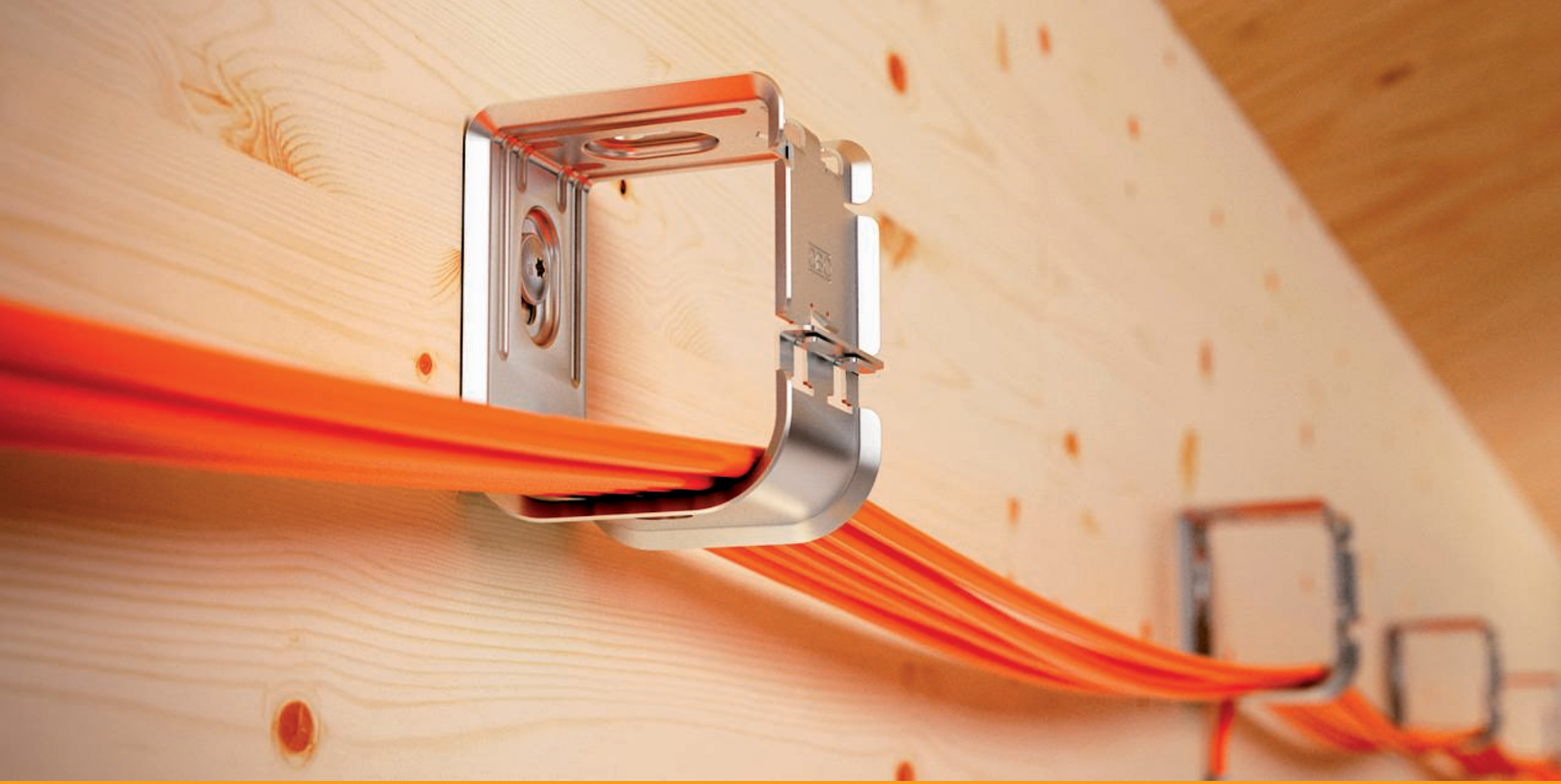
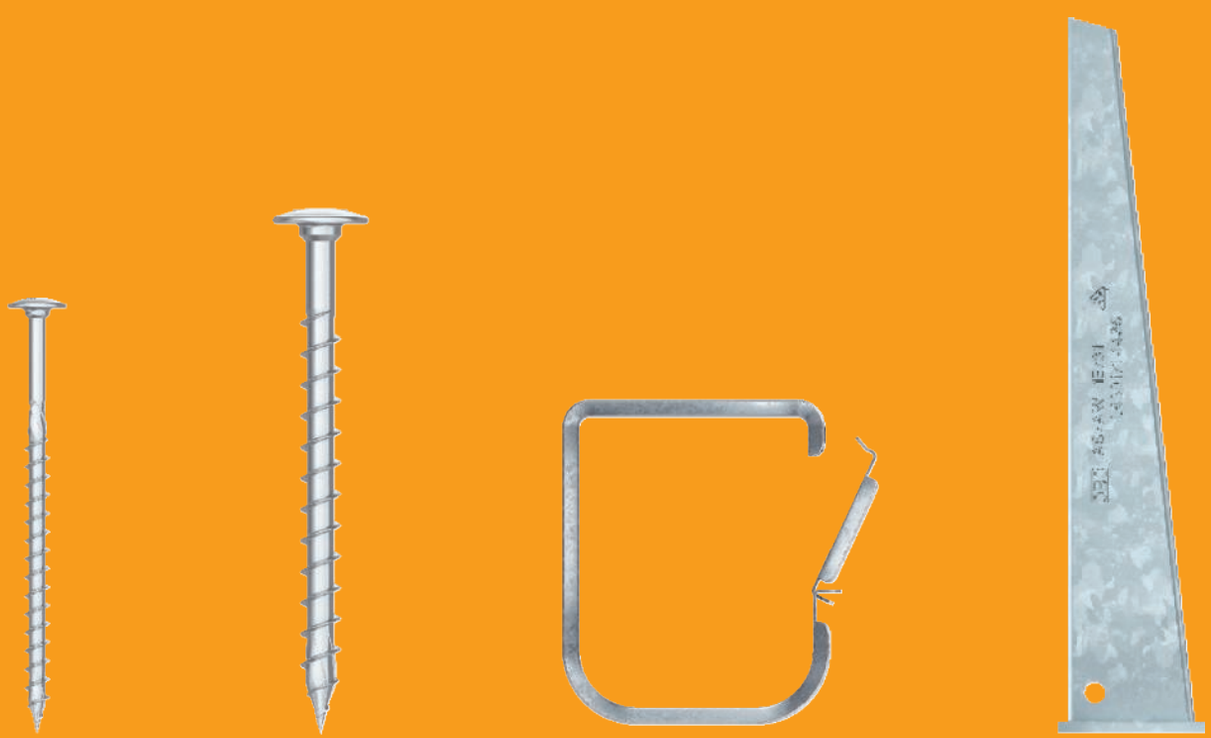


