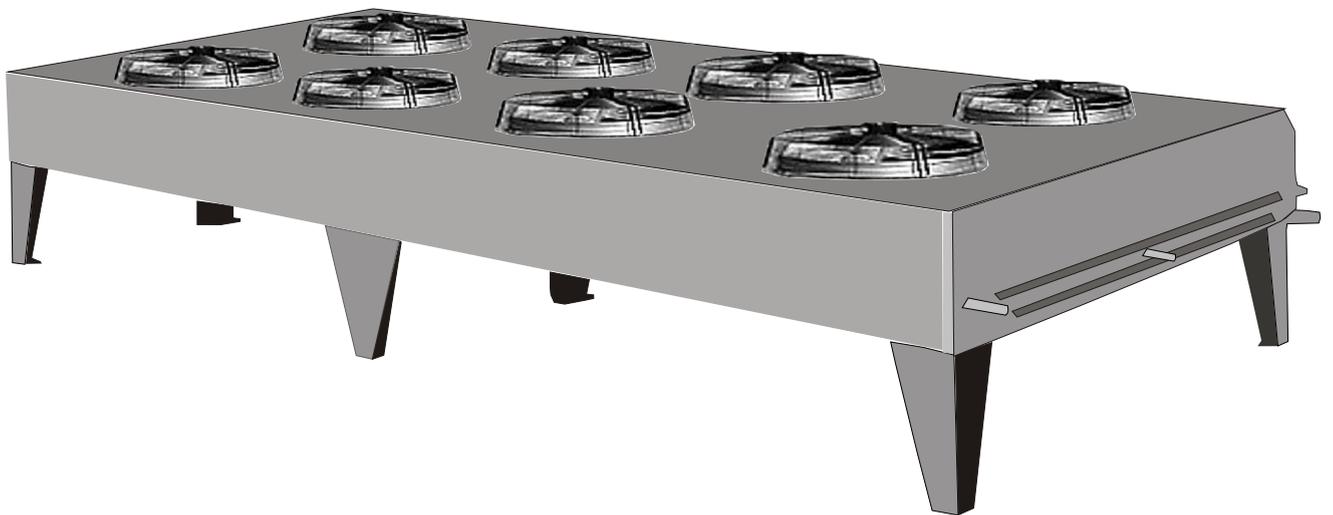




EMICON
HIGH-TECH AIR CONDITIONING AND REFRIGERATION



OPERATION AND MAINTENANCE MANUAL



AIR-COOLED CONDENSERS

with axial fans
CR/CRS/CRU

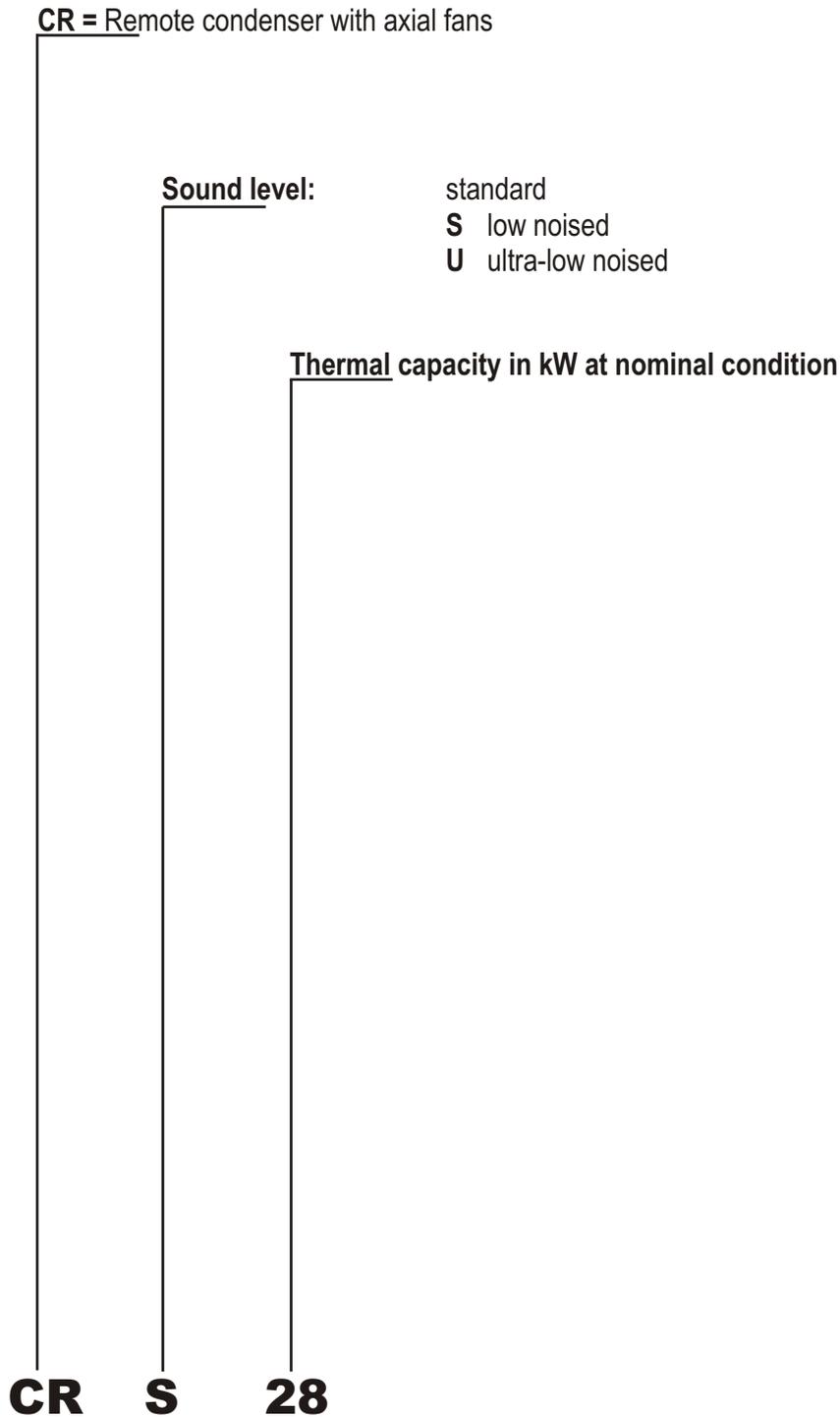
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1 - WARNINGS

Keep this technical handbook for all the period of life of the air-cooled condenser.
Read with attention the handbook before the installation and before performing any operations on the unit.
Employ the condenser exclusively for the purpose for which it has been designed: the misuse of the unit makes the manufacturer's liability void.

The interpreting key of the condensers' model initials is described as follows.



2 - TRANSPORT

During transportation avoid to apply improper pressures on the packing, that it must be always kept in the same position, as indicated on its carton box.

Unpack the unit very close to the installation place. Once unpacked, avoid collision of its components.

During installation and handling of the air condensers use protective gloves in order to prevent injuries caused by sharp parts of the unit (for example fins).

3 - CHECK LIST FOR CORRECT INSTALLATION



In order to avoid damages during the lifting operations, it is necessary to employ one distributor beam connected to all the hooks available is needed, as indicated in Fig. 1.

- Check the capacity load of the floor and of the structures in relation to the weight of the condenser;
- Avoid any inside installation;
- Make sure enough room is left free for proper air circulation during suction-discharge and for easy maintenance purpose (see Par. 2);
- Make sure the condenser is strongly anchored on the base plane;
- Check the available power supply voltage is fit for the fan motors technical features;
- Do not connect the condensers to a duct work; the axial fan motors are unable to bear extra static head;
- Check the operation conditions, temperature and pressure values, conform to those of project;
- Make sure all electrical connections comply with the existing local regulations;
- Access to the unit for any type of operation must be restricted to skilled personnel appointed to maintain the system, according to the existing local regulations;
- Adequate condenser fastener and support systems must be implemented during the unit installation.

