TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague
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Notified Body 1020
Branch 0600 – Brno

REPORT

on the assessment of performance:

load bearing capacity of ceiling substructure profiles and suspension components

In compliance with Regulation (EU) 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), Art. 1.4 of the Annex V (system 3)

No. 1020-CPR-060045520

Trade name:

Suspended ceiling components, EN 13964:2014

Type / variant:

STANDART T-24 profile, PREMIUM T-24 profile, PREMIUM T-15 profile, Suspension component 500

Manufacturer:

"YU-MET" Co.Ltd.

INo:	6151012866
Address:	Rostov region, Novoshakhtinsk, Molodogvardeytsev 54 346909, Russian Federation
Plant:	**"YU-MET" Co.Ltd.**
Address:	Rostov region, Novoshakhtinsk, Molodogvardeytsev 54 346909, Russian Federation
Order:	Z060170039

Number of pages including title page: 19

This Report is only a part of the complete report on the assessment of performance.

The person responsible for the content of this report:

Ing. Pavel Juránek, Ph.D.
Chief Assessor

The person responsible for the correctness of this report:

Ing. Miroslav Procházka
Deputy Manager of Notified Body 1020

Brno, August 31, 2017

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Bank connection: KB Praha 1 Czech Republic, No. of account: 1501-931/0100, INo: 00015679, VAT: CZ00015679

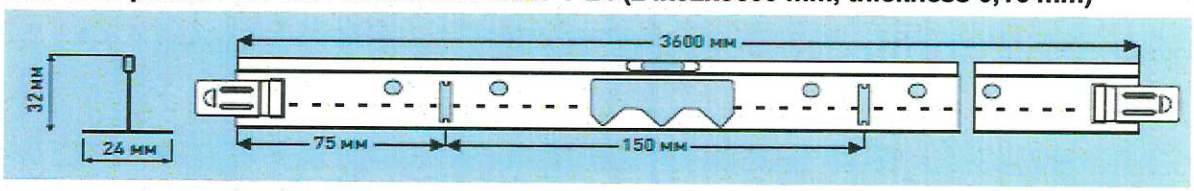
1 Specification of tested subject

Specification: suspended ceilings – load bearing profiles suspensions components

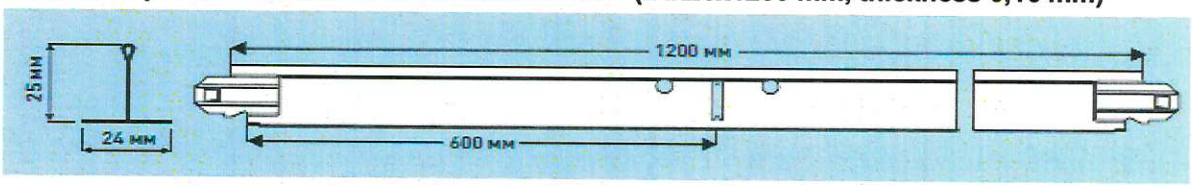
Material: galvanized steel

Thickness, cross section, technical data:

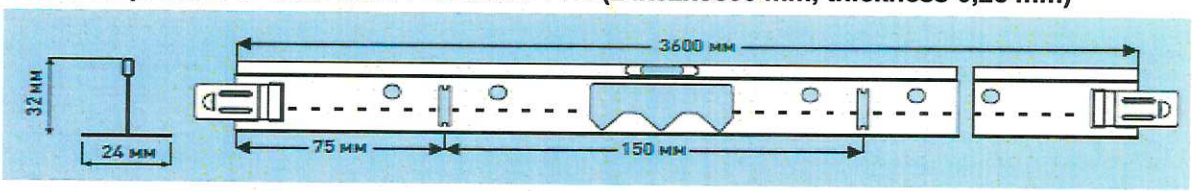
Main steel profile PO24x32-3.6m STANDART T-24 (24x32x3600 mm, thickness 0,16 mm)



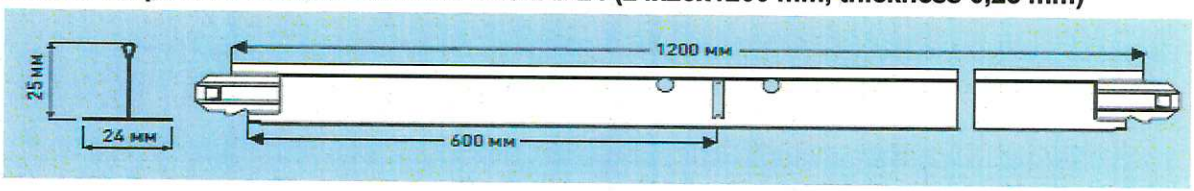
Cross steel profile PP24x25-1.2m STANDART T-24 (24x25x1200 mm, thickness 0,16 mm)



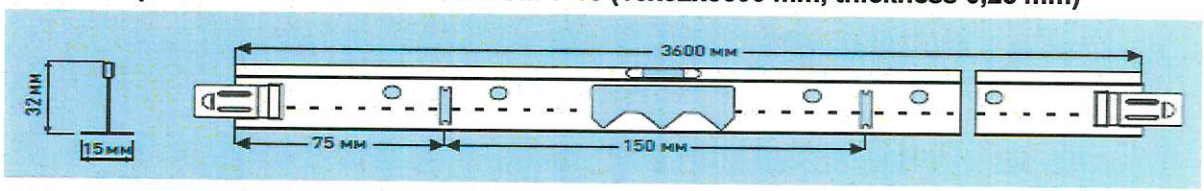
Main steel profile PO24x32-3.6m PREMIUM T-24 (24x32x3600 mm, thickness 0,25 mm)



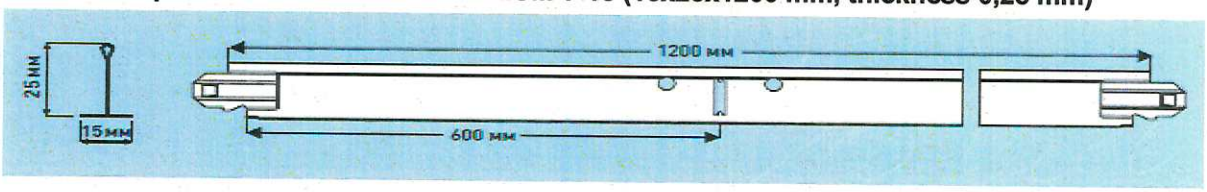
Cross steel profile PP24x25-1.2m PREMIUM T-24 (24x25x1200 mm, thickness 0,25 mm)



Main steel profile PO15x32-3.6m PREMIUM T-15 (15x32x3600 mm, thickness 0,25 mm)



Cross steel profile PP15x25-1.2m PREMIUM T-15 (15x25x1200 mm, thickness 0,25 mm)



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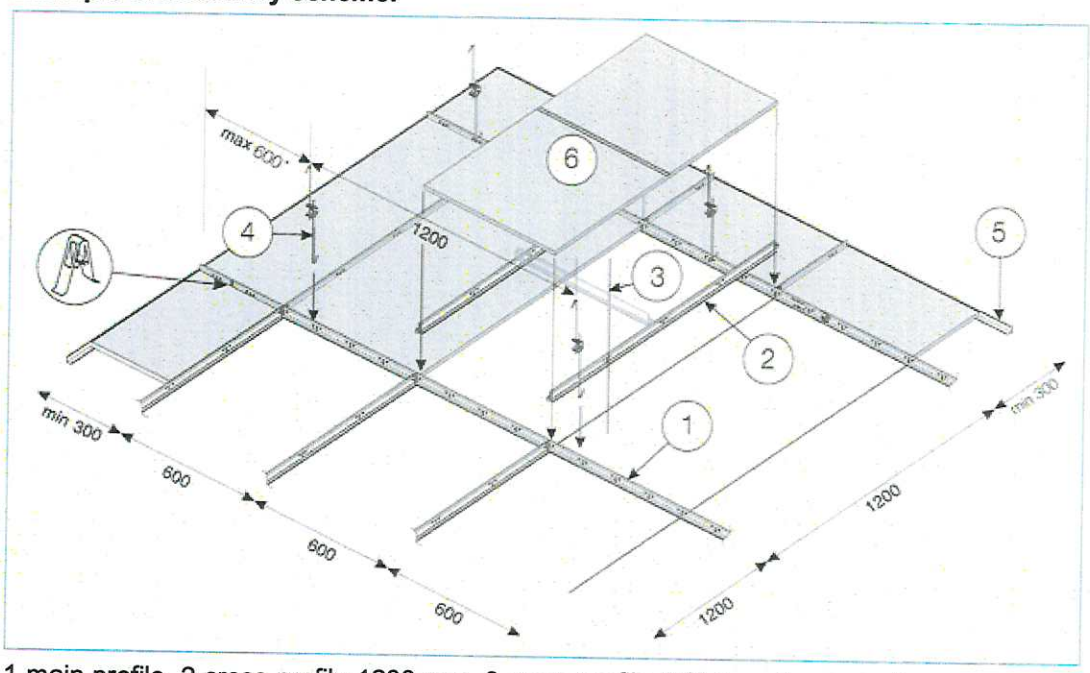
Example of assembly scheme:



1 main profile, 2 cross profile 1200 mm, 3 cross profile 600 mm, 4 suspension component 500, 5 wall edge profile, 6 mineral fiber board

Manufacturer:	"YU-MET" Co.Ltd.
Plant:	"YU-MET" Co.Ltd.
Characterization:	Suspended ceiling components – load bearing profiles and suspension components
Type:	**STANDART T-24 profile, PREMIUM T-24 profile, PREMIUM T-15 profile, Suspension component 500**
Technical specification:	EN 13964:2014 Suspended ceilings – Requirements and test methods
Date of test completion:	2.8.2017 – 9.8.2017
Ambient conditions:	temperature 22 – 26 °, relative air humidity: 52 – 74%

2 Sampling

Date of sampling:	5.6.2017
Place of sampling:	manufacturer's store
Sampling by:	applicant
Sample registration number:	VZ060170428/1-98

3 Assessment of performance on the basis of testing

3.1. Load bearing capacity of ceiling substructure profiles

Sample registration number:	VZ060170428/1-78
Test was carried out by:	Tomáš Kalivoda

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Determination according to test method: EN 13964:2014 Suspended ceilings – Requirements and test methods, cl. 5.2 Bending test of metal substructure profiles

Test equipment and its metrological assurance:

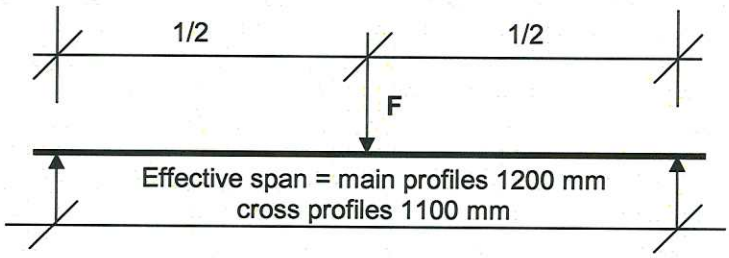
- Test machine Tiratest — metrological number 3.07.1253
- Measure tape 0-5000 mm — metrological number 4.01.1140

Metrological attaching of gauges and testing instruments which have been used is supported in Metrological rules of ATL. All used gauges have been checked and calibrated during testing.

Test process data:

Tests were performed in accordance with the EN mentioned above.

The specimens were checked carefully. There were not found any imperfections that could affect test results. The static scheme of three-point bending test is shown on figure below (dimensions in mm).



Loading was carried out continuously. The constant rate of loading of each specimen 1 N/s

The mid span deflection was monitored during the test progress.

3.1.1 Test results – Main steel profile PO24x32-3.6m STANDART T-24 (24x32x3600 mm, thickness 0,16 mm)

sample registration number	Main steel profile PO24x32-3.6m STANDART T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/11	90,4	33,4	22,3
VZ060170428/12	99,3	30,4	18,2
VZ060170428/13	99,8	30,3	18,3

sample registration number	Main steel profile PO24x32-3.6m STANDART T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/1	58,4	31,2	18,8
VZ060170428/2	57,1	29,1	15,5
VZ060170428/3	59,9	31,7	17,4
VZ060170428/4	60,6	29,2	16,8
VZ060170428/5	57,6	28,2	15,9
VZ060170428/6	60,2	28,0	13,1
VZ060170428/7	59,7	25,3	14,6
VZ060170428/8	60,5	29,1	15,1
VZ060170428/9	59,7	27,5	15,4
VZ060170428/10	57,7	29,4	15,3

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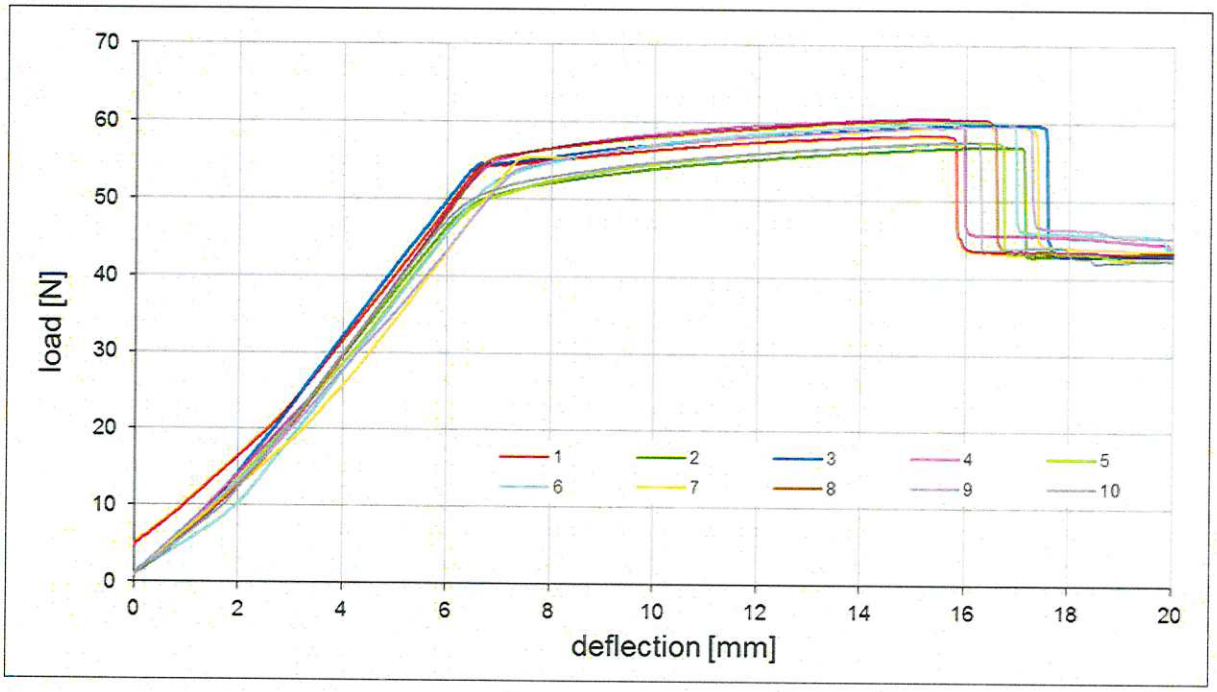

