

Smoke extract- and ATEX-fans

**When you think safety
– think Systemair**



Smoke and heat extraction



Certification test of axial fan HA, (above) and centrifugal roof fan DVV



The smoke and heat resulting from fires are dangerous to people. High temperatures contribute to the spreading of fire by pre-heating areas not yet burning and increasing the risk of flash over.

Buildings need to be designed in a way that in the event of a fire the spreading of smoke and fire is limited. This will facilitate the rescue of people and animals and make it possible for the fire brigade to effectively fight the fire.

Mechanical smoke and heat extraction systems reduce the risk factors by removing smoke and heat in the event of a fire. It is especially important in the following cases:

- Rooms without windows or below ground level
- Areas influenced by wind
- Rooms with high demand for cleanliness, thus airtight.

Mechanical extraction systems are independent from external conditions and have instant full capacity, i.e. full air volume is available directly. Mechanical smoke and heat extraction systems are today an essential part of preventative fire protection measures.

Centrifugal fans and axial fans

We have three types of smoke extract fans

- centrifugal roof fans
- wall/duct mounted centrifugal fans
- axial fans.

Our smoke extract fans are certified for dual purpose application, i.e. smoke extraction as well as daily normal ventilation. The

axial fans HA and AXC and the centrifugal fans WVI can be installed within the fire zone.

Applications

Systemair offers following temperature classifications:

F600 – 600°C/2h

F400 – 400°C/2h

F300 – 300°C/2h

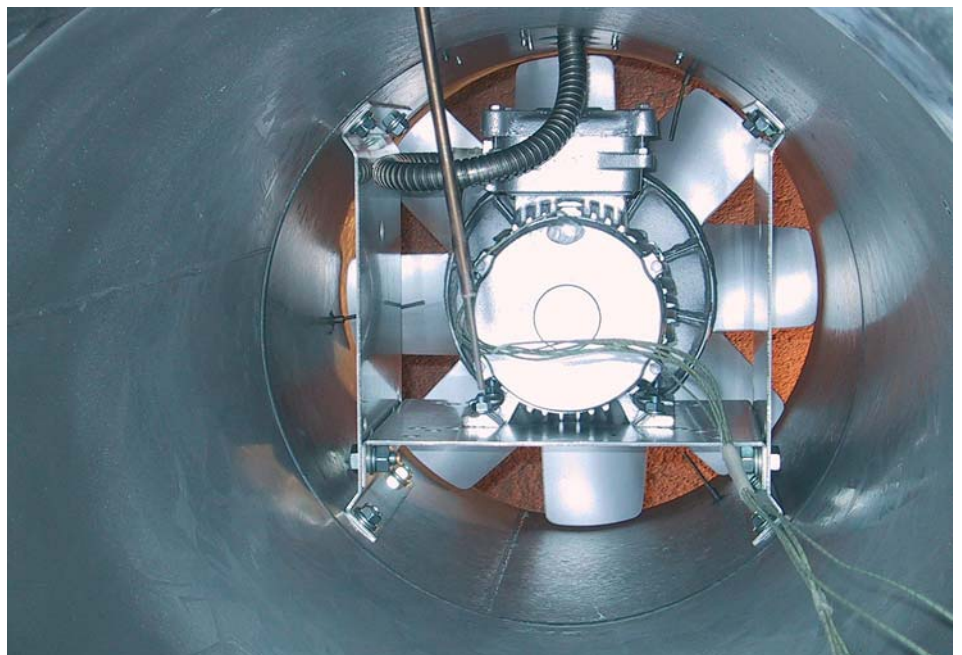
- Mechanical smoke and heat extraction for shopping malls, airports, industrial buildings, cinemas, etc.
- For high temperature process air
- Car park exhaust
- Catering and kitchen canopies
- Jet fans

Our fans are certified

Systemair smoke extract fans are certified in accordance with EN12101-3, at the Technical University of Munich, Germany. Our fans are CE-labelled. EU-declaration of conformity in accordance with DIN EN 12101-3, TÜV-Süd, Munich 2002-06, can be downloaded from our homepage.

www.systemair.com

Certification test of axial fan



Axial fans – up to wheel diameter 1800 mm

HABV-G

(inlet with guide vanes)



HA...(B)-G F300
HA...(F)-G F400
HABV-G F600

- Two high temperature smoke extract fans in series, same rotation direction
- F600 version with capsulated motors with cooling ducts
- In case one fan is switched off or stops running for any reason, approx. 65% of the total air volume will be supplied.

