Teledyne AG Geophysical

Product Selection Guide

INTERCONNECT bulkhead, inline

TRANSDUCERS depth, pressure

FIRING CABLES for small, medium and large sound sources

HYDROPHONES calibrated, uncalibrated







is a product line of



Complementary Teledyne Marine Product Lines



Submersible Connectors and Marine Seismic Source Management Systems



Cable Assemblies and Harnesse for Harsh Environments



Erosion/Corrosion Monitoring
Pressure and Temperature
Sensing



High Pressure/High Temperature Electrical and Optical Interconnect Glass-to-Metal Seal Technology



Harsh Environment Electrical and Optical Interconnect



Subsea Interconnect and Data Networking





Teledyne Marine:



RELIABLE POWER TRANSMISSION, DATA TRANSMISSION, NEW PRODUCT DEVELOPMENT AND SENSING SOLUTIONS FOR HARSH ENVIRONMENTS

Teledyne Marine is a growing consortium of premium undersea technology product line organizations assembled by Teledyne Technologies to address the current and future needs of the offshore, oceanographic, and defense markets. Teledyne Marine brings access to these premium technologies and world class support to the oil and gas business, providing beneficial synergies to customers and end users.

BENEFITS & VALUE

- · Health, Safety & Environmental (HSE) culture
- · Innovative engineered solutions
- · Aerospace levels of reliability
- Materials science & certification expertise
- · Instrumentation integration
- · Global manufacturing centers
- · Rapid response global field support
- Integrated team support: A single purchase order, set of terms & focused contact
- Security of supply

ENGINEERED SOLUTIONS

- · Electrical and optical distribution systems
- · Power and data transmission networking interconnection systems
- · Wellhead feed-through systems
- Corrosion and erosion sensing and monitoring networks
- · Turn-key sensor interconnect assembly solutions
- · Subsea engineering
- Application-focused new product development with systems and material reliability expertise
- · Ruggedized harsh environment cable assemblies
- High pressure, high temperature (HP/HT) penetrations and feed-throughs for differential pressure
- · High power connection systems



Teledyne AG Geophysical Products: SUPPLYING MISSION CRITICAL SYSTEMS TO THE OIL & GAS PRODUCTION INDUSTRY

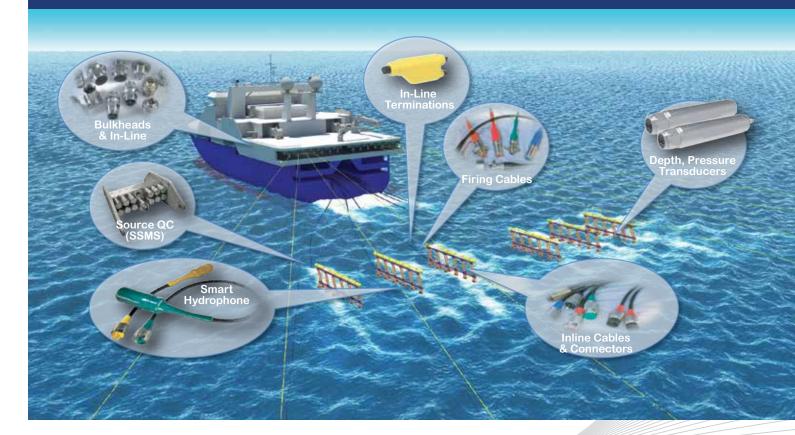


AGG supplies the world's marine seismic fleet with ruggedized submersible connectors and marine seismic source management systems engineered for reliable performance in the harshest of ocean conditions. Precision machining capabilities with proven production and quality processes deliver ruggedized performance survivability in repetitive high shock and shallow water sealing

applications in the toughest deployment and retrieval scenarios.

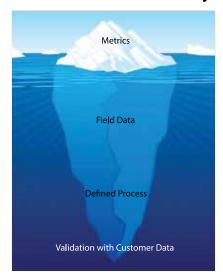


Marine Seismic Source Management Components & Systems for Extreme Environment Survivability



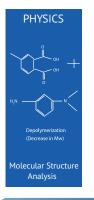


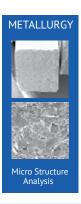
TMarine Reliability: RELIABILITY PROGRAM



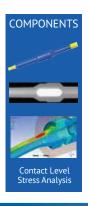
Teledyne Marine products operate in environments that are difficult or impossible to access, meaning that to our customers, having the peace of mind that equipment won't fail is paramount. From the start of product development, through the first deployment, and continuing for the life of the product, reliability is a primary focus at Teledyne Marine.

Having internal metrics is just the tip of the iceberg. Dedicated Reliability Engineers at Teledyne Marine gather and analyze field data from customer deployments and continuously validate the results. This process is what sets Teledyne Marine apart from the rest.





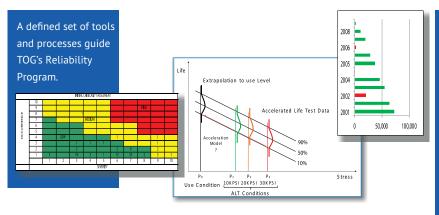








SCIENCE ENGINEERING CUSTOMERS



- Finite Element Analysis
- Operational Study
- FRACAS Root Cause Analysis
- Design Validation Testing
- Qualification Testing
- Accelerated Aging
- Reliability Assurance Plan
- FMECA (D, P & O)
- Block Diagram Analysis
- Design of Experiments
- Fault Tree Analysis
- Weibull Analysis



TMarine Quality: TELEDYNE MARINE IS COMMITTED TO SAFELY PROVIDING PRODUCTS AND SERVICES OF THE HIGHEST INTEGRITY AND RELIABILITY.



QUALITY ASSURANCE

The Quality System includes the appraisal and assessment of component and part quality using sophisticated measurement systems. The product is manufactured, tested and inspected under the control of a high-level factory management system with full material and operational traceability.



FACTORY ACCEPTANCE TESTING

Final product acceptance testing includes functioning within simulated operating conditions using computerized data acquisition of pressure profiles and circuit performance measurements. The data is maintained both electronically and on hard copy for availability upon customers' requests.



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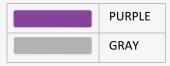
Connector Colors

AG connectors come in a variety of *standard* and *custom* colors.

Standard Colors



Custom Colors



Connectors are manufactured in the *default* colors listed below, unless a specific color is requested when an order is placed.

Default Colors

	AGM	BLACK
	AGMU	BLACK
	AGP	BLACK
	AGPU	BLACK
*	AGT	BLACK
*	AGH	BLACK
*	AGS	BLUE

* exceptions

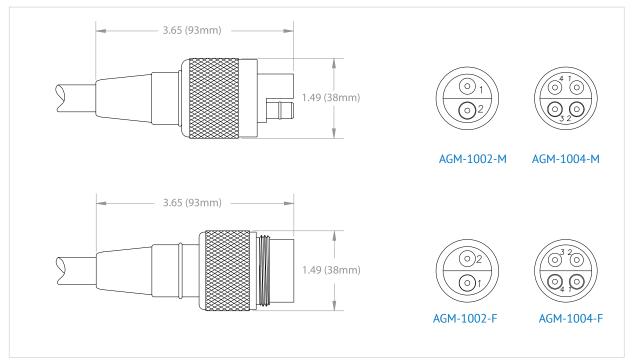
AGH-7100-T	GREEN
AGH-7500-C, 7500-X	YELLOW
AGH-6202/4, HD-6402, 6632	ORANGE





