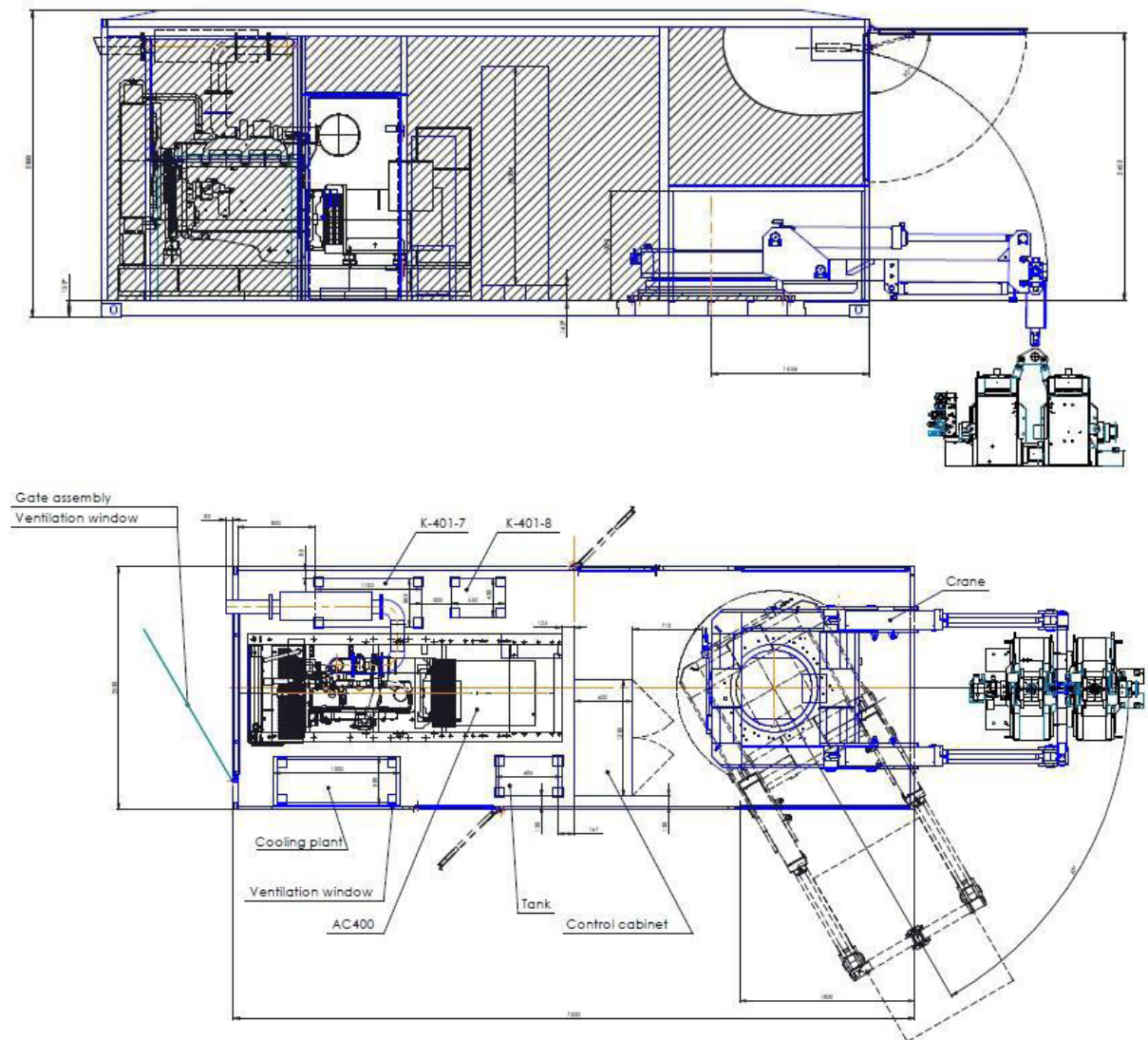


new mobile rail-welding plant type KPCK-400 based on the type K355AM rail-welding machine. It provides in-field flash welding in-field flash welding of rails by continuous or pulsating burning-off, followed by flash trimming. Rail cross sectional area ranges from 6500 mm² to 10000 mm².

