Compact Water Chillers

WDE

Cooling Capacity: **4 to 43 kW**

R407C

Advanced and reliable liquid cooling with integrated accumulator and pump

Applications

Cooling in the plastic manufacturing industry
Cooling of galvanic baths
Pharmaceutical production
Production of spirits, wines and carbonated beverages
Brewery cooling
The cooling source for air-conditioning unit
Chemical industry - laboratories, manufacturing processes
Cooling of cutting and welding lasers
Cooling of presses and welding machines
Cooling of printing machines
Cooling of air compressors
Cooling for research laboratories

Standard Unit Features

- Cooling circuit with scroll compressor
- Air cooled condenser
- Stepless condenser fans speed control
- Compressor cycling protection
- Stainless steel plate evaporator
- Built-in accumulator tank with circulation pump
- Double protection against freezing up
- ON/OFF remote control ability
- Primary and secondary pump built-in
- High pressure safety switch
- Control according liquid temperature
- Main and operation ON/OFF electrical switch

Main Advantages

- Easy installation and commissioning
- Built-in plastic accumulator tank with a pump
- Primary and secondary circulation loop
- Low cost operation
- High reliability and long life
- Double protection against freezing
- Filled with environmentally friendly refrigerant
- Designed for outdoor use (with antifreeze)
- Optional Accessories
- Applicability for liquids other than water

Optional Accessories

- Low liquid level indication in accumulator tank
- Secondary pump with different head pressure
- Suction and discharge gauges

Design Features

- **Compressor**

  Well proven scroll compressors are characterized by quiet and trouble-free operation with high efficiency throughout the operating range.

- **Accumulator Tank**

  Two chamber design reduces unwanted mixing of hot and cold fluids. It increases the efficiency of the cooling process. Primary pump always provides a constant fluid circulation trough evaporator, regardless of taking cold liquid by secondary pump. The vessel is made of plastic with thermal insulation.

- **Secondary Pump**

  To reach unit compatibility with pressure loss of appliance optional selection of different secondary pump can easily adapt cooling unit to any desired output pressure. Optimized primary circulation via evaporator is not effected by external load.

