

F-NUMBER CHART



GROUPING OF FILLER METALS INTO F-NUMBERS

WELDING QA/QC & PROJECT CONTROLS SOFTWARE

F-NUMBER	DESCRIPTION	SFA SPECIFICATION	SPECIFICATION DESCRIPTION
1	STEEL ALLOYS	5.1	CARBON STEEL ELECTRODES FOR SMAW
		5.4	STAINLESS STEEL ELECTRODES FOR SMAW
		5.5	LOW ALLOY STEEL ELECTRODES FOR SMAW
2	STEEL ALLOYS	5.1	CARBON STEEL ELECTRODES FOR SMAW
		5.5	LOW ALLOY STEEL ELECTRODES FOR SMAW
3	STEEL ALLOYS	5.1	CARBON STEEL ELECTRODES FOR SMAW
		5.5	LOW ALLOY STEEL ELECTRODES FOR SMAW
4	STEEL ALLOYS	5.1	CARBON STEEL ELECTRODES FOR SMAW
		5.4	STAINLESS STEEL ELECTRODES FOR SMAW
		5.5	LOW ALLOY STEEL ELECTRODES FOR SMAW
5	STEEL ALLOYS	5.4	STAINLESS STEEL ELECTRODES FOR SMAW
6	STEEL ALLOYS	5.2	CARBON AND LOW ALLOY STEEL RODS FOR OFW
		5.9	BARE STAINLESS STEEL WELDING ELECTRODES AND RODS
		5.17	CARBON STEEL ELECTRODES AND FLUXES FOR SAW
		5.18	CARBON STEEL FILLER METALS FOR GMAW
		5.20	CARBON STEEL ELECTRODES FOR FCAW
		5.22	STAINLESS ELECTRODES FOR FCAW & FLUX CORED RODS FOR GTAW
		5.23	LOW ALLOY STEEL ELECTRODES AND FLUXES FOR SAW
		5.25	CARBON AND LOW ALLOY STEEL ELECTRODES AND FLUXES ESW
		5.26	CARBON AND LOW ALLOY STEEL ELECTRODES FOR EGW
		5.28	LOW ALLOY STEEL ELECTRODES AND RODS FOR GMAW
		5.29	LOW ALLOY STEEL ELECTRODES FOR FCAW
		5.30	CONSUMABLE INSERTS
21	ALUMINUM ALLOYS	5.3	ALUMINUM AND ALUMINUM ALLOY ELECTRODES FOR SMAW
		5.10	BARE ALUMINUM AND ALUMINUM ALLOY ELECTRODES AND RODS
22	ALUMINUM ALLOYS	5.10	BARE ALUMINUM AND ALUMINUM ALLOY ELECTRODES AND RODS
23	ALUMINUM ALLOYS	5.3	ALUMINUM AND ALUMINUM ALLOY ELECTRODES FOR SMAW
		5.10	BARE ALUMINUM AND ALUMINUM ALLOY ELECTRODES AND RODS
25	ALUMINUM ALLOYS	5.10	BARE ALUMINUM AND ALUMINUM ALLOY ELECTRODES AND RODS
26	ALUMINUM ALLOYS	5.10	BARE ALUMINUM AND ALUMINUM ALLOY ELECTRODES AND RODS
31	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
32	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
33	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
34	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
		5.30	CONSUMABLE INSERTS
35	COPPER ALLOYS	5.8	BRAZING AND BRAZE WELDING FILLER METALS
36	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
37	COPPER ALLOYS	5.6	COPPER AND COPPER ALLOY ELECTRODES FOR SMAW
		5.7	COPPER AND COPPER ALLOY BARE WELDING RODS & ELECTRODES
41	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
		5.30	CONSUMABLE INSERTS

