

# LAUDA CIRCULATION AND PROCESS THERMOSTATS

°LAUDA

## Specific application examples

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- Refractometer
- Polarimeter
- Single-use bioreactors
- Extruder for food production
- Micro reactors
- Responsive control in chemical/pharmaceutical surroundings
- Climate chambers
- Space simulation
- Electric mobility; battery testing
- Test rigs
- Stress test
- Crystallization regulation
- Freeze-drying
- Micro structures
- Coating plants



# LAUDA Variocool

Cooling circulation thermostats from  $-20$  to  $80$  °C  
with cooling capacities up to 10 kW and powerful pumps



## Comprehensive spectrum of services for demanding temperature control tasks

The LAUDA Variocool with optional heater is a fully fledged circulation thermostat suitable for use with non-flammable heat transfer liquid within a moderate temperature range. Equipment incorporating different pumps, individual interface module expansions and the option of external temperature control allow operation as a standalone unit or full integration in a process control system.



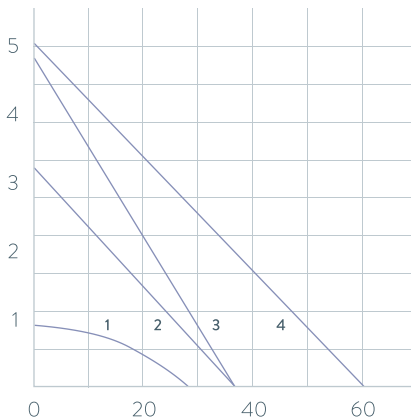
Malfunction Alarm contact included as standard, as well as module slots for additional interfaces



Flexible customization to applications due to optional heating and high performance 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

Pump flow L/min

## Important functions

- Adjustable bypass for pressure limitation
- Filling opening at the top, drain tap at the rear
- Integrated programmer with 150 segments, can be divided into 5 programs
- Electronic level indicator and low-level alarm
- SmartCool system for digital, energy-saving cooling control, including automatic compressor control

## Included accessories

Nipples, screw caps

## Further accessories

Hoses, interface modules

All technical data and power supply variants can be found in the ›Technical data‹ section.

More at [www.lauda.de/1756](http://www.lauda.de/1756)



### LAUDA Variocool

All models are available in air and water-cooled versions (W) and fitted with moveable as well as fixable castors. High-performance circulation chillers in a tower design starting from the VC 5000 model are available with sound insulation.

