
XDuct® smoke extraction ducting



Fire protection systems

The fire protection systems product group includes the XDuct® smoke extraction ducting, a tested system for protection against smoke and toxic gases as per DIN EN 12101-7:2011-08.

XDuct® smoke extraction ducting	404
XDuct® accessories	409

XDuct® smoke extraction ducting

PRODUCT DESCRIPTION

XDuct® is smoke extraction ducting made of galvanised sheet steel as per DIN EN 12101-7, with CE marking.

The test took place with 1,500 Pa negative pressure and at 600 °C with 500 Pa negative pressure over a period of 120 minutes as per DIN EN 1366-9.

The smoke extraction ducting is a complete system of ducts and fittings made of folded galvanised sheet steel, and complies with Building Code B Part 1 No. 1.17.6. The tested system has a reduced pressure drop, less risk of transit damage and is more lightweight and therefore easier to install than other solutions made of calcium silicate plates. The ducts and fittings are made of 1 mm galvanised sheet steel with additional reinforcements and a 30 mm lightweight section frame.

Smoke extraction ducting up to a cross-section of $W \times H = 1,250 \times 1,000$ mm is used.

The installation material required for the complete XDuct® system (wall anchors, duct crossbeams, duct tape, sealing compound) is also subject to certification for fire safety and is also supplied on request (DIN 12101-7, paragraph 4.2.5 Other components).

To distinguish the ducts and fittings, they are specially branded with the CE conformity mark.

LEGAL BASIS (STANDARDS AND GUIDELINES)

Guidelines

Administrative Regulation Technical Building Regulations (VV TB of the German Federal States based on the Technical Building Regulations Model Administrative Regulation MVV TB) No. 10.5, status 2017/1 as of 31 August 2017, correction 11 December 2017 of the Deutsches Institut für Bautechnik (DIBt)

Currently not yet implemented in all federal states of Germany. The Building Code List B Part 1 of the DIBt applies. No. 1.17.6 Edition 2015/1

Standards

DIN EN 1366-9

Specifications for fire resistance tests for service installations. Single-compartment ducts

DIN EN 12 101 part 7 Smoke extraction duct sections

Smoke and heat control systems

DIN EN 13 501-4

Classification of construction products

CLASSIFICATION

Performance criteria for the fire resistance of smoke extraction duct sections for single-compartment ducts: Room closure, impermeability to smoke, fire resistance

E_{600} 120 (h_o) S 1500 single

E_{600} 120 (v_e) S 1500 single

(for height offset of the duct axes $\leq 2,500$ mm)



XDuct® smoke extraction ducting with air grille

XDuct® smoke extraction ducting

APPLICATION

If a fire occurs, the build-up of smoke occurs faster than the increase in temperature. The affected areas can be filled with smoke in a very short time.

Due to the rapid spread of smoke, orientation is considerably impaired and rescue is made more difficult. In order to extract the toxic smoke fumes, tested smoke extraction ducting is used for mechanical smoke extraction. XDuct® is a tested smoke extraction duct with CE conformity as per DIN EN 12101-7.

ADVANTAGES

BerlinerLuft. XDuct® smoke extraction ducting is tested in accordance with DIN EN 1366-9.

Ducts and fittings are made of galvanized sheet steel

Lower net weight compared to calcium silicate panels

High stability

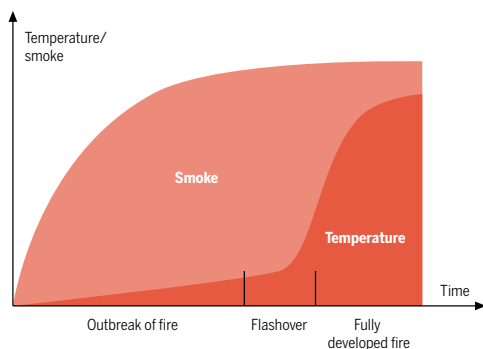
Low risk of transport damage

Simple and cost-effective installation

Note: The XDuct® smoke extraction ducting has only been tested as a system, including the use of XDuct® accessories and installation material.