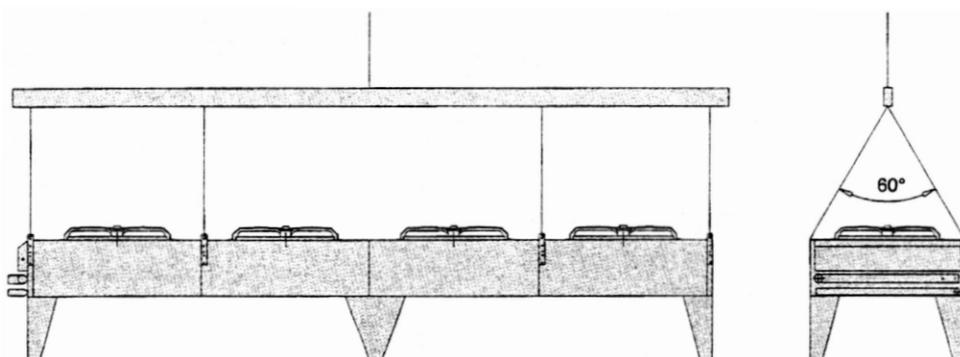


Fig. 1



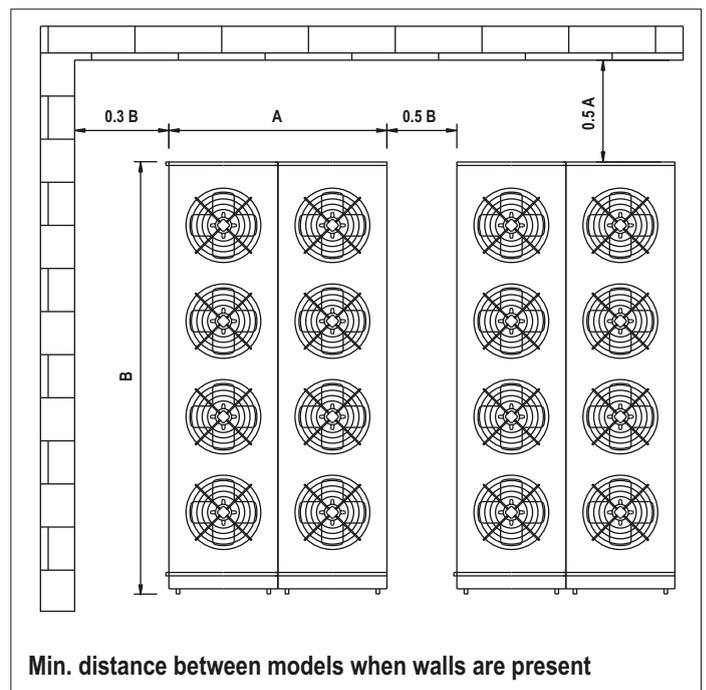
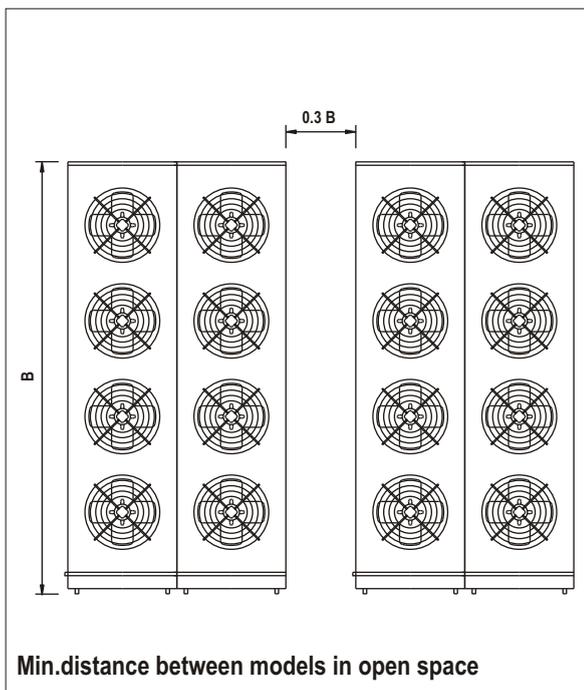
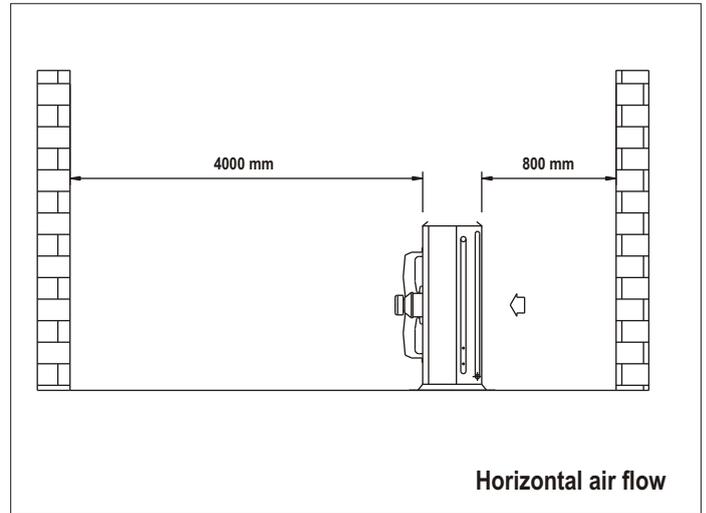
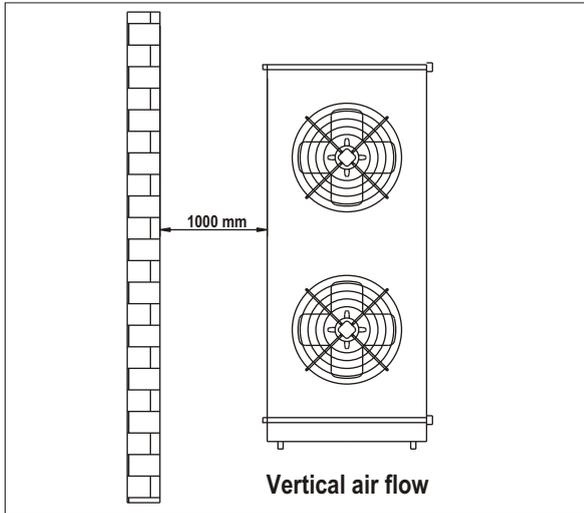
Before carrying out any maintenance operation, make sure power supply is disconnected: electrical components may be connected to an automatic control system.

