

### Receiving Inspection

After unpacking the assembly check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. During unpacking and installation do not handle by the inlet velocity sensor or the control package.

### Determine Position Of the Control Enclosure

The control enclosure can be installed on either side of the ductwork by flipping the VAV unit over 180 degrees. Unit with mercury contactors, pneumatic controls, and digital controls (DDC) need to be inspected before installing.

**Important:** Unit with mercury contactors is position sensitive. As the result, before installing unit with mercury contactors, inspect the position of the mercury contactors in the control enclosure. Mercury contactors must be heading up 90 degrees vertically. If they are heading down, unscrew the mercury contactors, rotate 180 degrees, and reinstall them.

If unit is equipped with pneumatic controls, it should be mounted right side up and level within  $\pm 10$  degrees of horizontal, and parallel to the airflow. The first letter in the model number indicates control type (P is for pneumatic). If the unit is mounted upside down, the controller will have to be re-positioned, re-piped, and re-calibrated. Analog control units (A-analog model number pre-fix) may be installed in any orientation. Some Digital (DDC) controls (D-digital model number pre-fix) are position sensitive dependent on the airflow sensor transducer. Check with the controls manufacturer for verification.

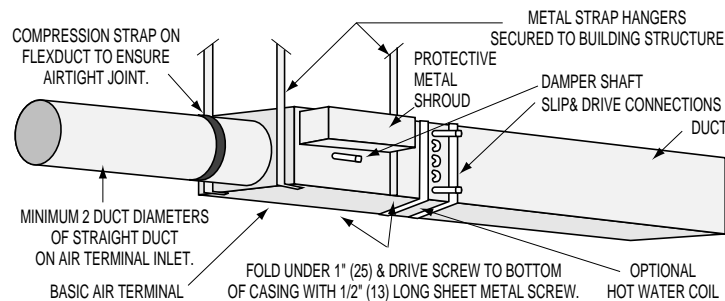
### Supporting the Assembly

Although the basic unit is light enough that it can be supported by the ductwork itself, we recommend that it be independently supported, especially when accessory modules, such as coils, attenuators, or multiple outlets are present. When requested, unit is supplied with field mounted hanger brackets for use with hanger rod up to 3/8" (9.5) dia. Hanger brackets should be screwed into the top of the unit casing. Hanger straps may alternatively be used and screwed directly into the sides or bottom of the unit casing. Use the support method prescribed for the rectangular duct in the job specifications.

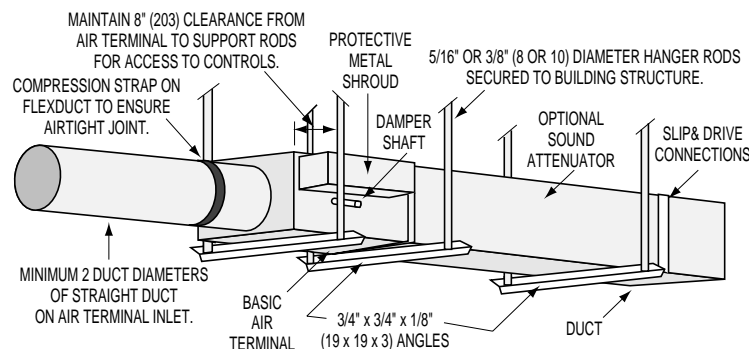
### Duct Connections

Slip each inlet duct over the inlet collar of the terminal. Fasten and seal the connection as described in the job specification. The diameter of the inlet duct for round inlets (unit size 4 through 10) must be equal to the listed size of the terminal. The inlet collar of the terminal is made 1/8" (3) smaller than listed size in order to fit inside the duct (see figure 1). Unit size 12 through 16 utilize flat oval inlet collars and unit size 24 x 16 has a rectangular inlet collar. The flat oval inlets are undersized for flexible duct connection. For hard inlet duct connections, refer to submittal drawing for dimensional data.

