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European Technical Assessment

ETA 16/0474 of 18/06/2021

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:	Technical and Test Institute for Construction Prague
Trade name of the construction product	**MCT Brattberg multi cable and pipe transit type RGP modular system**
Product family to which the construction product belongs	**Fire stopping modular cable and pipe penetration sealing system**
Holder of the assessment	**MCT BRATTBERG AB Lyckeåborg 37192 Karlskrona Sweden**
Manufacturing plant	**MCT BRATTBERG AB Lyckeåborg 37192 Karlskrona Sweden**
This European Technical Assessment including 3 annexes contains	22 pages
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European assessment document (EAD) No. 350454-00-1104 Fire stopping and fire sealing products Penetration seals
This version replaces	ETA 16/0474 of 23.04.2018

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II Specific part

1 Technical description of the product (definition of the product)

This European technical assessment applies to the fire stopping modular multi cable penetration sealing system with designation MCT Brattberg multi cable and pipe transit type RGP modular system.

Figure No. 1: MCT Brattberg multi cable and pipe transit type RGP modular system

The RGP system consists of a round rubber (Lycron) frame and rubber (Lycron) blocks.

The system is assembled in sleeves, drilled or cast holes and packed with standard insert rubber blocks suited to each cable/pipe dimension. The hardware is available in 316L acid proof stainless steel, galvanized mild or austenitic stainless steel.

RGPO is RGP with an open side intended for installation in holes where cables have already been pulled.

Compression bolts are tightened to compress the rubber blocks against cables to establish a tight seal.

Figure No. 2: The RGP plug is a seal for installing in holes or pipes.

Figure No. 3: The RGPO plug is an openable RGP frame.

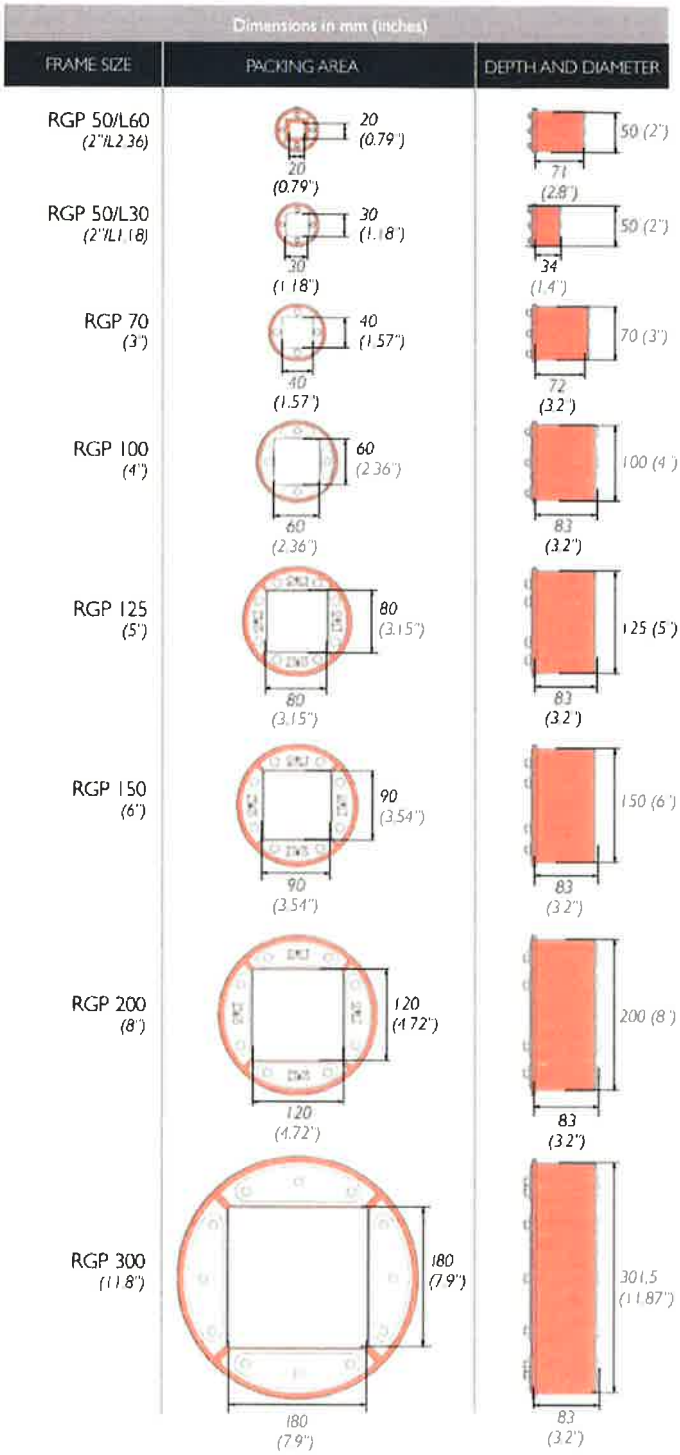


Figure No. 4: Manufactured sizes of Lycron frames.

Weight in kilograms	
RGP 50/L60	0,25
RGP 50/L30	0,11
RGP 70	0,4
RGP 100	0,7
RGP 125	1,0
RGP 150	1,8
RGP 200	3,0
RGP 300	7,5

Figure No. 5: Weight of Lycron frames.

Sleeves for RGP frames

The sleeves are available in seven sizes, for welding, casting or bolting to the structure. The standard materials are mild steel, stainless steel and aluminium. Sleeves (SFRB = sleeve with round flange for bolting) are also available in an open version (SFRBO).

Figure No. 6: Sleeves for RGP frames.

