TECHNOSVAR
TECHNOLOGICAL CENTRE

PRODUCT CATALOGUE
WELDING EQUIPMENT

ABOUT TECHNOLOGICAL CENTRE TECHNOSVAR

«Technosvar» Technological Centre» is a modern industrial enterprise which has been successfully working in the welding machines market since 2005.

The plant produces equipment for key types of welding:

- Contact welding
- Arc welding
- Special welding

We pay much attention to the development of up-to-date welding technologies. Welding machines are equipped with control devices which can control welded joints, diagnose welding machines and visualize welding processes.

The machines of «Technosvar» Technological Centre» are successfully being used in various industrial branches such as construction, aircraft industry, rocket production, nuclear power industry, shipbuilding engineering and etc.

«Technosvar» Technology Centre» provides repair and retrofit services for all types of welding machines. The flash welding machines obtain new machines technical and technological parameters after major maintenace at our factory.

«Technosvar» Technology Centre's» team is ready to give a technical support in various areas of welding, welding technologies and welding machines. We will help to choose necessary machines specifically for your plant in accordance with your needs.

«Technosvar» Technology Centre» can also produce special equipment according to the clients technical task and drawings.

A broad industry orientation allows us to deliver our welding machines to the great amount of countries all over the world.

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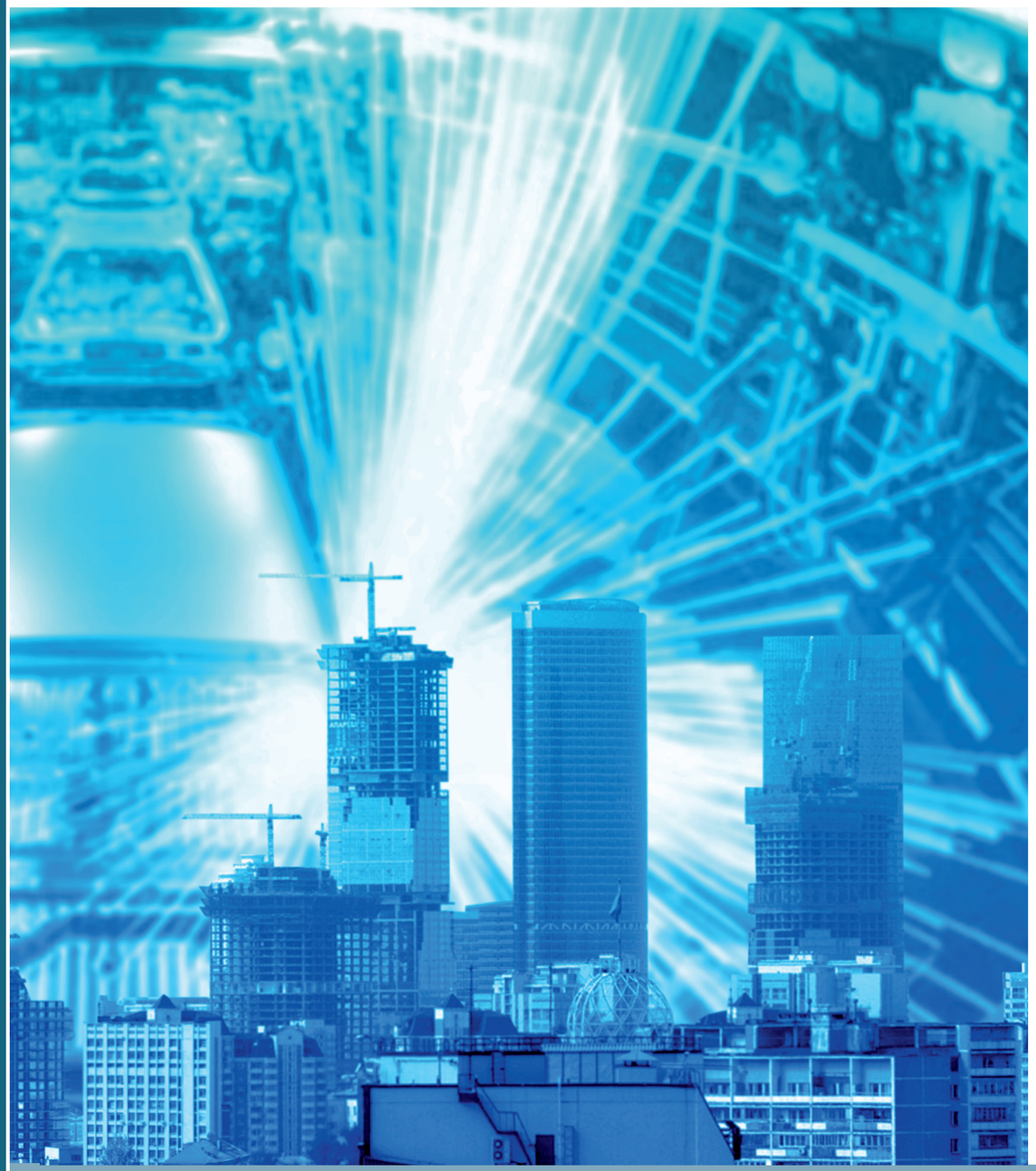
Equipment for welding



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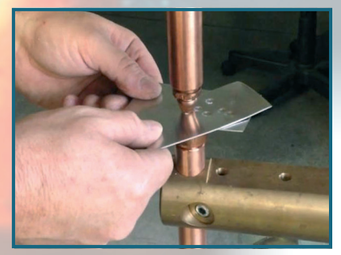
CONTACT WELDING

AC spot welding machines



Spot welding machines

MT welding machines are designed for alternating current spot welding of metal structures and parts.

Technological capabilities of these welding machines allow for welding wide range of products. The thickness of the material to be welded depends on the material type and quality requirements to the welded joint.

			MT-1230	MT-1930
Welding thickness ranges	Low carbon steel	mm	0,5+0,5 to 3,0+3,0	0,5+0,5 to 3,0+3,0
	Low alloy steel	mm	0,5+0,5 to 2,0+2,0	0,5+0,5 to 2,0+2,0
	Stainless steel	mm	0,3+0,3 to 1,5+1,5	0,3+0,3 to 1,5+1,5
	Titanium alloys	mm	0,5+0,5 to 2,5+2,5	0,5+0,5 to 2,5+2,5
	Chromium-nickel alloys	mm	0,5+0,5 to 0,8+0,8	0,5+0,5 to 0,8+0,8
	Copper alloys	mm	0,3+0,3 to 0,8+0,8	0,3+0,3 to 0,8+0,8
	Aluminum alloys	mm	0,5+0,5 to 0,6+0,6	0,5+0,5 to 0,6+0,6
	Diameter ranges for welded cruciform joints of rod reinforcement			
	Class AI, BI	mm	8+8 to 12+12	8+8 to 16+16
	Class AII, AIII	mm	8+8	8+8 to 12+12
	When welding parts of different thicknesses the welding mode is determined by the smallest thickness of the part			
Technical specifications	Mains voltage at 50Hz frequency	V	380	380
	The highest secondary current	кА	12,5	19
	Rated continuous secondary current	кА	5,6	9
	Maximum power in case of short circuit	кvА	109	138
	Power at 50% duty cycle	кvА	41	78
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daN	480 100	770 150
	Nominal stick-out	mm	500	500
	Nominal spacing	mm	100	180
	Upper electrode stroke: - full (working + additional) - working	mm	80 5 to 30	80 5 to 30
	Limits of idle voltage adjustment	V	3 to 5	2,64 to 6,29
	Welding power adjustment: - stepped - phase	st. %	4 25 - 100	4 25 - 100
	Electrode compression drive		pneumatic radial	pneumatic radial
	Cooling of current-carrying parts		forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	1401×380×1880	1290×365×1905
	Weight, not more than	kg	350	600

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Spot welding machines

Welding machines MT-4040, MT-4240 provide the cast core diameter of the welded point corresponding to branch instructions with the raised requirements for the quality of the welded joint.


