



**AIRFOIL CONTROL DAMPER**  
**STEEL • ULTRA-LOW LEAKAGE**  
**HIGH PERFORMANCE**  
**MODELS: 1110 & 1120**

**AMCA LICENSED**

The 1110/1120 Series are Nailor's most cost effective steel airfoil blade control dampers. The ultra-low leakage (Class 1A) dampers are suitable for use in the majority of low to medium pressure and velocity commercial HVAC systems.

The design features include a sturdy hat channel frame with die-formed corner gussets for reinforcement and structural strength equivalent to 13 gauge channel type frames, and zero maintenance concealed linkage (out of the air stream) for reduced pressure drop and air turbulence. Models 1110 and 1120 are AMCA Licensed and meet the International Energy Conservation Code (802.3.4) maximum leakage for building envelope dampers criteria of 3 cfm/ft<sup>2</sup> @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa).

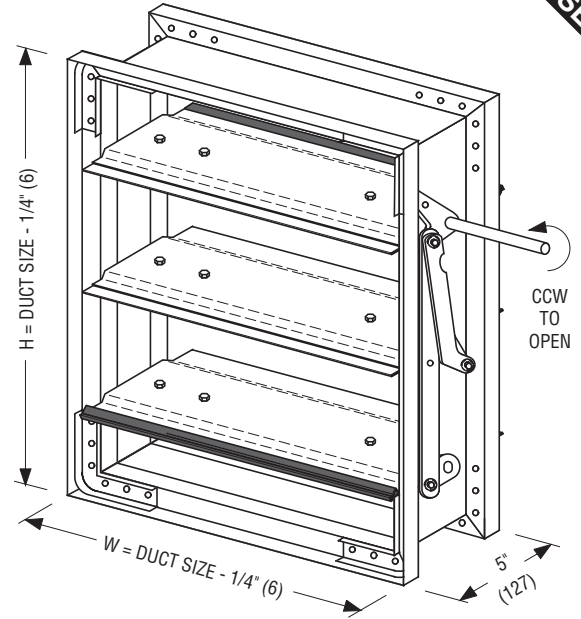
**STANDARD CONSTRUCTION:**

- 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. 2 x 20 ga. (1.0) galvanized steel formed into an airfoil cross-section. 14 ga. (2.0) equivalent thickness. Parallel or opposed action.
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. 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 shaft extension on single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers.
- BLADE SEALS:** Extruded PVC.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 6" x 6" (152 x 152).  
Two blades (parallel or opposed) 6" x 10" (152 x 254).
- MAXIMUM SIZE:** Single section size is 48" x 72" (1219 x 1829).  
Multiple section - unlimited.
- TEMPERATURE RANGE:** -50°F to +180°F (-45°C to +82°C).

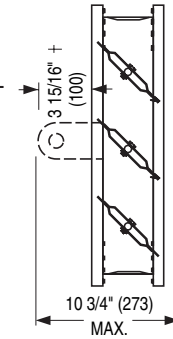
**OPTIONS:**

- SMP** Side mounting plate for actuator
- FD** Double flanged frame       **FDB** FD with bolt holes
- FF** Front flanged frame       **FFB** FF with bolt holes
- FR** Rear flanged frame       **FRB** FR with bolt holes
- 304** Type 304 stainless steel construction
- Other \_\_\_\_\_

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.

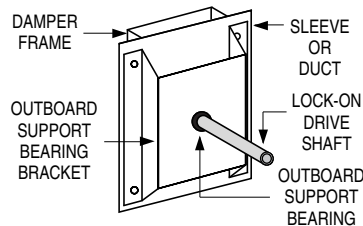
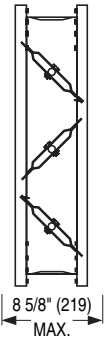


**MODEL 1110**  
**PARALLEL**  
**BLADE**



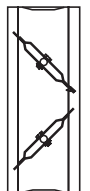
† jackshaft standard on multiple section dampers. Jackshaft securely bolted to frame.

**MODEL 1120**  
**OPPOSED**  
**BLADE**



Optional lock-on drive shaft support bracket detail.

The low profile frame illustrated is used to maximize free area available on units 10" (254) high and under.



Dimensions are in inches (mm).

|                       |             |                 |                   |                    |
|-----------------------|-------------|-----------------|-------------------|--------------------|
| <b>SCHEDULE TYPE:</b> |             |                 |                   |                    |
| <b>PROJECT:</b>       |             |                 |                   |                    |
| <b>ENGINEER:</b>      | <b>DATE</b> | <b>A SERIES</b> | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |
| <b>CONTRACTOR:</b>    | 3 - 3 - 06  | 1100            | 8 - 4 - 04        | 1100               |



**AIRFOIL CONTROL DAMPER**  
**STEEL • ULTRA-LOW LEAKAGE**  
**HIGH PERFORMANCE**  
**MODELS: 1110 & 1120**

**AMCA LICENSED**

The 1110/1120 Series are Nailor's most cost effective steel airfoil blade control dampers. The ultra-low leakage (Class 1A) dampers are suitable for use in the majority of low to medium pressure and velocity commercial HVAC systems.

The design features include a sturdy hat channel frame with die-formed corner gussets for reinforcement and structural strength equivalent to 13 gauge channel type frames, and zero maintenance concealed linkage (out of the air stream) for reduced pressure drop and air turbulence. Models 1110 and 1120 are AMCA Licensed and meet the International Energy Conservation Code (802.3.4) maximum leakage for building envelope dampers criteria of 3 cfm/ft<sup>2</sup> @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa).

**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. 2 x 20 ga. (1.0) galvanized steel formed into an airfoil cross-section. 14 ga. (2.0) equivalent thickness. Parallel or opposed action.

**LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. 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. lock-on shaft extension on single section dampers. Right hand is standard. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers.

**BLADE SEALS:** Extruded PVC.

**JAMB SEALS:** Cambered stainless steel.

**MINIMUM SIZE:** Single blade (parallel) 6" x 6" (152 x 152).  
 Two blades (parallel or opposed) 6" x 10" (152 x 254).

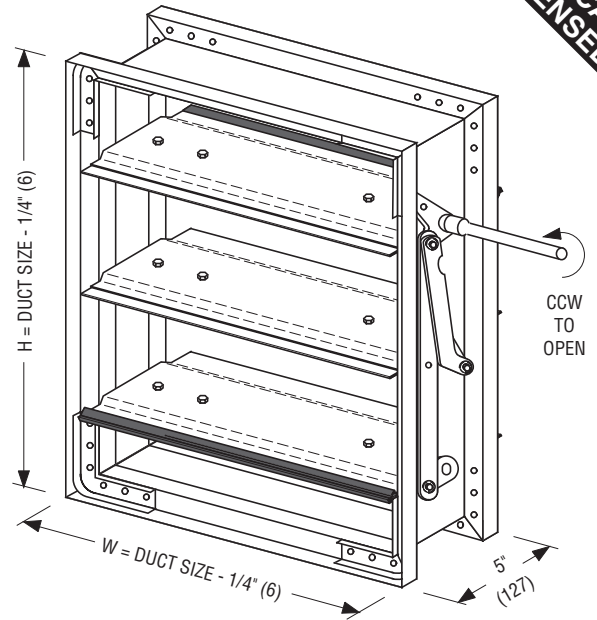
**MAXIMUM SIZE:** Single section size is 48" x 72" (1219 x 1829).  
 Multiple section - unlimited.

**TEMPERATURE RANGE:** -50°F to +180°F (-45°C to +82°C).

**OPTIONS:**

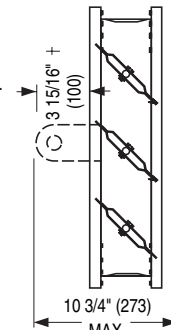
- SMP** Side mounting plate for actuator
- FD** Double flanged frame
- FF** Front flanged frame
- FR** Rear flanged frame
- 304** Type 304 stainless steel construction
- Other \_\_\_\_\_
- FDB** FD with bolt holes
- FFB** FF with bolt holes
- FRB** FR with bolt holes

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.

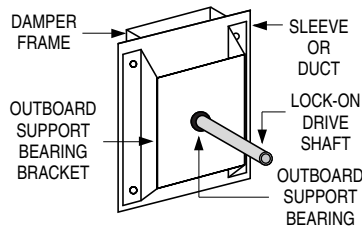
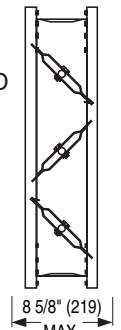


**MODEL 1110 PARALLEL BLADE**

† jackshaft standard on multiple section dampers. Jackshaft securely bolted to frame.

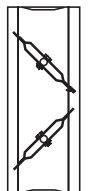


**MODEL 1120 OPPOSED BLADE**



Lock-on drive shaft support bracket detail.

The low profile frame illustrated is used to maximize free area available on units 10" (254) high and under.



Dimensions are in inches (mm).

|                       |             |                 |                   |                    |
|-----------------------|-------------|-----------------|-------------------|--------------------|
| <b>SCHEDULE TYPE:</b> |             |                 |                   |                    |
| <b>PROJECT:</b>       |             |                 |                   |                    |
| <b>ENGINEER:</b>      | <b>DATE</b> | <b>C SERIES</b> | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |
| <b>CONTRACTOR:</b>    | 3 - 3 - 06  | 1100            | 8 - 4 - 04        | 1100               |



**AIRFOIL CONTROL DAMPER**  
**STEEL • ULTRA-LOW LEAKAGE**  
**HIGH PERFORMANCE**  
**MODELS: 1110 & 1120 WITH CR ROUND**  
**TRANSITIONS OPTION**

**AMCA LICENSED**

The 1110CR/1120CR Series are Nailor's most cost effective steel airfoil blade control dampers in a sealed casing with round transition collars. The ultra-low leakage (Class 1A) dampers are suitable for use in the majority of medium to high pressure and velocity commercial HVAC systems.

