

Julabo FL Series Datasheet

Table of Contents

| | |
|---------------|---------------|
| FL300 | Pages 2 – 5 |
| FL1703 | Pages 6 – 7 |
| FL2503 | Pages 8 – 9 |
| FL2506 | Pages 10 – 12 |
| FL4003 | Pages 13 – 15 |
| FL4006 | Pages 16 – 17 |
| FL7006 | Pages 18 – 19 |
| FL11006 | Pages 20 – 21 |
| FL20006 | Pages 22 – 23 |



Product data sheet

FL300 Recirculating Coolers for installation below a lab bench

Julabo

The compact FL models are suited for a wide variety of cooling tasks. Installation under a lab bench saves valuable space. 2 variants: Air-cooled (FL) and water-cooled (FLW).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line +80°C
- Easy filling and Drain tap easily accessible
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable ventilation grid
- Front drain
- No side vents, instruments can be placed right next to other equipment
- RS232 interface for PC connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)



Technical data

| Available voltage versions | | Bath | |
|--|---|--------------------------------|------------------------|
| Order No. | 9 660 003 | Bath tank | Stainless steel |
| Available voltage versions: | | | |
| 9 660 003.01 | 100V/50-60Hz (Nema N5-15 Plug) | | |
| 9 660 003.13 | 230V/60Hz (Schuko Plug - CEE 7/4 Plug Type F) | | |
| 9 660 003.02 | 115V/60Hz (Nema N5-15 Plug) | | |
| 9 660 003.03 | 230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) | | |
| 9 660 003.04 | 230V/50Hz (UK Plug Type BS1363A) | | |
| 9 660 003.05 | 230V/50Hz (CH Plug Type SEV 1011) | | |
| Cooling | | Other | |
| Cooling of compressor | 1-stage Air | Sound pressure level dbA | 55 |
| | | Classification | Classification I (NFL) |
| | | IP Code | IP 21 |
| | | Pump type | Centrifugal Pump |
| Electronics | | Dimensions and volumes | |
| Temperature control | PID1 | Weight lbs | 77.2 |
| Temperature displayTemperature display | LED | Barbed fittings inner diameter | 8/12 mm |
| Temperature settingTemperature setting | Keypad | Dimensions in. (W × L × H) | 9.8 x 19.7 x 23.6 |
| | | Filling volume l | 3 ... 4.5 |
| | | Pump connections | M16x1 male |
| Temperature values | | | |
| Setting the resolution of the temperature display °C | 0.1 | | |
| Return flow temperature max. °C | 80 | | |

| | |
|-----------------------------------|-------------|
| Working temperature range °C | -20 ... +40 |
| Temperature stability °C | ±0.5 |
| Ambient temperature °C | 5 ... 40 |
| Temperature display resolution °C | 0.1 |



Performance values

100V/50-60Hz (Nema N5-15 Plug)

| 100V/50Hz | | | | | | 100V/60Hz | | | | | |
|------------------------------------|-------|------|-----|------|-----|------------------------------------|-------|------|-----|------|-----|
| Cooling capacity (Water Glycol) | | | | | | Cooling capacity (Water Glycol) | | | | | |
| °C | 20 | 10 | 0 | -10 | -20 | °C | 20 | 10 | 0 | -10 | -20 |
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 | kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |
| Refrigerant | R134a | | | | | Refrigerant | R134a | | | | |
| Filling volume g | 140 | | | | | Filling volume g | 140 | | | | |
| Global Warming Potential for R134a | 1430 | | | | | Global Warming Potential for R134a | 1430 | | | | |
| Carbon dioxide equivalent t | 0.2 | | | | | Carbon dioxide equivalent t | 0.2 | | | | |
| Pump capacity flow rate l/min | 15 | | | | | Pump capacity flow rate l/min | 15 | | | | |
| Pump capacity flow pressure bar | 5.1 | | | | | Pump capacity flow pressure bar | 5.1 | | | | |

230V/60Hz (Schuko Plug - CEE 7/4 Plug Type F)

| 220V/60Hz | | | | | |
|------------------------------------|-------|------|-----|------|-----|
| Cooling capacity (Water Glycol) | | | | | |
| °C | 20 | 10 | 0 | -10 | -20 |
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |
| Refrigerant | R134a | | | | |
| Filling volume g | 160 | | | | |
| Global Warming Potential for R134a | 1430 | | | | |
| Carbon dioxide equivalent t | 0.229 | | | | |
| Pump capacity flow rate l/min | 15 | | | | |
| Pump capacity flow pressure bar | 5.1 | | | | |

