PASSION FOR STEEL

cnes

LADLE REFINING FURNACE

SOLUTION FOR QUALITY STEEL MAKING

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QUALITY STEEL MAKING

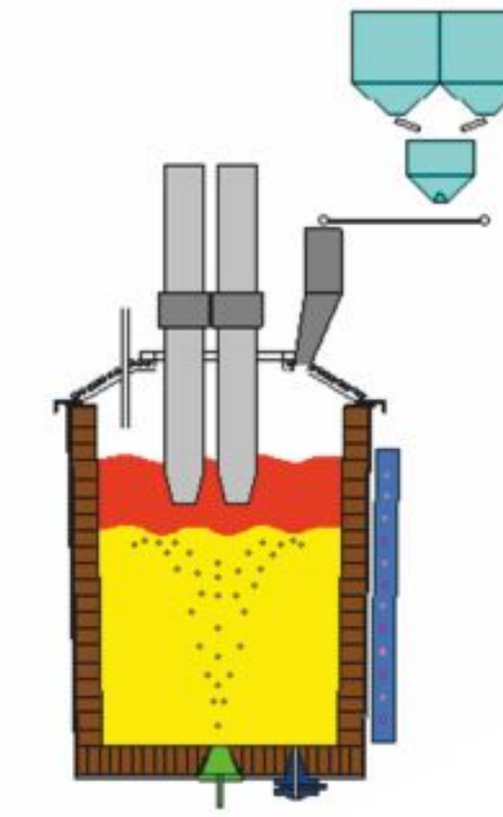
Over the last few years, increasing customer demands for improved product quality have forced steel producers to implement new and innovative metallurgical treatment into their modern steel making operations. CNE Systems offers Electric Ladle Furnace to meet these demands of steel makers.

The principal features of the CNE System's ladle furnaces are its compact and sturdy construction, simple foundation and adapted electrical equipments. Apart from design of ladle furnace, the conceptions of associated equipment stroke components and how well they are matched, decides the effectiveness of ladle furnace plant.

Since vital components are designed and manufactured in-house, CNE Systems is in a unique position to provide this optimum match.

Our long experience with electricity and knowledge of how to exploit it for industrial processes have created many special features which we offer for the secondary metallurgical processes.

We manufacture and supply complete ladle furnace plants using ABB hardware and basic system software for Digital Electrode Control and automation



PRODUCT RANGE

Type	Nominal Tons	Typical Power rating MVA	Electrode Diameter mm	Patch Circle Diameter mm
LF-20	18/20	3.6	250	550
LF-30	25/30	6.0	300	600
LF-35	35	7.2	300	650
LF-45	40/45	8.0	350	650
LF-50	50	10.0	350	650
LF-70	70	13.0	350	700
LF-80	80	15.0	350	700
LF-100	100	18.0	400	800
LF-150	150	25.0	450	850
LF-180	180	30.0	450	850

"LF Capacity higher than above also can be supplied on request.

"Power rating will vary depending on desired heating rate.

TECHNICAL - HIGHLIGHTS

Water Cooled Roof

The LF is equipped with complete water cooled roof. The roof is divided in various segments for cooling purpose. The roof is of the tube on tube design, made of seamless steel pipes.

Hydraulic Power Pack

All LF movements are powered hydraulically. For smaller capacity LF, Low pressure water hydraulic System is employed while for larger capacity, just one single compact power pack unit is used, operating at a pressure of about 100 bar.

