

## MARYLAND METRICS Technical Data Chart

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Flat bars heat resistant DIN 1017

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Key steel cold drawn Flat and Square DIN 6880 / h9

Half rounds cold rolled Cold rolled and bright annealed Surface finish accord. to 2R/2H\* Tolerance h11

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Mill specific tolerances

Equal Angles Dimensions accord. to EN 10056 Internal radii laser welded (r) Execution accord. to EN 10088-3

Mill specific tolerances

Equal Angles cold rolled Dimensions accord. to DIN 1022 Internal radius sharp (r) Execution accord. to EN 10088-3

Equal Angles cold drawn Dimension accord. to DIN 59370 All radii sharp (r) Execution accord. to EN 10088-3

Equal Angles polished Dimensions accord. to EN 10056 Execution

Unequal Angles Dimension accord. EN 10056 Hot rolled, internal radius round (r) Execution accord. to EN 10088-3

Unequal Angles Dimensions accord. to EN 10056 Internal radius welded (r) Execution accord. to EN 10088-3

Unequal Angles cold rolled Dimensions accord. to DIN 1022 Internal radius sharp (r) Execution accord. to EN 10088-3

Unequal Angles cold drawn Dimensions accord. to DIN 59370

Unequal Angles polished Dimension accord. to EN 10056 Execution

T-Sections Dimensions accord. to EN 10055 Internal radii round (r) Execution accord. to EN 10088-3

T-Sections Dimensions accord. to EN 10055 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

T – Sections cold drawn Dimensions accord. to EN 10055 All radii sharp Execution accord. to EN 10088-3

Unequal T-Sections Dimensions accord. to EN 10055 Internal radii laser welded (r) Execution accord. to EN 10088-3

Equal Angles polished Dimensions accord. to EN 10056 Execution

Unequal Angles Dimension accord. EN 10056 Hot rolled, internal radius round (r) Execution accord. to EN 10088-3

Unequal Angles Dimensions accord. to EN 10056 Internal radius welded (r) Execution accord. to EN 10088-3

Unequal Angles cold rolled Dimensions accord. to DIN 1022 Internal radius sharp (r) Execution accord. to EN 10088-3

Unequal Angles cold drawn Dimensions accord. to DIN 59370 All radii sharp (r) Execution accord. to EN 10088-3

Unequal Angles polished Dimension accord. to EN 10056 Execution

Channels UNP Dimension accord. to DIN 1026, hot rolled Execution accord. to EN 10088-3

Statical values

Channels UAP Channels with parallel flanges, hot rolled Internal radius rounded (r) Execution according to EN 10088-3

Channels UAP Laser Channels with parallel flanges Execution according to EN 10088-3

Statical values

Unequal T-Sections Dimensions accord. to EN 10055 Internal radii laser welded (r) Execution accord. to EN 10088-3

IPE – Beams Dimensions accord. to EN 1025 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

HEA - Beams Dimensions accord. to EN 1025 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

HEB - Beams Dimensions accord. to EN 1025 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

Special Beams Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

British Universal Beams (UB) in accordance with BS 4-1: 1993, Internal radii laser welded

Statical properties

Mill specific tolerances

Z Sections Dimensions accord. to EN 10055 Internal radii laser welded (r) Execution accord. to EN 10088-3

HEA - Beams Dimensions accord. to EN 1025 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

HEB - Beams Dimensions accord. to EN 1025 Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

Special Beams Internal radii laser welded (r) Execution accord. to EN 10088-3

Statical properties

British Universal Beams (UB) in accordance with BS 4-1: 1993

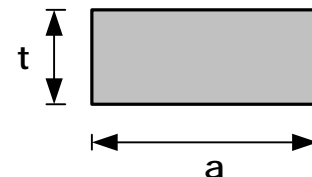
Statical properties

Mill specific tolerances Dimension

Tolerance TechnicalData Chart ISO tolerances for shafts

## Cold drawn flats

EN 10277-1 / h11



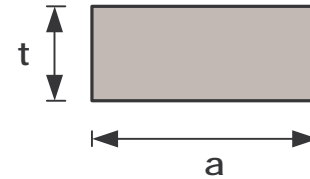
a (mm)	t (mm)																
	2	3	4	5	6	8	10	12	15	20	25	30	35	40	45	50	60
6	0,10	0,14	0,19	0,24													
8	0,13	0,19	0,26	0,32	0,38												
10	0,16	0,24	0,32	0,40	0,48	0,64											
12		0,29	0,38	0,48	0,57	0,76	0,96										
15		0,36	0,48	0,60	0,72	0,96	1,20	1,44									
16		0,38	0,51	0,64	0,77	1,02	1,28	1,54									
18		0,43	0,58	0,72	0,86	1,15	1,44	1,73	2,16								
20		0,48	0,64	0,80	0,96	1,44	1,60	1,92	2,40								
25		0,60	0,80	1,00	1,20	1,60	2,00	2,40	3,00	4,00							
30		0,72	0,96	1,20	1,44	1,92	2,40	2,88	3,60	4,80	6,00						
35		0,84	1,12	1,40	1,68	2,24	2,80	3,36	4,20	5,60	7,00	8,40					
40		0,96	1,28	1,60	1,92	2,56	3,20	3,84	4,80	6,40	8,00	9,60	11,2				
45		1,08	1,44	1,80	2,16	2,72	3,60	4,32	5,40	7,20	9,00	10,8	12,6	14,4			
50		1,20	1,60	2,00	2,40	3,20	4,00	4,80	6,00	8,00	10,0	12,0	14,0	16,0	18,0		
60		1,44	1,92	2,40	2,88	3,84	4,80	5,76	7,20	9,60	12,0	14,4	16,8	19,2	21,6	24,0	
70			2,24	2,80	3,36	4,48	5,60	6,56	8,40	11,2	14,0	16,8	19,6	24,0	25,2	28,0	36,0
80			2,56	3,20	3,84	5,12	6,40	7,68	9,60	12,8	16,0	19,2	22,4	25,6	28,8	32,0	38,4
90				3,60	4,32	5,76	7,20	8,64	10,8	14,4	18,0	21,6	25,2	28,8	32,4	36,0	43,2
100				4,00	4,80	6,40	8,00	9,60	12,0	16,0	20,0	24,0	28,0	32,0	36,0	40,0	48,0
120				4,80	5,76	7,68	9,60										

Grade: 1.4404 / AISI 316L

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

## Flat bars heat resistant

DIN 1017



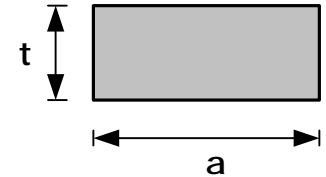
a (mm)	t (mm)						
	5	6	8	10	12	15	20
20	0,80	0,96	1,44	1,60	1,92	2,40	
25	1,00	1,20	1,60	2,00	2,40	3,00	
30	1,20	1,44	1,92	2,40	2,88	3,60	4,80
35	1,40	1,68	2,24	2,80	3,36	4,20	5,60
40	1,60	1,92	2,56	3,20	3,84	4,80	6,40
45	1,80	2,16	2,72	3,60	4,32	5,40	7,20
50	2,00	2,40	3,20	4,00	4,80	6,00	8,00
60	2,40	2,88	3,84	4,80	5,76	7,20	9,60
70	2,80	3,36	4,48	5,60	6,56	8,40	11,2
80	3,20	3,84	5,12	6,40	7,68	9,60	12,8
90	3,60	4,32	5,76	7,20	8,64	10,8	14,4
100	3,93	4,71	6,28	7,85	9,42	11,8	15,7
110	4,32	5,18	6,91	8,64	10,4	13,9	17,2
120	4,80	5,76	7,68	9,60	11,3	14,1	18,8
130	5,10	6,12	8,16	10,2	12,3	15,3	20,4
140	5,60	6,60	8,80	11,0	13,2	16,5	22,0
150	5,85	7,07	9,42	11,8	14,1	17,7	23,6
160	6,40	7,68	10,2	12,8	15,4	19,2	25,5
180	7,20	8,64	11,5	14,4	17,3	21,6	28,8
200	8,00	9,60	12,8	16,0	19,2	24,0	32,0
250	10,0	12,0	16,0	20,0	24,0	30,0	40,0
300	12,0	14,4	19,2	24,0	28,8	36,0	48,0

Grades: 1.4828 and 1.4841

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

## Cold drawn flats

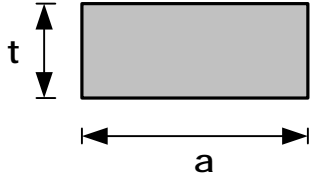
EN 10277-1 / h11



a (mm)	t (mm)										
	3	4	5	6	8	10	12	15	20	25	30
10	0,24	0,32	0,40	0,48							
15	0,36	0,48	0,60	0,72	0,96	1,20					
20	0,48	0,64	0,80	0,96	1,44	1,60	1,92	2,40			
25	0,60	0,80	1,00	1,20	1,60	2,00	2,40	3,00	4,00		
30		0,96	1,20	1,44	1,92	2,40	2,88	3,60	4,80		
40		1,28	1,60	1,92	2,56	3,20	3,84	4,80	6,40	8,00	9,60
50			2,00	2,40	3,20	4,00	4,80	6,00	8,00		
60			2,40	2,88	3,84	4,80	5,76	7,20	9,60		
80				3,84	5,12	6,40	7,68	9,60	12,80		
90				4,32	5,76	7,20	8,64				
100				4,80	6,40	8,00	9,60				

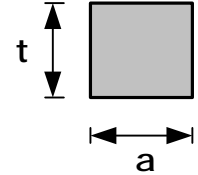
Grade: 1.4305 / AISI 303

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.



## Key steel cold drawn

Flat and Square  
 DIN 6880 / h9



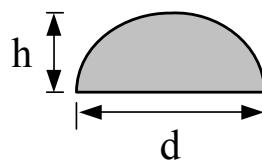
a (mm)	t (mm)																
	2	3	4	5	6	7	8	9	10	11	12	14	16	18	20	22	25
2	0,03																
3		0,07															
4			0,13														
5		0,12		0,20													
6					0,28												
8				0,31	0,38	0,44											
10					0,47		0,63										
12					0,57		0,75		0,94								
14					0,66			0,99									
16									1,26								
18						0,99				1,56							
20							1,26				1,88						
22								1,55				2,42					
25												2,75					
28									2,20				3,52				
32														4,52			
36															5,65		
40																6,91	
45																	8,83

Grade: AISI 316

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

## Half rounds cold rolled

Cold rolled and bright annealed  
 Surface finish accord. to 2R/2H\*  
 Tolerance h11, Grade 1.4404

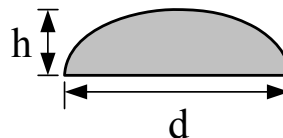


d	h	[ kg/m ]
12	6	0.45
16	8	0.78
20	10	1.23
* 25	12.5	1.94
* 30	15	2.77
* 32	16	3.18
* 40	20	4.95
* 45	22.5	6.27
* 50	25	7.75
* 60	30	11.15

\* Cold drawn sections, surface finish accord. to 2H.

## Flat half rounds cold rolled

Cold rolled and bright annealed  
 Surface finish accord. to 2R/2H\*  
 Tolerance h11, Grade 1.4404

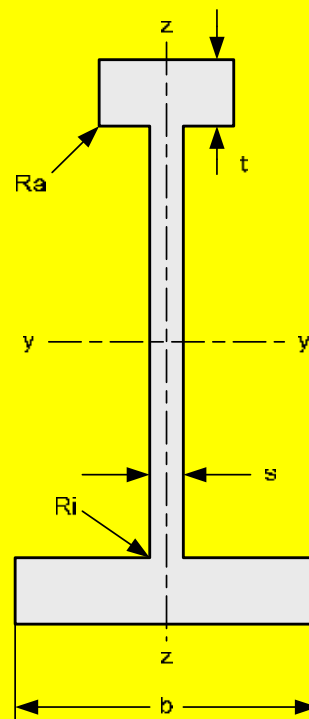


d	h	[ kg/m ]
10	3.5	0.20
14	4	0.31
16	6	0.56
20	4	0.43
20	6	0.67
* 30	10	1.71
* 40	10	2.20
* 50	12	3.30

\* Cold drawn sections, surface finish accord. to 2H.

