SUPERSLIM SOLDIERS

RMD Kwikform

Technical Data Sheets

Metric Specification

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SUPERSLIM SOLDIERS

Contents

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Contents

SUPERSLIM SOLDIERS

1.0.1. Rapid Reference – Superslim Components

Code	Description	Weight	Page
AFX20003	Alform Clamp Plate	0.11 kg	30
AFX20012	Sally Clamp Assembly	0.21 kg	22
AFX20015	Alform Superslim Clamp Plate	0.14 kg	22
AFX20022	M12 Uni-fix Bolt	0.05 kg	22
ALX10001	Universal Clamp	0.73 kg	23
ALX10002	Flange to Flange Wedge Clamp	0.54 kg	23
ASX10056	Alshor Superslim Clamp	0.68 kg	24
BNU10050	Prop Brace Pin M24/M20	0.40 kg	36
BNU10054	Metric Waling Bolt – 117 x 117	0.30 kg	19
BNU10055	Metric Waling Bolt – 176 x 127	0.42 kg	19
BNU12001	M12 Hexagon Nut – gr8 BZP	0.01 kg	22
BNU12002	M12 Round Washer	0.01 kg	37
BNU16001	M16 Hexagon Nut gr8 BZP	0.03 kg	47
BNU16002	M16 Round Washer BZP	0.01 kg	22
BNU16007	M16 x 40 Set Pin – gr 8.8 ZP	0.08 kg	47
BNU16009	M16x60 B/N gr8.8 BZP	0.11 kg	18
BNU16008	M16 x 40 C/Snk Set Pin – gr 8.8 ZP	0.07 kg	47
BNU16013	M16 x 110 Bolt – gr8.8 BZP	0.20 kg	47
BNU20001	M20 Hexagon Nut – gr 8.8 ZP	0.06 kg	47
BNU20015	M20x100 Bolt gr8.8	0.32 kg	7
BNU24001	M24 Hexagon Nut – gr 8.8 ZP	0.08 kg	47
BNX10005	M10 x 20 Set Pin – gr8.8 BZP	0.02 kg	31
BNX12001	Bolt M12x40 C/sk Plate gr8.8	0.05 kg	37
BNX12002	M12 x 30 Set Pin gr8.8 BZP	0.04 kg	30
BNX12007	M12x75 Bolt gr8.8 BXP	0.08 kg	17
BNX12009	M12 x 25 Set Pin gr8.8 BZP	0.04 kg	30
BNX16007	M16 x 220 Bolt – gr8.8 BZP	0.38 kg	20
BNX20006	Washer - Plate 150x150x12 18mm	2.12 kg	9
BNX20014	50x50x6x18mm Plate Washer	0.12 kg	19
BNX20020	Washer - Chanel 150x75 18mm	0.66 kg	20
BNX20021	Washer - Chanel 150x75 22mm	0.66 kg	28
BNX20027	M20 x 45 Set Pin gr8.8 BZP Csk	0.17 kg	31
BNX20030	M20 x 90 Bolt gr8.8 BZP	0.26 kg	47
BNX20100	Megashor Pin High Yield	0.40 kg	34
BNX24001	M24 x 45 Set Pin gr8.8 BZP	0.26 kg	45
BNX24002	M24 x 110 Bolt & Nut – Gr 8.8 BZP	0.48 kg	47
BTX10001	Knock On Wing Nut	0.33 kg	25
BTX10002	Rapid Tie Connector 20mm	0.90 kg	27
BTX10004	Heavy Duty Water Plate – 90kN	1.76 kg	26
BTX10005	Rapid Tie 20mm – Hex Nut	0.40 kg	27
BTX10006	Knock On Nut – Hi Load	0.51 kg	27
BTX10008	Plastic Cone – Hi Load 26 Dia	0.01 kg	27
BTX10009	Plas Tube – Hi Load 26/30 x 2m	0.92 kg	27
BTX10014	Waler Plate – Light 55kN	1.13 kg	25
BTX10015	Connector	0.41 kg	25
BTX10017	Nut – Hexagon 50mm	0.16 kg	25
BTX10018	Plas Cone 10mm	0.01 kg	25
BTX10019	Plas Tube 2m	0.22 kg	25
BTX10021	Waler Plate – Standard	1.35 kg	25
BTX10029	Waler Plate – Hi Load	6.84 kg	27
BTX10600	Bar Tie 15mm x 6.0m	8.50 kg	25
BTX20015	Bar Tie per Cut 15mm	-	25
BTX20020	Bar Tie per Cut 20mm	-	27
BTX30015	Bar Tie per m 15mm	1.40 kg	25
BTX40600	Bar Tie 20mm x 6m	14.8 kg	27
FAU10084	Propbolt 25R	0.48 kg	44
GTX10001	GTX to Soldier Clamp	0.58 kg	24
HTU10014	Waler Plate – Angle 3/4”	1.30 kg	26
HTX24140	Anchor Screw M24 x 140mm	0.82 kg	45

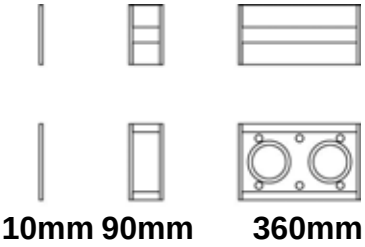
1.0.1. Rapid Reference – Superslim Components - continued

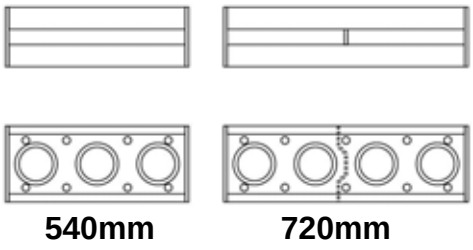
Code	Description	Weight	Page
RCX10104	Klik Klack Wall Pocket	1.63 kg	47
RPX10005	B Clamp – Tube to Panel	0.68 kg	20
RPX10008	G Clamp – Tube Type M16	0.60 kg	20
RSX10003	Rapidshor Head	6.65 kg	37
RSX10008	Rapidshor U Head 8mm	5.31 kg	37
SFX10018	Half Coupler	0.40 kg	21
SSU10003	Superslim 90 Deg Corner – Push/Pull	10.0 kg	38
SSU10004	Superslim Prop Pivot Tube	1.81 kg	32
SSU10005	Superslim 45 Deg Corner	8.55 kg	39
SSU10007	Superslim Prop Jack (LH)	14.5 kg	35
SSU10008	Superslim Prop Jack (RH)	14.5 kg	35
SSU10010	Superslim Joint Stiffener Galv	1.44 kg	16
SSU10011	Tube Clip - Pivot	0.03 kg	47
SSU10012	Superslim Prop Spade End Link	3.09 kg	32
SSU10013	Superslim Prop Tube End Link	2.50 kg	34
SSU10016	Superslim Turnbuckle 914-1160	8.25 kg	18
SSU10017	Superslim Waling Clamp Plate	0.40 kg	19
SSU10019	Superslim Corner Pivot	7.29 kg	32
SSU10023	Superslim Rocking Head 36mm	4.70 kg	31
SSU10024	Superslim Tube Clamp Galv	1.30 kg	21
SSU10025	Adj Base Assembly	19.0 kg	29
SSU10026	Adj Rocking Head Assembly	20.0 kg	30
SSU10028	Superslim Pivot Cleat Set	8.75 kg	39
SSU10029	Rocking Head Washer M10 Galv	0.02 kg	31
SSU10031	Superslim Access Bracket	6.65 kg	17
SSU10032	Superslim Lifting Plate 15kN	3.19 kg	17
SSU10033	Superslim Plumbing Foot	11.5 kg	18
SSU10034	Superslim Tilt Plate	4.80 kg	35
SSU10035	Superslim Soldier – 360mm O/E	11.5 kg	6
SSU10036	Superslim Anchor Plate 15mm	7.40 kg	43
SSU10037	Superslim Klik Klak Latch	3.92 kg	45
SSU10038	Superslim Prop Connector 100KN	6.79 kg	33
SSU10041	Superslim Prop Torque Handle	7.9 kg	53
SSU10042	Superslim Prop Torque Socket	2.17 kg	53
SSU20006	Multislim 6 Way Connector	25.0 kg	41
SSU20066	6 Way Double Connector	37.7 kg	41
SSX10037	Superslim Pivot Corner 20mm	4.13 kg	40
SSX10039	Porthole Bearing Galv	2.00 kg	27
SSX10040	Superslim End Plate 10mm	2.90 kg	6
SSX10041	Prop Support Plate – Slimshor	6.30 kg	31
SSX10042	Form Support Plate – Super Slim	5.29 kg	18
SSX10046	Superslim 19mm Pin & R Clip	0.29 kg	7
SSX10048	Superslim Safety Latch	1.60 kg	45
SSX10051	Superslim Short Prop Tube End Link	1.77 kg	34
SSX10052	Spreader Beam Adaptor Assembly	9.49 kg	54
SSX10090	Superslim Soldier 90mm	7.30 kg	6
SSX10360	Superslim Soldier 360mm	11.9 kg	6
SSX10540	Superslim Soldier 540mm	15.2 kg	6
SSX10720	Superslim Soldier 720mm	18.7 kg	6
SSX10900	Superslim Soldier 900mm	22.0 kg	6
SSX11800	Superslim Soldier 1800mm	38.8 kg	6
SSX12700	Superslim Soldier 2700mm	55.6 kg	6
SSX13600	Superslim Soldier 3600mm	72.2 kg	6
SSX90043	Superslim Universal Soldier Jack	5.55 kg	38
TRX10016	Allthread Rod – M16 per metre	1.40 kg	28
TRX10020	Allthread Rod – M20 per metre	2.20 kg	28
TRX20000	Allthread Rod per cut	-	28

SUPERSLIM SOLDIERS

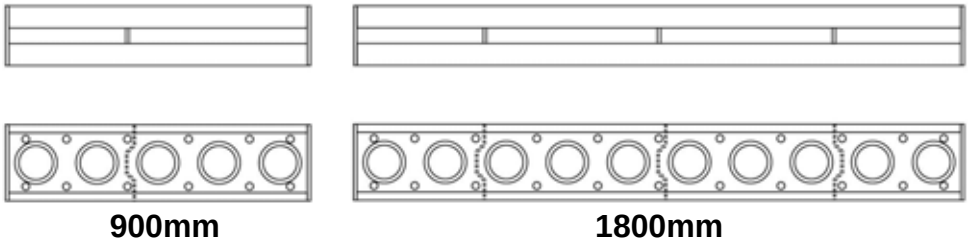
1.1.1. Superslim Soldier Shafts

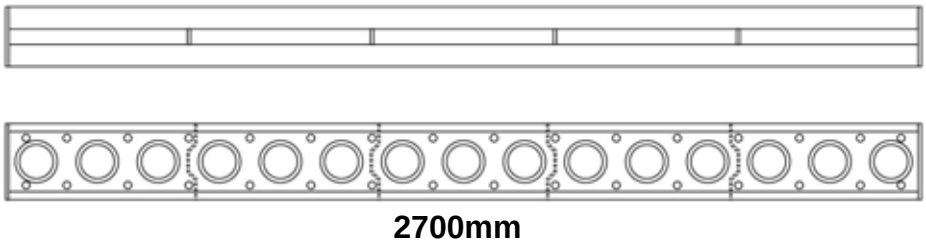
Code	Description	Weight
SSX13600	Superslim Soldier 3600mm	72.2 kg
SSX12700	Superslim Soldier 2700mm	55.4 kg
SSX11800	Superslim Soldier 1800mm	38.8 kg
SSX10900	Superslim Soldier 900mm	22.0 kg
SSX10720	Superslim Soldier 720mm	18.7 kg
SSX10540	Superslim Soldier 540mm	15.2 kg
SSX10360	Superslim Soldier 360mm	11.9 kg
SSU10035	Superslim Soldier 360mm OE	11.7 kg
SSX10090	Superslim Soldier 90mm	7.3 kg
SSX10040	Superslim End Plate 10mm	2.9 kg

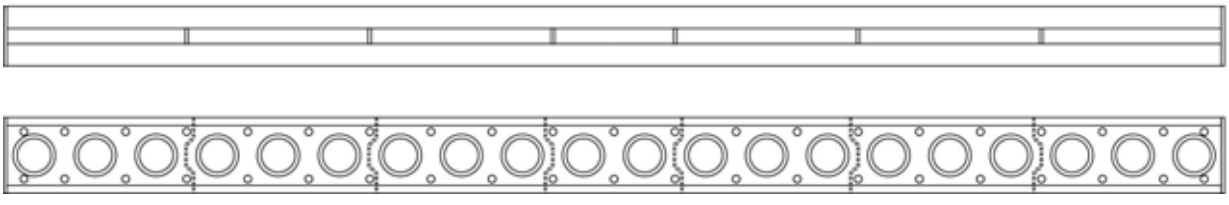




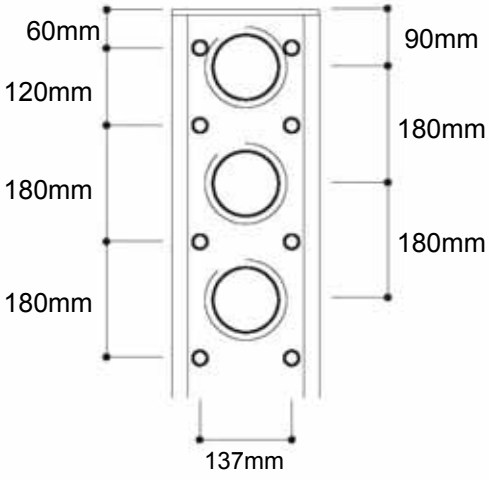
Note! The positions of stiffener plates and 21Ø holes in hire fleet soldiers may vary. Soldiers shown are post 1994 version. If the position of the stiffeners and/or 21Ø hole is critical to the design then please specify 'As New Pattern Soldiers'







1.1.2. Punchings and Geometry

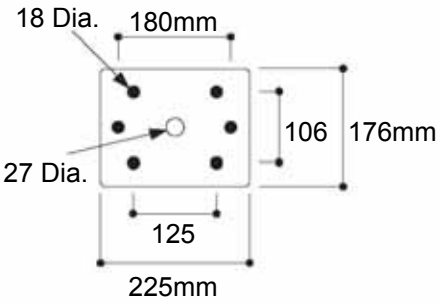


100mm dia porthole max bearing in hole pair 65kN

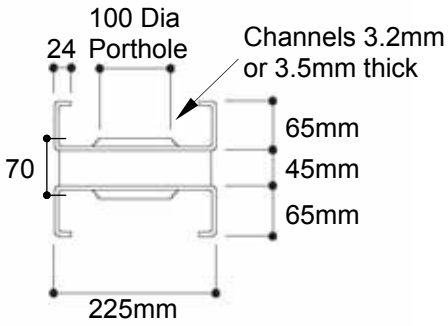
21mm dia max bearing in hole pair when used with:-

- M20 x 90 Bolt/Nut gr 8.8 (BNX20030+BNU20001) = 45kN
- M20 x 100 Bolt/Nut gr 8.8 (BNU20015+BNU20001) = 50kN
- Superslim 19mm Pin & R Clip (SSX10046) = 50kN

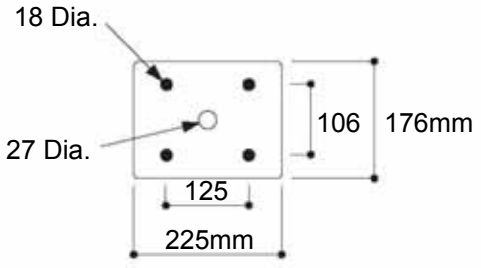
The allowable bearing load in this hole may be increased to 100kN by reinforcing the hole, refer to Head Technical Office for details.



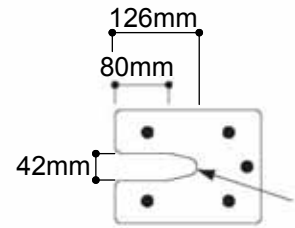
Detail on End Plate 10mm thick Post 1994 version



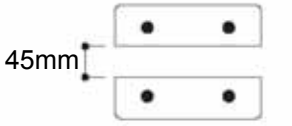
Typical Section



Detail on End Plate 8mm thick Pre 1994 version



Detail on End Plate of 360mm Open End Soldier Post 2002



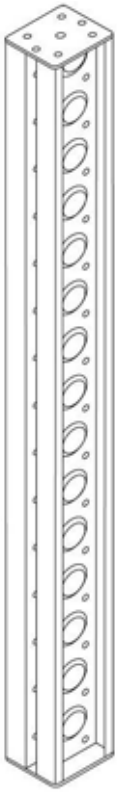
Detail on End Plate of 360mm Open End Soldier Pre 2002

Note The arrangement of holes in the end plates of hire fleet soldiers vary. If using soldiers bolted to Megashor please specify '7 hole end plate soldiers'.

1.1.3. Section Properties

Soldier characteristics

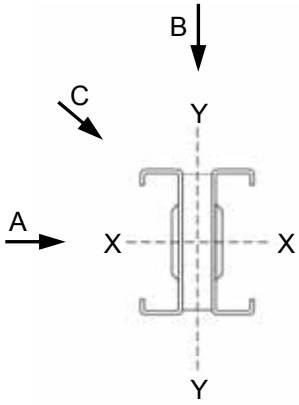
Area: Gross	26.06 cm^2
Area: Nett	19.64 cm^2
I xx	1916 cm^4
I yy	658 cm^4
r xx	9.69 cm
r yy	5.70 cm
Z xx	161 cm^3
Z yy	61 cm^3
EI xx	4020 kNm^2
EI yy	300 kNm^2
GAxx	17350 kN
M max x	40 kNm
M max y	6.24 kNm
Max Joint Moment (4 M16 bolts)	12 kNm
Max Joint Moment (6 M16 bolts)	18 kNm
Max Joint Moment (stiffeners see 1.2.1. sheet 16)	20 kNm
Max Joint Tension (4 M16 bolts)	100 kN
Max Joint Tension (6 M16 bolts)	140 kN
Max Joint Tension (4 M16 bolts and stiffeners)	150 kN
Mean compressive yield stress	370 N/mm^2
Mean Self weight for Analysis	0.235 kN/m run*



* Self weight varies depending on makeup / length (see 1.1.1)

Effective area (Ae) for wind calculation purposes

Direction A	0.177 m^2/m
Direction B	0.130 m^2/m
Direction C	0.286 m^2/m



1.1.4. Beams with Compression Flanges Restrained

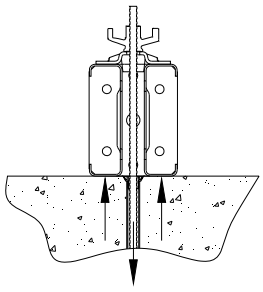
The Superslim Soldier is a lightweight member and it is not generally appropriate to use established design codes for beam analysis. Performance of the unit has been derived from a combination of calculation and extensive load testing. Due to the presence of various web perforations, performance is affected by both shear stiffness and the bending stiffness of the member. Analysis of beam deflection is complex, for deflection calculation by simplistic analysis, reduced EI value of 3200kNm^2 gives good correlation with the more rigorous analysis.

When used as a beam it is important that the soldier is restrained laterally at load points and supports. On a shutter this lateral restraint is provided by the face contact material, backing members and specified connections between the components acting as a stiff diaphragm to restrain the connected flange of the Superslim. Integral intermittent welded web stiffeners in the Superslim transfer this lateral restraint to the unconnected flanges. When used as an isolated beam it is normal to provide lateral restraint using scaffold tubes coupled to the flanges of the soldier. When lateral restraint is not provided refer to 1.1.5 for Allowable Working Loads.

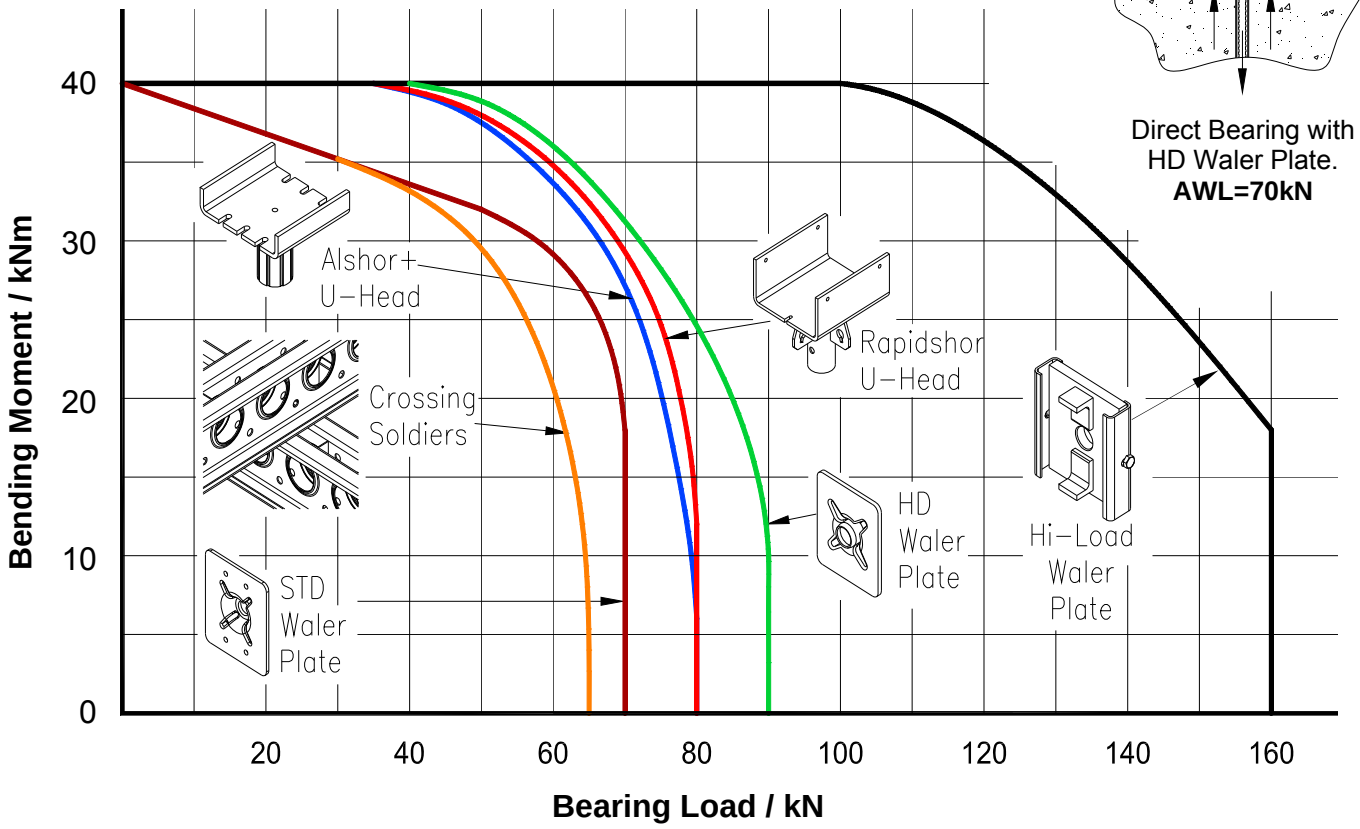
When bending on the weak axis, the soldier should be treated as two individual channel members, each with a moment of resistance of 3.12kNm. Individual loads act on the single channel and transfer the forces through the welded stiffeners to the other channel.

Combined Loading

Performance under conditions of combined bending, bearing and shear loading can be checked using the graph below and figure right for a range of connecting accessories and conditions.

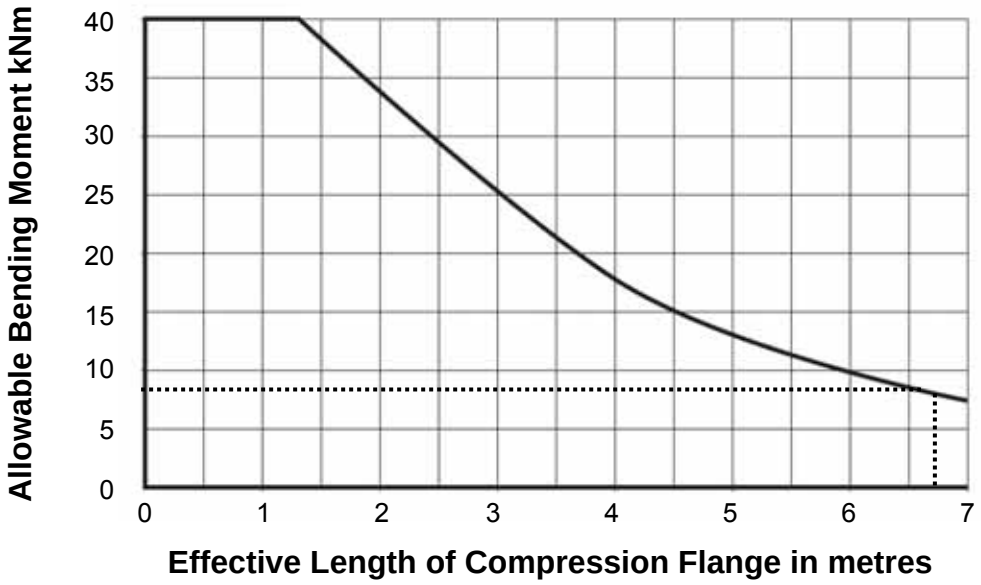


Direct Bearing with HD Waler Plate.
AWL=70kN



1.1.5. Beams with Compression Flanges Unrestrained

The failure mode for long spanning beams without compression flange restraint tends to be by rolling over and buckling sideways of the compression flanges, a phenomenon known as lateral torsional buckling. During the design of standard steel sections reference is made to BS 449 table 3 and the permissible bending stress is de-rated from the maximum for the material to ensure that failure of this nature does not occur. Superslim Soldiers can also be susceptible to this kind of failure. The complex section is made up of twin channels welded together in a manner that makes them act in a partially composite manner. The D/T values also fall outside the BS 449 table. For these reasons a mathematical study has been combined with load testing to produce the graph below.



Effective Length of Compression Flange

BS 5975 Annex K.3 may be used to determine the effective length of the compression Flanges, e.g. an individual Super Slim soldier cantilevers 0.9m past a Rapidshor U Head. Determine the maximum point load that may be carried on the top flange at the unrestrained tip.

From BS 5975 table K.3 the soldier is continuous with lateral restraint only. The effective Length of the compression flange (in this case the lower flange) is 7.5 * 0.9m = 6.75m.

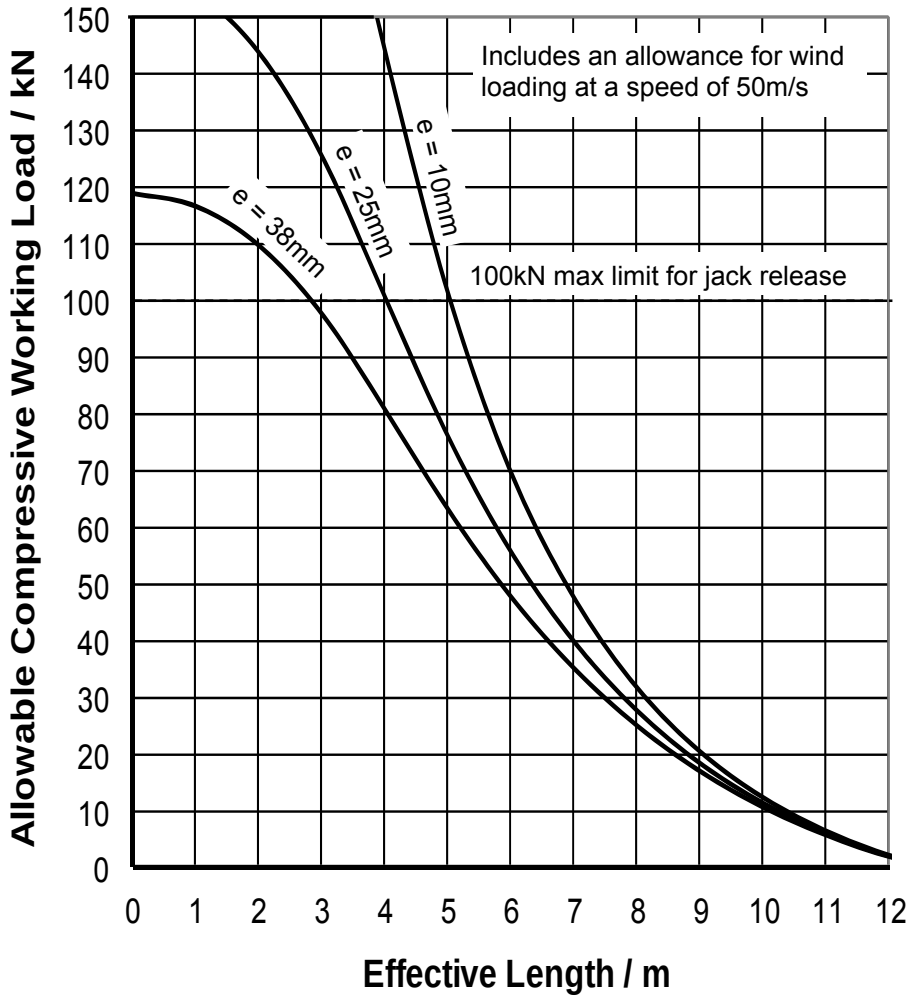
From graph above maximum allowable bending moment at 6.75m effective length = 8.0kNm. Hence maximum point load at tip = 8.0kNm / 0.9m = 8.89kN.

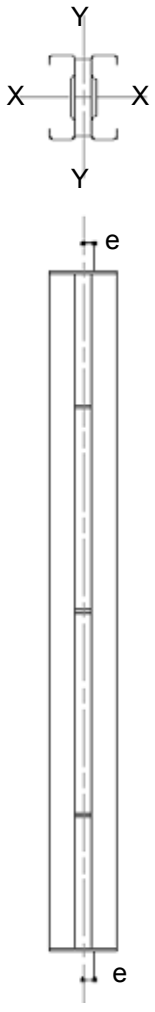
1.1.6 Vertical Struts – Buckling About the Y Axis

The Superslim Soldier has different loading characteristics about its two axes due to its asymmetric shape. The arrangement of the strut when erected may also dictate the method of bracing to obtain the required capacity. The lateral stability of the strut in each direction requires consideration, and graphs of safe load capacity against effective strut length are given below. The effective length of a strut is defined in BS 5975 table K1.

