

DAIHAN Global Network

DAIHAN Scientific Co., Ltd.

Head Office : 326, Sinpyeongseokhwa-ro, jjeong-myeon, Wonju-si, Gangwon-do, Korea
Seoul Office : Daihan Bldg., 24-4, Sangwolgok-dong, Seongbuk-gu, Seoul, Korea
Tel : +82-(0)2-967-5235 (Ext. 2) Fax : +82-(0)2-963-5231
URL: DAIHAN-Sci.com email : info@daihan-sci.com

DAIHAN Scientific China Co., Ltd.

Address : Room 101, Floor 1, No. 5, Building, #319 Tongli Rd., Jiuting Town, Songjiang District,
Shanghai, China
Tel : +86-21-6762-5031 Fax : 86-21-6762-5032
URL : DAIHAN-Sci.com email : info.cn@daihan-sci.com

DAIHAN Scientific Europe B.V.

Address : Voswijk 7, 3961NH, Wijk Bij Duurstede, The Netherlands
Tel : +31-(0)343-520284
URL : DAIHAN-Sci.com email : info.eu@daihan-sci.com

DAIHAN Scientific Malayisa Sdn. Bhd.

Address : No. 7, Jalan BP 4/8, Bandar Bukit Puchong, 47120 Puchong, Selangor, Malaysia
Tel : +60-3-80682368 Fax : +60-3-80601628
URL : DAIHAN-Sci.com email : info.my@daihan-sci.com

DAIHAN Scientific Middle East FZE

Address : C21, Gate No.4, Ajman Free Zone
Tel : +971-6-740-8841 Fax : +971-6-740 8843
URL : www.daihan.com.tr email : info.ae@daihan-sci.com

DAIHAN Scientific North America Inc.

Address : 6911 Bryan Dairy Rd., Suite 270 Largo, FL 33777, U.S.
Tel : +1-727-216-6287
URL : DAIHAN-Sci.com email : info.us@daihan-sci.com

DAIHAN Scientific (Thailand) Co., Ltd.

Address : 3N Holding House, 44/6 Suthisamvinitchai Road, Samsennok, Huay Kwang,
Bangkok 10320, Thailand
Tel : +66-0-2274-8801-3 Fax : +66-(0)-2274-8804
URL : www.daihanthailand.com email : info@daihanthailand.com

DAIHAN Scientific Turkey Ltd. Sti.

Address : Serifali Mah. Barbaros Cad. ART Plaza, No: 50 Y.Dudullu, Umraniye,
Istanbul, Turkey
Tel : +90-(0)216-420-6242 (Pbx) Fax : +90-(0)216-420-6241
URL : www.daihan.com.tr email : info@daihan.com.tr

Cat 164 (26 May. 2015)

Distributor

DAIHAN Scientific

MaXircu™

Renewal High Temperature & Refrigerating Bath Circulators



Advanced Circulating
High Performance Heating & Refrigerating

Maximum Convenience by Advanced Digital Technology

DAIHAN NEW Generation High-Temperature-/Refrigerating- Circulator

DAIHAN **MaXircu™** Hi-temp.-/Refrigerating-Bath Circulator

New Design! Improved Refrigeration system! Upgraded Circulation power!

New DAIHAN Circulator is response to the needs of laboratory and any testing application with the practical use and user-focus.

Here we introduce MaXircu™, powerful circulation and accurate temperature controllability with user-friendly interface.

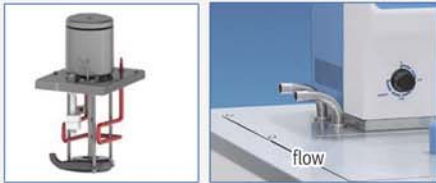
Design!

New product appearance
Sophisticated and ergonomic design

Improvement!

POWER!