**Range:**

<b>Standard tolerances:</b>
h and b : +/-0.5 mm
s and t = +/-0.5 mm
Ra = : ~ 0.5 mm
Ri = : ~ 2 mm
Tighter tolerances upon request
<b>Staightness:</b>
Up to 1.0 mm/m
<b>Size range:</b>
b = 35 – 300 mm
h = 35 – 400 mm
t = 3 – 40 mm
s = 3 – 20 mm
<b>Surface execution:</b>
shot blast and pickled
<b>Grades:</b>
Mild steel : S235 JRG2
= S275 J2G3
= S355 J2G3
=
Stainless steel : 304 / 304L
= 316 / 316L
= 316 Ti
= 1.4462
= 1.4539
<b>Quantity:</b>
Prototyping : 1 bar
Serial production : min. 500 kg
<b>Bar length:</b>
Standard bar lengths of 6.000 mm -0/+100 mm or in
Fix lengths (max. 6.100 mm)

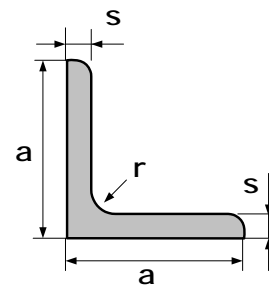


b = profile width  
 h = profile height  
 s = web thickness  
 t = flange thickness  
 Ra = external radii  
 Ri = internal radii

• In conclusion it can be said that the usage of Laser profiles can bring advantages in many areas. The fields of application for our special profiles are as extensive as the number of our profile geometries. Examples are to find in the metal processing industry, window and curtain wall branch, textile industry, food processing industry, petrochemical industry, ship building industry, automobile industry etc. •

## Equal Angles

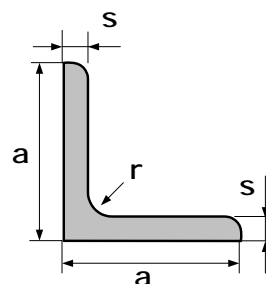
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	a	s	[ kg/m ]
15	15	2	0.45
	15	3	0.65
20	20	2	0.61
30	30	6	2.56
40	40	8	4.60
45	45	3	2.12
	45	4	2.76
	45	6	4.00
	45	8	5.15
50	50	3	2.36
	50	4	3.07
	50	7	5.13
	50	10	7.09
55	55	6	5.00
60	60	5	4.58
	60	7	6.24
	60	8	7.05
	60	10	8.70
65	65	5	5.03
	65	7	6.84
	65	9	8.69
70	70	6	6.42
	70	10	10.3
75	75	5	5.82
	75	6	6.89
	75	7	7.95
	75	9	10.0
	75	10	11.1
80	80	6	7.37
	80	10	11.8
90	90	6	8.33
	90	7	9.65
	90	8	10.9

## Equal Angles

Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	a	s	[ kg/m ]
100	100	6	9.28
	100	7	10.8
	100	8	12.2

## Tolerances accord. to EN 10056

	Dimension	Tolerances
a	15 - 20 mm	+/- 1.0 mm
	30 - 45 mm	+/- 1.5 mm
	50 mm	+/- 2.0 mm
	60 - 100 mm	+/- 3.0 mm
s	≤ 90 mm	+/- 0.4 mm
	100 mm	+/- 0.6 mm
r	15 - 20 mm	2 mm
	30 mm	4 mm
	40 mm	4.5 mm
	45 - 60 mm	6.5 mm
	65 - 80 mm	8.5 mm
	90 - 100 mm	10 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Mill specific tolerances		
	Dimension	Tolerance
h	127 – 203 mm	+/- 1.0 mm
	254 – 406 mm	+/- 1.5 mm
b	76 – 178 mm	+/- 0.5 m
s	< 7 mm	+/- 0.5 mm
	≥ 7 mm	+ 0/- 1.0 mm
t	≤ 10 mm	+ 0/- 1.0 mm
	> 10 mm	+ 0/- 1.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

TechnicalData Chart

ISO tolerances for shafts

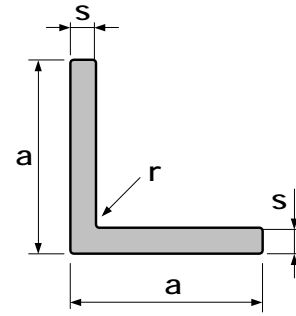
example: 20h9 = 20.00/19.948

m illm eters / m m																				
over	3	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355
including	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400
tolerance in m icrons / m icrom etres																				
h9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-30	-36	-43	-52	-62	-74	-87	-100	-115	-130	-140									
h11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-75	-90	-110	-130	-160	-190	-220	-250	-290	-320	-360									

Werkstoff number	AISI Nearest Fit	European Steel Designation
1.4301	304	X5CrNi18-10
1.4305	303	X8CrNiS18-9
1.4307	304L	X2CrNi18-9
1.4401	316	X5CrNiMo17-12-2
1.4404	316L	X2CrNiMo17-12-2
1.4571	316Ti	X6CrNiMoTi17-12-2
1.4828	309	X15CrNiSi20-12
1.4841	314	X15CrNiSi25-21

## Equal Angles

Dimensions accord. to EN 10056  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D

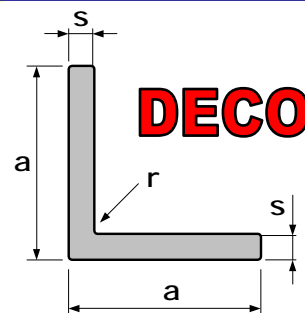


a	a	s	[ kg/m ]
110	110	6	10.3
	110	8	13.5
	110	10	16.6
120	120	6	11.2
	120	8	14.8
	120	10	18.1
	120	12	21.9
	120	13	23.6
130	130	6	12.2
	130	8	16.1
	130	10	20.0
	130	12	23.8
	130	13	25.7
140	140	6	13.0
	140	8	17.2
	140	10	21.3
	140	12	25.4
150	150	6	13.9
	150	8	18.7
	150	10	22.9
	150	12	27.3
	150	13	29.8
160	160	6	14.9
	160	8	19.7
	160	10	24.5
	160	12	28.8
	160	13	32.0
180	180	6	17.0
	180	8	22.5
	180	10	28.0
	180	12	33.4
	180	13	36.1
	180	15	41.4
200	200	6	18.9
	200	8	25.1
	200	10	31.2
	200	12	37.2
	200	13	40.2
	200	15	46.2

<b>Mill specific tolerances</b>		
	<b>Dimension</b>	<b>Tolerance</b>
<b>a</b>	110 – 200 mm	+/- 0.5 mm
<b>s</b>	6 – 13 mm	+/- 0.5 mm
<b>Grades</b>	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Equal Angles cold rolled

Dimensions accord. to DIN 1022  
 Internal radius sharp (r)  
 Execution accord. to EN 10088-3: 2H



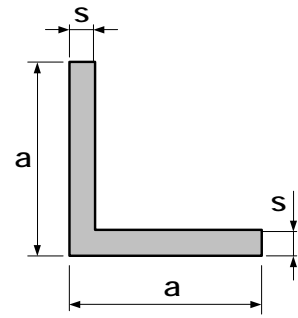
a	a	s	[ kg/m ]
20	20	3	0.89
25	25	3	1.13
30	30	3	1.37
	30	4	1.79
40	40	4	2.43
	40	5	3.00
50	50	5	3.80
	50	6	4.51
60	60	6	5.47

## Mill specific tolerances

	Dimension	Toleranzen
a	20 – 40 mm	+/- 0.4 mm
	50 – 60 mm	+/- 0.5 mm
s	3 mm	+/- 0.3 mm
	4 mm	+/- 0.4 mm
	5 mm	+/- 0.5 mm
	6 mm	+/- 0.6 mm
r	20 – 60 mm	$r \leq 1.5$ mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Equal Angles cold drawn

Dimension accord. to DIN 59370  
 All radii sharp (r)  
 Execution accord. to EN 10088-3: 2H



a	a	s	[ kg/m ]
10	10	2	0.29
15	15	2	0.45
	15	3	0.65
20	20	2	0.61
	20	3	0.89
25	25	2.5	0.93
	25	3	1.13
	25	4	1.47
30	30	3	1.37
	30	4	1.79
	30	5	2.20
35	35	4	2.11
40	40	3	1.85
	40	4	2.43
	40	5	3.00
45	45	5	3.40
50	50	5	3.80
	50	6	4.51
60	60	6	5.47
	60	8	7.17

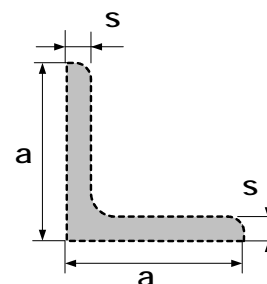
## Tolerances accord. to DIN 59370

	Dimension	Tolerance
a	10 – 15 mm	+/- 0.15 mm
	20 – 60 mm	+/- 0.20 mm
s	2 – 4 mm	+/- 0.10 mm
	5 – 8 mm	+/- 0.15 mm
r	10 – 15 mm	r ≤ 0.5 mm
	20 – 30 mm	r ≤ 0.8 mm
	35 – 60 mm	r ≤ 1.0 mm

**Grades** 1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571

## Equal Angles polished

Dimensions accord. to EN 10056  
 Execution: G 220 /G 240 /G 320



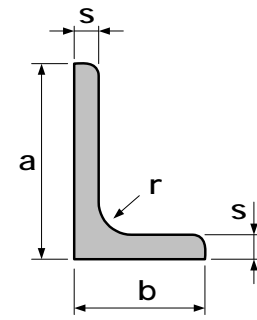
a	a	s	[ kg/m ]
20	20	3	0.89
25	25	3	1.13
30	30	3	1.37
	30	4	1.79
40	40	4	2.43
	40	5	3.00
50	50	5	3.80
	50	6	4.51
60	60	6	5.47

## Tolerances accord. To EN 10056

	Dimension	Tolerance
a	15 - 20 mm	+/- 1.0 mm
	30 - 45 mm	+/- 1.5 mm
	50 mm	+/- 2.0 mm
	60 mm	+/- 3.0 mm
s	≤ 60 mm	+/- 0.4 mm
r	15 - 20 mm	2 mm
	30 mm	4 mm
	40 mm	4.5 mm
	45 - 60 mm	6.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles

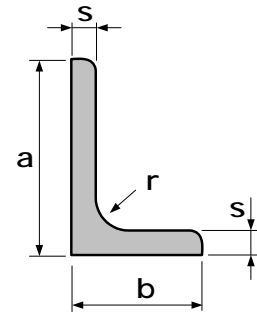
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	b	s	[ kg/m ]
20	10	3	0.65
25	15	3	0.89
30	15	3	1.01
	20	3	1.13
	20	4	1.47
	20	5	1.80
	20	6	2.11
40	20	3	1.37
	20	4	1.79
	20	5	2.20
	20	6	2.59
	30	3	1.62
	30	4	2.10
	30	5	2.60
	30	6	3.07
45	30	3	1.73
	30	4	2.27
	30	5	2.80
	30	6	3.31
50	30	3	1.85
	30	4	2.43
	30	5	3.00
	30	6	3.54
	40	3	2.09
	40	4	2.75
	40	5	3.40
	40	6	4.02
60	30	5	3.40
	30	6	4.03
	30	7	4.62
	30	8	5.25
	40	5	3.80
	40	6	4.51
	40	8	5.82
65	50	5	4.40
	50	6	5.26
	50	7	6.05
	50	8	6.82
	50	9	7.60

## Unequal Angles

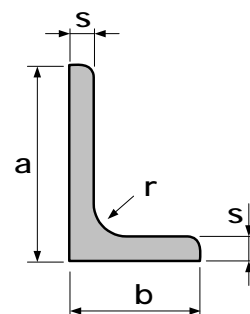
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	b	s	[ kg/m ]
70	50	5	4.60
	50	6	5.47
	50	7	6.33
	50	8	7.17
	50	9	7.99
75	50	5	4.80
	50	6	5.71
	50	7	6.61
	50	8	7.46
	50	9	8.31
	50	10	9.15
	55	5	5.00
	55	6	5.95
	55	7	6.89
	55	8	7.81
	55	9	8.71
	55	10	9.60
80	40	6	5.47
	40	7	6.33
	40	8	7.17
	40	9	7.96
	40	10	8.73
	65	6	6.67
	65	7	7.71
	65	8	8.77
	65	9	9.73
	65	10	10.70
	90	60	6
60		8	9.09
75		6	7.66
75		7	8.86
75		9	11.20