115V/60Hz (Nema N5-15 Plug)

| 115V/60Hz | | | | | |
|------------------------------------|-------|------|-----|------|-----|
| Cooling capacity (Water Glycol) | | | | | |
| °C | 20 | 10 | 0 | -10 | -20 |
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |
| Refrigerant | R134a | | | | |
| Filling volume g | 155 | | | | |
| Global Warming Potential for R134a | 1430 | | | | |
| Carbon dioxide equivalent t | 0.222 | | | | |
| Pump capacity flow rate l/min | 15 | | | | |
| Pump capacity flow pressure bar | 5.1 | | | | |

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)

230V/50Hz

Cooling capacity (Water Glycol)

| °C | 20 | 10 | 0 | -10 | -20 |
|----|-----|------|-----|------|-----|
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |

Refrigerant R134a

Filling volume g 133

Global Warming Potential for R134a 1430

Carbon dioxide equivalent t 0.19

Pump capacity flow rate l/min 15

Pump capacity flow pressure bar 5.1

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230V/50Hz (UK Plug Type BS1363A)

230V/50Hz

Cooling capacity (Water Glycol)

| °C | 20 | 10 | 0 | -10 | -20 |
|----|-----|------|-----|------|-----|
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |

Refrigerant R134a

Filling volume g 133

Global Warming Potential for R134a 1430

Carbon dioxide equivalent t 0.19

Pump capacity flow rate l/min 15

Pump capacity flow pressure bar 5.1

230V/50Hz (CH Plug Type SEV 1011)

230V/50Hz

Cooling capacity (Water Glycol)

| °C | 20 | 10 | 0 | -10 | -20 |
|----|-----|------|-----|------|-----|
| kW | 0.3 | 0.25 | 0.2 | 0.15 | 0.1 |

Refrigerant R134a

Filling volume g 133

Global Warming Potential for R134a 1430

Carbon dioxide equivalent t 0.19

Pump capacity flow rate l/min 15

Pump capacity flow pressure bar 5.1

All Benefits



Precise
PID Temperature control with set control
parameters, temperature stability $\pm 0.02 \dots \pm 0.2$
°C



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life.



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FL1703 Recirculating Cooler

Recirculating Cooler/Chiller for environmentally friendly cooling

The FL series offers a new generation of chillers for routine cooling applications within the laboratory and industry. The temperature stability of the PID control is $\pm 0.5^{\circ}\text{C}$. All units can easily be cleaned and are provided with a splash water proof keypad with LED temperature indication. On the front of the units there is an RS232 interface as well as an alarm shutdown. The filling port is easily accessible placed on the top under a lift-up cover. Another hinged tray serves as a file for the operating manual or other documents concerning the installation. The removable venting grid allows an easy cleaning of the condenser, the drain tap is easily accessible behind the grid. All models include an easily visible level indication. Another advantage is the venting slots are on the front and rear and therefore the units can be placed directly one beside the other (space saving).



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Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Filling level indicator
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line $+80^{\circ}\text{C}$
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable venting grid for cleaning of the condenser
- Front drain
- No side vents
- RS232 interface for PC-connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure

Technical Data

| | | | | | |
|--|------------------------|-----|---|------|-----|
| Order No. | 9663017 | | | | |
| Model series | FL Series | | | | |
| Category | Recirculating Coolers | | | | |
| Working temperature range ($^{\circ}\text{C}$) | -20 ... +40 | | | | |
| Temperature stability ($^{\circ}\text{C}$) | ± 0.5 | | | | |
| Setting / display resolution | 0.1 $^{\circ}\text{C}$ | | | | |
| Temperature Display | LED | | | | |
| Cooling capacity (Medium Ethanol) | $^{\circ}\text{C}$ | 20 | 0 | -10 | -20 |
| | kW | 1.7 | 1 | 0.75 | 0.3 |
| Pump capacity flow rate (l/min) | 40 | | | | |

