SUCOOT

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SYSTEM FORMWORK

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1.Introduction

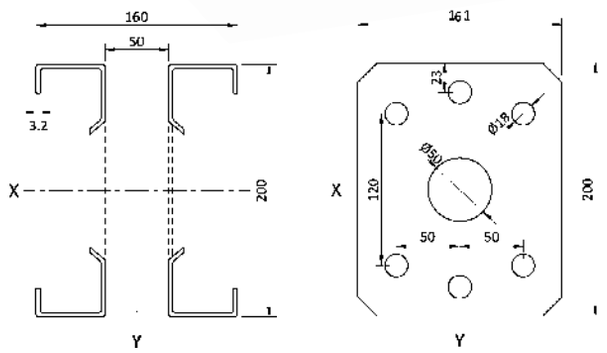
In the past, the most common system formwork brands in Taiwan were from overseas, such as DOKA, PERI, EFCO, RMD, ALUMA, etc., which were dominant during the construction of Taiwan's high-speed rail and Taipei Metro period. However, with domestic construction market fluctuations and the competition of local manufacturers, many of these foreign companies have withdrawn from Taiwan and moved to other markets.

As a corporate purpose, SUCOOT is committed to cultivating the field of temporary structural engineering of formwork shoring and access scaffolding, from the initial production of scaffolding and formwork accessories, and has successively developed Ring System Scaffold for shoring and working access, which are widely praised in the construction market. In view of the fact that shoring and formwork materials are often inseparable and we start to develop a complete formwork and shoring system belonging to Taiwan.

Therefore, in 2013, we began to invest in the development of our own formwork system. After years of efforts, we successively came out Base Beam, Top Beam, Triangle Strut Frame, and related components, which can be designed and combined according to the needs of each projects, and can form various types of formwork, such as single-sided wall formwork, double-sided wall formwork, bridge viaduct formwork, column formwork, box culvert system formwork, and table form. In our continuous promotion, SUCOOT's formwork system are not only used in domestic projects, but also applied to projects in China, Israel, Malaysia, New Zealand, and Thailand, so that Ring System Scaffold and formwork system developed by SUCOOT can compete with other brands in the international market, and look forward to occupying a place in the world.

Jian-ying Bridge Hualien - Superstructure Formwork and Shoring

2.Base Beam



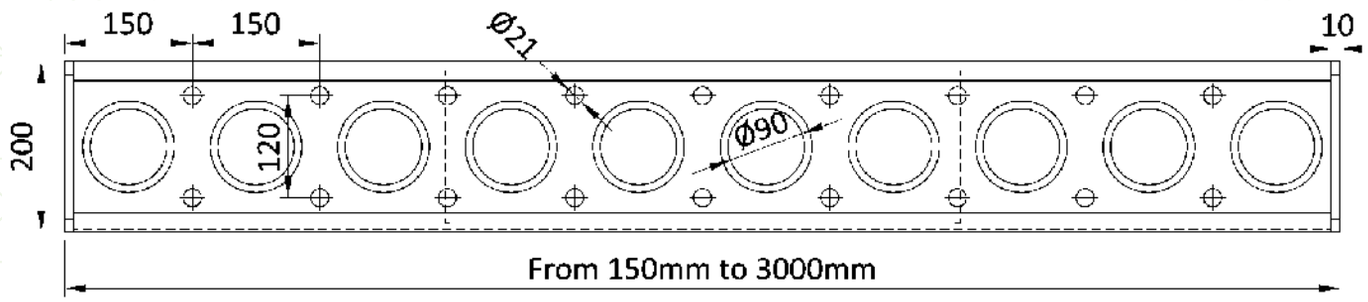
Typical End Plate

- Material：SM490A high tensile steel
- Features：For main bearer or back support. Complete sizes in supply to meet different requirements. Hot dip galvanizing to reduce corrosion and rust.

Material Properties		
Maximum Section Area A_g	mm^2	2300
Minimum Section Area A_n	mm^2	1655
X-axis Moment of Inertia I_{xx}	mm^4	$1260x10^4$
Y-axis Moment of Inertia I_{yy}	mm^4	$440x10^4$
X-axis Section Modulus Z_{xx}	mm^3	$126x10^3$
Y-axis Section Modulus Z_{yy}	mm^3	$54.6x10^3$
X-axis Gyration Radius r_{xx}	mm	87.3
Y-axis Gyration Radius r_{yy}	mm	51.6
Elastic Modulus E	GPa	200
Shear Modulus G	MPa	76900
Yield Strength F_y	MPa	355
X-axis Stiffness EI_{xx}	kNm^2	2520
Y-axis Stiffness EI_{yy}	kNm^2	880
Allowable Bending Moment M_{ax}	kNm	26.8
Allowable Bending Moment M_{ay}	kNm	11.6
Allowable Shear Force V_{ax}	kN	90.9
Allowable Bending Moment (Connection Point)* M_{ajx}	kNm	13.0
Allowable Bending Moment (Connection Point)* M_{ajy}	kNm	5.3
Allowable Shear Force (Connection Point)* V_{ajx}	kN	90

* Connect by 4sets of ASTM A325 5/8" × 1-3/4" Bolt and Nut.

Specifications:



Item No.	Length (mm)	U.W. (kg)	Diagram
BB150	150	6.40	
BB300	300	8.59	
BB450	450	10.78	
BB600	600	12.97	
BB900	900	17.83	
BB1200	1200	22.49	
BB1500	1500	27.21	
BB1800	1800	31.85	
BB2100	2100	36.59	
BB2400	2400	40.94	
BB2700	2700	45.91	
BB3000	3000	50.31	

3.Base Beam Components

Cantilever Platform (Square Tube)

◐Purpose：Connected with Base Beam as a Cantilever Platform for Wall Formwork or Column Formwork.

◐Connecting：With Connection Pin + R-Clip on the small hole.

◈The max. width for plank: 590mm.

◈Tube for handrail：Ø48.6mm、Ø42.7mm

◈Connection item: Connection Pin + R-Clip x 1set

Cantilever Platform (Double C Waler)

◐Purpose：Connected with Base Beam as a Cantilever Platform for Wall Formwork or Column Formwork, can be used on slopes.

◐Connecting：With Connection Pin + R-Clip on the small hole.

◈The max. width for plank: 750mm

◈Tube for handrail：Ø48.6mm、Ø42.7mm

◈Connection item: Connection Pin + R-Clip x 2sets.

Base Beam Guardrail Post

◐Purpose：Dual-purpose guardrail post, fixing to the vertical or horizontal Base Beam end plate.

◐Connecting：With Bolt & Nut on the end plate of Base Beam.

◈Height: 1,500mm

◈Tube: Ø48.6x T2.3mm

◈Connection item: Ø5/8"Bolt & Nut x 2sets

Connection Pin + R-Clip

◐Purpose: To connect with other components.

◐Connecting：After Connection Pin is inserted, insert R-Clip into the hole of pin to prevent the pin from coming out.

◈Material: Connection Pin CSC 10B33

◈Specification: Ø19.5mm x 130mmL, applicable space 89mm

Ø5/8" Bolt and Nut

◐Purpose: To connect each Base Bam or other components.

