

SEACON®

UNDERWATER ELECTRICAL AND FIBER OPTIC CONNECTORS



SPECIALTY PRODUCTS

UNDERWATER ELECTRICAL AND FIBER OPTIC CONNECTORS

PRODUCT DATASHEET

VITON® SERIES
CONNECTOR

VS-8#22-ILMP-FI & VS-8#22-ILFS-FI

DESCRIPTION

This 8 way connector pair was designed for a wire line tool which is fitted within an arm leading to a sensing pad. This meant that when the tool was retrieved the sensing pad could be changed out quickly and easily without tooling or special training. As the connector would directly see wellbore fluids at high pressures and temperatures the connector is moulded in VITON®. The cable has an outer jacket of ETFE so a booting technique has been used to seal to the cable jacket. This gives the benefit that the free half connectors are field installable, but soldering is required.

The connection philosophy is based around our standard WET-CON connector range. The pin contact has a sealing diameter and when this is connected into the socket bore two integrally moulded o-rings impinge onto this diameter. This means that there are two o-ring seals between contact and earth and four o-ring seals between different contacts. As there are no pressure differentials in the design the connector pair are pressure tolerant.

KEY FEATURES

- High temperature rating
- High pressure rating
- Excellent electrical properties
- Eight electrical contacts
- Harsh environment compatible
- Positive external grip for disconnection
- Small size and weight
- Field installable free halves
- Push-on pull-off design (sealing retention retains connectors)
- Keying achieved by contact face pattern
- Wet mateable

SEACON (europe) Ltd

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PRODUCT DATASHEET

DESIGN SPECIFICATION

- Max working pressure: 1380 bar (20,000 psi) mated or unmated
- Max continuous working temperature: +200°C (392°F)
- Min continuous working temperature: -17°C (1.4°F)
- Min storage temperature: -40°C (-40°F)
- Voltage: 600 VDC/440 VAC
- Current (max): 2.5 amps

MATERIALS

- Pin & socket contact: 22AWG Copper alloy, Gold plated. Socket incorporates a Multilam™ for positive electrical contact
- Connector body: Moulded in 100% DuPont VITON® fluoroelastomer grade 'A'. It has a continuous temperature rating of -17°C to 250°C (1.4°F to 482°F)
- Cable: Raychem Spec 55. 22AWG with cross linked ETFE polymer jacket. It has a continuous temperature rating of -65°C to 200°C (149°F to 392°F) and short periods at 400°C (752°F) and combines the easy handling of a flexible wire with excellent scrape, abrasion and cut through characteristics
- Solder: High temperature solder is used to solder the wire to the contact

CONFIGURATION

- See Page 3

QUALIFICATION

- A pair of connectors has successfully been laboratory tested to 1725 bar (25,000 psi) and 200°C (392°F)
- A pair of connectors has successfully been installed in a wire line tool within a test well at a depth of 360m (1,200 ft)

QUALITY

- SEACON (europe) Ltd operate a Quality Management System accredited to ISO 9001.



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SCE-DS-0009

VITON®

Rev 3

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PRODUCT DATASHEET

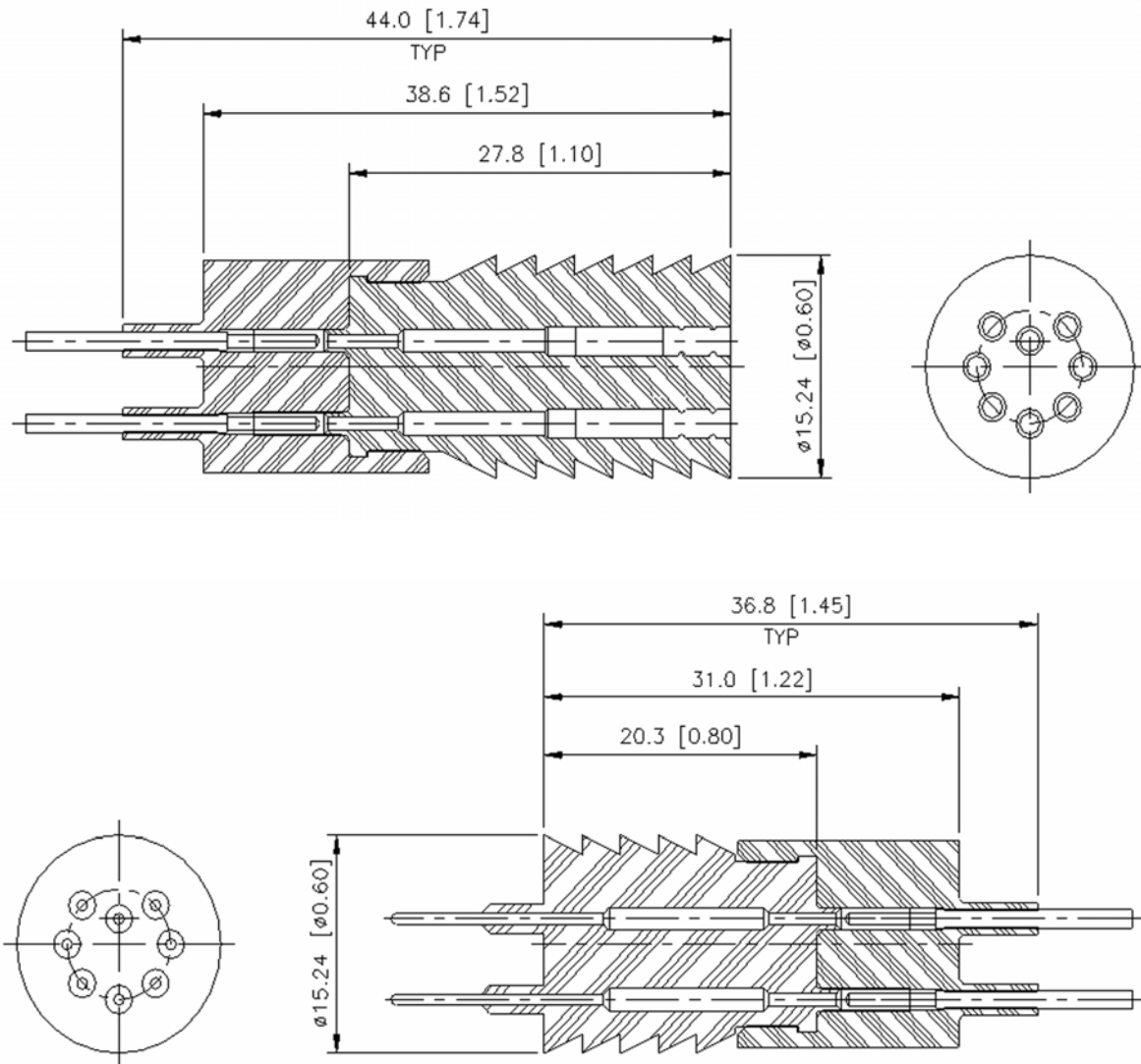


Figure 2 - VS-8#22-ILFS-FI & VS-8#22-ILMP-FI

All reasonable efforts have been taken to ensure that the information contained herein is accurate at the date of publication, but no representation or warranty as to the accuracy or completeness of such information is intended or to be implied by its inclusion herein. Any and all representations and warranties pertaining to the information and products referred to herein shall be set forth in SEACON® standard sales order form. In addition, SEACON® reserves the right to make changes to the contents hereof without notice, therefore it is suggested that at the time of inquiry, the appropriate sales office or factory be contacted directly for verification of published specifications and products availability.

