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ENGINEERING & CONSTRUCTION

TECHNICAL GUIDE
SINGLE SIDED A-FRAMES

FORMWORK

Any safety provisions as directed by the appropriate governing agencies must be observed when using our products. The pictures in this document are snapshots of situations at different stages of assembly, and therefore are not complete images. For the purpose of safety, they should not be deemed as definitive.

The loads featured in this document, related to the parts of the product, are approximate.

The company reserves the right to introduce any modifications deemed necessary for the technical development of the product.

DOCUMENT NO: SINGLESIDED_AFRAMES_FEB2024_ISSUEB

Technical Manual Release Notes

This page is intended to record all changes to the **SINGLE SIDED A-FRAMES** technical manual pages.

Changes or additions to this manual will be itemised with a brief description and date when the amendments were made.

ISSUE	DATE	Amendment Description
A	SEPT 2023	First Release
B	FEB 2024	Second Revision

Contents

1. Technical Specifications

Purpose of the Document

The purpose of this document is to provide guidelines for design, safe handling, transport and installation of the **SINGLE SIDED A-FRAMES** system.

The document also outlines the various components of the system and it features illustrations, working load limits, typical assembly arrangements and safe transport and handling measures.

The information contained in this document is provided as a general guide only and does not replace the need for the design to be reviewed and checked by a qualified person in the field of temporary works design and installation, concrete, steel, building construction and services.

This material has been prepared in the context of relevant Australian Standards and the National Construction Code (NCC). Users should make themselves aware of any recent changes to these documents referred to therein and to local variations or requirements.

This document is NOT a substitute for site-specific Safe Operation Procedures. It is the Installation Contractors responsibility to prepare safe work method statements and observe and comply with site specific health and safety regulations, standards and policies.

Acrow has dedicated engineering services available for project assistance. We can provide design support for clients to determine the best way to specify and document **SINGLE SIDED A-FRAMES**. Our technical experts can identify the most efficient temporary work design meeting project requirements, specifications and installation process.

Should the users require any further information or guidance, they are encouraged to contact their local Acrow branch.

Safety Information

This safety information is to draw the user's attention to possible musculoskeletal disorders as a result of manual handling during assembly and dismantling of the **SINGLE SIDED A-FRAMES** system

It is recommended that users of the **SINGLE SIDED A-FRAMES** system employ and implement appropriate procedures and control measures to eliminate or control any risk of Musculoskeletal disorder/injury while handling.

Refer to the Code of Practice on manual handling published by local Workcover Authority or other approved and recognised guidelines for correct and appropriate manual handling procedures.

1. Technical Specifications

Important Information

The erection and application instructions contained in this manual are the recommended methods to be used for **SINGLE SIDED A-FRAMES** products.

The technical function related instructions must be accurately followed to obtain the correct performance of the product. Any deviation from the recommended usage will require a separate design and/or verification by Acrow Engineering.

The safe use and application of the system must be in accordance with Australian Standard AS 3610 Formwork for Concrete, Occupational Health & Safety regulations, approved industry codes of practice and relevant regulatory authority requirements.

The illustrations in these assembly configurations are minimum guidelines only.

The combined use of the **SINGLE SIDED A-FRAMES** system with equipment from other suppliers may entail performance issues and therefore requires a design check and/or verification by Acrow Engineering or a qualified experienced engineer.

Hazard Identification/Risk Assessments for the erection and dismantling of the system are available from Acrow branches. Site specific Hazard and Risk assessments may need to be generated for specific projects.

Disclaimer

1. The photographs/illustrations shown within this manual are intended as expressing the diversity and possible applications of the product and as such must not be used as assembly instructions.
2. In line with Acrow commitment to continuous product development and improvement, the information contained in this manual may be changed without notice. Please confirm with Acrow Engineering for latest update.
3. While all reasonable effort has been taken to ensure the accuracy and adequacy of the information contained herein, Acrow, accepts no responsibility or liability for any loss or damage suffered by any person acting or refraining from action as a result of this information.

Should users require any expert assistance, they are encouraged to contact Acrow Engineering department.

Applicable Codes and Standards

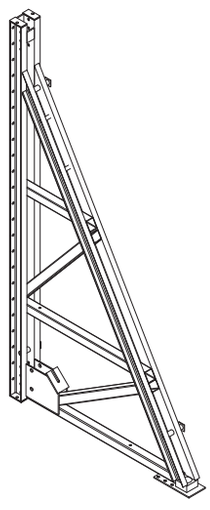
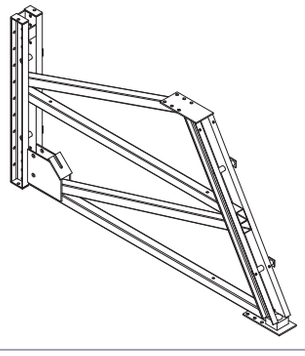
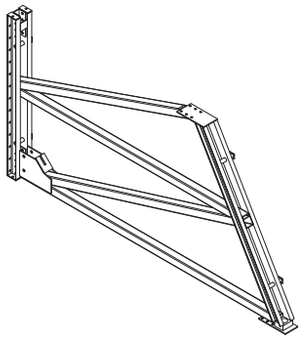
The structural design information and guide provided in this document are limited to the relevant codes nominated below. It does not include certification of any structures or works associated with a project.

ELEMENT	DESCRIPTION	CODE
LOADING	Structural Design Actions – General Principles	AS/NZS 1170.0-2002 (R2016)
	Structural Design Actions – Permanent, Imposed And Other Actions	AS/NZS 1170.1-2002
FORMWORK	Formwork for Concrete	AS 3610-1995
	Formwork for Concrete Part 1- Specifications	AS 3610.1-2018

2. GENERAL PRODUCT INFORMATION

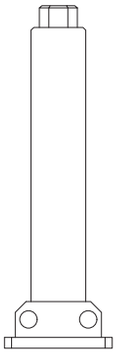
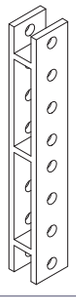
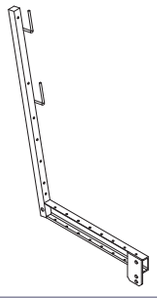
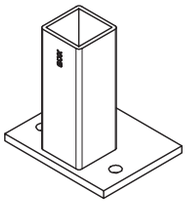
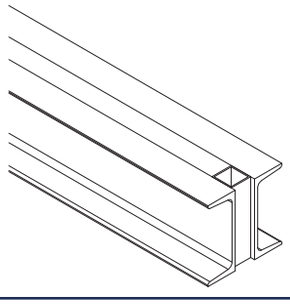
2. General Product Infomation

A-Frame Parts

PRODUCT	DESCRIPTION	PRODUCT CODE	MASS (KG) (NOM.)
	Single Sided Frame Universal 4.5m Frame		
	Universal 4.5m Frame	SSFU45M	306.0
	Single Sided Frame Attachable 1.5m		
	Attachable 1.5m	SSFA15M	236.0
	Single Sided Frame Attachable 2.0m		
	Attachable 2.0m	SSFA20M	451.0

2. General Product Infomation

A-Frame Parts

PRODUCT	DESCRIPTION	PRODUCT CODE	MASS (KG) (NOM.)
	Single Sided Frame Jacks		
	Front Jacks	SSFFJ	17.0
	Rear Jacks	SSFRJ	18.3
	Single Sided Frame Connector		
	Connector	SSFC	18.0
	Single Sided Frame Access Bracket		
	Access Bracket	SSFAB	19.0
	Single Sided Frame Lifting Support Bracket		
	Lifting Support Bracket	SSFUSB	5.2
	Single Sided Anchor Waling (180mm Height x 190mm width)		
	700mm Anchor Waling	SSFAWA070	27.0
	1950mm Anchor Waling	SSFAW195	76.3
	2950mm Anchor Waling	SSFAW295	110.0

2. General Product Infomation

Miscellaneous - Hardware Components

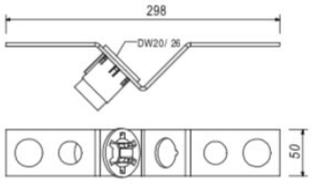
V-tie Holder

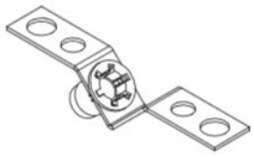
V-Tie Holder DW20/26	
Mass:	0.43kg
Code:	F1028

V-Tie Holder Insert 20mm	
Code:	F1028A

V-Tie Holder Insert 26.5mm	
Code:	FT1028B

For easy installation of DW20 & DW26 Tie Rods at 45 degree inclinations.





