

Product Range

Equal Angel, IPE and UPE for use in industrial field, construction and Electrical transmission lines purposes.

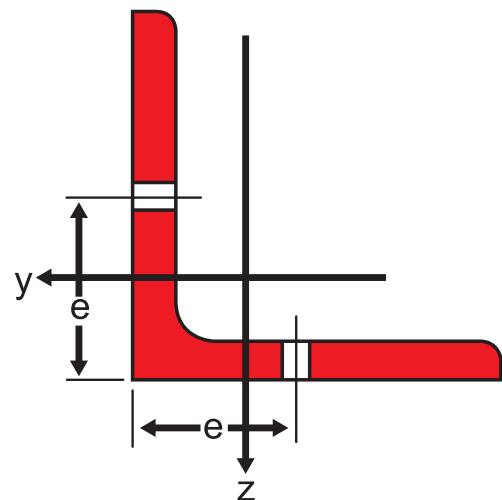
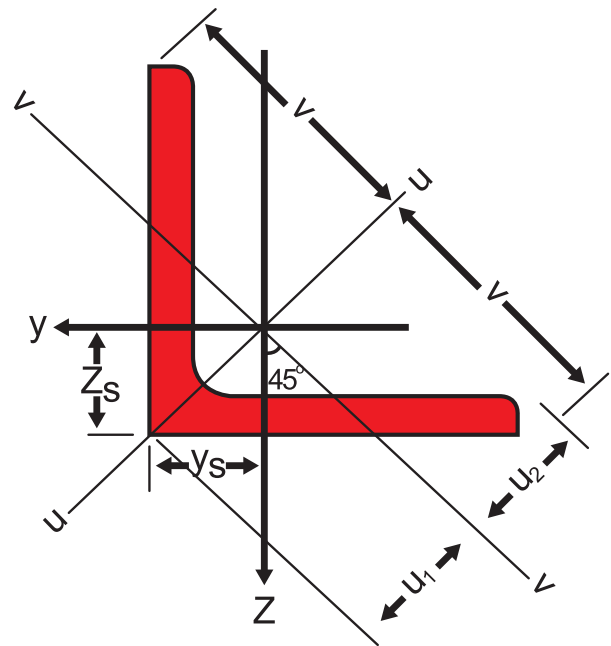
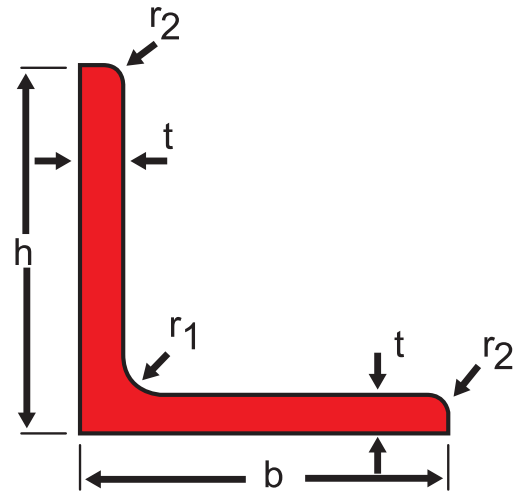
The integrated rolling mills has the capability to produce profiles at equal angel sizes between 40-120 mm, IPE Beam at the sizes 100 mm, 120 mm, 140 mm and 160 mm and UPE chanel at the sizes 100 mm, 120 mm, 140 mm and 160 mm.

Experienced quality control inspectors using the advanced instruments and central laboratory which covers. The Chemical Tests Lab., The Mechanic Tests Lab., and The Metallurgy Lab. are in charge to inspect and certify the semi and finished products from the first step of production to final step delivery.

