

▶ **Water Cooled Water Chillers**  
**Cooling Only, Condenserless and Heat Pump Versions**

# **CWP-CO / CWP-RC / CWP-HP** **02 to 35**



8 to 136 kW



9 to 164 kW



**Technical Brochure**

**TM CWP-W.4GB**

Date : March 2006

Supersedes : TM CWP-W.3GB/05.04

**Wesper**®

# Technical Description

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## General

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The CWP water cooled water chillers are designed to offer 13 sizes for all small and medium capacity residential, commercial and industrial facilities.

With the use of plate type heat exchangers, the chillers have an extremely compact design, permitting to obtain a very small footprint.

The unit is fully encased with galvanised steel panels finished in baked paint coloured **RAL 7032**.

All chillers are designed to be located inside a plant room. Their installation is facilitated by water connections located at the rear side of the machine.

All of these 13 sizes are available in three versions :

- 1) **CWP-CO : "cooling only" chillers** require a cooling tower or dry cooler for heat rejection.
- 2) **CWP-RC : "condenserless" chillers** require a remote air cooled condenser for heat rejection.
- 3) **CWP-HP : "water-to-water reverse cycle" heat pumps** providing the leaving hot water temperatures up to 51 °C (heating mode), useful for sanitary hot water, low temperature heating applications, etc.

All units are completely assembled with all interconnecting refrigerant piping and internal wiring ready for field installation. After assembly, a full factory run test is performed with water flowing through the evaporator and condenser to verify that each refrigerant circuit operates correctly.

They are shipped with a full refrigerant and oil charge (except CWP-RC which is shipped with nitrogen charge).

## Compressors

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Compressors are of hermetic Scroll, with a gas cooled motor, crankcase heater (except sizes 02 to 09) and internal motor protection. Sizes 02 to 21 have one compressor, whereas sizes 25 to 35 have two compressors.

All compressors are mounted on rubber anti-vibration pads to minimize noise and vibration transmissions.

## Evaporator

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Evaporator is of direct expansion type, constituted from stainless steel brazed plate type heat exchanger.

Evaporator is wrapped with an electric resistance heater cable and thermally insulated with closed cell polyurethane foam to provide freeze protection down to ambient temperature of - 20 °C.

## Condenser (except CWP-RC)

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Condenser is of stainless steel brazed plate type heat exchanger.

On CWP-HP models, condenser is wrapped with an electric resistance heater cable and thermally insulated with closed cell polyurethane foam to provide freeze protection down to ambient temperature of - 20 °C.

## Refrigerant circuit

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Refrigerant circuit is supplied with thermal expansion valve, filter drier, sight glass with moisture indicator, non-return valves at compressor discharge side (on size 25 to 35 only), solenoid valve (on CWP-RC only) and high and low pressure switches.

The CWP-HP models have, in addition, reverse cycle 4-port valve, non-return valves and liquid reservoir.

## Electrical panel

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All electrical equipments necessary for full unit operation are located in a compartment of which the access is accomplished through the front of the unit. Access panel is held by fixing screws.

Electrical panel, in compliance with CE standards, includes main disconnect switch with externally lockable handle, compressor contactors and overload protection, control circuit fuses, evaporator thermostat, electronic temperature controller, high & low pressure switches, anti-freeze thermostat (2 pieces on CWP-HP models), anti-short cycle time delay, on/off switch and electrical junction block for power and control circuits.

## Optional features

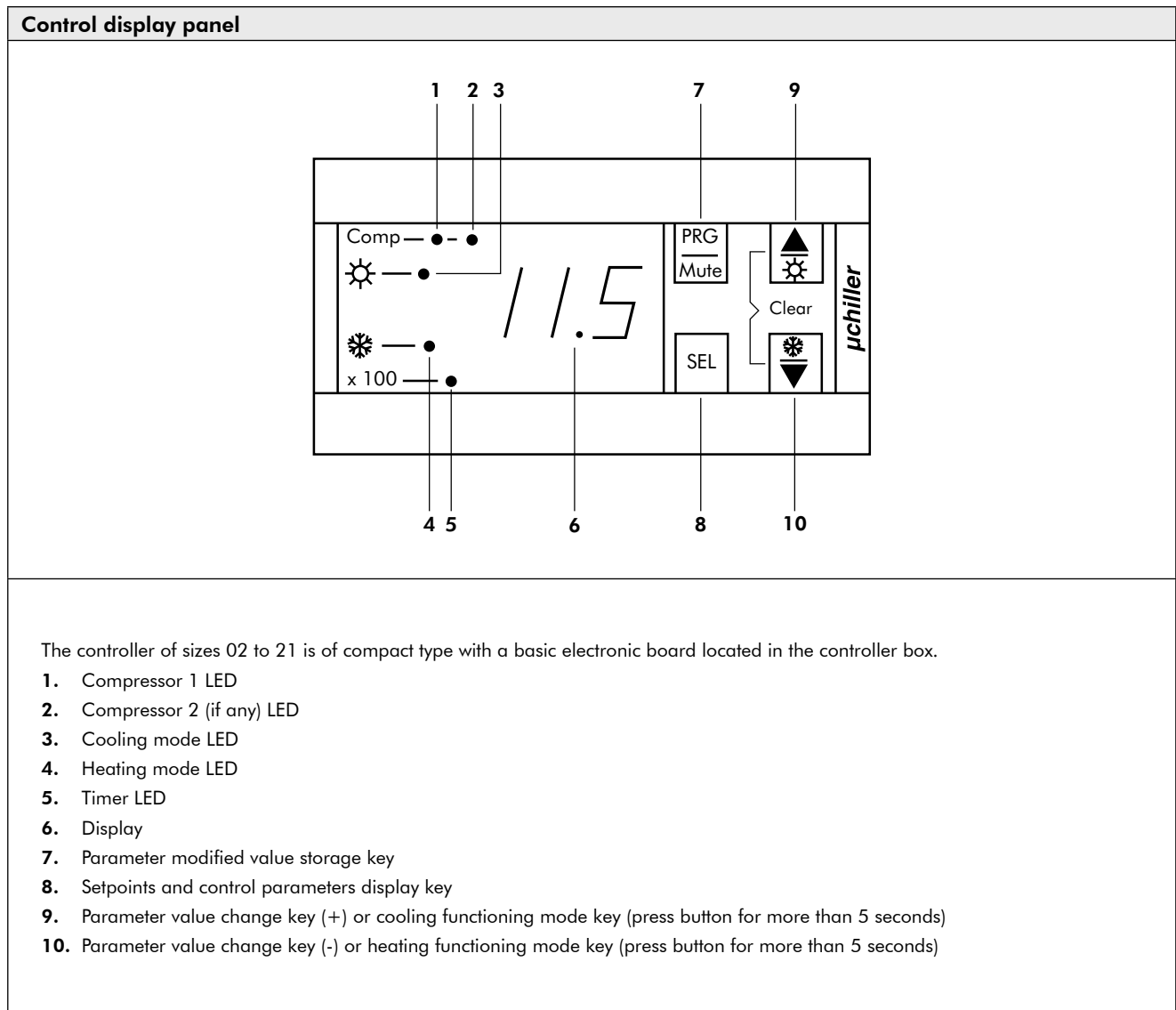
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- ✓ Control circuit transformer (400 V / 230 V),
- ✓ Remote fault relay,
- ✓ Hour meter,
- ✓ Water flow switch (supplied loose),
- ✓ Lack of water safety pressure switch (evaporator side),
- ✓ HP/LP gauges,
- ✓ Rubber vibration isolators kit,
- ✓ Compressor jacket,
- ✓ Condenser pressostatic valve (size 02 to 21 only),
- ✓ Water isolating valves (supplied loose) - quantity : 4 on CWP-CO & CWP-HP and 2 on CWP-RC,
- ✓ Supply water external filters (supplied loose) - quantity : 2 on CWP-CO & CWP-HP and 1 on CWP-RC,
- ✓ Chiller sequencer.

# Controls

The CWP units are equipped with a microprocessor based controller consisting of electronic board(s) and a user interface with digital display and programming keypad to keep the units under total control.

**The control display panel has the features as described below.**



The controller of sizes 02 to 21 is of compact type with a basic electronic board located in the controller box.

1. Compressor 1 LED
2. Compressor 2 (if any) LED
3. Cooling mode LED
4. Heating mode LED
5. Timer LED
6. Display
7. Parameter modified value storage key
8. Setpoints and control parameters display key
9. Parameter value change key (+) or cooling functioning mode key (press button for more than 5 seconds)
10. Parameter value change key (-) or heating functioning mode key (press button for more than 5 seconds)

# Refrigerant Flow Diagrams - CWP 02 to 21

<p><b>CO VERSION</b></p>	<ol style="list-style-type: none"> <li>1. Compressor</li> <li>2. Safety valve</li> <li>3. Condenser</li> <li>4. Drier filter</li> <li>5. Sight glass</li> <li>6. Thermostatic valve</li> <li>7. Evaporator</li> </ol>
<p><b>RC VERSION</b></p>	<ol style="list-style-type: none"> <li>1. Compressor</li> <li>2. Safety valve</li> <li>3. Globe valve</li> <li>4. Liquid receiver</li> <li>5. Solenoid valve</li> <li>6. Drier filter</li> <li>7. Sight glass</li> <li>8. Thermostatic valve</li> <li>9. Evaporator</li> </ol>
<p><b>HP VERSION</b></p>	<ol style="list-style-type: none"> <li>1. Compressor</li> <li>2. Safety valve</li> <li>3. 4-way valve</li> <li>4. Heat exchanger</li> <li>5. Liquid receiver</li> <li>6. Drier filter</li> <li>7. Sight glass</li> <li>8. Thermostatic valve</li> <li>9. Evaporator</li> </ol>
<p><b>LEGEND</b></p>	
	<ol style="list-style-type: none"> <li>P1. High pressure switch</li> <li>P2. Low pressure switch</li> <li>P3. Tapping point</li> <li>P4. Check valve</li> </ol>

# Refrigerant Flow Diagrams - CWP 25 to 35

<b>CO VERSION</b>	
	<ol style="list-style-type: none"> <li>1. Compressors</li> <li>2. Safety valve</li> <li>3. Condenser</li> <li>4. Drier filter</li> <li>5. Sight glass</li> <li>6. Thermostatic valve</li> <li>7. Evaporator</li> </ol>
<b>RC VERSION</b>	
	<ol style="list-style-type: none"> <li>1. Compressors</li> <li>2. Safety valve</li> <li>3. Globe valve</li> <li>4. Liquid receiver</li> <li>5. Solenoid valve</li> <li>6. Drier filter</li> <li>7. Sight glass</li> <li>8. Thermostatic valve</li> <li>9. Evaporator</li> </ol>
<b>HP VERSION</b>	
	<ol style="list-style-type: none"> <li>1. Compressors</li> <li>2. Safety valve</li> <li>3. 4-way valve</li> <li>4. Heat exchanger</li> <li>5. Liquid receiver</li> <li>6. Drier filter</li> <li>7. Sight glass</li> <li>8. Thermostatic valve</li> <li>9. Evaporator</li> </ol>
<b>LEGEND</b>	
	<ol style="list-style-type: none"> <li>P1. High pressure switch</li> <li>P2. Low pressure switch</li> <li>P3. Tapping point</li> <li>P4. Check valve</li> </ol>

# Operating Limits

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DESCRIPTION	MINI	MAXI
Leaving chilled water temperature °C (with glycol / without glycol)	4 / 6	15
Chilled water temperature difference °C	4	6
Condenser leaving water temperature °C	26	51
Condenser water temperature difference °C	5	7
Condenser entering water temp. without pressostatic valve °C	20	45
Condenser entering water temp. with pressostatic valve °C	15	36

# Application Adjustment Factors

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## Fouling Factors

Fouling factors m <sup>2</sup> .°C/kW	Correction factors	
	Cooling capacity	Power input
0.044	1.000	1.000
0.088	0.987	0.995
0.176	0.964	0.985
0.352	0.915	0.962

