

°LAUDA

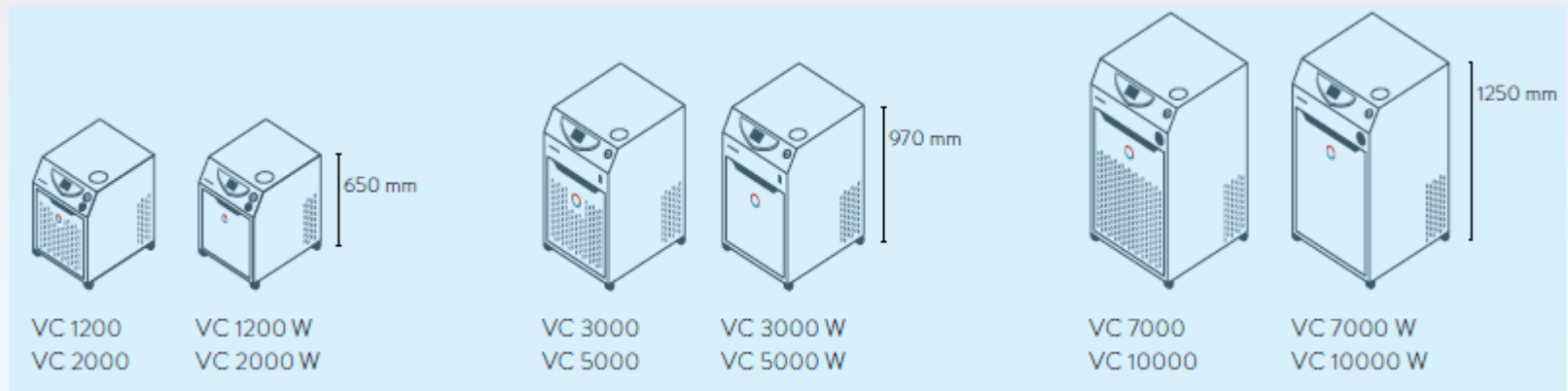


°FAHRENHEIT. °CELSIUS. °LAUDA.

VARIOCOOL

Overview

- 12 units - 6 air and 6 water cooled units in 3 different housing sizes
- Temperature range -20 to 40 °C, up to 80 °C with optional heater
- Cooling capacity 1200 W up to 10000 W



VARIOCOOL – TECHNICAL FEATURES & HANDLING

Color TFT Display

Easy fill up on top
(Only water or water/glycol)

Pressure gauge



VARIOCOOL – TECHNICAL FEATURES & HANDLING



USB interface

Slots for additional interfaces (accessories)



Alarm out

VARIOCOOL – TECHNICAL FEATURES & HANDLING

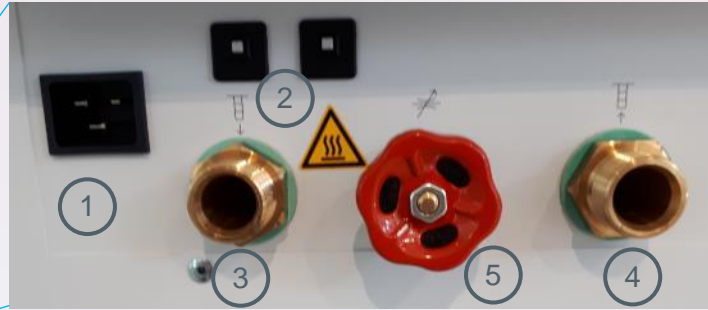


Opening for cleaning of condenser
without tool

Four castors (front castors with locking brake)

VARIOCOOL – TECHNICAL FEATURES & HANDLING

Back of VC



- 1 Power supply
- 2 Fuses
- 3 Pump connection, inlet
- 4 Pump connection, outlet
- 5 Adjustable bypass



