Multiwrap

Fire Wrap

European
Technical Assessment
ETA 16/0564

Technical Data Sheet

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Pragmatic, effective and applicable solutions

Content

Multiwrap

Fire Wrap

Fire resistance
≤ 240 minutes

Working life
25 years

Applicability
Can be used outdoors

Fire Wrap

Multiwrap is a graphite-based self-adhesive wrap on a roll, for the fire-resistant sealing of flammable pipes and insulation. The Multiwrap provides a fire-resistant seal to adjacent rooms. Multiwrap reacts to heat and it seals openings caused by the melting of plastic pipes or flammable insulation.

Multiwrap forms part of the Mulcol® Penetration Seal System.

Advantages

- Fire resistance ≤ 240 minutes
- CE-certified
- Environmentally and user-friendly
- Quick and easy application
- Ideal for hard-to-reach assembly locations
- Waterproof
- Halogen-free
- Working life of 25 years

Application

- Rigid floors
- Rigid walls
- Flexible walls
- Firestop boards

- Plastic pipes with a diameter of up to Ø 160 mm
- Metal pipes with flammable insulation

Packaging

	Dimensions	Box	Outer box	Pallet	Article number
Roll	10000 x 50 x 1.8 mm	1 piece	8 pieces	480 pieces	207001050

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1. Technical Data

EAN-code	8719324470209
Condition	Ready to use
Colour	Anthracite
Shelf life	Not applicable
Transportation - storage temperature	5 °C to +30 °C (store dry and dustfree in the original packaging)
Application temperature	0 °C to +50 °C
Temperature resistance	0 °C to +80 °C
Expansion pressure	55 N
Expansion factor	28:1
Normal expansion time	≤ 10 minutes
Graphite weight	1.3 kg/m^2 per mm thickness
Graphite density	1300 kg/m^3
Reactietemperatuur	Approx. 150 °C
Flash point	None
Category of use [1)]	Type X in accordance with EAD 350454-00-1104
BWR3	Use Category IA1, S/W3
Acoustic properties	Rw 55 dB (on installation in combination with Multimastic FB system) Rw 64 dB (when installed in combination with Multimortar)
Installation from one side possible	Yes, please consult ETA report 16/0564
Fire class	F in accordance with EN 13501-1
Approvals	ETA report 16/0564
Function retention	25 years
Seam finish	Multimastic SP, Multimortar of Multimastic C systeem
Finishing of large recesses	Multimastic C systeem of Multimortar (≤ 1200 x 2400 mm)

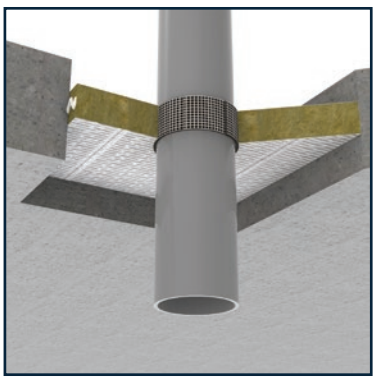
[1)] Permissible environmental conditions

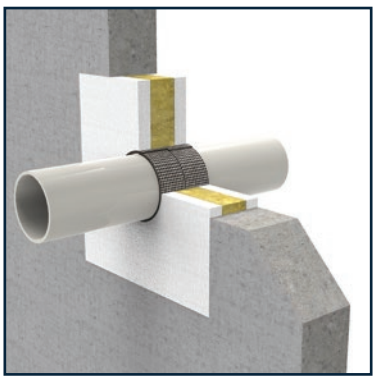
Intended for use in conditions exposed to weathering. Products that meet the requirements for Type X thus meet the requirements for all other types (Type Y_1, Y_2, Z_1 en Z_2).

2. Acoustic properties

The Multiwrap has been tested at BM Trada (UKAS accredited); according to EN ISO 10140-2: 2010. The sound insulation value only applies to the sealant and not to other elements in the building structure.