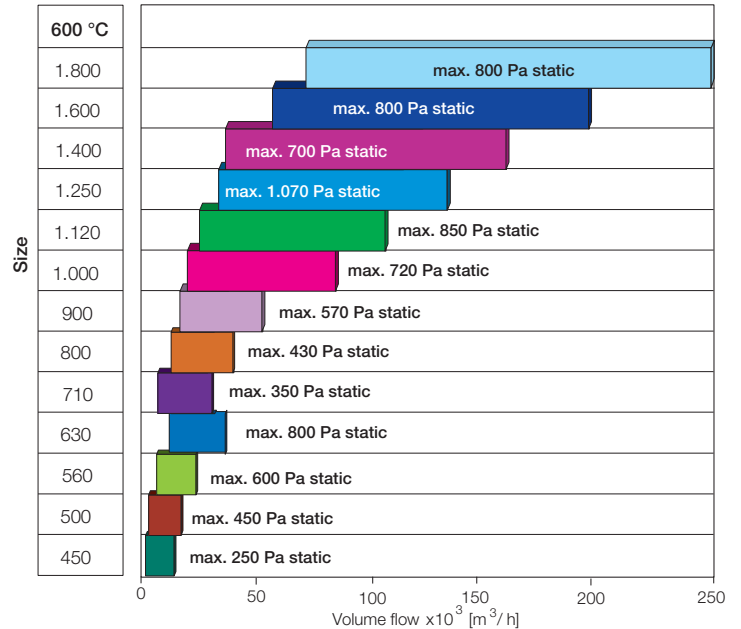
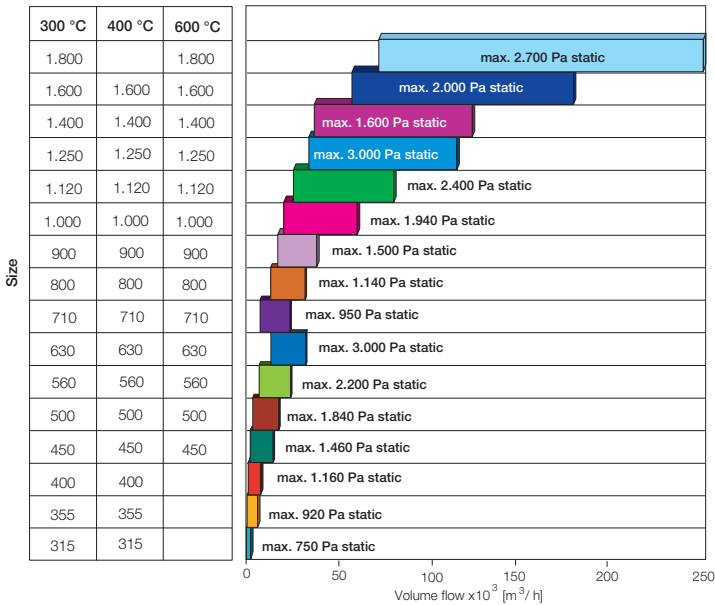
HABV (with inlet guide vanes)



HABV...F600

(with inlet guide vanes)

- Fan wheel diameter from 450 to 1800 mm
- F600 version with capsulated motors with cooling ducts



