



YOUR SPECIALIST AND PROFESSIONAL PARTNER  
FOR RAILWAY SYSTEMS



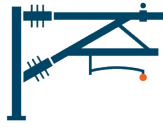
FOR YOUR OVERHEAD CONTACT LINES





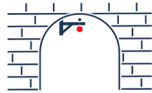
**WE SET NEW STANDARDS THROUGH INNOVATION AND RELIABILITY  
IN DEVELOPMENT, ENGINEERING AND REALISATION OF  
OVERHEAD CONTACT LINES FOR RAILWAYS**





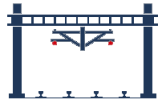
CANTILEVER

04



TUNNELS

28



CONSTRUCTION ELEMENTS

36



DISCONNECTORS / FEEDS

40



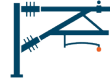
CATENARY

46



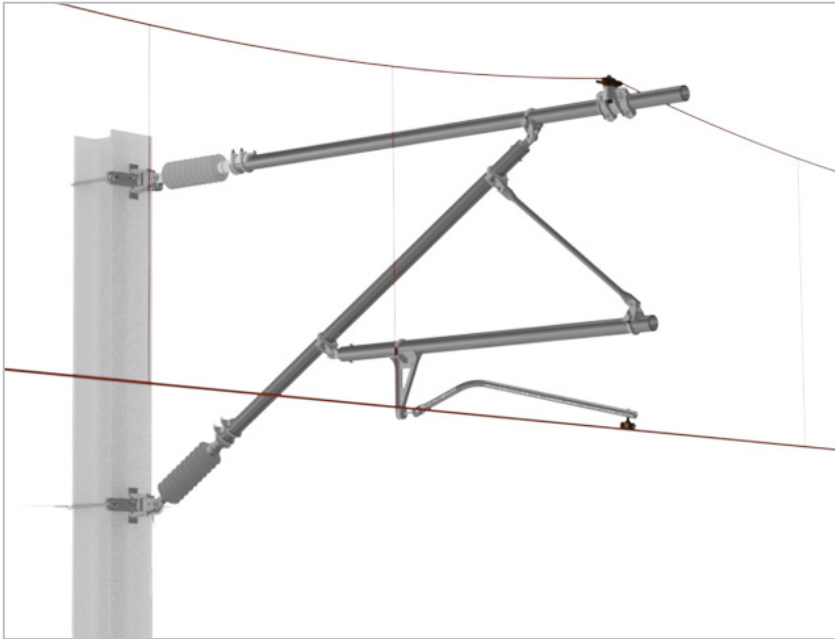
DE-ICING SYSTEM

58



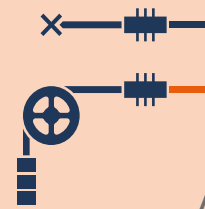
CANTILEVER

# ARCAS ADAPTABLE RAILWAY CANTILEVER SYSTEM



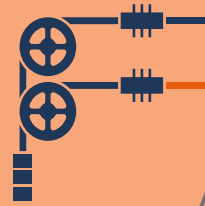
A **protected development** by Kummler+Matter designed on the basis of the **tried-and-tested modular system**. This system reduces **the number of parts in your inventory to the minimum**. Because there are only a few standard parts, the system can be installed **on site much faster**. The overall weight is significantly reduced thanks to a skilful combination of design and choice of materials. This system has been operated successfully in many different projects **across the globe** since 1999.

## SEMI-AUTOTENSIONED



AC+DC

## FULLY AUTOTENSIONED



AC+DC

Depending on the application, the support structures can be divided into four sections.

### YOUR BENEFITS AT A GLANCE:

- ✓ Modular structure
- ✓ Can be integrated into existing systems
- ✓ Simple to install
- ✓ Low maintenance
- ✓ Individual functionality
- ✓ Highly cost-efficient



REFERENCE AND STANDARD

- ✓ EN 50119, IEC 60913



VOLTAGE

- ✓ 600 V DC to 25 kV AC



LOAD

- ✓ Messenger cable tension max. 25 kN
- ✓ Contact wire tension max. 45 kN

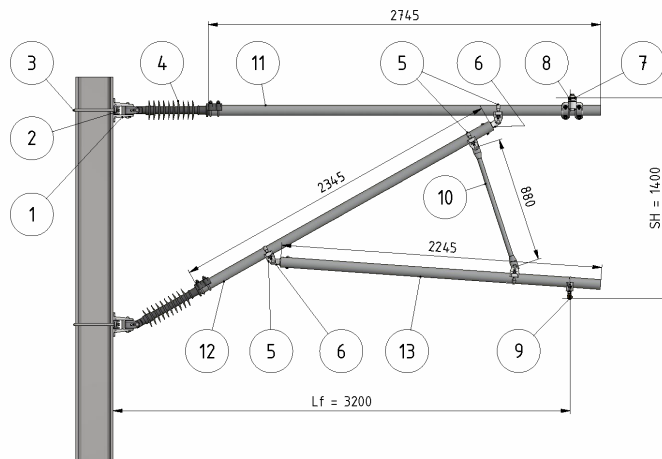
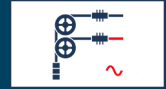


CONTACT WIRE

- ✓ 100–150 mm<sup>2</sup>
- ✓ 2/0–350 MCM



# ARCAS CANTILEVER, OOR, fully compensated, 25 kV/AC, single insulation, with support pipe, LF = 3.20 m



<https://kuma.ch/en/catalog/820002-en>

SYSTEM VARIANTS	
PART NO.	LENGTH LF
820002	3.2 m

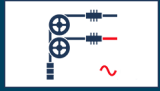
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2469-01	2	Hinge with clevis fork vertical
2		C1873-01	2	Bracket 250-320
3		E0888-06	2	U-bolts, Ø 16 mm HEB 260
4		302664	2	Insulator, 25 kV creepage distance: 1230 ±3 mm
5		D3027-03	4	Pipe attachment complete, with U-bolt
6		D2799-01	2	Pipe connector with tongue
7		D2566-03	1	Messenger cable suspension non-insulated, rotatable, cable Ø max. 13 mm
8		301309	1	Protection sleeve AlCu for messenger cable
9		D2664-01	1	Contact wire suspension, rigid, 4°, 2°
10		D2661-05	1	Support pipe Ø 30/3 x 880 mm Alu
11		D2796-24	1	Pipe, Ø 70/7, L=2745 mm Alu
12		D2796-19	1	Pipe Ø 70/7, L = 2245 mm Alu
13		D2796-20	1	Pipe Ø 70/7, L = 2345 mm Alu

POLE TYPE	HEB 260
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.4 m

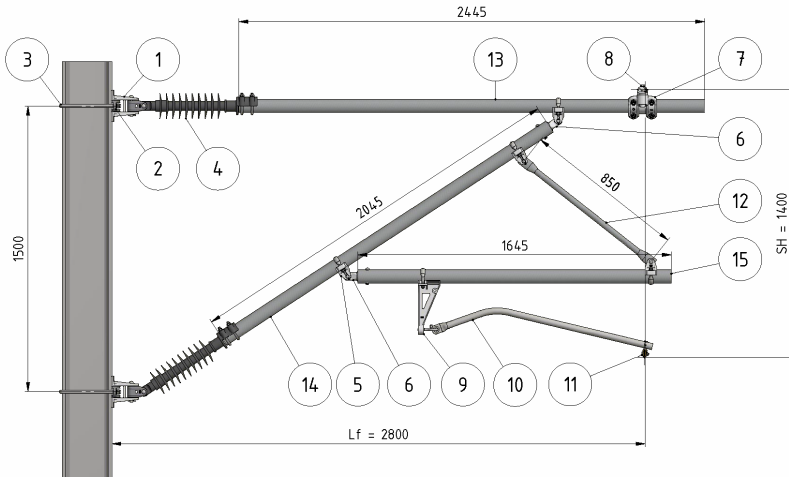
Other pole types on request

ACCESSORIES	
	C1853-01 Bracket 180-240
	E0888 U-bolt, Ø 16 mm
	D2897 pole clamp with band to round pole, for 1 armature

# ARCAS CANTILEVER, pull, fully compensated, 25 kV/AC, single insulation, with support pipe, LF = 2.80 m



6



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820000	2.8 m ± 0.2 m

<https://kuma.ch/en/catalog/820000-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2469-01	2	Hinge with clevis fork vertical
2		C1873-01	2	Bracket 250-320
3		E0888-06	2	U-bolts, Ø 16 mm HEB 260
4		302664	2	Insulator, 25 kV creepage distance: 1230 ±3 mm
5		D3027-03	4	Pipe attachment complete, with U-bolt
6		D2799-01	2	Pipe connector with tongue
7		D2566-03	1	Messenger cable suspension non-insulated, rotatable, cable Ø max. 13 mm
8		301309	1	Protection sleeve AlCu for messenger cable
9		D3124-05	1	Drop bracket clamp for steady arms, 1 steady arm
10		D3907-01	1	Steady arm, 1", L = 1100 mm
11		E3183-01	1	Contact wire clamp M16
12		D2661-13	1	Support pipe Ø 30, L = 750 mm Alu
13		D2796-21	1	Pipe Ø 70/7, L = 2045 mm
14		D2796-17	1	Pipe, D=70/7, L=2045
15		D2796-13	1	Pipe, D=70/10, L=1645

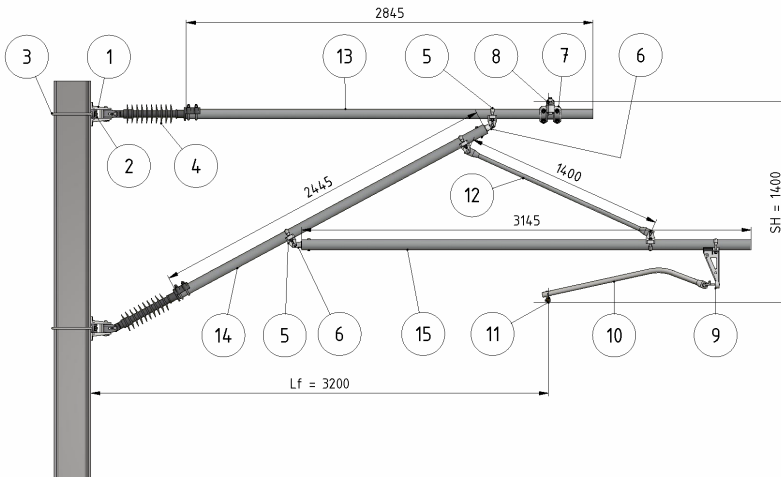
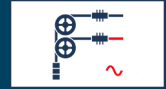
POLE TYPE	HEB 260
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.4 m

Other pole types on request

ACCESSORIES	
	D2897 pole clamp with band to round pole, for 1 armature
	C1853-01 Bracket 180-240
	E0888 U-bolt, Ø 16 mm



# ARCAS CANTILEVER, push, fully compensated, 25 kV/AC, single insulation, with support pipe, LF = 3.20 m



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820001	3.2 m ± 0.2 m

<https://kuma.ch/en/catalog/820001-en>

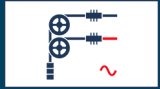
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2469-01	2	Hinge with clevis fork vertical
2		C1873-01	2	Bracket 250-320
3		E0888-06	2	U-bolts, Ø 16 mm HEB 260
4		302664	2	Insulator, 25 kV creepage distance: 1230 ±3 mm
5		D3027-03	4	Pipe attachment complete, with U-bolt
6		D2799-01	2	Pipe connector with tongue
7		D2566-03	1	Messenger cable suspension non-insulated, rotatable, cable Ø max. 13 mm
8		301309	1	Protection sleeve AlCu for messenger cable
9		D3124-05	1	Drop bracket clamp for steady arms, 1 steady arm
10		D3907-01	1	Steady arm, 1", L = 1100 mm
11		E3183-01	1	Contact wire clamp M16
12		D2661-24	1	Support pipe Ø 30/3, L = 1400 mm
13		D2796-25	1	Pipe Ø 70/7, L = 2845 mm
14		D2796-21	1	Pipe Ø 70/7, L = 2045 mm
15		D2796-28	1	Pipe, D=70/7, L=3145

POLE TYPE	HEB 260
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.4 m

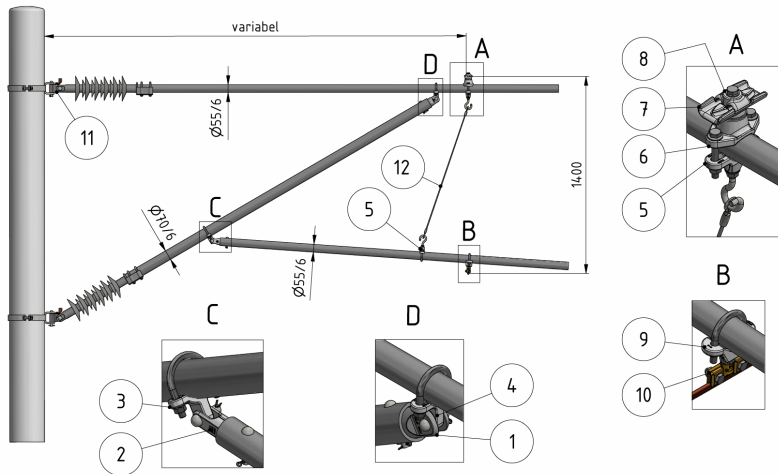
Other pole types on request

ACCESSORIES	
	E0888 U-bolt, Ø 16 mm
	C1853-01 Bracket 180-240
	D2897 pole clamp with band to round pole, for 1 armature

