

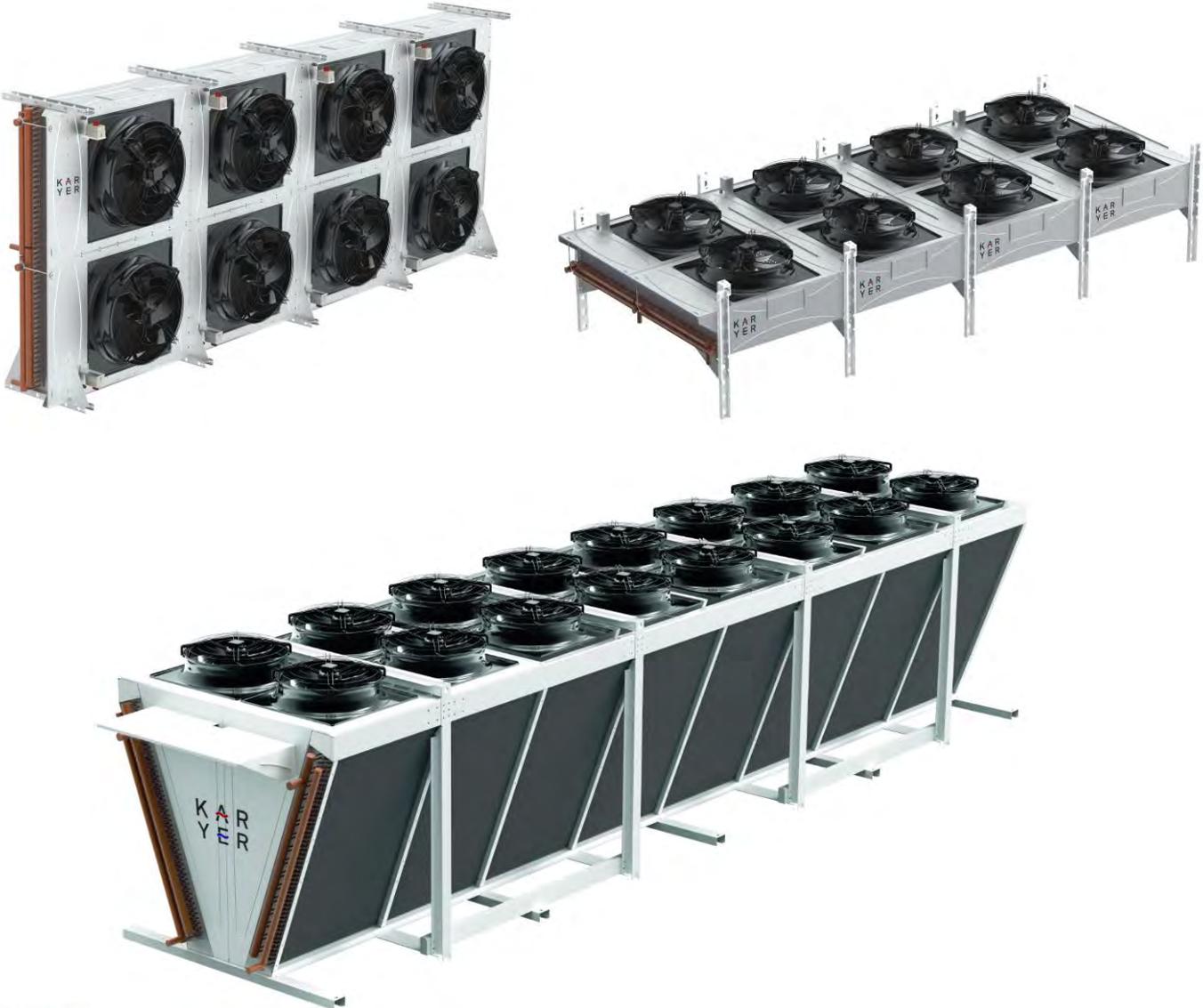
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**KAB & KC Standard Series Condensers**

**KAB & KC B43 Series Condensers**

**USER MANUAL**



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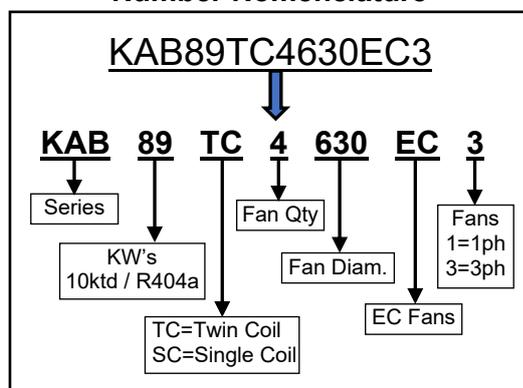
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## 1. Introduction

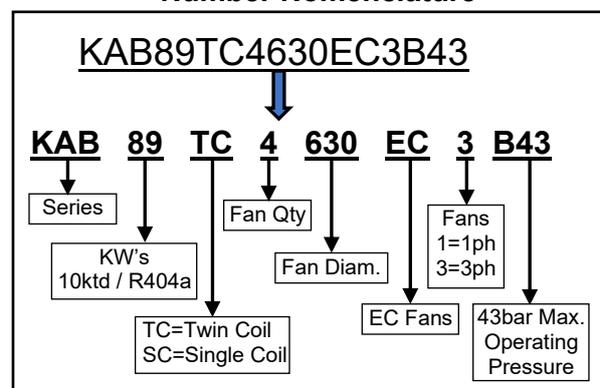
This manual relates to Karyer products KAB and KC series air cooled condensers.

Please read this manual carefully for the correct operating instructions and maintenance of these products. Instructions include this manual, order related documents and electrical diagrams in the terminal boxes.