| | |
|--|--|
| Pump capacity flow pressure (psi) | 7.25...43.51 |
| Pump connections | G3/4" |
| Barbed fittings diameter (inner dia. / mm) | 3/4" |
| Filling volume liters | 12 ... 17 |
| Refrigerant stage 1 | R452A |
| Filling volume refrigerant stage 1 (g) | 690 |
| Global Warming Potential for | 2140 |
| Carbon dioxide equivalent stage 1 (t) | 1.477 |
| Digital interface | RS232 Optional: Profibus |
| Ambient temperature | 5...40 °C |
| Dimensions W x L x H (inch) | 19.7 x 29.9 x 25.2 |
| Weight (LBS) | 201 |
| Included with each unit | 2 barbed fittings for tubing 3/4" inner dia. (pump connections G3/4" male) |
| Cooling of compressor | Air |
| Power requirement V / Hz / A | 230/60/11 |
| Available voltage versions | 230 V / 50 Hz 230 V / 60 Hz |

Suitable fluids: water, water-glycol mixture, JULABO Thermal bath fluids

Kältemittelangaben gelten für die 50 Hz-Version.

Characteristics

Display



Easy to read

Large LED temperature display for actual value and setpoint (resolution 0.1 °C)

Refrigeration Technology



Consistent cooling capacity

Easily removable venting grid for quick and easy cleaning

Operation



Simple and fast

Convenient 3-key setpoint adjustment (FL models)

Technical Features



Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values

Temperature Control



Precise

PID Temperature control with set control parameters, temperature stability $\pm 0.02 \dots \pm 0.2$ °C

FL2503 Recirculating Cooler

Recirculating Cooler/Chiller for environmentally friendly cooling

The FL series offers a new generation of chillers for routine cooling applications within the laboratory and industry. The temperature stability of the PID control is $\pm 0.5^{\circ}\text{C}$. All units can easily be cleaned and are provided with a splash water proof keypad with LED temperature indication. On the front of the units there is an RS232 interface as well as an alarm shutdown. The filling port is easily accessible placed on the top under a lift-up cover. Another hinged tray serves as a file for the operating manual or other documents concerning the installation. The removable venting grid allows an easy cleaning of the condenser, the drain tap is easily accessible behind the grid. All models include an easily visible level indication. Another advantage is the venting slots are on the front and rear and therefore the units can be placed directly one beside the other (space saving).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Filling level indicator
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line $+80^{\circ}\text{C}$
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable venting grid for cleaning of the condenser
- Front drain
- No side vents
- RS232 interface for PC-connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure



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Technical Data

| | | | | | |
|--|------------------------|-----|-----|-----|------|
| Order No. | 9663025 | | | | |
| Model series | FL Series | | | | |
| Category | Recirculating Coolers | | | | |
| Working temperature range ($^{\circ}\text{C}$) | -20 ... +40 | | | | |
| Temperature stability ($^{\circ}\text{C}$) | ± 0.5 | | | | |
| Setting / display resolution | 0.1 $^{\circ}\text{C}$ | | | | |
| Temperature Display | LED | | | | |
| Cooling capacity (Medium Ethanol) | $^{\circ}\text{C}$ | 20 | 0 | -10 | -20 |
| | kW | 2.5 | 1.5 | 1.2 | 0.55 |
| Pump capacity flow rate (l/min) | 40 | | | | |

| | |
|--|---|
| Pump capacity flow pressure (psi) | 7.25...43.51 |
| Pump connections | G3/4" |
| Barbed fittings diameter (inner dia. / mm) | 3/4" |
| Filling volume liters | 24 ... 30 |
| Refrigerant stage 1 | R452A |
| Filling volume refrigerant stage 1 (g) | 1510 |
| Global Warming Potential for | 2140 |
| Carbon dioxide equivalent stage 1 (t) | 3.231 |
| Digital interface | RS232 Optional: Profibus |
| Ambient temperature | 5...40 °C |
| Dimensions W x L x H (inch) | 23.6 x 29.9 x 45.3 |
| Weight (LBS) | 271 |
| Sound pressure level (distance 1 m) max. (dBA) | 64 |
| Included with each unit | 2 barbed fittings for tubing 3/4" inner dia. (pump connections G3/4" male) / 4" Außengewinde) |
| Cooling of compressor | Air |
| Power requirement V / Hz / A | 230/60/13 |
| Available voltage versions | 230 V / 50 Hz 230 V / 60 Hz |

Suitable fluids: water, water-glycol mixture, JULABO Thermal bath fluids

Kältemittelangaben gelten für die 50 Hz-Version.

