ThermoKey®
Heat Exchange Solutions

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Instructions for handling and unpacking
ISO 9001 – ISO 14001 – ISO 45001

Istruzioni per la movimentazione ed il disimballo
ISO 9001 – ISO 14001 – ISO 45001

Anweisungen für die Beförderung und das Auspacken
ISO 9001 – ISO 14001 – ISO 45001

Instruccionesde desplazamiento y desembalaje
ISO 9001 – ISO 14001 – ISO 45001

Instructions pour la manutention et le
ISO 9001 – ISO 14001 – ISO 45001

Instrukcje dotyczace przenoszenia i rozpakowywania
ISO 9001 – ISO 14001 – ISO 45001

Instruktioner för hantering och uppackning
ISO 9001 – ISO 14001 – ISO 45001

Pokyny pro zacházení a vybalení
ISO 9001 – ISO 14001 – ISO 45001

Utasítások a mozgatáshoz és a kicsomagoláshoz
ISO 9001 – ISO 14001 – ISO 45001

Инструкция по обращению и распаковке
ISO 9001 – ISO 14001 – ISO 45001

Instruktioner til håndtering og udpakning
ISO 9001 – ISO 14001 – ISO 45001

MT IM_TK GEN 05 2022

THE ORIGINAL VERSION OF THESE INSTRUCTIONS IS IN ITALIAN

LANGUAGES SUMMARY

EN

ThermoKey®

Heat Exchange Solutions

Instructions for handling and unpacking

Quality Management System ISO 9001

Environmental Management System ISO 14001

Occupational Health and Safety Management System ISO 45001

MT IM_TK EN 05 2022

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READ CAREFULLY AND BE SURE TO THOROUGHLY UNDERSTAND ALL THE INFORMATION PROVIDED IN THESE INSTRUCTIONS BEFORE DESIGNING AND, IN ALL CASES, BEFORE CARRYING OUT ANY HANDLING, UNPACKING, ASSEMBLING, POSITIONING AND COMMISSIONING OPERATION INVOLVING THE UNIT.

ThermoKey declines any and all liability for injuries to people or damage to property arising from failure to comply with the indications given in this document.

The original version of this manual is in Italian and can be found on our website
www.thermokey.com
The translation into English conforms to the original and can be found on our website:
www.thermokey.com
The translations may contain mistakes. In case of doubt, always refer to the original Italian version or to its English translation.

THE STRUCTURE OF THE MANUAL IS INDICATED HEREAFTER

GENERAL INSTRUCTIONS FOR SAFE USE (IG)

INSTRUCTIONS FOR HANDLING AND UNPACKING (IM)

INSTRUCTIONS AND TECHNICAL SPECIFICATIONS (TC)

SPECIFIC USE AND MAINTENANCE INSTRUCTIONS (IS)

The “Instructions for Handling and Unpacking” are part of the manual and include the following

INDEX

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IM 1. Content of "instructions for handling and unpacking"

In the "Instructions for Handling and Unpacking" list the necessary operations are indicated, by the means of numbered figures, in order to allow the handling and unpacking of the various units. In the case of units not contemplated in the following chapters, the correct information will be provided in specific documents-manuals (see website: ***www.thermokey.com*).**

IM 2. Unit Coolers

IM 2.1. HANDLING

(Unit handling in factories and deposits, loading and unloading from/onto motor vehicles)

1. Always handle the packaged unit with a forklift, if the floor surface is regular and the difference in height when lifting is limited. It is mandatory to check that the forks sufficiently protrude from the long side of the cage profile. The forklift in use must be suitable for the weight of the unit, which is stamped on the specific ID plate identifying the product and its geometric features.

2. Do not damage the unit throughout handling operations.

Below is a list of series of the unit coolers illustrated in this manual. Any unit missing from the list below is described separately (see our website: ***www.thermokey.com***).

Group A – Cubic unit coolers, series IHT, IMT, ILT, AHT, AMT, ALT, BHT, BMT, BFT, ALC, AMC, PH, PM, THT, TMT, THB, TMB, FLT, FLA, FLC , FC.

