

# ENSURING ACCURACY OF EQUIPMENT SETTINGS BY ANNUAL VALIDATION

In this era of procedures, inspection records and accountability, driven by quality-control standards for welding, such as ISO 3834 and EN 1090, the need to be confident of accurate, consistent welding machine settings has become vitally important. Furthermore, the increased use of part-or fully-mechanized welding processes has led to a requirement for more rigorous calibration and validation of welding equipment performance.

To ensure machine settings such as current, voltage, speed, gas flow and pulse characteristics are consistently accurate, standards have been developed which stipulate best practice for regular maintenance, and a process for the annual inspection, "calibration", testing and reporting/certifying of equipment display meters. The standard for welding equipment is EN 60974-1. This standard sets the level of accuracy and consistency of the output.

The term "calibration" is used to refer to the general subject of checking that the welding equipment output meets the manufacturer's specification and is fit for making welds. It is a commonly accepted term for this checking operation, but it does not meet the strict definition of the word calibration, as it can only be applied to determining and adjusting for the errors of a measuring instrument.

It is necessary to use an alternative term to describe the more thorough operation of verifying and certifying that the welding equipment is fit for the intended purpose. The term used in the standards is "validation". It determines the ongoing conformance of welding equipment to its operating specification for that

equipment, particularly its accuracy and/or consistency.

The standard EN 50504 specifies the validation methods for arc welding equipment constructed and used to the "standard grade" of accuracy specified in EN 60974-1. It consists of a thorough annual testing procedure, and results in a detailed validation certificate, for your QC records.

Make sure you know what you are specifying – and receiving – when you engage a service provider to support your equipment. Be clear on the differences between the definitions of the terms:

**Maintenance** – Operations for the purpose of ensuring the equipment (including tools and accessories) are fit for purpose and safe to use.-

**Servicing** – Operations for the purpose of ensuring continued performance and safe operation of the equipment by regularly cleaning or replacing parts of the equipment.

**Calibration** – Operations for the purpose of determining the magnitude of errors with measuring instruments and, if necessary, adjusting them to comply.

**Validation** – Operations (including calibration) for the purpose of demonstrating that an item of welding



equipment or a welding system (including wire-feeder) conforms to the required operating specification. Incorporating Accuracy Tests (the closeness of measurement to the defined or true value) and/or Consistency Tests (the repeatability of the equipment output over time). These operations result in a Validation Certificate.



## THE VALIDATION CERTIFICATE SHOULD CONTAIN THE FOLLOWING INFORMATION:

- The name and address of the validator
- The type of equipment under test
- The model and make of equipment
- The serial number of the equipment under test
- The ambient temperature
- The supply voltage
- The function under test (e.g. current)
- The method of validation, e.g. load resistor type, meter type
- The grade of validation, i.e. standard or precision
- The type of validation, i.e. accuracy or consistency
- The range of the function under validation
- The results of the measurements on the function under validation, comparing the equipment readings with the validation meter readings.
- The result of validation, i.e. pass or fail;
- The date of validation
- The signature or mark of the validator

For further information on arc equipment validation, contact your local Weldability Sif service centre or distributor.

# sif tips



Technical advice in the original SifTips style was started in 1932. 'Sifbronzing' is an almost universally recognised way of describing the low temperature bronze welding of sheet steel, cast iron and other metals. This explains why Sifbronze, the company which first developed and promoted the technique, is generally considered to be a supplier of high quality welding rods, wires, fluxes and equipment.

'Will the Welder' was a SifTips magazine that was produced in the early 1930s. The aim was to provide users with ideas and tips on how to get the most out of their welding equipment.

Sif is renowned for its UK manufacturing heritage as well as its complete range of quality welding consumables used globally for almost a century.

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