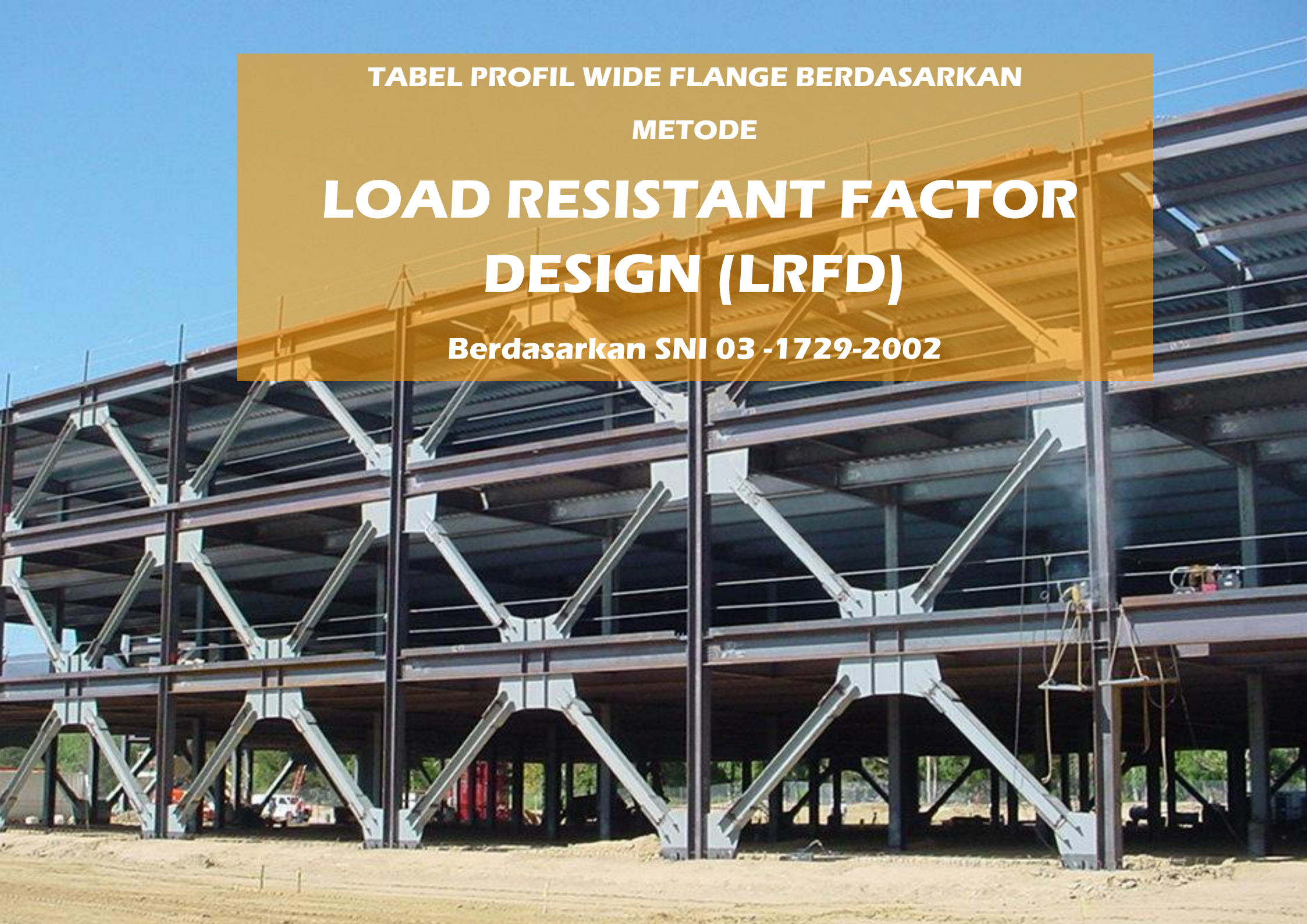


TABEL PROFIL WIDE FLANGE BERDASARKAN

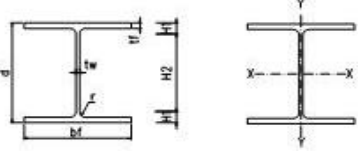
METODE

LOAD RESISTANT FACTOR DESIGN (LRFD)

