



DECLARATION OF PERFORMANCE No. 32/MW/ALA

1. Unique identification code of product-type:

Sandwich panel SPA E, SPA E ENERGY, SPA I, SPA S, SPA S ENERGY, SPA E LIFE, SPA E LIFE ENERGY with mineral wool core and stainless steel facings

SPA150E SPA175E SPA200E SPA230E	SPA100S SPA125S SPA150S SPA175S	SPA150E LIFE SPA200E LIFE SPA230E LIFE
SPA150E ENERGY SPA175E ENERGY SPA200E ENERGY SPA230E ENERGY	SPA200S SPA230S	SPA150E LIFE ENERGY SPA200E LIFE ENERGY SPA230E LIFE ENERGY
SPA150I SPA175I SPA200I SPA230I	SPA150S ENERGY SPA200S ENERGY SPA230S ENERGY	

2. Intended use: Self-supporting metal faced insulating panels for use in buildings; external walls, internal walls and ceilings

Detailed intended use refers to the sandwich panel type – information in attachments to this declaration
3. Manufacturer: Ruukki Construction Oy.
Mäkeläntie 9
FI-62900 Alajärvi, Finland
4. Authorized representative: Not applicable
5. AVCP level: reaction to fire: 1, fire resistance: 3, other properties: 4
- 6a. Harmonised standard: EN 14509:2013 “Self-supporting double skin metal faced insulating panels. Factory made products. Specifications”
- Notified body: Eurofins Expert Services Oy (0809)
Certificate of Constancy of Performance 0809-CPR-1137
7. Declared performances: Technical product characteristics of specified product configuration are available in attachments to this Declaration of Performance.

The performance of the product identified above is in conformity with the set of declared performances.
This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

This Declaration of Performance is available on Ruukki web page:

<https://www.ruukki.com/b2b/support/certificates-and-declarations/sandwich-panel-certificates-and-approvals>

Signed for and on behalf of the manufacturer by:

A handwritten signature in blue ink that reads "Adam Korol". The signature is written in a cursive style with a large initial 'A'.

Adam Korol
Senior Vice President
Building Components

Helsinki, 09.10.2019

Declared technical characteristics of specified type of sandwich panels are available on the following pages:

ENERGY PANELS:

SPA E ENERGY	Page 4
SPA S ENERGY	Page 5
SPA E LIFE ENERGY	Page 6

OTHER PANELS:

SPA E	Page 7
SPA S	Page 8
SPA I	Page 9
SPA E LIFE	Page 10

**Attachment 1 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings**

Panel type:	SPA E ENERGY					
Reference to harmonized standard:	EN 14509:2013					
Year when CE-marking was affixed:	16					
Intended use:	External walls (single spans)					
Panel thickness:	150	175	200	230	Reference	
Thickness of external facing:	0,60				mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on external facing:	non-coated					
Thickness of internal facing:	0,60				mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on internal facing:	non-coated					
Core material:	MW					
Density of core material:	110				kg/m ³	
Nominal panel thickness:	152	174	198	232	mm	
Mass:	27,0	29,5	32,1	35,8	kg/m ²	
Mechanical resistance:						
Tensile strength:	0,086	0,086	0,086	0,086	MPa	
Shear strength:	0,045	0,045	0,045	0,045	MPa	
Reduced long term shear strength:	NPD (not applicable)				MPa	
Shear modulus (core):	3,7	3,7	3,7	3,7	MPa	
Compressive strength:	0,06	0,06	0,06	0,06	MPa	
Creep coefficient t=2000h:	NPD (not applicable)					
Creep coefficient t=100000h:	NPD (not applicable)					
Wrinkling strength (external face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Wrinkling strength (internal face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Resistance to point load:	NPD (not applicable)					
Repeated access load:	NPD (not applicable)					
Other properties:						
Thermal transmittance, U _{d,s} :	0,26	0,23	0,20	0,17	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,041				W/mK	
Reaction to fire:	A2-s1,d0				Class	(EN 13501-1)
Fire resistance (wall):	EI 90				Class	(EN 13501-2)
Water permeability:	A				Class	(EN 12865)
Air permeability:	C: 0.0232, n: 0.6115					(EN 12114)
Water vapour permeability:	Impermeable					
Airborne sound insulation; R _w (C:C _{tr}):	30 (-2;-4)	31 (-2;-4)	31 (-2;-3)		dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1					(EN ISO 11654)
Durability; DUR2:	Pass					

Detailed product/material specification is given on order confirmation or delivery documentation.

