

Design/Application:

The X-12 is an outdoor air measuring station with a low leak, high performance, extruded aluminum, airfoil blade damper. The primary sensing elements are aerodynamic head devices which generate a differential (velocity) pressure output signal. The sensor's basis of design is a cylindrical tube within a cylindrical tube which permits the simultaneous measurement of both impact (total) and static pressure. The total and static sensing port design reduces the need for an air straightening device and monitors at an average deviation accuracy of 0.66% or better in a velocity range of 150 to 1100 fpm (0.76 to 5.61m/s). Station is standard with an electric actuator and EnerFlow I processor. The EnerFlow I processor utilizes current state-of-the-art digital microprocessors.

Performance:

- Velocity:** 150 to 2000 fpm (0.76 to 10.2 m/s)
Leakage: 6 cfm/sq. ft. @ 4 in. w.g. (110 cmh/sq. m. @ 1kPa)
 3 cfm/sq. ft. @ 1 in. w.g. (55 cmh/sq. m. @ 0.25kPa)
In Air Stream Temperature Range: -20°F to 180°F (-29°C to 82°C)
Out of Air Stream Temperature Range: 32°F to 120°F (0°C to 49°C)
Air Measurement Accuracy: 0.66% average deviation accuracy at a velocity range of 150 to 1100 fpm. United EnerTech recommends a minimum velocity of at least 180 fpm at point of measurement.

Standard Construction:

- Sleeve:** 18 ga galvanized steel
Damper Frame: 4.50" (114mm) Deep, .081 (2.06mm) Extruded Aluminum (6063-T5)
Blade: Hollow Airfoil with 0.375" (9.53mm) thick end nose (6063-T5) Extruded Aluminum
Extended shaft: 1/2" (12.7mm) diameter
Bearing: Bronze Oilite
Linkage: Concealed in frame
Pivot axles: Zinc with Thrust Bushings
Blade seals: Removable EPDM 250° F (121°C)
Jamb seals: Stainless Steel Compression
Blade action: Opposed
Flow Sensor: 6063-T5 Anodized Aluminum
Controller: EnerFlow I Microprocessor (NEMA 1 Housing)

Options:

- ☐ Silicone Jamb Seal
☐ Insulated Blades
☐ Inlet Bell (18 ga galvanized)
☐ *Air Straightener: Honeycomb/sleeve
 *Only required if turbulent air flow (high disturbance) is present (Increases sleeve depth by 4")
☐ NEMA 4X housing
☐ Compression Fittings
☐ Temperature Transmitter
☐ Temperature Sensor (-30°F - 130°F standard)
☐ Hi/Lo Alarm
☐ Communication w/ Building Automation System
☐ BACnet ®
☐ Modbus ®
☐ LonWorks ®
☐ EnerFlow II controller / processor (NEMA 4X housing)
☐ Compression Fittings
☐ Controller with Economizer Override

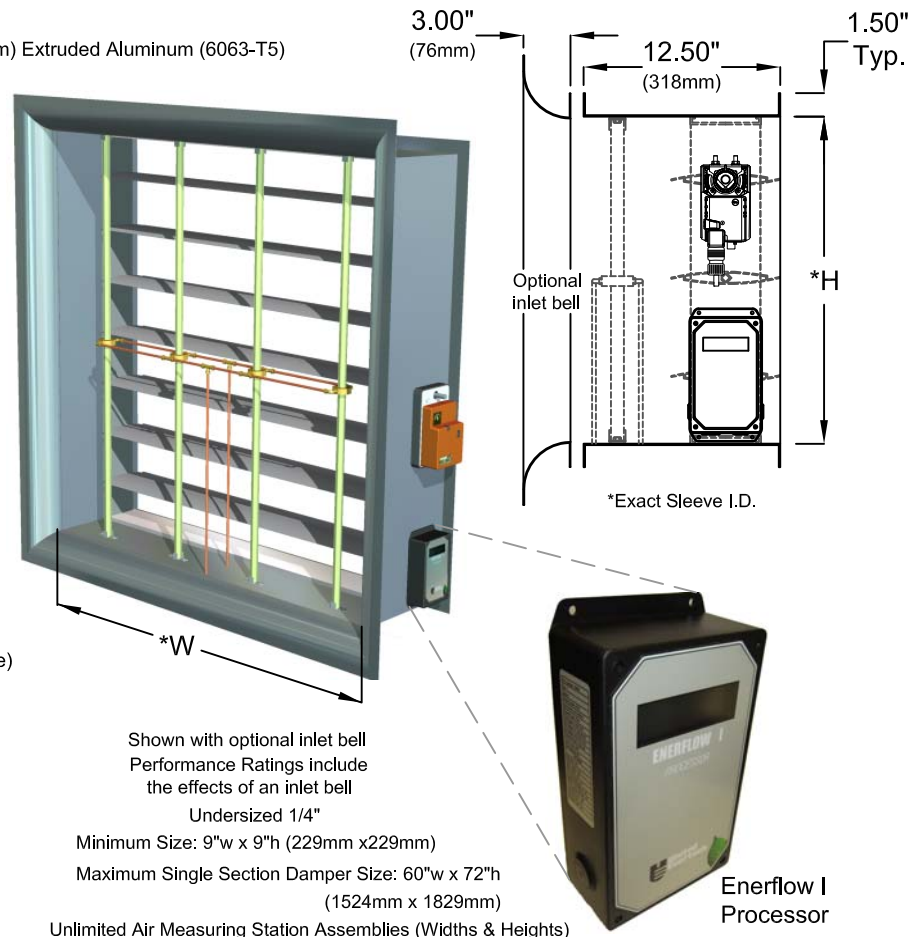
Features:

Requirements for Minimum Outside Air as follows:

- ASHRAE 62.1, 90.1, & 189.1
- California Title 24
- International Mechanical Code (IMC)
- International Energy Conservation Code (IECC)

LEED for NC & EB prerequisites and credits:

- IEQ prerequisite 1 (Minimum Indoor Air Quality Performance)
- IEQ credit 1.2 (Outdoor Air Delivering Monitors)
- IEQ credit 1.3 (Increased Ventilation)



Due to continuing research, United EnerTech reserves the right to change specifications without notice.

