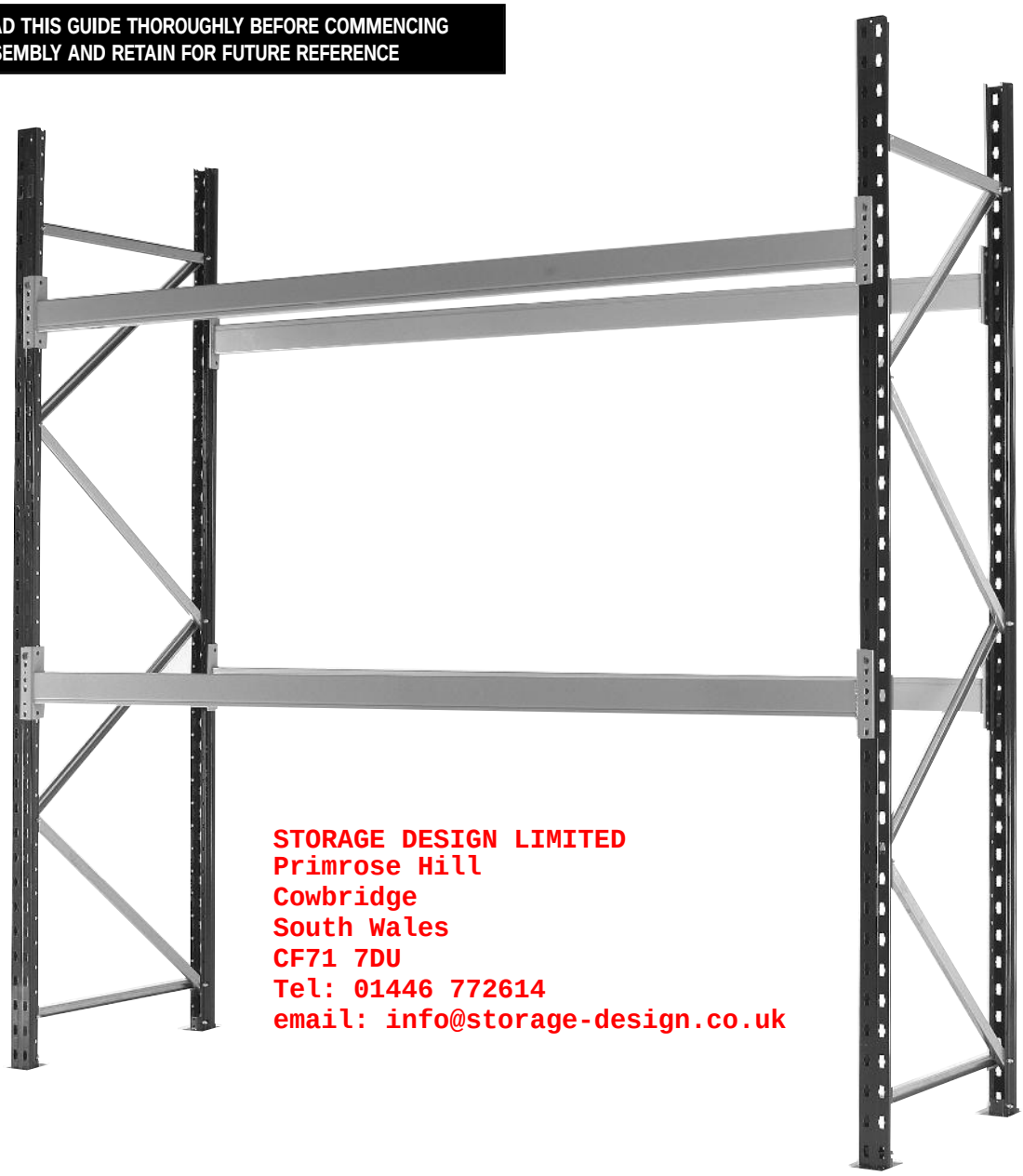
Assembly Guide

PART NUMBER: BXLAI. ISSUE 2 / MAY2010

ADJUSTABLE-BEAM PALLET RACKING

Standard Components and Accessories

READ THIS GUIDE THOROUGHLY BEFORE COMMENCING ASSEMBLY AND RETAIN FOR FUTURE REFERENCE



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ESSENTIAL INFORMATION: KEY TO SYMBOLS USED IN THIS ASSEMBLY GUIDE

FAILURE TO FOLLOW INSTRUCTION MAY RENDER RACKING UNSAFE!	< Where dimension is LESS than figure shown
Tighten all bolts to their specified torque loading	> Where dimension is GREATER than figure shown
Identifies fixing required	≥ Where dimension is EQUAL TO or GREATER THAN figure shown
	≯ Dimension NOT TO EXCEED figure shown

The information contained in this booklet was accepted as correct at the date of publication. However, the manufacturer reserves the right to make any necessary changes, in line with product development and improvement. No liability can be accepted for any inaccuracies or omissions, although every reasonable care has been taken to make this publication as complete and accurate as possible.
PRODUCT DESIGNED & MANUFACTURED IN THE UK TO QUALITY MANAGEMENT SYSTEMS CONFORMING TO THE INTERNATIONAL STANDARD BS EN ISO 9001:2000.

PLEASE READ FIRST: Safety & Operational Rules

Read this Guide thoroughly before commencing assembly and retain for future reference. Installation plans and design drawings should be strictly adhered to.

If in doubt on any aspect of design, installation or usage, contact the racking supplier.

It is RECOMMENDED that racking installation work is undertaken by experienced, trained personnel ONLY, and under the supervision of SEIRS Registered Installers (SEIRS is the Storage Equipment Installers Registration Scheme, operated by SEMA - see below).

Where racking is to be installed or directed to be installed by the client/user or an agent acting on their behalf, then installation work must be carried out in accordance with the Storage Equipment Manufacturers' Association (SEMA) 'Guide to Method Statements for the Installation of Storage Equipment.'

This document is available from:
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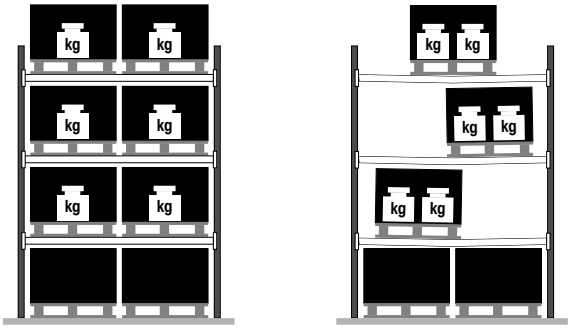
Fax: +44 (0) 121 200 1306
E-mail: enquiry@sema.org.uk
Web site: www.sema.org.uk

Safety & Load information signs MUST ALWAYS BE FITTED and clearly displayed - refer to page 11.

Loading and performance information should be made available by the racking supplier.
Racking MUST NOT BE DISMANTLED OR THE ADVISED CONFIGURATION CHANGED *without prior consultation with the racking supplier - unauthorised removal or re-positioning of beams in particular can seriously compromise the stability and safety of the racking structure.*

Unless otherwise stated, load performance information provided assumes MAXIMUM STATIC UNIFORMLY DISTRIBUTED SAFE WORKING LOADS.

Under no circumstances should quoted capacities be exceeded or varied.

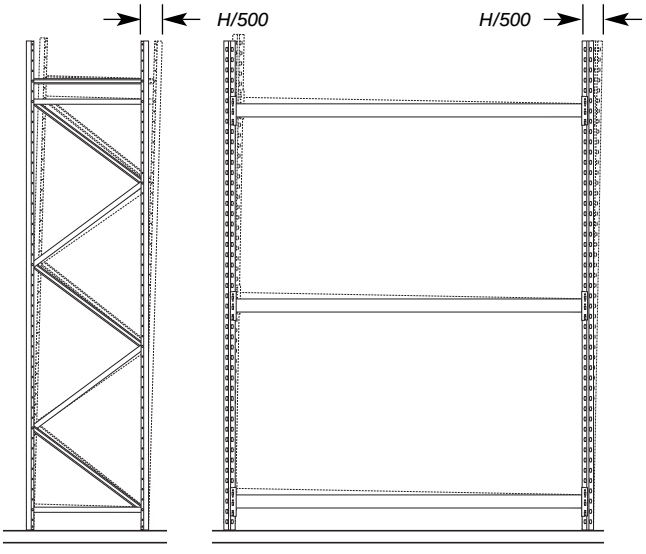


During installation, check verticals and levels to ensure the racking is within the recommended parameters, shown right.

The extent of undulation, slopes, steps, ridges, etc.
in the concrete floor slab surface affect both racking and handling equipment.
Advice on the effects of floor surface level variations on particular handling equipment should be obtained from the supplier.

The supporting floor slab for pallet racking should
be of suitable construction and thickness and level
to within 1:1000.

