



# Offshore & Subsea Bolting Tools

- ROV Low Profile Torque Wrench
- Subsea Double Cutting Nut Splitter
- Diverless Stud Tensioner
- Riser & Piping Stud Tensioning System
- Subsea Flange Spreader
- Subsea Flange Puller
- ZipNut Fastener Technology

# SpinTORQ

## ROV Torque Wrench

- **More than 36 times faster than ratcheting wrenches**
- **Full power forward and reverse**
- **ROV Friendly: Operates at 2,500 psi. maximum hydraulic pressure**
- **Low Profile: Fits in tight spaces**
- **Custom sizes and shapes available**

### There's only one like it in the world!

When speed matters, only one torque wrench blows all the others out of the water: SpinTORQ.

SpinTORQ is the only low-profile, continuously rotating torque wrench available today. It provides 360-degree continuous rotation at incredibly fast speeds that are 36 times faster at turning a nut than ratcheting hydraulic wrenches. Pair this speed with SpinTORQ's ability to deliver full power in both forward and reverse, and you have dramatic timesaving benefits.

Ratcheting hydraulic wrenches only rotate the nut 10 to 15 degrees for each extension of the cylinder. Each time the cylinder extends, the power unit must build pressure. This tedious process makes turning a nut a very slow ordeal. SpinTORQ's hydraulic model doesn't understand the meaning of slow. With its continuous turn, it builds pressure one time! The result is an 80% time savings over ratcheting hydraulic wrenches.

A specially designed, double-enveloping worm gear gives SpinTORQ the power to get the job done fast. SpinTORQ never locks up and is removed with ease.

### Applications and specifications

Everyone knows that dive time is expensive. A subsea flange that normally takes two hours to make-up with a hydraulic ratcheting wrench can be completed in less than 30 minutes with the SpinTORQ!

The SpinTORQ is a game changer in shutdown/turnaround situations where multiple ranges must be bolted and equipment needs hydrostatic testing to bring a unit back online. SpinTORQ has the power to bring any unit back



online a full day or more earlier than scheduled. This can easily add up to millions of dollars in profit

SpinTORQ's 2,500 psi system easily adapts to ROVs without the use of a hydraulic hose down line.

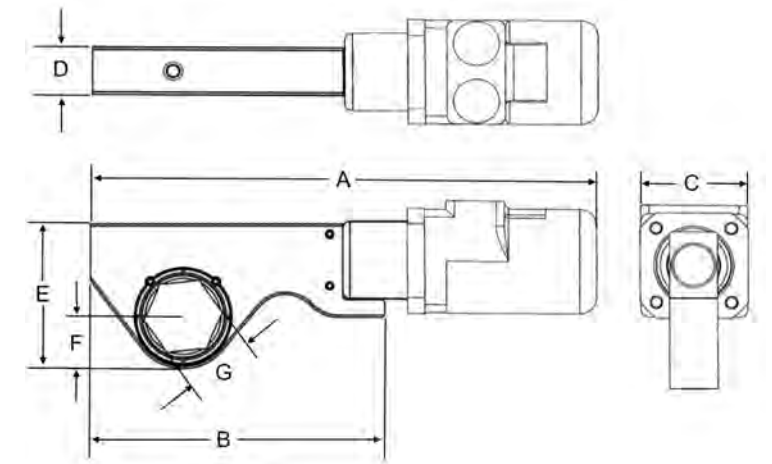
The durability of a stainless steel body and the dependability of the FASTORQ Total Assurance Guarantee ensure you not only get innovation but reliability when you purchase a SpinTORQ. All SpinTORQ models are covered for three years with the added benefit of free warranty extension with our annual free inspection and calibration program.

In addition to the 10 standard models, FASTORQ engineers will design and custom build SpinTORQ wrenches to meet a customer's special needs.

Don't let ratcheting hydraulic torque wrenches slow your project down any longer. Save time and money with SpinTORQ.

## SpinTORQ Hydraulic

The 2,500 psi. hydraulic system allows the SpinTORQ Hydraulic Torque Wrench to be connected to an ROV or rig hydraulic source. It also eliminates the need for slow and problematic 10,000 psi. power units. The lower operating pressure is also a safety benefit.



Wrench Head Model	Motor Model	Hex Sizes Inches (mm)	Torque Range ft-lb (N-m)	Dimension inches (mm)								Weight Hex Head lb. (kg)	Weight Motor lb. (kg)
				A	B	C	D	E	F	G	H		
IL360113	IL360M2	1-13/16 (46)	200-700 (272-950)	15.50 (394)	9.75 (248)	3.62 (93)	3.28 (84)	1.31 (34)	3.88 (99)	1.40 (36)	1-13/16 (46)	5.0 (2.3)	10.3 (4.7)
IL360200	IL360M2	2 (50)	200-900 (272-1220)	15.50 (394)	10.25 (261)	3.63 (93)	3.28 (84)	1.50 (39)	5.00 (127)	1.88 (48)	2 (50)	6.5 (2.9)	10.3 (4.7)
IL360203	IL360M2	2-3/16 (55)	300-1200 (407-1627)	16.00 (406)	3.63 (93)	3.63 (93)	3.281 (83)	1.50 (39)	5.00 (127)	1.88 (48)	2-3/16 (55)	6.5 (2.9)	10.3 (4.7)
IL360206	IL36M2	2-3/8 (60)	400-1600 (543-2170)	17.63 (448)	11.75 (299)	3.63 (93)	3.28 (84)	1.88 (48)	5.63 (143)	2.00 (51)	2-3/8 (60)	12.0 (5.4)	10.3 (4.7)
IL360209	IL360M4	2-9/16 (65)	600-2200 (814-2983)	18.50 (470)	12.75 (324)	3.63 (93)	3.28 (84)	2.00 (51)	6.13 (156)	2.25 (58)	2-9/16 (65)	15.5 (7.0)	11.5 (5.3)
IL360212	IL360M4	2-3/4 (70)	800-2800 (1085-3797)	18.50 (470)	12.75 (323)	3.63 (93)	3.28 (84)	2.00 (51)	6.13 (156)	2.25 (58)	2-3/4 (70)	14.5 (6.6)	11.5 (5.3)
IL360215	IL360M4	2-15/16 (75)	1000-3400 (1356-4601)	19.00 (483)	13.25 (337)	3.75 (96)	3.28 (84)	2.25 (58)	6.52 (166)	2.29 (59)	2-15/16 (75)	18.0 (8.2)	11.5 (5.3)
IL360302	IL360M4	3-1/8 (80)	1200-4000 (1627-5424)	19.00 (483)	13.25 (337)	3.75 (96)	3.28 (84)	2.40 (61)	7.25 (185)	2.75 (70)	3-1/8 (80)	23.0 (10.5)	11.5 (5.3)
IL360308	IL360M5	3-1/2 (90)	1400-5000 (1900-6780)	21.50 (547)	14.00 (356)	4.00 (102)	3.28 (84)	2.50 (63.5)	8.00 (204)	3.00 (77)	3-1/2 (90)	28.0 (12.7)	16.3 (7.4)
IL360314	IL360M5	3-7/8 (98)	2100-7000 (2848-9491)	21.50 (547)	14.00 (356)	4.00 (102)	3.28 (84)	2.50 (64)	8.00 (204)	3.00 (77)	3-7/8 (98)	28.0 (12.7)	16.3 (7.4)

### Power Units for SpinTORQ topside use



**603A**  
2,500 psi. high flow air motor driven hydraulic power unit. Oil delivery is 7 gal./min. Requires 100 psi. @ 150 scfm. Input air.