**Important:** Do not insert ductwork inside the inlet collar of the assembly. For optimum performance, 2 to 3 equivalent diameters of straight duct should be installed prior to the inlet of the unit. All ducts should be installed in accordance with SMACNA guidelines. The outlet end of the terminal is designed for use with slip and drive duct connections. A rectangular duct the size of the terminal outlet should be attached.



**Figure 1: Single Duct VAV Terminal Unit w/ Hot Water Heat Support Using Hanger Straps.**



**Figure 2: Single Duct Terminal Unit w/ attenuator Support Using Hanger Brackets and Rods.**

## Field Wiring

All field wiring must comply with NEC and local codes. Electrical, control, and piping diagrams can be found on labels affixed to the exterior/interior of the control enclosure box. All Nailor electric heaters are staged per specifications. The installing electrician should rotate the incoming electric service by phase to help balance the building electric load.

Fuse size designates the size of the internal fuse if it is supplied. Maximum Overcurrent Protection (MOP) designates the largest breaker or fuse in the electrical service panel that can be used to protect the unit.

## Control Start-up, Operation

Your local Nailor Representative can provide detailed information about start-up and operating procedures for Nailor's digital, analog,


and pneumatic controls. For specific information on controls provided by other manufacturers, contact the specific manufacturer's local or national office. This applies whether the controls were factory or field mounted.

Note: Digital controllers may use specific communication addresses based on Building Management Systems Architecture and original engineering drawings. Installing the terminal in a location other than that noted on the label may result in excessive start-up labor.

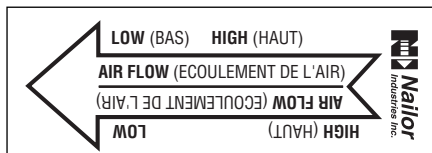
## Labels

Single duct terminals units are shipped from the factory with the following information labels.

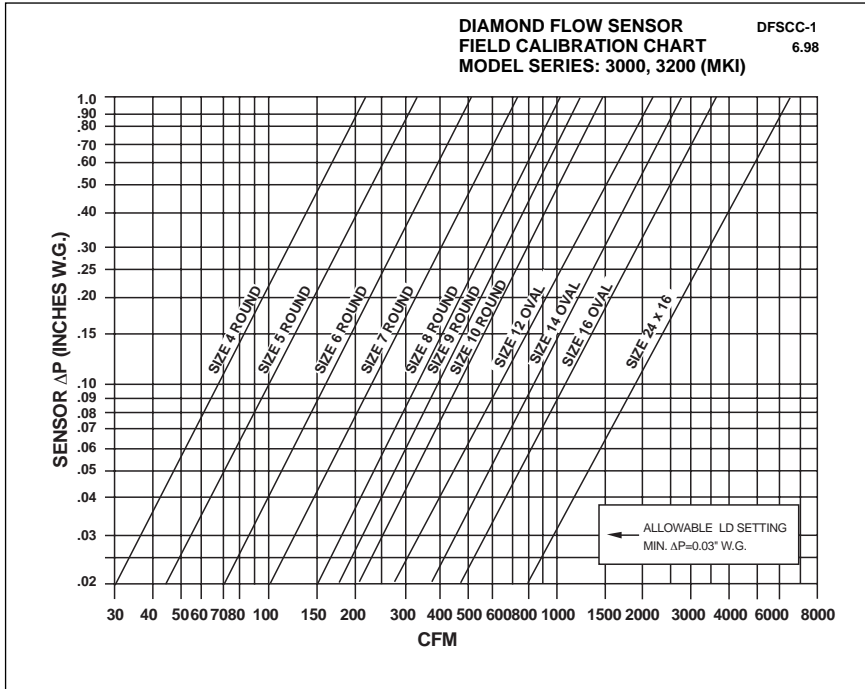
1) **Sample Nameplate Label** – affixed to the air terminal casing beside the control mounting panel. Shows tagging information, serial-model number, size, cfm, voltage, amps, MOP, etc.

