

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 1
---	-------------------------------------	----------

INHALT

Inhalt	1
Basisangaben	1
Strukturdaten	
Knoten	2
Materialien	3
Querschnitte	3
Stäbe	4
Auflager	5
Belastungen	
Basisangaben der Lastfälle	6
LF-Gruppen	6
LF-Kombinationen	6
Grafik - Lastfall 1	7
Grafik - Lastfall 2	8
Grafik - Lastfall 3	9
Grafik - Lastfall 4	10
Grafik - Lastfall 5	11
Grafik - Lastfall 6	12
Grafik - Lastfall 7	13
Grafik - Lastfall 8	14
Grafik - Lastfall 9	15
Grafik - Lastfall 10	16
LK-Ergebnisse	
Max/Min/Zugeh-Schnittgrößen stabbezogen	17
Max/Min/Zugeh-Auflagerkräfte und -momente	40
Grafik - Ergebnisse	41
Hinweis:	41
Max/Min globale Knotenverformungen	42
Grafik - Struktur Grundgestell	43
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	44
Nachweis EL - EL	44
Gebrauchstauglichkeit	44
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	45
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	46
Nachweis EL - EL	46
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	47
Nachweis EL - EL	47
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	48
Nachweis EL - EL	48
Grafik - Struktur	49
Nachweis EL - EL	49
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	50
max. Schnittgrößen für die Rahmenstiele	50
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	51
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	52
Grafik - Ergebnisverläufe LK 1 - Bemessungswerte	53
Nachweis Katzbahnträger EL - EL	53

BASISANGABEN

BERECHNUNGSART

- | | |
|--|---|
| <input checked="" type="checkbox"/> Statik | <input checked="" type="checkbox"/> Theorie I. Ordnung |
| <input type="checkbox"/> Nachweis | <input checked="" type="checkbox"/> Theorie II. Ordnung |
| <input type="checkbox"/> Dynamik | <input type="checkbox"/> Seiltheorie |
| <input checked="" type="checkbox"/> Lastfälle | <input type="checkbox"/> Bemessungsfälle |
| <input checked="" type="checkbox"/> LF-Gruppen | <input type="checkbox"/> Dynamikfälle |
| <input checked="" type="checkbox"/> LF-Kombinationen | <input type="checkbox"/> Knickfiguren |

STRUKTURKENNWERTE

- | | | |
|---|------------------|--------------------|
| <input type="checkbox"/> 1D-Durchlaufträger | 42 Knoten | 67 Stäbe |
| <input type="checkbox"/> 2D-Stabwerk | 1 Materialien | 0 Seilstäbe |
| <input checked="" type="checkbox"/> 3D-Stabwerk | 6 Querschnitte | 0 Voutenstäbe |
| <input type="checkbox"/> Trägerrost | 0 Stabendgelenke | 0 El. gebet. Stäbe |
| | 0 Stabteilungen | 0 Stabzüge |

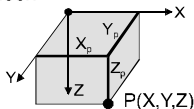
Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 2

STRUKTUR

Kartesisch



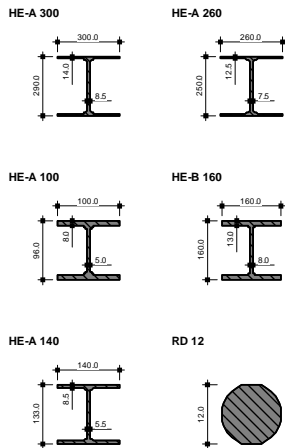
KNOTEN

Knoten-Nr.	Koordinatensystem	Bezugs-Knoten	Knotenkoordinaten		
			X [m]	Y [m]	Z [m]
1	Kartesisch	-	-1.500	-2.120	0.000
2	Kartesisch	-	-1.500	-1.260	0.000
3	Kartesisch	-	-1.500	-0.400	0.000
4	Kartesisch Gelagert	-	0.000	-2.520	0.000
5	Kartesisch	-	0.000	-2.120	0.000
6	Kartesisch	-	0.000	-1.260	0.000
7	Kartesisch	-	0.000	-0.400	0.000
8	Kartesisch Gelagert	-	0.000	0.000	0.000
9	Kartesisch	-	0.650	-2.820	-4.215
10	Kartesisch	-	0.650	-2.820	0.000
11	Kartesisch	-	0.650	-2.520	0.000
12	Kartesisch	-	0.650	-1.260	-4.215
13	Kartesisch	-	0.650	0.000	0.000
14	Kartesisch	-	0.650	0.300	-4.215
15	Kartesisch	-	0.650	0.300	-2.108
16	Kartesisch	-	0.650	0.300	0.000
17	Kartesisch	-	1.400	-4.685	-4.215
18	Kartesisch	-	1.400	-2.820	-4.215
19	Kartesisch	-	1.400	-2.520	0.000
20	Kartesisch	-	1.400	-2.120	0.000
21	Kartesisch	-	1.400	-1.260	-4.215
22	Kartesisch	-	1.400	-1.260	0.000
23	Kartesisch	-	1.400	-0.400	0.000
24	Kartesisch	-	1.400	0.000	0.000
25	Kartesisch	-	1.400	0.300	-4.215
26	Kartesisch	-	2.150	-2.820	-4.215
27	Kartesisch	-	2.150	-2.820	0.000
28	Kartesisch	-	2.150	-2.520	0.000
29	Kartesisch	-	2.150	-1.260	-4.215
30	Kartesisch	-	2.150	0.000	0.000
31	Kartesisch	-	2.150	0.300	-4.215
32	Kartesisch	-	2.150	0.300	-2.108
33	Kartesisch	-	2.150	0.300	0.000
34	Kartesisch	-	3.400	-2.520	0.000
35	Kartesisch	-	3.400	-2.120	0.000
36	Kartesisch	-	3.400	-1.260	0.000
37	Kartesisch	-	3.400	-0.400	0.000
38	Kartesisch	-	3.400	0.000	0.000
39	Kartesisch	-	4.700	-2.520	0.000
40	Kartesisch	-	4.700	0.000	0.000
41	Kartesisch Gelagert	-	7.500	-2.520	0.000
42	Kartesisch Gelagert	-	7.500	0.000	0.000

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 3
---	-------------------------------------	----------

MATERIALIEN

Mat.-Nr.	Material-Bezeichnung	E-Modul [kN/cm ²]	Schubmodul [kN/cm ²]	Sp. Gewicht [kN/cm ³]	Wärmedehn. [1/°C]
1	Stahl	2.100E+04	8.100E+03	7.850E-05	1.200E-05

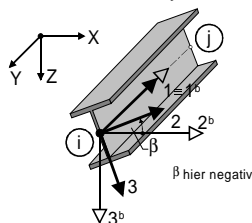


QUERSCHNITTE

Quer.-Nr.	Mat.-Nr.	Querschnitts-Bezeichnung	I_T A	I_2 A ₂	I_3 [cm ⁴] A ₃ [cm ²]
1	1	HE-A 300	85.60 113.000	18260.00	6310.00
3	1	HE-A 260	52.60 86.800	10450.00	3670.00
4	1	HE-A 100	5.26 21.200	349.00	134.00
8	1	HE-B 160	31.40 54.300	2490.00	889.00
9	1	HE-A 140	8.16 31.400	1030.00	389.00
10	1	RD 12	0.20 1.130	0.10	0.10

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 4
---	-------------------------------------	----------

Lokales Stabachsensystem


STÄBE

Stab-Nr.	Stab-typ	Knoten		Beta [°]	Querschnitt		Gelenk		Teil-Nr.	Länge [m]	Stab-lage
		Anf.	Ende		Anf.	Ende	Anf.	Ende			
1	Balken	5	1	0.0	4	4	-	-	-	1.500	HORI
2	Balken	6	2	0.0	4	4	-	-	-	1.500	HORI
3	Balken	7	3	0.0	4	4	-	-	-	1.500	HORI
4	Balken	5	4	0.0	3	3	-	-	-	0.400	HORI
5	Balken	6	5	0.0	3	3	-	-	-	0.860	HORI
6	Balken	7	6	0.0	3	3	-	-	-	0.860	HORI
7	Balken	8	7	0.0	3	3	-	-	-	0.400	HORI
8	Balken	4	11	0.0	1	1	-	-	-	0.650	HORI
9	Balken	8	13	0.0	1	1	-	-	-	0.650	HORI
10	Balken	10	9	0.0	9	9	-	-	-	4.215	VERT
11	Balken	11	10	0.0	1	1	-	-	-	0.300	HORI
12	Balken	12	9	0.0	9	9	-	-	-	1.560	HORI
13	Balken	14	12	0.0	9	9	-	-	-	1.560	HORI
14	Balken	13	16	0.0	1	1	-	-	-	0.300	HORI
15	Balken	15	14	90.0	9	9	-	-	-	2.108	VERT
16	Balken	16	15	90.0	9	9	-	-	-	2.108	VERT
17	Balken	5	20	0.0	4	4	-	-	-	1.400	HORI
18	Balken	6	22	0.0	4	4	-	-	-	1.400	HORI
19	Balken	7	23	0.0	4	4	-	-	-	1.400	HORI
20	Balken	9	18	0.0	9	9	-	-	-	0.750	HORI
21	Balken	11	19	0.0	1	1	-	-	-	0.750	HORI
22	Balken	12	21	0.0	9	9	-	-	-	0.750	HORI
23	Balken	13	24	0.0	1	1	-	-	-	0.750	HORI
24	Balken	14	25	0.0	9	9	-	-	-	0.750	HORI
25	Balken	18	17	0.0	8	8	-	-	-	1.865	HORI
26	Balken	20	19	0.0	3	3	-	-	-	0.400	HORI
27	Zugstab	29	9	0.0	10	10	-	-	-	2.164	HORI
28	Balken	21	18	0.0	8	8	-	-	-	1.560	HORI
29	Zugstab	26	12	0.0	10	10	-	-	-	2.164	HORI
30	Balken	22	20	0.0	3	3	-	-	-	0.860	HORI
31	Balken	23	22	0.0	3	3	-	-	-	0.860	HORI
32	Balken	25	21	0.0	8	8	-	-	-	1.560	HORI
33	Zugstab	14	29	0.0	10	10	-	-	-	2.164	HORI
34	Zugstab	12	31	0.0	10	10	-	-	-	2.164	HORI
35	Balken	24	23	0.0	3	3	-	-	-	0.400	HORI
36	Zugstab	14	32	0.0	10	10	-	-	-	2.587	ALLG
37	Zugstab	15	31	0.0	10	10	-	-	-	2.587	ALLG
38	Balken	15	32	0.0	9	9	-	-	-	1.500	HORI
39	Zugstab	15	33	0.0	10	10	-	-	-	2.587	ALLG
40	Zugstab	16	32	0.0	10	10	-	-	-	2.587	ALLG
41	Balken	18	26	0.0	9	9	-	-	-	0.750	HORI
42	Balken	19	28	0.0	1	1	-	-	-	0.750	HORI
43	Balken	21	29	0.0	9	9	-	-	-	0.750	HORI
44	Balken	24	30	0.0	1	1	-	-	-	0.750	HORI
45	Balken	25	31	0.0	9	9	-	-	-	0.750	HORI
46	Balken	27	26	0.0	9	9	-	-	-	4.215	VERT
47	Balken	28	27	0.0	1	1	-	-	-	0.300	HORI
48	Balken	29	26	0.0	9	9	-	-	-	1.560	HORI
49	Balken	31	29	0.0	9	9	-	-	-	1.560	HORI
50	Balken	30	33	0.0	1	1	-	-	-	0.300	HORI
51	Balken	32	31	90.0	9	9	-	-	-	2.108	VERT
52	Balken	33	32	90.0	9	9	-	-	-	2.108	VERT
53	Balken	20	35	0.0	4	4	-	-	-	2.000	HORI
54	Balken	22	36	0.0	4	4	-	-	-	2.000	HORI
55	Balken	23	37	0.0	4	4	-	-	-	2.000	HORI
56	Balken	28	34	0.0	1	1	-	-	-	1.250	HORI
57	Balken	30	38	0.0	1	1	-	-	-	1.250	HORI
58	Balken	35	34	0.0	3	3	-	-	-	0.400	HORI
59	Balken	36	35	0.0	3	3	-	-	-	0.860	HORI
60	Balken	37	36	0.0	3	3	-	-	-	0.860	HORI
61	Balken	38	37	0.0	3	3	-	-	-	0.400	HORI
62	Balken	34	39	0.0	1	1	-	-	-	1.300	HORI
63	Balken	38	40	0.0	1	1	-	-	-	1.300	HORI
64	Balken	40	39	0.0	3	3	-	-	-	2.520	HORI
65	Balken	39	41	0.0	1	1	-	-	-	2.800	HORI
66	Balken	40	42	0.0	1	1	-	-	-	2.800	HORI

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 5
---	-------------------------------------	----------

STÄBE

Stab-Nr.	Stab-typ	Knoten		Beta [°]	Querschnitt		Gelenk		Teil-Nr.	Länge [m]	Stab-lage
		Anf.	Ende		Anf.	Ende	Anf.	Ende			
67	Balken	42	41	0.0	3	3	-	-	-	2.520	HORI

AUFLAGER

Lager-Nr.	Gelagerte Knoten	Drehung [°]		Festes Auflager bzw.			Feder [kN/m] [kNm/rad]		
		Alpha	Beta	in X	in Y	in Z	um X	um Y	um Z
1	4,8 Gelenkig	0.0	0.0	Ja	Ja	Ja	Nein	Nein	Ja
2	41,42	0.0	0.0	Nein	Ja	Ja	Nein	Nein	Ja

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

BELASTUNG

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 6
---	-------------------------------------	----------

BELASTUNG

BASISANGABEN DER LASTFÄLLE

LF-Nr.	LF-Bezeichnung	Faktor	Überlagerungsart	Eigengewicht
1	Eigengewicht und Aufbau	1.00	Ständig	1.00
2	Wind in -X	1.00	Veränderlich	-
3	Wind in -Y	1.00	Veränderlich	-
4	Verkehrslast	1.00	Veränderlich	-
5	Wind in Betrieb +X-Richtung	1.00	Veränderlich	-
6	Wind in Betrieb -Y-Richtung	1.00	Veränderlich	-
7	Katze Stelle 1	1.00	Veränderlich	-
8	Katze Stelle 2	1.00	Veränderlich	-
9	Katze Stelle 3	1.00	Veränderlich	-
10	Endstück in Betriebsposition	1.00	Ständig	-

LF-GRUPPEN

LG-Nr.	LG-Bezeichnung	Faktor	Beiwert Gamma _M	Lastfälle in LG
1	Bemessungswerte	1.00	1.10	1.35*LF1 + 1.35*LF2 + 1.35*LF3 + 1.35*LF4 + 1.35*LF5 + 1.35*LF6 + 1.35*LF7
2	Bemessungswerte	1.00	1.10	1.35*LF1 + 1.35*LF2 + 1.35*LF3 + 1.35*LF4 + 1.35*LF5 + 1.35*LF6 + 1.35*LF8
3	Bemessungswerte	1.00	1.10	1.35*LF1 + 1.35*LF2 + 1.35*LF3 + 1.35*LF4 + 1.35*LF5 + 1.35*LF6 + 1.35*LF9
4	Bemessungswerte	1.00	1.10	1.35*LF1 + 1.35*LF2 + 1.35*LF3 + 1.35*LF4 + 1.35*LF5 + 1.35*LF6 + 1.35*LF10
5	Charakteristische Werte	1.00	1.10	LF1 + LF2 + LF3 + LF4 + LF5 + LF6
6	Charakteristische Werte	1.00	1.10	LF1 + LF2 + LF3 + LF4 + LF5 + LF6
7	Charakteristische Werte	1.00	1.10	LF1 + LF2 + LF3 + LF4 + LF5 + LF6
8	Charakteristische Werte	1.00	1.10	LF1 + LF2 + LF3 + LF4 + LF5 + LF6

LF-KOMBINATIONEN

LK-Nr.	LK-Bezeichnung	Kombinationskriterium
1	Bemessungswerte	LG1 oder LG2 oder LG3 oder LG4
2	charakteristische Werte	LG5 oder LG6 oder LG7 oder LG8

Projekt: 131-061526-WEB
Sekundärschalldämpfer

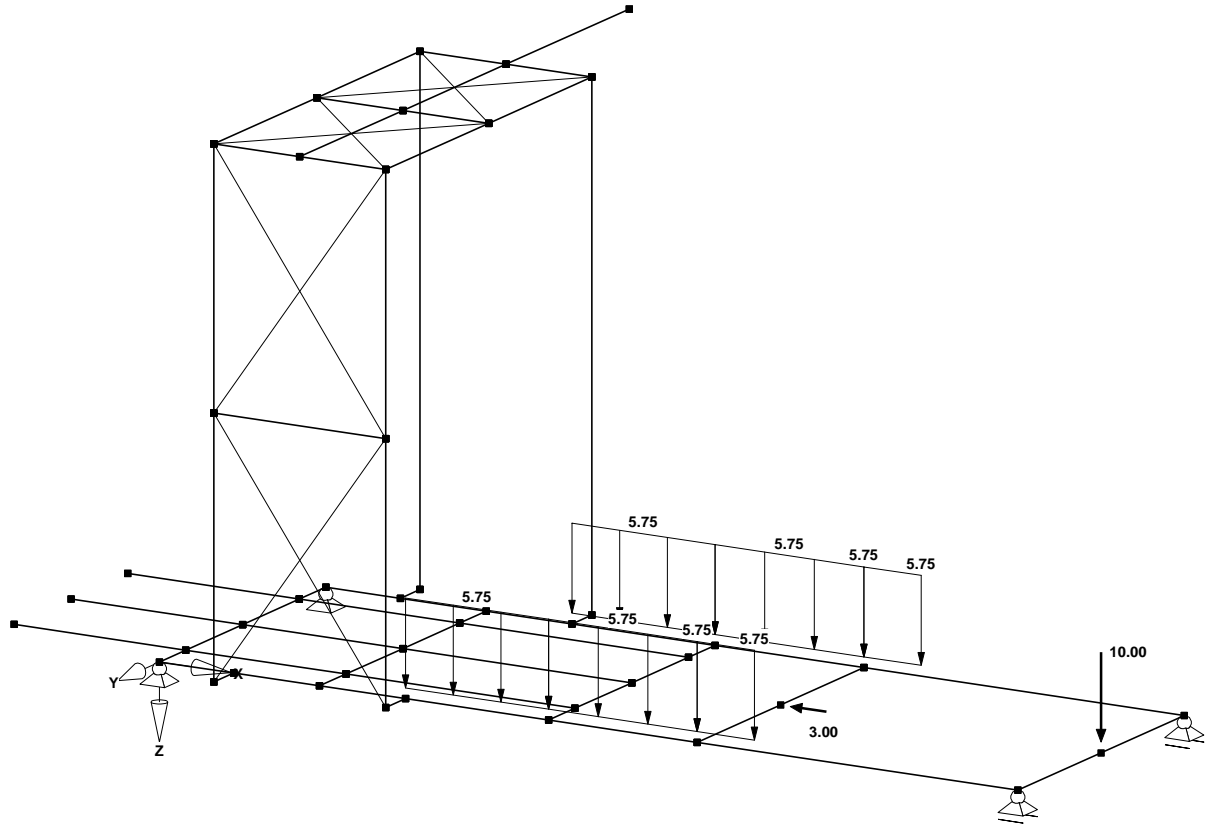
Position: 1.1rst
Tragwerk

Seite: 7

LASTFALL 1

LF 1 - Eigengewicht und Aufbau
[kN/m], [kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