			MT-1930-1	MT-1930-2
Welding thickness ranges	Low carbon steel	mm	0,5+0,5 to 3,0+3,0	0,5+0,5 to 3,0+3,0
	Low alloy steel	mm	0,5+0,5 to 2,0+2,0	0,5+0,5 to 2,0+2,0
	Stainless steel	mm	0,3+0,3 to 1,5+1,5	0,3+0,3 to 1,5+1,5
	Titanium alloys	mm	0,5+0,5 to 2,5+2,5	0,5+0,5 to 2,5+2,5
	Chromium-nickel alloys	mm	0,5+0,5 to 0,8+0,8	0,5+0,5 to 0,8+0,8
	Copper alloys	mm	0,3+0,3 to 0,8+0,8	0,3+0,3 to 0,8+0,8
	Aluminum alloys	mm	0,5+0,5 to 0,6+0,6	0,5+0,5 to 0,6+0,6
			Diameter ranges for welded cruciform	
	Class AI, BI	mm	8+8 to 16+16	8+8 to 16+16
	Class AII, AIII	mm	8+8 to 12+12	8+8 to 12+12
			When welding parts of different thicknesses	
Technical specifications	Mains voltage at 50Hz frequency	V	380	380
	The highest secondary current	кА	19	19
	Rated continuous secondary current	кА	7,1	7,1
	Maximum power in case of short circuit	кvA	281	229
	Power at 50% duty cycle	кvA	105	105
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daH	770 150	770 150
	Nominal stick-out	mm	750	1000
	Nominal spacing	mm	200	200
	Upper electrode stroke: - full (working + additional) - working	mm	80 5 to 30	80 5 to 30
	Limits of idle voltage adjustment	V	7 to 10	7 to 10
	Welding power adjustment: - stepped - phase	st. %	4 25 - 100	4 25 - 100
	Electrode compression drive		pneumatic radial	pneumatic radial
	Cooling of current-carrying parts		forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H)	mm	1630×380×1905	2130×380×1905
	Weight, not more than	kg	400	450

ADVANTAGES OF MT WELDING MACHINES

- Microprocessor control based on the contact welding regulator RKS-810 of our own make, can store 20 welding programs in memory and consistently reproduce the welding parameters

- Setting of welding parameters on the front panel of the RKS-810 contact welding regulator and digital indication of the set parameters

- As a source of welding current we use a transformer of our own make, filled with epoxy compound

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Spot welding machines




MT-2103-1	MT-3001	MT-4040	MT-4240
0,5+0,5 to 3,0+3,0	0,5+0,5 to 0,5+0,5	0,5+0,5 to 8,0+8,0	0,5+0,5 to 8,0+8,0
0,5+0,5 to 3,5+3,5	0,5+0,5 to 3,0+3,0	0,5+0,5 to 4.0+4,0	0,5+0,5 to 4.0+4,0
0,5+0,5 to 4,0+4,0	0,3+0,3 to 3,0+3,0	0,3+0,3 to 4,0+4,0	0,3+0,3 to 4,0+4,0
0,8+0,8 to 4,0+4,0	0,5+0,5 to 3,0+3,0	0,5+0,5 to 4,0+4,0	0,5+0,5 to 4,0+4,0
0,5+0,5 to 3,0+3,0	0,5+0,5 to 1,5+1,5	0,5+0,5 to 2,0+2,0	0,5+0,5 to 2,0+2,0
0,5+0,5 to 0,8+0,8	0,3+0,3 to 1,2+1,2	0,3+0,3 to 2,0+2,0	0,3+0,3 to 2,0+2,0
0,5+0,5 to 0,8+0,8	0,5+0,5 to 1,0+1,0	0,5+0,5 to 1,5+1,5	0,5+0,5 to 1,5+1,5
joints of rod reinforcement			
8+8 to 22+22	8+8 to 25+25	8+8 to 32+32	8+8 to 40+40
8+8 to 16+16	8+8 to 18+18	8+8 to 25+25	8+8 to 35+36
the welding mode is determined by the smallest thickness of the part			
380	380	380	380
21	30	40	42
1	7,1	10	22
209	344	435	384
148	105	150	285
2450 490	1415 280	1900 450	3028 500
1200	500	530	500
200	210	100	200
100 10 to 30	80 5 to 30	80 5 to 30	120 5 to 30
5,37 to 9,13	7 to 10	3,5 to 10,2	5,9 to 8,7
6 25 - 100	4 25 - 100	8 25 - 100	6 25 - 100
pneumatic radial	pneumatic radial	pneumatic radial	pneumatic radial
forced liquid	forced liquid	forced liquid	forced liquid
2370×560×2350	1440×300×1850	1700×520×2300	1700×650×2500
1400	600	1100	1300

- Liquid cooling of the welding transformer, secondary circuit

- **MT-2103-1, MT-4040, MT-4240**

Independent regulation of welding and forging compressing force by two pressure regulators with counterpressure in a pneumatic cylinder

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Suspended spot welding machines

Suspended welding machines MTP are designed for alternating current spot welding of spatial reinforcement frames and volumetric products using welding tongs with pneumatic cylinder.

Technological capabilities of these welding machines allow for welding wide range of products. The thickness of the material to be welded depends on the material type and quality requirements to the welded joint.

Advantages of MTP welding machines

- Microprocessor control based on the contact welding regulator RKS-810 of our own make, can store 20 welding programs in memory and consistently reproduce the welding parameters
- Setting of welding parameters on the front panel of the RKS-810 contact welding regulator and digital indication of the set parameters
- As a source of welding current we use a transformerof our own make, filled with epoxy compound
- Liquid cooling of the welding transformer, flexible current-carrying cables and welding tongs

Welding thickness ranges		
	Low carbon steel	mm
	Low alloy steel	mm
	Stainless steel	mm
	Titanium alloys	mm
	Chromium-nickel alloys	mm
	Copper alloys	mm
	Aluminum alloys	mm
	Diameter ranges for welded cruciform	
	Class AI, BI	mm
	Class AII, AIII	mm
	When welding parts of different thicknesses	

Technical specifications			MTP-01	MTP-02	MTP-04
	Mains voltage at 50Hz frequency	V	380	380	380
	The highest secondary current	kA	11	11	14
	Rated continuous secondary current: - parallel coupling of secondary coils - series coupling of secondary coils	kA	9 4,5	7.1 3.55	9.1 4.55
	Maximum power in case of short circuit	kVA	190	411	806
	Power at 50% duty cycle	kVA	78	105	188
	Limits of idle voltage adjustment	V	3,26 to 12,58	7 to 20	9.6 to 28
	Welding power adjustment: - stepped - phase	st. %	4 25 - 100	4 25 - 100	4 25 - 100
	Coupling of secondary coils		parallel or series	parallel or series	parallel or series
	Cooling of current-carrying parts		forced liquid	forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	1400x400x1890	1400x400x1890	1400x400x1890
	Weight, not more than	kg	350	350	350

MTP-01	MTP-02	MTP-04
0.5+0.5 to 2.0+2.0	0.5+0.5 to 2.0+2.0	0.5+0.5 to 4.0+4.0
0.5+0.5 to 1.0+1.0	0.5+0.5 to 1.0+1.0	0.5+0.5 to 2.5+2.5
0.3+0.3 to 0.8+0.8	0.3+0.3 to 0.8+0.8	0.5+0.5 to 2.0+2.0
0.3+0.3 to 0.8+0.8	0.3+0.3 to 0.8+0.8	0.5+0.5 to 2.0+2.0
0.5+0.5 to 0.8+0.8	0.5+0.5 to 0.8+0.8	0.5+0.5 to 0.8+0.8
0.3+0.3	0.3+0.3	0.3+0.3
0.3+0.3	0.3+0.3	0.3+0.3
joints of rod reinforcement		
3+3 to 10+10	3+3 to 10+10	4+4 to 20+20
6+6 to 8+8	6+6 to 8+8	6+6 to 16+16

the welding mode is determined by the smallest thickness of the part.

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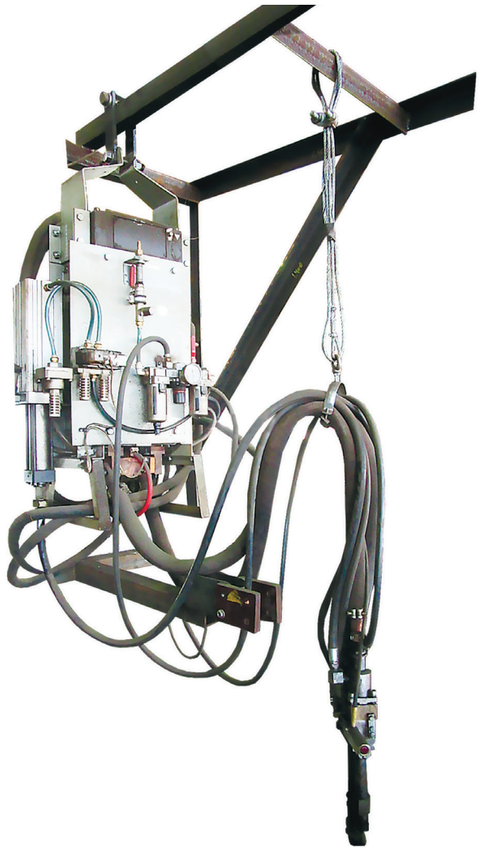
1 CONTACT WELDING
AC SPOT WELDING MACHINES
Suspended spot welding machines

Suspended spot welding machines

Suspended welding machines have welding tongs with radial or rectilinear stroke.

