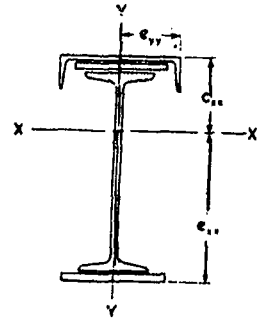


TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS
(Continued)



Designation	w	Composed of				Weight per Metre	Sectional Area	Centre of Gravity C_{xx}	Mean Thickness of Flanges		
		Top Flange		Bottom Flange					Top	Bottom	
		Channel Designation	w	Plate					Plate		
ISWB 600	145.1	ISMC 400	49.4	320 × 10.0	320 × 20.0	269.9	343.79	29.40	31.4	38.4	
				12.0		287.5	366.19	30.58	33.0	43.4	
				16.0		315.1	401.39	31.88	36.2	50.4	
				20.0		345.2	439.79	33.31	39.4	58.4	
		ISMC 350	42.1	250 × 10.0	320 × 20.0	257.1	327.52	30.73	32.1	38.4	
						12.0	273.6	348.52	32.00	33.5	43.4
						16.0	299.0	380.92	33.45	36.4	50.4
						20.0	327.0	416.52	35.01	39.2	58.4
		ISMC 400	49.4	—	320 × 10.0	219.6	279.79	27.95	23.4	28.4	
						12.0	224.7	286.19	28.71	30.4	34.4
						16.0	234.7	298.99	30.15	34.4	34.4
		ISMC 350	42.1	—	320 × 10.0	212.4	270.52	28.79	25.0	28.4	
12.0	217.4					276.92	29.56	30.4	30.4		
16.0	227.4					289.72	31.00	34.4	34.4		
ISMB 550	103.7	ISMC 350	42.1	250 × 10.0	320 × 20.0	215.7	274.77	28.15	25.7	31.5	
				12.0		232.2	295.77	29.52	27.1	36.5	
				16.0		257.6	328.17	31.05	30.0	43.5	
				20.0		285.6	363.77	32.66	32.9	51.5	
		ISMC 350	42.1	—	320 × 10.0	170.9	217.77	26.05	18.6	21.5	
						12.0	176.0	224.17	26.93	23.5	23.5
						16.0	186.0	236.97	28.57	27.5	27.5
		ISMC 300	35.8	—	250 × 10.0	159.2	202.75	25.88	19.8	24.7	
						12.0	163.1	207.75	26.63	26.7	26.7
						16.0	170.9	217.75	28.03	30.7	30.7
		ISMC 250	30.4	—	250 × 10.0	153.7	195.78	26.67	21.8	24.7	
						12.0	157.6	200.78	27.42	26.7	26.7
16.0	165.5					210.78	28.83	30.7	30.7		

SECTION B : BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS

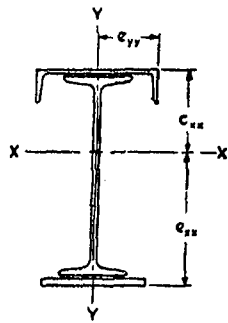
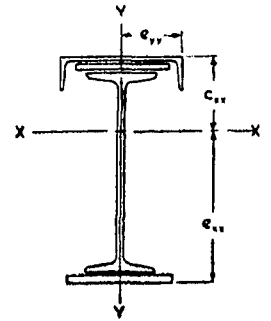


TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS
(Continued)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_{xx}		M	S
			Whole Section	Top Flange Only		Z_c	Z_t		
cm	cm	cm ⁴	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³	kg × 10 ³
34-46	20-00	259 894-4	28 573-1	20 462-3	9-12	8 839-0	7 542-6	118-8	66-9
33-98		284 747-6	30 484-6	21 008-5	9-12	9 310-2	8 381-0	132-0	
33-78		323 707-2	33 488-3	22 100-9	9-13	10 152-9	9 583-7	150-9	
33-55		367 122-2	36 765-1	23 193-3	9-14	11 022-5	10 941-4	172-3	
33-08	17-50	246 744-1	22 069-7	13 959-1	8-21	8 030-0	7 458-5	117-5	
32-51		269 237-7	23 695-5	14 219-6	8-25	8 414-6	8 280-8	130-4	
32-16		304 137-8	26 127-8	14 740-6	8-28	9 092-7	9 456-6	148-9	
31-80		342 843-2	28 833-1	15 261-6	8-32	9 792-7	10 781-2	169-8	
33-91	20-00	194 435-4	23 111-8	17 731-6	9-09	6 956-1	5 734-1	90-3	
33-35		201 671-9	23 657-9	17 731-7	9-09	7 023-9	6 047-5	95-2	
32-31		215 461-2	24 750-2	17 731-9	9-10	7 146-7	6 668-2	105-0	
33-02	17-50	187 913-1	18 037-0	12 656-9	8-17	6 526-9	5 691-0	89-6	
32-45		194 771-1	18 583-1	12 657-0	8-19	6 589-9	6 001-4	94-5	
31-41		207 816-8	19 675-4	12 657-2	8-24	6 704-1	6 615-9	104-2	
30-66	17-50	175 306-3	18 605-2	12 226-8	8-23	6 226-9	5 718-3	90-1	58-2
29-98		194 503-9	20 231-0	12 487-4	8-27	6 587-8	6 486-7	102-2	
29-56		224 235-2	22 663-3	13 008-4	8-31	7 222-0	7 585-5	119-5	
29-15		257 183-8	25 368-6	13 529-3	8-35	7 874-2	8 823-3	139-0	
30-76	17-50	125 214-8	14 572-5	10 924-6	8-18	4 806-7	4 070-7	64-1	
30-08		131 135-8	15 118-6	10 924-7	8-21	4 869-3	4 359-7	68-7	
28-84		142 237-4	16 210-9	10 924-9	8-27	4 979-2	4 931-4	77-7	
30-88	15-00	114 276-0	9 498-5	7 279-2	6-84	4 415-2	3 700-9	58-3	
30-33		118 958-7	9 758-7	7 279-3	6-85	4 467-4	3 921-9	61-8	
29-33		127 852-8	10 279-7	7 279-5	6-87	4 561-3	4 359-1	68-7	
30-04	12-50	110 209-4	6 952-7	4 733-5	5-96	4 132-7	3 668-5	57-8	
29-49		114 639-0	7 213-1	4 733-6	5-99	4 181-1	3 887-2	61-2	
28-48		123 036-8	7 733-9	4 733-8	6-06	4 268-1	4 319-7	68-0	

(Continued)

TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS
(Continued)



Designation	w	Composed of				Weight per Metre	Sectional Area	Centre of Gravity C_{xx}	Mean Thickness of Flanges			
		Top Flange		Bottom Flange					Top	Bottom		
		Channel Designation	w	Plate Width × Thickness	Plate Width × Thickness				mm	mm		
ISWB 550	112.5	ISMC 400	49.4	320 × 10.0	320 × 20.0	237.3	302.27	26.82	27.6	33.8		
				12.0	25.0	254.9	324.67	28.06	29.2	38.8		
				16.0	32.0	282.5	359.87	29.40	32.4	45.8		
				20.0	40.0	312.6	398.27	30.85	35.6	53.8		
		ISMC 350	42.1	250 × 10.0	320 × 20.0	12.0	25.0	224.5	286.00	28.20	27.8	33.8
						16.0	32.0	241.0	307.00	29.52	29.2	38.8
						16.0	32.0	266.4	339.40	31.01	32.1	45.8
						20.0	40.0	294.4	375.00	32.59	35.0	53.8
		ISMC 400	49.4	—	320 × 10.0	12.0	12.0	187.0	238.27	25.27	19.6	23.8
						16.0	16.0	192.1	244.67	26.10	25.8	25.8
						16.0	16.0	202.1	257.47	27.65	29.8	29.8
		ISMC 350	42.1	—	320 × 10.0	12.0	12.0	179.8	229.00	26.16	20.7	23.8
16.0	16.0					184.8	235.40	27.00	25.8	25.8		
16.0	16.0					194.8	248.20	28.55	29.8	29.8		
ISMB 500	86.9	ISMC 350	42.1	250 × 10.0	320 × 20.0	198.9	253.40	25.70	24.1	29.7		
				12.0	25.0	215.4	274.40	27.06	25.5	34.7		
				16.0	32.0	240.8	306.80	28.56	28.4	41.7		
				20.0	40.0	268.8	342.40	30.13	31.2	49.7		
		ISMC 350	42.1	—	320 × 10.0	12.0	12.0	154.2	196.40	23.58	17.0	19.7
						16.0	16.0	159.2	202.80	24.47	21.7	21.7
						16.0	16.0	169.2	215.60	26.12	25.7	25.7
		ISMC 300	35.8	—	250 × 10.0	12.0	12.0	142.4	181.38	23.39	17.9	22.4
						16.0	16.0	146.3	186.38	24.15	24.4	24.4
						16.0	16.0	154.2	196.38	25.58	28.4	28.4
		ISMC 250	30.4	—	250 × 10.0	12.0	12.0	136.9	174.41	24.17	19.5	22.4
						16.0	16.0	140.8	179.41	24.94	24.4	24.4
16.0	16.0					148.7	189.41	26.38	28.4	28.4		