Rail-welding set type KPCK-400 is applicable at construction, repair and renovation of railway and tram tracks.

The set is executed in the form of the independent 23th foot container block. The container contains a gen set, a welding machine, a hoist, and other auxiliary equipment.

Delivery containerized set





Flash butt rail-welding set.

Technical features

Parameter	Value
Power supply rated voltage (diesel-driven generator set), V	380 - 440
Generator rated capacity, kVA	400
Number of main phases (power supply)	2
Number of auxiliary circuitry phases	3
Power supply: rated frequency, Hz	50
Rated primary circuit current, A	400
Power at 50% duty cycle, kVA	180
Duty cycle of the welding transformers at rated load, %, not exceeding	50
Arrangement of the welding transformers' connection to the mains	phase-to-phase
Transformation coefficient of the welding transformers	60
Rated secondary circuit current (continuous), kA	16-21
Short-circuit current at minimum distance between the clamps, kA	65±10%
At that, short-circuit resistance, \square Ohm, not exceeding	105
Maximum short-circuit power consumption, kVA	500±55
Short-circuit power factor	0,5
Maximum allowed continuous power, kVA	120

Rated power consumption from the mains, kVA	210
Power consumed by the auxiliary circuitry from a 3-phase AC supply, kVA, not exceeding	40
Upset force at a pressure in hydraulic system of 15.0 MPa (150 kgf/cm ²), MN/kgf	0.68/68000 8% □
Maximum cross section of welded rails, mm ²	10000
Time needed for welding rails with cross section of 8,265 mm ² , given out-of-squareness not exceeding 2 mm, s	90-150
Clamping and upsetting devices	hydraulic-powered
Pressure in the hydraulic system, MPa (kgf/cm ²)	15 (150)
Pump station capacity, l/min, not below	60
Maximum upset force at a pressure in hydraulic system of 15 MPa (150 kgf/cm ²), MN (kgf)	1.85(185000)
Upset value, mm, max.	15
Upset rate, mm/s, minimum	50
Flashing speed, mm/s	0.2-2.0
Total travel of welder at 15-mm upset, mm	90
Rated capacity at welding rails with cross section of 8,265 mm ² , joints per hour	12
Welding rail length, m	0,6-100
Cooling water flow at a pressure of 0,15 MPa (1,5 kgf/cm ²), l/min through the welder jacket, not below	25
through the pump station jacket, not below	40
Weight, kg, max.	14000
Dimensions external:	
Length, mm	7000
Width, mm	2500
Height, mm	2800

Mobile flash butt rail welding set KPCK-400:

A) Mobile flash butt rail welding machine K355AM.

Suspension-type welder K355AM of MCO-4501Y1 type is designed for contact flash welding by pulsating flashing of rails with cross-section ranging from 6400 to 10000 mm² and for field flash trimming right after welding.

The welder K355AM can be powered from AC mains, diesel-generator plant and motor-generator set.

The welder K355AM corresponds to the requirements shown to modern and perspective technologies of welding of rails regarding quality of welding, productivity, the control welding process and material losses.

The complete set of delivery includes:

1. Welding head.

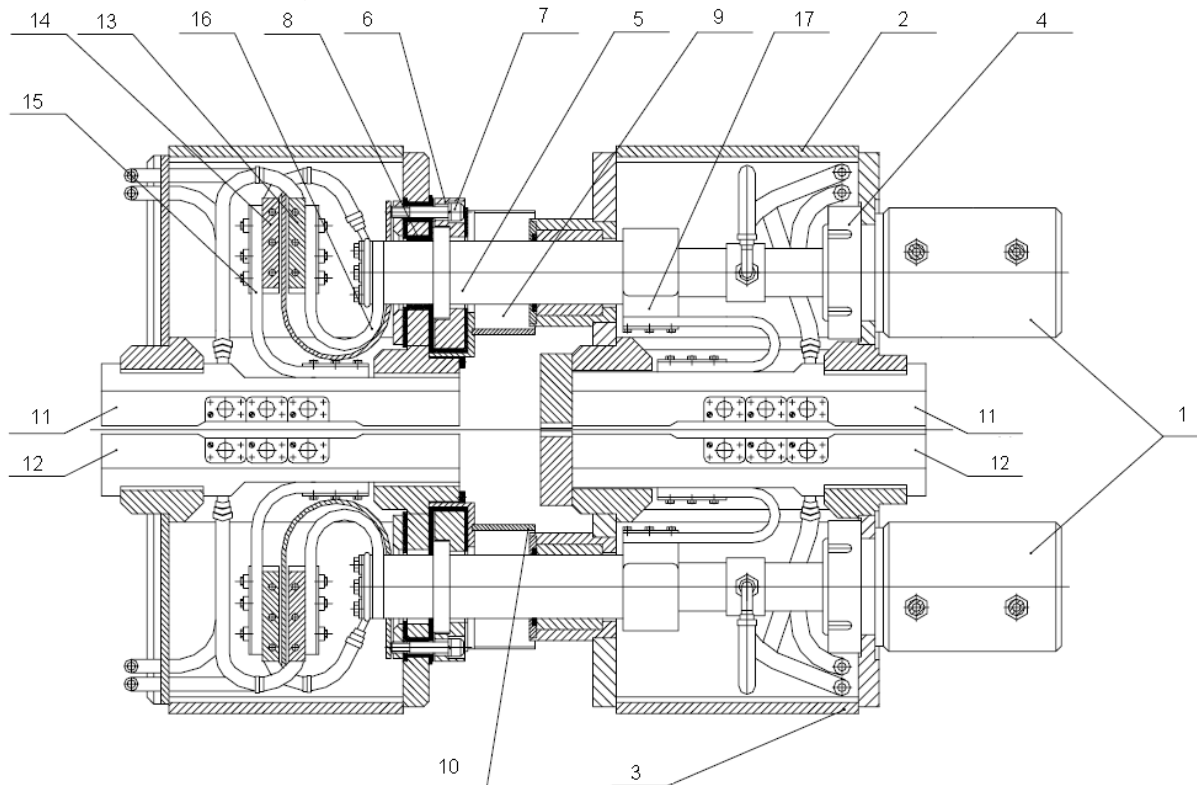
2. Control cabinet.
- 2.1. Power system.
- 2.2. Air conditioner.
3. Pump station.
4. Water cooling plant.
5. Electric connectors.
6. Hydraulic connectors.
7. Spare parts.

1) Welding head.

The welding head includes two clamping mechanisms, flashing and upset mechanism, hydraulic system, two welding transformers mounted in each jaw of left clamping mechanism, control electric, and water cooling system.



B-B



- | | |
|--------------------------|-----------------------|
| 1 – upset cylinder | 9 – shield |
| 2 – jaw | 10 – shield |
| 3 – jaw | 11 – clamping grips |
| 4 – nut | 12 – clamping grips |
| 5 – upset cylinder rod | 13 – contact terminal |
| 6 – captive ring | 14 – contact terminal |
| 7 – mounting screw | 15 – flexible wire |
| 8 – grommet | 16 – flexible wire |
| 17 – current contact jaw | |

2) Control cabinet.