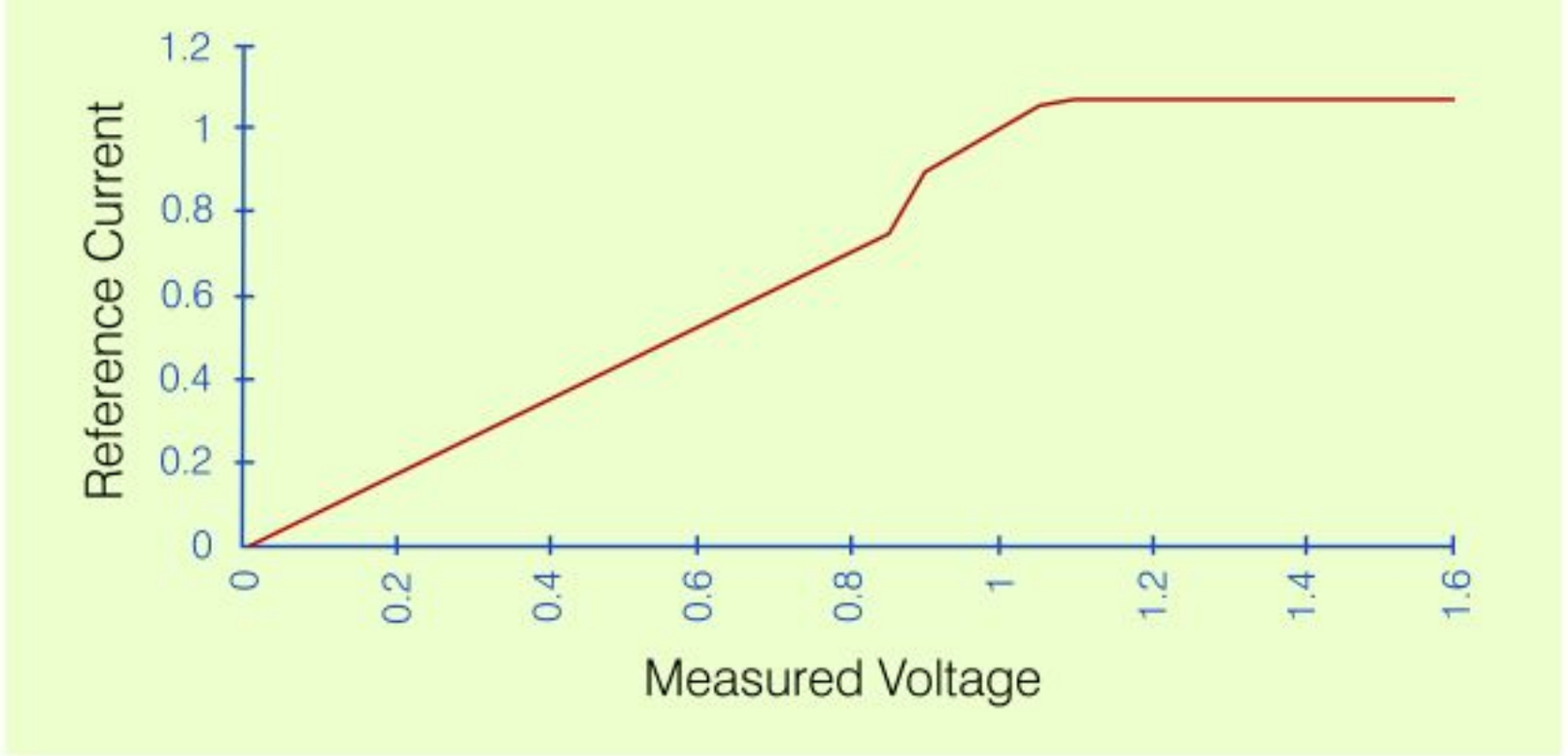
A high capability control valves ensure fast response time. A pressure vessel works as accumulator. Hydraulic oil / water glycol is used as hydraulic media.

AUTOMATIC DIGITAL ELECTRODE CONTROL

The task of the electrode control system is to maintain as closely as possible a given target working point, which is determined by the secondary voltage and by the power factor used, The quality and efficiency of the system depends on the precision with which the working point is maintained. The degree of precision depends on the accuracy of the measurement of the arc voltage and current. Our long experience in the design and operation of arc furnace plants have resulted in the development.

Digital Electrode Control system being offered by us is mainly for larger capacity ladle furnaces.

The current is measured with high precision by Rogowski Coils. An additional logic supervises ignition, arc break and short circuit. The digital electrode control system works with high accuracy and stability as a result maximum active power gets fed into the ladle furnace.