AGM Marine Inline Connectors - Standard

AGM-1002 • AGM-1004

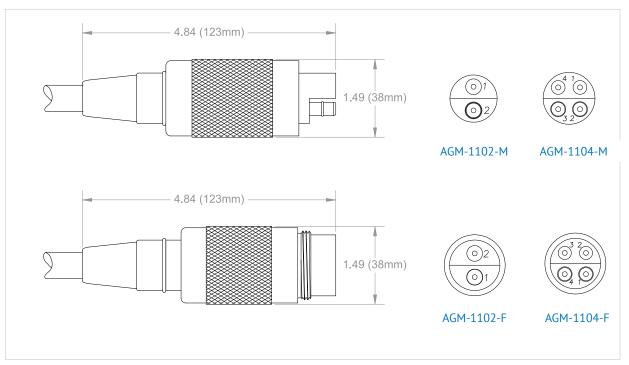






AGM Marine Inline Connectors - Water Blocked

AGM-1102 • AGM-1104

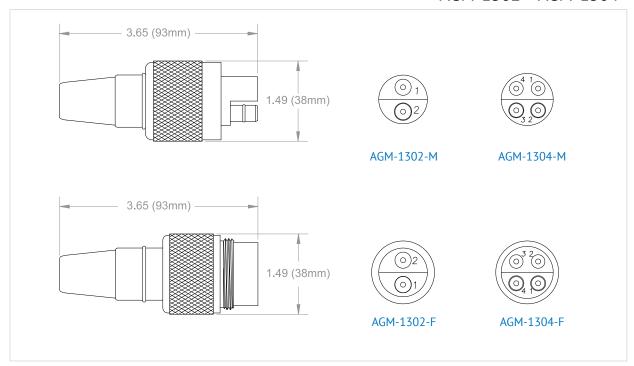






AGM Marine Dummy Plugs

AGM-1302 • AGM-1304

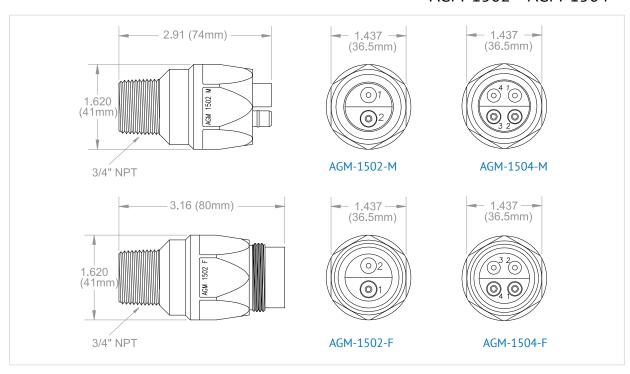






AGM Marine Bulkhead Connectors - NPT Style

AGM-1502 • AGM-1504

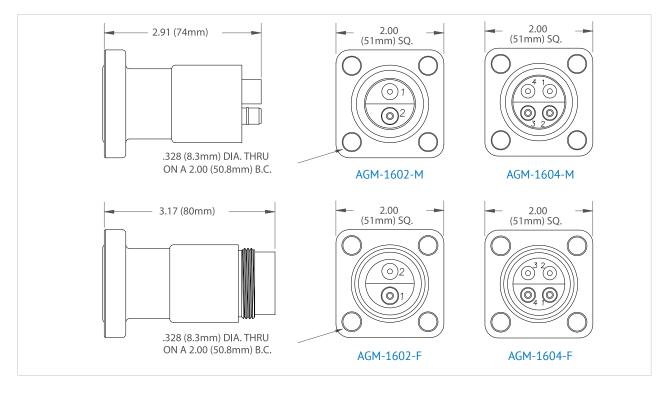






AGM Marine Bulkhead Connectors - Flangemount

AGM-1602 • AGM-1604

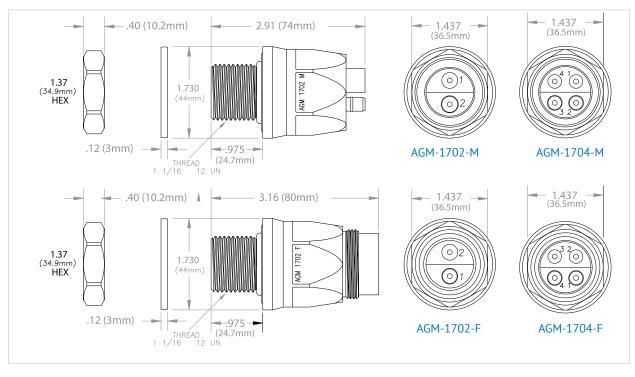






AGM Marine Bulkhead Connectors - Straight Thread

AGM-1702 • AGM-1704

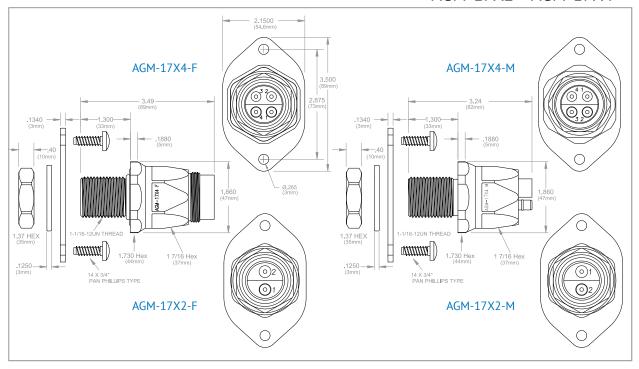






AGM Marine Bulkhead Connectors - Straight Thread / Flangelock

AGM-17X2 • AGM-17X4

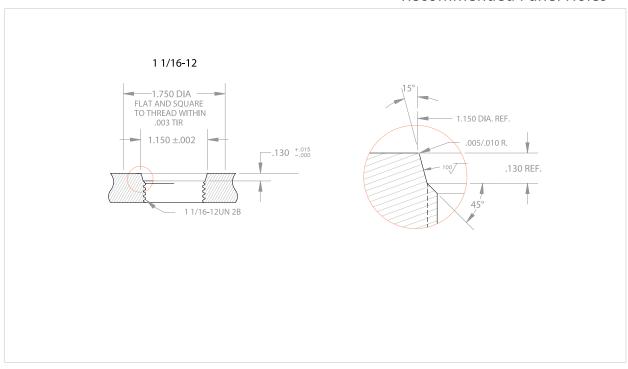






AGM Marine Bulkhead Connectors

Recommended Panel Holes

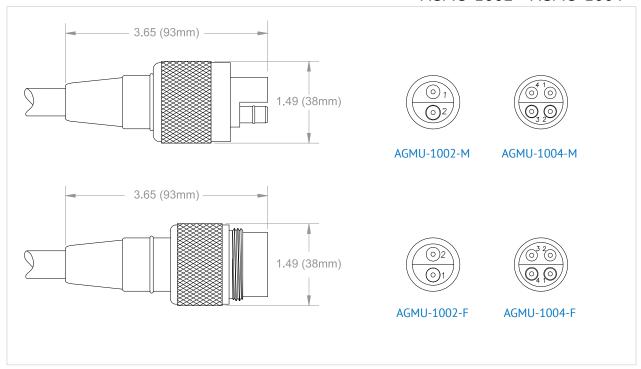






AGMU Ultimate Marine Inline Connectors

AGMU-1002 • AGMU-1004

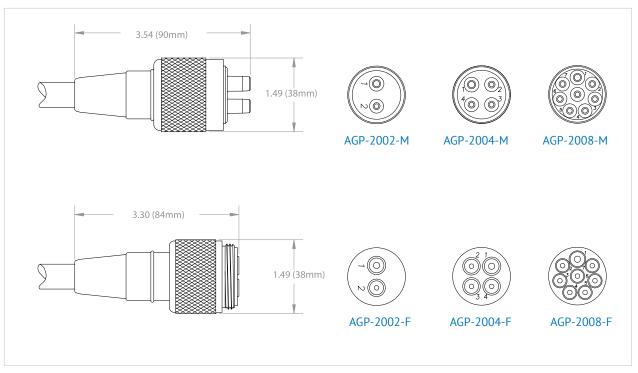






