



**AIR MEASURING CONTROL DAMPER
THERMAL DISPERSION • VEE BLADE
LOW LEAKAGE • STANDARD PERFORMANCE
MODEL: AMD-TD-10**

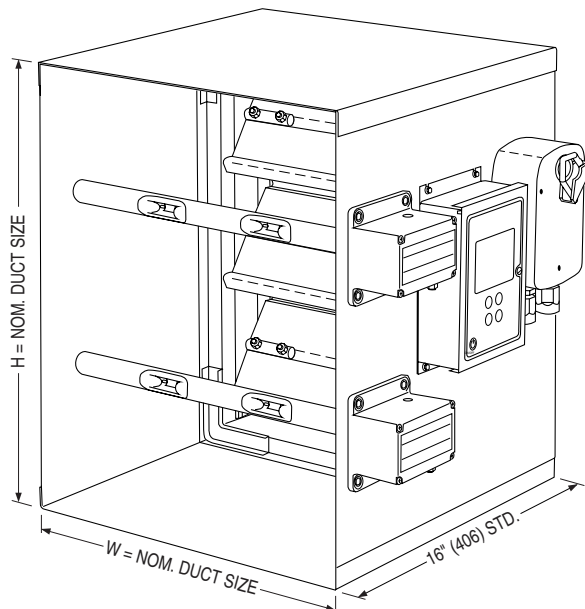
The AMD-TD-10 is an all-in-one airflow measuring and control damper solution that features time-saving and cost-saving installation. In contrast to other airflow measurement products, the thermal dispersion probes offer higher accuracy, even at more turbulent and lower speed airflows. This unit meets the frequently specified leakage criteria of less than 10 cfm per sq. ft at 4" w.g. (0.5% at 2000 fpm). The damper design features include a sturdy hat channel frame with die-formed corner gussets for reinforcement, a vee groove blade design that maximizes strength and zero maintenance concealed linkage (out of the air stream) for reduced pressure drop and air turbulence.

STANDARD CONSTRUCTION:

- Frame:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel with die-formed corner gussets. Low profile (flat top and bottom) on dampers 10" (254) high and under.
- Blades:** 6" (152) wide on 5 1/2" (140) centers. 16 ga. (1.6) galvanized steel vee groove design. Parallel or opposed blade action.
- Linkage:** Concealed side type totally enclosed within the frame and out of the airstream. Plated steel.
- Bearings:** 1/2" (13) dia. Celcon®.
- Axles:** 1/2" (13) dia. plated steel double bolted to blades.
- Drive Shaft:** 6" (152) long x 1/2" (13) dia. rigid drive shaft.
- Blade Seals:** Dual durometer bulb type extruded PVC.
- Jamb Seals:** Compression type cambered metal.
- Sleeve:** Galvanized steel 16" long x 20 ga. (406 x 1.0).
- Temperature Range:** -20°F to +140°F (-29°C to +60°C).
- Monitor Accuracy:** 2 – 3% of reading.
- Blade Action:** PB Parallel (default) OB Opposed
- Controls Location:** CRH Right Hand (standard as illustrated)
 CRL Left Hand

OPTIONS:

- 12G** 12 ga. (2.7) hat channel frame
- BO** Oilite® bearings
- BS** Type 304 Stainless Steel bearings
- BSS** Silicone Blade Seals
- ASH** Aluminum Honeycomb Airflow Straightener
- SL** Specify Sleeve Length 16" - 28" (406 - 711)
- FUS** 1 1/2" (32) flange on upstream side of unit
- FDS** 1 1/2" (32) flange on downstream side of unit
- FBS** 1 1/2" (32) flange on both sides of unit
- SSL** Type 304 Stainless Steel face linkage (includes axles)
- 24** 24 VAC Modulating, Spring Return Actuator
- HLQ** Hand Locking Quadrant
- Other** _____.



Performance Data - Air Leakage (Damper Closed)

3.5 cfm/ft² @ 1" w.g. (64 cmh/m² @ .25 kPa)
7 cfm/ft² @ 4" w.g. (128 cmh/m² @ 1 kPa)

Sizing

W x H	Minimum Size*	Maximum Size	
	External	Single Section	Multiple Section
	10" x 6" (254 x 152)	48" x 72" (1219 x 1829)	96" x 72" (2438 x 1829)

*Minimum size using two blades is 10" x 10" (254 x 254)

Static Pressure Drop (in. w.g.)

