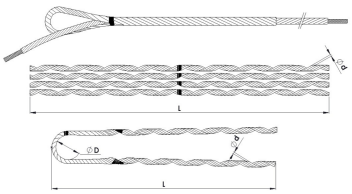
DEAD-ENDS AND JOINTS FOR STEEL, ALUMOWELD AND OPGW CABLES



MATERIALS

Cast clamps: Aluminum Alloy.
Spheroidal cast pieces: Steel.
Forged steel parts: Steel Alloy.

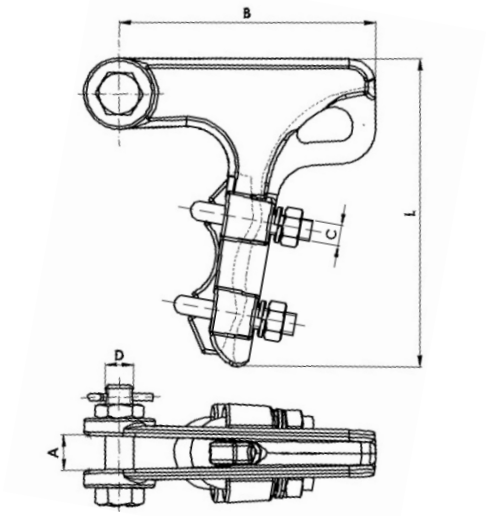
PROTECTION AGAINST CORROSION

Steel Parts: Hot dip galvanizing according to CSA-G164 / ASTM A153 standards.

STANDARDS

All parts are manufactured according to IEC 61284 standard.
Fasteners: galvanized steel, as per ASTM A325 and ASTM A563 standards.
Spheroidal cast materials: EN-1563 equivalent to ASTM A536 standard.
Cast alloyed aluminum materials: EN-1706 equivalent to ANSI A413.0 standard.

BOLTED STRAIN CLAMPS FOR GALVANIZED STEEL CABLES



Material Nodular cast EN-1563 equivalent to ASTM A536.

Bolt: ASTM A325.
Nut: ASTM A563.

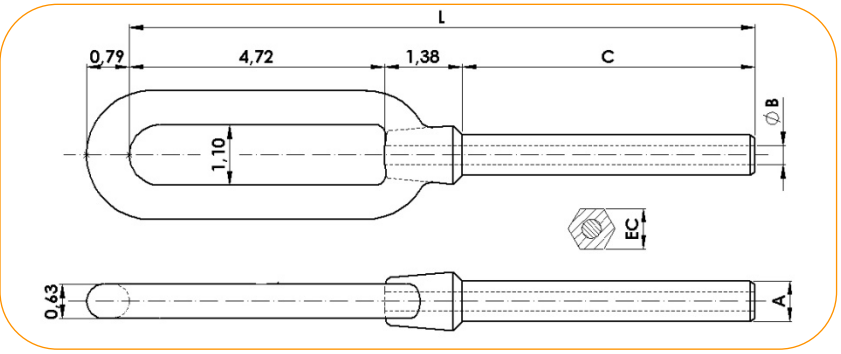
Locking pins: Stainless steel.

Steel parts finish: Hot dip galvanizing CSA-G164 / ASTM A153.

Reference	Ø Conductor (inch)		Dimensions (inch)					U-Bolts	Tightening Torque (in-lb)	Ultimate Strength (lb)	Weight (lb)
	Min.	Max.	A	B	C	D	L	Nº			
GA-1-AC/AM	0.20	0.47	0.75	5.71	1/2	5/8	7.48	2	710	20,000	3.40

NOTES: The clamps can be provided with stainless steel fasteners (except connection screw to fitting string).
Other fasteners upon request.