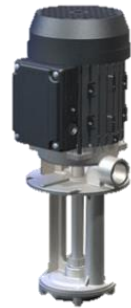
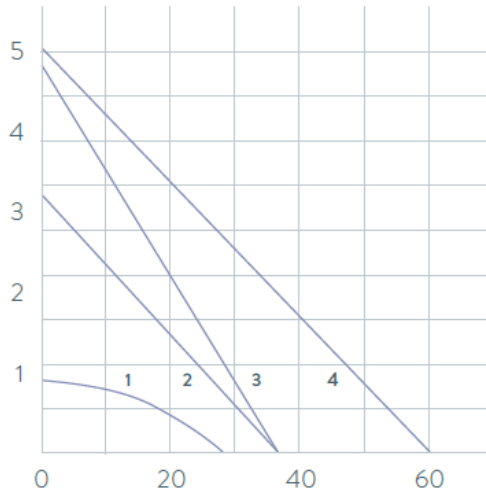
Drain valve

VARIOCOOL – TECHNICAL FEATURES & HANDLING

Pumps

PUMP CHARACTERISTIC Water

Pressure bar



- 1 0,9 bar, 28 L/min
- 2 3,2 bar, 37 L/min
- 3 4,8 bar, 37 L/min
- 4 5,0 bar, 60 L/min

0.9 bar; 28 L/min	3.2 bar; 37 L/min	4.8 bar; 37 L/min	5,0 bar; 60 L/min
VC 1200 (W)	VC 1200 (W)	VC 1200 (W)	
VC 2000 (W)	VC 2000 (W)	VC 2000 (W)	
	VC 3000 (W)	VC 3000 (W)	
	VC 5000 (W)	VC 5000 (W)	VC 5000 (W)
	VC 7000 (W)	VC 7000 (W)	VC 7000 (W)
	VC 10000 (W)	VC 10000 (W)	VC 10000 (W)

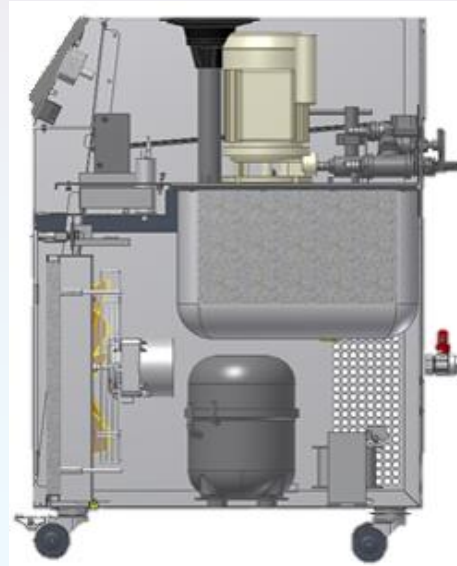
VARIOCOOL – TECHNICAL FEATURES & HANDLING

Pumps

High power pump:

Reduces the available cooling capacity

Increases height of VC 1200/2000 (W) by 120 mm



VARIOCOOL – TECHNICAL FEATURES & HANDLING

Heaters – for temperatures up to 80 °C

Heater:

1.5/2.2 kW

VC 1200 to VC 3000 (W)

230 V; 50 Hz

4.5 kW

VC 5000 to VC 7000 (W)

400 V; 3/N/PE; 50 Hz

7.5 kW

VC 10000 (W)