**603E**  
2,500 psi. high flow electric motor driven hydraulic power unit. Oil delivery is 14 gal./min. Requires 480V, 3-phase, 60 Hz. input power.



**ST-CU**  
2,500 psi. hydraulic control unit. Allows rig hydraulics or other hydraulic power source to be used with the SpinTORQ Hydraulic Model.



# AutoSPLITTER

## Subsea Nut Splitter



- Cuts both sides of the nut in one stroke of the cylinder
- Now available with double-acting cylinders
- Resharpenable advancing chisel
- Cuts ASTM A194 2H nuts quickly & safely
- ROV handles available upon request

AutoSPLITTER can cut through the largest frozen nuts in just seconds, with virtually no risk of injury or accident. It's easy. Simply slip AutoSPLITTER head over the nut and apply hydraulic pressure. One stroke of the cylinder frees even the most corroded nut.

**FAST** - To remove a 3-1/2" nut with a torch or hammer and chisel might take up to 20 minutes. But you only need 20-30 seconds with the AutoSPLITTER. Setup is fast as well. AutoSPLITTER goes from the toolbox to use in less than five minutes.

**SAFE** - No hammers or flame are used. The operator has hands off during operation. No hot work permits are required. AutoSPLITTER cuts smoothly so that there is no danger to the operator or the surrounding equipment.

**VERSATILE** - AutoSPLITTER cuts through even the hardest nuts, including ASTM A194 2H from 11/16" to 4-1/4" (17 - 108 mm) across the flats. You can use it for both inch and metric sizes, and with virtually any shape nut. Round, Square, 12-point and other special nuts will require the use of an adapter. Competing nut splitters require 2 separate cuts to remove the nut provided the nut can be turned to make the second cut! The Double Cutting Nut Splitter makes the impossible happen.

**QUIET** - All you'll hear is the hum of the hydraulic pump and a reassuring "snap" when the nut is cut. With AutoSPLITTER, there's no noise pollution or risk of noise-related injury.

**PRECISE** - You can easily calibrate the cutting chisel so only the nut is cut, with no damage to the bolt or stud threads.

**MONEY SAVING** - Nut removal takes less time so downtime is reduced. With AutoSPLITTER, you can also avoid costly



damage to bolts, studs and surrounding equipment.

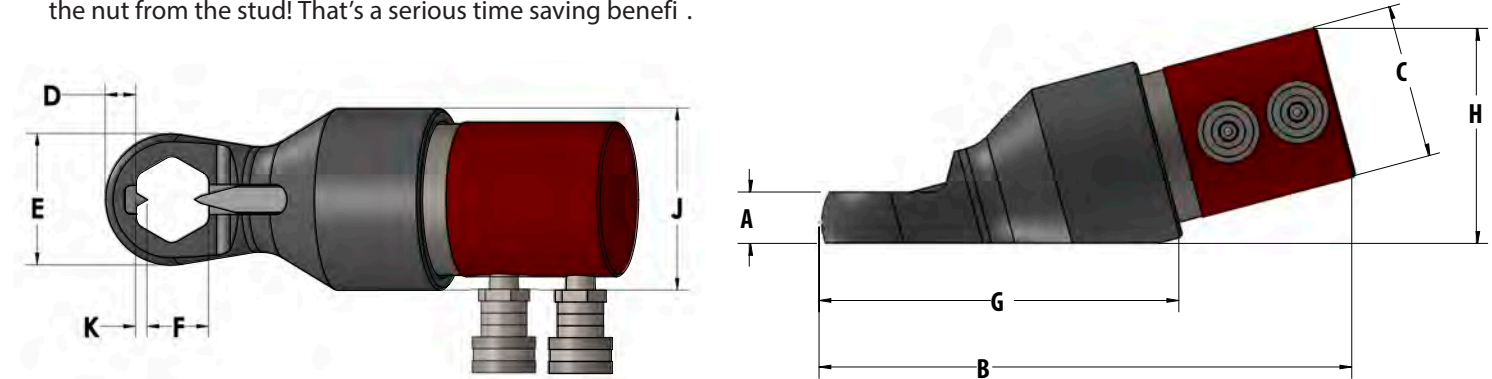
**FLEXIBLE** - AutoSPLITTER is specially designed, so you can work from more angles and in more applications than with competing models. AutoSPLITTER fits all API and ANSI flanges and virtually all valve bonnets.

**DURABLE** - AutoSPLITTER is made to last. Our special metallurgy, geometry and hardening process make our chisels good for dozens of cuts before resharpening and many resharpenings before replacing! Because of its unique compound angle chisel design, the AutoSPLITTER even cuts stainless steel nuts! All AutoSPLITTER products come with FASTORQ's No B.S. Lifetime Guarantee!

# AutoSPLITTER Double Cutting Double Acting Model

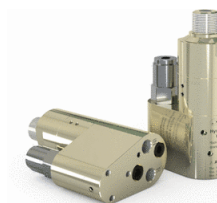
## Remove Nuts In One Pass

Some jobs just call for speed. When time matters, double your performance with FASTORQ's Double Cutting Nut Splitter®. Available in 11/16 inch to 4-1/4 inch cutting range, cutting across the flats just became faster and easier. The Double Cutting AutoSPLITTER works by eliminating the need to move the nut splitter to a second position 180 degrees from the first to break the nut from the stud! That's a serious time saving benefit.