Technical specifications	MTP-1, MTP-2			MTP-4
				
	KTP-8-1	KTP-8-6	KTP-8-7	KTG-16-M
Tongs compression drive		pneumatic		pneumohydraulic
Electrode stroke		radial or rectilinear		rectilinear
- the largest electrode compression force at compressed air pressure of 0.5 MPa	260 daN	400 daN	320 daN	1000 daN
Nominal stick-out	205 mm	30 mm	35 mm	33 mm
Nominal spacing	130 mm	35 mm	20 mm	56 mm
Length of flexible cooled welding sleeve	2000 mm	2000 mm	2000 mm	2000 mm
Cross section of flexible cooled sleeve	200 mm^2	200 mm^2	200 mm^2	250 mm^2
Number of sleeves	2 pcs	2 pcs	2 pcs	2 pcs
Weight of welding tongs, not more than	16 kg	11.5 kg	6 kg	24 kg



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Suspended spot welding machines

Mobile spot welding machines

Designed for one-side AC spot welding.

			MTP-05	MTP-07
W.T.R.	Low carbon steel	mm	0.3+0.5 to 2.0+2.5	0.7+1.5 to 1.5+2.5
	Stainless steel	mm	0.5+0.5	0.7+1.5 to 1.5+2.5

When welding parts of different thicknesses, the welding mode is determined by the smallest thickness of the part.

Technical specifications				
	Mains voltage at 50Hz frequency	V	380	380
	The highest secondary current	kA	12	19
	Rated continuous secondary current	kA	4	4
	Maximum power in case of short circuit	kVA	46	111
	Power at 50% duty cycle	kVA	20	33
	Electrode compression drive		manual	pneumatic
	Electrode stroke		rectilinear	rectilinear
	The largest electrodes compression force		50 daN	
	Limits of idle voltage adjustment	V	up to 3.6	up to 5,6
	Welding power adjustment: - phase	%	25 - 100	25 - 100
	Cooling of current-carrying parts		forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H) -control unit -two-electrode head	mm	580x390x710 755x280x145	445x445x1090
	Weight, not more than -control unit -two-electrode head	kg	75 25	65 (control unit + electrode head)

CONTACT WELDING

DC spot welding machines

			MTV-4800	MTV-4801
Welding thickness ranges	Low carbon steel	mm	0.5+0.5 to 4.0+4.0	0.5+0.5 to 4.0+4.0
	Low alloy steel	mm	0.5+0.5 to 3.0+3.0	0.5+0.5 to 3.0+3.0
	Stainless steel	mm	0,3+0,3 to 3,0+3,0	0,3+0,3 to 3,0+3,0
	Titanium alloys	mm	0.5+0.5 to 3.0+3.0	0.5+0.5 to 3.0+3.0
	Chromium-nickel alloys	mm	0,3+0,3 to 2,0+2,0	0,3+0,3 to 2,0+2,0
	Copper alloys	mm	0.5+0.5 to 1.8+1.8	0.5+0.5 to 1.8+1.8
	Aluminum alloys	mm	0,3+0,3 to 1,5+1,5	0.5+0.5 to 1.5+1.5
Technical specifications	Mains voltage at 50Hz frequency	V	3 × 380	3 × 380
	The highest secondary current	kA	48	48
	Rated continuous secondary current	kA	14	14
	Maximum power in case of short circuit	kVA	331	331
	Power at 50% duty cycle	kVA	136	136
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daN	1900 250	1900 250
	Nominal stick-out	mm	1200	600
	Nominal spacing	mm	250	250
	Upper electrode stroke: - full (working + additional) - working	mm	100 5 to 30	100 5 to 30
	Limits of idle voltage adjustment	V	2.7 to 5.4	2.7 to 5.4
	Welding power adjustment: - stepped - phase	st. %	5 25 - 100	5 25 - 100
	Electrode compression drive		pneumatic straight	pneumatic straight
	Cooling of current-carrying parts		forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	2670×1190×2630	2150 × 1190 × 2630
	Weight, not more than	kg	2500	2500

When welding parts of different thicknesses, the welding mode is determined by the smallest thickness of the part.

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MTV Welding machines are designed for rectified current spot welding of metal structures and high-duty parts.

Technological capabilities of these welding machines allow for welding wide range of products. The thickness of the material to be welded depends on the material type and quality requirements to the welded joint.

MTV Welding machines provide the cast core diameter of the welded point corresponding to production instructions of aerospace and branch instructions with the raised requirements for the qualityof the welded joint.

Advantages of MTV welding machines

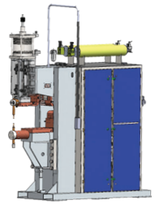
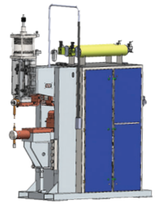
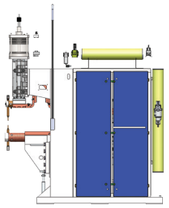
- High dynamic characteristics of the welding force driver
- Uniform load on the grid by 3 phases
- More efficient power consumption and higher efficiency compared to AC machines
- DC power supply with 7000 A diodes
- Liquid cooling of the welding current source and secondary circuit
- The machine is equipped with a control system based on an industrial PC, which allows to:

1. Differentiate the access rights of personnel (technologist / welder)
2. Create and edit welding programs
3. Log welding points
4. Form the pulses of the welding current in the necessary shape
5. Carry out a smooth and step-by-step adjustment of the welding current
6. Stabilize the welding current when the mains voltage changes

MTV-6301

- DC power supply with 11000 A diodes

1 CONTACT WELDING
DC SPOT WELDING MACHINES

Welding thickness ranges			MTV-4802	MTV-5001A	MTV-5501	MTV-6301
	Low carbon steel	mm	0.5+0.5 to 5.0+5.0	0.5+0.5 to 5.0+5.0	0.5+0.5 to 5.0+5.0	0.5+0.5 to 5.0+5.0
	Low alloy steel	mm	0.5+0.5 to 3.5+3.5	0.5+0.5 to 3.5+3.5	0.5+0.5 to 3.5+3.5	0.5+0.5 to 4.5+4.5
	Stainless steel	mm	0.5+0.5 to 3.0+3.0	0,3+0,3 to 3,0+3,0	0.3+0.3 to 3.5+3.5	0.5+0.5 to 4.0+4.0
	Titanium alloys	mm	0.5+0.5 to 3.0+3.0	0,3+0,3 to 3,0+3,0	0.3+0.3 to 3.5+3.5	0.5+0.5 to 4.0+4.0
	Chromium-nickel alloys	mm	0,3+0,3 to 1,5+1,5	0,3+0,3 to 2,5+2,5	0,3+0,3 to 2,5+2,5	0.5+0.5 to 3.5+3.5
	Copper alloys	mm	0.5+0.5 to 1.0+1.0	0.5+0.5 to 1.5+1.5	0.5+0.5 to 2.0+2.0	0.5+0.5 to 2.5+2.5
	Aluminum alloys	mm	0.5+0.5 to 1.5+1.5	0.5+0.5 to 2.0+2.0	0.5+0.5 to 2.5+2.5	0.5+0.5 to 2.5+2.5
	Diameter ranges for welded cruciform joints of rod reinforcement					
Technical specifications	Mains voltage at 50Hz frequency	V	3x380	3x380	3x380	3x380
	The highest secondary current	kA	48	50	55	63
	Rated continuous secondary current:	kA	11,2	20	20	18
	Maximum power in case of short circuit	kVA	248	376	413	473
	Power at 50% duty cycle	kVA	82	213	213	191
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daH	2000 120	1850 100	2350 100	4000 100
	Nominal stick-out	mm	1200	1000	500	500
	Nominal spacing	mm	250	500	300	300
	Upper electrode stroke: - full (working + additional) - working	mm	100 5 to 30	100 5 to 30	100 5 to 30	100 5 to 30
	Limits of idle voltage adjustment	V	1.4 to 3.7	2.6 to 5.2	2.6 to 5.2	2.6 to 5.2
	Welding power adjustment: - stepped - phase	st. %	16 25 - 100	5 25 - 100	5 25 - 100	5 25 - 100
	Electrode compression drive		pneumatic straight	pneumatic straight	pneumatic straight	pneumatic straight
	Cooling of current-carrying parts		forced liquid	forced liquid	forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	2750x1190x2610	1900x800x2500	1900x800x2500	1825x750x2475
	Weight, not more than	kg	2700	2000	2000	1300
	Weight of the control cabinet, not more than		-	-	-	105