			<b>SINGLE DUCT TERMINAL UNIT</b>			<b>(UNITE TERMINALE @ VENTILATEUR INTEGRÉ)</b>																																			
<b>DATE (DATE) : 10-Apr-2002</b> <b>MODEL (MODÈLE) : D30RE</b> <b>UNIT SIZE-INLET SIZE : 6-6</b> <i>(DIAMÈTRE D'ENTRÉE)</i> <b>CONTROL VOLTAGE : 24</b> <i>(VOLTAGE DE CONTRÔLE)</i> <b>CONTROL SEQUENCE : DG</b> <i>(SEQUENCE DE CONTRÔLE)</i> <b>VOLT AMP (VOLT-AMPÈRE) : 50</b>			<b>SERIAL NO. (NO. DE SÉRIE) : 149095-70</b> <b>TAG NO. (NO. DÉTIQUETTE) : M-34-16</b> <b>VOLTAGE (VOLTAGE) : 208</b> <b>PHASE (PHASE) : 3</b> <b>STAGES (ÉTAPES) : 1</b> <b>HZ. (HZ) : 50/60</b> <b>HOT WATER COIL ROWS : N/A</b> <i>(NOMBRE DE RANGÉES SERPENTINEAU CAUCE)</i>																																						
<table border="1"> <thead> <tr> <th colspan="3">KW/HP</th> <th colspan="3">AMPS (AMPÈRES)</th> <th colspan="3">AMPACITY (AMPACITÉE)</th> <th colspan="2">MAX. OVERCURRENT PROTECTION (RESISTANCE DES FUSIBLE MAX.)</th> <th>INTERNAL FUSE SIZE (IF SUPPLIED)</th> </tr> <tr> <th>TOTAL (TOTALE)</th> <th>EACH CIR. (CHAQUE CIRCUIT)</th> <th>EACH STG. (CHAQUE ÉTAPE)</th> <th>TOTAL (TOTALE)</th> <th>EACH CIR. (CHAQUE CIRCUIT)</th> <th>EACH STG. (CHAQUE ÉTAPE)</th> <th>TOTAL (TOTALE)</th> <th>EACH CIR. (CHAQUE CIRCUIT)</th> <th>EACH STG. (CHAQUE ÉTAPE)</th> <th>TOTAL (TOTALE)</th> <th>EACH CIR. (CHAQUE CIRCUIT)</th> <th></th> </tr> </thead> <tbody> <tr> <td>3.0</td> <td>3.0</td> <td>3.0</td> <td>8.3</td> <td>8.3</td> <td>8.3</td> <td>10.4</td> <td>10.4</td> <td>10.4</td> <td>15</td> <td>15</td> <td>15</td> </tr> </tbody> </table>			KW/HP			AMPS (AMPÈRES)			AMPACITY (AMPACITÉE)			MAX. OVERCURRENT PROTECTION (RESISTANCE DES FUSIBLE MAX.)		INTERNAL FUSE SIZE (IF SUPPLIED)	TOTAL (TOTALE)	EACH CIR. (CHAQUE CIRCUIT)	EACH STG. (CHAQUE ÉTAPE)	TOTAL (TOTALE)	EACH CIR. (CHAQUE CIRCUIT)	EACH STG. (CHAQUE ÉTAPE)	TOTAL (TOTALE)	EACH CIR. (CHAQUE CIRCUIT)	EACH STG. (CHAQUE ÉTAPE)	TOTAL (TOTALE)	EACH CIR. (CHAQUE CIRCUIT)		3.0	3.0	3.0	8.3	8.3	8.3	10.4	10.4	10.4	15	15	15	<b>HEATER (CHAUFFAGE)</b>		
KW/HP			AMPS (AMPÈRES)			AMPACITY (AMPACITÉE)			MAX. OVERCURRENT PROTECTION (RESISTANCE DES FUSIBLE MAX.)		INTERNAL FUSE SIZE (IF SUPPLIED)																														
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3.0	3.0	3.0	8.3	8.3	8.3	10.4	10.4	10.4	15	15	15																														
EACH ELEMENT RATED @ <b>1.0</b> KW @ <b>208</b> VAC. <i>(CHAQUE ELEMENT CLASSIFIER A)</i>			AWG. MIN WIRE SIZE (MIN DIAMÈTRE DE FIL) : <b>14</b> MIN. HEATING CFM (MIN. PCM) : <b>210</b>																																						
<div style="border: 1px solid black; padding: 5px;">             USE WIRE SUITABLE FOR AT LEAST 75 °C              L1 IS COLOR CODED BLACK, L2 IS BLUE, L3 IS RED              CONTROL WIRES CODED AS MARKED              USE COPPER CONDUCTORS ONLY.           </div>			<div style="border: 1px solid black; padding: 5px;">             UTILISER UN FIL MÉTALLIQUE QUI CONVIENT AU MOINS 75 °C              L1 EST COLORE NOIRE, L2 EST BLEU, L3 EST ROUGE,              LES FILS DE CONTRÔLE SON IDENTIFIÉE COMME MARQUE,              UTILISÉ DES CONDUCTEURS DE CUIVRE SEULEMENT.           </div>																																						
USE CLASS K, RK1, A2D OR A6D FUSE OR HACR BREAKERS.			UTILISÉ DES FUSIBLES CLASS K, RK1, A2D, OU A6D OU HACR DISJONCTEURS.																																						
PRIMARY CFM (MAX/MIN) : <b>245/</b> FAN CFM :			PRIMARY L/S (MAX/MIN) : <b>161/</b> FAN L/S :																																						