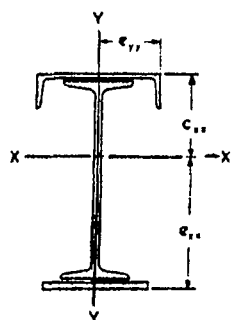


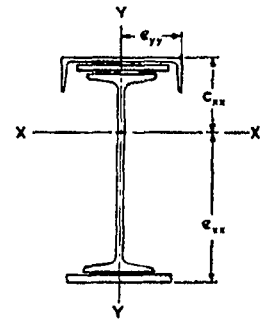
TABLE XY SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS
(Continued)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_{xx}		M	S
			Whole Section	Top Flange Only		Z_c	Z_t		
cm	cm	cm ⁴	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³	kg × 10 ³
32.04	20.00	196 231.3	27 015.4	19 683.5	9.45	7 316.2	6 124.8	96.5	54.6
31.50		217 525.8	28 926.9	20 229.8	9.44	7 752.1	6 905.6	108.8	
31.26		250 843.9	31 930.6	21 322.1	9.42	8 532.7	8 023.9	126.4	
31.01		288 010.6	35 207.4	22 414.5	9.40	9 336.9	9 286.6	146.3	
30.61	17.50	185 333.2	20 512.0	13 180.3	8.47	6 572.4	6 054.4	95.4	
29.99		204 516.4	22 137.8	13 440.8	8.49	6 927.0	6 820.5	107.4	
29.60		234 261.8	24 570.1	13 961.7	8.51	7 554.1	7 914.6	124.7	
29.22		267 256.6	27 275.4	14 482.7	8.53	8 200.2	9 146.8	144.1	
31.59	20.00	140 570.2	21 554.1	16 952.8	9.51	5 562.9	4 449.7	70.1	
30.96		146 829.6	22 100.2	16 952.9	9.50	5 626.0	4 742.3	74.7	
29.81		158 641.3	23 192.5	16 953.0	9.49	5 738.0	5 321.3	83.8	
30.65	17.50	135 281.9	16 479.3	11 878.1	8.48	5 171.2	4 413.9	69.5	
30.01		141 168.7	17 025.4	11 878.2	8.50	5 229.1	4 703.5	74.1	
28.86		152 250.6	18 117.7	11 878.3	8.54	5 331.9	5 276.4	83	
28.11	17.50	136 749.0	18 141.2	11 994.9	8.46	5 320.9	4 864.8	76.6	48.2
27.45		152 873.0	19 767.0	12 255.4	8.49	5 649.5	5 569.0	87.7	
27.05		177 877.9	22 199.3	12 776.3	8.51	6 228.8	6 575.2	103.6	
26.68		205 641.6	24 904.6	13 297.3	8.53	6 825.0	7 707.9	121.4	
28.23	17.50	94 789.4	14 108.5	10 692.7	8.48	4 020.0	3 357.7	52.9	
27.54		99 764.0	14 654.6	10 692.8	8.50	4 076.4	3 623.0	57.1	
26.29		109 026.6	15 746.9	10 692.9	8.55	4 174.0	4 147.1	65.3	
28.37	15.00	85 756.4	9 034.5	7 047.3	7.06	3 666.9	3 022.4	47.6	
27.81		89 701.3	9 294.9	7 047.4	7.06	3 714.3	3 225.6	50.8	
26.78		97 147.3	9 815.7	7 047.5	7.07	3 798.3	3 627.2	57.1	
27.54	12.50	82 476.9	6 488.7	4 501.6	6.10	3 411.7	2 995.3	47.2	
26.97		86 189.0	6 749.1	4 501.6	6.13	3 455.2	3 196.3	50.3	
25.93		93 179.0	7 269.9	4 501.8	6.20	3 532.3	3 593.4	56.6	

(Continued)

TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS

(Continued)



Composed of							Weight per Metre	Sectional Area	Centre of Gravity C_{xx}	Mean Thickness of Flanges		
Joist		Top Flange		Bottom Flange		Top				Bottom		
Designation	w	Channel Designation	w	Plate Width × Thickness		Plate Width × Thickness		C_{xx}	mm	mm		
	kg		kg	mm	mm	mm	mm					
ISWB 500	95.2	ISMC 400	49.4	320 × 10.0	320 × 20.0	219.9	280.15	24.40	25.8	31.5		
				12.0	25.0	237.5	302.55	25.63	27.4	36.5		
				16.0	32.0	265.1	337.75	26.95	30.6	43.5		
				20.0	40.0	295.3	376.15	28.37	33.8	51.5		
				ISMC 350	42.1	250 × 10.0	320 × 20.0	207.1	263.88	25.74	25.7	31.5
				12.0	25.0	223.6	284.88	27.06	27.2	36.5		
				16.0	32.0	249.1	317.28	28.52	30.0	43.5		
				20.0	40.0	277.0	352.88	30.06	32.9	51.5		
				ISMC 400	49.4	—	320 × 10.0	169.7	216.15	22.81	17.8	21.5
						—	12.0	174.7	222.55	23.65		23.5
						—	16.0	184.7	235.35	25.21		27.5
				ISMC 350	42.1	—	320 × 10.0	162.4	206.88	23.69	21.5	21.5
						—	12.0	167.4	213.28	24.54	18.6	23.5
						—	16.0	177.5	226.08	26.11	27.5	27.5
		ISMB 450	72.4	ISMC 300	35.8	—	250 × 10.0	127.9	162.91	20.93	16.3	20.4
—	12.0					131.8	167.91	21.71		22.4		
—	16.0					139.7	177.91	23.14		26.4		
				ISMC 250	30.4	—	250 × 10.0	122.4	155.94	21.71	17.5	20.4
						—	12.0	126.3	160.94	22.49		22.4
						—	16.0	134.2	170.94	23.93		26.4
				ISMC 225	25.9	—	200 × 10.0	114.0	145.28	21.57	18.0	23.0
						—	12.0	117.2	149.28	22.25		25.0
						—	16.0	123.5	157.28	23.51		29.0

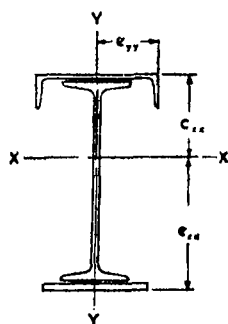


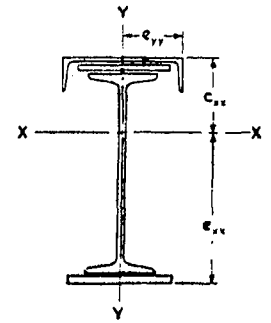
TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS

(Continued)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_{xx}		M	S
cm	cm	cm ⁴	Whole Section	Top Flange Only	cm	Z_c	Z_t	kg-m × 10 ³	kg × 10 ³
29.46	20.00	152 781.2	26 262.6	19 307.2	9.68	6 262.3	5 185.5	81.7	46.8
28.93		170 717.9	28 174.1	19 853.4	9.65	6 661.7	5 900.4	92.9	
28.71		198 797.6	31 177.8	20 945.7	9.61	7 377.1	6 923.9	109.1	
28.49		230 194.5	34 454.6	22 038.1	9.57	8 114.6	8 079.2	127.2	
28.07	17.50	143 834.0	19 759.2	12 803.9	8.65	5 587.0	5 124.9	80.7	
27.45		159 945.7	21 385.0	13 064.4	8.66	5 911.3	5 826.3	91.8	
27.09		184 963.8	23 817.3	13 585.3	8.66	6 485.6	6 827.6	107.5	
26.75		212 768.9	26 522.6	14 106.2	8.67	7 077.7	7 954.5	125.3	
29.05	20.00	106 172.6	20 801.3	16 576.5	9.81	4 654.5	3 654.9	57.6	
28.41		111 454.1	21 347.4	16 576.5	9.79	4 712.8	3 922.9	61.8	
27.25		121 362.3	22 439.7	16 576.6	9.76	4 815.0	4 452.9	70.1	
28.12	17.50	101 911.5	15 726.5	11 501.7	8.72	4 301.4	3 624.5	57.1	
27.47		106 854.4	16 272.6	11 501.8	8.73	4 354.4	3 889.8	61.3	
26.30		116 100.2	17 364.9	11 501.9	8.76	4 447.3	4 413.8	69.5	
25.83	15.00	62 983.5	8 498.7	6 779.4	7.22	3 008.6	2 438.8	38.4	40.0
25.25		66 244.2	8 759.1	6 779.5	7.22	3 051.8	2 623.1	41.3	
24.22		72 359.1	9 279.9	6 779.6	7.22	3 127.4	2 987.2	47.0	
25.00	12.50	60 394.7	5 952.9	4 233.7	6.18	2 781.6	2 416.0	38.1	
24.42		63 446.4	6 213.3	4 233.8	6.21	2 820.9	2 598.3	40.9	
23.38		69 152.5	6 734.1	4 233.8	6.28	2 889.5	2 958.0	46.6	
25.07	11.25	55 138.5	4 195.3	3 111.5	5.37	2 556.1	2 199.5	34.6	
24.59		57 604.5	4 328.6	3 111.5	5.38	2 589.5	2 342.2	36.9	
23.73		62 272.6	4 595.3	3 111.6	5.41	2 649.1	2 623.8	41.3	

(Continued)

TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS
(Continued)



Joist		Composed of						Weight per Metre	Sectional Area	Centre of Gravity C_{xx}	Mean Thickness of Flanges	
Designation	w	Top Flange		Bottom Flange		Top	Bottom					
	kg	Channel Designation	w	Plate Width × Thickness		Plate Width × Thickness		cm	mm	mm		
			kg	mm	mm	mm	mm	cm	mm	mm		
ISWB 450	79.4	ISMC 350	42.1	250 × 10.0	320 × 20.0	191.4	243.81	23.31	24.0	29.6		
				12.0	25.0	207.9	264.81	24.60	25.5	34.6		
				16.0	32.0	233.3	297.21	26.02	28.3	41.6		
				20.0	40.0	261.3	332.81	27.51	31.2	49.6		
	ISMC 350	42.1	—	—	320 × 10.0	320 × 20.0	146.6	186.81	21.26	16.9	19.6	
					12.0	151.7	193.21	22.10	21.6			
					16.0	161.7	206.01	23.66	25.6			
					—	—	—	—	—	—	—	—
	ISMC 300	35.8	—	—	250 × 10.0	250 × 20.0	134.9	171.79	21.05	17.9	22.3	
					12.0	138.8	176.79	21.78	24.3			
					16.0	146.6	186.79	23.14	28.3			
					—	—	—	—	—	—	—	
ISMB 400	61.6	ISMC 300	35.8	250 × 10.0	250 × 20.0	117.0	149.10	18.56	15.1	19.0		
				12.0	121.0	154.10	19.32	21.0				
				16.0	128.8	164.10	20.71	25.0				
				—	—	—	—	—	—	—		
	ISMC 250	30.4	—	—	250 × 10.0	250 × 20.0	111.6	142.13	19.31	16.1	19.0	
					12.0	115.5	147.13	20.07	21.0			
					16.0	123.3	157.13	21.47	25.0			
					—	—	—	—	—	—	—	
	ISMC 225	25.9	—	—	200 × 10.0	200 × 20.0	103.2	131.47	19.15	16.4	21.2	
					12.0	106.3	135.47	19.82	23.2			
					16.0	112.6	143.47	21.06	27.2			
					—	—	—	—	—	—	—	
ISMC 200	22.1	—	—	200 × 10.0	200 × 20.0	99.4	126.67	19.74	17.3	21.2		
				12.0	102.6	130.67	20.41	23.2				
				16.0	108.9	138.67	21.66	27.2				
				—	—	—	—	—	—	—		
ISWB 400	66.7	ISMC 350	42.1	250 × 10.0	320 × 20.0	178.7	227.67	20.90	22.7	28.1		
				12.0	25.0	195.2	248.67	22.14	24.1	33.1		
				16.0	32.0	220.6	281.07	23.51	27.0	40.1		
				20.0	40.0	248.6	316.67	24.94	29.8	48.1		
	ISMC 350	42.1	—	—	320 × 10.0	320 × 20.0	134.0	170.67	18.88	15.5	18.1	
					12.0	139.0	177.07	19.71	20.1			
					16.0	149.0	189.87	21.23	24.1			
					—	—	—	—	—	—	—	
	ISMC 300	35.8	—	—	250 × 10.0	250 × 20.0	122.2	155.65	18.66	16.3	20.4	
					12.0	126.1	160.65	19.38	22.4			
					16.0	134.0	170.65	20.71	26.4			
					—	—	—	—	—	—	—	