Duo/Trio Kits	Model	Stud Diameter inches (metric)	Nut Size ATF inches (mm)	A In. (mm)	B In. (mm)	C In. (mm)	D In. (mm)	E In. (mm)	F In. (mm)	G In. (mm)	H In. (mm)	J In. (mm)	K In. (mm)	Weight lb. (kg.)
ASDU025DCDA	AS105DCDA	5/16 - 3/4 (M8-M20)	11/16 - 1-1/4 (16-36)	1.13 (29)	11.67 (296)	3.38 (86)	0.67 (17)	2.87 (73)	1.35 (34)	7.90 (201)	3.38 (86)	3.97 (101)	0.25 (6)	20 (9)
	AS200DCDA	7/8 - 1-1/8 (M22-M30)	1-7/16 - 1-11/16 (36-41)	1.38 (35)	12.39 (315)	3.38 (86)	0.94 (24)	3.62 (92)	2.00 (51)	8.60 (218)	4.72 (120)	3.97 (101)	0.25 (6)	21 (10)
ASDU055DCDA	AS204DCDA	1-1/4 - 1-3/8 (M33-M36)	1-13/16 - 2-3/16 (46-60)	1.75 (45)	16.4 (417)	5.00 (127)	1.14 (29)	4.48 (114)	2.32 (59)	12.34 (313)	6.68 (170)	5.87 (149)	0.37 (9)	61 (28)
	AS210DCDA	1-3/8 - 1-1/2 (M36-M39)	2-3/16 - 2-3/8 (55-65)	2.00 (51)	16.71 (424)	5.00 (127)	0.97 (25)	4.75 (121)	2.42 (61)	12.61 (320)	6.75 (171)	5.97 (152)	0.42 (11)	62 (28)
ASDU0100DCDA	AS308DCDA	1-3/4 - 2 (M45-M52)	2-5/8 - 3-1/8 (65-90)	2.50 (64)	19.88 (505)	6.25 (159)	1.51 (38)	6.28 (160)	3.14 (80)	14.26 (362)	8.32 (211)	7.25 (184)	0.63 (16)	95 (43)
	AS314DCDA	2 - 2-1/4 (M52-M56)	3 - 3-5/8 (80-90)	2.75 (70)	20.69 (526)	6.25 (159)	1.75 (44)	6.75 (171)	3.71 (94)	14.97 (380)	8.32 (211)	7.38 (187)	0.71 (18)	100 (45)
	AS404DCDA	2 3/4 - 3-1/4 (M72-M85)	3-3/4 - 4-1/4 (95-110)	3.73 (95)	21.44 (545)	8.50 (216)	2.09 (53)	7.75 (197)	4.30 (109)	15.74 (400)	14.36 (365)	9.44 (240)	0.54 (14)	206 (94)

**NOW DOUBLE ACTING** - AutoSPLITTER Double Cutting Nut Splitters are now available with a double acting cylinder. This replaces the single acting, spring return cylinder on the 25, 55 and 100 ton models. It provides faster retract of the advancing chisel and improved sealing performance in subsea applications. Please ask for the double acting cylinder option when requesting a quotation for subsea use.



**INTENSIFIERS** - Optional intensifiers are available in a number of different configurations to support use of AutoSPLITTER products with ROV hydraulics. Adjustable inlet pressure, outlet pressure as well as complete systems are some of the available options.

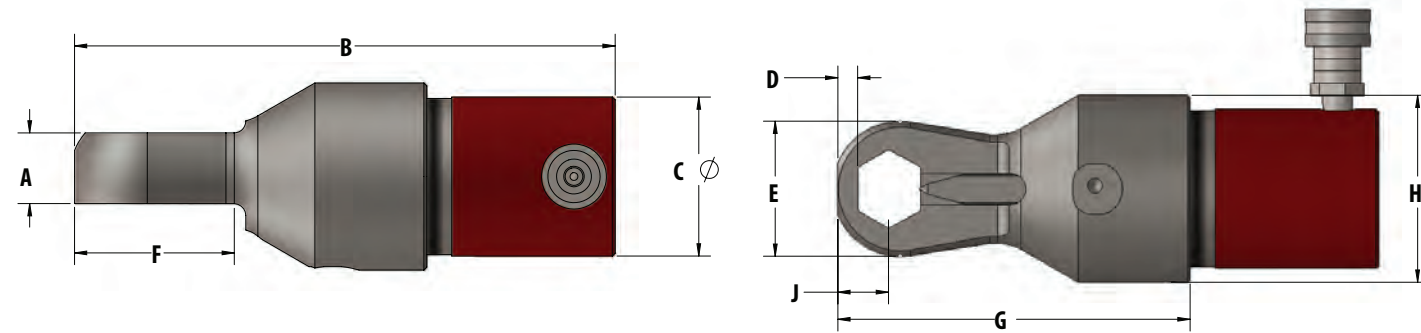


# AutoSPLITTER Standard Model

## Standard Model

FASTORQ straight head nut splitters offer versatility with a large cutting range (from 11/16 inch to 6-1/8 inches); cylinders that accept usually two to three heads and adapters that cut round, square, 12-point, Huck bolts and uniquely shaped nuts.

The Standard AutoSPLITTER fits most API and ANSI flanges as well as valve bonnets and BOPs. Custom- built nut splitters are also available when the need arises.



