

# EUROPEAN TECHNICAL ASSESSMENT

**ETA 16/0042**  
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UBAtc Assessment Operator:  
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Technical Assessment Body issuing the European Technical Assessment: UBAtc.  
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011  
and is member of EOTA (European Organisation for Technical Assessment)

**Trade name of the construction product:**

MG2

**Product family to which the construction product belongs:**

35 - Fire Protective collar

**Manufacturer:**

Rf-technologies  
Lange Ambachtstraat 40  
9860 Oosterzele  
Belgium

**Manufacturing plant(s):**

CESAM (Slovakia)

**Website:**

[www.rft.be](http://www.rft.be)

**This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:**

Guideline for European technical approval (ETAG), used as European Assessment Document (EAD): 026-2

**This European Technical Assessment contains:**

17 pages, including 2 annexes which form an integral part of the document.



**European Organisation  
for Technical Assessment**

## Legal bases and general conditions

- 1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
  - Regulation (EU) No 305/2011<sup>1</sup> of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
  - Commission Implementing Regulation (EU) No 1062/2013<sup>2</sup> of 30 October 2013 on the format of the European Technical Assessment for construction products
  - European Assessment Document (EAD) :
  - Guideline for European technical approval (ETAG), used as European Assessment Document (EAD): ETAG 026-2
- 2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.
- 3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.
- 4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.
- 5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.
- 6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.
- 7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.
- 8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.
- 9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use which the manufacturer has submitted to the responsible Technical Assessment Body for the issuing of the European Technical Assessment.
- 10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.
- 11 All rights of exploitation in any form and by any means of this European Technical Assessment is reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.
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- 13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.
- 14 This European Technical Assessment was first issued by UBAtc on 26 April 2016.

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<sup>1</sup> OJEU, L 88 of 2011/04/04

<sup>2</sup> OJEU, L 289 of 2013/10/31

## Technical Provisions

### 1 Technical description of the product

#### 1.1 General

MG2 is a fire stopping and fire sealing penetration seal in the form of a fire stopping collar.

The MG2 fire stopping pipe closure device is intended for uses in environmental conditions type Y2 according to ETAG 026-2 i.e. for uses in conditions exposed to weathering and all other exposures indoor and outdoor, but not exposed to rain nor UV.

The MG2 fire resistant pipe closure device is affixed around plastic pipes (PE and PVC) and embedded in the penetrated construction element to prevent propagation of fire. It expands through heat thus closing off the openings and making them fire resistant and thereby it prevents the spread of smoke and fire.

The MG2 fire resistant pipe closure device consists of a folded shell, made of 0.6 mm steel sheet. It is 85 mm width (or 105 mm wide for diameter 125 mm and 160 mm). The shell has a reactive inlay (Rf-expand 147) of 80 mm width (or 100 mm for diameters 125 mm and 160 mm) and a suitable thickness depending on the diameter (6 mm – 20 mm). The shell is enclosed with two tongues (see Figure 1 and Table 1).

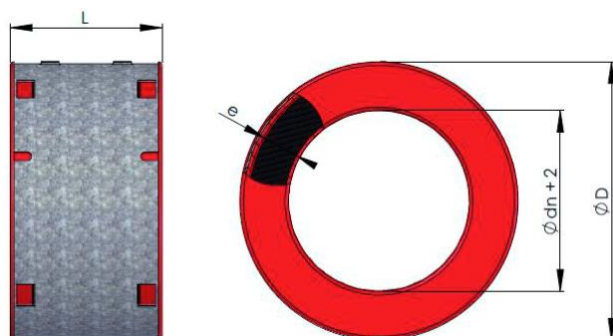


Figure 1 : MG2

The assumed working life of the MG2- A fire stopping pipe closure device is minimum 25 years, provided that the fire stopping pipe closure device is subject to appropriate use and maintenance, in accordance with the manufacturer recommendations.

MG2 fire stopping pipe closure devices are manufactured at the Rf-technologie's production plant in CESAM (Slovakia)

#### 1.2 Dimensions

MG2 is available in diameters between 40 mm and 160 mm as shown in Table 1.