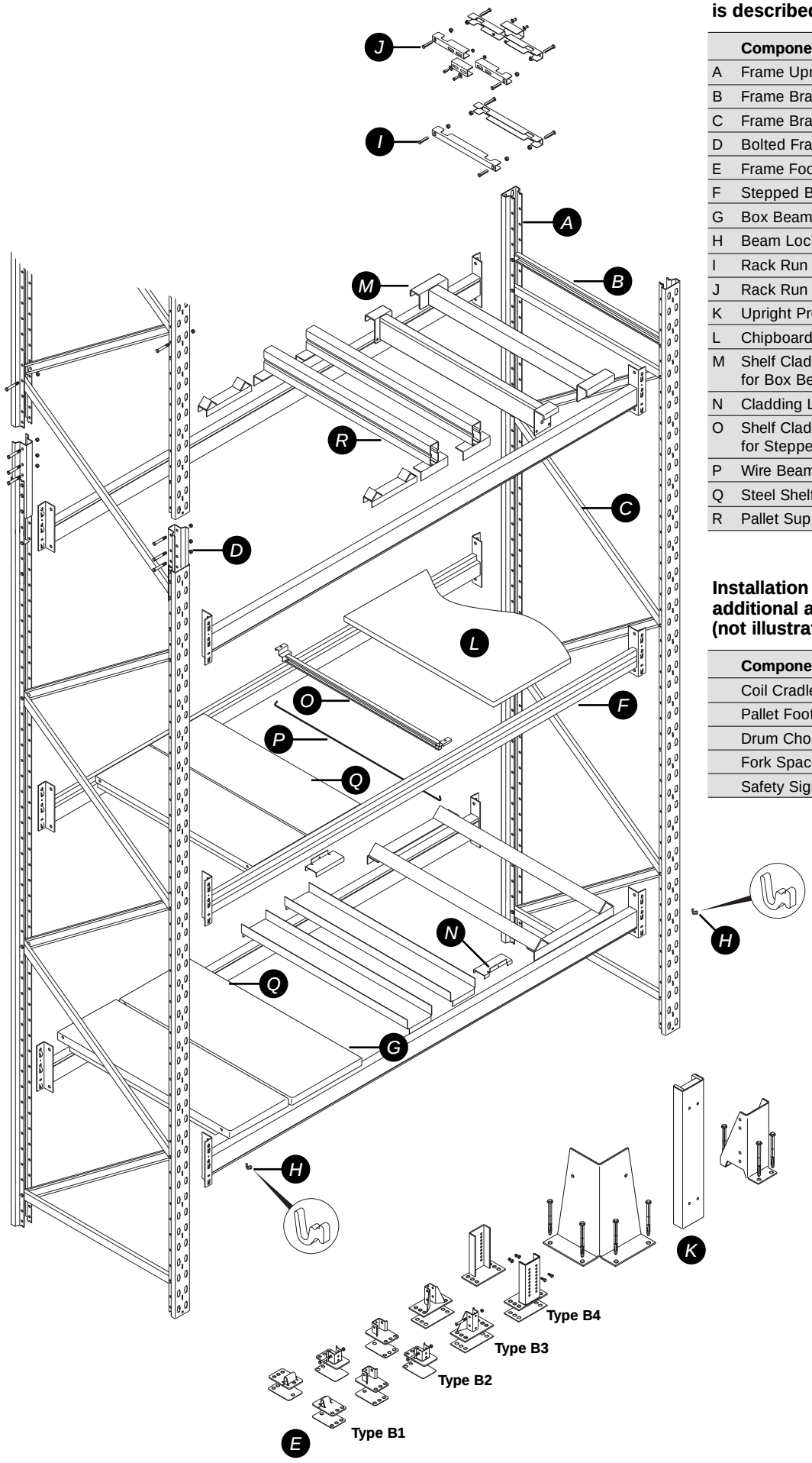
Note: general parameters only are shown - refer to SEMA Guideline No.2 'Guide to Erection Tolerances for Static Racking' for other applications.



Installation Tolerances for Standard Adjustable Pallet Racking

use shims to level within tolerances

Component Identification



Installation of the following components (illustrated left) is described:

	Component	Page
A	Frame Upright	3
B	Frame Bracing Tie (horizontal)	4
C	Frame Bracing Tie (diagonal)	4
D	Bolted Frame Joining Unit	5
E	Frame Foot Plates & Anchors	5, 7
F	Stepped Beam (in pairs)	6
G	Box Beam (in pairs)	6
H	Beam Locking Pin (2 per beam)	6
I	Rack Run Spacer (fixed)	7
J	Rack Run Spacer (adjustable)	7
K	Upright Protectors & Anchors	8
L	Chipboard Shelving	9
M	Shelf Cladding Support, for Box Beams	9
N	Cladding Location Bracket	9
O	Shelf Cladding Support, for Stepped Beams	9
P	Wire Beam Tie for Stepped Beams	9
Q	Steel Shelf Panel	9
R	Pallet Support Bar	9

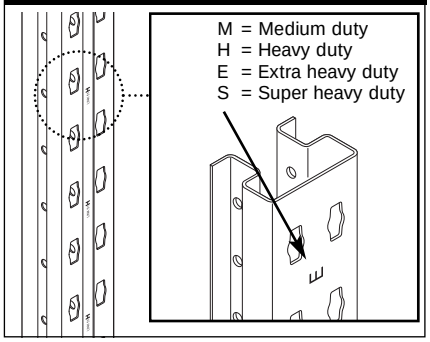
Installation of the following additional accessory components (not illustrated) is also described:

Component	Page
Coil Cradle	10
Pallet Foot Support	10
Drum Chock	10
Fork Spacer	10
Safety Sign	11

1 Upright & Frame Identification and Orientation

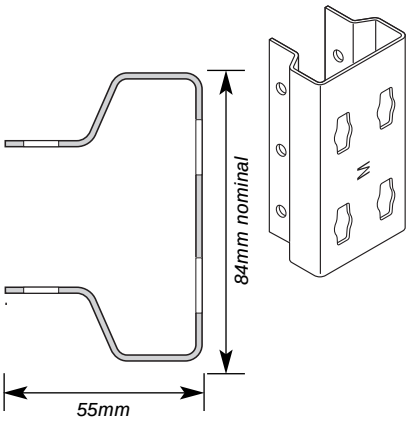
1.1 Identify upright and frame duty from stamp.
1.2 Note frame type and orientation.
1.3 Note frame position relative to aisle.

