

VARISTAR LHX 20

**VARISTAR cabinet platform with
water-cooled heat exchanger up to 20 kW**



VARISTAR LHX 20

High demands on cooling

Processors and electronic components are becoming increasingly smaller and more powerful with the result that much more heat is generated. Heat generation of more than 6 kW in a cabinet can no longer be dissipated by pure air cooling. Water is 4 times more efficient in comparison to air, so the application of an active air/water cooling concept makes sense.

Perfect solution

Based on these requirements and expected future developments Schroff has created VARISTAR LHX 20 with a powerful integrated air/water heat exchanger. Heat dissipation of 20 kW per cabinet can be achieved safely and efficiently without affecting the environment.

Applications

VARISTAR LHX 20 is especially suitable for the following market sectors:

- ✔ Server (particularly Blades)
- ✔ AdvancedTCA
- ✔ Systems with extremely high dissipation losses (for example in the medical-technology market)

Cool times with the perfect solution from Schroff

VARISTAR for
AdvancedTCA assembly

VARISTAR

The parallel development of the cabinet platform VARISTAR and of the air/water heat exchanger guarantees an optimal combination of cabinet and cooling.

- ✔ Type of protection IP 55
- ✔ Static loading of up to 1000 kg
- ✔ High flexibility due to a wide range of accessories
- ✔ Smart cable ducting
- ✔ Condensation protection

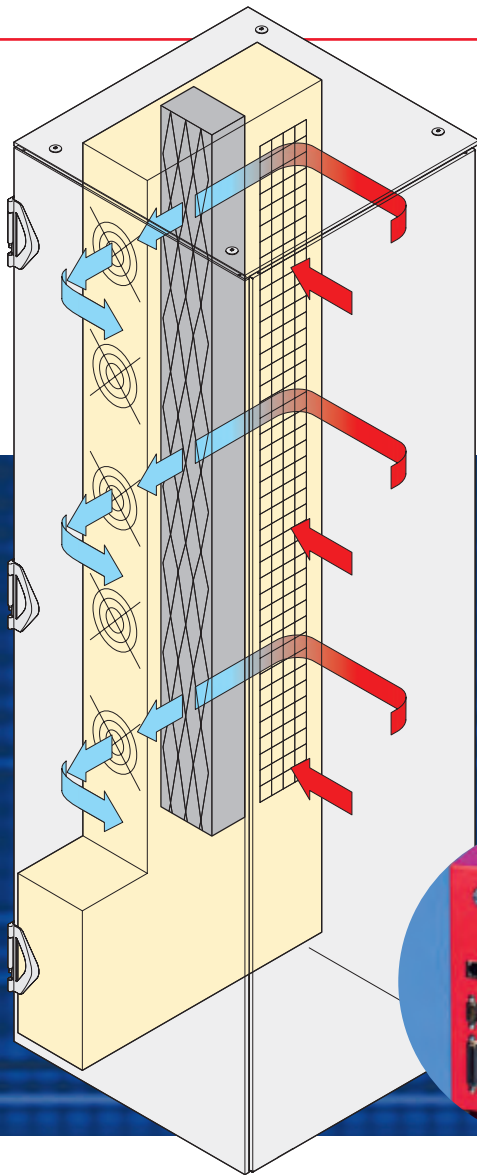
Air/water heat exchanger (LHX 20)

The convincing facts:

- ✔ Cooling capacity up to 20 kW
- ✔ Air capacity of 1000 to 3000 m³/h
- ✔ Incoming water temperature 7 °C to 15 °C
- ✔ Environmental conditions:
temperature range 5 °C to 70 °C and relative humidity 5 % to 85 %
- ✔ Air outlet temperature of 18 °C to 30 °C adjustable



Air/water heat exchanger
(LHX 20)



Functional principle of the air/water heat exchanger



Electronic monitoring unit with display and interface

Safety and Monitoring

During the development of the LHX particular attention was paid to the safety and monitoring functions:

- ✔ A droplet/condensation eliminator avoids water in the air/water heat exchanger
- ✔ The water and power supply is ducted from the bottom, whereby interference with the systems avoided
- ✔ Interface RS 232 for:
 - alarm point and warning signals
 - external cabinet control systems
 - systems monitoring through AdvancedTCA Shelf Management
- ✔ Alarm output via potential free contacts

SERVICE ...

... the number one priority at Schroff

Right from the beginning our application engineers will be advising you on individual projects worldwide. Delivery of standard products ex stock shortens delivery times - saving time and money. In the After-Sales-Area extensive support is provided. Our worldwide team of experts is always available to assist you.

