

# RETLOCK® 2.0 CLAMP

## Optimized Sealing Technology

The Retlock® 2.0 clamp is a modified and improved version of the original *Retlock*, with optimized physical size, pressure ratings, and depth capabilities. The primary driver of its development was to offer an efficient solution for the 6-in. through 12-in. nominal pipe size (NPS) range. The *Retlock* 2.0 clamp is specifically targeted for use with the Virtus™ vertical type connector in higher pressure and deeper water depth developments, such as the US Gulf of Mexico; however, the *Retlock* 2.0 clamp may be used at the core of any AFGlobal *Virtus* series diverless connection system anywhere in the world.

The *Retlock* 2.0 series is available in two clamp sizes, the first that is optimized to service NPS 6-in. to 8-in. and the second that is optimized to service NPS 10-in. to 12-in. The technology of the clamp and its gasket provide the capability to service 10,000 ft+ depths at 15 ksi rated

working pressure. Additionally, the *Retlock* 2.0 is designed to be operated with ROV deployed Class V torque tools without the use of worm gears or multipliers up to and including service of NPS 12-in. This key feature allows the *Retlock* 2.0 clamp to be completely installed by standard work class ROVs and equipment, which offers time and cost efficient installation.

The *Retlock* 2.0 twin-bolt system provides all the same benefits and decades of proven reliability associated with the *Retlock* name. Additionally, we design and manufacture the tooling systems to be used in conjunction with the *Retlock* and *Virtus* diverless connection systems. These tooling systems come in two standard configurations—a simple modular package or a fully integrated ROV-mounted tooling skid. These systems can either be rented or purchased depending on the client's needs.