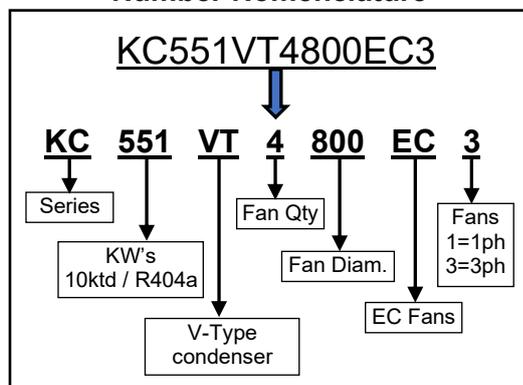
### 1.1 KAB Standard Series Model Number Nomenclature



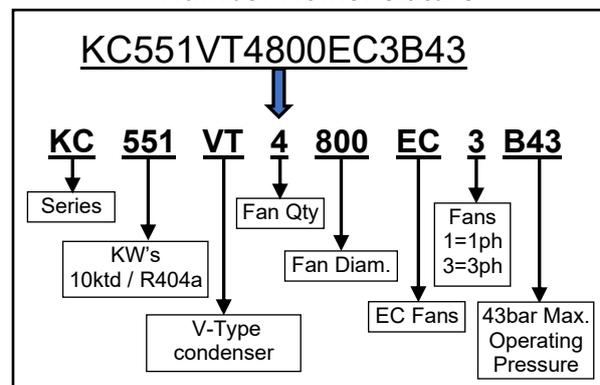
### 1.2 KAB B43 Series Model Number Nomenclature



### 1.3 KC Standard Series Model Number Nomenclature



### 1.4 KC B43 Series Model Number Nomenclature



## 2. Application Range

- KAB & KC standard series condensers have a maximum operating pressure of 32 bar.
- KAB & KC B43 series condensers have a maximum operating pressure of 43 bar.
- These condenser models are not suitable for use with CO<sub>2</sub> or NH<sub>3</sub>.
- They are only designed to be used with the refrigerants shown on the product label.
- The products should never be operated outside of the designed application range without prior consent of the manufacturer.

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### 3. Safety Instructions

- Installation, electrical and operation should be carried out by authorized personnel only.
- Always wear protective gloves and appropriate safety footwear.
- Wear protective glasses when welding and handling refrigerant.
- Protect the product against the danger of impact, vibration, falling and slipping etc.
- Never stand under or near the product during lifting and moving.
- All electrical work is to be carried out by Qualified Electrical Personnel and to be in accordance with local electrical regulations.
- Electrical power to be isolated prior to the commencement of any electrical work.
- Electrical power to be isolated prior to any maintenance, repair or cleaning etc.
- Product is delivered with a nitrogen charge which requires to be released fully and evacuated. Care should be taken to prevent personal injury and environmental risks.
- System must comply with refrigerant type, working pressure and working temperature ranges as shown on the product label.
- Normal operating conditions involve hot surfaces within the condenser. Extreme care should be taken to avoid contact.
- Avoid contact with condenser fins as sharp edges may cause personal injury.
- Do not operate fans without guard grille as fan blades could cause injury.
- During normal operation pressurised refrigerant is contained within the condenser. Extreme care should be taken to avoid leakage as personal injury may occur.
- The product's materials maybe recyclable after the products life cycle.
- The installer is responsible for safety and installation as per local laws and regulations.
- The installer should observe EMC Guidelines during installation of control units (EMC 89/336/EEC)
- This User Manual is part of the product and should be stored in a safe place and easily accessible.

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#### 4. Product Label

- Required technical data can be found on the product label.

The following label is for illustrative purposes only.

Please refer to the relevant label on the product.

	
TYP / MODEL	: KB-150AB1-A01
CAPACITY / KAPASİTE	: 20,5KW@DT:15°C-R404A
WEIGHT/ AĞIRLIK	: 92 KG
MANUF.DATE / ÜRETİM TARİHİ	: 07 / 2014
SERIAL NO / SERİ NO	: 14070001
MAX/MIN OP. PRES/ ÇALIŞMA BASINCI	: 28 BAR / 1 BAR
TEST PRES. / BASINCI	: 35 BAR
MIN / MAX TEMP SICAKLIK:	-22°C / +55°C
FAN FAN	: 1Pcs. x S4E500-AM03-01 230V-1300D / D 3,0A 50 HZ
TOTAL POWER / TOP. GÜÇ:	0,68 KW
TEL : + 90 212 567 55 09	FAX : + 90 212 576 23 45
e-mail : info@karyergroup.com www . karyergroup .com	

- Sound level of products with standard fans are given in dB(A) for 10m distance.

Sound levels are calculated according to EN 13487 standard.

Ear protection must be worn when sound pressure level is over 85 dB(A).

Drawings, documents and label information sent to the buyer / user are essential for the product (Sound, TS and PS, Fan, Weight and Dimensions).

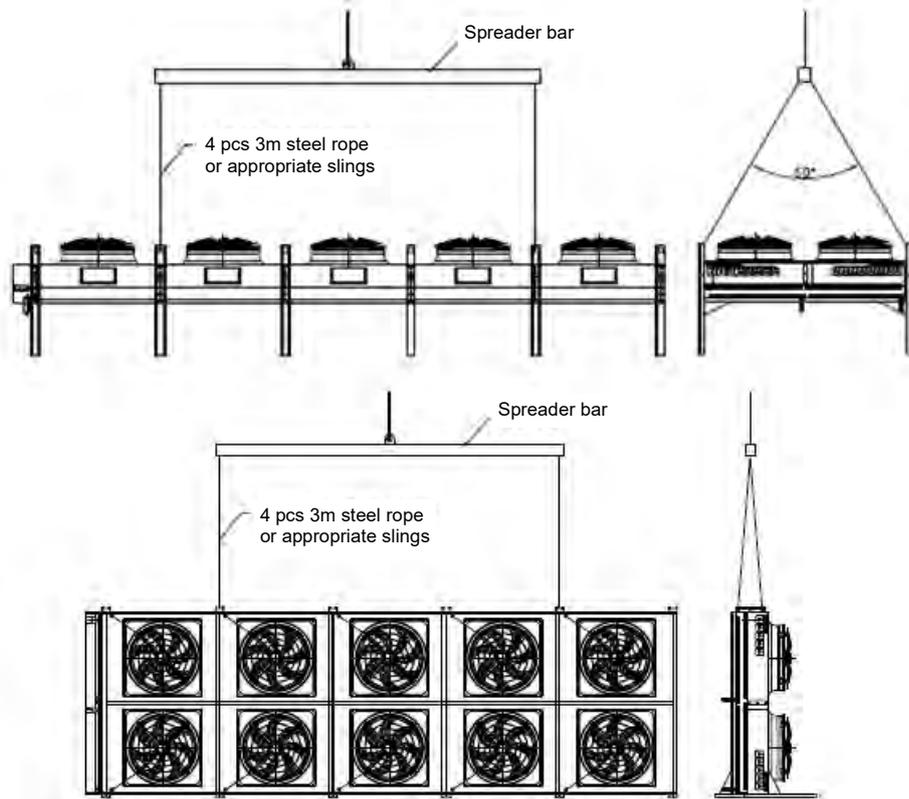
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## 5. Lifting and Handling Instructions

