



Product card -
**Trapezoidal metal
sheets T135-930**

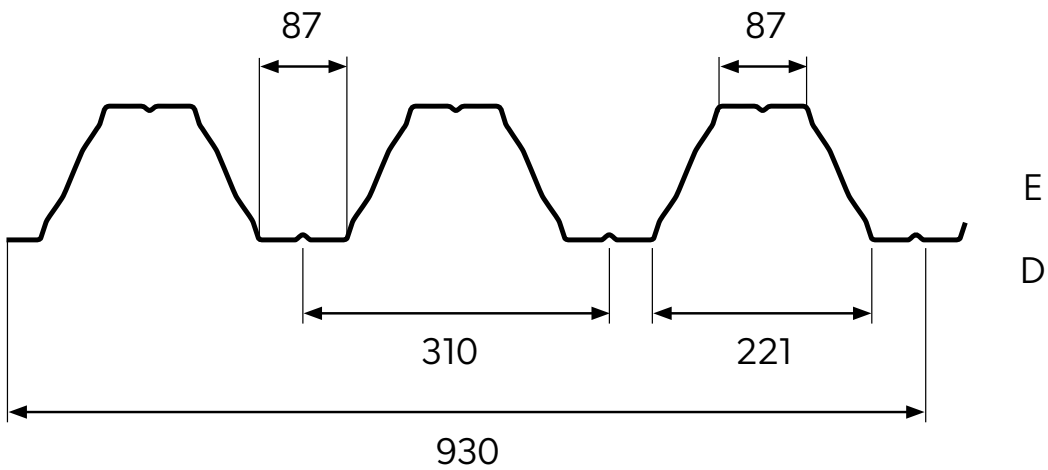
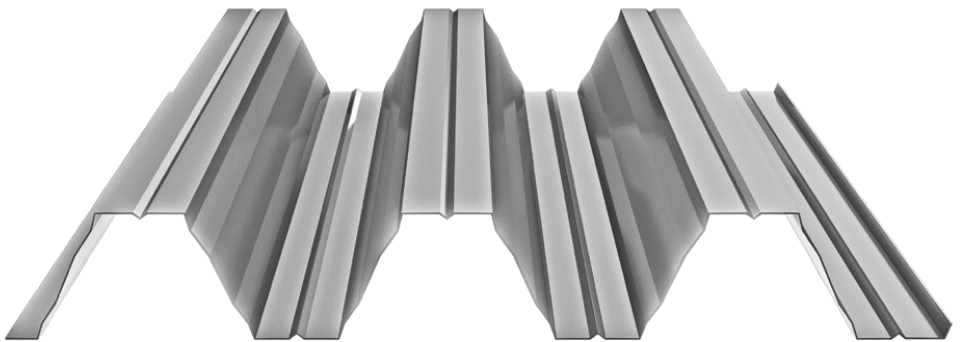
T135-930

STEEL SERVICE CENTRE



Technical parameters

Technical parameters [in mm]	
Effective width	930
Total width	~974
Height of profile	135
Thickness of steel sheet	0,7-1,5
Max. length of sheet	14 000



Installation guide and commentary on load-bearing capacity tables

Load-bearing capacity tables were elaborated for trapezoid metal sheets of the company VSS working as single-span beams and continuous beams: two-span and three-span and also for metal sheets laid at overlap – as two-span and three-span beams (available only on request – for further details contact the VSS Sales Department). A variant base on supports was taken into account (the positive or the negative).

The results were obtained based on static-strength analysis of metal sheets treated as thin-walled elements according to the algorithm of Assoc. Eng. R.J. Garncarek, Professor at the Bialystok University of Technology, in accordance with PNEN 1993-1-3: August 2008 along with further changes. Programs by the company KOTEX were used for the calculations [www.kotex.waw.pl].

According to EN 1993-1-3 in the calculations assumed:

- resilient material with a yield point f_{yb} according to the table 3.1b.,,
- material safety factor $\gamma_m = 1,0$.

