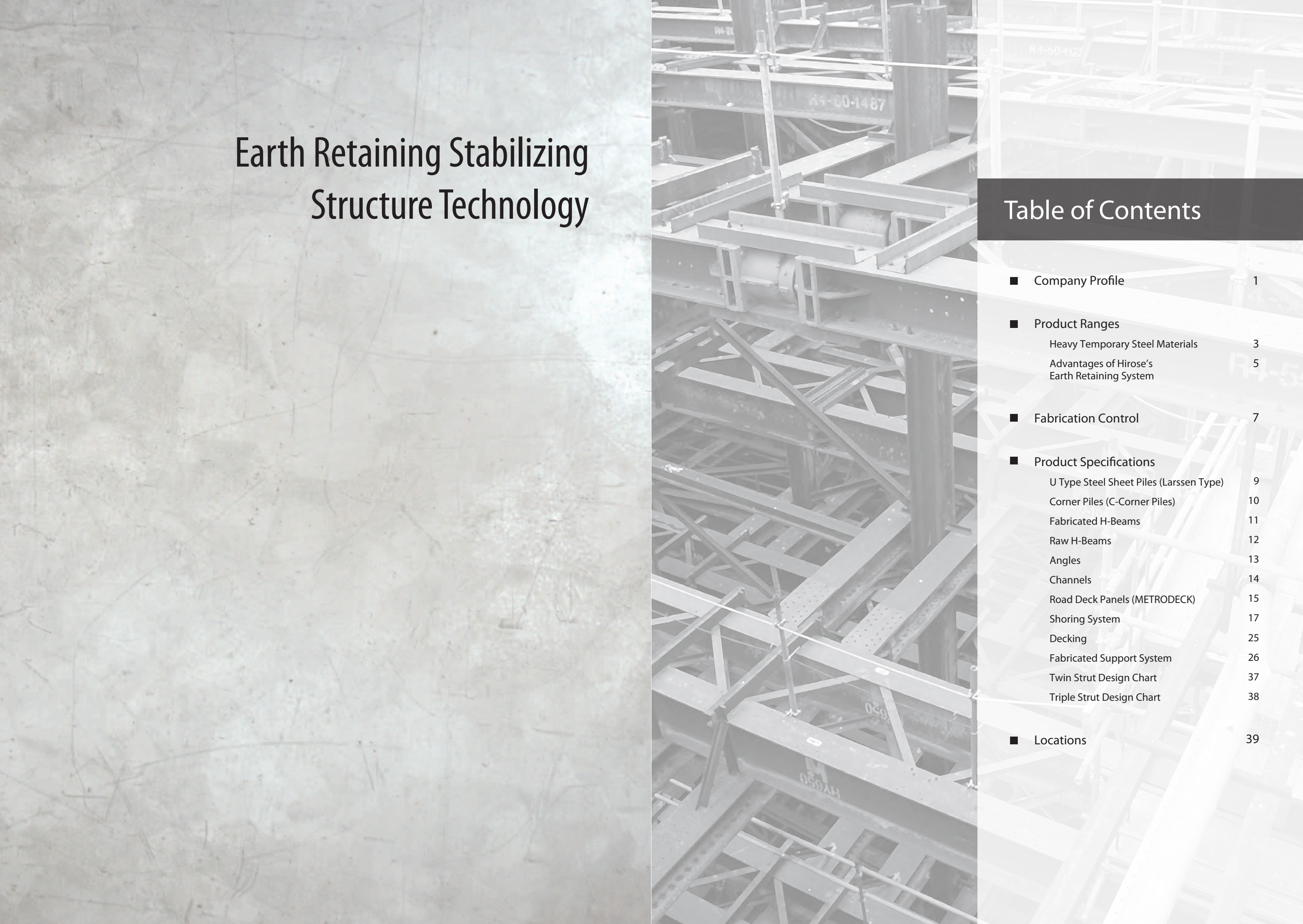




HIROSE (Singapore) Pte Ltd

Company Profile & Product Catalogue



Earth Retaining Stabilizing Structure Technology

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Solution Partner for Steel, Earth and Structure

Responding Promptly to every Customer's Needs

About Hirose Corporation

Hirose Corporation was founded in 1938 in Japan. With over 70 years of experience, Hirose has developed business in tandem with Japan's economic growth. Followed by the successful achievements in Japan, Singapore was chosen to be the center of Hirose business development in South East Asia. The past 30 years of experience in Singapore had gained Hirose the status of being a reliable and competent professional in the industry.

We are the first and the pioneer of leasing heavy temporary structural steel materials in Japan. In addition, our company has valuable experience and proven track record in handling high profile projects in Japan and Singapore which have gained us the confidence and trust from our customers.

We are not only providing design services and execution of construction works, but we are also playing an important role in providing technical consulting services by using our state-of-the-art technologies and expertise accumulated in the course of pioneering major projects in the industry.

Hirose Philosophy

We conduct business from an international point of view to enhance our abilities. We aim to contribute to our customers and society by providing satisfactory and updated technologies, services, products and respond to their needs efficiently and effectively.

We conduct our business activities in compliance with social norms and become a company that can contribute to our customers, partners, shareholders and employees.

We enhance the prominence of our company in society by continuously pursuing and maintaining our position at a competitive edge.

We provide the highest quality services to satisfy our customer's needs and achieve lower cost at the same time.

We believe that our greatest assets are the employees as they believe that we can create vibrant workplaces by giving employees the opportunities to realize their personal inspirations through their work.

Heavy Temporary Steel Materials

Heavy Temporary Steel Materials Series

Hirose's heavy temporary steel materials are widely used in foundation or tunnel work for civil engineering and building projects.

Our product range:

- Steel Sheet Piles
- Steel H-Beams
- Steel Strutting Members
- Steel Deck Panels



Steel Sheet Piles

Steel sheet-piles are used as retaining walls in civil engineering and foundation works.

As the size and length of the material can be selected to ensure that they are well-suited to the site conditions, optimum material can always be utilized with no wastage.



Steel H-Beams

Used as Soldier piles in retaining wall system for civil engineering construction and foundation works where water tightness is not a major design concern; and as structural member supporting road deck panels.



Steel Strutting Members

The main materials for temporary Earth Retaining System, these provide the stability of earth in deep excavations.



Steel Deck Panels

Steel decks are used to form temporary vehicular access where existing access are unavailable or restricted.

Advantages of Hirose's Earth Retaining System

- 1 Minimize significant capital pay out in purchasing steel products required in temporary shoring system.



- 2 Reduce problematic storage issue as steel members usually occupy significant area.



- 3 Improve construction progress by reducing on-site quality control procedures and inspections since Hirose's materials are approved by BCA for material quality, traceability and usability.

- 4 Traceability of each member achieve by sprayed and engraved Identification No. on every product.



- 5 Registered and recognized under:

- A. BCA General Builder Class 2
- B. BCA Specialist Builder (Piling Works)
- C. BCA Specialist Builder (Structural Steelwork)
- D. BCA BC1:2008 - Reusable Steel Strutting System in Earth Retaining or Stabilizing Structures
- E. ISO 14001:2004
- F. OSHA 18001:2007
- G. BizSAFE Level Star



Structural Steel Production Quality Control

Step 1 – Material Receiving

- Simple physical eyes inspection while unloading material
- Inspect on product label according to documentations
- Dimension and thickness inspection



Step 2 – Cutting & Drilling

- Steel plate cutting using CNC cutting machine and Beam cutting using Band saw machine
- Hole Drilling using CNC machine
- Dimension and position inspection using accurate measuring tools & fixtures.



Step 3 – Fitting Up

- Cleaning before fitting up
- Assembling with the aid of fixture.
- Overall dimension inspection
- ID number marking and engraving



Step 4 – Welding

- Welding of steel plate to beam
- Cleaning after welding
- Welding size inspection
- MPI Test and UT Test



Step 5 – Surface Preparation & Protective Treatment

- Surface preparation and painting
- Painting thickness inspection



Step 6 – Marking / Tracking Record

- Marking and punching of ID Number, length and product category on the painted surface



Step 7 – Stock and Delivery



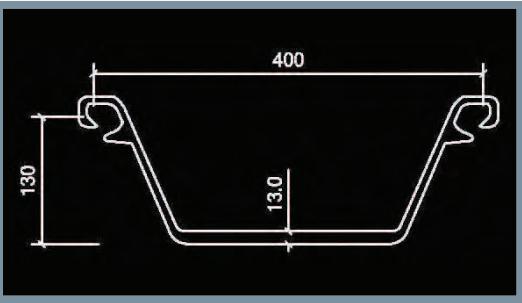
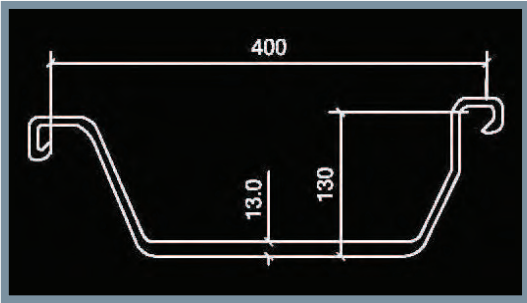
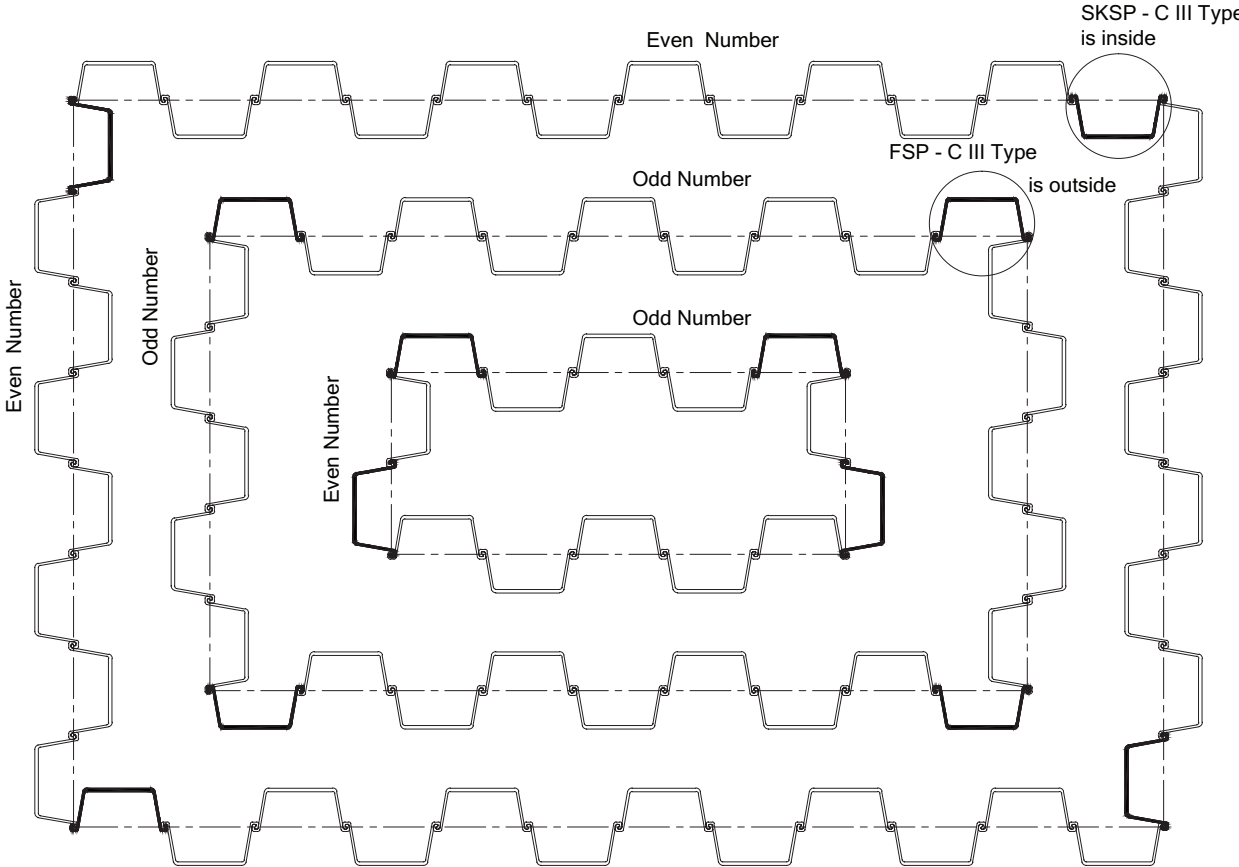
U Type Steel Sheet Piles (Larssen Type)

Material Specification

Section	Section Properties										
SP-II	Dimension			Per Pile					Per 1m wall width		
	Width	Height	Thickness	Section Area	Unit Weight	Moment of Inertia	Section Modulus	Radius Gyration	Weight	Moment of Inertia	Section Modulus
	B mm	h mm	t mm	A cm ²	W kg/m	I _x cm ⁴	Z _x cm ³	i _x cm	W kg/m ²	I _x cm ⁴ /m	Z _x cm ³ /m
	400	100	10.5	61.18	48.0	1,240	152	4.50	120	8,740	874
SP-III	Dimension			Per Pile					Per 1m wall width		
	Width	Height	Thickness	Section Area	Unit Weight	Moment of Inertia	Section Modulus	Radius Gyration	Weight	Moment of Inertia	Section Modulus
	B mm	h mm	t mm	A cm ²	W kg/m	I _x cm ⁴	Z _x cm ³	i _x cm	W kg/m ²	I _x cm ⁴ /m	Z _x cm ³ /m
	400	125	13.0	76.42	60.0	2,220	223	5.39	150	16,800	1,340
SP-IV	Dimension			Per Pile					Per 1m wall width		
	Width	Height	Thickness	Section Area	Unit Weight	Moment of Inertia	Section Modulus	Radius Gyration	Weight	Moment of Inertia	Section Modulus
	B mm	h mm	t mm	A cm ²	W kg/m	I _x cm ⁴	Z _x cm ³	i _x cm	W kg/m ²	I _x cm ⁴ /m	Z _x cm ³ /m
	400	170	15.5	96.99	76.1	4,670	362	6.94	190	38,600	2,270
SP-VL	Dimension			Per Pile					Per 1m wall width		
	Width	Height	Thickness	Section Area	Unit Weight	Moment of Inertia	Section Modulus	Radius Gyration	Weight	Moment of Inertia	Section Modulus
	B mm	h mm	t mm	A cm ²	W kg/m	I _x cm ⁴	Z _x cm ³	i _x cm	W kg/m ²	I _x cm ⁴ /m	Z _x cm ³ /m
	500	200	24.3	133.8	105.0	7,960	520	7.71	210	63,000	3,150

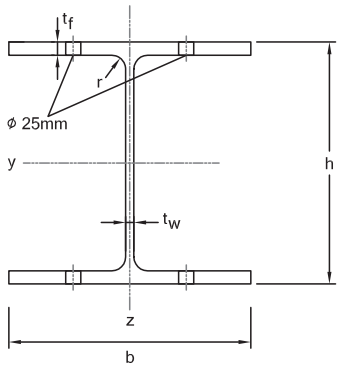
Corner Piles (C-Corner Piles)

Material Specification

FSP-CIII TYPE	SKSP-CIII TYPE
	
Illustration of Sheet Pile (Use C-Corner Pile)	
	

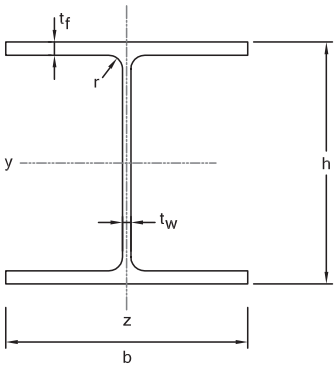
Fabricated H-Beams

- Strut. Waler. Runner Beam.
- Traffic Decking. Construction Decking.



