Air Amplifiers or “Air Movers” are a simple, inexpensive device with virtually no maintenance that can convey fumes, smoke, lightweight materials, and move a high volume of air for cooling, blowoff and drying applications. They use the “coanda effect” which entrains a large amount of surrounding air using only a small amount of compressed air. The effect is an amplification of up to 17 times the airflow or more (depending on the size) with reduced noise levels. Using only compressed air, the output flow and vacuum is easily controlled by adjusting or opening the air gap and/or inlet pressure. Either end of the amplifier may be ducted to address all kinds of applications from bringing in fresh air into an area to removing nasty fumes. Be wary of extremely high unrealistic or unsubstantiated amplification ratios claimed by some companies.

**TYPES OF AIR AMPLIFIERS**

**STANDARD “FIXED” AIR AMPLIFIER:** made of zinc die cast system is solid and perform as well or better than many supposedly patented designs when used in similar applications. The gap can be adjusted by adding shims. Five sizes are available.

**ADJUSTABLE AIR AMPLIFIER:** made of anodized aluminum or stainless steel for high temperature or food applications. The customer can set the gap and lock it in place using a lock ring. Three sizes are available.

**SPECIAL DESIGNS**

Special designs are available to meet unique customer specifications. Specially treated stainless steel units have been made for a specific medical application and threaded adjustable versions have been made for a machine builder. Different materials can be provided as well as special sizes to fit any specific application.

**AIR AMPLIFIER FEATURES:**

- No moving parts.
- Compact design, simple, lightweight and portable.
- Driven by air not electricity.
- Replaces fans used for blowoff, cleaning, drying, cooling and conveying.
- High airflow amplification.
- Instant on-off, no electricity or explosion hazard.

**AIR AMPLIFIER BENEFITS:**

- Longer life in difficult environments than competitive models.
- Lower compressed air consumption than ejectors and venturi.
- Maintenance free with output easily controlled, safe to use.

**AIR AMPLIFIER ADVANTAGES OVER FANS:**

- Compact design, simple, lightweight and portable.
- Driven by air, not electricity for safety.
- No moving parts hence safer and maintenance free.
- Each end can be ducted for light conveying applications.

**SELECTION**

Whether you choose a fixed or adjustable unit depends on the application. The fixed unit being made of heavy duty zinc die cast is more ideal in rough environments where corrosion is not an issue. The aluminum Adjustable Air Amplifiers are light-weight and flexible because of being adjustable. Stainless steel adjustable units are meant for corrosive environments and for food/pharmaceutical applications.
STANDARD AIR AMPLIFIER - HOW IT WORKS:

A small amount of compressed air enters the annular chamber at point (A). That is then throttled through a small ring nozzle at high velocity and into the inside of the Amplifier over a “coanda” profile. The compressed air stream clings to the “coanda” profile as it enters the inside walls of the amplifier and thereby creating a vacuum that induces the outside air at point (B). Converting the pressure into amplified airflow. The amplified airflow leaves at the exit at point (C). Airflow is further amplified downstream at point (D). By entraining additional air from the surroundings at the exit.

<table>
<thead>
<tr>
<th>OUTSIDE DIAMETER OF OUTLET</th>
<th>OUTSIDE DIAMETER OF OUTLET</th>
<th>*A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K (NPT)</th>
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</thead>
<tbody>
<tr>
<td>AM10 3/4”</td>
<td>3/4”</td>
<td>0.39</td>
<td>1.30</td>
<td>0.98</td>
<td>1.77</td>
<td>2.28</td>
<td>0.20</td>
<td>0.16</td>
<td>0.59</td>
<td>0.73</td>
<td>1.55</td>
<td>1/8”</td>
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<tr>
<td>19 mm</td>
<td>10</td>
<td>33</td>
<td>25</td>
<td>45</td>
<td>58</td>
<td>5</td>
<td>4</td>
<td>15</td>
<td>19</td>
<td>15</td>
<td>19</td>
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<td>1-1/4”</td>
<td>0.79</td>
<td>1.85</td>
<td>1.50</td>
<td>2.40</td>
<td>3.03</td>
<td>0.27</td>
<td>0.20</td>
<td>0.59</td>
<td>1.22</td>
<td>2.16</td>
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<tr>
<td>31 mm</td>
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<td>61</td>
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<td>7</td>
<td>5</td>
<td>15</td>
<td>31</td>
<td>31</td>
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<td>55</td>
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<tr>
<td>AM40 2”</td>
<td>2”</td>
<td>1.57</td>
<td>3.15</td>
<td>2.95</td>
<td>3.58</td>
<td>4.13</td>
<td>0.27</td>
<td>0.27</td>
<td>0.78</td>
<td>2.00</td>
<td>2.91</td>
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<td>91</td>
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<td>3.97</td>
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<td>101 mm</td>
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<td>175</td>
<td>215</td>
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<td>4</td>
<td>30</td>
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<tr>
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<td>7.79</td>
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<td>20</td>
<td>200</td>
<td>425</td>
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</tr>
</tbody>
</table>