1.1a Upright duty I.D. stamp

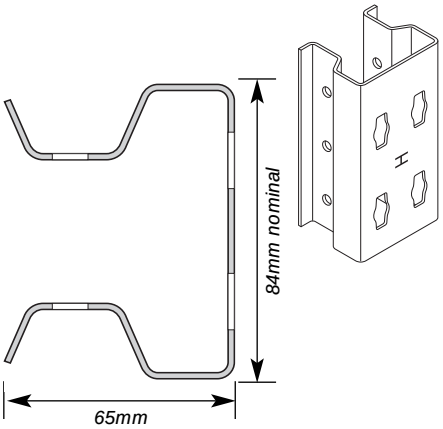


1.1 Upright Duties - identification

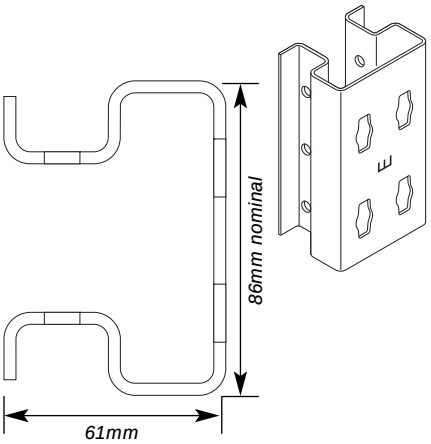
MEDIUM DUTY Upright section



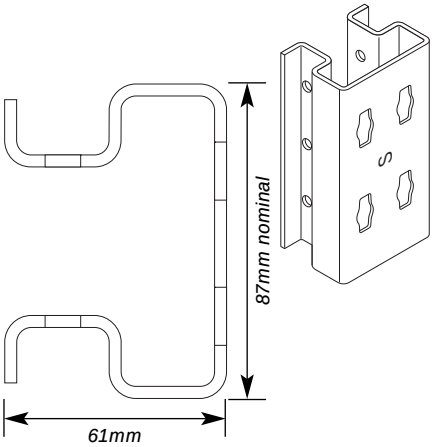
HEAVY DUTY Upright section



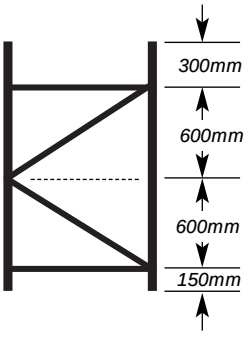
EXTRA HEAVY DUTY Upright section



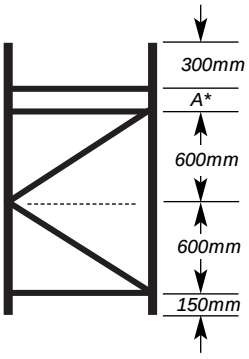
SUPER HEAVY DUTY Upright section



1.2 Typical frame type configurations



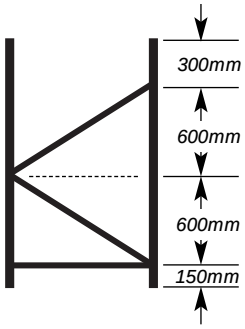
Normal MASTER Frame



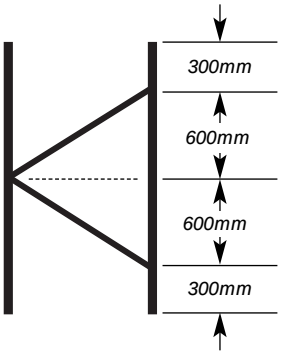
Normal STANDARD Frame

***Note:** Dimension 'A' on Normal Standard and Top Joining frames is variable but must not exceed 450mm.

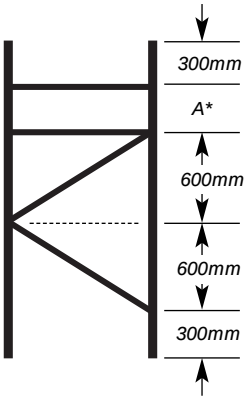
All dimensions are taken from bracing (tie) centres.



BASE Joining Frame

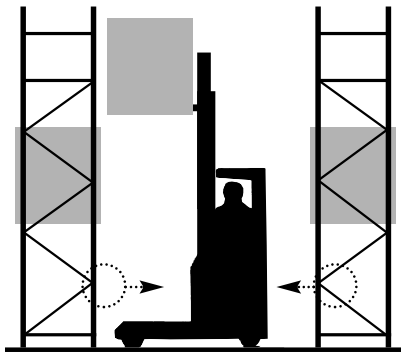


CENTRE Joining Frame



TOP Joining Frame

1.3 Frame positioning



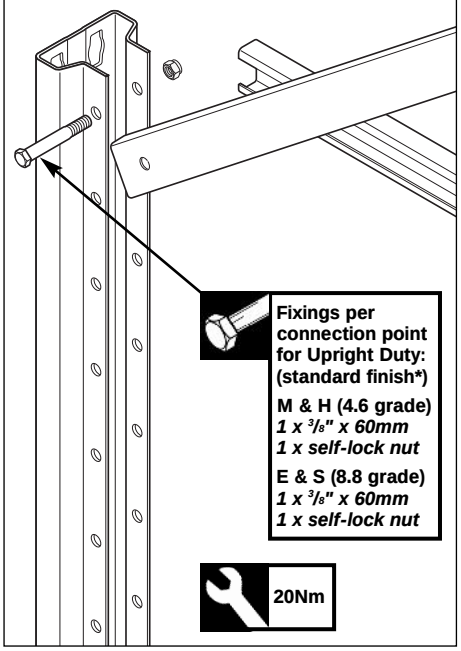
First (lowest) diagonal bracing node faces into the aisle.

2 K.D. Frame Assembly

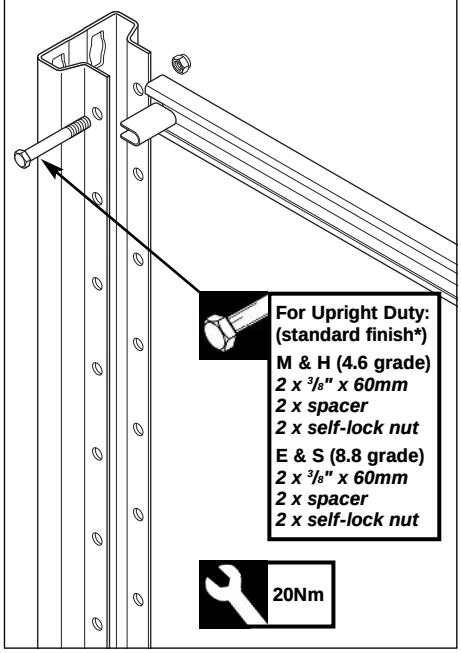
Note: * For cold store applications use 8.8 grade fixings for all frame types

2.1 Undertake assembly with components laid flat or supported on suitable trestle frames. When assembling a series of frames build a 'template' frame first to use as guide for remaining frames.
2.2 Fit horizontal and diagonal ties to paired uprights. Work from base upwards. Fits nuts & bolts loosely.
2.3 Check that the frame is fully square (measure diagonally from corner to corner). Tighten all bolts to the specified torque loading.