Podger Pins

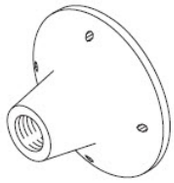
	D16 x 118mm	
	Mass:	0.18kg
	Code:	PP16-1
	D16 x 148mm	
	Mass:	0.29kg
	Code:	PP16-148
	D19 x 118mm	
	Mass:	0.35kg
	Code:	PP19-1
	E20 x 70mm	
	Mass:	0.29kg
	Code:	0252070
	R/3	
	Mass:	0.02kg
	Code:	9370571
	R/4	
	Mass:	0.02kg
	Code:	9023100
	R/5	
	Mass:	0.03kg
	Code:	250000

HT Thru Tie Fix Anchor

15mmx70mm	
Mass:	0.55kg
Code:	QTTFA070

20mmx20mm	
Mass:	0.85kg
Code:	QTTFA090

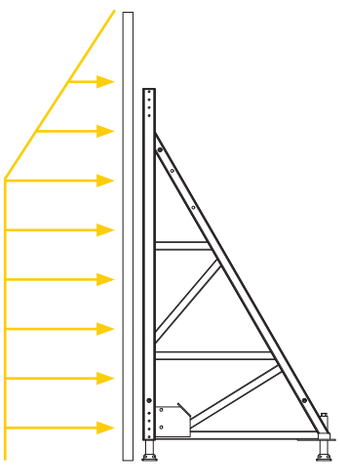
26.5mmx120mm	
Mass:	1.20kg
Code:	QTTFA120



3. WORKING LOAD LIMITS (WLL)

3. Working Load Limits (WLL)

A-Frame 4.50m - 3.0 - 4.5m Pour Height

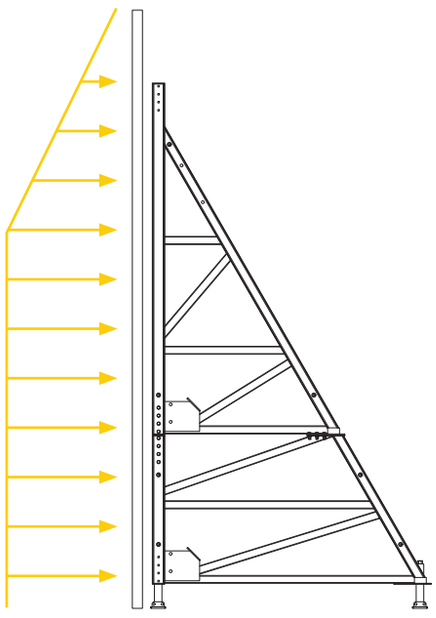


		Influence Width					
		1.00m			1.20m		
	Pour Height	Anchor Force	Spindle Force	Deformation	Anchor Force	Spindle Force	Deformation
	H	Zk	Vk	Top	Zk	Vk	Top
	(m)	(kN)	(kN)	(mm)	(kN)	(kN)	(mm)
40 kN/m²	3.00	124	55	1	150	66	2
	3.50	153	81	2	184	97	2
	4.00	181	113	3	217	136	4
	4.50	209	150	10	252	181	12
50 kN/m²	3.00	141	59	1	170	71	2
	3.50	177	89	2	213	107	2
	4.00	212	126	4	255	152	4
	4.50	247	170	10	297	205	12

1. Values provided to be used as a guide only and independent analysis by a competent structural engineer is required, taking into account concrete mix design and temperature.
2. The loading data is per parallel frame where the anchor is installed at a 45 degree angle.
3. Fields containing no data (------) are not permissible and the support frame would be overloaded.
4. All loads indicated are un-factored working loads.
5. For embedment of diagonal anchor consult Acrow engineering.

3. Working Load Limits (WLL)

A-Frame 4.50m + 1.5m Extension Frame - 4.5 - 6.0m Pour Height

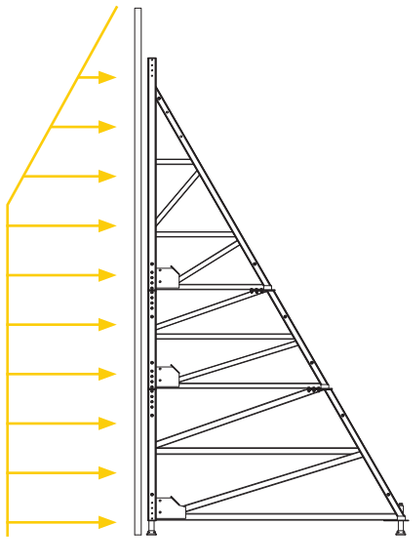


		Influence Width					
		1.00m			1.20m		
	Pour Height	Anchor Force	Spindle Force	Deformation	Anchor Force	Spindle Force	Deformation
	H	Zk	Vk	Top	Zk	Vk	Top
	(m)	(kN)	(kN)	(mm)	(kN)	(kN)	(mm)
40 kN/m²	4.50	209	105	3	252	126	3
	5.00	238	135	5	286	162	7
	5.50	266	168	9	319	202	11
	6.00	294	206	16	354	247	20
50 kN/m²	4.50	247	119	4	297	143	4
	5.00	283	154	7	340	186	7
	5.50	318	194	12	383	234	12
	6.00	354	239	19	-	-	-

1. Values provided to be used as a guide only and independent analysis by a competent structural engineer is required, taking into account concrete mix design and temperature.
2. The loading data is per parallel frame where the anchor is installed at a 45 degree angle.
3. Fields containing no data (------) are not permissible and the support frame would be overloaded.
4. All loads indicated are un-factored working loads.
5. For embedment of diagonal anchor consult Acrow engineering.

3. Working Load Limits (WLL)

A-Frame 4.50m + 1.5m + 2.0m Extension Frame - 6.0 - 8.0m Pour Height



		Influence Width					
		1.00m			1.20m		
	Pour Height	Anchor Force	Spindle Force	Deformation	Anchor Force	Spindle Force	Deformation
	H	Zk	Vk	Top	Zk	Vk	Top
	(m)	(kN)	(kN)	(mm)	(kN)	(kN)	(mm)
30 kN/m²	6.00	221	109	4	266	132	5
	6.50	242	131	5	291	158	6
	7.00	264	155	6	316	186	7
	7.50	285	181	7	342	217	9
	8.00	306	209	12	386	264	16
40 kN/m²	6.00	294	145	5	354	175	6
	6.50	322	174	6	387	210	7
	7.00	351	206	7	421	248	9
	7.50	379	241	9	456	289	12
	8.00	407	278	15	-	-	-
50 kN/m²	6.00	354	169	6	425	203	7
	6.50	389	204	7	467	245	8
	7.00	424	242	8	-	-	-
	7.50	460	284	10	-	-	-
	8.00	495	329	16	-	-	-

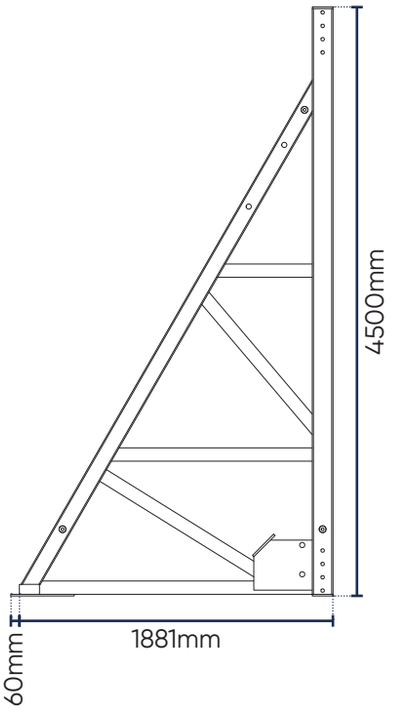
1. Values provided to be used as a guide only and independent analysis by a competent structural engineer is required, taking into account concrete mix design and temperature.
2. The loading data is per parallel frame where the anchor is installed at a 45 degree angle.
3. Fields containing no data (------) are not permissible and the support frame would be overloaded.
4. All loads indicated are un-factored working loads.
5. For embedment of diagonal anchor consult Acrow engineering.

