Water Source Heat Pumps

coolheat

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Contents

Celmec International

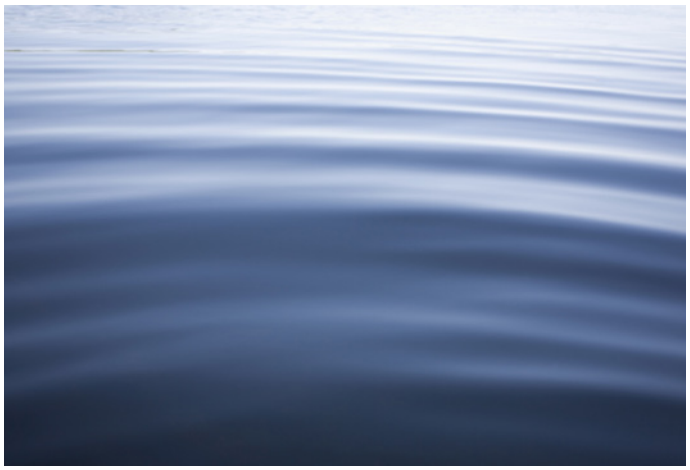
Leading the way in Air Control, Heating & Cooling

At Celmec International, it is our belief that working closely with our clients aids the mutual success of both organisations and for this reason we have adopted the following mission:

"To excel in the commercial and industrial building industry by setting new standards with innovative products through leadership, first class customer service and engineering excellence."

It is with confidence that we at Celmec International offer Water Source Heat Pumps as part of our unique product range. The WSHP are tried and proven for well over two decades.

We trust that this concise brochure will assist all users in the area of selection and application design.



TECHNICAL DATA

WCP SERIES
WATER SOURCE PACKAGED AIRCONDITIONERS

The water source packaged units shall be horizontal or vertical configuration having the capacities and arrangements as scheduled.

CASINGS

The units shall be constructed from, not less than 1.2mm galvanised steel sheet of minimum 280g/sqm of zinc coating. The compressor/control section shall be separately enclosed and baffled from the evaporator section. Units with compressor compartments open to the evaporator section shall be rejected.

INSULATION

The evaporator section and the compressor compartment shall both be fully insulated with minimum 13mm Fibreglass thermal acoustic insulation with scrim facing. (13mm WCP3 - WCP10, 25mm WCP13 and above).

FANS

Fans shall be forward curved DWDI centrifugal. Units 37KW capacity and below shall incorporate direct driven fans with multi-speed single phase motors. Units over 37KW capacity shall be Vee belt driven and include adjustable pitch motor pulley and TEFC 4 pole three phase metric frame motors.

COILS

The Evaporator coil shall be of copper tube, aluminium fin and galvanised frame construction. The fins are to be mechanically fastened to the tubes. A liquid distributor shall be fitted to feed all sections of the coil with equal quantities of refrigerant.

The condenser coil shall be the multi pass, tube in tube type of all copper construction.

The evaporator and condenser drain trays shall be constructed from 1.2mm galvanised steel with bitumastic paint finish. (Condenser drain trays required for heat pump models).

COMPRESSORS AND CONTROLS

Hermetic compressors shall be internally sprung and mounted on vibration isolators. Schraeder valves shall be fitted to the suction and discharge lines.

HP and LP safety cutouts are to be used and these will be connected to a lockout relay mounted in the units electrical panel. The unit shall also incorporate internal compressor and fan motor thermal overload, low water temperature safety thermostat. (For heat pump models only). The control circuit can be 24 or 240 Volt and shall be protected with a HRC fuse. Refrigerant metering shall be achieved by capillary control. Large capacity units will include thermostatic expansion valves.