Raw H-Beams

- Soldier Pile.
- Waler. Runner Beam.
- Traffic Decking - Beam
- Construction Decking - Beam



Material Specification

Type	Unit Wt. (kg/m)		Dimension (mm)				Sectional Area (cm ²)	Moment of Inertia (cm ⁴)		Radius of Gyration (cm)		Elastic Modulus (cm ³)		Plastic Modulus (cm ³)		Warping Constant (dm ⁶)	Torsional Constant (cm ⁴)
	G	h	b	t _w	t _f	r	A	I _y	I _z	i _y	i _z	W _{ely}	W _{elz}	W _{ply}	W _{plz}	I _w	I _t
* HR 350X350 (S275)	150	350	350	12	19	20	154.9	35,090	12,521	15.05	8.99	2,005	716	2,230	1,037	3.72	199
* HR 400X400 (S275)	200	400	400	13	21	22	197.7	59,051	21,208	17.28	10.36	2,952	1,060	3,274	1,543	8.05	303
* HR 500X500 (S275)	300	500	500	25	25	26	337.5	145,885	50,681	20.79	12.25	5,835	2,027	6,736	3,022	29.38	768
HY 650X300 (S355)	180	650	300	14	19	13	201.1	142,000	8,570	26.5	6.53	4,360	571	4,950	886	8.53	203
HY 700X350 (S355)	230	700	350	16	22	18	261.7	218,000	15,700	28.8	7.76	6,220	900	7,030	1,390	18.1	364
HW 686X356 (S355)	290	706.4	357.8	18.4	30.2	15.2	337.0	290,800	23,120	29.4	8.28	8,233	1,292	9,297	1,992	26.4	813

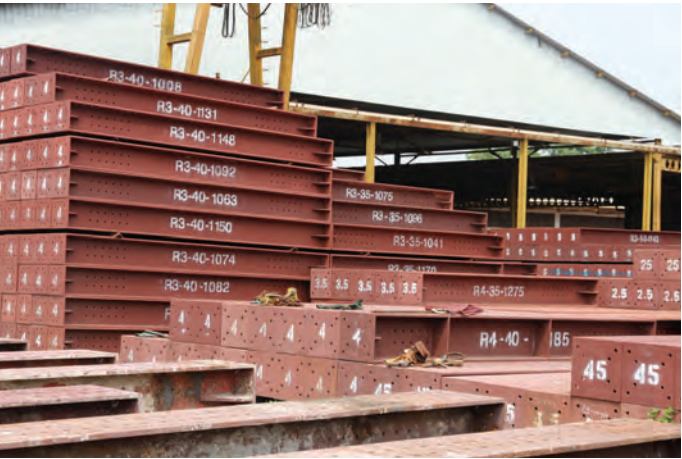
Product Standards: All Fabricated I-Beams / H-Beams are certified class 1 steel as in BC1:2008 / BC1:2012

HR 350x350x150kg/m are fabricated from raw beam H350x350x12x19 (S275).
HR 400x400x200kg/m are fabricated from raw beam H400x400x13x21 (S275).
HR 500x500x300kg/m are fabricated from raw beam H500x500x25x25 (S275).
HY 650x300x180kg/m are fabricated from raw beam H650x300x14x19 (S355).
HY 700x350x230kg/m are fabricated from raw beam H700x350x16x22 (S355).
HW 686x356x290kg/m are fabricated from raw beam H686x356x18.4x30.2 (S355).

* Sectional properties of HR-Beams are reduced to account for extensive Ø25mm holes.



HY-Series Fabricated Beams



HR-Series Fabricated Beams



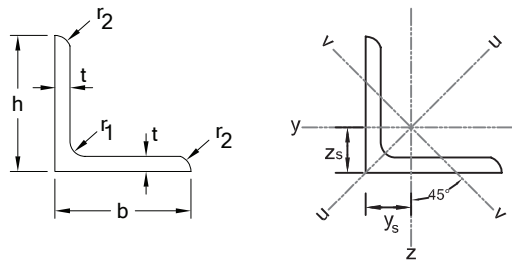
Raw Beams



Raw Beams

Type	Unit Wt. (kg/m)		Dimension (mm)				Sectional Area (cm²)	Moment of Inertia (cm⁴)		Radius of Gyration (cm)		Elastic Modulus (cm³)		Plastic Modulus (cm³)		Warping Constant (dm⁶)	Torsional Constant (cm⁴)
	G	h	b	t _w	t _f	r	A	I _y	I _z	i _y	i _z	W _{ely}	W _{elz}	W _{ply}	W _{plz}	I _w	I _t
H 250X250 (S275)	72.4	250	250	9	14	16	92.2	10,830	3,649	10.8	6.29	867	292	960	444	0.508	58.7
H 300X300 (S275)	94	300	300	10	15	18	120	20,410	6,756	13.1	7.51	1,361	450	1,501	684	1.37	88.1
H 350X350 (S275)	137	350	350	12	19	20	174	40,300	13,590	15.2	8.84	2,303	776	2,545	1,179	3.72	199
H 400X400 (S275/S355)	172	400	400	13	21	22	219	66,620	22,420	17.5	10.10	3,331	1,121	3,672	1,700	8.05	303
H 588X300 (S275)	151	588	300	12	20	28	192	118,100	9,025	24.8	6.85	4,018	602	4,489	928	7.28	241
H 594X302 (S275)	175	594	302	14	23	28	222	137,300	10,509	24.9	6.90	4,624	701	5,197	1,085	8.63	356
H 620X307 (S275)	179	620.2	307.1	14.1	23.6	16.5	228	153,000	11,410	25.9	7.07	4,935	743	5,574	1,144	10.2	340
H 650X300 (S355)	158	650	300	14	19	13	201.1	142,000	8,570	26.5	6.53	4,360	571	4,950	886	8.53	203
H 700X350 (S355)	206	700	350	16	22	18	261.7	218,000	15,700	28.8	7.76	6,220	900	7,030	1,390	18.1	364
H 800X300 (S355)	241	808	302	16	30	28	308	339,200	13,820	33.2	6.70	8,397	915	9,534	1,426	20.9	726
H 686X356 (S355)	265	706.4	357.8	18.4	30.2	15.2	337	290,800	23,120	29.4	8.28	8,233	1,292	9,297	1,992	26.4	813

Angles



Material Specification

Size (mm)	Dimension (mm)			Sectional Area (cm ²)	Unit Wt. (kg/m)	Centre of Gravity (cm)		Moment of Inertia (cm ⁴)				Radius of Gyration (cm)				Section Modulus (cm ³)	
h x b	t	r ₁	r ₂	A	G	z _s	y _s	I _y	I _z	I _u	I _v	i _y	i _z	i _u	i _v	W _{el,y}	W _{el,z}
50 X 50	4	7	3.5	3.89	3.06	1.36	1.36	8.97	8.97	14.25	3.7	1.52	1.52	1.91	0.97	2.46	2.46
	6	7	3.5	5.69	4.47	1.45	1.45	12.84	12.84	20.37	5.31	1.5	1.5	1.89	0.97	3.61	3.61
60 X 60	4	8	4	4.71	3.7	1.6	1.6	15.78	15.78	25.04	6.51	1.83	1.83	2.31	1.18	3.58	3.58
	5	8	4	5.82	4.57	1.64	1.64	19.37	19.37	30.77	7.97	1.82	1.82	2.3	1.17	4.45	4.45
65 X 65	6	9	4.5	7.53	5.91	1.8	1.8	29.19	29.19	46.36	12.01	1.97	1.97	2.48	1.26	6.21	6.21
	8	9	4.5	9.85	7.73	1.89	1.89	37.49	37.49	59.46	15.52	1.95	1.95	2.46	1.26	8.13	8.13
75 X 75	6	9	4.5	8.73	6.85	2.05	2.05	45.83	45.83	72.84	18.82	2.29	2.29	2.89	1.47	8.41	8.41
	9	10	4.8	12.8	9.96	2.17	2.17	65.3	65.3	103	27.2	2.26	2.26	2.84	1.46	12.3	12.3
	12	10	4.8	16.7	13	2.29	2.29	82.7	82.7	130	35	2.23	2.23	2.8	1.45	15.9	15.9
90 X 90	6	10	5	10.5	8.28	2.42	2.42	80.72	80.72	128.3	33.16	2.77	2.77	3.49	1.77	12.26	12.26
	7	11	5.5	12.2	9.61	2.45	2.45	92.55	92.55	147.1	38.03	2.75	2.75	3.47	1.76	14.13	14.13
	10	11	5.5	17.1	13.4	2.58	2.58	126.9	126.9	201.5	52.33	2.72	2.72	3.43	1.75	19.77	19.77
	12	11	4.8	20.3	15.9	2.66	2.66	149	149	235	62.1	2.7	2.7	3.4	1.75	23.5	23.5
100 X 100	13	11	4.8	21.9	17	2.7	2.67	159	159	251	66.6	2.69	2.69	3.39	1.74	25.2	25.2
	7	12	6	13.7	10.7	2.69	2.69	128.2	128.2	203.7	52.72	3.06	3.06	3.86	1.96	17.54	17.54
	10	12	6	19.2	15	2.82	2.82	176.7	176.7	280.7	72.66	3.04	3.04	3.83	1.95	24.62	24.62
120 X 120	13	12	4.8	24.5	19.1	2.95	2.95	222	222	352	92.8	3.01	3.01	3.79	1.95	31.5	31.5
	10	13	6.5	23.2	18.2	3.31	3.31	312.9	312.9	497.6	128.3	3.67	3.67	4.63	2.35	36.03	36.03

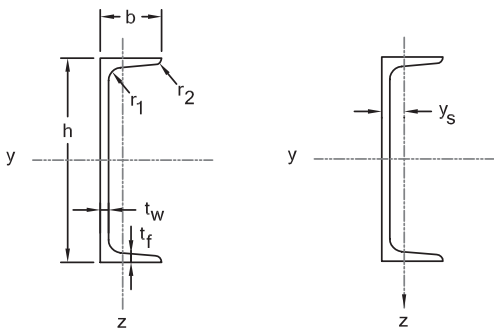


Angles



Fabricated Angle Bars

Channels



Material Specification

Size (mm)	Dimension (mm)				Sectional Area (cm ²)	Unit Wt. (kg/m)	Centre of Gravity (cm)	Moment of Inertia (cm ⁴)		Radius of Gyration (cm)		Section Modulus (cm ³)	
h x b	t _w	t _f	r ₁	r ₂	A	G	y _s	I _y	I _z	i _y	i _z	W _{el,y}	W _{el,z}
100 X 50	5	7.5	8	4	11.9	9.36	1.55	189	26.9	3.99	1.5	37.8	7.82
125 X 65	6	8	8	4	17.1	13.4	1.94	425	65.5	4.99	1.96	68.0	14.4
150 X 75	6.5	10	10	5	23.7	18.6	2.31	864	122	6.04	2.27	115	23.6
	9	12.5	15	7.5	30.5	24.0	2.31	1,060	151	5.9	2.22	141	29.1
180 X 75	7	10.5	11	5.5	27.2	21.4	2.15	1,380	137	7.12	2.24	154	25.5
200 X 80	7.5	11	12	6	31.3	24.6	2.24	1,950	177	7.89	2.38	195	30.8
200 X 90	8	13.5	14	7	38.7	30.3	2.77	2,490	286	8.02	2.72	249	45.9
250 X 90	9	13	14	7	44.1	34.6	2.42	4,180	306	9.74	2.63	335	46.5
300 X 90	9	12	14	7	48.6	38.1	2.23	6,440	325	11.5	2.59	429	48
380 X 100	13	20	24	12	85.7	67.3	2.25	17,600	655	14.3	2.76	926	87.8



Channels



Fabricated Channels

Road Deck Panels (METRODECK)

Material Specification

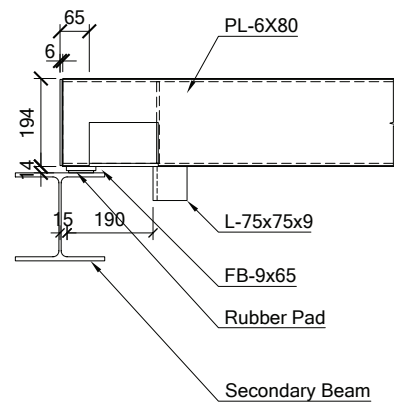
• **Shape and Type**
Each Deck Panel consists of five checkered wide flange beams with anti-skid patterns hot rolled on the flange surfaces. These beams are cut into specified lengths, welded together and reinforced with plates as required.
All Deck Panels are rectangular in shape.

