HEAVY DUTY INDUSTRIAL CONTROL DAMPERS

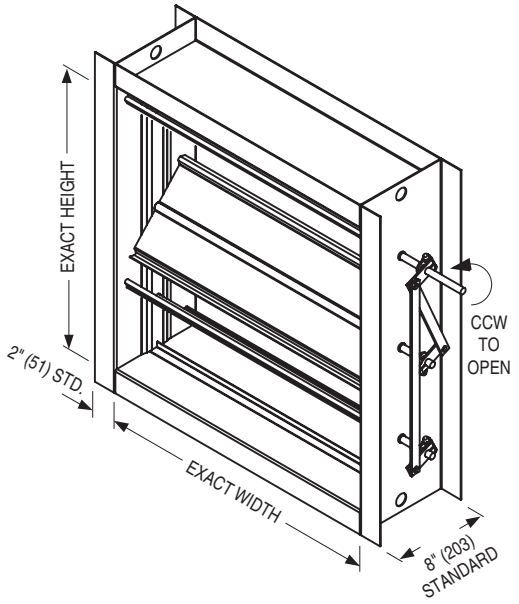
STEEL • VEE BLADE

MODELS: 1910 & 1920

1917 & 1927

The Nailor Model Series 1910/1920 is a heavy duty industrial control damper designed for use in medium to high pressure industrial HVAC or process air systems. Features include a vee blade design that offers precise airflow control or shut-off in applications involving pressure differentials of up to 8.5" w.g. (2.1 kPa) depending on width, and velocities up to 3000 fpm (15 m/s).

Models 1917/1927 feature 3/4" (19) dia. axles and are suitable for applications of up to 20" w.g. (5 kPa) pressure differential depending on damper width, and velocities up to 3500 fpm (18 m/s). The heavy duty flanged frame, with optional bolt holes, connects easily to flanged duct for fast, secure installation. Model Series 1910/1920 may be used for two-position or modulating control utilizing a selection of electric or pneumatic actuators, or can be operated manually with the optional locking hand quadrant.



STANDARD CONSTRUCTION:

Frame: 8" x 2" x 14 ga. (203 x 51 x 2) coated steel channel.

Blades: Approx. 6" (152) wide on 5 1/2" (140) centers, up to 8 5/8" (219) wide maximum depending on size. 16 ga. (1.6) galv. steel vee blade design. Parallel or opposed action.

Linkage: Heavy duty side linkage, concealed out of the airstream.

Axles: Models 1910/1920: 1/2" (13) dia. plated steel.
Models 1917/1927: 3/4" (19) dia. plated steel.

Bearings: Stainless Steel sleeve type.

Drive Shaft: 1/2" (13) or 3/4" (19) dia. (see Axles above) plated steel. Extends 6" (152) beyond frame.

Finish: Mill galvanized.

Sizes (Duct W x H):

Minimum	Maximum
Single Section	**Single Section**
Single blade: 6" x 6" (152 x 152). Two blades (parallel or opposed): 6" x 10" (152 x 254).	48" x 96" (1219 x 2438)

Note: For larger sizes, contact factory.

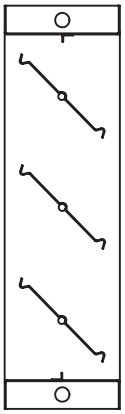
Max. Performance Ratings	Models 1910/1920	Models 1917/1927
Maximum Velocity	3000 fpm (15 m/s)	3500 fpm (18 m/s)
Maximum Pressure	8.5 in. w.g. (2.1 kPa)	20 in. w.g. (5 kPa)
Maximum Temperature	250°F (121°C)	250°F (121°C)

Note: For higher operating temperatures, contact factory.

PARALLEL BLADE

☐ **MODEL 1910** (1/2" (13) dia. axles)

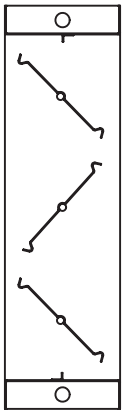
☐ **MODEL 1917** (3/4" (19) dia. axles)



OPPOSED BLADE

☐ **MODEL 1920** (1/2" (13) dia. axles)

☐ **MODEL 1927** (3/4" (19) dia. axles)



OPTIONS:

- ❑ 304 Type 304 Stainless Steel construction
- ❑ 316 Type 316 Stainless Steel construction
- ❑ 12GF 12 ga. (2.8) Frame
- ❑ 14GF 14 ga. (2.0) Blades
- ❑ AS50/75 Type 304 Stainless Steel axles only
- ❑ BEB External bolt-on ball bearings
- ❑ BEBS External bolt-on ball bearings with seal
- ❑ BOS Outboard bearings with seal
- ❑ BSE EPDM blade seals (up to 250°F [121°C])
- ❑ BSS Silicone blade seals (up to 400°F [204°C])
- ❑ JSS Stainless steel jamb seals

OPTIONS (continued):

- ❑ F15-F40 Non-standard flange width (1 1/2" [38] to 4" [102]). Specify _____.
- ❑ BH1 Bolt holes in one flange
- ❑ BH2 Bolt holes in both flanges
- ❑ HDLQ Heavy duty hand locking quadrant
- ❑ FMXX Factory mounted actuator. Specify _____.
- ❑ Special Features _____.

Note: For variations not shown, contact factory.

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**8 - 18 - 20**	**1900**	**6 - 30 - 14**	**1910**

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HEAVY DUTY INDUSTRIAL CONTROL DAMPERS
STEEL • VEE BLADE
PERFORMANCE DATA
MODELS: 1910/1920 & 1917/1927

PERFORMANCE LIMITATIONS:

Damper Width	Model 1910/1920		Model 1917/1927	
	Max. System Pressure	Max. System Velocity	Max. System Pressure	Max. System Velocity
48" (1219)	2.5 in. w.g.	3000 fpm	6.5 in. w.g.	3500 fpm
36" (914)	4.0 in. w.g.	3000 fpm	9.0 in. w.g.	3500 fpm
24" (610)	6.0 in. w.g.	3000 fpm	15.0 in. w.g.	3500 fpm
12" (305)	8.5 in. w.g.	3000 fpm	20.0 in. w.g.	3500 fpm

Pressure and velocity limitations shown are guidelines for design purposes. Although ratings are on the conservative side, contact Nailor for requirements beyond limitations shown.

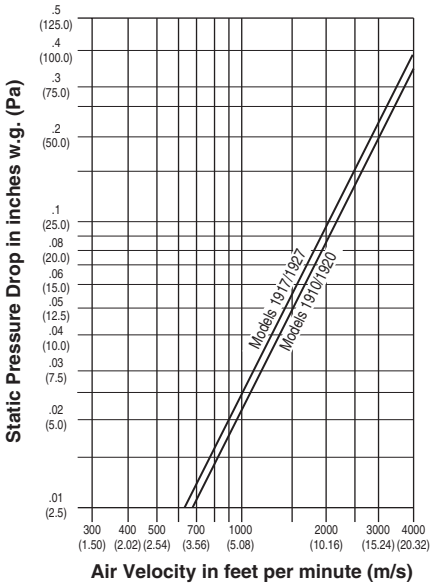
LEAKAGE:

Damper Width	Model 1910/1920				Model 1917/1927			
	Leakage w/o Seals		Leakage with Seals		Leakage w/o Seals		Leakage with Seals	
	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow
48" (1219)	31.5	1.05	4.2	0.14	31.5	0.90	4.2	0.12
36" (914)	31.5	1.05	4.2	0.14	31.5	0.90	4.2	0.12
24" (610)	39.0	1.30	8.5	0.28	39.0	1.12	8.5	0.24
12" (305)	59.0	1.97	13.0	0.43	59.0	1.69	13.0	0.37

Leakage data is based upon a pressure differential of 1 in. w.g., tested in accordance with AMCA Standard 500-D, Figure 5.5. For pressure differentials greater than 1 in. w.g. apply the appropriate leakage correction factor from the following chart:

Static Pressure (in. w.g.)	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Correction Factor	x 1.4	x 1.7	x 2.0	x 2.2	x 2.4	x 2.6	x 2.8	x 3.0	x 3.2	x 3.5	x 3.7	x 4.0	x 4.2	x 4.5

PRESSURE DROP: SIZE: 36" x 36" (914 x 914)



Tested per AMCA Standard 500-D using test set-up Figure 5.3, ductwork upstream and downstream.