COMPRESSION DEAD-ENDS FOR GALVANIZED STEEL CABLES

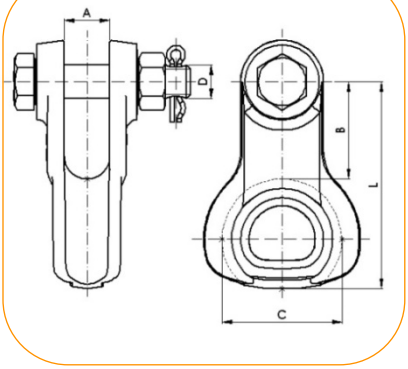


Material: Hot forged stainless steel

Reference	Ø Conductor (inch)		Dimensions (inch)				Mould	Weight (lb)
	Min.	Max.	A	B	C	L	EC (inch)	
GAC-6/AM	0.23	0.25	0.51	0.26	3.74	9.84	0.43	1.76
GAC-6,5/AM	0.25	0.27	0.51	0.28	3.74	9.84	0.43	1.76
GAC-7/AM	0.27	0.29	0.63	0.30	3.74	9.84	0.53	1.87
GAC-7,5/AM	0.29	0.30	0.63	0.31	3.74	9.84	0.53	1.87
GAC-8/AM	0.31	0.32	0.63	0.33	3.74	9.84	0.53	1.87
GAC-8,5/AM	0.32	0.34	0.75	0.35	5.51	11.61	0.63	2.09
GAC-9/AM	0.34	0.36	0.75	0.37	5.51	11.61	0.63	2.09
GAC-9,5/AM	0.36	0.38	0.89	0.39	5.51	11.61	0.75	2.31
GAC-10/AM	0.38	0.40	0.89	0.41	5.51	11.61	0.75	2.31
GAC-10,5/AM	0.40	0.42	0.89	0.43	5.51	11.61	0.75	2.31
GAC-11/AM	0.42	0.44	0.89	0.45	5.51	11.61	0.75	2.31
GAC-11,5/AM	0.44	0.46	1.02	0.47	5.51	11.61	0.87	2.43
GAC-12/AM	0.46	0.48	1.02	0.49	5.51	11.61	0.87	2.43
GAC-12,5/AM	0.48	0.50	1.02	0.51	5.51	11.61	0.87	2.43

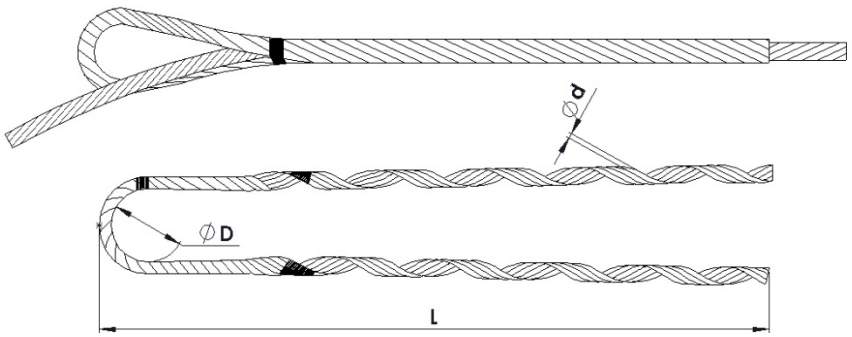
NOTE: Dead-ends for other conductors can be manufactured upon request.

PREFORMED CLAMPS FOR GALVANIZED STEEL CABLES
(THIMBLE + PREFORMED DEAD-END)



Material: Spheroidal cast EN-1563 equivalent to ASTM A536. **Bolt:** ASTM A325.
Steel parts finish: Hot dip galvanizing CSA-G164 / ASTM A153. **Nut:** ASTM A563.

Reference	Dimensions (inch)					Ultimate Strength (lb)	Weight (lb)
	A	B	C	D	L		
G-16/AM	0.87	1.85	2.28	5/8	3.94	28,000	1.70



Application: Galvanized steel conductors.
Material: Hot dip galvanizing CSA-G164 / ASTM A153.

Reference	Ø Conductor (inch)		Dimensions (inch)			Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	Ø D (Loop)	L			
RAAC 039-043	0.16	0.17	0.07	1.57	17.72	4	ORANGE	3,300
RAAC 046-049	0.18	0.19	0.09	1.97	23.23	4	GREEN	4,700
RAAC 054-058	0.21	0.23	0.07	1.97	22.05	5	BLUE	6,000
RAAC 058-062	0.23	0.24	0.09	1.97	24.02	5	YELLOW	7,100
RAAC 062-065	0.24	0.26	0.09	1.97	26.77	5	WHITE	7,800
RAAC 073-077	0.29	0.30	0.10	1.97	26.77	5	BLACK	10,500
RAAC 079-083	0.31	0.33	0.10	1.97	25.98	5	GREEN	10,400
RAAC 089-093	0.35	0.37	0.10	2.36	30.71	6	ORANGE	15,600
RAAC 093-097	0.37	0.38	0.10	2.36	31.89	6	WHITE	15,800
RAAC 097-101	0.38	0.40	0.12	2.36	33.07	5	YELLOW	16,500
RAAC 105-108	0.41	0.43	0.12	2.36	34.25	6	GREEN	19.800
RAAC 108-112	0.43	0.44	0.12	2.36	35.24	6	BLUE	20.000
RAAC 117-121	0.46	0.48	0.14	2.36	37.01	5	RED	23,100
RAAC 125-131	0.49	0.52	0.14	2.36	39.37	6	YELLOW	27,800
RAAC 139-146	0.55	0.57	0.16	2.36	47.24	6	BLACK	36,400
RAAC 146-152	0.58	0.60	0.16	2.36	52.36	6	RED	37,300

NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.