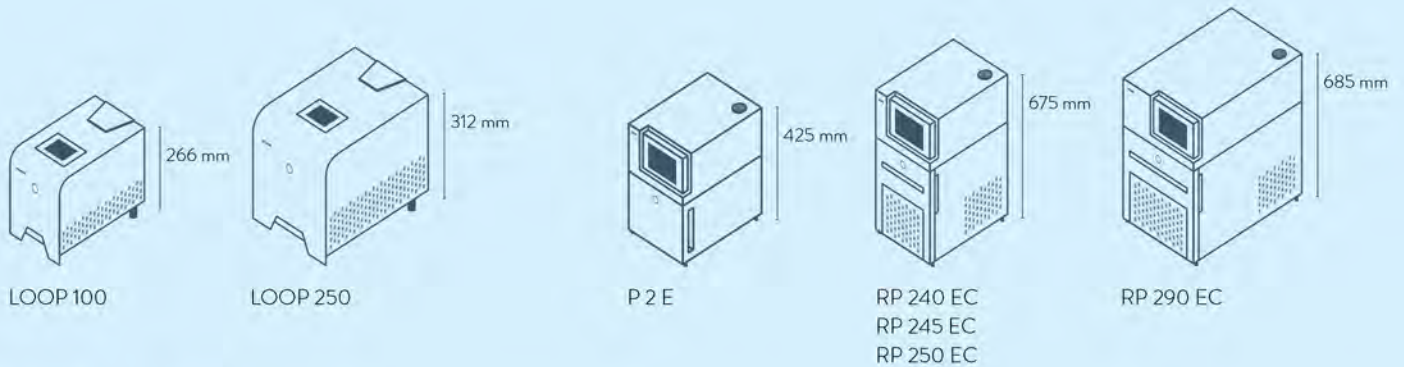


# LAUDA Circulation and process thermostats

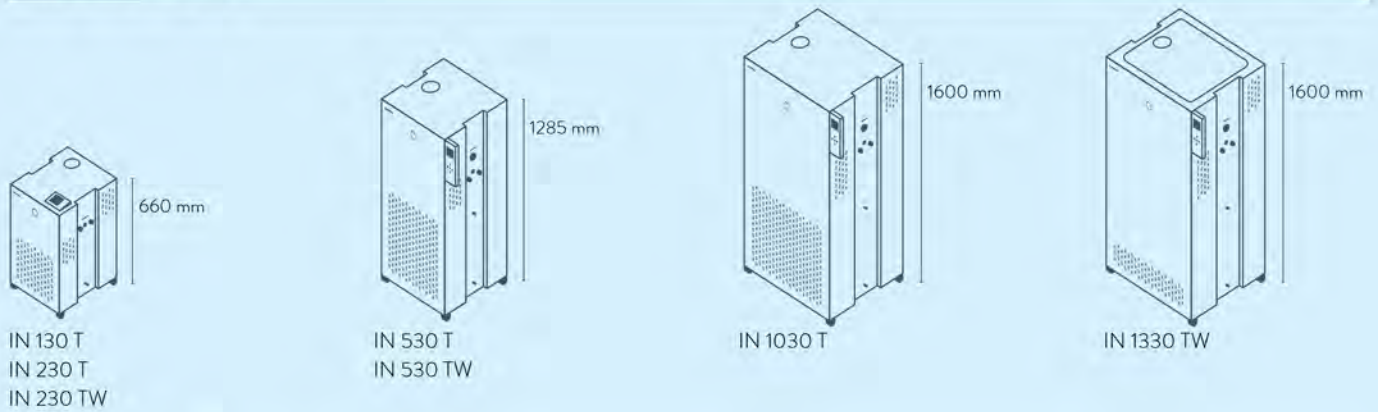
## Device type overview

LAUDA LOOP / Page 80

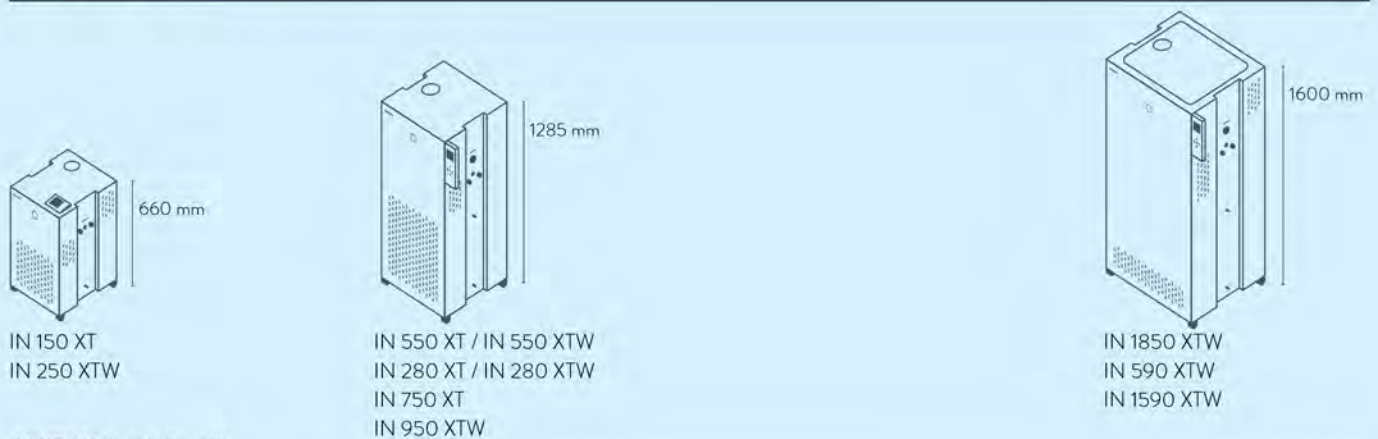
LAUDA PRO / Page 82



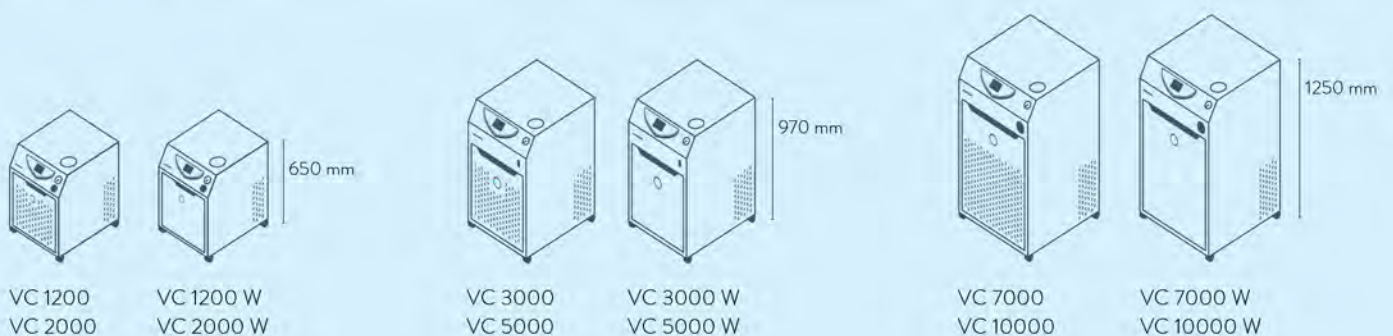
LAUDA Integral T / Page 84



LAUDA Integral XT / Page 86



LAUDA Variocool / Page 88



# LAUDA Circulation and process thermostats

## Interfaces

	Pt 100 (1)	Pt 100 (2)	USB	Ethernet	RS 232 / 485	Analog	Namur contact	Sub-D contact	Profibus	EtherCat M8	EtherCat RJ 45	Modbus	Profinet	Malfunction contact	Number of module slots, large	Number of module slots, small
LAUDA LOOP / Page 80	-	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-
LAUDA PRO / Page 82	S	-	S	S	Z	Z	Z	Z	Z	Z	Z	-	-	-	1	-
LAUDA Integral T / Page 84	S	Z	S	S	Z	Z	Z	Z	Z	Z	Z	-	-	S	2	-
LAUDA Integral XT / Page 86	S	Z	S	S	Z	Z	Z	Z	Z	Z	Z	-	-	S	2	-
LAUDA Variocool / Page 88	Z	-	S	Z	Z	Z	Z	Z	Z	Z	Z	-	-	S	1	1
LAUDA Kryoheater Selecta / Page 90	S	-	S	-	OD	OD	-	-	OD	-	OD	-	OD	-	-	-

S = Series standard  
 Z = Available as an accessory  
 OD = optional (cannot be retrofitted)



LRZ 912  
Analog module



LRZ 913  
RS 232/485 interface



LRZ 914  
Contact module with single input and single output (NAMUR)



LRZ 915  
Contact module with 3 inputs and 3 outputs



LRZ 917  
Profibus module



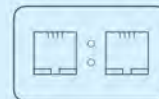
LRZ 918  
Pt100/LiBus-Modul, small cover



LRZ 921  
Ethernet module



LRZ 922  
EtherCAT module with M8 connection



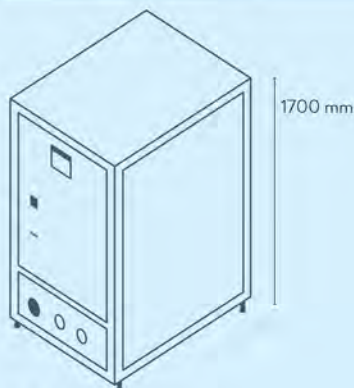
LRZ 923  
EtherCAT module with RJ45 connection



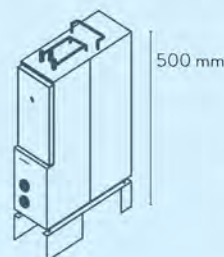
LRZ 925  
External Pt100/LiBus-module, large cover

