

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

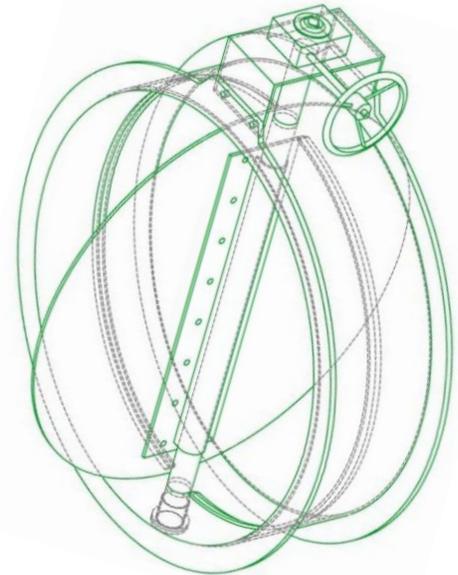
- AMCA certified for pressure drop and leakage rates
- Internal blade stop and seals limit leakage
- High velocity and pressure capabilities
- Low pressure drop

#### 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

**Manufacturer:** Engineered Composite Systems  
**Model Name:** X02  
**Model Number:** 12  
**Size:** 12 inch round  
**Face Area (sq. ft.):** 0.785 ft<sup>2</sup>

**Test Number:** 34970-ID1  
**Test Purpose:** Contract Test  
**Date:** 11/21/2017  
**Client:** Engineered Composite Systems  
**Witness(es):** None  
**Personnel:** jkeneway

