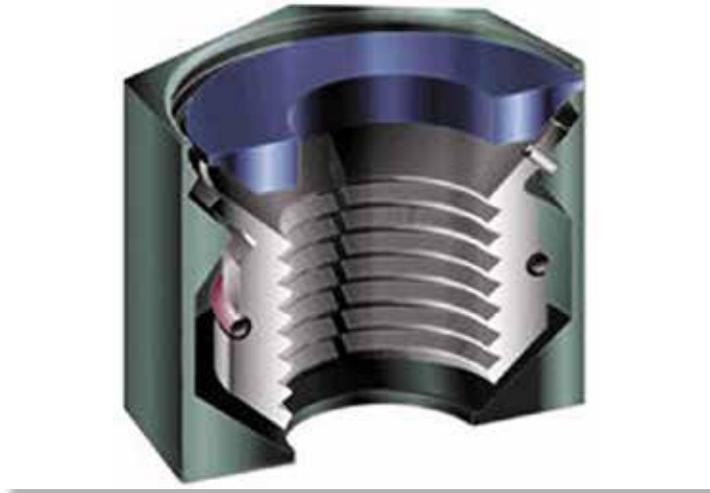


Zip Technology

ZipNut[®] and ZipCONNECTOR



- **Revolutionarily and reliable design**
- **ASTM A 194/ 2H certified**
- **Eliminates repetitious turning & cross threading**
- **Fits standard bolts**
- **Available in different sizes and materials**

LEADING PROVIDER OF BOLT LOADING & REMOVAL SOLUTIONS

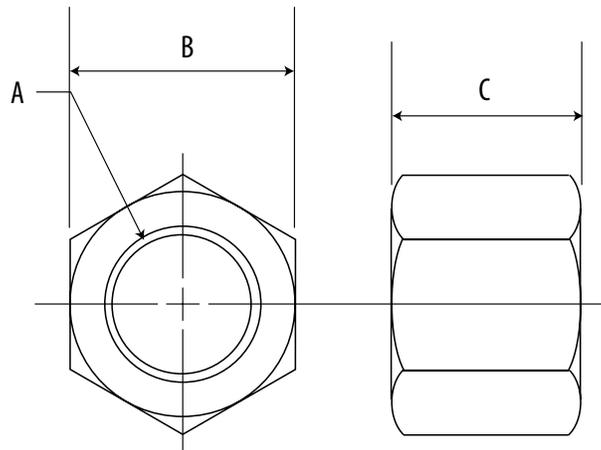
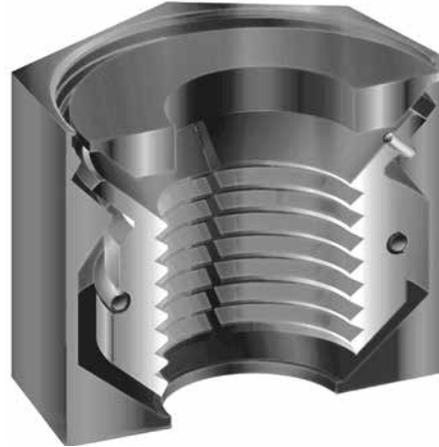
Products and Prices are subject to updates and changes. Please contact us for current quote.

2013

ZipNut®

The Push-on Threaded Nut

- Torque it or Tension it - equivalent to ASTM A194-2H nuts
- Use it wherever heavy hex nuts are utilized
- No tedious turning... turning...
- Runs down over damaged or corroded threads
- Eliminates cross-threading
- Fits standard bolts
- Measures one wrench size larger across the flats than standard heavy hex nuts
- Available in either inch or metric sizes; and in a variety of materials



Part Number	A Bolt Diameter	B Across the Flats	C Nut Height
ZN008	1/2" - 13	15/16"	11/16"
ZN010	5/8" - 11	1-1/4"	1"
ZN012	3/4" - 10	1-7/16"	1-1/8"
ZN014	7/8" - 9	1-5/8"	1-1/4"
ZN016	1" - 8	1-13/16"	1-3/8"

All ZipNuts Quoted Upon Request • Size & Material Must Be Specified



ZipCONNECTOR Load Connector

**New Load Connector Concept with Advanced Technology
Available only at Fastorq**

The ZipCONNECTOR uses Double-Zip® Technology to provide a means of robotically connecting and disconnecting heavy loads to lifting devices so that the loads can be placed or retrieved.

The ZipCONNECTOR is currently being used at the Oak Ridge National Laboratory in Tennessee where it picks up, moves, and sets heavy loads in a radioactive environment where human intervention is not possible.