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PRODUCT DATASHEET

SUTA

SUBSEA UMBILICAL TERMINATION ASSEMBLY



DESCRIPTION

The Optical Subsea Umbilical Termination Assembly or **SUTA** is a termination and distribution unit for optical cables. It contains an integral pressure balanced compensation system, fiber management system, mechanical armor termination and fiber k-tube feed-through penetrations.

KEY FEATURES

- Integral fiber management system
- High pressure fiber optic feed-through penetrations
- Boot seals
- Depth Rating: Full ocean depth
- Field installable (no compounds)
- Oil filled and pressure compensated
- Dual o-ring seals
- Slide over cover for easy access and assembly
- Secure splice tray for maximum fiber stability
- Small - 5" (127mm) Diameter 15" (381mm) Length
- Modular cable termination design to facilitate different cables
- Options for multiple cable entry
- Options for multiple connections

QUALITY

- **SEACON** Advanced Products, LLC operate a Quality Management System certified to ISO 9001:2008.



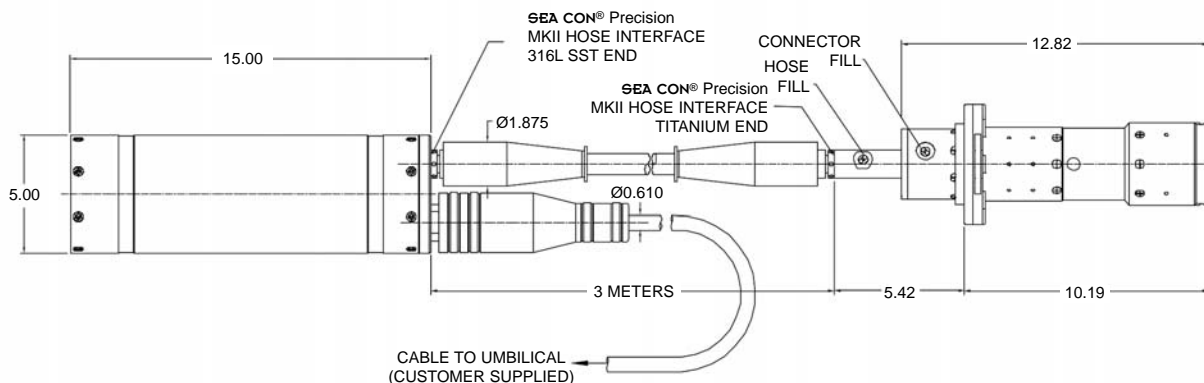
PRODUCT DATASHEET

DESIGN RATINGS & TESTING

- Design Life: 25 Years
- Adaptability to design for easy cable variations
- Lightweight - approximately 10lbs (4.5kg) in air
- Umbilical termination fiber splice, <0.10 dB per slice
- **HYDRALIGHT** wet-mate fiber optic connector, <0.50 dB per channel
- Operating Depth: 4500m
- Storage Temperature: -20°C to +60°C (-4°F to +140°F)
- Operational Temperature: -5°C to +45°C
- Pressure Compensation Fluid: Silicone Oil
- 24 hour Helium Leak Test
- Pressure Test 345 bar (5,000 psi), ambient temperature, 1 week soak
- Pressure Test 690 Bar (10,000 psi), ambient temperature, multiple cycling
- Hose assembly axial pull test

MATERIALS

- 316L SST, Titanium
- Elastomer: Nitrile



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SAPL-DS-0112

SUTA

Rev 2

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PRODUCT DATASHEET

SUBSEA JUMPER ASSEMBLIES AND DISTRIBUTION HARNESS



DESCRIPTION

Subsea jumper assemblies and distribution harnesses are provided by **SEA CON**® for use with **SEA CON**® subsea connectors. Many subsea electrical and optical cable and connection systems utilize Pressure Balanced Oil Filled (PBOF) cabling solutions. These cables utilize an elastomeric tube as a conduit for electric wires and fiber optic lines. The elastomeric conduit is filled with a compensating fluid, allowing the sea pressure to freely communicate with the interior oil volume, equalizing the pressure in the assembly. This option for cabling provides for a reliable and configurable cable system suitable for many subsea applications. This technology has been widely utilized in ocean science observatories, towed arrays, drilling systems, production control systems and Remotely Operated Vehicle (ROV) systems to name a few. They have become a critical component in many subsea systems today and Seacon is pleased to offer this solution with its Subsea fiber optic and electrical connectors.

KEY FEATURES

- Fiber management
- Good cable flexibility (typical 5" bend radius)
- Enhanced visibility, typically Orange and Yellow in color (other colors available)
- Deployment techniques similar to jacketed cable
- Good ROV maneuverability during connector mating
- Easy interface to connector
- Early leak detection; some hoses are designed for over-pressure and may be used to offer visible leak paths
- Ease of repair
- Double Barrier against water ingress
- Temperature and pressure Compensated
- Size 13mm & 20mm ID (Other sizes available upon request)
- Multi-mode and single-mode available

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JUMPER ASSEMBLIES

Rev 1

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PRODUCT DATASHEET

DESIGN RATINGS

- Up to 3.3kV, 30 amp ratings
- 25 year life
- Working Depth: 4,500 meters
- Bending Radius: 150mm
- Working Temperature: -4°C to +25°C
- Storage Temperature: -40°C to +70°C

MATERIALS

- Inner Liner - SBR
- Outer Jacket - NBR/PVC
- Armour - Polyester
- Strain Element - Aramid (Kevlar)

PRINCIPLE OF OPERATION

Attaching electrical and fiber optic subsea connectors to PBOF cables have become a very common method for sub-sea jumpers and distribution assemblies. The hose is attached to the subsea connector by a robust mechanically swaged/machined fitting that adapts to the hose. These engineered fittings include filling ports and are easily mounted to the subsea connector with an adapter housing utilizing o-ring seals. These subsea connector jumpers are typically 30 meters in length on average, but can be constructed in a variety of lengths (up to 500m) to suit the needs of a particular application. The PBOF approach utilizes a main elastomeric tube (hose) as a mechanically protective conduit for electrical wires and/or fiber optic cores. The elastomeric conduit is filled with a pressure-compensating fluid (typically a dielectric) allowing the seawater pressure to be freely communicated across the flexible hose walls, to the interior oil volume. Equalizing the pressure and temperature in the assembly allows for the variable effects of ambient pressure and temperature during typical storage and operational regimes. PBOF hoses have been field proven for many years throughout the marine and submarine industries, this option for cabling provides for a reliable, configurable cable system suitable for many subsea applications.

QUALITY

- SEACON Advanced Products, LLC operate a Quality Management System certified to ISO 9001:2008.



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SAPL-DS-0117
JUMPER ASSEMBLIES

Rev 1

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PRODUCT DATASHEET

UNIVERSAL JOINT BEND RESTRICTOR CONNECTOR



Universal Joint Bend Restrictor (un-mated half)

DESCRIPTION

The Bend Restrictor utilizes a universal joint design that allows cable bending through restricted space areas whilst still providing an adequate level of strain relief and bend restriction of the cable system. In addition the Bend Restrictor terminates the required cable with a dry mateable connector suitable for deepwater operation. Also suitable for small bore modular arrays.