The design features zero maintenance concealed linkage (out of the airstream) for reduced pressure drop and air turbulence. The models are AMCA Licensed and meet the International Energy Conservation Code (802.3.4) maximum leakage for building envelope dampers criteria of 3 cfm.ft<sup>2</sup> @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa).

**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. 2 x 20 ga. (1.0) galvanized steel formed into an airfoil cross-section. 14 ga. (2.0) equivalent thickness. Parallel or opposed action.

**LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.

**BEARINGS:** 1/2" (13) dia. Oilite<sup>®</sup> 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:** Extruded PVC.

**JAMB SEALS:** Cambered stainless steel.

**CASING:** Up to 36" x 36" (914 x 914) 20 ga. (1.0) galvanized steel.  
 36" x 36" (914 x 914) and up 18 ga. (1.31) galvanized steel.  
 Casing is tack-welded and caulked against leakage.

**MINIMUM SIZE:** Single blade: 4" (102) dia.  
 Two blades (parallel or opposed): 8" (203) dia.

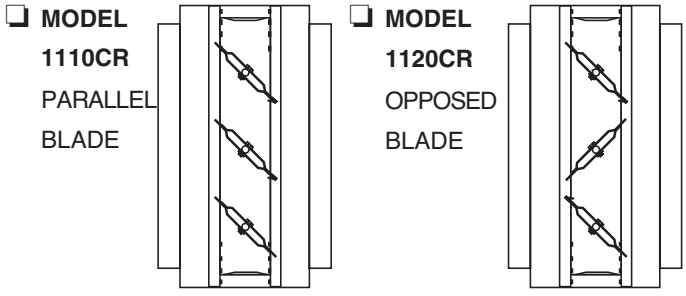
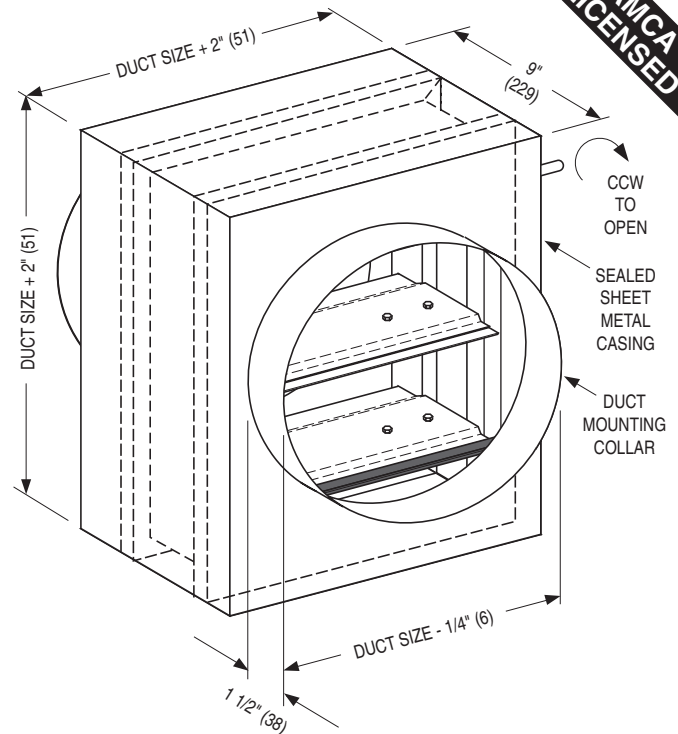
**MAXIMUM SIZE:** Single section: 46" (1168) dia.

**TEMPERATURE RANGE:** -50°F to 180°F (-45°C to 82°C)

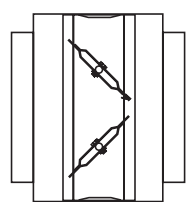
**OPTIONS:**

- 304 Type 304 stainless steel construction
- Other \_\_\_\_\_.

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



The low profile frame illustrated is used to maximize free area available on units 10" (254) high and under.



|                                |             |                 |                   |                    |
|--------------------------------|-------------|-----------------|-------------------|--------------------|
| <b>SCHEDULE TYPE:</b>          |             |                 |                   |                    |
| <b>PROJECT:</b>                |             |                 |                   |                    |
| Dimensions are in inches (mm). |             |                 |                   |                    |
| <b>ENGINEER:</b>               | <b>DATE</b> | <b>B SERIES</b> | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |
| <b>CONTRACTOR:</b>             | 3 - 3 - 06  | 1100            | 8 - 3 - 04        | 1100-2             |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020**



The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation.

Standard features include a rugged galvanized steel hat channel frame with die-formed corner gussets for strength, no-maintenance concealed linkage and heavy duty extruded aluminum airfoil blades that combine superior rigidity and deflection resistance with low pressure drop. 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 air stream. 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 on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.

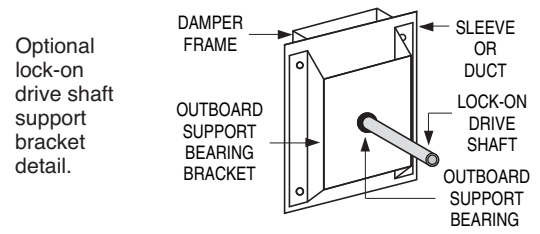
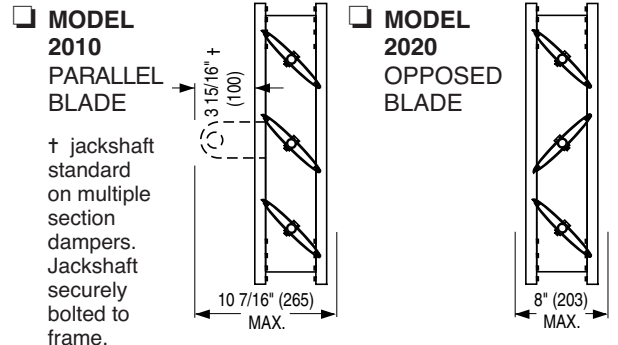
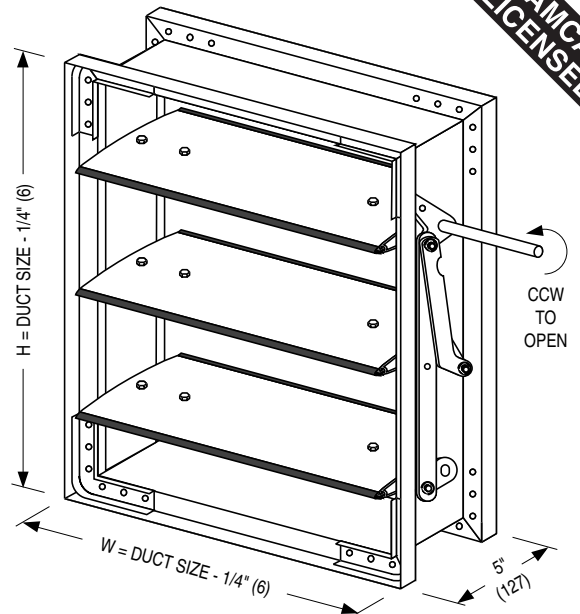
**TEMPERATURE RANGE**

-50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- SMP** Side mounting plate for actuator
- FD** Double flanged frame       **FDB** FD with bolt holes
- FF** Front flanged frame       **FFB** FF with bolt holes
- FR** Rear flanged frame       **FRB** FR with bolt holes
- DLO** Lock-on drive shaft
- BS** Type 304 stainless steel bearings
- SSF** Type 304 stainless steel frame
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



**SCHEDULE TYPE:** \_\_\_\_\_

**PROJECT:** \_\_\_\_\_

**ENGINEER:** \_\_\_\_\_

**CONTRACTOR:** \_\_\_\_\_

Dimensions are in inches (mm).

| DATE         | A SERIES | SUPERSEDES | DRAWING NO. |
|--------------|----------|------------|-------------|
| 1 - 16 - 07R | 2000     | 3 - 3 - 06 | 2000-1      |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020**

**AMCA LICENSED**

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Standard features include a rugged galvanized steel hat channel frame with die-formed corner gussets for strength, no-maintenance concealed linkage, and heavy duty extruded aluminum airfoil blades that combine superior rigidity and deflection resistance with low pressure drop. 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 air stream. Plated steel.

**BEARINGS:** 1/2" (13) dia. self-lubricating oilite bronze.

**AXLES:** 1/2" (13) dia. plated steel double bolted to blades.

**DRIVE SHAFT:** 6" (152) long x 1/2" (13) dia. lock-on drive shaft on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.