FIRE PROGRESSION “WITHOUT” AND “WITH” SMOKE EXTRACTION

Without smoke extraction

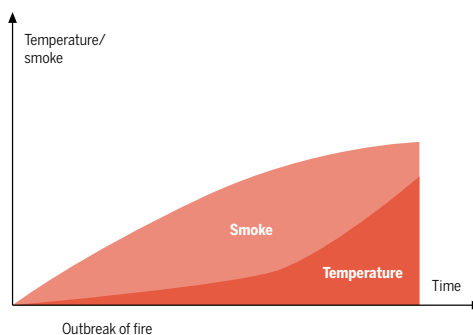


The highly toxic smoke collects in the room and hinders visibility both for escape and rescue.

The rise in temperature soon causes the fire to jump to all combustible objects (flashover).

Lack of oxygen produces hot unburned gases which burn explosively when oxygen is reintroduced.

With smoke extraction

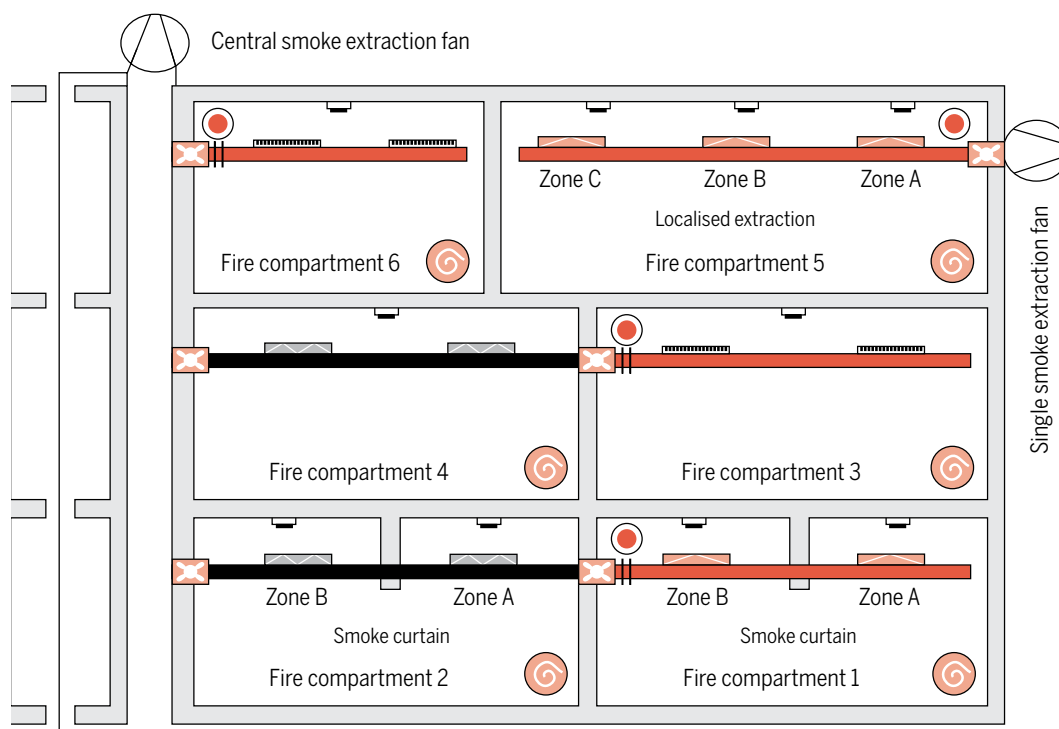


Smoke and heat are extracted.

This delays flashover. Visibility for escape and rescue is maintained.

Sufficient oxygen supply prevents the formation of explosive gases.