• **Method of Installation**
Deck Panels of this type can be installed by simply setting them on support beams without any fixing operations.
Angle is welded to both ends on the bottom side of each Deck Panel as a stopper to prevent horizontal movement.

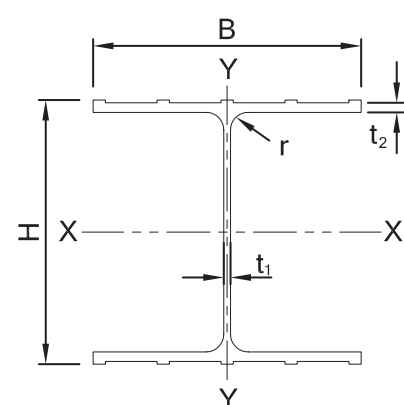
Width x Length x Thickness (mm)	Area (m ²)	Weight (kg/Sheet)
1,000 x 2,000 x 208	2.0	368
1,000 x 3,000 x 208	3.0	552



Self - Seating Type

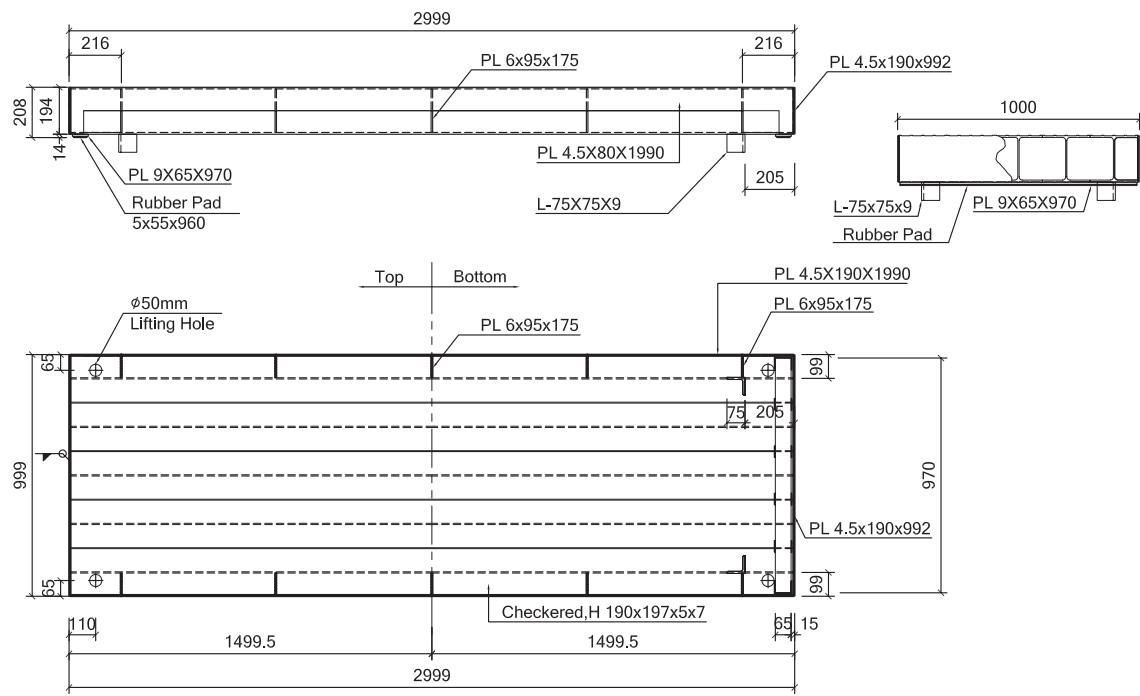
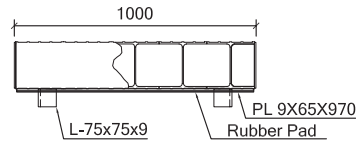
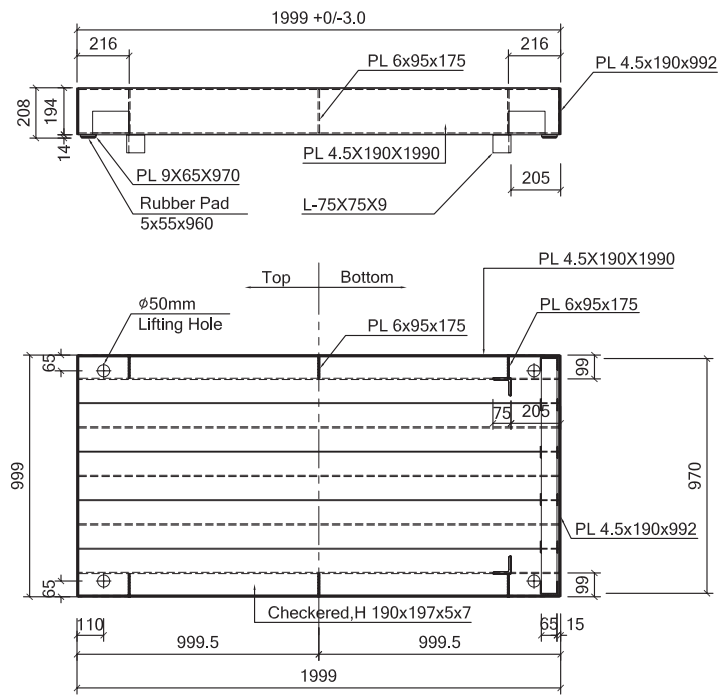


Rugged Grid - Patterns Section Properties



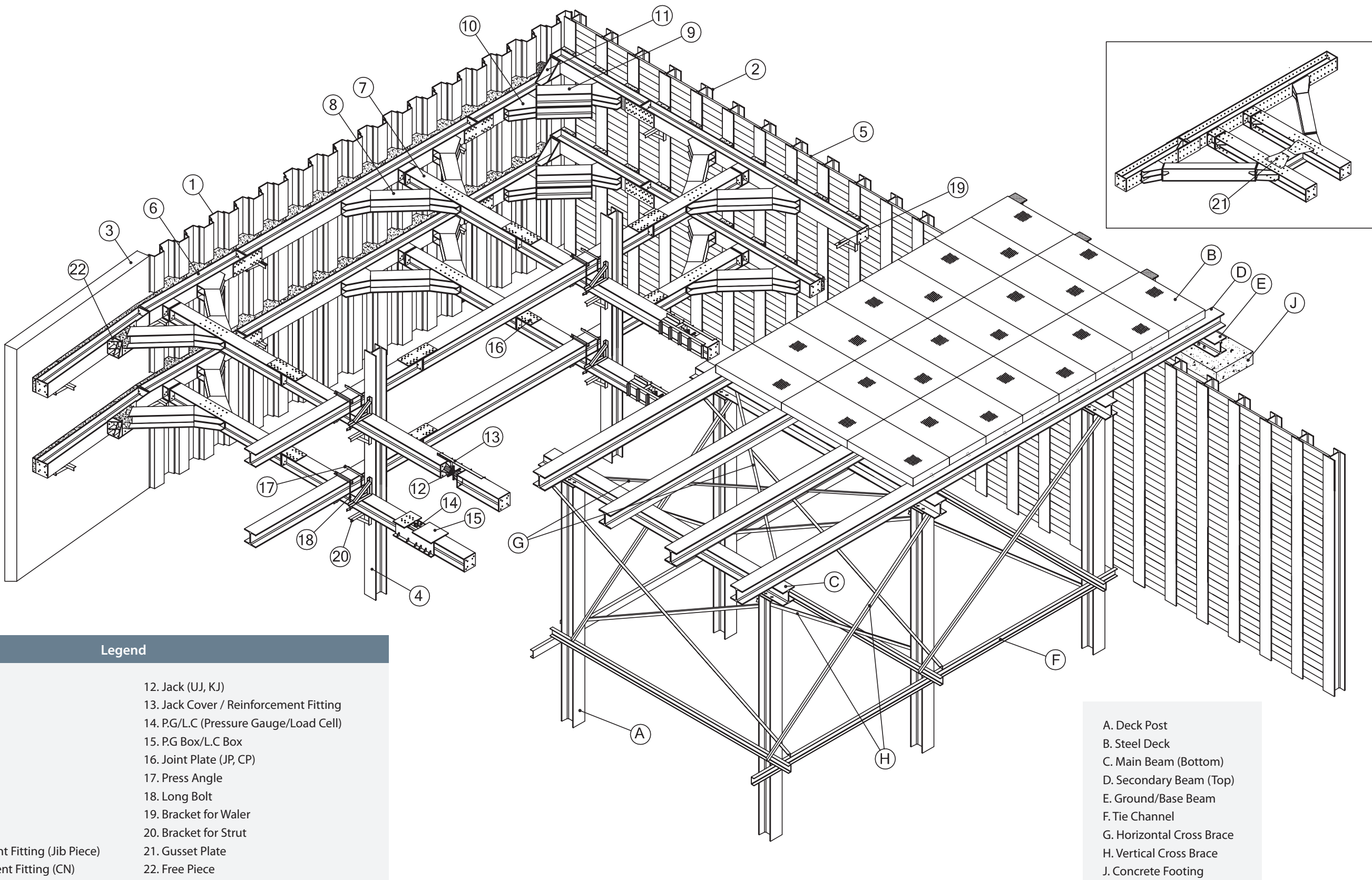
H (mm)	B (mm)	t ₁ (mm)	t ₂ (mm)	r (mm)	A (cm ²)	W (kg/m)
190	197	5	7	13	39.94	32.6

I _x (cm ⁴)	I _y (cm ⁴)	i _x (cm ⁴)	i _y (cm ⁴)	Z _x (cm ³)	Z _y (cm ³)
3.030	977	8.71	4.95	312	99.2



Shoring System

Standard Assembly Drawing for Cross Strut System



Legend

- | | |
|---|---|
| 1. Sheet Pile (SP) | 12. Jack (UJ, KJ) |
| 2. H-Pile (Soldier Pile) | 13. Jack Cover / Reinforcement Fitting |
| 3. Diaphragm Wall | 14. P.G./L.C (Pressure Gauge/Load Cell) |
| 4. King Post | 15. P.G Box/L.C Box |
| 5. Timber Lagging | 16. Joint Plate (JP, CP) |
| 6. Waler | 17. Press Angle |
| 7. Strut | 18. Long Bolt |
| 8. Diagonal Knee Brace | 19. Bracket for Waler |
| 9. Corner Strut | 20. Bracket for Strut |
| 10. Angle Reinforcement Fitting (Jib Piece) | 21. Gusset Plate |
| 11. Corner Reinforcement Fitting (CN) | 22. Free Piece |

- A. Deck Post
B. Steel Deck
C. Main Beam (Bottom)
D. Secondary Beam (Top)
E. Ground/Base Beam
F. Tie Channel
G. Horizontal Cross Brace
H. Vertical Cross Brace
J. Concrete Footing

