

Water Cooling Stations

HEAVY DUTY SERIES

The Adwatec Heavy Duty Series water cooling stations are efficient solutions for cooling power electronics in a closed-loop water cooling system. The stations can be delivered as open frame solutions or installed into a standard cabinet.

The cooling stations circulate coolant between power electronics and a heat exchanger. A three-way valve is used to ensure constant temperature and to avoid condensation in power electronics.

Modular design and various options regarding heat exchanger, control system and pumps ensure the right solution with suitable cooling power and flow rate.



CCE104R-3-W-P



MCE54R-T-W-0

BENEFITS

- Easy to integrate with the cooling circuit
- Minimum cabinet footprint starting from W400xD600 mm
- Fast and easy commissioning (automatic de-aeration and visual coolant level indication)
- Stainless steel industrial pumps and copper-free materials ensure long and reliable operation
- Use of hydraulic block technique minimizes the possibility of leaks
- Minimum service needed

PRODUCT RANGE

PRODUCT CODE	Motor frequency (Hz)	Max. flow rate (l/min)	Max. cooling power (kW) at $\Delta T = 5\text{ }^{\circ}\text{C}$	Cooling unit dimensions W x D x H (mm)	Cabinet size W x D x H (mm)	Electric power (kW)	Supply voltage for pump motor (V)	Approx. skid dry weight with standard delivery
Single-pump models								
MCE34S	50	55	40	300 x 570 x 1893	400 x 600 x 2000*	0,46	380–415, 660–690	115
	60	80	60			0,74	380–440, 660–690	
MCE54S	50	100	65	300 x 570 x 1893	400 x 600 x 2000*	0,85	380–415, 660–690	115
	60	130	75			1,7	380–440, 660–690	
MCE103S	50	230	110	300 x 570 x 1893	400 x 600 x 2000*	2,2	380–415, 660–690	140
	60	270	120			4	380–440, 660–690	
CCE104S	50	210	110	500 x 547 x 1725	400 x 600 x 2000*	1,5	380–415, 660–690	160
	60	250	120			3	380–480, 660–690	
CCE153S	50	360	150	500 x 600 x 1870	400 x 600 x 2000*	3	380–415, 660–690	210
	60	450	170			4	380–480, 660–690	
Two-pump models								
MCE34R	50	55	40	330 x 707 x 1220	400 x 600 x 2000*	0,46	380–415, 660–690	135
	60	80	60			0,74	380–440, 660–690	
MCE54R	50	100	65	310 x 715 x 1166	400 x 600 x 2000*	0,85	380–415, 660–690	210
	60	130	75			1,7	380–440, 660–690	
CCE104R	50	210	110	500 x 577 x 1800	600 x 600 x 2000	1,5	380–415, 660–690	230
	60	250	120			3	380–480, 660–690	
CCE153R	50	360	145	500 x 603 x 1835	600 x 600 x 2000	3	380–415, 660–690	290
	60	450	165			4	380–480, 660–690	
CCE203R	60	480	180	500 x 603 x	600 x 600	4	380–480, 660–690	390
CCE322R	50	600	250	687 x 714 x 1886	800 x 800 x 2200	4	380–415, 660–690	660
	60	740	300			5,5	380–480, 660–690	

The chart is only indicative. Check the exact values from the pump selection chart on page 5 or by contacting Adwatec.

*Single-pump station footprint W600 x D600 x 2000 if control system is included.

TECHNICAL DETAILS

	STANDARD DELIVERY	AVAILABLE OPTIONS
Installation	Open-frame cooling skid	Cabinet installation (includes Rittal VX25 cabinet, leak pool, leak detection sensor and frame supports)
Materials	Stainless steel and corrosion resistant aluminium. All piping materials contacted with liquid are copper free. No surface coatings.	
Water connections	DN-sized pipe ends (DN25–DN65), stainless steel.	<ul style="list-style-type: none"> • Pipe clamp couplings to fasten connection pipes to cooling station • Customer-specific coupling types
Instrumentation	Temperature sensors (2 pcs)* Pressure sensors (2 pcs)* Coolant level indicator Coolant level switches (2 pcs)*	<ul style="list-style-type: none"> • Coolant flow rate • Coolant conductivity • Duplicated instrumentation
External connections	No external pipes	<ul style="list-style-type: none"> • Connection pipes between cooling station and customer circuit • Pipelines between CCE and power electronics. Flexibility with metal hoses
Pumps	Grundfos. All wetted parts stainless steel.	
Temperature control	PLC-controlled 3-way valve	<ul style="list-style-type: none"> • No temperature control • Autonomic thermostatic valve
Heat exchanger	Water-to-water brazed plate heat exchanger. Stainless steel pipes, copper brazing.	<ul style="list-style-type: none"> • Sea water resistant heat exchanger (titanium) • External water-to-air heat exchanger • Full stainless welded
Control/wiring	Vacon AC Drive with integrated PLC control	<ul style="list-style-type: none"> • M12 connectors to sensors, no connection box • Connection box • Siemens PLC control
Expansion tank	Pressurized stainless steel tank. Sight glass with level switches and De-aeration system included.	
Remote control/monitoring	Hardwired, no fieldbus	<ul style="list-style-type: none"> • Profinet • Profibus • Modbus TCP • DNP3
Coolant	Coolant type: water-glycol mixture with appropriate additives. Sight glass to check coolant quality.	<ul style="list-style-type: none"> • Water de-ionization and purification modules • Coolant
Pressure class	PN6	<ul style="list-style-type: none"> • PN10
Other		<ul style="list-style-type: none"> • Filter to remove particles from the liquid • Electrical heater for cold environments