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CONTACT WELDING
DC SPOT WELDING MACHINES 1

Advantages of MTV welding machines

MTV-7501

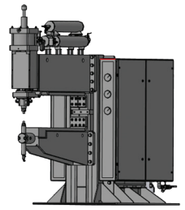
- DC power supply with 6300 A diodes

MTV-8002-1

- Special design of the lower console allows for welding shells of a diameter from 650 to 1000 mm and a length from 650 to 1500 mm

MTV-8002-2

- The increased spacing of the machine allows for welding complex parts that cannot be placed within the contour of MTV-8002-1 machine, for example, a hemisphere of a diameter up to 1500 mm



Welding thickness ranges		
	Low carbon steel	mm
	Low alloy steel	mm
	Stainless steel	mm
	Titanium alloys	mm
	Chromium-nickel alloys	mm
	Copper alloys	mm
	Aluminum alloys	mm
	Diameter ranges for welded cruciform joints of rod reinforcement	

Technical specifications			MTVR-4802	MTV-7501	MTV-8002-1	MTV-8002-2
			0.5+0.5 to 4.0+4.0	0.5+0.5 to 8.0+8.0	0.5+0.5 to 10.0+10.0	0.5+0.5 to 10.0+10.0
			0.5+0.5 to 3.0+3.0	0.5+0.5 to 4.5+4.5	1.0+1.0 to 6.0+6.0	1.0+1.0 to 6.0+6.0
			0,3+0,3 to 2,5+2,5	0.5+0.5 to 4.0+4.0	1.0+1.0 to 6.0+6.0	1.0+1.0 to 6.0+6.0
			0.5+0.5 to 3.0+3.0	0.5+0.5 to 4.0+4.0	1.0+1.0 to 6.0+6.0	1.0+1.0 to 6.0+6.0
			0,3+0,3 to 2,0+2,0	0.5+0.5 to 3.5+3.5	0.3+0.3 to 4.0+4.0	0.3+0.3 to 4.0+4.0
			0.5+0.5 to 1.8+1.8	0.5+0.5 to 2.5+2.5	0.8+0.5 to 5.0+5.0	0.8+0.5 to 5.0+5.0
			0,3+0,3 to 1,5+1,5	0.5+0.5 to 3.0+3.0	0.5+0.5 to 4.5+4.5	0.5+0.5 to 4.5+4.5
	Mains voltage at 50Hz frequency	V	3x380	3x380	3x380	3x380
	The highest secondary current	kA	48	72	95	95
	Rated continuous secondary current:	kA	14	24	36	36
	Maximum power in case of short circuit	kVA	496	596	1240	945
	Power at 50% duty cycle	kVA	205	250	526	526
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daN	1480 120	3200 100	7200 220	7200 220
	Nominal stick-out	mm	200	1500	1500	1500
	Nominal spacing	mm	140	300	600	1200
	Upper electrode stroke: - full (working + additional) - working	mm	200 5 to 18	100 5 to 30	220 5 to 20	220 5 to 30
	Limits of idle voltage adjustment	V	2.2 to 5.9	2.6 to 5.8	2.3 to 7.1	2.3 to 7.1
	Welding power adjustment: - stepped - phase	st. %	16 25 - 100	5 25 - 100	16 25 - 100	16 25 - 100
	Electrode compression drive		pneumatic straight	pneumatic straight	pneumatic straight	pneumatic straight
	Cooling of current-carrying parts		forced liquid	forced liquid	forced liquid	forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	3020x950x1641	3000x1000x2500	3850x1170x3250	4160x1170x4135
	Weight, not more than	kg	2700	3000	7200	7500
	Weight of the control cabinet, not more than	kg	105	-	200	250

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MR-4001

Welding machine MR-4001 is designed for resistance projection welding of carbon steel, alloyed steel and non-ferrous metal parts.

Maximum number of projections on flat low carbon steel parts welded simultaneously

0,5+0,5 mm	10 pcs
1+1 mm	5 pcs
2+2 mm	3 pcs
4+4 mm	1 pcs

Advantages of the welding machine

- It allows to weld materials in different points simultaneously
- Welding current regulation at voltage change
- Microprocessor control based on the contact welding regulator RKS-810 of our own make , can store 20 welding programs in memory and consistently reproduce the welding parameters
- Setting of welding parameters on the front panel of the RKS-810 contact welding regulator and digital indication of the set parameters
- High performance
- It allows to weld parts of dissimilar thickness and cross-section from materials with different thermophysical properties
- Increased resistance of electrodes

Additional options

- Independent closed liquid cooling
- Independent compressor

Technical specifications			
	Operating supply voltage, V (50 hz)	V	380
	The highest secondary current	kA	40
	Rated continuous secondary current	kA	10
	Maximum power in case of short circuit	kVA	455
	Power at 50% duty cycle	kVA	143
	Compression force of electrodes: - the largest at compressed air pressure of 0.5 MPa - the smallest at compressed air pressure of 0.1 MPa	daN	 1900 450
	Nominal stick-out	mm	430
	Nominal spacing	mm	150
	Upper electrode stroke: - full (working + additional) - working	mm	 80 from 5 to 30
	Limits of idle voltage adjustment	V	from 3,5 to 10,1
	Welding power adjustment: - stepped - phase	 st. %	 8 25 - 100
	Electrode compression drive		air-powered straight
	Cooling of current-carrying parts		forced liquid
	Overall dimensions of the machine (L×W×H), no more than	mm	1750x520x2300
	Weight, not more than	kg	1150

MP-4001

MP-4001 is designed for electrical resistance soldering by copper-phosphorus and silver soldering alloys of copper and copper alloy parts.

Advantages of the welding machine

- Welding timer provides for separate powering of electrodes compression and soldering current as well as lockout of current making at pressure dropping in pneumatic circuit.
- Smooth spacing control

Additional options

- Independent closed liquid cooling
- Independent compressor

Technical specifications			
	Mains voltage at 50Hz frequency	V	380
	The highest secondary current	kA	40
	Rated continuous secondary current	kA	10
	Maximum power in case of short circuit	kVA	425
	Power at 50% duty cycle	kVA	134
	Maximum compression force of electrodes	daN	500
	Minimum compression force of electrodes	daN	30
	Electrode compression drive		pneumatic
	Welding power control		Smooth, step, pulse train
	Stepped welding power adjustment	steps	8
	Limits of stepped welding power adjustment	%	25...100
	Limits of secondary voltage adjustment	V	3,26 to 9,5
	Nominal stick-out	mm	430
	Nominal spacing		150
	Upper electrode stroke	mm	5 to 100
	Brazing heat		contact electrical resistant
	Cooling of current-carrying parts		forced liquid
	Maximum area of soldered joint	mm^2	1000
	Overall dimensions of the machine (L×W×H), no more than	mm	1750x520x2300
	Weight, not more than	kg	600

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CONTACT WELDING

Butt flash welding machines

MSO Welding machines are designed for butt flash welding using the method of continuous burn-off and welding of pre-heated ends of the parts.

Technical specifications

		MSO-401	MSO-604
Main voltage at frequency 50Hz	V	380	380
Maximum secondary current	kA	30	40
Rated continuous secondary current	kA	9	9
Maximum power in case of short circuit	kVA	189	323
Power with a 50% duty cycle	kVA	75	103
Workpiece clamping force	daN	8000	12500
Upset force	daN	4000	6300
Type of workpiece clamping drive		hydraulic	pneumatic lever
Type of drive draft		hydraulic	pneumatic
Type of fusion and heating drive		hydraulic	electromechanic
Maximum draft speed, not less than	mm /s	80	80
Flashing speed control range	mm /s	0,3 to 10	0,3 to 10
Largest travel of the movable clamp	mm	5 to 105	70
Limits of regulation of a voltage of idling	V	2,92 to 6,3	4,05 to 8,09
Welding power regulation: - step	st.	8	16
Short-term productivity when welding bars with a diameter of 55 mm		100 welding/h	100 welding/h
Cooling of live parts		forced liquid	forced liquid
Overall dimensions (LxWxH), not more than - welding device -cabin with equipment -hydropower stations	mm	 1000x920x1860 500x800x2100 1150x710x1190	 2500x1580x1180 800x650x1760 600x650x1760
Weight, not more than - welding device -cabin with equipment -hydropower stations	kg	 1500 120 700	 3800 180 120

MSO-401

Designed for butt flash welding mainly of circular cross-section: high-speed tool steels (R6M5, R9K5, R9, R12, R18, R6M3); pearlitic; austenitic; alloyed; high and low-carbon steel bars with cross-section area from 75 to 710 mm^2, and diameter from 10 to 30 mm.