LAUDA Kryoheater Selecta / Page 90

LAUDA-Noah Semistat / Page 92



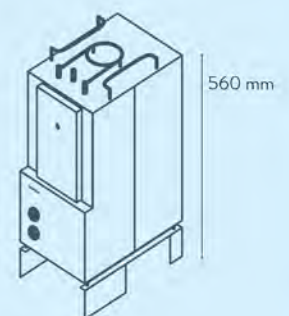
KHS 3560 W  
KHS 2190 W



S 1200



S 2400



S 4400

# LAUDA Circulation and process thermostats

## Function overview

Operating element	LOOP	PRO E	PRO EC	Integral T	Integral XT	Variocool	Kryoheater Selecta
Display	OLED	OLED	TFT	TFT	TFT	TFT	TFT
Mode of operation	3-button softkey	Cursor softkey	Multi-touch	Cursor softkey	Cursor softkey	Cursor softkey	Multi-touch
Removable control	-	✓	✓	Z	Z	-	-
User management	-	-	✓	Operator / Viewer	Operator / Viewer	-	✓
Data logging, export to USB stick	-	-	✓	✓	✓	-	✓
1-point calibration	✓	✓	✓	✓	✓	✓	-
2-point calibration	✓	✓	✓	✓	✓	-	-
Self-adaptation controller	-	-	✓	✓	✓	-	-
Safety mode	-	✓	✓	✓	✓	-	-
Programmer, programs/segments	-	1 / 20	100 / 5000	5 / 150	5 / 150	5 / 150	OD
Programmer, tolerance range function	-	✓	✓	✓	✓	✓	OD
Ramp function	-	-	✓	Z	Z	-	OD
Timer function	-	-	✓	✓	✓	-	-
Countdown function	-	-	✓	-	-	-	-
Graphic temperature profile display	-	-	✓	✓	✓	✓	✓
Pump pressure display (digital)	-	-	-	✓	✓	-	✓
Adjustable bypass	-	-	-	✓	✓	✓	-
Level indicator (digital)	-	✓	✓	✓	✓	✓	✓
Standby timer	✓	✓	✓	✓	✓	✓	✓
Flow control instrument	-	-	-	-	-	Z	-
Flow pressure control	-	-	-	-	✓	-	✓
Flow measurement + control	-	-	-	-	Z	-	OD
Overflow	-	✓	✓	✓	✓	-	✓
Low-level alarm	✓	✓	✓	✓	✓	✓	✓
Drain tap	-	✓	✓	✓	✓	✓	✓

Z = Available as an accessory

OD = optional (cannot be retrofitted)

# LAUDA Circulation and process thermostats

Technical data according to DIN 12876 standard

Device type	Working temperature range °C	Temperature stability ±K	Cooling of the refrigerating machine	Heater power max. kW	Cooling output kW													
					200 °C	100 °C	20 °C	10 °C	0 °C	-10 °C	-20 °C	-30 °C	-40 °C	-50 °C	-60 °C	-70 °C	-80 °C	-90 °C
<b>LAUDA Integral XT / Page 86</b>																		
IN 150 XT	-45 ... 220	0.05	Air	3.5	1.50 <sup>3</sup>	1.50 <sup>3</sup>	1.50 <sup>3</sup>	1.50 <sup>3</sup>	1.30 <sup>3</sup>	1.00 <sup>3</sup>	0.70 <sup>2</sup>	0.30 <sup>2</sup>	0.06 <sup>2</sup>	-	-	-	-	-
IN 250 XTW	-45 ... 220	0.05	Water	3.5	2.20 <sup>3</sup>	2.20 <sup>3</sup>	2.10 <sup>3</sup>	2.00 <sup>3</sup>	1.80 <sup>3</sup>	1.40 <sup>3</sup>	1.00 <sup>2</sup>	0.55 <sup>2</sup>	0.20 <sup>2</sup>	-	-	-	-	-
IN 550 XT	-50 ... 220	0.05	Air	8.0	5.00 <sup>3</sup>	5.00 <sup>3</sup>	5.00 <sup>3</sup>	4.80 <sup>3</sup>	4.60 <sup>3</sup>	3.30 <sup>3</sup>	2.30 <sup>2</sup>	1.20 <sup>2</sup>	0.50 <sup>2</sup>	0.10 <sup>1</sup>	-	-	-	-
IN 550 XTW	-50 ... 220	0.05	Water	8.0	5.80 <sup>3</sup>	5.80 <sup>3</sup>	5.80 <sup>3</sup>	5.80 <sup>3</sup>	5.40 <sup>3</sup>	4.00 <sup>3</sup>	2.60 <sup>2</sup>	1.45 <sup>2</sup>	0.55 <sup>2</sup>	0.12 <sup>1</sup>	-	-	-	-
IN 750 XT	-45 ... 220	0.05	Air	8.0	7.00 <sup>3</sup>	7.00 <sup>3</sup>	7.00 <sup>3</sup>	7.00 <sup>3</sup>	5.40 <sup>3</sup>	3.60 <sup>3</sup>	2.60 <sup>2</sup>	1.60 <sup>2</sup>	0.80 <sup>2</sup>	-	-	-	-	-
IN 950 XTW	-50 ... 220	0.05	Water	8.0	9.50 <sup>3</sup>	9.50 <sup>3</sup>	9.50 <sup>3</sup>	8.50 <sup>3</sup>	6.20 <sup>3</sup>	4.30 <sup>3</sup>	3.00 <sup>2</sup>	1.70 <sup>2</sup>	0.90 <sup>2</sup>	0.35 <sup>1</sup>	-	-	-	-
IN 1850 XTW	-50 ... 220	0.05	Water	16.0	20.00 <sup>3</sup>	20.00 <sup>3</sup>	20.00 <sup>3</sup>	15.00 <sup>3</sup>	11.50 <sup>3</sup>	8.50 <sup>3</sup>	6.10 <sup>2</sup>	3.60 <sup>2</sup>	1.90 <sup>2</sup>	1.10 <sup>1</sup>	-	-	-	-
IN 280 XT	-80 ... 220	0.05	Air	4.0	1.60 <sup>3</sup>	1.60 <sup>3</sup>	1.60 <sup>3</sup>	1.55 <sup>3</sup>	1.50 <sup>3</sup>	1.50 <sup>3</sup>	1.70 <sup>2</sup>	1.70 <sup>2</sup>	1.65 <sup>2</sup>	1.40 <sup>2</sup>	0.85 <sup>2</sup>	0.35 <sup>2</sup>	0.15 <sup>2</sup>	-
IN 280 XTW	-80 ... 220	0.05	Water	4.0	1.70 <sup>3</sup>	1.70 <sup>3</sup>	1.70 <sup>3</sup>	1.65 <sup>3</sup>	1.60 <sup>3</sup>	1.60 <sup>3</sup>	1.80 <sup>2</sup>	1.80 <sup>2</sup>	1.80 <sup>2</sup>	1.50 <sup>2</sup>	0.90 <sup>2</sup>	0.45 <sup>2</sup>	0.18 <sup>2</sup>	-
IN 590 XTW	-90 ... 220	0.05	Water	8.0	4.50 <sup>3</sup>	4.50 <sup>3</sup>	4.50 <sup>3</sup>	4.45 <sup>3</sup>	4.40 <sup>3</sup>	4.40 <sup>3</sup>	4.60 <sup>2</sup>	4.60 <sup>2</sup>	4.50 <sup>2</sup>	4.20 <sup>2</sup>	2.70 <sup>2</sup>	1.40 <sup>2</sup>	0.60 <sup>2</sup>	0.20 <sup>1</sup>
IN 1590 XTW	-90 ... 220	0.05	Water	12.0	18.50 <sup>3</sup>	18.50 <sup>3</sup>	18.50 <sup>3</sup>	15.00 <sup>3</sup>	11.50 <sup>3</sup>	8.70 <sup>3</sup>	8.50 <sup>2</sup>	8.50 <sup>2</sup>	7.50 <sup>2</sup>	6.00 <sup>2</sup>	4.00 <sup>2</sup>	2.20 <sup>2</sup>	0.90 <sup>2</sup>	0.35 <sup>1</sup>
XT 4 H	80 ... 320	0.05		3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
XT 4 HW	30 ... 320	0.10	Water	3.6	16.00 <sup>2</sup>	9.00 <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-
XT 8 H	80 ... 320	0.05		8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
XT 8 HW	30 ... 320	0.10	Water	8.0	16.00 <sup>2</sup>	9.00 <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-
<b>LAUDA Variocool / Page 88</b>																		
VC 1200	-20 ... 80	0.05	Air	1.5	-	-	1.20	1.00	0.70	0.40	0.14	-	-	-	-	-	-	-
VC 1200	-20 ... 80	0.05	Air	2.3	-	-	1.20	1.00	0.70	0.40	0.14	-	-	-	-	-	-	-
VC 1200	-20 ... 80	0.05	Air	2.3	-	-	1.12	0.92	0.62	0.32	0.06	-	-	-	-	-	-	-
VC 1200	-20 ... 80	0.05	Air	1.5	-	-	1.12	0.92	0.62	0.32	0.06	-	-	-	-	-	-	-
VC 1200	-20 ... 80	0.05	Air	1.5	-	-	1.00	0.80	0.50	0.20	0.01	-	-	-	-	-	-	-
VC 1200	-20 ... 80	0.05	Air	2.3	-	-	1.00	0.80	0.50	0.20	0.01	-	-	-	-	-	-	-