SCHEDULE TYPE:	Page 2 of 2			
PROJECT:	Dimensions are in inches (mm).			
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**8 - 18 - 20**	**1900**	**6 - 30 - 14**	**1910**

HEAVY DUTY INDUSTRIAL CONTROL DAMPERS

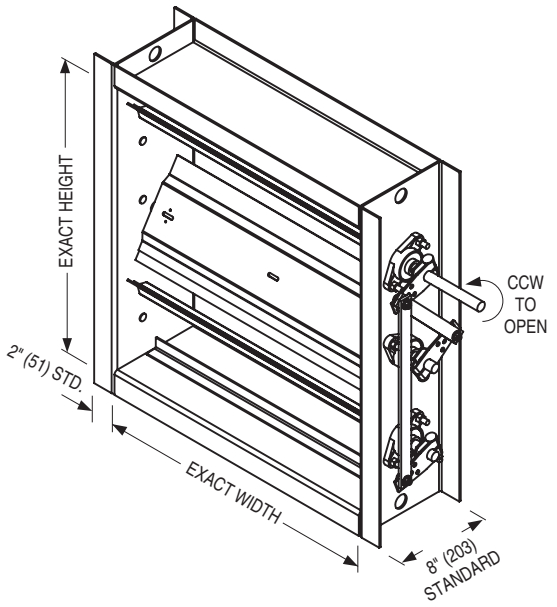
STEEL • AIRFOIL BLADE

MODELS: 1970 & 1980

1975 & 1985

The Nailor Model Series 1970/1980 is an extra heavy duty/industrial control damper designed for use in high pressure industrial HVAC or process air systems. Features include a heavy-duty airfoil blade design that offers precise airflow control or shut-off in applications involving pressure differentials of up to 34" w.g. (8.5 kPa) and velocities up to 6000 fpm (30 m/s), depending on damper width. Models 1975/1985 feature an ultra heavy-duty 10 ga. (3.5) frame and 2 x 12 ga. (51 x 2.8) blades and are suitable for applications of up to 44" w.g. (11 kPa) and velocities up to 6000 fpm (30 m/s), depending on damper width.

The heavy duty flanged frame, with optional bolt holes, connects easily to flanged duct for fast, secure installation. Model Series 1970/1980 may be used for two-position or modulating control utilizing a selection of electric or pneumatic actuators, or can be operated manually with the optional locking hand quadrant.



STANDARD CONSTRUCTION:

Frame: Models 1970/1980: 8" x 2" x 12 ga. (203 x 51 x 2.8) coated steel channel.
Models 1975/1985: 8" x 2" x 10 ga. (203 x 51 x 3.5) coated steel channel.

Blades: Approx. 6" (152) wide on 5 1/2" (140) centers, up to 8 5/8" (219) wide maximum depending on size. Parallel or opposed action.
Models 1970/1980: 2 x 16 ga. (1.6) galvanized steel (2 x 14 ga. [2] for blade lengths of 48" [1219] and up) formed and welded into an airfoil cross-section.
Models 1975/1985: 2 x 12 ga. (2.8) galvanized steel (2 x 10 ga. [3.5] for blade lengths of 48" [1219] and up) formed and welded into an airfoil cross-section.

Linkage: Heavy duty side linkage, concealed out of the airstream.

Axles: Models 1970/1980: 3/4" (19) dia. plated steel.
Models 1975/1985: 3/4" (19) dia. plated steel (1" [25] dia. plated steel for blade lengths of 48" [1219] and up).
All axles are double bolted to blades.

Bearings: Stainless steel sleeve in housing, externally bolted to frame.

Drive Shaft: 3/4" (19) or 1" (25) dia. (see Axles above) plated steel. Extends 6" (152) beyond frame.

Finish: Mill galvanized.

Sizes (Duct W x H):

Minimum	Maximum
Single Section	**Single Section**
Single blade: 6" x 6" (152 x 152). Two blades (parallel or opposed): 6" x 12" (152 x 305).	60" x 96" (1524 x 2438)

Note: For larger sizes, contact factory.

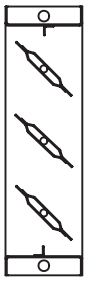
Max. Performance Ratings	Models 1970/1980	Models 1975/1985
Maximum Velocity	6000 fpm (30 m/s)	6000 fpm (30 m/s)
Maximum Pressure	34 in. w.g. (8.5 kPa)	44 in. w.g. (11 kPa)
Maximum Temperature	250°F (121°C)	250°F (121°C)

Note: For higher operating temperatures, contact factory.

PARALLEL BLADE

☐ **MODEL 1970**

☐ **MODEL 1975**



OPPOSED BLADE

☐ **MODEL 1980**

☐ **MODEL 1985**

OPTIONS:

- ❑ 304 Type 304 Stainless Steel construction
- ❑ 316 Type 316 Stainless Steel construction
- ❑ AS75/10 Type 304 Stainless Steel axles only
- ❑ BEBS External bolt-on ball bearings with seal
- ❑ BOS Outboard bearings with seal
- ❑ BSE EPDM blade seals (up to 250°F [121°C])
- ❑ BSS Silicone blade seals (up to 400°F [204°C])
- ❑ JSS Stainless steel jamb seals
- ❑ F15-F40 Non-standard flange width (1 1/2" [38] to 4" [102]). Specify _____.
- ❑ BH1 Bolt holes in one flange
- ❑ BH2 Bolt holes in both flanges
- ❑ HDLQ Heavy duty hand locking quadrant
- ❑ FMXX Factory mounted actuator. Specify _____.
- ❑ Special Features _____.