BOLTED STRAIN CLAMPS FOR ALUMOWELD CABLES

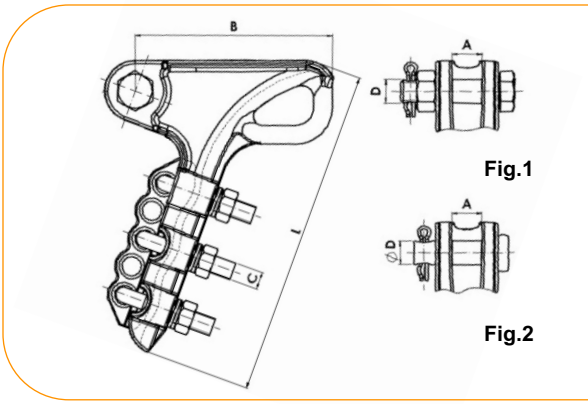


Fig.1

Fig.2

Material: Body: Alloy A1. EN-1706 equivalent to ANSI A413.0.

Bolt: ASTM A325.
Nut: ASTM A563.

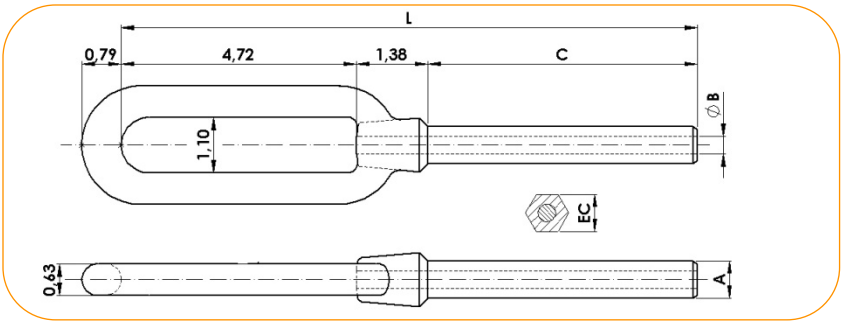
Locking pins: Stainless steel.

Steel parts finish: Hot dip galvanizing CSA-G164 / ASTM A153.

Reference	Figure	Ø Conductor (inch)		Dimensions (inch)					U-Bolts	Tightening Torque (in-lb)	Ultimate Strength (lb)	Weight (lb)
		Min.	Max.	A	B	C	D	L	Nº			
GA-1-PE/AM	Fig.2	0.16	0.47	0.71	3.15	3/8	5/8	4.72	2	220	8,000	0.95
GA-1/AM	Fig.2	0.16	0.47	0.71	4.92	1/2	5/8	6.10	2	310	9,000	1.52
GA-1T/AM	Fig.1	0.16	0.47	0.71	4.92	1/2	5/8	6.10	2	310	9,000	1.54
GA-2/AM	Fig.2	0.39	0.63	0.79	5.30	1/2	5/8	8.78	3	400	15,000	2.51
GA-2T/AM	Fig.1	0.39	0.63	0.79	5.30	1/2	5/8	8.78	3	400	15,000	2.60
GA-2-L/AM	Fig.2	0.35	0.71	0.71	7.87	1/2	5/8	11.02	3	400	15,000	3.44
GA-2T-L/AM	Fig.1	0.35	0.71	0.71	7.87	1/2	5/8	11.02	3	400	15,000	3.55

NOTE: The clamps can be provided with stainless steel fasteners (except connection screw to fitting string).
Other type of bolts upon request..