<sup>1</sup>Pump output step 2 <sup>2</sup>Pump output step 4 <sup>3</sup>Pump output step 8



Pump pressure max. bar	Pump flow max. pressure L/min	Pump connection thread mm	Bath volume min. L	Bath volume max. L	Dimensions (W x D x H) mm	Protection Rating	Noise level dB (A)	Weight kg	Loading max. kW	Power supply V; Hz	Cat. No.	Device type
3.1	65	M30×1,5	2.5	8.7	430×550×760	IP 21	60	103.0	3.7	230 V; 50 Hz	L002673	IN 150 XT
3.1	65	M30×1,5	2.5	8.7	430×550×760	IP 21	57	105.0	3.7	230 V; 50 Hz	L002674	IN 250 XTW
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	65	171.0	12.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002675	IN 550 XT
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	62	176.0	12.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002676	IN 550 XTW
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	66	169.0	12.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002677	IN 750 XT
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	67	173.0	12.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002678	IN 950 XTW
6.0	120	M38×1,5	8.0	28.6	760×650×1605	IP 21	62	272.0	20.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002680	IN 1850 XTW
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	62	183.0	9.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002684	IN 280 XT
3.1	65	M30×1,5	4.8	17.2	560×550×1325	IP 21	60	187.0	9.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002685	IN 280 XTW
3.1	65	M30×1,5	8.0	28.6	760×650×1605	IP 21	61	274.0	12.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002687	IN 590 XTW
3.1	65	M38×1,5	10.0	30.6	760×650×1605	IP 21	63	345.0	25.0	400 V; 3/PE; 50 Hz & 460 V; 3/PE; 60 Hz	L002689	IN 1590 XTW
2.9	45	M30×1,5	2.6	8.1	335×550×660	IP 21C	51	60.0	3.7	230 V; 50 Hz	L001839	XT 4 H
2.9	45	M30×1,5	2.6	8.1	335×550×660	IP 21C	51	64.0	3.7	230 V; 50 Hz	L001840	XT 4 HW
2.9	45	M30×1,5	2.6	8.1	335×550×660	IP 21C	51	62.0	8.7	400 V; 3/PE; 50 Hz	L001845	XT 8 H
2.9	45	M30×1,5	2.6	8.1	335×550×660	IP 21C	51	66.0	8.7	400 V; 3/PE; 50 Hz	L001846	XT 8 HW
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	51	54.0	2.6	230 V; 50 Hz	L000711	VC 1200
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	51	54.0	3.3	230 V; 50 Hz	L000712	VC 1200
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	53	54.0	3.3	230 V; 50 Hz	L000923	VC 1200
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	53	54.0	2.6	230 V; 50 Hz	L000921	VC 1200
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	57	54.0	2.6	230 V; 50 Hz	L000922	VC 1200
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	57	54.0	3.3	230 V; 50 Hz	L000924	VC 1200

