

- AIRFOIL BLADE
- HIGH PERFORMANCE
- ULTRA-LOW LEAKAGE
- GALVANIZED STEEL

MODELS:

- 1110 PARALLEL BLADE
- 1120 OPPOSED BLADE



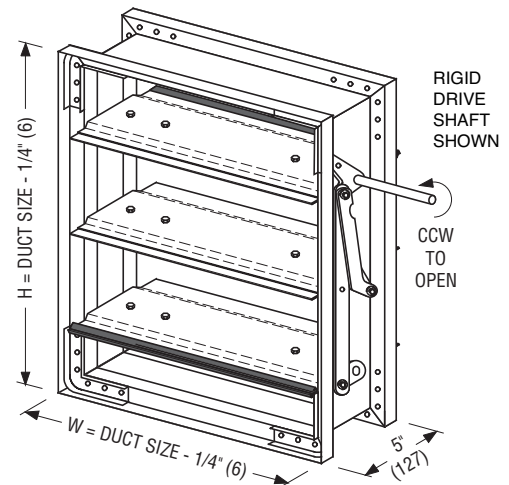
Models 1110 and 1120

The 1110/1120 Series are Nailor's most cost effective steel airfoil blade control dampers. They 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 IEC Code (802.3.4) maximum leakage for building envelope dampers criteria of 3 cfm/ft² (15.2 l/s/m²).

STANDARD CONSTRUCTION:

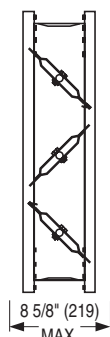
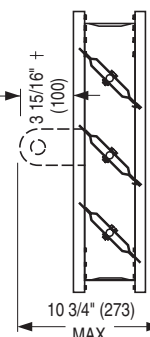
- FRAME:** 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel with die-formed corner gussets. Low profile (flat top and bottom) on dampers 10" (254) high and under.
- BLADES:** 6" (152) wide on 5 1/2" (140) centers. 2 x 20 ga. (1.0) galvanized steel formed into an airfoil cross-section. 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; or optional lock-on shaft with outboard support bracket (standard in Canada), on all single section dampers. A 1/2" (13) or 1" (25) dia. factory installed jackshaft is standard on all multiple section wide 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.



MODEL 1110
PARALLEL BLADE

MODEL 1120
OPPOSED BLADE

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



MODELS: 1110/1120 PERFORMANCE DATA:

PERFORMANCE 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

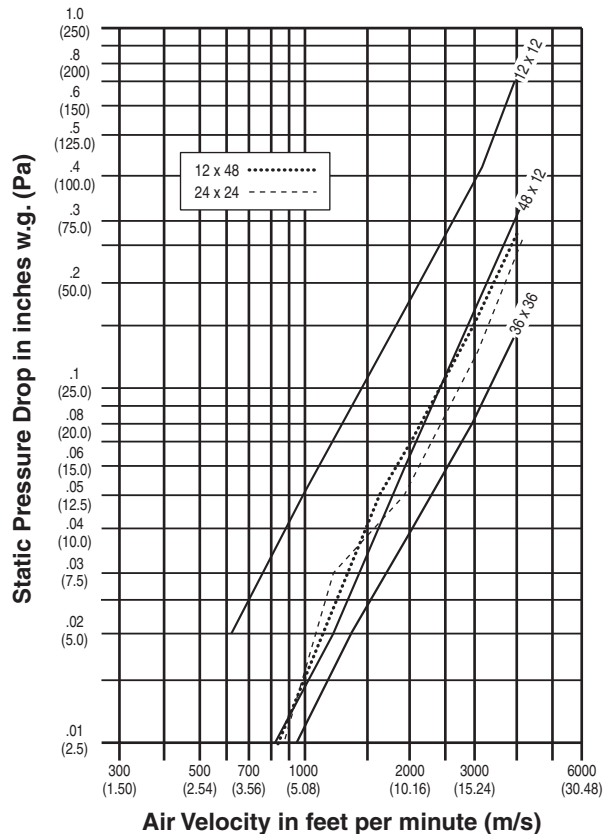
The 1100 Series with its standard maximum single section and multiple section sizing limitation may be used in applications with system pressures of up to 8.0" w.g.. The 1100 Series may also be used in systems with higher total pressures by reducing the damper section width as shown in the table.

Temperature Range: -50°F to 180°F (-45°C to 82°C)



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.

PRESSURE DROP:



Pressure drop tested per AMCA Standard 500-D-98, Figure 5.3. Data corrected to standard air density of 0.075 lbs/ft³.

LEAKAGE CLASS:

DAMPER WIDTH	@ 1" w.g. (0.25 kPa)	@ 4" w.g. (1.0 kPa)
12" (305)	1A	1A
24" (305)	1A	1A
36" (305)	1A	1A
48" (305)	1A	1A

Maximum leakage permitted for Class rating is as follows:

Class 1A: 3 cfm/sq. ft. @ 1" w.g. (15.2 l/s/m² @ 0.25 kPa)

8 cfm/sq. ft. @ 4" w.g. (40.6 l/s/m² @ 1.0 kPa)

Leakage tested in accordance with AMCA Standard 500-D-98. 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/ft³.