4 - WARNINGS FOR CORRECT POSITIONING

4.1 Technical features

See attached technical data sheet attached.

4.2 Positioning



4.3 Electrical connections



See attached wiring diagram.

The thermal contacts are temperature driven elements are directly inserted in the winding of the motors; they open an electrical contact when the admissible maximum permanent temperature is exceeded.

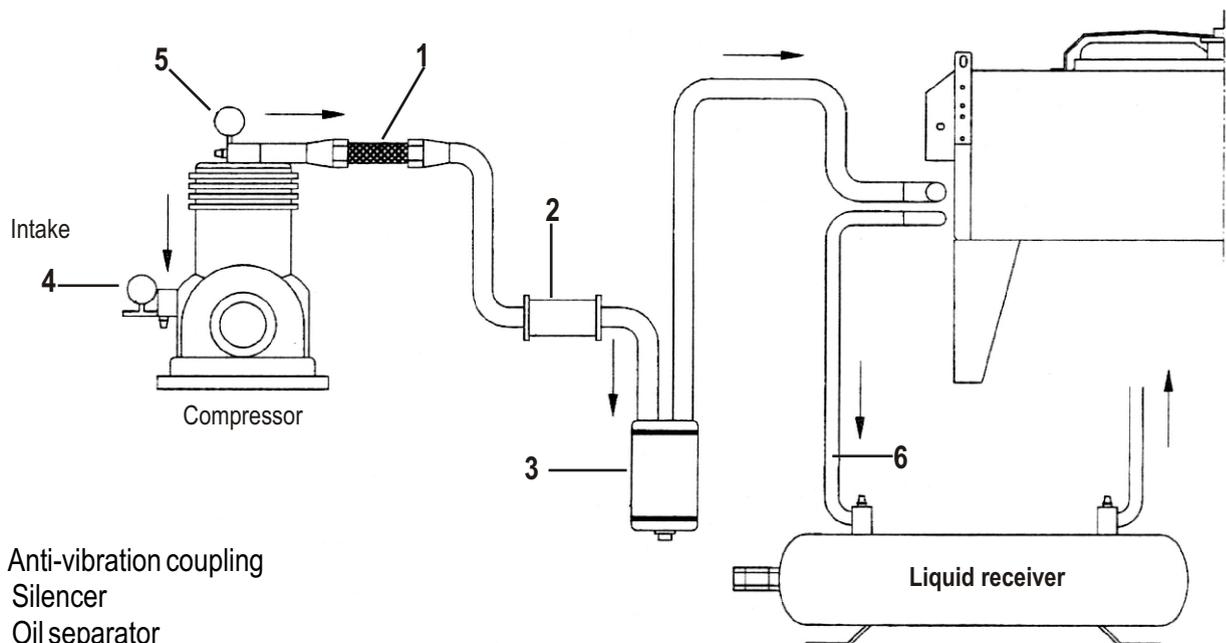


Refer strictly to the wiring diagrams in order to avoid damages to the motor. Before using speed control systems for motor rotations, check the compatibility with the same motors. Non compatible systems, may damage the motors and increase noise level. Emicon S.p.A. is not liable for unit performances of models equipped with speed control systems.

5 - INSTALLATION

For one corrected installation follow these suggestions:

- 1) Calculate adequate size of the piping, in order to get minimal pressure loss and sufficient refrigerant speed, so to guarantee oil dragging. If necessary, install an oil separator.
- 2) Install on the drainage line, as close as possible to the compressor, either the anti-vibration device (1) and the silencer (2), if the delivery line passes through rooms where persons normally live.
- 3) Avoid directing the air flow towards surfaces able to reflect or somehow increase the noise level of the condenser.
- 4) Absolutely avoid reversing the inlet and outlet collectors of the refrigerant.
- 5) Choose the best position for the condenser allowing minimum exposure of the fan coil to sun radiation: in order to avoid variation of the condensation pressure.
- 6) For any type of installation prevent the condenser air flow meet others air flows of opposite direction.
- 7) The whole installation operation must comply with local existing regulations.



- 1 Anti-vibration coupling
- 2 Silencer
- 3 Oil separator
- 4 Low pressure manometer
- 5 High pressure manometer
- 6 Assure an height difference of min. 1% between the outlet collector and the liquid receiver

The following table shows the refrigerant quantity needed for the correct charge according to the different remote condenser models.

CONDENSER MODELS			REFRIGERANT CHARGE
CR	CRS	CRU	
8	/	/	0,8 kg
11	7	/	1,5 kg
14	10	9	1,2 kg
18	13	12	1,8 kg
26	21	17	2,9 kg
29	24	19	3,8 kg
35	28	22	4,5 kg
45	/	25	6,0 kg
48	34	/	7,5 kg
52	41	33	5,7 kg
58	/	/	7,6 kg
70	56	44	9,0 kg
89	66	50	12 kg
/	84	67	14 kg
96	/	/	15 kg
/	100	75-88	18 kg
/	/	99	24 kg

6 - GENERAL MAINTENANCE

Check regularly fasteners, electrical connections and refrigeration system connections.

Carry out regular cleaning of the condensers in order to avoid gathering of hazardous materials. It is recommended to employ only water with soap, avoiding solvents and aggressive agents like abrasive or ammonia based detergents.



The cleaning operations must be carried out by qualified and skilled personnel.