TOPSPAN® 40

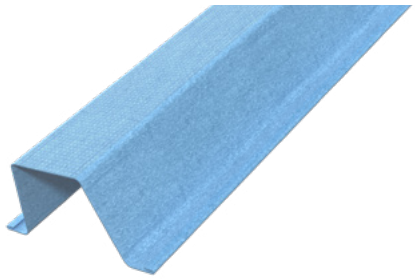
TS40 (MK 3)

PRODUCT DATA SHEET

PRODUCT AVAILABILITY

ACT	NSW	NT	QLD	SA	TAS	VIC	WA
✓	✓						

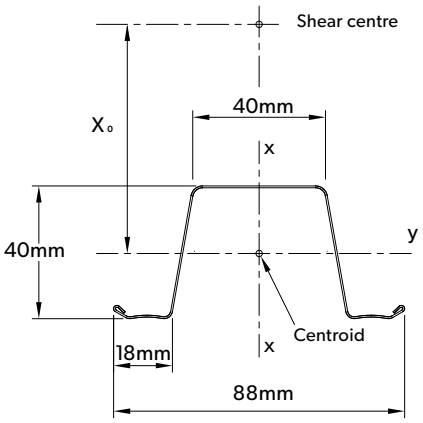
Notes:
1. Product availability in regions proximate to state/territory borders may vary. Contact us for more information.
2. Refer to lysaght.com for datasheets of TOPSPAN® 40 profile variants available in other states/territories.



MATERIAL SPECIFICATIONS

TOPSPAN® 40 battens are made from TRUECORE® steel (aluminium/zinc alloy coated) complying with AS 1397 G550 – AM150 (550 MPa minimum yield stress, 150g/m^2 minimum coating mass).

TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT	
Base Metal Thickness (mm)	0.48
Yield Strength (MPa)	550
Coating Mass (g/m^2)	150
Mass (kg/m)	0.63

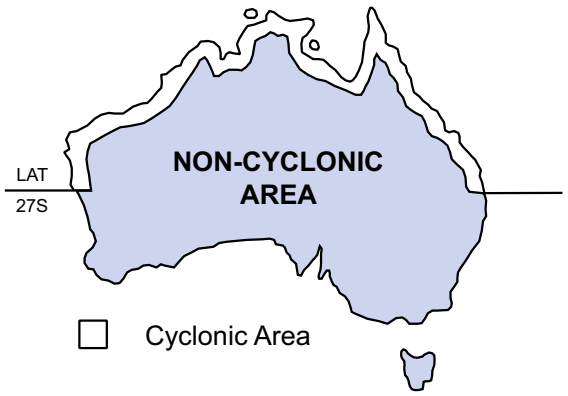


SECTION PROPERTIES

TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT												
BMT	Area	Mass per Unit Length	Second Moment of Area (Full)		Shear Centre to centroid distance	Section Modulus (Full)		Radius of Gyration		Torsion Constant	Warping Constant	Monosymmetry Constant
T mm	A mm^2	kg/m	I_x 10^6mm^4	I_y 10^6mm^4	X_o mm	Z_x 10^3mm^3	Z_y 10^3mm^3	r_x mm	r_y mm	J mm^4	I_w 10^6mm^6	$ß_y$ mm
0.48	76.9	0.63	0.052	0.019	31.58	1.179	0.943	26.0	15.72	5.91	4.196	88.68

NON-CYCLONIC AREAS

The information in this datasheet is suitable for use only in areas where a tropical cyclone is unlikely to occur as defined in AS 1170.2, Wind Loads. Refer to our Cyclonic Area Design Manual for advice on designs to be used in cyclonic areas.



