

## Declaration of performance no. 003-2022-05-01

as per Annex III of Regulation (EU) no. 305/2011

for the product

### **PYROSTAT®-UNI**

- 1.** Unique identification code of the product type:

**GUH-10/0013**

- 2.** Intended use of the construction product:

**Pipe penetration seals using an intumescent mat,  
with the designation PYROSTAT®-UNI**

- 3.** Contact address of the manufacturer:

**G+H Isolierung GmbH  
Leuschnerstrasse 2  
D-97084 Würzburg**

- 4.** System of assessment of the constancy of performance:

**System 1**

- 5.** Harmonised standard:

**Not relevant**

- 6.** European Technical Assessment and notified body:

**European Technical Assessment ETA-10/0013 dated 15 November 2018  
Issued by the Deutsche Institut für Bautechnik**

**The notified body MPA Braunschweig, identification number 0761, has executed the initial inspection of factory and of factory production control as well as the on-going monitoring, assessment and evaluation of the factory production control based on system 1 and issued the following:**

**EC certificate of conformity:  
no. 0761 – CPD – 0323 based on ETA-10/0013**

- 7.** Declared performance:

**See following pages**

| Essential characteristics         | Performance                        | Harmonised technical specification |
|-----------------------------------|------------------------------------|------------------------------------|
| Mechanical resistance             | NPD                                | ETA-10/0013                        |
| Fire reaction behaviour           | E                                  | ETA-10/0013                        |
| Fire resistance                   | EI15-C/U or EI120-C/U              | ETA-10/0013                        |
| Air and water permeability        | NPD                                | ETA-10/0013                        |
| Emission of hazardous substances  | None contained                     | ETA-10/0013                        |
| Safety in use                     | NPD                                | ETA-10/0013                        |
| Protection against noise          | NPD                                | ETA-10/0013                        |
| Energy economy and heat retention | NPD                                | ETA-10/0013                        |
| Durability and fitness for use    | Usage category type Z <sub>2</sub> | ETA-10/0013                        |

**General**

The building element "pipe penetration seals for insulated, non-combustible pipes with the fire protection bandage PYROSTAT®-UNI" belongs to the product type "pipe penetration seal". The classification of the fire resistance according to DIN EN 13501-2: 2016 declared in the following has been verified by classification report no. KB-210007345-K3 issued by MPA NRW dated 02.02.2022.

**Description**

The building element "pipe penetration seals for insulated, non-combustible pipes with the fire protection bandage PYROSTAT®-UNI" is a penetration seal for metal pipes and a multitude of different insulation materials. The insulations are designed either as local sectional insulation (case LS or case LI according to DIN EN 1366-3 Table 1) or as continued sustained insulation over the entire pipe length (case CS according to DIN EN 1366-3) with and without protective insulation

**Intumescent wrap PYROSTAT®-UNI**

PYROSTAT®-UNI fire protection bandage is a product that forms an insulating layer and is for use in walls and floors. The product PYROSTAT®-UNI is described in full in ETA-10/0013 (European Technical Assessment) dated 15.12.2018.

**Field of application**

The field of application of the "pipe penetration seals for insulated, non-combustible pipes with the fire protection bandage PYROSTAT®-UNI" in relation to part characteristics, pipe material, pipe dimensions, type of insulation material, dimensions of the insulation material as well as other possible criteria is specified in the following tables.

You will find information about the related design training as well as the installation procedure for the pipe penetration seal in the installation instructions. The information from the related manufacturer is to be followed during the installation of the insulation material.

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| Flexible wall and solid wall $\geq 100$ mm                                    |            |                     |                              |                           |  |  |                                  |           |
|---|------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)  | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |            |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>AEROFLEX FIRO</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 54$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>AEROFLEX FIRO                              | --   | EI 90-C/U                        | E 90-C/U  |
|   |            |                     | 19                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U |
|   |            |                     | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|   | $\leq 89$  | $\geq 2.0$          | 19                           | $\geq 600$                | 300 x 19<br>AEROFLEX FIRO                              | --   | EI 90-C/U                        | E 90-C/U  |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 300 x 19<br>AEROFLEX FIRO                              | --   | EI 20-C/U                        | E 90-C/U  |
|   |            |                     |                              | $\infty$                  | --   | EI 60-C/U  | E 90-C/U                         |           |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them. |            |                     |                              |                           |  |  |                                  |           |
| <b>K-FLEX ECO</b>   |            |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 54$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>K-FLEX ECO                                 | --   | EI 90-C/U                        | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   |            |                     | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 89$  | $\geq 2.0$          | 19                           | $\geq 600$                | 300 x 19<br>K-FLEX ECO                                 | --   | EI 90-C/U                        | E 90-C/U  |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 19<br>K-FLEX ECO                                 | --   | EI 20-C/U                        | E 90-C/U  |
|   |            |                     |                              | $\infty$                  | --   | EI 60-C/U  | E 90-C/U                         |           |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them. |            |                     |                              |                           |  |  |                                  |           |
| <b>AEROFLEX HF</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 54$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>AEROFLEX HF                                | --   | EI 90-C/U                        | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | 300 x 19<br>AEROFLEX HF                                | --   | EI 60-C/U                        | E 60-C/U  |
|   | $\leq 89$  | $\geq 2.0$          | 19                           | $\geq 600$                | 300 x 32<br>AEROFLEX HF                                | --   | EI 30-C/U                        | E 90-C/U  |
|   |            |                     |                              | $\infty$                  | --   | EI 90-C/U  | E 90-C/U                         |           |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 32                           | $\geq 600$                | 400 x 30<br>Klimarock                                  | 400  | EI 20-C/U                        | E 120-C/U |
|   |            |                     |                              | $\infty$                  | --   | EI 60-C/U  | E 120-C/U                        |           |
| Steel<br>Stainless steel<br>Cast iron   | 219        | $\geq 4.5$          | 32                           | $\geq 600$                | 400 x 30<br>Klimarock                                  | --   | EI 45-C/U                        | E 120-C/U |
|   |            |                     |                              | $\infty$                  | --   | EI 120-C/U   | E 120-C/U                        |           |
|   |            |                     |                              | $\geq 600$                | 400 x 32<br>AEROFLEX HF                                | --   | EI 30-C/U                        | E 120-C/U |
|   |            |                     |                              | $\infty$                  | --   | EI 90-C/U  | E 120-C/U                        |           |
|   | 406        | $\geq 6.3$          | 25                           | $\geq 600$                | 400 x 38<br>AEROFLEX HF                                | 400  | EI 45-C/U                        | E 120-C/U |
|   |            |                     |                              | $\infty$                  | --   | EI 120-C/U   | E 120-C/U                        |           |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them. |            |                     |                              |                           |  |  |                                  |           |