Characteristics

Display



Easy to read

Large LED temperature display for actual value and setpoint (resolution 0.1 °C)

Refrigeration Technology



Consistent cooling capacity

Easily removable venting grid for quick and easy cleaning

Operation



Simple and fast

Convenient 3-key setpoint adjustment (FL models)

Technical Features



Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values

Temperature Control



Precise

PID Temperature control with set control parameters, temperature stability $\pm 0.02... \pm 0.2$ °C



FL2506 Powerful model in tower version

The FL models shown here have higher cooling capacity, powerful circulating pumps, and internal bath volumes of up to 30 liters. 2 variants: Air-cooled (FL) and water-cooled (FLW).

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Precise PID temperature control
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line +80°C
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable ventilation grid
- Front drain
- No side vents, instruments can be placed right next to other equipment
- RS232 interface for PC connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure



Technical data

| Available voltage versions | | Bath | |
|--|---|--------------------------------|------------------------|
| Order No. | 9 666 025 | Bath tank | Stainless steel |
| Available voltage versions: | | | |
| 9 666 025.13 | 230V/60Hz (Nema N6-20 Plug) | | |
| 9 666 025.03 | 230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) | | |
| Cooling | | Other | |
| Cooling of compressor | 1-stage Air | Sound pressure level dbA | 64 |
| | | Classification | Classification I (NFL) |
| | | IP Code | IP 21 |
| | | Pump type | Immersion Pump |
| Electronics | | Dimensions and volumes | |
| Temperature control | PID1 | Weight lbs | 348.3 |
| Temperature displayTemperature display | LED | Barbed fittings inner diameter | 1" |
| Temperature settingTemperature setting | Keypad | Dimensions in. (W × L × H) | 23.6 x 29.9 x 45.3 |
| | | Filling volume l | 24 ... 30 |
| | | Pump connections | G1¼" male |
| Temperature values | | | |
| Setting the resolution of the temperature display °C | 0.1 | | |
| Return flow temperature max. °C | 80 | | |
| Working temperature range °C | -15 ... +40 | | |
| Temperature stability °C | ±0.5 | | |
| Ambient temperature °C | 5 ... 40 | | |

| | |
|-----------------------------------|-----|
| Temperature display resolution °C | 0.1 |
|-----------------------------------|-----|

Performance values

230V/60Hz (Nema N6-20 Plug)

208V/60Hz

Cooling capacity (Water Glycol)

| | | | | |
|----|-----|-----|---|-----|
| °C | 20 | 10 | 0 | -10 |
| kW | 2.5 | 1.9 | 1 | 0.3 |

Refrigerant R404A

Filling volume g 1400

Global Warming Potential for R404A 3922

Carbon dioxide equivalent t 5.491

Pump capacity flow rate l/min 60

Pump capacity flow pressure psi 7.3 ... 87

230V/60Hz

Cooling capacity (Water Glycol)

| | | | | |
|----|-----|-----|---|-----|
| °C | 20 | 10 | 0 | -10 |
| kW | 2.5 | 1.9 | 1 | 0.3 |

Refrigerant R404A

Filling volume g 1400

Global Warming Potential for R404A 3922

Carbon dioxide equivalent t 5.491

Pump capacity flow rate l/min 60

Pump capacity flow pressure psi 7.3 ... 87

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)

230V/50Hz

Cooling capacity (Water Glycol)

| | | | | |
|----|-----|-----|---|-----|
| °C | 20 | 10 | 0 | -10 |
| kW | 2.5 | 1.9 | 1 | 0.3 |

Refrigerant R452A

Filling volume g 1510

Global Warming Potential for R452A 2140

Carbon dioxide equivalent t 3.231

Pump capacity flow rate l/min 60

Pump capacity flow pressure psi 7.3 ... 87

All Benefits



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Precise

PID Temperature control with set control
parameters, temperature stability $\pm 0.02 \dots \pm 0.2$
°C

Product data sheet



FL4003 Powerful model in tower version

The FL models shown here have higher cooling capacity, powerful circulating pumps, and internal bath volumes of up to 30 liters. 2 variants: Air-cooled (FL) and water-cooled (FLW).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Precise PID temperature control
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line +80°C
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable ventilation grid
- Front drain
- No side vents, instruments can be placed right next to other equipment
- RS232 interface for PC connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure



Technical data

| Available voltage versions | | Bath | |
|--|--------------------------------|--------------------------------|------------------------|
| Order No. | 9 663 040 | Bath tank | Stainless steel |
| Available voltage versions: | | | |
| 9 663 040.16 | 230V/3PPE/60Hz (Without Plug) | | |
| 9 663 040.07 | 400V/3PNPE/50Hz (Plug 16A CEE) | | |
| Cooling | | Other | |
| Cooling of compressor | 1-stage Air | Sound pressure level dbA | 67 |
| | | Classification | Classification I (NFL) |
| | | IP Code | IP 21 |
| | | Pump type | Immersion Pump |
| Electronics | | Dimensions and volumes | |
| Temperature control | PID1 | Weight lbs | 326.3 |
| Temperature displayTemperature display | LED | Barbed fittings inner diameter | 3/4" |
| Temperature settingTemperature setting | Keypad | Dimensions in. (W x L x H) | 23.6 x 29.9 x 45.3 |
| | | Filling volume l | 24 ... 30 |
| | | Pump connections | G3/4" male |
| Temperature values | | | |
| Setting the resolution of the temperature display °C | 0.1 | | |
| Return flow temperature max. °C | 80 | | |
| Working temperature range °C | -20 ... +40 | | |
| Temperature stability °C | ±0.5 | | |
| Ambient temperature °C | 5 ... 40 | | |

| | |
|-----------------------------------|-----|
| Temperature display resolution °C | 0.1 |
|-----------------------------------|-----|



Performance values

230V/3PPE/60Hz (Without Plug)

230V/3PPE/60Hz

Cooling capacity (Water Glycol)

| °C | 20 | 10 | 0 | -10 | -20 |
|----|----|-----|-----|-----|-----|
| kW | 4 | 3.4 | 2.4 | 1.5 | 0.6 |

| | |
|------------------------------------|--------------|
| Refrigerant | R449A |
| Filling volume g | 1800 |
| Global Warming Potential for R449A | 1397 |
| Carbon dioxide equivalent t | 2.515 |
| Pump capacity flow rate l/min | 40 |
| Pump capacity flow pressure psi | 7.3 ... 43.5 |

400V/3PNPE/50Hz (Plug 16A CEE)

400V/3PNPE/50Hz

Cooling capacity (Water Glycol)

| °C | 20 | 10 | 0 | -10 | -20 |
|----|----|-----|-----|-----|------|
| kW | 4 | 3.4 | 2.4 | 1.5 | 0.65 |

| | |
|------------------------------------|--------------|
| Refrigerant | R452A |
| Filling volume g | 2220 |
| Global Warming Potential for R452A | 2140 |
| Carbon dioxide equivalent t | 4.751 |
| Pump capacity flow rate l/min | 40 |
| Pump capacity flow pressure psi | 7.3 ... 43.5 |

All Benefits



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Precise
PID Temperature control with set control
parameters, temperature stability $\pm 0.02 \dots \pm 0.2$
°C



FL4006 Recirculating Cooler

Recirculating Cooler/Chiller for environmentally friendly cooling

The FL series offers a new generation of chillers for routine cooling applications within the laboratory and industry. The temperature stability of the PID control is $\pm 0.5^{\circ}\text{C}$. All units can easily be cleaned and are provided with a splash water proof keypad with LED temperature indication. On the front of the units there is an RS232 interface as well as an alarm shutdown. The filling port is easily accessible placed on the top under a lift-up cover. Another hinged tray serves as a file for the operating manual or other documents concerning the installation. The removable venting grid allows an easy cleaning of the condenser, the drain tap is easily accessible behind the grid. All models include an easily visible level indication. Another advantage is the venting slots are on the front and rear and therefore the units can be placed directly one beside the other (space saving).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Filling level indicator
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line $+80^{\circ}\text{C}$
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable venting grid for cleaning of the condenser
- Front drain
- No side vents
- RS232 interface for PC-connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure



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Technical Data

| | | | | | |
|--|------------------------|----|-----|-----|------|
| Order No. | 9666040 | | | | |
| Model series | FL Series | | | | |
| Category | Recirculating Coolers | | | | |
| Working temperature range ($^{\circ}\text{C}$) | -20 ... +40 | | | | |
| Temperature stability ($^{\circ}\text{C}$) | ± 0.5 | | | | |
| Setting / display resolution | 0.1 $^{\circ}\text{C}$ | | | | |
| Temperature Display | LED | | | | |
| Cooling capacity (Medium Ethanol) | $^{\circ}\text{C}$ | 20 | 0 | -10 | -20 |
| | kW | 4 | 1.9 | 0.9 | 0.05 |
| Pump capacity flow rate (l/min) | 60 | | | | |

| | |
|--|--|
| Pump capacity flow pressure (psi) | 7.25...87.02 |
| Pump connections | G1 1/4" |
| Barbed fittings diameter (inner dia. / mm) | 1" |
| Filling volume liters | 24 ... 30 |
| Refrigerant stage 1 | R452A |
| Filling volume refrigerant stage 1 (g) | 2220 |
| Global Warming Potential for | 2140 |
| Carbon dioxide equivalent stage 1 (t) | 4.751 |
| Digital interface | RS232 Optional: Profibus |
| Ambient temperature | 5...40 °C |
| Dimensions W x L x H (inch) | 23.6 x 29.9 x 45.3 |
| Weight (LBS) | 346 |
| Sound pressure level (distance 1 m) max. (dBA) | 67 |
| Included with each unit | 2 barbed fittings for tubing 1" inner dia. (pump connections G1 1/4" male) |
| Cooling of compressor | Air |
| Power requirement V / Hz / A | 3x 230/60/16 |
| Available voltage versions | 400 V / 3 Ph. / 50 Hz 230 V / 3 Ph. / 60 Hz |

Suitable fluids: water, water-glycol mixture, JULABO Thermal bath fluids

Kältemittelangaben gelten für die 50 Hz-Version.

Characteristics

Display



Easy to read

Large LED temperature display for actual value and setpoint (resolution 0.1 °C)

Refrigeration Technology



Consistent cooling capacity

Easily removable venting grid for quick and easy cleaning

Operation



Simple and fast

Convenient 3-key setpoint adjustment (FL models)

Technical Features



Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values

Temperature Control



Precise

PID Temperature control with set control parameters, temperature stability $\pm 0.02... \pm 0.2$ °C



FL7006 Recirculating Cooler

Recirculating Cooler/Chiller for environmentally friendly cooling

The FL series offers a new generation of chillers for routine cooling applications within the laboratory and industry. The temperature stability of the PID control is $\pm 0.5^{\circ}\text{C}$. All units can easily be cleaned and are provided with a splash water proof keypad with LED temperature indication. On the front of the units there is an RS232 interface as well as an alarm shutdown. The filling port is easily accessible placed on the top under a lift-up cover. Another hinged tray serves as a file for the operating manual or other documents concerning the installation. The removable venting grid allows an easy cleaning of the condenser, the drain tap is easily accessible behind the grid. All models include an easily visible level indication. Another advantage is the venting slots are on the front and rear and therefore the units can be placed directly one beside the other (space saving).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Filling level indicator
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line $+80^{\circ}\text{C}$
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable venting grid for cleaning of the condenser
- Front drain
- No side vents
- RS232 interface for PC-connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure



Made in Germany

Technical Data

| | | | | | |
|--|------------------------|----|-----|-----|------|
| Order No. | 9666070 | | | | |
| Model series | FL Series | | | | |
| Category | Recirculating Coolers | | | | |
| Working temperature range ($^{\circ}\text{C}$) | -20 ... +40 | | | | |
| Temperature stability ($^{\circ}\text{C}$) | ± 0.5 | | | | |
| Setting / display resolution | 0.1 $^{\circ}\text{C}$ | | | | |
| Temperature Display | LED | | | | |
| Cooling capacity (Medium Ethanol) | $^{\circ}\text{C}$ | 20 | 0 | -10 | -20 |
| | kW | 7 | 5.1 | 3 | 1.55 |
| Pump capacity flow rate (l/min) | 60 | | | | |

| | |
|--|--|
| Pump capacity flow pressure (psi) | 7.25...87.02 |
| Pump connections | G1 1/4" |
| Barbed fittings diameter (inner dia. / mm) | 1" |
| Filling volume liters | 39 ... 47 |
| Refrigerant stage 1 | R452A |
| Filling volume refrigerant stage 1 (g) | 3920 |
| Global Warming Potential for | 2140 |
| Carbon dioxide equivalent stage 1 (t) | 8.389 |
| Digital interface | RS232 Optional: Profibus |
| Ambient temperature | 5...40 °C |
| Dimensions W x L x H (inch) | 30.7 x 33.5 x 58.3 |
| Weight (LBS) | 556 |
| Sound pressure level (distance 1 m) max. (dBA) | 74 |
| Included with each unit | 2 barbed fittings for tubing 1" inner dia. (pump connections G1 1/4" male) |
| Cooling of compressor | Air |
| Power requirement V / Hz / A | 3x 230/60/23 |
| Available voltage versions | 400 V / 3 Ph. / 50 Hz 230 V / 3 Ph. / 60 Hz |

