



KAMENSK URALSKY METALLURGICAL WORKS

Joint Stock Company

Approved by:
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V.I. Skornyakov

Утверждаю:
Президент ООО «Управляющая компания
«Алюминиевые продукты»
В.И.Скорняков
«17» июля 2009г.

Technical Enquiry

for modernization of SHLOEMANN 300 MN vertical hydraulic forging press

By press modernization the following is understood:

1. Examination of the technical condition of the press and preparation of discrepancy list;
2. Agreement of the discrepancy list, statement and scope of work with a customer;
3. Overhaul;
4. Supply of the required equipment;
5. Complex mounting of the supplied equipment on the site;
6. Modernization and/or replacement of the existent pump-accumulator stations, hydraulic and electric control systems, software products etc.
7. Dismantlement of unnecessary equipment, building, installation and commissioning related to press modernization;
8. Commissioning;
9. Arrangement of the press operating area;
10. Provision with technological, operating instructions, service manuals;
11. Training of technical and service personnel.

When the range of works is completed, the press capabilities shall allow the following operations:

1. Forging of products 20—1,500 kg in weight, up to 2,200 mm diameter, up to 4,000 mm length (2XXX, 3XXX, 5XXX, 6XXX, 7XXX series alloys and magnesium alloys);
2. Forging (cold reduction) of large-sized forged plates after quenching with specified strain degree from 1 to 5 % (2XXX, 5XXX, 6XXX, 7XXX alloys).

SFLOEMANN 300 MN press control system shall provide the following function performance:

- forging as per the preset program (forging sequence to be chosen of electronic database of 30,000 programs);
- control of press force and cross-beam moving speed during operational stroke according to the preset program;
- automatic positioning of the cross-beam at forging and pressing;
- regulation of ejector force (ejector force shall be recorded in the forging program);
- blank temperature control before and after forging using non-contact method, control of top and bottom die figures;
- automatic press switching from the approach stroke to the operational stroke when a die comes in contact with a blank;
- indication and recording of technological parameters on the operator control panel (product code, blank temperature, tool temperature, die number, forging number, moving cross-beam speed, tool closure);
- automatic control of forging parameters and recording of the data in the press electronic database (time of information storage in the database is 1 year);
- printing of the report about forging (print out in graphics and tables);
- automatic diagnostics of the press condition, indication of the main parameters on the operator's display (system pressure, tension in columns etc.).
- effective protection of the press in case of malfunctions, alarm signal and press shutdown in case of emergency;
- automatic control of cross-beam bending.

Main technical parameters:

Function	Parameters
Press force regulation (without fixed steps)	from 80 to 300 MN
Press force regulation accuracy	±2%
Dimensioning range of cross-beam moving	from 0 to 1800 MN
Pressure measuring range in hydraulic circuit	from 0 to 450 MPa
Measurement increment	0.1 mm
Cross-beam positioning error (to be checked by dimensioning of the products)	±0.5 mm
Speed of cross-beam operational stroke: Maximum Minimum Discrete with 0.2 mm/sec increment Variable smooth	10 mm/sec 0.2 mm/sec from 0.2 mm/sec to 10 mm/sec from 0.2 mm/sec to 10 mm/sec
Regulation accuracy of operational stroke speed	±0.2 mm/sec
Moving cross-beam bending relative to movable table during operational stroke	up to 0.2 mm per 1 meter

Function	Parameters
Maximum frequency of operational strokes of the cross-beam in 1 hour:	
Total cycle (with driving-out of a table)	30
Total cycle (without driving-out of a table)	90
Incomplete cycle (without driving-out of a table)	360
Time of decompression (maximum)	3 sec

A Prime Contractor is entitled to involve other companies as subcontracting to perform the whole range of works.

Requirements to the equipment to be supplied:

The equipment shall be accompanied by product origin certificates issued by an authorized agency in the country of product origin in accordance with national legislation; by certificates of compliance with GOST-R verified by authorized agencies in the Russian Federation.

Note: vessels, their elements and semi-finished products to be manufactured shall comply with the requirements of REGULATIONS FOR ASSEMBLY AND SAFE OPERATION OF VESSELS WORKING UNDER PRESSURE PB 03-576-03 and may be used on the basis of Russian Gosgortekhnadzor permission issued in accordance with Regulations of technical device application at dangerous facilities, verified by Russian Federation Governmental Decree No. 1540*(4) dd. December 25, 1998.

Other requirements:

All manual operations including transportation of blanks from a furnace to a press and greasing of blanks shall be automated as much as practical.

The press shall be equipped with heating system of top and bottom die tool to provide isothermal forging of products with projected area up to 6,000 cm² (to be considered optionally).

Equipment, operational area, emission level shall be fully compliant with Russian sanitary standards and regulations.

A prime contractor is responsible for warranty service of the equipment within the warranty period and continuous technical support.

A prime contractor must provide delivery of spare parts and consumables upon a customer's request within 10 years.

Technical documentation shall be in Russian.

Basis of delivery is DDP – OAO KUMZ, Russia, Sverdlovskaya oblast, Kamensk-Uralsky, ul.Zavodskaya, 5, 623405 in accordance with Incoterms 2000.

Developed by:
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_____ R.V. Golikov

Разработал:

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AGREED WITH:

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