

# Cooling Water Circulator (Externally Opened Circulation, Peltier Cooling)

Freon-free Cooling Type

## CTA402(S)/802(S)/412(S)/812(S), CTW402(S)/802(S)/412(S)/812(S)

Cooling system  
Air cooling CTA    Water cooling CTW

Operating temp. range  
0~+70°C CTA    -10~+70°C CTW

Temp. adjustment accuracy  
±0.1°C

Max. Pump flow  
8L/min 402(S)/412(S)    11L/min 802(S)/812(S)



- Water cooling (CTW) and air cooling (CTA) heat dissipation systems available.
- Integrated (CTW402/412/802/812, CTA402/412/802/812) and separated (CTW402S/412S/802S/812S, CTA402S/412S/802S/812S) types selectable.
- External open constant temperature water circulator with separate cooling/heating assembly and power control assembly enabling precise control of constant temperature water. It uses a Freon-free cooling system.
- RS485 communication function provided as standard and can be centrally managed from a PC.

### Specifications

Product code	Power supply: AC115V Single phase with step-down transformer	221635	221643	221637	221645	221631	221639	221633	221641
Model		CTA402	CTA402S	CTA802	CTA802S	CTW402	CTW402S	CTW802	CTW802S
Product code	Power supply: AC220V Single phase with step-down transformer	221636	221644	221638	221646	221632	221640	221634	221642
Model		CTA412	CTA412S	CTA812	CTA812S	CTW412	CTW412S	CTW812	CTW812S
System	Air cooled electronic cooling, External open circulation, Integrated type (S: Separated type)					Water cooled electronic cooling, External open circulation, Integrated type (S: Separated type)			
Operating temperature range	0°C*1 to +70°C					-10°C*2 to +70°C			
Temp. adjustment accuracy	±0.1°C								
Cooling capacity (at liquid temp. 20°C)*3	83 kcal/h (97W)			163 kcal/h (189W)		126 kcal/h (147W)		250 kcal/h (291W)	
Pump capacity (50Hz)	Maximum flow	8 L/min			11 L/min		8 L/min		11 L/min
	Maximum discharge pressure	29.4kPa			78.4kPa		29.4kPa		78.4kPa
Temperature controller	P.I.D. control, Digital setting and display								
Temperature sensor	Platinum resistance thermometer sensor (Pt100Ω)								
Timer function	1 min to 99 hrs 50 min, 100 to 9999 hrs (with time/clock switching function)								
Operation function	Fixed temp. (with pause function), Fixed temp. auto-stop, quick auto-stop, Fixed temp. auto-start, Programmed operation (99 steps, step division function, repetition, gradient operation, etc.), Programmed auto start operation								
Other functions	Self diagnostics, Calibration offset, External temperature sensor switching (external temperature sensor is optional), Power failure recovery mode, RS485 external communication, Alarm output terminal, Key lock, Display the amount of Power consumption, Operation guidance, Temperature output terminal								
Safety device	Over current electric leakage breaker, Abnormality detection (Temp. sensor, Overheat, Peltier, Temp. upper / lower limit, Power supply, Internal communication, Memory)								
Material of cooling/heating unit liquid contact part	Stainless steel (SUS304)								
External size (W×D×Hmm)	Integrated type	291×380×360 --		371×440×380 --		291×380×360 --		331×480×380 --	
	Separated type (-S)	heat exchange unit	--	291×380×190 --	--	361×410×265 --	--	291×360×175 --	311×480×202
		power supply control unit	291×342×195						
Weight (Approx.)	Integrated type	23 kg	--	35 kg	--	19 kg	--	27 kg	--
	Separated type (-S)	heat exchange unit	--	16 kg	--	27kg	--	12kg	--
		power supply control unit	10 kg						
Circulation port nipple diameter	O.D.: 12.7mm								
Number of thermo module (Peltier element)	4 pcs.			8 pcs.		4 pcs.		8 pcs.	
Accessories	Heat insulation hose for circulation water (I.D. 11.5mm 1m×2pcs.), Heat radiation water hose (I.D.12mm 3m×1pc.,CTW only), Stacking clamp (Separated type only)								

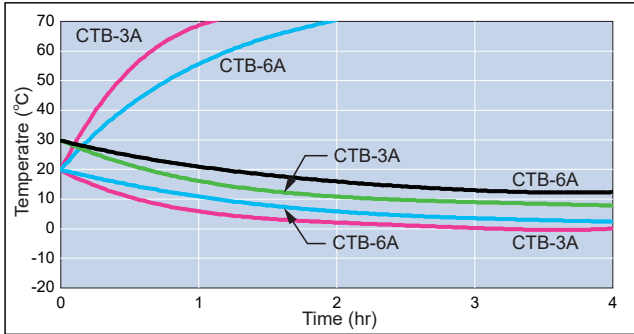
The length of the power cord is about 2m outside the unit.

\*1 0°C is when the environmental temperature is 15°C and no load. \*2 -10°C is when heat radiation water temperature is 15°C and no load.