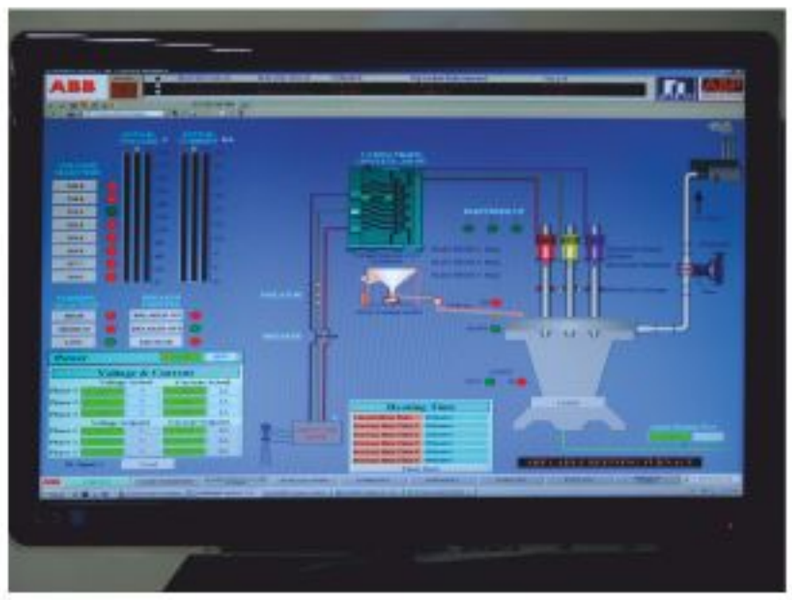


PROCESS AUTOMATION / AND OHER LF AUXILIARY SYSTEMS - OPTIONAL

Our process automation system is based on a ABB's or reputed make controller / other required process station and an industrial PC The System is designed for operator guidance and manufacturing control of LF Processes which includes the following functions:

- Super-heating control module
- Alloy calculation
- Temperature calculation
- Reports and logs

The system is easily expanded both horizontally (i.e. new process area) and vertically (i.e. new levels of functions) without inter-connectivity problems or becoming obsolete. The process automation system is part of CNE Systems's total concept for LF control. It is designed based on our long experience in process control systems for the steel industry.



LF Auxiliary Systems

Having immense know-how of the LF process and years long experience, CNE also take "Turnkey" project contract for LRF with all related auxiliary equipment

Ladle Transfer Car
Fume extraction and dedusting system.
LRF Duty Transformer
Ferro Alloy and flux feeding system
Argon and Nitrogen stirring system including top lance system

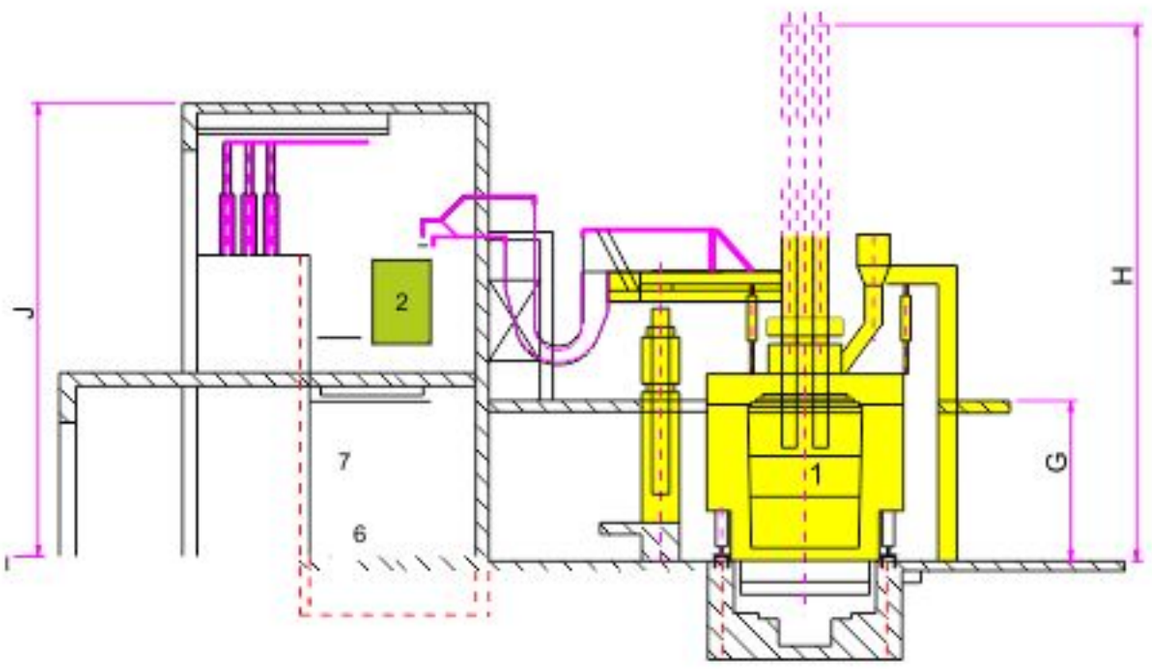
Wire feeding system
Carbon injection system
Electrode nippling and storage system
External cooling water system
Harmonic filter and Power Factor Improvement system
Temperature and oxygen measuring system

