



SPARK RESISTANT PRODUCT GUIDE

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At COOK, we move air. We're experts at it. Since 1941, we've been manufacturing quality air-moving products made in the USA. Need a fan that moves 30 CFM, we have it. How about 300,000 CFM? We have you covered.

Our engineers take great care to develop robust, reliable products we would be proud to own ourselves. Each product is put through a rigorous regimen of tests verifying aerodynamic performance, energy consumption, and long-term reliability, no corners cut.

We incorporate the best manufacturing techniques and machinery to ensure that the product is made in strict accord to our engineered design and ISO 9001 certified quality standards. On top of all this, we put safety first.

The information in this Spark Resistance Product Guide is provided to guide you through the process of identifying the proper fan model and accessories that will provide you with the appropriate level of spark resistance. It is our interpretation of AMCA Spark Resistant Construction Guidelines found in AMCA Standard 99.

Additional features may be specified if they do not conflict with either AMCA Standard 99 or our requirements.

AMCA Type A Construction (Most Stringent)

All parts of the fan in contact with the air or gas being handled shall be made of a nonferrous material.

AMCA Type B Construction

The fan shall have a nonferrous impeller and nonferrous ring about the opening through which the shaft passes.

AMCA Type C Construction (Least Stringent)

The fan shall be so constructed that a shift of the impeller or shaft will not permit two ferrous parts of the fan to rub or strike.

AMCA Exceptions:

1. No bearings, drive components, motors or other electrical devices shall be placed in the air or gas stream unless they are constructed or enclosed in such a manner that failure of that component cannot ignite the surrounding gas stream.
2. The user/installer shall electrically ground all fan parts.
3. For this standard, nonferrous material shall be any material with less than 5% iron or any other material with demonstrated ability to be spark resistant.
4. The use of aluminum or aluminum alloys in the presence of steel that has been allowed to rust requires special consideration. Research by the U.S. Bureau of Mines and others has shown that aluminum impellers rubbing on rusty steel may cause high intensity sparking.
5. All structural components within the airstream, including non-metallic materials, must be suitable for conducting static charge safely to ground, thus preventing buildup of electrical potential. Dampers with non-metallic bearings must include means by manufacturer of transferring electrical charge from the blades to suitable ground.

The use of AMCA Spark Resistance in no way implies a guarantee of safety for any level of spark resistance. Spark resistant construction also does not protect against ignition of explosive gases caused by catastrophic failure or from any airstream material that may be present in a system.

Adapted from AMCA Standard 99



Definitions

Airstream – The path of airflow within the fan or blower itself.

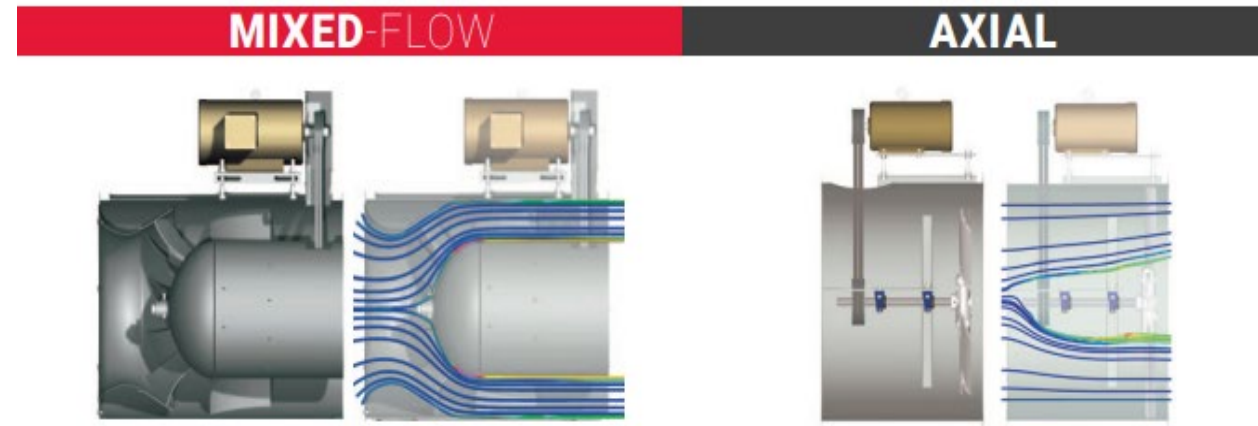
Fans like the QMX mixed flow fan have an inner housing that can be sealed which removes the bearings from the airstream.

Axial and other types of fans do not have an inner housing and the bearing are always exposed to the airstream. In these cases, the fans are not available with any of level spark resistant construction due to AMCA Exception Note 1. See Page 3.

Actuator – Also known as ‘motorpack’. Type of motor used with shutters and dampers.

AMCA – Air Movement and Control Association International. The not-for-profit association that authors standards for the air movement and control industry.

Bearings – Part of the fan in which a shaft is mount for rotation. It is comprised of either rotating elements within its housing or oil impregnated non-rotation material. Both create friction which is not desirable with regard to spark resistant construction.



Definitions

Blower – Can also be referred to as AMD or Air Movement Device. Commonly associated with fans that have a scroll housing and centrifugal wheel.

Drive components - Collective term used to describe, pulleys, sheaves and belts installed on fans and blowers.

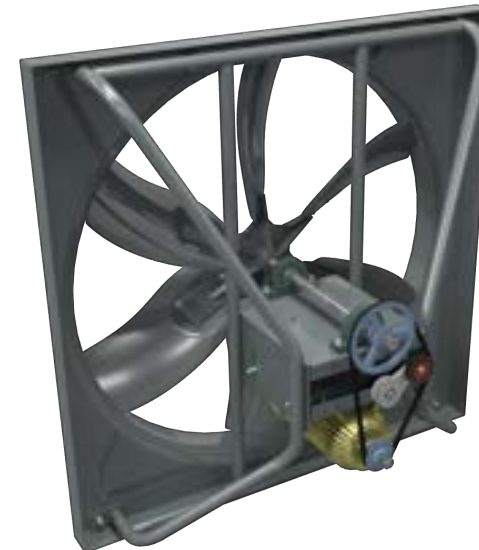
Dust – Any flammable particles in the airstream such as coal dust, flour or grain. NEC denotes these as atmosphere classification as Class II, Groups E, F & G.

Electrical Devices – Any device with electrical current passing through it or voltage applied to it. Examples of these are switches and low voltage sensors.

Electrical Ground – A low-resistance path to the earth for electrical current. When properly done, no electrical shock or arcing shall occur.

Fan – Also known as Air Movement Device. Any machine with rotating blades or impeller that creates air movement.

Ferrous – Materials containing iron or consisting of iron, such as mild steel, carbon steel and stainless steel. Aluminum is considered a nonferrous material.



Definitions

Gas, fumes or vapors – For the purposes of this document these terms are interchangeable. They refer to elements, chemicals, and compounds that at elevated levels have the potential to explode, become easily ignitable, or burn rapidly. NEC denotes these atmosphere classification as Class I, Groups A, B, C, & D.

The terms gas, fumes or vapors in this document are not intended to describe breathable air.

NEMA – National Electrical Manufacturers Association is an international trade association that publishes standard for electrical motors, products, and other electrical devices.

NFPA – National Fire Protection Association is an international organization that publishes codes and standards that are intended to minimize the possibility and effects of fire. *NFPA Standard 70 is better known as NEC or the National Electrical Code.*

UL - Underwriter's Laboratory is the most well-known Nationally Recognized Testing Laboratory (NRTL). Known for testing of motors and other devices, and listing them for use in hazardous locations as defined by NFPA.



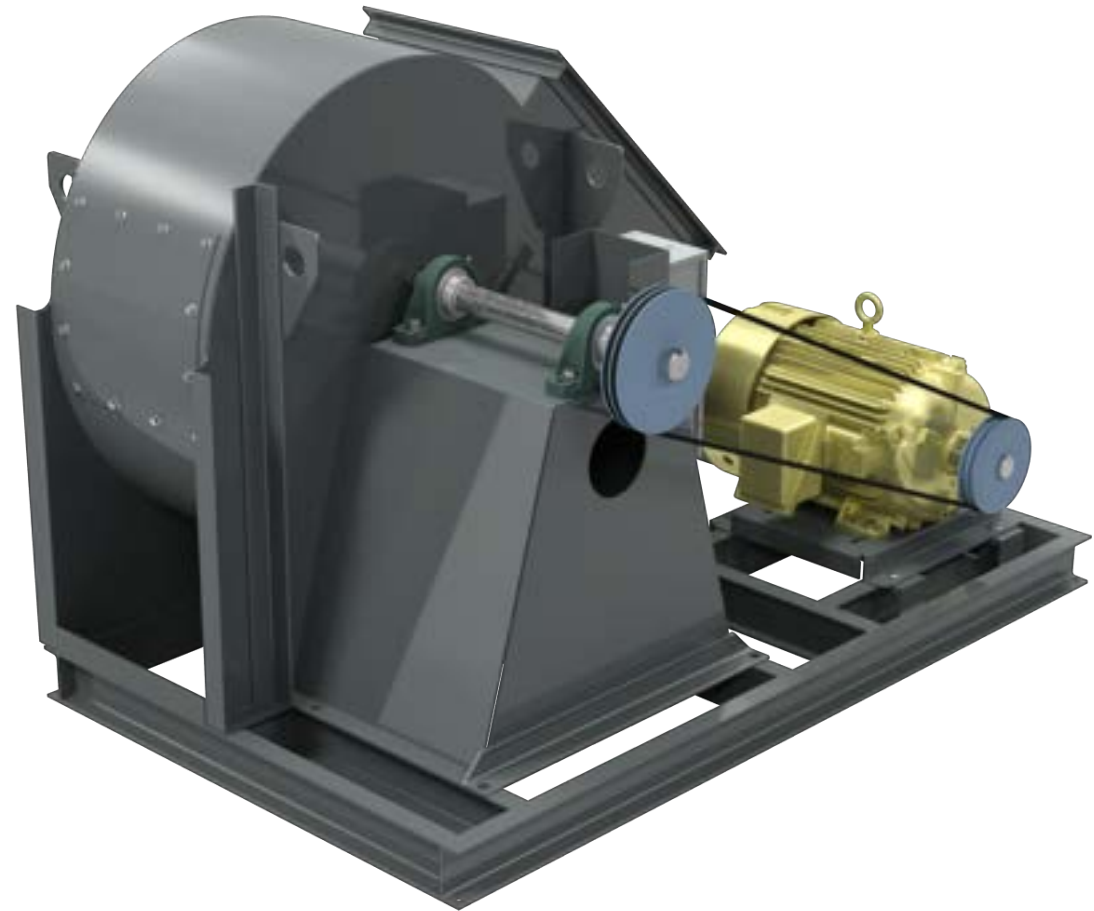
Background

The need for ventilation has evolved from simply moving fresh air from one space to another. Fans are used in applications where they are called upon to convey potentially explosive or flammable particles, fumes or vapors. In these applications, it is of paramount concern that all the system components are designed to ensure the safety of the system.

Spark resistant construction guideline levels were initially development for centrifugal blowers. Blowers with the bearings and motor separate and isolated from the airstream.

As system designs have evolved, this required the inclusion of different designs and types of fans. As a result, spark resistance construction guidelines are applied to more than the original centrifugal blower. However, not all fans fully conform to these guidelines.

A common misconception is that spark resistance construction is a certification. Currently, there is neither testing protocol nor a certification program for spark resistance construction.



Common Errors

Specifying an AMCA spark-proof fan or explosion-proof fan

- **There is not such thing as 'spark-proof' or 'explosion proof' fans!**
- **AMCA has spark resistant construction guidelines. Fan companies apply those guidelines to the construction of their products.**
- **In addition, the drawings, specification or fan schedule MUST define a level of AMCA spark resistant construction.**

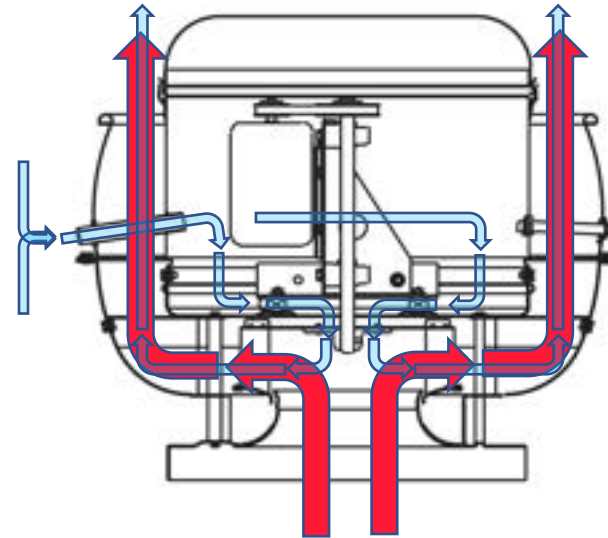
Specifying a Class, Group, and Division of operating environment as a substitute for fan construction

- **Class, Group, and Division is for specifying electrical components, not fans!**
- **This classification can mean the atmosphere of the location of the fan, but the airstream can be different and possible more severe or dangerous.**
- **A level of AMCA spark resistant construction must be specified.**

Common Errors

An explosion-proof motor will make a fan spark resistance

- **Spark resistant construction is about the airstream!**
- **Based on the construction of the fan, the motor can be exposed to a completely different environment than the airstream.**
- **A level of AMCA spark resistant construction must be specified.**



Common Errors

Specifying UL Listed product for a hazardous location

- **UL has several listings for products but...**
- **UL is primarily concerned with electrical shock and mechanical hazard.**
- **The designer is still responsible for determining if the product is suitable or if additional construction specification is required.**



Can I get a fan suitable for hydrogen exhaust?

- **Hydrogen is delineated as Class I, Group B, atmosphere (See page 14).**
- **COOK will not provide a fan for hydrogen atmospheres.**

Motors

AMCA Exception:

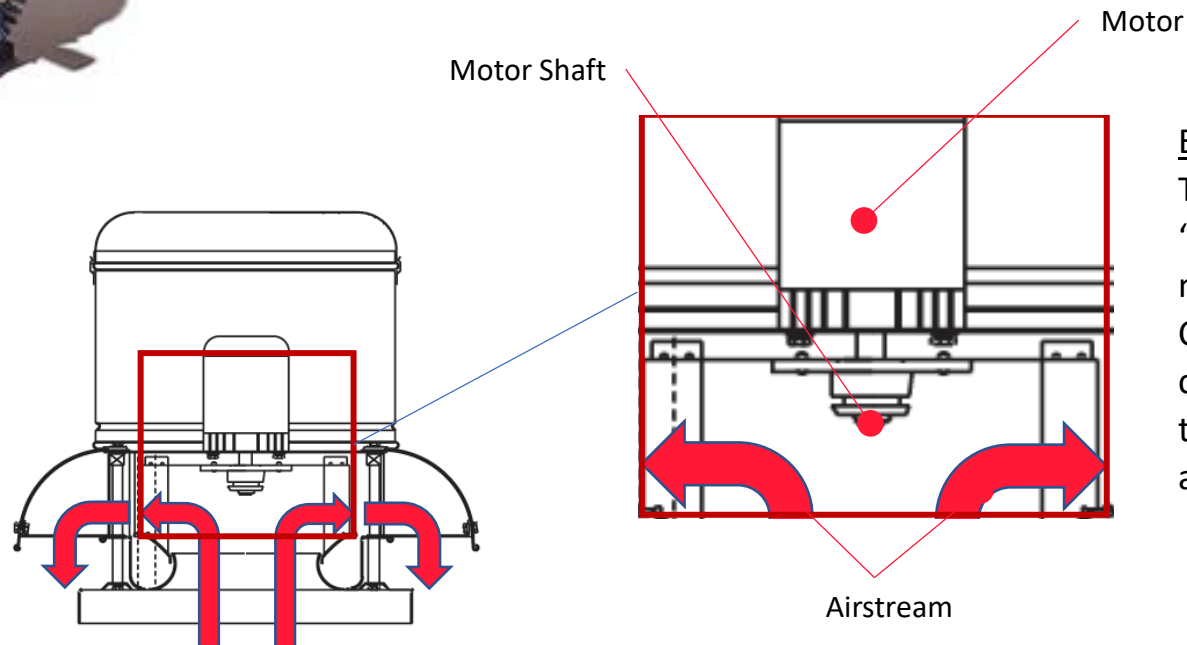
1. No bearings, drive components, motors or other electrical devices shall be placed in the air or gas stream unless they are constructed or enclosed in such a manner that failure of that component cannot ignite the surrounding gas stream.

This means...Motors located in the airstream must be Listed for a hazardous location!

The motor industry term for this type of motor is Explosion-proof!



Courtesy of Teco-Westinghouse®



Explanation:

The motor in this location is considered as having 'zero clearance' from the airstream. In fact, the motor shaft is in the airstream. As a result, COOK takes the approach that due to the 'zero clearance' and the motor shaft in the airstream, then the motor itself must be Listed for a use in a hazardous location.

Motors – Hazardous Location

National Fire Protection Association defines hazardous location by their *Class, Groups and Divisions*

Classification

There are three major classification for hazardous location motor based on the unique atmospheric conditions.

Class I for gases, vapors and/or flammable liquids

Class II for combustile dust

Class III for ignitable fibers and/or filings

Groups

Within Classification there are Groups based on the ignitable volatility or explosiveness of the material. The highest combustile is Group A with subsequent alphabetical Group being less volatile.

Group A* Acetylene

Group B* Hydrogen, butadiene ethylene oxide and propylene oxide and equivalent

Group C Cyclopropane, ethyl ether, ethylene and equivalent

Group D Acetone, alcohol, ammonia, benzene, benzol, gasoline, hexane, lacquer solvent, naphtha, natural gas, propane and equivalent

Group E Metal dusts including aluminum, magnesium and their alloys, and equivalent

Group F Carbon black, charcoal, coal or coke dusts

Group G Flour, starch, grain, combustile plastics and chemical dusts

*Motors of this Group are not commercially available and require special construction and field installation.

Divisions

Divisions are determined by the atmosphere that is present under normal operating conditions.

Division 1 relates to an atmosphere that normally contains the material listed in the Groups

Division 2 involves a normal atmosphere that is non-combustible, but can change due to an accident or other event

Motors

When a hazardous location motor is called for, COOK will provide a motor that is UL Listed, Explosion-proof motor with a minimum classification of Class 1, Group D; unless otherwise specified.



Courtesy of ABB- Baldor®

Energy Codes and Spark Resistant Construction

Status of State Energy Code Adoption - Commercial



Many states have or are in the process of adopting energy codes that require higher efficiency motors or EC motors.

In most cases, EC motor are not suitable for industrial environments that require spark resistant construction. This is due to electronics and, in some cases the open motor design of the EC motor.



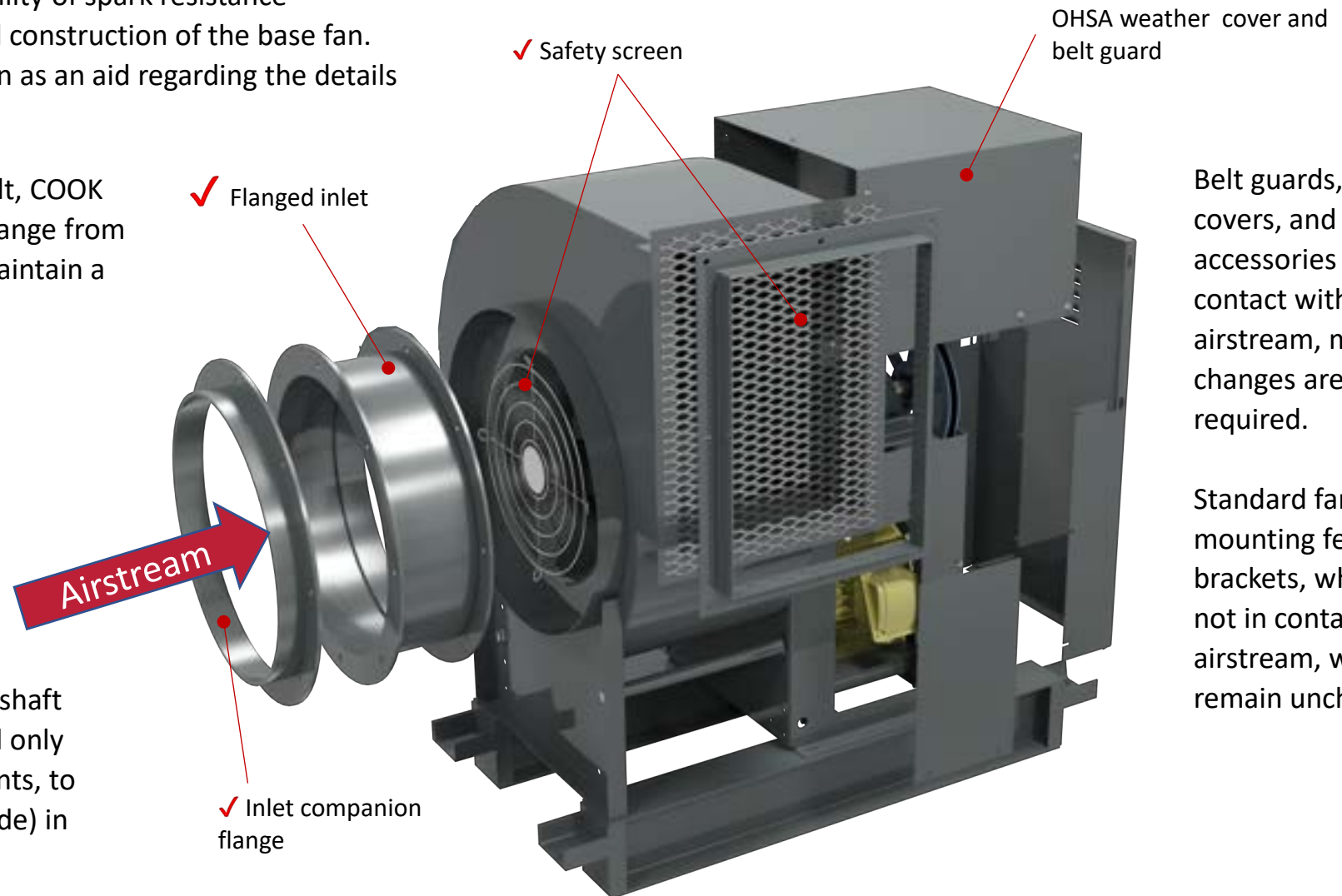
Construction

The following pages show the availability of spark resistance construction based on the design and construction of the base fan. When possible, explanations are given as an aid regarding the details of the spark level status.

Accessory are not included. As a result, COOK may require an accessory material change from ferrous/steel to aluminum in order maintain a given spark resistance level.

Example: Flange inlet, companion flanges and safety screen are all in contact with the airstream. Accessories that are in contact with the airstream should be treated with equal consideration regarding spark resistant construction.

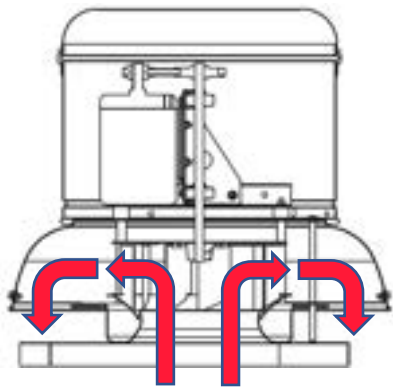
For structural reasons, stainless steel shaft and stainless-steel hardware are used only when necessary, and in limited amounts, to prevent the presence of rust (iron oxide) in the airstream.



Belt guards, weather covers, and other accessories not in contact with the airstream, material changes are not required.

Standard fan parts like mounting feet or brackets, which are not in contact with the airstream, will also remain unchanged.

ACEB



ACEB Airstream

AMCA – “A” Construction

- Aluminum support plate*
(Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit
(Standard galvanized steel not allowed)
- Stainless steel hardware
- Aluminum birdscreen
(Standard galvanized birdscreen screen not allowed)

AMCA – “B” Construction

- Aluminum support plate*

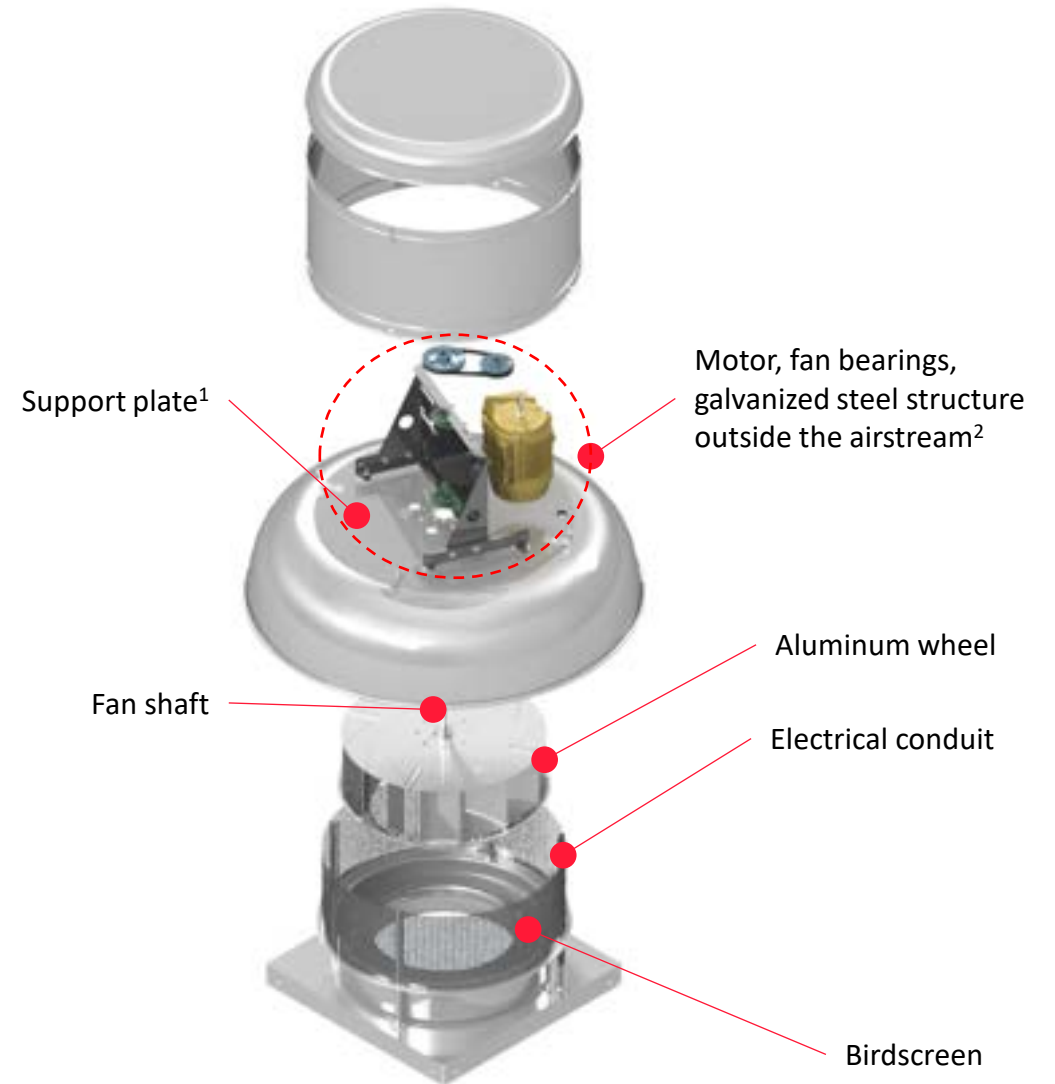
AMCA – “C” Construction

- Aluminum support plate*

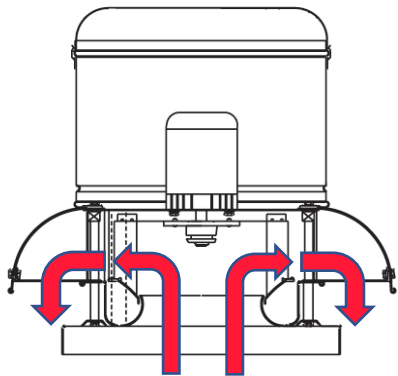
*Aluminum is the standard material on size 60-100

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum this meets the requirement of a “nonferrous ring” aka “rub ring”.
2. The motor, bearings and galvanized steel structure is outside the airstream.



ACED



ACED Airstream

AMCA – “A” Construction

- Explosion-proof motor
- Aluminum support plate*
(Standard galvanized steel not allowed)
- Aluminum electrical conduit
(Standard galvanized steel not allowed)
- Stainless steel hardware
- Aluminum birdscreen
(Standard galvanized birdscreen screen not allowed)

AMCA – “B” Construction

- Explosion-Proof motor
- Aluminum support plate*

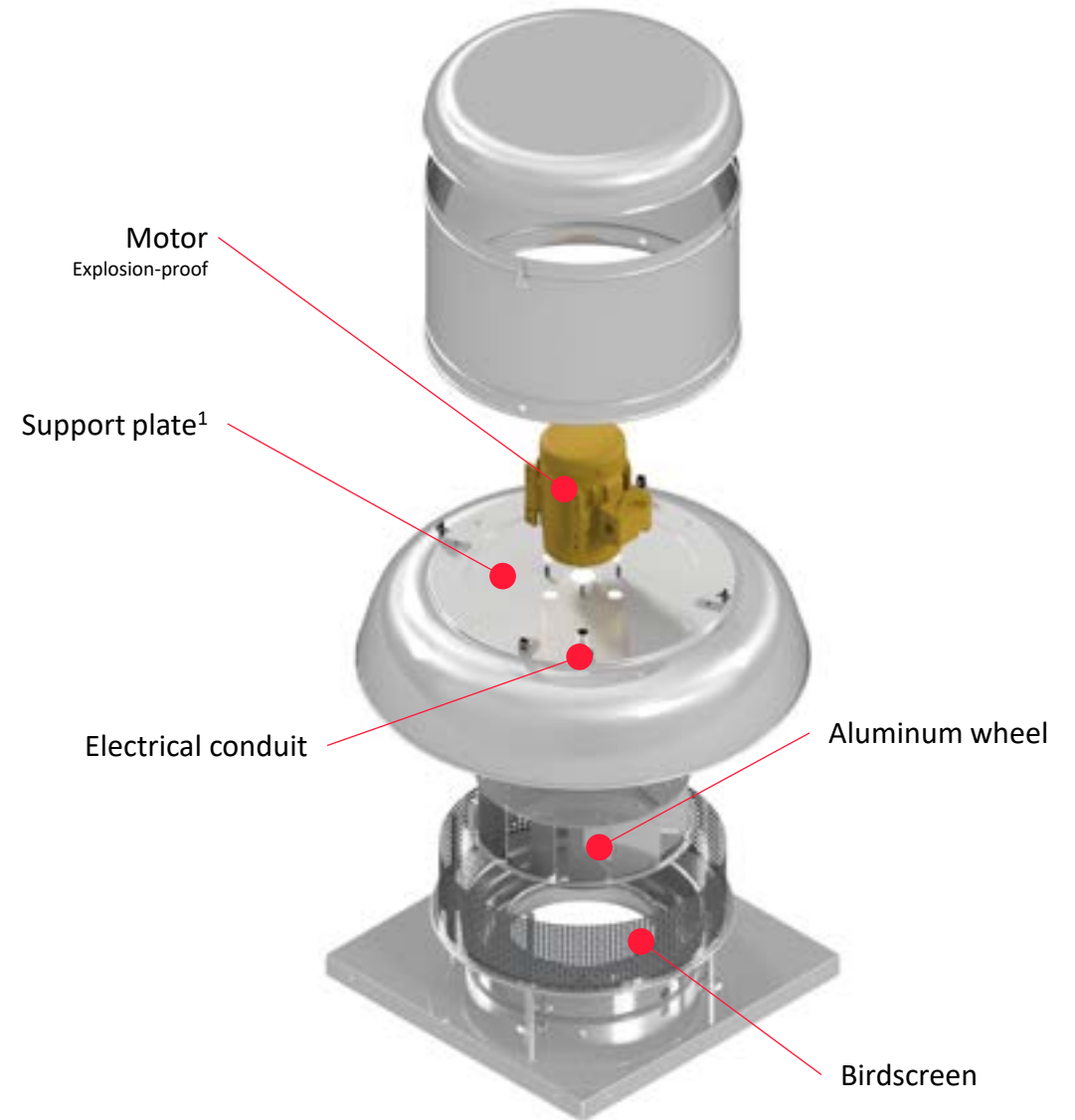
AMCA – “C” Construction

- Explosion-Proof motor
- Aluminum support plate*

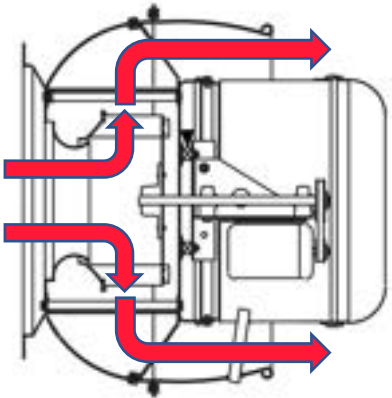
*Standard on size 70-100

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum this meets the requirement of a “nonferrous ring” aka “rub ring”.



ACWB



ACWB Airstream

AMCA – “A” Construction

- Aluminum support plate (Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit (Standard galvanized conduit not allowed)
- Aluminum cooling tube (Standard galvanized steel tube not allowed)
- Stainless steel hardware
- Aluminum birdscreen (Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

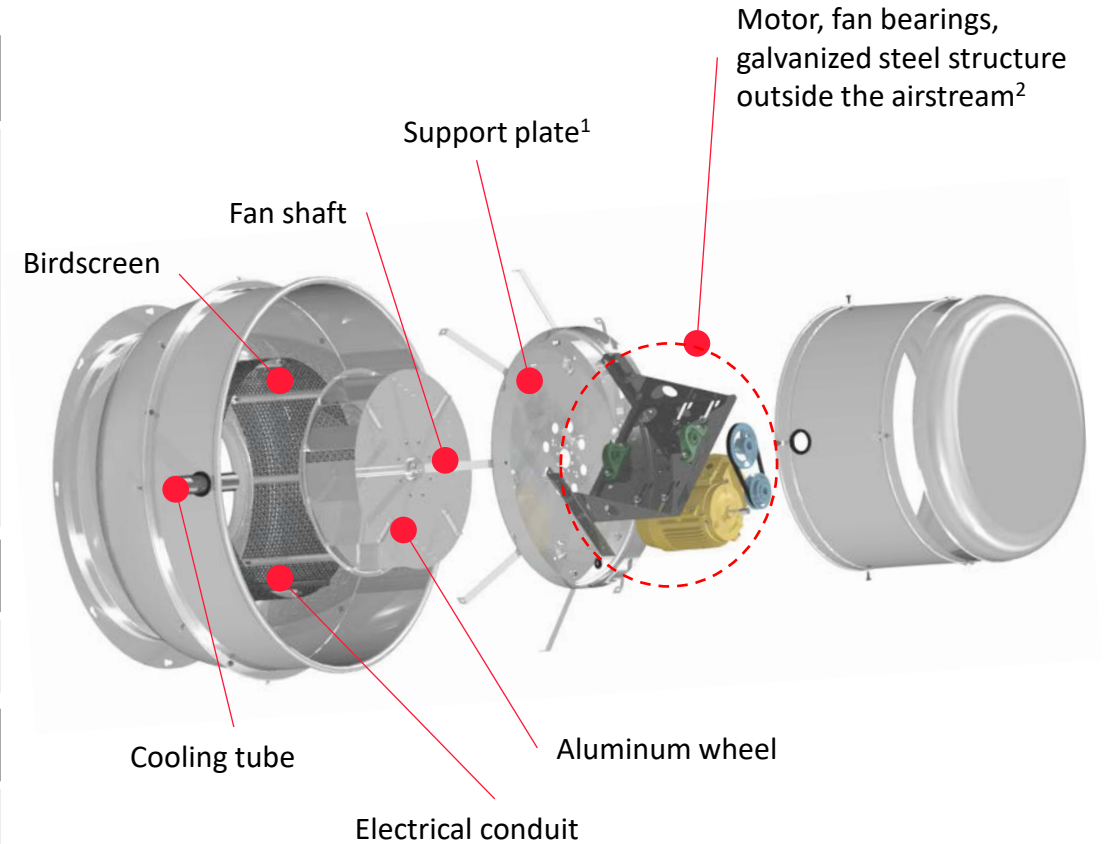
- Aluminum support plate

AMCA – “C” Construction

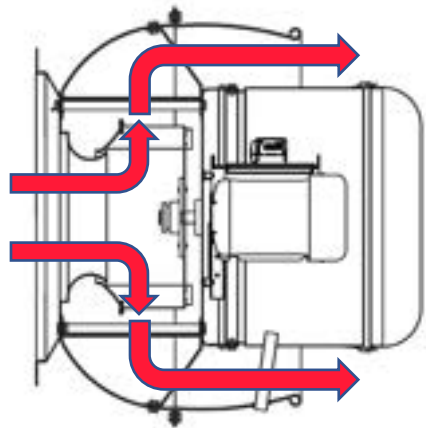
- Aluminum support plate

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.
2. The motor, bearings and galvanized steel structure is outside the airstream.



ACWD



ACWD Airstream

AMCA – “A” Construction

- Explosion-proof motor
- Aluminum support plate (Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit (Standard galvanized conduit not allowed)
- Aluminum cooling tube (Standard galvanized steel tube not allowed)
- Stainless steel hardware
- Aluminum birdscreen (Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

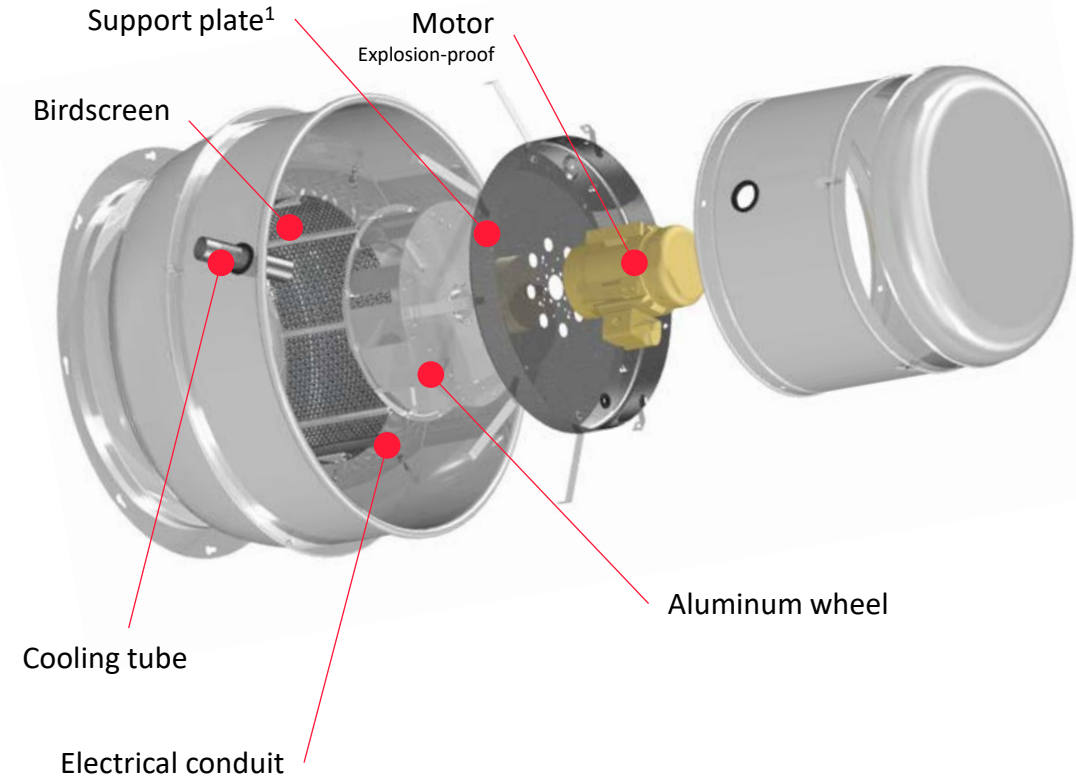
- Explosion-Proof motor
- Aluminum support plate

AMCA – “C” Construction

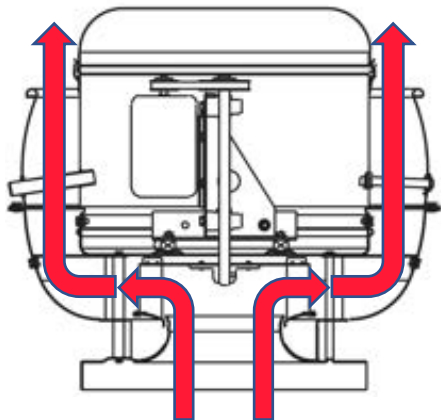
- Explosion-Proof motor
- Aluminum support plate

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.