Water Source Heat Pumps

WCP SERIES 3KW-25KW
WATER SOURCE PACKAGED AIR CONDITIONERS

STANDARD EQUIPMENT	OPTIONAL EQUIPMENT
CONSTRUCTION: • 1.2mm Galvanised Steel Casing • Resin bonded facing, thermal / acoustic fibreglass insulation (13mm WCP3-WCP10, 25mm WCP13-WCP25) • Compressor in separate insulated compartment • Evaporator coil drain tray of 1.2mm galvanised steel with bitumastic paint treatment	• Corner hanging brackets • External spring mounts • Return air filter
EVAPORATOR FANS: • Dual Centrifugal DWDI direct driven fans (Horizontal Units) • Single Centifugal DWDI driect driven fans (Vertical Units) • Single Phase 3 Speed Fan Motors • Automatic thermal overload protection	• Fan speed control • Single Centrifugal DWDI direct driven fan (Horizontal Units)
EVAPORATOR COIL: • Multiple Pass direct expansion copper tube / aluminium fin • Phenolic Treatment Corrosion Protection • Capillary Expansion 3KW - 21KW • Thermal Expansion 25KW	• Thermal Expansion Valves (3KW - 21KW units) • Hot Gas bypass capacity control • Electric reheat elements • Airflow interlock relay and air pressure switch
WATER COOLED CONDENSER: • Spirally wound, multi pass, tube in tube • All copper construction • Low water temperature safety thermostat (heat pump only)	• High efficiency, enhanced surface, co-axial shell & coil design (up to 45% reduction in condenser water flow requirement) • Co-axial shell & coil condenser with integral bi-directional liquid refrigerant receiver (recommended for Heat Pumps and TX Valve applications) • Flexible water hose
COMPRESSOR: • Welded hermetic cylinder type, suction gas cooled motor • Maximum speed of 2900 RPM • Centifugal oil pump, factory oil charge • Auto reset HP & LP protection • Internal motor heat and overcurrent protection • Crankcase heaters • Shraeder service connection ports in suction and discharge lines • Vibration isolation mounts	• Head pressure control (water regulating valve) • Compressor isolation valves (10KW and above) • Manual reset HP switch • Manual LP switch • Filter drier • Sight glass
ELECTRICAL / CONTROL: • 24 or 240V control circuit, HRC fuse protected • Compressor start delay timer • Single phase 240V power supply 3KW to 8KW capacity units • Three phase 415V power supply 9KW to 25KW capacity units • Automatic reset HP and LP protection wired through manual reset loc-out circuit relay • Compressor crankcase heater wired through auxillary contact set to operate only when compressor is off • Low entering water temperature cut-out thermostat on heat pump models, wired to de-energise the compressor below 16˚C • Heat relay for automatic changeover on reverse cycle units	• Microprocessor controller (wall mount) • Remote sensors • Infra-red control (hand held) • Soft start facility • Single phase 240V supply 10KW and 13KW capacity units with soft start • Water flow interlock relay • Phase failure relay • Fire alarm relay

Water Source Heat Pumps

WCP SERIES
WATER SOURCE PACKAGED AIR CONDITIONER

SPECIFICATION

MODEL	WCP 3	WCP 5	WCP 7	WCP 8	WCP 9
Air flow (nom) L/s	170	260	400	460	550
Cooling capacity	3	4.9	6.9	7.9	8.9
Electrical supply V/Ph/Hz	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50
CASING					
Material	STEEL	STEEL	STEEL	STEEL	STEEL
Finish	GALVANISED	GALVANISED	GALVANISED	GALVANISED	GALVANISED
Thickness mm	1.2	1.2	1.2	1.2	1.2
CONDENSER					
Type	Tube in Tube	Tube in Tube	Tube in Tube	Tube in Tube	Tube in Tube
Material	COPPER	COPPER	COPPER	COPPER	COPPER
Water L/s	0.17	0.25	0.37	0.47	0.52
Water PD Kpa	45	47	45	45	46
EVAPORATOR					
Rows/FPM	3 / 472	3 / 472	3 / 472	3 / 472	3 / 472
Tube material	COPPER	COPPER	COPPER	COPPER	COPPER
Fin material	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM
Face area M/2	0.09	0.125	0.18	0.18	0.26
FAN / MOTOR					
Type: FWD curve	DWDI	DWDI	DWDI	DWDI	DWDI
Fan drive	Direct	Direct	Direct	Direct	Direct
Motor Watts	130	130	320	320	320
Motor type	PSC	PSC	PSC	PSC	PSC
Motor V/Ph	240/1	240/1	240/1	240/1	240/1
Full load AMPS	1	1.3	2.2	2.7	2.7
Motor speeds	3	3	3	3	3
COMPRESSOR					
Type	HERMETIC	HERMETIC	HERMETIC	HERMETIC	HERMETIC
Power Input KW	1.75	2.1	2.6	2.95	3.2
Supply-V/Ph	240/1	240/1	240/1	240/1	240/1
REFRIGERANT					
Type	R407C	R407C	R407C	R407C	R407C
DIMENSIONS (mm)					
Height	385	385	385	385	440
Length	1300	1300	1300	1300	1350
Width	600	600	680	680	680
Weight (kgs)	96	115	126	132	138

Capacities based on entering air temperature of 27.0 DB / 19.0 WB deg C and 29.5 deg C entering water temperature.
The manufacturer reserves the right to change any data without notice.