**Damper Type:** Ultra-Low Leakage Damper  
**Blade Orientation:** N/A  
**Blade Action:** N/A

**Blade Position:** N/A  
**Flow Direction:** Intake  
**Mounting Position:** Vertical

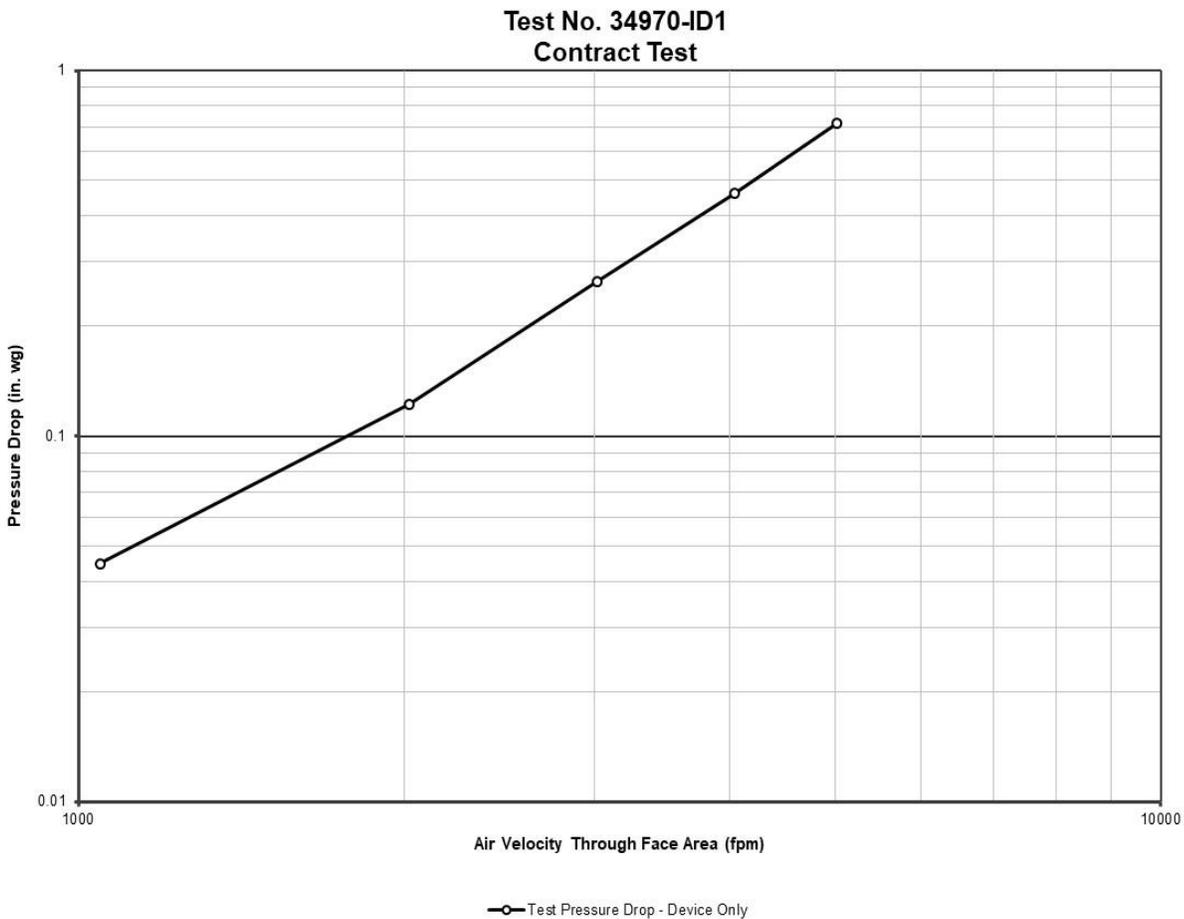
**Appurtenances:** None



Test Method per ANSI / AMCA Standard 500-D-12 (Pressure Drop), Figure 5.3

**Device Only Test Results at Standard Air:**

Det. No.	Q (cfm)	V (fpm)	$\Delta P_{DS}$ (in. wg)	$\Delta P_s$ (in. wg)	$\Delta P_D$ (in. wg)
1	3940	5019	0.975	0.258	0.717
2	3167	4034	0.633	0.172	0.461
3	2367	3015	0.364	0.099	0.265
4	1588	2023	0.170	0.048	0.122
5	822	1047	0.056	0.011	0.045