Group B – Dual flow unit coolers, series DHS, DMS, DHL, DML, ADHS, ADMS, ADHL, ADML, GHS, GMS, GHL, GML, SHS, SHL, SHS, SHL.

IM 2.2. UNPACKING

ThermoKey Spa is able to provide unit coolers, both cubic and double flow (see above code), in two different modalities. With supports facing downwards or upwards.

1. 1. Unit coolers with supports facing downwards. The unit cooler must be turned to allow mounting to the ceiling (rotation must be carried out on a flat, solid surface so that there are no obstacles that may jeopardize the unit integrity - ***Figure 1***).
1. This operation must be carried out using suitable equipment with the specific unit sizes and weights (refer to the calculation charts and to the catalogues or to the Internet website: ***www.thermokey.com*** in the catalogue download area).

2. Unit cooler with supports facing upwards. The unit cooler is placed in such way that it is ready for mounting to the ceiling.

3. Remove the upper part of the packaging, making sure that the unit and the remaining packaging do not get damaged as they are necessary for installation ***(Figure. 2).***

IM 2.2.1 PROVISIONS TO BE MADE BY CUSTOMER

The customer shall provide for the following:

- transport of the unit;
- handling, lifting;
- any equipment, resource and material/tool required to install the unit;
- preparation of suitable rooms authorized for use in conformity with the regulations in force in the country of destination;
- verification of accessibility and possibility of handling the unit inside the facility;
- for unit coolers with water defrosting system, be sure to provide a discharge system with suitable drain pipes and protections in accordance with national regulations in force in the country of destination.

IM 2.3. POSITIONING

The operations described below must be carried out using an aerial work platform, suitable for the kind of process to be carried out.

1. Install the unit on the ceiling on a flat, solid surface, which is capable of bearing the weight of the unit.

2. Before final unit positioning, prepare supporting tie-rods on the ceiling respecting the distances between the holes and the interaxle spacing of the supports (refer to the catalogue, or to the Internet website: ***www.thermokey.com*** in the catalogue download area) and keeping at a sufficient distance from the walls in order to allow for correct unit operation and maintenance.

3. To size the supporting tie-rods, refer to the catalogue or to the Internet website: ***www.thermokey.com*** in the catalogue download area. The information in the catalogue/on the website is useful to determine the weight of the packaged unit, which is necessary to calculate the resistance of the supporting tie-rods.

4. Once the packaging cage has been lifted, pass the tie-rods through the holes prepared on the fastening supports (***Figure .3).***

5. Block the nuts on the tie-rods after fitting a lock washer in between (***Figure. 3-5).***

6. Loosen the screws that hold the packaging to the unit and bring the packaging casing back down to the ground (***Figure.4).***

7. If the installation requires work to be carried out at a height or under overhanging conditions, thus posing a risk of falling, do not use ladders, but follow the national regulations in force relating to safety during "work at a height".

IM 3. Remote Units (Dry Cooler and Condensers)

Make sure that all the units are placed level or with a 1% slope on the liquid line.

IM 3.1. HANDLING TABLE-TYPE CONDENSERS AND DRY COOLERS

Following the condensers and dry cooler series present in this manual. The units not in the below list are treated separately (see website www.thermokey.com)

Group A – Condenser series CHD, CLD, CQD
Dry Cooler series EHD, ELD, EQD, WHD, WLD, WQD

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Group B – Condenser series CH, CL, CQ, CR, KH, KL, KQ, KR, AKH, AKL, AKQ, AKR, MC, MK, TMK,TMC
Dry Cooler series DH, DL, DQ, DR, EH, EL, EQ, ER, GH, GL, GR, GQ, WH, WL, WQ, WR

1. Handle the packaged unit with a lifting crane, using an appropriate harnessing system around the packaging based on the unit weight, indicated on the specific product identification label. A load distribution beam is recommended when using the lifting and harnessing crane. If the floor surface is regularly paved and the difference in level when lifting is limited, it is advisable to use a forklift that can bear the weight of the unit, which is indicated on the specific product identification label. A check must also be made that the forks sufficiently protrude from the long side of the cage profile.