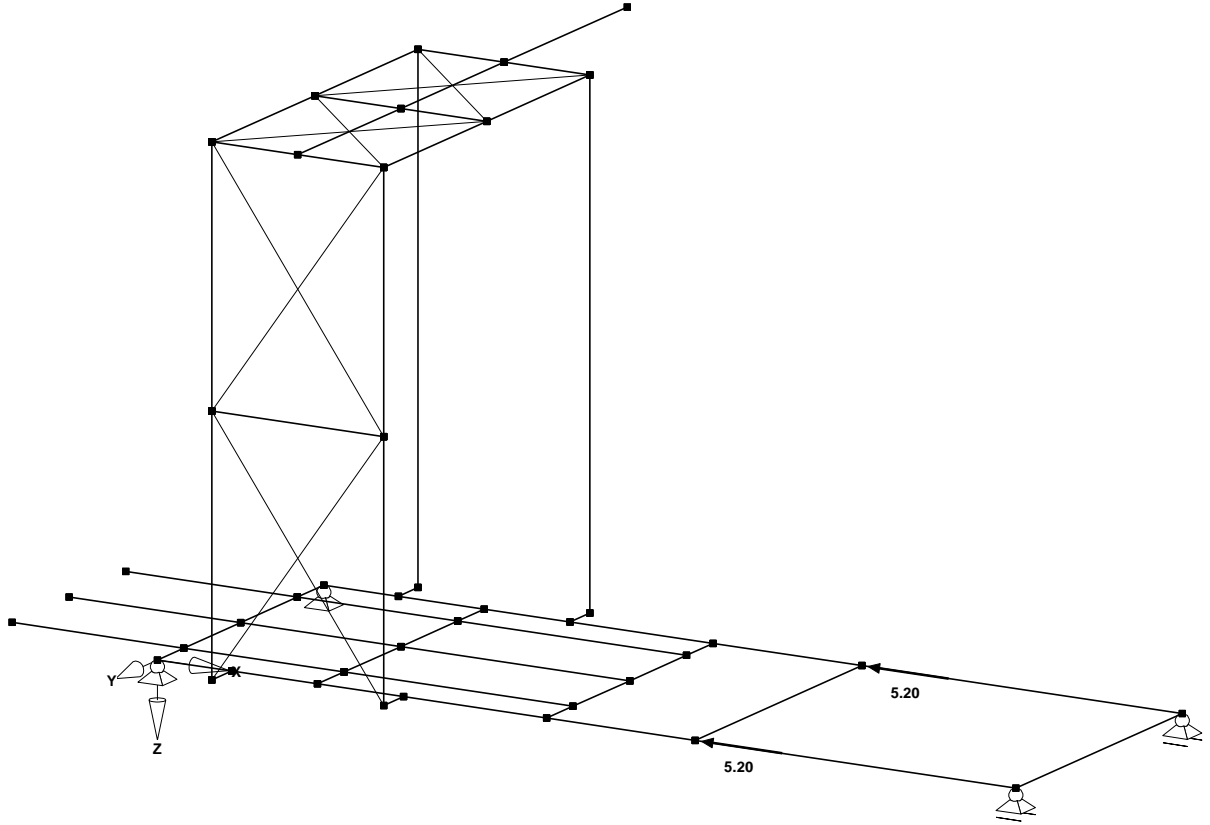
Position: 1.1rst
Tragwerk

Seite: 8

LASTFALL 2

LF 2 - Wind in -X
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

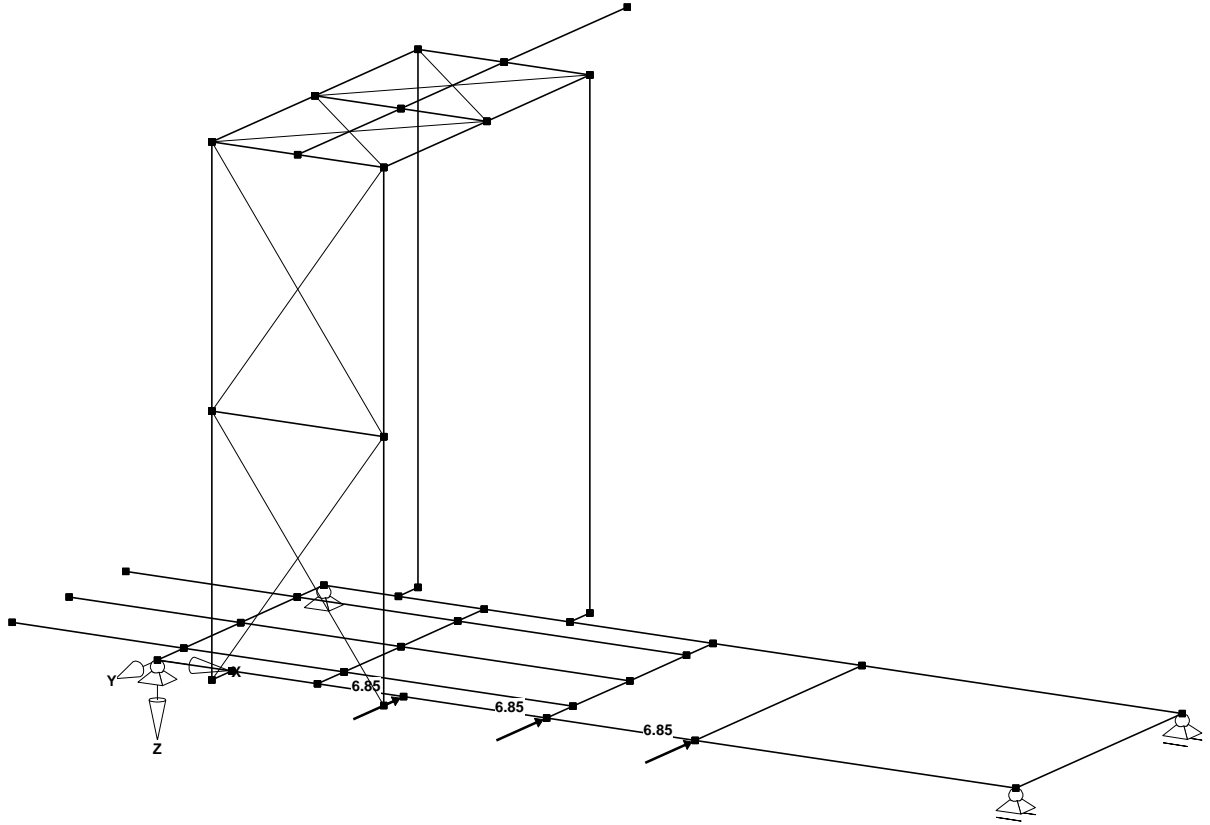
Position: 1.1rst
Tragwerk

Seite: 9

LASTFALL 3

LF 3 - Wind in -Y
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

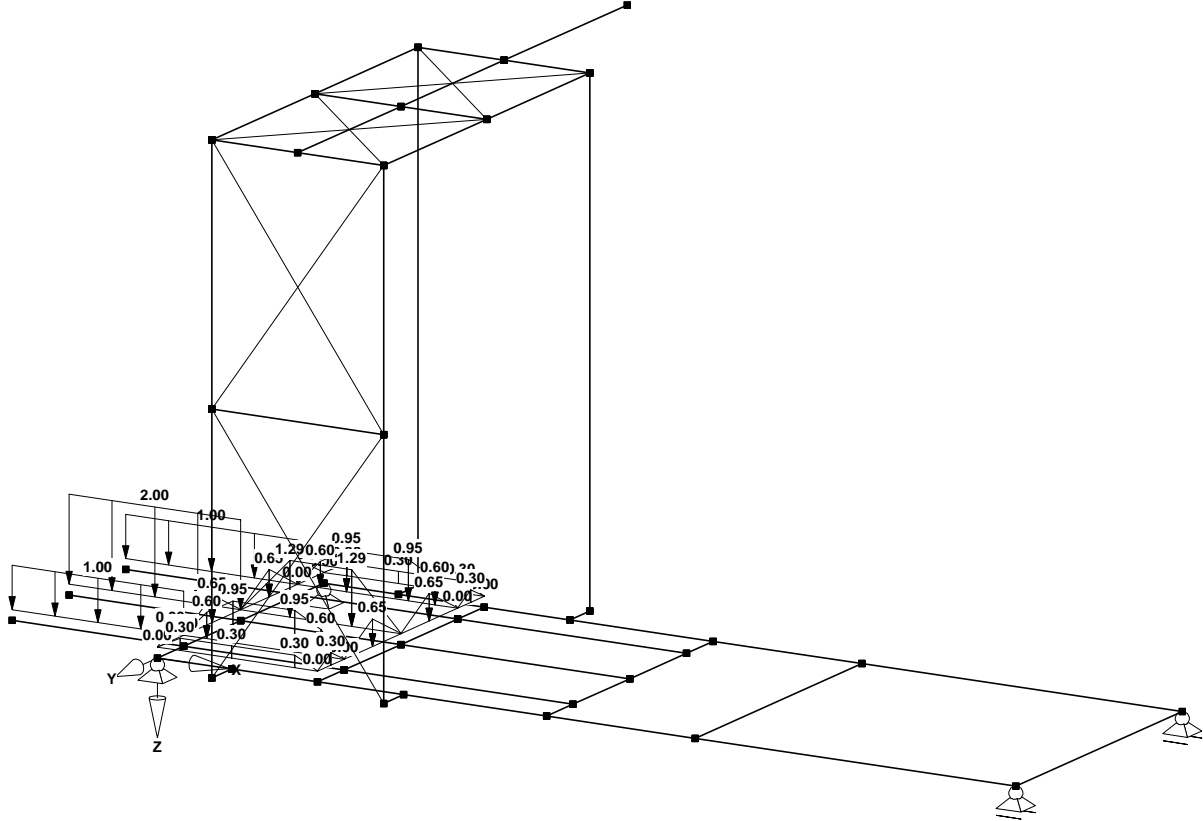
Position: 1.1rst
Tragwerk

Seite: 10

LASTFALL 4

LF 4 - Verkehrslast
[kN/m]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

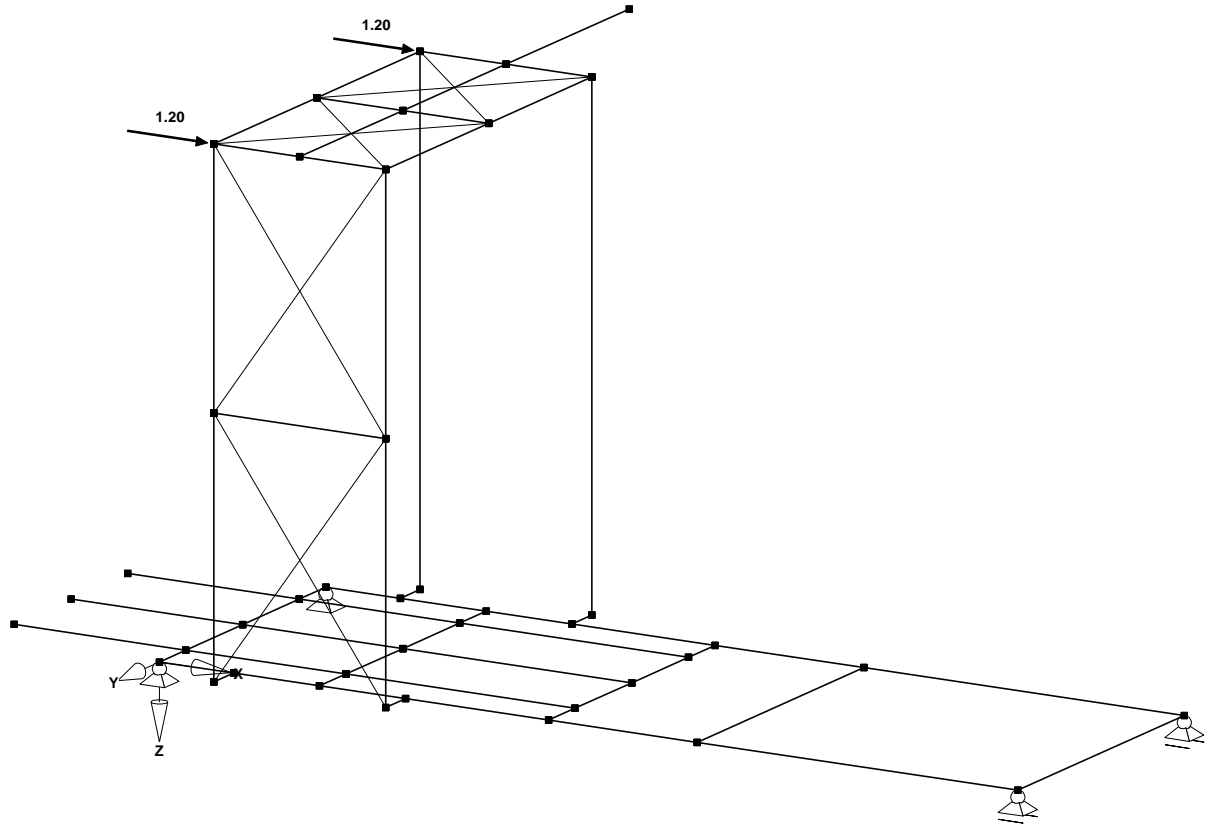
Position: 1.1rst
Tragwerk

Seite: 11

LASTFALL 5

LF 5 - Wind in Betrieb +X-Richtung
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

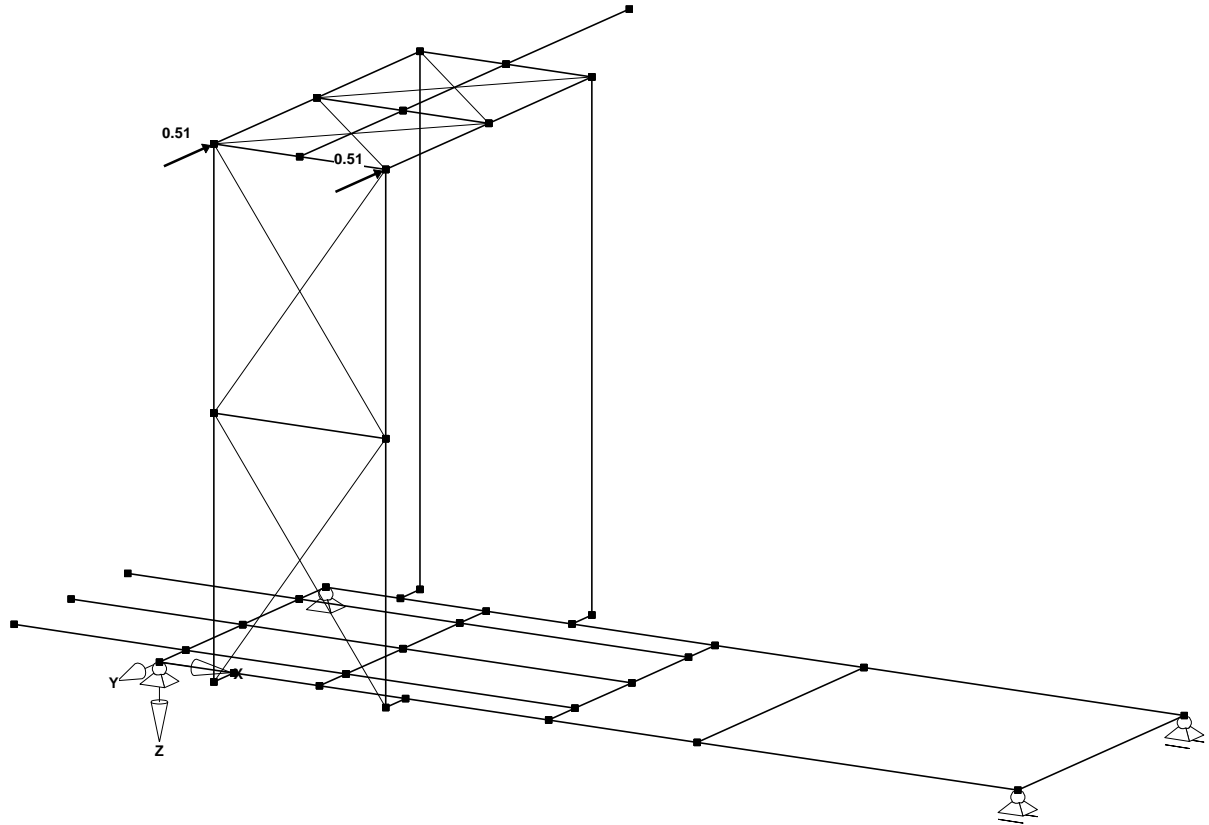
Position: 1.1rst
Tragwerk

Seite: 12

LASTFALL 6

LF 6 - Wind in Betrieb -Y-Richtung
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

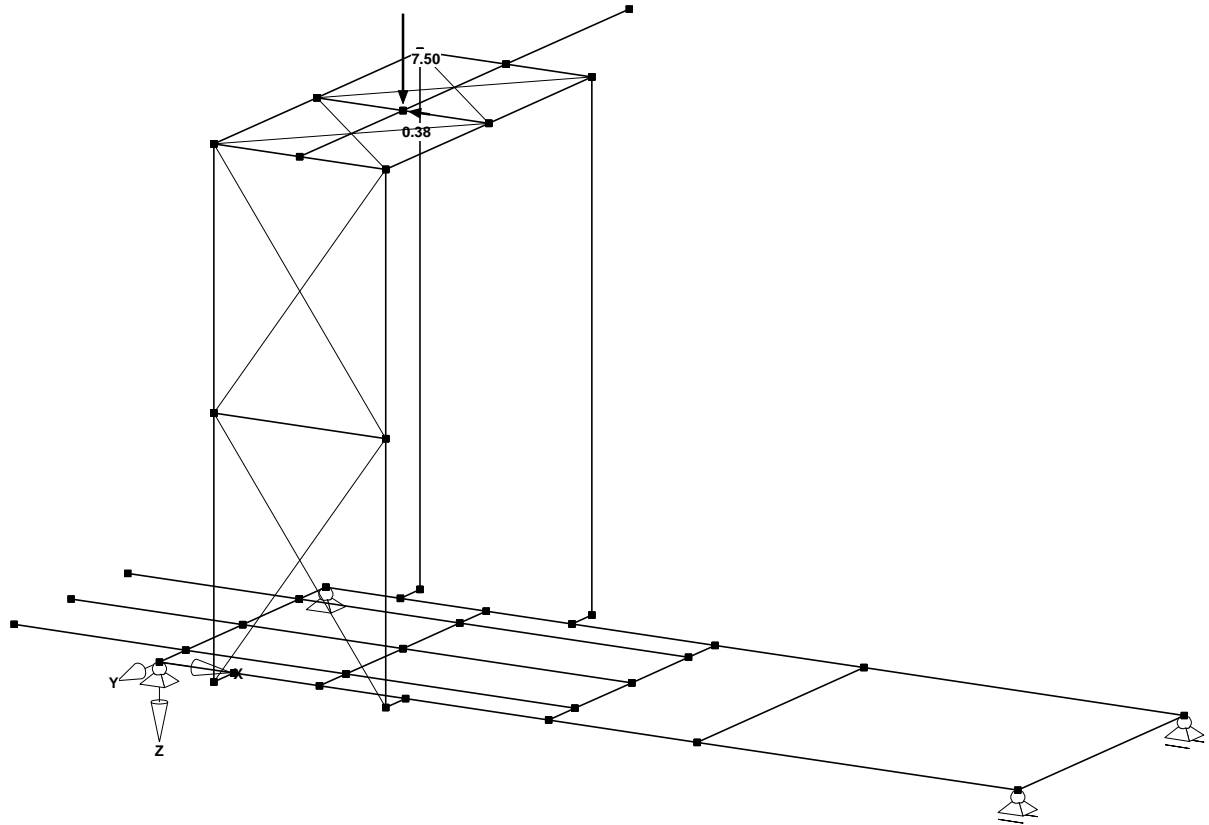
Position: 1.1rst
Tragwerk

Seite: 13

LASTFALL 7

LF 7 - Katze Stelle 1
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

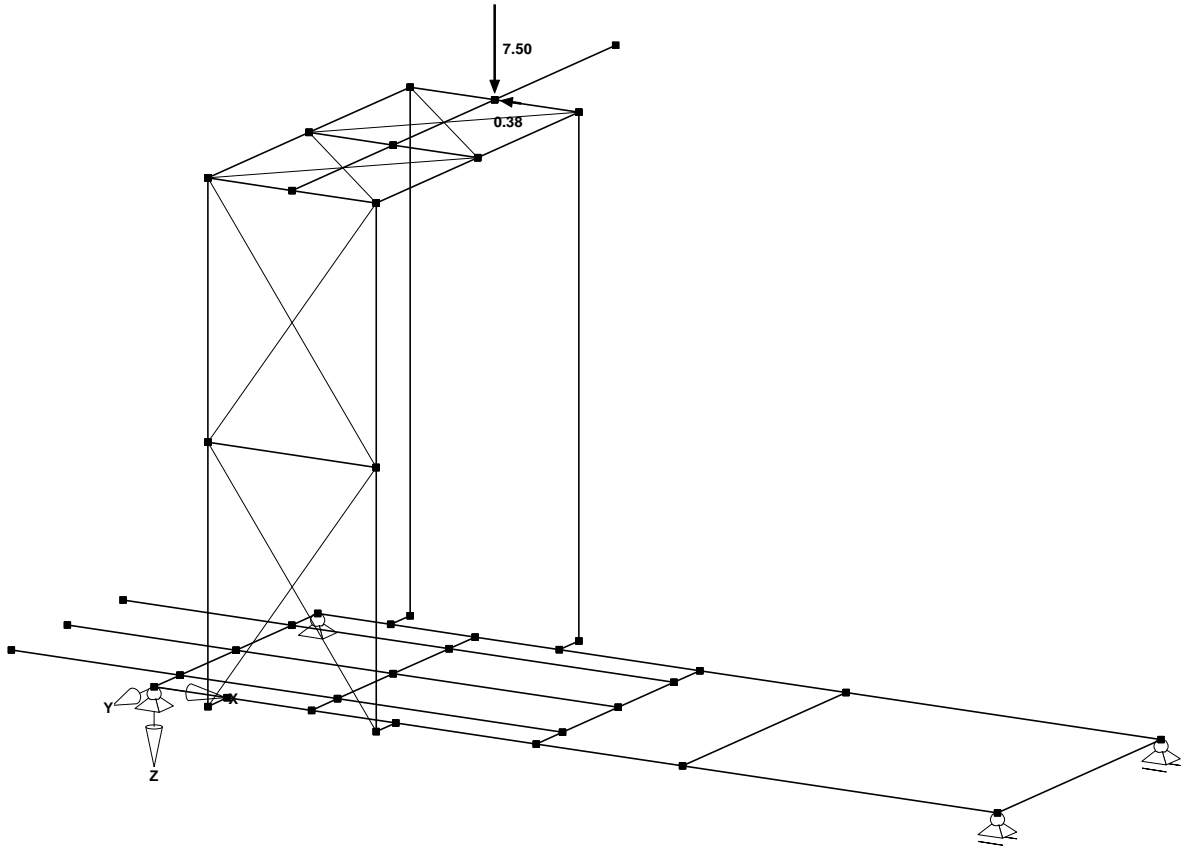
Position: 1.1rst
Tragwerk

Seite: 14

LASTFALL 8

LF 8 - Katze Stelle 2
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

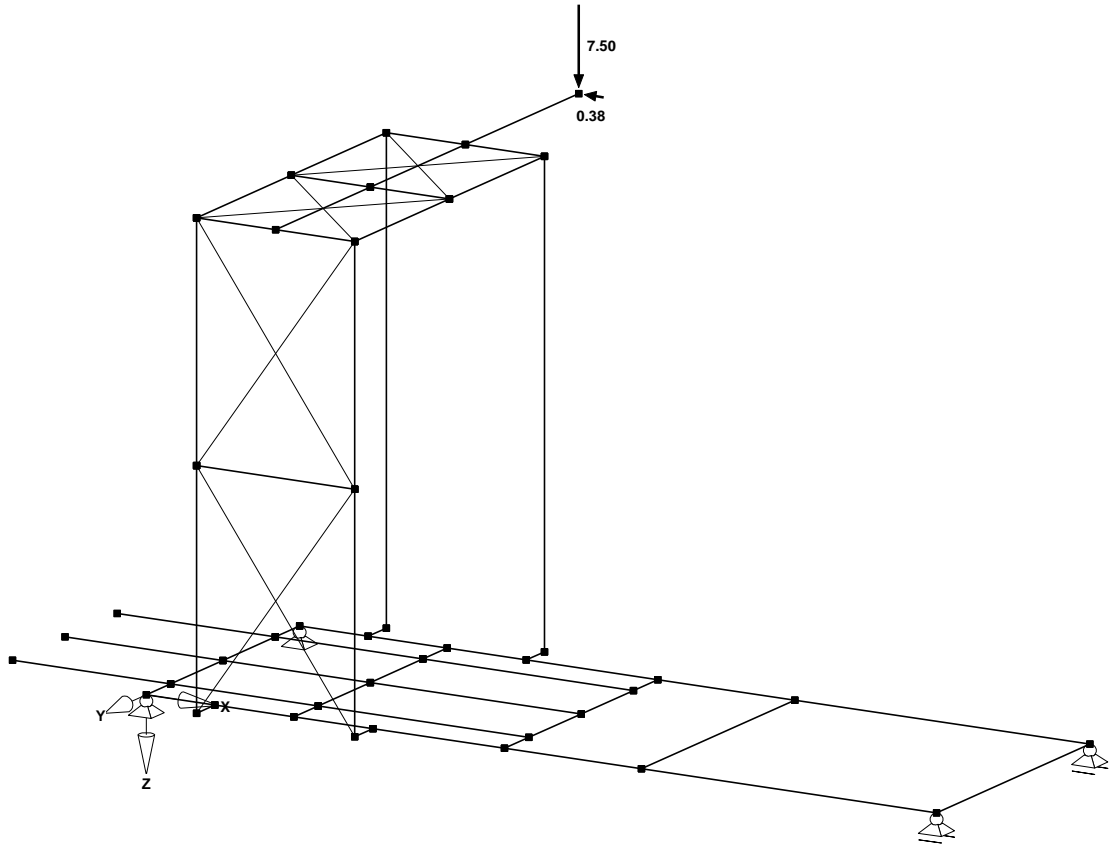
Position: 1.1rst
Tragwerk

Seite: 15

LASTFALL 9

LF 9 - Katze Stelle 3
[kN]

