

PERFORMANCE CERTIFICATE**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that M/S ACE FURNACE PRIVATE LIMITED, Navi Mumbai has supplied 3000 kg/hr Bright Annealing Roller Hearth Furnace. The furnace was successful commissioned in November 2016 and furnace is running satisfactory till date with all committed performance data as mentioned below.

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| 1) Supplier | : ACE FURNACES PVT LIMITED, NAVI MUMBAI. |
| 2) P.O. Reference no | : GIL/2016-2017/32 DATED 24/05/2016 |
| 3) Equipments | : Bright Annealing Roller Hearth furnace. |
| 4) Heat Treatment Process | : Normalizing, Annealing & Stress relieving. |
| 5) Charge material sizes | : ERW /CDW tubes of size 8 mm to 130 mm OD
12 meter long.
[Grade :-ST 52,SAE 1020,SAE 1026,1010] |
| 6) Furnace rated capacity | : 3000 kg/hr |
| 7) Operating fuel | : Natural Gas |
| 8) Combustion system | : Single ended self recuperative radiant tube burners
(pulse firing control) |
| 9) Cooling system | : Closed loop type cooling system with soft water
circulation. Cooling temp not more than 35.c each
zone |
| 10) Furnace maximum Temperature | : 950°C. Max. +/- 0.10 .c and 450.c min |
| 11) Furnace operating temperature | : 450.c /550.c to 900°C. At all stage +/-0.10 .c |
| 12) Furnace Atmosphere | : Rich Exo gas & PSA up to 5 % Hydrogen. Max. |
| 13) Protective gas flow | : 300 Nm ³ /hr. |
| 14) Specific Fuel Consumption per ton at
3000 kg/Hr output. | : 28- 30 Nm ³ /Ton (NG) |
| 15) Tube surface finish after heat treatment | : Absolute bright finish without oxidation. |
| 16) Skin temperature at 900 °C operating | : 51 to 68°C |



PERFORMANCE PARAMETER

- Temperature Accuracy is within limit as per Furnace calibration NABL-STD-141
(**Thermal mapping report attach**)
- Surface finish after heat treatment found bright and satisfactory. Accepted by all the Europe standard
- Fuel consumption is well within committed value.
- Material mechanical properties after heat treatment are also as per required specifications

FOR M/S GOODLUCK INDUSTRIES UNIT II
(UNIT OF GOODLUCK INDIA LTD)


[JITENDRA JOSHI -SR.GENERAL MANAGER]