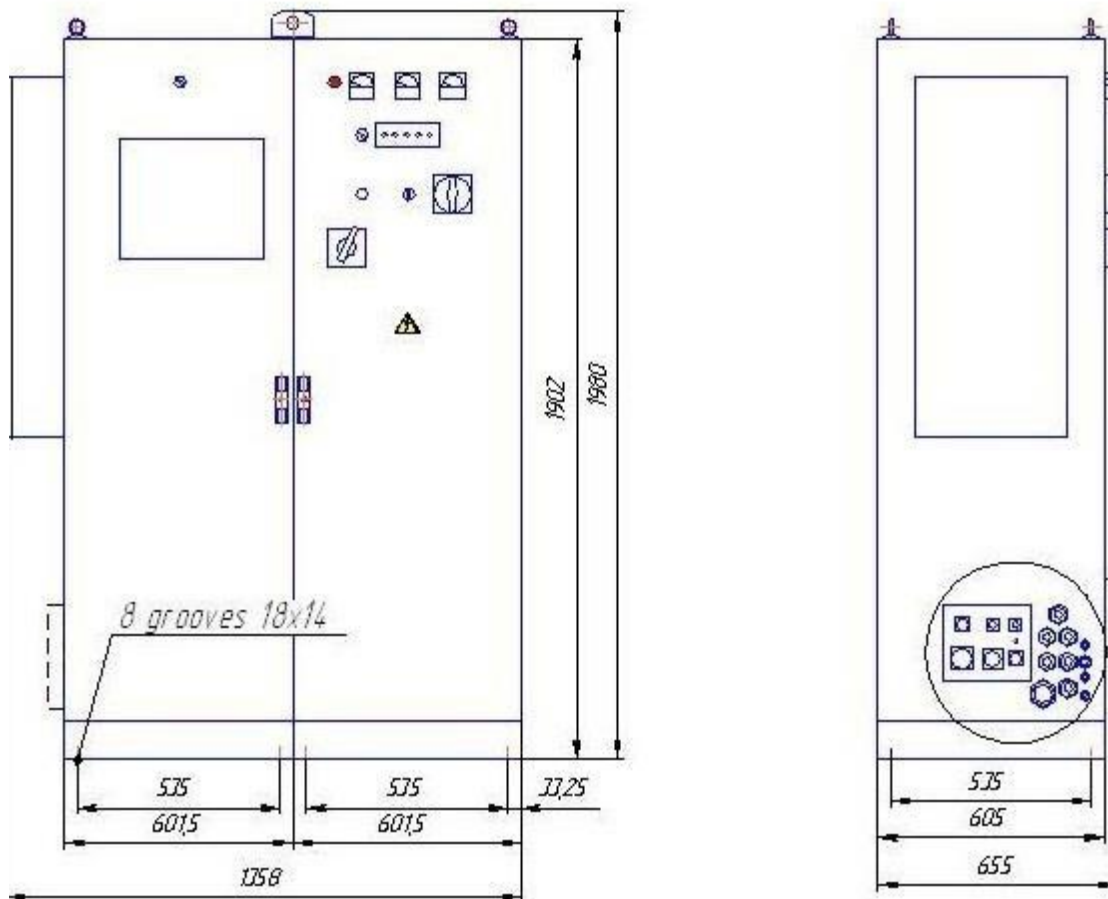
Automatic programmable microprocessor-based system is designed for control of actuators and mechanisms of mobile welding machine K355AM for butt induction rail welding.

The control system provides for:

- control of actuators and mechanisms of welding machine both in manual and semiautomatic operation modes;
- control of process cycle in accordance with welding machine cycle pattern being programmed in dependence of moving frame travel with continuous or pulsating flashing;
- tolerance testing and welding cycle parameter registration with issue of certificate for welded butt indicating its use ability or defects.

The control system of welding machine includes the following components:

- control cabinet;
- control panel.



The control system is designed on base of equipment of SIEMENS Company:

- control unit SIMATIC S7-300 (PLC);
- industrial computer with LCD-screen connected with the control unit via communication MPI-link.

The control of welding machine devices and mechanisms in setting-up operation mode is performed from the keyboard.

The analog resistive measuring system is used as the sensor of welding machine moving frame position.

The pressure sensor is used as the pressure sensor in the working ends of travel and upset cylinders.

Electrohydraulic tracking valve is used as an actuator driving the travel of moving frame.

Direct control of welding machine is performed by control unit of PLC in accordance with the software stored in its memory and following the program of welding process transferred to it via communication link from the industrial computer.

The industrial computer is designed for programming of welding process and features of tolerance testing of main parameters of the welding process, diagnostics and visualization of status of sensors, actuators and mechanisms of the welding machine.

The implementation of the control system on base of high-reliable equipment of SIEMENS Company and development of the software providing for highly user friendly interface between control devices and operating personnel has allowed to create the presented control system for machines of butt induction rail welding on the highest world first-class level; the control systems for a wide range of equipment of contact electric welding can be arranged on base of this system.

3) Pump station.

Pump station K-401-7 is designed for supply of operating fluid into hydraulic system of contact flash welders.