MAXIMUM SPAN (mm)

Point Load: 1.1kN (strength criteria only)

Section	TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT
3-Span Continuous	900

INWARD CAPACITY

3-Span Continuous – Inward Capacity (kN/m)

TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT		
Span (mm)	Strength (kN/m)	Capacity at L/300 (kN/m)
600	6.91	2.58
900	3.98	1.59
1200	2.41	0.84
1500	1.55	0.47
1800	1.13	0.28
2000	0.89	0.25

OUTWARD CAPACITY

3-Span Continuous – Outward Capacity (kN/m)

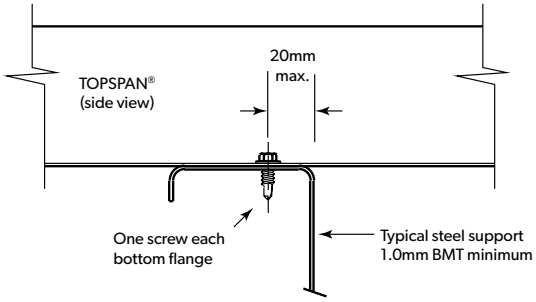
Span (mm)	Member Strength (kN/m)	2 Screw Connection Capacity (kN/m)				4 Screw Connection Capacity(kN/m)	
	TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT	Support Thickness (mm)				Support Thickness (mm)	
		0.75	1.0	1.2	1.5	0.75	1.0
600	7.66	2.35	3.96	6.11	6.84	3.48	6.27
900	3.43	1.56	2.64	4.07	4.56	2.32	4.18
1200	1.92	1.17	1.98	3.05	3.42	1.74	3.14
1500	1.25	0.94	1.59	2.44	2.73	1.39	2.51
1800	0.87	0.78	1.32	2.04	2.28	1.16	2.09
2000	0.71	0.70	1.19	1.83	2.05	1.05	1.88

Denotes capacities for softwood and hardwood

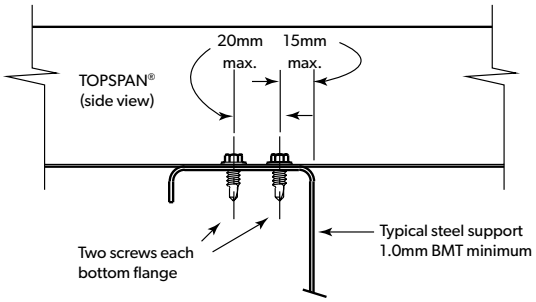
Notes:
1. Refer to General Notes for Capacity Table notes.
2. Inward Capacity tables can also be used for tile applications.
3. Refer to tables on page 4 for Fastener Specifications.

TYPICAL FIXING DETAILS FOR TOPSPAN® PROFILES

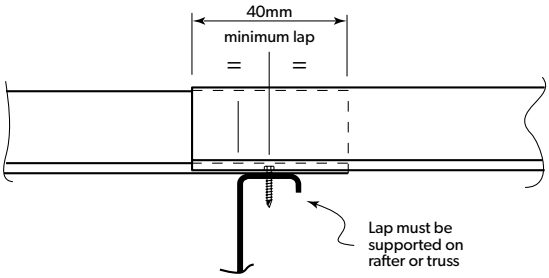
Two Screw Connection



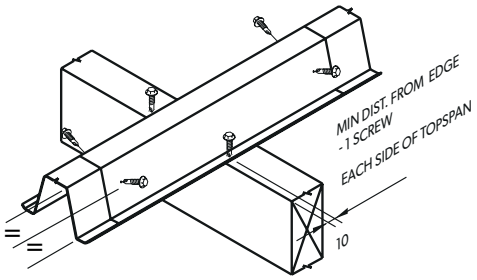
Four Screw Connection



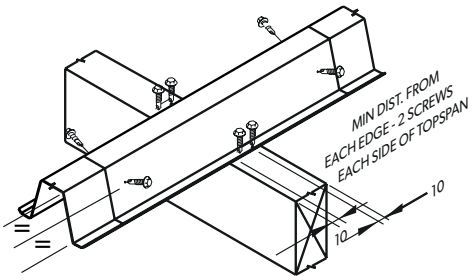
Typical Non-structural Lap for TOPSPAN® 40



Two Screw Connection (timber)