# ARCAS forged CANTILEVER, OOR, 25 KV/AC



8



SYSTEM VARIANTS	
PART NO.	
820264	

<https://kuma.ch/en/catalog/820264-en>

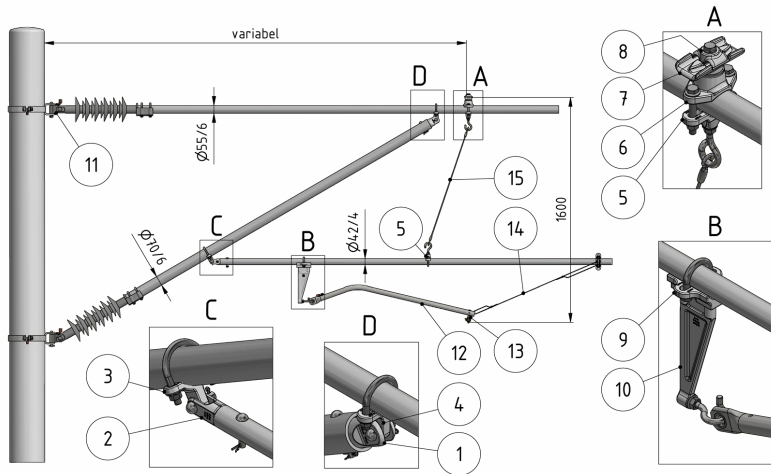
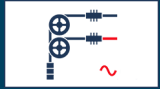
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D4136-01	2	Pipe connector 70/6
2		D4173-01	2	Pipe connector 55/6
3		D4162-01	1	Pipe attachment 70
4		D4160-01	1	Pipe attachment 42/55
5		D4190-01	2	Pipe connector 55/42
6		D4177-01	1	Support
7		D4122-01	1	Messenger cable clamp
8		D4175-01	1	Clamp
9		D4181-01	1	Contact wire suspension, rigid, 4°
10		E3183-01	1	Contact wire clamp M16
11		D4193-01	2	Tongue
12		D2714-22	1	Cable, Ø = 6 mm, L = 1250 mm, inox

POLE TYPE	Round pole
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.6 m

Other pole types on request  
Scope of delivery: without fix point cables and cantilevers



# ARCAS forged CANTILEVER, PULL, 25 KV/AC



SYSTEM VARIANTS	
PART NO.	
820265	

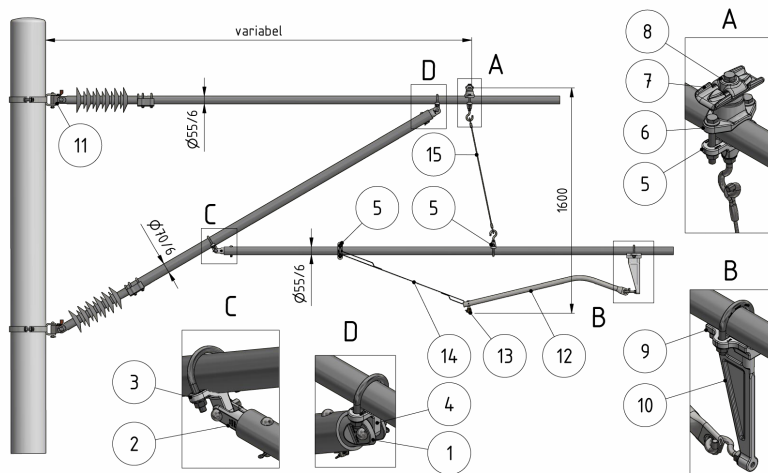
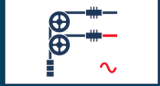
<https://kuma.ch/en/catalog/820265-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D4136-01	2	Pipe connector 70/6
2		D4169-01	2	Pipe connector 42/4
3		D4162-01	1	Pipe attachment 70
4		D4160-01	1	Pipe attachment 42/55
5		D4190-01	3	Pipe connector 55/42
6		D4177-01	1	Support
7		D4122-01	1	Messenger cable clamp
8		D4175-01	1	Clamp
9		D4191-01	1	Pipe connector 55/42
10		D4192-01	1	Drop bracket
11		D4193-01	2	Tongue
12		D3907-02	1	Steady arm G 1", L = 1100 mm, with ring nut Ø 16 mm, SST
13		E3183-01	1	Contact wire clamp M16
14		D4076-01	1	Wind stay
15		D2714-22	1	Cable, Ø = 6 mm, L = 1250 mm, inox

POLE TYPE	Round pole
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.6 m

Other pole types on request  
 Scope of delivery: without fix point cables and cantilevers

# ARCAS forged CANTILEVER, PUSH, 25 KV/AC



## SYSTEM VARIANTS

PART NO.

820263

<https://kuma.ch/en/catalog/820263-en>

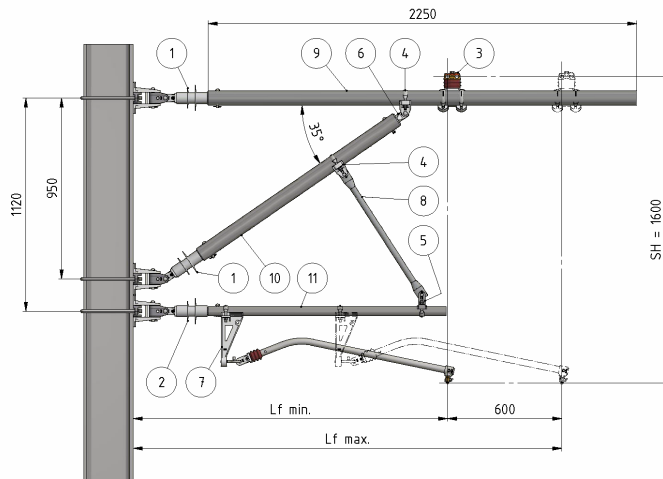
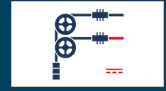
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D4136-01	2	Pipe connector 70/6
2		D4173-01	2	Pipe connector 55/6
3		D4162-01	1	Pipe attachment 70
4		D4160-01	1	Pipe attachment 42/55
5		D4190-01	3	Pipe connector 55/42
6		D4177-01	1	Support
7		D4122-01	1	Messenger cable clamp
8		D4175-01	1	Clamp
9		D4191-01	1	Pipe connector 55/42
10		D4192-01	1	Drop bracket
11		D4193-01	2	Tongue
12		D3907-02	1	Steady arm G 1", L = 1100 mm, with ring nut Ø 16 mm, SST
13		E3183-01	1	Contact wire clamp M16
14		D4076-01	1	Wind stay
15		D2714-22	1	Cable, Ø = 6 mm, L = 1250 mm, inox

POLE TYPE	Round pole
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	1.6 m

Other pole types on request  
Scope of delivery: without fix point cables and cantilevers



# ARCAS CANTILEVER, pull, fully compensated, 3 kV/DC, double insulation, with support pipe, Lf = 1.65–2.30 m



<https://kuma.ch/en/catalog/820100-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2559-02	1	Messenger cable suspension insulated, rotatable, reinforced, to pipe 2.5", cable Ø max. 21
4		D3027-02	2	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		D2338-01	1	Pipe attachment complete, with U-bolt, to pipe G1.5"
6		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
7		120535	1	Contact wire suspension insulated 3 kV
8		D2661-13	1	Support pipe Ø 30, L = 750 mm Alu
9		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
11		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

SYSTEM VARIANTS	
PART NO.	LENGTH LF
820100	1.65–2.30 m

POLE TYPE	HEB 260
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	1.6 m

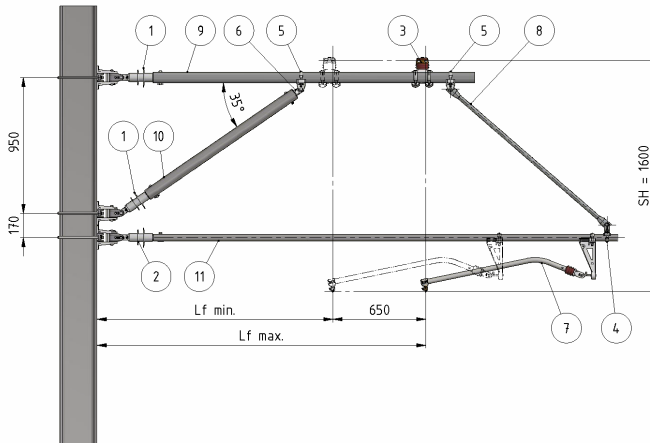
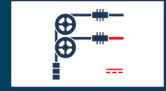
Other pole types on request

ACCESSORIES	
	D2360-02 pole bracket with hinge and clevis, HEB 180
	D2360-03 pole bracket with hinge and clevis, HEB 200
	D2360-04 pole bracket with hinge and clevis, HEB 220
	D2360-05 pole bracket with hinge and clevis, HEB 240
	820401 pole clamp to round pole, for 1 armature Ø 150–250 mm
	820402 pole clamp to round pole, for 1 armature Ø 251–500

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, fully compensated, 3 kV/DC, double insulation, with support pipe, Lf = 1.65–2.30 m



<https://kuma.ch/en/catalog/820142-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2559-02	1	Messenger cable suspension insulated, rotatable, reinforced, to pipe 2.5", cable Ø max. 21
4		D2338-01	1	Pipe attachment complete, with U-bolt, to pipe G1.5"
5		D3027-02	2	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
6		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
7		120535	1	Contact wire suspension insulated 3 kV
8		D2661-13	1	Support pipe Ø 30, L = 750 mm Alu
9		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
11		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

## SYSTEM VARIANTS

PART NO.	LENGTH LF
820142	1.65–2.30 m

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	1.6 m

Other pole types on request

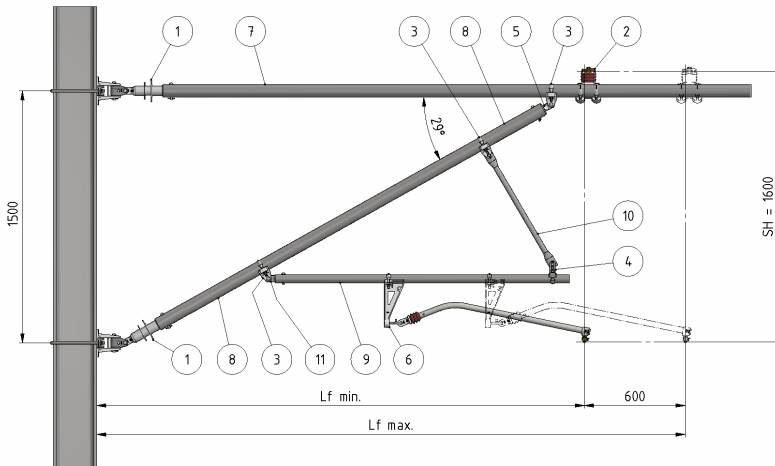
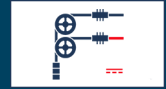
## ACCESSORIES

	D2360-02 pole bracket with hinge and clevis, HEB 180
	D2360-03 pole bracket with hinge and clevis, HEB 200
	D2360-04 pole bracket with hinge and clevis, HEB 220
	D2360-05 pole bracket with hinge and clevis, HEB 240
	820401 pole clamp to round pole, for 1 armature Ø 150–250 mm
	820402 pole clamp to round pole, for 1 armature Ø 251–500

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, pull, fully compensated, 3 kV/DC, double insulation, with support pipe, Lf = 2.00–4.70 m



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820101	2.00–2.60 m
820135	2.30–2.90 m
820136	2.60–3.20 m
820137	2.90–3.50 m
820138	3.20–3.80 m
820139	3.50–4.10 m
820140	3.80–4.40 m
820141	4.10–4.70 m

<https://kuma.ch/en/catalog/820137-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		D2559-02	1	Messenger cable suspension insulated, rotatable, reinforced, to pipe 2.5", cable Ø max. 21
3		D3027-02	3	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
4		D2338-01	1	Pipe attachment complete, with U-bolt, to pipe G1.5"
5		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
6		120535	1	Contact wire suspension insulated 3 kV
7		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
8		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2661-13	1	Support pipe Ø 30, L = 750 mm Alu
11		D2353-01	1	Pipe connector with tongue, complete, to pipe G1.5"

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	1.6 m

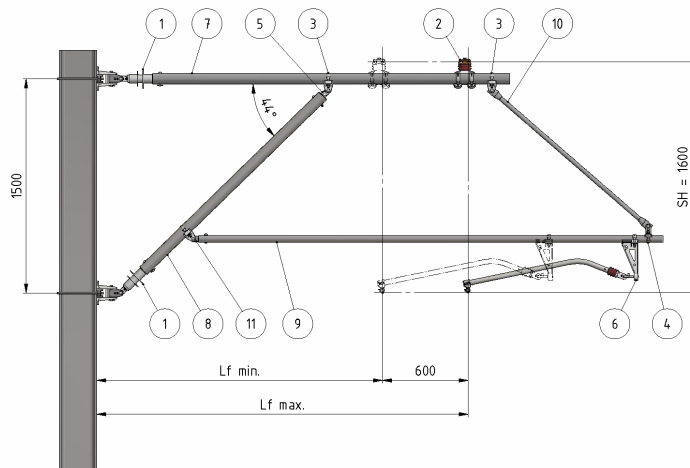
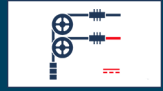
Other pole types on request

ACCESSORIES	
	D2360-02 pole bracket with hinge and clevis, HEB 180
	D2360-03 pole bracket with hinge and clevis, HEB 200
	D2360-04 pole bracket with hinge and clevis, HEB 220
	D2360-05 pole bracket with hinge and clevis, HEB 240
	820401 pole clamp to round pole, for 1 armature Ø 150–250 mm
	820402 pole clamp to round pole, for 1 armature Ø 251–500

