

Cooling Water Circulator (Externally Closed Circulation, Inverter Control)

Inverter Type

CFI 601/811/1011

Operating temp. range -10~30°C

Cooling capacity (at 20°C of liquid temp.)
 1,000W CFI 601 1,800W CFI 811 2,900W CFI 1011

Cooling water circulation system of high output, saving energy consumption by inverter control.

- The chiller is equipped with a magnetic circulation pump for general-purpose applications.
- A variety of options are available to meet the connection requirements of various devices such as pressure and flow meters.
- Compared to the conventional model, the chiller is much smaller and energy-saving with high-powered cooling capacity. Stable temperature control is possible.



CFI 601

CFI 811

CFI 1011

Specifications

Product code	221555	221559	221589
Model	CFI 601	CFI 811	CFI 1011
Type	General		
Circulation type	Closed system circulation / Anti-freezing liquid or tap Water (Liquid temperature above 10°C)		
Ambient temperature range	5~40°C		
Operating temp. range*1	-10~30°C		
Temp. fluctuation (JIS)*2	0.2°C		
Cooling capacity*3	Approx. 1,000W	Approx. 1,800W	Approx. 2,900W
External circulation flow rate*(50/60Hz)	Approx. 15 / 17L/min		
Pump max. lift*5	Approx. 10 / 14m		
Tank	Polyethylene		
Temp. control	Refrigerator inverter control		
Temp. sensor	Pt100Ω (for temperature control), T thermocouple (for room temperature)		
Refrigerator / coolant	Air-cooling inverter type / R410A		
	361W	399W	1,320W
Heat exchanger / Material	Plate type heat exchanger/SUS316		
External circulation port	Rc1/2, female screw		
Circulation pump	Magnet Pump 65W		
Safety countermeasures	Over current electrical leakage breaker, Temp. sensor error, Liquid temperature upper and lower limits abnormality, Low water level abnormality (float switch), Refrigerator over load relay, Refrigerator high pressure relay, Ambient temp. upper limit error, Refrigerator overload reducing operation, Pump thermal protector, Delay timer for protecting refrigerator, Inverter error		
Other functions	Water bath filter, Drain cock, Air intake filter, Calibration off-set, Auto start, Auto stop, Display the amount of Power consumption, Integration time, Setting display digit: 0.1°C unit		
Water bath capacity	Approx. 5L		
External dimensions	W380×D520×H690mm, W385×D563×H690mm (including protruding parts)		
Power source (50/60Hz)	AC115V / AC220V Single phase with step-down transformer	AC220V Single phase with step-down transformer	
Power code	Length of about 2.5m outside the unit	Length of about 3m outside the unit	
Weight	Approx. 47kg	Approx. 40kg	Approx. 44kg
Accessories	Drain hose (I.D. 9mm x 500mm), Drain hose nipple (O.D. 10mm)		

*1 Heating function is not provided.

The temperature may not reach -10°C at room temperature of 35°C or higher. (CFI601)

*2 Performance is different if the load at the connection point is small.

*3 Cooling capacity at an ambient temperature of 23°C and liquid temperature of 20°C.

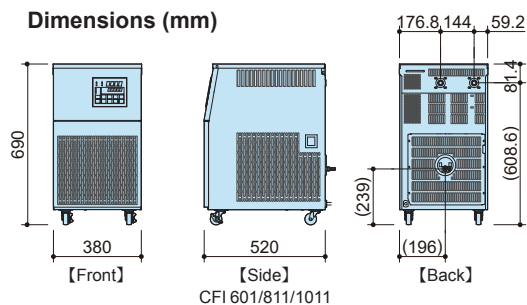
*4 Values are based on the use of tubes with inner diameter of 9mm and outer diameter of 13mm.

In case of using the optional 50µm filter set, about 3L/min. is reduced.

When the optional strainer set is used, about .5L/min is reduced.

*5 The above data is based on the ambient temperature of 23°C and the power supply voltage of 200V AC (100V AC for CFI601).

