

Application Story

THE OCEANSCIENCE GROUP HAD A GREAT IDEA, BUT REQUESTED A LITTLE HELP FROM OGURA TO MAKE IT WORK.

Oceanscience was designing a portable Ocean data collection system providing cost-effective, accurate profiles of temperature and salinity from underway vessels. Past designs used expensive disposable probes, or left debris on the sea floor. This is not the way to go in today's cost conscious and environmentally friendly environment. Their goal was to use a compact, light-weight and *reusable* probe.

The idea was simple in principle. The device was to have two separate spools, one for payout from the underway vessel and the other for the length of line would wind around the probe itself. This smaller tail spool, whose length would determine its survey depth, would unwind (and lower the probe) as the main spool unwound from the ship that was underway.

Making a precisely wound probe is easy to do in the lab or in an industrial environment but for the machine to be a success in the field, the probe needed to be rewound many times during the same voyage. This meant designing a payout spool and rewind mechanism that could accurately rewind the probe after it was returned from the sea.

Many are familiar with the simple fishing reel and its settings for drag and controlled payout, but this spool needed to be much more controllable and robust. It needed two strong electric motor drives (one to retrieve the heavy probe against strong ocean currents and one for a tail probe rewind system) as well as an adjustable clutch to disengage the motor from the drive to let the probe take the line as it deployed. Most electric clutches could do the job, but Ogura was tasked with the following additional requirements:

- 25 NM of torque in less than 93 mm in diameter (to meet the systems weight and size requirement)
- Low drag torque when disengaged (to prevent overheating and drag while deploying)
- Robust design for repeated shipboard use

- 24 VDC on-off operation, but with the ability to have a smooth adjustable current controlled clutch torque option to help with the smooth rewinding of the tail probe from the main spool
- The small size, light weight and smooth DC current to torque features offered by Ogura's MDC 2.5 proved to be the main selling points for The Oceanscience Group. Using multiple discs of a robust proprietary friction material, the MDC clutch epoxy filled field assembly is heat and vibration resistant. These features make the MDC series capable of many thousands of engagements at full load and capable of repeated low torque rewinding operations of the tail probe for the Oceanscience Group.

Proper tension of the Spectra line during winding is critical for life and insures tangle free unwinding during use. The re-winder function is fully programmable for different profile depths and quick turnaround. The Ogura MDC series clutch insures accurate research quality data collection in this state of the art, cost effective, environmentally friendly system. ●