Damper Size	Approach Velocity (fpm)		
	750	1000	1500
12" x 12" (305 x 305)	.025	.050	.13
24" x 24" (610 x 610)	.016	.030	.78
36" x 36" (914 x 914)	.013	.023	.03

Tested per AMCA Standard 500-D, Fig. 5.3.

SCHEDULE TYPE:
PROJECT:
ENGINEER:
CONTRACTOR:

Page 1 of 3
Dimensions are in inches (mm)

DATE	B SERIES	SUPERSEDES	DRAWING NO.
6 - 16 - 21	FDACC	3 - 19 - 21	AMD-TD-10

DESCRIPTION:

In contrast to having to source all airflow measuring and control items separately, the AMD-TD-10 is offered as an all-in-one, factory assembled and calibrated solution that relieves headaches in parts' sourcing and installation. The AMD-TD-10 consists of a 1000 series control damper, thermal dispersion technology probes, a BACnet MS/TP capable transmitter, an optional 24 VAC modulating actuator, and an ease-of-access terminal block, all fixed to a sleeve. The probes, transmitter, and actuator are factory wired to the provided terminal block, offering easy, single-point wiring.

OPERATION:

The probes and transmitter use thermal dispersion technology to read the airflow and air temperature, which is displayed on the transmitter. The transmitter outputs a 0 - 10 VDC signal proportional to the real-time airflow and/or air temperature being read, where 10 VDC represents the programmed maximum airflow/air temperature. The factory supplied modulating actuator accepts a 0 - 10 VDC signal that corresponds to how open or closed the damper is.



* National Institute of Standards and Technology

FEATURES:

BACnet MS/TP and Modbus RTU capable Transmitter
 BACnet MS/TP and Modbus RTU communication allows for remote monitoring and operation, as well as communication between devices.

Complete Transmitter and Probe Calibration
 Individual sensors receive a multi-point, NIST* traceable calibration of air velocity and temperature across the entire operating range.

Ruggedized, Hermetically Sealed Sensors - Precision Thermistors And Heating Circuit Are Fully Encapsulated
 Provides a high degree of protection from the environment and allows the sensor assembly to be cleaned without damage.

Dedicated ELECTRA-flo GS Transmitter with Display
 Each Air Measuring Control Damper comes complete with a transmitter that is factory matched and configured, optimizing system performance.

Turbulent Airflow Correcting Apertures
 At the heart of each thermal probe array are pairs of precision matched thermistors installed in aerodynamic apertures. These sensor aperture assemblies are specifically designed to reduce the effects of angular flow distortions found within ducted air distribution systems. The design, construction and calibration of each thermistor sensor pair ensures the accuracy and long term reliability of the measurement system.

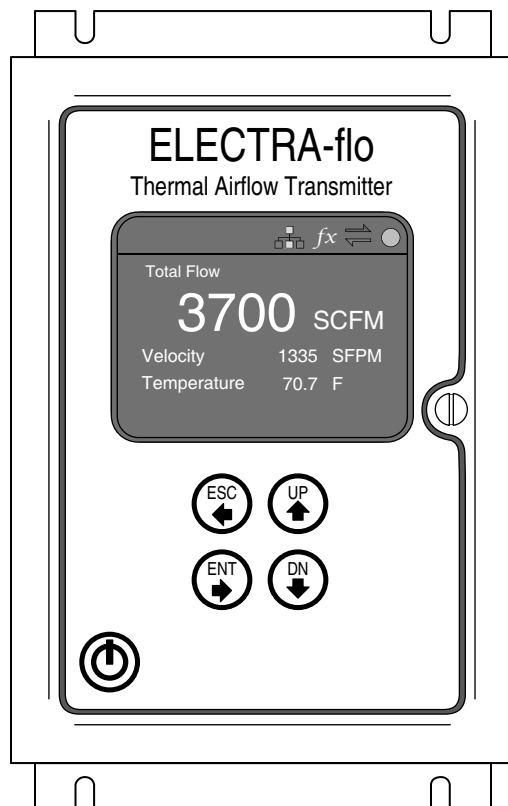

APPLICATIONS:

Nailor's Thermal Dispersion Air Measuring Low Leakage Control Dampers accurately measure airflow in a wide variety of commercial HVAC applications and installations.