**BLADE SEALS:** Santoprene. Mechanically locked in place.

**JAMB SEALS:** Cambered stainless steel.

**MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
 Two blades (parallel or opposed) 8" x 12" (203 x 305).

**MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
 Multiple section - unlimited.

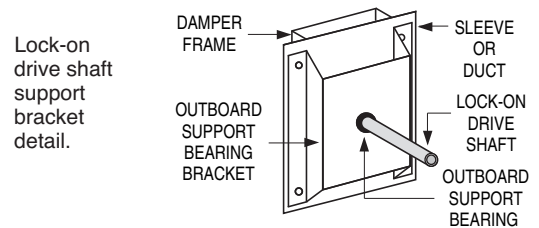
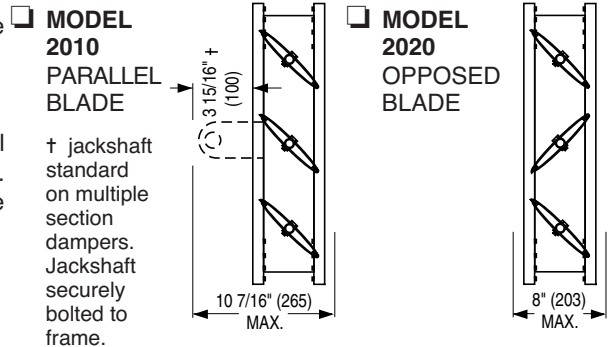
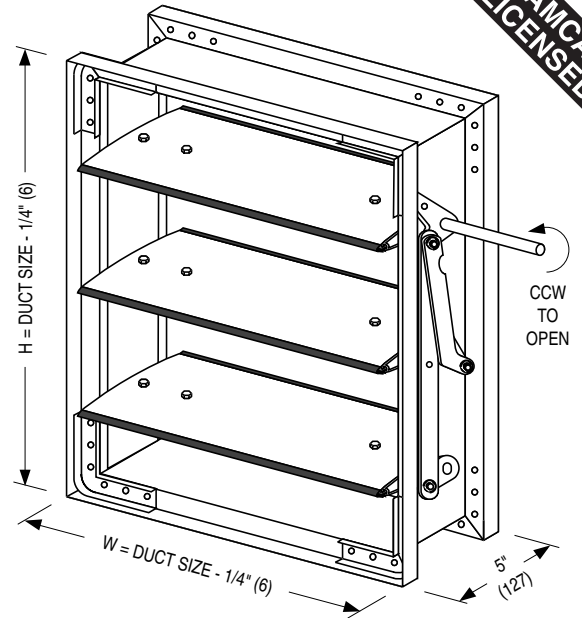
**TEMPERATURE RANGE**

-50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- SMP** Side mounting plate for actuator
- FD** Double flanged frame
- FF** Front flanged frame
- FR** Rear flanged frame
- BS** Type 304 stainless steel bearings
- SSF** Type 304 stainless steel frame
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other** \_\_\_\_\_
- FDB** FD with bolt holes
- FFB** FF with bolt holes
- FRB** FR with bolt holes

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



|                       |                 |                   |                    |  |
|-----------------------|-----------------|-------------------|--------------------|--|
| <b>SCHEDULE TYPE:</b> |                 |                   |                    |  |
| <b>PROJECT:</b>       |                 |                   |                    |  |
| <b>ENGINEER:</b>      |                 |                   |                    |  |
| <b>CONTRACTOR:</b>    |                 |                   |                    |  |
| <b>DATE</b>           | <b>C SERIES</b> | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |  |
| 1 - 16 - 07R          | 2000            | 3 - 3 - 06        | 2000-1             |  |

Dimensions are in inches (mm).



**INSULATED AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH IB INSULATED**  
**BLADE OPTION**

**AMCA LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation. Insulation in each blade and optional insulation around the perimeter of three sides of the frame minimizes energy loss through the closed damper by reducing thermal conductivity.

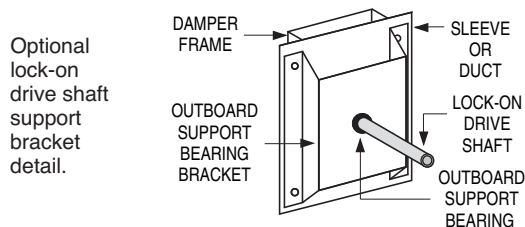
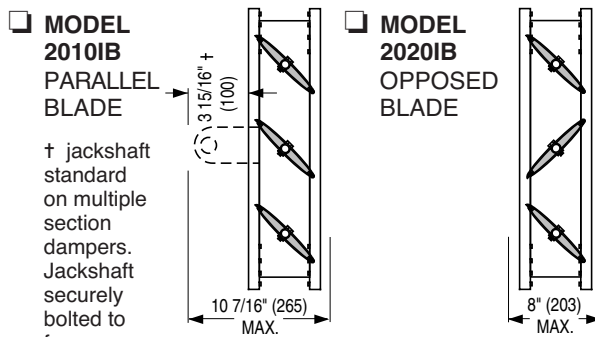
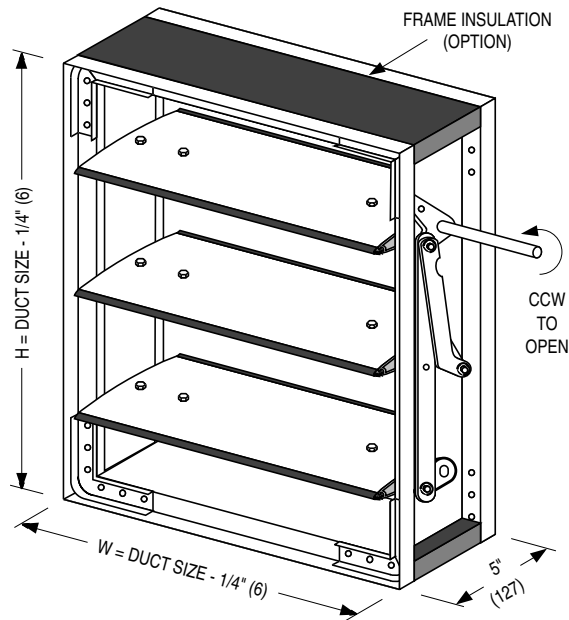
**STANDARD CONSTRUCTION:**

- 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.
- INSULATION:** Polyurethane foam (R value 2.19) in blades (standard). Polystyrene foam in frame (option).
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. 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 on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.
- TEMPERATURE RANGE:** -50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- IBF** Insulated frame (and blades)
- SMP** Side mounting plate for actuator
- FD** Double flanged frame       **FDB** FD with bolt holes
- FF** Front flanged frame       **FFB** FF with bolt holes
- FR** Rear flanged frame       **FRB** FR with bolt holes
- DLO** Lock-on drive shaft
- BS** Type 304 stainless steel bearings
- SSF** Type 304 stainless steel frame
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other** \_\_\_\_\_

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



|                       |  |
|-----------------------|--|
| <b>SCHEDULE TYPE:</b> |  |
| <b>PROJECT:</b>       |  |
| <b>ENGINEER:</b>      |  |
| <b>CONTRACTOR:</b>    |  |

Dimensions are in inches (mm).

| DATE         | A SERIES | SUPERSEDES | DRAWING NO. |
|--------------|----------|------------|-------------|
| 1 - 16 - 07R | 2000     | 3 - 3 - 06 | 2000-2      |



**INSULATED AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH IB INSULATED**  
**BLADE OPTION**

**AMCA  
LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation. Insulation in each blade and optional insulation around the perimeter of three sides of the frame minimizes energy loss through the closed damper by reducing thermal conductivity.

**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.
- INSULATION:** Polyurethane foam (R value 6.6) in blades (standard). Polystyrene foam (R value 5.0) in frame (option).
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.
- BEARINGS:** 1/2" (13) dia. self-lubricating oilite bronze.
- AXLES:** 1/2" (13) dia. plated steel double bolted to blades.
- DRIVE SHAFT:** 6" (152) long x 1/2" (13) dia. lock-on drive shaft on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.

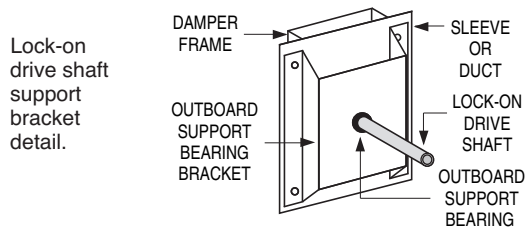
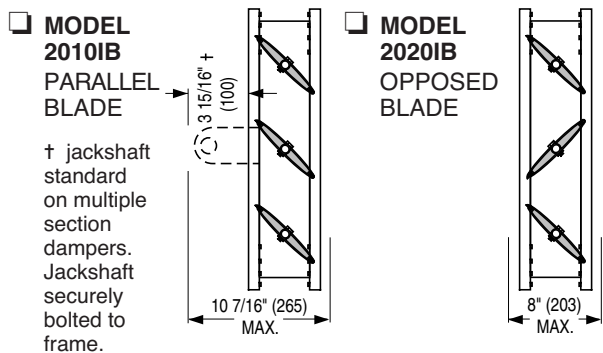
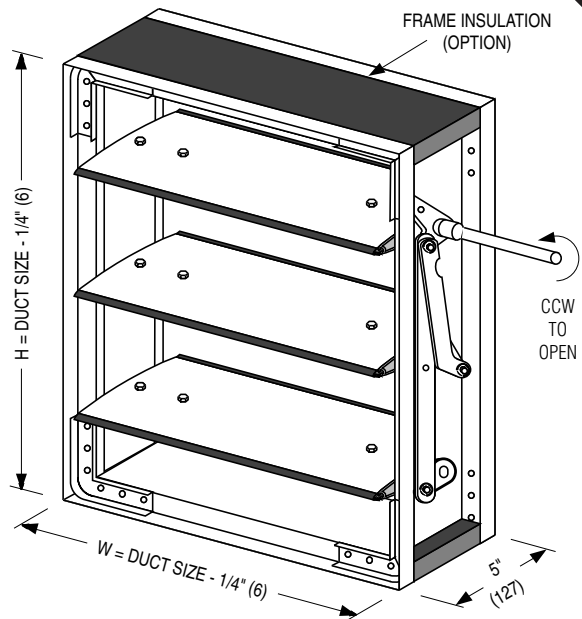
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.

**TEMPERATURE RANGE:** -50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- IBF** Insulated frame (and blades)
- SMP** Side mounting plate for actuator
- FD** Double flanged frame       **FDB** FD with bolt holes
- FF** Front flanged frame       **FFB** FF with bolt holes
- FR** Rear flanged frame       **FRB** FR with bolt holes
- BS** Type 304 stainless steel bearings
- SSF** Type 304 stainless steel frame
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_.