Dimensions (mm)



Yamato Scientific Co., Ltd.
www.yamato-scientific.com 2006

 Sintech Scientific (S.E.A.) Pte Ltd
 No. 194 Pandan Loop #04-11
 Pantech Business Hub
 Singapore 128383
 Tel : 65-67790007
 Fax : 63520877, 63520885
 Email : sales@sintechscientific.com
 Website : www.sintechscientific.com

Cooling Water Circulator (Externally Closed Circulation, Inverter Control)

Inverter Type

CFI 701/911/1111

Operating temp. range

5~30°C

Cooling capacity (at 20°C of liquid temp.)

1,000W
CFI 701

1,600W
CFI 911

2,700W
CFI 1111

Cooling water circulation system of high output, saving energy consumption by inverter control.

- High-lift type (Model: CFI 701/911/1111) is suitable for cooling the Analyzing equipment (ICP, ICP-MAS, X-ray analyzer device, Electron microscope etc.) with high power pump equipped.
- Various optional accessories are available.



CFI 701

CFI 911

CFI 1111

Specifications

Product code	221557	221560	221592
Model	CFI 701	CFI 911	CFI 1111
Type	High-lift type		
Circulation type	Closed system circulation / Anti-freezing liquid or tap Water (Liquid temperature above 10°C)		
Ambient temperature range	5~40°C		
Operating temp. range ^{*1}	5~30°C		
Temp. fluctuation (JIS) ^{*2}	0.2°C		
Cooling capacity ^{*3}	Approx. 1,000W	Approx. 1,600W	Approx. 2,700W
External circulation flow rate ^{**} (50/60Hz)	Approx. 15 / 18L/min	Approx. 22 / 26L/min	
Pump max. lift ^{*5}	Approx. 35 / 48m	Approx. 52 / 65m	
Tank	Polyethylene		
Temp. control	Refrigerator inverter control		
Temp. sensor	Pt100Ω (for control temperature control), T thermocouple (for room temperature, evaporation temperature)		
Refrigerator / coolant	Air-cooling inverter type / R410A		
	361W	399W	1,320W
Heat exchanger / Material	Plate type heat exchanger/SUS316		
External circulation port	Rc1/2, female screw		
Circulation pump	Turbine Pump 370W Wetted part: Stainless steel	Turbine Pump 550W Wetted part: Stainless steel	
Safety countermeasures	Over current electrical leakage breaker, Temp. sensor error, Liquid temperature upper and lower limits abnormality, Low water level abnormality (float switch), Refrigerator over load relay, Refrigerator high pressure relay, Ambient temp. upper limit error, Refrigerator overload reducing operation, Pump thermal protector, Delay timer for protecting refrigerator, Inverter error		
Other functions	Water bath filter, Drain cock, Air intake filter, Calibration off-set, Auto start, Auto stop, Display the amount of Power consumption, Integration time, Setting display digit: 0.1°C unit		
Water bath capacity	Approx. 5L		
External dimensions	W380×D520×H690mm, W385×D563×H690mm (including protruding parts)		
Power source (50/60Hz)	AC115V / AC220V Single phase with step-down transformer	AC220V Single phase with step-down transformer	
Power code	Length of about 2.5m outside the unit	Length of about 3m outside the unit	
Weight	Approx. 56kg	Approx. 50kg	Approx. 53kg
Accessories	Drain hose (I.D. 9mm x 500mm), Drain hose nipple (O.D. 10mm)		

^{*1} Heating function is not provided.

The temperature may not reach -10°C at room temperature of 35°C or higher. (CFI701)

^{*2} Performance is different if the load at the connection point is small.

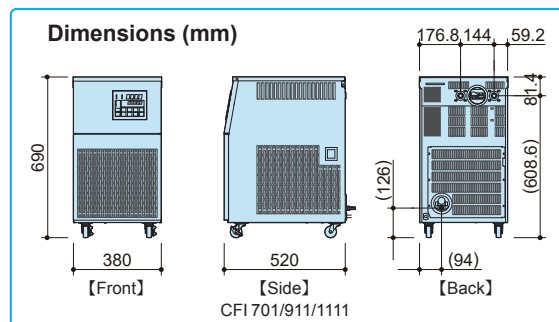
^{*3} Cooling capacity at an ambient temperature of 23°C and liquid temperature of 20°C.