Suitable fluids: water, water-glycol mixture, JULABO Thermal bath fluids

Kältemittelangaben gelten für die 50 Hz-Version.

Characteristics

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Precise

PID Temperature control with set control parameters, temperature stability $\pm 0.02... \pm 0.2$ °C



FL11006 Powerful recirculating cooler

The powerful FL models are suitable for a wide range of cooling tasks in industrial environments, such as removal of large process heat. 2 variants: Air-cooled (FL) and water-cooled (FLW).

Optional heating function

On request, we also offer our FL recirculating chillers with an additional integrated heating function and other special solutions. Our product experts will be happy to advise you individually in order to design a temperature control unit that is exactly right for your needs. Just give us a call!



Product features

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Permissible temperature in return line +80°C
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Front drain
- No side vents, instruments can be placed right next to other equipment
- RS232 interface for PC connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator

Performance values

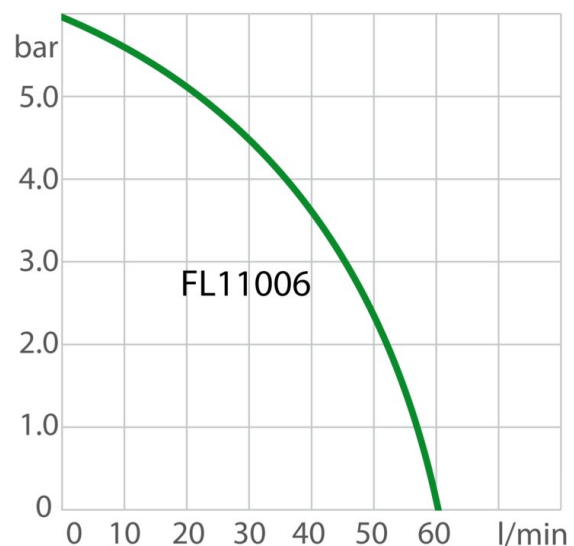
230V/3PPE/60Hz (Without Plug)

Pump capacity flow rate l/min 60

Pump capacity flow pressure psi 7.3 ... 87

Power consumption A 27

Pump capacity



| | | | | | |
|--|------------|----|-----|-----|-----|
| Order No. | 9666110.16 | | | | |
| Cooling capacity (Ethanol) | | | | | |
| °C | 20 | 10 | 0 | -10 | -20 |
| kW | 10.3 | 9 | 7.5 | 5 | 1.5 |
| * Performance specifications measured in accordance with DIN 12876. Cooling capacities up to 20 °C measured with ethanol; over 20 °C with thermal oil unless otherwise specified. Performance specifications apply at an ambient temperature of 20 °C. Performance values may differ with other bath fluids. | | | | | |
| Refrigerant stage 1 | | | | | |
| Refrigerant | R449A | | | | |
| Filling weight g | 3000 | | | | |
| Global Warming Potential for R449A | 1397 | | | | |
| Carbon dioxide equivalent t | 4.191 | | | | |

Technical data

| | | | |
|--|--|---|------------------------|
| Available voltage versions | | Bath | |
| Order No. | 9 666 110 | Bath tank | Stainless steel |
| Available voltage versions: | | | |
| 9666110.16 | 230V/3PPE/60Hz (Without Plug) (R449A) | | |
| 9666110.07 | 400V/3PNPE/50Hz (Plug 32A CEE) (R452A) | | |
| 9666110.S1.07 | 400V/3PNPE/50Hz (Plug 32A CEE) (R449A) | | |
| Cooling | | Other | |
| Cooling of compressor | 1-stage Air | Sound pressure level dbA | 74 |
| | | Classification | Classification I (NFL) |
| | | IP Code | IP 21 |
| | | Pump type | Immersion Pump |
| Electronics | | Dimensions and volumes | |
| Interfaces | Alarm output, RS232, Stakei | Weight lbs | 546.7 |
| Temperature control | PID1 | Barbed fittings inner diameter | 1" |
| Temperature display | LED | Dimensions in. (W × L × H) | 30.7 x 33.5 x 58.3 |
| Temperature setting | Keypad | Filling volume l | 39 ... 47 |
| | | Pump connections | G1¼" male |
| Temperature values | | Included in delivery | |
| Setting the resolution of the temperature display °C | 0.1 | 2 each barbed fittings for tubing 1" inner dia (pumpconnections G1 1/4" male) | |
| Return flow temperature max. °C | 80 | | |
| Working temperature range °C | -20 ... +40 | | |
| Temperature stability °C | ±0.5 | | |
| Ambient temperature °C | +5 ... +40 | | |