- ✓ Multiwrap installed in Multimastic FB system (rockwool bulkheads): Rw 55 dB
- ✓ Multiwrap installed in Multimortar (fire resistant mortar): Rw 55 dB





3. Performance

Uninsulated Plastic Pipe Penetrations through Flexible Walls, Rigid Walls and Floors i.c.w. Multimastic C System consisting of a single or double Multimastic FB1 coated batt of 50 mm

EN 1366-3

Plastic Pipes	Size Ø x s [mm]	Multimastic FB1 [d / mm]	Spacing	Number of winds	Construction			Classification minutes
					FW-100	RW-100	RF-150	
PVC-U / PVC-C	≤ 160 x 9.5	2 x 50	fig. 1 and 2	2 x 4	✓	✓		≤ EI 60-U/C
	≤ 125 x 3.7 - 7.4			2 x 3				≤ EI 90-U/C
	≤ 110 x 2,7 - 6.6			2 x 2				≤ EI 90-U/C
	≤ 40 x 1.9 - 3.0			2 x 1				≤ EI 120-U/U
	≤ 110 x 3.4	1 x 50	fig. 3 and 4	1 x 2			✓	≤ EI 90-U/C
PP	≤ 160 x 21.9	2 x 50	fig. 1 and 2	2 x 4	✓	✓		≤ EI 90-U/C
	≤ 125 x 3.1 - 17.1			2 x 3				≤ EI 90-U/C
	≤ 110 x 15.1			2 x 2				≤ EI 90-U/U
	≤ 40 x 1.8 - 5.5			2 x 1				≤ EI 120-U/U
PE / PE-HD / ABS / SAN+PVC	≤ 160 x 14.6	2 x 50	fig. 1 and 2	2 x 4	✓	✓		≤ EI 90-U/C
	≤ 125 x 4.8 - 12.4			2 x 3				≤ EI 90-U/C
	≤ 110 x 4.2 - 10.0			2 x 2				≤ EI 90-U/C
	≤ 40 x 2.4 x 3.7			2 x 1				≤ EI 120-U/U

Insulated Metal Pipe Penetrations through Flexible Walls, Rigid Walls and Floors i.c.w. Multimastic C System consisting of a double Multimastic FB1 coated batt of 50 mm Elastomeric insulation, Fire class B_L-s3, d0 of B-s3, d0, in accordance with EN 13501-1 Thickness: 13 to 32 mm

EN 1366-3

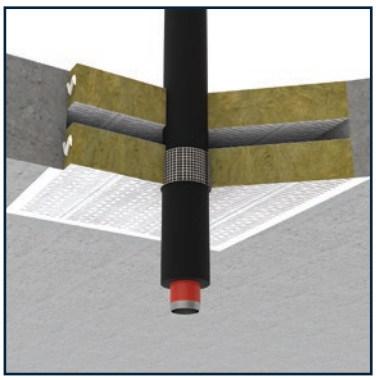
Metal pipes	Size Ø x s [mm]	Multimastic FB1 [mm]	Spacing	Number of winds	Construction			Classification minutes
					FW-100	RW-100	RF-150	
(Stainless) steel pipes	≤ 165 x 1.0 - 14.2	2 x 50	fig. 3 and 4	2 x 2	✓	✓		≤ EI 60-U/U
	≤ 324 x 1.0 - 14.2			2 x 3				≤ EI 90-U/C
	≤ 165 x 4.5 - 14.2	1 x 60[1]		1 x 2			✓	≤ EI 90-U/C
Cast iron pipes	≤ 165 x 1.0 - 14.2	2 x 50	fig. 3 and 4	2 x 2	✓	✓		≤ EI 60-U/U
	≤ 324 x 1.0 - 14.2			2 x 3				≤ EI 90-U/C
	≤ 165 x 4.5 - 14.2	1 x 60[1]		1 x 2			✓	≤ EI 90-U/C

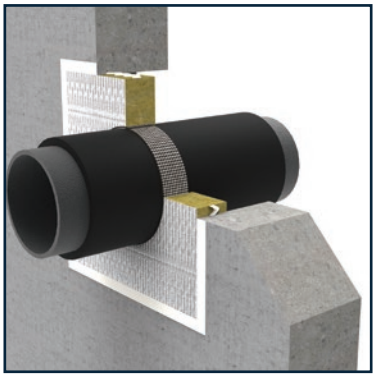
[1] *Multimastic FB2 firestop board, coated on both sides*

Ø x S [mm]: *Diameter x wall thickness of the penetration*
[d / mm]: *Diepte / mm*
config. / L [mm]: *Configuration / insulation length*