2. For unit handling all the lifting points must be used.

3. Do not damage the unit throughout all handling operations.

IM 3.2. UNPACKING

Remove the packaging (***Figures 6 and 7***), making sure not to damage the unit and paying special care to the finned pack exchanger.

IM 3.3. ASSEMBLY

1. It is forbidden to use the headers as lifting points. Moreover, the following rules must be followed with.

2. If the unit is placed vertically (Figures 8 and 9), it must be lifted with either a chain or equivalent using all the lifting points. ThermoKey recommends using a load distribution beam. It is necessary to check the lifting capacity of every single chain (or similar means) against the overall weight of the unit, which is indicated on the specific product identification label. It is forbidden to pass a single rope or cable through all the lifting supports.

3. Just for group A: handle the unit with a lifting crane only, using a suitable harnessing system based on the unit weight, as indicated on the specific product identification label. ThermoKey recommends using a load distribution beam.

4. Before laying the unit horizontally onto the support system, make sure that there are no protruding parts and nails or other foreign matter that may eventually damage it. Moreover, ensure that the height available from the mount is greater than that of the manifold.

5. If the unit is placed horizontally, to position it on a supporting structure (***Figures 10 and 11***) it must be lifted using at least half of the lifting supports installed on each side, always hooking it up from the lifting supports at its ends and centre and, possibly, using a load distribution beam. This operation may also be carried out using belts (***Figure 12***) whose number shall be at least half of the number of modules, possibly using a load distribution beam in order to prevent the structure from bending and getting deformed. Check the lifting capacity of every single belt against the overall unit weight, as indicated on the specific product identification label.

6. Only for Group A units: handle the unit exclusively with belts, whose number shall be at least half of the number of modules, possibly using a load distribution beam in order to prevent the structure from bending and being deformed. Check the lifting capacity of each single belt against the overall unit weight, as indicated on the specific product identification label. When using a forklift, ensure that the forks adequately protrude from the long side of the unit (***Fig. 12***).

7. To size the supporting structure, refer to the catalogue or to the Internet website ***www.thermokey.com*** in the catalogue

download area, where the weight and the space occupied by the product can be calculated.

8. After placing the unit on the supporting structure and removing the lifting supports, the supports are mounted by using tools fitted with a 13 mm hex head.

IM 3.4. V-TYPE CONDENSERS AND DRY COOLERS

IM 3.4.1 Handling

Condenser series JHD, JLD, JQD; and Dry Cooler series VHD, VLD, VQD

1. Handle the unit with a lifting crane, using a suitable harnessing system according to the weight of the unit indicated on the specific product identification label, possibly supported by a load distribution beam.

2. Otherwise handle the unit with a lifting crane and a belt fitted with a suitable hook for each lifting support likely to be present at the base of the structure, possibly using a load distribution beam.

3. Check the lifting capacity of every single belt against the overall unit weight indicated on the specific product identification label.

4. Passing a single belt or cable through all the lifting supports is forbidden.

5. When the floor surface is regular and the difference in level is limited, lifting operations are allowed with a forklift based on the unit weight as indicated on the specific product identification label.

Condenser series JCH, JCL, JCQ, JCR, JKH, JKL, JKQ, JKR, JAKH, JAKL, JAKQ, JAKR, JMC, JMK
Dry Cooler series JEH, JEL, JEQ, JER, JDH, JDL, JDQ, JDR, JWH, JWL, JWQ, JWR, JGH, JGL, JGQ, JGR, SJGH, SJGL, SJGQ, SJGR

6. Handle the unit using a steel tube having a diameter of at least 30 mm. The tube must be made to pass through each opposing pair of lifting supports and must be hooked with a pair of hook-fitted belts, placed externally to the supports, possibly supported by a load distribution beam.

7. Check the lifting capacity of each belt against the overall unit weight, as indicated on the specific product identification label.

8. If the floor surface is regularly paved and the difference in level when lifting is limited, it is allowed to use a forklift that takes into account the weight of the unit indicated on the specific product identification label.