Maintaining electrical supply on wood

Cable systems according to DIN 4102 Part 12



Building Connections

OBO BETTERMANN

Maintaining the supply of electricity when working on

sustainable wood

In many buildings, the maintenance of the electrical supply in case of fire is mandatory - even in buildings made of wood. If there is a fire, safety-relevant systems, such as emergency lighting and fire alarm systems with supply cables, must continue to function for at least 30 minutes.

Fire protection and wooden structures - at first, this sounds like a major contradiction. However, the secure fastening of routing systems on wood is possible with the simultaneous maintenance of the electrical supply according to DIN 4102 Part 12. With a special fastening option on wooden components for our fire protection-tested cable support systems, we at OBO have developed a secure solution for maintaining electrical supply on wood.

On the basis of test certificates, standards and evaluations, OBO has had surveyor's comments compiled by an independent engineers' office. The result is that maintaining the supply of electricity when working with unprotected wooden components in fire protection terms is possible without difficulty if specific parameters are taken into account.

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

THE EXPERT

from the division for maintaining electrical supply

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

Maintaining electrical supply on wood

Its positive properties have led to wood becoming ever more important as a building material. As a renewable resource, wood is sustainable, provides a good atmosphere in the room and is also lighter than reinforced concrete. Fire protection with wooden components is not a contradiction: Although wood as a material is one of the combustible materials, its special properties in case of fire are more beneficial. A layer of charcoal forms on the surface facing the fire, protecting the wood below against oxygen and thus preventing further burning.

The remaining unburned residual cross-section in the wooden component can be determined, taking the necessary component dimensions for secure fastening into account. If the wooden component fulfils all the requirements, the type of cable system is specified. OBO offers a product portfolio for maintaining electrical supply, which has been tested and continuously expanded over time. You can find OBO cable systems, which are approved according to general construction testing certificates (AbP), for any application and use them to implement the necessary cable runs in the building.

Safe installation on non-fire-protected wooden components takes place with screws specially approved for connection in wood, for which a proof of use is available in the form of a European Technical Approval (ETA). OBO wood screws are the ideal solution for reliable fastening on wood, guaranteeing the maintenance of electrical supply according to DIN 4102 Part 12.

Flange head screw HT 6

Flange head
- HT 6x60 TD
- HT 6x80 TD
- HT 6x100 TD
- HT 6x120 TD

System benefits

Self-tapping wood screw for fireproof fastening of cable systems for maintaining the electrical supply according to DIN 4102 Part 12 on supporting wooden structures. The flange head shape allows installation without an additional washer.

Flange head screw HT 10

Flange head
- HT 10x60 TD
- HT 10x80 TD
- HT 10x100 TD
- HT 10x120 TD

System benefits

Self-tapping wood screw for fireproof fastening of cable systems for maintaining the electrical supply according to DIN 4102 Part 12 on supporting wooden structures. The flange head shape allows installation without an additional washer.