Cooling capacity up to 20 kW per cabinet

VARISTAR LHX 20 – advantages at a glance

- ✔ Heat exchanger integrated into the cabinet – compact and effective
- ✔ Can be installed in the right or left side as standard
- ✔ Even cooling of all systems covering the entire assembly height
- ✔ Entire heat loss absorbed by the cool water circuit
- ✔ Optimum system regulation through integrated electronic control
- ✔ Easy service access from the front:
 - maintenance free system
 - fast exchange of fan units
 - built-in components, server etc.
 - will remain operational
- ✔ Optimum safety through:
 - preventative regulation and control
 - integrated interfaces for alarm and communication
 - Redundant power supply, 48 V DC
 - Integrated droplet/condensation eliminator
- ✔ Low noise

VARISTAR LHX 20 for AdvancedTCA



01005019

- Cabinet IP 55, RAL 7021 with air/water heat exchanger
- Assembly dimensions harmonised with the assembly of AdvancedTCA sub racks (cabinet depth 800 mm)
- Air / water heat exchanger 20 kW powered from of 48 V_{AC} or 230 V_{AC}, assembled on the left side (assembly on the right side possible)
- Maximum loading capacity of the 19" plane: 400 kg

Delivery Comprises (completely assembled and earthed)

Item	Qty	Description
1	1	Welded frame, St profile, zinc-plated, RAL 7021, with IP 55 sealing
2	1	Top cover, St, RAL 7021
3	1	Glazed front door, RAL 7021, single sheet safety glass 6 mm, 180° hinge, 4 point locking, lever handle for optional DIN profile half cylinder
4	1	Rear door, St, RAL 7021, 180° hinge, 4 point locking, lever handle for optional DIN profile half cylinder
5	2	Side panel screwd, St RAL 7021
6	1	Base plate, St, RAL 7021, cable ducting at rear, water connection at front, which can be sealed with sliding covers
7	4	Base 100 mm, St, RAL 7021, removable covers, integrated feet
8	1	19" panel/slide mounts with EIA cut-outs, St, RAL 7021, recessed from the front 175 mm, 500 mm spacing between front and rear 19" plane
9	2	Carrier rail for support of air/water heat exchanger and 19" panel/slide mounts, St, RAL 7021
10	2	Separating cover for the optimised airflow, St, RAL 7021
11	1	Air / water heat exchanger 20kW, RAL 7021, assembled on left side
12	1	User Manual

Order Information

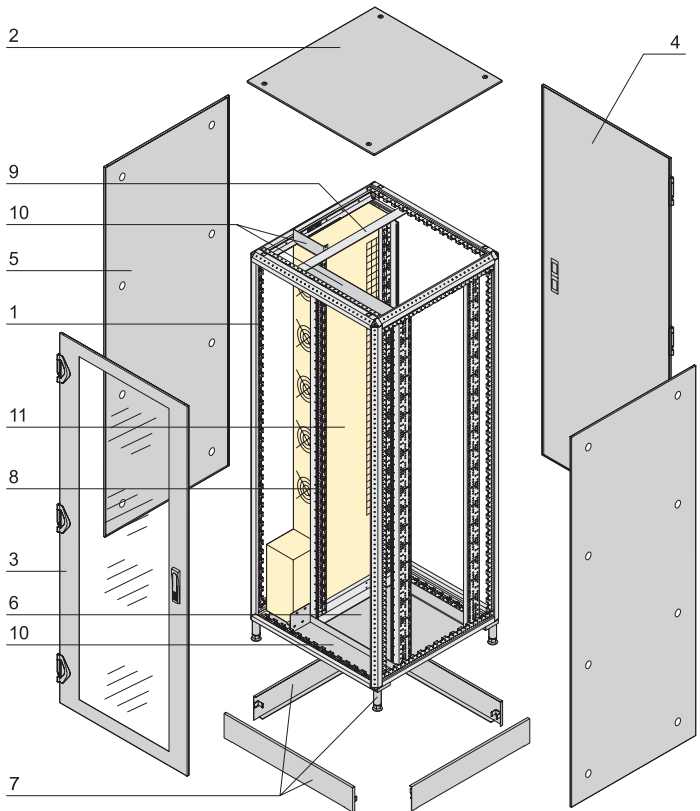
Height U	Height H mm	Width W mm	Depth D mm	Description	Order no.
42	2100	800	800	230 V _{AC}	10130-010
42	2100	800	800	48 V _{DC}	10130-011
DIN semi-profile cylinder common locking (1 key fits into all locks) incl. 2 keys					25127-995
Lifting eye 4 pieces					23130-072

- Technical data air / water heat exchanger see page 6



For further information www.schroff.biz/oneclick
oneClick code = Order no.