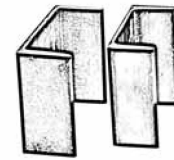


40x40
80x80

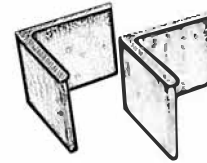
Equal Angle



Equal angles Dimensions

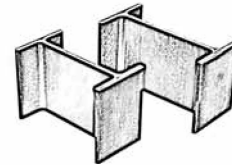


EN 10056-1: 1998
Tolerances



EN 10056-2: 1994
Surface condition

EN 10163-3: 2004, class
C, subclass 1



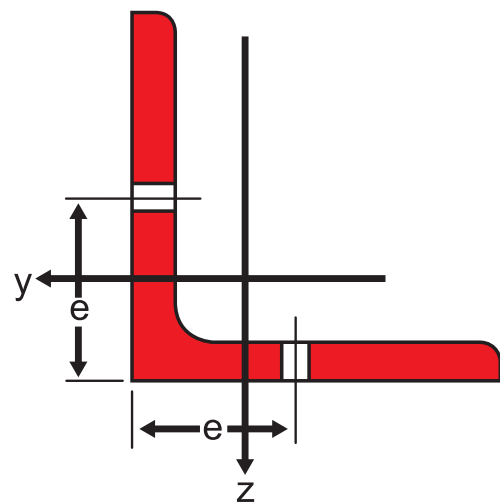
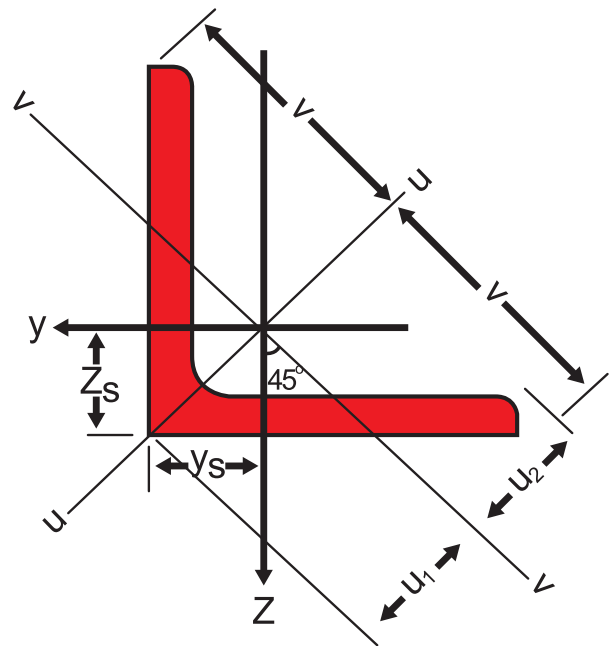
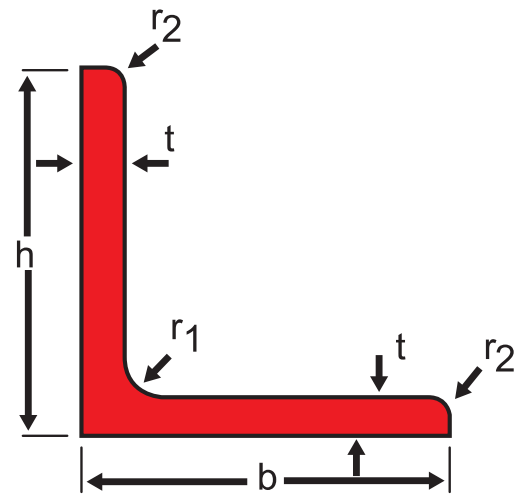
Désignation Designation Bezeichnung	G kg/m	Dimensions Abmessungen				A mm ² x10 ⁻²	Position des axes Position of axes Lage der Achsen					Surface Oberfläche	
		h = b mm	t mm	r ₁ mm	r ₂ mm		z _s =y _s mm x10	v mm x10	u ₁ mm x10	u ₂ mm x10	A _L m ² /m	A _G m ² /t	
L 40 x 40 x 3 -	1,750	40	3	*	*	*	*	*	*	*	*	*	*
L 40 x 40 x 4 -	2,42	40	4	6	3	3.08	1,12	2,83	1,58	1,40	0,155	-	
L 45 x 45 x 3	1,950	45	3	-	-	-	-	-	-	-	-	-	
L 45 x 45 x 4	2,74	45	4	7	3,5	3.49	1,23	3,15	1,75	1,57	0,174	-	
L 45 x 45 x 5	3,38	45	5	7	3,5	4.30	1,28	3,15	1,81	1,58	0,174	-	
L 50 x 50 x 4	3,06	50	4	7	3,5	3.89	1,36	3,54	1,92	1,75	-	-	
L 50 x 50 x 5	3,77	50	5	7	3,5	4.80	1,40	3,54	1,99	1,76	0,194	-	
L 50 x 50 x 6	4,47	50	6	7	3,5	5.69	1,45	3,54	2,04	1,77	0,194	-	
L 60 x 60 x 4 -	3,70	60	4	-	-	4.71	-	-	-	-	-	-	
L 60 x 60 x 5 -	4,57	60	5	8	4	5.82	1,64	4,24	2,32	2,11	-	-	
L 60 x 60 x 6 -	5,42	60	6	8	4	6.91	1,69	4,24	2,39	2,11	0,233	-	
L 63 x 63 x 4 -	3,800	63	4	-	-	*	-	-	-	-	-	-	
L 63 x 63 x 5 -	4,440	63	5	-	-	*	-	-	-	-	-	-	
L 63 x 63 x 6 -	5,276	63	6	-	-	*	-	-	-	-	-	-	
L 70 x 70 x 5 -	5,367	70	5	-	-	*	-	-	-	-	-	-	
L 70 x 70 x 6 -	6,38	70	6	9	4,5	8.13	1,93	4,95	2,73	2,46	0,272	-	
L 70 x 70 x 7 -	7,38	70	7	9	4,5	9.4	1,97	4,95	2,79	2,47	0,272	-	
L 75 x 75 x 5	5,76	75	5	-	-	7.34	-	-	-	-	-	-	
L 75 x 75 x 6	6,85	75	6	10	5	8.73	2,04	5,30	2,89	2,63	-	-	
L 80 X 80X 6	7,34	80	6	10	5	9.35	2,17	5,66	3,07	2,80	0,311	-	
L 80 X 80X 7	8,49	80	7	-	-	10.8	-	-	-	-	-	-	
L 80 X 80X 8	9,63	80	8	10	5	12.3	2,26	5,66	3,19	2,83	0,311	-	