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



|                       |  |
|-----------------------|--|
| <b>SCHEDULE TYPE:</b> |  |
| <b>PROJECT:</b>       |  |
| <b>ENGINEER:</b>      |  |
| <b>CONTRACTOR:</b>    |  |

Dimensions are in inches (mm).

| DATE        | C SERIES | SUPERSEDES | DRAWING NO. |
|-------------|----------|------------|-------------|
| 1 - 16- 07R | 2000     | 3 - 3- 06  | 2000-2      |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH EAF EXTRUDED**  
**ALUMINUM FRAME OPTION**

**AMCA LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation.

Standard features include no-maintenance concealed linkage and heavy duty extruded aluminum airfoil blades that combine superior rigidity and deflection resistance with low pressure drop. Unique design compression type seals are keyed and locked into blade extrusion, providing the ultimate in ultra-low leakage and high performance. Option EAF provides a heavy duty extruded aluminum hat channel frame with hat mounting flanges.

**STANDARD CONSTRUCTION:**

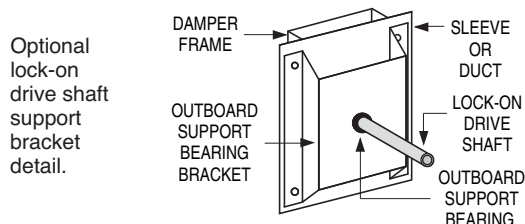
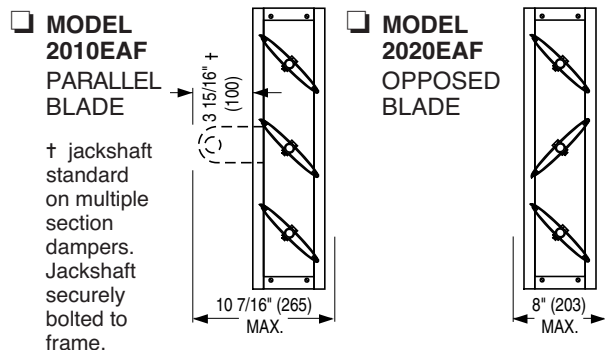
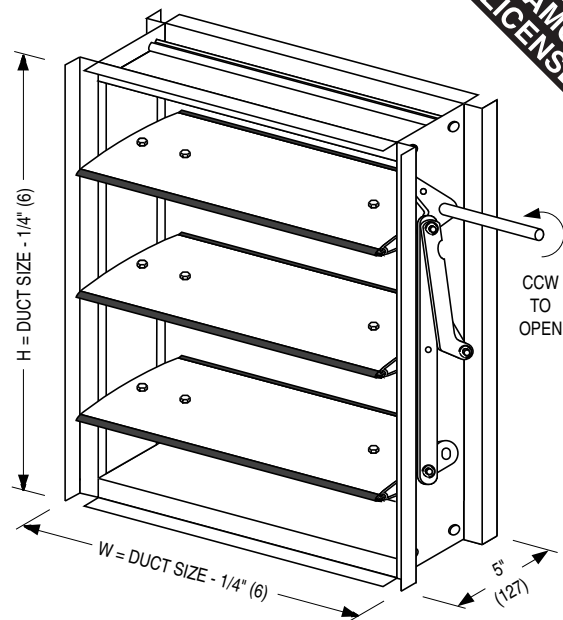
- FRAME:** 5" x 7/8" x 0.125" (127 x 22 x 3.2)  
Type 6063-T5 extruded aluminum frame.
- BLADES:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.
- BEARINGS:** 1/2" (13) dia. Oilite® 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 on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.

**TEMPERATURE RANGE**  
 -50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- SMP** Side mounting plate for actuator
- DLO** Lock-on drive shaft
- BS** Type 304 stainless steel bearings
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



|                                |              |                 |                   |                    |
|--------------------------------|--------------|-----------------|-------------------|--------------------|
| <b>SCHEDULE TYPE:</b>          |              |                 |                   |                    |
| <b>PROJECT:</b>                |              |                 |                   |                    |
| Dimensions are in inches (mm). |              |                 |                   |                    |
| <b>ENGINEER:</b>               | <b>DATE</b>  | <b>A SERIES</b> | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |
| <b>CONTRACTOR:</b>             | 1 - 16 - 07R | 2000            | 3 - 3 - 06        | 2000-3             |





**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH EAF EXTRUDED**  
**ALUMINUM FRAME OPTION**

**AMCA LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation.

Standard features include no-maintenance concealed linkage and heavy duty extruded aluminum airfoil blades that combine superior rigidity and deflection resistance with low pressure drop. Unique design compression type seals are keyed and locked into blade extrusion, providing the ultimate in ultra-low leakage and high performance. Option EAF provides a heavy duty extruded aluminum hat channel frame with hat mounting flanges.

**STANDARD CONSTRUCTION:**

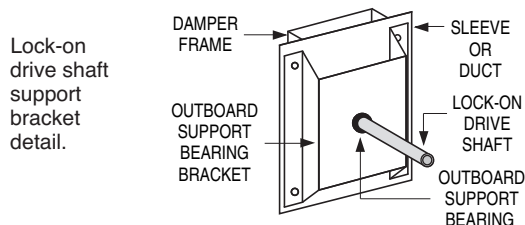
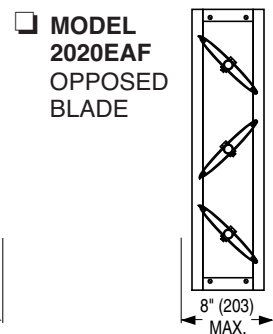
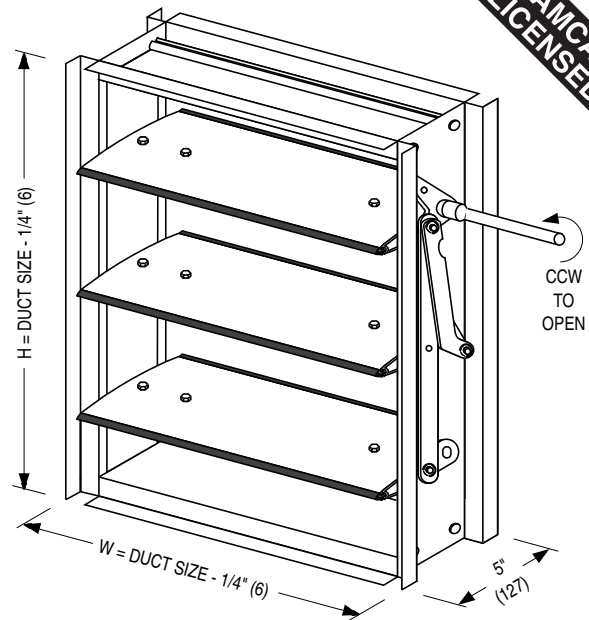
- FRAME:** 5" x 7/8" x 0.125" (127 x 22 x 3.2)  
Type 6063-T5 extruded aluminum frame.
- BLADES:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.
- BEARINGS:** 1/2" (13) dia. Oilite® self-lubricating bronze.
- AXLES:** 1/2" (13) dia. plated steel double bolted to blades.
- DRIVE SHAFT:** 6" (152) long x 1/2" (13) dia. lock-on drive shaft on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.

**TEMPERATURE RANGE**  
 -50°F to 250°F (-45°C to 157°C)

**OPTIONS:**

- SMP** Side mounting plate for actuator
- BS** Type 304 stainless steel bearings
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_.

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



|                       |              |                                |                   |                    |  |
|-----------------------|--------------|--------------------------------|-------------------|--------------------|--|
| <b>SCHEDULE TYPE:</b> |              | Dimensions are in inches (mm). |                   |                    |  |
| <b>PROJECT:</b>       |              |                                |                   |                    |  |
| <b>ENGINEER:</b>      | <b>DATE</b>  | <b>C SERIES</b>                | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |  |
| <b>CONTRACTOR:</b>    | 1 - 16 - 07R | 2000                           | 3 - 3 - 06        | 2000-3             |  |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH IB INSULATED BLADE & EAF EXTRUDED ALUMINUM FRAME OPTION**

**AMCA LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation. Insulation in each blade and optional insulation around the perimeter of three sides of the frame minimizes energy loss through the closed damper by reducing thermal conductivity. Option EAF provides a heavy duty extruded aluminum hat channel frame with hat mounting flanges.

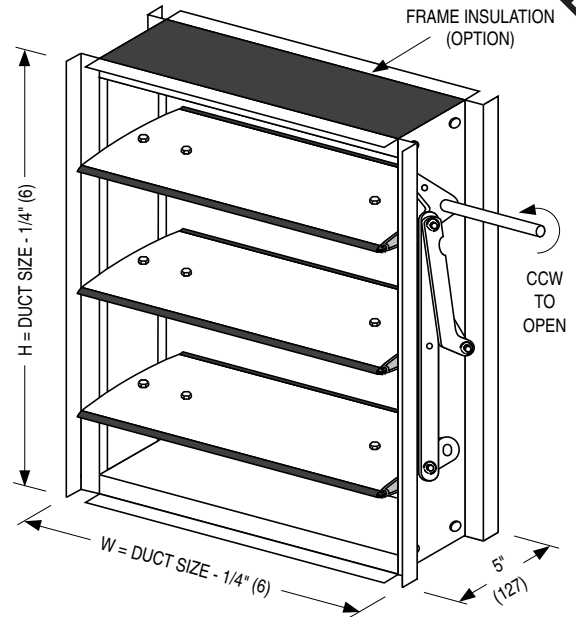
**STANDARD CONSTRUCTION:**

- FRAME:** 5" x 7/8" x 0.125" (127 x 22 x 3.2)  
Type 6063-T5 extruded aluminum frame.
- BLADES:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- INSULATION:** Polyurethane foam (R value 2.19) in blades (standard). Polystyrene foam in frame (option).
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.
- BEARINGS:** 1/2" (13) dia. Oilite® self-lubricating oilite 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 on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.
- TEMPERATURE RANGE**  
-50°F to 250°F (-45°C to 157°C)

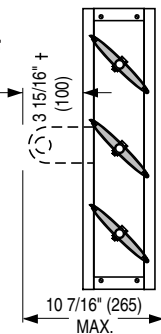
**OPTIONS:**

- IBF** Insulated frame (and blades) (2 sides min.)
- SMP** Side mounting plate for actuator
- DLO** Lock-on drive shaft
- BS** Type 304 stainless steel bearings
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_.

Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.

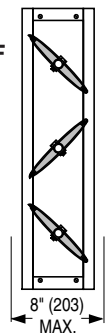


**MODEL 2010IBEAF PARALLEL BLADE**

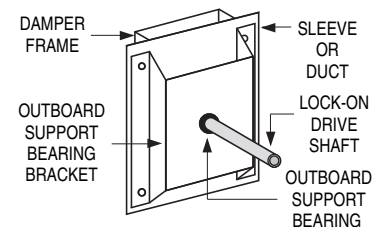


+ jackshaft standard on multiple section dampers. Jackshaft securely bolted to frame.

**MODEL 2020IBEAF OPPOSED BLADE**



Optional lock-on drive shaft support bracket detail.



**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Dimensions are in inches (mm).

| DATE         | A SERIES | SUPERSEDES | DRAWING NO. |
|--------------|----------|------------|-------------|
| 1 - 16 - 07R | 2000     | 3 - 3 - 06 | 2000-4      |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH IB INSULATED BLADE & EAF EXTRUDED ALUMINUM FRAME OPTION**

**AMCA LICENSED**

The 2000 Series dampers are Nailor's premium choice for use in high velocity, medium pressure commercial and industrial 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/ft<sup>2</sup> @ 1" w.g. (15.2 L/s/m<sup>2</sup> @ 0.25 kPa). Model 2020 is an AMCA licensed damper bearing the AMCA Air Leakage and Air Performance Seal. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation. Insulation in each blade and optional insulation around the perimeter of three sides of the frame minimizes energy loss through the closed damper by reducing thermal conductivity. Option EAF provides a heavy duty extruded aluminum hat channel frame with hat mounting flanges.

**STANDARD CONSTRUCTION:**

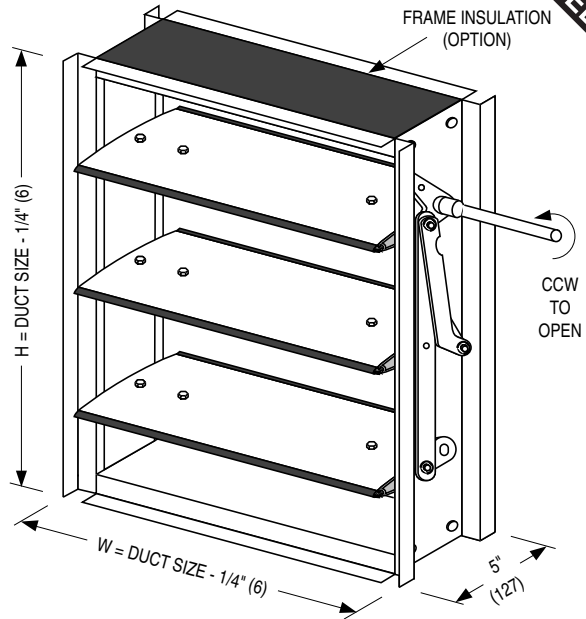
- FRAME:** 5" x 7/8" x 0.125" (127 x 22 x 3.2)  
Type 6063-T5 extruded aluminum frame.
- BLADES:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- INSULATION:** Polyurethane foam (R value 2.19) in blades (standard). Polystyrene foam in frame (option).
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. Plated steel.
- BEARINGS:** 1/2" (13) dia. Oilite® self-lubricating oilite bronze.
- AXLES:** 1/2" (13) dia. plated steel double bolted to blades.
- DRIVE SHAFT:** 6" (152) long x 1/2" (13) lock-on rigid drive shaft on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section dampers. See multi-section detail 2000 MSI.
- BLADE SEALS:** Santoprene. Mechanically locked in place.
- JAMB SEALS:** Cambered stainless steel.
- MINIMUM SIZE:** Single blade (parallel) 8" x 8" (203 x 203).  
Two blades (parallel or opposed) 8" x 12" (203 x 305).
- MAXIMUM SIZE:** Single section size is 60" x 72" (1524 x 1829).  
Multiple section - unlimited.

**TEMPERATURE RANGE**  
 -50°F to 250°F (-45°C to 157°C)

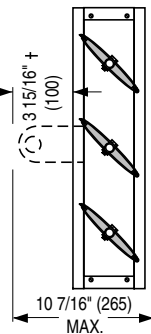
**OPTIONS:**

- IBF** Insulated frame (and blades) (2 sides min.)
- SMP** Side mounting plate for actuator
- BS** Type 304 stainless steel bearings
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- AMP** Actuator mounting side plate
- Other \_\_\_\_\_.

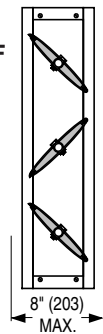
Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



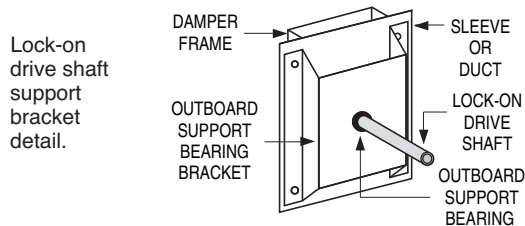
**MODEL 2010IBEAF PARALLEL BLADE**



**MODEL 2020IBEAF OPPOSED BLADE**



† jackshaft standard on multiple section dampers. Jackshaft securely bolted to frame.



**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Dimensions are in inches (mm).

| DATE         | C SERIES | SUPERSEDES | DRAWING NO. |
|--------------|----------|------------|-------------|
| 1 - 16 - 07R | 2000     | 3 - 3 - 06 | 2000-4      |



**AIRFOIL CONTROL DAMPER**  
**EXTRUDED ALUMINUM BLADE**  
**ULTRA-LOW LEAKAGE • HIGH PERFORMANCE**  
**MODELS: 2010 & 2020 WITH CR ROUND**  
**TRANSITIONS OPTION**

**AMCA LICENSED**

The 2010CR/2020CR Series are Nailor's premium extruded aluminum airfoil blade control dampers in a sealed casing with round transition collars. The ultra-low leakage (Class 1A) dampers are suitable for use in high velocity, medium pressure commercial and industrial HVAC systems. Leakage rating is maintained with airflow in either direction, permitting right or left-hand drive installation. The design features zero maintenance concealed linkage (out of the airstream) for reduced pressure drop and air turbulence. Model 2020 is AMCA Licensed and meets the International Energy Conservation Code (802.3.4) maximum leakage for building envelope dampers criteria of 3 cfm/ft<sup>2</sup> @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa).

**STANDARD CONSTRUCTION:**

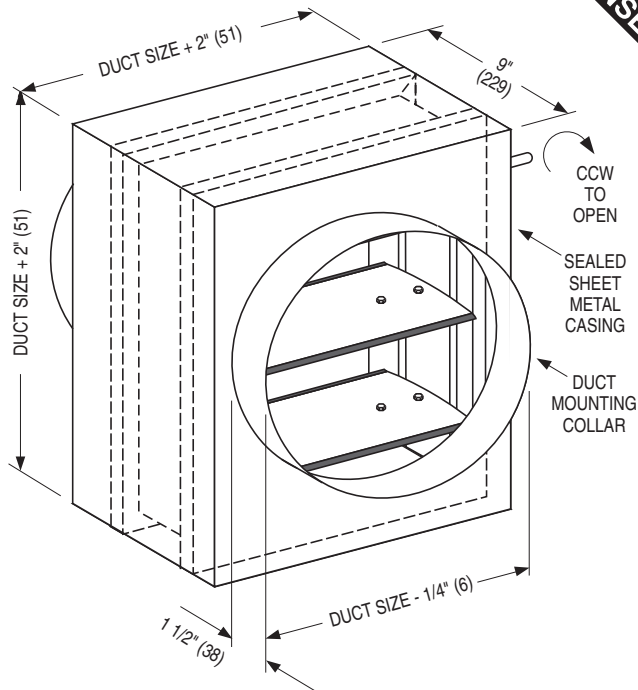
- FRAME:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel with die-formed corner gussets for reinforcement and extra strength.
- BLADES:** Airfoil type 6063-T5 extruded aluminum on 5 1/2" (140) centers.
- LINKAGE:** Concealed side type totally enclosed within the frame and out of the air stream. 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.
- CASING:** Up to 36" x 36" (914 x 914) 20 ga. (1.0) galvanized steel.  
 36" x 36" (914 x 914) and up 18 ga. (1.31) galvanized steel.  
 Casing is tack-welded and caulked against leakage.
- MINIMUM SIZE:** Single blade: 6" (152) dia.  
 Two blades (parallel or opposed): 8" (203) dia.
- MAXIMUM SIZE:** Single section: 58" (1473) dia.