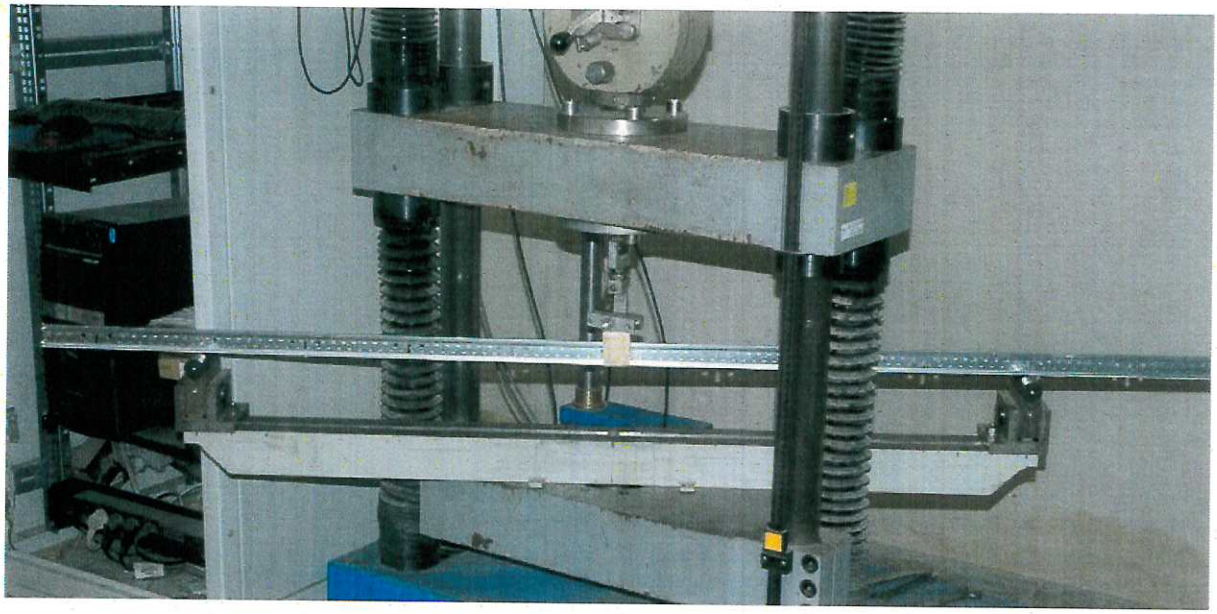

Main steel profile PO24x32-3.6m STANDART T-24			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	59,1	28,9	15,8
EI [N.mm²]	not determined	**259,8 x 10^6**	**236,9 x 10^6**
adm M_f [N.m]	not determined	**8,7**	**4,7**
adm M_u [N.m]	**6,7**	not determined	not determined

Note: yellow tinge cells show final admissible values

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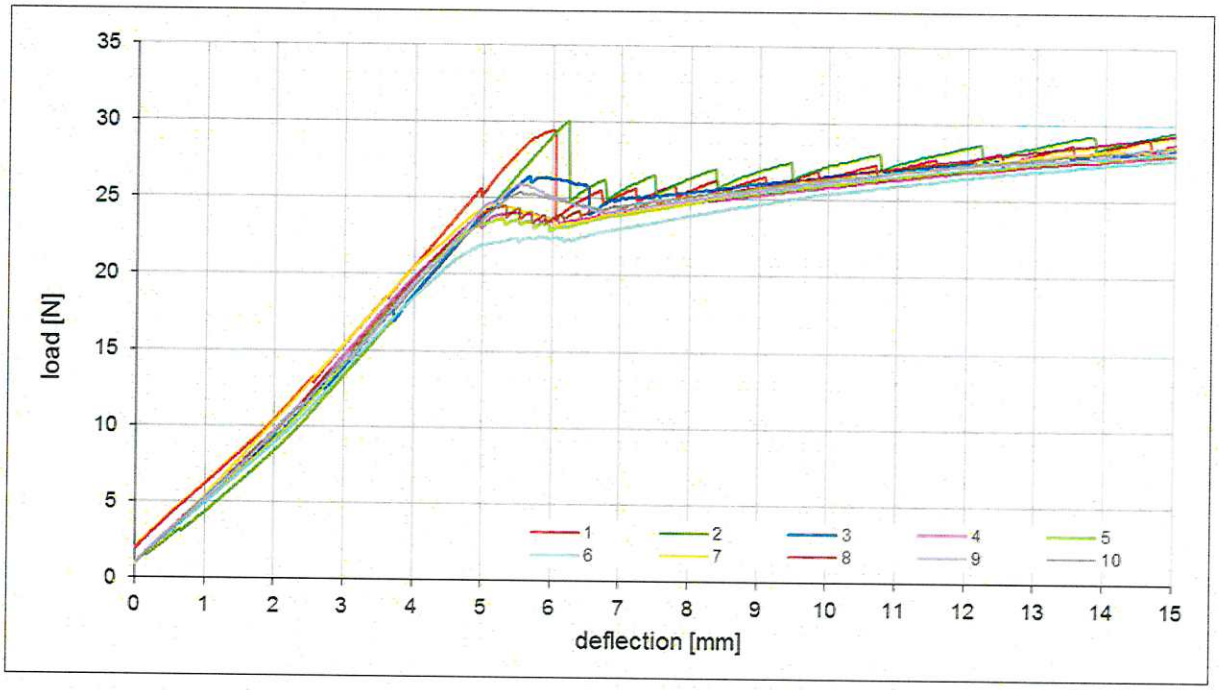
3.1.2 Test results – Cross steel profile PP24x25-1.2m STANDART T-24 (24x25x1200 mm, thickness 0,16 mm)

sample registration number	Cross steel profile PP24x25-1.2m STANDART T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/24	66,8	12,8	7,4
VZ060170428/25	67,4	15,5	9,2
VZ060170428/26	66,5	15,3	9,2

sample registration number	Cross steel profile PP24x25-1.2м STANDART T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/14	29,4	16,7	10,3
VZ060170428/15	30,1	14,7	8,2
VZ060170428/16	26,5	15,2	9,2
VZ060170428/17	26,0	16,0	9,4
VZ060170428/18	26,2	15,4	8,9
VZ060170428/19	25,8	14,9	8,7
VZ060170428/20	26,2	16,7	10,1
VZ060170428/21	26,5	15,7	9,5
VZ060170428/22	26,2	15,3	9,5
VZ060170428/23	26,3	15,4	9,3



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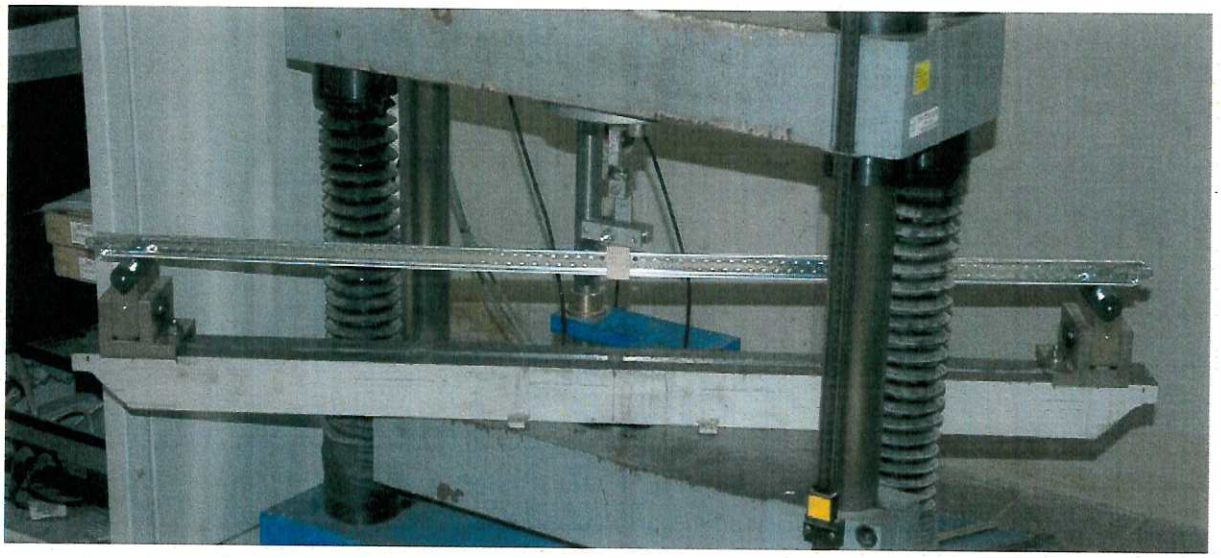

Cross steel profile PP24x25-1.2m STANDART T-24			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	26,9	15,6	9,3
EI [N.mm^2]	not determined	**97,5 x 10^6**	**97,0 x 10^6**
adm M_f [N.m]	not determined	**3,9**	**2,3**
adm M_u [N.m]	**2,3**	not determined	not determined

