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CONNECTORS/CABLES/WINCHES; OFFSHORE RENEWABLES/OFFSHORE TECHNOLOGY

Connecting th

The SEA CON® Group supplies harsh-environment cable assembly and connector solutions to worldwide subsea market

Over its 40-plus-year history, SEA CON® has evolved from a small connector manufacturer in San Diego, California, USA, to a worldwide leader of electrical, optical and hybrid, wet-mate and dry-mate connector systems. SEA CON® offers solutions to applications in a vast variety of market sectors including defence, oil and gas, university, oceanographic and many other harsh environment operations.

The company that began in 1964 with a handful of employees now boasts worldwide presence, with manufacturing operations in the UK, Norway, the USA and Mexico, and a worldwide distribution network. The company's product lines are a mix of time-proven products and newly engineered and custom manufactured products for unique and OEM applications. The depth and breadth of SEA CON® products are complemented by responsive, on-call technical experts for worldwide field service.

SEA CON® BRANTNER & ASSOCIATES, INC., EL CAJON

In 1964 Mr Willard Brantner founded Brantner & Associates, Inc., the first manufacturing division within what would become the SEA CON® Group. By 1968, the company was manufacturing Marsh and Marine® electrical connectors for many industries as well as specialised connectors for classified work for the US Department of Defense. The fledgling company expanded its customer base into the oceanographic research and offshore oil exploration and production markets.

The MINI-CON Series

In its 40-plus years, the SEA CON® El Cajon facility has occupied only three locations. In 1983 SEA CON® moved from San Diego to a larger facility in El Cajon, where it stayed for more than 25 years. In late 2009 the company moved less than one mile away to a 40,000-square-foot (3716-square-metre) plant, of which 15,000 square feet (1394 square metres) is dedicated to manufacturing, and 12,000 square feet (1115 square metres) to an engineering and design area.

SEA CON® Brantner & Associates, Inc's new facility

The current SEA CON® connector suite has evolved from a single product in 1968 to more than 25 product ranges and 30,000-plus separate connector types and configurations. These include many industry-standard connectors such as the WET-CON, Micro WET-CON, Rubber Molded, MINI-CON, HYDRALIGHT and innovative, leading-edge, next-generation solutions such as the OPTI-CON and G3 connector ranges. While this division has often passed along technology it has developed to other divisions for further refinement, SEA CON® El Cajon remains a SEA CON® Group focal point for product development. SEA CON® Brantner & Associates, Inc. also maintains sales offices in: Houston, Texas; Westerly, Rhode Island; Miami, Florida; and Rio de Janeiro, Brazil.

SEACON (europe) LTD

Since its formation in 1987 SEACON (europe) Ltd (SCE), Great Yarmouth, UK, has supplied the European market with

e subsea industry

Division	Location	Established	Area (sq ft)	Product Specialties
SEA CON® Brantner & Associates, Inc.	El Cajon, CA, USA	1964	40,000	Electrical connectors and cabling systems, PRO20 Moulding Standards, electrical penetrators, cable strength termination, cable breakouts
	Houston, TX, USA		N/A	Sales Office
	Westerly, RI, USA		N/A	Sales Office
	Miami, Fl, USA		N/A	Sales Office
	Rio de Janeiro, Brazil		N/A	Sales Office
SEACON (europe) Ltd	Great Yarmouth, UK	1987	24,000	Electrical and fibre optic connectors and cable systems, harsh-environment wet-mateable connectors and assemblies.
SEA CON Global Production	Tijuana and Xalapa, Mexico	1989	30,000	High-volume manufacturing base for electrical harsh-environment underwater mateable connectors and assemblies, electrical dry-mate connectors and assemblies, both standard and small-profile ranges, high-integrity CAT5/CAT5e connectors and assemblies.
SEACON Advanced Products, LLC	Bellville, TX , USA	2005	15,000	Underwater mateable optical and electrical connector systems, including HYDRALIGHT and CM connectors, splice units and umbilical terminations, dry-mate optical and electrical connectors meeting API16D standard for drilling industry (RUFF-NEK field-installable connectors), downhole wet-mate and dry-mate electrical and optical connectors (HPHT and G3).
SEA CON/Precision Subsea AS	Notodden, Norway	2008	2000	Electrical and optical distribution systems with wet-mate and dry-mate connectors, Subsea Control Module (SCM) design, electrical actuator design, subsea system configuration and subsea intervention system development.
SEACON Phoenix, LLC	Ashaway, RI, USA	2009	18,000	Glass-sealed electrical connectors and feed-thrus, MIL-SPEC approved connectors, neoprene and polyurethane cable assemblies, PRO20 Moulding.

Table 1. An overview of the SEA CON® Group

electrical and fibre optic connectors and cable assemblies. In 2001 SCE moved to its current facility, where operations square footage is now 24,000 square feet (2230 square metres). In-house R&D and testing facilities complement SCE's range of products for the offshore industry.

