

APPROVED BY:  
JSC Concern Titan 2

  
«27» 12 2022

### **STATEMENT OF WORK**

for Supply of DC Resistance Spot Welding Machine with Pneumatic Drive

## CONTENT

### SECTION 1. GENERAL INFORMATION

Subsection 1.1 Name

Subsection 1.2 Data on Innovation

Subsection 1.3 OKPD 2 Code

### SECTION 2. FIELD OF APPLICATION

### SECTION 3. OPERATING CONDITIONS

### SECTION 4. TECHNICAL REQUIREMENTS

Subsection 4.1. Main Parameters and Dimensions

Subsection 4.2. Main Technical, Economic and Operational Indicators

Subsection 4.3. Reliability Requirements

Subsection 4.4. Design, Installation and Technical Requirements

Subsection 4.5. Requirements for Materials and Equipment Components

Subsection 4.6. Requirements for Stability of Parameters When Exposed to Environmental Factors

Subsection 4.7. Requirements for Power Supply

Subsection 4.8. Requirements for Instrumentation, Control and Automation Equipment

Subsection 4.9. Requirements for Completeness

Subsection 4.10. Requirements for Marking

Subsection 4.11. Requirements for Packaging

### SECTION 5. REQUIREMENTS FOR DELIVERY AND ACCEPTANCE RULES

Subsection 5.1. Delivery and Acceptance Procedure

Subsection 5.2 Requirements for Transferring Technical and Other Documents to Customer  
When Delivering Standard Industrial Equipment

### SECTION 6. REQUIREMENTS FOR TRANSPORTATION

### SECTION 7. STORAGE REQUIREMENTS

### SECTION 8. REQUIREMENTS FOR WARRANTY SCOPE AND / OR PERIOD

### SECTION 9. REPAIRABILITY REQUIREMENTS

### SECTION 10. REQUIREMENTS FOR MAINTENANCE

### SECTION 11. ENVIRONMENTAL REQUIREMENTS

### SECTION 12. SAFETY REQUIREMENTS

### SECTION 13. REQUIREMENTS FOR EQUIPMENT QUALITY AND CLASSIFICATION

### SECTION 14. STANDARD INDUSTRIAL EQUIPMENT

#### TECHNICAL SUPPORT

### SECTION 15. ADDITIONAL (OTHER) REQUIREMENTS

### SECTION 16. REQUIREMENTS FOR SUPPLY QUANTITY, PLACE AND TIME (FREQUENCY)

### SECTION 17. REQUIREMENTS FOR THE FORM OF INFORMATION PROVIDED

### SECTION 18. REQUIREMENTS FOR CUSTOMER'S PERSONNEL TECHNICAL TRAINING

### SECTION 19. LIST OF ABBREVIATIONS USED

### SECTION 20. LIST OF APPENDICES

## SECTION 1. GENERAL INFORMATION

<b>Subsection 1.1 Name</b>
Resistance welding machine with hydraulic drive (the "Equipment").
<b>Subsection 1.2 Data on Innovation</b>
The delivered equipment shall be new, released not earlier than in 2023, free from the rights of the third parties, not used, restored or assembled from remanufactured components and assemblies, and shall not be an exhibition sample.
<b>Subsection 1.3 OKPD 2 Code</b>
27.90.31.110 Electrical machines and equipment for soft and hard soldering and welding

## SECTION 2. FIELD OF APPLICATION

The equipment is designed for resistance spot welding of reinforcing flat frames with a combination of diameters from 10 + 10 to 40 + 40 mm in accordance with GOST-14098-2014 and GOST-57997-2017, as well as tool blanks and blanks of building structures, including concrete reinforcement of II and III classes.
---

## SECTION 3. OPERATING CONDITIONS

The equipment shall be operated under natural weather conditions in an open, unheated room.
---

## SECTION 4. TECHNICAL REQUIREMENTS

<b>Subsection 4.1. Main Parameters and Dimensions</b>		
<b>Characteristic</b>	<b>Measurement unit</b>	<b>Parameter</b>
Supply voltage	V	380
Line frequency	Hz	50
Highest secondary current	kA	70
Rated continuous secondary current, at least	kA	18
Highest short circuit power	kVA	682
Rated arc current at a duty cycle = 20 %	kA	18
Power at a duty cycle = 50 %	kVA	248
Continuous primary current	A	462
Highest short circuit primary current	A	1795
Cross section of the power connection cable	mm <sup>2</sup>	120
Electrode compression drive		pneumatic
Compressed electrode force:		
- nominal at a compressed air pressure of 0.45 MPa	daN	2770
- highest at a compressed air pressure of 0.5 MPa		3077
- lowest at a compressed air pressure of 0.1 MPa		615
Diameters of welded cruciform joints of rebars:		
A240, V1, VR1 grade A400S (25G2S and 35G2S) grade A500S grade	mm	6+6...40+40 6+6...32+32 6+6...32+32
Nominal run-out	mm	500
Nominal clearance	mm	115
Maximum clearance	mm	330
Top electrode stroke:		
- highest - highest operational - lowest operational	mm	100 30 5
Vertical displacement of the electrodes at a nominal compression force, at least	mm	2.0



