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Evaluation Report ETA-17/0700 of 13/09/2017

(English language translation; the original version is in Italian)

GENERAL PART

Trade name of the construction product	**"PIZ CLADDING SYSTEM"**
Product family to which the construction product belongs	**PAC 04: THERMAL INSULATION PRODUCTS VÊTURE KIT – Prefabricated unit for external wall insulation**
Manufacturer	**PIZ S.r.l.** **Via dei Molini 22** **I-23013 Cosio Valtellino (SO) Italy**
Manufacturing plant	**PIZ S.r.l.** **Via dei Molini 22** **I-23013 Cosio Valtellino (SO) Italy**
This Evaluation Report contains:	**15 pages**

Introduction

This Evaluation Report describes the results of the tests that have been carried out to assess the characteristics and performances of Vêture kit "PIZ CLADDING SYSTEM", introduced by PIZ S.r.l., in accordance with the CPR Basic requirements for construction works (BWR) as specified in chapter 5 of the ETA Guidance 017 (called ETAG 017 in the following text) used as EAD (European Assessment Document). All the tests of this assessment have been carried out in accordance with the methods envisaged in ETAG 017.

A. DESCRIPTION OF THE KIT "PIZ CLADDING SYSTEM"

Vêture kit comprises the components described in § 1 of the related ETA, which are factory-produced by the ETA Holder or by his suppliers. The configurations are described in the table below.

Trade name			Total thickness (mm)	Insulation thickness (mm)	Insulation type	Horizontal profile typology used	Size		Horizontal joint		Vertical joint	
							length mm	width mm	0	15	0	15
PIZ CLADDING SYSTEM	PIZ	PIZ STANDARD 54	54	45	EPS	profile of 47 mm	from 300 to 1500	from 400 to 620	yes	yes	yes	yes
		PIZ PLUS	66	57	EPS	profile of 59 mm	from 300 to 1500	from 400 to 620	no	yes	yes	yes
		PIZ H89	89	80	EPS	profile of 81 mm	from 300 to 1500	from 400 to 620	yes	yes	yes	yes
	PIZ ROCK METABIO	PIZ ROCK METABIO STANDARD 54	56	45	MW	profile of 47 mm	from 300 to 1500	from 380 to 620	yes	yes	yes	yes
		PIZ ROCK METABIO H89	91	80	MW	profile of 81 mm	from 300 to 1500	from 380 to 620	yes	yes	yes	yes

Tab. 1: Cladding elements and configurations

B. EVALUATION OF DATA

1. TESTS ON SYSTEM

1.1.1 REACTION TO FIRE of "PIZ" configuration

The reaction to fire tests for both configurations were carried out by CSTB.Cladding system consisting of panels assembled on aluminium horizontal profiles, the whole tested screwed on A2-s1,d0 class fiber-cement substrate.
System consisting of an hydraulic mortar facing reinforced with glass fibers and an E class fire retarded expanded polystyrene core.
Tested versions: "JOINT 0" (vertical joint element between the panels spaced out 1 mm apart carried out by a PVC profile) and "JOINT 15" (vertical joint element between the panels spaced out 15 mm apart carried out by an aluminium profile)
Nominal thickness of the polystyrene insulating material: from 45 to 80 mm.
Nominal thickness of the mortar facing: 8 mm (version "JOINT 15") and 9 mm (version "JOINT 0"). Nominal density of the polystyrene insulating material: 20 kg/m^3.
Nominal density of the mortar facing: 1925 kg/m3.
Colors: grey (polystyrene) and various (facing).

Test method	Product	Number of tests	Parameters	Results
				Compliance parameters
EN ISO 11925-2 30s surface exposure	PIZ (Mortar facing)	6	Fs > 150 mm Filter paper	Not reached Not ignited
EN ISO 11925-2 30s surface exposure	PIZ (Mortar facing)	6	Fs > 150 mm Filter paper	Not reached Not ignited
EN ISO 11925-2 30s edge exposure specimen turned at 90°	PIZ (Polystyrene insulation material)	6	Fs > 150 mm Filter paper	Not ignited Not ignited

Tab. 2: Test results

Test method	Product	Number of tests	Parameters	Results	
				Continuous parameters: mean value	Compliance parameters
EN 13823	PIZ	3	FIGRA $_{0,2MJ}$ (W/s)	0.0	-
			FIGRA $_{0,4MJ}$	0.0	-
			LFS	-	Not reached
			THR_{600s} (MJ)	0.2	-
			SMOGRA (m^2/s^2)	0.0	-
			TSP_{600s} (m^2)	11.0	-
			Flaming droplets or debris	-	None

- means not applicable

Tab. 3: Reaction to fire

Classification : B-s1,d0

Fire behaviour		Smoke production		Flaming droplets or debris
B	-	s1	,	d0

Tab 4: Reaction to fire classification for PIZ system

This classification is valid for the following product parameters:
- the versions "Joint 15" and "Joint 0",
- an E class expanded polystyrene insulating material,
- a nominal thickness of polystyrene ≤ 80 mm,
- a nominal density of polystyrene ≤ 20 kg/m^3,
- a nominal thickness of the mortar facing of ≥ 8 mm,
- a nominal density of the mortar facing of 1925 ± 75 kg/ m^3
- Grey colour (polystyrene) and various (facing)

The classification is valid for the following end use conditions:
mechanically fixed to any A1 or A2-s1,d0 class substrate with a density ≥ 1600 kg/m^3 (excluding paper-faced gypsum plasterboard)
- with or without air gap.

