

LAUDA CIRCULATION AND PROCESS THERMOSTATS

°LAUDA

Specific application examples

- 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

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



Powerful and flexible in use

A comprehensive performance spectrum enables the LAUDA Variocool to deal with sophisticated process temperature control in the moderate temperature range. Equipment incorporating various pumps and individual expansion with interface modules, including the option of external temperature control, allow optimized adaptation to changing requirements in the process environment.



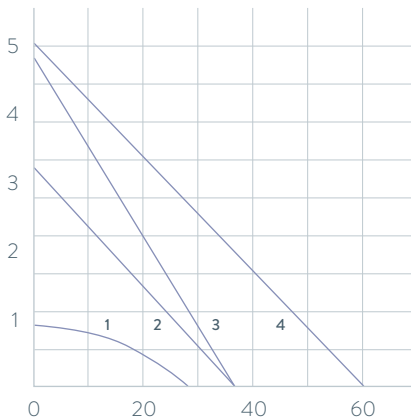
Malfunction contact included as standard. A Pt100 module for external temperature control and interfaces for analog and digital communication can also be added.



Analog pressure indication for operational control, can be adjusted via the bypass on the back of the device

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



LAUDA Variocool

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



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

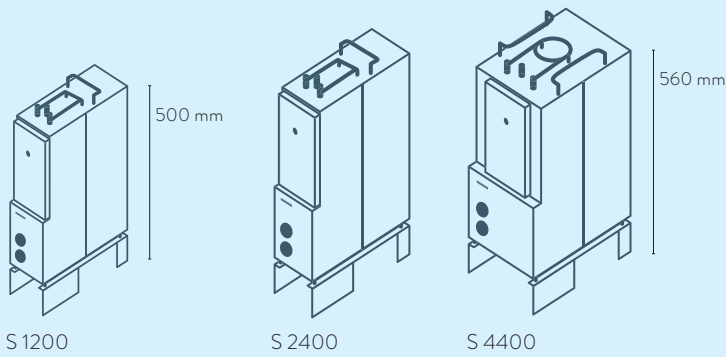
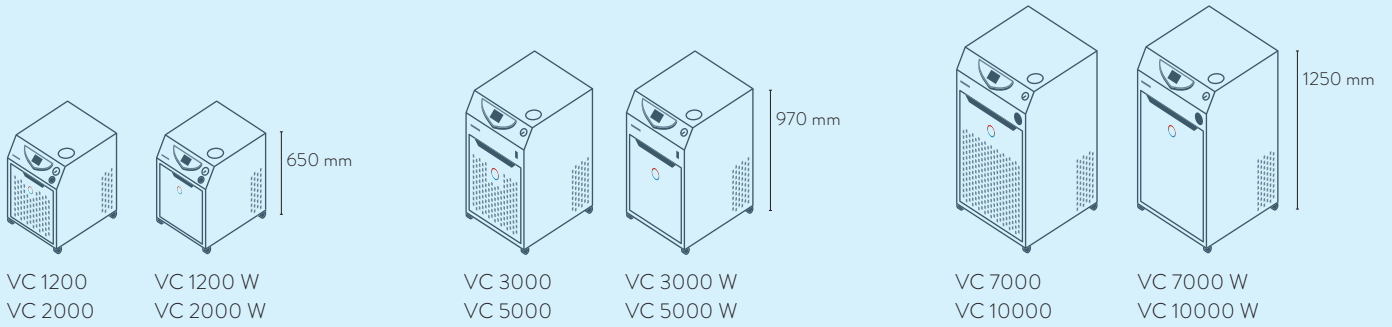
LAUDA Variocool / Page 94

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 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	2.3	-	-	1.12	0.92	0.62	0.32	0.06	-	-	-	-	-	-	-
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	2.2	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-
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	2.2	-	-	1.92	1.42	0.98	0.60	0.30	-	-	-	-	-	-	-
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	-	-	4.65	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	-	-	4.65	3.55	2.40	1.35	0.55	-	-	-	-	-	-	-
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	-	-	6.65	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	-	-	6.65	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	-	-	9.65	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	-	-	9.65	7.25	4.95	3.15	1.65	-	-	-	-	-	-	-