ACRUB



ACRUB Airstream

AMCA – “A” Construction

- Aluminum support plate (Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit (Standard galvanized conduit not allowed)
- Aluminum cooling tube (Standard galvanized steel tube not allowed)
- Stainless steel hardware
- Aluminum birdscreen (Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

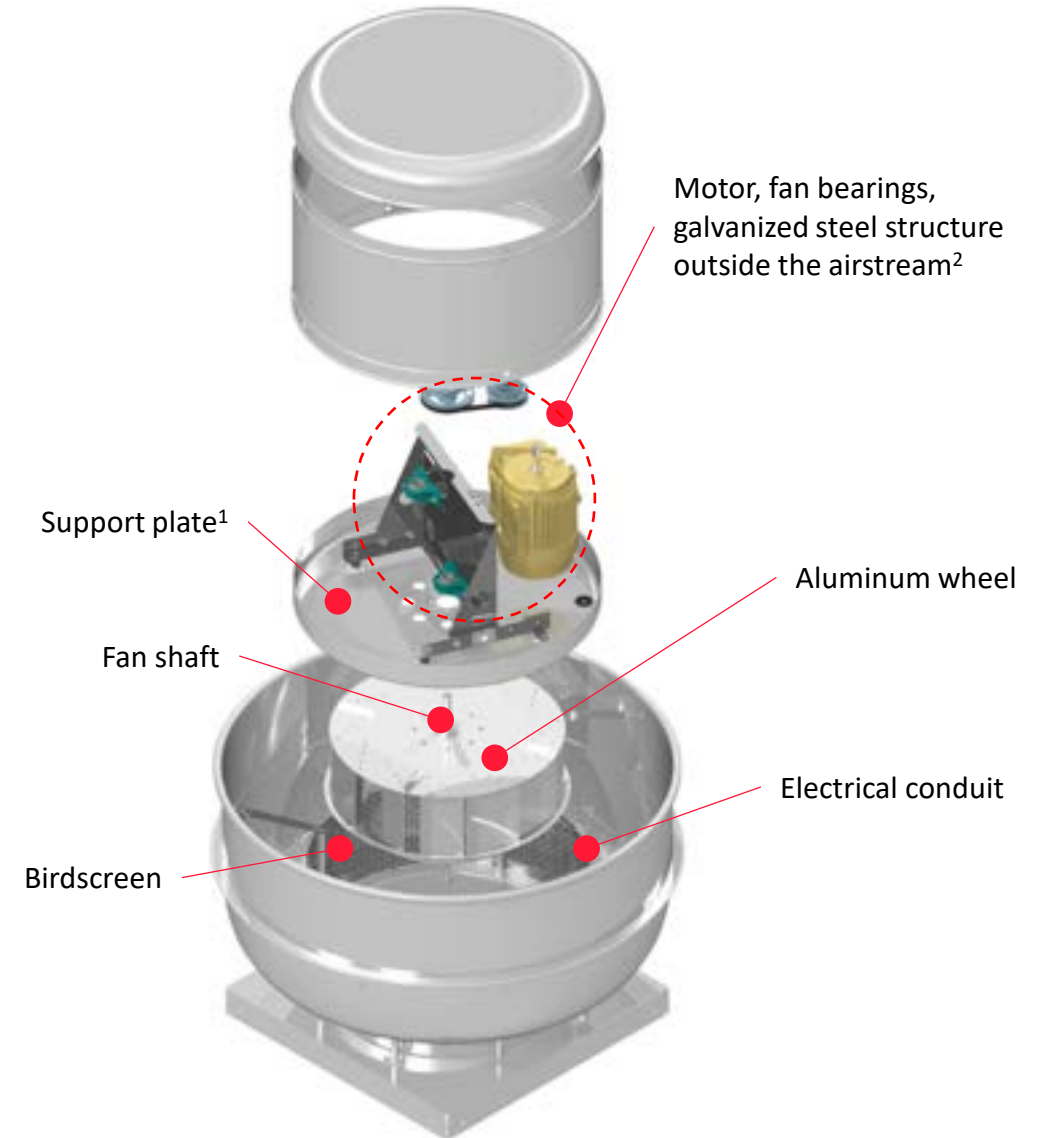
- Aluminum support plate

AMCA – “C” Construction

- Aluminum support plate

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.
2. The motor, bearings and galvanized steel structure is outside the airstream.



ACRUD



AMCA – “A” Construction

- Explosion-proof motor
- Aluminum support plate
(Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit
(Standard galvanized conduit not allowed)
- Aluminum cooling tube
(Standard galvanized steel tube not allowed)
- Stainless steel hardware
- Aluminum birdscreen
(Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

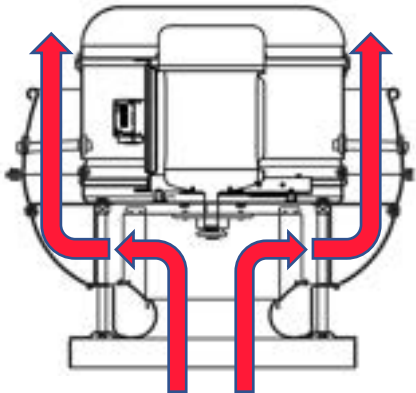
- Explosion-Proof motor
- Aluminum support plate

AMCA – “C” Construction

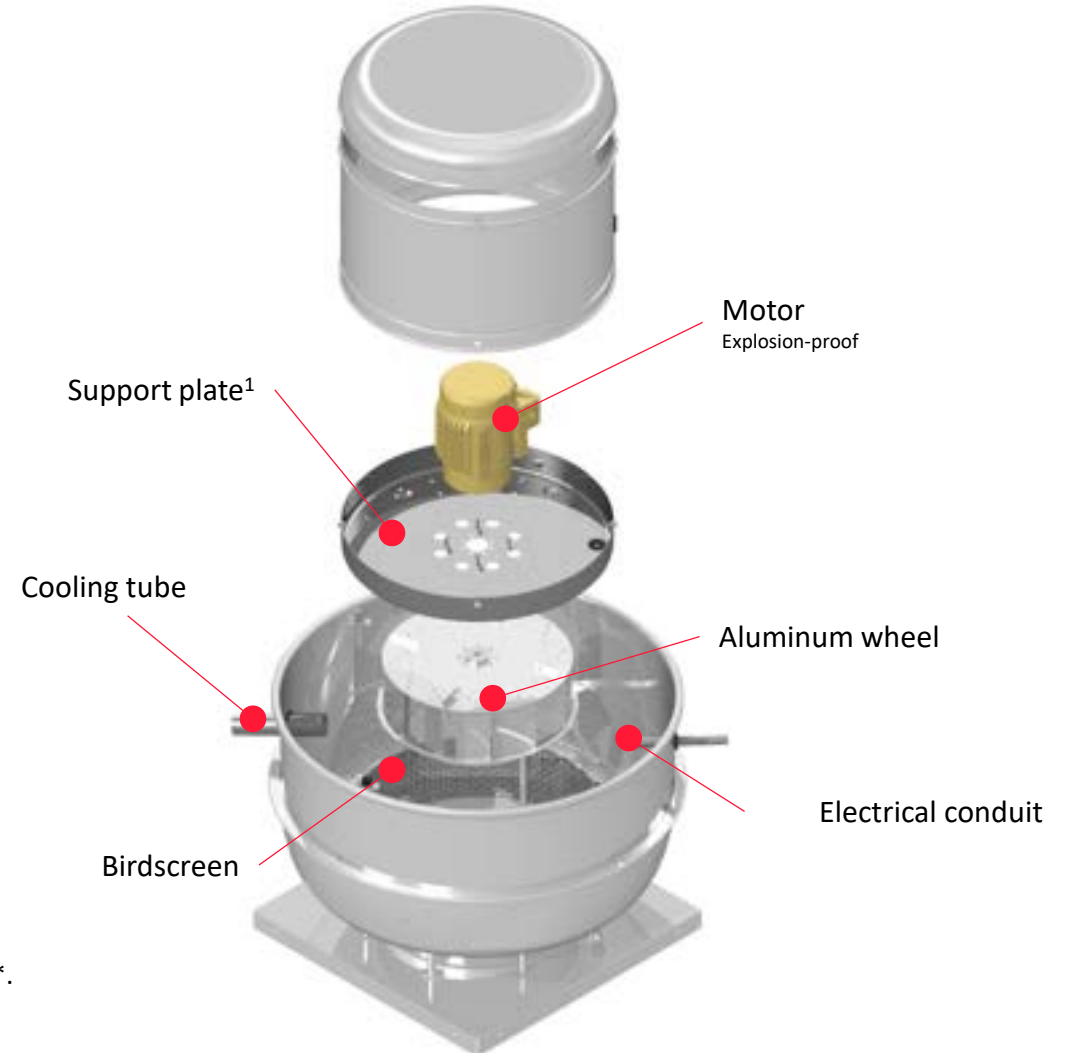
- Explosion-Proof motor
- Aluminum support plate

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.



ACRUD Airstream



ACSC



❌ AMCA – “A” Construction

- Not Available

❌ AMCA – “B” Construction

- Not Available

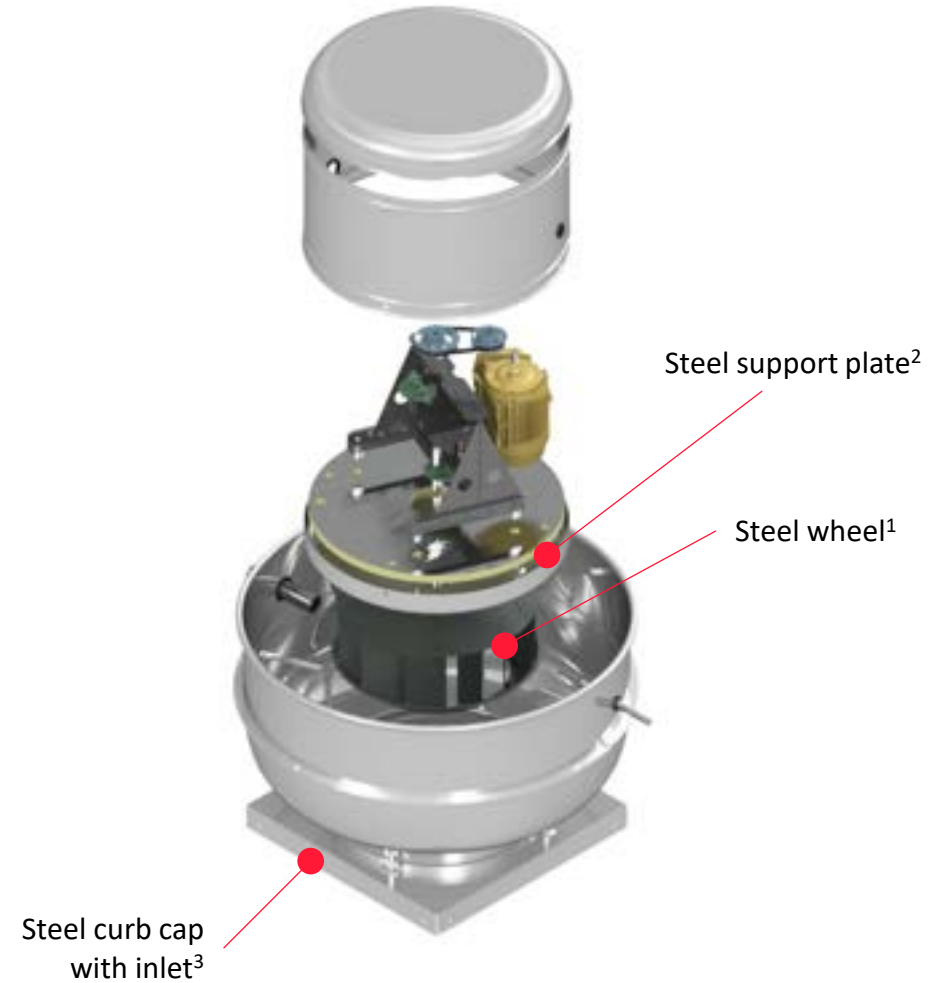
❌ AMCA – “C” Construction

- Not Available

Notes (See exploded view):

Due to the temperature requirements for UL Smoke Control, the following parts must be made of steel. Steel is ferrous material which does not meet AMCA Spark Resistant Construction.

1. Wheel
2. Support plate
3. Curb cap with inlet



VCR



AMCA – “A” Construction

- Aluminum support plate*
(Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit
(Standard galvanized conduit not allowed)
- Aluminum cooling tube
(Standard galvanized steel tube not allowed)
- Stainless steel hardware

AMCA – “B” Construction

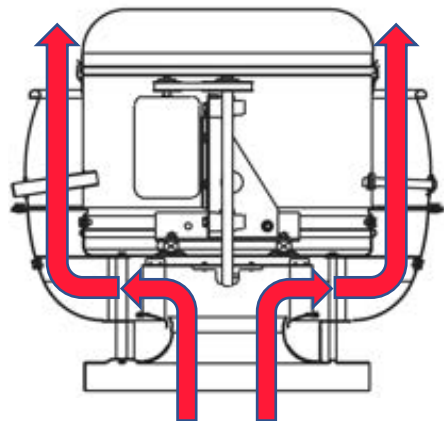
- Aluminum support plate*

AMCA – “C” Construction

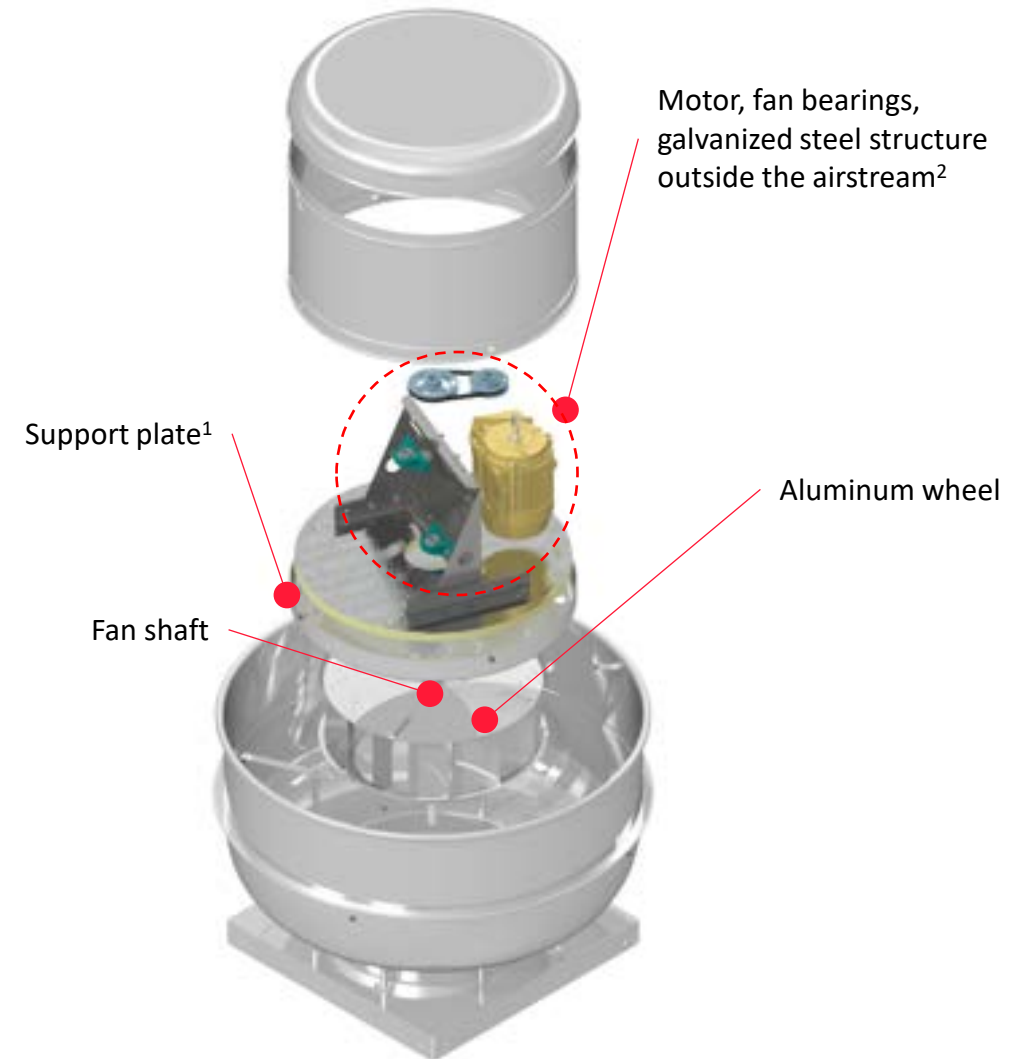
- Aluminum support plate*

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.
2. The motor, bearings and galvanized steel structure is outside the airstream.



VCR Airstream



VCRD



AMCA – “A” Construction

- Explosion-proof motor
- Aluminum support plate
(Standard galvanized steel not allowed)
- Stainless steel shaft
- Aluminum electrical conduit
(Standard galvanized conduit not allowed)
- Aluminum cooling tube
(Standard galvanized steel tube not allowed)
- Stainless steel hardware

AMCA – “B” Construction

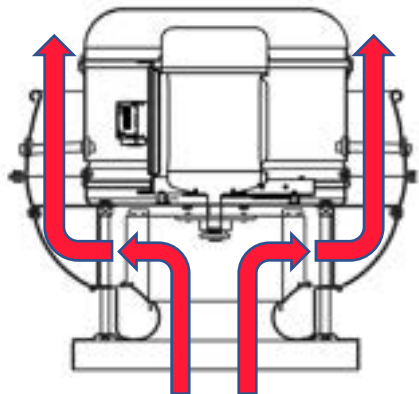
- Explosion-Proof motor
- Aluminum support plate

AMCA – “C” Construction

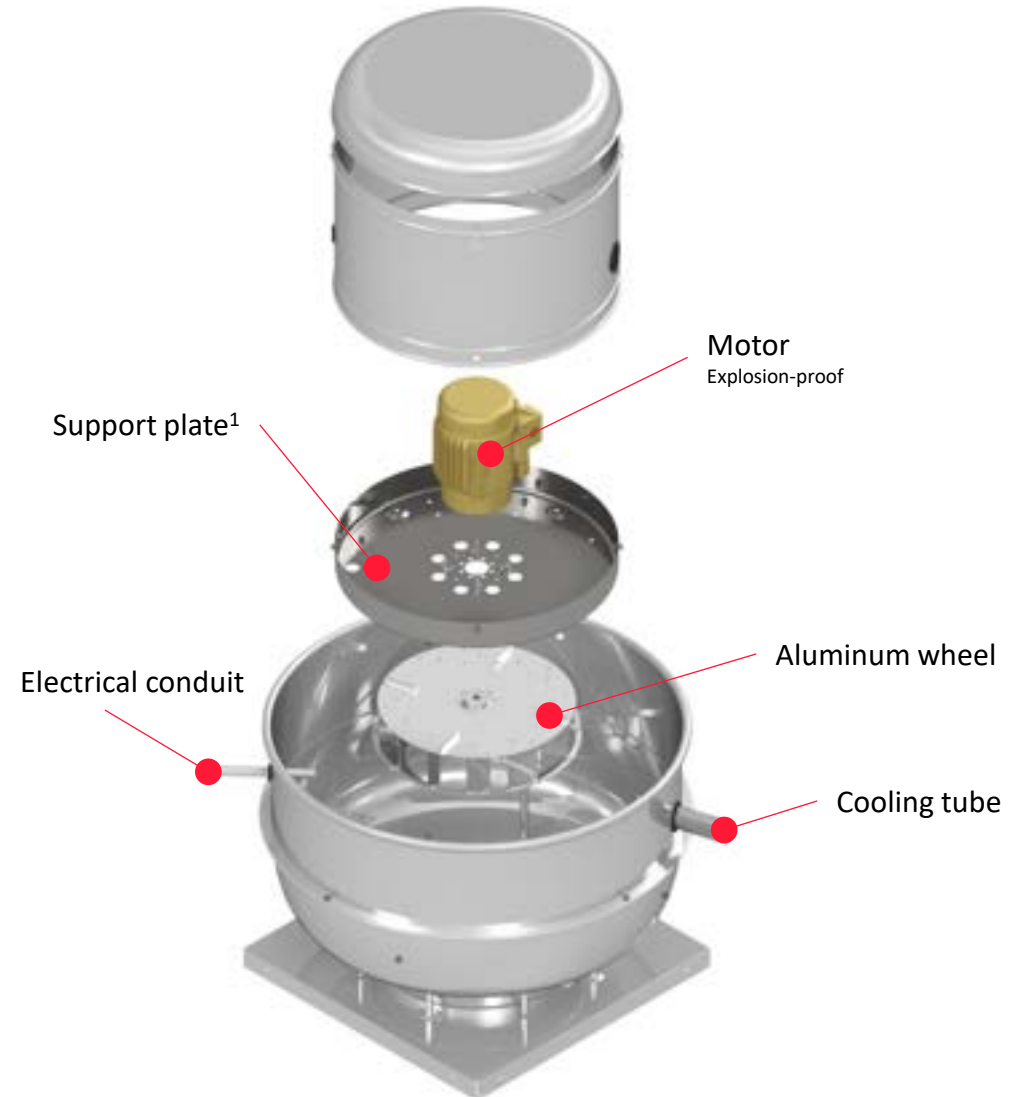
- Explosion-Proof motor
- Aluminum support plate

Notes (See exploded view):

1. The fan shaft passes through the opening in the support plate*. When the support plate is made of aluminum, this meets the requirement of a “nonferrous ring” aka “rub ring”. A second “flat” aluminum support plate is added for strength.



VCRD Airstream



SRSH-B



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

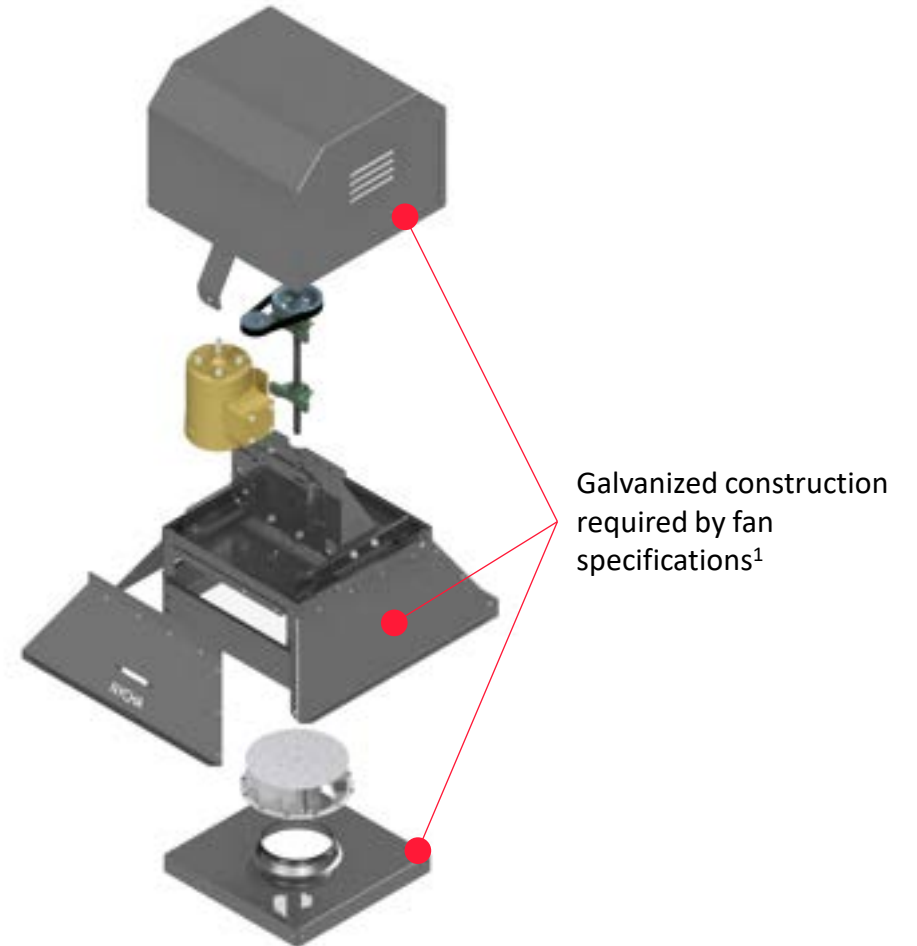
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction. Fan specification require no exposed aluminum part for security reasons.



SRSH-D



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

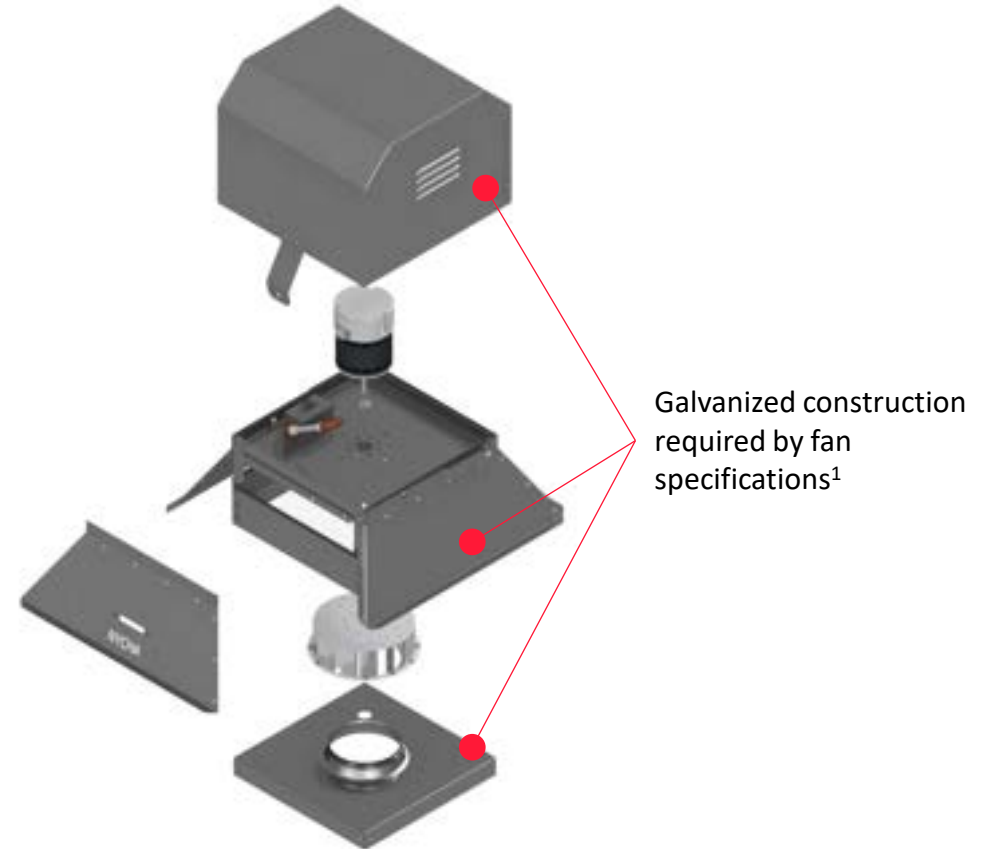
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction. Fan specification require no exposed aluminum part for security reasons.



LPB



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

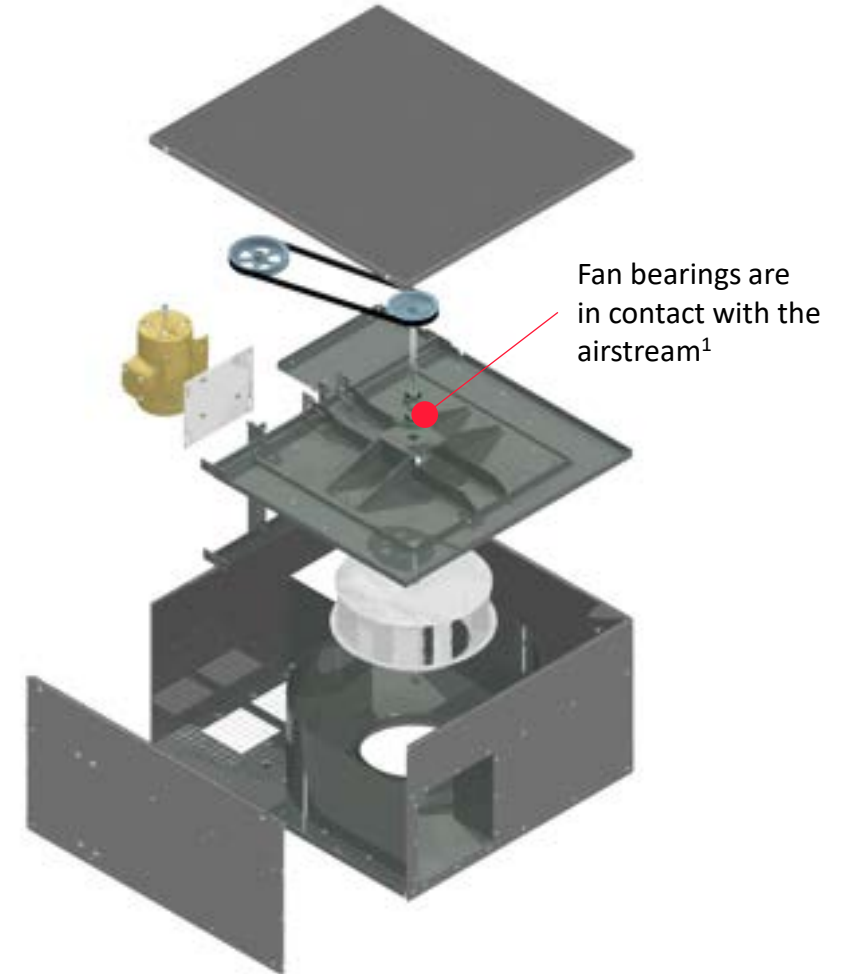
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings are in contact with the airstream.



LPD



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

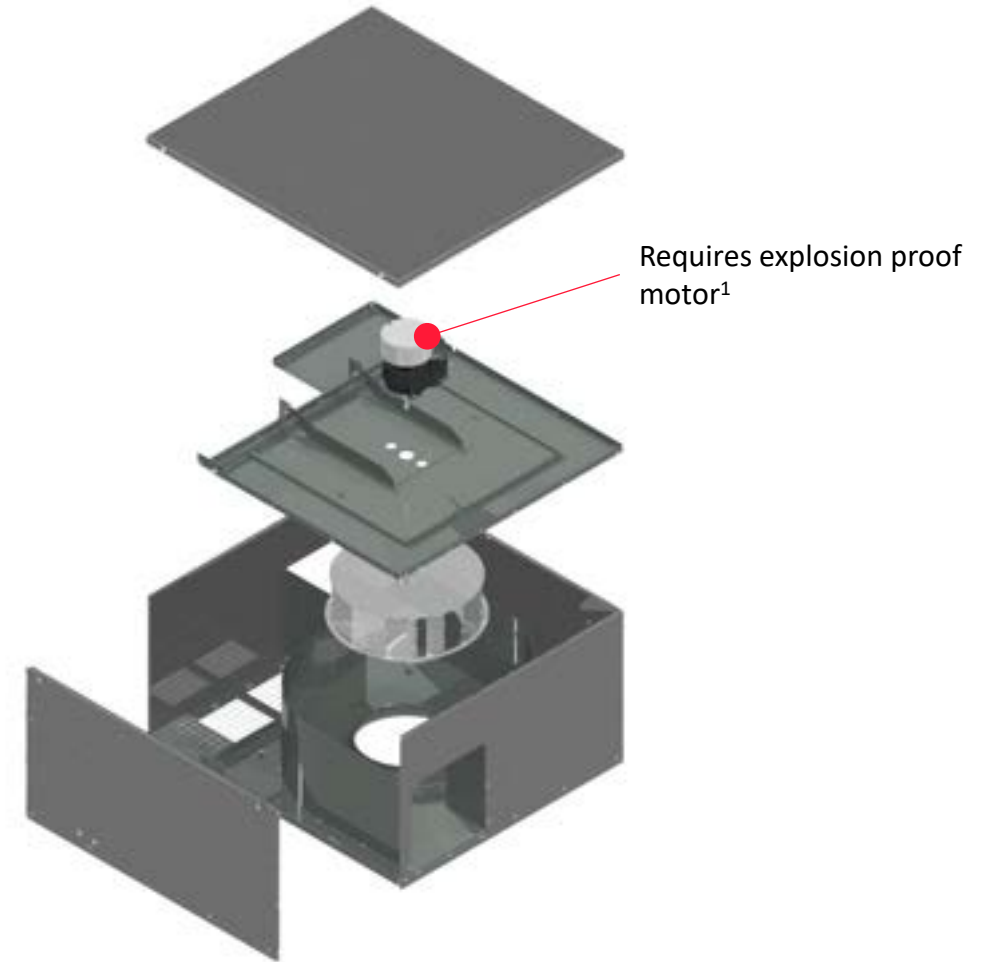
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Motor must be explosion-proof. An explosion-proof motor does not fit within the low-profile housing



HLC-B



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

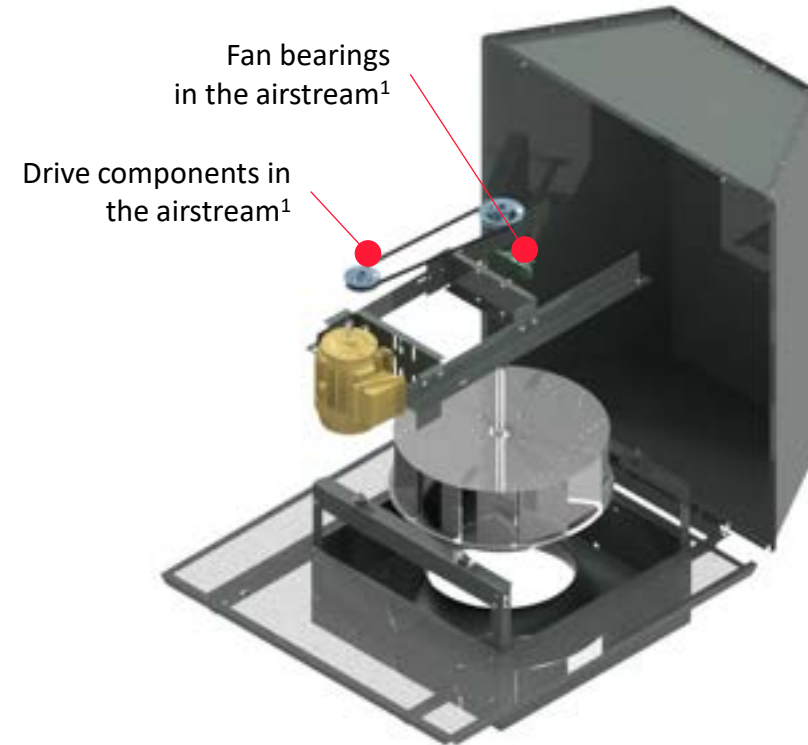
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



HLC-D



AMCA – “A” Construction

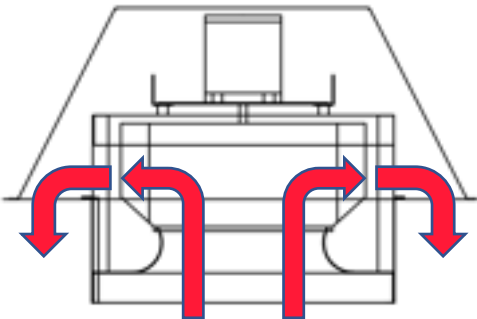
- Explosion-proof motor
- All aluminum construction
(Standard galvanized supporting structure not allowed)
- Stainless steel hardware
- Aluminum birdscreen
(Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

- Not Available¹

AMCA – “C” Construction

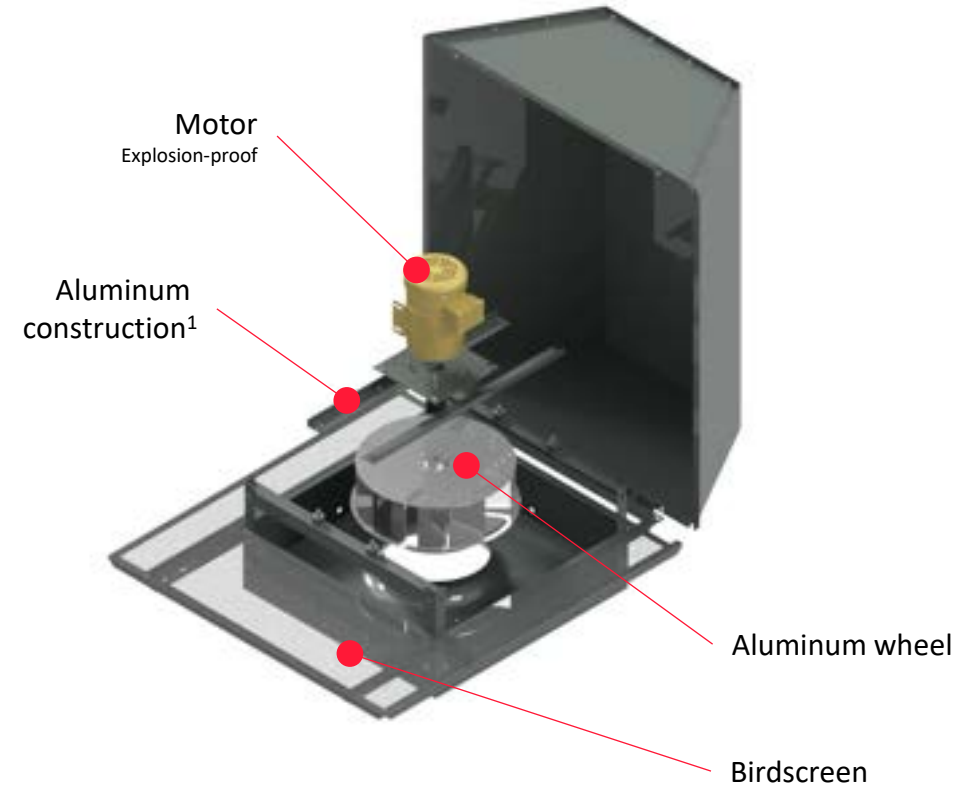
- Not Available¹



HLC-D Airstream

Notes (See exploded view):

1. To meet the requirement of AMCA B or C, all the internal parts are made of aluminum. When this happens, the fan then meets the most stringent AMCA A level.



TLC-B



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

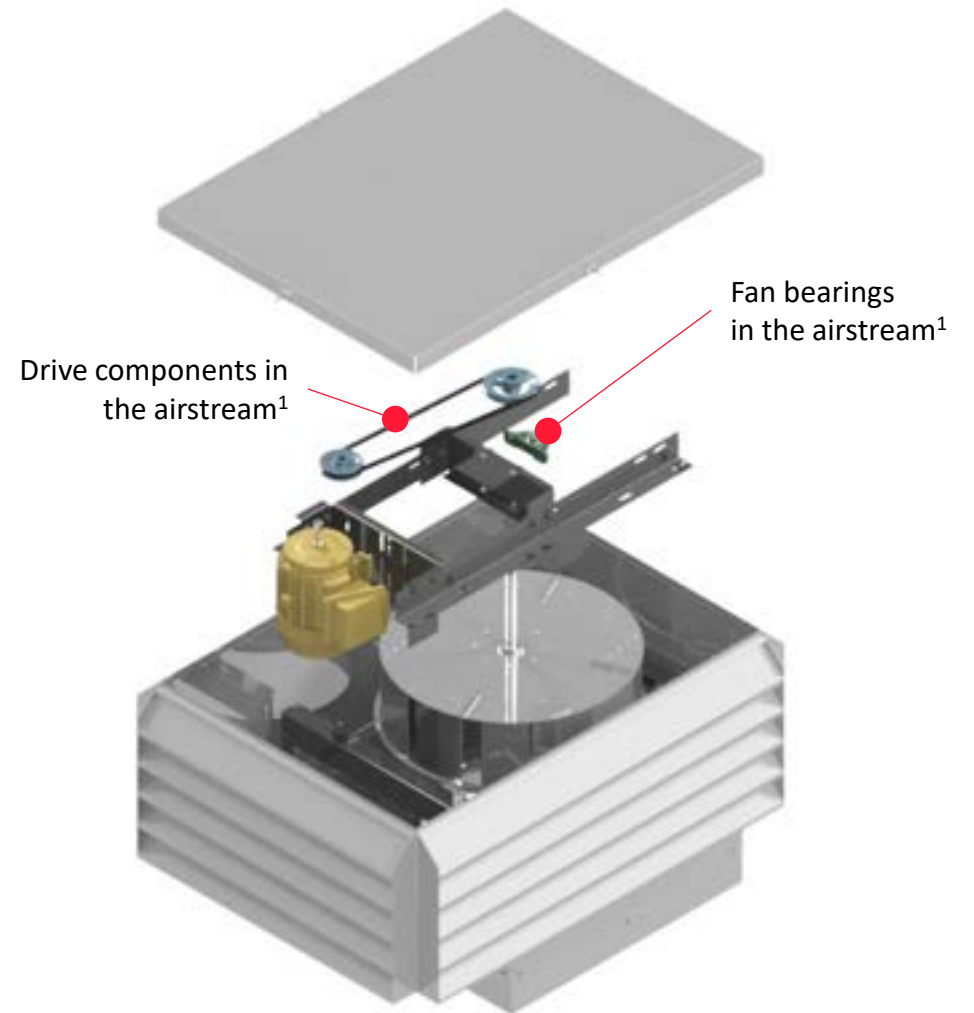
- Not Available¹

❌ AMCA – “C” Construction

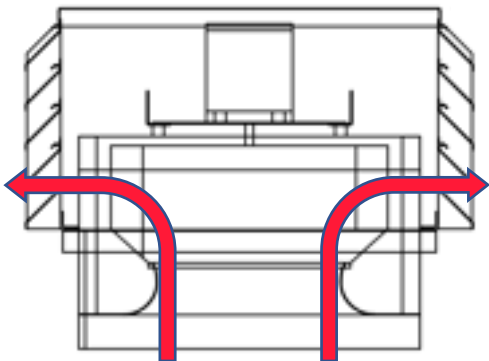
- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



TLC-D



TLC-D Airstream

AMCA – “A” Construction

- Explosion-proof motor
- All aluminum construction (Standard galvanized supporting structure not allowed)
- Stainless steel hardware
- Aluminum birdscreen (Standard galvanized birdscreen not allowed)

AMCA – “B” Construction

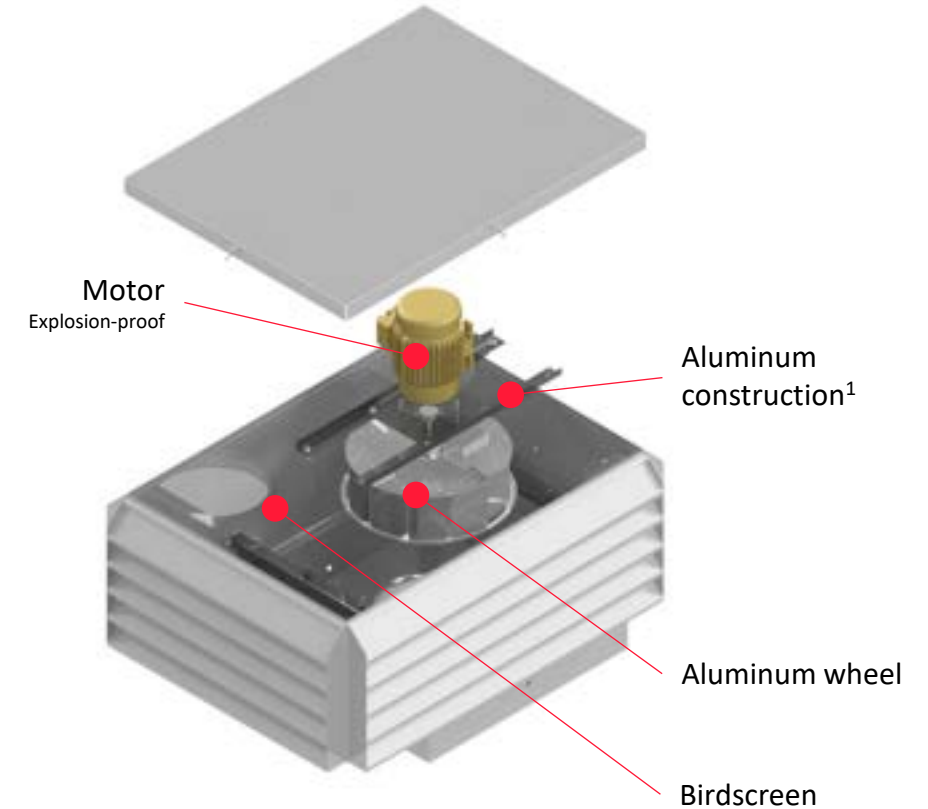
- Not Available¹

AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. To meet the requirement of AMCA B or C, all the internal parts are made of aluminum. When this happens, the fan then meets the more stringent AMCA A level.





❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

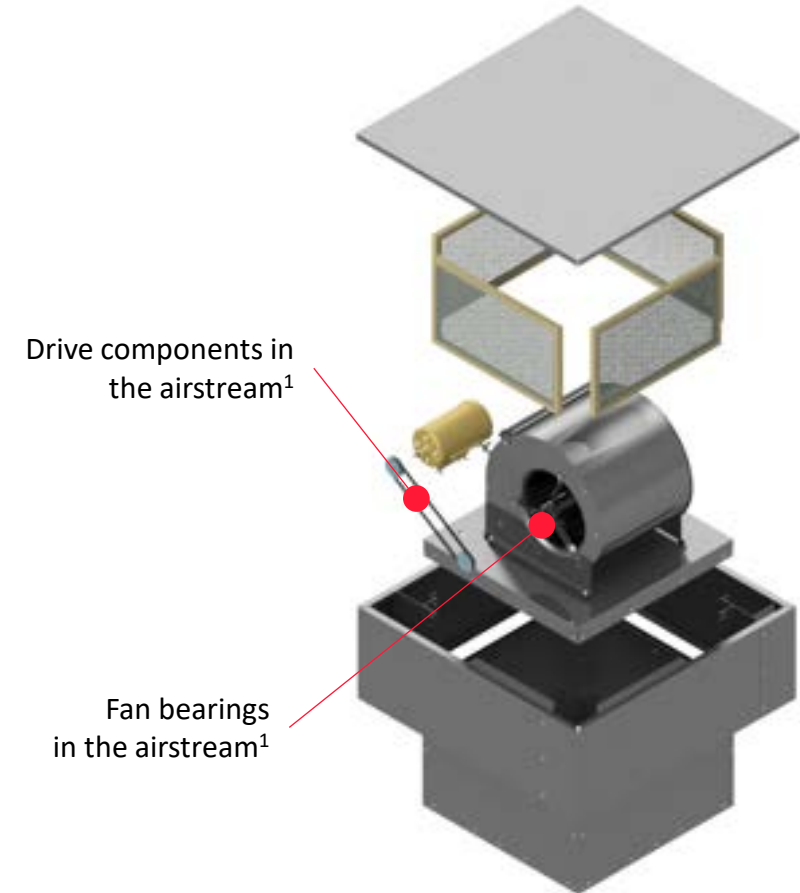
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.



ASP-T



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

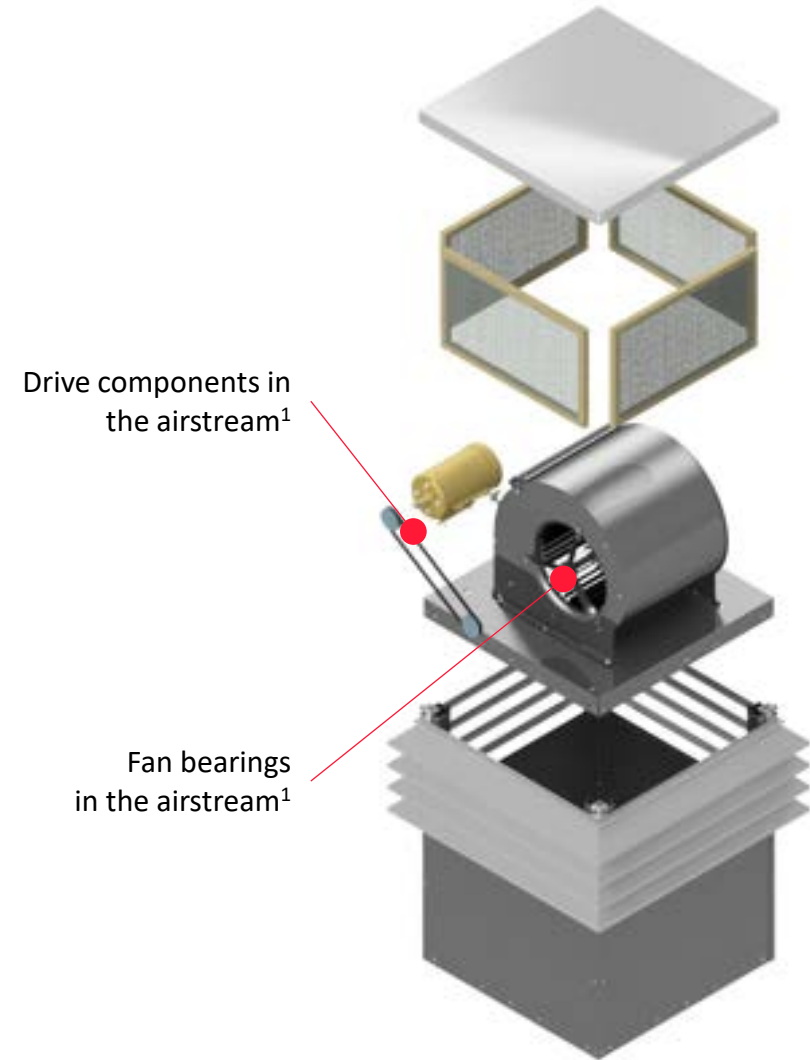
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.





❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

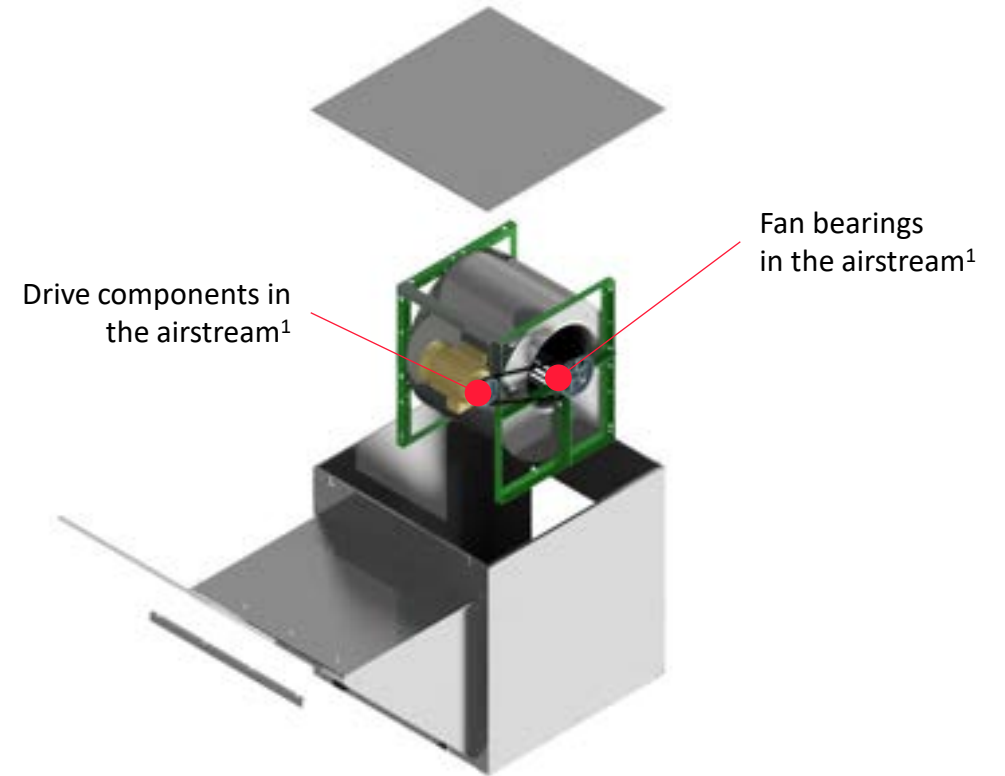
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.





AMCA – “A” Construction

- Not Available¹

AMCA – “B” Construction

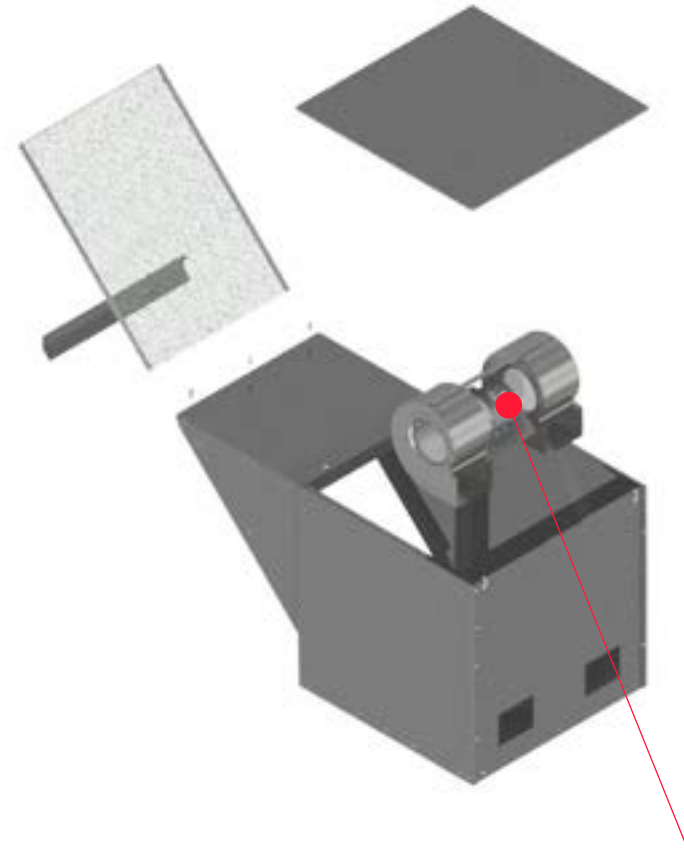
- Not Available¹

AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction per AMCA Exception Note 1. Motor is in the airstream. PSC and EC motors are not available as explosion proof.



Motor in the airstream¹



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

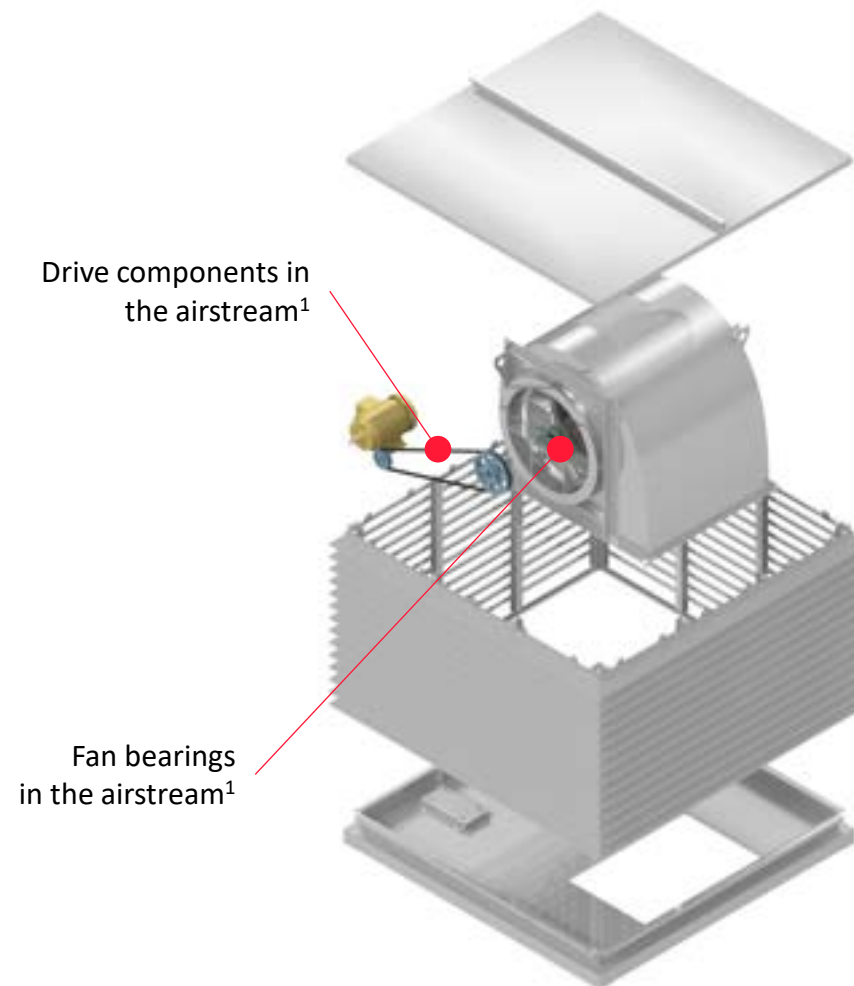
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.



LXUL/LXUM/LEU/LTU



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



LXULMO/LXUMMO/LEUMO/LTUMO



❌ AMCA – “A” Construction²

Not Available¹

❌ AMCA – “B” Construction

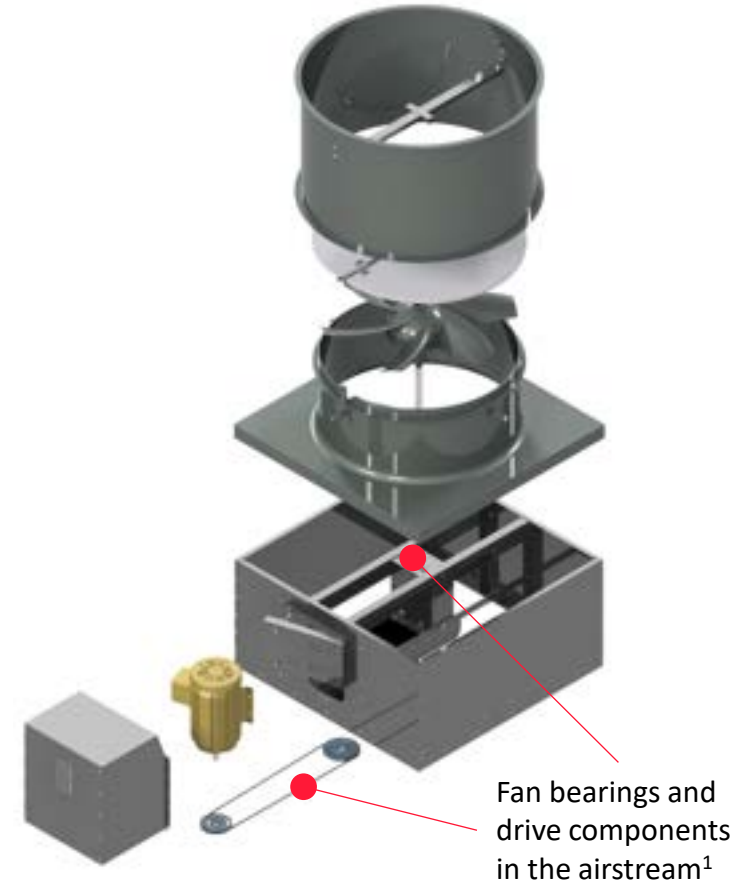
Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.
2. UL Smoke Control listed fans require steel construction.



AUB/EUB/TUB



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

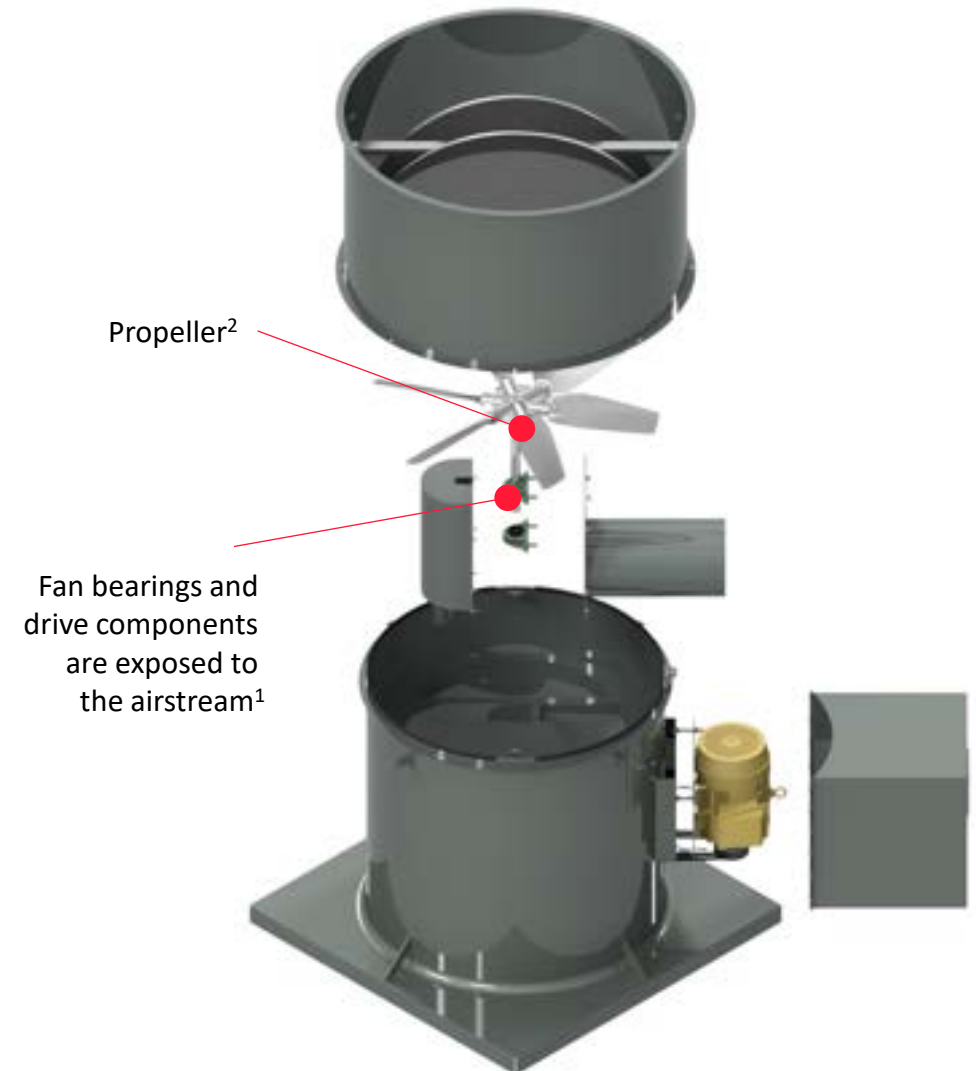
Not Available¹

❌ AMCA – “C” Construction

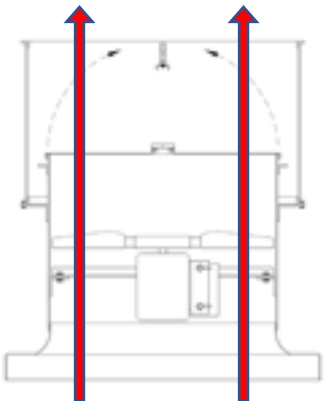
Not Available¹

Notes (See exploded view):

1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are exposed to the airstream.
2. TUB propeller is only available in steel construction.



AUD/EUD/TUD²



AUD / EUD Airstream

AMCA – “A” Construction

- Explosion-proof motor
- All aluminum construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

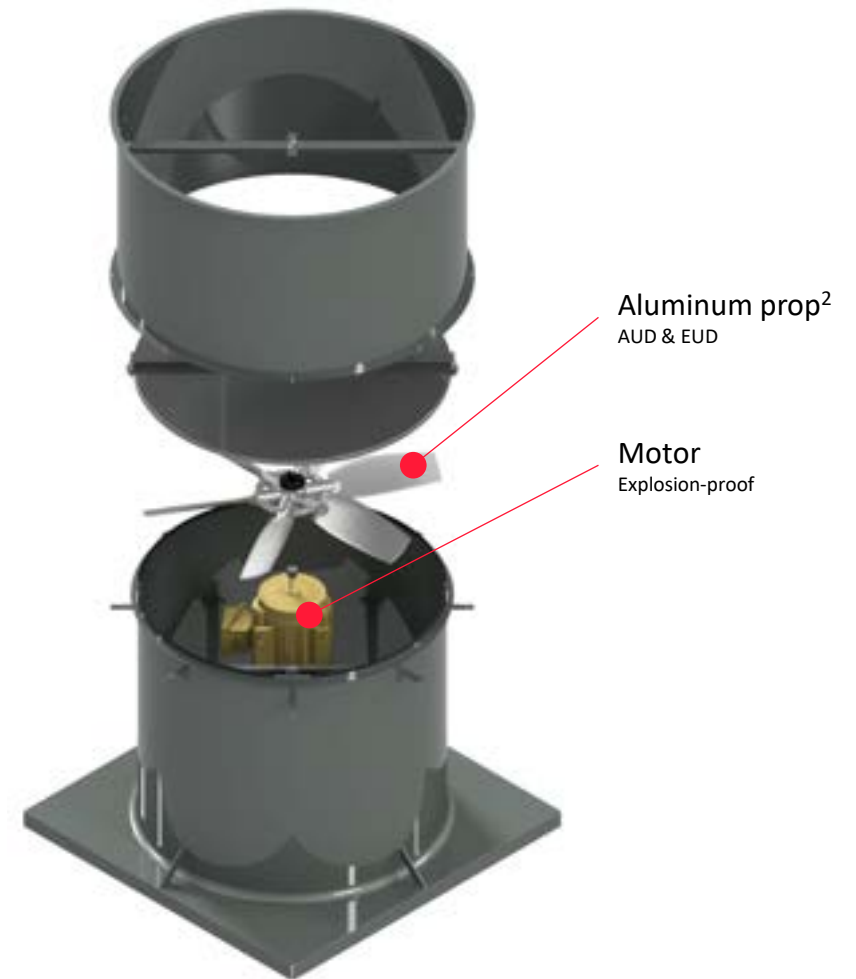
- Not Available¹

AMCA – “C” Construction

- Explosion-proof motor

Notes (See exploded view):

1. To meet the requirement of AMCA B or C, all the internal parts are made of aluminum. When this happens the fan then meets the more stringent AMCA A level
2. TUD propeller is only available in steel construction; therefore, the fan is not available with any level of spark resistant construction



H-Series Belt Drive HEE/HES/HEF/HXEL/HXEM/HXSL/HXSM/HXFL/HXFM



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

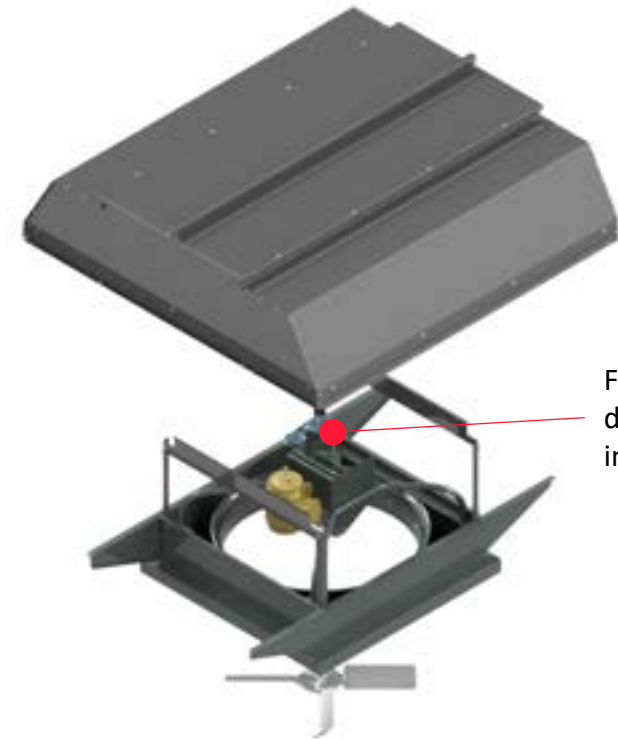
Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):




1. Not available with any level spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



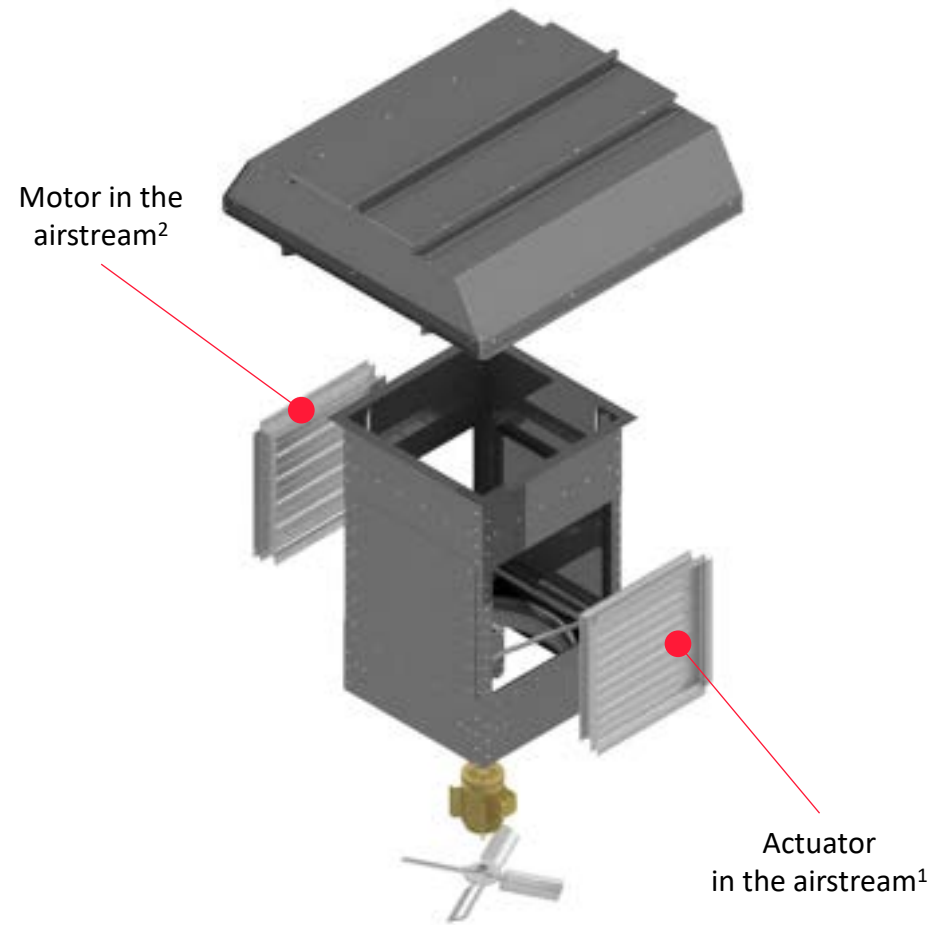
Fan bearings and drive components in the airstream¹

ECONOMIZER MSR-D / MRSE-D



 AMCA – “A” Construction
• Not Available
 AMCA – “B” Construction
• Not Available
 AMCA – “C” Construction
• Not Available

- Notes (See exploded view):**
1. Due to AMCA Exception Note 1, the actuator must be explosion-proof. Explosion-proof actuator does not fit within the housing.
 2. Not available with any level spark resistant construction as dampers do not conform to AMCA requirement for spark resistant dampers.





❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

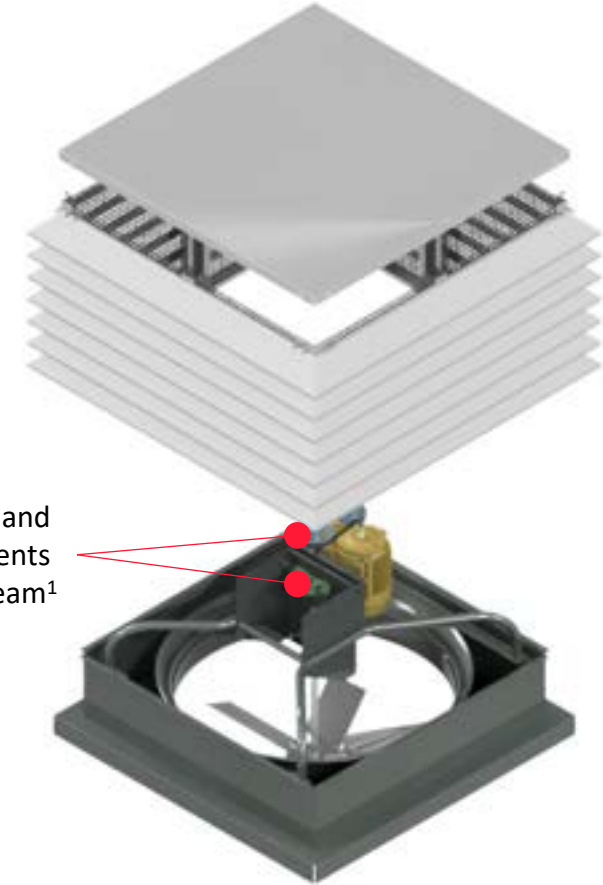
Not Available¹

❌ AMCA – “C” Construction

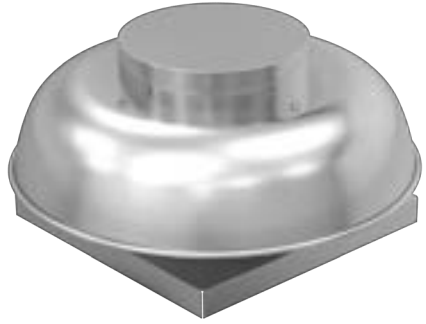
Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.



AQB



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

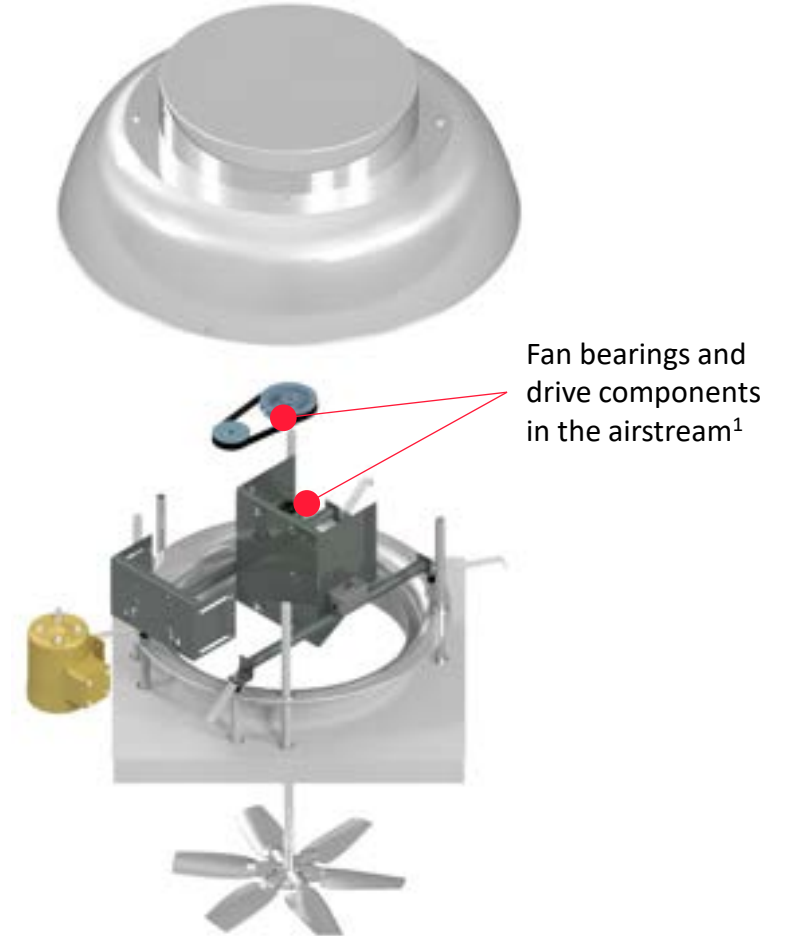
Not Available¹

❌ AMCA – “C” Construction

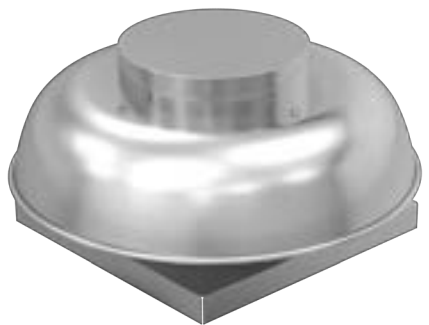
Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



AQD



AMCA – “A” Construction¹

- Explosion-proof motor¹
- All aluminum power assembly (Standard steel construction not allowed)²
- Stainless steel hardware

⊘ AMCA – “B” Construction

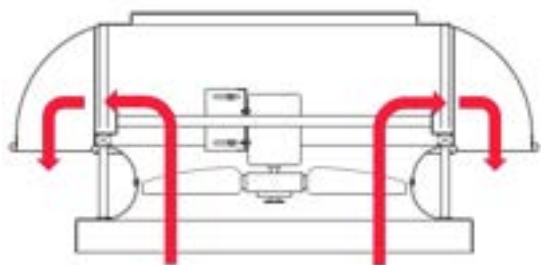
Not Available³

AMCA – “C” Construction

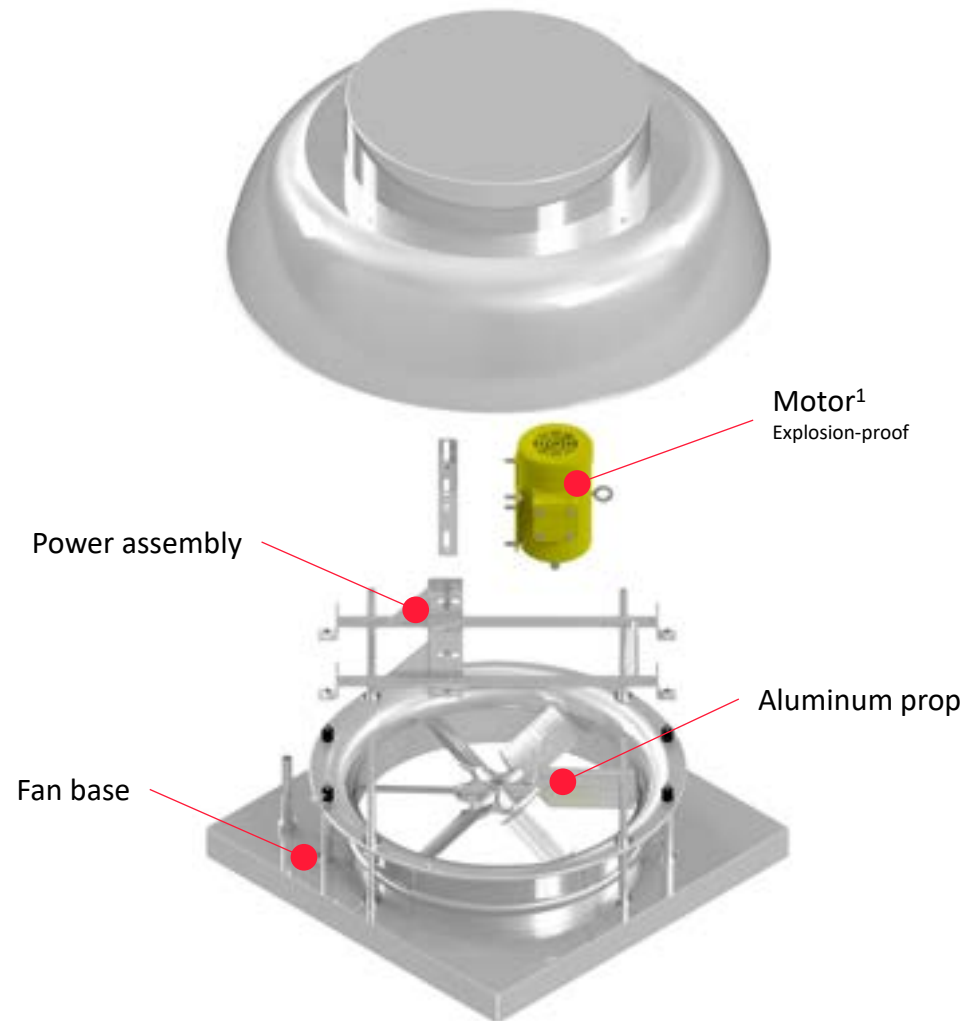
- Explosion-Proof motor

Notes (See exploded view):

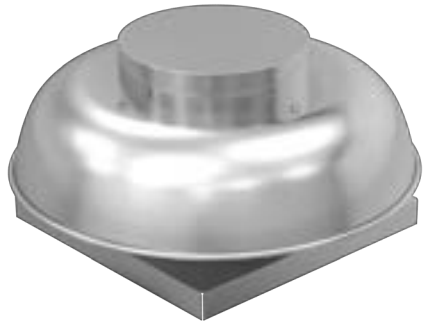
1. Not available on size 12 due to required explosion proof motor.
2. Standard fan construction includes aluminum propeller, aluminum fan base, and aluminum housing.
3. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.



AQD Airstream



REBE/REBS



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

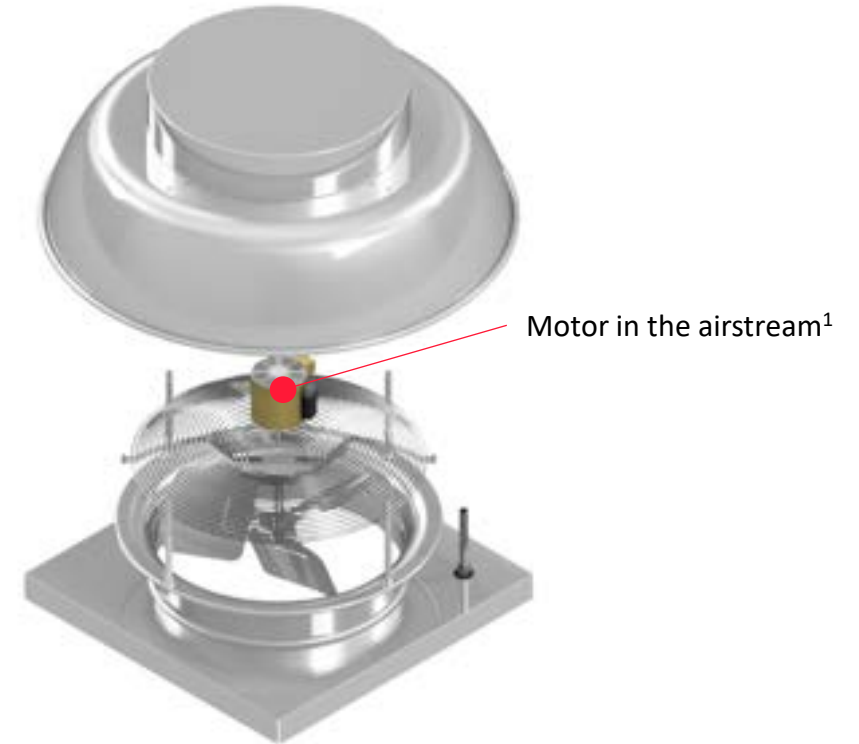
Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motor is in the airstream. PSC motors are not available as explosion proof.