| Flexible wall and solid wall $\geq 100$ mm                                    |                            |                     |                              |                           |  |  |                                  |           |
|---|----------------------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)                  | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |                            |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>AEROFLEX KKS</b>   |                            |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 54$                  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>AEROFLEX KKS                               | --   | EI 90-C/U                        | E 90-C/U  |
|   |                            |                     |                              |                           | 300 x 25<br>AEROFLEX KKS                               |  | EI 60-C/U<br>with zero spacing   | E 90-C/U  |
|   | $\leq 89$                  | $\geq 2.0$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   |                            |                     |                              |                           | 300 x 19<br>AEROFLEX KKS                               |  | EI 60-C/U                        | E 60-C/U  |
| Stainless steel   | $\leq 204$                 | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 19<br>AEROFLEX KKS                               | --   | EI 20-C/U                        | E 30-C/U  |
|   |                            |                     |                              | $\infty$                  |  |  | EI 30-C/U                        | E 30-C/U  |
| Steel<br>Stainless steel<br>Cast iron   | 219                        | $\geq 4.5$          | 30                           | $\geq 600$                | 400 x 30<br>Klimarock                                  | Not included<br>or 400   | EI 60-C/U                        | E 120-C/U |
|   |                            |                     |                              | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U |
|   |                            |                     |                              | $\geq 600$                |  |  | 400                              | EI 45-C/U |
|   | $\infty$                   | EI 120-C/U          | E 120-C/U                    |                           |  |  |                                  |           |
| 406   | $\geq 6.3$                 | 25                  | $\geq 600$                   | 400 x 38<br>AEROFLEX KKS  | 400  | EI 60-C/U  | E 90-C/U                         |           |
|   |                            |                     |                              |                           |  | $\infty$   | EI 90-C/U                        | E 90-C/U  |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them. |                            |                     |                              |                           |  |  |                                  |           |
| <b>AEROLINE INOX SPLIT</b>  |                            |                     |                              |                           |  |  |                                  |           |
| Stainless steel   | 2x<br>DN10<br>- 2x<br>DN32 | 0.15<br>to<br>0.3   | 13<br>to<br>38               | $\geq 940$                | --   | --   | EI 120-C/U                       | E 120-C/U |

| Flexible wall and solid wall $\geq 100$ mm      |                                       |                     |                              |                           |  |  |                                  |            |           |
|---|---------------------------------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|------------|-----------|
| Pipe material                                   | Pipe (mm)                             | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |            |           |
|   |                                       |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity  |           |
| <b>Kaiflex KK / KKplus</b>                      |                                       |                     |                              |                           |  |  |                                  |            |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 28$                             | $\geq 1.0$          | 9-13                         | $\geq 600$                | 300 x 19<br>Kaiflex KK / KKplus                        | --   | EI 120-C/U                       | E 120-C/U  |           |
|   |                                       |                     | 25                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U  |           |
|   | $\leq 42$                             | $\geq 1.5$          | 13                           | $\geq 600$                | 300 x 19<br>Kaiflex KK / KKplus                        | --   | EI 120-C/U                       | E 120-C/U  |           |
|   |                                       |                     | 19                           | $\geq 600$                |  | --   | EI 120-C/U                       | E 120-C/U  |           |
|   | $\leq 54$                             | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 20<br>Lamella mat                                | --   | EI 120-C/U                       | E 120-C/U  |           |
|   |                                       |                     |                              | $\geq 600$                | 300 x 19<br>Kaiflex KK / KKplus                        | --   | EI 90-C/U                        | E 120-C/U  |           |
|   |                                       |                     | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U  |           |
|   | $\leq 89$                             | $\geq 2.0$          | 19                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U  |           |
|   |                                       |                     |                              | $\geq 600$                | 300 x 19<br>Kaiflex KK / KKplus                        | --   | EI 120-C/U                       | E 120-C/U  |           |
|   | Stainless steel                       | $\leq 204$          | $\geq 2.0$                   | 32                        | $\geq 600$   | 400 x 32<br>Kaiflex KK / KKplus                                      | --                               | EI 20-C/U  | E 120-C/U |
|   |                                       |                     |                              |                           | $\infty$   |  |                                  | EI 120-C/U |           |
|   | Steel<br>Stainless steel<br>Cast iron | $\leq 219$          | $\geq 4.5$                   | 32                        | $\geq 600$   | 400 x 19<br>Kaiflex KK / KKplus                                      | --                               | EI 60-C/U  | E 120-C/U |
| $\infty$  |                                       |                     |                              |                           | EI 120-C/U   |  |                                  | E 120-C/U  |           |
| Stainless steel                                 | $\leq 330$                            | $\geq 3.0$          | 25                           | $\geq 600$                | 600 x 40<br>Klimarock                                  | 600  | EI 60-C/U                        | E 120-C/U  |           |
|   |                                       |                     |                              | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U  |           |
| Cast iron                                       | 406                                   | $\geq 6.3$          | 25                           | $\geq 600$                | 400 x 19<br>Kaiflex KK / KKplus                        | 400  | EI 45-C/U                        | E 120-C/U  |           |
|   |                                       |                     |                              | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U  |           |

| Flexible wall and solid wall $\geq 100$ mm  |            |                     |                              |                           |  |  |                                  |           |
|---|------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)  | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |            |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>K-FLEX ST</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron  | $\leq 54$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>K-FLEX ST                                  | --   | EI 120-C/U                       | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   |            |                     | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 89$  | $\geq 2.0$          | 19                           | $\geq 600$                | 300 x 19<br>K-FLEX ST                                  | --   | EI 90-C/U                        | E 90-C/U  |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 19<br>K-FLEX ST                                  | --   | EI 15-C/U                        | E 90-C/U  |
|   |            |                     |                              | $\infty$                  |  | --   | EI 30-C/U                        | E 90-C/U  |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them.                 |            |                     |                              |                           |  |  |                                  |           |
| <b>K-FLEX ST PLUS</b>   |            |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron  | $\leq 54$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>K-FLEX ST PLUS                             | --   | EI 120-C/U                       | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   |            |                     | 19                           | $\geq 600$                | 300 x 19<br>K-FLEX ST PLUS                             | --   | EI 90-C/U                        | E 90-C/U  |
|   | $\leq 89$  | $\geq 2.0$          | 19                           | $\geq 600$                | 300 x 19<br>K-FLEX ST PLUS                             | --   | EI 90-C/U                        | E 90-C/U  |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 19<br>K-FLEX ST PLUS                             | --   | EI 15-C/U                        | E 90-C/U  |
|   |            |                     |                              | $\infty$                  |  | --   | EI 30-C/U                        | E 90-C/U  |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them.                 |            |                     |                              |                           |  |  |                                  |           |
| <b>Klimarock</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron  | $\leq 28$  | $\geq 1.0$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 89$  | $\geq 2.0$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 20<br>Klimarock                                  | --   | EI 120-C/U                       | E 120-C/U |
| The seal can be applied with only one layer of fire protection bandage instead of two layers. |            |                     |                              |                           |  |  |                                  |           |
| <b>Lamella mat ML3</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron  | $\leq 28$  | $\geq 1.0$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 54$  | $\geq 1.5$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 89$  | $\geq 2.0$          | 30                           | $\geq 600$                | 300 x 30<br>Lamella mat ML3                            | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 30                           | $\geq 600$                | 400 x 30<br>Lamella mat ML3                            | --   | EI 45-C/U                        | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 219$ | $\geq 5.6$          | 30                           | $\geq 600$                | 400 x 30<br>Lamella mat ML3                            | --   | EI 60-C/U                        | E 120-C/U |
|   |            |                     |                              | $\infty$                  |  | --   | EI 120-C/U                       | E 120-C/U |
| The seal can be applied with only one layer of fire protection bandage instead of two layers. |            |                     |                              |                           |  |  |                                  |           |

