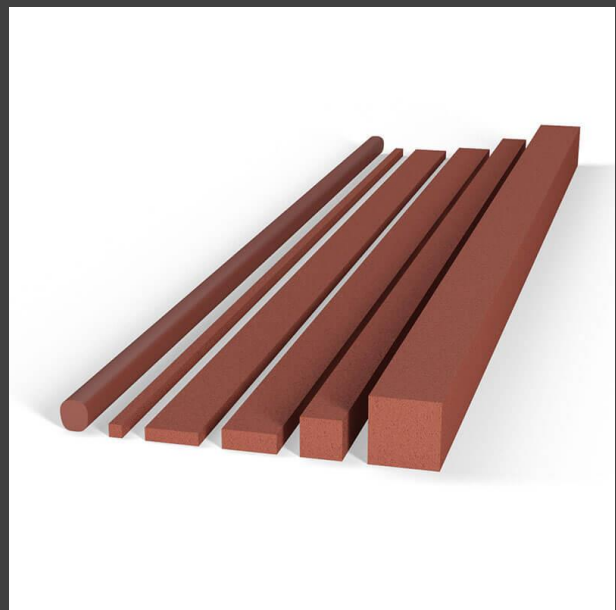
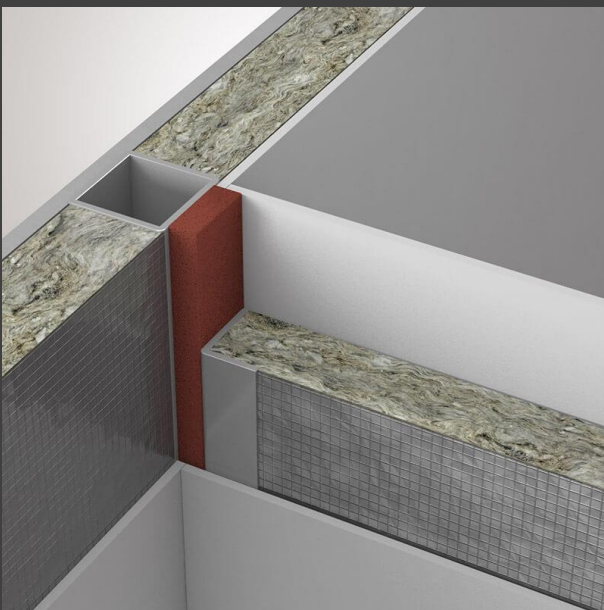


FIRE PROTECTION JOINT SEALS FOR FLUE
GAS-SAFE CONNECTION JOINTS WITH
**ZZ[®] 581 FIRE PROTECTION JOINT STRIP,
ROUND AND**
**ZZ[®] 582 FIRE PROTECTION JOINT STRIP,
SQUARE**

TECHNICAL INFORMATION



TECHNICAL INFORMATION FOR CREATING FIRE PROTECTION SEALS OF CONNECTION JOINTS

– USING **ZZ[®] 581** FIRE PROTECTION JOINT STRIP, ROUND AND **ZZ[®] 582** FIRE PROTECTION JOINT STRIP, SQUARE

1. CONTENT AND USE

- / This technical information outlines solutions for fire protection sealing of connection joints in rail vehicles using **ZZ[®] 581** and **ZZ[®] 582**.
- / The test results do not replace a usability certificate but can serve as a basis for evaluation or for planning usability tests.
- / Application-specific boundary conditions not addressed in this technical information may impact the functionality of the penetration seal.

2. DESCRIPTION OF **ZZ[®] 581** AND **ZZ[®] 582** FIRE PROTECTION JOINT STRIPS

- / **ZZ[®] 581** and **ZZ[®] 582** are cords made of compressible polyurethane foam with fire protection properties, used for sealing component joints. They are available in round (**ZZ[®] 581**) and rectangular shapes (**ZZ[®] 582**) in various dimensions.
- / The fire protection effect is based on halogen-free fire protection additives that expand in the event of a fire, forming an insulating layer. This significantly slows the spread of fire and smoke, enabling the rescue of people and the protection of materials.
- / The penetration seal is suitable for use in rail vehicles and provides fire resistance with compartmentalizing effectiveness for 30 minutes (**E30**) and thermal insulation for up to 15 minutes (**I15**), in accordance with the **EI15** classification.
- / The assembly of the penetration seals with **ZZ[®] 581** and **ZZ[®] 582** is described in detail in the design examples.

3. IMPLEMENTATION OF FIRE PROTECTIONS SEAL IN CONNECTION JOINTS USING **ZZ® 581 FIRE PROTECTION JOINT STRIP, ROUND AND ZZ® 582 FIRE PROTECTION JOINT STRIP, SQUARE**

Products	ZZ® 581 and ZZ® 582 These products meet the requirements of EN 45545-2 for hazard levels HL1, HL2, and HL3, and satisfy the criteria R22 and R23.
Suitable Components	Elastic fire protection joint sealing for smoke-tight connection joints of externally manufactured car interiors or car partitions to the car's exterior shell. Component openings can be oriented both horizontally and vertically.
Assembly	The component surface must be cleaned before installing ZZ® 581 and ZZ® 582 The joint cord is inserted into the opening in such a way that no gaps remain.
Special Notes	The implementation of the sealing of connection joints with ZZ® 581 and ZZ® 582 is carried out in accordance with the specifications of the current test report (see attachment).