1.1.2 REACTION TO FIRE of "PIZ ROCK METABIO"

Vêture cladding system consisting of a hydraulic mortar facing reinforced with glass fibers and a A1 class double density stone wool insulating material
Nominal thickness of the insulating material: 45 mm and 80 mm.
Nominal thickness of the mortar facing: 9 mm,
Average nominal density of insulation material: 110 kg/m^3,
Nominal density of the mortar facing 1925 ± 75 kg/m^3.
Colours: light brown and various (facing).

Test method	Product	Number of tests	Parameters	Results	
				Continuous Parameters Mean value	Compliance parameters
EN ISO 1182	Mineral wool	5	ΔT (°C) t_f(s) Δm (%)	3.9 0 3.1	- - -
	Facing	5	ΔT (°C) t_f(s) Δm (%)	0.89 0 9.1	- - -
EN ISO 1716	Mineral wool	3	PCS (MJ/kg)	1.2	-
	Facing	3	PCS (MJ/kg)	0.0	-
	Whole product (worst case)	-	PCS (MJ/kg)	0.4	-

- means not applicable

Tab. 5: Test results

Classification : A1

Fire behaviour		Smoke production		Flaming droplets or debris
A1	-	-	,	-

Tab. 6: Reaction to fire classification for PIZ Rock Metabio system

Field of application

this classification is valid for the following product parameters
- a nominal thickness of the insulating material: ≥45 mm
- an average density of the insulation material: 110 kg/m^3,
- a nominal thickness of the mortar facing of ≥ 9 mm,
- a nominal density of the mortar facing of 1925 kg/ m^3 ± 75 kg/m^3.
- a light brown colour and various colours facing.

1.2 Hygiene, health and the environment

1.2.1 Water absorption by capillarity

Water absorption by capillarity were tested by CSTB according to § 5.3.4.1 of ETAG 017 used as EAD . The results is valid also for "PIZ ROCK METABIO"

Configuration PIZ	Average water absorption (kg/m^2)					
	10 min	30 min	1h	1 h 30	6 h	24 h
EPS 80mm Skin 8 mm	0,01	0,03	0,04	0,06	0,12	0,29
	0,02	0,02	0,04	0,05	0,11	0,25
	0,01	0,02	0,03	0,04	0,10	0,24
Average	0,01	0,02	0,03	0,05	0, 11	0,26

Tab. 7: Water absorption by capillarity of the configuration "PIZ"

1.3 Safety in use

1.3.1 Wind suction test

The bond strength was determined in accordance with § 5.4.1.1 of ETAG 017 used as EAD. The distance between rail fixings is 900 mm.

Tests on the configurations PIZ was performed by CSTB (F), the tests on the configurations PIZ ROCK METABIO by ITC-CNR (I).

The results of the different configurations are listed below.

Test specimen	Failure value Q	Maximum deflection of profile	Type of failure
Dimensions (H x L) : 450 x 1500 mm Thickness: 54 mm Horizontal joint : 15 mm Vertical joint : 15mm	3 780 Pa	9,0 mm	Deflection of aluminium profiles and profiles let escape a vêture unit
Dimensions (H x L) : 450 x 1500 mm Thickness : 54 mm Horizontal joint : 1 mm Vertical joint : 1 mm	6 270 Pa	6,1 mm	Deflection of aluminium profiles and perforation in the profiles
Dimensions (H x L) : 600 x 1500 mm Thickness : 54 mm Horizontal joint : 15 mm Vertical joint : 15 mm	4000 Pa	6,1 mm	Bending rupture of a vêture unit
Dimensions (H x L) : 600 x 1500 mm Thickness: 54 mm Horizontal joint: 1 mm Vertical joint: 1 mm	3300 Pa	4,8 mm	Deflection of aluminium profiles and profiles let escape a vêture unit

Tab. 8: Wind failure values for PIZ STANDARD 54

Test specimen	Failure value Q	Maximum deflection of profile	Type of failure
Dimensions (H x L) : 600 x 1500 mm Thickness : 65 mm Horizontal joint : 15 mm Vertical joint : 15 mm	4897 Pa	4,7 mm	Bending rupture of a vêture unit
Dimensions (H x L) : 450 x 1500 mm Thickness: 65 mm Horizontal joint : 15 mm Vertical joint : 1 mm	8319 Pa	9,5 mm	Escape of a veture unit on top of the test rig

Tab. 9: Wind failure values for PIZ PLUS

Test specimen	Failure value Q	Maximum deflection of profile	Type of failure
Dimensions (H x L) : 600 x 1500 mm Thickness: 89 mm Horizontal joint: 15 mm Vertical joint: 15 mm	6053 Pa	14,7 mm	Pull through of profile fixations
Dimensions (H x L) : 450 x 1500 mm Thickness: 89 mm Horizontal joint: 1 mm Vertical joint: 1 mm	8000 Pa	7,5 mm	Pull through of profile fixations

