

3. Channels

Structural steel product having a profile of a specific cross section, like a squarish C, commonly used in construction and manufacturing.

- 3.1 Parallel Flange Channels (PFC)
- 3.2 Tapered Flange Channels
- 3.3 UPN

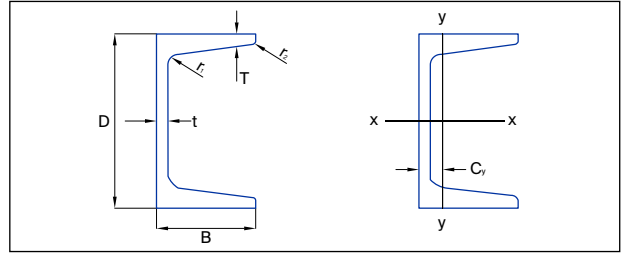
Channels

Standard specifications

This European standard specifies requirements for the tolerances on dimensions, shape and mass on hot rolled steel channels with parallel flanges.

Material	Yield strength			Tensile strength N/mm ²	Min. Elongation L ₀ =5.65√S ₀	Min. Charpy V-notch.	Dimensions & Tolerances
	N/mm ²						
AS 3679.1	≤11mm	>11 - <40mm	≥40mm				AS 3679.1
Grade 300	320	300	280	min. 440	22%	27J @ 0°C	
Grade 350	360	340	330	min. 480	20%	27J @ 0°C	
ASTM A36 (1996)	min. 250			400-550	20-21 %	-	ASTM A6
ASTM A572							
Grade 42	min. 290			min. 415	20-24 %	-	
Grade 50	min. 345			min. 450	18-21 %	-	
Grade 60	min. 415			min. 520	16-18 %	-	
Grade 65	min. 450			min. 550	15-17 %	-	
ASTM A992	345 - 450			min. 450	18-21 %	-	
EN 10025	≤16mm	>16 - ≤40mm	>40 - ≤150mm	3-100mm			EN 10279
S275JR	275	265	255 - 225	410-560	18-23 %	27J @ 20°C	
S355JR	355	345	335 - 295	470-630	17-22 %	27J @ 20°C	
S355J0	355	345	335 - 295	470-630	17-22 %	27J @ 0°C	
S355J2	355	345	335 - 295	470-630	17-22 %	27J @ -20°C	
JIS 3101	≤16mm	>16 - ≤40mm	>40 - ≤100mm	t<100mm			JIS 3192
SS400	245	235	215	400-510	17-23 %	-	
SS490	285	275	255	490-610	15-21 %	-	
SS540	400	390	-	min. 540	13-17 %	-	
JIS 3106	≤16mm	>16 - ≤40mm	>40mm	t<100mm			
SM400A	245	235	215	400-510	18-24 %	-	
SM400B	245	235	215	400-510	18-24 %	27J @ 0°C	
SM400C	245	235	215	400-510	18-24 %	47J @ 0°C	
SM490A	325	315	295	490-610	17-23 %	-	
SM490B	325	315	295	490-610	17-23 %	27J @ 0°C	
SM490C	325	315	295	490-610	17-23 %	47J @ 0°C	
SM490YA	365	355	335	490-610	15-21 %	-	
SM490YB	365	355	335	490-610	15-21 %	27J @ 0°C	
SM520B	365	355	335	520-640	15-21%	27J @ 0°C	
SM520C	365	355	335	520-640	15-21 %	47J @ 0°C	

3.2 Tapered Flange Channels



Dimensions JIS G 3192

Specification EN10025/ ASTM A36/ ASTM A572/ JIS G 3101

Size Range 75mm x 40mm to 380mm x 100mm

Metric

Designation		Thickness		Root	Toe	Area of Section	Centre of Gravity	Second Moment of Area		Radius of Gyration		Elastic Modulus	
Size	Mass per Metre	Web	Flange	Radius				A	C _y	I _x	I _y	r _x	r _y
DxBxt		t	T	r ₁	r ₂					cm ⁴	cm ⁴	cm	cm
mm	kg/m	mm	mm	mm	mm	cm ²	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ⁴
50x25x5	3.86	5.0	6.0	6	3	4.92	0.81	16.8	2.49	1.85	0.71	6.73	1.48
75x40x5	6.92	5.0	7.0	8	4	8.82	1.27	75.9	12.4	2.93	1.19	20.2	4.54
100x50x5	9.36	5.0	7.5	8	4	11.9	1.55	189	26.9	3.99	1.50	37.8	7.82
125x65x6	13.40	6.0	8.0	8	4	17.1	1.94	425	65.512	4.99	1.96	68.0	14.4
150x75x6.5	18.60	6.5	10.0	10	5	23.7	2.31	864	122	6.04	2.27	115	23.6
150x75x9	24.00	9.0	12.5	15	7.5	30.5	2.31	1060	151	5.90	2.22	141	29.1
180x75x7	21.40	7.0	10.5	11	5.5	27.2	2.15	1380	137	7.12	2.24	154	25.5
180x90x7.5	27.10	7.5	12.5	13	6.5	34.6	2.85	1840	258	7.29	2.73	204	42.0
200x80x7.5	24.60	7.5	11.0	12	6	31.3	2.24	1950	177	7.89	2.38	195	30.8
200x90x8	30.30	8.0	13.5	14	7	38.7	2.77	2490	286	8.02	2.72	249	45.9
230x80x8	28.40	8.0	12.0	13	6.5	36.1	2.15	2900	200	8.96	2.35	252	34.2
230x90x8.5	33.10	8.5	13.5	15	7.5	42.1	2.58	3490	303	9.10	2.68	304	47.3
250x80x8	30.20	8.0	12.5	14	7	38.5	2.11	3630	210	9.71	2.34	291	35.7
250x90x9	34.60	9.0	13.0	14	7	44.1	2.42	4180	306	9.74	2.63	335	46.5
250x90x11	40.20	11.0	14.5	17	8.5	51.2	2.39	4690	342	9.47	2.58	375	51.7
280x100x9	38.80	9.0	13.0	14	7	49.4	2.64	5930	428	11.0	2.94	423	58.2
280x100x11.5	48.20	11.5	16.0	18	9	61.4	2.68	7150	515	10.8	2.90	510	70.4
300x90x9	38.10	9.0	12.0	14	7	48.6	2.23	6440	325	11.5	2.59	429	48.0
300x90x10	43.80	10.0	15.5	19	9.5	55.7	2.33	7400	373	11.5	2.59	494	56.0
300x90x12	48.60	12.0	16.0	19	9.5	61.9	2.28	7870	379	11.3	2.48	525	56.4

Note : The flange thickness is measured at the centre of the flange