The technology is based on a unique threaded nut that is cut in three segments, allowing it to open up while it is being positioned on a threaded rod, then closed on the mating threads of the rod. The thread segments are locked on the rod with the weight of the load, and will not release until the load is set down. Once the load is set down, the thread segments are released, thus allowing the ZipCONNECTOR to be disengaged from the load.

Hydraulic, electric or pneumatic cylinders (if the application allows) can also be integrated into the system to release the thread segments. The segmented design also prevents cross threading and assures full engagement of the ZipCONNECTOR to the threaded rod. Perhaps the most significant innovation is the mating of the threads without rotation.

The ZipCONNECTOR provides a simple and reliable mechanism for positioning and retrieving loads robotically in a subsea environment, either topside or subsea, where it is unsafe for humans to be present.

- ZipCONNECTOR provides a means of robotically connecting and disconnecting heavy loads to lifting devices
- ROV and diver friendly
- Eliminates the difficult use of shackles and pins, when using ROV's
- Provides a positive connection that is easy to connect and release
- Incorporates the ZipNut® Double Zip Technology, enabling the ZipCONNECTOR to operate as one unit
- Double Zip thread segments allow the ZipCONNECTOR to slide over the protruding stud threads, eliminating time consuming turning
- Can be used for all standard lifting operations, including subsea and nuclear projects
- Eliminates concern for damaged or rusty threads – simply pushes on and pulls off, no twisting, no turning
- Can be fitted with special hydraulic release mechanism for subsea applications
- Ideal for multi-point lifting applications
- All parts are stainless steel, nickel-plated or coated to provide corrosion protection



With ZipCONNECTOR, a standard threaded lifting eye can be used to retrieve or abandon objects of various sizes & weights.

"ZipNut" and "Double Zip" are Trademarks of Thread Technology, Inc.
The ZipNut® Double Zip® is protected under Patent (Numbers 4,378,187; 5,324,150; 5,427,488; 5,378,100; 5,580,200; Foreign Patents; and Patents Pending) and is utilized by FASTORQ® under an exclusive agreement with Thread Technology, Inc.



ZipCONNECTOR Load Connector

Model Number	Bolt Diameter (In)	Maximum Load* (Lbs)	Maximum Load* Using 4-Pt. Lift (Lbs)	OD (In)
ZL-012	3/4	35,118	140,472	1.855
ZL-014	7/8	48,482	193,928	2.142
ZL-100	1	63,603	254,412	2.489
ZL-102	1-1/8	82,997	331,988	2.635
ZL-104	1-1/4	104,969	419,876	2.883
ZL-106	1-3/8	129,517	518,068	3.159
ZL-108	1-1/2	156,643	626,572	3.27
ZL-110	1-5/8	186,346	745,384	3.538
ZL-112	1-3/4	218,626	874,504	3.793
ZL-114	1-7/8	253,483	1,013,932	4.078
ZL-200	2	290,917	1,163,668	4.356
ZL-204	2-1/4	373,516	1,494,064	4.912
ZL-208	2-1/2	422,003	1,688,012	5.178

* Maximum load is based on minimum yield strength of ASTM A193-B7 bolt material. Divide this amount for your required safety factor. Additional sizes available upon request. Specifications are subject to change without notice.



ZipCONNECTOR
Load Connector
Hydraulic

**ZipCONNECTORS can be custom built
in size and mode of operation.**



Pneumatic



Electric



ZipCONNECTOR

Robotic Load Connector / Crane Grapple

The **problem** of deploying and retrieving equipment such as well heads and blowout preventers in an underwater environment has become greater as exploration and production programs are carried out in ever greater water depths.

If a blowout preventer is accidentally separated from a drilling riser in water depth greater than 1000 feet; a system is required to robotically connect lifting lines from the surface to pad eyes on the BOP. The connection must be made using ROV capabilities.

If a well head loses power on the sea bottom; a system is required to robotically connect lines to the collet rods so the well head may be released from the well and lifted to the surface.

Standard clevis and pin arrangements are very difficult for an ROV to connect to a pad eye and impossible to connect to a threaded collet rod. A system is required that connects lines to collet rods or threaded lifting eyes using ROV manipulators.

The solution to the problem is the ZipCONNECTOR Robotic Load Connector with a female threaded connector that pushes on to a male threaded rod without needing rotation. The connector closes on the male threads and will not release until the load is set down with slack in the line and the release mechanism is actuated.

Figure 1 shows a photo of the 60 ton ZipCONNECTOR Robotic Load Connector.