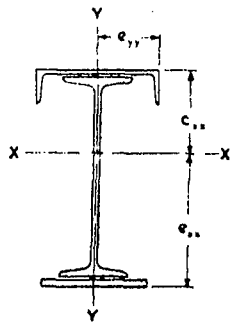


TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS

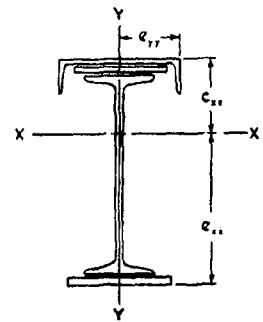
(Continued)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_{xx}		M	S
cm	cm	cm ⁴	Whole Section	Top Flange Only	cm	Z_c	Z_t	kg-m × 10 ³	kg × 10 ³
25.50	17.50	109 500.7	18 478.1	12 163.4	8.71	4 698.2	4 293.6	67.6	39.1
24.91		122 801.8	20 103.9	12 423.9	8.71	4 992.8	4 929.0	77.6	
24.59		143 501.0	22 536.2	12 944.8	8.71	5 514.9	5 835.9	91.9	
24.30		166 568.3	25 241.5	13 465.7	8.71	6 053.8	6 856.0	108.0	
25.55	17.50	75 002.0	14 445.4	10 861.2	8.79	3 528.7	2 934.9	46.2	
24.91		79 074.8	14 991.5	10 861.3	8.81	3 577.3	3 175.0	50.0	
23.75		86 641.2	16 083.8	10 861.4	8.84	3 661.2	3 648.8	57.5	
25.71	15.00	67 695.9	9 371.4	7 215.8	7.39	3 215.3	2 633.5	41.5	
25.18		70 931.4	9 631.8	7 215.9	7.38	3 256.1	2 817.5	44.4	
24.22		77 026.0	10 152.6	7 215.9	7.37	3 328.3	3 180.6	50.1	
23.20	15.00	46 011.0	8 086.8	6 573.5	7.36	2 478.4	1 983.7	31.2	33.6
22.64		48 636.3	8 347.2	6 573.6	7.36	2 517.3	2 148.3	33.8	
21.65		53 534.8	8 868.0	6 573.6	7.35	2 584.7	2 473.0	39.0	
22.40	12.50	44 012.4	5 541.0	4 027.8	6.24	2 279.6	1 964.6	30.9	
21.84		46 458.3	5 801.4	4 027.8	6.28	2 314.6	2 127.4	33.5	
20.84		51 006.2	6 322.2	4 027.9	6.34	2 375.2	2 448.0	38.6	
22.49	11.25	39 864.9	3 783.4	2 905.6	5.36	2 081.3	1 772.9	27.9	
22.02		41 845.3	3 916.7	2 905.6	5.38	2 111.2	1 900.4	29.9	
21.18		25 574.7	4 183.4	2 905.7	5.40	2 164.1	2 151.7	33.9	
21.87	10.00	38 502.0	2 908.1	2 030.3	4.79	1 950.4	1 760.5	27.7	
21.40		40 373.6	3 041.4	2 030.3	4.82	1 977.9	1 886.8	29.7	
20.55		43 890.0	3 308.1	2 030.4	4.88	2 026.4	2 135.6	33.6	
22.91	17.50	82 554.2	18 159.4	12 004.0	8.93	3 950.5	3 602.9	56.7	32.5
22.37		93 305.3	19 785.2	12 264.5	8.92	4 214.7	4 170.7	65.7	
22.10		110 096.2	22 217.5	12 785.4	8.89	4 683.6	4 981.0	78.5	
21.87		128 882.1	24 922.8	13 306.3	8.87	5 168.7	5 891.8	92.8	
22.93	17.50	54 778.9	14 126.7	10 701.9	9.10	2 901.7	2 388.8	37.6	
22.30		58 051.2	14 672.8	10 701.9	9.10	2 945.2	2 603.3	41.0	
21.18		64 094.3	15 765.1	10 702.0	9.11	3 019.4	3 025.8	47.7	
23.10	15.00	49 009.6	9 052.7	7 056.5	7.63	2 626.8	2 121.4	33.4	
22.58		51 617.6	9 313.1	7 056.5	7.61	2 663.5	2 285.9	36.0	
21.65		56 503.2	9 833.9	7 056.6	7.59	2 727.7	2 610.4	41.1	

(Continued)

TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS

(Continued)



Joist		Composed of					Weight per Metre	Sectional Area	Centre of Gravity C_{xx}	Mean Thickness of Flanges	
Designation	w	Top Flange		Bottom Flange		Top				Bottom	
	kg	Channel Designation	w	Plate Width x Thickness	Plate Width x Thickness	kg	cm ²	cm	mm	mm	
ISMB 350	52.4	ISMC 300	35.8	—	250 × 10.0	107.8	137.35	16.25	14.2	18.0	
				—	12.0	111.7	142.35	16.98	20.0		
				—	16.0	119.6	152.35	18.30	24.0		
		ISMC 250	30.4	—	250 × 10.0	102.3	130.38	16.94	15.0	18.0	
				—	12.0	106.3	135.38	17.68	20.0		
				—	16.0	114.1	145.38	19.01	24.0		
		ISMC 225	25.9	—	200 × 10.0	94.0	119.72	16.78	15.2	19.9	
				—	12.0	97.1	123.72	17.42	21.9		
				—	16.0	103.4	131.72	18.62	25.9		
		ISMC 200	22.1	—	200 × 10.0	90.2	114.92	17.33	16.0	19.9	
				—	12.0	93.4	118.92	17.98	21.9		
				—	16.0	99.6	126.92	19.18	25.9		
ISWB 350	56.9	ISMC 350	42.1	250 × 10.0	320 × 20.0	168.9	215.16	18.51	21.8	27.1	
				12.0	25.0	185.4	236.16	19.68	23.2	32.1	
				16.0	32.0	210.8	268.56	20.98	26.0	39.1	
				20.0	40.0	238.8	304.16	22.32	28.9	47.1	
		ISMC 350	42.1	—	320 × 10.0	124.2	158.16	16.57	14.6	17.1	
				—	12.0	129.2	164.56	17.36	19.1		
				—	16.0	139.2	177.36	18.79	23.1		
		ISMC 300	35.8	—	250 × 10.0	112.4	143.14	16.33	15.2	19.1	
				—	12.0	116.3	148.14	17.07	21.1		
				—	16.0	124.1	158.14	18.30	25.1		

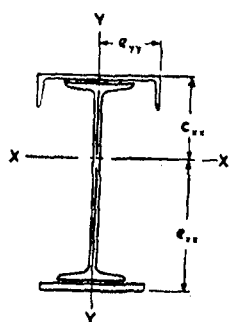


TABLE XV SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES TO BE USED AS GIRDERS

(Continued)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_{xx}		M	S
			Whole Section	Top Flange Only		Z_c	Z_t		
cm	cm	cm ⁴	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³	kg × 10 ³
20.51	15.00	33 028.1	8 202.4	6 631.4	7.73	2 032.1	1 610.6	25.4	26.8
19.98		35 076.8	8 462.8	6 631.4	7.71	2 066.2	1 755.3	27.6	
19.06		38 883.2	8 983.6	6 631.5	7.68	2 124.6	2 040.2	32.1	
19.77	12.50	31 530.5	5 656.6	4 085.6	6.59	1 861.0	1 595.1	25.1	
19.27		33 431.2	5 917.0	4 085.6	6.61	1 891.3	1 738.2	27.4	
18.30		36 948.2	6 437.8	4 085.7	6.65	1 943.3	2 019.4	31.8	
19.86	11.25	28 360.0	3 899.0	2 963.4	5.71	1 690.2	1 428.0	22.5	
19.42		29 902.1	4 032.3	2 963.4	5.71	1 716.1	1 540.1	24.3	
18.62		32 793.3	4 299.0	2 963.5	5.71	1 761.5	1 760.8	27.7	
19.28	10.00	27 350.1	3 023.7	2 088.1	5.13	1 578.2	1 418.6	22.3	
18.83		28 802.0	3 157.0	2 088.1	5.15	1 601.7	1 529.7	24.1	
18.03		31 516.1	3 423.7	2 088.2	5.19	1 643.1	1 748.1	27.5	
20.30	17.50	61 114.9	17 947.3	11 898.0	9.13	3 301.0	3 011.2	47.4	26.5
19.83		69 579.5	19 573.1	12 158.5	9.10	3 534.9	3 509.5	55.3	
19.63		82 872.0	22 005.4	12 679.3	9.05	3 950.7	4 220.9	66.5	
19.49		97 828.0	24 710.7	13 200.2	9.01	4 382.5	5 020.0	79.1	
20.24	17.50	39 357.4	13 914.6	10 595.9	9.38	2 375.6	1 944.3	30.6	
19.65		41 902.9	14 460.7	10 595.9	9.37	2 413.9	2 132.3	33.6	
18.62		46 583.1	15 553.0	10 596.0	9.36	2 479.0	2 502.0	39.4	
20.43	15.00	34 941.9	8 840.6	6 950.5	7.86	2 139.2	1 710.7	26.9	
19.93		36 977.4	9 101.0	6 950.5	7.84	2 171.7	1 855.1	29.2	
19.06		40 774.6	9 621.8	6 950.6	7.80	2 228.1	2 139.3	33.7	

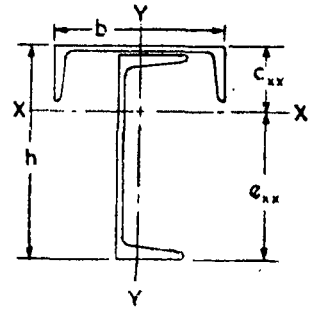
Note 1 — The properties given in this Table are based on the gross area of the section.

Note 2 — The mean thickness of flanges is computed according to Note 2 in Table II of IS: 800-1956.

Note 3 — The maximum allowable moment is computed on the basis of the allowable stress specified in 9.2.1 of IS: 800-1956 and gross modulus of section (Z_t) given in this Table.

Note 4 — The maximum allowable shear is computed on the basis of the allowable shear stress specified in 9.3.2 and the effective sectional area defined in 20.6.2.2 of IS: 800-1956.