For the types and dimensions of sleeves for RGP frame see Figures No. 7-8

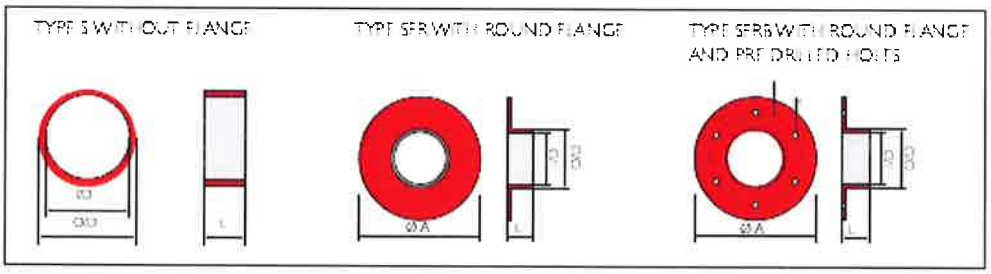


Figure No. 7: Types of sleeves for RGP frames.

Type S without flange							
Type/Dimension	O/D mm	L mm	Weight kg	Type/Dimension	O/D inch	L inch	Weight lbs
S 50/L30	63	35	0,3	32"/L 1.18	2.5	1.2	0.7
S 50/L60	63	70	0,6	32"/L 2.36	2.5	2.8	1.3
S 70	83	70	0,8	S-3	3.52	3.2	1.8
S 100	114	82	1,3	S-4	4.55	3.2	1.8
S 125	139	82	1,6	S-5	5.55	3.2	1.8
S 150	164	82	1,9	S-6	6.55	3.2	1.8
S 200	214	82	2,6	S-8	8.55	3.2	1.8
S 300	316	85	4,5	S-11.8	12.44	3.4	9.9

Type SFR and SFRB with round flange													
Type/Dimension	O/D mm	L mm	A mm	E mm	Weight kg	Qty of holes	Type/Dimension	O/D inch	L inch	A inch	E inch	Weight lbs	Qty of holes
SFR/SFRB 50/L30	63	38	145	9	0.9	4	SFR/SFRB 2"/L 1.18	2.48	1.5	6	0.35	2.0	4
SFR/SFRB 50/L60	63	73	145	9	1.2	4	SFR/SFRB 2"/L 2.36	2.48	2.9	6	0.35	2.6	4
SFR/SFRB 70	83	74	185	9	2,1	4	SFR/SFRB 3"	3.27	2.9	7.5	0.35	4.6	4
SFR/SFRB 100	114	86	215	9	2,9	4	SFR/SFRB 4"	4.49	3.4	8.5	0.35	6.4	4
SFR/SFRB 125	140	86	240	9	3,7	4	SFR/SFRB 5"	5.51	3.4	9.5	0.35	8.2	4
SFR/SFRB 150	164	86	264	11	4,2	6	SFR/SFRB 6"	6.46	3.4	10.5	0.43	9.3	6
SFR/SFRB 200	214	86	315	11	5,1	6	SFR/SFRB 8"	8.43	3.4	12.5	0.43	11.2	6
SFR/SFRB 300	316	89	398	11	8,5	10	SFR/SFRB 11.8"	12.44	3.5	15.7	0.43	18.7	10

Figure No. 8: Dimensions regarding the type of sleeves for RGP frames.

Insert blocks manufactured from Lycron (synthetic polymer)

a) Standard blocks

Each block consists of two halves which together creates a square shaped 60 mm sealing insert.

There are seven sizes of the standard blocks: 15; 20; 30; 40; 60; 90 and 120 mm

It is important that the block is the right size with respect to the cable/pipe to ensure a proper seal. It is necessary to measure the cable/ pipe diameters carefully and choose insert blocks accordingly.

Blocks are referred to by their width (A) and hole diameter (B).

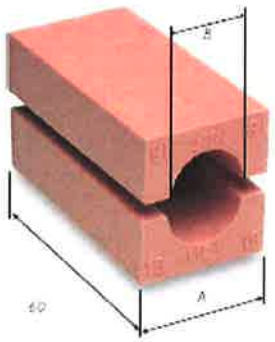


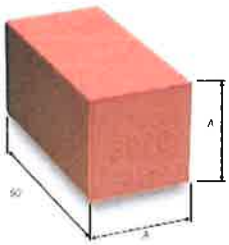
Figure No. 9: Standard block

For an overview of standard block see Annex No. 1.

b) Spare blocks

Spare blocks are used for filling of unused space in the frame. Using the spare blocks allows the option of fitting new cable or pipe in the future.

Sizes: 5; 10; 15; 20; 30; 40 and 60 mm



BLOCK SIZE Width (A) × Height (A)	BLOCK DESIGNATION
5 x 5 Only in strips of 24 pcs	24 x 5/0
10 x 10 Only in strips of 12 pcs	12 x 10/0
15 x 15	15/0
20 x 20	20/0
30 x 30	30/0
40 x 40	40/0
60 x 60	60/0
90 x 30	90 x 30/0

Figure No. 10: Spare block

Spare blocks are denoted A/0→ A = width/height; 0 =solid.

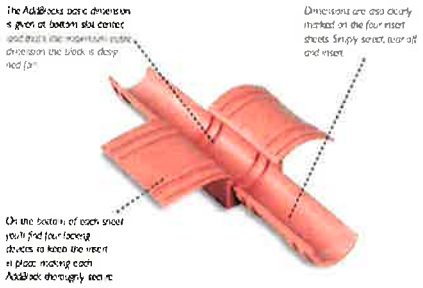
The length of all spare blocks is 60 mm.

c) Add blocks

Add blocks are all the same length (60 mm) as standard blocks.

The width are 20; 30; 40; 60 or 90 mm.

By tearing off the wing – like inserts and inserting them in the main block it is possible to accommodate different cable and pipe dimensions from 3.5 mm to 69.5 mm.