# X02-24

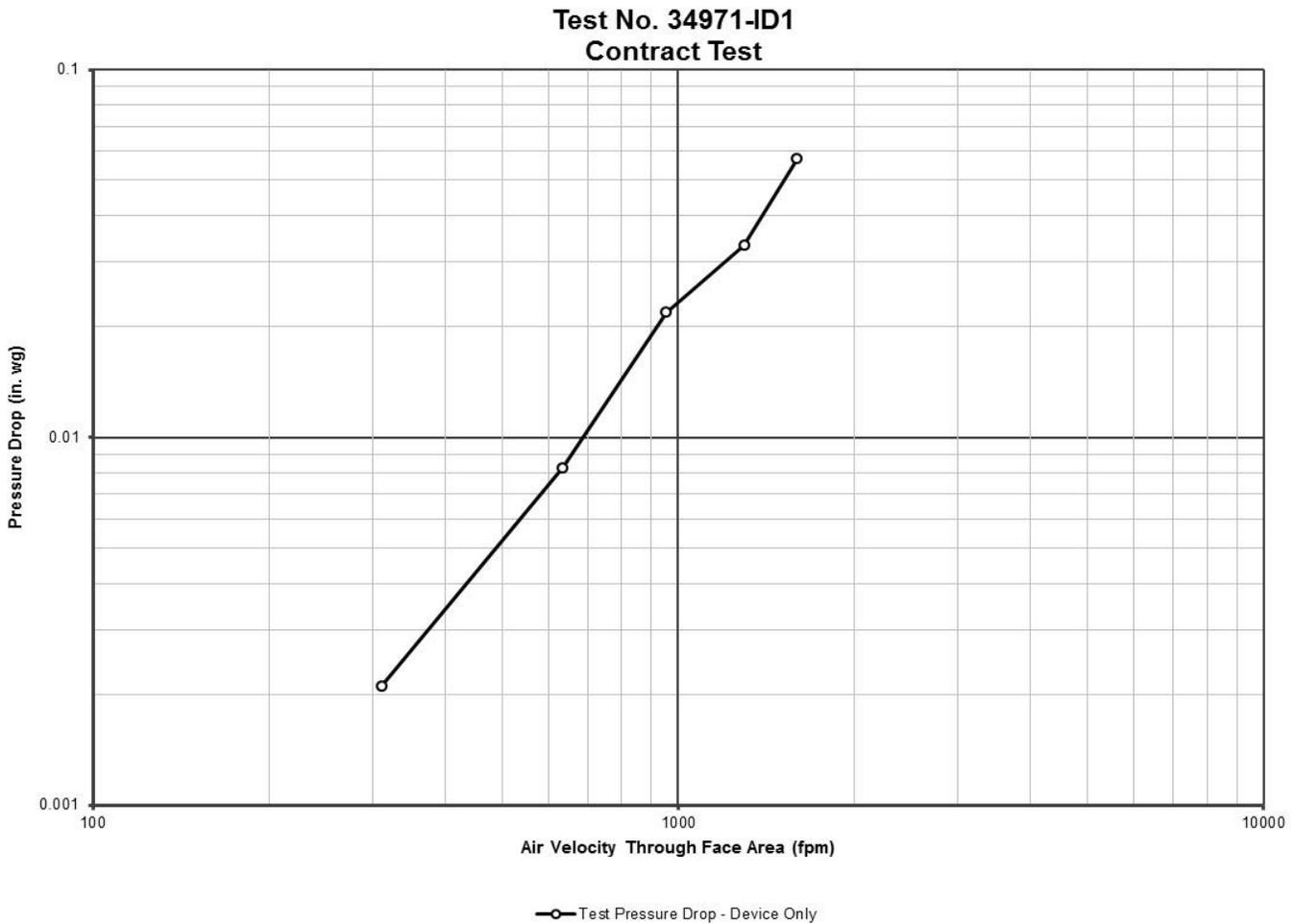


<b>Manufacturer:</b> Engineered Composite Systems	<b>Test Number:</b> 34971-ID1
<b>Model Name:</b> X02	<b>Test Purpose:</b> Contract Test
<b>Model Number:</b> 24	<b>Date:</b> 11/20/2017
<b>Size:</b> 24 inch round	<b>Client:</b> Engineered Composite Systems
<b>Face Area (sq. ft.):</b> 3.14 ft <sup>2</sup>	<b>Witness(es):</b> None
	<b>Personnel:</b> treily
<b>Damper Type:</b> Ultra-Low Leakage Damper	<b>Blade Position:</b> Open
<b>Blade Orientation:</b> Horizontal	<b>Flow Direction:</b> Intake
<b>Blade Action:</b> N/A	<b>Mounting Position:</b> Vertical
<b>Appurtenances:</b> None	

## Test Method per ANSI / AMCA Standard 500-D-12 (Pressure Drop), Figure 5.3

### Device Only Test Results at Standard Air:

Det. No.	Q (cfm)	V (fpm)	$\Delta P_{DS}$ (in. wg)	$\Delta P_s$ (in. wg)	$\Delta P_D$ (in. wg)
1	5008	1595	0.083	0.026	0.057
2	4066	1295	0.053	0.020	0.033
3	2994	954	0.031	0.009	0.022
4	1993	635	0.014	0.005	0.008
5	976	311	0.003	0.001	0.002