TABLE XVI SINGLE CHANNEL WITH ANOTHER CHANNEL ON THE TOP FLANGE



Nominal Size	Composed of		Weight per Metre	Sectional Area	Mean Thickness of Flanges	
	Vertical Channel	Top Flange Channel			Top	Bottom
$h \times b$ mm \times mm	Designation	Designation	kg	cm ²	t_c mm	t_b mm
75 \times 75	ISMC 75	ISMC 75	13.6	17.34	8.3	7.3
75 \times 75		ISLC 75	12.5	15.93	7.6	7.3
100 \times 100	ISMC 100	ISMC 100	18.4	23.40	8.4	7.5
100 \times 100		ISLC 100	17.1	21.72	7.8	7.5
125 \times 125	ISMC 125	ISMC 125	25.4	32.38	9.2	8.1
125 \times 125		ISLC 125	23.4	29.86	8.6	8.1
125 \times 100		ISMC 100	21.9	27.89	10.0	8.1
125 \times 100		ISLC 100	20.6	26.21	9.3	8.1
150 \times 150	ISMC 150	ISMC 150	32.8	41.76	9.9	9.0
150 \times 150		ISLC 150	30.8	39.24	9.3	9.0
150 \times 125		ISMC 125	29.1	37.07	10.4	9.0
150 \times 125		ISLC 125	27.1	34.55	9.8	9.0
175 \times 175	ISMC 175	ISMC 175	38.2	48.76	10.1	10.2
175 \times 175		ISLC 175	36.7	46.78	9.5	10.2
175 \times 150		ISMC 150	35.5	45.26	10.5	10.2
175 \times 150		ISLC 150	33.5	42.74	9.9	10.2
175 \times 125		ISMC 125	31.8	40.57	11.1	10.2
175 \times 125		ISLC 125	29.8	38.05	10.5	10.2
200 \times 200	ISMC 200	ISMC 200	44.2	56.42	10.4	11.4
200 \times 200		ISLC 200	42.7	54.43	9.8	11.4
200 \times 175		ISMC 175	41.2	52.59	10.6	11.4
200 \times 175		ISLC 175	39.7	50.61	10.0	11.4
200 \times 150		ISMC 150	38.5	49.09	11.1	11.4
200 \times 150		ISLC 150	36.5	46.57	10.5	11.4
225 \times 225	ISMC 225	ISMC 225	51.8	66.02	10.8	12.4
225 \times 225		ISLC 225	49.9	63.54	10.2	12.4
225 \times 200		ISMC 200	48.0	61.22	11.1	12.4
225 \times 200		ISLC 200	46.5	59.23	10.5	12.4
225 \times 175		ISMC 175	45.0	57.39	11.4	12.4
225 \times 175		ISLC 175	43.5	55.41	10.8	12.4

SECTION B : BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS

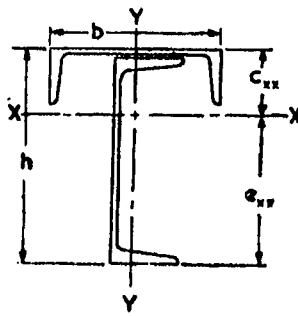


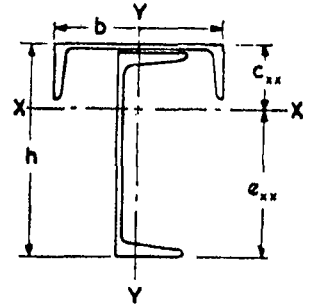
TABLE XVI SINGLE CHANNEL WITH ANOTHER CHANNEL ON THE TOP FLANGE

Extreme Fibre Distances		Gross Moments of Inertia		Radius of Gyration	Moduli of Section Z_{xx}		Maximum Allowable Moment
C_{xx}	e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_c	Z_t	M
cm	cm	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³
2.75	5.19	124.6	88.6	2.26	45.3	24.0	0.4
2.86	5.01	117.8	78.7	2.22	41.2	23.5	0.4
3.50	6.97	303.4	212.6	3.01	86.7	43.5	0.7
3.66	6.74	288.6	190.6	2.96	78.9	42.8	0.6
4.34	8.66	663.6	476.3	3.84	152.7	76.7	1.2
4.56	8.38	633.9	416.7	3.74	139.0	75.7	1.1
4.54	8.43	625.2	246.6	2.97	137.6	74.2	1.1
4.73	8.17	597.8	224.6	2.93	126.5	73.1	1.1
5.13	10.41	1 235.3	881.7	4.59	240.8	118.7	1.8
5.36	10.12	1 189.0	799.5	4.51	221.8	117.5	1.8
5.35	10.15	1 174.2	518.7	3.74	219.3	115.7	1.7
5.61	9.83	1 124.2	459.1	3.65	200.5	114.3	1.7
5.76	12.31	1 962.3	1 344.3	5.25	340.7	159.4	2.4
5.98	12.03	1 899.2	1 269.4	5.21	317.8	157.8	2.4
6.03	12.01	1 887.8	900.4	4.46	313.2	157.2	2.4
6.29	11.69	1 817.9	818.2	4.38	289.1	155.5	2.3
6.33	11.67	1 803.1	537.4	3.64	284.7	154.5	2.3
6.62	11.32	1 728.3	477.8	3.54	261.0	152.7	2.3
6.39	14.22	2 964.4	1 959.7	5.89	463.9	208.5	3.1
6.60	13.95	2 879.9	1 865.9	5.86	436.4	206.4	3.1
6.69	13.88	2 856.5	1 363.7	5.09	427.0	205.8	3.1
6.92	13.59	2 767.0	1 288.8	5.05	399.8	203.6	3.1
7.00	13.54	2 752.2	919.8	4.33	393.1	203.3	3.0
7.29	13.19	2 652.2	837.6	4.24	364.0	201.0	3.0
7.10	16.04	4 399.7	2 881.8	6.61	620.1	274.2	4.1
7.33	15.75	4 296.6	2 735.1	6.56	586.3	272.8	4.1
7.39	15.72	4 263.2	2 006.5	5.72	576.5	271.3	4.1
7.62	15.43	4 146.5	1 912.7	5.68	544.4	268.7	4.1
7.73	15.34	4 113.4	1 410.5	4.96	531.9	268.2	4.0
7.98	15.03	3 990.2	1 335.6	4.91	500.3	265.4	4.0

(Continued)

TABLE XVI SINGLE CHANNEL WITH ANOTHER CHANNEL ON THE TOP FLANGE

(Continued)



Nominal Size	Composed of		Weight per Metre	Sectional Area	Mean Thickness of Flanges	
	Vertical Channel	Top Flange Channel			Top	Bottom
$h \times b$					t_c	t_f
mm \times mm	Designation	Designation	kg	cm ²	mm	mm
250 \times 250	ISMC 250	ISMC 250	60.8	77.34	11.6	14.1
250 \times 250		ISLC 250	58.4	74.32	10.6	14.1
250 \times 225		ISMC 225	56.3	71.68	11.4	14.1
250 \times 225		ISLC 225	54.4	69.20	10.8	14.1
250 \times 200		ISMC 200	52.5	66.88	11.7	14.1
250 \times 200		ISLC 200	51.0	64.89	11.1	14.1
300 \times 300	ISMC 300	ISMC 300	71.6	91.28	11.7	13.6
300 \times 300		ISLC 300	68.9	87.75	10.8	13.6
300 \times 250		ISMC 250	66.2	84.31	12.0	13.6
300 \times 250		ISLC 250	63.8	81.29	11.0	13.6
300 \times 225		ISMC 225	61.7	78.65	11.8	13.6
300 \times 225		ISLC 225	59.8	76.17	11.2	13.6
350 \times 350	ISMC 350	ISMC 350	84.2	107.32	12.0	13.5
350 \times 350		ISLC 350	80.9	103.13	11.3	13.5
350 \times 300		ISMC 300	77.9	99.30	12.1	13.5
350 \times 300		ISLC 300	75.2	95.77	11.2	13.5
350 \times 250		ISMC 250	72.5	92.33	12.5	13.5
350 \times 250		ISLC 250	70.1	89.31	11.5	13.5
400 \times 400	ISMC 400	ISMC 400	98.8	125.86	12.4	15.3
400 \times 400		ISLC 400	95.1	121.18	11.8	15.3
400 \times 350		ISMC 350	91.5	116.59	12.5	15.3
400 \times 350		ISLC 350	88.2	112.40	11.8	15.3
400 \times 300		ISMC 300	85.2	108.57	12.7	15.3
400 \times 300		ISLC 300	82.5	105.04	11.8	15.3

SECTION B: BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS

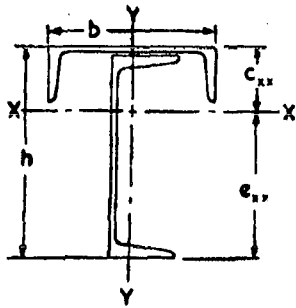


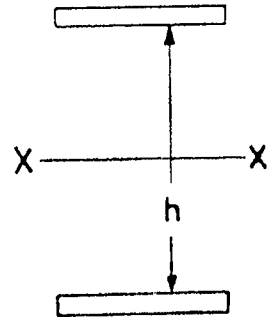
TABLE XVI SINGLE CHANNEL WITH ANOTHER CHANNEL ON THE TOP FLANGE

(Continued)

Extreme Fibre Distances		Gross Moments of Inertia		Radius of Gyration	Moduli of Section Z_{xx}		Maximum Allowable Moment
C_{xx}	e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_c	Z_l	M
cm	cm	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³
7.76	17.96	6 337.3	4 035.9	7.22	817.2	353.0	5.3
8.12	17.49	6 125.4	3 906.6	7.25	754.7	350.2	5.3
8.15	17.49	6 096.6	2 913.7	6.38	748.2	348.5	5.2
8.39	17.19	5 950.5	2 767.0	6.32	708.8	346.3	5.2
8.50	17.11	5 909.4	2 038.4	5.52	695.6	345.3	5.2
8.73	16.82	5 752.6	1 944.6	5.47	659.2	341.9	5.1
9.06	21.70	10 771.0	6 673.4	8.55	1 188.8	496.4	7.4
9.37	21.30	10 478.7	6 358.7	8.51	1 117.9	492.0	7.4
9.56	21.15	10 346.1	4 127.6	7.00	1 082.4	489.2	7.3
9.95	20.66	9 997.0	3 998.3	7.01	1 004.9	483.8	7.3
10.04	20.60	9 958.6	3 005.4	6.18	991.8	483.5	7.3
10.32	20.26	9 721.0	2 858.7	6.13	941.8	479.8	7.2
10.38	25.44	17 195.9	10 438.6	9.86	1 657.4	676.1	10.1
10.65	25.09	16 852.7	9 743.2	9.72	1 582.9	671.6	10.1
10.95	24.81	16 553.9	6 793.2	8.28	1 511.5	667.3	10.0
11.30	24.37	16 110.6	6 478.5	8.22	1 425.5	661.1	9.9
11.55	24.16	15 915.9	4 247.4	6.78	1 378.4	658.7	9.9
11.96	23.65	15 392.9	4 118.1	6.79	1 287.1	650.8	9.8
11.64	29.22	26 286.8	15 587.6	11.13	2 258.3	899.6	13.5
11.94	28.86	25 829.2	14 494.3	10.94	2 164.0	894.9	13.4
12.36	28.45	25 287.2	10 512.8	9.50	2 046.7	888.7	13.3
12.67	28.07	24 783.3	9 817.4	9.35	1 955.7	883.0	13.2
13.03	27.73	24 349.9	6 867.4	7.95	1 869.5	878.0	13.2
13.41	27.26	23 712.1	6 552.7	7.90	1 768.7	869.7	13.0

Note 1 — The centres of gravity of both the channels lie in Y-Y axis.