Wall Props Belt Drive AWB / EWB / XLW(H) / XMW(H)



 AMCA – “A” Construction

Not Available¹

 AMCA – “B” Construction

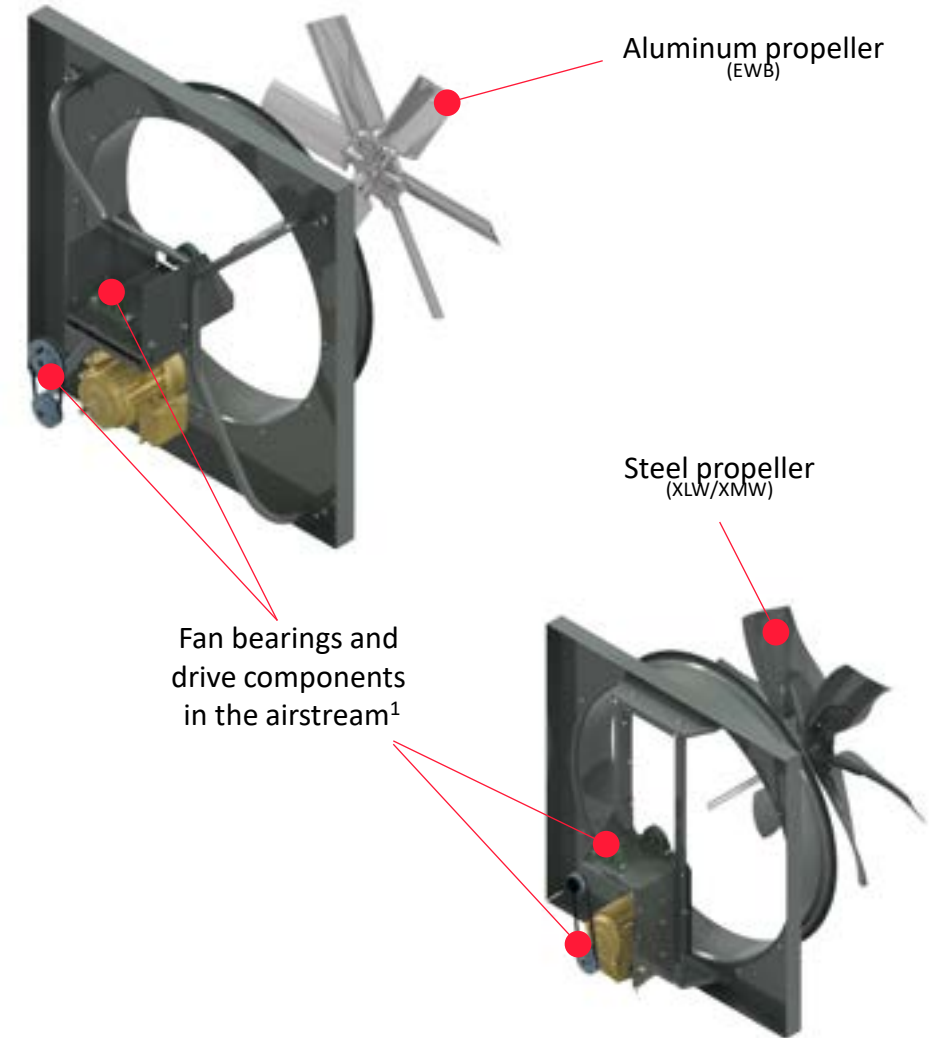
Not Available¹

 AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



Wall Props Direct Drive AWD/EWD/XWD¹/XWHD³



AMCA – “A” Construction

- Explosion-proof motor
- All aluminum construction (Standard steel construction not allowed)
- Stainless steel hardware

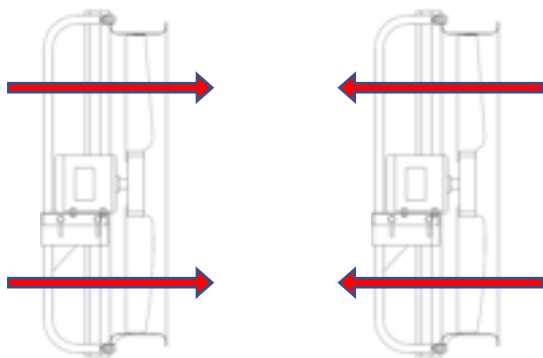
❌ AMCA – “B” Construction

Not Available²

AMCA – “C” Construction

- Explosion-Proof motor

Wall Prop Airstream

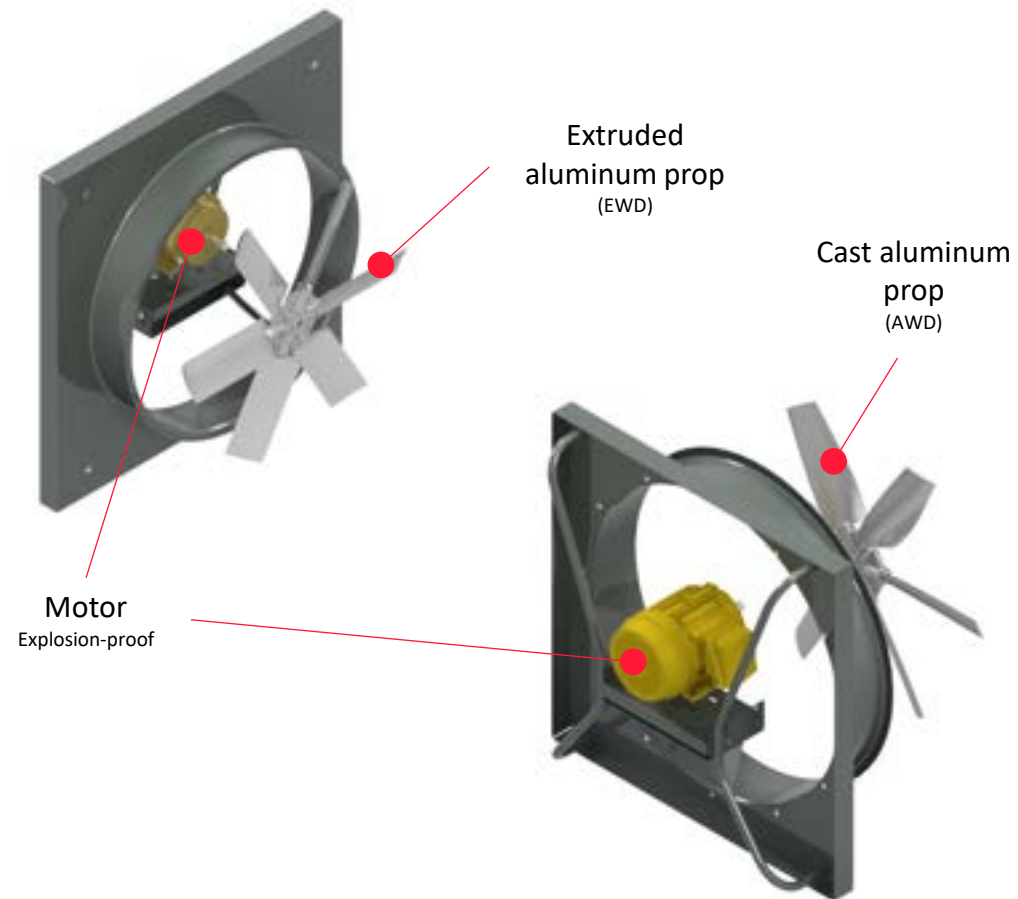


Exhaust

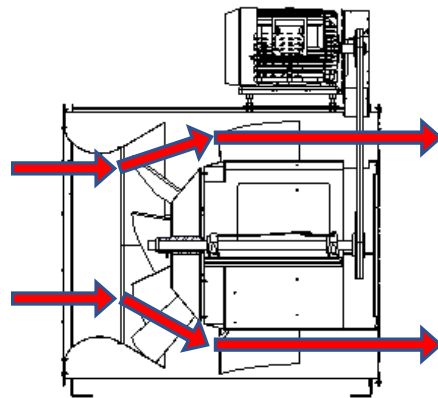
Supply

Notes (See exploded view):

1. XWD are not available with any level of spark resistant construction per AMCA Exception Note 1. Motor is in the airstream and these small PSC and EC motors are not available as explosion proof.
2. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.
3. XWHD has a steel hub assembly.



QMX/QMX-HP/QMX-XP Arrangement 9



QMX Airstream

AMCA – “A” Construction

- All aluminum construction (Standard steel construction not allowed)
- Stainless steel shaft
- Stainless steel hardware
- Shaft seal¹
- Enclosed belt tunnel - Aluminum²

AMCA – “B” Construction

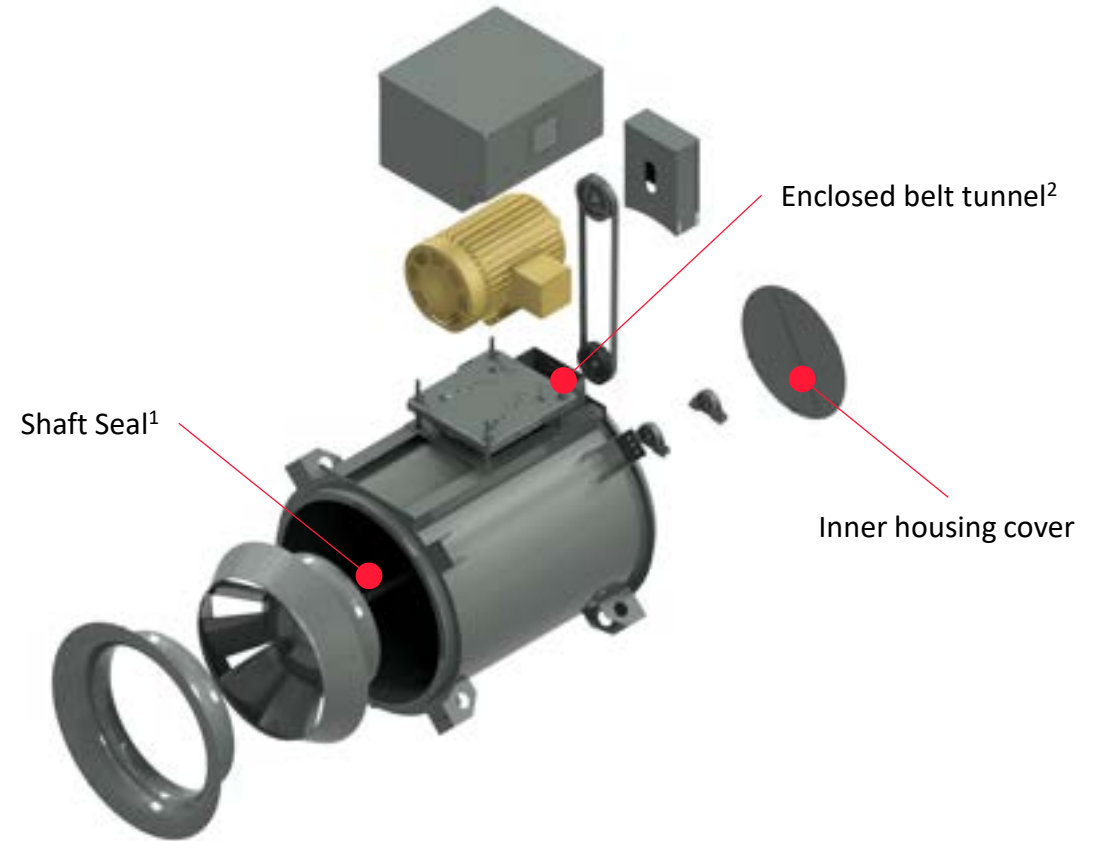
- Aluminum wheel
- Rub ring
- Shaft seal¹
- Enclosed belt tunnel²

AMCA – “C” Construction

- Rub ring
- Shaft seal¹
- Enclosed belt tunnel²

Notes (See exploded view):

1. Seals the inner housing and bearings
2. Encloses the belt and drive components. Used in conjunction with the shaft seal.



QMX/QMX-HP/QMX-XP Arrangement 3



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

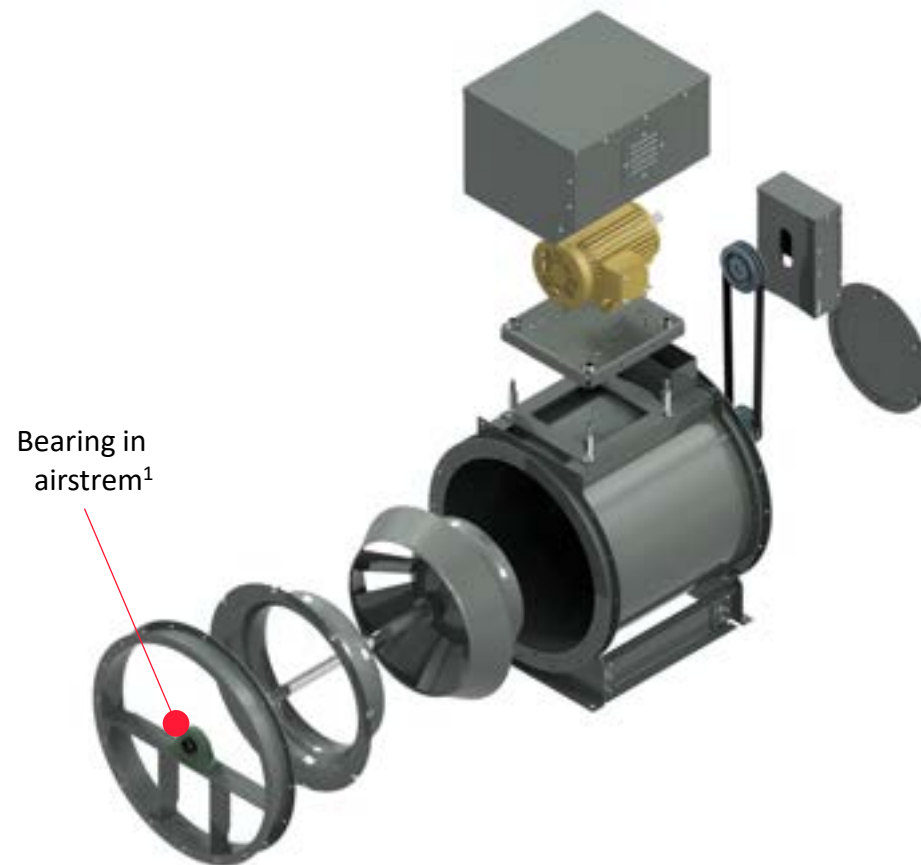
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings in contact with the airstream.



QMXD / QMXHPD / QMXXPD Arrangement 4



AMCA – “A” Construction

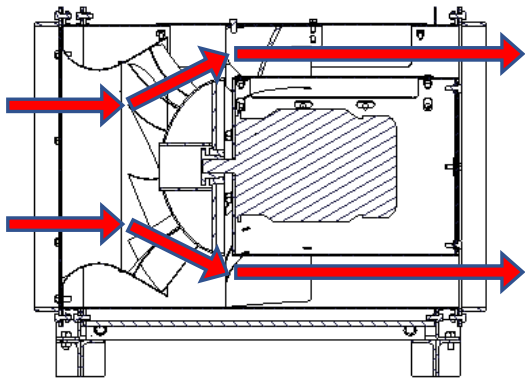
- Explosion-proof motor
- All aluminum construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

Not Available¹

AMCA – “C” Construction

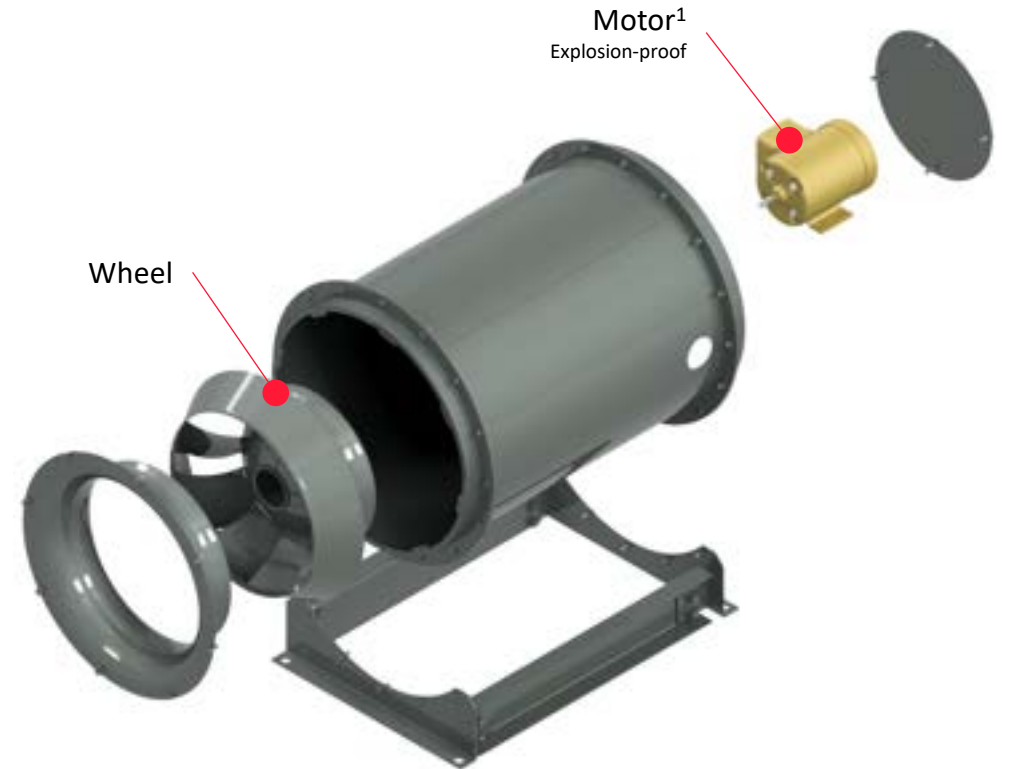
Not Available¹



QMX-D Airstream

Notes (See exploded view):

1. To meet the requirement of AMCA B or C, all the internal parts are made of aluminum. When this happens, the fan then meets the more stringent AMCA A level.



TMX



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

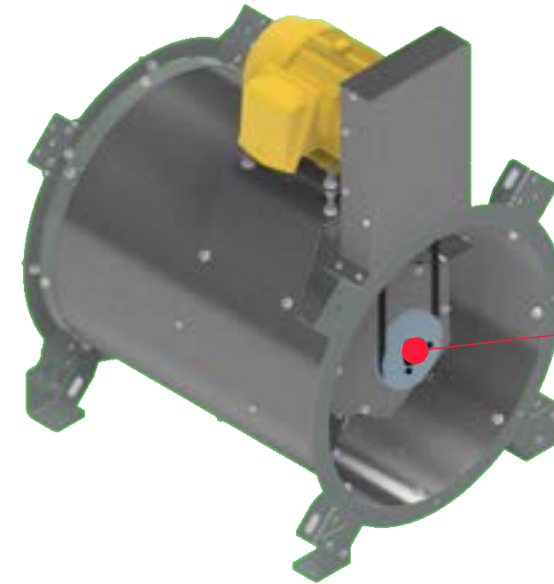
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in an inner housing that is not gas tight; therefore, they are in contact with the airstream. Drive components are belts and pulleys. Pulleys are also known as sheaves. This fan is intended as a commercial product, not for an industrial application where spark resistant construction would be required.



Drive component
in contact with the
airstream¹

TMX Direct Drive



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any of level spark resistant construction per AMCA Exception Note 1. Motor is exposed to the airstream. The EC motors are not available as explosion proof. The TMX direct drive is intended as a commercial product not for an industrial application where spark resistant construction would be required.



Motor in contact with the airstream¹

SQN-B/SQNHP



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

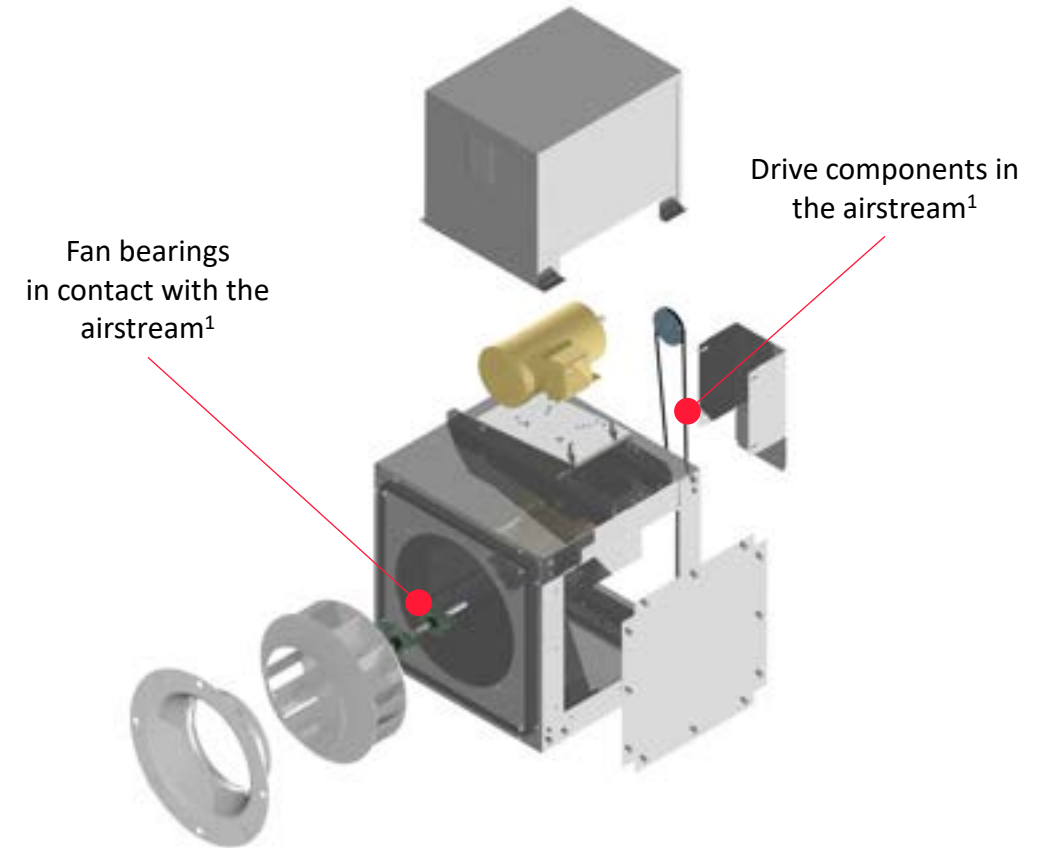
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in an inner housing that is not gas tight; therefore, they are considered to be in contact with the airstream.



SQN-D/SQNDHP/SQNDXP



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

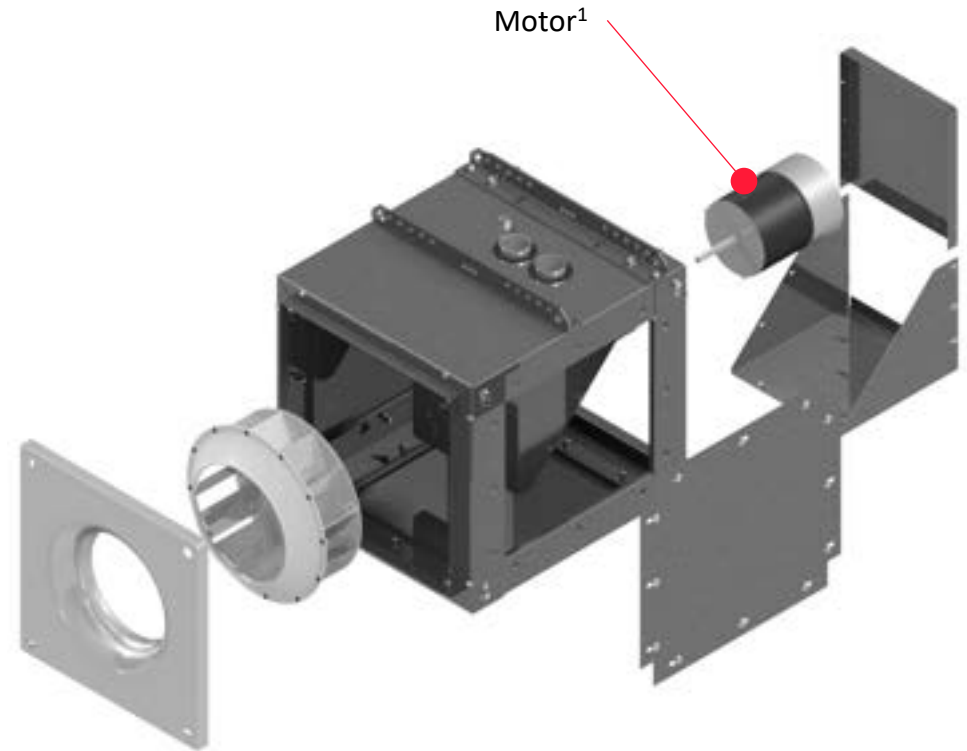
- Not Available¹

❌ AMCA – “C” Construction

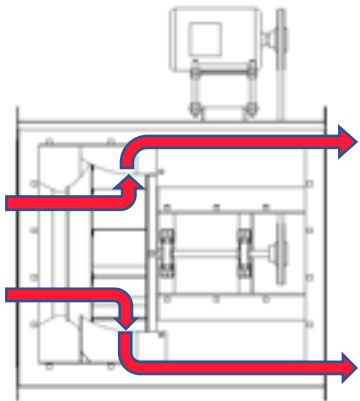
- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. The physical size of the required explosion proof motor prohibits its availability. The SQN is intended as a commercial product and not for an industrial application where spark resistant construction is requested.



SQI-B / SQI-HP



SQI-B Airstream

AMCA – “A” Construction

- All aluminum construction (Standard steel construction not allowed)
- Stainless steel shaft
- Stainless steel hardware
- Shaft Seal¹
- Special inner housing construction²

AMCA – “B” Construction

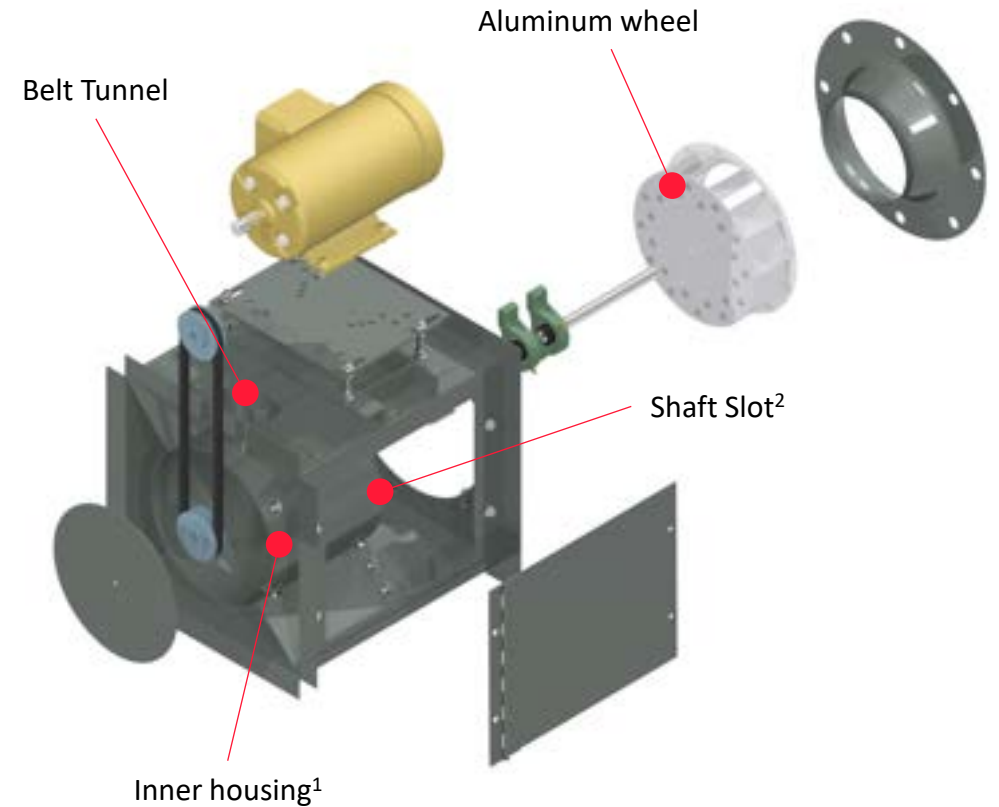
- Stainless steel shaft
- Shaft Seal¹
- Special inner housing construction²

AMCA – “C” Construction

- Shaft Seal¹
- Special inner housing construction²

Notes (See exploded view):

1. Seals the inner housing, bearings, and drive components from the airstream. Shaft seal includes a “nonferrous ring” aka “rub ring”.
2. The standard inner housing includes a slotted design to aid in the installation and removal of the fan’s shaft and bearings. The special inner housing design replaces the slot and allows the installation of the shaft seal.



SQI-D



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

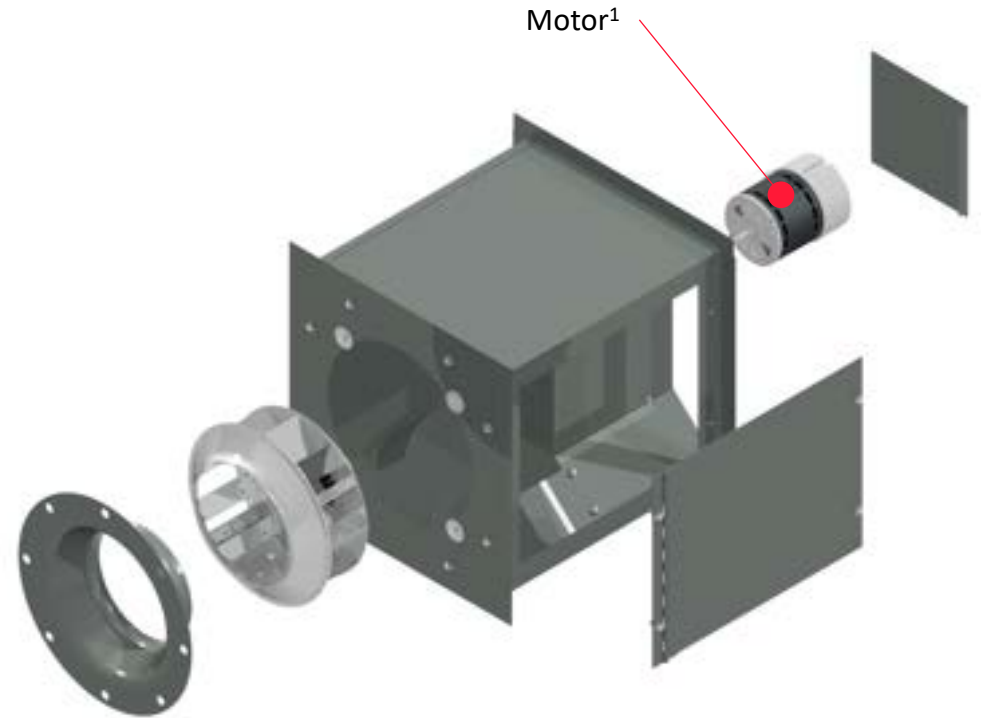
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. The physical size of the required explosion proof motor prohibits its availability.



TCN-B/TCNH-B



AMCA – “A” Construction

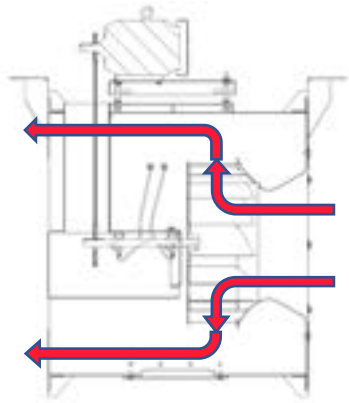
- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel shaft
- Stainless steel hardware
- Shaft Seal¹

AMCA – “B” Construction

- Shaft Seal¹
- For TCNH – Aluminum wheel (Standard steel wheel is not allowed)

AMCA – “C” Construction

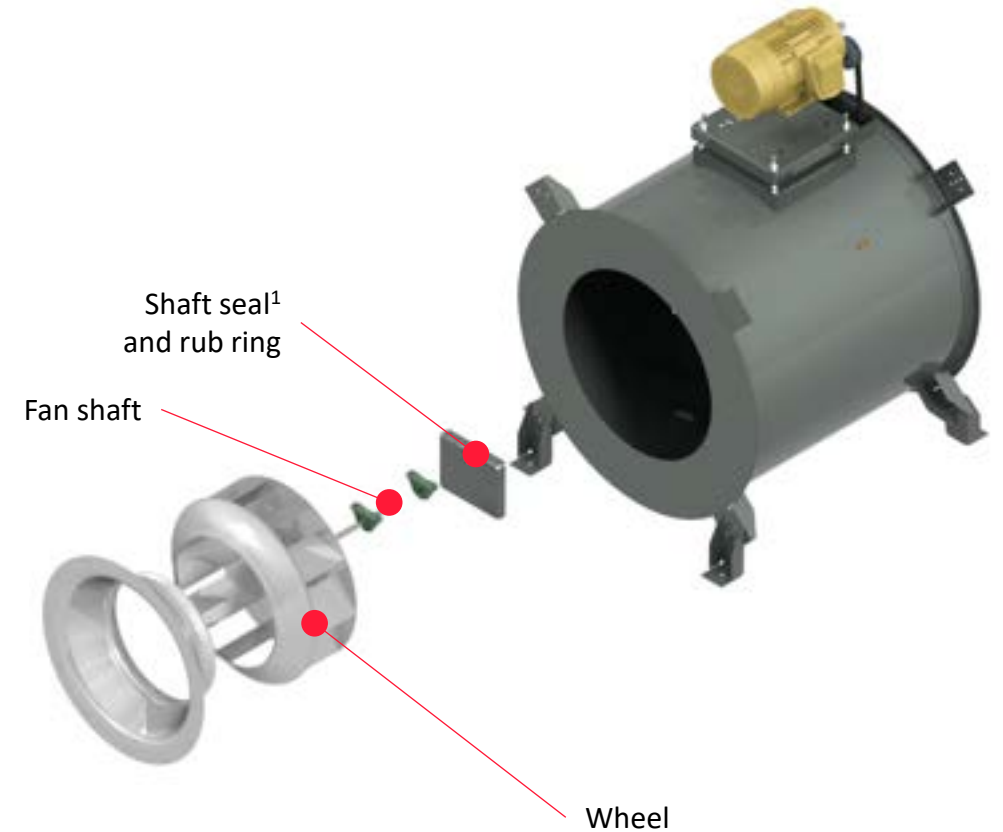
- Shaft Seal¹



TCN-B / TCNH-B Airstream

Notes (See exploded view):

1. Seals the inner housing, bearings, and drive components from the airstream. Bearing cover standard construction includes a “nonferrous ring” aka “rub ring”.



TCN-D/TCNH-D



AMCA – “A” Construction

- Explosion-proof motor
- All aluminum airstream construction (Standard steel construction not allowed)

⊘ AMCA – “B” Construction

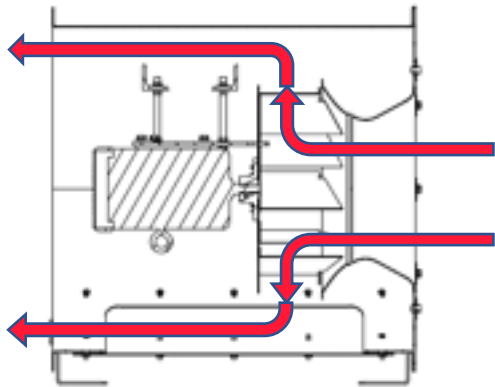
- Not Available¹

AMCA – “C” Construction

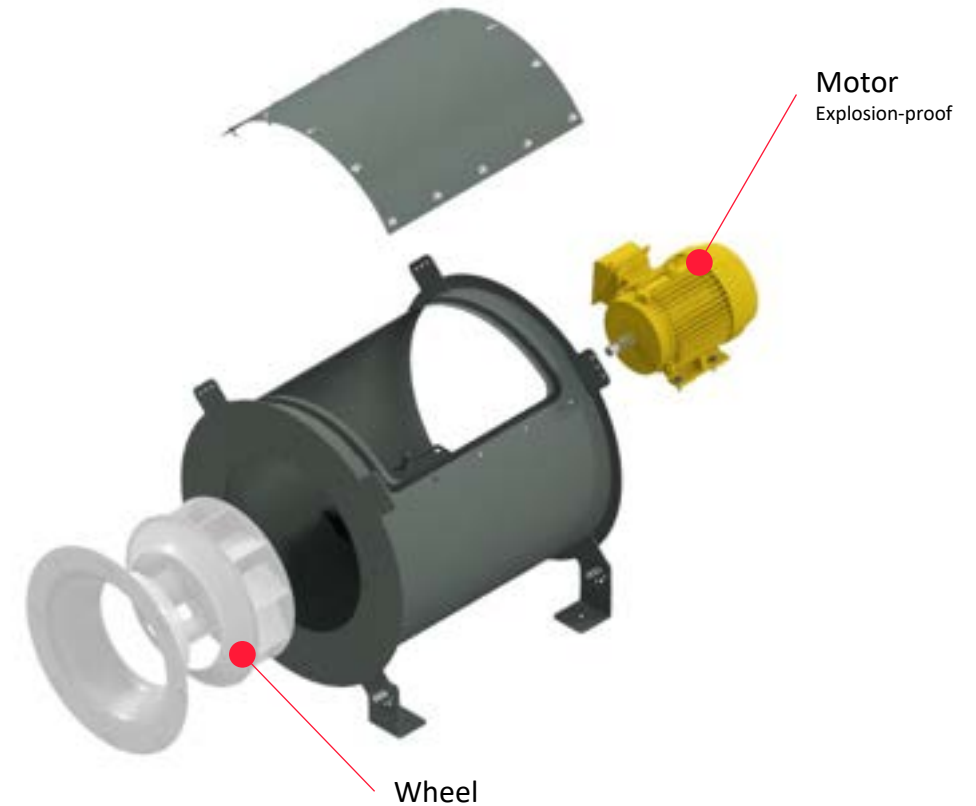
- Explosion-Proof motor
- For TCNH – Aluminum wheel (Standard steel wheel is not allowed)

Notes (See exploded view):

1. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.



TCN-D Airstream





❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

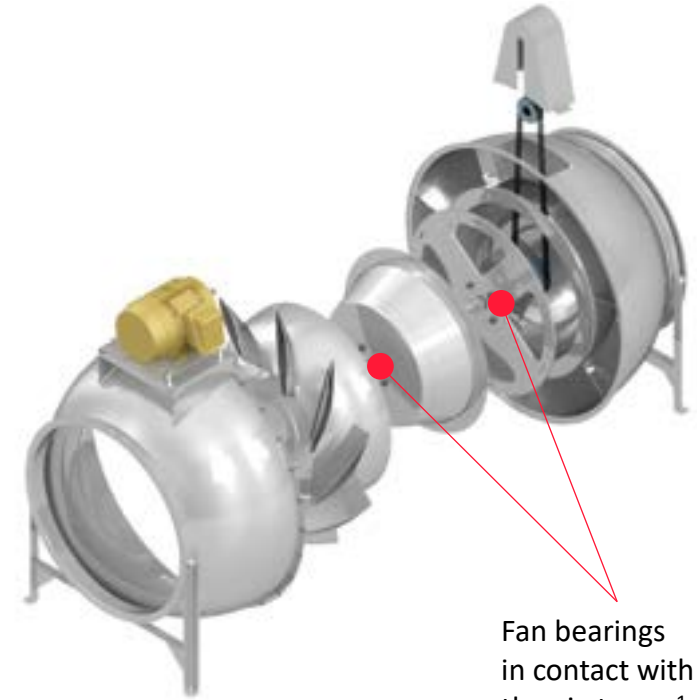
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings in contact with the airstream.



Fan bearings in contact with the airstream¹

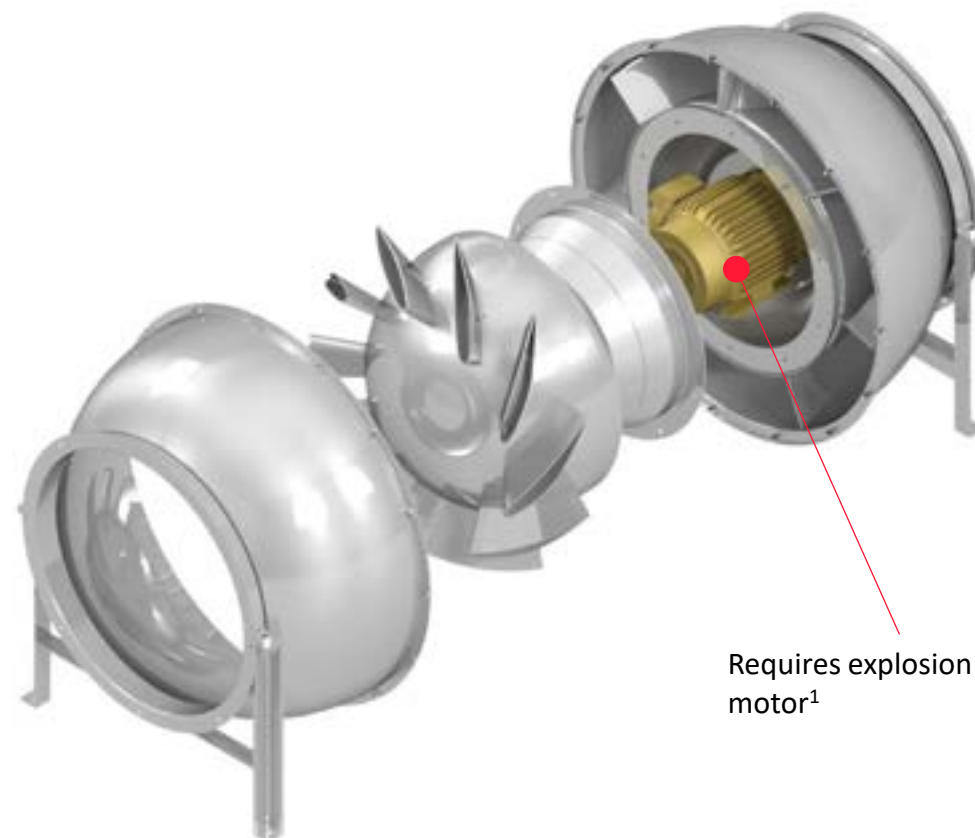
CVD



- ❌ AMCA – “A” Construction
 - Not Available¹
- ❌ AMCA – “B” Construction
 - Not Available¹
- ❌ AMCA – “C” Construction
 - Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. The physical size of the required explosion proof motor prohibits its availability.