Isometrie



Projekt: 131-061526-WEB
Sekundärschalldämpfer

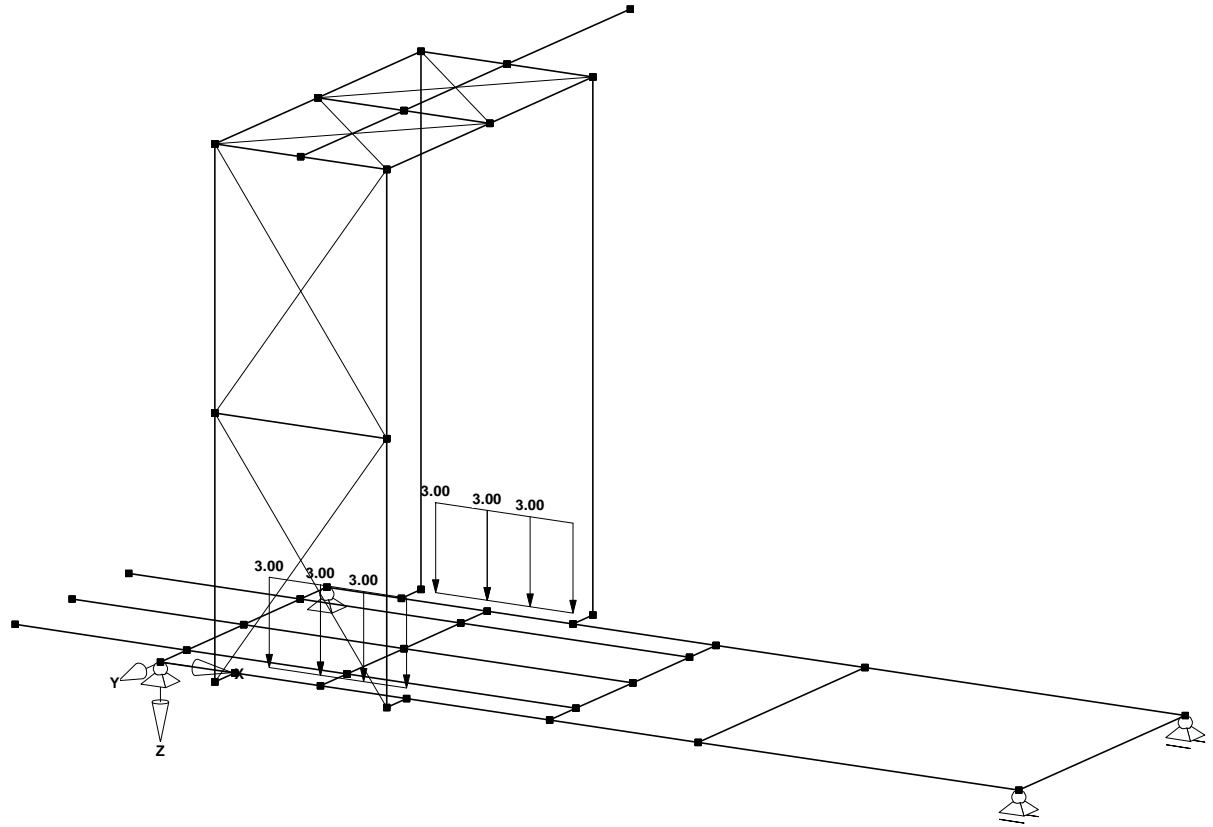
Position: 1.1rst
Tragwerk

Seite: 16

LASTFALL 10

LF 10 - Endstück in Betriebsposition
[kN/m]

Isometrie



Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 17
---	-------------------------------------	-----------

MAX/MIN/ZUEGH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
1	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00	.00	
			MIN	.00*	.00	.00	.00	.00	.00	
		LFe in Max: LFe in Min:								
		.00 .00	MAX	.00	.00*	.00	.00	.00	.00	
			MIN	.00	.00*	.00	.00	.00	.00	
		LFe in Max: LFe in Min:								
.00 .00	MAX	.00	.00	2.36*	.00	-1.77	.00			
	MIN	.00	.00	.00*	.00	.00	.00			
LFe in Max: LG1 LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00*	.00	.00			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00	.00*	.00			
	MIN	.00	.00	2.36	.00	-1.77*	.00			
LFe in Max: LFe in Min: LG1										
.00 .00	MAX	.00	.00	.00	.00	.00	.00*			
	MIN	.00	.00	.00	.00	.00	.00*			
LFe in Max: LFe in Min:										
2	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00		
			MIN	.00*	.00	.00	.00	.00		
		LFe in Max: LFe in Min:								
		.00 .00	MAX	.00	.00*	.00	.00	.00	.00	
			MIN	.00	.00*	.00	.00	.00	.00	
		LFe in Max: LFe in Min:								
.00 .00	MAX	.00	.00	4.39*	.00	-3.29	.00			
	MIN	.00	.00	.00*	.00	.00	.00			
LFe in Max: LG1 LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00*	.00	.00			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00	.00*	.00			
	MIN	.00	.00	4.39	.00	-3.29*	.00			
LFe in Max: LG1 LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00	.00	.00*			
	MIN	.00	.00	.00	.00	.00	.00*			
LFe in Max: LFe in Min:										
3	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00		
			MIN	.00*	.00	.00	.00	.00		
		LFe in Max: LFe in Min:								
		.00 .00	MAX	.00	.00*	.00	.00	.00	.00	
			MIN	.00	.00*	.00	.00	.00	.00	
LFe in Max: LFe in Min:										
.00 .00	MAX	.00	.00	2.36*	.00	-1.77	.00			
	MIN	.00	.00	.00*	.00	.00	.00			
LFe in Max: LG1 LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00*	.00	.00			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LFe in Min:										
.00 .00	MAX	.00	.00	.00	.00	.00*	.00			
	MIN	.00	.00	2.36	.00	-1.77*	.00			
LFe in Max: LFe in Min:										

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 18
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
			LF _e in Max: LF _e in Min: LG1						
			.00 .00	MAX MIN	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00
4	LK1	.00 .00	LF _e in Max: LF _e in Min: LG3	.00 -66	.00 -7.34	.00 -11.58	.00 .12	.00 3.63	.00 -99
			MAX MIN	.00 -65	.00 -7.35	.00 -11.04	.00 .09	.00 4.12	.00 -99
		.00 .40	LF _e in Max: LF _e in Min: LG3	.00 -66	.00 -7.34	.00 -12.03	.00 .12	.00 -1.10	.00 1.94
			MAX MIN	.00 -66	.00 -7.34	.00 -12.03	.00 .12	.00 -1.10	.00 1.94
		.00 .00	LF _e in Max: LG3 LF _e in Min:	-66 .00	-7.34 .00	-11.58 .00	.12 .00	3.63 .00	-99 .00
			MAX MIN	-65 -66	-7.35 -7.34	-11.04 -12.03	.09 .12	4.12 -1.10	-99 1.94
.40 .00	LF _e in Max: LG4 LF _e in Min: LG3	-65 -65	-7.35 -7.35	-11.49 -11.04	.09 .09	-39 4.12	1.95 -99		
	MAX MIN	-65 -65	-7.35 -7.35	-11.04 -11.04	.09 .09	4.12 -99	-99 -99		
5	LK1	.00 .00	LF _e in Max: LF _e in Min: LG3	.00 -27	.00 1.74	.00 -5.04	.00 .08	.00 8.46	.00 .23
			MAX MIN	.00 -27	.00 1.74	.00 -5.04	.00 .08	.00 8.46	.00 .23
		.00 .86	LF _e in Max: LG3 LF _e in Min:	.00 -27	.00 1.74	.00 -6.21	.00 .08	.00 3.62	.00 -1.27
			MAX MIN	.00 -27	.00 1.74	.00 -6.21	.00 .08	.00 3.62	.00 -1.27
		.00 .00	LF _e in Max: LG3 LF _e in Min:	-27 .00	1.74 .00	-5.04 .00	.08 .00	8.46 .00	.23 .00
			MAX MIN	-27 .00	1.74 .00	-4.61 .00	.05 .00	8.58 .00	.23 .00
.00 .86	LF _e in Max: LG4 LF _e in Min: LG3	-27 -27	1.74 1.74	-4.82 -6.21	.06 .08	8.46 3.62	.23 -1.27		
	MAX MIN	-27 -27	1.74 1.74	-6.21 -6.21	.08 .08	3.62 -1.27	-1.27 -1.27		
6	LK1	.00 .00	LF _e in Max: LG3 LF _e in Min:	.27 .00	1.85 .00	4.77 .00	-.01 .00	4.86 .00	1.46 .00
			MAX MIN	.27 .00	1.85 .00	4.77 .00	-.01 .00	4.86 .00	1.46 .00
		.00 .00	LF _e in Max: LG4 LF _e in Min:	.27 .00	1.84 .00	5.22 .00	-.04 .00	4.59 .00	1.45 .00
			MAX MIN	.27 .00	1.84 .00	5.22 .00	-.04 .00	4.59 .00	1.45 .00

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 19
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
6	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	.27	1.84	5.18	-.04	4.52	1.45	
			LF _e in Max: LG1 LF _e in Min: LG1							
		.86	MAX	.27	1.84	4.06	-.04	8.58	-1.13	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG4 LF _e in Min:							
		.00	MAX	.27	1.85	4.77	-.01	4.86	1.46	
		.86	MIN	.27	1.85	3.60	-.01	8.46	-1.14	
			LF _e in Max: LG3 LF _e in Min: LG3							
7	LK1	.00	MAX	.65	-9.86	10.25	-.06	.84	-2.75	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min:							
		.00	MAX	.00	.00	.00	.00	.00	.00	.00
		.00	MIN	.65	-9.86	10.25	-.06	.84	-2.75	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.65	-9.81	10.85	-.08	.34	-2.74	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG4 LF _e in Min:							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	.65	-9.83	10.78	-.08	.29	-2.75	
			LF _e in Max: LG1 LF _e in Min: LG1							
		.40	MAX	.65	-9.86	9.80	-.06	4.85	1.19	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.40	MAX	.65	-9.86	9.80	-.06	4.85	1.19	
		.00	MIN	.65	-9.86	10.25	-.06	.84	-2.75	
			LF _e in Max: LG3 LF _e in Min: LG3							
8	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-20.40	-9.17	40.20	-1.10	-.12	-9.09	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	.00
		.65	MIN	-19.61	-9.57	27.63	-.39	18.26	-2.91	
			LF _e in Max: LG4 LF _e in Min: LG4							
		.00	MAX	-20.40	-9.17	40.20	-1.10	-.12	-9.09	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-20.40	-9.17	40.20	-1.10	-.12	-9.09	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.65	MAX	-20.40	-9.18	39.20	-1.10	25.76	-3.13	
		.00	MIN	-20.40	-9.17	40.20	-1.10	-.12	-9.09	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-19.61	-9.56	28.64	-.39	-.09	-9.12	
			LF _e in Max: LG4 LF _e in Min: LG4							
9	LK1	.00	MAX	7.56	-8.13	13.39	-.84	-.06	-8.76	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min:							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	7.56	-8.13	13.39	-.84	-.06	-8.76	

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 20
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]	Kräfte [kN]				Momente [kNm]		
			N	Q ₂	Q ₃	T	M ₂	M ₃	
			LFe in Max: LG3 LFe in Min: LG3						
		.00	MAX	6.99	-7.93	24.57*	-29	-08	-8.59
		.00	MIN	.00	.00	.00*	.00	.00	.00
			LFe in Max: LG1 LFe in Min:						
		.00	MAX	.00	.00	.00	.00*	.00	.00
		.00	MIN	7.56	-8.13	13.39	-84*	-06	-8.76
			LFe in Max: LG3 LFe in Min: LG3						
		.65	MAX	6.99	-7.93	23.57	-29	15.57*	-3.44
		.00	MIN	6.99	-7.93	24.57	-29	-08*	-8.59
			LFe in Max: LG1 LFe in Min: LG1						
		.00	MAX	.00	.00	.00	.00	.00	.00
		.00	MIN	7.56	-8.13	13.39	-84	-06	-8.76
			LFe in Max: LG3 LFe in Min: LG3						
10	LK1	4.22	MAX	.47*	-39	.68	.00	2.42	1.31
		.00	MIN	-11.46*	.05	-02	.00	-07	1.56
			LFe in Max: LG4 LFe in Min: LG3						
		4.22	MAX	-10.06	.14*	-03	.00	-16	1.16
		.00	MIN	-93	-39*	.69	.00	-48	-34
			LFe in Max: LG3 LFe in Min: LG4						
		.00	MAX	-93	-39	.69*	.00	-48	-34
		4.22	MIN	-10.06	.14	-03*	.00	-16	1.16
			LFe in Max: LG4 LFe in Min: LG3						
		.00	MAX	.00	.00	.00	.00*	.00	.00
		.00	MIN	-11.46	.05	-02	.00*	-07	1.56
			LFe in Max: LG3 LFe in Min: LG3						
		4.22	MAX	.47	-39	.68	.00	2.42*	1.31
		.00	MIN	-93	-39	.69	.00	-48*	-34
			LFe in Max: LG4 LFe in Min: LG4						
		.00	MAX	-11.46	.05	-02	.00	-07	1.56
		.00	MIN	-93	-39	.69	.00	-48	-34
			LFe in Max: LG3 LFe in Min: LG4						
11	LK1	.00	MAX	.39*	.68	1.29	.48	-67	.21
		.00	MIN	-17*	-08	11.82	.07	-1.93	-02
			LFe in Max: LG4 LFe in Min: LG3						
		.00	MAX	.39	.68*	1.29	.48	-67	.21
		.00	MIN	-17	-08*	11.82	.07	-1.93	-02
			LFe in Max: LG4 LFe in Min: LG3						
		.00	MAX	-17	-08	11.82*	.07	-1.93	-02
		.00	MIN	.00	.00	.00*	.00	.00	
			LFe in Max: LG3 LFe in Min:						
		.00	MAX	.39	.68	1.29	.48*	-67	.21
		.00	MIN	.00	.00	.00	.00*	.00	.00
			LFe in Max: LG4 LFe in Min:						
		.30	MAX	-17	-08	11.46	.07	1.56*	.00
		.00	MIN	-17	-08	11.82	.07	-1.93*	-02
			LFe in Max: LG3 LFe in Min: LG3						
		.00	MAX	.39	.68	1.29	.48	-67	.21
		.00	MIN	-17	-08	11.82	.07	-1.93	-02
			LFe in Max: LG4 LFe in Min: LG3						

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 21
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
12	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00	
		.00	MIN	-.36*	.02	-.78	.00	.31	.01	
				LFe in Max: LG4						
				LFe in Min: LG4						
		.00	MAX	-.14	.05*	-1.88	.00	1.97	.04	
		.16	MIN	-.25	-.03*	.61	.01	-1.71	.00	
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	-.25	-.03	.66*	.01	-1.81	.00			
1.56	MIN	-.14	.05	-2.39*	.00	-1.36	-.04			
		LFe in Max: LG3								
		LFe in Min: LG1								
.00	MAX	-.25	-.03	.66	.01*	-1.81	.00			
.00	MIN	.00	.00	.00	.00*	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.00	MAX	-.14	.05	-1.88	.00	1.97*	.04			
.00	MIN	-.25	-.03	.66	.01	-1.81*	.00			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	-.14	.05	-1.88	.00	1.97	.04*			
1.56	MIN	-.14	.05	-2.39	.00	-1.36	-.04*			
		LFe in Max: LG1								
		LFe in Min: LG1								
13	LK1	.00	MAX	.02*	.06	-3.98	.00	4.80	.05	
		.00	MIN	-.28*	.01	-.86	.00	2.06	.01	
				LFe in Max: LG3						
				LFe in Min: LG4						
		.00	MAX	.02	.06*	-3.98	.00	4.80	.05	
		.00	MIN	-.02	-.03*	.35	.00	1.82	-.02	
		LFe in Max: LG3								
		LFe in Min: LG1								
.00	MAX	-.02	-.03	.35*	.00	1.82	-.02			
1.56	MIN	.02	.06	-4.50*	.00	-1.81	-.05			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	-.02	-.03	.35	.00*	1.82	-.02			
.00	MIN	.02	.06	-3.98	.00*	4.80	.05			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	.02	.06	-3.98	.00	4.80*	.05			
1.56	MIN	.02	.06	-4.50	.00	-1.81*	-.05			
		LFe in Max: LG3								
		LFe in Min: LG3								
.00	MAX	.02	.06	-3.98	.00	4.80	.05*			
1.56	MIN	.02	.06	-4.50	.00	-1.81	-.05*			
		LFe in Max: LG3								
		LFe in Min: LG3								
14	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00	
		.00	MIN	-.99*	-1.72	-7.01	-.11	1.52	-.51	
				LFe in Max: LG3						
				LFe in Min: LG3						
		.00	MAX	.00	.00*	.00	.00	.00	.00	
.00	MIN	-.99	-1.72*	-7.01	-.11	1.52	-.51			
		LFe in Max: LG3								
		LFe in Min: LG3								
.00	MAX	-.61	-1.23	.84*	-.04	.57	-.36			
.30	MIN	-.99	-1.72	-7.37*	-.11	-.64	.01			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	.00	.00	.00	.00*	.00	.00			
.00	MIN	-.99	-1.72	-7.01	-.11*	1.52	-.51			
		LFe in Max: LG3								
		LFe in Min: LG3								
.00	MAX	-.99	-1.72	-7.01	-.11	1.52*	-.51			
.30	MIN	-.99	-1.72	-7.37	-.11	-.64*	.01			

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 22
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
15	LK1	.30	LF _e in Max: LG3						
			LF _e in Min: LG3						
		.00	MAX	-99	-1.72	-7.37	-11	-64	.01
			MIN	-99	-1.72	-7.01	-11	1.52	-.51
			LF _e in Max: LG3						
			LF _e in Min: LG3						
		2.11	MAX	4.19*	.31	.99	.00	4.81	-.33
			MIN	-3.06*	.07	.62	.00	.52	.15
			LF _e in Max: LG3						
			LF _e in Min: LG1						
		.00	MAX	3.49	.31*	.99	.00	2.71	.32
			MIN	.00	.00*	.00	.00	.00	.00
	LF _e in Max: LG3								
	LF _e in Min:								
.00	MAX	3.49	.31	.99*	.00	2.71	.32		
	MIN	.00	.00	.00*	.00	.00	.00		
	LF _e in Max: LG3								
	LF _e in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00		
	MIN	-.43	.21	.47	.00*	1.08	.25		
	LF _e in Max:								
	LF _e in Min: LG4								
2.11	MAX	4.19	.31	.99	.00	4.81*	-.33		
	MIN	.00	.00	.00	.00	.00*	.00		
	LF _e in Max: LG3								
	LF _e in Min:								
.00	MAX	3.49	.31	.99	.00	2.71	.32		
	MIN	4.19	.31	.99	.00	4.81	-.33		
	LF _e in Max: LG3								
	LF _e in Min: LG3								
16	LK1	2.11	LF _e in Max: LG3						
			LF _e in Min: LG1						
		.00	MAX	5.90*	.16	.99	-.01	2.71	-.23
			MIN	-2.06*	.11	.61	-.01	-.76	.04
			LF _e in Max: LG3						
			LF _e in Min: LG1						
		.00	MAX	5.19	.16*	.99	-.01	.64	.11
			MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3						
			LF _e in Min:						
		.00	MAX	5.19	.16	.99*	-.01	.64	.11
			MIN	.00	.00	.00*	.00	.00	.00
	LF _e in Max: LG3								
	LF _e in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00		
	MIN	5.19	.16	.99	-.01*	.64	.11		
	LF _e in Max:								
	LF _e in Min: LG3								
2.11	MAX	5.90	.16	.99	-.01	2.71*	-.23		
	MIN	-2.06	.11	.61	-.01	-.76*	.04		
	LF _e in Max: LG3								
	LF _e in Min: LG1								
.00	MAX	5.19	.16	.99	-.01	.64	.11		
	MIN	5.90	.16	.99	-.01	2.71	-.23		
	LF _e in Max: LG3								
	LF _e in Min: LG3								
17	LK1	.00	MAX	9.09*	-.39	2.91	.00	-1.73	-.27
			MIN	.00*	.00	.00	.00	.00	.00
			LF _e in Max: LG4						
			LF _e in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00
			MIN	9.08	-.39*	3.01	.00	-1.73	-.27
	LF _e in Max:								
	LF _e in Min: LG3								
.00	MAX	9.08	-.39	3.01*	.00	-1.73	-.27		
	MIN	.00	.00	.00*	.00	.00	.00		
	LF _e in Max: LG3								
	LF _e in Min:								