4. SYSTEM DETAILS

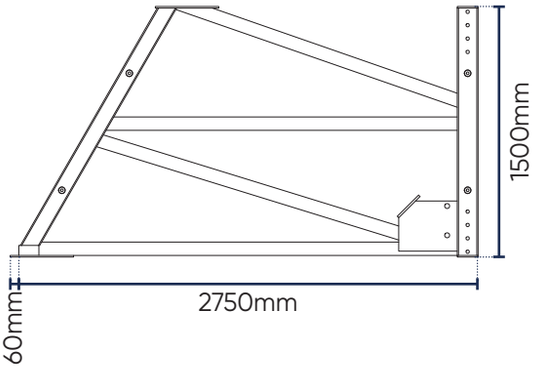
4. System Details

Frame Measurements

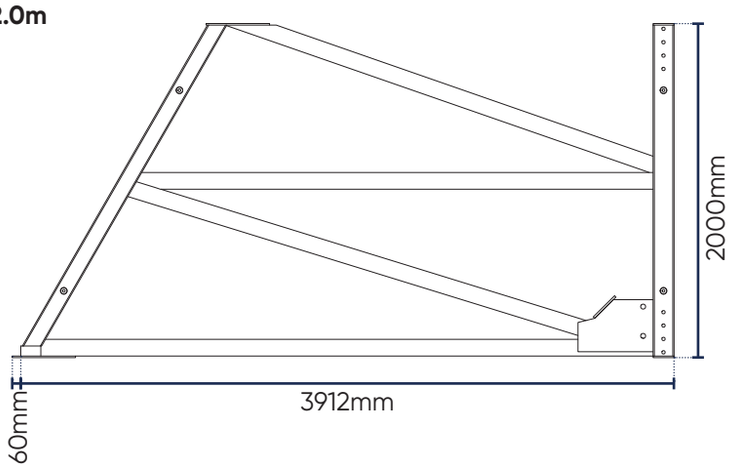
Single Sided Frame Universal 4.5m



Single Sided Frame Attachable 1.5m

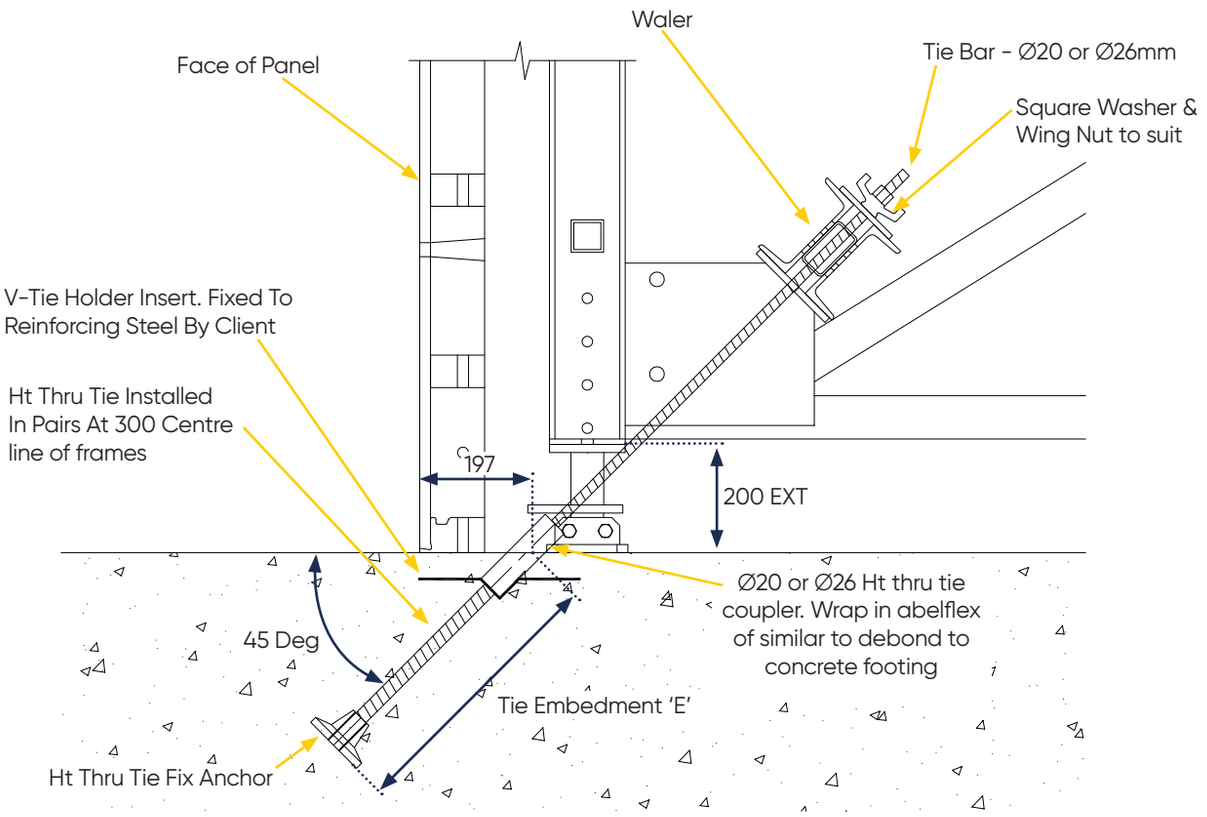


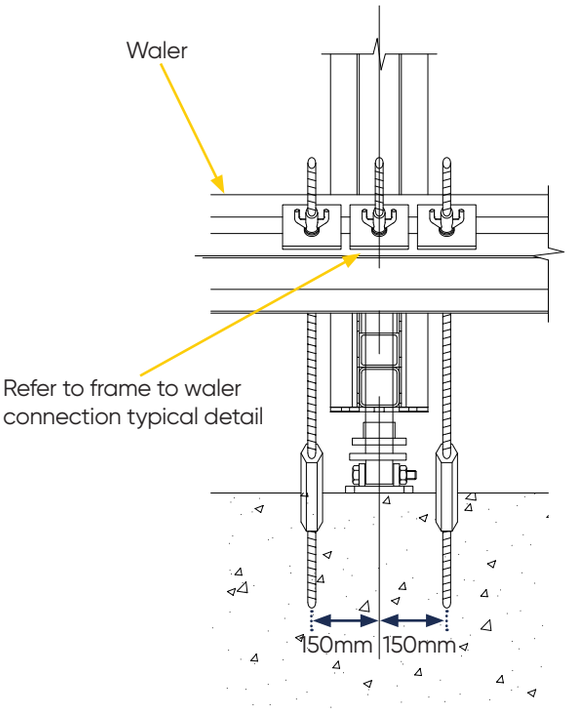
Single Sided Frame Attachable 2.0m



4. System Details

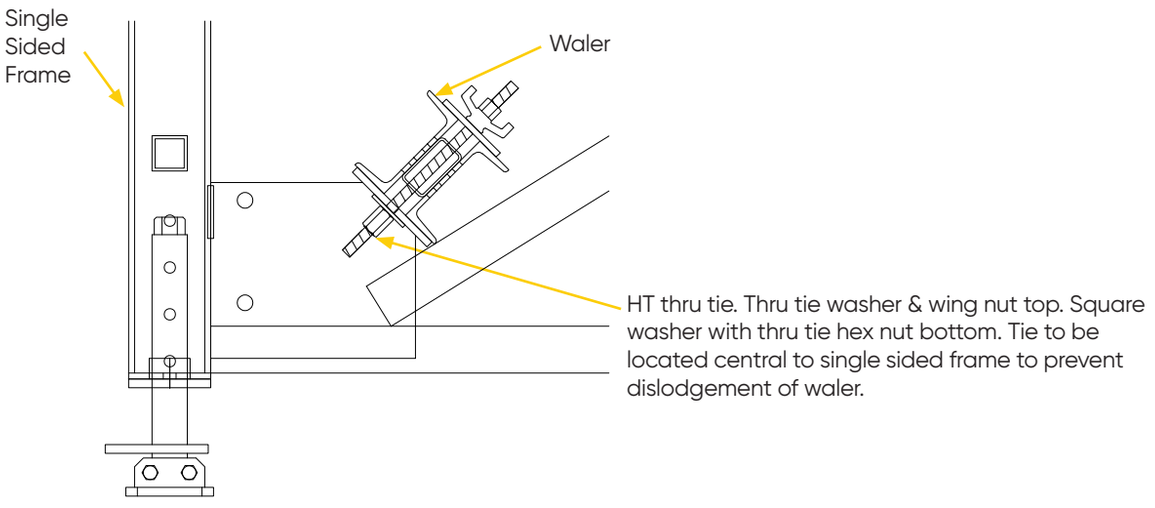
Anchor Waling



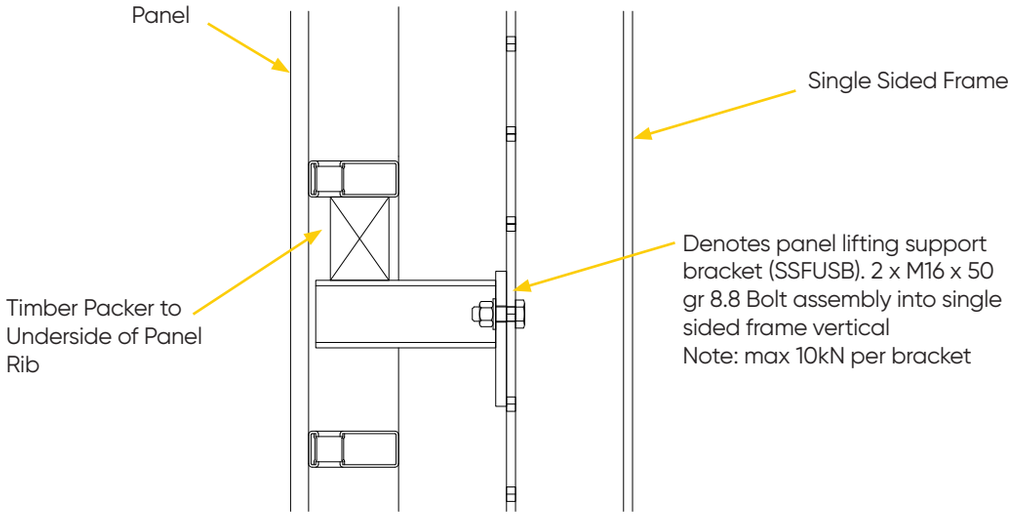


4. System Details

Frame to Waler Connection

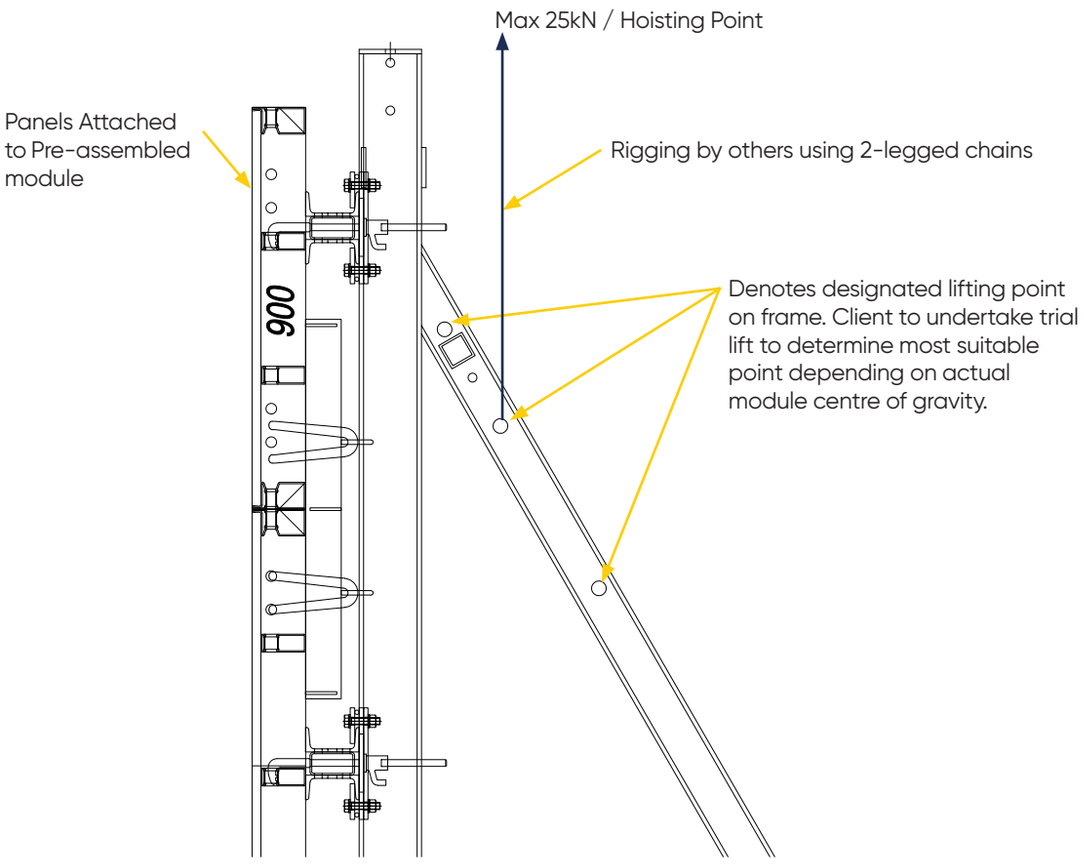


Panel Vertical Support

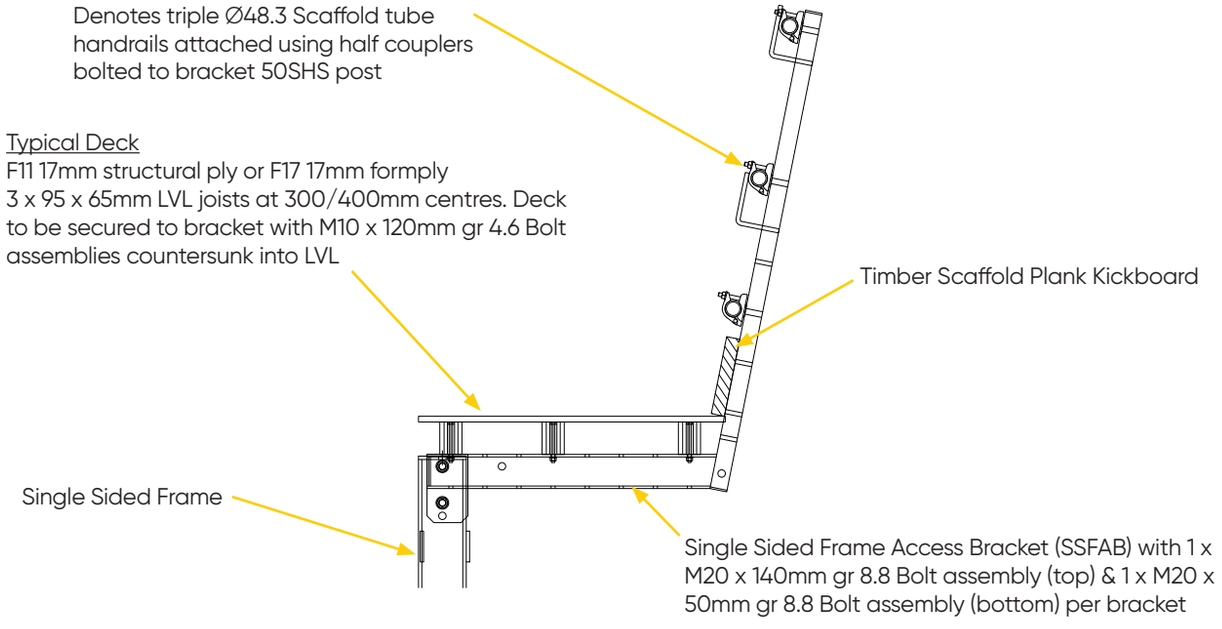