MSO-604

Designed for butt flash welding of boiler pipes of external diameter from 25 to 42 mm and other products, mainly of round cross-section, of pearlitic, austenitic, alloyed, high and low-carbon steels with cross-section area up to 850 mm^2.

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MSO-606.1

Designed for butt flash welding of rolled metal, mainly of compact section: low-carbon steels with cross-section area up to 2400 mm², diameter up to 55 mm; low-alloyed steels with cross-section area up to 1250 mm², diameter up to 40 mm; reinforcing steel grade III (AI, AII, AIII), section up to 1250 mm², diameter up to 40 mm.

MSO-750

Designed for butt flash welding of rolled metal, mainly of circular cross-section, from carbon and alloyed steels with cross-section area up to 2400 mm² and outer diameter from 12 to 55 mm.

Advantages of MSO welding machines

- Admission control of the welding process
- Storing up to 20 welding programs in memory
- Flexible process of burn-off control

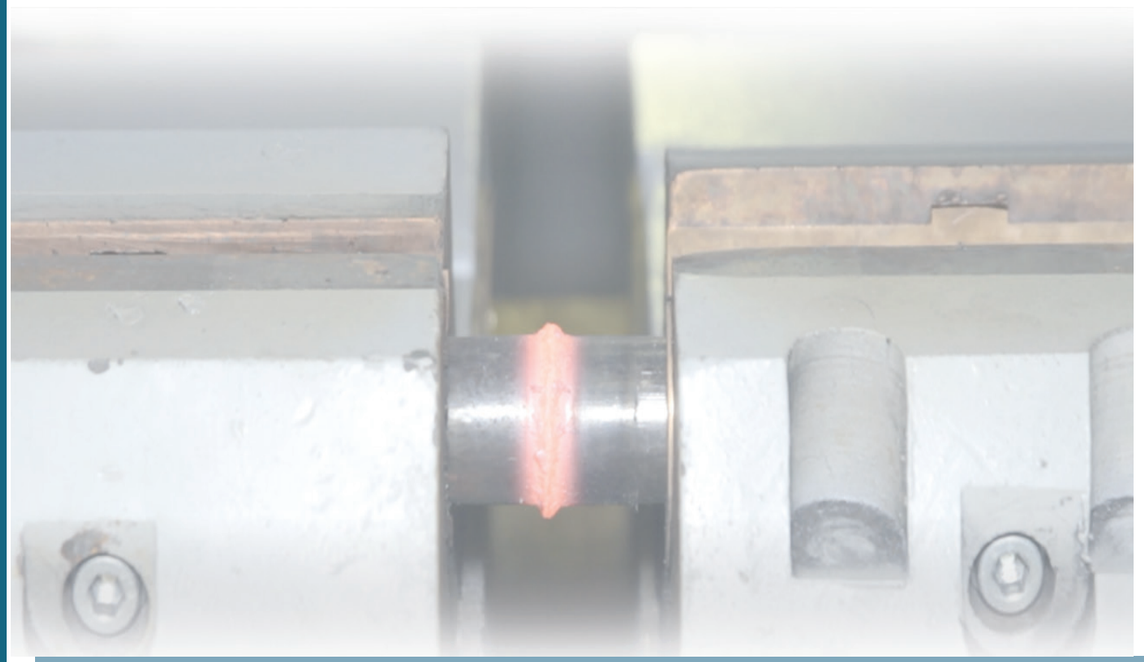
MSO-401, MSO-604
The centering device ensures alignment of the welded parts

MSO-604, MSO-606.1
Through-type design

MSO-604, MSO-606.1, MSO-750
Possibility of embedding in a production line

MSO-750
The modern control and monitoring system continuously keeps track of current parameters, carrying out the registration and certification of each welded joint.

The machine is equipped with a patented automatic burr removal device after hot welding (patent No. RU 2 515 864 C1)



CONTACT WELDING
BUTT FLASH WELDING 1

Technical specifications			MSO-606.1	MSO-750
	Main voltage at frequency 50Hz	V	380	380
	Maximum secondary current	kA	40	40
	Rated continuous secondary current	kA	9	9
	Maximum power in case of short circuit	kVA	323	323
	Power with a 50% duty cycle	kVA	97	97
	Workpiece clamping force	daN	15300	15300
	Upset force	daN	7000	7000
	Type of workpiece clamping drive		hydraulic	hydraulic lever
	Type of drive draft		hydraulic	hydraulic
	Type of fusion and heating drive		hydraulic	hydraulic
	Maximum draft speed, not less than	mm /s	150	150
	Flashing speed control range	mm /s	0,1 to 10	0,1 to 10
	Largest travel of the movable clamp	mm	100	100
	Limits of regulation of a voltage of idling	V	3,9 to 7,8	3,9 to 7,8
	Welding power regulation: - step	st.	16	16
	Short-term productivity when welding bars with a diameter of 55 mm		50 welding/h	50 welding/h
	Cooling of live parts		forced liquid	forced liquid
	Overall dimensions (LxWxH), not more than - welding device -cabin with equipment -hydropower stations	mm	 1570x1200x1630 500x800x2100 1150x710x1140	 1560x1200x1630 500x800x2100 1150x710x1190
	Weight, not more than - welding device -cabin with equipment -hydropower stations	kg	 2000 100 700	 2000 100 700

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CONTACT WELDING
BUTT FLASH WELDING 1

MSO-10.01

Designed for butt flash welding of rolled metal, mainly of compact section, from carbon and alloyed steels with section area up to 3000 mm^2 and outer diameter from 16 to 62 mm.

MSO-12.01

Designed for butt flash welding mainly of circular cross-section: high-speed tool steels (R6M5, R9K5, R9, R12, R18, R6M3) with carbon and alloyed steels with cross-section area up to 2900 mm^2 , and diameter up to 60 mm and length from 30 to 250 mm.

MSO-12.05

Designed for butt flash welding of high-pressure boiler pipes of an outer diameter from 42 to 83 mm and other products, mainly of round cross-section, made of pearlitic, austenitic, alloyed, high and lowcarbon steels with a cross-section up to 1500 mm^2.

Advantages of MSO welding machines

MSO-10.01, MSO-12.01, MSO-12.05
The modern control and monitoring system continuously keeps track of current parameters, carrying out the registration and certification of each welded joint.

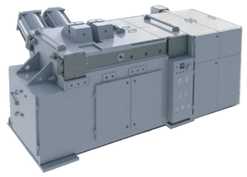
MSO-10.01
The machine is equipped with a patented automatic burr removal device after hot welding (patent No. RU 2 515 864 C1)
The machine provides welding of the strip 15x150 mm

MSO-10.01, MSO-12.05
Possibility of embedding in a production line

MSO-12.01
Special device for welding short-billets (length from 30 mm)

MSO-12.01, MSO-12.05
The centering device ensures alignment of the welded parts

MSO-12.05
Through-type design



Technical specifications

		MSO-10.01	MSO-12.01	MSO-12.05
Main voltage at frequency 50Hz	V	380	380	380
Maximum secondary current	kA	40	40	40
Rated continuous secondary current	kA	9	9	9
Maximum power in case of short circuit	kVA	323	323	323
Power with a 50% duty cycle	kVA	97	97	103
Workpiece clamping force	daN	20000	24000	25000
Upset force	daN	10000	12000	12500
Type of workpiece clamping drive		hydraulic	hydraulic	pneumatic lever
Type of drive draft		hydraulic	hydraulic	pneumatic
Type of fusion and heating drive		hydraulic	hydraulic	electromechanical
Maximum draft speed, not less than	mm /s	150	150	80
Flashing speed control range	mm /s	0,1 to 10	0,1 to 10	0,3 to 10
Largest travel of the movable clamp	mm	100	120	70
Limits of regulation of a voltage of idling	V	3,9 to 7,8	3,9 to 7,8	4,05 to 8,09
Welding power regulation: - step	st.	16	16	16
Short-term productivity when welding bars with a diameter of 55		50 welding/h	50 welding/h	50 welding/h
Cooling of live parts		forced liquid	forced liquid	forced liquid
Overall dimensions (LxWxH), not more than - welding device -cabin with equipment -hydropower stations	mm	1570x1200x1630 500x800x2100 1150x710x1190	2200x1200x2500 500x800x2100 1200x750x1200	3000x1750x1260 800x650x1760 600x650x1760
Weight, not more than - welding device -cabin with equipment -hydropower stations	kg	2000 100 700	5000 100 700	5500 180 120

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CONTACT WELDING
BUTT FLASH WELDING 1

LSA-01

Semi-automatic line of LSA-01 type is designed for waste-free manufacturing of reinforcement rods and steel angles. Diameter of rods is from 12 to 40 mm (class AI, AII, AIII, AIV, AV), dimensions of welding steel angles are from 20x20x3 mm to 75x75x8 mm (with ragging) and up to 100x100x6 mm (without ragging).