2.2 Connecting Bracing Ties

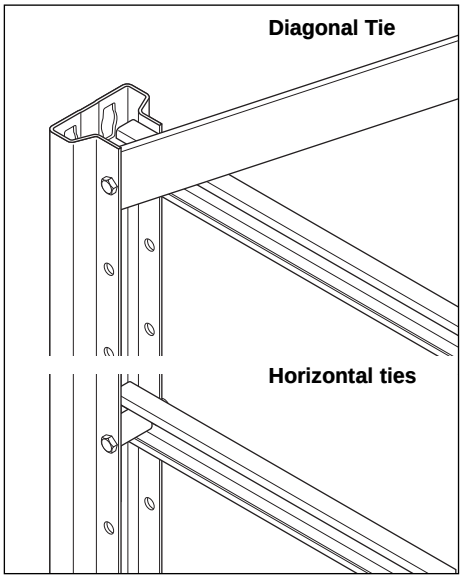


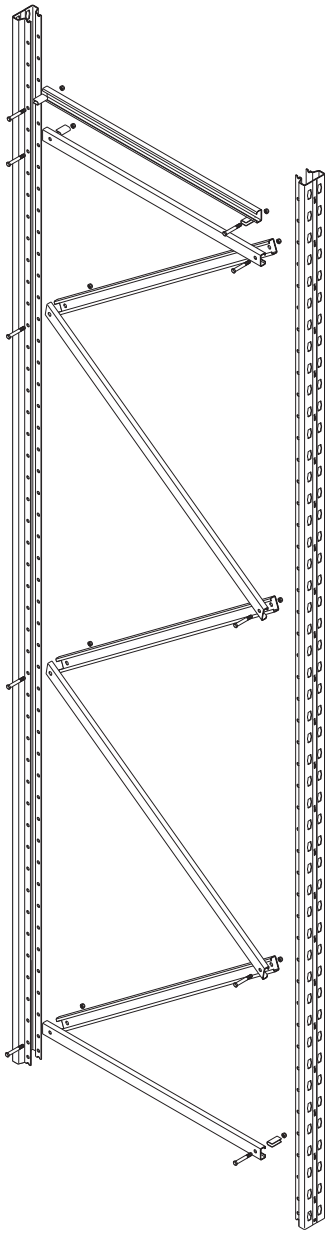
2.2a Single Bracing Ties

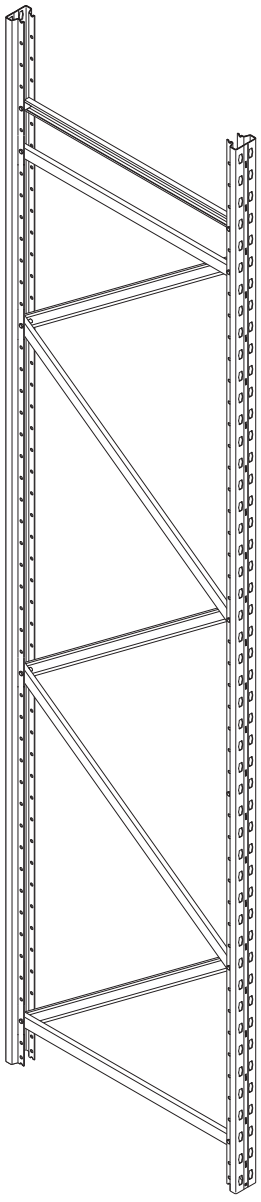


2.2 Frame Assembly

2.3 Frame Assembly

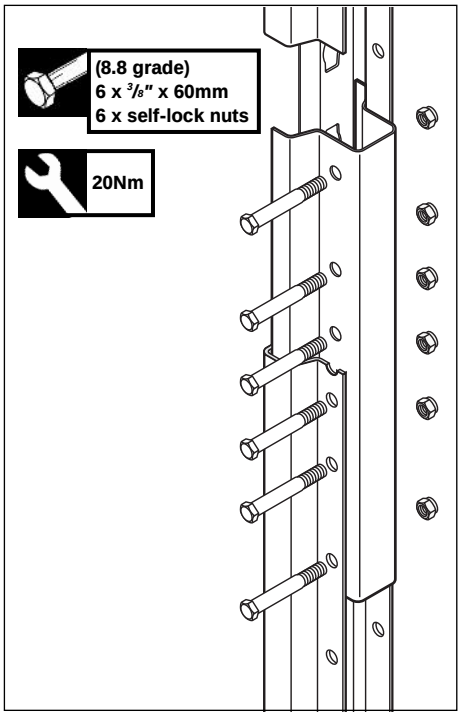


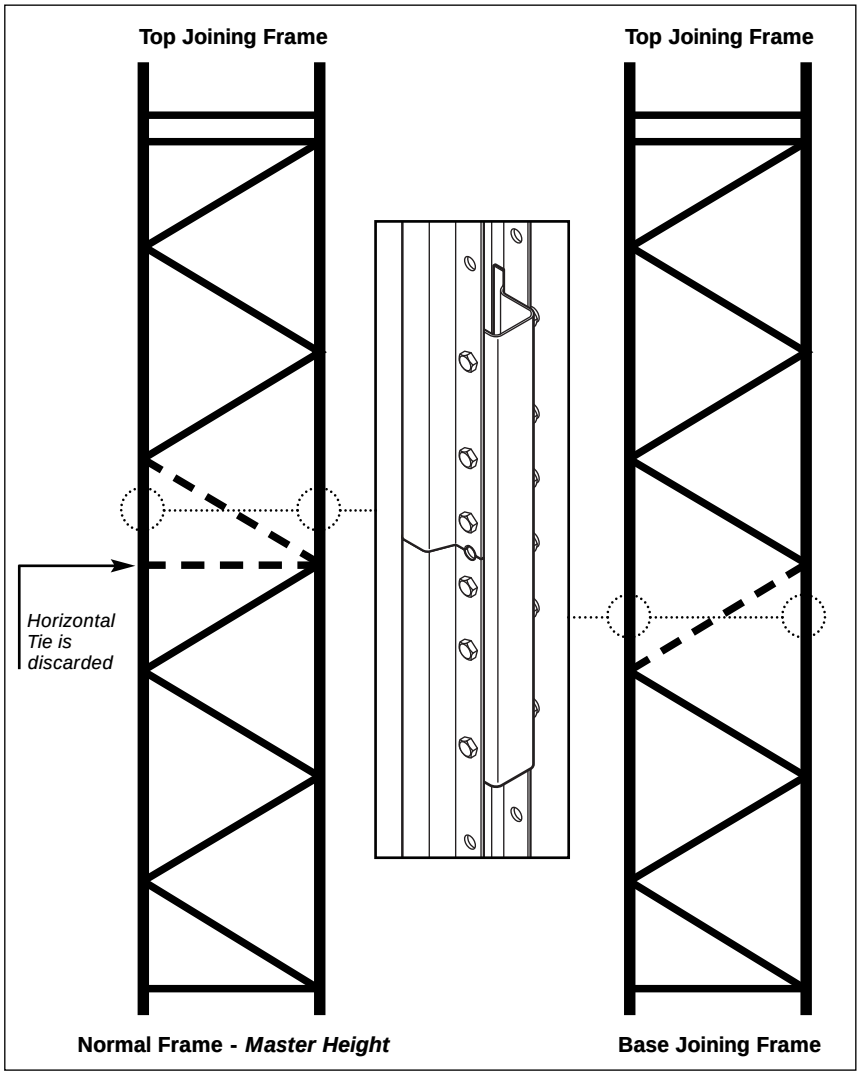




3 Frame Joining

Undertake assembly with components laid flat.
When joining on to master frames, discard the top horizontal tie.
Locate Joining Units within uprights of lower frame, bolt in place.
Locate upper frame in place.
Assemble diagonal ties.