## Glycol Factors

% glycol by weight	10	20	30	40	50
Freezing point (°C)	-3	-8	-14	-22	-33
Cooling capacity	0.991	0.982	0.972	0.961	0.946
Power input	0.996	0.992	0.986	0.976	0.966
Water flow rate	1.013	1.040	1.074	1.121	1.178
Water pressure drop	1.070	1.129	1.181	1.263	1.308

# Technical Data - CWP-CO

CWP-CO MODELS		02	03	04	05	06	07	09	15
Nominal cooling capacity (1)	kW	7.6	9.2	13.3	16.3	19.7	28	33.7	40.7
Nominal power input (1)	kW	1.97	2.38	3.37	3.91	5.08	7.16	8.76	10.9
Number of refrigerant circuit		1	1	1	1	1	1	1	1
Refrigerant charge HFC 407C	kg	1.45	1.6	1.75	2.0	2.7	2.8	3.0	4.3
<b>COMPRESSOR</b>									
Type / Number		Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1
No of capacity reduction steps		1	1	1	1	1	1	1	1
<b>EVAPORATOR</b>									
Number / Water volume	dm <sup>3</sup>	1 / 0.7	1 / 1.1	1 / 1.1	1 / 1.7	1 / 1.7	1 / 2.2	1 / 2.2	1 / 2.8
Inlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Outlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
<b>CONDENSER</b>									
Number / Water volume	dm <sup>3</sup>	1 / 0.7	1 / 0.7	1 / 1.1	1 / 1.1	1 / 1.7	1 / 1.7	1 / 2.2	1 / 2.8
Inlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Outlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
<b>DIMENSIONS AND WEIGHT</b>									
Length	mm	800	800	800	800	900	900	900	1100
Depth with support feet	mm	600	600	600	600	700	700	700	850
Height with support feet	mm	910	910	910	910	910	910	910	1110
Shipping weight	kg	115	119	125	138	185	197	201	270
Operating weight	kg	116	120	127	140	188	200	205	274

(1) Data based on chilled water temperatures of 12/7 °C and condenser water temperatures of 29/35 °C.

CWP-CO MODELS		18	21	25	30	35
Nominal cooling capacity (1)	kW	55.8	67.6	87.7	111.9	136.2
Nominal power input (1)	kW	14.1	18.0	23.1	28.3	35.9
Number of refrigerant circuit		1	1	1	1	1
<b>COMPRESSOR</b>						
Type / Number		Scroll / 1	Scroll / 1	Scroll / 2	Scroll / 2	Scroll / 2
N° of capacity steps		1	1	2	2	2
<b>EVAPORATOR</b>						
Type / Number		Plate / 1	Plate / 1	Plate / 1	Plate / 1	Plate / 1
Water flow rate	l/h	9601	11624	15085	19250	23430
Water pressure drop	kPa	37	43	43	46	45
Water connection type		Female GAS Threaded				
Water connection In/Out		1"1/4	1"1/4	2"	2"	2"
<b>CONDENSER</b>						
Type / Number		Plate / 1	Plate / 1	Plate / 1	Plate / 1	Plate / 1
Water flow rate	l/h	12024	14712	19066	24117	29602
Water pressure drop	kPa	58	69	69	73	72
Water connection type		Female GAS Threaded				
Water connection In/Out		1"1/4	1"1/4	2"	2"	2"
<b>DIMENSIONS AND WEIGHT</b>						
Length	mm	1100	1100	1700	1700	1700
Height	mm	1100	1100	1200	1200	1200
Width	mm	850	850	984	984	984
Shipping weight	kg	290	300	500	530	560
Operating weight	kg	295	306	508	541	574

(1) Data based on chilled water temperatures of 12/7 °C and condenser water temperatures of 30/35 °C.

# Technical Data - CWP-RC

<b>CWP-RC MODELS</b>		<b>02</b>	<b>03</b>	<b>04</b>	<b>05</b>	<b>06</b>	<b>07</b>	<b>09</b>	<b>15</b>
Nominal cooling capacity (1)	kW	7	8.5	12.4	15.1	18.3	26.1	31.4	38.2
Nominal power input (1)	kW	2.28	2.62	3.87	4.50	5.82	8.22	10.02	12.4
Number of refrigerant circuit		1	1	1	1	1	1	1	1
<b>COMPRESSOR</b>									
Type / Number		Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1
No of capacity reduction steps		1	1	1	1	1	1	1	1
<b>EVAPORATOR</b>									
Number / Water volume	dm <sup>3</sup>	1 / 0.7	1 / 1.1	1 / 1.1	1 / 1.7	1 / 1.7	1 / 2.2	1 / 2.2	1 / 2.8
Inlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Outlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
<b>REFRIGERANT CONNECTIONS</b>									
Liquid line		3/8"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"
Discharge line		5/8"	5/8"	5/8"	5/8"	7/8"	7/8"	7/8"	1"1/8"
<b>DIMENSIONS AND WEIGHT</b>									
Length	mm	800	800	800	800	900	900	900	1100
Depth with support feet	mm	600	600	600	600	700	700	700	850
Height with support feet	mm	910	910	910	910	910	910	910	1110
Shipping weight	kg	110	114	119	131	179	188	193	259
Operating weight	kg	110	114	119	132	180	189	194	261

(1) Data based on chilled water temperatures of 12/7 °C and condensing temperature of 47 °C.

<b>CWP-RC MODELS</b>		<b>18</b>	<b>21</b>	<b>25</b>	<b>30</b>	<b>35</b>
Nominal cooling capacity (1)	kW	55.8	67.6	87.7	111.9	136.2
Nominal power input (1)	kW	14.1	18.0	23.1	28.3	35.9
Number of refrigerant circuit		1	1	1	1	1
<b>COMPRESSOR</b>						
Type / Number		Scroll / 1	Scroll / 1	Scroll / 2	Scroll / 2	Scroll / 2
N° of Capacity Steps		1	1	2	2	2
<b>EVAPORATOR</b>						
Type / Number		Plate / 1	Plate / 1	Plate / 1	Plate / 1	Plate / 1
Water flow rate	l/h	9601	11624	15085	19250	23430
Water pressure drop	kPa	37	43	43	46	45
Water connection type		Female GAS Threaded				
Water connection In/Out		1"1/4	1"1/4	2"	2"	2"
<b>REFRIGERANT CONNECTIONS</b>						
Liquid line		7/8"	7/8"	1"1/8"	1"1/8"	1"1/8"
Discharge line		1"1/8"	1"1/8"	1"5/8"	1"5/8"	1"5/8"
<b>DIMENSIONS AND WEIGHT</b>						
Length	mm	1100	1100	1700	1700	1700
Height	mm	1100	1100	1200	1200	1200
Width	mm	850	850	984	984	984
Shipping weight	kg	279	290	471	497	520
Operating weight	kg	279	290	471	497	520

(1) Data based on chilled water temperatures of 12/7 °C and condensing temperature of 45 °C.

# Technical Data - CWP-HP

<b>CWP-HP MODELS</b>		<b>02</b>	<b>03</b>	<b>04</b>	<b>05</b>	<b>06</b>	<b>07</b>	<b>09</b>	<b>15</b>
Nominal cooling capacity (1)	kW	6.5	7.9	11.5	14.2	17.1	24.4	29.4	35.9
Nominal power input (1)	kW	2.58	2.97	4.33	5.06	6.51	9.21	11.20	13.9
Nominal heating capacity (1)	kW	9.0	10.7	15.7	19.0	23.3	33.2	40.1	49.1
Nominal power input (1)	kW	2.58	2.97	4.33	5.06	6.51	9.21	11.20	13.9
Number of refrigerant circuit		1	1	1	1	1	1	1	1
Refrigerant charge HFC 407C	kg	4	4.4	4.4	4.5	5.5	5.5	5.6	8.5
<b>COMPRESSOR</b>									
Type / Number		Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1	Scroll / 1
No of capacity reduction steps		1	1	1	1	1	1	1	1
<b>EVAPORATOR</b>									
Number / Water volume	dm <sup>3</sup>	1 / 0.7	1 / 1.1	1 / 1.1	1 / 1.7	1 / 1.7	1 / 2.2	1 / 2.2	1 / 2.8
Inlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Outlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
<b>CONDENSER</b>									
Number / Water volume	dm <sup>3</sup>	1 / 0.7	1 / 1.1	1 / 1.1	1 / 1.7	1 / 1.7	1 / 2.2	1 / 2.2	1 / 2.8
Inlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Outlet water connection (female threaded)		1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
<b>DIMENSIONS AND WEIGHT</b>									
Length	mm	800	800	800	800	900	900	900	1100
Depth with support feet	mm	600	600	600	600	700	700	700	850
Height with support feet	mm	910	910	910	910	910	910	910	1110
Shipping weight	kg	127	130	137	151	204	216	222	298
Operating weight	kg	128	132	139	154	207	220	226	302

(1) Data based on chilled water temperatures of 12/7 °C and condenser water temperatures of 40/46 °C.

<b>CWP-HP MODELS</b>		<b>18</b>	<b>21</b>	<b>25</b>	<b>30</b>	<b>35</b>
Nominal cooling capacity (1)	kW	55.8	67.6	87.7	111.9	136.2
Nominal power input (Cooling) (1)	kW	14.1	18.0	23.1	28.3	35.9
Nominal heating capacity (2)	kW	66.7	76.1	106.3	133.7	164.1
Nominal power input (Heating) (2)	kW	17.4	22.0	28.6	34.9	44.5
Number of refrigerant circuit		1	1	1	1	1
<b>COMPRESSOR</b>						
Type / Number		Scroll / 1	Scroll / 1	Scroll / 2	Scroll / 2	Scroll / 2
N° of capacity steps		1	1	2	2	2
<b>EVAPORATOR</b>						
Type / Number		Plate / 1	Plate / 1	Plate / 1	Plate / 1	Plate / 1
Water flow rate	l/h	9601	11624	15085	19250	23430
Water pressure drop	kPa	37	43	43	46	45
Water connection type		Female GAS Threaded				
Water connection In/Out		1"1/4	1"1/4	2"	2"	2"
<b>CONDENSER</b>						
Type / Number		Plate / 1	Plate / 1	Plate / 1	Plate / 1	Plate / 1
Water flow rate	l/h	12024	14712	19066	24117	29602
Water pressure drop	kPa	58	69	69	73	72
Water connection type		Female GAS Threaded				
Water connection In/Out		1"1/4	1"1/4	2"	2"	2"
<b>DIMENSIONS AND WEIGHT</b>						
Length	mm	1100	1100	1700	1700	1700
Height	mm	1100	1100	1200	1200	1200
Width	mm	850	850	984	984	984
Shipping weight	kg	319	331	530	560	590
Operating weight	kg	324	337	538	571	604

(1) Data based on chilled water temperatures of 12/7 °C and condenser water temperatures of 30/35 °C.

(2) Data based on chilled water temperatures of 12/7 °C and condenser water temperatures of 40/45 °C.

# Electrical Data - HFC 407C

CWP-CO / CWP-RC / CWP-HP Models	02	03	04	05	06	07	09	15
Standard supply voltage (V / Ph / Hz)	230/1/50	400/3/50 + Neutral + Ground						
Maximum current	A 17.3	6.5	9.7	11.3	14.7	20.0	24.5	29
Nominal current *	A 9.1	4.4	7.1	7.2	10.5	14.1	15.8	19.3
Maximum starting current	A 76	46	66	74	99	127	167	198

**Notes :**

Tolerance on supply voltage :  $\pm 10\%$ .  
 Currents are given for a standard voltage.  
 Chilled water : 12/7 °C - Hot water : 29/35 °C.

CWP-CO / CWP-RC / CWP-HP Models	18	21	25	30	35
Maximum power input	kW 24.2	28.1	32.9	44.5	56.2
FLA	A 41.0	47.5	55.6	75.3	95.0
LRA	A 225.0	272.0	225.8	299.8	319.5

# Sound Data

CWP models	FREQUENCY (Hz)							Sound Power* dB(A)
	125	250	500	1000	2000	4000	8000	
18	58.1	73.8	74.9	73.3	71.8	64.4	52.4	78
21	58.1	73.8	74.9	73.3	71.8	64.4	52.4	78
25	58.1	73.8	74.9	73.3	71.8	64.4	52.4	78
30	59.1	74.8	75.9	74.3	72.8	65.4	53.4	79
35	61.1	76.8	77.9	76.3	74.8	67.4	55.4	81

\* With jackets, consider this data minus 4 dBA. Total A weighted sound level  $\pm 2$  dB(A).

