 6.03	14.12 12.35	7.68 6.69	16.54 14.47	8.10 7.06
				2.12	1.12	3.00	1.62	3.24	1.71	2.41	2.41	5.78	3.28	8.45	4.55	9.38	5.05	10.99	5.32
3	8	31	23	2.79 2.40	1.48 1.28	4.06 3.61	2.25 1.99	5.33 4.05	2.81 2.14	3.84 3.18	3.84 3.18	9.38 7.85	5.02 4.20	12.03 10.57	6.62 5.79	13.35 11.73	7.35 6.43	15.64 13.74	7.75 6.77
				2.00 2.56	1.07	2.81 3.68	1.54 2.09	3.13 5.04	1.60 2.67	2.31 3.59	2.31 3.59	5.59 8.87	2.99 4.80	8.10 11.27	4.40 6.31	8.99 12.51	4.88 7.00	10.53 14.65	5.15 7.38
3	10	31	23	2.21	1.19	3.30	1.86	3.86	2.05	2.99	2.99	7.46	4.03	9.96	5.53	11.06	6.14	12.95	6.47
				1.85 2.78	1.00 1.48	2.60 4.06	1.45 2.25	3.00 5.20	1.59 2.75	2.19 3.81	2.19 3.81	5.36 7.12	2.88 4.91	7.70 11.72	4.23 6.50	8.55 13.01	4.70 7.22	10.01 15.24	4.95 7.61
5	8	31	23	2.38 1.97	1.27 1.50	3.59 2.77	1.98	3.93 3.01	2.08 1.60	3.14 2.26	3.14	7.60	4.09 2.89	10.27 7.82	5.66 4.28	11.40	6.28 4.75	13.35 10.17	6.62 5.01
				2.57	1.38	3.71	1.52 2.11	4.95	2.62	3.58	2.26 3.58	5.36 8.65	4.70	11.02	6.21	8.68 12.23	6.89	14.33	7.27
5	10	31	23	2.21 1.84	1.19	3.31 2.58	1.87 1.44	3.77 2.91	2.00 1.55	2.97 2.16	2.97	7.25 5.17	3.93 2.80	9.70 7.46	5.43 4.13	10.77 8.28	6.03 4.58	12.61 9.70	6.35 4.83
-	10	04	23	2.33	1.28	3.31	1.95	4.65	2.48	3.34	3.34	8.11	4.47	10.22	5.90	11.34	6.55	13.29	6.90
5	12	31	۷۵	2.02 1.69	1.11 0.93	2.98 2.36	1.74 1.35	3.56 2.77	1.91 1.49	2.78 2.04	2.78 2.04	6.84 4.92	3.76 2.70	9.06 7.04	5.17 3.96	10.06 7.81	5.74 4.40	11.78 9.15	6.05 4.63
7	10	31	23	2.55 2.18	1.37 1.18	3.69 3.27	2.10 1.85	4.81 3.63	2.56 1.94	3.54 2.92	3.54 2.92	8.35 6.96	4.58 3.81	10.66 9.35	6.07 5.29	11.83 10.38	6.74 5.87	13.86 12.16	7.10 6.19
<u> </u>		<u> </u>		1.80	0.98	2.53	1.42	2.78	1.49	2.10	2.10	4.92	2.70	7.14	4.00	7.93	4.44	9.28	4.68
7	12	31	23	2.34	1.28	3.33 2.97	1.96 1.74	4.54 3.45	2.43 1.86	3.32 2.75	3.32 2.75	7.86 6.60	4.37 3.66	9.92 8.76	5.78 5.06	11.01 9.72	6.42 5.62	12.90 11.39	6.76 5.92
<u> </u>				1.68 2.08	0.93 1.18	2.33 2.91	1.34 1.81	2.66 4.22	1.44 2.29	2.01 3.07	2.01 3.07	4.71 7.29	2.61 4.14	6.76 9.08	3.85 5.47	7.50 10.08	4.27 6.07	8.79 11.80	4.50 6.40
7	14	31	23	1.80	1.02	2.63	1.61	3.24	1.77	2.57	2.57	6.16	3.48	8.08	4.80	8.97	5.33	10.50	5.62
-				1.51 2.31	0.86 1.27	2.10 3.29	1.25 1.95	2.52 4.38	1.38 2.36	1.89 5.98	1.89 5.98	4.45 7.53	2.50 4.24	6.32 9.51	3.68 5.63	7.02 10.56	4.08 6.25	8.22 12.36	4.31 6.59
9	12	31	23	1.97	1.09	2.92	1.72	3.30	1.79	2.70	2.70	6.29	3.53	8.37	4.91	9.29	5.45	10.88	5.74
		31	23	1.63 2.09	0.91 1.18	2.27 2.91	1.32 1.81	2.53 4.10	1.38 2.24	1.95 3.04	1.95 3.04	4.45 7.01	2.50 4.03	6.41 8.73	3.71 5.34	7.12 9.69	4.12 5.93	8.33 11.35	4.34 6.25
9	14			1.79 1.49	1.02 0.85	2.61 2.06	1.60 1.24	3.12 2.40	1.72	2.53 1.85	2.53 1.85	5.90 4.23	3.38 2.41	7.74 6.02	4.68 3.56	8.59 6.68	5.19 3.95	10.06 7.83	5.48 4.17
	40	01	00	1.81	1.07	2.47	1.65	3.76	2.10	2.80	2.80	6.39	3.80	7.84	5.02	8.70	5.57	10.19	5.87
9	16	31	23	1.57	0.93	2.24 1.81	1.47	2.88	1.62	2.34 1.73	2.34 1.73	5.42 3.94	3.20 2.30	7.01 5.53	4.41 3.38	7.78 6.14	4.90 3.75	9.11 7.19	5.16 3.95
11	14	31	23	2.05 1.75	1.16 1.00	2.86 2.55	1.79 1.58	3.92 2.95	2.17 1.65	2.99 2.47	2.99 2.47	6.65	3.89 3.25	8.28 7.31	5.18 4.52	9.19	5.75	10.76 9.50	6.06
	17	JI	20	1.44	0.83	1.99	1.21	2.26	1.27	1.79	1.79	5.56 3.94	2.30	5.64	3.42	8.11 6.26	5.02 3.80	7.33	5.29 4.00
11	16	31	23	1.81	1.07 0.93	2.46 2.22	1.65 1.46	3.62 2.75	2.04 1.57	2.77	2.77	6.09 5.14	3.69 3.09	7.45 6.67	4.89 4.28	8.27 7.40	5.43 4.75	9.69 8.67	5.72 5.01
	-			1.30	0.78	1.77	1.13	2.12	1.22	1.69	1.69	3.70	2.21	5.20	3.27	5.77	3.63	6.76	3.83
11	18	31	1 23	1.51	0.96 1.84	1.98 1.81	1.49	3.24 2.49	1.90 1.47	2.51 2.11	2.51 2.11	5.41 4.62	3.45 2.91	6.47 5.84	4.56 4.01	7.18 6.48	5.06 4.45	8.41 7.59	5.34 4.69
		<u> </u>		1.10	0.71	1.49	1.04	1.94	1.15	1.56	1.56	3.38	2.10	4.67	3.08	5.18	3.42	6.07	3.60







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NOTES