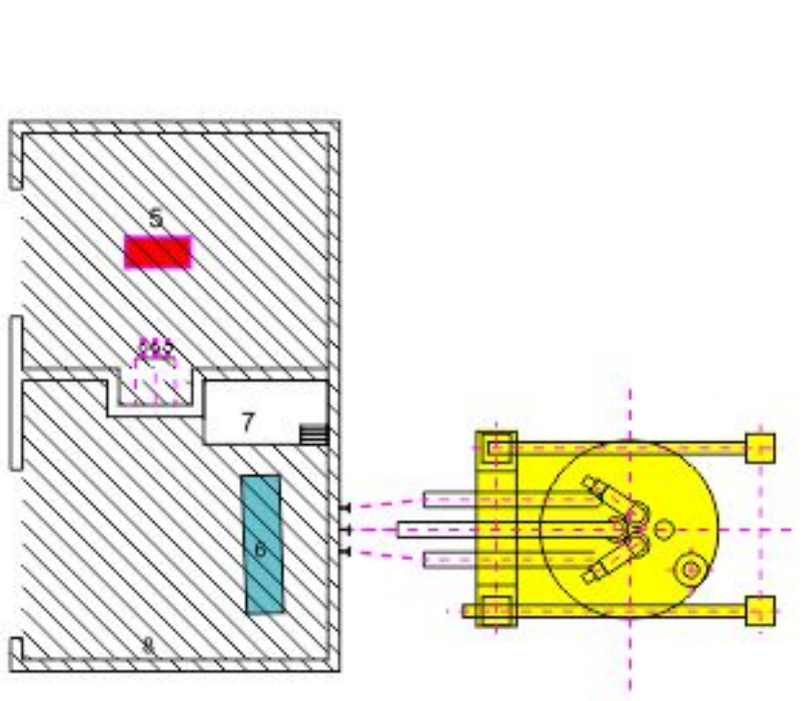
All these auxiliary systems can also be supplied by us or CNE Systems can provides necessary engineering support for selection of various add on systems for LF. This activity is carried out keeping in mind LF capacity and other metallurgical and operational demand of the Customer's plant.