Requires explosion proof motor¹



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

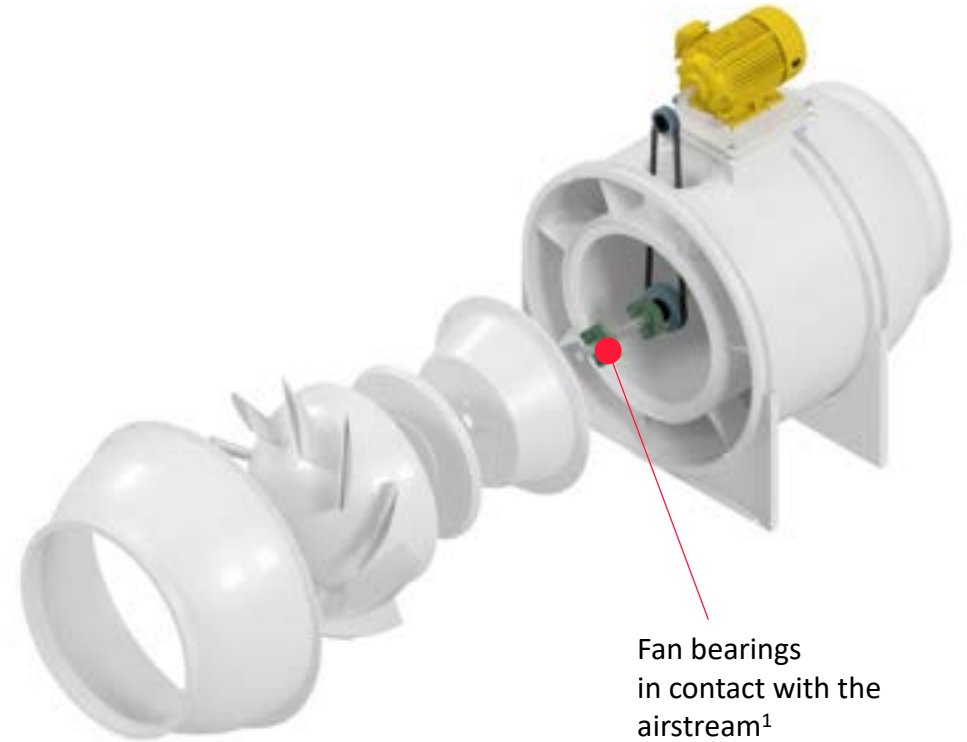
- Not Available¹

❌ AMCA – “C” Construction

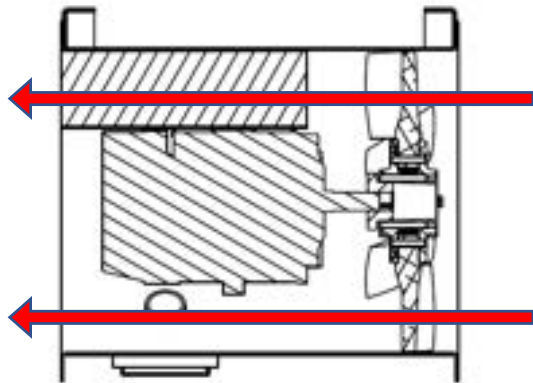
- Not Available¹

Notes (See exploded view):



1. Not available with any level of spark resistant construction, due to AMCA Exception Note 1. Bearings in contact with the airstream.



AI / AFD-C

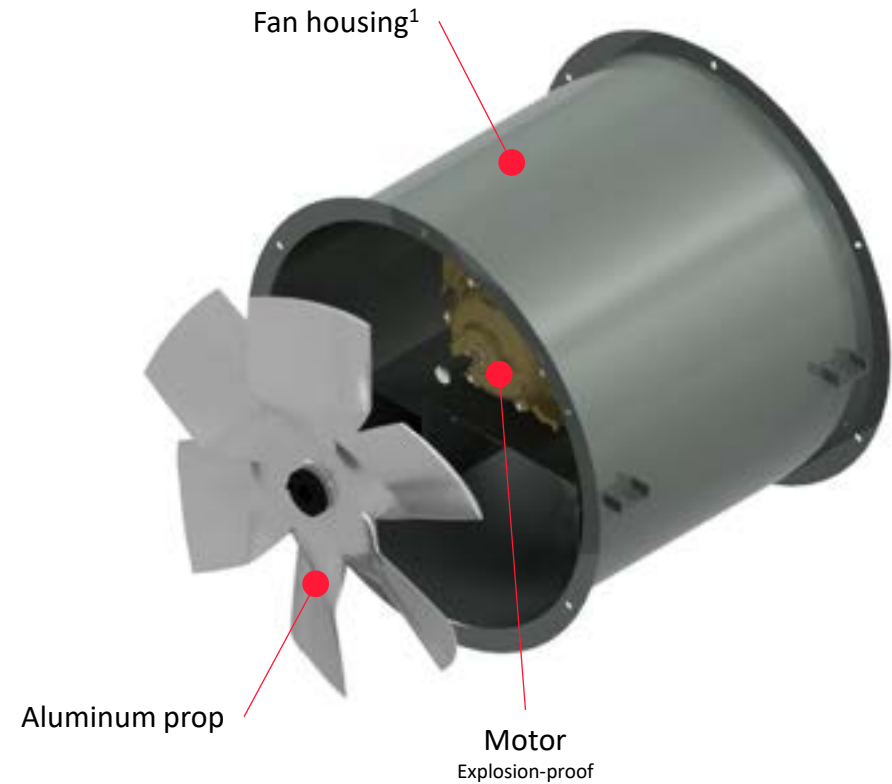


AI Airstream

 AMCA – “A” Construction
• Not Available ¹
 AMCA – “B” Construction
• Not Available ²
AMCA – “C” Construction
• Explosion proof motor

Notes (See exploded view):

1. Housing design is not available with aluminum construction
2. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.



ADB/EDB/TIB/XIB



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

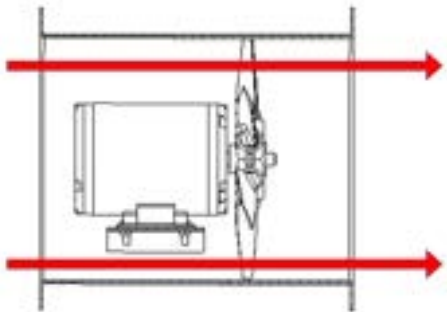
Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are exposed to the airstream.



Fan bearings and drive components are exposed to the airstream¹

ADD / EDD / TID¹



ADD / EDD Airstream

AMCA – “A” Construction

- Explosion-proof motor
- All aluminum construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

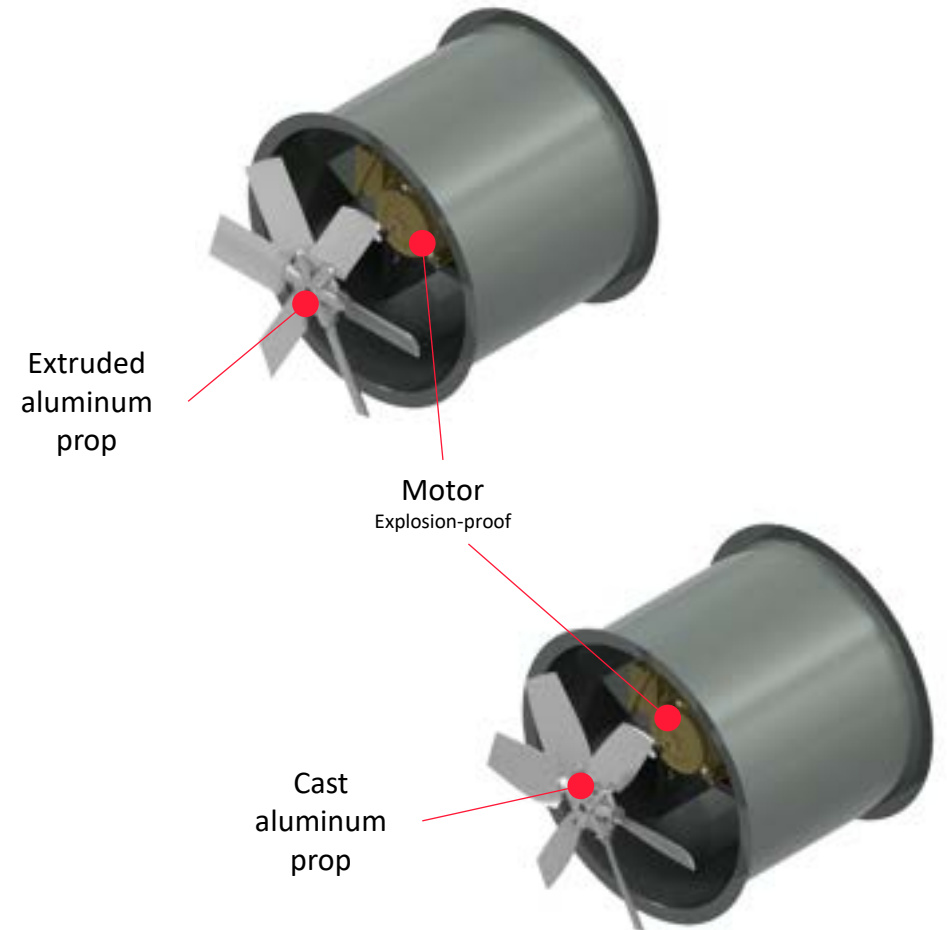
- Not Available²

AMCA – “C” Construction

- Explosion-Proof motor

Notes (See exploded view):

1. TID are not available with any of level spark resistant construction. The T (Triton) prop is steel and is not available in aluminum construction
2. Fan construction does not allow for the fan shaft to pass through an opening. Therefore a “nonferrous ring” aka “rub ring” does not occur.



VAB / VAHB / AVAB



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

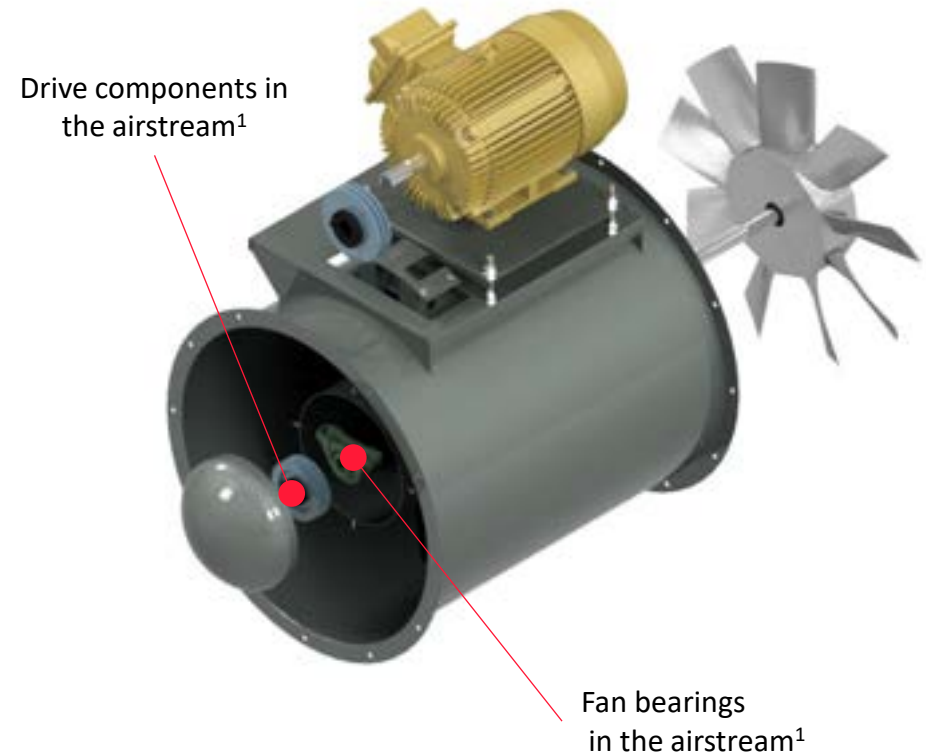
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in contact with the airstream.



VAD / AVAD



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

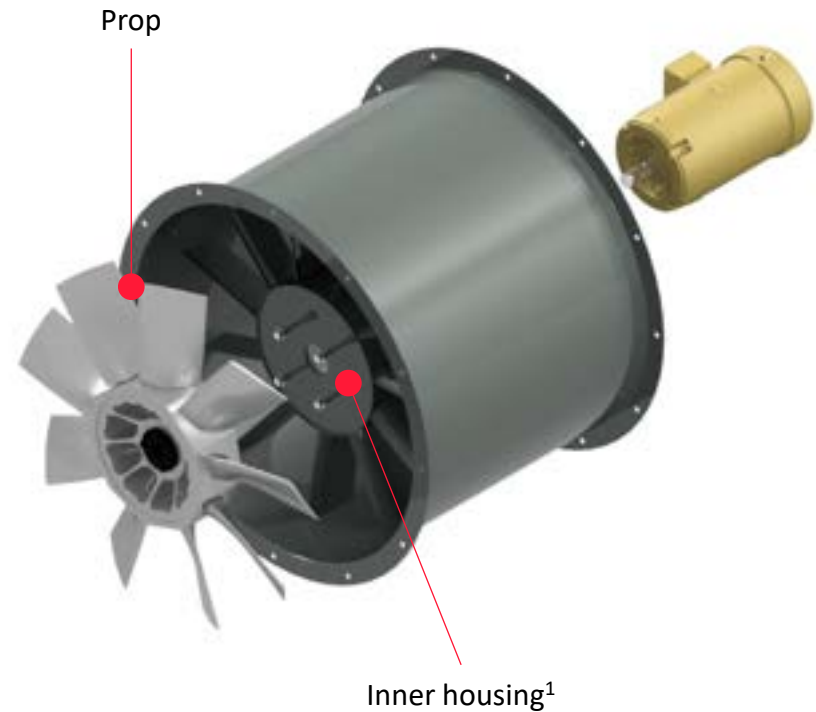
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction, due to AMCA Exception Note 1. The physical size of the required explosion proof motor and design of the inner housing prohibits its availability.



AFB



AMCA – “A” Construction

- All aluminum construction¹
- Special inner housing construction

AMCA – “B” Construction

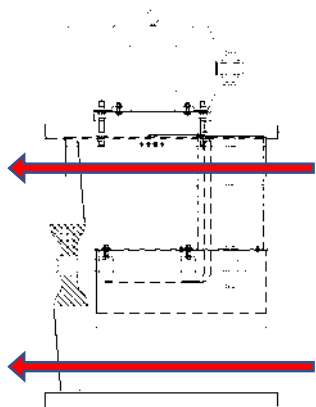
- Special inner housing construction²
- Rub ring

AMCA – “C” Construction

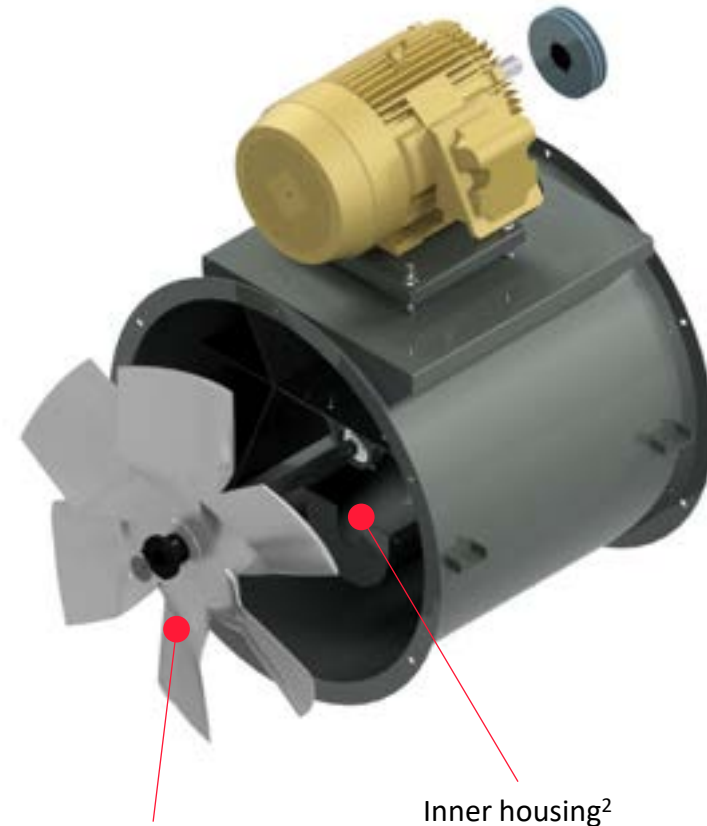
- Special inner housing construction²

Notes (See exploded view):

1. Not available on AFB-S and AFB-H. Both require steel (ferrous) construction.
2. Inner housing constructed with flanges to seal bearing from the airstream.



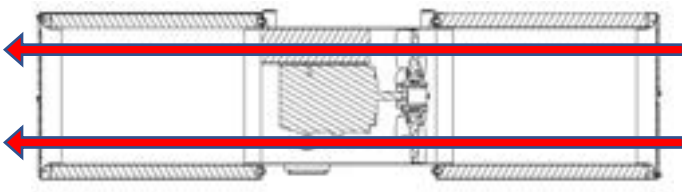
AFB Airstream



Aluminum prop¹

Inner housing²

JET STREAM



JS Airstream

AMCA – “A” Construction

- Not Available¹

AMCA – “B” Construction

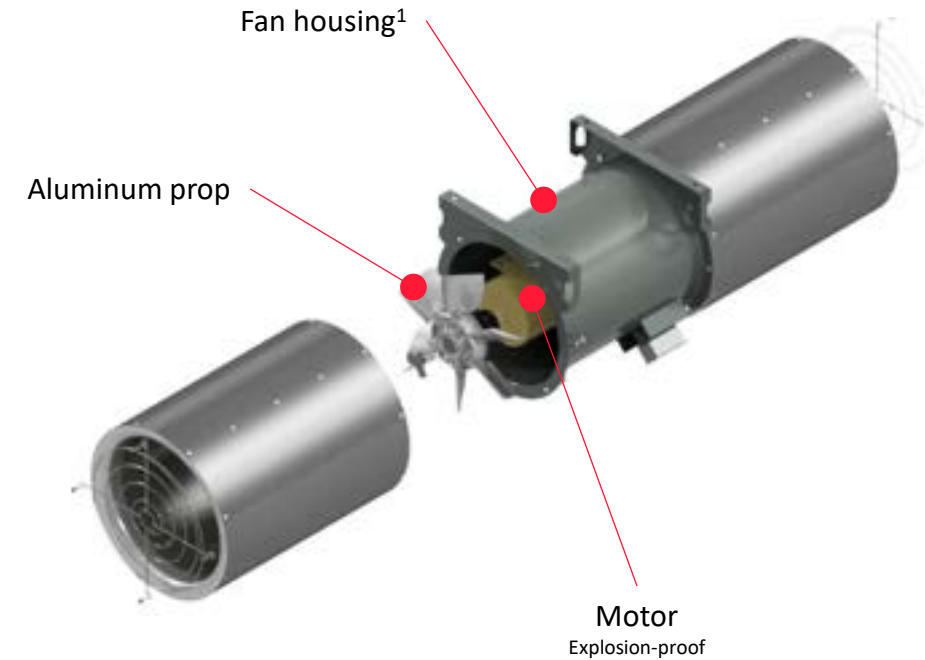
- Not Available²

AMCA – “C” Construction

- Explosion proof motor

Notes (See exploded view):

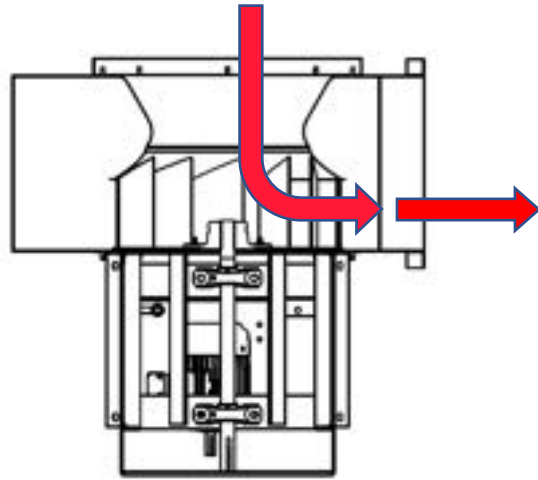
1. Housing design is not available with aluminum construction
2. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.



CPA/CPA-A Belt drive / Arrangement 10



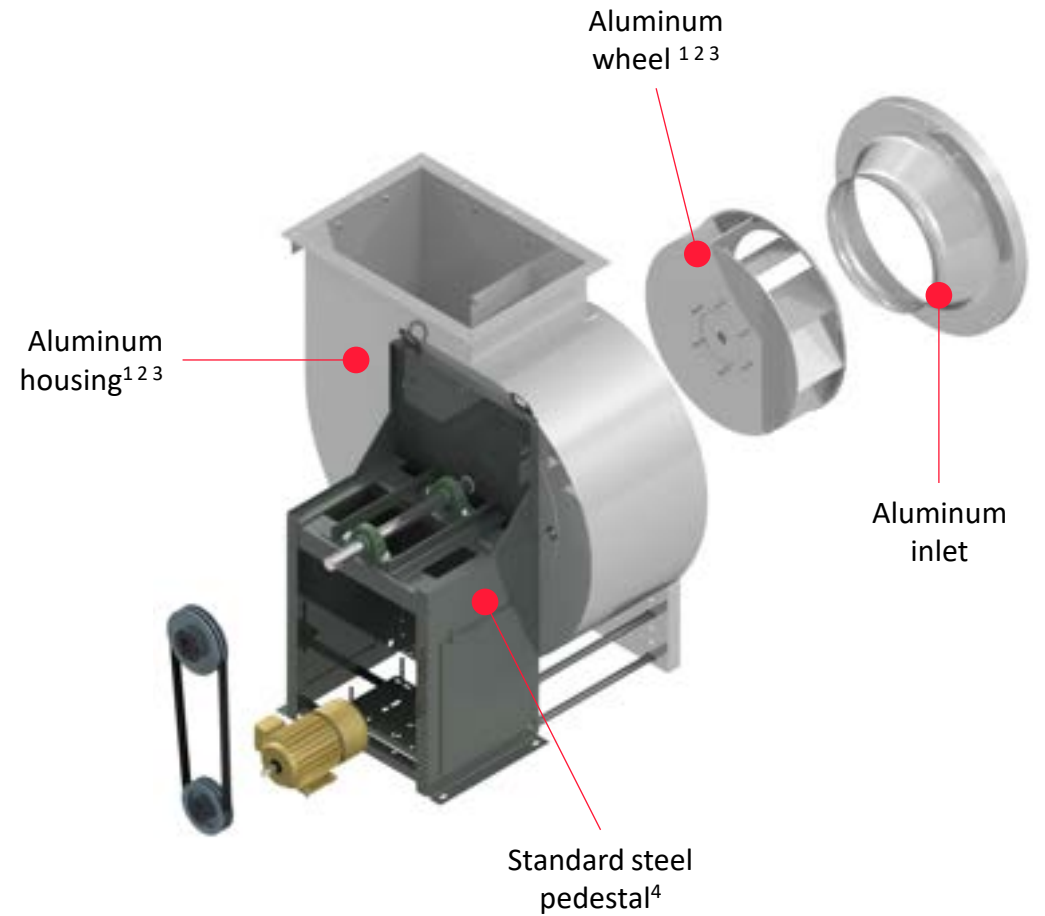
AMCA – “A” Construction
• Standard ¹
AMCA – “B” Construction
• Standard ²
AMCA – “C” Construction
• Standard ³



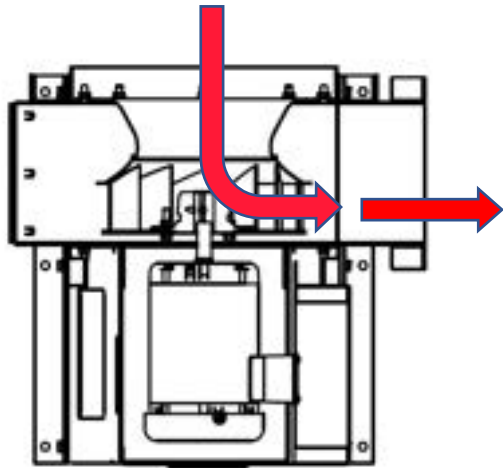
CPA Airstream

Notes (See exploded view):

1. Wheel, inlet, and housing of the fan are standard as aluminum construction
2. Fan construction allows the fan shaft to pass through an aluminum opening. Therefore, a “nonferrous ring” aka “rub ring” is standard.
3. Standard aluminum construction would not allow two ferrous parts to rub or strike.
4. Steel pedestal is outside the airstream.



CPA/CPA-A Direct drive / Arrangement 4

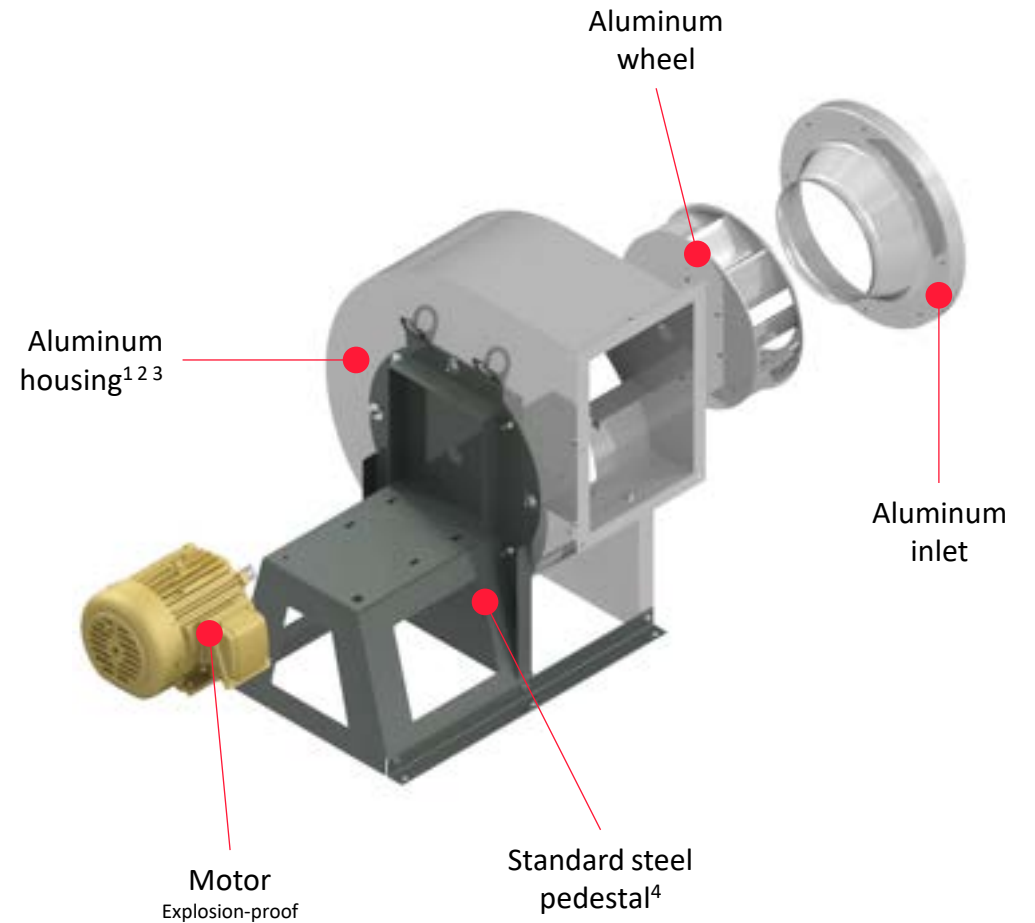


CPA Arr. 4 Airstream

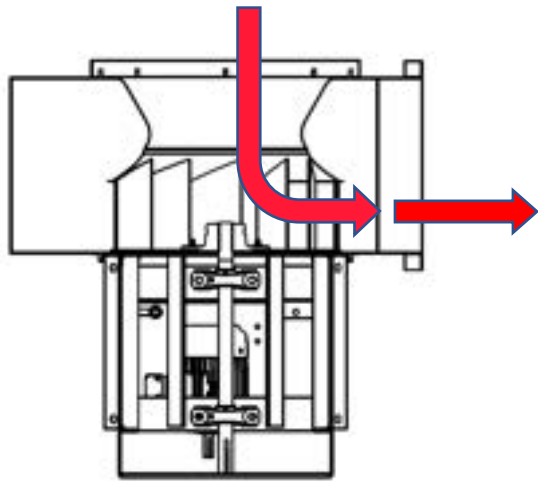
AMCA – “A” Construction
• Requires explosion proof motor ¹
AMCA – “B” Construction
• Requires explosion proof motor ²
AMCA – “C” Construction
• Requires explosion proof motor ³

Notes (See exploded view):

1. Wheel, inlet, and housing of the fan are standard as aluminum construction
2. Fan construction allows the fan shaft to pass through an aluminum opening. Therefore a “nonferrous ring” aka “rub ring” is standard.
3. Standard aluminum construction would not allow two ferrous parts to rub or strike.
4. Steel pedestal is outside the airstream.



CPS/CPS-A Belt drive / Arrangement 10

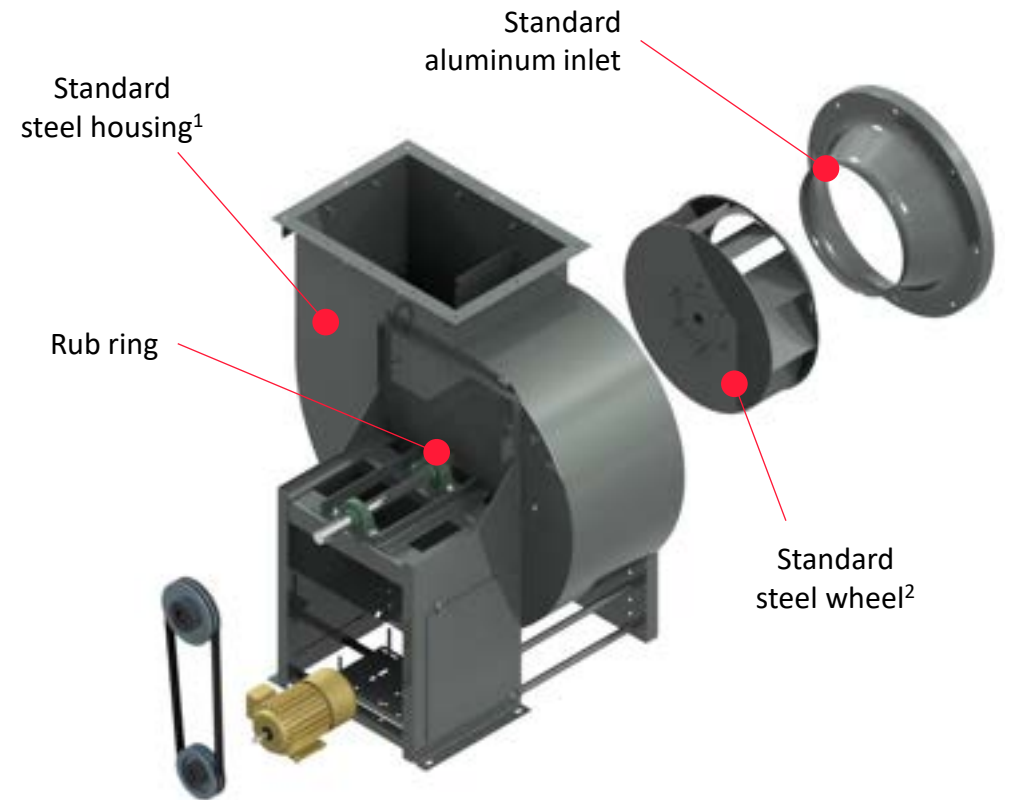


CPS Airstream

AMCA – “A” Construction
<ul style="list-style-type: none">• Not available¹
AMCA – “B” Construction
<ul style="list-style-type: none">• Rub ring• Aluminum wheel²
AMCA – “C” Construction
<ul style="list-style-type: none">• Rub ring

Notes (See exploded view):

1. Use CPA or CPA-A.
2. Standard steel wheel is not allowed.



CPS/CPS-A Direct drive / Arrangement 4



AMCA – “A” Construction

- Not available¹

AMCA – “B” Construction

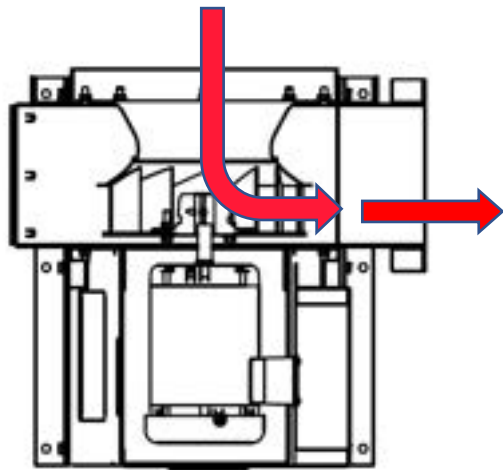
- Not available²

AMCA – “C” Construction

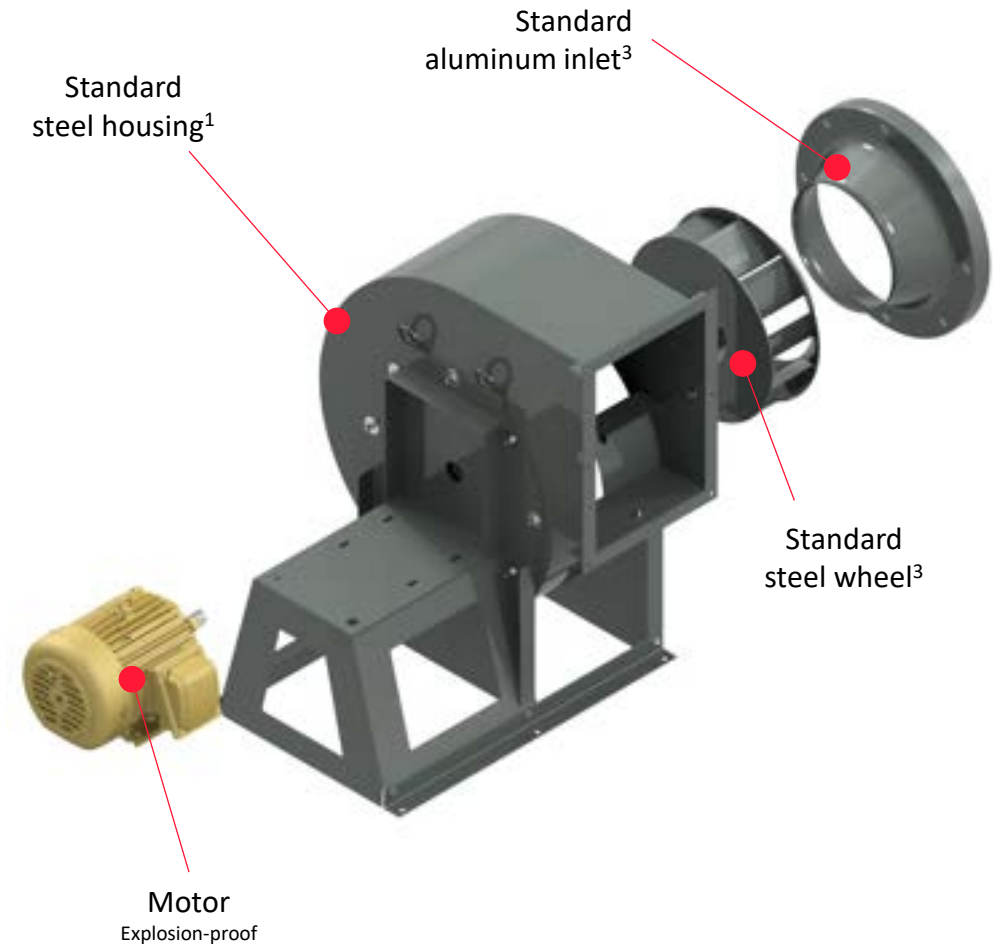
- Requires explosion proof motor
- Add aluminum wheel³

Notes (See exploded view):

1. Steel housing is not allowed for AMCA “A”. Use CPA/CPA-A.
2. Standard fan construction does not allow the fan shaft to pass through an aluminum opening; also known as a “nonferrous ring” or “rub ring”.
3. Aluminum wheel with standard aluminum inlet is required to prevent two ferrous parts from rubbing or striking.



CPS Arr. 4 Airstream





AMCA – “A” Construction

- Aluminum housing
(Standard steel housing not allowed)
- Stainless steel shaft
- Stainless steel hardware

AMCA – “B” Construction

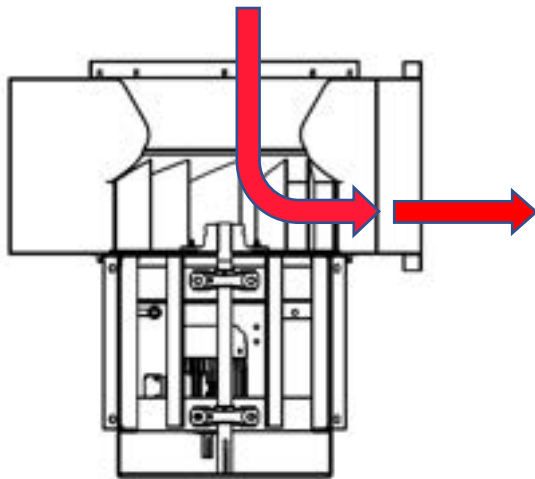
- Rub ring

AMCA – “C” Construction

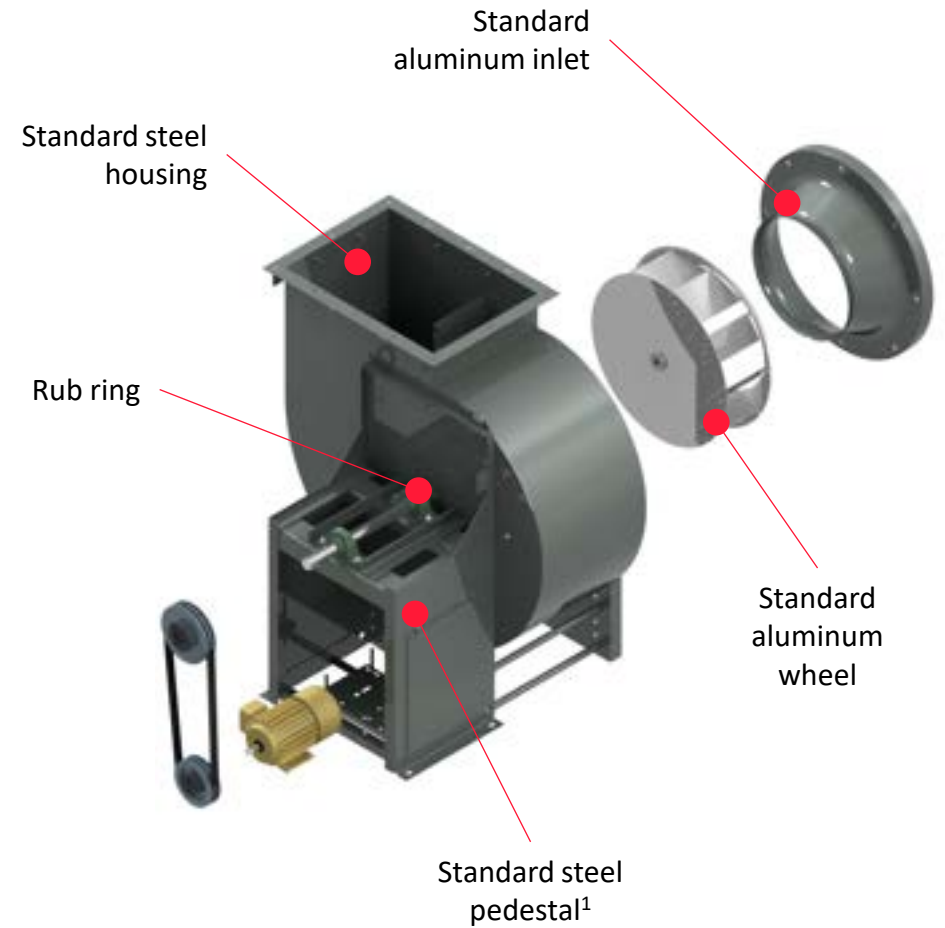
- Rub ring

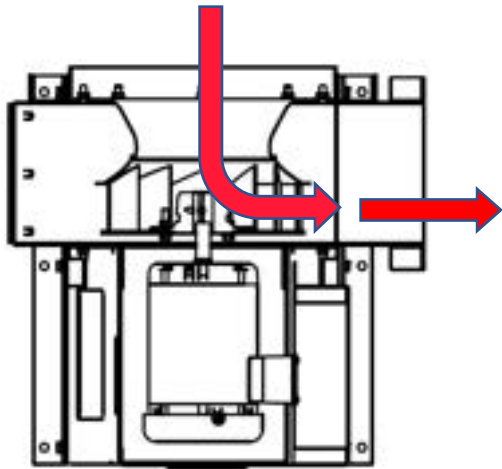
Notes (See exploded view):

1. Steel pedestal is outside the airstream.



CPV Airstream



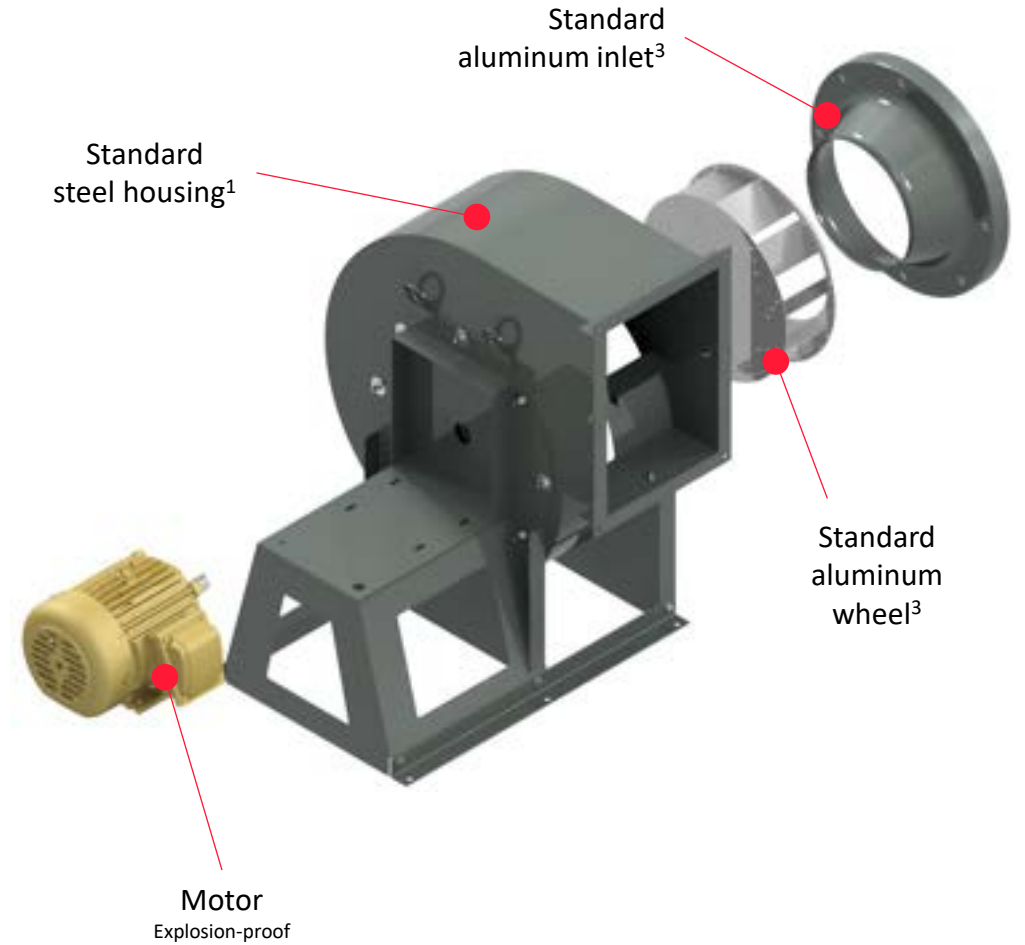


CPV Arr. 4 Airstream

AMCA – “A” Construction
<ul style="list-style-type: none"> Requires explosion proof motor Aluminum housing¹ (Standard steel housing not allowed)
AMCA – “B” Construction
<ul style="list-style-type: none"> Not available²
AMCA – “C” Construction
<ul style="list-style-type: none"> Requires explosion proof motor³

Notes (See exploded view):

1. Steel housing is not allowed for AMCA “A”.
2. Standard fan construction does not allow the fan shaft to pass through an aluminum opening; also known as a “nonferrous ring” or “rub ring”.
3. Standard aluminum wheel with standard aluminum inlet prevents two ferrous parts to rubbing or striking.



