

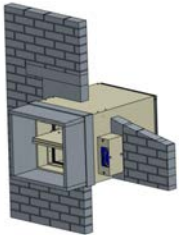
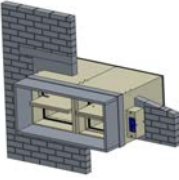
DoP/EK2-EU/DE/001



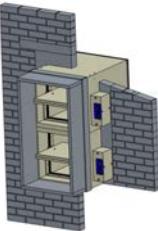
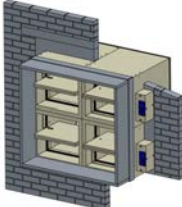
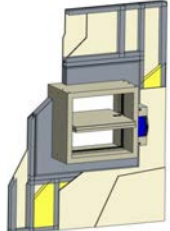
1.	Product Unique identification code of the product type	EK2-EU
2.	Intended use	Smoke control damper for multiple compartments or single compartments for the removal of smoke and heat, for the supply of outdoor air (supply air flow) for mechanical smoke extract systems. Can also be used in pressure ventilation systems and with ventilation function if the mechanical smoke extraction system is certified for combined systems by the building authorities.
3.	Manufacturers	TROX GmbH Heinrich-Trox-Platz • 47504 Neukirchen-Vluyn • Germany Phone +49(0)2845 2020 • Fax +49(0)2845 202265 E-Mail trox-de@troxgroup.com • Internet www.trox.de
5.	System of assessment and verification of constancy of performance	System 1
6.	Harmonised standard Notified body/ies	EN 12101-8:2011 The notified body 1322 - IBS - carried out the initial inspection of the manufacturing plants and of the factory production control as well as the continuous surveillance, assessment and evaluation of factory production control according to System 1 of the Construction Products Regulation and issued the certificate of constancy of performance: 1322-CPR-74135/14

Declaration of performance

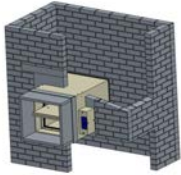

Essential characteristics: fire resistance for nominal sizes [mm]: 200 × 200 to 1500 × 800

Supporting construction	Construction	Installation location	Class of performance for
 <p>Solid wall Single damper, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 90 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 90 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 180 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 120 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 180 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi
 <p>Solid wall Dampers side by side, two and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 90 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 90 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 180 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100$ mm $\rho \geq 500$ kg/m³ Note ① 	EI 120 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 180 (v _{ew} -i↔o) S1500 C _{mod} HOT400/30 MA multi

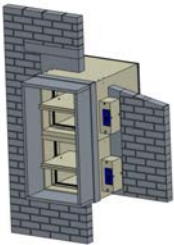

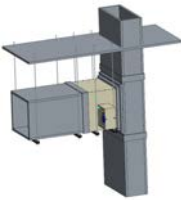
Declaration of performance

 <p>Solid wall One damper on top of the other, two and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 120 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 180 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 180 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
 <p>Solid wall Three and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 120 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 180 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar with extra housing insulation EI 180 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi EI 180 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
 <p>Lightweight partition wall with metal support structure Single damper, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ Note ① 	EI 90 ($v_{ew} -i \leftrightarrow o$) S1500 C _{mod} HOT400/30 MA multi




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 <p>Shaft in solid construction as part of a smoke extract duct Single damper, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
 <p>Shaft in solid construction as part of a smoke extract duct Dampers side by side, two and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi



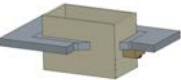
Declaration of performance

 <p>Shaft in solid construction as part of a smoke extract duct, dampers side by side, two and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
 <p>Shaft in solid construction as part of a smoke extract duct three and more dampers possible, with horizontal and vertical installation position</p>	<ul style="list-style-type: none"> 4-sided dry mortarless installation with annular gap covers 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 2-sided mortar and 2-sided dry mortarless 3-sided mortar and 1-sided dry mortarless Dry mortarless installation gap with annular gap covers EI 90 ... 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 90 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
	<ul style="list-style-type: none"> 4-sided mortar 	<ul style="list-style-type: none"> $d \geq 100 \text{ mm}$ $\rho \geq 500 \text{ kg/m}^3$ Note ① 	EI 120 (vedw -i↔o) S1500 C _{mod} HOT400/30 MA multi
 <p>Smoke extract duct in a horizontal and on a vertical duct</p>	<ul style="list-style-type: none"> Firestop board (calcium silicate) $d \geq 35 \text{ mm}$ $\rho \approx 500 \text{ kg/m}^3$ Perimeter strips (i.e. on four sides) Assembly of two dampers is possible EN 1366-8 (Smoke extract ducts for multi compartments) EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> Installation in duct-own design Note ① 	EI 120 (ved -i↔o) S1500 C _{mod} HOT400/30 MA multi

