



WASHINGTON ALLOY'S
Quality Management System is
Certified to ISO 9001:2008
Cert # 05-R0925

Carbon Steel Electrode Classification Meaning

U.S. ALLOY CO.
dba Washington Alloy
7010-G Reames Rd.
Charlotte, NC 28216
www.weldingwire.com



American Welding Society
Sustaining Company Member



AMERICAN WELDING SOCIETY (AWS) sets the requirements and guidelines for filler metals and rods.

AWS A5.1/A5.1M is the Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding:

E7018 is one of the most common used stick electrodes rods so it will be used as an example.

E7018 E = Electrode, The first **two digits** = tensile strength minimum in ksi of the weld metal 70,000 psi in this case.

E7018 The next two or **last two digits** give the type of coating/covering, type of current and welding position usage.

E7018 The third digit of **1** = all position.

OPTIONAL: other test designators as follows and may have more than one for example (E7018-1H4R)

E7018**M = M** designates intend to meet military requirements

E7018-**1 = -1** designates that it will meet improved toughness or on E7024-1 improved ductility

E7018-**H4 = H4** designates that it will meet 4ml average diffusible hydrogen content with 100 grams of weld deposit

Note: there is a H8 and H16 AWS diffusible hydrogen designator as well with all meeting H16

E7018-**R = R** designates that it will meet low moisture absorbing limit in 80 F/80 % humidity for not < 9 hours

(E7018 may meet some or all optional testing but will need tested to qualify)

E6010 = high cellulose sodium flux used with DCEP for flat, vertical, overhead, horizontal fillets

E6011 = high cellulose potassium flux used with AC or DCEP for flat, vertical, overhead, horizontal fillets

E6012 = high titania sodium flux used with AC or DCEN for flat, vertical, overhead, horizontal fillets

E6013 = high titania potassium flux used with AC, DCEP or DCEN for flat, vertical, overhead, horizontal fillets

E6018 & E7018 = low-hydrogen potassium, iron powder flux used with AC or DCEP for flat, vertical, overhead, horizontal fillets

E6019 = iron oxide titania potassium flux used with AC, DCEP or DCEN for flat, vertical, overhead, horizontal fillets

E6020 = high iron oxide used with AC or DCEN for horizontal fillets, AC, DCEP or DCEN for flat

E6022 = high iron oxide used with AC or DCEN for flat or horizontal fillets (single pass welds only)

E6027 & E7027 = high iron oxide, iron powder used with AC or DCEN for horizontal fillets, AC, DCEP or DCEN for flat

E7014 = iron powder, titania flux used with AC, DCEP or DCEN for flat, vertical, overhead, horizontal fillets

E7015 = low-hydrogen sodium flux used with DCEP for flat, vertical, overhead, horizontal fillets

E7016 = low-hydrogen potassium flux used with AC or DCEP for flat, vertical, overhead, horizontal fillets

E7018 & E6018 = low-hydrogen potassium, iron powder flux used with AC or DCEP for flat, vertical, overhead, horizontal fillets

E7018M = low-hydrogen iron powder flux used with DCEP for flat, vertical, overhead, horizontal fillets M=military requirements

E7024 = iron powder, titania flux used with AC, DCEP or DCEN for flat, horizontal fillets

E7027 & E6027 = high iron oxide, iron powder used with AC or DCEN for horizontal fillets, AC, DCEP or DCEN for flat

E7028 = low-hydrogen potassium, iron powder flux used with AC or DCEP for flat, horizontal fillets

E7048 = low-hydrogen potassium, iron powder flux used with AC or DCEP for flat, overhead, horizontal fillets, vertical down

Metric classification – as follows with examples

Any 60ksi may also be marked with **E43xx** (E60xx) so E6010 and **E4310** is the same rod

Any 70ksi may also be marked with **E49xx** (E70xx) so E7018 and **E4918** is the same rod

EAST COAST
7010-G Reames Rd
Charlotte, NC 28216
Tel (888) 522-8296
Fax (704)598-6673

GULF COAST
4755 Alpine Drive #100A
Stafford, TX 77477
Tel (877) 711-9274
Fax (281)313-6332

WEST COAST
8535 Utica Ave
Rancho Cucamonga, CA 91730
Tel (800)830-9033
Fax (909)291-4586



8-2012 DC

Warehouse Distribution Center – Dayton, Ohio

Head Office – Puyallup, Washington

Washington Alloy Company believes that all information and data given is correct. Use this information to assist in making your own evaluations or decisions and this information should not be mistaken as an expressed or implied warranty. U.S. ALLOY CO. assumes no liability for results or damages incurred from the use of any information contained herein, in whole or in part.