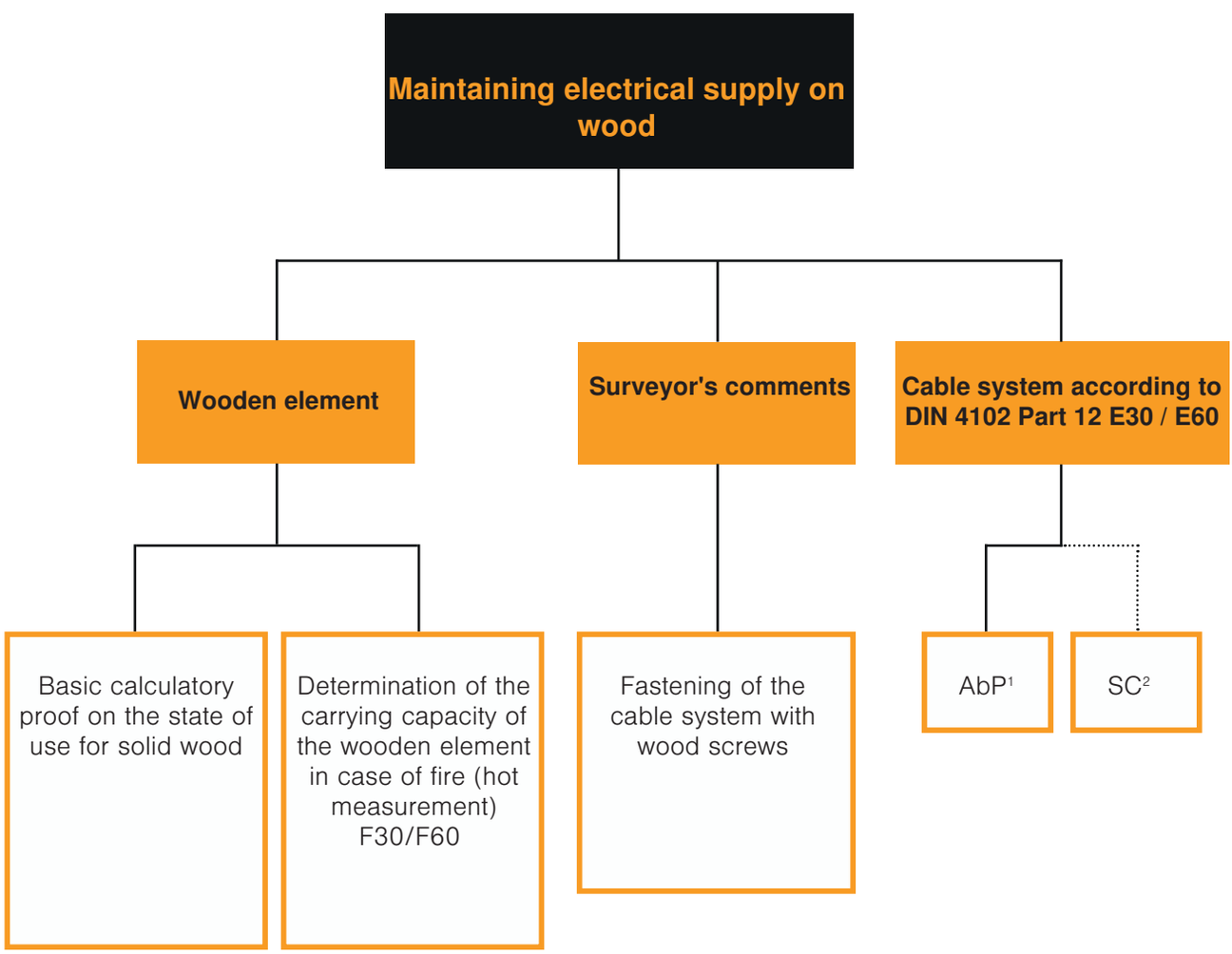
05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

Basic information on the subject of wood

Suitable wooden elements for the installation of an electrical cable system that maintains the supply of electricity include walls (that close off or do not close off rooms), ceilings and supports made of solid wood. These elements, which are not protected in case of fire, must have verified proof of the used state and, additionally, must be measured for a fire resistance period of 30 or 60 minutes (hot measurement).

The surveyor's comments no. GA-2016/034-Mey contain the results of an evaluation by an external engineering office of the possible installations on wooden components. This document describes and documents all the relevant information on the various routing systems.

An appropriate general construction test certificate (AbP) is always required as proof for cable systems to be installed. When a so-called "standard support structure" is used, appropriate surveyor's comments are additionally required as proof.



[1]General construction test certificate

[2]Surveyor's comments

Installation options on wooden components

Cable route at the side of the beam in a lengthwise direction

Cable route under the beam in a lengthwise direction

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

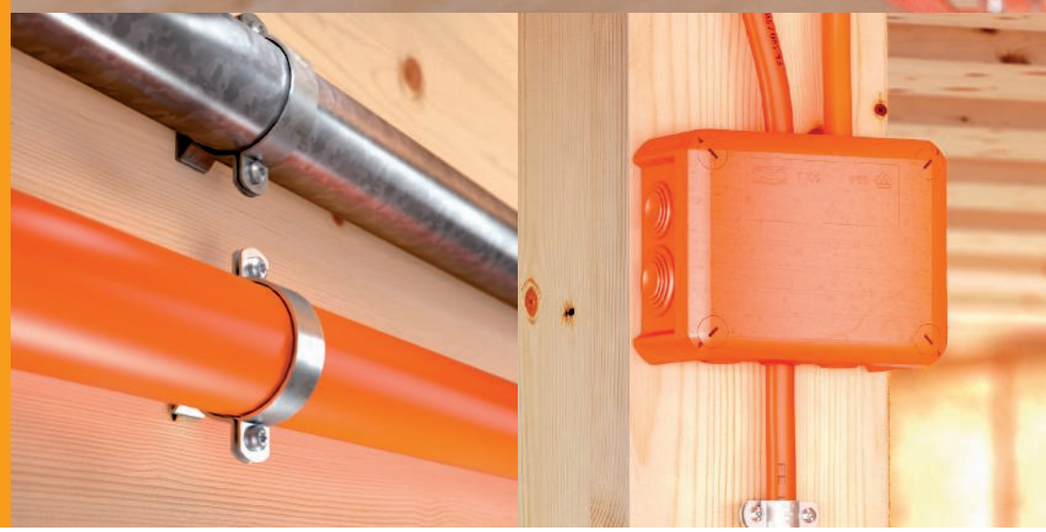
Installation principle

Taking the existing building structure and the required cable route in the building into account, different installation options are required on the wooden element. These can be summarised into the following four different groups:

- Cable route on the side of the beam in a lengthwise direction
- Cable route under the beam in a lengthwise direction
- Cable route vertically on the beam
- Cable route under the beam in a transverse direction

When the basic cable route has been specified, the most suitable installation option can be selected from the available surveyor's comments. The following pages contain some examples of the possible routing systems.

