

**PRODUCT
CARD**

BP2.EU

**TRAPEZOIDAL
STEEL SHEET**

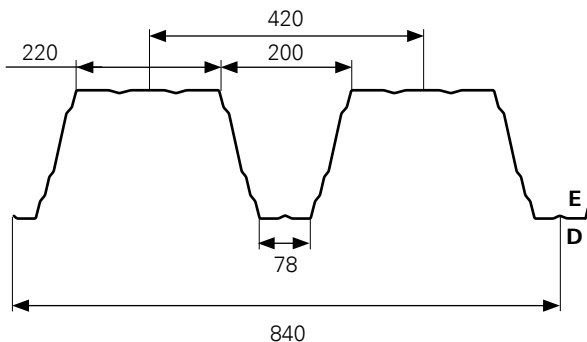
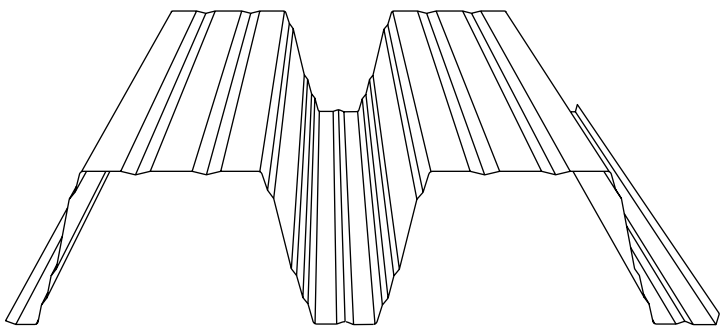
T200

Trapezoidal sheets are widely used in the construction industry due to their high versatility. They are an excellent facade cladding and roof covering material for buildings: from the smallest (garages and sheds) to large production buildings and commercial facilities. Our offer includes a wide range of products, from economical solutions to tall construction profiles with parameters enabling their use in the most demanding industrial applications.



T200

Technical parameters [in mm]	
Effective width	840
Total width	~883
Height of profile	200
Thickness of steel sheet	0,75-1,50
Max. length of sheet	14 000



The assumption and a comment on the steel sheet resistance tables

Load-bearing capacity tables have been prepared for trapezoidal sheets manufactured by "BLACHPROFIL 2" used as single-span beams and continuous beams: two-span and three-span beams, as well as for overlapping sheets - as two- and three-span beams (tables for overlapping arrangements can be obtained by contacting the BLACHPROFIL 2 project sales department). Alternative supports (positive or negative) were taken into account.

The results were obtained on the basis of static-strength analysis of steel sheets treated as thin-walled elements according to the algorithm of Professor R. J. Garncarek from the Białystok University of Technology, according to PN-EN 1993-1-3: August 2008, as amended. The calculations were performed using the software developed by "KOTEX" (www.kotex.waw.pl).

In the calculations, the following assumptions were made in accordance with PN-EN 1993-1-3:

- elastic material with yield strength f_{yb} according to Table 3.1b;
- material safety factor $\gamma_m = 1.0$.

The tables summarize the design loads for limit state I (ULS), expressing the permissible load bearing capacity and the characteristic loads for limit state II (SLS), corresponding to the permissible deflections. The permissible loads in the SLS are specified for deflections $L/150$, $L/200$, and $L/300$. The loads are expressed in kN/m^2 .

The ranges of parameters for the analyzed metal sheets are stated below:

Type of metal sheet: T200
Steel: S320 GD, S350 GD,

Sheet thicknesses: 0.70 mm, 0.75 mm, 0.80 mm, 0.88 mm, 1.00 mm, 1.15 mm, 1.25 mm, 1.50 mm

The width of the intermediate support [b]: 60 mm, 80 mm, 120 mm, 160 mm, 300 mm

The span of the spans [m]: $L_{min} = 4.00$ m, $L_{max} = 14$ m

General recommendations

The tables indicate the extreme support widths (60 mm) recommended by the manufacturer while in the calculation, the extreme support width was assumed to be $a=10$ mm in accordance with a PN-EN standard. The tables for the regular, two- and three-span arrangements were prepared for intermediate support widths of $b=60$ mm, 100 mm, 140 mm, and 300 mm.

