

# Access Products Division



**WEBFORGE**

# Webforge Contents

## The Company

### Services:

- In excess of 50 years experience
- Branches throughout Australia, Asia and New Zealand
- Manufacture
- Design
- Technical Support
- Quotations
- Fabrication
- Quality Assurance
- Feasibility and Budget Rates
- Lump Sum and Rate Contracts
- Project Management
- Small Jobs
- Large Projects
- Computerised Job Tracking

### Products:

- Bar Grating
- Handrailing
- Expanded Metal
- Balustrades
- Drainage Grates and Cast Covers
- Sunscreens

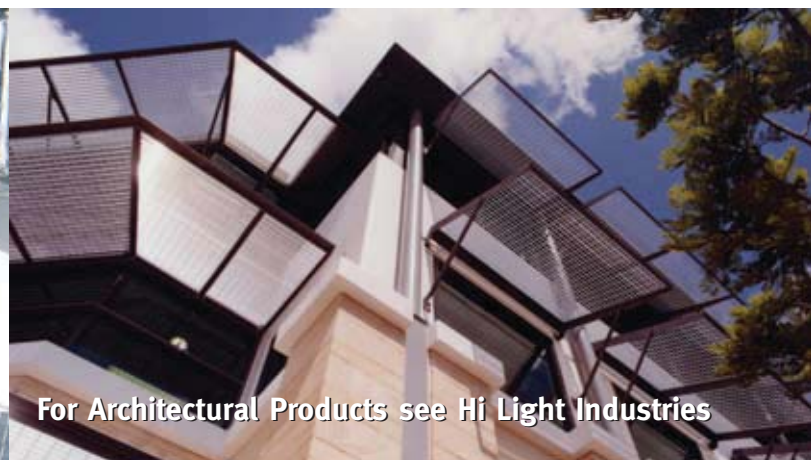
### FLOORING

Quick Guide.....	1
Choose a Pattern.....	2
Options .....	3
Coding .....	4
Load/Deflection Tables .....	6
FRP .....	8
Expanded Metal .....	12
Stair Treads .....	14
Fixing Clips .....	16
Manufacturing Tolerances .....	18
Webplate/Webmesh .....	20
Terminology .....	21

### HANDRAILS

Choose a Stanchion .....	22
Brackets/Baseplates/Offsets .....	24
Bends/Closures/Gates .....	25
Options/Ordering .....	26
Specifications .....	27
Barrier Products .....	28
Balustrades .....	29
Jumbo Stanchions .....	30

CONTENTS



For Architectural Products see Hi Light Industries



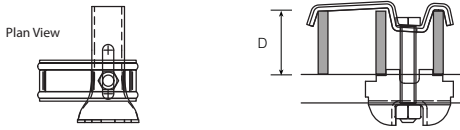
For Civil Products see separate brochure