4. System Details

Frame Module Lifting Points

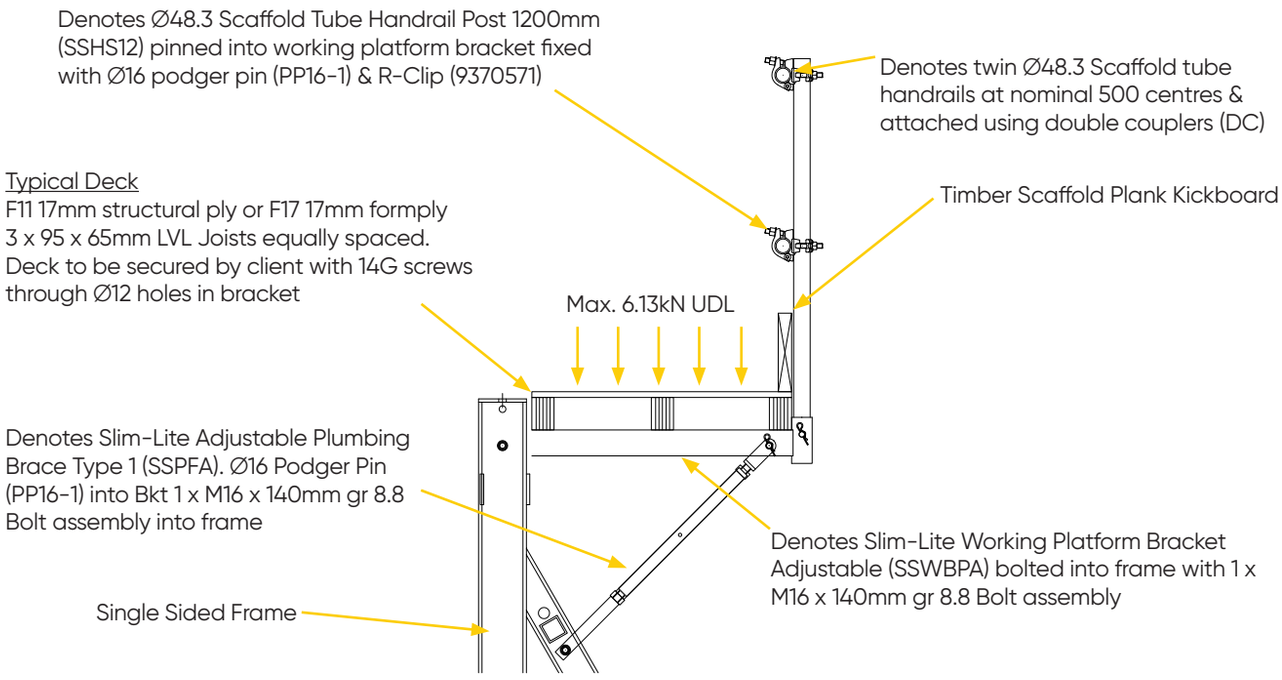


Frame Access Bracket

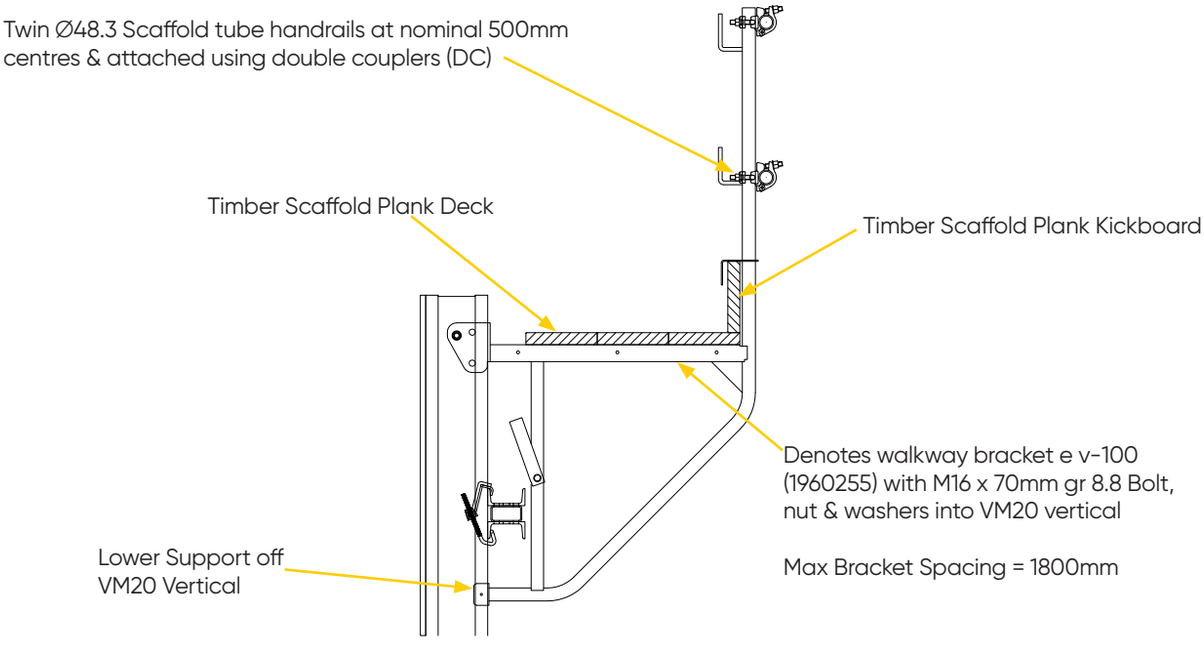


4. System Details

Adjustable Walking Bracket



Walking Bracket

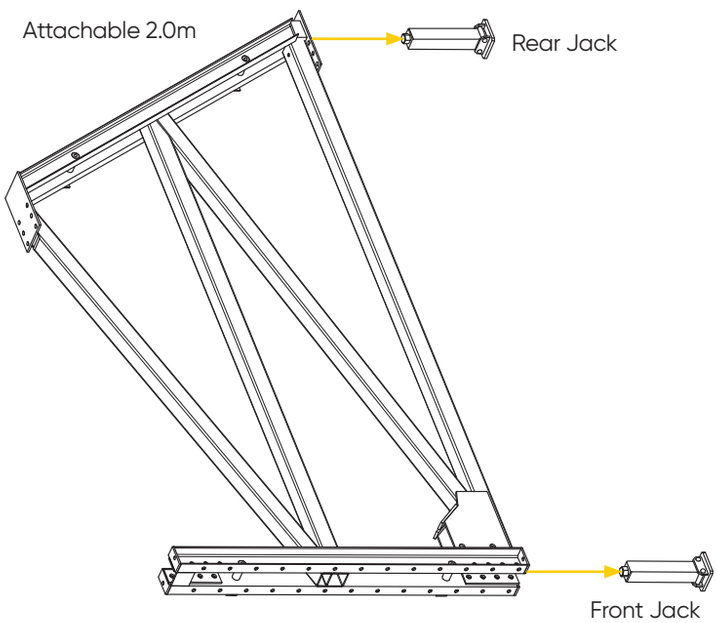


5. ASSEMBLY DETAILS

5. Assembly Details

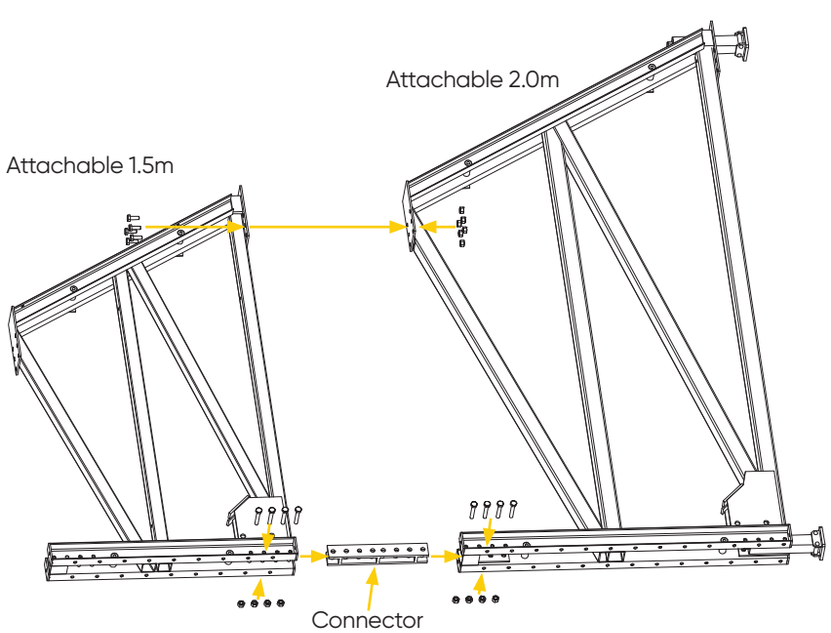
Assembling the frames

Lay down the Attachable 2.0m frame to enable the installation of the front and rear jacks. The jacks will fit into the allocated area at the bottom of the frame.



