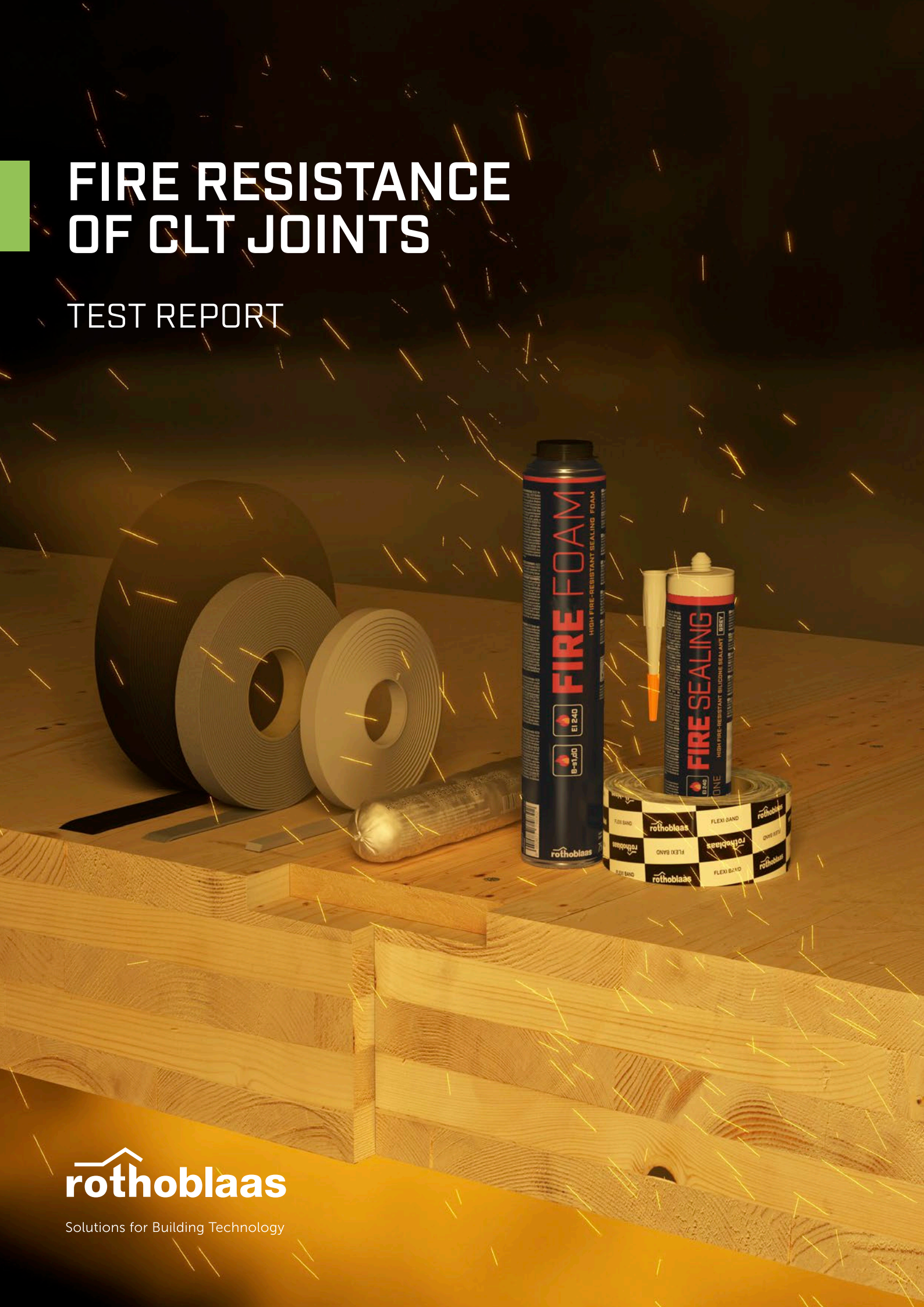
FIRE RESISTANCE OF CLT JOINTS

TEST REPORT



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Solutions for Building Technology

FIRE SOLUTIONS RANGE

TAPES AND SEALANTS

FRONT BAND UV 210	UNIVERSAL SINGLE-SIDED TAPE, HIGHLY RESISTANT TO UV RAYS	EN 13501-1 B-s1,d0
FIRE FOAM	HIGH FIRE-RESISTANT SEALING FOAM	EN 13501-2 EI 240 · EN 13501-1 B-s1,d0 · CLT JOINT TESTED
FIRE SEALING ACRYLIC	HIGH FIRE-RESISTANT ACRYLIC SEALANT	EN 13501-2 EI 240 · EN 13501-1 B-s1,d0 · CLT JOINT TESTED
FIRE SEALING SILICONE	HIGH FIRE-RESISTANT SILICONE SEALANT	EN 13501-2 EI 240 · EN 13501-1 B-s1,d0 · CLT JOINT TESTED
FIRE STRIPE	INTUMESCENT THERMO-INFLATABLE FLEXIBLE GASKET	NF P92-501 M1
FIRE STRIPE GRAPHITE	FLEXIBLE INTUMESCENT GASKET	VO · CLT JOINT TESTED
MULTI BAND UV	SPECIAL UV-RESISTANT HIGH-ADHESION TAPE	EN 13501-1 B-s1,d0

MEMBRANES

BARRIER ALU NET SD1500	REFLECTIVE VAPOUR BARRIER Sd > 1500 m	EN 13501-1 B-s1,d0
BARRIER ALU FIRE A2 SD2500	REFLECTIVE AIR VAPOUR BARRIER FIRE REACTION CLASS A2-s1,d0	EN 13501-1 A2-s1,d0
BARRIER ALU NET ADHESIVE 300	SELF-ADHESIVE REFLECTIVE VAPOUR BARRIER Sd > 1500 m	EN 13501-1 B-s1,d0
TRASPIR EVO UV 115	HIGHLY BREATHABLE MONOLITHIC MEMBRANE RESISTANT TO UV RAYS	EN 13501-1 B-s1,d0
TRASPIR EVO 160	HIGHLY BREATHABLE MONOLITHIC MEMBRANE	AS1530.2 index 1 · EN 13501-1 B-s1,d2
TRASPIR FELT EVO UV 210	BREATHABLE MONOLITHIC MEMBRANE RESISTANT TO UV RAYS	EN 13501-1 B-s1,d0
TRASPIR EVO UV 210	HIGHLY BREATHABLE MONOLITHIC MEMBRANE RESISTANT TO UV RAYS	ASTM E84 class 1 class A · EN 13501-1 B-s1,d0
TRASPIR EVO UV ADHESIVE 250	SELF-ADHESIVE BREATHABLE MONOLITHIC MEMBRANE RESISTANT TO UV RAYS	EN 13501-1 B-s1,d0
TRASPIR EVO 300	HIGHLY BREATHABLE MONOLITHIC MEMBRANE	EN 13501-1 B-s1,d0
TRASPIR ALU FIRE A2 430	REFLECTIVE HIGHLY BREATHABLE MEMBRANE	EN 13501-1 A2-s1,d0

FIRE RESISTANCE OF CLT JOINTS

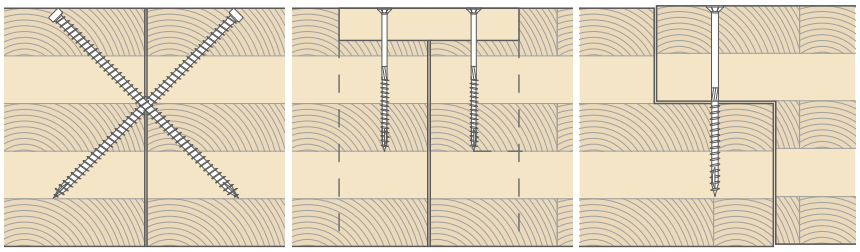
The project aims to measure the fire resistance performance of certain types of CLT joints through a series of tests.

The tests were carried out according to UNI EN 1363-1:2020 **"Fire resistance tests - Part 1: General requirements"** in which the general principles for determining the fire resistance of various building elements subjected to standardised fire exposure conditions are defined. The specimen is exposed to fire from below (intrados).

PROPERTY OF THE MATERIAL

CLT	
Wood species [type]	Fir
Denisty [kg/m^3]	350-420
Reaction to fire class	D-s2,d0
Total thickness [mm]	200
Number of layers [no.]	5
Total width [mm]	3800
Total length [mm]	4400

TYPES OF JOINT



SIMPLE | WITH JOINT COVER PLATE | HALF-LAP JOINT

PERFORMANCE CRITERIA

The criteria for assessing the performance of the test specimen are detailed in EN 1363-1: 2020. The performance of the test specimen is measured by the time, expressed in full minutes (i.e. net of seconds), in which the specimen continues to meet the performance criteria described below.

TIGHTNESS

The time in full minutes during which the specimen continues to maintain its separation function without:

- causing a cotton swab to ignite
- allowing the penetration of a feeler gauge
- developing persistent flames

INSULATION

The time in full minutes during which the specimen continues to maintain its separation function, without developing temperatures on the surface not exposed to fire that exceed the initial average temperature at all sensor positions (including the moving thermocouple) by 180 K.

Note: increments refer to the average initial temperature measured on the side not exposed to fire of the test specimen.