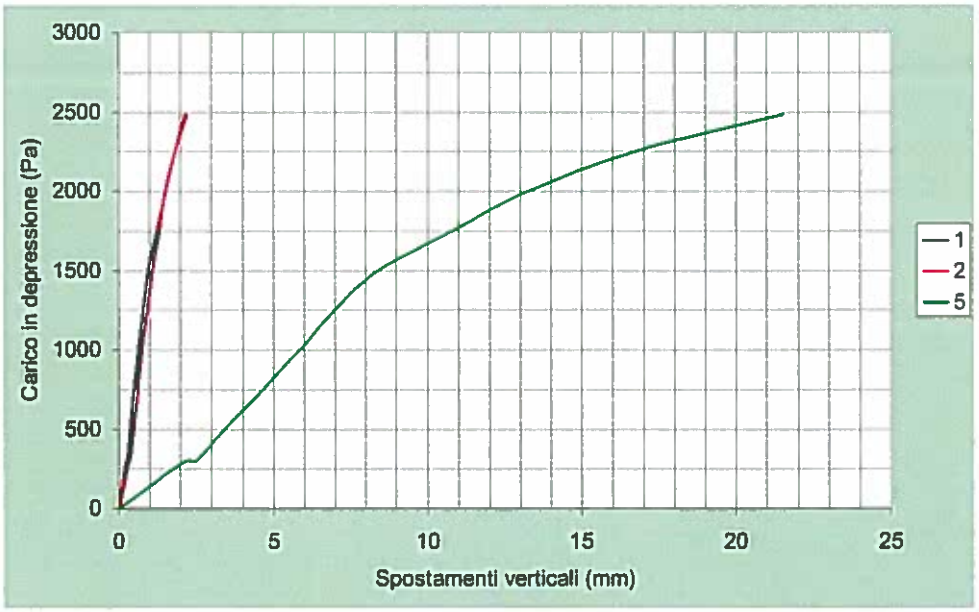
Tab. 10: Wind failure values for PIZ 89

Test specimen	Failure value Q	Maximum deflection of profile	Maximum deflection of panel (middle span)	Type of failure
Dimensions (H x L) : 600 x 1500 mm Thickness : 54 mm Horizontal joint : 1 mm Vertical joint : 1 mm	2480 Pa	2,21 mm	21,52 mm	Bending strength failures of both central and side panels
Dimensions (H x L) : 450 x 1500 mm Thickness : 54 mm Horizontal joint : 1 mm Vertical joint : 1 mm	4058 Pa	15.82 mm	23,49 mm	Failure of the cement notches of the side panels and bending strength failures

Tab. 11: Wind failure values for PIZ ROCK METABIO STANDARD 54

Carico in depressione	Spostamenti verticali (mm)						
Pa	1	2	3	4	5	6	7
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	0,22	0,31	0,25	0,45	2,16	2,26	1,89
0	0	0	0	0	0	0	0
300	0,26	0,35	0,28	0,49	2,46	2,59	2,20
0	0	0	0	0	0	0	0
500	0,37	0,47	0,34	0,63	3,40	3,54	3,13
0	0,09	0,15	0,13	0,16	1,18	1,10	1,00
1000	0,64	0,74	0,44	0,96	5,85	6,08	5,64
0	0,15	0,21	0,16	0,21	1,90	1,99	1,76
1250	0,78	0,90	0,50	1,14	6,98	7,31	6,83
0	0,23	0,29	0,22	0,29	2,60	2,80	2,51
1500	0,96	1,09	0,56	1,35	8,39	8,85	8,30
0	0,26	0,32	0,21	0,33	2,78	2,97	2,64
1750	1,24	1,31	0,62	1,65	10,80	11,55	10,43
0	0,39	0,39	0,23	0,44	3,83	4,23	3,49
2000	1,52	1,50	0,65	1,89	13,26	13,99	12,70
0	0,53	0,47	0,24	0,62	4,28	4,54	3,92
2250	1,84	1,83	0,78	2,27	16,77	17,76	15,80
0	0,69	0,63	0,28	0,68	6,20	6,81	5,51
2480	2,16	2,21	0,93	2,67	21,52	23,32	20,37
0	0,65	0,48	0,28	0,69	34,45	17,04	2,82