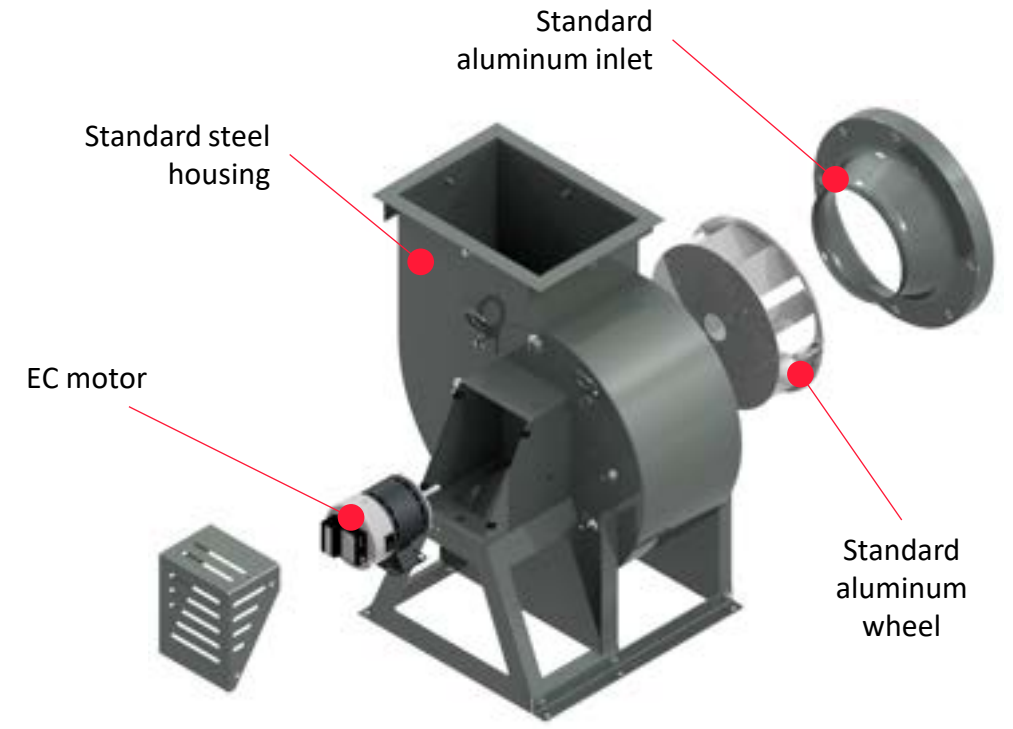
CPVEC / CPV-VF Direct drive



- AMCA – “A” Construction**
 - Not available¹
- AMCA – “B” Construction**
 - Not available¹
- AMCA – “C” Construction**
 - Not available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. The motor is exposed to the airstream. EC and Vari-Flow motors are not available as explosion proof.



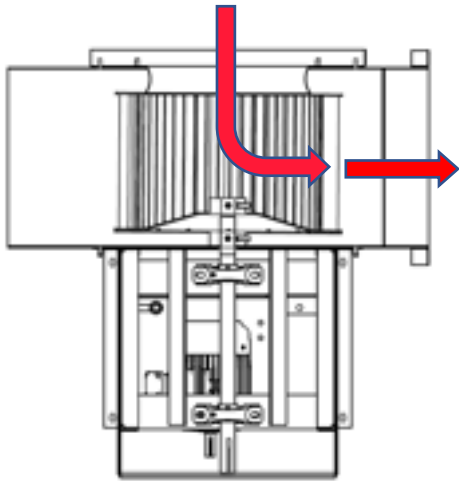
CPFB Belt drive Arrangement 10



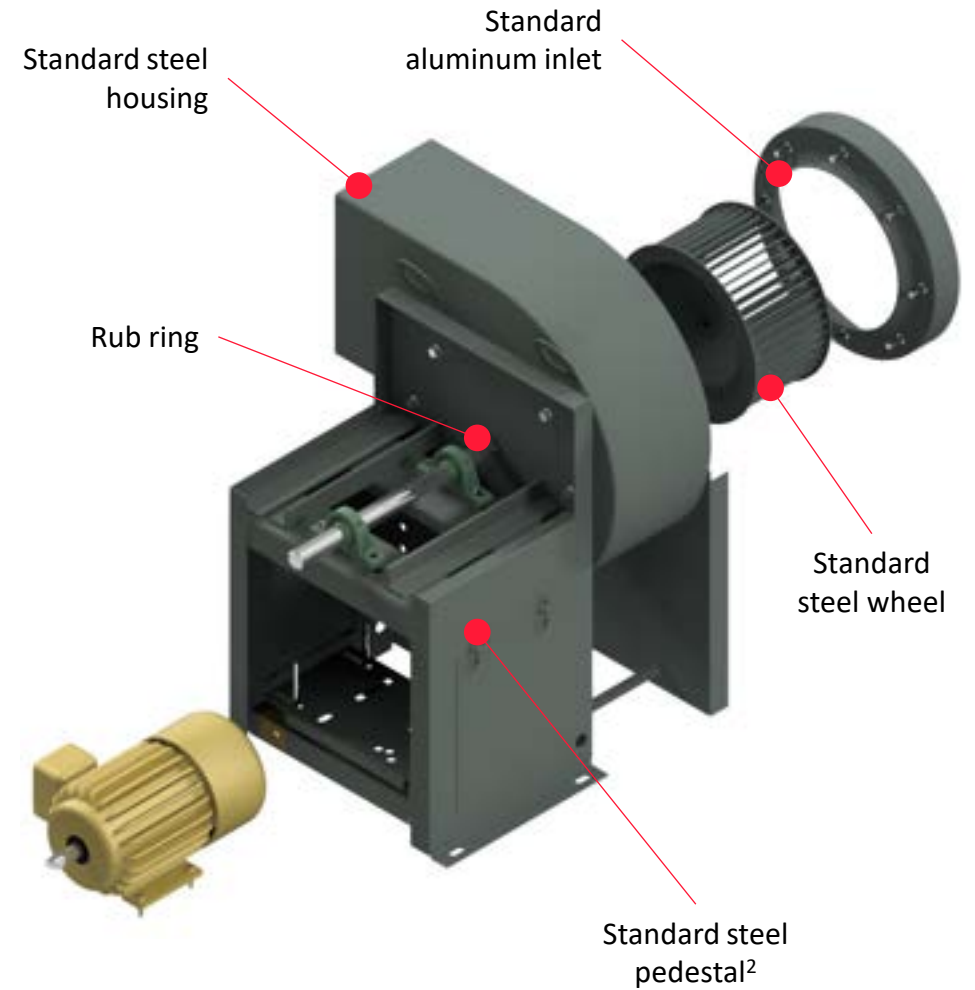
AMCA – “A” Construction
• Not available ¹
AMCA – “B” Construction
• Not available ¹
AMCA – “C” Construction
• Rub ring

Notes (See exploded view):

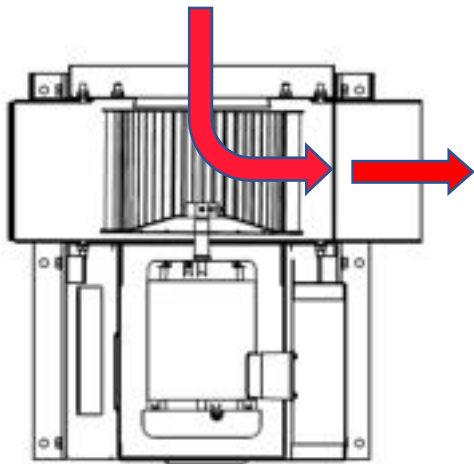
1. Requires aluminum wheel which is no longer available.
2. Steel pedestal is outside the airstream.



CPFB Airstream



CPFD Direct drive / Arrangement 4



CPFD Airstream

AMCA – “A” Construction

- Requires explosion proof motor
- Aluminum housing^{1&2}
(Standard steel housing not allowed)
- Aluminum wheel²

AMCA – “B” Construction

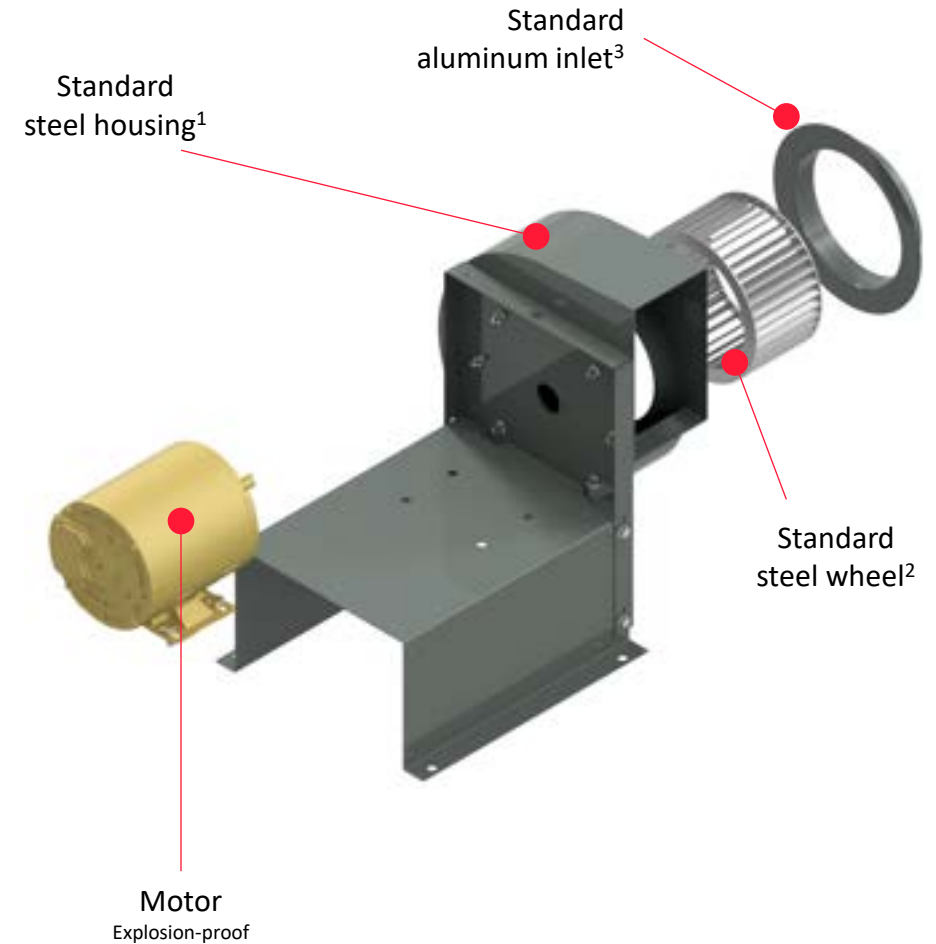
- Requires explosion proof motor
- Rub Ring
- Aluminum Wheel²

AMCA – “C” Construction

- Requires explosion proof motor
- Aluminum wheel²

Notes (See exploded view):

1. Steel housing is not allowed for AMCA “A”.
2. Requires special tooling set-up, and a minimum order quantity.
3. Standard aluminum inlet with aluminum wheel prevents two ferrous parts from rubbing or striking.



CA-SWSI / CA-4 SWSI / CF-SWSI / CF-4 SWSI Arrangement 1, 2, 8, 9, and 10



AMCA – “A” Construction

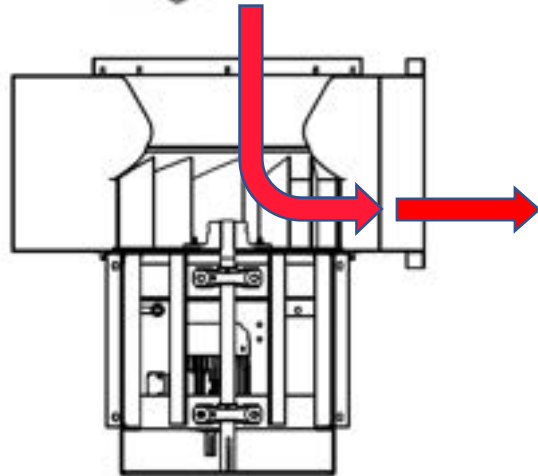
- Aluminum housing¹
(Standard steel housing not allowed)
- Aluminum wheel²
- Stainless steel shaft
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum wheel
- Rub ring

AMCA – “C” Construction

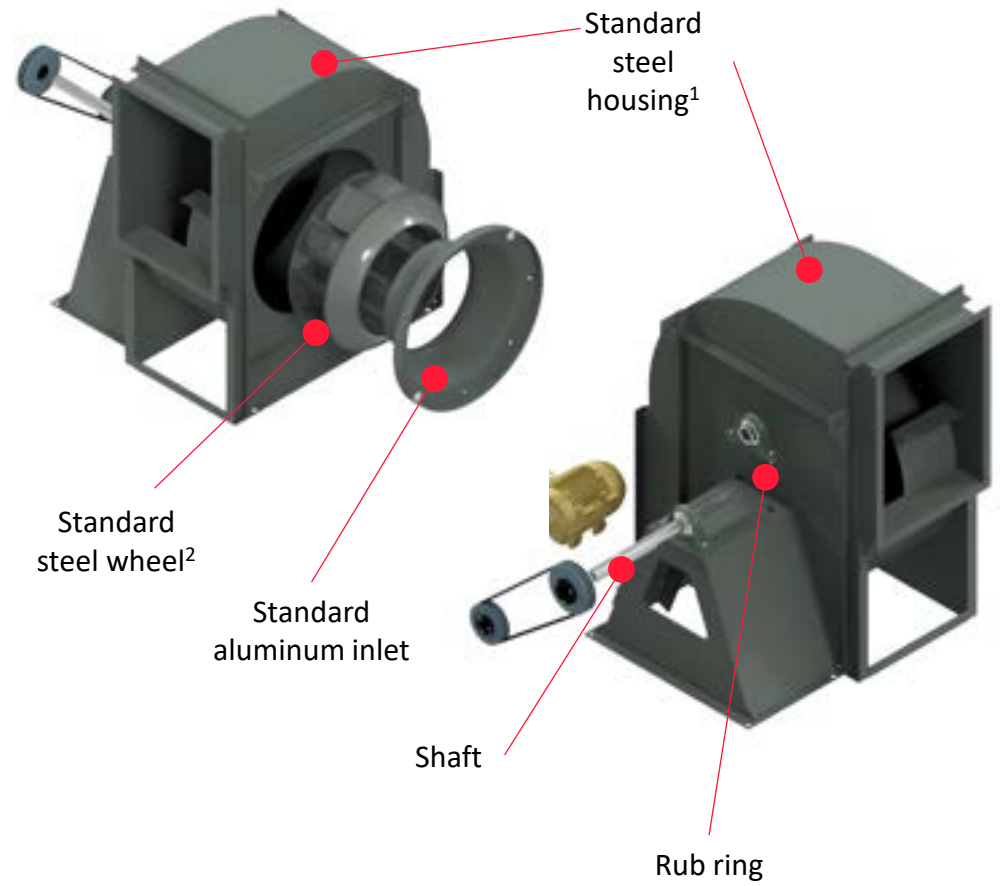
- Rub ring
- Aluminum inlet³



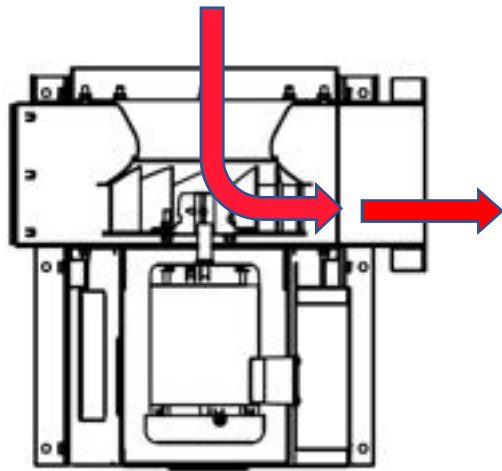
Notes (See exploded view):

1. Standard housing construction is steel. Maximum airstream temperature for aluminum is 300°F.
2. Standard wheel construction is steel. Maximum airstream temperature for aluminum is 300°F.
3. Standard construction is aluminum.

CA SWSI Arr. 10



CA-SWSI / CA-4 SWSI / CF-SWSI / CF-4 SWSI Arrangement 4



CA-SWSI Arr. 4 Airstream

AMCA – “A” Construction

- Explosion-proof motor
- Aluminum housing¹
(Standard steel housing not allowed)
- Aluminum wheel²
- Stainless steel hardware

AMCA – “B” Construction

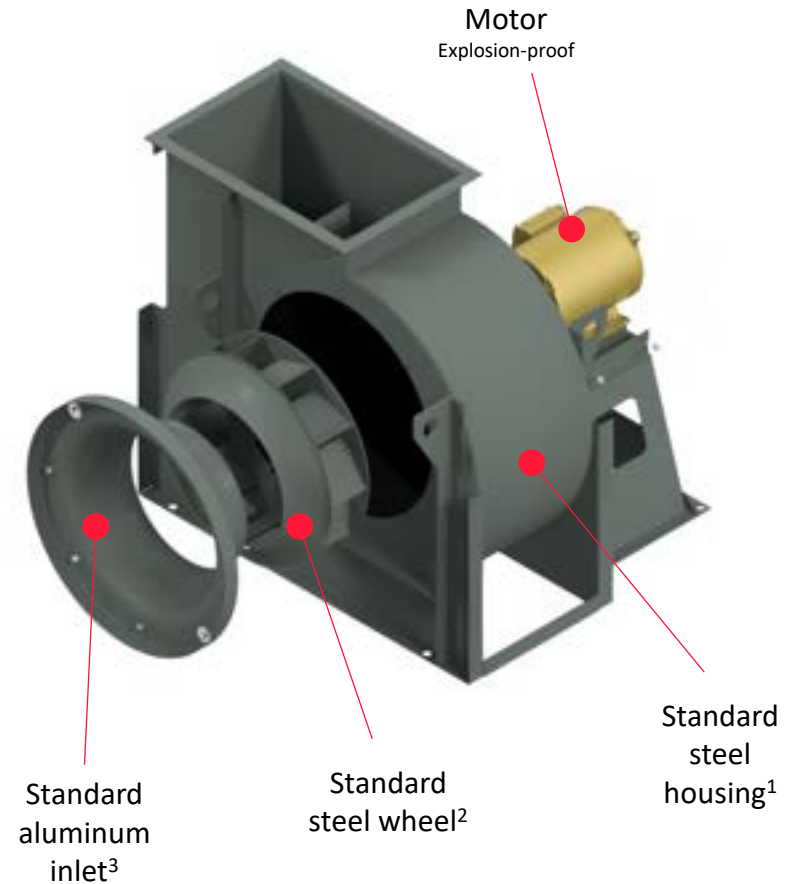
- Explosion-proof motor
- Aluminum wheel²
- Rub ring

AMCA – “C” Construction

- Explosion-proof motor
- Aluminum wheel²
- Aluminum inlet³

Notes (See exploded view):

1. Standard housing construction is steel.
2. Standard wheel construction is steel.
3. Standard construction is aluminum.



CA-SWSI / CA-4 SWSI / CA-DWDI / CA-4 DWDI / CA-4 DWDI / CAF-DW Arrangement 3 & 7

AMCA – “A” Construction

- Aluminum housing
(Standard steel housing not allowed)
- Aluminum inlet box(es)¹
- Aluminum wheel
- Stainless steel hardware
- Stainless steel shaft – extended²
- Bearing reselection³

AMCA – “B” Construction

- Aluminum inlet box(es)¹
- Aluminum wheel
- Steel shaft – extended²
- Bearing reselection³
- Rub ring(s)⁴

AMCA – “C” Construction

- Inlet box(es)¹
- Steel shaft – extended²
- Bearing reselection³
- Rub ring(s)⁴

Arrangement 3

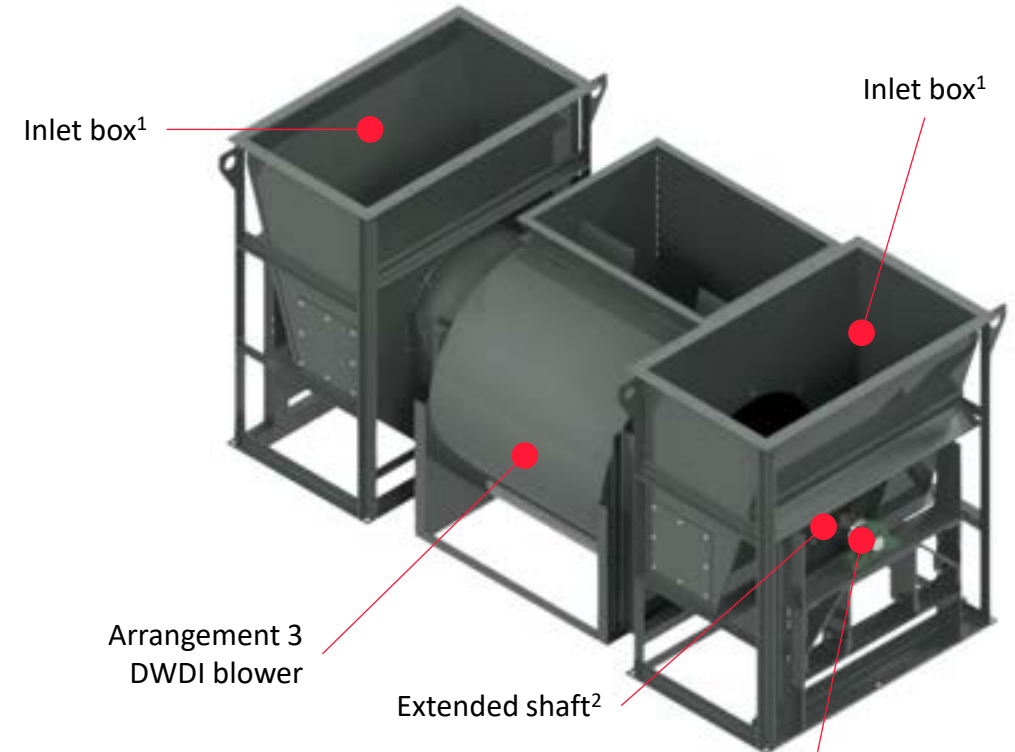


SWSI

DWDI



CA-DWDI

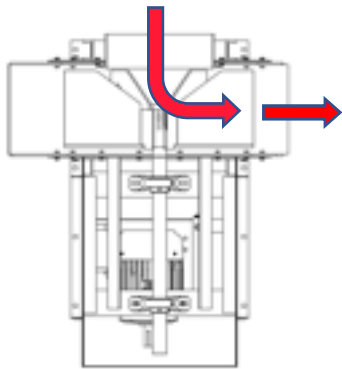


Notes:

AMCA arrangement 3 blowers have a bearings located in the inlets. Per AMCA spark resistant guidelines, bearings are prohibited in the airstream and thus requires a dramatic change to the design of the blower.

1. Inlet box – Single Width Single Inlet requires 1 and Double Width Double Inlet requires 2. This is step one in moving the bearings out of the airstream. The addition of inlet box(es) changes the installation of the blower from free inlet to ducted inlet installation only!
2. The blower shaft must be extended out and through the inlet box(es) to the new location of the bearings.
3. Due to the shaft extension adding additional weight and load to the bearings, the bearings life changes and requires a reselection of the bearings.
4. Based on the supporting structure of the inlet box final design, the inlet box may have more than one rub ring and include shaft seals

MH / MHB Arrangement 1, 8, 9 & 10



MH / MHB Airstream

AMCA – “A” Construction

- Standard Construction only and not available for Heavy Duty Construction¹
- Aluminum Construction¹
- Stainless steel shaft
- Stainless steel hardware

AMCA – “B” Construction

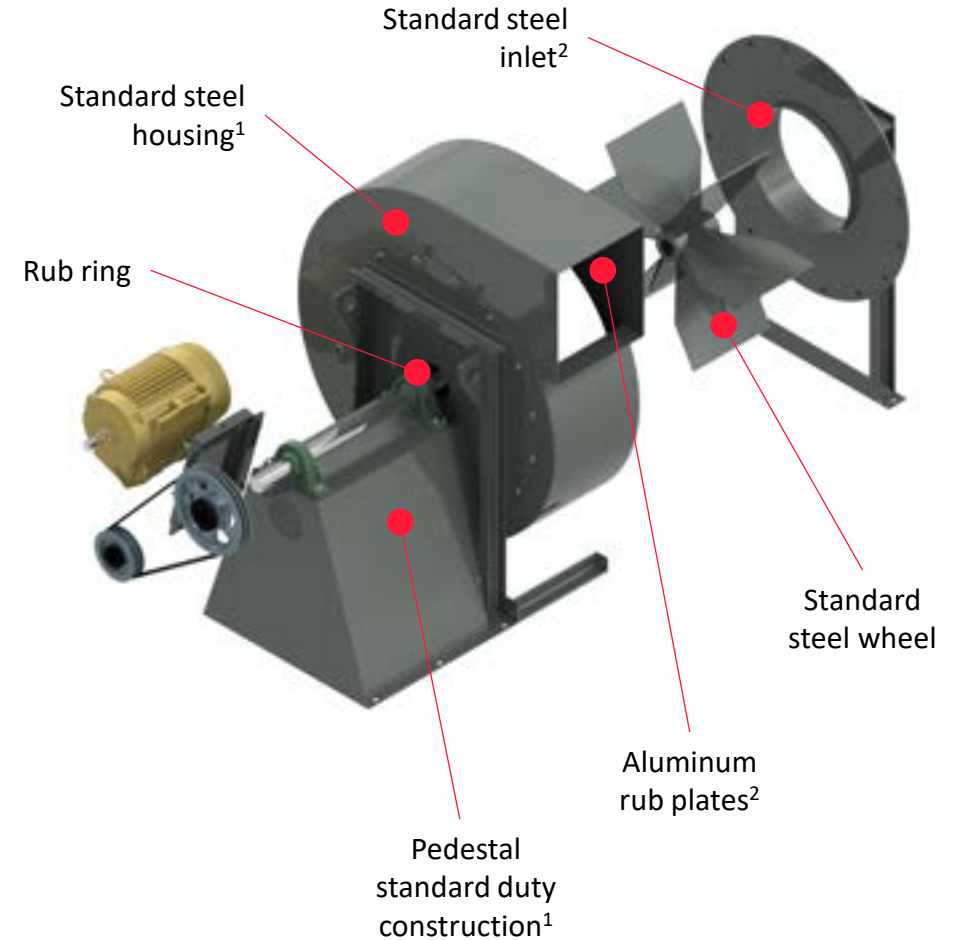
- Aluminum wheel
- Rub ring

AMCA – “C” Construction

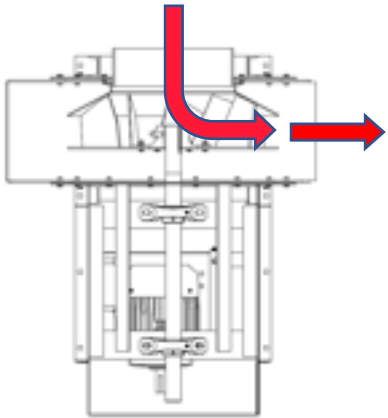
- Aluminum rub plates
- Aluminum bolt-in inlet²
- Rub ring

Notes (See exploded view):

1. Due to the horsepower and pressures associated with Heavy Duty construction, aluminum construction is not available.
2. Required on MH only.



MHA Arrangement 1, 8, 9 & 10



MHA Airstream

AMCA – “A” Construction

- Aluminum Construction
- Stainless steel shaft
- Stainless steel hardware

AMCA – “B” Construction

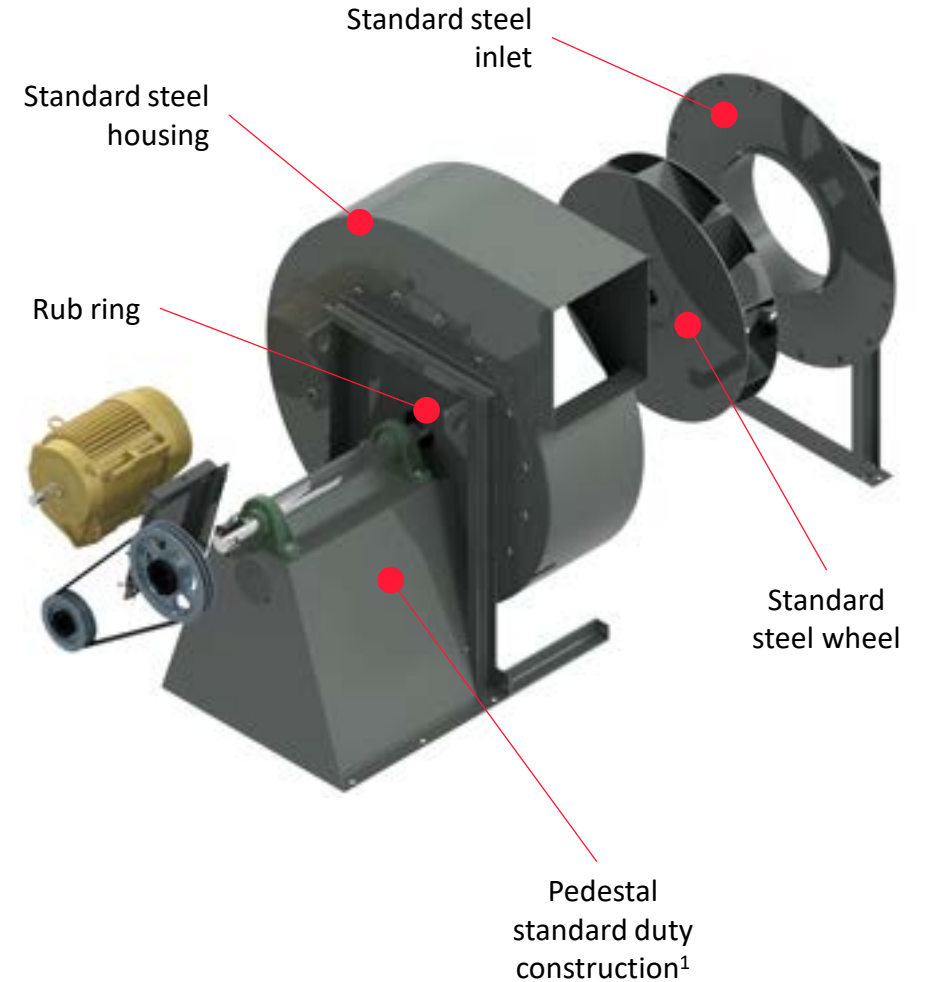
- Aluminum wheel
- Rub ring

AMCA – “C” Construction

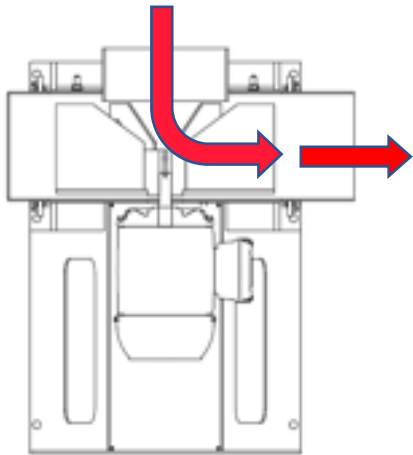
- Aluminum wheel
- Rub ring

Notes (See exploded view):

1. Due to the horsepower and pressures associated with Heavy Duty construction, aluminum construction is not available.



MHB Arrangement 4



MHB Airstream

AMCA – “A” Construction

- Standard Construction only and not available for Heavy Duty Construction¹
- Explosion-proof motor
- Aluminum Construction
- Stainless steel hardware

AMCA – “B” Construction

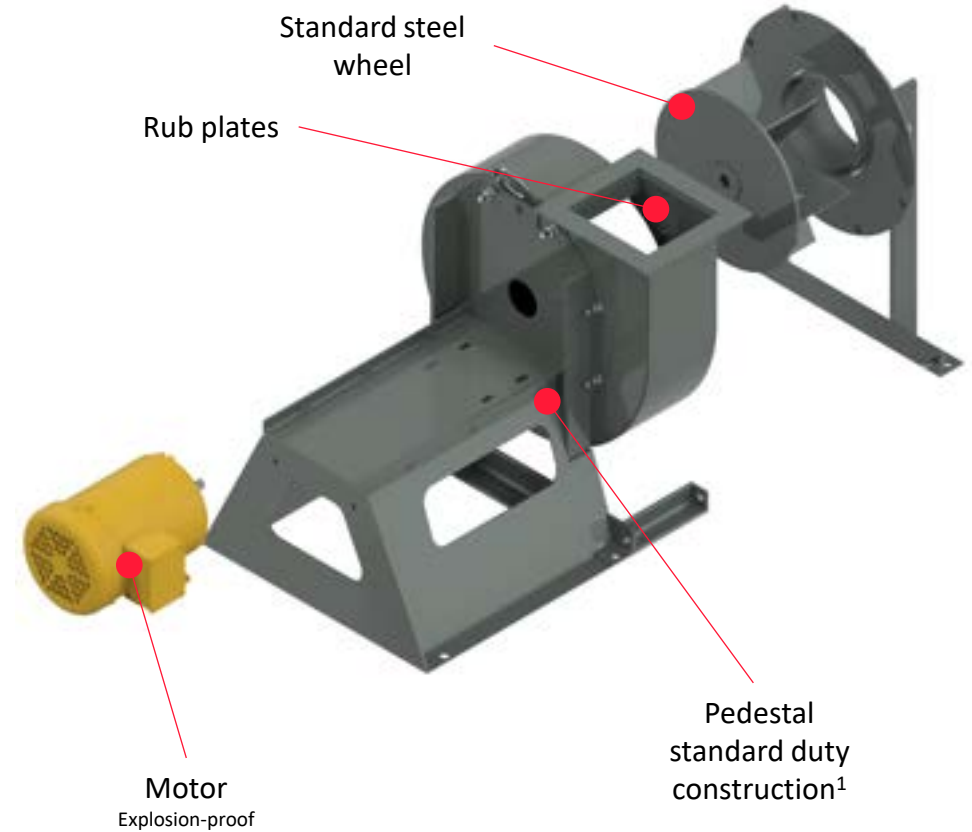
- Explosion-proof motor
- Aluminum wheel with special hub construction²

AMCA – “C” Construction

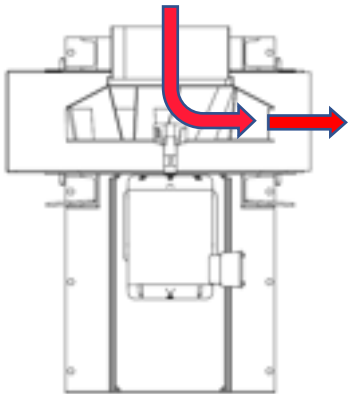
- Explosion-proof motor
- Aluminum rub plates³

Notes (See exploded view):

1. Due to the horsepower and pressures associated with Heavy Duty construction, aluminum construction is not available.
2. MH and MHR are not available due to the wheel and hub design. MHB is the only radial wheel available.
3. Aluminum rub plates are inside the housing sides to prevent the steel wheel from contacting the steel housing.



MHA Arrangement 4



MHA Airstream

AMCA – “A” Construction

- Explosion-proof motor
- Aluminum construction
- Stainless steel hardware

AMCA – “B” Construction

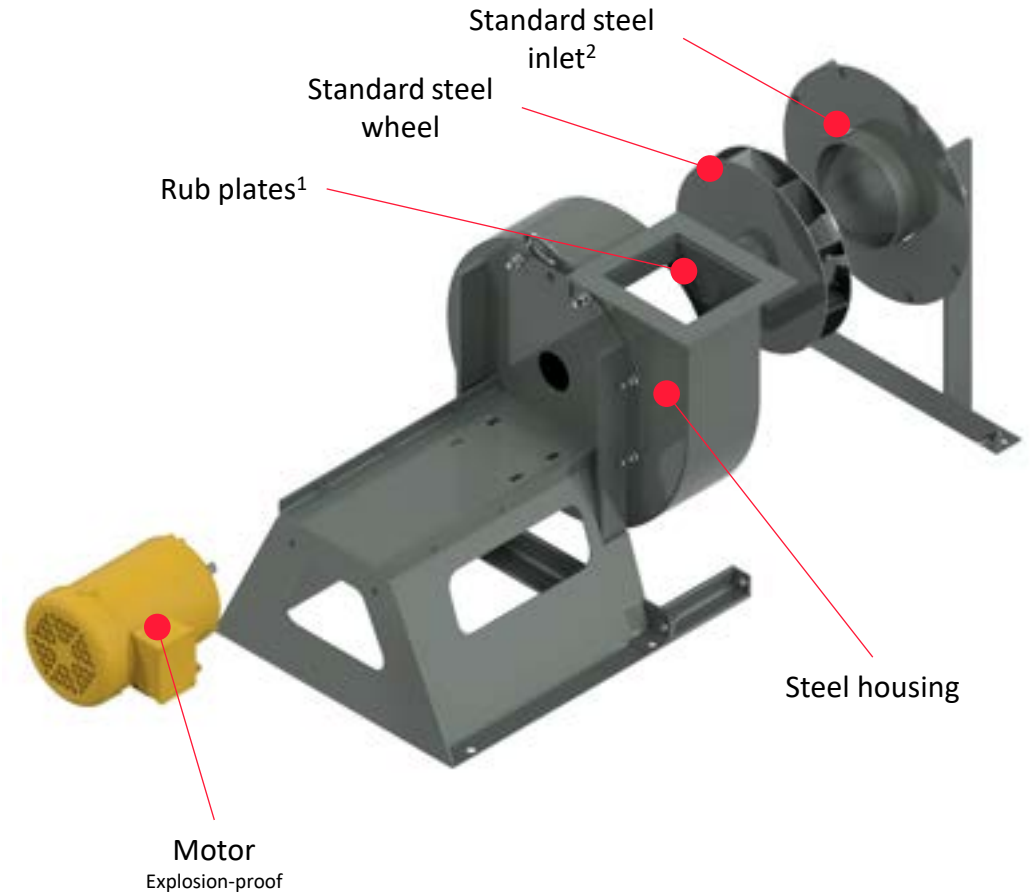
- Explosion-proof motor
- Aluminum wheel with special hub construction

AMCA – “C” Construction

- Explosion-proof motor
- Aluminum rub plates¹
- Aluminum bolt-in inlet²

Notes (See exploded view):

1. Aluminum rub plates are inside the housing sides to prevent the steel wheel from contacting the steel housing.
2. Steel inlet is replaced with aluminum. The supporting structure remains steel.





