

ノンフロン製品カタログ 2023

310F
450F
449F



A38
W41
A41

Julabo
natural refrigerant
ノンフロン
製品
LineUp



A70



W93
W93X

ユラボ社は、地球温暖化に配慮し、
冷媒ガスのノンフロン化を推進しています。



NATURAL REFRIGERANT

ナチュラルガス



REFRIGERATED AND HEATING CIRCULATORS CORIO, DYNEO, MAGIO

Refrigerated and heating circulators made by JULABO are used worldwide. Whether in research, material testing or technical systems, users in industries worldwide rely on the tried and tested technology. Focused on your requirements, JULABO circulators have set the benchmark for temperature control technology for decades. The JULABO range of circulators offers the functional solution for your day-to-day work, whether routine tasks or highest requirements: CORIO, DYNEO and MAGIO – three model series for every requirement and every budget.



HIGHLY DYNAMIC TEMPERATURE CONTROL SYSTEMS PRESTO, FORTE HT

Highly dynamic temperature control systems solve even difficult temperature control tasks within no time. With their extremely short heat-up and cool-down times, a wide range of working temperatures without changing the bath fluid, and high output data, they are ideal for compensating temperature differences in external applications extremely quickly. Unlike conventional circulators, the bath fluid can be used in an extended temperature range and for a significantly longer time.



Natural refrigerants

Natural refrigerants, as the name suggests, are found in nature as a substance. They can be produced with minimal effort and are considered environmentally friendly. Propane, propene, ethane and ethene are common representatives of this refrigerant group. They are obtained as by-products during petroleum production. Advantages: Natural refrigerants have a low GWP value. They have no or only very little influence on the greenhouse effect. Their molecules are relatively unstable and rapidly decay in the atmosphere.

Disadvantages: Most natural refrigerants are flammable. This creates risks that must already be taken into account during product development. State regulations for the location, operation, and transport of devices with flammable refrigerants are intended to help minimize these risks.





Refrigerated and heating circulators
CORIO, DYNEO, MAGIO refrigerated
circulators

04 - 09



Highly dynamic temperature control
systems

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JULABO information

14 - 15

Global warming potential (GWP) of a refrigerant

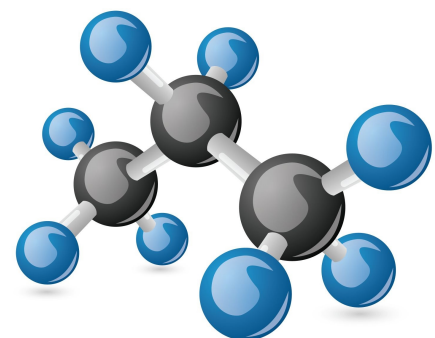
GWP is the abbreviation for "Global Warming Potential." Its value represents a substance's global warming or greenhouse gas potential. The GWP value of a refrigerant defines its relative global warming potential with regard to CO₂ (also known as CO₂-equivalent). The value describes the global warming effect over a period of 100 years. The higher the GWP value of a substance, the more harmful it is to the climate.

Example: The widely used refrigerant R134a has a GWP value of 1430. This means that, within the first 100 years after release, one kilogram of R134a contributes 1430 times as much to the greenhouse effect as one kilogram of CO₂. The release of 1 kg of R134a therefore corresponds to the release of 1430 kg of CO₂.

Refrigerant selection

The performance of the two refrigerant groups is roughly comparable. When selecting a refrigerant, it is therefore important to check, among other things, the ambient conditions of the operating site as well as which country-specific guidelines must be observed when operating, transporting and disposing of devices with refrigerants.

In EU countries, for example, EU Regulation 517/2014 regulates the handling of fluorinated greenhouse gases. There are also other national laws and directives that may need to be taken into account.



Refrigerated Circulators

CORIO CD, CP Refrigerated

for working temperatures from -50 °C to +200 °C

Refrigerated Circulators from the CORIO CP range are suitable for applications with a temperature range from -50°C to +200°C. The enhanced pump performance ensures they are suitable for easy temperature control tasks in combination with external applications.

