

TRUST LIKE STEEL



DC ARC FURNACE
SOLUTION FOR QUALITY STEEL MAKING

QUALITY STEEL MAKING -

THROUGH VERSATILE DC ARC FURNACE

Over the last few years, increasing customer demands for improved product quality have made steel producers to implement new and innovative metallurgical treatment into their modern steel making operations.

CN EKTA offers **Versatile Electric DC ARC Furnace** to meet these demands of steelmakers.

The principal features of our make DC EAF is the smelting conditions in VDCAF **allow to** increase mechanical properties of steel by 10 to 20 %, improve internal steel structure while meeting requirements on

non-metallic inclusions and gas content and keep melt composition and temperature stable by using ordinary cheap charge **without** use of additional equipment .for charge preparation.

The quality of steel is result of the reaction processes which take place in the section between slag and the melt. The technology allows to conduct refining of metal and to carry out desulfurization , dephosphorization , carburizing and other operations viz . decarbonization of the melt, its alloying, refining and structuring.

Our furnaces are preferred by production units who are "Quality Conscious" and regularly produce steel of high quality, that is steel having high mechanical strength, cold and heat resistance, fatigue strength, wear resistance, the stabilized structure, lack of non-metallic inclusions and gas porosity, etc.

Together with EKTA -our long experience with electricity and metallurgical knowledge of how to exploit it for industrial processes have created many special features which we offer for melting and refining processes in VDCAF



PRODUCT RANGE

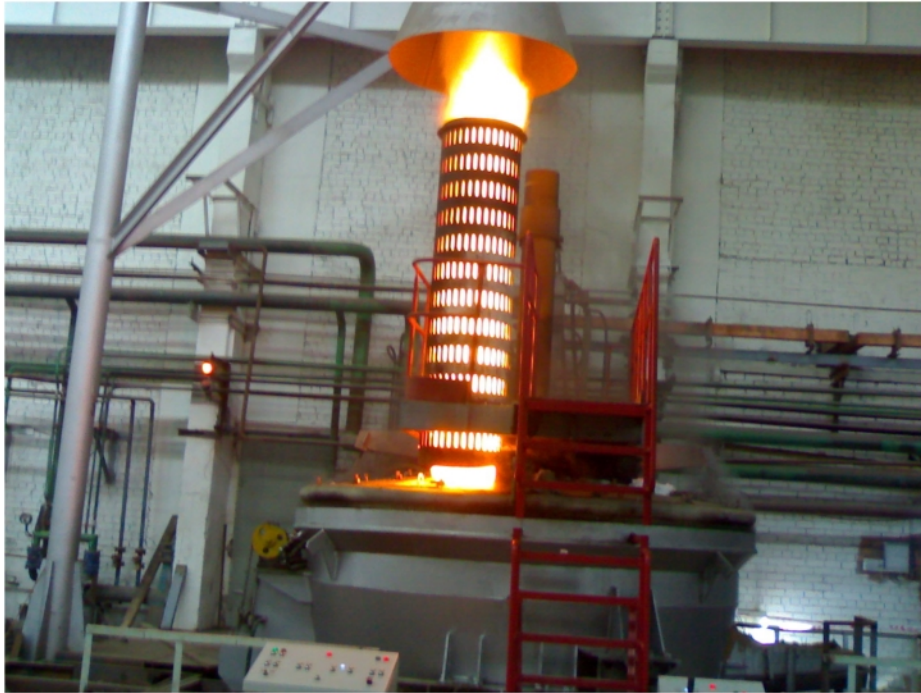
Furnace capacity ,power ,melting time ,charge loss							
Furnace model	Capacity-Ton	Transformer power	Estimated melting time under current -minutes		Charge materials loss, %	Graphite electrodes	
Type	Ton	Kgs/T	Steel, cast iron, alloys based on Co, Ni, etc.	Alloys based on Al, Cu, etc		Kgs/T	Diameter in MM
VDCAF -0.2	0.2	0.2	40..45	30..35	0.2..1.5	1.5	100
VDCAF -0.5	0.5	0.84	25..30	15..20			150
VDCAF -1	1	1	35..40	25...30			200
VDCAF -1.5	1.5	2.2/1	30/55	20/40			200
VDCAF -3	3	4.3/2.2	25/55	20/40			250
VDCAF -6	6	4.73/4.3	45/55	30/40			300
VDCAF -12	12	10.8	45..50	25..30			400
VDCAF -25	25	2X10.8	45..50	"-			400..450
VDCAF -50	50	3X10.8	70..75	"-			500..600
Furnace capacity ,power ,melting time ,charge loss							
VDCAF -0.5	0.5	0.2	110 KWH/T	70 KWH/T	0.1	0.2..0.4	100
VDCAF -1	1	0.2					100
VDCAF -1.5	1.5	0.84					200
VDCAF -3	3	0.84					200
VDCAF -6	6	2.2					250
VDCAF -9	9	2.2					250
VDCAF -12	12	4.3					300
VDCAF -16	16	4.3					300
VDCAF -20	20	4.3					400
VDCAF -25	25	10.8					400
VDCAF -30	30	10.8					400
VDCAF -50	50	10.8					400

- VDCAF Capacity higher than above also can be supplied on request.
- Power rating will vary depending on desired heating rate.



