



[1] **TYPE EXAMINATION CERTIFICATE - Translation**

[2] for non-electrical products of equipment-groups I and II,
equipment-categories M2 and 2 plus products of equipment-category 3

[3] Type examination certificate number **IBExU10ATEXB011 X** | Issue 3

[4] Product: **Oil/Air Coolers**
Types: OAC in the sizes OAC100 to OAC2000
OPC in the sizes OPC200 to OPC1000

[5] Manufacturer: KTR Systems GmbH

[6] Address: Carl-Zeiss-Straße 25
48432 Rheine
GERMANY

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

[8] IBExU Institut für Sicherheitstechnik GmbH certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in the confidential test reports IB-21-2-0029.

[9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN 80079-36:2016 EN 80079-37:2016 IEC/TS 60079-32-1:2013 EN 14986:2017
except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" or "U" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This type examination certificate relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured or supplied.

[12] The marking of the product shall include the following:

Ex II 2G Ex h IIC T6...T3 Gb X
Ex II 3D Ex h IIIC T68°C...110°C Dc X
-40 °C ≤ T_a ≤ +55 °C

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Certificates without signature and stamp are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2021-07-12

[13] **Schedule**

[14] **Certificate number IBExU10ATEXB011 X | Issue 3**

[15] **Description of product**

The oil/air coolers of the OAC series mentioned in [4] consist of a fan and a heat dissipator. The fan drive is purchased from other manufacturers. Internal electric motors, flanged motors or hydraulic drives can be used to drive the fan.

The oil/air coolers of the OPC series mentioned in [4] are similar in construction to the OAC series. In addition, the OPC series has a second free shaft end on the drive on which a coupling and a pump for pumping the medium to be cooled are mounted.

The respective drive motor drives the fan impeller with curved blades. This fan impeller produces or strengthens the cooling air stream through the heat dissipator lamellas. The medium to be cooled is passed through the heat dissipator and cooled by the cooling air stream.

The medium to be cooled can either be pumped by a pump integrated in the oil/air cooler (type OPC) or it can be pumped by equipment provided by the customer.

Housings and external parts of the oil/air coolers are constructed of different steels. The heat dissipator lamellas are made of aluminium.

The fan impeller is made of aluminium (hub) and plastic with carbon fibre reinforcement (blades) or it is completely made of stainless steel.

The permissible inlet temperature of the medium to be cooled varies according to the sealing materials used. It is between -20 °C and +110 °C.

Drive, coupling and pump are not subject of this examination. They must be selected and installed in accordance with the requirements of the respective equipment category.

Details on the equipment design can be found in the test reports IB-10-4-011, IB-14-4-003, IB-17-2-0058, IB-18-2-0074 and IB-21-2-0029 and the associated test documents.

Variations compared to issue 2 of this certificate:

Variation 1

The permissible ambient temperatures have been extended to -40 °C to +55 °C.

Variation 2

The instruction for vibration monitoring has been formulated more concretely.

[16] **Test report**

The test results are recorded in the confidential test report IB-21-2-0029 of 2021-07-09.

The test documents are part of the test report and they are listed there.

Summary of the test results

The oil/air coolers mentioned in [4] meet the requirements for non-electrical equipment in type of protection "c" (protection by constructional safety, marking with Ex h) of Equipment Group II, Category 2G as well as Equipment Group II, Category 3D. The maximum surface temperature is determined by the media temperature.

When testing, it was considered that ambient temperatures of -40 °C to +55 °C can occur.

[17] **Specific conditions of use**

1. *The oil/air coolers may only be used if their materials and lubricants are resistant mechanical and/or chemical effects and corrosion to under the respective operating conditions so that the explosion protection is always maintained.*
2. *The oil/air coolers must be integrated in the equipotential bonding and must be earthed.*
3. *The oil/air coolers may only be combined with drives which are suitable and approved for use in explosion hazardous areas (zones) and the corresponding temperature ranges.*
4. *When operated in explosion hazardous areas, the oil/air coolers must be cleaned in regular intervals. Dust deposits with a layer thickness of more than 5 mm are inadmissible.*
5. *The instructions in the operating manual regarding permissible smouldering and ignition temperatures of dusts and temperature classes of gases and vapours must be observed.*

6. Further safety instructions of the manufacturer for the intended operation of the oil/air coolers must be strictly observed.
7. The oil/air coolers must be regularly checked for mechanical vibrations and, if necessary, monitored so that leaks and fatigue fractures of the liquid supply and discharge lines can be safely avoided.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

<i>Clause</i>	<i>Subject</i>
-	-

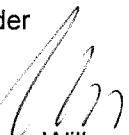
[19] Drawings and Documents

<i>Number</i>	<i>Sheet</i>	<i>Issue</i>	<i>Date</i>	<i>Description</i>
-	-	-	-	-

The documents are listed in the test report.

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