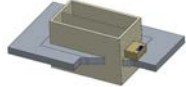

Declaration of performance

 <p>Smoke extract duct in duct-own construction, on horizontal duct</p>	<ul style="list-style-type: none"> • Firestop board (calcium silicate) • $d \geq 35 \text{ mm}$ • $\rho \approx 500 \text{ kg/m}^3$ • Perimeter strips (i.e. on four sides) • Assembly of two dampers is possible • EN 1366-8 (Smoke extract ducts for multi compartments) • EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> • Installation in duct-own design • Note ① 	<p>EI 120 (V_{ed} -i↔o) S1500 C_{mod} HOT400/30 MA multi</p>
 <p>Smoke extract duct in duct-own construction, in horizontal duct</p>	<ul style="list-style-type: none"> • Firestop board (calcium silicate) • $d \geq 35 \text{ mm}$ • $\rho \approx 500 \text{ kg/m}^3$ • Perimeter strips (i.e. on four sides) • Assembly of two dampers is possible • EN 1366-8 (Smoke extract ducts for multi compartments) • EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> • Installation in duct-own design • Note ① 	<p>EI 120 (V_{ed} -i↔o) S1500 C_{mod} HOT400/30 MA multi</p>
 <p>Smoke extract duct in duct-own construction, at the end of the horizontal duct</p>	<ul style="list-style-type: none"> • Firestop board (calcium silicate) • $d \geq 35 \text{ mm}$ • $\rho \approx 500 \text{ kg/m}^3$ • Perimeter strips (i.e. on four sides) • Assembly of two dampers is possible • EN 1366-8 (Smoke extract ducts for multi compartments) • EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> • Installation in duct-own design • Note ① 	<p>EI 120 (V_{ed} -i↔o) S1500 C_{mod} HOT400/30 MA multi</p>

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 <p>Smoke extract duct in duct-own construction, in vertical duct</p>	<ul style="list-style-type: none"> • Firestop board (calcium silicate) • $d \geq 35 \text{ mm}$ • $\rho \approx 500 \text{ kg/m}^3$ • Perimeter strips (i.e. on four sides) • Assembly of two dampers is possible • EN 1366-8 (Smoke extract ducts for multi compartments) • EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> • Installation in duct-own design • Note ① 	<p>EI 120 ($h_{od} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi</p>
 <p>Smoke extract duct in duct-own construction, on horizontal duct</p>	<ul style="list-style-type: none"> • Firestop board (calcium silicate) • $d \geq 35 \text{ mm}$ • $\rho \approx 500 \text{ kg/m}^3$ • Perimeter strips (i.e. on four sides) • Assembly of two dampers is possible • EN 1366-8 (Smoke extract ducts for multi compartments) • EN 1366-9 (Smoke extraction ducts for individual compartments) 	<ul style="list-style-type: none"> • Installation in duct-own design • Note ① 	<p>EI 120 ($h_{od} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi</p>
 <p>Solid ceiling slab Single damper, actuator encasing under supporting structure</p>	<ul style="list-style-type: none"> • 4-sided mortar 	<ul style="list-style-type: none"> • $d \geq 150 \text{ mm}$ • $\rho \geq 600 \text{ kg/m}^3$ • Note ① 	<p>EI 120 ($h_{odw} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi</p>

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 <p>Solid ceiling slab Single damper, actuator encasing above supporting structure</p>	<ul style="list-style-type: none"> • 4-sided mortar 	<ul style="list-style-type: none"> • $d \geq 150 \text{ mm}$ • $\rho \geq 600 \text{ kg/m}^3$ • Note ① 	<p>EI 120 ($h_{odw} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi</p>
 <p>Special installation</p>	<ul style="list-style-type: none"> • Lift for fire and rescue service 	<ul style="list-style-type: none"> • 3 mm to 5 mm distance between smoke control dampers and horizontally arranged components for use in smoke protection pressure systems (RDA) e.g. B. Fire brigade lift, which are little affected by smoke and heat. 	<p>EI 120 ($v_{edw} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi EI 120 ($h_{odw} -i \leftrightarrow o$) S1500 C_{mod} HOT400/30 MA multi</p>