Before installing the next level the Connector is required to be installed to the front of the attachable frame. It is installed by using 4 x M20 x 140mm bolts and washers thought the allocated holes.

Once the connector is installed, install the next attachable frame. This is also fixed by using 4 x M20 x 140mm bolts and nuts through the connector. The back of the attachable frame will have 6 x M20 x 60mm bolts and nut going though the two plates that are sitting together.

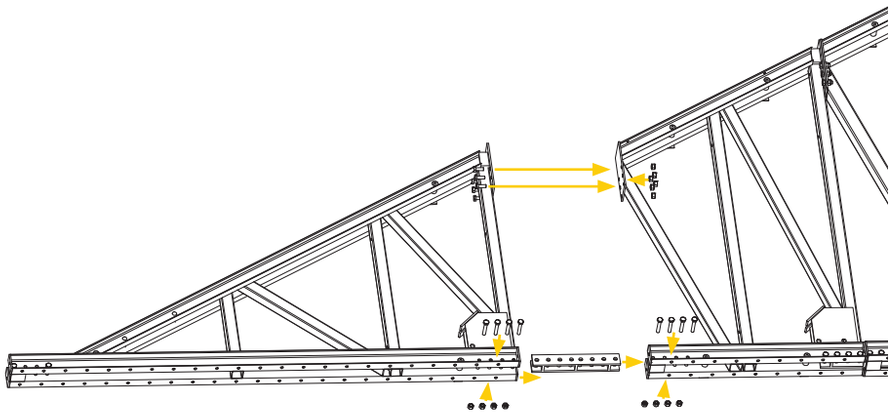


5. Assembly Details

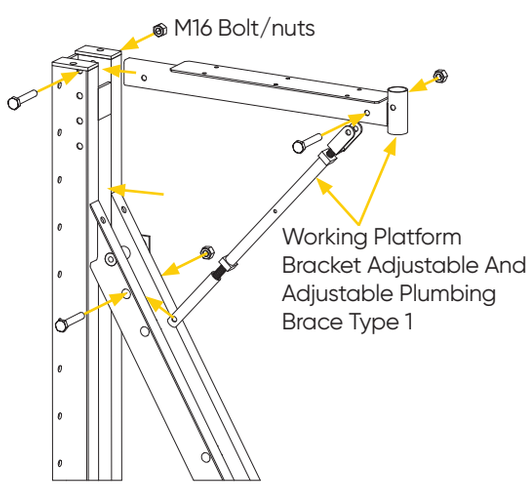
Assembling the frames

Before installing the next level the Connector is required to be installed to the front of the Attachable