FW-100: *Flexible wall, 100 mm thick*
RW-100: *Rigid wall, 100 mm thick*
RF150: *Rigid wall, 150 mm thick*

E: *Integrity*
I: *Thermal insulation*





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Uninsulated Plastic Pipe Penetrations through Flexibel and Rigid Walls i.c.w. Multimortar firestop mortar applied on rock wool backing

EN 1366-3

Plastic Pipes	Size Ø x s [mm]	Multimortar [t / mm]	Spacing	Number of winds	Backing required (1)	Construction FW-100	Construction RW-100	Classification minutes
PVC-U / PVC-C	≤ 160 x 3.2 - 9.5	≥ 2 x 25	fig. 1 and 2	2 x 4	Yes	✓	✓	≤ EI 60-U/C
	≤ 125 x 3.7 - 7.4			2 x 3				≤ EI 120-U/C
	≤ 110 x 2.7 - 6.6			2 x 2				≤ EI 90-U/C
	≤ 40 x 3.0 - 4.3			2 x 1				≤ EI 60-U/C
PP	≤ 160 x 21.9	≥ 2 x 25	fig. 1 and 2	2 x 4	Yes	✓	✓	≤ EI 60-U/C
	≤ 125 x 17.1			2 x 3				≤ EI 90-U/C
	≤ 110 x 6.6			2 x 2				≤ EI 90-U/C
	≤ 40 x 4.0 - 5.5			2 x 1				≤ EI 120-U/C
PE / PE-HD / ABS / SAN+PVC	≤ 160 x 12.0	≥ 2 x 25	fig. 1 and 2	2 x 4	Yes	✓	✓	≤ EI 90-U/C
	≤ 125 x 12.0			2 x 3				≤ EI 120-U/C
	≤ 110 x 4.2 - 10.0			2 x 2				≤ EI 60-U/C
	≤ 40 x 3.2 - 3.7			2 x 1				≤ EI 120-U/C

(1) Rock wool backing at 150 kg/m^3

Insulated Metal Pipe Penetrations through Flexible Walls, Rigid Walls and Floors i.c.w. Multimortar, firestop mortar
Elastomeric insulation, Fire class B_L-s3, d0 of B-s3, d0, in accordance with EN 13501-1
Thickness: 13 to 32 mm

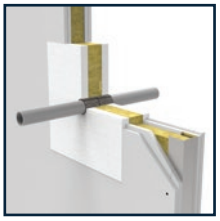
EN 1366-3

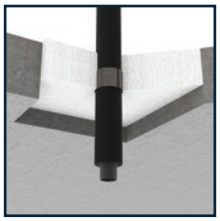
Metal pipes	Size Ø x s [mm]	Multimortar [t / mm]	Spacing	Number of winds	Construction FW-100	Construction RW-100	Construction RF-150	Classification minutes
(Stainless) steel pipes	≤ 165 x 1.0 - 14.2	100	fig. 5 and 6	2 x 2	✓	✓		≤ EI 60-U/C
	≤ 40 x 1.0 - 14.2			2 x 1				≤ EI 120-U/C
	≤ 324 x 1.0 - 14.2		fig. 7 and 8	1 x 2			✓	≤ EI 120-C/U
	≤ 165 x 1.5 - 14.2			1 x 1				≤ EI 120-C/U
Cast iron pipes	≤ 165 x 1.0 - 14.2	100	fig. 5 and 6	2 x 2	✓	✓		≤ EI 60-U/C
	≤ 40 x 1.0 - 14.2			2 x 1				≤ EI 120-C/U
	≤ 324 x 1.0 - 14.2		fig. 7 and 8	1 x 2			✓	≤ EI 120-C/U
	≤ 165 x 1.5 - 14.2			1 x 1				≤ EI 120-C/U

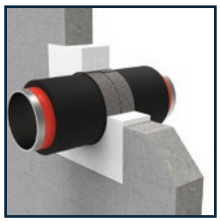
FW-100: *Flexible wall, 100 mm thick*
RW-100: *Rigid wall, 100 mm thick*
RF150: *Rigid wall, 150 mm thick*

E: *Integrity*
I: *Thermal insulation*

Ø x S [mm]: *Diameter x wall thickness of the penetration*
[d / mm]: *Diepte / mm*
config. / L [mm]: *Configuration / insulation length*







4. Actually tested solutions

All the latest tested solutions with the Multiwrap can be found in our Multiselector. Scan the QR code or press the Multiselector button to get directly to the tested solution for your project.

