

# GEEFLUX 544

## IDENTIFICATION

AWS/SFA 5.23: F8A(P)4EA3-A3

## CLASSIFICATION

AWS/SFA 5.17 : F7A(P) 5EH10K

AWS/SFA 5.17 : F7A4 EM12K

AWS/SFA 5.17 : F7A(P) 6EH12K

AWS/SFA 5.17 : F7A(P) 4EH14

AWS/SFA 5.23 : F7A(P) 2EA2-A2

AWS/SFA 5.23 : F8A(P) 4EA3-A3

AWS/SFA 5.23 : F9 A(P) 5 EF2-F2 / F10 P0 EF2-F2

AWS/SFA 5.23 : F9 A(P) 4 EF3-F3

AWS/SFA 5.23 : F8PZ-EG-G

AWS/SFA 5.23 : F11A(P)5 EM4-M4

## DESCRIPTION

Geeflux 544 is a fluoride-basic flux with high basicity and low impurity levels such as P & S. As a result of low oxygen levels in the weld deposits uniform mechanical properties with high toughness values a low temperature are achieved. Because of the almost neutral slag-reactions the chemical analysis of the weld metal can be excellently controlled through the selection of appropriate wire electrodes.

## CHEMICAL COMPOSITION OF THE WIRE

Wire	C	Mn	Si	S	Mo	P	Cu	Cr	Ni
EG	0.07 - 0.12	1.25 - 1.80	0.05 max	0.025 max	0.45 - 0.65	0.025 max	0.3 max	0.15 max	0.25 max
EM4	0.10 max	1.40 - 1.80	0.20-0.60	0.015 max		0.010 max			

## CHEMICAL COMPOSITION OF THE WIRE (AS PER AWS/SFA 5.17)

Wires	C	Mn	Si	S	P	Cu
EH10K	0.07 - 0.15	1.30 - 1.70	0.05 - 0.25	0.025 max	0.025 max	0.35 max
EM12K	0.05 - 0.15	0.80 -1.25	0.10 - 0.35	0.030 max	0.030 max	0.35 max
EH12K	0.06 - 0.15	1.50 - 2.00	0.20 - 0.65	0.025 max	0.025 max	0.35 max
EH14	0.10 - 0.20	1.70 - 2.20	0.10 max	0.030 max	0.030 max	0.35 max

## CHEMICAL COMPOSITION OF THE WELD METAL (AS PER AWS/SFA 5.23)

Wires	C	Mn	Si	S	P	Mo	Cu	Ni	Cr	Ti+V+Zr
EA2-A2	0.12 max	1.40 max	0.80 max	0.03 max	0.03 max	0.40 - 0.65	0.35 max	-		
EA3-A3	0.15 max	2.10 max	0.80 max	0.03 max	0.03 max	0.40 - 0.65	0.35 max	-		
EF2-F2	0.17 max	1.25 - 2.25	0.80 max	0.03 max	0.03 max	0.40 - 0.65	0.35 max	0.40 - 0.80		
EF3-F3	0.17 max	1.25 - 2.25	0.80 max	0.03 max	0.03 max	0.40 - 0.65	0.35 max	0.70 - 1.10		

<b>EG-G</b>	0.15 Max	1.80 max	0.80 max	0.025 max	0.025 max	0.40 - 0.65	0.35 max	-		
<b>EM4</b>	0.10 max	1.30 - 2.25	0.80 max	0.020 max	0.020 max	0.30 max	2.0 - 2.80	0.30 - 0.80	0.80 max	0.03 max

## MECHANICAL PROPERTIES OF THE WELD METAL (RANGE) IN AS-WELDED CONDITION

Wire	UTS (MPa)	YS (MPa)	EL (%) (L=4D)	CVN Impact Value	
				Temp	Joules
EH10K	520 min	460 min	24 - 32	-46°C	50 - 120
EM12K	480 - 600	400 - 520	22.0 - 30.0	-40°C	50 J
EH12K - As welded	570 min	490 min	26 min	-51°C	60 J
				-62°C	50 - 60
EH12K - After SR	550 min	455 min	28 min	-51°C	60 J
				-62°C	
EH14	510 - 620	440 min	22 - 28	-46°C	50 - 120
EA2	570 - 680	480 - 560	22 - 28	-40°C	50 - 120
EA3	570 - 690	500 min	22 - 28	-40°C	50 - 120
EF2	620 min	545 min	17 min	-51°C	50 min
EF3	630 - 680	560 - 585	20 min	-40°C	50 min
EG (PWHT 620±15°C/3 hours)	550 min	470 min	20 min	+20°C	30 min
EM4	760 min	690 min	15% min	-51°C	50 - 120

## CHARACTERISTIC CHEMICAL CONSTITUENTS

SiO <sub>2</sub> + TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> + MnO	CaO + MgO	CaF <sub>2</sub>
15%	20%	40%	25%
<b>Basicity according to Boniszewski: ~3.0</b>			

## APPLICATION

Low hydrogen levels after redrying according to the recommendation on the flux labels and optimum mechanical properties, whilst observing recommended heat control, enable the welding:

- Tick-walled constructional steels with yield strengths of upto 420 MPa.
- Off-Shore applications upto 460 MPa yield strengths on steels such as BS 4360-Grade 50 D and S355 2G3 according to DIN EN 10025 (previous designation St 52-3N).
- Fine grain structural steels for low temperature requirements with impact toughness at -60° C or below.
- High tensile fine grain steels such as S690QL1 and N-A-XTRA 70.
- Boiler and vessel steels such as 16Mo3/A204 Grade A, 13CrMo4-5/ A387 Grade 12 or 10CrMo9-10/ A387 Grade 22.

## REDRYING TEMPERATURE

Damp flux should be redried at 300 - 350°C for 2 hours

**CURRENT CONDITION :** AC / DC (+)

**FLUX DENSITY :** 0.95 Kg/ dm<sup>3</sup> (i)

**GRAIN SIZE ACCORDING TO ISO 14174 :** 2-20 (Tyler 8 x 65)

**CURRENT-CARRYING CAPACITY :** Upto 800A (DC or AC) using on wire.

\* **DIFFUSIBLE HYDROGEN CONTENT H5** : Determined in deposited metal according to the method described in ISO3690.

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**TYPE OF CURRENT DC:** Redrying conditions 300-350°C.

<b>Wires</b>	<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>S</b>	<b>P</b>	<b>Mo</b>	<b>Cu</b>	<b>Ni</b>
EA2-A2 max	0.12 max	1.40 max	0.80 max	0.03	0.03	0.40 - 0.65	0.35 max	-
EA3-A3 max	0.15 max	2.10 max	0.80 max	0.03	0.03	0.40 - 0.65	0.35 max	-
EF2-F2 max	0.17 max	1.25 - 2.25	0.80 max	0.03	0.03	0.40 - 0.65	0.35 max	0.40 - 0.80
EF3-F3 max	0.17 max	1.25 - 2.25	0.80 max	0.03	0.03	0.40 - 0.65	0.35 max	0.70 - 1.10
EG-G max	0.15 Max	1.80 max	0.80 max	0.025	0.025	0.40 - 0.65	0.35 max	-