

Composite Beam

TSC Beam

Thin-plate Steel Composite Beam



Technology

A beam comprised of cold-formed "concrete vessel" section and concrete filled in it



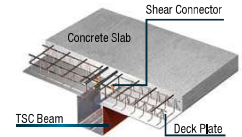
Characteristics and Advantages

As-is Conventional composite beam

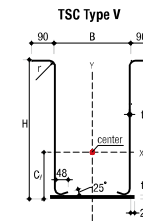
- Need for repair of cracks that naturally appear on concrete face of RC beam in tension
- A composite beam with steel H-section inefficiently resists positive moment with neutral axis shifted upward
- PC members are too heavy to be lifted and installed

To-be TSC beam

- No need of crack repairing due to steel plate under in-filled concrete
- Its unique cold-formed "concrete vessel" design optimizes the arrangement of steel material so that maximizes tensile capacity
- Enhancement of safety and constructability due to minimized field work
- Save up to 30-40% beam and girder cost compared to conventional steel composite beam



Section Profile



Nominal Size (mm)	Standard Sectional Dimension (cm)						Sectional Area (cm ²)	Unit Weight (kg/m)	Center of Gravity (cm)	Moment of inertia (cm ⁴)	Radius of Gyration (cm)	Modulus of Section (cm ³)	
	H	B	t1	t2*	r	A						W	C _y
510x300	6x6	51.6	30	0.6	0.6	1.0	98.06	77.24	21.65	36306.88	19.24	1212.4	1676.8
	6x9	51.9	30	0.6	0.9	1.0	108.56	83.49	19.84	40587.96	19.34	1266.2	2045.3
	6x12	52.2	30	0.6	1.2	1.0	119.06	93.73	18.38	44244.30	19.28	1308.3	2407.0
	9x9	51.9	30	0.9	0.9	1.0	146.93	115.87	21.85	54356.29	19.23	1808.9	2487.6
610x300	6x6	61.6	30	0.6	0.6	1.0	110.06	86.66	26.37	56098.32	22.58	1592.1	2127.7
	6x9	61.9	30	0.6	0.9	1.0	120.56	94.91	24.36	62528.38	22.77	1665.5	2567.2
	6x12	62.2	30	0.6	1.2	1.0	131.06	103.15	22.69	68089.69	22.79	1723.5	3000.5
	9x9	61.9	30	0.9	0.9	1.0	164.93	130.00	26.56	84027.87	22.57	2377.9	3163.4
710x300	6x6	71.6	30	0.6	0.6	1.0	122.06	96.08	31.13	81512.54	25.84	2014.4	2618.1
	6x9	71.9	30	0.6	0.9	1.0	132.56	104.33	28.96	90577.82	26.14	2109.2	3128.1
	6x12	72.2	30	0.6	1.2	1.0	143.06	112.57	27.12	98505.66	26.24	2185.1	3632.2
	9x9	71.9	30	0.9	0.9	1.0	182.93	144.13	31.33	122138.43	25.84	3010.6	3898.4
810x300	6x6	81.6	30	0.6	0.6	1.0	134.06	105.50	35.94	113155.09	29.05	2478.5	3148.1
	6x9	81.9	30	0.6	0.9	1.0	144.56	113.75	33.62	125350.93	29.45	2596.5	3728.2
	6x12	82.2	30	0.6	1.2	1.0	155.06	121.99	31.64	136120.35	29.63	2692.0	4302.7
	9x9	81.9	30	0.9	0.9	1.0	200.93	158.26	36.14	169596.51	29.05	3706.3	4692.7
	6x12	82.2	30	0.9	1.2	1.0	211.43	166.50	34.64	182197.97	29.36	3830.8	5260.0

Bottom flange thickness(t2) can be changed

Product Specification / Standards Available

- Rolled steels for general structure (D 3503) : S275
- Rolled steels for welded structures (D 3515) : M275-TMC, M355-TMC, M420-TMC, M460-TMC
- Hot-rolled atmospheric corrosion resisting steels for welded structure (D 3529): MA275, MA355
- Rolled steels for building structure (D 3861): N275, N355
- Hot rolled steel H-sections for building structure (D 3866) : HN275, HN355

Applications