The set is equipped with:

- Butt flash welding machine MSO-750 or MSO-12.00
- Bar cutter (cutting-to-length)
- Facing machine
- Table for reinforcement rod preload
- Feed roll-table with a drive device
- Lifting and centering device for reinforcement rods
- Cutoff machine centering device
- Measuring device
- Abutment
- Clearing device
- Stacking tray
- Control cabinet

Additional options:

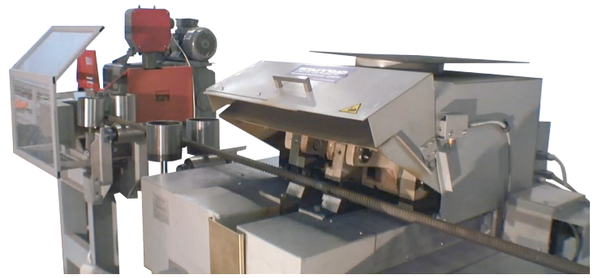
- Independent closed liquid cooling
- Independent compressor

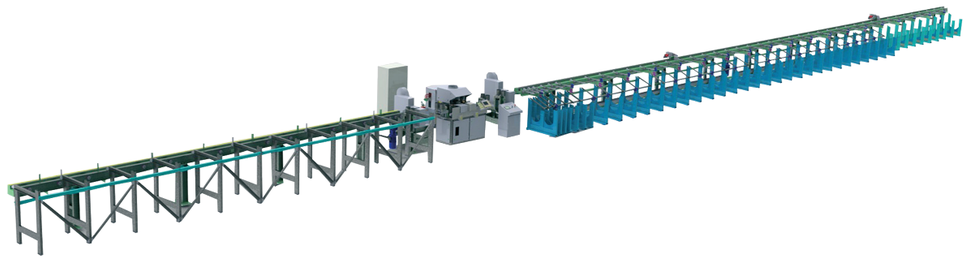
Technical specifications

Mains voltage at 50Hz frequency	V	380
Maximum power input	кVA	335
Power at 50% duty cycle	кVA	106
Maximum input current	A	882
Continuous rated primary current	A	197
Measuring device drive		pneumatic
Clearing device drive		pneumatic
Power drive of welding machine		hydraulic
Lifting and centering device drive of welding machine		hydraulic
Bar facing machine drive		electromechanical
Bar-cutting machine drive (cutting-to-length)		electromechanical
Rods longitudinal movement drive		electromechanical
Maximum capacity of charging rack	t	17
Bar-cutting maximum length (cutting-to-length)	m	24
Air system rated pressure	MPa	0,6
Compressed airflow capacity	m^3/h	4,0
Road speed of rods longitudinal movement	m/s	1
Measuring device spacing	mm	1
Overall dimensions of the machine (L×W×H), no more than	mm	42000x3600x2100
Weight, not more than	kg	9950

Advantages of semi-automatic line LSA-01

- The line allows to reduce production costs and to make a workpiece of needed length
- Manual and semi-automatic modes
- Lifting and centering rolling device provides for reinforcement rod delivery to seal jaws and prevents them from premature wear
- Maximum length of bog-standard final product is 24 m (depending on reinforcement rod needed length, it is possible either to shorten or to lengthen the rolling table equipped with 6-metre collecting tray)
- Built-in-line centering devices provide for alignment of welded joints axes
- Modern control and monitor system provides non-stop tracking of actual actions with storage and ticket system of up to 20 welding programs in the memory
- Welding machine, built in the line, is equipped with patented automatic device – post-welding ragging in hot position (patent № RU 2 515 864 C1)





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ARC WELDING
ARC WELDING OF EMBEDDED PARTS 2

The devices ADFS are designed for automatic arc welding of embedded parts under a layer of flux. Welding of reinforcement steel bars of smooth and periodic profile to flat surfaces of rolled steel is exercised as back-to-back angles. ADFS devices design involves manual load of bars, metal sheets and flux.

Advantages of ADFS devices

The control unit can store up to 20 welding programs in memory and uses a specified cycle of operation in automatic mode:

- Feed the reinforcment bar during welding
- Turn on the welding current and turn it off after the cycle is completed.
- Ignite the arc when the rod is detached, burn the arc when the rod is fixed
- Flash upset to the bath with molten metal
- Crystallization

ADFS-2001, ADFS-3001

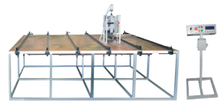
Manual horizontal movement of the bar clamping mechanism with subsequent fixation during welding, to weld anchors at given coordinates.
Moving along axes: X - 400 mm, Y - 400 mm

ADFS-2001M (mobile)

- Magnetic clamp at the base of the welding head
- The control panel on the welding head works in parallel with the remote control unit, it starts the welding process and activates the magnetic clamp to fix the welding head to the metal sheet.

ADFS-2002

- Compact design of the device
- Welding head is fixed and does't move

Technical specifications

		ADFS-2001	ADFS-2001M	ADFS-2002	ADFS-3001
Mains voltage at 50Hz frequency Type of welding current Welding current polarity	V	3x380 direct (rectified) reverse	3x380 direct (rectified) reverse	3x380 direct (rectified) reverse	3x380 direct (rectified) reverse
Limits of secondary current regulation	A	200 - 2000	200 - 2000	200 - 2000	300 - 3000
Rated continuous welding current	A	1250	1250	1250	2000
Grid current consumption at rated load	A	156	156	156	250
No-load voltage, not more than	V	85	85	85	85
Rated operating voltage	V	60	60	60	56
Power at 60% duty cycle	kVA	102	102	102	165
Welding power control		smooth	smooth	smooth	smooth
Welding cycle time: - afterburning time - arc burning time - flash-upset time - crystallization time	s	 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9	 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9	 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9	 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9 0.1 to 9.9
Drive of rod relocation during welding		pneumatic straight	pneumatic straight	pneumatic straight	pneumatic straight
Nominal compressed air pressure	MPa	0,5	0,5	0,5	0,5
Rod length, not less than	mm	90	90	90	90
Minimum distance from the edge of the plate to the axis of the rod, depending on the diameter of the rod	mm	10 to 30	17 to 30	10 to 30	17 to 30
Minimum distance between rods in clearance Maximum distance between the outer axes of welded rods	mm	35 450	35	25	450 55
Overall dimensions (LxWxH), not more than: - device - source of welding current	mm	 1000x1350x1600 1060x690x1020	 305x320x750 1060x690x1020	 580x760x1500 1060x690x1020	 1000x1350x1600 1215x800x1025
Weight, not more than - device - source of welding current	kg	 220 530	 50 530	 100 530	 230 800

Dimensions of embedded parts

		ADFS-2001	ADFS-2001M	ADFS-2002	ADFS-3001
Thickness of the embedded part sheet	mm	6 to 30	6 to 30	12 to 30	6 to 30
Diameter of reinforcing bar (Class AI, AII, AIII)	mm	8 to 20	8 to 20	8 to 20	8 to 32
Length of the reinforcing bar (Class AI, AII, AIII)	mm	90 to 1000	90 to 1000	60 to 1000	90 to 2500

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ARC WELDING
ARC WELDING OF EMBEDDED PARTS 2

UDG-350

UDG-350 Unit is designed for electric arc welding of rotary joints of pipelines from non-ferrous metals in protective gas (argon, helium) using non-consumable electrodes.

