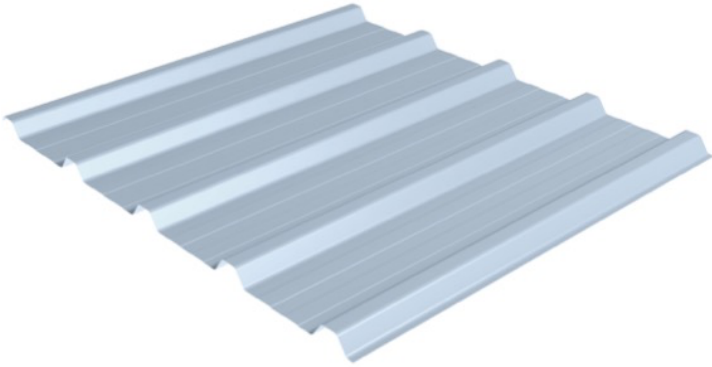
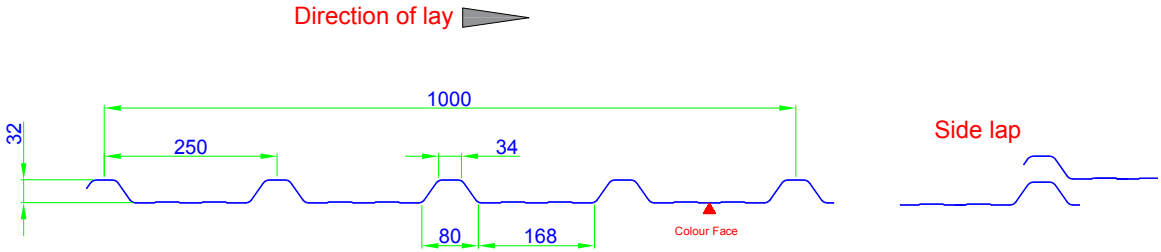


# TF324P-L

Description	
<b>Application</b>	A walkable liner profile for use within twin skin metal roofing and walling. When fully fixed and sealed, TF324P-L provides the vapour control and air barrier layer. TF324P-L is non-fragile and walkable, acting as a working platform. For under purlin liner applications refer to Trimform Products.
<b>Profile depth</b>	32mm
<b>Profile cover width</b>	1000mm
<b>Profile pitch</b>	250mm
<b>Nominal profile weight</b>	0.7mm = 6.49kg/m <sup>2</sup>
<b>Pack weight</b>	Max 2.0t
<b>Lengths</b>	Minimum length 1.00m Maximum length 10.00m
<b>Curve options</b>	N/A
<b>UKCA reference</b>	TF324P-L (Roof profile - Trapezoidal): BS EN 14782:2006
	
	
<b>Materials</b>	<p><b>Substrate:</b> 0.7mm steel, Class1, S220GD+AZ100</p> <p><b>Paint finish options:</b> Polyester SP, 20µm, bright white (notionally RAL9010, for internal use only). For other materials such as 0.5mm steel, aluminium, 200µm PVC or double sided PVC, enquire with Trimform Products.</p>

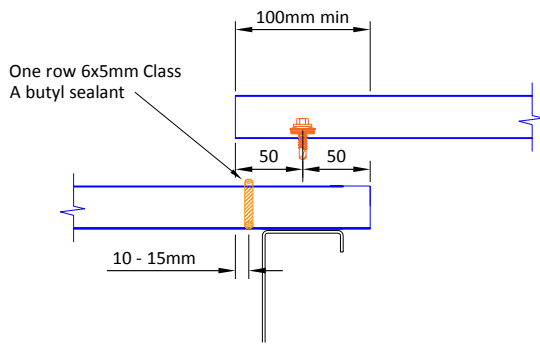
# TF324P-L

## Installation

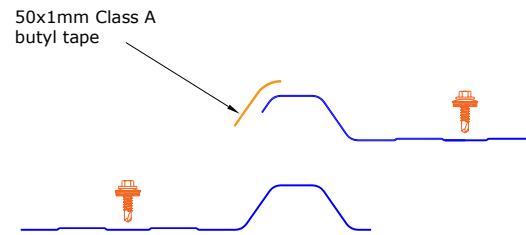
### TF324P-L 0.7mm liner fixing positions