# Fixing Clips

	Clip Set Code	Pattern	Description	Comprises	Usage
Mild Steel	MLIND	A-D	Clip Set Lindaptor A-D Pattern Mild Steel Galvanised Top Bottom 50x10 SHCS	-	Mild Steel Grating =<32mm Flange present
	Coo1MG	A - F	Clip Set A-F Pattern Mild steel Galvanised Top. Bottom. 65 x 8 screw	Top C100MG Bottom C200MG Screw C301MG	Mild steel grating =<50mm Flange present
	Coo2MG	A - F	Clip Set A-F Pattern Mild steel Galvanised Top. 50 x 8 screw.	Top C100MG Screw C302MG Thread Rolling	Mild steel grating =<50mm No flange present.
	Coo3MG	A - F	Clip Set A-F Pattern Mild steel. Galvanised Top. Bottom. 80 x 8 screw	Top C100MG Bottom C200MG Screw C301SM	Mild steel grating =>55mm Flange present
Aluminium	Coo1SM	A - F	Clip Set A-F Pattern Stainless steel. Mill finish Top. Bottom. 65 x 8 screw	Top C100SM Bottom C200SM Screw C301SM	Stainless steel/ Aluminium grating =<50mm Flange present
	Coo3SM	A - F	Clip Set A-F Pattern Stainless steel. Mill finish Top. Bottom. 80 x 8 screw	Top C100SM Bottom C200SM Screw C303SM	Stainless steel/ Aluminium grating =>55mm Flange present
	Coo4SM	A - F	Clip Set A-F Pattern Stainless steel. Mill finish Top. Bottom. 50 x 8 screw	Top C100SM Bottom C200SM Screw C304SM	Aluminium grating =<40mm Flange present
Expanded Metal	Co10MG	SWM30	Clip Set Expanded metal Top. Bottom. 65 x 8 screw	Top C150MG Bottom C200MG Screw C301MG	Expanded metal WM SWM30
	Co11MG	SWM45	Clip Set Expanded metal Top. Bottom. 65 x 8 screw	Top C151MG Bottom C200MG Screw C301MG	Expanded metal WM SWM45
FRP	Co20SM	G	Clip Set G Pattern Stainless steel. Mill finish Top. 30 x 6 screw	Top C133SM Screw C311SM	FRP grating 25mm deep
	Co21SM	G	Clip Set. G SS Mill Top. 50 x 6 screw	Top C134SM Screw C312SM	FRP grating 38mm deep
	Co22SM	G	Clip Set G Pattern Stainless steel. Mill finish Top. 20 x 6 screw	Top C131SM Screw C310SM	FRP grating 25mm deep
	Co23SM	G	Clip Set G Pattern Stainless steel. Mill finish Top. 20 x 6 screw	Top C132SM Screw C310SM	FRP grating 38mm deep
	Co24SM	G	Clip Set G Pattern Stainless steel. Mill finish Top. 30 x 6 screw	Top C130SM Screw C311SM	FRP grating 25mm deep
	Co25SM	G	Clip Set G Pattern Stainless steel. Mill finish Top. 50 x 6 screw	Top C130SM Screw C301SM	FRP grating 38mm deep
	Co26SM	G	Clip Set Mini Mesh Stainless steel. Mill finish Top. 35 x 4 screw	Top C139SM Screw C313SM	FRP grating 38mm deep

# Fixing Clips

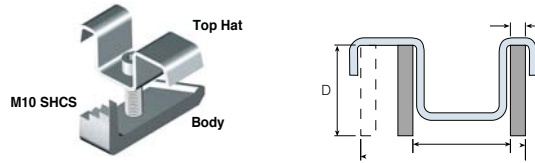
## CLIP ASSEMBLIES



The Webforge Clip (product code C001MG) is a galvanised clip that consists of a pre-assembled 'clip top', M8Bolt and nut and a bottom bracket that captivates the nut, allowing fixing from the top of the grating. It enables rapid and secure connection of grating to steel support sections.

Product	Screw	To suit flange	To suit Webforge	Grating Bar
Code	Size	thickness (mm)	Grating type	depth* D (mm)
C001MG	M8x65	5-16	A,B,C,D,E,F	Min 20 Max 50

\* longer screws available for greater bar depth. Max Bar Depth = 65mm

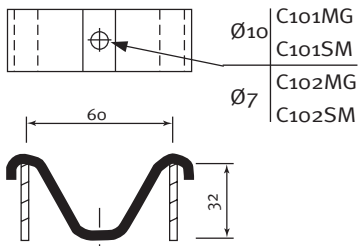


The Lindapter Grate-Fast® (product code MLIND) is a galvanised Lloyds Approved anti-vibration clip that consists of a pre-assembled 'top hat' bracket, socket head capscrew and body casting. It enables rapid and secure connection of grating to steel support sections.

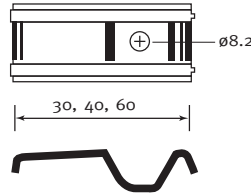
Product	Screw	To suit flange	Body casting	To suit Webforge	Grating Bar
Code	Size	thickness (mm)	width (mm)	Grating type	depth* D (mm)
MLIND	M10	3-19	20	A,B,C,D	Min 20 Max 32

\* longer screws available for greater bar depth.

