



Quick Opening Closures

Pig Traps

Welded Tubes & Reducers

Gas dehydratos & filters

Flow Straighteners

Reinforcing Systems



## OVERCOME THE PRESSURE



### Quick Opening Closures



We in Fulgosi S.r.l. aim to develop products and advanced service as completely integrated solutions. Our high pressure Quick Opening Closures are designed, engineered and manufactured according to the most stringent international standards applicable to the Pressure Vessels for Oil, Gas and Petrochemical industry, but the revolution is represented by the integrated services so as to assure the best performance during the entire device life cycle in both terms of severe conditions as well as longest durability.

[Read more...](#)

### Social News



Fulg-o-channel! Follow us also on the new media channels network in order to stay current on new products, services, events and so on. In addition, you can view all our commercial...

[Read more...](#)

### e-WORKSHOP



#### COMPANY

- A Firm Presentation
- Competitive Scenario
- How to reach us
- History
- Profiles
- About Us

#### PRODUCTS

- Manufacturing Schedule
- Quick Opening Closures
- Launcher & Receiver systems
- Welded Tubes & Reducers
- Gas Dehydrators
- Flow Straighteners

#### SUPPORT

- Welding dept.
- Virtual Welding
- Non Destructive Examinations
- Hydro Test
- Heat Treatments
- Engineering

#### QHSE

- Certification Records
- QHSE Policy
- Save the Trees



HOW TO CHOOSE THE RIGHT TYPE  
OF QUICK OPENING CLOSURE:

**Internal Locking Band Type**



Fulg-o-lock™

Ø 18" ÷ 56" - DN450 ÷ 1400  
up to #2500

**External Jaw Type**



Fulg-o-jaw™

Ø 6" ÷ 100" - DN150 ÷ 2500  
up to #2500

**Bayonet Type**



Fulg-o-tooth™

Ø 10" ÷ 64" - DN250 ÷ 1400  
up to #2500

**Threaded ISO or ACME Type**



Fulg-o-thread™

Ø 2" ÷ 12" - DN60 ÷ 300  
up to #900

**Extremely High Pressure**



Fulg-o-strong™

# > 10000

Since 1974 FULGOSI serves Oil & Gas companies and petrochemical industry that needs safe and high performance products designed and fabricated according to the most stringent international standards and severe service conditions. Products and Services planned to give the best outfits to survive the turbulent business climate: delivered service that matches the customers' expectations.

**Quick Opening Closures (Q.O.C.)**

- Internal locking ring type ▶ Fulg-o-lock™
- External locking jaw type ▶ Fulg-o-jaw™
- High pressure door swinging type ▶ Fulg-o-strong™
- Rotating / Bayonet type ▶ Fulg-o-tooth™
- Threaded type ▶ Fulg-o-thread™

**Pig Launcher & Receivers (Traps)**

- Stand-alone devices
- Complete systems with pig handling and service facilities
- Skid mounted structures

**Gas Dehydrators (Dryers) & Cartridge Filters for instruments feeding**

**Flow Straighteners**

**Pressure Vessels**

**Submerged Arc Welded cold rolled Tubes and Cone-Shaped Reducers**

**PRODUCTS**

**SERVICES**

**Engineering solutions**

- Linear / nonlinear calculations
- Finite Element Module analysis
- Non Destructive Examinations
- Hydraulic tests with extensimetric measurements
- Welding procedures design and testing

**Wireless terminals e-Workshop**

- Real time manufacturing status
- Future transport schedule
- Printable traceability reports
- Online material certificates
- Online welder's qualification
- Online welding procedures



# OVERCOME THE PRESSURE

## Fulg-o-lock®



### Taking sealing methods a decisive step further

Our devices are developed with a “cross-platform” philosophy so as to expand their applicability within the various Oil & Gas requirements, as well as Cryogenic, Oceanic Research and Food & Beverage applications. The advance is performed by keeping always into consideration the operability which represent the most subjected characteristic to the policy of the continuous improvement. All the opening and closing activities can be executed by one operator in about 20 seconds keeping all the efforts well under the 200 Nm. The sealing elements can be Nitrile, Polyurethane, Viton, Silicone or Fluorocarbon in any shore hardness class.