The design loads should be compared with the values in the tables - row 1, for a span not less than the value assumed in the design of the structure.

In the case of two- and three-span sheets, the table corresponding to the width of the intermediate support b not larger than the width assumed in the design of the structure should be chosen.

Linear interpolation can be used for both the intermediate support width b and the L span.

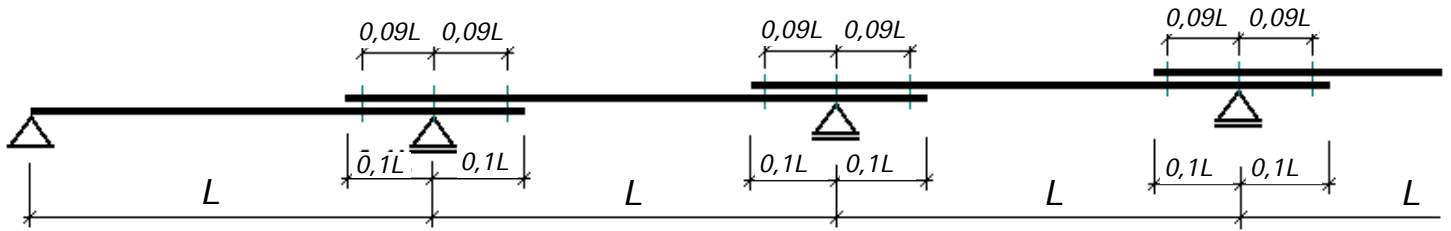
These tables may be used if the following conditions are met:

- the load acting on the assumed static systems is a uniformly distributed continuous load;
- the span lengths in multi-span arrangements do not differ by more than 5%, but to determine ULS and SLS, the largest length of the span is assumed;
- the trapezoidal sheet fixing method is in accordance with the manufacturer's instructions.

In other individual cases, it is recommended to consult a representative of our company.

Recommendations for overlapping arrangements

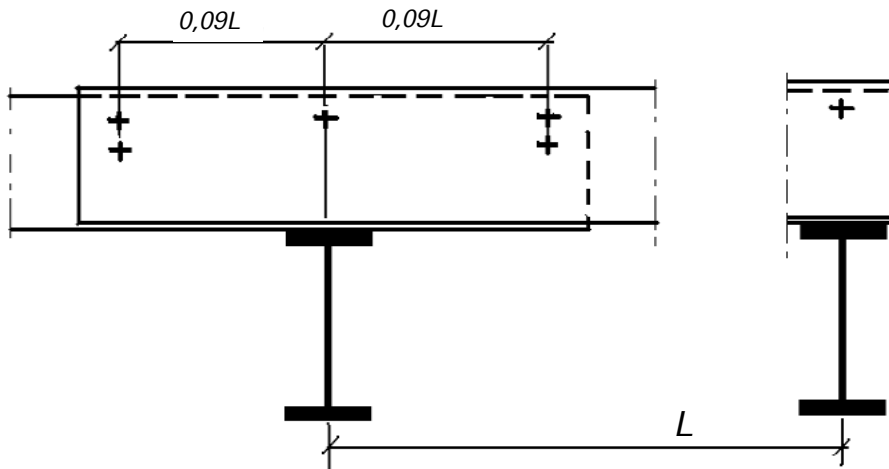
The tables have been prepared assuming overlaps equal to 0.1 of the span, as shown in Figure*:



For overlap arrangements, the intermediate support must meet the condition of ≥ 60 mm.

The connectors should be placed above the support axes and on both sides of the support at a distance equal to 0.09 of the span:

The minimum distance between the center of gravity of the connectors and the support



Sheet weight (kg/m²)

THICKNESS	WEIGHT
0,70	9,81
0,75	10,51
0,80	11,21
0,88	12,34
1,00	14,02
1,15	16,12
1,25	17,52
1,50	21,03

* Tables for overlapped layouts are available on request.

