

PRODUCT DATA SHEET

Tri-Mark HPF-N90 and N90F Submerged Arc Flux

Tri-Mark HPF-N90 and N90F are semi-basic agglomerated fluxes producing weld deposits with good mechanical properties at low temperatures. HPF-N90 and N90F have excellent weldability, easy slag removal in deep grooves, good resistance to cracking and porosity and excellent bead appearance. HPF-N90 and N90F flux can be used on multi-pass applications on unlimited thickness, with very little change in the chemical composition of the weld metal.

Applications

Tri-Mark HPF-N90 and N90F can be used on structural steel, CrMo steel, high strength low alloy (HSLA) steels and quenched and tempered steels. The N90F grade has a finer particle size

to the N90 and can be used to rebuild small diameter shafts and journals such as those found on crankshafts.

Storage and Re-baking

The higher the basicity index of agglomerated fluxes, the more hygroscopic such a flux would be. All agglomerated fluxes should therefore be stored in conditions of less than 70% relative humidity. Welding with damp flux can cause porosity. Re-drying of flux suspected of being moist should be done for approximately two hours at about 300°C at a flux depth of about 25 mm. For many applications, it is not necessary to re-dry the flux.

Classifications

AWS A5.17/ASME SFA 5.17		
F6A2-ELI2	F7A2-EM13K	F7A8-EC1 METALLOY EM12KS
F7A2-EM12K	F8A2-EA 2-A2	F7A8-EC1 METALLOY EM13KS
F6A2-EM12K	F9A2-EA 3-A3	
F7P2-EM13K	F9P2-EA 3-A3	

Chemical Analysis (All weld metal)

	EM12	EM12K	EM13K	EA2	EA3	EB2	EM12KS	EM13KS
% Carbon	0,7	0,05	0,08	0,03	0,05	0,08	0,03	0,067
% Manganese	0,91	1,3	1,51	1,17	1,7	1,38	1,02	1,08
% Silicon	0,13	0,36	0,57	0,23	0,33	0,35	0,22	0,321
% Sulphur	0,03	0,022	0,019	0,03	0,021	0,013	0,009	0,011
% Phosphorous	0,024	0,02	0,015	0,03	0,029	0,019	0,012	0,015
% Molybdenum	-	-	-	0,52	0,58	0,4	-	-
% Chromium	-	-	-	-	-	1,0	-	-
% Copper	-	-	-	-	-	-	0,027	0,083

Typical Mechanical Properties

	EM12	EM12K	EM13K	EA2	EA3	EB2	EM12KS	EM13KS
Yield Strength	393 MPa	426 MPa	410 MPa	499 MPa	565 MPa	655 MPa	408 MPa	430 MPa
Tensile Strength	476 MPa	519 MPa	525 MPa	577 MPa	655 MPa	720 MPa	490 MPa	530 MPa
% Elongation	30	29	30	2	26	23	27,8	26,5
Charpy V-Notch at -29°C	61 J	66 J	98 J	57 J	56 J	-	-	-
Charpy V-Notch at -18°C	-	-	-	-	-	51 J	-	-
Charpy V-Notch at -51°C	-	-	-	-	-	-	96 J	110 J
Charpy V-Notch at -62°C	-	-	-	-	-	-	56 J	84 J

Flux Characteristics

Maximum Welding Current	800 A
Polarity	DC or AC
Basicity	1,4

Packing Data

Pack Mass (bags/kg)	Item Number
25,0	W071401 (HPF-N90)
25,0	W071402 (HPF-N90F)

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