### End lap - Liner



### Side lap - Liner



<p><b>Laps/Sealants</b></p>	<p><b>Roof/ wall:</b>                  End laps: Minimum 100mm, 1 line 5x6mm butyl sealant within end lap.                  Side laps: one full rib overlap, 1 line 50mm x 1mm butyl side lap sealant over side lap.                  Filler blocks: Minimum 25mm thick PEL or EPDM, bedded in gun applied sealant to the top and bottom faces.                  When fully fixed and sealed, TF324P-L provides the vapour control and air barrier layer. To enable this, laps, perimeters and penetrations need to be robustly sealed.                  Sealant strips should be overlapped by 25mm, avoid stretch of sealant at profiles corners etc.                  Do not use 50mm x 1mm butyl strips for end laps.                  Always apply to dry, clean and grease free surfaces.                  Do not apply in temperatures &lt; 5°C                  Bed filler blocks in sealant to ensure best seal.</p>
<p><b>Fastener frequency</b></p>	<p><b>Roof/ wall:</b>                  End laps and perimeters (ridge/eaves, top/bottom of walls, penetrations): 4No/m (every trough) central to a 100mm end lap.                  Edge distance minimum 30mm.                  Intermediate supports: 4No/m (every trough) or 3No/m, subject to wind load design.                  Side laps: When specified, stitch at max 500mm centres.</p>
<p><b>Fastener types</b></p>	<p>A2 stainless steel or carbon steel 5.5mm Ø, 16mm or 19mm Ø sealer washer.                  Stitchers: A2 stainless steel or carbon steel 5.5mm or 6.3mm Ø, 16mm Ø sealer washer.                  Minimum embedment to timber 40mm.</p>
<p><b>Sealant types</b></p>	<p>End laps: 5 x 6mm Class A butyl, compressed within end lap                  Side laps: 50mm x 1mm butyl side lap sealant, laid over side lap                  Filler blocks: Minimum 25mm thick PEL or EPDM, bedded in gun applied sealant to the top and bottom faces.</p>
<p><b>Delivery</b></p>	<p>Load direct to roof or store at ground level in a protected area, on bearers (placed above each other), at a slope to drain, under tarpaulin if to be stored for longer than a week.                  Lift with care (do not drag sheets): &lt;6m- by site telehandler or forklift with tines set apart, 1 pack at a time, &gt;6m by crane using slings (not chains).                  Load to rafter backs.                  Inspect packs and record any damage/shortages on delivery paperwork, backed by photos to be sent to Trimform with a report within 48 hours.</p>

## TF324P-L

<p>Site work</p>	<p>The installer must comply with current safety and CDM regulations. Guidance is available at <a href="http://www.mcrma.co.uk">www.mcrma.co.uk</a>, CDM2015 tab and Roof Safety tab.</p> <p>Side laps should face away from the prevailing wind</p> <p>Before installation check that the supporting structure is in a fit condition and to an acceptable installation tolerance to receive the roof and wall construction.</p> <p>Fully fix as work proceeds, TF324P-L is walkable and non-fragile when fixed.</p> <p>Do not over drive fasteners causing washer dishing.</p> <p>Where profiles have to be cut on site:</p> <ul style="list-style-type: none"> <li>• Use a powered nibbler, reciprocating saw or circular saw. Do not use an abrasive wheel.</li> <li>• Support the profile along the line of the cut.</li> <li>• Protect the pre-coated finishes of the profile.</li> <li>• Clean any swarf or debris from the pre-coated finish of the profile immediately.</li> </ul> <p>Minor scuffing of the colour coating should not be treated.</p> <p>Deeper scratches which reach the substrate should be repaired with touch-up paint.</p> <p>The touch-up paint should only be applied to the original scratch using a fine paint brush.</p> <p>As touch-up paint will dry to a slightly different colour than the original coating the area which is touched up should be kept as small as possible.</p>
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## TF324P-L