ADDBLOCK DIMENSION	CABLE OR PIPE DIMENSION	WEIGHT PER HALF (G)
20/4 - 8	3.5 - 8.5*)	23*)
20/9 - 13	8.5 - 13.5	23
30/14 - 18	13.5 - 18.5	45
30/19 - 23	18.5 - 23.5	43
40/24 - 28	23.5 - 28.5	71
40/29 - 33	28.5 - 33.5	62
60/34 - 38	33.5 - 38.5	150
60/39 - 43	38.5 - 43.5	136
60/44 - 48	43.5 - 49.5	128
90/50 - 58	49.5 - 59.5	348
90/60 - 68	59.5 - 69.5	318

*) A =20 mm B =4 - 8 mm

Figure No. 11: Add blocks´ dimensions, weight and suitable cable or pipe dimensions.

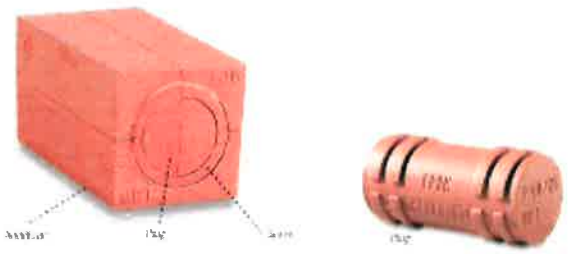
d) Plugs and wraps(sleeves)

Plugs and wraps are used to convert an Add block into a spare block.

Wraps are used to extend the diameter of a plug to suit the bigger type of each Add block size.

Plugs are used mainly as a preparation for future cable drawing where they together with Add blocks form a spacer. When the cables are eventually drawn the plugs are removed and Add blocks are reused.

Plugs and wraps are available from Add block size 20 to 60 mm.

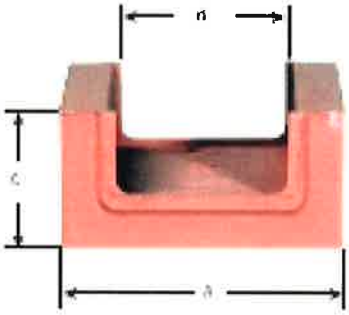


ADDBLOCK	PLUG	SLEEVE
20/4 - 8	P 20/8	
20/9 - 13	P 20/8 +	W 20/8 13
30/14 - 18	P 30/18	
30/19 - 23	P 30/18 +	W 30/18 23
40/24 - 28	P 40/28	
40/29 - 33	P 40/28 +	W 40/28 33
60/34 - 38	P 60/38	
60/39 - 43	P 60/38 +	W 60/38 43
60/44 - 48	P 60/38 +	W 60/38 43 and W 60/43 48

Figure No. 12: Add block consisted of a plug and a sleeve. Overview of plug/combination of plug and wrap-around casing to use when turning an Add block into a Spare block.

e) U-Block

The U-Block is used to convert the external dimensions of Insert blocks, Add blocks and Spare blocks to the next modular size.



Dimensions in mm			
U-BLOCK	A	B	C
U-30	30	20	15
U-40	40	30	20
U-60	60	40	30
U-90	90	60	45
U-120	120	90	45

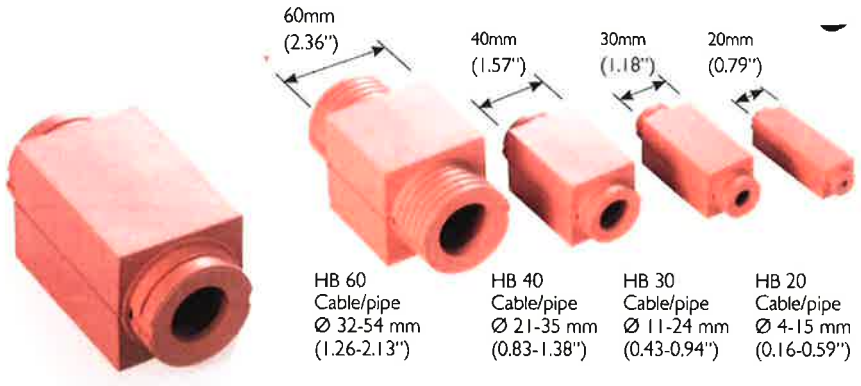
Figure No. 13: Dimensions of U-Blocks

f) HandiBlock

The HandiBlock is designed to facilitate instalallation and minimize errors, allowing corrections of errors and conseqently minimazation of wastage.

The HandiBlock is safe, flexible and easy-to install insert block. HandiBlock is available in four sizes to fit cables/pipes or tubing from 4 to 54 mm. A Handiblock consist of two half mainblocks and two insert strips consisting of many compressed rings in different sizes. Every compression ring in the insert strip has a clear marking to indicate different cable/pipe diameters for a safe and quick installation. This means that all parts can be reused when repacking.

By installing a HandiPlug (see Figure No. 15) in the HandiBlock, you can quickly and easily create a spare block. This spare can later be opened and easily adjusted for new cable/pipes.



Size		HandiBlock complete with Plug		HandiBlock without Plug		Plug		Mainblock		Insert Strip	
mm	(inches)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)
20	0.79	37	1.31	32	1.13	5	0.18	22	0.78	10	0.35
30	1.18	90	3.17	73	2.57	17	0.60	46	1.62	27	0.95
40	1.57	150	5.29	117	4.13	33	1.16	72	2.54	44	1.55
60	2.36	382	13.58	300	10.58	85	3.00	155	5.47	144	5.08

Figure No. 14: HandiBlock

Figure No. 15: HandiPlug

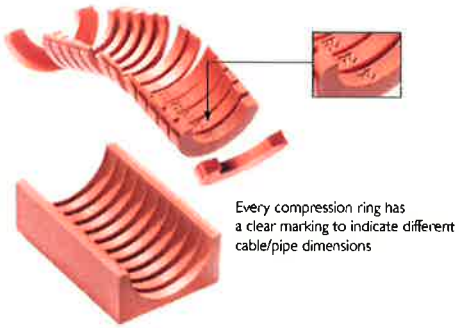


Figure No. 16: Compression ring

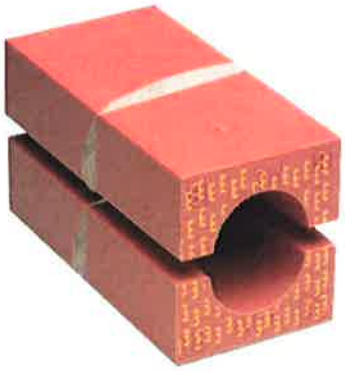
g) **E-insert blocks (EMC) manufactured from Lycron**
E-Standard Block

Each E-block consists of two halves which together creates a square shaped 60 mm sealing insert.