TESTED PRODUCTS

FLEXI BAND

UNIVERSAL SINGLE-SIDED HIGH-ADHESIVE TAPE

EXPAND BAND

SELF-EXPANDING SEALING TAPE

CONSTRUCTION SEALING

COMPRESSIBLE SEALING GASKET FOR REGULAR JOINTS

FIRE STRIPE GRAPHITE

FLEXIBLE INTUMESCENT GASKET

FIRE SEALING SILICONE

HIGH FIRE-RESISTANT SILICONE SEALANT

FIRE SEALING ACRYLIC

HIGH FIRE-RESISTANT ACRYLIC SEALANT

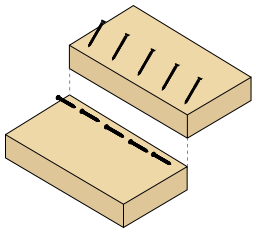
FIRE FOAM

HIGH FIRE-RESISTANT SEALING FOAM

SUMMARY TABLE

SIMPLE JOINT

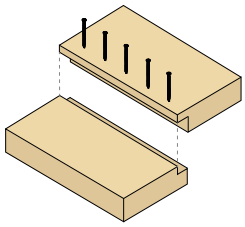
GAP 2 mm



1ST SEALING LEVEL (top)	2ND SEALING LEVEL (bottom)		
	FIRE SEALING SILICONE	Joint 2	page 7
	FIRE SEALING ACRYLIC	Joint 3	page 8
	FIRE STRIPE GRAPHITE	Joint 4	page 9
FLEXI BAND		Joint 1	page 6
EXPAND BAND	EXPAND BAND	Joint 8	page 13
FLEXI BAND	FIRE SEALING SILICONE	Joint 5	page 10
FLEXI BAND	FIRE STRIPE GRAPHITE	Joint 6	page 11
EXPAND BAND	FIRE STRIPE GRAPHITE	Joint 13	page 18
CONSTRUCTION SEALING	CONSTRUCTION SEALING	Joint 11	page 16
CONSTRUCTION SEALING	FIRE STRIPE GRAPHITE	Joint 12	page 17

SIMPLE JOINT

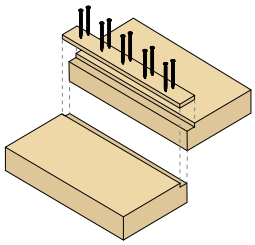
GAP 2 mm



1ST SEALING LEVEL (top)	2ND SEALING LEVEL (bottom)		
EXPAND BAND	EXPAND BAND	Joint 9	page 14
FLEXI BAND	FIRE STRIPE GRAPHITE	Joint 14	page 19

SIMPLE JOINT

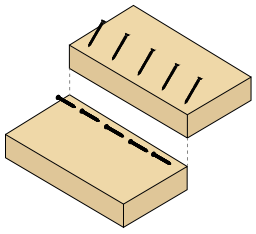
GAP 2 mm



1ST SEALING LEVEL (top)	2ND SEALING LEVEL (bottom)		
EXPAND BAND	EXPAND BAND	Joint 7	page 12
FLEXI BAND	FIRE STRIPE GRAPHITE	Joint 10	page 15
FIRE SEALING SILICONE		Joint 15	page 20

SIMPLE JOINT

GAP 10 mm

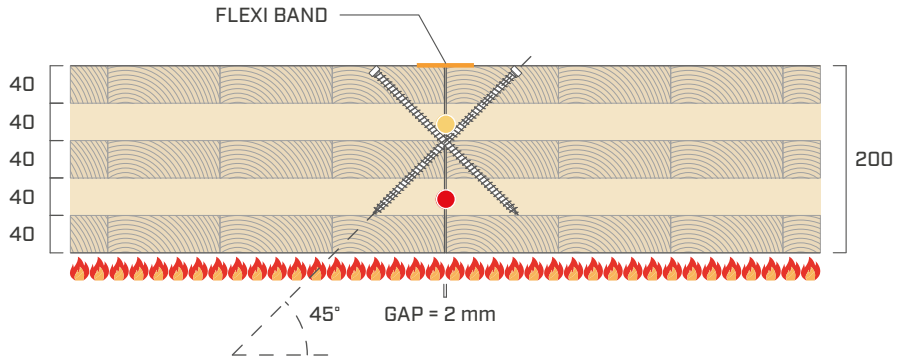


1ST SEALING LEVEL (top)	2ND SEALING LEVEL (bottom)		
FIRE FOAM		Joint 16	page 21

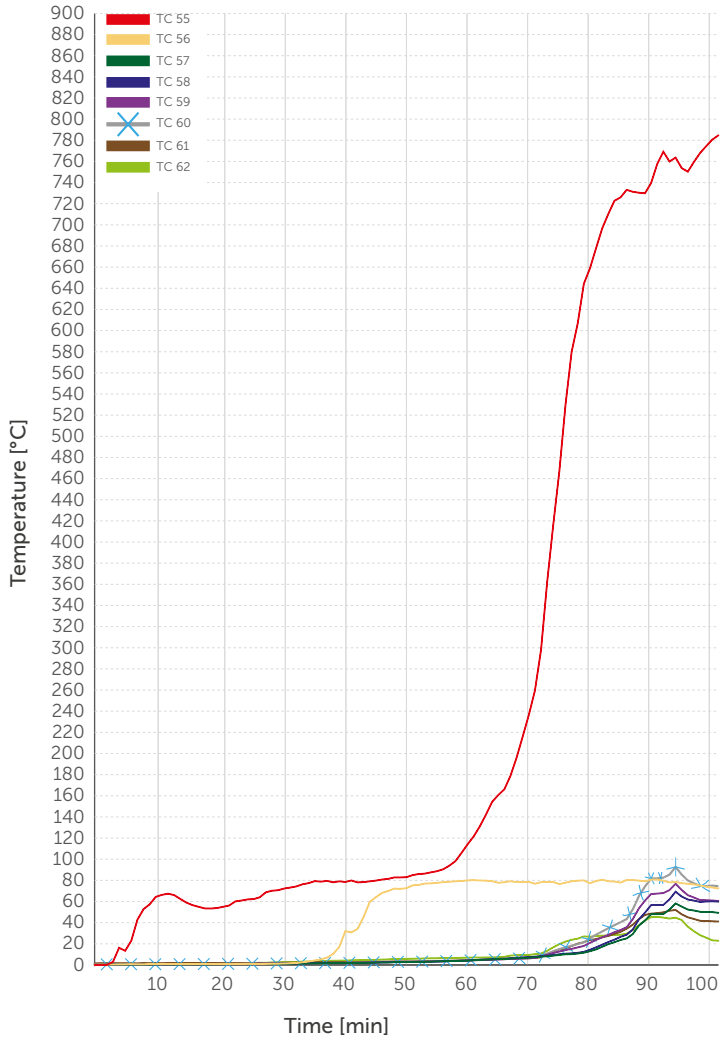
JOINT No. 1 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2 mm GAP AND FLEXI BAND

TOP SEALANT	FLEXI BAND
Description	Universal single-sided high-adhesive tape
Material	PE film/glue/reinforcing polyester grid/silicone coated paper
BOTTOM SEALANT	- -



FLEXI BAND



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 102 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 102 min**

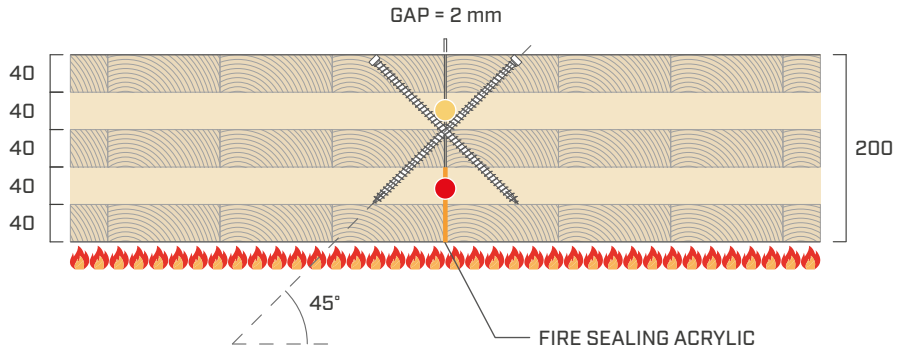
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 55	785°C
● 140 mm from slab bottom	TC 56	72°C
on the unexposed face of the slab	TC 60	75°C

Reference standard: UNI EN 1363-1:2020

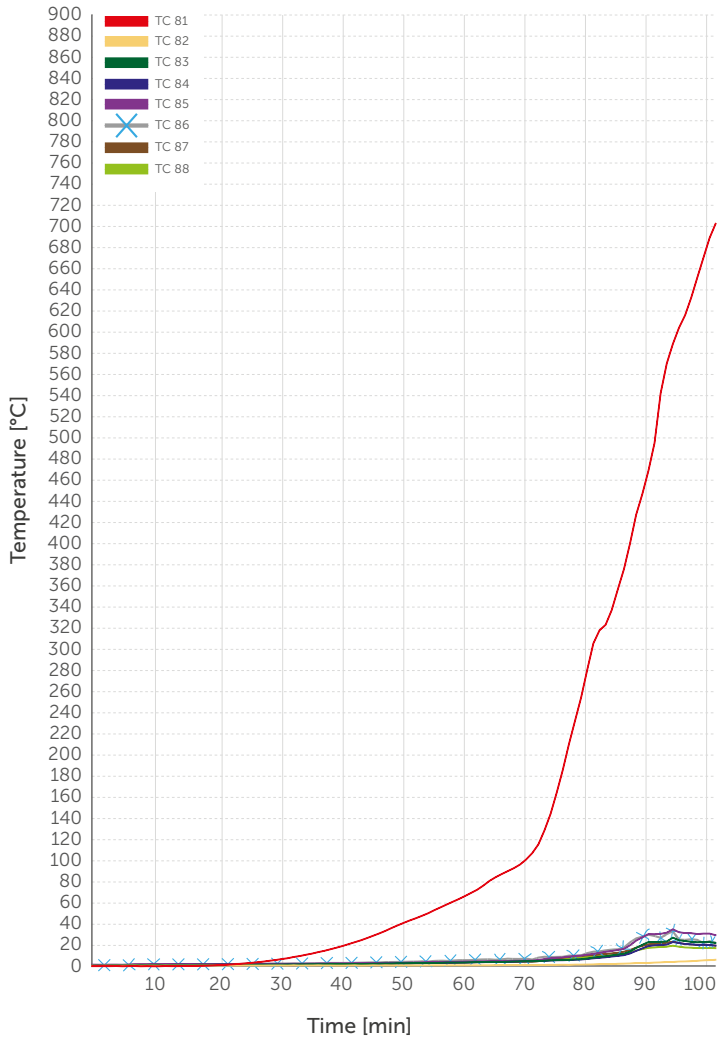
JOINT No. 2 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2mm GAP AND FIRE SEALING SILICONE (EXPANDED ON PANEL SIDE)