MultiSelector

Our **Multiselector** can also be found in our **Mulcol Fire Protection App**.
It can be downloaded from the **App Store** (iOS) or **Google Play Store** (Android).

App Store Google Play

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5. Spacing

Figure 1
A1: Distance between penetration and top of the seal ≥ 30 mm
A2: Distance between penetration and side of the seal ≥ 30 mm
A3: Spacing ≥ 30 mm

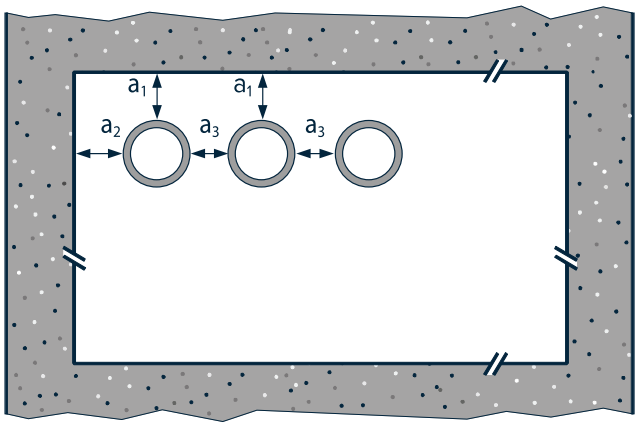


Figure 2
A1: Distance between penetration and top of the seal ≥ 30 mm
A2: Distance between penetration and side of the seal ≥ 30 mm
A3: Spacing ≥ 30 mm

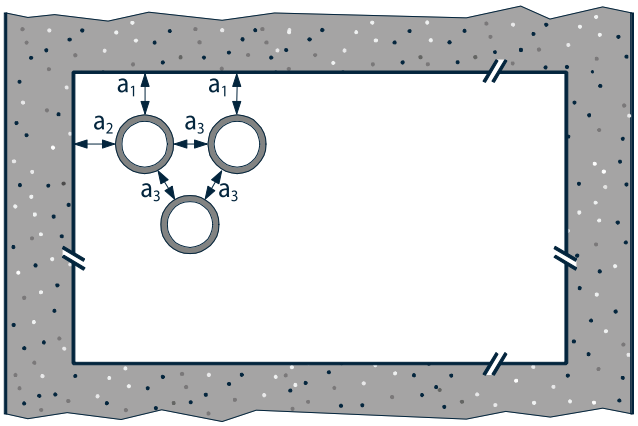


Figure 3
A1: Distance between penetration and side of the seal ≥ 40 mm
A2: Spacing ≥ 100 mm

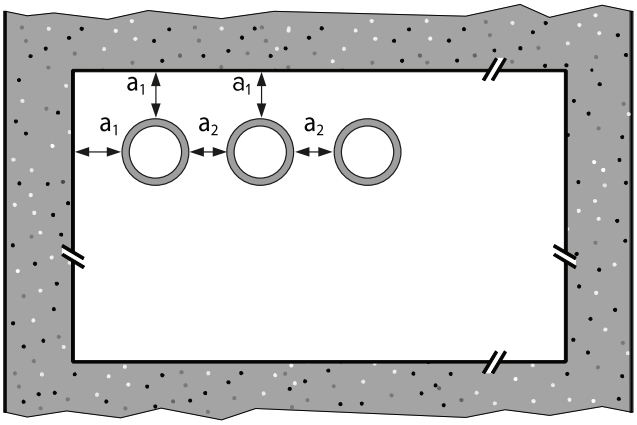


Figure 4
A1: Distance between penetration and side of the seal ≥ 40 mm
A2: Spacing ≥ 100 mm