- Models for internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa
- External pump connections (M16×1)
- USB interface
- Space-saving cooling coil design provides more usable space in the bath tank
- Bath lid and drain tap included
- Removable ventilation grid
- Refrigeration unit without side vents
- Class III (FL) according to DIN 12876-1
- RS232 interface (CP model)
- System for low liquid level (CP model)

To adapt the CORIO Refrigerated/Heating Circulator to your individual application, we offer a comprehensive range of accessories (bath fluid, tubing, adapter and more).

Applications

Temperature control of samples in a circulator bath or temperature control of an external application. For example measuring cells, refractometers, polarimeters, photometers, viscometers, fermenters, electrophoresis chambers, chromatography columns, rotary evaporators, rheometers and more.

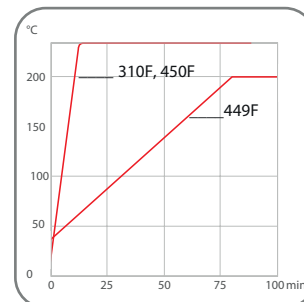


Maintenance. Friendly.

The magnetic front grid can be removed easily for user-friendly cleaning and maintenance. Without tools.

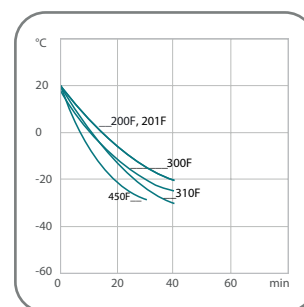
Heat-up time

Bath fluid: Thermal



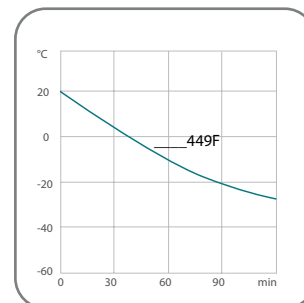
Cool-down time

Bath fluid: Ethanol



Cool-down time

Bath fluid: Ethanol





CORIO™ CD-310F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 012 713.N1* | |
| Working temperature range °C | -30 ... +150 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.31 | 0.28 |
| | -10 °C | -20 °C |
| | 0.22 | 0.13 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 15 | 0.35 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |



CORIO™ CD-450F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 012 714.N1* | |
| Working temperature range °C | -30 ... +150 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.45 | 0.38 |
| | -10 °C | -20 °C |
| | 0.28 | 0.17 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 15 | 0.35 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |



CORIO™ CD-449F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 012 716.N1 | |
| Working temperature range °C | -32 ... +150 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.45 | 0.36 |
| | -10 °C | -20 °C |
| | 0.28 | 0.21 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 15 | 0.35 |
| Bath opening / Bath depth cm | W × L / D 28 × 35 / 20 | |
| Filling volume liters | 21 ... 30 | |
| Dimensions cm | W × L × H 37 × 59 × 69 | |



CORIO™ CP-310F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 013 713.N1* | |
| Working temperature range °C | -30 ... +200 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.3 | 0.27 |
| | -10 °C | -20 °C |
| | 0.21 | 0.12 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |



CORIO™ CP-450F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 013 714.N1* | |
| Working temperature range °C | -30 ... +200 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.44 | 0.37 |
| | -10 °C | -20 °C |
| | 0.27 | 0.16 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |



CORIO™ CP-449F

| | | |
|--|---------------------------|---------------|
| Order No. | 9 013 716.N1 | |
| Working temperature range °C | -32 ... +200 | |
| Temperature stability °C | ± 0.03 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.44 | 0.35 |
| | -10 °C | -20 °C |
| | 0.27 | 0.2 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 28 × 35 / 20 | |
| Filling volume liters | 21 ... 30 | |
| Dimensions cm | W × L × H 37 × 59 × 69 | |

*also available with synthetic refrigerant (replace .N1 with .S1 in order number)

Refrigerated Circulators

DYNEO DD refrigerated circulators

for working temperatures from -50 °C
to +200 °C

The DYNEO circulator range focuses on your needs and offers innovative temperature control technology as well as functional solutions for demanding internal and external temperature applications. Either in basic research, in material testing or in technical systems – the DYNEO refrigerated circulators offer functional solutions for every requirement and budget.