Performance																																																																																																					
<b>Structural</b>	<p>The loads shown are kN/m<sup>2</sup>, permissible for the profiles at the spans shown (ie load factors are within the tables, compare with unfactored loads).</p> <ul style="list-style-type: none"> <li>• The designer must separately check fastener capacity under negative loads (wind uplift/suction).</li> <li>• Minimum bearing width 40mm.</li> <li>• “Single” = spanning over 2 purlins, “double” = 3 purlins, “multi” = 4 or more purlins.</li> <li>• Avoid single spans wherever possible.</li> <li>• In general, for foot traffic, use crawl boards or additional protection on support centres greater than 1.8 m.</li> <li>• Consider crawl boards or additional protection in all cases where the sheets are single spanning.</li> <li>• For spans exceeding 1.8m refer to Trimform.</li> </ul> <p>BS 5427:16: Appendix C.5.6.4: Partial safety factors for limit state design. Load factors included within the load/span tables:</p> <ul style="list-style-type: none"> <li>• Variable loads factor 1.5</li> <li>• Permanent load factor 1.35</li> <li>• Accidental load factor 1.0</li> <li>• Serviceability load factor 1.0</li> </ul> <p>Table 10: Deflection:</p> <ul style="list-style-type: none"> <li>• Roofs – imposed loads- L/200</li> <li>• Roofs –wind L/90</li> <li>• Walls – wind L/90</li> </ul>																																																																																																				
	<table border="1"> <thead> <tr> <th colspan="9">TF324P-L</th> </tr> <tr> <th rowspan="3">Profile properties</th> <th colspan="2"><math>f_u = 220\text{N/mm}^2</math></th> <th colspan="2"><math>E = 210\text{kN/mm}^2</math></th> <th colspan="2">Broad flange in tension</th> <th colspan="2">Broad flange in compression</th> </tr> <tr> <th><math>t_N</math> mm</th> <th>Weight kg/m<sup>2</sup></th> <th colspan="2">Web crushing <math>R_{w,Rd}</math> kN/m</th> <th><math>M_{b,Rd}</math> kNm/m</th> <th><math>I_{b,Rd}</math> cm<sup>4</sup>/m</th> <th><math>M_{b,Rd}</math> kNm/m</th> <th><math>I_{b,Rd}</math> cm<sup>4</sup>/m</th> </tr> <tr> <th>0.7</th> <th>6.49</th> <th colspan="2">8.79</th> <th>0.925</th> <th>10.326</th> <th>0.980</th> <th>9.811</th> </tr> </thead> <tbody> <tr> <td></td> <td>Span/m</td> <td>1.2</td> <td>1.3</td> <td>1.4</td> <td>1.5</td> <td>1.6</td> <td>1.7</td> <td>1.8</td> </tr> <tr> <td rowspan="3">0.7mm steel Roof application Positive/imposed downward</td> <td>Single</td> <td>3.43</td> <td>2.92</td> <td>2.52</td> <td>2.19</td> <td>1.93</td> <td>1.71</td> <td>1.46</td> </tr> <tr> <td>Double</td> <td>2.35</td> <td>2.08</td> <td>1.86</td> <td>1.67</td> <td>1.50</td> <td>1.37</td> <td>1.24</td> </tr> <tr> <td>Multi</td> <td>2.80</td> <td>2.49</td> <td>2.22</td> <td>2.00</td> <td>1.81</td> <td>1.64</td> <td>1.50</td> </tr> <tr> <td rowspan="3">0.7mm steel Roof application Negative/wind uplift</td> <td>Single</td> <td>3.63</td> <td>3.09</td> <td>2.67</td> <td>2.32</td> <td>2.04</td> <td>1.81</td> <td>1.61</td> </tr> <tr> <td>Double</td> <td>2.28</td> <td>2.02</td> <td>1.80</td> <td>1.61</td> <td>1.45</td> <td>1.32</td> <td>1.20</td> </tr> <tr> <td>Multi</td> <td>2.72</td> <td>2.41</td> <td>2.15</td> <td>1.93</td> <td>1.75</td> <td>1.59</td> <td>1.45</td> </tr> </tbody> </table>									TF324P-L									Profile properties	$f_u = 220\text{N/mm}^2$		$E = 210\text{kN/mm}^2$		Broad flange in tension		Broad flange in compression		$t_N$ mm	Weight kg/m <sup>2</sup>	Web crushing $R_{w,Rd}$ kN/m		$M_{b,Rd}$ kNm/m	$I_{b,Rd}$ cm <sup>4</sup> /m	$M_{b,Rd}$ kNm/m	$I_{b,Rd}$ cm <sup>4</sup> /m	0.7	6.49	8.79		0.925	10.326	0.980	9.811		Span/m	1.2	1.3	1.4	1.5	1.6	1.7	1.8	0.7mm steel Roof application Positive/imposed downward	Single	3.43	2.92	2.52	2.19	1.93	1.71	1.46	Double	2.35	2.08	1.86	1.67	1.50	1.37	1.24	Multi	2.80	2.49	2.22	2.00	1.81	1.64	1.50	0.7mm steel Roof application Negative/wind uplift	Single	3.63	3.09	2.67	2.32	2.04	1.81	1.61	Double	2.28	2.02	1.80	1.61	1.45	1.32	1.20	Multi	2.72	2.41	2.15	1.93	1.75	1.59
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<b>Non Fragility</b>	ACR[M]001:2019 - Test For Non-Fragility of Large Element Roofing Assemblies [sixth edition] 0.7mm: Class B when screw fixed as described in the Installation section																																																																																																				
<b>Durability</b>	Liner grade polyester painted steel will last the lifetime of the building, excluding aggressive or high humidity internal environments. TF324P-L liner is not suitable for external exposure.																																																																																																				
<b>Fire properties</b>	Polyester coated (PE) steel: A1 (CWFT Commission Decision 2010/737/EU table 1)																																																																																																				


