

Constants

v	0.3	Poissons Ratio
E	200 GPa	Youngs Modulus
Fy web	350 MPa	Web Material Yield Strength
φs	0.75	Material Resistance Factor (Per CSA S136)

Shear Capacity

Designation	Web Depth mm	t _w mm	Shear Distortion Area mm ²	Local Buckling (EN)			Global Buckling			Shear Resistance Vr kN
				τ _{cr,l} MPa	λ _{cr,l}	χ _{cr,l}	τ _{cr,g} MPa	λ _{cr,g}	χ _{cr,g}	
a	b	c	d	e	f	g	h	i	j	k
WTA333	333	1.90	550	901.6	0.473	0.84	2369.4	0.292	1.00	80.2
WTB333	333	2.66	770	1508.4	0.366	0.91	2576.8	0.280	1.00	121.8
WTC333	333	3.04	857	1867.9	0.329	0.94	3171.4	0.252	1.00	143.5
WTF333	333	4.18	1178	3126.3	0.254	1.00	2928.9	0.263	1.00	210.0
WTH333	333	4.94	1392	4135.7	0.221	1.00	2809.1	0.268	1.00	249.1
WTK333	333	6.07	1713	5901.9	0.185	1.00	2667.1	0.275	1.00	306.5
WTA440	440	1.90	727	789.0	0.506	0.82	1357.1	0.386	1.00	103.5
WTB440	440	2.66	1018	1350.8	0.387	0.89	1475.9	0.370	1.00	158.3
WTC440	440	3.04	1132	1677.6	0.347	0.92	1816.5	0.334	1.00	186.8
WTF440	440	4.18	1556	2864.7	0.266	0.99	1677.6	0.347	1.00	274.7
WTH440	440	4.94	1839	3826.5	0.230	1.00	1609.0	0.354	1.00	329.1
WTK440	440	6.07	2263	5521.4	0.191	1.00	1527.6	0.364	1.00	405.0
WTA500	500	1.90	826	747.0	0.520	0.81	1051.0	0.438	1.00	116.4
WTB500	500	2.66	1157	1291.9	0.395	0.89	1143.0	0.420	1.00	178.7
WTC500	500	3.04	1287	1606.5	0.355	0.92	1406.7	0.379	1.00	211.0
WTF500	500	4.18	1768	2767.0	0.270	0.98	1299.1	0.394	1.00	311.0
WTH500	500	4.94	2090	3711.0	0.233	1.00	1246.0	0.403	1.00	374.0
WTK500	500	6.07	2572	5379.3	0.194	1.00	1183.0	0.413	1.00	460.2
WTA610	610	1.90	1007	691.6	0.541	0.80	707.0	0.535	1.00	139.9
WTB610	610	2.66	1410	1214.3	0.408	0.88	768.9	0.513	1.00	215.8
WTC610	610	3.04	1569	1512.8	0.365	0.91	946.3	0.462	1.00	255.0
WTF610	610	4.18	2156	2638.2	0.277	0.98	874.0	0.481	1.00	377.0
WTH610	610	4.94	2548	3558.8	0.238	1.00	838.2	0.491	1.00	456.0
WTK610	610	6.07	3136	5192.0	0.197	1.00	795.9	0.504	1.00	561.1
WTA750	750	1.90	1239	644.2	0.560	0.79	467.1	0.658	1.00	169.9
WTB750	750	2.66	1735	1148.0	0.420	0.87	508.0	0.631	1.00	263.2
WTC750	750	3.04	1930	1432.7	0.376	0.90	625.2	0.569	1.00	311.3
WTF750	750	4.18	2653	2528.2	0.283	0.97	577.4	0.592	1.00	461.5
WTH750	750	4.94	3135	3428.7	0.243	1.00	553.8	0.604	1.00	561.0
WTK750	750	6.07	3858	5032.0	0.200	1.00	525.8	0.620	1.00	690.3
WTA900	900	1.90	1487	610.0	0.576	0.78	324.4	0.789	1.00	201.7
WTB900	900	2.66	2082	1100.0	0.429	0.87	352.8	0.757	1.00	313.7
WTC900	900	3.04	2316	1374.8	0.383	0.90	434.2	0.682	1.00	371.3
WTF900	900	4.18	3183	2448.6	0.287	0.97	401.0	0.710	1.00	551.7
WTH900	900	4.94	3762	3334.7	0.246	1.00	384.6	0.725	1.00	673.2
WTK900	900	6.07	4630	4916.2	0.203	1.00	365.1	0.744	1.00	828.4

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Shear Capacity

Designation	Web Depth mm	t_w mm	Shear Distortion Area mm ²	Local Buckling (EN)			Global Buckling			Shear Resistance Vr kN
				$\tau_{cr,l}$ MPa	$\lambda_{cr,l}$	$\chi_{cr,l}$	$\tau_{cr,g}$ MPa	$\lambda_{cr,g}$	$\chi_{cr,g}$	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>
WTA1000	1000	1.90	1652	592.9	0.584	0.78	262.7	0.877	1.00	222.9
WTB1000	1000	2.66	2314	1076.0	0.433	0.86	285.7	0.841	1.00	347.3
WTC1000	1000	3.04	2573	1345.9	0.387	0.89	351.7	0.758	1.00	411.2
WTF1000	1000	4.18	3537	2408.8	0.290	0.97	324.8	0.789	1.00	611.8
WTH1000	1000	4.94	4180	3287.6	0.248	1.00	311.5	0.805	1.00	748.0
WTK1000	1000	6.07	5144	4858.3	0.204	1.00	295.7	0.827	1.00	920.4
WTA1219	1219	1.90	2014	565.1	0.598	0.77	176.8	1.069	0.91	269.1
WTB1219	1219	2.66	2821	1037.2	0.441	0.86	192.2	1.025	0.97	420.9
WTC1219	1219	3.04	3137	1299.0	0.394	0.89	236.6	0.924	1.00	498.7
WTF1219	1219	4.18	4312	2344.4	0.294	0.96	218.5	0.962	1.00	743.4
WTH1219	1219	4.94	5096	3211.5	0.251	1.00	209.6	0.982	1.00	911.2
WTK1219	1219	6.07	6271	4764.6	0.206	1.00	199.0	1.008	0.99	1110.6
WTA1500	1500	1.90	2478	541.5	0.611	0.76	116.8	1.315	0.67	290.1
WTB1500	1500	2.66	3470	1004.1	0.449	0.85	127.0	1.261	0.72	433.2
WTC1500	1500	3.04	3860	1259.0	0.401	0.88	156.3	1.137	0.84	577.8
WTF1500	1500	4.18	5305	2289.3	0.297	0.96	144.3	1.183	0.79	749.5
WTH1500	1500	4.94	6270	3146.5	0.253	1.00	138.4	1.208	0.77	858.8
WTK1500	1500	6.07	7716	4684.6	0.208	1.00	131.4	1.240	0.74	1016.5

Physical Properties

Designation	t_w ga	t_w mm	a_3 mm	w mm	s mm	Iz mm ⁴	Dx kN m	Dz kN m
WTO	16	1.52	40	77.5	89	23250	0.056	60.0
WTA	14	1.90	40	77.5	89	31050	0.109	80.1
WTB	12	2.66	40	77.5	89	38850	0.299	100.3
WTC	11	3.04	43	77.5	91.5	53900	0.439	139.1
WTF	8	4.18	43	77.5	91.5	53900	1.141	139.1
WTH	6	4.94	43	77.5	91.5	53900	1.883	139.1
WTK	3	6.07	43	77.5	91.5	53900	3.509	139.1