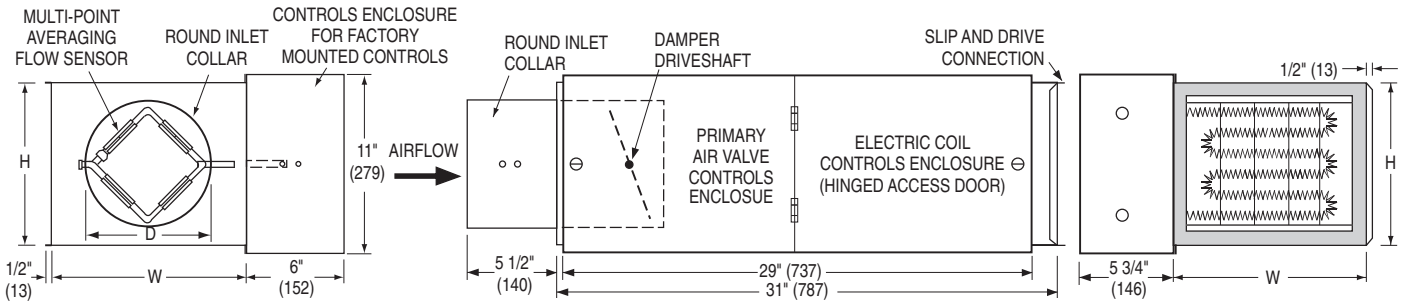
Nailor Industries Inc.

SINGLE DUCT TERMINAL UNIT WITH ELECTRIC REHEAT
DIGITAL OR ANALOG ELECTRONIC CONTROL
PRESSURE INDEPENDENT
MODELS: D31RE AND A31RE



Dimensional Data

Unit Size	Min.– Max. Airflow Range* cfm (l/s)	W	H	Inlet Size D
4	25 – 180 (12 – 85)	12 (305)	8 (203)	3 ⅞ (98) Round
5	45 – 325 (21 – 153)	12 (305)	8 (203)	4 ⅞ (124) Round
6	65 – 450 (31 – 212)	12 (305)	8 (203)	5 ⅞ (149) Round
7	95 – 650 (45 – 307)	12 (305)	10 (254)	6 ⅞ (175) Round
8	125 – 900 (59 – 425)	12 (305)	10 (254)	7 ⅞ (200) Round
9	165 – 1150 (78 – 543)	14 (356)	12 ½ (318)	8 ⅞ (225) Round
10	215 – 1500 (101 – 708)	14 (356)	12 ½ (318)	9 ⅞ (251) Round
12	290 – 2050 (137 – 967)	16 (406)	15 (381)	11 ⅞ (302) Round
14	390 – 2740 (184 – 1293)	20 (508)	17 ½ (445)	13 ⅞ (352) Round
16	520 – 3680 (245 – 1737)	24 (610)	18 (457)	15 ⅞ (403) Round
24 x 16	960 – 6800 (453 – 3209)	38 (965)	18 (457)	23 ⅞ x 15 ⅞ (606 x 403) Rect.

* Minimum flows are based upon 0.02" w.g. differential pressure from flow sensor. The maximum flow rate represents the diamond flow sensor's differential pressure reading at 1" w.g. (250 Pa).

AHRI CERTIFIED™ www.ahridirectory.org
VAV Terminals
AHRI Standard 880

INTERTEK ETL LISTED C US

Standard Features:

• 22 ga. (0.86) zinc coated steel casing, mechanically sealed, low leakage construction. Leakage is less than 1% of the terminal rated airflow at 1" w.g. (250 Pa).

• 2 x 20 ga. (0.86) round laminated butterfly damper with a polyurethane peripheral gasket. 90° rotation, CW to close. Tight shut-off. Damper leakage is less the 1% of the terminal rated airflow at 3" w.g. (750 pa.) and less than 2% at 6" w.g. (1500 pa.) as tested in accordance with ANSI / ASHRAE Standard 130.

• 1/2" (13) dia. plated steel drive shaft. An indicator mark on the end of the shaft shows damper position.

• Unit sizes 4–16 feature round inlet collars.

• Multi-point averaging Diamond Flow Sensor. Aluminum construction. Supplied with balancing tees.

• Rectangular discharge with slip and drive cleat duct connection.

• Full NEMA 1 type low voltage controls enclosure for factory mounted controls.

• 3/4" (19), dual density insulation, exposed edges coated to prevent air erosion. Meets the requirements of NFPA 90A and UL 181.

• Electric Coil is mounted in an integral attenuator section.

• Right-hand controls location is standard (shown) when looking in direction of airflow. Optional left hand controls mounting is available.

Controls:

❑ Digital (by others).

❑ Analog (by Nailor).

See separate submittal.

Options and Accessories:

❑ Steri-liner.

❑ Fiber-free liner.

❑ Solid metal liner.

❑ FMI Removable Flow Sensor (See submittal 36FMI-1).

❑ 1" (25) liner.

❑ Bottom access door.

❑ 24VAC Control transformer.