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WCP SERIES
WATER SOURCE PACKAGED AIR CONDITIONER

SPECIFICATION

MODEL	WCP 10	WCP 13	WCP 16	WCP 18	WCP 21	WCP 25
Air flow (nom) L/s	550	600	750	900	1000	1500
Cooling capacity	9.8	13.3	16.2	18	21.2	24.7
Electrical supply V/Ph/Hz	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50
CASING						
Material	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
Finish	GALVANISED	GALVANISED	GALVANISED	GALVANISED	GALVANISED	GALVANISED
Thickness mm	1.2	1.2	1.2	1.2	1.2	1.2
CONDENSER						
Type	Tube in Tube	Tube in Tube	Tube in Tube	Tube in Tube	Tube in Tube	Tube in Tube
Material	COPPER	COPPER	COPPER	COPPER	COPPER	COPPER
Water L/s	0.55	0.6	0.8	1.0	1.2	1.4
Water PD Kpa	52	37	47	52	48	55
EVAPORATOR						
Rows/FPM	3 / 472	3 / 472	3 / 472	3 / 472	3 / 472	3 / 472
Tube material	COPPER	COPPER	COPPER	COPPER	COPPER	COPPER
Fin material	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM
Face area M/2	0.27	0.29	0.4	0.432	0.51	0.51
FAN / MOTOR						
Type: FWD curve	DWDI	DWDI	DWDI	DWDI	DWDI	DWDI
Fan drive	Direct	Direct	Direct	Direct	Direct	Direct
Motor Watts	400	400	600	600	2 x 600	2 x 600
Motor type	PSC	PSC	PSC	PSC	PSC	PSC
Motor V/Ph	240/1	240/1	240/1	240/1	240/1	240/1
Full load AMPS	4.2	4.7	4.7	4.7	2 x 4.7	2 x 4.7
Motor speeds	3	3	3	3	3	3
COMPRESSOR						
Type	HERMETIC	HERMETIC	HERMETIC	HERMETIC	HERMETIC	HERMETIC
Power Input KW	3.6	4	5	6	6.5	8
Supply-V/Ph	415/3	415/3	415/3	415/3	415/3	415/3
REFRIGERANT						
Type	R407C	R407C	R407C	R407C	R407C	R407C
DIMENSIONS (mm)						
Height	440	440	480	500	620	620
Length	1350	1650	1650	1650	1950	1950
Width	680	700	700	700	775	775
Weight (kgs)	140	155	155	160	245	285