Table 1 : Dimensions of MG2 (mm)

| Dn | 40 | 50 | 56 | 63 | 75  | 80  | 90  | 100 | 110 | 125 | 160 |
|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| ØD | 67 | 77 | 83 | 90 | 102 | 123 | 133 | 143 | 153 | 182 | 215 |
| e  | 6  |    |    |    |     | 12  |     |     |     | 20  |     |
| L  | 85 |    |    |    |     |     |     |     |     | 105 |     |

Installation of MG2: see clause 2.3

### 2 Specification of the intended use(s) in accordance with the applicable EAD (ETAG026-2)

#### 2.1 Intended uses

MG2 is a penetration seal for services penetrating walls and floors. MG2 is designed for use with plastic (PE and PVC) pipes to seal pipe penetrations with diameters between 40 mm and 160 mm against the spread of smoke and fire.

The through-elements are installed in drilled holes made through aerated concrete floors, 150 mm thick with a bulk density greater than 600 kg/m³ or through aerated concrete walls, 100 mm thick, with a bulk density greater than 500 kg/m³. They can also be used in lightweight plasterboard partitions with a minimum thickness of 100 mm. A detailed description of these construction elements are given in Annex 1 of this ETA.

This ETA covers assemblies installed in accordance with the provisions given in Annex 1. Other intended uses may be supported by other means at national level but are not covered by this ETA.

#### 2.2 Use Categories

The MG2 fire stopping pipe closure device is intended for uses in environmental conditions type Y2 according to ETAG 026-2 i.e. for uses at conditions exposed to weathering and all other exposures indoor and outdoor but not exposed to rain nor UV.

The provisions made in this European Technical Assessment are based on an assumed intended working life of 25 years.

Indications given regarding the working life cannot be interpreted as a guarantee given by the producer or the UBAtc, but are to be regarded only as a means for choosing the appropriate product(s) in relation to the expected economically reasonable working life of the construction works.

#### 2.3 Assumptions under which the product was favourably assessed

##### 2.3.1 Manufacturing directives

This European Technical Assessment is being issued for MG2 fire stopping pipe closure device on the basis of agreed data/information, deposited with the UBAtc, which characterises the product that has been assessed. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment/alterations to the ETA, shall be necessary.

### 2.3.2 Installation

#### 2.3.2.1 General information for creating a pipe penetration

The area to be sealed requires the same fire resistance as the complete wall construction. In order to ensure that the stability of the services is maintained under fire conditions, all services should be adequately supported at maximum 400 mm and from the non-exposed surface of the floors or at 200 mm to 400 mm either side of the supporting structures for walls. More precise instructions for the installation of MG2 fire stopping pipe closure device can be found in Annex 1 of this ETA and the technical instructions of the manufacturer.

Products may only be applied by trained professionals with adequate knowledge of and experience in the use of fire stopping products.

#### 2.3.2.2 General information about MG2

- MG2 collar is embedded around the tube and in the supporting structure;
- In mineral wool panels the annular space between the MG2 collar and the supporting structure is maximum 5 mm. It is filled with fire protective coating such as PROMASTOP-E.;
- In aerated concrete walls and lightweight partitions the annular space between the MG2 collar and the supporting structure is maximum 25 mm. It is filled with plaster.
- In aerated concrete floors the annular space between the MG2 collar and the supporting structure is maximum 25 mm. It is filled with a grouting mortar.
- MG2 is suitable for all types of PVC-U, PEHD and Geberit Silent db20 pipes;
- The MG2 collar is suitable for pipe diameters of 40 to 160 mm according to the field of application, given in this ETA;

#### 2.3.2.3 Conditions for the application

The product is classified as to type Y2.

### 2.4 Recommendations

#### 2.4.1 Recommendations on packaging, transport and storage

MG2 should be stored in dry conditions.

#### 2.4.2 Recommendations on use, maintenance and repair

The addition of new services is permissible if distances between the pipes are respected.

Any default of the collar should be immediately repaired by replacement.

#### 2.4.3 Regarding safety instructions:

MG2 should be handled and fixed with protective gloves to avoid hand damage by the steel housing

## 3 Performance of the product and references to the methods used for its assessment

### 3.1 Mechanical resistance and stability

Not relevant.

