Chemical Composition

IS: 2062/2011

Grade Designation	Quality	Ladle Analysis, Percent, Max					Carbon Equivalent (CE), Max	Method of Deoxidation
		C	Mn	S	P	Si		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
E 350	A BR BO	0.20	1.55	0.045	0.045	0.45	0.47	Semi killed/killed
	C	0.20	1.55	0.040	0.040	0.45	0.45	Killed
E 410	A BR BO	0.20	1.60	0.045	0.045	0.45	0.50	Semi killed/killed
	C	0.20	1.60	0.040	0.040	0.45	0.50	Killed
E 450	A BR	0.22	1.65	0.045	0.045	0.45	0.52	Semi killed/killed
E 550	A BR	0.22	1.65	0.020	0.025	0.50	0.54	Semi killed/killed
E 600	A BR	0.22	1.70	0.020	0.025	0.50	0.54	Semi killed/killed

SAILMA **Nb+Ti+V%**

Grade	C max	Mn max	S max	P max	Al min	Si max	CE max	MAE max
300	0.20	1.50	0.045	0.045	0.02	0.45	0.44	≤ 0.25
300 HI	0.20	1.50	0.040	0.040	0.02	0.45	0.43	≤ 0.25
350	0.20	1.55	0.045	0.045	0.02	0.45	0.46	≤ 0.25
350 HI	0.20	1.55	0.040	0.040	0.02	0.45	0.45	≤ 0.25
410	0.20	1.60	0.045	0.045	0.02	0.45	0.47	≤ 0.25
410 HI	0.20	1.60	0.040	0.040	0.02	0.45	0.46	≤ 0.25
450	0.20	1.65	0.045	0.045	0.02	0.45	0.48	≤ 0.25
450 HI	0.20	1.65	0.040	0.040	0.02	0.45	0.47	≤ 0.25
550	0.20	1.65	0.020	0.025	0.02	0.50	0.54	≤ 0.25
550 HI	0.20	1.65	0.015	0.025	0.02	0.50	0.54	≤ 0.25
600	0.20	1.70	0.015	0.025	0.02	0.50	0.54	≤ 0.25

Specification	Grade	C % max	Mn % max	P % max	S % max	Si %	
SAIL-FRS		0.20	1.5	0.040	0.040	Cr+Mo %=1.00	Nb+V+Ti (max)% 0.12

Note: Micro alloying elements like Nb, V, Ti or B shall be added singly or in combination and total micro alloying shall be as indicated or as per mutual agreement between SAIL & Purchaser.