METAL REFINING UNITS

MetInject
Metallurgical Injection Technology for Hot Metal and Steel

De-Si
De-P
De-S
Chemical Heating
**METINJECT - INJECTION DISPENSERS**

Concept „plug and play“:
- modular, pre-assembled, tested, certified
- short erection and installation
- zero maintenance

**STORAGE SILOS**

Filling of storage silos by:
- Silo trucks
- Big bags, barrels
- Container bins
- Standard seafreight containers (ISO)

Reagents:
- Fluidized lime
- Calcium Carbide
- Granulated Magnesium
- Iron Oxides Fines
- Carbon powder
- etc.

**LANCE MANIPULATION**

Standard solutions:
- 2-axis (up/down plus swivelling)
- up to 2 lances
- space saving design
- easy operation

**METALLURGICAL VESSELS**

Ladle
Torpedo
EAF/SAF
Induction Furnace
Küttner’s MetInject system has been designed for the following metallurgical treatments:

- De-Si (Desiliconization)
- De-S (Desulfurization)
- De-P (Dephosphorization)
- Recarburization
- Chemical heating

METALLURGICAL AND PROCESS GUARANDES

Küttner guarantees process and metallurgical figures to ensure the economic success of the investment.

FINANCING CONCEPTS

Upon request Küttner offers financing concepts and business cases on zero investment bases, “price per ton of reagent” basis and others.

PROCESS OPTIMIZATION

In order to suggest the optimum process concept meeting customer’s demands, Küttner offers preceding studies, engineering, and consultancy.

SHORT RETURN ON INVEST

EXAMPLE: HM DE-PHOSPHORIZATION

Dephosphorization of hot metal requires high stirring power which cannot be achieved with a simple addition of reagents to the bath surface thus deep injection is the preferred process to attain a final P content of \( \leq 0.03 \% \).

Due to the increase in value of the casted pig, the investment typically pays back in less than 1 year:

REFERENCES

Latest references for metallurgical injection stations are at:

- ISDEMIR Iron & Steel, Turkey
- TATA Iron & Steel, India
- ThyssenKrupp Steel, Germany
- TISCO Taigang, China
- TRONOX KZN Sands, South Africa
- SAIL IISCO, India
**QUESTIONNAIRE MetInject**

If you have any metallurgical task, please contact us. Providing the following basic information would help us to suggest suitable solutions:

1. **Company / plant name / location / contact**
   
2. **Annual production of liquid metal**
   
3. **Metal weight in ladle for treatment**
   
4. **Number of aimed treatments?**
   
5. **Metallurgical task?**
   
6. **Metal analysis before treatment (average)**
   
7. **Target S or P content after treatment**
   
8. **Process limitations/constraints**
   
9. **Preferred reagents for injection?**
   
10. **Freeboard in ladle/furnace**
   
11. **Any treatment steps after this required?**
   
12. **Supply of reagents?**
   
13. **Vessel for injection?**
   
14. **Slag skimming facility available?**
   
15. **Lance manipulator/carriage available?**
   
16. **Dust collection and filter system available?**
   
17. **Calculation/Reporting system required?**
   
18. **Distance between injection equipment and treatment stand?**
   
19. **Reagent(s) storage available?**
   
20. **Please send drawings of ladle/furnace and area of interest (if available).**

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