## 3.2 Safety in case of Fire

### 3.2.1 Reaction to fire

The MG2 fire stopping pipe closure device has a reaction to fire classification class E according to EN 13501-1.

### 3.2.2 Fire resistance

The fire resistance classification of the MG2 fire stopping pipe closure device according to EN 13501-2 and according to the field of direct application of test results described in EN 1366-3:2009 is given in Annex 1. The mentioned fire resistance classes however can never be higher than the fire resistance class of the penetrated structure.

This ETA includes:

- PVC pipes penetrating aerated concrete floors, lightweight partitions, aerated concrete walls, mineral wool panels, see annex 1.1;
- PE pipes penetrating aerated concrete floors, lightweight partitions, aerated concrete walls, mineral wool panels, see annex 1.2.
- Geberit Silent db20 pipes penetrating aerated concrete floors, aerated concrete walls, see annex 1.3

## Hygiene, Health and the environment

### 3.2.3 Air permeability

No performance assessed.

### 3.2.4 Water permeability

No performance assessed.

### 3.2.5 Release of dangerous substances

The holder of the assessment has submitted a written declaration stating that the MG2 fire stopping pipe closure device contains no dangerous substances according to EC-database, known at the date of issuing.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

## 3.3 Safety in Use

### 3.3.1 Mechanical resistance and stability

No performance assessed.

### 3.3.2 Resistance to impact / movement

No performance assessed.

### 3.3.3 Adhesion

No performance assessed.

### 3.4 Protection against noise

#### 3.4.1 Airborne sound insulation

No performance assessed.

### 3.5 Energy economy and heat retention

#### 3.5.1 Thermal resistance

No performance assessed.

#### 3.5.2 Water vapour permeability

No performance assessed.

### 3.6 Aspects of durability and serviceability

The MG2 fire stopping pipe closure device fulfils the environmental conditions type Y<sub>2</sub> requirements.

### 3.7 Characterisation of the product

A general description of MG2 fire stopping pipe closure device is given in clause 1.1 of the ETA. The formulation of the inlay of MG2 fire stopping pipe closure device has been disclosed to the approval operator BCCA.

## 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

The system of assessment and verification of constancy of performance, specified in the Decision of the Commission 1999/454/EC<sup>3</sup>, as amended, is specified in Table 2.

**Table 2– System of assessment and verification of constancy of performance applicable to MG2**

| Product(s)                              | Intended use(s)                                                      | Level(s) or class(es) | Assessment and verification of constancy of performance system(s)* |
|-----------------------------------------|----------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------|
| Fire Stopping and Fire Sealing Products | For fire compartmentation and/or fire protection or fire performance | Any                   | 1                                                                  |

\* See Annex V to Regulation (EU) N° 305/2011

In addition, according to the decision 1999/454/EC of the European Commission, as amended, and Commission Delegated Regulation (EU) 2016/364<sup>4</sup>, the systems of assessment and verification of constancy of performance specified in Table 3 apply to fire stopping and fire sealing products with regard to reaction to fire.

**Table 3– Systems of assessment and verification of constancy of performance with respect to the reaction to fire**

| Product(s)                              | Intended use(s)                                     | Level(s) or class(es) (reaction to fire)  | Assessment and verification of constancy of performance system(s) <sup>a</sup> |
|-----------------------------------------|-----------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|
| Fire Stopping and Fire Sealing Products | For uses subject to regulations on reaction to fire | (A1, A2, B, C) <sup>b</sup>               | 1                                                                              |
|                                         |                                                     | (A1, A2, B, C) <sup>c</sup> , D, E, F     | 3                                                                              |
|                                         |                                                     | (A1 to F) <sup>d</sup> , NPD <sup>e</sup> | 4                                                                              |

<sup>a</sup> Systems 1, 3 and 4 : See Regulation (EU) N° 305/2011, Annex V  
<sup>b</sup> Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)  
<sup>c</sup> Products/materials not covered by footnote (b)  
<sup>d</sup> Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of class A1 according to Commission Decision 96/603/EC<sup>5</sup>, as amended)  
<sup>e</sup> 'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)

<sup>3</sup> see OJEU L178/52 of 1999/07/14

<sup>4</sup> see OJEU L68/4 of 2016/03/15

<sup>5</sup> see OJEU L267 of 1996/10/19

## 5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

### 5.1 Tasks for the ETA-holder

#### 5.1.1 General

The manufacturer exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures, including records of results performed in accordance with the test plan. This production control system ensures that the product is in conformity with this ETA.

