

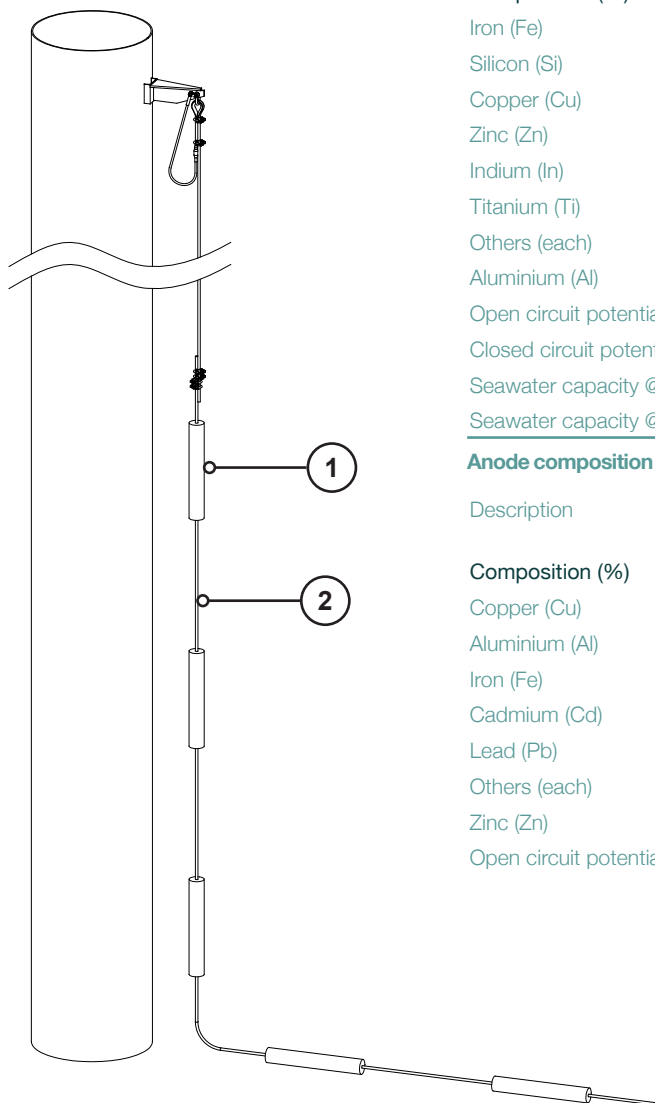
## Technical datasheet

### RetroLink™

#### General

RetroLink is a low-cost, reliable sacrificial anode system for offshore or inshore structures. RetroLink can also be configured to provide internal CP for void spaces, tanks, caissons and monopiles. Installation is almost always diver-less and can be performed from a small vessel.

RetroLink is supplied in zinc or aluminium anode material depending on water salinity. Zinc anodes are recommended if water is less than 12‰ full strength seawater (4.2 ppt Cl). For all other applications, the aluminium anodes are recommended. RetroLink should always be installed so that at least two anodes trail on the bottom. In this configuration, sea movements are attenuated and the string will not wrap around the structure.



#### Anodes (Item 1)

	Aluminium	Zinc
Net weight	45.5 lb [ 21 kg ]	125 lb [ 56 kg ]
Gross weight	52 lb [ 24 kg ]	132 lb [ 59 kg ]
Dimensions	Ø 4.5" x 30" [ Ø 114 x 762 mm ]	
Core/continuity (Item 2)	Ø 3/4" [ 19 mm ] Class 6x25 EIPS IWRC wire rope	
Anode to anode spacing	42" ± 4" [ 1.1 m ± 0.1 m ]	
1st Anode depth	Typically leading face ~6 ft [ 1.8 m ] below mean water line	

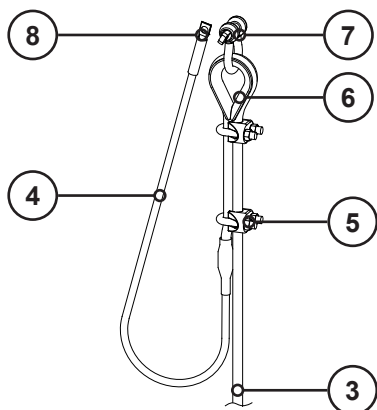
#### Anode composition / electrical properties - aluminium

