



APPLIED ACOUSTICS

Underwater Technology



Dura-Spark Geophysical Systems



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The Dura-Spark System

a stable and repeatable sound source for sub-bottom geophysical surveys

The Applied Acoustics' Dura-Spark sub-bottom profiling package is a revolutionary sparker system that combines high quality data capture with improved resolution and hard-wearing sparker tips, to minimise operational downtime.

The system consists of a negative voltage seismic energy source, the CSP-N, a sparker sound source with up to 240 long-life tips, connected by a rugged high voltage cable. Designed for high and ultra high resolution geophysical surveys, and for use with single and multi-channel acquisition systems, the system is capable of providing high quality data with vertical resolution of up to 25cm, in water depths from 5 to 1000 metres.

Dura-Spark Sound Source

Key Features

- Long life, durable electrodes
- Pulse stability
- High resolution sub-bottom data
- Tip array selection from on board junction box

The Dura-Spark has been designed to provide a stable, repeatable sound source for sub-bottom geophysical surveys. The long life, durable electrodes produce a consistent pulse signature and keep operational maintenance to a minimum. This provides increased survey efficiency and equipment reliability as the sparker tips rarely, if ever, need replacement.

The Dura-Spark 240 is based on the CAT300 catamaran, providing a stable platform whilst under tow. The catamaran has robust solid floatation and is easily deployed from all survey vessels.

The Dura-Spark 240 consists of 3 arrays of 80 tips allowing the operator to tune the source from the vessel to its application. This flexibility, together with selectable source depth, allows the sound source to be used in both shallow and deep waters.

The typical operational bandwidth of the Dura-Spark 240 is 300Hz to 1.2kHz. When coupled with the CSP-N Seismic Power Supply the system offers 2000J/s peak discharge rate, as well as industry leading design and safety standards.



CSP-N Energy Source

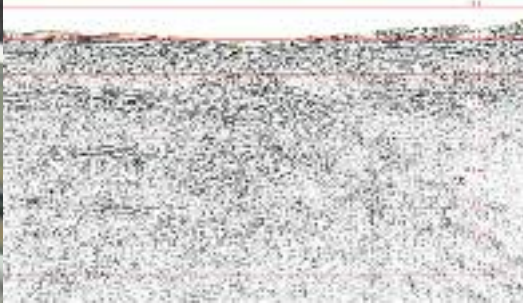
Key features

- Unique negative output
- Fast discharge
- Additional safety/protection features
- All settings externally selectable
- Meets EC emissions regulations enabling interference-free field use

The CSP-N1200 seismic energy source is the driving force behind Applied Acoustics' Dura-Spark sound source that has extremely hard wearing electrode sparker tips. This durability is a consequence of the CSP's reverse polarity high voltage charger and unique proprietary thyristor switching.

Featuring all of the standard safety systems and operational functions found across the entire range of CSP energy sources, the CSP-N1200 is also suitable for use with the Applied Acoustics' S-Boom and single plate boomer systems.





Technical Specification

DURA-SPARK SYSTEM COMPONENTS

Dura-Spark on CAT 300 catamaran
 CSP-N Seismic Energy Source
 HVC 3500 High Voltage Cable, 75m standard

DURA-SPARK SEISMIC SOUND SOURCE

PHYSICAL

Dura-Spark 240 on CAT300 catamaran
 Dimensions 1700mm (L) 490mm (H) 660mm (W) frame/876mm (W) including floats
 Weight 60kg
 Connector RMK 1/0 complete with locking collar

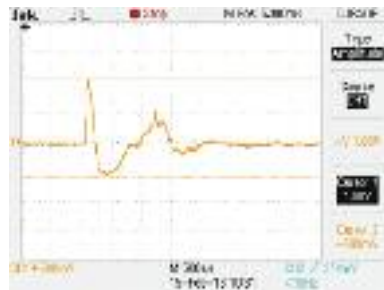
ELECTRICAL INPUT

Recommended energy 1000J/shot 5J per tip to minimise bubble collapse component
 Maximum energy 1250J /shot
 Operating voltage 3000-4000V
 Maximum number of tips 240 (3 x 80)

SOUND OUTPUT

Source level Typically 225dB re 1 μ Pa at 1 metre with 1000J
 Pulse Length 0.5 to 1.5ms. Dependent on tips and power applied

TYPICAL PULSE SIGNATURE AT 1000J



CSP-N1200 SEISMIC ENERGY SOURCE

PHYSICAL

Size Transit Case (7U) with cover in place and handles flat: 50cm(H) x 58cm(W) x 74cm(D)
 Weight CSP-N, case and cover: 60kg

ELECTRICAL SPECIFICATION

Mains Input 240Vac 45-65Hz@4.0kVA single phase. 3 pin connector
 Variable Input Power Circuitry (AVIP) 'soft start' circuitry
 Voltage Output 2500 to 3950Vdc, 4 pin interlocked connector
 Solid state semi-conductor discharge method
 Output Energy Easy switch selectable in increments, 50 to 1200 Joules
 Charging Rate 2000J/second for continuous operation at 0-45°C
 Capacitance 208 μ F, 10⁸ shot life
 Trigger +ve key opto isolated or isolated closure
 Repetition rate 6pps maximum
 Limited by charge rate, energy level and sound source rating



With on-going research and development in cutting edge technology and acute awareness of current and future industry needs, our commitment to our customers is second to none. We are equally determined to aid and assist our customers worldwide with a network of partners, suppliers and overseas Support Centres. Together, we offer engineering excellence, trusted products and a first class professional service on a global scale.

