

**TiP TiG USA.**  
**8/24/12**

**The following are common Welder Qualification and Weld Procedure Qualification questions when following ASME Section IX is required.**

**The following is the personal opinion of Walt Sperko, not the official opinion of the ASME BPV Section IX committee:**

#### **WELDING PROCEDURE QUALIFICATION:**

**Question:** If a manufacturer or contractor has a WPS that was qualified by manually welding the test coupon and using filler, is it necessary to requalify the WPS when using semi-automatic welding such as TiP TiG?

**Reply:** When you qualify the WPS, you are demonstrating the properties of the weld, and the weld does not know if it was made with filler metal added by hand or with filler metal added by a machine, so the properties of the weld are unaffected by the *method* by which the filler metal is added.

Following Section IX rules, Table QW-256 identifies QW-410.25 (which addresses the *type* of welding: manual, semi-automatic, machine and automatic welding) as a “nonessential” variable for GTAW. When a variable is “nonessential,” that does not mean that you can ignore it; “nonessential” means that the variable *has to be addressed in the WPS* -- but it does *not have to be qualified*. That means that when you want to start using TiP TiG, you have to revise the WPS to allow semi-automatic welding, but you do not have to requalify the WPS. Since semi-automatic welding requires the use of a wire feeder, the wire size and the wire feed speed rate (ipm) must also be specified in the WPS.

#### **WELDER QUALIFICATION:**

**Question:** Is a welder who is qualified to use the GTAW process while adding filler metal by hand also qualified to welding using semi-automatic GTAW?

**Reply:** Yes. Table QW-356 provides the qualification variables for welders using the GTAW process. Note the following:

- 1) the title of QW-356 is “Essential Variables for Manual and Semi-automatic Gas Tungsten-Arc Welding (GTAW)” and
- 2) there is no other variable in that table regarding the *type (see above)* of welding.

Using TiP TiG is not the same as adding filler metal by hand. Welders should practice using the equipment until they can make welds that exhibit full penetration on roots and good fusion between passes. While requalification using TiP TiG is not a requirement, welding a test coupon and doing some bend tests to verify welder skill is recommended.

**THE BOTTOM LINE:** When you switch over TiP TiG, you do not have to requalify your WPS or welder to use TiP TiG; however, your WPS needs to be modified to allow the use of semi-automatic welding and to specify the correct wire size and filler metal feed speed, and the welder should receive some training with TiP TiG before being turned loose.

**We are grateful for Walt’s clarification.**

#### **Walt Sperko’s background:**

Code Committee Membership

*ASME Boiler and Pressure Vessel Code Committee*

- Board on Pressure Technology, Codes and Standards
- BPV Standards Committee IX (*Welding and Brazing*), Chairman, and member of several subgroups
- BPV Standards Committee II, Subgroup on Strength of Weldments
- BPV Standards Committee III (*Nuclear Components*) Standards Committee, member

*ASME B31 Code for Pressure Piping*

- Member of B31 Standards Committee
- Member, B31.3 Fabrication and Examination Subgroup

*ASME B31.9, Building Services Piping, past Chairman*

*American Welding Society*

- Technical Activities Committee (TAC)
- International Standards Activities Committee (ISAC), Chairman
- Committee D-10, Piping and Tubing, Past Chairman

For further information about Walt and guidance on using Section IX, see [www.sperkoengineering.com](http://www.sperkoengineering.com)