KEY FEATURES

- Mated length: 1.2m (48 inches)
- Overall Diameter: 6.4cm (2.5 inches)
- Operating Tensile Load: 267 kN (60,000 lbf)
- Dynamic Cyclic Bend Load: 50 kN (11,000 lbf)
- Depth Rating: 1,500m (5,000 feet)
- Suitable for **MSS**, **MINI-CON** and **Micro MINI-CON** series of dry mateable connectors
- Modular cable terminations

DESIGN RATINGS & TESTING

- Design life: 25 years
- Depth Rating: 1,500m (5,000 feet)
- Connector Insulation Resistance: >100 Mohms @ 500 VDC
- Suitable for **MSS**, **MINI-CON** and **Micro MINI-CON** series of drymateable connectors
- Operating Tensile Load: 267 kN (60,000 lbf)
- Dynamic Cyclic Bend Load: 50 kN (11,000 lbf)
- Dynamic Cycle Condition: Cyclic over 0.9m (36 inches) diameter sheave:
 - 5,000 lbs for 50 cycles, 11,000 for 50 cycles
 - 7,000 lbs for 2 cycles, 9,000 lbs for 2 cycles

MATERIALS

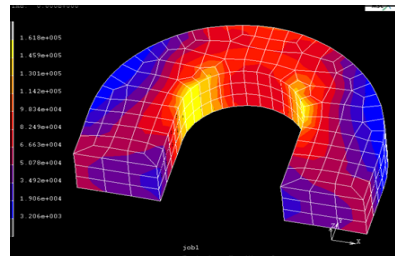
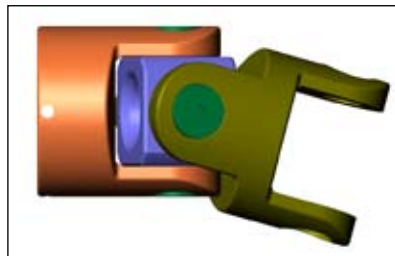
- Titanium, 17-4PH, Bronze or other housing
- Elastomer: Polyurethane

PRODUCT DATASHEET



Dynamic cyclic bend of Bend Restrictor connector over 0.9m (36") diameter sheave

DESIGN ELEMENTS



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SEACON-DS-0001

UNIVERSAL JOINT BEND RESTRICTOR

Rev 2

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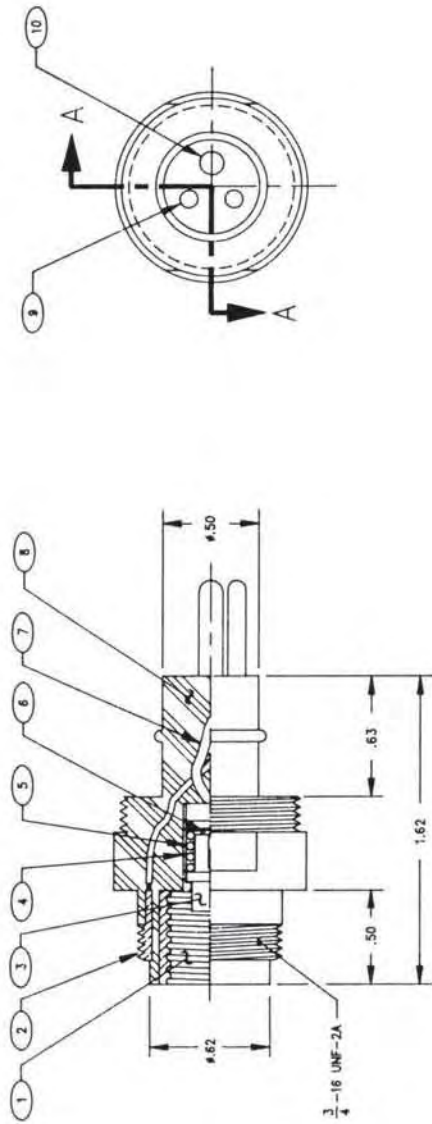
SEM SERIES LIGHT CONNECTORS

BODY MATERIAL:	GLASS REINFORCED EPOXY (GRE)
CONTACTS:	COPPER ALLOY, GOLD PLATED PER MIL-G-45204
O-RING:	#2 - 213, BUNA, 70 DUROMETER
THREAD SIZE:	3/4 - 16 UNF
THREAD LENGTH:	SEM2P - S - .50
	SEM3P - C - .50
	SEM2P - S4 - .37
	SEM3P - S4 - .37
	SEM2P-S-XT - .87
MOUNTING TORQUE:	85 INCH POUNDS
PRESSURE RATING:	20,000 PSI MATED

NOTES:

- 1 MATERIAL: GLASS REINFORCED EPOXY B/A XS-2748.
- 2 MATERIAL: COPPER ALLOY & GOLD PLATED PER MIL-C-45204
- 3 MATERIAL: COPPER ALLOY 360 PER QQ-B-837.
- 4 MATERIAL: COPPER ALLOY 752 OR 792
- 5 MATERIAL: 316 STAINLESS STEEL PER QQ-S-763
- 6 THIS DRAWING WAS PREVIOUSLY 6788-421. NUMBER WAS REVISED TO CONFORM TO OUR NUMBERING SCHEME.

SEM-3P-S4-RB



SECTION A-A

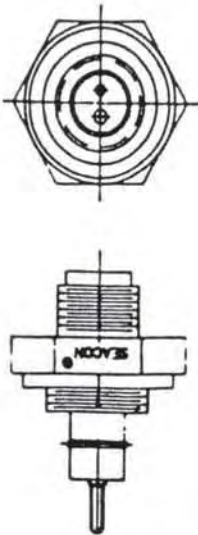
ZONE	REV	REF E.C.D. NO.	DESCRIPTION	DATE	APPROVED
	A	9637	REVISE TITLE & PARTS LIST		

ITEM	QTY	UNIT	DESCRIPTION	REV
10	1		#10 AWG CONTACT PIN	2
9	2		#14 AWG CONTACT PIN	1
8	1		SEM-S4-RB BODY	1
7	3		#18 AWG TEFLON WIRE	1
6	1		#18 AWG TEFELON WIRE	1
5	AR		LC-035C-1	1
4	1		#18 AWG TEFELON WIRE	1
3	1		#18 AWG TEFELON WIRE	1
2	1		LAMP SOCKET, GROUNDING THREAD RING HEX BODY	1
1	1		LAMP SOCKET, BALLAST RING	1

CONTRACT NO.		DATE	
SEA	BRANTNER & ASSOCIATES, INC.	APPROVALS	DATE
CON	MAN PLANT 1240 VERNON WAY EL CAJON, CALIF. 92028	LAU PHAM	950608
PARTS LIST		DESIGN	950626
SEASON 0		SIZE	C 15789
DRAWING NO.		DWG NO.	6788-105
SCALE		SHEET	2/1
SHEET		OF	1

