



FL300



FL601



FL1201
FL1703

Recirculating Coolers FL Series

compact models with up to 1.7 kW cooling capacity which can be placed under lab benches

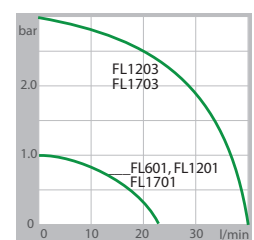
The FL models featured on this page are equipped for a wide range of cooling applications and can be placed under lab benches

- Easy filling from top
- Level indicator (all models), pressure indicator (from FL1201 upwards)
- Large expansion volume
- Immersion pumps, suitable for continuous operation
- Permissible temperature in return line 80 °C
- Recessed grips and wheels for easy transport
- Low liquid level protection with optical and audible alarm
- Suitable for water, water-glycol mixture, *Thermal* bath fluid
- Overload protection for pump motor and compressor

Removable venting grid with drain port at back



Pump Capacity
Bath fluid: water



| JULABO Order No. | JULABO Model | Working temp. range °C | Temp. stab. °C | Cooling capacity kW | | | | | Pump capacity | | Filling volume liters | Dimensions W x L x H cm |
|------------------|--------------|------------------------|----------------|---------------------|------|-----|------|--------|--------------------------------|-----------|-----------------------|-------------------------|
| | | | | 20 | 10 | 0 | -10 | -20 °C | Flow rate / Pressure l/min bar | | | |
| 9 660 003 | FL300 | -20 ... 40 | ±0.5 | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 | 15 | 0.35 | 3 ... 4.5 | 25 x 50 x 60 |
| 9 661 006 | FL601 | -20 ... 40 | ±0.5 | 0.6 | 0.5 | 0.4 | 0.33 | 0.2 | 23 | 1.0 | 5.5 ... 8 | 32 x 50 x 60 |
| 9 661 012 | FL1201 | -20 ... 40 | ±0.5 | 1.2 | 1.0 | 0.9 | 0.6 | 0.3 | 23 | 1.0 | 12 ... 17 | 50 x 76 x 64 |
| 9 663 012 | FL1203 | -20 ... 40 | ±0.5 | 1.2 | 0.9 | 0.8 | 0.5 | 0.2 | 40 | 0.5 - 3.0 | 12 ... 17 | 50 x 76 x 64 |
| 9 661 017 | FL1701 | -20 ... 40 | ±0.5 | 1.7 | 1.5 | 1.1 | 0.85 | 0.4 | 23 | 1.0 | 12 ... 17 | 50 x 76 x 64 |
| 9 663 017 | FL1703 | -20 ... 40 | ±0.5 | 1.7 | 1.4 | 1.0 | 0.75 | 0.3 | 40 | 0.5 - 3.0 | 12 ... 17 | 50 x 76 x 64 |

water-cooled models

| | | | | | | | | | | | | |
|-----------|---------|------------|------|-----|-----|-----|------|-----|----|-----------|-----------|--------------|
| 9 671 017 | FLW1701 | -20 ... 40 | ±0.5 | 1.7 | 1.5 | 1.1 | 0.85 | 0.4 | 23 | 1.0 | 12 ... 17 | 50 x 76 x 64 |
| 9 673 017 | FLW1703 | -20 ... 40 | ±0.5 | 1.7 | 1.4 | 1.0 | 0.75 | 0.3 | 40 | 0.5 - 3.0 | 12 ... 17 | 50 x 76 x 64 |



Applications

- Rotary evaporators
- Autoclaves
- Reaction vessels
- Soxhlet installations
- Distillation apparatus
- Vacuum systems
- Gas chromatographs
- Spectrometers
- Semiconductor industry
- Dosing and gluing techniques
- Diffusion pumps
- Mass spectrometers
- SEM

Recirculating Coolers FL Series

Tower version, high-performance models with up to 4.0 kW cooling capacity

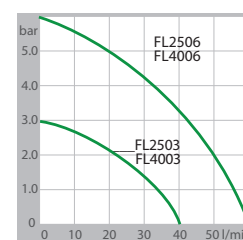
The FL models shown on this page feature cooling capacities up to 4 kW, powerful circulating pumps and integrated bath tanks with filling volumes up to 30 liters.