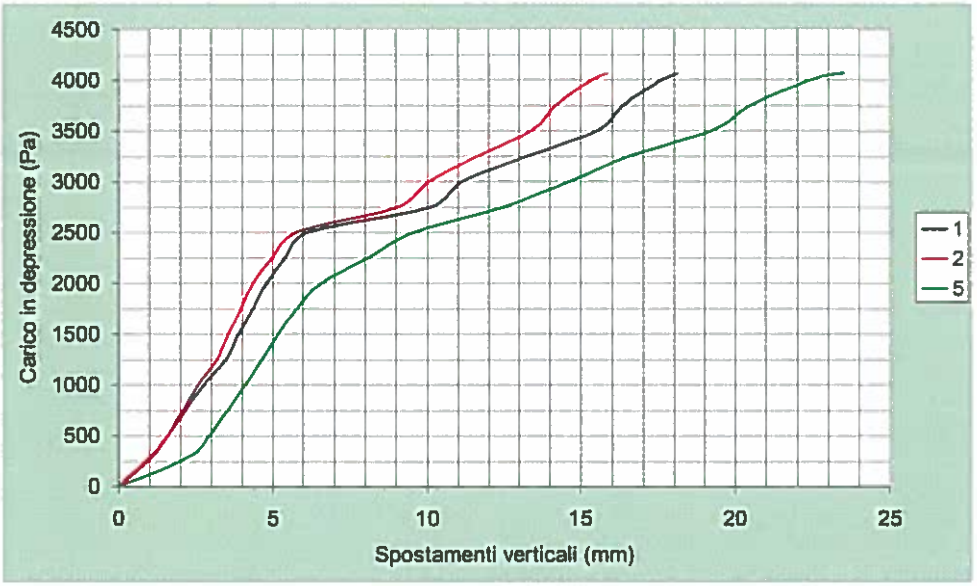
Tab. 12: Experimental data for PIZ ROCK METABIO STANDARD 54



Tab.13: Load test - load-displacement diagram for PIZ ROCK METABIO STANDARD 54

Carico in depressione	Spostamenti verticali (mm)						
Pa	1	2	3	4	5	6	7
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	1,05	1,11	0,00	0,00	2,31	1,83	1,63
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	1,11	1,16	0,00	0,00	2,38	1,86	1,65
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
500	1,58	1,56	0,00	1,10	2,91	2,32	2,17
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1000	2,75	2,57	1,45	1,57	4,09	3,25	3,10
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1250	3,47	3,17	1,74	1,84	4,65	3,70	3,56
0	1,21	0,00	0,00	0,00	0,00	0,00	0,00
1500	3,89	3,53	2,01	2,20	5,16	4,28	4,16
0	1,44	1,08	0,00	0,00	1,20	0,00	0,00
1750	4,36	3,94	2,30	2,60	5,79	4,93	4,85
0	1,66	1,24	0,00	0,00	1,41	0,00	0,00
2000	4,80	4,35	2,63	3,05	6,58	5,63	5,55
0	1,85	1,41	0,00	0,00	1,73	1,04	1,23
2250	5,39	4,98	3,23	3,77	8,06	7,40	6,59
0	2,09	1,68	0,00	0,00	2,27	1,73	1,59
2500	6,16	5,79	4,06	4,64	9,59	9,02	8,07
0	2,44	2,10	1,41	1,32	2,83	2,30	2,20
2750	10,10	9,03	5,92	5,72	12,46	10,56	9,43
0	4,53	3,90	2,68	2,24	4,15	3,15	2,85
3000	11,15	10,05	6,72	6,38	14,64	12,70	10,79
0	5,17	4,50	3,19	2,60	4,99	4,04	3,53
3250	13,25	11,65	7,57	6,89	16,52	14,50	12,82
0	6,66	5,63	3,82	2,98	5,98	4,78	4,45
3500	15,53	13,40	8,52	7,41	19,24	16,16	14,49
0	7,61	6,43	4,43	3,37	6,93	5,56	5,15
3750	16,36	14,18	9,11	7,84	20,50	17,37	15,70
0	8,07	6,86	4,84	3,72	7,41	6,05	5,64
4000	17,61	15,36	10,08	8,48	22,46	19,13	17,45
0	8,84	7,62	5,55	4,27	8,14	6,69	6,31
4058	18,11	15,82	10,46	8,69	23,49	20,10	18,75
0	9,06	7,77	5,68	4,22	8,99	7,23	6,86

Tab. 14: Experimental data for PIZ ROCK METABIO STANDARD 54



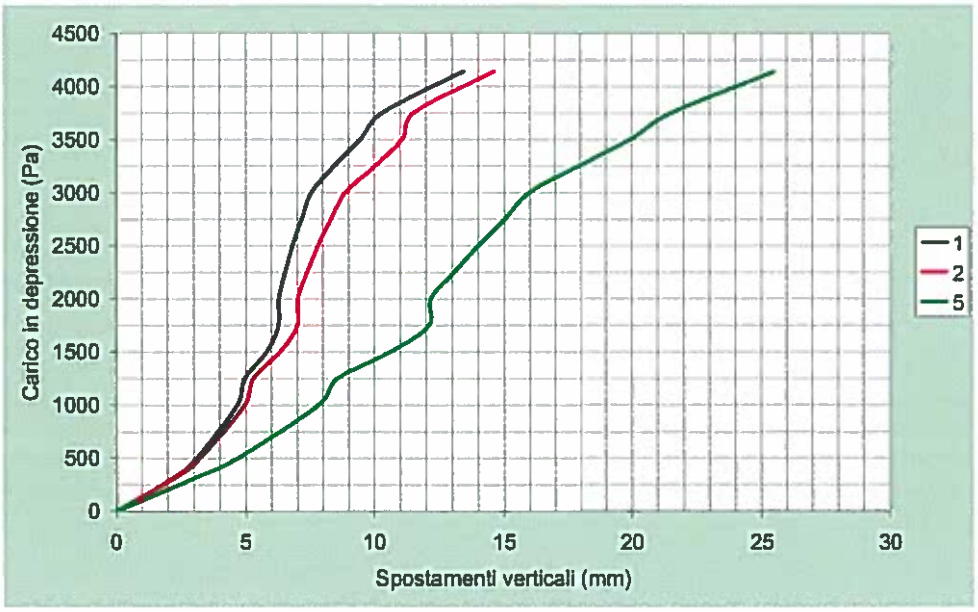
Tab. 15: Load test - load-displacement diagram for PIZ ROCK METABIO STANDARD 54