 AMCA – “A” Construction

Not Available¹

 AMCA – “B” Construction

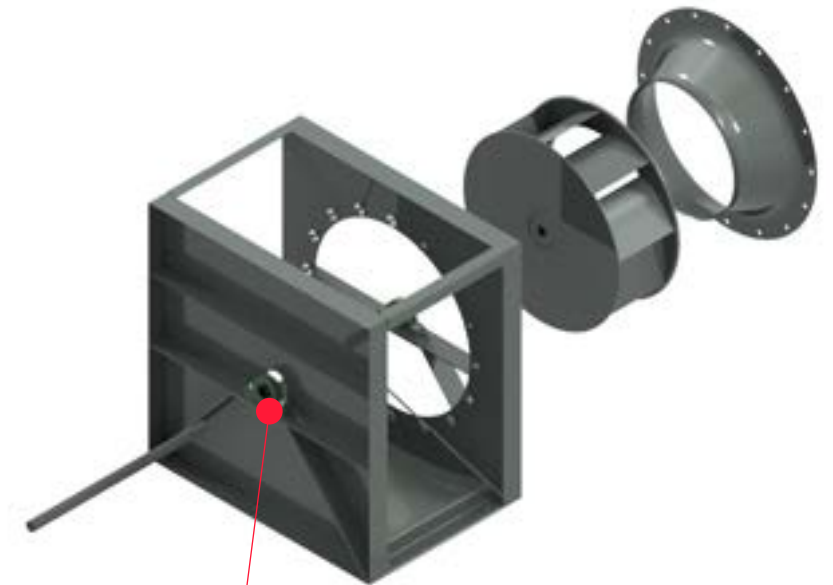
Not Available¹

 AMCA – “C” Construction

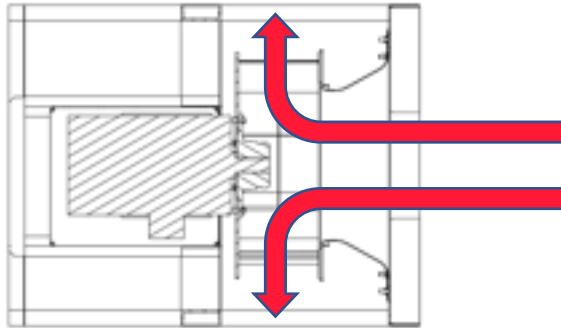
Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components in the airstream.



Fan bearings and drive components in the airstream¹



PLC Arr. 4 Airstream

AMCA – “A” Construction

- Not Available¹

AMCA – “B” Construction

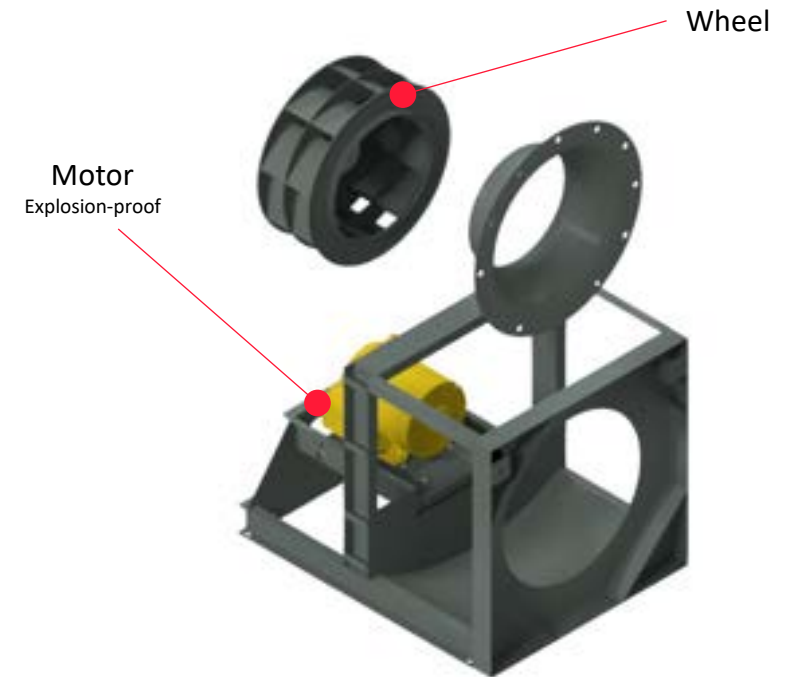
- Not Available²

AMCA – “C” Construction

- Explosion-proof motor
- Aluminum wheel

Notes (See exploded view):

1. This fan is an unhusd design that is to be installed within a plenum. The plenum is a separate component but a key part of the air movement device. This separate construction prevent the fan from meeting AMCA “A” construction guidelines.
2. Fan construction does not allow for the fan shaft to pass through an opening. Therefore, a “nonferrous ring” aka “rub ring” does not occur.



CCP-A/CCP-F Arrangement 2



AMCA – “A” Construction

- Not Available¹

AMCA – “B” Construction

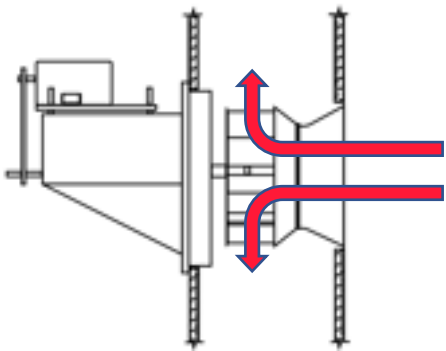
- Rub ring
- Aluminum wheel

AMCA – “C” Construction

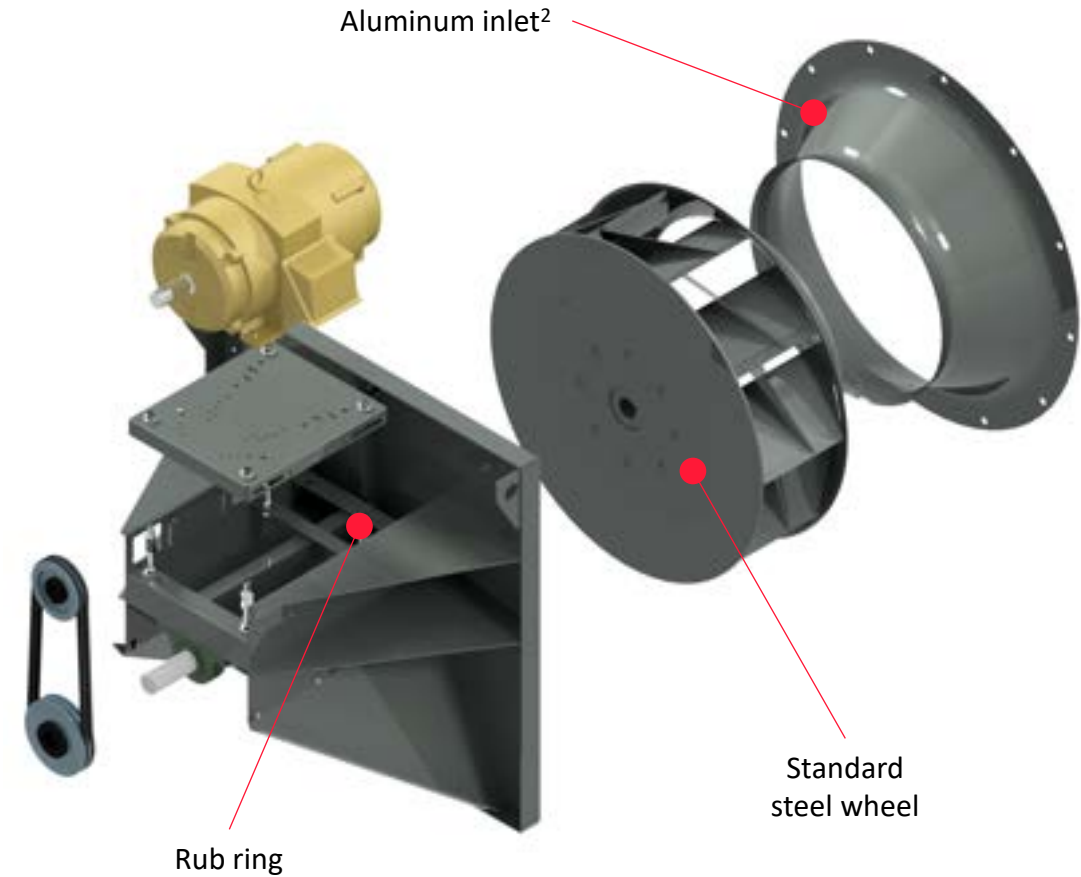
- Rub ring
- Aluminum inlet²

Notes (See exploded view):

1. This fan is an unoused design that is to be installed within a plenum. The plenum is a separate component but a key part of the air movement device. This separate construction prevent the fan from meeting AMCA “A” construction guidelines.
2. Aluminum inlet is standard.



CCP Airstream



MPA



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

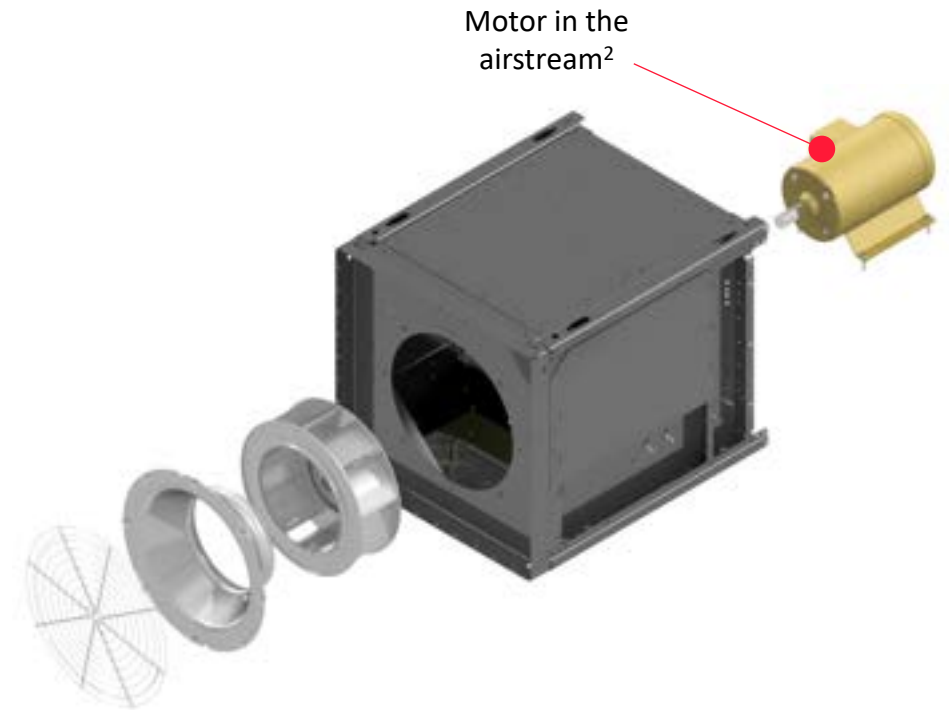
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any of level spark resistant construction per AMCA Exception Note 1. Motor is in the airstream. This fan is intended as a commercial product, not for an industrial application where spark resistant construction would be required.



GEMINI (GC/GN)



GC 120 - 180

GC 200 - 700



GC 800 - 2000

❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

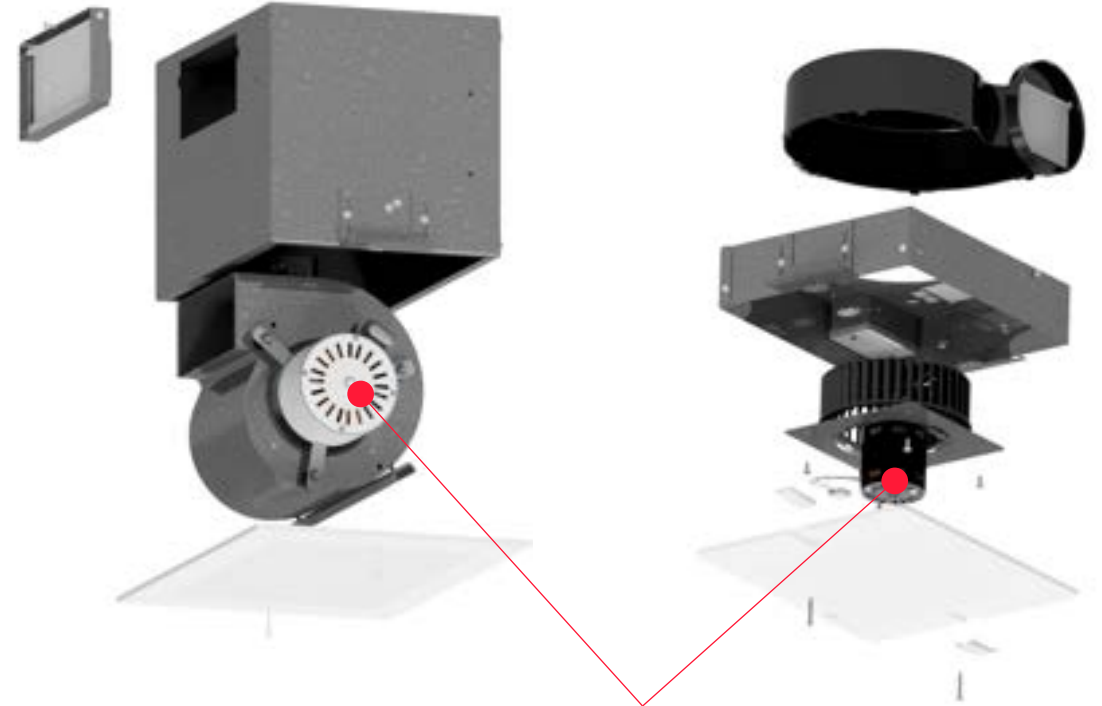
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motor is in the airstream. PSC and EC motors are not available as explosion proof.



Motor in the airstream¹



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

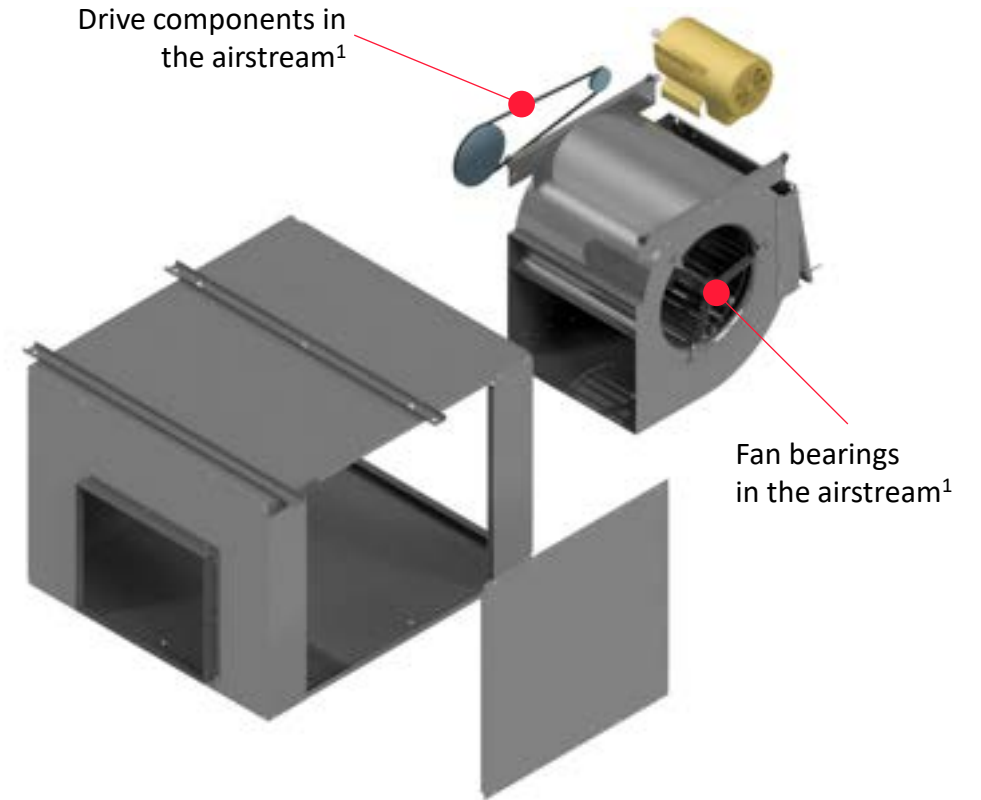
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.



DBX / SDB



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

- Not Available¹

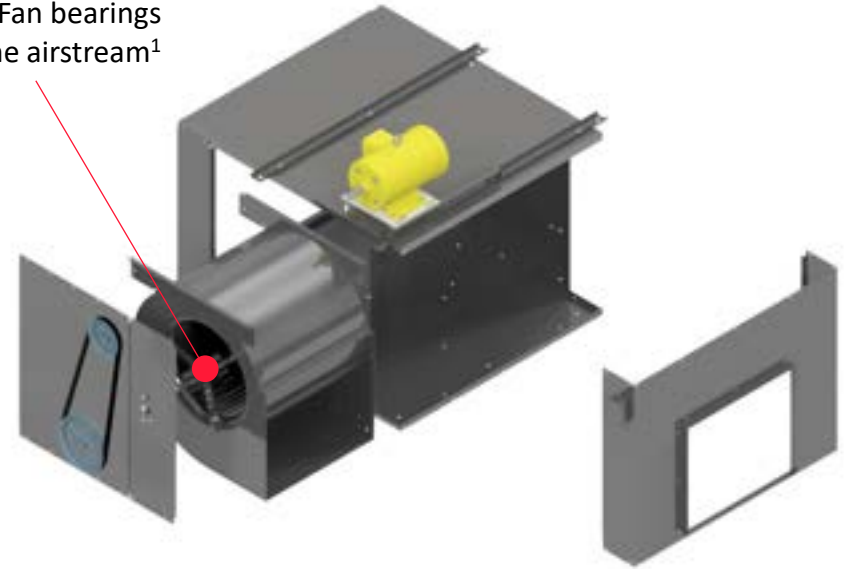
❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings in the airstream.

Fan bearings
in the airstream¹





❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

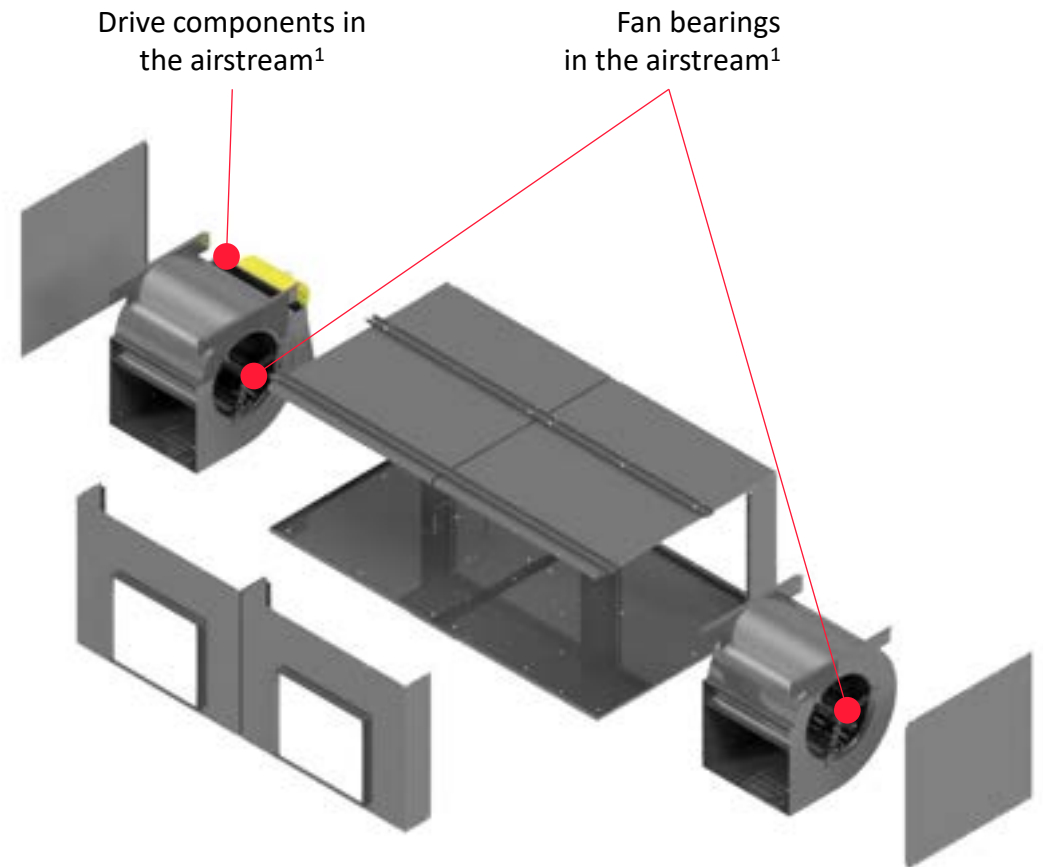
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in the airstream.



CBF



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

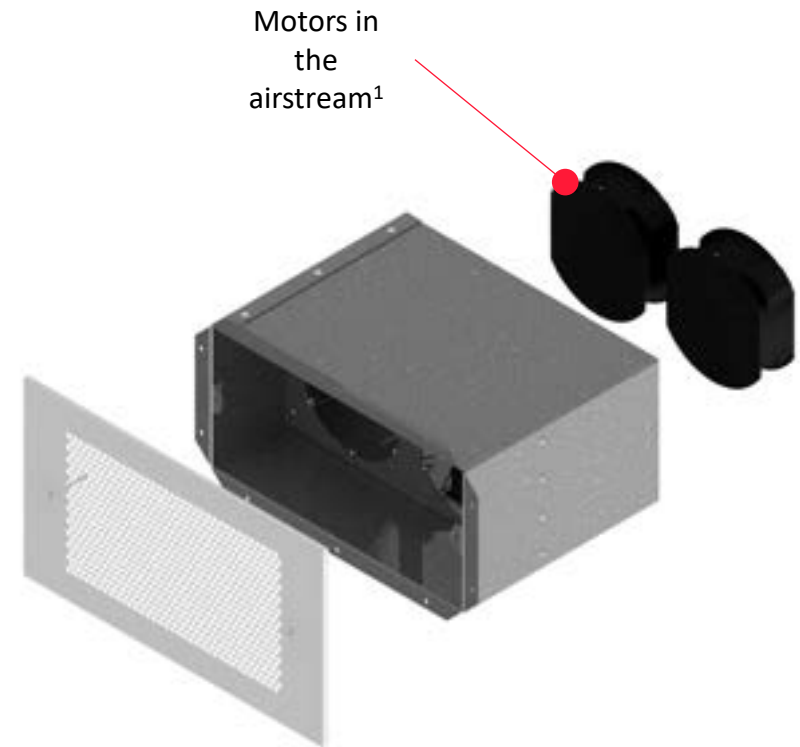
Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motors are in the airstream. The motors are not available as explosion proof.



Air Circulars CAC-ACH / CAC-IHPWD / CAC-MBDY / CAC-UTE / CAC-SBD / CAC-PBB



❌ AMCA – “A” Construction

Not Available¹

❌ AMCA – “B” Construction

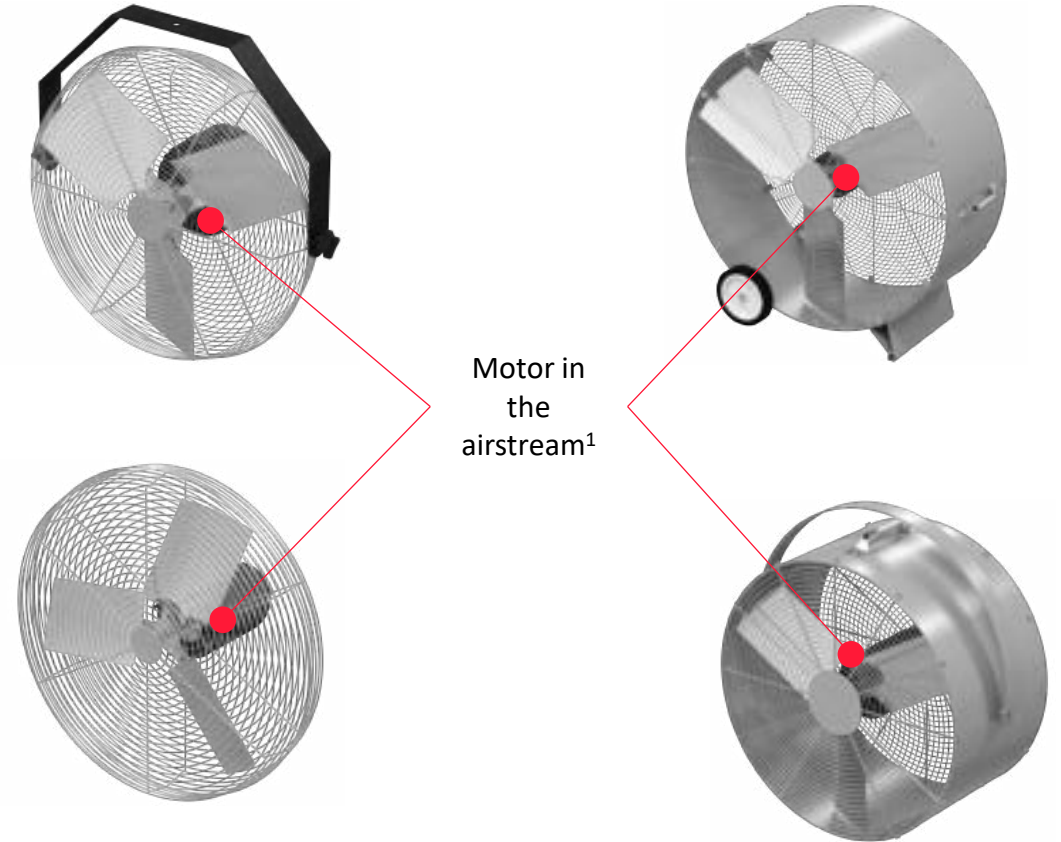
Not Available¹

❌ AMCA – “C” Construction

Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motor is in the airstream. The motors are not available as explosion proof.



Motor in
the
airstream¹

CPSLE / CPSALE / CPSLE-S / CPSALE-S Arrangement 10



AMCA – “A” Construction

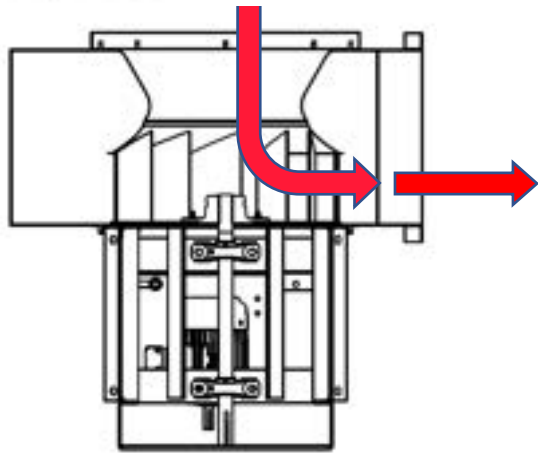
- All aluminum airstream construction²
(Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum Wheel³
- Rub Ring

AMCA – “C” Construction

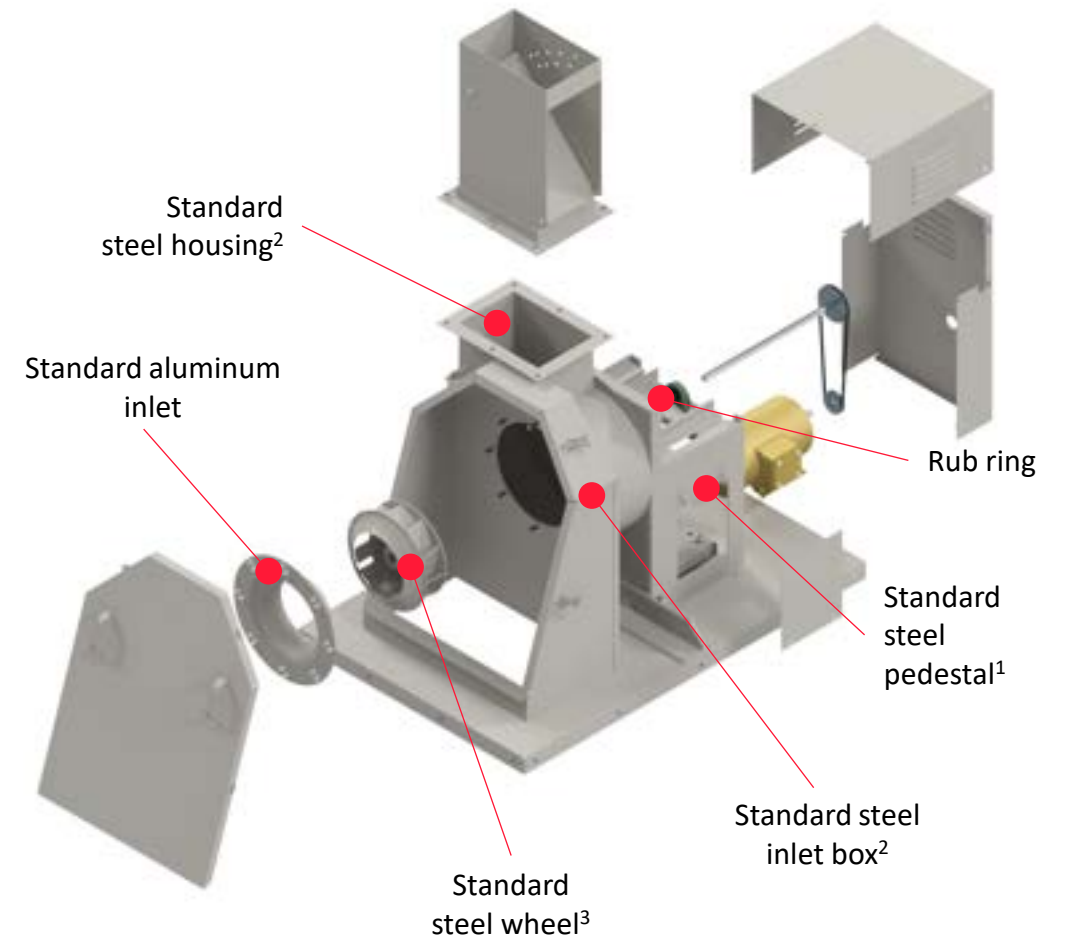
- Rub Ring



CPSLE Airstream

Notes (See exploded view):

1. Steel pedestal is outside the airstream.
2. Airstream components are housing, wheel, and inlet box.



CPSLE / CPSALE / CPSLE-S / CPSALE-S Arrangement 4



AMCA – “A” Construction

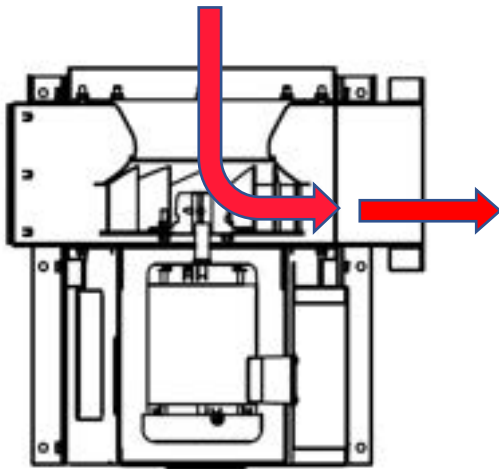
- Explosion-proof motor
- Aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Explosion-proof motor
- Aluminum Wheel

AMCA – “C” Construction

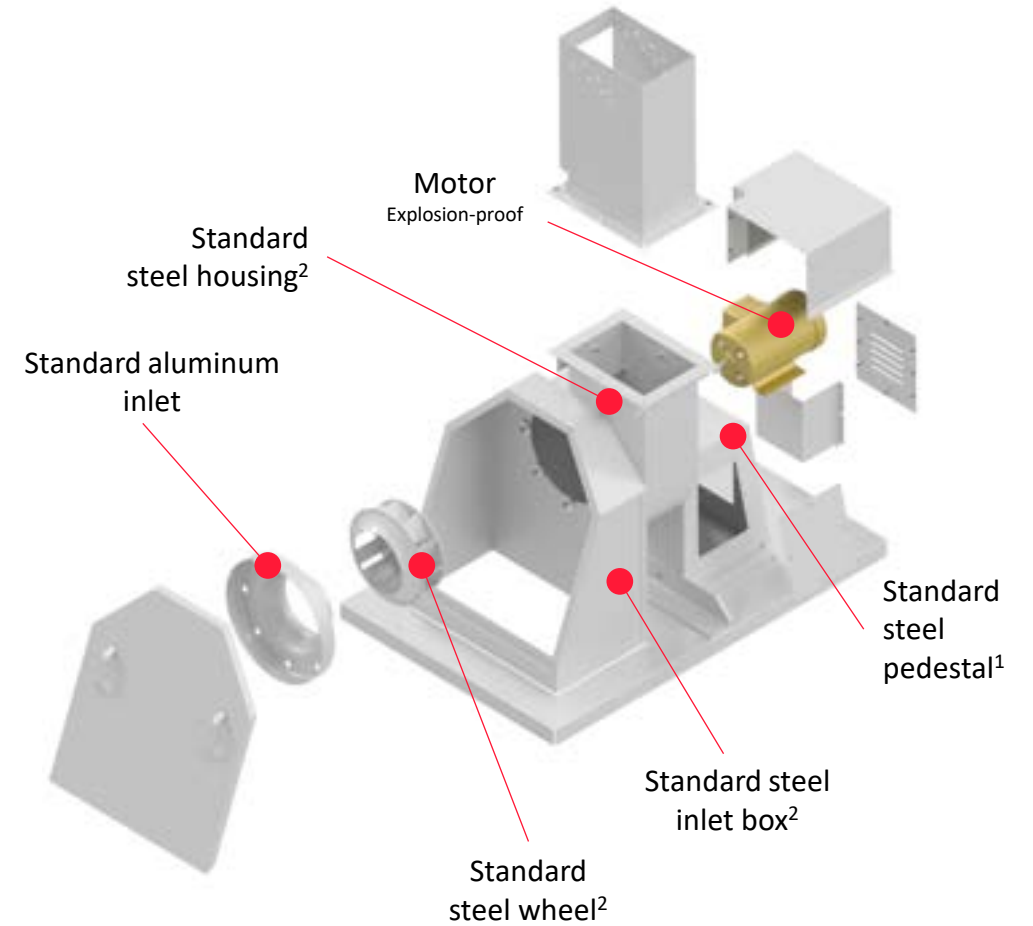
- Explosion-proof motor
- Special construction rub ring³



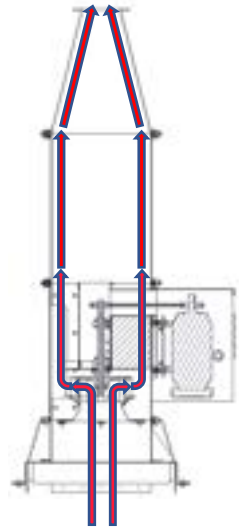
CPSLE Airstream

Notes (See exploded view):

1. Steel pedestal is outside the airstream.
2. Airstream components are housing, wheel, and inlet box.
3. Rub ring construction is based on the motor frame size.



TCNHBLE



TCNHBLE Airstream

AMCA – “A” Construction

- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Standard Construction

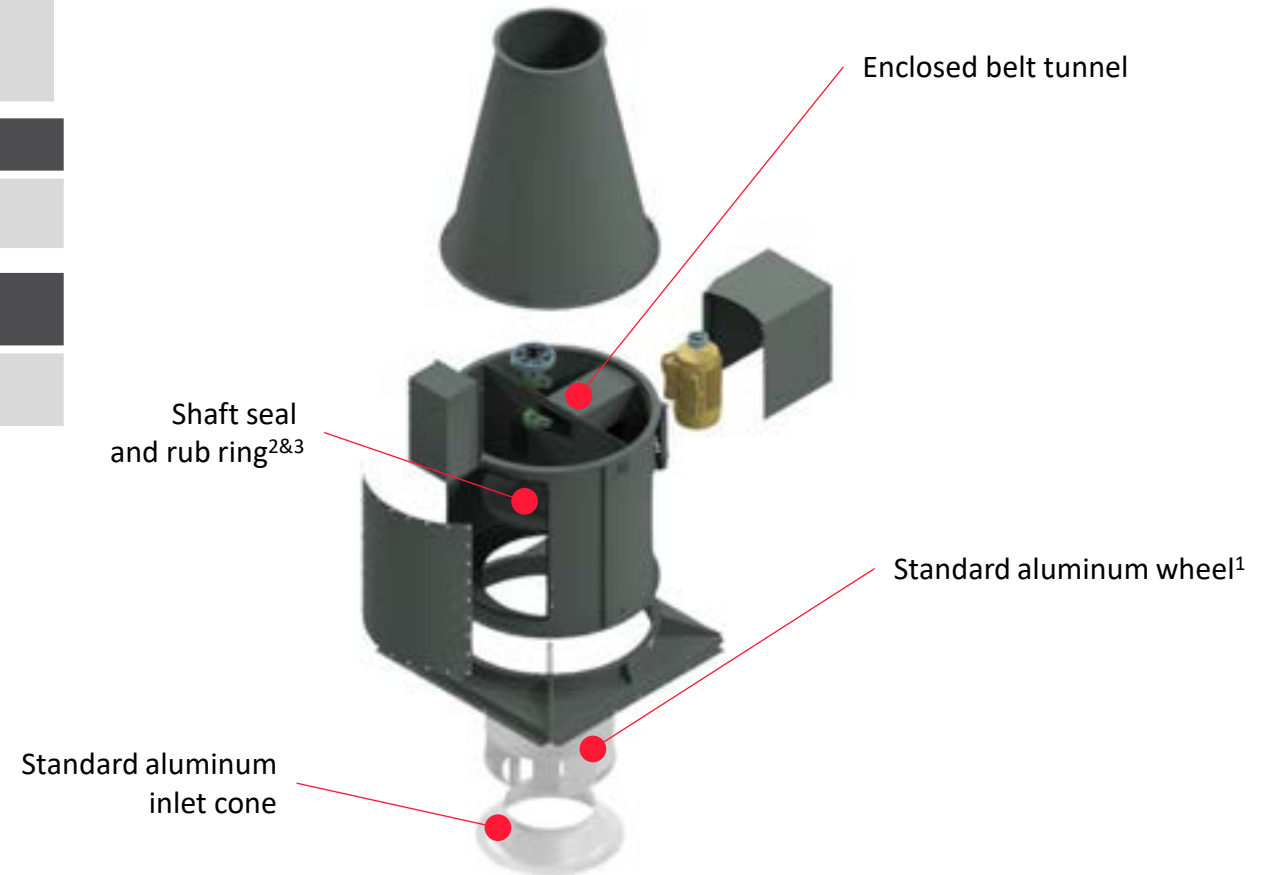
AMCA – “C” Construction

- Standard Construction

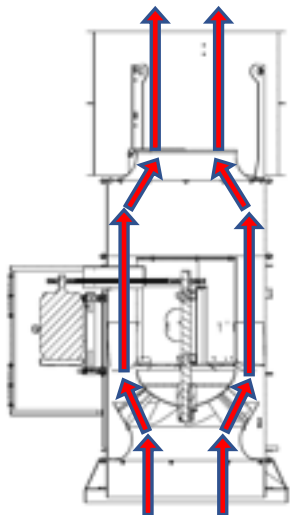
Notes (See exploded view):

Fan standard construction meets both AMCA “B” and AMCA “C” spark resistant construction. The standard construction of the fan includes:

1. Aluminum wheel
2. Shaft seal
3. Rub ring



QMX-LE / QMXHP-LE



QMXLE Airstream

AMCA – “A” Construction

- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum Wheel

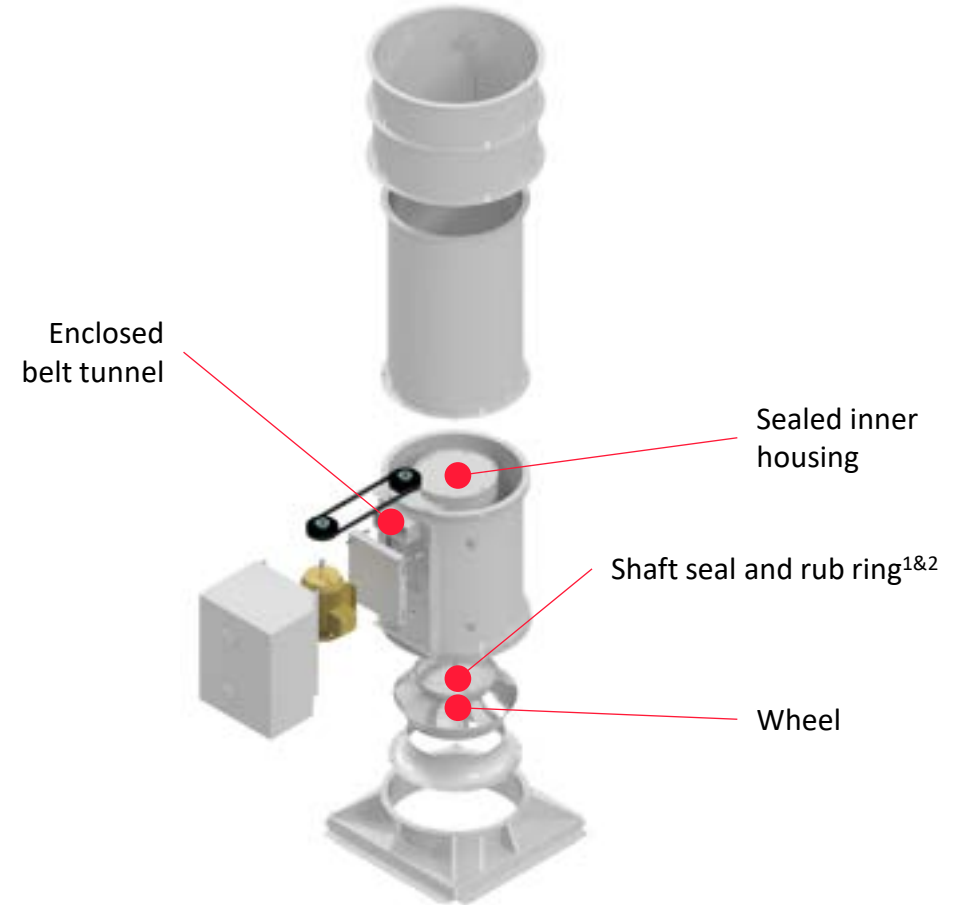
AMCA – “C” Construction

- Standard Construction

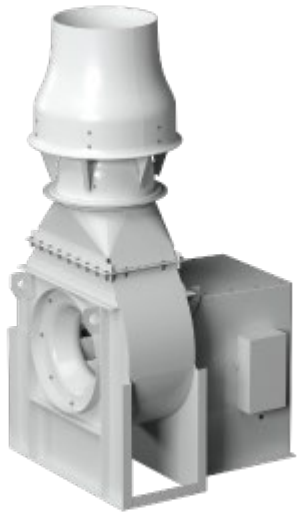
Notes (See exploded view):

