

Electrical Measurements.—Heat 12.

Date : 27th August, 1921.

Time.	Volts.	Amps.	Watts.	Units.		Remarks.
				No. 1.	No. 2.	
8.15	..	..	..	495,525	505,790	Lining temporarily patched.
9.50	..	..	..	495,572	505,855	First charge.
10.00	144	2,500	373	..	..	
10.15	160	2,750	375	..	..	
10.30	160	2,500	375	..	..	
10.45	178	2,200	380	..	..	
11.00	150	2,600	386	..	..	
11.15	166	2,300	370	..	..	
11.20	..	..	..	495,781	506,074	Second charge ; off for 7 minutes.
11.32	148	2,650	375	..	..	
11.45	168	2,100	364	..	..	
12.00	170	2,100	358	..	..	
12.15	180	2,000	370	..	..	
12.30	154	2,500	365	..	..	Off 1 minute for electrode.
12.45	136	2,700	375	..	..	
1.00	150	2,400	375	..	..	
1.03	..	..	..	..	..	Half tap.
1.05	100	2,200	225	..	..	
1.30	97	2,100	200	..	..	
1.48	100	2,000	200	..	..	
2.00	100	2,000	200	..	..	
2.20	95	2,200	220	..	..	
2.29	..	..	..	496,175	506,493	Off for 23 minutes, first slag.
3.00	146	2,300	320	..	..	
3.19	140	2,600	337	..	..	
3.25	..	..	..	..	..	Off for 17 minutes, second slag.
3.47	150	2,300	320	..	..	
3.58	160	2,100	320	..	..	
4.08	..	..	..	496,301	506,619	Half tap.
4.20	89	2,300	215	..	..	
4.33	..	..	..	496,345	506,664	Off for 15 minutes, third slag.
5.00	128	2,600	340	..	..	Off for 1 minute.
5.20	90	2,300	215	..	..	Off for 1 minute.
5.30	92	2,400	215	..	..	
5.45	104	2,000	200	..	..	
6.00	Off	..	..	..	..	
6.22	..	Metal teemed	..	496,416	506,742	Off for 22 minutes.

Total length of run ..	..	..	..	..	8 hr. 32 min.
Effective length of run ..	..	..	..	..	7 hr. 5 min.
Mean volts ..	..	..	..	..	135
Mean amps ..	..	..	..	..	2,322
Mean watts ..	..	..	..	..	309
Watts (= volts × amps) ..	..	..	..	..	313
K.V.A. (= watts × time) ..	..	..	..	..	2,215
Total units (K.W.H.) consumed × 1.25 ..	..	..	..	..	2,304
Steel produced ..	..	..	..	..	(lb.) 460
Units (K.W.H.) per ton of steel ..	..	..	..	..	11,219
Slag made (mostly lining and dolomite used in patching) ..	..	..	..	..	(lb.) 2,471
Ratio $\frac{\text{Slag}}{\text{Iron}} = \frac{2471}{460} = 5.4.$					
Iron charged in form of sands ..	..	..	..	..	(lb.) 743
Iron charged as ferro-silicon, ferro-manganese, and hematite ore ..	..	..	..	..	(lb.) 100
Yield of iron in form of steel (per cent.) ..	..	..	..	..	54.6

The analysis of the steel was as follows :—

	Per Cent.
Carbon by combustion ..	0.532
Silicon ..	0.143
Sulphur ..	0.035
Phosphorus ..	0.034
Manganese ..	0.582
Arsenic ..	0.016
Titanium ..	Trace