

Dual certification!

 **CUBE** Ex

**Air handling units
for potentially explosive atmospheres**



TROX[®] TECHNIK
The art of handling air

► X-CUBE Ex – A certified safety product ►►

The air handling unit with dual ATEX certification

ATEX directive 2014/34/EU applies to both electrical and non-electrical equipment as well as to protective systems intended for use in potentially explosive atmospheres.

It also applies to safety devices, controlling devices and regulating devices that are intended for use outside potentially explosive atmospheres, but are required for or contributing to the safe functioning of equipment and protective systems with respect to the risks of explosion. This is why we focus on these factors:

- Risk assessment
- Basic health and safety requirements for the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres
- Definition of equipment category
- Type certification and declaration of conformity
- Quality assurance by means of a QM system
- Providing the declaration of conformity and equipment documentation
- Clear labelling of the AHU

To ensure conformity of our explosion-proof products, we manufacture our X-CUBE Ex units in compliance with ISO IEC 80079-34. And we don't stop there: We also have conformity to our QM system tested and certified by an independent institute. TROX is in fact the only manufacturer to offer this dual certification.



► ATEX – For when danger is in the air ►►

ATEX (ATmosphères EXplosibles, or explosive atmospheres)

In certain locations or with certain conditions, even air can present a hazard. If flammable gases, mists or vapours, or combustible dusts mix under atmospheric conditions with air, an explosive atmosphere may result. In such a case it needs only a small source of ignition, such as a spark, friction, heat or electrostatic discharge, to cause an explosion.

TROX X-CUBE Ex – AHUs for ATEX

Air handling units installed in areas with potentially explosive atmospheres have to comply with ATEX directive 2014/34/EU. X-CUBE Ex units have been specially developed for zone 1 and zone 2 areas with potentially explosive atmospheres; in addition, they meet the requirements for groups IIA and IIB of explosive materials and of temperature classes T1 to T4.

X-CUBE Ex units are configurable and suitable for the ventilation of individual rooms or buildings with volume flow rates of up to 86,000 m³/h. The type and number of the actual components for air treatment, such as filters, heating and cooling coils, humidifiers, dehumidifiers and heat exchangers for heat recovery, depend on the individual project requirements, but will be ATEX-compliant in any case.

Outstanding quality and efficiency

Type X-CUBE units have been designed to the highest standards of quality and energy efficiency. Construction, insulation, leakage values, heat recovery and energy-efficient motors allow for a significant savings potential.



► X-CUBE and ATEX ►►

ATEX explained

ATEX directive 1999/92/EC describes the minimum requirements for system owners to improve the safety and health of workers potentially at risk from explosive atmospheres. With ATEX directives and industrial health and safety regulations, owners of systems in potentially explosive atmospheres, such as in the petrochemical and chemical industries, or in power plants and waste disposal operations, have to comply with special safety guidelines. This may seem daunting, but we will gladly help you select the unit that best suits your requirements.

AHU selection table

Configuring an air handling unit for your project can be difficult, which is why we have developed a selection table that guides you through the relevant steps so you won't forget any important details. Just download the table from www.trox.de/ahu-atex.

We then use your data to design a project-specific, ATEX-compliant ventilation strategy with a bespoke X-CUBE configuration.

► II 2G Ex h IIC T6 Gb ►►

Classification system	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22	Mining
Hazardous explosive atmosphere	Continuously, frequently or for long periods		Occasionally		Infrequently and for short periods only		
Equipment category	1G	1D	2G	2D	3G	3D	M1 and M2

Type of protection	Standard symbol	Zone	Main areas of application	Standard
Constructional safety: c	h	0, 1, 2, 20, 21, 22	Clutches, pumps, gears, conveyor belts	ISO 80079-37 EN ISO 80079-37