| Flexible wall and solid wall $\geq 100$ mm      |              |                     |                              |                           |  |  |                                  |           |
|---|--------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material                                   | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |              |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Talos Ecutherm</b>                           |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 6$     | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 18$    |                     | 6                            |                           |  |  |                                  |           |
| <b>Armaflex Ultima</b>                          |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 54$    | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 19<br>Armaflex Ultima                            | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 89$    | $\geq 2.0$          | 19                           | $\geq 600$                |  | --   | EI 60-C/U                        | E 90-C/U  |
|   |              |                     |                              | $\infty$                  |  | --   | EI 90-C/U                        | E 90-C/U  |
| <b>AF/Armaflex</b>                              |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 54$    | $\geq 2.0$          | 25                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U |
|   | $\leq 88.9$  | $\geq 2.0$          | 25                           | $\geq 600$                | 300 x 19<br>Kaiflex KK                                 | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 88.9$  | $\geq 2.0$          | 25                           | $\infty$                  |  | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 88.9$  | $\geq 2.0$          | 32                           | $\geq 600$                |  | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel                                 | $\leq 54$    | $\geq 1.5$          | 13                           | $\geq 600$                | 300 x 19<br>Kaiflex KK                                 | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 54$    | $\geq 2.0$          | 13                           | $\geq 600$                |  | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 108$   | $\geq 2.0$          | 19                           | $\geq 600$                |  | --   | EI 60-C/U                        | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron           | $\leq 60.3$  | $\geq 2.6$          | 25                           | $\geq 600$                | 300 x 19<br>Kaiflex KK                                 | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 60.3$  | $\geq 3.6$          | 19                           | $\geq 600$                |  | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 114.3$ | $\geq 3.2$          | 25                           | $\geq 600$                | --   | EI 60-C/U  | E 120-C/U                        |           |
|   | $\leq 114.3$ | $\geq 3.2$          | 19                           | $\geq 600$                | 300 x 19<br>Kaiflex KK                                 | --   | EI 60-C/U                        | E 120-C/U |
|   | $\leq 114.3$ | $\geq 3.2$          | 32                           | $\geq 600$                |  | --   | EI 60-C/U                        | E 120-C/U |
|   | $\leq 159.0$ | $\geq 4.0$          | 32                           | $\geq 600$                |  | --   | EI 60-C/U                        | E 120-C/U |
|   | $\leq 159.0$ | $\geq 4.0$          | 32                           | $\infty$                  |  | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 219$   | $\geq 5.6$          | 32                           | $\geq 600$                | 400 x 19<br>AF/Armaflex                                | --   | EI 45-C/U                        | E 120-C/U |
|   |              |                     |                              | $\infty$                  |  |  | EI 90-C/U                        | E 120-C/U |
| $\geq 600$                                      |              |                     |                              | 300 x 19<br>Kaiflex KK    | --   | EI 60-C/U  | E 120-C/U                        |           |
| $\infty$  |              |                     |                              |                           |  | EI 90-C/U  | E 120-C/U                        |           |

Pipes up to a diameter of 54 mm can be laid with "zero spacing" between them.

| Flexible wall and solid wall $\geq 100$ mm                                    |              |                     |                              |                           |  |  |                                  |           |
|---|--------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |              |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>SH/Armaflex</b>  |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 88.9$  | $\geq 2.0$          | 32                           | $\geq 600$                | 300 x 19<br>Kaiflex KK                                 | --   | EI 120-C/U                       | E 120-C/U |
| <b>Kaiflex SHplus</b>   |              |                     |                              |                           |  |  |                                  |           |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 406.4$ | 6.3                 | 30                           | $\geq 600$                | 400 x 40<br>Kaiflex SHplus                             | 400  | EI 60-C/U                        | E 120-C/U |
|   | $\leq 406.4$ | 6.3                 | 30                           | $\infty$                  | 400 x 40<br>Kaiflex SHplus                             | 400  | EI 90-C/U                        | E 120-C/U |
| <b>ThermaSmart PRO</b>  |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel   | $\leq 54.0$  | $\geq 1.5$          | 19                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel<br>Cast iron  | $\leq 54.0$  | $\geq 1.5$          | 19                           | $\geq 600$                | 300 x 19<br>ThermaSmart PRO                            | --   | EI 90-C/U                        | E 90-C/U  |
| <b>Foamglas</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron                               | $\leq 89.0$  | $\geq 2.0$          | 30                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| Steel   | $\leq 114.3$ | $\geq 3.2$          | 39                           | $\geq 600$                | 300 x 20<br>Lamella mat ML3                            | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel<br>Cast iron  | $\leq 330.0$ | $\geq 3.0$          | 30                           | $\geq 600$                | --   | --   | EI 30-C/U                        | E 120-C/U |
|   | $\leq 330.0$ | $\geq 3.0$          | 30                           | $\infty$                  | --   | --   | EI 60-C/U                        | E 120-C/U |
| Pipes can be laid with "zero spacing" between them.                           |              |                     |                              |                           |  |  |                                  |           |
| <b>Hard polyurethane foam (35 kg/m<sup>3</sup>) according to DIN EN 14308</b> |              |                     |                              |                           |  |  |                                  |           |
| Stainless steel   | $\leq 204.0$ | $\geq 2.0$          | 40                           | $\geq 1000$               |  | 1000   | EI 30-C/U                        | E 120-C/U |
|   |              |                     |                              | $\infty$                  | --   | $\infty$   | EI 90-C/U                        | E 120-C/U |