9. Do not damage the unit throughout all handling operations.

10. All the lifting hooks provided in the fan unit must be used (***Figure 13***).

IM 3.4.2. Provisions to be made by customer

- transport of the unit;
- handling, lifting, any equipment, resource and material/tool required to install the unit;
- building of a suitable supporting surface;
- verification of accessibility and possibility of handling the unit inside the facility;
- for self-draining and V-type dry coolers equipped with adiabatic systems, consider a drainage system fitted with

appropriate siphons and protections to empty the installation plant;
- preparation of a suitable water purification system for dry coolers equipped with an adiabatic spray system: Refer to the instructions provided by ThermoKey relating to the purification system.

Figure. 1

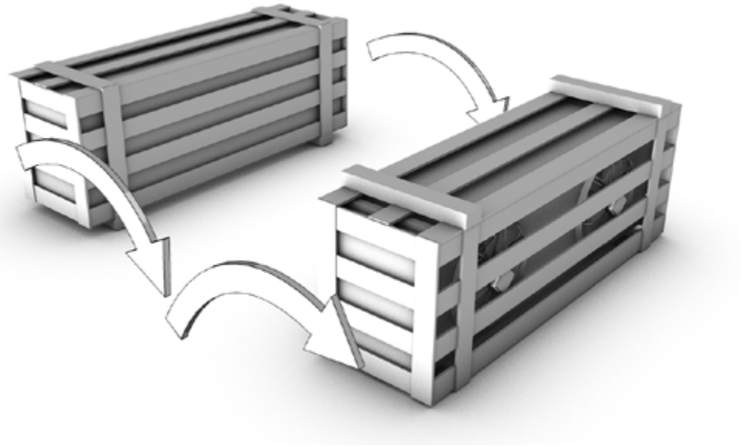


Figure. 2

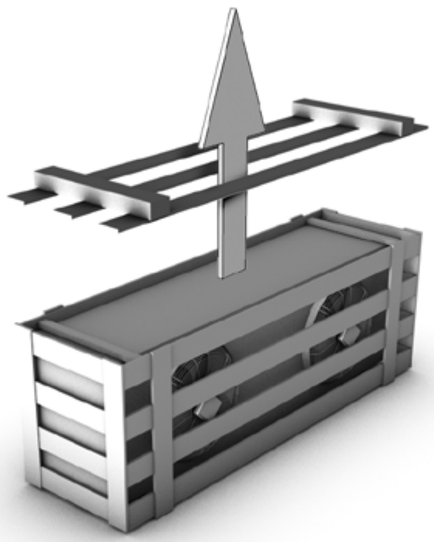


Figure. 3

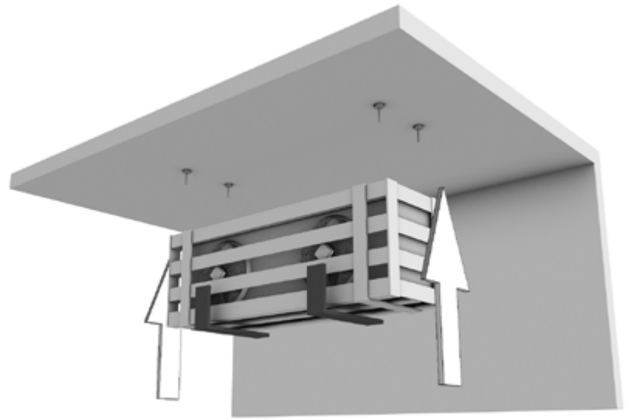


Figure. 4

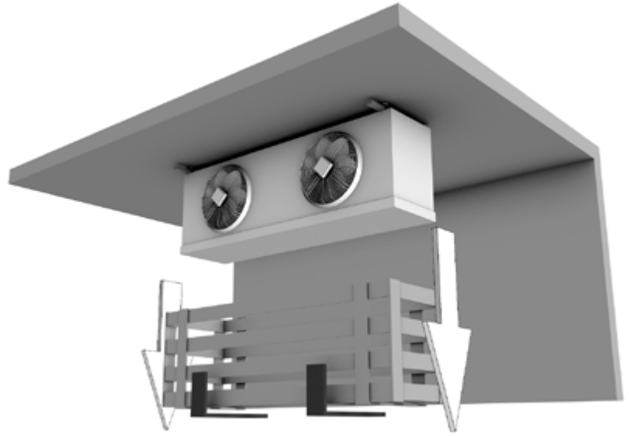


Figure. 5

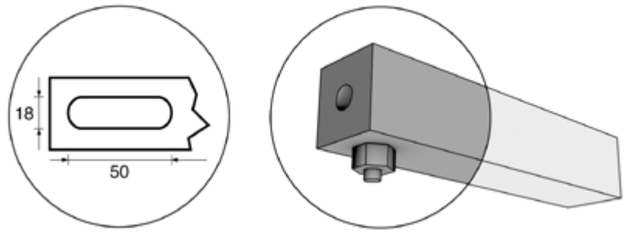


Figure. 6

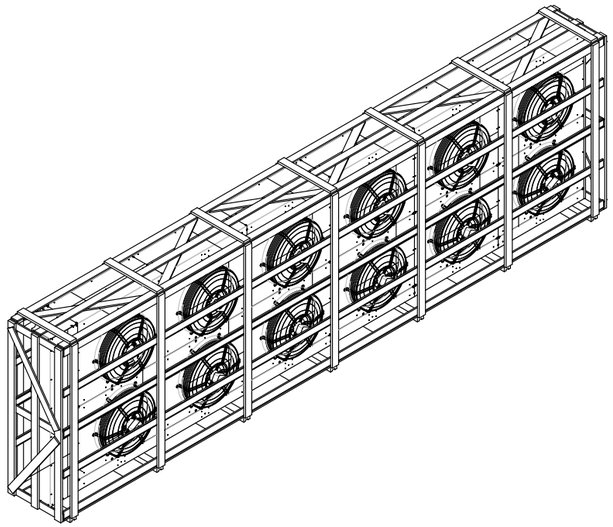


Figure. 7

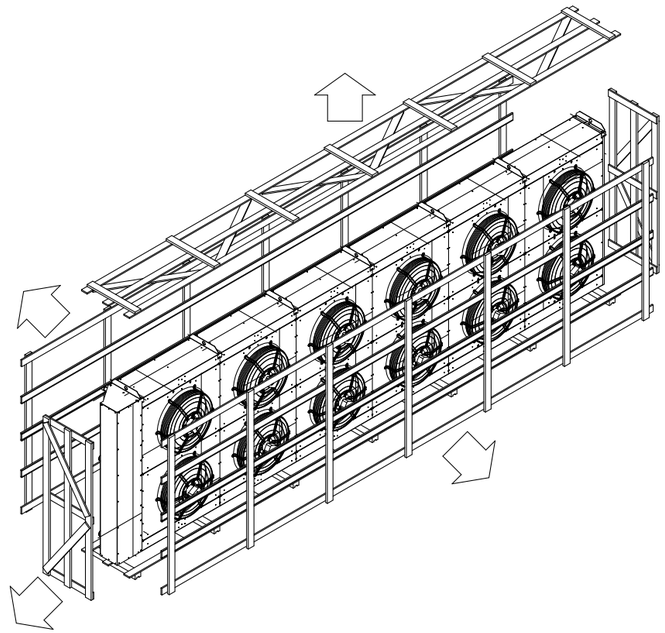