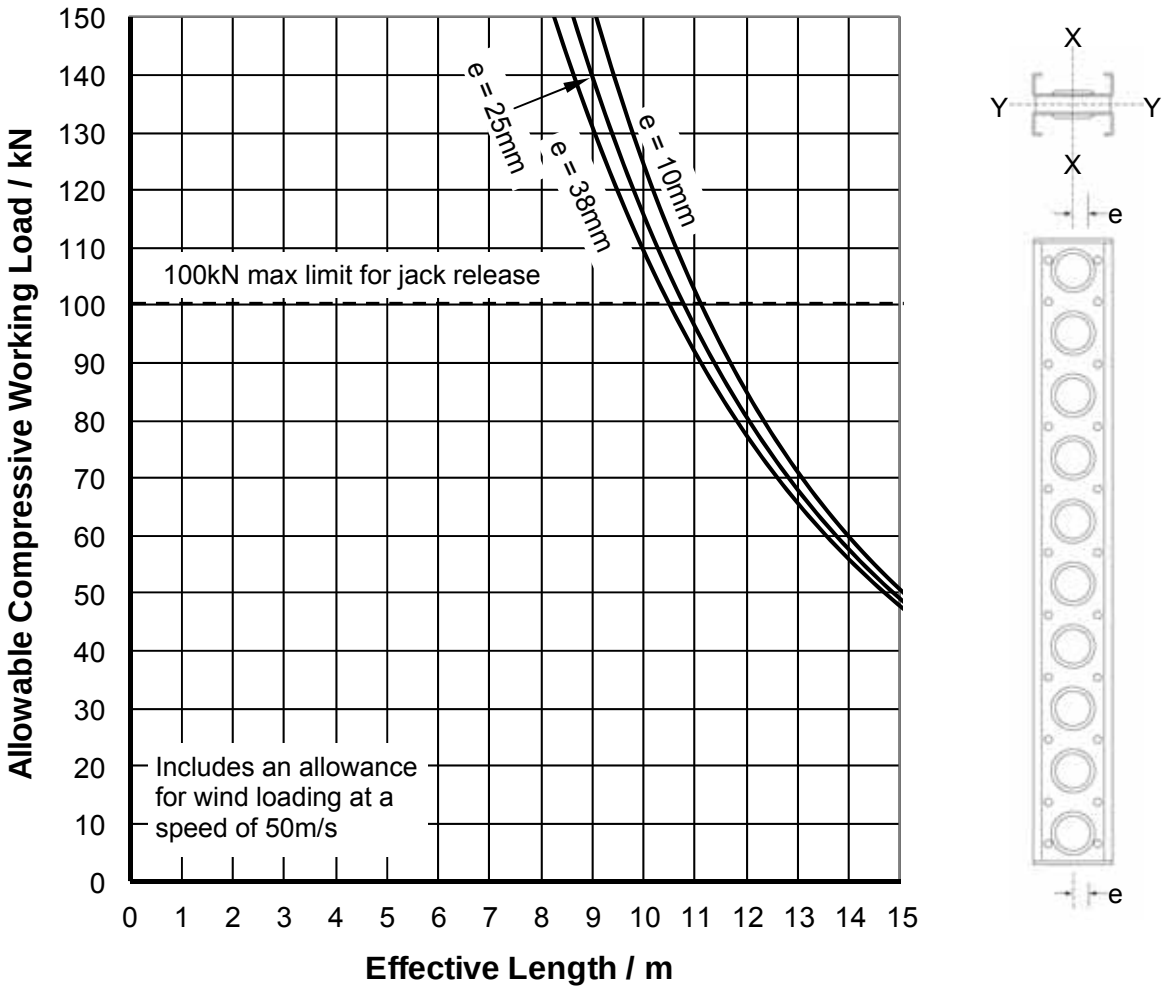
When using the rocking head the load is axial in one plane, but dependant upon site accuracy for the degree of eccentricity in the other plane. In the following graphs the permissible loads are given allowing for eccentricity due to assembly tolerance and a load eccentricity of 10mm, 25mm and 38mm.

A load restriction of 100kN is placed on the soldier when the load is to be released through the Slimshor jack. Where the load is not to be released through jacks, the maximum allowable load can be increased to 150kN.



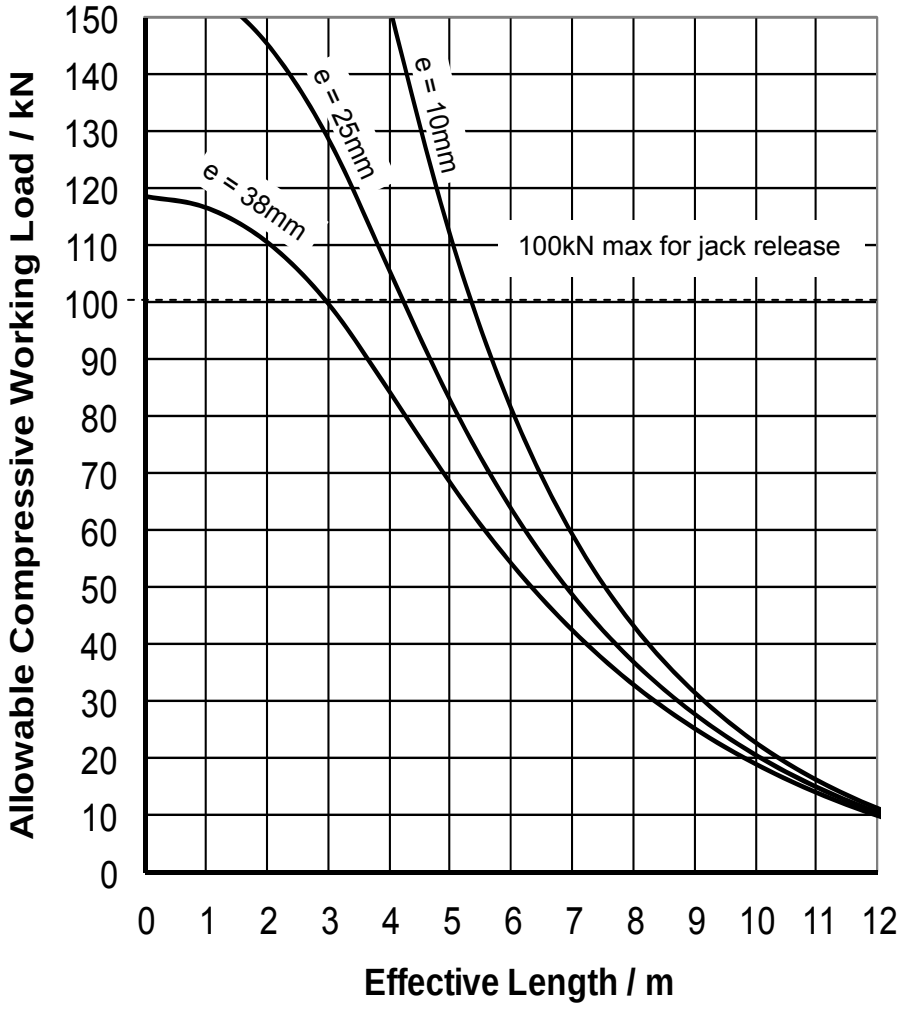


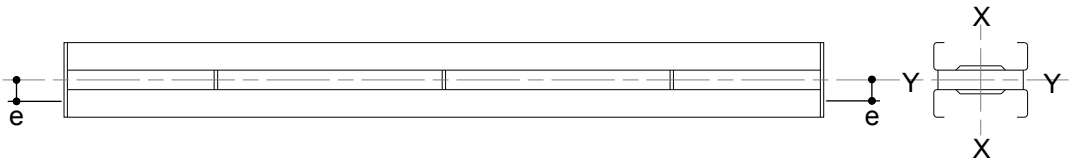
1.1.7. Vertical Struts – Buckling About the X Axis



1.1.8. Horizontal Shores – Buckling About the Y Axis

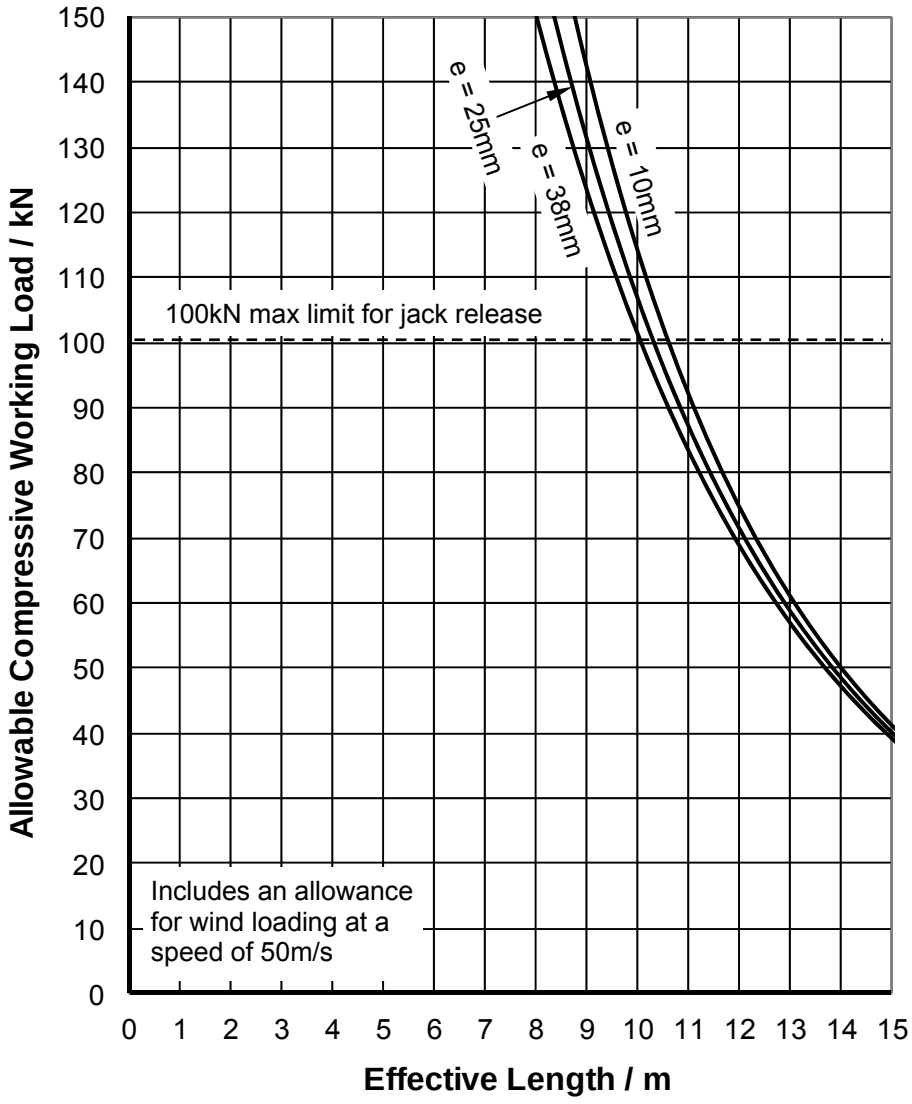
The notes relating to vertical members in compression also apply to horizontal members in compression. An additional allowance for the self weight of the horizontal shore has been included. Wind load has been excluded for the orientation shown. When shores have intermediate vertical restraints, buckling about the x axis may be the limiting factor.

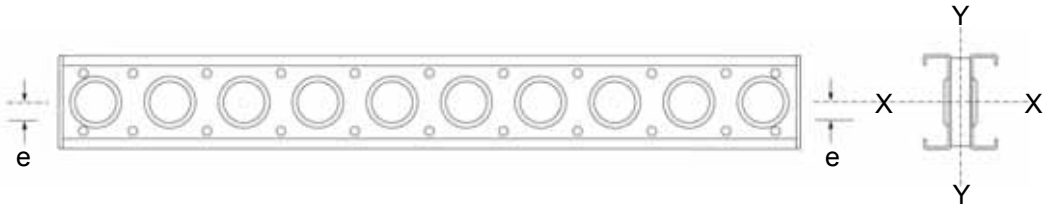




Note! The allowable working load for horizontal applications is shown as greater than for vertical applications due to the inclusion of wind loads in the vertical application graph (the effects of which exceed the effect of self weight in the horizontal orientation graph). If vertical plane wind loads are expected when designing struts with this orientation refer to RMD Kwikform for revised data.

1.1.9. Horizontal Shores – Buckling About the X Axis

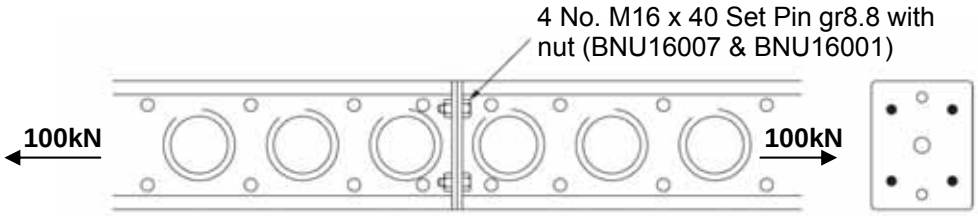




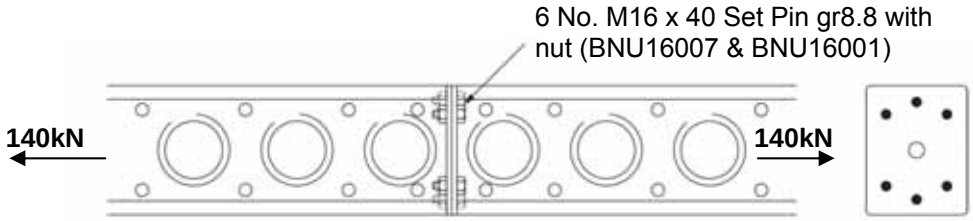
This graph assumes that the strut is effectively restrained against buckling in the Y axis by adequate intermediate lateral restraint.

1.1.10 Bolted Joints

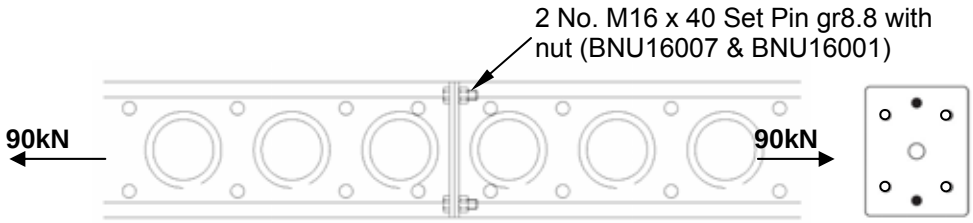
Using M16 x 40 gr 8.8 Set Pins & nut BNU16007 & BNU16001



Allowable Bending Moment = 12kNm

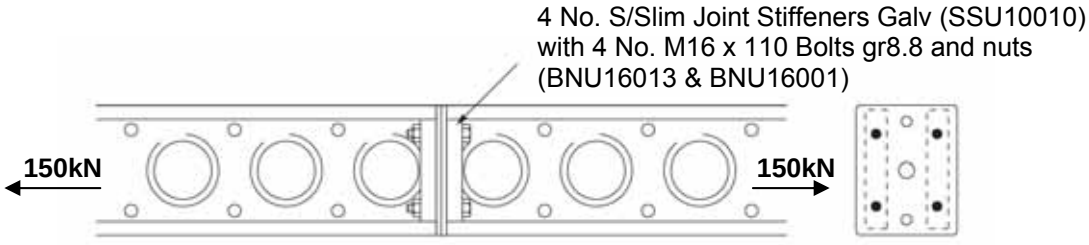


Allowable Bending Moment = 18kNm



Allowable Bending Moment = 9kNm

Using Joint Stiffeners with M16x110 gr 8.8 bolts & nuts



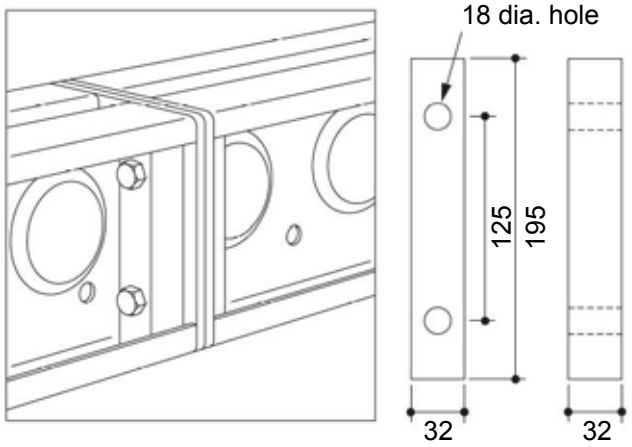
Allowable Bending Moment = 20kNm

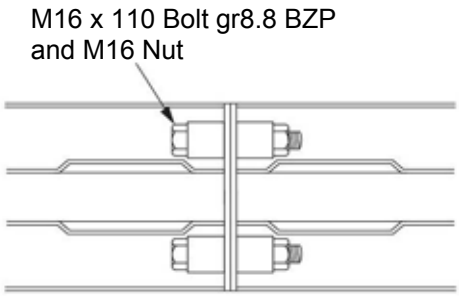
Combined Stresses - Tension & Bending must satisfy:-

$$\frac{\text{Actual Tensile Load}}{\text{Allowable Tensile Load}} + \frac{\text{Actual Bending Moment}}{\text{Allowable Bending Moment}} \leq 1$$

1.2.1 Superslim Joint Stiffeners (SSU10010) weight 1.44kg

Used to Enhance the load bearing characteristics of a Soldier joint.





Code	Description	Weight
SSU10010	Superslim Joint Stiffener	1.44 kg
BNU16013	M16 x 110 Bolt gr8.8 BZP	0.20 kg
BNU16001	M16 Nut gr8 BZP	0.03 kg

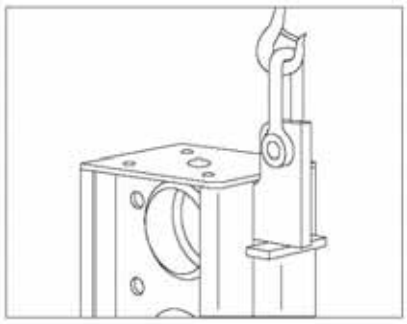
Maximum Allowable Tensile Load 150kN

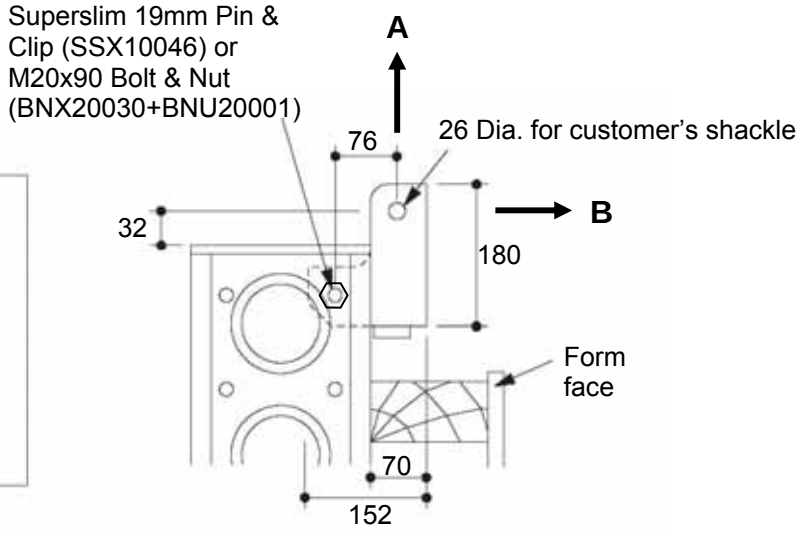
Maximum Allowable Joint Bending Moment 20kNm

For combined stress checks refer to RMD Kwikform Technical Office.

1.2.2. Superslim Lifting Plate 15kN (SSU10032) Weight 3.19kg (F.O.S >3.0)

Used in pairs for lifting formwork panels up to 30kN.

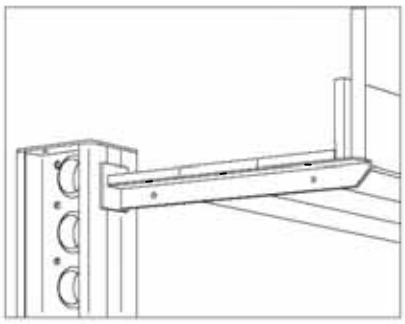


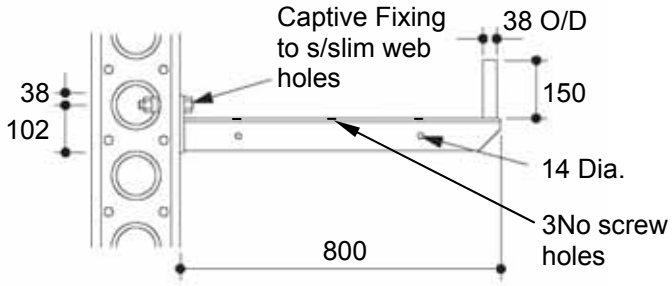


Allowable Working Load on arrow 'A' 15 kN
Allowable Working Load on arrow 'B' 7.5 kN

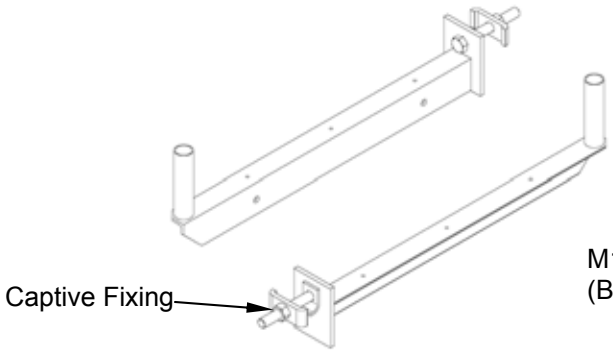
1.2.3. Superslim Access Bracket (SSU10031) Weight 6.65kg

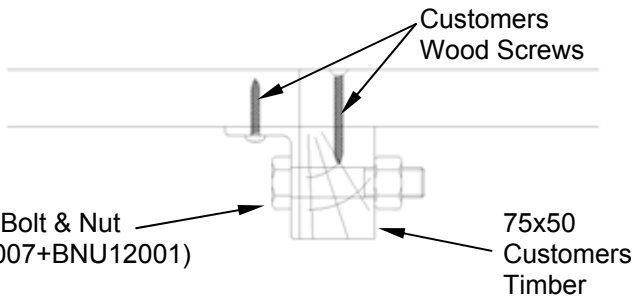
Used to support a three board wide access platform. Has integral spigot to accept standard scaffold tube for tube guardrails or Ultraguard mesh barrier.





Allowable load on the bracket 3.2 kN UDL

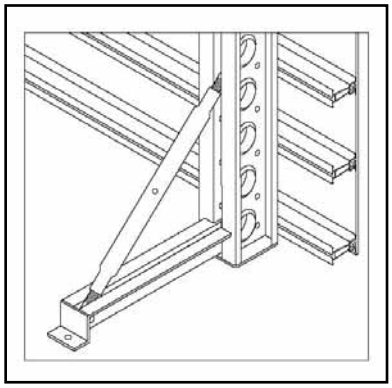


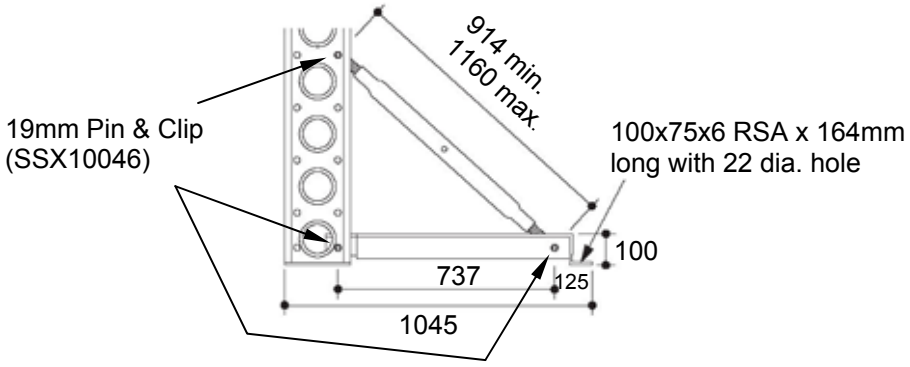


Fixing of scaffold boards for crane handling.

1.2.4. Superslim Turnbuckle 914-1160 (SSU10016) weight 8.25kg & Superslim Plumbing Foot (SSU10033) weight 11.51kg

Used in single sided base formwork



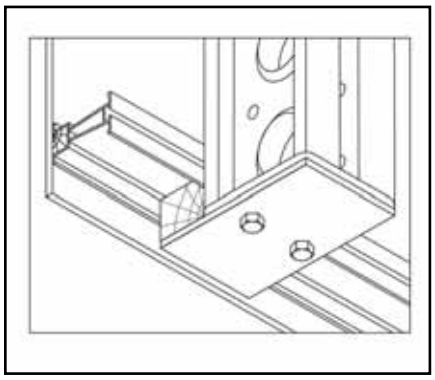


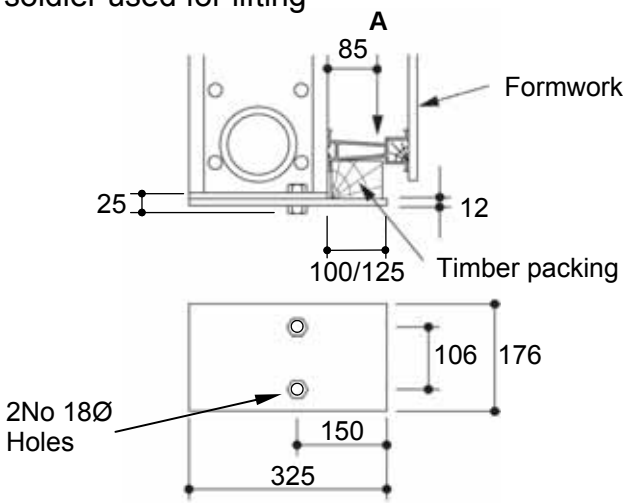
Code	Description	Weight
SSU10016	Superslim Turnbuckle 914 – 1160	8.42 kg
SSU10033	Superslim Plumbing Foot	11.5 kg
SSX10046	Superslim 19mm Pin & R Clip	0.29 kg

Allowable Working Load in the Turnbuckle ± 45kN

1.2.5. Superslim Form Support Plate (SSX10042) weight 5.29kg

Used to support the formwork at the base of the Soldiers. Two cantilever lengths are possible by turning the plate around.
Note! Support plates should be fitted to soldier used for lifting



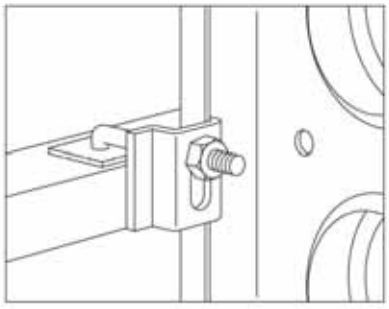


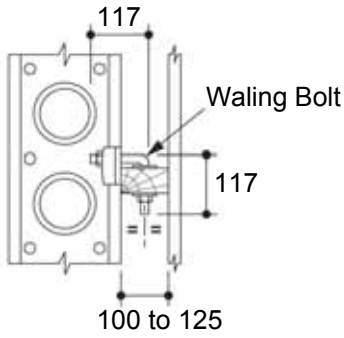
Code	Description	Weight
SSX10042	Superslim Form Support Plate	5.29 kg
BNU16001	M16 Nut gr8.8 BZP	0.03 kg
BNU16007	M16 x 40 Set Pin gr8.8 BZP	0.09 kg
BNU16009	*M16 x 60 HT Bolt & Nut*	*0.11 kg*

Allowable Working Load on Arrow 'A' = 10kN for a single plate
Connected by 2 No. M16 x 40 Set Pins and Nuts
Or 20kN for two plates
Connected with 2No M16x60 Bolts & Nuts

1.2.6. Timber Waling Clamp Short

Used to fix timber walings to Soldiers.



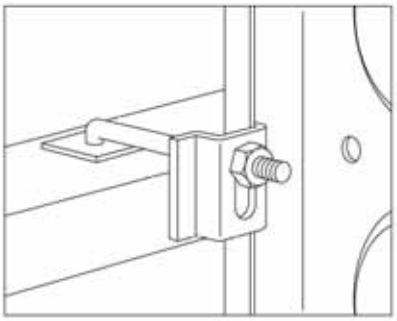


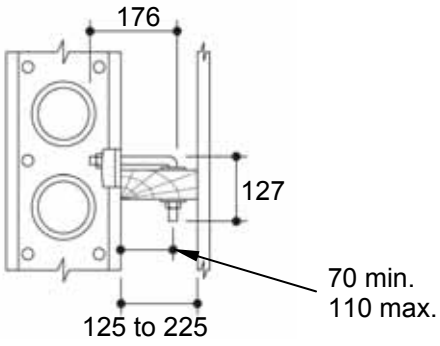
Code	No.	Description	Weight
BNU10054	1	Bolt – Metric Waling 117 x 117	0.30 kg
SSU10017	1	Waling Clamp Plate	0.40 kg
BNX20014	2	Washer - Plate 50 x 50 x 6 x 18mm	0.12 kg
BNU16001	2	Nut – M16 Hex Plated	0.03 kg

18mm dia. hole required in timbers.
Suggest 1 No. required per metre of Soldier fixed on alternative sides of the Soldier

1.2.7. Timber Waling Clamp Long

Used to fix timber walings to Soldiers.



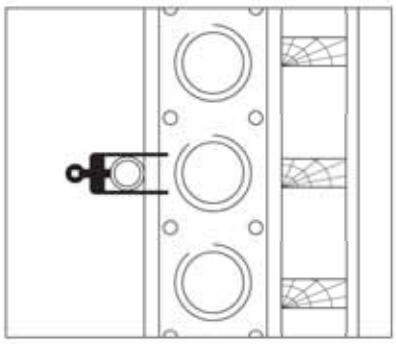


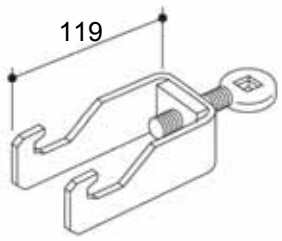
Code	No.	Description	Weight
BNU10055	1	Bolt – Metric Waling 176 x 127	0.42 kg
SSU10017	1	Waling Clamp Plate	0.40 kg
BNX20014	2	Washer - Plate 50 x 50 x 6 x 18mm	0.12 kg
BNU16001	2	Nut – M16 Hex Plated	0.03 kg

18mm dia. hole required in timbers
Suggest 1 No. required per metre rise of Soldier fixed on alternative sides of the Soldier

1.2.8. ‘B’ Clamp (RPX10005) Weight 0.70kg

Used to connect scaffold tube to Soldiers at right angles.

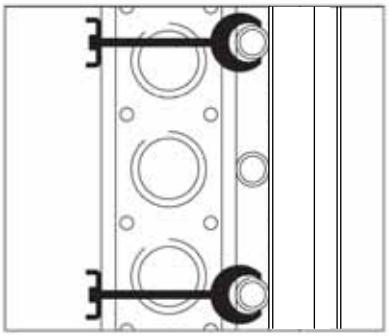


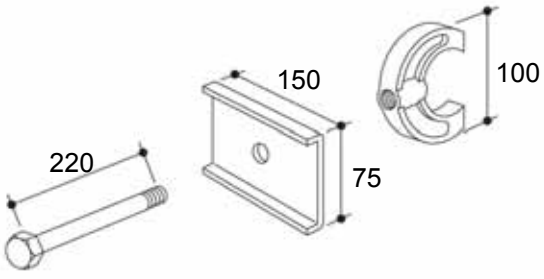


Note
When pairs of ‘B’ clamps are used on a tube to soldier connection an allowable working load of 3.25kN may be used in any direction.

1.2.9. ‘G’ Clamp, Channel Washer and Bolt
(RPX10008, BNX20020 & BNX16007)

Used to connect tube to Soldiers without projection above the top of the tube.





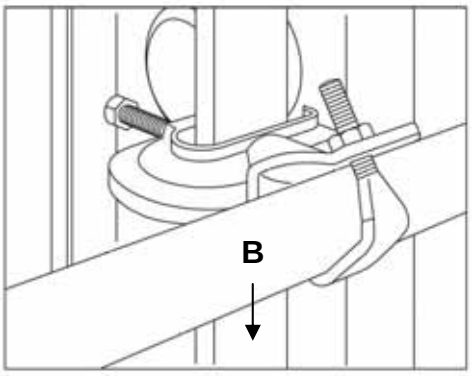
Note! ‘G’ clamps should be slid along the tube to approx required location before the tube is attached to the formwork panel.