^{*4} Value when using a hose nipple 12.7mm in diameter and a blade hose with an inner diameter of 12mm and an outer diameter of 15mm.

In case of using the optional 50μm filter set, about 3L/min. is reduced.

When the optional strainer set is used, about .5L/min is reduced.

^{*5} The above data is based on the ambient temperature of 23°C and the power supply voltage of 200V AC (100V AC for CFI701).



Control Panel

Large display provides excellent temperature visibility.
Various support functions, such as a timer operation function and temperature calibration function, are also provided as standard.



Small Tank

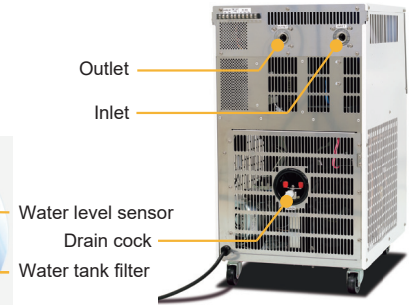
By using a small plastic tank with a capacity of 5 liters, the cost of circulating liquid such as antifreeze liquid can be reduced.
The time required for the Temperature descent can be significantly reduced.

Example: Descent time from 20°C to -10°C

Old model CF1100 (37L) 60 min. → New model CF11011 (5L) 10 min.



■ Back (General-purpose type)



* The terminal block is optional.

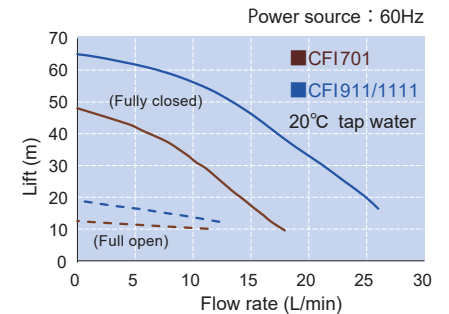
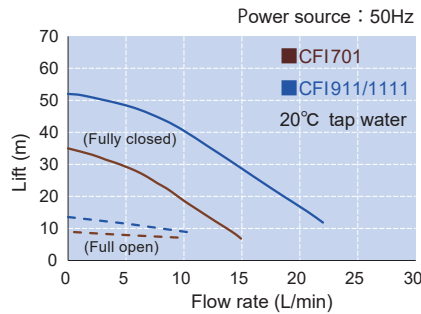
Powerful

Turbine pump with stainless steel wetted part

Pump output
CFI701: 370W
CFI911/1111: 550W

Pressure conversion formula
Lift 10m = 1kgf/cm² = 0.1MPa

Flow rate and lift characteristics (bypass valve fully open/closed)

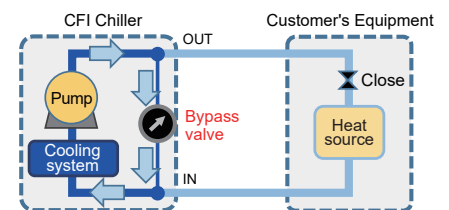
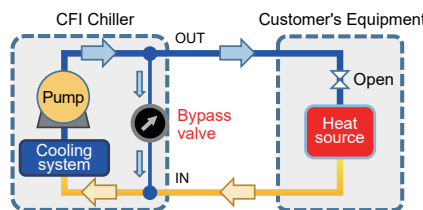


Safety

CFI701/911/1111 are equipped with a bypass circuit in the circulation channel as standard.

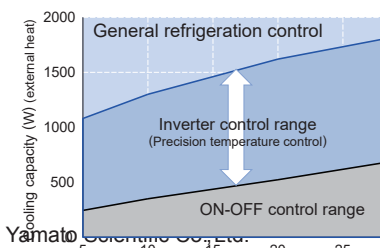
The circulating pump is properly protected from overload by maintaining circulation through the bypass circuit even when the connected flow path is fully closed.

*The CFI701 completely shuts down the bypass circuit when fully closed. CFI911 and 1111 flow the prescribed amount to the bypass.