Mutual displacement of the electrodes at a nominal compression force, at least	mm	0.6
Secondary current regulation		Stepped and phase
Number of control steps of welding transformer secondary voltage	pcs	8
Nominal control step		8
Phase control limits,	%	25-100
Open-circuit voltage control limits	V	4.7 – 9.4
Estimated free air flow at rated compression force and 10 mm stroke	m <sup>3</sup> /100 strokes	1.15
Cooling System		Forced, liquid
Estimated consumption of cooling water	l/h	800
<b>Subsection 4.2. Main Technical, Economic and Operational Indicators</b>		
The equipment shall ensure reliable operation throughout the entire working day, around the clock under working conditions at various production sites: open heated and unheated industrial premises and blocks, operating temperature range from 0°C to plus 50°C under salty sea air and humidity up to 90 %.		
<b>Subsection 4.3. Reliability Requirements</b>		
The equipment shall, during the entire warranty period and within the established limits, retain the values of all parameters characterising the ability to perform the required functions under the specified conditions of use, maintenance, storage and transportation. All parts and mechanisms shall work and function properly, the parameters and modes of operation of the equipment shall comply with the datasheet data.		
<b>Subsection 4.4. Design, Installation and Technical Requirements</b>		
Cases of components shall not have scratches, abrasions, traces of mechanical impact and corrosion, paintwork should not have chips, connecting holes and squares shall not have traces of mechanical impact (jamming and / or chipping of metal, chips).		
<b>Subsection 4.5. Requirements for Materials and Equipment Components</b>		
Equipment components and parts shall be corrosion-resistant. The equipment shall have reliable fastening, bolting and welds. Steel structures shall be free of distortions.		
<b>Subsection 4.6. Requirements for Stability of Parameters When Exposed to Environmental Factors</b>		
No special requirements		
<b>Subsection 4.7. Requirements for Power Supply</b>		
Possibility of connection to an existing AC mains with rated voltage 380±10 %V, frequency 50 - 60 Hz		
<b>Subsection 4.8 Requirements for Instrumentation, Control and Automation Equipment</b>		
No special requirements		
<b>Subsection 4.9 Requirements for Completeness</b>		
MT-4240 Resistance spot welding machine		1 pc.
Welder autonomous cooling unit with a set of hoses for connection to the welder		1 pc.
Anti-freezing agent for autonomous cooling unit		
Spare parts as per the SPTA Set List		1 set
Operating and maintenance documents in two languages: Russian and English		2 set
Welding electrodes for welding of reinforcement bars		5 set
Power cables, 50 m with protective connection devices in DB for the machine and cooling unit		- 1 set
Packing		- 1 set
<b>Subsection 4.10 Requirements for Marking</b>		
Marking shall be applied on two adjacent vertical sides of each packaging, made of indelible paint or on plates / tags securely attached to the package. The marking shall be clearly visible. Places requiring special handling during loading, unloading, transportation and storage shall have additional signs of fragility, top, centre of gravity, slinging and		



fastening points, cargo hazard, rain protection and other necessary signs applied in accordance with GOST 14192-96. In the upper left corner of the transport marking, the following inscription shall be applied: JSC CONCERN TITAN-2, as well as Manufacturer, Contract, Country, Dimensions, Brand, Weight.

#### **Subsection 4.11 Requirements for Packaging**

The equipment shall be supplied in transportable packaging that will protect it from external conditions such as water, dust, etc., in accordance with GOST 26653-2015 (transportation) and GOST 15150-69 (storage). Packaging shall ensure the complete safety of the equipment for the entire period of its transportation, taking into account overloads and long-term storage. Additional designations shall be applied in accordance with GOST 14192-96. The equipment shall be supplied in the manufacturer's packaging. Packaging and fastening materials shall be decontaminated in accordance with the requirements of the International Standard for Phytosanitary Measures, Edition No. 15: Guidelines for the Regulation of Wood Packaging Materials in International Trade (ISPM-15) or newer edition/revision. The Supplier (Manufacturer) shall ensure that packaging and fasteners are marked with special markings as prescribed in ISPM-15 (IPPC mark, country code, individual number of the special marking rights holder and type of heat treatment (if necessary)). The Supplier (Manufacturer) shall bear full responsibility for fulfilling the requirements for processing and special marking of containers (packaging) and fastening materials. Should the established requirements be violated, the Supplier (Manufacturer) shall compensate the Buyer for all expenses incurred by the Buyer and / or losses associated with this violation within fifteen (15) calendar days upon receipt from the Buyer of the relevant requirement and supporting documents. Means of packaging and fastening materials can be both non-returnable and returnable. Their cost, as well as the cost of decontamination and special marking, shall be included in the price of the product.