- Be sure that the delivery of your order is complete.
- Products are put through routine quality control checks to ensure the full serviceability before leaving the factory. However, there is always a possibility of damage during transportation.
- On receipt, please carefully check the package condition and identification label.
- In the case of transport damage contact Airefrig Australia and the freight company asap.
- Do not unpack the product until ready to install.
- Before the installation provide all the required lifting and transport equipment etc.
- Product weight can be found on the label, please observe all warning signs.
- Care should be taken when lifting, moving and installing the product to ensure the product is properly handled to prevent any accident that may cause injury and even death.
- Protect the product from impacts and excessive vibration during lifting and transportation.
- Lift and transport the product separately from items that are not part of the actual product.
- Do not apply any additional external force to pipe connections and headers.
- Ensure the full length of the forks are used by the forklift driver when lifting and transporting.
- The product must be lifted always in vertical position.
- Use steel rope/slings and spreader bars - these are not supplied with the product.
- Under no circumstances should the eyebolts be removed from the product.
- The tension of the steel rope/slings should be controlled and not be loose or too tight.
- All steel rope/sling tension should be same level and weight distribution must be balanced.

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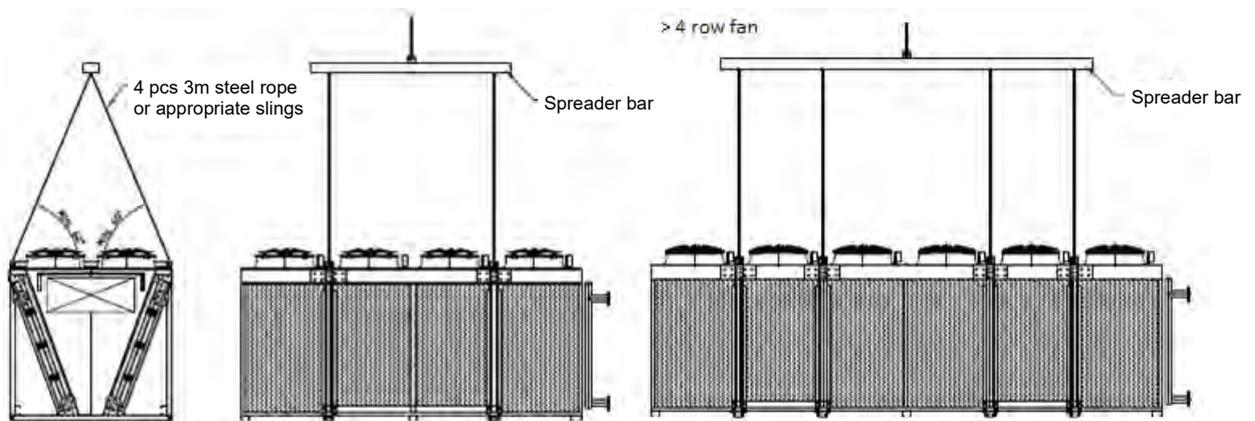
**Figure 5.1 KAB lifting**



Steel rope, slings and spreader bars are not supplied with the product

For bigger units use more steel ropes or slings

**Figure 5.2 KC lifting**



Steel rope, slings and spreader bars are not supplied with the product

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## 5.1 Storage

- The product must be stored in the original packing with the identification label.
- The package must be stored on a flat surface.
- The package must be stored in a secure environment out of the weather where it cannot be damaged by impact, shock, high temperatures, high humidity, rain etc..  
Note: Unsecured product can be blown over by strong wind.

## 6. Location and Installation

- Selecting the position of the product placement and installation process should be carried out by authorized personal only.
- Incorrect selection, positioning and assembly will directly affect the product's performance.
- Care should be taken to ensure the product is installed properly in accordance with local regulations taking in to account the weight and positioning during the installation.

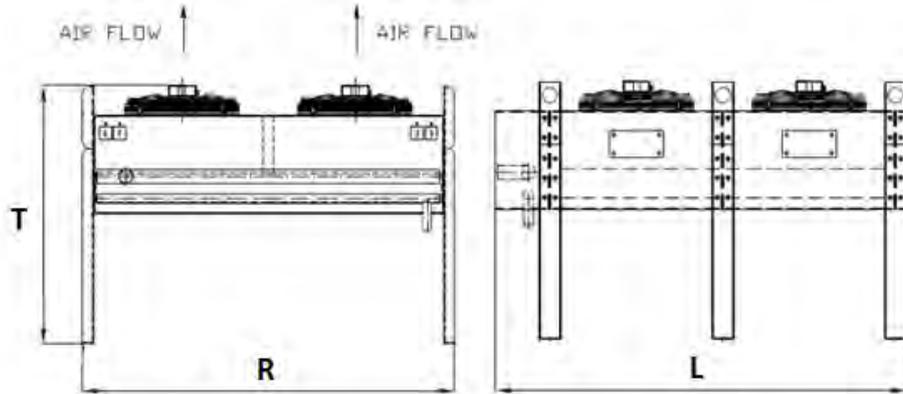
### 6.1 Positioning

- Product's dimensions can be found in the available technical information.
- Ensure there are no external elements that may affect the operation of the product.
- Allow for the correct distance between the product and any wall prior to installing.
- Always consider the number of products and their location when positioning.
- Product should be put on a solid foundation and securely fixed.
- Beware of puddling water around feet as this may cause rusting.
- Ensure there is enough free air around the product in order to avoid incorrect air flow which may affect the products efficiency.
- Air outlet direction should not be positioned opposite to the wind flow direction.
- Allow enough space for maintenance, service and parts replacement.
- Correctly selected vibration absorber must be used according to the ground specification.
- Sample dimensions for positioning are given in the tables below, please contact Airefrig Australia for exact dimensions.
- Corrosive environments, excessive humidity, dust and in some case direct sunlight may cause premature issues &/or poor performance.