01005091



VARISTAR LHX 20 for Server application



01005023

- Cabinet IP 55, RAL 7021 with air/water heat exchanger
- Assembly dimensions harmonised with the assembly of 19" servers (cabinet depth 1100 mm)
- Air / water heat exchanger 20 kW powered from 230 V_{AC}, mounted on the left side (assembly on the right side possible)
- Maximum loading capacity of the 19" plane: 800 kg

Delivery Comprises (completely assembled and earthed)

Item	Qty	Description
1	1	Welded frame, St profile, zinc-plated, RAL 7021, with IP 55 sealing
2	1	Top cover, St, RAL 7021
3	1	Glazed front door, RAL 7021, single sheet safety glass 6 mm, 180° hinge, 4 point locking, lever handle for optional DIN profile half cylinder
4	1	Rear door, St, RAL 7021, 180° hinge, 4 point locking, lever handle for optional DIN profile half cylinder
5	2	Side panel screw, St RAL 7021
6	1	Base plate, St, RAL 7021, cable ducting at rear, water connection at front, which can be sealed with sliding covers
7	1	Base 100 mm, with additional middle traverse, St, RAL 7021, removable covers, integrated feet
8	4	19" panel/slide mounts with EIA cut-outs, St, RAL 7021, recessed from the front 175 mm, 740 mm spacing between front and rear 19" plane
9	2	Carrier rail for support of air/water heat exchanger and 19" panel/slide mounts, St, RAL 7021
10	4	Separating cover for the optimised airflow, St, RAL 7021, top and bottom
11	1	Air / water heat exchanger 20kW, RAL 7021, assembled on left side
12	1	User Manual

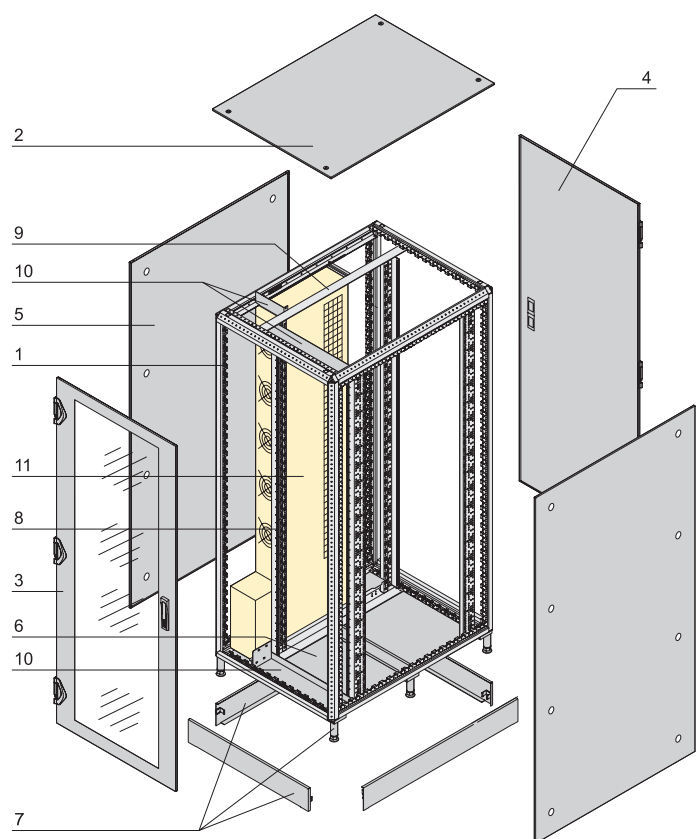
Order Information

Height U	Height H mm	Width W mm	Depth D mm	Description	Order no.
42	2100	800	1100	230 V _{AC}	10130-015
DIN semi-profile cylinder common locking (1 key fits into all locks) incl. 2 keys					25127-995
Lifting eye 4 pieces					23130-072

- Technical data air / water heat exchanger see page 6



For further information www.schroff.biz/oneclick
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01005092

Technical Data LHX 20

Cooling capacity

Usable cooling capacity, measured at cooling water inlet temperature 15° C, outlet air temperature 25°C 12 kW

Adjustment range 18 ... 30 °C (adjustable in 0.1 °C increments)

