

**ANSI/AWS B2.1-1-001-90 (R2006)**  
**An American National Standard**

**Standard Welding Procedure  
Specification (WPS) for**

**Shielded Metal Arc  
Welding of Carbon  
Steel (M-1/P-1,  
Group 1 or 2),  
3/16 through 3/4 inch,  
in the As-Welded  
Condition, With  
Backing**

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**Key Words**—Welding procedure specification, base metal, allowable joint designs, filler metal, carbon steel, plate and pipe, manual shielded metal arc welding

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An American National Standard**

**Approved by the  
American National Standards Institute  
December 18, 1989**

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Specification (WPS)  
Shielded Metal Arc Welding of Carbon Steel,  
(M-1/P-1, Group 1 or 2),  
3/16 through 3/4 inch, in the  
As-Welded Condition, With Backing**

Prepared by the  
American Welding Society (AWS) B2 Committee on Welding Qualification

Under the Direction of the  
AWS Technical Activities Committee

Approved by the  
AWS Board of Directors

## **Abstract**

This standard contains the essential welding variables for carbon steel plate and pipe in the thickness range of 3/16 through 3/4 in., using manual shielded metal arc welding. It cites the base metals and operating conditions necessary to make the weldment, the filler metal specifications, and the allowable joint designs for fillet and groove welds.



**American Welding Society**

550 N.W. LeJeune Road, Miami, FL 33126

# Standard Welding Procedure Specification (WPS)

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## Shielded Metal Arc Welding of Carbon Steel (M-1/P-1, Group 1 or 2), 3/16 through 3/4 inch, in the As-Welded Condition, with Backing.

### Welding Research Council<sup>1</sup> — Supporting PQR Numbers: 001A, 002A

#### Application

The data to support this Standard Welding Procedure Specification (WPS) have been derived from two or more Procedure Qualification Records (PQR's) completed according to the requirements in AWS B2.1 under the auspices of the Welding Research Council. This Standard WPS is not valid using conditions and variables outside the ranges listed. The American Welding Society considers that this Standard WPS presents information for producing an acceptable weld using the conditions and variables listed. The user needs a significant knowledge of welding and accepts full responsibility for the performance of the weld and for providing the engineering capability, qualified personnel, and proper equipment to implement this Standard Welding Procedure Specification.

The referencing fabrication code or specification and the engineering requirements are intended to specify any requirements related to design, need for heat-treatment, fabricating, tolerances, quality control, safe welding and

testing practices, and examinations and tests applicable to the end product.

A Standard WPS does not replace or substitute for fabrication codes, specifications, contract requirements, or capability and judgement on the part of the user. A Standard WPS is to be used only as permitted by the applicable fabrication code, specification, or contract document. The ability to produce production welds having properties suitable for the application depends upon supplementing the Standard WPS with appropriate performance qualification tests and sound engineering judgment.

A Standard WPS may be supplemented by attached or referenced information and instructions that may be necessary to make an acceptable weldment.

Safety precautions shall conform to the latest edition of ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society.

This specification may involve hazardous materials, operations, and equipment. The specification does not purport to address all of the safety problems associated with its use. It is the responsibility of the user to establish appropriate safety and health practices. The user should determine the applicability of any regulatory limitations prior to use.

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