Shoring System

Standard Assembly Drawing for Laced Strut System

Legend

1. Diaphragm Wall

2. Kingpost

3. Bracket Carrying Waler

4. Single Waler

5. Twin Strut (2HR350/2HR400)

6. Bracket Carrying Runner Beam

7. Runner Beam

8. Double Waler

9. Twin Strut (2HY650/2HY700)

10. Triple Strut (3HY700/3HW686)

11. Screw Jack (Passive Jack)

12. Hydraulic Jack (Active Pre-load Jack)

13. Preloading Girder

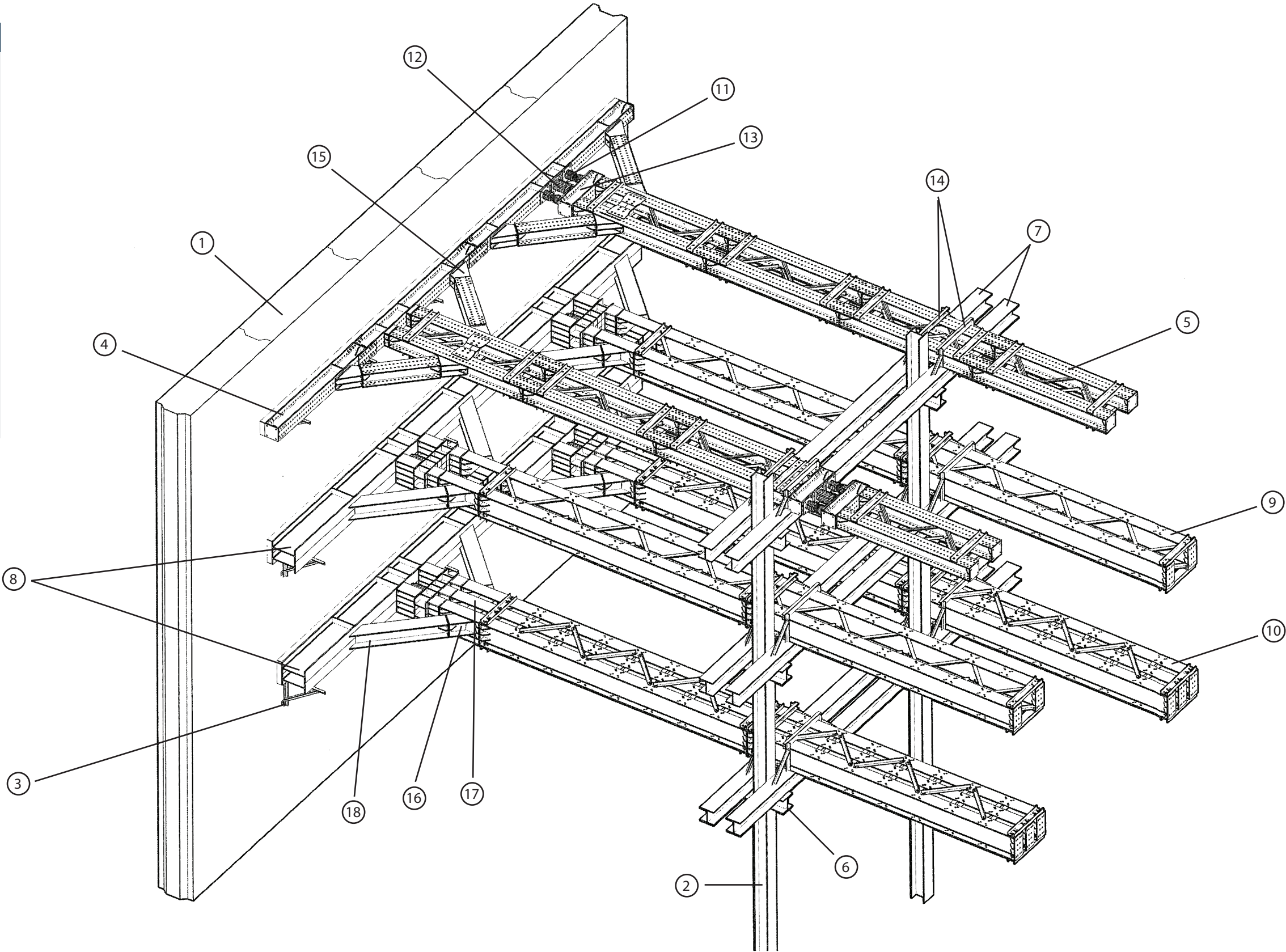
14. Strut Restraint

15. Jib-piece

16. Y-Junction

17. T-Junction

18. Diagonal Knee Brace

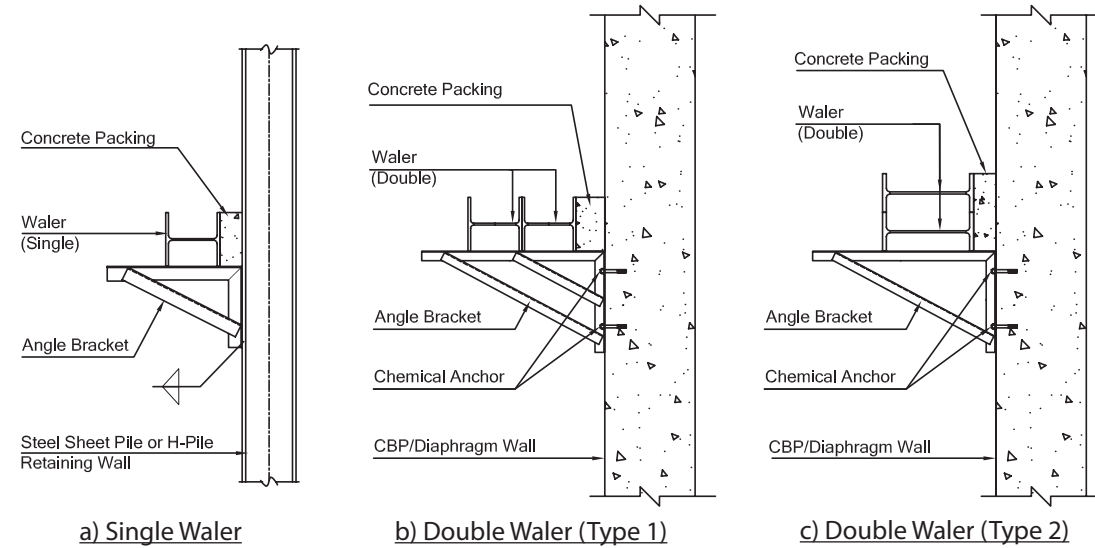


Shoring System

Standard Installation & Assembly Detail

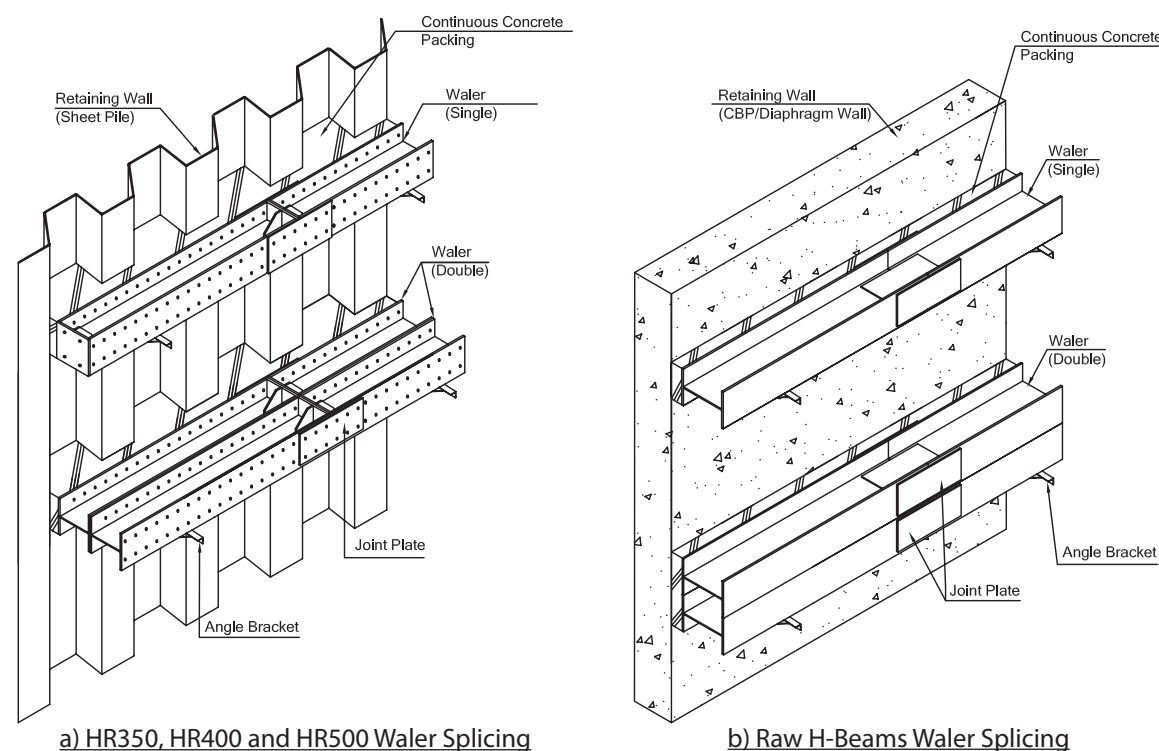
1. Mounting of Bracket

- a) Fix angle bracket supporting waler against retaining wall at interval not exceeding 3.5 c/c.



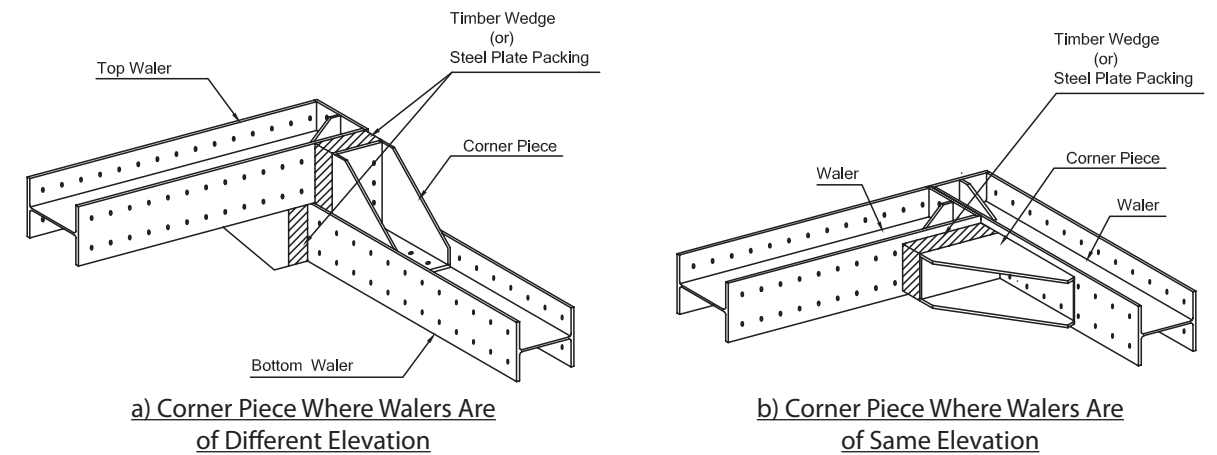
2. Assembly of Waler

- a) Place & assemble modular waler member on brackets fixed against retaining wall.
 b) Provide a gap of about 100mm between waler & retaining wall.
 c) Fix the near-wall-face splicing plate on waler before placement.
 d) Fill the gap with continuous concrete packing.



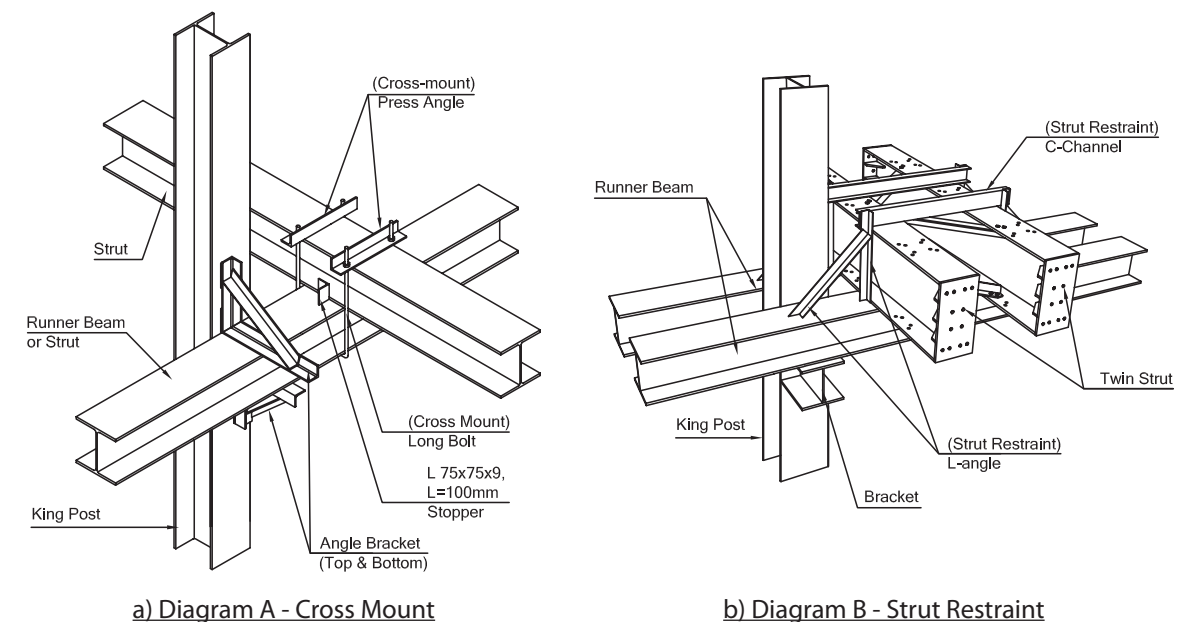
3. Mounting of Corner Piece

- a) Mount the corner piece onto waler before installation.
 b) Fill the gap between waler & corner piece with either timber wedges or steel plate packing.



4. Installation of Strut

- a) Place & assemble modular strut/runner beam member on bracket fixed against king post..
 b) Adjust strut to achieve required alignment.
 c) Fix the top uplift-restraint-bracket above the lower level transverse-strut or runner beam. (Diagram A)
 d) Install cross-mount to clamp the upper level longitudinal to the underlying transverse-strut and tighten the long-bolts firmly before preloading. Ensure the long-bolts are firmly tighten again after preloading. (Diagram A)
 e) Install strut restraint which consist of C-channel and L-angle to clamp the twin/triple strut to the runner beam by welding. (Diagram B)

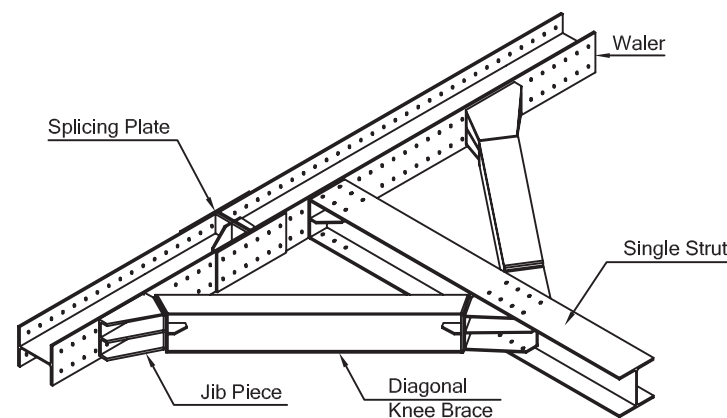


Shoring System

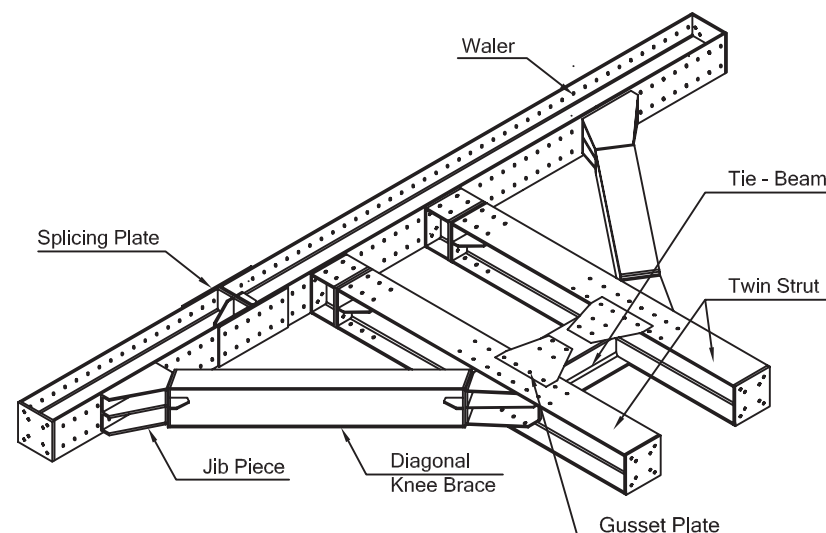
Standard Installation & Assembly Detail

5. Mounting of Knee-Brace for HR350 and HR400 Fabricated H-Beams

- Install and align the single/twin-strut into position.
- Fix the top gusset-plate onto the tie-beam before placing it between the twin-strut. (Diagram B)
- Bolt the jib-piece loosely onto the diagonal knee-brace.
- Insert the strut-side jib-piece within the flanges of the strut.
- Adjust both jib-pieces to fit the bolts through the matching bolt-holes on the waler and strut side.
- Insert shim plate within gaps that may appear between jib-piece and waler or between jib-piece and diagonal knee-brace.