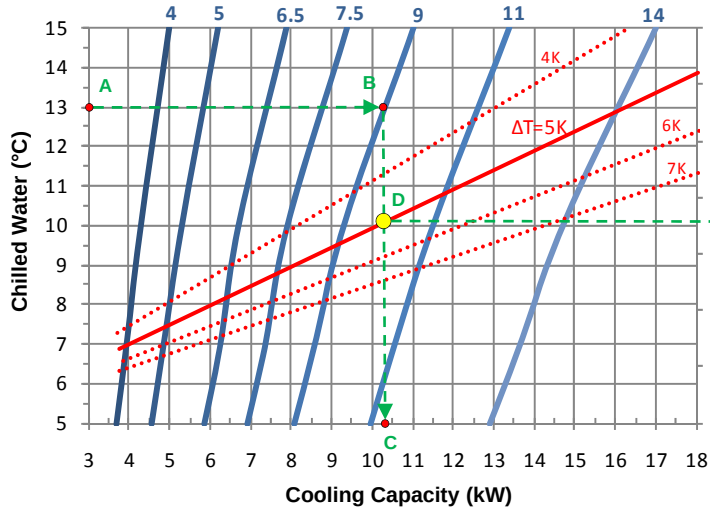
Unit Controller

Technical Specification

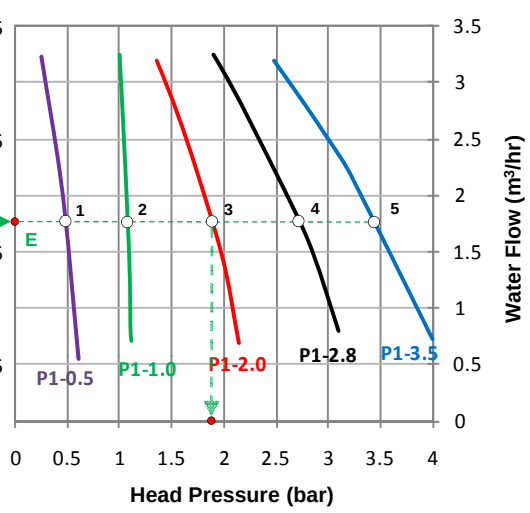
Model		WDE-S1K 4	5	6.5	7.5	9	11	14
Order No.		1CHV011166	1CHV010847	1CHV010821	1CHV011167	1CHV010828	1CHV011113	1CHV010719
Cooling Power [1]	kW	4.0	4.9	6.3	7.4	8.6	10.6	13.7
Nominal Flow [2]	m^3/h	0.69	0.84	1.1	1.3	1.5	1.8	2.4
Operation Current	A	7.1	5.8	6.6	7.4	8	9.2	10.6
Power Input	kW	1.9	2.3	2.7	3	3.4	3.9	4.9
Current Max	A	9.2	6.7	7.6	8.5	9.8	11.2	13
Protection Class		IP 43						
Power Supply		230/400V - 3~ - 50Hz						
Hight H	mm	1320	1320	1320	1530	1530	1530	1530
Depth D	mm	600	600	600	600	600	600	600
Width W	mm	1160	1160	1160	1280	1280	1280	1480
Water Connection		G 1"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
Vessel Volume	L	50	50	50	100	100	100	150
Weight [3]	kg	140	147	150	185	190	195	210
Noise Level [4]	dB(A)	37	37	37	40	40	40	46

[1] Data are valid for output water temperature +7°C at ambient temperature up to +32°C
[2] Value of nominal water flow for temperature IN/OUT +12/+7°C (5K)
[3] Unit weight without liquid filling
[4] Unit sound pressure level Lp (dBA) at 10 m distance

WDE-S1K unit selection



Secondary pump selection



1bar=100kPa≈10m H_2O

Unit and Pump Selection

Requirement is to chill the water to a temperature of +13°C. Desired cooling capacity is 10kW. Estimated water return temperature is +18°C (temperature gradient ΔT=5K).

Unit selection:

Use chart above, where dependence of chilled water temperature and cooling unit capacity is shown. It is obvious that for specified parameters best suit model WDE-S1K-9. Unit cooling capacity at required supplied water temperature is 10.4W. For selection follow the highlighted points A-B-C.

Operating range of supplied chilled water temperature for WDE-S1K units series is in range +5°C to +15°C. Units can be used even for higher cooled water temperature. Maximum allowed starting water temperature is up to +45°C.

For chilled liquid temperature below +5°C is recommended to use antifreeze. Antifreeze mixture is also recommended to use when placing the unit in an outdoor environment due to the possibility of water freezing and subsequent damage to the unit during the winter months. The type and concentration of antifreeze always consult with a refrigeration unit manufacturer.

Secondary Pump:

Secondary pump serve for transport of chilled water to appliance. Working temperature gradient is affected by the water flow volume. Optional selection of the secondary pump from prepared series can customize unit to different hydraulic resistance of the appliance.

Pumps are divided by the head pressure. Last two digits in pump description indicates rated head pressure in bar.

Pump Selection:

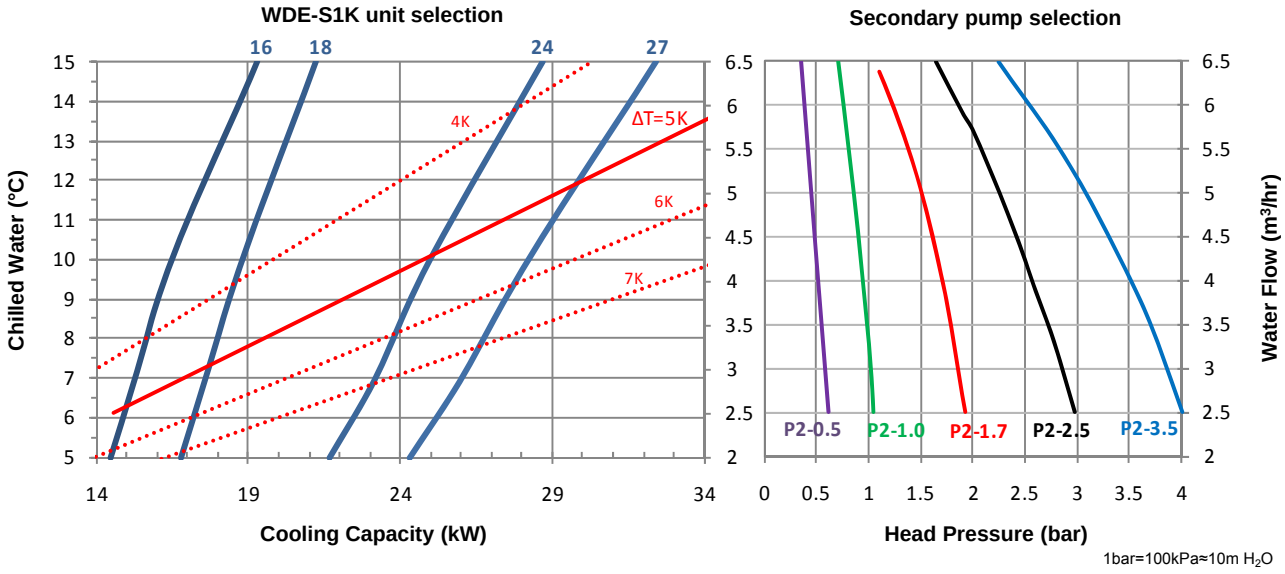
For the selected unit with cooling capacity 10.4kW at +13°C water temperature and 5K temperature gradient, 1.8m^3/hr water flow can be read. For indicated water flow, actual pressure drop of appliance must be calculated (including connecting pipes).

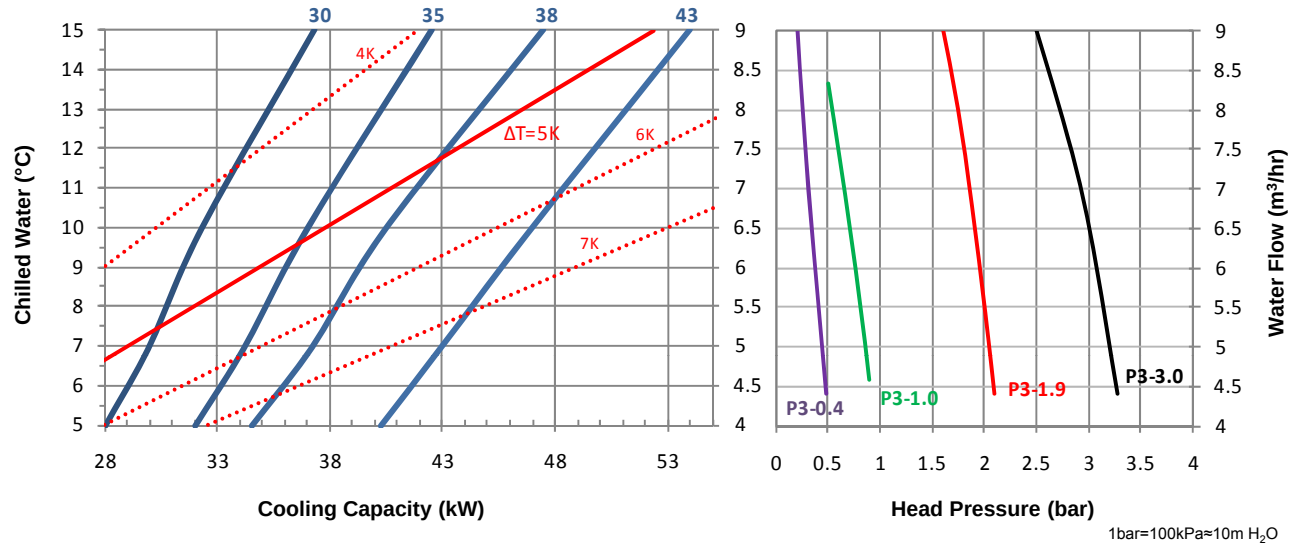
By the extension of the D-E line and their intersection with optional pumps curve characteristic (see points 1-5) appropriate pump with required working pressure can be selected. For example pump P1-2.0 is supplying head pressure 1.8bar. The first two pumps in series are equipped with 3-stage manual capacity control, shown is only maximal capacity.