#### 5.1.2 Personnel and equipment

The personnel involved in the production process is identified, sufficiently qualified and trained to operate and maintain the production equipment. Machinery and equipment are regularly maintained and this is documented. All processes and procedures of production are recorded at regular intervals.

#### 5.1.3 Traceability of processes

The manufacturer maintains a traceable documentation of the production process from purchasing or delivery of raw or basic raw materials up to the storage and delivery of finished products.

#### 5.1.4 Non-conforming products

Products that do not comply with requirements as specified in this ETA are separated from the conforming products and marked as such. The manufacturer registers non-compliant production and action(s) taken to prevent further non-conformities. External complaints are also documented, as well as actions taken.

#### 5.1.5 Control of monitoring and measuring devices

Where necessary, measuring equipment is:

- Calibrated or verified at specific intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no standards exists the basis used for calibration is recorded;
- Adjusted or re-adjusted as necessary;
- Identified to enable calibration to be determined.

When the equipment is found not to conform to requirements the validity of previous measuring results are assessed and recorded. Appropriate actions are taken on the equipment and any product affected.

#### 5.1.6 Control plan for the manufacturer

The manufacturer exercises permanent internal control of production according to the prescribed plan.

### 5.2 Tasks of notified bodies

#### 5.2.1 For fire compartmentation and/or fire protection or fire performance uses

##### *Initial type testing*

For the initial type testing of the product (see Annex V of Regulation (EU) N° 305/2011) the tasks for the approved body are limited to the following characteristics, where relevant:

- Resistance to fire;
- Mechanical resistance and stability;
- Adhesion;
- Resistance to impact/movement;
- Release of dangerous substances.

Assessment tests are conducted by the assessment body or under its responsibility (which may include a proportion conducted by an indicated laboratory or by the manufacturer, witnessed by the assessment body) in accordance with section 2.4 of ETAG 026-2, unless the ETA-holder has opted to make use of the possibility not to have the product's performance assessed. The assessment body assessed the results of these tests in accordance with section 2.4 of ETAG 026-2, as part of the ETA issuing procedure.

##### *Initial inspection of the factory and of the factory production control and continuing surveillance, judgment and assessment of factory production control*

For the initial inspection of the factory and of the factory production control (see Annex V of Regulation (EU) N° 305/2011), and for the continuing surveillance, judgement and assessment of the factory production control (see Annex V of Regulation (EU) N° 305/2011), parameters related to the following characteristics are of interest to the approved body, where relevant:

- Resistance to fire;
- Mechanical resistance and stability;
- Adhesion;
- Resistance to impact/movement.

Surveillance inspections are conducted at least twice per year.

#### 5.2.2 For uses subject to reaction to fire regulations

##### *Initial type testing*

For fire stopping and fire sealing products under systems 1 and 3, regarding the initial type testing of the product (see Annex V of Regulation (EU) N° 305/2011), the task of the approved laboratory is limited to the assessment of the reaction to fire class, as indicated in the Commission Decision 94/611/EC.

##### *Initial inspection of the factory and of the factory production control and continuing surveillance, judgment and assessment of factory production control*

For fire stopping and fire sealing products under system 1, for the initial inspection of the factory and of the factory production control (see Annex V of Regulation (EU) N° 305/2011), and for the continuing surveillance, judgement and assessment of the factory production control (see Annex V of Regulation (EU) N° 305/2011), parameters related to the reaction to fire class, as indicated in the Commission Decision 94/611/EC are of interest of the notified body.

Surveillance inspections are conducted at least twice per year.



UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA ([www.eota.eu](http://www.eota.eu)).

This European Technical Assessment has been issued by UBAtc asbl on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,



Peter Wouters,  
director

On behalf of the Assessment Operator, BCCA,  
responsible for the technical content of the ETA,



Benny De Blaere,  
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website ([www.ubatc.be](http://www.ubatc.be)).