Advanced Circulation Mechanism
Max. 25 Lit./min

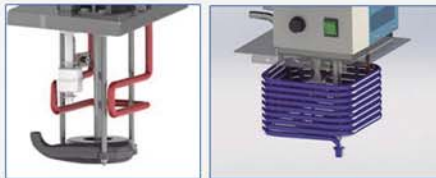


- Optimized Circulation and powerful Motor Pump
- Variable flow rate : 5 Level
CR/CL model: 7 ~ 25 Lit./min
CH model : 7 ~ 16 Lit./min

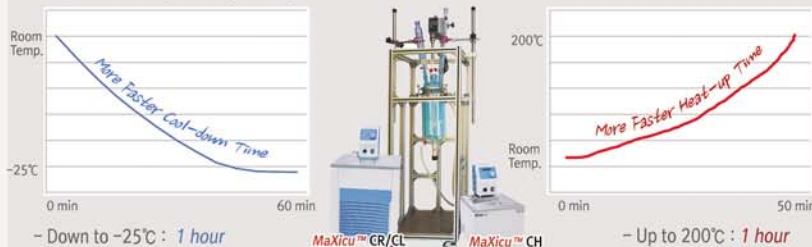
Upgrade

More Faster!

Improved Refrigeration/Heating system.
Accurate temperature control and reduced heating/cooling time.



Innovated Heating-/Refrigerating-Performance



Selection!

Various Flow Rate
7Lit./min.~25Lit./min.

Usability!

Timer Function
~99 hours 59 minutes



MaXircu™ CR/CL extra features

1. Auto shut off function based on liquid low level detection.
2. Low heat conductivity lid handle for user safety
3. Enhanced bypass refrigeration system for robust and reliability of system.
4. Liquid filling level indication inside bath
5. Castors for easy mobility

PC join!

PC connection

RS232C communication port for remote control and data transfer

More Safty!

Safety

Over Temp./Over current protection and electric leakage prevention circuit

Upgrade

More Stability!

Upgraded Insulation

Superior thermal insulation : Minimized heat loss and temperature fluctuation and lower power consumption during operation and energy saving



- CR/CL model: High quality polyurethane form
- CH model : Ceramic fiber

DAIHAN Patent

Usability!

Maximization of user's convenience in use.

Ergonomic Design & New Generation Controller



- Ergonomic Design of Control head
- Robust and sophisticated Jog-dial type
- Digital fuzzy controller for constant precision : Stable, reliable and precise thermal performance
- Bright and clear LCD display
- Intuitive capacitive touch button

Equipped Drain Valve



Precise High-temp Bath Circulator, "MaXircu™ CH", Flow 16 Lit/min, Lift 2.8m **NEW**
with 1×Stainless-steel Flat Lid/Digital Fuzzy Control System/Certi. & Traceability, 8-/12-/22-/30- Lit, to 250°C, ±0.1°C



High Temperature Bath Circulators
"MaXircu CH-8" & "MaXircu CH-12"

- CE Certified
- PL (Product Liability) Insurance
- with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- Advanced Heating System Ensures Temperature Performance
- Digital Fuzzy Control System Implementing Superior Temperature Accuracy
- Innovated Powerful Circulation Pump ensures Temp. Uniformity : Internal and External Circulation (Max Flow Rate : 16 Lit./min.)
- Available to Control 1~5Level Circulation speed(Flow Rate)
- Patented Jog-Dial Control System and Capacitive Touch Button, Digital LCD with Back-Light Function

- * High temperature applications need up to 250°C such as dipping and melting experiment
- * More Faster Heat-up Time(50min. to 100°C)
- * Urethane Foam Insulation
- * 304 Stainless-steel Bath and Lid for Superior Durability and High Thermal Efficiency
- * Powerful Circulation Pump ensures Temp. Uniformity. : Internal and External Circulation
- * Compensation Function to Control Difference between Real Temp. and Indicated Temp.
- * Alarm Function : Error Status and Timer-end.
- * Digital Timer Function : 'Delay Time' and 'Operation Time' can be Controlled.
- * Locking Mode Supported for Experimental Safety (Input to Jog-Dial can be Disabled)
- * Recommended to Use with Silicone Oil(400mm²/s, Fp300°C) at Over 100°C
- * High Quality Urethane Foam Insulation