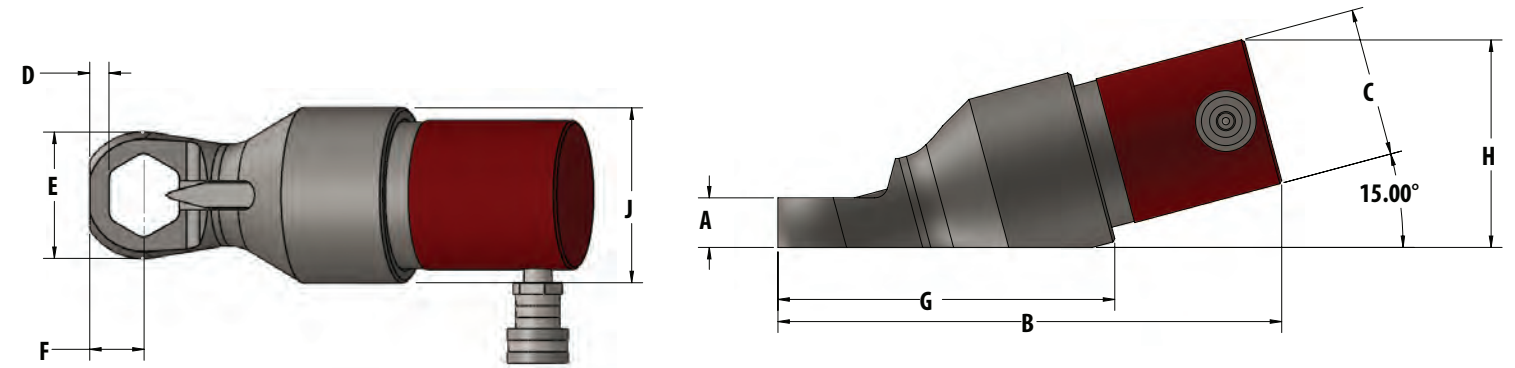
Duo/Trio Kits	Model	Stud Diameter inches (metric)	Nut Size ATF inches (mm)	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G inches (mm)	H inches (mm)	J inches (mm)	Weight lb. (kg.)
ASDU025	AS105	5/16 - 7/8 (M8-M22)	11/16 - 1-7/16 (16-36)	1.50 (39)	11.5 (292)	3.40 (86)	0.42 (11)	2.87 (73)	3.39 (86)	7.48 (190)	3.97 (100)	1.08 (27)	20 (9)
	AS200	7/8 - 1-1/4 (M22-M33)	1-7/16 - 2 (36-55)	1.50 (39)	12 (305)	3.40 (86)	0.50 (13)	3.63 (92)	3.88 (99)	8.00 (203)	3.97 (100)	1.63 (41)	21 (10)
ASDU055	AS204	1-1/4 - 1-1/2 (M30-M39)	1-3/16 - 2-3/8 (50-65)	2.25 (58)	15.8 (401)	5.00 (127)	0.69 (18)	4.42 (112)	5.05 (128)	11.47 (292)	5.87 (149)	1.74 (44)	61 (28)
	AS210	1-3/8 - 1-3/4 (M36-M45)	2-7/16 - 2-3/4 (60-75)	2.25 (58)	15.7 (399)	5.00 (127)	0.67 (17)	4.50 (114)	5.44 (138)	11.38 (289)	5.97 (149)	2.06 (52)	62 (28)
ASDU0100	AS308	1-3/4 - 2-1/4 (M45-M56)	2-3/4 - 3-1/2 (75-90)	2.93 (74)	19.1 (485)	6.25 (159)	0.88 (22)	6.28 (160)	6.00 (152)	13.12 (333)	7.25 (184)	2.63 (67)	95 (43)
	AS314	2 - 2-1/2 (M52-M64)	3-1/8 - 3-7/8 (85-100)	3.13 (80)	19.3 (490)	6.25 (159)	0.88 (22)	6.25 (159)	6.19 (157)	13.31 (338)	7.38 (187)	2.81 (71)	100 (45)
ASTRIO	AS404	2-1/2 - 2-3/4 (M64-M72)	3-3/4 - 4-1/4 (95-110)	3.75 (95)	19.4 (493)	8.50 (216)	1.13 (29)	7.50 (191)	6.73 (171)	13.66 (347)	9.44 (240)	3.25 (83)	205 (93)
	AS500	3 - 3-1/4 (M76-M85)	4-7/8 - 5 (115-135)	4.13 (105)	19.6 (498)	8.50 (216)	1.13 (29)	9.00 (229)	7.06 (179)	19.92 (506)	9.94 (240)	3.59 (91)	210 (95)
	AS506	3-1/4 - 3-1/2 (M85-M90)	4-7/8 - 5-3/8 (125-135)	4.13 (105)	19.9 (505)	8.50 (216)	1.13 (29)	9.31 (236)	7.29 (185)	14.23 (361)	9.94 (240)	3.81 (97)	215 (98)
	AS608	3-3/4 - 4 (M95-M100)	5-3/4 - 6-1/8 (140-155)	5.00 (127)	22.8 (579)	10.5 (267)	1.41 (36)	11.72 (298)	9.55 (243)	16.97 (431)	12.5 (318)	4.77 (121)	387 (176)

Power Units for AutoSPLITTER on following page

# AutoSPLITTER Angle Head Model

## Angle Head Standard Model

Looking to get around obstructions or cut on flat surfaces? The angle head nut splitter can't be beat. With a cutting range from 11/16 inch to 3-7/8 inches, the angle head goes where straight head nut splitters cannot. Avoid frustration and invest in the versatile and innovative Angle Head AutoSPLITTER.



Duo/Trio Kits	Model	Stud Diameter inches (metric)	Nut Size ATF inches (mm)	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G inches (mm)	H inches (mm)	J inches (mm)	Weight lb. (kg.)
ASDU025AH	AS105AH	5/16 - 7/8 (M8-M22)	5/8 - 1-7/16 (16-36)	1.13 (29)	11.43 (290)	3.38 (86)	0.44 (11)	2.87 (73)	1.22 (31)	7.6 (193)	4.71 (120)	3.97 (101)	20.0 (9)
	AS200AH	7/8 - 1-1/4 (M22-M33)	1-5/16 - 2 (36-55)	1.38 (35)	11.95 (304)	3.38 (86)	0.50 (13)	3.63 (92)	1.63 (41)	8.16 (207)	4.72 (120)	3.97 (101)	21.0 (10)
ASDU055AH	AS204AH	1-1/4 - 1-1/2 (M30-M39)	1-7/8 - 2-3/8 (50-65)	1.75 (44)	15.84 (402)	5.00 (127)	0.69 (18)	4.00 (102)	1.87 (47)	11.8 (300)	6.68 (170)	5.87 (149)	61.0 (28)
	AS210AH	1-3/8 - 1-3/4 (M36-M45)	2-3/16 - 2-3/4 (60-75)	2.00 (51)	16.49 (419)	5.00 (127)	0.75 (19)	4.75 (121)	2.14 (54)	12.39 (315)	6.07 (154)	5.97 (152)	62.0 (28)
ASDU0100AH	AS308AH	1-3/4 - 2-1/4 (M45-M56)	2-5/8 - 3-1/2 (75-90)	2.50 (64)	19.25 (489)	6.25 (159)	0.88 (22)	6.28 (160)	2.63 (67)	13.62 (346)	8.32 (211)	7.25 (184)	95.0 (43)
	AS314AH	2 - 2-1/2 (M52-M64)	3 - 3-7/8 (85-100)	2.50 (64)	19.74 (501)	6.25 (159)	0.88 (22)	6.30 (160)	2.74 (70)	14.1 (358)	8.27 (210)	7.38 (187)	100.0 (45)

## Power Units for AutoSPLITTER

AutoSPLITTER products require 10,000 PSI hydraulic pump (sold separately). We supply electric, air and manually driven power units. When electricity or air power are not available, select Model 150H. With each pump you will receive 12 feet of hydraulic hose plus all fittings and quick disconnects needed.

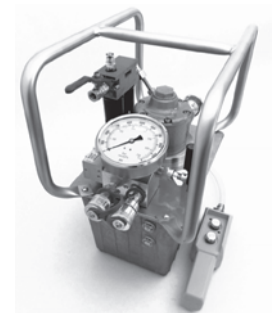
### 610A

10,000 psi. high flow air driven hydraulic power unit delivers 470 in<sup>3</sup>/min. @ 0 psi. and 150 in<sup>3</sup>/min. @ 10,000 psi.