Individual cable routing maintaining the electrical function



Cable route vertically on the beam

Cable route under the beam in a transverse direction

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

1 Cable route under the beam in a lengthwise direction: Installation with clamp clips and profile rail

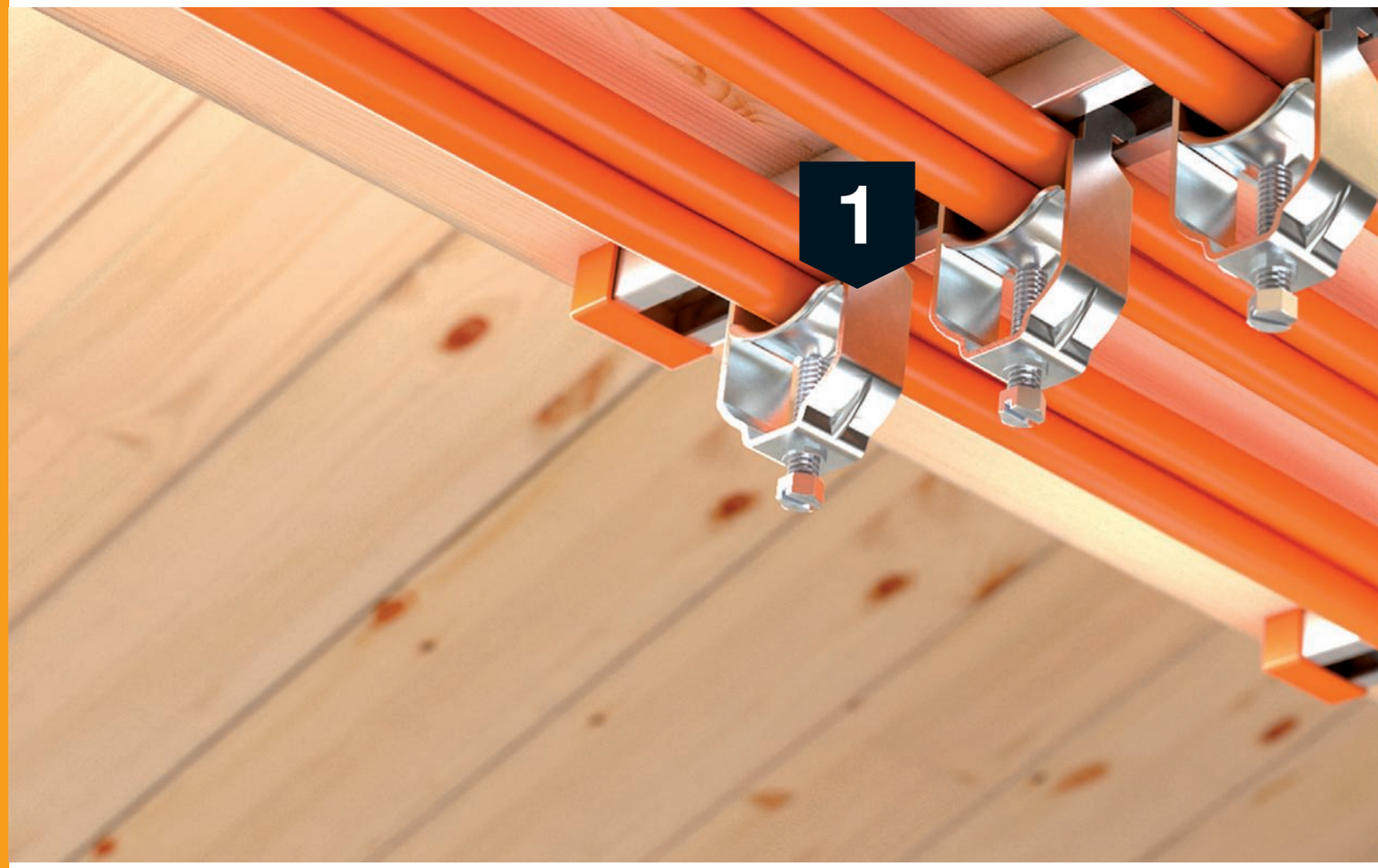
	Type	Designation
	2056 M ...	Clamp clip
	CML3518P	Profile rail
	HT 6x...TD	Flange head