AGP Positive Inline Connectors - Standard

AGP-2002 • AGP-2004 • AGP-2008

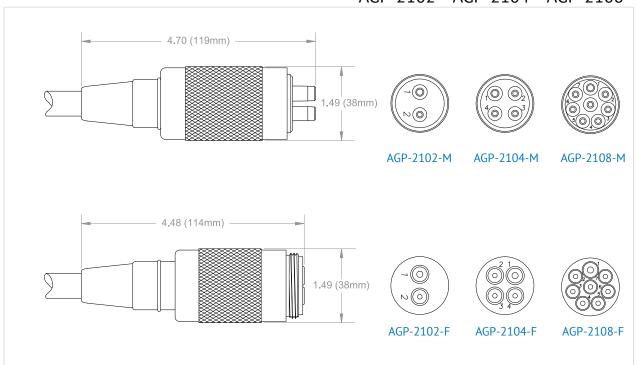






AGP Positive Inline Connectors - Water Blocked

AGP-2102 • AGP-2104 • AGP-2108

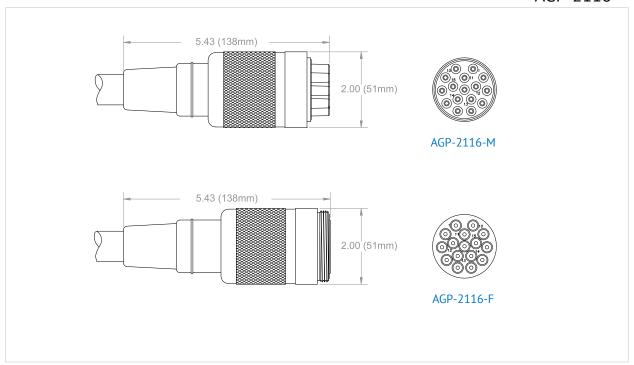






AGP Positive Inline Connectors - Water Blocked

AGP-2116

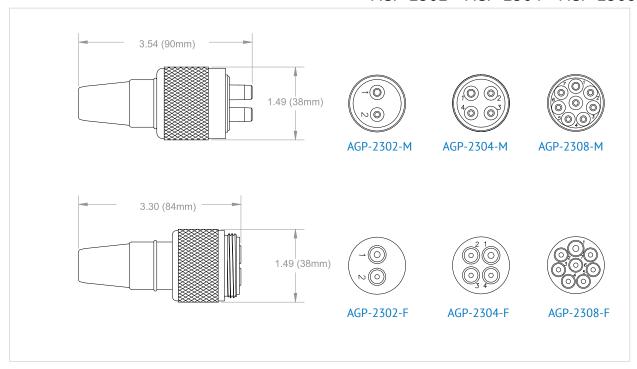






AGP Positive Dummy Plugs

AGP-2302 • AGP-2304 • AGP-2308

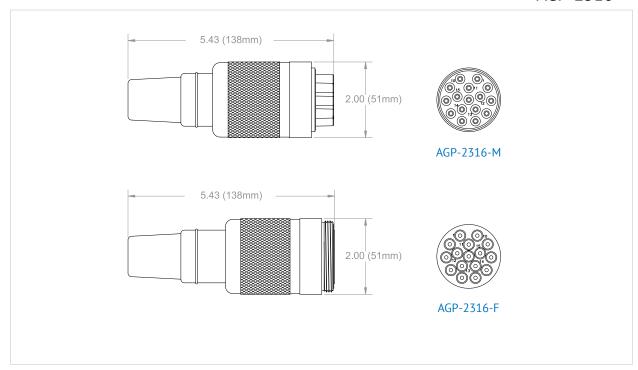






AGP Positive Dummy Plugs

AGP-2316

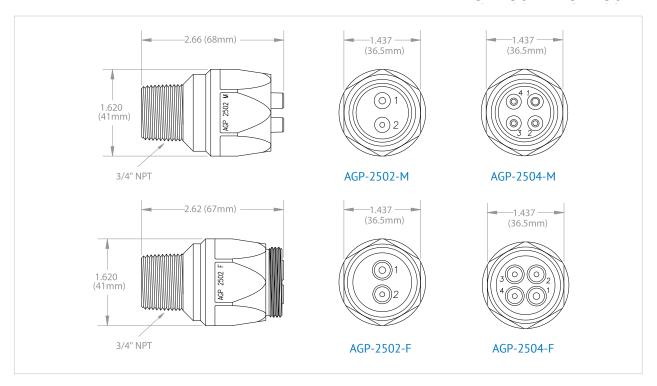






AGP Positive Bulkhead Connectors - 3/4" NPT STYLE

AGP-2502 • AGP-2504

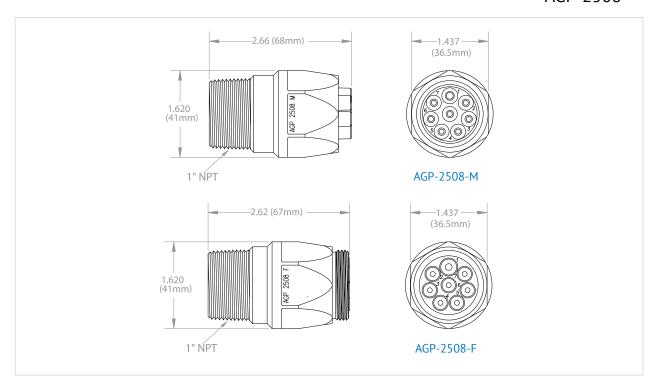






AGP Positive Bulkhead Connectors - 1" NPT STYLE

AGP-2508

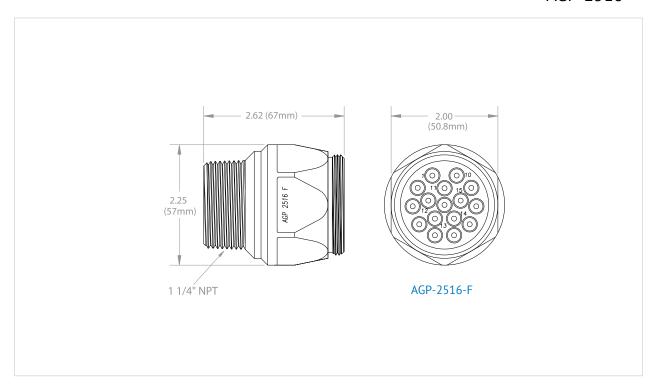






AGP Positive Bulkhead Connectors - 1 1/4" NPT STYLE

AGP-2516

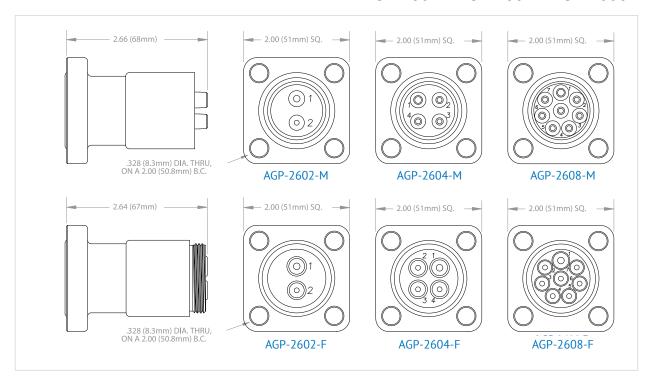






AGP Positive Bulkhead Connectors - Flangemount

AGP-2602 • AGP-2604 • AGP-2608