T200 2020		Negative		support: 60 - 69		support: 70 - 79		support: 80 - 89		support: 90 - 99		support: 100 - 109		support: 110 - 119		support: 120 - 129		support: 130 - 139		support: 140 - 149		
Number of spans:	Thickness (µm)	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	Case	Support	
0.70	SGU L150	1.73	1.62	1.83	1.45	1.38	1.31	1.25	1.20	1.16	1.10	1.06	1.02	0.99	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.77
650.08	SGU L200	1.73	1.62	1.83	1.45	1.38	1.31	1.25	1.20	1.16	1.10	1.06	1.02	0.99	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.77
676.10	SGU L200	1.73	1.62	1.83	1.45	1.38	1.31	1.25	1.20	1.16	1.10	1.06	1.02	0.99	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.77
0.75	SGU L150	1.97	1.85	1.75	1.66	1.57	1.50	1.43	1.37	1.31	1.26	1.21	1.16	1.12	1.08	1.05	1.01	0.98	0.95	0.93	0.90	0.87
705.47	SGU L200	1.97	1.85	1.75	1.66	1.57	1.50	1.43	1.37	1.31	1.26	1.21	1.16	1.12	1.08	1.05	1.01	0.98	0.95	0.93	0.90	0.87
726.55	SGU L200	1.97	1.85	1.75	1.66	1.57	1.50	1.43	1.37	1.31	1.26	1.21	1.16	1.12	1.08	1.05	1.01	0.98	0.95	0.93	0.90	0.87
0.80	SGU L150	2.22	2.09	1.97	1.87	1.78	1.69	1.62	1.55	1.48	1.42	1.37	1.32	1.27	1.23	1.18	1.15	1.11	1.08	1.05	1.02	0.99
758.20	SGU L200	2.22	2.09	1.97	1.87	1.78	1.69	1.62	1.55	1.48	1.42	1.37	1.32	1.27	1.23	1.18	1.15	1.11	1.08	1.05	1.02	0.99
776.83	SGU L200	2.22	2.09	1.97	1.87	1.78	1.69	1.62	1.55	1.48	1.42	1.37	1.32	1.27	1.23	1.18	1.15	1.11	1.08	1.05	1.02	0.99
0.88	SGU L150	2.66	2.50	2.36	2.24	2.13	2.03	1.93	1.85	1.77	1.70	1.64	1.58	1.52	1.47	1.42	1.37	1.33	1.29	1.25	1.22	1.18
856.92	SGU L200	2.66	2.50	2.36	2.24	2.13	2.03	1.93	1.85	1.77	1.70	1.64	1.58	1.52	1.47	1.42	1.37	1.33	1.29	1.25	1.22	1.18
873.39	SGU L200	2.66	2.50	2.36	2.24	2.13	2.03	1.93	1.85	1.77	1.70	1.64	1.58	1.52	1.47	1.42	1.37	1.33	1.29	1.25	1.22	1.18
1.00	SGU L150	3.39	3.19	3.01	2.85	2.71	2.58	2.46	2.36	2.26	2.17	2.08	2.01	1.94	1.87	1.81	1.75	1.69	1.64	1.59	1.54	1.51
957.37	SGU L200	3.39	3.19	3.01	2.85	2.71	2.58	2.46	2.36	2.26	2.17	2.08	2.01	1.94	1.87	1.81	1.75	1.69	1.64	1.59	1.54	1.51
976.14	SGU L200	3.39	3.19	3.01	2.85	2.71	2.58	2.46	2.36	2.26	2.17	2.08	2.01	1.94	1.87	1.81	1.75	1.69	1.64	1.59	1.54	1.51
1.25	SGU L150	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18	3.06	2.95	2.85	2.76	2.67	2.59	2.51	2.43	2.36	2.30
1207.55	SGU L200	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18	3.06	2.95	2.85	2.76	2.67	2.59	2.51	2.43	2.36	2.30
1223.25	SGU L200	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18	3.06	2.95	2.85	2.76	2.67	2.59	2.51	2.43	2.36	2.30
1.50	SGU L150	7.32	6.89	6.50	6.16	5.85	5.58	5.32	5.09	4.88	4.68	4.50	4.34	4.18	4.04	3.91	3.77	3.60	3.45	3.31	3.18	3.06
1457.26	SGU L200	7.32	6.89	6.50	6.16	5.85	5.58	5.32	5.09	4.88	4.68	4.50	4.34	4.18	4.04	3.91	3.77	3.60	3.45	3.31	3.18	3.06
1469.58	SGU L200	7.32	6.89	6.50	6.16	5.85	5.58	5.32	5.09	4.88	4.68	4.50	4.34	4.18	4.04	3.91	3.77	3.60	3.45	3.31	3.18	3.06
	SGU L300	8.31	8.81	6.50	6.16	5.85	5.40	4.71	4.13	3.68	3.22	2.86	2.55	2.29	2.06	1.87	1.69	1.54	1.40	1.28	1.18	1.10