## TF324P-L

<p><b>Safety data</b></p>	<p><b>COMPOSITION/INFORMATION ON INGREDIENTS</b></p> <p>Single skin coated steel profiled sheets products used for roof and wall cladding industrial and commercial buildings. Refer to Trimform and industry standard installation guidance for use. To be used in accordance with industry standard practices, Building Regulations and site RAMS. If any other use is to be considered, please contact Trimform.</p> <p><b>HAZARDS</b></p> <ol style="list-style-type: none"> <li>Under normal conditions of storage and when fixed, the products do not constitute a hazard.</li> <li>During the fixing operation or whilst handling, laceration of the skin is possible on the edges of the sections, and if oil is present on the material skin contamination may occur.</li> <li>When breaking open strapping which is used to secure bundles of sections, there is a risk of skin or eye injury.</li> <li>Some components are heavy and injury may result from incorrect lifting or handling.</li> <li>Cutting the product may cause flying swarf, which could injure skin, particularly eyes.</li> <li>When subjected to elevated temperatures, e.g. during welding or flame cutting, fumes containing oxides of iron and zinc may be produced, which can cause metal fume fever if inhaled. This is a short lasting condition with symptoms similar to influenza.</li> <li>If involved in a fire, any plastic components could degrade and generate smoke and fumes, which could be toxic if inhaled.</li> </ol> <p><b>FIRST AID MEASURES</b></p> <ul style="list-style-type: none"> <li>Inhalation: N/A</li> <li>Skin: Wash with soap and water</li> <li>Eyes: If dust makes contact with eyes, rinse with clean water</li> <li>Ingestion: N/A</li> <li>Other: Seek medical attention if any symptoms persist</li> </ul> <p><b>FIRE-FIGHTING MEASURES</b></p> <p>Packaging, rubber elements and protective coatings may be combustible and emit hazardous fumes.</p> <p><b>ACCIDENTAL RELEASE MEASURES</b></p> <p>Product discarded in an unaltered form is classified as a non-hazardous waste.</p> <p><b>HANDLING/STORAGE</b></p> <ol style="list-style-type: none"> <li>Store in a location free from ignition hazard, such as open flames, cutting and welding torches, high surface temperatures, electric heaters and other forms of direct radiant heat.</li> <li>Ensure stability of stack and provide adequate aisle space for access between stacks.</li> <li>Store packs off the ground and on a slope so that should rain water penetrate the wrapping, water will drain away.</li> <li>Support the packs evenly with bearers spaced at 2m. Bearers should always be placed one directly above another.</li> <li>During the fixing operation or whilst handling, laceration of the skin is possible on the edge of the sheet.</li> <li>Product is supplied in heavy bundles and injury may result from incorrect lifting or handling.</li> <li>Cutting the product may cause flying swarf, which could injure skin, particularly eyes. Cutting can also</li> </ol>
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**TF324P-L**