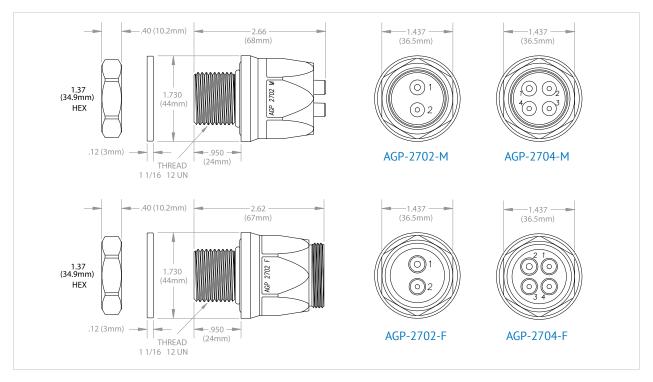






AGP Positive Bulkhead Connectors - 1 1/16" Straight Thread

AGP-2702 • AGP-2704

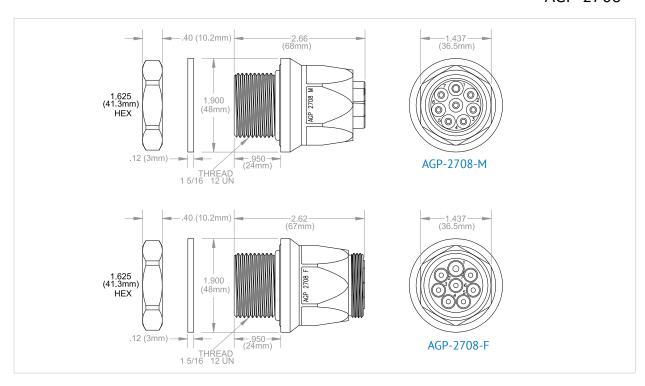






AGP Positive Bulkhead Connectors - 1 5/16" Straight Thread

AGP-2708

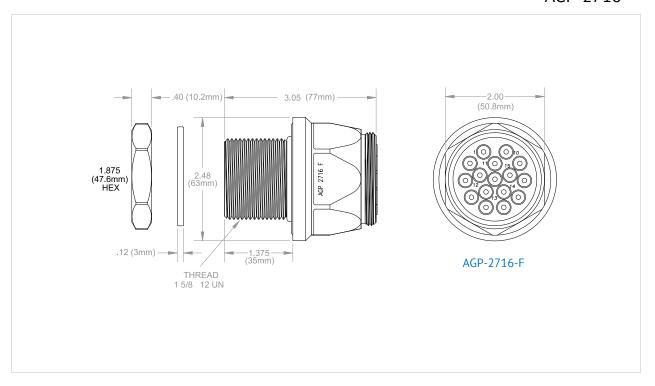






AGP Positive Bulkhead Connectors - 1 5/8" Straight Thread

AGP-2716

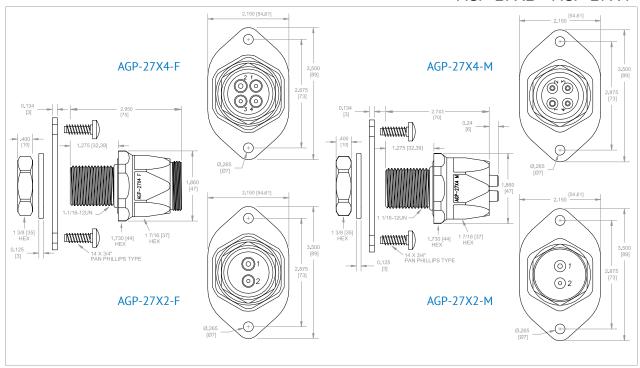






AGP Positive Bulkhead Connectors - 1 1/16" Straight Thread / Flangelock

AGP-27X2 • AGP-27X4

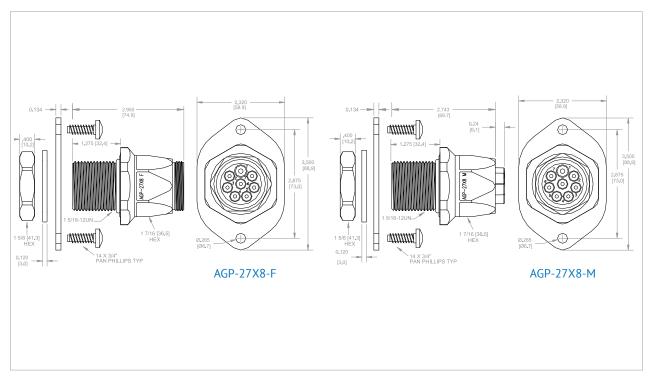






AGP Positive Bulkhead Connectors - 1 5/16" Straight Thread / Flangelock

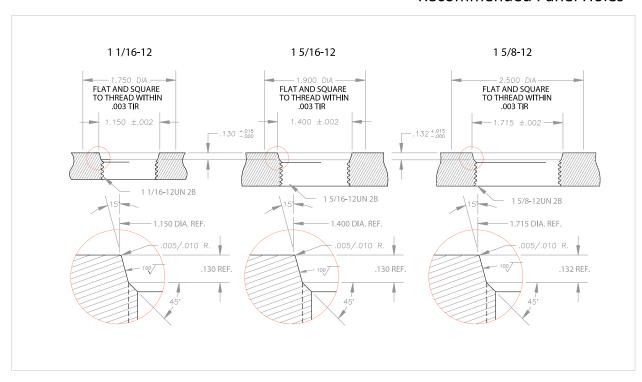
AGP-27X8





AGP Positive Bulkhead Connectors

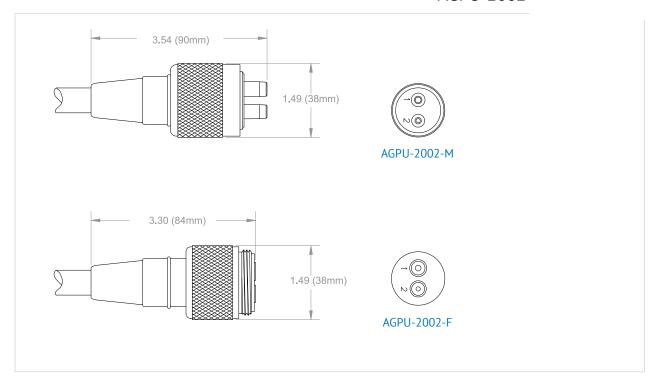
Recommended Panel Holes





AGPU Ultimate Positive Connectors

AGPU-2002

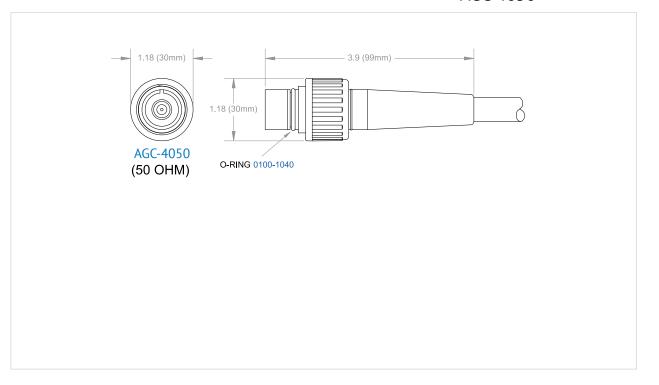






AGC Coax - Inline

AGC-4050

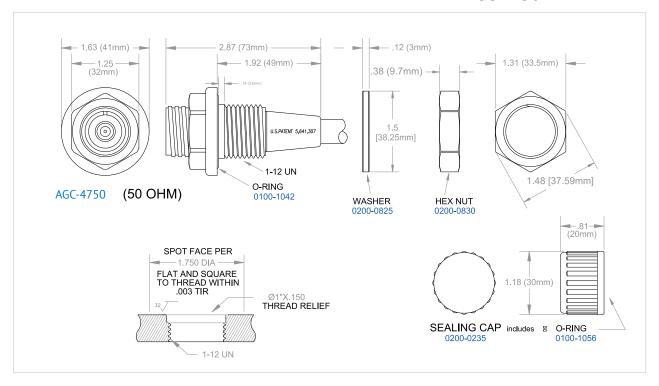






AGC Coax - Bulkhead

AGC-4750