TR200 2020		Negative		support: 60 - 60																																								
Number of spans: 1		Case		support: 60 - 60																																								
Thickness (A [cm])	Case	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00	9.25	9.50	9.75	10.00	10.25	10.50	10.75	11.00	11.25	11.50	11.75	12.00	12.25	12.50	12.75	13.00	13.25	13.50	13.75	14.00		
0.70	650.06	SGN	1.73	1.62	1.53	1.45	1.38	1.31	1.25	1.20	1.15	1.10	1.06	1.02	0.99	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.77	0.75	0.73	0.71	0.69	0.67	0.66	0.64	0.63	0.61	0.60	0.58	0.56	0.55	0.54	0.53	0.52	0.51	0.50	0.49		
	676.10	SGU L200	1.73	1.62	1.53	1.45	1.38	1.31	1.25	1.20	1.15	1.10	1.06	1.02	0.99	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.77	0.75	0.73	0.71	0.69	0.67	0.66	0.64	0.63	0.61	0.60	0.58	0.56	0.55	0.54	0.53	0.52	0.51	0.50	0.49		
0.75	705.47	SGU L150	1.97	1.85	1.76	1.67	1.58	1.50	1.43	1.37	1.31	1.26	1.21	1.16	1.12	1.08	1.05	1.01	0.98	0.95	0.93	0.90	0.87	0.85	0.83	0.81	0.79	0.77	0.75	0.73	0.71	0.70	0.68	0.67	0.66	0.64	0.63	0.62	0.60	0.59	0.57	0.56	0.55	
	726.55	SGU L200	1.97	1.85	1.76	1.67	1.58	1.50	1.43	1.37	1.31	1.26	1.21	1.16	1.12	1.08	1.05	1.01	0.98	0.95	0.93	0.90	0.87	0.85	0.83	0.81	0.79	0.77	0.75	0.73	0.71	0.70	0.68	0.67	0.66	0.64	0.63	0.62	0.60	0.59	0.57	0.56	0.55	
0.80	758.20	SGU L150	2.22	2.09	1.97	1.87	1.78	1.69	1.62	1.55	1.48	1.42	1.37	1.32	1.27	1.23	1.18	1.15	1.11	1.08	1.05	1.02	0.99	0.96	0.94	0.91	0.89	0.87	0.85	0.83	0.81	0.80	0.78	0.77	0.76	0.74	0.73	0.71	0.70	0.68	0.67	0.66	0.65	0.63
	776.83	SGU L200	2.22	2.09	1.97	1.87	1.78	1.69	1.62	1.55	1.48	1.42	1.37	1.32	1.27	1.23	1.18	1.15	1.11	1.08	1.05	1.02	0.99	0.96	0.94	0.91	0.89	0.87	0.85	0.83	0.81	0.80	0.78	0.77	0.76	0.74	0.73	0.71	0.70	0.68	0.67	0.66	0.65	0.63
0.88	837.39	SGU L150	2.66	2.50	2.36	2.24	2.13	2.03	1.93	1.85	1.77	1.70	1.64	1.58	1.52	1.47	1.40	1.37	1.33	1.29	1.25	1.22	1.18	1.15	1.12	1.09	1.06	1.04	1.01	0.99	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.82	0.80	0.79	0.77	0.76	0.75