Note: yellow tinge cells show final admissible values

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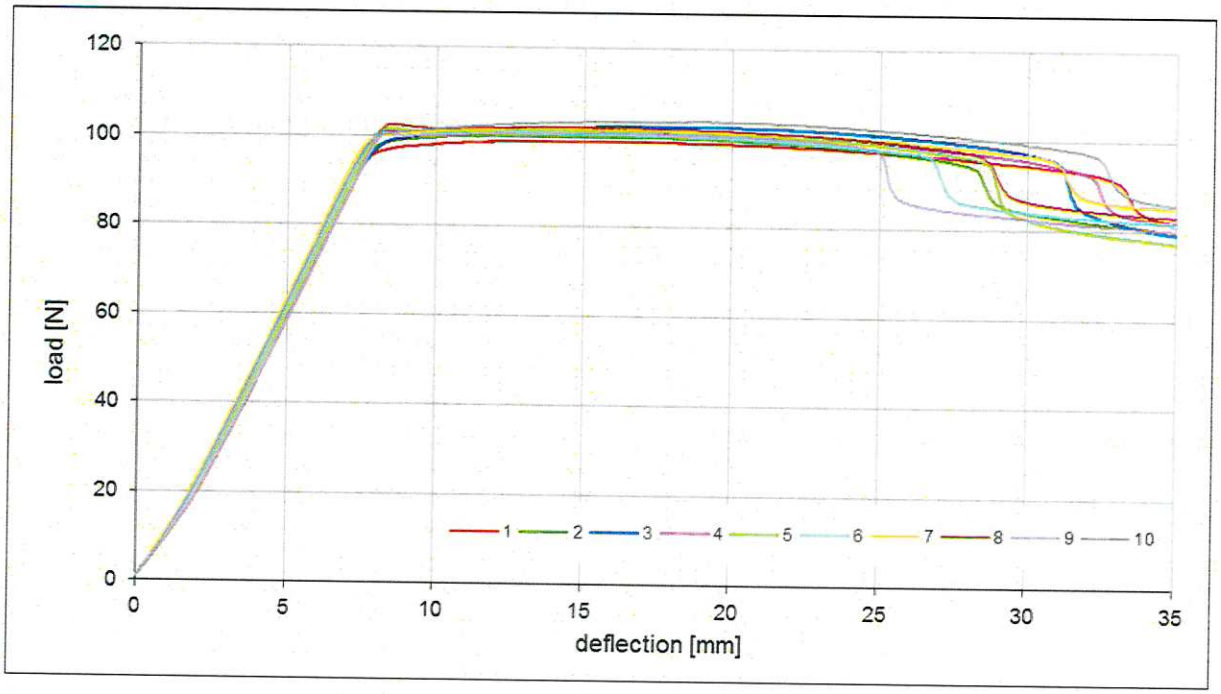
3.1.3 Test results – Main steel profile PO24x32-3.6m PREMIUM T-24 (24x32x3600 mm, thickness 0,25 mm)

sample registration number	Main steel profile PO24x32-3.6m PREMIUM T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/37	177,2	39,6	19,1
VZ060170428/38	154,9	44,0	22,1
VZ060170428/39	153,7	40,6	19,8

sample registration number	Main steel profile PO24x32-3.6m PREMIUM T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/27	99,1	47,6	26,3
VZ060170428/28	100,3	47,8	26,9
VZ060170428/29	102,6	46,0	25,2
VZ060170428/30	101,2	46,4	25,3
VZ060170428/31	101,6	45,7	24,6
VZ060170428/32	100,8	46,9	25,6
VZ060170428/33	102,0	48,2	27
VZ060170428/34	102,6	44,1	23,7
VZ060170428/35	100,9	44,3	24,1
VZ060170428/36	103,8	47,6	15,3



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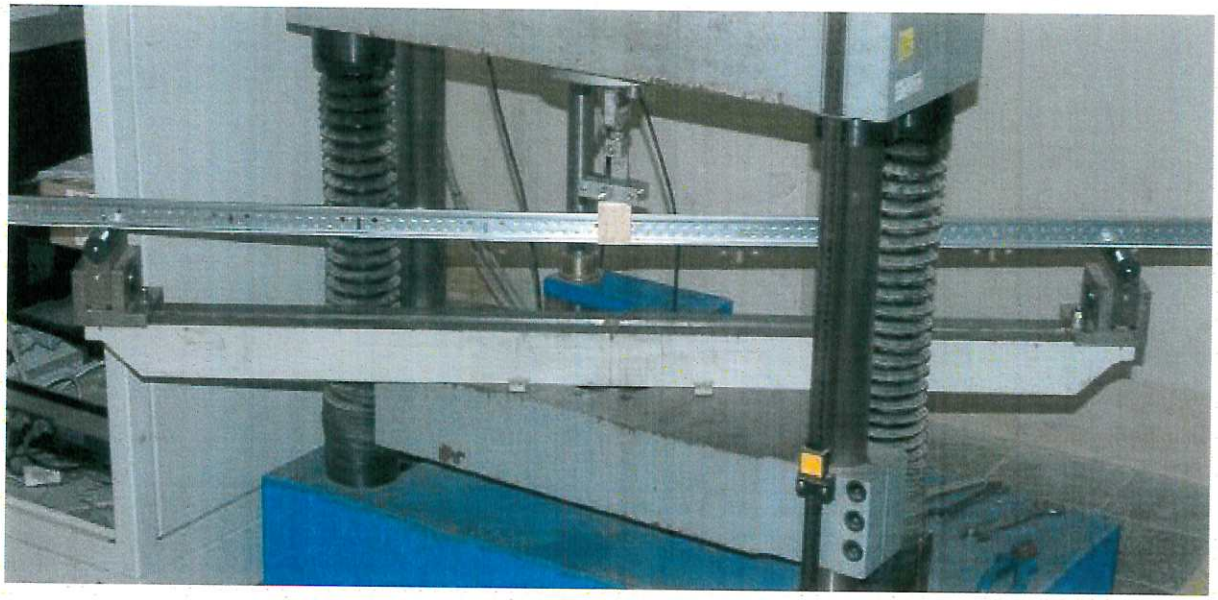

Main steel profile PO24x32-3.6m PREMIUM T-24			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	101,5	46,5	24,4
EI [N.mm^2]	not determined	**418,1 x 10^6**	**366,0 x 10^6**
adm M_f [N.m]	not determined	**13,9**	**7,3**
adm M_u [N.m]	**11,8**	not determined	not determined

Note: yellow tinge cells show final admissible values

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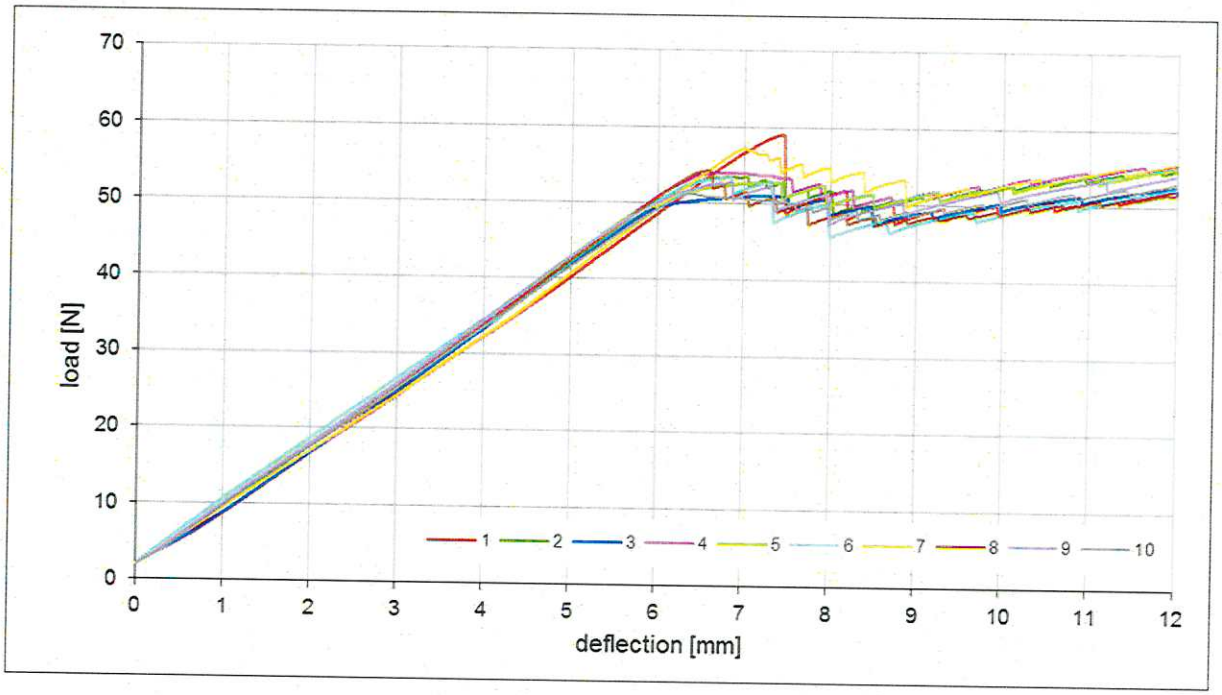
3.1.4 Test results – Cross steel profile PP24x25-1.2m PREMIUM T-24 (24x25x1200 mm, thickness 0,25 mm)

sample registration number	Cross steel profile PP24x25-1.2m PREMIUM T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/50	112,7	30,6	20,4
VZ060170428/51	126,6	28,8	18,3
VZ060170428/52	125,7	28,7	17,9

sample registration number	Cross steel profile PP24x25-1.2m PREMIUM T-24		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/40	59,1	26,4	16,4
VZ060170428/41	53,6	27,4	17,2
VZ060170428/42	51	27	16,4
VZ060170428/43	54,1	27,8	17,4
VZ060170428/44	52,8	28,1	17,7
VZ060170428/45	53,5	28,6	18,3
VZ060170428/46	57,3	26,5	16,6
VZ060170428/47	54,3	27,4	17,3
VZ060170428/48	52,8	28,2	17,7
VZ060170428/49	51,3	27,3	17,3