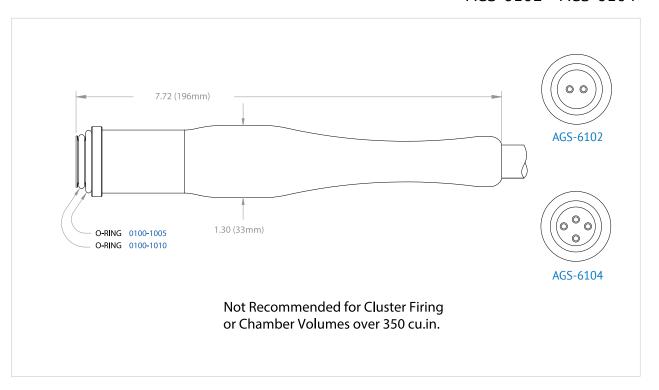






AGS Source Energy Connectors - Bolt Air Gun

AGS-6102 • AGS-6104

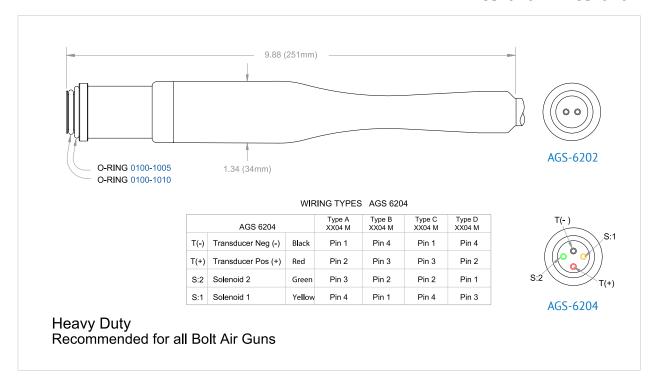






AGS Source Energy Connectors - Bolt Air Gun

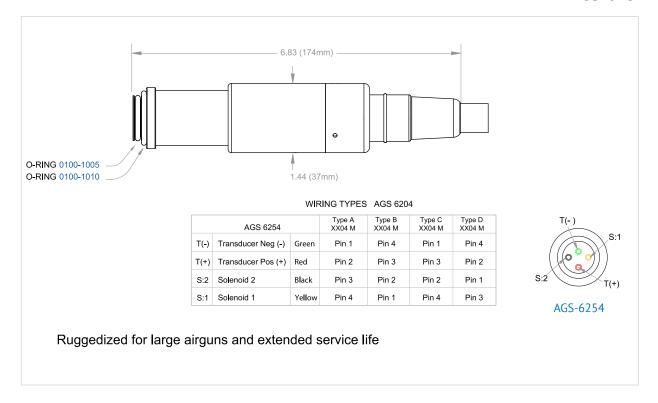
AGS-6202 • AGS-6204







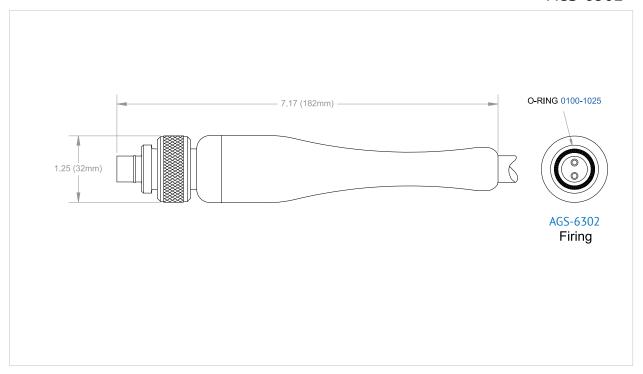
AGS Source Energy Connectors - Bolt Air Gun







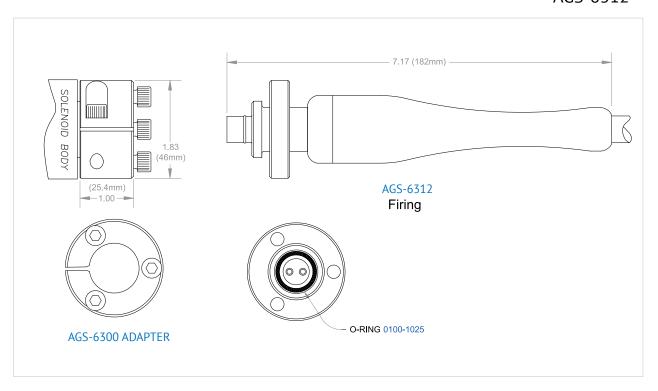
AGS Source Energy Connectors - Sleeve Air Gun







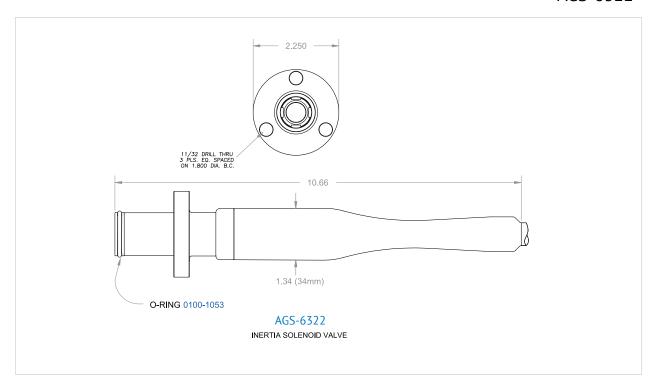
AGS Source Energy Connectors - Sleeve Air Gun







AGS Source Energy Connectors - Sleeve Gun Solenoid

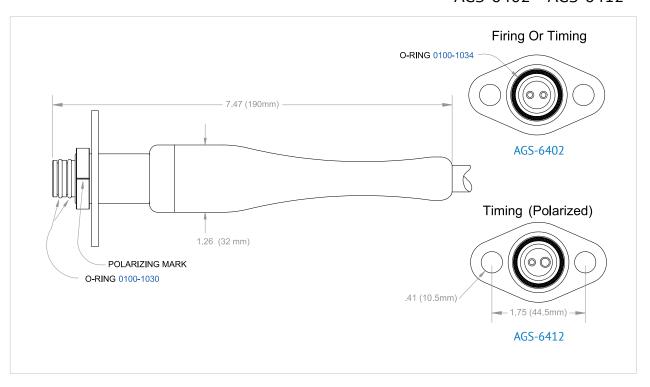






AGS Source Energy Connectors - Sleeve Air Gun

AGS-6402 • AGS-6412

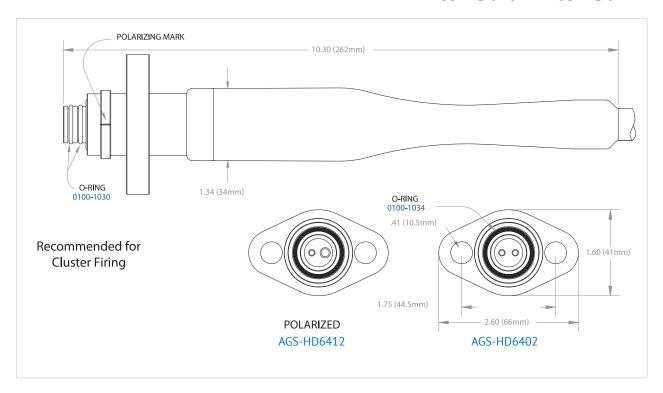






AGS Source Energy Connectors - Heavy Duty Sleeve Air Gun

AGS-HD6402 • AGS-HD6412

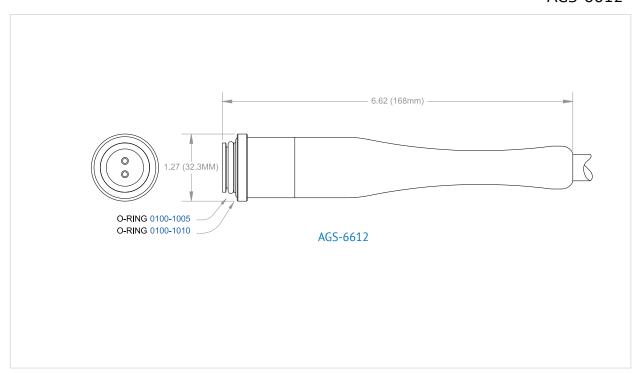








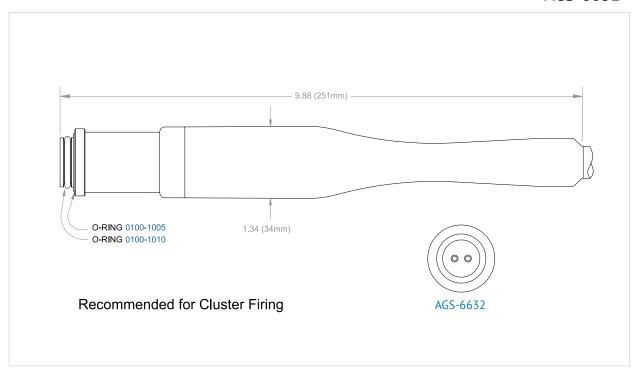
AGS Source Energy Connectors - SSI G & GI Air Gun