- Models suitable for internal and external applications
- Optimized cooling coil design provides more space in the bath
- Continuously adjustable, powerful pressure pump
- Flow rate 27 l/min, supply pressure 0.7 bar
- Easy change-over from internal to external circulation
- Large color TFT display, multi-lingual user interface
- Ease of use via central rotary knob
- Integrated programmer
- External Pt100 sensor connection
- USB data port
- RS232 interface or analog interfaces (optional)
- Built-in drain tap for easy and safe drainage



DYNEO. Intelligent, simple control.

The DYNEO series offers a simple, modern control option with the unique rotary knob. The entire menu, all functions and settings are controlled directly via the central rotary knob on the front of the circulator.

The user receives tactile feedback on his inputs via the rotary knob. DYNEO's new, sophisticated operating concept allows easier, faster and more convenient access to all functions.



| DYNEO™ DD-310F | | |
|--|---------------------------|---------------|
| Order No. | 9 021 713.N1* | |
| Working temperature range °C | -30 ... +200 | |
| Temperature stability °C | ±0.01 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.3 | 0.27 |
| | -10 °C | -20 °C |
| | 0.21 | 0.12 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |

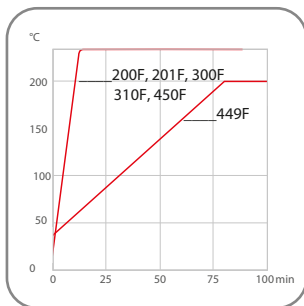
| DYNEO™ DD-450F | | |
|--|---------------------------|---------------|
| Order No. | 9 021 714.N1* | |
| Working temperature range °C | -30 ... +200 | |
| Temperature stability °C | ±0.01 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.44 | 0.37 |
| | -10 °C | -20 °C |
| | 0.27 | 0.16 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 13 × 15 / 15 | |
| Filling volume liters | 3 ... 4 | |
| Dimensions cm | W × L × H 23 × 40 × 65 | |

| DYNEO™ DD-449F | | |
|--|---------------------------|---------------|
| Order No. | 9 021 716.N1 | |
| Working temperature range °C | -32 ... +200 | |
| Temperature stability °C | ±0.01 | |
| Heating capacity kW | 2 | |
| Cooling capacity kW (Bath fluid: Ethanol) | +20 °C | 0 °C |
| | 0.44 | 0.27 |
| | -10 °C | -20 °C |
| | 0.35 | 0.2 |
| Pump capacity | l/min | bar |
| Flow rate / Pressure | 8 ... 27 | 0.1 ... 0.7 |
| Bath opening / Bath depth cm | W × L / D 28 × 35 / 20 | |
| Filling volume liters | 21 ... 30 | |
| Dimensions cm | W × L × H 37 × 59 × 69 | |

*also available with synthetic refrigerant (replace .N1 with .S1 in order number)

