Development of a Converted Blast Furnace (CBF) and a Cyclone Converter Furnace (CCF)

Project ID: 7215-BA/601
Funded under: ECSC-STEELDEM 1C

Development of a Converted Blast Furnace (CBF) and a Cyclone Converter Furnace (CCF)

From 1986-07-01 to 1988-06-30

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>EUR 5 339 000</th>
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</thead>
<tbody>
<tr>
<td>EU contribution:</td>
<td>EUR 1 067 800</td>
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<tr>
<td>Coordinated in:</td>
<td>Netherlands</td>
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<th>Topic(s):</th>
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<td>T1 - Iron and steelmaking</td>
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<th>Funding scheme:</th>
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<tr>
<td>DEM - Demonstration contracts</td>
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Objective

The aim of the demonstration project is the further development of the "Hoogovens method". The "Hoogovens method" is a two-stage smelting and reduction process. The production of has and initial smelting of the pre-reduced ore take place in one stage, the prereduction in a second stage. In the lower part coal and oxygen are introduced into the metal bath by means of two separate offset lances. The position of the lances with respect to each other creates a stirring effect in the metal bath. The crude gas needs to be treated before entering in the shaft furnace. This is achieved by the addition of fine coal or natural gas in the upper part of the gas producer. This reduces the temperature to approximately 900° C and CO2 and H2O are transformed into Co and H2. The reducing gas then enters the upper part, the shaft furnace. The ore charge is the same as that for a blast furnace. The degree of reduction of the ores reaches approximately 90%. The special feature of this process is that by converting the middle section of existing blast furnaces into a melting and reduction unit, the existing infrastructure can largely be retained. Cost savings of the order of 20% can be expected with the process, e.g. from the elimination of the coking plant. The total cost of the project is estimated at 127,540,000 guilders. It is intended to achieve the final results in various stages. The first stage is a 1,000 tonne per day plant. Subsequently plant for the production of 3,000 tonnes per day and 5,000 to 10,000 tonnes per day is planned. The object of this project is a two-year preliminary study.

The first year of the investigation will cover a) the physical modelling of the process, b) the treatment of the crude gases and c) the suitability of various types of coal. The results of these investigations will be then used as a basis, in the second year, for the development of detailed structural plans for a 1,000 tonne per day plant. At the end of each one-year stage the continuation of the project will be decided on with the help of a working party convened by the partners in the contract and the Commission.

Coordinator

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