



Material Properties:

- Steel: Grid constructed using A709 Gr. 50, 50W or A588 steel
- Concrete: 145 pcf normal weight concrete with a compressive strength of 4000 psi

Steel Grid Components:

- Main Rails: WT 5x6
- Cross Bars: 1/4"x2" spaced 6" center-to-center
- Supplemental Bars: 1/4"x1 1/2"
- Pining Rebar: #3 Rebar at 12" center-to-center (supplied in grid deck)
- Transverse Overlayed Rebar: #3 Rebar at 12" center-to-center (field installed)
- Overlayed Rebar: #5 Rebar - Spacing as indicated below (field installed)
- Trim Bars: Optional

Geometric Profile

- Total height of grid deck = 7.94 inches
- Concrete overfill above main rail = 3 inches
- Total thickness of concrete = 4.00 inches

Deck Series	Deck Parameters			Steel Only		Positive Moment Region (Steel & Concrete)			Negative Moment Region (Steel & Concrete)			
	Main Rail Spacing (in)	Top Rebar & Spacing (in)	Concrete Overfill (in)	Total Height (in)	Moment of Inertia (in ⁴ /ft)	Top of Steel	Bot of Steel	Top of Concr.	Bot of Steel	Moment of Inertia (in ⁴ /ft)	Top of Steel	Bot of Steel
COS5T	8	#5 @ 4	3	7.94	6.45	-1.77	4.99	-131.25	10.92	18.95	7.76	-7.60
COS5T	8	#5 @ 8	3	7.94	6.45	-1.77	4.99	51.65	10.96	13.70	4.65	-6.89
COS5T	10	#5 @ 5	3	7.94	5.16	-1.42	4.00	44.49	8.95	15.16	6.21	-6.08
COS5T	10	#5 @ 10	3	7.94	5.16	-1.42	4.00	44.32	8.98	10.96	3.72	-5.51
COS5T	12	#5 @ 4	3	7.94	4.30	-1.18	3.33	39.14	7.58	15.28	7.41	-5.32
COS5T	12	#5 @ 6	3	7.94	4.30	-1.18	3.33	39.06	7.60	12.63	5.17	-5.07

(-) Negative value indicates compression

HS 20 (MS 18) and HS 25 (MS 22) LOAD TABLE

Deck Series	Main Rail Spacing (in)	Top Rebar & Spacing (in)	Maximum Continuous Clear Span (ft)		Deflection L/?	Approximate Weight (psf)	
			Transverse to Traffic	Parallel to Traffic		Steel Only	Concrete Filled
COS5T	8	#5 @ 4	HS-20 14.25	HS-25 13.00	>= L/800	19.34	69.00
COS5T	8	#5 @ 8	HS-20 12.50	HS-25 8.25	>= L/800	17.77	67.90
COS5T	10	#5 @ 5	HS-20 13.00	HS-25 8.50	>= L/800	16.60	66.44
COS5T	10	#5 @ 10	HS-20 9.75	HS-25 5.40	>= L/800	15.35	65.56
COS5T	12	#5 @ 4	HS-20 12.00	HS-25 8.50	>= L/800	15.82	65.48
COS5T	12	#5 @ 6	HS-20 10.70	HS-25 7.00	>= L/800	14.78	64.74

Design Notes:

1. Designs are in accordance with AASHTO (17th Edition - 2002) Allowable Stress Design Method.
2. Reference IDSI COS5T Series Grid Deck Drawings for further geometric details.
3. Assumes at least a 7 inch wide flange width for the supporting beams.
4. Concrete overfill is the amount of concrete above the top of the decking main rail.
5. Steel only weights include the weight of the form pans.
6. Designs valid for Maximum Continuous Clear Spans based upon the following criteria.
 - a) 50 ksi minimum yield steel. (AASHTO 10.32.1)
 - b) Steel fatigue stress limit at rolled edges of 24 ksi.
 - c) Steel fatigue stress limit at main rail punch detail of 10 ksi
 - d) 4000 psi concrete limited to a maximum allowable concrete stress of 1.6 ksi (AASHTO 8.15.2.1.1)
 - e) Maximum Deflection limited to L/800. (AASHTO 10.6.2)
7. All punched holes or slots in steel members are deducted when computing section properties.
8. Greater spans can be achieved by decreasing the main rail and/or overlayed rebar spacing.