The E-Block has an integral copper sheet as discharging and shielding protection between the cable and the system. There are 2 different designs of copper sheets, one for outer cable diameters up to 10 mm and one for outer cable diameters over 10 mm. The sheet is 0,3 mm thick.

There are seven sizes of the standard block: 15, 20, 30, 40, 60, 90, 120 mm.

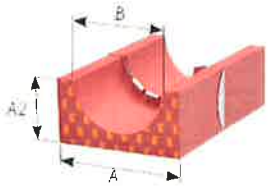
It is important that the block is the right size with respect to the cable to ensure a proper seal. It is necessary to measure the cable diameters carefully and choose insert blocks accordingly.



E-Block Size in mm

CABLE DIAM.	A			B
	15	20	30	
35-45	E-15/4	E-20/4		4
45-55	E-15/5	E-20/5		5
55-65	E-15/6	E-20/6		6
65-75	E-15/7	E-20/7		7
75-85	E-15/8	E-20/8		8
85-95	E-15/9	E-20/9		9
95-105		E-20/10		10
105-115		E-20/11		11
115-125		E-20/12	E-30/12	12
125-135		E-20/13	E-30/13	13
135-145		E-20/14	E-30/14	14
145-155			E-30/15	15
155-165			E-30/16	16
165-175			E-30/17	17
175-185			E-30/18	18
185-195			E-30/19	19
195-205			E-30/20	20
205-215			E-30/21	21

CABLE DIAM.	A			B
	30	40	60	
215-225	E-30/22	E-40/22		22
225-235	E-30/23	E-40/22		23
235-255	E-30/24	E-40/24		24
255-275		E-40/26		26
275-295		E-40/28		28
295-315		E-40/30		30
315-335		E-40/32	E-60/32	32
335-355		E-40/34	E-60/34	34



Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 15 mm and a hole diameter of 4 mm is referred to as E 15/4.

CABLE DIAM.	A		B
	60	90	
355-375	E-60/36		36
375-395	E-60/38		38
395-415	E-60/40		40
415-435	E-60/42		42
435-455	E-60/44		44
455-475	E-60/46		46
475-495	E-60/48		48
495-515	E-60/50	E-90/50	50
515-535	E-60/52	E-90/52	52
535-555	E-60/54	E-90/54	54
555-575		E-90/56	56
575-595		E-90/58	58
595-615		E-90/60	60
615-635		E-90/62	62
635-655		E-90/64	64
655-675		E-90/66	66
675-695		E-90/68	68
695-715		E-90/70	70

Figure 17: E-Block´s dimensions

E-Spare Blocks

Spare Blocks are used for filling of unused space in the frame. Using E-spare blocks allows the option of fitting new cables in the future. The E-Spare Block has an integral 0,3 mm thick copper sheet as discharging and shielding protection between the cable and the system.

Sizes: 5, 10, 15, 20, 30, 40, and 60 mm.

E-BLOCK SIZE Width (A) = Height (A)	E-BLOCK DESIGNATION
5 x120	E-24 x 5/0
10 x120	E-12 x 10/0
15 x 15	E-15/0
20 x 20	E-20/0
30 x 30	E-30/0
40 x 40	E-40/0
60 x 60	E-60/0

Figure 18 E-Spare Block´s dimensions

E-Add Blocks

E-Add Blocks have the same length (60 mm) as standard blocks.

The width is 20, 30, 40, 60, or 90 mm.

By tearing of the wing – like inserts and inserting them in the main block it is possible to accommodate different cable and pipe dimensions from 3.5 mm to 69.5 mm.

The E-Add block has an integral copper sheet as discharging and shielding protection between the cable and the system. There are 2 different designs of copper sheets, one for outer cable diameters up to 10 mm and one for outer cable diameters over 10 mm. The sheet is 0,3 mm thick.

E-ADDBLOCK DIMENSION	CABLE OR PIPE DIMENSION	WEIGHT PER HALF (G)
E-20/4 - 8	3.5 - 8.5	23
E-20/9 - 13	8.5 - 13.5	23
E-30/14 - 18	13.5 - 18.5	45
E-30/19 - 23	18.5 -23.5	43
E-40/24 - 28	23.5 - 28.5	71
E-40/29 - 33	28.5 - 33.5	62
E-60/34 - 38	33.5 -38.5	150
E-60/39 - 43	38.5 - 43.5	136
E-60/44 - 48	43.5 - 49.5	128
E-90/50 - 58	49.5 - 59.5	348
E-90/60 - 68	59.5 - 69.5	318

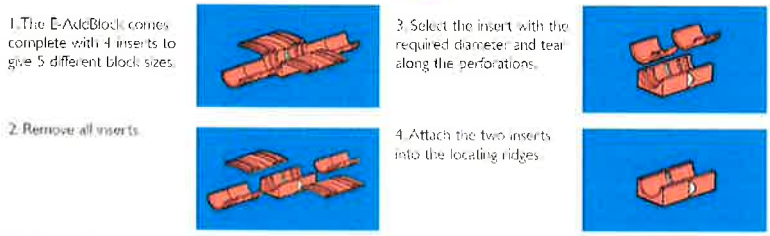


Figure 19 *E-add blocks dimensions*

E-PTG Presswedge

PTG Presswedge can be placed anywhere in the frame. It is made of Lycron, with stainless steel fitting.