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, fully compensated, 3 kV/DC, double insulation, with support pipe, Lf = 2.00–4.70 m



<https://kuma.ch/en/catalog/820143-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		D2559-02	1	Messenger cable suspension insulated, rotatable, reinforced, to pipe 2.5", cable Ø max. 21
3		D3027-02	3	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
4		D2338-01	1	Pipe attachment complete, with U-bolt, to pipe G1.5"
5		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
6		120535	1	Contact wire suspension insulated 3 kV
7		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
8		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2661-13	1	Support pipe Ø 30, L = 750 mm Alu
11		D2353-01	1	Pipe connector with tongue, complete, to pipe G1.5"

## SYSTEM VARIANTS

PART NO.	LENGTH LF
820143	2.00–2.60 m
820144	2.30–2.90 m
820145	2.60–3.20 m
820146	2.90–3.50 m
820147	3.20–3.80 m
820148	3.50–4.10 m
820149	3.80–4.40 m
820150	4.10–4.70 m

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	1.6 m

Other pole types on request

## ACCESSORIES

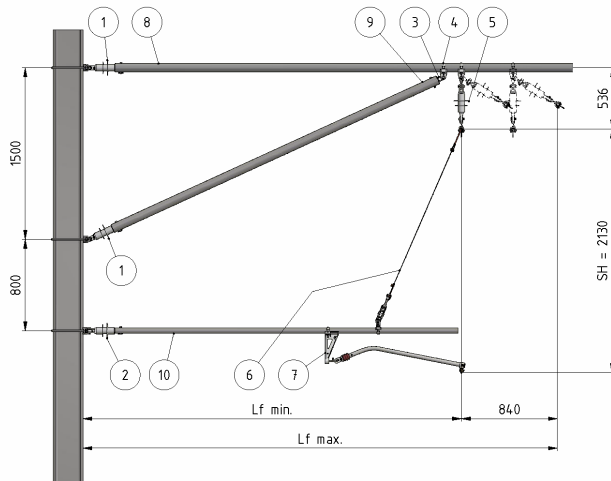
	D2360-02 pole bracket with hinge and clevis, HEB 180
	D2360-03 pole bracket with hinge and clevis, HEB 200
	D2360-04 pole bracket with hinge and clevis, HEB 220
	D2360-05 pole bracket with hinge and clevis, HEB 240
	820401 pole clamp to round pole, for 1 armature Ø 150–250 mm
	820402 pole clamp to round pole, for 1 armature Ø 251–500

## EXTENDED SPECIFICATIONS





# ARCAS CANTILEVER, pull, semi-tensioned, 3 kV/DC, $\geq 30^\circ-90^\circ$ , double insulation, with hanger cable, $L_f = 1.57-4.80$ m



SYSTEM VARIANTS	
PART NO.	LENGTH Lf
820154	1.57-2.40 m
820155	1.65-2.65 m
820156	2.15-2.90 m
820157	2.45-3.30 m
820158	2.75-3.65 m
820159	3.00-3.90 m
820160	3.30-4.15 m
820161	3.58-4.40 m
820162	3.98-4.80 m

<https://kuma.ch/en/catalog/820160-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120621	1	Suspension, 3 kV, 2.5" 1 conductor $\geq 30^\circ-90^\circ$
6		120506	1	Suspension for registration pipe G 1.5", conductive, with loop insulator
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.1 m

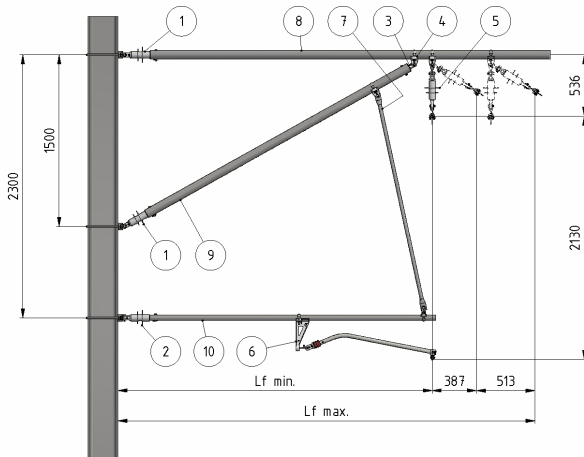
Other pole types on request

ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200-240
	D2359 pole bracket with tongue, HEB 200-240
	D2748 pole bracket with clevis, HEB 100-160
	D2749 pole bracket with tongue, HEB 100-160
	D2746 pole bracket with clevis, HEB 260-300
	D2747 pole bracket with tongue, HEB 260-300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, pull, semi-tensioned, 3 kV/DC, $\geq 30^\circ\text{--}90^\circ$ , double insulation, with support pipe, Lf = 1.57–4.80 m



## SYSTEM VARIANTS

PART NO.	LENGTH LF
820163	1.57–2.40 m
820164	1.65–2.65 m
820165	2.15–2.90 m
820166	2.45–3.30 m
820167	2.75–3.65 m
820168	3.00–3.90 m
820169	3.30–4.15 m
820170	3.58–4.40 m
820171	3.98–4.80 m

<https://kuma.ch/en/catalog/820169-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120621	1	Suspension, 3 kV, 2.5" 1 conductor $\geq 30^\circ\text{--}90^\circ$
6		120535	1	Contact wire suspension insulated 3 kV
7		120631	1	Support pipe $\varnothing 30$ , L=2490 mm, pipe 1.5"/2.5"
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.1 m

Other pole types on request

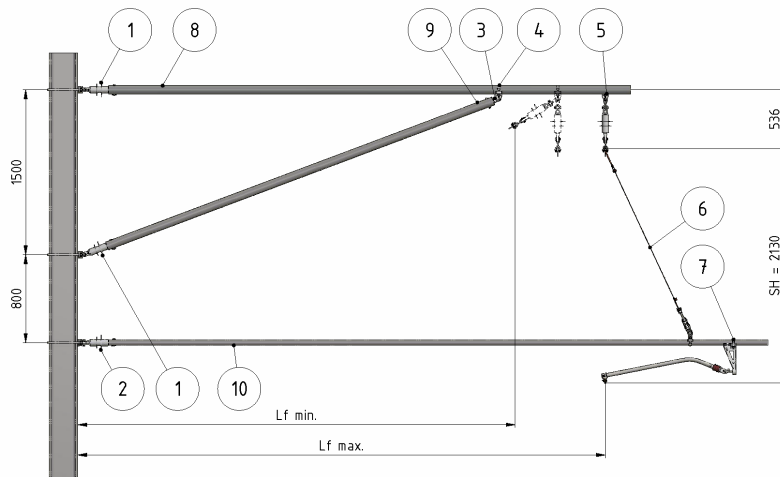
## ACCESSORIES

	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, semi-tensioned, 3 kV/DC, $\geq 30^\circ-90^\circ$ , double insulation, with hanger cable, Lf = 1.57–4.80 m



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820172	1.57–2.40 m
820173	1.65–2.65 m
820174	2.15–2.90 m
820175	2.45–3.30 m
820176	2.75–3.65 m
820177	3.00–3.90 m
820178	3.30–4.15 m
820179	3.58–4.40 m
820180	3.98–4.80 m

<https://kuma.ch/en/catalog/820179-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120621	1	Suspension, 3 kV, 2.5" 1 conductor $\geq 30^\circ-90^\circ$
6		120506	1	Suspension for registration pipe G 1.5", conductive, with loop insulator
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.1 m

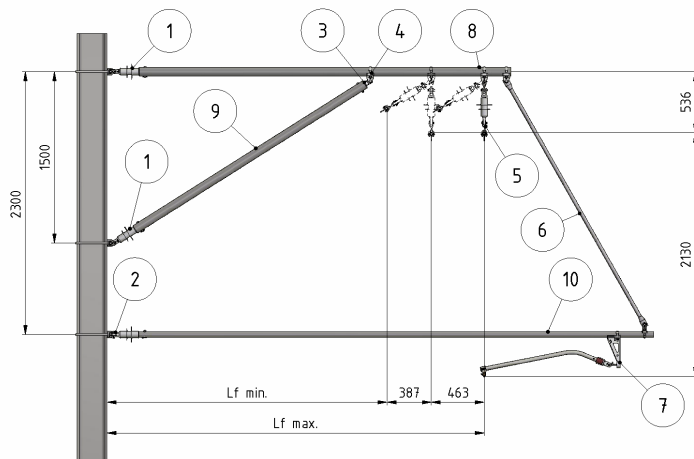
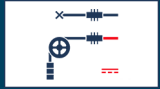
Other pole types on request

ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, semi-tensioned, 3 kV/DC, $\geq 30^\circ\text{--}90^\circ$ , double insulation, with support pipe, Lf= 1.57–4.80 m



<https://kuma.ch/en/catalog/820185-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120621	1	Suspension, 3 kV, 2.5" 1 conductor $\geq 30^\circ\text{--}90^\circ$
6		120535	1	Contact wire suspension insulated 3 kV
7		120632	1	Support pipe $\varnothing 30$ , L = 2490 mm, Pipe 1.5"/2.5"
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

SYSTEM VARIANTS	
PART NO.	LENGTH Lf
820181	1.57–2.40 m
820182	1.65–2.65 m
820183	2.15–2.90 m
820184	2.45–3.30 m
820185	2.75–3.65 m
820186	3.00–3.90 m
820187	3.30–4.15 m
820188	3.58–4.40 m
820189	3.98–4.80 m

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.1 m

Other pole types on request

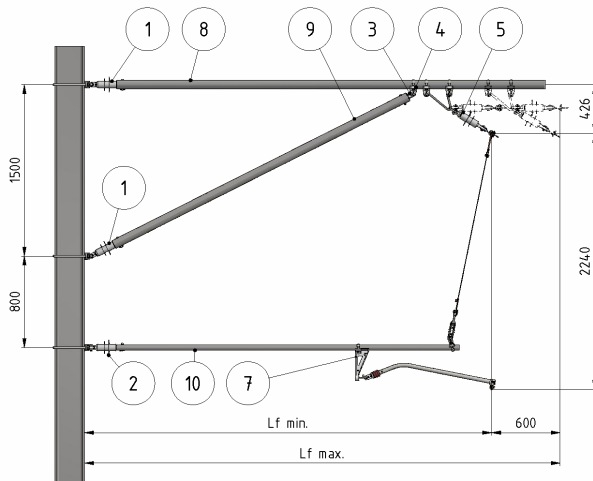
ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS





# ARCAS CANTILEVER, pull, semi-tensioned, 3 kV/DC, 30°–0°, double insulation, with hanger cable, Lf = 1.97–5.07 M



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820190	1.97–2.62 m
820191	2.19–2.79 m
820192	2.75–3.32 m
820193	3.00–3.60 m
820194	3.30–3.90 m
820195	3.56–4.16 m
820196	3.80–4.40 m
820197	4.07–4.67 m
820198	4.47–5.07 m

<https://kuma.ch/en/catalog/820195-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120622	1	Suspension 1 conductor 30°–0°, 2.5", 3 kV
6		120506	1	Suspension for registration pipe G 1.5", conductive, with loop insulator
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.2 m

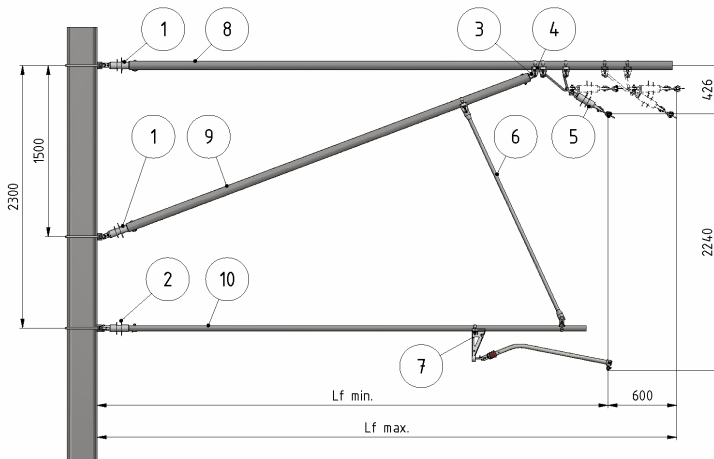
Other pole types on request

ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, pull, semi-tensioned, 3 kV/DC, 30°–0°, double insulation, with support pipe, Lf = 1.97–5.07 m



<https://kuma.ch/en/catalog/820203-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120622	1	Suspension 1 conductor 30°–0°, 2.5", 3 kV
6		120633	1	Support pipe Ø30, L = 1990 mm, Pipe connections 1.5" / 2.5"
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

SYSTEM VARIANTS	
PART NO.	LENGTH LF
820199	1.97–2.62 m
820200	2.19–2.79 m
820201	2.75–3.32 m
820202	3.00–3.60 m
820203	3.30–3.90 m
820204	3.56–4.16 m
820205	3.80–4.40 m
820206	4.07–4.67 m
820207	4.47–5.07 m