**MCE/MCC type cooling units do have 1 temperature sensor, 1 pressure sensor and 1 coolant level switch by default. Except with PLC there will be always 2 pressure sensors.*

PRODUCT KEY

Example code: CCE104R-3-W-V-D5-0

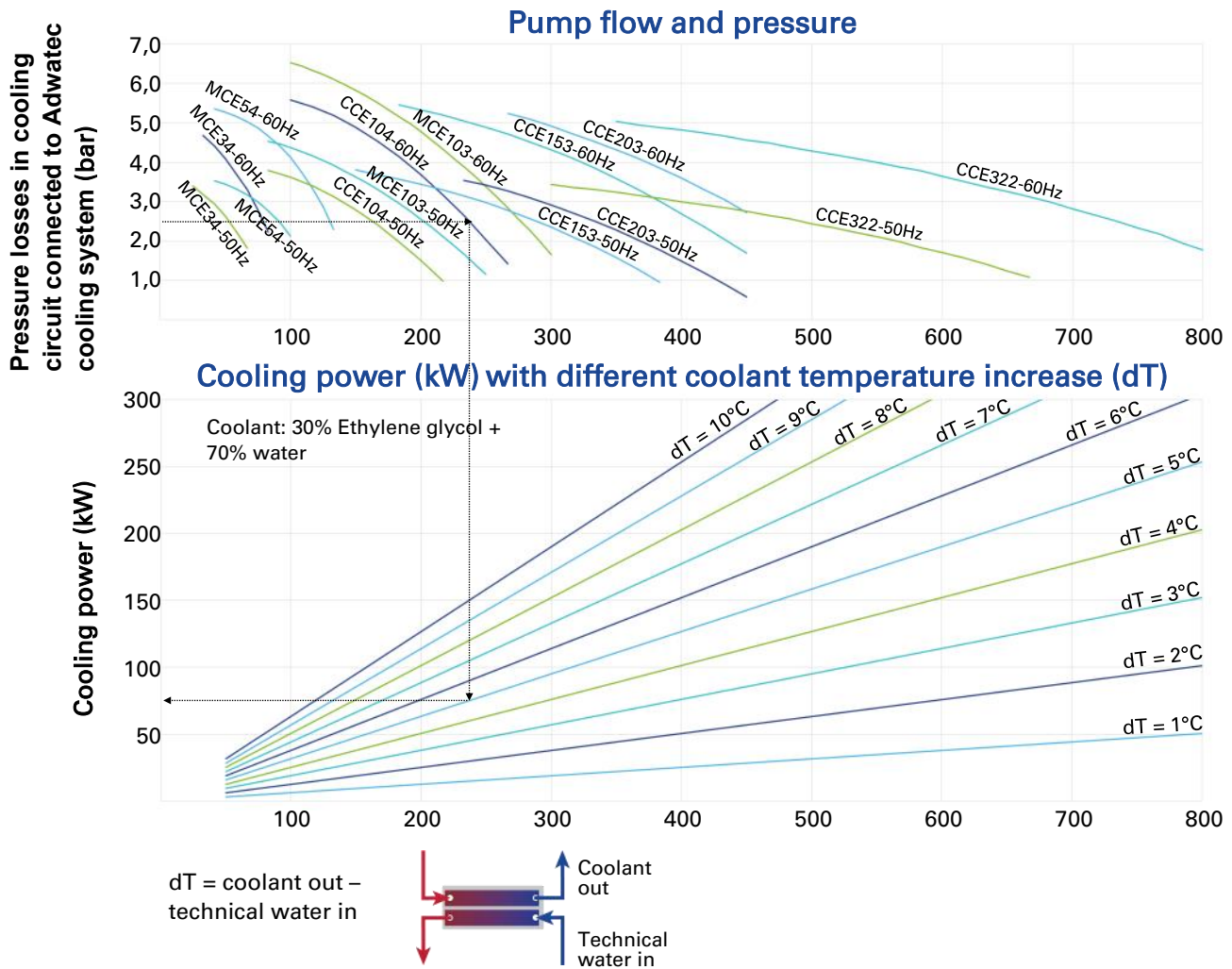
COMPONENT	ALTERNATIVES	CODE	EXAMPLE CODE
Cooling unit	Open frame	CCE/MCE (see pump selection table)	CCE
	With cabinet	CCC/MCC (see pump selection table)	
Pump size (see pump selection table)	34	34	104
	54	54	
	103	103	
	104	104	
	153	153	
	203	203	
	322	322	
Number of pumps	Single	S	R
	Redundant	R	
Bypass valve	No temperature control	0	3
	PLC-controlled 3-way valve	3	
	Autonomic thermostatic valve	T	
Heat exchanger	Water-to-water, brazed	W	W
	Water-to-water titanium	T	
	Water-to-air (outside skid)	E	
	Water-to-water, welded	S	
Control/wiring	No control/wiring	0	V
	Connection box (with internal wiring)	C	
	Siemens PLC control	P	
	Vacon AC Drive with integrated PLC control*	V	
Voltage and frequency	50 Hz, M 380–440, C 380–415 V	D5	D5
	60 Hz, M 380–440, C 380–480 V	E6	
	50 Hz, 660–690 V	F5	
	60 Hz, 660–690 V	F6	
	50 Hz, other supply voltage	X5	
	60 Hz, other supply voltage	X6	
Remote control / monitoring	Hardwired, no fieldbus**	0	0
	Profinet	N	
	Profibus	B	
	DNP3	D	
	Modbus TCP	M	
	Other, contact Adwatec	X	

