

WORLD LEADER IN THE PRODUCTION OF MONOLITHIC ISOLATING JOINTS MADE IN ITALY





WHO WE ARE

Alfa Engineering Societa' Cooperativa is an Italian worldwide manufacturer of monolithic isolating joints mainly for the Oil & Gas industries and for Water Transportation industries. In 2012 our company took over old Alfa Engineering s.r.l. after the latter's closing down. As a matter of fact, some staff of the old company bacame partners to continue manifacturing high quality monolithic joints.

EXPLODED VIEW DRAWING MONOLITIC INSULATION JOINT



WHAT WE DO

We focus our project-based productionon monolithic isolating joints. Here is the exploded view drawing of our joints in its standard layout. We can produce flanged-ends joint and weldless joints, that is to say joints made of forged material only that feature just the closure weld (W3). This model is of the higher quality since welds can be the weak point of a joint. Where sizes do not allow for a weldless model, we can offer the pup pieces made of forged material as well.



WHY TO USE MONOLITHIC ISOLATING JOINTS

They are a protection welded on the pipeline to block the flow of electric currents which cause corrosion and leakages.

Joints are used to:

- Safeguard your pipeline from corrosion and corrosion-related failures.
- To limit spread and hence the cost of cathodic protection to those pipes that need to be protected in a cost-effective way by the main cathodic protection system.
- To isolate a pipeline and to ensure that stray/earthing electricity currents do not cause increased corrosion.



ISOLATION JOINTS AND CATHODIC PROTECTION

Cathodic protection is the main way to prevent metal against corrosion. For this reason, isolating joints are essential in an efficient Cathodic Protection Sysyem.

International codes such as the new ISO 155891-1 highly recommend the use of monolithic isolating joints in order to effectively segment and protect the pipelines from corrosion. NACE also indicates as 'strongly suggested' the use of monolithic isolating joints for an effective CP system protection.



CORROSION-RELATED FAILURES COSTS:

High repairing costs Fatalities, deaths, litigation costs Damages to infrastructures Damages to the environment Loss of public image/reliability Loss of production and revenue

Over 60% of the pipelines currently in service are over 40 years old





WHERE TO INSTALL MONOLITHIC ISOLATING JOINTS TO ENSURE PROPER CATHODIC PROTECTION

In order to save the overall cost of corrosion control systems, joints must be installed:

- Between pipeline sections of different metallic materials
- At pipeline DN variation
- Where pipelines enter/exit ground level or a plant/refinery
- Where pipelines pass from onshore to offshore
- At the beginning and at the end of CP systems
- Where interfereces have to be managed
- Where there are different ground conformations
- In the presence of different cathodic protection systems
- In the presence of non-stationary interferences
- In the presence of stationary AC interferences

THE MONOBLOCK ADVANTAGE

SINGLE COMPONENT



MULTIPLE COMPONENTS

ISOLATION JOINTS ARE A SAFER CHOICE THAN FLANGES + KITS

AGAINST MONOLITHIC JOINTS FI

Joints are a safer choice than flanges+kits

ADVANTAGES OF JOINTS:

- You have to know that joints are:
- Pre-assembled and pre-tested
- Ready to be welded to the line so no risk of improper installation
- A zero-maintenance product as there is no risk of pipeline shut-down due to failure, replacement or leakage
- A safe choice for pipelines and make them last longer
- Cost-effective component with respect to the overall project life cycle.

FLANGES KITS

On the contrary, insulating flanges kits are:

- To be assembled on site
- To be installed be skilled workers
- Fragile, as they can break easily during installation or leak
- Less effective in terms of electrical insulation than monolithic joints
- Keen to let water leak into the components
- More expensive if they have to be replaced because they generate huge expenses
- Less safe than MIJs in piggable lines due to vibrations
- Keen to fail due to over-tightening or thermal expansion



HOW WE PRODUCE OUR JOINTS

Our joints are entirely made in Italy, form their design to their packaging.

Engineering according to our customers' specs. Machining is performed interally.

Welding is perform at Alfa Engineering Soc. Coop.

As well, we have more than 140 welding and cladding qualifications.

Assembly is done by specialized personnel.

Tests are carried out at our internal cuttingedge testing area (with video-live connection to the inspectors' room).

Sand-blasting and painting are performed at an external facility under Alfa Engineering's quality control.

Final tests and packing are perfomed at our premises.



FOCUS ON TESTS

In order to grant a top quality product, which is also in line with quality requirement of ISO 9001:2015 and PED certification, we offer these tests (according to technical specs of the project):

- Vacuum Pneumatic Hydrostatic Hydro-fatigue Bending
- Hydro-thermal bending Torsion

Moreover, our qualified personnel carries out the following non-distructive tests (NDT):

- RT Radiographic testing PT penetrant testing
- VT visual testing MT magnetic testing UT ultrasonic testing

Other tests are.

Immersion test in 3% NaCl saline solution
 Piggability/drift at 97%
 int. DN • Adhesion • Prototype • Holiday • Electrical resistance

• Dielectrical strength

Upon request we provide:

3.2 Certification on materials
PSL2 Certification on pipes
PWHT on welds
HIC test + SSC test on forgings
HIC test on pipes
Finite Element Analysis (FEA / FEM)
CTOD on forgings and pipes for project in Algeria we provide the ARH dossier



FOCUS ON TESTING **AREA**

Our new testing area was designed in order to grant maximum efficiency and safety for our staff and for visitors such as inspectors and customers.

From a point outside the testing area, in a safe zone, the testing operations get started. Inside the testing area there are cameras that allow to remotly watch the tests from the inspectors' room.



TECHNICAL FACTS

Our joints are designed project-based for sweet or sour service and for above or below ground installation, plus sub-sea installation. We are ISO 9001:2015 and PED certified. Sizes: from 1/2" to 80" DN Pressure classes: ANSI: # 150, # 300, # 600, # 900, # 1500, # 2500 API: # 10.000 Materials: Carbon steel, duplex and super duplex, stainless steel, cra cladded Norms: ASTM, DIN, ASME, DNV, API, ISO, EN, NORSOK, NACE Insulator: Nema G11 class H, with best properties on the market

Sealing system in order to grant the seal of the joints: Double o'rings of different materials according to fluid and temperature, including AED type. Warranty:

Joints have a standard warranty of 24 months after shipment.

EXTRA:

1 - Cable lugs (used for cable connection)

2 - Spark Gaps (to protect joints from sudden electrical discharges)





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