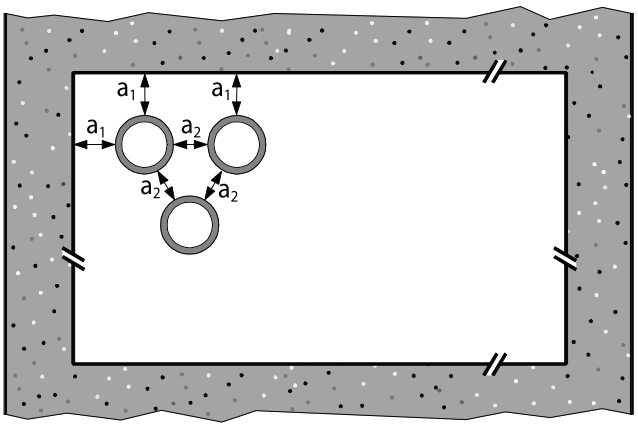


Figure 5
A1: Distance between penetration and side of the seal ≥ 30 mm
A2: Spacing ≥ 0 mm

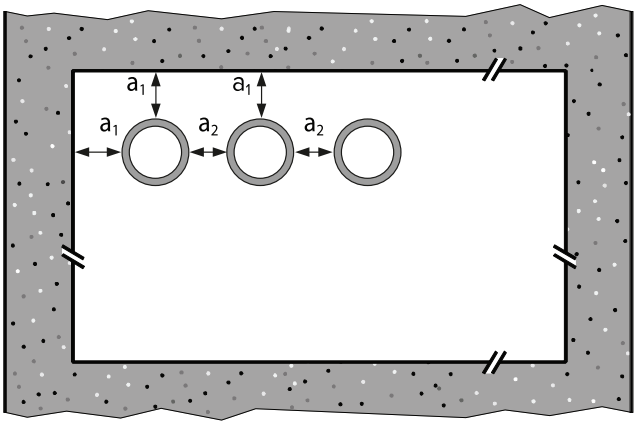


Figure 6
A1: Distance between penetration and side of the seal ≥ 30 mm
A2: Spacing ≥ 0 mm

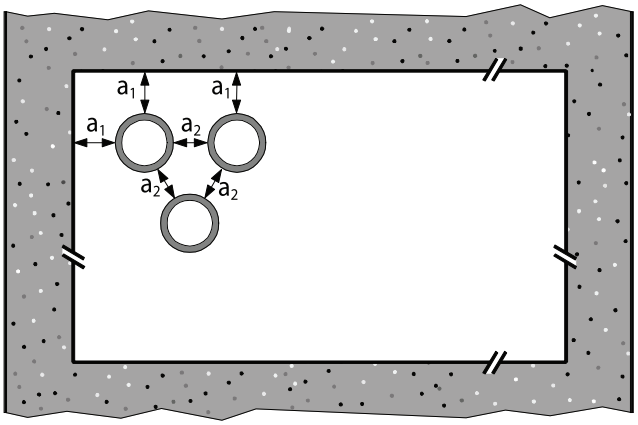


Figure 7
A1: Distance between penetration and side of the seal ≥ 25 mm
A2: Spacing ≥ 100 mm

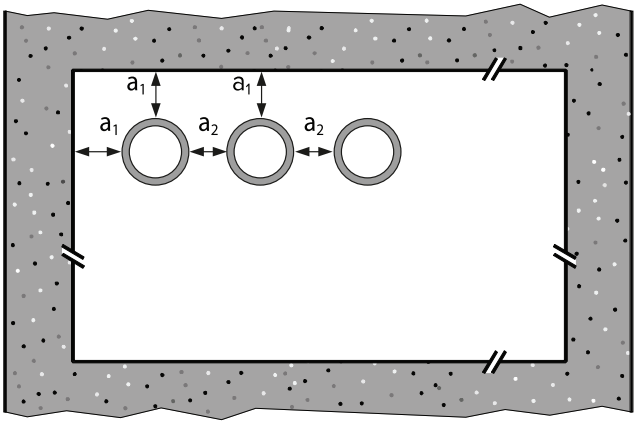
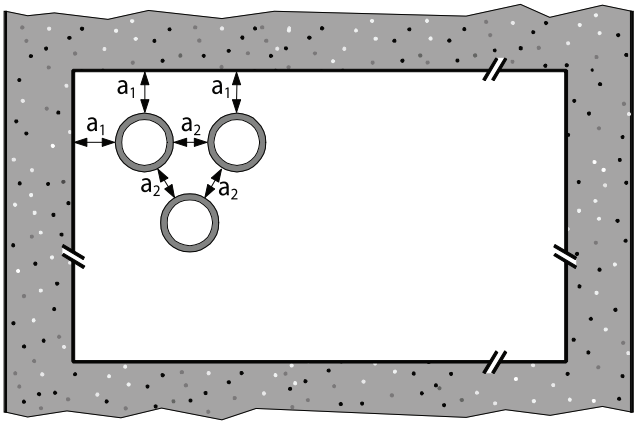