Areas with pot. explosive gases – temperature classes		Mining areas with potentially explosive atmospheres	
450 °C	T1	Group I	Methane
300 °C	T2	Areas with potentially explosive gases	
200 °C	T3	Group II	IIA Propane
135 °C	T4		IIB Ethylene
100 °C	T4		IIC Hydrogen
85 °C	T6	Areas with potentially explosive dusts	
Areas with pot. explosive dusts – surface temperature		Group III	IIA Combustible flyings
T ... °C (e.g.: T 80 °C)			IIB Non-conductive dust
			IIC Conductive dust

Classification system	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22	Mining
EPL (IEC/EN 60079-0)	Ga	Da	Gb	Db	Gc	Dc	Ma and Mb

► ATEX marking ► Type of protection ► Group ► Max. surface temperature ► EPL

Our selection table for ATEX-compliant air handling units is available for download from www.trox.de/ahu-atex

Quality made in Germany: TROX X-CUBE Ex

A TROX X-CUBE is a convincing product, and this includes ATEX units. They are configurable, and their energy efficiency is unparalleled. X-CUBE units are manufactured in an ultra-modern production facility in Germany that was specially built for X-CUBE production. TROX X-CUBE Ex comes in three versions: there is a standard version for indoor installation, a weatherproof outdoor version and a particularly hygienic version for sensitive areas.

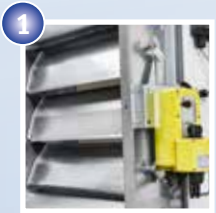
Extensive testing and quality assurance

Each individual X-CUBE Ex unit is subjected to rigorous tests before shipping. Conformity of both the product and the production process are examined regularly by a notified body.



Casing properties to EN 1886 certified by TÜV Süd, Germany

- Leakage class L1 (M)
- Mechanical strength class D1 (M)
- Filter class up to F9 (M)
- Thermal transmittance class T2
- Thermal bridging class TB2



Multileaf dampers and actuators

- ATEX-compliant construction
- Leakage class 2 to EN 1751, class 4 as an option
- Brass bearings, stainless steel as an option
- Linkage and opposed action blades
- Optional: ATEX actuators including spring return and auxiliary switch



Earthing

The base frame, the entire skeleton of the unit as well as all panels and metal parts are earthed.



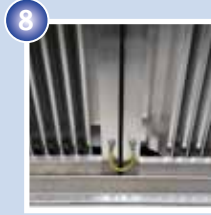
Duct connection

- Flexible connector made of electrostatic dissipative (anti-static) fabric, with equipotential bonding
- Fulfills the hygiene requirements of VDI 6022
- Prevents the transmission of vibration



Sound attenuator

Perforated plates cover the mineral wool infill in splitters (option L) and prevent both abrasion and electrostatic discharge.



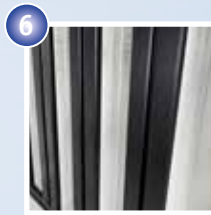
Droplet eliminator

- Entirely metal
- Included in the earthing system
- Easy-to-clean aluminium fins



Fans

- High-performance centrifugal fans
- Efficiency class IE2 (EU classification)
- PTC resistor for motor protection
- IEC standard motors, 'flameproof enclosure' type of protection
- Explosion-proof construction according to equipment group II, equipment category 2G, group IIB of explosive materials, temperature class T4



Filters

- ATEX-compliant pocket filters and Mini Pleat filters
- Filter classes M5 to H13
- Mini Pleat filters with lightweight, anti-static plastic frames
- Powder-coated filter mounting frame, stainless steel as an option



ATEX-compliant inspection window

- Meets the requirements of ISO 80079-36
- Clear size 190 x 190 mm



ATEX-compliant attachments

ATEX-compliant lighting elements, light switches, local isolators, differential pressure measuring devices and frost protection sensors.