Advantages of the UDG-350 Welding Machine

- The gas supply system delivers gas both to the internal cavity of the part and to the burner, ensuring maximum protection of the welded joint during the process.
- The configuration of the UDG-350 Unit allows for welding of curved parts
- The welding head is equipped with a drive for vertical movement of the welding torch, combined with the AAVA (automatic arc voltage adjustment) system, which allows to compensate the differences and irregularities of the parts in the welded joint
- The unit is equipped with a control system based on an industrial PC that allows for logging and certificating of the welding process, delineating of the access rights of the personnel (technologist / welder) and setting the following parameters for each welded product:

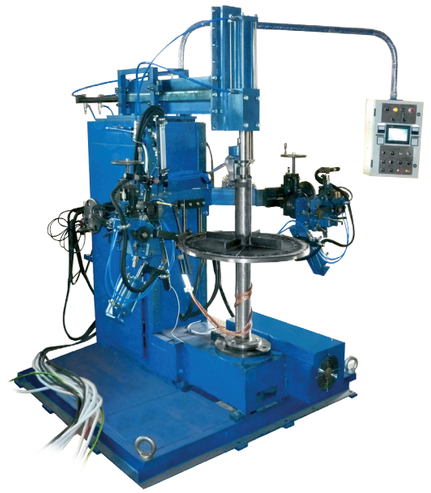
1. Number of passes during the welding cycle
2. The value of the welding current for each pass
3. Rotational speed of the part
4. Consumption of shielding gas in the burner and the product
5. The amount of welding voltage regulated by the AAVA unit

Technical specifications			
	Main voltage at frequency 50Hz	V	3x380
	Type of welding current		constant (rectified)
	Polarity		direct
	Welding current control limits	A	5 – 350
	Rated continuous welding current with a 60% duty cycle	A	350
	Highest power consumption	kVA	10,9
	Diameter of tungsten electrode	mm	2 - 4
	Maximum rotation speed	rpm	360
	Inert gas flow rate at supply: -to the burner -inner cavity of the part	l/min	 20 30
	Drive of horizontal movement of welding torch		electromechanical
	Maximum permissible radius of rotation of curved parts	mm	420
	Maximum diameter in the welding zone	mm	170
	Maximum length of welded parts	mm	700
	Overall dimensions (LxWxH), not more than: -unit -source of welding current	mm	 1700x1450x800 1000x455x1100
	Weight, not more than: -unit -source of welding current	kg	 220 180

ADG-507

ADG-507 Unit is designed for arc welding of armature windings with collector plates, of traction motors in a protective gas (argon, helium, nitrogen) using a non-consumable electrode.

Advantages of the ADG-507 Unit



- Welding with one or two burners
- The control system ensures the fixation of the product, the supply of burners and the supply of shielding gas to the welding zone with continuous rotation of the armature, the activation and disengagement of the welding arc
- Welding with a constant or pulsating current, depending on the characteristics of the materials to be welded
- The software allows you to select welding modes depending on:
  - type of welding: tangential (along the lamellas) or radial (spiral)
  - type of anchor, considering its size and the width of the collector plates

Additional options:

- Independent compressor
- Independent closed liquid cooling

Technical specifications			
	Main voltage at a frequency of 50 Hz	V	3x380
	Type of welding current		constant (rectified)
	Polarity		direct
	Welding current control limits	A	50 – 500 A
	Rated continuous welding current with a 60% duty cycle	A	500 A
	Maximum power consumption	kVa	32/64
	Number of simultaneously operating burners	pc.	1/2
	Diameter of tungsten electrode	mm	3 - 4
	Armature rotation speed	rpm	0,12-2,4
	Inert gas flow rate	l/h	1500
	Welding torch lead drive		pneumatic
	Cooling of the burner		liquid
	The diameter of the collectors in the weld zone (necks)	mm	235 to 840
	Length of welded anchors	mm	1300 to 2100
	The largest weight of the armature	kg	1900
	Overall dimensions (LxWxH), not more than: welding device control station welding rectifier	mm	 2500x2100x3500 850x500x2150 850x500x2150
	Weight, not more than:	kg	3500

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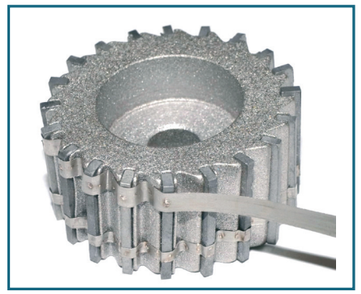
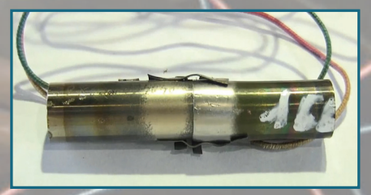
SPECIAL WELDING





USKS-17

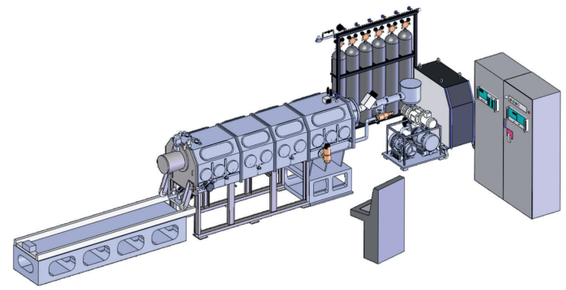
Unit USKS-17 is designed for building controlled atmosphere in the vessel for further arc welding of products made of high-melting and reactive metals (titanium and titanium alloys, zirconium, aluminum-magnesium alloys).

Advantages of the USKS-17 Unit

- Manual welding is performed by rubber gloves hermetically fixed in the vessel hole and burners adjusted inside the vessel
- The vessel size allows several people work simultaneously which makes it possible to weld complex parts and makes the welder's job easier
- Pre-handling of parts, instruments and materials is effected onto in-out table fixed on the vessel bottom
- Atmosphere control system measures the oxygen, hydrogenium, nitrogen andwater vapour content automatically
- Continuous gas analyzers provide for impurity content control and operating environment cleaning by inert gas substitution

The unit consists of:

- vacuum vessel
- vacuum generation system
- travelling mechanism of the vacuum system door
- welding equipment
- protective gas delivery system
- atmosphere control system detecting impurity content
- pressure balance control in glove boxes
- eye safety system during welding operations
- control systems



Technical specifications

Mains voltage at 50Hz frequency	V	3x380
Maximum consumed power, no more than	kVA	25
Maximum welding current	A	400
Welding current type		CC, AC
Polarity		straight
Overall dimensions of vacuum vessel operating space (LxWxH)	mm	3000x900x800
Vacuum vessel size	$м^3$	2
Vacuum level		$5x10^{-2}$mm. Hg (6,67Pa)
Pump-down time up to ultimate vacuum	min.	30
Controlled environment		argon, helium
Number pf glove ports		20
Number of welding torches		1
Cooling		forced liquid
Cooling water flow	lit./min.	3
Overall dimensions (LxWxH), not more than	mm	8000x5000x2000

UDV-35.01

UDV-35.01 Welding Unit is designed for vacuum diffusion welding of products made from dissimilar materials in various combinations of a diameter from 10 to 30 mm and height up to 110 mm, using melting methods not amenable to welding.

Advantages of the UDV-35.01 Welding Unit

- The installation ensures the production of a high-quality one-piece welded joint of dissimilar materials
- Dimensions of the working space of the vacuum chamber, flexibility of changing the unit with the possibility of adjusting the upper stop allow to weld products of different geometry and cross-sectional area.
- Type of heating source - induction, if necessary, Induction heating source. If necessary, thisunit can be equipped with other sources of heating (radiation, contact, quartz lamps).

- The automatic control system carries out continuous monitoring and fixing of parameters such as vacuum level, temperature of the parts, the compressive force and generator power, which allows to exclude possible deviations in the operation of a particular unit system and discrepancy from the welding process in real time.

Technical specifications			
	Main voltage at frequency 50Hz	V	3x380
	Maximum power consumption, no more than	kVA	50
	Induction heating capacity, not less than	kVA	25
	Heating temperature of parts: Top detail Bottom detail	°C	 1100 (+20,-10) 1130 (+20,-10)
	Heating time of parts, not more than	min	15
	Moving along the height of the working table, not less than	mm	100
	Maximum force of compression of parts, not less than	daN	3500
	Dimensions of the working space of the vacuum chamber (LxWxH)	mm	300x300x300
	Depth of vacuum in the chamber	Mmhg	$5x10^{-5}$
	Vacuum evacuation time, no more than	min	30
	Overall dimensions (LxWxH), not more than Installations Control cabinet Hydraulic power station Autonomous cooling station	mm	 2660x2750x2120 1210x525x2175 880x730x910 1920x775x1765
	Weight, not more than	kg	2021

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MTK-21-1

Welding machine MTK-21-1 is designed for resistance spot welding of low-thickness products using capacitor discharge method.

Technological capabilities of this welding machine allow for welding of a wide range of products. The thickness of the material to be welded depends on the material type and quality requirements to the welded joint.

