APPLIED ACOUSTICS
Underwater Technology



: Technical Specification

AA200 and AA300 Seismic Sound Source, Boomer Plates

The two boomer plates, the AA200 and AA300, produce a sharp, repeatable "industry standard" single pulse. Both models are field proven and differ in detail specification.

The Model AA200 is the 'small format' transducer which can be towed on either the CAT100 or CAT200 surface tow vehicles. It is ideal for inshore surveys for high resolution sediment analysis with the CSP-L energy source or as a higher penetration device with the CSP300-P and CSP-D models.

The Model AA300 is designed for higher power applications and has the extra advantage of use as a variable frequency boomer when used with the CSP-D range of energy sources. This allows wide ranging pulse widths not formerly available. The lengthening of the pulse width ensures even greater penetration whilst maintaining a high quality single pulse.

AA200

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MODEL TYPES - PHYSICAL SPECIFICATION

	Size	Weight air/water	Fixing Centres
Model AA200	38cm x 38cm	18kg/10kg	31.5cm^2
Model AA300	62cm x 52cm	25kg/14kg	40.6cm^2

ELECTRICAL INPUT

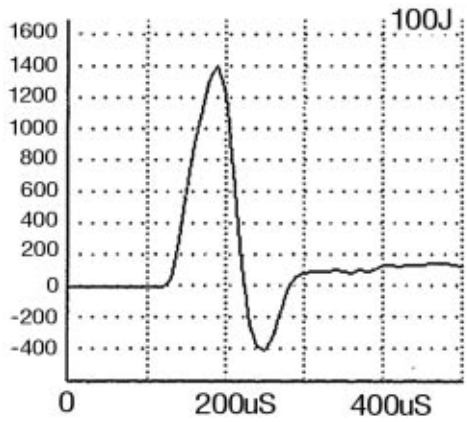
Recommended Power	AA200, 50 – 200J/shot AA300, 100 – 300J/shot
Maximum Energy Input	AA200, 300J/shot AA300, 350J/shot
Maximum power Input	AA200, 600J/second AA300, 1000J/shot

SOUND OUTPUT

Source level	AA200, 215 dB re 1 µPa at 1 metre with 200J AA300, 218 dB re 1 µPa at 1 metre with 300J
Pulse Length	AA200, 120/150/180 mS at 50/100/200J AA300, 150 – 400 mS depending on energy setting of CSP-D
Reverberation	AA200, <1/10 x initial pulse AA300, < 1/10 x initial pulse
Connector type	Enhanced Joy Plugs. Models AA201 and AA301 fitted with RMK type

COMPATIBILITY*

Energy Source	AA200, CSP-L; CSP300P;CSP-D AA300, CSP300P;CSP-D
Catamaran	AA200, CAT100; CAT200 AA300, CAT200



AA200 PULSE SHAPE

* Also compatible with older model CSP units.

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Due to continual product improvement, specification information may be subject to change without notice.

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Streamer Hydrophones

High quality streamer hydrophones available as 1, 8, 12 or 20 element MF designs and 24 element LF design. Each is supplied with a pre-amplifier and connectors for standard seismic acquisition systems.

Key Features

- Filled with silicon oil for neutral buoyancy
- Supplied with robust 50m tow leader
- Complete with pre-amp
- Standard models and customised units with grouped elements available
- Medium frequency and low frequency versions

Technical Specification

Streamer hydrophone, fluid filled with multi-elements

Model number	AH1	AH360/8
Tow leader	50m	50m
Array Tube type	Polyurethane	Polyurethane
Array tube length	4.5m	4.5m
Number of elements	1	8
Element spacing	n/a	360mm
Array sensitivity	-187dB ref 1V per µPa	-176dB ref 1V per µPa
Fluid type	Polydimethylsiloxane, PMX561	Polydimethylsiloxane, PMX561
Power	Battery, 9V alkaline, PP3/MN1604	Battery, 9V alkaline, PP3/MN1604
Frequency response	140Hz to 10kHz (-3dB)	140Hz to 10kHz (-3dB)
Signal output	Up to 8V peak to peak	Up to 8V peak to peak
Preamp	Single ended, fixed gain	Single ended, fixed gain
Connector type	BNC, 50/75 ohm cable can be used	BNC, 50/75 ohm cable can be used
Elements		
Dimensions	55 x 16 x 10 mm	55 x 16 x 10 mm
Sensitivity	-187dB ref 1V per µPa	-187dB ref 1V per µPa
Depth recoverable	30m max	30m max
Operating depth	Typical 10m	Typical 10m
Type	Non acceleration cancelling	Non acceleration cancelling
Resonance	@ 9 kHz	@ 9 kHz