	<p>produce dust, which can cause irritation if inhaled.</p> <p><b>EXPOSURE CONTROL/PERSONAL PROTECTION</b></p> <ol style="list-style-type: none"> <li>1. Protective clothing, particularly gloves, should be worn to avoid skin laceration.</li> <li>2. Eye and ear protection should be used when cutting.</li> <li>3. Do not use flame cutting equipment, blow lamps, or any high temperature equipment or process near the panels.</li> <li>4. In a fire, breathing apparatus should be worn.</li> </ol> <p><b>PHYSICAL AND CHEMICAL PROPERTIES</b></p> <p>Coated steel sheets rolled to various profiles. Steel is hot-dip galvanised or Aluzinc coated.</p> <p><b>STABILITY AND REACTIVITY</b></p> <p>Stable and un-reactive under normal conditions.</p> <p><b>TOXICOLOGICAL INFORMATION</b></p> <p>N/A</p> <p><b>ECOLOGICAL INFORMATION</b></p> <p>No known adverse environmental effects.</p> <p><b>DISPOSAL INFORMATION</b></p> <p>Dispose at an authorised metal recycling facility in accordance with the Waste Management Licensing Regulations. Observe usual safety precautions with polythene bags, wrapping and packaging. Waste product should be disposed of in accordance with local laws and regulations. Clean, undamaged product may be re-used.</p> <p><b>TRANSPORT INFORMATION</b></p> <p>Not classed as hazardous for transportation. Ensure security of load securing straps with edge protectors should be used. It is recommended that mechanical lifting equipment is used when moving bulk quantities</p> <p><b>REGULATORY INFORMATION</b></p> <p>N/A</p>
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**TF324P-L**

References			
<b>Reference Standards</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;">                     BS EN 508-1:2021                      BS EN 14782:2006                      BS EN 10346: 2015                      BS 5427:2016+A1:2017                      MCRMA GD 20 Guidance document on serviceability states and deflection criteria                 </td> <td style="width: 50%; vertical-align: top;">                     BS EN 1991-1-3:2003+A1:2015                      BS EN 13501-1:2018                      BSEN13501-5:2016                      ACR[M]001-2019 [Sixth edition]                      MCRMA Guidance Documents and Design Guides (<a href="http://www.mcrma.co.uk">www.mcrma.co.uk</a>)                 </td> </tr> </table>	BS EN 508-1:2021 BS EN 14782:2006 BS EN 10346: 2015 BS 5427:2016+A1:2017 MCRMA GD 20 Guidance document on serviceability states and deflection criteria	BS EN 1991-1-3:2003+A1:2015 BS EN 13501-1:2018 BSEN13501-5:2016 ACR[M]001-2019 [Sixth edition] MCRMA Guidance Documents and Design Guides ( <a href="http://www.mcrma.co.uk">www.mcrma.co.uk</a> )
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<b>Trimform Products</b>	<p>Trimform Products, Harding Way, Somersham Road, St. Ives, Huntingdon, Cambridgeshire, PE27 3WR                      T 01480 461103, F 01480 461102, E <a href="mailto:info@trimformfabs.co.uk">info@trimformfabs.co.uk</a>                      Trimform Products (a division of Building Solutions (National) Limited). Registered in England and Wales No. 11912299.                      ©Building Solutions (National) Limited.</p> <p>Colorcoat HPS200 Ultra® and Confidex® are trademarks of Tata Steel UK Limited</p> <div style="text-align: center;">  <p>Assessed to BS EN ISO 9001:15                      Cert No 635-1:iss03</p> </div>		