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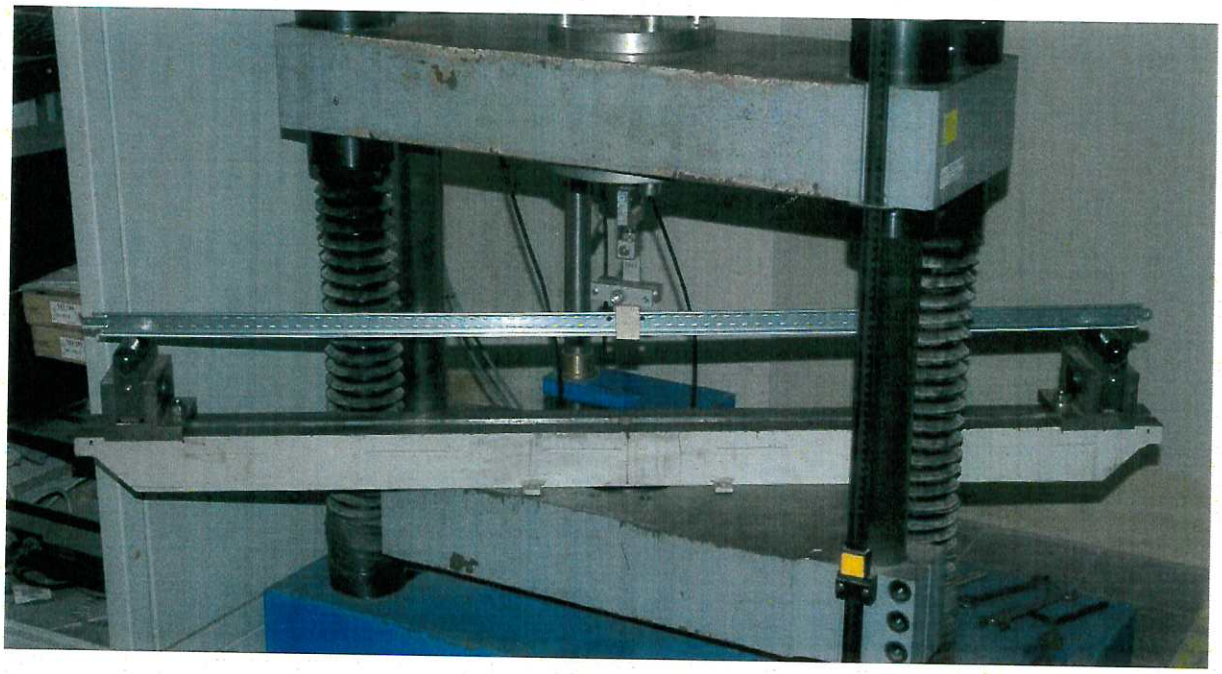

Cross steel profile PP24x25-1.2m PREMIUM T-24			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	54,0	27,5	17,2
EI [N.mm^2]	not determined	**171,7 x 10^6**	**179,5 x 10^6**
adm M_f [N.m]	not determined	**6,9**	**4,3**
adm M_u [N.m]	**4,8**	not determined	not determined

Note: yellow tinge cells show final admissible values

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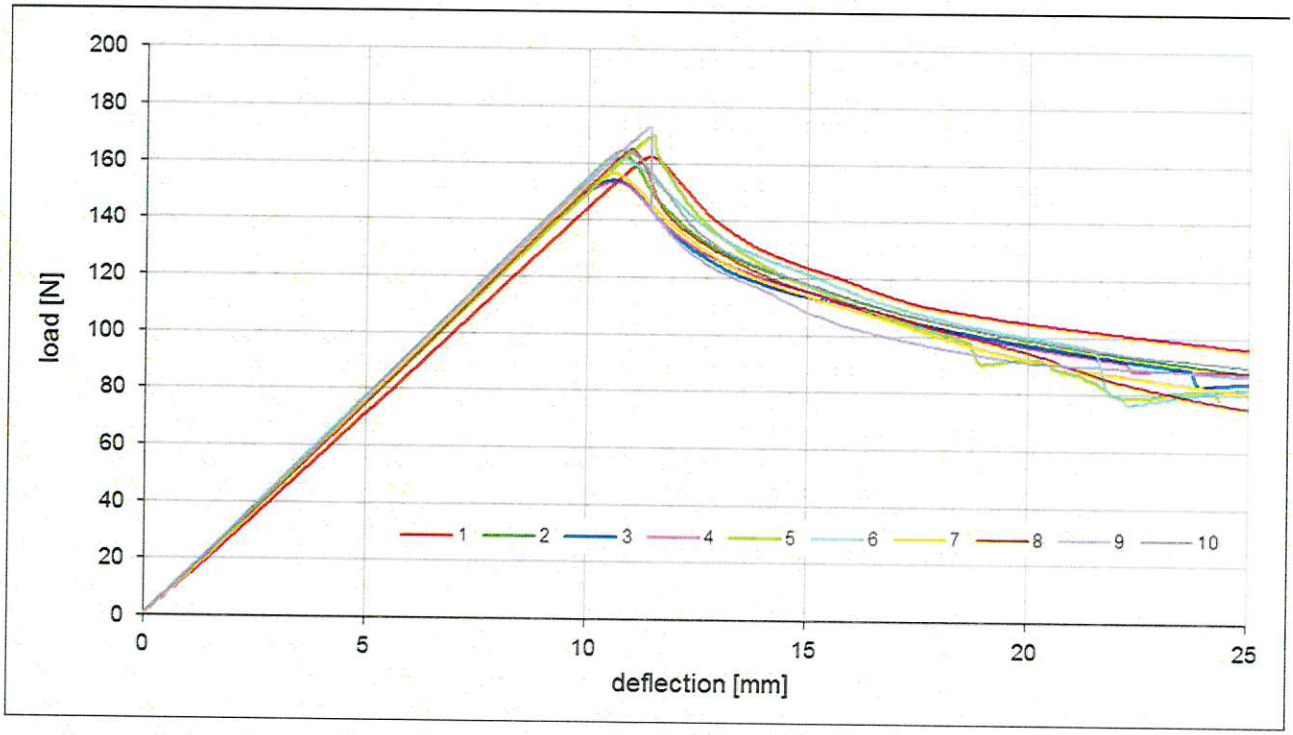
3.1.5 Test results – Main steel profile PO15x32-3.6m PREMIUM T-15 (15x32x3600 mm, thickness 0,25 mm)

sample registration number	Main steel profile PO15x32-3.6m PREMIUM T-15		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/63	209,2	57,6	33,5
VZ060170428/64	188,8	56,0	33,9
VZ060170428/65	156,6	53,6	31,3

sample registration number	Main steel profile PO15x32-3.6m PREMIUM T-15		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/53	162,4	56,3	33,3
VZ060170428/54	164,7	60,8	36,2
VZ060170428/55	154,1	59,9	35,6
VZ060170428/56	153,5	60,3	35,8
VZ060170428/57	170,0	59,2	35,0
VZ060170428/58	162,1	60,9	36,0
VZ060170428/59	156,8	60,0	35,5
VZ060170428/60	165,2	59,2	35,4
VZ060170428/61	173,0	60,8	36,3
VZ060170428/62	164,7	60,7	36,1