- Powerful circulating pumps up to 60 l/min; 6 bar
- Adjustable bypass for pump pressure
- Wheels for easy transport
- Early warning function to indicate need for condenser cleaning
- Overload protection for pump motor and compressor
- Stainless steel bath tanks
- *BlackBox* function for online diagnosis

Pressure indicator
from model FL1201 upwards



Pump capacity
Bath fluid: water



| JULABO Order No. | JULABO Model | Working temp. range °C | Temp. stab. °C | Cooling capacity kW | | | | Pump capacity | | Filling volume liters | Dimensions W x L x H cm |
|------------------|--------------|------------------------|----------------|---------------------|-----|-----|--------|--------------------------------|-----------|-----------------------|-------------------------|
| | | | | 20 | 10 | 0 | -20 °C | Flow rate / Pressure l/min bar | | | |
| 9 663 025 | FL2503 | -20 ... 40 | ±0.5 | 2.5 | 1.5 | 1.2 | 0.55 | 40 | 0.5 - 3.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 666 025 | FL2506 | -15 ... 40 | ±0.5 | 2.5 | 1.0 | 0.3 | -- | 60 | 0.5 - 6.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 663 040 | FL4003 | -20 ... 40 | ±0.5 | 4.0 | 2.4 | 1.5 | 0.65 | 40 | 0.5 - 3.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 666 040 | FL4006 | -20 ... 40 | ±0.5 | 4.0 | 1.9 | 0.9 | 0.05 | 60 | 0.5 - 6.0 | 24 ... 30 | 60 x 76 x 115 |

water-cooled models

| | | | | | | | | | | | |
|-----------|---------|------------|------|-----|-----|-----|------|----|-----------|-----------|---------------|
| 9 673 025 | FLW2503 | -20 ... 40 | ±0.5 | 2.7 | 1.7 | 1.3 | 0.55 | 40 | 0.5 - 3.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 676 025 | FLW2506 | -15 ... 40 | ±0.5 | 2.5 | 1.0 | 0.3 | -- | 60 | 0.5 - 6.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 673 040 | FLW4003 | -20 ... 40 | ±0.5 | 4.3 | 2.5 | 1.6 | 0.65 | 40 | 0.5 - 3.0 | 24 ... 30 | 60 x 76 x 115 |
| 9 676 040 | FLW4006 | -20 ... 40 | ±0.5 | 4.0 | 1.9 | 0.9 | 0.05 | 60 | 0.5 - 6.0 | 24 ... 30 | 60 x 76 x 115 |

Included with each unit: 2 barbed fittings for tubing 3/4" inner dia. on models FL/FLW2503 and FL/FLW4003 (pump connections G 3/4" male)
2 barbed fittings for tubing 1" inner dia. on models FL/FLW2506 and FL/FLW4006 (pump connections G 1 1/4")



FL7006 bis FLW11006

Applications

- Electron microscopes
- Lasers
- Mills and kneaders
- Pilot plants
- Miniplants
- Plastic industry
- Drying of gases
- General industry

NEW, up to 20 kW!

Recirculating Coolers FL Series

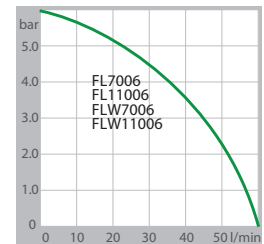
powerful models

The FL models on this page are designed to remove process heat from large systems and applications. Their pumps and compressor are particularly powerful.

- Cooling capacities of up to 20 kW
- For demanding applications in process industry
- High power reserves for all applications
- Low water consumption for all water-cooled FLW models
- Overload protection for pump motor and compressor