Code	Description	Weight
BNX16007	M16 x 220 Bolt gr8.8 BZP	0.38 kg
BNX20020	Washer - Channel 150 x 75 18mm	0.73 kg
RPX10008	‘G’ Clamp - Tube Type M16	0.60 kg

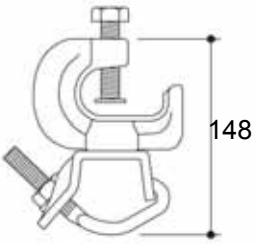
Allowable Working Load for the tube pulling out of the clamp is 20kN

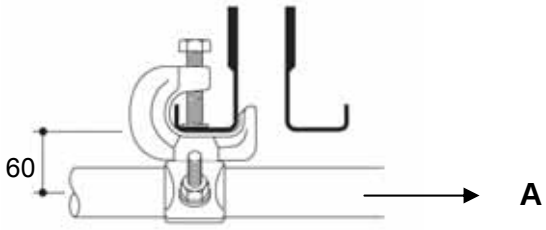
1.2.10. Slimshor Tube Clamp (SSU10024) Weight 1.3kg

Used to connect scaffold tube to Soldiers at any angle.



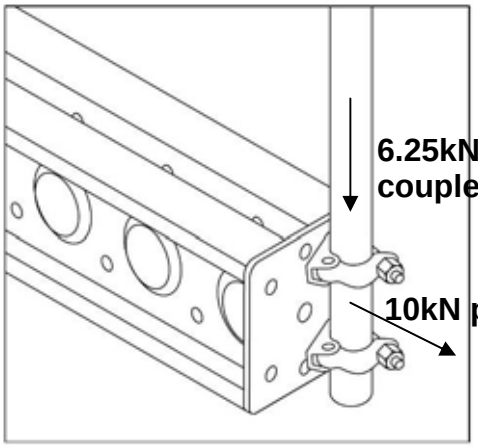
'A' Allowable Working Load = 6.25kN
(slip of tube through coupler)
'B' Allowable Working Load = 4.00kN
(slip of coupler along soldier)
Note: Clamp is a swivel fitting.





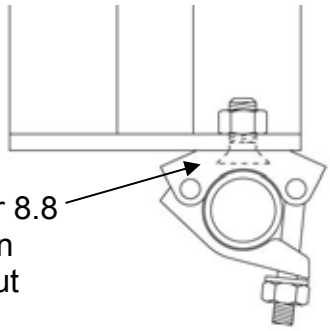
1.2.11. Half Coupler (SFX10018) weight 0.51kg

Used in pairs to connect scaffold tubes to the end plates of Soldiers.
E.g. to create hand rail posts etc.



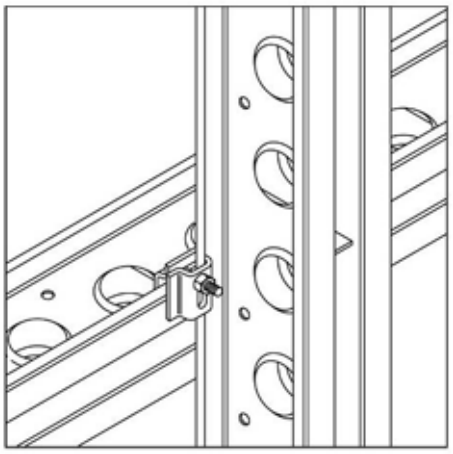
Allowable Working Load per coupler 6.25kN slip along tube 10kN direct tension

Code	Description	Weight
SFX10018	Half Coupler	0.51 kg
BNU16008	M16x40 Set Pin gr8.8 C/Snk HTZP	0.05 kg
BNU16001	M16 Nut – Hex Plated	0.03 kg



1.2.12. Waling Clamp Plate (SSU10017) weight 0.40kg

Used to connect horizontal Soldiers to vertical Soldiers.



1No. Connection comprises of:-

Code	No.	Description	Weight
SSU10017	2	Superslim Waling Clamp Plate	0.40 kg
BNU16002	2	M16 Round Washer BZP	0.10 kg
BNU16013	1	M16x110 Bolt gr8.8 BZP	0.20 kg
BNU16001	1	M16 Nut gr8.8 BZP	0.03 kg

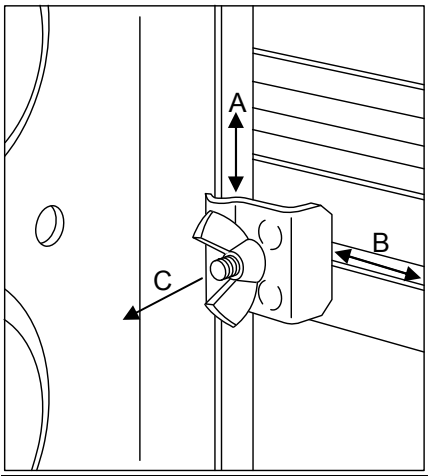
Note
2 No. clamped connections required per intersection – diagonally opposed.

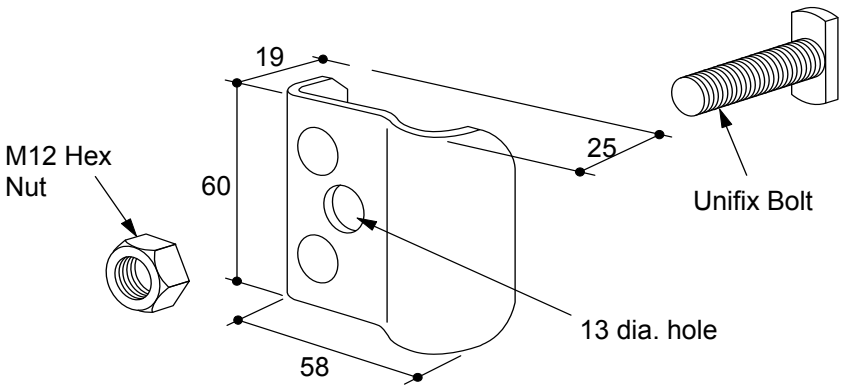
AWL 1.5kN per pair of connections in slip.
(When tightened with a hand tool.)

Note - check soldier to soldier bearing is not exceeded - see 1.1.4

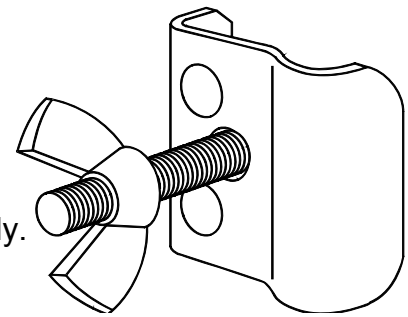
1.2.13. Alform Superslim Clamp (AFX20015) weight 0.14kg

Used to connect Alform beams or Albeams to Soldiers.





Code	Description	Weight
AFX20015	Clamp - Super Slim	0.14 kg
AFX20022	Bolt M12 Uni-fix	0.05 kg
BNU12001	M12 Nut gr8 BZP	0.01 kg
AFX20012	*Clamp Assembly - Superslim*	*0.21 kg*



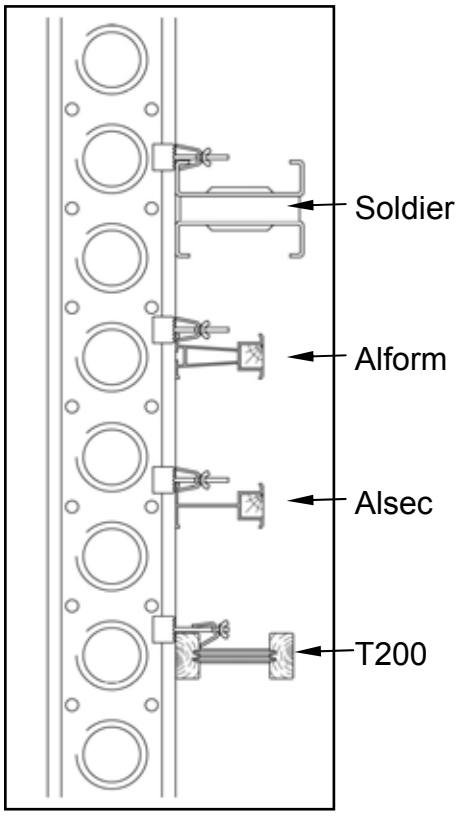
Clamp Assembly - Superslim (sally clamp)

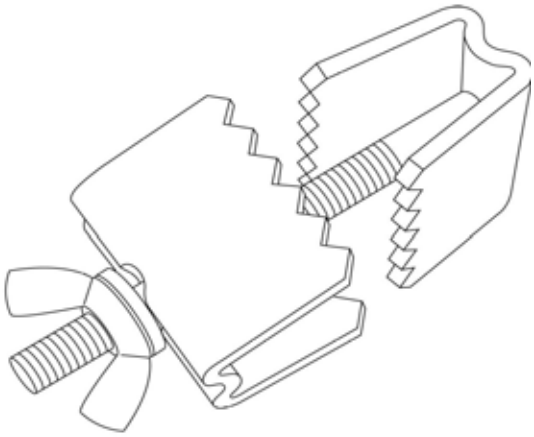
Clamp is available as individual components or as an assembly.
Tighten wing nut hand tight plus 1/4 turn
AWL 1.0kN along arrow A.
AWL 0.75kN along arrow B.
AWL 1.5kN along arrow C.

Note - If connection is subject to vibration it is recommended to use a M12 nyloc nut with the individual components.

1.2.14. Universal Clamp (ALX10001) Weight 0.73kg

A light duty clamp with many uses.



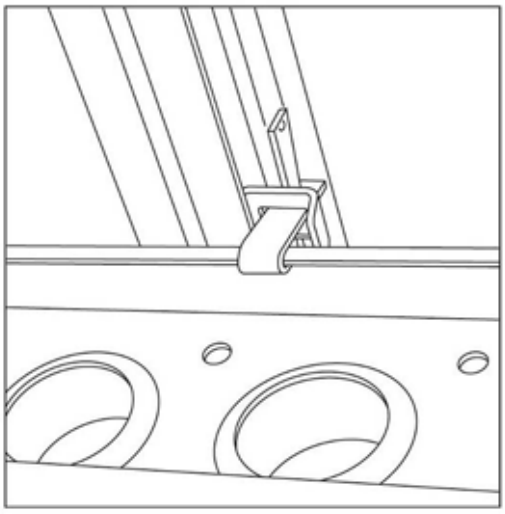


AWL Tension = 3kN per clamp
AWL Slip = 1kN per Pair of clamps

Note: The clamp is to be fixed hand tight plus 1/4 turn.

1.2.15. Flange to Flange Wedge Clamp – (ALX10002) Weight 0.54kg

A wedge fixed clamp that enables aluminium beams to be clamped to Soldiers at 90 degrees in static soffit applications.



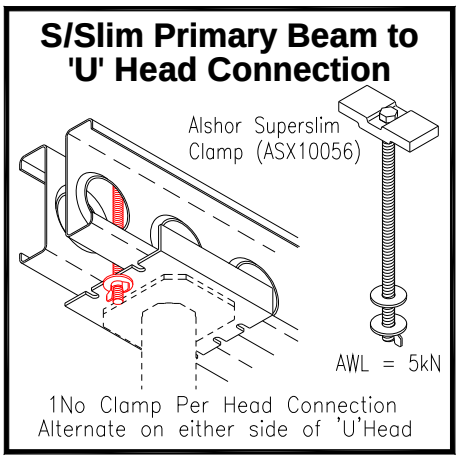
AWL Slip = 1kN per Pair of clamps

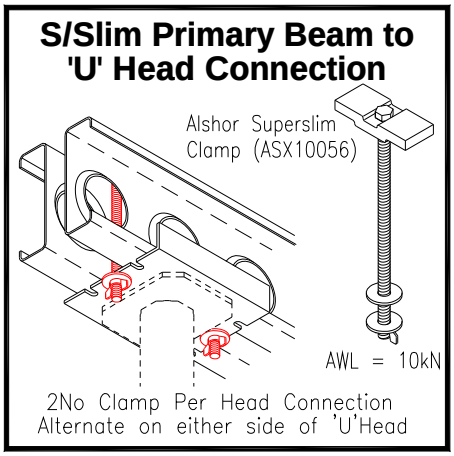
1.2.16. Alshor Superslim Clamp (ASX10056) Weight 0.68kg

The Alshor Superslim Clamp is used to connect a Superslim primary beam to an Alshor U Head or Rapidshor U Head / U Plate.

The item is supplied as an assembly and can not be taken apart.

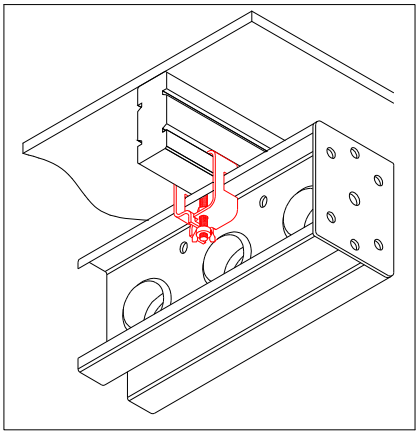
A single Alshor Superslim Clamp should be used in standard applications increasing to two if high tension loads are expected during table lifting operations.





1.2.17. GTX to Soldier Clamp (GTX10001) Weight 0.58kg

Used to connect GTX beams to Superslims on wall formwork or crane handled soffit schemes.



GTX to Soldier Connection

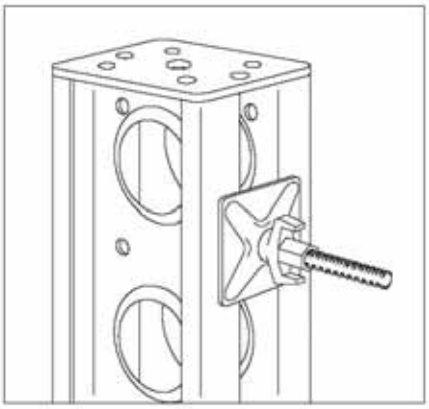
1No. Assembly allowed at every intersection, staggered either side of Super Slim Soldier

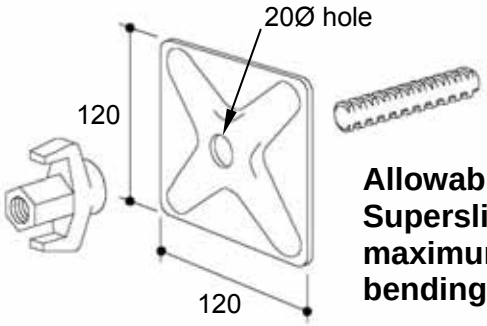
QTY	CODE	DESCRIPTION	Wt.(kg)
1	GTX10001	GTX to Soldier Clamp Mk1A	0.58

AWL Tension = 2.0kN
AWL Slip along GTX = 1.0kN
AWL Slip along S/Slim = 0.8kN

1.2.18. Waler Plate – Light 55kN (BTX10014) weight 1.13kg

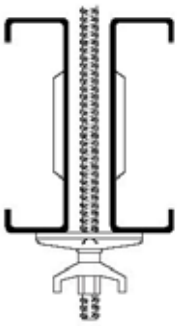
Used with 15mm diameter Rapid Bar Tie and accessories.





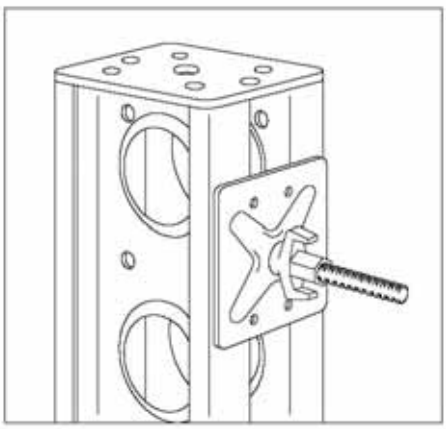
Allowable Tie Load with Superslim 55kN with maximum coincident bending moment 30kNm

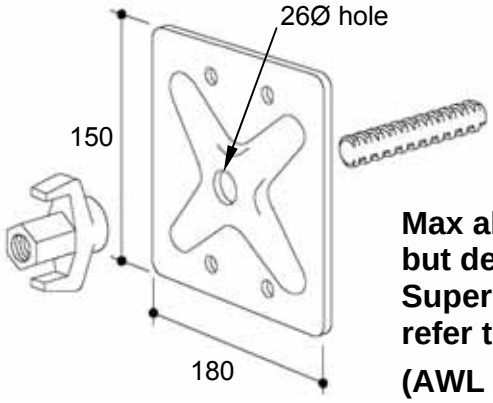
Code	Description	Weight
BTX10014	Waler Plate – Light 55kN	1.13 kg
BTX10001	Knock on Wing Nut	0.33 kg
BTX10750	Bar Tie 15mm x 7.5m	11.0 kg
BTX10600	Bar Tie 15mm x 6.0m	8.8 kg
BTX30015	Bar Tie per m 15mm	1.5 kg
BTX20015	Bar Tie per cut 15mm	-
BTX10015	Connector 15mm - Rapid Tie	0.41 kg
BTX10017	Nut – Hexagon 50mm	0.16 kg
BTX10018	Plas Cone 10mm	0.01 kg
BTX10019	Plas Tube 2m	0.22 kg



1.2.19. Waler Plate – Standard (BTX10021) Weight 1.35kg

Used with 15mm diameter Rapid Bar Tie and accessories.



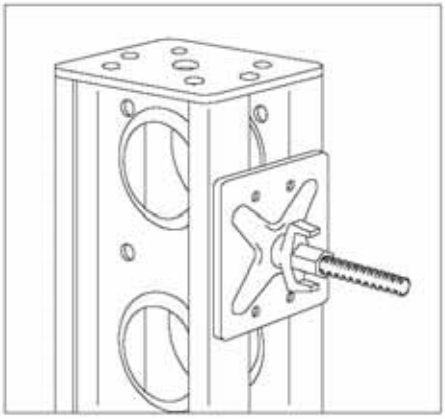


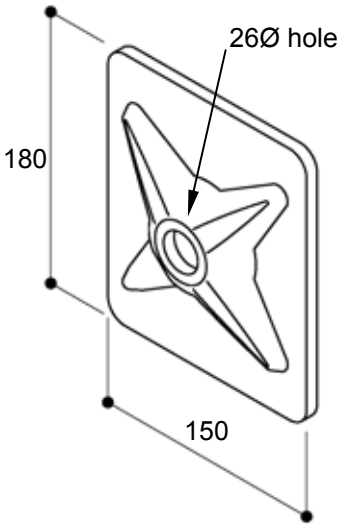
Max allowable tie load 70kN but depends on co-incident Superslim bending moment. refer to 1.1.4.

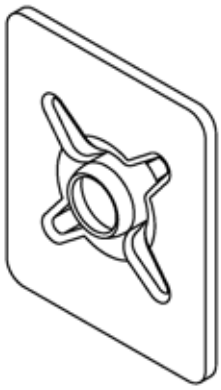
(AWL = 50kN when used with timber - bearing limits)

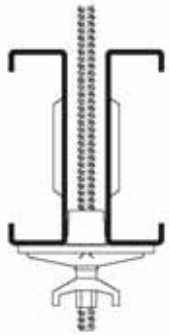
1.2.20. Waler Plate – Heavy Duty (BTX10004) Weight 1.76kg

Used with 15mm diameter Rapid Bar Tie and accessories.







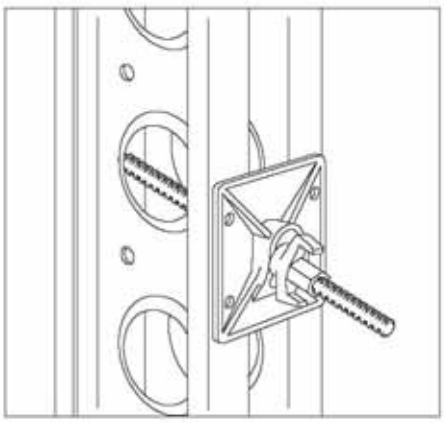


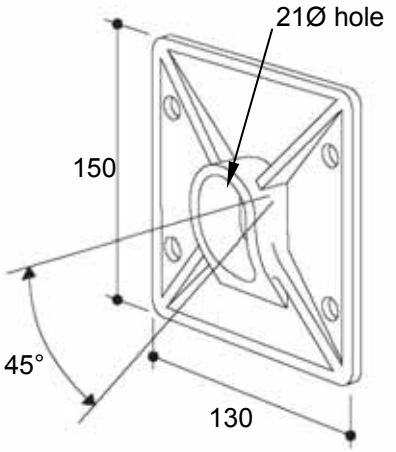
Front View **Rear View**

Maximum allowable tie load with Superslim Soldiers 90kN but varies according to co-incident bending moment. Refer to 1.1.4.
110kN max when used with special steel channels.

1.2.21. Waler Plate – Angle 3/4" (HTU10014) Weight 1.32kg

Used with 15mm diameter Rapid Bar Tie and accessories where the tie is not perpendicular to the Soldier.



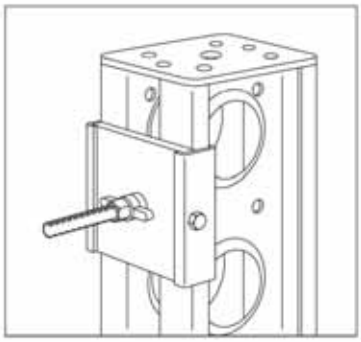


For tie angles over 6 degrees provide a stop to prevent the Angle Waler Plate sliding along the Soldier.
Note Angle Waler Plates are not weldable.

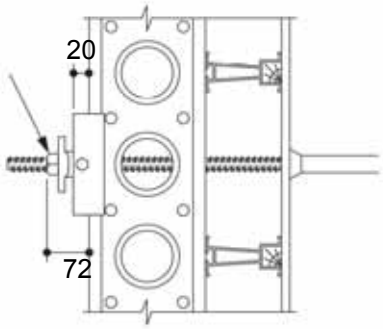
Allowable Tie Load is the same as for Standard Waler Plate — refer to 1.1.4.

1.2.22. Waler Plate – Hi-Load (BTX10029) weight 6.84kg

Used with 20mm diameter Rapid Bar Tie and accessories.

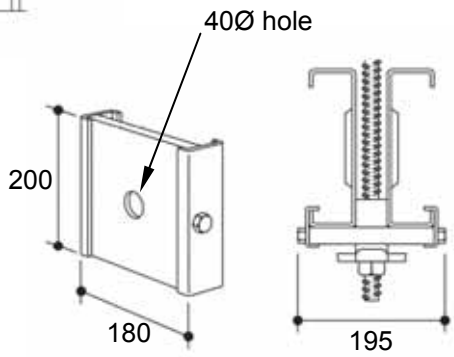


Hi-Rapid Tie
Knock-on
Wing Nut



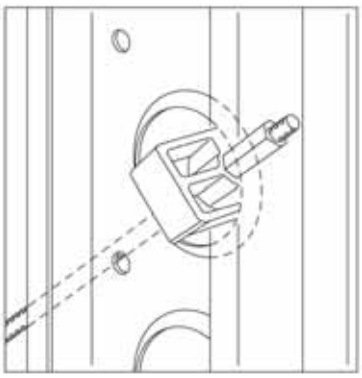
Max allowable tie load 160kN but depends on co-incident bending moment refer to 1.1.4.

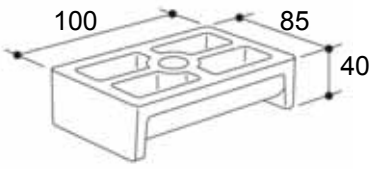
Code	Description	Weight
BTX10029	Waler Plate – Hi Load	6.84 kg
BTX10006	Knock-on Nut – Hi Load	0.51 kg
BTX40600	Bar Tie 20mm x 6m	14.8 kg
BTX20020	Bar Tie per Cut 20mm	-
BTX10002	Connector 20mm – Rapid Tie	0.90 kg
BTX10005	Nut – Hexagon 20mm Bar	0.40 kg
BTX10008	Plastic Cone – Hi Load 26 Dia	0.01 kg
BTX10009	Plastic tube – Hi Load 26/30 x 2m	0.92 kg



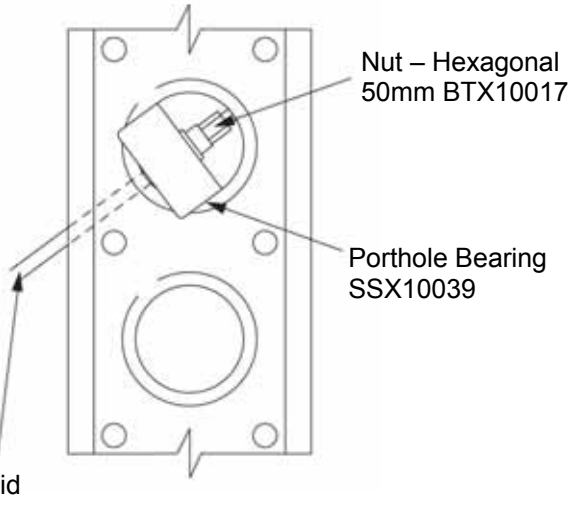
1.2.23. Porthole Bearing (SSX10039) Weight 2.00kg

Enables connection of a tie rod to a Porthole at any angle.





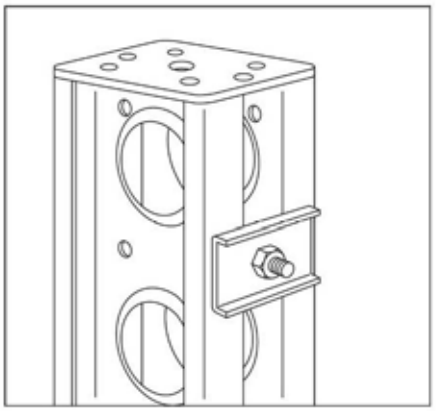
Note: M20 All Thread Rod but not 20 Ø Rapid Bar Tie may also be used

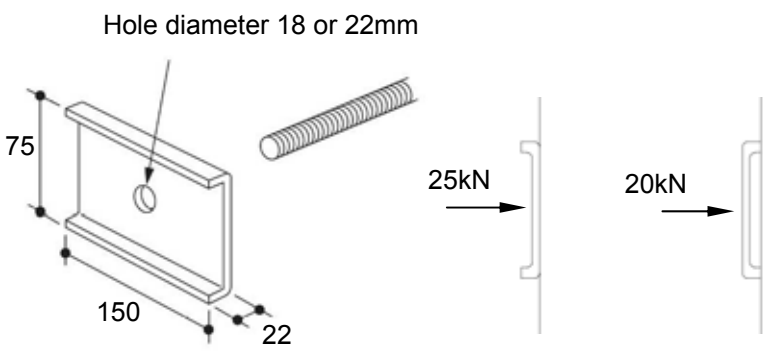


Allowable Working Load 65kN tension

1.2.24. Channel Washers

Used as a light duty waler plate with Super Slim and Rapid Bar Tie or all thread rod.



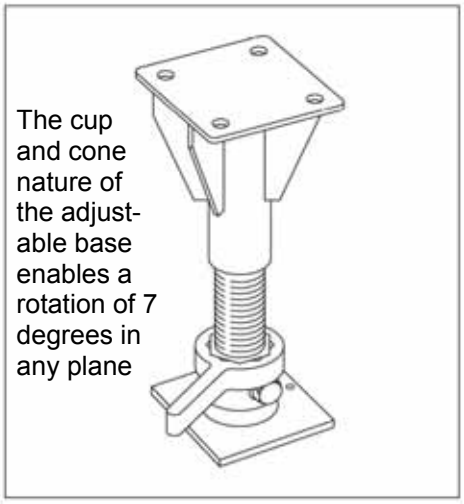


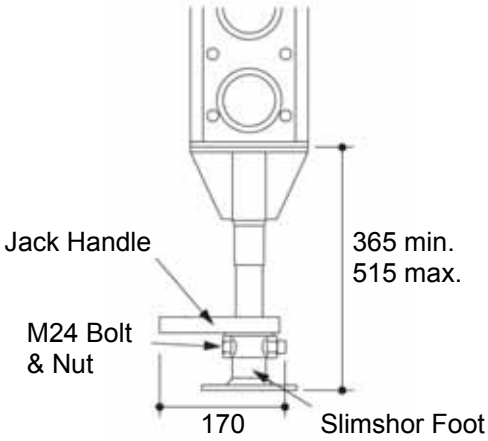
Code	Description	Weight
BNX20020	150x75x18mm Channel Washer	0.66 kg
BNX20021	150x75x22mm Channel Washer	0.66 kg
TRX10016	M16 All Thread Rod gr8.8 – per metre	1.00 kg
TRX10020	M20 All Thread Rod gr8.8 – per metre	2.10 kg
TRX20000	All Thread Rod per cut	-
BNU16001	M16 Nut gr8.8 BZP	0.03 kg
BNU20001	M20 Nut gr8.8 BZP	0.06 kg

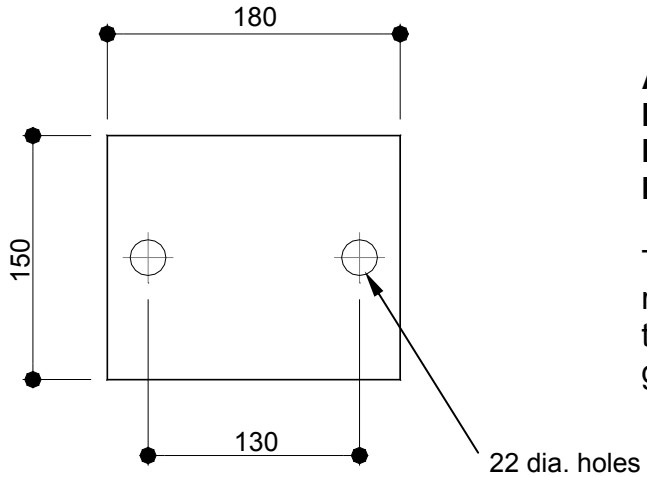
RMDK All Thread Rod is grade 8.8 and has a bright zinc plated finish.
AWL for Grade 8.8 M16 All Thread Rod is 70kN in formwork use and 45kN for other applications.
AWL for grade 8.8 M20 All Thread Rod is 108kN in formwork use and 70kN for other applications.

1.2.24. Superslim Adjustable Base 365-515 (SSU10025) Weight 18.97kg

Used to provide base adjustment and spread load.







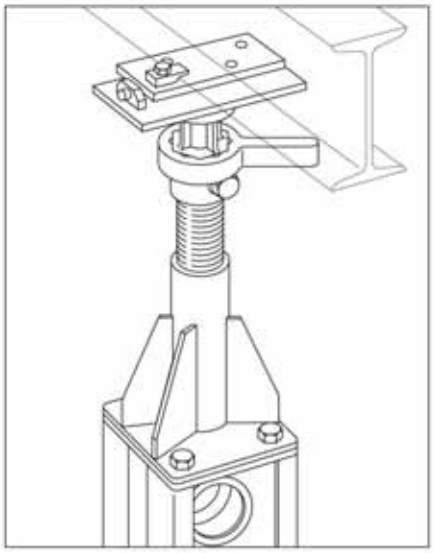
Base plate Detail

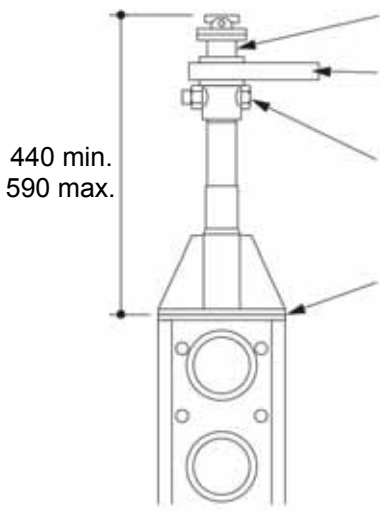
Allowable Working Load 150kN, 100kN if load is to be removed by rotation of the jack handle.
Not to be used in tension.