TOP SEALANT	**- -**
BOTTOM SEALANT	**FIRE SEALING SILICONE**
Description	High fire-resistant acrylic sealant
Material	Silicone



FIRE SEALING SILICONE



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 102 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 102 min**

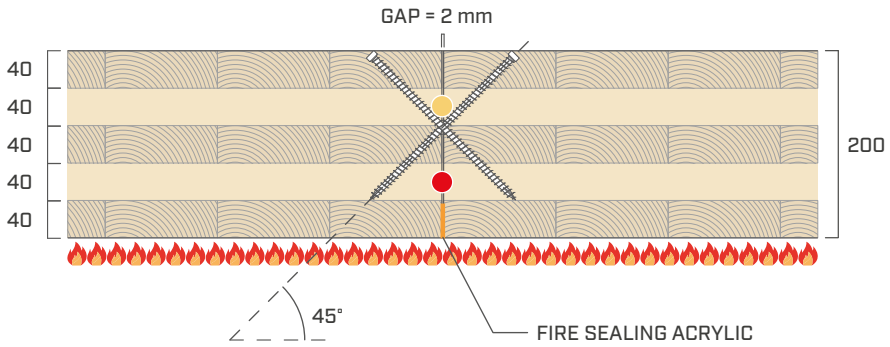
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 81	702°C
● 140 mm from slab bottom	TC 82	6°C
on the unexposed face of the slab	TC 85	29°C

Reference standard: UNI EN 1363-1:2020

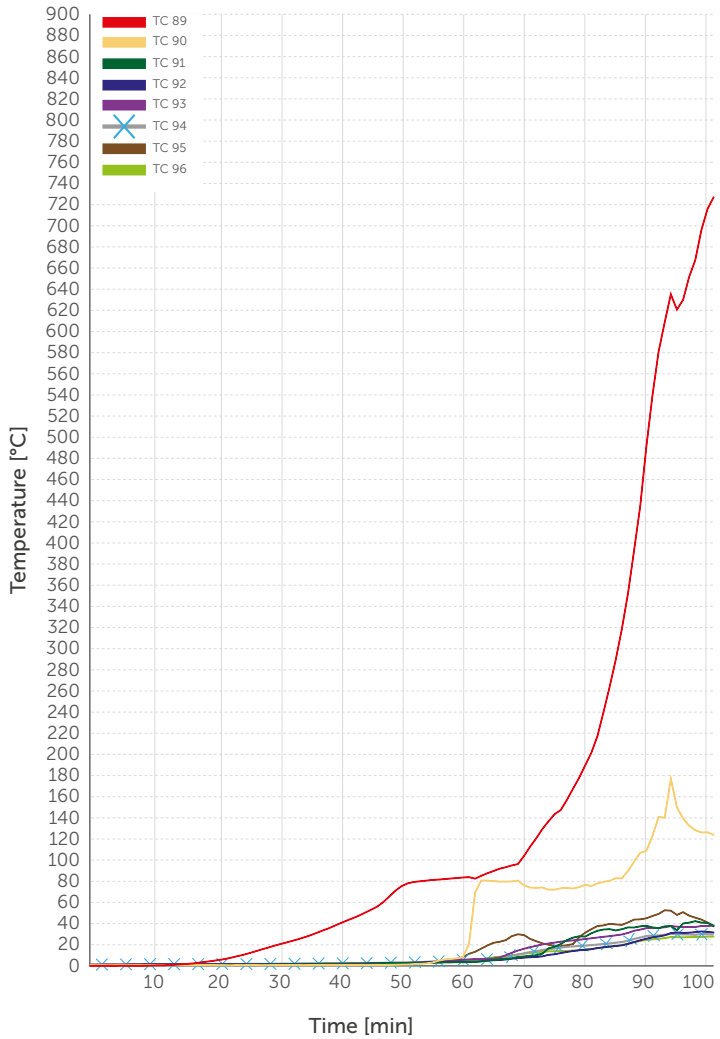
JOINT No. 3 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2 mm GAP AND FIRE SEALING ACRYLIC (EXPANDED ON PANEL SIDE)

TOP SEALANT	**- -**
BOTTOM SEALANT	**FIRE SEALING ACRYLIC**
Description	High fire-resistant acrylic sealant
Material	Acrylic polymers in aqueous dispersion



FIRE SEALING ACRYLIC



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 102 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 102 min**

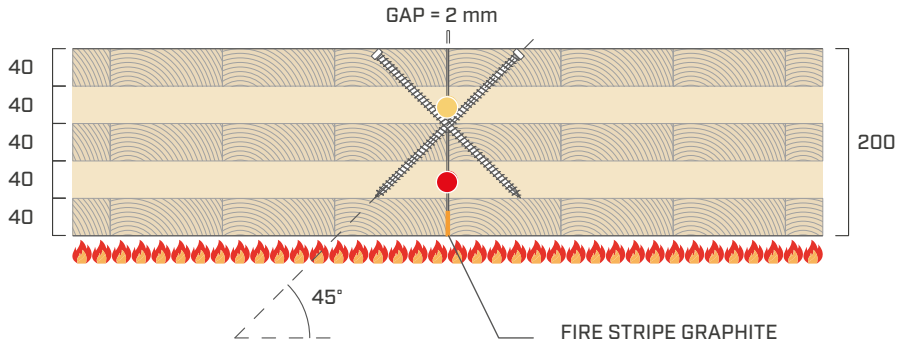
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 90	727°C
● 140 mm from slab bottom	TC 89	124°C
on the unexposed face of the slab	TC 93	38°C

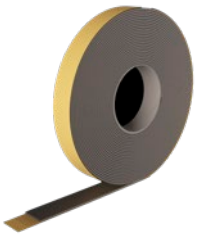
Reference standard: UNI EN 1363-1:2020

JOINT No. 4 - TEST REPORT

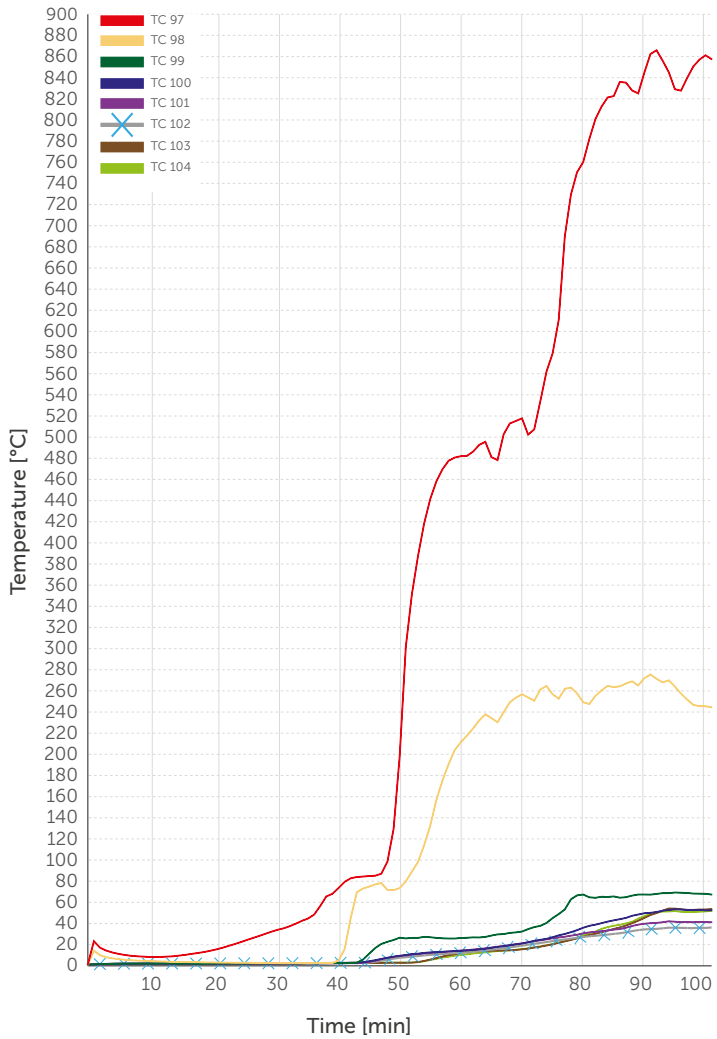
SIMPLE JOINT WITH VGZ9220 CROSSED SCREWS, 2 mm GAP AND FIRE STRIPE GRAPHITE

TOP SEALANT	**- -**
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite





FIRE STRIPE GRAPHITE



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 102 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 102 min**

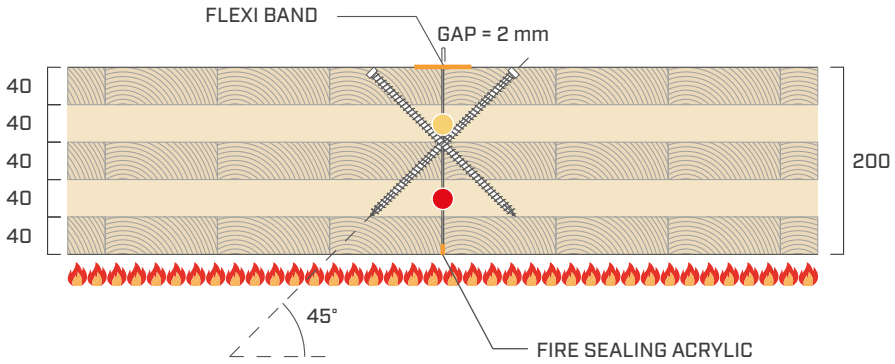
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 97	858°C
● 140 mm from slab bottom	TC 98	245°C
on the unexposed face of the slab	TC 99	67°C