# LAUDA Circulation and process thermostats

Technical data according to DIN 12876 standard

Device type	Working temperature range °C	Temperature stability ±K	Cooling of the refrigerating machine	Heater power max. kW	Cooling output kW														
					200 °C	100 °C	20 °C	10 °C	0 °C	-10 °C	-20 °C	-30 °C	-40 °C	-50 °C	-60 °C	-70 °C	-80 °C	-90 °C	
LAUDA Variocool / Page 88																			
VC 1200 W	-20 ... 80	0.05	Water	2.3	-	-	1.20	1.00	0.70	0.40	0.14	-	-	-	-	-	-	-	-
VC 1200 W	-20 ... 80	0.05	Water	1.5	-	-	1.20	1.00	0.70	0.40	0.14	-	-	-	-	-	-	-	-
VC 1200 W	-20 ... 80	0.05	Water	1.5	-	-	1.12	0.92	0.62	0.32	0.06	-	-	-	-	-	-	-	-
VC 1200 W	-20 ... 80	0.05	Water	2.3	-	-	1.12	0.92	0.62	0.32	0.06	-	-	-	-	-	-	-	-
VC 1200 W	-20 ... 80	0.05	Water	1.5	-	-	1.00	0.80	0.50	0.20	0.01	-	-	-	-	-	-	-	-
VC 1200 W	-20 ... 80	0.05	Water	2.3	-	-	1.00	0.80	0.50	0.20	0.01	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	1.5	-	-	2.00	1.50	1.06	0.68	0.38	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	2.2	-	-	2.00	1.50	1.06	0.68	0.38	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	1.5	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	2.2	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	2.2	-	-	1.80	1.30	0.86	0.48	0.18	-	-	-	-	-	-	-	-
VC 2000	-20 ... 80	0.05	Air	1.5	-	-	1.80	1.30	0.86	0.48	0.18	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	1.5	-	-	2.00	1.50	1.06	0.68	0.38	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	2.2	-	-	2.00	1.50	1.06	0.68	0.38	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	1.5	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	2.2	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	1.5	-	-	1.80	1.30	0.86	0.48	0.18	-	-	-	-	-	-	-	-
VC 2000 W	-20 ... 80	0.05	Water	2.2	-	-	1.80	1.30	0.86	0.48	0.18	-	-	-	-	-	-	-	-
VC 3000	-20 ... 80	0.05	Air	1.5	-	-	3.00	2.40	1.68	0.95	0.45	-	-	-	-	-	-	-	-
VC 3000	-20 ... 80	0.05	Air	1.5	-	-	2.80	2.20	1.48	0.75	0.25	-	-	-	-	-	-	-	-
VC 3000 W	-20 ... 80	0.05	Water	1.5	-	-	3.00	2.40	1.68	0.95	0.45	-	-	-	-	-	-	-	-
VC 3000 W	-20 ... 80	0.05	Water	1.5	-	-	2.80	2.20	1.48	0.75	0.25	-	-	-	-	-	-	-	-
VC 5000	-20 ... 80	0.05	Air	4.5	-	-	5.00	3.90	2.75	1.70	0.90	-	-	-	-	-	-	-	-
VC 5000	-20 ... 80	0.05	Air	4.5	-	-	4.50	3.40	2.25	1.20	0.40	-	-	-	-	-	-	-	-
VC 5000	-20 ... 80	0.05	Air	4.5	-	-	4.65	3.55	2.40	1.35	0.55	-	-	-	-	-	-	-	-
VC 5000 W	-20 ... 80	0.05	Water	4.5	-	-	5.00	3.90	2.75	1.70	0.90	-	-	-	-	-	-	-	-
VC 5000 W	-20 ... 80	0.05	Water	4.5	-	-	4.50	3.40	2.25	1.20	0.40	-	-	-	-	-	-	-	-
VC 5000 W	-20 ... 80	0.05	Water	4.5	-	-	4.65	3.55	2.40	1.35	0.55	-	-	-	-	-	-	-	-

Pump pressure max. bar	Pump flow max. pressure L/min	Pump connection thread mm	Bath volume min. L	Bath volume max. L	Dimensions (W x D x H) mm	Protection Rating	Noise level dB (A)	Weight kg	Loading max. kW	Power supply V; Hz	Cat. No.	Device type
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	50	51.0	3.3	230 V; 50 Hz	L000732	VC 1200 W
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	50	51.0	2.6	230 V; 50 Hz	L000731	VC 1200 W
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	52	51.0	2.6	230 V; 50 Hz	L000954	VC 1200 W
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	52	51.0	3.3	230 V; 50 Hz	L000956	VC 1200 W
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	51.0	2.6	230 V; 50 Hz	L000955	VC 1200 W
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	51.0	3.3	230 V; 50 Hz	L000957	VC 1200 W
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	52	57.0	2.6	230 V; 50 Hz	L000713	VC 2000
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	52	57.0	3.3	230 V; 50 Hz	L000714	VC 2000
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	57.0	2.6	230 V; 50 Hz	L000925	VC 2000
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	57.0	3.3	230 V; 50 Hz	L000927	VC 2000
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	58	57.0	3.3	230 V; 50 Hz	L000928	VC 2000
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	58	57.0	2.6	230 V; 50 Hz	L000926	VC 2000
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	50	54.0	2.6	230 V; 50 Hz	L000733	VC 2000 W
0.9	28	G 3/4	8.0	15.0	450×550×650	IP 32	50	54.0	3.3	230 V; 50 Hz	L000734	VC 2000 W
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	53	54.0	2.6	230 V; 50 Hz	L000958	VC 2000 W
3.2	37	G 3/4	8.0	15.0	450×550×790	IP 32	53	54.0	3.3	230 V; 50 Hz	L000960	VC 2000 W
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	54.0	2.6	230 V; 50 Hz	L000959	VC 2000 W
4.8	37	G 3/4	8.0	15.0	450×550×790	IP 32	56	54.0	3.3	230 V; 50 Hz	L000961	VC 2000 W
3.2	37	G 3/4	20.0	33.0	550×650×970	IP 32	57	93.0	2.6	230 V; 50 Hz	L000715	VC 3000
4.8	37	G 3/4	20.0	33.0	550×650×970	IP 32	61	93.0	2.6	230 V; 50 Hz	L000929	VC 3000
3.2	37	G 3/4	20.0	33.0	550×650×970	IP 32	55	89.0	2.6	230 V; 50 Hz	L000735	VC 3000 W
4.8	37	G 3/4	20.0	33.0	550×650×970	IP 32	59	89.0	2.6	230 V; 50 Hz	L000962	VC 3000 W
3.2	37	G 3/4	20.0	33.0	550×650×970	IP 32	65	98.0	7.8	400 V; 3/N/PE; 50 Hz	L000728	VC 5000
4.8	37	G 3/4	20.0	33.0	550×650×970	IP 32	69	98.0	7.8	400 V; 3/N/PE; 50 Hz	L000948	VC 5000
5.0	60	G 3/4	20.0	33.0	550×650×970	IP 32	69	98.0	7.8	400 V; 3/N/PE; 50 Hz	L000949	VC 5000
3.2	37	G 3/4	20.0	33.0	550×650×970	IP 32	64	94.0	7.8	400 V; 3/N/PE; 50 Hz	L000746	VC 5000 W
4.8	37	G 3/4	20.0	33.0	550×650×970	IP 32	68	94.0	7.8	400 V; 3/N/PE; 50 Hz	L000981	VC 5000 W
5.0	60	G 3/4	20.0	33.0	550×650×970	IP 32	68	94.0	7.8	400 V; 3/N/PE; 50 Hz	L001995	VC 5000 W