Capacities based on entering air temperature of 27.0 DB / 19.0 WB deg C and 29.5 deg C entering water temperature.
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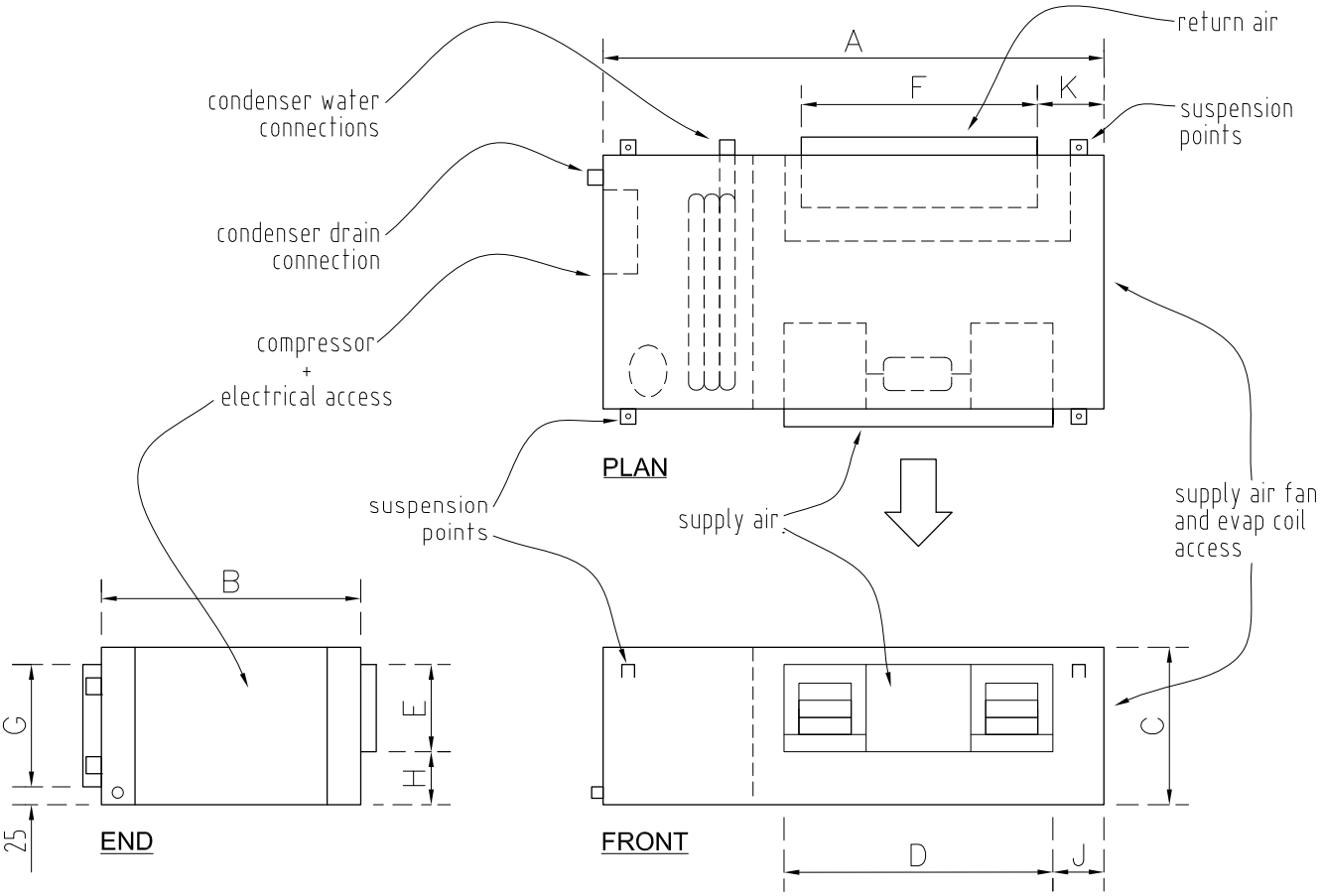
WCP-CH SERIES
HORIZONTAL WATER SOURCE PACKAGED AIR CONDITIONERS

