

# Declaration of Performance (DOP)

No. 9174 074 DOP 2015-08-05

1. Unique identification code of the product-type:

**Multi-wall chimney system type FURADO-A according to EN 1856-1:2009**

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4):

**Metal chimney system with specified outer wall type FURADO-A<sup>1)</sup>**

<b>Model 1</b>	<b>EW-ALBI</b> (EW-ALBI with EPDM gasket)	<b>DN ( 80- 450) T120 – P1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90 resp. 50 mm for L <sub>A</sub> 30/ without insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 2</b>	<b>EW-KL or EW-FU</b>	<b>DN ( 80- 450) T160 – N1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90 resp. 50 mm for L <sub>A</sub> 30/ without insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 3</b>	<b>EW-KL or EW-ALBI</b> (EW-ALBI with silicone gasket)	<b>DN ( 80- 450) T160 – P1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90 resp. 50 mm for L <sub>A</sub> 30/ without insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 4</b>	<b>EW-KL</b>	<b>DN ( 80- 450) T160 – H1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90 resp. 50 mm for L <sub>A</sub> 30/ without insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 5</b>	<b>EW-KL or EW-FU</b>	<b>DN ( 80- 450) T200 – N1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 50 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 6</b>	<b>EW-KL or EW-ALBI</b> (EW-ALBI with silicone gasket)	<b>DN ( 80- 450) T200 – P1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 50 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 7</b>	<b>EW-KL</b>	<b>DN ( 80- 450) T200 – H1 – W – V2 – L50050 – O00</b> (Wall thickness shaft 50 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 8</b>	<b>EW-KL or EW-FU</b>	<b>DN ( 80- 300) T400 – N1 – W – V2 – L50050 – O50</b> <b>DN (350- 450) T400 – N1 – W – V2 – L50050 – O75</b> (Wall thickness shaft 50 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 9</b>	<b>EW-KL</b>	<b>DN ( 80- 300) T400 – H1 – W – V2 – L50050 – O50</b> <b>DN (350- 450) T400 – H1 – W – V2 – L50050 – O75</b> (Wall thickness shaft 50 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 10</b>	<b>EW-KL or EW-FU</b>	<b>DN ( 80- 300) T600 – N1 – W – V2 – L50050 – O50</b> <b>DN (350- 450) T600 – N1 – W – V2 – L50050 – O75</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>
<b>Model 11</b>	<b>EW-KL</b>	<b>DN ( 80- 300) T600 – H1 – W – V2 – L50050 – O50</b> <b>DN (350- 450) T600 – H1 – W – V2 – L50050 – O75</b> (Wall thickness shaft 60 mm for L <sub>A</sub> 90/ with 25 mm insulation/ annular gap min. 20 mm) <sup>2)</sup>

<sup>1)</sup> Manufacturer product identification FURADO-A

<sup>2)</sup> Free cross sectional area between inner flue pipe resp. insulation and inside duct, ventilated annular gap of min. 20 mm necessary

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

**Convey the products of combustion from heating appliances to the outside atmosphere**

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5):

**Jeremias GmbH**  
**Opfenrieder Straße 11-14**  
**DE-91717 Wassertrüdingen**  
**Tel.: +49 9832 68 68 0**  
**Fax: +49 9832 68 68 68**  
**Email: [info@jeremias.de](mailto:info@jeremias.de)**

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

**not applicable**

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V:

**System 2+ and System 4**

7. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:


**Notified factory production control certification body no. 0036 performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control and issued the certificate of conformity 0036 CPR 9174 074 of the factory production control.**