The maximum load that can be applied by rotating the jack handle is 40kN using a scaffold tube extension when the threads have been well greased.

SUPERSLIM SOLDIERS

1.2.25. Superslim Adjustable Head 440-590mm (SSU10026) Weight 24.6kg



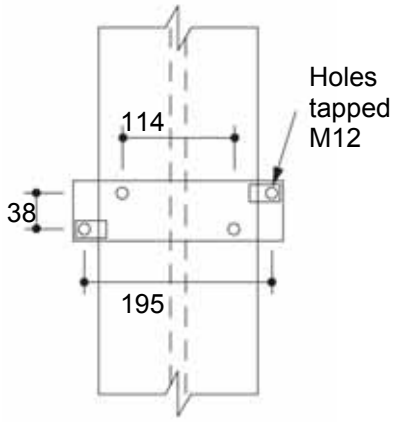


Allowable Working Load 150kN, 100kN if load is to be removed by rotation of the jack handle.
Not to be used in tension.

The maximum load that can be applied by rotating the jack handle is 40kN using a scaffold tube extension when the threads have been well greased.

Clamp header beams in place using Clamp plates with M12 set pins. Use M12 x 25 set pins for flanges up to 12mm Thick. Use M12 x 30 set pins for flanges over 10mm thick.

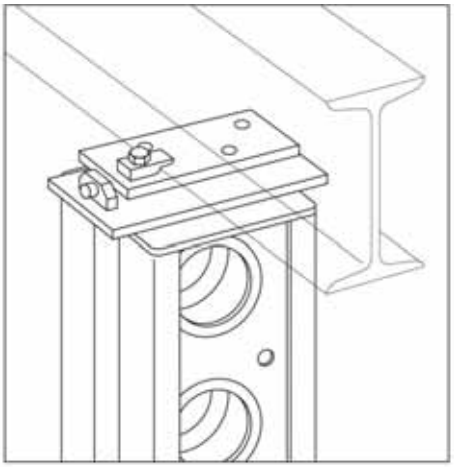
Code	Description	Weight
AFX20003	Clamp Plate	0.10 kg
BNX12009	M12 x 25 Set Pin gr8.8 - BZP	0.04 kg
BNX12002	M12 x 30 Set Pin gr8.8 - BZP	0.04 kg



Max beam flange width = 171mm (183mm between set pins)

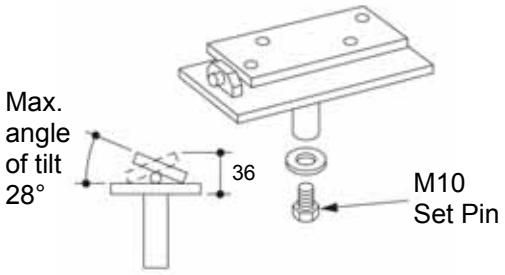
1.2.26. Superslim Rocking Head 36mm (SSU10023) weight 4.31kg

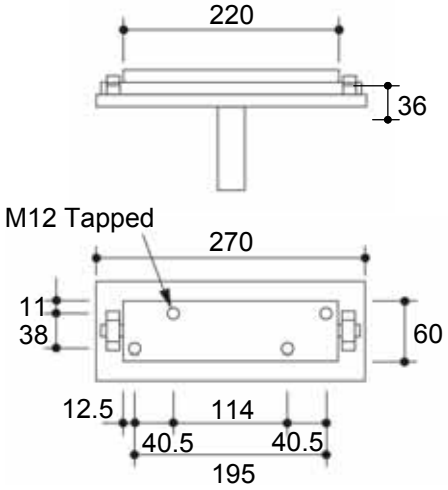
Used to attach header beams onto soldier props.



Code	Description	Weight
SSU10023	Superslim Rocking Head 36mm	4.31 kg
BNX10005	M10 x 20 Setpin gr8.8 BZP	0.02 kg
SSU10029	Rocking Head Washer - M10 Galv	0.02 kg

Allowable Working Load 150kN. Not to be used in tension.

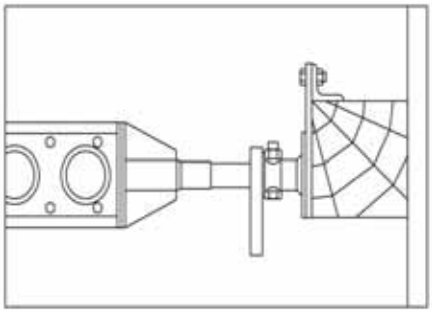




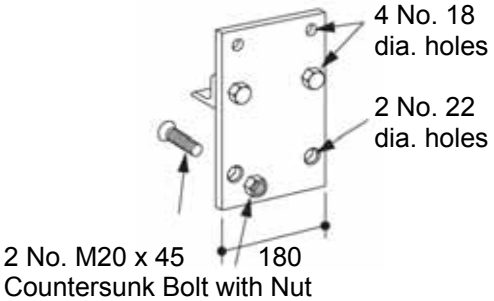
For connection details to header beams see 1.2.22

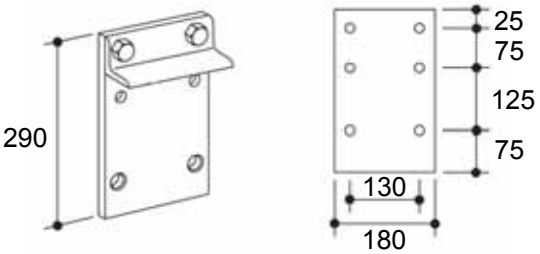
1.2.27. Superslim Prop Support Plate (SSX10041) weight 6.3kg

Used to support horizontal Slimshor in trench applications.



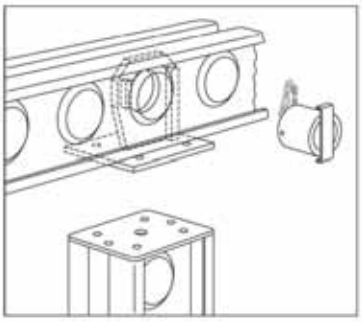
Code	Description	Weight
SSX10041	Superslim Prop Support Plate	6.34 kg
BNX20027	M20 x 45 Set Pin gr8.8 BZP Csk	0.17 kg
BNU20001	M20 Hex Nut gr8	0.06 kg





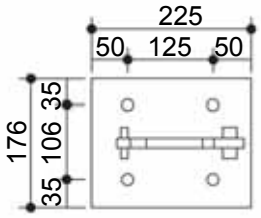
1.2.28. Superslim Corner Pivot (SSU10019) weight 7.29kg

Used to attach Soldiers at right angles and permits limited rotation.

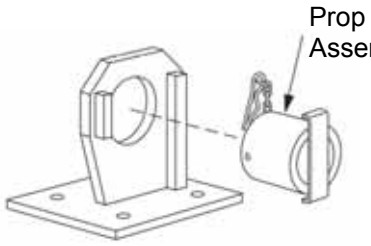


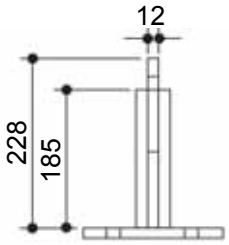
Allowable Working Load ± 65kN

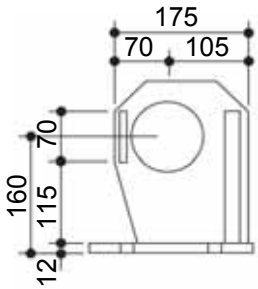
Connection to Soldier using 4 No. M16 x 40 Set Pin gr8.8 BZP & M16 Nut (BNU16007 & BNU16001)



Horizontal Soldier can be tilted up to 15° from the horizontal



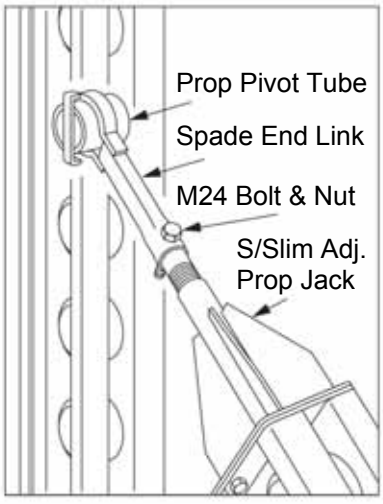




1.2.29. Prop Spade End Link (SSU10012) & Prop Pivot Tube (SSU10004)

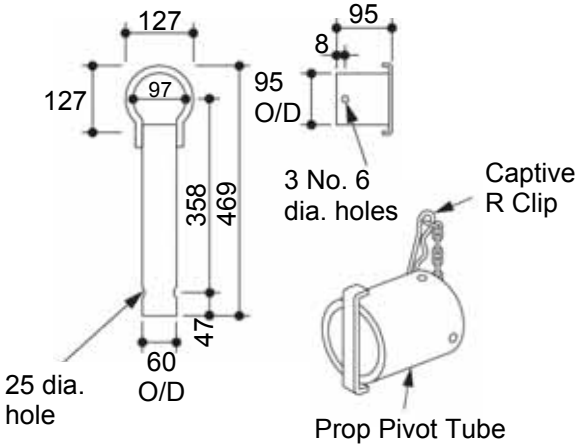
Used to attach Push Pull Props to Soldiers.

Code	Description	Weight
SSU10012	Superslim Prop Spade End Link	3.09 kg
SSU10004	Superslim Prop Pivot Tube	1.81 kg



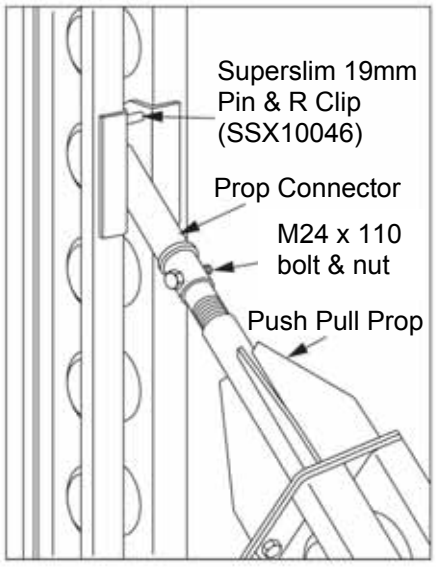
Connection to Soldier using 4 No. M16 x 40 Set Pin gr8.8 BZP & M16 Nut (BNU16007 & BNU16001)

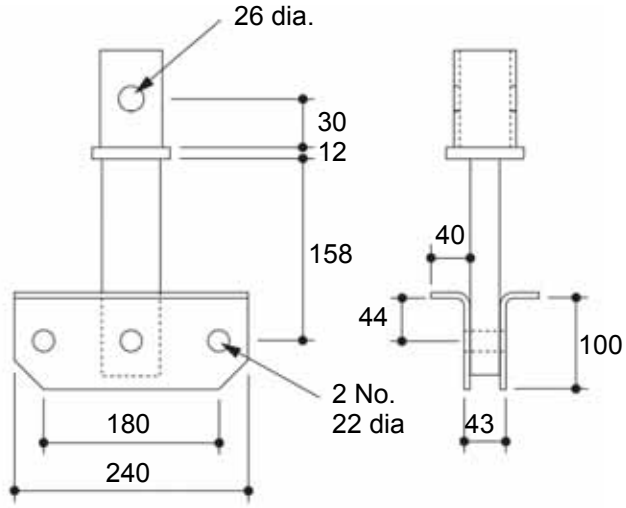
Allowable Working Load ± 65kN



1.2.30. Superslim Prop Connector 100kN (SSU10038) Weight 6.79kg

Used to connect Push Pull Props to Soldiers where a load transfer of more than 65kN is required.

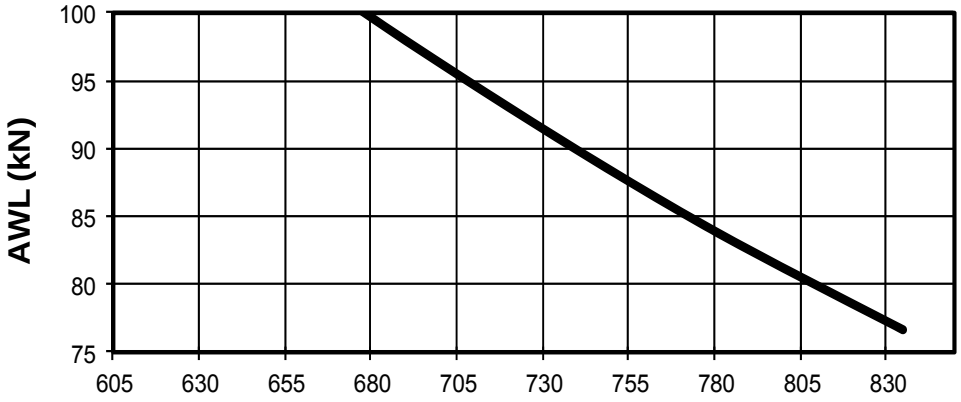




Note This component enables Push Pull Props to be installed on opposite sides of a Soldier in the same location.

Allowable Working Load ± 100kN
Refer to connector loading graph & soldier capacity graphs

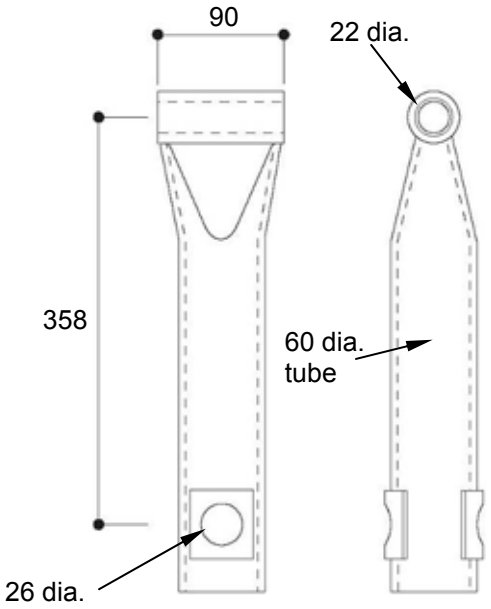
AWL for 100kN Prop Connector



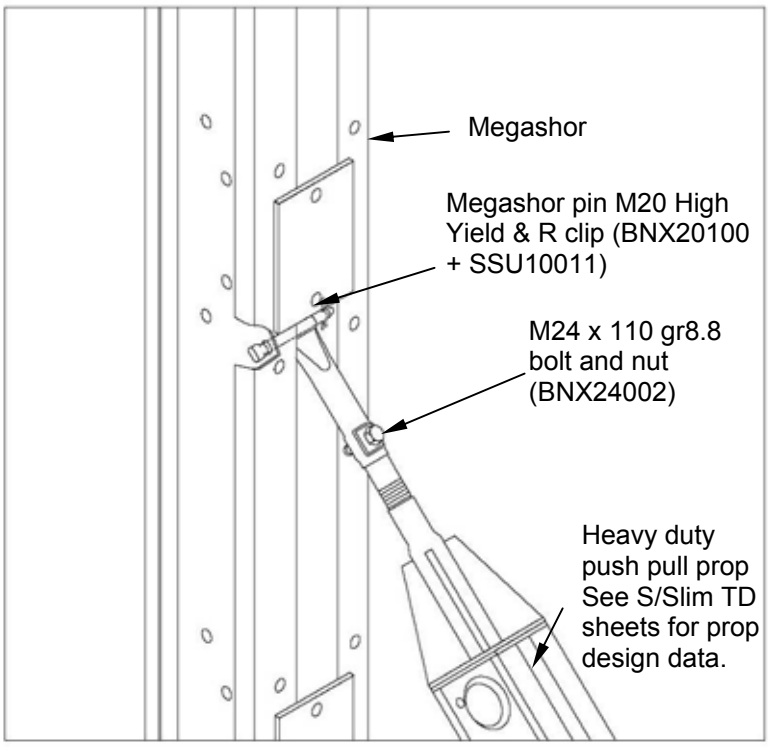
Extension of Superslim Prop Jack & 100kN Prop Connector (mm)

1.2.31. Superslim Prop Tube End Link (SSU10013) weight = 2.88kg

Used to connect Super Slim Push Pull Props to Megashor shafts.

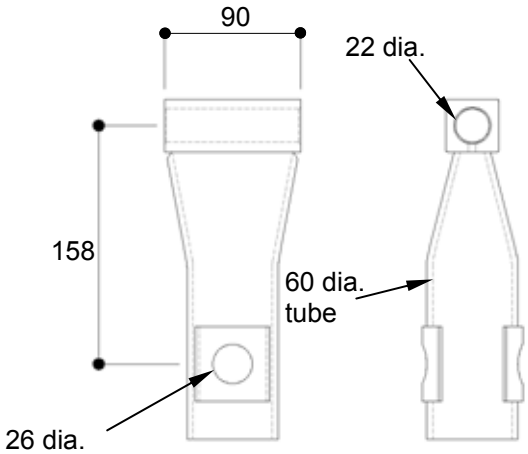


For Max allowable working load see graph (below)

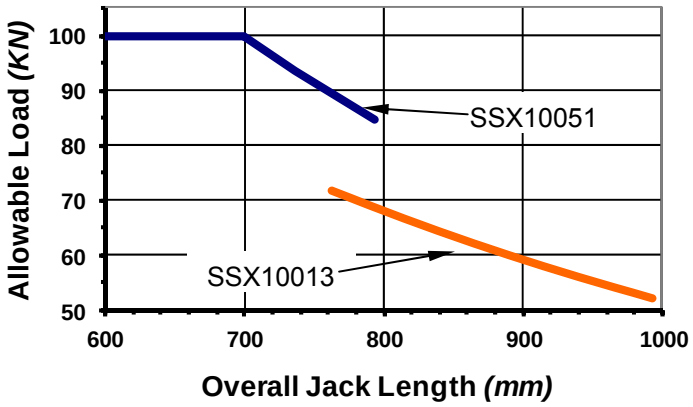


1.2.32. Superslim Short Prop Tube End Link (SSX10051) weight = 1.77kg

Used to connect Super Slim Push Pull Props to Megashor shafts when compression loads greater than can be provided by the above item are required.
Connection to Megashor leg and s/slim jack as detailed above



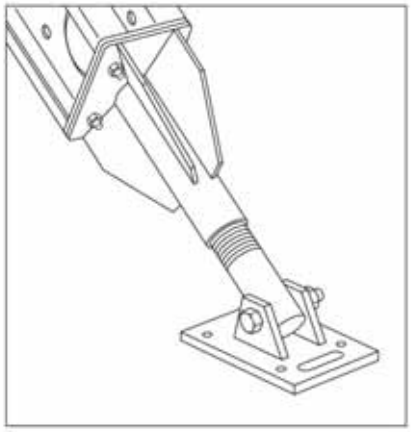
For Max allowable working load see graph (right)

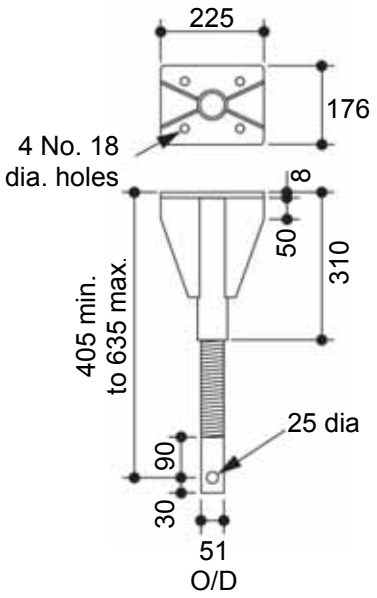


Tube End Link Loading Graph in compression AWL in tension = 100kN

1.2.33. Superslim Prop Jacks

Used in pairs to provide length adjustment to Push Pull Props.



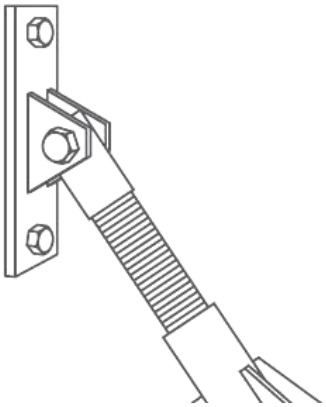


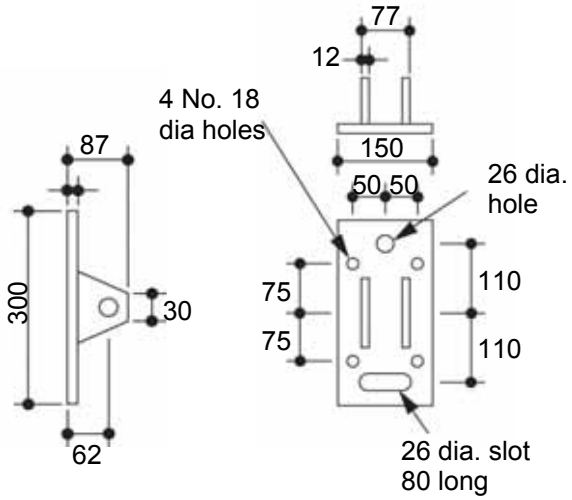
Code	Description	Weight
SSU10007	Superslim Prop Jack (L H)	14.48 kg
SSU10008	Superslim Prop Jack (R H)	14.48 kg

Allowable Working Load ± 100kN

1.2.34. Superslim Tilt Plate (SSU10034) weight 4.81kg

Used to connect a Push Pull Prop to a plane surface at any angle.



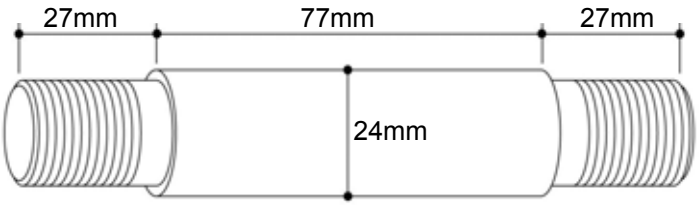


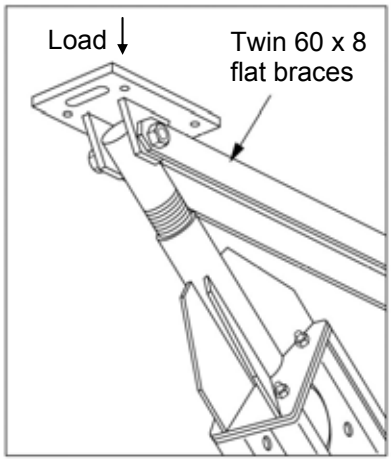
Code	Description	Weight
SSU10034	Superslim Tilt Plate	4.81 kg
BNU24001	Nut – Hexagonal M24	0.06 kg
BNX24002	M24 x 110 Bolt gr8.8 BZP	0.48 kg

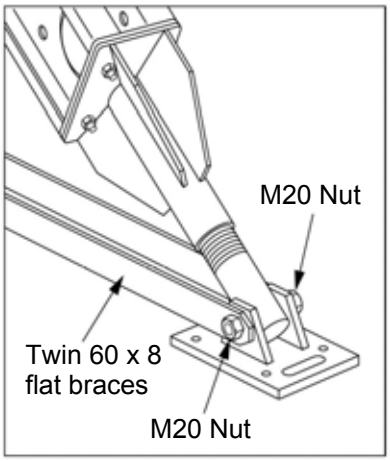
Allowable Working Load ± 100kN MAX

1.2.35. Prop Brace Pin – M24/M20 (BNU10050) Weight 0.39kg

Used to connect Push Pull Props and twin 60 x 8 flat braces through the same fastener.



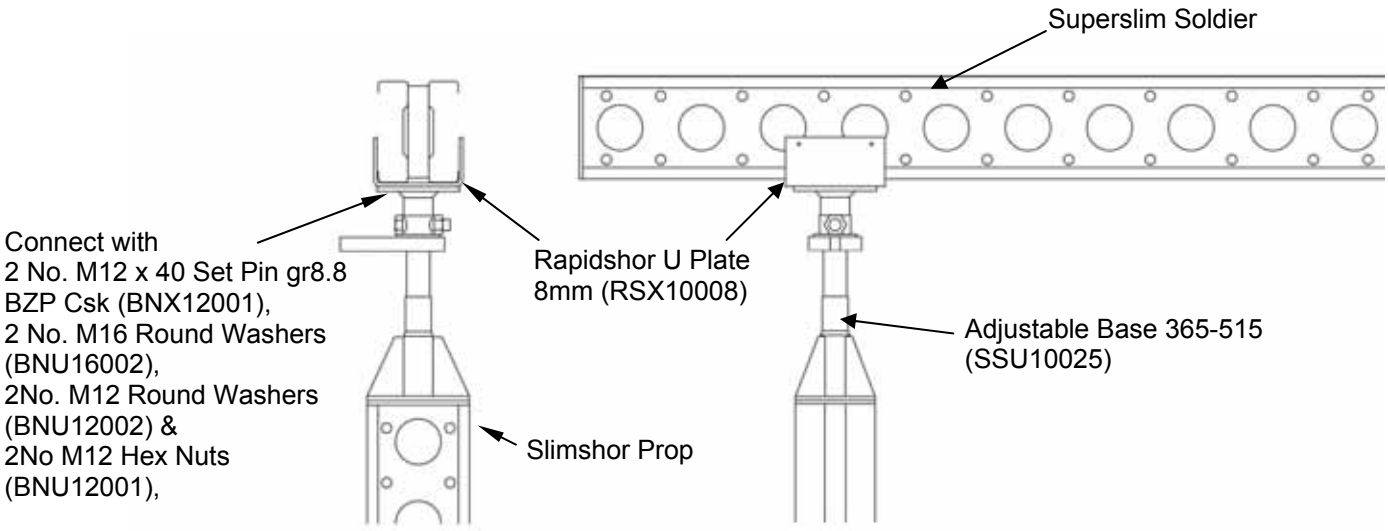




Allowable Working Load in prop ± 100kN, in flat braces 80kN per pair tension only.

1.2.36. Rapidshor U Plate 8mm (RSX10008) weight 5.31kg

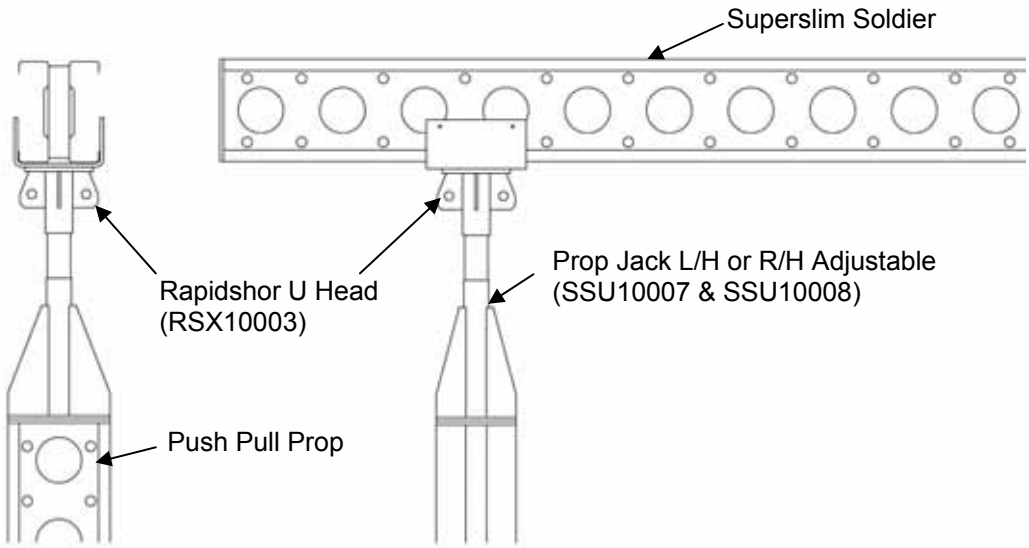
Used with Slimshor Props to support a Soldier header beam.



Allowable Prop Load 80kN – compression only

1.2.37. Rapidshor Brace U Head 182mm wide (RSX10003) weight 6.65kg

Used with Push Pull Props to support a Soldier header beam.

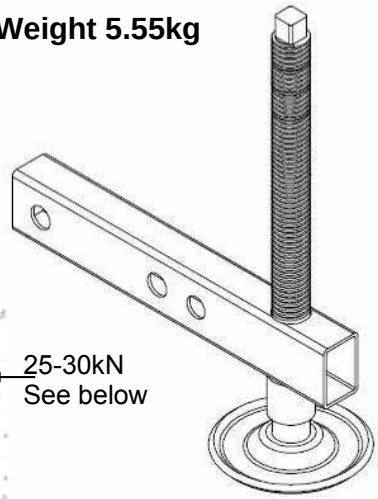


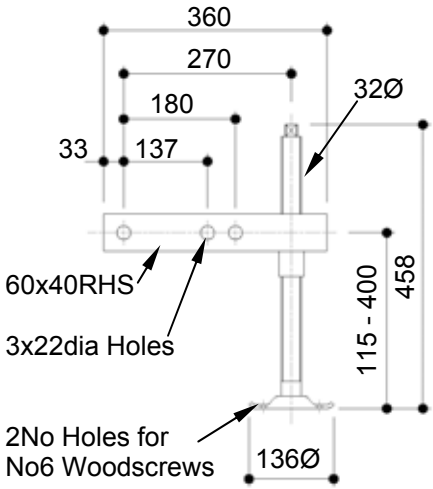
Allowable Prop Load 80kN – compression only

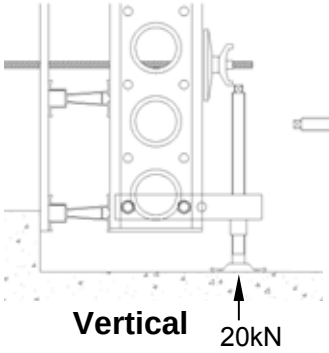
Note the body of the Push Pull Prop requires to be rotated to raise or lower the prop, where bracing Is required to reduce effective prop length use the Slimshor Prop with the 8mm U head.

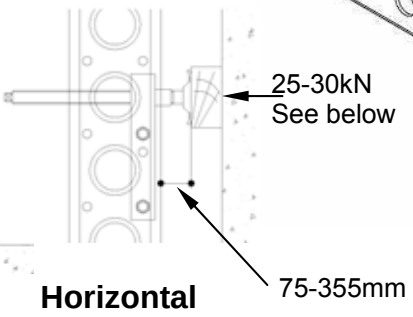
1.2.38. Superslim Universal Soldier Jack (SSX90043) Weight 5.55kg

Used in both Horizontal and Vertical applications as illustrated below, with a working range of 115mm closed to 400mm fully open. The Universal Jack arm is connected to the Soldier with 2No Superslim 19mm Pin & "R" clips.