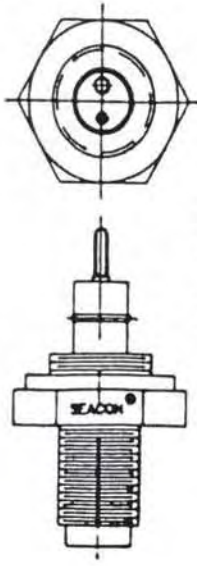
SEM SERIES LIGHT CONNECTORS

SEM2P-S



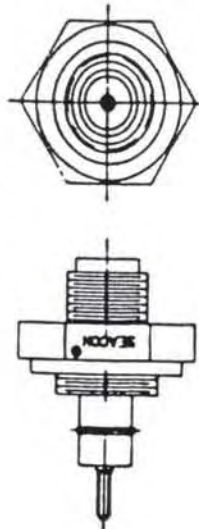
Description: 2-Pin Glass Reinforced Epoxy Bulkhead Light Connector with sockets on the low pressure side. Utilizes a MR-16 lamp
Mating Connector: RMG-2-FS
Cable: 12, 14 or 16 AWG

SEM2P-S-XT



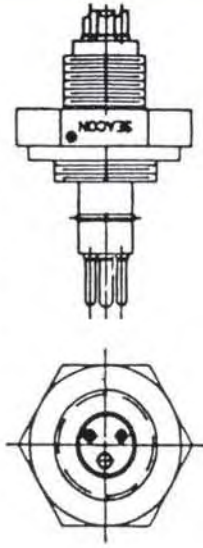
Description: Same as SEM2P-S above except longer thread.

SEM2P-S4



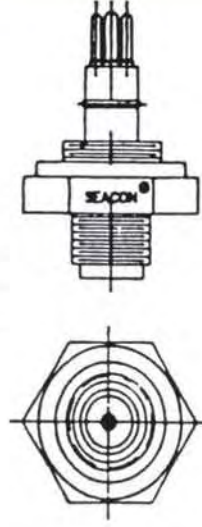
Description: 2-Pin Glass Reinforced Epoxy Bulkhead Light Connector. Inboard side utilizes a S4 socket to accept a Mini-Can base lamp.
Mating Connector: RMG-2-FS
Cable: 12, 14 or 16 AWG

SEM3P-C



Description: 3-Pin Glass Reinforced Epoxy Bulkhead Light Connector. Utilizes solder cups on the low pressure side.
Mating Connector: P/N RMG-3-FS
Cable: 12, 14 or 16 AWG

SEM3P-S4



Description: 3-Pin Glass Reinforced Epoxy Bulkhead Light Connector. Inboard side utilizes a S4 socket to accept a Mini-Can base lamp.
Mating Connector: RMG-3-FS
Cable: 12, 14 or 16 AWG

AUV/UUV CONNECTOR

DESIGN CONSIDERATIONS/RECOMMENDATIONS

BULKHEAD RECEPTACLE

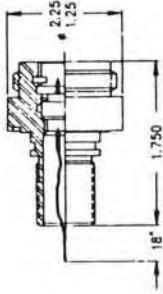
- Material:** Two general categories to be considered are metals and engineering plastics. Titanium is the recommended metal. Glass Reinforced Epoxy per SEA CON® XS-2748 is the recommended plastic. Other materials may be recommended by customer.
- Mounting:** Three common mounting configurations are shown. Double O-Ring seals are utilized where appropriate. Other mounting requirements may be specified by customer.

CABLE PLUG

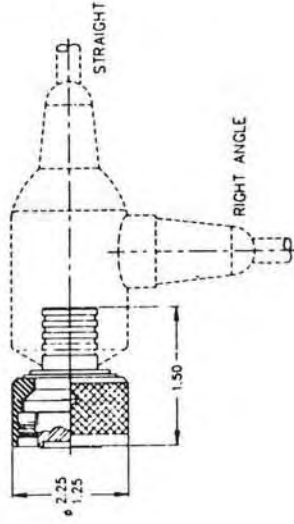
- Material:** Two general categories to be considered are metals and engineering plastics. Titanium or Glass Reinforced Epoxy per SEA CON® XS-2748 are the recommended materials within their respective categories. The metallic engaging nut should be Titanium.
- Cable Terminations:** Cables may be encapsulated with an elastomeric compound or a PBOF system may be implemented.
- Cathodic Delamination:** If the mission profile of the AUV/UUV requires long term deployment then cathodic delamination must be addressed. Glass Reinforced Epoxy should be used to prevent this phenomenon in the encapsulated system. If the PBOF system is utilized, either Titanium or Glass Reinforced Epoxy should be used.

GENERAL

- Diameter:** Connectors range in diameter from 1.25 to 2.25 inches (or larger).
- Contact Configurations:**
 - Signal: Maximum contact density up to 131 No. 22 AWG.
 - Power: Contact sizes up to No. 10 AWG with working voltages ranging from 600 VRMS to 3000 VRMS.
- Contact Material:** Copper alloy and gold plated per MIL-G-45204.
- Underwater Mateable:** Underwater mateability can be implemented into these connectors or other types of connectors.
- Fiber Optic:** Multi-Mode Fiber Optics can be implemented into these connectors or other types of connectors. Hybrid connectors are also a viable option.

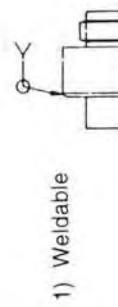


Bulkhead Receptacle



Cable Plug

Optional Mounting Configurations

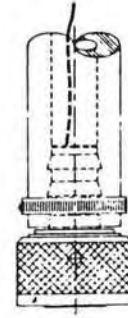


1) Weldable



2) Flange

Optional Cable Terminations



TOWED ARRAY CONNECTORS

Sea Connections Systems Limited have been responsible for the design of many new electrical and electro optical inserts that are used in critical positions within the military towed array field.

These arrays are used on both submarines and surface ships but the fundamental criteria will always be to reduce the overall diameter and to increase the data transmission rates.

To achieve these targets we have called upon the expertise of our various divisions within the SEA CON® group to provide fibre optic and glass sealing technology with the ultimate result being a high specification and extremely reliable component.

The technology that has been developed in these towed array inserts for military applications can equally be utilized into areas such as geophysical towed arrays and also into our regular connector specifications. As all of our special towed array inserts have been designed around a customer specification we will always be able to provide an insert whether electrical, electro optic or pure optical for any application.

TOWED ARRAY OPTIONS AND CAPABILITIES

- Open face pressure rated
- Glass to metal sealed
- Electro optical
- Hermaphroditic style option
- Multimode or single mode fibres

