



# Carat

Service & maintenance





# Carat

## 1.0 Installation

### 1.1 Product description

Lindab's chilled beam Carat is placed above a perforated suspended ceiling and supplies cooling, with a low air velocity, to the room below. Carat has a high radiation quotient of approx. 35% (compared to approx. 5% for traditional finned products). This gives great freedom in placing, when installing Carat, yet keeps air velocities low. Carat can be used for cooling. It can be equipped with the Regula Connect condensation guard feature. It offers many possibilities and great flexibility. For example, it is possible to paint Carat any color you want.

### 1.2 Handling

The beam must be handled with care, ensuring that the beam does not sustain dents, scratches or bends during installation.

Always seek to lift the beam at multiple points.

- Do not lift in pipes
- Do not lift in edges
- Each beam is equipped with protective film to avoid any damage during transport and handling at building site. The film needs to be removed before commissioning the products.

### 1.3 Mounting instruction

- Please visit [www.lindqst.com](http://www.lindqst.com)
  - Select Documentation Finder
  - Select "Carat"
  - Select "Mounting"

### 1.4 Connection description water

Flow indication arrows are shown on the inlet and return pipes in order to assist the installer. If the beam has been ordered with integrated valves, a special direction of the flow must be upheld to ensure correct flow through the thermostatic valve. If the beam has been delivered without integrated valves, the flow can be reversed, depending on the location of the retrofitted valve. Please note the flow direction indicator on the valve to insure correct installation in relation to the desired flow.



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## 1.4.1 Push-on fittings

- Please ensure that all pipes and fittings are undamaged, as even small dents and scratches potentially pose a risk of leakage in the system. Always remember to do a pressure test after assembly of the pipe work.
- Both flow and return pipe is covered by a plastic or rubber protection cover, which should be removed before installation.



After removing the protection cover, make sure that the pipe is intact and undamaged, especially at the pipe end. Crooked or in other ways imperfect pipe ends will result in leaks. Deburr the pipe on the inside and the outside, using a deburring tool before installation



- Mount a push-on fitting to the pipe. Make sure to press the fitting all the way onto the pipe. Consult the installation guide for the specific fitting for further details on proper installation.

### Push-on fitting





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## Push-on valve



**Notice!** The connection pipes are internally soft-welded why it's not allowed to solder the beam to the pipes.

### 1.4.2 Compression fitting

- Please ensure that all pipes and fittings are undamaged, as even small dents and scratches potentially pose a risk of leakage in the system. Always remember to do a pressure test after assembly of the pipe work.
- While mounting a compression fitting, the pipe will be exposed to a big amount of force, creating a risk of crushing the pipe. To ensure that the pipe won't be crushed when mounting the compression fitting, a copper insert should be inserted into the pipe.
- Both flow and return pipe is covered by a plastic or rubber protection cover during transport, which must be removed before installation.



- After removing the protection cover, make sure that the pipe is intact and undamaged, especially at the pipe end. Crooked or in other ways imperfect pipe ends will result in leaks. Deburr the pipe on the inside and the outside, using a deburring tool before installation





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- The copper insert should be placed inside the pipe on the beam. Always support the copper pipe coil when inserting the copper insert into position.



- Mount a compression coupling and/or a valve to the pipe. Don't stress the nut too much, since this may crush the pipe.



**Notice!** The connection pipes are internally soft-welded why it's not allowed to solder the beam to the pipes.

## 1.4.3 Flex hoses

Our flexible hoses can be used with both compression and Tectite fitting. We recommend using Tectite fittings, for easier and faster mounting.

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- Both flow and return pipe is covered by a plastic or rubber protection cover, which should be removed before installation.





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After removing the protection cover, make sure that the pipe is intact and undamaged, especially at the pipe end. Crooked or in other ways imperfect pipe ends will result in leaks. Deburr the pipe on the inside and the outside, using a deburring tool before installation



- Mount a push-on fitting to the pipe. Make sure to press the fitting all the way onto the pipe. After mounting the push-on fitting, mount the flexible hose. Make sure that the flexible hose is pushed fully into the fitting. Consult the installation guide for the specific fitting for further details on proper installation.