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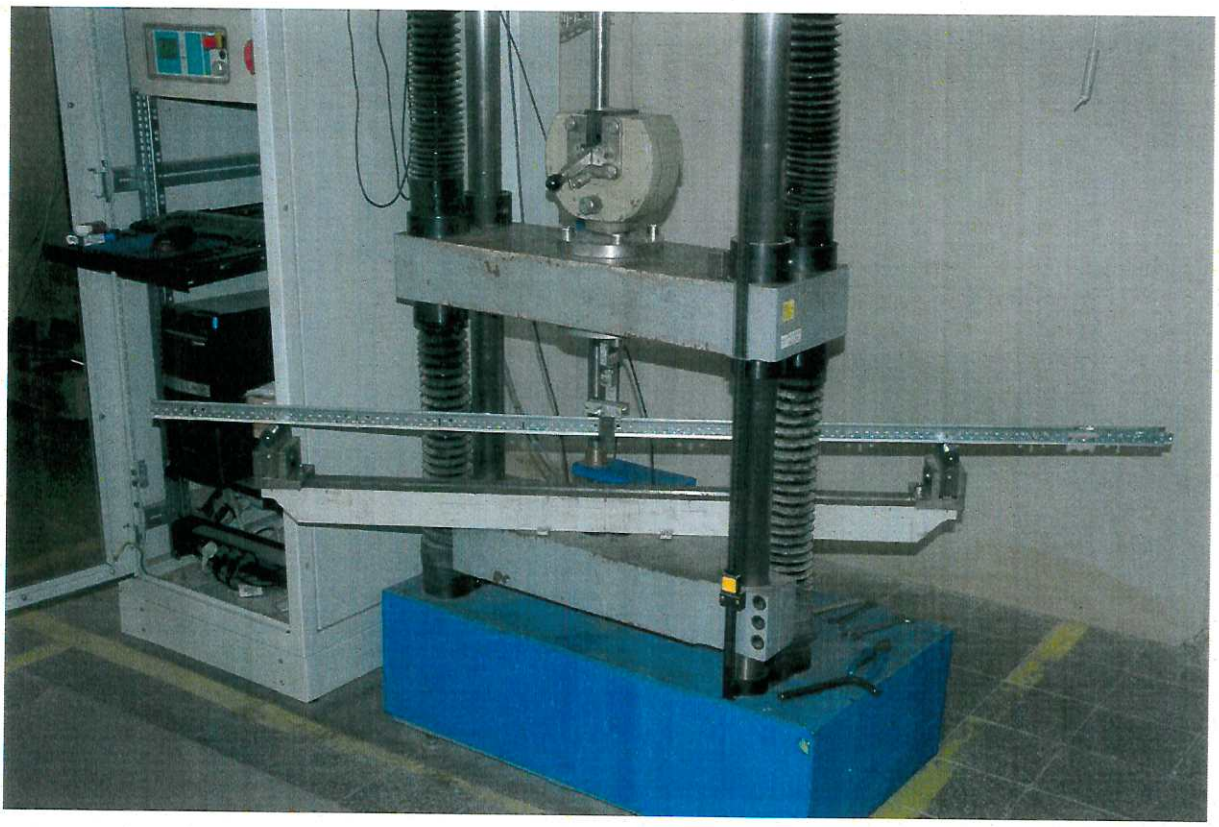

Main steel profile PO15x32-3.6m PREMIUM T-15			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	162,7	59,8	35,5
EI [N.mm^2]	not determined	**538,3 x 10^6**	**532,8 x 10^6**
adm M_f [N.m]	not determined	**17,9**	**10,7**
adm M_u [N.m]	**17,6**	not determined	not determined

Note: yellow tinge cells show final admissible values

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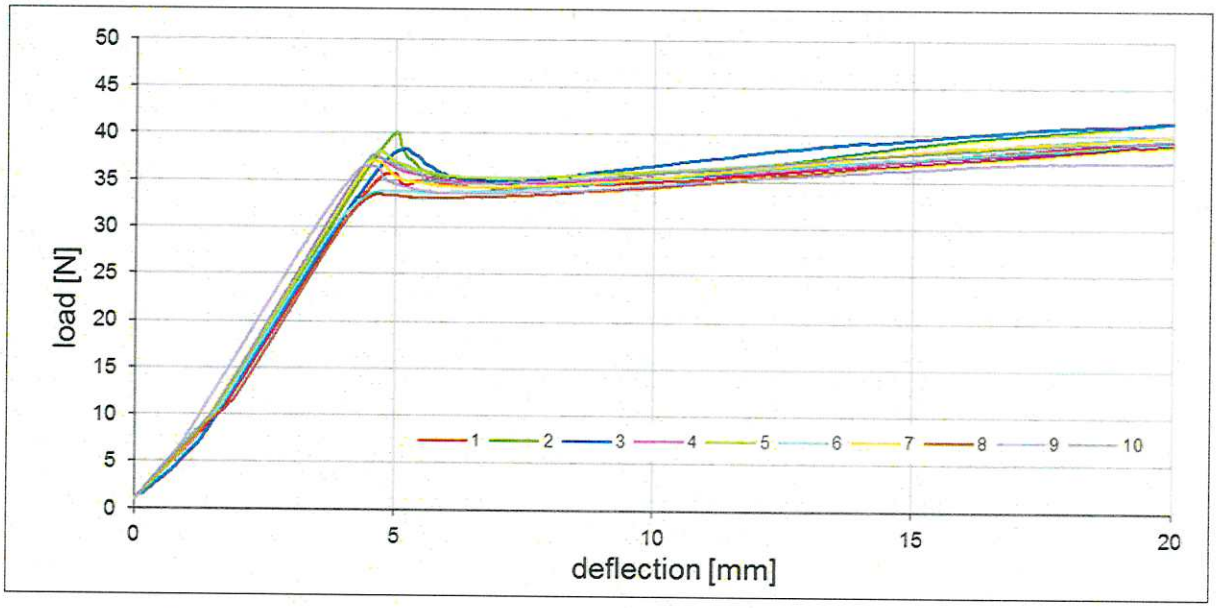
3.1.6 Test results – Cross steel profile PP15x25-1.2m PREMIUM T-15 (24x25x1200 mm, thickness 0,25 mm)

sample registration number	Cross steel profile PP15x25-1.2m PREMIUM T-15		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/76	132,8	28,3	15,7
VZ060170428/77	136,9	28,9	16,8
VZ060170428/78	133,0	29,7	17,2

sample registration number	Cross steel profile PP15x25-1.2m PREMIUM T-15		
	F_u [N]	F (1/300 span def.) [N]	F (1/500 span def.) [N]
VZ060170428/66	35,7	24,4	12,9
VZ060170428/67	40,1	25,5	13,9
VZ060170428/68	38,3	24,5	13,1
VZ060170428/69	37,6	26,3	14,2
VZ060170428/70	38,1	26,1	14,1
VZ060170428/71	34	25,2	13,5
VZ060170428/72	37,1	26,2	14,4
VZ060170428/73	33,5	23,8	12,1
VZ060170428/74	36,5	28,2	16,4
VZ060170428/75	37,7	26,3	14,4