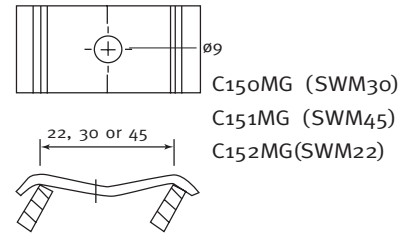
## TOPS



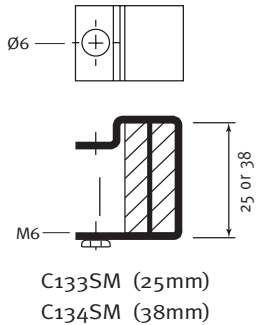
C101MG  
C101SM  
C102MG  
C102SM



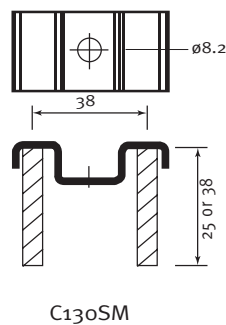
C100MU  
C100MB  
C100MG  
C100SM



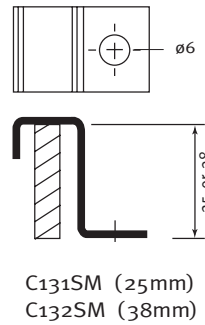
C150MG (SWM30)  
C151MG (SWM45)  
C152MG(SWM22)



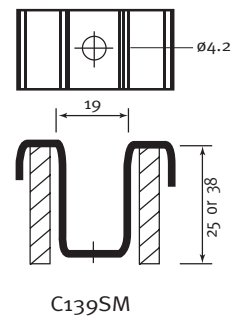
C133SM (25mm)  
C134SM (38mm)



C130SM



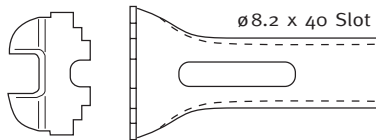
C131SM (25mm)  
C132SM (38mm)



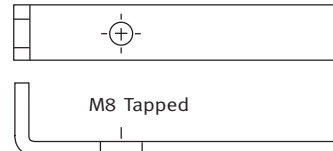
C139SM

## BOTTOMS

C200MU  
C200MB  
C200MG  
C200SM



C210MG  
C210SM



## SCREWS/RIVETS



C301MG (65 x 8)  
C301SM (65 x 8)



C324MG (50 x 8)  
(Pilot Hole 7.4mm)  
Thread Rolling



C303MG (80 x 8)  
C303SM (80 x 8)  
C304SM (50 x 8)



C310SM (20 x 6)  
C311SM (30 x 6)  
C312SM (50 x 6)  
C313SM (35 x 4)



C400MG (Grip Range 9-16mm)  
C401MG (Grip Range 6-20mm)

## WELDING

Webforge believe that welding to the support structure is a suitable process. Minimum number of welds is four per panel. Grating: Weld 5mm fillet 25mm long at 1000mm centres. Expanded Mesh: Weld every fourth strand.

## CLIP FREQUENCY

Nominal 4 per panel.

(Approximately 3 per M<sup>2</sup> where span is > 1500mm. Approximately 5 per M<sup>2</sup> where span is > 750mm or less.)

Fixing clips are not generally recommended in areas of vibration or where lateral loads are applied to the grating