COMPRESSION DEAD-ENDS FOR ALUMOWELD CABLES

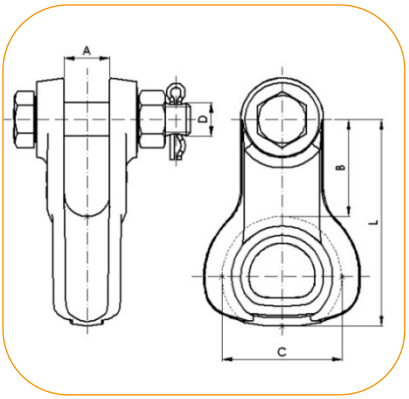


Material: Hot forged stainless steel

Reference	Ø Conductor (inch)		Dimensions (inch)				Mould	Weight (lb)
	Min.	Max.	A	B	C	L	EC (inch)	
GAC-6/AM	0.23	0.25	0.51	0.26	3.74	9.84	0.43	1.76
GAC-6,5/AM	0.25	0.27	0.51	0.28	3.74	9.84	0.43	1.76
GAC-7/AM	0.27	0.29	0.63	0.30	3.74	9.84	0.53	1.87
GAC-7,5/AM	0.29	0.30	0.63	0.31	3.74	9.84	0.53	1.87
GAC-8/AM	0.31	0.32	0.63	0.33	3.74	9.84	0.53	1.87
GAC-8,5/AM	0.32	0.34	0.75	0.35	5.51	11.61	0.63	2.09
GAC-9/AM	0.34	0.36	0.75	0.37	5.51	11.61	0.63	2.09
GAC-9,5/AM	0.36	0.38	0.89	0.39	5.51	11.61	0.75	2.31
GAC-10/AM	0.38	0.40	0.89	0.41	5.51	11.61	0.75	2.31
GAC-10,5/AM	0.40	0.42	0.89	0.43	5.51	11.61	0.75	2.31
GAC-11/AM	0.42	0.44	0.89	0.45	5.51	11.61	0.75	2.31
GAC-11,5/AM	0.44	0.46	1.02	0.47	5.51	11.61	0.87	2.43
GAC-12/AM	0.46	0.48	1.02	0.49	5.51	11.61	0.87	2.43
GAC-12,5/AM	0.48	0.50	1.02	0.51	5.51	11.61	0.87	2.43

NOTE: Clamps for different conductors can be manufactured upon request.

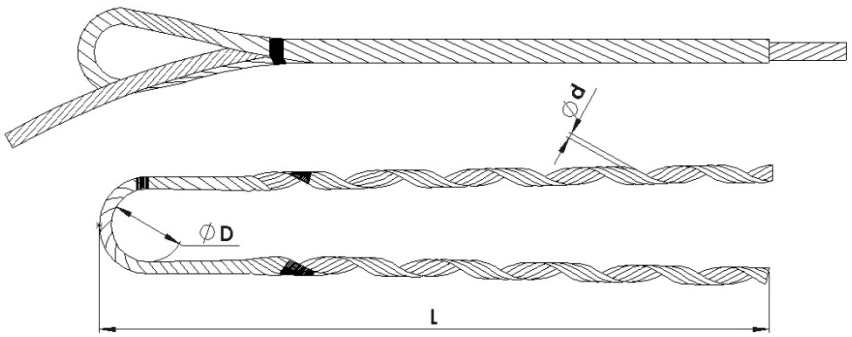
PREFORMED CLAMPS FOR ALUMOWELD CABLES
(THIMBLE + PREFORMED CLAMP)



Material: Spheroidal cast EN-1563 equivalent to ASTM A536. **Steel parts finish:** Hot dip galvanizing CSA-G164 / ASTM A153.

Bolt: ASTM A325.
Nut: ASTM A563.

Reference	Dimensions (inch)					Ultimate Strength (lb)	Weight (lb)
	A	B	C	D	L		
G-16/AM	0.87	1.85	2.28	5/8	3.94	28,000	1.70

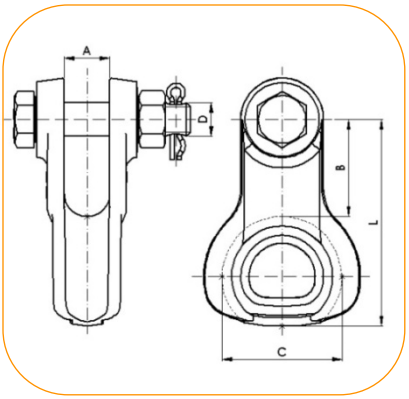


Application: Steel conductors covered in aluminum
Material: Steel covered in aluminum

Reference	Ø Conductor (inch)		Dimensions (inch)			Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	Ø D (Loop)	L			
RAAW 074-078	0.29	0.31	0.10	1.97	26.77	5	BLACK	10,000
RAAW 085-089	0.34	0.35	0.11	2.36	30.71	5	BLUE	12,100
RAAW 089-093	0.35	0.37	0.10	2.36	30.71	6	ORANGE	16,500
RAAW 093-097	0.37	0.38	0.10	2.36	30.71	6	WHITE	16,500
RAAW 097-101	0.38	0.40	0.13	2.36	31.50	5	GREEN	14,300
RAAW 108-112	0.43	0.44	0.13	2.36	34.25	6	BLUE	18,200
RAAW 118-125	0.46	0.49	0.13	2.36	37.01	5	BLACK	22,000

