



High Productivity Gas Tungsten Arc Welding (GTAW) Technology



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HIPROTIG SEMINAR

26 October 2006

PROGRAM:

- 14h:00** – Reception of participants
- 14h:15** – The Project presentation (ISQ)
- 14h:25** – The K-TIG process (CSIRO)
- 15h:00** – The welding equipment (J. R. Matos)
- 15h:10** – Coffee break
- 15h:30** – Modeling of the process and experimental welding results (IS)
- 16h:00** – K-TIG versus traditional processes (ISQ)
- 16h:20** – Demonstration (ISQ)
- 17h:30** – Discussion and conclusions

To participate please contact

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INVITATION

ISQ is pleased to invite you to attend the seminar that will take place at its facilities at Taguspark, which is accomplished in the scope of the European Project, **HIPROTIG**.

The seminar program is presented in the leaflet.

The seminar will be an excellent opportunity to show to industry and mainly to those related to welding a new welding process and its potentialities.

The seminary will have a demonstration were the main developments in the process and equipment will be shown.

We would appreciate very much your participation. For a better reception of the attendants, please send us the names of your participants (by e-mail or fax).

Hoping to see you soon at our facilities,

Best regards

Helena Gouveia

(Project coordinator)



What is the *HIPROTIG* project?

- A new automated, high productivity and quality welding process;
- A new product and process to increase SME's competitiveness;
- A new revolutionary welding process in the industrial environment.

The project is co-ordinated by **ISQ (Instituto de Soldadura e Qualidade, Portugal)** and formed by 12 more participants from Australia, France, Portugal, Germany and Italy.



The project HIPROTIG is funded by the EC under the Sixth Framework Programme, Co-operative Research projects

Abstract

The Gas Tungsten Arc Welding (GTAW) process, also well known as Tungsten Inert Gas (TIG) process, is a very precise and clean process that is used for joining a wide variety of materials, allowing to produce high quality welds. Its main limitation is the slow deposition rate and additionally the quite low energy density that restricts the range of materials thickness that can be processed without filler metal and joint preparation (actually 2-3 mm). Some variants of the conventional GTAW have been developed but, until quite recently, none of the later have shown an high potential to revolutionize the process and create a new technology. *HIPROTIG* will be an *automated, high productivity and quality* welding process based on the conventional GTAW process.

HIPROTIG is based on a torch developed by CSIRO which is able to work in the **keyhole** mode, like the high density beam processes, at a much lower cost.

HIPROTIG aims to develop a new process for out-of-position welding involving new hardware compatible with the high penetration requirements.

In summary, *HIPROTIG* main advantages will be:

- up to 16 mm thick material weld in just one pass, for stainless steels;
- reduced time in joint preparation (i.e., just square groove preparation);
- significant reductions in filler material consumption (just when required);
- welding speed increases in the order of 50%;
- total welding time is reduced to approximately 1/10 of what is required with conventional processes;
- automated process

AISI 304L, 12mm