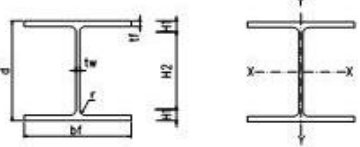
Berdasarkan SNI 03 -1729-2002



Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

		Sifat Mekanis Baja Struktural										$i_x = \sqrt{\frac{I_x}{A}} \quad *$ $i_y = \sqrt{\frac{I_y}{A}} \quad *$		$Z_x = \frac{t_w d^2}{4} + (b_f - t_w) * (d - t_f) t_f \quad **$ $Z_y = \frac{t_f d^2}{2} + (h - 2t_f) * \frac{t_w^2}{4} \quad **$					
		Jenis	fu (Mpa)	fy (Mpa)														*Tabel 8.3.2 SNI 03-1729-2002	
Sectional Dimension								Sectional Properties										Compact Section Criteria	
d	x	bf	tw	tf	r	H2	Sec.of Area	Unit Weight	Geometrical Moment of Inertia (cm4)		Radius of Gyration of Area (cm)		Elastic Modulus of Section (cm3)		Plastic Modulus of Section (cm3)		bf/2tf		
mm	mm	mm	mm	mm	mm	mm	cm ²	kg/m	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy			
WF	100	x	50	5.0	7.0	8.0	70.0	11.85	9.30	187	15	3.97	1.13	37	6	42	9	3.57	14.00
	100		100	6.0	8.0	10.0	64.0	21.90	17.19	383	134	4.18	2.47	77	27	84	41	6.25	10.67
WF	125	x	60	6.0	8.0	9.0	91.0	16.84	13.22	413	29	4.95	1.31	66	10	74	15	3.75	15.17
	125		125	6.5	9.0	10.0	87.0	30.31	23.79	847	293	5.29	3.11	136	47	149	71	6.94	13.38
WF	150	x	75	5.0	7.0	8.0	120.0	17.85	14.01	666	49	6.11	1.66	89	13	98	21	5.36	24.00
	148	x	100	6.0	9.0	11.0	108.0	26.8	21.07	1020	151	6.16	2.37	138	30	150	46	5.56	18.00
	150	x	150	7.0	10.0	11.0	108.0	40.1	31.51	1640	563	6.39	3.75	219	75	240	114	7.50	15.43
WF	175	x	90	5.0	8.0	9.0	141.0	23.1	18.09	1210	98	7.25	2.06	138	22	152	33	5.63	28.20
	175		175	7.5	11.0	12.0	129.0	51.2	40.20	2880	984	7.50	4.38	329	112	360	171	7.95	17.20
WF	198	x	99	4.5	7.0	11.0	162.0	23.2	18.20	1580	114	8.26	2.22	160	23	170	35	7.07	36.00
	200	x	100	5.5	8.0	11.0	162.0	27.2	21.32	1840	134	8.23	2.22	184	27	200	41	6.25	29.45
	194	x	150	6.0	9.0	13.0	150.0	39.0	30.62	2690	507	8.30	3.61	277	58	296	103	8.33	25.00
	200	x	200	8.0	12.0	13.0	150.0	63.53	49.87	4720	1600	8.62	5.02	472	160	513	243	8.33	18.75
WF	248	x	124	5.0	8.0	12.0	208.0	32.68	25.65	3540	255	10.41	2.79	285	41	305	63	7.75	41.60
	250	x	125	6.0	9.0	12.0	208.0	37.66	29.56	4050	294	10.37	2.79	324	47	352	72	6.94	34.67
	244	x	175	7.0	11.0	16.0	190.0	56.24	44.15	6120	984	10.43	4.18	502	112	535	171	7.95	27.14
	250	x	250	9.0	14.0	16.0	190.0	92.18	72.36	10800	3650	10.82	6.29	864	292	937	442	8.93	21.11
	298	x	149	5.5	8.0	13.0	256.0	40.80	32.03	6320	442	12.45	3.29	424	59	455	91	9.31	46.55
WF	300	x	150	6.5	9.0	13.0	256.0	46.78	36.72	7210	508	12.41	3.30	481	68	522	104	8.33	39.38
	294	x	200	8.0	12.0	18.0	234.0	72.38	56.82	11300	1600	12.49	4.70	769	160	823	244	8.33	29.25
	300	x	300	10.0	15.0	18.0	234.0	119.80	94.04	20400	6750	13.05	7.51	1360	450	1465	682	10.00	23.40
	300		305	15.0	15.0	18.0	234.0	134.80	105.82	21500	7100	12.63	7.26	1433	466	1577	713	10.17	15.60

Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

		Sifat Mekanis Baja Struktural			$i_x = \sqrt{\frac{I_x}{A}} \quad *$ $i_y = \sqrt{\frac{I_y}{A}} \quad *$		$Z_x = \frac{t_w d^2}{4} + (b_f - t_w) * (d - t_f) t_f \quad **$ $Z_y = \frac{t_f d^2}{2} + (h - 2t_f) * \frac{t_w^2}{4} \quad **$	
		Jenis	fu (Mpa)	fy (Mpa)				
		BJ 34	340	210				
		BJ 37	370	240				
		BJ 41	410	250				
		BJ 50	50	290				
		BJ55	51	410				

*Tabel 8.3.2 SNI 03-1729-2002 **PPBBI 1984 Chapter 10.

Sectional Dimension								Sectional Properties								Compact Section Criteria		
d	x	bf	tw	tf	r	H2	Sec.of Area	Unit Weight	Geometrical Moment of Inertia (cm4)		Radius of Gyration of Area (cm)		Elastic Modulus of Section (cm3)		Plastic Modulus of Section (cm3)		bf/2tf	h/tw
mm	mm	mm	mm	mm	mm	mm	cm ²	kg/m	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy		
WF	346	x	174	6.0	9.0	14.0	52.68	41.35	11100	792	14.52	3.88	642	91	689	139	9.67	50.00
	350	x	175	7.0	11.0	14.0	63.14	49.56	13600	984	14.68	3.95	777	112	841	172	7.95	42.86
	340	x	250	9.0	14.0	20.0	101.50	79.68	21700	3650	14.62	6.00	1276	292	1360	444	8.93	30.22
	350	x	350	12.0	19.0	20.0	173.90	136.51	40300	13600	15.22	8.84	2303	777	2493	1175	9.21	22.67
WF	396	x	199	7.0	11.0	16.0	72.16	56.65	20000	1450	16.65	4.48	1010	146	1088	222	9.05	48.86
	400	x	200	8.0	13.0	16.0	84.12	66.03	23700	1740	16.79	4.55	1185	174	1286	266	7.69	42.75
	390	x	300	10.0	16.0	22.0	136.00	106.76	38700	7210	16.87	7.28	1985	481	2116	729	9.38	31.40
	400	x	400	13.0	21.0	22.0	218.70	171.68	66600	22400	17.45	10.12	3330	120	3600	1695	9.52	24.15
WF	450	x	200	9.0	14.0	18.0	96.76	75.96	33500	1870	18.61	4.40	1489	187	1621	289	7.14	42.89
	440	x	300	11.0	18.0	24.0	157.40	123.56	56100	8110	18.88	7.18	2550	541	2728	822	8.33	32.36
WF	496	x	199	9.0	14.0	20.0	101.30	79.52	41900	1840	20.34	4.26	1690	185	1836	287	7.11	47.56
	500	x	200	10.0	16.0	20.0	114.20	89.65	47800	2140	20.46	4.33	1912	214	2096	332	6.25	42.80
	482	x	300	11.0	15.0	26.0	145.50	114.22	60400	6760	20.37	6.82	2506	451	2663	689	1,000	36.36
	488	x	300	11.0	18.0	26.0	163.50	128.35	71000	8110	20.84	7.04	2910	541	3100	824	8.33	36.36
WF	596	x	199	10.0	15.0	22.0	120.50	94.59	68700	1980	23.88	4.05	2305	199	2535	311	6.63	52.20
	600	x	200	11.0	17.0	22.0	134.40	105.50	77600	2280	24.03	4.12	2587	228	2863	357	5.88	47.45
	582	x	300	12.0	17.0	28.0	174.50	136.98	103000	7670	24.30	6.63	3540	511	3782	785	8.82	41.00
	588	x	300	12.0	20.0	28.0	192.50	151.11	118000	9020	24.76	6.85	4014	601	4309	920	7.50	41.00
WF	700	x	300	13.0	24.0	28.0	215.50	184.87	201000	10800	30.54	7.08	5743	720	6249	1108	6.25	45.85
WF	800	x	300	14.0	26.0	28.0	267.40	209.91	292000	11700	33.05	6.61	7300	780	7995	1207	5.77	49.43
WF	900	x	300	16.0	28.0	28.0	309.80	243.19	411000	12600	36.42	6.38	9133	840	10174	1314	5.36	49.25



Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

Created by Angry (2010)

Sifat Mekanis Baja Struktural																			
Jenis	fu (Mpa)	fy (Mpa)	$\frac{h}{t_w} \leq \frac{1680}{\sqrt{f_y}}$ Penampang Kompak $M_n = M_p = Z_x \cdot f_y$ ** $\frac{b}{2t_f} \leq \frac{170}{\sqrt{f_y}}$ **Tabel 7.5.1 .SNI-03-1729-2002.																
Sectional Dimension										Compact Section Criteria									
d mm	x mm	bf mm	tw mm	tf mm	r mm	H2 mm	bf/2tf	h/tw	BJ 34		BJ 37		BJ 41		BJ 50		BJ 55		
									$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	
WF	100	x	50	5.0	7.0	8.0	70.0	3.57	14.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	100		100	6.0	8.0	10.0	64.0	6.25	10.67	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	125	x	60	6.0	8.0	9.0	91.0	3.75	15.17	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	125		125	6.5	9.0	10.0	87.0	6.94	13.38	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	150	x	75	5.0	7.0	8.0	120.0	5.36	24.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	148	x	100	6.0	9.0	11.0	108.0	5.56	18.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	150	x	150	7.0	10.0	11.0	108.0	7.50	15.43	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	175	x	90	5.0	8.0	9.0	141.0	5.63	28.20	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	175		175	7.5	11.0	12.0	129.0	7.95	17.20	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	198	x	99	4.5	7.0	11.0	162.0	7.07	36.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	200	x	100	5.5	8.0	11.0	162.0	6.25	29.45	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	194	x	150	6.0	9.0	13.0	150.0	8.33	25.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	200	x	200	8.0	12.0	13.0	150.0	8.33	18.75	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	248	x	124	5.0	8.0	12.0	208.0	7.75	41.60	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	250	x	125	6.0	9.0	12.0	208.0	6.94	34.67	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	244	x	175	7.0	11.0	16.0	190.0	7.95	27.14	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	250	x	250	9.0	14.0	16.0	190.0	8.93	21.11	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40



Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

Sifat Mekanis Baja Struktural																			
Jenis	fu (Mpa)	fy (Mpa)	$\frac{h}{t_w} \leq \frac{1680}{\sqrt{f_y}}$ $\frac{b}{2t_f} \leq \frac{170}{\sqrt{f_y}}$ Penampang Kompak $M_n = M_p = Z_x \cdot f_y$ ** **Tabel 7.5.1 .SNI-03-1729-2002.																
BJ 34	340	210																	
BJ 37	370	240																	
BJ 41	410	250																	
BJ 50	50	290																	
BJ55	51	410																	
Sectional Dimension								Compact Section Criteria											
d mm	x	bf mm	tw mm	tf mm	r mm	H2 mm	bf/2tf	h/tw	BJ 34		BJ 37		BJ 41		BJ 50		BJ 55		
									$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	
WF	298	x	149	5.5	8.0	13.0	256.0	9.31	46.55	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	300	x	150	6.5	9.0	13.0	256.0	8.33	39.38	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	294	x	200	8.0	12.0	18.0	234.0	8.33	29.25	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	300	x	300	10.0	15.0	18.0	234.0	10.00	23.40	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	300		305	15.0	15.0	18.0	234.0	10.17	15.60	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	346	x	174	6.0	9.0	14.0	300.0	9.67	50.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	350	x	175	7.0	11.0	14.0	300.0	7.95	42.86	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	340	x	250	9.0	14.0	20.0	272.0	8.93	30.22	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	350	x	350	12.0	19.0	20.0	272.0	9.21	22.67	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	396	x	199	7.0	11.0	16.0	342.0	9.05	48.86	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	400	x	200	8.0	13.0	16.0	342.0	7.69	42.75	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	390	x	300	10.0	16.0	22.0	314.0	9.38	31.40	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	400	x	400	13.0	21.0	22.0	314.0	9.52	24.15	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	450	x	200	9.0	14.0	18.0	386.0	7.14	42.89	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	440	x	300	11.0	18.0	24.0	356.0	8.33	32.36	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	496	x	199	9.0	14.0	20.0	428.0	7.11	47.56	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	500	x	200	10.0	16.0	20.0	428.0	6.25	42.80	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	482	x	300	11.0	15.0	26.0	400.0	1,000	36.36	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40



Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

Sifat Mekanis Baja Struktural

Jenis	fu (Mpa)	fy (Mpa)
BJ 34	340	210
BJ 37	370	240
BJ 41	410	250
BJ 50	50	290
BJ55	51	410

$$\frac{h}{t_w} \leq \frac{1680}{\sqrt{f_y}}$$

Penampang Kompak $M_n = M_p = Z_x \cdot f_y$ **

$$\frac{b}{2t_f} \leq \frac{170}{\sqrt{f_y}}$$

**Tabel 7.5.1 .SNI-03-1729-2002.

Sectional Dimension								Compact Section Criteria											
d mm	x	bf mm	tw mm	tf mm	r mm	H2 mm	bf/2tf	h/tw	BJ 34		BJ 37		BJ 41		BJ 50		BJ 55		
									$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	$\frac{1680}{\sqrt{f_y}}$	$\frac{170}{\sqrt{f_y}}$	
488	x	300	11.0	18.0	26.0	400.0	8.33	36.36	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40	
WF	596	x	199	10.0	15.0	22.0	522.0	6.63	52.20	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	600	x	200	11.0	17.0	22.0	522.0	5.88	47.45	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	582	x	300	12.0	17.0	28.0	492.0	8.82	41.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
	588	x	300	12.0	20.0	28.0	492.0	7.50	41.00	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	700	x	300	13.0	24.0	28.0	596.0	6.25	45.85	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	800	x	300	14.0	26.0	28.0	692.0	5.77	49.43	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40
WF	900	x	300	16.0	28.0	28.0	788.0	5.36	49.25	115.93	11.73	108.44	10.97	106.25	10.75	98.65	9.98	82.97	8.40



Standard Sectional Dimension of **WF-steel** and Its Sectional Area, Unit Weight and Sectional Characteristic

Created by Anggry (2010)