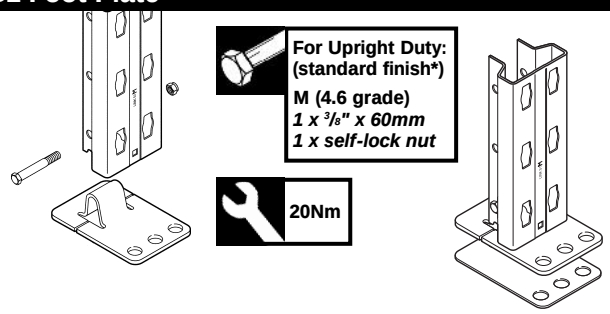




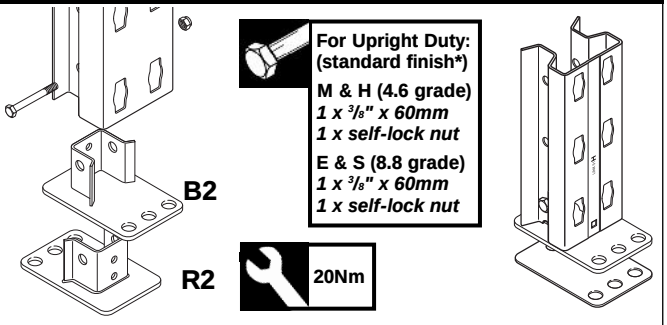
4 Foot Plate Location

Note: * For cold store applications use 8.8 grade fixings for all frame types

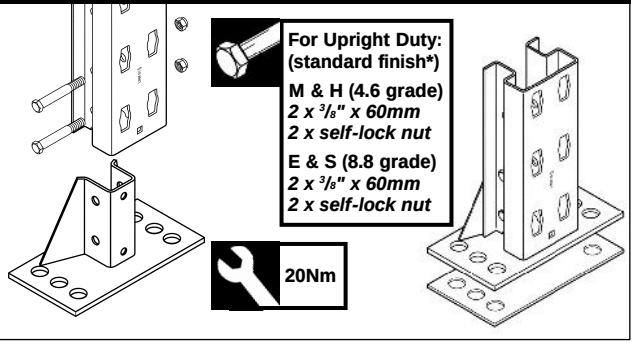
B1 Foot Plate



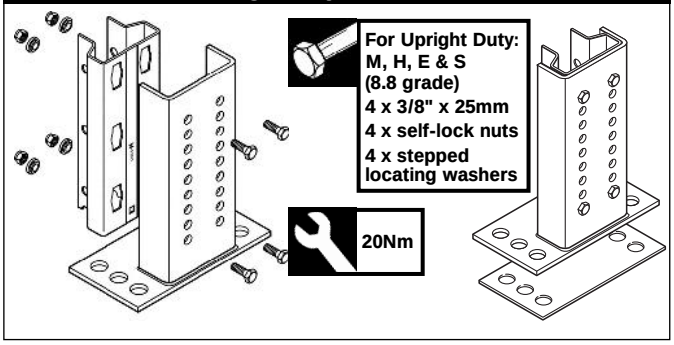
B2/R2 Foot Plate



B3 Foot Plate



B4 Foot Plate - height adjustable

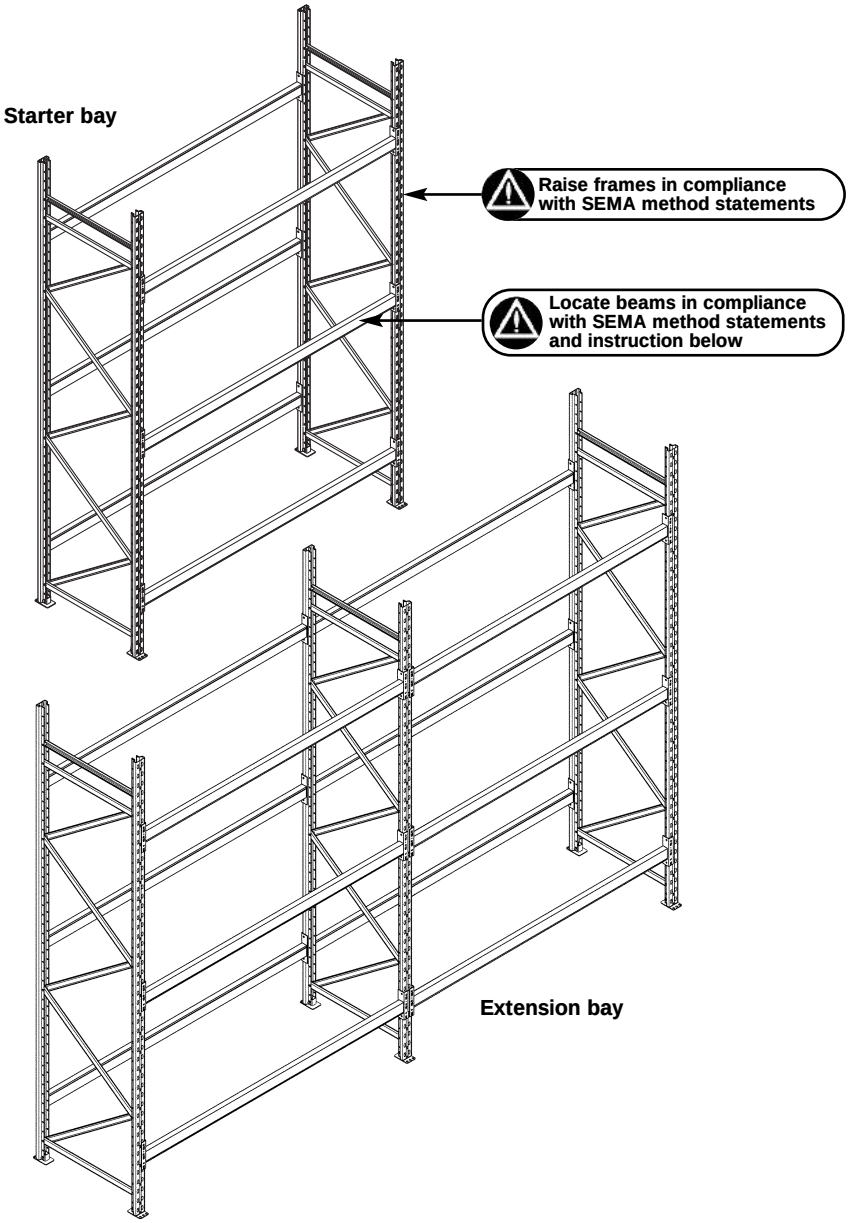


5 Bay Assembly

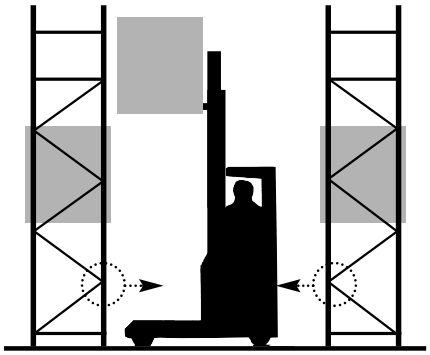
NOTE: Where racking is to be installed or directed to be installed by the client/user or an agent acting on their behalf, then bay assembly must be carried out in accordance with the Storage Equipment Manufacturers' Association (SEMA) 'Guide to Method Statements for the Installation of Storage Equipment'.

To obtain this guide, refer to page 1 for contact details.

Assemble starter bays first, then build out with extension bays.



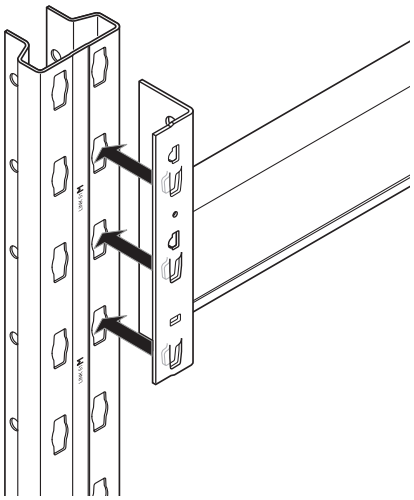
Frame positioning



First (lowest) diagonal bracing node faces into the aisle.

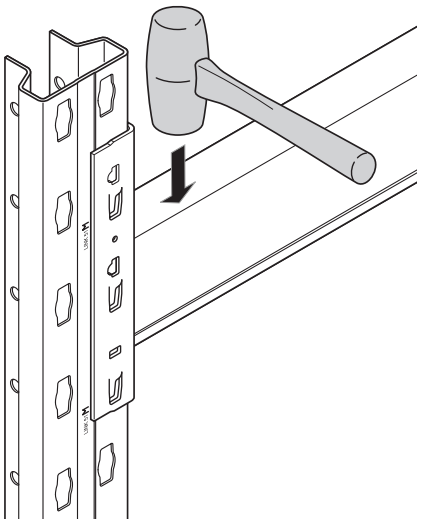
Beam Location - requires 2 safety locking pins per beam

1 **Locate beam connectors to both uprights. Engage beam locking tabs into slots in the upright.**



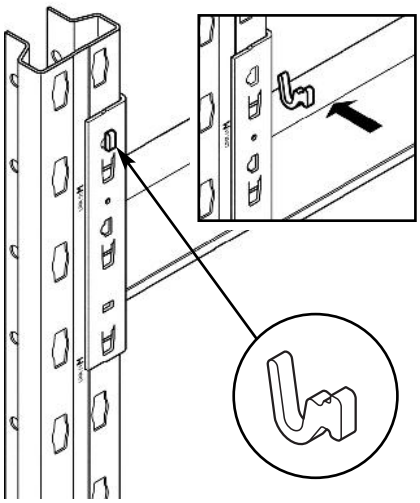
2 **Press down and tap into place, ensuring all locking tabs are seated.**

Note: to prevent damage, use only a soft face mallet to tap beams into place.



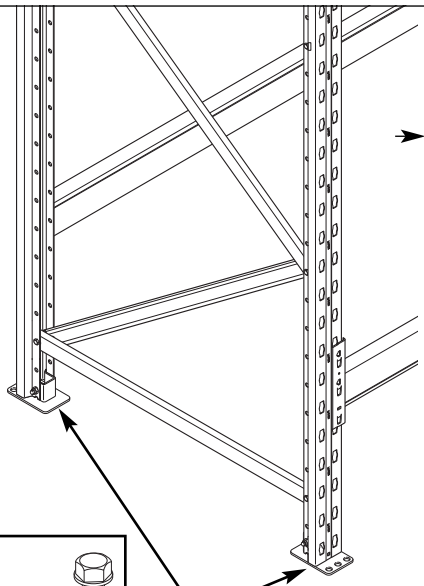
3 **Insert locking pins at BOTH ends of the beam. Pin goes in upper slot.**

Note: if pin does not easily pass through the slot, the beam locking tabs are not engaged correctly. Remove pin and tap until tabs are fully seated. Replace pin.

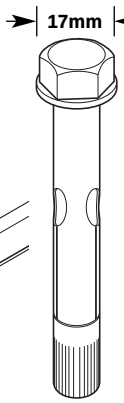


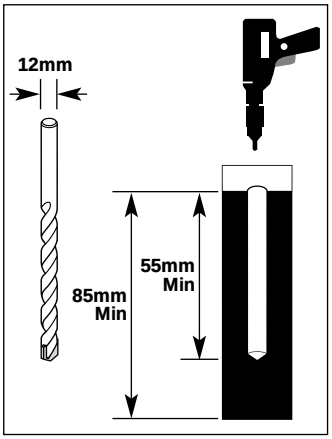
6 Foot Plate Anchoring

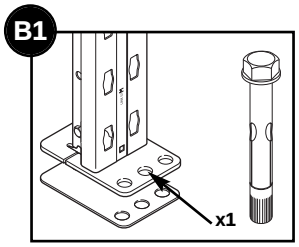
All foot plates must be fixed to the floor using the required number of anchor bolts.
Before fixing, check verticals and levels to ensure racking is within recommended tolerances for the installation.
Shim as necessary then floor fix.
Tighten all bolts to the specified torque loading.

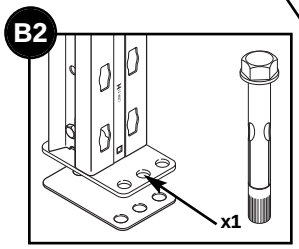


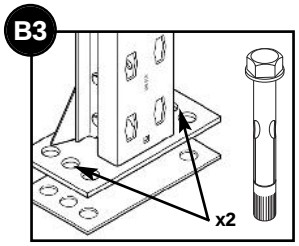
M10 Expansion floor fixing bolt

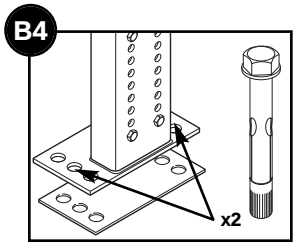




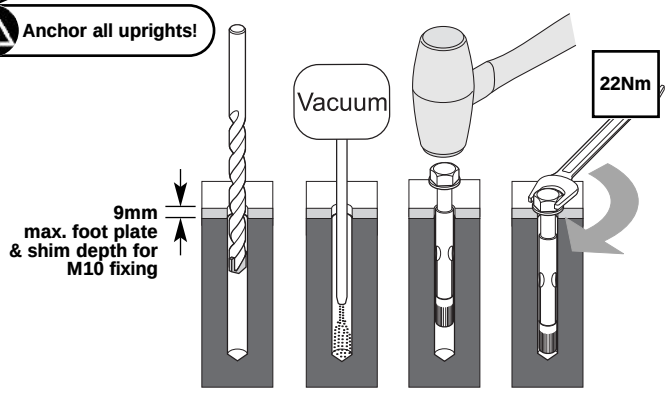








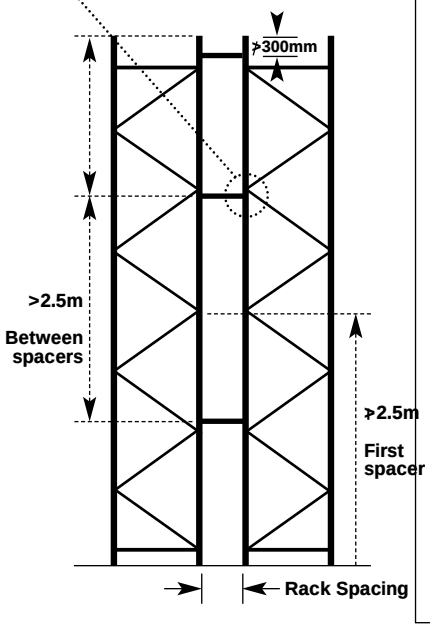
Anchor all uprights!