# Manufacturing Tolerances

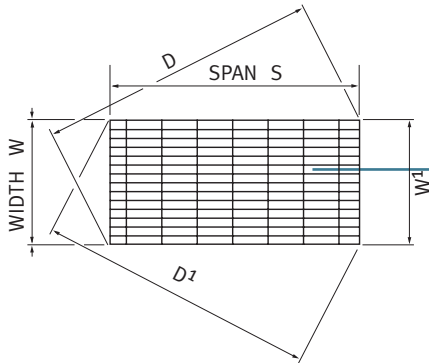
Mild/Stainless Steel

Aluminium

FRP

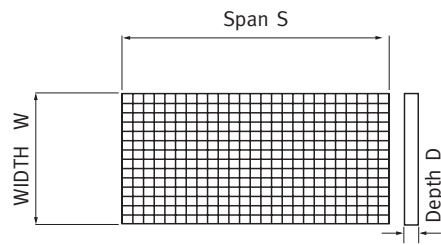
Expanded Metal

Installation Clearances



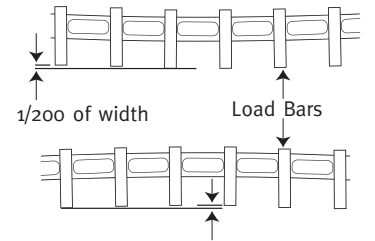
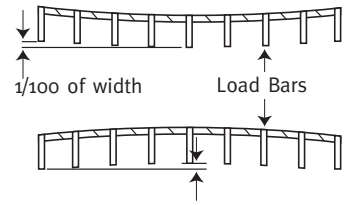
Panel Size mm	S mm	W <sub>1</sub> mm	D <sub>1</sub> mm
S ≤ 3000	± 3	W ± 3	D ± 5.5
S ≥ 3000 S ≤ 6000	± S/1000	W ± 3	D ± S/500

Panel Size mm	S mm	W <sub>1</sub> mm	D <sub>1</sub> mm
S ≤ 3000	± 3	W ± 3	D ± 3.5
S ≥ 3000 S ≤ 6000	± S/1000	W ± 3	D ± S/500

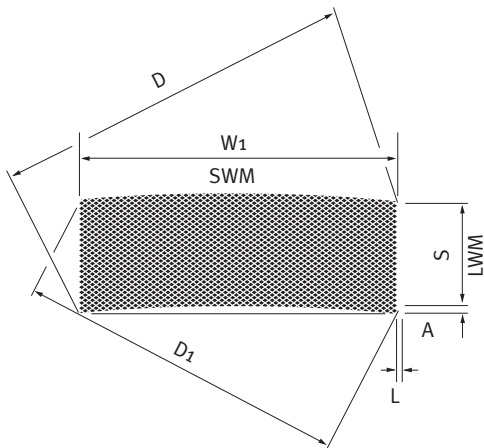
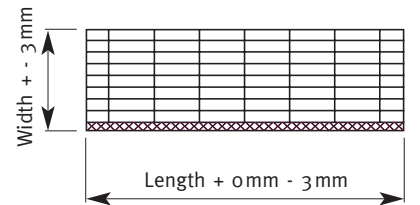


S mm	W <sub>1</sub> mm	D mm
2.5/1000	2.5/1000	± 1.5

## Transverse Bow

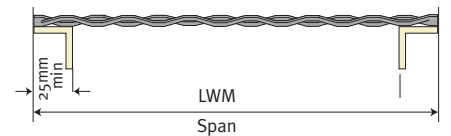


## Stair Treads



A mm	S mm	W <sub>1</sub> mm	D <sub>1</sub> mm	L mm
≤ 5(S/1000)	-4 +20	-0 +50	D+10	5/1000

## Minimum Support Dimension



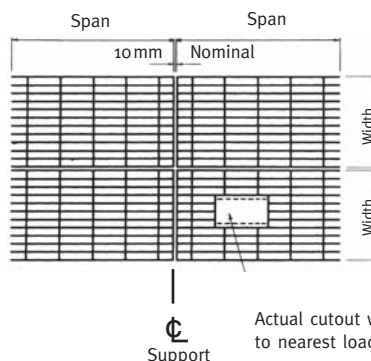
## Installation Note

### Minimum support dimension:-

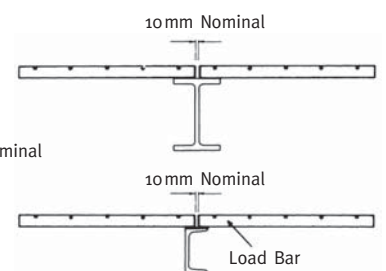
A minimum of 25mm for loadbars up to 50mm deep and a minimum of 50mm for loadbars > 50mm deep. Webforge recommends that the land on the support should be equal to the height of the load bar.