# LAUDA Circulation and process thermostats

Technical data according to DIN 12876 standard

Device type	Working temperature range °C	Temperature stability ±K	Cooling of the refrigerating machine	Heater power max. kW	Cooling output kW														
					200 °C	100 °C	20 °C	10 °C	0 °C	-10 °C	-20 °C	-30 °C	-40 °C	-50 °C	-60 °C	-70 °C	-80 °C	-90 °C	

## LAUDA Variocool / Page 88

VC 7000	-20 ... 80	0.10	Air	4.5	-	-	7.00	5.30	3.70	2.40	1.30	-	-	-	-	-	-	-
VC 7000	-20 ... 80	0.10	Air	4.5	-	-	6.50	4.80	3.20	1.90	0.80	-	-	-	-	-	-	-
VC 7000	-20 ... 80	0.10	Air	4.5	-	-	6.65	4.95	3.35	2.05	0.95	-	-	-	-	-	-	-
VC 7000 W	-20 ... 80	0.10	Water	4.5	-	-	7.00	5.30	3.70	2.40	1.30	-	-	-	-	-	-	-
VC 7000 W	-20 ... 80	0.10	Water	4.5	-	-	6.50	4.80	3.20	1.90	0.80	-	-	-	-	-	-	-
VC 7000 W	-20 ... 80	0.10	Water	4.5	-	-	6.65	4.95	3.35	2.05	0.95	-	-	-	-	-	-	-
VC 10000	-20 ... 80	0.10	Air	7.5	-	-	10.00	7.60	5.30	3.50	2.00	-	-	-	-	-	-	-
VC 10000	-20 ... 80	0.10	Air	7.5	-	-	9.50	7.10	4.80	3.00	1.50	-	-	-	-	-	-	-
VC 10000	-20 ... 80	0.10	Air	7.5	-	-	9.65	7.25	4.95	3.15	1.65	-	-	-	-	-	-	-
VC 10000 W	-20 ... 80	0.10	Water	7.5	-	-	10.00	7.60	5.30	3.50	2.00	-	-	-	-	-	-	-
VC 10000 W	-20 ... 80	0.10	Water	7.5	-	-	9.50	7.10	4.80	3.00	1.50	-	-	-	-	-	-	-
VC 10000 W	-20 ... 80	0.10	Water	7.5	-	-	9.65	7.25	4.95	3.15	1.65	-	-	-	-	-	-	-

## LAUDA Kryoheater Selecta / Page 90

KHS 3560 W	-60 ... 200	0.50	Water	18.0	35.00	-	35.00	32.00	30.00	29.00	18.00	14.00	10.00	6.00	2.50	-	-	-
KHS 2190 W	-90 ... 200	0.50	Water	18.0	21.00	-	21.00	20.00	18.00	15.00	11.00	10.50	10.00	9.50	9.00	6.30	3.50	1.00

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S 1200	-20 ... 90	0.10	Water	-	-	-	1.20	0.90	0.60	0.35	0.08	-	-	-	-	-	-	-
S 2400	-20 ... 90	0.10	Water	-	-	-	2.45	1.93	1.40	0.88	0.20	-	-	-	-	-	-	-
S 4400	-20 ... 90	0.10	Water	-	-	-	4.40	3.50	2.60	1.65	0.70	-	-	-	-	-	-	-

