





span length [m]		207,9			189,0			187,6			179,8			196,9			195,1							
EDS(10°C) [N/mm²]		43,91			43,91			43,91			43,91			43,91			43,91							
				✕		✕				✕		✕				✕		✕		6				
tower No.		24		25		26		27		28		29		30										
tower type		ST		ST		ST		ST		ST		ST		ST										
span length [m]		193,4			172,0			141,7			145,6			134,1			141,9							
EDS(10°C) [N/mm²]		43,91			43,91			43,91			43,95			43,95			43,95							
				✕		✕				✕				✕		✕				6				
tower No.		30		31		32		33		34		35		36										
tower type		ST		ST		ST		TT		ST		ST		ST										
span length [m]		243,4			239,0			170,9			160,8			205,0			210,4							
EDS(10°C) [N/mm²]		43,95			43,95			43,95			43,95			43,95			43,95							
				✕		✕				✕		✕				✕		✕		6				
tower No.		36		37		38		39		40		41		42										
tower type		ST		ST		ST		ST		ST		ST		ST										
span length [m]		161,0			172,9			168,8			182,4			188,0			163,1							
EDS(10°C) [N/mm²]		43,95			43,95			43,95			43,71			43,71			43,71							
				✕		✕				✕				✕		✕				6				
tower No.		42		43		44		45		46		47		48										
tower type		ST		ST		ST		TT		ST		ST		ST										
TT = tension tower				✕ = damper																				
ST = suspension tower																								

Warning:

customer: Senergos, a.s.

The installation instruction applies only to the line and dampers indicated above.

2018-130a  
28.05.2018

span length [m]		202,1		172,6		208,4		150,2		169,3		206,9			
EDS(10°C) [N/mm²]		43,71		43,71		43,71		43,71		43,89		43,89			
		✕ ✕				✕ ✕				✕ ✕				6	
tower No.		48		49		50		51		52		53		54	
tower type		ST		ST		ST		ST		TT		ST		ST	
span length [m]		209,4		174,8		191,9		197,1		171,7		170,3			
EDS(10°C) [N/mm²]		43,89		43,89		43,89		43,89		43,89		43,89			
		✕ ✕				✕ ✕				✕ ✕				6	
tower No.		54		55		56		57		58		59		60	
tower type		ST		ST		ST		ST		ST		ST		TT	
span length [m]		202,9		200,1		183,4		166,7		150,0		170,4			
EDS(10°C) [N/mm²]		43,69		43,69		43,69		43,69		43,69		43,69			
		✕ ✕				✕ ✕				✕ ✕				6	
tower No.		60		61		62		63		64		65		66	
tower type		TT		ST		ST		ST		ST		ST		ST	
span length [m]		188,1		193,0		178,8		174,9		200,9		197,9			
EDS(10°C) [N/mm²]		43,69		43,69		43,69		44,10		44,10		44,10			
		✕ ✕		✕				✕		✕ ✕				6	
tower No.		66		67		68		69		70		71		72	
tower type		ST		ST		ST		TT		ST		ST		ST	
TT = tension tower		✕ = damper													
ST = suspension tower															

Warning:

customer: Senergos, a.s.

The installation instruction applies only to the line and dampers indicated above.

2018-130a  
28.05.2018



## Damper distribution chart

RIBE Elektroarmaturen  
D-01445 Radebeul  
Fabrikstr. 27  
email: ulf.brettschneider@rbe.de  
Tel.: 0351/8950-156


Warning:

customer: Senergos, a.s.

The installation instruction applies only to the line and dampers indicated above.