### Grating Cantilevers:-

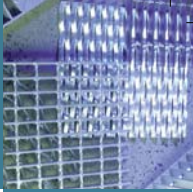
Grating cantilevers up to 250m in the loadbar direction are acceptable as long as the grating is securely anchored to the supports (not clips.) Cantilevers in the crossroad direction are not acceptable.



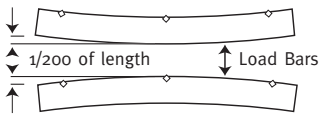
Actual cutout will be to nearest load bar



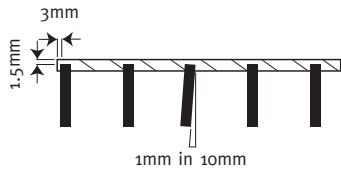
# Manufacturing Tolerances



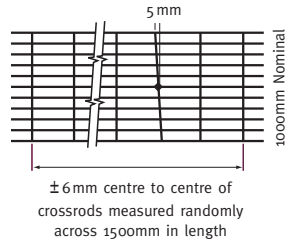
## Longitudinal Bow



## Cross Rod Location Load Bar Lean



## Cross Rod Alignment and Spacing



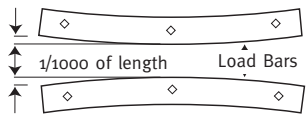
## Fabrication Welding

Banding bars and attachments are welded with minimum 3mm fillet to one side of:

- every 5th loadbar on A & B Pattern grating
- every 4th loadbar on C & D Pattern grating
- every 3rd loadbar on F Pattern grating

Other welding is applied to cut-outs, splays or circles as appropriate or as requested.

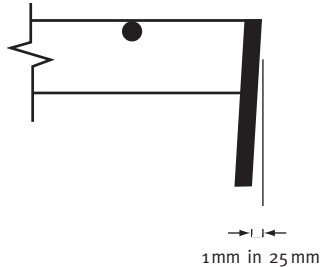
Bmm	Hmm
25	12
>25	15



## Load Bar Chart

No. of bars	AB	CD	F	G
41	1205			1530
40	1175			1492
39	1145			1454
38	1115			1416
37	1085			1378
36	1055			1339
35	1025			1301
34	995			1263
33	965			1225
32	935			1187
31	905	1205		1149
30	875	1165		1111
29	845	1125		1073
28	815	1085		1035
27	785	1045		997
26	755	1005		958
25	725	965		920
24	695	925		882
23	665	885		844
22	635	845		806
21	605	805	1205	768
20	575	765	1145	730
19	545	725	1085	692
18	515	685	1025	654
17	485	645	965	616
16	455	605	905	577
15	425	565	845	539
14	395	525	785	501
13	365	485	725	463
12	335	445	665	425
11	305	405	605	387
10	275	365	545	349
9	245	325	485	311
8	215	285	425	273
7	185	245	365	235
6	155	205	305	196
5	125	165	245	158
4	95	125	185	120
3	65	85	125	82
2	35	45	65	44

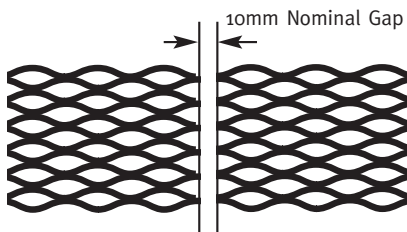
## End Flat Lean



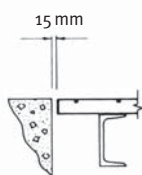
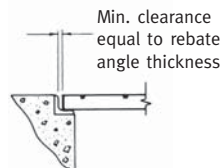
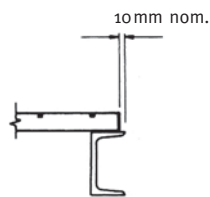
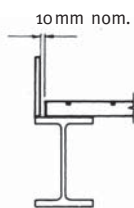
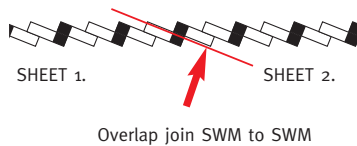
### Welding.