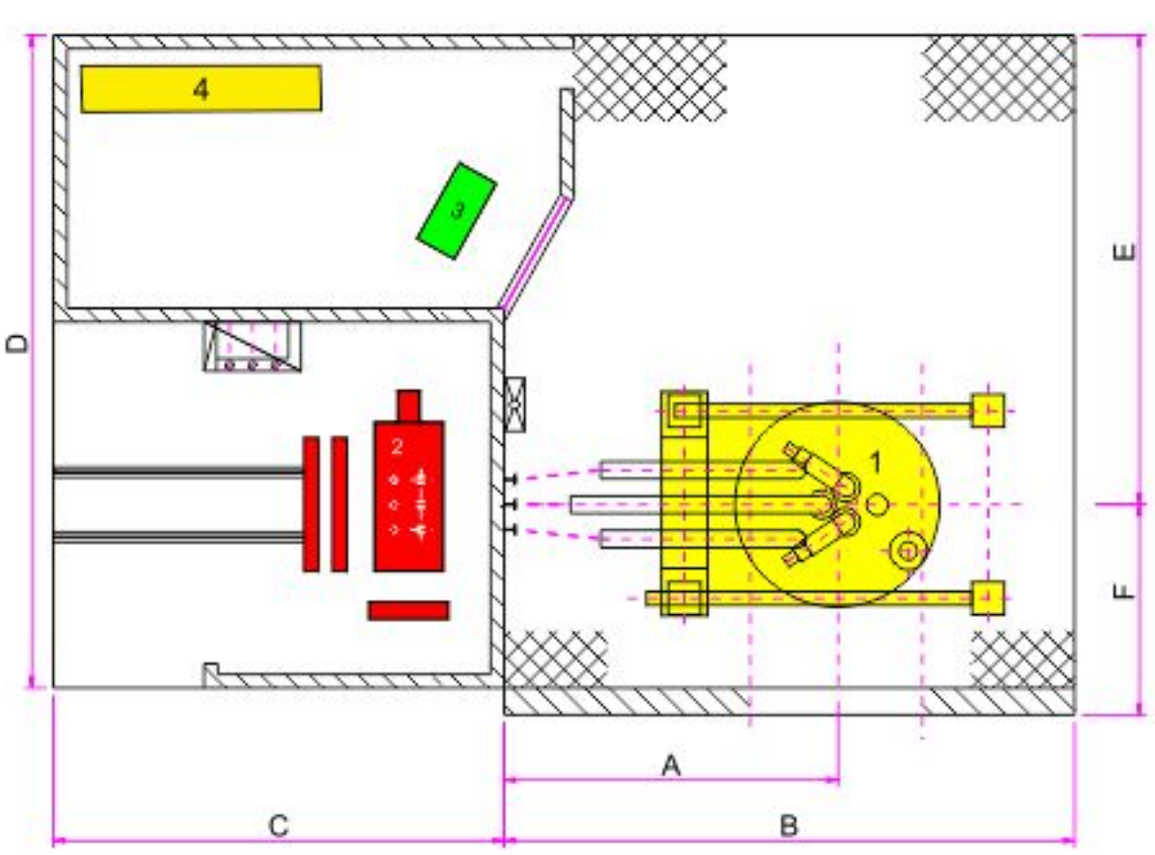
LAYOUT PROPOSAL - LADLE FURNACE

Legend

1. Ladle Refining Furnace
2. Transformer
3. Control Desk
4. Control Panel / Regulation Panel
5. High Voltage Switchgear
6. Hydraulic Unit
7. Pressure Vessel
8. Motor Control Center







Type	A	B	C	D	E	F	G	H	J
LF-20	4800	8200	15000	12500	9000	3500	2500	7000	6500
LF-30	7200	11500	11000	15000	10000	4500	3400	11000	10500
LF-40	7700	12000	11500	16000	11000	5500	4000	14000	11000
LF-50	7700	12000	12000	16000	11000	6000	4200	14200	11300
LF-70	7700	12500	14000	16000	12000	6000	4200	14200	11800
LF-100	8300	25000	22000	15000	10000	5000	5000	15700	14000
LF-150	8500	25200	23000	15000	10000	5000	5200	16000	14500
LF-180	8500	25300	23000	15000	10000	5000	5400	16300	14700

CNE SYSTEMS SERVICE - AVAILABLE TO YOU AT SHORTEST POSSIBLE TIME

Our technicians stand at the ready around the clock for the diagnosis, maintenance and after-sales service of your CNE installations.

By means of individual consultancy services, we ensure process optimization and an increase in operational efficiency for the best possible return on your capital investments and add more value to your installations and processes. Providing expert and professional services is the basic requirement for a successful working relationship with our customers.

C N ENGINEERS AND SYSTEMS PVT LTD

ALL TASK ARE IMPORTANT, EVEN THE MOST MODEST

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