GreenLink Inline Termination

Fast and flexible grid connectivity solutions

MacArtney GreenLink inline terminations have been designed to make offshore medium voltage termination jobs faster, easier and more efficient, hereby saving valuable ship time. These dry-mate systems are often used to connect dynamic cables from offshore renewable wind, tidal and wave energy converters to export cables. Moreover, they are widely used to interconnect subsea units.

Engineered to be easy to mount and dismount on board a vessel, cables can be terminated before deployment and mechanically connected on deck. The mechanical connection of the two halves takes less than two hours which makes a significant improvement on the time it normally takes to cut and splice cables offshore. This mechanical connection makes it possible to repeatedly connect and disconnect the cables. It also provides mechanical stress transfer between the cables and offers extra protection with bend stiffeners or bend limiters (optional). Moreover, GreenLink inline terminations come with external O-ring test ports on the termination housing. These can be used for testing the O-ring seal on the fully assembled termination prior to system deployment.

GreenLink inline terminations can also be mounted onto cable ends for installation in two stages. This way, half of the system can be sealed with a pressure cap and left on the seabed, ready for the other half to be mated at a later stage. GreenLink inline termination systems are adapted to suit the requirement of each project and combine the benefits of custom engineering, trusted technology and industry standard electrical components. Finally, GreenLink inline terminations can also be used in semi-flooded or dry applications, if required.

Highlighted specifications

- Standard working voltage: up to 36 kV
- Up to 1,250 A
- Conductor range: 35-630 mm^2
- Working depth: 100 m
  (other working depths available upon request)
- Housing material: stainless steel AISI 316L
  (other materials available upon request)
- Design life: 25 years (with 5 year maintenance periods)
- O-ring test ports on termination housing
- Supplied with bend stiffeners as standard

Applications

- Connecting dynamic cables to export cables
- Connecting cables from wind, tidal and wave energy converter units to land cables
- Interconnecting marine renewable energy converter units and applications
- Power distribution for subsea server systems

Options

- Connection of auxiliary conductors
- Fibre optic connectivity
- The termination can be dry or nitrogen filled
- Field installation and offshore support
- Purpose designed installation skid
- Purpose designed handling/lifting yoke
- Bend restrictors
- GreenLink cable splice

Mechanical specifications

Standard termination pipe size:	12”, 14” or 16” (other pipe sizes available upon request)
Working depth:	100 m (other working depths available upon request)
Housing material:	AISI 316L (other materials available upon request)
Design life:	25 years (with 5 year maintenance intervals)
Zinc anode design life:	5 years (with 2.5 years inspection intervals)
Straight line pull SWL:	Matches cable specifications and working depth (verified case by case)
Pull out/lift SWL:	Matches cable specifications and working depth (verified case by case)
O-ring test ports:	All flange connectivity interfaces are fitted with test ports for pressure testing prior to system deployment
Third party qualification/approval:	Available on request - to be verified case by case
Field installation and offshore support:	Performed by experienced and fully certified MacArtney technicians

Electrical specifications

MacArtney GreenLink inline terminations are available in three different standard set-ups:

Size 1 (12” pipe size)
Size 2 (14“ pipe size)
Size 3 (16” pipe size)
(Other sizes on request)

Beyond the overall physical size of the inline termination, the sizes also reflect the voltage rating and current capacity of the systems.

Number of MV contacts

All sizes:	3 phases
DC applications:	2 conductors +/-

Voltage rating (size 1)

Rated voltage Un:	30 kV
Rated voltage Uo:	18 kV
Max operating voltage Um:	36 kV

Voltage rating (size 2)

Rated voltage Un:	36 kV
Rated voltage Uo:	20.8 kV
Max operating voltage Um:	42 kV

Voltage rating (size 3)

Rated voltage Un:	36 kV
Rated voltage Uo:	20.8 kV
Max operating voltage Um:	42 kV

Current rating

Size 1:	630 A
Size 2:	800 A
Size 3:	1,250 A

Please note: All electrical components used are rated at maximum current, hence the current is limited by the square of the cable only.

Short-circuit levels (size 1)

Max thermal short circuit (1 sec):	31.5 kA
Max dynamic short-circuit current:	125 kA

Short-circuit levels (size 2)

Max thermal short circuit (1 sec):	40 kA
Max dynamic short-circuit current:	125 kA

Short-circuit levels (size 3)

Max thermal short circuit (1 sec):	60 kA
Max dynamic short-circuit current:	150 kA

Cable cross sections

Size 1:	35-185 mm^2 (up to 240 mm^2 at 24 kV)
Size 2:	50-300 mm^2
Size 3:	120-630 mm^2

Operational environment

GreenLink inline terminations are suited for deployment in seawater

Temperature range:	To be verified case by case

Standards

Internal electrical connectors are manufactured to EN 50181 and tested to IEC 60502-4
Please note: No specific EN or IEC standards applicable for this product. Therefore, testing will be according to customer specification.

Testing procedures are arranged upon order of hardware.