CWP models	FREQUENCY (Hz)							Sound Pressure at 1 metre* dB(A)
	125	250	500	1000	2000	4000	8000	
18	43.1	58.8	59.9	58.3	56.8	49.4	37.4	63
21	43.1	58.8	59.9	58.3	56.8	49.4	37.4	63
25	42.1	57.8	58.9	57.3	55.8	48.4	36.4	62
30	43.1	58.8	59.9	58.3	56.8	49.4	37.4	63
35	45.1	60.8	61.9	60.3	58.8	51.4	39.4	65

\* With jackets, consider this data minus 4 dBA. Total A weighted sound level  $\pm 2$  dB(A).

# Performance Data - CWP-CO with HFC 407C

Unit size	Leav. chilled water temp. (°C)	CONDENSER ENTERING WATER TEMPERATURE / CONDENSER LEAVING WATER TEMPERATURE (°C)															
		20 / 26°C		27 / 33°C		29 / 35°C		31 / 37°C		33 / 39°C		35 / 41°C		40 / 46°C		45 / 51°C	
		Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW
CWP 02 CO	4	7.5	1.56	7.0	1.85	6.8	1.94	6.7	2.04	6.5	2.14	6.3	2.24	5.9	2.54	5.4	2.91
	5	7.7	1.56	7.2	1.86	7.1	1.95	6.9	2.05	6.7	2.15	6.6	2.26	6.1	2.56	5.6	2.92
	6	8.0	1.57	7.5	1.87	7.3	1.96	7.1	2.05	7.0	2.16	6.8	2.27	6.3	2.57	5.8	2.94
	7	8.3	1.58	7.7	1.88	<b>7.6</b>	<b>1.97</b>	7.4	2.06	7.2	2.17	7.0	2.28	6.5	2.58	6.0	2.95
	8	8.6	1.58	8.0	1.88	7.8	1.98	7.6	2.07	7.4	2.18	7.3	2.29	6.8	2.60	6.2	2.97
	9	8.8	1.59	8.3	1.89	8.1	1.98	7.9	2.08	7.7	2.19	7.5	2.30	7.0	2.61	6.4	2.98
10	9.1	1.60	8.5	1.90	8.3	1.99	8.1	2.09	8.0	2.19	7.8	2.31	7.2	2.62	6.7	2.99	
CWP 03 CO	4	9.0	1.76	8.4	2.11	8.3	2.34	8.1	2.33	7.9	2.46	7.7	2.58	7.1	2.93	6.6	3.32
	5	9.3	1.77	8.7	2.12	8.6	2.36	8.3	2.35	8.1	2.47	7.9	2.59	7.4	2.94	6.8	3.33
	6	9.6	1.78	9.0	2.13	8.9	2.37	8.6	2.36	8.4	2.48	8.2	2.61	7.6	2.96	7.0	3.35
	7	9.9	1.79	9.3	2.14	<b>9.2</b>	<b>2.38</b>	8.9	2.37	8.7	2.49	8.5	2.62	7.9	2.97	7.2	3.37
	8	10.3	1.80	9.6	2.15	9.5	2.39	9.2	2.38	9.0	2.51	8.8	2.64	8.2	2.99	7.5	3.39
	9	10.6	1.81	10.0	2.16	9.8	2.40	9.5	2.39	9.3	2.52	9.1	2.65	8.4	3.00	7.8	3.40
10	10.7	1.82	10.3	2.17	10.0	2.43	9.9	2.40	9.6	2.53	9.4	2.66	8.8	3.09	8.0	3.42	
CWP 04 CO	4	13.2	2.68	12.3	3.14	12.1	3.29	11.8	3.45	11.5	3.61	11.2	3.78	10.4	4.24	9.6	4.74
	5	13.6	2.70	12.7	3.17	12.4	3.31	12.1	3.47	11.8	3.64	11.5	3.81	10.7	4.27	9.9	4.77
	6	14.1	2.73	13.1	3.19	12.8	3.34	12.5	3.50	12.2	3.67	11.9	3.84	11.1	4.30	10.3	4.81
	7	14.6	2.76	13.6	3.22	<b>13.3</b>	<b>3.37</b>	13.0	3.53	12.7	3.70	12.4	3.87	11.5	4.33	10.7	4.85
	8	15.0	2.78	14.1	3.25	13.7	3.40	13.4	3.56	13.1	3.73	12.8	3.90	11.9	4.38	11.0	4.89
	9	15.5	2.81	14.5	3.27	14.2	3.43	13.9	3.59	13.6	3.75	13.2	3.93	12.3	4.41	11.4	4.93
10	16.0	2.83	15.0	3.30	14.7	3.45	14.4	3.61	14.0	3.78	13.7	3.96	12.8	4.44	11.8	4.97	
CWP 05 CO	4	16.2	3.10	15.1	3.64	14.8	3.82	14.4	4.00	14.1	4.20	13.7	4.40	12.8	4.95	11.9	5.55
	5	16.8	3.12	15.6	3.67	15.3	3.85	14.9	4.04	14.6	4.23	14.2	4.44	13.2	4.99	12.3	5.60
	6	17.4	3.15	16.2	3.70	15.8	3.88	15.4	4.07	15.0	4.26	14.7	4.47	13.7	5.02	12.7	5.64
	7	18.0	3.18	16.7	3.73	<b>16.3</b>	<b>3.91</b>	15.9	4.10	15.5	4.30	15.1	4.50	14.2	5.06	13.2	5.69
	8	18.6	3.21	17.2	3.76	16.9	3.94	16.4	4.13	16.1	4.33	15.6	4.54	14.6	5.10	13.6	5.73
	9	19.2	3.23	17.8	3.79	17.4	3.98	17.0	4.16	16.6	4.36	16.1	4.57	15.1	5.14	14.1	5.77
10	19.8	3.26	18.4	3.82	18.0	4.00	17.5	4.19	17.1	4.39	16.7	4.61	15.6	5.18	14.5	5.82	
CWP 06 CO	4	19.5	4.07	18.2	4.76	17.8	4.98	17.4	5.21	17.0	5.45	16.6	5.70	15.5	6.37	14.4	7.10
	5	20.1	4.10	18.8	4.79	18.4	5.01	18.0	5.25	17.5	5.49	17.1	5.74	16.0	6.42	14.9	7.15
	6	20.9	4.13	19.5	4.82	19.0	5.05	18.6	5.28	18.2	5.53	17.7	5.78	16.5	6.46	15.4	7.21
	7	21.6	4.16	20.1	4.86	<b>19.7</b>	<b>5.08</b>	19.2	5.32	18.8	5.56	18.3	5.82	17.1	6.51	15.9	7.27
	8	22.3	4.19	20.8	4.89	20.3	5.11	19.9	5.35	19.4	5.60	18.9	5.86	17.7	6.56	16.4	7.32
	9	23.0	4.22	21.5	4.92	21.0	5.15	20.5	5.39	20.0	5.64	19.5	5.90	18.3	6.61	16.9	7.37
10	23.8	4.24	22.2	4.95	21.7	5.18	21.2	5.42	20.7	5.68	20.2	5.94	18.8	6.65	17.4	7.42	
CWP 07 CO	4	27.9	5.70	26.0	6.71	25.4	7.03	24.8	7.36	24.2	7.71	23.6	8.07	22.1	9.03	20.7	10.08
	5	28.8	5.74	26.8	6.75	26.2	7.06	25.6	7.41	25.0	7.76	24.4	8.12	22.9	9.09	21.3	10.16
	6	29.8	5.77	27.7	6.79	27.1	7.11	26.5	7.45	25.8	7.80	25.2	8.17	23.6	9.15	22.1	10.23
	7	30.8	5.81	28.6	6.83	<b>28.0</b>	<b>7.16</b>	27.3	7.49	26.7	7.85	26.1	8.22	24.4	9.21	22.8	10.30
	8	31.8	5.84	29.6	6.87	29.0	7.20	28.3	7.54	27.6	7.90	27.0	8.28	25.3	9.28	23.6	10.38
	9	32.6	5.87	30.6	6.91	29.9	7.24	29.2	7.59	28.6	7.95	27.9	8.33	26.1	9.34	24.4	10.45
10	33.9	5.91	31.6	6.95	30.9	7.29	30.2	7.63	29.5	8.00	28.8	8.38	27.0	9.40	25.3	10.52	
CWP 09 CO	4	33.4	7.03	31.3	8.17	30.6	8.54	29.9	8.94	29.2	9.35	28.5	9.78	26.7	10.92	24.8	12.14
	5	34.6	7.10	32.3	8.24	31.6	8.61	30.9	9.01	30.2	9.43	29.5	9.86	27.6	11.02	25.7	12.25
	6	35.7	7.16	33.4	8.31	32.6	8.69	31.9	9.09	31.3	9.51	30.4	9.94	28.5	11.11	26.5	12.36
	7	36.8	7.23	34.4	8.38	<b>33.7</b>	<b>8.76</b>	32.9	9.16	32.2	9.58	31.4	10.02	29.4	11.20	27.4	12.46
	8	38.2	7.31	35.7	8.46	34.9	8.84	34.1	9.24	33.3	9.67	32.5	10.11	30.4	11.30	28.4	12.58
	9	39.5	7.39	36.8	8.59	36.1	8.92	35.3	9.33	34.5	9.75	33.6	10.20	31.5	11.40	29.3	12.69
10	40.9	7.46	38.2	8.62	37.3	9.00	36.5	9.41	35.6	9.84	34.8	10.29	32.6	11.50	30.3	12.80	
CWP 15 CO	4	40.3	8.8	37.7	10.2	36.9	10.7	35.6	11.2	35.3	11.7	34.5	12.2	32.5	13.6	30.3	15.2
	5	41.6	8.8	38.9	10.3	38.1	10.7	37.3	11.2	36.5	11.7	35.7	12.3	33.6	13.7	31.3	15.3
	6	43.1	8.9	40.3	10.3	39.5	10.8	38.6	11.3	37.8	11.8	36.9	12.3	34.7	13.8	32.4	15.4
	7	44.4	8.9	41.6	10.4	<b>40.7</b>	<b>10.9</b>	40.0	11.3	39.0	11.9	38.2	12.4	35.9	13.9	33.5	15.5
	8	45.8	9.0	42.6	10.4	42.0	10.9	41.1	11.4	40.2	11.9	39.4	12.5	37.0	13.9	34.5	15.6
	9	47.2	9.0	44.2	10.5	43.4	11.0	42.5	11.5	41.6	12.0	40.6	12.5	38.2	14.0	35.6	15.7
10	48.7	9.1	45.6	10.5	44.7	11.0	43.8	11.5	42.9	14.8	42.0	12.6	39.4	14.1	36.8	15.8	

**Notes :**

- 1) For leaving chilled water temperatures of 4 and 5 °C, use 10% glycol solution.
- 2) Ratings above based on chilled water ΔT of 5 °C.