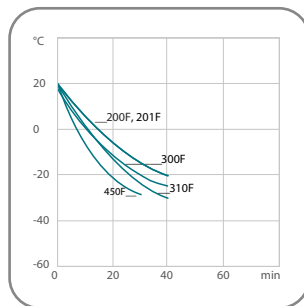
Heat-up time

Bath fluid: Thermal



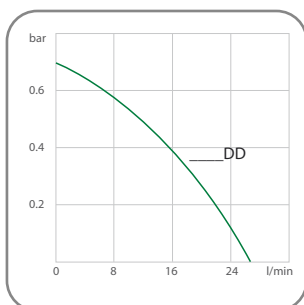
Cool-down time

Bath fluid: Ethanol



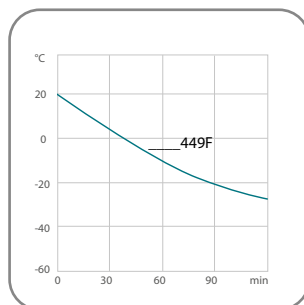
Pump capacity

Bath fluid: Water



Cool-down time

Bath fluid: Ethanol



Refrigerated circulators

MAGIO MS refrigerated/heating circulators

for working temperatures from -50 °C to +200 °C

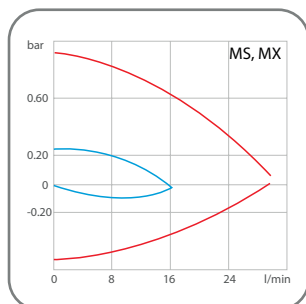
As with all circulators from the MAGIO range, the refrigerated circulators stand out thanks to their premium quality, high performance and intuitive operation. The devices offer extra strong pressure and suction pumps, thus fulfilling the highest demands for temperature control of external applications. Whether in basic research, material testing or technical systems – the MAGIO refrigerated circulators offer high-tech solutions for high customer requirements.

- Ideal for demanding external applications
- Simple control of complex applications
- Continuously adjustable, extremely powerful pressure/suction pump
- Flow rate 16 ... 31 l/min, pressure 0.24 ... 0.92 bar, suction 0.03 ... 0.4 bar
- Large, high-resolution TFT touch display with multilingual user interface
- Parts being in contact with the medium made of stainless steel
- Integrated programmer
- External Pt100 sensor connection
- USB interface
- RS232 interface
- Ethernet interface
- Analog interfaces (accessories)
- Classification III according to DIN 12876-1



Pump capacity

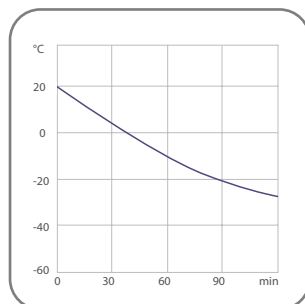
Bath fluid: Water



- lowest pump speed
- highest pump speed

Cool-down time

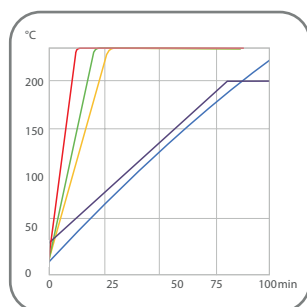
Bath fluid: Ethanol



- 449F

Heat-up time

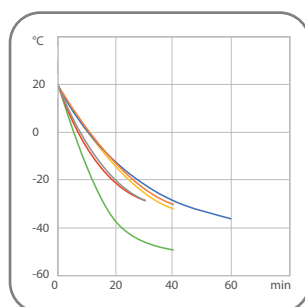
Bath fluid: Thermal



- 310F/450F
- 449F
- 600F/1000F/W

Cool-down time

Bath fluid: Ethanol



- 310F
- 601F
- 900F
- 450F
- 600F
- 1000F/W





MAGIO™ MS-310F

| | | | |
|--|---------------------------|---------------|---------------|
| Order No. | 9 032 713.N1* | | |
| Working temperature range °C | -30 ... +200 | | |
| Temperature stability °C | ± 0.01 | | |
| Heating capacity kW | 2 | | |
| Cooling capacity kW (Medium: Ethanol) | +20 °C | 0 °C | -10 °C |
| | 0.26 | 0.21 | 0.17 |
| | -20 °C | -30 °C | -40 °C |
| | 0.10 | 0.01 | - |
| Flow rate l/min | 16 ... 31 | | |
| Pressure bar | 0.24 ... 0.92 | | |
| Suction bar | 0.03 ... 0.4 | | |
| Bath opening / bath depth cm | W × L / D 13 × 15 / 15 | | |
| Filling volume min. liters | 3 ... 4 | | |
| Dimensions cm | W × L × H 23 × 40 × 65 | | |

MAGIO™ MS-450F

| | | | |
|--|---------------------------|---------------|---------------|
| Order No. | 9 032 714.N1* | | |
| Working temperature range °C | -30 ... +200 | | |
| Temperature stability °C | ± 0.01 | | |
| Heating capacity kW | 2 | | |
| Cooling capacity kW (Medium: Ethanol) | +20 °C | 0 °C | -10 °C |
| | 0.4 | 0.33 | 0.24 |
| | -20 °C | -30 °C | -40 °C |
| | 0.12 | 0.01 | - |
| Flow rate l/min | 16 ... 31 | | |
| Pressure bar | 0.24 ... 0.92 | | |
| Suction bar | 0.03 ... 0.4 | | |
| Bath opening / bath depth cm | W × L / D 13 × 15 / 15 | | |
| Filling volume min. liters | 3 ... 4 | | |
| Dimensions cm | W × L × H 23 × 40 × 65 | | |