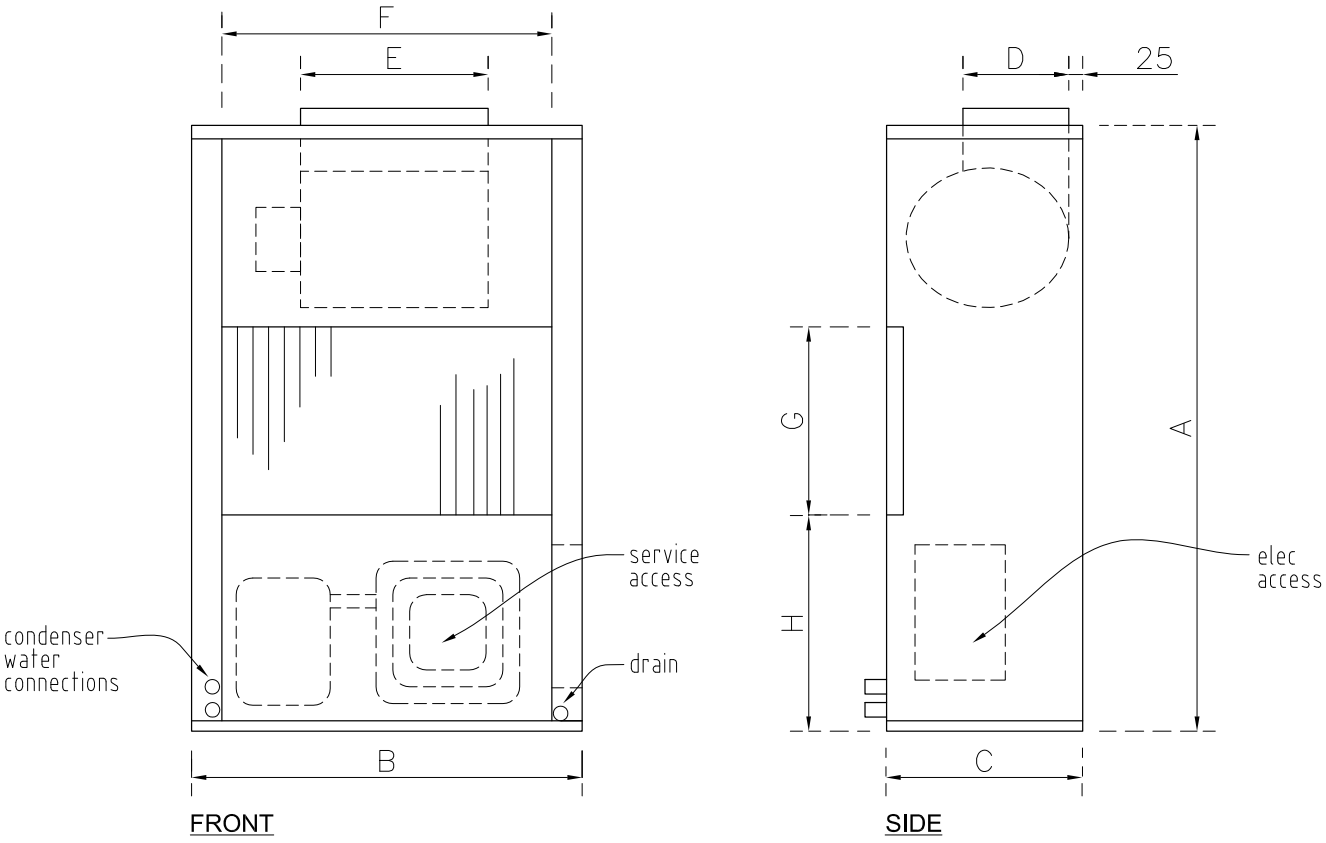


MODEL No.	OVERALL UNIT DIMENSIONS (mm)										Condenser Water Conn BSP
	A	B	C	D	E	F	G	H	J	K	
WCP-3CH	1300	600	385	560	95	485	255	168	97	155	3/4"
WCP-5CH	1300	600	385	560	95	485	255	168	97	155	3/4"
WCP-7CH	1300	680	385	710	180	650	305	150	95	85	3/4"
WCP-8CH	1300	680	385	710	180	650	305	150	95	85	3/4"
WCP-9CH	1350	680	440	710	180	750	305	150	95	85	3/4"
WCP-10CH	1350	680	440	710	180	750	356	150	95	85	3/4"
WSP-13CH	1650	700	440	700	270	930	380	73	190	100	1"
WSP-16CH	1650	700	480	700	270	930	380	73	190	100	1"
WSP-18CH	1650	700	500	700	270	930	380	73	190	100	1"
WCP-21CH	1950	775	620	840	285	1170	560	160	200	150	1 1/4"
WCP-25CH	1950	775	620	840	285	1170	560	160	200	150	1 1/4"

Note: The manufacturer reserves the right to change any data without notice.