400 V; 3/N/PE; 50 Hz

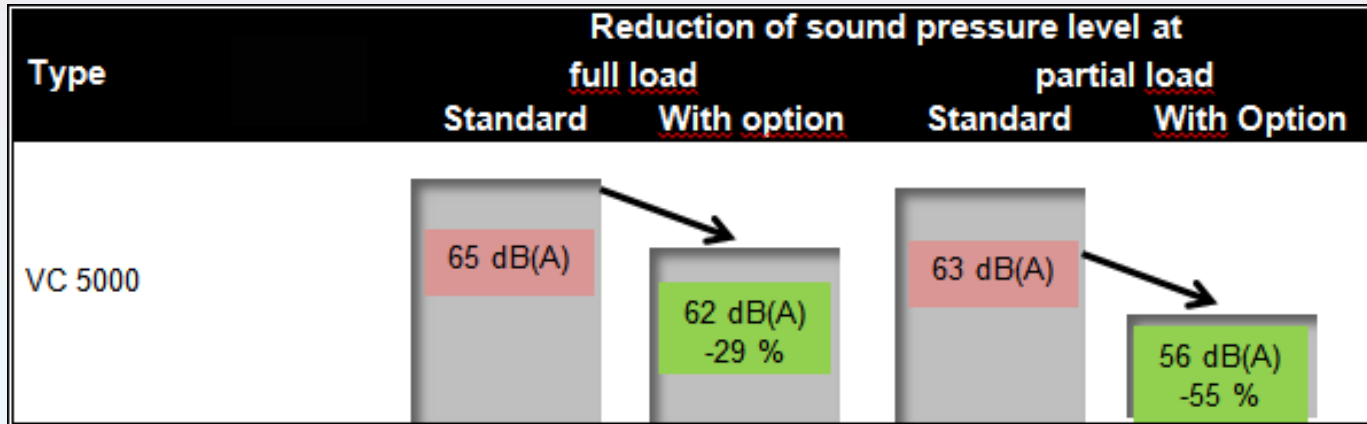


VARIOCOOL – TECHNICAL FEATURES & HANDLING

Sound absorption

Sound absorption for VC 5000 (W)...VC 10000 (W)

- Reduction of sound pressure level especially of air-cooled units significantly (dB is a logarithmic scale)



Full load: 100 % cooling output; partial load: 20 % cooling output both at 20 °C media temperature and 20 °C ambient temperature.

VARIOCOOL – TECHNICAL FEATURES & HANDLING

Outdoor installation

Outdoor installation

- Enables Variocool units to be placed outside
- Only for large, air cooled versions available
 - Outdoor installation option for VC 5000
 - Outdoor installation option for VC 7000/10000

VARIOCOOL – TECHNICAL FEATURES & HANDLING

High and reliable temperature stability

1) Temperature stability at load ($t_b = -10\text{ °C}$, according to DIN EN 12876-2

Measurement at 50 % of the cooling capacity at -10 °C = brochure values):

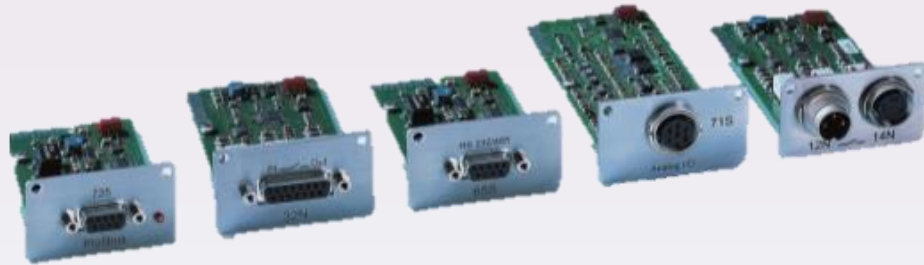
- VC units with and without heater: $\pm 0.05\text{ K}$ and $\pm 0.1\text{ K}$ (depending on the device type)

2) Temperature stability when there is no load or the load is very low ($t_b = -10\text{ °C}$):

- VC units with heater: $\pm 0.05\text{ K}$ and $\pm 0.1\text{ K}$ (depending on the device type)
- VC units without heater: $\pm 2\text{ K}$ (2-point control)

VARIOCOOL – TECHNICAL FEATURES & HANDLING

Interface modules



Easy installation of interfaces

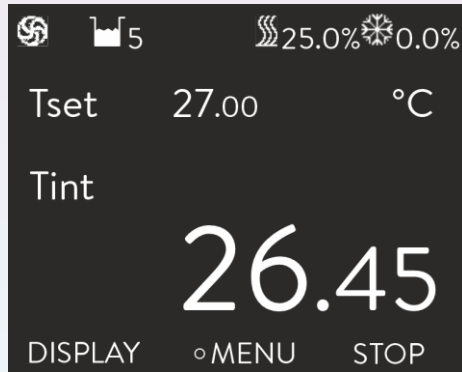


Pt100 / LiBus-Modul
for ext. temperature control
and connection of further
electronic accessory (i.e.
Command etc.)