F-NUMBER	DESCRIPTION	SFA SPECIFICATION	SPECIFICATION DESCRIPTION
42	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
		5.30	CONSUMABLE INSERTS
43	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
		5.30	CONSUMABLE INSERTS
44	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
45	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
46	NICKEL ALLOYS	5.11	NICKEL AND NICKEL ALLOY ELECTRODES FOR SMAW
		5.14	NICKEL AND NICKEL ALLOY BARE ELECTRODES AND RODS
51	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
52	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
53	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
54	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
55	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
56	TITANIUM ALLOYS	5.16	TITANIUM AND TITANIUM ALLOY ELECTRODES AND RODS
61	ZIRCONIUM ALLOYS	5.24	ZIRCONIUM AND ZIRCONIUM ALLOY ELECTRODES AND RODS
71	HARD-FACING ALLOYS	5.13	LOW ALLOY STEEL ELECTRODES AND RODS FOR GMAW
72	HARD-FACING ALLOYS	5.21	LOW ALLOY STEEL ELECTRODES FOR FCAW

THE FOLLOWING IS A SUMMARY OF ASME SECTION IX PARA. QW-431:

THE F-NUMBER GROUPINGS OF ELECTRODES AND WELDING RODS IN THE ABOVE TABLE IS BASED ESSENTIALLY ON THEIR USABILITY CHARACTERISTICS, WHICH FUNDAMENTALLY DETERMINE THE ABILITY OF WELDERS TO MAKE SATISFACTORY WELDS WITH A GIVEN FILLER METAL.

THIS APPROACH TO GROUPING IS MADE TO REDUCE THE NUMBER OF WELDING PROCEDURE AND PERFORMANCE QUALIFICATIONS, WHERE THIS CAN LOGICALLY BE DONE.

THE GROUPING DOES NOT IMPLY THAT BASE METALS OR FILLER METALS WITHIN A GROUP MAY BE INDISCRIMINATELY SUBSTITUTED FOR A METAL THAT WAS USED IN THE QUALIFICATION TEST WITHOUT CONSIDERATION OF THE COMPATIBILITY OF THE BASE AND FILLER METALS FROM THE STANDPOINT OF METALLURGICAL PROPERTIES, POSTWELD HEAT TREATMENT DESIGN, SERVICE REQUIREMENTS, AND MECHANICAL PROPERTIES.

ALTERNATE F-NUMBERS FOR WELDER QUALIFICATION RANGE ASME SECTION IX QW-433

F-Number used for Qualification ¹	Qualified Production F-Numbers
F-NO. 1	F-NO. 1
F-NO. 2	F-NO. 1, 2
F-NO. 3	F-NO. 1, 2, 3
F-NO. 4	F-NO. 1, 2, 3, 4
F-NO. 5	F-NO. 1, 5
ANY F-NO. 6	ALL F-NO. 6
ANY F-NO. 21 THRU F-NO. 26 ²	ALL F-NO. 21 THRU F-NO. 26
ANY F-NO. 31, 32, 33, 35, 36 OR 37	ONLY THAT WHICH WAS USED DURING THE QUALIFICATION TEST
F-NO. 34 OR ANY F-NO. 41 THRU F-NO. 46	F-NO. 34 AND ALL F-NO. 41 THRU F-NO. 46
ANY F-NO. 51 THRU F-NO. 55	ALL F-NO. 51 THRU F-NO. 55
ANY F-NO. 61	ALL F-NO. 61
ANY F-NO. 71 THRU F-NO. 72	ONLY THAT WHICH WAS USED DURING THE QUALIFICATION TEST

1. WHEN ONE, OR A COMBINATION OF THE F-NUMBER(S) IN THE LEFT SIDE COLUMN IS USED ON A SUCCESSFUL QUALIFICATION TEST, IT QUALIFIES THE WELDER TO WELD ALL COMBINATIONS OF THOSE F-NUMBERS SHOWN IN THE RIGHT SIDE COLUMN IN PRODUCTION.

2. "THRU" SIGNIFIES THE INCLUSION OF EVERY F-NUMBER NUMERICALLY BETWEEN THOSE SPECIFIED; REFERENCE THE F-NUMBER CHART FOR DETAILS

3. CONSULT OTHER ESSENTIAL VARIABLES SUCH AS BACKING WHEN APPLYING THE RANGE QUALIFIED VALUES SHOWN IN THIS TABLE