

Engineered Composite Systems has over 20 years of experience in the design and manufacture of corrosion resistant dampers. While the general design and performance of our dampers is standard, all units are manufactured to meet each individual application. These options include, but are not limited to the following:

- Various resin systems
- Internal liner thickness and make-up
- Flange configuration
- Body length
- Shape (round, oval, rectangular)
- Variations in metallic parts (stainless, hastelloy, titanium)
- Seal material
- Operators (electric, pneumatic, worm gear)
- Access options (extended shafts, chain-wheels)

ECS X-line Composite Butterfly Dampers

Models

X01: Inexpensive Volume Control

- No internal seals or stops
- Used to regulate volume at fans or intake points

X02: Ultra-low Leakage Isolation

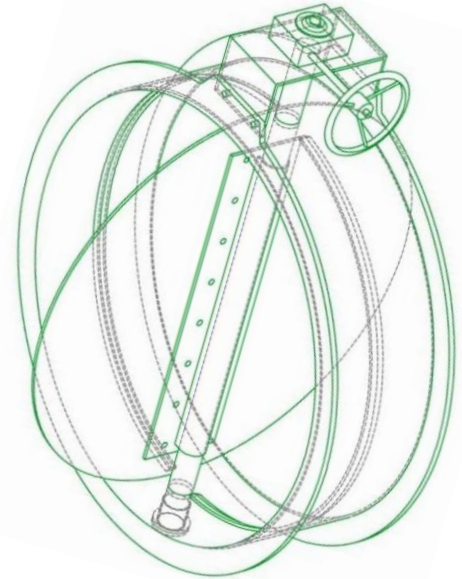
- AMCA certified for pressure drop and leakage rates
- Internal blade stop and seals limit leakage
- High velocity and pressure capabilities
- Low pressure drop

X03 – Bubble tight (Zero Leak)

- PTFE inner seal
- AMCA bubble-tight testing

Features and options of the X-line

- Custom configurations
- Various operator options
- Full corrosion barriers on all internal surfaces
- Double O-ring FRP packing gland shaft seals



Six Damper Models to customize based on customer needs

In addition to the **X-line** of Composite Butterfly Dampers, ECS manufactures the following complimentary damper lines:

ECS MB-01 - Multi-Blade damper for shut-off balancing

ECS IV-01 – Variable Inlet Vane Dampers pre-spin air flowing into a fan for precise volume control without degrading speed

ECS BD-01 – Back-Draft Dampers for immediate isolation of an air stream

Air Performance Data

X02-12

Test Number : 27841-ID1
 Client : Engineered Composite Systems
 Date : August 13, 2011
 Personnel : DL
 Witness(es) : None

Test Type : Contract
 Test Figure : 5.3-6.5
 Chamber : Small
 Nozzle Comb. : 13

Manufacturer : Engineered Composite Systems
 Trade Name : X02
 Model : X02-12
 Size : 12" Round
 Free Area (sq.ft.) : 0.79
 Face Area (sq.ft.) : 0.79

Damper Type : Single Blade
 Blade Orientation : Horizontal
 Blade Action :
 Blade Position : Open
 Flow Direction : Intake
 Mounting Position : Vertical