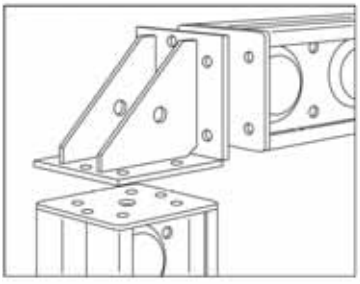


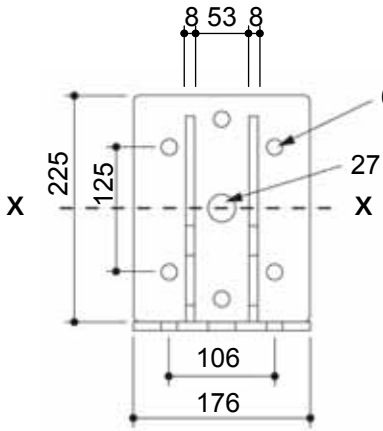
AWL 20kN Vertically – Fully Open
AWL 25kN Horizontally – Fully Open
AWL 30kN @ 170mm from back of Soldier

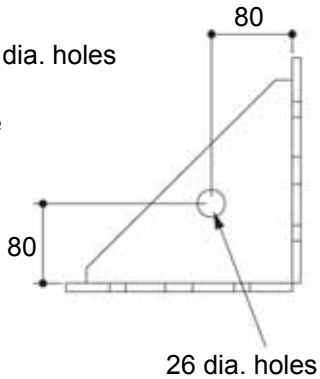
NOTE – When used for levelling of Formwork, there is insufficient space to install a Bar Tie Waler Plate & Nut between the jack stem & Soldier. Checks should be carried out based on the tie position shown in the vertical application above to ensure there will not be unacceptable grout loss / deflection at the kicker.

1.2.39. Superslim 90 Degree Corner – (SSU10003) Weight 8.66kg

Used to connect Soldiers at right angles and/or enable connection of a Push Pull Prop.



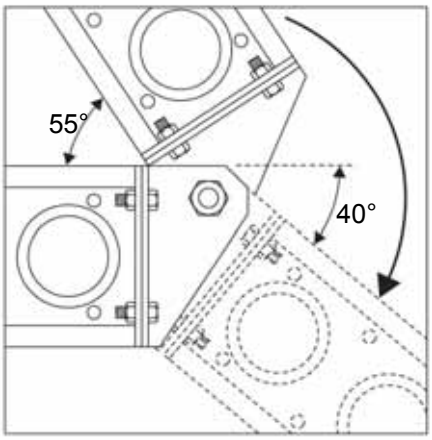


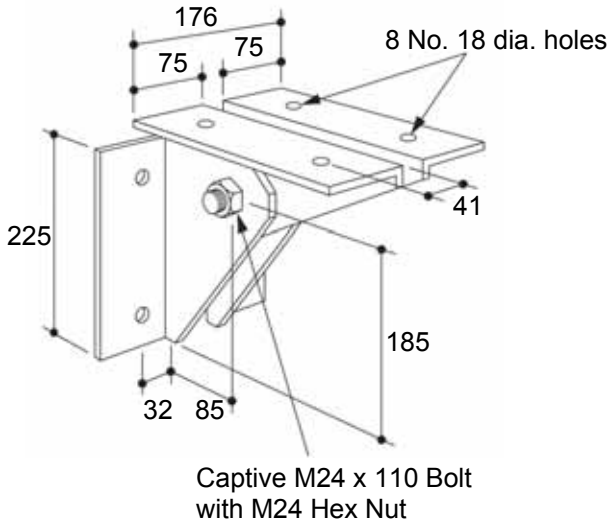


Maximum allowable load transmitted via a bolt passing through the two 26 dia. holes = ± 100kN.
Maximum allowable bending moment transferred through a soldier end plate about xx axis of the soldier = 12kNm

1.2.40. Superslim Pivot Cleat Set (SSU10028) Weight 8.75kg

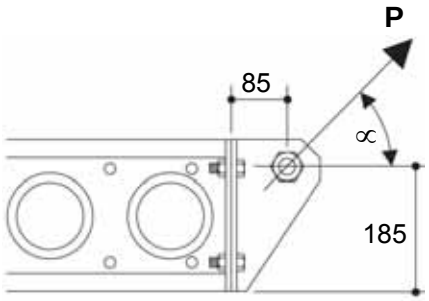
Used as a hinged connector for Soldiers.





The table below gives the allowable loads which may be applied to the Pivot Cleat Set at the angle and direction shown in the diagram.

Angle Degrees	Allowable Load P (kN)	Angle Degrees	Allowable Load P (kN)
0	59	290	73
10	66	300	63
20	77	310	57
25	85	320	55
30	97	330	53
32-275	100	340	53
280	88	350	55
285	79	360	59

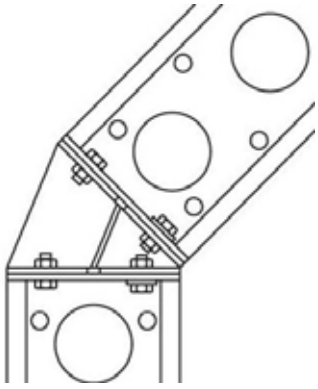


1.2.41. Superslim 45 Deg Corner (SSU10005) Weight 7.96kg

Connects Soldiers at 45 degrees.

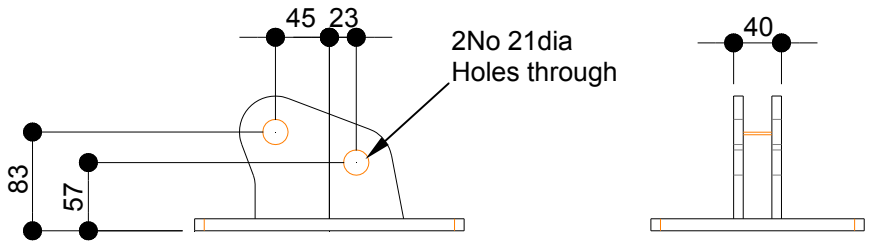
Maximum allowable bending moment = 12kNm

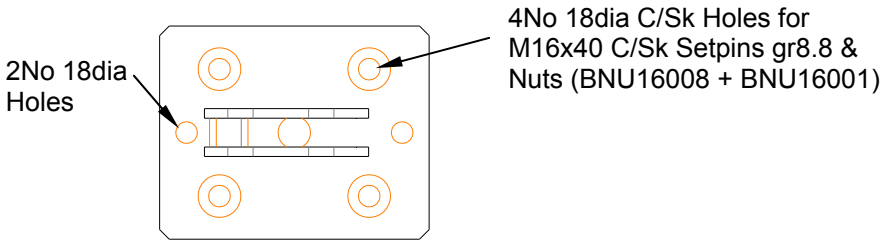
Connect using 8 No. M16 x 40 Set Pin gr8.8 and 4 No. M16 Nut gr8 BZP and 2 No. M16 Round Washer BZP (BNU 16007, BNU16001 & BNU16002).

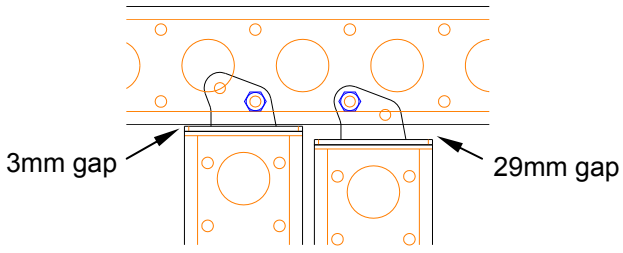


1.2.42. Superslim Pivot Corner 20mm (SSX10037) Weight 4.13kg

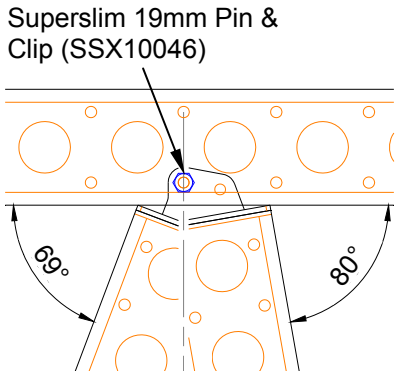
Used to connect Soldiers perpendicular to each other or allows rotation of connected soldier when used in the second hole position.







Alternative fixing positions

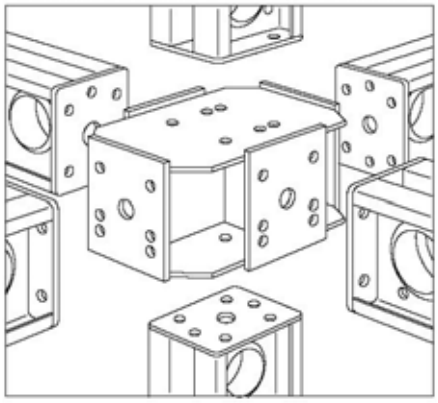


Min / Max Rotation

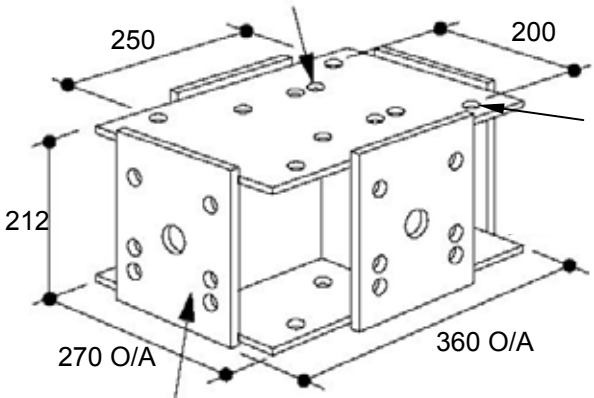
AWL +/-50kN Resultant load in pin

1.2.43. Multislim 6-Way Connector (SSU20006) weight 25kg

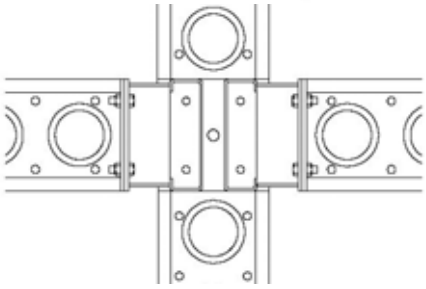
Enables 6 Soldiers to be connected at a node.



Each soldier bolted to connector using 4No M16x40 Set Pin gr8.8 & M16 Hex Nut (BNU16007 + BNU16001)



Note: 4No 18Ø Holes to accept plan bracing

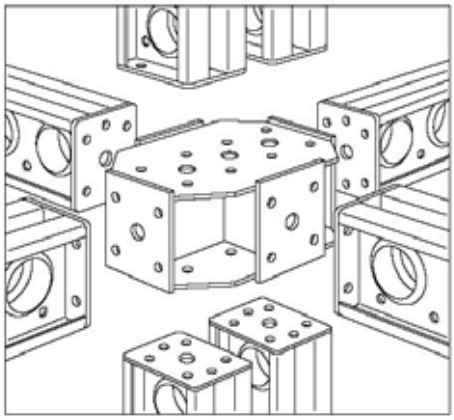


225x176x10mm End Plates
All Plates are drilled to accept either 6No Superslims or 6No Minislims at each node

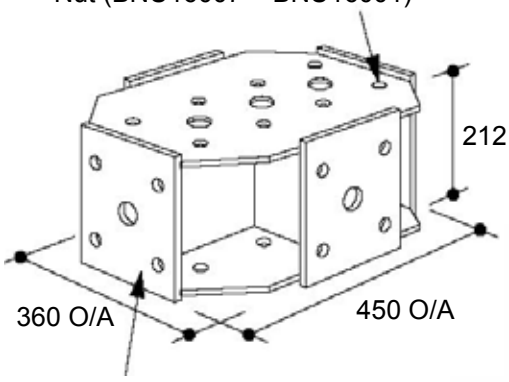
For allowable working Load see section 1.2.39.

1.2.44. 6-Way Double Connector (SSU20066) weight 37.68kg

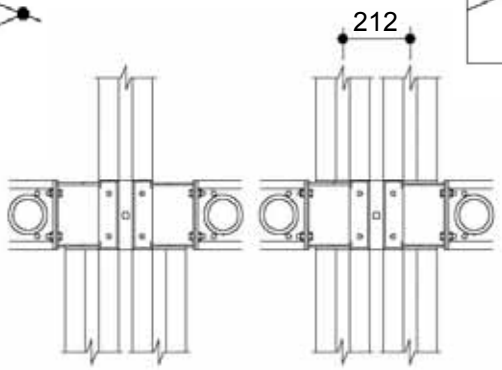
Enables 8 Soldiers to be connected at a node.



Each soldier bolted to connector using 4No M16x40 Set Pin gr8.8 & M16 Hex Nut (BNU16007 + BNU16001)



225x176x10mm End Plates



For allowable working Load see section 1.2.39.

1.2.45. 6-Way Connectors in use

The Six Way Connector allows Soldiers to be connected at node, and provides an effective component In making up frame structures with Superslim Soldiers. For particular high concentrations of leg loads a twin 6 Way Connector is also available.

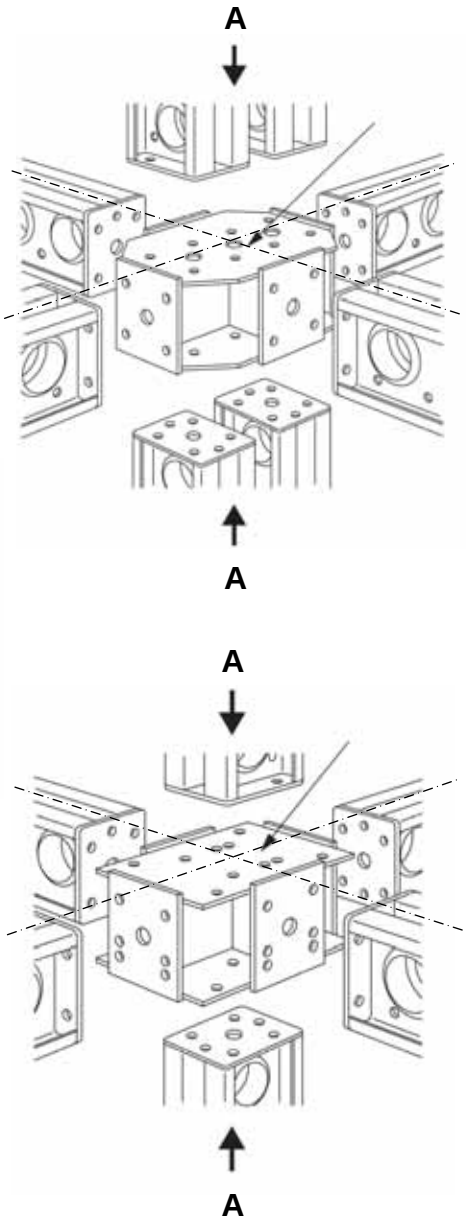
The allowable bending moment at the connector is dependant upon the direction of the axes of the applied load. The values below have derived from test results using a factor of safety of 1.8.

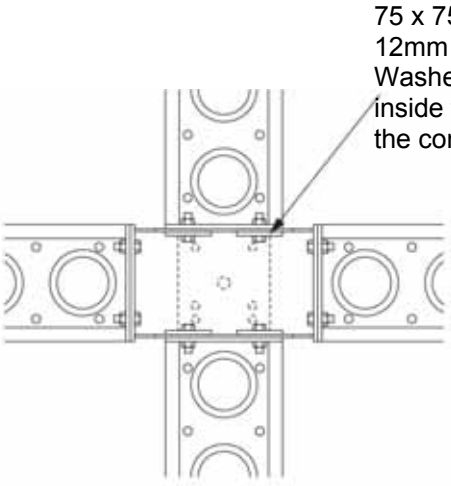
Moment about x-x axis (strong way) on sides **7.6kNm**
Moment about x-x axis on top or bottom **4.4kNm**
Moment about y-y axis on top, bottom or sides **3.6kNm**

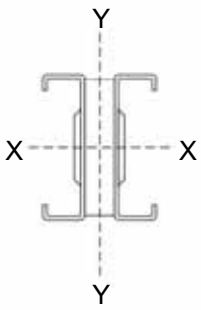
Axial loads in direction of arrow 'A'

SSU20006 **150kN Compression**
80kN Tension

SSU20066 **300kN Compression**
160kN Tension



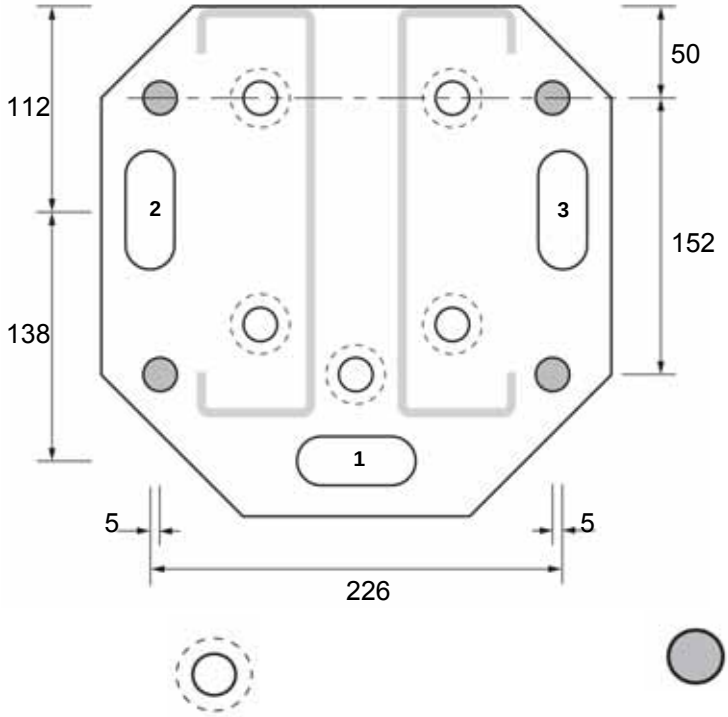


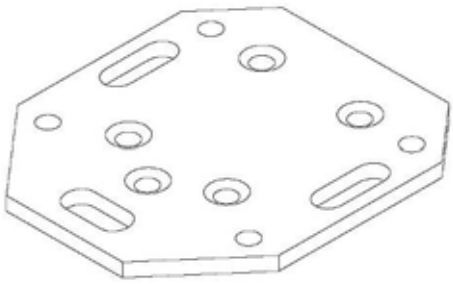


The allowable tensile load on the Superslim 6 Way Connector or Multislim 6 Way Connector can be increased to 100kN by using 75 x 75 x 12mm Plate Washers on the inside of the members as illustrated above.

1.2.46. Superslim Anchor Plate 15mm (SSU10036) Weight 7.4kg

Used for anchoring the ends of Soldiers to concrete or masonry.





Overall plate size
280 x 280 x 15 thick

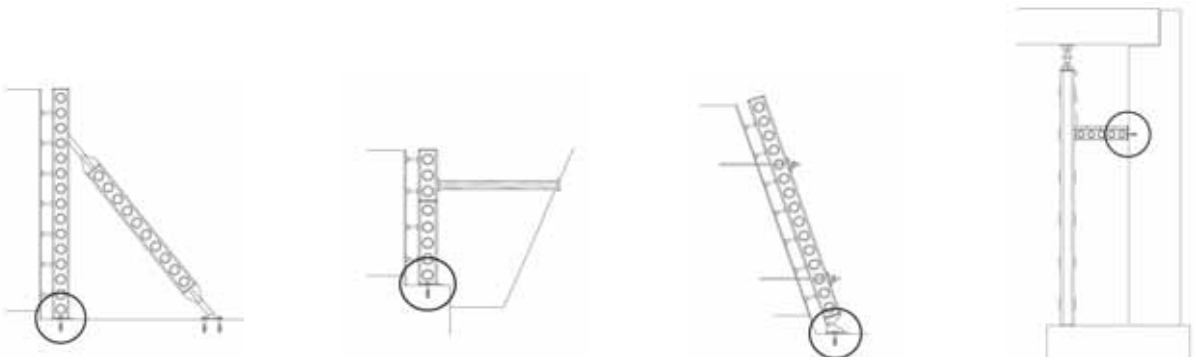
5 holes 18 dia. countersunk to suit Set Pin – M16 x 40 Set Pin gr8.8 BZP Csk and M16 Nut gr8 BZP (BNU16008 & BNU16001) for bolting to ends of Superslim Soldier

4 holes 18 dia. for M16 anchors.

3 slots 27 dia. x 65 long for RMD Kwikform Propbolt 25R (FAU10 84)

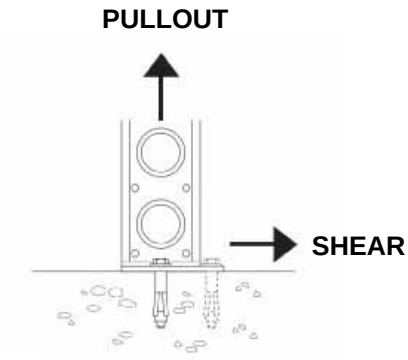
Applications include:

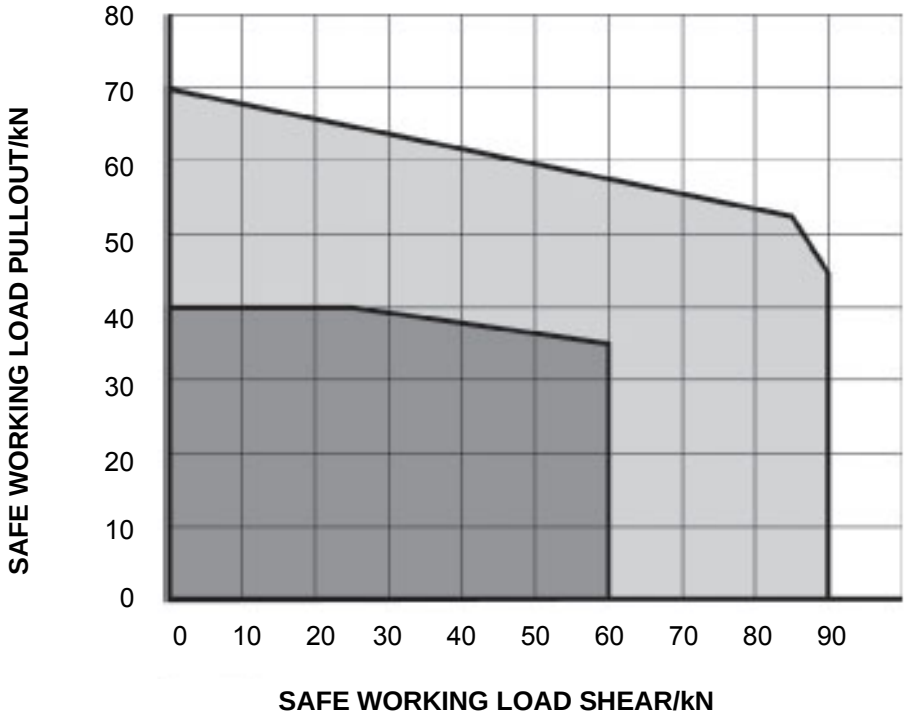
- Single sided formwork
- Base formwork with or without turnbuckle and plumbing foot (SSU10016 & SSU10033)
- Battered formwork in combination with pivot cleat set (SSU10028)
- Connecting Megashor props to abutment walls
- Base plates in façade retention schemes (use stacked in pairs for increased capacity).



1.2.47. Anchor Plate Design Data

Allowable Working Loads with RMD Kwikform Propbolt 25R (Code FAU10084)





Key: Single Propbolt in Slot 1 * Propbolts in slots 2 and 3 **

* Superslim Soldiers with 7 hole end plates must be used. Connect Superslim Anchor Plate with 5No M16 x 40 Set Pin gr8.8 BZP C/sk and M16 Nut gr8 BZP (BNU16008 & BNU16001).

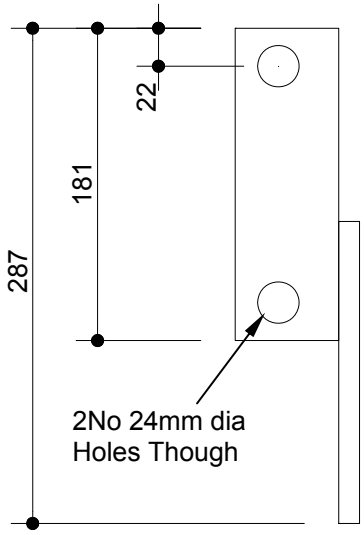
** Superslim Soldiers with 5 hole or 7 hole end plates may be used. Connect Anchor Plate with 4No. M16 x 40 Set Pin gr8.8 BZP and M16 Nut gr8 BZP (BNU16008 & BNU16001). Ensure anchors are placed in the ends of slots to resist direction of shear load.

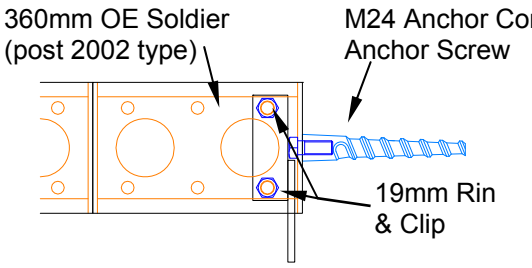
There is very little additional capacity with Propbolts in slots 1, 2 and 3. Figures quoted are based on FOS = 2 against failure. For limits on concrete strength, edge and corner distances refer to leaflet No. 52 Propbolts.

e.g. A Soldier base needs to be anchored to resist a shear of 35kN and an uplift of 60kN. From the graph above plot a line vertically upwards at 35kN on the shear axis and horizontally at 60kN on the pullout axis. The two lines intersect just within the envelope for 2 Propbolts in holes 2 and 3.

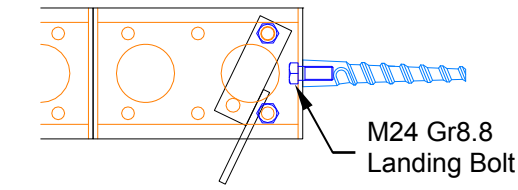
1.2.48. Superslim Safety Latch (SSX10048) Weight 1.6kg

Creates a captivated connection when seating a (post 2002) 360mm OE soldier over a M24 gr8.8 bolt, creating simple loading / access platforms etc.

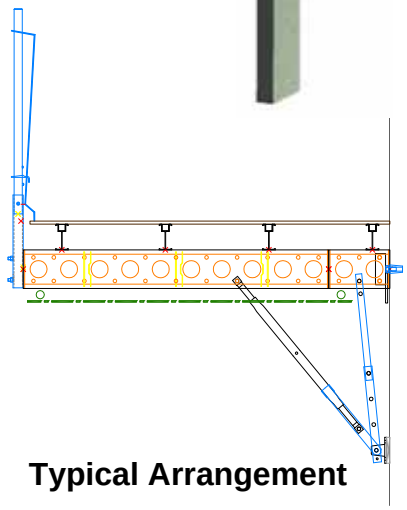




Latch in locked position



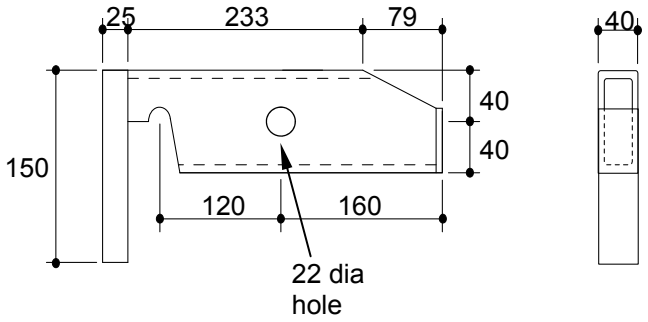
Latch in unlocked position



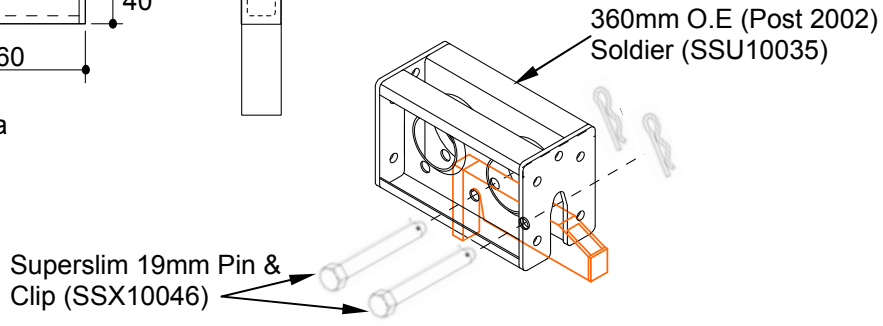
Typical Arrangement

1.2.49. Superslim Klik-Klak Latch (SSU10037) Weight 3.92kg

Used in conjunction with (post 2002) Superslim Soldier 360mm Open End (SSU10035) to create crane lifted platform applications.

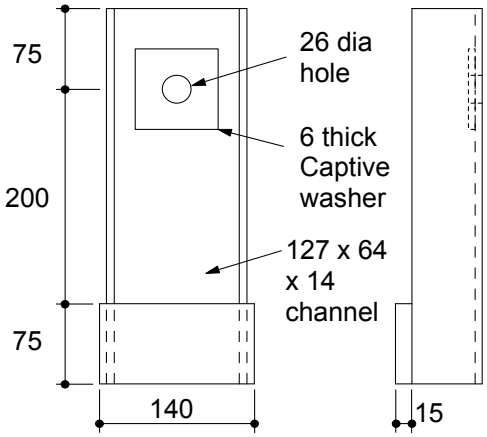


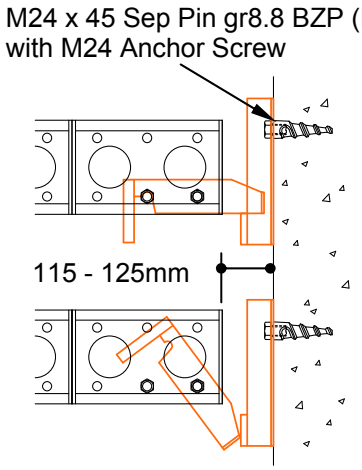
AWL 25kN



1.2.50. Superslim Klik-Klak Wall Bracket (SSU10030) Weight 6.72kg

Used wall mounted to support Klik-Klak Latch.



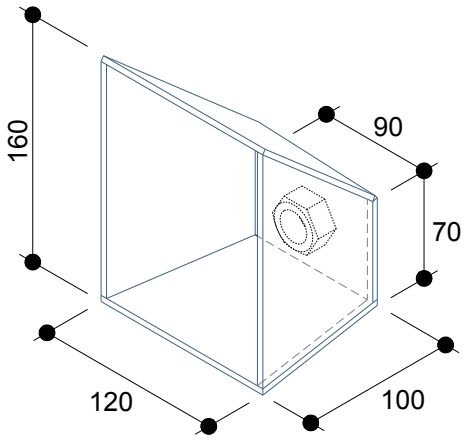


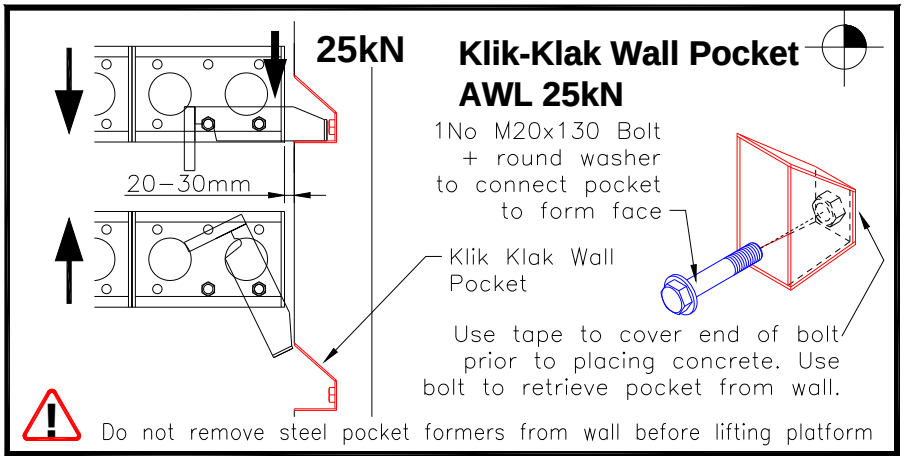
AWL 25 kN

Note! The Superslim soldier length must be between 230 & 250mm shorter than the wall gap to ensure the unit can not become disconnected at one end of the platform during use.
Check adequate bearing of latches after each lift and wedge gaps between the wall and the end of the Superslim tight both ends.