Specifications & Ordering information

Spec.	Models	MaXircu CH-8	MaXircu CH-12	MaXircu CH-22	MaXircu CH-30
Bath Volume		8 Lit.	12 Lit.	22 Lit.	30 Lit.
Pump		Max Flow Rate : 16 Lit./min, (Available to Control 1~5Level Flow Rate), Max Pressure : 5 psi, Max Lift : 2.8m			
Temp. Range & Accuracy		Room Temp +5°C ~ 250°C, ±0.1°C			
Temp. Resolution		0.1°C –Display, 0.5°C –Control			
Temp. Uniformity & Probe		±0.2°C, PT100			
Heating Power		1.0 kW	1.5 kW	2.2 kW	2.5 kW
Heat-up Time		50 min. to 100°C			
External Circulation Nozzle		id.10.5 / od.12.5 mm			
Timer & Alarm		99hr 59min (Delay & Continuous run), Error status & Timer-end			
Display		Digital LCD with Back - Light Function			
Controller		Digital Fuzzy Controller with Jog - Dial Knob (Turn + Push)			
Safety Circuit		Over-Temp./-Current protection, Sensor Error & Low Level Detection			
Material		Stainless steel (# 304)-Internal, Powder Coated steel-External, 50mm Thickness Ceramic Fiber-Insulation			
Lid		included Stainless-steel Flat Lid(with Insulation), Optional Dome Lid,			
Drain Valve		Ball Valve			
Dimension (w × d × h)	Effective Space	180 × 130 × h155	250 × 130 × h155	340 × 250 × h155	340 × 250 × h200
	Internal (mm)	180 × 320 × h155	250 × 320 × h155	340 × 440 × h155	340 × 440 × h200
	External (mm)	303 × 443 × h569	373 × 443 × h569	463 × 563 × h569	463 × 563 × h614
Packing Size (mm)		470 × 400 × h500	470 × 400 × h500	600 × 490 × h500	600 × 490 × h500
& Gross Weight (kg)		19 kg	21 kg	23 kg	37 kg
Electrical Reqts.		1 Phase, AC 120V, 60Hz or AC 230V, 50 / 60Hz			
Cat. No.	230V	DH.WCH00408	DH.WCH00412	DH.WCH00422	DH.WCH00430
	120V	DH.WCH00508	DH.WCH00512	DH.WCH00522	DH.WCH00530

* Other Specifications are available upon Customer's Request.

Optional PTFE/PFA Tubes for External Circulation

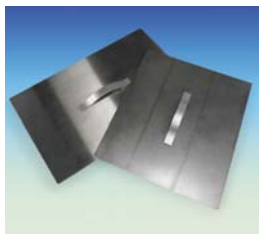
- TUB.Te020 (1) Tubing, PTFE, id.10 / od.12mm × L10m
- AS1.9802.08 (2) , PFA, id.10 / od.12mm × L10m

High-temp. Bath Circulator with Validation (IQ, OQ) Service

- DH.WCH30308 Validation Service(IQ, OQ), with "MaXircu CH-8", "CHBV208"
- DH.WCH30312 , with "MaXircu CH-12", "CHBV212"
- DH.WCH30322 , with "MaXircu CH-22", "CHBV222"
- DH.WCH30330 , with "MaXircu CH-30", "CHBV230"



External Circulation Nozzle



Flat Lid, Stainless-steel (Included)



Ex. Multi-use High Temp. Bath Circulator with Modular Reactor System



(1) PTFE Tubing



(2) PFA Tubing

Cat. No	Description	Articles
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-25°C~+150°C Digital Precise Refrigerated/Heating Bath Circulator, “MaXircu™ CR”, ±0.2°C **NEW** with 1×Flat Lid/Digital Fuzzy Control/CFC-free Refrigeration/Certi. & Traceability, Flow 25Lit/min, Lift 4m, 8-/12-/22-/30- Lit.