Test specimen	Failure value Q	Maximum deflection of profile	Maximum deflection of panel (middle span)	Type of failure
Dimensions (H x L) : 600x1500 Thickness: 89 Horizontal joint : 15 mm Vertical joint : 15mm	4139 Pa	14,60 mm	25,50 mm	On account of the extremely curved shape of the panels under maximum load, the side panels came off the outer profile causing side failure (in the insulating mass) and cracks on the longitudinal edges of the cement coating
Dimensions (H x L) : 450 x 1500 mm Thickness:89 mm Horizontal joint: 15 mm Vertical joint: 15 mm	4750 Pa	9,98 mm	14,45 mm	Central profiles detached from the screws which remained on the substrate

Tab. 16: Wind failure values for PIZ ROCK METABIO H89

Carico in depressione	Spostamenti verticali (mm)						
Pa	1	2	3	4	5	6	7
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	2,11	2,19	2,19	2,18	2,91	2,60	2,63
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	2,19	2,26	2,27	2,26	3,05	2,75	2,78
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
500	3,12	3,23	3,23	3,31	4,69	4,31	4,29
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1000	4,67	4,94	4,93	5,22	7,80	7,60	7,56
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1250	4,96	5,28	5,29	5,62	8,55	8,40	8,33
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1500	5,82	6,32	6,34	6,82	10,62	10,53	10,54
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1750	6,27	6,99	7,01	7,59	12,10	12,11	11,98
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2000	6,28	7,00	7,03	7,62	12,17	12,22	12,06
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2250	6,52	7,38	7,42	8,04	13,06	13,16	13,01
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2500	6,80	7,80	7,85	8,49	13,99	14,13	14,02
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2750	7,17	8,31	8,38	9,03	15,01	15,19	15,09
0	0,00	0,00	0,00	0,00	0,00	0,00	1,24
3000	7,56	8,87	8,94	9,59	15,98	16,20	16,08
0	0,00	0,00	0,00	0,00	0,00	1,34	1,62
3250	8,46	10,03	10,15	10,72	17,94	18,11	18,00
0	1,58	1,59	1,58	1,36	1,65	1,81	2,04
3500	9,46	11,07	11,17	11,68	19,94	20,03	20,05
0	1,85	1,76	1,78	1,44	2,15	2,57	2,96
3750	10,32	11,52	12,05	12,49	21,51	21,49	21,70
0	2,63	2,68	2,59	2,27	2,77	3,14	3,53
4139	13,42	14,60	14,90	15,30	25,50	26,20	27.1
0	2,68	2,63	2,54	2,19	3,29	3,63	3,97

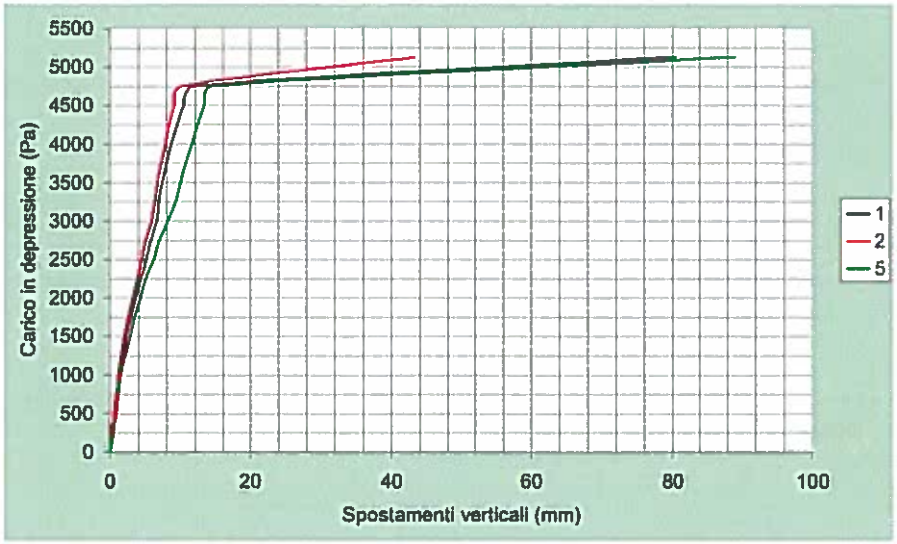
Tab. 17: Experimental data for the configuration PIZ ROCK METABIO H89



