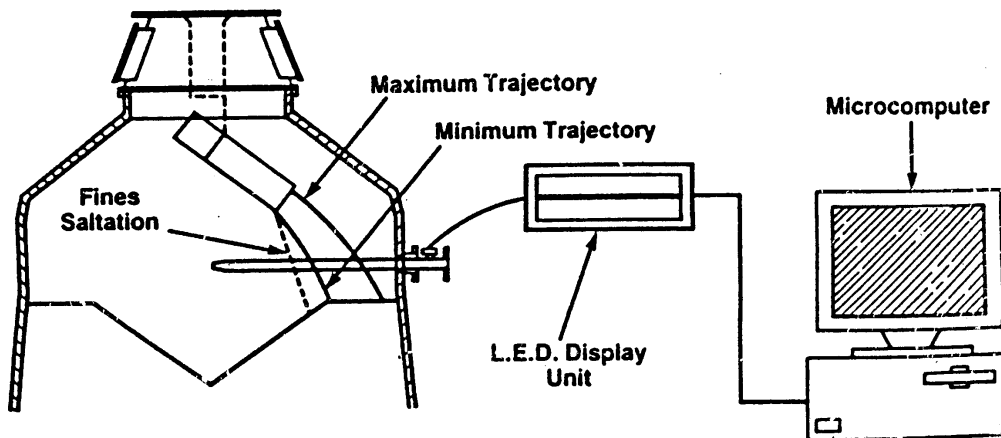


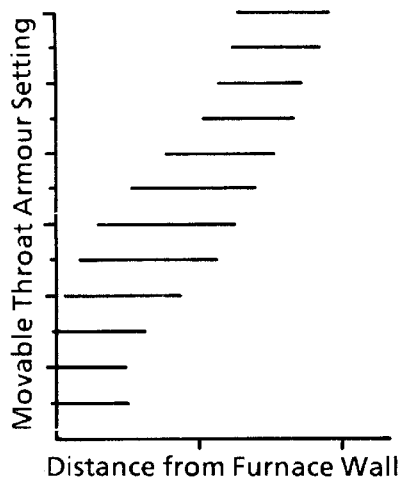
Ironmaking Blast Furnace Electronic Trajectory Probe



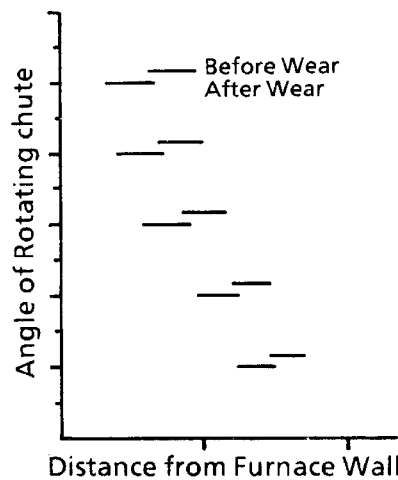
Corus Consulting Limited, Teesside Technology Centre, P.O. Box 11, Grangetown, Middlesbrough,
Teesside TS6 6UB U.K. Telephone: +44 (0)1642 467144 Fax: +44 (0)1642 460321
E-mail: colin.notman@corusgroup.com



The distribution of burden materials in a blast furnace plays a vital role in overall furnace performance, and the ability to predict this distribution in a mathematical model is a key element. The accuracy of any charging model is highly dependent on the measured trajectories of burden materials as they fall from the top charging equipment to the furnace stockline. To measure these trajectories accurately, Corus has developed an electronic trajectory measuring probe. The probe is positioned in the furnace to intercept the flow of material just before it impacts on the stockline. A series of sensors, 50mm apart, when activated by material impact, send signals electronically to the recording system. This system displays the results on a light electronic display locally and also on a stand-alone PC located remotely. The results are stored to disc for subsequent interrogation. The sensors are set so as not to be triggered by the fines saltation effect, which masks the true minimum trajectory of material, and the probe is capable of taking measurements both on and off-blast.



TYPICAL TRAJECTORIES MEASURED FROM A MOVEABLE THROAT ARMOUR SYSTEM



TYPICAL TRAJECTORIES MEASURED FROM A ROTATING CHUTE CHARGING SYSTEM

Benefits:

- Essential investigative tool for blast furnace process control - provides process information
- Helps maximise fuel efficiency (approximately 470Kg total fuel rate achieved regularly in Corus furnace)
- Significant contribution to extending furnace life (>15 years in Corus) by improved operating stability
- Identifies blast furnace charging problems
- Provides information allowing improvements to be made to product quality and consistency (ie. HM Si SD <0.1)
- Ensures uniformity of burden distribution across the furnace
- Operates automatically and remotely whilst on blast