Reference standard: UNI EN 1363-1:2020

JOINT No. 5 - TEST REPORT

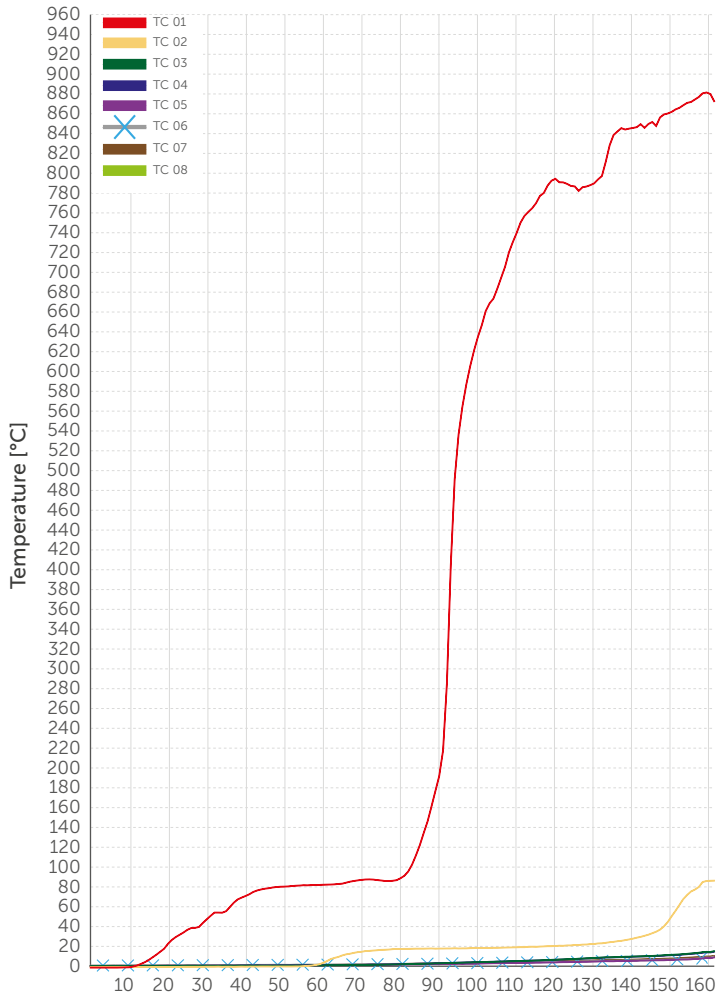
SIMPLE JOINT WITH VGZ9220 CROSSED SCREWS, 2 mm GAP, FIRE SEALING SILICONE (APPLIED ON THE SIDE OF THE PANEL) AND FLEXI BAND

TOP SEALANT	FLEXI BAND
Description	Universal single-sided high-adhesive tape
Material	PE film/glue/reinforcing polyester grid/silicone coated paper
BOTTOM SEALANT	**FIRE SEALING SILICONE**
Description	High fire-resistant silicone sealant
Material	Silicone



FLEXI BAND

FIRE SEALING SILICONE



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 1	873°C
● 140 mm from slab bottom	TC 2	86°C
on the unexposed face of the slab	TC 3	15°C

Reference standard: UNI EN 1363-1:2020

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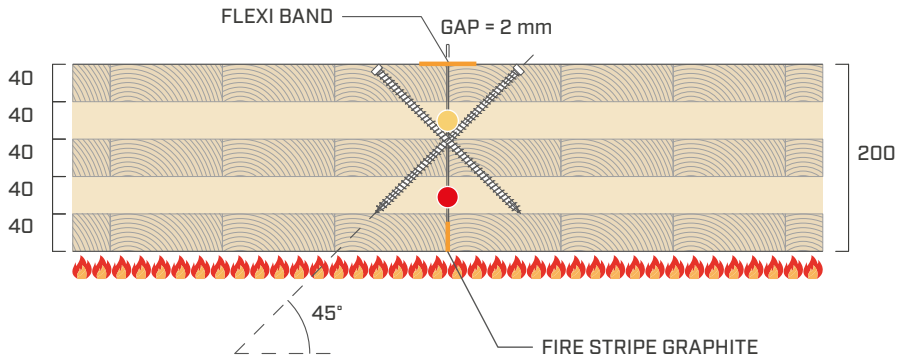
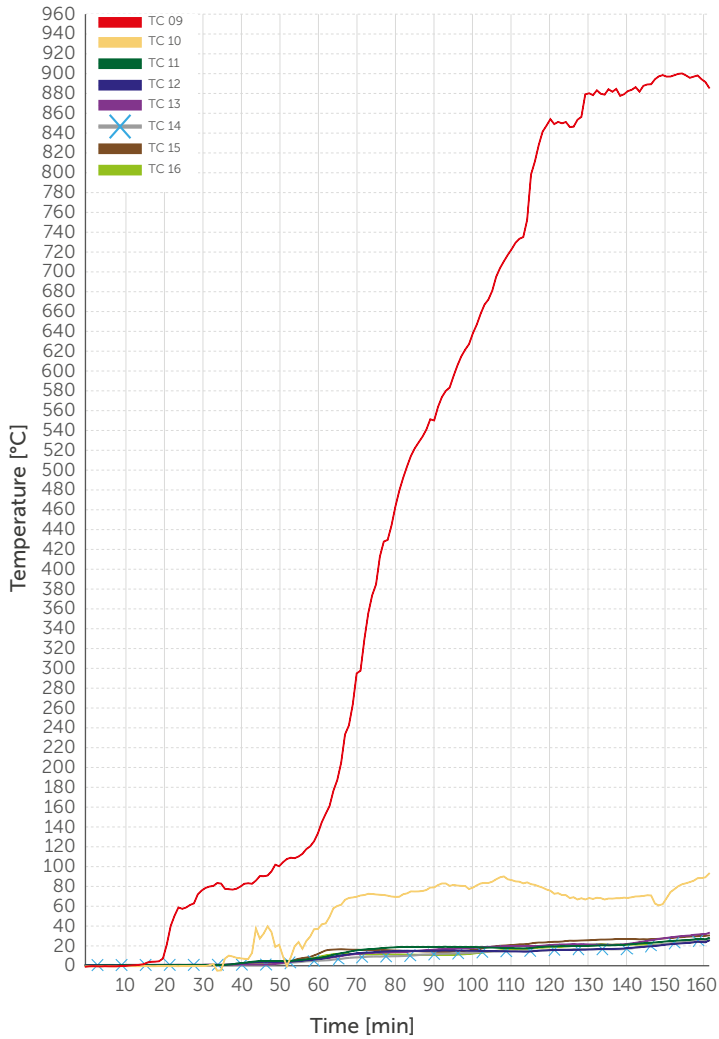
JOINT No. 6 - TEST REPORT

SIMPLE JOINT WITH VGZ9220 CROSSED SCREWS, 2 mm GAP AND FIRE STRIPE GRAPHITE AND FLEXI BAND

TOP SEALANT	FLEXI BAND
Description	Universal single-sided high-adhesive tape
Material	PE film/glue/reinforcing polyester grid/silicone coated paper
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

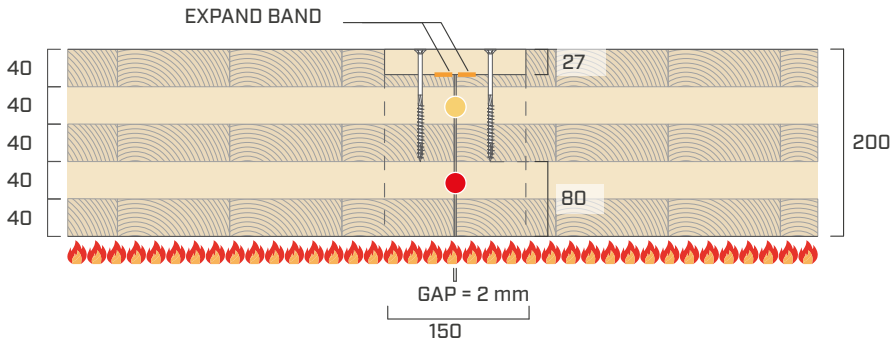
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 9	886°C
● 140 mm from slab bottom	TC 10	93°C
on the unexposed face of the slab	TC 13	33°C