# X02-36



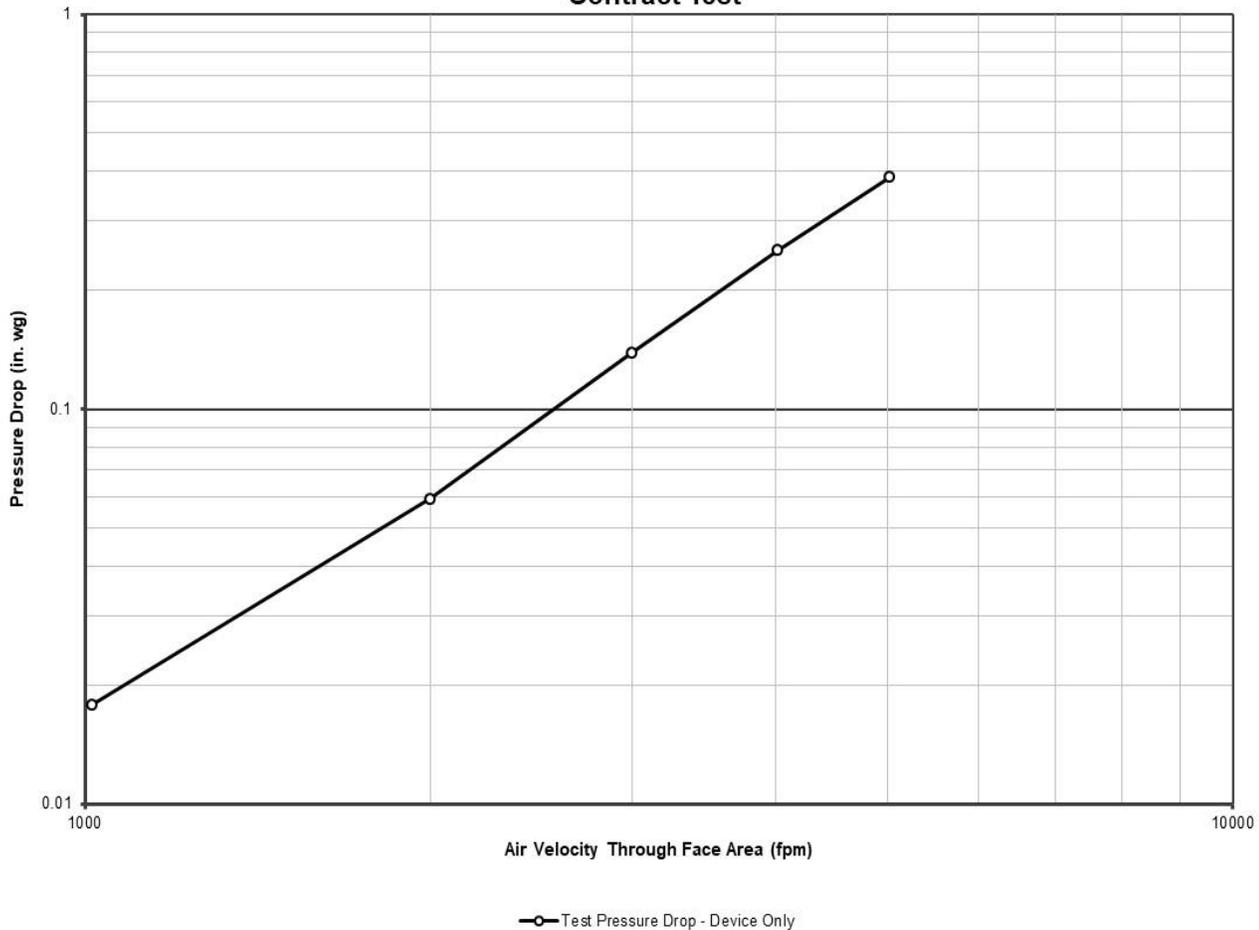
<b>Manufacturer:</b> Engineered Composite Systems	<b>Test Number:</b> 34972-ID1
<b>Model Name:</b> X02	<b>Test Purpose:</b> Contract Test
<b>Model Number:</b> 36	<b>Date:</b> 12/04/2017
<b>Size:</b> 36 inch round	<b>Client:</b> Engineered Composite Systems
<b>Face Area (sq. ft.):</b> 7.06 ft2	<b>Witness(es):</b> None
	<b>Personnel:</b> treily
<b>Damper Type:</b> Ultra-Low Leakage Damper	<b>Blade Position:</b> Open
<b>Blade Orientation:</b> Horizontal	<b>Flow Direction:</b> Intake
<b>Blade Action:</b> N/A	<b>Mounting Position:</b> Vertical
<b>Appurtenances:</b> None	

## Test Method per ANSI / AMCA Standard 500-D-12 (Pressure Drop), Figure 5.3

### Device Only Test Results at Standard Air:

Det. No.	Q (cfm)	V (fpm)	$\Delta P_{DS}$ (in. wg)	$\Delta P_S$ (in. wg)	$\Delta P_D$ (in. wg)
1	35437	5019	0.578	0.191	0.387
2	28333	4013	0.380	0.128	0.253
3	31121	2992	0.221	0.082	0.139
4	14117	2000	0.111	0.052	0.059
5	7151	1013	0.028	0.011	0.018

### Test No. 34972-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 1200 in. lb./ft.<sup>2</sup> applied to the X02-12, 2200 in. lb./ft.<sup>2</sup> applied to the X02-24, and 3500 in. lb./ft.<sup>2</sup> applied to the X02-36 to close and seat the damper during the test.

Leakage, ft <sup>3</sup> /min/ft <sup>2</sup>					
	5 in. wg.	10 in. wg.	15 in. wg.	20 in. wg.	30 in. wg.
X02-12	1.86	2.8	3.34	3.78	4.46
X02-24	0.49	0.7	0.83	0.94	1.16
X02-36	0.44	0.55	0.63	0.71	0.94

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 / X02-36 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.