### FHFA-10K

10,000 psi. compact air driven hydraulic power unit delivers 620 in<sup>3</sup>/min. @ 0 psi. and 62 in<sup>3</sup>/min. @ 10,000 psi.





# ZipNut® Technology

## Space Age Meets Energy Industry



- **Revolutionary technology**
- **Originally developed for NASA**
- **Fast & efficient**
- **Durable**
- **Reduces time & labor costs**
- **No cross-threading**
- **Custom sizes & materials available**

### Space Age Technology

ZipNuts were first developed to NASA's requirements for a Space Shuttle flight in 1989. Since then, ZipNuts have been used not only aboard the Shuttle, but in construction of the International Space Station and during repair of the Hubble Space Telescope.

Imagine trying to turn a nut on a bolt wearing heavy work gloves and the ultimate in "coveralls" – a space suit – while you and your tools float weightlessly. Working in space isn't easy.

The technology works like this: A ZipNut can be installed by simply pushing it onto a bolt in one motion, eliminating the difficulty of threading a traditional nut. When the ZipNut reaches the end of the bolt's threads, it can then be tightened by simply twisting it.

While ZipNuts may sound like a new breakfast cereal; they're actually a Space Age answer to some nuts-and-bolts assembly problems. Now this same technology used by astronauts for assembly and repair jobs in space is offering many down-to-earth solutions, as well.



ZipNuts like these are designed for construction and repair work in space.



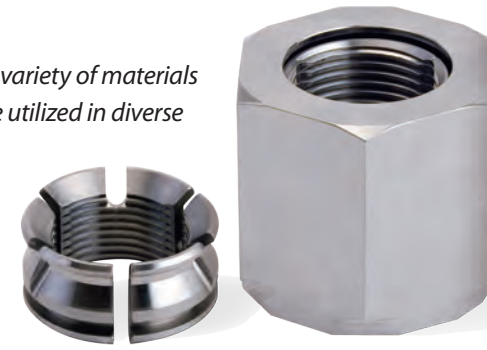
Astronaut Steven L. Smith, payload commander on STS-103, stands on the mobile foot restraint at the end of the remote manipulator system (RMS). ZipNuts were used to service the Hubble Space Telescope during this December 1999 mission. Image credit: NASA

This innovation improves both the speed and accuracy of the task. That translates into a big savings in many work environments, not only in dollars, but sometimes even in lives. One such life-saving use is in mechanisms for extracting victims of auto crashes, building collapses, cave-ins and construction accidents. When time is of the essence, the quick connect and release can mean the difference between life and death.

Now produced in a number of different sizes and materials – such as stainless steel, aluminum, titanium, Ferralium, brass and even plastic – the earth-bound industries that benefit from them are as diverse as the materials themselves. ZipNuts can be found in medical equipment, tire manufacturing machines, subsea pipe laying equipment, power plants and fire hoses, just to name a few.

These fastening mechanisms are used in the same ways as their traditional counterparts, but with the added flexibility of speedy installation and removal, and in some cases, even added strength. One such strength benefit is in high-pressure connections, where the pressure actually works with the connector to make it more secure.

ZipNuts in a variety of materials and sizes are utilized in diverse industries.



Another big advantage ZipNuts have over traditional threaded fasteners is their ability to work in spite of problems like rust, paint and damage that would normally prevent traditional connections from being made.

ZipNuts also come in a Double Zip® option that slides onto the nut in the same manner as the original, but give users the option to also remove the nut the same way with one quick turn and slide off the bolt. It doesn't get much easier than that!

### ZipNut Technology at work

FASTORQ's ZipNut Technology is now back on earth and available not only as a superior solution to standard nut threading troubles, but part of many FASTORQ tools designed to make quick work of your toughest problems.

### ZipBOLT®

The patented technology of the ZipBOLT was developed to replace threaded fasteners in applications where quick installation and removal times are required. They also offer several other advantages such as no alignment or threading issues since ZipNut collapsible thread technology is utilized. Threaded segments are collapsed in the installer's hand by simply squeezing the bolt (double-action of pulling and pressing against the palm of your hand). This will allow the bolt to be installed or removed quickly. Once the threaded segments are fully extended, they are locked into place and the bolt can be tightened or loosened as desired.

### ZipTENSIONER

These stud tensioners cut job time by 90 percent. ZipTENSIONER is the ultimate in reliability and speed for bolt loading applications. The one-piece design provides 100-percent coverage on the same side of the flange and simultaneous tension of multiple fasteners. By evenly loading on all fasteners in the joint, ZipTENSIONERS

eliminate elastic interactions (cross talk), provide uniform bolt load and achieve leak-free joints.

### ZipPULLER

Ideal for challenging subsea flange connections and alignment or heavy equipment positioning and maneuvering, the ZipPULLER flange puller has the largest load capacity pulling system on the market. Its versatile and compact design works great with ROVs, hard suits and divers.

### ZipLIFT

By using Double Zip Technology, the ZipLIFT load connector and crane grapple provides safe and reliable industrial strength lifting in hazardous work areas.

### AutoZIP VIV Mechanism Fastener

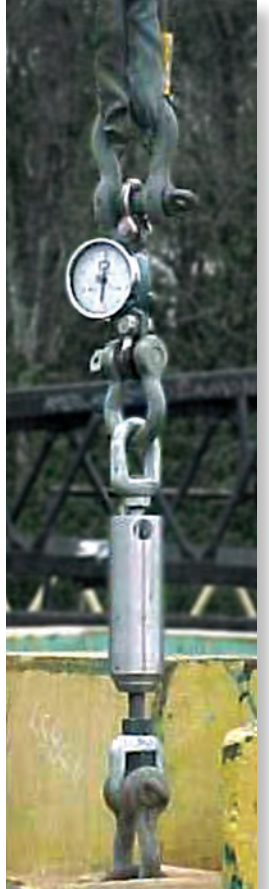
Vortex Induced Vibration (VIV) is extremely destructive to subsea risers and moorings. FASTORQ's AutoZIP VIV Mechanism Fasteners provide rugged, permanent and irreversible fastening of VIV suppression system fairings on subsea risers.

### Applications and Specifications

ZipNut Technology is a viable option for many industries where speed, accuracy and reliability are important and even life saving. Additionally, robotic adaptability makes ZipNuts and ZipNut Technology tools ideal for subsea, land-based, wind and nuclear applications.

Standard ZipNuts replace heavy hex nuts and on standard bolts.