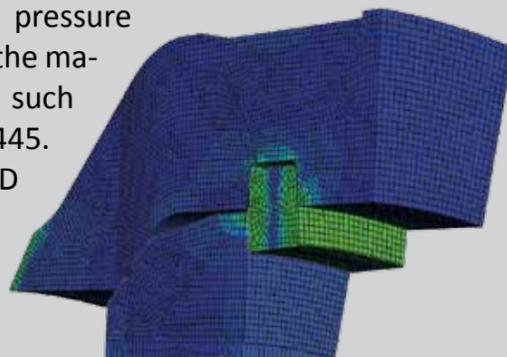
## Fulg-o-Thread®



### Just one part assembly, three minutes to be On or Off the Vessel

### FEM - Finite Element Module Analysis

All the pressure containing parts are calculated according to the major Pressure Vessels international standards such as BS5500, ASME VIII div. 1 & 2, ISO EN 13445. The devices are also certified according to PED and ATEX therefore equipped with a proper CE marking. Each new design is always verified by the Finite Element Analysis.



### Easy for everybody

Install or dismount the parts in motion of our Closures couldn't be any simpler: there is only one part to work on to take out the external ring with attached all hinges and the door with all its parts while the pressure vessel remains with only the welded hub/neck so as to be easily heat treated and painted. By the way no special tools nor skills are required, the new patented self-centering door system makes all operations ordinary to the capacity of anyone, even in difficult conditions, as on the field, the operation can be completed in less than three minutes. Four different regulation systems allows all kind of adjustments in order to recover unevenness's and slopes of the civil works or other “on field” necessities. A special version for “vertical” application is also available, equipped with a counterweight to overcome the door's mass and keep the efforts well under the 200 Nm as for the standard devices.

### No cyclic movements required: no warm gears, no operating threads



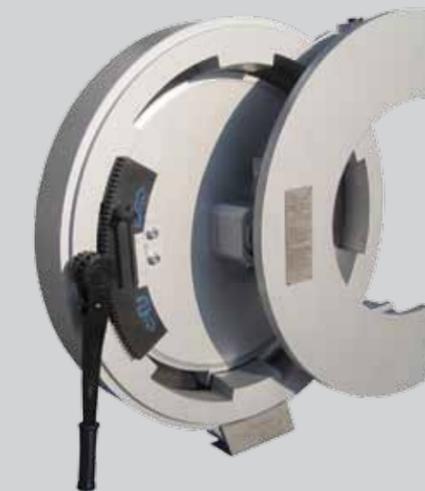
### No welding on pressure wetted parts

Better safe than sorry. The design include also in house unique prototype's tests in both low and high pressure, pneumatic test and hydraulic burst test.

## Fulg-o-Jaw®



## Fulg-o-Tooth®



# THE EASIER, THE FASTER, THE SAFER

Pig Launcher & Receivers (Scraper Traps) for cleaning, geometry and intelligent pipeline inspections are the devices used to launch and receive the tools (also known as Pigs or Instruments) which travels inside the pipeline for the before mentioned purposes by means of the same fluid in pressure operating in the conduct. Launch or receive scheme is determined by their operating conditions but also the relevant bidirectional configuration is always available. Even Bypass, Kicker Line and Drain connections are available in double arrangement with left and right orientation with one of them blinded for future choices. Being the petrochemical industry one of the most popular applications where hazardous conditions are more than common, safety is the biggest concern therefore Non Destructive Examinations as well as anti-spark and many other characteristic are well developed since the design stage.

Bodies are normally designed to meet the minimum requirements of ASME B31.3 - Code for Pressure Piping - Process Piping, ASME B31.4 - Code for Pressure Piping - Pipeline for Transportation System for Liquid Hydrocarbons and other Liquids, ASME B31.8 - Code for Pressure Piping - Gas Transmission and Distribution Piping Systems. When required, the Trap's body can be calculated with the same design code applied for their Quick Opening Closures according to both ASME VIII div. 1 and 2 - Rules for Construction of Pressure Vessels as well as EN 13445 - Unfired Pressure Vessels, therefore are subject to all the safety requirements dedicated to Pressure Vessels operating at high pressures in hazardous environment accessed by persons, typically, distribution nodes, pumping stations on and off shore.

All Bodies normally undergo to Non Destructive Examinations



by means of Radiographic Test (RT), Ultrasonic Test (UT), Liquid Penetrant Test (PT), Magnetic Particle Inspection (MPI) and Hydraulic Test (HY) with water. The engineering is validated by Finite Element Module analysis and prototype Burst Test with water or other fluids as required by the norms operating in the relevant market where the device is addressed.