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**Figure 6.1** KAB General dimensions (Horizontal unit)

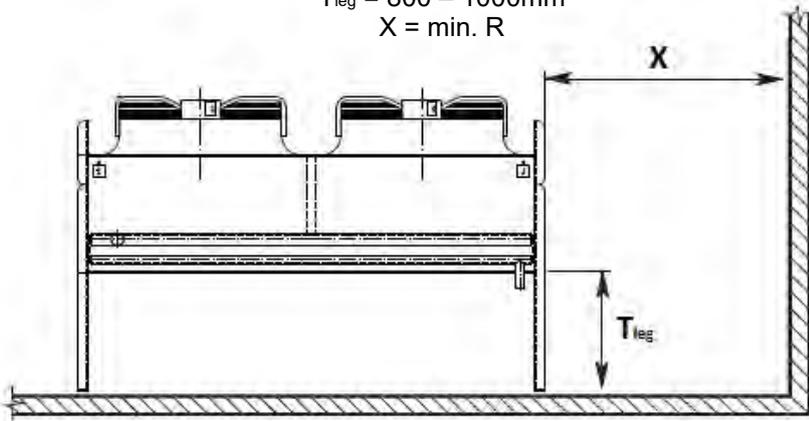
T = unit height, R = unit width, L = unit length



**Figure 6.2** KAB Horizontal unit next to a wall

$T_{leg} = 800 - 1000\text{mm}$

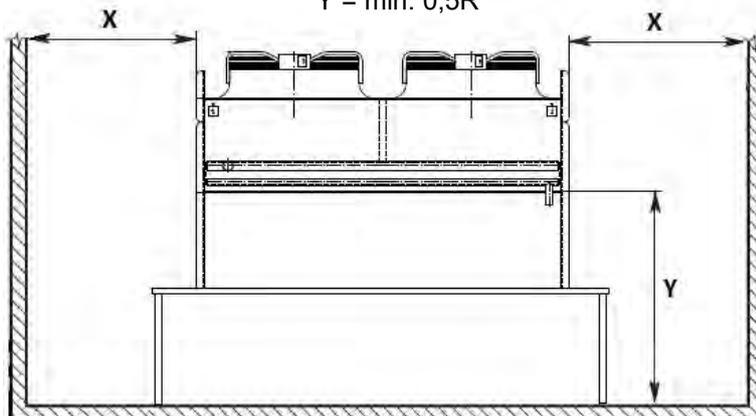
$X = \text{min. } R$



**Figure 6.3** KAB Horizontal unit in shaft

$X = \text{min. } 0,7R$

$Y = \text{min. } 0,5R$

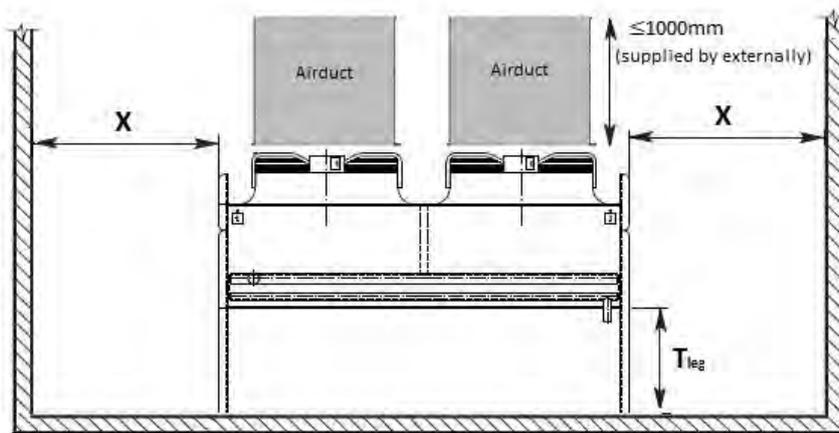


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**Figure 6.4** KAB Horizontal unit in shaft with diffusor

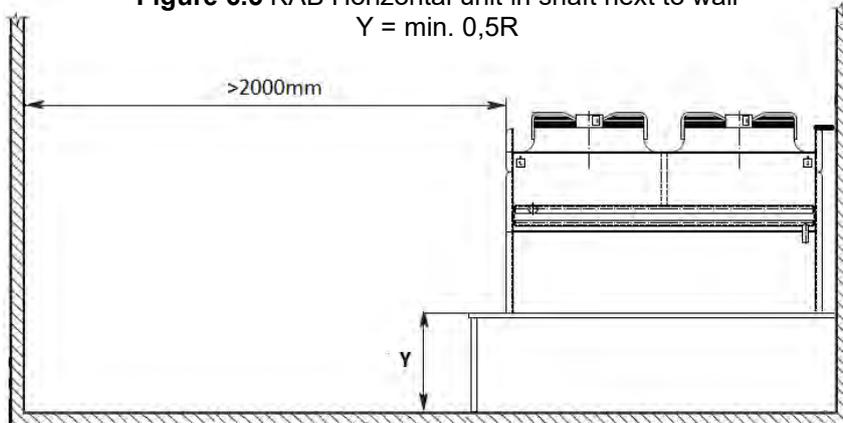
$$X = \text{min. } 0,5R$$

$$T_{\text{leg}} = \text{min. } 0,35R$$



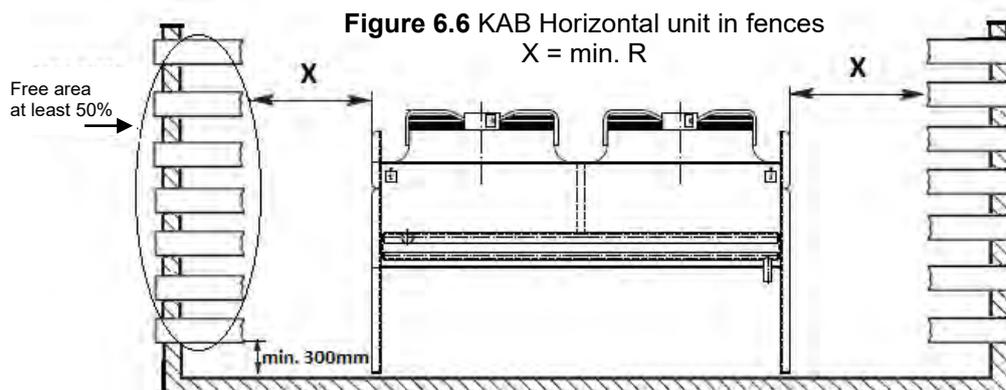
**Figure 6.5** KAB Horizontal unit in shaft next to wall

$$Y = \text{min. } 0,5R$$



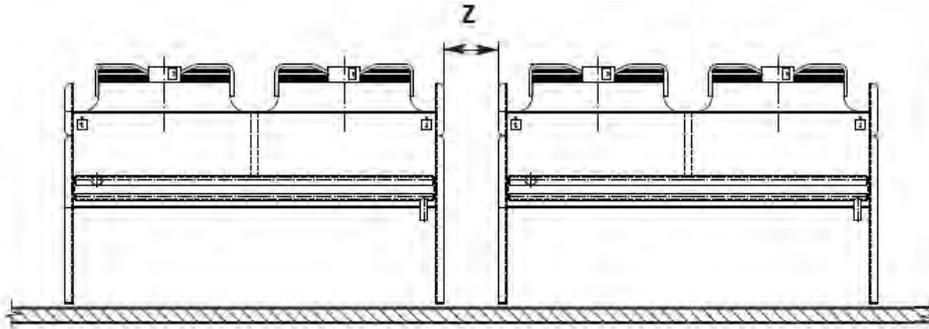
**Figure 6.6** KAB Horizontal unit in fences