MAGIO™ MS-449F

| | | | |
|--|---------------------------|---------------|---------------|
| Order No. | 9 032 716.N1 | | |
| Working temperature range °C | -30 ... +200 | | |
| Temperature stability °C | ± 0.01 | | |
| Heating capacity kW | 2 | | |
| Cooling capacity kW (Medium: Ethanol) | +20 °C | 0 °C | -10 °C |
| | 0.4 | 0.31 | 0.24 |
| | -20 °C | -30 °C | -40 °C |
| | 0.19 | 0.05 | - |
| Flow rate l/min | 16 ... 31 | | |
| Pressure bar | 0.24 ... 0.92 | | |
| Suction bar | 0.03 ... 0.4 | | |
| Bath opening / bath depth cm | W × L / D 28 × 35 / 20 | | |
| Filling volume min. liters | 21 ... 30 | | |
| Dimensions cm | W × L × H 37 × 59 × 69 | | |

*also available with synthetic refrigerant (replace .N1 with .S1 in order number)



PRESTO

PRESTO – small and powerful

For working temperatures from -45 °C to +250 °C

All the advantages of the PRESTO series for a working temperature range of -45 °C up to +250 °C.

- Heating capacity up to 2.7 kW
- Cooling capacity up to 1.33 kW
- Temperature stability ± 0.01 °C ... ± 0.05 °C
- Built-in 5.7" industrial color touchscreen
- Ports for USB, Ethernet, RS232, Modbus
- Alarm output
- External Pt100 sensor connection
- Analog connections, RS485, Profibus DP (accessory)
- Second external Pt100 sensor connection for A40 and W40 (accessory)

TIP



NATURAL
REFRIGERANT

Units with this symbol work with environmentally friendly, natural refrigerants.

TIP

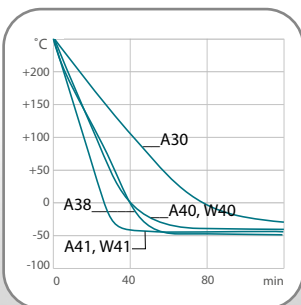
Air-cooled or water-cooled

The PRESTO units are available as air-cooled or water-cooled units. Air-cooled units do not require water and can be installed anywhere. If you are looking for a flexible solution or if you expect to move the unit frequently, an air-cooled unit will be the best choice. However, it is important to know that air-cooled units slightly elevate the ambient temperature during operation.

Water-cooled units must be connected to an existing cooling water line. These units are even more quiet and can be virtually enclosed during operation. Robust heat exchangers are installed in the water-cooled PRESTO units. Clogging up the heat exchanger by particles or impure water is virtually impossible.

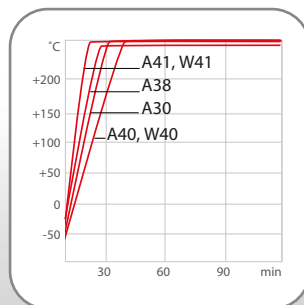
Cool-down time

Bath fluid: Thermal HL

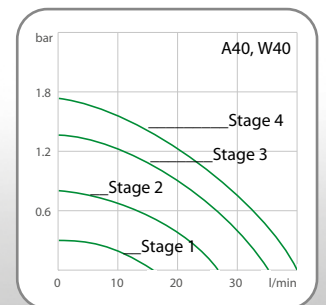
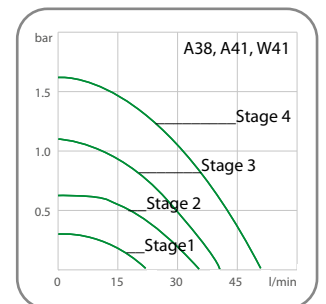
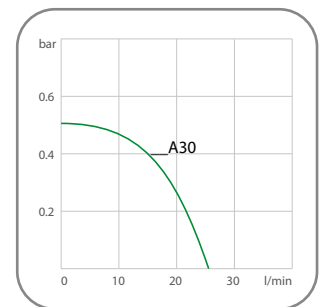