Permanently installed airflow measurement and control systems provide the real time, actionable information required for the safe, code compliant and efficient operation of today's high performance buildings.

The Air Measuring Damper unit may be used in any application that requires the airflow to be measured and controlled. Common applications are outside air intake and floor supply and return tracking.

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PROJECT:	Dimensions are in inches (mm)			
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PROBE ARRAY SPECIFICATIONS:

I/O Signals: Two (2) analog outputs, selectable based on configuration.

Network Connections: RS485, BACnet[®] MS/TP or MODBUS[®] RTU.

Approvals: UL 60730

BTL Certified to BACnet Standard ISO 16484-5 rev. 1.12.

FCC Meets part 15 Subpart B, Class A device requirements.

Performance: SENSOR ACCURACY Individual sensor accuracy $\pm 2\%$ of reading from 0 - 5000 fpm.

Sensor Design: Precision matched, hermetically sealed thermistors with laser trimmed resistive heating element.

Dedicated 16 bit A/D procession of each sensor signal.

Sensor node consists of two (2) thermistors mounted in a dedicated flow conditioning aperture.

Temperature Accuracy: $\pm 0.1^\circ\text{F}$ over operating range of -20°F to 140°F ($\pm 18^\circ\text{C}$ over operating range of -29°C to 60°C).

SCHEDULE TYPE:		Page 3 of 3			
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**AIR MEASURING CONTROL DAMPER
THERMAL DISPERSION • AIRFOIL BLADE
ULTRA-LOW LEAKAGE • HIGH PERFORMANCE
MODEL: AMD-TD-20**

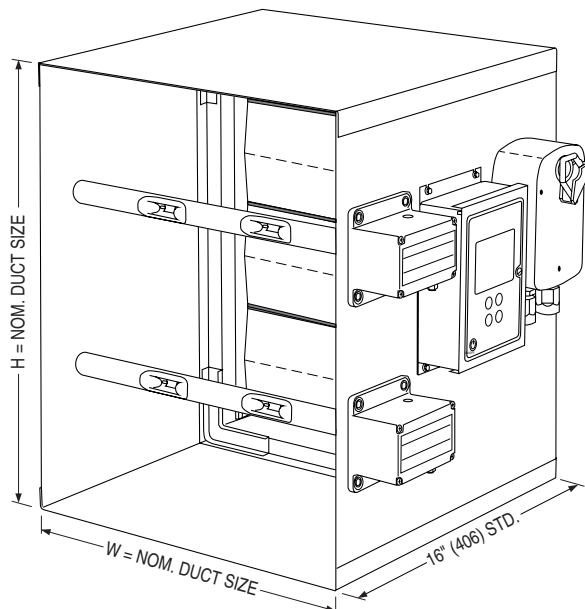
The AMD-TD-20 is an air measuring station factory equipped with a 2000 Series control damper, Nailor's premium choice for use in high velocity, medium pressure commercial HVAC systems. They offer unsurpassed leakage (Class 1A) and pressure drop characteristics for superior performance that meets the International Energy Conservation Code maximum leakage for building envelope dampers criteria of 3 cfm/ft² @ 1" w.g. (15.2 L/s/m² @ 0.25 kPa). Featuring highly accurate thermal dispersion probes and a factory calibrated transmitter, the AMD-TD-20 is ready for quick and hassle-free installation as an all in one, pre-assembled unit. Unique design compression type seals are keyed and locked into blade extrusion, providing the ultimate in ultra-low leakage and high performance.

STANDARD CONSTRUCTION:

- Frame:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel with die-formed corner gussets for reinforcement and extra strength.
- Blades:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- Linkage:** Concealed side type totally enclosed within the frame and out of the airstream. Plated steel.
- Bearings:** 1/2" (13) dia. Oilite® self-lubricating bronze.
- Axles:** 1/2" (13) dia. plated steel double bolted to blades.
- Drive Shaft:** 6" (152) long x 1/2" (13) dia. rigid drive shaft.
- Blade Seals:** Santoprene. Mechanically locked in place.
- Jamb Seals:** Cambered stainless steel.
- Sleeve:** Galvanized steel 16" long x 20 ga. (406 x 1.0).
- Temperature Range:** -20°F to +140°F (-29°C to +60°C).
- Monitor Accuracy:** 2 – 3% of reading.
- Blade Action:** PB Parallel (default) OB Opposed
- Controls Location:** CRH Right Hand (standard as illustrated)
 CRL Left Hand