Reference standard: UNI EN 1363-1:2020

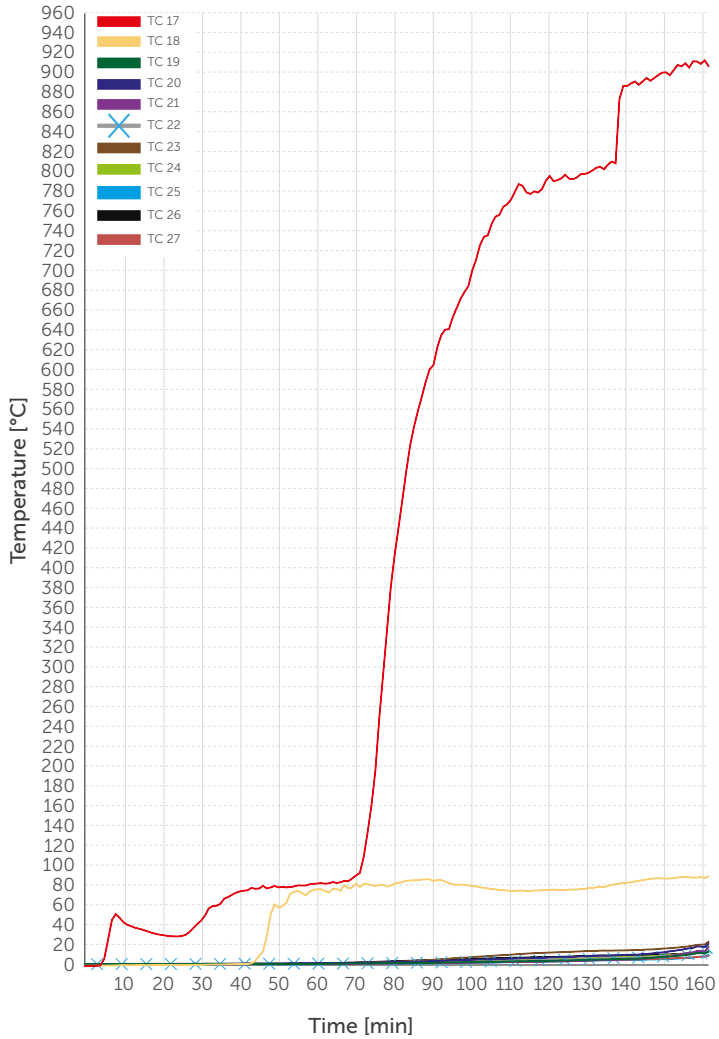
JOINT No. 7 - TEST REPORT

JOINT WITH COVER PLATE AND PARTIAL THREAD SCREWS HBS6120, 2 mm GAP AND EXPAND BAND

TOP SEALANT	EXPAND BAND
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner
BOTTOM SEALANT	**without sealant**




EXPAND BAND



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

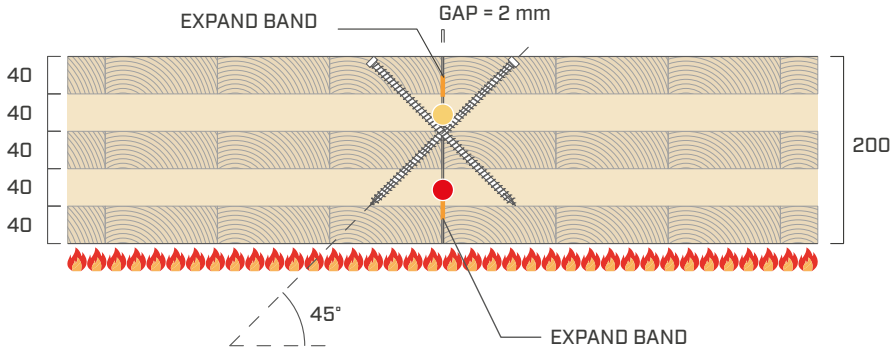
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 17	907°C
● 140 mm from slab bottom	TC 18	90°C
on the unexposed face of the slab	TC 23	24°C

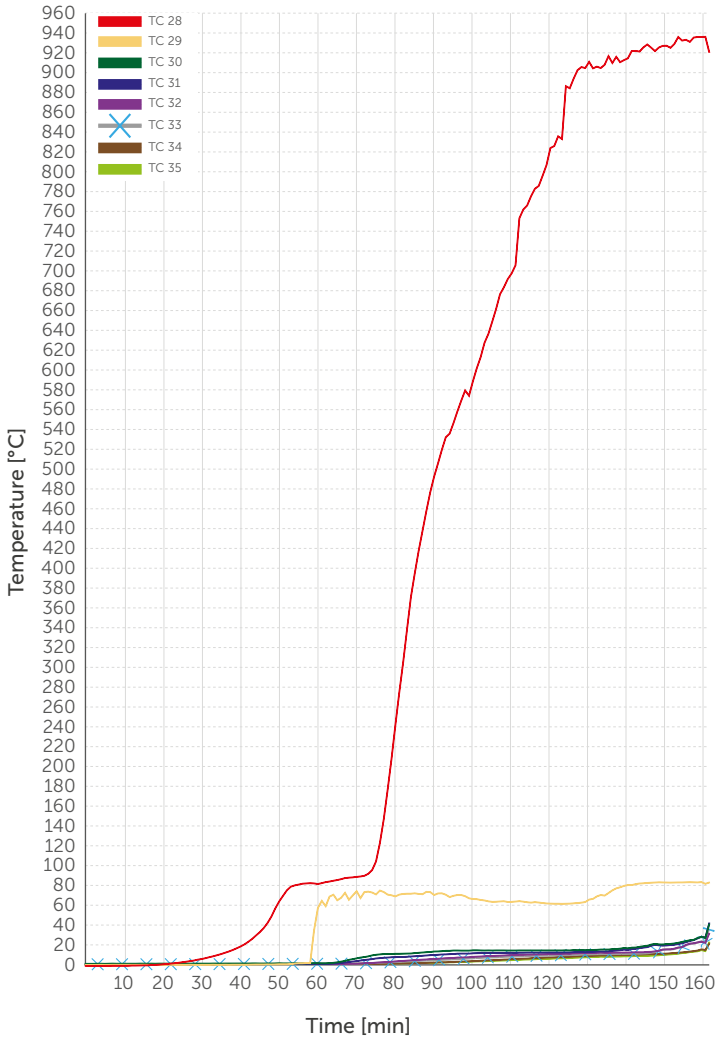
Reference standard: UNI EN 1363-1:2020

JOINT No. 8 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2 mm GAP AND EXPAND BAND

TOP SEALANT	EXPAND BAND
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner
BOTTOM SEALANT	**EXPAND BAND**
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

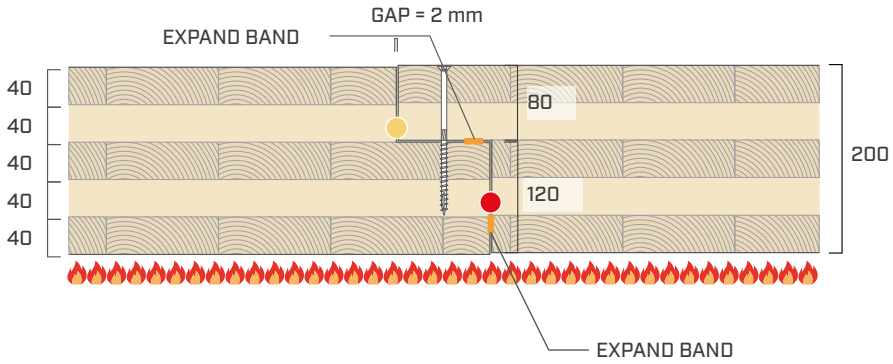
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 28	921°C
● 140 mm from slab bottom	TC 29	83°C
on the unexposed face of the slab	TC 31	42°C

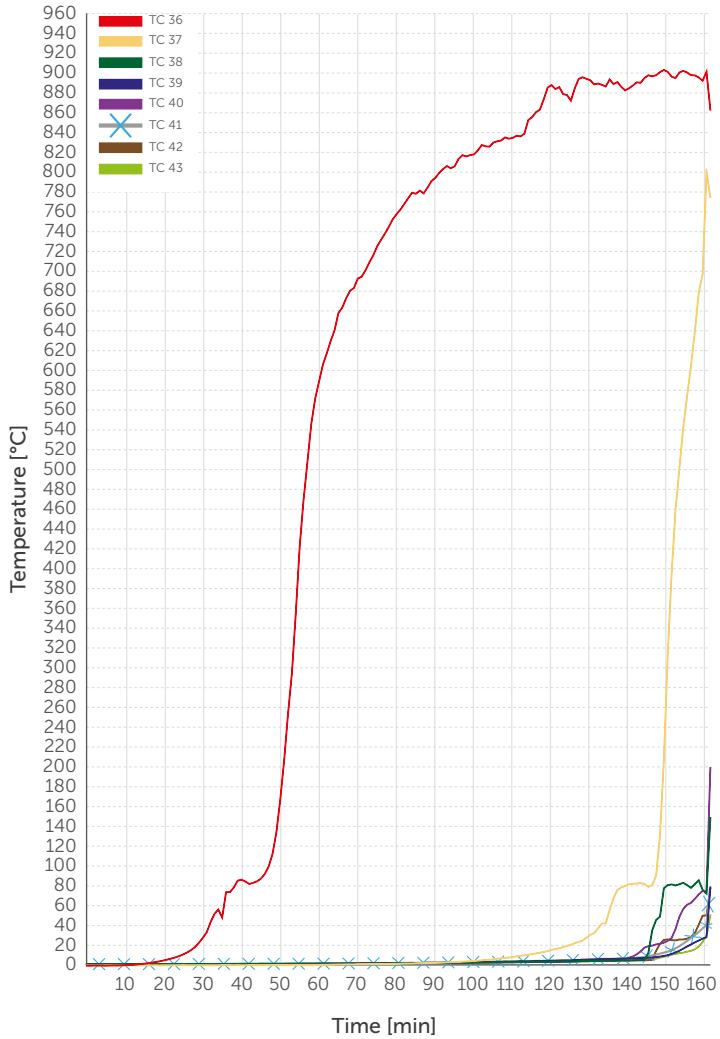
Reference standard: UNI EN 1363-1:2020

JOINT No. 9 - TEST REPORT

HALF-LAP JOINT WITH PARTIAL THREAD SCREWS HBS8160, 2 mm GAP AND EXPAND BAND

TOP SEALANT	EXPAND BAND
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner
BOTTOM SEALANT	**EXPAND BAND**
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	TC 40	**> 161 min**