## Performance Data - CWP-CO with HFC 407C (continued)

Unit size	Leav. chilled water temp. (°C)	CONDENSER LEAVING WATER TEMPERATURE (°C)															
		26°C		33°C		35°C		37°C		39°C		41°C		46°C		51°C	
		Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW
CWP 18 CO	6	61.5	12.7	55.0	13.7	53.3	13.9	51.5	14.2	49.7	14.4	47.9	14.7	43.7	15.2	39.3	15.7
	7	64.3	12.8	57.7	13.9	<b>55.8</b>	<b>14.1</b>	54.0	14.3	52.1	14.6	50.4	14.9	45.9	15.5	41.3	16.0
	8	67.1	13.0	60.3	14.1	58.4	14.3	56.5	14.5	54.6	14.9	52.8	15.1	48.2	15.7	43.4	16.3
	9	69.9	13.1	62.9	14.3	60.9	14.4	59.0	14.8	57.0	15.0	55.2	15.4	50.4	16.1	45.6	16.6
	10	72.8	13.2	65.5	14.4	63.5	14.6	61.5	15.0	59.5	15.3	57.6	15.6	52.6	16.3	47.6	16.9
CWP 21 CO	6	74.2	16.0	66.8	17.3	64.6	17.7	62.6	18.0	60.4	18.4	58.4	18.7	53.2	19.5	48.2	20.1
	7	77.4	16.2	69.7	17.6	<b>67.6</b>	<b>18.0</b>	65.4	18.3	63.3	18.7	61.1	19.0	55.8	19.8	50.7	20.5
	8	80.6	16.4	72.7	17.8	70.5	18.2	68.3	18.6	66.0	18.9	63.8	19.3	58.4	20.2	53.0	20.9
	9	83.9	16.5	75.8	18.0	73.4	18.4	71.2	18.8	68.8	19.2	66.6	19.6	60.9	20.5	55.4	21.3
	10	87.3	16.6	78.8	18.2	76.4	18.7	74.0	19.1	71.6	19.5	69.3	19.9	63.5	20.9	57.7	21.7
CWP 25 CO	6	99.3	20.5	86.6	22.4	83.2	22.8	79.8	23.2	76.4	23.8	73.2	24.1	65.3	25.0	57.8	25.7
	7	103.9	20.7	91.2	22.7	<b>87.7</b>	<b>23.1</b>	84.2	23.7	80.7	24.1	77.3	24.5	69.0	25.4	61.2	26.2
	8	108.8	20.9	95.8	23.0	92.2	23.6	88.6	24.1	84.9	24.5	81.5	24.9	72.9	25.9	64.6	26.8
	9	113.8	21.1	100.5	23.3	96.7	23.9	93.0	24.4	89.2	24.9	85.6	25.3	76.7	26.4	68.1	27.3
	10	118.9	21.3	105.1	23.7	101.2	24.2	97.3	24.8	93.5	25.3	89.7	25.8	80.5	26.9	71.6	27.8
CWP 30 CO	6	123.5	25.5	110.4	27.6	106.8	28.0	103.2	28.5	99.7	29.0	96.2	29.4	87.5	30.6	78.6	31.6
	7	128.9	25.8	115.6	28.0	<b>111.9</b>	<b>28.3</b>	108.2	28.8	104.6	29.4	101.1	29.9	92.0	31.2	82.9	32.2
	8	134.5	26.0	120.8	28.3	117.0	28.6	113.2	29.3	109.6	29.9	105.9	30.4	96.5	31.7	87.1	32.8
	9	140.1	26.2	126.1	28.6	122.2	29.0	118.4	29.7	114.5	30.3	110.7	30.8	101.1	32.2	91.3	33.4
	10	145.9	26.5	131.4	28.9	127.3	29.4	123.4	30.0	119.4	30.7	115.5	31.3	105.7	32.7	95.6	33.9
CWP 35 CO	6	149.8	32.1	134.6	34.6	130.3	35.4	126.1	36.1	121.8	36.8	117.7	37.4	107.5	38.9	97.3	40.2
	7	156.1	32.4	140.7	35.1	<b>136.2</b>	<b>35.9</b>	131.9	36.6	127.5	37.3	123.3	38.0	112.6	39.6	102.1	41.0
	8	162.6	32.7	146.8	35.5	142.2	36.3	137.7	37.1	133.2	37.9	128.8	38.6	117.7	40.3	106.9	41.7
	9	169.3	33.1	152.9	36.0	148.1	36.9	143.5	37.6	138.8	38.4	134.3	39.2	122.9	40.9	111.7	42.5
	10	176.1	33.3	159.0	36.4	154.1	37.3	149.3	38.2	144.5	39.0	139.7	39.8	128.1	41.6	116.6	43.3

**Note :**

1) Ratings above based on chilled water  $\Delta T$  of 5 °C.

# Performance Data - CWP-HP with HFC 407C

Unit size	Leav. chilled water temp. (°C)	CONDENSER ENTERING WATER TEMPERATURE / CONDENSER LEAVING WATER TEMPERATURE (°C)														
		29 / 35 °C			33 / 39 °C			35 / 41 °C			40 / 46 °C			45 / 51 °C		
		Heat. capa. kW	Power input kW	Cool. capa. kW	Heat. capa. kW	Power input kW	Cool. capa. kW	Heat. capa. kW	Power input kW	Cool. capa. kW	Heat. capa. kW	Power input kW	Cool. capa. kW	Heat. capa. kW	Power input kW	Cool. capa. kW
CWP 02 HP	4	8.7	1.94	6.8	8.5	2.14	6.5	8.5	2.24	6.3	8.3	2.54	5.9	8.2	2.91	5.4
	5	8.9	1.95	7.1	8.8	2.15	6.7	8.7	2.26	6.6	8.5	2.56	6.1	8.4	2.92	5.6
	6	9.2	1.96	7.3	9.0	2.16	7.0	8.9	2.27	6.8	8.8	2.57	6.3	8.6	2.94	5.8
	7	9.4	1.97	7.6	9.3	2.17	7.2	9.2	2.28	7.0	<b>9.0</b>	<b>2.58</b>	<b>6.5</b>	8.8	2.95	6.0
	8	9.7	1.98	7.8	9.5	2.18	7.4	9.4	2.29	7.3	9.2	2.60	6.8	9.0	2.97	6.2
	9	10.0	1.98	8.1	9.8	2.19	7.7	9.7	2.30	7.5	9.5	2.61	7.0	9.3	2.98	6.4
10	10.2	1.99	8.3	10.0	2.19	8.0	9.9	2.31	7.8	9.7	2.62	7.2	9.5	2.99	6.7	
CWP 03 HP	4	10.5	2.34	8.3	10.2	2.46	7.9	10.1	2.58	7.7	9.9	2.93	7.1	9.7	3.32	6.6
	5	10.8	2.36	8.6	10.5	2.47	8.1	10.4	2.59	7.9	10.1	2.94	7.4	9.9	3.33	6.8
	6	11.1	2.37	8.9	10.8	2.48	8.4	10.7	2.61	8.2	10.4	2.96	7.6	10.2	3.35	7.0
	7	11.5	2.38	9.2	11.0	2.49	8.7	10.9	2.62	8.5	<b>10.7</b>	<b>2.97</b>	<b>7.9</b>	10.4	3.37	7.2
	8	11.8	2.39	9.5	11.4	2.51	9.0	11.3	2.64	8.8	11.0	2.99	8.2	10.7	3.39	7.5
	9	12.1	2.40	9.8	11.7	2.52	9.3	11.6	2.65	9.1	11.3	3.00	8.4	11.0	3.40	7.8
10	12.3	2.43	10.0	12.0	2.53	9.6	11.9	2.66	9.4	11.7	3.09	8.8	11.3	3.42	8.0	
CWP 04 HP	4	15.2	3.29	12.1	14.9	3.61	11.5	14.8	3.78	11.2	14.4	4.24	10.4	14.1	4.74	9.6
	5	15.5	3.31	12.4	15.3	3.64	11.8	15.1	3.81	11.5	14.8	4.27	10.7	14.5	4.77	9.9
	6	16.0	3.34	12.8	15.7	3.67	12.2	15.6	3.84	11.9	15.2	4.30	11.1	14.9	4.81	10.3
	7	16.5	3.37	13.3	16.2	3.70	12.7	16.0	3.87	12.4	<b>15.7</b>	<b>4.33</b>	<b>11.5</b>	15.3	4.85	10.7
	8	17.0	3.40	13.7	16.6	3.73	13.1	16.5	3.90	12.8	16.1	4.38	11.9	15.7	4.89	11.0
	9	17.5	3.43	14.2	17.1	3.75	13.6	16.9	3.93	13.2	16.5	4.41	12.3	16.1	4.93	11.4
10	18.0	3.45	14.7	17.6	3.78	14.0	17.4	3.96	13.7	17.0	4.44	12.8	16.6	4.97	11.8	
CWP 05 HP	4	18.4	3.82	14.8	18.1	4.20	14.1	17.9	4.40	13.7	17.5	4.95	12.8	17.1	5.55	11.9
	5	18.9	3.85	15.3	18.6	4.23	14.6	18.4	4.44	14.2	18.0	4.99	13.2	17.6	5.60	12.3
	6	19.5	3.88	15.8	19.1	4.26	15.0	18.9	4.47	14.7	18.5	5.02	13.7	18.1	5.64	12.7
	7	20.0	3.91	16.3	19.6	4.30	15.5	19.4	4.50	15.1	<b>19.0</b>	<b>5.06</b>	<b>14.2</b>	18.6	5.69	13.2
	8	20.6	3.94	16.9	20.2	4.33	16.1	20.0	4.54	15.6	19.5	5.10	14.6	19.1	5.73	13.6
	9	21.1	3.98	17.4	20.7	4.36	16.6	20.5	4.57	16.1	20.0	5.14	15.1	19.5	5.77	14.1
10	21.8	4.00	18.0	21.3	4.39	17.1	21.0	4.61	16.7	20.5	5.18	15.6	20.1	5.82	14.5	
CWP 06 HP	4	22.6	4.98	17.8	22.2	5.45	17.0	22.0	5.70	16.6	21.5	6.37	15.5	21.1	7.10	14.4
	5	23.2	5.01	18.4	22.7	5.49	17.5	22.6	5.74	17.1	22.1	6.42	16.0	21.7	7.15	14.9
	6	23.8	5.05	19.0	23.4	5.53	18.2	23.2	5.78	17.7	22.7	6.46	16.5	22.2	7.21	15.4
	7	24.5	5.08	19.7	24.0	5.56	18.8	23.8	5.82	18.3	<b>23.3</b>	<b>6.51</b>	<b>17.1</b>	22.8	7.27	15.9
	8	25.2	5.11	20.3	24.7	5.60	19.4	24.5	5.86	18.9	23.9	6.56	17.7	23.4	7.32	16.4
	9	25.9	5.15	21.0	25.4	5.64	20.0	25.1	5.90	19.5	24.5	6.61	18.3	23.9	7.37	16.9
10	26.6	5.18	21.7	26.1	5.68	20.7	25.8	5.94	20.2	25.1	6.65	18.8	24.5	7.42	17.4	
CWP 07 HP	4	32.0	7.03	25.4	31.5	7.71	24.2	31.3	8.07	23.6	30.7	9.03	22.1	30.2	10.08	20.7
	5	32.9	7.06	26.2	32.4	7.76	25.0	32.1	8.12	24.4	31.5	9.09	22.9	31.0	10.16	21.3
	6	33.8	7.11	27.1	33.3	7.80	25.8	33.0	8.17	25.2	32.3	9.15	23.6	31.8	10.23	22.1
	7	34.8	7.16	28.0	34.1	7.85	26.7	33.9	8.22	26.1	<b>33.2</b>	<b>9.21</b>	<b>24.4</b>	32.6	10.30	22.8
	8	35.8	7.20	29.0	35.1	7.90	27.6	34.8	8.28	27.0	34.1	9.28	25.3	33.5	10.38	23.6
	9	36.8	7.24	29.9	36.1	7.95	28.6	35.8	8.33	27.9	35.0	9.34	26.1	34.4	10.45	24.4
10	37.8	7.29	30.9	37.1	8.00	29.5	36.7	8.38	28.8	36.0	9.40	27.0	35.3	10.52	25.3	
CWP 09 HP	4	38.7	8.54	30.6	38.1	9.35	29.2	37.8	9.78	28.5	37.1	10.92	26.7	36.4	12.14	24.8
	5	39.8	8.61	31.6	39.2	9.43	30.2	38.8	9.86	29.5	38.1	11.02	27.6	37.3	12.25	25.7
	6	40.9	8.69	32.6	40.3	9.51	31.3	39.9	9.94	30.4	39.0	11.11	28.5	38.3	12.36	26.5
	7	42.0	8.76	33.7	41.3	9.58	32.2	40.9	10.02	31.4	<b>40.1</b>	<b>11.20</b>	<b>29.4</b>	39.2	12.46	27.4
	8	43.3	8.84	34.9	42.5	9.67	33.3	42.1	10.11	32.5	41.2	11.30	30.4	40.3	12.58	28.4
	9	44.6	8.92	36.1	43.7	9.75	34.5	43.3	10.20	33.6	42.3	11.40	31.5	41.4	12.69	29.3
10	45.9	9.00	37.3	45.0	9.84	35.6	44.5	10.29	34.8	43.5	11.50	32.6	42.5	12.80	30.3	
CWP 15 HP	4	47.0	10.7	36.9	46.4	11.7	35.3	46.1	12.2	34.5	45.4	13.6	32.5	44.7	15.2	30.3
	5	48.3	10.7	38.1	47.7	11.7	36.5	47.3	12.3	35.7	46.6	13.7	33.6	45.8	15.3	31.3
	6	49.7	10.8	39.5	49.0	11.8	37.8	48.6	12.3	36.9	47.8	13.8	34.7	47.0	15.4	32.4
	7	51.0	10.9	40.7	50.3	11.9	39.0	49.9	12.4	38.2	<b>49.1</b>	<b>13.9</b>	<b>35.9</b>	48.2	15.5	33.5
	8	52.4	10.9	42.0	51.6	11.9	40.2	51.2	12.5	39.4	50.3	13.9	37.0	49.3	15.6	34.5
	9	53.8	11.0	43.4	52.9	12.0	41.6	52.5	12.5	40.6	51.5	14.0	38.2	50.5	15.7	35.6
10	55.2	11.0	44.7	54.3	12.0	42.9	53.9	12.6	42.0	52.8	14.1	39.4	51.7	15.8	36.8	