### **SECTION 5. REQUIREMENTS FOR DELIVERY AND ACCEPTANCE RULES**

#### **Subsection 5.1. Delivery and Acceptance Procedure**

Delivery and acceptance shall be carried out at the consignee's warehouse (El Dabaa NPP, Matruh Province, the Arab Republic of Egypt) through conducting incoming inspection by quantity and quality and signing the Product Acceptance Certificate between the Supplier and the Buyer.

#### **Subsection 5.2 Requirements for Transferring Technical and Other Documents to Customer When Delivering Standard Industrial Equipment**

Together with the supplied equipment the following shall be provided: datasheet, and / or operation manual, and / or operation instructions, or other document confirming quality and manufacturer's warranty liabilities (in Russian).

The following information shall be specified in a datasheet (operation manual or instructions):

- equipment designation;
- operational parameters;
- delivery set;
- instructions for installation;
- electrical diagrams (depending on equipment);
- connection diagrams (depending on equipment);
- instructions for operation and repair with information on frequency and procedure for carrying out maintenance and repair (depending on equipment);
- operator's manual (depending on equipment);
- list of spare and wearing parts (depending on equipment).

### **SECTION 6. REQUIREMENTS FOR TRANSPORTATION**

The supplied equipment shall be transported by any transport mode suitable for transportation of equipment listed in the statement of work under conditions excluding deformation and mechanical damage, as well as dust and atmospheric precipitation impact.



#### **SECTION 7. STORAGE REQUIREMENTS**

The equipment shall be stored indoors. Requirements for equipment storage shall be specified in supporting documents.

#### **SECTION 8. REQUIREMENTS FOR WARRANTY SCOPE AND / OR PERIOD**

Warranty operation period is at least 24 months upon equipment acceptance by the Buyer.

#### **SECTION 9. REPAIRABILITY REQUIREMENTS**

The equipment shall be repairable and restorable during operation.

There shall be a possibility of replacing constituent parts, components and assemblies.

#### **SECTION 10. REQUIREMENTS FOR MAINTENANCE**

Requirements for equipment maintenance shall be specified in a datasheet (operation manual or instructions).

#### **SECTION 11. ENVIRONMENTAL REQUIREMENTS**

The supplied equipment shall not require special disposal methods, contain harmful materials and substances able to have adverse impact on employees or the environment.

#### **SECTION 12. SAFETY REQUIREMENTS**

The Contractor shall ensure compliance with the requirements for labour protection and safety of work during maintenance and commissioning of equipment (including the requirements of industrial and ecological safety, as well as environmental protection), including the arrangement of obtaining the necessary approvals (permits, licenses), the involvement of qualified specialists in accordance with project requirements.

All personnel involved in the work shall have an access card to the construction site.

Submission of documents for obtaining an access card shall be carried out at least 45 days in advance.

#### **SECTION 13. REQUIREMENTS FOR EQUIPMENT QUALITY AND CLASSIFICATION**

The unit shall comply with Cl. 4.1 of these Terms of Reference.

#### **SECTION 14. STANDARD INDUSTRIAL EQUIPMENT TECHNICAL SUPPORT**

No special requirements

#### **SECTION 15. ADDITIONAL (OTHER) REQUIREMENTS**

Replacement of the supplied Equipment with a similar (equivalent) one shall be possible subject to compliance with the technical requirements specified in para. 4.1 hereof. Take into account that references in the documentation to a specific type of Equipment and manufacturer, are only advisory, and not mandatory. Other types of Equipment (equivalents) may be delivered, provided that the replacements are compatible with each other, essentially equal or superior in quality to the Products.

#### **SECTION 16. REQUIREMENTS FOR SUPPLY QUANTITY, PLACE AND TIME (FREQUENCY)**

Quantity – 3 pcs;

Delivery period is within 150 calendar days upon entering into an agreement.

Place of delivery: Warehouse specified by a Customer at El Dabaa NPP, Matruh Province, the Arab Republic of Egypt.

**SECTION 17. REQUIREMENTS FOR THE FORM OF INFORMATION PROVIDED**

All documents for the equipment shall be provided in printed copies in Russian and English.

**SECTION 18. REQUIREMENTS FOR CUSTOMER'S PERSONNEL TECHNICAL TRAINING**

The Supplier shall conduct an introductory briefing of the customer's employees on the service, management, operation, settings of the equipment in the amount of at least 2 working days (for machine equipment requiring commissioning).

**SECTION 19. LIST OF ABBREVIATIONS USED**

Item No.	Abbreviation	Key to abbreviations
1		