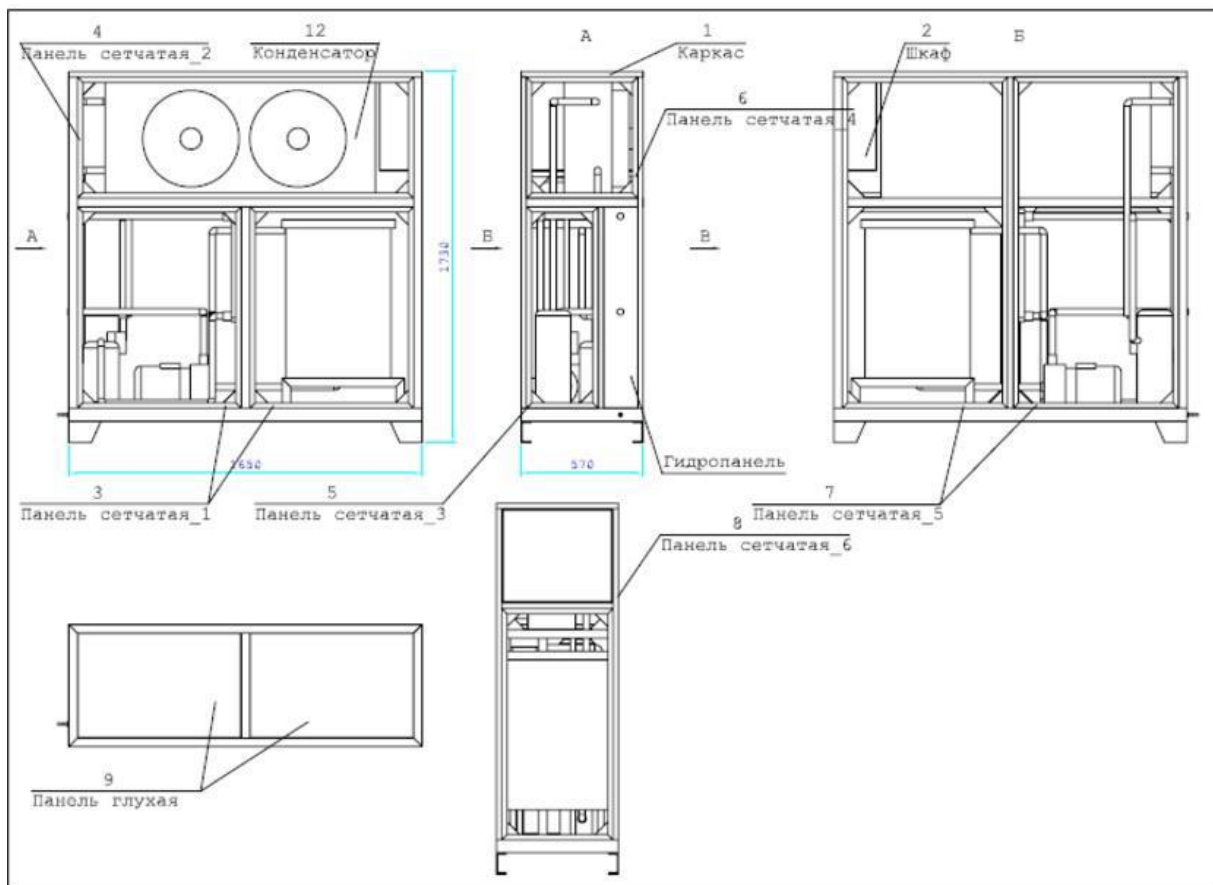
Main technical details of pump stations.

No.	Parameter	Rated value
1	Power supply (voltage mains), V	rated 380
2	Supply frequency, Hz	50
3	Volume supply, /min.	56
4	Working pressure: low, MPa (kgf/cm ²); high, MPa (kgf/cm ²):	6-8 (60-80) 13 (130)
5	Oil tank volume, l	400
6	Electric engine power, kW	18,5
7	Cooling fluid flow, l/min, at least	40
8	Overall dimensions, mm: length: width: height:	1300 480 1500
9	Weight of operating and cooling fluids, kg, max	without 500

4) Cooling plant.

