

**WP0188**

**Dodge® Raptor couplings: third party ATEX certification**

Dodge Customer/Order Engineering

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Products provided for use in applications exposed to explosive gas or dust environments often require some level of ATEX certification. ATEX stands for ATmosphères EXplosibles, (Explosive Atmospheres) and is a European Union directive specifying and controlling equipment used in potentially explosive atmospheres, such as mining applications or grain silos. Particularly, directive 94/9/EC specifies guidelines related to the design and use of equipment within explosive atmospheres. ATEX certification is granted to products that are proven to not create an ignition source within a specified explosive atmosphere. Sources of ignition include, but are not limited to, sparking or combustion level surface temperatures. Couplings are particularly important, as mechanical equipment accounts for approximately 30% of all explosions, whereas motors only account for 4%.

ATEX certification can be achieved through one of two options:

1. Third Party Certification
2. Self-Certification

Dodge Raptor couplings have been tested under the most severe conditions and successfully achieved third-party ATEX certification.

Third party certification requires that all design criteria and test results are inspected and approved by an ATEX approved third party, known as a “notified body”. In turn, the notified body maintains up-to-date records on the product and audits each product on a regular basis. This often requires additional witness testing and verification by the certifying equipment manufacturer. Because third party certification requires extensive involvement and approval from an approved third-party, customers are assured that the products fully meet the requirements of the directive, thus significantly minimizing any potential risks. For these reasons, ABB only provides ATEX products with third-party certification.

Self-certification does not require any separate testing or review of the product. The manufacturing company performs their own internal review to ensure the product meets the specifications of directive 2014/34/EU and provides a technical file to a notified body. It does not require any additional testing or verification by the manufacturing company. The technical file is not reviewed by the notified body unless there is an incident. In these cases, the file is reviewed after the incident. Because there is no independent third-party verification that products claiming ATEX certification actually meet the requirements of the directive until after an incident, customers choosing to purchase self-certified products are assuming a significant amount of risk.

In order for the Raptor coupling to gain ATEX certification, it had to perform under the most severe conditions. These tests included: maximum torque, maximum speed, maximum combined misalignment, and restricted air flow. The surface temperature of the coupling was monitored and recorded during each of these tests to ensure combustion temperatures were not reached. Further testing was completed on the natural rubber material of the Raptor element to ensure there would be no electrostatic buildup that could result in a spark. In other words, the element material was tested to ensure that there was an adequate level of static conductivity inherent to the coupling. Each of these tests were witnessed and approved by a representative from SIRA, ABB’s notified body. All test results, test procedures, ignition hazard assessments and product samples were submitted and approved by SIRA.

**EXTERNAL/PUBLIC DOCUMENT**

**ABB Motors and Mechanical Inc.**

6040 Ponders Court

Greenville, SC 29615

Phone: +1 864 284 5700

Email: [DodgeEngineering@abb.com](mailto:DodgeEngineering@abb.com)

Based off these results, SIRA granted the Raptor coupling ATEX certification with the following classification:

**I M2**  
**Ex h I Mb**  
**II 2GD**  
**Ex h IIC T5 Gb**  
**Ex h IIC T100°C Db**  
**Tamb -30°C to +50°C**  
**SIRA 15ATEX6170X**



**I M2 c**  
**Ex h I Mb:**

The first 2 lines of the certification provides details related to Equipment Group I and the associated safety level and construction rating. The Raptor coupling is safe for use in Equipment Group I for underground mining or surface installations, requiring a Level 2 or higher safety level. A Level 2 safety level means the product is safe for use in environments where an explosive atmosphere is likely to occur even in the event of an expected malfunction. This is based off the constructional safety of the product, represented as “c” in the certification nomenclature.

**II 2GD**  
**Ex h IIC T5 Gb**  
**Ex h IIC T100°C Db**

The next three lines of the certification provides information on Equipment Group II, ignition temperature limits, and the associated safety level. The Raptor coupling is safe for use in Equipment Group II for other explosive atmospheres. These applications may be subject to gas or dust explosive atmospheres with ignition temperatures below 100°C and a level 2 or higher safety level. The ignition temperature is the temperature that can cause an air and fuel mixture to ignite.

**Tamb -30°C to +50°C:** The third line provides the ambient temperature range the coupling can operate within and still maintain the same ATEX certification level. The Raptor can operate between an ambient temperature range of -30°C and 50°C and maintain ATEX certification.

**SIRA 15ATEX6170X:** The fourth line, provides the name of the Notified Third Party and the file number for the certification. The Raptor coupling is third party certified by Sira Certification Service, CSA Group UK.



The fifth line provides the European Commission mark for ATEX products and the Conformité Européenne (European Conformity) or “CE” mark.

Every Dodge Raptor coupling is supplied, off the shelf, with ATEX certification. There are no additional costs or lead times associated with ATEX certification. Each Raptor element is marked with the ATEX classification using an adhesive label. All required documentation (installation, hazard area use, and the declaration of conformity) is supplied in the installation manual packaged with the Raptor element.

For additional information or questions related to the Dodge Raptor’s ATEX certification, contact Dodge Bearings and PT Component Customer Order (C.O.) Engineering.