| Solid wall $\geq 150$ mm   |                    |                     |                              |                           |  |  |                                  |           |
|--|--------------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material  | Pipe (mm)          | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|  |                    |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Aeroflex FIRO</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 28$          | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 54$          | $\geq 1.5$          | 19 - <50                     | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |                    |                     | 50                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>Aeroflex HF</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 28$          | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 54$          | $\geq 1.5$          | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |                    |                     | > 19 - 50                    | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
| <b>Aeroflex KKS / Aeroflex (HT)</b>  |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 28$          | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 54$          | $\geq 1.5$          | 19 - 50                      | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>AEROLINE INOX SPLIT</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Stainless steel  | 2x DN10<br>2x DN32 | 0.15<br>to<br>0.3   | 13<br>to<br>38               | $\geq 940$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>AF/Armaflex</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 18$          | $\geq 1.0$          | 13                           | $\geq 50/600$             | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 28^1$        | $\geq 1.0$          | 13                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>1) Reinforcement to 200 mm using fastened non-flammable construction panels</b> |                    |                     |                              |                           |  |  |                                  |           |
| <b>Armaflex XG</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 28$          | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  | $\leq 54$          | $\geq 1.5$          | 19 - <50                     | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |                    |                     | 50                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>Climaflex</b>   |                    |                     |                              |                           |  |  |                                  |           |
| Copper Steel<br>Stainless steel<br>Cast iron                                       | $\leq 28$          | $\geq 1.0$          | 13                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 54$          | $\geq 2.0$          | 13                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Steel<br>Stainless steel<br>Cast iron  | $\leq 28$          | $\geq 1.0$          | 13                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 48$          | $\geq 1.5$          | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 89$          | $\geq 3.2$          | 25                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |

| Solid wall $\geq 150$ mm |           |                     |                              |                           |  |  |                                  |           |
|--------------------------|-----------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material            | Pipe (mm) | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|                          |           |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Climaflex Stabil</b>  |           |                     |                              |                           |  |  |                                  |           |
| Copper                   | $\leq 42$ | $\geq 1.5$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
| Steel                    |           |                     | 13                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel          |           |                     |                              |                           |  |  |                                  |           |
| Cast iron                |           |                     |                              |                           |  |  |                                  |           |
| <b>Climaflex XT</b>      |           |                     |                              |                           |  |  |                                  |           |
| Copper                   | $\leq 54$ | $\geq 2.0$          | 9                            | $\geq 600$                | --   | --   | EI 45-C/U                        | E 90-C/U  |
| Steel                    |           |                     | 13                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel          |           |                     |                              |                           |  |  |                                  |           |
| Cast iron                |           |                     |                              |                           |  |  |                                  |           |
| <b>Flexen PE</b>         |           |                     |                              |                           |  |  |                                  |           |
| Copper                   | $\leq 54$ | $\geq 2.0$          | 9                            | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Steel                    | $\leq 48$ | $\geq 1.5$          | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
| Stainless steel          | $\leq 54$ | $\geq 2.0$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
| Cast iron                |           |                     |                              |                           |  |  |                                  |           |
| <b>Foamglas</b>          |           |                     |                              |                           |  |  |                                  |           |
| Copper                   | $\leq 89$ | $\geq 2.0$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel                    |           |                     |                              |                           |  |  |                                  |           |
| Stainless steel          |           |                     |                              |                           |  |  |                                  |           |
| Cast iron                |           |                     |                              |                           |  |  |                                  |           |
| <b>Kaiflex PE</b>        |           |                     |                              |                           |  |  |                                  |           |
| Copper                   | $\leq 28$ | $\geq 1.0$          | 9 - 13                       | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
|                          | $\leq 42$ | $\geq 1.5$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|                          | $\leq 42$ | $\geq 1.5$          | 13                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
|                          | $\leq 54$ | $\geq 2.0$          | 9 - 20                       | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Steel                    | $\leq 48$ | $\geq 1.5$          | 9 - 13                       | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|                          | $\leq 54$ | $\geq 2.0$          | 20                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
|                          | $\leq 89$ | $\geq 2.0$          | 20                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel          |           |                     |                              |                           |  |  |                                  |           |
| Cast iron                |           |                     |                              |                           |  |  |                                  |           |

| Solid wall $\geq 150$ mm                        |              |                     |                              |                             |  |  |                                  |            |           |
|---|--------------|---------------------|------------------------------|-----------------------------|--|--|----------------------------------|------------|-----------|
| Pipe material                                   | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm)   | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |            |           |
|   |              |                     |                              |                             |  |  | Thermal insulation and integrity | Integrity  |           |
| <b>Kaiflex SHplus</b>                           |              |                     |                              |                             |  |  |                                  |            |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 28$    | $\geq 1.0$          | 9 -10                        | $\geq 600$                  | --   | --   | EI 120-C/U                       | E 120-C/U  |           |
|   | $\leq 54$    | $\geq 1.5$          | 20                           | $\geq 600$                  | --   | --   | EI 120-C/U                       | E 120-C/U  |           |
|   | $\leq 89$    | $\geq 2.0$          | 20                           | $\geq 600$                  | --   | --   | EI 90-C/U                        | E 120-C/U  |           |
| Steel<br>Stainless steel<br>Cast iron           | $\leq 168.3$ | $\geq 4.0$          | 20                           | $\geq 600$                  | --   | --   | EI 45-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\infty$                    | --   | --   | EI 90-C/U                        | E 120-C/U  |           |
|   | $\leq 324$   | $\geq 5.6$          | 20                           | $\geq 600$                  | --   | --   | EI 30-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\infty$                    | --   | --   | EI 60-C/U                        | E 120-C/U  |           |
|   |              |                     | $\infty$                     | 300 x 20<br>Kaiflex SH plus | --   | --   | EI 120-C/U                       | E 120-C/U  |           |
| Stainless steel                                 | $\leq 108$   | $\geq 2.0$          | 20                           | $\geq 600$                  | --   | --   | EI 30-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\infty$                    | --   | --   | EI 90-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\infty$                    | 300 x 20<br>Kaiflex SH plus                            | --   | --                               | EI 90-C/U  | E 120-C/U |
| Stainless steel                                 | $\leq 204$   | $\geq 2.0$          | 40                           | $\geq 600$                  | --   | --   | EI 20-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\infty$                    | --   | --   | EI 45-C/U                        | E 120-C/U  |           |
|   |              |                     |                              | $\geq 600$                  | 300 x 20<br>Kaiflex SH plus                            | --   | --                               | EI 20-C/U  | E 120-C/U |
|   |              |                     |                              | $\infty$                    | 300 x 20<br>Kaiflex SH plus                            | --   | --                               | EI 120-C/U | E 120-C/U |
| <b>Kaiflex HF</b>                               |              |                     |                              |                             |  |  |                                  |            |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 54$    | $\geq 1.5$          | 19                           | $\geq 600$                  | --   | --   | EI 120-C/U                       | E 120-C/U  |           |
| <b>Kaiflex HT</b>                               |              |                     |                              |                             |  |  |                                  |            |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 159$   | $\geq 4.0$          | 19                           | $\geq 600$                  | --   | --   | EI 60-C/U                        | E 120-C/U  |           |
| <b>Kaiflex PE-RO</b>                            |              |                     |                              |                             |  |  |                                  |            |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 28$    | $\geq 1.0$          | 13                           | $\geq 600$                  | --   | --   | EI 90-C/U                        | E 90-C/U   |           |
|   | $\leq 35$    | $\geq 1.5$          | 9                            | $\geq 600$                  | --   | --   | EI 90-C/U                        | E 90-C/U   |           |
|   |              |                     | $> 9 - 20$                   | $\geq 600$                  | --   | --   | EI 60-C/U                        | E 90-C/U   |           |
|   | $\leq 42$    | $\geq 1.5$          | 20                           | $\geq 600$                  | --   | --   | EI 60-C/U                        | E 90-C/U   |           |