1.2.51. Klik-Klak Wall Pocket (SSU10044) Weight 1.66kg

Used as an alternative to the Klik-Klak Wall Bracket when forms can not be retracted sufficiently to bolt the bracket onto the wall prior to lifting.



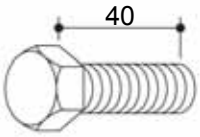


Note! The Superslim soldier length must be between 40 & 60mm shorter than the wall gap to ensure the unit can not become disconnected at one end of the platform during use.
Check adequate bearing of latches after each lift and wedge gaps between the wall and the end of the Superslim tight both ends.

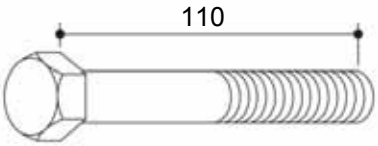
1.2.52. Nuts, Bolts and Set Pins

Code	Description	Weight
BNU16007	M16 x 40 Set Pin – gr 8.8 BZP	0.09 kg
BNU16013	M16 x 110 Bolt – gr 8.8 BZP	0.20 kg
BNU16008	M16 x 40 Set Pin – gr 8.8 BZP Csk	0.05 kg
BNU16001	M16 Nut – gr 8 BZP	0.03 kg
BNU20001	M20 Nut – gr 8	0.06 kg
BNU24001	M24 Nut – gr 8	0.08 kg
BNX20030	M20 x 90 Bolt – gr 8.8 BZP	0.28 kg
BNX24001	M24 x 45 Set Pin gr8.8 BZP	0.26 kg
BNX24002	M24 x 110 Bolt & Nut - gr8.8 BZP	0.48 kg
SSX10046	Superslim 19mm Pin & R Clip	0.29 kg

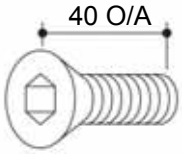
M16 x 40mm H.T. Set Pin
For general use to connect the end plates of Soldiers and accessories



M16 x 110 8.8 Bolt Plated
For use with Joint Stiffeners and Wailing Clamp Plates

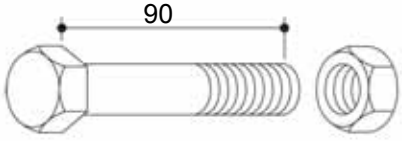


M16 x 40 HT CSK Set Pin ZP
For use with Half Couplers and Anchor Plates

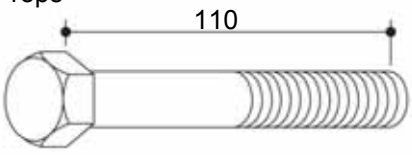


Hex Nuts Grade 8.8

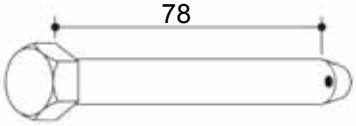
M20 x 90mm Bolt with Nut
For use with Lifting Plate, Plumbing Foot and Turnbuckle

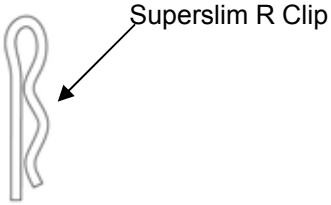


M24 x 110mm Bolt
For use with Tilt Plates and Push Pull Props



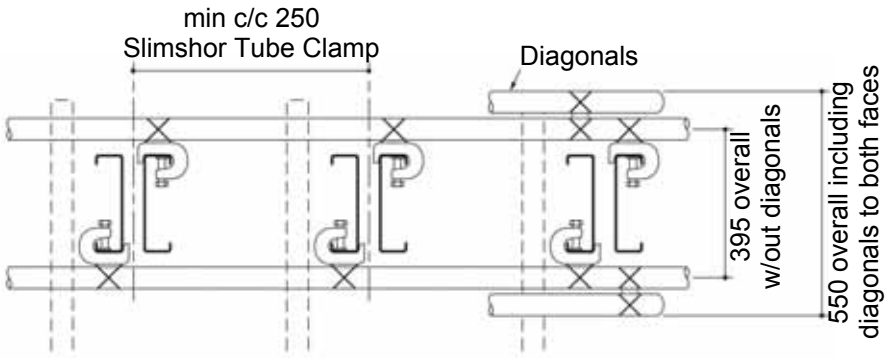
Superslim 19mm Pin & R Clip Assembly
Used instead of a bolt for connection to the 21mm Dia holes in a Super Slim.
AWL in double shear 46.5kN. (bearing limits)



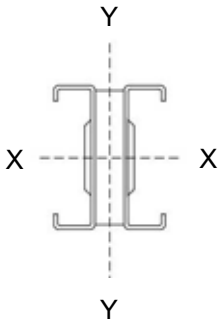


2.1.1. Superslim Bracing Using Scaffold Tube

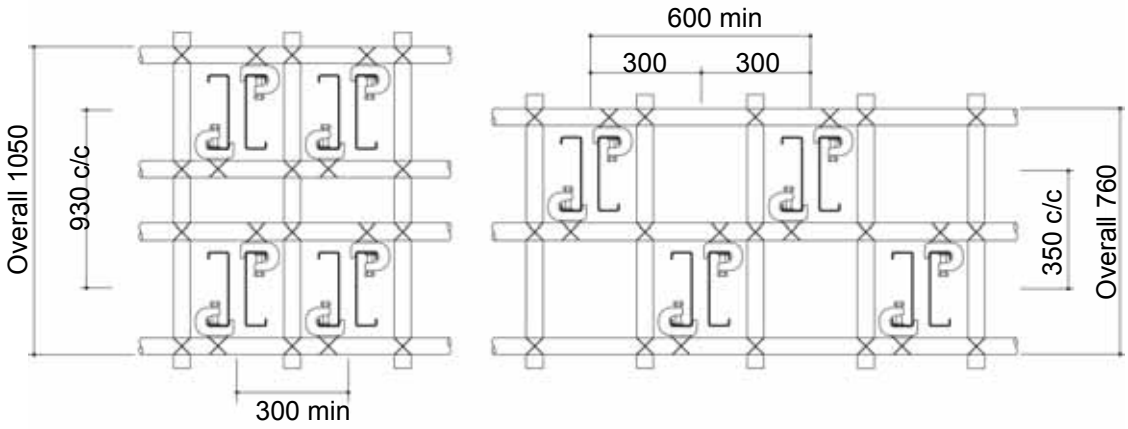
In the majority of applications where bracing to the shores is required, scaffold tube will be used for the Horizontal and diagonal members. The horizontal tubes are connected to the Superslim Props with the Slimshor Tube Clamp.



Plan of a single braced row of Superslim Props



When connecting together rows of Superslim Props, it is recommended That twin tubes are used horizontally. The diagonals may be fitted to these tubes with swivel couplers. If clearance requirements demand it, then diagonals can also be attached to the Superslim Props with the Slimshor tube clamp.
The arrangement shown braces the shores about their YY axis. During erection and for overall stability, some restraint about the XX axis may be necessary. This may be done by connecting additional tubes, shown dotted, to. suitable points of restraint The diagrams below shown the minimum spacing between groups to give full access to all the fittings.



2.1.1. Bracing Using Scaffold Tube continued:-

Where tube and fittings are used to lace and brace Superslim structures the following details shall be used. Checks should be made to ensure that couplers fixing ledger tubes to the Superslim have the required slip capacity along the Superslim.

Options A,C and E use single clamps to connect ledger tubes to the Superslim. Options B and D use twin clamps. Option C uses twice as many lacing tubes as option B.

Important in ALL cases!
Swivel coupler should be positioned max 160mm from adjacent Slimshor tube clamp

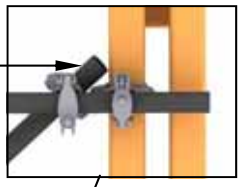
A

B

C

D

Note! This tube will have to be accurately cut to length to enable the 160mm dimension to be satisfied



E

Non preferred arrangement

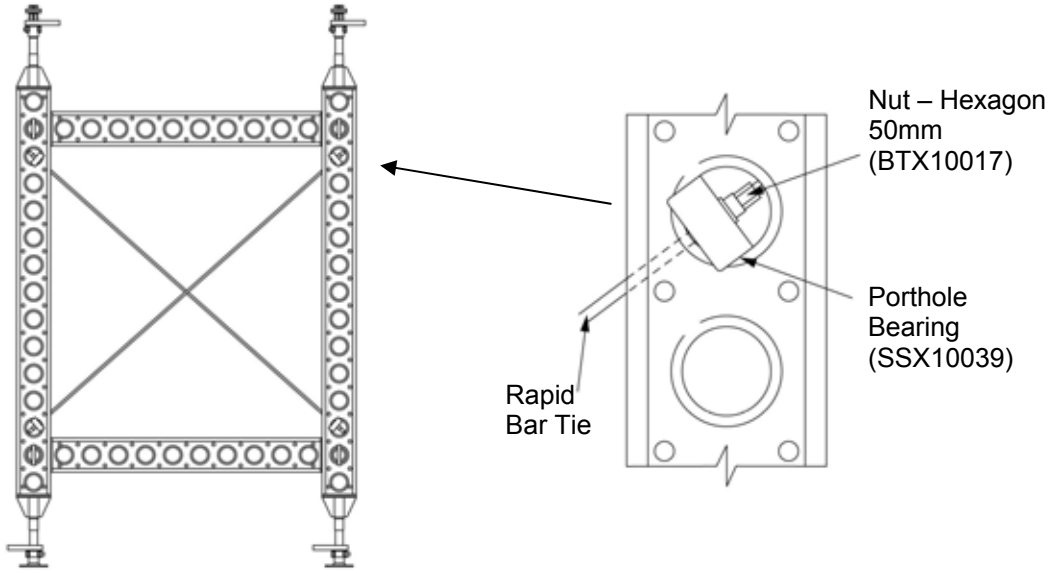
Note! 2nd tube coupler is greater than 160mm from adjacent Slimshor tube clamp.

F

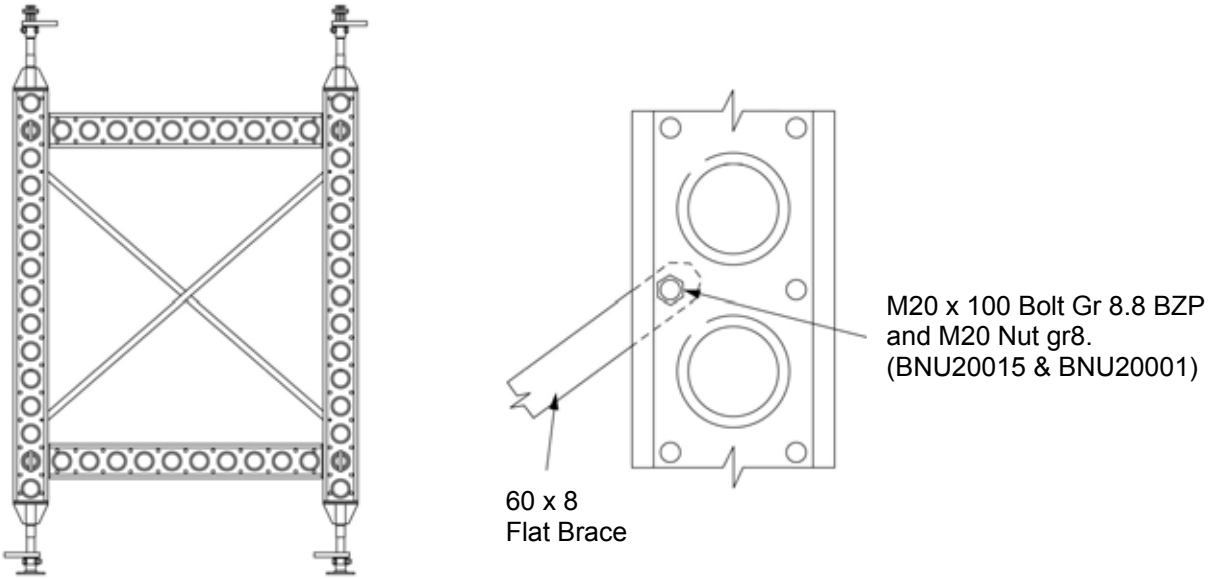
Do not use this arrangement

2.1.2. Superslim bracing using Rapid Bar Tie

One alternative method of bracing Superslim is to use crossed diagonal tension rods, usually 15mm Rapid Bar Tie with connectors. The tie connects directly to the Porthole bearing which fits into the 100mm diameter hole in the webs of the Soldier. This arrangement only provides the tension restraint between shores and suitable members to act as struts are needed to complete the structure. The tension force in the Rapid Bar Tie when used in this situation is limited to 65kN or 80kN for wind loads.



2.1.3. Superslim Bracing with 60 x 8 Flat Braces



Allowable Tensile Load = 30kN

2.1.4. Superslim Jack Bracing

The Superslim Adjustable Base and Adjustable Head will safely transmit a horizontal force of 2.5kN or 2 ½ % of a maximum axial force of 100kN. If the horizontal force to be transmitted is greater than this, then jack bracing will be needed. The table below shows the allowable horizontal force compared to jack extension for both Head and Base. When jack bracing is required, usually a tube is attached to the threaded part of the jack and diagonals fitted to it. See below Typical Arrangement of Jack Bracing.

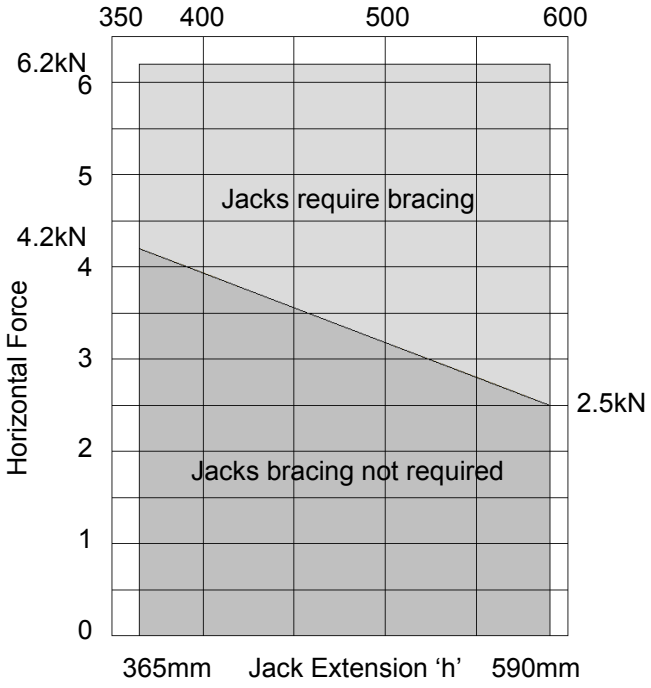
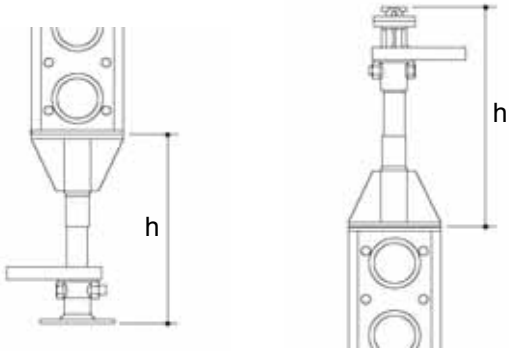
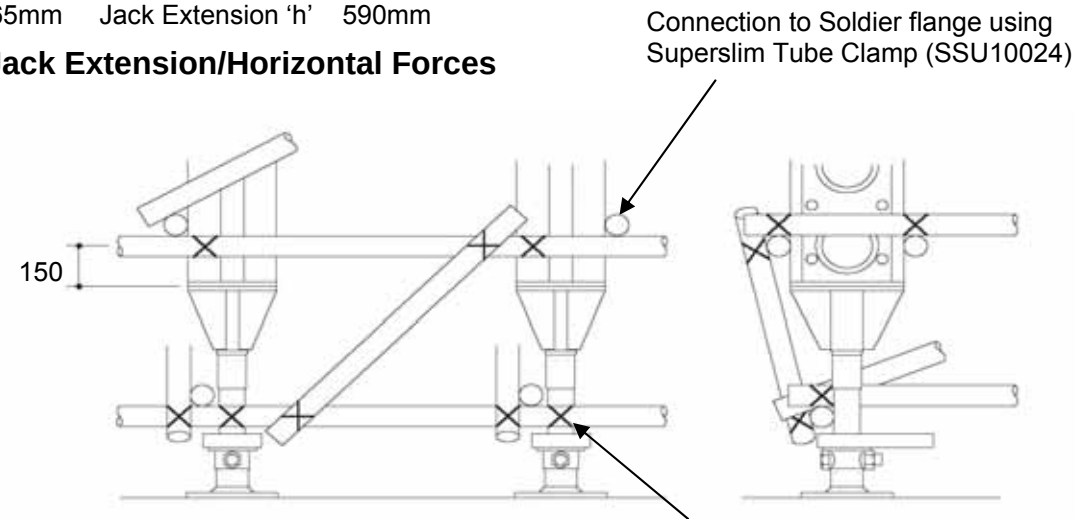


Table of Jack Extension/Horizontal Forces



Note! when jack bracing is required and Dim "h" = 435 - 515 for Base Jacks or 510 - 590 for Adj Rocking Heads, connections using 2"x2" 90Deg couplers (SFX10002) to Jack thread are required.
For dimensions less than these, 2"x2.3/8" 90deg couplers (SFX10004) should be connected to the jack stem.

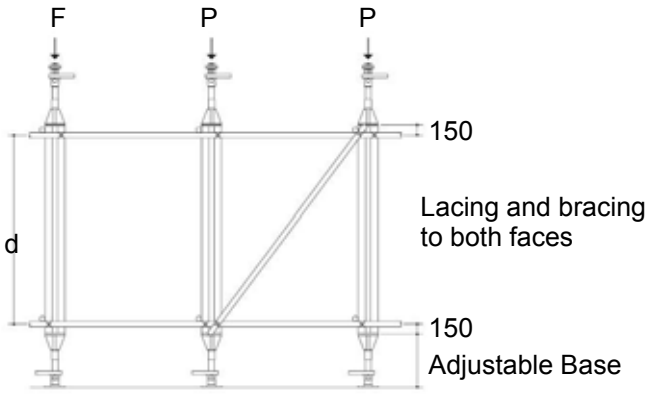


Typical Arrangement of Jack Bracing

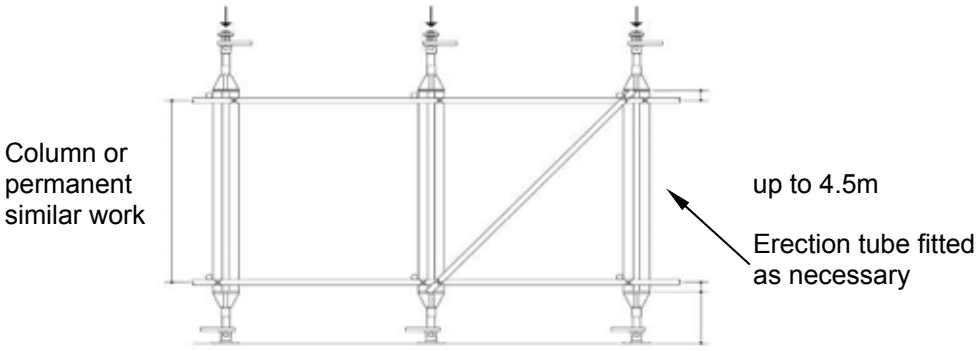
As shown above, the outermost horizontal tubes fixed to the Superslim shaft should be about 150mm in from the joint with the base/head.

2.1.5. Superslim Design for Falsework Structures

Superslim incorporated in a falsework structure will require design checks in accordance with BS 5975 for lateral and overall stability. Generally the falsework structure will be freestanding and bracing may be required for erection, lateral stability, overall stability or node point stability for the designed strut effective length. Fitting of bracing for one of these reasons will often satisfy the other bracing requirements. See below for a typical falsework arrangement incorporating Superslim.



The vertical dimension (d) between horizontal lacing when using scaffold tube, is a function of the following:-
(A) Effective strut length from section 1.1.6. or 1.1.7. or to give required working capacity.
(B) Adequacy of the couplers and tube lacing and bracing to safely transmit the restraint forces.
(C) Physical limitations on operatives fitting lacing and bracing.
(D) Sequence and method of erection.
Where the shores are used with existing stable structures, such as in backpropping, then the shores could be inserted without bracing as shown below. For heights of shore greater than 4.5m then bracing for strut node stabilisation may be needed if the applied load exceeds that stated for length of shore used.

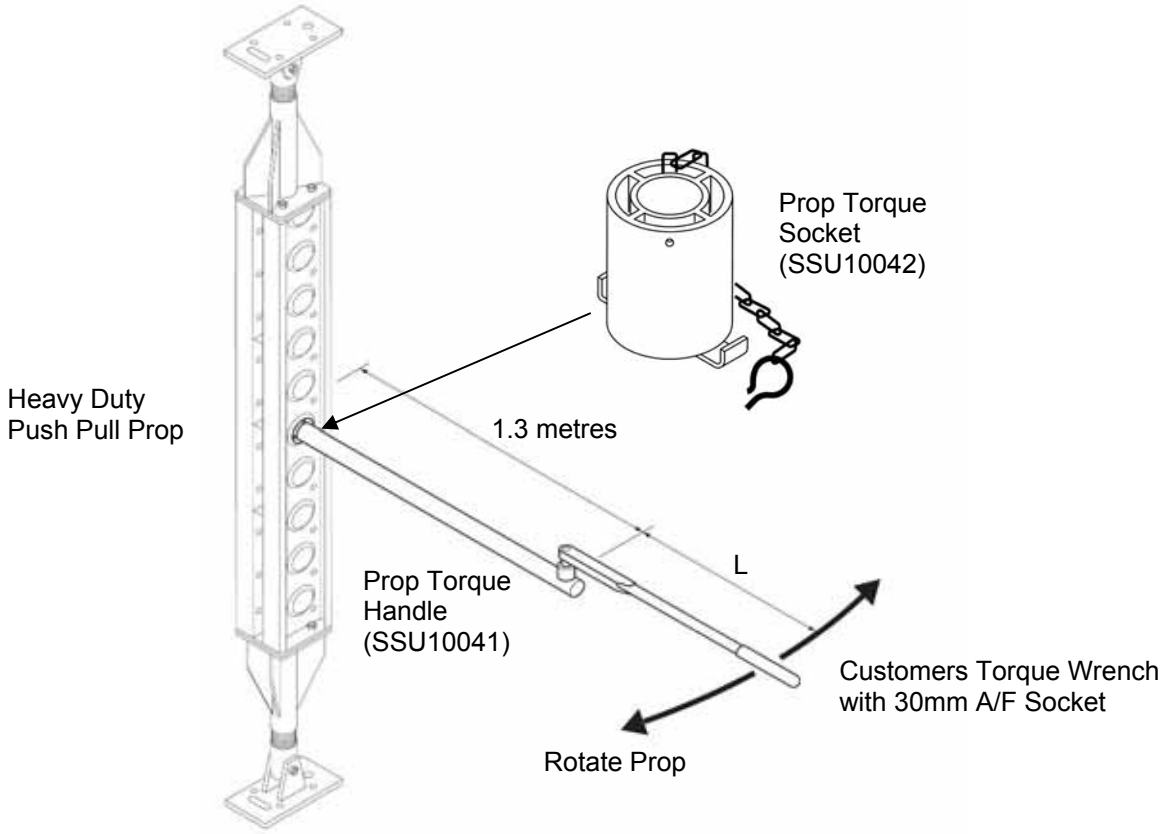


Assembly and Erection
The simplicity of the Superslim Prop with only a few parts makes assembly easy with only four M16 Set Pins per joint. It is suggested that on vertical shores the bolts are placed downwards with the nut underneath. The shores can be assembled on a flat clean surface and then lifted up to position using the lifting plate. Once in position some erection bracing will be necessary to ensure stability during final alignment and setting. If tube and fittings are used for bracing, the tube clamps can be prefitted to the soldier sections.
One alternative method of assembly is to erect the shores piece by piece. This method normally requires tube and fittings bracing, with the horizontal lacing fitted below joints between soldier sections. For ease of handling it is suggested that the longer lengths of soldier be at the bottom of the make-up. Some diagonal

2.2. Push Pull Props – Load Control

By application of a controlled torque to the Superslim body of a Heavy Duty Push Pull Prop, the load applied by the prop up to the full 100kN capacity can be applied or measured.

Alternatively the axial force in a loaded Push Pull Prop can be measured by determining the torque required to just tighten the prop (Note, further turning will increase the load).



Load in Push Pull Prop = W (kN)
Torque measured on Torque Wrench = Tw (Nm)
Torque applied to Push Pull Prop = Tp (Nm)

$Tp = 9W$

For applying prop load: $Tw = Tp \left(\frac{L}{1.3 + L} \right)$

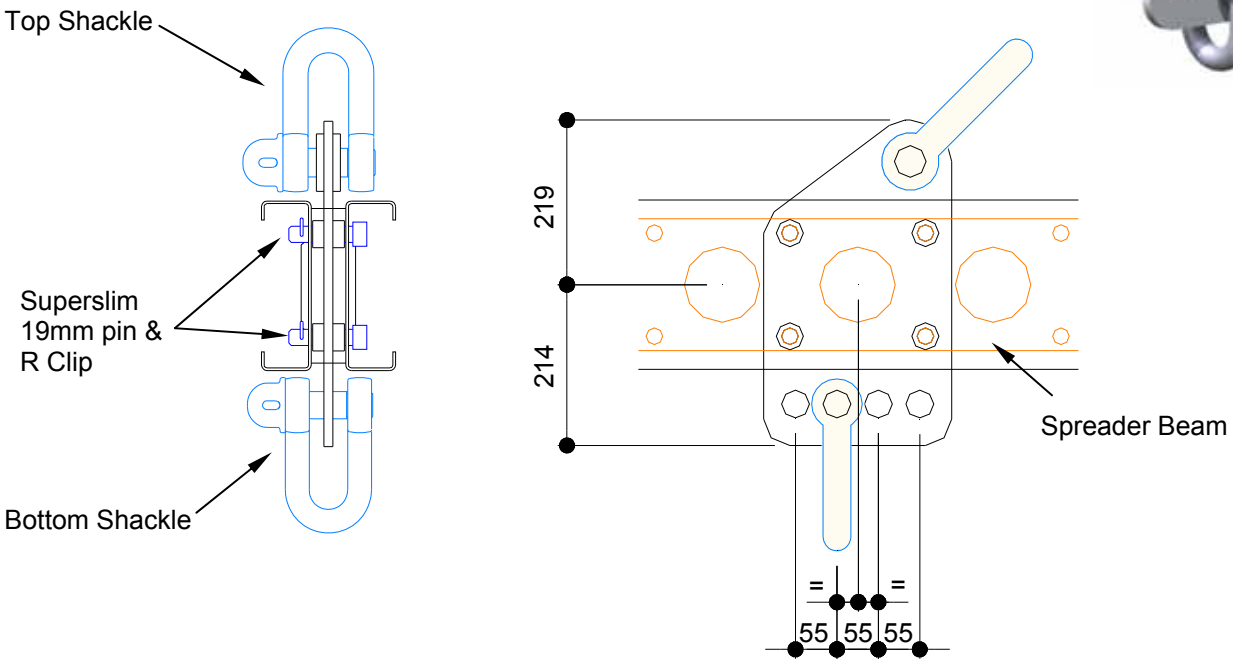
For measuring prop load: $Tp = Tw \left(\frac{1.3 + L}{L} \right)$

e.g. To apply prop load of 60kN you need to apply a torque to the prop of 540Nm. This can be achieved by applying a 0.7m long torque wrench set to 189Nm to the M20 nut on the Prop Torque Handle.

Note: Prop threads must be fully greased before use to ensure reasonable accuracy.

2.3.1. Lifting - Spreader Beam Adaptor Assembly (SSX10052) weight 9.35kg

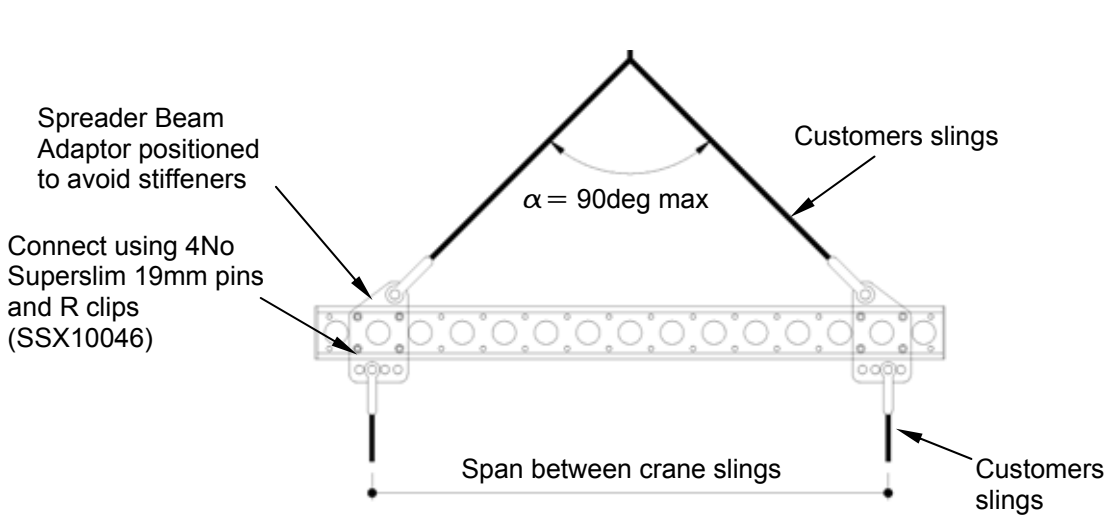
Used in pairs with a Superslim Soldier to make an economical spreader beam for lifting loads of up to 9 tonnes. Includes top and bottom shackles ready for connection to customers slings and lifting equipment.
Each Spreader Beam Adaptor Assembly comprises:- 1No Spreader Beam Adaptor, 4No Superslim 19mm pin & R Clip & 2No Shackles



Each spreader beam plate fits into the web of the Soldier and allows for 55mm adjustment in lifting length. The maximum dimension between lifting points on a unit is 3060mm when using a single 3600mm Soldier.

The spreader beam plate has been designed in accordance with The Construction (Lifting Operations) Regulations 1961. The plates are available on purchase only and each plate is Individually numbered and tested to twice working load and stamped.
A certificate of testing is available from RMD Kwikform on request.
A table of maximum lifted load related to the internal angle of the slings is given in the graph on page 2.3.2. The user will need to supply the correct two legged chains or slings.

