

The right temperature worldwide

LAUDA



Chapter Ultracool

LAUDA – the big one

Thermostats, Circulation chillers, Water baths

Overall Brochure 2016/2017

LAUDA Ultracool

Process circulation chillers for industrial applications with cooling outputs up to 265 kW from -5 up to 25 °C



Application examples

- Digital printing
- Laser cutting
- Laser sorting
- Point welding
- Induction heating
- Injection molding
- Centralized cooling water supply

High cooling outputs, compact design, versatile options

LAUDA Ultracool chillers provide reliable temperature control and ensure secure processing. The models are plug & operate systems equipped with a cold water tank, a centrifugal pump and an internal bypass. All chillers are already equipped with an antifreeze protection thermostat to prevent freezing of the heat exchanger. Integrated pres-

sure switches protect the circuit against pressure levels that drift too high or too low. Housings made from galvanized steel and externally coated with epoxy resin protects against corrosion even under aggressive ambient conditions. All models are suitable for outdoor installation.

Your advantages at a glance



The Ultracool advantages

Your benefits



- Centrifugal high-quality water pump with internal bypass
- Use of plate heat exchangers outside of the water tank
- Evaporator and pump in stainless steel construction
- Level switch

- Allows flow rates from 0 to 100 percent
- Efficient heat exchange and low energy loss
- Corrosion resistant
- Pump protection in case of low level



- Integrated water filter and antibacterial additive
- Insulated water tank made of polyethylene
- Use of thermostatic expansion valve

- Protection of application and chiller system
- Corrosion resistant and durable
- Automatic adjustment to changing work load conditions and optimal cooling output



- Protection class IP 54
- Suitable for ambient temperatures up to 50 °C
- Housing made from galvanized steel and externally coated with epoxy resin
- Antifreeze protection thermostat
- Use of refrigerants with low global warming potential (GWP* < 2,500)

- Suitable for outdoor installation
- Operation under extreme ambient temperature conditions
- Protection against corrosion even under aggressive ambient conditions
- Prevents freezing of heat exchanger
- Fulfills the European F Gas Directive No. 517/2014



- Versatile options and accessories, including pump, special color, stainless steel housing, wheels, external bypass, water-cooled versions, deionized water.

- Customization possibilities for OEM



- Compact and smart design
- Integrated pressure switches
- Large cold water tank

- User friendly installation and maintenance and reduction of footprint to save installation space
- Protection of the refrigeration circuit against pressures that drift too high or too low
- Keeps water temperature constant even under varying load conditions

*GWP = Global Warming Potential

LAUDA Ultracool

Ultracool UC Mini chillers up to 4.9 kW

The three UC Mini chillers are available with cooling outputs from 2.1 up to 4.9 kW. The models work with a hermetic compressor and a centrifugal pump. The pump is noise reduced and works with a very flat flow rate/pressure characteristic. This allows the user to easily adjust the water flow without jeopardizing the pressure.

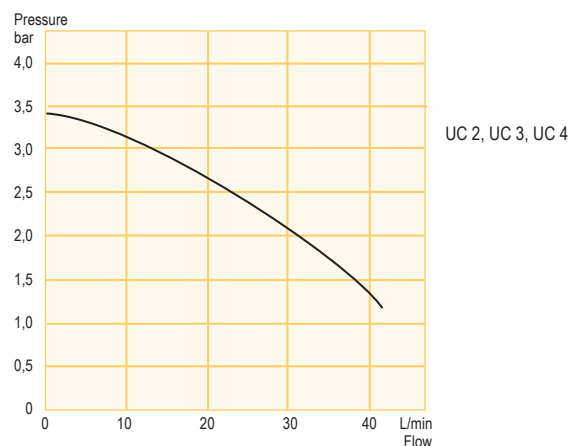
Compared to the previous models the device dimensions were significantly reduced. Due to the optimized geometry of the devices an easy access to the components that need to be serviced regularly is provided. The temperature range in which the coolers can be used now covers an extended temperature from 0 up to 50 °C ambient. Additionally outdoor installation of these circulation chillers is available as an option and allows the use at ambient temperatures down to -15 °C.