Banding bars and end plates are welded one side of every load bar with a minimum 3mm fillet weld.

## Nominal Gap



## Laying Sheets



Cantilever

→ | ← 250 mm MAX

NZ	905	925	905
W.A.	1205	1205	1205
Other	995	1005	1025

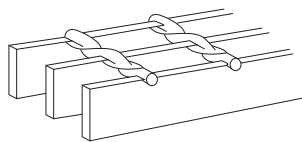
### Note:

Sizes are overall outside to outside of bars.

Calculations based on 5mm bars for A to F pattern. 6mm for G pattern.

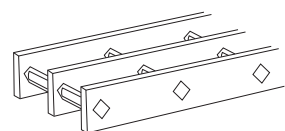
G pattern is FRP only. Bar centres are 38.1mm.

# Terminology - Grating/Expanded Metal



## LOAD BAR

Flat Bar from which grating is made.

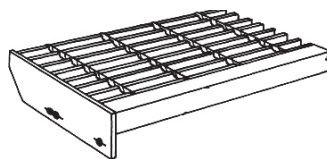


## CROSS ROD

In mild steel this is a twisted square bar forged into the top of the load bar.

In stainless steel grating this is a round bar forged into the top of the load bar.

In aluminium this is a square bar inserted through punched holes in the load bar and swaged to hold it in position.

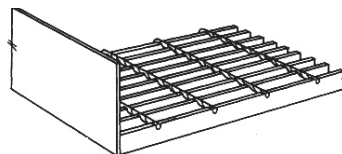


## NOSING

A member attached to or on the leading edge of a stair tread or at the top of a flight of stairs to assist slip resistance and to give a clear visual indication of the edge of the stairtreads.

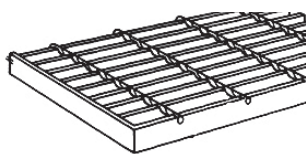
Can be

- Abrasive
- Floor Plate



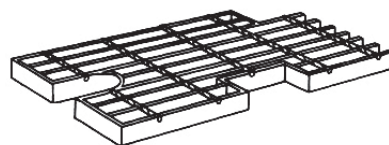
## KICK PLATE

Heavy section flat bar welded to ends or sides of panels and around cut outs, etc. when specified. Top edge to be 100mm above grating generally and is typically 130 x 6.



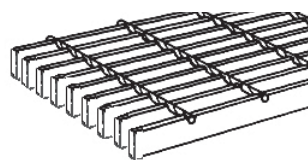
## BANDED

Refers to the process of welding a flat bar (normally 5mm) to the loadbars after they have been cut to size to provide a uniform appearance around all sides of a grating panel. This process also helps prevent injury from laceration during installation and assists in keeping the panels flat.



## CUT OUT

Grating areas removed from panel to permit passage for installation of pipes, plant and structural and handrail items.



## CUT TO SIZE ONLY

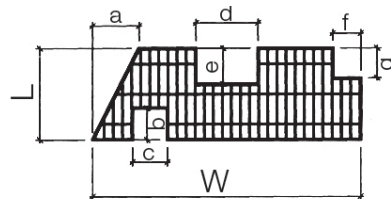
Refers to the process of leaving the panels with a raw cut edge and not banded as described above.

## PENETRATIONS

As for cut out but typically within the grating panel and not on the edge.

## EXACT SIZE

Refers to the requirement to make the panels to an exact dimension and not to be adjusted to the nearest width across the standard pattern of the load bars.



## GROSS AREA

The total area of grating as shown on drawings using overall width and length dimensions of grating ie:  $W \times L$ . The gross area is always the area calculated for invoicing purposes.

## LONG WAY MESH (LWM)

The distance from a point on a knuckle to a corresponding point on the following knuckle measured across the Long Way. LWM is the same as span in grating.