2018-130a  
28.05.2018

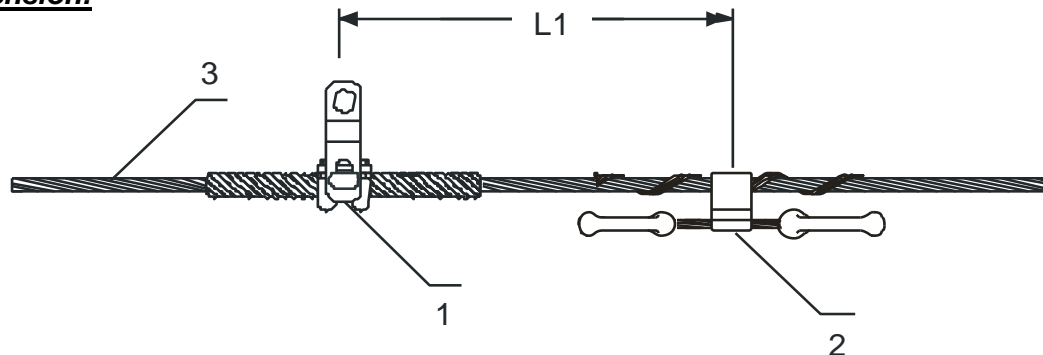
28.05.2018

customer: Senergos, a.s.  
project: 110 kV OHTL V557

conductor: 243-AL1/39-ST1A  
(Ø21,8)

EDS (10°C): max. 47,6 N/mm<sup>2</sup>

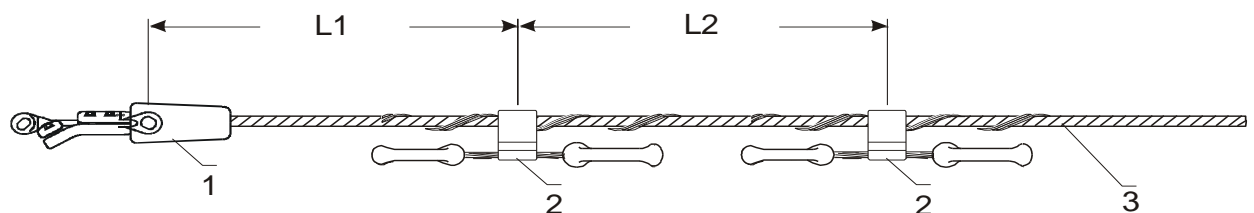
#### Suspension:



- 1 - suspension clamp: 104206KB
- 2 - damper: B161002A02
- 3 - conductor: 243-AL1/39-ST1A

L1 = 0,8 m

#### Tension:



- 1 - tension clamp: B118223A01
- 2 - damper: B161002A02
- 3 - conductor: 243-AL1/39-ST1A

L1 = 0,7 m

L2 = 0,8 m

The damper locations are only valid for the damper type numbers shown in the drawing. They are not transferable to other damper types. Ignoring this warning may cause damage of conductor or damper.

# 110 kV-transmission line "V557" (Senergos)

## 2S 248(M167/R91-228) -17,7mmØ

Tower no.	R HJ	1	2	3	4	5	6	7	8	9	10	11	14 T
Tower type	T	T	S	S	S	S	T	S	S	T	T	S	9 S
Span length [m]	64,0	200,0	401,0	397,0	326,0	152,0	319,0	403,0	175,0	207,0	149,0		
Every Day Stress [MPa]	21,24	57,12	57,12	57,12	57,12	57,12	57,08	57,08	57,08	53,80	57,08		

Tower no.	11	12	13	14	15	16	17	18	19	20	21	22	8 T
Tower type	S	S	S	S	T	S	S	S	S	T	S	S	15 S
Span length [m]	374,0	392,0	329,0	298,0	199,0	345,0	354,0	392,0	399,0	208,0	194,0		
Every Day Stress [MPa]	57,08	57,08	57,08	57,08	57,33	57,33	57,33	57,33	57,33	57,07	57,07		

Tower no.	22	23	24	25	26	27	28	29	30	31	32	33	2 T
Tower type	S	S	S	S	S	S	S	S	S	S	S	T	10 S
Span length [m]	188,0	175,0	208,0	189,0	188,0	180,0	197,0	195,0	193,0	172,0	142,0		
Every Day Stress [MPa]	57,07	57,07	57,07	57,07	57,07	57,07	57,07	57,07	57,07	57,07	57,07		