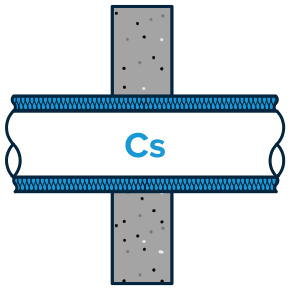
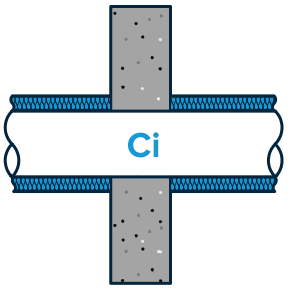
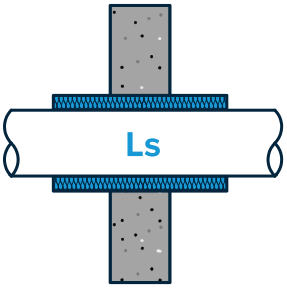
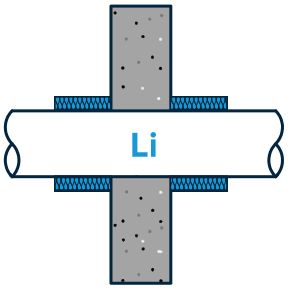
Figure 8
A1: Distance between penetration and side of the seal ≥ 25 mm
A2: Spacing ≥ 100 mm



6. Pipe Insulation (Configuration)

Insulations serve different functions and can therefore be arranged around pipes in different manners. This must be taken into account when applying fire stopping seals on these pipes.

Possible configurations are shown below:

Continued insulation		Local insulation	
Continued sustained	Continued interrupted	Local sustained	Local interrupted
			

7. Permitted Insulation Materials

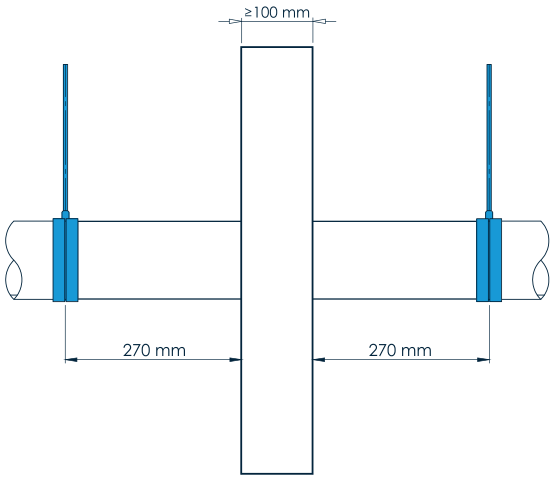
Multiwrap, Fire Wrap has been extensively tested with a number of insulation materials; the table below shows the permitted insulation materials. For principle details, refer to the Multiselector and our ETA report: 16/0564.

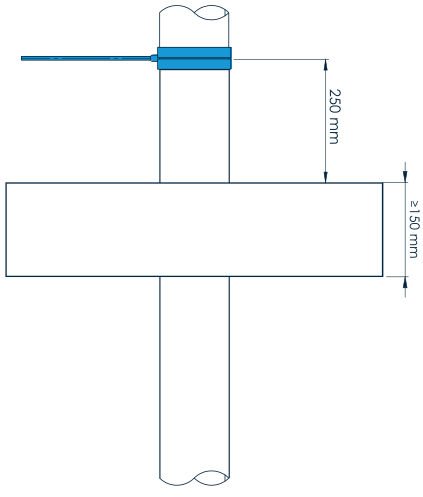
Insulation type	Pipe type	Permitted[1]
Elastomeric insulaion *Fire class B_L-s3, d0 or B-s3, d0,* *In accordance with EN 13501-1*	✓ Multilayer pipes ✓ Copper pipes ✓ (Stainless) steel pipes ✓ Cast iron pipes	✓ AF/Armaflex ✓ SH/Armaflex ✓ Kaiflex ST ✓ Kaiflex KK plus s2 ✓ K-Flex EC ✓ K-Flex EC AD ✓ K-Flex EC ✓ K-Flex ST ✓ K-Flex ST/SK ✓ K-Flex ST Frigo ✓ K-Flex SRC ✓ K-Flex SRC Eco