$$X = \text{min. } R$$

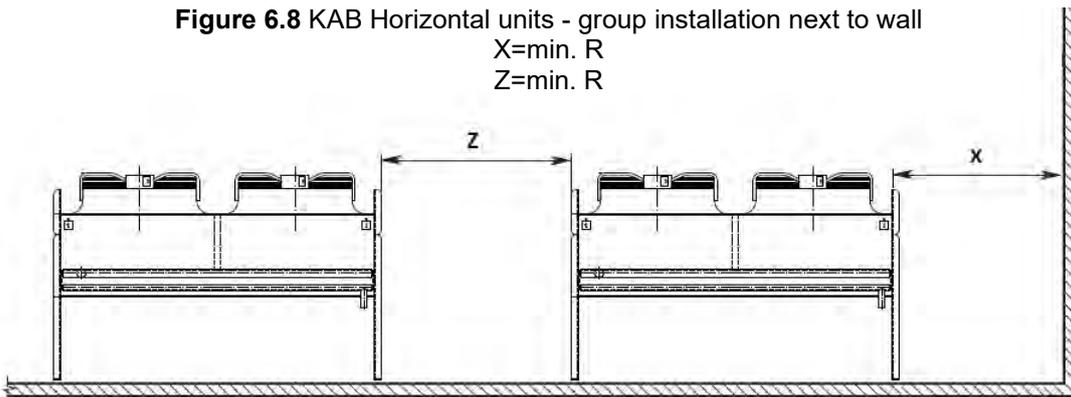


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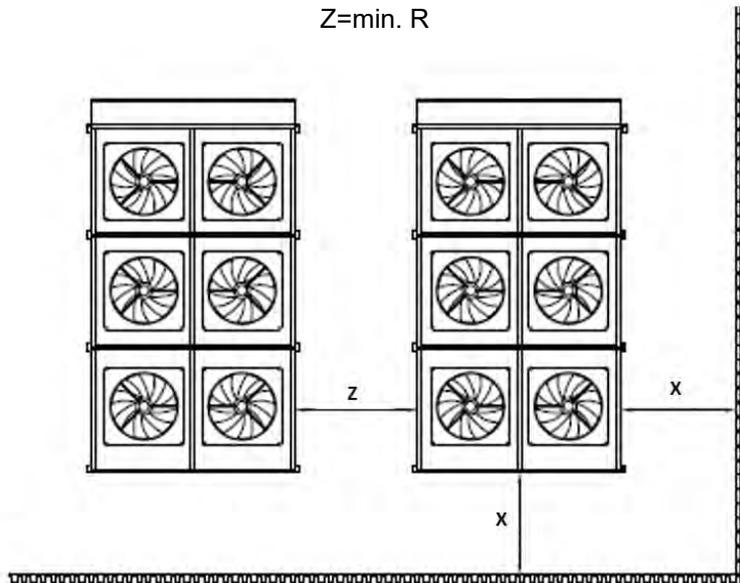
**Figure 6.7** KAB Horizontal units - side by side  
Z=min. 100mm



**Figure 6.8** KAB Horizontal units - group installation next to wall  
X=min. R  
Z=min. R

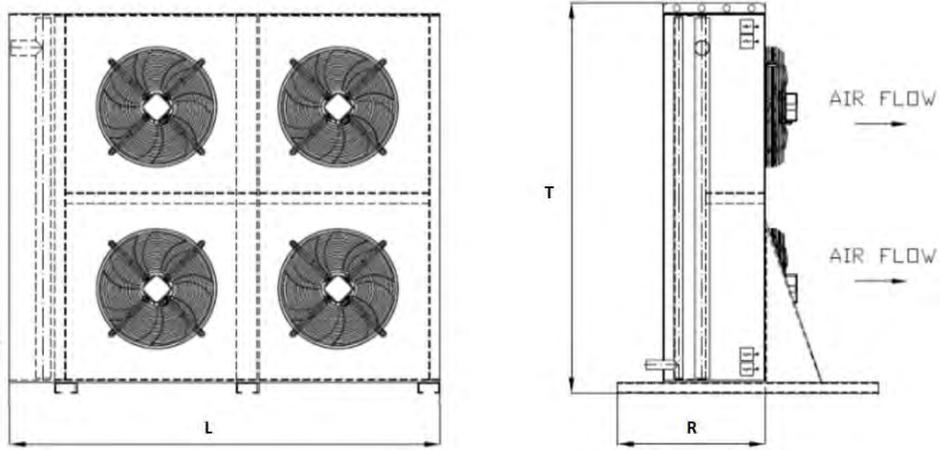


**Figure 6.9** KAB Horizontal units - group installation next to wall (top view)  
X=min. R  
Z=min. R

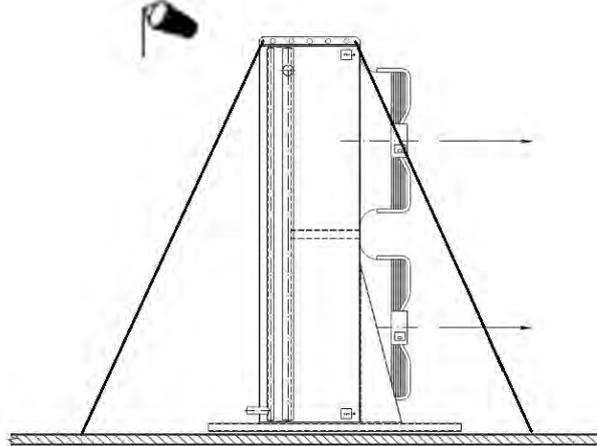


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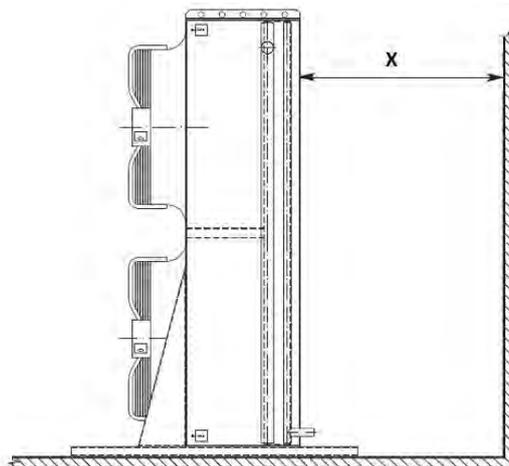
**Figure 6.10** KAB General dimensions (Vertical unit)  
 $T$  = unit height,  $R$  = unit width,  $L$  = unit length