Tower no.	33	34	35	36	37	38	39	40	41	42	43	44	2 T
Tower type	T	S	S	S	S	S	S	S	S	S	S	S	12 S
Span length [m]	146,0	134,0	142,0	243,0	239,0	171,0	161,0	205,0	210,0	161,0	173,0		
Every Day Stress [MPa]	53,12	53,12	53,12	53,12	53,12	53,12	53,12	53,12	53,12	53,12	53,12		

Tower no.	44	45	46	47	48	49	50	51	52	53	54	55	8 T
Tower type	S	T	S	S	S	S	S	S	T	S	S	S	7 S
Span length [m]	169,0	182,0	188,0	163,0	202,0	173,0	208,0	150,0	169,0	207,0	209,0		
Every Day Stress [MPa]	53,12	52,84	52,84	52,84	52,84	52,84	52,84	52,84	53,05	53,05	53,05		

Damper B853002A03 (Tension tower): 34 pieces  
 Damper B 161003A05 (Suspension tower): 53 pieces

T Tension tower  
 S Suspension tower

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 Electrical Fittings  
 2020\_122  
 08.04.2020

# 110 kV-transmission line "V557" (Senergos)

## 2S 248(M167/R91-228) -17,7mmØ

Tower no.	55	56	57	58	59	60	61	62	63	64	65	66	4	T
Tower type	S	S	S	S	S	T	S	S	S	S	S	S	9	S
Span length [m]	175,0	192,0	197,0	172,0	170,0	203,0	200,0	183,0	167,0	150,0	170,0			
Every Day Stress [MPa]	53,05	53,05	53,05	53,05	53,05	52,83	52,83	52,83	52,83	52,83	52,83			

Tower no.	66	67	68	69	70	71	72	73	74	75	76	77	8	T
Tower type	S	S	S	T	S	S	S	S	S	S	T	S	7	S
Span length [m]	188,0	193,0	179,0	175,0	201,0	198,0	200,0	199,0	197,0	182,0	199,0			
Every Day Stress [MPa]	52,83	52,83	52,83	53,30	53,30	53,30	53,30	53,30	53,30	53,30	56,50			

Tower no.	77	78	79	80	81	82	83						4	T
Tower type	S	S	S	S	S	T	T						6	S
Span length [m]	204,0	189,0	387,0	381,0	191,0	97,0								
Every Day Stress [MPa]	56,50	56,50	56,50	56,50	56,50	46,48								

Damper B853002A03 (Tension tower): 16 pieces  
 Damper B161003A05 (Suspension tower): 22 pieces

T Tension tower  
S Suspension tower

**Total:**  
**Damper B853002A03 (Tension tower): 50 pieces**  
**Damper B161003A05 (Suspension tower): 75 pieces**

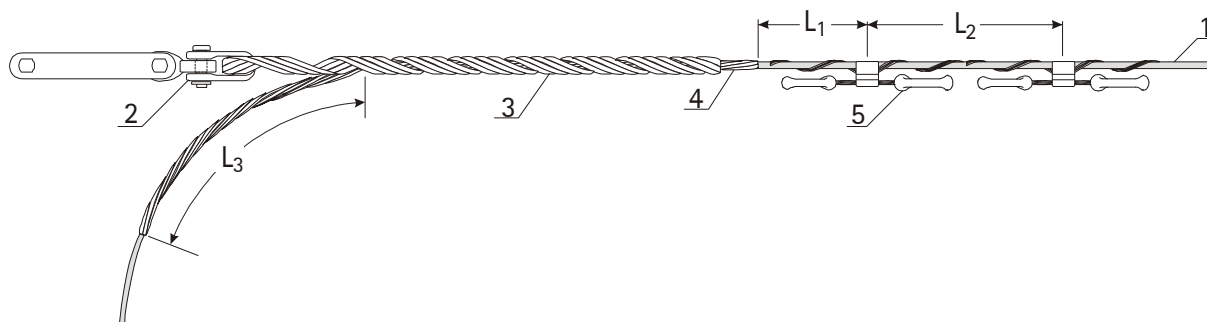
RIBE  
 Electrical Fittings  
 2020\_122  
 08.04.2020