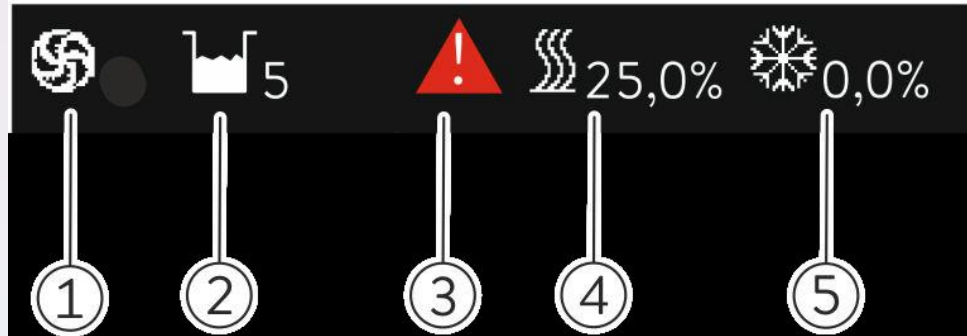
- RS 232/485
- Analogue -
Module
- Contact - Module
- Profibus
- Ethernet

VARIOCOOL – TECHNICAL FEATURES & HANDLING



Home window

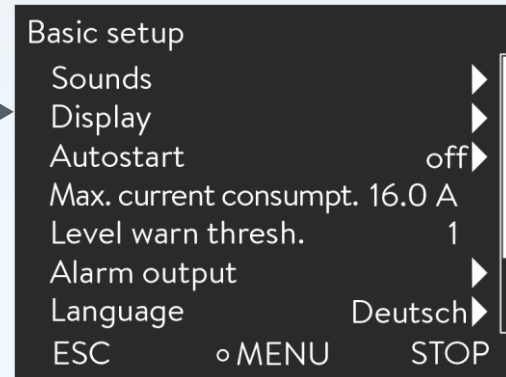
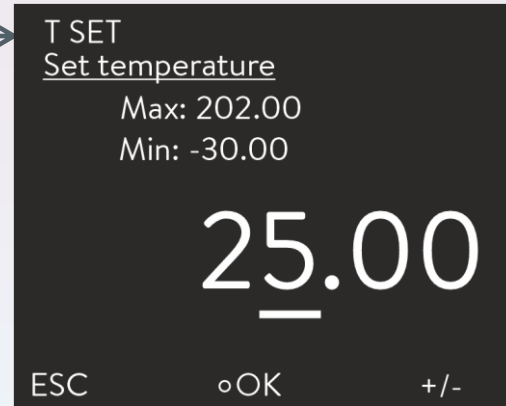
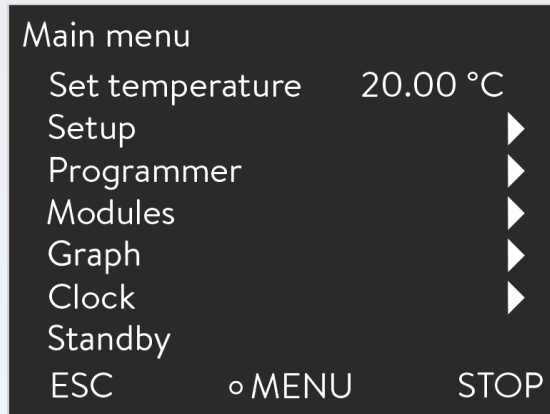
Displayed after device has been switched on



- 1 Pump symbol rotates when the pump is running
- 2 Level indication
- 3 Warning
- 4 Heater active and heats with displayed percentage of total power (option)
- 5 Cooling active