\*3 Set temperature: 20°C, environmental temperature: 20°C, heat radiation water temperature: 20°C

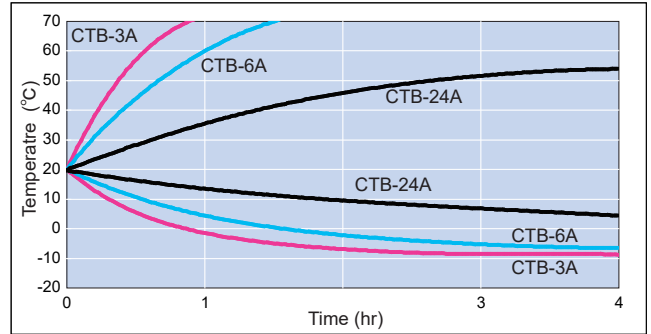
## Heating-cooling Characteristics

### ● CTA402 / CTA402S / CTA412 / CTA412S



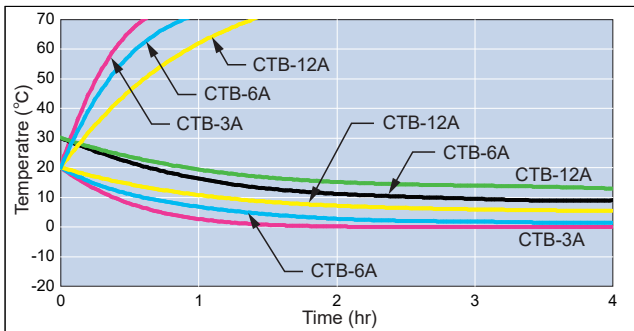
Testing bath	CTB-3A	CTB-6A	CTB-3A	CTB-6A
Liquid	Ethylene glycol + water (1:1)			
Liquid amount	3L	6L	3L	6L
Ambient temp.	20°C		30°C	

### ● CTW402 / CTW402S / CTW412 / CTW412S



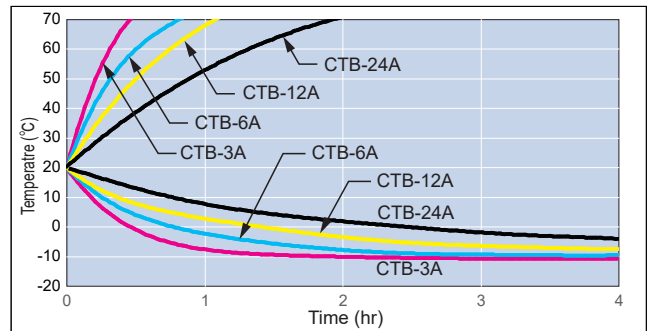
Testing bath	CTB-3A	CTB-6A	CTB-24A
Liquid	Ethylene glycol + water (1:1)		
Liquid amount	3L	6L	20L
Ambient temp. : 20°C, Primary temp. of the heat radiation water : 20°C	Amount of heat radiation water : 5L/min		

### ● CTA802 / CTA802S / CTA812 / CTA812S



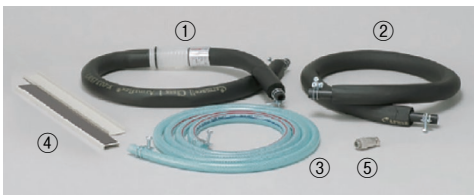
Testing bath	CTB-3A	CTB-6A	CTB-12A	CTB-6A	CTB-12A
Liquid	Ethylene glycol + water (1:1)				
Liquid amount	3L	6L	12L	6L	12L
Ambient temp.	20°C		30°C		

### ● CTW802 / CTW802S / CTW812 / CTW812S



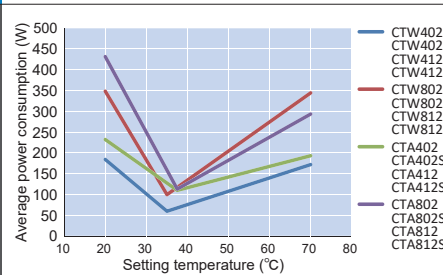
Testing bath	CTB-3A	CTB-6A	CTB-12A	CTB-24A
Liquid	Ethylene glycol + water (1:1)			
Liquid amount	3L	6L	12L	20L
Ambient temp. : 20°C, Primary temp. of the heat radiation water : 20°C	Amount of heat radiation water : 5L/min			

## Accessories



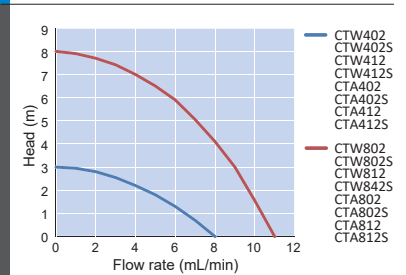
- Heat insulation hose for circulation water (for inlet)
- Heat insulation hose for circulation water (for outlet)
- Heat radiation water hose (CTW/CTW-S)
- Stacking clamp (CTA-S/CTW-S)
- Connector for external sensor

## Power consumption



\* Conditions : CTB-6A testing bath with 6 liters of water.  
Ambient temperature 23°C. Heat radiation water temperature 20°C (CTW-type)

## Flow rate / Head (50Hz)



\* When used at 60 Hz, the max. flow rate (at 0 m head) is approx. 10% and the max. head (flow rate = 0 mL/min) will increase by approx. 30%.

## Optional Items

### ① External temp. sensor



### ③ CTB-6A

### ④ CTB-12A

### ⑥ CTB-24A



### ⑤ CTB-12S

### ② CTB-3A

No.	Description	Option Model	Product Code
①	External temp. sensor	-	221295
②	Testing bath, capacity : 3L	CTB-3A	221801
③	Testing bath, capacity : 6L	CTB-6A	221802
④	Testing bath, capacity : 12L	CTB-12A	221803
⑤	Testing bath, capacity : 12L	CTB-12S	221805
⑥	Testing bath, capacity : 24L	CTB-24A	221804

\* The heat resistance temperature of the testing bath is 60°C or less.