## Push-on fitting



## Push-on valve



**Notice!** The connection pipes are internally soft-welded why it's not allowed to solder the beam to the pipes.



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## 2.0 Commissioning

### 2.1 Product labeling



Fig.1: Label location exterior (Above water connection)

On the label you'll find:

- Order: Order identification number.
- Pos: Order position.
- Product: Product configuration.
- Project: Project name.
- Mark: Marking noted on order.
- Nozzels: Number of nozzles.
- Plugs: Number of plugged nozzles.
- Product ID: Product number.
- Sign: To be signed when checked and commissioned on site.



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## 3.0 Maintenance

The interval of cleaning depends on the indoor environment where the beam is placed. Under optimal conditions the Carat beams only need cleaning every 5 years.

### 3.1 Cleaning instructions

- Only use lukewarm water and a mild detergent.





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## 4.0 Product and system specification

### 4.1 Material data

	Carat 31	Carat 44	Carat 58	Carat 71	Carat 84
Weight, kg/m	1.7	2.5	3.3	4.2	5.0
Water content, l/m	0.4	0.5	0.7	0.9	1.06
Copper pipes, quality	EN 12735-2 CU-DHP	EN 12735-2 CU-DHP	EN 12735-2 CU-DHP	EN 12735-2 CU-DHP	EN 12735-2 CU-DHP
Pressure class	PN10	PN10	PN10	PN10	PN10

### 4.2 Environmental declaration

- Please visit [www.lindqst.com](http://www.lindqst.com)
  - Select Documentation Finder
  - Select “Carat”
  - Select “Environmental declaration”

### 4.3 Working and test pressure

- Lindab’s waterborne products have been manufactured and tested according to the Pressure Equipment Directive 97/23/EC. The products are classified as SEP – Sound Engineering Practice.
- Pressure table

Pressure class	PN10
Max. working pressure	10 bar
Max. recommended dynamic pressure	0,2 bar
Max. test pressure	16 bar

- Even though the battery of the chilled beam can withstand a very high static working pressure, we recommend a much lower dynamic working pressure, to avoid noise issues from the valves.

### 4.4 Water quality

- The water preparation and maintenance for the chilled beam water circuit should be handled by a specialist
- To prevent corrosion, the water circuit must be airtight
- The water system must also be equipped with aerators to remove any build-up air in the system.
- The water should be oxygen free, to prevent corrosion.
- The water system must be filled with potable water that complies with the “EC directive 98/83/EC”.



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- pH value of water must be between approximately 6-9 pH
- The water velocities should not exceed 1m/s, and should be kept as close to the nominal flow as possible to minimize noise and optimize the energy yield
- There should be used in-line strainers to remove dirt particles from the water.
- If the water contains any additive inhibitor this must be appropriate to use with copper and solder.

## 4.5 Capacity test

- Lindabs passive chilled beams are tested according to EN-14518.



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**UK** - Here you can find product updates/mounting instructions and support telephone number/mail.

**www.lindab.com**

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**DK** - Her kan du finde seneste produkt opdateringer/montagevejledninger samt support tlf. nr/mail.

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**FI** - Täältä löydät uusimmat tuotetiedot ja asennusohjeet sekä tuotetuen yhteystiedot.

**www.lindab.fi**

Oikeus muutoksiin pidätetään.

**DE** - Hier finden Sie aktuelle Produktinformationen/ Montageanleitungen und Telefonnummer/ E-Mail-Adressen der Ansprechpartner.

**www.lindab.de**

Änderungen vorbehalten.

**IT** - Qui potete trovare istruzioni di montaggio, informazioni sul prodotto ed un supporto tecnico qualificato  
Tel. 011 9952099 - e-mail: lindab@lindab.it

**www.lindab.it**

Soggetto a modifica senza obbligo di preavviso.

**FR** - Vous trouverez les fiches produits ou de montage actualisées ainsi que les coordonnées du support téléphonique à l'adresse suivante :

**www.lindab.fr**

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