LAUDA Semistat / Page 96

S 1200	-20 ... 90	0.10	Water	3.0	-	-	1.20	0.90	0.60	0.35	0.08	-	-	-	-	-	-	-
S 2400	-20 ... 90	0.10	Water	6.0	-	-	2.45	1.93	1.40	0.88	0.20	-	-	-	-	-	-	-
S 4400	-20 ... 90	0.10	Water	12.0	-	-	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	Part Number	Device type
0.9	28	G 3/4	8	15	450×550×650	IP 32	51	51	3.3	230 V; 50 Hz	L000712	VC 1200
3.2	37	G 3/4	8	15	450×550×790	IP 32	53	51	3.3	230 V; 50 Hz	L000923	VC 1200
0.9	28	G 3/4	8	15	450×550×650	IP 32	50	50	3.3	230 V; 50 Hz	L000732	VC 1200 W
3.2	37	G 3/4	8	15	450×550×790	IP 32	52	50	3.3	230 V; 50 Hz	L000956	VC 1200 W
0.9	28	G 3/4	8	15	450×550×650	IP 32	52	63	3.3	230 V; 50 Hz	L000714	VC 2000
3.2	37	G 3/4	8	15	450×550×790	IP 32	56	63	3.3	230 V; 50 Hz	L000927	VC 2000
0.9	28	G 3/4	8	15	450×550×650	IP 32	50	58	3.3	230 V; 50 Hz	L000734	VC 2000 W
3.2	37	G 3/4	8	15	450×550×790	IP 32	53	64	3.3	230 V; 50 Hz	L000960	VC 2000 W
3.2	37	G 3/4	20	33	550×650×970	IP 32	57	89	2.6	230 V; 50 Hz	L000715	VC 3000
4.8	37	G 3/4	20	33	550×650×970	IP 32	61	89	2.6	230 V; 50 Hz	L000929	VC 3000
3.2	37	G 3/4	20	33	550×650×970	IP 32	55	88	2.6	230 V; 50 Hz	L000735	VC 3000 W
4.8	37	G 3/4	20	33	550×650×970	IP 32	59	88	2.6	230 V; 50 Hz	L000962	VC 3000 W
3.2	37	G 3/4	20	33	550×650×970	IP 32	65	97	7.8	400 V; 3/N/PE; 50 Hz	L000728	VC 5000
5.0	60	G 3/4	20	33	550×650×970	IP 32	69	97	7.8	400 V; 3/N/PE; 50 Hz	L000949	VC 5000
3.2	37	G 3/4	20	33	550×650×970	IP 32	64	97	7.8	400 V; 3/N/PE; 50 Hz	L000746	VC 5000 W
5.0	60	G 3/4	20	33	550×650×970	IP 32	68	97	7.8	400 V; 3/N/PE; 50 Hz	L001995	VC 5000 W
3.2	37	G 1 1/4	48	64	650×670×1250	IP 32	66	124	8.8	400 V; 3/N/PE; 50 Hz	L000729	VC 7000
5.0	60	G 1 1/4	48	64	650×670×1250	IP 32	69	124	8.8	400 V; 3/N/PE; 50 Hz	L000951	VC 7000
3.2	37	G 1 1/4	48	64	650×670×1250	IP 32	60	122	8.8	400 V; 3/N/PE; 50 Hz	L000747	VC 7000 W
5.0	60	G 1 1/4	48	64	650×670×1250	IP 32	64	133	8.8	400 V; 3/N/PE; 50 Hz	L000983	VC 7000 W
3.2	37	G 1 1/4	48	64	650×670×1250	IP 32	67	137	11.1	400 V; 3/N/PE; 50 Hz	L000730	VC 10000
5.0	60	G 1 1/4	48	64	650×670×1250	IP 32	70	137	11.1	400 V; 3/N/PE; 50 Hz	L000953	VC 10000
3.2	37	G 1 1/4	48	64	650×670×1250	IP 32	61	131	11.1	400 V; 3/N/PE; 50 Hz	L000748	VC 10000 W
5.0	60	G 1 1/4	48	64	650×670×1250	IP 32	65	131	11.1	400 V; 3/N/PE; 50 Hz	L000985	VC 10000 W
2.8	22	1/2"	1.00	1.30	116×232×470	-	-	15	-	-	L003276	S 1200
2.8	22	1/2"	1.25	1.60	116×300×560	-	-	25	-	-	L003277	S 2400
2.8	27	1/2"	2.50	2.80	194×300×560	-	-	38	-	-	L003278	S 4400