Pump capacity

Bath fluid: water



| JULABO Order No. | JULABO Model | Working temperature range °C | Temp. stab. °C | Cooling capacity kW | | | | Pump capacity Flow rate / Pressure | | Filling volume liters | Dimensions W x L x H cm |
|---------------------|-----------------|------------------------------------|----------------------|------------------------|-----|-----|--------|---------------------------------------|-----------|-----------------------------|-------------------------------|
| | | | | 20 | 0 | -10 | -20 °C | l/min | bar | | |
| 9 666 070 | FL7006 | -20 ... 40 | ±0.5 | 7.0 | 5.5 | 3.0 | 1.7 | 60 | 0.5 - 6.0 | 39... 47 | 78 x 85 x 148 |
| 9 666 110 | FL11006 | -20 ... 40 | ±0.5 | 11.0 | 7.5 | 5.0 | 3.0 | 60 | 0.5 - 6.0 | 39... 47 | 78 x 85 x 148 |
| 9 666 200 | FL20006 | -20 ... 40 | ±0.5 | 20.0 | 8.5 | 4.0 | 1.5 | 80 | 0.8 - 6.0 | 17... 40 | 95 x 115 x 161 |
| water-cooled models | | | | | | | | | | | |
| 9 676 070 | FLW7006 | -20 ... 40 | ±0.5 | 7.4 | 6.0 | 3.1 | 1.7 | 60 | 0.5 - 6.0 | 39... 47 | 78 x 85 x 148 |
| 9 676 110 | FLW11006 | -20 ... 40 | ±0.5 | 11.5 | 8.0 | 5.1 | 3.0 | 60 | 0.5 - 6.0 | 39... 47 | 78 x 85 x 148 |
| 9 676 200 | FLW20006 | -20 ... 40 | ±0.5 | 20.0 | 8.5 | 4.0 | 1.5 | 80 | 0.8 - 6.0 | 17... 40 | 95 x 115 x 161 |

Included with each unit: 2 barbed fittings for tubing 1" inner dia. (pump connections G 1 1/4")

Recirculating Cooler FC Series



FC600S



FC1600T

Recirculating Coolers FC Series

for heating and cooling

The FC models on this page feature high temperature stability as well as integrated heaters.

- Temperature stability ± 0.2 °C
- Integrated heater
- Expanded working temperature range to 80 °C
- Two LED temperature displays
- Adjustable inlet/outlet temperature ratio
- Liquid level indicator (sight glass)
- Connections for RS232, standby and alarm

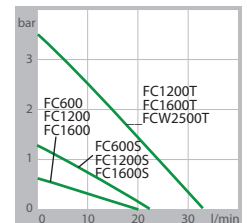
Digital/analog connections

- ① RS232 Interface
- ② Standby input
- ③ Alarm output



Pump capacity

Bath fluid: water



FC1200T, FC1600T, FCW2500T

- Connection for external Pt100 sensor
- Analog connections for programming and temperature recorder

FC1200T, FC1600T, FCW2500T provide additionally:

- ④ External Pt100 sensor
- ⑤ External programming, temperature recorder

| JULABO Order No. | JULABO Model | Working temperature range °C | Temp. stab. °C | Heat cap. kW | Cooling capacity kW | | | | | Pump capacity | | Pressure indicator bar | Filling volume liters | Dimensions W x L x H cm |
|---------------------|--------------|------------------------------|----------------|--------------|---------------------|------|------|------|--------|-----------------|------------|------------------------|-----------------------|-------------------------|
| | | | | | 20 | 10 | 5 | -10 | -20 °C | Flow rate / min | Press. bar | | | |
| 9 600 060 | FC600 | -20 ... 80 | ± 0.2 | 1.2 | 0.6 | 0.47 | 0.4 | 0.21 | -- | 20 | 0.5 | -- | 6 ... 8 | 35 x 54 x 49 |
| 9 600 063 | FC600S | -10 ... 80 | ± 0.2 | 1.2 | 0.5 | 0.37 | 0.3 | 0.1 | -- | 22 | 1.2 | -- | 6 ... 8 | 35 x 54 x 49 |
| 9 600 120 | FC1200 | -20 ... 80 | ± 0.2 | 1.2 | 1.3 | 0.95 | 0.75 | 0.37 | -- | 20 | 0.5 | 0 ... 2.5 | 8 ... 11 | 46 x 61 x 49 |
| 9 600 123 | FC1200S | -15 ... 80 | ± 0.2 | 1.2 | 1.2 | 0.85 | 0.65 | 0.26 | -- | 22 | 1.2 | 0 ... 2.5 | 8 ... 11 | 46 x 61 x 49 |
| 9 600 160 | FC1600 | -20 ... 80 | ± 0.2 | 1.2 | 1.65 | 1.25 | 1.0 | 0.47 | -- | 20 | 0.5 | 0 ... 2.5 | 8 ... 11 | 46 x 61 x 49 |
| 9 600 163 | FC1600S | -15 ... 80 | ± 0.2 | 1.2 | 1.55 | 1.15 | 0.9 | 0.36 | -- | 22 | 1.2 | 0 ... 2.5 | 8 ... 11 | 46 x 61 x 49 |
| 9 600 126 | FC1200T | -10 ... 80 | ± 0.2 | 1.2 | 1.1 | 0.75 | 0.55 | 0.15 | -- | 28 | 3.5 | 0 ... 4.0 | 8 ... 11 | 46 x 61 x 49 |
| 9 600 166 | FC1600T | -15 ... 80 | ± 0.2 | 1.2 | 1.45 | 1.05 | 0.8 | 0.25 | -- | 28 | 3.5 | 0 ... 4.0 | 8 ... 11 | 46 x 61 x 49 |
| water-cooled models | | | | | | | | | | | | | | |
| 9 601 256 | FCW2500T | -25 ... 80 | ± 0.2 | 1.2 | 2.5 | 2.0 | 1.8 | 0.8 | 0.25 | 28 | 3.5 | 0 ... 4.0 | 8 ... 11 | 46 x 61 x 49 |