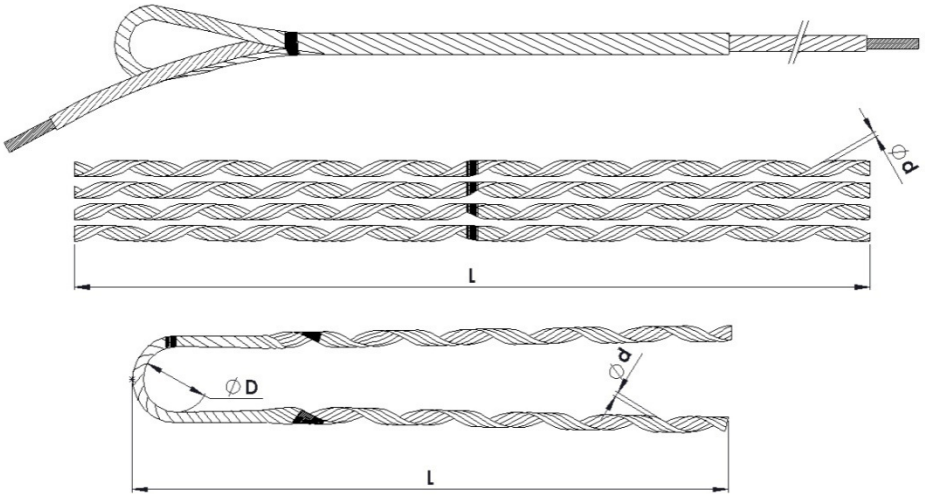
NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.

PREFORMED CLAMPS FOR OPGW CABLES
(THIMBLE + PREFORMED CLAMP)



Material: Spheroidal cast EN-1563 equivalent to ASTM A536. **Bolt:** ASTM A325.
Steel parts finish: Hot dip galvanizing CSA-G164 / ASTM A153. **Nut:** ASTM A563.

Reference	Dimensions (inch)					Ultimate Strength (lb)	Weight (lb)
	A	B	C	D	L		
G-16/AM	0.87	1.85	2.28	5/8	3.94	28,000	1.70

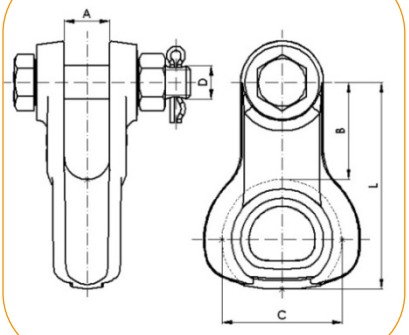


Application: Fibre optic cables
Material: Retention: Steel covered in aluminum. **Protection joint:** Steel covered in aluminum.

Reference	Ø Conductor (inch)		Dimensions (inch)			Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	Ø D (Loop)	L			
RAAW FO 15/D EPAW FO 10/I/2200	0.38	0.40	0.16 0.10	2.48	45.28 86.61	6 (4+4+5)	BLUE GREEN	15,000
RAAW FO 16/D EPAW FO 10,5/I/2200	0.40	0.42	0.16 0.10	2.48	45.28 86.61	6 (4+4+5)	GREEN GREEN	16,000
RAAW FO 17/D EPAW FO 11/I/2200	0.42	0.46	0.16 0.10	2.48	45.28 86.61	6 (4+4+4)	BLACK BLUE	17,000
RAAW FO 19/D EPAW FO 12/I/2600	0.46	0.51	0.16 0.13	2.48	54.33 102.36	6 (4+4+4)	RED RED	20,000
RAAW FO 20/D EPAW FO 13/I/2600	0.51	0.54	0.16 0.13	2.48	54.33 102.36	6 (4+3+3+3)	BLACK YELLOW	21,000
RAAW FO 21/D EPAW FO 14/I/2600	0.54	0.57	0.16 0.13	2.48	54.33 102.36	7 (4+4+3+3)	RED RED	27,000
RAAW FO 21,5/D EPAW FO 15/I/2600	0.57	0.61	0.16 0.13	2.48	54.33 102.36	7 (4+4+3+3)	GREEN BLUE	27,000
RAAW FO 22,5/D EPAW FO 16/I/2600	0.61	0.65	0.16 0.13	2.48	54.33 102.36	7 (4+4+4+3)	BLUE GREEN	27,000
RAAW FO 23,5/D EPAW FO 17/I/2600	0.65	0.69	0.16 0.13	2.48	54.33 102.36	7 (4+4+4+4)	YELLOW BLACK	27,000
RAAW FO 24,5/D EPAW FO 18/I/2600	0.69	0.73	0.16 0.13	2.48	54.33 102.36	7 (5+4+4+4)	RED RED	27,000
RAAW FO 25,5/D EPAW FO 19/I/2600	0.74	0.77	0.16 0.13	2.48	54.33 102.36	8 (5+5+4+4)	BLACK GREEN	27,000
RAAW FO 26,5/D EPAW FO 20/I/2600	0.77	0.81	0.16 0.13	2.48	54.33 102.36	8 (5+5+4+4)	BLUE BLACK	27,000
RAAW FO 27,5/D EPAW FO 21,5/I/2600	0.81	0.87	0.16 0.13	2.48	54.33 102.36	8 (5+5+5+5)	GREEN GREEN	27,000