### Layout

The devices can be configured as Horizontal with fixed or sliding saddles, as Skid Mounted Traps including their pig handling systems or as Vertical using counterweighted Quick Opening Closures, with big sizes assisted through Davit cranes. The bodies are usually composed by three main sections: Barrel, Pipeline Pup and Conical Shape Eccentric or Concentric Reducer, the most common reducing ratio for Natural Gas is roughly about 6" to 8" diameter difference between pipeline pup and barrel diameter which can be reduced up to 2" of difference for denser fluids. Q.O.C. can be of Internal locking band type Fulg-o-lock™, Bayonet Type Fulg-o-tooth™, External Jaw

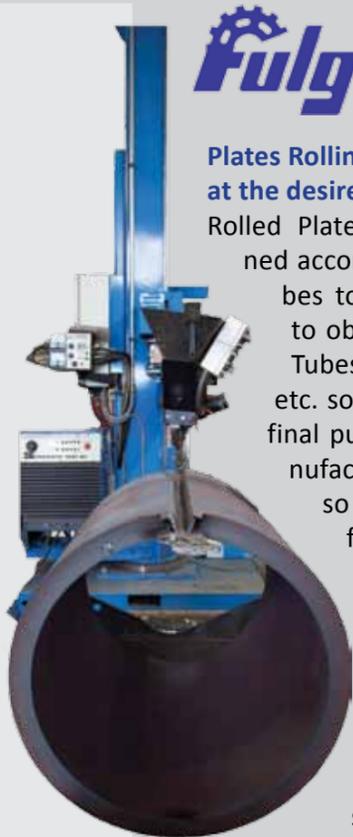
type Fulg-o-jaw™, Threaded Type Fulg-o-thread™ and, for class ratings above #10000, the newly designed Fulg-o-strong™. Lifting lugs and earthing bosses can be supplied according to specific requirements.

### Connections

Normal or Long Welding Neck Flanges (L/WN) RF/RJ/Graylock®  $\varnothing \leq 24"$  according to ASME B 16.5;  $\varnothing > 24"$  according to ASME B 16.47; if required Bevelled Ends as per ASME B 16.25. Pig Signallers: Mechanical Pig Passage Indicator with visual flag and manual reset, also available Electrical Pig Sigs and Non-Intrusive type all configurable with remote controls and manual or assisted reset.



# ROLLED PLATES



## Fulg-o-weld®

### Plates Rolling & Welding at the desired shape

Rolled Plates specifically dimensioned according to the required tubes to be re-worked in order to obtain Pup-Pieces, Viroles, Tubes, Tees, Elbows, Reducers etc. so, based on the product's final purpose, the relevant manufacturing system is setup so that to assure the conformity of all parameters for the product itself such as special Customer's requirements for minimum operating temperature and so on. Thanks to a special quality system, each production's process is considered as the last phase before the delivery so that, on Customer's request, tubes only tack-welded, preliminary welded or simply rolled plates can be supplied, as well, the edges can be both Plain Ends or Bevelled by Oxicutting or machined to ASME B16.25.

### High performance Welding

Both longitudinal and circumferential welding are executed with procedures approved by Notified Bodies and performed according to ISO EN 15609-1 and qualified in compliance with ISO EN 15614-1, ASME Boiler and Pressure Vessel Code Section IX or API 1104. There're specifications for each process and combination, in any type



of material according to the relevant P number / Group number, and also conform to any special requirement, for instance, low temperature Carbon Steel with Charpy V @-60°C. or Stainless Steel with Charpy V @-196°C., as well as Low Alloy. The maximum length for each single piece is 3 meters as allowed by the maximum width of commercial plates, bigger lengths are reached by joining them together circumferentially.

### Qualification records

The professionals involved in both preparation and execution of the welding activities are qualified according to ASME Boiler & Pressure Vessel code Section IX, EN 287-1, EN 1418. Each single record is updated by means of cyclic controls (each six months) and validated by an Authorised Third Part Inspection Agency (TPI) UNI CEI ISO/IEC EN 17024 accredited. With the lately made available real-time tool the operator which is doing the welding can be identified from our website e-Workshop by clicking on the relevant ID letter shown beside the product while it is being welded so as to download the relevant WPQ.

### Out of standard

The challenge is being typical while out of standard. Bar-tubes are not always in compliance with special requirements also in terms of proportions between diameter versus wall thickness or simply raw material performances therefore the choice is obliged: find a suitable plate, make the required extra HIC, SSC or other tests if any, and bend it up. No minimum quantities are necessary so the delivery time can be very short.