## Unequal Angles

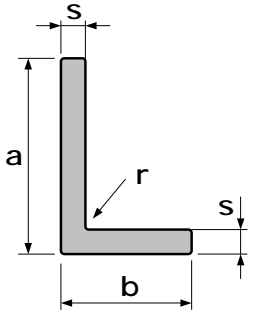
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	b	s	[ kg/m ]
100	50	6	6.91
	50	8	9.09
	50	10	11.20
	65	6	7.66
	65	7	8.85
	65	8	10.05
	65	9	11.09
	65	10	12.30
	75	6	8.10
	75	7	9.42
	75	8	10.70
	75	9	11.95
	75	10	13.10

## Tolerances accord. to EN 10056-2

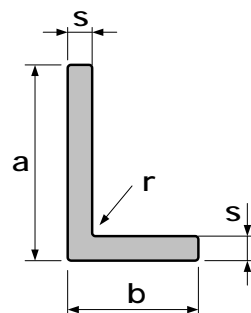
	Dimension	Tolerance
a/b	≤ 50 mm	+/- 1.0 mm
	60 - 100 mm	+/- 2.0 mm
s	≤ 90 mm	+/- 0.4 mm
	100 mm	+/- 0.6 mm
r	20 - 40 mm	4 mm
	45 - 60 mm	6.5 mm
	65 - 80 mm	8.5 mm
	90 - 100 mm	10 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

<h2>Unequal Angles</h2>			
Dimensions accord. to EN 10056 Internal radius welded (r) Execution accord. to EN 10088-3: 1D			
a	b	s	[ kg/m ]
120	80	6	9.45
	80	8	12.2
	80	10	14.9
130	65	6	9.05
	65	8	11.8
	65	10	14.6
	75	6	9.55
	75	8	12.6
	75	10	15.5
150	75	8	13.8
	75	10	16.8
	100	8	15.5
	100	10	19.0
160	80	8	14.7
	80	10	18.1
	80	12	21.6
180	90	8	16.6
	90	10	20.1
	90	12	24.2
200	100	8	18.5
	100	10	22.5
	100	12	27.4

<h2>Mill specific tolerances</h2>		
Dimension	Tolerance	
a	120 – 200 mm	+/- 0.5 mm
s	6 – 12 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles cold rolled

Dimensions accord. to DIN 1022  
 Internal radius sharp (r)  
 Execution accord. to EN 10088-3: 2H



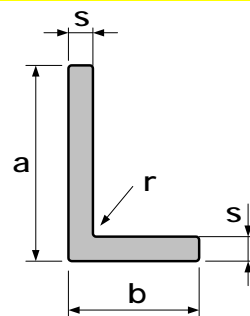
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51
80	40	6	5.47
	40	8	7.17
100	50	6	6.91
	50	8	9.09
	50	10	11.2

## Mill specific tolerances

	Dimension	Tolerance
a	30 – 100 mm	+/- 0.5 mm
s	3 – 10 mm	+/- 0.3 mm
r	30 – 100 mm	$r \leq 1$ mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles cold drawn

Dimensions accord. to DIN 59370  
 All radii sharp (r)  
 Execution accord. to EN 10088-3: 2H



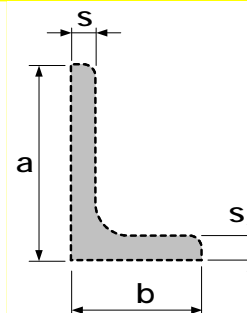
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51

## Tolerances accord. To DIN 59370

	Dimension	Tolerance
a	20 – 60 mm	+/- 0.20 mm
s	20 – 60 mm	+/- 0.15 mm
r	20 – 30 mm	$r \leq 0.8$ mm
	35 – 60 mm	$r \leq 1.0$ mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles polished

Dimension accord. to EN 10056  
 Execution: G 220 /G 240 /G 320



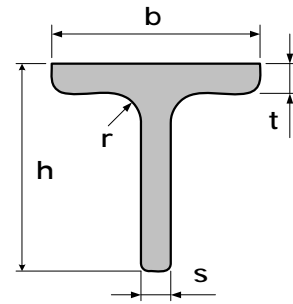
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51

## Tolerances accord. to EN 10056

	Dimension	Tolerance
a	15 - 20 mm	+/- 1.0 mm
	30 - 45 mm	+/- 1.5 mm
	50 mm	+/- 2.0 mm
	60 mm	+/- 3.0 mm
s	≤ 60 mm	+/- 0.4 mm
r	15 - 20 mm	2 mm
	30 mm	4 mm
	40 mm	4.5 mm
	45 - 60 mm	6.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## T-Sections

Dimensions accord. to EN 10055  
 Internal radii round (r)  
 Execution accord. to EN 10088-3: 1D



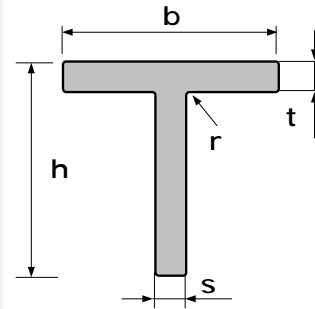
h	b	s = t	[ kg/m ]
20	20	3	0.88
	20	4	1.15
25	25	3	1.13
	25	3.5	1.30
	25	4	1.47
30	30	3	1.37
	30	4	1.79
35	35	4	2.11

## Tolerances accord. to EN 10055

	Dimension	Tolerance
h	≤ 35 mm	+/- 1.0 mm
b	≤ 35 mm	+/- 1.0 mm
s/t	3 – 4 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## T-Sections

Dimensions accord. to EN 10055  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



h	b	s = t	[ kg/m ]
35	35	4	2.10
40	40	3	1.85
	40	4	2.40
	40	5	3.00
45	45	5	3.40
50	50	3	2.30
	50	4	3.10
	50	5	3.80
	50	6	4.50
	50	8	5.90
60	60	3	2.80
	60	4	3.70
	60	5	4.60
	60	6	5.45
	60	8	7.15
70	70	7	7.50
80	80	6	7.40
	80	8	9.70
90	90	9	12.20
100	100	8	12.40
	100	10	15.10
120	120	10	18.40
	120	13	25.10
140	140	10	21.60
	140	13	27.80
	140	15	31.80

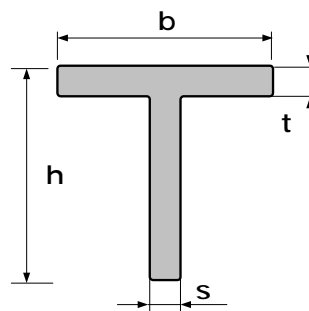
## Tolerances accord. to EN 10055

	Dimension	Tolerance
h	50 – 120 mm	+/- 0.5 mm
b	50 – 120 mm	+/- 0.5 mm
s/t	≥ 5 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

<b>Statical properties</b>									
<b>h</b> mm	<b>b</b> mm	<b>t</b> mm	<b>s</b> mm	<b>G</b> kg/m	<b>F</b> mm <sup>2</sup>	<b>I<sub>x</sub></b> cm <sup>4</sup>	<b>W<sub>x</sub></b> cm <sup>3</sup>	<b>I<sub>y</sub></b> cm <sup>4</sup>	<b>W<sub>y</sub></b> cm <sup>3</sup>
<b>50</b>	50	5	5	3.80	490	11.2	3.23	5.37	2.15
	50	6	6	4.51	520	12.1	3.36	6.06	2.42
<b>60</b>	60	6	6	5.47	700	23.3	5.57	11.1	3.71
<b>70</b>	70	7	7	7.50	950	43.2	8.60	20.0	5.72
<b>80</b>	80	8	8	9.70	1240	73.7	12.9	34.2	8.55
<b>90</b>	90	9	9	12.20	1560	118	18.3	54.9	12.2
<b>100</b>	100	8	8	12.40	1580	148	20.4	66.4	13.3
	100	10	10	15.10	1920	180	25.2	83.7	16.7
<b>120</b>	120	13	13	25.10	2970	400	46.8	189	31.5

## T – Sections cold drawn

Dimensions accord. to EN 10055  
 All radii sharp  
 Execution accord. to EN 10088-3: 2H



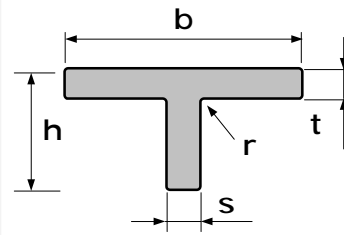
h	b	s = t	[ kg/m ]
30	30	3	1.37
	30	4	1.79
35	35	4	2.11
40	40	4	2.42
	40	5	3.00
45	45	5	3.40
50	50	5	3.80
	50	6	4.51
60	60	6	5.47
70	70	7	7.50
80	80	8	9.70

## Mill specific tolerances

	Dimension	Tolerance
h	30 – 80 mm	+/- 0.2 mm
b	30 – 80 mm	+/- 0.2 mm
s/t	3 – 8 mm	+/- 0.15mm
r	internal	≤ 1 mm
	external	≤ 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal T-Sections

Dimensions accord. to EN 10055  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



h	b	s = t	[ kg/m ]
20	40	4	1.79
25	50	5	2.76
30	60	5.5	3.64
35	70	6	4.66
40	60	4	3.20
	80	7	6.20
50	100	8.5	9.00
60	120	10	12.80

## Mill specific tolerances

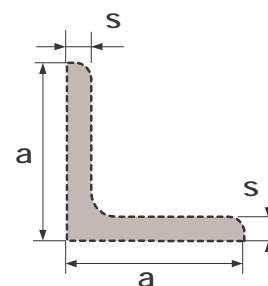
	Dimension	Tolerance
h	20 – 60 mm	+/- 0.5 mm
b	40 – 120 mm	+/- 0.5 mm
s/t	≥ 4 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Statical properties

h mm	b mm	t mm	s mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
20	40	4	4	1.79	224	0.62	0.41	2.14	1.07
25	50	5	5	2.80	350	1.50	0.79	5.23	2.09
30	60	5.5	5.5	3.40	470	2.91	1.27	9.93	3.31
35	70	6	6	4.75	600	5.11	1.90	17.2	4.42
40	60	4	4	3.20	420	5.19	1.70	7.22	2.41
	80	7	7	6.33	800	8.86	2.89	30.0	7.49
50	100	8.5	8.5	9.60	1150	21.1	5.51	71.0	14.2
60	120	10	10	12.80	1640	43.2	9.35	144.4	24.1

## Equal Angles polished

Dimensions accord. to EN 10056  
 Execution: G 220 /G 240 /G 320



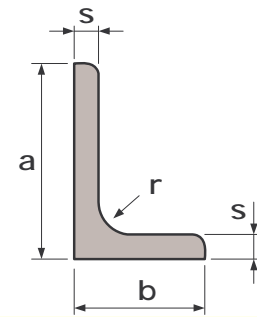
a	a	s	[ kg/m ]
20	20	3	0.89
25	25	3	1.13
30	30	3	1.37
	30	4	1.79
40	40	4	2.43
	40	5	3.00
50	50	5	3.80
	50	6	4.51
60	60	6	5.47

## Tolerances accord. To EN 10056

	Dimension	Tolerance
a	15 - 20 mm	+/- 1.0 mm
	30 - 45 mm	+/- 1.5 mm
	50 mm	+/- 2.0 mm
	60 mm	+/- 3.0 mm
s	≤ 60 mm	+/- 0.4 mm
r	15 - 20 mm	2 mm
	30 mm	4 mm
	40 mm	4.5 mm
	45 - 60 mm	6.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles

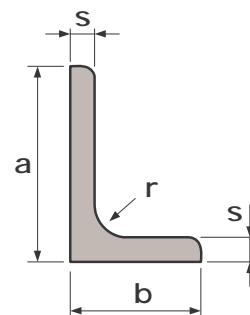
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	b	s	[ kg/m ]
20	10	3	0.65
25	15	3	0.89
30	15	3	1.01
	20	3	1.13
	20	4	1.47
	20	5	1.80
40	20	6	2.11
	20	3	1.37
	20	4	1.79
	20	5	2.20
45	20	6	2.59
	30	3	1.62
	30	4	2.10
	30	5	2.60
50	30	6	3.07
	30	3	1.73
	30	4	2.27
	30	5	2.80
60	30	6	3.31
	30	3	1.85
	30	4	2.43
	30	5	3.00
65	30	6	3.54
	40	3	2.09
	40	4	2.75
	40	5	3.40
70	40	6	4.02
	30	5	3.40
	30	6	4.03
	30	7	4.62
75	30	8	5.25
	40	5	3.80
	40	6	4.51
	40	8	5.82
80	50	5	4.40
	50	6	5.26
	50	7	6.05
	50	8	6.82
85	50	9	7.60

## Unequal Angles

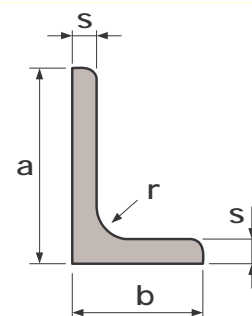
Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



a	b	s	[ kg/m ]
70	50	5	4.60
	50	6	5.47
	50	7	6.33
	50	8	7.17
	50	9	7.99
75	50	5	4.80
	50	6	5.71
	50	7	6.61
	50	8	7.46
	50	9	8.31
	50	10	9.15
	55	5	5.00
	55	6	5.95
	55	7	6.89
	55	8	7.81
80	40	6	5.47
	40	7	6.33
	40	8	7.17
	40	9	7.96
	40	10	8.73
	65	6	6.67
	65	7	7.71
	65	8	8.77
	65	9	9.73
	65	10	10.70
90	60	6	6.91
	60	8	9.09
	75	6	7.66
	75	7	8.86
	75	9	11.20

## Unequal Angles

Dimension accord. EN 10056  
 Hot rolled, internal radius round (r)  
 Execution accord. to EN 10088-3: 1D



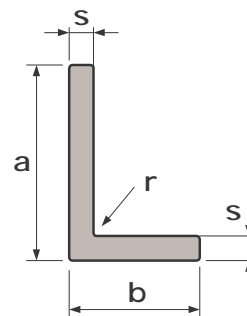
a	b	s	[ kg/m ]
	50	6	6.91
	50	8	9.09
	50	10	11.20
	65	6	7.66
	65	7	8.85
	65	8	10.05
100	65	9	11.09
	65	10	12.30
	75	6	8.10
	75	7	9.42
	75	8	10.70
	75	9	11.95
	75	10	13.10

## Tolerances accord. to EN 10056-2

	Dimension	Tolerance
a/b	≤ 50 mm	+/- 1.0 mm
	60 - 100 mm	+/- 2.0 mm
s	≤ 90 mm	+/- 0.4 mm
	100 mm	+/- 0.6 mm
r	20 - 40 mm	4 mm
	45 - 60 mm	6.5 mm
	65 - 80 mm	8.5 mm
	90 - 100 mm	10 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles

Dimensions accord. to EN 10056  
 Internal radius welded (r)  
 Execution accord. to EN 10088-3: 1D



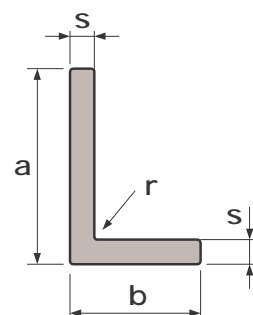
a	b	s	[ kg/m ]
120	80	6	9.45
	80	8	12.2
	80	10	14.9
130	65	6	9.05
	65	8	11.8
	65	10	14.6
	75	6	9.55
	75	8	12.6
	75	10	15.5
150	75	8	13.8
	75	10	16.8
	100	8	15.5
	100	10	19.0
160	80	8	14.7
	80	10	18.1
	80	12	21.6
180	90	8	16.6
	90	10	20.1
	90	12	24.2
200	100	8	18.5
	100	10	22.5
	100	12	27.4

## Mill specific tolerances

	Dimension	Tolerance
a	120 – 200 mm	+/- 0.5 mm
s	6 – 12 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles cold rolled

Dimensions accord. to DIN 1022  
 Internal radius sharp (r)  
 Execution accord. to EN 10088-3: 2H



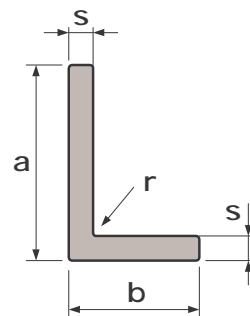
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51
80	40	6	5.47
	40	8	7.17
100	50	6	6.91
	50	8	9.09
	50	10	11.2

## Mill specific tolerances

	Dimension	Tolerance
a	30 – 100 mm	+/- 0.5 mm
s	3 – 10 mm	+/- 0.3 mm
r	30 – 100 mm	$r \leq 1$ mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles cold drawn

Dimensions accord. to DIN 59370  
 All radii sharp (r)  
 Execution accord. to EN 10088-3: 2H



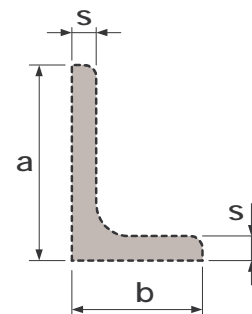
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51

## Tolerances accord. To DIN 59370

	Dimension	Tolerance
a	20 – 60 mm	+/- 0.20 mm
s	20 – 60 mm	+/- 0.15 mm
r	20 – 30 mm	$r \leq 0.8$ mm
	35 – 60 mm	$r \leq 1.0$ mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Unequal Angles polished

Dimension accord. to EN 10056  
 Execution: G 220 /G 240 /G 320



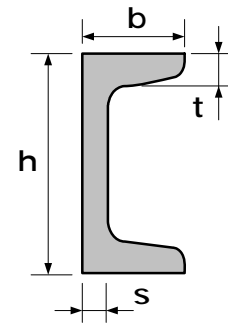
a	b	s	[ kg/m ]
30	20	3	1.13
	20	4	1.47
40	20	3	1.37
	20	4	1.79
	25	3	1.49
45	30	4	2.27
	30	5	2.79
50	30	4	2.98
	30	5	4.51
60	30	5	3.40
	40	5	3.80
	40	6	4.51

## Tolerances accord. to EN 10056

	Dimension	Tolerance
a	15 - 20 mm	+/- 1.0 mm
	30 - 45 mm	+/- 1.5 mm
	50 mm	+/- 2.0 mm
	60 mm	+/- 3.0 mm
s	≤ 60 mm	+/- 0.4 mm
r	15 - 20 mm	2 mm
	30 mm	4 mm
	40 mm	4.5 mm
	45 - 60 mm	6.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Channels UNP

Dimension accord. to DIN 1026, hot rolled  
 Execution accord. to EN 10088-3: 1D



h	b	s	t	[ kg/m ]
20	10	3	3.5	0.86
30	15	3	3.5	1.37
	15	4	4.5	1.74
	33	5	7	4.27
40	20	3	3.5	1.78
	20	4	4.5	2.30
	35	5	7	4.80
50	25	3	3.5	2.28
	25	5	6	3.86
	38	5	7	5.60
60	30	5	5	4.37
	30	6	6	5.10
65	42	5.5	7.5	7.10
80	45	6	8	8.65
100	50	6	8.5	10.60
120	55	7	9	13.40
140	60	7	10	16.20

## Tolerances accord. to EN 10279 tab.1

Dimension	Tolerance
h	20 – 65 mm 80 – 140 mm
b	10 – 50 mm 55 – 60 mm
s	3 – 7.5 mm
t	3.5 – 10.0 mm > 10.0 mm

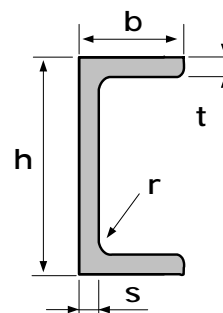
Grades 1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571

\* Plus tolerance is limited by weight per meter

Statical values										
Abr.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
UNP 50	50	38	5	7	5.60	712	26.4	10.6	9.12	3.75
UNP 65	65	42	5.5	7.5	7.10	903	57.5	17.7	14.1	5.07
UNP 80	80	45	6.0	8.0	8.65	1100	106	26.5	19.4	6.36
UNP 100	100	50	6.0	8.5	10.60	1350	206	41.2	29.3	8.49
UNP 120	120	55	7.0	9.0	13.40	1700	364	60.7	43.2	11.1
UNP 140	140	60	7.0	10.0	16.20	2040	605	86.4	62.7	14.8
UNP 160	160	65	7.5	10.5	18.80	2400	925	116	85.3	18.3

## Channels UAP

Channels with parallel flanges, hot rolled  
 Internal radius rounded (r)  
 Execution according to EN 10088-3: 1D



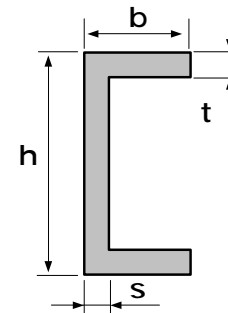
h	b	s	t	[ kg/m ]
50	25	3	3	2.30
	25	5	5	3.60
	25	6	6	4.17
60	30	5	5	4.37
80	40	5	5	5.90
	40	6	6	7.05
100	50	5	5	7.65
	50	6	6	8.90
120	60	6	6	10.90

## Tolerances accord. to EN 10279 tab. 2

	Dimension	Tolerance
h	50 – 120 mm	+/- 2.0 mm
b	25 – 60 mm	+/- 1.5 mm
s/t	3 – 6 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404	

## Channels UAP

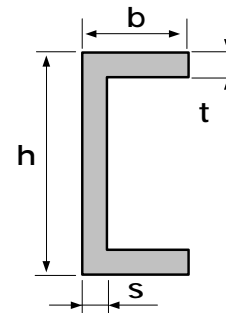
Laser Channels with parallel flanges  
 Execution according to EN 10088-3: 1D



h	b	s	t	[ kg/m ]
80	40	4	4	4.90
	40	5	5	5.90
	40	6	6	7.05
	45	6	6	7.60
	45	6.0	8.0	8.65
100	50	4	4	6.10
	50	5	5	7.65
	50	6	6	8.90
	50	6.0	8.5	10.60
120	55	7.0	9.0	13.40
	60	5	5	9.20
	60	6	6	10.90
130	55	6.0	9.5	13.70
	65	5	5	9.90
	65	6	6	11.80
140	60	7.0	10.0	16.20
	70	6	6	12.90
	70	7	7	14.90
	70	8	8	16.80
150	65	7.0	10.25	17.90
	75	6	6	13.80
	75	8	8	18.10
160	65	7.5	10.5	18.80
	80	6	6	14.80
	80	8	8	19.40
175	70	7.5	10.5	21.20
180	70	8.0	11.0	22.00
	90	6	6	16.60
	90	8	8	22.00
200	75	8.5	11.5	25.30
	100	6	6	18.70
	100	8	8	24.60
	100	10	10	30.40

## Channels UAP

Laser Channels with parallel flanges  
 Execution according to EN 10088-3: 1D



h	b	s	t	[ kg/m ]
220	80	9.0	12.5	29.40
240	85	9.5	13.0	33.20
250	85	9.0	13.5	34.40
260	90	10.0	14.0	37.90
280	95	10.0	15.0	41.80
300	100	10.0	16.0	46.20

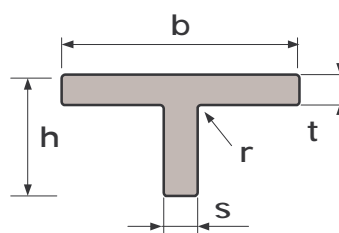
## Tolerances accord. to EN 10279 tab. 2