	856.92	SGU L200	2.66	2.50	2.36	2.24	2.13	2.03	1.93	1.85	1.77	1.70	1.64	1.58	1.52	1.47	1.40	1.37	1.33	1.29	1.25	1.22	1.18	1.15	1.12	1.09	1.06	1.04	1.01	0.99	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.82	0.80	0.79	0.77	0.76	0.75
1.00	957.37	SGU L150	3.39	3.19	3.01	2.85	2.71	2.58	2.46	2.36	2.26	2.17	2.08	2.01	1.94	1.87	1.81	1.75	1.69	1.64	1.59	1.55	1.46	1.43	1.38	1.35	1.32	1.29	1.26	1.23	1.20	1.18	1.15	1.13	1.11	1.08	1.06	1.04	1.02	1.00	0.99	0.97	0.96	
	976.14	SGU L200	3.39	3.19	3.01	2.85	2.71	2.58	2.46	2.36	2.26	2.17	2.08	2.01	1.94	1.87	1.81	1.75	1.69	1.64	1.59	1.55	1.46	1.43	1.38	1.35	1.32	1.29	1.26	1.23	1.20	1.18	1.15	1.13	1.11	1.08	1.06	1.04	1.02	1.00	0.99	0.97	0.96	
1.25	1223.25	SGU L150	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18	3.06	2.95	2.85	2.76	2.67	2.59	2.51	2.42	2.36	2.30	2.24	2.18	2.12	2.07	2.02	1.97	1.92	1.88	1.84	1.80	1.76	1.72	1.69	1.65	1.62	1.58	1.55	1.52	1.48	1.46		
	1277.55	SGU L200	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18	3.06	2.95	2.85	2.76	2.67	2.59	2.51	2.42	2.36	2.30	2.24	2.18	2.12	2.07	2.02	1.97	1.92	1.88	1.84	1.80	1.76	1.72	1.69	1.65	1.62	1.58	1.55	1.52	1.48	1.46		
1.50	1457.26	SGN	7.32	6.89	6.50	6.16	5.85	5.58	5.32	5.09	4.88	4.68	4.50	4.34	4.18	4.04	3.91	3.77	3.67	3.58	3.50	3.42	3.35	3.28	3.21	3.14	3.07	3.01	2.95	2.90	2.85	2.80	2.75	2.70	2.65	2.60	2.55	2.50	2.45	2.40	2.35	2.30		
	1469.58	SGU L200	7.32	6.89	6.50	6.16	5.85	5.58	5.32	5.09	4.88	4.68	4.50	4.34	4.18	4.04	3.91	3.77	3.67	3.58	3.50	3.42	3.35	3.28	3.21	3.14	3.07	3.01	2.95	2.90	2.85	2.80	2.75	2.70	2.65	2.60	2.55	2.50	2.45	2.40	2.35	2.30		

Table with columns for TR200, Negative, Number of spans, Thickness, Case, and various numerical values. Includes sub-sections for 1 span, 2 spans, and 3 spans.

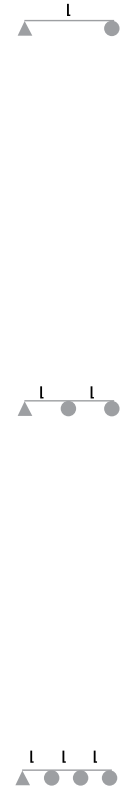


Table with columns for TR200 2020, Thickness (mm), Number of spans (1, 2, 3), support (60-60, 80-160, 160-80), Case, SGN, and SGU (L150, L200, L300). It contains a dense grid of numerical data for various thicknesses and span configurations.