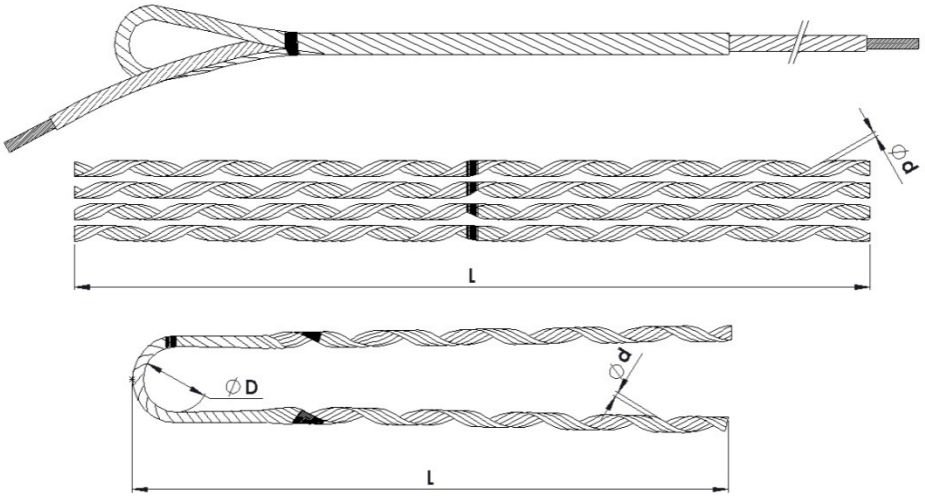
NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.

PREFORMED CLAMPS FOR ADSS CABLES
(THIMBLE + PREFORMED CLAMP)



Material: Spheroidal cast EN-1563 equivalent to ASTM A536. **Bolt:** ASTM A325.
Steel parts finish: Hot dip galvanizing CSA-G164 / ASTM A153. **Nut:** ASTM A563.

Reference	Dimensions (inch)					Ultimate Strength (lb)	Weight (lb)
	A	B	C	D	L		
G-16/AM	0.87	1.85	2.28	5/8	3.94	28,000	1.70

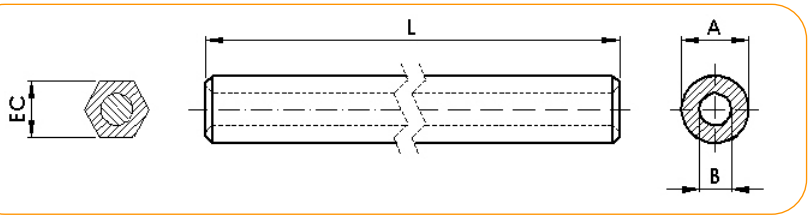


Application: Self.-supporting fibre optic cables
Material: Retention: Steel covered in aluminum. **Protection joint:** Aluminum Alloy.

Reference	Ø Conductor (inch)		Dimensions (inch)			Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	Ø D (Loop)	L			
RAAW FO 20/D EPAL FO 13/I/2500	0.50	0.52	0.16 0.14	2.48	54.33 98.43	6 (4+4+4)	BLACK YELLOW	22,000
RAAW FO 21/D EPAL FO 14/I/2500	0.53	0.56	0.16 0.14	2.48	54.33 98.43	7 (4+3+3+3)	RED RED	27,000
RAAW FO 21,5/D EPAL FO 15/I/2500	0.57	0.60	0.16 0.14	2.48	54.33 98.43	7 (4+3+3+3)	GREEN BLUE	28,000
RAAW FO 23,5/D EPAL FO 16/I/2500	0.61	0.64	0.16 0.15	2.48	54.33 98.43	7 (4+4+3+3)	YELLOW GREEN	29,000
RAAW FO 24,5/D EPAL FO 17/I/2500	0.65	0.68	0.16 0.15	2.48	54.33 98.43	7 (4+4+4+3)	RED BLACK	30,000
RAAW FO 25,5/D EPAL FO 18/I/2500	0.69	0.72	0.16 0.15	2.48	54.33 98.43	7 (4+4+4+3)	BLACK RED	30,000
RAAW FO 26,5/D EPAL FO 19/I/2500	0.73	0.77	0.16 0.15	2.48	54.33 98.43	7 (4+4+4+4)	BLUE YELLOW	30,000
RAAW FO 28/D EPAL FO 20/I/2500	0.78	0.83	0.16 0.15	2.48	54.33 98.43	8 (5+4+4+4)	BLACK BLACK	33,000

NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.