	Essential Characteristics	Performance	Harmonized technical specification
8.1	Compressive strength  Chimney sections, fittings and supports	<u>Sections and fittings:</u> Model 1 to 11 DN ( 80- 300): <b>up to 27 m</b> (metal chimney system) Model 1 to 11 DN (350- 450): <b>up to 21 m</b> (metal chimney system) Model 1 to 11 for all cross sections: <b>up to 25 m</b> (shaft) <u>Supports:</u> n.p.d. For further information see the installation instruction FURADO-A	EN 1856-1:2009
8.2	Resistance to fire	<u>Resistance to fire from inside to outside:</u> Model 1 EW-ALBI DN ( 80- 450): T120 – <b>000</b> <sup>1)</sup> Model 2 EW-KL/ EW-FU DN ( 80- 450): T160 – <b>000</b> <sup>1)</sup> Model 3 EW-KL/ EW-ALBI DN ( 80- 450): T160 – <b>000</b> <sup>1)</sup> Model 4 EW-KL DN ( 80- 450): T160 – <b>000</b> <sup>1)</sup> Model 5 EW-KL/ EW-FU DN ( 80- 450): T200 – <b>000*</b> <sup>2)</sup> Model 6 EW-KL/ EW-ALBI DN ( 80- 450): T200 – <b>000*</b> <sup>2)</sup> Model 7 EW-KL DN ( 80- 450): T200 – <b>000*</b> <sup>2)</sup> Model 8 EW-KL/ EW-FU DN ( 80- 300): T400 – <b>050*</b> <sup>2)</sup> DN (350- 450): T400 – <b>075*</b> <sup>2)</sup> Model 9 EW-KL DN ( 80- 300): T400 – <b>050*</b> <sup>2)</sup> DN (350- 450): T400 – <b>075*</b> <sup>2)</sup> Model 10 EW-KL/ EW-FU DN ( 80- 300): T600 – <b>050*</b> <sup>3)</sup> DN (350- 450): T600 – <b>075*</b> <sup>3)</sup> Model 11 EW-KL DN ( 80- 300): T600 – <b>050*</b> <sup>3)</sup> DN (350- 450): T600 – <b>075*</b> <sup>3)</sup>  * with 25mm insulation <sup>1)</sup> wall thickness shaft 60mm for L <sub>A</sub> 90 resp. 50mm for L <sub>A</sub> 30 <sup>2)</sup> wall thickness shaft 50mm for L <sub>A</sub> 90 <sup>3)</sup> wall thickness shaft 60mm for L <sub>A</sub> 90  <u>Resistance to fire from outside to outside:</u> Model 1 to 11: <b>90 minutes (L<sub>A</sub>90)</b>  <u>Distance to combustible material:</u> Model 1 to 7: Between outside duct and combustible material is <b>no distance</b> necessary. Model 8 to 11: Between outside duct and combustible material is a distance from <b>min. 50mm</b> (from DN 350: <b>min. 75mm</b> ) necessary. It can be realized ventilated or with mineral insulation 90-117kg/m <sup>3</sup> all-over insulated. Stripes of the duct material can be used on the edges to create a clean finish that can be plastered afterwards.  <u>Ceiling duct:</u> Model 1 to 7: <b>Closed, no minimum distance at vertical installation</b> Model 8 to 11: <b>Closed and insulated or ventilated, minimum distance 50mm</b> (from DN 350: <b>min. 75mm</b> ) <b>at vertical installation</b> Tested without additional cladding around the mineral duct between ceilings.  <u>Annular gap:</u> Model 1 to 11: <b>Min. 20 mm ventilated annular gap in co-current flow to the exhaust gas is necessary between insulation shell and inner surface of the duct.</b>	EN 1856-1:2009