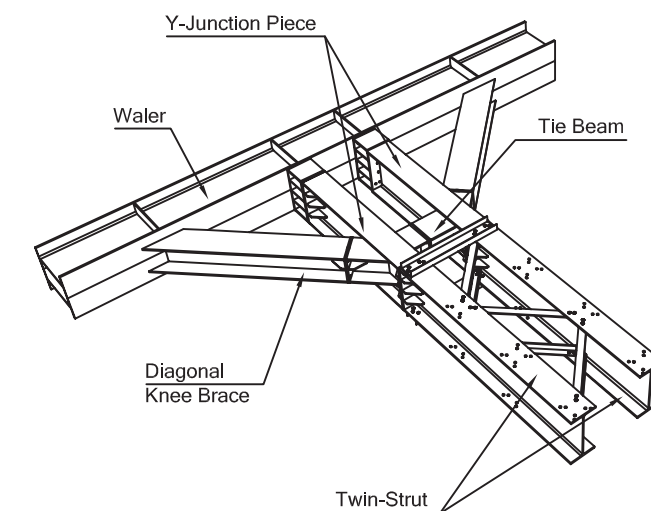
a) Diagram A - Single Strut Knee-Brace



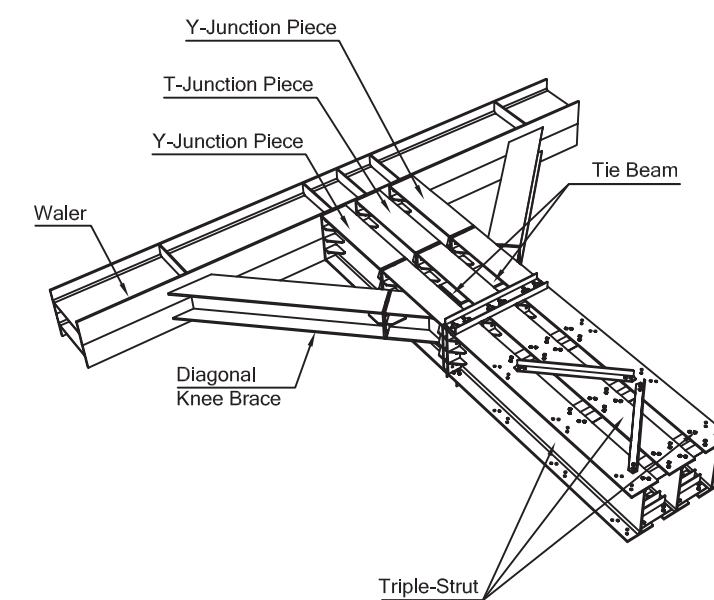
b) Diagram B - Twin Strut Knee-Brace

6. Mounting of Knee-Brace for HY650, HY700 and HW686 Fabricated H-Beams

- Install and align the Y-junction and T-junction into position.
- Connect the diagonal knee brace to the Y-junction with bolts and weld the other side of the knee brace to the waler.



a) Twin Strut

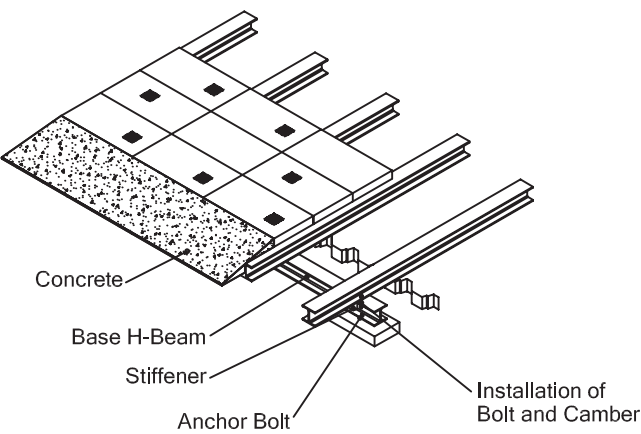


b) Triple Strut

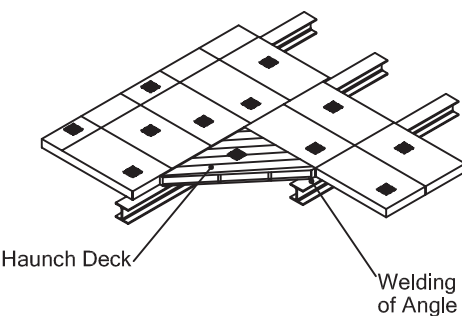
Decking

Standard Installation & Assembly Detail

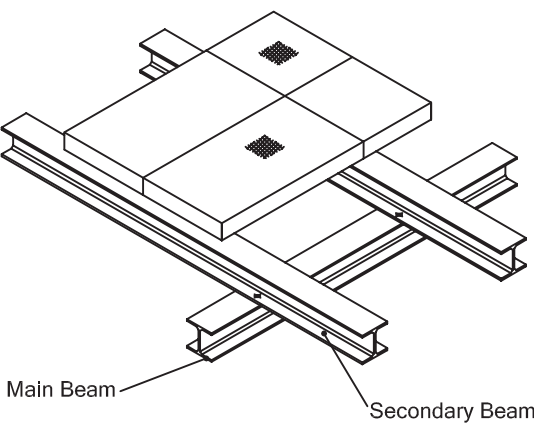
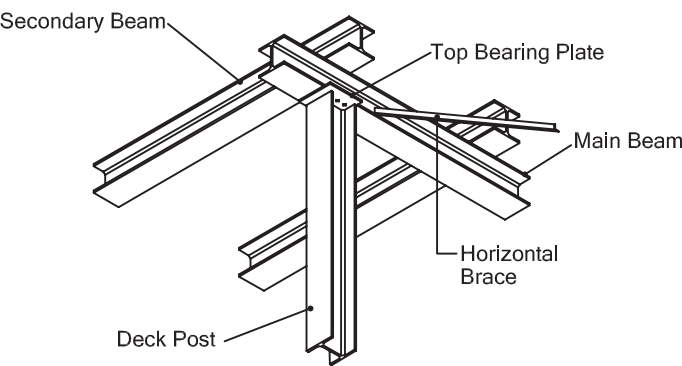
1. Entrance Ramp



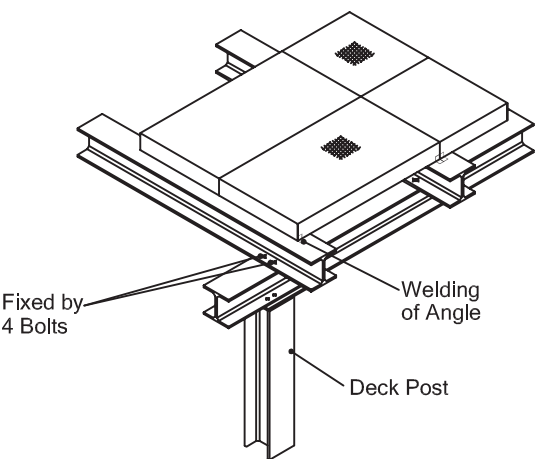
2. Haunch (Triangular) Deck



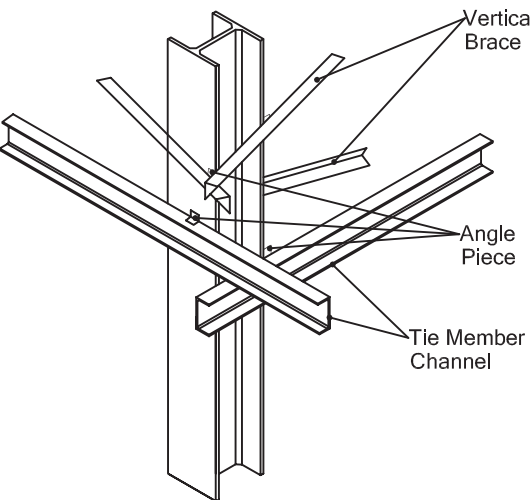
3. Secondary & Main Beam



4. Steel Deck Panel



5. Cross Brace & Tie Member



Fabricated Support System

Support Beam Component Unit Weight List

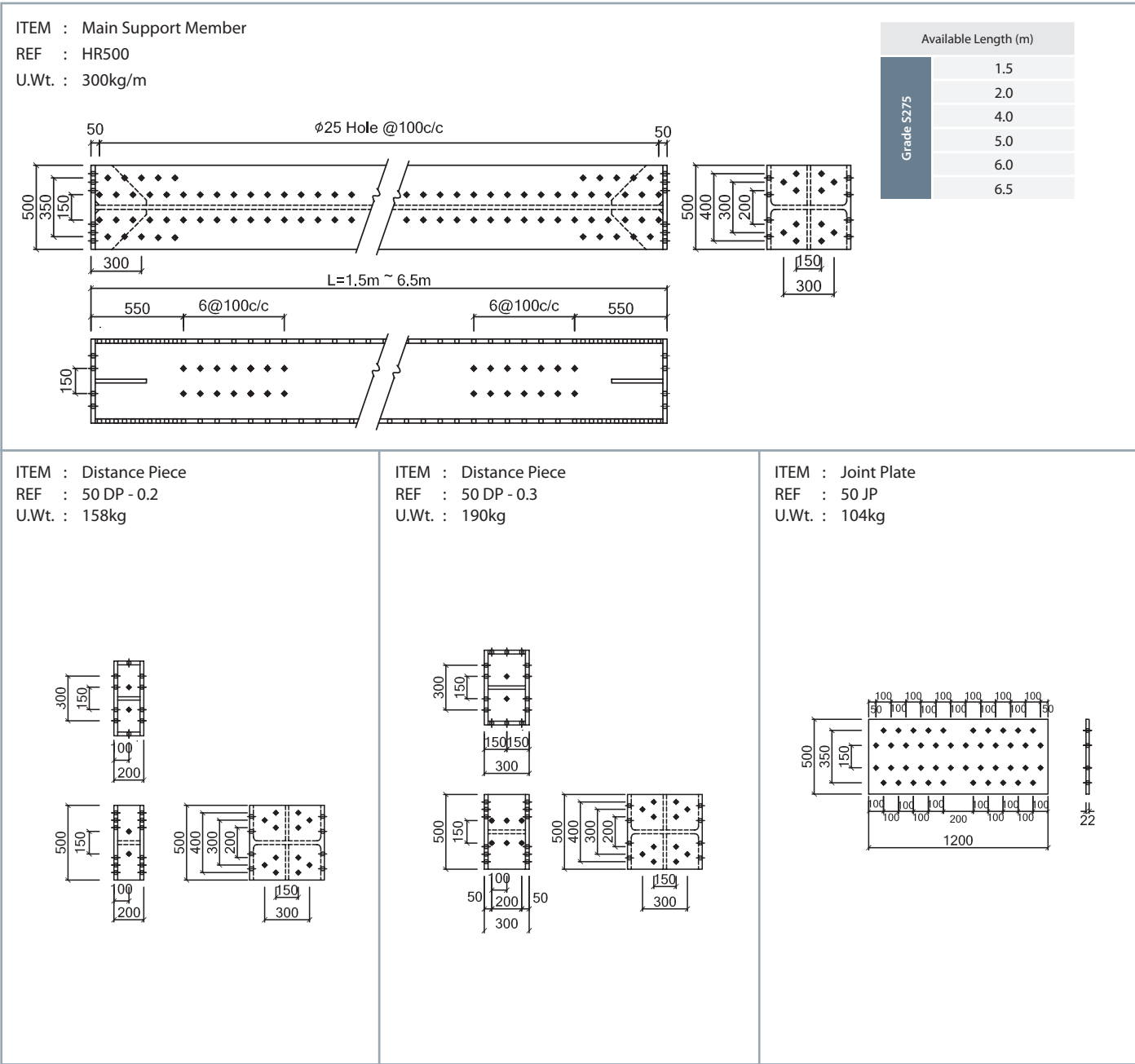
Length (m)	Ref	Size					
		HR350	HR400	HR500	HY650	HY700	HW686
		150 (kg/m)	200 (kg/m)	300 (kg/m)	180 (kg/m)	230 (kg/m)	290 (kg/m)
12.0	HR/HY/HW				*	*	*
8.0		*	*		*	*	*
7.5		*	*				
7.0		*	*				
6.5		*	*	*			
6.0		*	*	*	*	*	*
5.5		*	*				
5.4		*	*				
5.0		*	*	*			
4.5		*	*				
4.0		*	*	*	*	*	*
3.6		*	*				
3.5		*	*				
3.0		*	*				
2.5		*	*	*			
2.1		*	*				
2.0	DP	*	*	*	*	*	*
1.5		*	*	*			
1.0		*	*		*	*	*
0.9		*	*				
0.60		115	150				
0.50		105	140				
0.45		90	120				
0.40		90	110		160	200	230
0.30	DP	80	100	190			
0.20		70	80	153	110	140	150
0.15		50	65		95	120	135
0.10		50	60				