**Figure 6.11** KAB Vertical unit in free installation  
 Beware of wind direction, use cable tensioners



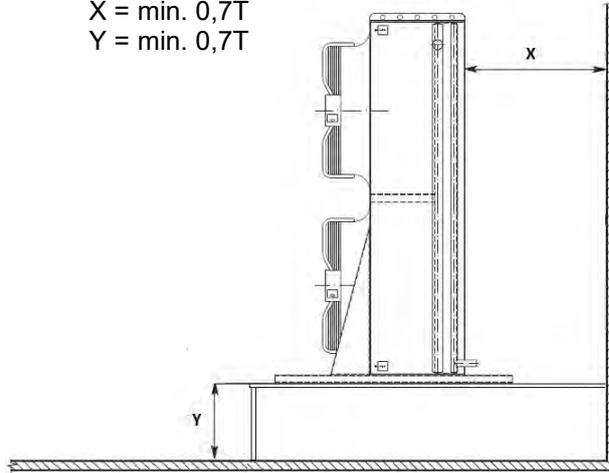
**Figure 6.12** KAB Vertical unit next to a wall  
 $X$  = min.  $T$



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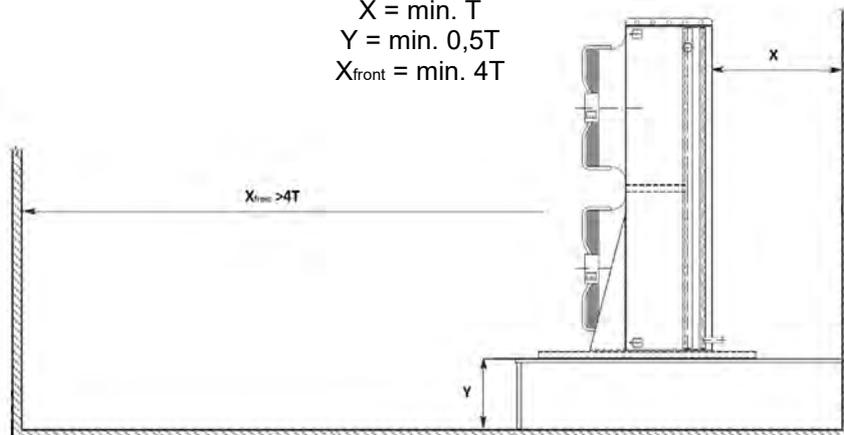
**Figure 6.13** KAB Vertical unit next to a wall on raised floor

X = min. 0,7T  
Y = min. 0,7T



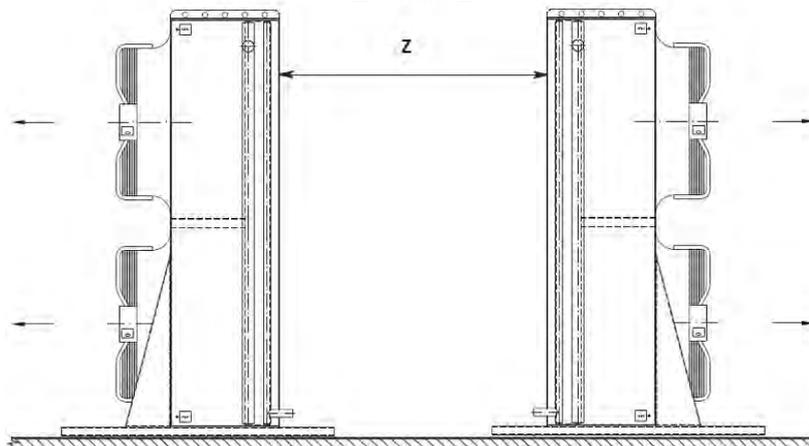
**Figure 6.14** KAB Vertical unit in a shaft on raised floor

X = min. T  
Y = min. 0,5T  
X<sub>front</sub> = min. 4T



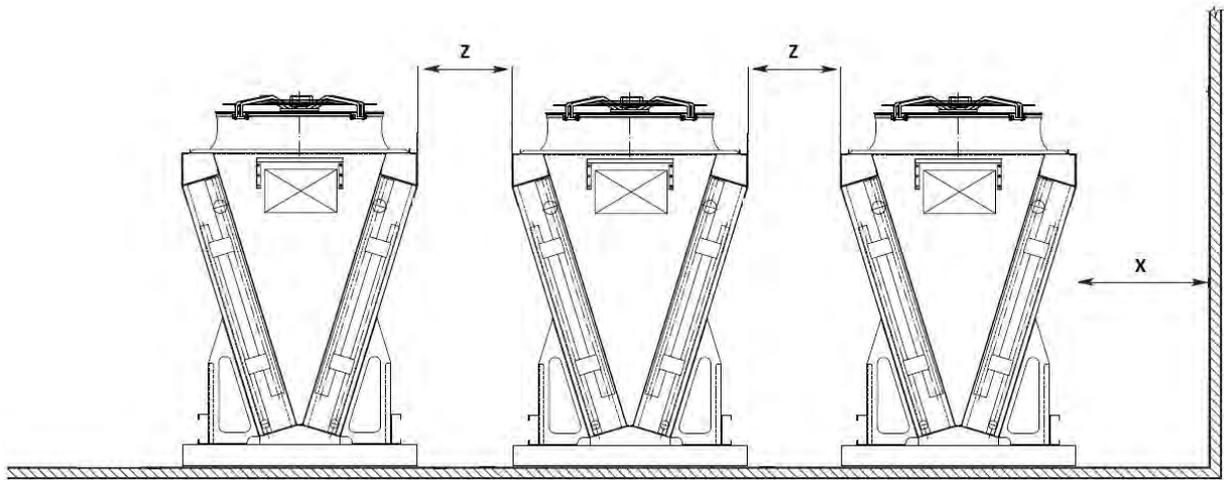
**Figure 6.15** KAB Vertical units - group installation