## 8. Declared performance:

	Essential Characteristics	Performance	Harmonized technical specification																								
8.3	Gas tightness/ leakage	Model 1 EW-ALBI DN (80- 450): <b>P1</b> Model 2 EW-KL/ EW-FU DN (80- 450): <b>N1</b> Model 3 EW-KL/ EW-ALBI DN (80- 450): <b>P1</b> Model 4 EW-KL DN (80- 450): <b>H1</b> Model 5 EW-KL/ EW-FU DN (80- 450): <b>N1</b> Model 6 EW-KL/ EW-ALBI DN (80- 450): <b>P1</b> Model 7 EW-KL DN (80- 450): <b>H1</b> Model 8 EW-KL/ EW-FU DN (80- 450): <b>N1</b> Model 9 EW-KL DN (80- 450): <b>H1</b> Model 10 EW-KL/ EW-FU DN (80- 450): <b>N1</b> Model 11 EW-KL DN (80- 450): <b>H1</b>	EN 1856-1:2009																								
8.4	Flow resistance of chimney sections, fittings and terminals	According to EN 13384-1 <table><tr><th>component:</th><th>ζ (Zeta-value) single resistance</th></tr><tr><td>pipe tee 87°:</td><td>1.14</td></tr><tr><td>pipe tee 45°:</td><td>0.35</td></tr><tr><td>pipe bend 87°:</td><td>0.40</td></tr><tr><td>pipe bend 45°:</td><td>0.28</td></tr><tr><td>pipe bend 30°:</td><td>0.20</td></tr><tr><td>pipe bend 15°:</td><td>0.10</td></tr><tr><td colspan="2"><b>Terminals:</b> (only for operation in negative pressure)</td></tr><tr><td>rain cap:</td><td>1.0</td></tr><tr><td>fin cap type „Hubo“:</td><td>≤ Ø 140 mm 0.1/ ≥ Ø 150 mm 0.2</td></tr><tr><td>Wind deflector:</td><td>≤ Ø 140 mm 0.1/ ≥ Ø 150 mm 0.2</td></tr><tr><td>hurricane:</td><td>0.1</td></tr></table>	component:	ζ (Zeta-value) single resistance	pipe tee 87°:	1.14	pipe tee 45°:	0.35	pipe bend 87°:	0.40	pipe bend 45°:	0.28	pipe bend 30°:	0.20	pipe bend 15°:	0.10	<b>Terminals:</b> (only for operation in negative pressure)		rain cap:	1.0	fin cap type „Hubo“:	≤ Ø 140 mm 0.1/ ≥ Ø 150 mm 0.2	Wind deflector:	≤ Ø 140 mm 0.1/ ≥ Ø 150 mm 0.2	hurricane:	0.1	EN 1856-1:2009
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8.5	Thermal resistance	Model 1 to 4 DN (80- 450): <b>0.5 m²K/W calculated for 200°C *</b> Model 5 to 9 DN (80- 450): <b>0.5 m²K/W calculated for 200°C *</b> Model 10 to 11 DN (80- 450): <b>0.5 m²K/W calculated for 200°C *</b> * Thermal resistance of the whole system (inner pipe, if applicable 25mm insulation and mineral outer pipe)	EN 1856-1:2009																								
8.6	Thermal shock resistance		EN 1856-1:2009																								
8.6	Sootfire resistance	Model 1 to 11 DN (80- 450): <b>No <sup>2)</sup></b> <sup>2)</sup> Because designated O																									
8.7	Thermal performance under normal operating conditions	Model 1 EW-ALBI DN (80- 450): <b>T120</b> Model 2 EW-KL/ EW-FU DN (80- 450): <b>T160</b> Model 3 EW-KL/ EW-ALBI DN (80- 450): <b>T160</b> Model 4 EW-KL DN (80- 450): <b>T160</b> Model 5 EW-KL/ EW-FU DN (80- 450): <b>T200</b> Model 6 EW-KL/ EW-ALBI DN (80- 450): <b>T200</b> Model 7 EW-KL DN (80- 450): <b>T200</b> Model 8 EW-KL/ EW-FU DN (80- 450): <b>T400</b> Model 9 EW-KL DN (80- 450): <b>T400</b> Model 10 EW-KL/ EW-FU DN (80- 450): <b>T600</b> Model 11 EW-KL DN (80- 450): <b>T600</b>																									
8.8	Flexural tensile strength  (only for means of connection for chimney sections and fittings)	Model 1 to 11 DN (80- 450): <b>n.p.d.</b>	EN 1856-1:2009																								