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 23
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
17	LK1	.00	MAX	.00	.00	.00	.00*	.00	.00
		.00	MIN	9.08	-39	3.01	.00*	-1.73	-27
			LF _e in Max: LG3 LF _e in Min: LG3						
		1.40	MAX	9.08	-39	1.37	.00	1.34*	.27
		.00	MIN	9.09	-39	2.91	.00	-1.73*	-27
			LF _e in Max: LG3 LF _e in Min: LG4						
		1.40	MAX	9.08	-39	1.37	.00	1.34	.27
		.00	MIN	9.08	-39	3.01	.00	-1.73	-27
			LF _e in Max: LG3 LF _e in Min: LG3						
18	LK1	.00	MAX	.11*	-54	4.26	.00	-3.20	-37
		.00	MIN	.00*	.00	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.00	MIN	.11	-54*	4.26	.00	-3.20	-37
			LF _e in Max: LG3 LF _e in Min: LG3						
.00	MAX	.10	-53	4.28*	.00	-3.20	-36		
.00	MIN	.00	.00*	.00	.00	.00	.00		
	LF _e in Max: LG4 LF _e in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00		
.00	MIN	.11	-54	4.26	.00*	-3.20	-37		
	LF _e in Max: LG3 LF _e in Min: LG3								
.00	MAX	.10	-53	2.28	.00	1.39*	.38		
.00	MIN	.10	-53	4.26	.00	-3.20*	-36		
	LF _e in Max: LG4 LF _e in Min: LG1								
.00	MAX	.11	-54	2.26	.00	1.36	.39		
.00	MIN	.11	-54	4.26	.00	-3.20	-37		
	LF _e in Max: LG3 LF _e in Min: LG3								
19	LK1	.00	MAX	.00*	.00	.00	.00	.00	
		.00	MIN	-11.71*	-38	2.70	.00	-1.73	-27
			LF _e in Max: LG3 LF _e in Min: LG3						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.70	MIN	-11.71	-39*	1.89	.00	-0.07	.00
			LF _e in Max: LG3 LF _e in Min: LG3						
.00	MAX	-11.65	-38	2.85*	.00	-1.73	-26		
.00	MIN	.00	.00*	.00	.00	.00	.00		
	LF _e in Max: LG4 LF _e in Min:								
.00	MAX	-11.67	-38	2.83	.00*	-1.73	-26		
.00	MIN	-11.71	-38	2.70	.00*	-1.73	-27		
	LF _e in Max: LG1 LF _e in Min: LG3								
.00	MAX	-11.65	-38	1.21	.00	1.12*	.27		
.00	MIN	-11.65	-38	2.85	.00	-1.73*	-26		
	LF _e in Max: LG4 LF _e in Min: LG4								
.00	MAX	-11.71	-38	1.06	.00	.92	.27		
.00	MIN	-11.71	-38	2.70	.00	-1.73	-27		
	LF _e in Max: LG3 LF _e in Min: LG3								
20	LK1	.00	MAX	.00*	.00	.00	.00	.00	
		.00	MIN	-1.73*	.43	10.20	-0.02	-0.17	.04
			LF _e in Max: LG3 LF _e in Min: LG3						
.08	MAX	-1.73	.43*	10.17	-0.02	.59	.01		
.38	MIN	-1.06	-1.0*	-0.01	.00	1.87	.00		

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 24
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]	Kräfte [kN]				Momente [kNm]		
			N	Q ₂	Q ₃	T	M ₂	M ₃	
			LFe in Max: LG3 LFe in Min: LG1						
		.00	MAX	-1.73	.43	10.20*	-.02	-.17	.04
		.75	MIN	-.92	-.03	-2.03*	.00	1.00	.01
			LFe in Max: LG3 LFe in Min: LG4						
		.00	MAX	-1.06	-.10	.12	.00*	1.85	-.04
.00	MIN	-1.73	.43	10.20	-.02*	-.17	.04		
			LFe in Max: LG1 LFe in Min: LG3						
		.75	MAX	-1.73	.43	9.95	-.02	7.38*	-.28
		.00	MIN	-1.73	.43	10.20	-.02	-.17*	.04
			LFe in Max: LG3 LFe in Min: LG3						
		.00	MAX	-1.73	.43	10.20	-.02	-.17	.04*
		.75	MIN	-1.73	.43	9.95	-.02	7.38	-.28*
			LFe in Max: LG3 LFe in Min: LG3						
21	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	-20.36*	-9.19	23.77	.41	18.91	-3.11
			LFe in Max: LFe in Min: LG1						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.34	MIN	-20.32	-9.36*	26.84	.83	35.02	.05
			LFe in Max: LFe in Min: LG3						
.00	MAX	-20.32	-9.35	27.38*	.83	25.84	-3.11		
.00	MIN	.00	.00	.00*	.00	.00	.00		
	LFe in Max: LG3 LFe in Min:								
.00	MAX	-20.32	-9.35	27.38	.83*	25.84	-3.11		
.00	MIN	.00	.00	.00	.00*	.00	.00		
	LFe in Max: LG3 LFe in Min:								
.75	MAX	-20.32	-9.35	26.22	.83	45.99*	3.91		
.00	MIN	.00	.00	.00	.00	.00*	.00		
	LFe in Max: LG3 LFe in Min:								
.75	MAX	-20.32	-9.35	26.22	.83	45.99	3.91*		
.00	MIN	-20.30	-9.18	26.34	.29	18.73	-3.12*		
	LFe in Max: LG3 LFe in Min: LG4								
22	LK1	.00	MAX	.02*	-.19	-5.19	.00	.01	-.05
		.00	MIN	-.26*	-.04	1.68	.00	.00	-.02
			LFe in Max: LG3 LFe in Min: LG1						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.00	MIN	.02	-.19*	-5.19	.00	.01	-.05
			LFe in Max: LFe in Min: LG3						
.00	MAX	-.26	-.04	1.68*	.00	.00	-.02		
.75	MIN	.02	-.19	-5.44*	.00	-3.97	.09		
	LFe in Max: LG1 LFe in Min: LG3								
.00	MAX	.00	.00	.00	.00*	.00	.00		
.00	MIN	-.04	-.04	-.82	.00*	.00	-.02		
	LFe in Max: LFe in Min: LG2								
.75	MAX	-.26	-.04	1.43	.00	1.17*	.02		
.75	MIN	.02	-.19	-5.44	.00	-3.97*	.09		
	LFe in Max: LG1 LFe in Min: LG3								
.75	MAX	.02	-.19	-5.44	.00	-3.97	.09*		
.00	MIN	.02	-.19	-5.19	.00	.01	-.05*		
	LFe in Max: LG3 LFe in Min: LG3								

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 25
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
23	LK1	.00	MAX	5.84*	-7.15	19.40	.68	8.44	-2.96	
		.00	MIN	.00*	.00	.00	.00	.00	.00	
				LFe in Max: LG3						
				LFe in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00	.00
		.00	MIN	5.78	-7.33*	25.53	.32	15.35	-3.07	
		LFe in Max: LG4								
		LFe in Min: LG4								
.00	MAX	5.78	-7.33	25.53*	.32	15.35	-3.07			
.00	MIN	.00	.00*	.00	.00	.00	.00			
		LFe in Max: LG4								
		LFe in Min:								
.00	MAX	5.84	-7.15	19.40	.68*	8.44	-2.96			
.00	MIN	.00	.00	.00	.00*	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.75	MAX	5.78	-7.33	22.55	.32	33.64*	2.43			
.00	MIN	.00	.00	.00	.00	.00*	.00			
		LFe in Max: LG4								
		LFe in Min:								
.75	MAX	5.78	-7.33	22.55	.32	33.64	2.43*			
.00	MIN	5.76	-7.32	22.72	.27	15.61	-3.08*			
		LFe in Max: LG4								
		LFe in Min: LG1								
24	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00	
		.00	MIN	-1.54*	-1.12	-2.25	.01	.33	-.05	
				LFe in Max: LG3						
				LFe in Min: LG3						
		.38	MAX	-1.53	.06*	1.86	.00	.71	.00	
		.38	MIN	-1.54	-1.12*	-3.37	.01	.22	.00	
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	-1.53	.06	1.98*	.00	-.01	.02			
.75	MIN	-1.54	-1.12	-4.49*	.01	.05	.04			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	-1.54	-1.12	-2.25	.01*	.33	-.05			
.00	MIN	.00	.00	.00	.00*	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.75	MAX	-1.53	.06	1.73	.00	1.39*	-.02			
.00	MIN	-1.53	.06	1.98	.00	-.01*	.02			
		LFe in Max: LG1								
		LFe in Min: LG1								
.75	MAX	-1.54	-1.12	-4.49	.01	.05	.04*			
.00	MIN	-1.54	-1.12	-2.25	.01	.33	-.05*			
		LFe in Max: LG3								
		LFe in Min: LG3								
25	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00	
		.00	MIN	.00*	.00	.00	.00	.00	.00	
				LFe in Max:						
				LFe in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00	
.00	MIN	.00	-5.1*	11.20	.00	-19.88	-.94			
		LFe in Max: LG3								
		LFe in Min: LG3								
.00	MAX	.00	-5.1	11.20*	.00	-19.88	-.94			
.00	MIN	.00	.00	.00	.00	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00			
.00	MIN	.00	.00	.00	.00*	.00	.00			
		LFe in Max:								
		LFe in Min:								
.00	MAX	.00	.00	.00	.00	.00*	.00			
.00	MIN	.00	-5.1	11.20	.00	-19.88*	-.94			
		LFe in Max:								
		LFe in Min:								

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 26
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
26	LK1	.00 .00	LF _e in Max: LF _e in Min: LG3						
			MAX MIN	.00 .00	.00 -51	.00 11.20	.00 .00	.00 -19.88	.00 -9.44
		.00 .00	LF _e in Max: LF _e in Min: LG3						
			MAX MIN	.00 -4.78	.00 15.23	.00 .75	.00 .03	.00 -1.95	.00 -1.75
		.00 .00	LF _e in Max: LG4 LF _e in Min:						
			MAX MIN	-4.28 .00	15.23 .00	1.34 .00	.01 .00	-1.16 .00	-1.74 .00
		.00 .00	LF _e in Max: LG4 LF _e in Min:						
			MAX MIN	-4.28 .00	15.23 .00	1.34 .00	.01 .00	-1.16 .00	-1.74 .00
		.00 .00	LF _e in Max: LG3 LF _e in Min:						
			MAX MIN	-4.78 .00	15.23 .00	.75 .00	.03 .00	-1.95 .00	-1.75 .00
		.00 .00	LF _e in Max: LF _e in Min: LG3						
			MAX MIN	.00 -4.78	.00 15.23	.00 .75	.00 .03	.00 -1.95	.00 -1.75
.00 .40	LF _e in Max: LF _e in Min: LG3								
	MAX MIN	.00 -4.78	.00 15.23	.00 .30	.00 .03	.00 -1.73	.00 -7.84		
27	LK1	.00 .00	LF _e in Max: LF _e in Min:	.00 .00	.00 .00	.00 .00			
			MAX MIN	.00 .00	.00 .00	.00 .00			
		LF _e in Max: LF _e in Min:	.00 .00	.00 .00	.00 .00				
28	LK1	.00 .00	LF _e in Max: LG3 LF _e in Min: LG4	.01 -0.01	.35 .02	-11.81 -1.21	.00 -0.01	-0.73 1.58	.15 .02
			MAX MIN	.01 .00	.35 .00	-11.81 .00	.00 .00	-0.73 .00	.15 .00
		.00 1.56	LF _e in Max: LF _e in Min: LG3	.00 .01	.00 .35	.00 -12.70	.00 .00	.00 -19.84	.00 -0.39
			MAX MIN	.00 .01	.00 .35	.00 -12.70	.00 .00	.00 -19.84	.00 -0.39
		.00 .00	LF _e in Max: LG3 LF _e in Min: LG4	.01 -0.01	.35 .02	-11.81 -1.21	.00 -0.01	-0.73 1.58	.15 .02
			MAX MIN	.01 -0.01	.35 .02	-11.81 -1.21	.00 -0.01	-0.73 1.58	.15 .02
.00 1.56	LF _e in Max: LG1 LF _e in Min: LG3	.00 .01	.11 .35	-3.95 -12.70	.00 .00	5.87 -19.84	.09 -0.39		
	MAX MIN	.00 .01	.11 .35	-3.95 -12.70	.00 .00	5.87 -19.84	.09 -0.39		
.00 1.56	LF _e in Max: LG3 LF _e in Min: LG3	.01 .01	.35 .35	-11.81 -12.70	.00 .00	-0.73 -19.84	.15 -0.39		
	MAX MIN	.01 .01	.35 .35	-11.81 -12.70	.00 .00	-0.73 -19.84	.15 -0.39		

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 27
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
29	LK1	.00	MAX	.18*	.00	.01			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LG1 LF _e in Min:						
		.00	MAX	.00	.00*	.00			
		.00	MIN	.00	.00*	.00			
			LF _e in Max: LF _e in Min:						
		.00	MAX	.18	.00	.01*			
		2.16	MIN	.18	.00	-.01*			
			LF _e in Max: LG1 LF _e in Min: LG1						
30	LK1	.00	MAX	.00*	.00	.00	.00	.00	
		.00	MIN	-4.92*	2.99	.14	.01	-1.56	.30
			LF _e in Max: LF _e in Min: LG3						
		.09	MAX	-4.92	2.99*	.05	.01	-1.56	.04
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	-4.42	2.99	.91*	.00	-1.44	.30
.86	MIN	-4.92	2.99	-1.03*	.01	-1.94	-2.28		
	LF _e in Max: LG4 LF _e in Min: LG3								
.00	MAX	-4.92	2.99	.14	.01*	-1.56	.30		
.00	MIN	-4.48	2.99	.82	.00*	-1.55	.30		
	LF _e in Max: LG3 LF _e in Min: LG1								
.00	MAX	.00	.00	.00	.00	.00*	.00		
.86	MIN	-4.92	2.99	-1.03	.01	-1.94*	-2.28		
	LF _e in Max: LF _e in Min: LG3								
.00	MAX	-4.42	2.99	.91	.00	-1.44	.30		
.86	MIN	-4.92	2.99	-1.03	.01	-1.94	-2.28		
	LF _e in Max: LG4 LF _e in Min: LG3								
31	LK1	.00	MAX	.00*	.00	.00	.00	.00	
		.00	MIN	-5.11*	3.31	-1.40	.03	.14	2.40
			LF _e in Max: LF _e in Min: LG3						
		.73	MAX	-5.11	3.31*	-2.43	.03	-1.24	-.02
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.00	.00	.00*	.00	.00	.00
.86	MIN	-5.11	3.31	-2.57*	.03	-1.56	-.45		
	LF _e in Max: LF _e in Min: LG3								
.00	MAX	-5.11	3.31	-1.40	.03*	.14	2.40		
.00	MIN	.00	.00	.00	.00*	.00	.00		
	LF _e in Max: LG3 LF _e in Min:								
.00	MAX	-5.11	3.31	-1.40	.03	.14*	2.40		
.86	MIN	-4.83	3.29	-2.20	.02	-1.56*	-.44		
	LF _e in Max: LG3 LF _e in Min: LG2								
.00	MAX	-5.11	3.31	-1.40	.03	.14	2.40		
.86	MIN	-5.11	3.31	-2.57	.03	-1.56	-.45		
	LF _e in Max: LG3 LF _e in Min: LG3								
32	LK1	.00	MAX	.01*	.07	-.03	.01	.02	.07
		.00	MIN	-.01*	.03	1.46	.00	.01	.02
			LF _e in Max: LG3 LF _e in Min: LG4						
		.00	MAX	.01	.07*	-.03	.01	.02	.07
		.00	MIN	.00	-.06*	4.21	.00	.01	-.04

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 28
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
			LF _e in Max: LG3 LF _e in Min: LG1						
		.00	MAX	.00	-.06	4.21*	.00	.01	-.04
		1.56	MIN	.01	.07	-.93*	.01	-.73	-.04
			LF _e in Max: LG1 LF _e in Min: LG3						
		.00	MAX	.01	.07	-.03	.01*	.02	.07
		.00	MIN	.00	.00	.00	.00*	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		1.56	MAX	.00	-.06	3.31	.00	5.87*	.06
		1.56	MIN	.01	.07	-.93	.01	-.73*	-.04
			LF _e in Max: LG1 LF _e in Min: LG3						
		.00	MAX	.01	.07	-.03	.01	.02	.07
		.00	MIN	.00	-.06	4.21	.00	.01	-.04
			LF _e in Max: LG3 LF _e in Min: LG1						
33	LK1	.00	MAX	.24*	.00	.01			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.00	.00*	.00			
		.00	MIN	.00	.00*	.00			
			LF _e in Max: LF _e in Min:						
		.00	MAX	.04	.00	.01*			
		2.16	MIN	.04	.00	-.01*			
			LF _e in Max: LG2 LF _e in Min: LG2						
34	LK1	.00	MAX	.08*	.00	.01			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LG1 LF _e in Min:						
		.00	MAX	.00	.00*	.00			
		.00	MIN	.00	.00*	.00			
			LF _e in Max: LF _e in Min:						
		.00	MAX	.08	.00	.01*			
		2.16	MIN	.08	.00	-.01*			
			LF _e in Max: LG1 LF _e in Min: LG1						
35	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	-5.22*	18.55	-2.18	.02	1.10	9.28
			LF _e in Max: LF _e in Min: LG3						
		.00	MAX	-5.22	18.55*	-2.18	.02	1.10	9.28
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
.00	MAX	.00	.00	.00*	.00	.00	.00		
.40	MIN	-5.22	18.55	-2.63*	.02	.14	1.86		
	LF _e in Max: LF _e in Min: LG3								
.00	MAX	-5.22	18.55	-2.18	.02*	1.10	9.28		
.00	MIN	-4.71	18.38	-1.69	.00*	.39	9.20		
	LF _e in Max: LG3 LF _e in Min: LG4								
.00	MAX	-5.22	18.55	-2.18	.02	1.10*	9.28		
.40	MIN	-4.78	18.40	-2.15	.00	-.44*	1.85		
	LF _e in Max: LG3 LF _e in Min: LG1								
.00	MAX	-5.22	18.55	-2.18	.02	1.10	9.28*		
.00	MIN	.00	.00	.00	.00	.00	.00		
	LF _e in Max: LG3 LF _e in Min:								

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 29
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
36	LK1	.00	MAX	.00*	.00	.00			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LF _e in Min:						
37	LK1	2.59	MAX	2.32*	.00	-.01			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LG3 LF _e in Min:						
38	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	-1.48*	.01	-.56	.00	.55	.01
			LF _e in Max: LG3 LF _e in Min: LG3						
		.75	MAX	-1.48	.01*	-.81	.00	.04	.00
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min: LG3						
39	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	.00*	.00	.00	.00	.00	.00
			LF _e in Max: LF _e in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LF _e in Min:						
40	LK1	2.59	MAX	2.70*	.00	-.01			
		.00	MIN	.00*	.00	.00			
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.00	.00*	.00			
		.00	MIN	.00	.00*	.00			

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 30
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
41	LK1	.00 .00	LF _e in Max:						
			LF _e in Min:						
		MAX	1.93	.00	.01*				
		MIN	1.96	.00	-.01*				
		LF _e in Max: LG1							
		LF _e in Min: LG1							
42	LK1	.00 .00	LF _e in Max: LG1	.00*	.00	.00	.00	.00	.00
			LF _e in Min: LG1	-.95*	-.10	-6.06	.00	1.85	-.04
		MAX	-.88	.41*	-14.19	.02	-2.12	-.01	
		MIN	-.95	-.10*	-6.19	.00	-.67	.00	
		LF _e in Max: LG3							
		LF _e in Min: LG1							
43	LK1	.00 .00	LF _e in Max: LG3	.00	.00	.00*	.00	.00	.00
			LF _e in Min: LG3	-.88	.41	-14.21*	.02	-3.18	-.04
		MAX	-.88	.41	-13.96	.02*	7.38	.27	
		MIN	.00	.00	.00	.00*	.00	.00	
		LF _e in Max: LG3							
		LF _e in Min:							
44	LK1	.00 .00	LF _e in Max: LG3	-.88	.41	-13.96	.02	7.38*	.27
			LF _e in Min: LG3	-.88	.41	-14.21	.02	-3.18*	-.04
		MAX	-.88	.41	-13.96	.02	7.38	.27	
		MIN	-.95	-.10	-6.06	.00	1.85	-.04	
		LF _e in Max: LG3							
		LF _e in Min: LG1							
45	LK1	.00 .00	LF _e in Max: LG1	.00*	.00	.00	.00	.00	.00
			LF _e in Min: LG1	-5.14*	-4.83	23.38	-.54	36.34	-4.05
		MAX	.00	.00*	.00	.00	.00	.00	
		MIN	-5.06	-4.89*	24.25	-.43	37.69	-4.07	
		LF _e in Max: LG4							
		LF _e in Min: LG4							
46	LK1	.00 .00	LF _e in Max: LG3	-5.09	-4.57	26.52*	-.90	45.96	-3.93
			LF _e in Min:	.00	.00	.00*	.00	.00	.00
		MAX	.00	.00	.00	.00*	.00	.00	
		MIN	-5.09	-4.57	26.52	-.90*	45.96	-3.93	
		LF _e in Max: LG3							
		LF _e in Min: LG3							
47	LK1	.75 .00	LF _e in Max: LG3	-5.09	-4.57	25.62	-.90	65.53*	-.50
			LF _e in Min:	.00	.00	.00	.00	.00*	.00
		MAX	.00	.00	.00	.00	.00	.00	
		MIN	-5.06	-4.89	24.25	-.43	37.69	-4.07	
		LF _e in Max: LG4							
		LF _e in Min: LG4							
48	LK1	.00 .00	LF _e in Max: LG1	.07*	-.04	-1.43	.00	1.16	-.02
			LF _e in Min: LG3	-.25*	-.19	5.44	.00	-3.98	-.09
		MAX	.00	.00*	.00	.00	.00	.00	
		MIN	-.25	-.19*	5.44	.00	-3.98	-.09	
		LF _e in Max: LG3							
		LF _e in Min: LG3							
49	LK1	.00 .75	LF _e in Max: LG3	-.25	-.19	5.44*	.00	-3.98	-.09
			LF _e in Min: LG1	.07	-.04	-1.68*	.00	.00	.02
		MAX	-.25	-.19	5.44	.00	-3.98	-.09	
		MIN	.07	-.04	-1.68	.00	.00	.02	
		LF _e in Max: LG3							
		LF _e in Min: LG1							

