



V1 VAULTZ



TECHNICAL DATA

V1 VAULTZ

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Table of content

1. Base components	3
2. Technical specifications	3
2.1 Cascade refrigeration unit, air cooled, alternatively water-cooled	3
2.2 Electrical control cabinet integrated in the machine part	4
2.3 Special evaporator	4
2.4 Cell combination TYPE ISO 120	4
2.4.1 All-glass entrance door	6
2.5 Tablet and additional operating options	6
2.6 Service router with interface for remote monitoring	6
3. Choosable components	7
3.1 Air-cooled condenser	7
3.2 Dry cooler incl. pump and expansion tank	8
3.3 Water-cooled condenser (chill water)	9
4. Optional components	9
4.1 Condensate pump	9
5. On-site services	9
5.1 Connections	10
5.2 Set-up	10
5.3 Ambient conditions	11
6. General provisions	12
7. Pictures	13
8. Certificates	13

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Sundern, August 13, 2026, Version 03

1. Base components

- Machine part designed as a cascade refrigeration unit, air-cooled alternatively water-cooled, incl. electrical control cabinet in energy-efficient design for installation directly behind or next to the cell (left or right)
- High quality wall-mounted evaporator
- Cell combination TYPE ISO 120 in its one-room version
- Service router with interface for remote monitoring
- Control panel: Microsoft Surface Tablet
- Service-friendly design
- Energy efficiency through the use of service-friendly, durable semi-hermetic refrigeration compressors, electronic E-valves and speed-controlled fans

2. Technical specifications

2.1 Cascade refrigeration unit, air cooled, alternatively water-cooled

Cooling capacity:	1,5 kW
Number of refrigeration circuits:	2 piece
Refrigerants:	
1st stage for the condensation of the 2nd stage of cascade	R449 a
2nd stage for cooling the treatment area	R508 B
Width approx.:	1,200 mm
Depth approx.:	600 mm
Height approx.:	2,000 mm
Weight approx.:	550 kg
Ambient conditions:	
Min./max. ambient temperature:	5/25 °C
ound pressure level at a distance of 3 meters, approx.:	63 dB (A)
Blow-off line cold	¾"/ min.PN 30bar (22 mm CU pipe)
Blow-off line water:	¾"/ min.PN 10bar (fabric hose/CU pipe)
Adequate ventilation and, if necessary, air conditioning must be provided for the engine room.	

2.2 Electrical control cabinet integrated in the machine part

Back-up fuse max.:	35 A
Maximum operating current at operating point*:	17,5 A
RCD installed:	Typ A / 30 mA
Total connected load at operating point*:	10 kW
Electrical connection value:	3Ph/N/PE 400V 50Hz 32 A
Electrical system type:	TN – Network / TNC Network
Control unit:	Siemens SPS S7-1200
Cabinet:	Integrated in the machine housing
System test:	according to DIN-EN 60204-1

*The operating point is an empirically determined value, which can vary due to various external effects.

2.3 Special evaporator

- Evaporator specifically designed for low temperature applications
- Evaporator block soldered with silver solder
- Evaporator core tubes internally finned
- Fan specifically designed for low temperature applications
- Electric defrost incl. safety shut-down

2.4 Cell combination TYPE ISO 120

Insulation:	polyurethane foam Foamed free of CFCs/HCFs
Surface:	Sheet metal, zinc-plated on the inside and the outside, powder coated
Pressure compensation:	Pressure compensation valve with increased heating
Floor:	0,8 mm stainless steel floor manufactured as a bottom tray. Slip resistance class 11 load capacity 20kN/m ²

Lighting: 2 linear luminaires as an LED lightning in the door frame
Energy efficiency class A+

Inner dimensions:

Width approx.: 1,000 mm
Depth approx.: 1,320 mm
Height approx.: 2,160 mm

Exterior dimensions:

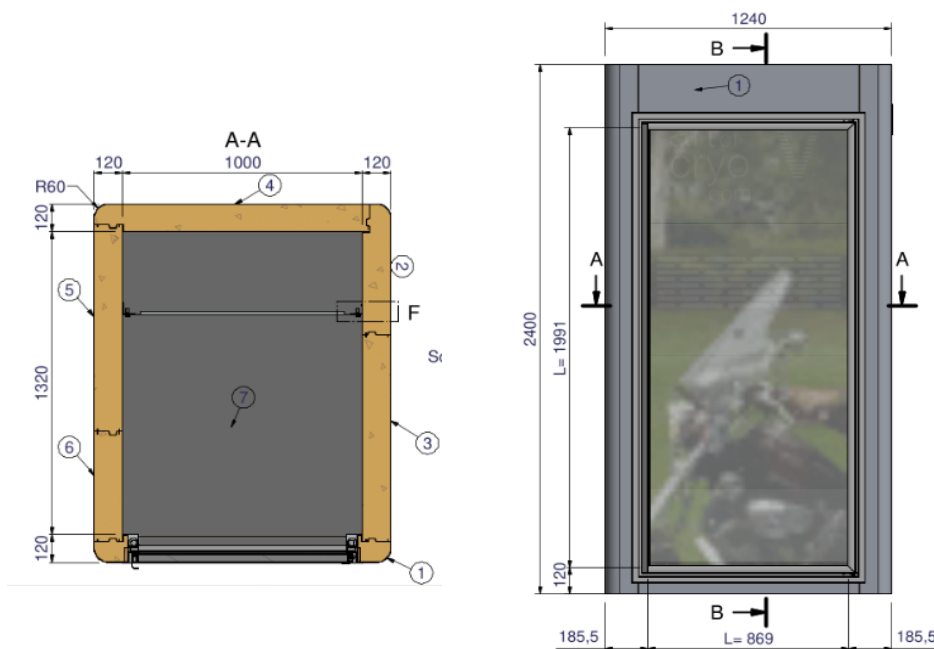
Width approx.: 1,240 mm
Depth approx.: 1,560 mm
Height approx.: 2,400 mm
Weight approx.: 400 kg

The colour is similar to RAL 9010 on the inside and RAL 9006 on the outside, other RAL colours are possible, on request..

Environmental specifications:

Temperature range: 18-21 °C
Rel. air humidity, max.: 5 %

All joint seals on the cell, windows, doors and elements serve as a maintenance joint.



2.4.1 All-glass entrance door

Type: DIN left or right Insulating glass door with frame

Door dimensions approx. 926 x 2,045 mm (W x H)

Internal door dimensions approx.: 869 x 1,991 mm (W x H)

- Circumferential magnetic seal
- Natural anodised aluminium frame with heating
- Continuous handle rail
- Heated triple glazing

2.5 Tablet and additional operating options

Display: Microsoft Surface Tablet

Software: Microsoft Windows 11

The following functions can be operated via the tablet:

- Temperature monitoring
- Countdown timer
- Switching the light on and off
- Setting the timer

Remote VPN access can be booked optionally.

2.6 Service router with interface for remote monitoring

- Internet connection via WAN port
- PLC monitoring with an alert system (via e-mail)
- VPN switch for simplified on-site administration
- German brand product

Netzwerk:

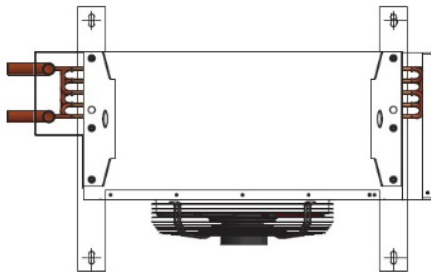
VPN	OpenVPN-Server, OpenVPN-Client
WAN/LAN	2 x RJ 45 10/100 Mbit/s, full and half duplex
WLAN	802.11 b/g/n, access point

3. Choosable components

- Air-cooled condenser
- Dry cooler
- Water-cooled condenser (chill water)  **no city-water (drinking-water)**

3.1 Air-cooled condenser

- High-efficiency compact vertical condenser
- Housing: galvanized steel, similar to RAL 7035
- EC-fan which meets the efficiency requirements of Directive 2009/125/EC



Width approx.:	1,319 mm
Depth approx.:	770 mm
Height approx.:	955 mm
Empty weight approx.:	110 kg
Max. ambient temperature:	43°C
Sound pressure level (OP) at a distance of 1 meter, approx.:	57 dB (A)

Max. pipe length between machine and
air-cooled condenser

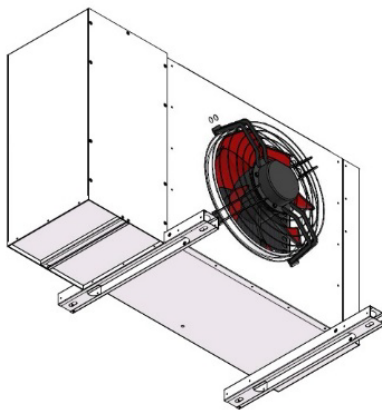
30 m

* On request, the unit can be made in horizontal design.