| Solid wall $\geq 150$ mm   |                 |                     |                              |                           |  |  |                                  |           |
|--|-----------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material  | Pipe (mm)       | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|  |                 |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Kaiflex KK / KKplus</b>   |                 |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 28$       | $\geq 1.0$          | 13                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 54$       | $\geq 1.5$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 89$       | $\geq 2.0$          | 6                            | $\geq 600$                | --   | --   | EI 30-C/U                        | E 120-C/U |
|  |                 |                     | 9 - 13                       | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U |
|  |                 |                     | 25                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| Stainless steel  | $\leq 108$      | $\geq 2.0$          | 13 - 19                      | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U |
|  |                 |                     | 25 - 100                     | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel  | $\leq 204$      | $\geq 2.0$          | 38                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 120-C/U |
| Pipes up to a diameter of 89 mm can be laid with "zero spacing" between them.  |                 |                     |                              |                           |  |  |                                  |           |
| <b>Kaiflex KK</b>  |                 |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 89^{2)}$  | $\geq 2.0$          | 13                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron  | $\leq 508^{3)}$ | $\geq 6.3$          | 25                           | $\infty$                  | --   | --   | EI 60-C/U                        | E 120-C/U |
| <sup>2)</sup> Reinforcement to 200 mm using fastened non-flammable construction panels<br><sup>3)</sup> Bandage protrusion 50 mm |                 |                     |                              |                           |  |  |                                  |           |
| <b>K-FLEX ST / K-FLEX ST PLUS</b>  |                 |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 28$       | $\geq 1.0$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |                 |                     |                              | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U |
|  | $\leq 54$       | $\geq 1.5$          | 19 - < 50                    | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |                 |                     | 50                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>Klimarock</b>   |                 |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 89$       | $\geq 2.0$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| The seal can be applied with only one layer of fire protection bandage instead of two layers.                                    |                 |                     |                              |                           |  |  |                                  |           |

| Solid wall $\geq 150$ mm  |              |                     |                              |                           |  |  |                                  |           |
|---|--------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |              |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Lamella mat ML3</b>  |              |                     |                              |                           |  |  |                                  |           |
| Copper  | $\leq 54$    | $\geq 1.5$          | 30                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel   | $\leq 89$    | $\geq 2.0$          | 30                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| Cast iron   | $\leq 204$   | $\geq 2.0$          | 50                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| Steel   | $\leq 168.3$ | $\geq 5.6$          | 30                           | $\geq 600$                | 400 x 30<br>Lamella mat ML3                            | --   | EI 90-C/U                        | E 120-C/U |
| Stainless steel   |              |                     |                              | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U |
| Cast iron   |              |                     |                              |                           |  |  | EI 120-C/U                       | E 120-C/U |
| The seal can be applied with only one layer of fire protection bandage instead of two layers. |              |                     |                              |                           |  |  |                                  |           |
| <b>Misselon</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper  | $\leq 22$    | $\geq 1.0$          | 13 - 26                      | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel   | $\leq 28$    | $\geq 1.0$          | 19 - 38                      | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Stainless steel   | $\leq 42$    | $\geq 1.5$          | 19 - 38                      | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Cast iron   |              |                     |                              |                           |  |  |                                  |           |
| Steel   | $\leq 58$    | $\geq 3.5$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 110$   | $\geq 4.0$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 135$   | $\geq 4.0$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 160$   | $\geq 4.0$          | 19                           | $\geq 600$                | --   | --   | EI 45-C/U                        | E 120-C/U |
| Cast iron   |              |                     |                              |                           |  |  |                                  |           |
| <b>Tubolit DG</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper  | $\leq 28$    | $\geq 1.0$          | 13                           | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Steel   | $\leq 54$    | $\geq 2.0$          | 13                           | $\geq 600$                | --   | --   | EI 45-C/U                        | E 90-C/U  |
| Stainless steel   |              |                     |                              |                           |  |  |                                  |           |
| Cast iron   |              |                     |                              |                           |  |  |                                  |           |
| Steel   | $\leq 89$    | $\geq 3.2$          | 13 - 20                      | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel   |              |                     |                              |                           |  |  |                                  |           |
| Cast iron   |              |                     |                              |                           |  |  |                                  |           |
| <b>Tubolit S</b>  |              |                     |                              |                           |  |  |                                  |           |
| Copper  | $\leq 35$    | $\geq 1.5$          | 9                            | $\geq 600$                | --   | --   | EI 90-C/U                        | E 90-C/U  |
| Steel   | $\leq 42$    | $\geq 1.5$          | 9 - 13                       | $\geq 600$                | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Stainless steel   |              |                     |                              |                           |  |  |                                  |           |
| Cast iron   |              |                     |                              |                           |  |  |                                  |           |
| <b>Armaflex / HT</b>  |              |                     |                              |                           |  |  |                                  |           |
| Stainless steel   | $\leq 89$    | $\geq 2.0$          | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|   | $\leq 108$   | $\geq 2.0$          | 19                           | $\geq 600$                | --   | --   | EI 45-C/U                        | E 120-C/U |
|   |              |                     | 25                           |                           |  |  | EI 60-C/U                        | E 120-C/U |
| <b>Armaflex Duo Solar</b>   |              |                     |                              |                           |  |  |                                  |           |
| Stainless steel   | $\leq 21.4$  | DN 16               | 14-20                        | $\geq 600$                | --   | --   | E 120-C/U                        | E 120-C/U |
|   | $\leq 26.7$  | DN 20               | 14-20                        | $\geq 600$                | --   | --   | E 120-C/U                        | E 120-C/U |
|   | $\leq 31.8$  | DN 25               | 14                           | $\geq 600$                | --   | --   | E 120-C/U                        | E 120-C/U |