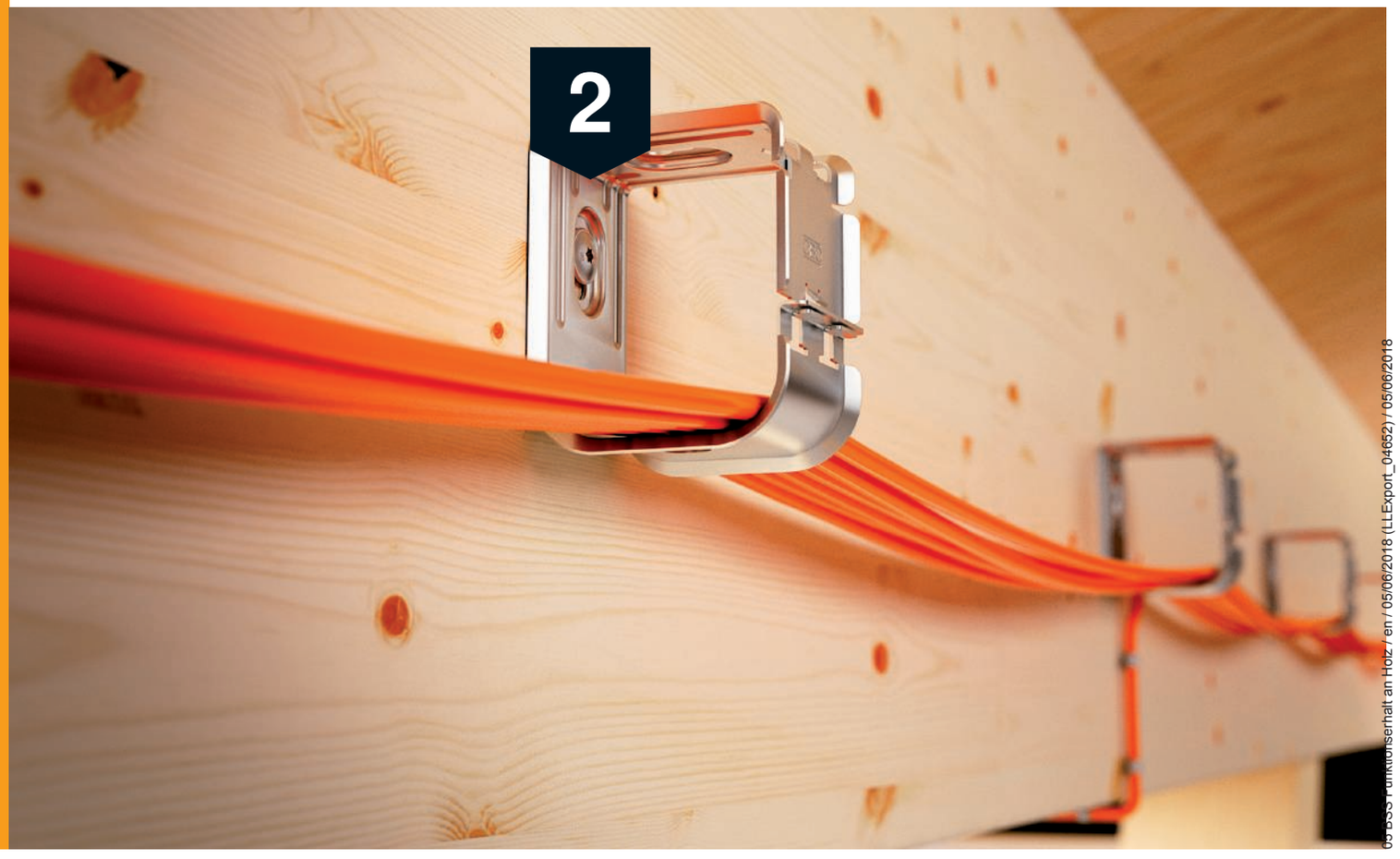
2 Cable route on the side of the beam in a lengthwise direction: Installation with grouped supports