## SHORT WAY MESH (SWM)

The distance from a point on a knuckle to a corresponding point on the following knuckle measured across the Short Way.

## LONG WAY OPENING (LWO)

The distance measured from the inside of the knuckle in the long way.

## SHORT WAY OPENING (SWO)

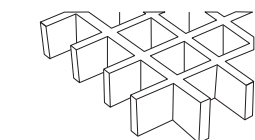
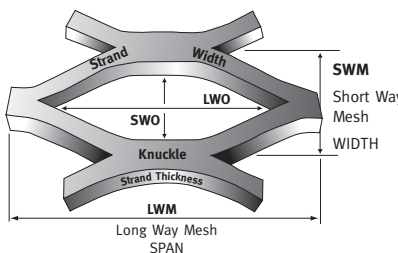
The distance measured from the inside of the knuckle in the short way.

## KNUCKLE

The intersection of 2 strands. It is always the width of 2 strands.

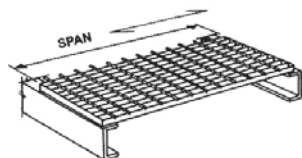
## OVERALL HEIGHT

The actual measurement of the height of the mesh measured at the knuckle.



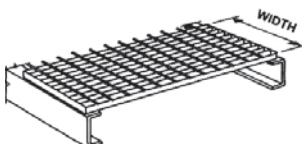
## FINGERS

In FRP grating this describes a panel cut that does not run adjacent to the load bar.



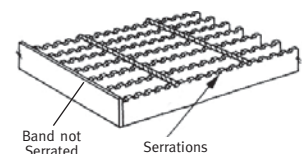
## SPAN

Overall dimension of a panel measured parallel with load bar. Indicated by this symbol  $\longleftrightarrow$



## WIDTH

Overall dimension of a panel measured at right angles to the load bars. Always called "Width" even if greater than the length.



## SERRATIONS

Small notches made in the top edge of the load bar to assist in slip resistance.





# WEBFORGE

Through its network of operations throughout Australia, New Zealand and Asia, Webforge has the resources and experience to service a complete range of projects whatever the complexity or size.



# Webforge Worldwide Centres

## Australia

Webforge (NSW)  
73-75 Bassett Street  
Mona Vale NSW 2103  
Phone: (02) 9998 1300  
Fax: (02) 9998 1340  
Postal: PO Box 440  
Mona Vale NSW 1660  
Email: nsw\_sales@webforge.com.au

Webforge (QLD)  
1149 Kingsford Smith Drive  
Pinkenba QLD 4008  
Phone: (07) 3859 8300  
Fax: (07) 3859 8390  
Postal: PO Box 1452  
Eagle Farm QLD 4009  
Email: qld\_sales@webforge.com.au

Webforge (VIC)  
142-146 Fairbank Rd  
Clayton South VIC 3169  
Phone: (03) 8551 2414  
Fax: (03) 8551 2409  
Postal: Private Bag 155  
Clayton South VIC 3169  
Email: vic\_sales@webforge.com.au

Webforge (WA)  
24 Tennant Street  
Welshpool WA 6106  
Phone: (08) 9373 5100  
Fax: (08) 9373 5108  
Postal: PO Box 151  
Bentley WA 6982  
Email: wa\_sales@webforge.com.au

Webforge (North Queensland)  
68 Crocodile Crescent  
Mount St John QLD 4818  
Phone: (07) 4753 1666  
Fax: (07) 4753-1650  
Postal: PO Box 7740  
Garbutt QLD 4814  
Email: tville\_sales@webforge.com.au

Webforge (Minto)  
57-65 Airds Road  
Minto NSW 2566  
Phone: (02) 9998 1353  
Fax: (02) 9998 1351  
Postal: PO Box 5262  
Minto NSW 2566  
Email: minto\_sales@webforge.com.au

Webforge (South Australia)  
7 Senna Road  
Wingfield SA 5013  
Phone: (08) 8169 2350  
Fax: (08) 08 8169 2355  
Postal: PO Box 2607  
Regency Park DC SA 5942  
Email: sa\_sales@webforge.com.au