- **CE Certified**
- **PL (Product Liability) Insurance**
- **with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System**
- **Advanced Refrigerating System Ensures Temperature Performance**
- **Digital Fuzzy Control System Implementing Superior Temperature Accuracy**
- **Innovated Powerful Circulation Pump ensures Temp. Uniformity : Internal and External Circulation (Max Flow Rate : 25 Lit./min.)**
- **Available to Control 1~5Level Circulation speed(Flow Rate)**
- **Innovated Refrigeration System, CFC-free (R-404A)**
- **Patented Jog-Dial Control System and Capacitive Touch Button, Digital LCD with Back-Light Function**

- * RS232C Interface for Remote Monitoring and Controlling with PC
- * More Faster Cool-down Time
- * All models Built in Caster
- * Stainless-steel Bath(# 304) for Superior Durability & High Thermal Efficiency.
- * Connection with Evaporator or Viscometer is applicable.
- * User’s Self-compensation Function to Control Difference between Real Temperature and Indicated Temperature (± 10.0°C).
- * Warning and Auto-Stop Function in case of Liquid Shortage.
- * Auto-controlled Refrigeration System for Compressor Protection and Power Saving.
- * Locking Mode Supported for Experimental Safety (Input to Jog-Dial can be Disabled)
- * Recommended to Use with Ethyl Alcohol(94~95%) at Under 0°C
- * with High Quality Urethane Foam Insulation



-25°C~ +150°C Refrigerated / Heating Bath Circulator “MaXircu CR-8” & “MaXircu CR-12”

Specifications & Ordering information

Spec.	Models	MaXircu CR-8	MaXircu CR-12	MaXircu CR-22	MaXircu CR-30
Temp. Range & Accuracy		-25°C~ +150°C, ±0.1°C			
Temp. Resolution		0.1°C – Display, 0.1°C – Control			
Temp. Uniformity & Probe		±0.2°C at -10°C, PT100			
Pump		Max Flow Rate : 25Lit./min(Available to Control 1~5Level Flow Rate) Max Pressure : 7.5 psi, Max Lift : 4m			
Bath Volume		8 Lit.	12 Lit.	22 Lit.	30 Lit.
Heating Power		1 kW	1.5 kW	2 kW	2.2 kW
Refrigerator		1/3 HP	1/3 HP	1/2 HP	3/4 HP
Cooling Capacity	at +20°C	300 W	380 W	680 W	850 W
	at 0°C	200 W	250 W	500 W	620 W
	at -20°C	110 W	130 W	300 W	400 W
Refrigerant		CFC -Free(R-404A) Refrigeration System			
Total Power Consumption		1.6 kW	2 kW	2.7 kW	3 kW
Compressor Control		Intelligent Control of Refrigerator for preventing Compressor Overload			
Pump		Max Flow Rate : 25Lit./min, Max Pressure : 7.5 psi, Max Lift : 4m			
External Circulation Nozzle		id.10 / od.12 mm (id. 10 / od.18 mm Silicon tube Connected for inner Circulation)			
Timer & Alarm		99hr 59min (Delay & Continuous run), Error status & Timer-end			
Display		Digital LCD with Back - Light Function			
Controller		Digital Fuzzy Controller with Jog - Dial Knob (Turn+Push)			
Safety Circuit		Over-Temp./-Current protection, Sensor Error Detection, Leakage Breaker			
Material		Stainless-steel (# 304)-Internal, Powder Coated steel-External, 40 mm Thickness Urethane Foaming - Insulation			
Lid & Drain Valve		included Stainless-steel Flat Lid(with Insulation), Ball Valve, Optional Dome Lid,			
Dimension (w×d×h)	Effective Space (mm)	175×153×150	230×181×150	290×220×200	330×290×200
	Internal (mm)	175×320×150	230×350×150	290×390×200	330×460×200
	External (mm)	330×474×752	400×523×807	483×563×850	494×633×906
Packing Size (mm) & Gross Weight (kg)		560×420×922	630×530×972	670×615×1022	740×625×1072
		45 kg	54 kg	63 kg	70 kg
Electrical Reqts.		1 Phase, AC 120V, 60Hz or AC 230V, 50 / 60Hz			
Cat. No.	230V	DH.WCR00408	DH.WCR00412	DH.WCR00422	DH.WCR00430
	120V	DH.WCR00508	DH.WCR00512	DH.WCR00522	DH.WCR00530

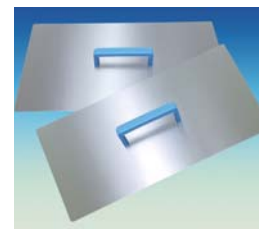
* Other Specifications are available upon Customer’s Request.