Options not shown in product key, please enquire Adwatec

* This option together with supply voltage over 500 V will increase the footprint of the cooling unit. Contact Adwatec.

** With Vacon AC drive limited hardwire, remote control can be used with certain device configuration

PUMP SELECTION



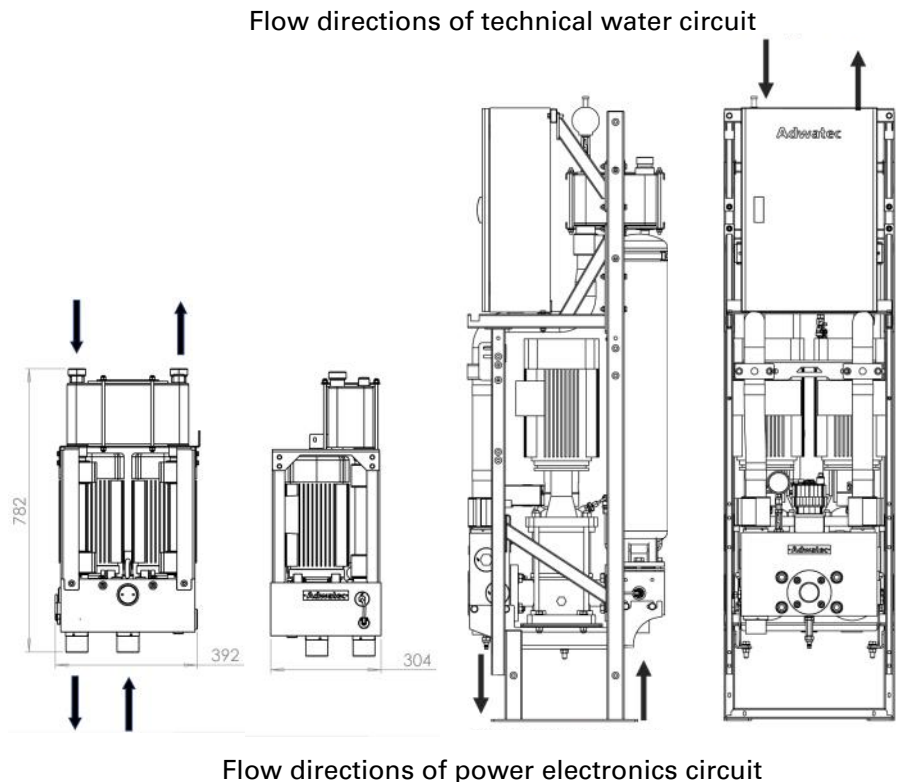
PIPE INTERFACES for technical water and coolant lines

Technical water (=raw water) circuit interfaces are located on top of the cooling station by default.

Interfaces for power electronics are located on the bottom of the cooling station by default.

Default connection type is DN-sized (DN25-DN65) stainless steel pipe.