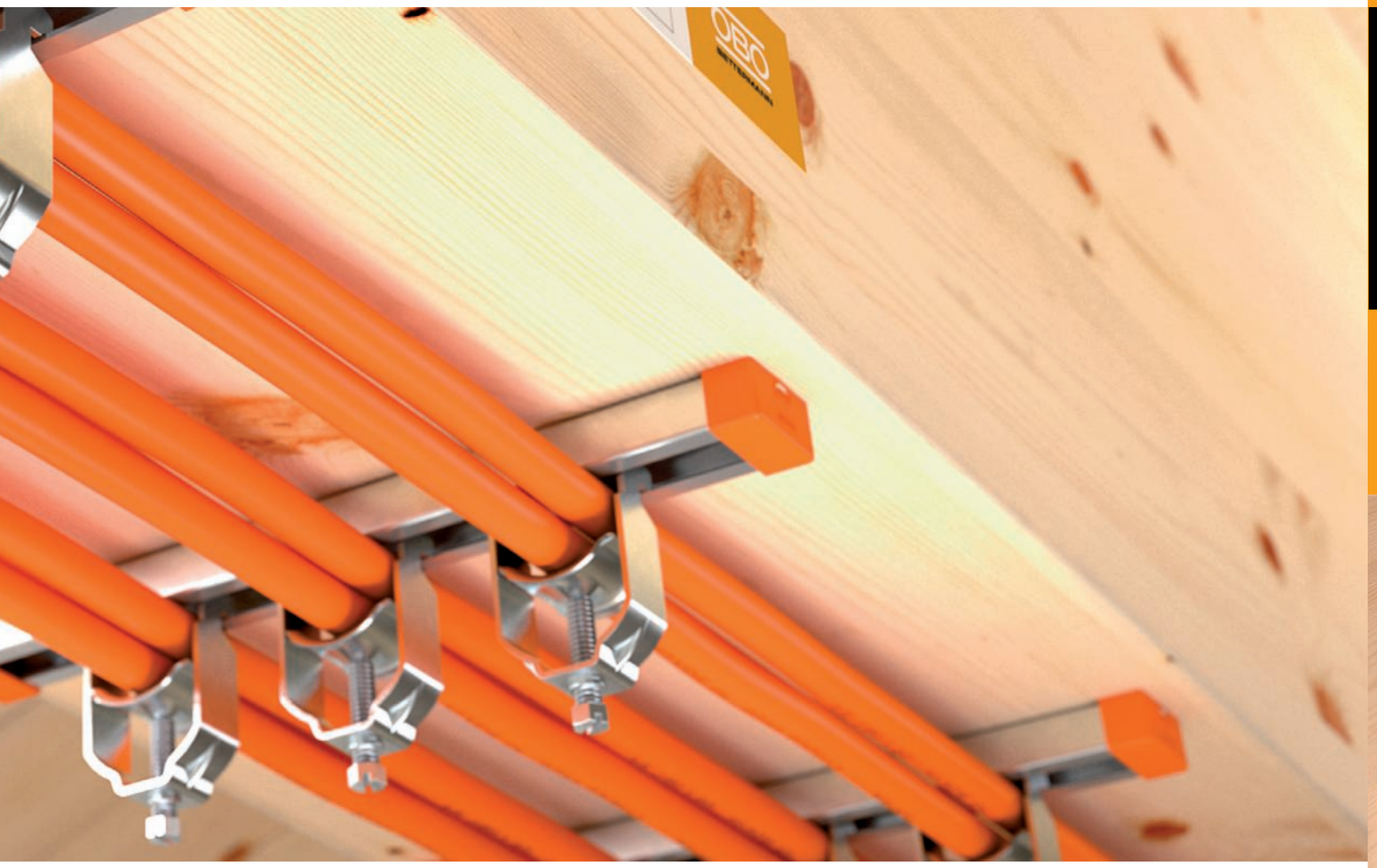
	Type	Designation
	2031 M 15	Grouped support
	2031 M 30	Grouped support
	2031 M 70	Grouped support
	HT 6x...TD	Flange head

3 Cable route on the side of the beam in a lengthwise direction: Installation with individual clips and FireBox

	Type	Designation
	733...	Cable and pipe spacer clip
	T100...	FireBox
	T160...	FireBox
	T350...	FireBox
	HT 6x... TD	Flange head



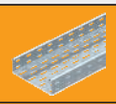




Routing of cables that maintains electrical supply on cable trays

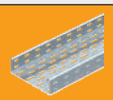
05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

1 Cable route at the side on the bar in the lengthwise direction: Installation with cable tray and sloping threaded rod locking

	Type	Designation
	SKS 6...	Cable tray
	MWA 12...	Bracket
	ABR	Connection component
	ABS	Connection component, sloping
	GLB-P...	Fire protection plate
	HT 10x... TD	Flange head

Additional accessory parts are required for the system, e.g. connectors and hexagonal nuts.

2 Cable route under the beam in the transverse direction: Installation with standard support structure of a cable tray on a U transverse profile and double-sided suspension with threaded rods

	Type	Designation
	SKS 6...	Cable tray
	US 3...	U support
	BSB	Fire protection clamp
	2078 M10	Threaded rod
	HT 10x... TD	Flange head

Additional accessory parts are required for the system, e.g. connectors and hexagonal nuts.

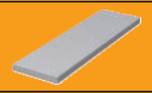
1

Vertical cable routing that maintains electrical supply and is routed in cable routing duct