◈Material: Bolt A325、Nut 2H

◈Specification:
Bolt Ø5/8"xL:1-3/4"
Nut Ø5/8" x Hex. 27mm

◈Quantity for connection: 2~6sets

Base Beam Clamp

- Purpose: Steel tube can be placed into the Base Beam Clamp to enhance the stability of formwork.
- Connection: Put square tube into Base Beam and fixed with Connection Pin + R-Clip on the small hole

- Specification: Applicable to Ø1-1/4"~Ø1-1/2" tube
- Connection item: Connection Pin + R-Clip x 1set

Lifting Bracket

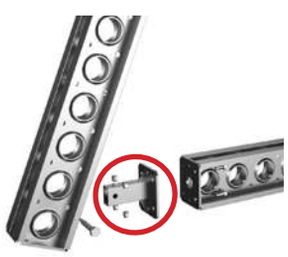
- Purpose：After Base Beams are combined into a wall formwork or column formwork, this item can be used as a hanging point when moving or hanging the formwork, so as to facilitate the hooking of the steel cables.
- Connection：The small hole of hook is connected with Base Beam with Connection Pin + R-Clip

- Specification：Ø43.5mm hole, suitable for general steel cable safety hooks
- Connection item：Connection Pin + R-Clip x 1set
- Allowable hanging load：L_{av}=2.0tf ; L_{ah}=1.0tf

Semi-circle Washer

- Purpose: Place in big hole of Base Beam, connecting to other bearer. It is usually used in column / wall formwork.

- Material: FCD450
- Specification: 96x76mm x Ø18mm
- Components with Semi-circle Washer: Ø17mm Tie Rod + CN-90 Hex. Nut



Base Beam Connector

- Purpose：To connect two Base Beams in different angles. Spindle can be used to adjust the angle.
- Connection：After square tube end is inserted into Base Beam, fix them with Connection Pin + R-Clip. The end plate and Base Beam are locked with Ø5/8"Bolt & Nut.

- Specification：Square tube 80x40mm + end plate 200x161x10tmm
- Connection item：Connection Pin + R-Clip x1set and Ø5/8" Bolt & Nut x 4sets

Angle Bracket

- Purpose：When Base Beam is used as the horizontal main bearer of vertical formwork and the corner need to be positioned or tightened, this item can be used with Ø17mm Tie Rod and WN-92P Wing Nut to lock it.
- Connection: After inserting the square tube end into Base Beam, fix it with Connection Pin + R-Clip. Put Ø17mm Tie Rod through Angle Bracket and locked with WN-92P Wing Nut.

- Specification：Square tube 75x45x Ø21mm
- Connection item：Connection Pin + R-Clip x 1set and Ø17mm Dywidag Tie Rod & WN-92P Wing Nut

Base Beam Connection Jack

◐ Purpose: After connecting with Base Beam, it can be used as shoring / bracing.

◐ Connection：Lock it on the end plate of Base Beam with Ø5/8" Bolt & Nut and fix the other end with Connection Pin + R-Clip

◈ Specification：Ø45x L: 300mm solid rod (right/left-hand thread), adjustable range 285~450mm

◈ Quantity for connection: Connection Pin + R-Clip x 1 set and Ø5/8" Bolt & Nut x 4 sets

Universal Side Support Adjuster

◐ Purpose：When Base Beam is combined into a wall formwork or a lifting climbing formwork, it is used for short distance support from the wall. This component is made of a universal wing nut and a solid threaded rod.

◐ Connection：After the solid rod is threaded into wing nut and inserted to Base Beam, fix it with Connection Pin + R-Clip.

◈ Specification：Square tube 80x40mm；Ø1-1/4" threaded rod x L: 320mm + universal wing nut with swivel angle 15°, adjustable range 60~250mm

◈ Connection： Connection Pin + R-Clip x 1set

Connecting Plate for Base Beam and Jack Base

◐ Purpose：When Base Beam is combined into a wall formwork or column formwork, this item can be combined with Jack Base used to adjust the height at the bottom.

◐ Connection：Lock it on the end plate of Base Beam with Ø5/8" Bolt & Nut.

◈ Specification：End plate 200x161x10t+tube Ø60.2x3.2txL: 60mm.

◈ Connection item：Ø5/8" Bolt & Nuts x 4sets

Right Angle Connector

◐ Purpose：Used to connect two Base Beams in right angle or four-sided connection.

◐ Connection：Lock it into the end plate of Base Beam with Ø5/8" Bolt & Nut.

◈ Specification：200x200mm

◈ Connection item：4sets of Bolt and Nuts per side

Triangle Plate

◐ Purpose: Placed at the right angle corner of Base Beam, for pressing beam of single-sided formwork.

◐ Connection：After inserting the square tube into Base Beam, fit it with Connection Pin + R-Clip.

◈ Specification：
Plates 200x161mm + 45° pressure bearing plate 269x161mm + square tube 75x45mm

◈ Connection item：Connection Pin + R-Clip x 1set

Base Beam and H-Beam Connector

◐ Purpose：For connecting Base Beam and H-Beam 200x100x5.5x8

◈ Specification：200x161x L: 232mm

◈ Connection item：Hexagonal Screw and Nut Ø5/8"×2" & Ø5/8"Bolt and Nut x 4sets

Spindle

◐ Purpose：Applied to Base Beam as reinforcement in many uses, such as wall / column formwork and outer formwork of box girder bridge etc.

◐ Different length can be customized.

◈ Specification：

Outer tube	Threaded tube	Applicable length
Ø60x4.0t	Ø1.9" x5.0t	1.0~1.7m 1.7~2.5m
Ø76x4.5t		2.5~3.2m 3.2~3.9m 3.9~4.5m

◈ Connection item：Connection Pin + R-Clip x 2sets

Spindle Foot

◐ Purpose：For Spindle, anchoring can be used to fix with ground.

◐ Anchoring hole of plate：Ø18mm

◈ Specification：200x161x10t, Hot Dip Galv.

◈ Connection item：Connection Pin + R-Clip x 1set

BB-90 Strut Adapter

◐ Purpose：When Base Beam as horizontal main bearer in Shuttering requires side support or anti-tilt, this Adapter can be connected to the small holes of Base Beam, then install a spindle.

◐ Connection：Insert the end with flat square tube into Base Beam, fix with Connection Pin + R-Clip; Install Spindle on the other side and fix with Connection Pin + R-Clip.

◈ Specification： Square tube 80x40xØ21mm hole + distance between 2 plates 50mm x Ø21mm hole

◈ Connection item：Connection Pin + R-Clip x 1set

BB Strut Adapter

◐ Purpose：When Base Beam as horizontal main bearer in Shuttering requires side support or anti-tilt, this Adapter can be connected to the small holes of Base Beam, then install a spindle.

◐ Connection：Insert the end with flat square tube into Base Beam, fix with Connection Pin + R-Clip; Install Spindle on the other side and fix with Connection Pin + R-Clip.

◈ Specification：Square tube 80x40x Ø21mm two holes + distance between 2 plates 50mm xØ21mm hole

◈ Connection item：Connection Pin + R-Clip x 2sets

Beam Clamp

◐ Purpose：To connect and fix the main bearer and second bearer.

◐ Applicability：Base Beam with Base Beam；Base Beam with H Beam；H Beam with H Beam.

◐ Connection：Adjust the clamp panels of Beam Clip and lock them by tightening nuts.

◈ Specification：Thickness of Clamp Panels: 5mm ; Max. Height for clamping: 40mm

◈ Connection：Bolt Ø1/2" Ball Screw；Hex. Nut Ø1/2"(Ball Screw) x 19mm Hex. 21mm

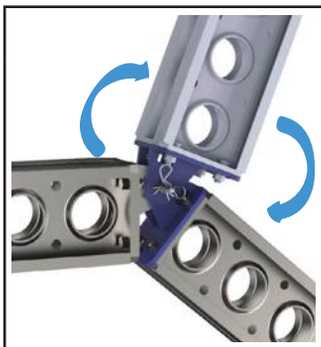
Channel 75x40x5x7 L:2000mm

◐ Purpose：While assembling Base Beam, this channel can help with position and spacing. It'd be easier to assemble and align Base Beams when there are 2, 3pcs or more Base Beams. After tightening the nuts, the whole formwork panel gets firm during lift or move.

◐ Connection：Align the holes on Channel and 2 holes on the plate of Base Beam, lock with screws.