Figure 1



ZipCONNECTOR

Figure 2 is a cross section of this connector with the female thread segments (A) in the open position and pushed over the male threaded rod (B).

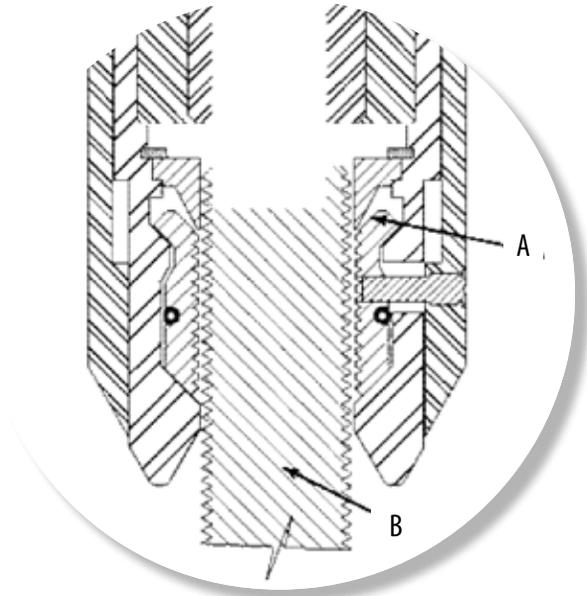


Figure 2

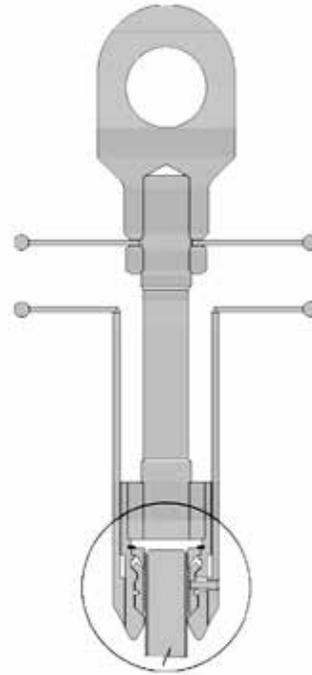


Figure 3 is a cross section showing the female thread segments (A) closed on the male threaded rod (B). The female thread segments close on the male threaded rod as the segments engage the internal taper of the housing (C) as load is applied to the rod (B). A coiled garter spring (D) urges the segments into engagement.

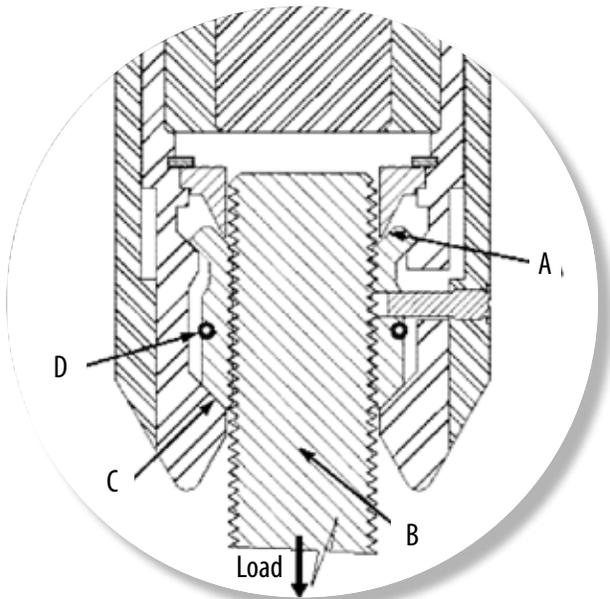
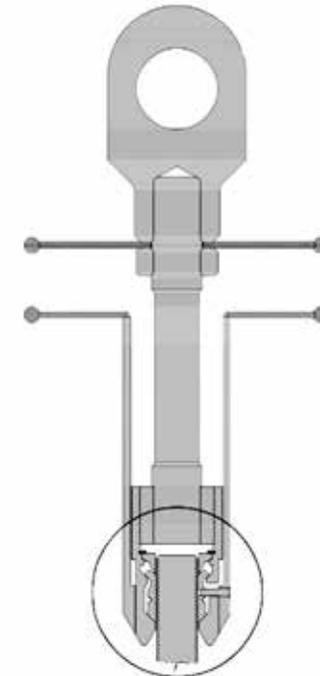


Figure 3



ZipCONNECTOR

Figure 4 shows the ZipCONNECTOR Robotic Load Connector in the open position. Plates (E) & (F) are squeezed toward each other, lifting the outer housing (G) and causing the pins (H) to lift the segments (A) into contact with the taper on the top cap (I). This motion opens the segments (A) and allows disengagement from the threaded rod (B). The disengagement cannot happen unless the load has been set down and slack put in the line.