Circulation chiller UC 4



Pump characteristics, Standard pump (3 bar), 50 Hz



Options and accessories UC Mini

- 5 bar pump
- Refrfluid 1 (heat transfer liquid with antifreeze + bactericide + anticorrosive)
- External bypass
- Modbus remote control
- Increased temperature stability ± 1 K (instead of ± 2 K)
- Water-cooled version
- Stainless steel housing
- Feet
- Customized color
- Condenser air filter
- 3-phase power supply
- Outdoor installation (IP 54)
- Motor fan speed regulator (for ambient temperatures below 0 °C)



All technical data on page 108 and following
Other power supply variants on page 115

NEW

NEW

NEW

Technical features UC Mini		UC 2	UC 3	UC 4
Working temperature range	°C	-5...25	-5...25	-5...25
Ambient temperature range*	°C	-15...50	-15...50	-15...50
Cooling output**	kW	2.1	4.1	4.9
Pump pressure max.	bar	3.4	3.4	3.4
Pump flow max.	L/min	42	42	42
Volume water tank	L	20	20	20
Cat. No. 230 V; 50 Hz		E6002411	E6003411	E6004411
Cat. No. 230 V; 60 Hz		E6002431	E6003431	E6004431

* -15 °C only with option motor fan speed regulator (see page 87)

** At 10 °C water outlet temperature and 25 °C ambient temperature, for 50 Hz versions

Ultracool UC Midi chillers up to 26.3 kW

Six UC Midi types have cooling outputs ranging from 7.1 up to 26.3 kW. The models work with a reciprocating or scroll compressor and a centrifugal pump. The noise-reduced pump allows customers to easily adjust the water flow. The use of R 134a as refrigerant ensures very low working pressures inside the refrigeration system and operation in ambient temperatures up to 50 °C. The integrated motor fan speed regulator allows operation in ambient conditions up to -15 °C and reduces the noise level additionally.

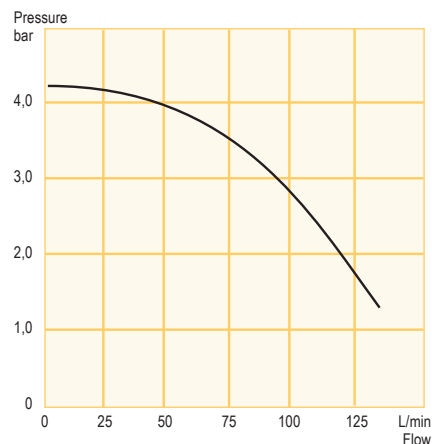
The models UC-0060 to UC-0240 are also available as UC laser models with pre-configured options included.



Circulation chiller UC-0240 SP



Pump characteristics, Standard pump (3 bar), 50 Hz



UC-0060, UC-0080,
UC-0100, UC-0140,
UC-0180, UC-0240



Options and accessories UC Midi

- 5 bar pump
- Refrfluid 1 (heat transfer liquid with antifreeze + bactericide + anticorrosive)
- External bypass
- Modbus remote control
- Auto filling kit
- Increased temperature stability ± 1 K (instead of ± 2 K)
- Water pre-heater
- Water-cooled version
- Feet (wheels as standard)
- External threaded BSP (British Standard Pipe) or NPT stainless steel connections
- Customized color
- Condenser air filter



All technical data on page 108 and following
Other power supply variants on page 115

Technical features UC Midi Superplus		UC-0060 SP	UC-0080 SP	UC-0100 SP	UC-0140 SP	UC-0180 SP	UC-0240 SP
Working temperature range	°C	-5...25	-5...25	-5...25	-5...25	-5...25	-5...25
Ambient temperature range	°C	-15...50	-15...50	-15...50	-15...50	-15...50	-15...50
Cooling output*	kW	7,1	9,4	11,4	14,0	22,0	26,3
Pump pressure max.	bar	4,2	4,2	4,2	4,2	4,2	4,2
Pump flow max.	L/min	130	130	130	130	130	130
Volume water tank	L	100	100	100	100	100	100
Cat. No. 400 V; 3/PE; 50 Hz		E6006323	E6008323	E6010323	E6014323	E6018323	E6024323
Cat. No. 460 V; 3/PE; 60 Hz		E6006341	E6008341	E6010341	E6014341	E6018341	E6024341

* At 10 °C water outlet temperature and 25 °C ambient temperature, for 50 Hz versions

Ultracool UC Maxi chillers up to 265 kW

Within the Ultracool Maxi range, there are four chillers with cooling outputs from 34.1 up to 64.4 kW which work with one single refrigeration circuit. The five models from 87.9 up to 265 kW of cooling capacities work with two independent refrigeration circuits to provide a backup security. All Maxi models are equipped with scroll compressors, work with R 407C as refrigerant and are suitable for outdoor installation. The internal pipes for the water circuit are made of PP-R (polypropylene random copolymer) and are thermowelded. Besides the main advantage that these connections are absolutely leak free, PP-R is corrosion and frost proof, allow for smaller pressure drops and are long lasting.