◈ Specification：75x40x5x7xL: 2000mm(Match the distance of Base Beam 0.85m×2 use)

◈ Connection：Every Ø5/8" hole, Screw Kit x2 sets



Hinge Connector

◐ Purpose：To connect Base Beams with hinge angle -46° ~ +104° .

◐ Connection：There are male and female sides. After connection, use Connection Pin + R-Clip to fix ; Lock both sides and Base Beams with Screw Kits.

◈ Specification：End plate 200x161x10t，Ø21.5mm

◈ Connection：Connection Pin + R-Clip x 1 set and Ø5/8" Bolt & Nut x 4sets per side

Arc Connector (Customized)

◐ Purpose：Customized Arc Connector to connect with Base Beam.

◐ Connection：Use special Screw Kits to connect and lock Base Beams.

◈ Specification：End Plate 200x161x10t; Radian: Customization

◈ Connection：Ø5/8" Bolt & Nut x 4 sets on both sides

Corner Connector (Customized)

◐ Purpose：To connect two sides of Base Beams when the slab Formwork of Box Culvert & Sided-Wall Formwork are one unit. With this connector, shorten or remove formwork is available.

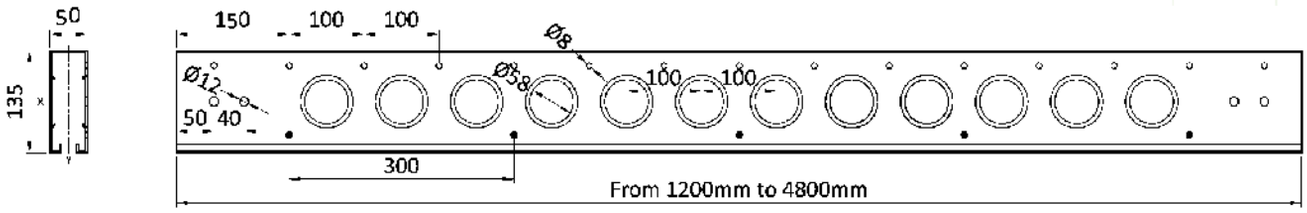
◐ Connection：Use special Screw Kits to connect and lock Base Beams then fix with Connection Pin + R-Clip.

◈ Specification：Female Side – Double-C Channel 125x65mm xØ22mm+ Distance adjustment long hole ; Male Side – Flat square tube 80x40mm xØ21mm

◈ Connection：Connection Pin + R-Clip x 2 sets & Ø5/8"Bolt & Nut x 4 sets

	**Corner Connector (Customized)** ◐ Purpose：Upon the request, connector can be customized to connect Base Beam. ◐ Connection：Use special Screw Kits to connect and lock Base Beams.	◈ Specification：End plate 200x161x10t + angle customized ◈ Connection item：Ø5/8" Bolt and Nuts x 4sets per end
	**6 Direction Connector** ◐ Purpose：Base Beams can be connected in 6 directions (Upside, Downside & 4 sides). ◐ Connection：Use special Screw Kits to connect and lock Base Beams.	◈ Specification：Upper/Lower plate 300x300x10t, 4 plates 200x161x10t ◈ Connection item：Ø5/8"Bolt and Nut x 4sets per side
	**CN-90F Connector** ◐ Purpose：After connecting Base Beam, Screw in with Tie Rod and lock. ◐ Connection：Insert Flat Square Tube into Base Beam, fix with 2 Connection Pins + 2 R-Clips.	◈ Specification：Flat Square Tube 80x40xØ21mm Two Holes +CN-90F Ø17mm D. thread. ◈ Connection item：Connection Pin + R-Clip x 2sets
	**Horizontal Wedge Lock for Spindle** ◐ Purpose：To connect Spindle with Ring System Scaffold. ◐ Connection：After inserting the Horizontal Wedge Lock for Spindle into the hole of ring, connect the threaded tube of Spindle with U-type Steel and fix with the Connection Pin + R-Clip.	◈ Specification：Horizontal Wedge Lock + U-shaped Plate 50mm x8t xØ21mm hole ◈ Connection item：Connection Pin + R-Clip x 1set
	**Fixer For Formwork Lift** ◐ Purpose：To fix Base Beam cantilever for formwork lift. ◐ Connection: Put the fixer into the big hole of Base Beam, Insert Snap Lock SL-45A to lock. Rotate to the required angle then lock with tie rod.	◈ Specification：Ø12mm Hole for Snap Lock + CN-90F Ø17mm D. Thread ◈ Connection item：SL-45A Snap Lock

4.Top Beam

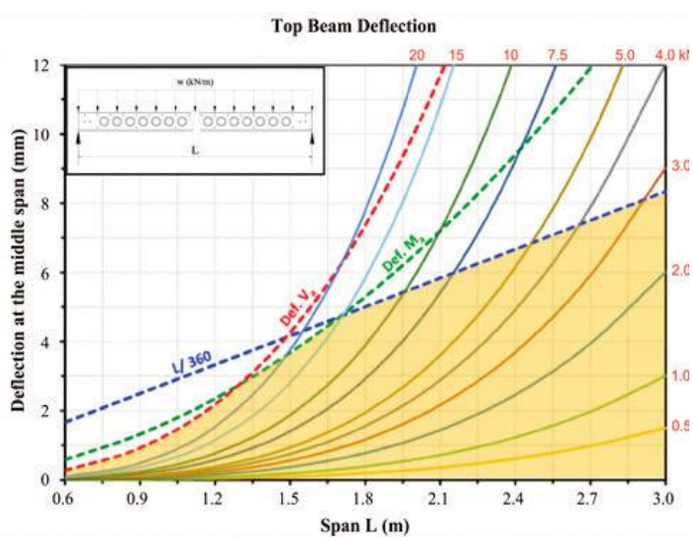


Features：

- Made from SGH490 high strength, antirust galvanized steel
- Fixed with plywood by self-tapping screws or steel nails
- High residual value, recyclable, meet environmental protection requirements
- Long life span, at least 2.5 times longer than Wooden Beams and high durability
- Available in length between 1.2m and 4.8m with 0.3m increment
- Top Beam has obtained patents in many countries

Engineering Properties：

- Section：H:135xW:50xT:2.3mm
- A_n(Minimum Section Area) = 5.6 cm^2；
  U_w(Average Weight) = 5.5kg/m
- E(Elastic Modulus) = 200 GPa；
  F_y(Yield Stress) = 365 MPa
- I_{xx}(X-axis Moment of Inertia) = 175.4 cm^4
- Z_{xx}(X-axis Section Modulus) = 26.0 cm^3
- M_{ax}(Allowable Bending Moment) = 5.5 kNm；
  V_{ax}(Allowable Shear Force) = 17 kN



Item No.	Length (mm)	U.W. (kg)	Diagram
TB1200	1200	6.57	
TB1500	1500	8.21	
TB1800	1800	9.85	
TB2100	2100	11.50	
TB2400	2400	13.14	
TB3000	3000	16.42	
TB3600	3600	19.70	
TB4200	4200	22.99	
TB4500	4500	24.63	
TB4800	4800	26.27	

MEASUREMENT TABLE OF TOP BEAM

Example 1: (Table 1, Red line)

Given: Floor Thickness 80cm,

use Top Beam @0.3m for second bearer

Find: Main Bearer spacing ≦ 2.22m

Example 2: (Table 2, Blue line)