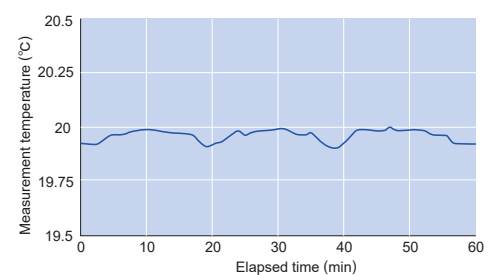
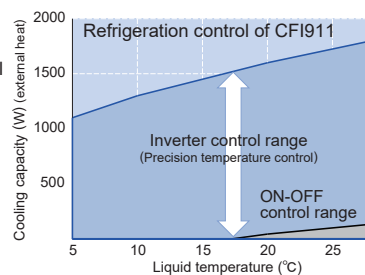


Inverter Precision Control

Precise temperature control is possible even at low loads.
Our unique control technology expands the range of precision control by inverters.



Original Control Technology



Precise control example (CFI701):
Liquid temperature 20°C, load 200W, room temperature 23°C

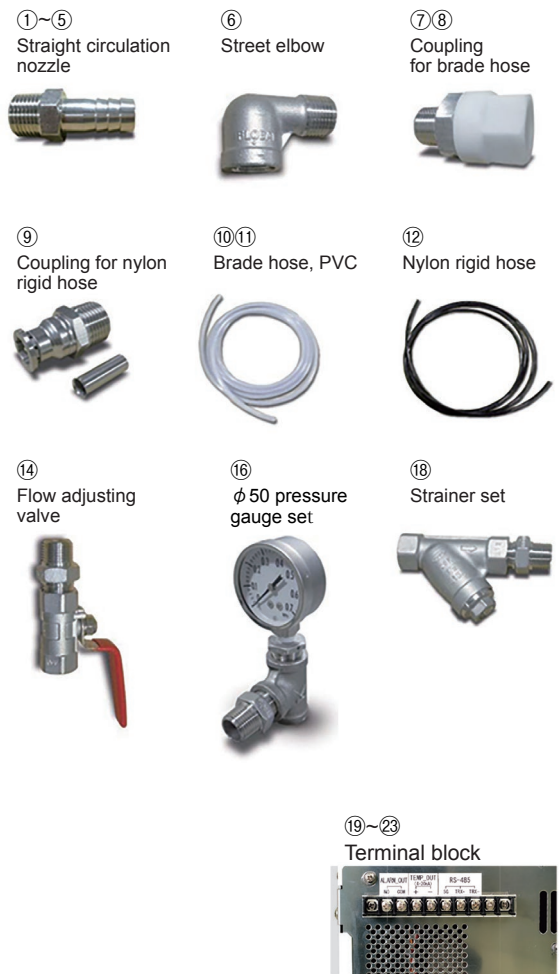
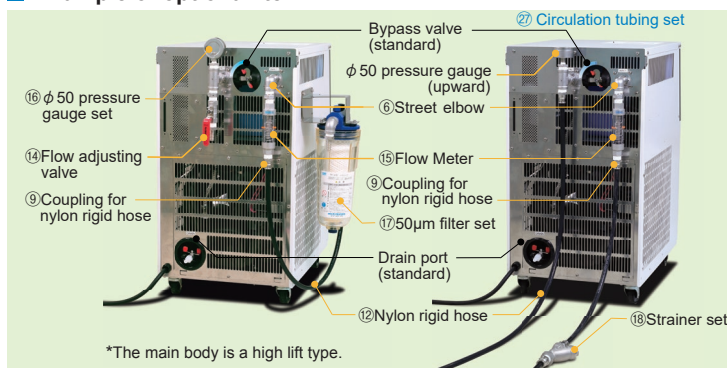
Optional Items