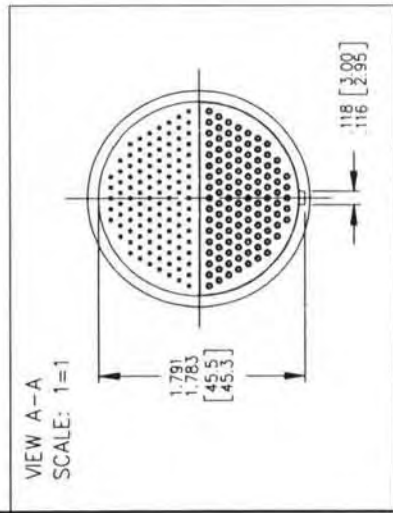
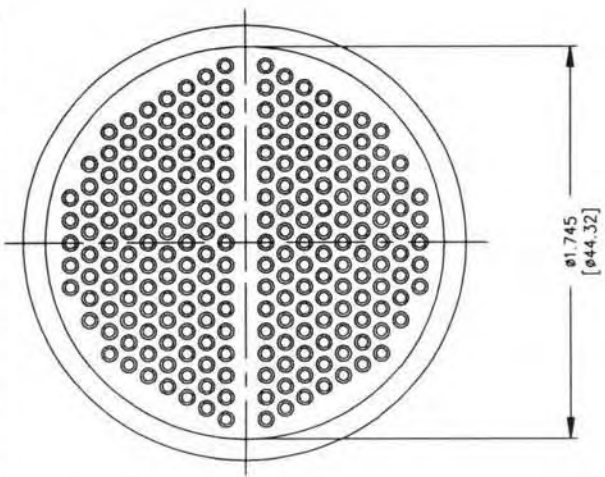
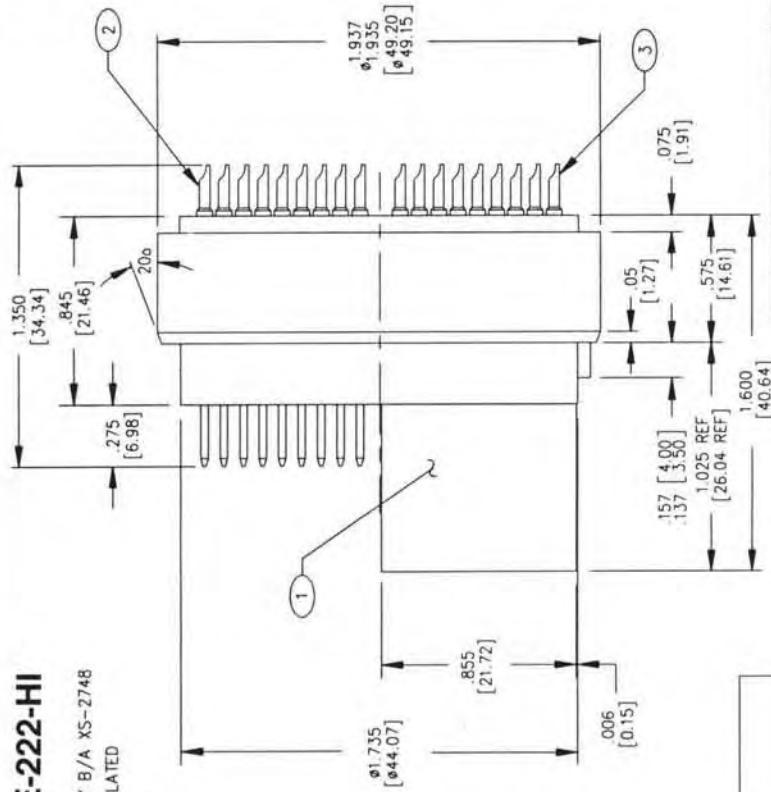
DWG. NO. SH REV.

REV	REF. ECD. NO.	DESCRIPTION	DATE	APPROVED
A	6424	REVISED LENGTH	90-4-17	D.S.
B	7537	ADD KEY, NOTE 7 & B, REV PRESS	930708	KMN
C	8623	REMOVED NUMBERS ON FACE PATTERN	950413	LP

LE-222-HI

⚠ MATERIAL: GLASS REINFORCED EPOXY B/A XS-2748
 ⚠ MATERIAL: COPPER ALLOY & GOLD PLATED PER MIL-G-45204

3. DIMENSIONS IN BRACES [] ARE FOR MILLIMETER REFERENCE ONLY
4. VOLTAGE: 600 VDC
5. CURRENT: 3 AMPS
6. OPEN FACE PRESSURE: 2000 PSI [138 BAR]. WHEN INSERT IS INSTALLED IN A SEACON APPROVED SHELL DESIGN.
7. TEST IR AT 1000 VDC IR TO BE > 1000 MΩ
8. TEST DIELECTRIC AT 600 VAC



ITEM	QTY	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
3	111	15789	6862-296	CONTACT SOCKET	2
2	111	15789	6862-295	CONTACT PIN	2
1	1	15789	6862-102	LE-222-HI BODY	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

FRACTIONS	DECIMALS	ANGLES
± 1/16	± .015	± 1/2

ADD .005
 BREAK ALL EDGES & CORNERS .015
 RAIL ALL DIA. TO BE CONCENTRIC WITH DIA. TH.

FINISH: 12/

DO NOT SCALE DRAWING

CONTRACT NO. _____

APPROVALS: _____ DATE: 89-12-07

DRAWN: K. RIDGELS
 CHECKED: LAI PHAM
 ISSUED: D. SELHAN 90-01-11

SEACON

BRANTNER & ASSOCIATES, INC.
 MAIN PLANT 1240 VERNON WAY E.L. CAJON, CALIF. 92020

LE-222-HI

SIZE: FSCM NO. B 15789 DWG. NO. 6862-102 REV C

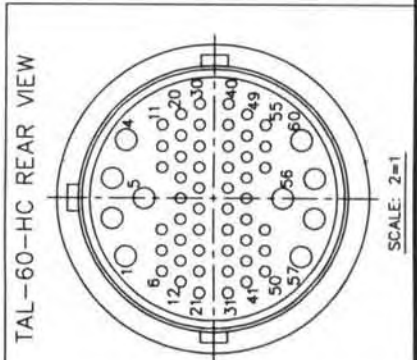
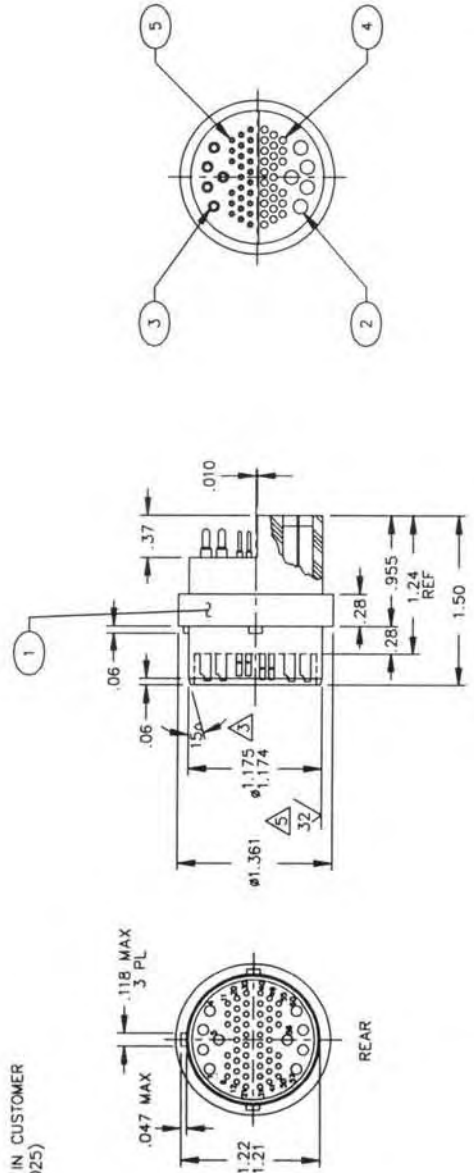
SCALE: 2/1 SHEET OF

ASSY. HARDWARE	PART NO.	APPLICATION

TAL-60-HC INSERT

NOTES:

- 1 MATERIAL: GLASS REINFORCED EPOXY B/A XS-2748.
- 2 MATERIAL: COPPER ALLOY & GOLD PLATED PER MIL-C-45204.
- 3 300 BAR (4,350 PSI) FROM THE SOLDER CUP SIDE. INSERT MUST BE MATED TO ANOTHER MATE AND HAVE EQUAL PRESSURE ON BOTH SOLDER CUP ENDS.
- 4. VOLTAGE RATING:
 - a) #22 AWG @ 600VDC
 - b) #16 AWG @ 2200VDC
- 5 DIAMETER IS FOR O-RING SEAL IN CUSTOMER HOUSING. (REF 2-025 AND 8-025)



ITEM	QTY	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
5	25	15789	3560	#22 AWG CONTACT PIN	SEACON
4	25	15789	2454	#22 AWG CONTACT SOCKET	SEACON
3	5	15789	3032	#16 AWG CONTACT PIN	SEACON
2	5	15789	2014-2	#16 AWG CONTACT SOCKET	SEACON
1	1	15789	6872-105	TA-HC INSERT	MATERIAL SPECIFICATION

REV	ECO. NO.	DESCRIPTION	DATE	APPROVED
A	6529	REVISE DIM/CONTACT PATTERN	900923	LP
B	6555	REVISE DWG & DIM	900925	LP
C	6561	REVISE DIM. FROM .995 TO .955	901003	LP
D	8158	REV. PART NO. FROM ITEM 5	940609	LP

CONTRACT NO.	APPROVALS	DATE
	DRAWN: M. JUAREZ	900312
	CHECKED: LAI PHAM	900923
	ISSUED: D. SEILHAN	900316

PARBAK	8-025	PART NO.
O-RING	2-025 <td></td>	
ASST HARDWARE		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
 FRACTIONS: ± 1/16" DECIMALS: .005 ANGLES: ± 1/2"
 BREAK ALL EDGES & CORNERS .015 RADIUS ALL DIA. TO BE CONCENTRIC.
 WITHIN .004 TH.
 FINISH: 12/

DO NOT SCALE DRAWING

SEACON (CON)
 BRANTNER & ASSOCIATES, INC.
 MAIN PLANT 1240 VERNON WAY EL CAJON, CALIF. 92020

TAL-60-HC INSERT

SIZE TFSM NO. DWG NO. REV
 B 15789 6872-105 D

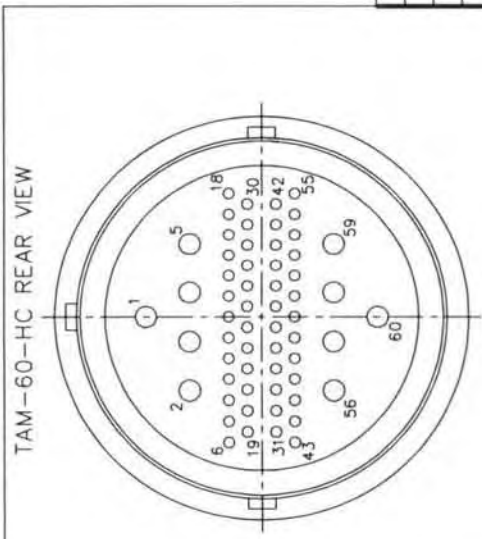
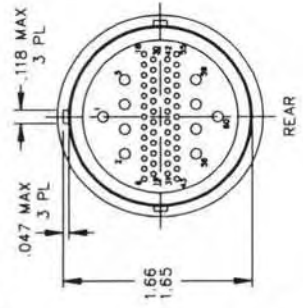
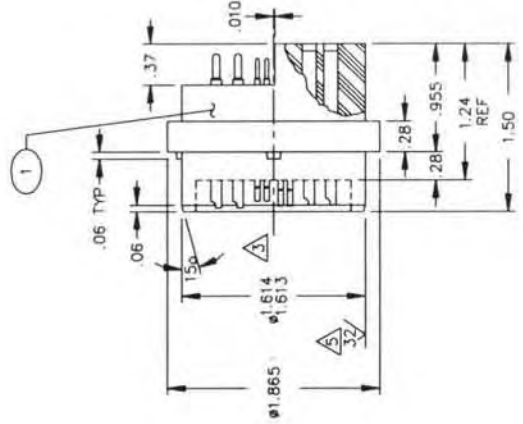
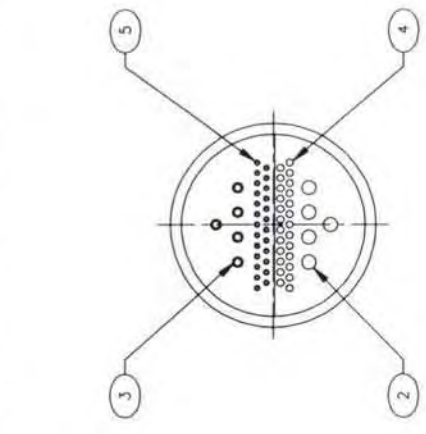
SCALE 1/1 SHEET OF

DWG. NO.	SH	REV.
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TAM-60-HC INSERT

- NOTES:**
- 1 MATERIAL: GLASS REINFORCED EPOXY B/A XS-2748.
 - 2 MATERIAL: COPPER ALLOY & GOLD PLATED PER MIL-G-45204.
 - 3 500 BAR (7,250 PSI) FROM THE SOLDER CUP SIDE, INSERT MUST BE MATED TO ANOTHER MATE AND HAVE EQUAL PRESSURE ON BOTH SOLDER CUP ENDS.
 - 4. VOLTAGE RATING:
 - a) #22 AWG @ 600VDC
 - b) #16 AWG @ 2200VDC
 - 5 DIAMETER IS FOR O-RING SEAL IN CUSTOMER HOUSING. (REF 2-030 AND 8-030)

REV	REF EQL. NO.	DESCRIPTION	DATE	APPROVED
A	6528	REVISE DIM/CONTACT PATTERN	900823	LP
B	6554	REVISE DWG & DIM	900925	LP
C	6562	REVISE DIM. FROM .995 TO .955	901003	LP
D	6567	REVISE DIM AND CONTACT NO.	901005	LP



ITEM	QTY	FSM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SEASON
5	25	15789	3560	#22 AWG CONTACT PIN	2
4	25	15789	2454	#22 AWG CONTACT SOCKET	2
3	5	15789	3032	#16 AWG CONTACT PIN	2
2	5	15789	2014-2	#16 AWG CONTACT SOCKET	2
1	1	15789	6872-103	TA-HC INSERT	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	APPROVALS	DATE
± 1/32	.004 .015 ±1/2	DRAWN M. JUAREZ	900312
BREAK ALL EDGES & CORNERS .015		CHECKED LAI PHAM	900823
WITHIN .004 TR		ISSUED D. SEILHAN	900316
FINISH		SCALE 1/1	
DO NOT SCALE DRAWING		SHEET OF	