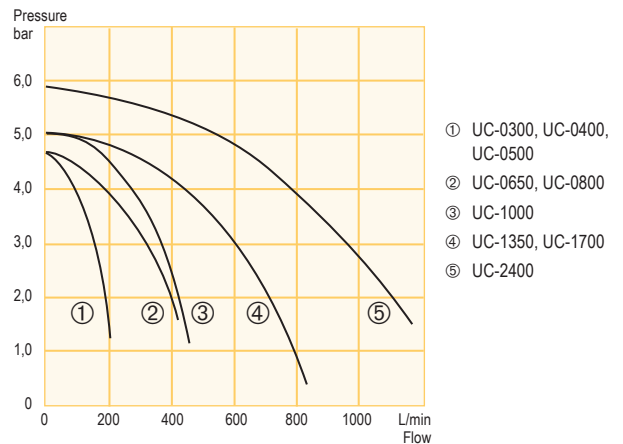
The models UC-0300 to UC-0650 are also available as UC laser models with pre-configured options included.



Circulation chiller UC-0400 SP



Pump characteristics, Standard pump (3 bar), 50 Hz



Options and accessories UC Maxi

- 5 bar pump
- Refrfluid 1 (heat transfer liquid with antifreeze + bactericide + anticorrosive)
- External bypass
- Auto filling kit
- Increased temperature stability ± 1 K (instead of ± 2 K)
- Water pre-heater
- Water-cooled version
- External threaded BSP or NPT stainless steel connections
- Motor fan speed regulator (for ambient temperatures below 0°C)
- Modbus remote control



All technical data on page 108 and following
Other power supply variants on page 115

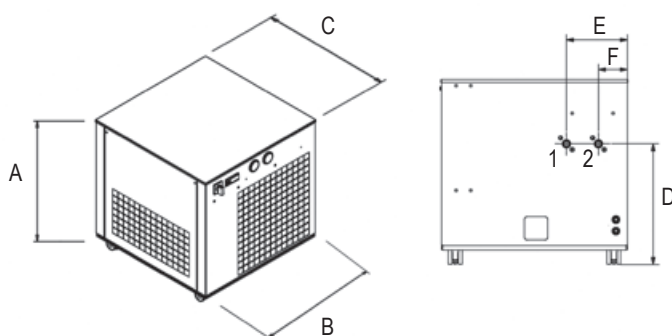
Technical features	UC Maxi Superplus	UC-0300 SP	UC-0400 SP	UC-0500 SP	UC-0650 SP	UC-0800 SP	UC-1000 SP	UC-1350 SP	UC-1700 SP	UC-2400 SP
Working temperature range	$^\circ\text{C}$	-5...25	-5...25	-5...25	-5...25	-5...25	-5...25	-5...25	-5...25	-5...25
Ambient temperature range*	$^\circ\text{C}$	-15...45	-15...45	-15...45	-15...45	-15...45	-15...45	-15...45	-15...45	-15...45
Cooling output**	kW	34.1	43.3	48.7	64.4	87.9	106.4	139.2	175.7	265.0
Pump pressure max.	bar	4.7	4.7	4.7	4.7	4.7	5.0	5.0	5.0	5.9
Pump flow max.	L/min	230	230	230	420	420	330	750	750	1160
Volume water tank	L	200	200	200	300	300	500	500	500	500
Cat. No. 400 V; 3/PE; 50 Hz		E6030323	E6040323	E6050323	E6065323	E6080223	E6100221	E6135221	E6170221	E6240221
Cat. No. 460 V; 3/PE; 60 Hz		E6030341	E6040341	E6050341	E6065341	E6080241	E6100241	E6135241	E6170241	E6240241

* -15 $^\circ\text{C}$ only with option motor fan speed regulator (see page 89)