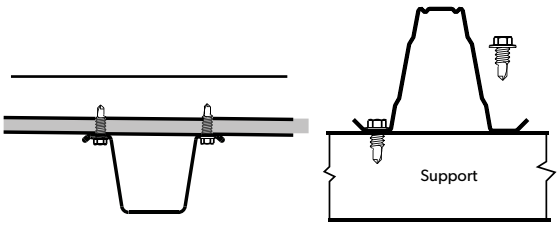


Four Screw Connection (Timber)

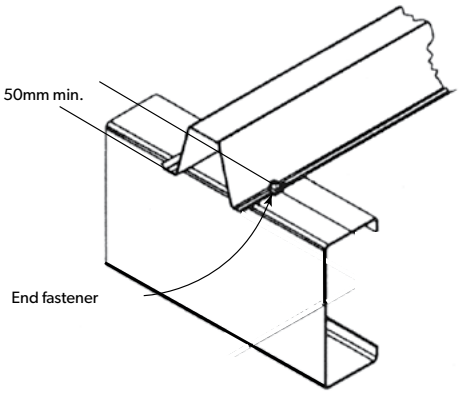


Fastener location

Fastener location-screws must be located in the mid-region of the flat portion of both flanges



End Support



FASTENER SPECIFICATION

Fasteners: Screw to Steel Support

TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT	Steel Support Thickness (mm) & Grade (MPa)			
	0.75 (G550)	1.0 (G550)	1.2 (G500)	1.5 (G450)
	#10-16x16 HH	#10-16x16 HH	#12-14x20 HH	#12-14 x20 HH

Notes:
1. The drill point shall be "self-drilling" for meta
2. HH = Hex. Head
3. Selection on these pages is an indicative but not comprehensive selection

Fasteners: Screw to Timber Support

TOPSPAN® 40 (TS40 MK 3), 0.48mm BMT	Hardwood	Softwood
	M5.5-11x40 BattenZips®	M5.5-11x40 BattenZips® M6-11x25 RoofZips®

Notes:
1. The drill point shall be "self-drilling" for metal
2. Selection on these pages is an indicative but not comprehensive selection
3. Fasteners must be fully embedded into timber support
4. Fasteners must not protrude through the timber

GENERAL INFORMATION AND INSTALLATION MATTERS FOR TOPSPAN® PROFILES

CAPACITY TABLE NOTES

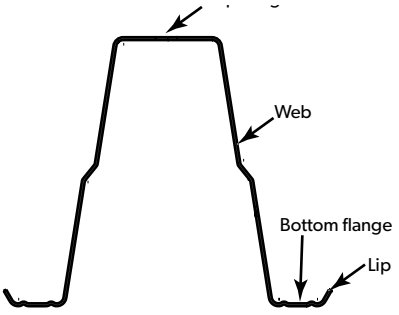
1. The values given in the capacity tables are based on the single top flange being restrained by screw fixed cladding.
2. For Outward capacity the minimum value of the Member Strength and the Connection Capacity shall be used.
3. In roof applications the maximum span (based on Point Load) should not be exceeded where incidental roof traffic is expected.
4. Interpolation of capacity values in the tables is permitted.
5. For lapped configuration a structural lap of 15% has been used (refer to drawings on page 3).
6. Deflection criteria used is as follows:
   a. TOPSPAN® 40 – L/300 suitable criteria commonly used for domestic tile and steel roof requirements
7. The values given in the capacity tables have been limited based on the following:
   a. The maximum and minimum span tested
   b. The maximum available length of the TOPSPAN® profile
   c. Member (profile) Strength capacity less than 0.4kN/m.

LOADING /LOAD TYPE & POSITION:

Loads are either Uniformly Distributed Loads (UDL) acting over the whole length of the TOPSPAN® configuration, or a concentrated load acting at a critical location on the TOPSPAN® configuration, or a combination of both.

Loads are assumed to be acting on the top flange of the TOPSPAN® via the cladding/lining. The top flange of the TOPSPAN® is defined as the wider flange connecting the two webs of the TOPSPAN®.