## Airflow Direction (affixed to the inlet collar)



3) **Sample Calibration Label** – affixed near the control mounting panel. Shows airflow calibration data.



### Replacement Parts

#### Primary Damper Valve

Size	Part Number
Size 4", 5", 6"	VB3-231
Size 7", 8"	VB3-233
Size 9", 10"	VB3-234
Size 12"	VB3-235
Size 14"	VB3-236
Size 16"	VB3-237
Size 24"x16"	VB3-238

#### Pneumatic FR Tubing (1/4" O.D.)

Black	VB3-066
Blue stripe	VB3-068
Red stripe	VB3-067

#### Tee for Sensor Tap

Barbed, 1/8"	VB3-058
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#### Cap for Sensor Tee

Rubber, for 1/8" Tee	VB3-059
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#### Part Number

#### Diamond Flow Sensor

#### Inlet Size

4"	3/16" O.D. tube	V1104
5"	3/16" O.D. tube	V1105
6"	3/16" O.D. tube	V1106
7"	3/16" O.D. tube	V1107
8"	3/16" O.D. tube	V1108
9"	3/16" O.D. tube	V1109
10"	3/16" O.D. tube	V1110
12"	3/16" O.D. tube	V1112
14"	3/16" O.D. tube	V1114
16"	3/16" O.D. tube	V1116
24" x 16"	3/16" O.D. tube	V1124

#### Part Number

#### Control Components

Digital - See Digital Operation Manual

Analog - See Analog Operation Manual

Pneumatic - See Pneumatic Operation Manual

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## Recommended Maintenance

Single Duct Terminal Units supplied with stainless steel construction are supplied with Celcon® bearings as standard. Bronze oil impregnated bearings and 316 stainless steel bearings are optional for certain applications. It is recommended that those units equipped with 316 stainless steel bearings be lubricated periodically as required by the application and environment.

A Silicone based lubricant such as DuPont™ Pure Silicone Lubricant with KRYTOX® PTFE or equivalent should be applied to the shaft between the shaft and the bearing surface to prevent excessive wear. This can be done without removal of the shaft by pushing or pulling the shaft in one direction while using a spray applicator tube to inject lubricant into the small gap formed on the opposite side.



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