Max. offset ± 2 K

Water circuit

Cooling medium ¹⁾ Water

Water inlet temperature ²⁾ 7 ... 15 °C

Water circulation volume 1,55 m³/h

Static pressure loss at 1,55 m³/h 0,5 bar

Water conduit Copper

Air circuit

Airflow volume 3000 m³/h

Electrical Data AC

Supply voltage 1-phase 230 V_{AC} (50/60 Hz)

Max. current consumption 4,3 A

Max. power consumption 700 W

Apparent power at full load 990 VA

Protection fuse 10 A

Electrical Data DC

Supply voltage 48 V_{DC}

Max. current consumption 13 A

Max. power consumption 624 W

Protection fuse 16 A

Interface

RS 485 / ST-Bus (RJ 45) Temperature and humidity limit, fan delay, set point,/ connection possibility for external display and digital display

RS 232 (SUB-D 9-pole) Status message, ASCII protocol

Digital in- / output (SUB-D 25-pole) External On/Off, alarm output and warning messages

General Data

Protection type IP 20

Ambient temperature during transport -25 ... 70 °C

Relative humidity 5 ... 95 %

Weight 78,5 kg (82 kg with water)

1) The VGB guidelines have to be followed for efficient operation of the air / water heat exchanger (VGB-R 455 P).

2) The control accuracy cannot be guaranteed for water inlet temperature of < 7 °C and > 15 °C.

Furthermore we advise the risk of condensation if the water temperature falls below.