☐ **Model X-12** **Indoor Air Quality Measuring Station** with CD-150 Control Damper

DRAWN BY: CLJ	DATE: 10-1-13	REV. DATE: 9-28-15
REV. NO. 1	APPROVED BY: MD	DWG. NO.: O-1

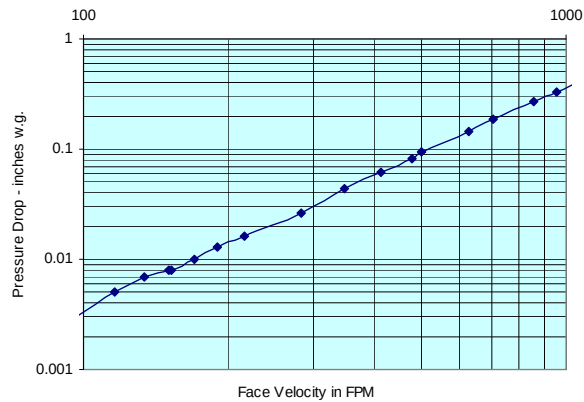
X-12 Indoor Air Quality Measuring Station Performance Data

Air Performance for model X-12

Size: 12"x 12" (305x305mm) AMCA TEST FIGURE 4

Reference Velocity FPM	Reference Volume CFM	Indicated Volume CFM	Percent Deviation of Air Volume
97	97	101	3.98
116	116	119	2.61
135	135	137	1.81
150	150	150	-0.1
152	152	152	-0.02
170	170	171	0.31
189	189	191	1.19
217	217	214	-1.18
282	282	283	0.21
348	348	346	-0.71
414	414	414	-0.1
480	480	478	-0.33
503	503	500	-0.61
628	628	624	-0.58
707	707	704	-0.39
859	859	850	-1
958	958	956	-0.19
1111	1111	1103	-0.7

Pressure Drop X-12 AMS 12" x 12" (305x305mm)



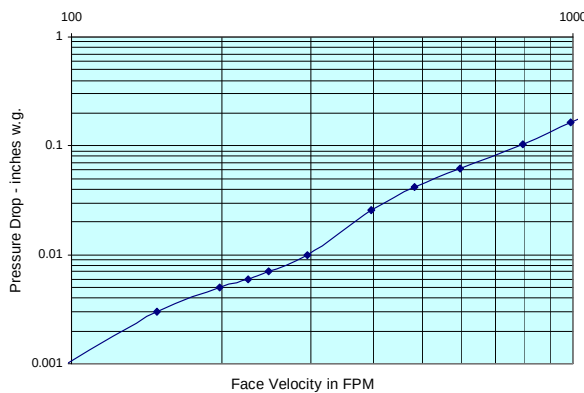
AMCA Test Setup Fig. 4

Air Performance for model X-12

Size: 24"x 24" (610x610mm) AMCA TEST FIGURE 4

Reference Velocity FPM	Reference Volume CFM	Indicated Volume CFM	Percent Deviation of Air Volume
98	393	438	11.34
148	592	618	4.46
198	790	795	0.7
225	899	905	0.62
247	987	992	0.53
296	1184	1170	-1.19
398	1590	1570	-1.23
484	1937	1920	-0.87
596	2384	2350	-1.41
793	3171	3150	-0.65
991	3965	3965	0.01
1114	4457	4480	0.51

Pressure Drop X-12 AMS 24" x 24" (610x610mm)



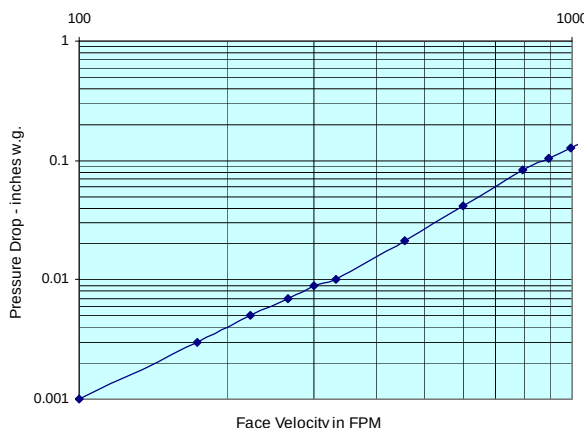
AMCA Test Setup Fig. 4

Air Performance for model X-12

Size: 48"x 48" (1220x1220mm) AMCA TEST FIGURE 4

Reference Velocity FPM	Reference Volume CFM	Indicated Volume CFM	Percent Deviation of Air Volume
100	1594	1510	-5.24
173	2773	2710	-2.28
224	3581	3550	-0.87
265	4240	4140	-2.36
300	4801	4650	-3.14
331	5302	5260	-0.8
460	7353	7270	-1.13
598	9562	9380	-1.9
796	12732	12680	-0.41
896	14335	14340	0.03
995	15919	16050	0.82
1094	17505	17680	1

Pressure Drop X-12 AMS 48" x 48" (1220x1220mm)



AMCA Test Setup Fig. 4

The X-12 Air Monitoring Station has been tested in accordance with AMCA 610.