AREA OF APPLICATION



	XDUCT® smoke extraction ducting made of sheet steel 600/120 min. without fire-resistance rating		Fire-resistant smoke extraction ducting, e.g. calcium silicate ducting
	WSK 600 E non-metallic expansion joints	A B C	Smoke zones
	Smoke damper		Smoke damper
	Galvanised steel grille ST-E		Smoke damper
	Smoke detector		Air vent opening

GENERAL PROVISIONS

The applicability of the design according to the state building code (LBO) is certified if all components of the XDUCT® system are used in conjunction with the declaration of performance of the manufacturer, BerlinerLuft., and the assembly instructions are adhered to.

Necessary deviations from the declaration of performance of the manufacturer, BerlinerLuft., as well as changes to the assembly procedure, as described in the assembly instructions, are only approved by the responsible authorities in individual cases.


The approvals for this are to be obtained in writing by the customer/user prior to the tender in the construction planning process.

The declaration of conformity, the declaration of performance and the assembly instructions of the manufacturer, BerlinerLuft., are not a replacement for the legally required approvals, consents and certificates for the execution of the construction plans.

XDuct® smoke extraction ducting

DECLARATION OF CONFORMITY

All ducting components for smoke extraction ducts are clearly marked with a non-removable CE conformity mark to prevent confusing them with other ducting components.

 0761	CE conformity marking, consisting of the CE symbol in accordance with Directive 93/68/EEC and identification number of the Notified Body.
BerlinerLuft. Technik GmbH Regionalcenter Mitte Bergener Ring 11-13 D - 01458 Ottendorf-Okrilla, Germany 6 / 18 0761-CPR-0717	Name or marking, and registered address of the manufacturer. The last two digits of the year in which the mark was assigned. Number of the EC certificate of conformity
EN 12101-7 Smoke extraction duct section Model: X-Duct	Number of the European standard, description of the product, number of the type/model
Classification E ₆₀₀ 120 (ho) S1500single E ₆₀₀ 120 (ve) S1500single Leakage value DoP: www.berlinerluft.de	Classification according to EN13501-4 of the manufacturer

CE marking

On 1 July 2013, the new Construction Products Regulation (CPR) replaced the Construction Products Directive (CPD), which had been in force since 1989.

As a European regulation, the CPR has immediate effect in all member states. It is not necessary to transpose it into national law.

In Germany, the transition from the CPD to the CPR is implemented by amendments to the law in order to conform to the Construction Products Regulation. The first adaptation establishes, among other things, the Deutsches Institut für Bautechnik (DIBt) as the national notifying authority, the Bundesanstalt für Materialforschung und -prüfung (BAM) as the national product information body and a catalogue of fines for violations of the CPR.

DECLARATION OF COMPLIANCE

Manufacturer

Ducting components and fittings are subject to random self-monitoring in the factory (testing for leaks), and the results are clearly documented. The documentation is subject to external monitoring by an independent testing institute.

The CPR has the same intention as the previous CPD; however, the contents have been simplified, specified and updated. The overriding objectives are to place of construction products on the market, ensure their free movement and dismantle technical barriers to trade in the EU economic area. Harmonised technical specifications are intended to lead to uniform product and testing standards throughout the EU and thus to harmonise performance specifications for construction products.

The CPR regulates the conditions for bringing harmonised construction products into circulation and making them available on the market, and lays down requirements for the declaration of performance and the CE marking.

Products subject to the CPR are defined in the model administrative regulation "Technical Building Rules" (MMV-TB) under point 10.5. It has been resolved that the MVV-TB is to be implemented in the German Federal States. The current status of the implementation of the sample list for technical building regulations (MLTB) and the model Technical Building Rules for the federal states of Germany can be viewed on the DIBt website (www.dibt.de).

BerlinerLuft. has received a certificate of constancy of performance under the number 0761-CPR-0717 for smoke extraction duct sections. A declaration of performance and assembly instructions for this product are available from the manufacturer, BerlinerLuft.

Accessories such as inspection openings, non-metallic expansion joints, silencers, outlets and plenum boxes, which are part of the installation of a smoke extraction system, are not subject to marking. However, they must be tested according to the same principles of EN 1366-9 in order to prove that they have the same performance resistance as previously tested and classified smoke extraction ducting.