When you are ready to step up to the fastening technology NASA trusted with its equipment, give FASTORQ a call and ask for the one and only ZipNut Technology.





# F.A.S.T.

## Riser & Piping Stud Tensioning System



- **Completely remotely operated**
- **Operates on 2,000 psi. hydraulic pressure**
- **100% joint integrity**
- **Over 90% time savings**
- **Revolutionary ZipNut Technology**

### How it Works

The FAST (Fully Automated Stud Tensioner) in the frames to the right is for an API 21-3/4" 5,000 psi. flange with 24, 2" diameter bolts. It is currently in operation in the Gulf of Mexico.

FAST operates hands-free from a Hydraulic Control Console operating at 2,000 psi. to control all functions for the tool (tensioners operate at 26,000 psi. with built in intensification circuit).

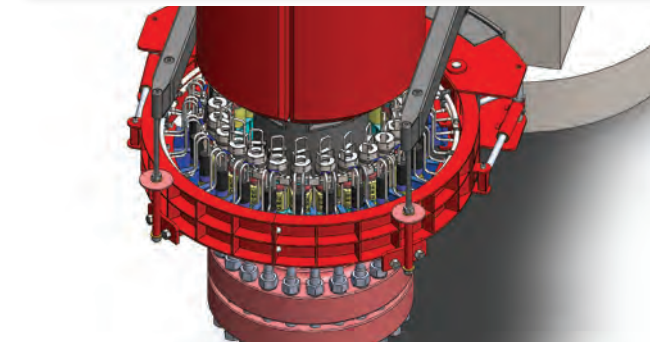
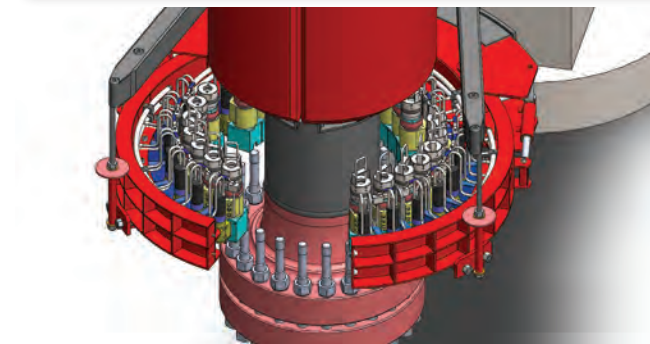
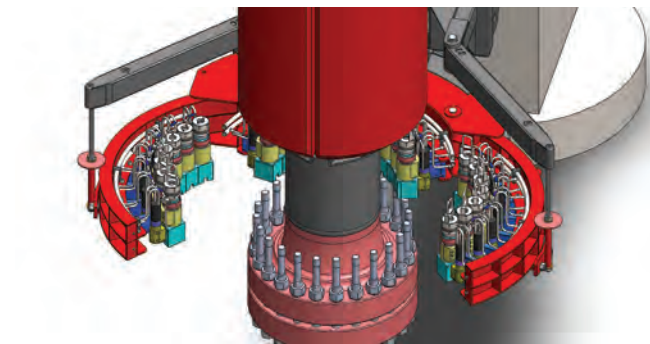
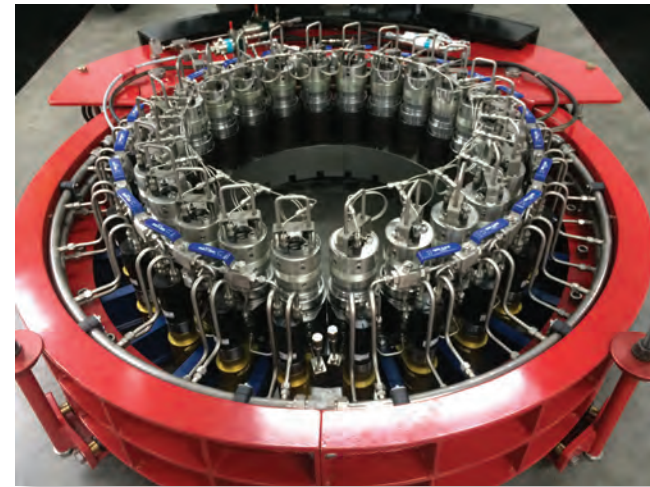
FAST has wings that open to wrap around the riser or pipe. The tool can be delivered to well center via an articulating arm, a rail driven frame or an overhead lift system.

The wings are closed with hydraulic cylinders that are attached to the frame of the tool.

Once the wings are closed, the tool simply slides onto the flange. ZipNuts allow the tool to slide down the bolts. The tensioner load cells, nut rotators and ZipNut release circuits are all operated remotely from the Hydraulic Control Console.

Once the bolts have been tensioned, the tool is lifted and the wings are opened. The delivery system is then retracted to the starting position.

The entire operation is **LESS THAN 4 MINUTES!**



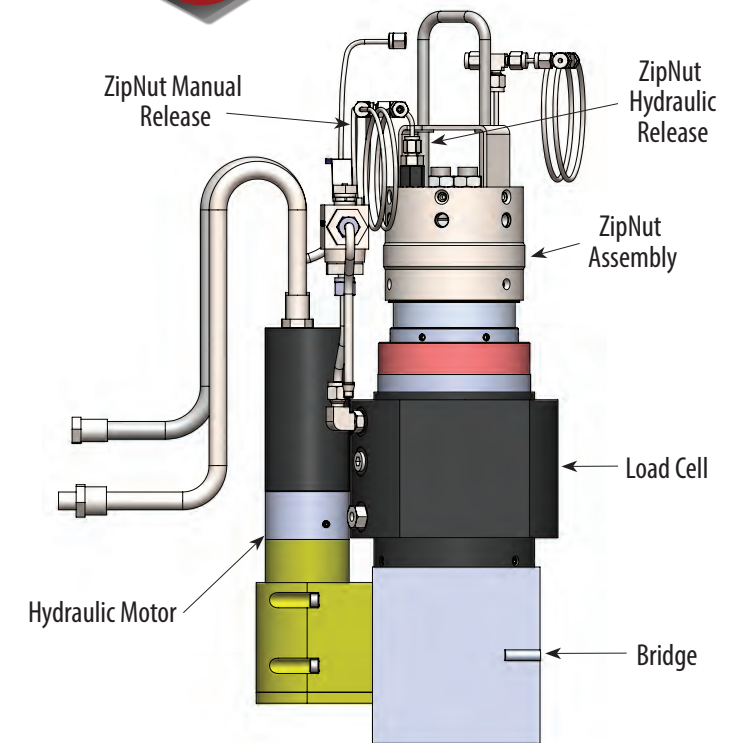
# ZipTENSIONER

## Diverless Stud Tensioner



- **Fully automated single unit slides on and off bolt**
- **Cuts tensioning time up to 90%**
- **Only diverless tool in the world**
- **100% same side flange coverage**
- **ROV friendly**
- **Revolutionary ZipNut® Technology**

The ZipTENSIONER is the only diverless tensioner on the market. Others make this claim with tensioners utilizing split nuts that must be manipulated by the ROV. This is very difficult if not impossible. The ZipTENSIONER simply slides on and off the bolt making installation and removal with an ROV possible in a single integrated unit. The ZipTENSIONER is also a huge time saver for nuclear applications and other limited exposure environments.