**TEMPERATURE RANGE:**  
 -50°F to 250°F (-45°C to 157°C).

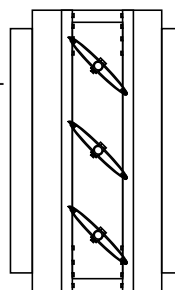
**OPTIONS:**

- BS** Type 304 stainless steel bearings
- SSA** Type 304 stainless steel axles
- SSL** Type 304 stainless steel linkage (includes axles & bearings)
- Other \_\_\_\_\_

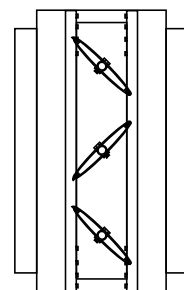
Nailor offers a wide selection of pneumatic and electric actuators for factory or field installation.



**MODEL 2010CR**  
**PARALLEL**  
**BLADE**



**MODEL 2020CR**  
**OPPOSED**  
**BLADE**



|                       |  |
|-----------------------|--|
| <b>SCHEDULE TYPE:</b> |  |
| <b>PROJECT:</b>       |  |
| <b>ENGINEER:</b>      |  |
| <b>CONTRACTOR:</b>    |  |

Dimensions are in inches (mm).

| DATE         | B SERIES | SUPERSEDES | DRAWING NO. |
|--------------|----------|------------|-------------|
| 1 - 16 - 07R | 2000     | 3 - 3 - 06 | 2000-5      |



**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.

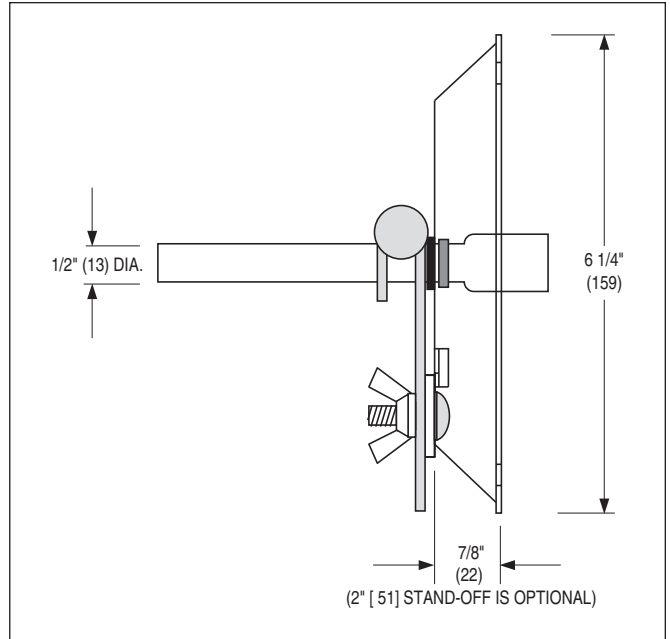
**OPTIONS:**

Accessory when ordered with damper:

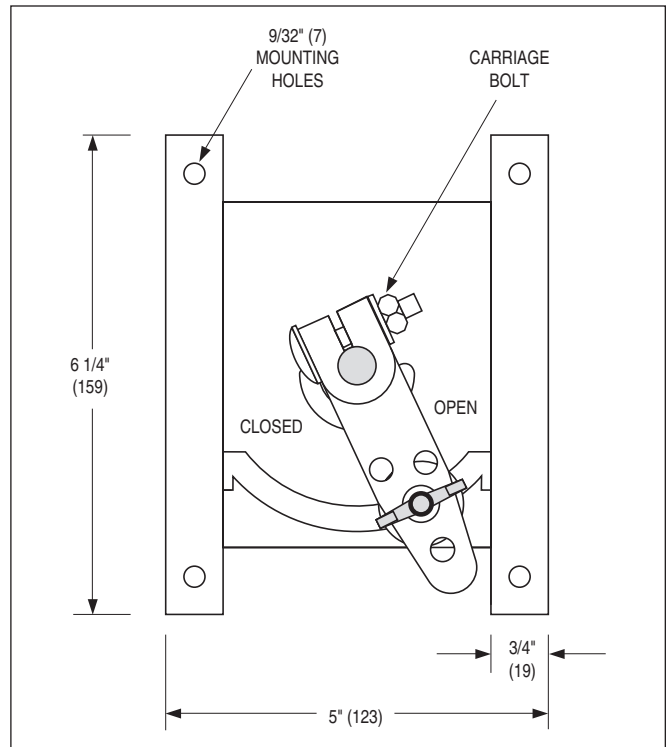
- HLQ2 Hand-locking Quadrant with 2" (51) stand-off bracket.

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**

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

## FLANGED FRAME OPTIONS:

Available as an option on Series 1000, 1100 and 2000 steel hat channel frame control dampers, the 1 1/2" (38) flanged frames allow for direct fastening to wall or unit housings as well as flanged ductwork. Damper inside dimension can be sized to match ductwork inside dimension, providing a smooth transition that produces lower pressure drop and less turbulence across the damper. Flange frames are also available with optional 9/32" (7) dia. bolt holes on 6" (152) centers for fast, convenient installation.

### OPTION CODES

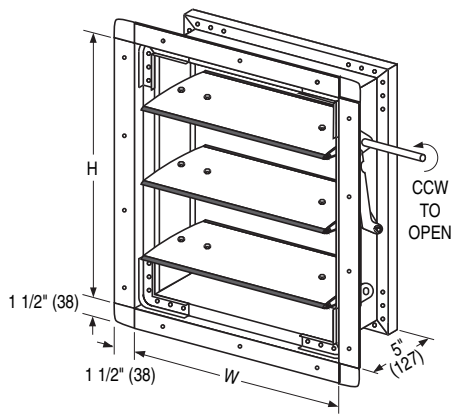
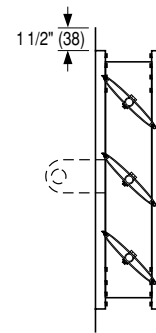
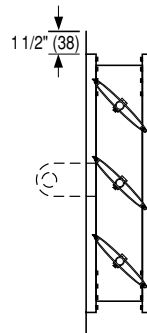
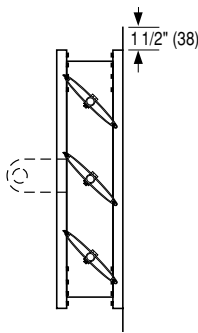
- FF** FLANGED FRONT
- FFB** FLANGED FRONT WITH BOLT HOLES

### OPTION CODES

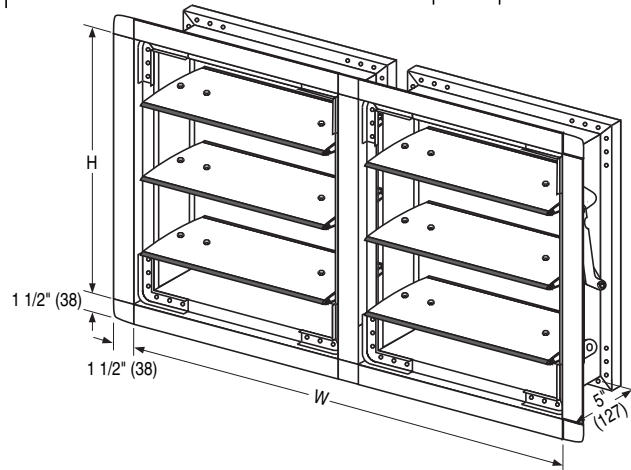
- FR** FLANGED REAR
- FRB** FLANGED REAR WITH BOLT HOLES

### OPTION CODES

- FD** DOUBLE FLANGE
- FDB** DOUBLE FLANGE WITH BOLT HOLES



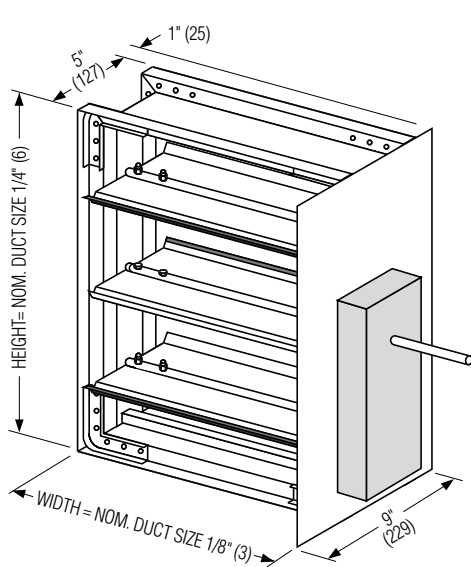
SINGLE SECTION DAMPER SHOWN WITH **FRB** OPTION: FLANGED REAR FRAME WITH 9/32" (7) DIA. BOLT HOLES ON 6" (152) CENTERS.