Given: Floor Thickness 20cm,

use Top Beam @1.8m for main bearer

Find: Shoring support spacing ≦ 1.7m

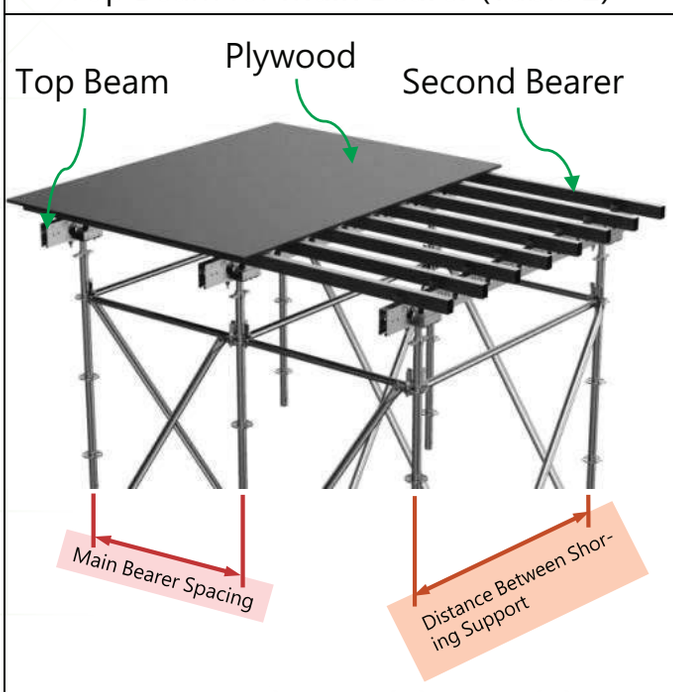
Floor Thickness (cm)	Total Load (kN/m²)	Table 1					Table 2						
		For Second Bearer Spacing (m)					For Main Bearer Spacing (m)						
		0.2	0.3	0.4	0.5	0.6	0.75	0.90	1.20	1.50	1.80	2.40	3.00
		Max. distance between Main Bearer (m)					Max. distance between Shoring Support (m)						
15	7.20	3.73	3.26	2.96	2.74	2.58	2.40	2.26	2.05	1.90	1.79	1.59	1.42
18	7.92	3.61	3.15	2.86	2.66	2.50	2.32	2.18	1.98	1.84	1.73	1.52	1.36
20	8.40	3.54	3.09	2.81	2.61	2.45	2.28	2.14	1.95	1.81	1.70	1.47	1.32
25	9.60	3.39	2.96	2.69	2.49	2.35	2.18	2.05	1.86	1.73	1.59	1.38	1.18
30	10.80	3.26	2.84	2.58	2.40	2.26	2.09	1.97	1.79	1.64	1.50	1.30	1.04
40	13.20	3.04	2.66	2.42	2.25	2.11	1.96	1.84	1.66	1.49	1.36	1.07	0.85
50	15.60	2.88	2.51	2.28	2.12	1.99	1.85	1.74	1.53	1.37	1.21	0.90	0.72
60	18.00	2.74	2.40	2.18	2.02	1.90	1.76	1.64	1.42	1.25	1.04	0.78	0.62
70	20.40	2.63	2.30	2.09	1.94	1.82	1.69	1.54	1.34	1.11	0.92	0.69	0.55
80	22.80	2.54	2.22	2.01	1.87	1.76	1.60	1.46	1.24	0.99	0.82	0.62	0.49
90	25.20	2.45	2.14	1.95	1.81	1.70	1.52	1.39	1.12	0.89	0.74	0.56	0.44
100	27.60	2.38	2.08	1.89	1.75	1.63	1.45	1.33	1.02	0.82	0.68	0.51	0.41
120	32.40	2.26	1.97	1.79	1.64	1.50	1.34	1.16	0.87	0.69	0.58	0.43	0.34
150	39.60	2.11	1.84	1.66	1.49	1.36	1.14	0.95	0.71	0.57	0.47	0.35	0.28
180	46.80	1.99	1.74	1.53	1.37	1.21	0.96	0.80	0.60	0.48	0.40	0.30	0.24
200	51.60	1.93	1.68	1.46	1.30	1.09	0.87	0.73	0.54	0.43	0.36	0.27	0.21

Note:
1. Top Beam deflection is limited to L/360.
2. Unit weight of concrete is 24 kN/m³.
3. According to ACI347-04, use 3.6 kN/m² for Live Load.
4. Total Load = Floor Thickness × 24 + 3.6.

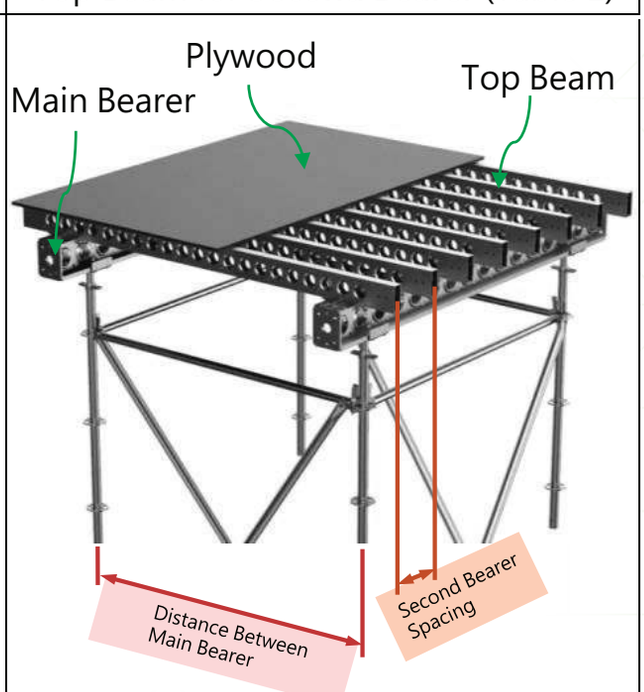
Notes for Installation:

- The allowable open span of Top Beam may not exceed 3.0m.
- The plywood is to be nailed directly onto the Top Beam.
- Top Beams are only to be used in an upright position.
- Each Top Beam must be fixed by two Top Beam Clamps at least.

Top Beam for **Main Bearer** (Table 2)



Top Beam for **Second Bearer** (Table 1)



COMPARISON BETWEEN TOP BEAM AND H20 BEAM

Top Beam

H20 Beam

Top Beam is

Physical Change

Virtually **0%**

After Water Absorption

Deflection & Load Capacity

Up to **25%** Stronger

Between 3-5mm Deflection

Transportation

Up to **70%** More

Pieces in a 20´ Container

EFFICIENCY
Light weight and usage versatility can be used in wide application.

ENDURABILITY
Finest material ensures its anti-rust, high strength property and long life span.

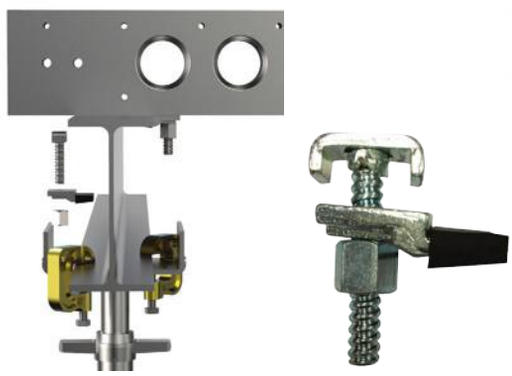
HIGH LOAD CAPACITY
A remarkable strength-to-weight ratio, the load capacity is 25% stronger than H20 beam.