Tab. 18: Load test - load-displacement diagram for PIZ ROCK METABIO H89

Carico in depressione	Spostamenti verticali (mm)						
Pa	1	2	3	4	5	6	7
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
300	0,34	0,32	0,30	0,28	0,54	0,53	0,72
0	0,02	0,00	0,03	0,00	0,42	0,55	0,69
300	0,34	0,33	0,30	0,29	0,59	0,59	0,79
0	0,02	0,00	0,03	0,00	0,51	0,61	0,76
500	0,56	0,56	0,53	0,52	0,84	0,85	1,06
0	0,03	0,01	0,04	0,02	0,67	0,89	1,08
1000	1,30	1,14	0,86	1,07	1,52	1,48	1,67
0	0,10	0,07	0,06	0,06	1,10	1,54	1,75
1250	1,83	1,57	1,13	1,50	2,13	2,08	2,26
0	0,26	0,18	0,13	0,13	1,47	1,96	2,15
1500	2,35	2,02	1,45	1,96	2,75	2,71	2,86
0	0,45	0,31	0,21	0,20	1,55	1,77	1,86
1750	2,99	2,57	1,84	2,50	3,43	3,37	3,49
0	0,76	0,54	0,37	0,35	1,87	2,04	2,13
2000	3,64	3,13	2,28	3,05	4,18	4,14	4,24
0	1,03	0,80	0,58	0,56	2,15	2,27	2,34
2250	4,34	3,78	2,76	3,63	4,94	4,88	4,95
0	1,44	1,18	0,90	0,88	2,72	2,82	2,72
2500	5,06	4,43	3,26	4,26	6,10	6,14	5,77
0	1,91	1,63	1,30	1,27	3,25	3,37	3,22
2750	5,69	5,01	3,73	4,83	6,91	7,02	6,65
0	2,33	2,04	1,69	1,64	3,76	3,89	3,75
3000	6,50	5,80	4,44	5,69	8,08	8,43	8,06
0	2,78	2,49	2,13	2,11	4,39	4,58	4,47
3250	6,91	6,20	4,84	6,21	9,25	9,81	9,44
0	3,02	2,72	2,37	2,38	4,88	5,07	4,92
3500	7,42	6,67	5,29	6,74	9,92	10,48	10,12
0	3,40	3,08	2,71	2,76	5,33	5,49	5,34
3750	7,98	7,17	5,76	7,25	10,69	11,34	11,00
0	3,80	3,44	3,01	3,06	5,80	5,98	5,83
4000	8,68	7,77	6,25	7,80	11,49	12,20	12,07
0	4,25	3,83	3,32	3,37	6,38	6,57	6,52
4250	9,46	8,34	6,62	8,20	12,35	13,01	12,96
0	4,77	4,24	3,54	3,56	6,81	6,89	6,84
4500	10,46	9,04	7,04	8,63	13,33	13,88	13,86
0	5,49	4,81	3,89	3,86	7,40	7,33	7,27
4750	11,79	9,98	7,61	9,09	14,45	14,73	14,70
0	6,45	5,59	4,36	4,21	8,08	7,77	7,70
5124	80,46	43,32	70,48	73,90	89,03	80,54	16,19
0	84,95	44,77	74,92	74,16	92,32	83,92	16,19

Tab. 19: Experimental data for PIZ ROCK METABIO H89



Tab. 20: Load test - load-displacement diagram for PIZ ROCK METABIO H89

1.3.2 Resistance of grooved skin

Tests were assessed by CSTB (F) according to § 5.4.2.2.3 of ETAG 017

Sample n°	Thickness of resistant skin (mm)	Load (N)
1	8,0	186
2	8,0	195
3	7,6	184
4	10,0	280
5	8,0	181
6	7,8	172
7	8,4	209
8	9,7	257
9	9,9	269
Average	8,6	215
Characteristic	-	131

Tab. 21: Resistance of grooved skin

1.3.3 Pull-through resistance of fixings from profiles

Tests were assessed by CSTB (F) according to § 5.4.2.2.5 of ETAG 017

Sample n°	Load (N)
1	1552
2	1400
3	1498
4	1542
5	1621
6	1643
7	1748
8	1454
9	1476
10	1572
Average	1551
Characteristic	1355

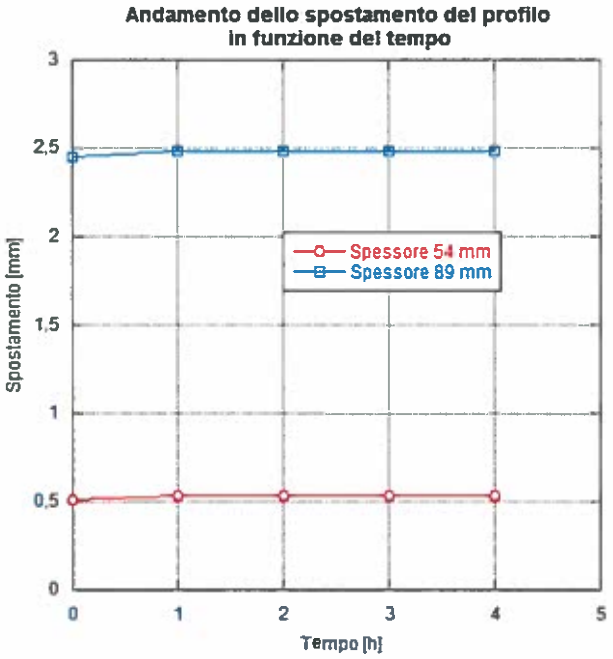
Tab. 22: Pull-through resistance of fixings from profiles

1.3.4 Dead load test

Dead load test configuration PIZ was assessed by CSTB (F) and dead load test configuration PIZ Rock Metabio Standard 54 and PIZ Rock Metabio H89 were assessed by ITC according to § 5.4.2.3 of ETAG 017as assessed by CSTB (F)
The deformation of profile is assessed compatible with the vêture kit all configurations.