Size: 12 x 12 (305 x 305)

VELOCITY fpm (m/s)	PRESSURE DROP in. w.g. (Pa)
627 (3.19)	.02 (5)
997 (5.07)	.05 (12)
2005 (10.19)	.18 (45)
3013 (15.31)	.41 (102)
3955 (20.09)	.70 (174)

Size: 24 x 24 (610 x 610)

VELOCITY fpm (m/s)	PRESSURE DROP in. w.g. (Pa)
889 (4.52)	.01 (2)
1242 (6.31)	.03 (7)
1938 (9.85)	.05 (12)
3068 (15.59)	.13 (32)
4336 (22.03)	.26 (65)

Size: 36 x 36 (914 x 914)

VELOCITY fpm (m/s)	PRESSURE DROP in. w.g. (Pa)
954 (4.84)	.01 (2)
1366 (6.94)	.02 (5)
2030 (10.32)	.04 (10)
2987 (15.18)	.08 (20)
3955 (20.09)	.14 (35)

Size: 48 x 12 (1219 x 305)

VELOCITY fpm (m/s)	PRESSURE DROP in. w.g. (Pa)
867 (4.41)	.01 (2)
1229 (6.25)	.02 (5)
1948 (9.90)	.06 (15)
3084 (15.67)	.17 (42)
4330 (22.00)	.33 (85)

Size: 12 x 48 (305 x 1219)

VELOCITY fpm (m/s)	PRESSURE DROP in. w.g. (Pa)
869 (4.42)	.01 (2)
1662 (8.45)	.05 (12)
2014 (10.23)	.07 (17)
2974 (15.11)	.15 (37)
4012 (20.38)	.27 (67)

MODELS: 1110/1120

AVAILABLE OPTIONS/ACCESSORIES:

The following construction options and accessories are available on Models 1110/1120. See page B55 for detailed description of options/accessories.

	CODE	DESCRIPTION
MATERIAL:	304	Stainless Steel Construction
FRAME:	FF FR FD	Front Flange Rear Flange Double Flange
FRAME GAUGE:	14G 13G 12G	14 Gauge 13 Gauge 12 Gauge
BEARINGS:	BS BT	Stainless Steel Bearings Thrust Bearings
TRANSITION:	CR CO	Transition Casing for Round Duct Transition Casing for Oval Duct
OPERATOR ACCESSORIES:	HLQ PCE PCI FMO FMI JK5 JK1 VCK	Hand Locking Quadrant External Chain Operator Internal Chain Operator Factory Mounted Actuator-Outside w/ side plate Factory Mounted Actuator-Internal w/ jackshaft 1/2" (13) Dia. Jackshafting for Single Section 1" (25) Dia. Jackshafting for Single Section Vertical Interconnection Kit

At Nailor Industries, we take pride in our flexibility to meet the needs of your specific applications. The options listed above provide a variety of commonly used modifications to satisfy the majority of today's diverse requirements. Should your application require a more unique configuration, please consult your authorized Nailor Representative or the Nailor Industries office nearest you for assistance.

HOW TO SPECIFY OR TO ORDER

MODELS: 1110/1120

HOW TO ORDER:

Standard construction is shown in highlighted box. Option codes are listed below. See previous page for description of options.

MODEL	SIZE (W X H)	MATERIAL	FRAME TYPE	FRAME GAUGE	DRIVE LOCATION	BEARINGS	BLADE SEAL	JAMB SEAL	ROUND/OVAL TRANSITION	OPERATOR ACCESSORIES
1110	ie: 48 x 24	GLV	HC	16G	DR/DL	BO	BPV	JSS	-	-
1120		304	FF FR FD	14G 13G 12G		BT BS			CR CO	HLQ FMO FMI PCE PCI JK5 JK1 VCK

- Notes:
1. 1/2" (13) or 1" (25) dia. jackshafting is standard on all multiple section wide units.
 2. If Pull Chain Operator option is selected, please specify length of chain required.
 3. If Option CR Round Transition casing (or CO) is selected please order by duct size diameter ie: 36"ø.

SUGGESTED SPECIFICATION:

Provide and install, as shown on plans and/or schedules, low-leakage control dampers meeting or exceeding the following criteria: Frame shall be constructed of 16 ga. (1.6) galvanized steel hat channel with mitered corners and die-formed corner gussets for rigidity and structural strength equivalent to 13 ga. (2.4) channel type frames. Blades shall be 2 x 20 ga. (1.0) galvanized steel formed and welded to produce airfoil design. Blades shall be on maximum 6" (152) centers, in parallel or opposed (please select) configuration. Blade axles shall be 1/2" (13) dia. plated steel, double thru-bolted to blade at each end. Hex or square friction-fit, or press-fit axles are not acceptable. Bearings shall be Olite® self-lubricating bronze type. Blade linkage shall be zero-maintenance, out of airstream and totally concealed within the frame. Jackshafts shall be supplied on all multiple section assemblies in order to evenly distribute torque. Blade seals shall be extruded PVC, and jamb seals shall be compression type cambered stainless steel, providing positive shut-off. All submitted performance data to be based on tests in accordance with AMCA Standard 500-D. Dampers must comply with the requirements of AMCA 511 Certified Ratings Program and be qualified to bear the AMCA Seal for Air Leakage and Air Performance. Damper widths from 12" to 48" (305 to 1219) shall meet leakage Class 1A criteria of maximum 3 cfm/sq. ft. (15.2 L/s/m²) at 1" w.g. (.25 kPa) and 8cfm/sq. ft. (40.6L/s/m²) at 4" w.g. (1 kPa). Standard of acceptance: Nailor Industries Model 1110 (parallel blade) or Model 1120 (opposed blade).

For CR Round Transition Option, add the following:

Damper shall be provided with a 20 ga. (1.0) galvanized steel casing for sizes up to 36" (914) dia., 18 ga. (1.31) for larger sizes, complete with round collar on both sides. Casing shall be welded and caulked against leakage. Standard of acceptance: Nailor Industries Model 1110CR (parallel blade) or Model 1120CR (opposed blade).