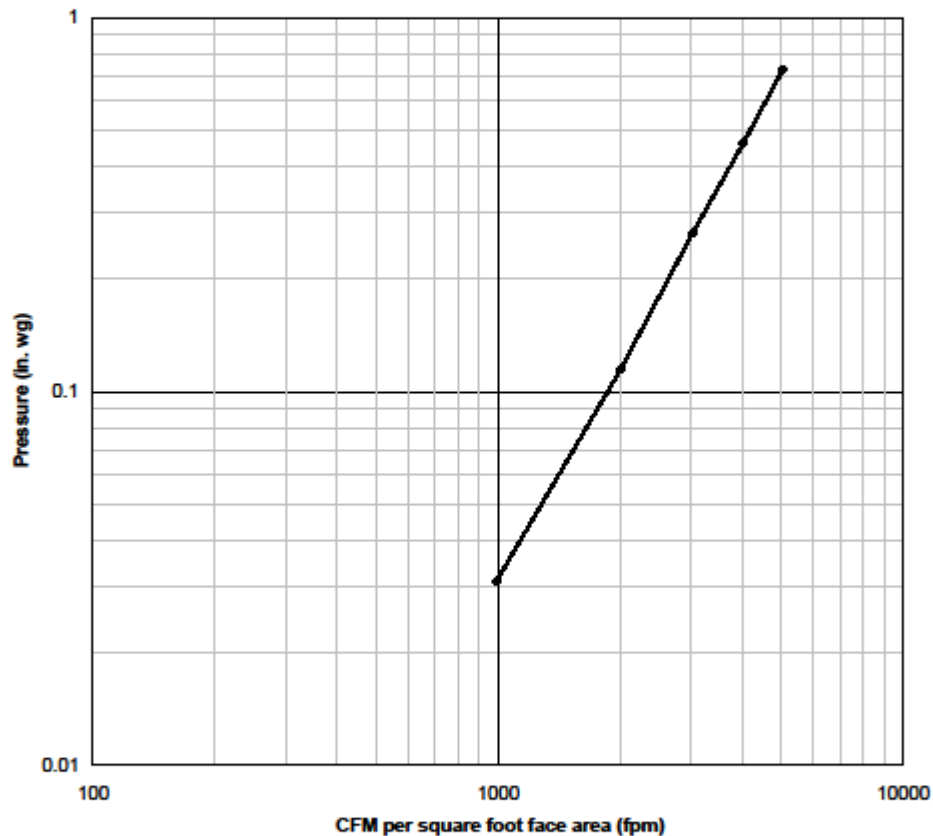
Appurtenances : None

Remarks : Unit tested in the direction of airflow. Ps8 added to delta P to get Ps5.

Device Only Test Results at Standard Air

Det.	Q _{DS}	Q _S	ΔP _S	ΔP _{SC}	ΔP _{DS}	ΔP _D	V _{Face Area}
1	3993.2	3997.0	0.249	0.249	0.974	0.726	5054.7
2	3188.1	3190.2	0.166	0.166	0.628	0.462	4035.6
3	2387.3	2388.3	0.099	0.099	0.363	0.265	3021.9
4	1586.9	1587.3	0.052	0.052	0.166	0.114	2008.8
5	783.8	783.9	0.010	0.010	0.042	0.031	992.1

Test No. 27841-ID1
 Contract Test



X02-24

Test Number : 27842-ID1
 Client : Engineered Composite Systems
 Date : 8/11/2011
 Personnel : DL
 Witness(es) : None

 Manufacturer : Engineered Composite Systems
 Trade Name : X02
 Model : X02-24
 Size : 24" Round
 Free Area (sq.ft.) : 3.14
 Face Area (sq.ft.) : 3.14

Test Type : Contract
 Test Figure : 5.3-8.5
 Chamber : Large
 Nozzle Comb. : 16

Damper Type : Single Blade
 Blade Orientation : Horizontal
 Blade Action :
 Blade Position : Open
 Flow Direction : Intake
 Mounting Position : Vertical