► Design for safety ►►

Perfect unit configuration

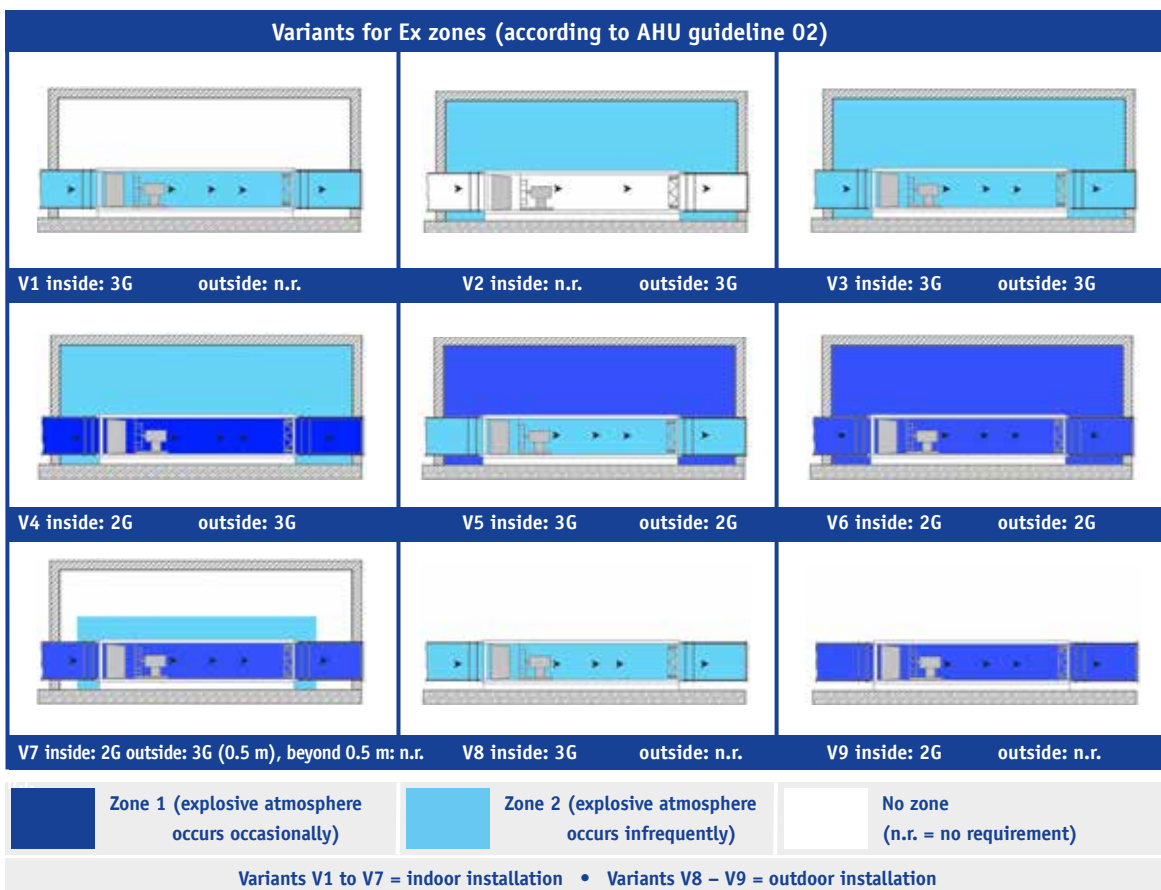
You want an air handling unit that runs safely and efficiently. This is what counts. The key? Configuration! It is particularly important to avoid zonal dispersion, so we do consider the input of specialist consultants, installers and system owners regarding zones and other aspects of explosion protection. These are the critical factors:

- Zones inside and outside of the air handling unit
- Type of explosive gas
- Temperature class



Efficiency, however, requires that some additional factors are considered, too:

- Type of heat recovery
- Installation location
- Air change rate in the installation space (for indoor units)
- Nearby buildings or walls (for outdoor units)
- Unobstructed airflow in two directions along an axis (for outdoor units)
- AHU operating time





TROX[®] TECHNIK

The art of handling air

TROX GmbH

Heinrich-Trox-Platz
47504 Neukirchen-Vluyn, Germany
Phone +49(0)2845 2020
Fax +49(0)2845 202265
www.troxtechnik.com
trox@trox.de