

Development expertise in special machinery and automation sought

Summary

Profile type	Company's country	POD reference
Technology request	Germany	TRDE20230704017
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Anita ABOLA	7 Jul 2023 6 Jul 2024	12 Jul 2023

General Information

Short summary

A German SME produces hot-top insulation for ingots in steel casting. The company is looking for a research service provider to improve manufacturing process of the hot top insulation. The SME is offering a research cooperation agreement.

Full description

Hot-top insulation is used in the casting of metals and alloys. The hot-top area is part of the casting process and is located at the top of the ingot. Hot-top insulation is used to keep the heat in the hot-top area and thus slow down the solidification of the metal.

The slag used to produce the insulation plates consists of a mix of shredded materials (e.g. paper or ceramic fibres).

A German company wishes to improve its semi-automatic production process. This includes, for example, the precise adjustment of sensors, the transport mechanism or the filling process.

The company is seeking a R&D institution – university, public or private research institute – that can support the company in the development (technical concept, feasibility) and prototyping (engineering and demonstration support) of a pilot machine at a production site in the western part of North Rhine-Westphalia near the Dutch border. The aim is to improve a semi-automatic plate forming machine. The improvements are intended to enable the production of

cambered sheets and reduce scrap through the implementation of a tilting mechanism and other improvements.

The contract will be twofold:

Feasibility Project:

- Study regarding the feasibility of the design and engineering requirements of the machine
- Validation of the engineering plans for the new system, including CAD drawings, specifications, and a bill of materials.

Demonstration Project:

- Engineering and assembly guidance of pilot plant
- Performance testing and analysis results to validate the system's accuracy, efficiency and effectiveness.

The company offers a research cooperation agreement. It is looking for research institutions that are active in the field of special machine development, mechanical engineering and/or automation.

Advantages and innovations

Technical specification or expertise sought

Current state of technical requirements:

Finely Adjustable Sensors

- The system should have sensors capable of precise adjustment with millimetre accuracy for moving the dryer plates underneath the panel finisher.
- The adjustment should allow for the production of cambered sheets by placing panels on cambered dryer plates.
- The panel construction should be adaptable to accommodate higher camber for trouble-free operation under the plate finisher.

Transport Mechanism

- The current chain-based transport mechanism for the dryer plates should be replaced with a rail-based transport system to achieve higher accuracy.
- The rail-based system should ensure smooth and precise movement of the dryer plates.

Tilting Mechanism

- A tilting mechanism should be incorporated to reduce scrap material by approximately 90%.
- The surplus mixture should be collected on a frame, and after the mould is completely filled, the frame should tilt backward, depositing the excess mixture into a collection device.
- The collected mixture can be reused for subsequent plate production.
- The tilting mechanism should be adjustable based on the height of the individual plates to prevent damage during the process.

Filling Process

- The filling of the moulding table should be performed using a pump instead of a filling trolley, allowing for more efficient production.
- The agitator tanks should be positioned below the table rather than above it.

Quick-Clamping System (Optional)

- Consideration should be given to implementing a quick-clamping system for attaching the required mould onto the semi-automatic plate paver.
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Stage of development

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

Partner Sought

Expected role of the partner

The company offers a research cooperation agreement. It is looking for research institutions that are active in the field of special machine development, mechanical engineering and/or automation.

Type of partnership

- **Research and development cooperation agreement**
- **Commercial agreement with technical assistance**

Type and size of the partner

- **Other**
- **R&D Institution**

Dissemination

Technology keywords

- **02002006 - Hardening, heat treatment**
- **02003001 - Process automation**
- **02002010 - Machining (turning, drilling, moulding, planing, cutting)**

Targeted countries

- **World**

Market keywords

- **08002007 - Other industrial automation**
- **08005 - Other Industrial Products (not elsewhere classified)**
- **08002003 - Process control equipment and systems**

Sector groups involved

- **Energy-Intensive Industries**