** At 10 $^\circ\text{C}$ water outlet temperature and 25 $^\circ\text{C}$ ambient temperature, for 50 Hz versions

Unit dimensions

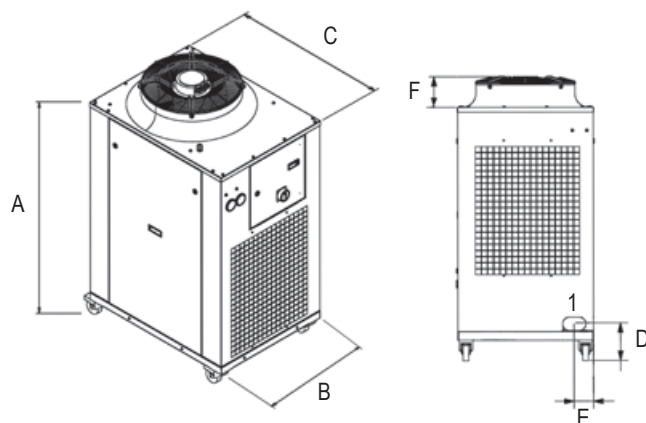
UC Mini UC 2, UC 3, UC 4



Typ	A	B	C mm	D	E	F
UC 2	635	640	640	414	210	100
UC 3	635	640	640	414	210	100
UC 4	635	640	640	414	210	100

1: water outlet
2: water inlet

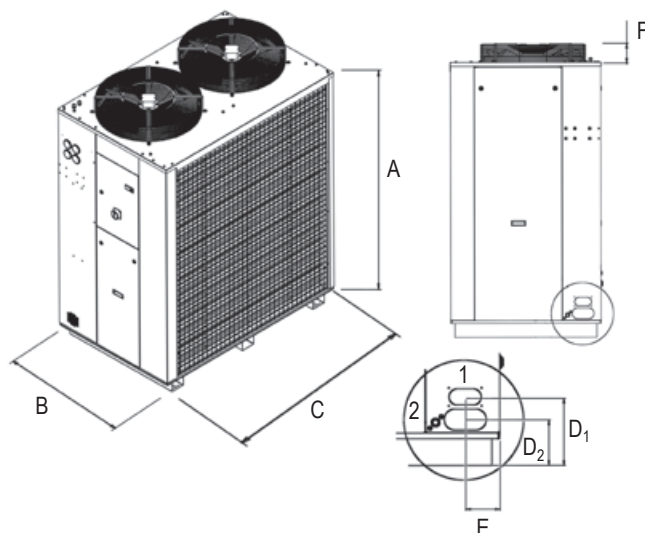
UC Midi UC-0060 to UC-0240



Typ	A	B	C mm	D	E	F
UC-0060	1330	715	945	188	101	162
UC-0080	1330	715	945	188	101	162
UC-0100	1330	715	945	188	101	162
UC-0140	1330	715	945	188	101	162
UC-0180	1330	715	945	188	101	162
UC-0240	1330	715	945	188	101	162

1: connection port
- water inlet
- water outlet
- drain and overflow

UC Maxi UC-0300 to UC-0650



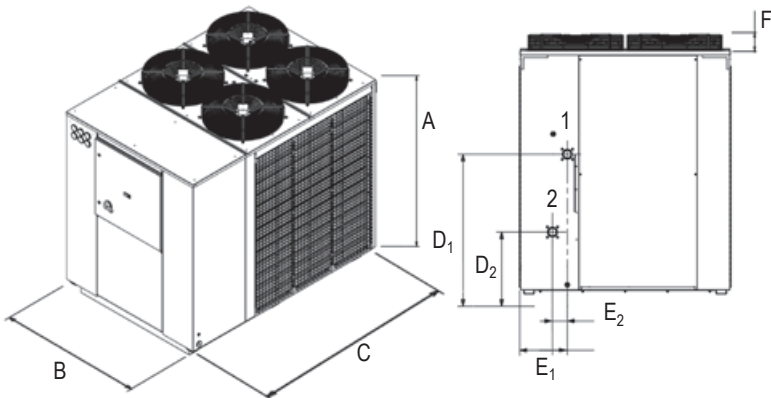
Typ	A	B	C mm	D ₁	D ₂	E	F
UC-0300	1843	1006	1566	239	160	120	125
UC-0400	1843	1006	1566	239	160	120	125
UC-0500	1843	1006	1566	239	160	120	125
UC-0650	1843	1006	1566	239	160	120	125