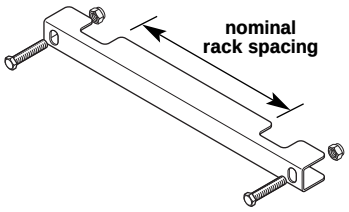
7 Rack Run Spacers

Fitted to each pair of backing frames.
Fit in pairs for rack spacing of 800mm and over.

Locate spacers within 225mm of bracing node points

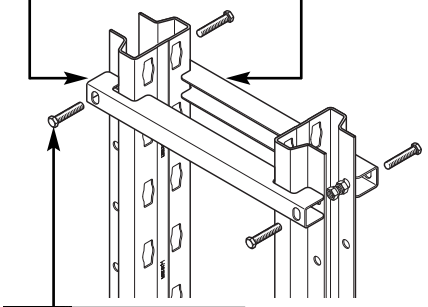


7.1 Run Spacer (fixed)



x1 <800mm

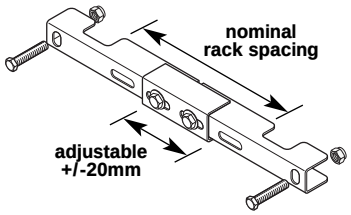
x2 ≥800mm



(8.8 grade)
2 x ⅜" x 45mm
2 x self-lock nuts

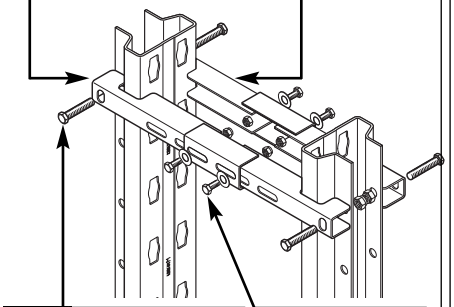
20Nm

7.2 Run Spacer (adjustable)



x1 <800mm

x2 ≥800mm



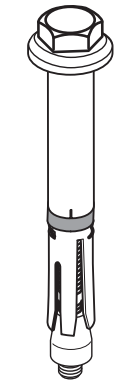
(8.8 grade)
2 x ⅜" x 45mm
2 x self-lock nuts

(8.8 grade)
2 x M8*16mm
2 x self-lock nuts
2 x washers

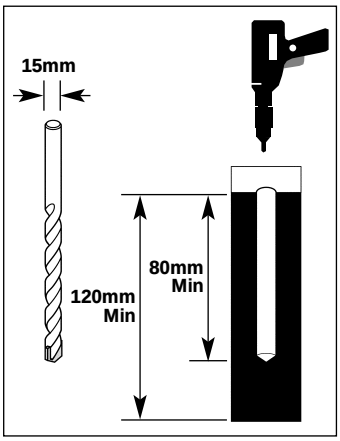
20Nm

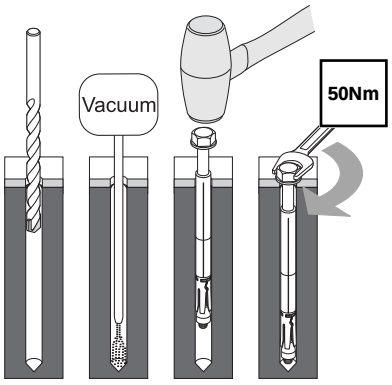
8 Upright Protectors

8.1 U-Type Protector.
8.2 L-Type Protector.
8.3 Column Protectors.
Types U & L must be anchored to the floor at all fixing positions.

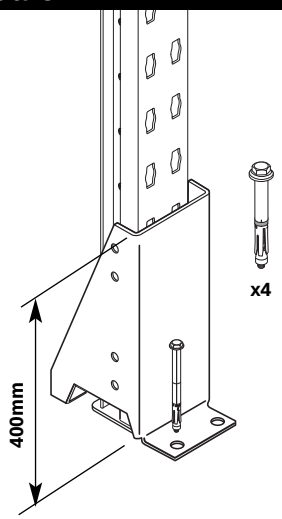


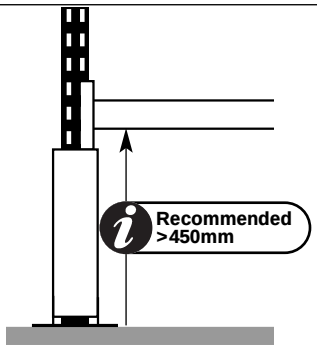
M8/12 Expansion floor fixing bolt. Part Number FAS1515



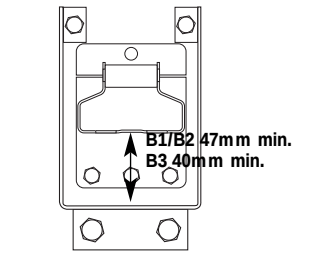


8.1 U-Type Upright Protector - Square



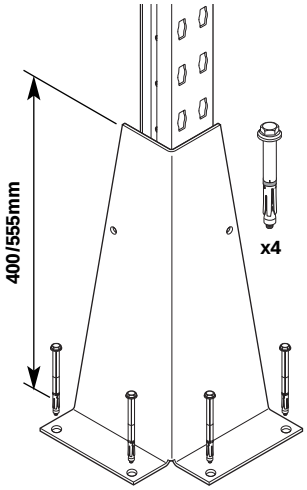


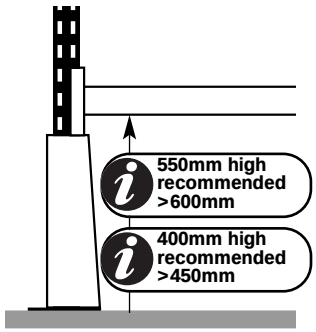
First Beam Clearance (on 3T connector)



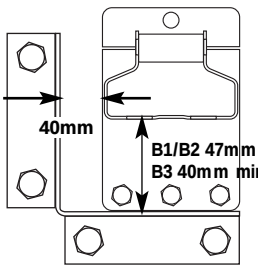
Recommended Clearance (plan view)

8.2 L-Type Upright Protector



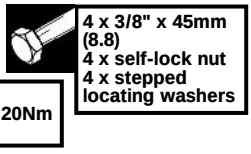


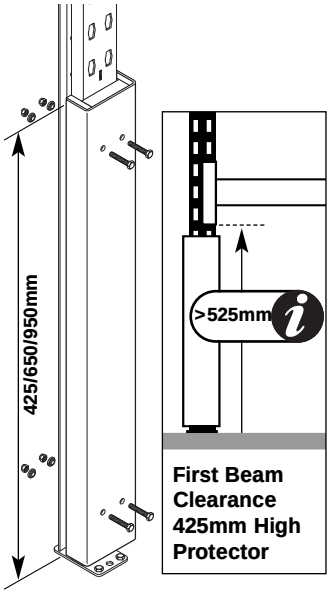
First Beam Clearance (on 3T connector)



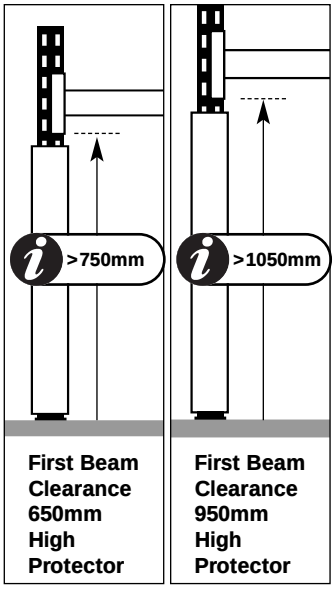
Recommended Clearance (plan view)

8.3 Column Protectors





First Beam Clearance 425mm High Protector

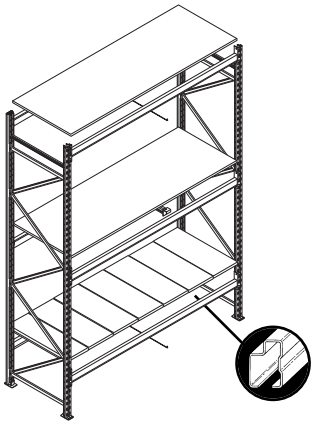


First Beam Clearance 650mm High Protector

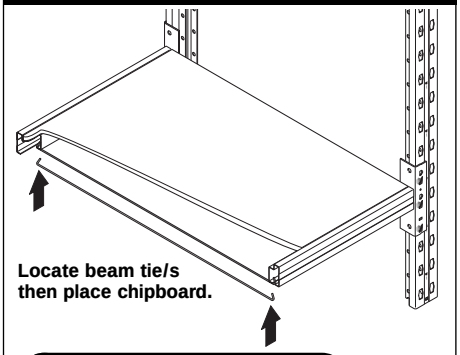
First Beam Clearance 950mm High Protector

9 Shelving

STEPPED BEAMS
- 9.1 Chipboard with wire beam ties.
- 9.2 Chipboard with shelf cladding supports.
- 9.3 Steel profile shelf panels.