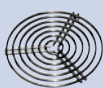
Accessories

Silencers



RSA

Protection guards



SG-AW/AR

Back draught dampers



LRK

Counter flanges



GFL-AR

Mounting feet, alternatively mounting brackets



MFA-AR

Flexible connections



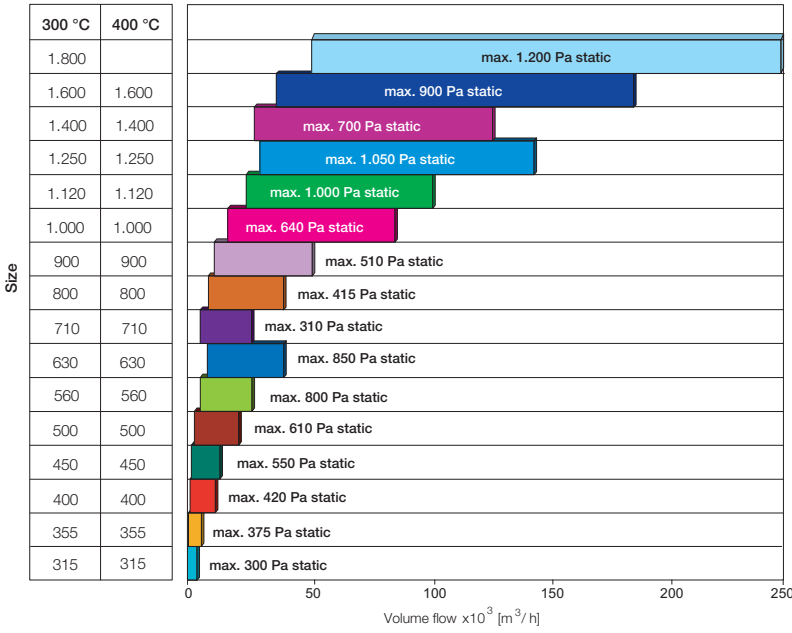
EVH

Inlet cones



ESD

Axial fans HA



HA



Axial fan

HA...(B) F300

HA...(F) F400

- Sizes 315 to 1800 mm
- P-HA with square wall plate with inlet cone, manufactured from steel, hot dip galvanized, up to size 1000

Axial roof fan

HA...(B)-D F300

HA...(F)-D F400

HABV...-D F600

- Sizes 315 to 1800 mm
- With roof cowl and base frame



HA...(B)-D

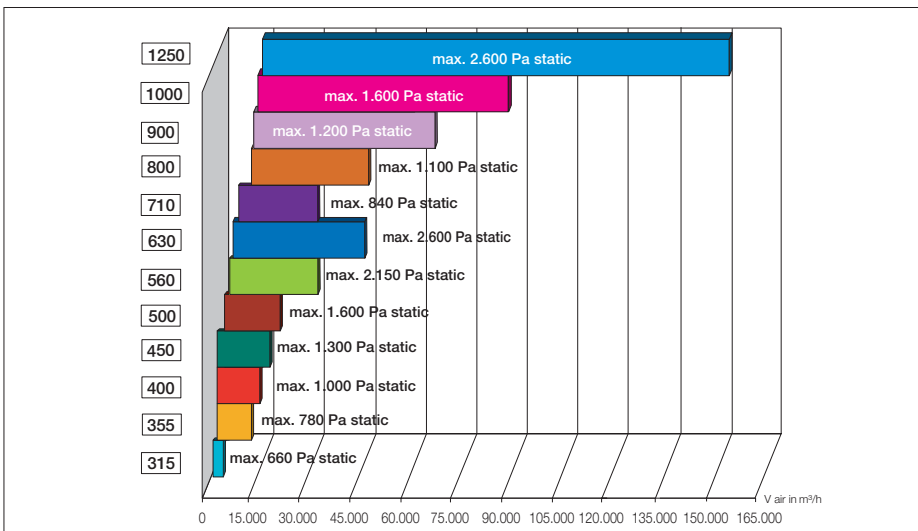
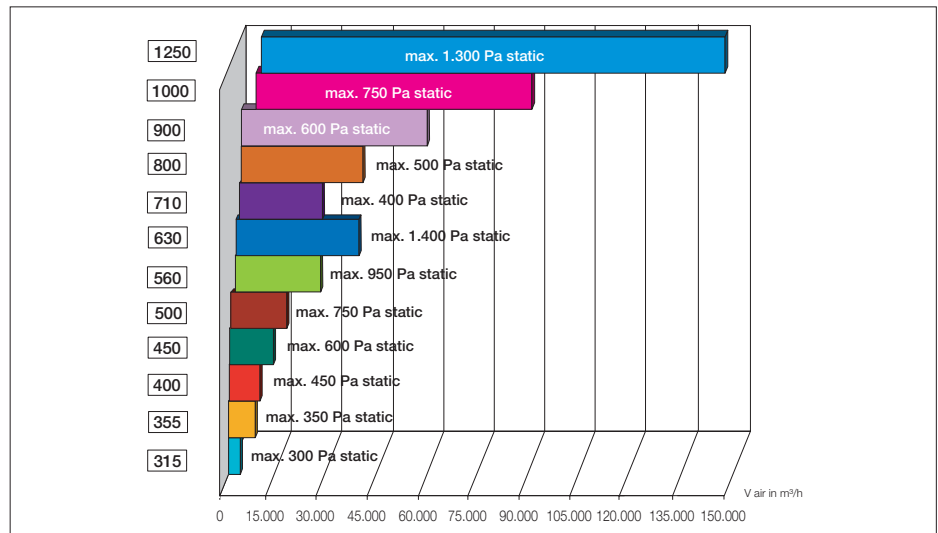
AXC