**Notes :**

- 1) For leaving chilled water temperatures of 4 and 5 °C, use 10% glycol solution.
- 2) Ratings above based on chilled water ΔT of 5 °C.

# Performance Data - CWP-HP with HFC 407C (continued)

Unit size	Leav. chilled water temp. (°C)	CONDENSER LEAVING WATER TEMPERATURE (°C)															
		25 °C		32 °C		35 °C		36 °C		38 °C		40 °C		45 °C		50 °C	
		Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW	Heat. capa. kW	Power input kW
CWP 18 HP	6	79.5	14.3	74.0	15.5	72.4	15.7	70.8	15.9	69.3	16.2	67.8	16.5	64.0	17.1	60.0	17.7
	7	82.5	14.4	77.0	15.7	75.3	15.8	73.7	16.1	72.2	16.4	70.6	16.7	<b>66.7</b>	<b>17.4</b>	62.6	18.0
	8	85.6	14.6	79.9	15.8	78.1	16.0	76.5	16.3	74.9	16.7	73.3	17.0	69.4	17.7	65.2	18.4
	9	88.6	14.7	82.8	16.0	81.0	16.2	79.4	16.6	77.8	16.9	76.2	17.3	72.1	18.1	67.7	18.7
	10	91.7	14.9	85.8	16.2	84.0	16.4	82.3	16.8	80.6	17.2	79.0	17.5	74.7	18.4	70.3	19.1
CWP 21 HP	6	89.7	17.8	83.9	19.3	82.2	19.7	80.6	20.1	79.0	20.5	77.4	20.9	73.3	21.6	69.2	22.3
	7	92.9	18.0	87.1	19.6	85.4	20.0	83.7	20.4	82.0	20.8	80.4	21.1	<b>76.1</b>	<b>22.0</b>	71.9	22.8
	8	96.2	18.2	90.3	19.8	88.5	20.3	86.8	20.7	85.0	21.1	83.3	21.4	79.0	22.4	74.6	23.2
	9	99.6	18.4	93.4	20.1	91.5	20.5	89.9	21.0	88.1	21.3	86.3	21.8	81.8	22.8	77.4	23.7
	10	103.0	18.5	96.5	20.3	94.7	20.8	92.8	21.2	91.1	21.7	89.3	22.1	84.7	23.2	80.1	24.1
CWP 25 HP	6	133.9	23.1	122.2	25.3	118.9	25.7	115.6	26.2	112.3	26.8	109.2	27.1	101.4	28.2	94.0	29.0
	7	139.4	23.3	127.6	25.6	124.2	26.1	120.9	26.7	117.5	27.1	114.2	27.6	<b>106.3</b>	<b>28.6</b>	98.4	29.5
	8	145.0	23.6	133.1	26.0	129.7	26.5	126.2	27.1	122.8	27.6	119.3	28.0	111.0	29.2	102.9	30.2
	9	150.7	23.8	138.6	26.3	135.0	26.9	131.4	27.5	127.9	28.0	124.4	28.5	115.8	29.8	107.3	30.8
	10	156.6	24.0	143.9	26.7	140.3	27.2	136.7	27.9	133.1	28.5	129.5	29.1	120.6	30.3	111.8	31.4
CWP 30 HP	6	159.3	28.6	148.3	31.0	144.9	31.3	142.0	31.9	139.0	32.5	135.9	33.0	128.2	34.4	120.3	35.4
	7	165.2	28.9	154.2	31.3	150.8	31.7	147.7	32.3	144.6	33.0	141.5	33.6	<b>133.7</b>	<b>34.9</b>	125.4	36.1
	8	171.3	29.2	160.0	31.7	156.5	32.1	153.3	32.8	150.2	33.5	147.1	34.1	139.0	35.5	130.6	36.8
	9	177.6	29.4	165.9	32.1	162.4	32.5	159.1	33.3	155.9	34.0	152.6	34.6	144.3	36.1	135.7	37.5
	10	183.8	29.7	171.7	32.4	168.1	33.0	164.8	33.7	161.5	34.5	158.1	35.1	149.7	36.7	140.8	38.1
CWP 35 HP	6	193.4	36.1	180.9	39.0	177.2	39.8	173.8	40.6	170.3	41.4	166.8	42.1	157.9	43.8	149.1	45.2
	7	200.3	36.5	187.6	39.5	184.0	40.4	180.3	41.2	176.7	42.0	173.2	42.8	<b>164.1</b>	<b>44.5</b>	154.9	46.1
	8	207.4	36.8	194.4	40.0	190.7	40.9	187.0	41.8	183.2	42.7	179.5	43.5	170.2	45.3	160.8	46.9
	9	214.6	37.2	201.3	40.5	197.4	41.5	193.6	42.4	189.7	43.3	185.9	44.0	176.4	46.0	166.7	47.8
	10	222.1	37.5	208.1	41.0	204.2	42.0	200.2	43.0	196.3	43.9	192.3	44.7	182.5	46.8	172.7	48.7

**Note :**

1) Ratings above based on chilled water  $\Delta T$  of 5 °C.

# Performance Data - CWP-RC with HFC 407C

Unit size	Leav. chilled water temp. (°C)	CONDENSING TEMPERATURE									
		39 °C		43 °C		47 °C		52 °C		57 °C	
		Cooling capacity kW	Power input kW	Cooling capacity kW	Power input kW	Cooling capacity kW	Power input kW	Cooling capacity kW	Power input kW	Cooling capacity kW	Power input kW
CWP 02 RC	4	7.0	1.85	6.6	2.03	6.1	2.21	5.6	2.48	5.1	2.83
	5	7.3	1.87	6.9	2.05	6.4	2.24	5.8	2.51	5.3	2.85
	6	7.6	1.89	7.2	2.06	6.7	2.26	6.1	2.53	5.5	2.87
	7	8.0	1.91	7.5	2.08	<b>7.0</b>	<b>2.28</b>	6.4	2.55	5.8	2.89
	8	8.3	1.92	7.8	2.10	7.3	2.30	6.7	2.59	6.0	2.93
	9	8.6	1.93	8.2	2.12	7.6	2.32	7.0	2.61	6.3	2.95
CWP 03 RC	4	8.4	2.11	8.0	2.32	7.4	2.54	6.8	2.86	6.2	3.23
	5	8.8	2.13	8.3	2.35	7.7	2.56	7.1	2.88	6.4	3.25
	6	9.2	2.15	8.7	2.37	8.1	2.60	7.4	2.92	6.7	3.27
	7	9.6	2.17	9.1	2.39	<b>8.5</b>	<b>2.62</b>	7.7	2.94	6.9	3.30
	8	10.0	2.19	9.5	2.42	8.8	2.65	8.1	2.98	7.3	3.34
	9	10.4	2.21	9.9	2.44	9.3	2.68	8.4	3.00	7.6	3.37
CWP 04 RC	4	12.3	3.14	11.6	3.43	10.8	3.72	9.9	4.14	9.1	4.61
	5	12.8	3.19	12.1	3.47	11.3	3.77	10.3	4.18	9.4	4.65
	6	13.4	3.22	12.7	3.52	11.8	3.82	10.8	4.24	9.8	4.70
	7	14.0	3.27	13.3	3.57	<b>12.4</b>	<b>3.87</b>	11.3	4.29	10.2	4.75
	8	14.6	3.32	13.8	3.61	12.9	3.92	11.8	4.36	10.7	4.82
	9	15.2	3.34	14.4	3.66	13.5	3.97	12.3	4.41	11.2	4.88
CWP 05 RC	4	15.1	3.64	14.3	3.98	13.3	4.33	12.2	4.84	11.2	5.40
	5	15.8	3.69	14.9	4.04	13.9	4.40	12.7	4.89	11.7	5.46
	6	16.5	3.74	15.6	4.09	14.5	4.45	13.3	4.94	12.1	5.51
	7	17.2	3.79	16.2	4.14	<b>15.1</b>	<b>4.50</b>	13.9	5.01	12.6	5.58
	8	17.9	3.84	16.9	4.19	15.8	4.56	14.5	5.07	13.2	5.64
	9	18.6	3.88	17.7	4.24	16.5	4.62	15.1	5.14	13.8	5.71
CWP 06 RC	4	18.2	4.76	17.2	5.18	16.1	5.61	14.8	6.23	13.6	6.90
	5	19.0	4.81	18.0	5.25	16.8	5.68	15.4	6.29	14.1	6.97
	6	19.8	4.87	18.8	5.31	17.5	5.75	16.0	6.36	14.7	7.05
	7	20.7	4.93	19.6	5.37	<b>18.3</b>	<b>5.82</b>	16.8	6.44	15.3	7.12
	8	21.6	4.99	20.4	5.43	19.1	5.89	17.5	6.53	15.9	7.21
	9	22.4	5.03	21.3	5.50	19.9	5.96	18.3	6.61	16.5	7.30
CWP 07 RC	4	26.0	6.71	24.5	7.32	22.9	7.95	21.1	8.83	19.5	9.80
	5	27.1	6.78	25.6	7.41	23.9	8.04	21.9	8.91	20.3	9.91
	6	28.2	6.86	26.7	7.49	25.0	8.13	22.9	9.01	21.1	10.00
	7	29.5	6.93	27.9	7.56	<b>26.1</b>	<b>8.22</b>	23.9	9.12	21.9	10.09
	8	30.8	7.01	29.1	7.65	27.2	8.32	25.0	9.23	22.9	10.22
	9	32.0	7.07	30.4	7.74	28.4	8.41	26.1	9.34	23.9	10.35
CWP 09 RC	4	31.3	8.17	29.6	8.90	27.7	9.63	25.5	10.67	23.5	11.81
	5	32.6	8.28	30.9	9.01	28.9	9.76	26.5	10.80	24.4	11.94
	6	34.0	8.39	32.2	9.14	30.1	9.89	27.6	10.94	25.3	12.08
	7	35.5	8.51	33.6	9.25	<b>31.4</b>	<b>10.02</b>	28.8	11.09	26.3	12.21
	8	37.1	8.63	35.2	9.38	32.8	10.16	30.1	11.24	27.5	12.39
	9	38.4	8.78	36.7	9.52	34.3	10.30	31.5	11.40	28.7	12.56
CWP 15 RC	4	47.9	10.8	45.8	11.8	43.2	12.8	39.8	14.2	36.4	15.7
	5	46.2	10.7	44.2	11.7	41.4	12.7	38.2	14.0	34.9	15.5
	6	44.3	10.6	42.4	11.6	39.8	12.5	36.6	13.9	33.5	15.3
	7	42.8	10.5	40.8	11.5	<b>38.2</b>	<b>12.4</b>	35.2	13.7	32.2	15.2
	8	41.1	10.4	39.0	11.3	36.6	12.3	33.7	13.6	30.9	15.0
	9	39.3	10.3	37.3	11.2	35.0	12.1	32.2	13.4	29.8	14.9

**Notes :**

- 1) For leaving chilled water temperatures of 4 and 5 °C, use 10% glycol solution.
- 2) Ratings above based on chilled water ΔT of 5 °C.

