

TECHNICAL SHEET

Investment: 13 DC Drives for 12 stands and 1 shear

Machinery, technological equipment: 13 Drives for stands 1-12 and for Shear 51
/Electrical DC drives

No. crt.	Technical specifications requested by Tender book	Correspondence of the technical proposal with the technical specifications imposed by Tender book	Producer
1	Technical and functional parameters The new 13 DC drives shall be installed in Donalam Targoviste /LPMici ROLLING MILL plant, part of AFV BELTRAME Group. The new drives will be installed from stand 1 to stand 12 and shear 51. The drives shall follow the latest safety regulations applicable in Romania. Minimum Energy Efficiency Requirement: The offered DC drive system shall demonstrate a minimum efficiency of 97%, determined at the defined rated operating conditions Operating conditions: Site data: ▪ Minimum temperature: -20°C ▪ Maximum temperature: +40°C ▪ Location: inside the electrical cabinet of the existing rolling mill ▪ Environment: metallurgical plant ▪ Lay-out of the rolling mill LPMici: Dwg.LPM-0000-0000-01 Existing electricity supply: Medium voltage side 6kV $\pm 10\%$, three-phase alternating current, 50Hz; Low Voltage side: 700 V $\pm 10\%$, three-phase alternating current, 50Hz; DC Voltage Motors: 600 V DC $\pm 10\%$		

Rolling mill productivity:

- Billet weight: up to 3 tons
- Billet cross section: from 150x150 mm to 180x180 mm
- RH furnace nominal capacity: 100 t/h
- Interbillet: 5s

Working time: 3 shifts/ day, 24h/day - 7days/week, 7500 h/year

Technical data:

Value Tolerance Electrical Network Frequency 50 Hz ± 2 %.

MV Electrical Distribution Network 6 kV AC ± 5 %.

Rated Voltage for DC Drives 400/600 Vac ± 10 %.

Control Voltage for Auxiliary Loads / Switchboards 220/120 Vac ± 10 %.

Control voltage for LV Switchboards 220/120 Vac ± 10 %.

Solenoid Valve Voltage 24V dc.

Signal Lamps Control Desks Only 24V dc.

PLC Digital IN / OUT 24 Vdc.

PLC Analog IN / OUT 4-20mA

Description

The AC/DC Converters are dedicated to the control of the Direct Current motors. The Converter is designed according to IEC standards. These switchboards, for indoor installation, can be of two versions according to the installation requirements:

- One-front with front door and panel;
- Double front with front and back doors if required.

The drivers shall control the following motors:

STAND	POWER (KW)	VOLTAGE (Vdc)	CURRENT (Idc)	RPM
Stand - 1	630	600	1140 - 1825 max	320/960
Stand - 2	630	600	1140 - 1825 max	320/960
Stand - 3	630	600	1140 - 1825 max	320/960
Stand - 4	630	600	1140 - 1825 max	320/960
Stand - 5	630	600	1140 - 1825 max	320/960
Stand - 6	630	600	1140 - 1825 max	320/960
Stand - 7	800	600	1160 - 2400 max	320/960
Stand - 8	630	600	1140 - 1825 max	320/960
Stand - 9	800	600	1160 - 2400 max	320/960
Stand - 10	630	600	1140 - 1825 max	320/960
Stand - 11	800	600	1160 - 2400 max	320/960
Stand - 12	630	600	1140 - 1825 max	320/960
Shear - 51	2x320	2x440	790A	600

	Technical Data • Power supply three-phase + earth • Busbar short circuit current withstands minimum 50 kA for 1 s. Protection degree IP21, with closed door • Overload capacity to match the overload ratings of the motors • Minimum overload 170% without time limit for stands • Minimum overload 230% without time limit for shear • 4 Q type drive • Static accuracy $\pm 1\%$ with limit 2 rpm • Power connection to terminal box shall to be not directly to converters, for megger insulation test • Management of motor auxiliaries (cooling, temperature monitoring, alarms) inside drive without additional external PLC • Incoming line with three-pole circuit breaker Each switchboard contains: • Incoming line with three-pole circuit breaker; • Three-pole contactor dimensioned for the rated current of the motor when the isolation switch is used; • Three-phase commutating choke (used when a transformer supplies more than one converter); • Six pulse, three-phase AC/DC Thyristors converter (air cooled); • Digital Control Unit (Microprocessor based) for the three-phase converter and internal sequences' control; • Operator panel to display the drive faults, alarms and actual values mounted on the front of the switchboard; • Transformer for the supply of the motor's field with relevant protections or commutating reactor; • Single-phase transformer for the aux. services complete with protections; • Starter for the motor's electro-blower; • Aux. Relays; Service/assistance included: • Supervision to mechanical and electrical equipment erection • Commissioning of machine and software • Application software modification for New Drive		
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	• HMI modifications to integrate new drives in the existing mill speed control. • Drivers set up with on load conditions (hot rolling) and without load.		
2	Performance specifications and operational safety conditions The supplier shall have the following certification: Quality requirements according to ISO 9001 or equivalent ISO 45001 health and safety management system or equivalent Mandatory minimum standards that must be respected for the supply: Low voltage 2014/35/EU, Electromagnetic compatibility directive: 2014/30/EU		

3	Warranty conditions Warranty certificate for a minimum period of 1 year for the system from the date of signing of Acceptance Certificate; Services provided (technical assistance, services, guarantees, post-guarantees);		
4	Other technical conditions Shall be provided: • Technical documentation of process design and assembly design for installation with safety distances; • Civil works basic engineering, if applicable; • Technical documentation provided with the equipment; • Documents related to the installation; • General diagrams and functional diagrams; • Circuit diagrams; • Technological process diagram • Maintenance, maintenance and current repair manuals; • List of components; • List of spare parts included; • Inspection and maintenance schedule; • Licenses and operating software included;		
5	Main exclusion • Civil works • Erection • Cables • MV/LV transformers		

	• Power center		
6	Compatibility and Interoperability Requirements To ensure the equipment's compatibility and interoperability with the factory's existing systems, it is required: /DC Frequency Converter ABB DCS880 series or equivalent		
7	Reference and capabilities The Tenderer shall demonstrate that, during the last 5 years, it has supplied and commissioned similar items of equipment for each lot. At least 10 Frequency converters / variable-speed drive systems for industrial equipment used in continuous-process applications, preferably stands (rolling mills, steel plants, or the metallurgical industry for construction applications or similar). The bidder shall complete the form attached to the procurement documentation (Form no. 2).		

Beneficiary,

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Note:

Values with will be completed by the bidder.