Technical Information System 6 & 5

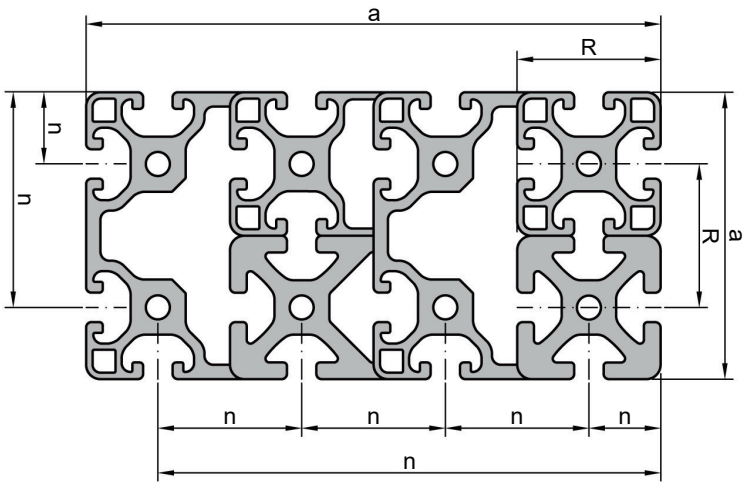
Mechanical Data

(Values in direction of press.)

- **EN AW – 6063:** Material number pursuant to DIN EN 573
- **Rm:** 245 N/mm² (minimum tensile strength)
- **Rp 0.2:** 195 N/mm² (yield strength)
- **A5:** 10% (elongation at break)
- **A10:** 8% (elongation at break)
- **E:** Approx. 70,000 N/mm² (modulus of elasticity)
- **HB:** Approx. 75 (Brinell hardness)
- **a:** 23.4 × 10-6 1/K (coefficient of linear expansion)
- **Tolerances:** DIN EN 12020-2
- **Eloxal:** E6EV1
- **Coating thickness:** 10–15 µm
- **RAL colours powder coating (on request)**

Manufacturing Tolerances

Tolerances Of External Dimensions and T-Slot Positions



	6	5
Spacing R	R: 30 mm	R: 20 mm

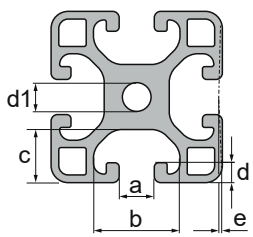
Width H (mm) over	to	Tolerances of external dimension H or rather t-slot position N ± (mm)
0	10	0.10
10	20	0.15
20	40	0.20
40	60	0.30
60	80	0.40
80	100	0.45
100	120	0.50
120	160	0.60
160	240	0.80

T-Slot Dimension Tolerances

The profiles possess a standardised t-slot shape. This guarantees that all fasteners and accessories can be utilised with the different profile series and sizes.

Center Holes

The center hole bore of the profiles can be opened up according to the table.

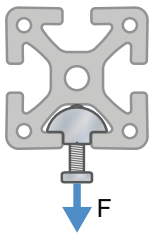


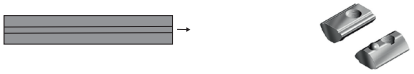
	6	5
a	6.2 +0.3/-0	5.0 +0.3/-0
b	16.3 +0.3/-0	11.5 +0.3/-0
c	9.75 +0.2/-0	6.35 ±0.15
d	3.0 +0/-0.25	1.8 ±0.15
e	0.15 ±0.1	0.15 ±0.1
d1	5.0 +0.2/-0 1	4.3 ±0.1

Load capacity of profile slot

Tensile stress

Static stress limit of slot (when deformation sets in) if connectors with largest thread are used:

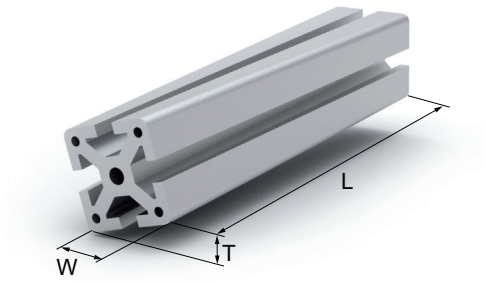




Nut	Profile	Pivoting slot nut
5	I5 2020	1,000 N
6	I6 3030	3,500 N
6	I6 3030L	1,000 N

Note: The above stress limits have been determined on samples subjected to pull-out tests.
Safety factors have not been taken into account.
Separately consider statutory regulations and the relevant codes of practice.