frame. It is installed by using 4 x M20 x 140mm bolts and washes thought the allocated holes.

Once the connector is installed, install the final frame - the Universal frame. This is also fixed by using 4 x M20 x 140mm bolts and nuts through the connector. The back of the Universal frame will have 6 x M20 x 60mm bolts and nut going though the two plates that are sitting together.



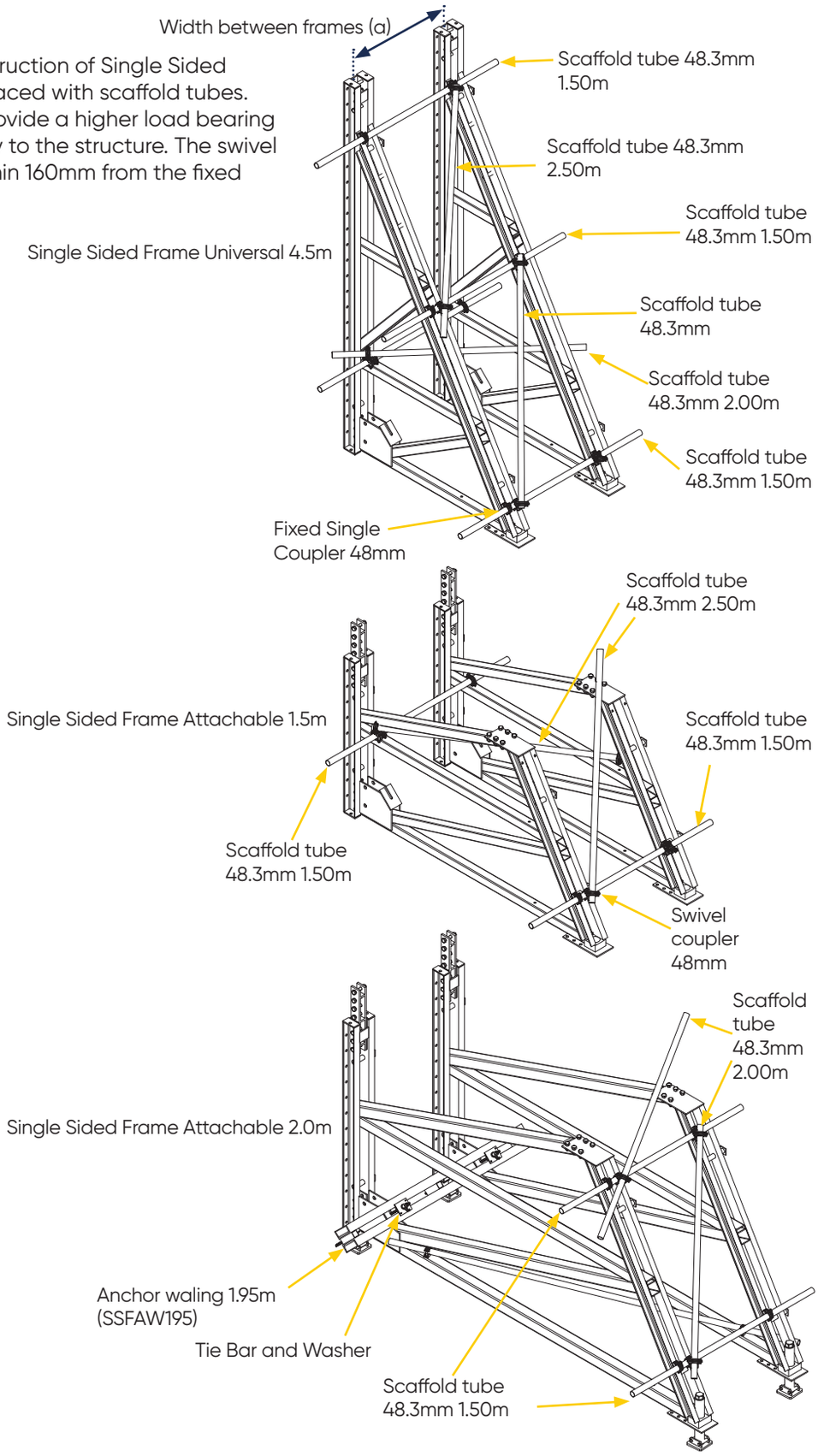
To install the Working Platform Bracket slide between the two vertical pieces of the Universal frame. It will require 2 x M16 x 140mm bolts and nuts fixing though the allocated holes.



