

1 **TYPE EXAMINATION CERTIFICATE**

2 **Equipment Intended for use in Potentially Explosive Atmospheres  
Directive 94/9/EC**

3 Type Examination Certificate Number: **Baseefa14ATEX0267X**

4 Equipment: **ATEX Vortex A/C Enclosure Cooler**

5 Manufacturer: **ITW Air Management**

6 Address: **10125 Carver Road, Cincinnati, Ohio, 45242, USA**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of non-electrical equipment of Category 3 intended for use in potentially explosive atmospheres given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential Report No. **14(C)0067**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 13463-1:2009**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following :

 **II 3 GD T4**

Baseefa Customer Reference No. **7231**

Project File No. **14/0067**

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**SGS Baseefa Limited**

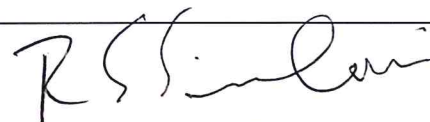
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**R S SINCLAIR**

**GENERAL MANAGER**

On behalf of SGS Baseefa Limited

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## Schedule

14

Certificate Number Baseefa14ATEX0267X

### 15 Description of Equipment

“ATEX Vortex A/C” enclosure coolers are compressed air powered devices that are intended to cool electronic/electrical enclosures that are located in Zone 2 and Zone 22 areas. The products will be classified as Group II Category 3 equipment.

There are no electric/electronic components in these products-they are purely mechanical devices-they are entirely non-electrical. The cooling that they produce is driven by an internal vortex tube which is located inside of an ATEX certified non-metallic carbon loaded enclosure, which serves as the external housing for the product. (A vortex tube is a compressed air powered device that has no moving parts. From a high pressure (6.2 to 6.9 bar) clean and dry compressed air source, the vortex tube creates a cold air stream and a hot air stream, both of these air streams are at low pressure-less than .2 bar.) The vortex tube’s cold air stream is directed inside the (customer’s) protected enclosure while the hot air stream is exhausted outside of the ATEX Vortex A/C to the ambient environment. The hot exhaust air is vented out of the ATEX Vortex A/C through an opening in the non-metallic housing. The opening in the non-metallic housing is protected from jets of water and dust by a baffled shroud on the back of the product. The ATEX Vortex A/C is mounted directly on the top or side of the enclosure to be cooled via a 49mm diameter hole (two holes are required for the 7370/7470/7370BSP/7470BSP models) in the enclosure. A neoprene gasket between the ATEX Vortex A/C and the enclosure maintains an air and liquid tight seal at this interface. The cold airstream is directed inside the enclosure through a one-way check valve and then through a “cold air ducting kit” which can be used to distribute the cold air evenly throughout the enclosure, if desired. As the cold air stream cools the air inside the enclosure, it loses its refrigeration ability and warms up. This warmer air must be vented outside of the protected enclosure so as not to over-pressurize the enclosure.

When the ATEX Vortex A/C is not providing cooling (see below), the air path through the cold outlet of the unit is closed off and sealed via the one-way check valve on the unit.

The ATEX Vortex A/C utilizes a built-in mechanical thermostat (thermal actuator) that monitors and controls the temperature inside the customer’s enclosure within a set temperature range. The thermostat senses the temperature inside the enclosure and then opens or closes an internal valve that controls the compressed air flow to the internal vortex tube. When high temperatures (32 to 38°C) inside the customer’s enclosure are sensed, the thermal actuator opens the internal valve which allows compressed air to flow into the vortex tube and start cooling the enclosure. Once the temperature inside the enclosure drops to approximately 25 to 28°C, the thermal actuator closes the valve and the compressed air flow to the vortex tube is stopped, therefore stopping the flow of cold air into the protected enclosure. At this point, the purge system maintains a safe level of enclosure pressure.

The main ignition source from the ATEX Vortex A/C is from the hot air exhaust temperatures that it can develop. The temperature of the hot air exhaust is dependent on the temperature and the pressure of the compressed air that is supplied to the product. When the compressed air pressure is limited to a maximum of 6.9 bar (100 psig) and a maximum temperature of 49°C (120°F), then the hot exhaust air temperature and corresponding surface temperatures on or inside the product will not exceed 135°C (275°F). This corresponds to a temperature classification of T4. It is imperative that the compressed air supply conditions be stated and adhered to.