Item	Ref	Size					
		HR350	HR400	HR500	HY650	HY700	HW686
		(kg/pc)	(kg/pc)	(kg/pc)	(kg/pc)	(kg/pc)	(kg/pc)
JIB PIECE	HP30	100	170				
JIB PIECE	HP45	80	120				
FREE PIECE	FP	85	130				
JOINT PLATE	JP	27	40	104			
GUSSET PLATE	SHG	15	18				
CORNER PIECE	CN	85	110				
JACK COVER	JC	70	120				
1.2m Y-JUNCTION	YJTN-1.2m				510	610	
2.1m Y-JUNCTION	YJTN-2.1m				700	850	
2.6m Y-JUNCTION	YJTN-2.6m				780	950	
1.2m Y-JUNCTION (T)	YJTN (T)-1.2m					570	650
2.1m Y-JUNCTION (T)	YJTN (T)-2.1m					815	
2.6m Y-JUNCTION (T)	YJTN (T)-2.6m					915	
1.2m T-JUNCTION	TJTN-1.2m					510	585
2.1m T-JUNCTION	TJTN-2.1m					750	
2.6m T-JUNCTION	TJTN-2.6m					850	
SCREW JACK	KJ150			100			
	KJ200			130			
	KJ300			210			
	KOP-1230			150			
OIL JACK	KOP-2040			320			
	NOP-120			150			
	NOP-200			300			
OIL JACK C/W LOAD CELL	KOPL-1230			330			
	KOPL-2040			550			
	NOPG-250			250			
	NOPG-350			360			
Item	Ref	Unit Weight					
N. ANGLE BRACKET	AB	20 kg/pc					
S. ANGLE BRACKET	(S)AB	30 kg/pc					
CROSS MOUNT	XK	40 kg/set					
BOLT & NUT GR. 8.8	M22X75	0.52 kg/pc					
BOLT & NUT GR. 10.9	M22X75	0.52 kg/pc					

* Denotes the corresponding length which is available under the respective series and size.

Fabricated Support System

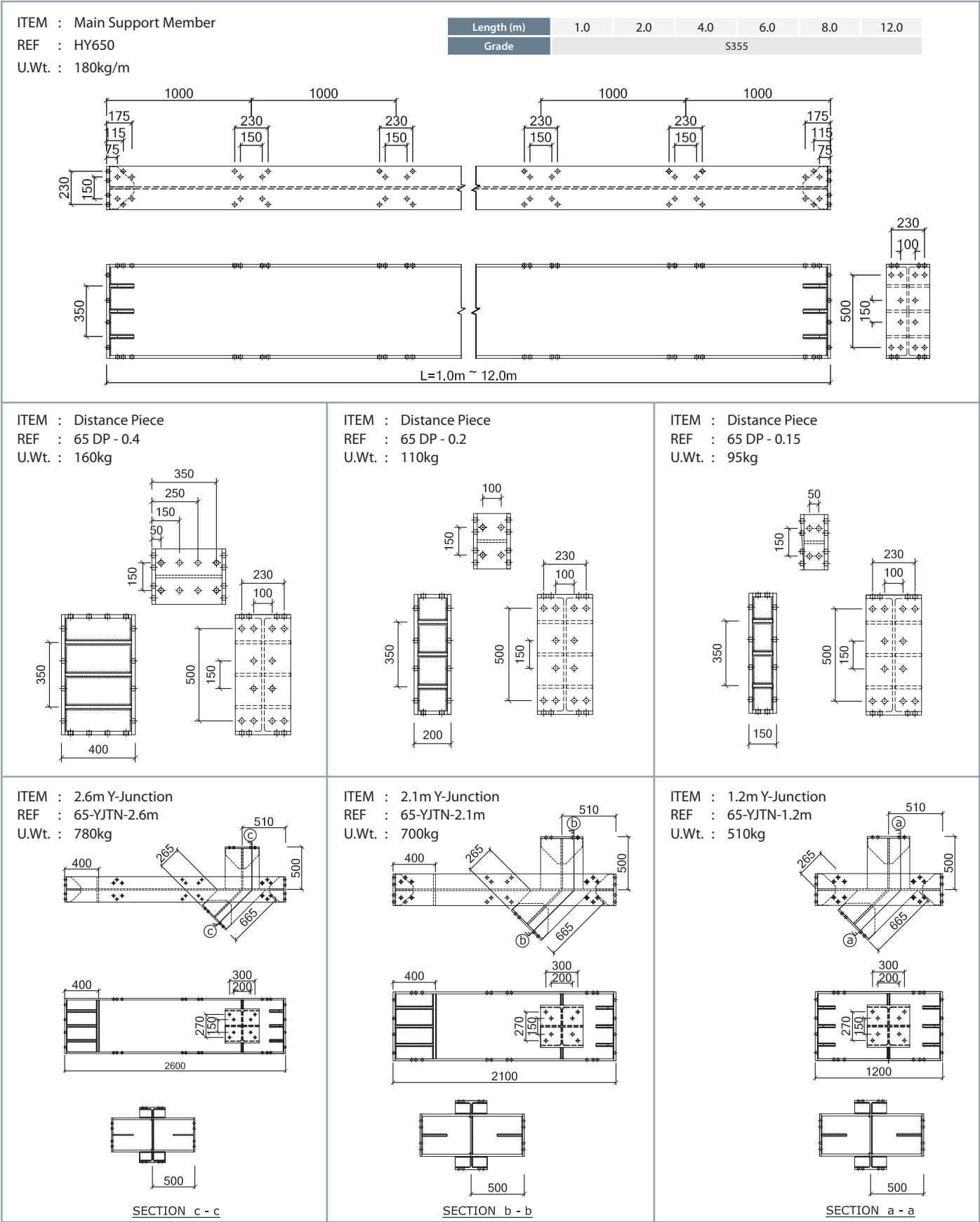
HR500x500x300 KG/M FABRICATED SUPPORT SYSTEM



NOTE: All bolts hole are of Ø 25mm. HR 500x500x300kg/m are fabricated from raw beam H500x500x25x25 (S275).

Fabricated Support System

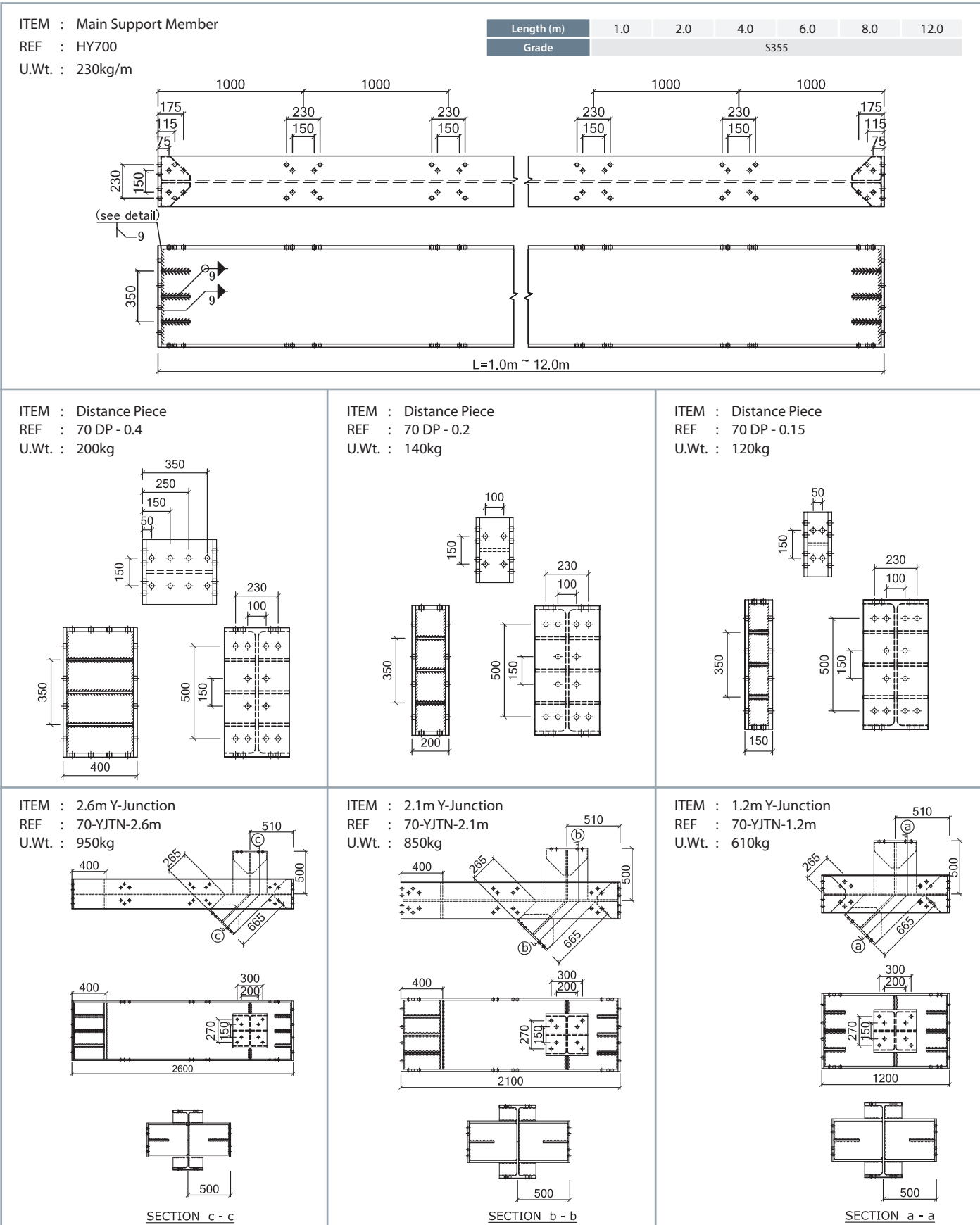
HY650x300x180 KG/M FABRICATED SUPPORT SYSTEM



NOTE: All hole are of Ø 25mm. HY 650x300x180kg/m are fabricated from raw beam H650x300x14x19 (S355).

Fabricated Support System

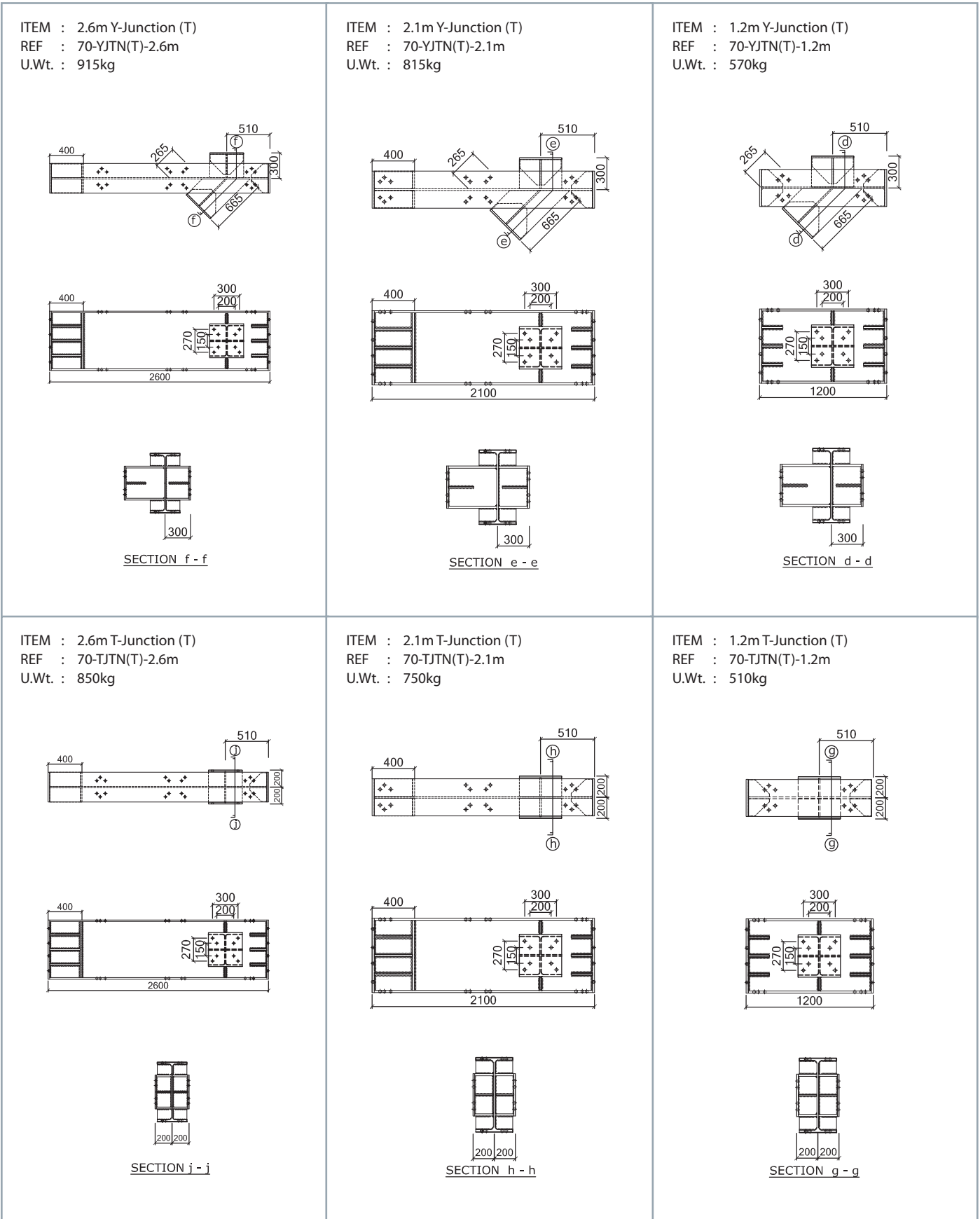
HY700x350x230 KG/M FABRICATED SUPPORT SYSTEM



NOTE: All hole are of Ø 25mm. HY 700x350x230kg/m are fabricated from raw beam H700x350x16x22 (S355).