1: water inlet and outlet
2: overflow and drain pipe

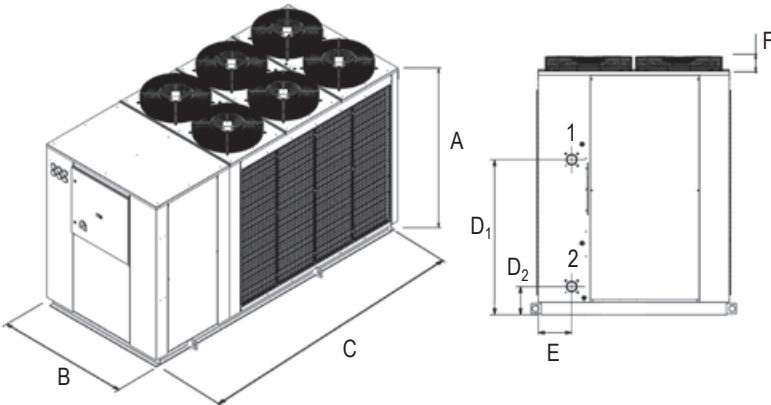
LAUDA Ultracool

Unit dimensions

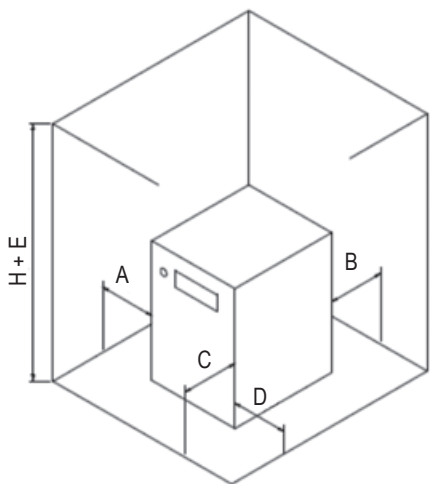
UC Maxi UC-0800 to UC-1000



UC Maxi UC-1350 to UC-2400



Minimum space requirements around the Ultracool chillers:



H = height of chiller (see unit dimensions)

Typ	A	B	C mm	D ₁	D ₂	E ₁	E ₂	F
UC-0800	1885	1545	2230	1123	548	345	110	124
UC-1000	1965	1660	3400	1253	228	270	270	124

1: water inlet
2: water outlet

Typ	A	B	C mm	D ₁	D ₂	E	F
UC-1350	1965	1660	3400	1253	228	270	124
UC-1700	1965	1660	3400	1253	228	270	124
UC-2400	1965	1660	3585	1413	273	297	124

1: water inlet
2: water outlet

The Ultracool chillers generate a certain amount of heat during operation. This heat must be removed efficiently. Find the minimum distances around the different chiller types in the table below.

Minimum distance in m	A	B	C	D	E
Mini	0.5	0.5	0.5	0.5	0.5
Midi	1	1	1	1	1
Maxi	2	2	2	2	2

Ultracool options and accessories

This table shows a short description of the available standard options for LAUDA Ultracool chiller units. Please be aware that not all chiller models can be combined with these options. Ask your LAUDA Ultracool representative for compatibility of the options with the different chiller models. Also additional options not listed below can be integrated into the chillers.

Options	
TF	Chiller without pump and water tank
SP5	5 bar water pump
SPI3	3 bar water pump entirely in stainless steel
SPI5	5 bar water pump entirely in stainless steel
AF	Auto filling kit. For automatic filling of the water tank
CF	Condenser air filter. For protection in dusty environments
FS	Flow switch. Stops the unit when there is no flow
FT	Feet for floor fixation
MB	Modbus connectivity (RS 485 interface)
PHD	Phase detector
PWP	Water heater to pre-heat the water while the unit is idle
RCP	Remote Control Panel
SC	Special RAL color for the housing
SR	Motor fan speed regulator. For ambient temperatures below 0 °C. Also reduction of noise and power consumption
SS	Stainless steel housing
TS	Increased temperature stability of ± 1 K
W	Water-cooled version
OD	Outdoor installation for UC Mini. Design in protection class IP 54
°C	Programming in °C
°F	Programming in °F

Accessories	
IK10	2 x 10 m installation kit. Includes 2 hoses and 2 sets of fittings
IK20	2 x 20 m installation kit. Includes 2 hoses and 2 sets of fittings
IK50	2 x 50 m installation kit. Includes 2 hoses and 2 sets of fittings
EB/EBU	External by-pass (BSP)/External by-pass (NPT)
EFM/EFMU	Water flow meter (BSP)/Water flow meter (NPT) For installation in the water circuit for exact indication of the water flow.
PRV/PRVU	Pressure Reducing Valve (BSP)/Pressure Reducing Valve (NPT)
PSC	Power Supply Cable (5 m)
SV/SVU	Water solenoid valve kit (BSP)/Water solenoid valve kit (NPT) To be installed in the water inlet to prevent water returning when the pump is off.
TC/TCU	Stainless steel threaded connections (BSP)/Stainless steel threaded connections (NPT)
TCW/TCWU	Threaded connections for water-cooling ports (BSP)/Threaded connections for water-cooling ports (NPT)
EB + SV/EBU + SVU	External by-pass + water solenoid valve kit (BSP)/External by-pass + water solenoid valve kit (NPT)