FL20006 Recirculating Cooler

Recirculating Cooler/Chiller for environmentally friendly cooling

The FL series offers a new generation of chillers for routine cooling applications within the laboratory and industry. The temperature stability of the PID control is $\pm 0.5^{\circ}\text{C}$. All units can easily be cleaned and are provided with a splash water proof keypad with LED temperature indication. On the front of the units there is an RS232 interface as well as an alarm shutdown. The filling port is easily accessible placed on the top under a lift-up cover. Another hinged tray serves as a file for the operating manual or other documents concerning the installation. The removable venting grid allows an easy cleaning of the condenser, the drain tap is easily accessible behind the grid. All models include an easily visible level indication. Another advantage is the venting slots are on the front and rear and therefore the units can be placed directly one beside the other (space saving).

Your advantages

- Ergonomic design and easy operation
- Splash-proof keypad
- Large, bright LED display
- Reliable Microprocessor PID temperature control
- Filling level indicator
- Powerful immersion pumps, suitable for continuous operation
- Permissible temperature in return line $+80^{\circ}\text{C}$
- Easy filling from the top with hinged protective lid
- Low liquid level protection with optical and audible alarm signal
- Integrated stainless steel bath tanks
- Removable venting grid for cleaning of the condenser
- Front drain
- No side vents
- RS232 interface for PC-connection
- IP class according to IEC 60529: 21
- Alarm output, potential-free change-over contact (max. 30 VA)
- Pressure Indicator
- By-pass valve to adjust pump pressure
- Air cooled



Made in Germany

Technical Data

| | | | | | |
|--|-----------------------|----|----|-----|-----|
| Order No. | 9666200 | | | | |
| Model series | FL Series | | | | |
| Category | Recirculating Coolers | | | | |
| Working temperature range ($^{\circ}\text{C}$) | $-25 \dots +40$ | | | | |
| Temperature stability ($^{\circ}\text{C}$) | ± 0.5 | | | | |
| Setting / display resolution | 0.1°C | | | | |
| Temperature Display | LED | | | | |
| Cooling capacity (Medium Ethanol) | $^{\circ}\text{C}$ | 20 | 0 | -10 | -20 |
| | kW | 20 | 10 | 6 | 2.5 |
| Pump capacity flow rate (l/min) | 80 | | | | |

| | |
|--|--|
| Pump capacity flow pressure (psi) | 11.6...87.02 |
| Pump connections | G1 1/4" |
| Barbed fittings diameter (inner dia. / mm) | 1" |
| Filling volume liters | 15 ... 37 |
| Refrigerant stage 1 | R452A |
| Filling volume refrigerant stage 1 (g) | 5950 |
| Global Warming Potential for | 2140 |
| Carbon dioxide equivalent stage 1 (t) | 12.733 |
| Digital interface | RS232 Optional: Profibus |
| Ambient temperature | 5...40 °C |
| Dimensions W x L x H (inch) | 37.4 x 45.3 x 63.4 |
| Weight (LBS) | 794 |
| Sound pressure level (distance 1 m) max. (dBA) | 73 |
| Included with each unit | 2 barbed fittings for tubing 1" inner dia. (pump connections G1 1/4" male) Außengewinde) |
| Cooling of compressor | Air |
| Power requirement V / Hz / A | 3x 230/60/36 |
| Available voltage versions | 400 V / 3 Ph. / 50Hz / 18A 230 V / 3 Ph. / 60 Hz / 36 A |

Suitable fluids: water, water-glycol mixture, JULABO Thermal bath fluids

Kältemittelangaben gelten für die 50 Hz-Version.

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