

METAL

INNOVATIVE DRAWING BENCH INCREASES FLEXIBILITY AND REDUCES RESOURCE CONSUMPTION



A combination of inductive material heating, continuous coating and a special drawing process reduces just the steel consumption by 124 tons a year.

The new drawing line in the rolling mill Einsal saves material and energy.

THE COMPANY

**ADDRESS**

Walzwerke Einsal GmbH
Altenaer Strasse 85
58769 Nachrodt-Wibblinwerde

INTERNET

www.walzwerke-einsal.de

ESTABLISHED

1675

LINE OF BUSINESS

Hot rolling mill and section drawing

EMPLOYEES

approx. 300

INITIAL SITUATION

The company Walzwerke Einsal produces, among other things, cold drawn profiles in different shapes such as rectangular, square bar, hexagonal, round profiles as well as a variety of special profiles on the Nachrodt site.

In order to meet the customers' high requirements regarding accuracy of fit, the drawing process in the field of cold metal forming is of great significance. Prior to the cold drawing process, a surface coating had to be applied on the profiles as a preparatory measure. The coating agents were permanently kept in large dip tanks at a liquid tem-

perature of 70°C. In addition to that, the profile endings were pre-machined to ensure the pushing process into the drawing device. This process causes substantial amounts of material loss.

In order to reduce the consumption of resources, Einsal decided to introduce a flexible and resource-saving new drawing line. For the first time, a combination of inductive material heating, continuous coating line and a drawing bench with a specifically adjusted drawing tool were used.

Saving resources. Strengthening the economy.

MEASURES AND ADVANTAGES

After pickling, the hot-rolled raw profiles are put on the machine at the material inlet and fed to an inductive heating device. Regarding their dimensions, the used inductors are adjusted to the respective profile dimensions. Thus, the used heating power is reduced to a minimum. Directly after that, the pre-heated profile goes into the coating chamber where it receives an even and thin drawing coating. In this way, the surfaces of the work pieces are improved and coating agents saved. For the most part, the excess coating agents are returned to the production cycle.

Afterwards, the profile is pressed into the drawing tool by means of the so-called pushing process. Immediately after that, the drawing die takes over the drawing part which is, from now on, drawn through the tool at a constant speed. The implemented solution of drawing bench inlet and drawing bench outlet as well as the used drawing slide ensure a minimum of material loss at the profile beginnings. The new drawing facility enhanced productivity and increased the process variations considerably. Due to the omission of the coating tank, air and noise pollution could be reduced significantly.

Resource savings at a glance

OMISSION OF COATING TANK

Primary energy during the coating process **approx. 140,600 m³/a natural gas**

Coating agent (lime and salt)
3,504 kg/a (90 %)

Rinse water of the coating tank
2,688 m³/a (99%)

AVOIDANCE OF PRE-MACHINING STEPS

Material savings **124 t/a**

Energy savings **59,824 kWh/a electricity**

ENERGY CONSUMPTION DRAWING PROCESS

Old (natural gas, electricity) **482,17 kWh/t**

New (electricity) **120,97 kWh/t**

THE WAY TO FINANCING

In June 2009 EFA carried out provided financial advice prior to the implementation. As a result, the company applied for subsidies from the environmental innovation programme of the Federal Ministry for the Environment in October 2009. After the approval of the project by the KfW Bank in December 2009, EFA was assigned with the conduction of a measuring programme. The results of the

project, which was completed in October 2011, were recorded in a final report created by all parties involved. The costs for the measure amounted to approx. € 2.5 million. The project was funded with subsidies worth € 750,000 from the environmental innovation programme of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

The project partners

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