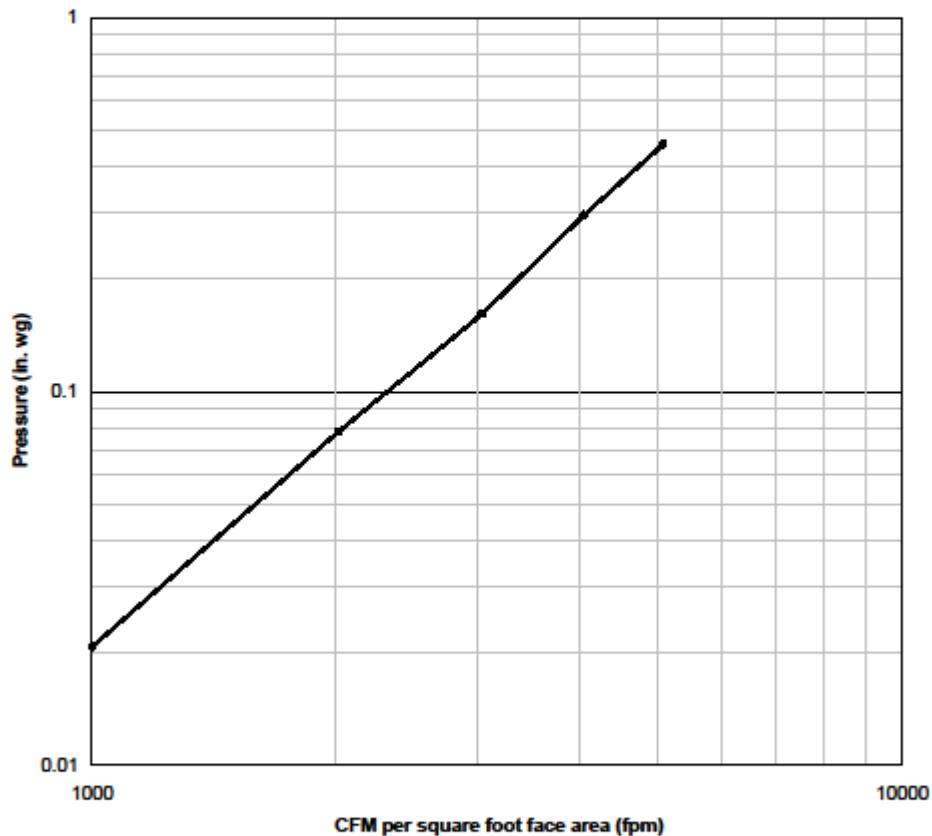
Appurtenances : None

Remarks : Unit tested in the direction of airflow. Ps8 added to delta P to get Ps5.

Device Only Test Results at Standard Air

Det.	Q _{DS}	Q _S	ΔP _S	ΔP _{SC}	ΔP _{DS}	ΔP _D	V _{Face Area}
1	15919.3	15940.5	0.187	0.187	0.644	0.457	5069.9
2	12716.4	12730.7	0.125	0.125	0.421	0.296	4049.8
3	9519.5	9528.7	0.078	0.078	0.239	0.161	3031.7
4	6328.7	6334.3	0.036	0.036	0.114	0.078	2015.5
5	3148.3	3148.9	0.010	0.010	0.031	0.021	1002.0

Test No. 27842-ID1
Contract Test



Leakage Performance Data

Test Information

Air leakage is based on operation between 32 °F and 120 °F

Tested for air leakage in accordance with ANSI/AMCA Standard 500-D, Figure 5.6A

Torque

Data are based on a torque of 1265.82 in. lb./ft.² applied to the X02-12 and 318.47 in. lb./ft.² applied to the X02-24 to close and seat the damper during the test.



Leakage, ft ³ /min/ft ²					
	10 in. wg.	12 in. wg.	16 in. wg.	18 in. wg.	20 in. wg.
X02-12	2.44	3.46	5.62	6.76	7.90
X02-24	1.10	1.84	2.28	2.69	3.08

ECS Fiberglass Dampers are warranted for twelve months from the date of shipment to be free from defects in manufacturing, materials, or workmanship. Liability shall not exceed the purchase price of the damper and, at ECS's Option, is limited to repair or replacement. ECS shall not be liable for any costs incurred either directly or indirectly other than repair or replacement of the product.

Engineered Composite Systems certifies that the X02-12 / x02-24 shown heron is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with the AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program

The AMCA Certified Ratings Seal applies to Air Performance and Air Leakage ratings.