Attachment 2 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings

Panel type:	SPA S ENERGY				
Reference to harmonized standard:	EN 14509:2013				
Year when CE-marking was affixed:	16				
Intended use:	External walls (single spans)				
Panel thickness:	150	200	230	Reference	
Thickness of external facing:	0,60			mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on external facing:	non-coated				
Thickness of internal facing:	0,60			mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on internal facing:	non-coated				(EN 10169)
Core material:	MW				
Density of core material:	120			kg/m ³	
Nominal panel thickness:	152	198	232	mm	
Mass:	28,6	34,1	38,2	kg/m ²	
Mechanical resistance:					
Tensile strength:	0,15	0,15	0,15	MPa	
Shear strength:	0,085	0,076	0,071	MPa	
Reduced long term shear strength:	NPD (not applicable)			MPa	
Shear modulus (core):	6,8	6,8	6,8	MPa	
Compressive strength:	0,115	0,115	0,115	MPa	
Creep coefficient t=2000h:	NPD (not applicable)				
Creep coefficient t=100000h:	NPD (not applicable)				
Wrinkling strength (external face):					
- in span:	165	165	165	MPa	
- in span, elevated temperature:	165	165	165	MPa	
Wrinkling strength (internal face):					
- in span:	165	165	165	MPa	
- in span, elevated temperature:	165	165	165	MPa	
Resistance to point load:	NPD (not applicable)				
Repeated access load:	NPD (not applicable)				
Other properties:					
Thermal transmittance, U _{d,s} :	0,29	0,22	0,19	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,045			W/mK	
Reaction to fire:	A2-s1,d0			Class	(EN 13501-1)
Fire resistance (wall):	EI 120			Class	(EN 13501-2)
Water permeability:	A			Class	(EN 12865)
Air permeability:	C: 0.0232, n: 0.6115				(EN 12114)
Water vapour permeability:	Impermeable				
Airborne sound insulation; R _w (C:C _{tr}):	31 (-2;-4)			dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1				(EN ISO 11654)
Durability; DUR2:	Pass				

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Attachment 3 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings

Panel type:	SPA E LIFE ENERGY				
Reference to harmonized standard:	EN 14509:2013				
Year when CE-marking was affixed:	16				
Intended use:	External walls (single spans)				
Panel thickness:	150	200	230	Reference	
Thickness of external facing:	0,60			mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on external facing:	non-coated				
Thickness of internal facing:	0,60			mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on internal facing:	non-coated				
Core material:	MW				
Density of core material:	58			kg/m ³	
Nominal panel thickness:	152	198	232	mm	
Mass:	19,1	21,8	23,8	kg/m ²	
Mechanical resistance:					
Tensile strength:	0,10	0,10	0,095	MPa	
Shear strength:	0,045	0,04	0,036	MPa	
Reduced long term shear strength:	NPD (not applicable)			MPa	
Shear modulus (core):	2,5	2,5	2,5	MPa	
Compressive strength:	0,056	0,054	0,056	MPa	
Creep coefficient t=2000h:	NPD (not applicable)				
Creep coefficient t=100000h:	NPD (not applicable)				
Wrinkling strength (external face):					
- in span:	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	MPa	
Wrinkling strength (internal face):					
- in span:	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	MPa	
Resistance to point load:	NPD (not applicable)				
Repeated access load:	NPD (not applicable)				
Other properties:					
Thermal transmittance, U _{a,s} :	0,25	0,19	0,16	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,039			W/mK	
Reaction to fire:	A2-s1,d0			Class	(EN 13501-1)
Fire resistance (wall):	EI 60			Class	(EN 13501-2)
Water permeability:	A			Class	(EN 12865)
Air permeability:	C: 0.0232, n: 0.6115				(EN 12114)
Water vapour permeability:	Impermeable				
Airborne sound insulation; R _w (C:C _{tr}):	29 (-2;-3)	29 (-2;-4)		dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1				(EN ISO 11654)
Durability; DUR2:	Pass				

Detailed product/material specification is given on order confirmation or delivery documentation.