LAUDA Circulation and process thermostats

Function overview

Operating element	Circulation thermostats		Process thermostats		Calibration thermostats		Deep-freezers	
	LOOP	PROE	PROEC	Integral T	Integral XT	Integral P	Variocool	
Display	OLED	OLED	TFT	TFT	TFT	TFT	TFT	TFT
Mode of operation	3-button softkey	Cursor softkey	Multi-touch	Cursor softkey	Cursor softkey	Cursor softkey	Cursor softkey	Cursor softkey
Removable control	-	✓	✓	Z	Z	Z	-	-
User management	-	-	✓	Operator / Viewer	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 / 146	5 / 146	5 / 146	5 / 146	5 / 146
Programmer, tolerance range function	-	✓	✓	✓	✓	✓	✓	✓
Ramp function	-	-	✓	Z	Z	Z	-	-
Timer function	-	-	✓	✓	✓	✓	-	-
Countdown function	-	-	✓	-	-	-	-	-
Graphic temperature profile display	-	-	✓	✓	✓	✓	✓	✓
Pump pressure display (digital)	-	-	-	✓	✓	✓	-	-
Adjustable bypass	-	-	-	✓	✓	✓	✓	✓
Level indicator (digital)	-	✓	✓	✓	✓	✓	✓	✓
Standby timer	✓	✓	✓	✓	✓	✓	✓	✓
Flow control instrument	-	-	-	-	-	-	Z	Z
Flow pressure control	-	-	-	-	✓	✓	-	-
Flow measurement + control	-	-	-	-	Z	Z	-	-
Overflow	-	✓	✓	✓	✓	✓	-	-
Low-level alarm	✓	✓	✓	✓	✓	✓	✓	✓
Drain tap	-	✓	✓	✓	✓	✓	✓	✓

Z = Available as an accessory

LAUDA Circulation and process thermostats

Interfaces

	Pt 100 (1)	Pt 100 (2)	USB	Ethernet	RS 232 / 485	Analog	Namur contact	D-SUB contact	PROFIBUS	EtherCAT M8	EtherCAT RJ 45	Malfunction contact	Number of module slots, large	Number of module slots, small	RS232/485 module Advanced	Contact module NAMUR Advanced	Contact module D-SUB Advanced	Profibus module Advanced	Ethernet module Advanced	Profinet module Advanced	CAN module Advanced
LAUDA LOOP / Page 84	-	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LAUDA PRO / Page 86	S	-	S	S	Z	Z	Z	Z	Z	Z	Z	-	1	-	Z	Z	Z	Z	-	Z	Z
LAUDA Integral T / Page 88	S	Z	S	S	Z	Z	Z	Z	Z	Z	Z	S	2	-	Z	Z	Z	Z	S	Z	Z
LAUDA Integral XT / Page 90	S	Z	S	S	Z	Z	Z	Z	Z	Z	Z	S	2	-	Z	Z	Z	Z	S	Z	Z
LAUDA Integral P / Page 92	S	Z	S	S	Z	Z	Z	Z	Z	Z	Z	S	2	-	Z	Z	Z	Z	S	Z	Z
LAUDA Variocool / Page 94	Z	-	S	Z	Z	Z	Z	Z	Z	Z	Z	S	1	1	Z	Z	Z	Z	Z	Z	Z

S = Series standard

Z = Available as an accessory

LAUDA interfaces



LRZ 912
Analog module



LRZ 913
RS 232/485 interface



LRZ 914
Contact module, 1 input, 1 output (NAMUR)



LRZ 915
Contact module, 3 inputs, 3 outputs



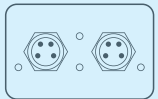
LRZ 917
Profibus module



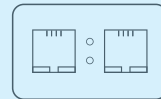
LRZ 918
Pt100/LiBus-Modul, small cover



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 interfaces Advanced* (Modules available as accessories from Q3 / 2022)



LRZ 926
RS232/485 module Advanced, D-SUB 9-pin



LRZ 927
Contact module NAMUR Advanced, 1 input, 1 output



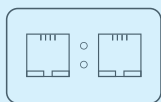
LRZ 928
Contact module D-SUB Advanced, 3 inputs, 3 outputs



LRZ 929
Profibus module Advanced, D-SUB 9-pin



LRZ 930
Ethernet module Advanced, RJ45



LRZ 932
Profinet module Advanced, RJ45



LRZ 933
CAN module Advanced, D-SUB 9-pin

* Interfaces of the Advanced generation replace modules in the process thermostats of the same name as per the above selection table

LAUDA Heat transfer liquids

For safe and reliable operation of your thermostats

Highly accurate temperature control at extreme temperatures, reliability and long-term operational stability for a long service life of the thermostats.