Note 2 — The moment of inertia about Y-Y axis of the top flange area above the neutral axis can be computed by adding I_{xx} of top channel and I_{yy} of vertical channel (see Table II for values of I_{xx} and I_{yy}).

TABLE XVII MOMENT OF INERTIA OF TWO FLANGES PER CENTIMETRE WIDTH ABOUT THE X-X AXIS


Thickness of Each Flange mm	9.0	10.0	11	12	14	16	18	20	22	25
Depth h cm	Moment of Inertia in cm ⁴									
7.5	31.9	36.3	40.9	45.7	55.9	66.9	78.8	91.6	105.3	127.6
8.0	35.8	40.6	45.8	51.1	62.3	74.4	87.4	101.3	116.2	140.4
10.0	53.6	60.7	68.0	75.6	91.4	108.3	126.3	145.3	165.5	197.9
12.5	80.9	91.3	101.9	112.9	135.7	159.7	185.0	211.6	239.5	283.9
15.0	113.9	128.2	142.8	157.8	188.7	221.1	255.0	290.3	327.2	385.4
16.0	128.6	144.7	161.0	177.8	212.4	248.5	286.1	325.3	366.1	430.4
17.5	152.5	171.3	190.5	210.1	250.5	293.2	336.2	381.6	428.7	502.6
20.0	196.7	220.7	245.1	270.0	321.0	373.9	428.7	485.3	543.9	635.4
22.5	246.5	276.3	306.5	337.3	400.3	465.3	532.4	601.6	672.9	783.9
25.0	302.0	338.2	374.9	412.2	488.3	566.7	647.4	730.3	815.6	947.9
27.5	363.1	406.3	450.1	494.4	585.1	678.1	773.5	871.6	972.1	1127.6
30.0	429.8	480.7	532.2	584.4	690.6	799.5	911.1	1025.3	1142.3	1322.9
32.0	487.2	544.7	602.8	661.6	781.3	903.9	1029.2	1157.3	1288.4	1490.4
32.5	502.1	561.3	621.1	681.7	804.9	930.9	1059.8	1191.6	1326.3	1533.9
35.0	580.1	648.2	717.0	786.6	927.9	1072.3	1219.8	1370.3	1524.0	1760.4
40.0	752.9	840.7	929.3	1018.8	1200.2	1385.1	1573.5	1765.3	1960.7	2260.4
45.0	948.2	1058.2	1169.1	1281.0	1507.5	1737.9	1972.2	2210.3	2452.4	2822.9
50.0	1166.0	1300.7	1436.4	1573.2	1849.8	2130.7	2415.9	2705.3	2999.1	3447.9
55.0	1406.3	1568.2	1731.2	1895.4	2227.1	2563.5	2904.6	3250.3	3600.8	4135.4
60.0	1669.1	1860.7	2053.5	2247.6	2639.4	3036.3	3438.3	3845.3	4257.5	4885.4
63.0	1837.6	2048.2	2260.1	2473.3	2903.6	3339.2	3780.1	4226.3	4677.9	5365.4
80.0	2945.3	3280.7	3617.7	3956.4	4638.6	5327.5	6032.1	6725.3	7434.3	8510.4
100.0	4581.5	5100.7	5621.9	6145.2	7197.8	8258.7	9327.9	10405.3	11491.1	13135.4
125.0	7133.0	7938.2	8745.9	9556.2	11184.3	12822.7	14471.7	16130.3	17799.6	20322.9
160.0	11650.1	12960.7	14274.5	15591.6	18235.4	20892.3	23562.3	26245.3	28941.5	33010.4
200.0	18162.5	20200.7	22242.9	24289.2	28393.8	32514.7	36651.9	40805.3	44975.1	51260.4
250.0	28328.0	31500.7	34678.4	37861.2	44241.8	50642.7	57063.9	63505.3	69967.1	79697.9

Note—To obtain the Moment of Inertia of two Flanges of a particular width, multiply the value obtained from the Table by that width.

SECTION B : BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS

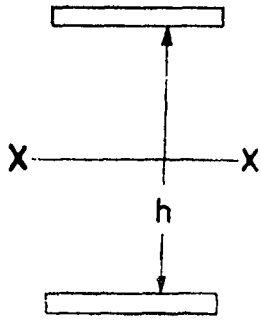
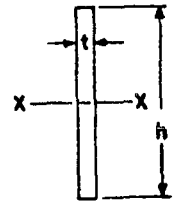


TABLE XVII MOMENT OF INERTIA OF TWO FLANGES PER CENTIMETRE WIDTH ABOUT THE X-X AXIS

28	32	36	40	45	50	56	63	71	80	Thickness of each Flange mm
Moment of Inertia in cm ⁴										Depth h cm
152.2	188.6	229.6	275.2	339.2	411.5	509.8	641.6	816.4	1 046.3	7.5
167.0	206.2	250.0	298.7	366.8	443.3	547.2	685.8	866.6	1 109.3	8.0
233.0	284.2	340.7	402.7	488.2	583.3	710.7	878.6	1 097.7	1 381.3	10.0
331.4	399.8	474.4	555.2	665.4	786.5	946.6	1 155.0	1 423.4	1 766.3	12.5
447.2	535.4	630.5	732.7	870.8	1 020.8	1 217.5	1 470.8	1 793.5	2 201.3	15.0
498.5	595.3	699.3	810.7	960.8	1 123.3	1 335.6	1 608.1	1 951.5	2 389.3	16.0
580.6	691.0	809.2	935.2	1 104.2	1 286.5	1 523.4	1 826.0	2 208.0	2 686.3	17.5
731.4	866.6	1 010.3	1 162.7	1 365.8	1 583.3	1 864.3	2 220.5	2 666.8	3 221.3	20.0
899.8	1 062.2	1 234.0	1 415.2	1 595.2	1 911.5	2 240.2	2 654.4	3 170.0	3 806.3	22.5
1 085.6	1 277.8	1 480.1	1 692.7	1 973.2	2 270.8	2 651.1	3 127.7	3 717.6	4 441.3	25.0
1 289.0	1 513.4	1 748.8	1 995.2	2 319.2	2 661.5	3 097.0	3 640.4	4 309.6	5 126.3	27.5
1 509.8	1 769.0	2 039.9	2 322.7	2 693.2	3 083.3	3 577.9	4 192.4	4 945.9	5 861.3	30.0
1 699.1	1 987.9	2 289.0	2 602.7	3 012.8	3 443.3	3 987.8	4 662.4	5 484.4	6 485.3	32.0
1 748.2	2 044.6	2 353.6	2 675.2	3 095.4	3 536.5	4 093.8	4 783.8	5 626.6	6 646.3	32.5
2 004.0	2 340.2	2 689.7	3 052.7	3 525.8	4 020.8	4 644.7	5 414.6	6 351.7	7 481.3	35.0
2 568.2	2 991.4	3 429.5	3 882.7	4 470.8	5 083.3	5 851.5	6 794.3	7 935.0	9 301.3	40.0
3 202.4	3 722.6	4 259.3	4 812.7	5 528.2	6 270.8	7 198.3	8 331.5	9 695.8	11 321.3	45.0
3 906.6	4 533.8	5 179.1	5 842.7	6 698.2	7 583.3	8 685.1	10 026.2	11 634.1	13 541.3	50.0
4 680.8	5 425.0	6 188.9	6 972.7	7 980.8	9 020.8	10 311.9	11 878.4	13 749.9	15 961.3	55.0
5 525.0	6 396.2	7 288.7	8 202.7	9 375.8	10 583.3	12 078.7	13 888.1	16 043.2	18 581.3	60.0
6 065.2	7 017.4	7 991.8	8 988.7	10 266.8	11 580.8	13 206.0	15 169.5	17 504.4	20 249.3	63.0
9 601.8	11 081.0	12 587.9	14 122.7	16 080.8	18 083.3	20 545.9	23 501.9	26 991.4	31 061.3	80.0
14 798.6	17 045.8	19 327.1	21 642.7	24 585.8	27 583.3	31 253.1	35 635.7	40 779.6	46 741.3	100.0
22 869.6	26 301.8	29 776.1	33 292.7	37 748.2	42 270.8	47 787.1	54 346.7	62 006.1	70 841.3	125.0
37 109.0	42 620.2	48 184.7	53 802.7	60 900.8	68 083.3	76 814.7	87 157.1	99 184.2	112 981.3	160.0
57 582.6	66 069.8	74 623.1	83 242.7	94 110.8	105 083.3	118 389.1	134 104.7	152 320.6	173 141.3	200.0
89 474.6	102 581.3	115 771.1	129 042.7	145 748.2	162 583.3	182 957.1	206 964.2	234 716.1	266 341.3	250.0

Note — To obtain the Moment of Inertia of two Flanges of a particular width, multiply the value obtained from the Table by that width.