**Attachment 4 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings**

Panel type:	SPA E					
Reference to harmonized standard:	EN 14509:2013					
Year when CE-marking was affixed:	16					
Intended use:	External walls (single spans)					
Panel thickness:	150	175	200	230	Reference	
Thickness of external facing:	0,60				mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on external facing:	non-coated					
Thickness of internal facing:	0,60				mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on internal facing:	non-coated					
Core material:	MW					
Density of core material:	110				kg/m ³	
Nominal panel thickness:	152	174	198	232	mm	
Mass:	27,0	29,5	32,1	35,8	kg/m ²	
Mechanical resistance:						
Tensile strength:	0,086	0,086	0,086	0,086	MPa	
Shear strength:	0,045	0,045	0,045	0,045	MPa	
Reduced long term shear strength:	NPD (not applicable)				MPa	
Shear modulus (core):	3,7	3,7	3,7	3,7	MPa	
Compressive strength:	0,06	0,06	0,06	0,06	MPa	
Creep coefficient t=2000h:	NPD (not applicable)					
Creep coefficient t=100000h:	NPD (not applicable)					
Wrinkling strength (external face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Wrinkling strength (internal face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Resistance to point load:	NPD (not applicable)					
Repeated access load:	NPD (not applicable)					
Other properties:						
Thermal transmittance, U _{d,s} :	0,26	0,23	0,20	0,17	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,041				W/mK	
Reaction to fire:	A2-s1,d0				Class	(EN 13501-1)
Fire resistance (wall):	EI 90				Class	(EN 13501-2)
Water permeability:	A				Class	(EN 12865)
Air permeability:	C: 0.29, n: 0.0048					(EN 12114)
Water vapour permeability:	Impermeable					
Airborne sound insulation; R _w (C:C _{tr}):	30 (-2;-4)	31 (-2;-4)	31 (-2;-3)		dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1					(EN ISO 11654)
Durability; DUR2:	Pass					

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Attachment 5 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings

Panel type:	SPA S								
Reference to harmonized standard:	EN 14509:2013								
Year when CE-marking was affixed:	16								
Intended use:	External walls, Internal walls, Ceilings (single spans)								
Panel thickness:	100	125	150	175	200	230	Reference		
Thickness of external facing:	0,60						mm	(EN ISO 9445-2)	
External facing - steel grade:	EN 1.4401 or EN 1.4404							(EN 10088-4)	
Coating on external facing:	non-coated								
Thickness of internal facing:	0,60						mm	(EN ISO 9445-2)	
Internal facing - steel grade:	EN 1.4401 or EN 1.4404							(EN 10088-4)	
Coating on internal facing:	non-coated								
Core material:	MW								
Density of core material:	120						kg/m ³		
Nominal panel thickness:	97	125	152	174	198	232	mm		
Mass:	22,0	25,3	28,6	31,2	34,1	38,2	kg/m ²		
Mechanical resistance:									
Tensile strength:	0,15	0,15	0,15	0,15	0,15	0,15	MPa		
Shear strength:	0,10	0,10	0,085	0,081	0,076	0,071	MPa		
Reduced long term shear strength:	0,07	0,07	0,059	0,056	0,053	0,049	MPa		
Shear modulus (core):	6,8	6,8	6,8	6,8	6,8	6,8	MPa		
Compressive strength:	0,115	0,115	0,115	0,115	0,115	0,115	MPa		
Creep coefficient t=2000h:	0,40								
Creep coefficient t=100000h:	0,45								
Wrinkling strength (external face):									
- in span:	165	165	165	165	165	165	MPa		
- in span, elevated temperature:	165	165	165	165	165	165	MPa		
Wrinkling strength (internal face):									
- in span:	165	165	165	165	165	165	MPa		
- in span, elevated temperature:	165	165	165	165	165	165	MPa		
Resistance to point load:	1.2 kN 5.7 m								
Repeated access load:	Unsuitable for repeated loads without additional protection								
Other properties:									
Thermal transmittance, U _{d,s} :	0,45	0,35	0,29	0,25	0,22	0,19	W/m ² K		
Thermal conductivity of the core; λ _{Design} :	0,045						W/mK		
Reaction to fire:	A2-s1,d0						Class	(EN 13501-1)	
Fire resistance (wall):	EI 60		EI 120				Class	(EN 13501-2)	
Fire resistance (ceiling):	NPD								
Water permeability:	A						Class	(EN 12865)	
Air permeability:	C: 0.29, n: 0.0048							(EN 12114)	
Water vapour permeability:	Impermeable								
Airborne sound insulation; R _w (C:C _{tr}):	30 (-3;-3)	31 (-2;-3)	31 (-2;-4)				dB	(EN ISO 717-1)	
Sound absorption; α _w :	0,1							(EN ISO 11654)	
Durability; DUR2:	Pass								

Detailed product/material specification is given on order confirmation or delivery documentation.