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.2 m

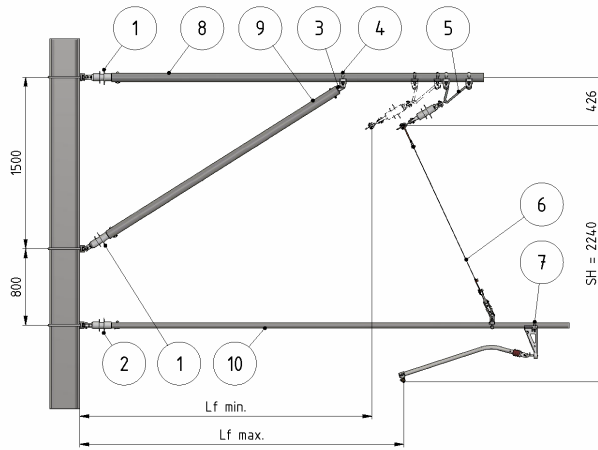
Other pole types on request

ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, semi-tensioned, 3 kV/DC, 30°–0°, double insulation, with hanger cable, Lf = 1.51–4.43 m



SYSTEM VARIANTS	
PART NO.	LENGTH Lf
820208	1.51–1.84 m
820209	1.71–2.09 m
820210	2.19–2.34 m
820211	2.50–2.83 m
820212	2.79–3.08 m
820213	3.07–3.33 m
820214	3.35–3.59 m
820215	3.62–3.83 m
820216	4.03–4.43 m

<https://kuma.ch/en/catalog/820212-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120622	1	Suspension 1 conductor 30°–0°, 2.5", 3 kV
6		120506	1	Suspension for registration pipe G 1.5", conductive, with loop insulator
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.2 m

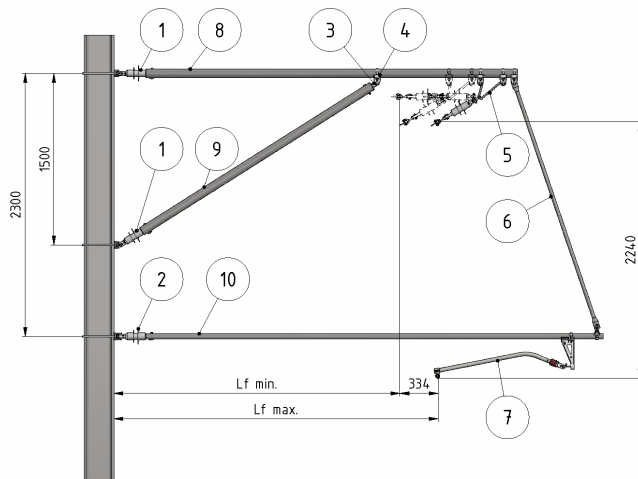
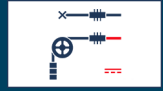
Other pole types on request

ACCESSORIES	
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS



# ARCAS CANTILEVER, push, semi-tensioned, 3 kV/DC, 30°–0°, double insulation, with support pipe, Lf= 1.51–4.43 m



## SYSTEM VARIANTS

PART NO.	LENGTH LF
820217	1.51–1.84 m
820218	1.71–2.09 m
820219	2.19–2.34 m
820220	2.50–2.83 m
820221	2.79–3.08 m
820222	3.07–3.33 m
820223	3.35–3.59 m
820224	3.62–3.83 m
820225	4.03–4.43 m

<https://kuma.ch/en/catalog/820220-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C2460-12	2	Insulator 3 kV Tongue - pipe 2 1/2" / 0°
2		C2499-01	1	Insulator 3 kV Pipe 1 1/2" - clevis / 90°
3		D2349-01	1	Pipe connector with tongue, to pipe G 2.5"
4		D3027-02	1	Pipe attachment, with U-bolt, to pipe G 2.5", reinforced
5		120622	1	Suspension 1 conductor 30°–0°, 2.5", 3 kV
6		120635	1	Support pipe Ø30, L = 2290 mm, Pipe connections 1.5"/2.5"
7		120535	1	Contact wire suspension insulated 3 kV
8		D2457	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
9		D2460	1	Pipe 2.5" STL HDG <i>Length acc. to extended specifications</i>
10		D2463	1	Pipe 1.5" STL HDG <i>Length acc. to extended specifications</i>

POLE TYPE	HEA + HEB
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	3 kV/DC
SYSTEM HEIGHT	2.2 m

Other pole types on request

## ACCESSORIES

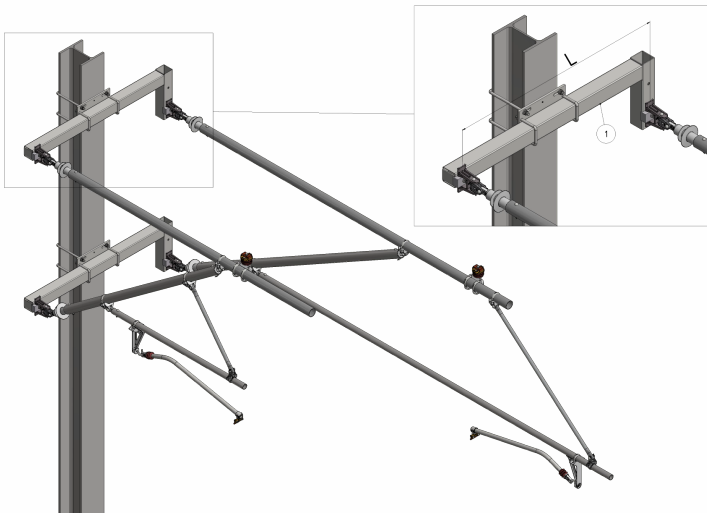
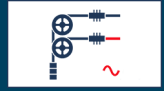
	D2358 pole bracket with clevis, HEB 200–240
	D2359 pole bracket with tongue, HEB 200–240
	D2748 pole bracket with clevis, HEB 100–160
	D2749 pole bracket with tongue, HEB 100–160
	D2746 pole bracket with clevis, HEB 260–300
	D2747 pole bracket with tongue, HEB 260–300

## EXTENDED SPECIFICATIONS





# BRACKET INCLINED FOR TENSION SECTION, fully compensated, AC or DC



<https://kuma.ch/en/catalog/820257-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C1867-03	2	Bracket inclined with hinge complete for tension section, with clevis, L = 1500 mm

SYSTEM VARIANTS	
PART NO.	VERSION
820257	HEB 260 / L = 1500
820394	HEB 260 / L = 1200
820395	HEB 260 / L = 1300
820396	HEB 260 / L = 900
820397	HEB 320 / L = 1300
820398	HEB 550 / L = 1300
820399	HEB 160 / L = 1300

<b>SYSTEM HEIGHT</b>	variable
----------------------	----------

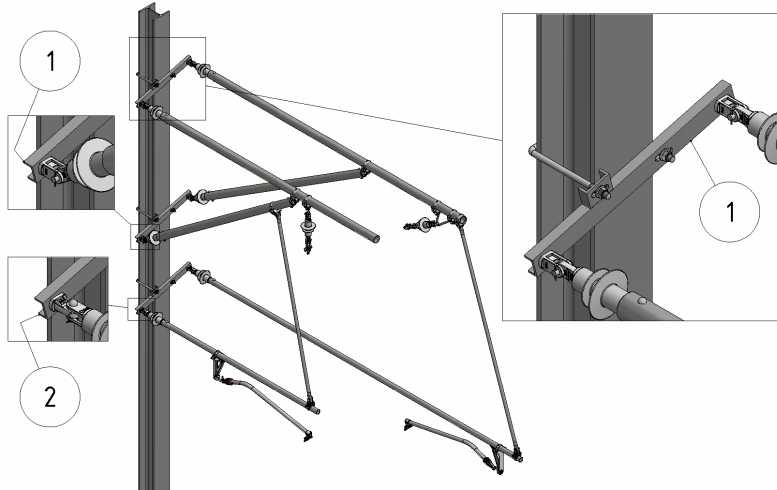
Scope of delivery  
 - without cantilevers  
 - without u-bolts

ACCESSORIES	
	E0888 U-bolt, Ø 16 mm, HEA/HEB

## EXTENDED SPECIFICATIONS



# BRACKET INCLINED FOR TENSION SECTION, semi-tensioned, DC



SYSTEM VARIANTS	
PART NO.	VERSION
820260	ST / 3 kV

<https://kuma.ch/en/catalog/820260-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C0663-01	2	Bracket inclined with clevis, on wide flange poles
2		C0663-02	1	Bracket inclined with tongue, to wide flange poles

VOLTAGE	3 kV/DC
SYSTEM HEIGHT	variable

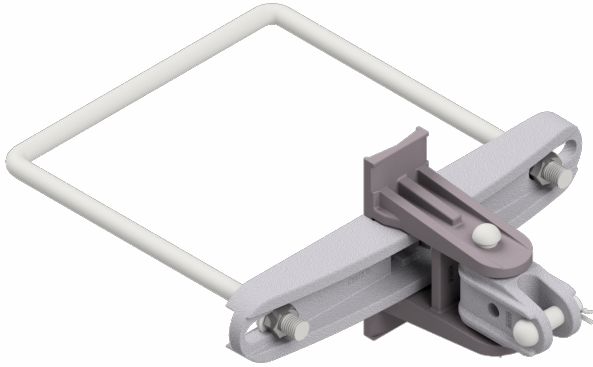
Scope of delivery  
 - without cantilevers  
 - without u-bolts

ACCESSORIES	
	E0717 U-bolt, Ø 16 mm

### EXTENDED SPECIFICATIONS






# POLE BRACKET for H-poles with hinge




SYSTEM VARIANTS	
PART NO.	VERSION
D2360-02	HEB 180
D2360-03	HEB 200
D2360-04	HEB 220
D2360-05	HEB 240

<https://kuma.ch/en/catalog/D2360-02-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		C1853	1	Bracket 180-240
2		D2361-01	1	Hinge with clevis fork vertical
3		E0888	1	U-bolts, Ø = 16 mm to HEB 180 <i>Version acc. to extended specifications</i>

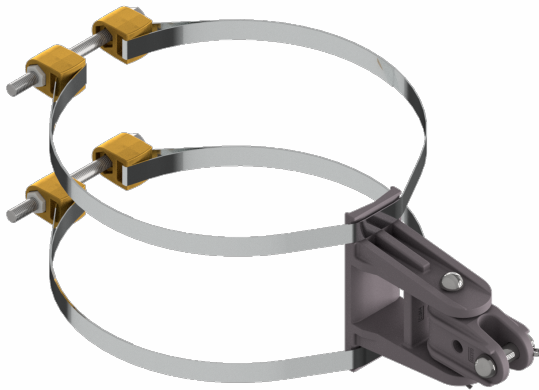
BOLT	Ø 16 mm
------	---------

ACCESSORIES	
	WE3255-01 Interlock system for hinge

## EXTENDED SPECIFICATIONS




## POLE BRACKET for round poles with hinge



### SYSTEM VARIANTS

PART NO.	VERSION
820400	Ø 114–149 mm
820401	Ø 150–250 mm
820402	Ø 251–500 mm

<https://kuma.ch/en/catalog/820400-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2897	2	Pole clamp with band to round pole, for 1 armature 114–149 mm
2		D2361-01	1	Hinge with clevis fork vertical

BOLT

Ø 16 mm

### ACCESSORIES

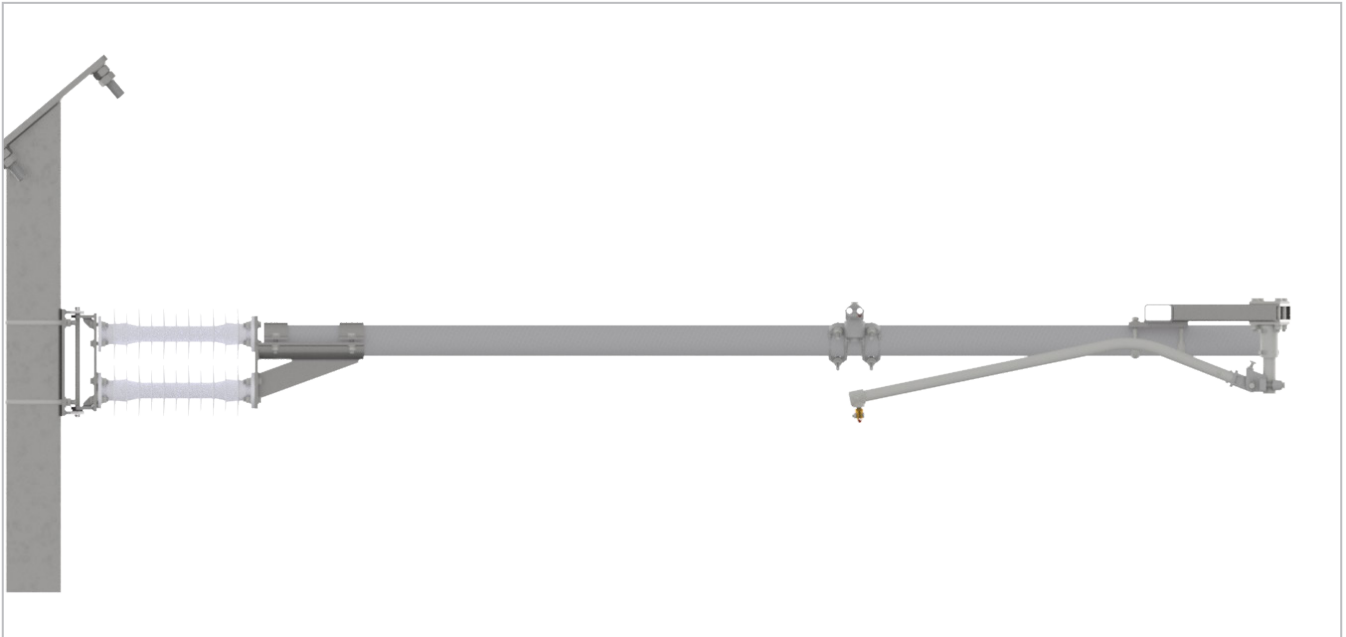


WD2888-01 Bending device for pole band 1 x 20 mm





# CANTILEVER SYSTEMS FOR TUNNELS







A cantilever system for lower system heights in tunnels with restricted space. A development by Kummler+Matter that is also designed on the basis of the **tried-and-tested modular system**.