## Annexes

### ANNEX 1.1: MG2 fire stopping pipe closure device used with PVC-pipes

This annex reports fire resistance of MG2 fire stopping pipe closure device used with PVC pipes penetrating aerated concrete floors, lightweight partitions, aerated concrete walls and mineral wool panels. The test results obtained on tubes in PVC according to EN 1239-1, EN 1431-1 or EN 1452-1 apply to tubes in PVC-U according to EN 13291-1, EN 1431-1 and EN 1452-1 and tubes in PVC-C according to EN 1566-1.

#### 1.1.1 - MG2 collar used with plastic pipes, made of PVC, in aerated concrete floors

##### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the floor, with PVC pipes penetrating the aerated concrete floor. The floor has a minimum thickness 150 mm and a density of not less than 600 kg/m<sup>3</sup>.

The penetrating pipe shall be adequately supported at maximum 400 mm and from the non-exposed surface of the floor by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm. When arranged in a cluster and classified as such, the pipes may be installed with a 0 mm distance between the MG2 collars.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This annular space is filled with a cement grout mortar.

##### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | PVC                                 |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

##### Installation specifications

|                              |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single and cluster penetration as specified hereafter                                           |
| Number of pipes              | 1 pipe per collar                                                                               |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                                             |
| Pipe insulation              | Non-insulated pipes                                                                             |
| Angle of the pipe            | Standard (90°) as specified hereafter                                                           |
| Service support construction | Fire resistant support element at maximum 400 mm and from the non-exposed surface of the floors |

##### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 1.8 to 8.4          | standard      | U/C – C/C          | EI 180          |
| 80 to 110  | 80 to 110          | 2.2 to 8.2          | standard      | U/C – C/C          | EI 180          |
| 125 to 160 | 125 to 160         | 3.2 to 11.9         | standard      | U/C – C/C          | EI 180          |
| 40 to 75   | 40 to 75           | 1.8 to 8.4          | Cluster       | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 2.2 to 8.2          | Cluster       | U/C – C/C          | EI 120          |



## 1.1.2 : MG2 collar used with plastic pipes, made of PVC, in 100 mm thick lightweight plasterboard partitions

### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the lightweight partition, with PVC pipes penetrating the partitions.

The partition has a minimum thickness 100 mm and is composed of 50 mm metal profile frame covered at both sides with 2 12.5 mm thick plasterboards (BA13, PREGYFLAM AB). The boards are fixed to the frame using Ø 3.5 x 25 mm screws spaced 700 mm part maximum and to each other with Ø 3.5 x 35 mm spaced 200 mm maximum. The joints are offset vertically between the layers and from one side to the other.

An internal insulation in the form of 40 mm thick mineral wool panels (431 Rockfit) with a density of 40 kg/m³ is added.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the partition by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This annular space is filled with plaster.

### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | PVC                                 |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

### Installation specifications

|                              |                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------|
| Pipe arrangement             | Single penetration                                                                |
| Number of pipes              | 1 pipe per collar                                                                 |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                               |
| Pipe insulation              | Non-insulated pipes                                                               |
| Angle of the pipe            | Standard (90°) as specified hereafter                                             |
| Service support construction | Fire resistant support element at 200 mm to 400 mm at both sides of the partition |

### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 1.8 to 8.4          | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 2.2 to 8.2          | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 3.2                 | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 3.2 to 13           | standard      | U/C – C/C          | EI 90           |

### 1.1.3 - MG2 collar used with plastic pipes, made of PVC, in aerated concrete wall

#### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the aerated concrete wall, with PVC pipes penetrating it. The wall has a minimum thickness 100 mm and a density of not less than 500 kg/m³.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the aerated concrete wall by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm. When arranged in a cluster and classified as such, the pipes may be installed with a 0 mm distance between the MG2 collars.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This space is filled with plaster.

#### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | PVC                                 |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

#### Installation specifications

|                              |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single and cluster penetration as specified hereafter                                          |
| Number of pipes              | 1 pipe per collar                                                                              |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                                            |
| Pipe insulation              | Non-insulated pipes                                                                            |
| Angle of the pipe            | Standard (90°) as specified hereafter                                                          |
| Service support construction | Fire resistant support element at 200 mm to 400 mm at both sides of the aerated concrete wall. |

#### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 1.8 to 8.4          | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 2.2 to 8.2          | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 3.2                 | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 3.2 to 13           | standard      | U/C – C/C          | EI 90           |
| 40 to 75   | 40 to 75           | 1.8 to 8.4          | Cluster       | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 2.2 to 8.2          | Cluster       | U/C – C/C          | EI 120          |

## 1.1.4 - MG2 collar used with plastic pipes, made of PVC, in channels with pre-coated mineral wool panels

### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the channel, with PVC pipes penetrating it.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the channel by appropriate fire resistant through-element support systems.

The sealing implemented in the form of pre-coated mineral wool panels may consist of :

- Pre-coated mineral wool panels (such as PROMASTOP CB50) are cut to the dimensions of the channel and the Through-elements
- Insertion of the mineral wool panels, abutted with no air gap, so that the coated surfaces are to the outside, and flush to the exposed and unexposed side.
- The mineral wool panels are coated with a fire resistant coating (such as PROMASTOP-E) at the joints between the panels, between the mineral wool panels and tubes, as well as between the edges of the panels and the edges of the channels.

The MG2 collars are placed around the tube on the surface either side of the supporting structure, or on the exposed surface only for floors.

The minimum distance between the pipes in normal applications is not less than 100 mm.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 5 mm. This space is filled with a fire protective coating such as PROMASTOP-E.

When adding a Through-element after plugging the channel the operation consists of:

- Making an opening corresponding to the collar, using a hole saw or suitable tool.
- Fixing the tube onto the support system.
- Inserting the MG2 collars as specified in the section above
- Applying a fire resistant coating to the remaining space between the sealing and the tube.

### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | PVC                                 |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

### Installation specifications

|                              |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single penetration as specified hereafter                                                       |
| Number of pipes              | 1 pipe per collar                                                                               |
| Pipe end configuration       | All pipe end configurations U/C and C/C                                                         |
| Pipe insulation              | Non-insulated pipes                                                                             |
| Angle of the pipe            | Standard (90°) as specified hereafter                                                           |
| Service support construction | Fire resistant support element at maximum 400 mm and from the non-exposed surface of the floors |

### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3                   | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 3.2                 | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 3.2                 | standard      | U/C – C/C          | EI 90           |

## ANNEX 1.2: MG2 FIRE STOPPING PIPE CLOSURE DEVICE USED WITH PE-PIPES

This annex reports fire resistance of MG2 fire stopping pipe closure device used with PE pipes penetrating aerated concrete floors, lightweight partitions, aerated concrete walls and mineral wool panels. The test results obtained on tubes in HDPE according to EN 15191-1 or EN 12666-1 apply to tubes in PE according to EN 12201-2, EN 1519-1 and EN 12666-1, tubes in ABS according to EN 1455-1 and tubes in SAN+PVC according to EN 1565-1.

### 1.2.1 - MG2 collar used with plastic pipes, made of PE, in aerated concrete floors

#### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the floor (the side that is directly exposed to fire), with PE pipes penetrating the aerated concrete floor. The floor has a minimum thickness 150 mm and a density of not less than 600 kg/m<sup>3</sup>.

The penetrating pipe shall be adequately supported at maximum 400 mm and from the non-exposed surface of the floor by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm. When arranged in a cluster and classified as such, the pipes may be installed with a 0 mm distance between the MG2 collars.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This space is filled with a cement grout mortar.

#### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | HDPE                                |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

#### Installation specifications

|                              |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single and cluster penetration as specified hereafter                                           |
| Number of pipes              | 1 pipe per collar                                                                               |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                                             |
| Pipe insulation              | Non-insulated pipes                                                                             |
| Angle of the pipe            | Standard (90°) as specified hereafter                                                           |
| Service support construction | Fire resistant support element at maximum 400 mm and from the non-exposed surface of the floors |

#### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3 to 6.8            | standard      | U/C – C/C          | EI 180          |
| 80 to 110  | 80 to 110          | 3.4 to 10           | standard      | U/C – C/C          | EI 180          |
| 125 to 160 | 125 to 160         | 6.2 to 14.6         | standard      | U/C – C/C          | EI 180          |
| 40 to 75   | 40 to 75           | 3 to 6.8            | Cluster       | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 3.4 to 10           | Cluster       | U/C – C/C          | EI 120          |

## 1.2.2 : MG2 collar used with plastic pipes, made of PE, in 100 mm thick lightweight plasterboard partitions

### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the lightweight partition, with PE pipes penetrating the partitions.

The partition has a minimum thickness 100 mm and is composed of 50 mm metal profile frame covered at both sides with 2 12.5 mm thick plasterboards (BA13, PREGYFLAM AB). The boards are fixed to the frame using Ø 3.5 x 25 mm screws spaced 700 mm part maximum and to each other with Ø 3.5 x 35 mm spaced 200 mm maximum. The joints are offset vertically between the layers and from one side to the other.

An internal insulation in the form of 40 mm thick mineral wool panels (431 Rockfit) with a density of 40 kg/m³ is added.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the partition by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This space is filled with plaster.

### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | HDPE                                |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

### Installation specifications

|                              |                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------|
| Pipe arrangement             | Single penetration                                                                |
| Number of pipes              | 1 pipe per collar                                                                 |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                               |
| Pipe insulation              | Non-insulated pipes                                                               |
| Angle of the pipe            | Standard (90°) as specified hereafter                                             |
| Service support construction | Fire resistant support element at 200 mm to 400 mm at both sides of the partition |

### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3 to 6.8            | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 3.4 to 10           | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 6.2 to 14.6         | standard      | U/C – C/C          | E 120 – EI 90   |
| 125 to 160 | 125 to 160         | 14.6                | standard      | U/C – C/C          | EI 120          |

### 1.2.3 - MG2 collar used with plastic pipes, made of PE, in aerated concrete wall

#### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the aerated concrete wall, with PE pipes penetrating it. The wall has a minimum thickness 100 mm and a density of not less than 500 kg/m³.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the aerated concrete wall by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm. When arranged in a cluster and classified as such, the pipes may be installed with a 0 mm distance between the MG2 collars.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This space is filled with plaster.

#### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | HDPE                                |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

#### Installation specifications

|                              |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single and cluster penetration as specified hereafter                                          |
| Number of pipes              | 1 pipe per collar                                                                              |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                                            |
| Pipe insulation              | Non-insulated pipes                                                                            |
| Angle of the pipe            | 90° as specified hereafter                                                                     |
| Service support construction | Fire resistant support element at 200 mm to 400 mm at both sides of the aerated concrete wall. |

#### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3 to 6.8            | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 3.4 to 10           | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 6.2 to 14.6         | standard      | U/C – C/C          | E 120 – EI 90   |
| 125 to 160 | 125 to 160         | 14.6                | standard      | U/C – C/C          | EI 120          |
| 40 to 75   | 40 to 75           | 3 – 6.8             | Cluster       | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 3.4 - 10            | Cluster       | U/C – C/C          | EI 120          |

## 1.2.4 - MG2 collar used with plastic pipes, made of PE, in channels with pre-coated mineral wool panels

### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the channel, with PE pipes penetrating it.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the channel by appropriate fire resistant through-element support systems.

The sealing implemented in the form of pre-coated mineral wool panels may consist of :

- Pre-coated mineral wool panels (such as PROMASTOP CB50) are cut to the dimensions of the channel and the Through-elements
- Insertion of the mineral wool panels, abutted with no air gap, so that the coated surfaces are to the outside, and flush to the exposed and unexposed side.
- The mineral wool panels are coated with a fire resistant coating (such as PROMASTOP-E) at the joints between the panels, between the mineral wool panels and tubes, as well as between the edges of the panels and the edges of the channels.

The MG2 collars are placed around the tube on the surface either side of the supporting structure, or on the exposed surface only for floors.

The minimum distance between the pipes in normal applications is not less than 100 mm.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 5 mm. This space is filled with a fire protective coating such as PROMASTOP-E.