Test specimen	Middle rail deflection value			
	Initial	After 1 hour	After 2 hours	After 3 hours
Dimensions of vêture unit (H x L): 450 x 600 mm Thickness: 54 mm Join between unit: 1 mm	1,57	1,62	1,62	1,62
Dimensions of vêture unit (H x L): 450 x 600 mm Thickness: 89 mm Join between unit: 1 mm	1,05	1,17	1,18	1,18

Tab. 23: Dead load test for configuration PIZ



Tab.24: Displacement trend of the profile as a function of time for the configuration PIZ Rock Metabio

1.3.5 Resistance to horizontal point loads

The resistance to horizontal point load for vêture kits configuration PIZ was assessed by CSTB (F) according to § 5.4.4 of ETAG 017.
During the test, no permanent deflection, failure or perforation of the skin are noted.
The vêture kit is capable of accommodating the horizontally applied loads acting its surface arising from maintenance, without any reduction in its performances.

The resistance to horizontal point load for vêture kits configuration PIZ Rock Metabio Standard 54 and PIZ Rock Metabio H89 were assessed by ITC according to § 5.4.4 of ETAG 017.
PIZ ROCK METABIO: no permanent deflection, failure or perforation of the skin are noted.

1.3.6 Impact resistance

This test was performed in accordance with EOTA Technical Report (001).
This test was performed by CSTB (F) for vêture kits configuration PIZ and by ITC for vêture kits configuration PIZ Rock Metabio Standard 54 and PIZ Rock Metabio H89.
The distance between rail fixings is 900 mm

Test specimen	Categories
Dimensions of vêture unit (H x L): 600 x 600 mm Thickness of unit: 54 mm Thickness of skin: 8 mm Join between unit: 15 mm	III
Dimensions of vêture unit (H x L): 600 x 1500 mm Thickness of unit: 54 mm Thickness of skin: 8 mm Join between unit: 15 mm	III
Dimensions of vêture unit (H x L): 450 x 450 mm Thickness of unit: 54 mm Thickness of skin: 8 mm Join between unit: 15 mm	III
Dimensions of vêture unit (H x L): 600 x 1200 mm Thickness of unit: 57 mm Thickness of skin: 11 mm Joint between unit: 15 mm	III
Dimensions of vêture unit (H x L): 600 x 600 mm Thickness of unit: 57 mm Thickness of skin: 11 mm Joint between unit: 15 mm	I

Tab. 25: Impact categories for configuration PIZ

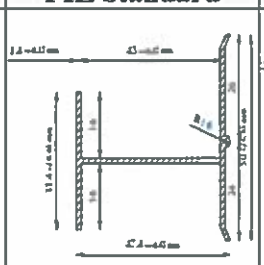
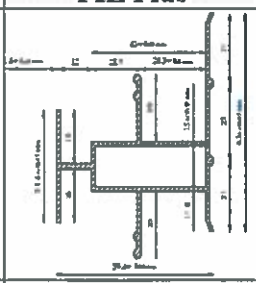
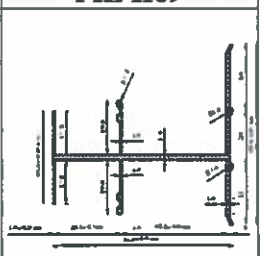
Impact resistance for configuration PIZ ROCK METABIO:

Test specimen	Categories
PIZ Rock Metabio standard 54	III
PIZ Rock Metabio H89	III

Tab. 26: Impact categories for configuration "PIZ ROCK METABIO"

1.4 Energy economy and heat retention

The thermal bridges due to the profiles have been assessed by CSTB (F) according to (EN 10211-2)
Configuration PIZ:

		PIZ Standard		PIZ Plus		PIZ H89	
Fixing profile							
Insulation thickness (mm)		45		57		80	
Joints		*15 mm*	*0 mm*	*15 mm*	*0 mm*	*15 mm*	*0 mm*
ψ-values, W/(m.K)	200 mm concrete wall	0,557		0,618		0,597	
	250 mm masonry wall	0,189		0,224		0,241	

Tab. 27: Ψ -values for horizontal profiles Ψ horizontal

		PIZ Standard		PIZ Plus		PIZ H89	
Insulation thickness, mm		45		57		80	
Joints		*15 mm*	*0 mm*	*15 mm*	*0 mm*	*15 mm*	*0 mm*
ψ-values, W/(m.K)	200 mm concrete wall	<0	0,007	<0	0,008	<0	0,006
	250 mm masonry wall	<0	0,005	<0	0,005	<0	0,004