OPTIONS:

- 12G** 12 ga. (2.7) hat channel frame
- BS** Type 304 Stainless Steel bearings
- BSS** Silicone Blade Seals
- ASH** Aluminum Honeycomb Airflow Straightener
- SL** Specify Sleeve Length 16" - 28" (406 - 711)
- FUS** 1 1/2" (32) flange on upstream side of unit
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- SSL** Type 304 Stainless Steel face linkage (includes axles & bearings)
- 24** 24 VAC Modulating, Spring Return Actuator
- HLQ** Hand Locking Quadrant
- Other** _____



Performance Data - Air Leakage (Damper Closed)
 3 cfm/ft² @ 1" w.g. (55 cmh/m² @ .25 kPa)
 - AMCA Leakage Class 1A
 6 cfm/ft² @ 4" w.g. (110 cmh/m² @ 1 kPa)
 - AMCA Leakage Class 1

Sizing

W x H	Minimum Size*	Maximum Size	
	External	Single Section	Multiple Section
	10" x 8" (254 x 203)	60" x 72" (1524 x 1829)	120" x 72" (3048 x 1829)

*Minimum size using two blades is 10" x 12" (254 x 305)

Static Pressure Drop (in. w.g.)

Damper Size	Approach Velocity (fpm)					
	750	1000	1500	2000	2500	3000
12" x 12" (305 x 305)	.022	.041	.095	.16	.26	.40
24" x 24" (610 x 610)	.007	.013	.026	.045	.07	.10
36" x 36" (914 x 914)	.005	.008	.019	.032	.05	.071

Tested per AMCA Standard 500-D, Fig. 5.3.

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Page 1 of 3
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OPERATION:

The probes and transmitter use thermal dispersion technology to read the airflow and air temperature, which is displayed on the transmitter. The transmitter outputs a 0 - 10 VDC signal proportional to the real-time airflow and/or air temperature being read, where 10 VDC represents the programmed maximum airflow/air temperature. The factory supplied modulating actuator accepts a 0 - 10 VDC signal that corresponds to how open or closed the damper is.



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APPLICATIONS:

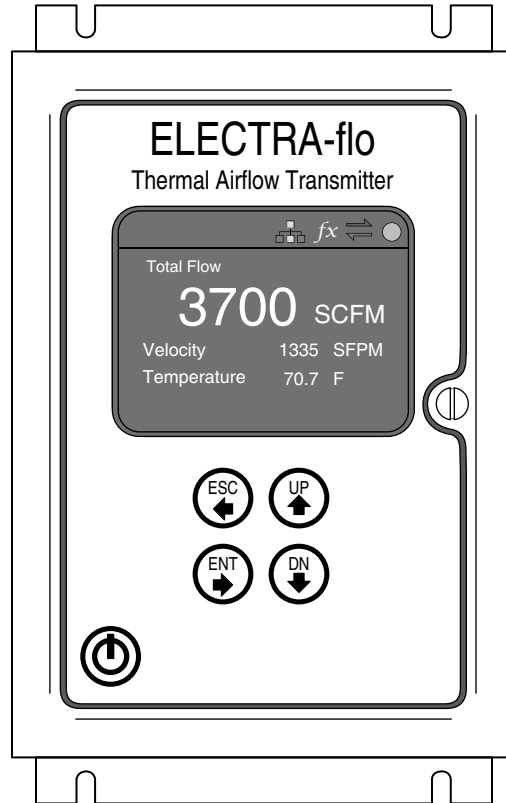
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PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	6 - 16 - 21	FDACC	5 - 5 - 21	AMD-TD-20



HAND LOCKING QUADRANT
 FOR USE WITH MANUAL BALANCING AND AIR CONTROL DAMPERS
MODEL: CDQUAD (HLQ DAMPER ACCESSORY OPTION)

DESCRIPTION:

The Nailor CDQUAD/HLQ Hand Locking Quadrant is primarily designed for use with the Nailor Multi-Blade 1800 Series Manual Balancing Dampers, 1000, 1100 and 2000 Series Control Dampers.

It mounts directly over a 1/2" (13) dia. lock-on drive shaft or a rigid 1/2" (13) dia. drive shaft and is secured with a carriage bolt.

