



## Young Regulator Co.

7100 Krick Rd • Walton Hills, OH 44146

P: 440-232-9700 • F: 440-232-8266

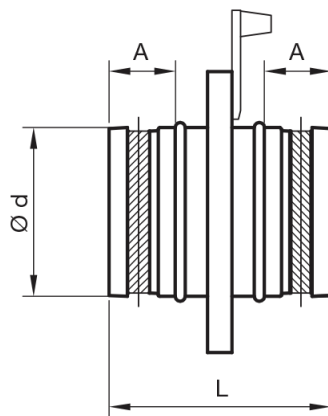
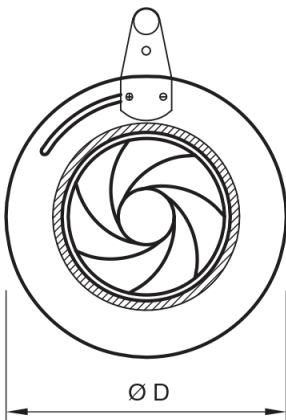
[www.youngregulator.com](http://www.youngregulator.com)

## IRIS Damper Volume Control and Measurement

### Application and Design

Iris Dampers are unique because they provide both a tool to control and measure airflow. The blade configuration always keeps the flow in the middle of the duct, reducing both turbulence and noise. Built in static pressure measuring ports on each side of the damper allow for direct measurement of pressure drop, which can be converted to airflow and/or velocity. To adjust airflow simply position the calibrated control lever.

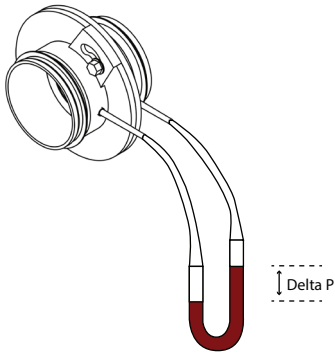
- Precise airflow measurement
- Accurate air balancing
- Single station measurement and control
- Quiet by design
- Galvanized steel construction
- Fully retractable blades for duct cleaning
- EPDM gasket for leakproof, airtight duct design



Nominal	Ød Pipe Diameter	ØD Overall Diameter	A	L	Weight lbs
4	3.89"	6.5"	1.2"	4.33"	1.1
5	4.88"	7.4"	1.2"	4.33"	1.1
6	5.86"	9"	1.2"	4.33"	1.5
8	7.83"	11.2"	1.2"	4.33"	3
10	9.80"	13.2"	1.6"	5.2"	4.6
12	11.8"	16.1"	1.8"	6.1"	5

Diameter	Quantity	Notes
<b>PROJECT</b>		<b>LOCATION</b>
<b>CONTRACTOR</b>		<b>DESIGN SPECIFIER</b>

## Airflow Measurement



The Iris damper features two measuring ports. One is on each side of the aperture. A manometer connected across the ports will measure differential pressure (pressure drop). If you know the orifice configuration and the pressure drop, airflow (CFM) can be calculated.

The formula is:

$$\text{Flow(L/sec)} = K \times \sqrt{\text{pressure drop (pascals)}}$$

K is a constant derived experimentally from the orifice configuration and cataloged in the K table below.

Follow these steps:

- Find the damper settings along the outside edge of the damper to the right of the measurement ports.  
**The Damper Setting is** \_\_\_\_\_
- Measure the pressure drop - connect a manometer to both measurement ports. **Pressure Drop =** \_\_\_\_\_  
If your instrument is calibrated in pascals then you may proceed with the calculations, if not then convert InWC into pascals. **1 pascal = .004 InWC.** \_\_\_\_\_ **InWC / .004 =** \_\_\_\_\_ **pa**
- Look up K in the table below. Enter the table with the damper diameter and go right to the damper setting.  
**K =** \_\_\_\_\_
- Substitute known values into the equation: **(K)** \_\_\_\_\_ **x (sqrt of Press. drop (pa))** \_\_\_\_\_ **= Flow (liters/sec)**
- Flow (l/s)** \_\_\_\_\_ **x 2.119 CFM/(l/s) =** \_\_\_\_\_ **CFM**

Alternatively: [www.youngregulator.com/Iris](http://www.youngregulator.com/Iris) as a link to a spreadsheet that automates these calculations.

		Orifice Setting	K Values														
mm	Inches		1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8
100	4		10.4	7.9	7.5	6.6	6.0	5.2	4.5	3.8	3.4	2.9	2.5	2.1	1.7	1.2	0.9
125	5		13.8	10.4	8.8	7.3	6.5	5.5	4.7	4.0	3.5	3.1	3.1	2.2	1.5	-	-
150	6		24.1	20.0	16.5	14.9	13.4	12.0	11.0	10.0	8.9	7.9	7.9	6.9	6.0	4.4	3.7
200	8		44.2	36.6	30.9	26.9	23.2	20.6	18.2	15.9	14.0	12.3	11.0	11.0	9.6	6.5	5.0
250	10		64.4	53.5	45.6	41.8	38.7	34.5	30.7	27.3	24.1	21.4	18.4	15.8	12.8	10.9	8.9

**Performance Curves**