In the tables, computational loads for I limit state (SGN) were presented, expressing the allowable loadbearing capacity and loads characteristic for II limit state (SGU) corresponding to the allowable deflections.

The allowable loads in SGU state were specified for deflections $L/150$, $L/200$ and $L/300$. Loads are expres'ed in kN/m^2 .

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

Type of metal sheet: T135-930
Steel: S320 GD

Metal sheet thicknesses: 0.70 mm, 0.75 mm, 0.80 mm, 0.88 mm, 1.00 mm, 1.10 mm, 1.25 mm, 1.50 mm

Intermediate support widths [b]: 80 mm, 100 mm, 140 mm, 300 mm

Spans of bays [m]: $L_{min} = 2.00$ m, $L_{max} = 8.50$ m

General recommendations

The widths of the end support according to the manufacturer (60 mm) have been given in the following load-bearing capacity tables, yet for the purpose of calculations, the widths of the end support $a=10$ mm have been assumed in accordance with PN-EN. Tables for two- and three-span systems have been prepared for the following widths of the intermediate support $b=80$ mm, 100 mm, 140 mm and 300 mm.

Presented computational loads should be compared with the values from the tables – line No. 1, for a span not less than that assumed in the structure design. In case of two-span and three-span metal sheet, a table should be chosen which corresponds to the width of the intermediate support b not greater than the width assumed in the structure design. Linear interpolation can be used both for the intermediate support width b and for the spans of bays L .

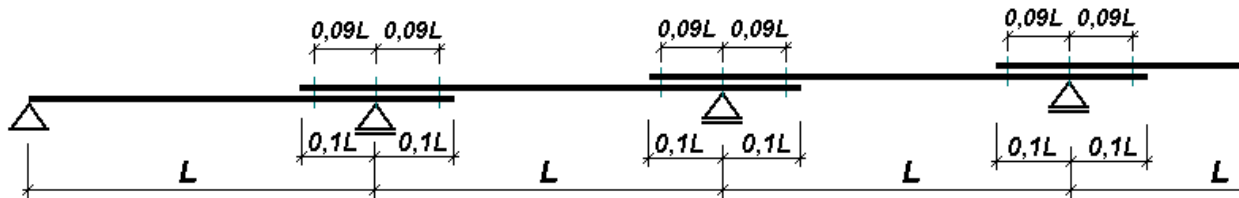
These tables can be used complying with the following conditions:

- The load which has an effect on the adopted static systems is constant and evenly distributed,
- The lengths of spans in the multi-span systems differ by no more than 5%, but to determine the SGN and SGU the greatest length of a span is adopted.
- The method of the attachment of trapezoidal metal sheets is consistent with the manufacturer's instructions.

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

Recommendations for overlap systems

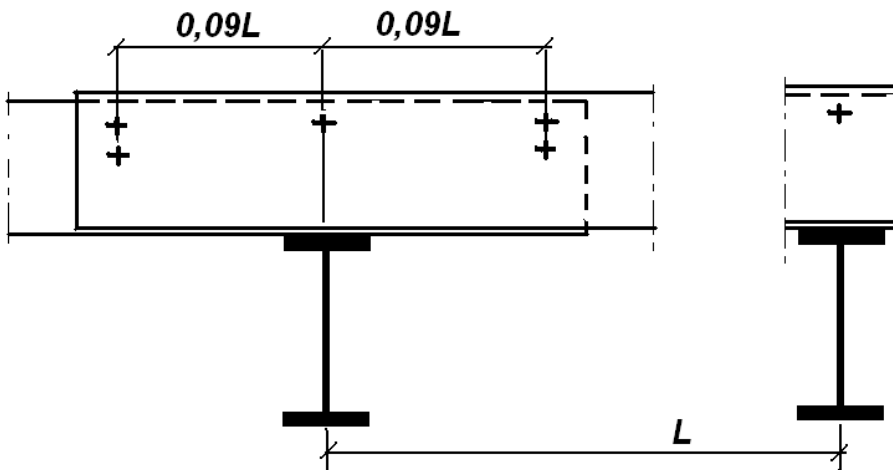
The tables have been drawn up for the installation of overlap metal sheets corresponding to 0.1 of the span of the bay, as shown in the picture*:



For overlap metal sheets, the intermediate support must meet the following condition ≥ 60 mm.

