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Specification for Thermal Spray Equipment Acceptance Inspection



American Welding Society



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Specification for Thermal Spray Equipment Acceptance Inspection

Prepared by
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Approved by
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Abstract

This document specifies the thermal spray equipment acceptance requirements for plasma, arc-wire, flame-powder, -wire, -rod, and -cord, high velocity oxygen fuel (HVOF) equipment. Evidence of the equipment capabilities be provided by the equipment manufacturer. Inspection reports are provided in five mandatory annexes.



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Specification for Thermal Spray Equipment Acceptance Inspection

1. Scope

1.1 General. The acceptance inspection is part of a quality assurance program to provide test results to purchasers with that show that the thermal spray equipment operates according to the manufacturer's specifications. The equipment is presumed to be installed, operated, and maintained in accordance with the manufacturer's technical instructions. This specification does not cover low pressure or vacuum plasma acceptance due to their complex operation, but it may be used as a starting point.

It is the responsibility of the manufacturer to provide evidence of the operating capabilities of the thermal spraying equipment. Evidence of the equipment capabilities may also be verified by the purchaser using criteria described in Section 6. The spraying equipment may be considered adequately designed if all the requirements specified in Section 5 are satisfied in the tests described in Section 6. The values thereby obtained and any other data of significance in deciding the suitability of the equipment should be recorded as shown in Annexes I, II, III, IV, or V.

This document specifies the requirements for acceptance inspection of the following types of thermal spray equipment:

- (1) Plasma
- (2) Flame powder, wire, rod, and cord
- (3) Wire arc
- (4) High-velocity oxygen fuel (HVOF)

1.2 Safety. This document also specifies hazardous operations and equipment. This specification does not address all of the safety problems associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, environmental, and health practices, and determine the applicability of regulatory limitations prior to its use.

This document addresses acceptance criteria such as tolerances of controlling feed rates, current levels and gas flows. It does not address basic safety issues that these classes of equipment should meet, i.e., the use of

safety interlocks, backflow prevention devices and ability to meet NFPA and National Electrical Codes such as UL or the European ones.

The following standard contains information that is useful.

(1) American National Standards Institute. ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, New York, New York.¹

1.3 Units of Measure. This specification makes use of both the International System of Units and U.S. Customary Units. The measurements are not exact equivalents; therefore each system must be used independently of the other without combining in any way. The specification C2.21M uses SI Units. The specification with the designation C2.21 uses U.S. Customary Units. The latter are shown in appropriate columns in tables or within parentheses () when used in the text. Suitable conversions encompassing standard sizes of both can be made, however, if appropriate tolerances are applied in each case.

2. Referenced Documents

The following standards contain provisions which, through reference in this text, constitute provisions of this AWS standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this AWS standard are encouraged to investigate the possibility of applying the most recent editions of the documents shown below. For undated references, the latest edition of the standard referred to applies.

(1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*

(2) AWS A3.0:2001, *Standard Welding Terms and Definitions*¹

¹ Available from Global Engineering, 15 Inverness Way East, Englewood, CO 80112-5776.