

# EFL's and OFL's Bundle Assembly

## Deployment and Installation Basket

### Ubas Multifunctional Subsea ROV Basket System

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**Flying Lead Bundles that includes up to four EFL's and / or OFL's are packed, deployed and installed in Ubas ROV Baskets that includes two FLP Boxes, Flying Lead Parking / Positioning Boxes. Dependant on the length and number of cables this may be an Ubas G, H or I ROV Basket. FL bundles reduces operational time related to pull-out of flying leads, and potentially time related to final positioning on the seabed, temporary or permanent stabilisation and rock dumping.**

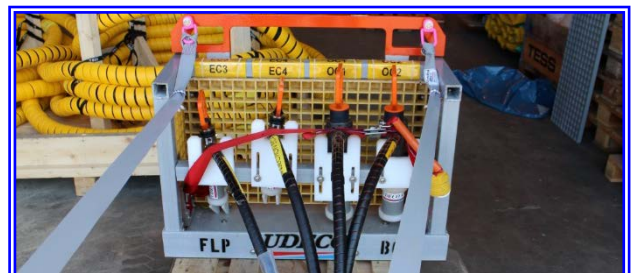


### General

- A FL Bundle assembly can include two, three or four EFL's and / or OFL's.
- One or two FL bundles can be deployed and installed in one single subsea basket run.
- Only one bundle line to pull out instead of up to four EFL's / OFL's.
- Final seabed positioning of the flying leads limited to one bundle line.
- Limits the seabed congestion (e.g. one vs. four lines).
- Temporary or permanent stabilisation of the flying leads limited to one bundle line (e.g. Ubag Type T).
- Improved protection when provided with one or two outer layer of spiral guard. Each individual flying lead cable can also be provided with spiral guard.
- One single pass in case of rock dumping.
- Improved protection when a tension relief wire is included in the bundle. After pull-out and connection of the FL bundle, the wire can be tied back to the subsea structure by the ROV.

### Basket Configuration

- ROV Basket type Ubas G, H or I reconfigured with three compartments.
- Ubas H can accommodate four line bundles that are several hundred meters long.
- Two compartments allocated the FLP boxes including the FL legs /tails.
- One larger compartment is allocated the bundled section of the assembly.
- Two shorter FL bundles can be deployed in one basket (i.e. four FLP boxes). A single bundle installation will require two FLP boxes, two bundles will require four FLP boxes.
- The basket includes strapping plates that are used to route and secure the FL tails in each end of the bundle.
- The FLP Box compartments include retrieval guides for the FLP Box. For deployment, the box is secured with a ROV releasable Ustrap securing strap.
- The main bundle section is secured for deployment using cargo straps (cut with ROV knife), or the Ustrap securing straps (single ROV ball fist pull to release).
- The FLP box includes generic parking receptacles that suit the FL connector sizes.
- The FLP box includes Utag marking tags that identifies the parked connector positions. The basket includes tags that identifies the first and second side.
- In each end the bundle is provided with a PEHD clamp assembly where the individual FL ends / tails and any tensioning line are brought together.
- An Ustrap length adjustable ROV releasable holdback bridle connect the FLP box to the tensioning relief wire included in the bundle, or alternatively connected to the clamp assembly in the cases where a wire is not included. When the FLP Box is retrieved and the bundle is pulled out, the loose leg / tails will be hanging in a catenary shape.



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