Refrigerated Circulator with Validation (IQ, OQ) Service

- DH.WCR30308 Validation Service(IQ, OQ), with “MaXircu CR-8”, “CRBV208”
- DH.WCR30312 , with “MaXircu CR-12”, “CRBV212”
- DH.WCR30322 , with “MaXircu CR-22”, “CRBV222”
- DH.WCR30330 , with “MaXircu CR-30”, “CRBV230”



External Circulation Nozzle



Flat Lid, Stainless-steel (Included)



Ex. Multi-use Refrigerated Bath Circulator with Modular Reactor System

-35°C~+150°C Digital Precise Refrigerated/Heating Bath Circulator, "MaXircu™ CL", ±0.2°C **NEW**
with 1×Flat Lid/Digital Fuzzy Control/CFC-free/Certi. & Traceability, Flow 25Lit/min, Lift 4m, 8-/12-/22-/30-Lit.



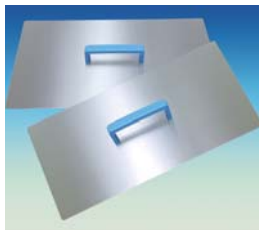
-35°C~150°C
2-Year Warranty

-35°C~ +150°C Refrigerated / Heating Bath Circulator
"MaXircu CL-8" & "MaXircu CL-12"

- CE Certified
- PL(Product Liability) Insurance
- with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- Advanced Refrigeration System Ensures Temperature Performance
- Digital Fuzzy Control System Implementing Superior Temperature Accuracy
- Innovated Powerful Circulation Pump ensures Temp. Uniformity : Internal and External Circulation (Max Flow Rate : 25 Lit./min.)
- Available to Control 1~5Level Circulation speed(Flow Rate)
- Innovated Refrigeration System, CFC-free (R-404A)
- Patented Jog-Dial Control System and Capacitive Touch Button, Digital LCD with Back-Light Function
- * RS232C Interface for Remote Monitoring and Controlling with PC
- * More Faster Cool-down Time
- * Urethane Foam Insulation
- * All models Built in Caster
- * Proper Liquid Level Line in Bath
- * Available to Control Circulation speed (1~5Level)
- * Stainless steel Bath (# 304) for Superior Durability & High Thermal Efficiency.
- * Connection with Evaporator or Viscometer is applicable.
- * User's Self-compensation Function to Control Difference between Real Temperature and Indicated Temperature (±10.0°C).
- * Warning and Auto-Stop Function in case of Liquid Shortage.
- * Auto-controlled Refrigeration System for Compressor Protection and Power Saving.
- * Locking Mode Supported for Experimental Safety (Input to Jog-Dial can be Disabled)
- * Recommended to Use with Ethyl Alcohol(94~95%) at Under 0°C
- * with High Quality Urethane Foam Insulation



External Circulation Nozzle



Flat Lid, Stainless-steel (Included)