No.	Description	Specifications	Product code
①	Straight circulation nozzle	Nipple diameter: ϕ 9mm, Connecting screw: Rc1/2, Stainless steel	221650
②		Nipple diameter: ϕ 10.5mm, Connecting screw: Rc1/2, Stainless steel	221651
③		Nipple diameter: ϕ 12.7mm, Connecting screw: Rc1/2, Stainless steel	221652
④		Nipple diameter: ϕ 16mm, Connecting screw: Rc1/2, Stainless steel	221653
⑤		Nipple diameter: ϕ 19mm, Connecting screw: Rc1/2, Stainless steel	221654
⑥	Street elbow	Connecting screw: Rc1/2×R1/2, Stainless steel	221655
⑦	Coupling for brade hose (Tightening fitting)	For blade hose ^⑩ (Wetted part: Stainless steel) R1/2×I.D. ϕ 9mm×O.D. ϕ 15mm	221677
⑧		For blade hose ^⑪ (Wetted part: Stainless steel) R1/2×I.D. ϕ 15mm×O.D. ϕ 22mm	221678
⑨	Coupling for nylon rigid hose (Insertion fitting)	For Hard Tube ^⑫ R1/2×O.D. ϕ 12mm dia., 1pc. (stainless steel) Insert for I.D. ϕ 8 and ϕ 9 tube, each 1pc.	221679
⑩	Brade hose	PVC pressure resistant hose I.D. ϕ 9mm×O.D. ϕ 15mm×5m length, Liquid temp.: -5°C~	221673
⑪		PVC pressure resistant hose I.D. ϕ 15mm×O.D. ϕ 22mm×5m length, Liquid temp.: -5°C~	221674
⑫	Nylon rigid hose	Nylon hose, I.D. ϕ 9mm×O.D. ϕ 12.5mm×5m length, Liquid temp.: -15°C~	221672
⑬	Insulated circulation hose	Silicon hose, I.D. ϕ 9mm O.D. ϕ 13mm (insulated O.D. ϕ 30mm) 2m length×2pcs with 4 clamps (for CFI601/811/1011)	221581
⑭	Flow adjusting valve	Connecting screw: Rc1/2×R1/2	221656
⑮	Flow meter	Connecting screw: Rc1/2×R1/2, Stainless steel, Range: 0 to 15L/min, Liquid temp.: 5°C~	221691
⑯	ϕ 50 pressure gauge set	Indication: 0 to 0.7 MPa Connecting screw: R1/2×Rc1/2 Stainless steel, Liquid temp.: -5 to 40°C	221657
⑰	50 μ m filter set	ϕ 12mm hard tube connection Liquid temp.: 5 to 35°C	221692
⑱	Strainer set	20 mesh, Connecting screw: R1/2×Rc1/2	221671
⑲	*External communication terminal	RS485 communication connection	221690
⑳	*Operation signal output terminal	Operation signal output a-contact output	221688
㉑	*External combination terminal	Operation by signal input a-contact input	221687
㉒	*External alarm output terminal	Error signal output, a-contact output	221686
㉓	*Temperature output terminal	Converts temperature to analog 4-20mA and output	221689
㉔	External communication adapter set	Set that converts and connects the RS485 external communication terminal to the USB port of an external device (such as a PC).	211884
㉕	*Leak detection system	Water leakage tray and stop operation by water detection	221685
㉖	Noise reduction panel	for CFI701/911/1111, (Left, right and rear mounting)	221693
㉗	Circulation tubing set	Street elbow (1pc.) / Flowmeter (1pc.) / Strainer (1pc.) / Cheese (1pc.) / Bushing (1pc.) / Pressure gauge (1pc.) / Hexagonal nipple (1pc.) / Coupling for nylon rigid (4pcs.) / Nylon rigid hose, I.D. ϕ 9×O.D. ϕ 12mm×10m length / Insert ring I.D. ϕ 9×O.D. ϕ 12mm (6pcs.)	221694

*Customized from factory. Please specify when ordering main unit.
Up to four different types can be installed at the same time. When external communication is included, up to 3 items can be mounted in combination.

The set contents of ㉗ will be RS485 to USB conversion adapter, USB cable (1m), RS485 connection cable (3m) and utility software (CD)
The operating environment is Windows 7.

Example of optional item



㉕ Leak detection system (with tray)



*The main body is a high lift type.



㉖ Noise reduction panel
Reduces the noise level by 1 to 5 dBA



(Note)
Ambient operating temperature : 5 to 35°C
Cooling capacity will be reduced by about 10 to 15%.