* : produces as per client request specifications



80x80
130x130

Equal Angle



Equal angles

Dimensions:

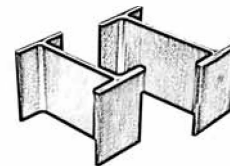
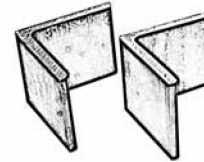
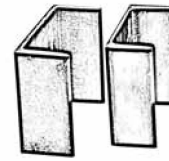
EN 10056-1: 1998

Tolerances

EN 10056-2: 1994

Surface condition

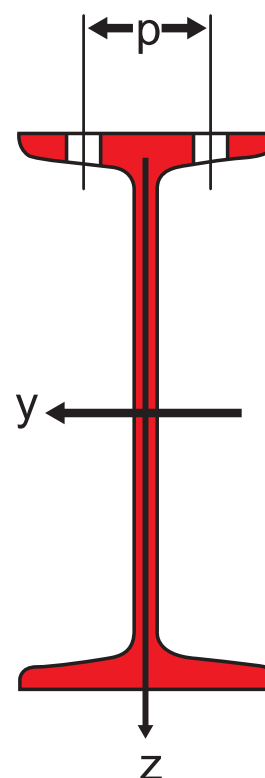
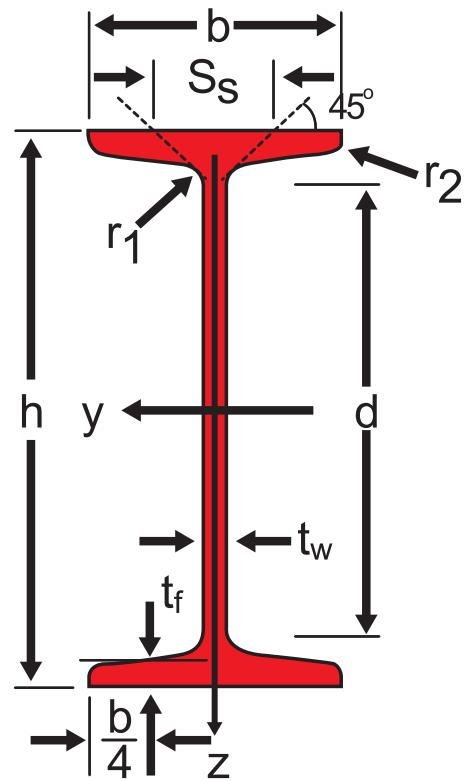
EN 10163-3: 2004, class C,
subclass 1



Désignation Designation Bezeichnung	Dimensions Abmessungen					Position des axes Position of axes Lage der Achsen					Surface Oberfläche	
	G kg/m	h = b mm	t mm	r ₁ mm	r ₂ mm	A mm ² x10 ⁻²	z _s =y _s mm x10	v mm x10	u ₁ mm x10	u ₂ mm x10	A _L m ² /m	A _G m ² /t
L 80 x 80 x 8-	9,63	80	8	10	5	12,3	2,26	5,66	3,19	2,83	0,310	32,34
L 80 x 80 x 10-	11,9	80	10	10	5	15,1	2,34	5,66	3,30	2,85	0,310	26,26
L 90 x 90 x 7-	9,61	90	7	11	5,5	12,2	2,45	6,36	3,47	3,16	0,350	36,48
L 90 x 90 x 8-	10,9	90	8	11	5,5	13,9	2,50	6,36	3,53	3,17	0,350	32,15
L 90 x 90 x 9-	12,2	90	9	11	5,5	15,5	2,54	6,36	3,59	3,18	0,350	28,77
L 90 x 90 x 10-	13,4	90	10	11	5,5	17,1	2,58	6,36	3,65	3,19	0,350	26,07
L 100 x 100 x 8*-/	12,2	100	8	12	6	15,5	2,74	7,07	3,87	3,52	0,390	32,00
L 100 x 100 x 10*-/	15,0	100	10	12	6	19,2	2,82	7,07	3,99	3,54	0,390	25,92
L 100 x 100 x 12*-/	17,8	100	12	12	6	22,7	2,90	7,07	4,11	3,57	0,390	21,86
L 110 x 110 x 10*	16,6	110	10	13	6,5	21,2	3,06	7,78	4,33	3,88	0,429	25,79
L 110 x 110 x 12*	19,7	110	12	13	6,5	25,1	3,15	7,78	4,45	3,91	0,429	21,73
L 120 x 120 x 10-	18,2	120	10	13	6,5	23,2	3,31	8,49	4,69	4,24	0,469	25,76
L 120 x 120 x 11	19,9	120	11	13	6,5	25,4	3,36	8,49	4,75	4,25	0,469	23,54
L 120 x 120 x 12-	21,6	120	12	13	6,5	27,5	3,40	8,49	4,80	4,26	0,469	21,69
L 120 x 120 x 13	23,3	120	13	13	6,5	29,7	3,44	8,49	4,86	4,28	0,469	20,12
L 120 x 120 x 15	26,6	120	15	13	6,5	33,9	3,51	8,49	4,97	4,31	0,469	17,60
L 130 x 130 x 12-/*	23,6	130	12	14	7	30,0	3,64	9,19	5,15	4,60	0,508	21,59

