Smoke Extraction Fans

Introduction
In today’s combat vehicles, it is ever more necessary to ensure that military personnel are not exposed to unnecessary risk to health. Gun smoke is, at the least, a discomfort to personnel in confined spaces and may contain toxic elements that can represent a health hazard. Extraction of gun smoke is quickly achieved using customized fans with high air flow characteristics. Airtechnology Group has extensive experience in the design, development and manufacture of compact fans suitable for this purpose and two such fans are depicted in this publication. These fans have been extensively used in the role and are proven, efficient, reliable and revised as necessary over time to meet the latest requirements.

68mm Diameter Smoke Extraction Fans
An inlet guide vane axial fan ideally suited to smoke extraction on turreted armoured vehicles, where high airflow resistance is encountered. The 68mm impeller diameter fan is cast in aluminium alloy, resulting in a light but robust construction. The motor is a 28V brushless DC design and is available in several speeds depending on flow requirements. The fan can be mounted in any attitude and is designed for panel mounting by a front or back flange as shown.

Technical Data
- **Electrical Supply**: 28V DC nominal
- **Ambient Temperature Range**: -40 to +80° C
- **Mounting Attitude**: Unrestricted
- **Endurance**: Greater than 15,000 hrs @ 25° C @ 12,000 rev/min
- **Vibration**: Typically DEF STAN 00-35/MIL-STD-810
- **Acceleration Grade**: Typically DEF STAN 00-35/ MIL-STD-810
- **EMC**: Typically DEF STAN 59-41 or 411/MIL-STD-461
- **Sand and Dust**: Typically DEF STAN 00-35/ MIL-STD-810
- **Explosion proof**: Totally enclosed motor
- **Waterproof**: BS 3G 100 pt2 section 3.11 category B
- **Salt Mist**: Typically DEF STAN 00-35/MIL-STD-810
- **Fireproof**: Construction uses non-flammable materials
- **Mould Growth**: Materials used are not nutrients to fungi.

### Type No. Volts DC RPM Nom. Watts Max. Line Current Max. Fixing Weight Max.

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Volts DC</th>
<th>RPM Nom.</th>
<th>Watts Max.</th>
<th>Line Current Max.</th>
<th>Fixing</th>
<th>Weight Max.</th>
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<tbody>
<tr>
<td>68 - AA7 - 111</td>
<td>28</td>
<td>12000</td>
<td>48</td>
<td>1.70 Amps</td>
<td>Flange</td>
<td>0.9kg</td>
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<tr>
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<td>28</td>
<td>14000</td>
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<td>2.40 Amps</td>
<td>Flange</td>
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<td>3.25 Amps</td>
<td>Flange</td>
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<tr>
<td>68 - AA7 - 122/1</td>
<td>28</td>
<td>24000</td>
<td>246</td>
<td>8.80 Amps</td>
<td>Flange</td>
<td>0.9kg</td>
</tr>
</tbody>
</table>
**90mm Diameter Smoke Extraction Fans**

A 90mm diameter high flow, medium pressure, axial flow fan suited to smoke extraction on turreted armoured vehicles and in vehicle crew compartments. The housing and impeller are cast in aluminium alloy constituting a light but robust construction, an essential characteristic of a defense related product.

This fan is driven by a 28V brushless DC totally enclosed motor incorporating sealed for life bearings and is available in several speeds depending. The fan can be mounted in any attitude with options of front or rear flange mount or direct duct mounting.

**Technical Data**

- **Electrical Supply:** 28V DC nominal
- **Ambient Temperature Range:** -40 to +80°C
- **Mounting Attitude:** Unrestricted
- **Endurance:** Greater than 15,000 hrs @ 25°C @ 12,000 rev/min
- **Vibration:** Typically DEF STAN 00-35/MIL-STD-810
- **Acceleration Grade:** Typically DEF STAN 00-35/MIL-STD-810
- **EMC:** Typically DEF STAN 59-41 or 411/MIL-STD-461
- **Sand and Dust:** Typically DEF STAN 00-35/MIL-STD-810
- **Explosion proof:** Totally enclosed motor
- **Waterproof:** BS 3G 100 pt2 section 3.11 category B
- **Salt Mist:** Typically DEF STAN 00-35/MIL-STD-810
- **Fireproof:** Construction uses non-flammable materials
- **Mould Growth:** Materials used are not nutrients to fungi.

**Type No.** | **Volts DC** | **RPM Nom.** | **Watts Max.** | **Line Current Max.** | **Fixing** | **Weight Max.**
--- | --- | --- | --- | --- | --- | ---
90 - AA2 - 111 | 28 | 12000 | 48 | 1.70 Amps | Flange or duct | 0.8kg
90 - AA2 - 131 | 28 | 14000 | 67 | 2.40 Amps | Flange or duct | 0.8kg
90 - AA2 - 141 | 28 | 16000 | 91 | 3.20 Amps | Flange or duct | 0.8kg
90 - AA2 - 122/1 | 28 | 24000 | 246 | 8.80 Amps | Flange or duct | 0.8kg

* AA3 type reverse flow
Smoke Extraction Fans

AMETEK Airtechnology Group has been actively involved in defense applications for over 70 years and, from the early days of manufacturing wooden aircraft propellers through to today’s digitally controlled components and systems, a key focus has been on the design and development of specialised air moving equipment.

Offering a variety of alternative fan aerodynamic configurations, each with a choice of fan drive arrangements and installation options to best suit the application, Airtechnology Group fans are specifically designed to meet the performance, installation and environmental requirements of the customer and platform needs and exploit the company’s accumulated experience derived from decades of involvement in the field of aerodynamics and air movement. This includes such particular applications as fans for military vehicle smoke extraction – where the composition of the smoke and related particulates demands special consideration during the fan and motor design process.

In addition to the supply of stand-alone fans, Airtechnology Group can also provide ‘value add’ solutions, such as the incorporation of the customer next level of assembly requirements for them, which might include support structures, flow control valves, sensors or switches, potentially reducing the customer supply chain and easing the logistics burden.

AMETEK Aerospace & Defense

AMETEK Aerospace & Defense has served the global aerospace industry for more than half a century. During that time, it has earned a reputation for innovation and reliability. AMETEK serves all segments of the aerospace industry from commercial jetliners, business aircraft and helicopters to military aircraft and ground vehicles to spacecraft and rockets. Its customers include the world’s leading airframe and aircraft engine manufacturers.

AMETEK Thermal Management Systems

AMETEK Thermal Management Systems is a business unit of AMETEK Aerospace & Defense. It offers advanced blowers for electronics cooling, motion technology products, heat exchangers, environmental integrity systems and thermal management subsystems, including advanced air handling systems used on commercial and military aircraft, military vehicles and naval vessels. Recognized brands: Rotron, Hughes-Treitler, AMETEK Airtechnology Group, Aircontrol Technologies, Muirhead Aerospace and Traxsys.

AMETEK, Inc.

AMETEK is a global leader in electronic instruments and electromechanical devices with colleagues at numerous manufacturing, sales and service locations in the United States and in many other countries around the world.