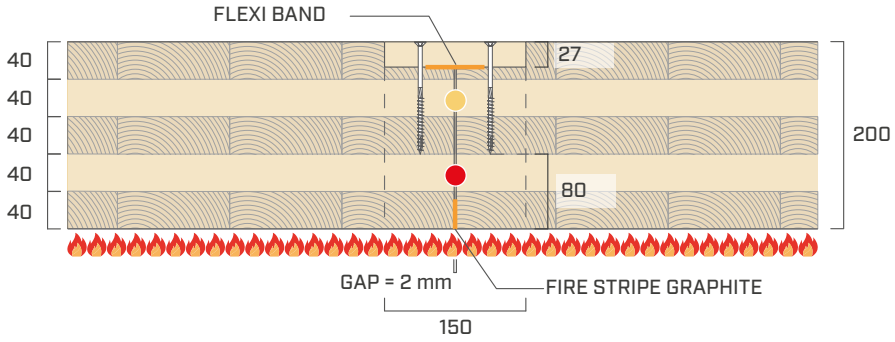
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 36	863°C
● 140 mm from slab bottom	TC 37	774°C
on the unexposed face of the slab	TC 40	199°C

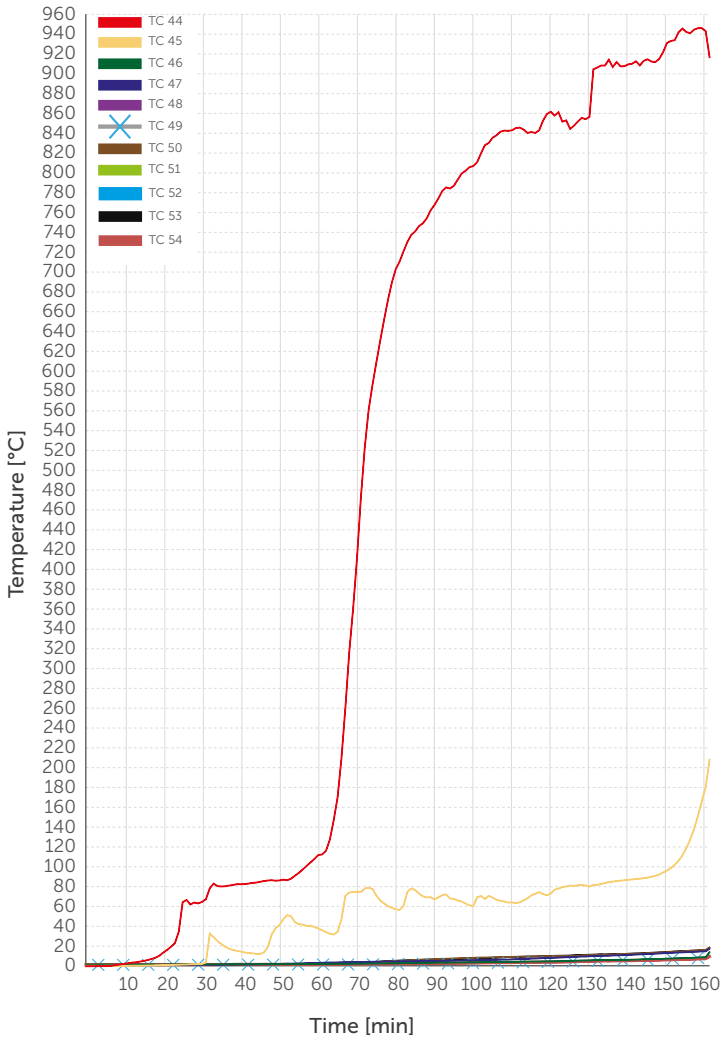
Reference standard: UNI EN 1363-1:2020

JOINT No. 10 - TEST REPORT

JOINT WITH COVER PLATE AND PARTIAL THREAD SCREWS HBS6120, 2 mm GAP, FIRE STRIPE GRAPHITE AND FLEXI BAND

TOP SEALANT	FLEXI BAND
Description	Universal single-sided high-adhesive tape
Material	PE film/glue/reinforcing polyester grid/silicone coated paper
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

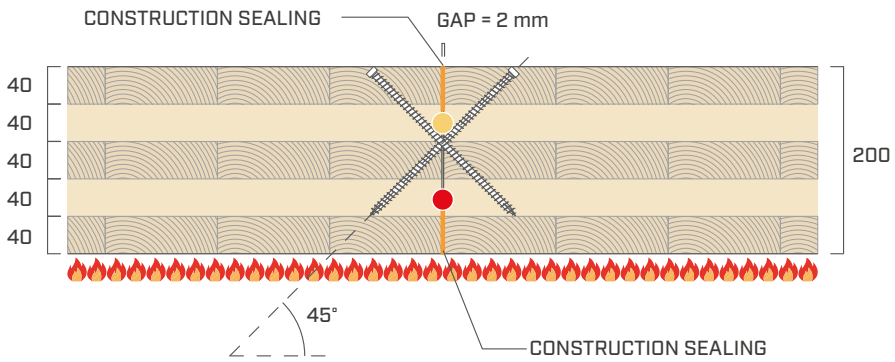
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 44	916°C
● 140 mm from slab bottom	TC 45	208°C
on the unexposed face of the slab	TC 50	19°C

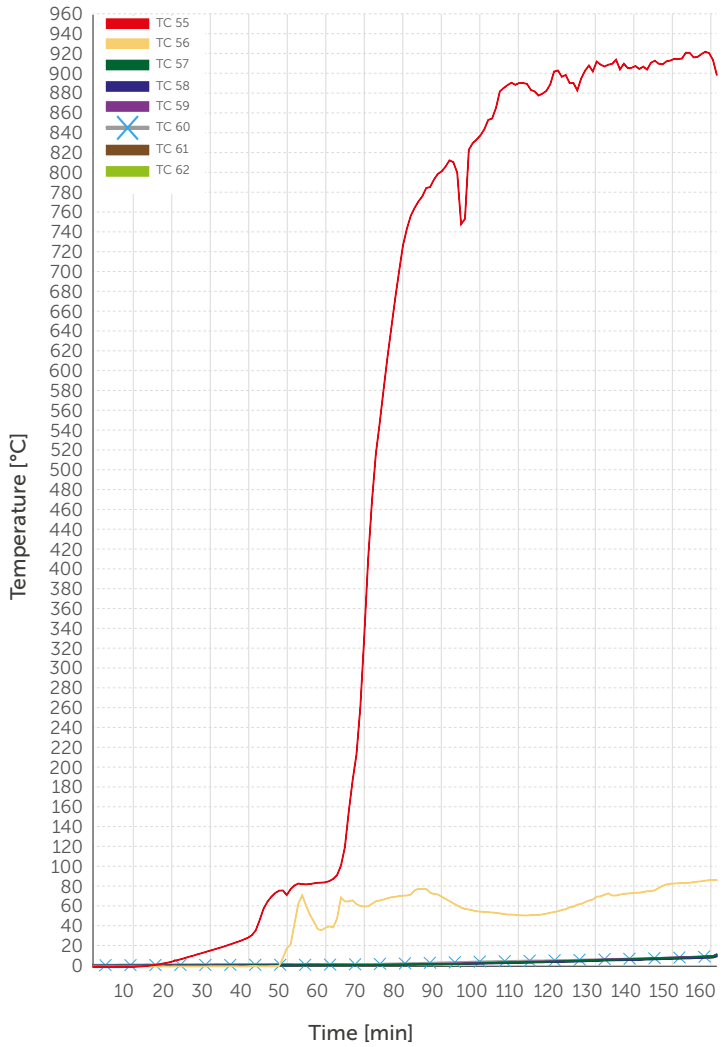
Reference standard: UNI EN 1363-1:2020

JOINT No. 11 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2 mm GAP AND CONSTRUCTION SEALING

TOP SEALANT	CONSTRUCTION SEALING
Description	Compressible sealing gasket for regular joints
Material	Expanded EPDM
BOTTOM SEALANT	**CONSTRUCTION SEALING**
Description	Compressible sealing gasket for regular joints
Material	Expanded EPDM





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	TC 40	**> 161 min**

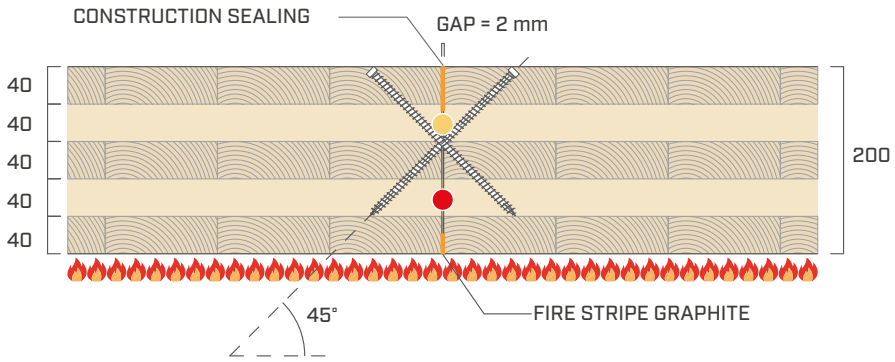
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 55	899°C
● 140 mm from slab bottom	TC 56	87°C
on the unexposed face of the slab	TC 59	12°C