IPN

Profile



European standard beams

Flange slope 14%

Dimensions:

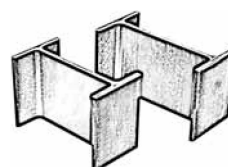
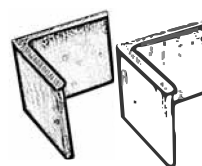
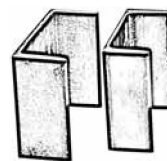
DIN 1025-1:1995, NF A
45-209 (1983)

Tolerances

EN 10024: 1995

Surface condition

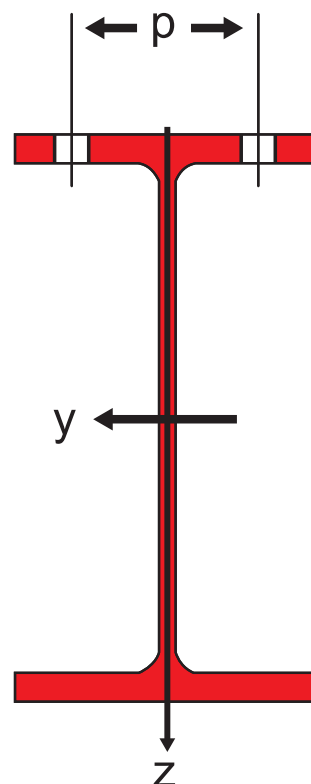
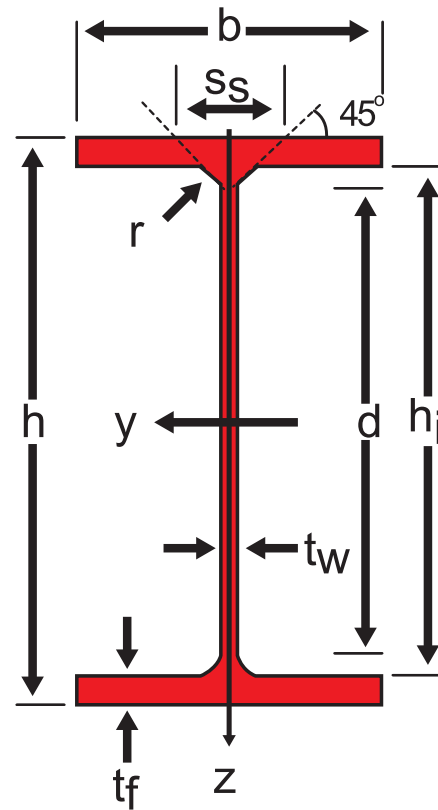
EN 10163-3:2004, class
C, subclass 1



Désignation Designation Bezeichnung	Dimensions Abmessungen							Dimensions de construction Dimensions for detailing Konstruktionsmaße					Surface Oberfläche	
	G kg/m	h mm	b mm	t _w mm	t _f mm	r ₁ mm	r ₂ mm	A mm ² x10 ²	d mm	Ø	P _{min} mm	P _{max} mm	A _L m ² /m	A _G m ² /t
IPN 80*	5,9	80	42	3,9	5,9	3,9	2,3	7,58	59				0,304	51,09
IPN 100*	8,3	100	50	4,5	6,8	4,5	2,7	10,6	75,7				0,370	44,47
IPN 120*	11,1	120	58	5,1	7,7	5,1	3,1	14,2	92,4				0,439	39,38
IPN 140*	14,3	140	66	5,7	8,6	5,7	3,4	18,3	109,1				0,502	34,94
IPN 160*	17,9	160	74	6,3	9,5	6,3	3,8	22,8	125,8				0,575	32,13

IPE

Profile



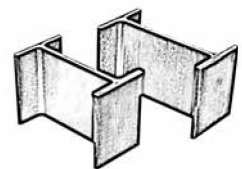
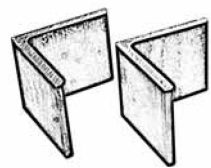
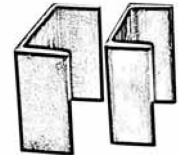
European I beams
Dimensions:

IPE 80 - 600 in accordance with Euronorm 19-57;
IPE A 80 - 600; IPE O 180 - 600; IPE 750

Tolerances:

EN 10034: 1993
Surface condition

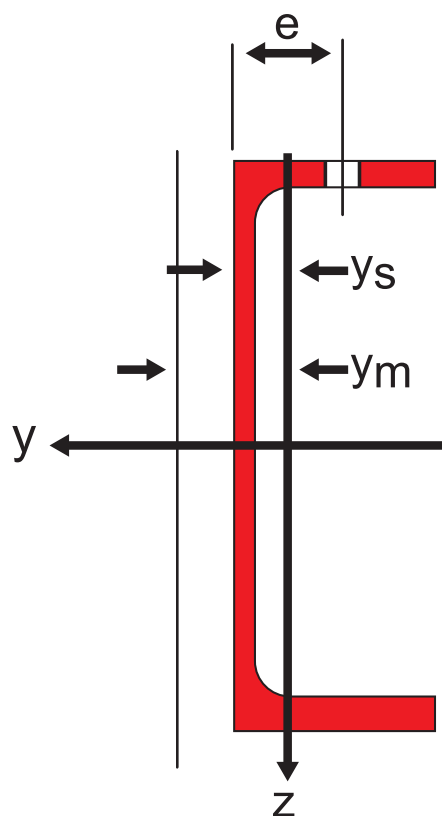
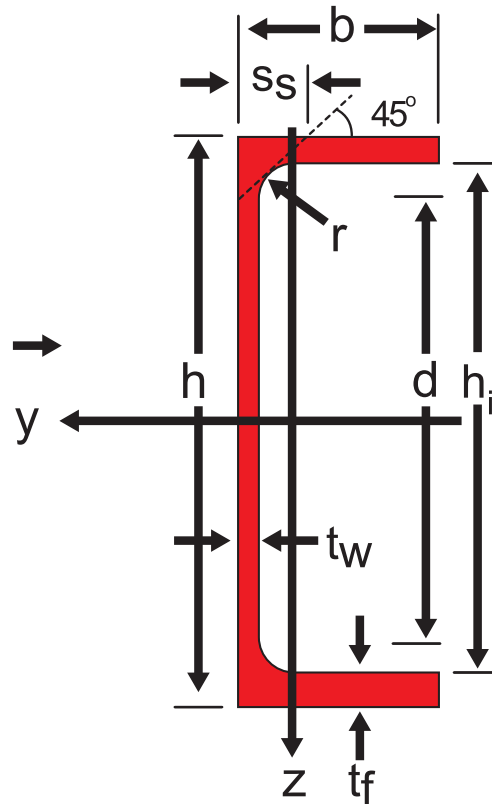
EN 10163-3:2004, class C, subclass 1



Désignation Designation Bezeichnung	Dimensions Abmessungen							h _i mm	Dimensions de construction Dimensions for detailing Konstruktionsmaße				Surface Oberfläche	
	G kg/m	h mm	b mm	t _w mm	t _f mm	r mm	A mm ² x10 ²		d mm	∅	P _{min} mm	P _{max} mm	A _L m ² /m	A _G m ² /t
IPE 80*	6,0	80	46	3,8	5,2	5	7,64	69,6	59,6	-	-	-	0,328	54,64
IPE 100*	8,1	100	55	4,1	5,7	7	10,3	88,6	74,6	-	-	-	0,400	49,33
IPE 120	10,4	120	64	4,4	6,3	7	13,2	107,4	93,4	-	-	-	0,475	45,82
IPE 140	12,9	140	73	4,7	6,9	7	16,4	126,2	112,2	-	-	-	0,551	42,70
IPE 160	15,8	160	82	5	7,4	9	20,1	145,2	127,2	-	-	-	0,623	39,47

UPE

Channel



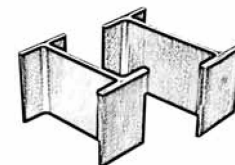
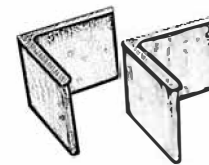
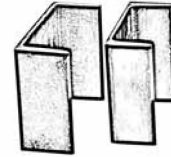
Hot rolled steel Channels with parallel flanges

Dimension standard

DIN 1026-2: 2002-10
Tolerances

EN 10279: 2000
Surface condition :