* Inside Diameter
AMPLIFICATION RATIO = 6.5:1 (SEE ADDENDUM-I)

Pressure vs. Air Consumption for Model AM 10 Standard Air Amplifier

Pressure vs. Air Flow At Outlet for Model AM 10 Standard Air Amplifier
Pressure vs. Velocity At Outlet for Model AM 10 Standard Air Amplifier

Pressure vs. Velocity 6” From Outlet for Model AM 10 Standard Air Amplifier

AM10

Nex Flow™ Air Products Corp. 10520 Yonge Street, Unit 35B-220 Richmond Hill, ON, Canada, L4C 3C7
Tel: +1-416-410-1313 Fax: +1-416-410-180 or +1-716-626-3001
AMPLIFICATION RATIO = 14:1 (SEE ADDENDUM-I)

Pressure vs. Air Consumption for Model AM 20 Standard Air Amplifier

Pressure at Inlet of Air Amplifier

Air Consumption SCFM (SLPM)

Pressure vs. Air Flow At Outlet for Model AM 20 Standard Air Amplifier

Air Flow At Outlet SCFM (SLPM)
AM40

AMPLIFICATION RATIO = 15:1 (SEE ADDENDUM-I)

Pressure vs. Air Consumption for Model AM 40 Standard Air Amplifier

Pressure at Inlet of Air Amplifier
PSIG (BAR)

Air Consumption SCFM (SLPM)

Pressure vs. Air Flow At Outlet for Model AM 40 Standard Air Amplifier

Air Flow At Outlet SCFM (SLPM)
Pressure vs. Velocity At Outlet for Model AM 40 Standard Air Amplifier

Pressure vs. Velocity 12” From Outlet for Model AM 40 Standard Air Amplifier

Distance from Outlet
- 36” (915mm)
- 24” (610mm)
- 12” (305mm)

Diameter of Flow Pattern
- Ø6” (Ø152mm)
- Ø8” (Ø205mm)
- Ø10” (Ø254mm)
AM75

AMPLIFICATION RATIO = 15:1 (SEE ADDENDUM - I)

Pressure vs. Air Consumption for Model AM 75 Standard Air Amplifier

Pressure at Inlet of Air Amplifier
PSIG (BAR)

Air Consumption SCFM (SLPM)

Pressure vs. Air Flow At Outlet for Model AM 75 Standard Air Amplifier

Pressure at Inlet of Air Amplifier
PSIG (BAR)

Air Flow At Outlet SCFM (SLPM)
Pressure vs. Velocity At Outlet for Model AM 75 Standard Air Amplifier

Pressure at Inlet of Air Amplifier
PSIG (BAR)
0 20(1.4) 40(2.8) 60(4.2) 80(5.6) 100(7.0) 120(8.4) 140(9.8)

Velocity At Outlet In ft/min (m/sec)
0 2000(10) 4000(20) 6000(30) 8000(40)

Pressure vs. Velocity 12” From Outlet for Model AM 75 Standard Air Amplifier

Pressure at Inlet of Air Amplifier
PSIG (BAR)
0 20(1.4) 40(2.8) 60(4.2) 80(5.6) 100(7.0) 120(8.4) 140(9.8)

Velocity 12” From Outlet - Includes Downstream Entrainment In ft/min (m/sec)
0 1000(5.0) 2000(10) 3000(15) 4000(20)
AMPLIFICATION RATIO = 16:1 (SEE ADDENDUM - I)

Pressure vs. Air Consumption for Model AM 125 Standard Air Amplifier

Pressure vs. Air Flow At Outlet for Model AM 125 Standard Air Amplifier
Using Model AM20 Air Amplifiers to cool castings, cooling time was reduced by 20%

Two Model AM40 Air Amplifiers vent fumes from a tank quickly & efficiently