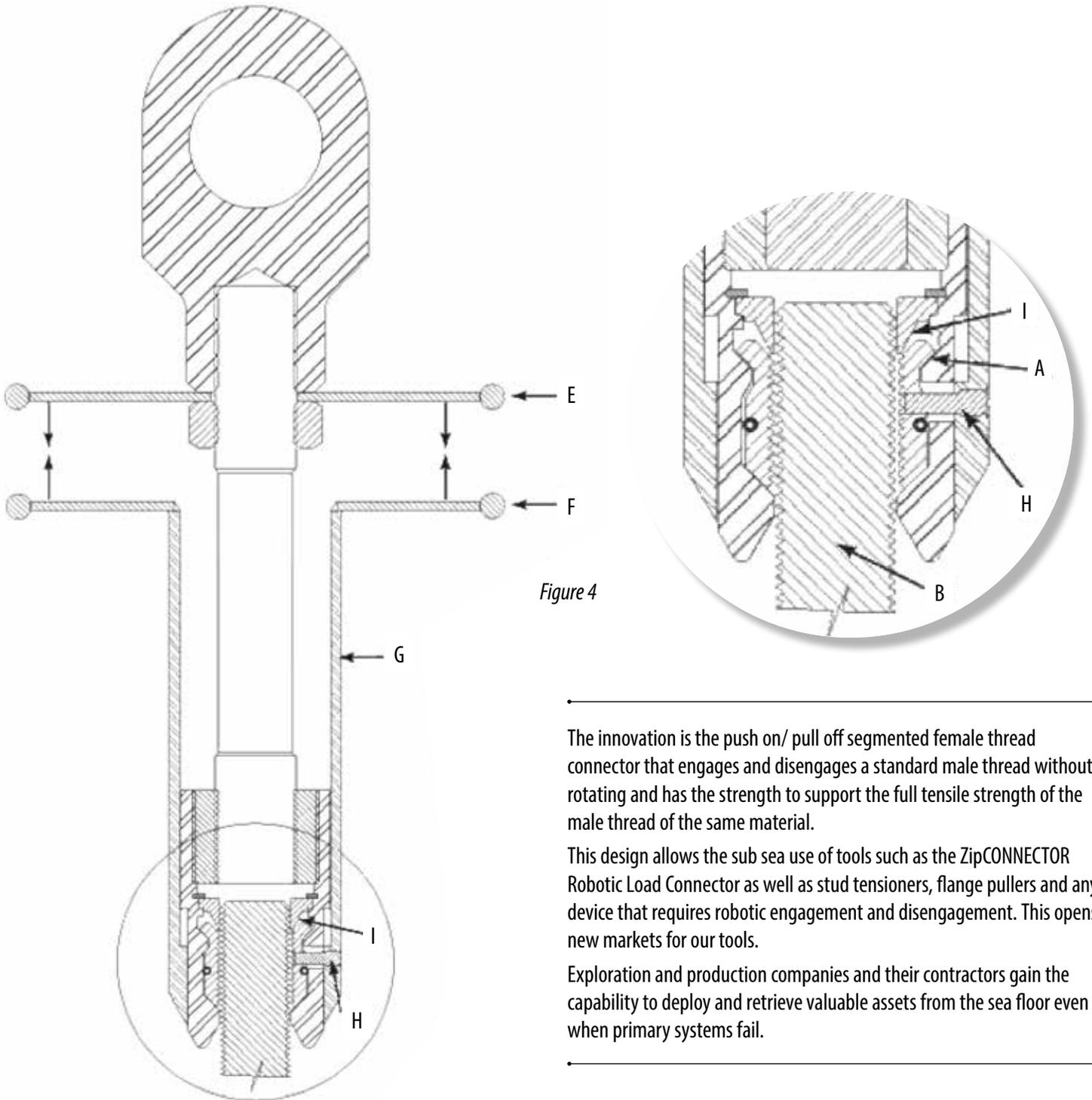


Figure 4

The innovation is the push on/ pull off segmented female thread connector that engages and disengages a standard male thread without rotating and has the strength to support the full tensile strength of the male thread of the same material.

This design allows the sub sea use of tools such as the ZipCONNECTOR Robotic Load Connector as well as stud tensioners, flange pullers and any device that requires robotic engagement and disengagement. This opens new markets for our tools.

Exploration and production companies and their contractors gain the capability to deploy and retrieve valuable assets from the sea floor even when primary systems fail.