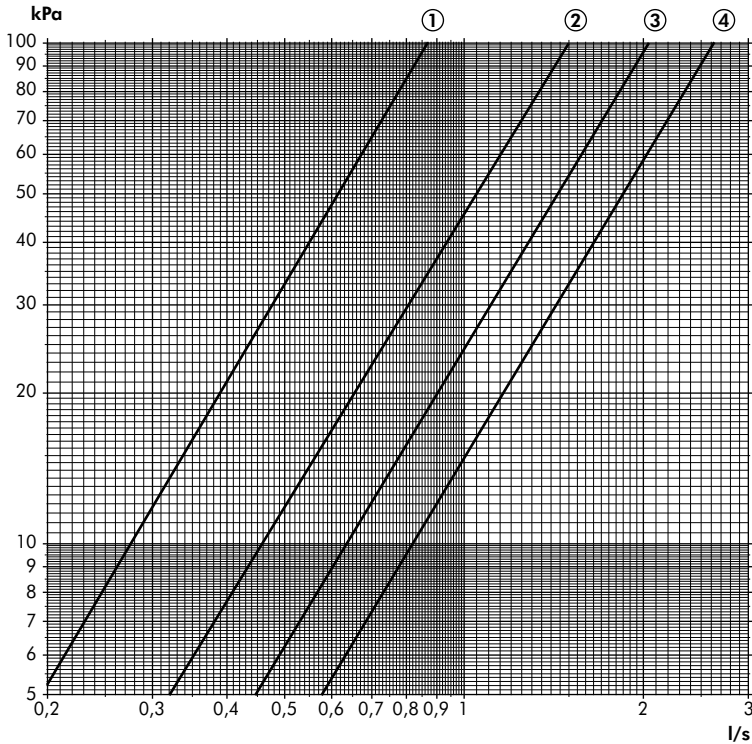
## Performance Data - CWP-RC with HFC 407C (continued)

Unit size	Leav. chilled water temp. (°C)	CONDENSING TEMPERATURE (°C)															
		36 °C		43 °C		45 °C		47 °C		49 °C		51 °C		56 °C		61 °C	
		Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW	Cool. capa. kW	Power input kW
CWP 18 RC	6	61.5	12.7	55.0	13.7	53.3	13.9	51.5	14.2	49.7	14.4	47.9	14.7	43.7	15.2	39.3	15.7
	7	64.3	12.8	57.7	13.9	<b>55.8</b>	<b>14.1</b>	54.0	14.3	52.1	14.6	50.4	14.9	45.9	15.5	41.3	16.0
	8	67.1	13.0	60.3	14.1	58.4	14.3	56.5	14.5	54.6	14.9	52.8	15.1	48.2	15.7	43.4	16.3
	9	69.9	13.1	62.9	14.3	60.9	14.4	59.0	14.8	57.0	15.0	55.2	15.4	50.4	16.1	45.6	16.6
	10	72.8	13.2	65.5	14.4	63.5	14.6	61.5	15.0	59.5	15.3	57.6	15.6	52.6	16.3	47.6	16.9
CWP 21 RC	6	74.2	16.0	66.8	17.3	64.6	17.7	62.6	18.0	60.4	18.4	58.4	18.7	53.2	19.5	48.2	20.1
	7	77.4	16.2	69.7	17.6	<b>67.6</b>	<b>18.0</b>	65.4	18.3	63.3	18.7	61.1	19.0	55.8	19.8	50.7	20.5
	8	80.6	16.4	72.7	17.8	70.5	18.2	68.3	18.6	66.0	18.9	63.8	19.3	58.4	20.2	53.0	20.9
	9	83.9	16.5	75.8	18.0	73.4	18.4	71.2	18.8	68.8	19.2	66.6	19.6	60.9	20.5	55.4	21.3
	10	87.3	16.6	78.8	18.2	76.4	18.7	74.0	19.1	71.6	19.5	69.3	19.9	63.5	20.9	57.7	21.7
CWP 25 RC	6	99.3	20.5	86.6	22.4	83.2	22.8	79.8	23.2	76.4	23.8	73.2	24.1	65.3	25.0	57.8	25.7
	7	103.9	20.7	91.2	22.7	<b>87.7</b>	<b>23.1</b>	84.2	23.7	80.7	24.1	77.3	24.5	69.0	25.4	61.2	26.2
	8	108.8	20.9	95.8	23.0	92.2	23.6	88.6	24.1	84.9	24.5	81.5	24.9	72.9	25.9	64.6	26.8
	9	113.8	21.1	100.5	23.3	96.7	23.9	93.0	24.4	89.2	24.9	85.6	25.3	76.7	26.4	68.1	27.3
	10	118.9	21.3	105.1	23.7	101.2	24.2	97.3	24.8	93.5	25.3	89.7	25.8	80.5	26.9	71.6	27.8
CWP 30 RC	6	123.5	25.5	110.4	27.6	106.8	28.0	103.2	28.5	99.7	29.0	96.2	29.4	87.5	30.6	78.6	31.6
	7	128.9	25.8	115.6	28.0	<b>111.9</b>	<b>28.3</b>	108.2	28.8	104.6	29.4	101.1	29.9	92.0	31.2	82.9	32.2
	8	134.5	26.0	120.8	28.3	117.0	28.6	113.2	29.3	109.6	29.9	105.9	30.4	96.5	31.7	87.1	32.8
	9	140.1	26.2	126.1	28.6	122.2	29.0	118.4	29.7	114.5	30.3	110.7	30.8	101.1	32.2	91.3	33.4
	10	145.9	26.5	131.4	28.9	127.3	29.4	123.4	30.0	119.4	30.7	115.5	31.3	105.7	32.7	95.6	33.9
CWP 35 RC	6	149.8	32.1	134.6	34.6	130.3	35.4	126.1	36.1	121.8	36.8	117.7	37.4	107.5	38.9	97.3	40.2
	7	156.1	32.4	140.7	35.1	<b>136.2</b>	<b>35.9</b>	131.9	36.6	127.5	37.3	123.3	38.0	112.6	39.6	102.1	41.0
	8	162.6	32.7	146.8	35.5	142.2	36.3	137.7	37.1	133.2	37.9	128.8	38.6	117.7	40.3	106.9	41.7
	9	169.3	33.1	152.9	36.0	148.1	36.9	143.5	37.6	138.8	38.4	134.3	39.2	122.9	40.9	111.7	42.5
	10	176.1	33.3	159.0	36.4	154.1	37.3	149.3	38.2	144.5	39.0	139.7	39.8	128.1	41.6	116.6	43.3

**Notes :**

1) Ratings above based on chilled water  $\Delta T$  of 5 °C.

# Evaporator Water Pressure Drop Curves



Water flow rate calculation :

$$q_m = \frac{P \times 860}{\Delta t \times 3600}$$

With :

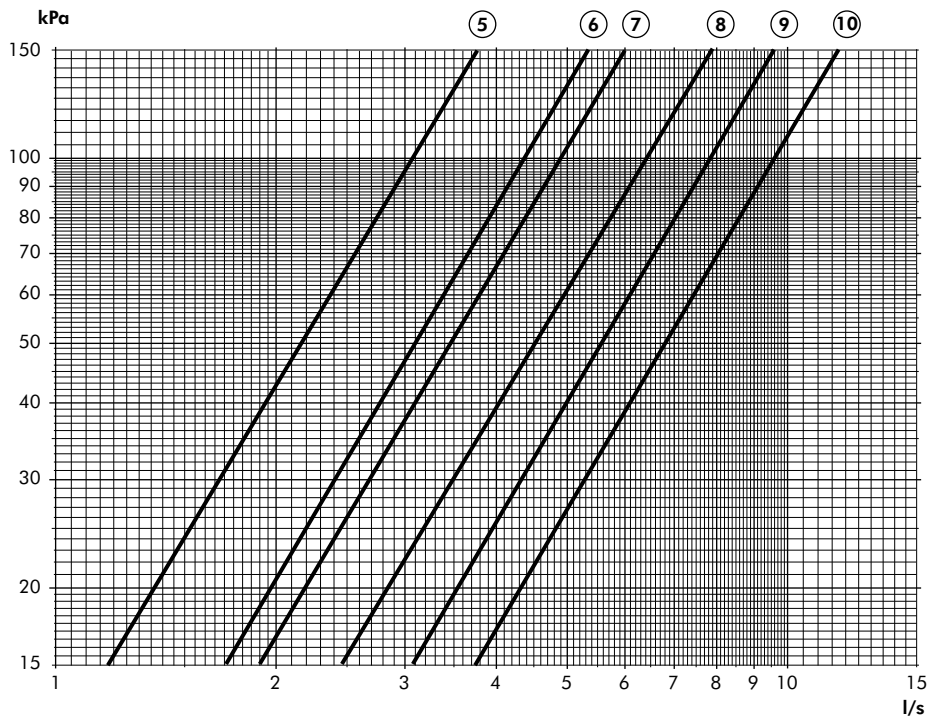
$q_m$  water flow in l/s

$P^m$  capacity in kW

$\Delta t$  water temperature difference in °C

**Curve 1** : CWP-CO/CWP-RC 02 and CWP-HP 02  
**Curve 2** : CWP-CO/CWP-RC 03 & 04 and CWP-HP 03 & 04

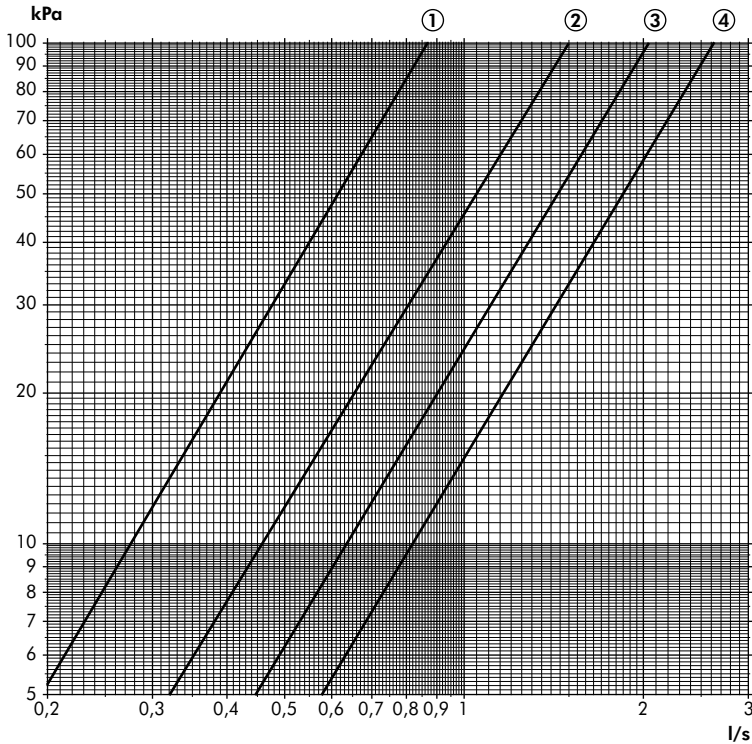
**Curve 3** : CWP-CO/CWP-RC 05 & 06 and CWP-HP 05 & 06  
**Curve 4** : CWP-CO/CWP-RC 07 & 09 and CWP-HP 07 & 09



**Curve 5** : CWP-CO/CWP-RC 15 and CWP-HP 15  
**Curve 6** : CWP-CO/CWP-RC 18 and CWP-HP 18  
**Curve 7** : CWP-CO/CWP-RC 21 and CWP-HP 21