The right choice of heat transfer liquid is of critical importance for the safe and reliable operation of thermostats, circulation chillers or water baths. Thanks to our many decades of experience, we are able to offer optimum heat transfer liquids for LAUDA thermostats and other brands. Prices of heat transfer liquids can be found in our price list, which we will gladly send you on request.

Designation	Open / half-open systems °C						Closed systems with cold oil overlay (Integral XT) °C						Part Number 5L/10L/20L
	-100 °C	-50 °C	0 °C	100 °C	200 °C	300 °C	-100 °C	-50 °C	0 °C	100 °C	200 °C	300 °C	
Aqua 90			5 °C		90 °C								LZB 120/LZB 220/LZB 320
Kryo 95 Silicone oil	-95 °C				60 °C		-95 °C					160 °C	LZB 130/LZB 230/LZB 330
Kryo 70 Silicone oil							-70 °C					220 °C	LZB 127/LZB 227/LZB 327
Kryo 65							-65 °C					140 °C	LZB 118/LZB 218/LZB 318
Kryo 60 Silicone oil		-60 °C			60 °C								LZB 102/LZB 202/LZB 302
Kryo 51 Silicone oil		-50 °C											LZB 121/LZB 221/LZB 321
Kryo 30			-30 °C			90 °C			-30 °C			90 °C	LZB 109/LZB 209/LZB 309
Kryo 20 Silicone oil			-20 °C										LZB 116/LZB 216/LZB 316
Therm 160				60 °C									LZB 106/LZB 206/LZB 306
Therm 180 Silicone oil				0 °C									LZB 114/LZB 214/LZB 314
Therm 250 Silicone oil				50 °C									LZB 122/LZB 222/LZB 322
Ultra 350				30 °C					30 °C				LZB 107/-/-

Note: LAUDA Integral P may only be operated with non-combustible media (Kryo 30).
The temperature range of Kryo 30 is extended from -40 to 140 °C here.

Request the comprehensive LAUDA heat transfer liquid brochure at info@lauda.de

More at www.lauda.de/1782

Power plugs

Overview

Image	Plug code	Description	Image	Plug code	Description	Image	Plug code	Description
	2	CEE7/7 angled (EU, Schuko)		3	NEMA 6-20P (USA)		4	NEMA 5-20P (USA)
	5	GB2099 (CN)		6	BS1363 angled (UK)		7	IEC 60309, (blue), ›Caravan
	8	SEV 1011, SEV 5934/2 (CH, T23)		9	AS/NSZ 3112 (AUS)		10	NBR 14136 (BR)
	14	NEMA 5-15P (USA)		17	CEE7/7 straight (EU, Schuko)		21	IEC 60309, 5-pin, CEE, red, 16 A
	22	IEC 60309, 5-pin, CEE, red, 32 A		23	IEC 60309, 5-pin, CEE, red, 63 A		25	NEMA 5-15P (Japan)
	26	SEV 1011, SEV 5934/2 (CH, T12)		31	Mains cable without plug (HAR), Harmonized cable (DIN VDE 0281/DIN VDE 0282/DIN VDE 0292)		32	Mains cable without plug (AWG), American Wire Gauge, abbreviation AWG
	33	NEMA L16-30P twist lock; 30 A 480 V; 30 A, 3L+N+PE		34	NEMA L16-20P twist lock; 20 A 480 V; 20 A, 3L+N+PE		35	AS/NSZ 3112, SAA/3 (AUS) Australia, 250 V; 10 A
	36	NEMA 6-15P (USA) USA, 250 V; 15 A		37	NBR 14136, BR/3 (BR) Brazil, 250 V; 10 A		38	NEMA L15-30P twist lock; 30 A USA, 250 V; 30 A, 3L+PE
	40	NEMA L15-20P twist lock; 20 A USA, 250 V; 20 A, 3L+PE		42	Two mains cables with socket 6 and 8		43	Two mains cables with socket 6 and 17