When adding a Through-element after plugging the channel the operation consists of:

- Making an opening of the size of the penetrating tube, using a hole saw or suitable tool.
- Fixing the tube onto the support system.
- Applying a fire resistant coating to the remaining space between the sealing and the tube.
- Inserting the MG2 collars as specified in the section above

### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | HDPE                                |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

### Installation specifications

|                              |                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single penetration                                                                              |
| Number of pipes              | 1 pipe per collar                                                                               |
| Pipe end configuration       | All pipe end configurations U/C and C/C                                                         |
| Pipe insulation              | Non-insulated pipes                                                                             |
| Angle of the pipe            | 90° as specified hereafter                                                                      |
| Service support construction | Fire resistant support element at maximum 400 mm and from the non-exposed surface of the floors |

### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3                   | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 4.2                 | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 6.2                 | standard      | U/C – C/C          | EI 120          |



### ANNEX 1.3 : MG2 FIRE STOPPING PIPE CLOSURE DEVICE USED WITH GEBERIT SILENT db20 PIPES

This annex reports fire resistance of MG2 fire stopping pipe closure device used with Geberit Silent db20 pipes penetrating aerated concrete floors and aerated concrete walls.

#### 1.3.2 - MG2 collar used with Geberit Silent db20 pipes in aerated concrete wall

##### Sealing system

The MG2 fire stopping pipe closure device is embedded around the tube and in the aerated concrete wall, with Geberit Silent db20 pipes penetrating it. The wall has a minimum thickness 100 mm and a density of not less than 500 kg/m<sup>3</sup>.

The penetrating pipe shall be adequately supported at maximum 400 mm and from the non-exposed surface of the floor by appropriate fire resistant through-element support systems.

The minimum distance between the pipes in normal applications is not less than 100 mm.

The penetrating pipe shall be adequately supported at between 200 mm and 400 mm at both sides of the aerated concrete wall by appropriate fire resistant through-element support systems.

The MG2 fire stopping pipe closure device is put around the penetrating pipe and closed using the fastener. It is put in an opening in the structure that ensures an annular space not larger than 25 mm. This space is filled with plaster.

##### Characteristics of the services

|                         |                                     |
|-------------------------|-------------------------------------|
| Plastic type            | Geberit Silent db20 pipes           |
| Pipe diameter (Ø)       | See fire resistance class hereafter |
| Pipe wall thickness (e) | See fire resistance class hereafter |

##### Installation specifications

|                              |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| Pipe arrangement             | Single penetration as specified hereafter                                                      |
| Number of pipes              | 1 pipe per collar                                                                              |
| Pipe end configuration       | Pipe end configurations U/C and C/C                                                            |
| Pipe insulation              | Non-insulated pipes                                                                            |
| Angle of the pipe            | 90° as specified hereafter                                                                     |
| Service support construction | Fire resistant support element at 200 mm to 400 mm at both sides of the aerated concrete wall. |

##### Fire resistance class

| MG2 Collar | Pipe diameter [mm] | Pipe thickness [mm] | configuration | Pipe configuration | Fire resistance |
|------------|--------------------|---------------------|---------------|--------------------|-----------------|
| 40 to 75   | 40 to 75           | 3.6                 | standard      | U/C – C/C          | EI 120          |
| 80 to 110  | 80 to 110          | 6                   | standard      | U/C – C/C          | EI 120          |
| 125 to 160 | 125 to 160         | 7                   | standard      | U/C – C/C          | EI 90           |

## ANNEX 2: REFERENCE DOCUMENTS

|                                   |                                                                                                                                                                   |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EN 1366-3:2009                    | Fire resistance tests for service installations – Part 3: Penetration seals                                                                                       |
| EN 13501-1+A1:2010                | Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests                                |
| EN 13501-2+A1:2010                | Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services |
| EOTA TR 024 amended (July 2009)   | Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products                                            |
| ETAG 026-1 (January 2008)         | Fire Stopping and Fire Sealing Products<br>Part 1: General                                                                                                        |
| ETAG 026-2 amended (October 2011) | Fire Stopping and Fire Sealing Products<br>Part 2: Penetration Seals                                                                                              |