The 0,3 mm copper sheet forms a contact between the frame and the Stayplate. E-PTG shall always be installed in a combination with Stayplate. Available in 120 mm or 60 mm width and with 6mm Allen or 13mm hexagon key grip.

Figure 20: E-PTG Presswedge

Lubricant

MCT Brattberg Lubricant consists of pure beef tallow. It is used to improve the system´s water and gas tightness and shall be applied on all Lycron parts sealing surfaces when such demands exist.

Thermal insulation

Used mineral wool shall comply with requirements of harmonised standard EN 13162 or EN 14303 and shall be CE marked.

Density: min. 35 kg/m^3

Thickness : 150 mm

Supporting construction

Detailed information about the supporting construction can be found in the Annex No. 3.

The ancillary products referred to in this ETA as a part of installation provisions or in the framework of determining performances (e.g. fire resistance) are not covered by this ETA and may not be CE-marked separately on the basis of this ETA.

Concerning packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

All mounting and fixing details shall be executed according to the manufacturer´s installation manual.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

This ETA covers fire stopping modular penetration sealing system intended as a penetration seal which is used to maintain the fire resistance of a separating element at the position where services pass through.

Details of the supporting constructions and cables are shown in Annex No. 3.

Use category related to the type of environmental conditions according to EAD No. 350454-00-1104:

- Type X (Intended for use in conditions exposed to weathering) for the system with components of 316L acid proof stainless steel, austenitic stainless steel or galvanized mild steel

Note: Products that meet requirements for type X, meet the requirements for all other types (Y_1;Y_2; Z_1 and Z_2)

- Type Z_2 (Intended for uses in internal conditions with humidity lower than 85% RH, excluding temperatures below 0°C) for the system with components of coated mild steel and aluminium, copper

The ETA is issued for the abovementioned products on the basis of agreed data/information, deposited with the Technical Assessment Body - Technical and Test Institute for Construction Prague, which identifies the products that have been assessed.

2.2 Assumed working life

Provisions made in this European Technical Assessment are based on an assumed intended working life of 25 years, provided that the assembled product is subject to appropriate use and maintenance in accordance with this ETA.

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

3 Performance of the products and references to the methods used for their assessment

Characteristics stated below are applicable to all combinations of materials, components and dimensions described in this European Technical Assessment.

The service support construction shall be fixed on both sides of the penetration in such a manner that in case of fire no additional load is imposed on the seal. Furthermore, it is assumed that this support is maintained for the required period of fire resistance.

Table No. 1: Essential characteristics

No	Essential characteristic and method of verification and assessment	Expression of product performance
Basic Works Requirement 1: Mechanical resistance and stability		
Not relevant		
Basic Works Requirement 2: Safety in case of fire		
1	**Reaction to fire** (Cl. 2.2.1 of EAD No. 350454-00-1104)	Class E
2	**Resistance to fire** (Cl. 2.2.2 of EAD No. 350454-00-1104)	See Annex No. 2-3
Basic Works Requirement 3: Hygiene, health and environment		
3	**Air permeability** (Cl. 2.2.3 of EAD No. 350454-00-1104)	No performance assessed
4	**Water permeability** (Cl. 2.2.4 of EAD No. 350454-00-1104)	No performance assessed
5	**Content, emission and/or release of dangerous substances** (Cl. 2.2.5 of EAD No. 350454-00-1104) Release scenarios: IA1, IA2 and S/W2	No performance assessed
Basic Works Requirement 4: Safety and accessibility in use		
6	**Mechanical resistance and stability** (Cl. 2.2.6 of EAD No. 350454-00-1104)	No performance assessed
7	**Resistance to impact/movement** (Cl. 2.2.7 of EAD No. 350454-00-1104)	No performance assessed
8	**Adhesion** (Cl. 2.2.8 of EAD No. 350454-00-1104)	No performance assessed
9	**Durability** (Cl. 2.2.9 of EAD No. 350454-00-1104)	Use category X for the system with components made of 316L acid proof stainless steel, austenitic stainless steel or galvanized mild steel Use category Z_2 for the system with components made of coated mild steel or aluminium
Basic Works Requirement 5: Protection against noise		
10	**Airborne sound insulation** (Cl. 2.2.10 of EAD No. 350454-00-1104)	No performance assessed

No	Essential characteristic and method of verification and assessment	Expression of product performance
Basic Works Requirement 6: Energy economy and heat retention		
11	**Thermal properties** (Cl. 2.2.11 of EAD No. 350454-00-1104)	No performance assessed
12	**Water vapour permeability** (Cl. 2.2.12 of EAD No. 350454-00-1104)	No performance assessed

All components of the system were clearly indentified according to Cl. 2.2 of EAD No. 350454-00-1104 and the received data are confidential and are deposited by TZÚS Praha, s.p..

Basic durability assessment of the system components was performed and the received data are confidential and are deposited by TZÚS Praha, s.p.. Expression of basic durability assessment of the system is stated above in the Table No. 1.

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

4.1. Assessment and verification of constancy of performance (AVCP) system

According to the decision 1999/454/EC of the European Commission as amended, the assessment and verification of constancy of performance **system 1** applies.

In addititon, according to the decision 1999/454/EC of the European Comission, as amended, the assessment and verification of constancy of performance system **4** applies with regard to reaction to fire.

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

In order to help the notified body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

2) Basic manufacturing process

The basic manufacturing process is described in sufficient details to support the proposed FPC methods.

3) Product and materials specifications

The manufacturer's documentation includes:

- detailed description of the components of the kit,
- incoming (raw) materials specifications and declarations,
- references to European and/or international standards,
- technical and safety data sheets of the products.