	Dimension	Tolerance
h	80 – 200 mm	+/- 2.0 mm
	220 – 300 mm	+/- 3.0 mm
b	25 – 75 mm	+/- 1.5 mm
	80 – 100 mm	+/- 2.0 mm
s	7 - 10 mm	+/- 0.5 mm
t	9 - 16 mm	+/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Statical values										
Abr.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
UAP 80 *	80	45	6.0	8.0	8.65	1100	106	26.5	19.4	6.36
UAP 100 *	100	50	6.0	8.5	10.60	1350	206	41.2	29.3	8.49
UAP 120 *	120	55	7.0	9.0	13.40	1700	364	60.7	43.2	11.1
UAP 130 *	130	55	6.0	9.5	13.70	1720	459	70.0	51.3	13.7
UAP 140 *	140	60	7.0	10.0	16.20	2040	605	86.4	62.7	14.8
UAP 150	150	65	7.0	10.25	17.90	2250	796	106	93.3	20.9
UAP 160 *	160	65	7.5	10.5	18.80	2400	925	116	85.3	18.3
UAP 175	175	70	7.5	10.5	21.20	2660	1270	145	126	25.9
UAP 180 *	180	70	8	11.0	22.00	2800	1340	150	114	22.4
UAP 200 *	200	75	8.5	11.5	25.30	3220	1910	191	148	27.0
UAP 220 *	220	80	9.0	12.5	29.40	3740	2690	245	197	33.6
UAP 240 *	240	85	9.5	13.0	33.20	4230	3600	300	248	39.6
UAP 250	250	85	9.0	13.5	34.40	4320	4140	330	295	48.9
UAP 260 *	260	90	10.0	14.0	37.90	4830	4820	371	317	47.7
UAP 280 *	280	95	10.0	15.0	41.80	5330	6280	448	399	57.2
UAP 300 *	300	100	10.0	16.0	46.20	5880	8030	535	495	67.8
* Sizes accord. to DIN 1026										

## Unequal T-Sections

Dimensions accord. to EN 10055  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



h	b	s = t	[ kg/m ]
20	40	4	1.79
25	50	5	2.76
30	60	5.5	3.64
35	70	6	4.66
40	60	4	3.20
	80	7	6.20
50	100	8.5	9.00
60	120	10	12.80

## Mill specific tolerances

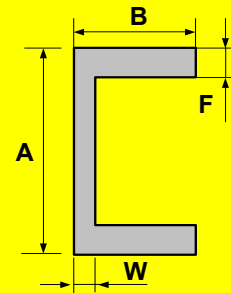
	Dimension	Tolerance
h	20 – 60 mm	+/- 0.5 mm
b	40 – 120 mm	+/- 0.5 mm
s/t	≥ 4 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Statical properties

h mm	b mm	t mm	s mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
20	40	4	4	1.79	224	0.62	0.41	2.14	1.07
25	50	5	5	2.80	350	1.50	0.79	5.23	2.09
30	60	5.5	5.5	3.40	470	2.91	1.27	9.93	3.31
35	70	6	6	4.75	600	5.11	1.90	17.2	4.42
40	60	4	4	3.20	420	5.19	1.70	7.22	2.41
	80	7	7	6.33	800	8.86	2.89	30.0	7.49
50	100	8.5	8.5	9.60	1150	21.1	5.51	71.0	14.2
60	120	10	10	12.80	1640	43.2	9.35	144.4	24.1

## C CHANNELS

20-22 Ft. R/L  
 Specs: QQS-ASTM-ASME-AMS  
 In grades 304, 304L, 316, 316L  
 Annealed and Pickled

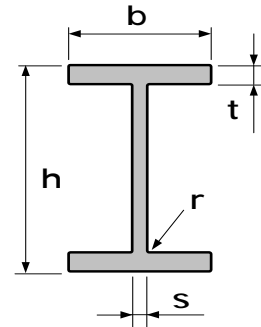


Designation (Nom. Depth)	Weight lbs/ft	Depth A	Web Thickness W	Flange Width B	Flange Thickness F
C 5	6.7	5.00	.190	1.750	.320
	9.0	5.00	.325	1.885	.320
C 6	8.2	6.00	.200	1.920	.343
	10.5	6.00	.314	2.034	.343
	13.0	6.00	.437	2.157	.343
C 7	9.8	7.00	.210	2.090	.366
	12.25	7.00	.314	2.194	.366
	14.75	7.00	.419	2.299	.366
C 8	11.5	8.00	.220	2.260	.390
	13.75	8.00	.303	2.343	.390
	18.75	8.00	.487	2.527	.390
C 9	13.4	9.00	.233	2.433	.413
	15.0	9.00	.285	2.485	.413
	20.0	9.00	.448	2.648	.413
C 10	15.3	10.0	.240	2.600	.436
	20.0	10.0	.379	2.739	.436
	25.0	10.0	.526	2.886	.436
	30.0	10.0	.673	3.033	.436
C 12	20.7	12.0	.282	2.942	.501
	25.0	12.0	.387	3.047	.501
	30.0	12.0	.510	3.170	.501
C 15	33.9	15.0	.400	3.400	.650
	40.0	15.0	.520	3.520	.650
	50.0	15.0	.716	3.716	.650

General tolerances according to ASTM A 484/A 484M

## IPE – Beams

Dimensions accord. to EN 1025  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



Abbrev.	h	b	s	t	[ kg/m ]
IPE 80	80	46	3.8	5.2	6.00
IPE 100	100	55	4.1	5.7	8.10
IPE 120	120	64	4.4	6.3	10.40
IPE 140	140	73	4.7	6.9	12.90
IPE 160	160	82	5.0	7.4	15.80
IPE 180	180	91	5.3	8.0	18.80
IPE 200	200	100	5.6	8.5	22.40
IPE 220	220	110	5.9	9.2	25.20
IPE 240	240	120	6.2	9.8	29.40
IPE 270	270	135	6.6	10.2	35.20
IPE 300	300	150	7.1	10.7	41.40
IPE 330	330	160	7.5	11.5	47.30
IPE 360	360	170	8.0	12.7	56.00
IPE 400	400	180	8.6	13.5	63.60

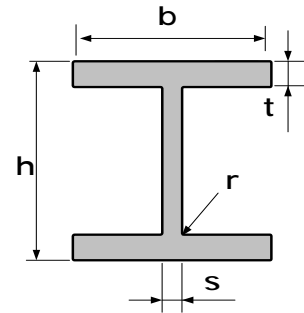
## Mill specific tolerances

	Dimension	Tolerance
h	80 – 400 mm	+/- 1.0 mm
b	46 – 180 mm	+/- 0.5 mm
s	3.8 – 8.6 mm	+ 0.4/- 0.7 mm
t	< 6.5 mm	+ 0.8/- 0.4 mm
t	≥ 6.5 mm	+ 0.5/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Statical properties										
Abbrev.	h mm	b mm	t mm	s mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
IPE 80	80	46	5.2	3.8	6.0	764	80.1	20.0	8.49	3.69
IPE 100	100	55	5.7	4.1	8.1	1030	171	34.2	15.9	5.79
IPE 120	120	64	6.3	4.4	10.4	1320	318	53.0	27.7	8.65
IPE 140	140	73	6.9	4.7	12.9	1640	541	77.3	44.9	12.3
IPE 160	160	82	7.4	5.0	15.8	2010	869	109	68.3	16.7
IPE 180	180	91	8.0	5.3	18.8	2390	1320	146	101	22.2
IPE 200	200	100	8.5	5.6	22.4	2850	1940	194	142	28.5
IPE 220	220	110	5.9	9.2	25.20	3340	2770	252	205	37.3
IPE 240	240	120	6.2	9.8	29.40	3910	3890	324	284	47.3
IPE 270	270	135	6.6	10.2	35.20	4590	5790	429	420	62.2
IPE 300	300	150	7.1	10.7	41.40	5380	8360	557	604	80.5
IPE 330	330	160	7.5	11.5	47.30	6260	11770	713	788	98.5
IPE 360	360	170	8.0	12.7	56.00	7270	16270	904	1040	123
IPE 400	400	180	8.6	13.5	63.60	8450	23130	1160	1320	146

## HEA - Beams

Dimensions accord. to EN 1025  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



HEA 100	96	100	5	8	16.7
HEA 120	114	120	5	8	19.9
HEA 140	133	140	5.5	8.5	24.7
HEA 160	152	160	6	9	30.4
HEA 180	171	180	6	9.5	35.5
HEA 200	190	200	6.5	10	42.3
HEA 220	210	220	7.0	10	48.6
HEA 240	230	240	7.5	12	58.5
HEA 260	250	260	7.5	12.5	63.6
HEA 280	270	280	8.0	13	72.9
HEA 300	290	300	8.5	13.5	80.4

## Mill specific tolerances

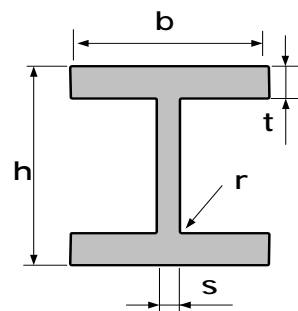
	Dimension	Tolerance
h	96 – 290 mm	+/- 1.0 mm
b	100 – 300 mm	+/- 0.5 mm
s	≤ 6.5 mm	+/- 0.5 mm
t	8 – 13.5 mm	+ 0/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Statical properties

Abbrev.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
HEA 100	96	100	5	8	16.70	2120	349	72.8	134	26.8
HEA 120	114	120	5	8	19.90	2530	606	106	231	38.5
HEA 140	133	140	5.5	8.5	24.70	3140	1030	155	389	55.6
HEA 160	152	160	6	9	30.40	3880	1670	220	616	76.9
HEA 180	171	180	6	9.5	35.50	4530	2510	294	925	103
HEA 200	190	200	6.5	10	42.30	5380	3690	389	1340	134
HEA 220	210	220	7.0	10	48.60	6430	5410	515	1950	178
HEA 240	230	240	7.5	12	58.50	7680	7760	675	2770	231
HEA 260	250	260	7.5	12.5	63.60	8680	10450	836	3670	282
HEA 280	270	280	8.0	13	72.90	9730	13670	1010	4760	340
HEA 300	290	300	8.5	13.5	80.40	11200	18260	1260	6310	421

## HEB - Beams

Dimensions accord. to EN 1025  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



Abbrev.	h	b	s	t	[ kg/m ]
HEB 100	100	100	6	10	20.4
HEB 120	120	120	6.5	11	26.7
HEB 140	140	140	7	12	33.7
HEB 160	160	160	8	13	42.6
HEB 180	180	180	8.5	14	51.2
HEB 200	200	200	9	15	61.3
HEB 220	220	220	9.5	16	71.5
HEB 240	240	240	10	17	83.2
HEB 260	260	260	10	17.5	93.0
HEB 280	280	280	10.5	18	103
HEB 300	300	300	11	19	117

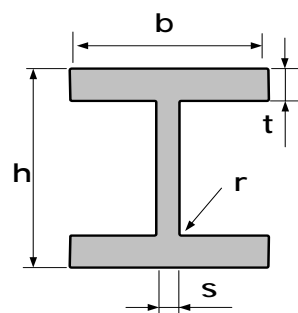
## Mill specific tolerances

	Dimension	Tolerance
h	100 – 200 mm	+/- 1.0 mm
	220 – 300 mm	+/- 1.5 mm
b	100 – 200 mm	+/- 0.5 mm
	220 – 300 mm	+/- 1.0 mm
s	< 7 mm	+/- 0.5 mm
	≥ 7 mm	+ 0/- 1.0 mm
t	≤ 10 mm	+ 0/- 1.0 mm
	> 10 mm	+ 0/- 1.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