TECHNICAL - HIGHLIGHTS

Pollution control equipments



A organized after burning of off gases when Melting of heavily contaminated charge.

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 times. A pressure vessel works as accumulator. Hydraulic oil / water glycol is used as hydraulic medium for high pressure system.

Automatic control and monitoring system



The system is designed for efficient operation of the installation for :

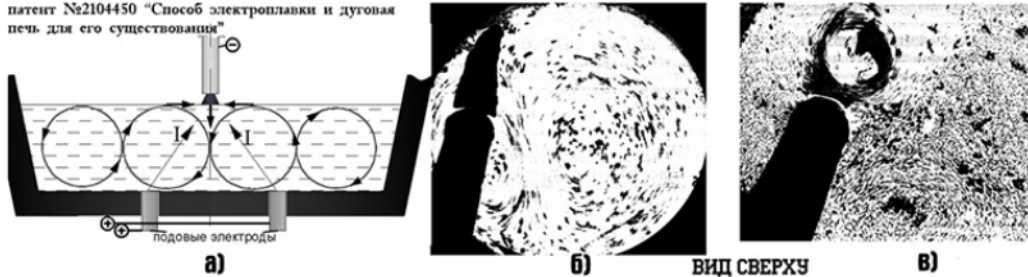
- Automation of Energy technology mode control (stabilization of the active power input into the furnace);
- Dynamic protection from current peak loads when modes of the arc are unstable;
- Diagnostic of equipment condition (malfunction, accident, readiness).

The Digital control and regulation system with the possibility of connecting to external interfaces has been working successfully at all plant supplied by us

Our long experience in the design and operation of DC arc furnace plants have resulted in the development of efficient and most reliable control systems for VDCAF. –MPSD-04

VDCAF- An Unique featured (Magneto hydro Dynamic stirring)

патент №2104450 "Способ электроплавки и дуговая печь для его существования"



The system of magneto-hydrodynamic (MHD) stirring of molten metal that ensures temperature uniformity throughout the entire melting volume of the furnace and achieves material homogeneity is the main distinctive feature of these furnaces. Hinged inductors are not used in such furnaces.

MHD stirring is a special method of direct current arc supervision.

Possibility to use raw materials as a charge with much inferior quality than those acceptable for AC EAF or IF



No need for Ladle refining Furnace (in the foundry process for sure and situation specific in metallurgical process-steel making)

Less Energy consumption (from 60 to 150 KWH/ton compared to AC EAF and Induction furnaces depending on whether metallurgical or foundry process is used)

Other significant advantage of our Engineered VDCAF over other make DC and AC EAFs are....

- Procure charge loss not exceeding 1.5%
- Decrease graphite electrodes consumption (on average not more than 1.5-1.7 kg/t);
- Decrease ferroalloys consumption by 10-30%;
- Decrease refractory materials consumption on Furnace walls lining;
- Low consumption of the electric power on the full technological cycle of steel production (for the furnace - it is not higher than 600 KWH/t, for the mixer - no more than 42 KWH/t when overheating on 100 °C);

VDCAF - Auxiliary Systems (Optional)

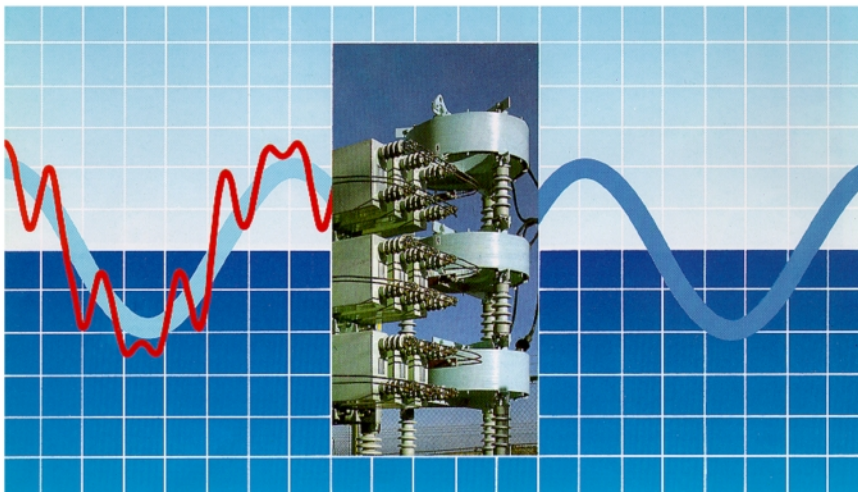


Fume extraction and dedusting system.

Electrode nipling and storage system

External cooling water system

Harmonic filter and Power Factor improvement system



All these auxiliary systems can also be supplied by us or ABB 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 plant.

CN EKTA 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 CN EKTA 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.



CN EKTA
FURNACE SYSTEMS LLP

C-46 Akshradham Duplex, Vrajdharm Mandir Marg,
Manjalpur, Vadodara-390011, Gujarat, INDIA.

A2/424/A2, GIDC Estate, Near Matrix, Makarpura,
Vadodara - 390010, Gujarat, INDIA.

T. +91 265 2644645
M. +91 990 902 7988

E. jivraj.sutaria@cnekta.com
W. www.cnekta.com