4) Control Plan (as a part of FPC)

The manufacturer and the Technical and Test Institute for Construction Prague have agreed a Control Plan which is deposited with the Technical and Test Institute for Construction Prague in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacturing process on properties that cannot be inspected at a later stage and for checks on the final product.

It must be demonstrated to the notified body that the FPC system contains elements securing that the manufacturer of the final product use during the manufacturing process only products from his supplier(s) which conform to the Control Plan.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the notified body shall withdraw the certificate and inform the Technical and Test Institute for Construction Prague without delay.

Issued in Prague on 18.06.2021

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p. Technical and Test Institute for Construction Prague, SOE ZÚS Czech Republic Technical Assessment Body Subjekt pro technické posuzování

By
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Head of the department Technical Assessment Body

Annexes:

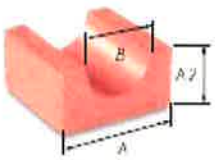
Annex No. 1: Overview of standard blocks (size in mm, weight)
Annex No. 2: Overview of resistance to fire classification according to EN 13501-2(protection of electrical services - cables)
Annex No. 3: Overview of resistance to fire classification according to EN 13501-2 (protection of mechanical services - pipes)

Annex No. 1: Overview of standard blocks (size in mm, weight)

Size in mm

CABLE DIAM.	A				B
	15	20	30	40	
3.5 4.5	15/4	20/4			4
4.5 5.5	15/5	20/5			5
5.5 6.5	15/6	20/6			6
6.5 7.5	15/7	20/7			7
7.5 8.5	15/8	20/8			8
8.5 9.5	15/9	20/9			9
9.5 10.5		20/10			10
10.5 11.5		20/11			11
11.5 12.5		20/12	30/12		12
12.5 13.5		20/13	30/13		13
13.5 14.5		20/14	30/14		14
14.5 15.5			30/15		15
15.5 16.5			30/16		16
16.5 17.5			30/17		17
17.5 18.5			30/18		18
18.5 19.5			30/19		19
19.5 20.5			30/20		20
20.5 21.5			30/21		21
21.5 22.5			30/22	40/22	22
22.5 23.5			30/23	40/23	23
23.5 24.5			30/24	40/24	24
24.5 25.5				40/24	24

CABLE DIAM.	A			B
	40	60	90	
25.5 27.5	40/26			26
27.5 29.5	40/28			28
29.5 31.5	40/30			30
31.5 33.5	40/32	60/32		32
33.5 35.5	40/34	60/34		34
35.5 37.5		60/36		36
37.5 39.5		60/38		38
39.5 41.5		60/40		40
41.5 43.5		60/42		42
43.5 45.5		60/44		44
45.5 47.5		60/46		46
47.5 49.5		60/48		48
49.5 51.5		60/50	90/50	50
51.5 53.5		60/52	90/52	52
53.5 55.5		60/54	90/54	54



Blocks are referred to by their width(A) and hole diameter (B). Thus a module with a width of 15 mm and a hole diameter of 4 mm is referred to as 15/4.

CABLE DIAM.	A		B
	90	120	
55.5 57.5	90/56		56
57.5 59.5	90/58		58
59.5 61.5	90/60		60
61.5 63.5	90/62		62
63.5 65.5	90/64		64
65.5 67.5	90/66		66
67.5 69.5	90/68		68
69.5 71.5	90/70		70
71.5 73.5		120/72	72
73.5 75.5		120/74	74
75.5 77.5		120/76	76
77.5 79.5		120/78	78
79.5 81.5		120/80	80
81.5 83.5		120/82	82
83.5 85.5		120/84	84
85.5 87.5		120/86	86
87.5 89.5		120/88	88
89.5 91.5		120/90	90
91.5 93.5		120/92	92
93.5 95.5		120/94	94
95.5 97.5		120/96	96
97.5 99.5		120/98	98
99.5 101.5		120/100	100

Other block sizes can be manufactured on request.

Weight in grams per half

BLOCK	WEIGHT	BLOCK	WEIGHT	BLOCK	WEIGHT	BLOCK	WEIGHT	BLOCK	WEIGHT
24 x 5/0	58	20/6	17	30/19	28	60/42	104	120/72	494
12 x 10/0	113	20/7	17	30/20	27	60/44	98	120/74	485
15/0	70	20/8	16	30/21	25	60/46	91	120/76	472
20/0	58	20/9	15	30/22	24	60/48	84	120/78	462
30/0	84	20/10	14	30/23	22	60/50	77	120/80	448
40/0	150	20/11	13	30/24	21	60/52	69	120/82	437
60/0	338	20/12	13	40/22	52	60/54	61	120/84	425
90x30/0	279	20/13	12	40/24	54	90/50	287	120/86	415
15/4	10	20/14	11	40/26	50	90/52	279	120/88	403
15/5	10	30/12	36	40/28	47	90/54	273	120/90	385
15/6	10	30/13	36	40/30	42	90/56	267	120/92	368
15/7	10	30/14	35	40/32	37	90/58	255	120/94	360
15/8	9	30/15	34	40/34	32	90/60	243	120/96	351
15/9	8	30/16	33	60/32	151	90/62	239	120/98	337
20/4	18	30/17	31	60/34	127	90/64	229	120/100	313
20/5	18	30/18	30	60/36	122	90/66	220	120/108	243
				60/38	116	90/68	211		
				60/40	110	90/70	204		

Annex No. 2: Overview of resistance to fire classification according to EN 13501-2 (protection of electrical services - cables)

Services: Penetration shall be composed of electric services only. Mixing types of services is not allowed. The distance between services shall be at least equal to 200 mm.
Orientation: horizontal and vertical support

1) Resistance to fire classification regarding to supporting constructions

a) Supporting construction:
aerated concrete wall of thickness 150 mm and density 550 kg/m^3