8. Declared performance:

	Essential Characteristics	Performance	Harmonized technical specification
8.9	Non vertical installation	Model 1 to 11 DN (80- 450): Maximum offset between supports/ suspensions <b>≤ 1 m at 90°</b> The fixations have to be affixed to the joints of the outer shell. (All vertical and horizontal forces of the flue gas system have to be transfered into the building in a safe way)	EN 1856-1:2009
8.10	Components subject to wind load	Model 1 to 11 DN (80- 450): Free standing height <b>1.5 m</b> above roof. Maximum spacing between lateral supports: <b>5 m</b> (For the run inside the building with suspended ceiling) <b>3 m</b> (For the installation in/ affixed to buildings with fixation to the wall)	EN 1856-1:2009
8.11	Durability: Water and vapour diffusion resistance	Model 1 to 11 DN (80- 450): <b>Yes</b>	EN 1856-1:2009
8.12	Condensate penetration resistance	Model 1 to 11 DN (80- 450): <b>Yes</b>	
8.13	Against corrosion	Model 1 to 11 DN (80- 450): <b>V2</b>	
8.14	Freeze thaw resistance	Model 1 to 11 DN (80- 450): <b>Yes</b>	
<p>9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in pooint 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.</p> <p>Signed for and on behalf of the manufacturer by:</p> <p>Wassertrüdingen, 5<sup>th</sup> August 2015</p> <div> ..... Stefan Engelhardt CEO</div>			

# Product information

## „Chimneys – Requirements for metal chimneys - Part 1 System chimney products“ DIN EN 1856-1:2009

Manufacturer's identification:

**Jeremias GmbH**  
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**91717 Wassertrüdingen**  
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E-Mail: [info@jeremias.de](mailto:info@jeremias.de)

Product trade name:

**FURADO-A** (metal chimney system with specified outer wall)

Certification office:

TÜV SÜD Industrie Service GmbH

Name and position of the responsible person:

**Stefan Engelhardt** CEO

Identification of accompanying documentation

0.1 EW-ALBI	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T120</b>	<b>P1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-ALBI (with EPDM gasket) and 60mm light construction duct (L <sub>A</sub> 90) resp. 50mm light construction duct (L <sub>A</sub> 30) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between inner pipe and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in positive pressure up to 200Pa.
0.2 EW-KL/ EW-FU	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T160</b>	<b>N1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-FU and 60mm light construction duct (L <sub>A</sub> 90) resp. 50mm light construction duct (L <sub>A</sub> 30) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between inner pipe and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in negative pressure.
0.3 EW-KL/ EW-ALBI	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T160</b>	<b>P1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-ALBI (with silicone gasket) and 60mm light construction duct (L <sub>A</sub> 90) resp. 50mm light construction duct (L <sub>A</sub> 30) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between inner pipe and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in positive pressure up to 200Pa.
0.4 EW-KL	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T160</b>	<b>H1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL and 60mm light construction duct (L <sub>A</sub> 90) resp. 50mm light construction duct (L <sub>A</sub> 30) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between inner pipe and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in positive pressure/ high pressure up to 5000Pa.
0.5 EW-KL/ EW-FU	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T200</b>	<b>N1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-FU with 25mm insulation and 50mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in negative pressure.
0.6 EW-KL/ EW-ALBI	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T200</b>	<b>P1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-ALBI (with silicone gasket) with 25mm insulation and 50mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in positive pressure up to 200Pa.
0.7 EW-KL	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T200</b>	<b>H1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O00</b>	<b>80 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL with 25mm insulation and 50mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Closed ceiling duct, no distance to combustible material necessary. Operation mode in positive pressure/ high pressure up to 5000Pa.
0.8 EW-KL/ EW-FU	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T400</b>	<b>N1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O50</b> <b>O75</b>	<b>80 - 300</b> <b>350 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-FU with 25mm insulation and 50mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Distance between duct and combustible material of minimum 50mm, can be realized ventilated or with mineral insulation 90-117kg/m <sup>3</sup> all-over insulated. Closed and insulated or ventilated at the ceiling duct, minimum distance 50mm at vertical installation. Operation mode in negative pressure.
0.9 EW-KL	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T400</b>	<b>H1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O50</b> <b>O75</b>	<b>80 - 300</b> <b>350 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL with 25mm insulation and 50mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Distance between duct and combustible material of minimum 50mm, can be realized ventilated or with mineral insulation 90-117kg/m <sup>3</sup> all-over insulated. Closed and insulated or ventilated at ceiling duct, minimum distance 50mm at vertical installation. Operation mode in positive pressure/ high pressure up to 5000Pa.
0.10 EW-KL/ EW-FU	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T600</b>	<b>N1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O50</b> <b>O75</b>	<b>80 - 300</b> <b>350 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL or EW-FU with 25mm insulation and 60mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Distance between duct and combustible material of minimum 50mm, can be realized ventilated or with mineral insulation 90-117kg/m <sup>3</sup> all-over insulated. Closed and insulated or ventilated at ceiling duct, minimum distance 50mm at vertical installation. Operation mode in negative operation.
0.11 EW-KL	<b>Metal chimney</b>	<b>EN 1856-1</b>	<b>T600</b>	<b>H1</b>	<b>W</b>	<b>V2-L50050</b>	<b>O50</b> <b>O75</b>	<b>80 - 300</b> <b>350 - 450</b>	Chimney system with metallic inner flue liner, system EW-KL with 25mm insulation and 60mm light construction duct (L <sub>A</sub> 90) as outer lining, composed of Calciumsilicat fire protection material. Annular gap between insulation and inside duct of minimum 20mm is necessary. Moisture resistant operation. Distance between duct and combustible material of minimum 50mm, can be realized ventilated or with mineral insulation 90-117kg/m <sup>3</sup> all-over insulated. Closed and insulated or ventilated at ceiling duct, minimum distance 50mm at vertical installation. Operation mode in positive pressure/ high pressure up to 5000Pa.

Product description	
Standard number	
Temperature level	
Pressure level	
Condensate resistance (W: wet / D: dry)	
Corrosion resistance	
Flue liner material specification	
Sootfire resistance (G: yes / O: no) and distance to combustible material (in mm)	
Nominal diameter (Ø) (inner tube) in mm	

Properties of a multi-wall metal chimney system

**Compressive strength:**

Inner pipe to DN 300: 27 m / to DN 450: 21 m  
Shaft: to maximum 25m

**Flow resistance:**

Average roughness: 1.0 mm, Zeta-values according to DIN EN 13384-1

**Thermal resistance (WDW) in shaft:**

Model 1 to 4: 0.5 m<sup>2</sup>K/W without insulation  
Model 5 to 9: 0.5 m<sup>2</sup>K/W with 25mm insulation  
Model 10 to 11: 0.5 m<sup>2</sup>K/W with 25mm insulation

**Flexural strength:**

**Angular assembly:** Maximum length between two supports:  
1 m at 90° from the perpendicular. All vertical and horizontal forces of the flue gas system have to be transferred into the building in a safe way.

**Maximum distance between vertical supports:**

1 m (Fixations to the joints of duct elements) all vertical and horizontal forces of the flue gas system have to be transferred into the building in a safe way

**Wind load: free standing end above last fixation:** ≤ 1.5 m above roof

**Freeze-thaw resistance:** Yes

**Cleaning:**

The chimney system is only allowed to be cleaned with cleaning devices made of plastic or rust-resistant stainless steel.