SC2500a
SC2500w

Applications

- Semiconductor industry:
 - Etching tools
 - Stainless steel chucks
 - PVD
 - Sputtering
 - Wet benches
- Packaging industry
- Plastic industry
- Dosing and gluing techniques
- Jacketed reaction vessels
- Kilo labs, pilot plants

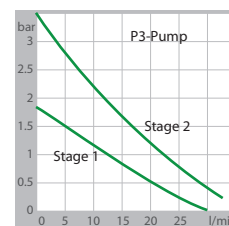
Recirculating Coolers SemiChill Series

for demanding industrial applications, for example in the semiconductor industry

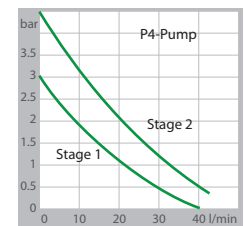
SemiChill recirculating coolers prove to be extremely reliable during continuous operation and under rough environmental conditions. All wetted parts are made of stainless steel or high grade plastic. The modular concept allows for customized configuration according to your requirements.

- 5 models for individual customization
- High cooling and pump capacities
- Optional integrated heater with a heating capacity up to 12 kW
- Gasket-free immersion pumps, maintenance free and electronically adjustable
- Pressure and filling level indicators
- Sealed filling port (70 mm dia.)
- Overload protection for pump motor and compressor

Pump capacity P3
Bath fluid: water



Pump capacity P4
Bath fluid: water





| JULABO Order No. | JULABO Model | Working ¹⁾ temperature range °C | Temp. stab. °C | Cooling capacity kW | | | Pump type / Pump capacity | Filling volume liters | Dimensions W x L x H cm |
|--------------------|-----------------|--|----------------|---------------------|-----|--------|---------------------------|-----------------------|-------------------------|
| | | | | 20 | 0 | -10 °C | | | |
| | SC2500a | -20 ... 80 | ±0.1 | 2.5 | 1.5 | 0.9 | | 21 ... 33 | 49 x 62 x 105 |
| see | SC2500w | -20 ... 80 | ±0.1 | 2.5 | 1.5 | 0.9 | see | 21 ... 33 | 49 x 62 x 105 |
| order information | SC5000a | -20 ... 130 | ±0.1 | 5.0 | 2.5 | 1.2 | order information | 43 ... 60 | 59 x 67 x 112 |
| on following pages | SC5000w | -20 ... 130 | ±0.1 | 5.0 | 2.5 | 1.2 | on following pages | 43 ... 60 | 59 x 67 x 112 |
| | SC10000w | -20 ... 130 | ±0.1 | 10.0 | 5.0 | 2.5 | | 43 ... 60 | 59 x 67 x 112 |

Models designated ,a' = ventilation air cooling; ,w' = water cooling

Pump connections: NPT 3/4" male

¹⁾ Maximum working temperature range (Working temperature range, Standard: 5 ... 35 °C)