The fasteners shall be placed over the axes of supports (beams) and on both sides of the support within the distance of 0.09 of the span:

The minimum distance of the fastener center of gravity from support



Weight of metal sheets (kg/m²)

Thickness of steel sheet [mm]	Weight [kg]
0,70	8,87
0,75	9,51
0,80	10,14
0,88	11,16
1,00	12,68
1,10	13,95
1,20	15,47
1,25	15,85
1,50	19,02

* Tables for overlap metal sheets are available upon request

T135-930



T133		The positive / The negative																											
Number of spans:		1 support 60 - 60																											
Thickness	j_x [cm/d]	Case	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	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
0.70	min/max	SGN	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.33	2.20	2.09	1.99	1.88	1.74	1.67	1.61	1.55	1.49	1.40	1.31	1.23	1.15	1.08	1.02	0.96
	250.41	SGU (L/150)	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.33	2.20	2.09	1.99	1.88	1.62	1.42	1.26	1.12	1.00	0.90	0.81	0.73	0.66	0.60	0.55	0.50
	269.29	SGU (L/200)	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.33	2.15	1.84	1.59	1.39	1.21	1.07	0.94	0.84	0.75	0.67	0.60	0.55	0.50	0.45	0.41	0.38
0.75	min/max	SGN	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.40	2.00	1.69	1.43	1.23	1.06	0.92	0.81	0.73	0.63	0.56	0.50	0.45	0.40	0.36	0.33	0.30	0.27	0.25
	270.95	SGU (L/150)	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.55	2.42	2.27	1.98	1.73	1.52	1.35	1.20	1.07	0.96	0.86	0.78	0.71	0.64	0.59	0.54
	292.62	SGU (L/200)	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.30	1.98	1.71	1.48	1.30	1.14	1.01	0.90	0.80	0.72	0.65	0.59	0.53	0.48	0.44	0.40
0.80	min/max	SGN	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.12	2.57	2.14	1.81	1.54	1.32	1.14	0.98	0.87	0.76	0.67	0.60	0.54	0.48	0.43	0.39	0.35	0.32	0.29	0.27
	294.37	SGU (L/150)	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	3.08	2.92	2.77	2.43	2.11	1.85	1.63	1.44	1.28	1.14	1.02	0.92	0.83	0.75	0.69	0.63	0.57
	315.54	SGU (L/200)	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	2.98	2.64	2.11	1.82	1.58	1.39	1.22	1.08	0.96	0.86	0.77	0.69	0.62	0.57	0.51	0.47	0.43
0.88	min/max	SGN	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.63	2.74	2.29	1.99	1.66	1.41	1.22	1.06	0.92	0.81	0.72	0.64	0.57	0.51	0.46	0.42	0.38	0.34	0.31	0.29
	329.14	SGU (L/150)	8.43	7.50	6.75	6.13	5.62	5.19	4.82	4.50	4.22	3.97	3.75	3.55	3.37	3.21	3.07	2.93	2.81	2.66	2.48	2.28	2.12	1.98	1.85	1.73	1.62	1.53	1.44
	349.27	SGU (L/200)	8.43	7.50	6.75	6.13	5.62	5.19	4.82	4.50	4.22	3.97	3.78	2.70	2.32	2.00	1.74	1.52	1.34	1.19	1.05	0.94	0.84	0.76	0.69	0.62	0.57	0.52	0.47
1.00	min/max	SGN	8.43	7.50	6.75	6.13	5.62	5.19	4.50	3.66	3.02	2.52	2.12	1.80	1.54	1.33	1.16	1.02	0.89	0.79	0.70	0.63	0.56	0.51	0.46	0.41	0.38	0.34	0.31
	378.89	SGU (L/150)	10.95	9.74	8.76	7.97	7.30	6.74	6.26	5.84	5.48	5.15	4.82	4.61	4.38	4.17	3.98	3.80	3.49	3.22	2.98	2.76	2.57	2.39					