1 Cable route under the beam in a lengthwise direction: Installation with cable routing duct

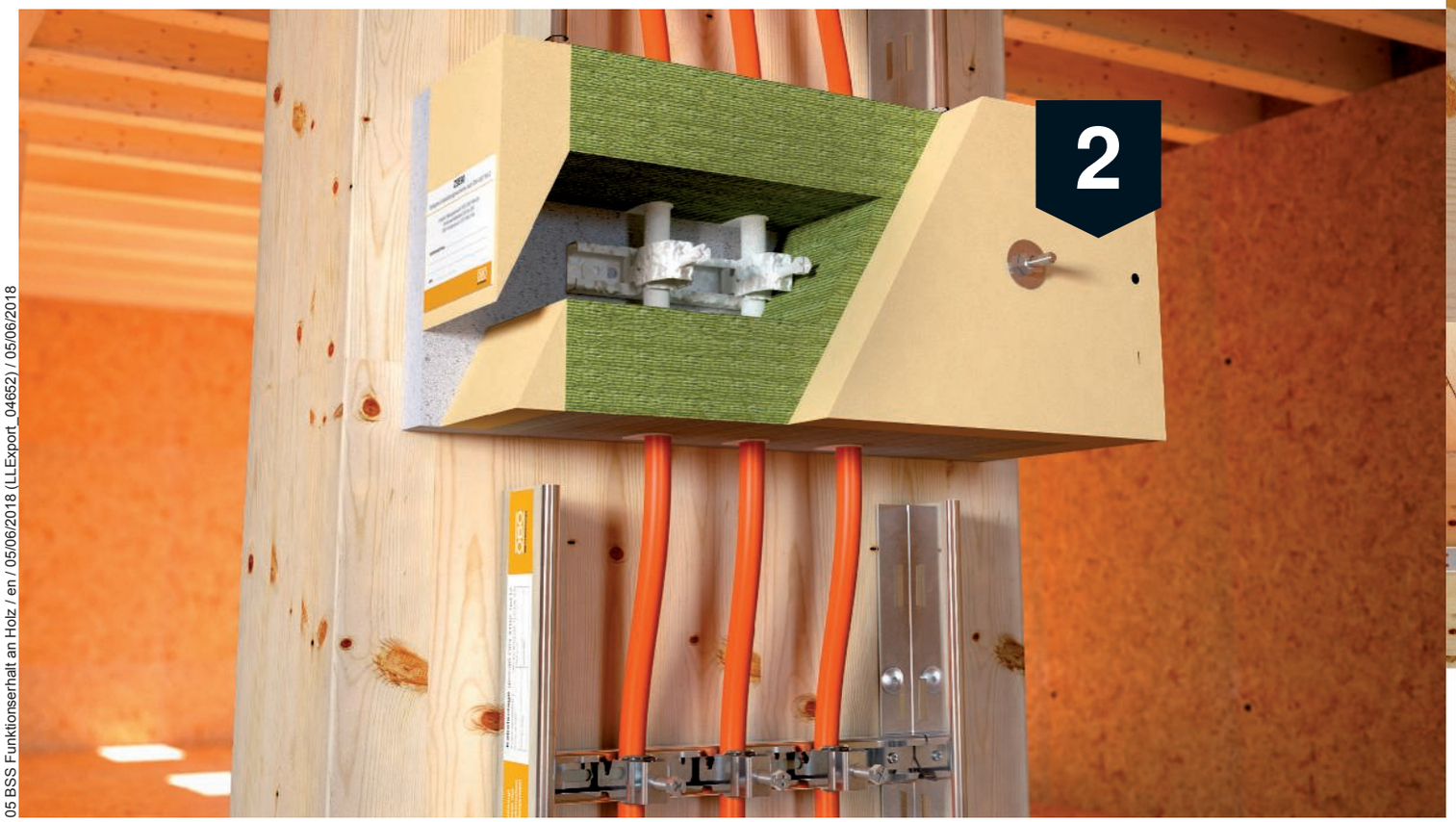
	Type	Designation
	LKM...	Cable routing duct
	HT 6x... TD	Flange head

2 Cable route vertically on the beam: Installation with vertical ladder and strain relief

	Type	Designation
	LG6...VS	Vertical ladder
	2056 M	Clamp clip
	ZSE90-...	Strain relief
	CML3518P	Profile rail
	KSI-P...	Calcium silicate plate
	HT 6x... TD	Flange head

Additional accessory parts are required for the system, e.g. connectors.

Routing of cables that maintains electrical supply on cable and mesh cable trays

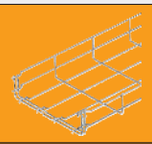


1 Cable route under the beam in a lengthwise direction: Installation with cable tray without additional threaded rod locking

	Type	Designation
	RKSM 6...	Cable tray
	US 5 K ...	U suspended support
	AW 55 ...	Bracket
	GLB-P...	Fire protection plate
	HT 10x...TD	Flange head

Additional accessory parts are required for the system, e.g. spacers and hexagonal bolts.

2 Cable route under the beam in the transverse direction: Installation with a mesh cable tray

	Type	Designation
	GRM 55...	Mesh cable tray
	US 3 K...	U suspended support
	AW G 15 ...	Bracket
	ABG	Connection component
	BSB	Fire protection clamp
	HT 10x... TD	Flange head

Additional accessory parts are required for the system, e.g. threaded bolts and hexagonal nuts.

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_04652) / 05/06/2018

Depending on the amount of wood burned, from a mechanical point of view, the wood screw is the most critical component in the area of the burned wood.

Depending on the routing system, it is not always possible to exploit the maximum permitted mounting parameters of the system. For example, it is necessary to reduce the maximum permitted support distance for a routing system. Furthermore, it may be necessary to install an additional fire protection plate between the routing system component to be fastened and the wooden element. On the one hand, the fire protection plate protects the surface of the wood against the impact of fire. On the other, it distributes the occurring mechanical load over a greater area, meaning that, if there is a fire, the component, e.g. a bracket, is not pushed into the burned wood.

All the relevant information on this can be found in the system drawings of the surveyor's comments no. GA-2016/034-Mey. You can download the comments on secure fastening on wooden elements directly using the QR code or from
http://obo.eu/GS_BSS.

Surveyor's comments

Planning checklist

The available surveyor's comments describe all the relevant measures and mounting details for secure fastening of our systems on wooden elements. Amongst other things, the contents comprise:

- Definition of the matching wood screw (length and nominal thickness) for every installation principle
- Specification of relevant installation parameters such as support and fastening spacings
- Distinction according to maintaining electrical supply for 30 or 60 minutes
- Naming of the appropriate proofs for the routing systems as basic proof for maintaining electrical supply

OBO support: Help from the fire protection experts

Some 40 years of experience in fire protection make OBO a reliable partner. We want to pass on our theoretical and practical knowledge to our customers and have developed a wide range of offers to do this:

Personal service:
- Telephone consultation and e-mail support
- Field service around the world
- Fire protection seminars