Configuration Options

| Keypad and control electronics | Eco | Professional |
|---|---|---|
| Optional features |  |  |
| MULTI-DISPLAY (LED) temperature indication | • | |
| VFD Comfort-Display with simultaneous indication of 3 values | | • |
| Keypad, splash-proof | • | • |
| PID temperature control | • | • |
| 3-point calibration | • | • |
| Pump capacity adjustable in stages | • | • |
| RS232 interface | • | • |
| 'Stakei' connections for power supply (e.g. for shut-off valve) | • | • |
| Early warning system for low level, high and low temperature limits | • | • |
| High temperature cut-off adjustable via display | • | • |
| Low liquid level protection with cut-off function | • | • |
| Classification III (DIN 12876-1) | • | • |
| Online diagnosis via integrated Black Box | • | • |
| Connector for external Pt100 sensor for measuring and controlling the external system | | • |
| Integrated programmer with real time clock for 1x10 program steps | | • |
| Quantitative resistivity measurement and display, range 0.5...5 MΩ/cm | | • |
| Flow measurement and status display (factory pre-set limit value) | | • |
| Options for <i>Professional</i> electronics | | |
| Scalable analog interfaces (standby input, 2 x alarm output) | -- | Option |
| RS485 Interface | -- | Option |

Further options for working temperature, pump capacity and heaters

| Type | Working temperature ranges | | | | Circulating pumps | | Heaters | | | |
|------------------------------|----------------------------|-------------------------|--------------------------------|----------------------------------|---------------------------|---------------------------|--------------------|------------|------------|--------------|
| | Standard 5...35 °C | Low Temp -20...35 °C | Low/High Temp I -20...80 °C | Low/High Temp II -20...130 °C | P3 33 l/min 3.5 bar | P4 43 l/min 4.3 bar | H0 no Heater | H1 1 kW | H5 5 kW | H12 12 kW |
| SC2500a SC2500w | ✓ | Option | Option | -- | ✓ | -- | ✓ | Option | -- | -- |
| SC5000a, SC5000w SC10000w | ✓ | Option | Option | Option | ✓ | Option ¹⁾ | ✓ | -- | Option | Option |

✓ This feature is included in base model 1) Cooling capacity reduces by 0.2 kW

Filter housings

Please specify filter option when placing an order. Filter housings cannot be retrofitted. Housings are mounted on the right side.

- D1** DI-filter housing, plastic (to 35 °C), incl. cartridge
- D2** DI-filter housing, stainless steel (to 90 °C), incl. cartridge
- M1** Micro-filter housing, plastic (to 35 °C), w/o cartridge
- M2** Micro-filter housing, stainless steel (to 130 °C), w/o cartridge

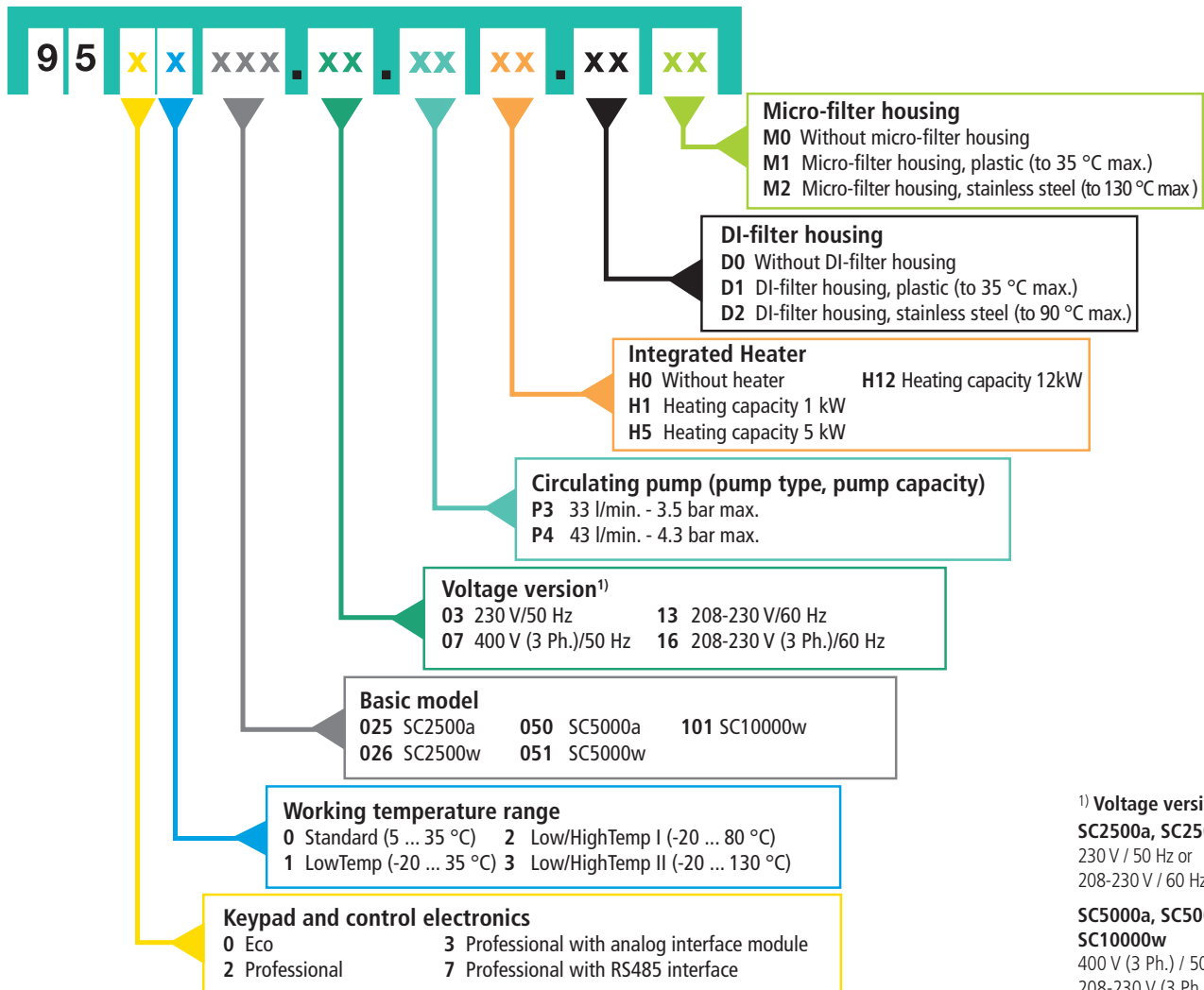
Filter housings for DI-filter and micro-filter (optional)