5.Top Beam Components

TB-B Clamp

- Purpose：Used to connect Top Beam and Base Beam.
- Specification：Ø1/2"xL:2.5"Ball Screw
- Connection：Hex. Nut Ø1/2" (Ball Screw) x 19mm Hex. 21mm

TB-H Clamp

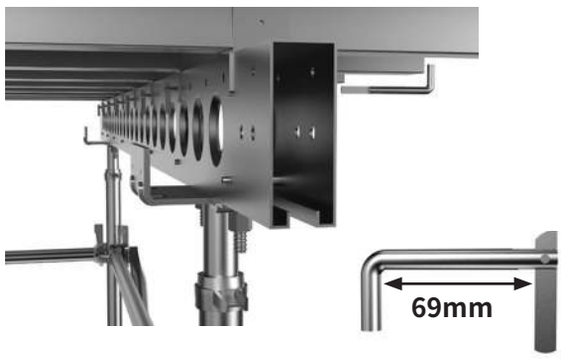


- Purpose：Used to connect Top Beam and U-Head Jack or H Beam. The minimum plate thickness that can be locked is 6mm (black plastic sleeve needed).
- Specification：Ø1/2"xL:2.5"Ball Screw
- Connection：Hex. Nut Ø1/2" (Ball Screw) x 19mm Hex. 21mm

TB-Timber Block Clamp

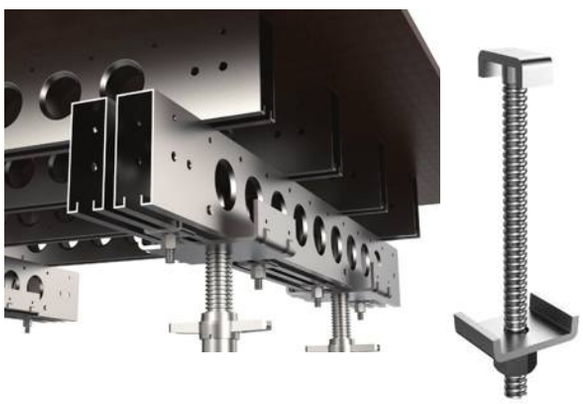
- Purpose：When Top Beam is used as main bearer, the second bearer on the top (Square Tube or Timber block) and this clamp can be connected with Top Beam and locked by using Snap Lock. Every distance of 100mm can inserted one Snap Lock. There are holes on the clamp. After placing the second bearer, fixing it with self-tapping screws、nails, etc.
- Material：JIS G3131 SPHC
- Specification：Inner width 60mm (the max. width of the second bearer)
- Connection：Snap Lock (SL-37S L:69mm)

Snap Lock (SL-37S)



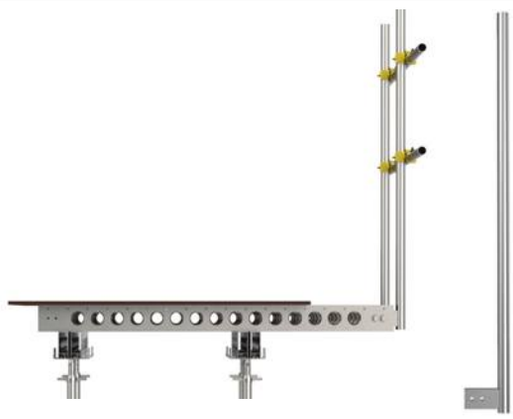
- Purpose：To fix TB-Timber Block Clamp with Top Beam，so Top Beam wouldn’t move.
- Material：AISI1015
- Specification：Ø7mm，application range 69mm

TB-TB Clamp



- Purpose：When the main bearer is 2 Top Beams and the second bearer is also a Top Beam, this clamp connects and locks them.
- Specification：Threaded rod Ø1/2"x190mm
- Connection：Hex. Nut Ø1/2" (Ball Screw) x19mm Hex.:21mm

TB Handrail

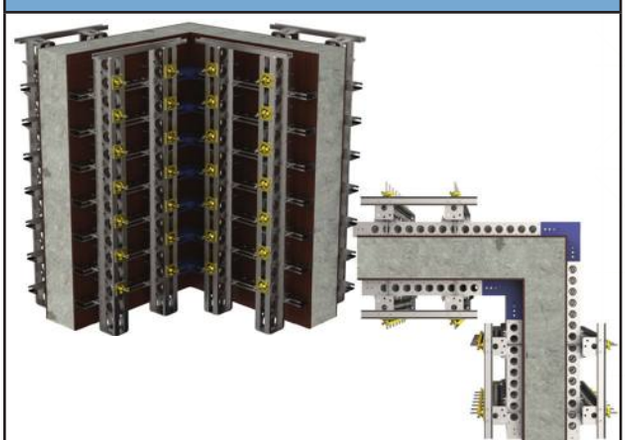


- Purpose：When the System Formwork requires guardrails, this handrail can be connected to Top Beam with Hex. Bolt & Nuts x 2 sets. Height can be customized.
- Specification：80x40x2.5t L: 140mm+Ø48.6mm steel tube
- Connection：Hex. Bolt Ø7/16"xL:2-1/2"+Flange Nut Ø 7/16"x10mm

TB Fastening Plate

- Purpose：Used when plywood is undrillable. Connect this plate and Top Beam with Screw Kit. Mount from the back of the plate by Wood screws. Each plate can be screwed with 4 Wood screws.
- Material：JIS G3131 SPHC
- Specification：50x50mm x 2.3t 90° steel plate
- Connection：Hex. Bolt Ø5/16"x L:2-1/2" Hex.:12mm；Hex. Nut Ø5/16"x6mm Hex.:12mm

TB Right Angle Connector



- Purpose：To enhance the right angle corner of formwork, use this Connector to connect 2 Top Beams on both sides.
- Material：Steel plate SS400
- Specification：Inner width 56mm x Ø12mm 8 holes
- Connection：Hex. Bolt M10x L:80mm + M10 Nut