Fan standard construction meets AMCA “C” spark resistant construction. The standard construction of the fan includes:

1. Shaft seal
2. Rub ring



CAVP / CAVPS Arrangement 1, 8, 9 & 10



AMCA – “A” Construction

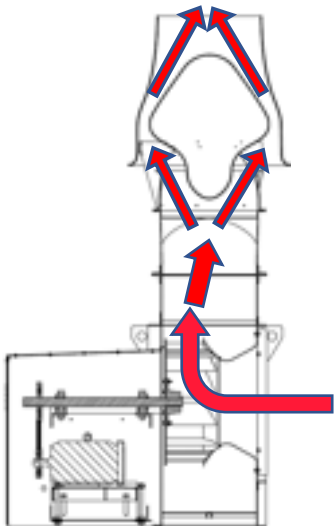
- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum Wheel

AMCA – “C” Construction

- Standard Construction

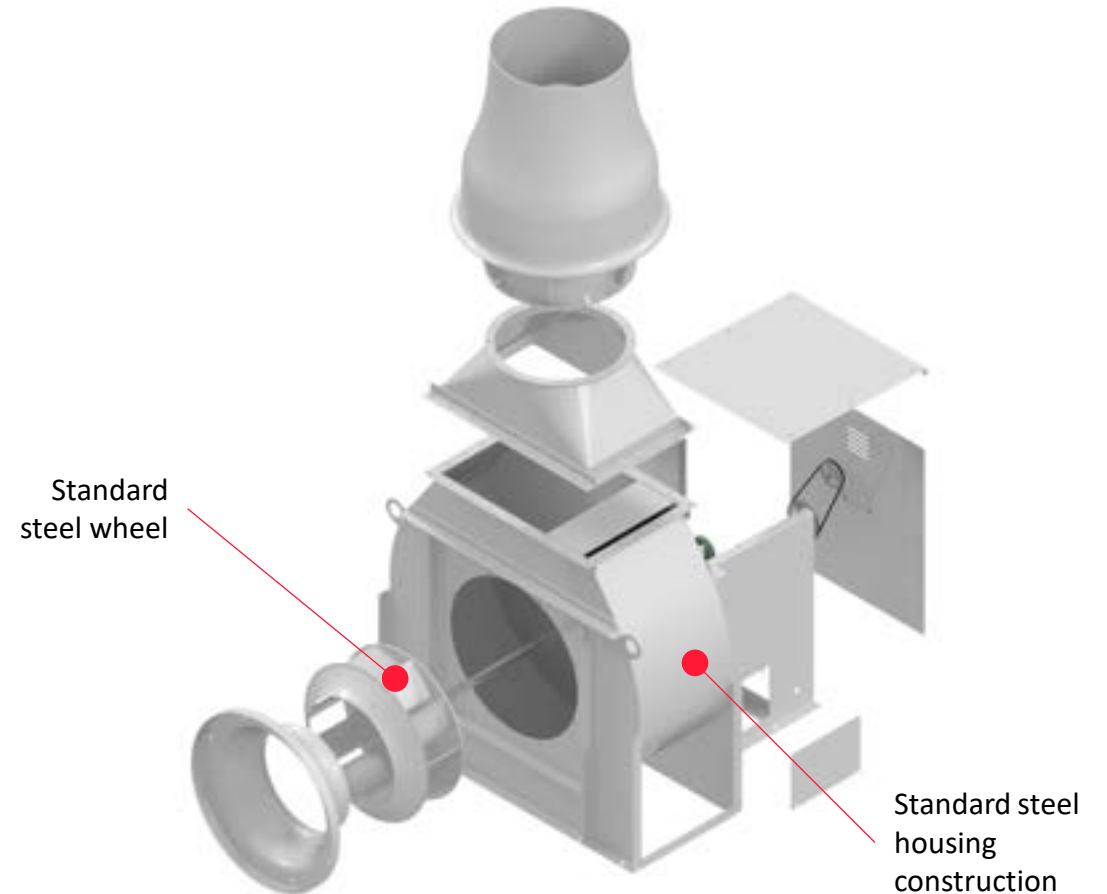


CAVP Airstream

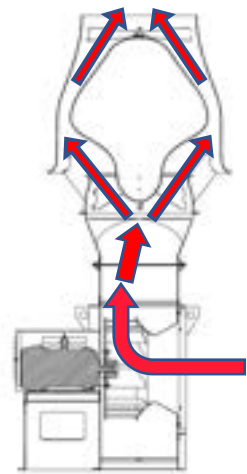
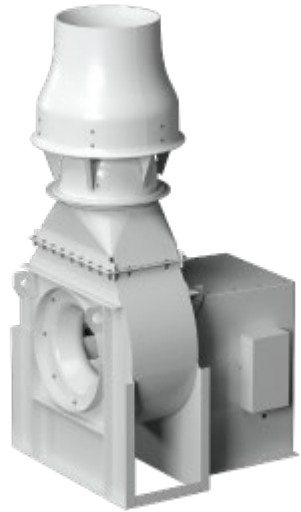
Notes (See exploded view):

Fan standard construction meets AMCA “C” spark resistant construction. The standard construction of the fan includes:

1. Shaft seal
2. Rub ring



CAVP / CAVPS Arrangement 4



CAVP Airstream

AMCA – “A” Construction

- Explosion-proof motor
- All aluminum airstream construction¹
(Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

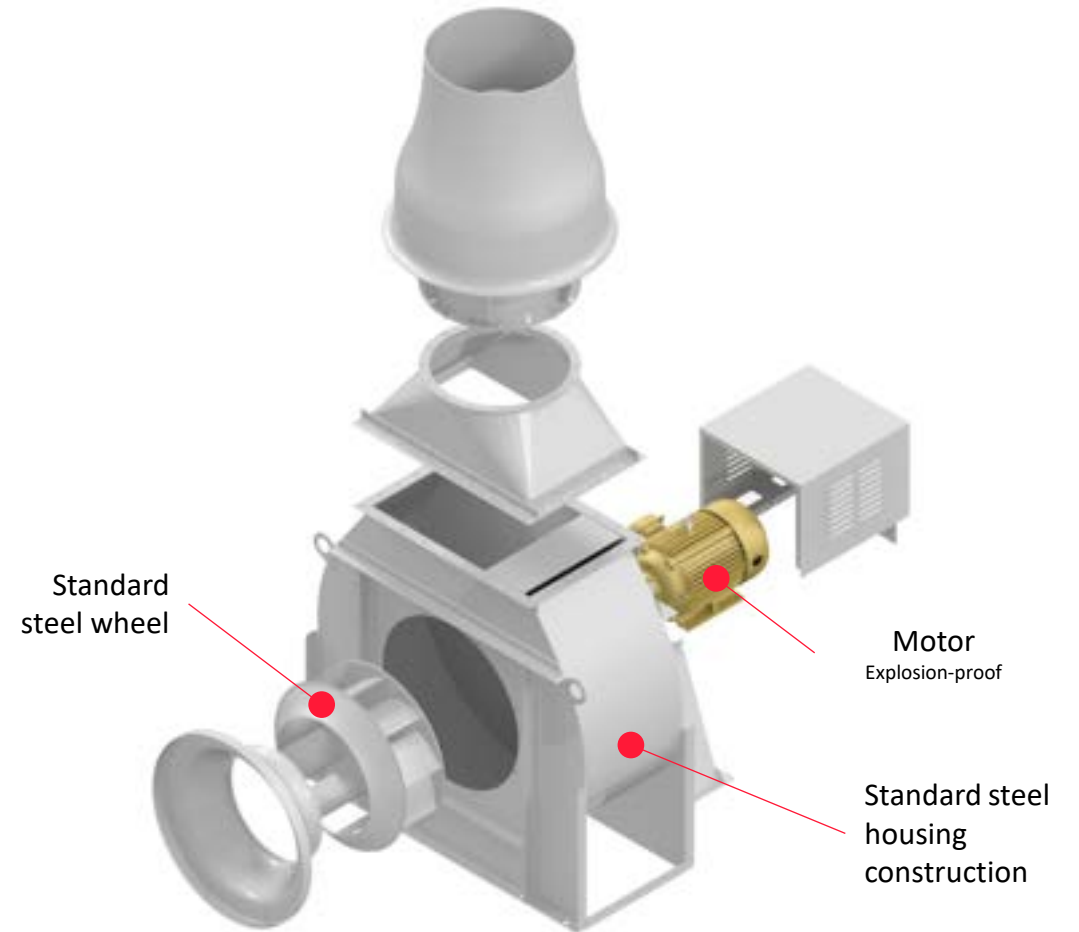
- Explosion-proof motor
- Aluminum Wheel

AMCA – “C” Construction

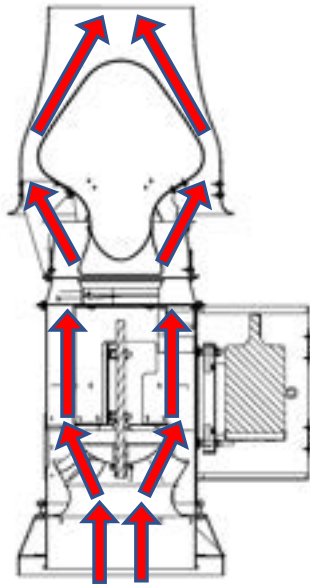
- Explosion-proof motor
- Special construction rub ring²

Notes (See exploded view):

1. Housing and pedestal are welded together; both will be aluminum.
2. Rub ring construction is based on the motor frame size.



QMX-VP / QMXHP-VP / QMX-VPA / QMXHP-VPA Arrangement 9



QMX-VP Airstream

AMCA – “A” Construction

- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum Wheel

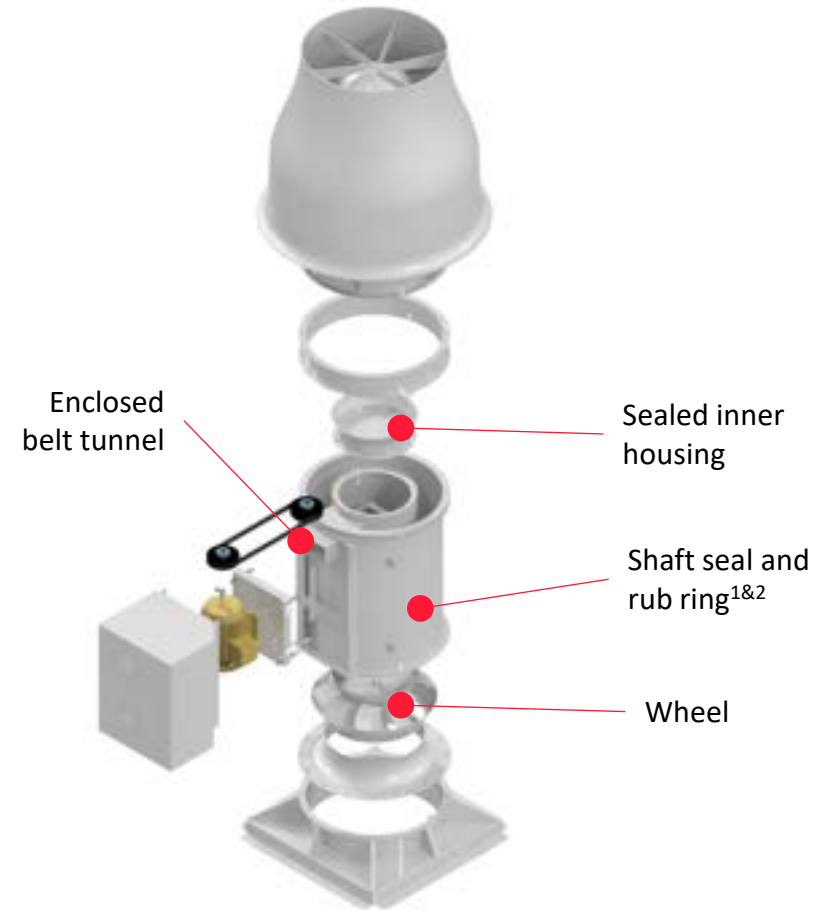
AMCA – “C” Construction

- Standard Construction

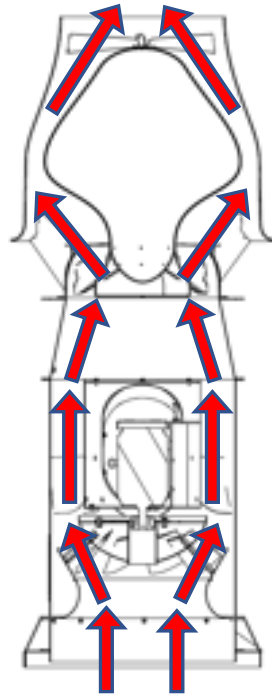
Notes (See exploded view):

Fan standard construction meets AMCA “C” spark resistant construction. The standard construction of the fan includes:

1. Shaft seal
2. Rub ring



QMX-VP / QMXHP-VP / QMX-VPA / QMXHP-VPA Arrangement 4



QMX-VP Airstream

AMCA – “A” Construction

- Explosion-proof motor
- All aluminum airstream construction (Standard steel construction not allowed)
- Bifurcated housing¹
- Stainless steel hardware

AMCA – “B” Construction

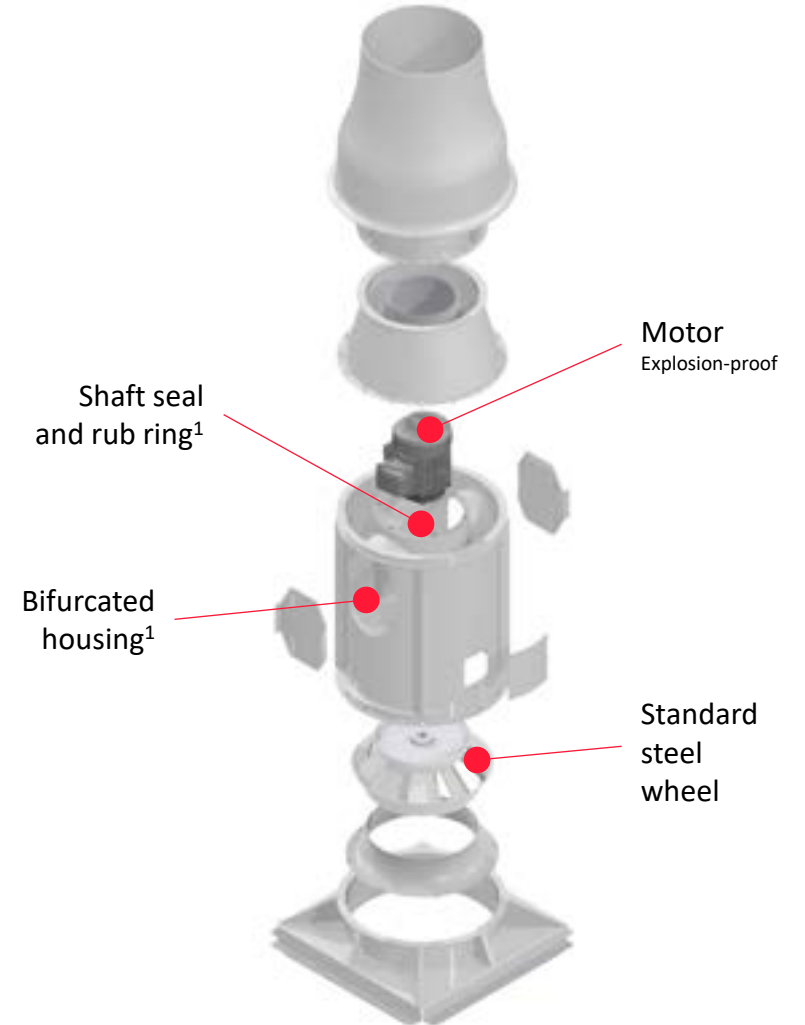
- Explosion-proof motor
- Bifurcated housing¹
- Aluminum Wheel
- Rub ring and shaft seal

AMCA – “C” Construction

- Explosion-proof motor
- Bifurcated housing¹
- Rub ring and shaft seal

Notes (See exploded view):

1. Bifurcated housing is special construction. Consult factory for details.
2. Rub ring construction is based on the motor frame size.



Power Plume



❌ AMCA – “A” Construction

Not Available

❌ AMCA – “B” Construction

Not Available

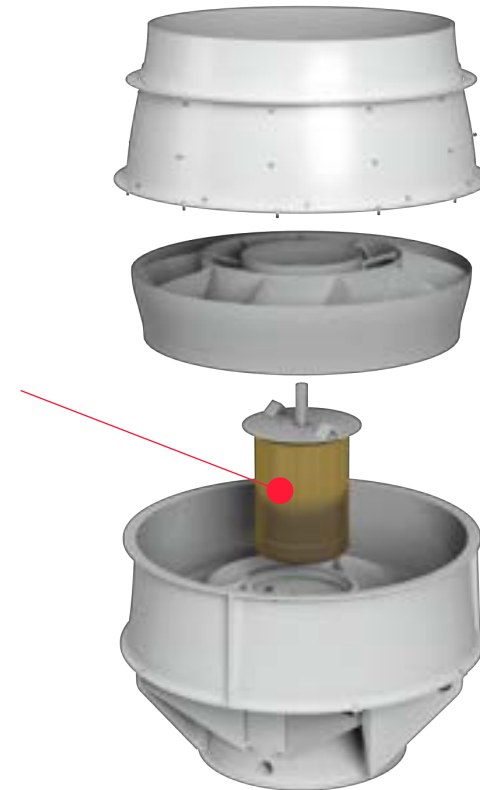
❌ AMCA – “C” Construction

Not Available

Notes (See exploded view):

1. OEM 10-pole or PM motors are not available as explosion proof.

Motor not available in explosion proof¹



CPSFE / CPSAFE Arrangement 10



AMCA – “A” Construction

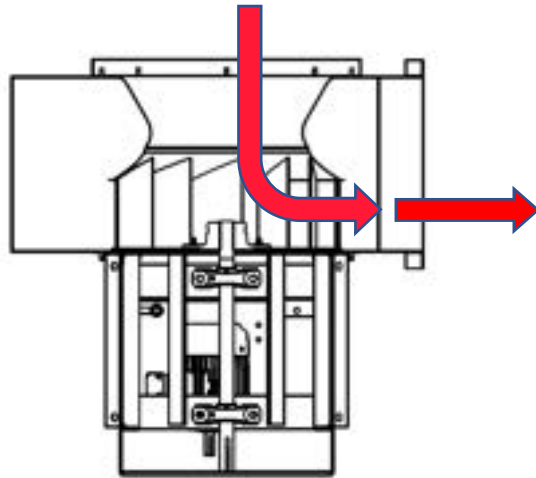
- All aluminum airstream construction¹
(Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Aluminum Wheel²
- Rub Ring

AMCA – “C” Construction

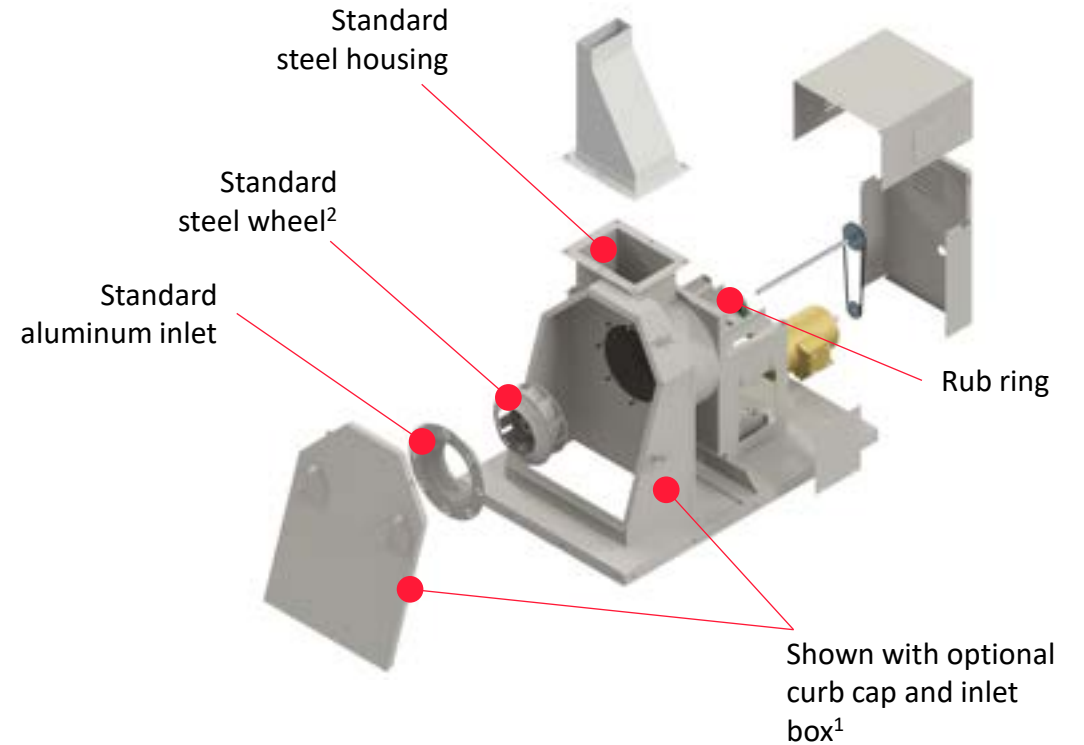
- Rub Ring



CPSFE Airstream

Notes (See exploded view):

1. If ordered with both AMCA ‘A’ and the optional inlet box, the inlet box and curb cap must be aluminum.



CPSFE / CPSAFE Arrangement 4



AMCA – “A” Construction

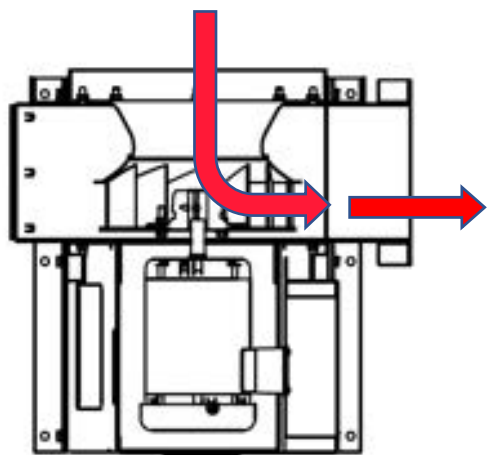
- Explosion-proof motor
- All aluminum airstream construction (Standard steel construction not allowed)
- Stainless steel hardware

AMCA – “B” Construction

- Explosion-proof motor
- Aluminum Wheel

AMCA – “C” Construction

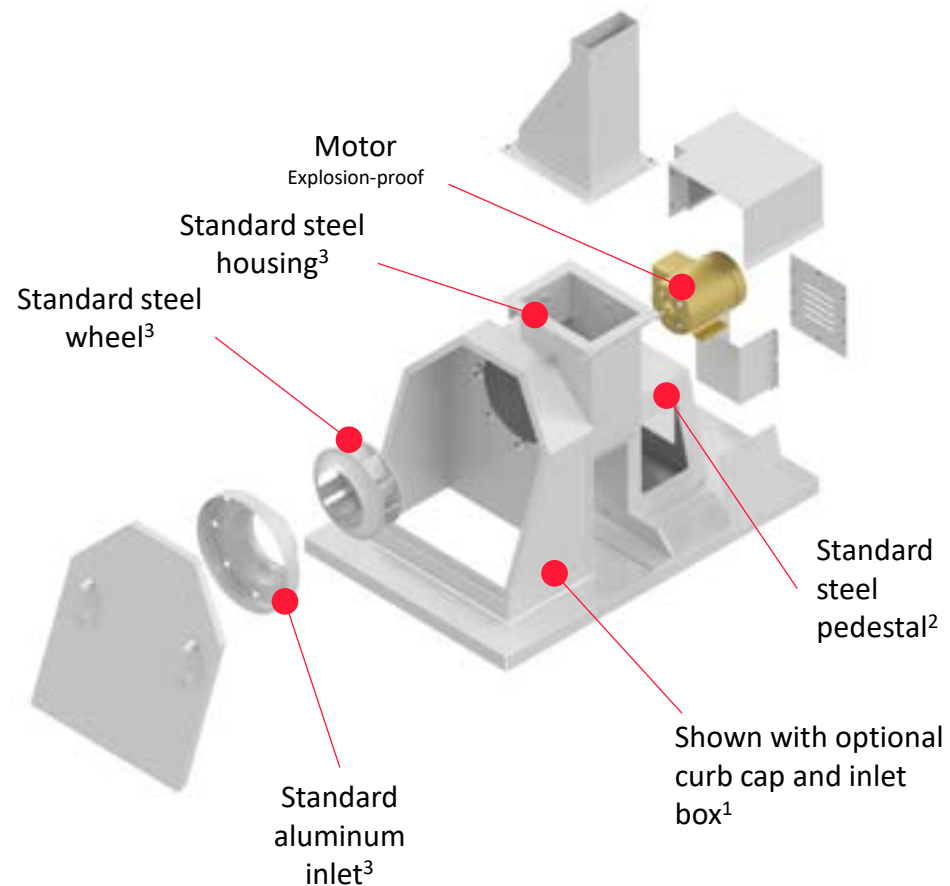
- Explosion-proof motor



CPSLE Airstream

Notes (See exploded view):

1. If ordered with both AMCA ‘A’ and the optional inlet box, the inlet box and curb cap must be aluminum.
2. Steel pedestal is outside the airstream.
3. Airstream components are housing, wheel, and inlet box.
4. Rub ring construction is based on the motor frame size.



PR / TR / TRE

AMCA – “A” Construction

- Stainless steel hardware
- Aluminum birdscreen (Optional galvanized birdscreen not allowed)
- Gravity backdraft dampers only¹
- Requires electrical grounding²

⊘ AMCA – “B” Construction

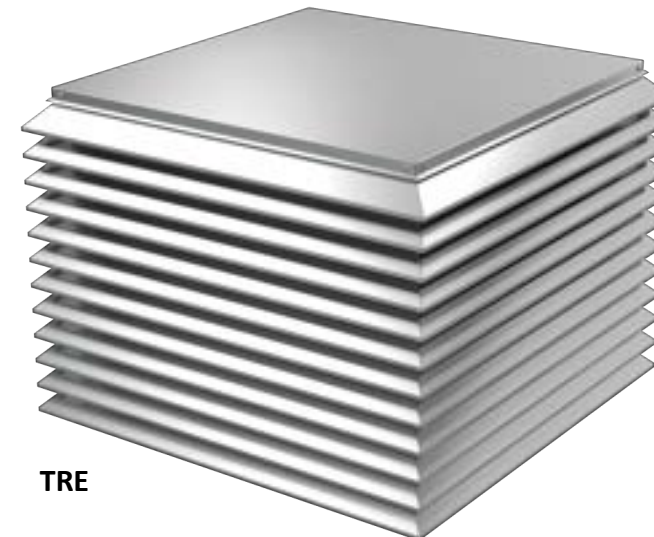
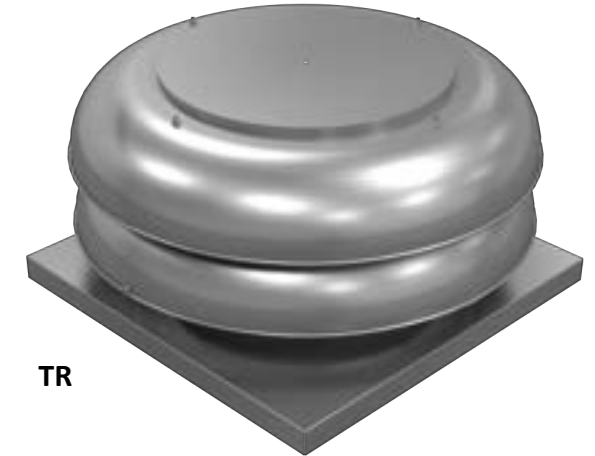
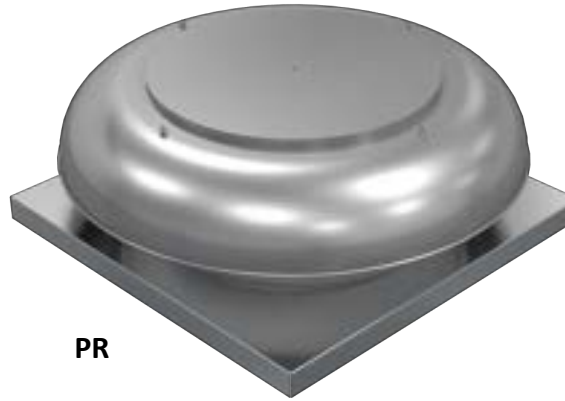
- Not Available³

⊘ AMCA – “C” Construction

- Not Available³

Notes (See exploded view):

1. Due to AMCA Exception Note 1, actuator must be explosion-proof. Explosion-proof actuator does not fit within the fan or the curb. It is possible to duct mount a damper with an explosion proof actuator. Consult with the damper manufacturer regarding their spark resistant construction details.
2. Per AMCA Note 5, to prevent a buildup of electrical charge, fans must conduct static charge safely to ground.
3. These fans do not have an impeller or shaft.



GI / GR

AMCA – “A” Construction

- Aluminum construction (Galvanized material not allowed)
- Stainless steel hardware
- Aluminum birdscreen (Galvanized birdscreen not allowed)
- Gravity backdraft dampers only¹
- Requires electrical grounding²

⊘ AMCA – “B” Construction

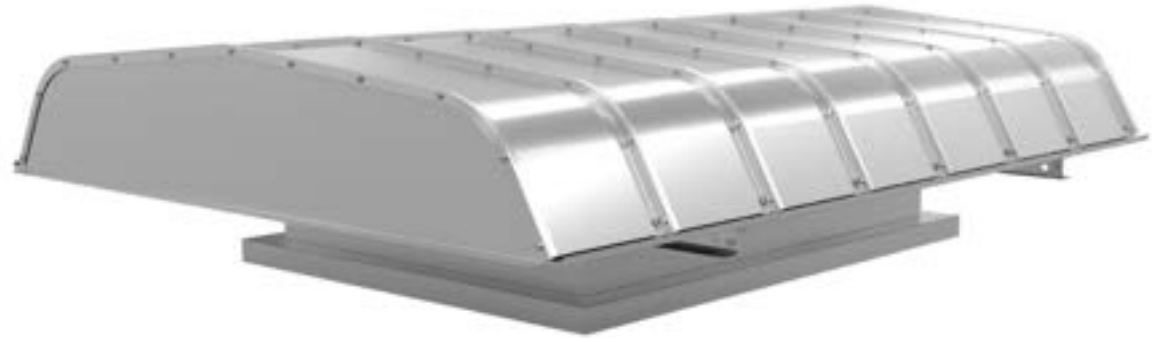
- Not Available³

⊘ AMCA – “C” Construction

- Not Available³

Notes (See exploded view):

1. Due to AMCA Exception Note 1, actuator must be explosion-proof. Explosion-proof actuator does not fit within the fan or the curb. It is possible to duct mount a damper with an explosion proof actuator. Consult with the damper manufacturer regarding their spark resistant construction details.
2. Per AMCA Note 5, to prevent a buildup of electrical charge, fans must conduct static charge safely to ground.
3. These fans do not have an impeller or shaft.



LSUG

AMCA – “A” Construction

- Aluminum construction (Steel material not allowed)
- Stainless steel hardware
- Requires electrical grounding¹

⊘ AMCA – “B” Construction

- Not Available²

⊘ AMCA – “C” Construction

- Not Available²

Notes (See exploded view):

1. Per AMCA Note 5, to prevent a buildup of electrical charge, fans must conduct static charge safely to ground.
2. These fans do not have an impeller or shaft.



ERV / ERVX Belt Drive



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

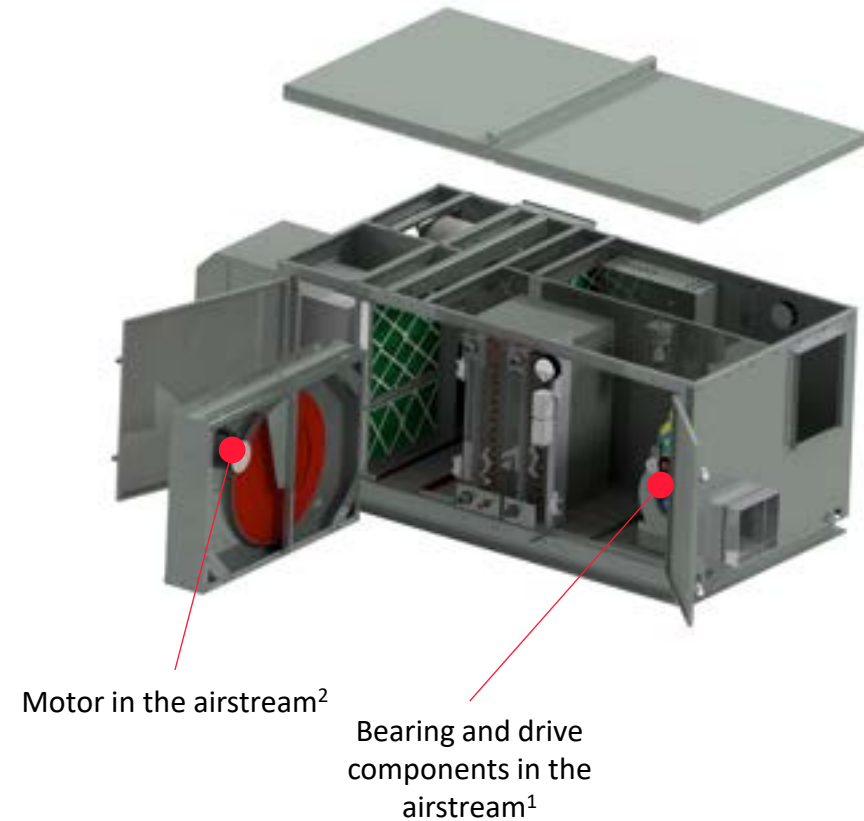
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction, due to AMCA Exception Note 1. Bearings and drive components are in contact with the airstream.
2. Energy recovery cassette (ERC) is not available with explosion-proof motor



ERV / ERVX Direct Drive



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

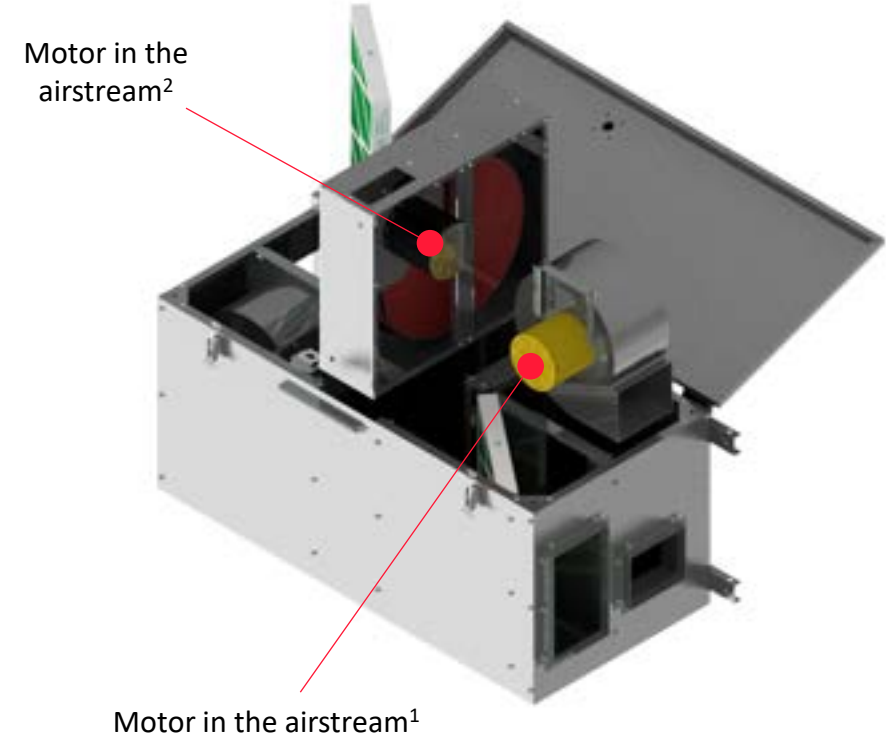
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motor are in the airstream. PSC and EC motors are not available as explosion proof.
2. Energy recovery cassette (ERC) is not available with explosion-proof motor



HMD



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

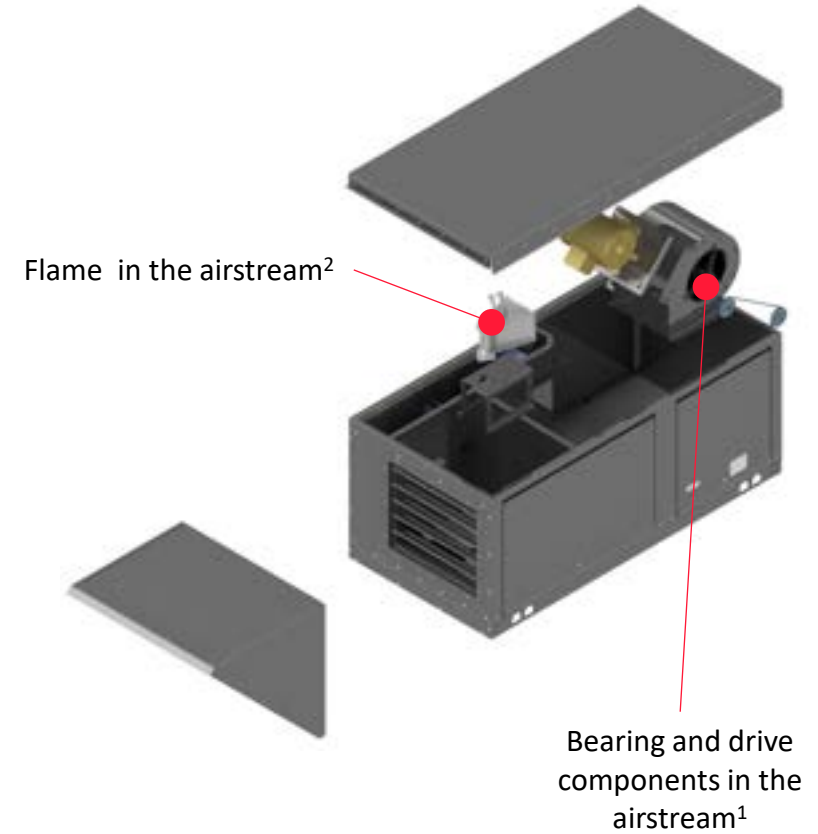
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction due to AMCA Exception Note 1. Bearings and drive components are in contact with the airstream.
2. It is a direct fired heater. THERE IS AN OPEN FLAME!



MAC / MAC-UV



❌ AMCA – “A” Construction

- Not Available¹

❌ AMCA – “B” Construction

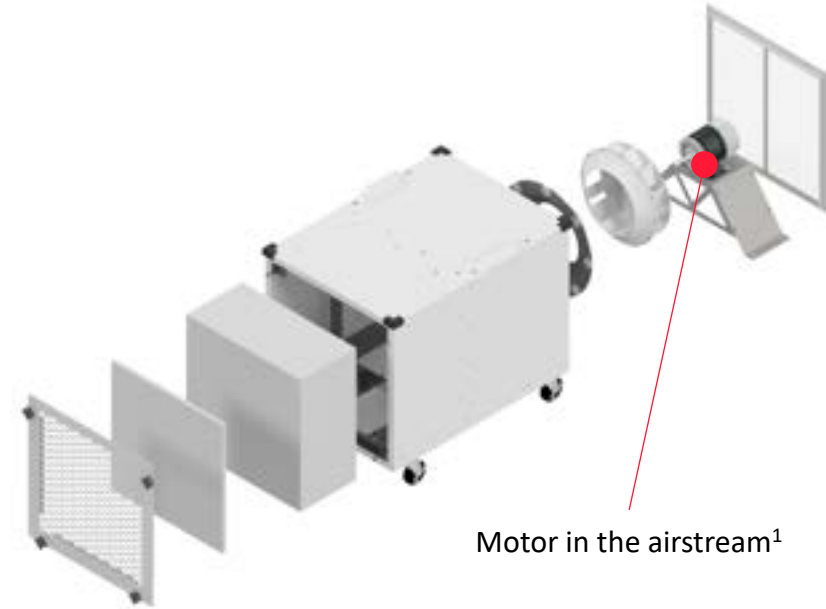
- Not Available¹

❌ AMCA – “C” Construction

- Not Available¹

Notes (See exploded view):

1. Not available with any level of spark resistant construction per AMCA Exception Note 1. Motors are in the airstream. The motors are not available as explosion proof.



Motor in the airstream¹



EXPERTS IN AIR MOVING SINCE 1941