<b>Statical properties</b>										
<b>Abbrev.</b>	<b>h</b> mm	<b>b</b> mm	<b>s</b> mm	<b>t</b> mm	<b>G</b> kg/m	<b>F</b> mm <sup>2</sup>	<b>I<sub>x</sub></b> cm <sup>4</sup>	<b>W<sub>x</sub></b> cm <sup>3</sup>	<b>I<sub>y</sub></b> cm <sup>4</sup>	<b>W<sub>y</sub></b> cm <sup>3</sup>
<b>HEB 100</b>	100	100	6	10	20.4	2600	450	89.9	167	33.5
<b>HEB 120</b>	120	120	6.5	11	26.7	3400	864	144	318	52.9
<b>HEB 140</b>	140	140	7	12	33.7	4300	1510	216	550	78.5
<b>HEB 160</b>	160	160	8	13	42.6	5430	2490	311	889	111
<b>HEB 180</b>	180	180	8.5	14	51.2	6530	3830	426	1360	151
<b>HEB 200</b>	200	200	9	15	61.3	7810	5700	570	2000	200
<b>HEB 220</b>	220	220	9.5	16	71.5	9100	8090	736	2840	258
<b>HEB 240</b>	240	240	10	17	83.2	10600	11260	938	3920	327
<b>HEB 260</b>	260	260	10	17.5	93.0	11800	14920	1150	5130	395
<b>HEB 280</b>	280	280	10.5	18	103	13100	19270	1380	6590	471
<b>HEB 300</b>	300	300	11	19	117	14900	25170	1680	8560	571

## Special Beams

Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



Abrev.	H	b	s	t	[ kg/m ]
H 80	80	80	8	8	14.3
H 100	100	100	6	8	16.6
	100	100	8	8	18.2
H 120	120	120	10	12.5	31.6
H 140	140	140	9	12	35.2
H 150	150	150	8	10	31.9
H 160	160	82	10	12	26.3
H 200	200	100	10	12	32.9
	200	200	8	12	49.0
H 240	240	120	10	12	39.8
H 250	250	250	9	14	71.1
H 300	300	150	12	15	62.1
	300	300	10	16	97.0

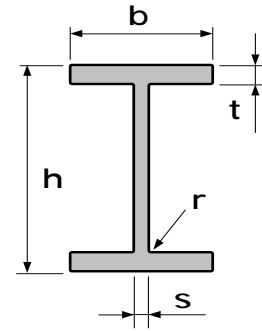
## Mill specific tolerances

	Dimension	Tolerance
h	80 – 200 mm	+/- 1.0 mm
	220 – 300 mm	+/- 1.5 mm
b	100 – 200 mm	+/- 0.5 mm
	220 – 300 mm	+/- 1.0 mm
s	7 – 10 mm	+/- 0.5 mm
t	≤ 12 mm	+/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Statical properties										
Abbrev.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
HEB 100	100	100	6	10	20.4	2600	450	89.9	167	33.5
HEB 120	120	120	6.5	11	26.7	3400	864	144	318	52.9
HEB 140	140	140	7	12	33.7	4300	1510	216	550	78.5
HEB 160	160	160	8	13	42.6	5430	2490	311	889	111
HEB 180	180	180	8.5	14	51.2	6530	3830	426	1360	151
HEB 200	200	200	9	15	61.3	7810	5700	570	2000	200
HEB 220	220	220	9.5	16	71.5	9100	8090	736	2840	258
HEB 240	240	240	10	17	83.2	10600	11260	938	3920	327
HEB 260	260	260	10	17.5	93.0	11800	14920	1150	5130	395
HEB 280	280	280	10.5	18	103	13100	19270	1380	6590	471
HEB 300	300	300	11	19	117	14900	25170	1680	8560	571

## British Universal Beams (UB)

in accordance with BS 4-1: 1993,  
 Internal radii laser welded (r)



Abbrev.	h	b	s	t	[ kg/m ]
UB 127 x 76 x 13	127	76	4	7.6	13.0
UB 152 x 89 x 16	152.4	88.7	4.5	7.7	16.0
UB 178 x 102 x 19	177.8	101.2	4.8	7.9	19.0
UB 203 x 102 x 23	203.2	101.8	5.4	9.3	23.1
UB 203 x 133 x 25	203.2	133.2	5.7	7.8	25.1
UB 203 x 133 x 30	206.8	133.9	6.4	9.6	30.0
UB 254 x 102 x 22	254	101.6	5.7	6.8	22.0
UB 254 x 102 x 25	257.2	101.9	6.0	8.4	25.2
UB 254 x 102 x 28	260.4	102.2	6.3	10	28.3
UB 254 x 146 x 31	251.4	146.1	6.0	8.6	31.1
UB 254 x 146 x 37	256	146.4	6.3	10.9	37.0
UB 254 x 146 x 43	259.6	147.3	7.2	12.7	43.0
UB 305 x 102 x 25	305.1	101.6	5.8	7.0	24.8
UB 305 x 102 x 28	308.7	101.8	6.0	8.8	28.2
UB 305 x 102 x 33	312.7	102.4	6.6	10.8	32.8
UB 305 x 127 x 37	304.1	123.3	7.1	10.7	37.0
UB 305 x 127 x 42	307.2	124.3	8.0	12.1	41.9
UB 305 x 127 x 48	311.0	125.3	9.0	14.0	48.1
UB 305 x 165 x 40	303.4	165	6	10.2	40.3
UB 305 x 165 x 46	306.6	165.7	6.7	11.8	46.1
UB 305 x 165 x 54	310.4	166.9	7.9	13.7	54.0
UB 356 x 127 x 33	349.0	125.4	6.0	8.5	33.1
UB 356 x 127 x 39	353.4	126.0	6.6	10.7	39.1
UB 356 x 171 x 45	351.4	171.1	7	9.7	45.0
UB 356 x 171 x 51	355	171.5	7.4	11.5	51.0
UB 356 x 171 x 57	358	172.2	8.1	13	57.0
UB 356 x 171 x 67	363.4	173.2	9.1	15.7	67.1
UB 406 x 140 x 39	398.0	141.8	6.4	8.6	39.0
UB 406 x 140 x 46	403.2	142.2	6.8	11.2	46.0
UB 406 x 178 x 54	402.6	177.7	7.7	10.9	54.1
UB 406 x 178 x 60	406.4	177.9	7.9	12.8	60.1

## Statical properties

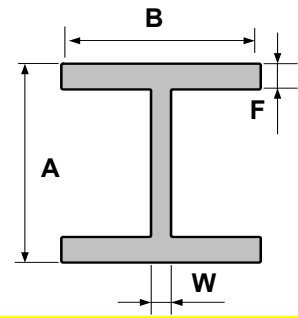
Abbrev.	G	A	Iy	Wy	Wpl,y	iy	Avz	Iz	Wz	Wpl,z	iz	Ss	IT	Iwx10-3
	kg/m	cm2	cm4	cm3	cm3	cm	cm2	cm4	cm3	cm3	cm	mm	cm4	cm6
UB 127 x 76 x 13	13.0	16.52	473	074.6	84.2	5.353	6.427	55.7	14.67	22.58	1.837	28.1	2.796	1.98
UB 152 x 89 x 16	16.0	20.32	834	109.5	123.3	6.407	8.178	89.8	20.24	31.18	2.102	28.8	3.546	4.69
UB 178 x 102 x 19	19.0	24.26	1356	152.5	171.3	7.476	9.852	136.7	27.02	41.59	2.374	29.5	4.416	9.85
UB 203 x 102 x 23	23.1	29.40	2105	207.2	234.1	8.462	12.38	163.9	32.19	49.75	2.361	32.9	7.022	15.37
UB 203 x 133 x 25	25.1	31.97	2340	230.3	257.7	8.556	12.82	307.6	46.19	70.94	3.102	30.2	6.095	29.33
UB 203 x 133 x 30	30.0	38.21	2896	280	314.4	8.705	14.58	384.7	57.45	88.22	3.173	34.5	10.43	37.34
UB 254 x 102 x 22	22.0	28.02	2841	223.7	259	10.07	15.62	119.3	23.49	37.27	2.064	28.2	4.348	18.16
UB 254 x 102 x 25	25.2	32.04	3415	265.5	305.5	10.32	16.7	148.7	29.18	46.01	2.154	31.7	6.557	22.92
UB 254 x 102 x 28	28.3	36.08	4005	307.6	352.8	10.54	17.79	178.5	34.94	54.85	2.224	35.2	9.657	27.89
UB 254 x 146 x 31	31.1	39.68	4413	351.1	393.1	10.55	16.37	447.5	61.26	94.13	3.358	32.1	8.677	65.88
UB 254 x 146 x 37	37.0	47.17	5537	432.6	483.2	10.83	17.59	570.6	77.96	119.4	3.478	37	15.37	85.61
UB 254 x 146 x 43	43.0	54.77	6544	504.1	566.3	10.93	20.2	677.4	91.97	141.1	3.517	41.5	23.97	103.1
UB 305 x 102 x 25	24.8	31.60	4455	292.1	342.0	11.87	18.850	122.9	24.20	38.81	1.972	28.7	4.977	27.18
UB 305 x 102 x 28	28.2	35.88	5366	347.6	402.9	12.23	19.827	155.4	30.53	48.45	2.081	32.5	7.511	34.79
UB 305 x 102 x 33	32.8	41.83	6501	415.8	480.8	12.47	22.063	194.1	37.91	60.04	2.154	37.1	12.29	44.04
UB 305 x 127 x 37	37.0	47.14	7150	470.2	538.4	12.32	23.416	335.4	54.40	85.27	2.667	38.9	14.95	71.94
UB 305 x 127 x 42	41.9	53.40	8196	533.6	613.5	12.39	26.442	388.8	62.55	98.41	2.698	42.6	21.42	84.32
UB 305 x 127 x 48	48.1	61.23		615.7	710.7	12.50				116.1	2.744		32.18	
UB 305 x 165 x 40	40.3	51.32	8503	560.5	623.1	12.87	20.09	764.4	92.65	141.7	3.859	36.83	14.74	164.1
UB 305 x 165 x 46	46.1	58.75		645.7	720	12.98		895.7		165.5	3.905			
UB 305 x 165 x 54	54.0	68.77	11700	753.6	846.1	13.04	26.56	1063	127.4	195.6	3.932	45.73	34.90	233.6
UB 356 x 127 x 33	33.1	42.13		472.7		13.99		280.2		70.29	2.579		8.972	80.97
UB 356 x 127 x 39	39.1	49.77	10172	575.6	658.5	14.30	25.694	357.8	56.80	89.05	2.681	40.0	15.15	104.74
UB 356 x 171 x 45	45.0	57.33				14.51		811.1		146.6	3.761			
UB 356 x 171 x 51	51.0	64.91	14140	796.4	896.0	14.76	28.66	968.3	112.92	174.2	3.862	42.35	24.00	285.2
UB 356 x 171 x 57	57.0	72.56			1010	14.87		1108	128.71		3.908			
UB 356 x 171 x 67	67.1	85.49	19460	1071	1211	15.09	35.74	1362	157.28	243	3.992	52.45	55.90	410.9
UB 406 x 140 x 39	39.0	49.65			723.7	15.87		409.8		90.85	2.873		10.99	
UB 406 x 140 x 46	46.0	58.64	15685	778.0	887.6	16.35	29.834	538.1	75.68	118.1	3.029	41.2	19.07	206.19
UB 406 x 178 x 54	54.1	68.95			1055	16.48		1021	114.94		3.848			391
UB 406 x 178 x 60	60.1	76.52	21600	1063	1199	16.8	34.6	1203	135.25	209	3.965	45.45	33.49	465.2
UB 406 x 178 x 67	67.1	85.54			1346	16.87	38.58	1365	152.68		3.995			
UB 406 x 178 x 74	74.2	94.51	27310	1323	1501	17	41.85	1545	172.20	267	4.044	53.45	63.10	607.1

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

<b>Mill specific tolerances</b>		
	<b>Dimension</b>	<b>Tolerance</b>
<b>h</b>	127 – 203 mm	+/- 1.0 mm
	254 – 406 mm	+/- 1.5 mm
<b>b</b>	76 – 178 mm	+/- 0.5 m
<b>s</b>	< 7 mm	+/- 0.5 mm
	≥ 7 mm	+ 0/- 1.0 mm
<b>t</b>	≤ 10 mm	+ 0/- 1.0 mm
	> 10 mm	+ 0/- 1.5 mm
<b>Grades</b>	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## W Beams – Wide Flange

20-22 Ft. R/L  
 Specs: QQS-ASTM-ASME-AMS  
 In grades 304, 304L, 316, 316L  
 Annealed and Pickled