## New Zealand

Webforge (NZ) Ltd  
23 Kelvin Grove Road  
Palmerston North NZ  
Phone: (06) 356 1246  
Fax: (06) 356 7782  
Postal: PO Box 1506  
Palmerston North NZ  
Email: nz\_sales@webforge.co.nz

## Asian Centres

### China

Guangzhou Webforge Grating Co Ltd  
No. 6 Jinhua 3rd Street  
Economic & Technological  
Development Zone  
Guangzhou 510730  
China  
Phone: 86 20 8221 2739  
Fax: 86 20 8221 2792  
Email: gmgeo@gdnet.com.cn

Wuxi Webforge Grating Co.  
No. 5 Taishan Road  
National Hi-Tech Development Zone  
Wuxi, Jiangsu 214028  
China  
Phone: 0510 8521 1188 126  
Fax: 0510 8521 5188  
Email: webwuxi@public1.wx.js.cn

### Indonesia

PT. Webforge Indonesia  
Kawasan Industri Jababeka  
Jl. Jababeka V Kav. V-9  
Cikarang - Bekasi 17530 Alam  
P.O. Box B05/BKSLC/17550A  
Indonesia  
Phone: 62 21 893 4513  
Fax: 62 21 893 4516  
E-mail: sales@webforge.co.id

### Malaysia

Webforge (KL) Sdn Bhd  
Lot 3, Jalan Gudang 16/9  
Section 16, 40700 Shah  
P.O. Box 7601, 40720 Shah Alam  
Selangor Darul Ehsan  
Malaysia  
Phone: 60 3 5519 0652  
Fax: 60 3 5519 0749  
Email: webkl@webforge.com.my

### Middle East

Webforge Middle East  
P.O. Box 18641  
LOB 14 544  
Jebel Ali Free Zone  
Dubai, U.A.E  
Phone: 9714 887 3346  
Fax: 9714 887 3347  
Email: webforge@emirates.net.ae

## Phillippines

Webforge Phillipines, Inc.  
Main Avenue cor. Hologram Street  
Light Industry and Science Park 1  
(L.I.S.P.1)  
Cabuyao, Laguna 4025  
Phillippines  
Phone: 63 49 543 0441  
Fax: 63 49 543 0440  
Email: sales@webforge.com.ph

## Singapore

Webforge (Singapore) Pte Ltd  
31 Jurong Port Road #02-12M  
Jurong Logistic Hub  
Singapore 619115  
Phone: 65 6861 3611  
Fax: 65 6861 8344  
Email: sales@webforge.com.sg

## Thailand

Webforge (Thailand) Ltd  
(Head Office & Factory)  
Amata City Industrial Estate  
7/110 Moo 4  
Tumbol Mapyangporn  
Amphur Pluakdaeng  
Rayong 21140  
Thailand  
Phone: 66 38 956 099  
Fax: 66 38 956 097  
Email: sales@webforge.co.th

(Sales & Marketing)  
899 Thai CC Tower  
Room #161, 16th Floor  
South Sathorn Road, Yannawa  
Sathorn, Bangkok 10120  
Thailand  
Phone: 66 2 672 3972  
Fax: 66 2 672 3966

## Vietnam

Representative Office in Vietnam  
Webforge (KL) Sdn Bhd  
Unit 614, Me Linh Point Tower  
2 Ngo Duc Ke, District 1  
Ho Chi Minh City  
Vietnam  
Phone: 84 8 520 2787  
Fax: 84 8 827 4661  
Email: webforgekl\_khanh@hcm.vnn.vn

[www.webforge.com.au](http://www.webforge.com.au)

**WEBFORGE**

## Brochures also available

Architectural Screens  
Civil Products  
Expanded Metal Products  
Planking Products  
Outlook Sunscreens

**Disclaimer:** While Webforge has taken all reasonable care in preparing this brochure, Webforge takes no responsibility for loss resulting from relying on its contents. Customers should make their own enquiries as to whether any products described in this brochure are suitable for their intended use. Information in this brochure may change without notice.