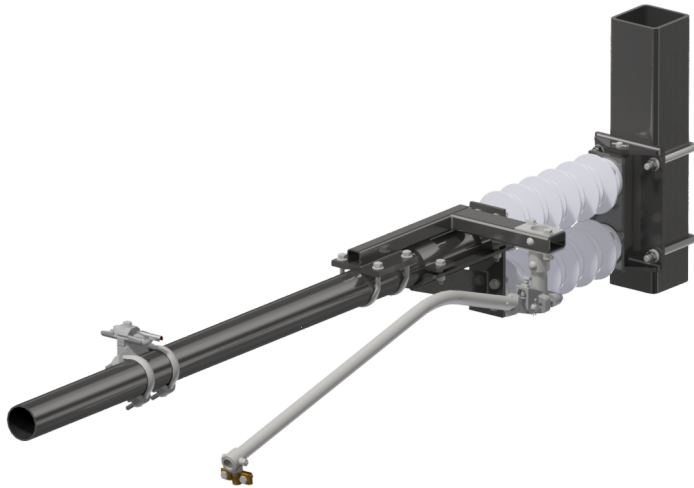
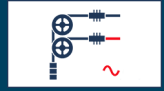
This system reduces the **number of parts in your inventory to the minimum**. Because there are only a few standard parts, the system is **much faster to install on site**.

### YOUR BENEFITS AT A GLANCE:

- ✓ Modular structure
- ✓ Can be integrated into existing systems
- ✓ Simple to install
- ✓ Low maintenance
- ✓ Individual functionality
- ✓ For low system heights of between 300 and 650 mm

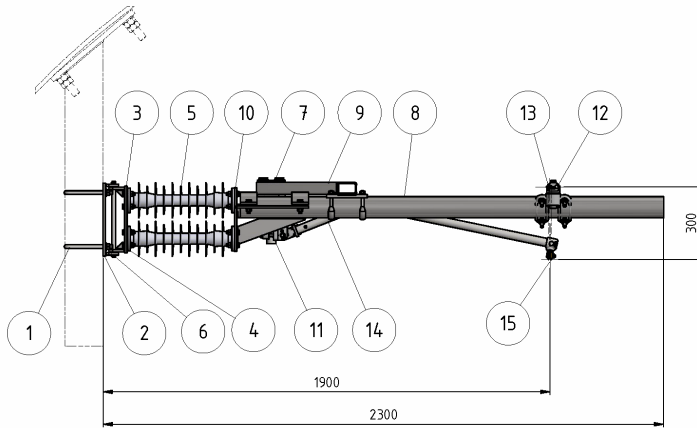
 REFERENCE AND STANDARD	 VOLTAGE	 LOAD	 CONTACT WIRE
<ul style="list-style-type: none"> <li>✓ EN 50119, IEC 60913</li> </ul>	<ul style="list-style-type: none"> <li>✓ 600 V DC to 25 kV AC</li> </ul>	<ul style="list-style-type: none"> <li>✓ Messenger cable tension max. 25 kN</li> <li>✓ Contact wire tension max. 45 kN</li> </ul>	<ul style="list-style-type: none"> <li>✓ 100–150 mm<sup>2</sup></li> <li>✓ 2/0–350 MCM</li> </ul>

# TUNNEL CANTILEVER, pull, SH = 300 mm, 25 kV/AC, single insulation



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820009	1.9 m

<https://kuma.ch/en/catalog/820009-en>



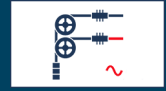
POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	300 mm

Other pole types on request

The cantilevers are especially suitable for tight spatial conditions in tunnels due to the low system height of 300 mm. The cantilevers can be adapted to specific customer requirements such as mounting them to different suspension support profiles.

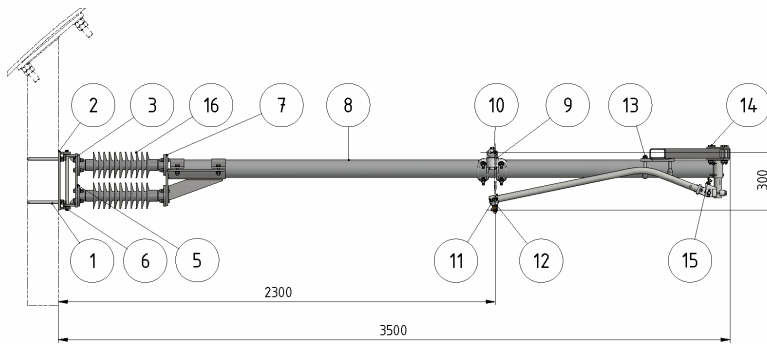
The exhibited cantilevers are standard.

# TUNNEL CANTILEVER, push, SH = 300 mm, 25 kV/AC, single insulation



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820010	2.3 m

<https://kuma.ch/en/catalog/820010-en>



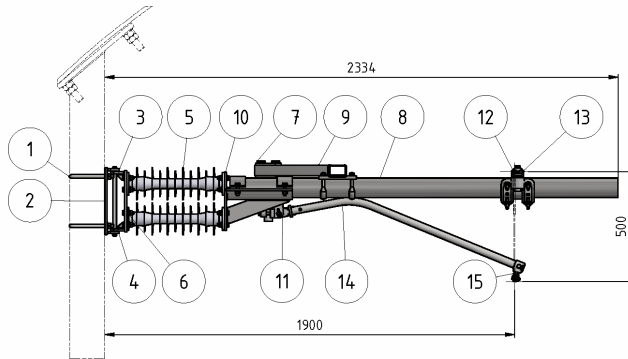
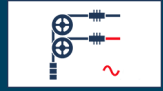
POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	300 mm

Other pole types on request

The cantilevers are especially suitable for tight spatial conditions in tunnels due to the low system height of 300 mm. The cantilevers can be adapted to specific customer requirements such as mounting them to different suspension support profiles.

The exhibited cantilevers are standard.

# TUNNEL CANTILEVER, pull, SH = 500 mm, 25 kV/AC, single insulation



<https://kuma.ch/en/catalog/820011-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2476-03	2	U-bolt, $\varnothing = 16$ mm to HEB 140
2		D4044-01	1	Hinge
3		C2462-01	1	Swivel support
4		301497	1	Washer, 31.9 / 18.1 x 1.5 Inox
5		302712	2	Insulator, 25 kV, with double flange
6		D3871-01	3	Spacer plate
7		D4045-01	1	Hook joint
8		D3702-01	1	Pipe $\varnothing 88.9/5$ , L = 1765 mm STL HDG
9		D4043-01	1	Lateral support
10		C2464-01	1	Pipe support
11		D2705-01	1	Pipe attachment simple with lift limiter, to pipe $\varnothing 38$ mm, for 1 steady arm
12		301309	1	Protection sleeve AlCu for messenger cable
13		D2566-04	1	Messenger cable suspension, non-insulated, to pipe $\varnothing 90$ mm, cable $\varnothing$ max. 13 mm
14		D2647-01	1	Steady arm G 1" curved, L = 1100 mm, M16, SST
15		E3183-01	1	Contact wire clamp M16

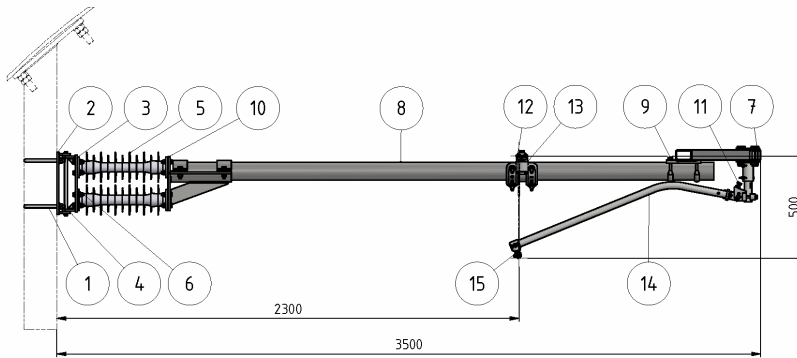
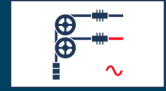
## SYSTEM VARIANTS

PART NO.	LENGTH LF
820011	1.9 m

POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	500 mm

Other pole types on request

# TUNNEL CANTILEVER, push, SH = 500 mm, 25 kV/AC, single insulation



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820012	2.3 m

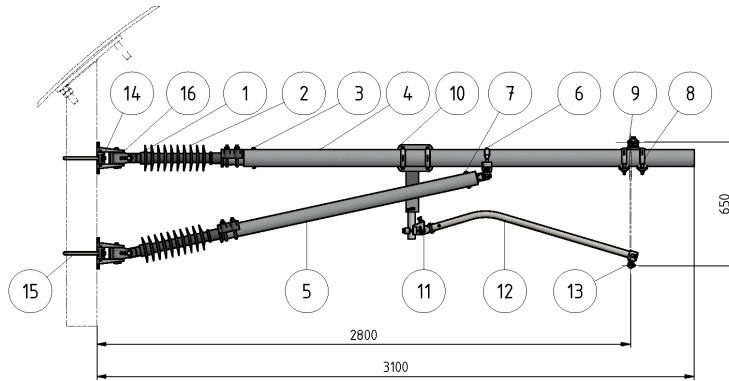
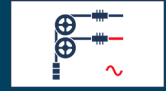
<https://kuma.ch/en/catalog/820012-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2476-03	2	U-bolt, Ø = 16 mm to HEB 140
2		D4044-01	1	Hinge
3		C2462-01	1	Swivel support
4		301497	1	Washer, 31.9 / 18.1 x 1.5 Inox
5		302712	2	Insulator, 25 kV, with double flange
6		D3871-01	3	Spacer plate
7		D4045-01	1	Hook joint
8		D3702-02	1	Pipe Ø 88.9/5, L = 2650 mm STL HDG
9		D4043-01	1	Lateral support
10		C2464-01	1	Pipe support
11		D2705-01	1	Pipe attachment simple with lift limiter, to pipe Ø 38 mm, for 1 steady arm
12		301309	1	Protection sleeve AlCu for messenger cable
13		D2566-04	1	Messenger cable suspension, non-insulated, to pipe Ø 90 mm, cable Ø max. 13 mm
14		D2647-01	1	Steady arm G 1" curved, L = 1100 mm, M16, SST
15		E3183-01	1	Contact wire clamp M16

POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	500 mm

Other pole types on request

# TUNNEL CANTILEVER, pull, SH = 650 mm, 25 kV/AC, single insulation



<https://kuma.ch/en/catalog/820013-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2469-01	2	Hinge with clevis fork vertical
2		302664	2	Insulator, 25 kV creepage distance: 1230 ±3 mm
3		E3311-01	1	Adapter for pipe D = 90/5 mm
4		D2658-08	1	Pipe, Ø 90/5, L = 2362 mm Alu
5		D2660-26	1	Pipe, Ø 70/10, L = 1369 mm Alu
6		D2336-04	1	Pipe attachment, with U-bolt, to pipe Ø = 90 mm
7		D2571-01	1	Pipe connector with tongue, to pipe Ø = 70/10 mm
8		D2566-04	1	Messenger cable suspension, non-insulated, to pipe Ø 90 mm, cable Ø max. 13 mm
9		301309	1	Protection sleeve AlCu for messenger cable
10		D4046-01	1	Hook joint
11		D2705-01	1	Pipe attachment simple with lift limiter, to pipe Ø 38 mm, for 1 steady arm
12		D2647-01	1	Steady arm G 1" curved, L = 1100 mm, M16, SST
13		E3183-01	1	Contact wire clamp M16
14		D2668-01	2	Bracket 100-160
15		E0888-01	2	U-bolt, Ø 16 mm to HEB 160

SYSTEM VARIANTS	
PART NO.	LENGTH LF
820013	2.8 m

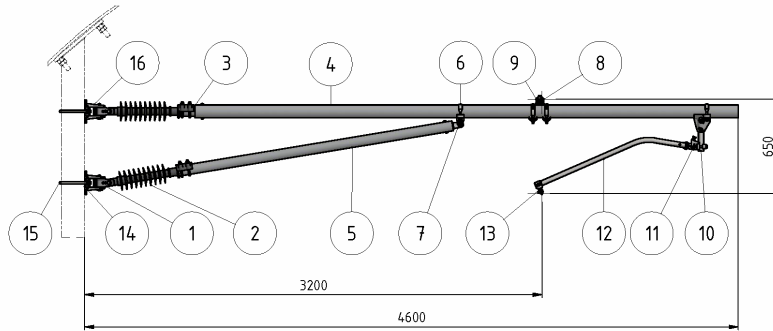
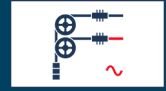
POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	650 mm

Other pole types on request



# TUNNEL CANTILEVER, push

SH = 650 mm, 25 kV/AC, single insulated



SYSTEM VARIANTS	
PART NO.	LENGTH LF
820014	3.2 m

<https://kuma.ch/en/catalog/820014-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D2469-01	2	Hinge with clevis fork vertical
2		302664	2	Insulator, 25 kV creepage distance: 1230 ±3 mm
3		E3311-01	1	Adapter for pipe D = 90/5 mm
4		D2658-13	1	Pipe, Ø 90/5, L = 3800 mm Alu
5		D2796-16	1	Pipe, Ø 70/7, L = 1945 mm Alu
6		D2336-04	1	Pipe attachment, with U-bolt, to pipe Ø = 90 mm
7		D2799-01	1	Pipe connector with tongue
8		D2566-04	1	Messenger cable suspension, non-insulated, to pipe Ø 90 mm, cable Ø max. 13 mm
9		301309	1	Protection sleeve AlCu for messenger cable
10		D4047-01	1	Hook joint
11		D2705-01	1	Pipe attachment simple with lift limiter, to pipe Ø 38 mm, for 1 steady arm
12		D2647-01	1	Steady arm G 1" curved, L = 1100 mm, M16, SST
13		E3183-01	1	Contact wire clamp M16
14		D2668-01	2	Bracket 100-160
15		E0888-01	2	U-bolt, Ø 16 mm to HEB 160

POLE TYPE	HEB 140
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC
SYSTEM HEIGHT	650 mm

Other pole types on request





FOR OUR CUSTOMERS, WE EVALUATE SOLUTIONS THAT ARE OPTIMALLY SUITED TO THEIR NEEDS AND FULFIL TODAY'S AND TOMORROW'S REQUIREMENTS





## CONSTRUCTION ELEMENTS

# KUMAK MULTI-TRACK-CANTILEVER WITH FAST-RELEASE WEDGE CONNECTOR










The main advantage of our assembly-optimised multi-track-cantilever with fast-release wedge connector shows in the significantly **reduced assembly effort** compared to existing product solutions. Thanks to simple, positive-locking plug connections and only a few screw connections the system is very **quickly and easily assembled**. As a result, the tight time windows on site can be used

more efficiently and **costs reduced to a minimum**. Due to the torsion-resistant connections on the mast, the jib doesn't require any additional **wind protection**. The system have been set up for training purposes in Dällikon and can be viewed by appointment on request. Our sales team is at [export@kuma.ch](mailto:export@kuma.ch) for questions and advice available.