This device is specifically designed in order to withstand at extremely high-pressure challenges, the pressure rating is 10.000 Psi (690 Bar) and above. The state of the art is assured by means of Finite Element Analysis evaluation as well as prototype successful burst test well above the 1000 Bar (100 MPa - 14500 Psi) as shown in the diagram below. The newly patented JeffyFish™ sealing system consist of a metallic enhanced O-Ring that can be in any type of rubber compound such as NBR, EPDM, Viton, etc. Of course, all the ASME Quick Opening Closures requirements are fully met.

- No cyclic movements required. The strongest assurance that no threads nor gears will be in trouble for rust or any other reason during the entire life cycle of the device.
- The Fulg-o-strong™ Closure locking mechanism is a machined "C" shaped ring that join door and neck which transmits loads uniformly to the full 360° circumference of the neck.
- The locking mechanism incorporates a hand operated pressure-warning device that prevents the door being unlocked until there is no residual pressure inside

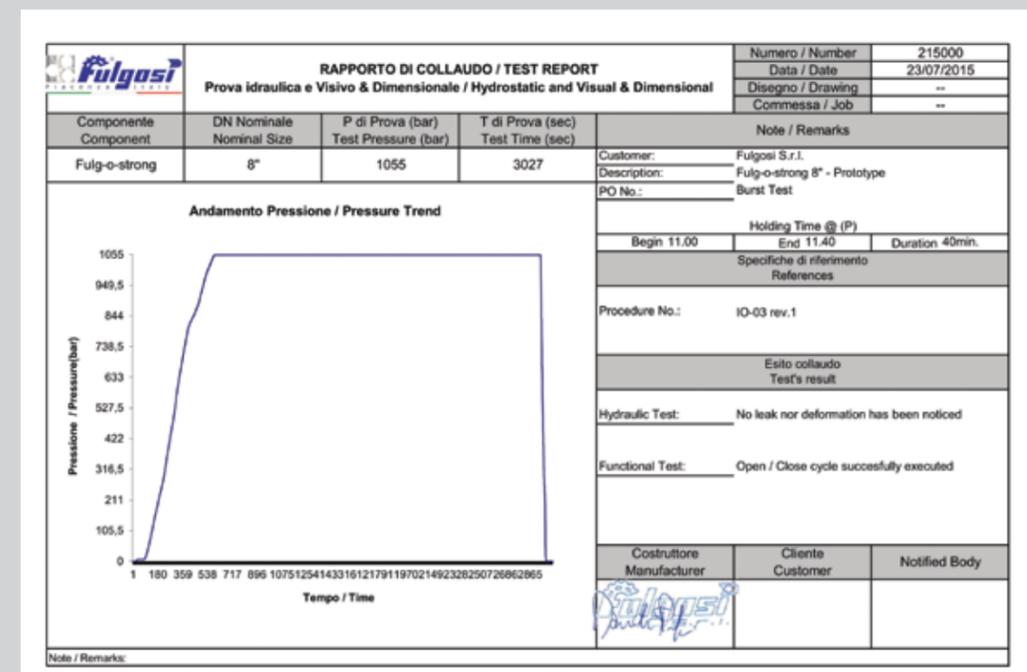
## Fulg-o-strong®

Class Rating > 10000



- the vessel.
- The Fulg-o-strong™ Closure utilize an on purpose designed JeffyFish™ sealing element and provides a full vacuum capability.
- There is no pressure bolting on the Fulg-o-strong™ Closures.
- No welding on pressure wetted parts.

# EXTREMELY HIGH PRESSURE



**SPECIAL IS OUR STANDARD**



Since the beginning Fulgosi Giovanni S.r.l. did of the mechanical constructions a real specialization activity thanks to which has been obtained qualification and acknowledgments. Within the most prestigious project there is the manufacturing of the column's frame of the "Agip-Eleonora" deck that is still currently in service in the Adriatic sea. Other specialized constructions are Gas Dehydrators and Cartridge Filters for instruments feeding, Drain Tanks that, even if according to specific standards, there are always different details between one and each other as, for instance, the calculation codes, which are often subject to customer's specification.



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**Welcome in our e-Workshop system**

Real Time Customer Service created with the aim to be an active support to all technical, quality and logistic matters. Through e-Workshop it is possible to manage the contents of each manufacturing job-order directly online, by monitoring their status or by the download of relevant documents such as material certificates as well as welding traceability and N.D.E. reports. There is also a logistic management tool aimed at the real time shipping data to inform the Customer concerning the material readiness, its weight and volume as well as a practical forecasting tool which shows the near future foreseen shipments.



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