**Curve 8** : CWP-CO/CWP-RC 25 and CWP-HP 25  
**Curve 9** : CWP-CO/CWP-RC 30 and CWP-HP 30  
**Curve 10** : CWP-CO/CWP-RC 35 and CWP-HP 35

# Condenser Water Pressure Drop Curves



Water flow rate calculation :

$$q_m = \frac{P \times 860}{\Delta t \times 3600}$$

With :

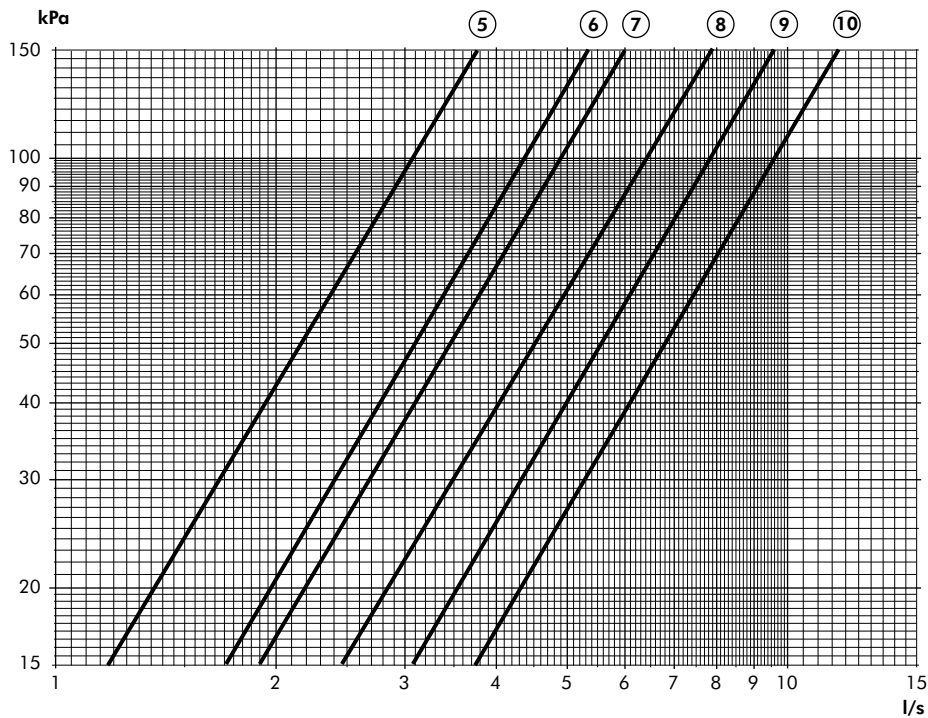
$q_m$  water flow in l/s

$P$  capacity in kW

$\Delta t$  water temperature difference in °C

**Curve 1** : CWP-CO 02 & 03 and CWP-HP 02  
**Curve 2** : CWP-CO 04 & 05 and CWP-HP 03 & 04

**Curve 3** : CWP-CO 06 & 07 and CWP-HP 05 & 06  
**Curve 4** : CWP-CO 09 and CWP-HP 07 & 09

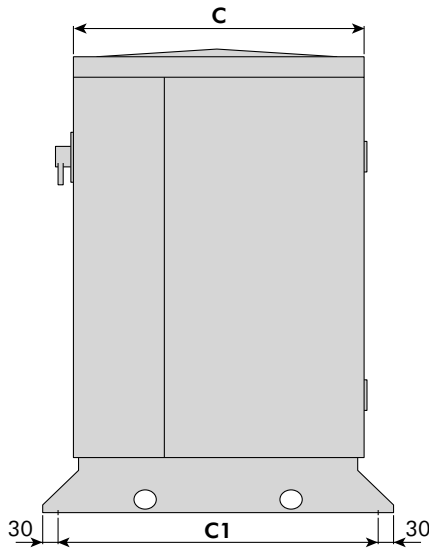


**Curve 5** : CWP-CO 15 and CWP-HP 15  
**Curve 6** : CWP-CO 18 and CWP-HP 18  
**Curve 7** : CWP-CO 21 and CWP-HP 21

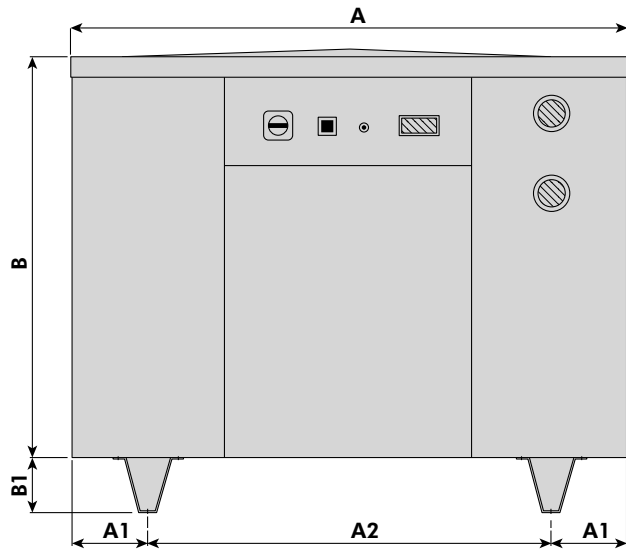
**Curve 8** : CWP-CO 25 and CWP-HP 25  
**Curve 9** : CWP-CO 30 and CWP-HP 30  
**Curve 10** : CWP-CO 35 and CWP-HP 35

# Dimensional Data

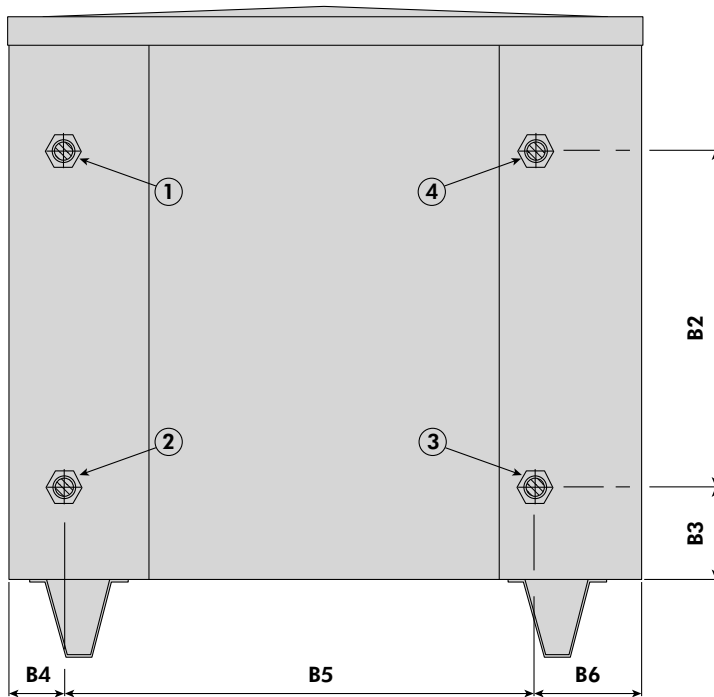
## CWP-CO/CWP-HP/CWP-RC 02 to 21



Side view



Front view



Rear view

On CWP-CO models :

- ① Evaporator inlet : 1"1/4 female
- ② Evaporator outlet : 1"1/4 female
- ③ Condenser inlet : 1"1/4 female
- ④ Condenser outlet : 1"1/4 female

On CWP-RC models :

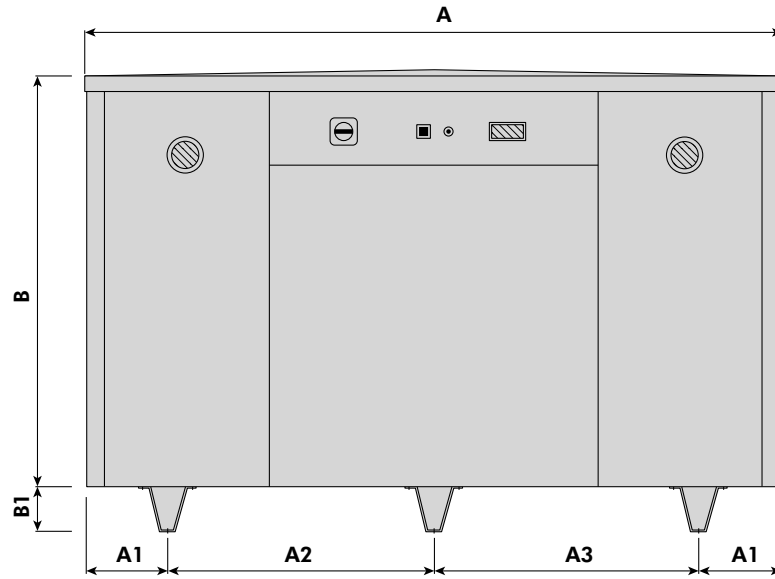
- ① Evaporator inlet : 1"1/4 female
- ② Evaporator outlet : 1"1/4 female
- ③ Liquid line : 3/8" (size 02), 1/2" (sizes 03 to 06), 5/8" (sizes 07 to 15) and 7/8" (sizes 18 and 21)
- ④ Discharge line : 5/8" (sizes 02 to 05), 7/8" (sizes 06 to 09) and 1"1/8 (sizes 15 to 21)

Unit size	A	A1	A2	B	B1	B2	B3	B4	B5	B6	C	C1
02 to 05	800	75	650	900	110	478	135	80	567	153	480	540
06 to 09	900	100	700	900	110	478	135	80	667	153	580	640
15 to 21	1100	150	800	1000	110	518	145	100	800	200	730	790

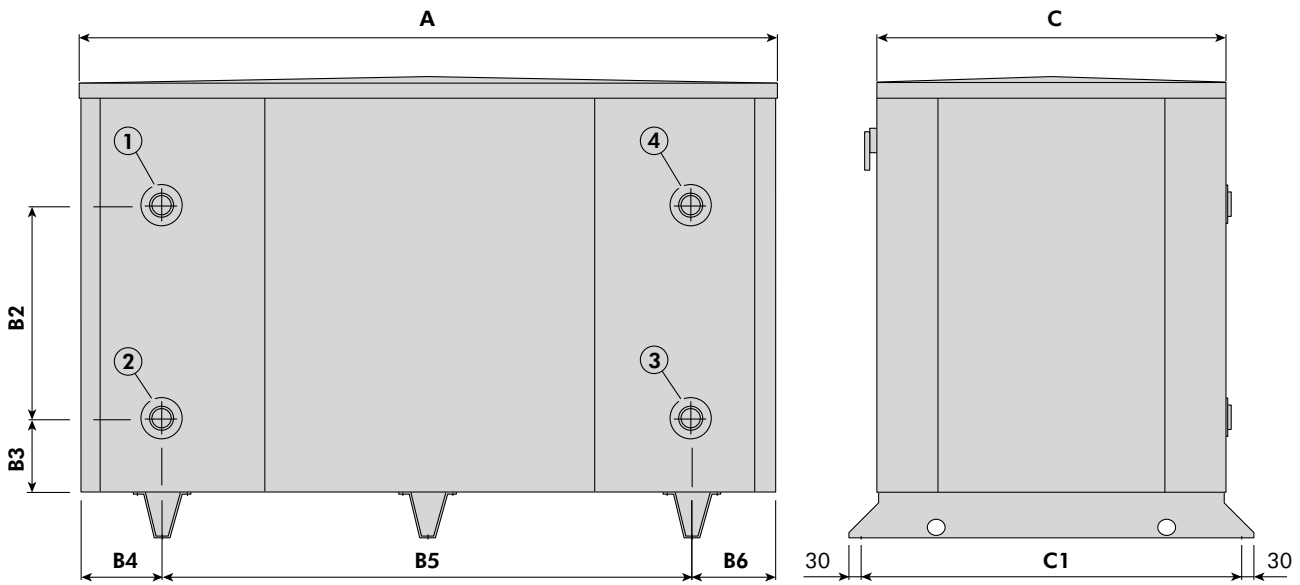
Dimensions in mm.