Assembly

Upon delivery of the XDuct® system, a declaration of performance is provided by the supplier along with assembly instructions. The installation company must provide a written declaration of compliance, verifying that the installation was performed correctly.

SCOPE OF SUPPLY

The XDuct® smoke extraction ducting of BerlinerLuft. Technik GmbH is supplied as a complete system on request. The selection and design of the individual components are based on the specifications of the fire resistance test as per EN 1366-9, and the associated classification as per EN 13501-4.

Ducting parts Control mark	Installation material with fire protection approval	Accessories with fire protection approval
Ducting without cut-out	Fixing material (for suspension)	Inspection panel
Ducting with cut-out	Sealing strip	Steel air inlet grille
Ducting with connectors	Sealing compound	Non-metallic expansion joints Adapter
Fitting ducts	Angle sections 35/35/4	Smoke dampers
Bends	C-sections 50/30/1.5	Plenum box
T-pieces	C-sections 41/41/2.5	Ceiling diffuser
Transitions, rectangular		Splitter silencers
Tube transitions	Installation material not subject to approval	
Elbow ducts (angle)	Screws, nuts and washers M10	
Offset ducts	Duct clamps	
Y-sections	Threaded rods M8	

XDuct® smoke extraction ducting

All components described below are designed and tested for a maximum operating temperature of 600 °C and 120 minutes.

DUCTING PARTS

for smoke extraction ducts are approved up to a maximum cross-section of $W \times H = 1,250 \times 1,000$ mm and are manufactured in accordance with the design requirements of the fire resistance test.

INSTALLATION MATERIAL

with the required fire protection approval, should always be matched to the XDuct® system.

NON-METALLIC EXPANSION JOINTS

are to be installed in smoke extraction ducting over 5,000 mm in length (duct axis) at a distance of max. 10,000 mm before and after each change of direction, or on smoke extraction dampers or L 90 ducting when leaving the fire compartment where smoke is to be extracted in order to compensate for thermal expansion. The component designation WSK-600 E refers to the special use in smoke extraction ducting. With its lightweight section frames on both sides, the WSK-600 E can be screwed on between the smoke extraction ducting components. Special adapters are available for connection to smoke extraction dampers/L90 ducts.

SMOKE DAMPERS

according to the fire resistance test, are subject to special reinforcement and fastening to the smoke extraction ducting. The components provided for this purpose must be specified separately.

AIR GRILLES

are steel grilles with fixed blades of type ST-E. The maximum individual length of a blade must not exceed 525 mm.

SPLITTER SILENCERS

for smoke extraction ducting are silencers specially adapted to the conditions of use with the type designation KSD-E x..... x..... The technical data can be found in the BerlinerLuft. AKUSWIN® design program for silencers. (download at www.berlinerluft.de)

PLENUM BOXES WITH CEILING DIFFUSER

are construction elements which have also been subjected to a fire resistance test. The swirl or ceiling diffuser plates ST-DV-E, DRA2-E, DRA3-E and DRA4-E are available for this specification. Technical information can be found in the various product brochures.

INSPECTION OPENINGS AND INSPECTION PANELS

are subject to special design specifications. The position of the components must be marked separately to ensure proper prefabrication at the manufacturer. The maximum dimensions for inspection openings is 500 x 500 mm.

- 1 | Air grille ST-E for smoke extraction ducting
- 2 | WKS-600 E non-metallic expansion joints
- 3 | KSD-E splitter silencer



Tender specification texts

XDuct® smoke extraction ducting

XDuct® smoke extraction ducting made of galvanised sheet steel, including installation material* with fire protection approval, without fire resistance duration requirements. Maximum component cross-section 1,250 x 1,000 mm.

The smoke extract duct is subject to a random factory leakage test. A declaration of performance and assembly instructions are provided with the initial delivery.