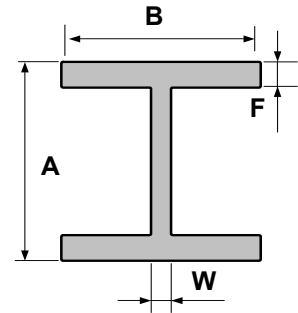


Designation (Nom. Depth)	Weight	Depth	Web Thickness	Flange Width	Flange Thickness
	lbs/ft	A	W	B	F
W 4	13.0	4.16	.280	4.060	.345
W 5	16.0	5.01	.240	5.000	.360
	18.9	5.00	.316	5.003	.416
	19.0	5.15	.270	5.030	.430
W 6	9.0	5.90	.170	3.940	.215
	12.0	6.03	.230	4.000	.280
	15.0	5.99	.230	5.990	.260
	16.0	6.28	.260	4.030	.405
	20.0	6.20	.260	6.020	.365
	25.0	6.38	.320	6.080	.455
W 8	10.0	7.89	.170	3.940	.205
	13.0	7.99	.230	4.000	.255
	15.0	8.11	.245	4.015	.315
	18.0	8.14	.230	5.250	.330
	21.0	8.28	.250	5.270	.400
	24.0	7.93	.245	6.495	.400
	28.0	8.06	.285	6.535	.465
	31.0	8.00	.285	7.995	.435
W10	35.0	8.12	.310	8.020	.495
	12.0	9.87	.190	3.960	.210
	15.0	9.99	.230	4.000	.270
	17.0	10.11	.240	4.010	.330
	19.0	10.24	.250	4.020	.395
	22.0	10.17	.240	5.750	.360
	26.0	10.33	.260	5.770	.440
	30.0	10.47	.300	5.810	.510
	33.0	9.73	.290	7.960	.435
	39.0	9.92	.315	7.985	.530
	45.0	10.10	.350	8.020	.620
	49.0	9.98	.340	10.000	.560
54.0	10.09	.370	10.030	.615	

(Continued)

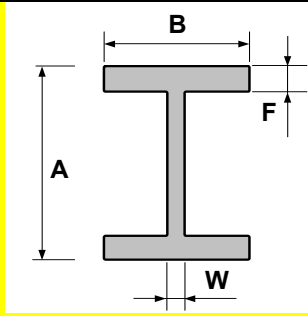
## W Beams – Wide Flange

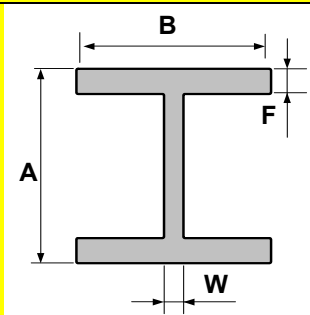
20-22 Ft. R/L  
 Specs: QQS-ASTM-ASME-AMS  
 In grades 304, 304L, 316, 316L  
 Annealed and Pickled



Designation (Nom. Depth)	Weight lbs/ft	Depth A	Web Thickness W	Flange Width B	Flange Thickness F
W 12	14.0	11.91	.200	3.970	.225
	16.0	11.99	.220	3.990	.265
	19.0	12.16	.235	4.005	.350
	22.0	12.31	.260	4.030	.425
	26.0	12.22	.230	6.490	.380
	30.0	12.34	.260	6.520	.440
	35.0	12.50	.300	6.560	.520
	40.0	11.94	.295	8.050	.515
	45.0	12.06	.335	8.045	.575
	50.0	12.19	.370	8.080	.640
	53.0	12.06	.345	9.995	.575
	58.0	12.19	.360	10.010	.640
65.0	12.12	.390	12.000	.605	
W14	22.0	13.74	.230	5.000	.335
	26.0	13.91	.255	5.025	.420
	30.0	13.84	.270	6.730	.385
	34.0	13.98	.285	6.745	.455
	38.0	14.10	.310	6.770	.515
	43.0	13.66	.305	7.995	.530
W16	48.0	13.79	.340	8.030	.595
	53.0	13.92	.370	8.060	.660
	61.0	13.89	.375	9.995	.645
	68.0	14.04	.415	10.035	.720
	74.0	14.17	.450	10.070	.785
W16	26.0	15.69	.250	5.500	.345
	31.0	15.88	.275	5.525	.440
	36.0	15.86	.295	6.985	.430
	40.0	16.01	.305	6.995	.505

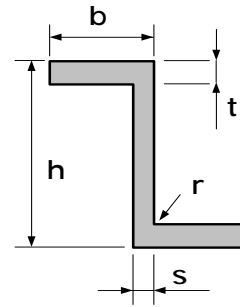
General tolerances according to ASTM A 484/A 484M

<b>S Beams</b>					
20-22 Ft. R/L Specs: QQS-ASTM-ASME-AMS In grades 304, 304L, 316, 316L Annealed and Pickled					
					
Nom. Depth	Weight	Depth	Web Thickness	Flange Width	Flange Thickness
	lbs/ft	A	W	B	F
S 3	5.7	3	.170	2.330	.260
S 4	7.7	4	.193	2.663	.293
S 5	10.0	5	.214	3.004	.326
S 6	12.5	6	.232	3.332	.359
	17.25	6	.465	3.565	.359
S 8	18.4	8	.271	4.001	.425
	23.0	8	.441	4.171	.425
S 10	25.4	10	.311	4.661	.491
	35.0	10	.594	4.944	.491
S12	31.8	12	.350	5.000	.544
	35.0	12	.428	5.078	.544
	40.8	12	.472	5.252	.659
	50.0	12	.687	5.477	.659
S15	42.9	15	.411	5.501	.622
	50.0	15	.550	5.640	.622

<b>Special H-Beams</b>				
20-22 Ft. R/L Specs: QQS-ASTM-ASME-AMS In grades 304, 304L, 316, 316L Annealed and Pickled				
				
Depth	Flange Width	Web Thickness	Flange Thickness	Weight
A	B	W	F	lbs/ft
3	2 3/8	1/4	1/4	6.20
3	2 3/8	3/8	3/8	9.00
4	2 3/4	1/4	1/4	7.70
6	4	1/4	1/4	11.6
6	6	1/4	3/8	19.9
8	4	1/4	1/4	13.3
8	4	3/8	3/8	19.6

## Z Sections

Dimensions accord. to EN 10055  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



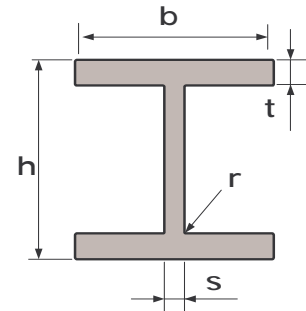
Abrev.	h	b	s	t	[ kg/m ]
Z 40	40	40	4.5	5	4.30
Z 50	50	43	5	5.5	5.30
Z 60	60	45	5	6	6.30
Z 80	80	50	6	7	8.60
Z 100	100	55	6.5	8	11.3
Z 120	120	60	7	9	14.3
Z 140	140	65	8	10	18.0
Z 160	160	70	8.5	11	21.6

## Mill specific tolerances

	Size	Tolerance
h	40 – 160 mm	+/- 1.0 mm
b	44 – 70 mm	+/- 0.5 mm
s	4.5 – 8.5 mm	+/- 0.5 mm
t	5.0 – 11.0 mm	+/- 0.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## HEA - Beams

Dimensions accord. to EN 1025  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



HEA 100	96	100	5	8	16.7
HEA 120	114	120	5	8	19.9
HEA 140	133	140	5.5	8.5	24.7
HEA 160	152	160	6	9	30.4
HEA 180	171	180	6	9.5	35.5
HEA 200	190	200	6.5	10	42.3
HEA 220	210	220	7.0	10	48.6
HEA 240	230	240	7.5	12	58.5
HEA 260	250	260	7.5	12.5	63.6
HEA 280	270	280	8.0	13	72.9
HEA 300	290	300	8.5	13.5	80.4

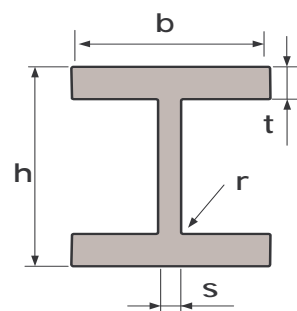
## Mill specific tolerances

	Dimension	Tolerance
h	96 – 290 mm	+/- 1.0 mm
b	100 – 300 mm	+/- 0.5 mm
s	≤ 6.5 mm	+/- 0.5 mm
t	8 – 13.5 mm	+ 0/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Statical properties										
Abbrev.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
HEA 100	96	100	5	8	16.70	2120	349	72.8	134	26.8
HEA 120	114	120	5	8	19.90	2530	606	106	231	38.5
HEA 140	133	140	5.5	8.5	24.70	3140	1030	155	389	55.6
HEA 160	152	160	6	9	30.40	3880	1670	220	616	76.9
HEA 180	171	180	6	9.5	35.50	4530	2510	294	925	103
HEA 200	190	200	6.5	10	42.30	5380	3690	389	1340	134
HEA 220	210	220	7.0	10	48.60	6430	5410	515	1950	178
HEA 240	230	240	7.5	12	58.50	7680	7760	675	2770	231
HEA 260	250	260	7.5	12.5	63.60	8680	10450	836	3670	282
HEA 280	270	280	8.0	13	72.90	9730	13670	1010	4760	340
HEA 300	290	300	8.5	13.5	80.40	11200	18260	1260	6310	421

## HEB - Beams

Dimensions accord. to EN 1025  
 Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



Abbrev.	h	b	s	t	[ kg/m ]
HEB 100	100	100	6	10	20.4
HEB 120	120	120	6.5	11	26.7
HEB 140	140	140	7	12	33.7
HEB 160	160	160	8	13	42.6
HEB 180	180	180	8.5	14	51.2
HEB 200	200	200	9	15	61.3
HEB 220	220	220	9.5	16	71.5
HEB 240	240	240	10	17	83.2
HEB 260	260	260	10	17.5	93.0
HEB 280	280	280	10.5	18	103
HEB 300	300	300	11	19	117

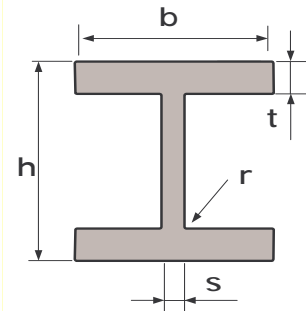
## Mill specific tolerances

	Dimension	Tolerance
h	100 – 200 mm	+/- 1.0 mm
	220 – 300 mm	+/- 1.5 mm
b	100 – 200 mm	+/- 0.5 mm
	220 – 300 mm	+/- 1.0 mm
s	< 7 mm	+/- 0.5 mm
	≥ 7 mm	+ 0/- 1.0 mm
t	≤ 10 mm	+ 0/- 1.0 mm
	> 10 mm	+ 0/- 1.5 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

Statical properties										
Abbrev.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
HEB 100	100	100	6	10	20.4	2600	450	89.9	167	33.5
HEB 120	120	120	6.5	11	26.7	3400	864	144	318	52.9
HEB 140	140	140	7	12	33.7	4300	1510	216	550	78.5
HEB 160	160	160	8	13	42.6	5430	2490	311	889	111
HEB 180	180	180	8.5	14	51.2	6530	3830	426	1360	151
HEB 200	200	200	9	15	61.3	7810	5700	570	2000	200
HEB 220	220	220	9.5	16	71.5	9100	8090	736	2840	258
HEB 240	240	240	10	17	83.2	10600	11260	938	3920	327
HEB 260	260	260	10	17.5	93.0	11800	14920	1150	5130	395
HEB 280	280	280	10.5	18	103	13100	19270	1380	6590	471
HEB 300	300	300	11	19	117	14900	25170	1680	8560	571

## Special Beams

Internal radii laser welded (r)  
 Execution accord. to EN 10088-3: 1D



Kurzz.	H	b	s	t	[ kg/m ]
H 100	100	100	6	8	16.6
H 120	120	120	10	12.5	31.6
H 125	125	125	7	9	23.7
H 140	140	140	9	12	35.2
H 150	150	150	8	10	31.9
H 200	200	200	8	12	49.0
H 250	250	250	9	14	71.1
H 300	300	300	10	16	97.0