In addition to providing and terminating SEA CON® products from other divisions, SCE has developed several products in-house. These include the SEA-MATE (former U-MATE) connector series, an adaptation of the WET-CON series encased in a stainless steel shell, offering availability in oil-filled or moulded versions and ROV versions. The OPTI-CON is a standard, dry-mate, fibre optic hybrid connector range, developed to provide COTS solution to optic and hybrid market needs. Customers can choose virtually any combination of optical and electrical configurations, either oil-filled or over-moulded to a wide variety of cables.

SEACON (europe) has held ISO registration since 1990.

SEA CON GLOBAL PRODUCTION

SEA CON Global Production (SEA CON Global) was established in 1989 in Tijuana, Mexico, across the border from San Diego. In the intervening 21 years, SEA CON Global has increased to a total of 30,000 square feet (2787 square metres) of manufacturing, test, and production space.

In 2007 SEA CON Global opened a facility in Xalapa, Mexico. This dramatically increased the division's overall manufacturing capacity and allowed the Tijuana facility to design and manufacture more custom and OEM products.

Xalapa's workforce offered an outstanding level of technical education, and currently produces numerous high-vacuum products. While SEA CON Global has continued to

WET-CON connector range

develop products originally conceived in El Cajon, they also develop new product ranges including the HUMMER, GLOBE-CON and CS-MS, which has an aluminium shell with dual O-rings, designed for standard oil-filled hose and cable and pressure rated to 10,000 psi, the CS-MS series is available in many electrical contact configurations as well as a single channel fibre optic version.

SEA CON Global also offers a range of high integrity connector solutions for Cat5 and Cat5e applications. These solutions utilise established, widely used connector ranges along with new cables and specialised termination methods to enable operation within ethernet systems.

SEA CON Global gained ISO 9001:2008 registration in 2009.

SEACON ADVANCED PRODUCTS, LLC

SEACON Advanced Products (SAPL), Bellville, Texas, began in 1998 as Advanced Products Group within SEA CON® El Cajon. Its purpose was to market the Lockheed Martin HYDRASTAR wet-mate electro-optical connector and the CM2000 wet-mate electrical connector. In 2005 the group moved to a five-acre facility in Bellville, about 50 miles (80 kilometres) west of Houston. With the move, SAPL became the primary SEA CON® fibre optic facility, working with dry- and wet-mate optical connectors. SAPL also offers 24/7 worldwide field service in support of all SEA CON® customers.

SAPL products have grown from the initial two to include optical and electrical jumper harnesses, optical penetrators, subsea umbilical termination assemblies, pressure compensated splice chambers, and hermetically sealed switches. These products serve the oil and gas production controls, defence, oceanographic research and ROV markets.

As with all divisions in the SEA CON® Group, quality has been a leading focus for SAPL. The SAPL quality system has been periodically audited and approved by many oil and gas and defence clients. SAPL achieved ISO 9001:2008 certification in 2009.

G3 optical wet-mate connector

SEA CON/PRECISION SUBSEA AS

Norwegian-registered Precision Subsea AS, based in Notodden, Norway, was formed in 2008, introducing state-of-the-art cabling and connector solutions. It is jointly owned by Pilot Engineering and SEACON Advanced Products, LLC. Precision Subsea brings together a wealth of experience, knowledge and understanding of the system requirements for subsea controls.

Company facilities have been configured to support definition, development, and production of SEA CON® and Precision products to industry standards and customer specifications.

A local presence permits company representatives to interact with customers in person on a daily basis. This direct interaction shortens the overall timeline for a project. The Notodden plant enables customers to have direct access to all stages of equipment development and testing.

Precision Subsea provides engineering and development services as well as long-term, cost-effective production support. It achieves this through the ownership relationship with SEA CON® and the team relationships it has already established with key local manufacturers.

SEACON PHOENIX, LLC

In the summer of 2009 SEA CON® re-united a former management team and re-created SEACON Phoenix, LLC, located in Ashaway, Rhode Island. It brought back into the SEA CON® family skills and knowledge of many complementary connectors and connector products, including glass-to-metal sealing technology and a wide range of MIL specification connectors and systems.

The SEACON Phoenix, LLC facility in Rhode Island

SEACON Phoenix, LLC manufactures neoprene and polyurethane cable assemblies, harsh-environment connectors, and military fibre optic cables and assemblies. Suitable for use in harsh environments, product applications include defence, energy, security, geophysical survey and telecommunications. The ISO 9001:2000 registered manufacturer has in-house hydrostatic, mechanical, electrical, fibre optics and helium leak detection testing capability.

SEA CON® FLORIDA AND BRAZIL SALES OFFICES OPEN

As the SEA CON® Group has expanded its engineering and manufacturing spaces recently, it recognised the need to provide local support in key areas of the world. In 2009 SEA CON® opened two new sales offices, located in Miami, Florida, (supporting customers in southeast USA) and Rio de Janeiro, Brazil (for sales support of all SEA CON® connector ranges and local product and service support for the South American offshore drilling market). ■