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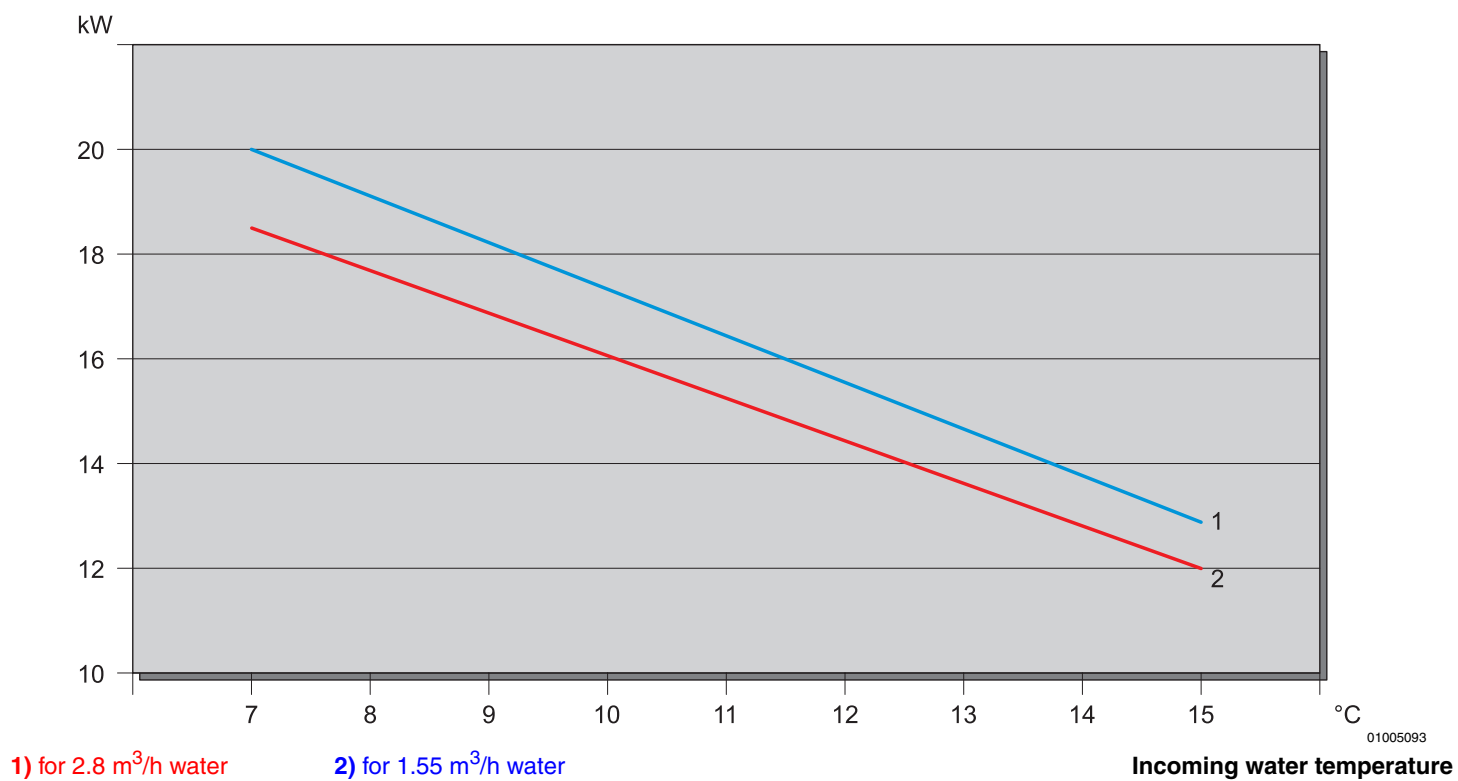
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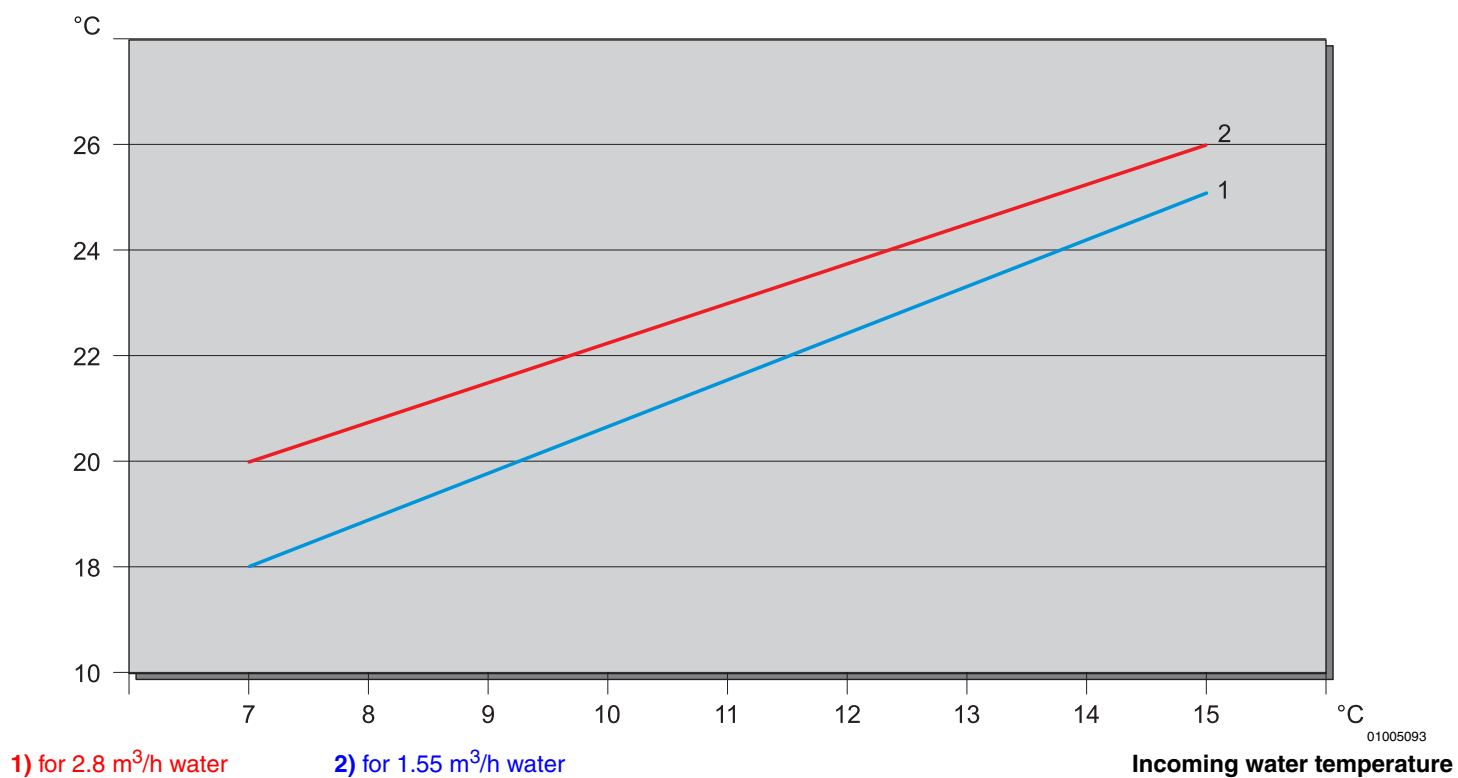
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Characteristic Curves Chart

Usable cooling capacity at constant air inlet temperature of 40 °C



Air outlet temperature at constant air inlet temperature of 40 °C



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Up to date contact addresses of all subsidiaries and agencies can be found in detail on the Internet.



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