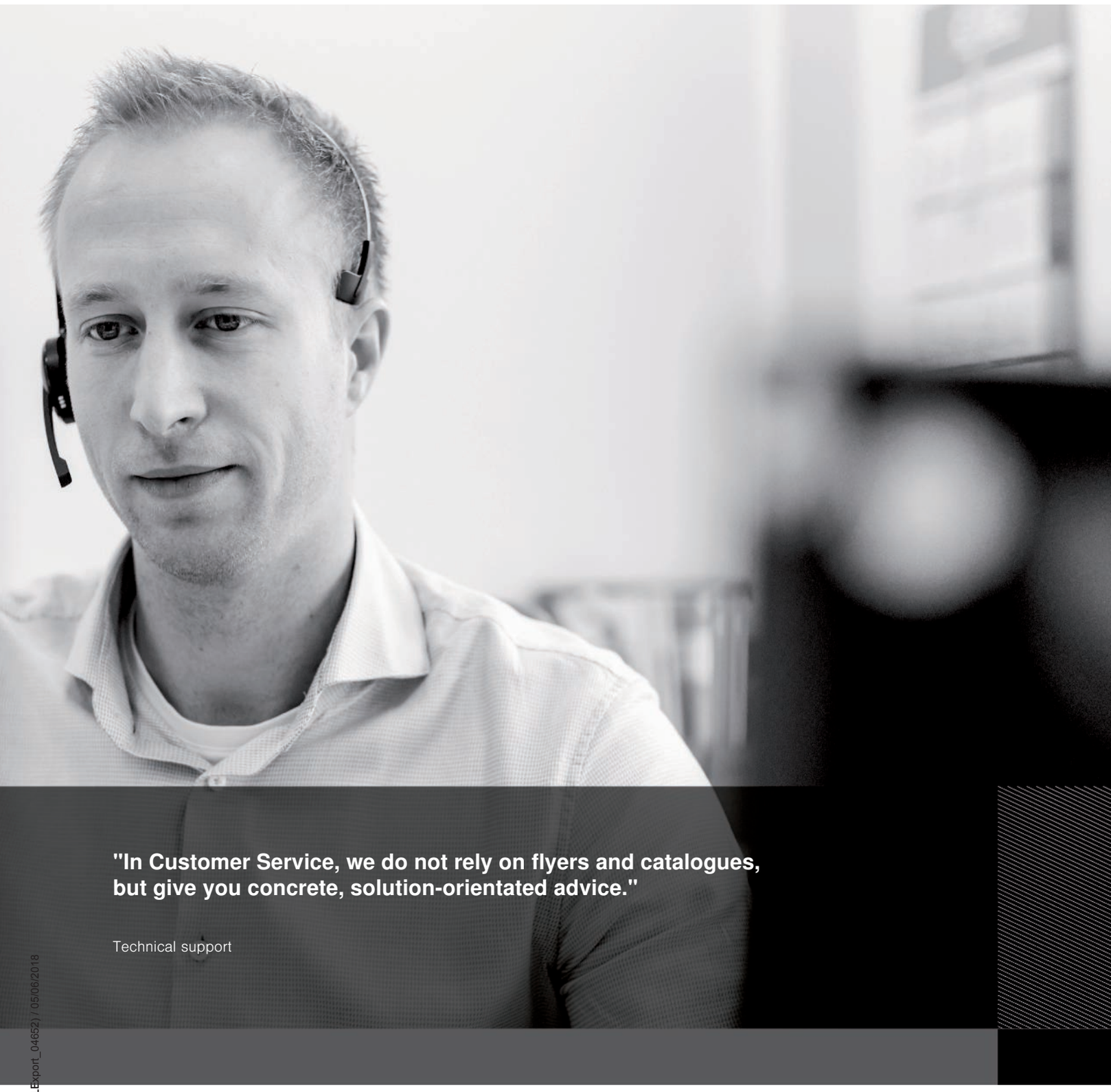
Online offer:
- Fire protection guide and catalogue
- Mounting instructions and films
- Selection aids
- Certificates
- OBO Construct app

Customer Service Germany
+49 (0)2373 89-1700

First consultation, concrete question or a comprehensive problem: Via OBO's Customer Service, you can reach a direct contact who can help you in any matter connected with fire protection. Our technically qualified Customer Service is in constant contact with our product managers and developers and can offer rapid help with practical solutions.

In the case of more comprehensive enquiries or tricky challenges, you will be forwarded to the appropriate fire protection expert. Or we can organise a member of our field service to develop solutions with you on site. You can obtain basic knowledge and information on the latest developments in fire protection at our seminars, at which OBO experts and external speakers will share their knowledge with you.

05 BSS Funktionserhalt an Holz / en / 05/06/2018 (LLExport_0465... / 05/06/2018



"In Customer Service, we do not rely on flyers and catalogues, but give you concrete, solution-orientated advice."

Technical support

You can find "help to help yourself" on the Internet: Use the OBO Construct app to find out about the suitable sealing systems yourself. In addition, in the download area of www.obo-bettermann.com, you will find all the proofs of use, mounting instructions and selection aids for our fire protection products.

International service
Fire protection regulations differ from country to country. This is why our fire protection experts are in constant contact with our foreign subsidiary companies. You can also rely on our help in international construction projects.

OBO Bettermann Holding GmbH & Co. KG
P.O. Box 1120
58694 Menden
GERMANY

Customer Service Germany
Tel.: +49 (0)2373 89-1700
Fax: +49 (0)2373 89-1238
export@obo.de

www.obo-bettermann.com