Note: For variations not shown, contact factory.

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**8 - 17 - 20**	**1900**	**6 - 30 - 14**	**1970**

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HEAVY DUTY INDUSTRIAL CONTROL DAMPERS
STEEL • AIRFOIL BLADE
PERFORMANCE DATA
MODELS: 1970/1980 & 1975/1985

PERFORMANCE LIMITATIONS:

Damper Width	Model 1970/1980		Model 1975/1985	
	Max. System Pressure	Max. System Velocity	Max. System Pressure	Max. System Velocity
60" (1529)	14 in. w.g.	5000 fpm	20 in. w.g.	5000 fpm
48" (1219)	19 in. w.g.	5000 fpm	26 in. w.g.	5000 fpm
36" (914)	24 in. w.g.	5000 fpm	32 in. w.g.	5000 fpm
24" (610)	29 in. w.g.	6000 fpm	35 in. w.g.	6000 fpm
12" (305)	34 in. w.g.	6000 fpm	44 in. w.g.	6000 fpm

Pressure and velocity limitations shown are guidelines for design purposes. Although ratings are on the conservative side, contact Nailor for requirements beyond limitations shown.

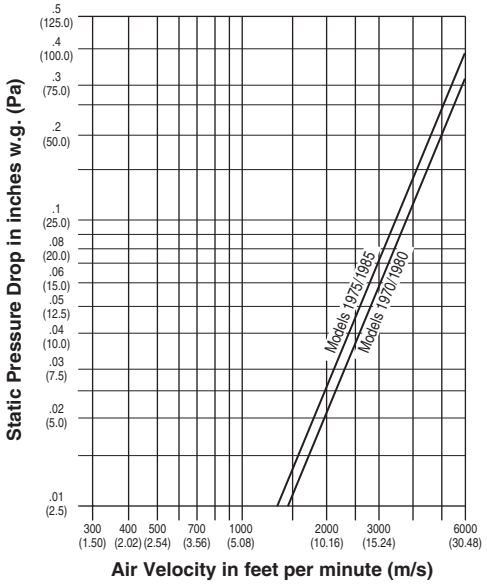
LEAKAGE:

Damper Width	Model 1970/1980				Model 1975/1985			
	Leakage w/o Seals		Leakage with Seals		Leakage w/o Seals		Leakage with Seals	
	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow	CFM per Sq. Ft.	% of Max. Flow
60" (1529)	31.0	0.62	4.0	0.08	31.0	0.62	4.0	0.08
48" (1219)	31.0	0.62	4.0	0.08	31.0	0.62	4.0	0.08
36" (914)	31.0	0.62	4.0	0.08	31.0	0.62	4.0	0.08
24" (610)	39.0	0.65	8.0	0.13	39.0	0.65	8.0	0.13
12" (305)	58.0	0.98	13.0	0.22	58.0	0.98	13.0	0.22

Leakage data is based upon a pressure differential of 1 in. w.g., tested in accordance with AMCA Standard 500-D, Figure 5.5. For pressure differentials greater than 1 in. w.g. apply the appropriate leakage correction factor from the following chart:

Static Pressure (in. w.g.)	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24
Correction Factor	x 1.4	x 1.7	x 2.0	x 2.2	x 2.4	x 2.6	x 2.8	x 3.0	x 3.2	x 3.5	x 3.7	x 4.0	x 4.2	x 4.5	x 4.7	x 5.0

PRESSURE DROP: SIZE: 36" x 36" (914 x 914)