Heat-up time

Bath fluid: Thermal HL



Pump capacity



All data refers to the nominal voltage of 230 V, nominal frequency of 50 Hz and ambient temperature of +20 °C. Cooling capacity measured at max. pump stage. All pump data refers to a bath fluid with a specific density of 1 kg/dm³. Cooling capacity measured with Thermal HL (+200 °C) or Ethanol (except +200 °C)



PRESTO™ A38

| | | | |
|------------------------------|--------------------------|---------------|---------------|
| Order No. | 9 420 381.N1 | | |
| Working temperature range °C | -45 ... +250 | | |
| Temperature stability °C | ±0.01 ... ±0.05 | | |
| Cooling capacity kW | +200 °C | +20 °C | 0 °C |
| | 0.79 | 0.79 | 0.73 |
| | -20 °C | -30 °C | -40 °C |
| | 0.44 | 0.28 | 0.05 |
| Heating capacity kW | 2.7 | | |
| Pump capacity | l/min | 50 | |
| Flow rate/Pressure | bar | 0.1 ... 1.6 | |
| Process volume min. liters | 3.5 | | |
| Cooling type | single stage, air cooled | | |
| Dimensions cm | W × L × H | | |
| | 33 x 75 x 67 | | |

PRESTO™ A41

| | | | |
|------------------------------|--------------------------|---------------|---------------|
| Order No. | 9 420 411.N1 | | |
| Working temperature range °C | -45 ... +250 | | |
| Temperature stability °C | ±0.01 ... ±0.05 | | |
| Cooling capacity kW | +200 °C | +20 °C | 0 °C |
| | 1.33 | 1.33 | 1.24 |
| | -20 °C | -30 °C | -40 °C |
| | 0.46 | 0.31 | 0.07 |
| Heating capacity kW | 2.7 | | |
| Pump capacity | l/min | 50 | |
| Flow rate/Pressure | bar | 0.1 ... 1.6 | |
| Process volume min. liters | 3.5 | | |
| Cooling type | single stage, air cooled | | |
| Dimensions cm | W × L × H | | |
| | 33 x 75 x 67 | | |

PRESTO™ W41

| | | | |
|------------------------------|----------------------------|---------------|---------------|
| Order No. | 9 421 411.N1 | | |
| Working temperature range °C | -45 ... +250 | | |
| Temperature stability °C | ±0.01 ... ±0.05 | | |
| Cooling capacity kW | +200 °C | +20 °C | 0 °C |
| | 1.33 | 1.33 | 1.24 |
| | -20 °C | -30 °C | -40 °C |
| | 0.46 | 0.31 | 0.07 |
| Heating capacity kW | 2.7 | | |
| Pump capacity | l/min | 50 | |
| Flow rate/Pressure | bar | 0.1 ... 1.6 | |
| Process volume min. liters | 3.5 | | |
| Cooling type | single stage, water cooled | | |
| Dimensions cm | W × L × H | | |
| | 33 x 75 x 67 | | |



PRESTO A70, A80/A80t and W80/W80t Low temperatures – no problem

For working temperatures from -80 °C to +250 °C

The 2-stage cooling systems provide lower temperatures with all of the other PRESTO advantages.

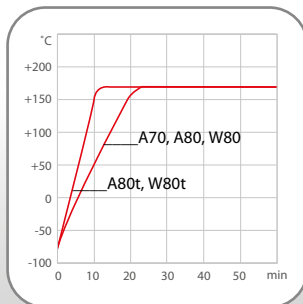
- Heating capacity up to 3.4 kW
- Cooling capacity up to 1.2 kW
- Temperature stability ± 0.01 °C ... ± 0.05 °C
- Built-in 5.7" industrial color touchscreen
- Ports for USB, Ethernet, RS232, Modbus
- Alarm output
- External Pt100 sensor connection
- Analog connections, RS485, Profibus DP (accessory)
- Second external Pt100 sensor connection (accessory)