AGS Source Energy Connectors - SSI G & GI Air Gun

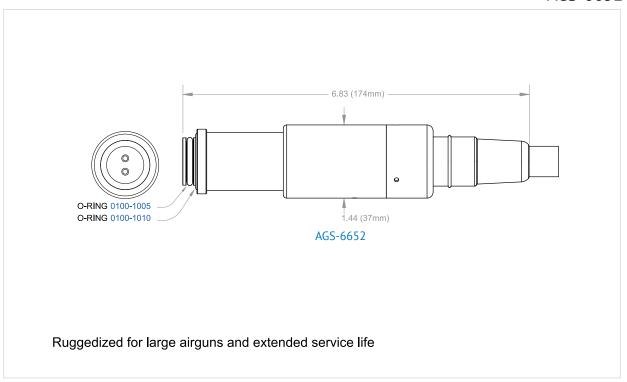








AGS Source Energy Connectors - SSI G & GI Air Gun

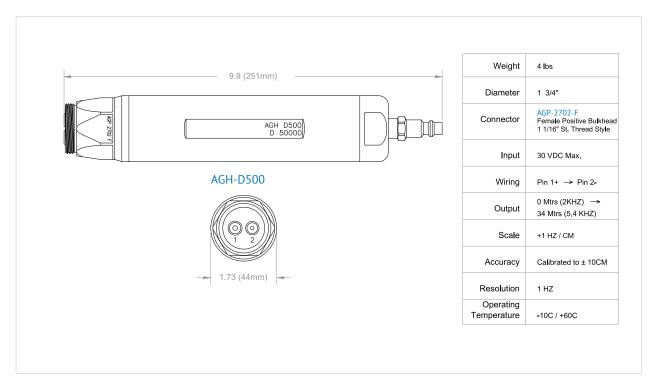






AGH Hydrophones - Gun Depth Transducer

AGH-D500



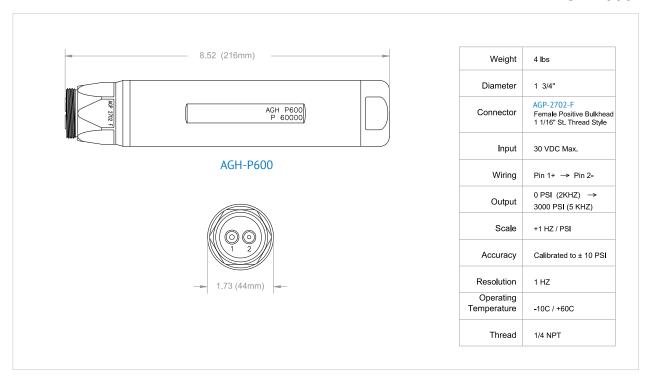






AGH Hydrophones - Gun Pressure Transducer

AGH-P600

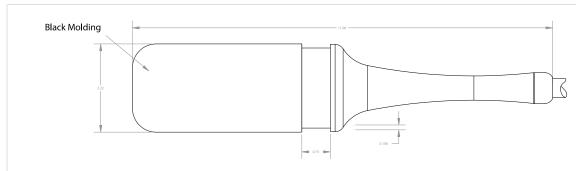






AGH Hydrophones - Marine Source

AGH-7100-C

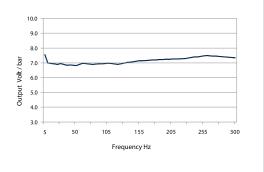


AGH-7100-C (DIRECT WIRED)

The AG Geophysical energy source hydrophone is a rugged, high-pressure hydrophone intended especially for maring applications in a high shock environment.

Its primary use is with seismic source firing and control systems where the hydrophone is operating in close proximity to, or in the high pressure explosive force field of a seismic source.

The AGH-7100 Series is neither calibrated nor characterized. The graph represents a typical output for the AGH-7100-C hydrophone.

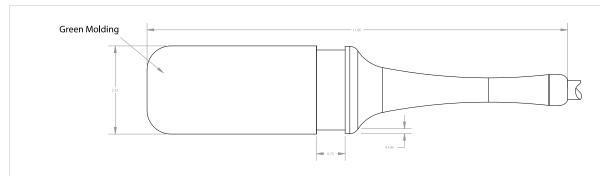






AGH Hydrophones - Marine Source

AGH-7100-T

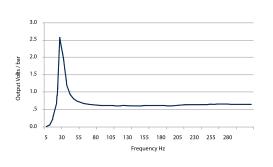


AGH-7100-T (TRANSFORMER COUPLED)

The AG Geophysical energy source hydrophone is a rugged, high-pressure hydrophone intended especially for maring applications in a high shock environment.

Its primary use is with seismic source firing and control systems where the hydrophone is operating in close proximity to, or in the high pressure explosive force field of a seismic source.

The AGH-7100 Series is neither calibrated nor characterized. The graph represents a typical output for the AGH-7100-T hydrophone.







AGH Hydrophones - Marine Source

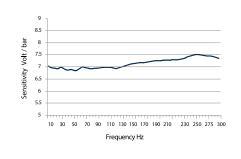
AGH-7720-C

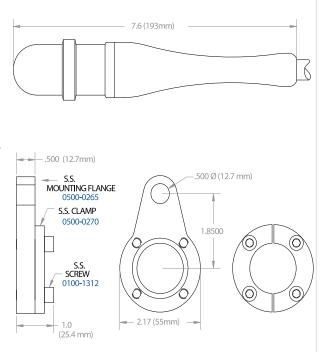
AGH-7720-C

The AG Geophysical energy source hydrophone is a rugged, high-pressure hydrophone intended especially for maring applications in a high shock environment.

Its primary use is with seismic source firing and control systems where the hydrophone is operating in close proximity to, or in the high pressure explosive force field of a seismic source.

The AGH-7200-C is neither calibrated nor characterized. The graph represents a typical output for an AGH-7200-C hydrophone.





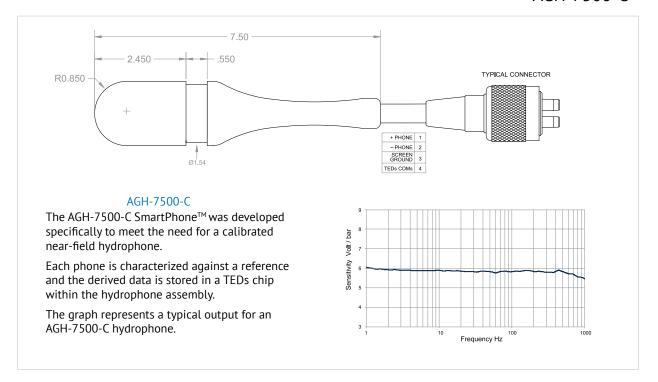






AGH Hydrophones - Marine Source Calibrated

AGH-7500-C

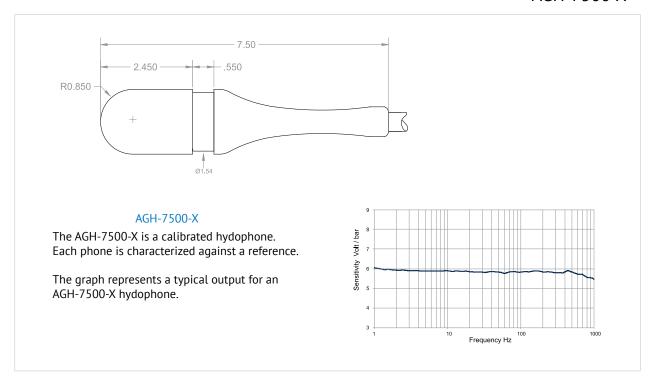






AGH Hydrophones - Marine Source Calibrated

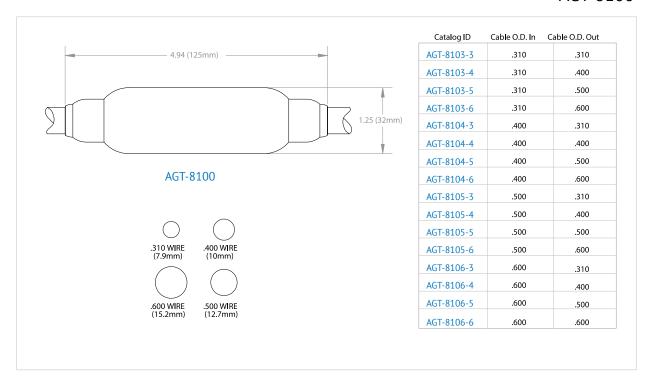
AGH-7500-X







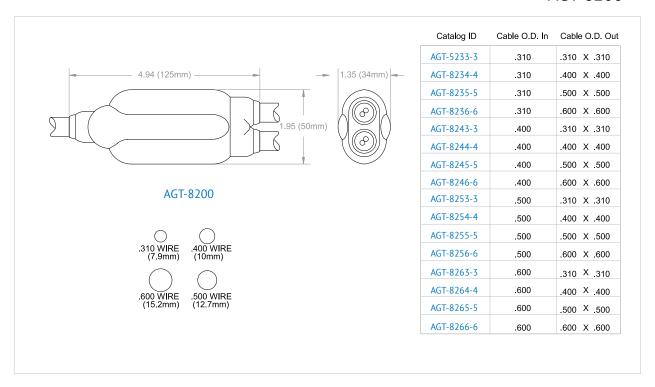
AGT Terminations - Water Blocked Inline Splice