## Mill specific tolerances

	Dimension	Tolerance
h	100 – 200 mm	+/- 1.0 mm
	220 – 300 mm	+/- 1.5 mm
b	100 – 200 mm	+/- 0.5 mm
	220 – 300 mm	+/- 1.0 mm
s	7 – 10 mm	+/- 0.5 mm
t	≤ 12 mm	+/- 1.0 mm
Grades	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

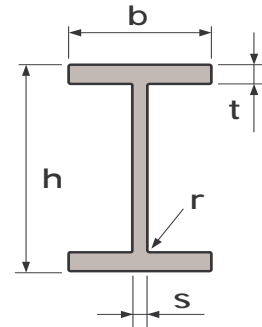
Available from: MARYLAND METRICS P.O. Box 261 Owings Mills, MD 21117 USA  
 ph: (410)358-3130 (800)638-1830 fx: (410)358-3142 (800)872-9329 web: <http://mdmetric.com>  
 Click here for a request for quotation form: <http://mdmetric.com/rfq.htm> email: [sales@mdmetric.com](mailto:sales@mdmetric.com)

Statical properties										
Abbrev.	h mm	b mm	s mm	t mm	G kg/m	F mm <sup>2</sup>	I <sub>x</sub> cm <sup>4</sup>	W <sub>x</sub> cm <sup>3</sup>	I <sub>y</sub> cm <sup>4</sup>	W <sub>y</sub> cm <sup>3</sup>
HEB 100	100	100	6	10	20.4	2600	450	89.9	167	33.5
HEB 120	120	120	6.5	11	26.7	3400	864	144	318	52.9
HEB 140	140	140	7	12	33.7	4300	1510	216	550	78.5
HEB 160	160	160	8	13	42.6	5430	2490	311	889	111
HEB 180	180	180	8.5	14	51.2	6530	3830	426	1360	151
HEB 200	200	200	9	15	61.3	7810	5700	570	2000	200
HEB 220	220	220	9.5	16	71.5	9100	8090	736	2840	258
HEB 240	240	240	10	17	83.2	10600	11260	938	3920	327
HEB 260	260	260	10	17.5	93.0	11800	14920	1150	5130	395
HEB 280	280	280	10.5	18	103	13100	19270	1380	6590	471
HEB 300	300	300	11	19	117	14900	25170	1680	8560	571

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

## British Universal Beams (UB)

in accordance with BS 4-1: 1993,  
 Internal radii laser welded (r)



Abbrev.	h	b	s	t	[ kg/m ]
UB 127 x 76 x 13	127	76	4	7.6	13.0
UB 152 x 89 x 16	152.4	88.7	4.5	7.7	16.0
UB 178 x 102 x 19	177.8	101.2	4.8	7.9	19.0
UB 203 x 102 x 23	203.2	101.8	5.4	9.3	23.1
UB 203 x 133 x 25	203.2	133.2	5.7	7.8	25.1
UB 203 x 133 x 30	206.8	133.9	6.4	9.6	30.0
UB 254 x 102 x 22	254	101.6	5.7	6.8	22.0
UB 254 x 102 x 25	257.2	101.9	6.0	8.4	25.2
UB 254 x 102 x 28	260.4	102.2	6.3	10	28.3
UB 254 x 146 x 31	251.4	146.1	6.0	8.6	31.1
UB 254 x 146 x 37	256	146.4	6.3	10.9	37.0
UB 254 x 146 x 43	259.6	147.3	7.2	12.7	43.0
UB 305 x 102 x 25	305.1	101.6	5.8	7.0	24.8
UB 305 x 102 x 28	308.7	101.8	6.0	8.8	28.2
UB 305 x 102 x 33	312.7	102.4	6.6	10.8	32.8
UB 305 x 127 x 37	304.1	123.3	7.1	10.7	37.0
UB 305 x 127 x 42	307.2	124.3	8.0	12.1	41.9
UB 305 x 127 x 48	311.0	125.3	9.0	14.0	48.1
UB 305 x 165 x 40	303.4	165	6	10.2	40.3
UB 305 x 165 x 46	306.6	165.7	6.7	11.8	46.1
UB 305 x 165 x 54	310.4	166.9	7.9	13.7	54.0
UB 356 x 127 x 33	349.0	125.4	6.0	8.5	33.1
UB 356 x 127 x 39	353.4	126.0	6.6	10.7	39.1
UB 356 x 171 x 45	351.4	171.1	7	9.7	45.0
UB 356 x 171 x 51	355	171.5	7.4	11.5	51.0
UB 356 x 171 x 57	358	172.2	8.1	13	57.0
UB 356 x 171 x 67	363.4	173.2	9.1	15.7	67.1
UB 406 x 140 x 39	398.0	141.8	6.4	8.6	39.0
UB 406 x 140 x 46	403.2	142.2	6.8	11.2	46.0
UB 406 x 178 x 54	402.6	177.7	7.7	10.9	54.1
UB 406 x 178 x 60	406.4	177.9	7.9	12.8	60.1

## Statical properties

Abbrev.	G	A	Iy	Wy	Wpl,y	iy	Avz	Iz	Wz	Wpl,z	iz	Ss	IT	Iwx10-3
	kg/m	cm2	cm4	cm3	cm3	cm	cm2	cm4	cm3	cm3	cm	mm	cm4	cm6
UB 127 x 76 x 13	13.0	16.52	473	074.6	84.2	5.353	6.427	55.7	14.67	22.58	1.837	28.1	2.796	1.98
UB 152 x 89 x 16	16.0	20.32	834	109.5	123.3	6.407	8.178	89.8	20.24	31.18	2.102	28.8	3.546	4.69
UB 178 x 102 x 19	19.0	24.26	1356	152.5	171.3	7.476	9.852	136.7	27.02	41.59	2.374	29.5	4.416	9.85
UB 203 x 102 x 23	23.1	29.40	2105	207.2	234.1	8.462	12.38	163.9	32.19	49.75	2.361	32.9	7.022	15.37
UB 203 x 133 x 25	25.1	31.97	2340	230.3	257.7	8.556	12.82	307.6	46.19	70.94	3.102	30.2	6.095	29.33
UB 203 x 133 x 30	30.0	38.21	2896	280	314.4	8.705	14.58	384.7	57.45	88.22	3.173	34.5	10.43	37.34
UB 254 x 102 x 22	22.0	28.02	2841	223.7	259	10.07	15.62	119.3	23.49	37.27	2.064	28.2	4.348	18.16
UB 254 x 102 x 25	25.2	32.04	3415	265.5	305.5	10.32	16.7	148.7	29.18	46.01	2.154	31.7	6.557	22.92
UB 254 x 102 x 28	28.3	36.08	4005	307.6	352.8	10.54	17.79	178.5	34.94	54.85	2.224	35.2	9.657	27.89
UB 254 x 146 x 31	31.1	39.68	4413	351.1	393.1	10.55	16.37	447.5	61.26	94.13	3.358	32.1	8.677	65.88
UB 254 x 146 x 37	37.0	47.17	5537	432.6	483.2	10.83	17.59	570.6	77.96	119.4	3.478	37	15.37	85.61
UB 254 x 146 x 43	43.0	54.77	6544	504.1	566.3	10.93	20.2	677.4	91.97	141.1	3.517	41.5	23.97	103.1
UB 305 x 102 x 25	24.8	31.60	4455	292.1	342.0	11.87	18.850	122.9	24.20	38.81	1.972	28.7	4.977	27.18
UB 305 x 102 x 28	28.2	35.88	5366	347.6	402.9	12.23	19.827	155.4	30.53	48.45	2.081	32.5	7.511	34.79
UB 305 x 102 x 33	32.8	41.83	6501	415.8	480.8	12.47	22.063	194.1	37.91	60.04	2.154	37.1	12.29	44.04
UB 305 x 127 x 37	37.0	47.14	7150	470.2	538.4	12.32	23.416	335.4	54.40	85.27	2.667	38.9	14.95	71.94
UB 305 x 127 x 42	41.9	53.40	8196	533.6	613.5	12.39	26.442	388.8	62.55	98.41	2.698	42.6	21.42	84.32
UB 305 x 127 x 48	48.1	61.23	9575	615.7	710.7	12.50	29.902	461.0	73.59	116.1	2.744	47.4	32.18	101.22
UB 305 x 165 x 40	40.3	51.32	8503	560.5	623.1	12.87	20.09	764.4	92.65	141.7	3.859	36.83	14.74	164.1
UB 305 x 165 x 46	46.1	58.75	9899	645.7	720	12.98	22.53	895.7	108.1	165.5	3.905	40.73	22.20	194.4
UB 305 x 165 x 54	54.0	68.77	11700	753.6	846.1	13.04	26.56	1063	127.4	195.6	3.932	45.73	34.90	233.6
UB 356 x 127 x 33	33.1	42.13	8249	472.7	542.9	13.99	23.057	280.2	44.69	70.29	2.579	35.0	8.972	80.97
UB 356 x 127 x 39	39.1	49.77	10172	575.6	658.5	14.30	25.694	357.8	56.80	89.05	2.681	40.0	15.15	104.74
UB 356 x 171 x 45	45.0	57.33	12070	686.7	774.6	14.51	26.79	811.1	94.81	146.6	3.761	38.35	16.16	236.4
UB 356 x 171 x 51	51.0	64.91	14140	796.4	896.0	14.76	28.66	968.3	112.92	174.2	3.862	42.35	24.00	285.2
UB 356 x 171 x 57	57.0	72.56	16040	896	1010	14.87	31.49	1108	128.71	198.8	3.908	46.05	33.59	329.2
UB 356 x 171 x 67	67.1	85.49	19460	1071	1211	15.09	35.74	1362	157.28	243	3.992	52.45	55.90	410.9
UB 406 x 140 x 39	39.0	49.65	12508	628.6	723.7	15.87	27.569	409.8	57.80	90.85	2.873	35.6	10.99	154.92
UB 406 x 140 x 46	46.0	58.64	15685	778.0	887.6	16.35	29.834	538.1	75.68	118.1	3.029	41.2	19.07	206.19
UB 406 x 178 x 54	54.1	68.95	18720	930	1055	16.48	33.28	1021	114.94	178.3	3.848	41.45	23.50	391
UB 406 x 178 x 60	60.1	76.52	21600	1063	1199	16.8	34.6	1203	135.25	209	3.965	45.45	33.49	465.2
UB 406 x 178 x 67	67.1	85.54	24330	1189	1346	16.87	38.58	1365	152.68	236.6	3.995	49.35	46.40	531.7
UB 406 x 178 x 74	74.2	94.51	27310	1323	1501	17	41.85	1545	172.20	267	4.044	53.45	63.10	607.1

Note: many of these products are not normally stocked in the USA, so please allow sufficient lead time for delivery.

Mill specific tolerances		
	Dimension	Tolerance
<b>h</b>	127 – 203 mm	+/- 1.0 mm
	254 – 406 mm	+/- 1.5 mm
<b>b</b>	76 – 178 mm	+/- 0.5 m
<b>s</b>	< 7 mm	+/- 0.5 mm
	≥ 7 mm	+ 0/- 1.0 mm
<b>t</b>	≤ 10 mm	+ 0/- 1.0 mm
	> 10 mm	+ 0/- 1.5 mm
<b>Grades</b>	1.4301 / 1.4307 / 1.4401 / 1.4404 / 1.4571	

## Technical Data Chart

### ISO tolerances for shafts

example: 20h9 = 20.00/19.948

millimeters / mm																				
over	3	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355
including	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400
tolerance in microns / micrometres																				
<b>h9</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-30	-36	-43	-52	-62	-74	-87	-100	-115	-130	-140									
<b>h11</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-75	-90	-110	-130	-160	-190	-220	-250	-290	-320	-360									

Werkstoff number	AISI Nearest Fit	European Steel Designation
1.4301	304	X5CrNi18-10
1.4305	303	X8CrNiS18-9
1.4307	304L	X2CrNi18-9
1.4401	316	X5CrNiMo17-12-2
1.4404	316L	X2CrNiMo17-12-2
1.4571	316Ti	X6CrNiMoTi17-12-2
1.4828	309	X15CrNiSi20-12
1.4841	314	X15CrNiSi25-21