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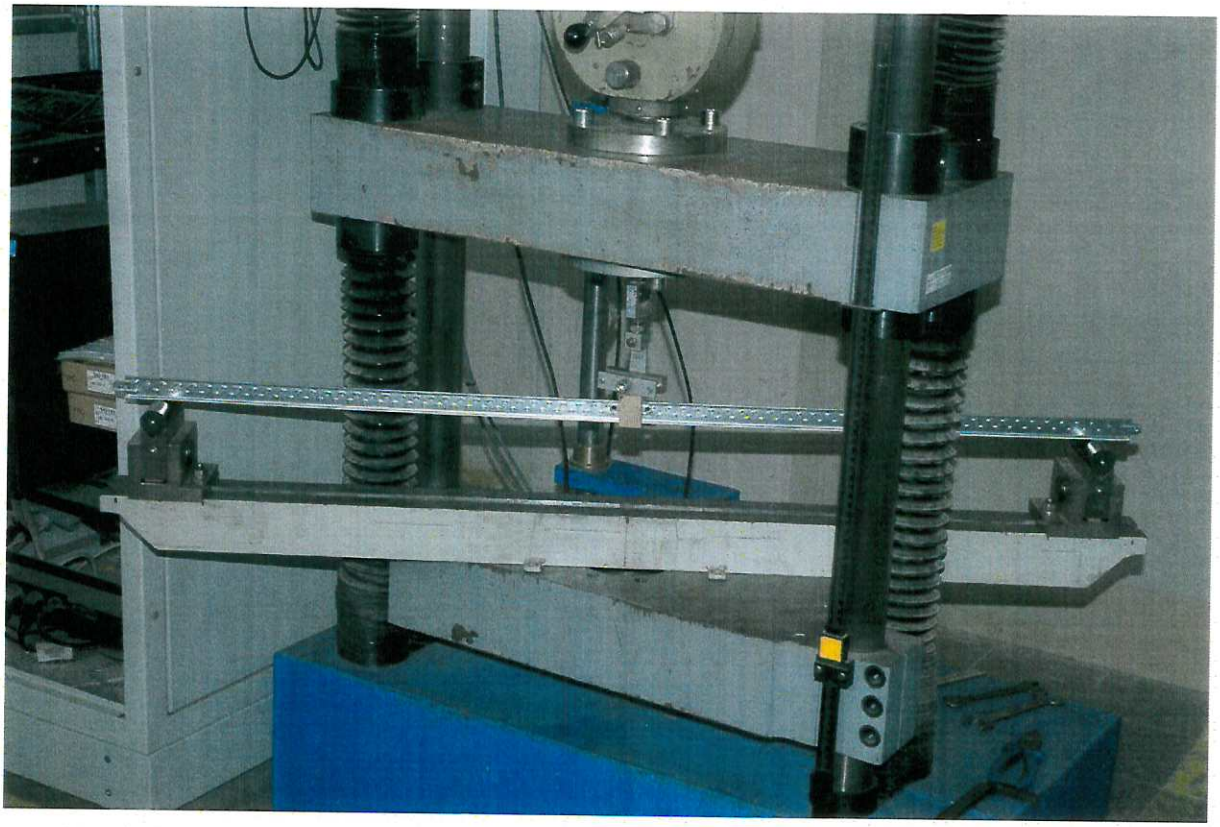

Cross steel profile PP15x25-1.2m PREMIUM T-15			
value	cross-section class 3 no limit def.	cross-section class 2 1/300 span def.	cross-section class 1 1/500 span def.
average F [N]	36,9	25,7	13,9
EI [N.mm^2]	not determined	**160,3 x 10^6**	**144,8 x 10^6**
adm M_f [N.m]	not determined	**6,4**	**3,5**
adm M_u [N.m]	**3,2**	not determined	not determined

Note: yellow tinge cells show final admissible values

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3.2 Load bearing capacity of suspension components

Sample registration number: VZ060170428/79-98

Test was carried out by: Tomáš Kalivoda

Determination according to test method: EN 13964:2014 Suspended ceilings – Requirements and test methods, cl. 5.2 Bending test of metal substructure profiles

Test equipment and its metrological assurance:

- Test machine Tiratest — metrological number 3.07.1253
- Measure tape 0-5000 mm — metrological number 4.01.1140

- Metrological attaching of gauges and testing instruments which have been used is supported in Metrological rules of ATL. All used gauges have been checked and calibrated during testing.

Test process data:

Tests were performed in accordance with the above mentioned EN.

The specimens were carefully checked, there were found no imperfections that could affect test results. Loading was carried out continuously. The loading speed of each sample was 5 N/s. Deformation of suspension system was monitored during the test progress.

3.2.1 Test results – Suspension component 500 + Main steel profile PO24x32-3.6m STANDART T-24

Sample registration number	Suspension component 500 + Main steel profile PO24x32-3.6m STANDART T-24		
	F_u [N]	Admissible load adm F [N]	Deformation f [mm]
VZ060170428/79	313,0	112,0	0,92
VZ060170428/80	348,7		1,27
VZ060170428/81	313,2		1,14
VZ060170428/82	311,6		0,93
VZ060170428/83	318,4		0,95
VZ060170428/84	342,4		1,30
VZ060170428/85	335,1		1,03
VZ060170428/86	350,9		1,05
VZ060170428/87	323,0		1,44
VZ060170428/88	299,4		1,02

Suspension component 500 + Main steel profile PO24x32-3.6m STANDART T-24			
Admissible load **adm F [N]**	Ø Deformation f [mm]	Deformation f_{min} [mm]	Deformation f_{max} [mm]
112,0	1,11	0,92	1,44

Note: yellow tinge cells show final admissible values

Admissible load determined for suspension component 500 + Main steel profile PO24x32-3.6m STANDART T-24 can be also used for other main profiles mentioned in this report (main steel profile PREMIUM T-24 and PREMIUM T-15).

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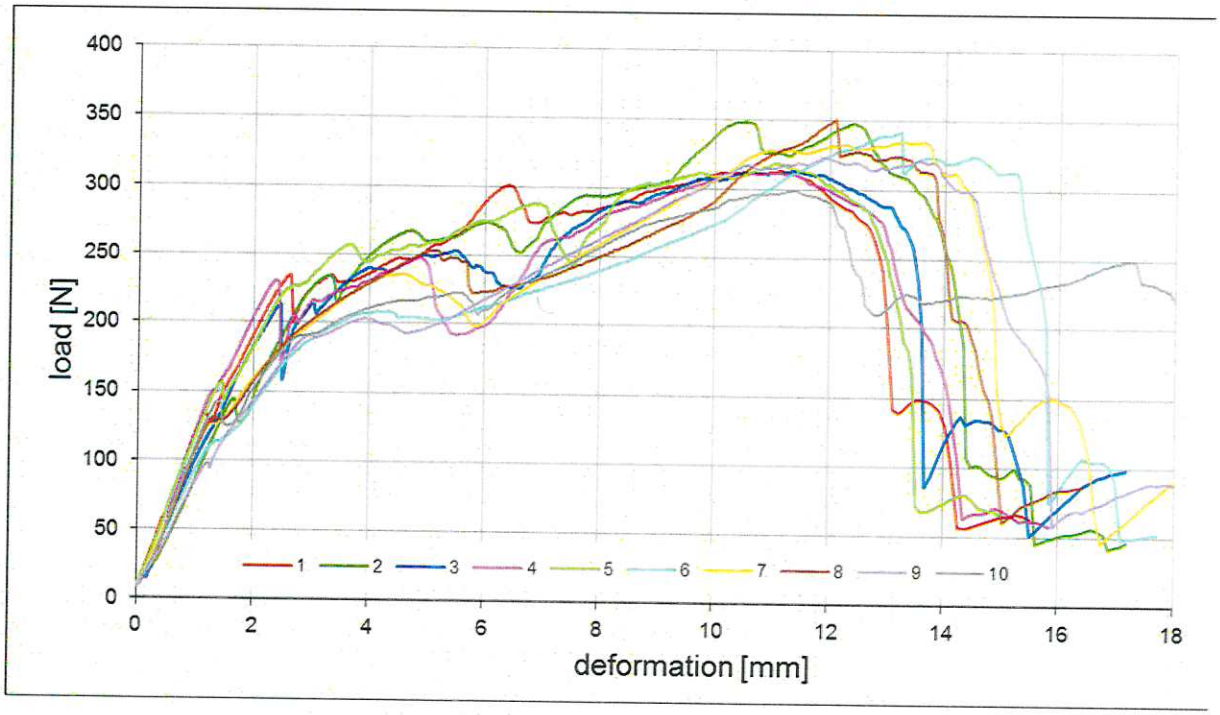