Note ①

Construction of the duct: Smoke control dampers for multi compartments may be used with ducts that have been tested to EN 1366-9 (Single compartment smoke extraction ducts) and to EN 1366-8 (Smoke extraction ducts) and that are constructed either from materials of the same density ($\rho \approx 520 \text{ kg/m}^3$) as the tested material or from the same material with a greater density or thickness. In addition, smoke extract ducts that consist of sheet material from Etex Building Performance GmbH Type AD 40 and L 500 ($\rho \approx 500 \text{ kg/m}^3$) may be used.



Declaration of performance

Table 2

Essential characteristics	Technical specification, section of EN 12101-8	Performance level	(●) Requirements met/Note
Design and operation Nominal activation conditions/sensitivity	4.2.1.3		●
Response delay / closing time	4.2.1.4	MA	● / Opening/closure within 25 minutes at fire temperature has been proven. Period of time < 60 s
Durability (multi compartments) Durability of operational reliability	4.4.2.2	C _{mod}	● / 20,000 cycles, duration per cycle < 120 s
Integrity (E)	4.1.1 a)	E180/E120/E90	● / Details: Table 1 and installation and operating manual
Insulation (I)	4.1.1 b)	E180/E120/E90	● / Details: Table 1 and installation and operating manual
Leakage (S)	4.1.1 c)	E180 ... S E120 ... S E90 ... S	● / Pressure level 3, differential pressure: -1500 Pa to +500 Pa
Mechanical stability (part of E)	4.1.1 d)	E180/E120/E90	● / Details: Table 1 and installation and operating manual
Maintenance of cross section (part of E)	4.1.1 e)	E120/E90	● / Details: Table 1



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<p>Durability (multi compartments) Durability of response delay In connection with actuators and interface control units B24(X) / B230(X) B24SR (not for 40 Nm) B24M / B230M (only for 40 Nm) B24A = B24 + AS-EM/EK B24AS = B24 + AS-EM/SIL2 B24AM = B24 + ASEM/M B24BKNE = B24 + BKNE230-24 B24C = B24 + BC24 G2 B24D = B24 + BRM-10-F(-ST) B230D = B230 + BRM-10-F (...) variants</p>	4.4.2.1	MA	<ul style="list-style-type: none"> / Opening/closure within 25 minutes at fire temperature has been proven. Period of time < 60 s
<p>Durability (multi compartments) Durability of operational reliability In connection with actuators and interface control units B24(X) / B230(X) B24SR (not for 40 Nm) B24M / B230M (only for 40 Nm) B24AM = B24 + ASEM/M (...) variants</p>	4.4.2.2	C _{mod}	<ul style="list-style-type: none"> / 20,000 cycles, duration per cycle < 120 s

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Table 3

Essential characteristics	Technical specifications	Performance level	(●) Requirements met/Note
Damper with cover grille	EN 1366-10, 5.2.3		● / Required; can also be used to terminate openings and ducts
Damper blade leakage	EN 1751	Class 3	●
Damper casing leakage	EN 1751	Class C	●
Heading: Coating When impregnating or colour matching with commercially available emulsion paint, please note: The applied substance or material, the thickness limitation and the mass per unit area shall comply with Regulation (EU) 2016/364 of the European Parliament and Council. Mass per unit area $\leq 1.0 \text{ kg/m}^2$ Thickness $\leq 1.0 \text{ mm}$ Impregnation (only on calcium silicate surfaces) Promat GmbH – Impregnation 2000 Promat GmbH – SR Impregnation Promat GmbH – Tunnel Impregnation Commercially available emulsion paint (only on calcium silicate surfaces)	Regulation (EU) 2016/364 of 1 July 2015 on the classification of the reaction to fire performance of construction products pursuant to Regulation (EU) No 305/2011 of the European Parliament and of the Council		●

The performance of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with regulation (EU) no. 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by

Neukirchen-Vluyn, Germany, 1 December 2020



Jan Heymann • Authorised Representative • CE-marked products