Cooling plant is designed as monoblock (metal frame with protective decorative quick-detachable panels). The plant is equipped with five unions 1" (four unions for input connections of hydraulic oil and water supply pipes to heat exchangers, and one for fluid filling-up) and ball valve for drain of fluid from the vessel.

There is a control panel in the plant with programmable electronic processor for setting and automatic maintaining of required temperature in the vessel, as well as for indication of operation and emergency situations occurring in the plant.



Cooling plant includes:

- pressuretight spiral compressor equipped with shutoff valves on suction and supply pipes, heating and peephole for visual oil level control;
- air cooling conditioner;
- laminar heat exchanger- evaporator (heat exchanging surface is made of stainless steel);
- receiver with shutoff valves and thermal fuse;
- thermo regulating valve, drying filter, pressure relay, solenoid valve, peephole;
- plastic heatinsulated vessel;
- water pump;
- two laminar heat exchangers for water and oil;
- two solenoid valves regulating supply of cold water to heat exchangers;
- electronic processorbased automatic control system providing for setting and automatic maintaining of the required fluid temperature and protecting the plant from emergency modes of operation.

5) Electric connectors.

Name	Drawing ГОСТ No.	or Quantity	Remark
1	2	3	4
Cable	5ACT.501.001	1	L=15 m
Cable	5ACT.501.002	1	L= 15 m
Cable	5ACT.501.003	1	L=15 m
Cable	5ACT.501.004	1	L= 5 m
Cable	5ACT.501.005	1	L=5 m
Cable	5ACT.501.006	1	L=15 m
Bundle	5ACT.501.008	1	L=15 m

6) Hydraulic connectors.

Name	Drawing ГОСТ No.	or Quantity	Remark
1	2	3	4
Sleeve high pressure (oil)	M30x2/123-12/M30x2	10	L=3,0 m
Sleeve (water)	Ø 9,0 mm	1	L=15 m
Sleeve (water)	Ø 18,0 mm	1	L=20 m

7) Spare parts.

Essential spares as considered necessary by the machine manufacturer for safe and uninterrupted usage.

1 set of spare parts for 2 years.

Name	Dwg No. or GOST	Qty, pc.
1	2	3
Special wrench S95	5ШЩ.484.004	1
Special wrench of control panel	5ШЩ.484.006	1
Jet wrench 22x24		1
Jet wrench 27x30		1
Jet wrench 30x32		1
Jet wrench 32x36		1
Jet wrench 36x41		1
Jet wrench 41x46		1
Jet wrench 50x55		1
Door key	9ШЩ.887.017	2
Set of the metalwork tool		1
Wrench 14		1
Injector 2	GOST3643-75	1
Ring 018-022-25-2-2	GOST9833-73	2
Ring 045-050-30-2-2	GOST9833-73	2
Ring 064-070-36-2-2	GOST9833-73	2
Ring 085-090-30-2-2	GOST9833-73	2
Ring 095-100-30-2-2	GOST9833-73	2
Collar (plastic) 1.1-16x30-3	GOST8752-79	2
Collar (plastic) 80x85		4
Collar (plastic) 95x100		4
Gasket 0,5	K900.01.00.009-01	8
Gasket 0,75	K900.01.00.009-02	8
Gasket 1,0	K900.01.00.009-03	8
Gasket 0,5	K900.01.00.0011-01	4
Gasket 0,75	K900.01.00.0011-02	4
Gasket 1,0	K900.01.00.0011-03	4
Die (UIC60)	K900A.50.03.000.K35	2
	5	
Die (UIC60)	K900A.50.03.000.K35	2
	5	
Knife (UIC60)	K900A.50.00.040	1
Knife (UIC60)	K900A.50.00.050	1
Knife (UIC60)	K900A.50.00.060	1
Cartridge of delivery filter	FHM 006	1
Cartridge of	MPF 1002AG3	1

discharge filter

The device for the accumulator 1

Spare parts for a complete set 1

control cabinet

B) Crane.

