



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
	≤11mm	>11 - <40mm	≥40mm				
AS 3679.1							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							EN 10279
S275JR	≤16mm	>16 - ≤40mm	>40 - ≤150mm	3-100mm			
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							JIS 3192
SS400	≤16mm	>16 - ≤40mm	>40 - ≤100mm	t<100mm			
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							
SM400A	≤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	

3.3

UPN

Dimensions EN10365

Specification EN10025

Size Range UPN 50 to UPN 400

Section Designation	Dimensions									Properties					
	Mass per Metre	Depth of Section	Width of Section	Thickness		Root Radius		Area of Section	Centre of Gravity	Second Moment of Area		Radius of Gyration		Elastic Modulus	
	kg/m	D mm	B mm	Web t mm	Flange T mm	r ₁ mm	r ₂ mm	A cm ²	C _y cm	I _x cm ⁴	I _y cm ⁴	r _x cm	r _y cm	Z _x cm ³	Z _y cm ³
UPN 50	5.6	50	38	5.0	7.0	7.0	3.5	7.1	1.35	26.4	9.12	1.92	1.13	10.6	4
UPN 65	7.1	65	42	5.5	7.5	7.5	4.0	9.0	1.46	57.5	14.1	2.52	1.25	17.7	5
UPN 80	8.6	80	45	6.0	8.0	8.0	4.0	11.0	1.52	106	19.4	3.10	1.33	26.5	6
UPN 100	10.6	100	50	6.0	8.5	8.5	4.5	13.5	1.68	206	29.3	3.91	1.47	41.2	8
UPN 120	13.4	120	55	7.0	9.0	9.0	4.5	17.0	1.78	364	43.2	4.62	1.59	60.7	11
UPN 140	16.0	140	60	7.0	10.0	10.0	5.0	20.4	1.97	605	62.7	5.45	1.75	86.4	15
UPN 160	18.8	160	65	7.5	10.5	10.5	5.5	24.0	2.10	925	85.3	6.21	1.89	116	18
UPN 180	22.0	180	70	8.0	11.0	11.0	5.5	28.0	2.23	1,350	114	6.95	2.02	150	22
UPN 200	25.3	200	75	8.5	11.5	11.5	6.0	32.2	2.36	1,910	148	7.70	2.14	191	27
UPN 220	29.4	220	80	9.0	12.5	12.5	6.5	37.4	2.51	2,690	197	8.48	2.30	245	34
UPN 240	33.2	240	85	9.5	13.0	13.0	6.5	42.3	2.64	3,600	248	9.22	2.42	300	40
UPN 260	37.9	260	90	10.0	14.0	14.0	7.0	48.3	2.80	4,820	317	9.99	2.56	371	48
UPN 280	41.8	280	95	10.0	15.0	15.0	7.5	53.3	2.99	6,280	399	10.9	2.74	448	57
UPN 300	46.2	300	100	10.0	16.0	16.0	8.0	58.8	3.21	8,030	495	11.7	2.90	535	68
UPN 320	59.5	320	100	14.0	17.5	17.5	9.0	75.8	2.92	10,900	597	12.1	2.81	679	81
UPN 350	60.6	350	100	14.0	16.0	16.0	8.0	77.3	2.75	12,800	570	12.9	2.72	734	75
UPN 380	63.1	380	102	13.5	16.0	16.0	8.0	80.4	2.88	15,800	615	14.0	2.77	829	79
UPN 400	71.8	400	110	14.0	18.0	18.0	9.0	91.5	3.16	20,400	846	14.9	3.04	1,020	102