❑ Hanger brackets.

❑ Controls enclosure for field mounted controls.

❑ Dust tight enclosure seal.

❑ Special Features:

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Electric Coil Features, Options and Accessories:

See next page;

Dimensions are in inches (mm).

SCHEDULE TYPE				
PROJECT				
ENGINEER	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR	8 - 20 - 09	3100	8 - 3 - 09	D31RE

SINGLE DUCT TERMINAL UNIT WITH ELECTRIC REHEAT
DIGITAL OR ANALOG CONTROLS
PRESSURE INDEPENDENT
MODELS: D31RE AND A31RE

Nailor Industries Inc.

Nailor manufactures its own electric heating coils. They have been specifically designed and tested for use with variable air volume single duct terminal units.

All terminals with electric heat have been tested and ETL listed as an assembly, eliminating the need to mount coils a minimum of 36" (914) downstream or having to ship a bulky length of ductwork when coils are to be supplied mounted on the terminal.

Nailor electric coils are factory mounted as an integral part of the terminal unit in an insulated extended plenum section. Total length of the casing including heater terminal is only 31" (787), providing a compact, easy to handle unit. Freight costs are therefore also reduced. All terminals include a perforated diffuser plate on the damper discharge in order to to minimize air stratification, avoid nuisance tripping of the thermal cut-outs and maximize heat pick-up.

Electric Coil Limitations

Unit Size	Heating Range* cfm (l/s)	Maximum kW							
		Single Phase					Three Phase		
		120V	208V	240V	277V	347V	208V	480V	600V
4	25 – 180 (12 – 85)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	45 – 325 (21 – 153)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6	65 – 450 (31 – 212)	5.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
7	95 – 650 (45 – 307)	5.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
8	125 – 900 (59 – 425)	5.5	9.5	11.0	13.0	13.0	13.0	13.0	13.0
9	165 – 1150 (78 – 543)	5.5	9.5	11.0	13.0	16.0	16.0	16.0	16.0
10	215 – 1500 (101 – 708)	5.5	9.5	11.0	13.0	16.5	17.0	21.0	21.0
12	290 – 2050 (137 – 967)	5.5	9.5	11.0	13.0	16.5	17.0	30.0	30.0
14	390 – 2740 (184 – 1293)	5.5	9.5	11.0	13.0	16.5	17.0	31.0	38.5
16	520 – 3680 (245 – 1737)	5.5	9.5	11.0	13.0	16.5	17.0	31.0	38.5
24 x 16	960 – 6800 (453 – 3209)	5.5	9.5	11.0	13.0	16.5	17.0	31.0	38.5

Tested and approved to the following standards:

ANSI/UL 1996, 1st. ed.

CSA C22.2 No. 155-M1986.

***** Minimum airflow must be the greater of the air volume listed or 70 cfm per kilowatt (33 L/s/kW)

Selection Guidelines:

The table above provides a general guideline as to the voltages and maximum kilowatts available for each terminal unit size. Up to three stages of heat are available. A minimum of 0.5 kW/stage is required.

For optimum diffuser performance and maximum thermal comfort, ASHRAE recommends that discharge temperatures do not exceed 15°F (8°C) above room set point, as stratification and short circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F (32°C) or increasing the ventilation rate when heating from the ceiling. Never select kW to exceed a discharge temperatures of 120°F (49°C).

$$\Delta T \text{ (Air Temp. Rise, °F)} = \frac{kW \times 3160}{cfm}$$

The coils ranges listed are restricted to a maximum of 48 amps and do not require circuit fusing to meet NEC code requirements. Total pressure at the airflow switch should be at least 0.07" w.g. (17 Pa) to ensure correct coil operation and avoid possible nuisance tripping of the thermal cutouts due to insufficient airflow over the coil elements. Check that desired minimum airflow is within recommended operating range.

Standard Features:

- Primary auto-reset high limit thermal cut-out (one per coil in control circuit).
- Secondary manual reset high limit thermal cut-outs (one per element).
- Positive pressure airflow switch.
- Derated high quality nickel-chrome alloy heating elements.
- Magnetic contactor per stage.
- Line terminal block.
- High performance arrowhead insulators.
- ETL Listed as an assembly.
- Hinged door control enclosure.
- Slip and drive discharge connection.

Voltage:

Single phase, 60 Hz.

❑ 120V ❑ 208V ❑ 240V

❑ 277V ❑ 347V

Three phase, 60 Hz.

❑ 208V ❑ 480V ❑ 600V

❑ _____ .

Coil Options and Accessories:

- ❑ Toggle type disconnect switch.
- ❑ Door interlock disconnect switch.
- ❑ Mercury contactors.
- ❑ Power circuit fusing.
- ❑ Dust tight construction.
- ❑ SCR control.
- ❑ Class 'A' 80/20 wire.
- ❑ Special Features:

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Dimensions are in inches (mm).

SCHEDULE TYPE				
PROJECT				
ENGINEER	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR	8 - 20 - 09	3100	8 - 3 - 09	D31RE