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 31
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]				
				N	Q ₂	Q ₃	T	M ₂	M ₃		
43	LK1	.00	MAX	-0.03	-0.04	1.08	.00*	-0.71	-0.02		
		.00	MIN							-0.25	-0.19
				LFe in Max: LG2 LFe in Min: LG3							
		.00	MAX	-0.25	-0.19	5.44	.00	1.16*	-0.02		
		.00	MIN							LFe in Max: LG1 LFe in Min: LG3	
		.75	MAX	-0.25	-0.19	5.44	.00	.01	.05*		
		.00	MIN							LFe in Max: LG3 LFe in Min: LG3	
44	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00		
		.00	MIN							-12.71*	-12.37
				LFe in Max: LFe in Min: LG3							
				.00	MAX	-12.71	-12.38*	19.75	-0.42	33.87	.08
				.56	MIN						
				.00	MAX	-12.59	-12.05	24.23*	-0.08	33.64	-6.77
		.00	MIN	LFe in Max: LG4 LFe in Min: :							
		.00	MAX	-12.71	-12.37	20.42	-0.42*	22.56	-6.89		
		.00	MIN							LFe in Max: LFe in Min: LG3	
		.75	MAX	-12.59	-12.05	20.30	-0.08	50.36*	2.26		
		.00	MIN							LFe in Max: LG4 LFe in Min: :	
		.75	MAX	-12.71	-12.38	19.52	-0.42	37.56	2.40*		
		.00	MIN							LFe in Max: LG3 LFe in Min: LG3	
45	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00		
		.00	MIN							-1.61*	-1.10
				LFe in Max: LFe in Min: LG3							
				.41	MAX	-1.61	-1.10*	-0.56	-0.01	.34	.00
				.30	MIN						
				.00	MAX	-1.47	.06	-2.48	.00	1.39*	.02
		.75	MIN	LFe in Max: LG1 LFe in Min: LG1							
		.75	MAX	-1.61	-1.10	-0.71	-0.01	-0.38	.04*		
		.00	MIN							LFe in Max: LG3 LFe in Min: LG3	
46	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00		
		.00	MIN							-14.84*	.67
		LFe in Max: LFe in Min: LG3									
		4.22	MAX	-13.44	.80*	.88	.00	3.18	-1.12		
		.00	MIN							LFe in Max: LFe in Min: LG3	

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 32
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]	Kräfte [kN]			Momente [kNm]			
			N	Q ₂	Q ₃	T	M ₂	M ₃	
47	LK1	.42 .00	MAX	-14.70	.70	.92*	.00	-2.27	2.80
			MIN	.00	.00	.00*	.00	.00	.00
		.00 .00	MAX	.00	.00	.00	.00*	.00	.00
			MIN	-14.84	.67	.92	.00*	-6.66	3.09
		4.22 .00	MAX	-13.44	.80	.88	.00	3.18*	-1.12
			MIN	-7.64	.35	.91	.00	-8.1*	1.66
.00 4.22	MAX	-14.84	.67	.92	.00	-6.66	3.09*		
	MIN	-13.44	.80	.88	.00	3.18	-1.12*		
48	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00	.00
			MIN	-8.5*	.83	15.20	.66	-1.42	.25
		.00 .00	MAX	-.40	.86*	7.99	.81	-6.69	.26
			MIN	.00	.00*	.00	.00	.00	.00
		.00 .00	MAX	-8.5	.83	15.20*	.66	-1.42	.25
			MIN	.00	.00	.00*	.00	.00	.00
.00 .00	MAX	-.40	.86	7.99	.81*	-6.69	.26		
	MIN	.00	.00	.00	.00*	.00	.00		
48	LK1	.00 .00	MAX	1.18*	-.03	1.31	-.01	-1.54	-.01
			MIN	.00*	.00	.00	.00	.00	.00
		.00 .00	MAX	.23	.05*	-1.38	.00	2.33	.04
			MIN	1.18	-.03*	1.31	-.01	-1.54	-.01
		.00 1.56	MAX	1.18	-.03	1.31*	-.01	-1.54	-.01
			MIN	.23	.05	-1.90*	.00	-2.23	-.04
.00 .00	MAX	.23	.05	-1.38	.00*	2.33	.04		
	MIN	1.18	-.03	1.31	-.01*	-1.54	-.01		
.00 .00	MAX	.23	.05	-1.38	.00	2.33*	.04		
	MIN	1.18	-.03	1.31	-.01	-1.54*	-.01		
.00 1.56	MAX	.23	.05	-1.38	.00	2.33	.04*		
	MIN	.23	.05	-1.90	.00	-2.23	-.04*		

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 33
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
49	LK1	.00	MAX	.82*	.06	-3.34	.00	4.08	.05	
		.00	MIN	.00*	.00	.00	.00	.00	.00	
				LFe in Max: LG3						
				LFe in Min:						
		.00	MAX	.82	.06*	-3.34	.00	4.08	.05	
		.00	MIN	.19	-.03*	.84	.00	1.43	-.02	
		LFe in Max: LG3								
		LFe in Min: LG1								
.00	MAX	.19	-.03	.84*	.00	1.43	-.02			
1.56	MIN	.82	.06	-3.86*	.00	-1.54	-.06			
		LFe in Max: LG1								
		LFe in Min: LG3								
.00	MAX	.82	.06	-3.34	.00*	4.08	.05			
.00	MIN	.00	.00	.00	.00*	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.00	MAX	.82	.06	-3.34	.00	4.08*	.05			
1.56	MIN	.82	.06	-3.86	.00	-1.54*	-.06			
		LFe in Max: LG3								
		LFe in Min: LG3								
.00	MAX	.82	.06	-3.34	.00	4.08	.05*			
1.56	MIN	.82	.06	-3.86	.00	-1.54	-.06*			
		LFe in Max: LG3								
		LFe in Min: LG3								
50	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00	
		.00	MIN	-1.41*	-.27	4.33	-.28	.64	-.07	
				LFe in Max:						
				LFe in Min: LG3						
		.00	MAX	.00	.00*	.00	.00	.00	.00	
		.00	MIN	-1.41	-.27*	4.33	-.28	.64	-.07	
		LFe in Max:								
		LFe in Min: LG3								
.00	MAX	-.99	-.21	9.23*	-.28	.09	-.06			
.00	MIN	.00	.00	.00*	.00	.00	.00			
		LFe in Max: LG1								
		LFe in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00			
.00	MIN	-.92	-.26	7.32	-.31*	.11	-.07			
		LFe in Max:								
		LFe in Min: LG4								
.30	MAX	-.99	-.21	8.87	-.28	2.80*	.01			
.00	MIN	.00	.00	.00	.00	.00*	.00			
		LFe in Max: LG1								
		LFe in Min:								
.30	MAX	-1.41	-.27	3.97	-.28	1.89	.01*			
.00	MIN	-1.41	-.27	4.33	-.28	.64	-.07*			
		LFe in Max: LG3								
		LFe in Min: LG3								
51	LK1	2.11	MAX	.72*	.34	1.40	.00	4.09	-.37	
		.00	MIN	-5.65*	.45	1.00	.00	-.67	.37	
				LFe in Max: LG3						
				LFe in Min: LG1						
		.42	MAX	-5.51	.45*	1.00	.00	-.25	.19	
.00	MIN	.00	.00*	.00	.00	.00	.00			
		LFe in Max: LG1								
		LFe in Min:								
.00	MAX	.02	.34	1.40*	.00	1.13	.35			
.00	MIN	.00	.00	.00*	.00	.00	.00			
		LFe in Max: LG3								
		LFe in Min:								
.00	MAX	.00	.00	.00	.00*	.00	.00			
.00	MIN	-3.39	.37	.92	.00*	-.28	.34			
		LFe in Max:								
		LFe in Min: LG4								
2.11	MAX	.72	.34	1.40	.00	4.09*	-.37			
.00	MIN	-5.65	.45	1.00	.00	-.67*	.37			

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 34
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
			LF _e in Max: LG3 LF _e in Min: LG1							
		.00	MAX	-5.65	.45	1.00	.00	-0.67	.37	
		2.11	MIN	-4.95	.44	1.00	.00	1.43	-0.56	
			LF _e in Max: LG1 LF _e in Min: LG1							
52	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-8.85	.25	1.00	-0.01	-2.80	.28	
			LF _e in Max: LG1 LF _e in Min: LG1							
		.53	MAX	-6.77	.28	.93	-0.01	-1.76	.16	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG4 LF _e in Min: LG4							
52	LK1	.53	MAX	-3.78	.28	1.44	-0.01	-1.13	.13	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-3.96	.28	1.44	-0.01	-1.89	.28	
			LF _e in Max: LG3 LF _e in Min: LG3							
52	LK1	2.11	MAX	-3.25	.28	1.43	-0.01	1.13	-0.31	
		.00	MIN	-8.85	.25	1.00	-0.01	-2.80	.28	
			LF _e in Max: LG3 LF _e in Min: LG1							
		.00	MAX	-6.94	.28	.93	-0.01	-2.26	.31	
		2.11	MIN	-3.25	.28	1.43	-0.01	1.13	-0.31	
			LF _e in Max: LG4 LF _e in Min: LG3							
53	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-3.16	-0.25	-0.33	.00	1.20	-0.26	
			LF _e in Max: LG4 LF _e in Min: LG4							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		1.00	MIN	-3.16	-0.25	-0.55	.00	.75	.00	
			LF _e in Max: LG1 LF _e in Min: LG1							
53	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		2.00	MIN	-3.16	-0.25	-0.86	.00	.10	.25	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-3.16	-0.25	-0.40	.00	1.36	-0.26	
			LF _e in Max: LG3 LF _e in Min: LG3							
53	LK1	.00	MAX	-3.16	-0.25	-0.40	.00	1.36	-0.26	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min: LG3							
		2.00	MAX	-3.16	-0.25	-0.77	.00	.09	.25	
		.00	MIN	-3.16	-0.25	-0.32	.00	1.18	-0.26	
			LF _e in Max: LG1 LF _e in Min: LG1							
54	LK1	.00	MAX	.43	-0.35	-0.45	.00	1.34	-0.35	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min: LG3							
54	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	.43	-0.35	-0.45	.00	1.34	-0.35	
			LF _e in Max: LG3 LF _e in Min: LG3							
54	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		2.00	MIN	.40	-0.35	-0.91	.00	.00	.35	
			LF _e in Max: LG4 LF _e in Min: LG4							

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 35
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
54	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	.43	-35	-45	.00	1.34	-35	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.40	-35	-46	.00	1.37	-35	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG4 LF _e in Min:							
		2.00	MAX	.43	-35	-90	.00	.00	.35	
		.00	MIN	.43	-35	-45	.00	1.34	-35	
			LF _e in Max: LG3 LF _e in Min: LG3							
55	LK1	.00	MAX	3.54	-26	-20	.00	.92	-26	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min:							
		.00	MAX	.00	.00	.00	.00	.00	.00	.00
		.00	MIN	3.54	-26	-20	.00	.92	-26	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		2.00	MIN	3.44	-26	-75	.00	.08	.26	
			LF _e in Max: LG4 LF _e in Min:							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	3.54	-26	-20	.00	.92	-26	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	3.44	-26	-30	.00	1.13	-26	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG4 LF _e in Min:							
		2.00	MAX	3.54	-26	-65	.00	.07	.26	
		.00	MIN	3.54	-26	-20	.00	.92	-26	
			LF _e in Max: LG3 LF _e in Min: LG3							
56	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-5.92	-5.42	10.43	.52	66.19	-76	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	.00
		.13	MIN	-5.92	-5.42	9.31	.52	67.43	-08	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	-5.92	-5.30	12.50	.32	54.28	-66	
		1.25	MIN	-5.92	-5.41	-77	.52	72.24	6.01	
			LF _e in Max: LG1 LF _e in Min: LG3							
		.00	MAX	-5.92	-5.42	10.43	.52	66.19	-76	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min:							
		1.19	MAX	-5.92	-5.42	-21	.52	72.27	5.68	
		.00	MIN	.00	.00	.00	.00	.00	.00	
			LF _e in Max: LG3 LF _e in Min:							
		1.25	MAX	-5.92	-5.41	-77	.52	72.24	6.01	
		.00	MIN	-5.92	-5.42	10.43	.52	66.19	-76	
			LF _e in Max: LG3 LF _e in Min: LG3							
57	LK1	.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-12.98	-1.72	15.22	.22	37.84	2.47	
			LF _e in Max: LG3 LF _e in Min: LG3							
		.00	MAX	.00	.00	.00	.00	.00	.00	
		.00	MIN	-12.85	-1.88	13.01	.04	50.67	2.33	

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 36
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]	Kräfte [kN]				Momente [kNm]				
			N	Q ₂	Q ₃	T	M ₂	M ₃			
58	LK1	.00	LF _e in Max: LF _e in Min: LG4								
			MAX MIN	-12.98 .00	-1.72 .00	15.22* .00*	.22 .00	37.84 .00	2.47 .00		
		.00	LF _e in Max: LG3 LF _e in Min:								
			MAX MIN	-12.98 .00	-1.72 .00	15.22 .00	.22* .00*	37.84 .00	2.47 .00		
		1.25	LF _e in Max: LG4 LF _e in Min:								
			MAX MIN	-12.85 .00	-1.87 .00	1.78 .00	.04 .00	59.91* .00*	4.68 .00		
		1.25	LF _e in Max: LG4 LF _e in Min:								
			MAX MIN	-12.85 .00	-1.87 .00	1.78 .00	.04 .00	59.91 .00	4.68* .00*		
		59	LK1	.00	LF _e in Max: LF _e in Min: LG3	.00*	.00	.00	.00	.00	.00
					MAX MIN	-5.84* -5.67	-2.26* -2.28*	-2.36* -2.15	-1.10 -0.09	.51 .67	-2.06 -2.05
.00	LF _e in Max: LF _e in Min: LG4										
	MAX MIN			.00 -5.84	.00 -2.26	.00* -2.73*	.00 -1.10	.00 -0.51	.00 -1.95		
.00	LF _e in Max: LF _e in Min: LG3										
	MAX MIN			.00 -5.84	.00 -2.26	.00 -2.36	.00* -1.10*	.00 .51	.00 -2.06		
.00	LF _e in Max: LF _e in Min: LG4										
	MAX MIN			-5.67 -5.84	-2.28 -2.26	-2.15 -2.73	-0.09 -1.10	.67* -0.51*	-2.05 -1.95		
.00	LF _e in Max: LF _e in Min: LG3										
	MAX MIN			.00 -5.84	.00 -2.26	.00 -2.36	.00 -1.10	.00 .51	.00 -2.06		
59	LK1	.00	LF _e in Max: LF _e in Min: LG3	.00*	.00	.00	.00	.00	.00		
			MAX MIN	-6.10* -6.10	2.90* .00	-0.71 .00	.00 .00	1.45 .00	.18 .00		
		.04	LF _e in Max: LG3 LF _e in Min:								
			MAX MIN	-6.10 .00	2.90* .00*	-0.75 .00	.00 .00	1.42 .00	.06 .00		
		.00	LF _e in Max: LF _e in Min: LG3								
			MAX MIN	.00 -6.10	.00 2.90	.00* -1.50*	.00 .00	.00 .51	.00 -2.31		
.00	LF _e in Max: LG3 LF _e in Min:										
	MAX MIN	-6.10 .00	2.90 .00	-0.71 .00	.00* .00*	1.45 .00	.18 .00				
.00	LF _e in Max: LG4 LF _e in Min:										
	MAX MIN	-5.92 .00	2.88 .00	-0.57 .00	.00 .00	1.50* .00*	.18 .00				
.00	LF _e in Max: LG3 LF _e in Min: LG3										
	MAX MIN	-6.10 -6.10	2.90 2.90	-0.71 -1.50	.00 .00	1.45 .51	.18* -2.31*				

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 37
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]			
				N	Q ₂	Q ₃	T	M ₂	M ₃	
60	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00	.00	
			MIN	-6.45*	2.47	.98	.00	.94	1.96	
		LFe in Max: LG3 LFe in Min: LG3								
		.77 .00	MAX	-6.27	2.48*	.42	.00	1.47	.04	
			MIN	.00	.00*	.00	.00	.00	.00	
		LFe in Max: LG4 LFe in Min: LG4								
.00 .00	MAX	-6.27	2.48	1.14*	.00	.86	1.97			
	MIN	.00	.00	.00*	.00	.00	.00			
LFe in Max: LG4 LFe in Min: LG4										
.00 .00	MAX	-6.45	2.47	.98	.00*	.94	1.96			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LG3 LFe in Min: LG3										
.86 .00	MAX	-6.27	2.48	.34	.00	1.50*	-1.17			
	MIN	.00	.00	.00	.00	.00*	.00			
LFe in Max: LG4 LFe in Min: LG4										
.00 .86	MAX	-6.27	2.48	1.14	.00	.86	1.97			
	MIN	-6.28	2.48	.32	.00	1.45	-1.17			
LFe in Max: LG4 LFe in Min: LG1										
61	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00	.00	
			MIN	-6.71*	-1.07	2.00	.07	.21	1.27	
		LFe in Max: LG3 LFe in Min: LG3								
		.00 .00	MAX	.00	.00*	.00	.00	.00	.00	
			MIN	-6.71	-1.07*	2.00	.07	.21	1.27	
		LFe in Max: LG3 LFe in Min: LG3								
.00 .00	MAX	-6.53	-.96	2.25*	.08	.03	1.32			
	MIN	.00	.00	.00*	.00	.00	.00			
LFe in Max: LG4 LFe in Min: LG4										
.00 .00	MAX	-6.53	-.96	2.25	.08*	.03	1.32			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LG4 LFe in Min: LG4										
.40 .00	MAX	-6.71	-1.07	1.63	.07	.94*	1.70			
	MIN	.00	.00	.00	.00	.00*	.00			
LFe in Max: LG3 LFe in Min: LG3										
.40 .00	MAX	-6.53	-.96	1.89	.08	.86	1.70			
	MIN	.00	.00	.00	.00	.00	.00			
LFe in Max: LG4 LFe in Min: LG4										
62	LK1	.00 .00	MAX	.00*	.00	.00	.00	.00	.00	
			MIN	-6.20*	.38	-1.39	.00	63.72	4.01	
		LFe in Max: LG4 LFe in Min: LG4								
		1.30 .00	MAX	-6.18	.43*	-15.15	.01	60.20	3.50	
			MIN	.00	.00*	.00	.00	.00	.00	
LFe in Max: LG3 LFe in Min: LG3										
.00 1.30	MAX	.00	.00	.00*	.00	.00	.00			
	MIN	-6.18	.43	-15.15*	.01	60.20	3.50			
LFe in Max: LG3 LFe in Min: LG3										
.00 .00	MAX	-6.18	.43	-3.50	.01*	72.33	4.06			
	MIN	.00	.00	.00	.00*	.00	.00			
LFe in Max: LG3 LFe in Min: LG3										
.00 .00	MAX	-6.18	.43	-3.50	.01	72.33*	4.06			
	MIN	.00	.00	.00	.00	.00*	.00			
LFe in Max: LG3 LFe in Min: LG3										

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 38
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
63	LK1	.00	LF _e in Max: LG3						
			LF _e in Min:						
		MAX	-6.18	.43	-3.50	.01	72.33	4.06	
		MIN	.00	.00	.00	.00	.00	.00	
		.00	LF _e in Max: LG3						
			LF _e in Min: LG3						
		1.30	MAX	-11.89	.84	-12.15	.00	51.80	2.27
			MIN	.00	.00	.00	.00	.00	.00
		.00	LF _e in Max: LG4						
			LF _e in Min: LG4						
		.00	MAX	-11.91	.82	2.00	.01	49.92	3.34
			MIN	-11.89	.84	-12.15	.00	51.80	2.27
1.30	LF _e in Max: LG3								
	LF _e in Min: LG4								
.00	MAX	-11.91	.82	2.00	.01	49.92	3.34		
	MIN	.00	.00	.00	.00	.00	.00		
.00	LF _e in Max: LG3								
	LF _e in Min: LG3								
.00	MAX	-11.89	.84	-4.7	.00	60.00	3.36		
	MIN	.00	.00	.00	.00	.00	.00		
.00	LF _e in Max: LG4								
	LF _e in Min: LG4								
.00	MAX	-11.89	.84	-4.7	.00	60.00	3.36		
	MIN	.00	.00	.00	.00	.00	.00		
.00	LF _e in Max: LG4								
	LF _e in Min: LG4								
64	LK1	.00	LF _e in Max: LG4						
			LF _e in Min: LG4						
		MAX	-4.58	-4.83	1.16	.00	.00	-4.67	
		MIN	.00	.00	.00	.00	.00	.00	
		.00	LF _e in Max: LG3						
			LF _e in Min: LG3						
		1.01	MAX	-4.54	-4.85	.25	-0.01	.70	.21
			MIN	-4.57	-7.78	-1.16	.00	.01	-4.68
		.00	LF _e in Max: LG3						
			LF _e in Min: LG1						
		.00	MAX	-4.54	-4.85	1.17	-0.01	-0.01	-4.68
			MIN	-4.57	-7.78	-1.16	.00	.01	2.42
.00	LF _e in Max: LG3								
	LF _e in Min: LG3								
.00	MAX	-4.58	-4.84	.00	.00	.74	1.43		
	MIN	-4.54	-4.85	1.17	-0.01	-0.01	-4.68		
1.26	LF _e in Max: LG4								
	LF _e in Min: LG3								
.00	MAX	-4.54	-8.0	-1.14	-0.01	.03	2.44		
	MIN	-4.54	-4.85	1.17	-0.01	-0.01	-4.68		
2.52	LF _e in Max: LG3								
	LF _e in Min: LG3								
65	LK1	.00	LF _e in Max: LG3						
			LF _e in Min: LG3						
		MAX	.04	4.97	-16.30	.04	60.21	5.94	
		MIN	.00	.00	.00	.00	.00	.00	
		.00	LF _e in Max: LG3						
			LF _e in Min: LG3						
		.00	MAX	.04	4.97	-16.30	.04	60.21	5.94
			MIN	.00	.00	.00	.00	.00	.00
		.00	LF _e in Max: LG3						
LF _e in Min: LG3									
.00	MAX	.00	.00	.00	.00	.00	.00		
	MIN	.04	4.97	-23.54	.04	-0.02	-7.99		
2.80	LF _e in Max: LG3								
	LF _e in Min: LG3								