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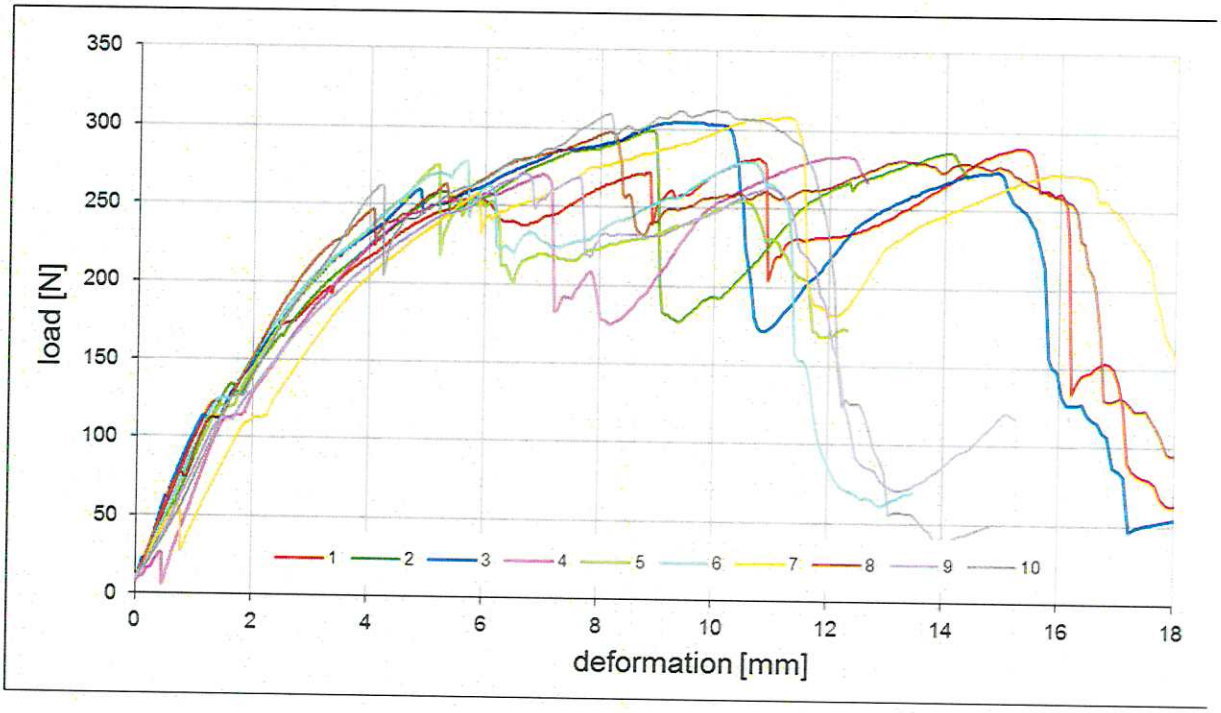
3.2.2 Test results – Suspension component 500 + Cross steel profile PP24x25-1.2m STANDART T-24

Sample registration number	Suspension component 500 + Cross steel profile PP24x25-1.2m STANDART T-24		
	F_u [N]	Admissible load adm F [N]	Deformation f [mm]
VZ060170428/89	289,7	102,1	1,02
VZ060170428/90	299,0		1,17
VZ060170428/91	304,9		0,99
VZ060170428/92	283,3		1,36
VZ060170428/93	275,8		1,18
VZ060170428/44	279,7		1,11
VZ060170428/55	308,4		1,74
VZ060170428/96	297,9		1,11
VZ060170428/97	271,1		1,27
VZ060170428/98	312,7		1,33

Suspension component 500 + Cross steel profile PP24x25-1.2m STANDART T-24			
Admissible load **adm F [N]**	Ø Deformation f [mm]	Deformation f_{min} [mm]	Deformation f_{max} [mm]
102,1	1,23	0,99	1,74

Note: yellow tinge cells show final admissible values

Admissible load determined for suspension component 500 + Cross steel profile PP24x25-1.2m STANDART T-24 can be also used for other cross profiles mentioned in this report (cross steel profile PREMIUM T-24 and PREMIUM T-15).



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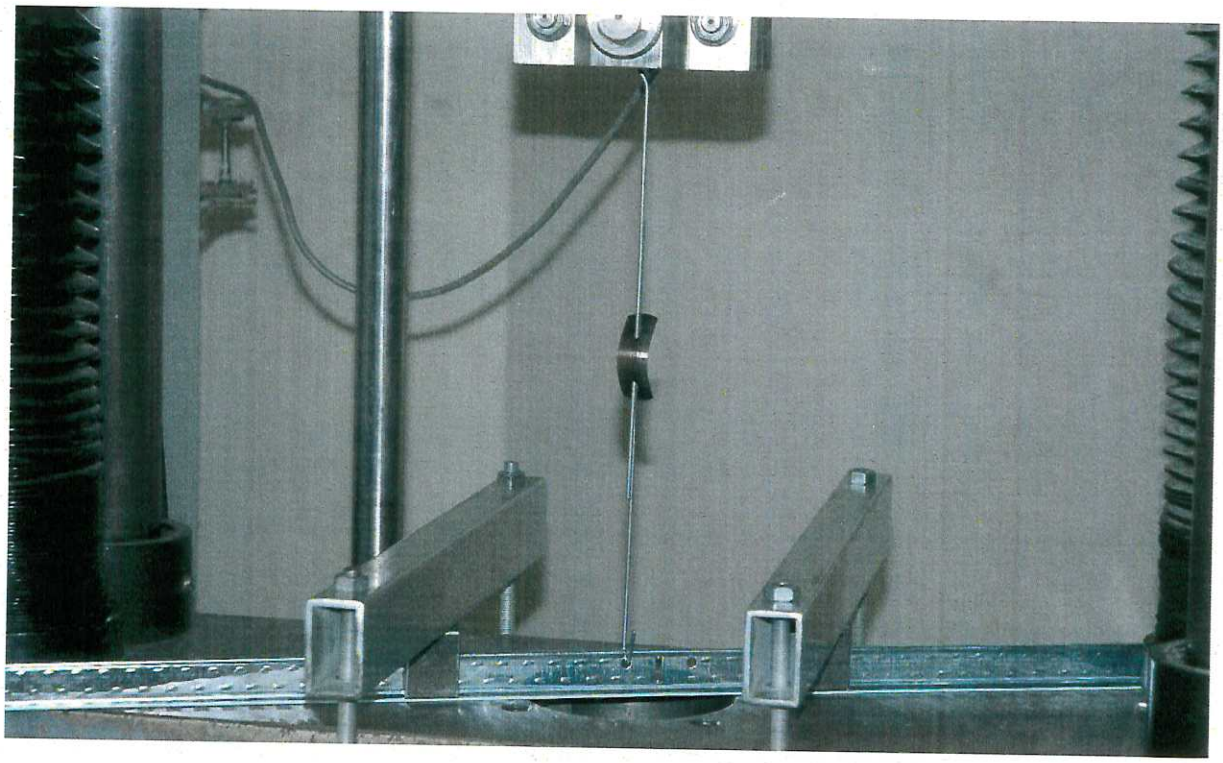

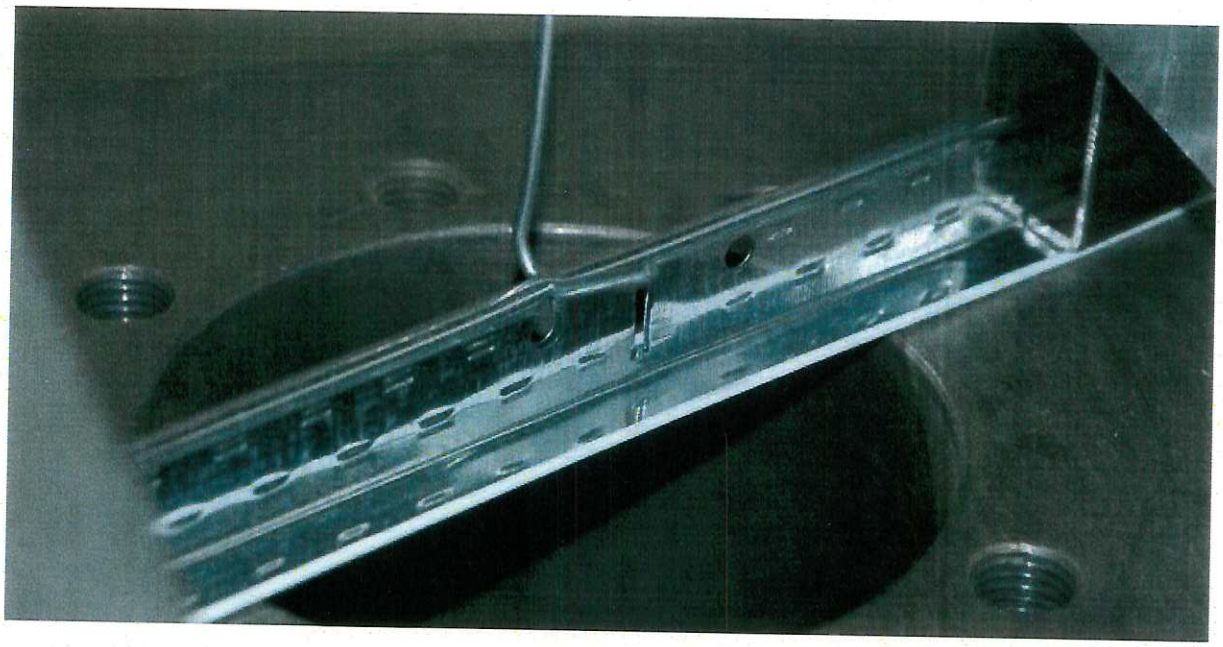

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