TABLE XVIII MOMENT OF INERTIA OF ONE WEB PLATE ABOUT ITS X-X AXIS



Thickness <i>t</i> mm	6.0	7.0	8.0	9.0	10.0	11	12
Depth <i>h</i> cm	Moment of Inertia in cm ⁴						
8.0	25.6	29.9	34.1	38.4	42.7	46.9	51.2
10.0	50.0	58.3	66.7	75.0	83.3	91.7	100.0
12.5	97.7	113.9	130.2	146.5	162.8	179.0	195.3
16.0	204.8	238.9	273.1	307.2	341.3	375.5	409.6
20.0	400.0	466.7	533.3	600.0	666.7	733.3	800.0
25.0	781.2	911.5	1 041.7	1 171.9	1 302.1	1 432.3	1 562.5
32.0	1 638.4	1 911.5	2 184.5	2 457.6	2 730.7	3 003.7	3 276.8
40.0	3 200.0	3 733.3	4 266.7	4 800.0	5 333.3	5 866.7	6 400.0
50.0	6 250.0	7 291.7	8 333.3	9 375.0	10 416.7	11 458.3	12 500.0
63.0	12 502.4	14 586.1	16 669.8	18 753.5	20 837.2	22 921.1	25 004.7
80.0	25 600.0	29 866.7	34 133.3	38 400.0	42 666.7	46 933.3	51 200.0
100.0	50 000.0	58 333.3	66 666.7	75 000.0	83 333.3	91 666.7	100 000.0
125.0	97 656.2	113 932.3	130 208.3	146 484.4	162 760.4	179 036.5	195 312.5
160.0	204 800.0	238 933.3	273 066.7	307 200.0	341 333.3	375 466.7	409 600.0
200.0	400 000.0	466 666.7	533 333.3	600 000.0	666 666.7	733 333.3	800 000.0
250.0	781 250.0	911 458.3	1 041 666.7	1 171 875.0	1 302 083.3	1 432 291.7	1 562 500.0

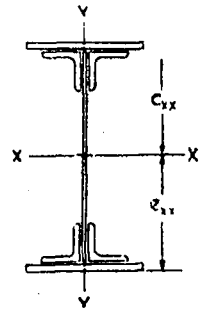
Thickness <i>t</i> mm	14	16	18	20	22	25
Depth <i>h</i> cm	Moment of Inertia in cm ⁴					
8.0	59.7	68.3	76.8	85.3	93.9	106.7
10.0	116.7	133.3	150.0	166.7	183.3	208.3
12.5	227.9	260.4	294.6	325.5	358.1	406.9
16.0	477.9	546.1	614.4	682.7	750.9	853.3
20.0	933.3	1 066.7	1 200.0	1 333.3	1 466.7	1 666.7
25.0	1 822.9	2 083.3	2 343.8	2 604.2	2 864.6	3 255.2
32.0	3 822.9	4 369.1	4 915.2	5 461.3	6 007.5	6 826.7
40.0	7 466.7	8 533.3	9 600.0	10 666.7	11 733.3	13 333.3
50.0	14 583.3	16 666.7	18 750.0	20 833.3	22 916.7	26 041.7
63.0	29 172.2	33 339.6	37 507.0	41 674.5	45 842.0	52 093.1
80.0	59 733.3	68 266.7	76 800.0	85 333.3	93 866.7	106 666.7
100.0	116 666.7	133 333.3	150 000.0	166 666.7	183 333.3	208 333.3
125.0	227 864.6	260 416.7	292 968.8	325 520.8	358 072.9	406 901.0
160.0	477 866.7	546 133.3	614 400.0	682 666.7	750 933.3	853 333.3
200.0	933 333.3	1 066 666.7	1 200 000.0	1 333 333.3	1 466 666.7	1 666 666.7
250.0	1 822 916.7	2 083 333.3	2 234 375.0	2 604 166.7	2 864 583.3	3 255 208.3

SECTION B : BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS

TABLE XIX REDUCTION FOR AREA FOR RIVET HOLES

Diameter of Rivet mm	12	14	16	18	20	22	24
Rivet Hole Diameter mm	13.5	15.5	17.5	19.5	21.5	23.5	25.5
Thickness of Metal mm	Area of Rivet Holes in cm ²						
5.0	0.68	0.78	0.88	0.98	1.08	1.18	1.28
6.0	0.81	0.93	1.05	1.17	1.29	1.41	1.53
8.0	1.08	1.24	1.40	1.56	1.72	1.88	2.04
10.0	1.35	1.55	1.75	1.95	2.15	2.35	2.55
12.0	1.62	1.86	2.10	2.34	2.58	2.82	3.06
14.0	1.89	2.17	2.45	2.73	3.01	3.29	3.57
16.0	2.16	2.48	2.80	3.12	3.44	3.76	4.08
18.0	2.43	2.79	3.15	3.51	3.87	4.23	4.59
20.0	2.70	3.10	3.50	3.90	4.30	4.70	5.10
22.0	2.97	3.41	3.85	4.29	4.73	5.17	5.61
25.0	3.38	3.88	4.38	4.88	5.38	5.88	6.38
28.0	3.78	4.34	4.90	5.46	6.02	6.58	7.14
32.0	4.32	4.96	5.60	6.24	6.88	7.52	8.16
36.0	4.86	5.58	6.30	7.02	7.74	8.46	9.18
40.0	5.40	6.20	7.00	7.80	8.60	9.40	10.20
45.0	6.08	6.98	7.88	8.78	9.68	10.58	11.48
50.0	6.75	7.75	8.75	9.75	10.75	11.75	12.75
56.0	7.56	8.68	9.80	10.92	12.04	13.16	14.28
63.0	8.50	9.76	11.02	12.28	13.54	14.80	16.06
Diameter of Rivet mm	27	30	33	36	39	42	48
Rivet Hole Diameter mm	29.0	32.0	35.0	38.0	41.0	44.0	50.0
Thickness of Metal mm	Area of Rivet Holes in cm ²						
5.0	1.45	1.60	1.75	1.90	2.05	2.20	2.50
6.0	1.74	1.92	2.10	2.28	2.46	2.64	3.00
8.0	2.32	2.56	2.80	3.04	3.28	3.52	4.00
10.0	2.90	3.20	3.50	3.80	4.10	4.40	5.00
12.0	3.48	3.84	4.20	4.56	4.92	5.28	6.00
14.0	4.06	4.48	4.90	5.32	5.74	6.16	7.00
16.0	4.64	5.12	5.60	6.08	6.56	7.04	8.00
18.0	5.22	5.76	6.30	6.84	7.38	7.92	9.00
20.0	5.80	6.40	7.00	7.60	8.20	8.80	10.00
22.0	6.38	7.04	7.70	8.36	9.02	9.68	11.00
25.0	7.25	8.00	8.75	9.50	10.25	11.00	12.50
28.0	8.12	8.96	9.80	10.64	11.48	12.32	14.00
32.0	9.28	10.24	11.20	12.16	13.12	14.08	16.00
36.0	10.44	11.52	12.60	13.68	14.76	15.84	18.00
40.0	11.60	12.80	14.00	15.20	16.40	17.60	20.00
45.0	13.05	14.40	15.75	17.10	18.45	19.80	22.50
50.0	14.50	16.00	17.50	19.00	20.50	22.00	25.00
56.0	16.24	17.92	19.60	21.28	22.96	24.64	28.00
63.0	18.27	20.16	22.05	23.94	25.83	27.72	31.50

TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w kg	Sectional Area a cm ²	Mean Thickness of Flanges t _c = t _f mm		
Width	Thickness	A × B × t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm					
800	12.0	150	×	150	×	18.0	400	0.0	234.8	299.16	18.0
								12.0	310.2	395.16	26.0
								16.0	335.3	427.16	30.0
								20.0	360.4	459.16	34.0
								25.0	391.8	499.16	39.0
								32.0	435.8	555.16	46.0
								40.0	486.0	619.16	54.0
800	12.0	150	×	150	×	18.0	500	0.0	234.8	299.16	18.0
								12.0	329.0	419.16	23.2
								16.0	360.4	459.16	27.2
								20.0	391.8	499.16	31.2
								25.0	431.1	549.16	36.2
								32.0	486.0	619.16	43.2
								40.0	548.8	699.16	51.2
800	16.0	150	×	50	×	18.0	400	0.0	260.0	331.16	18.0
								12.0	335.3	427.16	26.2
								16.0	360.4	459.16	30.2
								20.0	385.6	491.16	34.2
								25.0	417.0	531.16	39.2
								32.0	460.9	587.16	46.2
								40.0	511.2	651.16	54.2
800	16.0	150	×	150	×	18.0	500	0.0	260.0	331.16	18.0
								12.0	354.2	451.16	23.4
								16.0	385.6	491.16	27.4
								20.0	417.0	531.16	31.4
								25.0	456.2	581.16	36.4
								32.0	511.2	651.16	43.4
								40.0	574.0	731.16	51.4

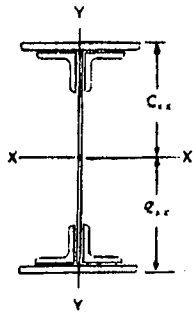


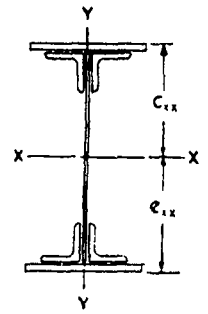
TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	I_{xx}	I_{yy}				
e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m × 10 ³	kg × 10 ³
40.0	313 161.8	9 245.6	5.56	7 829.0	117.4	90.7
41.2	471 415.9	22 045.6	7.47	11 442.1	171.6	
41.6	526 263.1	26 312.2	7.85	12 650.6	189.8	
42.0	582 175.2	30 578.9	8.16	13 861.3	207.9	
42.5	653 578.5	35 912.2	8.48	15 378.3	230.7	
43.2	756 403.6	43 378.9	8.84	17 509.3	262.6	
44.0	878 068.5	51 912.2	9.16	19 956.1	299.3	
40.0	313 161.8	9 245.6	5.56	7 829.0	117.5	90.7
41.2	510 979.4	34 245.6	9.04	12 402.4	186.0	
41.6	579 538.4	42 578.9	9.63	13 931.2	209.0	
42.0	649 428.5	50 912.2	10.10	15 462.6	231.9	
42.5	738 682.7	61 328.9	10.57	17 380.8	260.7	
43.2	867 214.1	75 912.2	11.07	20 074.4	301.1	
44.0	1 019 295.2	92 578.9	11.51	23 165.8	347.5	
40.0	330 228.5	9 674.2	5.40	8 255.7	123.8	121.0
41.2	488 482.6	22 474.2	7.25	11 856.4	177.8	
41.6	543 329.7	26 740.8	7.63	13 060.8	195.9	
42.0	599 241.8	31 007.5	7.95	14 267.7	214.0	
42.5	670 645.2	36 340.8	8.27	15 779.9	236.7	
43.2	773 470.3	43 807.5	8.64	17 904.4	268.6	
44.0	895 135.2	52 340.8	8.97	20 344.0	305.2	
40.0	330 228.5	9 674.2	5.40	8 255.7	123.8	121.0
41.2	528 046.1	34 674.2	8.77	12 816.7	192.2	
41.6	596 605.0	43 007.5	9.36	14 341.5	215.1	
42.0	666 495.2	51 340.8	9.83	15 868.9	238.0	
42.5	755 749.3	61 757.5	10.31	17 782.3	266.7	
43.2	884 280.8	76 340.8	10.83	20 469.5	307.0	
44.0	1 036 361.8	93 007.5	11.28	23 553.7	353.3	

(Continued)

**TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)**

(Continued)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w	Sectional Area a	Mean Thickness of Flanges $t_c = t_f$		
Width	Thickness	A x B x t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm	kg	cm ²	mm		
1 000	12.0	150	x	150	x	18.0	400	0.0	253.7	323.16	18.0
								12.0	329.0	419.16	26.0
								16.0	354.2	451.16	30.0
								20.0	379.3	483.16	34.0
								25.0	410.7	523.16	39.0
								32.0	454.6	579.16	46.0
								40.0	504.9	643.16	54.0
1 000	12.0	150	x	150	x	18.0	500	0.0	253.7	323.16	18.0
								12.0	347.9	443.16	23.2
								16.0	379.3	483.16	27.2
								20.0	410.7	523.16	31.2
								25.0	449.9	573.16	36.2
								32.0	504.9	643.16	43.2
								40.0	567.7	723.16	51.2
1 000	16.0	150	x	150	x	18.0	400	0.0	285.1	363.16	18.0
								12.0	360.4	459.16	26.2
								16.0	385.6	491.16	30.2
								20.0	410.7	523.16	34.2
								25.0	442.1	563.16	39.2
								32.0	486.0	619.16	46.2
								40.0	536.3	683.16	54.2
1 000	16.0	150	x	150	x	18.0	500	0.0	285.1	363.16	18.0
								12.0	379.3	483.16	23.4
								16.0	410.7	523.16	27.4
								20.0	442.1	563.16	31.4
								25.0	481.3	613.16	36.4
								32.0	536.3	683.16	43.4
								40.0	599.1	763.16	51.4

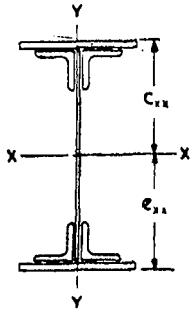


TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

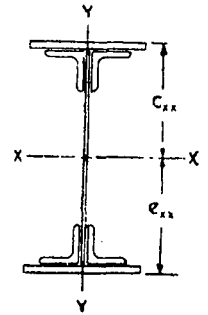
(Continued)

Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	e_{xx}	I_{xx}				
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m × 10 ³	kg × 10 ³
50.0	527 009.0	9 248.4	5.35	10 540.2	158.1	113.4
51.2	772 815.1	22 048.4	7.25	15 094.0	226.4	
51.6	857 358.2	26 315.1	7.64	16 615.5	249.2	
52.0	943 222.4	30 581.8	7.96	18 138.9	272.1	
52.5	1 052 425.7	35 915.1	8.29	20 046.2	300.7	
53.2	1 208 842.8	43 381.8	8.65	22 722.6	340.8	
54.0	1 392 715.7	51 915.1	8.98	25 791.0	386.9	
50.0	527 009.0	9 248.4	5.35	10 540.2	158.1	113.4
51.2	834 266.6	34 248.4	8.79	16 294.3	244.4	
51.6	939 945.6	42 581.8	9.39	18 216.0	273.2	
52.0	1 047 275.7	50 915.1	9.87	20 139.9	302.1	
52.5	1 183 779.9	61 331.8	10.34	22 548.2	338.2	
53.2	1 379 301.3	75 915.1	10.86	25 926.7	388.9	
54.0	1 609 142.4	92 581.8	11.31	29 798.9	447.0	
50.0	560 342.4	9 681.0	5.16	11 206.9	168.1	151.2
51.2	806 148.4	22 481.0	7.00	15 745.1	246.3	
51.6	890 691.6	26 747.7	7.38	17 261.5	258.9	
52.0	976 555.7	31 014.3	7.70	18 779.9	281.7	
52.5	1 085 759.0	36 347.7	8.03	20 681.1	310.2	
53.2	1 242 176.2	43 814.3	8.41	23 349.2	350.2	
54.0	1 426 049.0	52 347.7	8.75	26 408.3	396.1	
50.0	560 342.4	9 681.0	5.16	11 206.9	168.1	151.2
51.2	867 600.0	34 681.0	8.47	17 352.0	260.3	
51.6	973 278.9	43 014.3	9.07	19 465.6	292.0	
52.0	1 080 609.0	51 347.7	9.55	21 612.2	324.2	
52.5	1 217 113.2	61 764.3	10.04	24 342.3	365.1	
53.2	1 412 634.6	76 347.7	10.57	28 252.7	423.8	
54.0	1 642 475.7	93 014.3	11.04	32 849.5	492.7	

(Continued)

**TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)**

(Continued)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w	Sectional Area a	Mean Thickness of Flanges $t_c = t_f$		
Width	Thickness	A × B × t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm	kg	cm ²	mm		
1 250	12.0	150	×	150	×	18.0	400	0.0	277.2	353.16	18.0
								12.0	352.6	449.16	26.0
								16.0	377.7	481.16	30.0
								20.0	402.8	513.16	34.0
								25.0	434.2	553.16	39.0
								32.0	478.2	609.16	46.0
								40.0	528.4	673.16	54.0
1 250	12.0	150	×	150	×	18.0	500	0.0	277.2	353.16	18.0
								12.0	371.4	473.16	23.2
								16.0	402.8	513.16	27.2
								20.0	434.2	553.16	31.2
								25.0	473.5	603.16	36.2
								32.0	528.4	673.16	43.2
								40.0	591.2	753.16	51.2
1 250	16.0	150	×	150	×	18.0	400	0.0	316.5	403.16	18.0
								12.0	391.8	499.16	26.2
								16.0	417.0	531.16	30.2
								20.0	442.1	563.16	34.2
								25.0	473.5	603.16	39.2
								32.0	517.4	659.16	46.2
								40.0	567.7	723.16	54.2
1 250	16.0	150	×	150	×	18.0	500	0.0	316.5	403.16	18.0
								12.0	410.7	523.16	23.4
								16.0	442.1	563.16	27.4
								20.0	473.5	603.16	31.4
								25.0	512.7	653.16	36.4
								32.0	567.7	723.16	43.4
								40.0	630.5	803.16	51.4

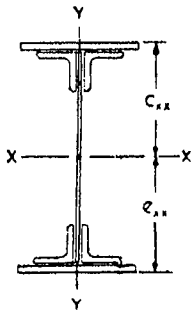


TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

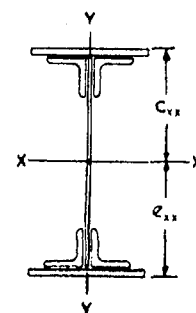
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Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	e_{xx}	I_{xx}				
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m × 10 ³	kg × 10 ³
62.5	885 769.3	9 252.0	5.12	14 172.3	212.6	141.8
63.7	1 268 015.3	22 052.0	7.01	19 906.0	298.6	
64.1	1 398 678.5	26 318.7	7.40	21 820.3	227.3	
64.5	1 530 982.6	30 585.4	7.72	23 736.2	356.0	
65.0	1 698 685.9	35 918.7	8.06	26 133.6	392.0	
65.7	1 937 843.1	43 385.4	8.44	29 495.3	442.4	
66.5	2 217 475.9	51 918.7	8.78	33 345.5	500.2	
62.5	885 769.3	9 252.0	5.12	14 172.3	212.6	141.8
63.7	1 363 576.9	34 252.0	8.51	21 406.2	321.1	
64.1	1 526 905.8	42 585.4	9.11	23 820.7	357.3	
64.5	1 692 285.9	50 918.7	9.59	26 237.0	393.6	
65.0	1 901 915.1	61 335.4	10.08	29 260.2	438.9	
65.7	2 200 861.5	75 918.7	10.62	33 498.7	502.5	
66.5	2 550 402.6	92 585.4	11.09	38 351.9	575.3	
62.5	950 873.4	9 689.5	4.90	15 214.0	228.2	189.0
63.7	1 333 119.5	22 489.5	6.71	20 928.1	313.9	
64.1	1 463 782.6	26 756.2	7.10	22 835.9	342.5	
64.5	1 596 086.8	31 022.9	7.42	24 745.5	371.2	
65.0	1 763 790.1	36 356.2	7.76	27 135.2	407.0	
65.7	2 002 947.2	43 822.9	8.15	30 486.3	457.3	
66.5	2 282 580.1	52 356.2	8.51	34 324.5	514.9	
62.5	950 873.4	9 689.5	4.90	15 214.0	228.2	189.0
63.7	1 428 681.0	34 689.5	7.96	22 428.3	336.4	
64.1	1 592 010.0	43 022.9	8.74	24 836.3	372.5	
64.5	1 757 390.1	51 356.2	9.23	27 246.4	408.7	
65.0	1 967 019.3	61 772.9	9.72	30 261.3	453.9	
65.7	2 265 965.7	76 356.2	10.28	34 489.6	517.3	
66.5	2 615 506.8	93 022.9	10.76	39 330.9	590.0	

(Continued)

**TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)**

(Continued)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w	Sectional Area a	Mean Thickness of Flanges $t_c = t_f$		
Width	Thickness	A x B x t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm	kg	cm ²	mm		
1 600	12.0	150	x	150	x	18.0	400	0.0	10.2	395.16	18.0
								12.0	385.6	491.16	26.0
								16.0	410.7	523.16	30.0
								20.0	435.8	555.16	34.0
								25.0	467.2	595.16	39.0
								32.0	511.2	651.16	46.0
								40.0	561.4	715.16	54.0
1 600	12.0	150	x	150	x	18.0	500	0.0	310.2	395.16	18.0
								12.0	404.2	515.16	23.2
								16.0	435.8	555.16	27.2
								20.0	467.2	595.16	31.2
								25.0	506.5	645.16	36.2
								32.0	561.4	715.16	43.2
								40.0	624.2	795.16	51.2
1 600	12.0	200	x	200	x	18.0	500	0.0	366.8	467.24	18.0
								12.0	461.0	587.24	26.8
								16.0	492.4	627.24	30.8
								20.0	523.8	667.24	34.8
								25.0	563.0	717.24	39.8
								32.0	618.0	787.24	46.8
								40.0	680.8	867.24	54.8
1 600	16.0	150	x	150	x	18.0	400	0.0	360.4	459.16	18.0
								12.0	435.8	555.16	26.2
								16.0	460.9	587.16	30.2
								20.0	486.0	619.16	34.2
								25.0	517.4	659.16	39.2
								32.0	561.4	715.16	46.2
								40.0	611.6	779.16	54.2