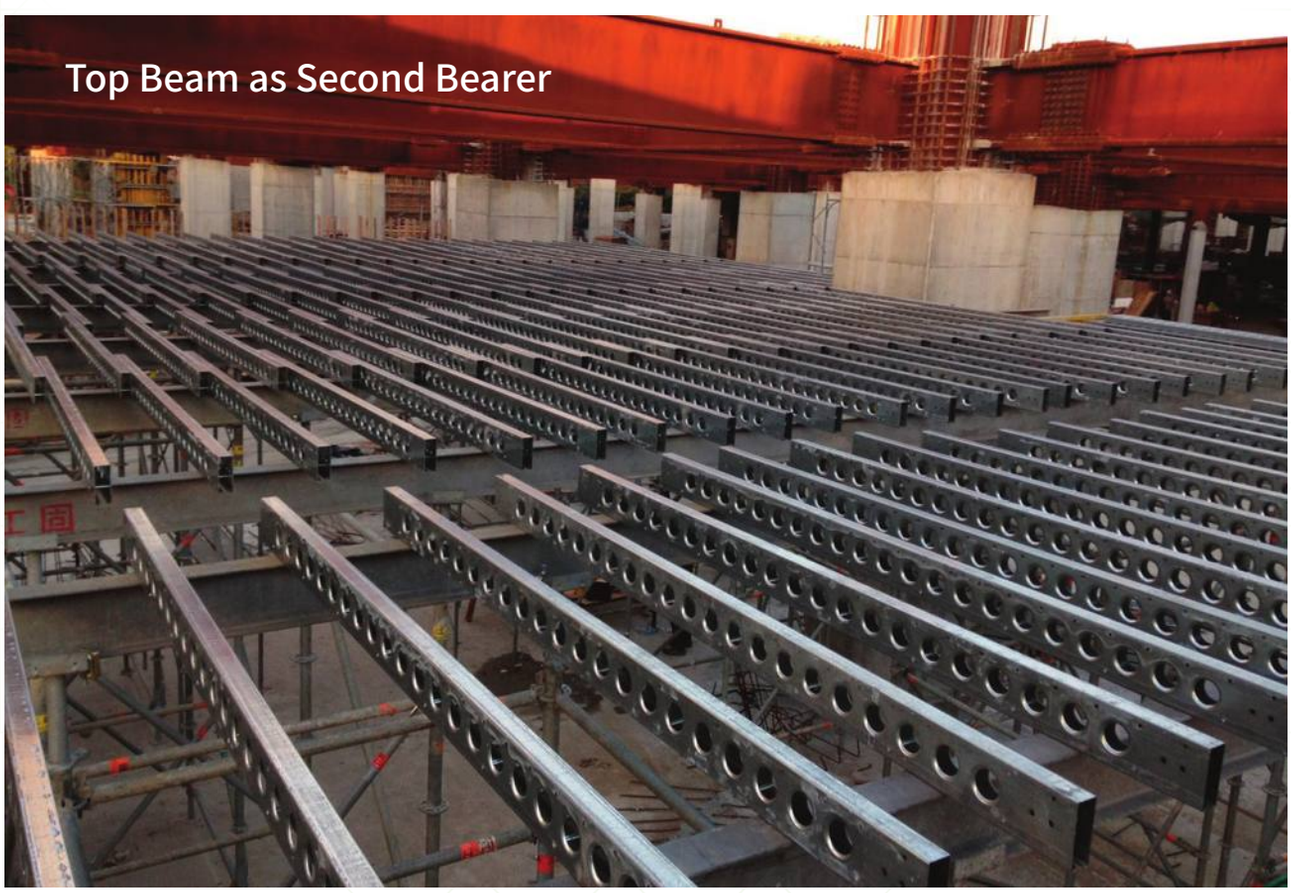
TB Cover

- Purpose：Top Beam is made of high strength steel, the cuts at both ends aren’ t flat. Covers could reduce end or corner deformation due to collisions.
- Material：PP (Yellow)
- Specification：135x56.4x18mm
- Connection：Use a rubber mallet to tap into the ends, then use quick-dry adhesive to increase adhesion.

TB Self-tapping Screws

- Purpose：Fixed with plywood and Top Beam.
- Specification：M4.8xL:38mm, with effective thread length exceeding 1", manufactured according to DIN7982 standard.

Top Beam as Second Bearer

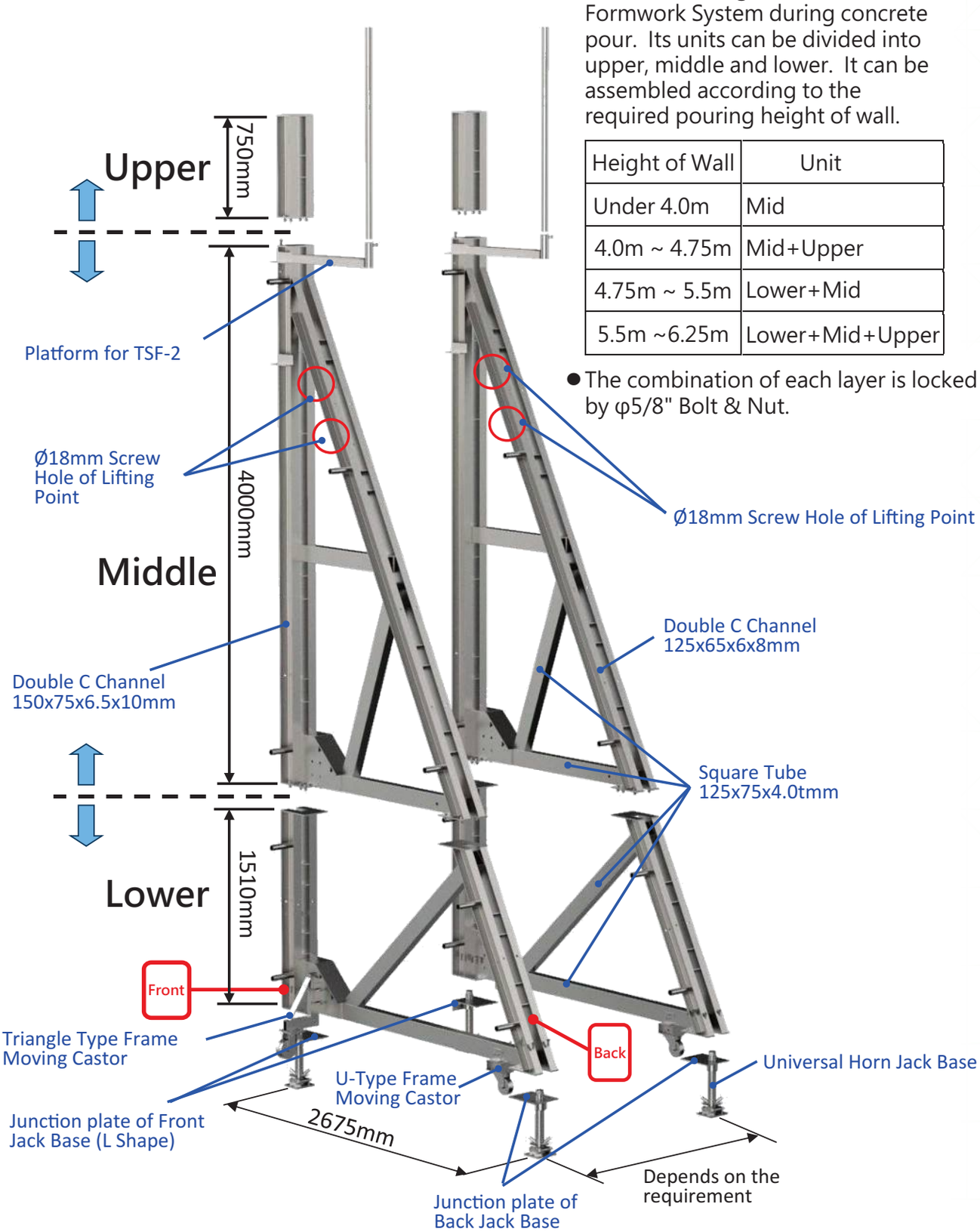


6.Triangle Strut Frame

- Purpose：The main load-bearing structure of Single-Sided Wall Formwork System during concrete pour. Its units can be divided into upper, middle and lower. It can be assembled according to the required pouring height of wall.

Height of Wall	Unit
Under 4.0m	Mid
4.0m ~ 4.75m	Mid+Upper
4.75m ~ 5.5m	Lower+Mid
5.5m ~6.25m	Lower+Mid+Upper

- The combination of each layer is locked by φ5/8" Bolt & Nut.



7.Triangle Strut Frame Components

Platform for TSF-2

◐ Function：Fix on the Triangle Strut Frame. After placing planks or timberboards, it'll become an aisle.

◐ Placement：Place the square tube of platform on L-shape Steel then fix with screw kit.

◈ Specification：The width of aisle: 66cm on upper Frame ; The width of aisle: 40cm on Mid Frame.

◈ Connection item：Screw 5/8" x L:105mmx60ss + Non-slip nut 5/8"-NC×NE.

Triangle Type Frame Moving Castor

U-Type Frame Moving Castor

Triangle Type Frame Moving Castor (Front) & U-Type Frame Moving Castor (Back)

◐ Function：Assemble Triangle Type Frame Moving Castor in the front and U-Type Frame Moving Castor in the back of the Triangle Strut Frame.

◐ Placement：Screw Ø17mm Bar into the specified position at the bottom of the Triangle Strut Frame.

◈ Specification：The height of Front Castor: 20cm ; Back Castor: 17cm.

◈ Connection item：Front Castor - Ø17mm Bar x 4pcs ; Back Castor - Ø17mm Bar x1 pc.

Junction plate of Front Jack Base (L Shape)

Junction plate of Back Jack Base

Universal Horn Jack Base

Junction Plates of Jack Base & Universal Horn Jack Base

◐ Function：After screwing the Junction Plates of both Front & Back Jack Base into the Universal Horn Jack Base, install on the specified position at the bottom of the Triangle Strut Frame in order to adjust the height.

◐ Placement：Fix the Junction Plates of Jack Base on the specified position at the bottom of the Triangle Strut Frame with screw kit. Twist and adjust the Hex. Head at 50mm of the top of Universal Horn Jack Base or the 4 horns (Ø22mm)

◈ Specification：Junction Plates, Hole Ø18x6 ; Solid Threaded Bar Ø63x L:460mm, Adjustable Range: 190~440mm, Max. inclination 11°.