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 39
---	-------------------------------------	-----------

MAX/MIN/ZUGEH-SCHNITTGRÖSSEN STABBEZOGEN

Stab-Nr.	LK-Nr.	x [m]		Kräfte [kN]			Momente [kNm]		
				N	Q ₂	Q ₃	T	M ₂	M ₃
65	LK1	.00	MAX	.04	4.97	-16.30	.04*	60.21	5.94
		.00	MIN	.00	.00	.00	.00*	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.04	4.97	-16.30	.04	60.21*	5.94
		2.80	MIN	.04	4.97	-23.54	.04	-.02*	-7.99
			LF _e in Max: LG3 LF _e in Min: LG3						
		.00	MAX	.04	4.97	-16.30	.04	60.21	5.94*
		2.80	MIN	.04	4.97	-23.54	.04	-.02	-7.99*
			LF _e in Max: LG3 LF _e in Min: LG3						
66	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	-.04*	5.53	-10.82	.02	44.92	6.95
			LF _e in Max: LF _e in Min: LG3						
		.00	MAX	-.04	5.53*	-10.82	.02	44.92	6.95
		.00	MIN	.00	.00*	.00	.00	.00	.00
			LF _e in Max: LG3 LF _e in Min:						
		.00	MAX	.00	.00	.00*	.00	.00	
		2.80	MIN	-.04	5.51	-20.52*	.00	.00	-8.50
			LF _e in Max: LF _e in Min: LG4						
		.00	MAX	-.04	5.53	-10.82	.02*	44.92	6.95
		.00	MIN	-.04	5.51	-13.29	.00*	51.80	6.93
			LF _e in Max: LG3 LF _e in Min: LG4						
		.00	MAX	-.04	5.51	-13.29	.00	51.80*	6.93
		.00	MIN	.00	.00	.00	.00	.00*	.00
			LF _e in Max: LG4 LF _e in Min:						
		.00	MAX	-.04	5.53	-10.82	.02	44.92	6.95*
		2.80	MIN	-.04	5.53	-18.06	.02	.02	-8.53*
			LF _e in Max: LG3 LF _e in Min: LG3						
67	LK1	.00	MAX	.00*	.00	.00	.00	.00	.00
		.00	MIN	.00*	.00	.00	.00	.00	.00
			LF _e in Max: LF _e in Min:						
		.00	MAX	.00	.00*	.00	.00	.00	.00
		.00	MIN	.00	-.04*	7.89	-.02	.02	-.05
			LF _e in Max: LF _e in Min: LG3						
		.00	MAX	.00	-.04	7.91*	.00	.00	-.05
		2.52	MIN	.00	-.04	-7.93*	-.02	-.04	.05
			LF _e in Max: LG4 LF _e in Min: LG3						
		.00	MAX	.00	.00	.00	.00*	.00	.00
		.00	MIN	.00	-.04	7.89	-.02*	.02	-.05
			LF _e in Max: LF _e in Min: LG3						
		1.26	MAX	.00	-.04	6.75	.00	9.23*	.00
		2.52	MIN	.00	-.04	-7.93	-.02	-.04*	.05
			LF _e in Max: LG1 LF _e in Min: LG3						
		2.52	MAX	.00	-.04	-7.93	-.02	-.04	.05*
		.00	MIN	.00	-.04	7.89	-.02	.02	-.05*
			LF _e in Max: LG3 LF _e in Min: LG3						

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 40
---	-------------------------------------	-----------

In der Lastfallkombination 2 wird der Schnee NICHT berücksichtigt, da davon ausgegangen wird, dass die Belastung aus Schnee auf das Bauwerk bereits über die Dachfläche mit in die Berechnung eingegangen ist.

MAX/MIN/ZUGEH-AUFLAGERKRÄFTE UND -MOMENTE

Knoten-Nr.	LK-Nr.		Auflagerkräfte [kN]			Auflagermomente [kNm]			
			P _X	P _Y	P _Z	M _X	M _Y	M _Z	
4	LK2	Max P-X	.00	.00	.00	.00	.00	.00	
		Min P-X	-9.67	-7.29	38.66	.00	.00	-8.18	
		LF'e in Max P-X: LF'e in Min P-X: LG7							
		Max P-Y	.00	.00	.00	.00	.00	.00	
		Min P-Y	-9.09	-7.56	29.73	.00	.00	-8.20	
		LF'e in Max P-Y: LF'e in Min P-Y: LG8							
		Max P-Z	-9.67	-7.29	38.66	.00	.00	-8.18	
		Min P-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max P-Z: LG7 LF'e in Min P-Z:							
		Max M-Z	.00	.00	.00	.00	.00	.00	
		Min M-Z	-9.09	-7.56	29.73	.00	.00	-8.20	
		LF'e in Max M-Z: LF'e in Min M-Z: LG8							
8	LK2	Max P-X	.00	.00	.00	.00	.00	.00	
		Min P-X	-2.10	-6.35	26.21	.00	.00	-8.40	
		LF'e in Max P-X: LF'e in Min P-X: LG5							
		Max P-Y	.00	.00	.00	.00	.00	.00	
		Min P-Y	-1.70	-6.50	17.57	.00	.00	-8.52	
		LF'e in Max P-Y: LF'e in Min P-Y: LG7							
		Max P-Z	-2.10	-6.35	26.21	.00	.00	-8.40	
		Min P-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max P-Z: LG5 LF'e in Min P-Z:							
		Max M-Z	.00	.00	.00	.00	.00	.00	
		Min M-Z	-1.70	-6.50	17.57	.00	.00	-8.52	
		LF'e in Max M-Z: LF'e in Min M-Z: LG7							
41	LK2	Max P-Y	.00	.00	.00	.00	.00	.00	
		Min P-Y	.00	-3.68	23.28	.00	.00	5.88	
		LF'e in Max P-Y: LF'e in Min P-Y: LG7							
		Max P-Z	.00	-3.68	23.28	.00	.00	5.88	
		Min P-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max P-Z: LG7 LF'e in Min P-Z:							
		Max M-Z	.00	-3.68	23.28	.00	.00	5.88	
		Min M-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max M-Z: LG7 LF'e in Min M-Z:							
42	LK2	Max P-Y	.00	.00	.00	.00	.00	.00	
		Min P-Y	.00	-4.09	19.22	.00	.00	6.28	
		LF'e in Max P-Y: LF'e in Min P-Y: LG7							
		Max P-Z	.00	-4.08	21.05	.00	.00	6.26	
		Min P-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max P-Z: LG8 LF'e in Min P-Z:							
		Max M-Z	.00	-4.09	19.22	.00	.00	6.28	
		Min M-Z	.00	.00	.00	.00	.00	.00	
		LF'e in Max M-Z: LG7 LF'e in Min M-Z:							

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 41

ERGEBNISSE

LK 2 - charakteristische Werte

Isometrie

Extremale Auflagerreaktionen



HINWEIS:

Die horizontalen Auflagerkräfte sind an jedem Auflager anzuschliessen!

Konstruktionsbüro Hans-Joachim Hoppe

Wallgasse 24c, 67433 NEUSTADT

Tel: 06321/921815 - Fax: 06321/921816

ERGEBNISSE

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 42
---	-------------------------------------	-----------

MAX/MIN GLOBALE KNOTENVERFORMUNGEN

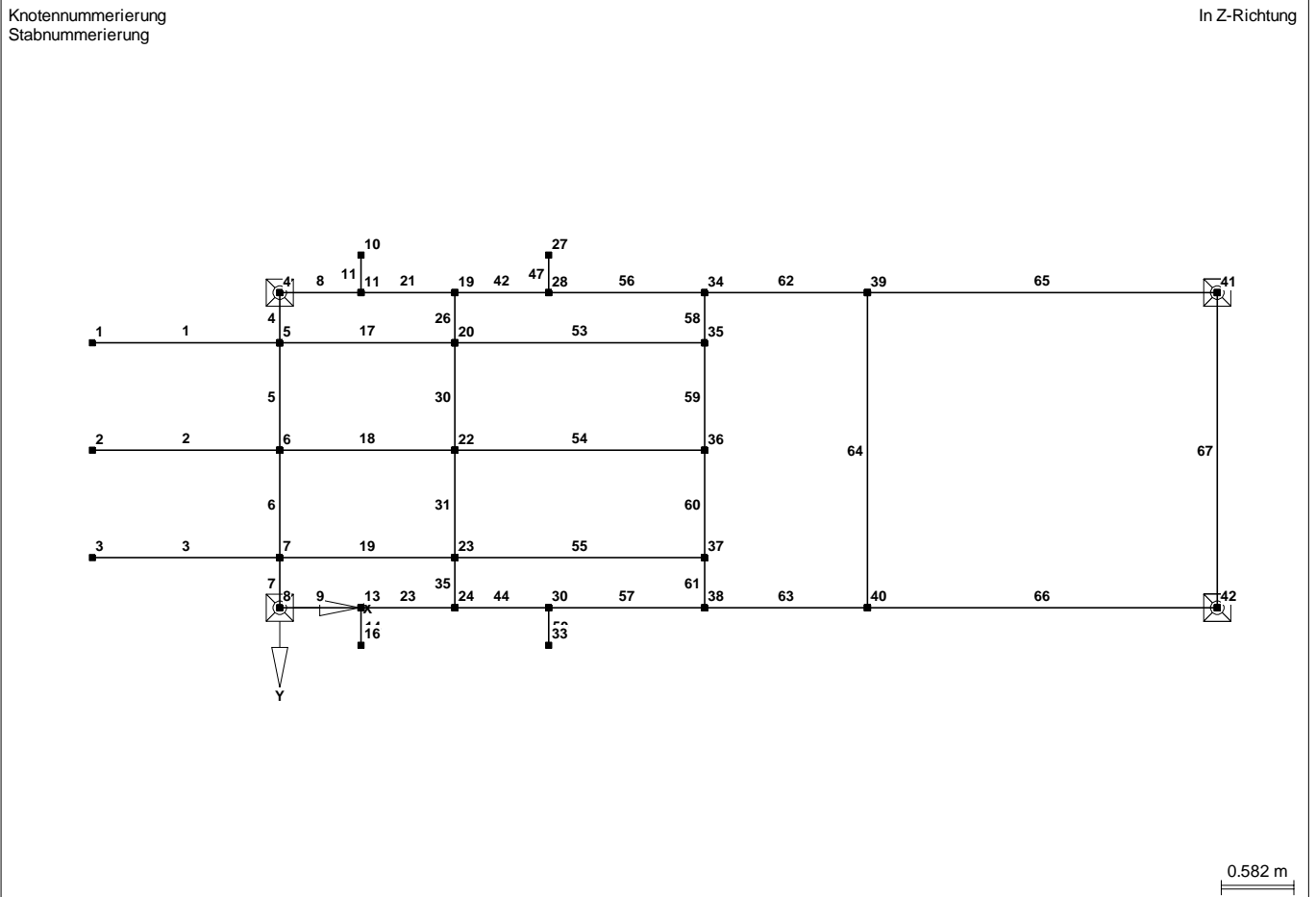
Knoten-Nr.	LK-Nr.		Verschiebungen [mm]			Verdrehungen [mrad]		
			u _X	u _Y	u _Z	φ _X	φ _Y	φ _Z
1	LK2	Max	.00818	.03016	.00000	.20847	.00000	.00000
		Min	.00000	.00000	-3.15763	.00000	-1.91712	-.02018
2	LK2	Max	.00000	.00000	.00000	.00701	.17250	.02688
		Min	-.00448	-.04054	-.32344	.00000	.00000	.00000
3	LK2	Max	.00000	.04951	.00000	.00000	.00000	.00000
		Min	-.01218	.00000	-2.36121	-2.21060	-1.39044	-.03309
4	LK2	Max	.00000	.00000	.00000	.23645	.00000	.00000
		Min	.00000	.00000	.00000	.00000	-3.82642	.00000
5	LK2	Max	.00818	.00000	.09122	.20847	.00000	.00000
		Min	.00000	-.00012	.00000	.00000	-2.90187	-.02018
6	LK2	Max	.00000	.00000	.19224	.00701	.00000	.02688
		Min	-.00448	-.00022	.00000	.00000	-1.71554	.00000
7	LK2	Max	.00000	.00000	.09382	.00000	.00000	.00000
		Min	-.01218	-.00012	.00000	-2.21060	-2.37519	-.03309
8	LK2	Max	.00000	.00000	.00000	.00000	.00000	.00000
		Min	.00000	.00000	.00000	-2.25078	-3.01680	.00000
9	LK2	Max	18.51043	.00000	4.92884	.00000	.00000	1.77313
		Min	.00000	-21.22181	.00000	-2.27851	-4.08884	.00000
10	LK2	Max	.00000	.00000	4.87261	.00000	.00000	.00000
		Min	-.07789	-.09231	.00000	-8.07798	-4.79707	-.24449
11	LK2	Max	.00000	.00000	2.44880	.00000	.00000	.00000
		Min	-.00455	-.09233	.00000	-8.07701	-3.64886	-.24433
12	LK2	Max	15.73809	.00000	2.86140	.00000	.00000	1.77521
		Min	.00000	-21.22230	.00000	-1.44973	-3.10139	.00000
13	LK2	Max	.00169	.00000	1.93803	.00000	.00000	.00000
		Min	.00000	-.09086	.00000	-6.59862	-2.91097	-.24438
14	LK2	Max	12.96647	.00000	1.17767	.00000	.00000	1.77442
		Min	.00000	-21.22230	-.48962	-2.34330	-2.99947	.00000
15	LK2	Max	6.53693	.00000	1.17056	.00000	.00000	1.58327
		Min	.00000	-12.89885	-.47971	-5.28355	-2.94561	.00000
16	LK2	Max	.07593	.00000	1.16604	.00000	.00000	.00000
		Min	.00000	-.09096	-.46540	-6.60142	-3.09871	-.24898
17	LK2	Max	21.81788	.00000	18.97606	.00000	.00000	1.77389
		Min	.00000	-19.93613	.00000	-6.95857	-3.07444	.00000
18	LK2	Max	18.50957	.00000	7.74929	.00000	.00000	1.77389
		Min	.00000	-19.93613	.00000	-4.11776	-3.07444	.00000
19	LK2	Max	.00000	.00000	4.99091	.00000	.00000	.00000
		Min	-.00978	-.28889	.00000	-.79668	-3.07675	-.22592
20	LK2	Max	.03146	.00000	4.67749	.00000	.00000	.00000
		Min	.00000	-.28974	.00000	-.76985	-2.85993	-.02316
21	LK2	Max	15.73806	.00000	5.14431	.00000	.00000	1.77539
		Min	.00000	-19.93611	.00000	-1.64269	-3.03139	.00000
22	LK2	Max	.00000	.00000	4.11364	.00000	.00000	.06701
		Min	-.00421	-.29162	.00000	-.71700	-2.69614	.00000
23	LK2	Max	.00000	.00000	4.02761	.00000	.00000	.00000
		Min	-.04218	-.29358	.00000	-.69696	-2.50541	-.02175
24	LK2	Max	.00319	.00000	3.99199	.00000	.00000	.00000
		Min	.00000	-.29451	.00000	-.70619	-2.51754	-.25743
25	LK2	Max	12.96513	.00000	3.37400	.00000	.00000	1.77528
		Min	.00000	-19.93610	.00000	-1.58188	-2.89291	.00000
26	LK2	Max	18.50873	.00000	9.64334	.07066	.00000	1.77271
		Min	.00000	-18.65208	.00000	-2.25159	-3.05108	.00000
27	LK2	Max	.00000	.00000	9.57017	.00000	.00000	.00000
		Min	-.10912	-.50647	.00000	-8.61112	-4.78200	-.32632
28	LK2	Max	.00000	.00000	6.98531	.00000	.00000	.00000
		Min	-.01109	-.50655	.00000	-8.61654	-2.18980	-.32856
29	LK2	Max	15.73802	.00000	7.25850	.00000	.00000	1.77549
		Min	.00000	-18.64985	.00000	-1.86655	-3.44495	.00000
30	LK2	Max	.00000	.00000	5.64442	.00000	.00000	.00000
		Min	-.00021	-.55314	.00000	-4.37172	-1.84457	-.36095
31	LK2	Max	12.96376	.00000	5.43844	.00000	.00000	1.77529
		Min	.00000	-18.64829	.00000	-2.63834	-2.87374	.00000
32	LK2	Max	6.53466	.00000	5.43055	.00000	.00000	1.58296
		Min	.00000	-10.52166	.00000	-4.68530	-2.95984	.00000
33	LK2	Max	.10833	.00000	5.41343	.00000	.00000	.00000
		Min	.00000	-.55328	.00000	-4.37978	-2.93213	-.36156

Projekt: 131-061526-WEB Sekundärschalldämpfer	Position: 1.1rst Tragwerk	Seite: 43
---	-------------------------------------	-----------

MAX/MIN GLOBALE KNOTENVERFORMUNGEN

Knoten-Nr.	LK-Nr.		Verschiebungen [mm]			Verdrehungen [mrad]		
			u _X	u _Y	u _Z	φ _X	φ _Y	φ _Z
34	LK2	Max	.00000	.00000	8.57386	.00000	.00000	.00000
		Min	-.01363	-.84436	.00000	-1.08050	-.34281	-.12579
35	LK2	Max	.01989	.00000	8.14212	.00000	.00000	.00000
		Min	.00000	-.84540	.00000	-1.08072	-1.06991	-.04102
36	LK2	Max	.00000	.00000	7.30508	.00000	.00000	.05568
		Min	-.00274	-.84774	.00000	-1.11379	-1.00355	.00000
37	LK2	Max	.00000	.00000	7.12950	.00000	.00000	.00000
		Min	-.02943	-.85022	.00000	-1.15370	-.98613	-.02601
38	LK2	Max	.00000	.00000	7.03883	.00000	.00000	.00000
		Min	-.00573	-.85142	.00000	-1.16238	-.36646	-.08991
39	LK2	Max	.00000	.00000	7.75004	.00000	1.53680	.17643
		Min	-.01639	-.80660	.00000	-.92993	.00000	.00000
40	LK2	Max	.00000	.00000	6.43753	.00000	1.23292	.13556
		Min	-.01104	-.81172	.00000	-.97616	.00000	.00000
41	LK2	Max	.00000	.00000	.00000	.22136	3.39622	.00000
		Min	-.01636	.00000	.00000	.00000	.00000	.00000
42	LK2	Max	.00000	.00000	.00000	.00000	2.84540	.00000
		Min	-.01107	.00000	.00000	-.22189	.00000	.00000
	*MAX	21.81788	.04951	18.97606	-.23645	3.39622	1.77549	
	*MIN	-.10912	-.2122230	-3.15763	-8.61654	-4.79707	-.36156	

STRUKTUR GRUNDGESTELL

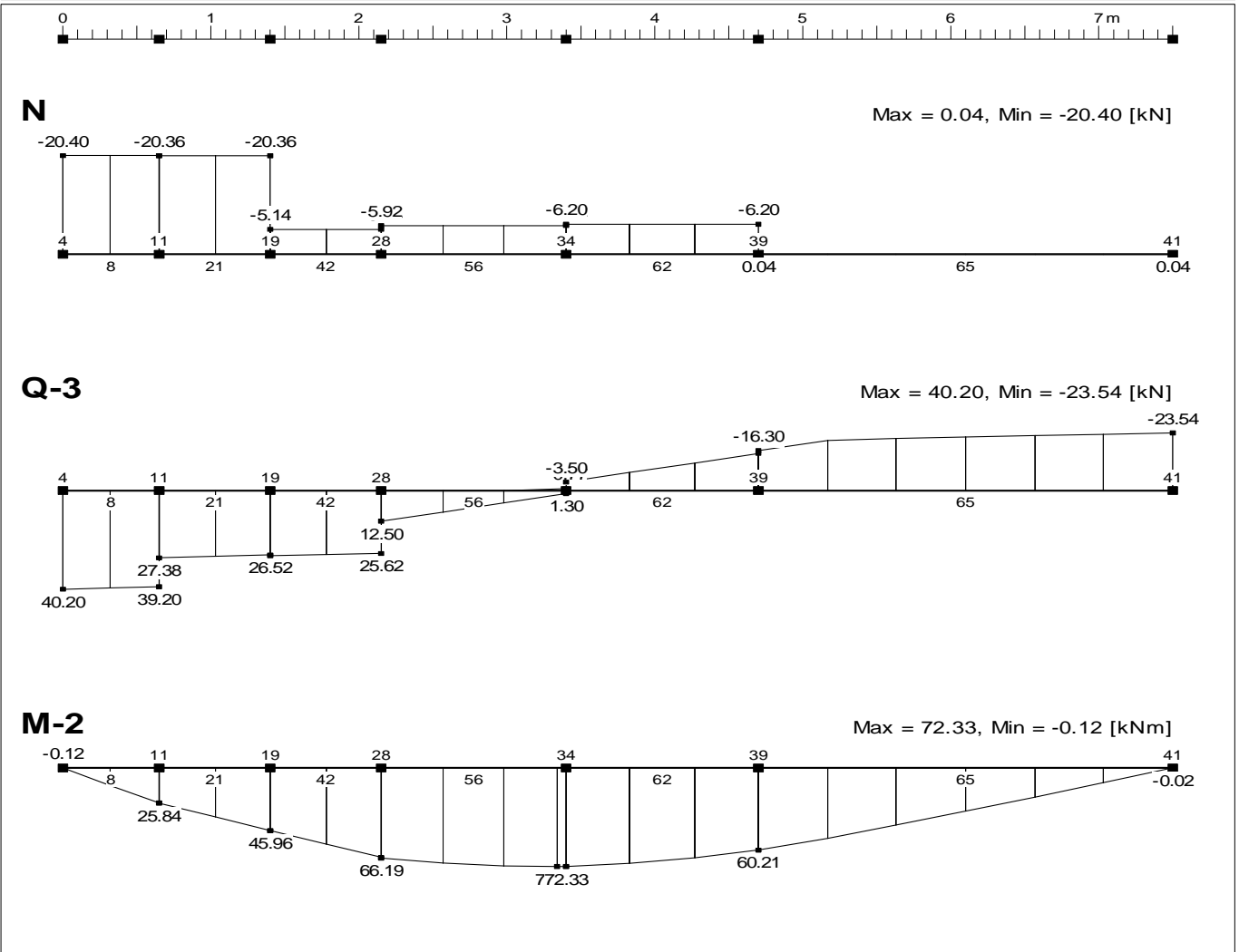


Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 44

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



NACHWEIS EL - EL

Hauptträger HEA 300 - POS. 1.1

$\text{Sig},d = 29,4/112 + 7233/1260 + 601/421 = 7,35 \text{ KN/mm}^2$ $\text{Sig},d / \text{Sig},Rd = 0,34 < 1$