Technical Specification

Model		WDE-S1K							
		16	18	24	27	30	35	38	43
Order No.		1CHV010884	1CHV011060	1CHV010730	1CHV011168	1CHV011169	1CHV011170	1CHV011171	1CHV010801
Cooling Power [1]	kW	15.3	17.6	23.2	26.0	30.0	34.2	37.2	43.0
Nominal Flow [2]	m^3/h	2.6	3.0	4.0	4.5	5.2	5.9	6.4	7.4
Operation Current	A	12	13.7	18	18.9	20.8	22	24.7	33.7
Power Input	kW	5.6	6.2	8.4	9	10.3	11.3	12.3	15.9
Current Max	A	15.4	17.4	20.8	22.1	25	27	30	39
Protection Class		IP 43							
Power Supply		230/400V - 3~ - 50Hz							
Hight H	mm	1530	1530	2000	2000	2000	2000	2000	2000
Depth D	mm	600	600	1000	1000	1000	1000	1000	1000
Width W	mm	1480	1480	2300	2300	2300	2300	2300	2300
Water Connection		G 5/4"	G 5/4"	G 5/4"	G 5/4"	G 6/4"	G 6/4"	G 6/4"	G 6/4"
Vessel Volume	L	150	150	200	200	200	200	200	200
Weight [3]	kg	220	220	473	475	480	483	487	495
Noise Level [4]	dB(A)	46	46	48.5	48.5	50	50	52	57

[1] Data are valid for output water temperature +7°C at ambient temperature up to +32°C
[2] Value of nominal water flow for temperature IN/OUT +12/+7°C (5K)
[3] Unit weight without liquid filling
[4] Unit sound pressure level Lp (dBA) at 10 m distance





Technical Description

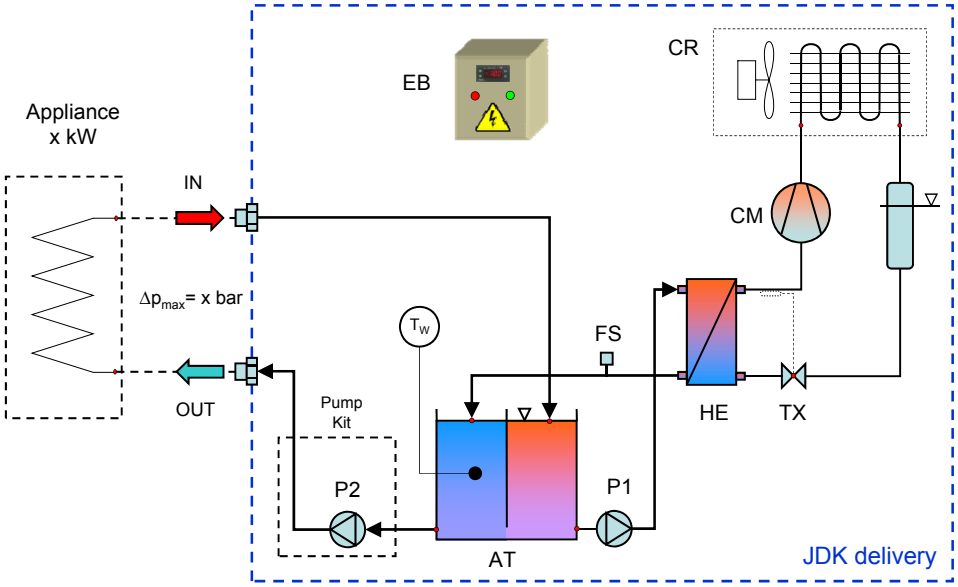
WDE-S1K are a series of compact chillers with stainless steel plate evaporator and built-in accumulator tank with a pump. The units are ready for indoor or outdoor installation. For outdoor installation suitable antifreeze mixture as cooled liquid must be used. The unit is an ideal replacement for flow cooling by drinking or service water. The units are easy to install and simple to use.