Tab. 28: Ψ -values for vertical profiles Ψ vertical

The thermal bridges due to the profiles were assessed by ITC-CNR (I) according to (EN 10211-2)
Configuration PIZ ROCK METABIO:

The thermal bridges according to (EN 10211-2) due to the profiles are:

		PIZ ROCK METABIO Standard 54		PIZ ROCK METABIO H89	
Insulation thickness,mm		45 mm		80 mm	
Joints		0	15	0	15
Ψhorizontal [W/(m.K)]	200 mm concrete wall	0,384	0,484	0,437	0,555
	250 mm masonry wall	0,138	0,179	0,189	0,242

Tab. 29: Ψ -values for horizontal profiles Ψ horizontal

		PIZ ROCK METABIO Standard 54		PIZ ROCK METABIO H89	
Insulation thickness,mm		45 mm		80 mm	
Joints		0	15	0	15
Ψvertical [W/(m.K)]	200 mm concrete wall	0,01	0,002	0,004	0,001
	250 mm masonry wall	0,007	0,002	0,003	0,001

Tab. 30: Ψ -values for vertical profiles Ψ vertical

All type of cladding		
$\chi_{fixation}$[W/K]	200 mm concrete wall	negligible
	250 mm masonry wall	

Tab. 31: Point thermal transmission of fixing

Trade name	**Total thermal resistance in m^2 K/W**
PIZ STANDARD 54	1,45
PIZ PLUS	1,84
PIZ H89	2,58
PIZ ROCK METABIO STANDARD 54	1,18
PIZ ROCK METABIO H89	2,11

Tab. 32: Thermal resistance of different PIZ CLADDING SYSTEM configurations

1.5 Durability and serviceability

1.5.1 Thermal shock cycles on the kit

The test was carried out according to § 5.7.3.3 of ETAG 017 by CSTB (F)
Size of panels: 600 x 750 or 1500 x 89 mm

Configuration PIZ: 4 panels 600 x 1500 mm; 8 panels 600 x 750 mm.
After the thermal shock cycles, this vêture kit doesn't present any color change, degradation, deflection, or cracks.

Thermal shock for configuration PIZ ROCK METABIO: no performance determined

C. FACTORY PRODUCTION CONTROL (FPC)

PIZ S.r.l. has a Factory Production Control (FPC) system in the plants and it exercises permanent internal control of production, including testing of samples in accordance with a control plan.
Within these plans, deposited at ITC-CNR, the following actions are carried out:

- controls for the acceptance of the incoming raw materials,
- controls of stocking phases,
- controls of the production phases through specific tests,
- controls on the finished products through specific tests,
- assessments of the results of the different controls, dealing with no-conformity and defining corrective actions.

For the components of the kit which PIZ S.r.l does not manufacture by himself, he makes sure that a proper Factory Production Control carried out by the other manufacturers gives the guaranty of the components compliance with the European Technical Assessment related to this Evaluation Report.
The ETA Holder makes sure that materials and components used are in compliance with European standards in force and he only uses raw materials supplied with the relevant inspection documents as laid down in the control plan. The provisions taken by the ETA Holder for components not produced by himself have been deposited at ITC-CNR.
Details of the extent, nature and frequency of testing and controls to be performed within the Factory Production Control shall correspond to the control plan which is part of the technical documentation of ETA related to this Evaluation Report.

D. AVAILABLE TEST REPORTS

1. Test Report 6054/RP/17 issued on 10-02-2017 (Laboratorio componenti e sistemi ITC-CNR) (wind load resistance PIZ ROCK METABIO system);
2. Test report of CSTB n° CL04-053 dated Mai 2004 (wind load resistance PIZ System);
3. Test report of CSTB n° CL04-059 dated July 2004 (mechanical resistance);
   Test report of CSTB n° CL04-059 dated July 2004 (mechanical resistance);
4. Test report of CSTB n° CLC11-260311552 dated July 2011 (mechanical resistance);
5. Test report of CSTB n° CL04-060 dated September 2004 (Impact resistance);
6. Test report of CSTB n° 04-018 dated 2004 (Thermal calculations on the PIZ Vêture kit);
7. Test report of CSTB n° RF 04-012 dated October 2004 (water absorption per capillarity;
8. Test report of CSTB n° BV04-325 dated April 2004 (thermal shock);
9. Thermal calculations on the PIZ ROCK METABIO vêture kits determination of Ψ- values n. 1-122016, 20-12-2016 PIZ Zecca;
10. Thermal calculations on the PIZ vêture kits determination of Ψ- values for the thermal bridges due to the fixing profiles CSTB 27-06-2004;
11. Reaction to fire classification report of CSTB n° RA11-0275 dated 25th October 2011 (fire reaction of PIZ);
12. Reaction to fire classification report of CSTB n° RA14-0117 dated 5thJune 2014 (fire reaction of PIZ ROCK METABIO).
13. Test Report 6143/RP/17 issued on 01-08-2017 (Laboratorio componenti e sistemi ITC-CNR) (dead load test, resistance to horizontal loads, impact test) for PIZ ROCK METABIO system.