AXC...(B) F300

AXC...(B)-G F300

- Fan wheel diameter from 315 to 1250 mm
- Adjustable aluminium impellers



AXCG

- Sizes from 315 to 1250 mm
- Casing manufactured from steel, hot dip galvanized

Centrifugal roof fan – up to 52 500 m³/h

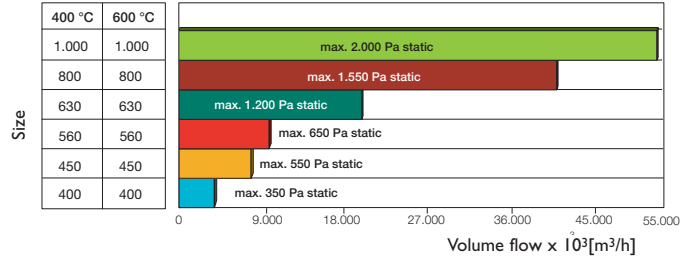


DVV F400/F600 Roof fan

The motor is separated from the air stream and insulated. ISO class F, protection class IP 54. Backward curved centrifugal impellers, in 400°C version made from galvanized steel, in stainless steel in 600°C

version. Motor cooling via cooling duct in a negative pressure system. The terminal box is fitted outside the cooling duct.

DVV fans are also available in versions for 40°C and 100°C continuous operation.



Accessories

Back draught damper



VKV/F

Back draught damper with inlet cone



VKVE/F

Bellmouth inlet



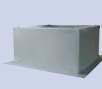
ESDV

Inlet flange flexible inlet connection



ASSV/F
ASFV

Flat roof socket



FDV/F

Flat roof socket



FDVE/F

Inlet silencer



SSV/F

Inlet silencer



SSVE/F

Outlet silencer



HSDV/F

Adapter for SSV



ASK/F

Centrifugal wall fans WVA/WVI – up to 40 000 m³/h



WVI

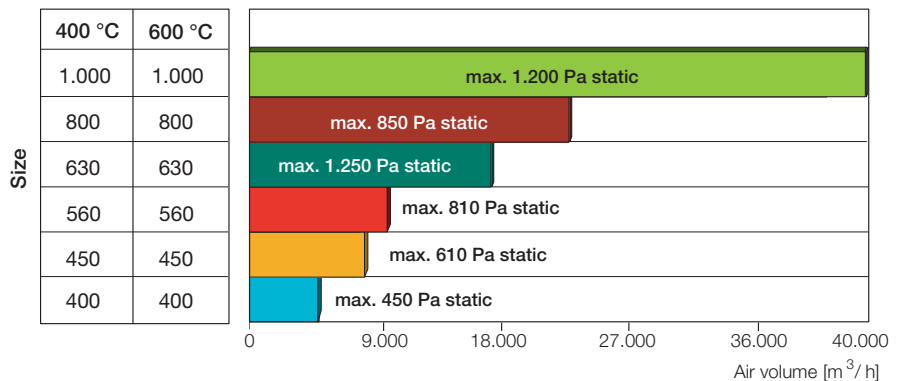
Centrifugal fan for wall mounting. Casing from galvanized steel, powder coated. Backward curved centrifugal impellers, in 400°C version made from galvanized steel, in stainless steel in 600°C version.