$\text{Tau},d = 40,2 \cdot 692 / (18260 \cdot 0,85) + 9,57 \cdot 158 / (6310 \cdot 1,4) = 1,96 \text{ KN/cm}^2$ $\text{Tau},d / \text{Tau},Rd = 0,16 < 1$

GEBRAUCHSTAUGLICHKEIT

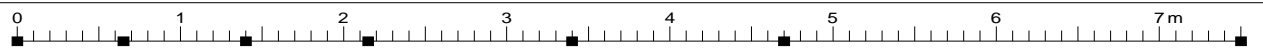
$f = 8,6 \text{ mm} = L / 872$ Knoten 34

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

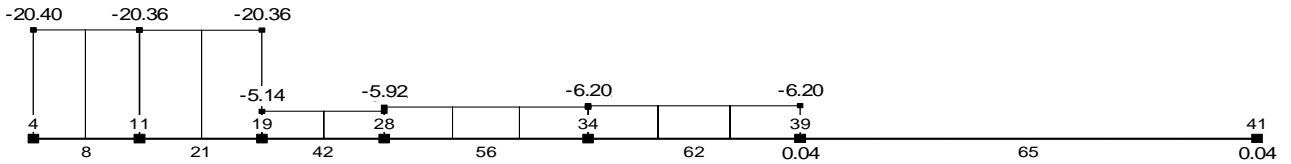
Seite: 45

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



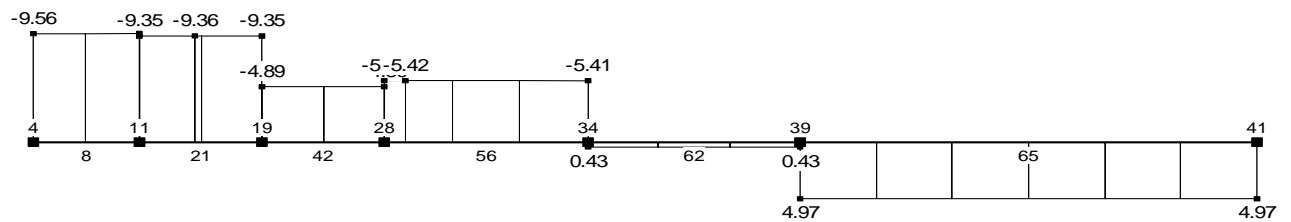
N

Max = 0.04, Min = -20.40 [kN]



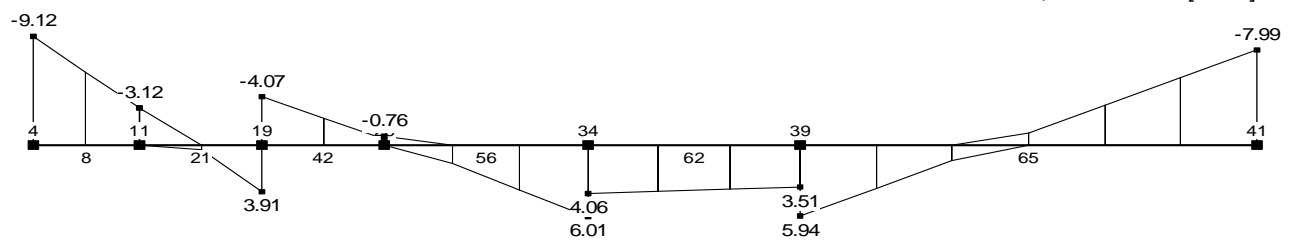
Q-2

Max = 4.97, Min = -9.57 [kN]



M-3

Max = 6.01, Min = -9.12 [kNm]

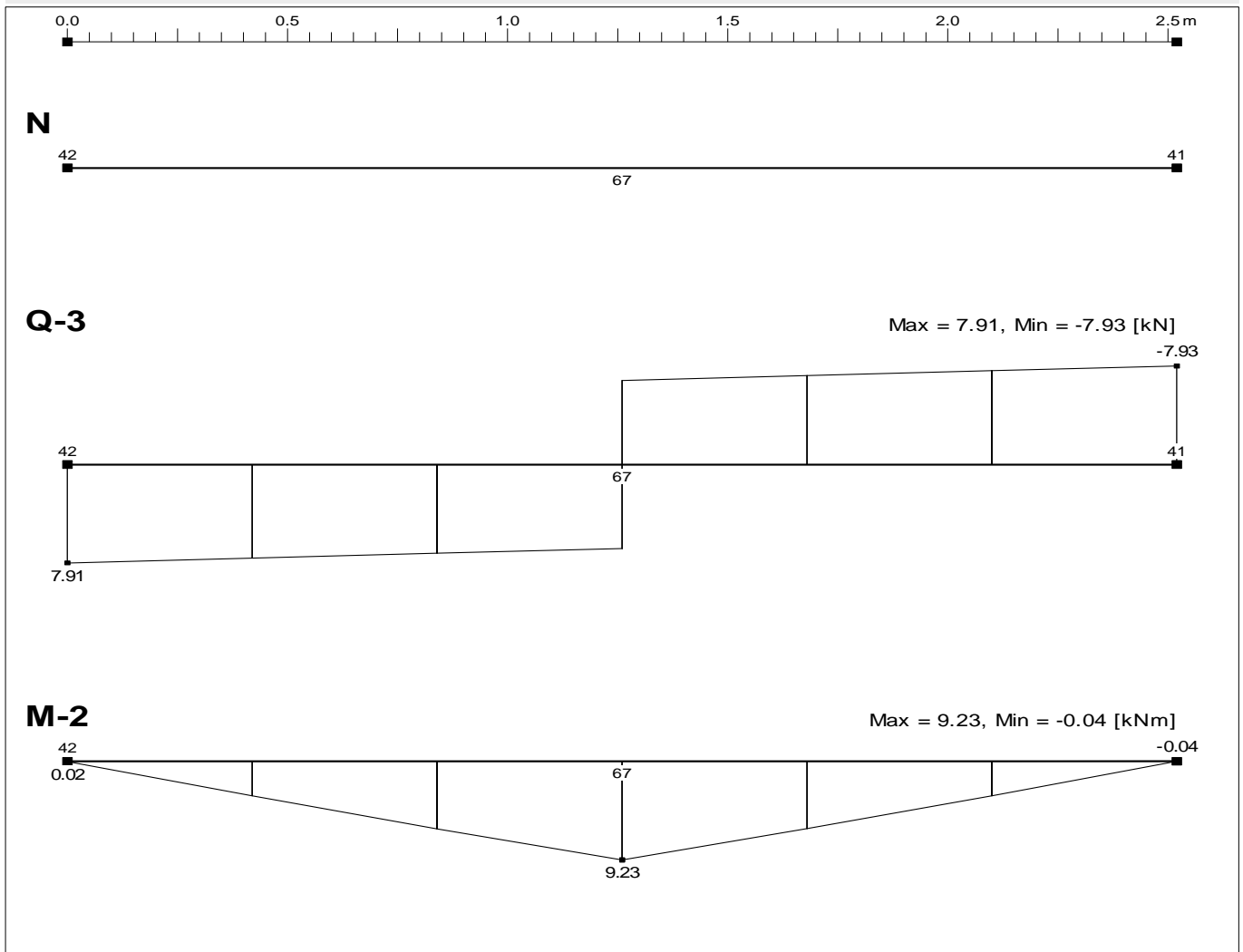


Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 46

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



NACHWEIS EL - EL

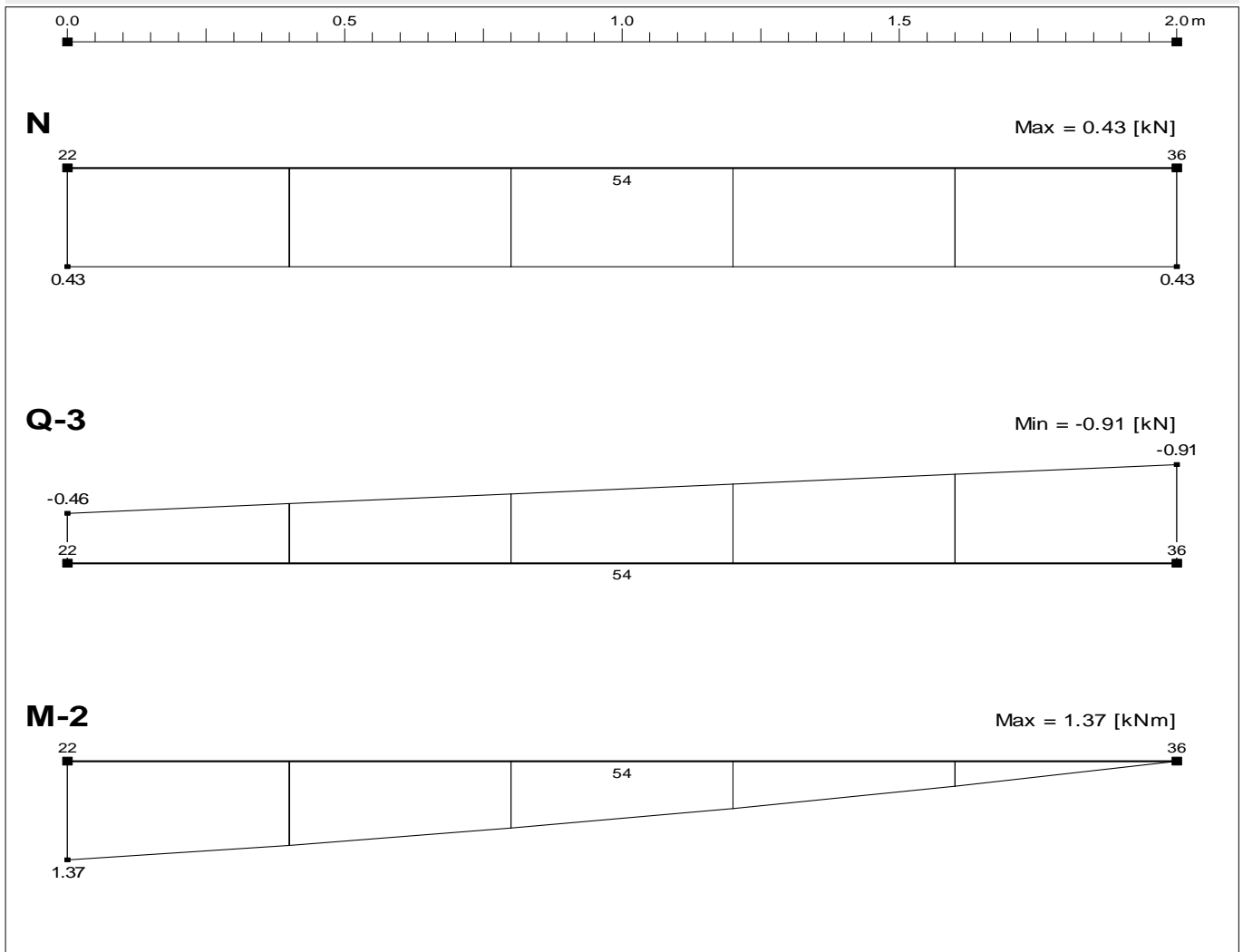
Hauptriegel HEA 260 - Pos. 1.2
ohne weiteren Nachweis
max. Anschlussmoment (Stab 34) 9,28 KNm
gewählt IH1A / 4 M20 10.9

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 47

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



NACHWEIS EL - EL

gewählt: HEA 100 Pos. 1.3

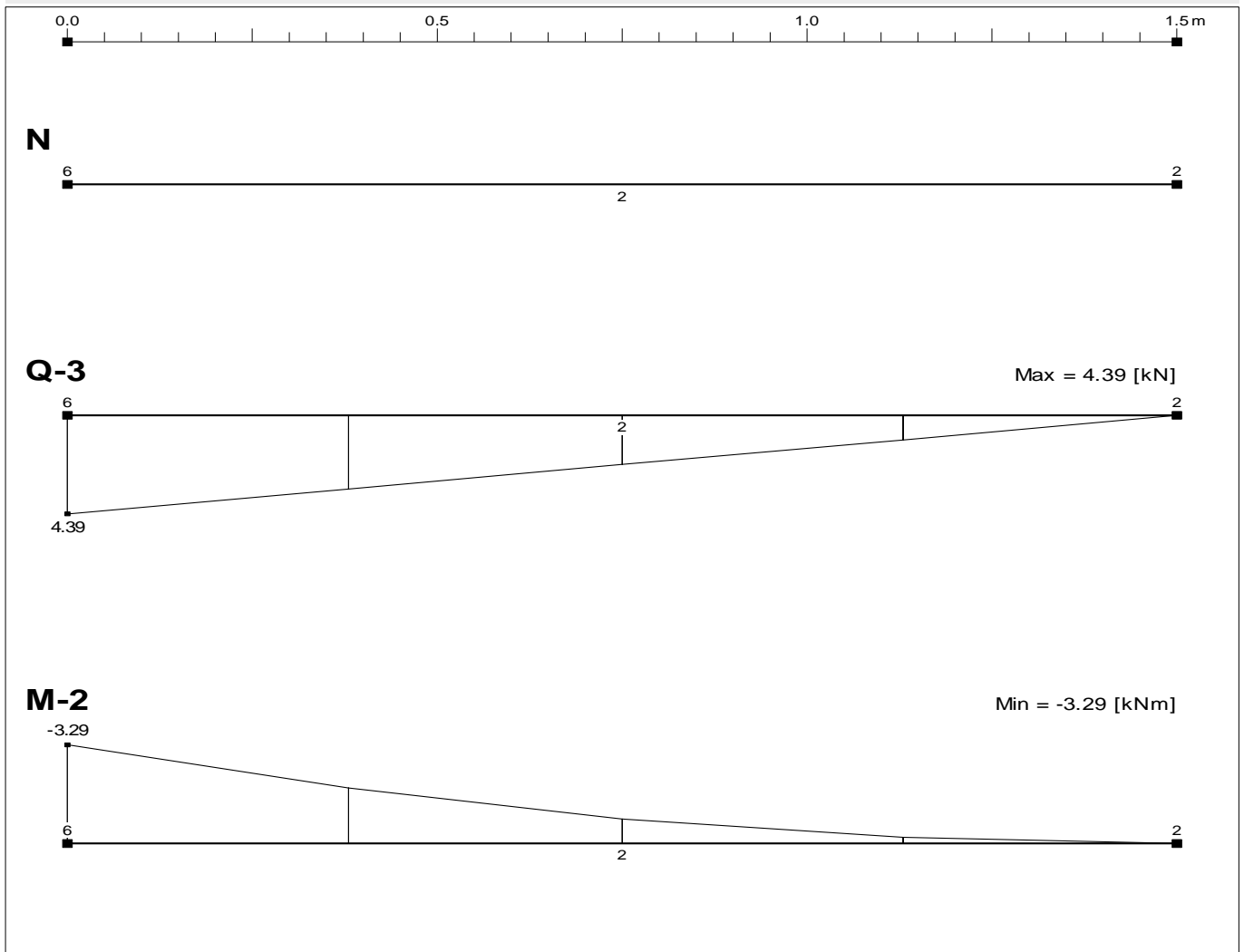
Wegen der geringen Belastung werden keine weiteren Nachweise geführt

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 48

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



NACHWEIS EL - EL

gewählt: HEA 100 Pos. 1.4
Wegen der geringen Belastung werden keine weiteren Nachweise geführt
Anschluss an HEA 260 mit 4 M16 10.0

Projekt: 131-061526-WEB
Sekundärschalldämpfer

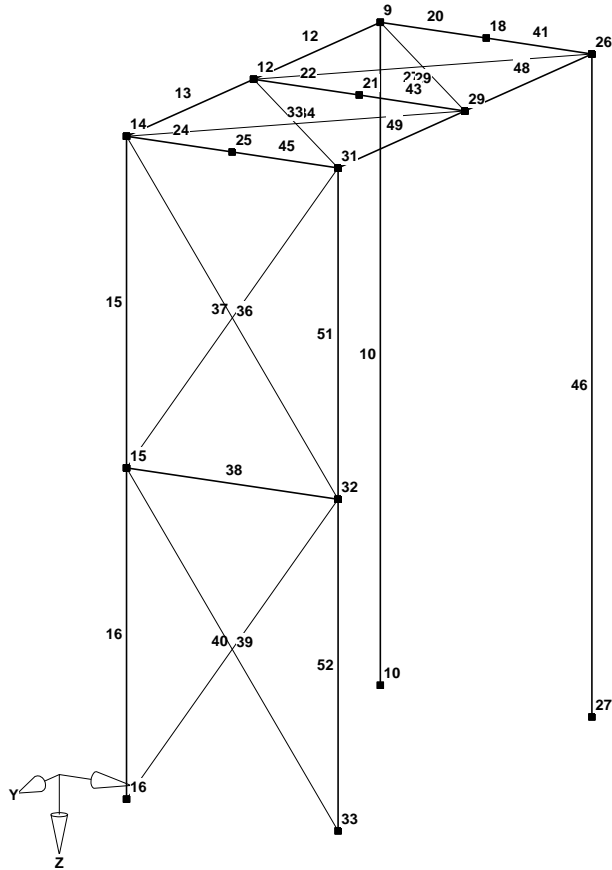
Position: 1.1rst
Tragwerk

Seite: 49

STRUKTUR

Knotennummerierung
Stabnummerierung

Isometrie



NACHWEIS EL - EL

Verbandstab Rd. 12

max N,d = 2,70 KN (Stab 40)

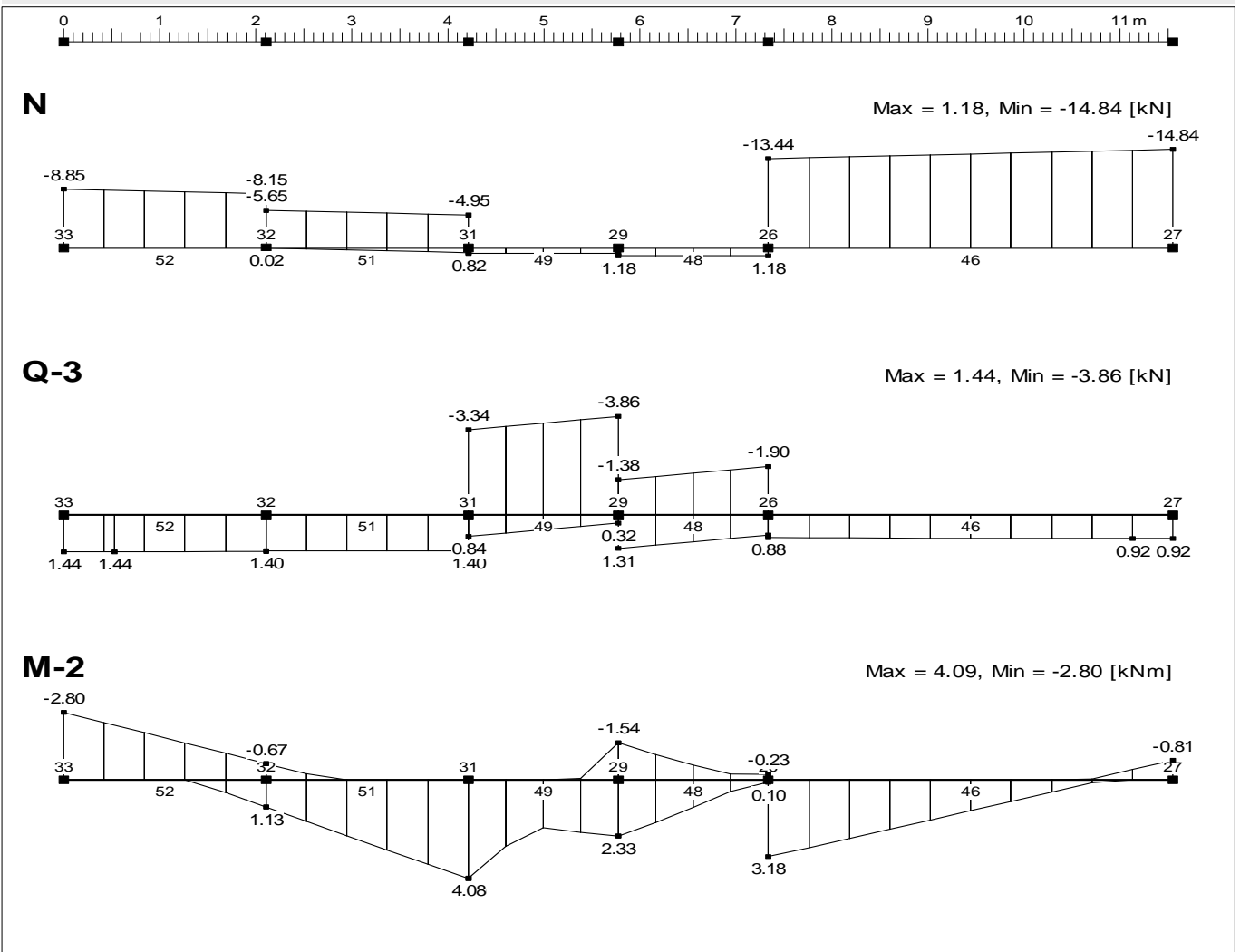
max N,Rd = 16,7 KN N,d / N,Rd = 0,16 < 1