◈ Connection Item：Screw Kit x6 sets.

Pressing Beam

◐ Function：To lock the Single-Sided Wall Formwork, screw High Tensile bar through Pressing Beam. This is the main load-carrying component for Single-Sided Wall Formwork.

◐ Placement：Pressing Beam is placed on the Triangle Strut Frame or the Bearing Surface of Triangle Plate on a slant

◈ Specification：C-Channel 150x75x6.5x10mm L:2400mm x2pc

CONE-L

J Bolt

CONE-L & J Bolt

◐ Function：Embed Cone-L & J Bolt into the concrete foundation then screw a bar though the Pressing Beam to lock the Triangle Strut Frame. This is the main load-carrying component for Single-Sided Wall Formwork.

◈ Specification：CONE-L L:130 mm J Bolt Ø26mm(customized on demand)

8.Types of Formwork System and Components

❖ Single-sided Wall Formwork – Triangle Strut Frame

C-Channel 75x40x5x7mm

Platform for TSF-2

Top Beam

TSF-2 Triangle Strut Frame Middle + Lower

Junction plate of Back Jack Base & Universal Horn Jack Base

Pressing Beam+CONE-L + J Bolt

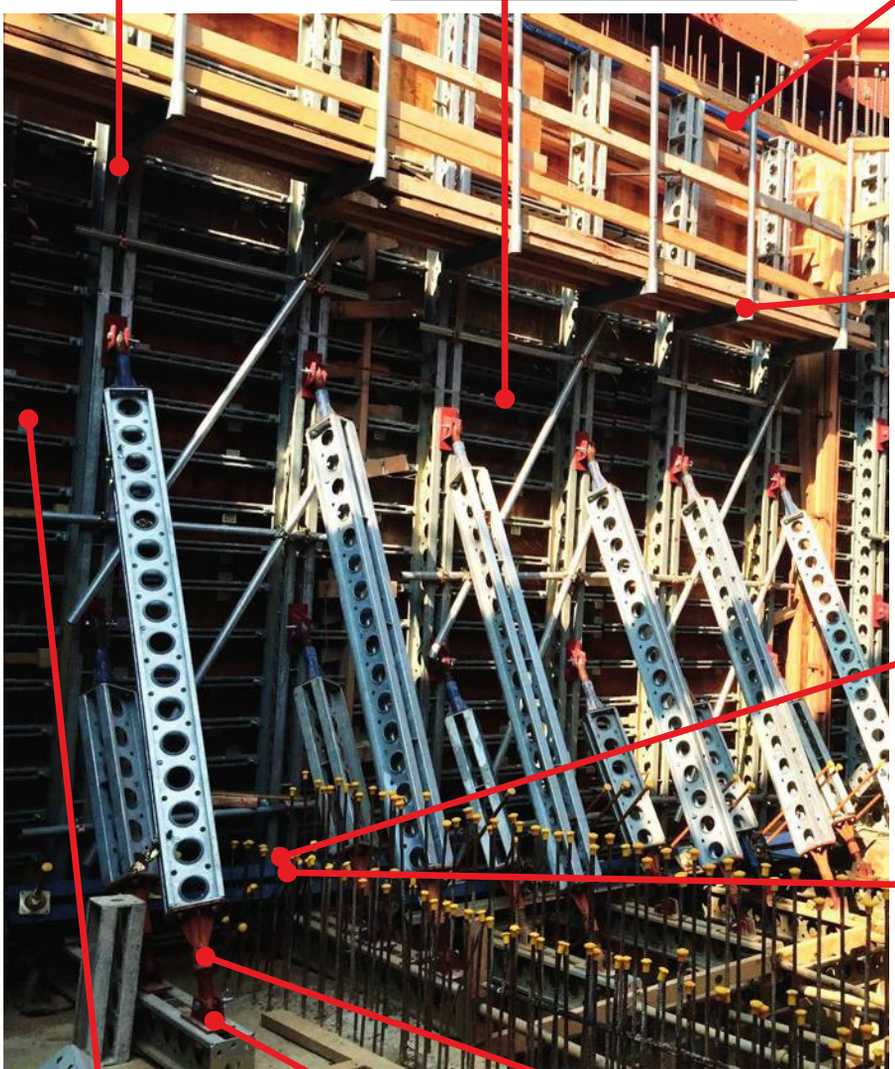
Junction plate of Front Jack Base (L Shape)

❖ Single-sided Wall Formwork – Base Beam & Top Beam

Base Beam

Top Beam

C-Channel 75x40x5x7mm



Cantilever Platform (Square Tube)