Table No. 1:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Embedded and placed front-flush on non-exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120
		A2		120	120
		D2		120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 2:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Embedded and placed front-flush on exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120
		A2		120	120
		D2		120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 3:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Embedded and placed front-flush on exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120
		A2		120	120
		C2		120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 4:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Embedded and placed front-flush on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 5:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Embedded and placed front-flush on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 6:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Embedded and placed front-flush on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 7:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Embedded and placed front-flush on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	120	120

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

b) Supporting construction:
98/48 plasterboard partition with double layer of standard BA 13 and rock wool inner insulation of thickness 45 mm and density 40 kg/m^3
Table No. 8:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on non- exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	60	60
		A2		60	60
		C2		60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 9:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	60	60
		A2		60	60
		C2		60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 10:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 125	Screwed on non-exposed side	A3	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	60	60
		C3		60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 11:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 125	Screwed on exposed side	A3	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	60	60
		C3		60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*

Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 12:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Embedded and places front-flush on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 13:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Embedded and places front-flush on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 14:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Embedded and places front-flush on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 15:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Embedded and places front-flush on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on non-exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 16:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 100	Embedded and places front-flush on non-exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3	60	60
		A3	Thermal insulation placed on exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

Table No. 17:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 100	Embedded and places front-flush on exposed side	A1	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3	60	60
		A3	Thermal insulation placed on non-exposed side	60	60

Notes: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non -sheathed cables. Optical cables are covered.

c) Supporting construction:
aerated concrete wall of thickness 150 mm and density 550 kg/m^3

Table No. 18:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120
		F		120	120
		D2		120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 19:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on non- exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120
		F		120	120
		D2		120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*

Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 20:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Screwed on exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 21:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-20	Screwed on non-exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 22:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Screwed on exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 23:

Modular system	Position in supporting construction	Cables*	Thermal protection	Classification	
				E	EI
RGP 50-30	Screwed on non-exposed side	A2	150 mm of rockwool Thickness:150 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 , apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

d) Supporting construction:
Aerated concrete slab of thickness 200 mm and density 550 kg/m^3
Table No. 24:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120
		F		120	120
		D2		120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 25:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 200	Screwed on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120
		F		120	120
		D2		120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 26:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 50-20	Screwed on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 27:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 50-20	Screwed on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 28:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 50-30	Screwed on exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

Table No. 28:

Modular system	Position in supporting construction	Cables *	Thermal protection	Classification	
				E	EI
RGP 50-30	Screwed on non-exposed side	A2	150 mm of rockwool Thickness:45 mm Density: 35 kg/m^3 Thermal insulation placed on exposed side only	120	120

Note: Types of cables according to Table A. 1 of EN 1366-3.*
Standard sheathed cables cover all cable types usually currently and commonly used in building practice in Europe in dimensional limits indicated in Table No. 5 apart from tied bundles, waveguides and non-sheathed cables. Optical cables are covered.

e) Supporting construction:

Horizontal implementation of back-to-back modular system:
- reinforced concrete slabs with a minimal thickness of 300 mm and minimal density of 2200 kg/m^3

Vertical implementation of back-to-back modular system:
- reinforced concrete walls with a minimal thickness 200 mm and minimal density 2200 kg/m^3 – the thickness 200 mm can be composed of 150 mm support construction to which 50 mm of mortar is added on unexposed side to obtain 200 mm thickness

Table No. 29:

Modular system	Orientation	Position in supporting construction	Cables*	Thermal protection	Classification	
					E	EI
RGP 200 For electrical services	Wall (vertically)	Back-to-back	A2, F, D1	No	240	180
	Floor (horizontally)		A2, F, D1		120	120

- *Note:* Types of cables according to Table A. 1 of EN 1366-3.*

More detailed information about the individual resistance to fire classification and mounting details are deposited by the TAB in the relevant classification reports.

Annex No. 3: Overview of resistance to fire classification according to EN 13501-2 (protection of mechanical services - pipes)

Pipes and conduits of reaction to fire class A1 according to EN 13501-1* with a melting or decomposition point greater than 1000°C – metal pipes based on black or stainless steel
Orientation: horizontal and vertical support
Note: *means classification according to EN 13501-1 or classification A1 according to Decision 96/603/EEC as amended or according to a relevant CWFT Decision

1) Resistance to fire classification regarding to supporting constructions

Supporting construction:

Horizontal implementation of modular system:
- reinforced concrete slabs with a minimal thickness of 300 mm and minimal density of 2200 kg/m^3

Vertical implementation of modular system:
- reinforced concrete walls with a minimal thickness 200 mm and minimal density 2200 kg/m^3 – the thickness 200 mm can be composed of 150 mm support construction to which 50 mm of mortar is added on unexposed side to obtain 200 mm thickness