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 50

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



MAX. SCHNITTGRÖSSEN FÜR DIE RAHMENSTIELE

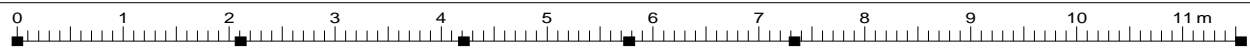
$N = 14,8 \text{ kN}$
 $M_y = 4,08 \text{ kNm}$
 $M_z = 0,56 \text{ kNm}$
 Nachweise Seite 52.1-3
 Anschluss Rahmenecke: IH1A / 4 M16 10.9
 Rahmenriegel gewählt HEA 140 - ohne weiteren Nachweis

Projekt: 131-061526-WEB
Sekundärschalldämpfer

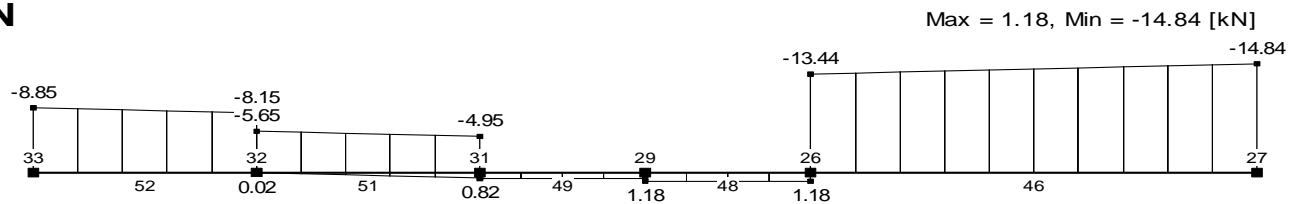
Position: 1.1rst
Tragwerk

Seite: 51

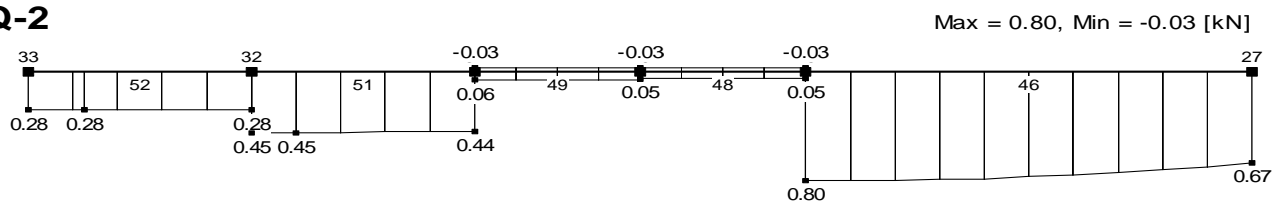
ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



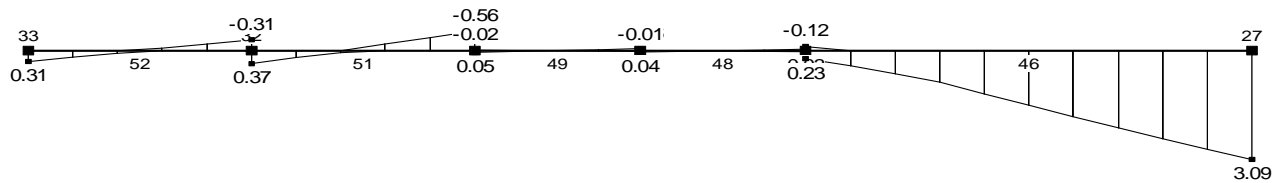
N



Q-2



M-3



Biegedrillknicken nach DIN 18800 Teil 2

Eingangswerte :	HEA 140	$E = 21.000 \text{ kN/cm}^2$
		$f_{y,k} = 24,00 \text{ kN/cm}^2$
		$\gamma_M = 1,1 -$

Schnittgrößen: Parameter gemäß DIN 18800:

$N = 14,8 \text{ kN}$	$z_p = 7,00 \text{ cm}$
$\max M_y = 409 \text{ kNcm}$	$\zeta = 1,770$
$M_z = 56 \text{ kNcm}$	$n = 2,5$
$L = 410 \text{ cm}$	$\beta_y = 2,49$
	$\beta_z = 2,00$
	$\beta_{M,y} = 2,280$
	$\beta_{M,z} = 2,188$

Einachsige Biegung ohne Normalkraft

$c^2 = 175,59 \text{ cm}^2$	$N_{ki,z} = 480 \text{ kN}$	$M_{ki,y} = 14618 \text{ kNcm}$
$\lambda_M = 0,534 -$	$\kappa_M = 0,983 -$	

Bedingung (16): **0,110** $\leq 1 !$ **Nachweis erfüllt**

Einachsige Biegung mit Normalkraft

$N_{ki,z} = 120 \text{ kN}$	$\lambda_{k,z} = 2,507 -$	$\kappa_z = 0,132 -$
$a_y = 0,707 -$	$k_y = 0,884 -$	

Bedingung (27): **0,261** $\leq 1 !$ **Nachweis erfüllt**

Zweiachsige Biegung mit oder ohne Normalkraft

$a_z = 0,8 -$	$k_z = 0,869 -$
---------------	-----------------

Bedingung (30): **0,287** $\leq 1 !$ **Nachweis erfüllt**

Biegeknicken nach DIN 18800 Teil 2

Eingangswerte :	HEA 140	$E =$	21.000 kN/cm ²
		$f_{y,k} =$	24,00 kN/cm ²
		$\gamma_M =$	1,1

Schnittgrößen:

$N =$	14,8 kN	$L =$	410 cm
$M_y =$	409 kNcm	$\beta_y =$	2,49
$M_z =$	56 kNcm	$\beta_z =$	2,00
		$\beta_{m,y} =$	0,930
		$\beta_{m,z} =$	0,970
		$\beta_{M,y} =$	2,280
		$\beta_{M,z} =$	2,188

Planmäßig mittiger Druck

Knicken senkrecht zur y- Achse (starke Achse)

$$N_{ki,y} = 205 \text{ kN} \quad \lambda_{K,y} = 1,916 \quad \kappa_y = 0,226$$

$$\text{Bedingung (3): } 0,096 \leq 1 ! \quad \text{Nachweis erfüllt}$$

Knicken senkrecht zur z- Achse (schwache Achse)

$$N_{ki,z} = 120 \text{ kN} \quad \lambda_{K,z} = 2,507 \quad \kappa_z = 0,132$$

$$\text{Bedingung (3): } 0,164 \leq 1 ! \quad \text{Nachweis erfüllt}$$

Einachsige Biegung mit Normalkraft

Biegung um die y-Achse (starke Achse)

$$N/(\kappa \cdot N_{pl,d}) = 0,096 \quad \beta_{m,y} \cdot M_y / M_{pl,y,d} = 0,101 \quad \Delta n = 0,016$$

$$\text{Bedingung (24): } 0,212 \leq 1 ! \quad \text{Nachweis erfüllt}$$

Biegung um die z-Achse (schwache Achse)

$$N/(\kappa \cdot N_{pl,d}) = 0,164 \quad \beta_{m,z} \cdot M_z / \text{red } M_{pl,z,d} = 0,036 \quad \Delta n = 0,015$$

$$\text{Bedingung (24): } 0,215 \leq 1 ! \quad \text{Nachweis erfüllt}$$

Biegeknicken nach DIN 18800 Teil 2

Eingangswerte :	HEA 140	$E =$	21.000 kN/cm ²
		$f_{y,k} =$	24,00 kN/cm ²
		$\gamma_M =$	1,1

Schnittgrößen:

$N =$	14,8 kN	$L =$	410 cm
$M_y =$	409 kNcm	$\beta_y =$	2,49
$M_z =$	56 kNcm	$\beta_z =$	2,00
		$\beta_{m,y} =$	0,930
		$\beta_{m,z} =$	0,970
		$\beta_{M,y} =$	2,280
		$\beta_{M,z} =$	2,188

Zweiachsige Biegung mit Normalkraft

Nachweismethode 1

	$a_y = 0,80$	$a_z = 0,80$
	$k_y = 0,92$	$k_z = 0,87$
$N/(\kappa \cdot N_{pl,d}) = 0,164$	$M_y/M_{pl,y,d} \cdot k_y = 0,100$	$M_z/M_{pl,z,d} \cdot k_z = 0,026$

Bedingung (28): 0,290 ≤ 1 !

Nachweis erfüllt

Nachweismethode 2

	$c_y = 0,94$	$c_z = 1,07$
	$k_y = 0,94$	$k_z = 1,00$
$N/(\kappa \cdot N_{pl,d}) = 0,164$	$\beta_{m,y} \cdot M_y/M_{pl,y,d} \cdot k_y = 0,094$	$\beta_{m,z} \cdot M_z/\text{red } M_{pl,z,d} \cdot k_z = 0,036$
		$\Delta n = 0,016$

Bedingung (29): 0,310 ≤ 1 !

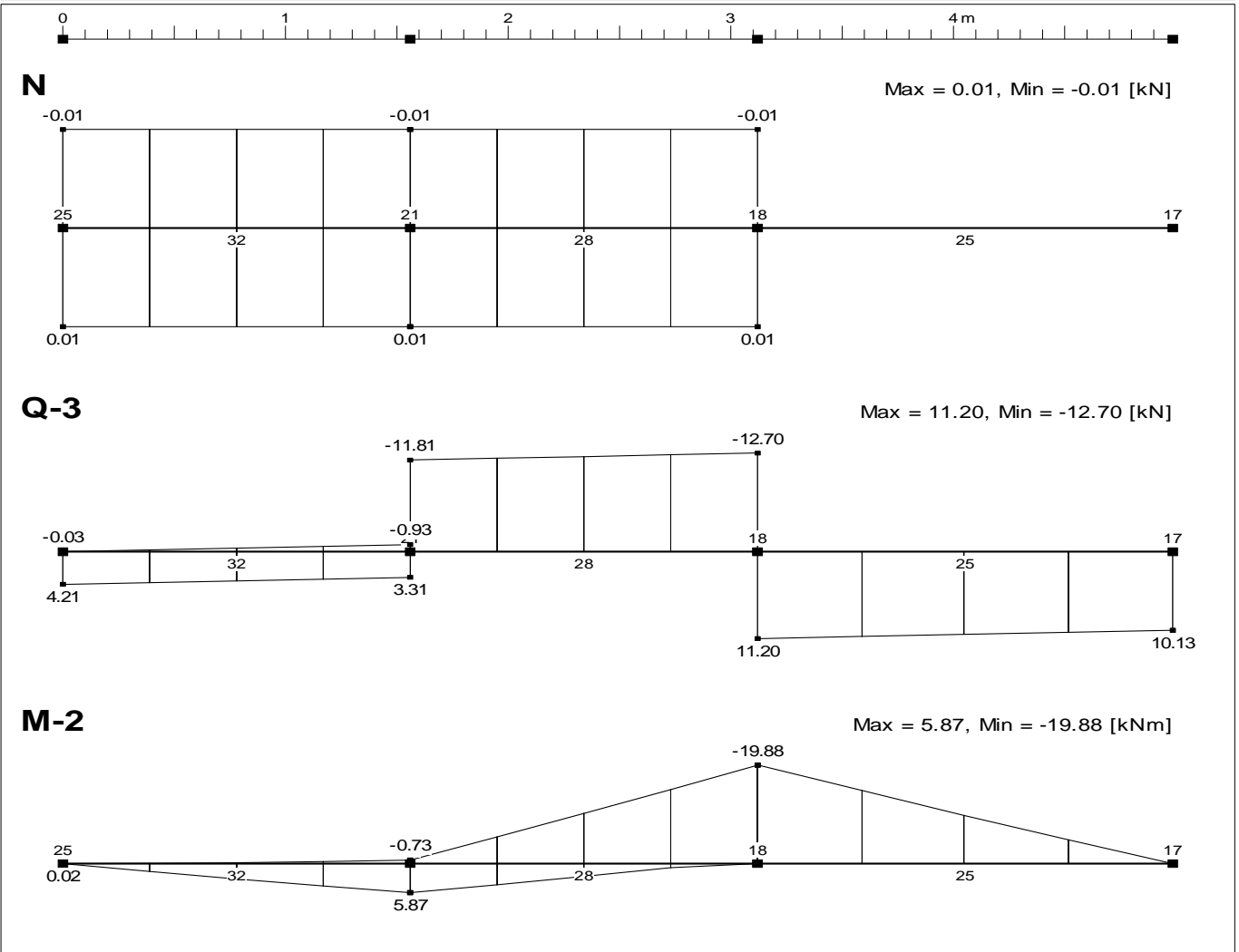
Nachweis erfüllt

Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 52

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE

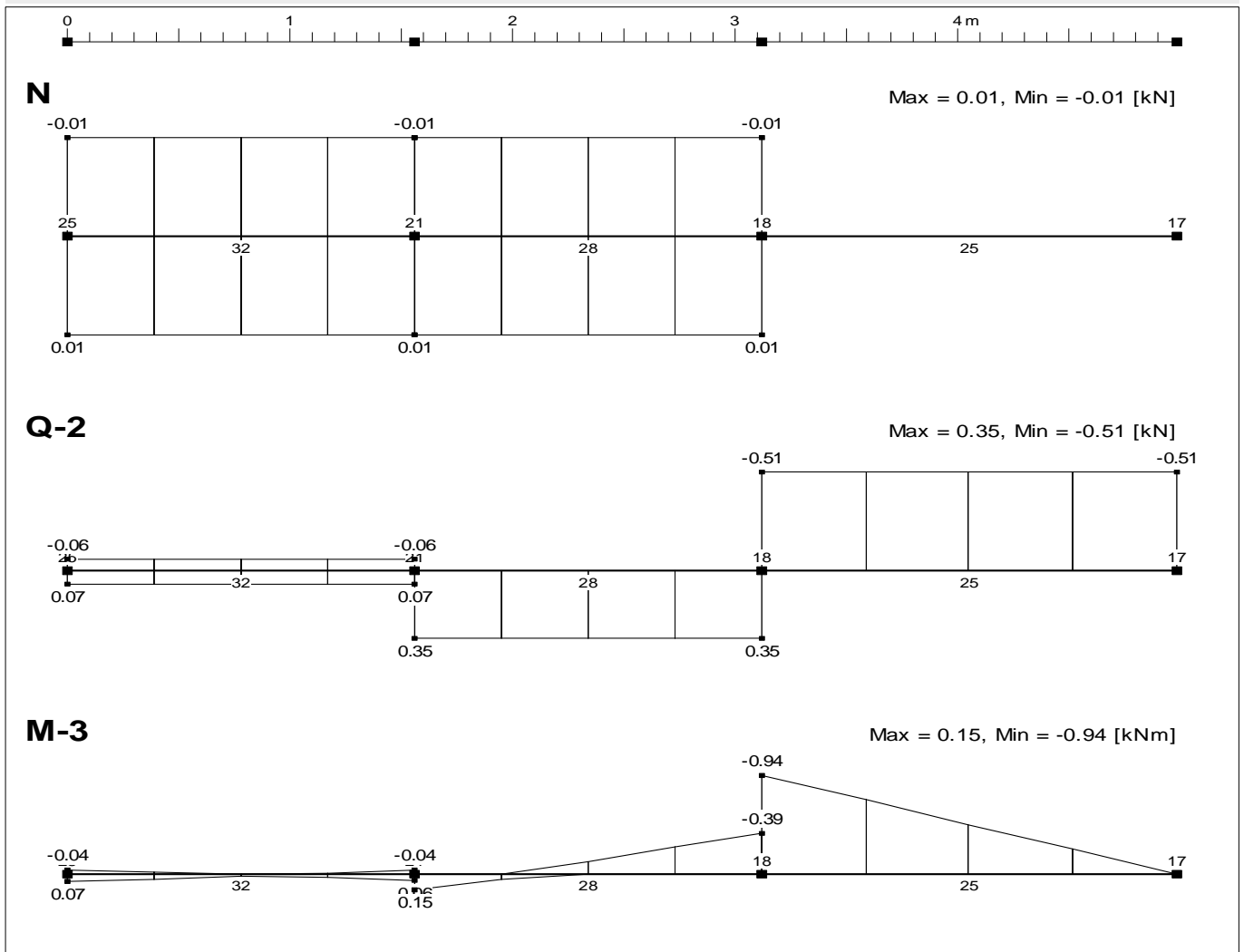


Projekt: 131-061526-WEB
Sekundärschalldämpfer

Position: 1.1rst
Tragwerk

Seite: 53

ERGEBNISVERLÄUFE LK 1 - BEMESSUNGSWERTE



NACHWEIS KATZBAHNTRÄGER EL - EL

Einordnung in Hubklasse 1, Schwingbeiwert 1,1
gemäß DIN 4132 wurde eine Seitenlast von 1/29 der max. Radlast berücksichtigt.

Schnittgrößen:

$$M_{y,d \text{ Krag}} = 1,1 \cdot 19,88 = 22,90 \text{ KNm}$$

$$M_{y,d \text{ Feld}} = 1,1 \cdot 5,87 = 6,50 \text{ KNm}$$

$$M_{z,d} = 1,1 \cdot 0,94 = 1,03 \text{ KNm}$$

$$Q_{3,d} = 1,1 \cdot 12,7 = 14,0 \text{ KN}$$

Spannungsnachweis Stützmoment:

$$\sigma = 2290 / 311 + 103 / 111 = 8,3 \text{ KN/cm}^2 \quad \sigma_{d} / \sigma_{Rd} = 0,38 < 1$$

Spannungsnachweis im Feld

$$\sigma = 650 / 311 + 17 / 111 = 2,2 \text{ KN/cm}^2$$

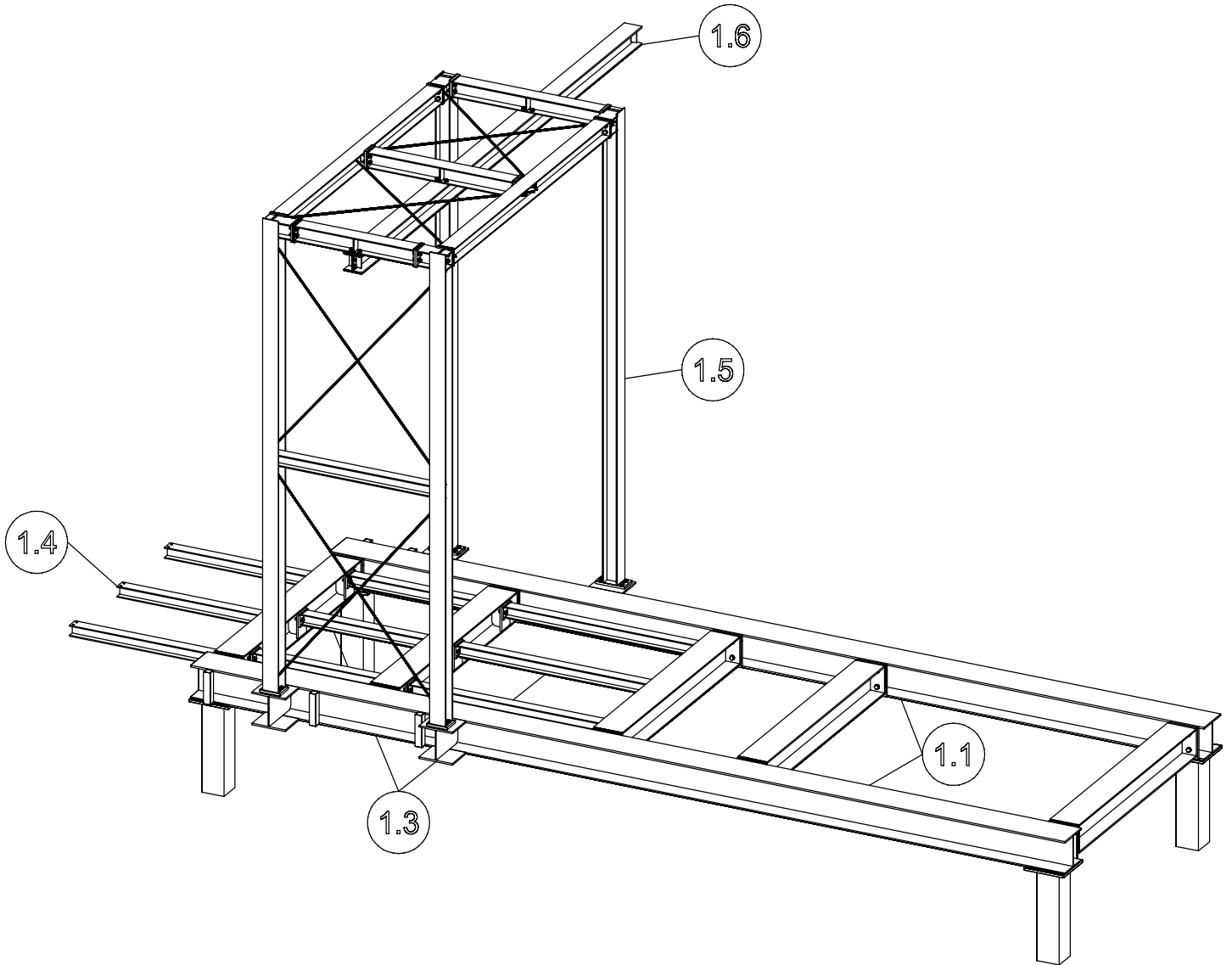
$$\sigma_{\text{Flansch}} = 3,3 \text{ KN/cm}^2$$

$$\sigma = 5,5 \text{ KN/cm}^2 \quad \sigma_{d} / \sigma_{Rd} = 0,25 < 1$$

$$\tau_{d} = 14 \cdot 177 / (2490 \cdot 0,8) = 1,24 \text{ KN/cm}^2 \quad \tau_{d} / \tau_{Rd} = 0,01 < 1$$

Biegedrillknicken:

gem. Tabelle Stahl im Hochbau ausreichend



aufgestellt am 14.07.2004