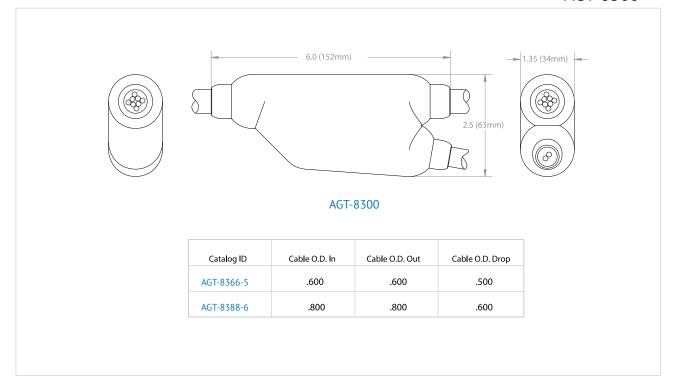
AGT Terminations - Water Blocked Inline Y-Takeout







AGT Terminations - Water Blocked Inline Y-Drop

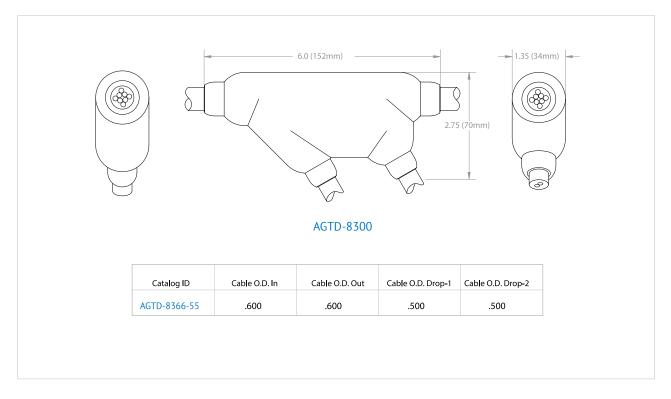






AGT Terminations - Water Blocked Inline Double-Drop

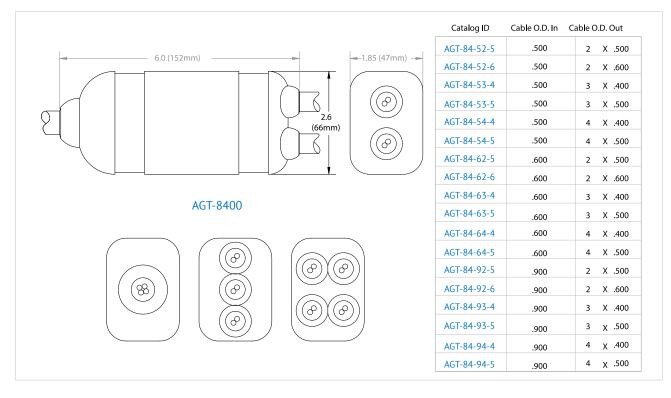
AGTD-8300







AGT Terminations - Water Blocked Inline Heavy Duty Takeout

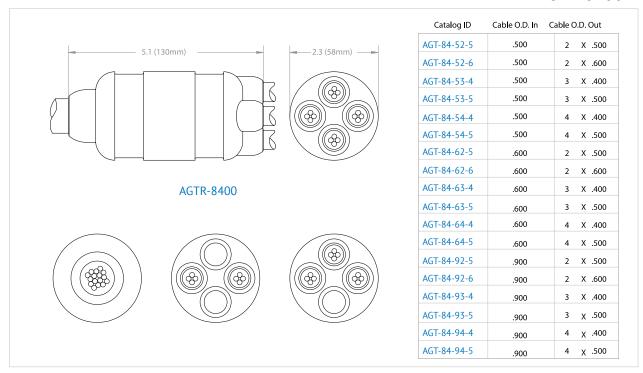






AGT Terminations - Water Blocked Inline Heavy Duty Takeout

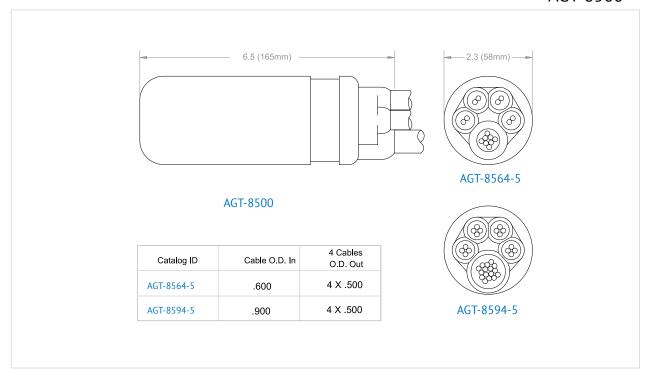
AGTR-8400







AGT Terminations - Water Blocked Inline Penta Splice

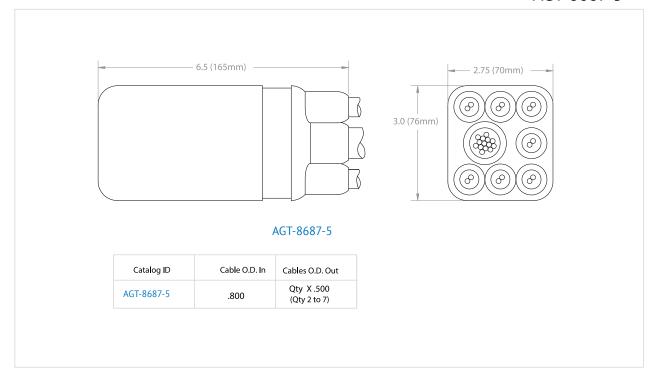






AGT Terminations - Water Blocked Heavy Duty Splice

AGT-8687-5

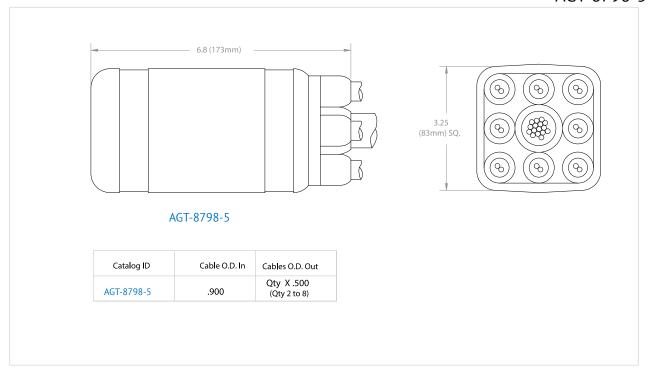






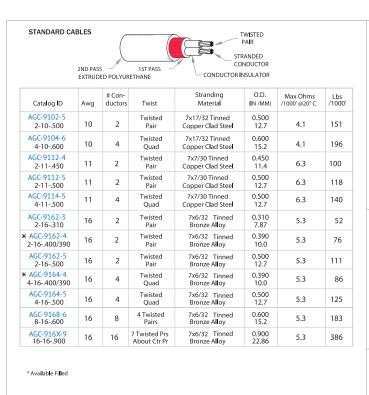
AGT Terminations - Water Blocked Heavy Duty Splice