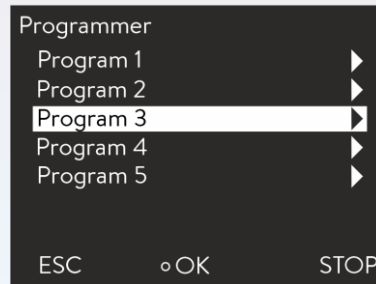
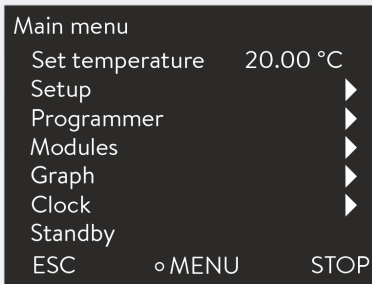
VARIOCOOL – TECHNICAL FEATURES & HANDLING

Logical menu structure



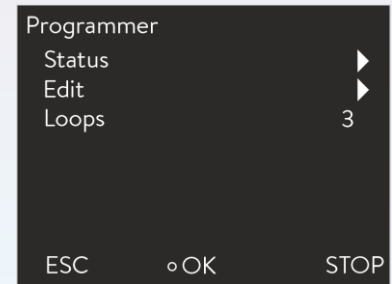
VARIOCOOL – TECHNICAL FEATURES & HANDLING

Programmer

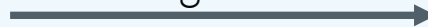


No.	Tend	hh	:mm	Tolerance
Start	30.00	---	---	0.1
1	50.00	0	20	0.0
2	50.00	0	20	0.0
3	70.00	0	20	0.1
4	60.00	0	30	0.0
5	30.00	0	0	0.0

ESC ◦NEW DELETE



5 Programms



Max. 150 segments

VARIOOCOOL – ACCESSORIES

- Hoses
polymer hoses, insulated hoses, insulation with different diameters



- Hose clamps



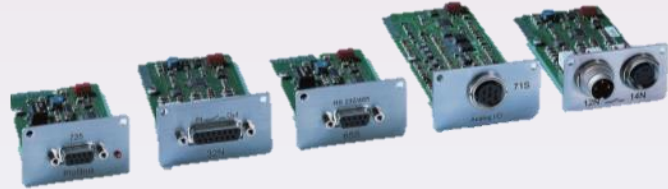
- Adapters



- Heat transfer liquids
Aqua 90: 5...90 °C (decalcified water with stabilizer)
Kryo 30: -30...90 °C (glycol/water mixture)



VARIOCOOL – ACCESSORIES



Interface modules



LWZ 134: Ball valve G ¾"



LWZ 133: Four-port manifold (LWZ 132: 2-port)

VARIOCOOL – ACCESSORIES

Flow control instrument

The flow control works with a contact that switches if the flow is too low. It is mounted on the fitting of the return flow.

- LWZ 129: for model VC 600
- LWZ 118: for models VC 1200(W)..VC 5000 (W)
- LWZ 119: for models VC 7000 (W)..VC 10000 (W)



VARIOCOOL - APPLICATIONS

- Central cooling water supply in laboratories



- Big rotary evaporators



- Single use bio reactors (including heater)



- Distillation systems



TAP WATER COOLING VS. LAUDA CHILLER

TAP WATER COOLING

- **Advantages:**
 - Easy to handle
 - Only tap and tubing necessary
 - Nearly everywhere available
- **Disadvantages:**
 - Big temperature variations in tap water (depending on the ambient condition and the season)
 - High water consumption
 - "Dirty" cooling water causes algae growth, electrochemical corrosion etc.

LAUDA Chiller

- **Advantages:**
 - Easy to handle
 - Reliable and economical solution
 - Reproducible, constant temperature throughout the year
 - Independent of ambient temperature and season
 - Reduction of operational costs
 - Ensuring process control
 - Responsible utilization of resources