4. SUMMARY

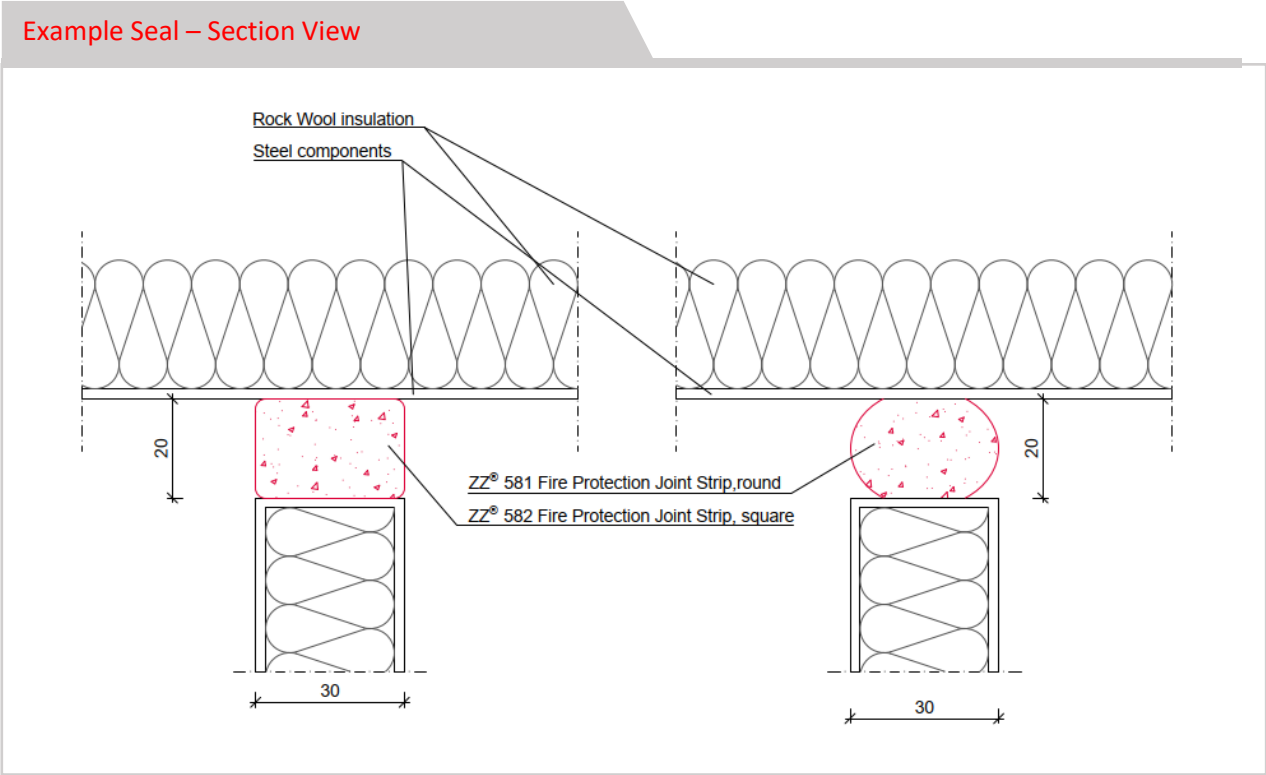
- / Fire protection measures using **ZZ® 581** and **ZZ® 582** can be implemented in rail vehicles after verifying the boundary conditions.
- / **ZZ® 581** and **ZZ® 582** achieves fire-resistance with compartmentalization of 30 minutes and up to 15 minutes of thermal insulation, depending on material thickness. These values are in accordance with **E115** classification.
- / The example (see following pages) highlights the key construction details that typically need to be considered.
- / Penetration seals can only be installed if the load-bearing (load-transferring and stiffening) components have at least the same fire resistance duration as the penetration seals.
- / If constructions are planned that substantially deviate from the examples provided here, ZAPP-ZIMMERMANN is available to assist in the verification process.

PENETRATION SEAL EXAMPLE

FOR JOINT SEALING OF CONNECTION JOINTS WITH ZZ[®] 581 AND ZZ[®] 582

The illustrations represent the basic principle of sealing and the constructive installation of the ZZ[®] 581 and ZZ[®] 582. The diameters of the openings must be considered, and a minimum thickness of insulation material must be used to achieve the fire resistance classification.

ZZ[®] 581 is available in diameters of 16, 24, 30, 39, 49, 60, 70, and 80 mm. ZZ[®] 582 is offered in any combination of width x height with dimensions of 10, 20, 30, 40, and 50 mm.



FOUNDATION OF THIS TECHNICAL INFORMATION

This technical information on **ZZ® 581 Fire Protection Joint Strip, round** and **ZZ® 582 Fire Protection Joint Strip, square** in rail vehicles is based on the following documents:

- / Test Report Nr. R23-0372, Currenta, issued 27.09.2023
- / Test Report Nr. R24-0249, Currenta, issued 25.06.2024
- / R22, R23 according to EN 45545-2
- / Klassifizierungsbericht Nr. 17/1713, Currenta
- / Test Report Nr. 17/0798, ASTM E 126
- / Test Report Nr. 17/0910, ASTM E 662
- / DIN EN 45545-3: 2013
- / DIN EN 1364-1: 2015
- / EN 1366-3: 2021
- / Construction diagrams according to example

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Illustrations

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