FR/SR Redesign

"FR" Fire/ Smoke Damper and "SR" Smoke Damper

The redesigned and improved FR/SR now has adjustable retaining angles! The adjustable retaining angles will allow flexible positioning within the plane of the fire barrier.

Benefits of the FR/SR include:

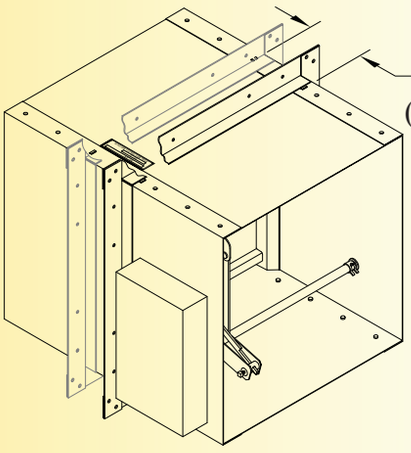
Highest Free Area of any fire/smoke or smoke damper on the market. This patent pending design eliminates much of the internal framing common to typical damper designs.

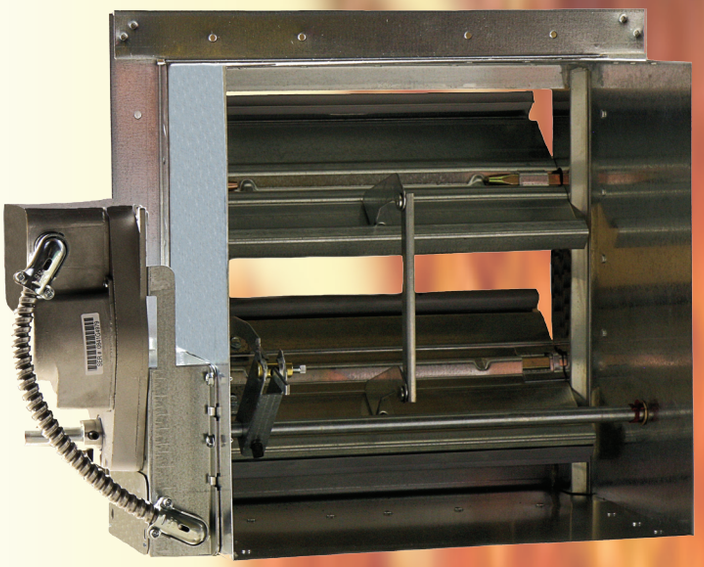
Lowest Pressure Drop in the industry. Compare the FR and SR series dampers to any other UL combination fire/smoke and smoke damper on the market. The difference in the air balance damper is significant.

AMCA Certified Ratings Program tested. The air balance damper performance results indicate no other damper compares in free area or pressure drop.

Lower Annual Energy Costs and life cycle costs. These dampers can provide he building owner with both initial design cost savings via fan hp reductions, and life cycle cost savings via annual energy cost reduction. Energy costs continue to rise and the FR and SR series dampers can pay for themselves in reduced energy expense.

Reduces Labor Costs in field installation time. **The factory supplied sleeve is fabricated with one-side adjustable perimeter mounting angles**, which reduces field labor and provides the contractor with a "slide in" installation.





air balance

Dampers Louvers

UL Life Safety Products

450 Riverside Drive Wyalusing, PA 18853
Phone: 570-746-1888 Fax: 570-746-9286
www.airbalance.com

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abi FR/SR Pressure Drop in.wg (Face Velocity=2000 fpm)

Height \ Width	6	8	10	12	16	20	24
6	0.800	0.654	0.571	0.499	0.467	0.437	0.407
8	0.499	0.381	0.331	0.289	0.251	0.235	0.219
10	0.355	0.269	0.235	0.203	0.177	0.164	0.15
12	0.289	0.219	0.190	0.164	0.142	0.122	0.122
14	0.388	0.294	0.257	0.223	0.195	0.181	0.168
16	0.388	0.294	0.239	0.223	0.195	0.181	0.168
18	0.361	0.294	0.239	0.223	0.195	0.181	0.168
20	0.361	0.294	0.239	0.223	0.195	0.181	0.168
24	0.294	0.223	0.195	0.168	0.146	0.135	0.126

1. Multiply pressure drop differences by the following conversion factors when the face velocity is less than 2000 fpm:
   0.562 for 1500 fpm;
   0.249 for 1000 fpm;
   0.064 for 500 fpm

2. As a point of reference, historical sales data indicates that 75% of all combination fire/smoke dampers are 24”W x 24”H and under. The FR/SR dampers provide greatly improved performance in these critical sizes.

Here’s a typical annual operating cost savings calculation,.

Your project requires a 12”W x 12”H fire/smoke damper with an average duct velocity of 2000 fpm.

The tables above indicate that the air balance model FR pressure drop is equal to 0.164 in.wg. A typical comparable competitor model’s cataloged pressures drop is equal to 0.539 in.wg. By using the abi model FR fire/smoke damper, total pressure drop savings equals 0.375 in.wg.

The following formula is used to calculate Annual Operating Costs (AOC):

Where
$/kwh = Average Electrical Energy Cost = 0.15
cfm = Airflow Through Fitting in Cubic Feet per Minute = 2000
TFPD = Total Fitting Pressure Drop (Pressure Drop Savings in this Example) = 0.375
Nf = Fan Efficiency = 0.7
hrs = 8760

$$AOC = \frac{(\$ / kwh)(cfm)(TFDP)(0.746\ kw/hp)(hrs)}{(6350)(Nf)(Nm)} = \frac{(0.15)(cfm)(in.wg)(0.746)(8760)}{(6350)(0.7)(0.9)} = \$0.245/cfm/in.wg$$

*The formula for AOC is a generally accepted formula in the industry.
*The values inserted into the formula were selected based on typical design parameters.

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