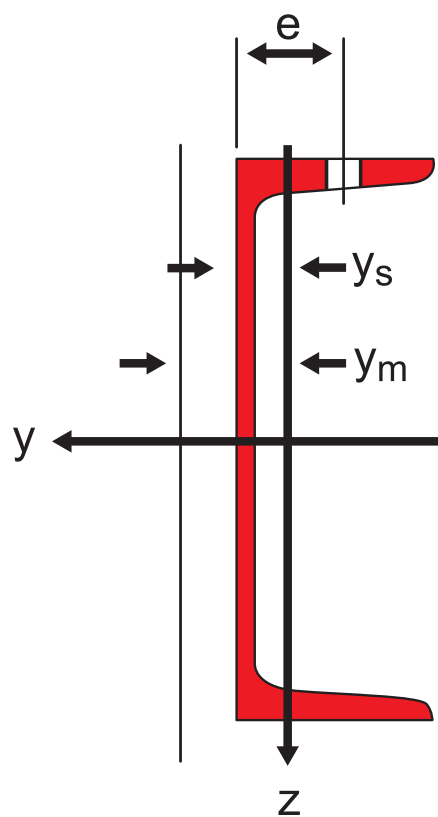
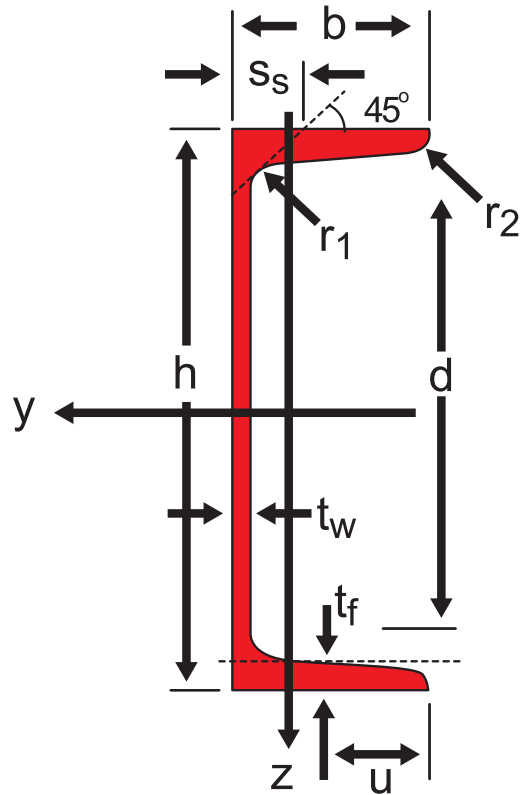
EN 10163-3:2004, class
C, subclass 1



Désignation Designation Bezeichnung		Dimensions Abmessungen					Dimensions de construction Dimensions for detailing Konstruktionsmaße						Surface Oberfläche	
	G kg/m	h mm	b mm	t _w mm	t _f mm	r mm	A mm ² x10 ²	h _i mm	d mm	∅	e _{min} mm	e _{max} mm	A _L m ² /m	A _G m ² /t
UPE 80*	7,90	80	50	4	7	10	10,1	66	46	-	-	-	0,34	43,45
UPE 100*	9,82	100	55	4,5	7,5	10	12,5	85	65	M 12	35	36	0,40	41,00
UPE 120*	12,1	120	60	5	8	12	15,4	104	80	M 12	35	41	0,46	37,98
UPE 140*	14,5	140	65	5	9	12	18,4	122	98	M 16	35	38	0,52	35,95
UPE 160*	17,0	160	70	5,5	9,5	12	21,7	141	117	M 16	36	43	0,58	34,01

UE

Channel



European standard for hot rolled steel channels

Dimensions

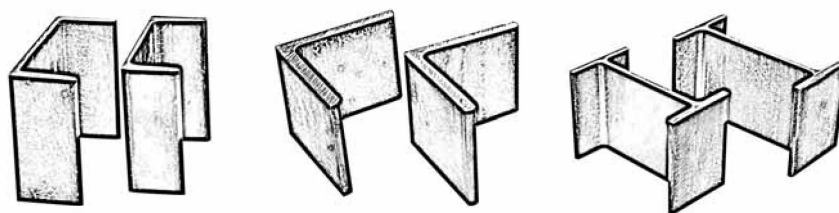
DIN 1026-1: 2000, NF A 45-202 (1983)

Tolerances

EN 10279: 2000

Surface condition

EN 10163-3: 2004, class C, subclass 1



Désignation Designation Bezeichnung	Dimensions Abmessungen								Dimensions de construction Dimensions for detailing Konstruktionsmaße				Surface Oberfläche	
	G kg/m	h mm	b mm	t _w mm	t _f mm	r ₁ mm	r ₂ mm	A mm ² x10 ²	d mm	Ø	e _{min} mm	e _{max} mm	A _L m ² /m	A _G m ² /t
UE 80	7,05	80	40	4,5	7,5	6,5	4	8,98						
UE 100	8,59	100	46	4,5	7,6	7	3	10,90						
UE 120	10,40	120	52	4,8	7,8	7,5	3	13,30						
UE 140	12,30	140	58	4,9	8,1	8	3	15,60						
UE 160	14,20	160	64	5	8,4	8,5	3,5	18,10						
UE 180	16,30	180	70	5,1	8,7	9	3,5	20,70						
UE 200	18,40	200	76	5,2	9	9,5	4	23,40						
UE 220	21,00	220	82	5,4	9,5	10	4	26,70						