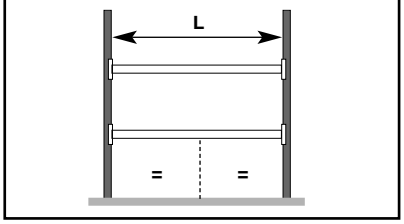


9.1 Chipboard: Wire Beam Tie/s

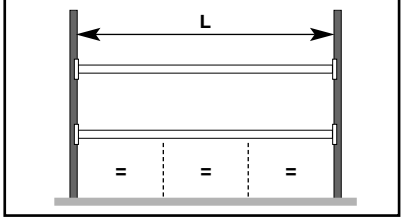


Locate beam tie/s then place chipboard.

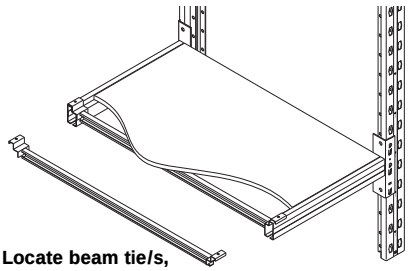
x1
L = ≥1800mm, ≠ 2700



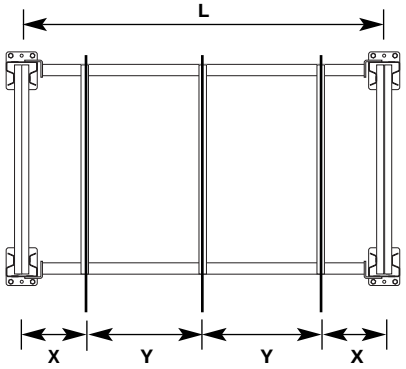
x2
L = > 2700



9.2 Shelf Cladding Support & Tie/s



Locate beam tie/s, then cladding supports then place chipboard.

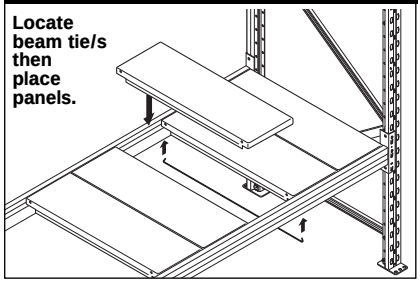


Y = L ÷ (number of supports - 0.5)
X = Y x 25%

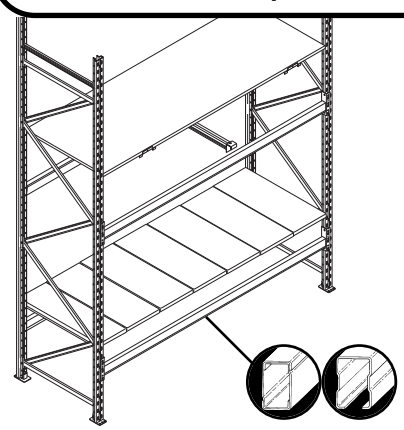
e.g. Y = 2700 ÷ (3 - 0.5) = 1080mm
X = 1080 x 25% = 270mm

9.3 Profile Shelf Panels & Tie/s

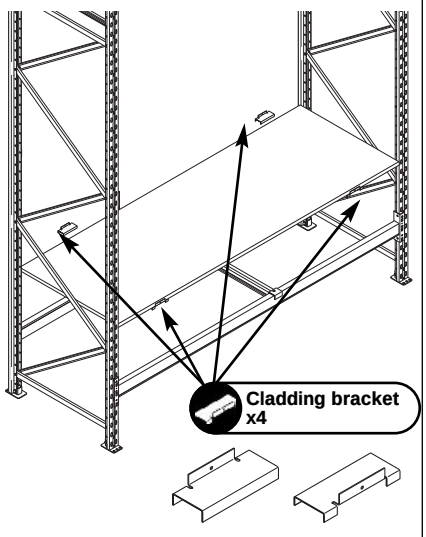
Locate beam tie/s then place panels.

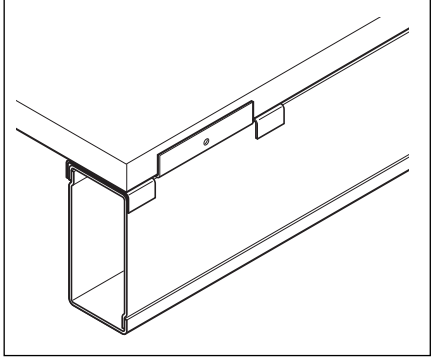


BOX BEAMS
- 9.4 Chipboard with cladding location brackets.
- 9.5 Chipboard with shelf cladding supports.
- 9.6 Steel shelf panels.

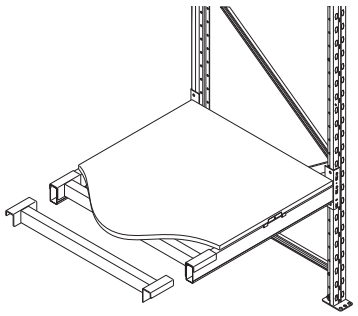


9.4 Chipboard: Cladding Bracket

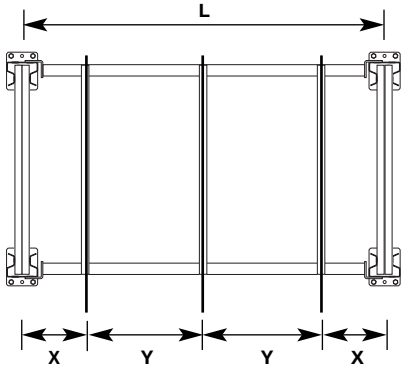




9.5 Shelf Cladding Support

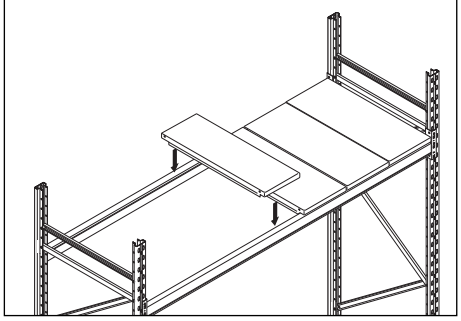


Locate cladding supports, then cladding brackets then place chipboard



Y = L ÷ (number of supports - 0.5)
X = Y x 25%

9.6 Steel Shelf Panels

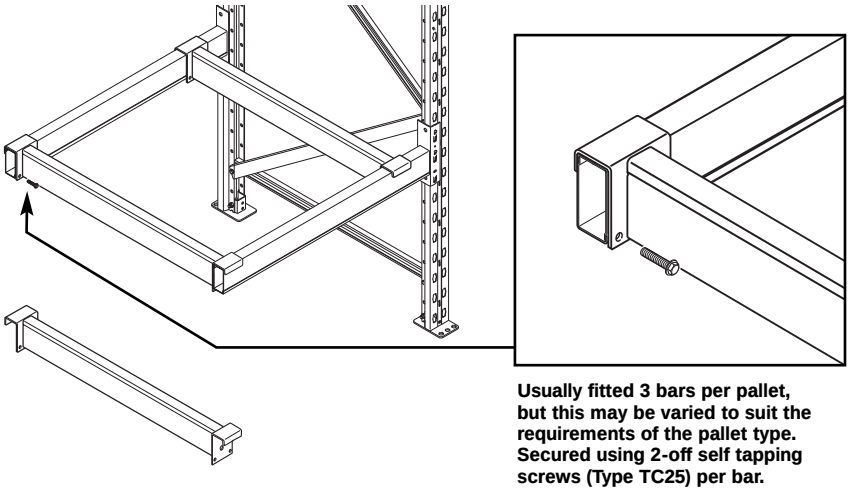


10 Support Accessories

10.1 Pallet Support Bar.
10.2 Coil Cradle.
10.3 Pallet Foot Support.
10.4 Drum Chock.
10.5 Fork Spacer.

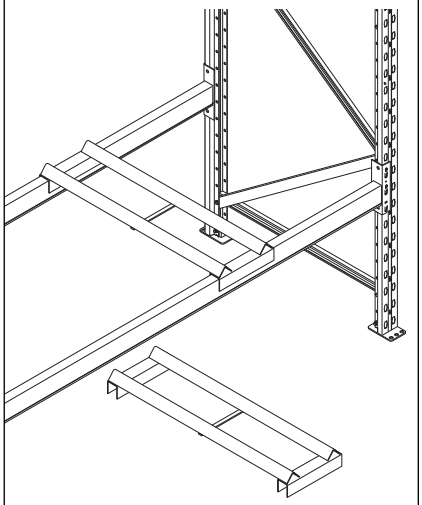
Steel pallets which have feet must be supported on pallet foot supports. Non-palletised loads such as drums, coils, barrels etc must be supported by the correct accessory.