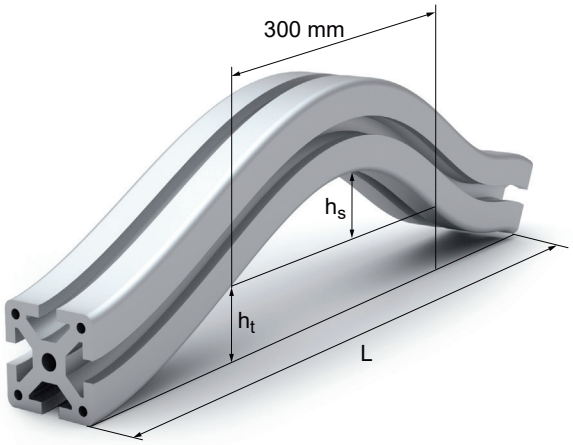
Torsion



Width W (mm)		Torsion tolerance T (mm) for nominal length L (mm)					
over	to	till 1000	till 2000	till 3000	till 4000	till 5000	till 6000
–	25	1.0	1.5	1.5	2.0	2.0	2.0
25	50	1.0	1.2	1.5	1.8	2.0	2.0
50	75	1.0	1.2	1.2	1.5	2.0	2.0
75	100	1.0	1.2	1.5	2.0	2.2	2.5
100	125	1.0	1.5	1.8	2.2	2.5	3.0
125	150	1.2	1.5	1.8	2.2	2.5	3.0
150	200	1.5	1.8	2.2	2.6	3.0	3.5
200	300	1.8	2.5	3.0	3.5	4.0	4.5

Straightness Tolerance

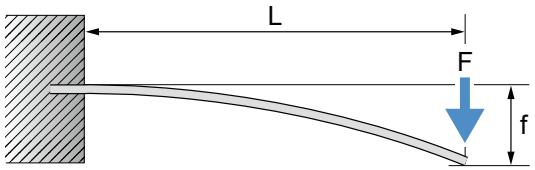
Longitudinal



Length L (mm)	Straightness tolerance ht for nominal length L (mm)
till 1000	0.7
till 2000	1.3
till 3000	1.8
till 5000	2.2
till 5000	2.6
till 6000	3.0

The straightness tolerance ht is in relation to a corresponding length L and will not exceed the stated value in the table. The straightness tolerance hs will not exceed 0.3 mm per 300 mm in length.

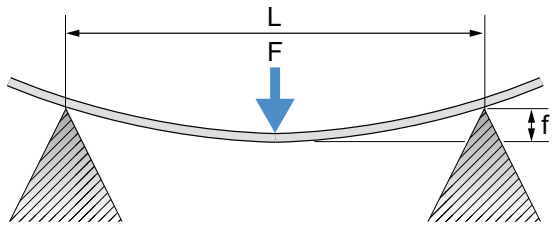
Bending/Calculation



$$f = \frac{F \times L^3}{3E \times I \times 10^4}$$ Profile bending caused by force F

$$f = \frac{m \times g \times L^4}{8E \times I \times 10^4}$$ Profile bending caused by the profile's own weight

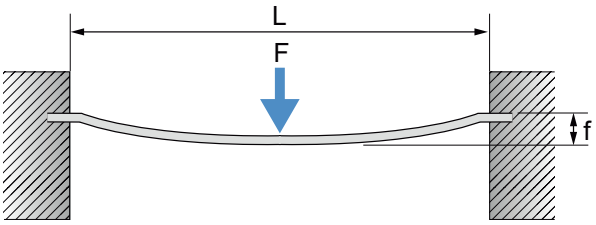
$$\delta = \frac{(m \times g \times L + F) \times L}{W \times 10^3}$$ Control of bending stress



$$f = \frac{F \times L^3}{48 \times E \times I \times 10^4}$$ Profile bending caused by force F

$$f = \frac{5 \times m \times g \times L^4}{384E \times I \times 10^4}$$ Profile bending caused by the profile's own weight

$$\delta = \frac{(m \times g \times L + F) \times L}{4W \times 10^3}$$ Control of bending stress



$$f = \frac{F \times L^3}{192E \times I \times 10^4}$$ Profile bending caused by force F

$$f = \frac{m \times g \times L4}{384E \times I \times 10^4}$$ Profile bending caused by the profile's own weight

$$\delta = \frac{(m \times g \times L + F) \times L}{8W \times 10^3}$$ Control of bending stress

f = bending (mm)
F = force (N)
L = profile length (mm)
E = modulus of elasticity (70,000 N/mm^2)
g = fall velocity (9.81 m/s^2)
m = mass (kg/mm)
I = moment of inertia (cm^4)
W = section modulus (cm^3)