Fabricated Support System

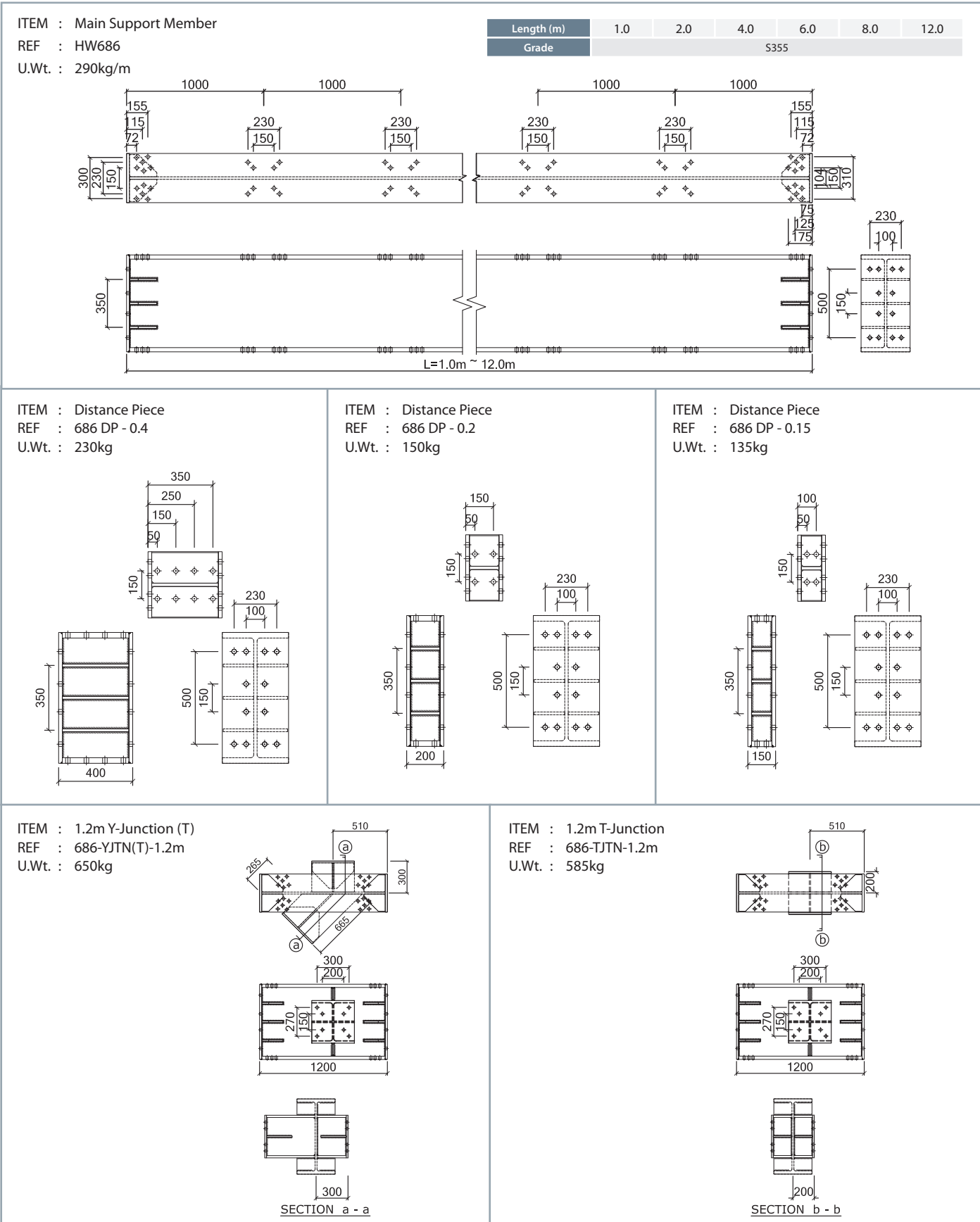
HY700x350x230 KG/M FABRICATED SUPPORT SYSTEM



NOTE: All hole are of Ø 25mm. HY 700x350x230kg/m are fabricated from raw beam H700x350x16x22 (S355).

Fabricated Support System

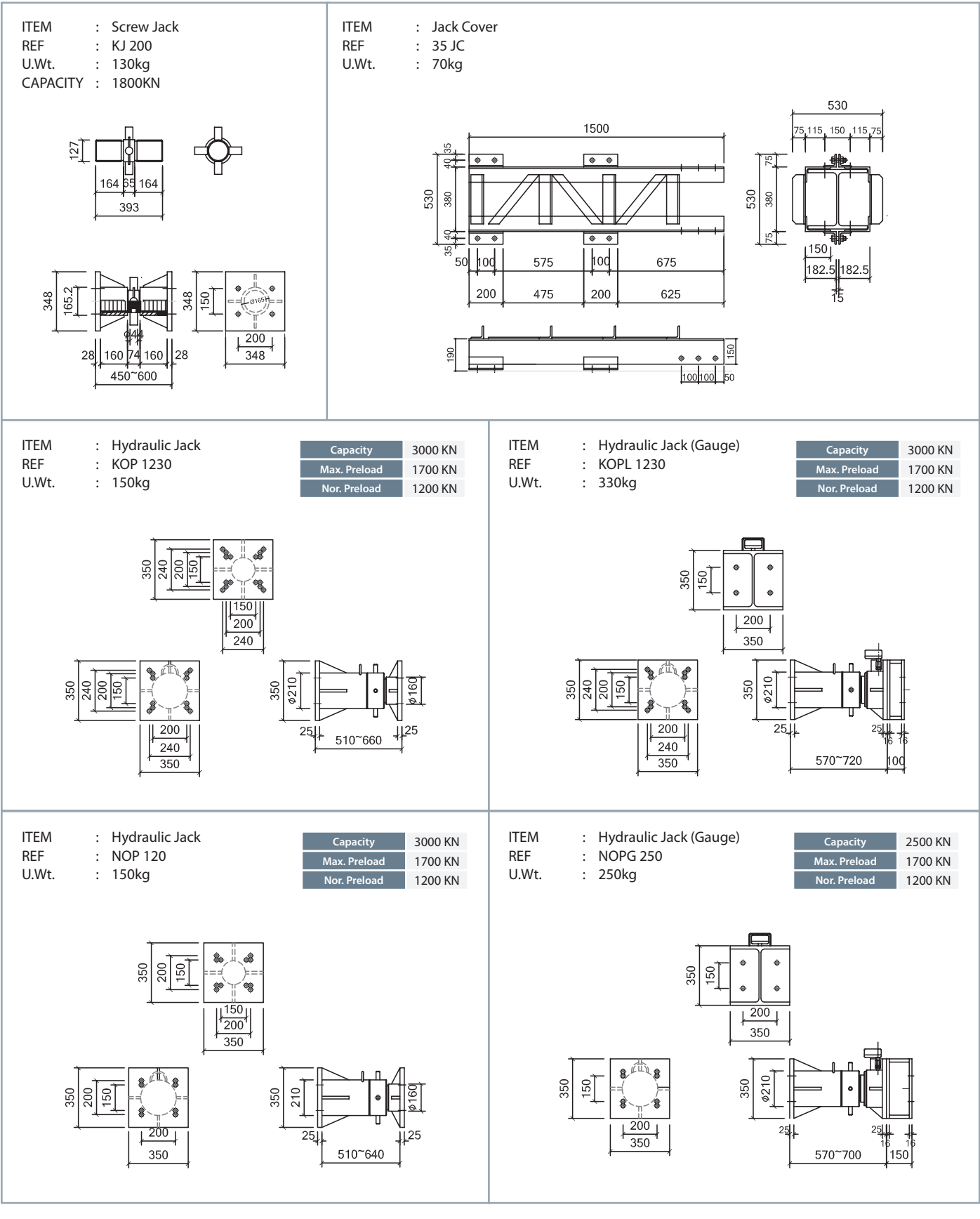
HW686x356x290 KG/M FABRICATED SUPPORT SYSTEM



NOTE: All hole are of Ø 25mm. HW 686x356x290kg/m are fabricated from raw beam H686x356x18.4x30.2 (S355).

Fabricated Support System

TYPE OF JACK

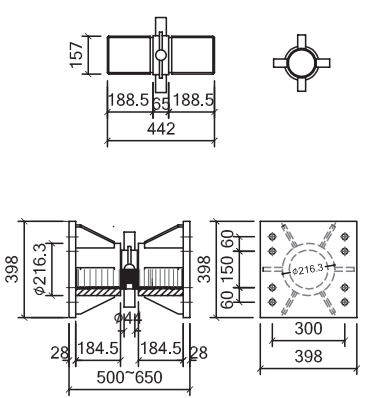


NOTE: All hole are of Ø 25mm.

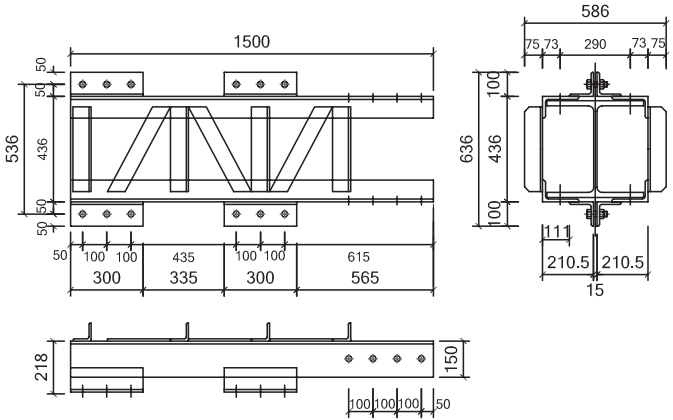
Fabricated Support System

TYPE OF JACK

ITEM : Screw Jack
REF : KJ 300
U.Wt. : 210kg
CAPACITY : 2500KN

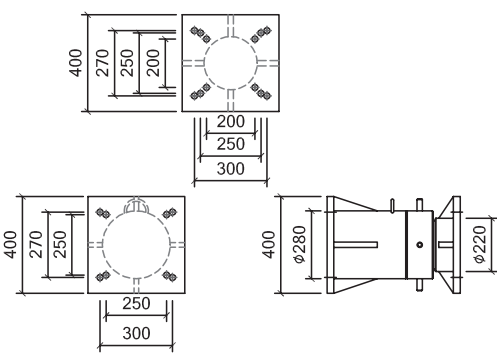


ITEM : Jack Cover
REF : 40 JC
U.Wt. : 100kg



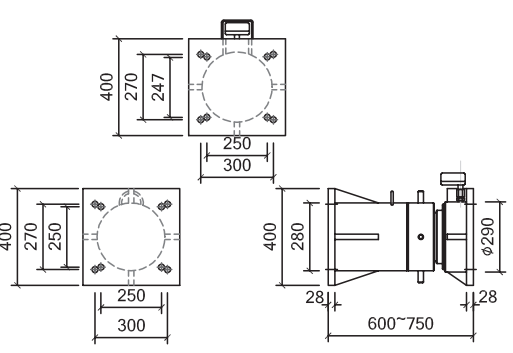
ITEM : Hydraulic Jack
REF : KOP 2040
U.Wt. : 320kg

Capacity	4000 KN
Max. Preload	3000 KN
Nor. Preload	2000 KN



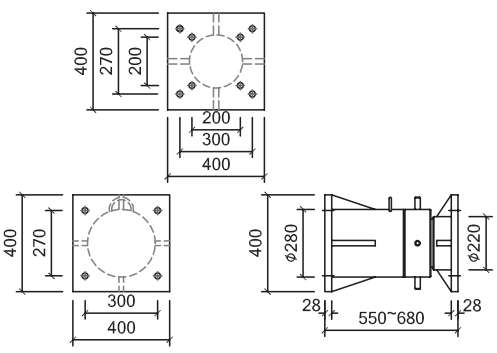
ITEM : Hydraulic Jack (Gauge)
REF : KOPL 2040
U.Wt. : 550kg

Capacity	4000 KN
Max. Preload	3000 KN
Nor. Preload	2000 KN



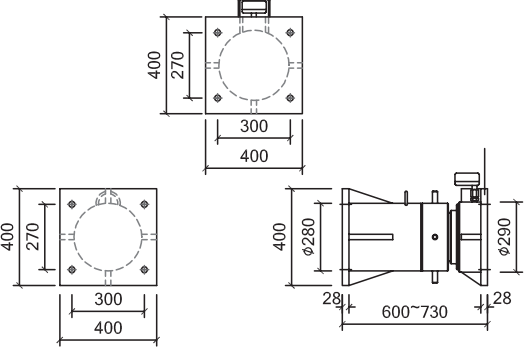
ITEM : Hydraulic Jack
REF : NOP 200
U.Wt. : 300kg

Capacity	4000 KN
Max. Preload	3000 KN
Nor. Preload	2000 KN



ITEM : Hydraulic Jack (Gauge)
REF : NOPG 350
U.Wt. : 360kg

Capacity	3500 KN
Max. Preload	3000 KN
Nor. Preload	2000 KN

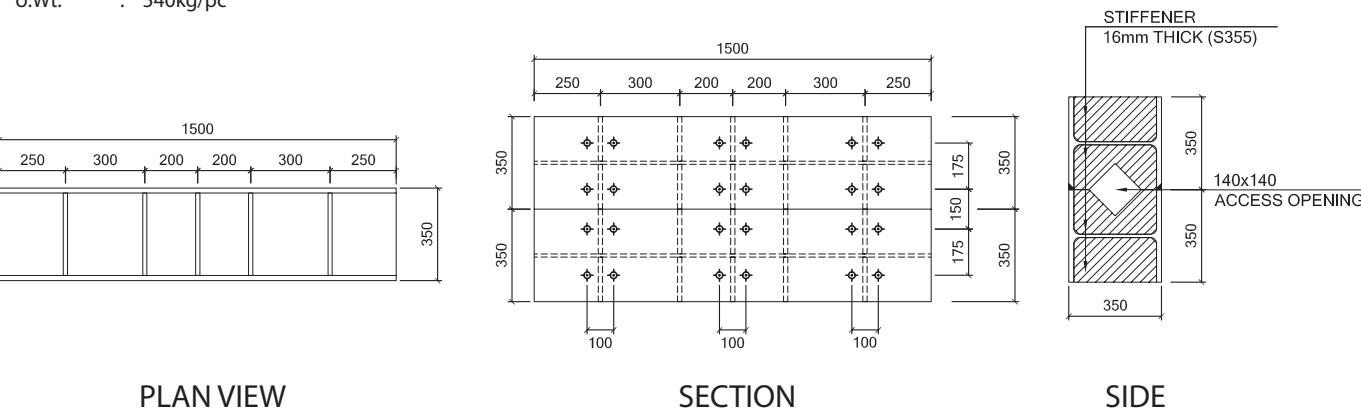


NOTE: All hole are of Ø 25mm.

