ITER choses narrow gap assemblies for its structural sub-assemblies

The ITER project represents a unique challenge for the assembly of workpieces, particularly on site, due to required precision after assembly and last but not least the quality (zero defects).

One of the main questions is the pre-conditions required in terms of mechanical preparation, positioning, fixtures necessary but also the unavoidable deformation which occurs in the course of assembly by welding.

Narrow Gap TIG Hot Wire welding appears as one of the essential techniques for joining these kinds of parts with such large wall thicknesses, as far as on-site assembly is concerned. This welding process corresponds perfectly to the constraints involved in the final assembly thanks to its all-position use.

Polysoude develops two main technological approaches:

- By fixed electrode torch
- By oscillating electrode torch

The first technique meets productivity requirements for preparation of joints with perfectly defined tolerances. The second technique satisfies the necessity of a maximal flexibility in order to compensate tolerances of the workpiece end preparation and shrinkage during welding.

The “torch carriers” such as robot, boom and carriage-type welding heads are tools which are adapted to the size and geometry of the joint to be welded.

It is realistic to consider using Narrow Gap TIG to weld workpieces up to 400mm thick given the numerous relevant advantages compared with all of the processes available on the market today.

This technology can be adopted in all areas of industry such as the construction of equipment for the energy (hydro-electric, conventional fossil fuel and nuclear power plants), petrochemical and the manufacture or repair of heavy wall pipes.

About ITER :
ITER ("The Way" in Latin) is one of the most ambitious energy projects in the world today. In southern France, 35 nations are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.

ITER will be the first fusion device to produce net energy. ITER will be the first fusion device to maintain fusion for long periods of time. And ITER will be the first fusion device to test the integrated technologies, materials, and physics regimes necessary for the commercial production of fusion-based electricity.

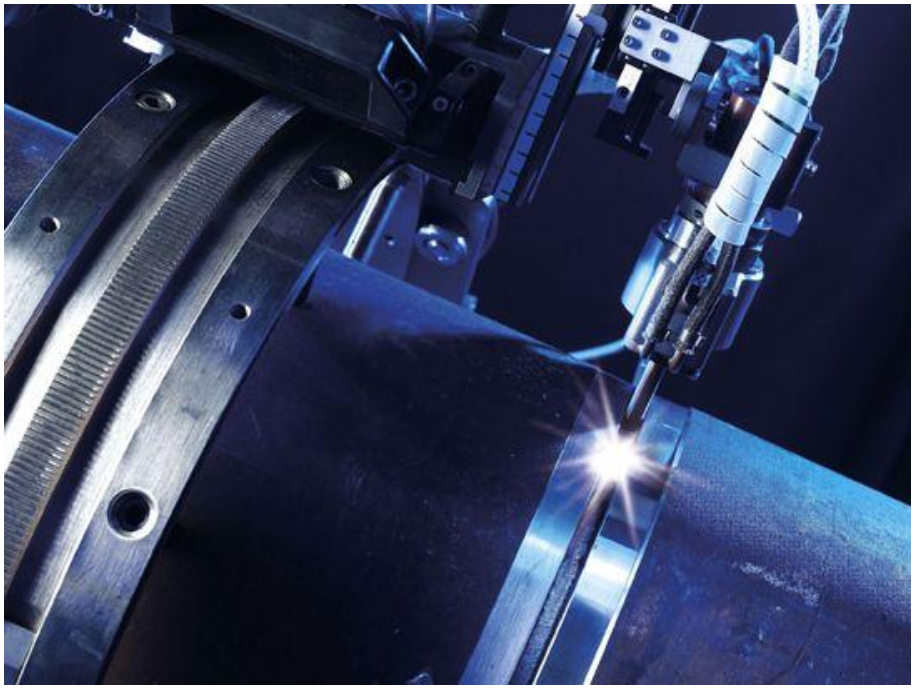

Fig.1: Narrow gap welding by Polysoude

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