Pump pressure max. bar	Pump flow max. pressure L/min	Pump connection thread mm	Bath volume min. L	Bath volume max. L	Dimensions (W x D x H) mm	Protection Rating	Noise level dB (A)	Weight kg	Loading max. kW	Power supply V; Hz	Cat. No.	Device type
3.2	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	66	138.0	8.8	400 V; 3/N/PE; 50 Hz	L000729	VC 7000
4.8	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	69	138.0	8.8	400 V; 3/N/PE; 50 Hz	L000950	VC 7000
5.0	60	G 1 1/4	48.0	64.0	650×670×1250	IP 32	69	138.0	8.8	400 V; 3/N/PE; 50 Hz	L000951	VC 7000
3.2	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	60	131.0	8.8	400 V; 3/N/PE; 50 Hz	L000747	VC 7000 W
4.8	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	64	131.0	8.8	400 V; 3/N/PE; 50 Hz	L000982	VC 7000 W
5.0	60	G 1 1/4	48.0	64.0	650×670×1250	IP 32	64	131.0	8.8	400 V; 3/N/PE; 50 Hz	L000983	VC 7000 W
3.2	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	67	147.0	11.1	400 V; 3/N/PE; 50 Hz	L000730	VC 10000
4.8	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	70	147.0	11.1	400 V; 3/N/PE; 50 Hz	L000952	VC 10000
5.0	60	G 1 1/4	48.0	64.0	650×670×1250	IP 32	70	147.0	11.1	400 V; 3/N/PE; 50 Hz	L000953	VC 10000
3.2	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	61	140.0	11.1	400 V; 3/N/PE; 50 Hz	L000748	VC 10000 W
4.8	37	G 1 1/4	48.0	64.0	650×670×1250	IP 32	65	140.0	11.1	400 V; 3/N/PE; 50 Hz	L000984	VC 10000 W
5.0	60	G 1 1/4	48.0	64.0	650×670×1250	IP 32	65	140.0	11.1	400 V; 3/N/PE; 50 Hz	L000985	VC 10000 W
5.5	85	DN 25	15.0	55.0	920×1200×1700	IP 54	68	850.0	29.5	400 V; 3/PE; 50 Hz	L001984	KHS 3560 W
5.5	85	DN 25	15.0	55.0	920×1200×1700	IP 54	68	890.0	32.8	400 V; 3/PE; 50 Hz	L001989	KHS 2190 W
2.8	22	1/2"	1.00	1.30	116×232×470	-	-	15	-	-	-	S 1200
2.8	22	1/2"	1.25	1.60	116×300×560	-	-	25	-	-	-	S 2400
2.8	27	1/2"	2.50	2.80	194×300×560	-	-	38	-	-	-	S 4400

# LAUDA Circulation and process thermostats

## Power supply variants

Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. bar	Pump flow max. pressure L/min	Loading max. kW	Plug code*	Cat. No.	Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. bar	Pump flow max. pressure L/min	Loading max. kW	Plug code*	Cat. No.
LAUDA Variocool / Page 88															
VC 1200	200 V; 50/60 Hz	1.1	0.9	28.0	2.3	3	L000768	VC 2000	208-220 V; 60 Hz	1.3	3.2	37.0	2.5	3	L000990
VC 1200	200 V; 50/60 Hz	1.7	0.9	28.0	2.9	3	L000769	VC 2000	208-220 V; 60 Hz	2.1	3.2	37.0	3.2	3	L000992
VC 1200	200 V; 50/60 Hz	1.7	3.2	37.0	2.9	3	L001018	VC 2000	208-220 V; 60 Hz	1.3	4.8	37.0	2.5	3	L000991
VC 1200	200 V; 50/60 Hz	1.1	3.2	37.0	2.3	3	L001016	VC 2000	208-220 V; 60 Hz	2.1	4.8	37.0	3.2	3	L000993
VC 1200	200 V; 50/60 Hz	1.7	4.8	37.0	2.9	3	L001019	VC 2000 W	200 V; 50/60 Hz	1.7	0.9	28.0	2.9	3	L000779
VC 1200	200 V; 50/60 Hz	1.1	4.8	37.0	2.3	3	L001017	VC 2000 W	200 V; 50/60 Hz	1.0	0.9	28.0	2.3	3	L000778
VC 1200	208-220 V; 60 Hz	1.3	0.9	28.0	2.4	3	L000751	VC 2000 W	200 V; 50/60 Hz	1.7	3.2	37.0	2.9	3	L001037
VC 1200	208-220 V; 60 Hz	2.1	0.9	28.0	3.1	3	L000752	VC 2000 W	200 V; 50/60 Hz	1.1	3.2	37.0	2.3	3	L001035
VC 1200	208-220 V; 60 Hz	1.3	3.2	37.0	2.4	3	L000986	VC 2000 W	200 V; 50/60 Hz	1.7	4.8	37.0	2.9	3	L001038
VC 1200	208-220 V; 60 Hz	2.1	3.2	37.0	3.1	3	L000988	VC 2000 W	200 V; 50/60 Hz	1.1	4.8	37.0	2.3	3	L001036
VC 1200	208-220 V; 60 Hz	1.3	4.8	37.0	2.4	3	L000987	VC 2000 W	208-220 V; 60 Hz	1.3	0.9	28.0	2.5	3	L000761
VC 1200	208-220 V; 60 Hz	2.1	4.8	37.0	3.1	3	L000989	VC 2000 W	208-220 V; 60 Hz	2.1	0.9	28.0	3.2	3	L000762
VC 1200 W	200 V; 50/60 Hz	1.0	0.9	28.0	2.3	3	L000776	VC 2000 W	208-220 V; 60 Hz	2.1	3.2	37.0	3.2	3	L001008
VC 1200 W	200 V; 50/60 Hz	1.7	0.9	28.0	2.9	3	L000777	VC 2000 W	208-220 V; 60 Hz	1.3	3.2	37.0	2.5	3	L001006
VC 1200 W	200 V; 50/60 Hz	1.1	3.2	37.0	2.3	3	L001031	VC 2000 W	208-220 V; 60 Hz	2.1	4.8	37.0	3.2	3	L001007
VC 1200 W	200 V; 50/60 Hz	1.7	3.2	37.0	2.9	3	L001033	VC 2000 W	208-220 V; 60 Hz	1.3	4.8	37.0	2.5	3	L001005
VC 1200 W	200 V; 50/60 Hz	1.1	4.8	37.0	2.3	3	L001032	VC 3000	200 V; 50/60 Hz	1.0	3.2	37.0	2.6	3	L000772
VC 1200 W	200 V; 50/60 Hz	1.7	4.8	37.0	2.9	3	L001034	VC 3000	200 V; 50/60 Hz	1.1	4.8	37.0	2.6	3	L001024
VC 1200 W	208-220 V; 60 Hz	2.1	0.9	28.0	3.1	3	L000760	VC 3000	208-220 V; 60 Hz	1.3	3.2	37.0	2.8	3	L000755
VC 1200 W	208-220 V; 60 Hz	1.3	0.9	28.0	2.4	3	L000759	VC 3000	208-220 V; 60 Hz	1.3	4.8	37.0	2.8	3	L000994
VC 1200 W	208-220 V; 60 Hz	2.1	3.2	37.0	3.1	3	L001003	VC 3000 W	200 V; 50/60 Hz	1.0	3.2	37.0	2.6	3	L000780
VC 1200 W	208-220 V; 60 Hz	1.3	3.2	37.0	2.4	3	L001001	VC 3000 W	200 V; 50/60 Hz	1.1	4.8	37.0	2.6	3	L001039
VC 1200 W	208-220 V; 60 Hz	2.1	4.8	37.0	3.1	3	L001004	VC 3000 W	208-220 V; 60 Hz	1.3	3.2	37.0	2.8	3	L000763
VC 1200 W	208-220 V; 60 Hz	1.3	4.8	37.0	2.4	3	L001002	VC 3000 W	208-220 V; 60 Hz	1.3	4.8	37.0	2.8	3	L001009
VC 2000	200 V; 50/60 Hz	1.7	0.9	28.0	2.9	3	L000771	VC 5000	200 V; 3/PE; 50/60 Hz	3.4	3.2	37.0	4.3	34	L000773
VC 2000	200 V; 50/60 Hz	1.0	0.9	28.0	2.3	3	L000770	VC 5000	200 V; 3/PE; 50/60 Hz	3.4	4.8	37.0	4.3	34	L001025
VC 2000	200 V; 50/60 Hz	1.7	3.2	37.0	2.9	3	L001022	VC 5000	200 V; 3/PE; 50/60 Hz	3.4	4.3	60.0	4.3	34	L001026
VC 2000	200 V; 50/60 Hz	1.1	3.2	37.0	2.3	3	L001020	VC 5000	208-220 V; 3/PE; 60 Hz	4.1	3.2	37.0	4.5	34	L000756
VC 2000	200 V; 50/60 Hz	1.7	4.8	37.0	2.9	3	L001023	VC 5000	208-220 V; 3/PE; 60 Hz	4.1	4.8	37.0	4.5	34	L000995
VC 2000	200 V; 50/60 Hz	1.1	4.8	37.0	2.3	3	L001021	VC 5000	208-220 V; 3/PE; 60 Hz	4.1	5.0	60.0	4.5	34	L000996
VC 2000	208-220 V; 60 Hz	1.3	0.9	28.0	2.5	3	L000753	VC 5000 W	200 V; 3/PE; 50/60 Hz	3.4	3.2	37.0	4.3	34	L000781
VC 2000	208-220 V; 60 Hz	2.1	0.9	28.0	3.2	3	L000754	VC 5000 W	200 V; 3/PE; 50/60 Hz	3.4	4.8	37.0	4.3	34	L001040