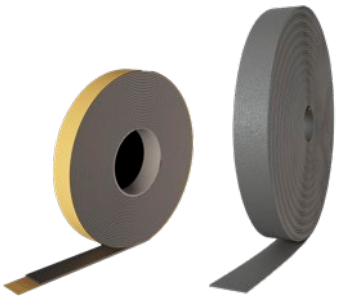
Reference standard: UNI EN 1363-1:2020

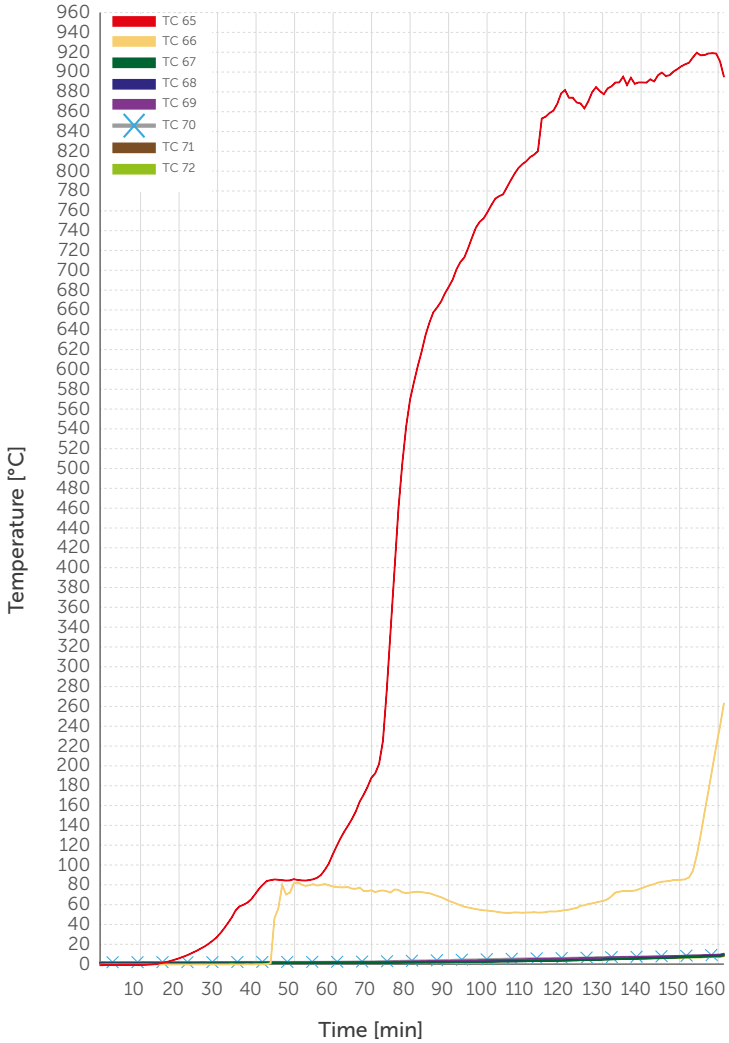
JOINT No. 12 - TEST REPORT

VGZ9220 SIMPLE JOINT WITH CROSSED SCREWS, 2 mm GAP, CONSTRUCTION SEALING AND FIRE STRIPE GRAPHITE

TOP SEALANT	CONSTRUCTION SEALING
Description	Compressible sealing gasket for regular joints
Material	Expanded EPDM
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite







PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

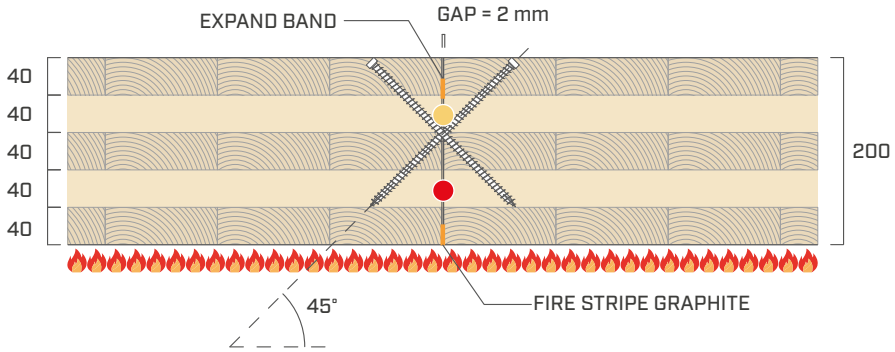
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 65	895°C
● 140 mm from slab bottom	TC 66	263°C
on the unexposed face of the slab	TC 69	11°C

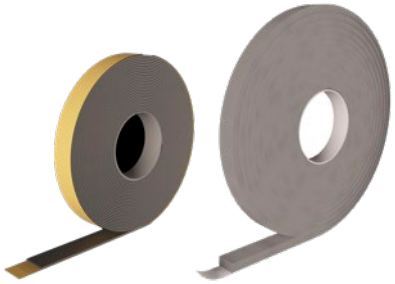
Reference standard: UNI EN 1363-1:2020

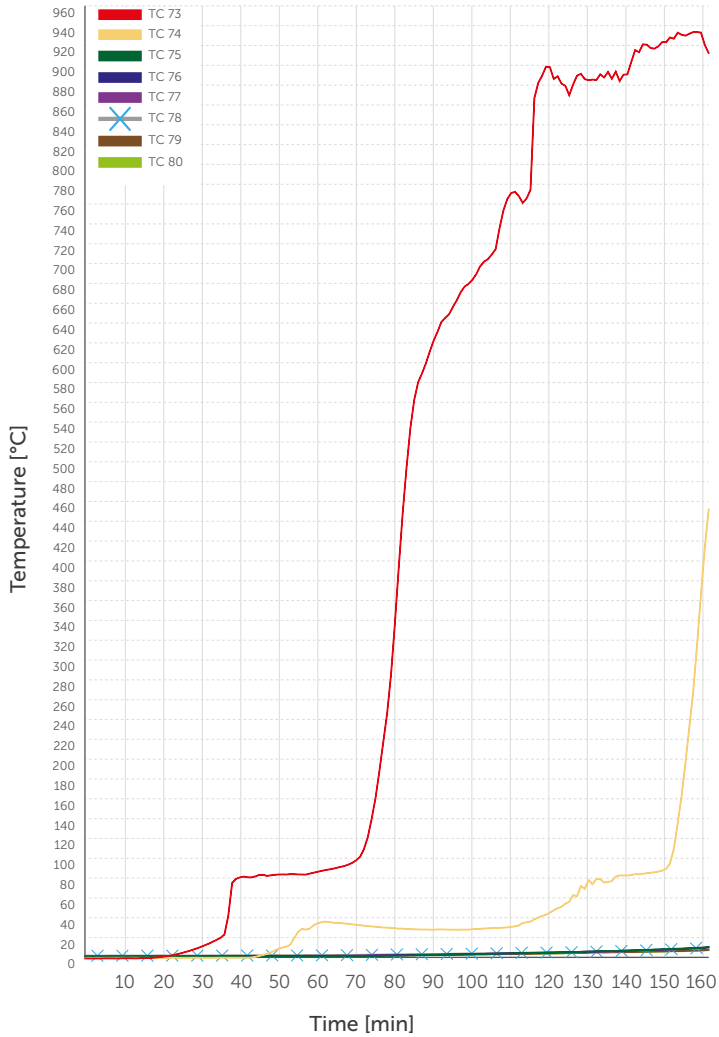
JOINT No. 13 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 2 mm GAP, EXPAND BAND AND FIRE STRIPE GRAPHITE

TOP SEALANT	EXPAND BAND
Description	Self-expanding sealing tape
Material	Elastic polyurethane foam with additives/silicone paper release liner
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite







PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a.	**> 161 min**

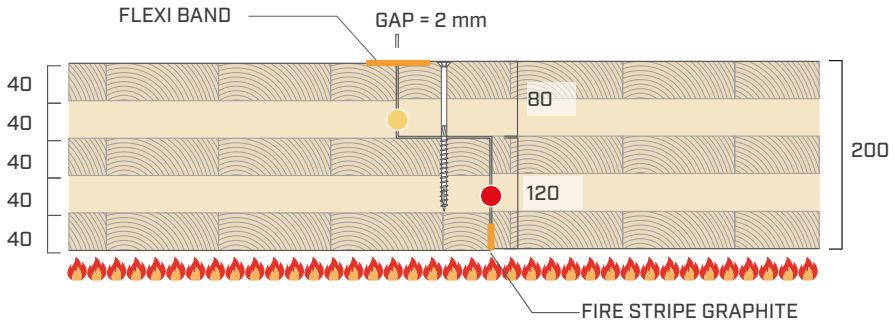
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 73	912°C
● 140 mm from slab bottom	TC 74	452°C
on the unexposed face of the slab	TC 75	11°C

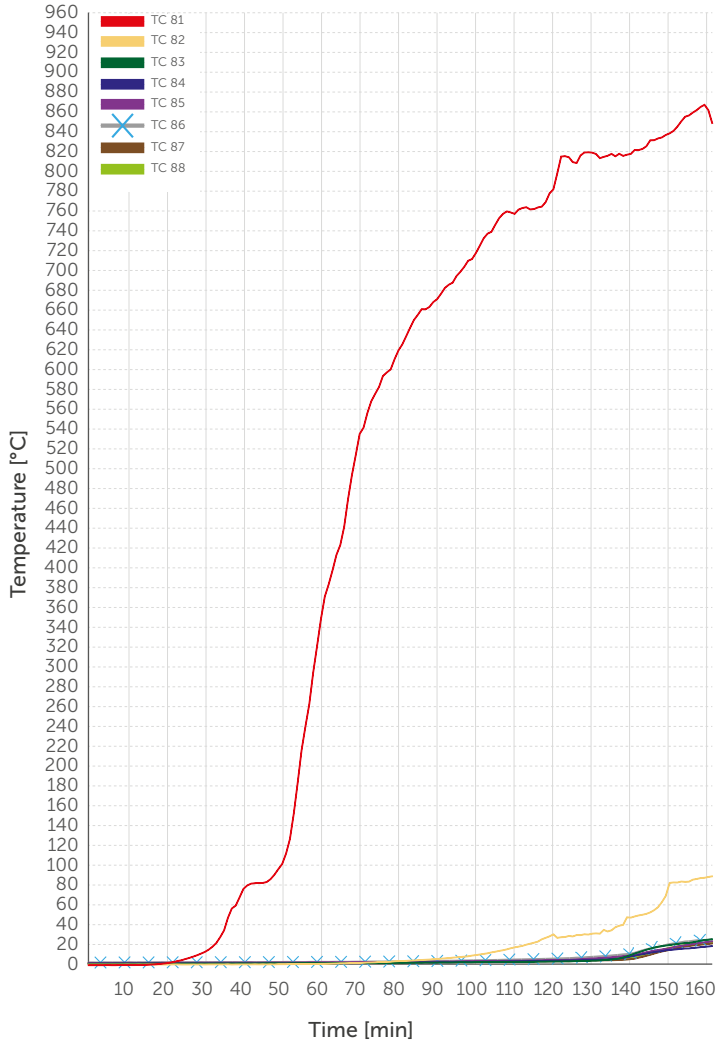
Reference standard: UNI EN 1363-1:2020

JOINT No. 14 - TEST REPORT

HALF-LAP JOINT WITH PARTIAL THREAD SCREWS HBS8160, 2 mm GAP, FLEXI BAND AND FIRE STRIPE GRAPHITE

TOP SEALANT	FLEXI BAND
Description	Universal single-sided high-adhesive tape
Material	PE film/glue/reinforcing polyester grid/silicone coated paper
BOTTOM SEALANT	**FIRE STRIPE GRAPHITE**
Description	Flexible intumescent gasket
Material	Graphite





PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

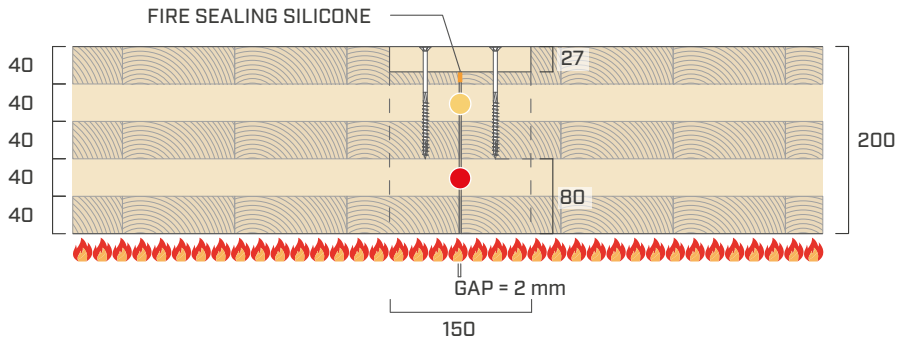
ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 81	848°C
● 140 mm from slab bottom	TC 82	89°C
on the unexposed face of the slab	TC 83-86	25°C

Reference standard: UNI EN 1363-1:2020

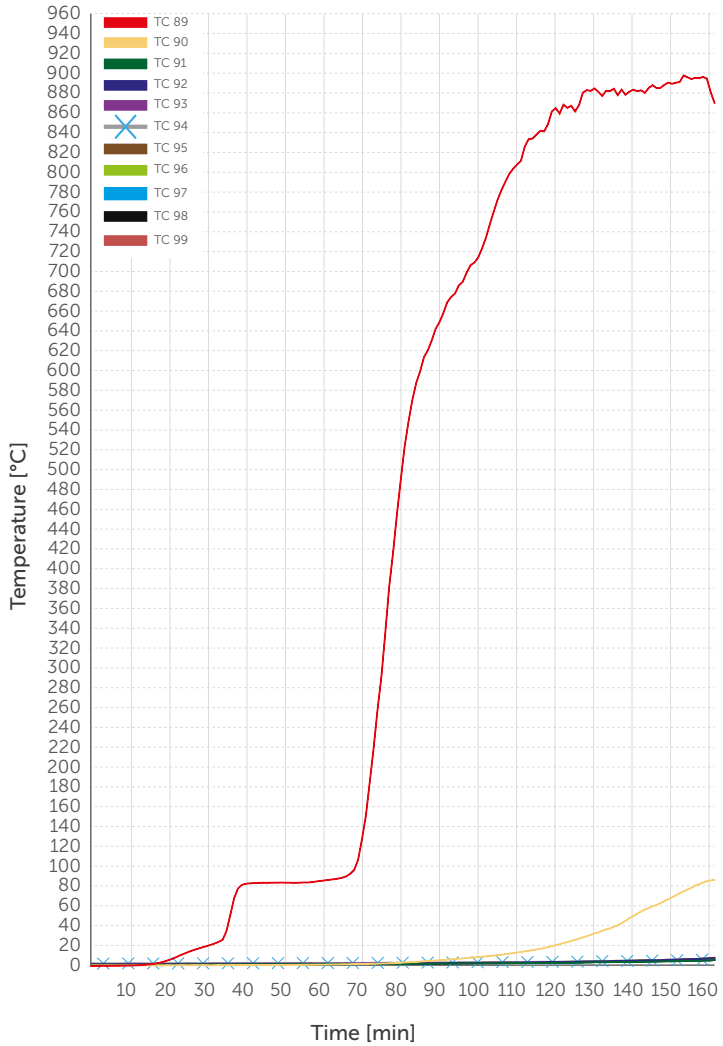
JOINT No. 15 - TEST REPORT

JOINT WITH COVER PLATE AND PARTIAL THREAD SCREWS HBS6120, 2 mm GAP AND FIRE SEALING SILICONE

TOP SEALANT	FIRE SEALING SILICONE
Description	High fire-resistant silicone sealant
Material	Silicone
BOTTOM SEALANT	**without sealant**



FIRE SEALING SILICONE



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a.	**> 161 min**

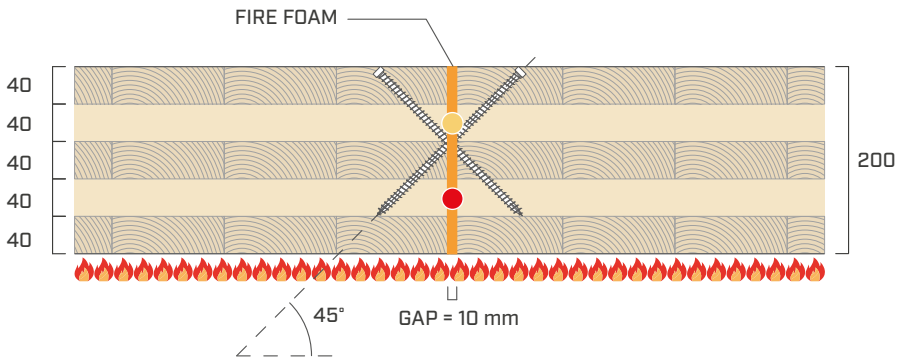
ΔT measured at the test end (after 160 minutes)	Thermocou-ple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 89	870°C
● 140 mm from slab bottom	TC 90	86°C
on the unexposed face of the slab	TC 95	8°C

Reference standard: UNI EN 1363-1:2020

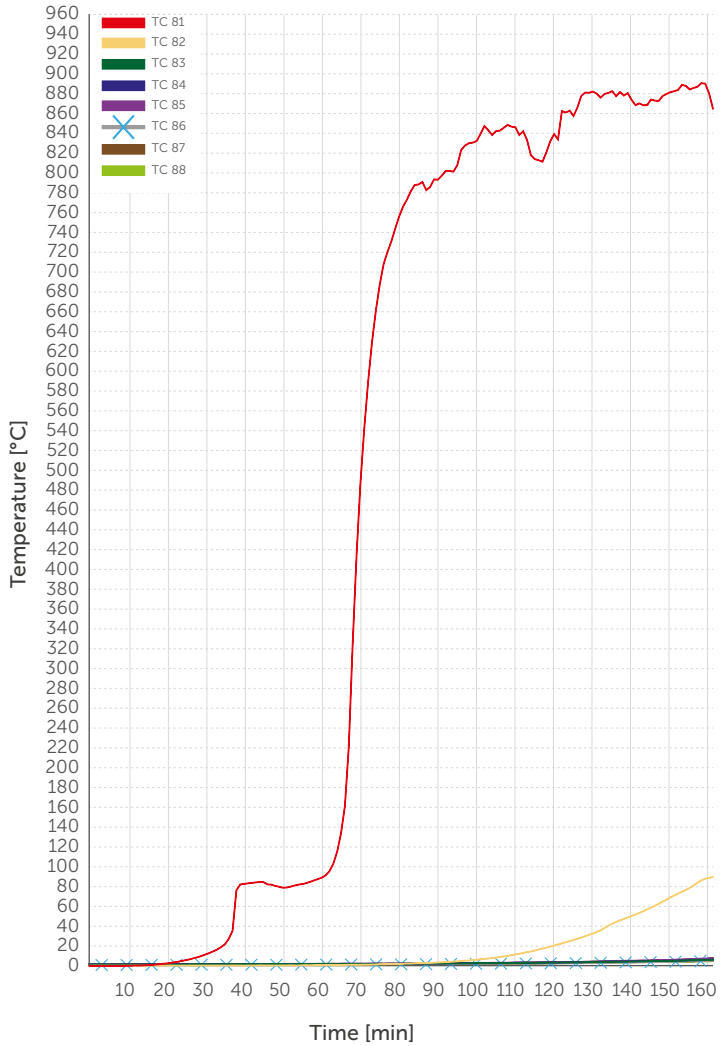
JOINT No. 16 - TEST REPORT

SIMPLE JOINT WITH CROSSED SCREWS VGZ9220, 10 mm GAP AND FIRE FOAM

TOP SEALANT	FIRE FOAM
Description	High fire-resistant sealing foam
Material	Single component PU
BOTTOM SEALANT	**FIRE FOAM**
Description	High fire-resistant sealing foam
Material	Single component PU



FIRE FOAM



PERFORMANCE CRITERIA

TIGHTNESS	Time
Cotton swab	**> 161 min**
6-mm gauge	
25-mm gauge	
Persistent flame	

INSULATION	Thermocouple [TC no.]	Time
	n.a	**> 161 min**

ΔT measured at the test end (after 160 minutes)	Thermocouple [TC no.]	Temperature
● 60 mm from slab bottom (non-exposed face)	TC 100	864°C
● 140 mm from slab bottom	TC 101	90°C
on the unexposed face of the slab	TC 104	8°C

Reference standard: UNI EN 1363-1:2020

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