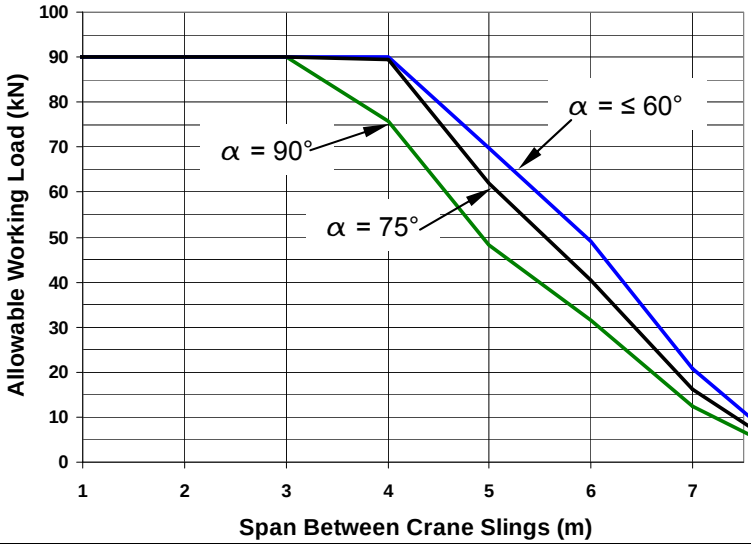
2.3.2. Lifting – Spreader Beams



- Use the Spreader Beam Adapter only in the orientation shown with the row of four holes positioned at the bottom of the unit.
- Ensure that the lower slings are vertical by moving the position of the unit along the Superslim, fine adjustment is afforded by moving the lower shackle between the four hole positions. Never use less than four 19mm pins and clips to connect the unit to the Superslim.
- Where Superslim sections are joined to make longer spreader beams, ensure that soldiers with seven hole end plates are used and connect sections together using 6M16x40 grade 8.8 set pins and nuts torqued to 120Nm. Never use more than three Superslims in the makeup.
- Do not use with damaged Superslim Soldiers

For further instructions on safe use refer to the Equipment Guidance Notes supplied with the equipment or available on request.

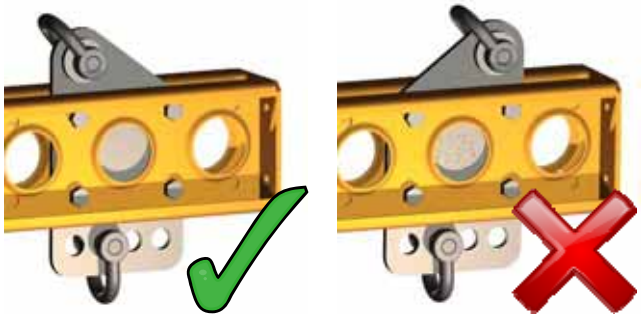
Spreader Beam Load Duty Chart
Minimum global factor of safety = 2.9.



Assembly Orientation

Ensure adaptor plates are orientated as shown below and check Superslim stiffener positions are avoided when detailing.

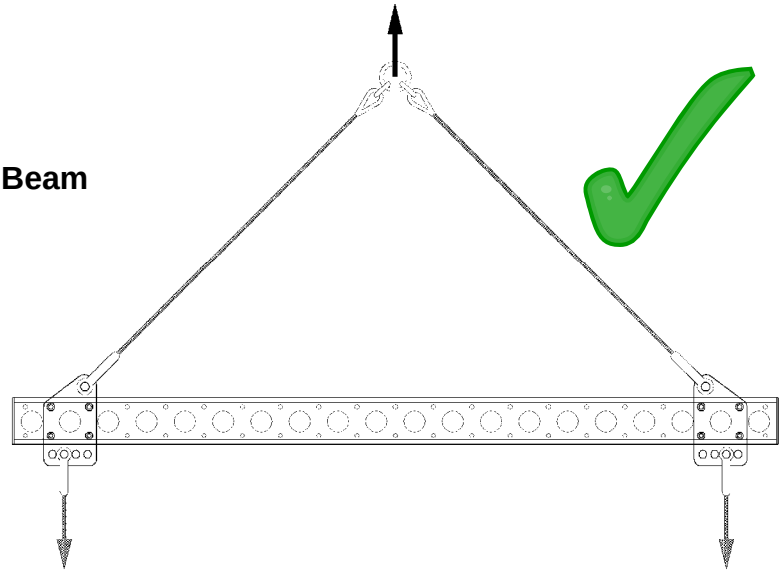
Note! The unit can not be used in 1800mm Superslims in the position detailed below.



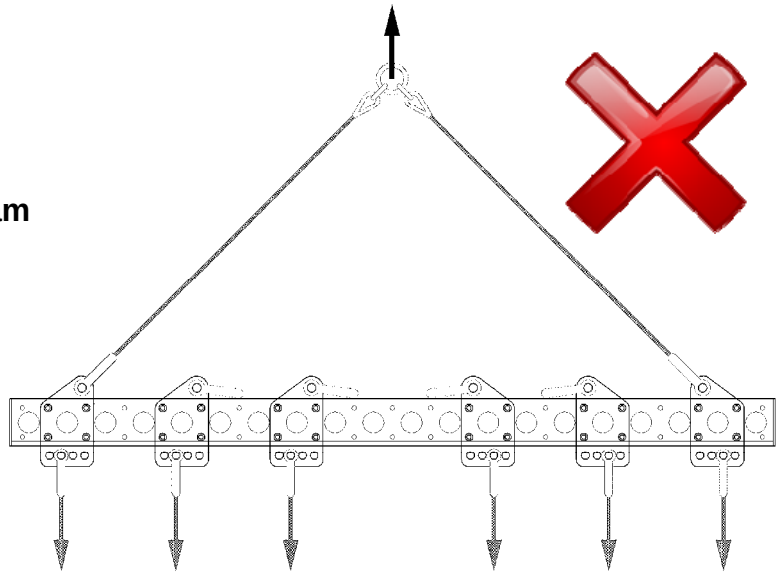
2.3.2. Lifting – Spreader Beams continued

Superslim Soldiers can be used as spreader beams by the addition of spreader beam plates and prop pivot tubes.
RMD Kwikform Superslim Soldiers cannot be used as lifting beams, unless the assembly is tested by an Independent lifting equipment test house. The difference is shown below.

Spreader Beam



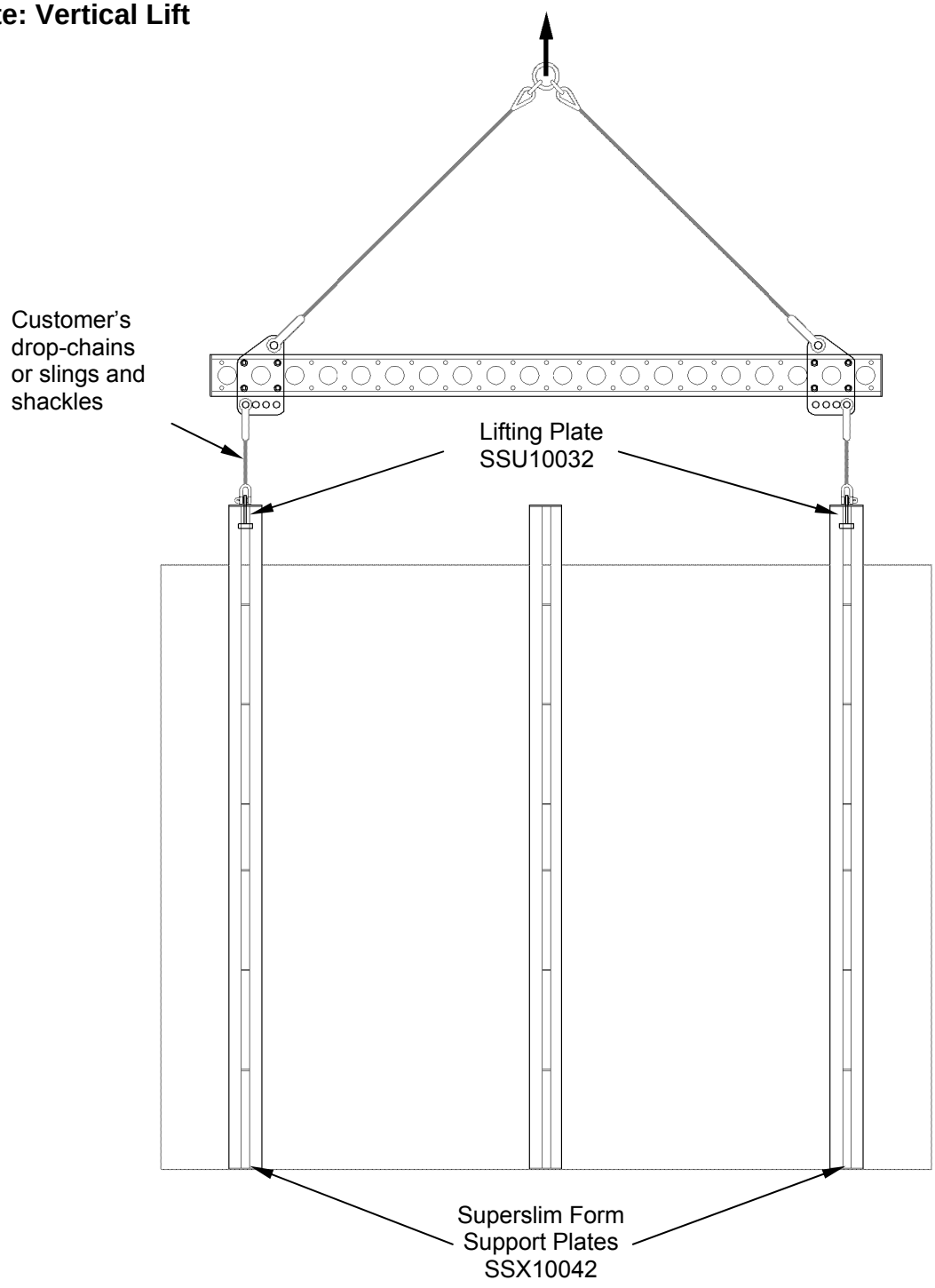
Lifting Beam



2.3.3. Lifting – Forms up to 3 Tonnes

The Superslim Spreader Beam Assembly is used in combination with a pair of Lifting Plates (SSU10032). Some equipment is required to be supplied by the customer.

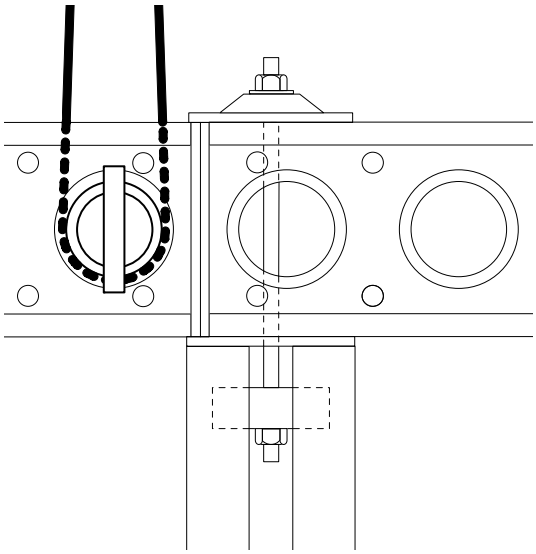
Note: Vertical Lift



2.3.4. Lifting – Forms up to 9 Tonnes

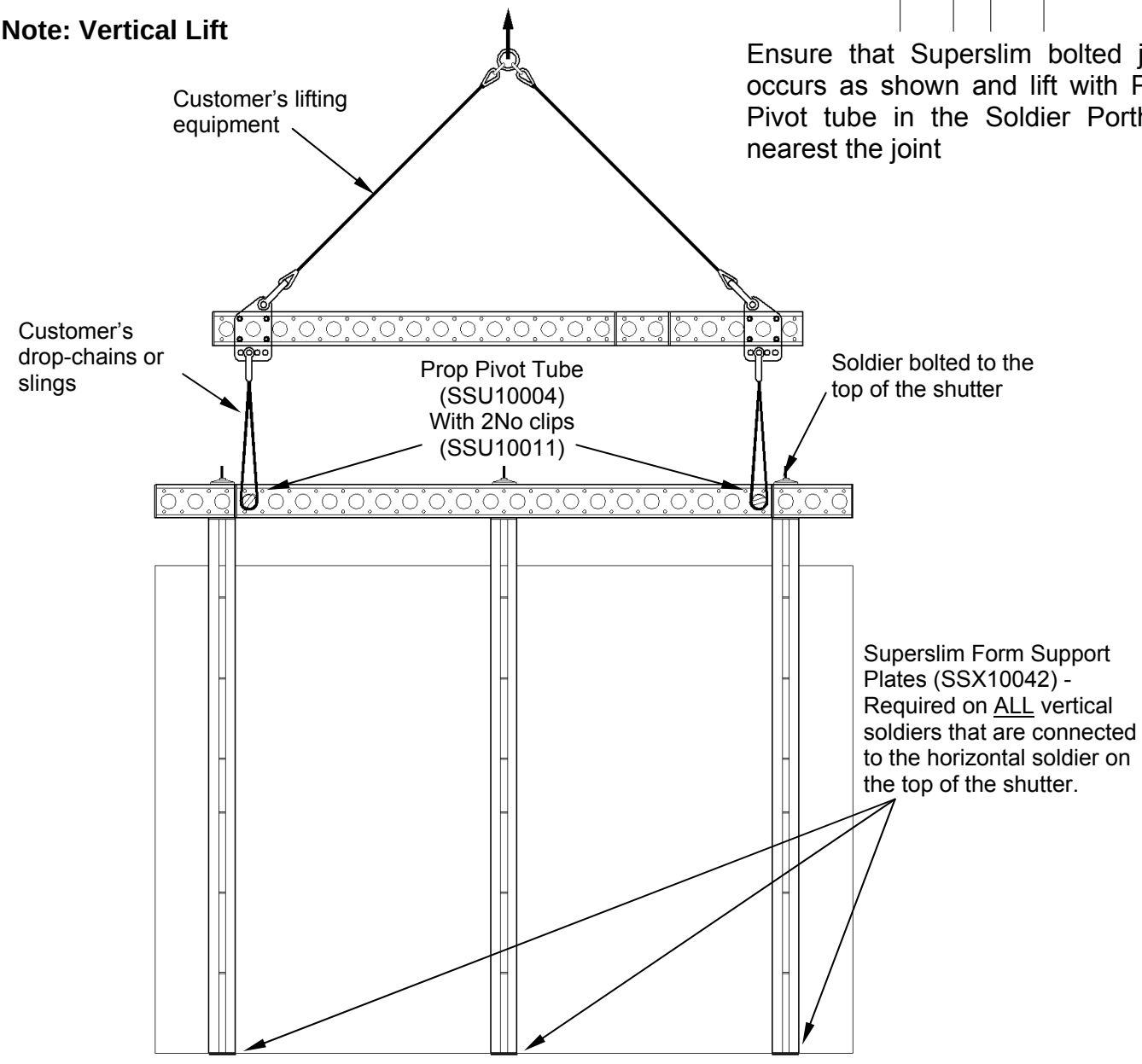
When bolting Soldiers to the top of shutters as shown below remember to check bending moments induced. Some equipment is required to be supplied by the customer.

Connect Superslims with M20 gr8.8 ATR 450mm long, 2 M20 nuts (BNU20001), M20 round washer(BNU20003). Porthole Bearing (SSX10039) and Standard Waler Plate (BTX10021)



Ensure that Superslim bolted joint occurs as shown and lift with Prop Pivot tube in the Soldier Porthole nearest the joint

Note: Vertical Lift



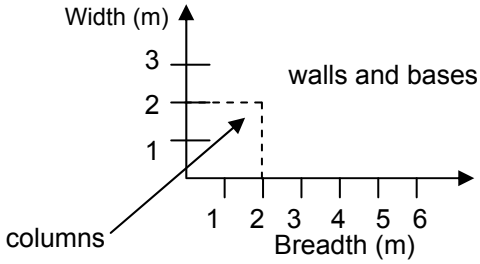
2.4.1. Formwork – Concrete Pressure Data

This data is applicable to concrete placed in normally vertical, parallel-sided formwork and to compaction by internal vibration. Pressures for conditions other than those described, are given in CIRIA Report 108. Lateral pressures are at their greatest when there is continuous vertical concrete placing with constant vibration. These conditions are only applicable to columns, and a separate table is provided. For simplicity, a column is defined as a section where both plan dimensions are less than 2m. Other sections are called walls and bases. These designations are shown alongside.

The chart below can be used for concrete containing combinations of cements and admixtures as specified in each table. Caution is required because admixtures are classified by function at a stipulated dosage. Overdosing may well change the effect of an admixture. For example, a multiple dose of a normal water reducer may result in retardation. In this circumstance the table referring to concrete with a retarder should be used.

A major change from existing practice is the recommendation that superplasticised concrete should be Included within the general grouping, and that it does not necessarily require design pressure equal to the fluid head.

OPC	ordinary Portland cement
LHPBFC	low heat Portland-blastfurnace cement
PBFC	Portland-blastfurnace cement
PPFAC	Portland pulverised-fuel ash cement
RHPC	rapid-hardening Portland cement
SRPC	sulphate-resisting Portland cement
ggbfs	ground granulated blastfurnace slag
pfa	pulverised-fuel ash



Design Pressures
*P*max (kN/m^2)

Walls and Bases
A wall or base is a section where at least one of the plan dimensions is greater than 2m

Columns
A column is a section where both plan dimensions are less than 2m

Concrete Group	Conc. Temp (°C)	Form Height (m)	Rate of rise (m/h) 0.5	1.0	1.5	2.0	3.0	5.0	10	Form height (m)	Rate of rise (m/h) 2	4	6	10	15
1) OPC, RHPC or SRPC without admixtures 2) OPC, RHPC or SRPC with any admixtures except a retarder	5	2	40	45	50	50	50	50	50	3	75	75	75	75	75
		3	50	55	60	65	70	75	75	4	85	100	100	100	100
		4	60	65	65	70	75	85	100	6	95	115	125	145	150
		6	70	75	80	80	90	100	115	10	115	135	145	170	190
		10	85	90	95	100	105	115	135	15	130	150	165	190	210
	10	2	35	40	45	45	50	50	50	3	65	75	75	75	75
		3	40	45	50	55	60	70	75	4	75	90	100	100	100
		4	45	50	55	60	65	75	90	6	80	100	115	130	150
		6	50	55	60	65	75	85	105	10	95	115	130	150	175
		10	60	70	75	80	85	95	115	15	105	125	140	165	190
	15	2	30	35	40	45	50	50	50	3	60	75	75	75	75
		3	35	40	45	50	55	65	75	4	65	85	95	100	100
		4	35	45	50	50	60	70	90	6	75	90	105	130	150
		6	40	50	55	60	65	75	95	10	80	100	115	140	215
		10	50	55	60	65	75	85	105	15	90	110	125	150	245
3) OPC, RHPC or SRPC with a retarder 4) LHPBFC, PBFC, PPFAC or a blend containing less than 70% ggbfs or 40% pfa without admixtures 5) LHPBFC, PBFC, PPFAC or a blend containing less than 70% ggbfs or 40% pfa with any admixture except retarder	5	2	50	50	50	50	50	50	50	3	75	75	75	75	75
		3	65	70	75	75	75	75	75	4	100	100	100	100	100
		4	75	80	85	90	95	100	100	6	120	130	140	150	150
		6	95	100	105	105	110	110	135	10	145	160	175	195	215
		10	120	125	130	130	140	150	165	15	170	190	205	225	245
	10	2	40	45	50	50	50	50	50	3	75	75	75	75	75
		3	50	55	60	65	70	75	75	4	85	95	100	100	100
		4	60	60	65	70	75	85	100	6	95	110	125	145	150
		6	70	75	80	80	90	100	115	10	115	130	145	170	190
		10	85	90	95	100	105	115	135	15	130	150	165	190	210
	15	2	35	40	45	45	50	50	50	3	65	75	75	75	75
		3	40	45	50	55	60	70	75	4	75	90	100	100	100
		4	45	50	55	60	65	75	90	6	80	100	115	135	150
		6	50	60	65	65	75	85	105	10	95	115	130	155	175
		10	65	70	75	80	85	100	120	15	105	125	140	165	190

- The max pressures are in units of kN/m2 to the nearest 5 kN/m2. They were calculated assuming a concrete weight density of 25 kN/m3. Pressures for lightweight or heavy weight concretes should be calculated in proportion to their densities.
- The pressures not in bold are outside recorded experience.
  The highest recorded pressures on site were 90 kN/m2 for walls and 166 kN/m2 for columns.
- The tables do not include the use of concretes which contain a retarder in combination with LHPBFC, PBFC, PPFAC or any cement blend. Guidance on these combinations is given in CIRIA Report 108.
- The tables do not apply to self-compacting concrete – refer to RMD Kwikform Technical Office.

2.4.2. Formwork – Applications with Timber Walings

The illustrations on the following page for case numbers 1 to 7, show combinations of Superslim Soldiers for different heights of formwork for use with customer's own walings. The table at the bottom of each arrangement gives the maximum horizontal spacing of the Soldier when using RMDK Rapid Bar Ties and Concrete Design Pressure. The safe working load of the Rapid Tie is limited to 90kN when used with the HD Waler Plates on Superslim Soldiers, but can be increased to 143kN if used with the Hi-load Waler Plate. More details on Tie Rods is given in RMD Kwikform Formwork Tie Systems literature. The Tie Rod vertical spacing has been calculated to give the most economical use for the Soldier and Tie Rod. It is possible to vary the vertical position of the Tie Rods, for example to suit features of the wall, and your nearest RMD Kwikform Regional Technical Office would be pleased to analyse your proposals using the RMD Kwikform computer program for Superslim Soldiers.

To assist the designer in the selection of the face material and the choice of timber waling, table WT1 lists the allowable span of several common basic timber section sizes. In compiling the table it has been assumed that softwood constructional timber of Strength Class SC4 will be used and the more conservative size assumed as planed all round. The structural properties are taken from Table 6 of "Formwork A Guide to Good Practice" published by the Concrete Society. In compiling table WT1, it has also been assumed that the waling is continuous over four Soldiers (i.e. Three spans) and that there is a one third of the span cantilever at each end (Appendix B – Part 2 Loading Case 37 from Formwork Guide). The limiting criteria for Shear Load on the timber waling is calculated assuming the width of support at a Soldier is 125mm. The bending moment criteria are calculated using the centre to centre span of the waling from Soldier to Soldier.

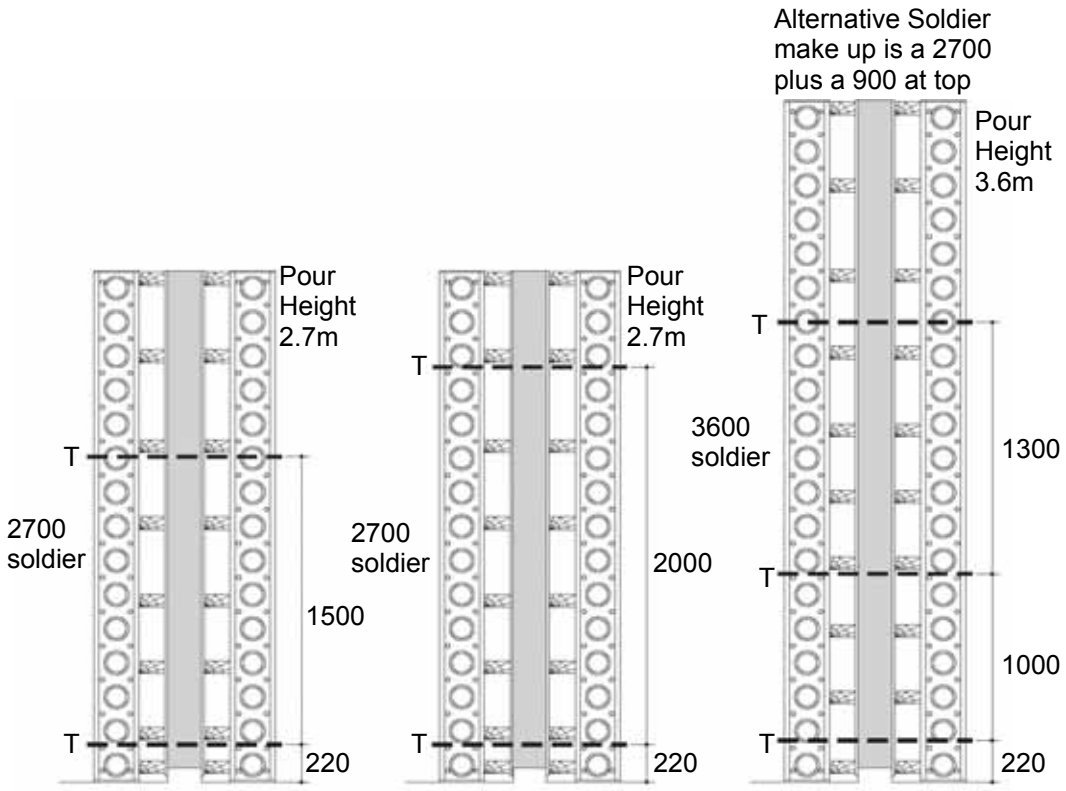
The weight of a form made up using timber walings, 19mm plywood and Superslim Soldiers is approximately 65kgs per square metre of face. The centres of the Soldiers and the spacing of the walings will affect the weight and care should be taken in using this approximation.

To use the information given below, firstly choose the design concrete pressure. Knowing the height of wall and likely number of Tie Rods, select the appropriate case from 1 to 7. Having selected the Permissible centres of the Soldiers now check the timber waling permissable spans using table WT1 below.

Table WT1

Table of Permissible spans of SC4 Continuous Walings					
Concrete Pressure (kN/m2)	Face Contact Material Span (mm)	Basic sizes			
		50 x 100	75 x 100	50 x 150	75 x 150
40	348	795	1040	1135	1515
40	305	895	1110	1275	1620
50	348	665	930	930	1355
50	305	740	990	1045	1450
50	271	815	1050	1160	1535
60	305	635	905	890	1300
60	271	705	960	985	1400
60	244	765	1010	1085	1590
70	271	620	885	865	1255
70	244	675	930	945	1365
70	222	730	980	1025	1435
80	271	555	790	770	1115
80	244	605	865	840	1225
80	222	655	920	915	1335

SUPERSLIM SOLDIERS



Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	2200
60	2180
70	2180
	Permissible spacing (mm) on plan of Superslim Soldiers

Case Study 1

Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1840
60	1750
70	1750
	Permissible spacing (mm) on plan of Superslim Soldiers

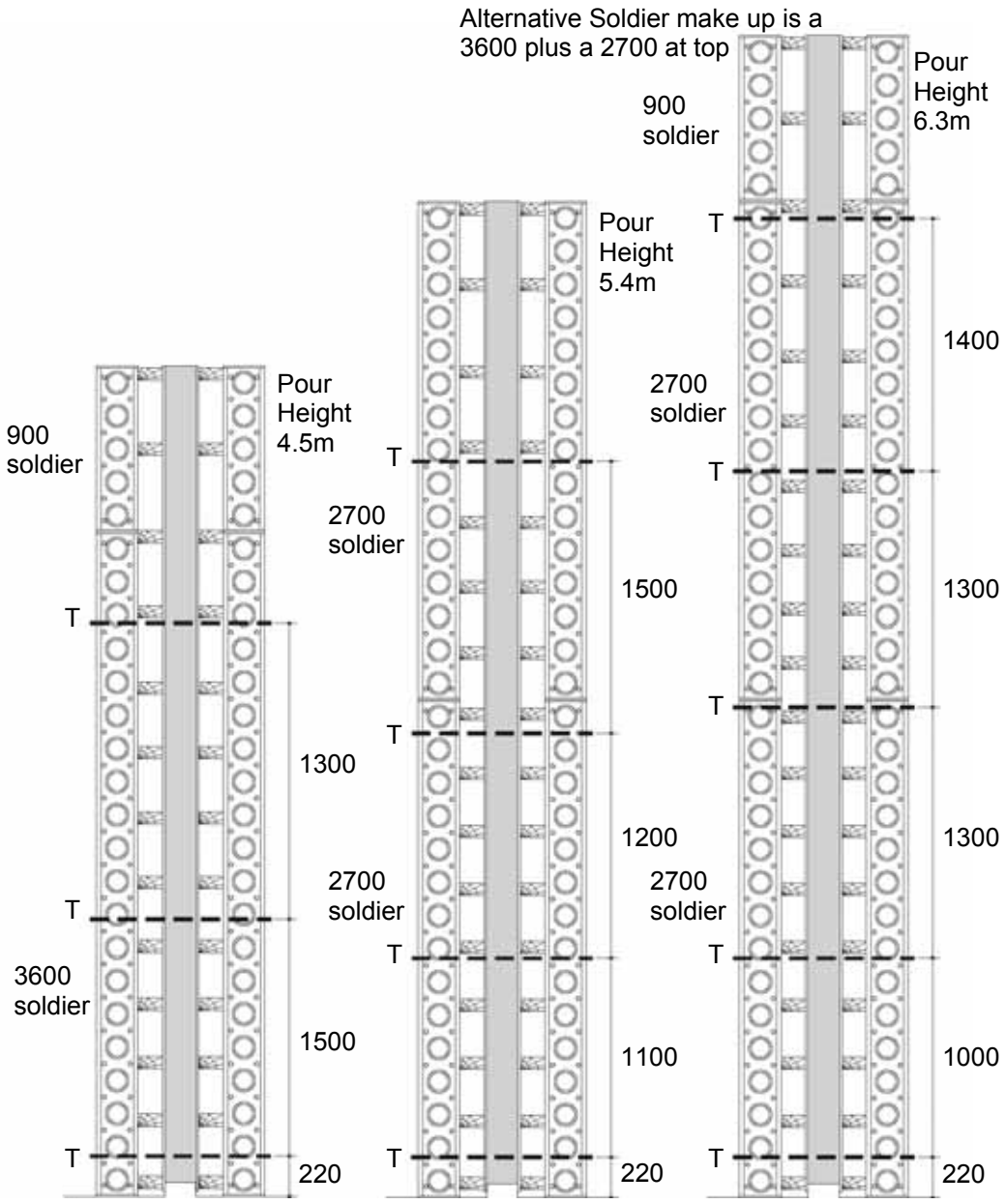
Case Study 2

Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1490
60	1350
70	1310
80	1300
	Permissible spacing (mm) on plan of Superslim Soldiers

Case Study 3

Note! The permissible soldier spacings shown here may be limited by the timber walings used

SUPERSLIM SOLDIERS



Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1220
60	1030
70	930
80	880
100	860
	Permissible spacing (mm) on plan of Superslim Soldiers

Case Study 4

Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1320
60	1130
70	1020
80	890
100	760
	Permissible spacing (mm) on plan of Superslim Soldiers

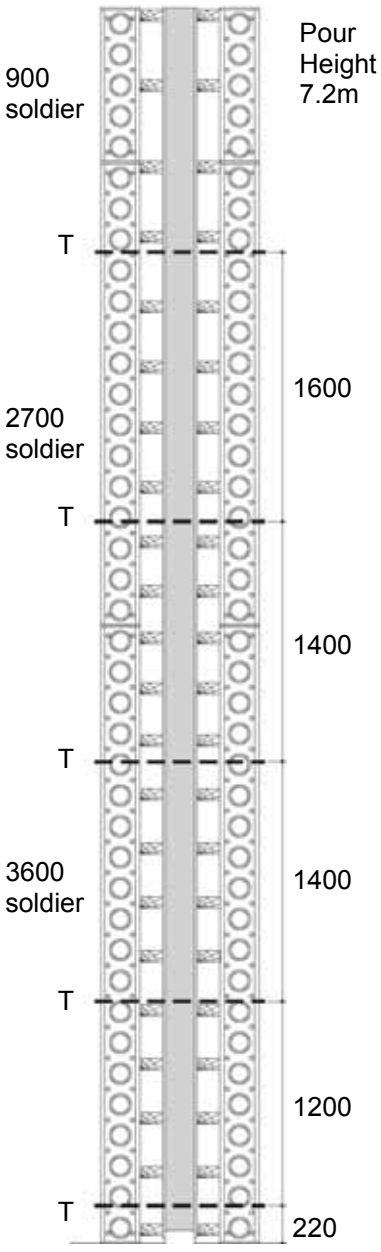
Case Study 5

Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1310
60	1090
70	930
80	830
100	700
	Permissible spacing (mm) on plan of Superslim Soldiers

Case Study 6

Note! The permissible soldier spacings shown here may be limited by the timber walings used

SUPERSLIM SOLDIERS



Concrete Pressure KN/m2	15mm Rapid Bar Tie.
50	1180
60	1000
70	880
80	710
100	620
	Permissible spacing (mm) on plan of Superslim Soldiers

Case Study 7

Note! The permissible soldier spacings shown here may be limited by the timber walings used

SUPERSLIM SOLDIERS

2.4.3. Formwork – Applications with Alform Walings

The RMD Kwikform Alform walings combines high strength with low weight and in conjunction with Superslim Soldiers and RMD tie rods gives an inexpensive forming system for use with customers own Selection of face contact material.
The Superslim Soldiers are spaced generally at 1800mm centres MAX and tie rod centres are optimised to suit the anticipated concrete pressure.
When assembling formwork with Alform walings it is recommended that some protection be given to the top walings to avoid build-up of concrete spillage when pouring. Preferably the top waling is a 150mm deep timber waling or a 150mm strip of plywood laid on top of the uppermost Alform beam. When made up an assembly of Alform formwork with Superslim Soldiers and 19mm plywood weighs approximately 53 kilogram's per square metre per face of formwork. A range of accessories is available to complement the Alform beam, such as Splice Plates, Corner details, Lok Clamps etc. and these are shown in separate data sheets.
The lengths of Alform beam available are shown below:

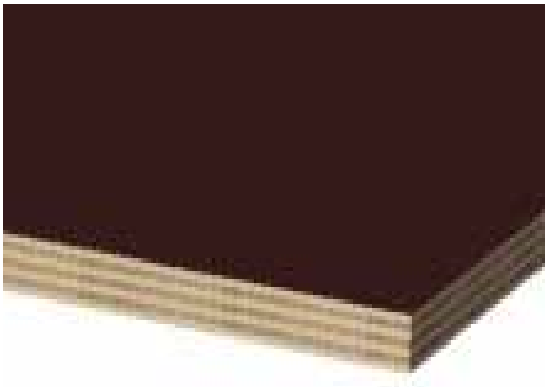
Code	Description	Weight
AFX17200	Alform Beam 7200mm	37.36 kg
AFX16000	Alform Beam 6000mm	31.13 kg
AFX14800	Alform Beam 4800mm	24.90 kg
AFX13600	Alform Beam 3600mm	18.67 kg
AFX12700	Alform Beam 2700mm	14.00 kg
AFX12400	Alform Beam 2400mm	12.44 kg
AFX12100	Alform Beam 2100mm	10.88 kg
AFX11800	Alform Beam 1800mm	9.32 kg
AFX11500	Alform Beam 1500mm	7.77 kg
AFX11200	Alform Beam 1200mm	6.21 kg
AFX20009	Alform Lok Clamp	1.67 kg

RMD Kwikform Plywood

RMD Kwikform Plywood is manufactured from high quality pine veneers bonded together with a cross banded construction with phenolic resin. Sheets are supplied with the face grain parallel to the long edge of the board.