10.1 Pallet Support Bar

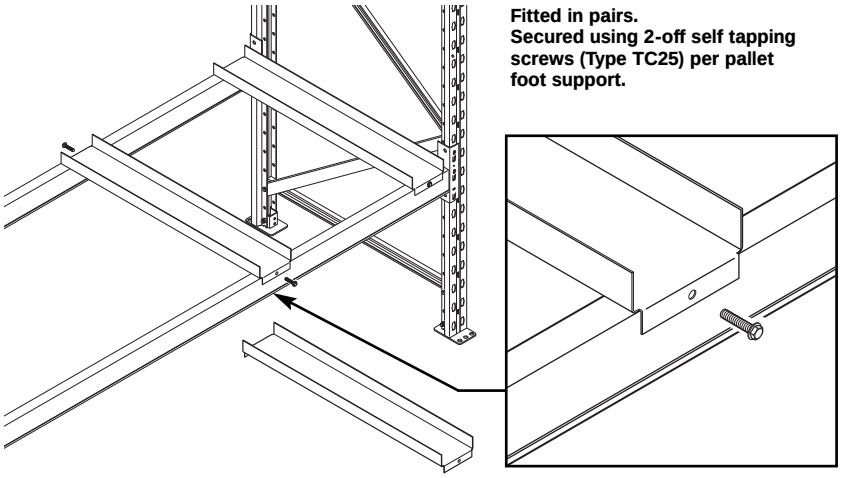


Usually fitted 3 bars per pallet, but this may be varied to suit the requirements of the pallet type. Secured using 2-off self tapping screws (Type TC25) per bar.

10.2 Coil Cradle

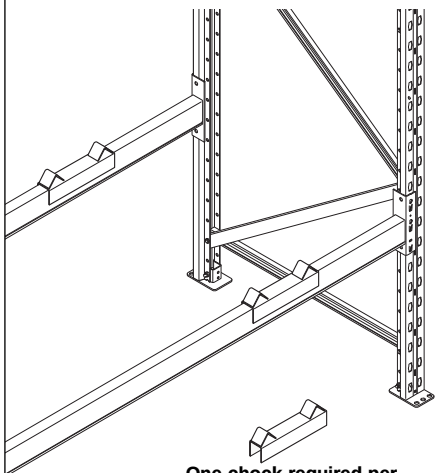


10.3 Pallet Foot Support



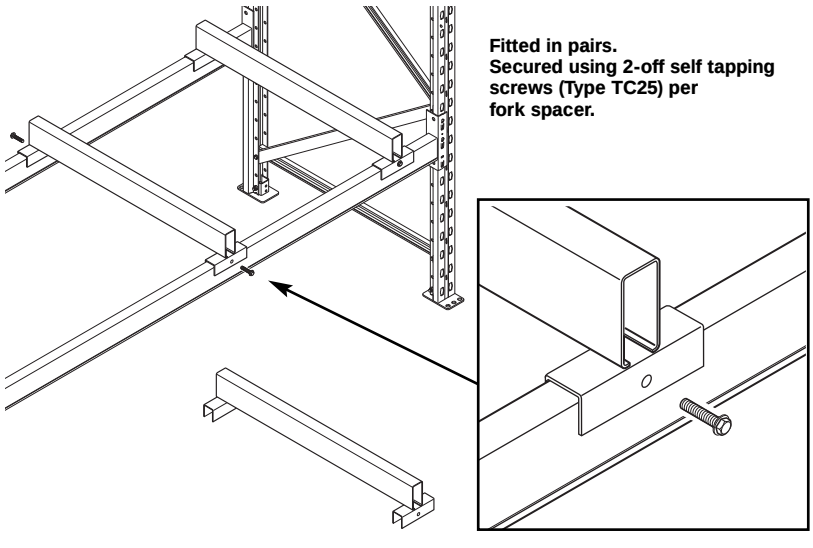
Fitted in pairs. Secured using 2-off self tapping screws (Type TC25) per pallet foot support.

10.4 Drum Chock



One chock required per drum or barrel, placed on the front beam.

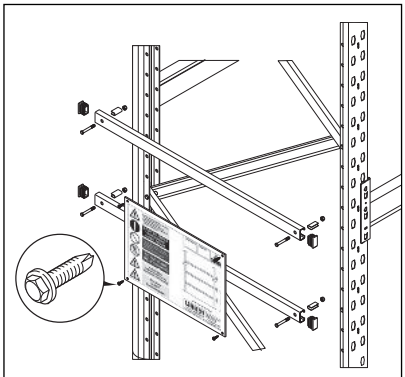
10.5 Fork spacer



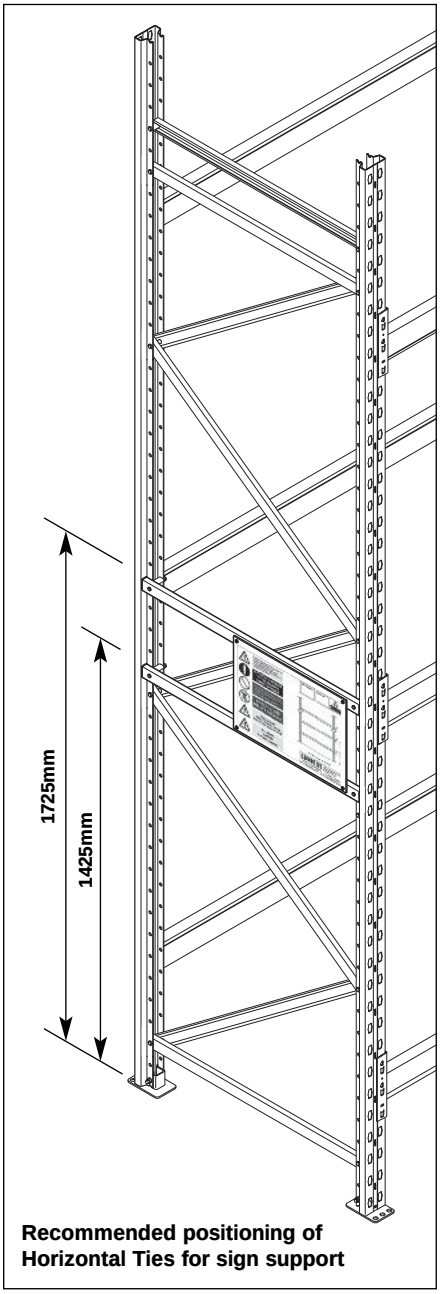
Fitted in pairs. Secured using 2-off self tapping screws (Type TC25) per fork spacer.

11 Racking (maintenance & safety) Signs

Means of clearly displaying essential safety information for pallet racking.
Signs are 297mm high x 420mm wide.
Material is rigid styrene sheet or laminated paper.
Signs are supported on 2 x horizontal bracing ties and fitted using a sign fixing kit.
Position signs centrally.

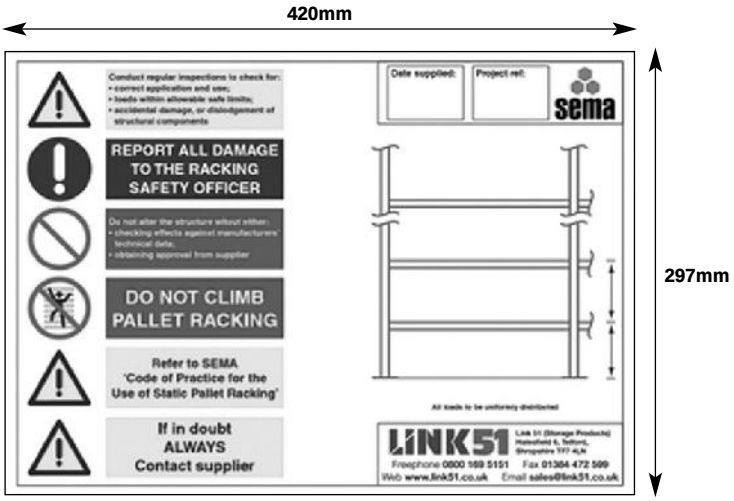


SIGN FIXING KIT
4 x plastic plugs to fit Horizontal Bracing Ties.
4 x 3/8" x 60mm long frame bracing bolts and Nyloc nuts.
4 x spacers.
Four TEK fixings (Type TC25) for fixing sign to horizontal ties.



Recommended positioning of Horizontal Ties for sign support

Example Sign Template



Racking Safety Inspection

In accordance with current guidelines and workplace health & safety regulations, it is essential that pallet racking is inspected for actual or potential safety hazards. These may be caused by impact damage to the racking or result from missing components.

Inspections should be conducted on a regular, scheduled basis by suitably competent personnel.

If in doubt when and now to conduct racking safety inspections, contact the racking supplier.

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