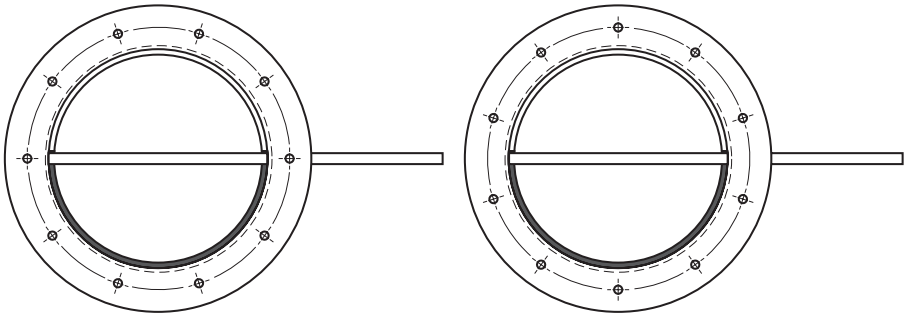


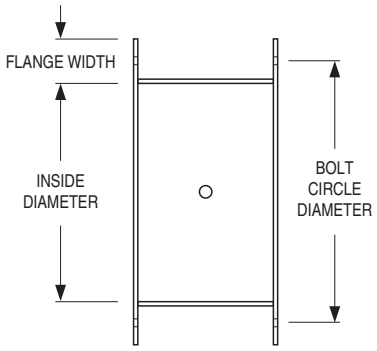
Tested per AMCA Standard 500-D using test set-up Figure 5.3, ductwork upstream and downstream.

SCHEDULE TYPE:	Page 2 of 2			
PROJECT:	Dimensions are in inches (mm).			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	8 - 17 - 20	1900	6 - 30 - 14	1970

HEAVY DUTY INDUSTRIAL CONTROL DAMPERS
ROUND, SQUARE OR RECTANGULAR
STANDARD BOLT HOLE CONFIGURATIONS
MODEL SERIES: 1900

ROUND DAMPERS:





☐ **BHAA**
Bolt holes aligned with axle

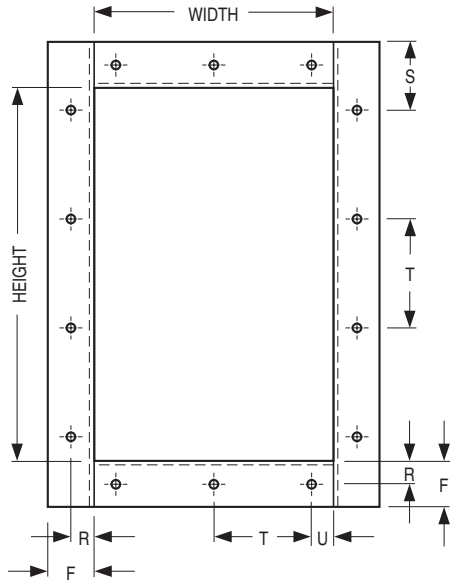
☐ **BHAP**
Bolt holes aligned perpendicular to axle

Standard bolt circle diameter = damper size + flange width + 1/4" (6).

Damper Size (Inside Diameter)	No. of Holes	Degrees Between Holes	Hole/Slot Dimensions
4" (102) thru 6" (152)	4	90	3/8" (10)
> 6" (152) thru 10" (254)	6	60	3/8" (10)
> 10" (254) thru 14" (356)	8	45	3/8" (10)
> 14" (356) thru 20" (508)	10	36	3/8" (10) x 1/2" (13)
> 20" (508) thru 28" (711)	12	30	3/8" (10) x 1/2" (13)
> 28" (711) thru 36" (914)	16	22 1/2	3/8" (10) x 1/2" (13)
> 36" (914) thru 42" (1067)	18	20	9/16" (14) x 11/16" (17)
> 42" (1067) thru 48" (1219)	20	18	9/16" (14) x 11/16" (17)
> 48" (1219) thru 58" (1473)	24	15	9/16" (14) x 11/16" (17)
> 58" (1473) thru 72" (1829)	30	12	9/16" (14) x 11/16" (17)

This chart indicates Nailor's standard bolt hole sizes and configurations for round dampers ordered with Option BH. Non-standard hole sizes and configurations can be provided if required (a clearly detailed drawing of non-standard requirements must be provided to Nailor).

SQUARE AND RECTANGULAR DAMPERS:



Dimension	Standard	Minimum	Maximum
F	2" (51)	1 1/2" (38)	4" (102)
R	1" (25)	F ÷ 2	F – 3/4" (19)
S	1" (25)	F ÷ 2	–
T	6" (152)	2" (51)	12" (305)
U	–	3/4" (19)	–

This chart indicates Nailor's standard bolt hole configurations for square and rectangular dampers ordered with Option BH. Standard bolt hole size is 7/16" (11) diameter. Non-standard hole sizes and configurations can be provided if required (a clearly detailed drawing of non-standard requirements must be provided to Nailor).

SCHEDULE TYPE:	Dimensions are in inches (mm)			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**8 - 18 - 20**	**1900**	**9 - 9 - 03**	**1900BH-1**