| Solid wall $\geq 150$ mm                  |           |                     |                              |                           |  |  |                                  |           |
|---|-----------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material                             | Pipe (mm) | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |           |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>WICU-Clim</b>                          |           |                     |                              |                           |  |  |                                  |           |
| Copper, Steel, Stainless steel, Cast iron | $\leq 6$  | $\geq 1.0$          | 6                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 22$ | $\geq 1.0$          | 10                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| <b>WICU-FRIO</b>                          |           |                     |                              |                           |  |  |                                  |           |
| Copper, Steel, Stainless steel, Cast iron | $\leq 10$ | $\geq 0.75$         | 8                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 22$ | $\geq 1.0$          | 10                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |

| Solid wall $\geq 200$ mm   |            |                     |                              |                           |  |  |                                  |           |
|--|------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material  | Pipe (mm)  | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|  |            |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>AF/Armaflex</b>   |            |                     |                              |                           |  |  |                                  |           |
| Copper, Steel, Stainless steel, Cast iron  | $\leq 89$  | $\geq 2.0$          | 13                           | $\geq 600^{4)}$           | --   | --   | EI 90-C/U                        | E 90-C/U  |
| Steel<br>Stainless steel<br>Cast iron  | $\leq 219$ | $\geq 5.0$          | 32                           | $\geq 600^{4)}$           | --   | 125  | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 508$ | $\geq 6.3$          | 25                           | 8                         | 500 x 30 AF/Armaflex                                   | 500  | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 813$ | $\geq 6.3$          | 25                           | $\geq 850$                | 750 x (30-50) Klimarock                                | 750  | EI 120-C/U                       | E 120-C/U |
| <sup>4)</sup> Insulation material not continuous, in the wall opening with Misselfix Garant (4 mm) |            |                     |                              |                           |  |  |                                  |           |

| Solid wall $\geq 200$ mm  |            |                     |                              |                           |  |  |                                  |           |
|---|------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe (mm)  | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm)   | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |            |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Climaflex XT</b>   |            |                     |                              |                           |  |  |                                  |           |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 12$  | $\geq 1.5$          | 9                            | $\geq 600$                | 300 x 13<br>Kaiflex KK   | --   | EI 120-C/U                       | E 120-C/U |
|   |            |                     | 9                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 48$  | $\geq 2.6$          | 25                           | $\geq 600$                | --   | 320  | EI 120-C/U                       | E 120-C/U |
|   | $\leq 48$  | $\geq 2.6$          | 25                           | $\geq 600$                | 300 x 19<br>Kaiflex KK   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 60$  | $\geq 2.6$          | 9                            | $\geq 600$                | --   | 320  | EI 120-C/U                       | E 120-C/U |
|   | $\leq 60$  | $\geq 2.6$          | 9                            | $\geq 600$                | 300 x 19<br>Kaiflex KK   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 60$  | $\geq 2.6$          | 9                            | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|   | $\leq 60$  | $\geq 2.6$          | 9                            | $\geq 600$                | 300 x 20<br>Klimarock  | --   | EI 120-C/U                       | E 120-C/U |
| <b>Kaiflex KK</b>   |            |                     |                              |                           |  |  |                                  |           |
| Copper,<br>Steel,<br>Stainless steel,<br>Cast iron  | $\leq 108$ | $\geq 2.5$          | 32                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 508$ | $\geq 6.3$          | 25                           | $\infty$                  | 500 x 25   | --   | EI 60-C/U                        | E 120-C/U |
| <b>Klimarock</b>  |            |                     |                              |                           |  |  |                                  |           |
| Copper,<br>Steel,<br>Stainless steel,<br>Cast iron  | $\leq 89$  | $\geq 2.0$          | 20                           | $\geq 600$                |  |  | EI 90-C/U                        | E 90-C/U  |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 219$ | $\geq 5.0$          | 30                           | $\geq 600$                |  |  | EI 90-C/U                        | E 90-C/U  |
| The seal can be applied with only one layer of fire protection bandage instead of two layers. |            |                     |                              |                           |  |  |                                  |           |
| <b>Hard polyurethane foam according to DIN EN 14308</b>                                       |            |                     |                              |                           |  |  |                                  |           |
| Stainless steel   | $\leq 204$ | $\geq 2.0$          | 40 - 100                     | $\infty$                  | Sheet metal covering over entire length of pipe<br>$\leq \varnothing 230$ mm 0.6 mm<br>$> \varnothing 230$ mm 0.8 mm |  | EI 120-C/U                       | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 326$ | $\geq 30$           | 40 - 100                     | $\infty$                  |  |  | EI 120-C/U                       | E 120-C/U |

| Solid ceiling $\geq 150$ mm  |              |                     |                              |                           |  |  |                                  |           |
|--|--------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material  | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|  |              |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Armaflex / AF</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 54$    | $\geq 1.5$          | 9                            | $\geq 500^{5)}$           | --   | --   | EI 60-C/U                        | E 90-C/U  |
|  |              |                     | 13 -100                      | $\infty$                  | --   | --   | EI 90-C/U                        | E 90-C/U  |
|  |              |                     | 100                          | $\geq 500^{5)}$           | --   | --   | EI 90-C/U                        | E 90-C/U  |
|  | $\leq 89$    | $\geq 2.0$          | 50                           | $\geq 500^{5)}$           | --   | --   | EI 60-C/U                        | E 90-C/U  |
| Steel<br>Stainless steel<br>Cast iron  | $\leq 114.3$ | $\geq 3.2$          | 19                           | $\geq 500^{5)}$           | Remaining gap filled with mortar                       | --   | EI 60-C/U                        | E 90-C/U  |
|  |              |                     |                              | $\geq 500^{5)}$           | Remaining gap filled with wool insulation material     | --   | EI 45-C/U                        | E 90-C/U  |
|  | $\leq 159$   | $\geq 4.0$          | 13 - 50                      | $\infty$                  | Bandage only under sheet metal jacket                  | 125  | EI 90-C/U                        | E 90-C/U  |
|  |              |                     | 100                          | $\geq 500^{5)}$           | --   | --   | EI 60-C/U                        | E 60-C/U  |
| Stainless steel  | $\leq 204$   | $\geq 2.0$          | 25                           | $\infty$                  | --   | --   | EI 60-C/U                        | E 90-C/U  |
|  |              |                     | $\geq 25 -100$               |                           | --   | --   | EI 60-C/U                        | E 60-C/U  |
| Steel<br>Stainless steel<br>Cast iron  | $\leq 323$   | $\geq 5.6$          | 19                           | $\geq 500^{5)}$           | --   | --   | EI 60-C/U                        | E 60-C/U  |
|  |              |                     |                              | $\infty$                  | --   | --   | EI 60-C/U                        | E 90-C/U  |
|  |              |                     | $\geq 19 -100$               | $\geq 500^{5)}$           | --   | --   | EI 60-C/U                        | E 60-C/U  |
| 5) Only upper side of ceiling as asymmetrical insulation. Insulation material on underside of ceiling always over entire length of pipe. |              |                     |                              |                           |  |  |                                  |           |
| <b>Aeroflex KKS / Aeroflex (HT) / Aeroflex Firo / Insul Tube / K-Flex ECO / K-Flex ST Plus</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 54$    | $\geq 1.5$          | 19 - 50                      | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| <b>Aeroflex HF / K-Flex ST</b>   |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron  | $\leq 54$    | $\geq 1.5$          | 19 - $\leq 50$               | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
|  |              |                     | 50                           |                           |  |  | EI 120-C/U                       | E 120-C/U |
| <b>Armaflex / HT</b>   |              |                     |                              |                           |  |  |                                  |           |
| Stainless steel  | $\leq 89$    | $\geq 1.5$          | 19                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
|  | $\leq 108$   | $\geq 2.0$          | 19                           | $\geq 600$                | --   | --   | EI 90-C/U                        | E 120-C/U |
| <b>Lamella mat ML3</b>   |              |                     |                              |                           |  |  |                                  |           |
| Stainless steel  | $\leq 108$   | $\geq 2.0$          | 20                           | $\geq 600$                | --   | --   | EI 120-C/U                       | E 120-C/U |
| The seal can be applied with only one layer of fire protection bandage instead of two layers.  |              |                     |                              |                           |  |  |                                  |           |