PARBAK	8-030	PART NO.
O-RING	2-030	PART NO.
ASST HARDWARE		
APPLICATION		

BRANTNER & ASSOCIATES, INC
 MAIN PLANT 1240 VERNON WAY EL CAJON, CALIF. 92020

TAM-60-HC INSERT

SIZE FSCH NO. DWG NO. REV
 B 15789 6872-103 D

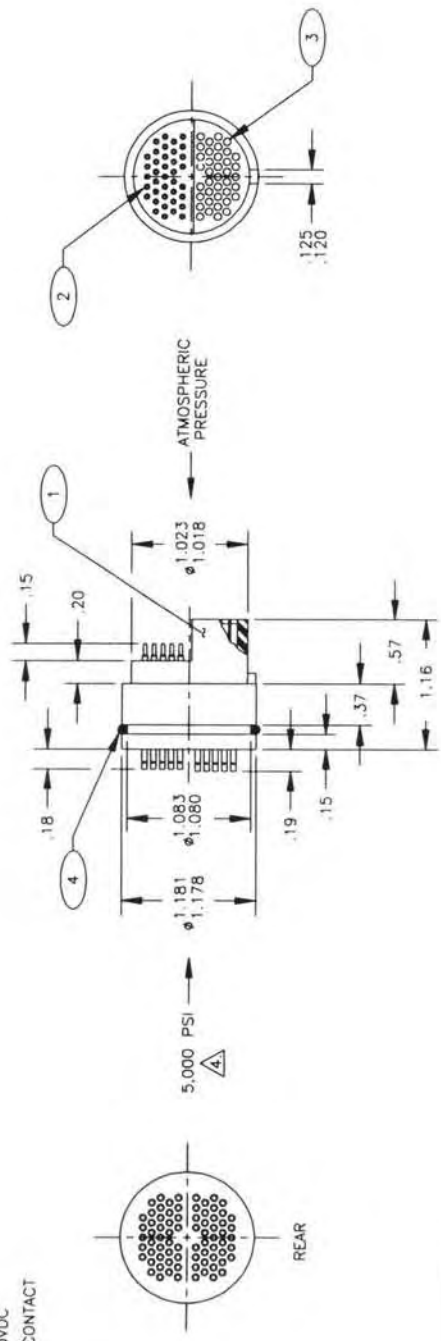
DWG. NO. SH REV.

REVISIONS			
REV.	EST. NO.	DESCRIPTION	DATE
A	5971	ADD DIMS. REF ECO	920108
			KMN

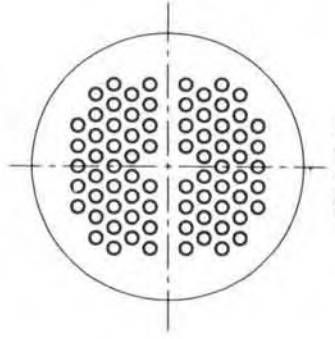
TA-76-HC-DRA

NOTES:

- △ MATERIAL: GLASS REINFORCED EPOXY B/A XS-2748
- △ MATERIAL: COPPER ALLOY & GOLD PLATED PER MIL-G-45204.
- △ MATERIAL: VITON
- △ 5,000 PSI FROM SOLDER CUP SIDE.
- 5. SPECIFICATIONS:
 - a) #22 AWG @ 600VDC
 - b) 2.5 AMPS PER CONTACT



TA-76-HC REAR VIEW



ITEM	QTY	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
4	1	2-023		O-RING	△
3	38	15789	2454	#22 AWG CONTACT SOCKET	△
2	38	15789	3526	#22 AWG CONTACT PIN	△
1	1	15789	6959-102	TA-HC INSERT	△

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

FRACTIONS	DECIMALS	ANGLES
± 1/32	.004 .015 ±1/7	
	.004 .005	

BREAK ALL EDGES & CORNERS .015 RAD. ALL DIA. TO BE CONCENTRIC WITHIN .004 TR.

CONTRACT NO. APPROVALS DATE
 DRAWN: K. RIDGELS 92-01-06
 CHECKED: K. NORTHIUP 92-01-08
 ISSUED:

SCALE: 2=1

DO NOT SCALE DRAWING

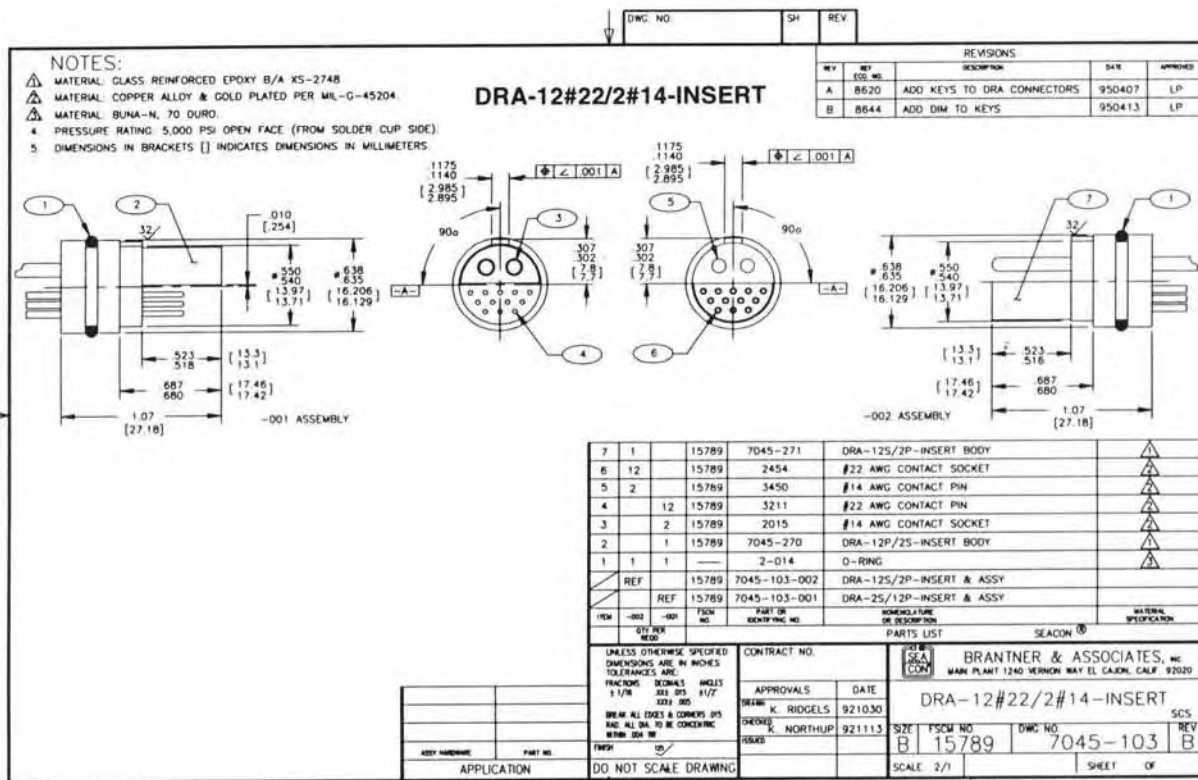
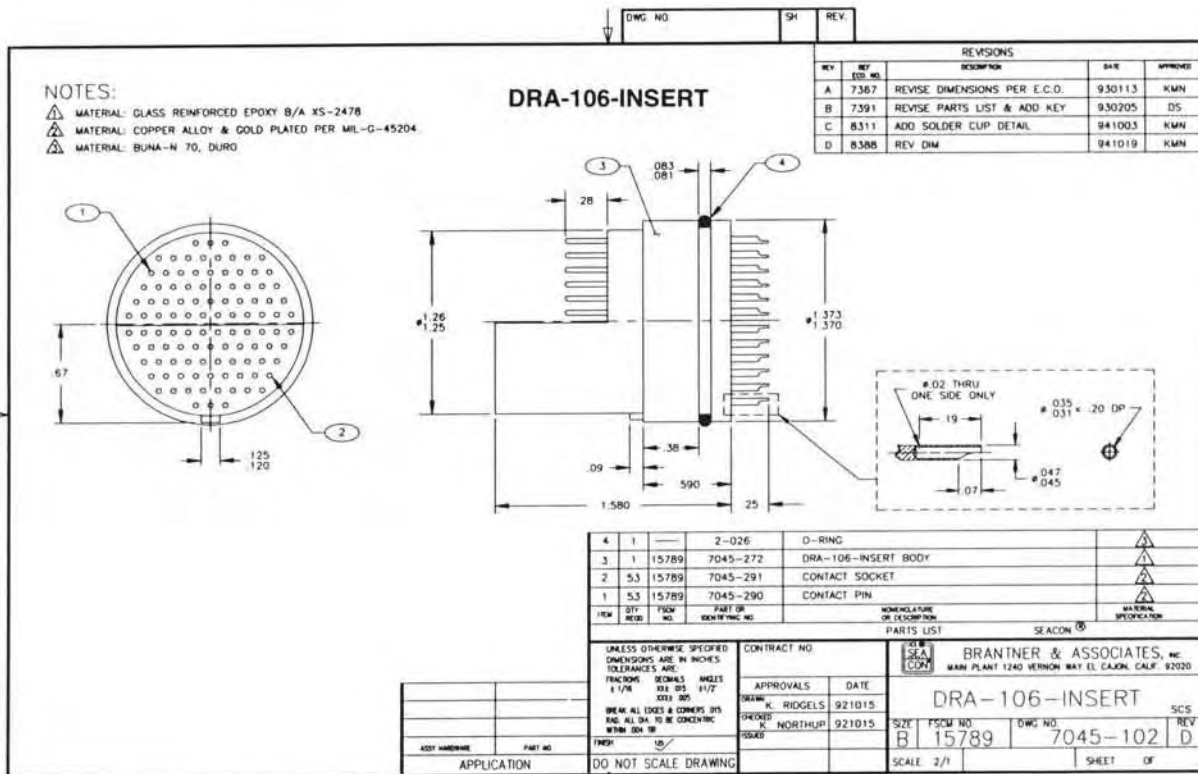
ASSY HARDWARE PART NO. APPLICATION