Specifications & Ordering information

Spec.	Models	MaXircu CL-8	MaXircu CL-12	MaXircu CL-22	MaXircu CL-30
Temp. Range & Accuracy		-35°C~ +150°C, ±0.1°C			
Temp. Resolution		0.1°C – Display, 0.1°C – Control			
Temp. Uniformity & Probe		±0.2°C at -20°C, PT100			
Pump		Max Flow Rate : 25Lit./min(Available to Control 1~5Level Flow Rate), Max Pressure : 7.5 psi, Max Lift : 4m			
Bath Volume		8 Lit.	12 Lit.	22 Lit.	30 Lit.
Heating Power		1 kW	1.5 kW	2 kW	2.2 kW
Refrigerator		1/2 HP	1/2 HP	7/8 HP	1 HP
Cooling Capacity	at +20°C	500 W	530 W	860 W	1030 W
	at 0°C	340 W	370 W	620 W	760 W
	at -20°C	200 W	210 W	400 W	500 W
Refrigerant		CFC - Free(R-404A) Refrigeration System			
Total Power Consumption		1.7 kW	2.2 kW	3 kW	3.3 kW
Compressor Control		Intelligent Control of Refrigerator for preventing Compressor Overload			
External Circulation Nozzle		i.d.10×o.d.12 mm (i.d. 10 / o.d.18 mm Silicon tube Connected for inner Circulation)			
Timer & Alarm		99hr 59min (Delay & Continuous run), Error status & Timer-end			
Display		Digital LCD with Back- Light Function			
Controller		Digital Fuzzy Controller with Jog- Dial Knob (Turn+Push)			
Safety Circuit		Over-Temp./-Current protection, Sensor Error Detection, Leakage Breaker			
Material		Stainless-steel (# 304)-Internal, Powder Coated steel-External, 40 mm Thickness Urethane Foaming - Insulation			
Lid & Drain Valve		included Stainless-steel Flat Lid(with Insulation), Ball Valve, Optional Dome Lid			
Dimension (w×d×h)	Effective Space (mm)	175×153×150	230×181×150	290×220×200	330×290×200
	Internal (mm)	175×320×150	230×350×150	290×390×200	330×460×200
	External (mm)	400×523×807	400×523×807	483×563×850	494×633×906
Packing Size (mm) & Gross Weight (kg)		630×530×972	630×530×972	670×615×1022	740×625×1072
		50 kg	55 kg	65 kg	78 kg
Electrical Reqts.		1 Phase, AC 120V, 60Hz or AC 230V, 50 / 60Hz			
Cat. No.	230V	DH.WCL00408	DH.WCL00412	DH.WCL00422	DH.WCL00430
	120V	DH.WCL00508	DH.WCL00512	DH.WCL00522	DH.WCL00530

* Other Specifications are available upon Customer's Request.

Refrigerated Circulator with Validation (IQ, OQ) Service

- DH.WCL30308 Validation Service(IQ, OQ), with "MaXircu CL-8", "CLBV208"
- DH.WCL30312 , with "MaXircu CL-12", "CLBV212"
- DH.WCL30322 , with "MaXircu CL-22", "CLBV222"
- DH.WCL30330 , with "MaXircu CL-30", "CLBV230"



Ex. Multi-use Refrigerated Bath Circulator with Modular Reactor System

DAIHAN **New** Generation Instruments Line-up

Autoclaves
Balance
Circulators
Furnace
Freeze Dryer
Heating Block/Dry Bath

Hotplate Stirrer
Incubator (Smart-Lab™ Sys.)
Laminar Flow Clean Bench
Low Temp(BOD) Incubator (Smart-Lab™ Sys.)
Oven (Smart-Lab™ Sys.)

Plant Growth Chamber (Smart-Lab™ Sys.)
Refrigerators (Smart-Lab™ Sys.)
Shaking Incubator
Shaking Water Bath
Temp./Humdi. Chamber (Smart-Lab™ Sys.)
ULT Freezer (Smart-Lab™ Sys.)
Vacuum Ovens (Smart-Lab™ Sys.)



MaXterile™ Autoclaves



UniFreez™ FD Freeze Dryer



ThermoStable™
Genral-type Incubator/Oven



ThermoStable™
Smart-type Incubator/Oven



MaXturdy™
Shaking Water Bath



ThermoStable™
Refirgerators



MaXtable™
Heating Block/Dry Bath



MaXtream™
Laminar Flow Clean Bench



ThermoStable™
Plant Growth Chamber



DuoFreez™
Ultra-Low Temp. Freezer



MaXircu™ Circulators



MaXtir™ Hotplate Stirrer



ThermoStable™
Low Temp.(B.O.D) Incubators



ThermoStable™
Temp./Humidity Test Chamber



ThermoStable™
Vacuum Oven