| Solid ceiling $\geq 150$ mm                     |              |                     |                              |                           |  |  |                                  |           |
|---|--------------|---------------------|------------------------------|---------------------------|--|--|----------------------------------|-----------|
| Pipe material                                   | Pipe (mm)    | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Sheet metal jacket around protective insulation material Length (mm) | Maximum classification achieved  |           |
|   |              |                     |                              |                           |  |  | Thermal insulation and integrity | Integrity |
| <b>Kaiflex- KK / KKplus</b>                     |              |                     |                              |                           |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron | $\leq 28$    | $\geq 1.0$          | 13 - 19                      | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 90-C/U  |
|   | $\leq 42$    | $\geq 1.5$          | 13 - 19                      | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 90-C/U  |
|   | $\leq 54$    | $\geq 1.5$          | 19 - 50                      | $\geq 600^{(6)}$          | As individual opening                                  |  | EI 120-C/U                       | E 120-C/U |
|   |              |                     |                              |                           | No spacing to other openings                           |  | EI 90-C/U                        | E 120-C/U |
|   | $\leq 88.9$  | $\geq 2.0$          | 6                            | $\geq 600^{(6)}$          | --   |  | EI 60-C/U                        | E 90-C/U  |
|   | $\leq 88.9$  | $\geq 2.0$          | 13                           | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 120-C/U |
| $\leq 89$                                       | $\geq 2.0$   | < 13 - 100          | $\geq 600^{(6)}$             | --                        |  | EI 90-C/U  | E 90-C/U                         |           |
| Steel<br>Stainless steel<br>Cast iron           | $\leq 114.3$ | $\geq 3.2$          | 19                           | $\geq 600^{(6)}$          | --   |  | EI 60-C/U                        | E 90-C/U  |
|   |              |                     | 25                           | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 90-C/U  |
|   | $\leq 159$   | $\geq 4.0$          | 19 - < 50                    | $\geq 600^{(6)}$          | --   |  | EI 60-C/U                        | E 90-C/U  |
|   |              |                     | 50 - 100                     | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 90-C/U  |
| Stainless steel                                 | $\leq 108$   | $\geq 2.0$          | 13 - 100                     | $\geq 600^{(6)}$          | --   |  | EI 120-C/U                       | E 120-C/U |
|   | $\leq 204$   | $\geq 2.0$          | 38                           | $\geq 600^{(6)}$          | --   |  | EI 90-C/U                        | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron           | $\leq 323$   | $\geq 5.6$          | 25 - < 100                   | $\geq 600^{(6)}$          | --   |  | EI 60-C/U                        | E 90-C/U  |
|   |              |                     | 100                          | $\infty$                  | --   |  | EI 90-C/U                        | E 90-C/U  |

6) Only upper side of ceiling as asymmetrical insulation. Insulation material on underside of ceiling always over entire length of pipe.

| Solid ceiling $\geq 200$ mm   |                         |                     |                              |                           |  |                                  |            |           |
|---|-------------------------|---------------------|------------------------------|---------------------------|--|----------------------------------|------------|-----------|
| Pipe material   | Pipe $\varnothing$ (mm) | Wall thickness (mm) | Thickness of insulation (mm) | Length of insulation (mm) | Protective insulation material Length x thickness (mm) | Maximum classification achieved  |            |           |
|   |                         |                     |                              |                           |  | Thermal insulation and integrity | Integrity  |           |
| <b>AEROLINE INOX COMBI SPLIT 100/Pro</b>  |                         |                     |                              |                           |  |                                  |            |           |
| Stainless steel   | 2x DN16<br>2x DN20      | 0.2                 | 17 - 18                      | $\geq 900$                | --   |                                  | EI 120-C/U | E 120-C/U |
| Concentrically or not concentrically pre-insulated pipe pairs for thermal solar installations, with accompanying cable 2 x 0.75 mm <sup>2</sup> |                         |                     |                              |                           |  |                                  |            |           |
| <b>AEROLINE INOX COMBI SPLIT 100</b>  |                         |                     |                              |                           |  |                                  |            |           |
| Stainless steel   | 2x DN16<br>2x DN25      | 0.2<br>- 0.25       | 18 - 25                      | $\geq 900$                | --   |                                  | EI 120-C/U | E 120-C/U |
| Concentrically or not concentrically pre-insulated pipe pairs for thermal solar installations, with accompanying cable 2 x 0.75 mm <sup>2</sup> |                         |                     |                              |                           |  |                                  |            |           |