| PRESTO™ A70 | |
|------------------------------|--|
| Order No. | 9 420 701.N1 |
| Working temperature range °C | -75 ... +250 |
| Temperature stability °C | ± 0.01 ... ± 0.05 |
| Cooling capacity kW | +200 °C +20 °C 0 °C |
| | 1 1 0.91 |
| | -20 °C -30 °C -40 °C |
| | 0.84 0.79 0.75 |
| Heating capacity kW | 1.8 |
| Pump capacity | l/min 40 |
| Flow rate/ Pressure | bar 0.1 ... 1.7 |
| Process volume min. liters | 3.9 |
| Cooling type | 2-stage, air cooled |
| Dimensions cm | W × L × H |
| | 57 × 74.5 × 88 |

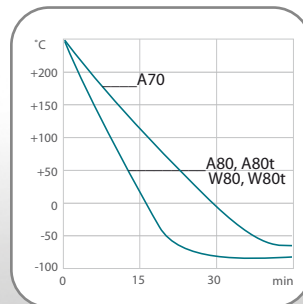
Heat-up time

Bath fluid: Thermal HL

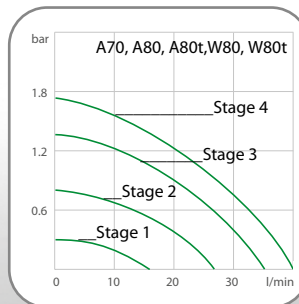


Cool-down time

Bath fluid: Thermal HL



Pump capacity



All data refers to the nominal voltage of 230 V, nominal frequency of 50 Hz (respectively 400 V, 3Ph., 50 Hz) and ambient temperature of +20 °C. Cooling capacity measured at max. pump stage. All pump data refers to a bath fluid with a specific density of 1 kg/dm³. Cooling capacity measured with Thermal HL (+200 °C) or Ethanol (except +200 °C)

PRESTO W93 /W93x

Full cooling capacity in the low temperature range

for working temperatures from -93 °C...+250 °C

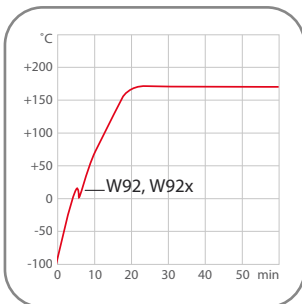
W93 process systems offer users high cooling capacity even in the lowest temperature ranges for dynamic applications. They work with natural refrigerants and are also very energy efficient thanks to state-of-the-art technologies.

The W93x has a gear pump, which also allows use of bath fluids with a higher viscosity.

- Heating capacity of 27 kW
- Cooling capacity up to 19.5 kW
- Temperature stability $\pm 0.05 \dots \pm 0.2$ °C
- Built-in 5.7" industrial color touchscreen
- Ports for USB, Ethernet, RS232, Modbus
- Alarm output
- External Pt100 sensor connection
- Analog connections, RS485, profibus DP (accessory)
- Second external Pt100 sensor connection (accessory)

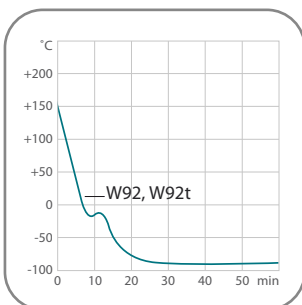
Heat-up time

Bath fluid: Thermal HL



Cool-down time

Bath fluid: Thermal HL



PRESTO™ W93

| | | | |
|------------------------------|-----------------------------|---------------|---------------|
| Order No. | 9 421 932.N1 | | |
| Working temperature range °C | -93 ... +250 | | |
| Temperature stability °C | $\pm 0.05 \dots \pm 0.2$ | | |
| Cooling capacity kW | +20 °C | 0 °C | |
| | 19.5 | 19.5 | |
| | -40 °C | -60 °C | -80 °C |
| | 19.5 | 13 | 3.5 |
| Heating capacity kW | 27 | | |
| Pump capacity | l/min | 80 | |
| Flow rate/ Pressure | bar | 0.1 ... 3.0 | |
| Process volume min. liters | 14 | | |
| Cooling type | 2-stage, water cooled | | |
| Dimensions cm | W × L × H 93 × 148 × 192 | | |