[1] *Insulation materials must have at least the same fire class as tested in accordance with EN 13501-1.*

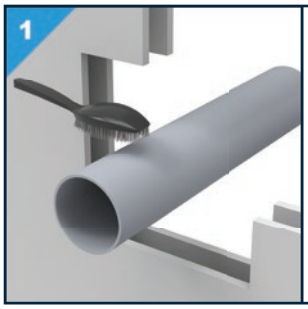
8. Pipe Support Penetrations

Service penetrations must be held in place ≤ 270 mm from the fire partition. With floors, the covering must only be applied at the top of the floor at a distance of ≤ 250 mm.

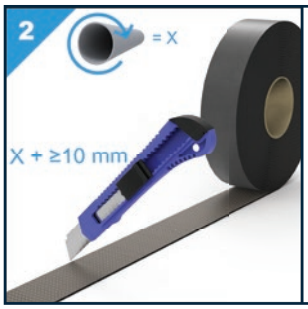




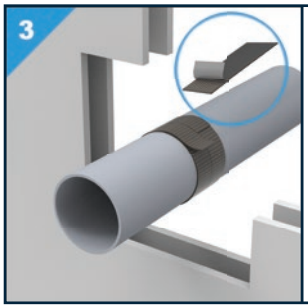
9. Installation Manual



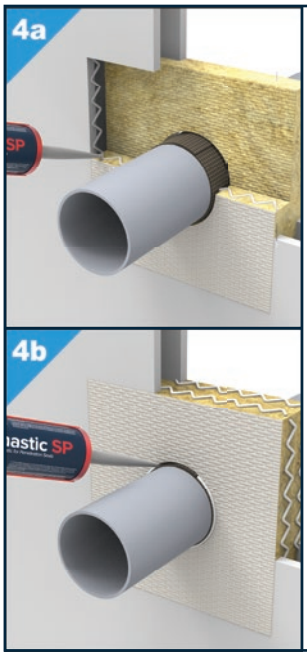
Make sure that the service penetration and the gap are free from dust, dirt and grease.



Measure the circumference of the service penetration and cut the Multiwrap to size with a knife. Remember to keep an extra length of at least 10 mm to create an overlap.



Remove the protective film on the back [1] and wrap the required number of layers of Multiwrap around the service penetration.



Close the remaining gap according to the Multimastic C System or Multimortar System.

Attention:
The Multiwrap may protrude more than 2 mm.

Fill in the conformity statement and paste it next to the fireproof seal.

[1] It is not necessary to remove the protective film to also push the Multiwrap into the correct position.

MultiSelector

Information

For use and for more information about an application, refer to the Mulcol documentation, local and international approvals.

See the **Mulcol Fire Protection app** for the correct application in combination with fire resistance, or use our selector at **www.mulcol.com** For professional use only.

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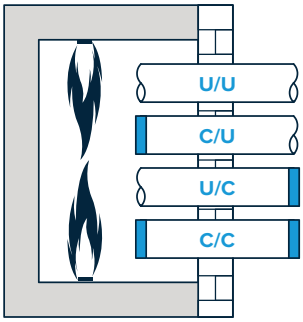
10. Test Configuration

Introduction

The test configuration determines the application of plastic pipes. Before testing a pipeline type, the intended use of the pipeline must be considered. Where will it be used in practice? Standard EN 1366-3:2009 sets requirements in this regard. The end of the pipe must be capped or uncapped, based on this. See the test configuration in table 1 and 2.



In a test, the conditions to which the pipeline and the sealing system are exposed to are determined by asking whether one or both pipe ends are capped in practice. The pressure and flowrate of hot gases will be different in a pipe that is in contact with the outside air than in a capped pipe. It is important to ensure that the sealing system is tested under appropriate conditions.