| Solid ceiling $\geq 200$ mm   |                            |                           |                                 |                              |   |  |           |
|---|----------------------------|---------------------------|---------------------------------|------------------------------|---|--|-----------|
| Pipe material   | Pipe $\varnothing$<br>(mm) | Wall<br>thickness<br>(mm) | Thickness of insulation<br>(mm) | Length of insulation<br>(mm) | Protective insulation<br>material<br>Length x thickness<br>(mm) | Maximum classification<br>achieved     |           |
|   |                            |                           |                                 |                              |   | Thermal<br>insulation and<br>integrity | Integrity |
| <b>AEROLINE CU SPLIT 100</b>  |                            |                           |                                 |                              |   |  |           |
| Copper  | 2x DN10<br>2x DN18         | 0.7<br>- 1.0              | 13 - 16                         | $\geq 900$                   | --  | EI 120-C/U                             | E 120-C/U |
| Concentrically or not concentrically pre-insulated pipe pairs for thermal solar installations, with accompanying cable 2 x 0.75 mm <sup>2</sup> |                            |                           |                                 |                              |   |  |           |
| <b>AEROLINE CU SPLIT 20</b>   |                            |                           |                                 |                              |   |  |           |
| Copper  | 2x DN10<br>2x DN18         | 0.7<br>- 1.0              | 13                              | $\geq 900$                   | --  | EI 120-C/U                             | E 120-C/U |
| Concentrically or not concentrically pre-insulated pipe pairs for thermal solar installations, with accompanying cable 2 x 0.75 mm <sup>2</sup> |                            |                           |                                 |                              |   |  |           |
| <b>Armaflex Duo Solar</b>   |                            |                           |                                 |                              |   |  |           |
| Stainless<br>steel  | $\leq 21.4$                | DN 16                     | 14-20                           | $\geq 600$                   | --  | EI 120-C/U                             | E 120-C/U |
|   | $\leq 26.7$                | DN 20                     | 14-20                           | $\geq 600$                   | --  | EI 120-C/U                             | E 120-C/U |
|   | $\leq 31.8$                | DN 25                     | 14                              | $\geq 600$                   | --  | EI 120-C/U                             | E 120-C/U |
| Pre-insulated pipe pairs for thermal solar installations with integrated temperature sensor cable   |                            |                           |                                 |                              |   |  |           |
| <b>Kaiflex- KK / KKplus</b>   |                            |                           |                                 |                              |   |  |           |
| Copper  | $\leq 28$                  | $\geq 1.0$                | 9 - 50                          | $\geq 600^{7)}$              | --  | EI 90-C/U                              | E 90-C/U  |
| Steel   | $\leq 42$                  | $\geq 1.5$                | 13 - 19                         | $\geq 600^{7)}$              | --  | EI 90-C/U                              | E 90-C/U  |
| Stainless<br>steel  | $\leq 89$                  | $\geq 2.0$                | 50 - 100                        | $\infty$                     | --  | EI 90-C/U                              | E 90-C/U  |
| Cast iron   | $\leq 114.3$               | $\geq 3.2$                | 13 - 100                        | $\geq 600^{7)}$              | --  | EI 90-C/U                              | E 90-C/U  |
| Steel   | $\leq 159$                 | $\geq 4.0$                | 19 - 100                        | $\geq 600^{7)}$              | --  | EI 90-C/U                              | E 90-C/U  |
| Stainless<br>steel  | $\leq 204$                 | $\geq 2.0$                | 25 - 100                        | $\infty$                     | --  | EI 90-C/U                              | E 90-C/U  |
| Steel<br>Stainless<br>steel<br>Cast iron  | $\leq 274$                 | $\geq 5.0$                | 19 - 25                         | $\infty$                     | 300 x 19<br>Kaiflex KK / KKplus                                 | EI 120-C/U                             | E 120-C/U |
|   | $\leq 274$                 | $\geq 5.0$                | 100                             | $\geq 600^{7)}$              | --  | EI 90-C/U                              | E 90-C/U  |
|   | $\leq 323.9$               | $\geq 4.7$                | 25                              | $\geq 600^{7)}$              | 300 x 25<br>Kaiflex KK / KKplus                                 | EI 90-C/U                              | E 90-C/U  |
|   | $\leq 326$                 | $\geq 5.6$                | 19 - 25                         | $\infty$                     | 300 x 19<br>Kaiflex KK / KKplus                                 | EI 120-C/U                             | E 120-C/U |
| <b>7)</b> Only upper side of ceiling as asymmetrical insulation. Insulation material on underside of ceiling always over entire length of pipe. |                            |                           |                                 |                              |   |  |           |

| Solid ceiling $\geq 200$ mm   |                         |                          |                              |  |  |                                  |           |
|---|-------------------------|--------------------------|------------------------------|--|--|----------------------------------|-----------|
| Pipe material   | Pipe $\varnothing$ (mm) | Wall thickness (mm)      | Thickness of insulation (mm) | Length of insulation (mm)  | Protective insulation material Length x thickness (mm)   | Maximum classification achieved  |           |
|   |                         |                          |                              |  |  | Thermal insulation and integrity | Integrity |
| <b>Hard polyurethane foam according to DIN EN 14308<br/>Bauder PIR-T class C, approx. 45 kg/m</b> |                         |                          |                              |  |  |                                  |           |
| Copper<br>Steel<br>Stainless steel<br>Cast iron   | $\leq 28$<br>$\leq 89$  | $\geq 1.0$<br>$\geq 2.0$ | 40 - 100<br>40 - 100         | (Completely insulated over entire length of pipe) $\infty$                               | Sheet metal covering over entire length of pipe<br>Sheet metal thickness:<br>$\leq \varnothing 230$ mm 0.6 mm<br>$> \varnothing 230$ mm 0.8 mm | EI 120-C/U                       | E 120-C/U |
| Stainless steel   | $\leq 204$              | $\geq 2.0$               | 40 - 100                     |  |  | EI 120-C/U                       | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 356$              | $\geq 4.0$               | 40 - 100                     |  |  | EI 120-C/U                       | E 120-C/U |
| <b>puren PIR-T class C, approx. 45 kg/m<sup>3</sup></b>   |                         |                          |                              |  |  | EI 120-C/U                       | E 120-C/U |
| Copper<br>Steel<br>Stainless steel<br>Cast iron   | $\leq 89$               | $\geq 2.0$               | 40 - 100                     |  |  | EI 120-C/U                       | E 120-C/U |
| Copper<br>Steel<br>Stainless steel<br>Cast iron   | $\leq 28$<br>$\leq 89$  | $\geq 1.0$<br>$\geq 2.0$ | 40 - 100<br>40 - 100         | $\geq 500$ above the ceiling and under the ceiling completely over entire length of pipe | Sheet metal covering over entire length of pipe<br>Sheet metal thickness:<br>$\leq \varnothing 230$ mm 0.6 mm<br>$> \varnothing 230$ mm 0.8 mm | EI 90-C/U                        | E 120-C/U |
| Stainless steel   | $\leq 204$              | $\geq 2.0$               | 40 - 100                     |  |  | EI 90-C/U                        | E 120-C/U |
| Steel<br>Stainless steel<br>Cast iron   | $\leq 356$              | $\geq 4.0$               | 40 - 100                     |  |  | EI 90-C/U                        | E 120-C/U |
| <b>puren PIR-T class C, approx. 45 kg/m<sup>3</sup></b>   |                         |                          |                              |  |  | EI 90-C/U                        | E 120-C/U |
| Copper<br>Steel<br>Stainless steel<br>Cast iron   | $\leq 89$               | $\geq 2.0$               | 40 - 100                     |  |  | EI 90-C/U                        | E 120-C/U |

8. The performance of the product identified above is in conformity with the set of declared performance/s. 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:

i.V. Gerd Friedel, Business Unit Manager



Würzburg, 01.05.2022