Stud Dia. (Inches)	Metric Diam.	Max Initial Load1 (lb.)	Max Load (%yield*)	Hydraulic Area (In.2)	Max Oper. (psi)	Tensioner OD (In.)
3/4	M20	26.3	75	1.01	26,000	1.86
7/8	M22	36.4	75	1.40	26,000	2.14
1	M24	47.4	75	1.82	26,000	2.43
1-1/8	M30	62.2	75	2.39	26,000	2.64
1-1/4	M33	78.8	75	3.03	26,000	2.88
1-3/8	M36	97.1	75	3.74	26,000	3.16
1-1/2	M39	101.4	65	3.90	26,000	3.27
1-5/8	M42	120.9	65	4.65	26,000	3.54
1-3/4	M45	142.1	65	5.47	26,000	3.79
1-7/8	M48	164.7	65	6.34	26,000	4.08
2	M52	189.2	65	7.28	26,000	4.36
2-1/4	M56	242.8	65	9.34	26,000	4.91
2-1/2	M64	253.2	60	9.74	28,000	5.18
2-3/4	M72	309.0	60	11.04	28,000	5.64
3	M76	370.8	60	13.24	28,000	6.16
3-1/4	M85	438.0	60	15.64	28,000	6.68
3-1/2	M90	510.9	60	18.25	28,000	7.20
3-3/4	M95	589.2	60	21.04	28,000	7.71
4	M100	673.2	60	24.04	28,000	8.23

\*Bolt load as a percentage of yield is based on the minimum yield strength of ASTM A193, B7 bolt material. 1 Maximum load x 1,000 lbs.



# ZipPULLER

## Subsea Flange Puller



- **Fast & easy**
- **Largest load capacity in the industry**
- **ROV and diver friendly**

The ZipPULLER flange puller makes fast work of pulling, aligning or mating a wide range of flange sizes on land or underwater with the largest load capacity pulling system around.

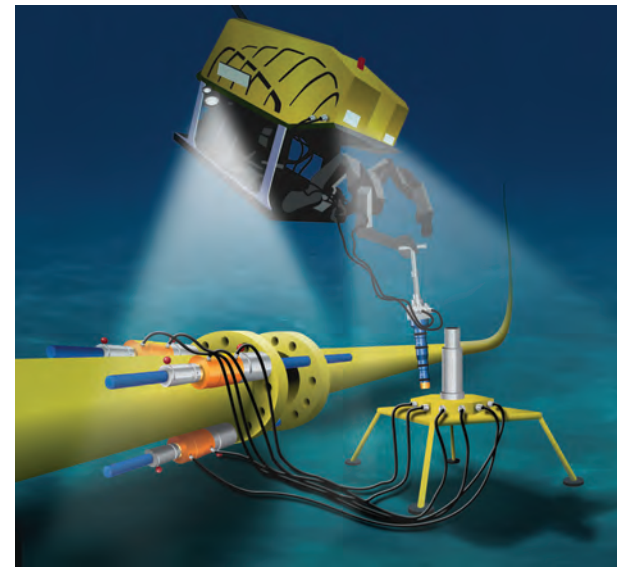
Available in 30-ton (6-inch) and 60-ton (5-inch) stroke models, the ZipPuller powers that difficult flange into place.

Using ZipNut Technology, ZipPULLER slides right over the threaded rod during the retraction process. In addition, it can be pulled off standard threaded rods and has quick release levers to open and close the ZipNuts for fast installation and removal. No more time-consuming tightening of nuts and bolts.

Well-suited for subsea flange pulling and alignment, the versatile ZipPULLER is perfectly suited for use with ROVs, hard suits and divers since it can be operated at any depth.

Designed to provide uniform flange make-up with multiple units and a single hydraulic power unit, ZipPULLER's parts are stainless steel, nickel-plated or coated to provide corrosion protection.

ZipPULLER comes with FASTORQ's Total Assurance Guarantee and 1-Year Warranty.



*Multiple ZipPULLER units used on subsea pipeline can be plumbed together so that a single hot stab energizes the hydraulic cylinders to bring the flanges together. Once the cylinders are retracted, the ZipNuts automatically reset and allow the tools to be energized again and again. The ROV can disengage the ZipPULLERS and remove them making this a true diverless tool.*



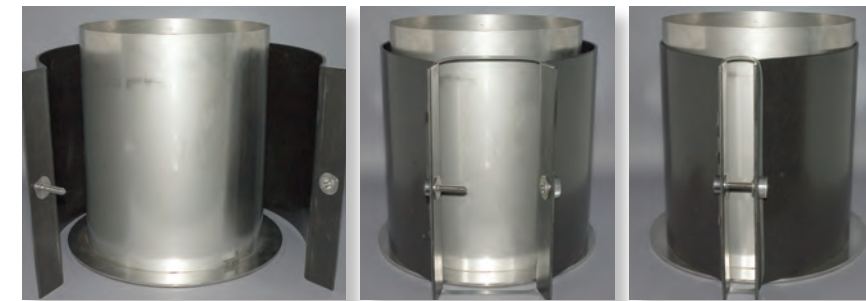
# AutoZIP VIV

## VIV Fastening Mechanism

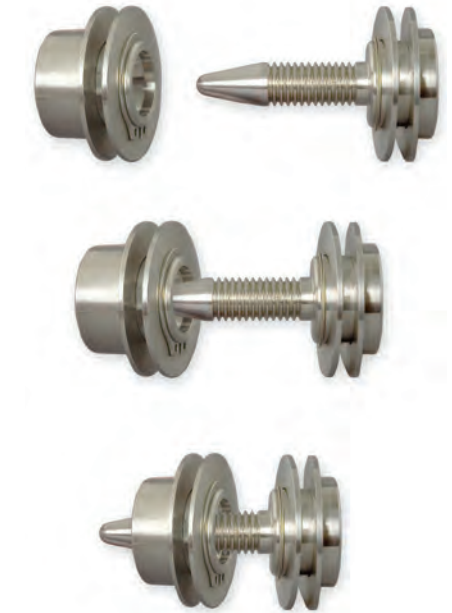


Vortex Induced Vibration (VIV) occurs when ocean currents flow past the risers that transport well fluids from the sea floor to the surface/offshore production structures. The vibration is extremely destructive to risers and associated equipment. To counteract VIV, suppression fairings are fastened around the risers using remote operated vehicles (ROV).