WVA to be installed outside the fire zone, WVI with insulated motor to be installed inside the fire zone, with cooling duct ZHZ to be connected to the motor compartment.

Fans are certified for horizontal installation on a wall, motor pointing downwards. Possibility to connect to a duct system, using accessory SN (inlet duct connection). IN outlet connection with protection guard is used for WVI as duct connection through the wall, for WVA as rain protection.



WVA



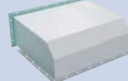
Accessories

Flexible connection



EPIN/EPSN

Inlet cowl



SN

Outlet cowl



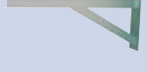
IN

Cooling duct



ZHZ

Console

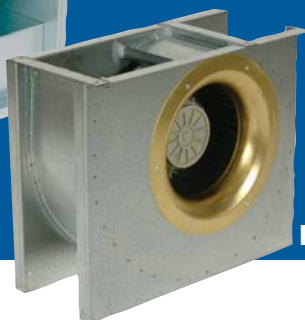


WBK-W

ATEX – safe ventilation in potentially explosion hazardous environment



KTEX



DKEX



EX140/180



RVK 315

High demands for fans approved for Zone I

From 1 July 2003 the new ATEX directive 94/9/EC was in force in the whole of the European Union for equipment to be used in potentially explosive atmospheres such as petrol stations, battery charging rooms, chemical industry, fume cupboards and spray cabinets.

- **Approved for Zone I category 2G**
- **Can be speed controlled**
- **Approved for Explosion group IIA, IIB and IIC**

What separates ATEX fans from standard fans is mainly that

- they meet considerably higher quality demands
- they are produced from materials that do not give off sparks
- the temperature does not exceed the limit for Temperature class T3
- they are traceable.

They must be marked with machine plate made from metal.

The selection of an explosion proof fan

Systemair provides you with helpful information for the selection of a suitable fan. Please bear in mind that manufacturers are responsible only for the appearance and workmanship of the fan. The system user is responsible for the correct system design for a proper operation.

Pre-selection depends on the medium to be transported. Each medium has an individual ignition temperature. The fans supplied by Systemair comply with temperature classification T3, some units can also be used in T4. *)

The next step is the selection of the correct zone resp. category. Basically the correct zone or category can only be given by the user of the system, after having conducted an analyse regarding the occurrence of explosion hazardous gases or gas mixtures in the project. All Systemair explosion proof fans are in unit category II, allowing an application in zone I and zone 2.

In the industry, explosion hazardous areas are classified in zones. ATEX classifies the fans in categories, corresponding to the zones. Categories are independent from the substance causing the explosion hazard. The classification in categories (or zones) is related to the temporal appearance (frequency of occurrence) of explosion hazardous atmosphere

(gas/vapour/fog-air mixture in ignitable condition). The categories/zones do not define the concentration!

Category 1 (zone 0) covers areas, where there is a permanent or long lasting occurrence of explosion hazardous atmosphere (more than 1000 h/year). Example: inside a fuel tank.

Category 2 (zone 1) covers areas, where there is a regular occurrence of explosion hazardous atmosphere (10-1000 h/year). Example: Filling machine

Category 3 (zone 2) covers areas, where there is a non-regular or short time appearance of explosion hazardous atmosphere (up to 10 h/year). Example: defective gas pipe, accidents.

Typical examples for application of ignition protection classes:

i	Intrinsically safe
d	Flame proof
e	Increased safety
p	Pressurized
o	Oil filled
m	Encapsulated
q	Sand filled