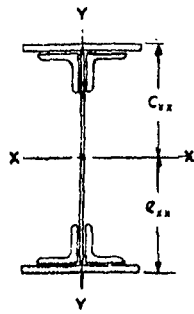


TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

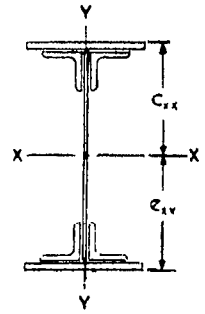
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Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	I_{xx}	I_{yy}				
e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m × 10 ³	kg × 10 ³
80.0	1 575 542.6	9 257.1	4.84	19 694.3	295.4	181.4
81.2	2 199 204.7	22 057.1	6.70	27 083.8	406.3	
81.6	2 411 235.8	26 323.8	7.09	29 549.5	443.2	
82.0	2 625 355.9	30 590.4	7.42	32 016.5	480.2	
82.5	2 895 959.2	35 923.8	7.77	35 102.5	526.5	
83.2	3 280 352.4	43 390.4	8.16	39 427.3	591.4	
84.0	3 727 649.2	51 923.8	8.52	44 376.8	665.7	
80.0	1 575 542.6	9 257.1	4.84	19 694.3	295.4	181.4
81.2	2 355 120.2	34 257.1	8.15	29 003.9	435.1	
81.6	2 620 159.1	42 590.4	8.76	32 109.8	481.6	
82.0	2 887 809.2	50 923.8	9.25	35 217.2	528.3	
82.5	3 226 063.4	61 340.4	9.75	39 103.8	586.6	
83.2	3 706 554.8	75 923.8	10.30	44 549.9	668.2	
84.0	4 265 675.9	92 590.4	10.79	50 781.9	761.7	
80.0	1 943 097.8	20 992.2	6.70	24 288.7	364.3	181.4
81.2	2 722 675.4	45 992.2	8.85	33 530.5	503.0	
81.6	2 987 714.3	54 325.6	9.31	36 614.1	549.2	
82.0	3 255 364.4	62 658.9	9.69	39 699.6	595.5	
82.5	3 593 618.6	73 075.6	10.09	43 559.0	653.4	
83.2	4 074 110.0	87 658.9	10.55	48 967.7	734.5	
84.0	4 633 231.1	104 325.6	10.97	55 157.5	827.4	
80.0	1 712 075.9	9 701.5	4.60	21 400.9	321.0	241.9
81.2	2 335 738.0	22 501.5	6.37	28 765.2	431.5	
81.6	2 547 769.1	26 768.2	6.75	31 222.7	468.3	
82.0	2 761 889.2	31 034.8	7.08	33 681.6	505.2	
82.5	3 032 492.6	36 368.2	7.43	36 757.5	551.4	
83.2	3 416 885.7	43 834.8	7.33	41 068.3	616.0	
84.0	3 864 182.6	52 368.2	8.20	46 002.2	690.0	

(Continued)

**TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)**

(Continued)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w kg	Sectional Area a cm ²	Mean Thickness of Flanges t _c = t _t mm		
Width	Thickness	A × B × t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm					
1 600	16.0	150	×	150	×	18.0	500	0.0	360.4	459.16	18.0
								12.0	454.6	579.16	23.4
								16.0	486.0	619.16	27.4
								20.0	517.4	659.16	31.4
								25.0	556.7	709.16	36.4
								32.0	611.6	779.16	43.4
								40.0	674.4	859.16	51.4
1 600	16.0	200	×	200	×	18.0	500	0.0	417.0	531.24	18.0
								12.0	511.2	651.24	27.0
								16.0	542.6	691.24	31.0
								20.0	574.0	731.24	35.0
								25.0	613.3	781.24	40.0
								32.0	668.2	851.24	47.0
								40.0	731.0	931.24	55.0
800	12.0	200	×	100	×	15.0	500	0.0	209.7	267.12	12.4
								12.0	303.9	387.12	24.4
								16.0	335.3	427.12	28.4
								20.0	366.7	467.12	32.4
								25.0	405.9	517.12	37.4
								32.0	460.9	587.12	44.4
								40.0	523.7	667.12	52.4
800	12.0	200	×	100	×	15.0	550	0.0	209.7	267.12	11.2
								12.0	313.3	399.12	23.2
								16.0	347.8	443.12	27.2
								20.0	382.4	487.12	31.2
								25.0	425.6	542.12	36.2
								32.0	486.0	619.12	43.2
								40.0	555.1	707.12	51.2

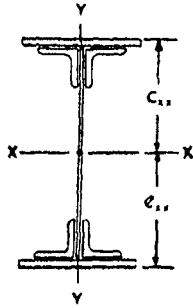


TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

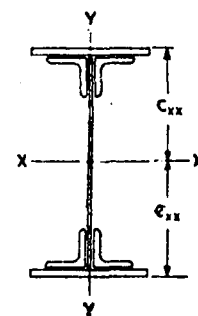
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Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	I_{xx}	I_{yy}				
e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m x 10 ³	kg x 10 ³
80.0	1 712 075.9	9 701.5	4.60	21 400.9	321.0	241.9
81.2	2 491 653.5	34 701.5	7.74	30 685.4	460.3	
81.6	2 756 692.4	43 034.8	8.34	33 783.0	506.7	
82.0	3 024 342.6	51 368.2	8.83	36 882.2	553.2	
82.5	3 362 596.7	61 784.8	9.33	40 758.7	611.4	
83.2	3 843 088.2	76 368.2	9.90	46 191.0	692.9	
84.0	4 402 209.2	93 034.8	10.41	52 407.3	786.1	
80.0	2 079 631.1	21 718.5	6.39	25 995.4	389.9	241.9
81.2	2 859 208.7	46 718.5	8.47	35 211.9	528.2	
81.6	3 124 247.6	55 051.8	8.92	38 287.3	574.3	
82.0	3 391 897.8	63 385.2	9.31	41 364.6	620.5	
82.5	3 730 151.9	73 801.8	9.72	45 214.0	678.2	
83.2	4 210 643.4	88 385.2	10.19	50 608.7	759.1	
84.0	4 769 764.4	105 051.8	10.89	56 782.9	851.7	
40.0	296 636.8	17 371.1	8.06	7 415.9	111.2	90.7
41.2	494 454.4	42 371.1	10.46	12 001.3	180.0	
41.6	563 013.4	50 704.5	10.90	13 534.0	203.0	
42.0	632 903.5	59 037.8	11.24	15 069.1	226.0	
42.5	722 157.7	69 454.5	11.59	16 991.9	254.9	
43.2	850 689.1	84 037.8	11.96	19 691.9	295.4	
44.0	1 002 770.2	100 704.5	12.29	22 790.2	341.9	
40.0	296 636.8	17 371.1	8.06	7 415.9	111.2	90.7
41.2	514 236.2	50 646.1	11.26	12 481.5	187.2	
41.6	589 651.0	61 737.8	11.80	14 174.3	212.6	
42.0	666 530.2	72 829.5	12.23	15 869.8	238.0	
42.5	764 709.8	86 694.1	12.65	17 993.2	269.9	
43.2	906 094.3	106 104.5	13.09	20 974.4	314.6	
44.0	1 073 383.5	128 287.8	13.47	24 395.1	365.9	

(Continued)

**TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)**

(Continued)



Web Plate		Composed of Flange Angles			Flange Plates		Weight per Metre w kg	Sectional Area a cm ²	Mean Thickness of Flanges t _c = t _f mm		
Width	Thickness	A × B × t			Width	Thickness					
mm	mm	mm	mm	mm	mm	mm					
800	16.0	200	×	100	×	15.0	500	0.0	234.8	299.12	12.5
								12.0	329.0	419.12	24.5
								16.0	360.4	459.12	28.5
								20.0	391.8	499.12	32.5
								25.0	431.1	549.12	37.5
								32.0	486.0	619.12	44.5
								40.0	548.8	699.12	52.5
800	16.0	200	×	100	×	15.0	550	0.0	234.8	299.12	11.3
								12.0	338.4	431.12	23.3
								16.0	373.0	475.12	27.3
								20.0	407.5	519.12	31.3
								25.0	450.7	574.12	36.3
								32.0	511.1	651.12	43.3
								40.0	580.2	739.12	51.3
1 000	12.0	200	×	100	×	15.0	500	0.0	228.5	291.12	12.4
								12.0	322.7	411.12	24.4
								16.0	354.1	451.12	28.4
								20.0	385.5	491.12	32.4
								25.0	424.8	541.12	37.4
								32.0	479.7	611.12	44.4
								40.0	542.5	691.12	52.4
1 000	12.0	200	×	100	×	15.0	550	0.0	228.5	291.12	11.2
								12.0	332.1	423.12	23.2
								16.0	366.7	467.12	27.2
								20.0	401.2	511.12	31.2
								25.0	444.4	566.12	36.2
								32.0	504.8	643.12	43.2
								40.0	573.9	731.12	51.2

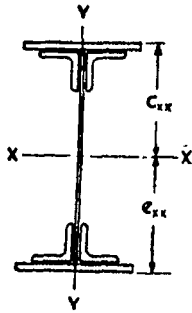


TABLE XX PLATE AND ANGLE GIRDERS
(WITH FLANGE PLATES)

(Continued)

Distance of Extreme Fibre	Gross Moments of Inertia		Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
	I_{xx}	I_{yy}				
e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
cm	cm ⁴	cm ⁴	cm	cm ³	kg-m × 10 ³	kg × 10 ³
40.0	313 703.5	17 926.3	7.74	7 842.6	117.6	121.0
41.2	511 521.1	42 926.3	10.12	12 415.6	186.2	
41.6	580 080.0	51 259.6	10.57	13 944.2	209.2	
42.0	649 970.2	59 593.0	10.93	15 475.5	232.1	
42.5	739 224.3	70 009.6	11.29	17 393.5	260.9	
43.2	867 755.8	84 593.0	11.69	20 086.9	301.3	
44.0	1 019 836.8	101 259.6	12.03	23 178.1	347.7	
40.0	313 703.5	17 926.3	7.74	7 842.6	117.6	121.0
41.2	531 302.9	51 201.3	10.90	12 895.7	193.4	
41.6	606 717.7	62 293.0	11.45	14 584.6	218.8	
42.0	683 596.8	73 384.6	11.89	16 276.1	244.1	
42.5	781 776.4	87 249.2	12.33	18 394.7	275.9	
43.2	923 161.0	106 659.6	12.80	21 369.5	320.5	
44.0	1 090 450.2	128 843.0	13.20	24 783.0	371.7	
50.0	491 847.1	17 374.0	7.73	9 836.9	147.6	113.4
51.2	799 104.7	42 374.0	10.15	15 607.5	234.1	
51.6	904 783.6	50 707.4	10.60	17 534.6	263.0	
52.0	1 012 113.8	59 040.7	10.96	19 463.7	292.0	
52.5	1 148 617.9	69 457.4	11.33	21 878.4	328.2	
53.2	1 344 139.4	84 040.7	11.73	25 265.8	379.0	
54.0	1 573 980.4	100 707.4	12.07	29 147.8	437.2	
50.0	491 847.1	17 374.0	7.73	9 836.9	147.6	113.4
51.2	829 830.5	50 649.0	10.94	16 207.6	243.1	
51.6	946 077.3	61 740.7	11.50	18 334.8	275.0	
52.0	1 064 140.4	72 832.4	11.94	20 464.2	307.0	
52.5	1 214 295.0	86 696.9	12.38	23 129.4	346.9	
53.2	1 429 368.6	106 107.4	12.84	26 867.8	403.0	
54.0	1 682 193.8	128 290.7	13.25	31 151.7	467.3	

(Continued)