The project is applying for funding from the National Recovery and Resilience Plan Program, under Measure A2.1.1 Investments supporting robotization and digitalization in enterprises.

Attachment No. 1 to the Order announcement

Description of the subject of the order (OPZ)

Automatic line for peeling rolled bars

1. Task

The subject of the order is an automatic line for peeling rolled bars – 1 piece. The installation is designed for high-efficiency peeling and straightening of rolled round bars made of steel.

Technical solutions and the level of automation and digitization of external and internal processes of the machine in line with the guidelines of the Industry 4.0 concept.

The line has to be brand new, never used.

The Contractor has to present the line for acceptance and pickup to the Ordering Party in its facility, and then start the line in the Ordering Party's facility, in cooperation with the Ordering Party.

Warranty – min. 12 months.

2. Input parameters

Material: Rolled bars made of structural steel, e.g. S355J2, 42CrMoS4+QT

Diameter range: Ø16 – Ø55

Length range: 2.5 – 7.2 [m]

Straightness max 2.5mm/m

Maximum tensile strength Rm max 1200 [MPa].

Maximum yield strength Re max 1150 [MPa]

3. Output parameters

Long straight bars:

Range diameters [mm]	Tolerance diameter	Ovality and angularity [mm]	Length [mm]	Straightness [mm/m]
Ø15 – Ø50	h9	<0.02	2500 – 7200	max 0.2

4. Functional assumption

The line operates in an automatic cycle. The operator's work is limited to:

- retooling the machine to the dimensions produced and processed
- loading the processed material
- performing machining tests to calibrate tools
- starting the automatic cycle
- process monitoring from the control panel
- packing the bundle and transporting it to the storage area

The technological process is carried out in the cycle:

Loading bars ➔peeling ➔straightening ➔packing

The peeling module must include equipment enabling full supervision of the process from the control panel in terms of the quality of the manufactured product, processing parameters, and the condition of machine components.

Both modules (peeling machine and straightener) must provide the ability to save processing parameters that can be used in the future.

The technological line is to be capable of remote, networked machine diagnostics and monitoring of process parameters.

The machine can be integrated with ERP software.

Machine performance:

Bars - min. 35 Mg/shift for maximum diameter

Available area for installation LxW 38x8 [m]

5. Basic equipment

The peeling line should be equipped with tools and equipment (rollers, heads, holders, input systems for introducing the bar into the processing zone, receiving system for taking the bar out of the processing zone, feeding and transport rollers) ensuring processing of the assumed range of bars (diameters, grades, delivery statuses, etc.) with the required accuracy and stability.

The equipment must also include instrumentation for monitoring product quality parameters:

a) After peeling – continuous diameter measurement with the possibility of auto-correction of the tool
b) After straightening – straightness measurement with bar sorting

Type of loading table - Loading table with capacity max 4 t, suitable to operate bars described in the inquiry

Handling between peeling and reeling machine - Transfer table to accumulate peeled bars in the appropriate order for passing them to the straightening machine

6. Safety criteria

The line for peeling and straightening bars meets the requirements of EU directives in the field of occupational health and safety and the operation of machines and devices.

These requirements are met by:

- fully covered work areas
- equipped with covers of moving parts, which are connected to a number of protections and interlocks ensuring full safety of the operating personnel
- any irregularities are captured by signaling and control systems that activate security measures, which leads to an immediate stop of processing

7. Work environment

The bar peeling and straightening line is equipped with shavings conveyor that facilitates shavings management, as well as a central coolant tank - ensuring proper care and maintenance of the technological and hygienic parameters of the coolant.

The machine is equipped with a system for eliminating oil mist when opening the covers of the processing zone.

8. Additional requirements

- Machine documentation
- User manual in Polish
- Spare parts catalogue
- Diagram of the electrical system
- Hydraulic system diagram

The machine must meet EU occupational safety requirements, this must be confirmed by appropriate CE certificates.

9. Available power sources.

Electricity: 230/400V, 50Hz

Compressed air: pressure 0.5 - 0.6 MPa

Mains water: temperature 12°C, pressure 0.2 Mpa