OPGW : **2S 248(M167/R91-228) -17,7mmØ**  
 Customer : **Senergos, a.s.**  
 Project : **110 kV-transmission line "V557"**  
 Conductor self damping : **Estimated on basis of similar OPGW's**  
 Every Day Stress (EDS) : **≤ 57,4 MPa (for 10 °C)**

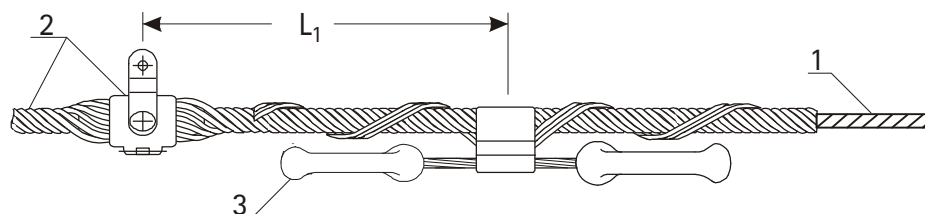
Study:  
**2020\_122**  
 Date:  
**08.04.2020**

### Tension tower:



1....	OPGW/ ADSS.....	
2....	Thimble.....	F02686A02
3....	Dead end.....	AW252152
4....	Protection rods.....	RW193220lis
5....	Vibration damper.....	B853002A03
	with helical rods.....	TW185043
		$L_1 \approx 0,5 \text{ m}$
		$L_2 = 0,6 \text{ m}$
		$L_3 \approx 0,4 \text{ m}$

### Suspension tower:



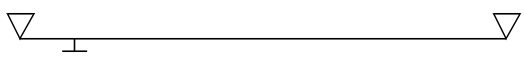

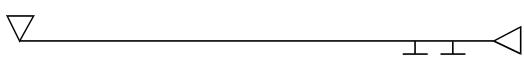

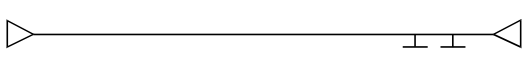
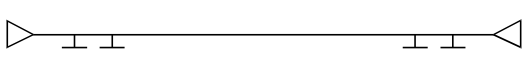
1....	OPGW/ ADSS.....	
2....	Amour grip suspension.	LTA179200/6lis
3....	Vibration damper.....	B161003A05
	with helical rods.....	TW310062
		$L_1 = 0,6 \text{ m}$




The damper locations are only valid for the damper type numbers shown in the drawing. They are not transferrable to other damper types. Ignoring this warning may cause damage of the cable or the damper.

OPGW : **2S 248(M167/R91-228) -17,7mmØ**  
 Customer : **Senergos, a.s.**  
 Project : **110 kV-transmission line "V557"**  
 Conductor self damping : **Estimated on basis of similar OPGW's**  
 Every Day Stress (EDS) : **≤ 57,4 MPa (for 10 °C)**

Study:  
**2020\_122**

Date:  
**08.04.2020**

		max. span length	Damper left	Damper right
	S - S	< 220 m	type 1	-----
	S - S	220 – 404 m	type 1	type 1
	S - T	< 220 m	-----	type 2
	S - T	220 – 404 m	type 1	type 2
	T - T	< 220 m	-----	type 2
	T - T	220 – 404 m	type 2	type 2

Symbols:  suspension (S)  tension (T)  vibration damper

type 1: B853002A03

type 2: B161003A05

The damper locations are only valid for the damper type numbers shown in the drawing. They are not transferrable to other damper types. Ignoring this warning may cause damage of the cable or the damper.