Table 1 - Test configuration plastic pipes

Test setup	Pipe end		Permitted use			
	In the oven	Outside the oven	U/U	C/U	U/C	C/C
U/U	Uncapped	Uncapped	✓	✓	✓	✓
C/U	Capped	Uncapped	✗	✓	✓	✓
U/C	Uncapped	Capped	✗	✗	✓	✓
C/C	Capped	Capped	✗	✗	✗	✓

Table 2 - Test configuration metal pipes

Test setup	Pipe end		Permitted use		
	In the oven	Outside the oven	U/C	C/U	C/C
U/C *	Uncapped	Capped	✓	✓	✓
C/U	Capped	Uncapped	✗	✓	✓
C/C	Capped	Capped	✗	✗	✓

* U/C tested and therefore U/U is covered

Plastic Pipes

Table H.1 shows a few examples of types of pipes and the intended use, where the end of the pipe is capped or uncapped. The table does not take all possible applications into account. The choice of whether to close the end or leave it open depends on a number of aspects: is the system under pressure and it is ventilated or unventilated? Consider the intended use of the pipe to determine whether it should be capped or left uncapped. If national regulations set different requirements than those contained in table H1, follow the regulations.

Table H.1 - Plastic Pipe Test Configuration per Application

Type of pipe	Pipe end		Test setup
	In the oven	Outside the oven	
Rainwater drainage	Uncapped	Uncapped	U/U
Sewage, Ventilated	Uncapped	Uncapped	U/U
Sewage, Unventilated	Uncapped	Capped	U/C
Gas pipe, drinking water pipe, hot water pipe	Uncapped	Capped	U/C

There is no application for a plastic pipe penetration with a test classification of C/U or C/C, according to table H.1 from EN 1366-3.

Metal Pipes

Metal pipes will normally be closed in the furnace as no open end is to be expected in the event of a fire, this due to the melting away of metal. Herewith is assumed that the suspension system remains in place. If the pipes are supported by a non fire resistant suspension system or are waste disposal shafts, the pipes are not sealed in the furnace, as shown in Table H.2.

Table H.2 - Test Configuration Metal Pipe by Application

Type of pipe	Construction		Test setup
	In the oven	Outside the oven	
Supported by a fire resistant[a] suspension	Capped	Uncapped	C/U
Supported by a non fire resistant suspension system	Uncapped	Capped	U/C
Shafts for waste disposal	Uncapped	Capped	U/C

[a]confirmed by testing or calculations (e.g. Eurocodes)

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11. Building Element Properties

Flexible walls

The minimum wall thickness must be 100 mm and the wall must consist of steel or wooden posts* with at least 2 layers of cladding on both sides with a thickness of 12.5 mm. Can also be used with fire-stopping stone wool boards, 2 x 50 mm Multimastic FB1, maximum seal size: unlimited width x 1200 mm height (uninterrupted partition styles required, with a centre distance of up to 2400 mm).

Rigid walls

The minimum wall thickness is 100 mm and the wall must consist of concrete, aerated concrete or brickwork, with a minimum density of 650 kg/m^3. Can also be used with fire-stopping stone wool, 2 x 50 mm Multimastic FB1, maximum seal size: unlimited width x 1200 mm height.

Rigid floors

The minimum floor thickness is 150 mm and the floor must consist of concrete or aerated concrete, with a minimum density of 650 kg/m^3. Can also be used with fire-stopping stone wool boards, 2 x 50 mm Multimastic FB1, maximum seal size: 2400 x 1200 mm (w x h).

**There must be a minimum distance of 100 mm from each part of the conduit seal to a wooden post and the gap between the conduit seal and the post must be capped. The cavity between the conduit seal and the post must have at least 100 mm class A1 or A2 insulation (according to EN 13501-1).*

The support structure must be classified in accordance with EN 13501-2 for the specified fire resistance

12. Available Documents

Technical documents

- ✓ Product Data Sheet (PDS)
- ✓ Technical Data Sheet (TDS)
- ✓ Safety Data Sheet (SDS)
- ✓ Installation Manual
- ✓ EC certificate

Approvals

- ✓ Tested in accordance with EN 1366-3
- ✓ Classification in accordance with EN 13501-2
- ✓ Certified in accordance with EAD 350454-00-1104/1106
- ✓ ETA report 16/0564
- ✓ Declaration of Performance (DoP)

The above documents are available from your Mulcol contact person or via www.mulcol.com

MultiSelector

For help in finding the right fire-retardant finish for penetrations, see our **Multiselector** at **www.mulcol.com** or download the Mulcol Fire Protection App in the **App Store** (iOS) or **Google Play Store** (Android).

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