**Attachment 6 to Declaration of Performance 32/MW/ALA
sandwich panels with stainless steel facings**

Panel type:	SPA I					
Reference to harmonized standard:	EN 14509:2013					
Year when CE-marking was affixed:	16					
Intended use:	Internal walls (single spans)					
Panel thickness:	150	175	200	230	Reference	
Thickness of external facing:	0,60				mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on external facing:	non-coated					
Thickness of internal facing:	0,60				mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404					(EN 10088-4)
Coating on internal facing:	non-coated					
Core material:	MW					
Density of core material:	110				kg/m ³	
Nominal panel thickness:	152	174	198	232	mm	
Mass:	27,0	29,5	32,1	35,8	kg/m ²	
Mechanical resistance:						
Tensile strength:	0,086	0,086	0,086	0,086	MPa	
Shear strength:	0,045	0,045	0,045	0,045	MPa	
Reduced long term shear strength:	NPD (not applicable)				MPa	
Shear modulus (core):	3,7	3,7	3,7	3,7	MPa	
Compressive strength:	0,06	0,06	0,06	0,06	MPa	
Creep coefficient t=2000h:	NPD (not applicable)					
Creep coefficient t=100000h:	NPD (not applicable)					
Wrinkling strength (external face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Wrinkling strength (internal face):						
- in span:	105	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	105	MPa	
Resistance to point load:	NPD (not applicable)					
Repeated access load:	NPD (not applicable)					
Other properties:						
Thermal transmittance, U _{d,s} :	0,26	0,23	0,20	0,17	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,041				W/mK	
Reaction to fire:	A2-s1,d0				Class	(EN 13501-1)
Fire resistance (wall):	EI 90				Class	(EN 13501-2)
Water permeability:	A				Class	(EN 12865)
Air permeability:	C: 0.29, n: 0.0048					(EN 12114)
Water vapour permeability:	Impermeable					
Airborne sound insulation; R _w (C:C _{tr}):	30 (-2;-4)	31 (-2;-4)	31 (-2;-3)		dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1					(EN ISO 11654)
Durability; DUR2:	Pass					

Detailed product/material specification is given on order confirmation or delivery documentation.

**Attachment 7 to Declaration of Performance 32/MW/ALA
 sandwich panels with stainless steel facings**

Panel type:	SPA E LIFE				
Reference to harmonized standard:	EN 14509:2013				
Year when CE-marking was affixed:	16				
Intended use:	External walls (single spans)				
Panel thickness:	150	200	230	Reference	
Thickness of external facing:	0,60			mm	(EN ISO 9445-2)
External facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on external facing:	non-coated				
Thickness of internal facing:	0,60			mm	(EN ISO 9445-2)
Internal facing - steel grade:	EN 1.4401 or EN 1.4404				(EN 10088-4)
Coating on internal facing:	non-coated				
Core material:	MW				
Density of core material:	58			kg/m ³	
Nominal panel thickness:	152	198	232	mm	
Mass:	19,1	21,8	23,8	kg/m ²	
Mechanical resistance:					
Tensile strength:	0,10	0,10	0,095	MPa	
Shear strength:	0.045	0,04	0,036	MPa	
Reduced long term shear strength:	NPD (not applicable)			MPa	
Shear modulus (core):	2,5	2,5	2,5	MPa	
Compressive strength:	0,056	0,054	0,056	MPa	
Creep coefficient t=2000h:	NPD (not applicable)				
Creep coefficient t=100000h:	NPD (not applicable)				
Wrinkling strength (external face):					
- in span:	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	MPa	
Wrinkling strength (internal face):					
- in span:	105	105	105	MPa	
- in span, elevated temperature:	105	105	105	MPa	
Resistance to point load:	NPD (not applicable)				
Repeated access load:	NPD (not applicable)				
Other properties:					
Thermal transmittance, U _{d,s} :	0,25	0,19	0,16	W/m ² K	
Thermal conductivity of the core; λ _{Design} :	0,039			W/mK	
Reaction to fire:	A2-s1,d0			Class	(EN 13501-1)
Fire resistance (wall):	EI 60			Class	(EN 13501-2)
Water permeability:	A			Class	(EN 12865)
Air permeability:	C: 0.29, n: 0.0048				(EN 12114)
Water vapour permeability:	Impermeable				
Airborne sound insulation; R _w (C:C _{tr}):	29 (-2;-3)	29 (-2;-4)		dB	(EN ISO 717-1)
Sound absorption; α _w :	0,1				(EN ISO 11654)
Durability; DUR2:	Pass				

Detailed product/material specification is given on order confirmation or delivery documentation.