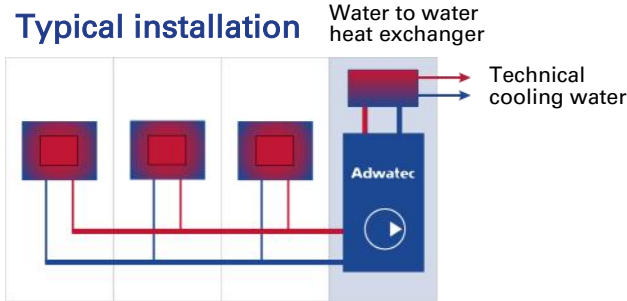
External connection pipes shall be fastened to cooling station pipe connections with pipe clamp connectors. As well customer-specific connection pipes as pipe coupling parts are available as an option.



HEAT EXCHANGERS

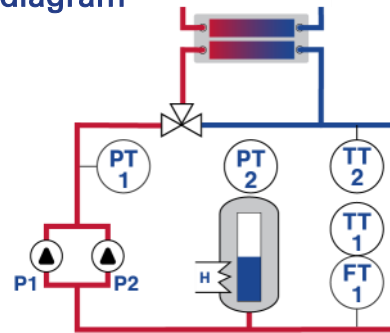
Water to water heat exchanger

Typical installation



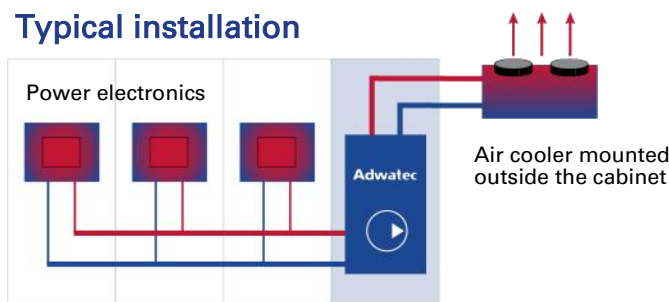
Cooling station with external water to water heat exchanger

Flow diagram



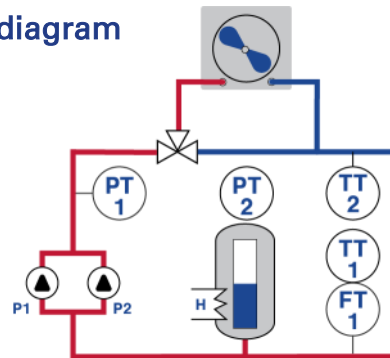
Water to air heat exchanger

Typical installation



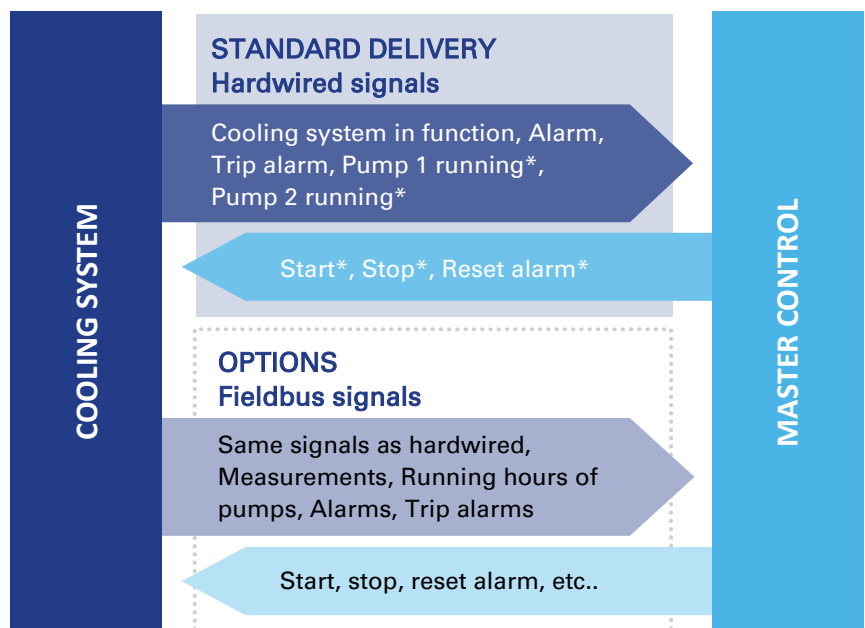
Cooling station with external water to air heat exchanger

Flow diagram



REMOTE CONTROL / MONITORING

	SIEMENS PLC (P)	VACON PLC (V)
Hardwired
Modbus TCP
Profinet
Ethernet/IP	-	.
Modbus RTU	.	.
Profibus DP	.	.
DeviceNet	-	.
CanOpen	-	.
EtherCat	-	.
IEC60870	.	-
DNP3	.	-
... Available by default	. Available as option	- Not available



* Only with Siemens PLC