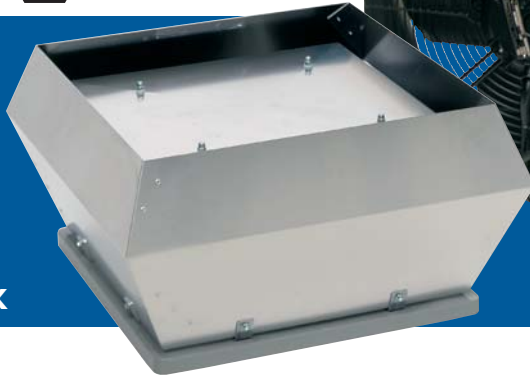
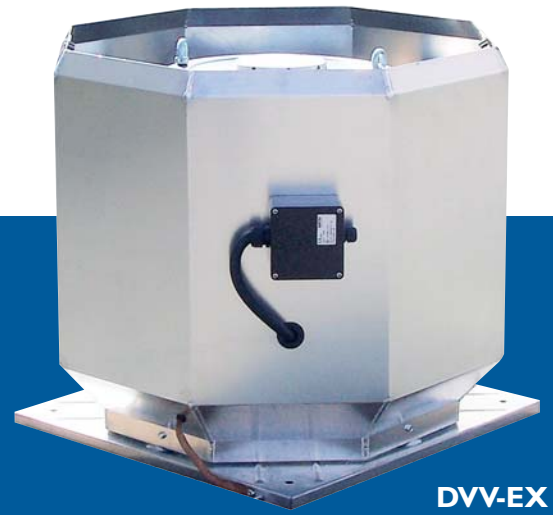
Tested and approved

Systemair Atex products:

- Fans tested in accordance with ATEX directive 94/9/EC and EN 50014, 50019 and EN 1127-1
- Ex(e) increased safety
- Ex(d) flame proof (pressure resistant capsulation, DVV-ex)
- Windings with integrated thermal motor protection, with external leads, to be connected to certified motor protection devices
- All models have serial numbers on the metallic rating plate.

*)

Temperature classification	Ignition temp. of medium	Max. surface temp. of electrical equipment
T1	>450°C	450°C
T2	>300...>450°C	300°C
T3	>200...>300°C	200°C
T4	>135...>200°C	135°C
T5	>100...>135°C	100°C
T6	>85...>100°C	85°C

AWEX**DVEX****DVV-EX****EX 140/180**

Air flow up to 1180 m³/h (0.33 m³/s).
Ex(e) increased safety. Motor protection device MSEX available for EX140 and EX180. 230V and 400V models available.

RVK

Air flow up to 1020 m³/h (0.28 m³/s).
Ex(e) increased safety. Casing consists of conducting plastic. Ex-classified terminal box available as accessory. Motor speed controllable by transformer.

DKEX

Air flow up to 5.000 m³/h (1.4 m³/s).
Ex(e) increased safety. Motors speed controllable by transformer.

KTEX

Air flow up to 5.000 m³/h (1.4 m³/s).
Ex(e) increased safety. Ex-classified terminal box available as accessory. Motors speed controllable by transformer.

AWEX

Air flow up to 11.500 m³/h (3.19 m³/s).
Ex(e) increased safety. Sizes 355 and 420 are approved for temperature class T4. Ex-classified terminal box available as accessory. Motors speed controllable by transformer.

DVEX

Air flow up to 8.600 m³/h (2.4 m³/s).
Ex(e) increased safety. Motors speed

controllable by transformer. Ex-classified terminal box available as accessory.

DVV-EX

Air flow up to 44.000 m³/h (12.2 m³/s).
Ex(d) flame proof. Motors speed controllable by frequency inverters. Supplied with Ex-classified terminal box pre-installed at the fan casing.