5. Assembly Details

Bracing the Single Sided A-frames

The Supporting construction of Single Sided A-Frames must be braced with scaffold tubes. The scaffold tubes provide a higher load bearing capacity and stability to the structure. The swivel couplers must be within 160mm from the fixed single couplers.



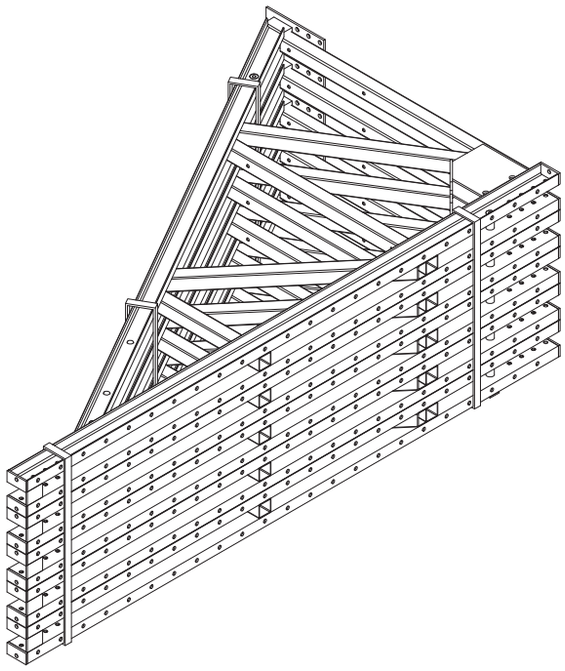
6. TRANSPORT & HANDLING

6. Transport & Handling

Universal 4.5m Frame

The Acrow stillage is used to store a set number of items per a stillage. When a stillage is not used ensure items are bundled and placed on suitable dunnage. Items should be stored in a particular way to prevent them from falling off the stillage/bundle. The recommended method and process is:

- Stack items next to and on top to each other.
- Only pack and stack similar matching lengths per stillage/bundle. Do not mix different sizes or types in one stillage/bundle.
- Ensure every stillage/bundle load does not exceed the advised table below.
- Secure assembled items onto stillage/bundle by using at least two straps or plastic wrapped for enclosed stillages (two straps for enclosed stillage not applicable).
- Refer to Acrow Scaffold Stillage Transport and Manual Handling Document for further stacking and transport recommendations.



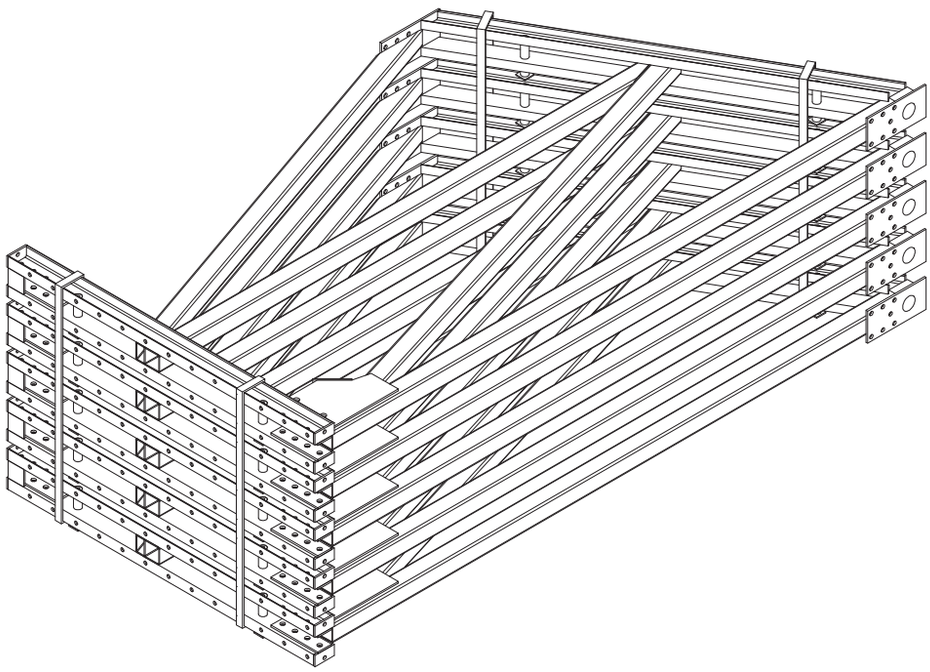
DESCRIPTION	UNIT MASS (KG)	QTY / STILLAGE	TOTAL MASS / STILLAGE (KG)	ACROW STILLAGE TYPE
Single Sided Universal 4.5m Frame	306	5	1530	Bundle

6. Transport & Handling

Attachable Frames

The Acrow stillage is used to store a set number of items per a stillage. When a stillage is not used ensure items are bundled and placed on suitable dunnage. Items should be stored in a particular way to prevent them from falling off the stillage/bundle. The recommended method and process is:

- Stack items next to and on top to each other.
- Only pack and stack similar matching lengths per stillage/bundle. Do not mix different sizes or types in one stillage/bundle.
- Ensure every stillage/bundle load does not exceed the advised table below.
- Secure assembled items onto stillage/bundle by using at least two straps or plastic wrapped for enclosed stillages (two straps for enclosed stillage not applicable).
- Refer to Acrow Scaffold Stillage Transport and Manual Handling Document for further stacking and transport recommendations.