AGT-8798-5





AGC Cable - Electrical



SHIELDED CABLES BRAIDED SHIELD ALUM**I**N**I**ZED MYLAR FOIL TWISTED QUAD 2ND PASS 1S EXTRUDED POLYURETHANE 1ST PASS Stranding O.D. (IN /MM) # Con-Catalog ID Awg Coverage ductors AGC-9164-S2 Twisted 100% Shield 50% Foil 80% Braid 7x6/32 Tinned Shielded 4-16-.500S2 Shielded Quad 16 126 Bronze A**ll**oy 12.7

COAXIAL CABLES

Catalog ID	Impedance (OHMS)	Industry Equivalent	O.D. (I N /MM)	Capacitance (pF/ft)	Lbs/1000'
AGC-950-LMR4/5-C	50	LMR400	0.500 12.7	23.9	175
AGC-950-213C	50	RG-213	0.500 12.7	30.8	138
AGC-950-58C	50	RG-58	0.375 9.5	30.8	69

EXTERIOR ARMOR CABLES

Catalog ID	Awg	# Con- ductor	Twist	Stranding Material	O.D. (IN /MM)	Max Ohms /1000' @ 20°C	Lbs /1000'
AGC-9168-6 8-16-1050A2	16	8	4 Twisted Pairs	7x6/32 Tinned Bronze A ll oy	0.600 15.2	5.3	943.7

CONSTANT USE $\,$ AT > 6 AMPS $\,$ CAN SHORT OUT CONDUCTOR $\,$





Miscellaneous Parts

O-Rings and Set Screws

Catalog ID	For Part	Description
0100-1010	Bolt Air Guns	Small "O" Ring
0100-1005	Sercel G-Gun, Gl-Gun, Water Gun	Large "O" Ring
0100-1040	Coax Inline	"O" Ring
0100-1042	Coax Bulkhead	"O" Ring
0100-1056	Coax Sealing Cap	"O" Ring
0100-1050	Flangemount Bulkhead Connector	"O" Ring
0100-1060	1 ^{1/16} Straight Thread Bulkhead Connector	Small "O" Ring
0100-1055	1 ^{1/16} Straight Thread Bulkhead Connector	Large "O" Ring
0100-1070	1 ^{5/16} Straight Thread Bulkhead Connector	Sma ll "O" Ring
0100-1065	1 ^{5/16} Straight Thread Bulkhead Connector	Large "O" Ring
0100-1085	1 5/8" Straight Thread Bulkhead Connector	Sma ll "O" Ring
0100-1080	1 5/8" Straight Thread Bulkhead Connector	Large "O" Ring
0100-1030	Sleeve Gun Timing Connector	"O" Ring
0100-1034	Sleeve Gun Timing/Firing Connector	"O" Ring
0100-1025	Sleeve Gun Firing Connector	"O" Ring
0100-1215	Sleeve Gun Firing Connector	10-32 Nylon Set Screw



Miscellaneous Parts

Other

	Potting Cups	Application		
	0200-0449	Bulkhead 2, 4 Pin		
	0200-0447	Bulkhead 8 Pin		
	0200-0445	Bulkhead 16 Pin		
1	Stainless Steel Caps	Application		
	0300-0190	Bulkhead 2,4,8 Pin		
	0300-0195	Bulkhead 16 Pin		
6	Washers	Application		
1 3	0300-0430	AGP-2702,4		
	0300-0420	AGP-2708		
	0300-0410	AGP-2716		
	Nuts	Application		
	0300-0530	AGP-2702,4		
	0300-0520	AGP-2708		
	0300-0510	AGP-2716		





Miscellaneous Parts

Field Installable Locking Ring Assemblies





Important Lube Information

Before Shipment

AG connectors are lightly sprayed with aerosol non-water-soluble silicone lubricant in preparation for the first connection.

For subsequent matings

The connectors should be cleaned to remove any contamination and silicone buildup, then re-lubricated. This procedure will insure correct mating as well as prolonged connector life

DO NOT use WD40, CRC, or any other solvents



DO NOT use DC 111 or any other heavy silicone greases





ECG RX2200 10 oz. Aerosol **(AG Part #0160-0232)** NTE Electronics, Inc. 44 Farrand St. Bloomfield, NJ 07003 (800) 631-1250





3M Silicone Spray #62-4678-7930-3 13.25 oz. Aerosol **(AG Part #0160-0230)**



Dow Corning DC200 1-gallon bulk (non-aerosol) **(AG Part #0160-0234)** (also supplied as Krayden PMX-200GL10B) end user must supply spray apparatus





Mating of locking rings should be done by hand only

Use of wrench or pliers

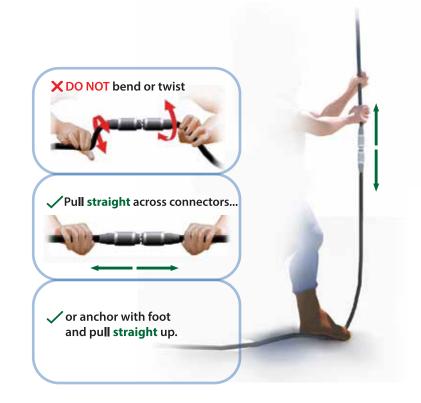
can cause thread damage and lead to failure of the locking rings.

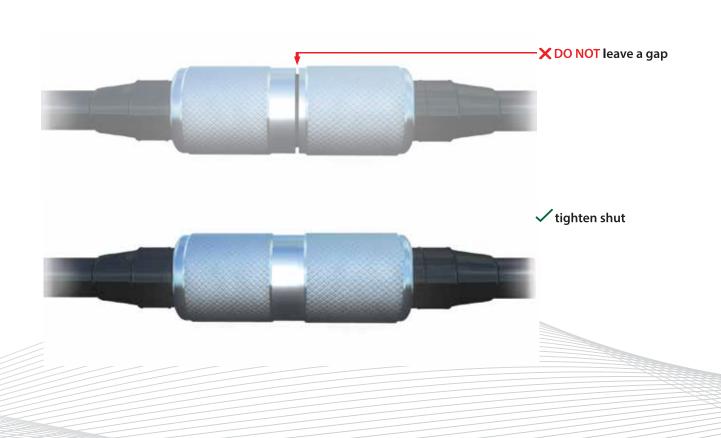
For trouble-free service

use a light machine oil or dielectric anti-seize product to lubricate **only the threaded** portion of the stainless steel locking rings.

Note: slower mating of stainless on stainless will reduce galling - mate slowly!!!

| Approved by | Loctite White Hi-Temp Anti-Seize # 34517 |
| (8 oz) (A-G Part #xxxx-xxxx) / # 34518 (16 oz) (A-G Part #xxxx-xxxxx)







STANDARD SPECIFICATION FOR AG CONNECTORS

The following specifications are applicable to the following series of connectors when properly mated to AG branded connectors listed in this specification:

-AGM

-AGMU

-AGP

-AGPU

Environmental

Depth: 300 PSI equivalent (when fully and properly mated)

Operational Temperature: 20° F - 158°F

Performance

Mates / Demates: 100

Voltage Rating: 1500 VDC

Current: 8 amps DC maximum Contact Resistance (mated): $100m\Omega$ maximum

(measured in accordance with procedure EIA-364-06C)

Vibration: 1000g peak

Isolation: $500m\Omega$ at 500 VDC

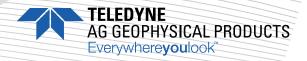
(when measured pin-to-pin or pin-to-shell)

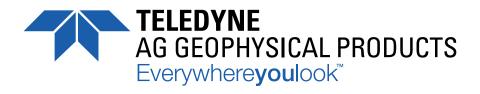
Mechanical

Tensile: 500 lbs axial pull

*Specifications are for reference only and may change with and without notice.

Please contact the factory for the most current design specifications.





Specifications subject to change without notice.
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Teledyne AG Geophysical

14880 Skinner Rd., Cypress, TX 77429

Tel. +1-281-373-5952 • Fax +1-281-373-3632 • Email: TeledyneMarineSeismic@Teledyne.com IFS D/N 1247533 Rev. B www.teledynemarine.com/ag-geophysical