SEACON
 BRANTNER & ASSOCIATES, INC
 MAIN PLANT 1240 VERNON WAY EL CAJON, CALIF. 92020

TA-76-HC-DRA

SIZE: FSCM NO. 15789 DWG NO. 6959-102 REV. A

SCALE: 1/1 SHEET 1 OF



DOWNHOLE TOOL INSERTS & BOOTS

SEA CON® has been a supplier of well logging tool connectors for many years. The high reliability, rugged construction and low electrical insertion loss makes them ideal for this application.

Four and seven pin inserts are the most common, and used mainly in open hole logging tools. However, we have provided inserts with as many as nineteen contacts. All contacts are gold plated for low electrical insertion loss.

Our standard glass reinforced epoxy (GRE) inserts are rated for temperatures to 300°F (149°C).

(Contact Factory for applications involving higher temperatures.)

Female inserts are used in multiconductor cable head assemblies with several sizes available. The male inserts are used on various types of tools, such as:

RESISTIVITY TOOLS

LL3 Guard Tool
Dual
Dual Laterolog
Dual Induction

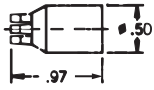
POROSITY TOOLS

Compensated Sonic
Compensated Density
Compensated Neutron
Compensated Litho Density

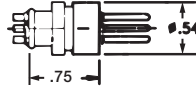
We have several methods of sealing the insert against fluid intrusion, the most common being a Neoprene boot. These boots may be molded of other materials such as Aflas if required to handle temperature and aggressiveness of the fluid in the well bore.

Special assemblies can be made for unique applications. We now manufacture 4 and 7 pin compression glass sealed inserts for very high temperature, high pressure (HT/HP) applications.

DOWNHOLE TOOL INSERTS & BOOTS



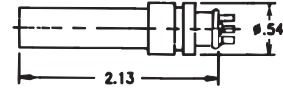
4 PIN BOOT



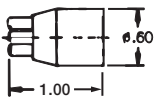
4 PIN MALE CONNECTOR



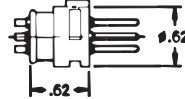
4 pin glass reinforced epoxy insert. Copper alloy contacts. Optional Aflas boot fits solder cup side on both male and female connector.



4 PIN FEMALE CONNECTOR



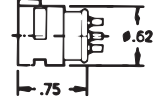
5 PIN BOOT



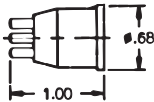
5 PIN MALE CONNECTOR



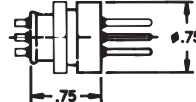
5 pin glass reinforced epoxy insert. Copper alloy contacts. Optional neoprene or Aflas boot fits solder cup side on both male and female connector.



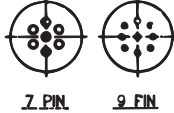
5 PIN FEMALE CONNECTOR



7 PIN BOOT



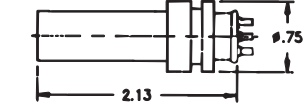
7 & 9 PIN MALE CONNECTORS



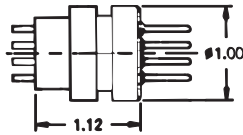
7 PIN

9 PIN

7 & 9 pin glass reinforced epoxy insert. Copper alloy contacts. Optional neoprene or Aflas boot fits solder cup side of both male and female connector.



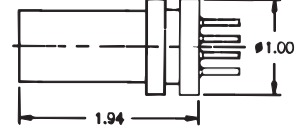
7 & 9 PIN FEMALE CONNECTORS



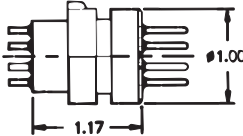
10 PIN MALE CONNECTOR



10 pin glass reinforced epoxy insert. Copper alloy contacts.



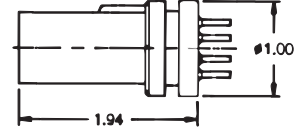
10 PIN FEMALE CONNECTOR



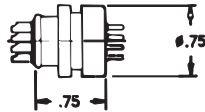
12 PIN MALE CONNECTOR



12 pin glass reinforced epoxy insert. Copper alloy contacts.



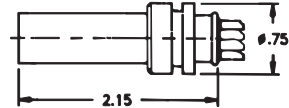
12 PIN FEMALE CONNECTOR



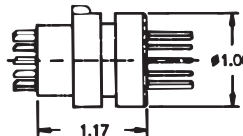
12 PIN SPECIAL MALE CONNECTOR



12 pin glass reinforced epoxy insert with special body. Copper alloy contacts.



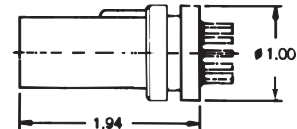
12 PIN SPECIAL FEMALE CONNECTOR



19 PIN MALE CONNECTOR



19 pin glass reinforced epoxy insert. Copper alloy inserts.



19 PIN FEMALE CONNECTOR

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