

### RetroSled™

#### General

RetroSled is a retrofit sacrificial anode system designed for pipelines where anode burial below the natural seabed is required or anticipated. The sled can be rapidly and safely deployed offshore with little-to-no diver intervention.

RetroSled is suited for applications where there is little-or-no seabed movement. For situations where seabed movement is anticipated, Deepwater recommends the RetroMat (See RetroMat technical datasheet).

#### Frame (Item 2)

**Steel grade** ASTM A53 [ ASTM A106 ]  
ASTM A36 [ EN 10025 S355 ]

**Welding** All welding conducted in accordance with Steel Structural Welding Code – AWS D1./D1.1M:2006 [ EEMUA 158 ]

**Lifting (Item 3)** 1/2" [ 12.7 mm ] Padeye  
4 points

#### Connection details (Item 4)

**RetroSled** 2 x Ø 1/2" [ M12 ] Stud welded to frame

**Structure** RetroClamp (See RetroClamp technical datasheet)  
Quantity as per requirements, typically 2 per RetroSled

**Cable** 4/0 AWG [ ~107 mm<sup>2</sup> ], EPDM insulated, heavy duty flexible cable  
2 per RetroClamp

#### Overall weights & dimensions\*

##### 15 Year

**Dimensions** 78" x 270" x 10"  
(W x H x L) [ 1980 x 6780 x 270 mm ]

**Weight (Air)** 1980 lb [ 890 kg ]

**Weight (Water)** 1455 lb [ 660 kg ]

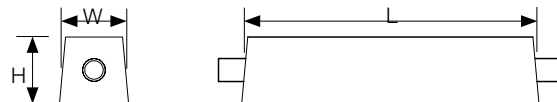
##### 20 Year

**Dimensions** 78" x 270" x 11"  
(W x H x L) [ 1980 x 6780 x 280 mm ]

**Weight (Air)** 2140 lb [ 970 kg ]

**Weight (Water)** 1575 lb [ 715 kg ]

#### Anodes (Item 1)



##### Description

Deepwater offers two standard dimensions of anode for the RetroSled. The anode size is selected based on design life.

##### Design life

**15 Year**

**20 Year**

##### Net weight

285 lb [ 129 kg ]

325 lb [ 148 kg ]

##### Gross weight

370 lb [ 167 kg ]

410 lb [ 186 kg ]

##### Dimensions (L x W x H)

120" x 5.3" x 5.5"  
[ 3050 x 135 x 140 mm ]

120" x 5.5" x 5.9"  
[ 3050 x 140 x 150 mm ]

##### Core

2" Sch 80 Pipe

2" Sch 80 Pipe

#### Anode composition / electrical properties

##### Description

RetroSled is available with two anode compositions. 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, deep water.

##### Composition (%)

**Iron (Fe)**

**Deep7** 0.07 max.

**Deep10** 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