Triangle Plate

Pressing Beam

TB Fastening Plate

BB Strut Adapter

Connection Jack

❖ External Formwork of Box Girder Bridge

❖ Column Formwork

Top Beam

Base Beam

Right Angle Connector

BB-90 Strut Adapter

Angle Bracket

Spindle

Spindle Foot

C-Channel
75x40x5x7mm

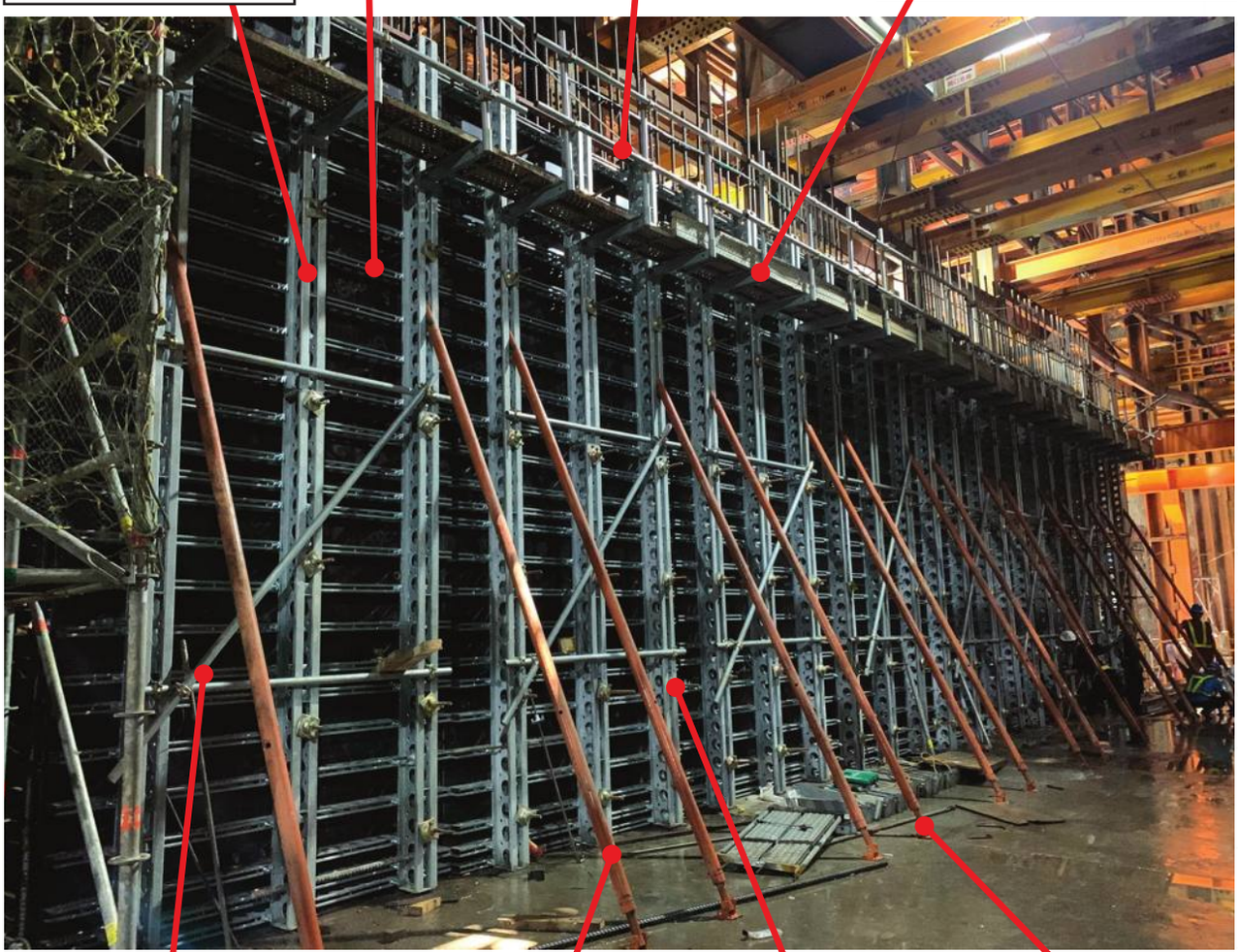
❖ Double-sided Wall Formwork

Top Beam

C-Channel 75x40x5x7mm

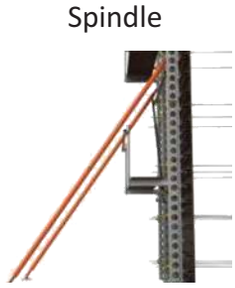
Cantilever Platform

Base Beam

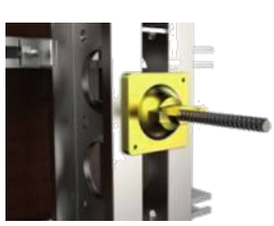


Base Beam Clamp & Swivel Clamp

Spindle



Wing Nut & Tie Rod



Spindle Foot

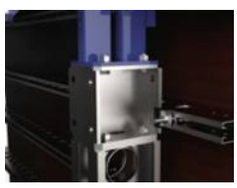
❖ Box Culvert Formwork

Corner Connector (Customized)

Top Beam

Movable Steel Sheet (Customized)

Right Angle Connector



Base Beam

Spindle

Special Wheel

Connection Plate

9.Applications

Top Beam as Main Bearer while shoring precast beams

Top Beam connected with H-Beam as Second Bearer on a slab formwork project

Top Beam connected with Base Beam as Second Bearer on an external formwork of superstructure of bridge formwork project

4.8M System Column Formwork
(Under Construction)

4.8M System Column Formwork
(Finished)

7.0m Pier Table System Formwork

Table Formwork

Central Taiwan Science Park - Frontage Road Bridge Formwork

4.2M Double-Sided Wall Formwork

System Formwork: Box Culvert

Taoyuan Longtan LY3 Basement
4.6M Single-Sided Wall Formwork

Cut and Cover Tunnel
Slab System Formwork & Shoring

Tainan Underground Railway #C214
6.0M Single-Sided Wall Formwork

Pier Column System Formwork

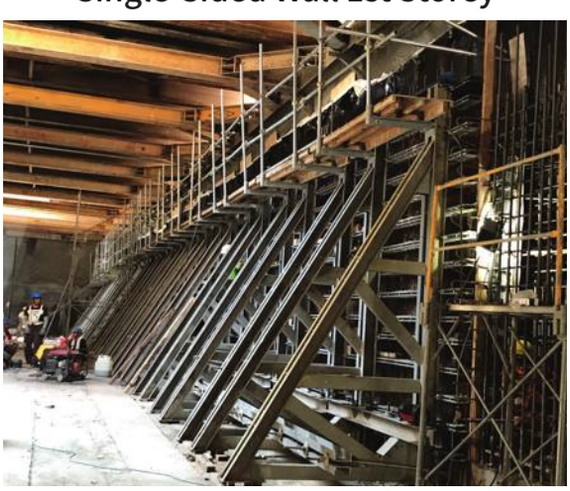
Tainan Underground Railway #C211
4.5M Single-Sided Wall Formwork

Taoyuan Metro #GC02
6.0M Single-Sided Wall Formwork

Kinmen Bridge - Pier Table
(Box Girder H:7.5M)
System Formwork & Access Tower

SUCOOT THAI – Pier Table Formwork
& Shoring for Cantilever Method of
Bridge Construction

Ankeng Light Rail -
Single-Sided Wall 1st Storey



Ankeng Light Rail -
Single-Sided Wall 2nd Storey

Taipei Metro WanDa Line 1st Phase CQ852 Compartment Wall 6M High Double-Sided Wall Formwork

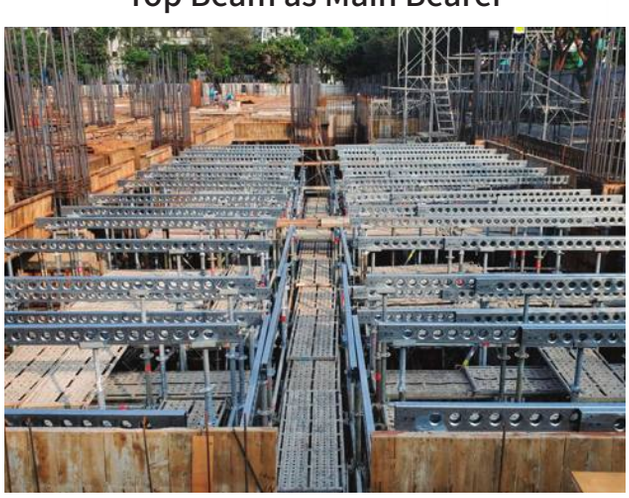
Taipei Metro WanDa Line 1st Phase CQ872 Compartment Wall 4.5M High Double-Sided Wall Formwork

Datan Power Plant #7 STG Building 3.05M High Foundation Formwork

Datan Power Plant #7 STG Building 5.3M High Column Formwork

Taoyuan Longtan LY3 Factory Slab Formwork & Shoring

Factory Building - Slab Formwork Top Beam as Main Bearer



10.Conclusion

With the serious fault of traditional construction formwork technology manpower year by year, the cost of labor and materials continues to increase, and the adoption of systematic equipment and modular construction methods has formed a major trend. Using systematic materials such as Base Beam, Top Beam, and Triangle Strut Frame developed by SUCOOT, combined with our very mature Ring System Scaffold, carry out proper system formwork and shoring design planning, divide the integrate system formwork and shoring configuration into several standard units, use machinery or wheel sets to repeat construction greatly, improve the automation of the construction industry, and reduce the manpower of repeated assembly and disassembly time, so that customers can achieve the purpose of reducing technical manpower requirements, construction costs and improving construction efficiency, and contribute to improving the construction environment of the overall construction industry.

Significant projects where our system formwork has been used:

Kaohsiung MRT - 311

Tainan Urban District Railway Underground Project - C214, C211

Taipei MRT Wanda Line Phase I - CQ840, CQ842, CQ850A, CQ850, CQ860, CQ861, CQ842, CQ850A, CQ850, CQ860, CQ861

Ankeng Light Rail MRT

Kinmen Bridge - CJ02

Taoyuan Airport MRT- GC01, GC02, GC03

Hualien Jian-ying Bridge – Superstructure Formwork and Shoring

Taichung High-Tech Industrial Southward Road & Daija River Across Bridge

Taoyuan LY3 Factory Basement - Single-sided Wall Formwork

Datan Power Plant Cooling Circulating Water Pumping Room - Wall Formwork

Datan Power Plant Unit 7 STG Building - Foundation, Column, and Wall Formwork

Datan Power Plant Unit 8 STG Building - Column Formwork

#205 Factory Dashu North Camp Wall Formwork

Tainan Hi-Tech Factory - Double-sided Wall Formwork

Other countries:

Thailand - **Bridge Superstructure, Building**

China - **Haikou Underground Box Culvert**

Israel - **Bridge Superstructure**

Malaysia - **Box Girder, Pier Cap**

New Zealand - **Factory**

Australia - **Rammed Earth Wall**

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