Heat transfer liquid	Description	Container size in liter	Cat. No.
Refrifluid 1	Water/glycol mixture, including Refrifluid B	25 Liters	E7012402
Refrifluid 1	Water/glycol mixture, including Refrifluid B	50 Liters	E7012404
Refrifluid 1	Water/glycol mixture, including Refrifluid B	100 Liters	E7012406

Additive for heat transfer liquid	Description	Container size in liter	Cat. No.
Refrifluid B	Concentrated antibacterial and anticorrosive additive	2 Liters	E7011852
Refrifluid B	Concentrated antibacterial and anticorrosive additive	4 Liters	E7011854

Temperature solutions:

Thermostats · Circulation chillers · Water baths

Process cooling systems · Heat transfer systems · Secondary circuit systems



**LAUDA DR. R. WOBSE
GMBH & CO. KG**
Headquarters
Pfarrstraße 41/43
97922 Lauda-Königshofen
Germany
Phone: +49 (0)9343 503-0
E-mail: info@lauda.de



LAUDA-Noah, LP
308 Digital Drive
Morgan Hill, CA 95037
USA
Tel.: +1 360 993 1395
E-mail: info@lauda-noah.com



LAUDA Technology Ltd.
4200 Waterside
Solihull Parkway
Birmingham Business Park
B37 7YN Birmingham
Great Britain
Phone: +44 121 717 4789
E-mail: info@lauda-technology.co.uk



LAUDA China Co. Ltd.
Shanghai
2nd floor, Building 6
No. 201 MinYi Road
Songjiang District
201612 Shanghai
China
Phone: +86 21 64401098
E-mail: info@lauda.cn



LAUDA-Brinkmann, LP
1819 Underwood Boulevard
08075 Delran, NJ
USA
Phone: +1 856 7647300
E-mail: info@lauda-brinkmann.com



**LAUDA América Latina
Tecnologia Ltda.**
Av. Paulista, 726 – 17º andar – Cj. 1707
01310-910 – São Paulo – SP
Brazil
Phone: +55 11 3192-3904
E-mail: info@lauda.net.br



LAUDA France S.A.R.L.
Parc Technologique de Paris Nord II
Bâtiment G
69, rue de la Belle Etoile
BP 81050 Roissy en France
95933 Roissy Charles de Gaulle Cedex
France
Phone: +33 1 48638009
E-mail: info@lauda.fr



Office Beijing
15/F, Office Building A,
Parkview Green,
9 Dongdaqiao Road,
Chaoyang District
100020 Beijing
China
Phone: +86 10 57306210
E-mail: info@lauda.cn



LAUDA-Brinkmann, LP
308 Digital Drive
Morgan Hill, CA 95037
USA
Phone: +1 856 7647300
E-mail: info@lauda-brinkmann.com



LAUDA Ultracool S.L.
C/ Colom, 606
08228 Terrassa (Barcelona)
Spain
Phone: +34 93 7854866
E-mail: info@lauda-ultracool.com



LAUDA Italia S.r.l.
Strada 6 – Palazzo A – Scala 13
20090 Assago Milanofiori (MI)
Italy
Phone: +39 02 9079194
E-mail: info@lauda-italia.it



LAUDA Singapore Pte. Ltd.
25 International Business Park
#04-103M German Centre
Singapore 609916
Phone: +65 6563 0241
E-mail: info@lauda.sg



LAUDA-Noah, LP
2501 SE Columbia Way, Suite 140
Vancouver, WA 98661
USA
Tel.: +1 360 993 1395
E-Mail: info@lauda-noah.com



**LAUDA IBÉRICA SOLUCIONES
TÉCNICAS, S.L.**
C/ Colom, 606
08228 Terrassa (Barcelona)
Spain
Phone: +34 93 7854866
E-mail: info@lauda-iberica.es



OOO „LAUDA Wostok“
Malaja Pirogovskaja Str. 5
119435 Moscow
Russia
Phone: +7 495 9376562
E-mail: info@lauda.ru

LAUDA DR. R. WOBSE GMBH & CO. KG
Pfarrstraße 41/43 · 97922 Lauda-Königshofen · Germany
Phone: +49 (0)9343 503-0 · Fax: +49 (0)9343 503-222
E-mail: info@lauda.de · Internet: www.lauda.de