Chilled liquid is prepared in built-in accumulator/expansion atmospheric tank. In the primary circuit, fluid continuously circulates from the tank through a heat exchanger (evaporator) back to the storage tank.

The supply of chilled liquid from accumulator tank to an appliance provides optionally selected and properly sized secondary boost pump. Fluid temperature is controlled by ON/OFF digital thermostat. The unit is supplied charged with refrigerant from manufacturer.

Optimized cooling circuit with the primary pump is always fully utilizing compressor refrigeration capacity and is never negatively affected by external load. By proper selection of the secondary pump can be reached optimal hydraulic compatibility with different appliance. Head pressure of the secondary boost pump is important optional unit parameter.

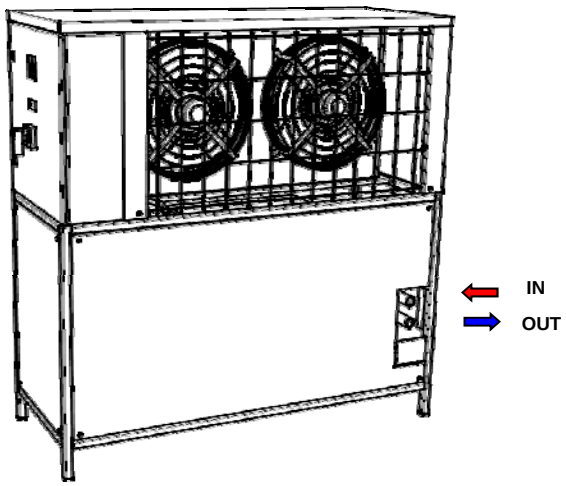
Principal Diagram

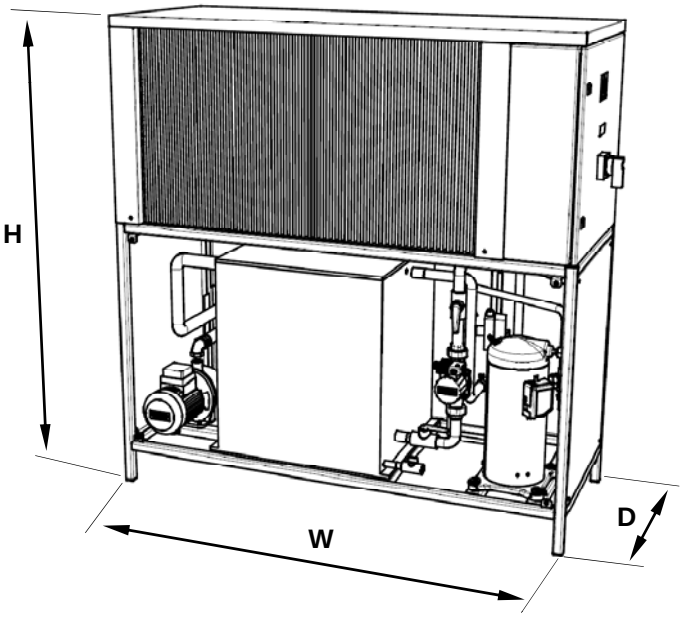


Legend:

CM …	Cooling compressor
CR ….	Condenser
HE ….	Evaporator
TX …..	Expansion valve
FS ….	Flow switch
Tw…...	Temperature sensor
EB ….	Electrical control box
P1/P2	Pump primary/secondary
AT …	Accumulator tank

Illustrative picture





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