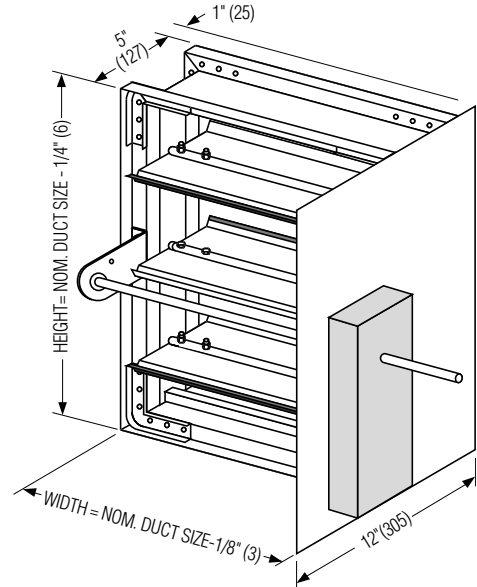
MULTIPLE SECTION DAMPER SHOWN WITH **FR** OPTION: FLANGED REAR FRAME (JACKSHAFT NOT SHOWN)



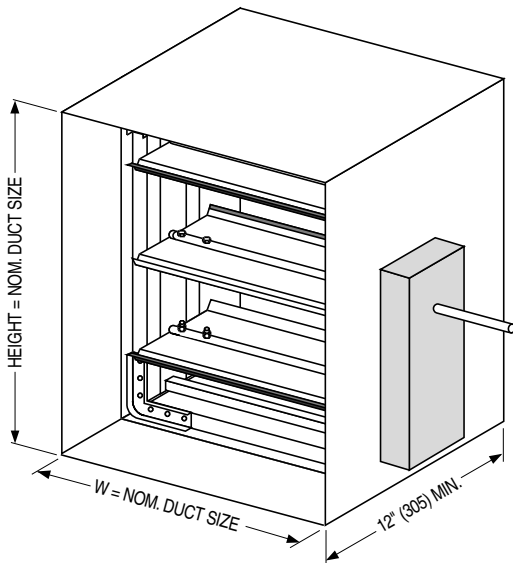
**SMP SIDE ACTUATOR MOUNTING PLATE  
AND TYPE 'A' SLEEVE DETAIL  
CONTROL & BALANCING DAMPERS  
MODEL SERIES: 1000, 1100, 1800 & 2000**



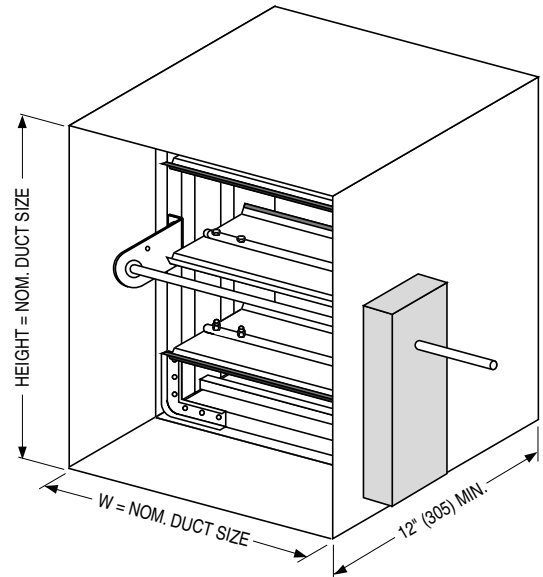
**SMP SIDE ACTUATOR MOUNTING PLATE  
DIRECT DRIVE MODELS**



**SMP SIDE ACTUATOR MOUNTING PLATE  
JACKSHAFT DRIVE MODELS**



**TYPE 'A' SLEEVE  
DIRECT DRIVE MODELS**



**TYPE 'A' SLEEVE  
JACKSHAFT DRIVE MODELS**

|                       |             |                                |                   |                    |  |
|-----------------------|-------------|--------------------------------|-------------------|--------------------|--|
| <b>SCHEDULE TYPE:</b> |             | Dimensions are in inches (mm). |                   |                    |  |
| <b>PROJECT:</b>       |             |                                |                   |                    |  |
| <b>ENGINEER:</b>      | <b>DATE</b> | <b>B SERIES</b>                | <b>SUPERSEDES</b> | <b>DRAWING NO.</b> |  |
| <b>CONTRACTOR:</b>    | 11 - 4 - 13 | 1000                           | NEW               | SMP-SL-2           |  |

## PERFORMANCE DATA: MODELS: 1110 AND 1120

### DYNAMIC LIMITATIONS:

| Damper Width |      | Maximum System Pressure | Maximum System Velocity |
|--------------|------|-------------------------|-------------------------|
| in.          | mm   |                         |                         |
| 48           | 1219 | 8.0" w.g.               | 4000 fpm                |
| 36           | 914  | 10.0" w.g.              | 4500 fpm                |
| 24           | 610  | 12.0" w.g.              | 5000 fpm                |
| 12           | 305  | 14.0" w.g.              | 6000 fpm                |

The 1100 Series with its standard maximum single section and multiple section sizing limitation may be used in applications with system pressures of up to 8.0" w.g.. The 1100 Series may also be used in systems with higher total pressures by reducing the damper section width as shown in the table.

### LEAKAGE CLASS:

| Damper Width | @ 1" w.g. (0.25 kPa) | @ 4" w.g. (1.0 kPa) |
|--------------|----------------------|---------------------|
| 12" (305)    | 1A                   | 1                   |
| 24" (610)    | 1A                   | 1                   |
| 36" (914)    | 1A                   | 1                   |
| 48" (1219)   | 1A                   | 1                   |

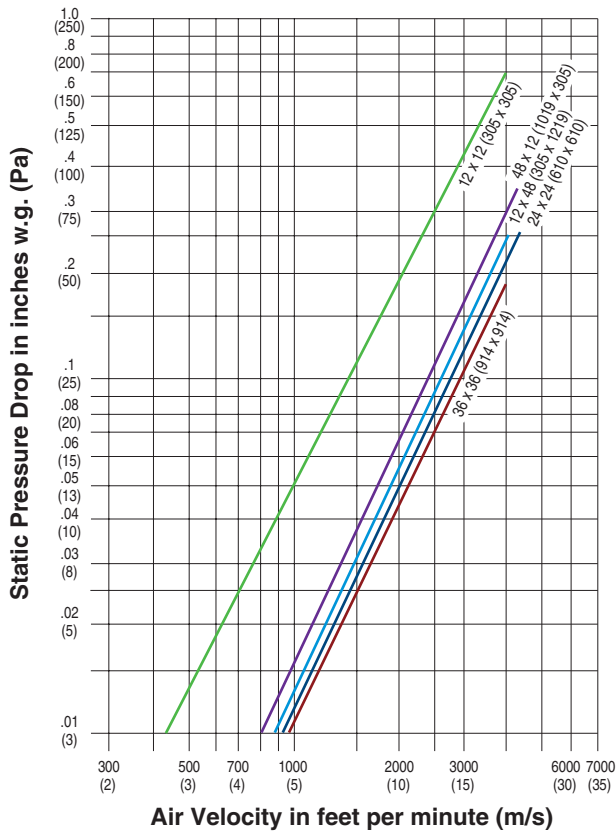
Maximum leakage permitted for Class rating is as follows:

Class 1A: 3 cfm/sq. ft. @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa)

Class 1: 8 cfm/sq. ft. @ 4" w.g. (41 l/s/m<sup>2</sup> @ 1.0 kPa)

Leakage tested in accordance with AMCA Standard 500-D. Data based on a torque of 7" lbs./sq. ft. (minimum 20" lbs.) applied to hold the damper in closed position. Leakage class is based on operation between 50°F and 104°F (10°C and 40°C). Data corrected to standard air density of 0.075 lbs/ft<sup>3</sup>.

### PRESSURE DROP (damper fully open):



Pressure drop tested per AMCA Standard 500-D, Figure 5.3. Data corrected to standard air density of 0.075 lbs/ft<sup>3</sup>.



Nailor Industries Inc. certifies that the Models 1110 and 1120 Dampers shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air leakage ratings and air performance ratings.



## PERFORMANCE DATA:

### MODELS: 2010 AND 2020

#### DYNAMIC LIMITATIONS:

| Damper Width |      | Maximum System Pressure | Maximum System Velocity |
|--------------|------|-------------------------|-------------------------|
| in.          | mm   |                         |                         |
| 60           | 1524 | 5.0" w.g.               | 3000 fpm                |
| 48           | 1219 | 8.0" w.g.               | 4000 fpm                |
| 36           | 914  | 10.0" w.g.              | 4500 fpm                |
| 24           | 610  | 12.0" w.g.              | 5000 fpm                |
| 12           | 305  | 14.0" w.g.              | 6000 fpm                |

The 2000 Series with its standard maximum single section and multiple section sizing limitation may be used in applications with system pressures of up to 5.0" w.g.. The 2000 Series may also be used in systems with higher total pressures by reducing the damper section width as shown in the table.

#### LEAKAGE CLASS:

| Damper Width | @ 1" w.g. (0.25 kPa) | @ 4" w.g. (1.0 kPa) |
|--------------|----------------------|---------------------|
| 12" (305)    | 1A                   | 1                   |
| 24" (610)    | 1A                   | 1                   |
| 36" (914)    | 1A                   | 1                   |
| 48" (1219)   | 1A                   | 1                   |
| 60" (1524)   | 1A                   | 1                   |

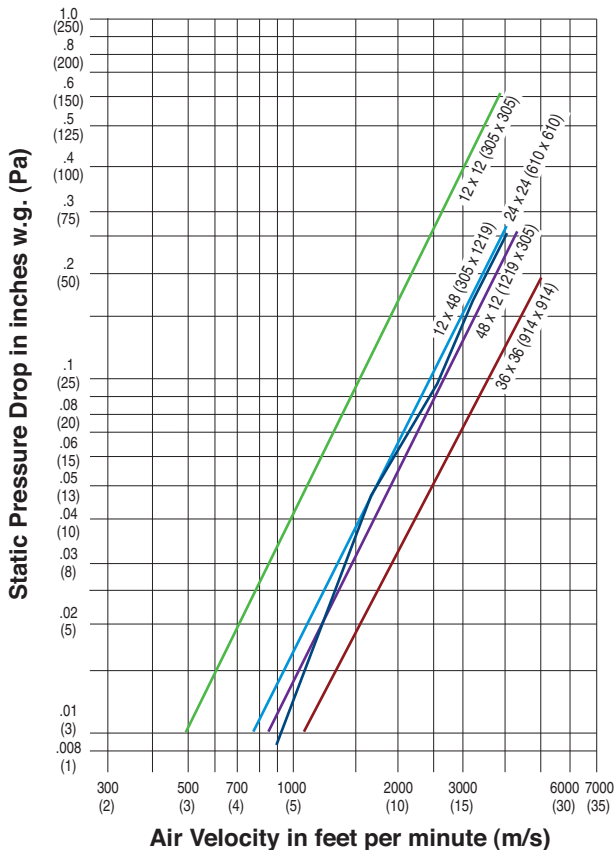
Maximum leakage permitted for Class rating is as follows:

Class 1A: 3 cfm/sq. ft. @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa)

Class 1: 8 cfm/sq. ft. @ 4" w.g. (41 l/s/m<sup>2</sup> @ 1.0 kPa)

Leakage tested in accordance with AMCA Standard 500-D. Data based on a torque of 8" lbs./sq. ft. (minimum 20" lbs.) applied to hold the damper in closed position. Leakage class is based on operation between 50°F and 104°F (10°C and 40°C). Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>

#### PRESSURE DROP (damper fully open):



Pressure drop tested per AMCA Standard 500-D, Figure 5.3. Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>.