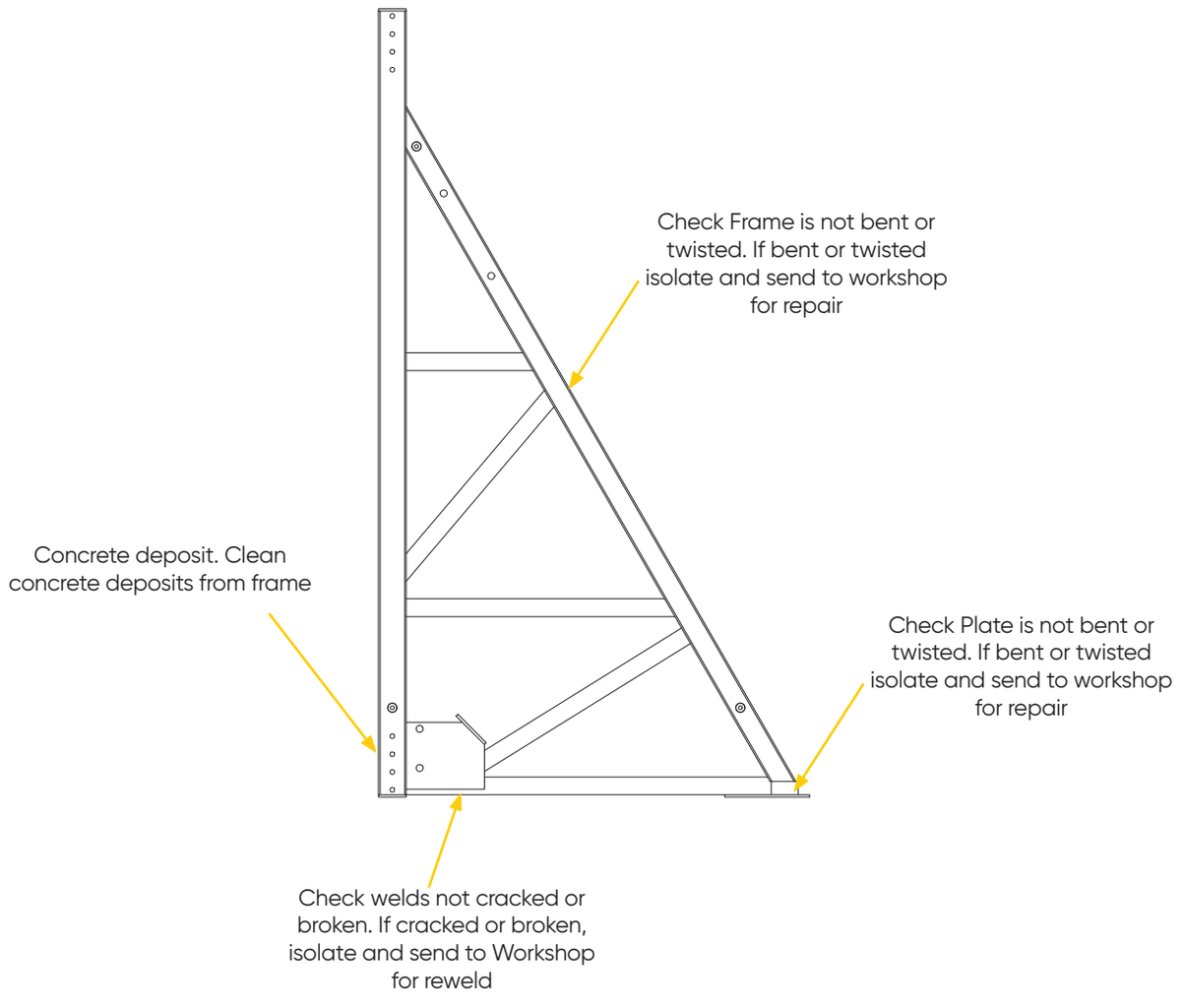


DESCRIPTION	UNIT MASS (KG)	QTY / STILLAGE	TOTAL MASS / STILLAGE (KG)	ACROW STILLAGE TYPE
Single Sided Frame Attachable 1.5m	236	5	1180	Bundle
Single Sided Frame Attachable 2.0m	451	5	2255	Bundle

7. MAINTENANCE & INSPECTION

7. Maintenance & Inspection

Universal 4.5m Frame



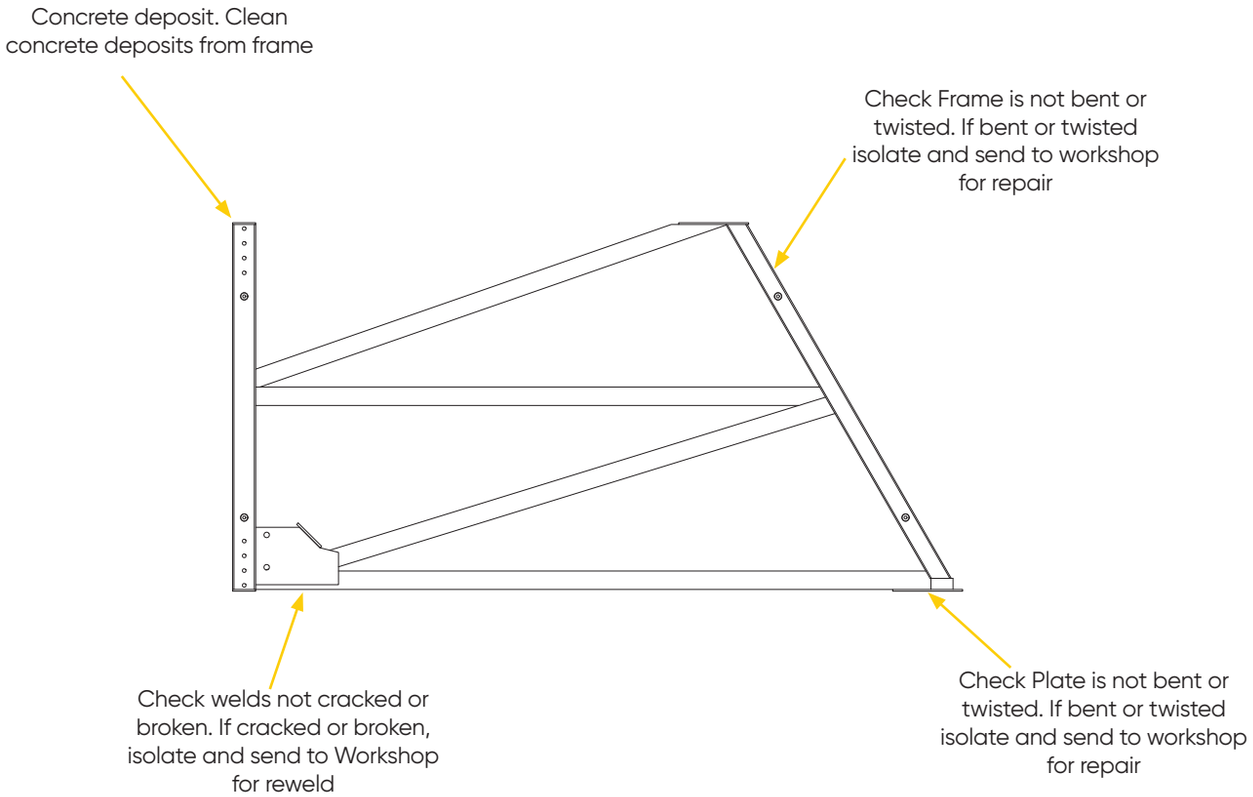
Inspection

Generally, visual inspection checking for the possible faults listed below.

POSSIBLE FAULTS	DAMAGE LIMITS FOR REPAIR	RECOMMENDED ACTION
Frame is coated with concrete	No concrete build up permitted at connections or on frame	Remove concrete with wire brush and/or chipping hammer
Joining plate is bent or twisted	Joining plate must be straight	Straighten if possible otherwise replace using Acrow Manufacturing drawing as reference
Bent Frame	Cannot have bent frames	Straighten or replace
Cracked welds at Connections	Cracked welds not permitted	Grind cracked weld and reweld
Note: When re-welding cracked welds Work Instruction WI-GE-100 details must be followed		

7. Maintenance & Inspection

Attachable Frames 1.5/2.0m



Inspection

Generally, visual inspection checking for the possible faults listed below.

POSSIBLE FAULTS	DAMAGE LIMITS FOR REPAIR	RECOMMENDED ACTION
Frame coated with concrete	No concrete build up permitted at connections or on frame	Remove concrete with wire brush and/or chipping hammer
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Note: When re-welding cracked welds Work Instruction WI-GE-100 details must be followed		

LOCATIONS

NEW SOUTH WALES

National Head Office
Formwork & Scaffold
2a Mavis Street
Revesby NSW 2212
P: 02 9780 6500
F: 02 9780 6499
E: info@acrow.com.au

Screens Head Office
13-15 Vallance Street
St Marys NSW 2760
P: 02 9219 1566

QUEENSLAND

Formwork & Scaffold
280 Bilsen Road
Geebung QLD 4034
P: 07 3265 2266
F: 07 3865 0277

Screens & Formwork
2 Morrison Lane
Beenleigh QLD 4207
P: 07 3807 9800

Industrial Scaffold
22a Spanns Road
Beenleigh QLD 4207
P: 07 3442 4000

TASMANIA

Formwork & Scaffold
93 Lampton Avenue
Moonah TAS 7009
P: 03 6277 1212
F: 03 6277 1290

Formwork & Scaffold
65 Boland Street
Launceston TAS 7250
P: 03 6324 8282
F: 03 6324 8250

WESTERN AUSTRALIA

Formwork & Scaffold
11 Jackson Street
Bassendean WA 6054
P: 08 9373 7200
F: 08 9379 3488

SOUTH AUSTRALIA

Formwork & Scaffold
26 Circuit Drive
Hendon SA 5014
P: 08 8359 9700
F: 08 8359 1366

VICTORIA

Formwork, Scaffold & Screens
1651-1657 Centre Road
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acrow.

ENGINEERING & CONSTRUCTION

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