Figure. 8

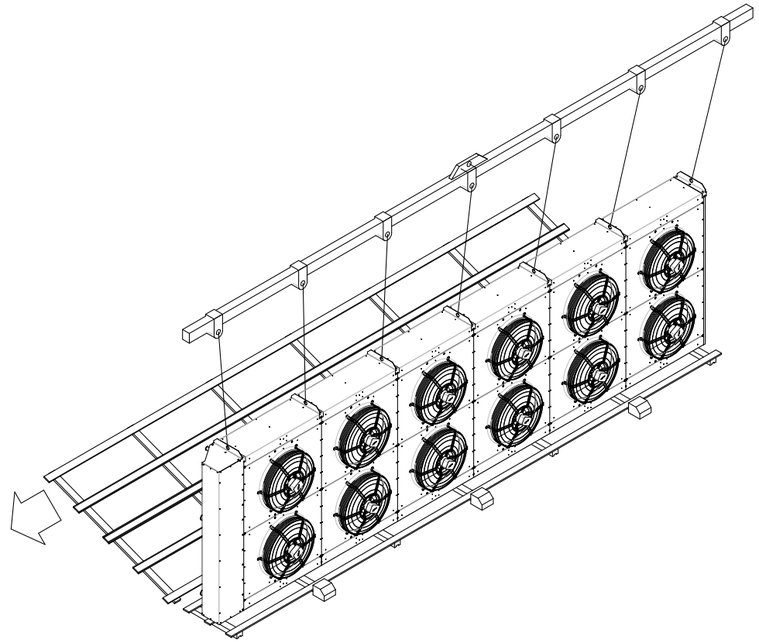


Figure. 9

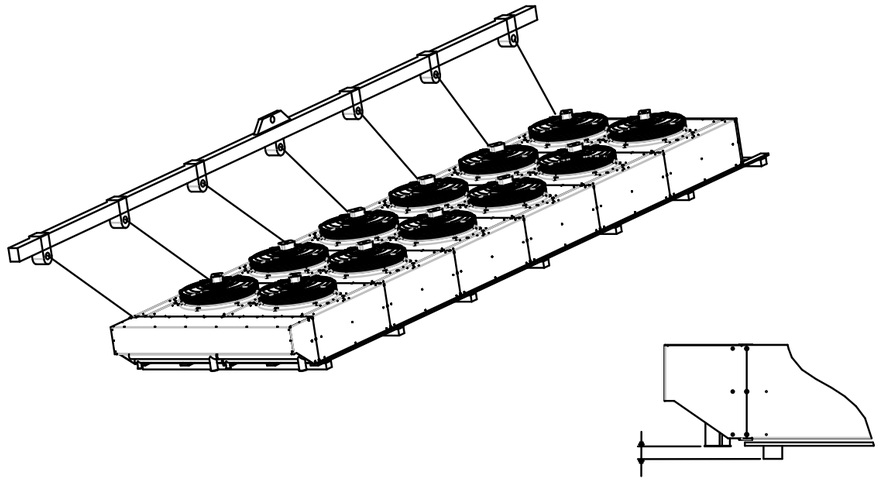


Figure. 10

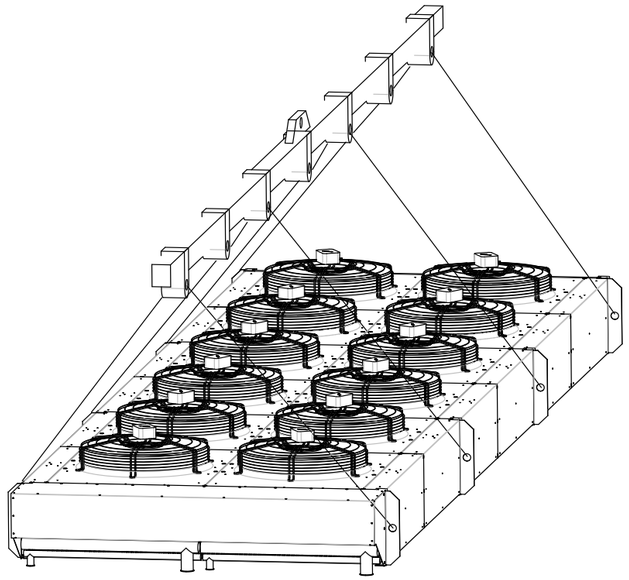


Figure. 11

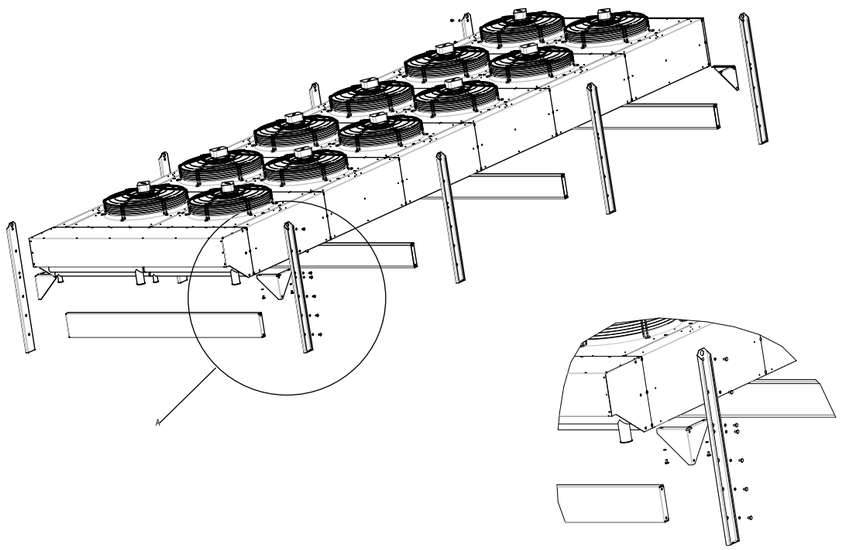


Figure. 12

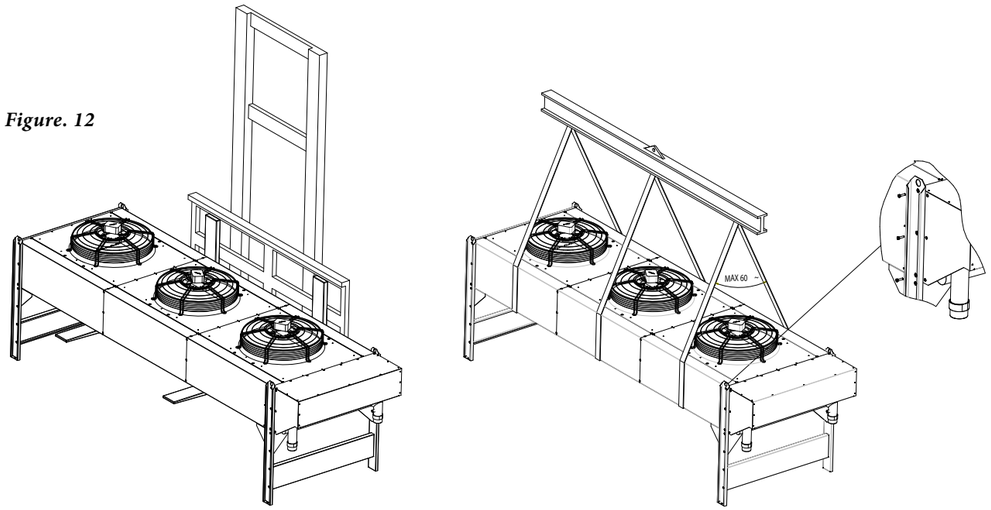
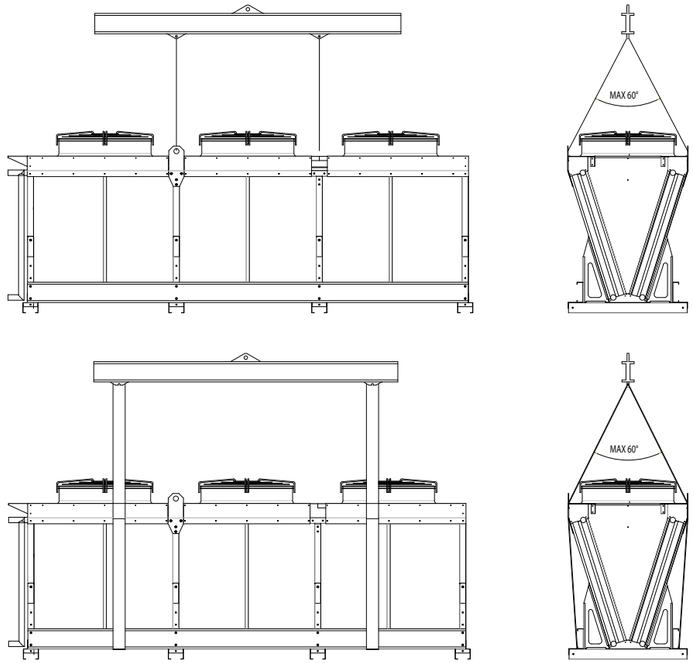


Figure. 13



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