Tested according to DIN EN 1366-9, defined in Building Code List B Part 1, Edition 2015/1, of DIBt No. 1.176

Certified with EC Certificate of Conformity for single-compartment ducts

Functional integrity up to 600 °C for a period of 120 min.

Supplier BerlinerLuft.
Technik GmbH

Make XDuct®

Ducting m²

Fitting m²

The installation company must provide a declaration of compliance for the proper installation of the complete XDuct® smoke extraction ducting.

WSK-600 E non-metallic expansion joints

WSK-600 E non-metallic expansion joints for use in smoke extraction ducting to compensate for thermal expansion in the event of fire.

Maximum component cross-section 1,250 x 1,000 mm

Tested as per DIN EN 1366-9

Functional integrity up to 600 °C for a period of 120 min.

Supplier BerlinerLuft. Technik GmbH

Make WSK 600 E

Dimension xmm

Component length 155 mm

AD-E adapter

AD-E adapter for connecting the smoke extraction ducting to smoke extraction dampers and L 90 ducting when leaving the fire compartment where smoke is to be extracted.

Maximum component cross-section 1,250 x 1,000 mm

Tested as per DIN EN 1366-9

Functional integrity up to 600 °C for a period of 120 min.

Supplier BerlinerLuft.
Technik GmbH

Make AD-E

Dimensions xmm

Component length 75 mm

* Base screw anchor for concrete B25

Tender specification texts

TENDER SPECIFICATION TEXTS

ST-E air grille

The ST-E air grille is made of galvanised sheet steel with fixed blades and a maximum blade length of 525 mm.

Tested as per DIN EN 1366-9

Functional integrity up to 600 °C for a period of 120 min.

Supplier: BerlinerLuft.
Technik GmbH

Make: ST-E

Dimensions: xmm

ASK-E plenum box

The ASK-E plenum box, made of galvanised sheet steel, is intended for use in smoke extraction ducting. It has a built-in crossbeam for the central fastening of face plates and side connectors.

Tested as per DIN EN 1366-9

Functional integrity up to 600 °C for a period of 120 min.

Supplier: BerlinerLuft.
Technik GmbH

Make: ASK-E

Dimensions: xmm

Ceiling diffuser ST-DV-E or DRA -E

Ceiling diffuser as front plate for flush mounting, made of sheet steel, painted white (RAL 9010) with fixed blades.

Use only in conjunction with plenum box ASK-E

Tested as per DIN EN 1366-9

Functional integrity up to 600 °C for a period of 120 min.

Supplier: BerlinerLuft.
Technik GmbH

Make: ST-DV-E
DRA2-E; DRA3-E; DRA4-E
(specify type)

Dimensions: xmm

TENDER SPECIFICATION TEXTS

KSD-E splitter silencer

KSD-E splitter silencer is designed for use in smoke extraction ducting, made of galvanised sheet steel with special damping material, non-flammable as per DIN 4102-A2.								
Maximum component cross-section 1,250 × 1,000 mm								
Maximum component length 1,500 mm								
Designed and calculated according to BerlinerLuft. AKUSWIN® design program for soundproofing systems								
Tested as per DIN EN 1366-9								
Functional integrity up to 600 °C for a period of 120 min.								
Supplier	BerlinerLuft. Technik GmbH							
Make	KSD-E							
Dimension	..... x x..... mm							
Splitter type	A(K) 100L; A (K) 200L (specify type)							
Number of splitters	.....						
Octave frequency (Hz)	63	125	250	500	1k	2k	4k	8k
Attenuation (dB)	....	....	....	....	....	....	....	....

RD-E inspection panel

RD-E inspection panel made of galvanised sheet steel, double-skinned for use, as intended, on smoke extraction ducting.	
Maximum cross-section of inspection opening 500 × 500 mm	
Tested as per DIN EN 1366-9	
Functional integrity up to 600 °C for a period of 120 min.	
Supplier	BerlinerLuft. Technik GmbH
Make	RD-E
Dimensions xmm

Further information about the XDuct® smoke extraction system:
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