Streamer Hydrophones Continued…

Model number	AH250/12	AH150/20
Tow leader	50m	50m
Array Tube type	Polyurethane	Polyurethane
Array tube length	4.5m	4.5m
Number of elements	12	20
Element spacing	250mm	150mm
Array sensitivity	-163dB ref 1V per µPa	-167dB ref 1V per µPa
Fluid type	Polydimethylsiloxane, PMX561	Polydimethylsiloxane, PMX561
Power	Battery, 9V alkaline, PP3/MN1604	Battery, 9V alkaline, PP3/MN1604
Frequency response	140Hz to 10kHz (-3dB)	140Hz to 10kHz (-3dB)
Signal output	Up to 8V peak to peak	Up to 8V peak to peak
Preamp	Single ended, fixed gain	Single ended, fixed gain
Connector type	BNC, 50/75 ohm cable can be used	BNC, 50/75 ohm cable can be used
Elements		
Dimensions	55 x 16 x 10 mm	55 x 16 x 10 mm
Sensitivity	-187dB ref 1V per µPa	-187dB ref 1V per µPa
Depth recoverable	30m max	30m max
Operating depth	Typical 10m	Typical 10m
Type	Non acceleration cancelling	Non acceleration cancelling
Resonance	@ 9 kHz	@ 9 kHz

Model number	AH360/20	AH610/24LF (Low Frequency)
Tow leader	50m	50m
Array Tube type	Polyurethane	Polyurethane
Array tube length	10m	14
Number of elements	20	24
Element spacing	360mm	610mm
Array sensitivity	-192dB ref 1V per µPa	-187dB ref 1V per µPa
Fluid type	Polydimethylsiloxane, PMX561	Polydimethylsiloxane, PMX561
Power	Battery, 9V alkaline, PP3/MN1604	24Vdc
Frequency response	140Hz to 10kHz (-3dB)	115Hz to 7.2kHz (-3dB)
Signal output	Up to 8V peak to peak	Up to 8V peak to peak
Preamp	Single ended, fixed gain	Differential output, link adjustable gain
Connector type	BNC, 50/75 ohm cable can be used	BNC, 50/75 ohm cable can be used
Elements		
Dimensions	55 x 16 x 10 mm	53 x 20mm
Sensitivity	-187dB ref 1V per µPa	-192dB ref 1V per µPa
Depth recoverable	30m max	30m max
Operating depth	Typical 10m	Typical 10m
Type	Non acceleration cancelling	Acceleration cancelling
Resonance	@ 9 kHz	@ 9 kHz

Registration No. U6447
BS: EN: ISO9001

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CSP-D Seismic Energy Source

The CSP-D is a seismic energy source for boomer and sparker applications in three variants, the CSP-D700, CSP-D1200 and CSP-D2400. Each unit has the same chassis and 1500J/second HV engine.

The CSP-D incorporates dual-voltage technology that allows the operator to tune the sound source to a particular application for improved data quality.

Key Features

- Incorporates dual-voltage technology for exceptional versatility
- Variable Input Power Circuitry for 'soft start'
- Proprietary pulse shaping circuitry for high resolution data
- Additional safety/protection features
- All settings externally selectable
- LED fault indicators
- High current and voltage solid state (semi-conductor) discharge method
- Meets EC emissions regulations enabling interference-free field use
- Supplied in robust transit case, with HV junction box, mains lead and HV connector plug

Technical Specification

PHYSICAL

Size	Transit Case (7U) with cover in place and handles flat: 50cm(H) x 58cm(W) x 74cm(D)
Weight	CSP-D700, case and cover: 60.5kg
	CSP-D1200, case and cover: 61.5kg
	CSP-D2400, case and cover: 63.5kg

ELECTRICAL SPECIFICATION

Mains Input	110 or 240Vac (fixed) 45-65Hz@3.0kVA 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

CSP-D Technical Specification continued…

Output Energy	Easy switch selectable in increments	
	CSP-D700	50,100,150,200,250,300,350,400,500,600,700 Joules
	CSP-D1200	50,100,150,200,250,300,350,400,450,500,550,600, 700,800,900,1000,1100,1200 Joules
	CSP-D2400	50,100,150,200,300,400,500,600,700,750,800,900, 100,1250,1500,1750,2000,2250,2400 Joules
Charging Rate	1500J/second for continuous operation at 0-45°C ambient	
Capacitance	CSP-D700	112µF at 10^8 shot life
	CSP-D1200	208µF at 10^8 shot life
	CSP-D2400	304µF at 10^8 shot life
Trigger	+ve key opto isolated or isolated closure set by front panel switch BNC connector on front panel and remote box (optional)	
Repetition rate	6pps max Limited by charge rate, energy level and sound source rating	
Earth	M8 stainless steel stud on front panel	

SAFETY FEATURES

Main electronic control circuits and secondary layer of safety circuitry
Specially designed HV connector with interlock
High speed dump resistors for high voltage components
Capacitor bleed resistors
Open circuit shutdown
Timer shutdown
Output current monitor and shutdown
Over temperature shut-down
Cover and connector interlocks
HV fault indicator for internal temperature, low input voltage or capacitor fault
Remote control available for triggering and operation

The unit's internal design has a modular construction for ease of servicing and capacitor replacement. However, for safety reasons, only Applied Acoustics trained engineers should attempt a repair.

COMPATIBLE SOUND SOURCES

CSP-D700	AA201, AA251, AA301 Boomer plates, Squid 501 Sparker
CSP-D1200	AA201, AA251, AA301 Boomer plates, Squid 501 and Squid 2000 Sparkers
CSP-D2400	AA201, AA251, AA301 Boomer plates, Squid 501, Squid 2000 and Delta Sparkers

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THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2010

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