The ATEX Vortex A/C is available in four different cooling capacities: 900, 1500, 2500 and 5000 BTUH (264, 440, 732 and 1465 watts). Sixteen different models are offered:

|                  | Cooling Capacity | Compressed air inlet        | Compressed Air            | Supplied with a               |
|------------------|------------------|-----------------------------|---------------------------|-------------------------------|
| <u>Model No.</u> | <u>(BTUH)</u>    | <u>thread size and type</u> | <u>Consumption (scfm)</u> | <u>compressed air filter?</u> |
| 7315             | 900              | 3/8” NPT                    | 15                        | No                            |
| 7415             | 900              | 3/8” NPT                    | 15                        | Yes                           |
| 7325             | 1500             | 3/8” NPT                    | 25                        | No                            |
| 7425             | 1500             | 3/8” NPT                    | 25                        | Yes                           |
| 7335             | 2500             | 3/8” NPT                    | 35                        | No                            |

| <u>Model No.</u> | <u>Cooling Capacity<br/>(BTUH)</u> | <u>Compressed air inlet<br/>thread size and type</u> | <u>Compressed Air<br/>Consumption (scfm)</u> | <u>Supplied with a<br/>compressed air filter?</u> |
|------------------|------------------------------------|------------------------------------------------------|----------------------------------------------|---------------------------------------------------|
| 7435             | 2500                               | 3/8" NPT                                             | 35                                           | Yes                                               |
| 7370             | 5000                               | 3/8" NPT                                             | 70                                           | No                                                |
| 7470             | 5000                               | 3/8" NPT                                             | 70                                           | Yes                                               |
| 7315BSP          | 900                                | 3/8" BSPP                                            | 15                                           | No                                                |
| 7415BSP          | 900                                | 3/8" BSPP                                            | 15                                           | Yes                                               |
| 7325BSP          | 1500                               | 3/8" BSPP                                            | 25                                           | No                                                |
| 7425BSP          | 1500                               | 3/8" BSPP                                            | 25                                           | Yes                                               |
| 7335BSP          | 2500                               | 3/8" BSPP                                            | 35                                           | No                                                |
| 7435BSP          | 2500                               | 3/8" BSPP                                            | 35                                           | Yes                                               |
| 7370BSP          | 5000                               | 3/8" BSPP                                            | 70                                           | No                                                |
| 7470BSP          | 5000                               | 3/8" BSPP                                            | 70                                           | Yes                                               |

#### 16 Report Number

Baseefa Certification Report 14(C)0067

#### 17 Specific Conditions of Use

1. When the equipment is to be used on an enclosure intended to be protected by a concept according to EN 60079-2 the pressurised air supply to the equipment must be of the same quality as that used to purge and pressurise the enclosure to which it is installed on.
2. When the equipment is to be used on an enclosure intended to be protected by a concept according to EN 60079-2 the equipment shall be fitted to, and assessed/tested, as part of the enclosure.
3. The equipment shall be suitably earthed (grounded) prior to operation. Earth continuity shall be maintained between the equipment and the enclosure to which it is installed on.
4. The equipment shall be mounted to the top or side face of the enclosure to which it is installed.
5. Inlet pressure shall not exceed 6.9 Bar (100PSIG).
6. Inlet air temperature shall not exceed 49°C (120°F).
7. WARNING: Potential Electrostatic charging hazard ~ cleaned only with a damp cloth.
8. When installed, consideration shall be given to the guidance given in PD IEC/TS 60079-32-1 'Explosive atmospheres - Electrostatic hazards, guidance'.

#### 18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

**19 Drawings and Documents**

| Number   | Sheet | Issue | Date      | Description                         |
|----------|-------|-------|-----------|-------------------------------------|
| 1408GA-S | 1-2   | A     | 7/2014    | Atex Vortex A/C 900/2500BTUH models |
| 1408GA-S | 2-2   | A     | 7/2014    | Atex Vortex A/C 900/2500BTUH models |
| 1408GA-L | 1-3   | B     | 3/24/2014 | Atex Vortex A/C 5000 BTUH models    |
| 1408GA-L | 2-3   | B     | 3/24/2014 | Atex Vortex A/C 5000 BTUH models    |
| 1408GA-L | 3-3   | B     | 3/24/2014 | Atex Vortex A/C 5000 BTUH models    |