Z = min. 2T

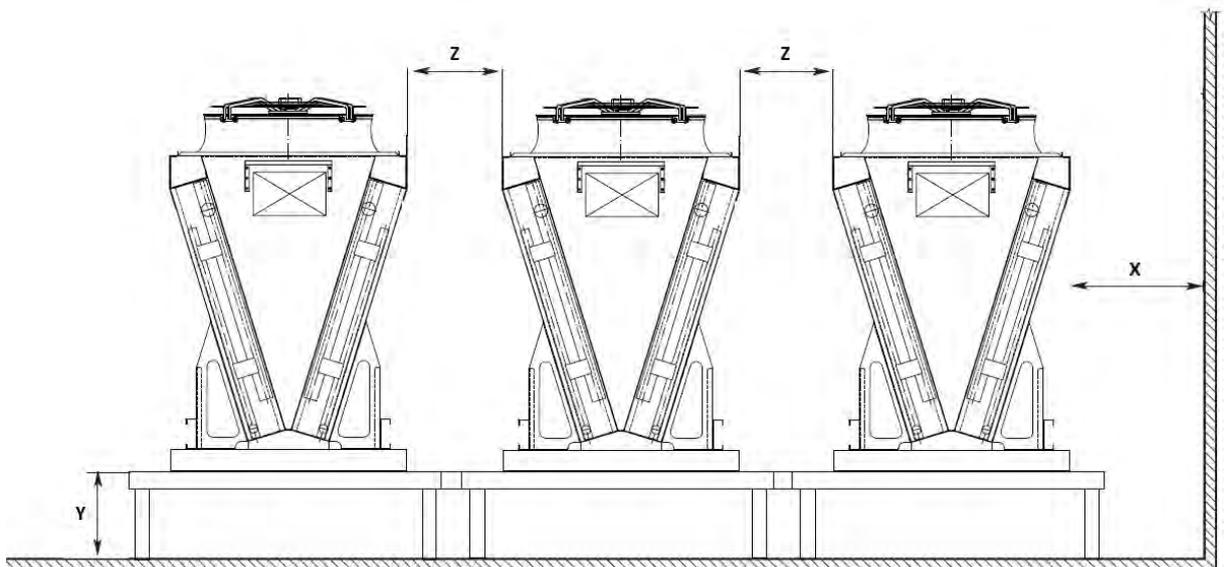


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**Figure 6.16 KC-V type (Single row fan)**  
 $X = 0,20xL \geq 0,50xT$ , min. (0,50T)  
 $Z = 0,25xL \geq 0,60xT$ , min. (0,60T)



**Figure 6.17 KC-V type (single row fan)**  
 On raised floor  
 $X = 0,20xL \geq 0,50xT$ , min. (0,50T)  
 $Z = 0,25xL \geq 0,60xT$ , min. (0,60T)  
 $Y = \text{min. } 0,70\text{m}$

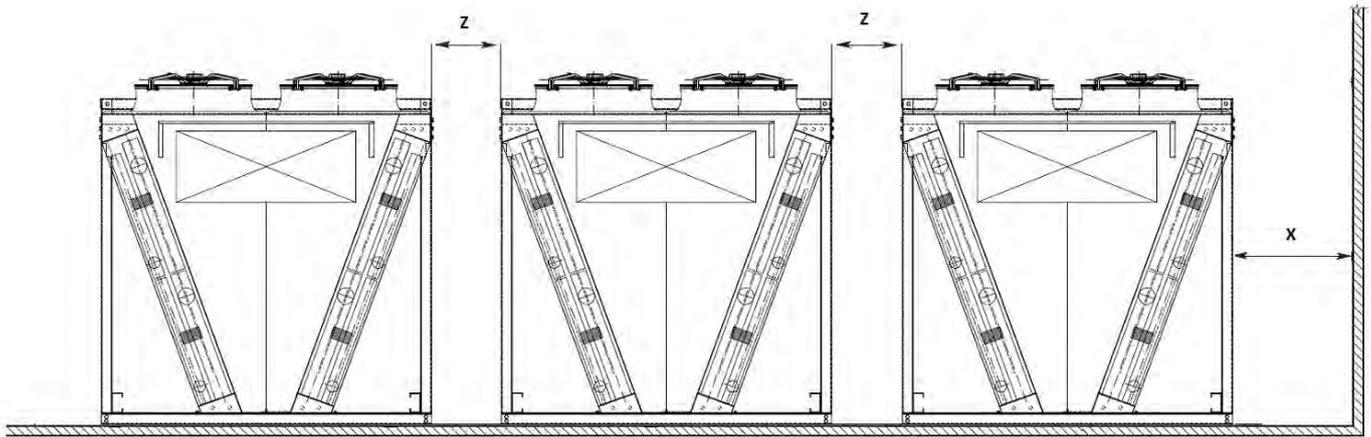


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**Figure 6.18** KC-V type (Double row fan)

$$X = 0,20xL \geq 0,50xT, \text{ min. } (0,50T)$$

$$Z = 0,25xL \geq 0,60xT, \text{ min. } (0,60T)$$



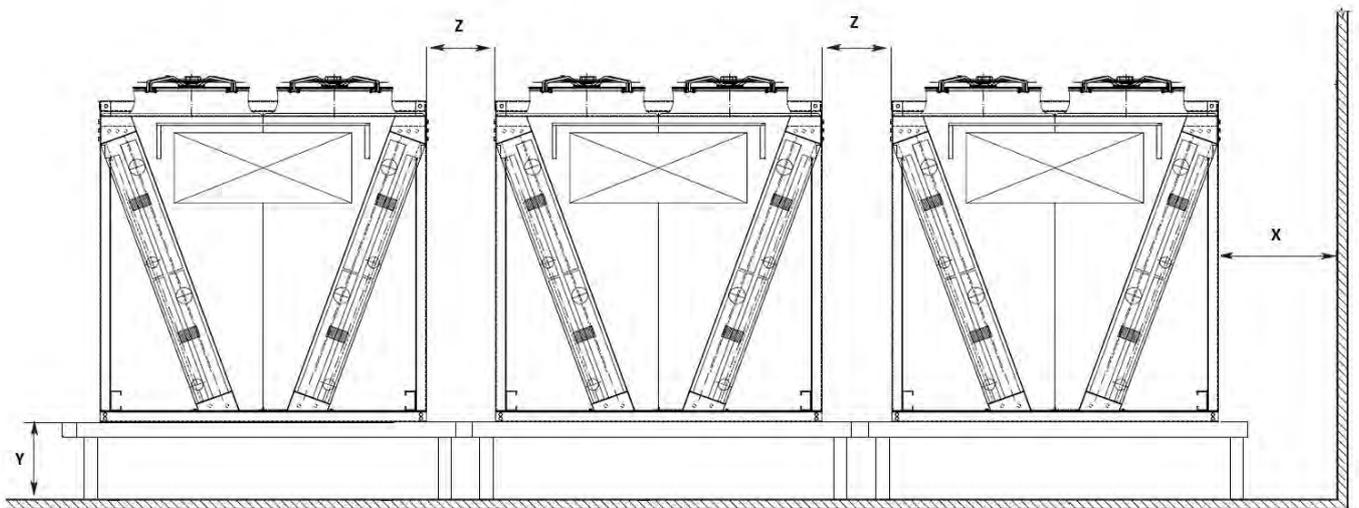
**Figure 6.19** KC-V type (Double row fan)