Nailor Industries Inc. certifies that the Model 2020 Damper shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air leakage ratings and air performance ratings. Model 2010 is not licensed to bear the AMCA seal.

## PERFORMANCE DATA:

### MODELS: 2010-EAF AND 2020-EAF

#### DYNAMIC LIMITATIONS:

| Damper Width |      | Maximum System Pressure | Maximum System Velocity |
|--------------|------|-------------------------|-------------------------|
| in.          | mm   |                         |                         |
| 60           | 1524 | 5.0" w.g.               | 3000 fpm                |
| 48           | 1219 | 8.0" w.g.               | 4000 fpm                |
| 36           | 914  | 10.0" w.g.              | 4500 fpm                |
| 24           | 610  | 12.0" w.g.              | 5000 fpm                |
| 12           | 305  | 14.0" w.g.              | 6000 fpm                |

The 2000 Series with its standard maximum single section and multiple section sizing limitation may be used in applications with system pressures of up to 5.0" w.g.. The 2000 Series may also be used in systems with higher total pressures by reducing the damper section width as shown in the table.

#### LEAKAGE CLASS:

| Damper Width | @ 1" w.g. (0.25 kPa) | @ 4" w.g. (1.0 kPa) |
|--------------|----------------------|---------------------|
| 12" (305)    | 1A                   | 1                   |
| 24" (610)    | 1A                   | 1                   |
| 36" (914)    | 1A                   | 1                   |
| 48" (1219)   | 1A                   | 1                   |
| 60" (1524)   | 1A                   | 1                   |

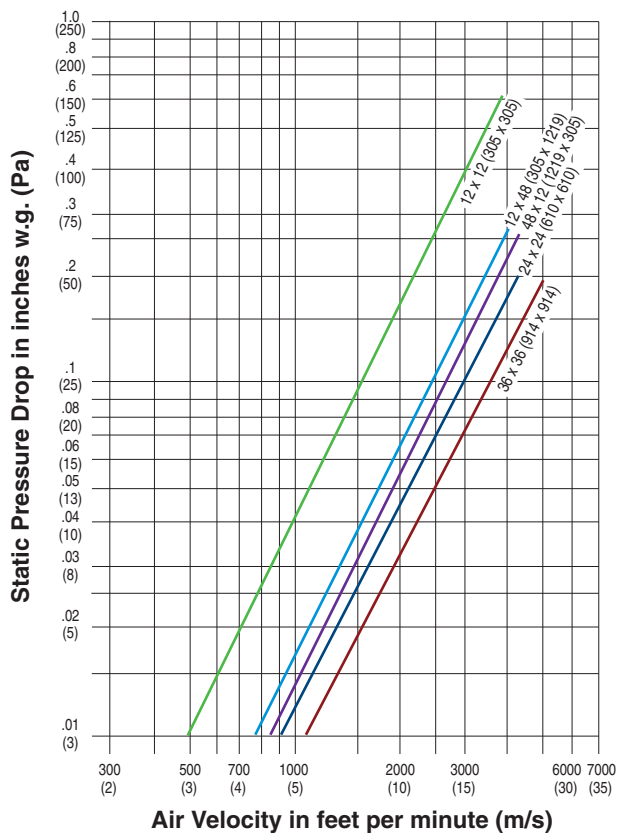
Maximum leakage permitted for Class rating is as follows:

Class 1A: 3 cfm/sq. ft. @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa)

Class 1: 8 cfm/sq. ft. @ 4" w.g. (41 l/s/m<sup>2</sup> @ 1.0 kPa)

Leakage tested in accordance with AMCA Standard 500-D. Data based on a torque of 8" lbs./sq. ft. (minimum 20" lbs.) applied to hold the damper in closed position. Leakage class is based on operation between 50°F and 104°F (10°C and 40°C). Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>

#### PRESSURE DROP (damper fully open):



Pressure drop tested per AMCA Standard 500-D, Figure 5.3. Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>.

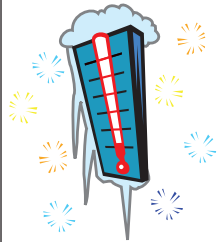


Nailor Industries Inc. certifies that the Model 2020-EAF Damper shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air leakage ratings and air performance ratings. Model 2010-EAF is not licensed to bear the AMCA seal.

**PERFORMANCE DATA:**

**MODELS: 2010-IB/-IBF AND 2020-IB/-IBF**

**A WORD ABOUT INSULATED DAMPERS...**



Air infiltration between the damper blades and frame is the most significant factor attributed to frost build-up on and around outside air dampers which can lead to damper/actuator damage and potential for further system damage such as coil freeze-ups etc. With an ultra-low mean leakage rate of 0.18 CFM/sq. ft. (0.91 l/s per sq. meter) at 1" w.g. (.25 kPa) static pressure combined with insulated blades and frame, the Nailor 2000-IBF Series provides the protection required for many applications in harsher climates...

**NAILOR COMBINES THE LOWEST LEAKAGE MULTI-BLADE DAMPER, THAT IS AMCA LICENSED, WITH THE LOW HEAT CONDUCTIVITY DESIGN OF INSULATED BLADE AND FRAME.**

This combination provides excellent protection for colder ambient conditions!

**DYNAMIC LIMITATIONS:**

| Damper Width |      | Maximum System Pressure | Maximum System Velocity |
|--------------|------|-------------------------|-------------------------|
| in.          | mm   |                         |                         |
| 60           | 1524 | 5.0" w.g.               | 3000 fpm                |
| 48           | 1219 | 8.0" w.g.               | 4000 fpm                |
| 36           | 914  | 10.0" w.g.              | 4500 fpm                |
| 24           | 610  | 12.0" w.g.              | 5000 fpm                |
| 12           | 305  | 14.0" w.g.              | 6000 fpm                |

The 2000 Series with its standard maximum single section and multiple section sizing limitation may be used in applications with system pressures of up to 5.0" w.g.. The 2000 Series may also be used in systems with higher total pressures by reducing the damper section width as shown in the table.

**LEAKAGE CLASS:**

| Damper Width | @ 1" w.g. (0.25 kPa) | @ 4" w.g. (1.0 kPa) |
|--------------|----------------------|---------------------|
| 12" (305)    | 1A                   | 1                   |
| 24" (610)    | 1A                   | 1                   |
| 36" (914)    | 1A                   | 1                   |
| 48" (1219)   | 1A                   | 1                   |
| 60" (1524)   | 1A                   | 1                   |

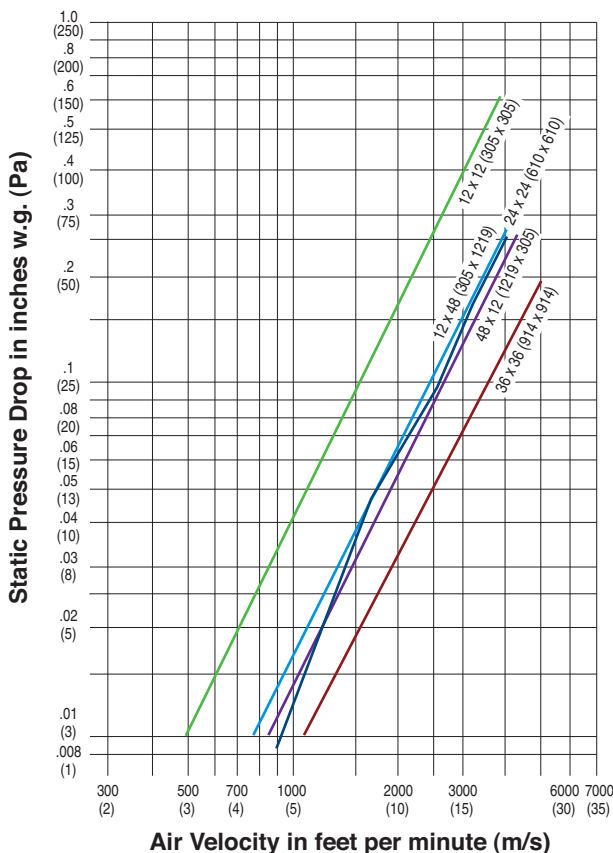
Maximum leakage permitted for Class rating is as follows:

Class 1A: 3 cfm/sq. ft. @ 1" w.g. (15.2 l/s/m<sup>2</sup> @ 0.25 kPa)

Class 1: 8 cfm/sq. ft. @ 4" w.g. (41 l/s/m<sup>2</sup> @ 1.0 kPa)

Leakage tested in accordance with AMCA Standard 500-D. Data based on a torque of 8" lbs./sq. ft. (minimum 20" lbs.) applied to hold the damper in closed position. Leakage class is based on operation between 50°F and 104°F (10°C and 40°C). Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>

**PRESSURE DROP (damper fully open):**



Pressure drop tested per AMCA Standard 500-D, Figure 5.3. Data corrected to standard air density of 0.075 lbs./ft.<sup>3</sup>.



Nailor Industries Inc. certifies that the Model 2020-IBF Damper shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air leakage ratings and air performance ratings. Model 2010-IBF is not licensed to bear the AMCA seal.