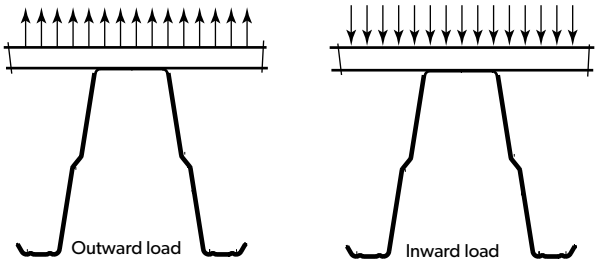
Typical TOPSPAN® Definitions



LOAD DIRECTION

The Uniformly Distributed Loads (UDLs) are assumed to be acting in the Outward or Inward direction and perpendicular to the top flange of the TOPSPAN®. Outward Load is defined as the load to pull the cladding/lining off the top flange. Inward Load is defined as the load pushing the cladding/lining onto the top flange. Concentrated loads are assumed to be acting in the Inward direction only.

Loading Conditions



CLADDINGS & LINING:

Claddings and linings can be of numerous materials and profiles. All cladding/linings is assumed to be fixed to the top flange of the TOPSPAN®. It is assumed that the claddings/linings provide restraint to the TOPSPAN® profile and thus must be adequately rigid and stitch together to provide a diaphragm action.

The LYSAGHT® roofing and walling profiles that are suitable are CUSTOM ORB®, CUSTOM BLUE ORB®, SPANDEK®, TRIMDEK®, TRIMWALL® and WALLCLAD®.

TILE ROOFING (TOPSPAN® 40 PROFILE ONLY)

The UDL's and concentrated loads are assumed to be acting via the tiles. All tiles are assumed to be securely fixed to the TOPSPAN® by ties or clips. The UDLs and the concentrated loads are assumed to be acting in the inward direction only and at a maximum angle of 25° from the perpendicular to the top flange of the TOPSPAN®.

LOADING DURING INSTALLATION:

During installation of the TOPSPAN® profile and during the installation of the cladding, lining or tiles, care must be exercised to ensure damage of the TOPSPAN® profile or its connections do not occur.

The single lengths of the TOPSPAN® profiles are not designed to be walked upon. Access to the roof should be when the roof cladding is installed and also when the spans of the TOPSPAN® are limited to the maximum recommended span.

Where installation on roofs, or at height, is necessary care must be exercised in fall prevention.

Foot loading on a TOPSPAN® in a wall application is not recommended.

Foot loading on a TOPSPAN® in a ceiling application is not recommended.

Foot loading on ceiling lining adjacent to the TOPSPAN® is not recommended.

Spread of TOPSPAN® During Incorrect Installation.

DURING THE INSTALLATION OF THE TOPSPAN® PROFILE AND PRIOR TO INSTALLATION OF THE CLADDING/LINING

The installer's weight (or applied pressure in a wall/ceiling application) should be largely applied to the support rather than the TOPSPAN® profile. Any applied load must be light only and care should be exercise to prevent spread of the profile during the fixing of the TOPSPAN® to the support.

Full body load should not be applied unless the TOPSPAN® is adequately fixed to the support. Full body load should only be applied to the TOPSPAN® profile at the support line.

DURING THE INSTALLATION OF THE CLADDING/LINING

Each cladding/lining sheet must be laid and fully fixed to the TOPSPAN® prior to the installation of the next sheet. The installation of the cladding/lining must commence from the line of the support and progress towards the next support line. The cladding/lining is to be used as a rigid platform/diaphragm to keep the TOPSPAN® in alignment and prevent rotation.

The installer's weight (or pressure in a wall/ceiling application) should be largely applied to the cladding/lining to allow distribution of the load to adjacent TOPSPAN®.

DURING THE INSTALLATION OF THE TILES (TOPSPAN® 40 PROFILES ONLY)

Tile stacks must be at the support lines. During the positioning of the tile stacks the installers must walk along the support lines.