The CDQUAD is provided with pre-drilled mounting holes for convenient installation and the design ensures that the mounting screws do not interfere with any damper side linkage that may be hidden inside the damper frame channel.

MATERIAL:

16 ga. (1.6) galvanized steel 1" (25) stand-off mounting bracket.

Plated steel quadrant and hardware.

Celcon® bearings.

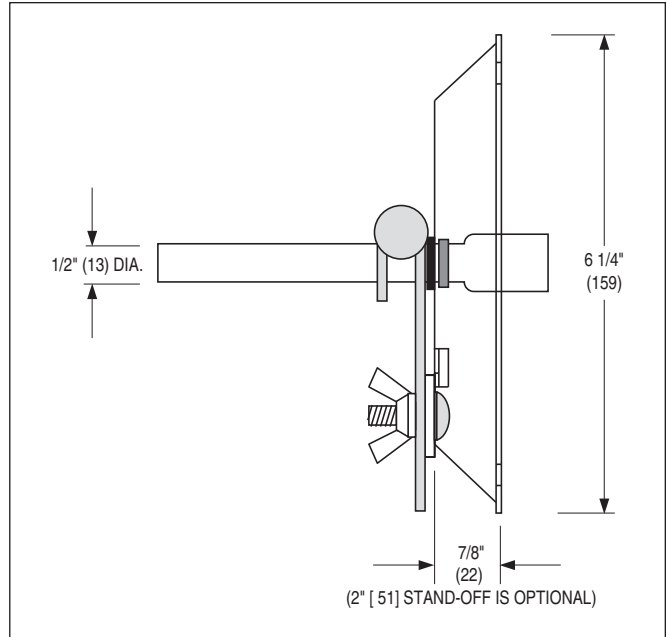
OPTIONS:

Accessory when ordered with damper:

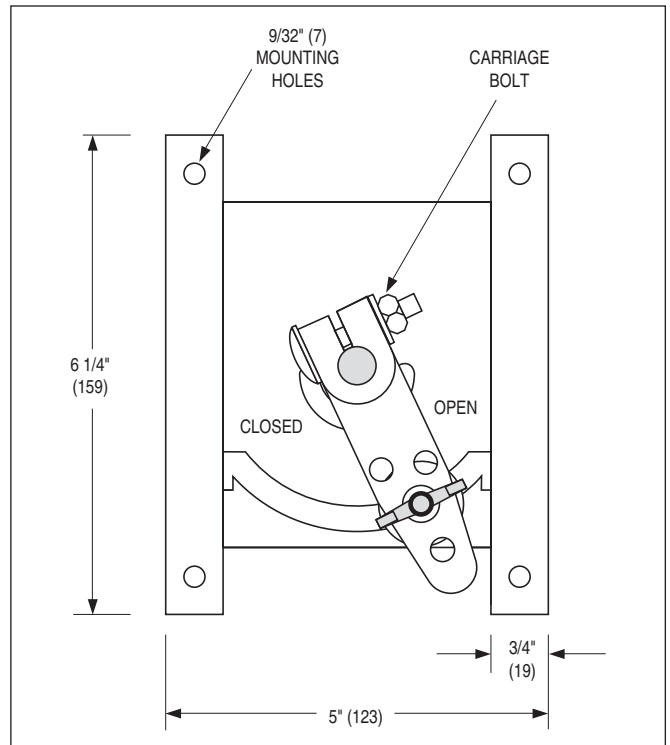
- HLQ2 Hand-locking Quadrant with 2" (51) stand-off bracket.

Order separately (by model number):

- CDQUAD NI CD Hand-locking Quadrant - 1/2" (13) dia. shaft.
- CDQUAD2 NI CD Hand-locking Quadrant - 1/2" (13) dia. shaft with 2" (51) stand-off bracket.
- CDQUADSS NI CD Hand-locking Quadrant - 1/2" (13) dia. shaft, Type 304 stainless steel.
- CDQUAD2SS NI CD Hand-locking Quadrant - 1/2" (13) dia. shaft with 2" (51) stand-off bracket, Type 304 stainless steel.



SIDE VIEW OF HAND QUADRANT



FACE VIEW OF HAND QUADRANT

SCHEDULE TYPE:				
PROJECT:	Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	12 - 1 - 23	1800	10 - 5 - 99RR	1800-QUAD