1. Load-carrying capacity 4 ton.

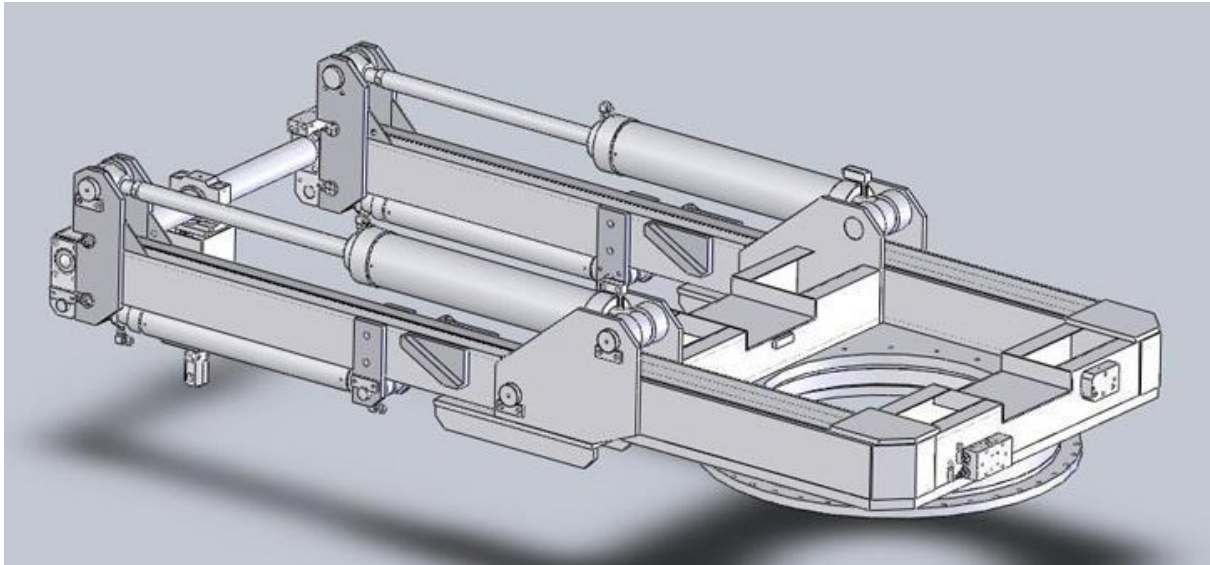
2. A corner of turn of the lift in a horizontal plane, hailstones - $\pm 45^\circ$;

3. Changes of a start of sliding section of the hydraulic lift, mm - 0-1000;

4. The lift has a rotary platform;

- In the combined condition the lift puts welding head «on itself», that is on this platform;

5. The lift provides removal welding machine from the platform and lowering welding devices so, that a bottom edge of this device on 150-200 mm below level of a sole of a rail.



C) Diesel generator set.



1. Engine.
 - 1.1. 400 kVA.
 - 1.2. A radiator and the cooling fan.
 - 1.3. An electronic regulator of the engine.
 - 1.4. The fuel tank built in a frame.
2. Generator:
 - 2.1. Generator rated capacity 400 kVA.
 - 2.2. 1500 RPM.
 - 2.3. 380-440V, 50Hz, 550A.
 - 2.4. An electric starter and the gymnastics generator.
 - 2.5. The air filter of dry type with a usual mode.
 - 2.6. The accumulator of a starter with cables and a fastening rack.

D) Container (23”).