On raised floor

$$X = 0,20xL \geq 0,50xT, \text{ min. } (0,50T)$$

$$Z = 0,25xL \geq 0,60xT, \text{ min. } (0,60T)$$

$$Y = \text{min. } 1,00\text{m}$$



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## 6.2 Installation

- Ensure the product is mounted level, is stable and well secured.
- All fixing points should be tightened and product should be appropriately fixed.
- Must comply with international and regional standards when installing.
- Ensure the refrigerant lines are sized and fitted correctly for optimum refrigerant velocity for effective circulation, pressure drop and oil return to ensure the system performs to acceptable engineering standards.
- Ensure the product is kept clean during installation and prevent any foreign materials, humidity/moisture etc... from entering the inside of the product.
- Do not leave the connections open to atmosphere.
- Do not hold welding torch directly onto the product.
- Do not walk on or put pressure on to the connections.
- Before the first start-up make sure fans are able to rotate and spin freely.
- Do not walk on or put pressure on to the fan diffuser or the top of the sheet metal.
- Product is delivered with nitrogen charge to ensure the inside of the tubes are clean and dry ready for system vacuum before charging with refrigerant.
- Ensure the correct refrigerant type and charge is used.

## 7. Operation

- Ensure electrical connections are tight and comply with this manual's electrical diagram and to local regulations.
- Refrigeration lines should be selected & installed in accordance with regional standards.
- Make sure all fan screws are tightened and fans run free and unobstructed.
- Switch on electrical system, open refrigerant lines and switch on fans.
- Ensure the refrigerant quantity and circulation is correct.
- Be careful of any materials splashing, wear protective goggles.
- Make sure the system is evacuated to industry standards.
- There should never be air pockets or moisture inside the coil.
- In case of fire disconnect the electricity immediately and use a fire extinguisher suitable for electrical fires.

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## 8. Spare Parts

- Please contact Airefrig Australia for spare parts.
- Use only genuine spare parts to ensure the product will not be damaged unless otherwise specified.
- Airefrig Australia will not accept responsibility and warranty maybe void if damage occurs through the use of incorrect parts.

## 9. Maintenance

- Ensure that all maintenance/service work is carried out by authorized personnel only.
- Maintenance must be done according to national and local standards to ensure safety to all concerned.
- Regular inspections & periodic maintenance is recommended relevant to site conditions.
- Ensure the air flow is not being obstructed or excessive fouling exists in the product.
- Inspect all external surfaces, fins, tubes and welds for corrosion.
- Commercial leak detectors should be used to detect any possible refrigerant leaks.
- Ensure each fan is running freely and without vibration, check and tighten fan mountings.
- Faulty screws etc.. should be replaced with replacements tightened to appropriate torque.
- Check the surface of fan blades for any build up that may cause issues.
- Ensure the product is not being affected by abnormal and excessive vibration.
- Visually inspect the electrical wiring.
- Ensure electrical and earth connections are tight and secure.
- Turn system off during maintenance/cleaning to prevent refrigerant circulation.
- Refrigerant must be removed from the product as per local regulations when soldering.
- If the product is not used for long periods after installation, ensure fans are run for half an hour every month.
- Dirt and dust on the surface of the fins should be cleaned with low pressure water or air in vertical position to prevent incorrect airflow and deformation of the fins.
- If water is used for cleaning, be careful not to soak electrical connections and fans.

	SP-8006-1.18/13.Rev.1		Name	Date	Signature
	Airefrig Australia - Amendment	Amended by	PAJ	21.08.2023	
	Rev.1	Pre. By	PAJ	21.08.2023	
	KAB & KC Condenser User Manual	Contr. By	KÇ/JC	19.04.2022	
		Appr. By	HK	20.04.2022	

### 9.1 Changing Fans

- Ensure electrical power is disconnected.
- Remove fan electrical wiring.
- Remove mounting screws and fan motor.
- Fit replacement fan and tighten screws ensuring the fan blade is free from obstruction.
- Refit fan motor wiring.
- Fan information should be on the fan's label. (Model, voltage, protection class etc.)

### 9.2 Cleaning

- Periodically clean the product with a brush and pressurized water.  
(the frequency is dependent upon the operating environment of the condenser)
- Hold the cleaning water vertical to the fins to prevent damage.
- Rinse the product until all residue is gone.

## 10. Electrical Connections

- All electrical work should be carried out by authorized personnel only.
- The installer should observe EMC Guideline during installation of control units.
- The design and the application of the electrical circuits must be done according to the local regulations.
- Wiring connections are in fully covered electrical boxes.
- Electrical parts and central wiring should be installed and operated in accordance with EN 60204-1.
- Only operate the unit to the specific voltage and frequency displayed on the nameplate.
- Required fan motor current draws are shown on the product nameplate.
- Ensure that power is disconnected before any work is carried out.
- Prevent uncontrolled start-up by installing isolating switches for maintenance.
- Ensure electrical wiring is not in contact with rotating fans.
- Always ensure the fan thermistor circuit is wired in to protected fans where applicable.  
The system installer to decide, if the fan is disabled due to a thermistor trip will be reset automatically or manually.

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		Appr. By	HK	20.04.2022	

## 11. Warning Signs



**Do not shake and prevent impacts.**



**Protect from moisture.**



**Lifting direction.**



**Be careful!  
It may be hot.**



**Danger!  
Danger of injury or life because of  
high voltage if instructions are not  
followed.**



**Caution!  
Danger of injury or loss of life if  
instructions are not followed.**



**Be careful!  
Fan rotation is a hazard. Long hair or  
loose clothing maybe be a hazard.**



**Sign of Earthing.**



**Use protective gloves.**



**Fan rotation direction (clockwise)**



**Fan rotation direction (counterclockwise)**