WCP-CV SERIES

VERTICAL WATER SOURCE PACKAGED AIR CONDITIONERS

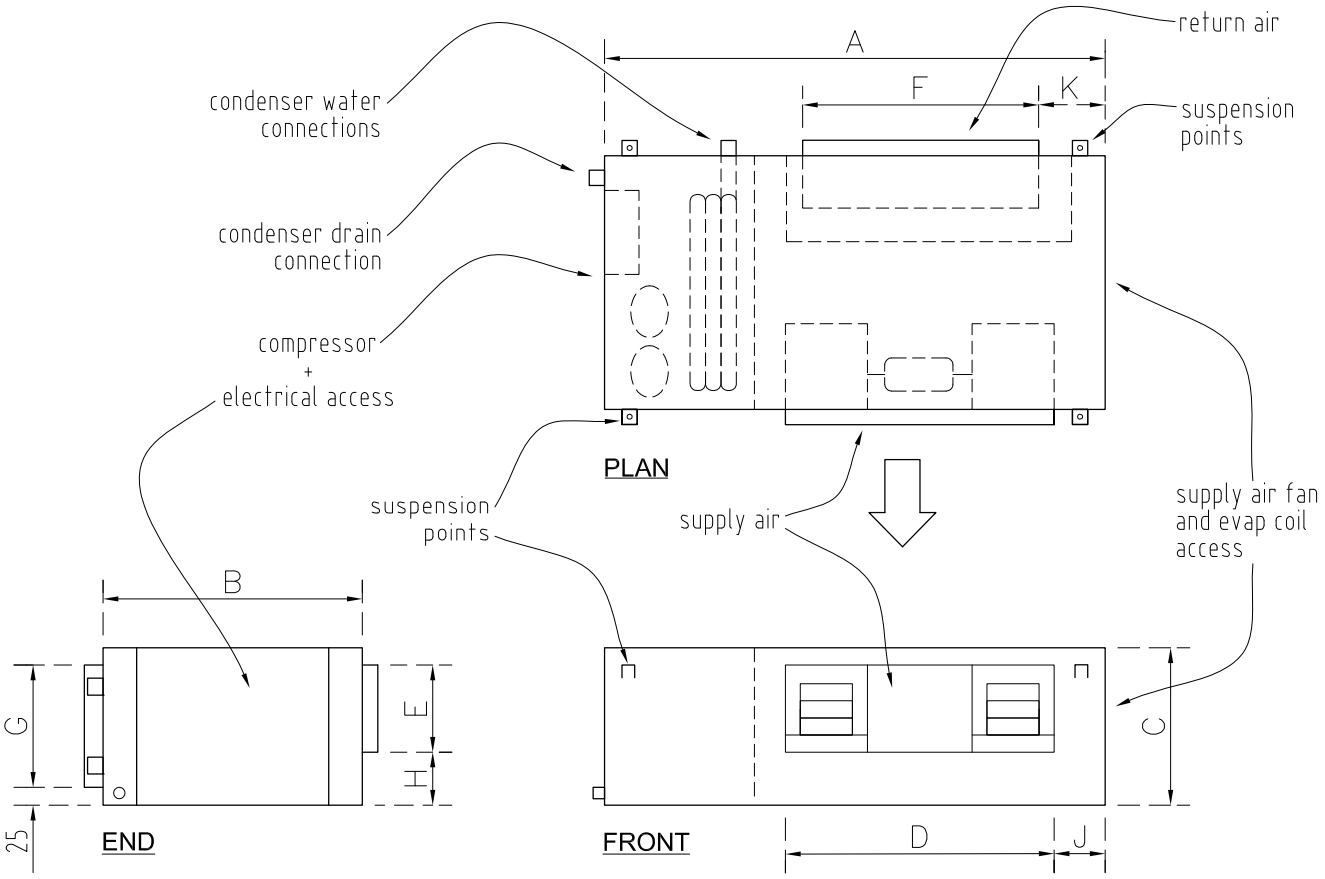


MODEL No.	OVERALL UNIT DIMENSIONS (mm)							
	A	B	C	D	E	F	G	H
WCP-3CV	1150	700	370	95	560	530	255	500
WCP-5CV	1150	700	370	95	560	530	255	500
WCP-7CV	1190	950	370	180	706	700	305	535
WCP-8CV	1190	950	370	180	706	700	305	535
WCP-10CV	1190	950	370	180	706	800	360	540
WCP-13CV	1250	1250	405	180	706	980	380	650
WCP-16CV	1250	1250	405	262	710	980	380	650
WCP-18CV	1250	1250	405	262	710	980	380	650
WCP-21CV	1650	1440	610	265	900	1220	510	
WCP-25CV	1650	1440	610	265	900	1220	540	

Note: The manufacturer reserves the right to change any data without notice.

Single Phase Apartment Units

WCP-CH SERIES
HORIZONTAL WATER SOURCE PACKAGED AIR CONDITIONERS
TWIN SINGLE PHASE COMPRESSOR TYPE



MODEL	OVERALL UNIT DIMENSIONS (mm)										Con Water Conn BSP
	A	B	C	D	E	F	G	H	J	K	
WCP 10/2	1600	950	385	710	180	875	305	150	95	125	1"
WCP 13/2	1900	950	385	710	265	1165	305	70	190	125	1"
WCP 16/2	1900	950	385	710	265	1165	305	70	190	125	1"
WCP 18/2	1900	950	440	710	265	1165	305	70	190	125	1"

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