GENERAL DESCRIPTION. Dimensions (mm): 7000x2500x2800 (LxWxH). Container design provides: - Strength and stiffness of his own design; - Safety performance loading and unloading and transport operations; - Waterproof closed doors. The container has: - Base, made of steel beams and pipes; - Bearing housing with walls made of profiled steel sheets 1.2mm thick; - The roof of a container made from sheet steel with a minimum thickness of 1.2 mm, whose design provides unobstructed run-off from its water and snow removal; - The floor is made of corrugated steel plates 3mm thick, the floor construction must ensure: - Water resistant as a whole, at the junction of its individual elements among themselves and with the elements on the perimeter walls and foundations; - Availability of mortgages to secure equipment; - Mounting the gate for loading and unloading of diesel generator set; - Loading unloading unit fitting located at the base of the container; - Gateway to the lift in the assembly compartment. Side walls rise up, end part is opened up, using hydraulic actuators; - Entrance door - 2 pieces; The design of the front door provides: - The possibility of its opening at an angle of 180°; - The presence of an elastic seal around the perimeter, lying close to - the frame in the closed position; - The impossibility of removal in the locked position; - A reliable free locking and unlocking provided with locking devices without additional devices; - The impossibility of a spontaneous locking the door from inside the container; - The impossibility of opening itself and the effect of vibration loads encountered during operation, the presence of the stopper (retainer) for the open door position. Frame doors should be recessed into the container. Over the doors and automatic gates installed protective steel canopies (30mm). Metal container design elements are protected from corrosion. Gas outlet pipe is insulated diesel generator set difficult combustible material, with a temperature of at least 500°C. Knot the wire gas outlet pipe ensures its isolation with respect to construction of the container and protects from rain. The muffler is placed inside the container.

ELECTRICAL SYSTEM. The design of the container ensures the safety of personnel against electric shock. When installing switches and sockets used for open wiring. Grounding of the container by means of two clamps grounding bolt with special characters. The power plant is equipped with: Control cabinet, which is powered by the generator bus machine. Shield their own needs. Shield their own use must ensure that: - Connect the main lighting network (~ 220V); - Connect emergency lighting; - Connect the 220V; Shield their own needs through the packet switch is energized one of the inputs is supplied from the input bus of the diesel generator, the second from an external source. Terminals of the generator circuit breaker protection are designed to connect the power cables up to 120 mm². Mode neutral - isolated.

LIGHTING SYSTEM. Electric installation provided by two independent sources: - Basic - 220 VAC from six fixtures with incandescent bulbs, powered by general board; - Emergency - from a lamp powered by a battery of diesel generator set.

VENTILATION SYSTEM. Natural ventilation system. Consists of ventilation openings for cooling towers and diesel generator set with bars on the outside of the container.

FUEL SYSTEM. Fuel supply by generating set of the regular fuel tank.

REQUIREMENTS TRANSPORT storage. The design and dimensions of the container should provide for its transportation by rail, road transport on public roads at an ambient temperature of -40°C to +50°C. Transporting container from the warehouse company "Baltresurs" should only be a vehicle such as an open platform. In the case of coming to transport indoor (box) or on-board vehicle shipment is not made.

Price:

Mobile flash butt rail welding set KPCK-400

No	Name	Units	Quantity	Price, \$ (USD)
1	2	3	4	5
	Flash butt rail-welding set KPCK-400	complete set	1	
A	Mobile rail-welding machine K355AM	complete set	1	
1	Welding head K355AM.21.00.000	piece	1	
2	Pumping station K-401-7 (15 MPa)	piece	1	
3	Control cabinet ACT.171.00.0.000	piece	1	
3.1	Power panel	piece	1	
3.2	Air conditioner	piece	1	
4	Water cooling pump BTXO-16	piece	1	
5	Hydraulic connectors	complete set	1	
6	Electric connectors	complete set	1	
7	Spare parts	complete set	1	
B	Crane	complete set	1	
1	Crane (4000 kg)	piece	1	
2	Pumping station K-401-8 (15 MPa)	piece	1	
3	Hydraulics parts	complete set	1	
4	Electrics parts	complete set	1	
4.1	Control panel	piece	1	
5	Electric connectors	complete set	1	
6	Hydraulic connectors	complete set	1	
C	Diesel generator set (400 kVA)	complete set	1	
D	Twenty three foot (23") ISO container (7000x2500x2800)	complete set	1	

E	Installation of equipment works	complete set	1
F	CIF port, Turkey, according to INCOTERMS 2010	complete set	1
1	Customs registration	complete set	1
2	Freight	piece	1
3	Insurance 110%	piece	1
G	Starting-up and adjustment works (in Turkey) Customer pays expenses for stay in Turkey.	complete set	1
H	Training of experts of customer (2 weeks) on a work place (in Turkey)	complete set	1

Guaranty for all equipment: 12 months.