S320 GD



S320 GD

Number of spans:	The positive / The negative																													
	1	support 60 - 60																												
Thickness	Jx [cm/d]	Case	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	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	
0.70	min/max	SGN	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.30	2.20	2.09	1.99	1.86	1.62	1.42	1.26	1.12	1.00	0.90	0.81	0.73	0.66	0.60	0.55	0.50	
	250.41	SGU (L/200)	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.33	2.15	1.84	1.59	1.31	1.21	1.07	0.94	0.84	0.75	0.67	0.60	0.55	0.50	0.45	0.41	0.38	
	269.29	SGU (L/200)	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.30	2.15	1.84	1.59	1.31	1.21	1.07	0.94	0.84	0.75	0.67	0.60	0.55	0.50	0.45	0.41	0.38	
		SGU (L/300)	5.23	4.65	4.19	3.80	3.49	3.22	2.99	2.79	2.62	2.46	2.30	2.15	1.84	1.59	1.31	1.21	1.07	0.94	0.84	0.75	0.67	0.60	0.55	0.50	0.45	0.41	0.38	
		SGN	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.55	2.42	2.30	2.10	2.02	1.94	1.86	1.79	1.68	1.56	1.46	1.38	1.27	1.21	1.12	1.04	
0.75	270.95	SGU (L/150)	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.55	2.42	2.27	1.98	1.73	1.52	1.35	1.20	1.07	0.96	0.86	0.78	0.71	0.64	0.59	0.54	
	292.62	SGU (L/200)	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.50	2.30	1.98	1.71	1.48	1.30	1.14	1.01	0.90	0.80	0.72	0.65	0.59	0.53	0.48	0.44	0.40
		SGN	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.50	2.30	1.98	1.71	1.48	1.30	1.14	1.01	0.90	0.80	0.72	0.65	0.59	0.53	0.48	0.44	0.40
		SGU (L/300)	6.05	5.38	4.84	4.40	4.03	3.72	3.46	3.23	3.03	2.85	2.69	2.50	2.30	1.98	1.71	1.48	1.30	1.14	1.01	0.90	0.80	0.72	0.65	0.59	0.53	0.48	0.44	0.40
		SGN	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	3.08	2.92	2.75	2.58	2.43	2.29	2.17	2.05	1.93	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.12	1.04
0.80	294.37	SGU (L/150)	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	3.08	2.92	2.75	2.58	2.43	2.29	2.17	2.05	1.93	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.12	1.04
	315.54	SGU (L/200)	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	3.08	2.92	2.75	2.58	2.43	2.29	2.17	2.05	1.93	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.12	1.04
		SGU (L/300)	6.92	6.15	5.54	5.04	4.62	4.26	3.96	3.69	3.46	3.26	3.08	2.92	2.75	2.58	2.43	2.29	2.17	2.05	1.93	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.12	1.04
		SGN	8.43	7.50	6.75	6.13	5.62	5.19	4.82	4.50	4.22	3.97	3.75	3.55	3.37	3.21	3.03	2.93	2.81	2.66	2.46	2.26	2.12	1.98						

S320 GD

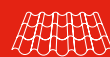




Modular roofing tiles
MODULAR SERIES



Compact roofing tiles
COMPACT SERIES



Steel roofing tiles
CLASSIC SERIES



Retro roof tiles
RETRO SERIES



Roof panels
PANEL SERIES



INTEGRATED
PV PANELS



Steel roof gutter system
INGURI



TRAPEZOIDAL
SHEETS



STRUCTURAL
PROFILES



FLAT METAL
SHEETS



FLASHINGS



ACCESORIES



Roof Sandwich
PANELS



Wall Sandwich
PANELS



Facade cladding
SKRIN, LINEA



Uncoiling and slitting
SERVICES



Flat sheets and cutting
SERVICES



PERFORATION
of sheets