3.2 Dry cooler incl. pump and expansion tank

ATTENTION: no city-water (drinking-water)

- The dry cooler (glycol-based) is optimised for use in ultra low temperature units
- The very compact housing has a vertical design*
- The finned tube heat exchangers are designed for high efficiency with water-glycol mixtures
- The dry cooler is equipped with a maintenance-free and durable EC fan
- The speed is controlled via a PLC



Dry cooler power:	8 kW
Air volume flow:	4.540 m ³ /h
Air intake:	40 °C
Air discharge:	45.6 °C
Medium ethylene glycol:	34 Vol. %
Medium intake:	50 °C
Medium discharge:	45 °C

Pressure loss:	0.14 bar
Volume flow:	1.52 m ³ /h
Width approx.:	1,594 mm
Depth approx.:	770 mm
Height approx.:	956 mm
Empty weight approx.:	145 kg
Sound pressure level (OP) at a distance of 1 meter, approx.:	57 dB (A)
Max. pipe length between machine and dry cooler	20 m

3.3 Water-cooled condenser (chill water)



Attention: no city-water (drinking-water)

1.	Intake/discharge connections:	¾" R-AG
2.	Flow temperature min. / max.:	10 / 25°C
3.	Water flow rate:	0.45 m ³ /h
4.	Water pressure min. / max.:	0.5 / 5 bar

4. Optional components

- Condensate pump

4.1 Condensate pump

- For fully automated discharge of condensation water

5. On-site services

In order to ensure optimal introduction, installation and commissioning of V1, please meet the following prerequisites:

5.1 Connections

1. Current:

Back-up fuse max.:	35 A
Operating voltage:	3Ph/N/PE 400V 50Hz
Electrical system type:	TN – Network / TNC Network

The system is fitted with an RCD Type A / 30 mA.

2. Network / Internet:

The service router sets up an outbound TCP connection to the address.

<https://vpn.kaeltecloud.de> (IPv4: 128.140.2.254, alt. IPv6: 2a01:4f8:c2c:3e7f::1)

In order to establish a secure connection to the server, the following requirements must be met:

- a DNS server must be accessible in your network
- the above IP address (IPv4: 128.140.2.254) must be enabled
- the following TCP-Port must be enabled for the VPN tunnel: TCP-Port 443
- the following TCP-Port must be enabled for the Cloud-function: TCP-Port 8883

3. Cooling water connection **no city-water (drinking-water):**

- Intake/discharge connections: ¾" R-AG
- Flow temperature min. / max.: 5 / 25 °C
- Water flow rate: 0.45 m³/h
- Water pressure min. / max.: 0.5 / 5 bar

5.2 Set-up

- Unloading and bringing in of the components
- The machine part must be placed directly next to or behind the cell with a minimum distance of 20 cm and a maximum distance of 50 cm
- Container or similar for the disposal of the packaging material
- Free routes for bringing in
- If necessary floors should be protected (no warranty for damage)

- Fire safety measures
- Masonry, chiselling, earthworks, roofing and coating
- Lifting equipment such as cranes, scaffoldings, mobile working platforms, forklift trucks etc.
- Installation on level floor with flowing screed or tiles, max. 2 cm tolerance over a total length of 6 m
- Breakthrough as hole for condenser / Rückkühler incl. drain line: 200 mm diameter (for all variants).

Breakthrough between machine and cell:
single Vaultz: 200 x 500 mm

All breakthroughs must be sealed by the customer after our installation according to local fire standards.

In order to guarantee problem-free functioning of V1, the following points must be considered:

5.3 Ambient conditions

Set-up location:

- At least 5-fold air exchange of the room volume according to DIN EN 16798 part 3. Sufficient intake and exhaust ventilation must be provided.
- Recommended: 21 °C room temperature, 45% r.h.
- If a dehumidifier is used, please ensure automatic drainage.
- We expressly point out that the machine may transmit disturbing vibrations and noises to the building during operation. If necessary, precautions against the transmission of vibrations and noise to the building must be organized by the customer. This is not the responsibility of the manufacturer.
- It is possible that moisture (e.g. condensation or water due to snow formation) may escape from the cell. The manufacturer accepts no liability for any damage to the substrate and/or parts such as walls or drywall components. Please take appropriate precautions here.

6. General provisions

- Design and documentation of the machine according to the L&R standard and CE certification
- The limit values specified in EN 50160 must be observed for supply voltage
- If you are using a dehumidifier, please ensure that it has an automatic drainage system.

Note on water quality:

Various processes can take place in water-bearing systems, which can lead to corrosion, mineral deposits and also biological problems. We reject any claims for malfunctions or damage to systems or system components caused by insufficient water quality. In order to achieve proper and trouble-free operation of water-bearing systems, the water quality must therefore be checked and, depending on system-relevant data, water treatment and water treatment must be carried out.

On request, we can provide you with a reference value table for the recommended water quality.