During the laying of the tiles each line/layer of tiles must be laid and fully secured to the TOPSPAN® prior to the installation of the next line/layer. The installation of the tiles must commence from the line of the support and progress towards the next support line.

The installer's weight (and load of tiles) should be largely applied to the previously laid tiles to allow distribution of the load to adjacent TOPSPAN®.

TOPSPAN® FIXING & CONSTRUCTION DETAILS

Fastener Positioning

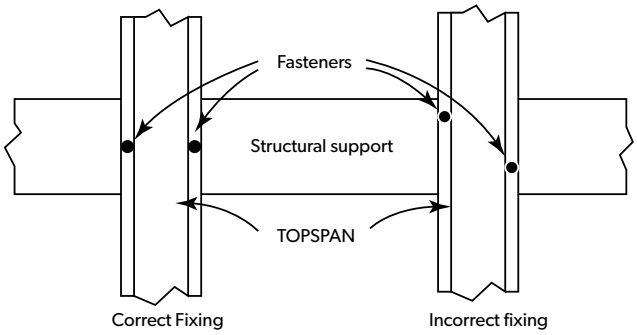
Only the fasteners recommended in this publication are to be used for the fixing of the TOPSPAN® profiles.

The TOPSPAN® profiles must be fixed to the supporting structure using a minimum of two fasteners per support - one fastener either side of the TOPSPAN®, into the bottom flanges. Where a situation requires four fasteners per support then these fasteners are to be equally positioned. The fasteners must be practically perpendicular to the face of the bottom flange and located in the central region of the flange. These fasteners are to be reasonably aligned —> not off-set with each other. (Refer to page 3 - Fixing Details).

The minimum clearance from the end of a length of a TOPSPAN® is to be:

- 20mm for fixing to supports (including end of a non-structural lap) for TOPSPAN® 40.
- 25mm for structural laps.

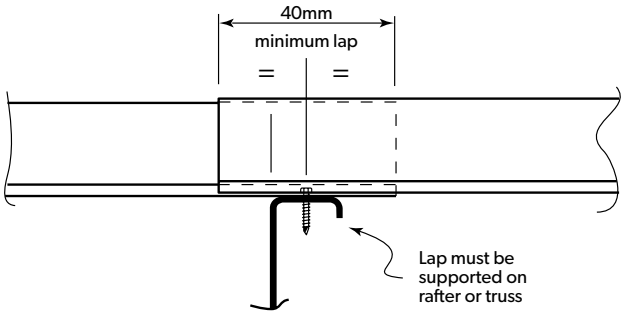
Right and Wrong Fixing



Lapping

Non-Structural Lap is a nominal length of 40mm to simplify the installation detailing. There is no stitching together at the ends of the lap. This lap does not provide continuity.

Non-structural Lap



SUPPORT CONSIDERATIONS

The support conditions can impact on the performance of the TOPSPAN® profiles. Poor support conditions can markedly reduce the capacity of the TOPSPAN®. The support conditions that should be considered are: support bearing width; support squareness; support alignment.

TOPSPAN® must sit uniformly onto the supports to ensure reasonable distribution of loads through the webs of the TOPSPAN®. Poor sitting can result in a reduced capacity.

Poor support squareness will result in a local pivot point that has the effect of reducing the bearing width and potential levering action resulting from poor screw position and thus creasing of the web, bottom flanges and lips of the TOPSPAN® profile.

Poor support alignment can result in a curvature along the length of the TOPSPAN®. Not only can this be aesthetically poor but also added induced stresses can reduce the capacity of the TOPSPAN®.

Poor support conditions (flange not sitting flat).

CLADDING/LINING FIXING DETAILS:

Cladding and linings must be fixed to the top flange of the TOPSPAN® profile using the recommended fasteners specified for the cladding or lining.

The fastener must be practically perpendicular to the face of the flange and located in the central region of the flange.

Eccentrically positioned, or non-perpendicular, fasteners can result in non-symmetric loading of the TOPSPAN® which can reduce the capacity. Screw specification is to be maintained and the installers are advised, that on-site trialling must be done to prevent stripping of fastener thorough TOPSPAN®.