PRESTO™ W93x

| | | | |
|------------------------------|-----------------------------|---------------|---------------|
| Order No. | 9 421 933.N1 | | |
| Working temperature range °C | -93 ... +250 | | |
| Temperature stability °C | $\pm 0.05 \dots \pm 0.2$ | | |
| Cooling capacity kW | +20 °C | 0 °C | |
| | 19.5 | 19.5 | |
| | -40 °C | -60 °C | -80 °C |
| | 19.5 | 13 | 3.5 |
| Heating capacity kW | 27 | | |
| Pump capacity | l/min | 70 | |
| Flow rate/ Pressure | bar | 0.1 ... 5.5 | |
| Process volume min. liters | 14 | | |
| Cooling type | 2-stage, water cooled | | |
| Dimensions cm | W × L × H 93 × 148 × 192 | | |

All data refers to the nominal voltage of 400 V, 3 Ph., 50 Hz and ambient temperature of +20 °C. Cooling capacity measured at max. pump stage. All pump data refers to a bath fluid with a specific density of 1 kg/dm³. Cooling capacity measured with Thermal HL (+200 °C) or Ethanol (except +200 °C)

The **JULABO** advantages at a glance.

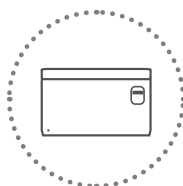
JULABO temperature control solutions – high-precision and speed

JULABO products include high-quality temperature control solutions to cover the temperature range -95 °C to +400 °C.



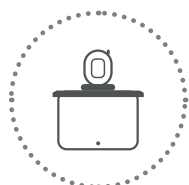
Refrigerated circulators

JULABO refrigerated circulators are suitable for internal and external applications and can be used within the temperature range -95 °C to +200 °C.



Water baths and shaking water baths

JULABO water baths and shaking water baths can be used for a variety of applications within the temperature range +18 °C to +99.9 °C.



Heating circulators

Heating circulators are available in various designs including heating immersion circulators, heating circulators with open bath, and heating circulators to cover a temperature range from +20 °C to +300 °C.



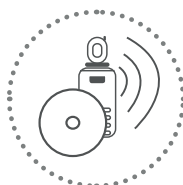
Additional products

In addition, the JULABO product portfolio offers instruments for special requirements such as calibration baths, beer forcing test baths, immersion / flow-through coolers and temperature controllers.



Highly dynamic temperature control systems

The highly dynamic temperature control systems from JULABO can be used for demanding temperature applications ranging from -93 °C to +400 °C. The PRESTO series offers unique high-performance specifications to meet these requirements.



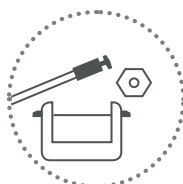
Wireless communication & software solutions

JULABO facilitates the automation of applications. The temperature control instruments can be comfortably controlled and monitored via PC.



Recirculating coolers

The high degree of efficiency of JULABO recirculating coolers makes them an environmentally-friendly and economic alternative to tap water cooling in the temperature range -25 °C to +130 °C.



Accessories

An extensive range of accessories allows for adaptation of JULABO products for research and industry use.

Comprehensive service and on-site support

JULABO takes pride in offering customers expert advice for pairing the proper JULABO temperature control solution to their specific application. JULABO service and support options include installation and calibration, equipment qualification documentation and application training. These invaluable services ensure customer confidence in the operation and maintenance of any JULABO unit.

Custom requirements - custom products

JULABO's wide range of products provide a solution for almost any application. If no standard product can be used for a specific requirement, our specialists will work out a custom solution together with you.



JULABO. Quality.

Highest quality standards to ensure a long product life.



Green technology.

Deliberately engineered with environmentally friendly materials and technologies.



Satisfied customers.

11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.



100 % checked.

100 % testing. 100 % quality. Every JULABO product is shipped to customers after a successful final inspection.



Quick start.

Individual JULABO consultation and detailed manuals get your instruments up and running on site.



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