

Your Air Conditioning System Ducting and Grilles

Ducting is a very important part of the installation of your system. The ducting should be as straight, smooth and taut as possible. 90° bends are to be avoided (as little as two tight bends can reduce air flow by as much as 25%).

Ducting sizes are as follows:

RE06=5" duct

RA/RE08=5" duct

RA/RE12=6" duct (5" duct or a short run)

RA/RE16=6" duct

RA/RE18=6" duct

RA/RE24=6" x 2 duct (5" x 2 duct for a short run)

RA/RE32 =6" x 2 duct

Ducting should be attached to the mounting ring by pulling outer insulation back to expose inner Mylar. Slip the Mylar over ring until it bottoms out. Wrap a tie wrap around and tighten. Put a single screw thru tie wrap and into ring to secure. Pull insulation and outer skin over ring and secure with duct tape. The Mylar can also be sealed with duct tape.

We design our air handlers with air velocity and frictional pressure drop low on the supply side air. Dropping the blower ring size on the air handler is not normally recommended due to noise problems created by the higher air velocities. Higher air velocities also increase pressure drop, which is not desirable.

On excessively long duct runs, or ones with too many 90° bends (over 3), or in situations where a transition box is located at the outlet of a blower, it is highly recommended that you increase the duct size by one inch over our recommended sizes listed above.

Ducting Checklist

1. Sized correctly taking into account 90° bends, length, transition boxes, etc.
2. Must be fastened properly to avoid sagging.
3. DO NOT FLATTEN OR KINK
4. Run as smoothly and taut as possible.
5. Excess ducting removed before connecting.
6. Higher 'R' value insulation is required when ducting in any space not air-conditioned.

Grille Sizing

<u>Air Handler Size</u>	<u>Minimum Return Grille</u> <small>(Free Return Airflow)</small>	<u>Minimum Supply Grille</u>
RE06	80 sq. in.	50 sq. in.
RA/RE08	80 sq. in.	50 sq. in.
RA/RE12	100 sq. in.	60 sq. in.
RA/RE16	120 sq. in.	80 sq. in.
RA/RE18	120 sq. in.	80 sq. in.
RA/RE24	240 sq. in.	120 sq. in.
RA/RE32	240 sq. in.	160 sq. in.

If using the linear diffusers for the supply air and 'toe-kicks' for the return air, the total area of the holes and/or slots must equal the minimum sizes listed above. On the return air using toe-kicks, the accumulative airflow must be unrestricted as it passes through lockers and cavities. Linear diffusers for the supply air should be tapered to create an even pressure drop and air disbursement along its entire length. When insulating plenums and diffusers, it is preferred that the outside be insulated rather than the interior. This prevents restricting the internal volume which can constrict airflow. If the inside must be insulated then the plenum or diffuser should be increased in size to accommodate the required volume of air after the insulation has been installed.

Ducting the Return Air

We do not recommend ducting the return air side of the air handler. The air handler requires 100% free air return for maximum performance. Adding ducting to the return air created static pressure which affects the airflow and capacity. If it is necessary to install a return plenum or duct use the following guidelines. Return plenums must be the same dimensions or greater of the coil surface area (Return Air Grille Size). Ducted returns create larger static pressure drops therefore large ducts are required for optimum performance. On 24k and 32k air handlers, dual return ducts could be used connecting to a common plenum. The following chart will give the suggested return air sizes for the air handlers. Return duct runs should be short. For return ducts exceeding 5 feet, the next higher size should be used. If unsure as to which size return duct to use, contact Technicold for sizing assistance.

<u>Air Handler Size</u>	<u>Return Plenum Size</u>	<u>Return Duct Size</u>
	<u>Minimum Square Duct</u> <small>(Low Static, Return Airflow)</small>	<u>Minimum Round Duct</u> <small>(Low Static, Return Airflow)</small>
RE06	80 sq. in.	(1) 9 inch
RA/RE08	80 sq. in.	(1) 9 inch
RA/RE12	100 sq. in.	(1) 12 inch
RA/RE16	120 sq. in.	(1) 12 inch
RA/RE18	120 sq. in.	(1) 12 inch
RA/RE24	240 sq. in.	(1) 16 inch or (2) 12 inch
RA/RE32	240 sq. in.	(1) 16 inch or (2) 12 inch

Building Marine Equipment to Withstand the Marine Environment



www.technicold.com

TECHNICOLD
1419 W. Newport Center Drive,
Deerfield Beach, FL 33442
Phone 888-764-6192 | 954-421-1717
Fax: 954-421-1712

Corporate Office: 4420 14th Ave. NW., Seattle WA 98107
Tel: (206) 789-3880 • 1-800-762-0165 • Fax: (206) 782-5455
Information and dimensions subject to change without notice.
Northern Lights and Technicold are registered trademarks
of Northern Lights, Inc.
© 2010 All rights reserved. Litho USA. T124 4/10



www.northern-lights.com