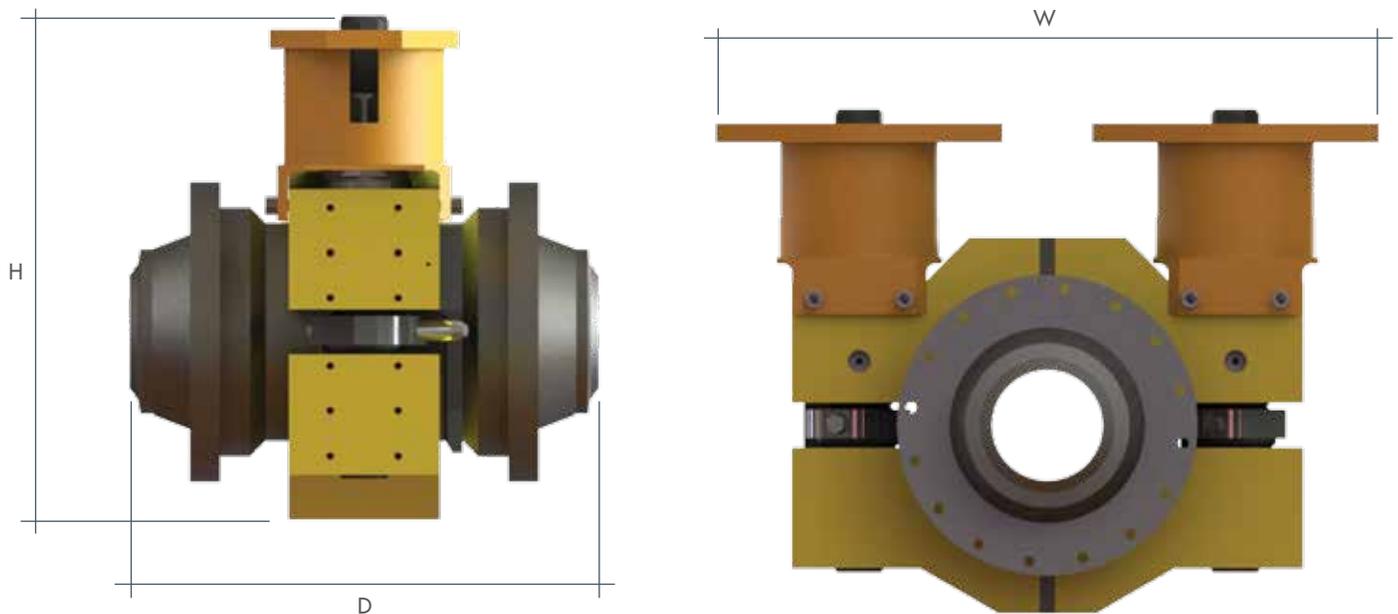
## RETLOCK CLAMP 2.0

NOMINAL PIPE SIZE	6-in. and 8-in. <sup>(1)</sup>	10-in. and 12-in. <sup>(1)</sup>
PIPE OD	8.625-in. (219.7 mm)	12.75-in. (323.85 mm)
PIPE WALL THICKNESS	1.42-in. (36 mm)	2.1-in. (53.1 mm)
ASSUMED PIPE YIELD	65 ksi (448 MPa)	65 ksi (448 MPa)
PRESSURE RATING	15 ksi (1034 Bar)	15 ksi (1034 Bar)
TEST PRESSURE	22.5 ksi (1551 Bar)	22.5 ksi (1551 Bar)
DEPTH RATING	10,335 ft. (3150 m)	10,335 ft. (3150 m)
TEMPERATURE RANGE	0° to 350°F (-18° to 177°C)	0° to 350°F (-18° to 177°C)
PHYSICAL DIMENSIONS (CLOSED)	34.65-in. x 26.4-in. x 24.6-in. (900 x 683 x 625mm) <sup>(2)</sup> (W x H x D)	40.9-in. x 30.1-in. x 32.1-in. (1040 x 765 x 815mm) <sup>(2)</sup> (W x H x D)
WEIGHT (IN AIR)	640 kg <sup>(1)</sup> (1411 lb)	840 kg <sup>(1)</sup> (1852 lb)
BENDING MOMENT CAPACITY	207 kN.m (153 ft.kip) <sup>(3)</sup>	421 kN.m (310 ft.kip) <sup>(3)</sup>
AXIAL LOAD CAPACITY	3680 kN (827 x 10 <sup>3</sup> lbf) <sup>(3)</sup>	5538 kN (124 x 10 <sup>4</sup> lbf) <sup>(3)</sup>
TORSIONAL CAPACITY	37.7 kN.m (27.8 ft.kip)	81.3 kN.m (60.0 ft.kip)
MAKE-UP TORQUE	2,800 ft-lbs (3800 Nm)	4,130 ft-lbs (5600 Nm)
TORQUE TOOL CLASS	Class V	Class V
TURNS FULLY OPEN / CLOSE	19 turns	25.5 turns
CLAMP CLOSING TIME	5 mins	6.5 mins
HUB / CLAMP AND SHAFT MATERIALS	75 ksi (Material to suit client specification)	75 ksi (Material to suit client specification)
GASKET MATERIALS	CRA	CRA
INBOARD / OUTBOARD HUB MOUNTING	Weld prep/integral flexible termination/flange	Weld prep/integral flexible termination/flange
COATING	Epoxy/MoS2/PTFE	Epoxy/MoS2/PTFE
INSULATION	On request	On request
SHAFT SYNCHRONIZATION	Via AFG controls software	Via AFG controls software

(1) Mechanical load data listed in the table is representative of the larger (maximum) NPS (or bore size depicted). Any scenario utilizing smaller NPS (or bore size) would result in higher mechanical capabilities.

(2) Data includes Retlock clamp, gasket, inboard hub, outboard hub and bevelled weld preparation.

(3) Maximum bending capacity assumes zero tension, and vice versa.



945 Bunker Hill, Suite 500 | Houston, Texas 77024 USA | 713-393-4200

[afglobalcorp.com](http://afglobalcorp.com)