# Dimensional Data (continued)

## CWP-CO/CWP-HP/CWP-RC 25 to 35



Front view



Rear view

Side view

On CWP-CO models :

- ① Evaporator inlet : 2" female
- ② Evaporator outlet : 2" female
- ③ Condenser inlet : 2" female
- ④ Condenser outlet : 2" female

On CWP-RC models :

- ① Evaporator inlet : 2" female
- ② Evaporator outlet : 2" female
- ③ Liquid line : 1"1/8
- ④ Discharge line : 1"5/8

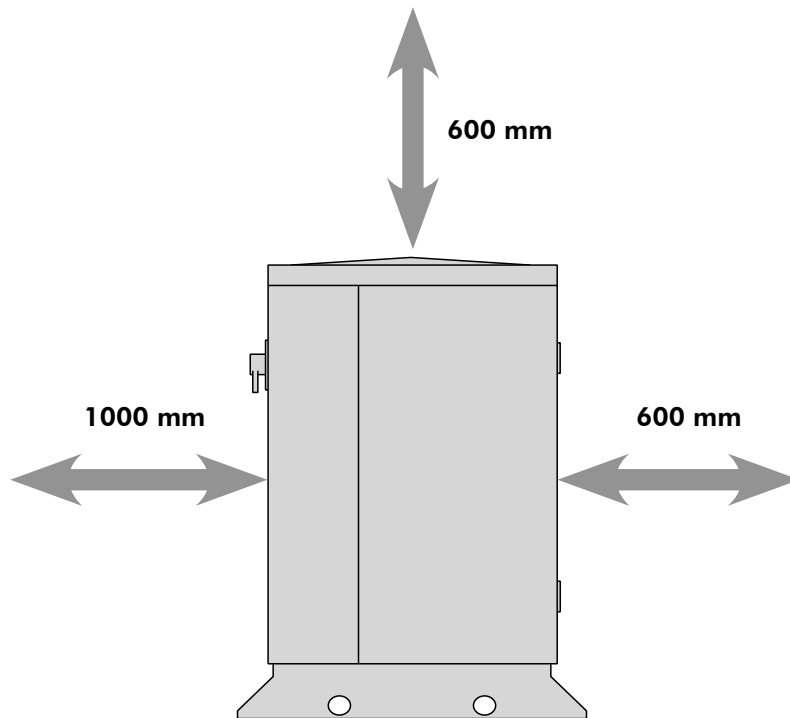
Unit size	A	A1	A2	A3	B	B1	B2	B3	B4	B5	B6	C	C1
25 to 35	1700	200	650	650	1100	110	518	145	206	1288	206	850	924

Dimensions in mm.

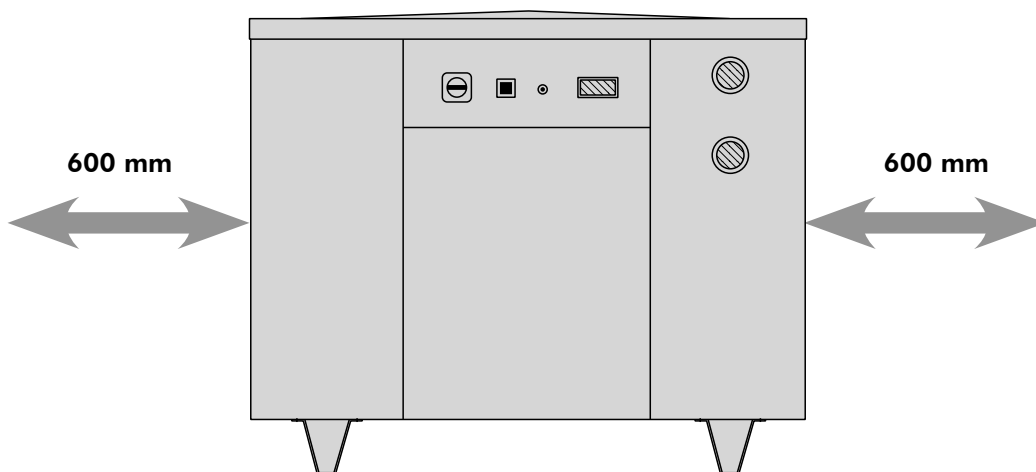
# Minimum Installation Clearances

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When installing the unit, leave sufficient clearances all around the machine in order to facilitate service and maintenance works (see figures below).



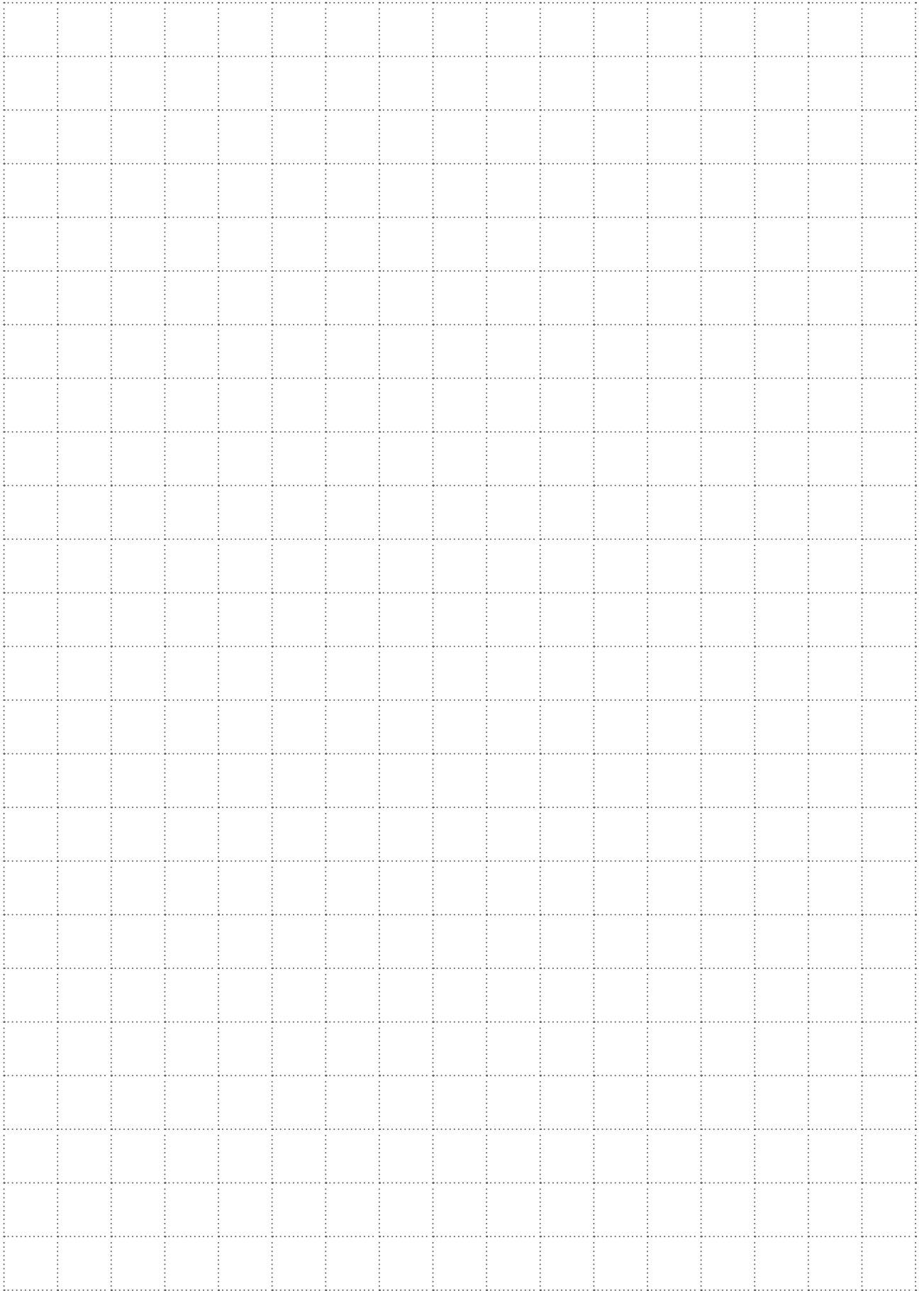
Side view



Front view

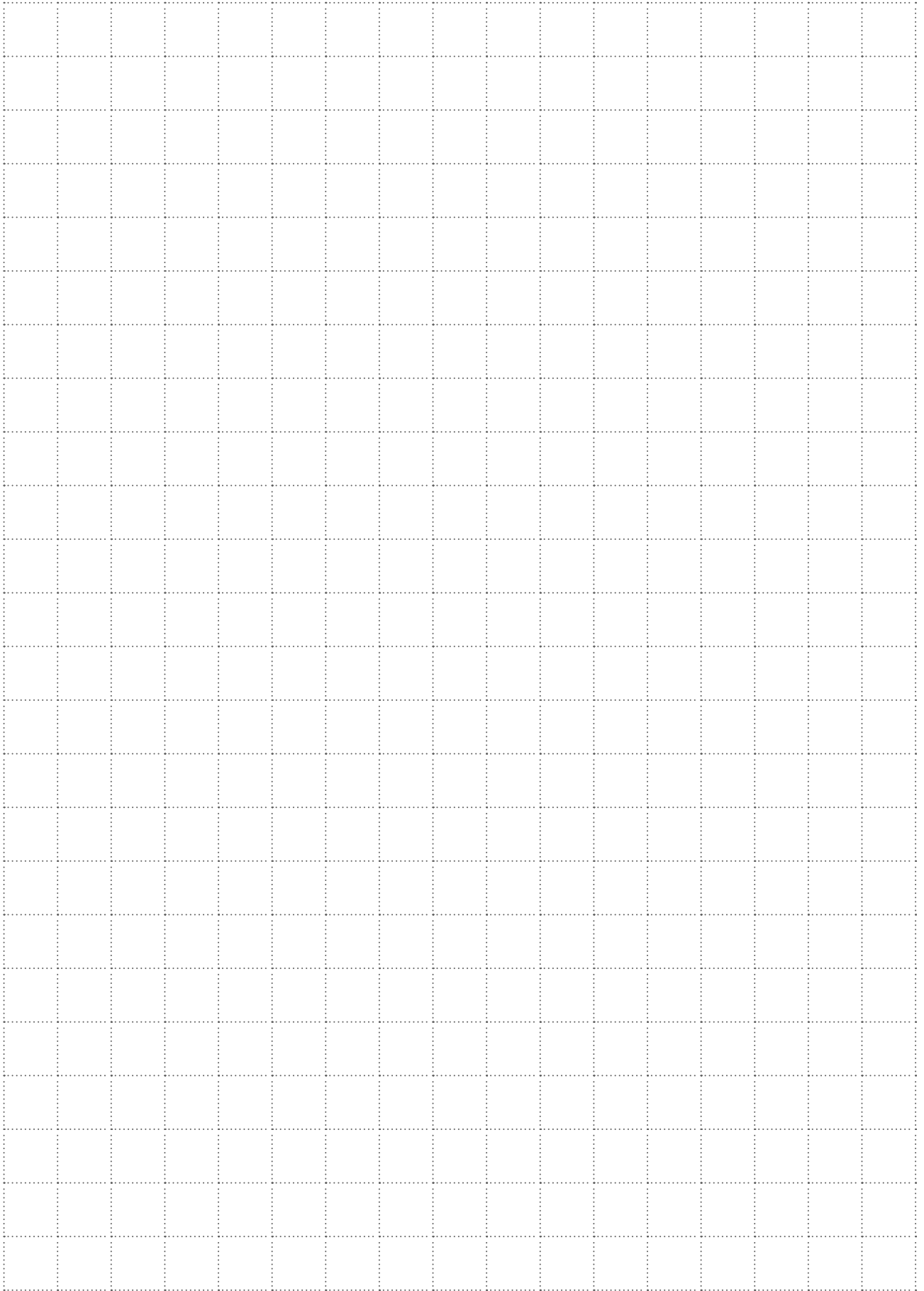
# Notes

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# Notes

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# Wesper<sup>®</sup>

*As part of our ongoing product improvement programme, our products are subject to change without prior notice. Non contractual photos.*



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