Maximum Alform beam centres are shown below. Please note that data is valid for applications with the face grain perpendicular to the support beams for 3 or more spans and with deflection limited to span/270.

Alform beam centres/mm	Maximum concrete pressure kN/m^2
407	41
349	59
305	73
271	85
244	99
222	115
203	132



2.4.4. Formwork – Single Faced and Cantilever

When formwork is used on single face applications or where through tie rods are not permitted in the permanent works, the method of restraint of the Formwork requires careful examination for each application. Generally on pours up to about 2.7 metres High a solution is to use inclined props as shown in Fig WS1. The arrangement will require vertical restraint for the uplift forces and a suitable anchorage into the base slab. One solution is to use Anchor Plates SSU10036 at the base of each soldier with prop bolts fixed into the base to resist the loads due to both horizontal concrete pressure and uplift. For single sided applications over 2.7 metres the RMD Kwikform Ultraframe system may be used, refer to separate data sheets. In all applications of single face formwork the concrete pressure should be kept to a minimum.

The use of Soldiers as backing members to cantilever construction in single face, such as on climbing formwork requires particular care. A typical example is shown at figure WS2. The limiting condition is the tip deflection of the Soldier and the arrangements shown below limit the deflection to 5mm. The pour height Is limited to approximately 1.5 metres. It is possible to preset the top inwards by using the Soldier Jacks. It is recommended that the length of 'tail' of the Soldier is similar to that of the pour height. For longer lengths of vertical Cantilever refer to an RMD Kwikform Technical Office.

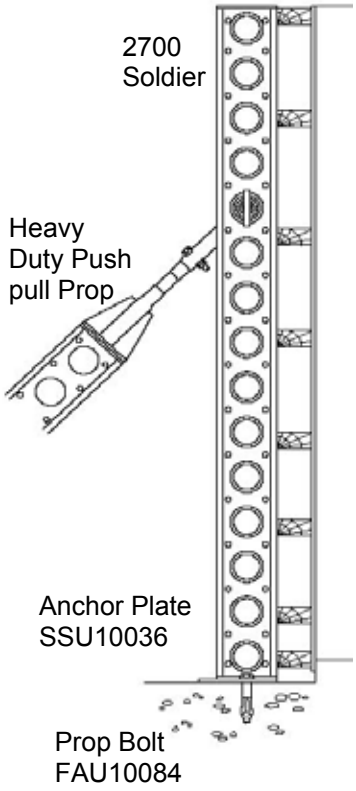


Fig. WS1 Single Faced wall upto 2.7m high

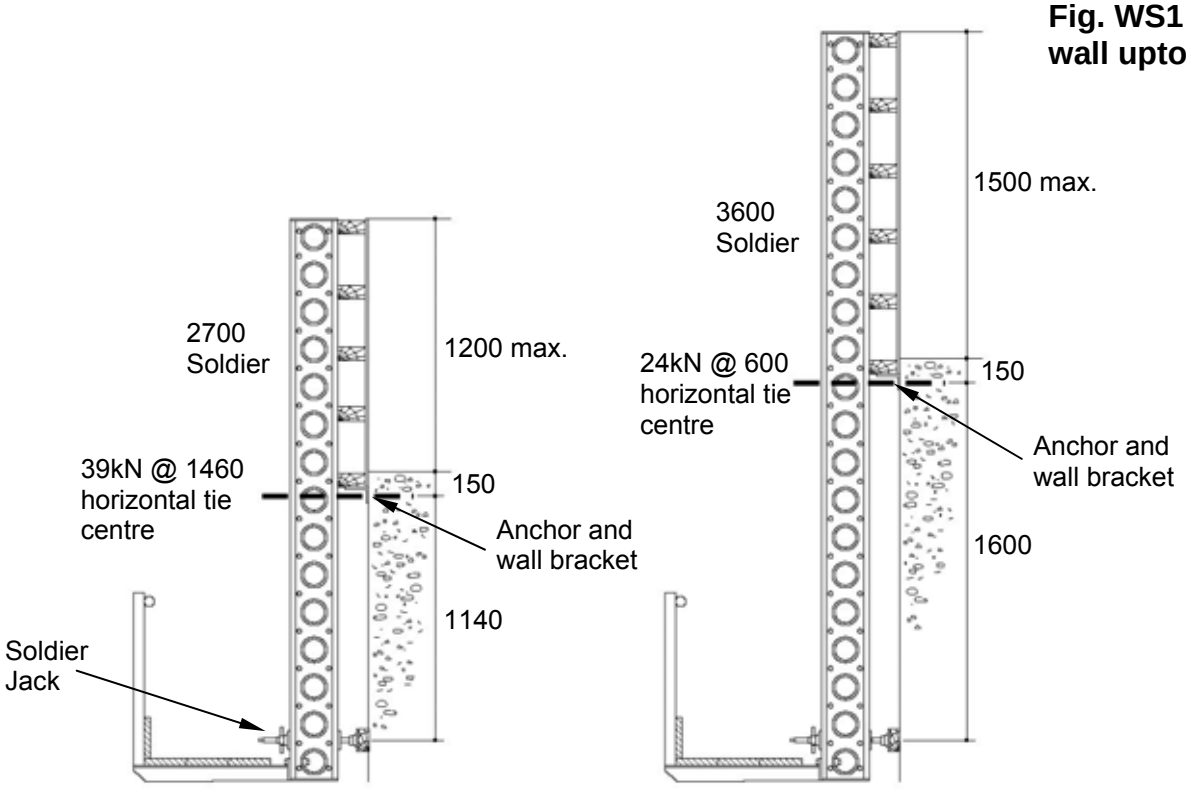


Fig. WS2 Single Faced Climbing form

3.1. Table P1 – Component make up for Push Pull Props with one Spade End and one Tilt Plate

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10004	SSU 10012	SSU 10007	SSU 10008	SSU 10034	BNX 24002	BNU 16007	BNU 16001	
			Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Prop Pivot Tube	Spd End Link	Prop Jack (LH)	Jack Prop (RH)	Tilt Plate	M24 X 110 Bolt & Nut	M16 X 40 Set Pin	M16 Hex Nut	Weight kg
	Min.	Max.																
1	1230	1690	-	-	-	-	-	-	-	1	1	1	1	1	2	4	4	40
2	1410	1870	2	-	-	-	-	-	-	1	1	1	1	1	2	12	12	56
3	1770	2230	-	1	-	-	-	-	-	1	1	1	1	1	2	8	8	56
4	2130	2590	-	-	-	1	-	-	-	1	1	1	1	1	2	8	8	63
5	2490	2950	-	1	1	-	-	-	-	1	1	1	1	1	2	12	12	75
6	2850	3310	-	-	1	1	-	-	-	1	1	1	1	1	2	12	12	82
7	3030	3490	-	-	-	-	1	-	-	1	1	1	1	1	2	8	8	80
8	3390	3850	-	1	1	1	-	-	-	1	1	1	1	1	2	16	16	98
9	3750	4210	-	-	1	-	1	-	-	1	1	1	1	1	2	12	12	99
10	3930	4390	-	-	-	-	-	1	-	1	1	1	1	1	2	8	8	96
11	4290	4750	-	1	1	-	1	-	-	1	1	1	1	1	2	16	16	114
12	4650	5110	-	-	1	-	-	1	-	1	1	1	1	1	2	12	12	115
13	5010	5470	2	-	-	-	-	-	1	1	1	1	1	1	2	16	16	128
14	5370	5830	-	1	-	-	-	-	1	1	1	1	1	1	2	12	12	129
15	5730	6190	-	-	-	1	-	-	1	1	1	1	1	1	2	12	12	135
16	6090	6550	-	1	1	-	-	-	1	1	1	1	1	1	2	16	16	148
17	6450	6910	-	-	1	1	-	-	1	1	1	1	1	1	2	16	16	155
18	6810	7270	-	1	2	-	-	-	1	1	1	1	1	1	2	20	20	167
19	7170	7630	-	-	2	1	-	-	1	1	1	1	1	1	2	20	20	174
20	7530	7990	-	-	-	-	-	1	1	1	1	1	1	1	2	12	12	169
21	7890	8350	-	1	1	-	1	-	1	1	1	1	1	1	2	20	20	187
22	8250	8710	-	-	1	-	-	1	1	1	1	1	1	1	2	16	16	188
23	8430	8890	-	-	-	-	-	-	2	1	1	1	1	1	2	12	12	185
24	8790	9250	-	1	1	-	-	1	1	1	1	1	1	1	2	20	20	204
25	9150	9610	-	-	1	-	-	-	2	1	1	1	1	1	2	16	16	205

3.2. Table P2 – Component make up for Push Pull Props with a Tilt Plate at both ends

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10004	SSU 10012	SSU 10007	SSU 10008	SSU 10034	BNX 24002	BNU 16007	BNU 16001	
			Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Prop Pivot Tube	Spd End Link	Prop Jack (LH)	Jack Prop (RH)	Tilt Plate	M24 X 110 Bolt & Nut	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
1	Min.	Max.	-	-	-	-	-	-	-	-	-	1	1	2	2	4	4	40
2	1114	1574	2	-	-	-	-	-	-	-	-	1	1	2	2	12	12	56
3	1474	1934	-	1	-	-	-	-	-	-	-	1	1	2	2	8	8	56
4	1834	2294	-	-	-	1	-	-	-	-	-	1	1	2	2	8	8	63
5	2194	2654	-	1	1	-	-	-	-	-	-	1	1	2	2	12	12	75
6	2554	3014	-	-	1	1	-	-	-	-	-	1	1	2	2	12	12	82
7	2734	3194	-	-	-	-	1	-	-	-	-	1	1	2	2	8	8	79
8	3094	3554	-	1	1	1	-	-	-	-	-	1	1	2	2	16	16	97
9	3454	3914	-	-	1	-	1	-	-	-	-	1	1	2	2	12	12	99
10	3634	4094	-	-	-	-	-	1	-	-	-	1	1	2	2	8	8	96
11	3994	4454	-	1	1	-	1	-	-	-	-	1	1	2	2	16	16	114
12	4354	4814	-	-	1	-	-	1	-	-	-	1	1	2	2	12	12	115
13	4714	5174	2	-	-	-	-	-	1	-	-	1	1	2	2	16	16	128
14	5074	5534	-	1	-	-	-	-	1	-	-	1	1	2	2	12	12	128
15	5434	5894	-	-	-	1	-	-	1	-	-	1	1	2	2	12	12	135
16	5794	6254	-	1	1	-	-	-	1	-	-	1	1	2	2	16	16	148
17	6154	6614	-	-	1	1	-	-	1	-	-	1	1	2	2	16	16	154
18	6514	6974	-	1	2	-	-	-	1	-	-	1	1	2	2	20	20	167
19	6874	7334	-	-	2	1	-	-	1	-	-	1	1	2	2	20	20	152
20	7234	7694	-	-	-	-	-	1	1	-	-	1	1	2	2	12	12	169
21	7594	8054	-	1	1	-	1	-	1	-	-	1	1	2	2	20	20	187
22	7954	8414	-	-	1	-	-	1	1	-	-	1	1	2	2	16	16	188
23	8134	8594	-	-	-	-	-	-	2	-	-	1	1	2	2	12	12	185
24	8494	8954	-	1	1	-	-	1	1	-	-	1	1	2	2	20	20	204
25	8854	9314	-	-	1	-	-	-	2	-	-	1	1	2	2	16	16	205

3.3. Table P3 – Component make up for Push Pull Props with a Spade End at both ends

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10004	SSU 10012	SSU 10007	SSU 10008	SSU 10034	BNX 24002	BNU 16007	BNU 16001	
	Min.	Max.	Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Prop Pivot Tube	Spd End Link	Prop Jack (LH)	Jack Prop (RH)	Tilt Plate	M24 X 110 Bolt & Nut	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
1	1526	1986	-	-	-	-	-	-	-	2	2	1	1	-	2	4	4	30
2	1706	2166	2	-	-	-	-	-	-	2	2	1	1	-	2	12	12	56
3	2066	2526	-	1	-	-	-	-	-	2	2	1	1	-	2	8	8	56
4	2426	2886	-	-	-	1	-	-	-	2	2	1	1	-	2	8	8	63
5	2786	3246	-	1	1	-	-	-	-	2	2	1	1	-	2	12	12	75
6	3146	3606	-	-	1	1	-	-	-	2	2	1	1	-	2	12	12	82
7	3326	3786	-	-	-	-	1	-	-	2	2	1	1	-	2	8	8	79
8	3686	4146	-	1	1	1	-	-	-	2	2	1	1	-	2	16	16	98
9	4046	4506	-	-	1	-	1	-	-	2	2	1	1	-	2	12	12	99
10	4226	4686	-	-	-	-	-	1	-	2	2	1	1	-	2	8	8	96
11	4586	5046	-	1	1	-	1	-	-	2	2	1	1	-	2	16	16	114
12	4946	5406	-	-	1	-	-	1	-	2	2	1	1	-	2	12	12	115
13	5306	5766	2	-	-	-	-	-	1	2	2	1	1	-	2	16	16	128
14	5666	6126	-	1	-	-	-	-	1	2	2	1	1	-	2	12	12	129
15	6026	6486	-	-	-	1	-	-	1	2	2	1	1	-	2	12	12	135
16	6386	6846	-	1	1	-	-	-	1	2	2	1	1	-	2	16	16	148
17	6746	7206	-	-	1	1	-	-	1	2	2	1	1	-	2	16	16	155
18	7106	7566	-	1	2	-	-	-	1	2	2	1	1	-	2	20	20	167
19	7466	7926	-	-	2	1	-	-	1	2	2	1	1	-	2	20	20	152
20	7826	8286	-	-	-	-	-	1	1	2	2	1	1	-	2	12	12	169
21	8186	8646	-	1	1	-	1	-	1	2	2	1	1	-	2	20	20	187
22	8546	9006	-	-	1	-	-	1	1	2	2	1	1	-	2	16	16	188
23	8726	9186	-	-	-	-	-	-	2	2	2	1	1	-	2	12	12	186
24	9086	9546	-	1	1	-	-	1	1	2	2	1	1	-	2	20	20	204
25	9446	9906	-	-	1	-	-	-	2	2	2	1	1	-	2	16	16	205

3.4. Table S1 – Component make up for Slimshor Prop with an Adjustable Head and an Adjustable Base

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10025	SSU 10026	BNU 16007	BNU 16001	
			Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Adj Base Assy	Adj Rock-ing Head Assy	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
	Min.	Max.												
1	805	1105	-	-	-	-	-	-	-	1	1	4	4	39.5
2	1075	1375	3	-	-	-	-	-	-	1	1	16	16	62.9
3	1345	1645	-	1	-	-	-	-	-	1	1	8	8	55.2
4	1525	1825	-	-	1	-	-	-	-	1	1	8	8	58.7
5	1705	2005	-	-	-	1	-	-	-	1	1	8	8	61.9
6	1795	2095	1	-	-	1	-	-	-	1	1	12	12	69.7
7	2065	2365	-	1	1	-	-	-	-	1	1	12	12	74.4
8	2245	2545	-	-	2	-	-	-	-	1	1	12	12	77.9
9	2425	2725	-	-	1	1	-	-	-	1	1	12	12	81.2
10	2605	2905	-	-	-	2	-	-	-	1	1	12	12	78.7
11	2785	3085	-	2	-	1	-	-	-	1	1	16	16	93.4
12	2965	3265	-	-	3	-	-	-	-	1	1	16	16	97.1
13	3145	3445	-	-	2	1	-	-	-	1	1	16	16	100.4
14	3325	3625	-	-	1	2	-	-	-	1	1	16	16	98.0
15	3505	3805	-	-	-	-	-	1	-	1	1	8	8	95.3
16	3685	3985	-	-	4	-	-	-	-	1	1	20	20	116.3
17	3865	4165	-	-	3	1	-	-	-	1	1	20	20	119.6
18	4045	4345	-	1	-	-	-	1	-	1	1	12	12	111.0
19	4225	4525	-	-	1	-	-	1	-	1	1	12	12	114.4
20	4405	4705	-	-	-	-	-	-	1	1	1	8	8	112.1
21	4585	4885	-	2	-	-	-	1	-	1	1	16	16	126.8
22	4765	5065	-	1	1	-	-	1	-	1	1	16	16	130.3
23	4945	5245	-	1	-	-	-	-	1	1	1	12	12	127.8
24	5125	5425	-	-	1	-	-	-	1	1	1	12	12	131.3
25	5305	5605	-	-	-	1	-	-	1	1	1	12	12	134.6
26	5485	5785	-	2	-	-	-	-	1	1	1	16	16	143.6
27	5665	5965	-	1	1	-	-	-	1	1	1	16	16	147.1
28	5845	6145	-	-	2	-	-	-	1	1	1	16	16	150.6
29	6025	6325	-	-	1	1	-	-	1	1	1	16	16	153.8
30	6205	6505	-	-	-	-	-	2	-	1	1	12	12	151.2
31	6385	6685	-	1	2	-	-	-	1	1	1	20	20	166.3
32	6565	6865	-	1	1	1	-	-	1	1	1	20	20	169.5
33	6745	7045	-	1	-	-	-	2	-	1	1	16	16	166.9

3.5.1. Table S2 – Component make up with a Slimshor Prop an Adjustable Base and a Fixed Rocking Head

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10025	SSU 10023	BNX 10005	SSU 10029	BNU 16007	BNU 16001	
	Min.	Max.	Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Adj Base Assy	Rock-ing Head	M10x 20 Set Pin	Rock-ing Head Washer	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
1	491	641	1	-	-	-	-	-	-	1	1	1	1	8	8	32.0
2	581	731	2	-	-	-	-	-	-	1	1	1	1	12	12	39.8
3	671	821	3	-	-	-	-	-	-	1	1	1	1	16	16	47.6
4	761	911	4	-	-	-	-	-	-	1	1	1	1	20	20	55.4
5	851	1001	5	-	-	-	-	-	-	1	1	1	1	24	24	63.2
6	941	1091	-	1	-	-	-	-	-	1	1	1	1	8	8	39.9
7	1031	1181	1	1	-	-	-	-	-	1	1	1	1	12	12	47.7
8	1121	1271	-	-	1	-	-	-	-	1	1	1	1	8	8	43.4
9	1211	1361	1	-	1	-	-	-	-	1	1	1	1	12	12	51.2
10	1301	1451	-	-	-	1	-	-	-	1	1	1	1	8	8	46.6
11	1391	1541	1	-	-	1	-	-	-	1	1	1	1	12	12	54.4
12	1481	1631	-	2	-	-	-	-	-	1	1	1	1	12	12	55.6
13	1571	1721	1	2	-	-	-	-	-	1	1	1	1	16	16	63.4
14	1661	1811	-	1	1	-	-	-	-	1	1	1	1	12	12	59.1
15	1751	1901	1	1	1	-	-	-	-	1	1	1	1	16	16	66.9
16	1841	1991	-	-	2	-	-	-	-	1	1	1	1	12	12	62.9
17	1931	2081	1	-	2	-	-	-	-	1	1	1	1	16	16	70.4
18	2021	2171	-	-	1	1	-	-	-	1	1	1	1	12	12	65.9
19	2111	2261	1	-	1	1	-	-	-	1	1	1	1	16	16	73.7
20	2201	2351	-	-	-	-	1	-	-	1	1	1	1	8	8	69.1
21	2291	2441	1	-	-	-	1	-	-	1	1	1	1	12	12	76.9
22	2381	2531	-	1	2	-	-	-	-	1	1	1	1	16	16	78.3
23	2471	2621	1	1	2	-	-	-	-	1	1	1	1	20	20	86.1
24	2561	2711	-	-	3	-	-	-	-	1	1	1	1	16	16	81.8
25	2651	2801	1	-	3	-	-	-	-	1	1	1	1	20	20	89.6
26	2741	2891	-	1	-	-	1	-	-	1	1	1	1	12	16	84.8
27	2831	2981	1	1	-	-	1	-	-	1	1	1	1	16	20	92.9
28	2921	3071	-	-	1	-	1	-	-	1	1	1	1	12	16	88.3
29	3011	3161	1	-	1	-	1	-	-	1	1	1	1	16	20	96.1
30	3101	3251	-	-	-	-	-	1	-	1	1	1	1	8	8	80.0
31	3191	3341	1	-	-	-	-	1	-	1	1	1	1	12	12	87.8
32	3281	3431	-	2	-	-	1	-	-	1	1	1	1	16	20	100.9
33	3371	3521	1	2	-	-	1	-	-	1	1	1	1	20	24	108.4
34	3461	3611	-	-	3	1	-	-	-	1	1	1	1	20	20	104.3
35	3551	3701	1	-	3	1	-	-	-	1	1	1	1	24	24	112.1
36	3641	3791	-	1	-	-	-	1	-	1	1	1	1	12	12	95.7

3.5.2. Table S2 – Continued

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10025	SSU 10023	BNX 10005	SSU 10029	BNU 16007	BNU 16001	
	Min.	Max.	Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Adj Base Assy	Rock-ing Head	M10x 20 Set Pin	Rock-ing Head Washer	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
37	3731	3881	1	1	-	-	-	1	-	1	1	1	1	16	16	103.5
38	3821	3971	-	-	1	-	-	1	-	1	1	1	1	12	12	99.2
39	3911	4061	1	-	1	-	-	1	-	1	1	1	1	16	16	107.0
40	4001	4151	-	-	-	-	-	-	1	1	1	1	1	8	8	96.8
41	4091	4241	1	-	-	-	-	-	1	1	1	1	1	12	12	104.6
42	4181	4331	-	2	-	-	-	1	-	1	1	1	1	16	16	111.5
43	4271	4421	1	2	-	-	-	1	-	1	1	1	1	20	20	119.3
44	4361	4511	-	1	1	-	-	1	-	1	1	1	1	16	16	115.0
45	4451	4601	1	1	1	-	-	1	-	1	1	1	1	20	20	122.8
46	4541	4691	-	1	-	-	-	-	1	1	1	1	1	12	12	112.5
47	4631	4781	1	1	-	-	-	-	1	1	1	1	1	16	16	120.3
48	4721	4871	-	-	1	-	-	-	1	1	1	1	1	12	12	116.0
49	4811	4961	1	-	1	-	-	-	1	1	1	1	1	16	16	123.8
50	4901	5051	-	-	-	1	-	-	1	1	1	1	1	12	12	119.3
51	4991	5141	1	-	-	1	-	-	1	1	1	1	1	16	16	127.1
52	5081	5231	-	2	-	-	-	-	1	1	1	1	1	16	16	128.3
53	5171	5321	1	2	-	-	-	-	1	1	1	1	1	20	20	136.1
54	5261	5441	-	1	1	-	-	-	1	1	1	1	1	16	16	131.8
55	5351	5501	1	1	1	-	-	-	1	1	1	1	1	20	20	139.6
56	5441	5591	-	1	-	1	-	-	1	1	1	1	1	16	16	135.0
57	5531	5681	1	1	-	1	-	-	1	1	1	1	1	20	20	142.8
58	5621	5771	-	-	1	1	-	-	1	1	1	1	1	16	16	138.5
59	5711	5861	1	-	1	1	-	-	1	1	1	1	1	20	20	146.3
60	5801	5951	-	-	-	-	-	2	-	1	1	1	1	12	12	135.9
61	5891	6041	1	-	-	-	-	2	-	1	1	1	1	16	16	143.7
62	5981	6131	-	1	2	-	-	-	1	1	1	1	1	20	20	151.0
63	6071	6221	1	1	2	-	-	-	1	1	1	1	1	24	24	158.8
64	6161	6311	-	-	3	-	-	-	1	1	1	1	1	20	20	154.8
65	6251	6401	1	-	3	-	-	-	1	1	1	1	1	24	24	162.3
66	6341	6491	-	1	-	-	-	2	-	1	1	1	1	16	16	151.6
67	6431	6581	1	1	-	-	-	2	-	1	1	1	1	20	20	159.4
68	6521	6671	-	-	1	-	-	2	-	1	1	1	1	16	16	155.1
69	6611	6761	1	-	1	-	-	2	-	1	1	1	1	20	20	162.9
70	6701	6851	-	-	-	-	-	1	1	1	1	1	1	12	12	152.7
71	6791	6941	1	-	-	-	-	1	1	1	1	1	1	16	16	160.5
72	6881	7031	-	2	-	-	-	2	-	1	1	1	1	20	20	167.3

3.6. Table S3 – Component make up for a Slimshor Prop with an Adjustable Base at each end

	Length of prop 'L' (mm) (Working Dimensions)		SSX 10090	SSX 10540	SSX 10720	SSX 10900	SSX 11800	SSX 12700	SSX 13600	SSU 10018	SSU 10023	BNX 10005	SSU 10029	BNU 16007	BNU 16001	
	Min.	Max.	Sold 90	Sold 540	Sold 720	Sold 900	Sold 1800	Sold 2700	Sold 3600	Adj Base Assy	Rock-ing Head	M10x 20 Set Pin	Rocking Head Washer	M16 X 40 HT Set Pin	M16 Hex Nut	Weight kg
1	730	1030	-	-	-	-	-	-	-	2	-	-	-	4	4	38.4
2	1000	1300	3	-	-	-	-	-	-	2	-	-	-	16	16	61.8
3	1270	1570	-	1	-	-	-	-	-	2	-	-	-	8	8	54.1
4	1450	1750	-	-	1	-	-	-	-	2	-	-	-	8	8	57.6
5	1630	1930	-	-	-	1	-	-	-	2	-	-	-	8	8	60.9
6	1720	2020	1	-	-	1	-	-	-	2	-	-	-	12	12	68.7
7	1990	2290	-	1	1	-	-	-	-	2	-	-	-	12	12	73.4
8	2170	2470	-	1	-	1	-	-	-	2	-	-	-	12	12	76.6
9	2350	2650	-	-	1	1	-	-	-	2	-	-	-	12	12	80.1
10	2530	2830	-	-	-	-	1	-	-	2	-	-	-	8	12	77.7
11	2710	3010	-	1	2	-	-	-	-	2	-	-	-	16	16	92.6
12	2890	3190	-	-	3	-	-	-	-	2	-	-	-	16	16	96.1
13	3070	3370	-	-	2	1	-	-	-	2	-	-	-	16	16	99.3
14	3250	3550	-	-	1	-	1	-	-	2	-	-	-	12	16	96.9
15	3430	3730	-	-	-	-	-	1	-	2	-	-	-	8	8	94.3
16	3610	3910	-	-	4	-	-	-	-	2	-	-	-	20	20	115.3
17	3790	4090	-	-	3	1	-	-	-	2	-	-	-	20	20	118.6
18	3970	4270	-	1	-	-	-	1	-	2	-	-	-	12	12	110.0
19	4150	4450	-	-	1	-	-	1	-	2	-	-	-	12	12	113.5
20	4330	4630	-	-	-	-	-	-	1	2	-	-	-	8	8	111.1
21	4510	4810	-	2	-	-	-	1	-	2	-	-	-	16	16	125.7
22	4690	4990	-	1	1	-	-	1	-	2	-	-	-	16	16	129.2
23	4870	5170	-	1	-	-	-	-	1	2	-	-	-	12	12	126.8
24	5050	5350	-	-	1	-	-	-	1	2	-	-	-	12	12	130.3
25	5230	5530	-	-	-	1	-	-	1	2	-	-	-	12	12	133.6
26	5410	5710	-	2	-	-	-	-	1	2	-	-	-	16	16	142.5
27	5590	5890	-	1	1	-	-	-	1	2	-	-	-	16	16	146.0
28	5770	6070	-	-	2	-	-	-	1	2	-	-	-	16	16	149.5
29	5950	6250	-	-	1	1	-	-	1	2	-	-	-	16	16	152.8
30	6130	6430	-	-	-	-	-	2	-	2	-	-	-	12	12	150.1
31	6310	6610	-	1	2	-	-	-	1	2	-	-	-	20	20	165.2
32	6490	6790	-	-	3	-	-	-	1	2	-	-	-	20	20	168.7
33	6670	6970	-	1	-	-	-	2	-	2	-	-	-	16	16	165.9
34	6850	7150	-	-	1	-	-	2	-	2	-	-	-	16	16	167.4

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