Art no.	Model	ATEX certificate no.
1560	EX 140-4 Centrifugal Fan (ATEX)	SP03ATEX3101X
1562	EX 140-2 Centrifugal Fan (ATEX)	SP03ATEX3101X
1561	EX 180-4 Centrifugal Fan (ATEX)	SP03ATEX3101X
1557	EX 140-4C Centrifugal Fan (ATEX)	SP03ATEX3101X
1559	EX 140-2C Centrifugal Fan (ATEX)	SP03ATEX3101X
1558	EX 180-4C Centrifugal Fan (ATEX)	SP03ATEX3101X
1564	KTEX 50-25-4 Rect.fan (ATEX)	SP04ATEX3105X
3958	KTEX 50-25-4 (230V/3-) (ATEX)	SP04ATEX3105X
1566	KTEX 50-30-4 Rect.fan (ATEX)	SP03ATEX3103X
3957	KTEX 50-30-4 (230V/3-) (ATEX)	SP03ATEX3103X
1568	KTEX 60-30-4 Rect.fan (ATEX)	SP04ATEX3107X
1570	KTEX 60-35-4 Rect.fan (ATEX)	SP04ATEX3109X
1572	KTEX 70-40-6 Rect.fan (ATEX)	SP04ATEX3111X
3965	DKEX 225-4 Centrifugal (ATEX)	SP04ATEX3106X
3959	DKEX 225-4(230V/3-) (ATEX)	SP04ATEX3106X
3966	DKEX 250-4 Centrifugal (ATEX)	SP03ATEX3104X
3986	DKEX 250-4(230V/3-) (ATEX)	SP03ATEX3104X
3967	DKEX 280-4 Centrifugal (ATEX)	SP04ATEX3108X
3968	DKEX 315-4 Centrifugal (ATEX)	SP04ATEX3110X
3969	DKEX 355-6 Centrifugal (ATEX)	SP04ATEX3112X
1680	DVEX 315D4 Roof fan ATEX	SP04ATEX3113X
2040	DVEX 315D4 230V 3-Roof fan ATEX	SP04ATEX3113X
1681	DVEX 355D4 Roof fan ATEX	SP04ATEX3114X
1682	DVEX 400D4 Roof fan ATEX	SP05ATEX3115X
1683	DVEX 450D4 Roof fan ATEX	SP04ATEX3116X
1684	DVEX 500D6 Roof fan ATEX	SP04ATEX3117X
1685	DVEX 560D6 Roof fan ATEX	SP05ATEX3118X
1686	DVEX 630D6 Roof fan ATEX	SP04ATEX3119X

Art no.	Model	ATEX certificate no.
5969	AW 355 D4-2-EX Axial fan ATEX	ZELM05ATEX0279X
5970	AW 420 D4-2-EX Axial fan ATEX	ZELM05ATEX0279X
5971	AW 550 D6-2-EX Axial fan ATEX	ZELM05ATEX0279X
5972	AW 650 D6-2-EX-Axial fan ATEX	ZELM05ATEX0279X
30271	RVK 315Y4 (ATEX)	ZELM03ATEX0198X
30841	DVV-EX 560D4 Roof fan 40°	SIQ06ATEX062X
30842	DVV-EX 560D4-6 Roof fan 40°	SIQ06ATEX062X
30843	DVV-EX 560D4-8 Roof fan 40°	SIQ06ATEX062X
30844	DVV-EX 560D6 Roof fan 40°	SIQ06ATEX062X
30845	DVV-EX 560D6-8 Roof fan 40°	SIQ06ATEX062X
30846	DVV-EX 560D8 Roof fan 40°	SIQ06ATEX062X
30852	DVV-EX 630D4 Roof fan 40°	SIQ06ATEX062X
30848	DVV-EX 630D4-6-K Roof fan 40°	SIQ06ATEX062X
30853	DVV-EX 630D4-8 Roof fan 40°	SIQ06ATEX062X
30849	DVV-EX 630D4-8-K Roof fan 40°	SIQ06ATEX062X
30847	DVV-EX 630D4-K Roof fan 40°	SIQ06ATEX062X
30854	DVV-EX 630D6 Roof fan 40°	SIQ06ATEX062X
30855	DVV-EX 630D6-8 Roof fan 40°	SIQ06ATEX062X
30851	DVV-EX 630D6-8-K Roof fan 40°	SIQ06ATEX062X
30850	DVV-EX 630D6-8-K Roof fan 40°	SIQ06ATEX062X
30856	DVV-EX 800D6 Roof fan 40°	SIQ06ATEX062X
30857	DVV-EX 800D6-8 Roof fan 40°	SIQ06ATEX062X
30860	DVV-EX 800D6-8-K Roof fan 40°	SIQ06ATEX062X
30859	DVV-EX 800D6-K Roof fan 40°	SIQ06ATEX062X
30858	DVV-EX 800D8 Roof fan 40°	SIQ06ATEX062X
30861	DVV-EX 800D8-K Roof fan 40°	SIQ06ATEX062X
30862	DVV-EX 1000D6 Roof fan 40°	SIQ06ATEX062X
30863	DVV-EX 1000D8 Roof fan 40°	SIQ06ATEX062X



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