Sifat Mekanis Baja Struktural

Jenis	fu (Mpa)	fy (Mpa)
BJ 34	340	210
BJ 37	370	240
BJ 41	410	250
BJ 50	50	290
BJ55	51	410

$$\lambda_p = 1,76 * i_y * \sqrt{\frac{E}{f_y}}$$

$$\lambda_w = i_y * \left[\frac{x_1}{f_y - f_r} \right] \sqrt{1 + \sqrt{1 + x_2 / L^2}}$$

$$x_1 = \left[\frac{\pi}{S_x} \right] * \sqrt{\frac{E * G * J * A}{2}}$$

$$x_2 = 4 * \left[\frac{S_x}{G * J} \right] * \frac{I_w}{I_y}$$

$$I_w = I_y \frac{h^2}{4}$$

$$J = \sum \frac{1}{3} b t^3$$

Dimana :

- fr : 70 MPa (Tegangan Sisa)
- fL : fy- fr
- E : 200000 MPa (Modulus section Baja)
- G : 80000 Mpa (Modulus Geser Baja.)
- J : Konstanta Puntir Torsi (cm⁴)
- I_w : Konstanta Puntir Lengkung (cm⁶)

Sectional Dimension								BJ 34			BJ 37			BJ 41			BJ 50			BJ 55		
	d	x	bf	tw	tf	r	H2	Mn (Ton.M) Zx*fy	λp	λr	Mn (Ton.M) Zx*fy	λp	λr	Mn (Ton.M) Zx*fy	λp	λr	Mn (Ton.M) Zx*fy	λp	λr	Mn (Ton.M) Zx*fy	λp	λr
WF	496	x	199	9.0	14.0	200	68.0	38.549	231.48	717.06	44.056	216.53	632.58	45.891	212.16	610.22	53.234	196.98	539.38	75.262	165.67	418.09
	500	x	200	10.0	16.0	20.0	428.0	44.024	235.12	762.77	50.313	219.94	668.01	52.409	215.49	643.14	60.794	200.08	564.94	85.951	168.27	433.37
	482	x	300	11.0	15.0	26.0	400.0	55.930	370.22	1159.95	63.920	346.31	1016.29	66.583	339.31	978.56	77.237	315.04	859.90	109.197	264.96	660.06
	488	x	300	11.0	18.0	26.0	400.0	65.097	382.53	1261.26	74.396	357.83	1094.55	77.496	350.60	1051.15	89.895	325.52	915.86	127.093	273.77	692.83
WF	596	x	199	10.0	15.0	22.0	522.0	53.239	220.17	678.32	60.844	205.95	601.42	63.379	201.79	580.94	73.520	187.36	515.66	103.942	157.57	402.46
	600	x	200	11.0	17.0	22.0	522.0	60.127	223.71	712.28	68.716	209.26	627.97	71.579	205.03	605.67	83.032	190.37	535.08	117.390	160.10	414.39
	582	x	300	12.0	17.0	28.0	492.0	79.431	360.10	1113.80	90.778	336.84	979.90	94.560	330.03	944.58	109.690	306.43	833.01	155.079	257.71	643.23
	588	x	300	12.0	20.0	28.0	492.0	90.487	371.80	1195.89	103.414	347.78	1043.95	107.723	340.76	1004.19	124.958	316.39	879.59	176.665	266.09	671.51
WF	700	x	300	13.0	24.0	28.0	596.0	131.225	384.51	1191.94	149.971	359.68	1040.70	156.220	352.41	1001.12	181.215	327.20	877.05	256.200	275.18	669.77
WF	800	x	300	14.0	26.0	28.0	692.0	167.905	359.28	1149.59	191.891	336.07	1007.41	199.887	329.28	970.06	231.868	305.73	852.58	327.814	257.13	654.63
WF	900	x	300	16.0	28.0	28.0	788.0	213.657	346.39	1118.03	244.179	324.02	981.68	254.354	317.47	945.78	295.050	294.76	832.65	417.140	247.90	641.14