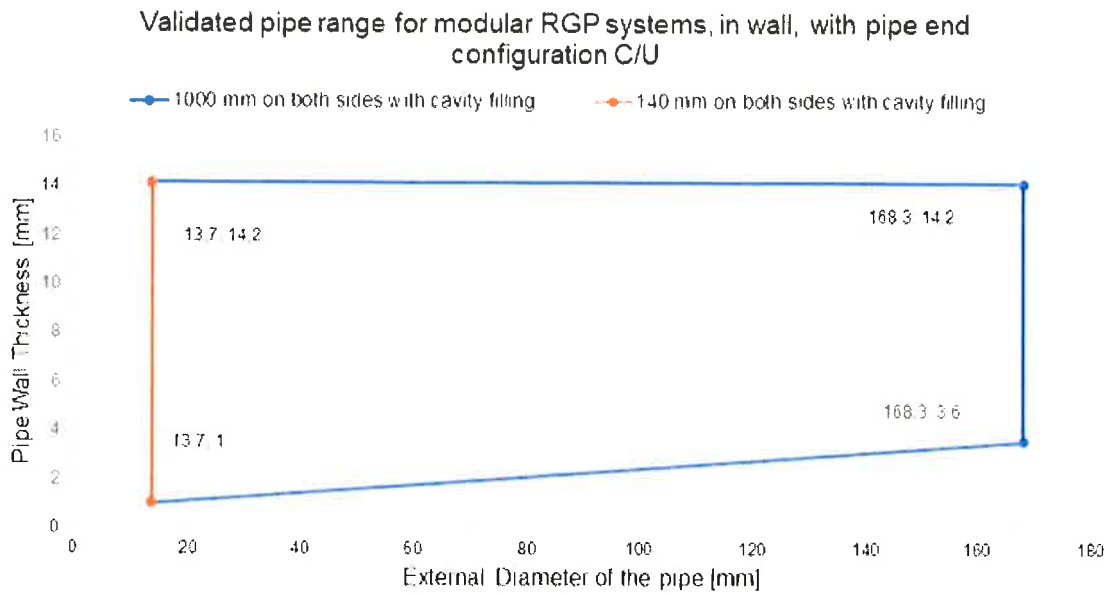
Table No. 1:

Modular system	Orientation	Position in supporting construction	Pipe made of black/stainless steel			Thermal protection Thickness 50 mm Cavity: yes		Classification	
			DN*	$Ø_{ext}$	Thickness [mm]	Fire side	Non fire side	E	EI
RGP 50 For mechanical services	Wall 200 mm (vertically)	Embedded in the thickness of the support construction	8	13.7	1	140	140	180	120
RGP 300 For mechanical services			50	168.3	3.6	1000	1000	180	120
RGP 50 For mechanical services	Floor 300 mm (horizontally)		8	13.7	1	240	240	240	240
RGP 300 For mechanical services			150	168.3	3.6	1000	1000	240	240

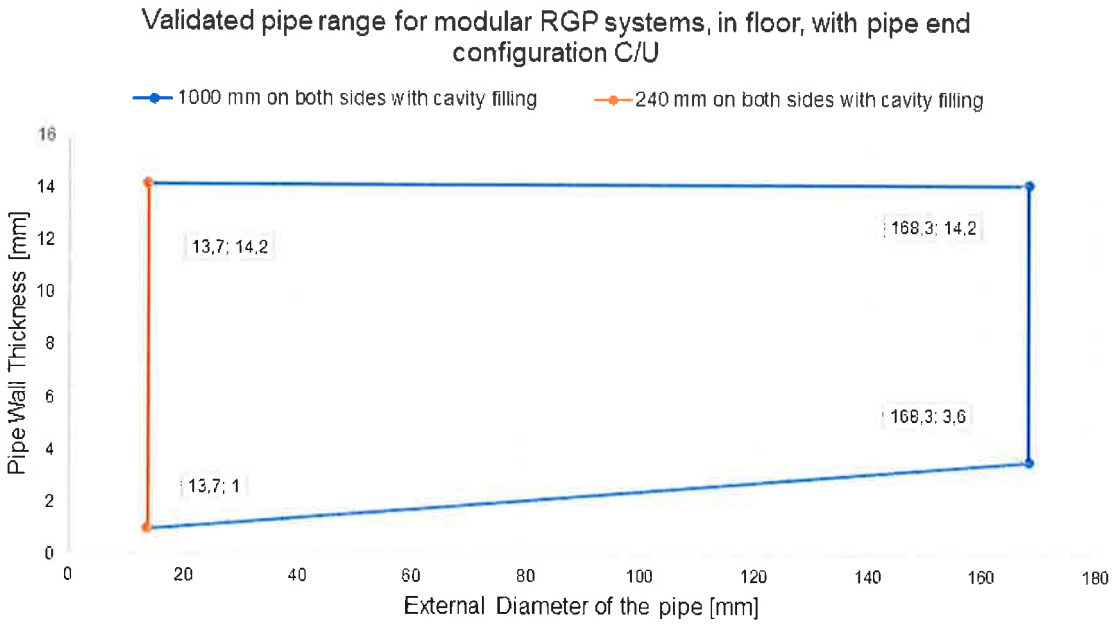
Note:
*DN = nominal diameter

The classification may be interpolated to pipes of the same material, with diameters and wall thicknesss between those tested.

Type of pipe material: Results obtained on a particular pipe material covers pipe materials with a thermal conductivity lower than tested., subject to the material having a melting pint at least equal to that of the material tested or greater than the furnace temperature achieved at the required classification period.



Graph No. 1 : Validated pipe range for modular RGP systems in wall, with pipe end configuration C/U.



Graph No. 2 : : Validated pipe range for modular RGP systems in floor, with pipe end configuration C/U.

Pipe arrangement: Results obtained on aligned tubes do not cover non-aligned tubes (cluster, triangle…) unless the distance between two tubes (or between two cores, if applicable) is greater than 100 mm.

Number of pipes: Results from a multiple penetration seal may be extended to a single penetration seal of the same type but not on the contrary.

Pipe end configuration:
The pipe end configuration is C/U(=Capped/Uncapped), this configuration only covers itself and C/C(=Capped/Capped) configuration.

Pipes fitted with an insulation material having class A1 or A2 according to EN 13501-1 mase from glass wool or stone wool:

Results obtained on insulated pipes does not cover non-insulated pipes. The test conducted on non-insulated pipes covers the integrity criterion of pipes with interrupted insulation (cases LI and CI). The

length of a local insulation may be increased but may not be reduced. The density of the insulation may be increased but may not be reduced. If a single pipe was tested perpendicular to the supporting construction all angles between 90°C and 45°C are covered. If a pipe was tested perpendicular to the supporting construction as well as oblique, the result is valid for each angle between a right-angle and the angle tested.

More detailed information about the individual resistance to fire classifications and mounting details are deposited by the TAB in the relevant classification reports.