Description	RetroLink is available with two aluminium compositions suitable for seawater environments. Deep10 alloy was designed as an effective, general-purpose offshore alloy for use in tropical water environments. Deep7 alloy, with low iron content, is more effective in cold seawater.	
Composition (%)	Deep7	Deep10
Iron (Fe)	0.07 max.	0.10 max.
Silicon (Si)	0.10 max.	0.10 max.
Copper (Cu)	0.003 max.	0.006 max.
Zinc (Zn)	4.75 - 5.25	4.75 - 5.75
Indium (In)	0.015 - 0.025	0.010 - 0.020
Titanium (Ti)	0.025 max.	0.025 max.
Others (each)	0.02 max.	0.02 max.
Aluminium (Al)	Remainder	Remainder
Open circuit potential (sw)	(-) 1.08 V vs Ag/AgCl	(-) 1.08 V vs Ag/AgCl
Closed circuit potential (sw)	(-) 1.05 V vs Ag/AgCl	(-) 1.05 V vs Ag/AgCl
Seawater capacity @ 25°C	1100 Ahr/lb [ 2420 Ahr/kg ]	1100 Ahr/lb [ 2420 Ahr/kg ]
Seawater capacity @ 5°C	1100 Ahr/lb [ 2420 Ahr/kg ]	Variable

#### Anode composition / electrical properties - Zinc

Description	RetroLink is available with Zinc anodes for applications in fresh water or brackish water less than 12‰ full strength seawater (4.2 ppt Cl)	
Composition (%)	Zinc MIL-A-18001-K	
Copper (Cu)	0.005 max.	
Aluminium (Al)	0.1 - 0.5	
Iron (Fe)	0.005 max.	
Cadmium (Cd)	0.025 - 0.07	
Lead (Pb)	0.006 max.	
Others (each)	0.10 max.	
Zinc (Zn)	remainder	
Open circuit potential	(-) 1.05 V vs Ag/AgCl	

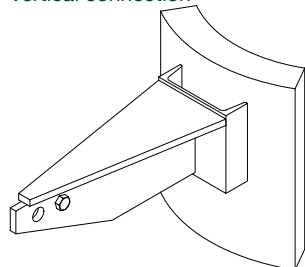
### Anode string suspension details



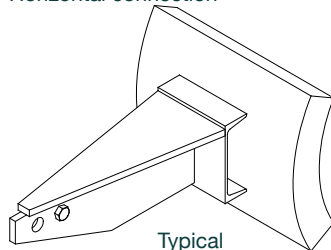
Wire rope (Item 3)	Ø 3/4" [ 19 mm ] Class 6x25 EIPS IWRC PFV/ TUFF-KOTE (Orange) Supplied in either 16.5 ft [ 5 m ] or 26.5 ft [ 8 m ] lengths based on project specifications
Grounding cable (Item 4)	2 AWG x 42" long [ 35 mm <sup>2</sup> x 1 m long ] stranded exane - insulated
Rope fixing (Item 5)	3/4" [ 19 mm ] Malleable wire rope clip
Bend restriction (Item 6)	3/4" [ 19 mm ] HDG Steel wire rope thimble
Connecting link (Item 7)	5/8" [ 16 mm ] HDG Steel screw pin shackle
Connection lug (Item 8)	Ø 1/2" [ M12 ] Copper lug

### Structure connection option - weld-on

Vertical connection

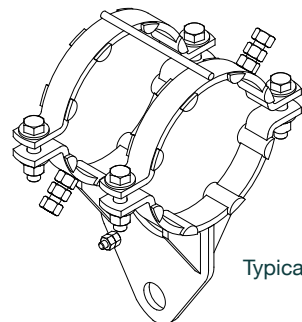


Horizontal connection



Target structure	Horizontal or vertical members
Steel grade	ASTM A36 [ EN 10025 S355 ]
Steel thickness	1/2" [ 13 mm ] Plate
Welding	All welding conducted in accordance with Steel Structural Welding Code – AWS D1./D1.1M:2006 [ EEMUA 158 ]
Cable connection	Ø 1/2" [ M12 ] Bolt c/w nut and lock washers

### Structure connection option - clamp-on



Target structure	Horizontal or vertical tubulars of sizes 6" to 16" Custom sizes are available on request
Steel grade	ASTM A36 [ EN 10025 S355 ]
Steel thickness	1/2" [ 13 mm ] Plate
Welding	All welding conducted in accordance with Steel Structural Welding Code – AWS D1./D1.1M:2006 [ EEMUA 158 ]
Cable connection	Ø 1/2" [ M12 ] Bolt c/w nut and lock washers
Structure connection	2 x Contact screw with SS316 45° pointed tip, driven by 3/4-10 [ M20 ] Hex Head Nut
Crevice prevention	Provided by I-Rod Clips