Foreword

This website provides pdf versions of the details in the ABS Approved Welding Consumables database as of the date shown on the bottom of the pages. It lists all the American Bureau of Shipping approved welding electrodes, wire-flux and wire-gas combinations for welding materials in the construction and repair of ships and weldments presently classed or intended to be classed with the Bureau. It is to the best of the Bureau's knowledge a composite international list produced within the scope of its operation as of the date shown. The database is updated weekly and users of this print off are cautioned to refer to the ABS website www.eagle.org to be sure that they have the most recent information at hand.

Filler metals listed in the database are approved based upon tests conducted on each product represented by each manufacturing plant in accordance with standards established by the Bureau or by other recognized agencies. In instances involving filler metals for which exact specifications have not yet been established, the Bureau has granted its approval on the basis of the electrode manufacturer's guaranteed minimum requirements. For special applications where reliance has been placed upon procedure tests conducted at a user's plant, qualified approvals have been given with and without classifying grade.

Pertinent available information regarding grade or code designation and classification, size of electrode, current, polarity and approved operating positions is included. In addition, where appropriate test data have been presented and found satisfactory, remarks have been entered reflecting special characteristics of the filler metals.

Whether or not it is listed in the ABS approved filler metal database, procedure tests for a filler metal may be requested at the discretion of the attending Surveyor. The extent of testing may vary depending upon the intended application and will generally follow those tests outlined in the most recent edition of the ABS Rules for Materials and Welding.

The Bureau's requirements for the approval of filler metals are contained in the ABS Rules for Materials and Welding. These requirements have been established for the approval of filler metals for use in the construction of ships and other weldments and in general reflect the work of the International Association of Classification Societies (IACS), of which ABS is a member society.

Additional associated information concerning filler metals is listed in the Appendices of the ABS Rules for Materials and Welding. Included in the Rules are sections on application of ABS filler metals, a comparison chart of ABS – AWS filler metals, the Bureau policies concerning the AWS specifications, annual check tests and retention of approval.

The Bureau intends to update the database on a weekly basis to cover new approvals and deletions.

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Abbreviations

Remarks, when added, appear directly under the filler metals to which they refer.

Regulatory Agencies

ABS American Bureau of Shipping
AWS American Welding Society
BS British Standards
JIS Japanese Industrial Standards
IACS International Association of Classification Societies

Grade Notations

1, 2, 3 See Appendix A Tables 1.1 and 1.2
Y Suffix following grade number indicates higher-strength filler metals
H5, H10, H15 Suffix following grade number indicates low hydrogen electrode
M Multi-pass machine automatic technique
T Two-pass machine automatic technique
SA Manual semi-automatic or mechanized technique
A Mechanized (automatic) technique only
^ Indicates approval subject to satisfactory procedure tests at user’s plant
Y* Non low hydrogen higher-strength filler metals
** Other comments such as manufacturer’s guarantee

Current Notations

AC Alternating Current
DCEP Direct current electrode positive (reverse polarity)
DCEN Direct current electrode negative (straight polarity)

Position Notations

F Flat (downhand) and Horizontal fillet
V Vertical (Up)
V-down Vertical Down
OH Overhead
H Horizontal (Horizontal/Vertical)
HF Horizontal fillet only
All All positions Exclusive of Vertical Down
All, V-down All positions Inclusive of Vertical Down

Miscellaneous Notations

mm Millimeter
in. Inch
ft-lb Foot pounds (1 ft-lb = 0.139 kgf-m)
kgf-m Kilogram force meter (1 kgf-m = 7.23 ft-lb)
J Joules (1 J = 0.102 kgf-m)
E1 Elongation in 50mm (2 in.) unless indicated otherwise
T.S. Tensile strength
Y.S. Yield strength
S.R. Stress relief
FC Flux-cored
CVN Charpy V-Notch
MPa MegaPascals ( = N/mm²)
References

**American Bureau of Shipping**

Requirements for the Approval of Filler Metals

**American Welding Society**

AWS A5.1-04 Carbon Steel Electrodes for Shielded Metal Arc Welding
AWS A5.3-99 Aluminum and Aluminum-Alloy Electrodes for Shielded Metal Arc Welding
AWS A5.4-06 Stainless Steel Electrodes for Shielded Metal Arc Welding
AWS A5.5-06 Low Alloy Steel Electrodes for Shielded Metal Arc Welding
AWS A5.6-08 Copper and Copper Alloy Electrodes for Shielded Metal Arc Welding
AWS A5.7-07 Copper and Copper Alloy Bare Welding Rods and Electrodes
AWS A5.8-04 Filler Metal for Brazing and Braze Welding
AWS A5.9-06 Bare Stainless Steel Welding Electrodes and Rods
AWS A5.10-99 Bare Aluminum and Aluminum Alloy Welding Electrodes and Rods
AWS A5.11-10 Nickel and Nickel Alloy Welding Electrodes for Shielded Metal Arc Welding
AWS A5.14-09 Nickel and Nickel Alloy Bare Welding Electrodes and Rods
AWS A5.15-90 Welding Electrodes and Rods for Cast Iron
AWS A5.16-07 Titanium and Titanium-Alloy Welding Electrodes and Rods
AWS A5.17-97 Carbon Steel Electrodes and Fluxes for Submerged Arc Welding
AWS A5.18-05 Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding
AWS A5.20-05 Carbon Steel Electrodes for Flux Cored Arc Welding
AWS A5.22-10 Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods
AWS A5.23-07 Low Alloy Steel Electrodes and Fluxes for Submerged Arc Welding
AWS A5.28-05 Low Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding
AWS A5.29-10 Low Alloy Steel Electrodes for Flux Cored Arc Welding
AWS A5.30-07 Consumable Inserts
AWS A5.32-11 Welding Consumables – Gases and Gas Mixtures for Fusion Welding and Allied Processes

**Japanese Industrial Standards**

JIS Z 3211 (2008) Covered Electrodes for Mild Steel, High Tensile Strength Steel and Low Temperature Service Steel
JIS Z 3221 (2008) Stainless Steel Covered Electrodes
JIS Z 3312 (2009) Solid Wires for MAG and MIG Welding of Mild Steel, High Strength Steel and Low Temperature Service Steel
JIS Z 3313 (2009) Flux Cored Wires for Gas Shielded and Self-Shielded Metal Arc Welding of Mild Steel, High Strength Steel and Low Temperature Service Steel
JIS Z 3323 (2007) Stainless Steel Flux Cored Wires and Rods for Arc Welding

**International Association of Classification Societies**

IACS W17 (2005) Approval of Consumables for Welding Normal and Higher Strength Hull Structural Steel
IACS W26 (2005) Requirements for Welding Consumables for Aluminium Alloys