Chemical Composition of the Main Steel Grades in Gost Standards,

Steel Grades	C	Mn	Si	S	P
Gost 380-88		Not more than			
St.1 kp	0.06-0.12	0.25-0.50	0.05	0.05	0.04
St. 1ps	0.06-0.12	0.25-0.50	0.05-0.15	0.05	0.04
St. 3kp	0.14-0.22	0.30-0.60	0.05	0.05	0.04
St. 3ps	0.14-0.22	0.40-0.65	0.05-0.15	0.05	0.04
St. 3sp	0.14-0.22	0.40-0.65	0.15-0.30	0.05	0.04
St. 5ps	0.28-0.37	0.50-0.80	0.05-0.15	0.05	0.04
St.5sp	0.28-0.37	0.50-0.80	0.15-0.30	0.05	0.04
Gost 1050-88					
o8kp	0.05-0.12	0.25-0.50	0.03	0.04	0.035
o8ps	0.05-0.11	0.35-0.65	0.17-0.37	0.04	0.035
Gost 9045-80					
o8Yu	0.07	0.20-0.35	0.01	0.025	0.020



Chemical Compositions Of Construcrtrional Steel Grades



Designation		Method of deoxidation	Subgroup ⁴⁾	C in % max. for nominal product thickness in mm			Mn % max.	Si % max.	P % max.	S % max.	N ⁵⁾ % max.
				≤ 16	> 16 ≤ 40	> 40 ⁵⁾					
S185 ⁸⁾	1,0035	opt.	BS	-	-	-	-	-	-	-	-
S235JR ⁴⁾	1.0037	opt.	BS	0,21	0,25	-	1,50	-	0,055	0,055	0,011
S235JRG1 ⁴⁾	1.0036	FU	BS	0,21	0,25	-	1,50	-	0,055	0,055	0,009
S235JRG2	1.0038	FN	BS	0,19	0,19	0,23	1,50	-	0,055	0,055	0,011
S235JO	1.0114	FN	QS	0,19	0,19	0,19	1,50	-	0,050	0,050	0,011
S235J2G3	1.0116	FF	QS	0,19	0,19	0,19	1,50	-	0,045	0,045	-
S235J2G4	1.0117	FF	QS	0,19	0,19	0,19	1,50	-	0,045	0,045	-
S275JR	1.0044	FN	BS	0,24	0,24	0,25	1,60	-	0,055	0,055	0,011
S275JO	1.0143	FN	QS	0,21	0,21	0,21 ⁷⁾	1,60	-	0,050	0,050	0,011
S275J2G3	1.0144	FF	QS	0,21	0,21	0,21 ⁷⁾	1,60	-	0,045	0,045	-
S275J2G4	1.0145	FF	QS	0,21	0,21	0,21 ⁷⁾	1,60	-	0,045	0,045	-
S355JR	1,0045	FN	BS	0,27	0,27	0,27	1,70	0,60	0,055	0,055	0,011
S355JO ⁸⁾	1,0553	FN	QS	0,23	0,23 ⁹⁾	0,24	1,70	0,60	0,050	0,050	0,011
S355J2G3 ⁸⁾	1,0570	FF	QS	0,23	0,23 ⁹⁾	0,24	1,70	0,60	0,045	0,045	-
S355J2G4 ⁸⁾	1,0577	FF	QS	0,23	0,23 ⁹⁾	0,24	1,70	0,60	0,045	0,045	-
S355K2G3 ⁸⁾	1,0595	FF	QS	0,23	0,23 ⁹⁾	0,24	1,70	0,60	0,045	0,045	-
S355K2G4 ⁸⁾	1,0598	FF	QS	0,23	0,23 ⁹⁾	0,24	1,70	0,60	0,045	0,045	-
E295	1.0050	FN	BS	-	-	-	-	-	0,055	0,055	0,011
E335	1.0060	FN	BS	-	-	-	-	-	0,055	0,055	0,011
E380	1.0070	FN	BS	-	-	-	-	-	0,055	0,055	0,011

1) See 7.3.

2) It is Permissible to exceed the specified values provided that for each increase of 0,001 % N the P max. content will be reduced by 0,005 %; the N content of the product analysis, however, shall not be more than 0,014 %.

3) The max. value for nitrogen does not apply if the chemical composition shows a minimum total Al content of 0,020 % or if sufficient other N binding elements are present. The N binding elements shall be mentioned in the inspection document.

4) BS - base steel; QS - quality steel.

5) For sections with nominal thickness > 100 mm the C content by agreement. Option 25.

6) Only available in nominal thickness ≤ 25 mm.

7) For nominal thickness > 150 mm: C - 0,23 % max.

8) See 7.3.3.2. and 7.3.3.3

9) For nominal thickness > 30 mm and for grades suitable for cold roll forming (see 7.5.3.2): C-0,24 % max.