#### YOUR BENEFITS AT A GLANCE:

- ✓ Installation effort is cut by 90%
- ✓ Only 1 pole / foundation
- ✓ Optimised utilisation of short blocked periods
- ✓ More efficient installation processes
- ✓ Systems are suitable for placement by helicopter
- ✓ Simplified construction logistics for foundation construction because only one foundation is needed
- ✓ 100% compatible with SBB catenary equipment

 REFERENCE AND STANDARD	 VOLTAGE	 LOAD	 SPEED
 EN 50119, IEC 60913	 Up to 25 kV AC	 Cantilever length up to 20 m (4 tracks)	 Maximum 300 km/h





WE CAN ACTIVELY SUPPORT OUR CUSTOMERS  
WITH OUR MANY YEARS OF EXPERTISE



# KUSEC SECTION INSULATOR 15/25KV AC AND 1.5/3KV DC







This innovative section insulator has been newly developed by Kumler+Matter. The runners consist of copper contact wire (the contact wire of the 25/15 kV models is additionally consisting of a very abrasion-resistant copper-magnesium alloy). Thanks to this new design, the section insulator stays flat throughout the full length. This allows the pantograph to travel smoothly across the entire length of

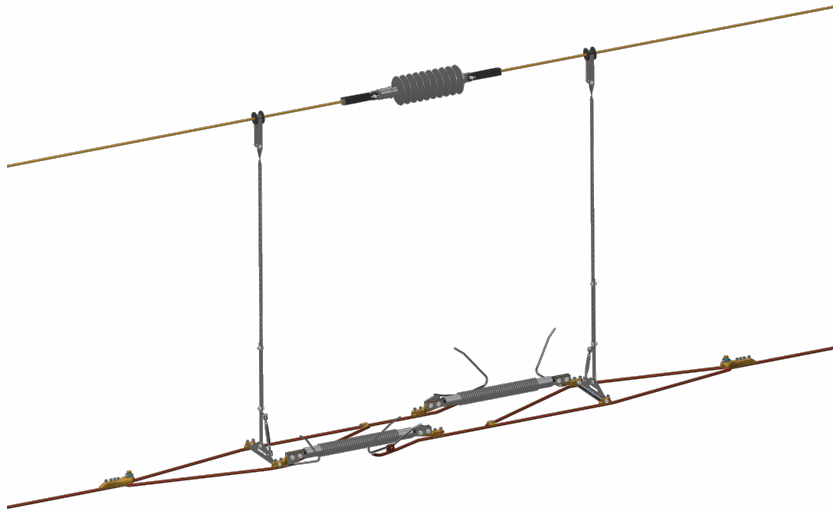
the component. **Maintenance intervals can be extended significantly** by using elevated, non-traversed insulators. The **anchor clamp** – an additional development by Kumler+Matter – makes it very **simple to install the complete section insulator and adjust its height**. With its short overall length, the section insulator can be installed at almost any desired location in the contact line. Our sales team is at [export@kuma.ch](mailto:export@kuma.ch) for questions and advice available.

**YOUR BENEFITS AT A GLANCE:**

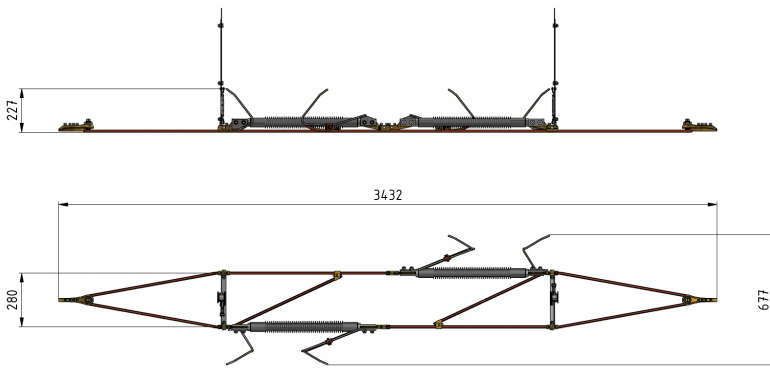
- ✓ 30% reduction in installation cost
- ✓ Short overall length
- ✓ Re-usable anchor clamps
- ✓ Non-traversed insulators
- ✓ Highly wear-resistant materials significantly extend durability

 REFERENCE AND STANDARD	 VOLTAGE	 LOAD	 SPEED
<ul style="list-style-type: none"> <li>✓ EN 50119, IEC 60913</li> </ul>	<ul style="list-style-type: none"> <li>✓ 15 kV and 25 kV AC</li> <li>✓ 1.5 kV and 3 kV DC</li> </ul>	<ul style="list-style-type: none"> <li>✓ For nominal forces of up to 20 kN for AC</li> <li>✓ For nominal forces of up to 15 kN for DC</li> </ul>	<ul style="list-style-type: none"> <li>✓ Designed for high speeds</li> </ul>

# KUSEC SECTION INSULATOR, 25 kV AC



<https://kuma.ch/en/catalog/b1552-01-en>



SYSTEM VARIANTS	
PART NO.	VERSION
B1552-01	25 kV

SHORT-CIRCUIT CURRENT	40.000 A
CONTACT WIRE CROSS-SECTION	max. 150 mm <sup>2</sup>
KERF WIDTH	5.6 mm
CREEPAGE DISTANCE	1250 mm
ARCING HORN DISTANCE	250 mm
OPERATING VOLTAGE	25 kV
MIN. BREAKING LOAD	70 kN

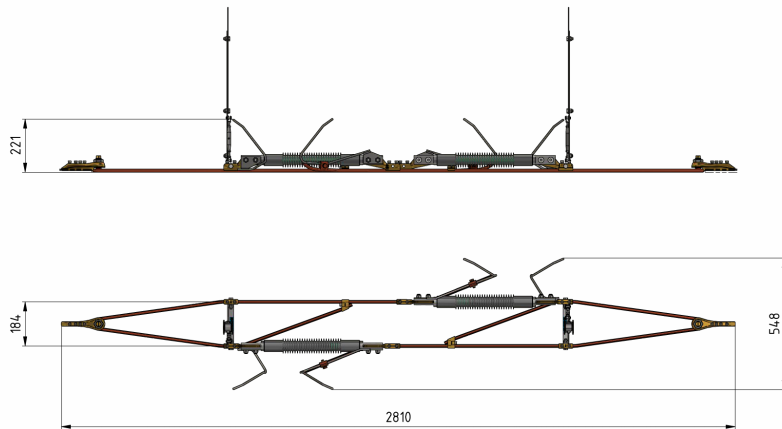
Newly developed rail section insulator with a flexible design for high speeds. Maintenance intervals are significantly longer than those of conventional systems due to highly abrasion-resistant magnesium catenary wire runners and non-grounded isolators. Attaching the two anchor clamps to the catenary is the first step during section insulator installation. The section insulator is then simply inserted into the anchor clamp roller screws. The insulator is consequently adjusted to the same height of the catenary underside by way of the anchor clamp roller screws. This simplifies assembly and reduces installation time.



# KUSEC SECTION INSULATOR, 15 kV AC



<https://kuma.ch/en/catalog/b1569-01-en>

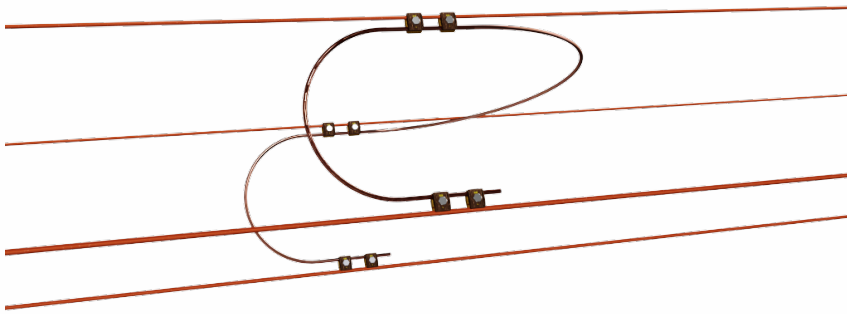


SYSTEM VARIANTS	
PART NO.	VERSION
B1569-01	15 kV

SHORT-CIRCUIT CURRENT	40.000 A
CONTACT WIRE CROSS-SECTION	max. 150 mm <sup>2</sup>
KERF WIDTH	5.6 mm
CREEPAGE DISTANCE	830 mm
ARCING HORN DISTANCE	140 mm
OPERATING VOLTAGE	15 kV
MIN. BREAKING LOAD	60 kN



Newly developed rail section insulator with a flexible design for high speeds. Maintenance intervals are significantly longer than those of conventional systems due to highly abrasion-resistant magnesium catenary wire runners and non-grounded isolators. Attaching the two anchor clamps to the catenary is the first step during section insulator installation. The section insulator is then simply inserted into the anchor clamp roller screws. The insulator is consequently adjusted to the same height of the catenary underside by way of the anchor clamp roller screws. This simplifies assembly and reduces installation time.

# ELECTRICAL CONNECTION, 95 mm<sup>2</sup>



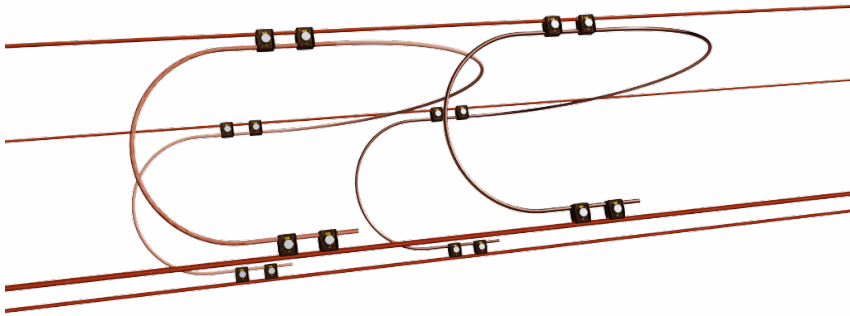
SYSTEM VARIANTS	
PART NO.	VERSION
823007	CW120 / MW70

<https://kuma.ch/en/catalog/823007-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D0106-01	8	Feeder clamp simple
2		300092	8 kg	Copper cable 95 mm <sup>2</sup> rigid, bare



CONTACT WIRE	120 mm <sup>2</sup>
MESSENGER CABLE	70 mm <sup>2</sup>

# ELECTRICAL CONNECTION, 95 mm<sup>2</sup>, double



SYSTEM VARIANTS	
PART NO.	VERSION
823008	CW120/MW70

<https://kuma.ch/en/catalog/823008-en>

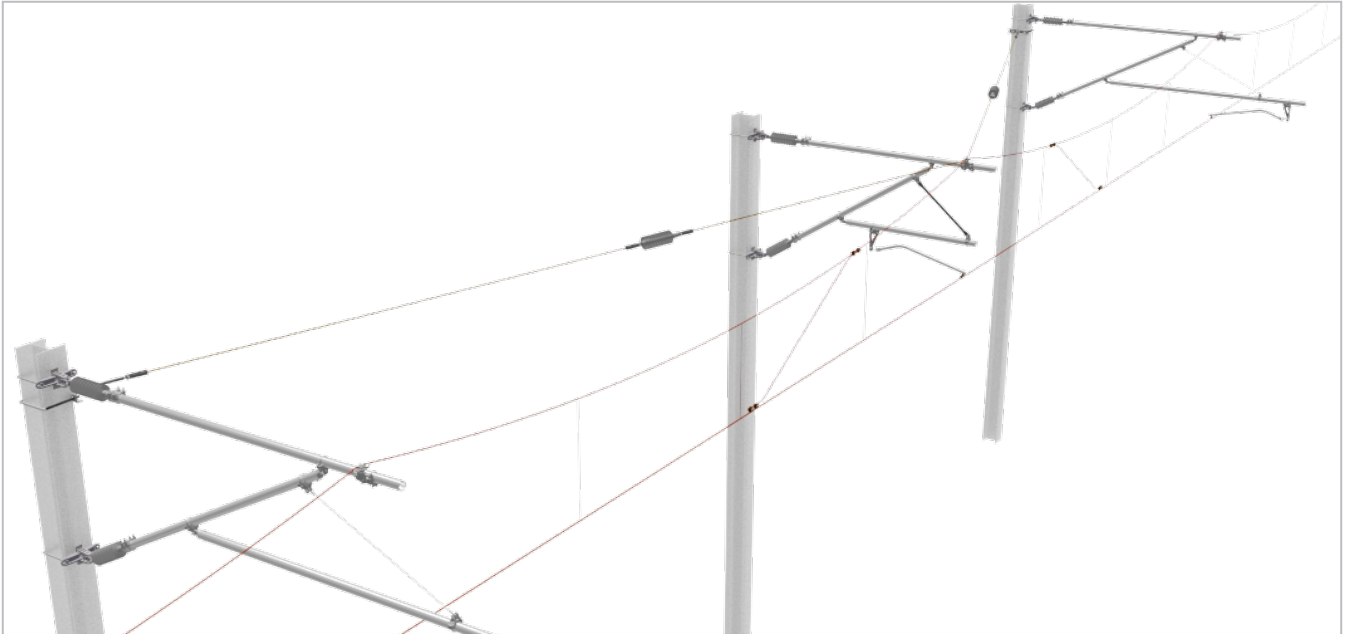
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D0106-01	16	Feeder clamp simple
2		300092	16	Copper cable 95 mm <sup>2</sup> rigid, bare

CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	70 mm <sup>2</sup>



## CATENARY

# CATENARIES







The catenary is a standard version of the contact line design. It comprises the contact wire, the messenger cable, hangers, auxiliary cables and jumpers. The design of the catenary allows **wider field spans between the supports**. Installation

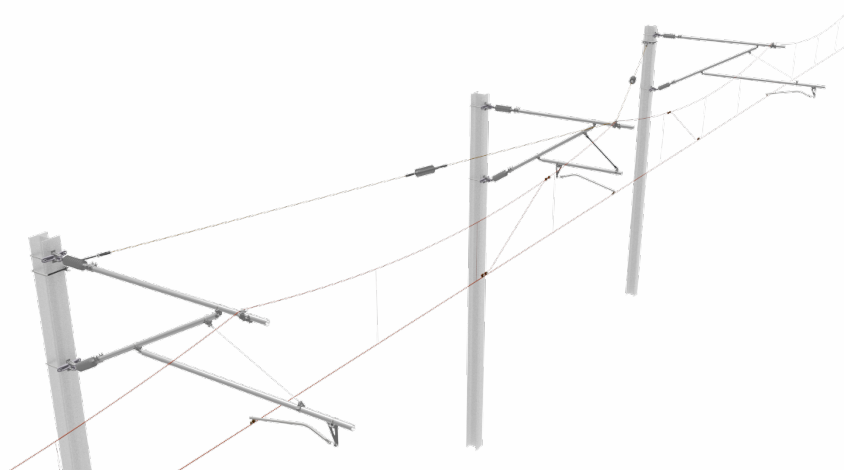
of an auxiliary cable (known as a Y-type auxiliary cable) increases the **elasticity of the contact line** so that **higher speeds** become possible.

### YOUR BENEFITS AT A GLANCE:

- ✓ Good driving dynamics
- ✓ Low maintenance
- ✓ High operational safety and reliability

 REFERENCE AND STANDARD	 VOLTAGE	 LOAD	 SPEED
✓ EN 50119, IEC 60913	✓ Up to 25 kV AC	✓ Messenger cable tension max. 25 kN	✓ Maximum 300 km/h

# FIXPOINT, fully compensated, 25 kV/AC, single insulated



SYSTEM VARIANTS	
PART NO.	VERSION
823009	HEB 260

<https://kuma.ch/en/catalog/823009-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3178-01	2	Holder traverse
2		C0107-01	2	Turnbuckle closed type, 5/8"
3		301225	6	Dead end clamp for copper cable 70 mm <sup>2</sup> (Ø 10.90 mm)
4		353043	2	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm
5		D2560-03	1	Messenger cable suspension non insulated, rotatable, reinforced, to pipe D = 70 mm,
6		D0106-01	10	Feeder clamp simple

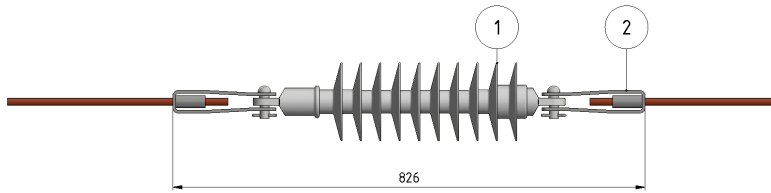
POLE TYPE	HEB 260
CONTACT WIRE	100/150 mm <sup>2</sup>
MESSENGER CABLE	50/120 mm <sup>2</sup>
VOLTAGE	25 kV/AC

Other pole types on request  
Scope of delivery: without fix point cables and cantilevers

ACCESSORIES	
	E1484-02 U-bolt, HEB 180
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240
	E1484-06 U-bolt, HEB 260

# INTERMEDIATE INSULATION FOR CONTACT WIRE

## 120mm<sup>2</sup>, copper, 25 kV/AC



SYSTEM VARIANTS	
PART NO.	VERSION
823006	120 mm <sup>2</sup>

<https://kuma.ch/en/catalog/823006-en>

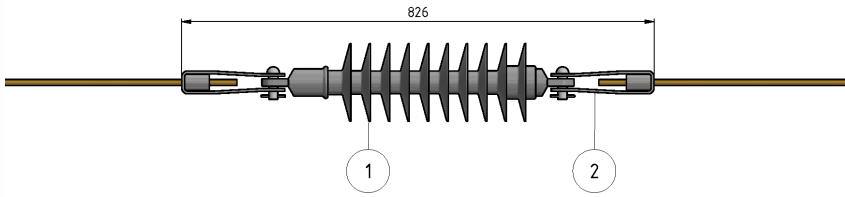
POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		301492	2	Dead end clamp for grooved contact wire 120 mm <sup>2</sup> (Ø 13.20 mm)
2		353043	1	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm

CONTACT WIRE	120 mm <sup>2</sup>
VOLTAGE	25 kV/AC



# INTERMEDIATE INSULATION FOR MESSENGER CABLE

## 70mm<sup>2</sup>, Bronze, 25 kV/AC



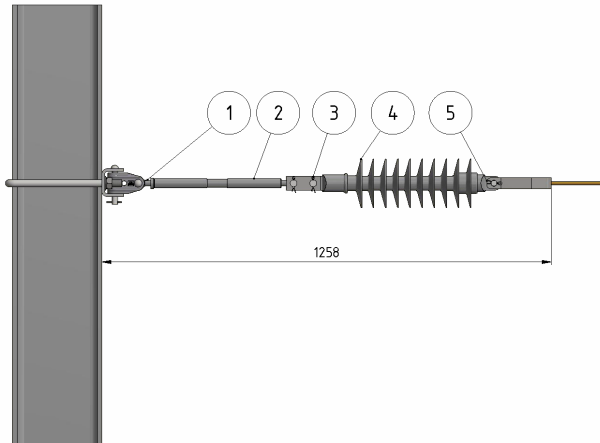
SYSTEM VARIANTS	
PART NO.	VERSION
823005	70 mm <sup>2</sup>

<https://kuma.ch/en/catalog/823005-en>






POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		301225	2	Dead end clamp for copper cable 70 mm <sup>2</sup> (Ø 10.90 mm)
2		353043	1	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm

MESSENGER CABLE	70 mm <sup>2</sup>
VOLTAGE	25 kV/AC

# FIXED TERMINATION FOR MESSENGER CABLE 70 mm<sup>2</sup>, 25 kV/AC








<https://kuma.ch/en/catalog/823004-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3178-01	1	Holder traverse
2		C0107-01	1	Turnbuckle closed type, 5/8"
3		E0115-02	1	Double link with pin
4		353043	1	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm
5		301225	1	Dead end clamp for copper cable 70 mm <sup>2</sup> (Ø 10.90 mm)

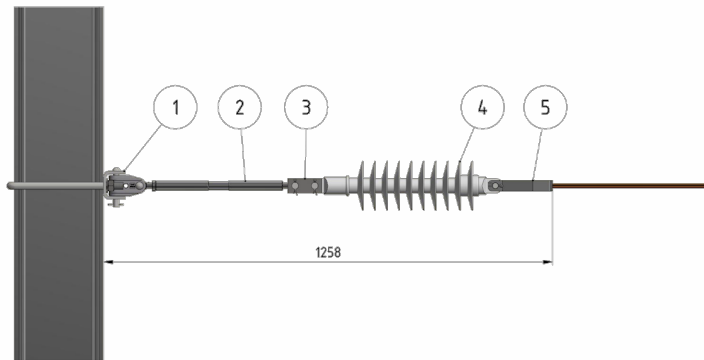
SYSTEM VARIANTS	
PART NO.	VERSION
823004	70 mm <sup>2</sup>

POLE TYPE	HEB 260
MESSENGER CABLE	70 mm <sup>2</sup>
VOLTAGE	25 kV/AC

Other pole types on request

ACCESSORIES	
	E1484-02 U-bolt, HEB 180
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240
	E1484-06 U-bolt, HEB 260

# FIXED TERMINATION FOR CONTACT WIRE 120mm<sup>2</sup>, 25 kV/AC



SYSTEM VARIANTS	
PART NO.	VERSION
823001	HEB 260 / 120 mm <sup>2</sup>

<https://kuma.ch/en/catalog/823001-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3178-01	1	Holder traverse
2		C0107-01	1	Turnbuckle closed type, 5/8"
3		E0115-02	1	Double link with pin
4		353043	1	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm
5		301492	1	Dead end clamp for grooved contact wire 120 mm <sup>2</sup> (Ø 13.20 mm)

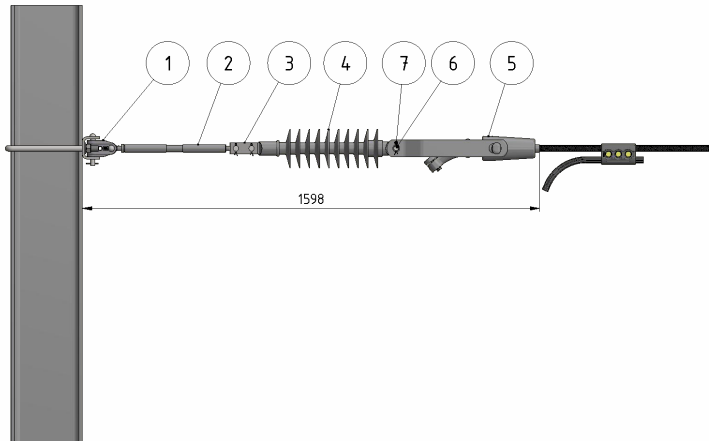
POLE TYPE	HEB 260
CONTACT WIRE	120 mm <sup>2</sup>
VOLTAGE	25 kV/AC

Other pole types on request








ACCESSORIES	
	E1484-02 U-bolt, HEB 180
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240
	E1484-06 U-bolt, HEB 260

# FIXED TERMINATION FOR FEEDER CABLE 280 mm<sup>2</sup>, ALU, 25 kV/AC

48









<https://kuma.ch/en/catalog/823003-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3178-01	1	Holder traverse
2		C0107-01	1	Turnbuckle closed type, 5/8"
3		E0115-02	1	Double link with pin
4		353043	1	Silicone insulator, 25 kV, with tongue creepage distance: 1230 ±3 mm
5		302700	1	Wedge anchor clamp
6		E3200-06	1	Pin, Ø 16 x 50 mm
7		E3234-01	1	Cotter pin, Ø 4.0 x 30 mm

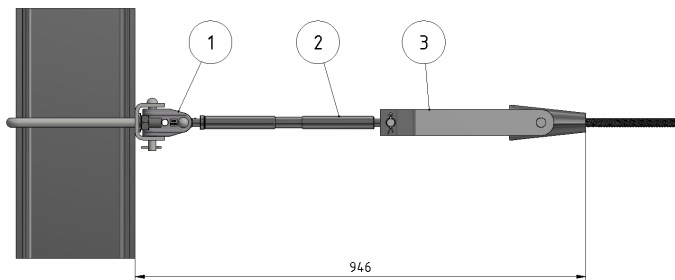
SYSTEM VARIANTS	
PART NO.	VERSION
823003	280 mm <sup>2</sup>

POLE TYPE	HEB 260
FEEDER	280 mm <sup>2</sup> / ALU
VOLTAGE	25 kV/AC

Other pole types on request

ACCESSORIES	
	E1484-02 U-bolt, HEB 180
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240
	E1484-06 U-bolt, HEB 260
	302701 Parallel groove clamp 280 mm <sup>2</sup>

# FIXED TERMINATION GROUNDING CABLE 180 mm<sup>2</sup>, ALU



SYSTEM VARIANTS	
PART NO.	VERSION
823002	180 mm <sup>2</sup>

<https://kuma.ch/en/catalog/823002-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3178-01	1	Holder traverse
2		C0107-01	1	Turnbuckle closed type, 5/8"
3		302702	1	Wedge anchor clamp