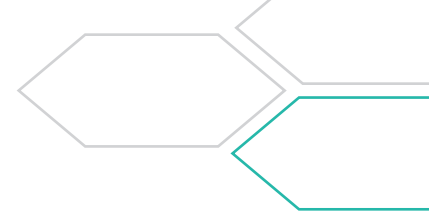
Order Information

Combine one of the five base models with the options of your choice. Please use the following order information to create your order number. Example for model SC5000a: 9 5 2 1 050 07 P3 H0 D0 M1



¹⁾ Voltage version
SC2500a, SC2500w
 230 V / 50 Hz or
 208-230 V / 60 Hz
**SC5000a, SC5000w,
 SC10000w**
 400 V (3 Ph.) / 50 Hz or
 208-230 V (3 Ph.) / 60 Hz

Compact Recirculating Coolers



| AWC100



| F200

Applications

- Cooling of Peltier elements, particularly for analytical devices and CCD cameras
- Polarimeters, refractometers
- Electrophoresis chambers
- Condensers for glass installations
- Calorimeters
- Rotary evaporators

Compact Recirculating Coolers

compact and budget-priced models for applications requiring little cooling performance

The models AWC100 and F200 have a small footprint and are cost-saving.

Air-to-Water Recirculating Cooler AWC100 for applications near ambient temperature

- Circulating water is cooled by air ventilation
- Constant pump performance
- Energy saving without compressor
- Cooling performance adjustable in 2 stages
- Level indicator

Recirculating Cooler F200 for applications below ambient temperature

- Adjustable setpoint
- Constant cooling and pump performance
- Level indicator

| JULABO Order No. | JULABO Model | Working temp. range °C | Temp. stability °C | Cooling capacity ¹⁾ | | | Pump capacity | | Filling volume liters | Dimensions W x L x H cm |
|---------------------|-----------------|------------------------------|--------------------------|--------------------------------|-----|------|---------------|----------|-----------------------------|-------------------------------|
| | | | | W | 10 | 5 °C | Flow rate / | Pressure | | |
| 9 630 100 | AWC100 | 20 ... 40 | -- | 400 | 220 | 120 | 2.9 | 0.2 | 0.9 | 20 x 34 x 30 |
| | | | | 550 | 300 | 180 | | | | |
| 9 620 020 | F200 | 5 ... 40 | ±3 | 200 | 180 | 130 | 8 | 0.12 | 3.0 | 19 x 35 x 41 |

¹⁾ AWC100: cooling capacity varies with the temperature difference between return line temperature and ambient temperature.

Included with each unit:

AWC100: 2 each barbed fittings for tubing 8 and 10 mm inner dia. (pump connections M10x1 female)

F200: Pump connections for tubing 10 mm inner dia.