The AutoZIP VIV Fastening Mechanism follows the same principle of a check valve, allowing movement only in one direction.



*Notice the conical tip on the male component to help alignment for smooth fastening into the female component. To prevent loosening due to vibration or rotation, radial grooves in the components replace the helical threads normally used in fasteners. Once the ZipNut fasteners engage, the action is irreversible.*



# ZipBOLT

## Collapsible Fastener

The patented technology of the ZipBOLT was developed to replace threaded fasteners in applications where quick installation and removal times are required. They also offer several other advantages such as no alignment or threading issues since ZipNut® collapsible thread technology is utilized. Threaded segments are collapsed in the installer's hand by simply squeezing the bolt (double-action of pulling and pressing against the palm of the hand). This will allow the bolt to be installed or removed quickly. Once the threaded segments are fully extended, they are locked into place and the bolt can be tightened or loosened as desired.

The ZipBOLT can be manufactured in a variety of thread forms and materials to suit the specific needs of each customer. Since every application is different, the ZipBOLT is not an "off-the-shelf" item but custom designed by FASTORQ's in-house engineering team.



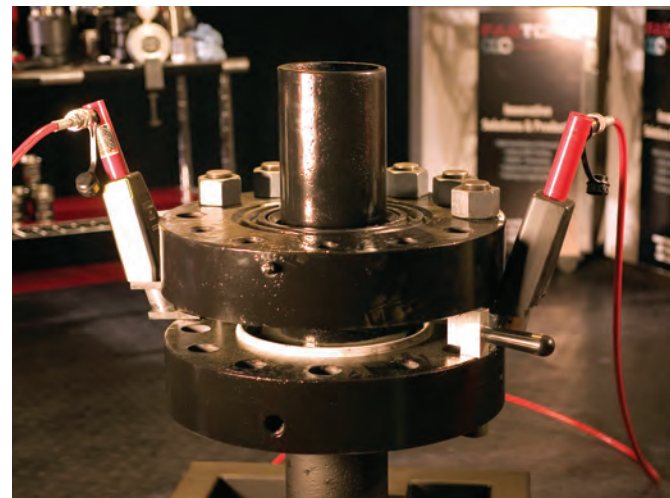


# AutoSPREADER

## Subsea Flange Spreader



- 10,000 lb of force per spreader
- Lightweight – only 12 lb
- 3" gap achieved in a single pass
- Fast & easy
- Only requires a 3/16" insertion gap
- Jaws open parallel
- No loose wedges or parts
- Safety blocks included



Hydraulic AutoSPREADER pairs come complete with two safety blocks.

FASTORQ Hydraulic AutoSPREADERS are simple to use. Just by placing the AutoSPREADER jaws between the flange faces and turning the ratchet handle, you get 10,000 lb of spreading force in one pass. AutoSPREADERS create up to a 3-inch gap with no slipping thanks to their serrated jaws. Perfect for lifting, leveling, lowering and aligning, AutoSPREADERS are a great choice when safety and strength are needed.

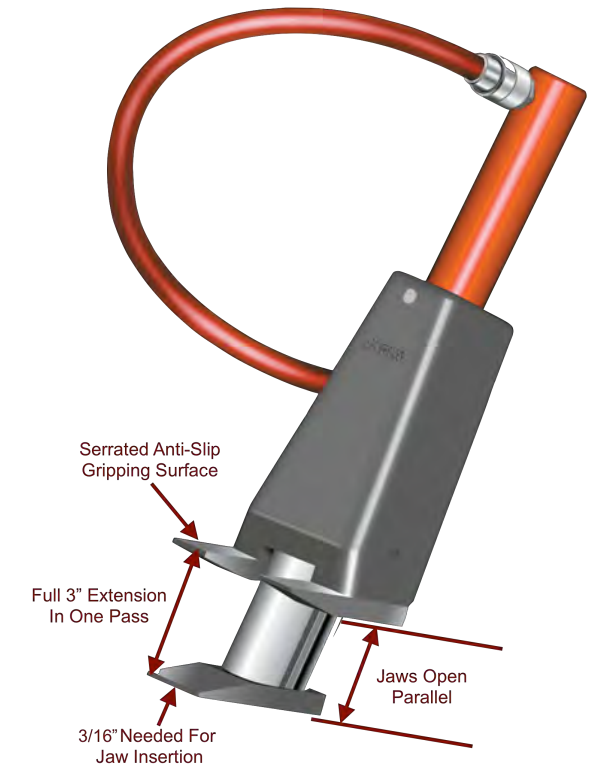
Pair the power of hydraulics with the versatility of the FASTORQ Hydraulic AutoSPREADER to get 10,000 lb of spreading force per flange spreader. Multiple spreaders can even be powered by just one standard pump. Each AutoSPREADER creates up to a 3-inch gap in a single pass and is perfect for lifting, leveling, lowering and aligning. With serrated jaws to provide security while spreading, FASTORQ's Hydraulic Auto-SPREADERS are a smart choice when safety and strength are necessary.

**INTENSIFIERS** - Optional intensifiers are available in a number of different configurations to support use of AutoSPREADER products with ROV hydraulics. Adjustable inlet pressure, outlet pressure as well as complete systems are some of the available options.



Opens any size flange with controlled force

Specification	Imperial	Metric
Weight	12 lb	5.4 kg
Length	14.0"	355 mm
Width of Jaws	4.5"	114 mm
Width of Body	4.5"	114 mm
Jaws Closed	0.13"	3.2 mm
Jaws Open	3.0"	76.2 mm
Jaw Penetration	1.5"	38.1 mm
Rated Force	10,000 lbf	44.5 kN



### UNIVERSAL:

- One Size Fits All Flange Sizes

### SAFE:

- No Loose Wedges or Parts
- No Drift – It Stays Put
- Safety Blocks Included
- Jaws Open Parallel
- Can Be Remotely Operated

### POWERFUL:

- 10,000 Lbs of Force per Spreader

### SIMPLE OPERATION:

- Easy – One Man Operation
- Lightweight – Just 12 Lbs

### VERSATILE:

- Gasket Maintenance
- Separate Manways
- Bearing Removal
- Lifting
- Lowering
- Turning Blinds
- Open Vessels
- Impeller Removal
- Leveling
- Aligning



The serrated feet on AutoSPREADER keeps it in place and only needs 3/16" of space to insert.





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