\*All data for the plug codes can be found on page 150

Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. bar	Pump flow max. pressure L/min	Loading max. kW	Plug code*	Cat. No.	Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. bar	Pump flow max. pressure L/min	Loading max. kW	Plug code*	Cat. No.
VC 5000 W	200 V; 3/PE; 50/60 Hz	3.4	4.3	60.0	4.3	34	L001041	VC 7000 W	208-220 V; 3/PE; 60 Hz	4.1	4.8	37.0	5.7	33	L001012
VC 5000 W	208-220 V; 3/PE; 60 Hz	4.1	3.2	37.0	4.5	34	L000764	VC 7000 W	208-220 V; 3/PE; 60 Hz	4.1	5.0	60.0	5.7	33	L001013
VC 5000 W	208-220 V; 3/PE; 60 Hz	4.1	4.8	37.0	4.5	34	L001010	VC 10000	200 V; 3/PE; 50/60 Hz	5.7	3.2	37.0	7.6	33	L000775
VC 5000 W	208-220 V; 3/PE; 60 Hz	4.1	5.0	60.0	4.5	34	L001011	VC 10000	200 V; 3/PE; 50/60 Hz	5.7	4.8	37.0	7.6	33	L001029
VC 7000	200 V; 3/PE; 50/60 Hz	3.4	3.2	37.0	5.4	33	L000774	VC 10000	200 V; 3/PE; 50/60 Hz	5.7	4.3	60.0	7.6	33	L001030
VC 7000	200 V; 3/PE; 50/60 Hz	3.4	4.8	37.0	5.4	33	L001027	VC 10000	208-220 V; 3/PE; 60 Hz	6.9	3.2	37.0	7.7	33	L000758
VC 7000	200 V; 3/PE; 50/60 Hz	3.4	4.3	60.0	5.4	33	L001028	VC 10000	208-220 V; 3/PE; 60 Hz	6.9	4.8	37.0	7.7	33	L000999
VC 7000	208-220 V; 3/PE; 60 Hz	4.1	3.2	37.0	5.7	33	L000757	VC 10000	208-220 V; 3/PE; 60 Hz	6.9	5.0	60.0	7.7	33	L001000
VC 7000	208-220 V; 3/PE; 60 Hz	4.1	4.8	37.0	5.7	33	L000997	VC 10000 W	200 V; 3/PE; 50/60 Hz	5.7	3.2	37.0	7.6	33	L000783
VC 7000	208-220 V; 3/PE; 60 Hz	4.1	5.0	60.0	5.7	33	L000998	VC 10000 W	200 V; 3/PE; 50/60 Hz	5.7	4.8	37.0	7.6	33	L001044
VC 7000 W	200 V; 3/PE; 50/60 Hz	3.4	3.2	37.0	5.4	33	L000782	VC 10000 W	200 V; 3/PE; 50/60 Hz	5.7	4.3	60.0	7.6	33	L001045
VC 7000 W	200 V; 3/PE; 50/60 Hz	3.4	4.8	37.0	5.4	33	L001042	VC 10000 W	208-220 V; 3/PE; 60 Hz	6.9	3.2	37.0	7.7	33	L000766
VC 7000 W	200 V; 3/PE; 50/60 Hz	3.4	4.3	60.0	5.4	33	L001043	VC 10000 W	208-220 V; 3/PE; 60 Hz	6.9	4.8	37.0	7.7	33	L001014
VC 7000 W	208-220 V; 3/PE; 60 Hz	4.1	3.2	37.0	5.7	33	L000765	VC 10000 W	208-220 V; 3/PE; 60 Hz	6.9	5.0	60.0	7.7	33	L001015

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