MID-SPAN COMPRESSION JOINTS FOR GALVANIZED STEEL CABLES

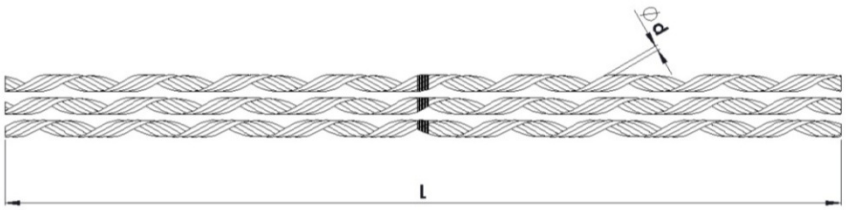


Material: Stainless steel.

Reference	Ø Conductor (inch)		Dimensions (inch)			Mould	Weight (lb)
	Min.	Max.	A	B	L	EC (inch)	
ECAC-6/AM	0.23	0.25	0.51	0.26	7.87	0.43	0.33
ECAC-6,5/AM	0.25	0.27	0.51	0.28	7.87	0.43	0.33
ECAC-7/AM	0.27	0.29	0.63	0.30	8.86	0.53	0.60
ECAC-7,5/AM	0.29	0.30	0.63	0.31	8.86	0.53	0.55
ECAC-8/AM	0.31	0.32	0.63	0.33	8.86	0.53	0.55
ECAC-8,5/AM	0.32	0.34	0.75	0.35	9.65	0.63	0.88
ECAC-9/AM	0.34	0.36	0.75	0.37	9.65	0.63	0.88
ECAC-9,5/AM	0.36	0.38	0.89	0.39	10.43	0.75	1.43
ECAC-10/AM	0.38	0.40	0.89	0.41	10.43	0.75	1.43
ECAC-10,5/AM	0.40	0.42	0.89	0.43	10.43	0.75	1.43
ECAC-11/AM	0.42	0.44	0.89	0.45	10.43	0.75	1.32
ECAC-11,5/AM	0.44	0.46	1.02	0.47	10.83	0.87	1.98
ECAC-12/AM	0.46	0.48	1.02	0.49	10.83	0.87	1.87
ECAC-12,5/AM	0.48	0.50	1.02	0.51	10.83	0.87	1.87

NOTE: Joints for different conductors can be manufactured upon request..

MID-SPAN PREFORMED JOINTS FOR GALVANIZED STEEL CABLES



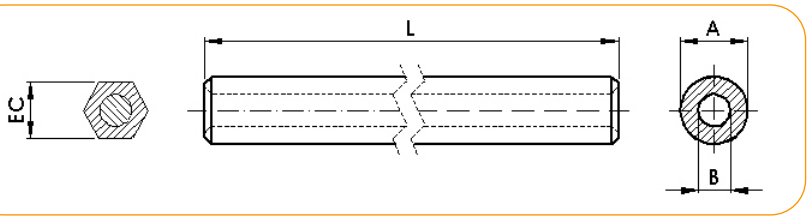
Application : Galvanized steel cables.

Material: Hot dip galvanizing steel CSA-G164 / ASTM A153.

Reference	Ø Conductor (inch)		Dimensions (inch)		Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	L			
ETMAC 039-042	0.16	0.17	0.07	23.62	4+4	ORANGE	3,300
ETMAC 046-049	0.18	0.19	0.09	27.36	4+4	GREEN	4,700
ETMAC 054-058	0.21	0.23	0.07	29.92	5+5	BLUE	6,000
ETMAC 059-062	0.23	0.24	0.09	33.07	5+5	YELLOW	7,100
ETMAC 062-065	0.24	0.26	0.09	33.86	5+5	WHITE	7,800
ETMAC 073-077	0.29	0.30	0.10	38.19	5+5	BLACK	10,500
ETMAC 079-083	0.31	0.33	0.10	40.16	3+4+4	GREEN	10,400
ETMAC 089-093	0.35	0.37	0.10	44.88	4+4+4	ORANGE	15,600
ETMAC 093-097	0.37	0.38	0.10	46.06	4+4+4	WHITE	15,800
ETMAC 097-101	0.38	0.40	0.12	47.24	3+4+4	YELLOW	16,500
ETMAC 104-108	0.41	0.43	0.12	53.15	4+4+4	GREEN	19,800
ETMAC 108-112	0.43	0.44	0.12	53.94	4+4+4	BLUE	20,000
ETMAC 117-121	0.46	0.48	0.14	57.87	3+4+4	RED	23,100
ETMAC 125-131	0.49	0.52	0.14	64.17	4+4+4	YELLOW	27,800
ETMAC 139-146	0.55	0.57	0.16	72.05	4+4+4	BLACK	36,400
ETMAC 146-152	0.58	0.60	0.16	72.05	5+4+4	RED	37,300

NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.

MID-SPAN COMPRESSION JOINTS FOR ALUMOWELD CABLES

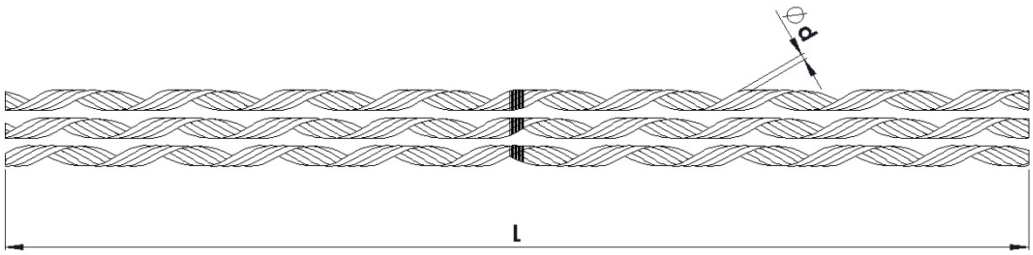


Material: Stainless steel.

Reference	Ø Conductor (inch)		Dimensions (inch)			Die	Weight (lb)
	Min.	Max.	A	B	L	EC (inch)	
ECAC-6/AM	0.23	0.25	0.51	0.26	7.87	0.43	0.33
ECAC-6,5/AM	0.25	0.27	0.51	0.28	7.87	0.43	0.33
ECAC-7/AM	0.27	0.29	0.63	0.30	8.86	0.53	0.60
ECAC-7,5/AM	0.29	0.30	0.63	0.31	8.86	0.53	0.55
ECAC-8/AM	0.31	0.32	0.63	0.33	8.86	0.53	0.55
ECAC-8,5/AM	0.32	0.34	0.75	0.35	9.65	0.63	0.88
ECAC-9/AM	0.34	0.36	0.75	0.37	9.65	0.63	0.88
ECAC-9,5/AM	0.36	0.38	0.89	0.39	10.43	0.75	1.43
ECAC-10/AM	0.38	0.40	0.89	0.41	10.43	0.75	1.43
ECAC-10,5/AM	0.40	0.42	0.89	0.43	10.43	0.75	1.43
ECAC-11/AM	0.42	0.44	0.89	0.45	10.43	0.75	1.32
ECAC-11,5/AM	0.44	0.46	1.02	0.47	10.83	0.87	1.98
ECAC-12/AM	0.46	0.48	1.02	0.49	10.83	0.87	1.87
ECAC-12,5/AM	0.48	0.50	1.02	0.51	10.83	0.87	1.87

NOTE: Joints for different conductors can be manufactured upon request.

MID-SPAN PREFORMED JOINTS FOR ALUMOWELD CABLES



Application: Galvanized steel ground cables covered in aluminum
Material: Steel, aluminum covered

Reference	Ø Conductor (inch)		Dimensions (inch)		Nº Armor rods	Identification color	Ultimate Strength (lb)
	Min.	Max.	Ø d (Rods)	L			
ETMAW 073-077	0.29	0.30	0.10	38.19	5+5	BLACK	11,000
ETMAW 085-089	0.33	0.35	0.11	40.16	5+5	BLUE	12,100
ETMAW 089-093	0.35	0.37	0.10	44.88	4+4+4	ORANGE	16,500
ETMAW 093-097	0.37	0.38	0.10	46.06	4+4+4	WHITE	16,500
ETMAW 097-101	0.38	0.40	0.13	47.24	5+5	GREEN	17,600
ETMAW 108-112	0.43	0.44	0.13	53.94	4+4+4	BLUE	20,000
ETMAW 118-125	0.46	0.49	0.13	57.87	3+4+4	BLACK	23,200

NOTES: State conductor lay direction. Code according to lay direction.
Rods for other conductor Ø upon request.