Technical changes:

Our systems, machines and components are state-of-the-art. We reserve the right to introduce technical changes that do not impair the performance and functions of the unit.

7. Pictures



8. Certificates

ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFIKAT ◆ 證書 ◆ CERTIFICATE ◆ ZERTIFIKAT	 Industrie Service	
	ZERTIFIKAT gültig bis: 07.05.2034 CERTIFICATE valid until: 07.05.2034	
	EU-Baumusterprüfung (Modul B) - Baumuster - nach Richtlinie 2014/68/EU <i>EU Type examination (module B) - production type - according to Directive 2014/68/EU</i>	
	Zertifikat Nr.: Certificate No.: Z-IS-TAK-MUC-24-05-3337919-08094822	
	Name und Anschrift des Herstellers: Name and address of manufacturer: L & R Kältetechnik GmbH & Co. KG Hachener Straße 90a-c 59846 Sundern, Germany	
	Hiermit wird bescheinigt, dass das unten genannte Baumuster die Anforderungen der Richtlinie 2014/68/EU erfüllt. <i>We herewith certify that the type mentioned below meets the requirements of the Directive 2014/68/EU.</i>	
	Prüfbericht Nr.: Evaluation report No.: P-IS-TAK-MUC-24-05-3829363-3 vom 07.05.2024	
	Geleitbereich: Scope of examination: Baugruppen Kaskaden Kälteanlagen und Baugruppen Kaskaden Wärmepumpen zusätzliche Angaben siehe Anlage Cascade refrigerating system assemblies and cascade heat pump assemblies additional Information see Appendix	
	Fertigungsstätte: Manufacturing plant: L & R Kältetechnik GmbH & Co. KG Hachener Straße 90a-c 59846 Sundern, Germany	
	München, 08.05.2024 (Ort, Datum) (Place, date) Eidheftsprüfung durch TÜV SÜD Verity <i>Verification of Certificate by TÜV SÜD App Verity</i>	TÜV SÜD Industrie Service GmbH Zertifizierungsstelle für Druckgeräte  Johannes Steiglechner
Notifizierte Stelle, Kennnummer 0030 Notified Body, No. 0030 TÜV SÜD Industrie Service GmbH Westendstr. 199 80568 München GERMANY	Dokument ID: 3337919/YR40U 	

CERTIFICATE

International Certification Management GmbH

L&R Kältetechnik GmbH & Co. KG
Innovative Kältetechnik

D-58666 Sanderi Hachen, Hachener Str. 9/a

Standard:

DIN EN ISO 9001:2015

Scope:

Development, installations, distribution of refrigeration systems, switch and control cabinets, refrigeration and cryogenic systems for process engineering and manufacturing operations in industry

With this certificate it is confirmed, that the
L&R Kältetechnik GmbH & Co. KG Innovative Kältetechnik applies
a management system which meets the requirements of
DIN EN ISO 9001:2015

Jutta Deinbeck, Leitern Zertifizierungsstelle
Oberhausen, 17.11.2025

Deutsche
Akkreditierungsstelle
D-234 16338 01-00

ZERTIFIKAT
CERTIFICATE
CERTIFICAT
CERTIFICATO
CERTIFICADO

International
Certification
Management

Certificate No.
10171/QM/10.25

Issue date
02.12.2025

Valid until
01.12.2028

Translation of the German original

International Certification
Management GmbH
Strahlunger Straße 19
94363 Oberschneiding
Germany

info@ic-management.com
www.ic-management.com

FACHUNTERNEHMERBESCHEINIGUNG

KÄLTE

KLIMA



FACHBETRIEB

L & R Kältetechnik GmbH & Co. KG

Hachener Str. 90a-c

59846 Sundern

Ein Unternehmen wird mit dem Vollhandwerk „Kälteanlagenbau“ in die Handwerksrolle eingetragen, wenn der Betriebsleiter die Voraussetzungen für dieses Gewerbe erfüllt. Dem Betriebsleiter eines solchen Unternehmens ist die entsprechende Sach- und Fachkunde zur Installation, Prüfung und Wartung von Kälteanlagen insbesondere im nachfolgenden Sinne zuzusprechen:

- Er erfüllt die persönlichen Voraussetzungen zur Erlangung von Zertifikaten gemäß der Chemikalien-Kilanschweisverordnung/ Durchführungsverordnung (EU) 2024/2275. Folgende Tätigkeiten dürfen gemäß Absatz 1 Abs. 2 a) 1 V.m. Artikel 7 Abs. 1 dieser Durchführungsverordnung an arbeitslosen und mobilen Kälteanlagen, Klimaanlagen und Wärmepumpen, in Bezug auf fluorierte Treibgasgase und Kohlenwasserstoffe durchgeführt werden: Dichtesteckkontrolle, Kältemittelrückgewinnung, Installation, Reparatur, Instandhaltung und Wartungen.
- Er besitzt die erforderliche Sachkunde im Sinne des § 5 Abs. 2 Nr. 2 i.V.m. § 5 Abs. 1 Satz 1 Nr. 1 der Chemikalien-Gesetzverordnung.
- Er weist die notwendige Berufsausbildung einer zur Prüfung befähigten Person im Sinne des § 2 (6) Betriebsbescheinigungsverordnung auf.
- Er besitzt die notwendige Fachkunde zur Durchführung einer energetischen Inspektion an Kälteanlagen gem. § 77 Nr. 3 des Gebäudeenergiegesetzes und zur Betriebsprüfung an Wärmepumpen gem. § 60a Abs. 4 Nr. 3 des Gebäudeenergiegesetzes.

Das Kälteanlagenbauhandwerk ist ein zulassungspflichtiges Handwerk gem. § 1 Abs. 2 i.V.m. Anlage A Nr. 18 der Handwerksordnung.


Marcel Rehder
Geschäftsführer

Bezeichnung gemäß Nr. 18 der Handwerksordnung



(Bezeichnungsgewalt)


Verband Deutscher Kälte- und Wärmepumpenbetriebe e.V.

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L & R Källetechnik GmbH & Co. KG Hachener Str. 90c D-59846 Sundern-Hachen				
EU Konformitätserklärung / EU Declaration of conformity DÖRL 2014/38/EU Anhang VII / PED 2014/68/EU, Annex VII				
Hiermit erklären wir, dass die benannte Baugruppe/Maschine allen einschlägigen Bestimmungen unserer Richtlinie entspricht. We hereby declare that the machine assembly complies with all relevant provisions of this Directive.				
Benennung / Designation: Kryo-Kältemaschine / Cryo cold chamber Kältemittel / Refrigerant: R 448 A / R508B Typ / Type: Vault V1 Projekt-Nr. / project-no.: Bajahr / Year of manu.: 2024				
Kategorie II, Modul B (Baumuster)C2 / Category II, Module B (type examination)C2				
Kategorie III, Status I / Notified body: TÜV SÜD Industrie Service GmbH Richtlinie 05 90330 München				
Zertifikat-Nr. / Certificate no.: Modul B (Baumuster) Modul C2				
Z-IS-TAK-MUIC-24-05-3337610-08094822 Z-IS-TAK-MUIC-24-05-3337610-08113306				
Dokument mit der Baugruppenbeschreibung und den angewandten Konformitätsnormen/Document with description of assembly and the applied conformity assessment procedures: 301080 Vons I				
Andere angewandte Richtlinien / Other applied directives: Maschinenrichtlinie 2006/42/EG, Anhang II A Machinery Directive 2006/42/EC, Annex II A Richtlinie 2014/30/EU Elektromagnetische Verträglichkeit Directive 2014/30/EU Electromagnetic Compatibility				
Angewandte harmonisierte Normen / Applied harmonized standards: EN 378-2 :2018, Kälteanlagen und Wärmepumpen / Refrigerating systems and heat pumps EN ISO 12100 :2011, Sicherheit von Maschinen / Machinery safety EN 61000-6-1 und 2 :2019, Störleistung / Interference immunity				
Angewandte nationale technische Spezifikationen, insbesondere: Applied national technical specifications, in particular: DIN 8301 :2002, Schutz von Frischluft, Grund- und Oberflächenwasser / Protection of soil, groundwater and surface water				
Beim Erwerb der Baugruppe/Maschine, die nicht mit uns abgestimmt ist, verlieren diese EU Konformitätserklärung ihre Gültigkeit. This declaration of EU conformity shall become null and void when the assembly is subjected to any modification that has not been agreed with our approval.				
Sundern, 25/02/2024				
<table border="0"> <tr> <td data-bbox="876 1729 1112 1767"> Befuglichtigte Person: L & R - Assistente </td> <td data-bbox="1112 1729 1311 1767"> André Holmann Technischer Geschäftsführer </td> </tr> </table>			Befuglichtigte Person: L & R - Assistente	André Holmann Technischer Geschäftsführer
Befuglichtigte Person: L & R - Assistente	André Holmann Technischer Geschäftsführer			

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by L&R Kältetechnik GmbH & Co. KG

Hachener Str. 90a-c

59846 Sundern | Germany

Tel.: +49 2935 9652 0 | Fax: +49 2935 9652 501

www.artofcryo.com