DESIGN CONSTRUCTION VARIATIONS

Variation of the above design and construction details should be avoided. Lysaght do not have any guidance on capacity for variations from the documented recommendations. If variations cannot be avoided then independent engineering advise should be sought.

HANGING LOADS

TOPSPAN® profiles are not suitable for hanging loads.

If hanging loads cannot be avoided then these loads should be minimised in size and quantity. These loads should be such to avoid/minimise the possibility of profile, web or flange deformation or rotation. These loads should be perpendicular to the top flange, hanging from the lips or webs to be avoided.

HOLING OF THE TOPSPAN®

TOPSPAN® profiles, other than for the recommended screw fixing or lapping of the TOPSPAN® or the cladding/lining to the TOPSPAN®, are not suitable for holing.

If holing cannot be avoided then these holes should be minimised in size and quantity. These loads should be such to avoid/minimise the possibility of profile, web or flange deformation or rotation, and the inclusion of stiffening elements to the TOPSPAN® should be considered.

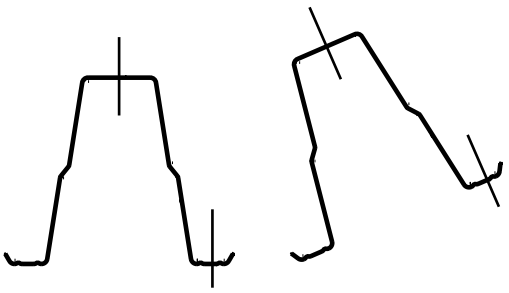
OVERHANG OF THE TOPSPAN®

Apart from the nominal overhang resulting from the minimum end clearance at supports, no overhang is recommended.

If overhangs cannot be avoided then the overhang should be minimised and the inclusion of stiffening elements to the TOPSPAN®, and at the end of the overhang, should be considered.

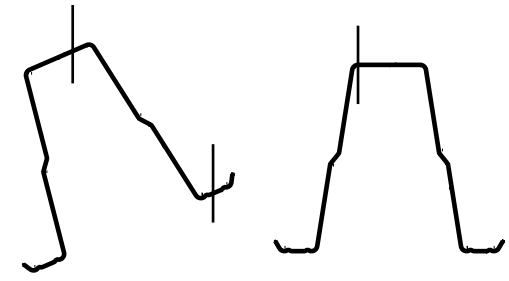
Images of Right and Wrong Fixing

Correct



(perpendicular to flange)

Incorrect



(not perpendicular to flange) (not centred on flange)

STORAGE AND HANDLING

TRANSPORT AND STORAGE

TOPSPAN® battens nest together for easy transport and storage. Store TOPSPAN® in bundles, preferably indoors. If this is not possible, store off the ground, allow to drain properly and cover from the weather.

STORING ON-SITE

TOPSPAN® battens are delivered in strapped bundles. If not required for immediate use, the bundles should be neatly stacked clear of the ground. When stacked they should be allowed to drain, should wetting occur.

The bundles should not be exposed in the open for extended periods. If unavoidable, protect from rain and moisture with waterproof covers.

Lysaght accessories are delivered in strapped or wired bundles, bags, or packages as appropriate.

CUTTING

Cut TOPSPAN® using a non-abrasive disc or metal cutting blade. Swarf and burred edges should be cleaned off on completion of cutting.

ADVERSE CONDITIONS

ZINCALUME® steel is suitable for most exposure conditions. Consult your local sales office for advice.

PRODUCT DESCRIPTIONS

- All descriptions, specifications, illustrations, drawings, data, dimensions, and weights contained in this publication and websites containing information from Lysaght are approximations only. They are intended by Lysaght to be a general description for information and identification purposes and do not create a sale by description. Lysaght reserves the right at any time to:

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AUSTRALIAN STANDARDS

Australian Standard	Definition
AS 1397:2021	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 1170.2:2021	Structural design actions, Part 2: Wind actions

LYT0214 - 01/2024

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