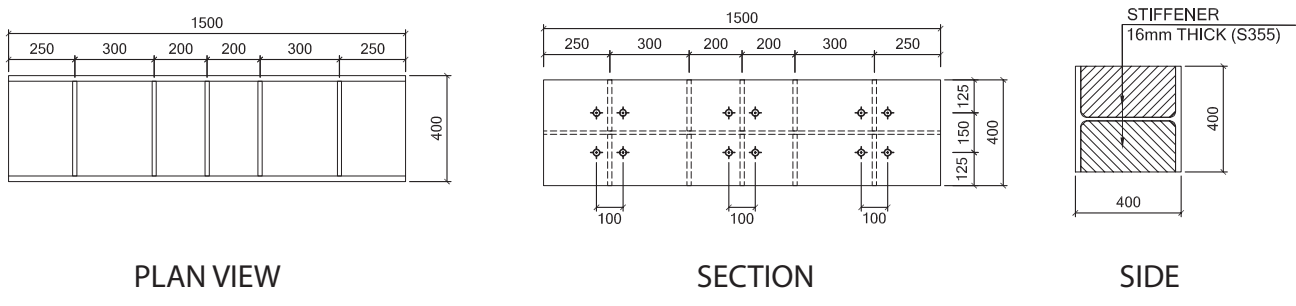
Fabricated Support System

PRELOADING GIRDER

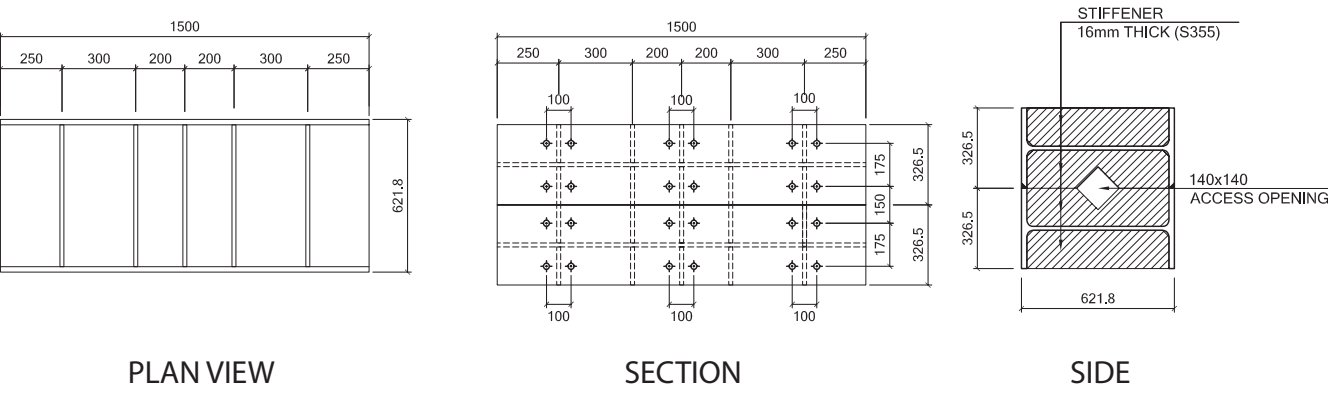
ITEM : Preloadig Girder
REF : PLG
SIZE : H350x350x137kg/m(S355)
U.Wt. : 540kg/pc



ITEM : Preloadig Girder
REF : PLG
SIZE : H400x400x172kg/m(S355)
U.Wt. : 325kg/pc



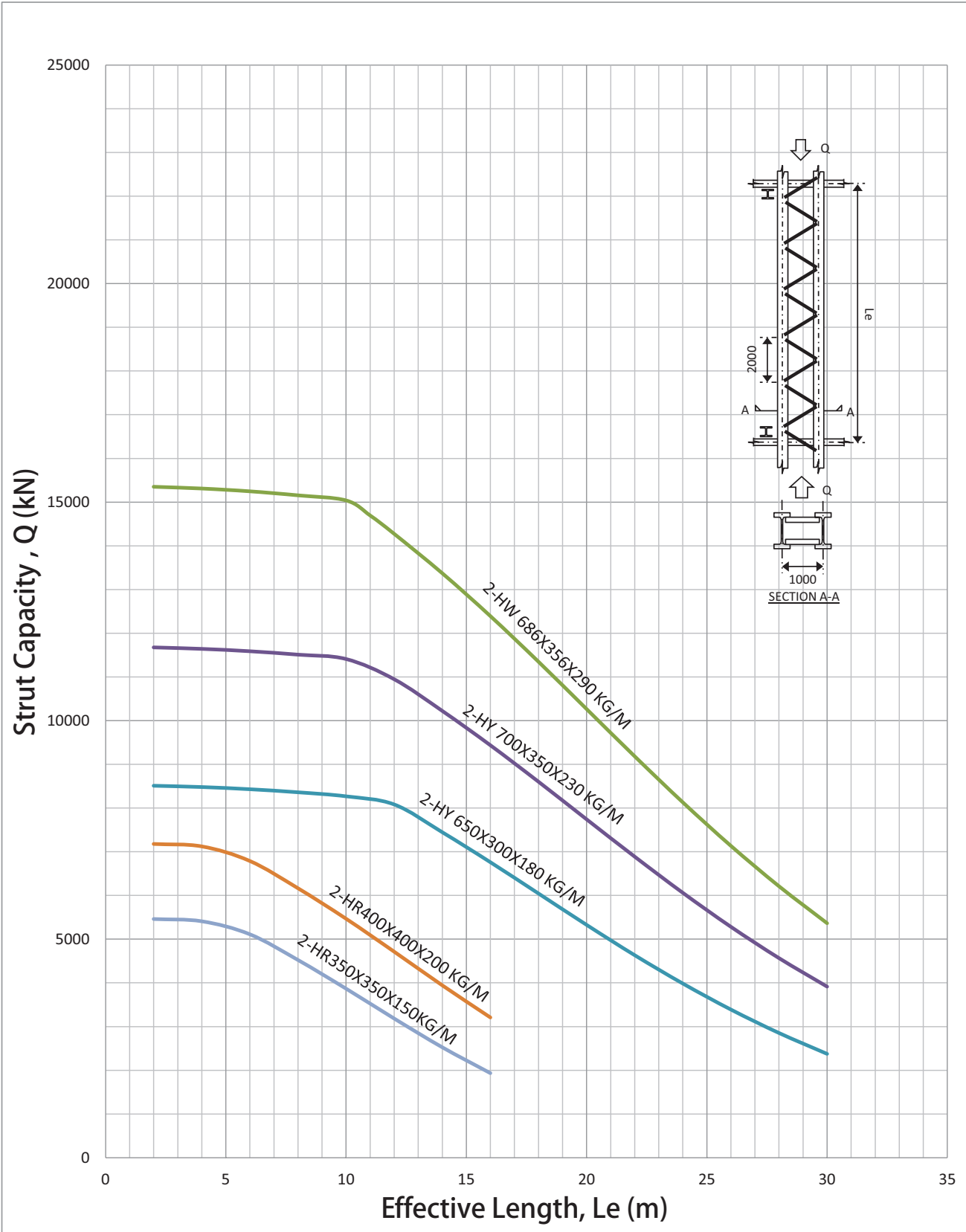
ITEM : Preloadig Girder
REF : PLG
SIZE : H610x324x195kg/m(S355)
U.Wt. : 810kg/pc



NOTE: All hole are of Ø 25mm.

Twin Strut Design Chart

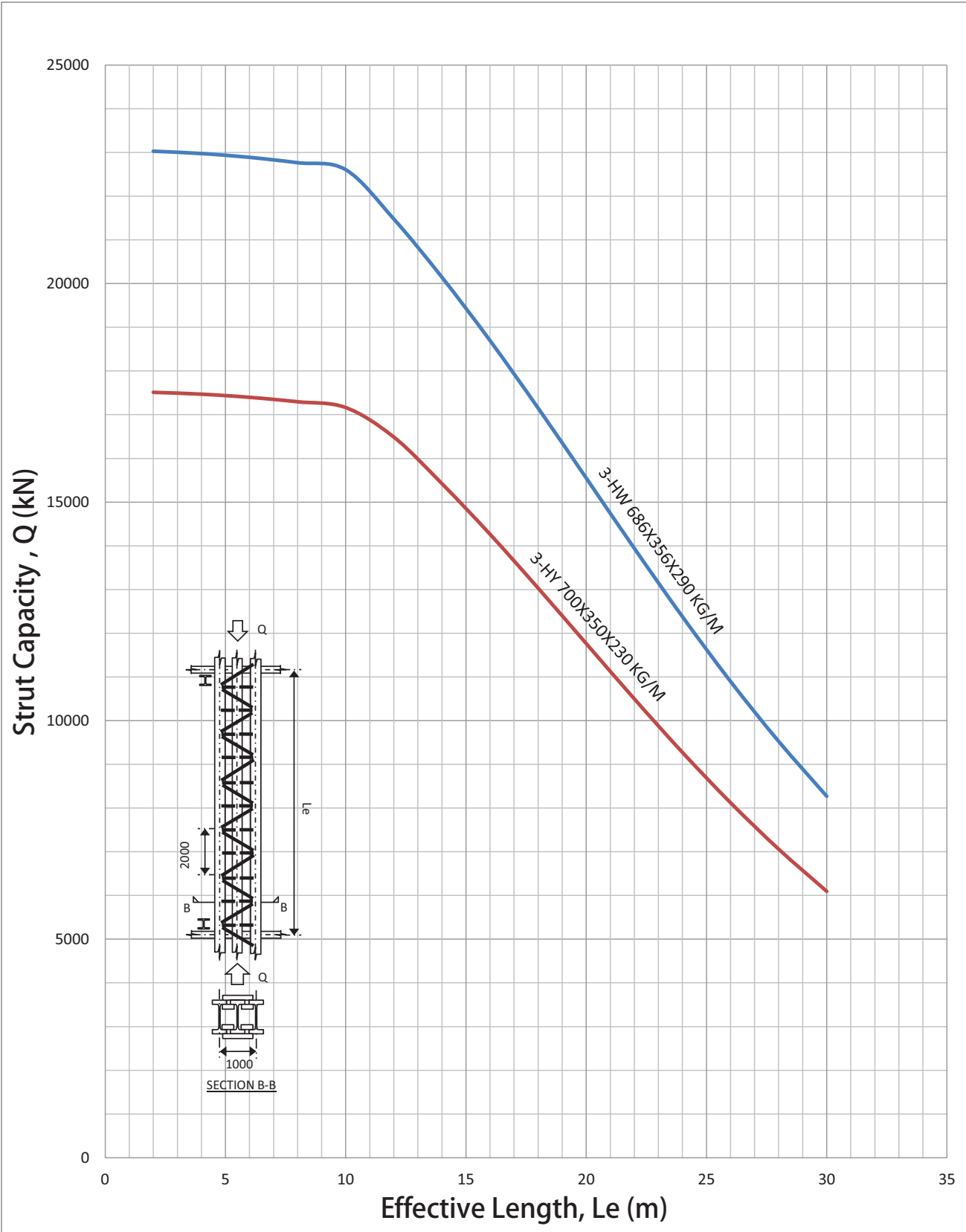
GRAPH WITH TEMPERATURE LOAD ACCOUNTED FOR



Note: Graph is generated based on BS5950-1:2000 and TR 26:2010 [Technical reference for deep excavation]. Normal working condition load combination factors from TR26:2010 have been adopted for the graph.

Triple Strut Design Chart

GRAPH WITH TEMPERATURE LOAD ACCOUNTED FOR



Note: Graph is generated based on BS5950-1:2000 and TR 26:2010 [Technical reference for deep excavation]. Normal working condition load combination factors from TR26:2010 have been adopted for the graph.



Product Showcase & Technical Information

- 1. 3D Animation Hirose Earth Retaining and Stabilizing System
- 2. Hirose Technical Information
 - 2.1 HR-Series Fabricated Beams Connection Details
 - 2.2 HY-Series & HW-Series Fabricated Beams Connection Details
 - 2.3 Sample Calculation with Case Study
- 3. Hirose Safety and Quality Implementation
 - 3.1 Hirose Safe Work Procedures
 - 3.2 Hirose Project Safety Management System
 - 3.3 Hirose Quality Assurance System in Accordance with BC1:2008
 - 3.4 Hirose Production Quality Plan & Control



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