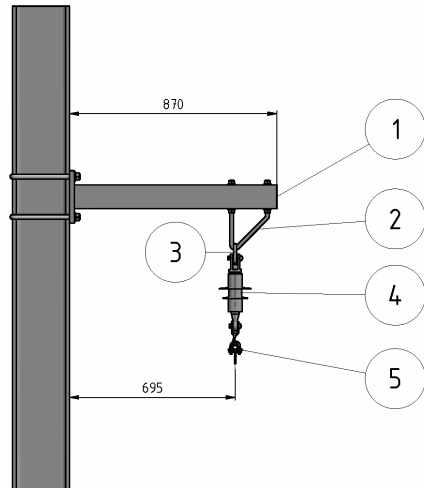
POLE TYPE	HEB 260
RETURN WIRE	180 mm <sup>2</sup> / ALU

Other pole types on request






ACCESSORIES	
	E1484-02 U-bolt, HEB 180
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240
	E1484-06 U-bolt, HEB 260

# BRACKET FOR ADDITIONAL CONDUCTOR

## 1x conductor, 1x suspension, 3 kV/DC



<https://kuma.ch/en/catalog/820269-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3342-01	1	Bracket for additional conductor to HEB 200–240 for 1 suspension, STL HDG
2		E3588-01	1	Pull-off bow 16 mm STL HDG
3		E0159-01	1	Chain link for pull-off bracket, STL HDG
4		C2460-18	1	Isolator 3 kV Tongue - clevis / 0° creepage distance: 254 mm
5		D2558-01	1	Messenger wire clamp for cables 35–150 mm <sup>2</sup> , B = 20 mm




### SYSTEM VARIANTS

PART NO.	VERSION
820269	1 conductor

POLE TYPE	HEB 200–240
VOLTAGE	3 kV/DC
CABLE DIAMETER	7.5–16 mm

Other pole types on request

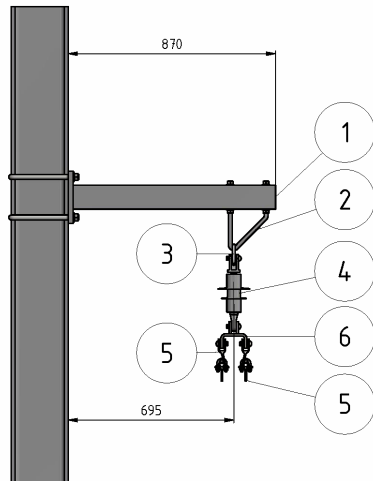
### ACCESSORIES

	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240



# BRACKET FOR ADDITIONAL CONDUCTOR

## 2x conductor, 1x suspension, 3 kV/DC



SYSTEM VARIANTS	
PART NO.	VERSION
820270	2 conductor, 1 suspension

<https://kuma.ch/en/catalog/820270-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3342-01	1	Bracket for additional conductor to HEB 200–240 for 1 suspension, STL HDG
2		E3588-01	1	Pull-off bow 16 mm STL HDG
3		E0159-01	1	Chain link for pull-off bracket, STL HDG
4		C2460-18	1	Isolator 3 kV Tongue - clevis / 0° creepage distance: 254 mm
5		D2558-01	2	Messenger wire clamp for cables 35–150 mm <sup>2</sup> , B = 20 mm
6		D1200-01	1	Fork bracket, parallel, A = 90 mm

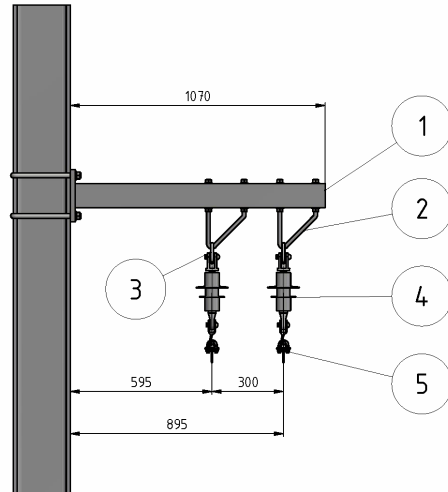
POLE TYPE	HEB 200–240
VOLTAGE	3 kV/DC
CABLE DIAMETER	7.5 - 16 mm

Other pole types on request






ACCESSORIES	
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240

# BRACKET FOR ADDITIONAL CONDUCTOR

## 2x conductor, 2x suspension, 3 kV/DC



<https://kuma.ch/en/catalog/820271-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3342-02	1	Bracket for additional conductor to HEB 200–240 for 2–3 suspension, STL HDG
2		E3588-01	2	Pull-off bow 16 mm STL HDG
3		E0159-01	2	Chain link for pull-off bracket, STL HDG
4		C2460-18	2	Isolator 3 kV Tongue - clevis / 0° creepage distance: 254 mm
5		D2558-01	2	Messenger wire clamp for cables 35–150 mm <sup>2</sup> , B = 20 mm




### SYSTEM VARIANTS

PART NO.	VERSION
820271	2 conductor

POLE TYPE	HEB 200–240
VOLTAGE	3 kV/DC
CABLE DIAMETER	7.5 - 16 mm

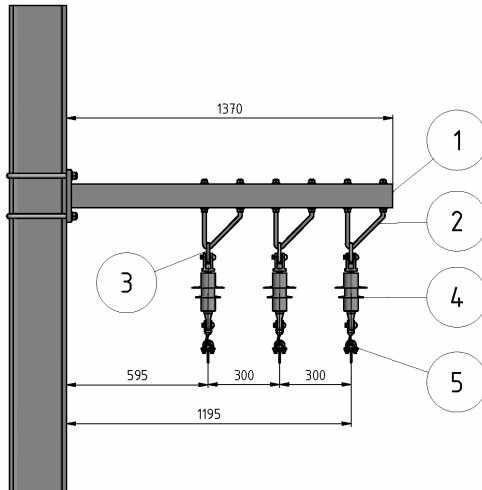
Other pole types on request

### ACCESSORIES

	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240

# BRACKET FOR ADDITIONAL CONDUCTOR

## 3x conductor, 3x suspension, 3 kV/DC



SYSTEM VARIANTS	
PART NO.	VERSION
820272	3 conductors

<https://kuma.ch/en/catalog/820272-en>

POS.	PICTURE	PART NO.	QTY	DESCRIPTION
1		D3342-03	1	Bracket for additional conductor to HEB 200–240 for 2–3 suspension, STL HDG
2		E3588-01	3	Pull-off bow 16 mm STL HDG
3		E0159-01	3	Chain link for pull-off bracket, STL HDG
4		C2460-18	3	Isolator 3 kV Tongue - clevis / 0° creepage distance: 254 mm
5		D2558-01	3	Messenger wire clamp for cables 35–150 mm <sup>2</sup> , B = 20 mm

POLE TYPE	HEB 200–240
VOLTAGE	3 kV/DC
CABLE DIAMETER	7.5 - 16 mm

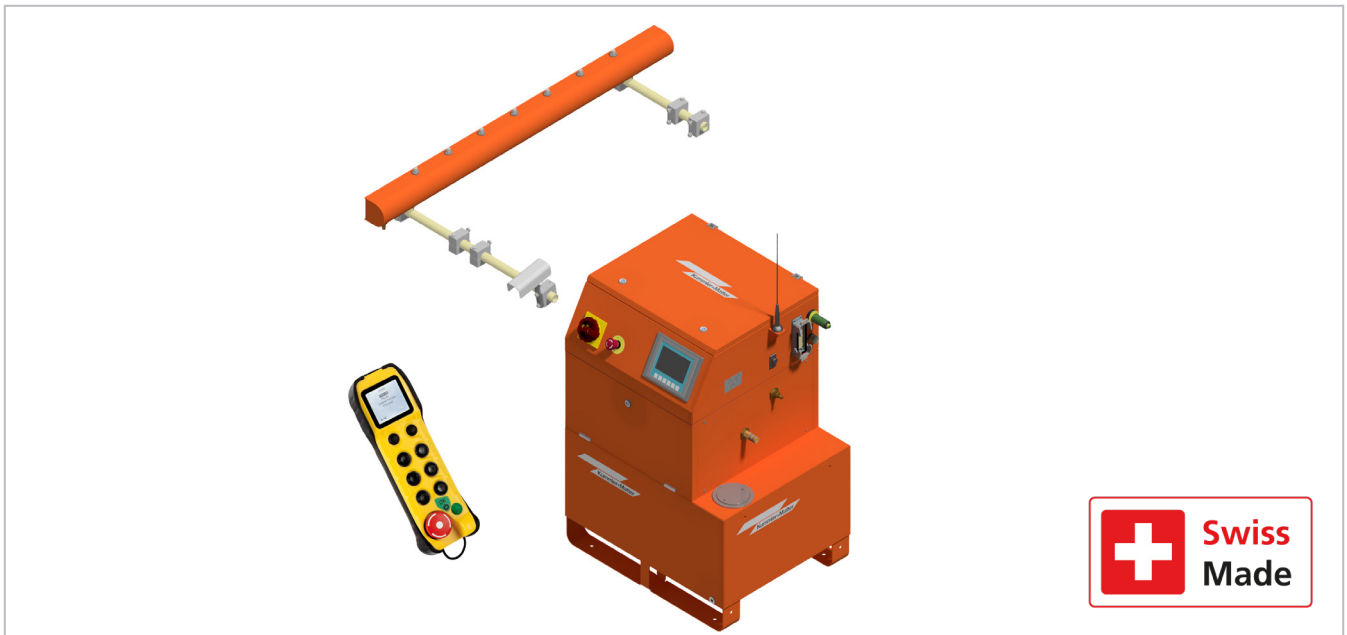
Other pole types on request

ACCESSORIES	
	E1484-03 U-bolt, HEB 200
	E1484-04 U-bolt, HEB 220
	E1484-05 U-bolt, HEB 240



## DE-ICING SYSTEM

## KUPRO DE-ICING SYSTEM 1.5 KV DC



All the components in our improved KUPRO de-icing system 1.5 kV DC are accommodated in one compact de-icing system that is installed inside a vehicle or wagon superstructure; operation is simple with the help of remote radio control from the cockpit. The de-icing system is connected via the supply line to a spray module mounted on the current collector (pantograph) on the roof of the wagon. The sprinkler module is equipped with spray nozzles and a sensor to detect the precise position of the contact wire. This sensor contin-

uously determines the precise position of the contact wire, which is then transmitted to the control. The control activates the spray nozzles at the shortest distance from the contact wire, depending on its position. The result: de-icing fluid is applied **contactless, uniformly and economically** to the contact wire. Kummler+Matter is also **currently (date March 2021) developing a KUPRO 3kV DC de-icing system**. Our sales team is at [export@kuma.ch](mailto:export@kuma.ch) for questions and advice available.

## YOUR BENEFITS AT A GLANCE:

- ✓ Fewer operational outages due to contact wire icing
- ✓ Preventive protection for contact wires
- ✓ Reduced wear on contact wires and abrasives
- ✓ Easy, low-maintenance operation and use
- ✓ System is individually adapted to each operator's conditions
- ✓ Low weight on pantograph

 REFERENCE AND STANDARD	 VOLTAGE	 LOAD	 SPEED
<ul style="list-style-type: none"> <li>✓ EN 50119, IEC 60913</li> </ul>	<ul style="list-style-type: none"> <li>✓ Up to 1.5 kV DC</li> <li>✓ Up to 3 kV DC (in progress)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Pressure range at 4.5 bar</li> </ul>	<ul style="list-style-type: none"> <li>✓ Operating speed 15–65 km/h</li> </ul>

**DISCLAIMER**

Information about our products and systems may differ from our current range.  
For more information, please consult our General Terms and Conditions (GTC).

## THESE ARE YOUR ADVANTAGES AT KUMMLER+MATTER

### ✓ DINAMIC

Our well-rehearsed processes ensure that projects run smoothly and quickly.

### ✓ INNOVATION

Decades ago, the fusion of two entrepreneurs laid the present international foundation of Kummler+Matter AG. Today, as then, the combination of know-how and expertise is one of our most central tasks in order to always meet modern, technological and ecological requirements in production and performance.

### ✓ TRUSTFUL PARTNERSHIP

We are committed to ethical and legal principles in our cooperation with suppliers and customers and act according to the rules of our Corporate Social Responsibility Policy.

### ✓ WORLDWIDE SPECIALIST

Whether for railways, trams or trolleybuses – we are your comprehensive partner in the entire overhead contact line sector. With the development and delivery of innovative products, the project planning of overhead contact line project and the professional installation by qualified personnel, we accompany the entire overhead contact line process.

### ✓ RESPONSIBILITY

Alongside the systematic growth of our sales and result, we accord special priority to ensuring responsibility and sustainability in our business activities.

### ✓ PRODUCT HOUSE

As an independent product house, we continuously develop technologically advanced products customised to the customer's needs and launch them worldwide. We achieve this high goal thanks to close cooperation with our customers, whereby the mutual exchange of experience is the decisive basis for the development of new products.

#### DIRECT COST SAVINGS

### COSTS PER CANTILEVER

STORAGE

**–30%**

WEIGHT

**–25%**

**–20%**

INSTALLATION TIME



**SWITZERLAND**

Kummler+Matter AG  
Rietstrasse 14  
CH-8108 Dällikon  
Switzerland  
T +41 44 247 47 47  
info.zuerich@kuma.ch  
kuma.ch

**NETHERLANDS**

Kummler+Matter Ltd  
Facetlaan 15  
2665 NR-Bleiswijk  
Netherlands  
T +31 65 118 98 83  
john@kummlermatter.com  
kummlermatter.nl

**AUSTRIA**

Kummler+Matter Österreich GmbH  
Münchner Bundesstrasse 50  
A-5020 Salzburg  
Austria  
T +43 662 230 10310  
info@kummlermatter.at  
kummlermatter.at