Specifications Of Mechanical Test Pieces For Flat And Long Products



Designation		Method of deoxidation	Subgroup	Minimum yield strength R _y in N/mm ² 1(Tens. strength R _t in N/mm ² m 1(
				Nominal thickness in mm									Nominal thickness in mm			
According EN 10027 - 2 and ECISS IC 10	According EN 10027-2		²⁾	≤ 16	> 16 ≤ 40	> 40 ≤ 63	> 63 ≤ 80	> 80 ≤ 100	> 100 ≤ 100	> 150 ≤ 200	> 200 ≤ 250	< 3	< 3 ≤ 100	> 100 ≤ 150	> 150 ≤ 250	
S185 ³⁾	1.0035	opt.	BS	185	176	-	-	-	-	-	-	310-540	280-510	-	-	
S235JR ³⁾	1.0037	opt.	BS	235	225	-	-	-	-	-	-	360-510	340-470	-	-	
S235JRG1 ³⁾	1.0038	FI	BS	235	225	-	-	-	-	-	-	360-510	340-470	-	-	
S235JRG2	1.0038	FN	BS	235	226	215	215	215	195	185	175	360-510	340-470	340-470	320-470	
S235J0	1.0114	FN	QS	235	225	215	215	215	195	185	175	360-510	340-470	340-470	320-470	
S124J1G3	1.0116	FF	QS	235	225	215	215	215	195	185	175	360-510	340-470	340-470	320-470	
S124J1G4	1.0117	FF	QS	235	225	215	215	215	195	185	175	360-510	340-470	340-470	320-470	
S276JA	1.0044	FN	BS													
S276J0	1.0143	FN	QS													
S275J2G3	1.0144	FF	QS	275	265	255	245	235	226	215	205	450-500	410-500	400-540	380-540	
S275J2G4	1.0145	FF	QS													
S355JR	1.0045	FN	BS													
S355J0	1.0563	FN	QS													
S355J2G3	1.0570	FF	QS	355	345	335	325	315	285	285	275	510-680	480-630	470-630	450-530	
S355J2G4	1.0577	FF	QS													
S355K2G3	1.0595	FF	QS													
S355K2G4	1.0596	FF	QS													
E295 ⁴⁾	1.0050	FN	BS	295	265	275	265	255	245	235	226	490-880	470-610	450-610	440-610	
E335 ⁴⁾	1.0060	FN	BS	335	325	315	306	296	276	265	255	580-770	570-710	550-710	540-710	
E360 ⁴⁾	1.0070	FN	BS	360	355	345	335	325	306	296	285	690-800	670-630	650-830	640-830	

- 1) The values in the table apply to longitudinal test pieces (1) for the tensile test. For plate, strip and wide flats with widths ≥ 600 mm transverse test pieces (t) are applicable.
- 2) BS - Base Steel; QS - quality steel.
- 3) Only available in nominal thickness ≤ 25 mm.
- 4) These steels are normally not used for channels, angles and sections.



Mechanical Properties For Flat The And Long Products



Designation		Method of deoxidation ³⁾	Subgroup	Position of test pieces ¹⁾	Minimum percentage elongation ¹⁾									
					$L_0 = 80$ mm Nominal thickness in mm					$L_0 = 5.65 \sqrt{S_0}$ Nominal thickness in mm				
According EN 10027 - 1 and ECIS IC 10	According EN 10027 - 2				≤ 1	$> 1 \leq 1,5$	$> 1,5 \leq 2$	$> 2 \leq 2,5$	$> 2,5 \leq 3$	$\geq 3 \leq 40$	$> 40 \leq 63$	$> 63 \leq 100$	$> 100 \leq 150$	$> 150 \leq 250$
S185 ³⁾	1.0035	opt.	BS	l t	10 8	11 9	12 10	13 11	14 12	16 16	- -	- -	- -	- -
S235JR ³⁾ S235JRG1 ³⁾ S235JRG2 S235J0 S235J2G3 S235J2G4	1.0037 1.0036 1.0038 1.0114 1.0116 1.0117	opt. FU FN FF FF	BS BS BS QS QS QS	l t	17 15	18 16	19 17	20 18	21 19	26 24	25 23	24 22	22 22	21 21
S275JR S275J0 S275J2G3 S275J2G4	1.0044 1.0143 1.0144 1.0145	FN FN FF FF	BS QS QS QS	l t	14 12	15 13	16 14	17 15	18 16	22 20	21 19	20 18	18 18	17 17
S355JR S355J0 S355J2G3 S355J2G4 S355K2G3 S355K2G4	1.0045 1.0553 1.0570 1.0577 1.0595 1.0596	FN FN FF FF FF FF	BS QS QS QS QS QS	l t	14 12	15 13	16 14	17 15	18 16	22 20	21 19	20 18	18 18	17 17
E295 ⁴⁾	1.0050	FN	BS	l t	12 10	13 11	14 12	15 13	16 14	20 16	18 17	18 16	16 15	15 14
E335 ⁴⁾	1.0060	FN	BS	l t	8 6	9 7	10 8	11 9	12 10	16 14	15 13	14 12	12 11	11 10
E360 ⁴⁾	1.0070	FN	BS	l t	4 3	5 4	6 5	7 6	8 7	11 10	10 9	9 8	8 7	7 6

1) The values in the table apply to longitudinal test pieces (l) for the tensile test. For plate, strip and wide flats with widths ≥ 600 mm transverse test pieces (t) are applicable.

2) BS - Base Steel; QS - quality steel.

3) Only available in nominal thickness ≤ 25 mm.

4) These steels are normally not used for channels, angles and sections.