LAUDA Circulation and process thermostats

Power supply variants

Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. 60 Hz bar	Pump flow max. pressure 60 Hz L /min	Loading max. kW	Plug code*	Part Number	Device type	Power supply V; Hz	Heater power max. kW	Pump pressure max. 60 Hz bar	Pump flow max. pressure 60 Hz L /min	Loading max. kW	Plug code*	Part Number
LAUDA Variocool / Page 94															
VC 1200	200 V; 50/60 Hz	1.7	0.9	28	2.9	3	L000769	VC 5000 W	200 V; 3/PE; 50/60 Hz	3.4	3.2	37	4.3	34	L000781
VC 1200	200 V; 50/60 Hz	1.1	0.9	28	2.3	3	L000768	VC 5000 W	200 V; 3/PE; 50/60 Hz	3.4	4.3	60	4.3	34	L001041
VC 1200	208-220 V; 60 Hz	2.1	0.9	28	3.1	3	L000752	VC 5000 W	208-220 V; 3/PE; 60 Hz	4.1	3.2	37	4.5	34	L000764
VC 1200 W	200 V; 50/60 Hz	1.7	0.9	28	2.9	3	L000777	VC 5000 W	208-220 V; 3/PE; 60 Hz	4.1	5.0	60	4.5	34	L001011
VC 1200 W	208-220 V; 60 Hz	2.1	0.9	28	3.1	3	L000760	VC 7000	200 V; 3/PE; 50/60 Hz	3.4	3.2	37	5.4	33	L000774
VC 2000	200 V; 50/60 Hz	1.7	0.9	28	2.9	3	L000771	VC 7000	200 V; 3/PE; 50/60 Hz	3.4	4.3	60	5.4	33	L001028
VC 2000	208-220 V; 60 Hz	2.1	0.9	28	3.2	3	L000754	VC 7000	208-220 V; 3/PE; 60 Hz	4.1	3.2	37	5.7	33	L000757
VC 2000 W	200 V; 50/60 Hz	1.7	0.9	28	2.9	3	L000779	VC 7000	208-220 V; 3/PE; 60 Hz	4.1	5.0	60	5.7	33	L000998
VC 2000 W	208-220 V; 60 Hz	2.1	0.9	28	3.2	3	L000762	VC 7000 W	200 V; 3/PE; 50/60 Hz	3.4	3.2	37	5.4	33	L000782
VC 3000	200 V; 50/60 Hz	1.0	3.2	37	2.6	3	L000772	VC 7000 W	200 V; 3/PE; 50/60 Hz	3.4	4.3	60	5.4	33	L001043
VC 3000	200 V; 50/60 Hz	1.1	4.8	37	2.6	3	L001024	VC 7000 W	208-220 V; 3/PE; 60 Hz	4.1	3.2	37	5.7	33	L000765
VC 3000	208-220 V; 60 Hz	1.3	3.2	37	2.8	3	L000755	VC 7000 W	208-220 V; 3/PE; 60 Hz	4.1	5.0	60	5.7	33	L001013
VC 3000	208-220 V; 60 Hz	1.3	4.8	37	2.8	3	L000994	VC 10000	200 V; 3/PE; 50/60 Hz	5.7	3.2	37	7.6	33	L000775
VC 3000 W	200 V; 50/60 Hz	1.0	3.2	37	2.6	3	L000780	VC 10000	200 V; 3/PE; 50/60 Hz	5.7	4.3	60	7.6	33	L001030
VC 3000 W	200 V; 50/60 Hz	1.1	4.8	37	2.6	3	L001039	VC 10000	208-220 V; 3/PE; 60 Hz	6.9	3.2	37	7.7	33	L000758
VC 3000 W	208-220 V; 60 Hz	1.3	3.2	37	2.8	3	L000763	VC 10000	208-220 V; 3/PE; 60 Hz	6.9	5.0	60	7.7	33	L001000
VC 3000 W	208-220 V; 60 Hz	1.3	4.8	37	2.8	3	L001009	VC 10000 W	200 V; 3/PE; 50/60 Hz	5.7	3.2	37	7.6	33	L000783
VC 5000	200 V; 3/PE; 50/60 Hz	3.4	3.2	37	4.3	34	L000773	VC 10000 W	200 V; 3/PE; 50/60 Hz	5.7	4.3	60	7.6	33	L001045
VC 5000	200 V; 3/PE; 50/60 Hz	3.4	4.3	60	4.3	34	L001026	VC 10000 W	208-220 V; 3/PE; 60 Hz	6.9	3.2	37	7.7	33	L000766
VC 5000	208-220 V; 3/PE; 60 Hz	4.1	3.2	37	4.5	34	L000756	VC 10000 W	208-220 V; 3/PE; 60 Hz	6.9	5.0	60	7.7	33	L001015
VC 5000	208-220 V; 3/PE; 60 Hz	4.1	5.0	60	4.5	34	L000996								

*All data for the plug codes can be found on page 162