Advantages of the welding machine MTK-21-1

- Welding current regulation at mains voltage change
- Mobile condenser unit
- Remote welding gun provides for welding in hard-to-reach places
- Welding capacity range is 1:5
- Minimum thermal impact owing to small size of affected area, high-power density and pulse brevity
- High-quality welding of low-thickness products

Welding thickness ranges			
	Carbon steel	mm	0,05+0,05 to 0,3+0,3
	Alloy steel	mm	0,05+0,05 to 0,3+0,3
	Stainless steel	mm	0,02+0,02 to 0,3+0,3
	Titanium alloys	mm	0,02+0,02 to 0,3+0,3
	Chromium-nickel alloys	mm	0,01+0,01 to 0,3+0,3
	Copper alloys	mm	0,02+0,02 to 0,2+0,2
	Aluminum alloys	mm	0,02+0,02 to 0,2+0,2

Diameter ranges for welded cruciform joints of rod reinforcement

Technical specifications			
	Mains voltage at 50Hz frequency	V	380
	The highest secondary current	кА	1,3
	Rated continuous secondary current	кА	1,1
	Rated duty cycle	%	1
	Range of voltage regulation of capacitor battery charge	V	140 to 920
	Number of voltage regulation stages of capacity battery charge		7
	Limits of capacitor capacitance adjustment	ufd	200 to 4000
	Number of capacitance regulation stages		5
	Limits of storage power adjustment	J	2 to 1693
	Condenser unit consumed power, not more than	кVA	3,8
	Welding current adjustment		Stepped
	Number of voltage regulation stages of welding transformer secondary voltage		3
	Clamping force of welding gun	daA	1 to 10
	Length of welding sleeves of 20 мм² welding section	m	4
	Number of welding sleeves		2
	Overall dimensions of the machine (L×W×H), no more than	mm	790x600x900
	Weight, not more than	kg	300

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3 SPECIAL WELDING MICRO WELDING

MR-2010

Desk-type welding machine MR-2010 is designed for resistance projection welding of diode package units of small thickness (package type KD-11).

MR-2010

Desk-type resistance projection microwelding machine MR-601 is designed for welding of diode package units (bottle and bottle cover) with 100% diameter wide conjunction (diameter – 3,5 mm, zone thickness at welding point – 0,5 mm). Welding material – alloy 29 NK (kovar) covered with nickel (5 to 8 mym) and gold (8 to 10 mym).

Technical specifications			MR-2010	MR-601
	Main voltage at a frequency of 50 Hz	V	380	220
	Type of welding current	kA	15	6
	Polarity	kA	4	1,8
	Welding current control limits	kVA	87	11,4
	Rated continuous welding current with a 60% duty cycle	kVA	33	5
	Maximum power consumption	daN	325 65	50 15
	Number of simultaneously operating burners	mm	100	105
	Diameter of tungsten electrode	mm	150	120
	Armature rotation speed	mm	45	15 from 5 to 15
	Inert gas flow rate	V	Up to 5,6	Up to 1,9
	Welding torch lead drive	%	25 - 100	0 - 100
	Cooling of the burner		air-powered straight drive	air-powered straight drive
	The diameter of the collectors in the weld zone (necks)		Forced liquid cooling	Natural air cooling
	Length of welded anchors	mm	750x1220x1420	750x1000x1350
	The largest weight of the armature	kg	200	100

Advantages of machines

- Welding current regulation at voltage change
- Airproof welding of diode package
- Strain gage transducer (used for pressing force testing)

Additional options

- Independent compressor

Cross-section area of welding materials for the welding machine MR-2010		
Low-carbon steel	mm^2	2,5 to 18
Stainless steel and titanium alloys	mm^2	2,5 to 24
Alloy 29НК (kovar)	mm^2	3 to 20

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WELDING EQUIPMENT

PRODUCT CATALOGUE

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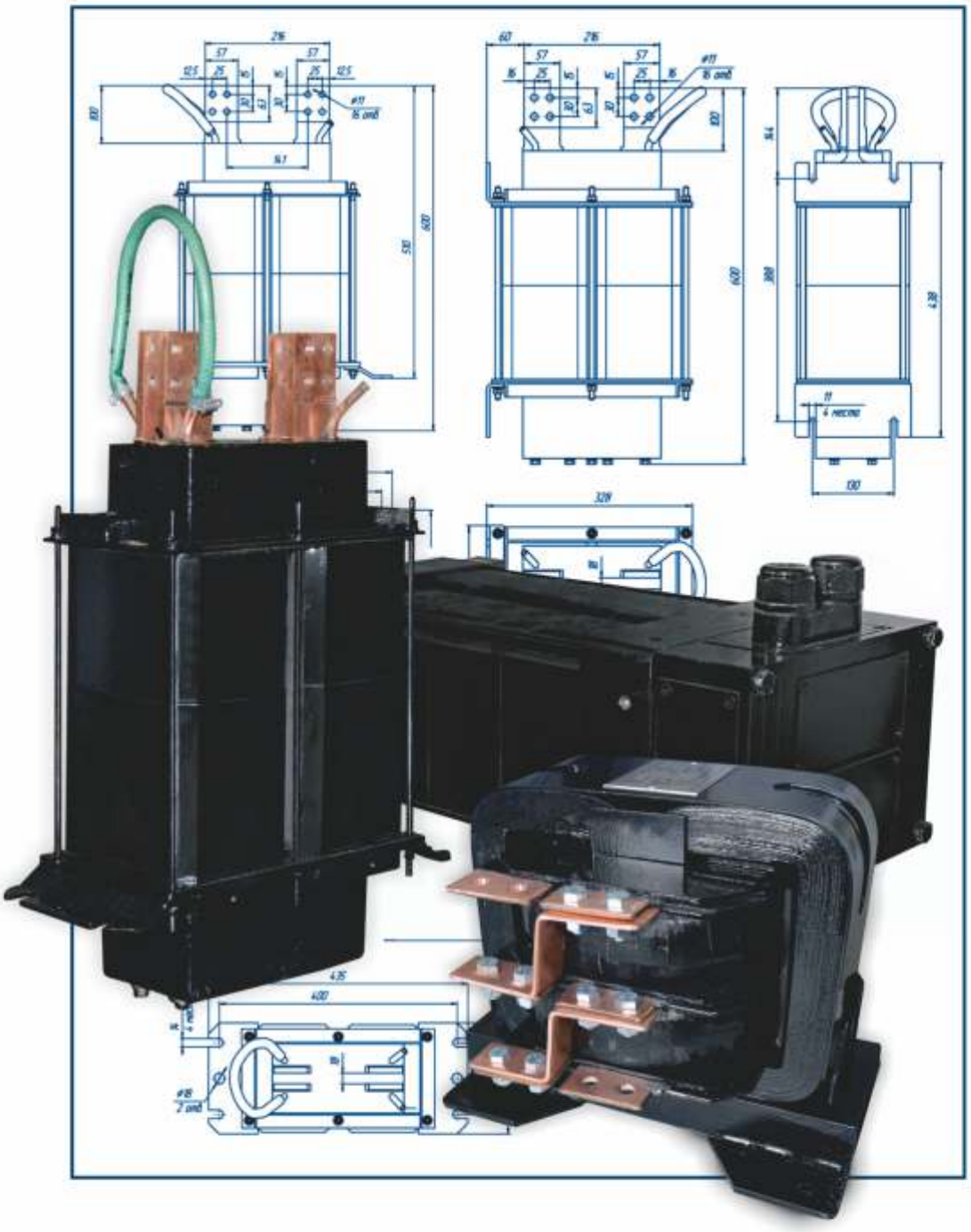
PRODUCT CATALOG

TRANSFORMERS



TECHNOSVAP
TECHNOLOGICAL CENTRE

TECHNOLOGY CENTER «TECHNOSVAR»

Technosvar Technology center produces transformers for heavy and light engineering, aircraft engineering, shipbuilding, electronic instrument making, space industry, construction industry, thermal power engineer, and even for art works from metals and alloys. The transformers can be applied in stationary and flexible robotized welding systems. They have a large power range and can be adapted to any sources of voltage and frequency on primary side.

We produce serial and customized transformers following particular terms of references.

You can use our transformers (current sources):

- As welding current source for resistance, butt, seam, projection, capacitor, low frequency and microwelding;
- To heat up the parts for further thermal treatment (heading, bending, forging etc.);
- For crystal growth;
- For resistance soldering;
- For resistance diffusion welding;
- For concrete heating stations;
- For coil mesh production;
- For glass fibre and ceramic production;
- For robotized welding pincers;
- For measuring devices which measure the quality of welding seams during pipelaying.

Our transformers are distinguished by low weight and compactness due to efficient cooling. In addition, they are reliable in operation and have high insulation (F class).

Working with us, you acquire a high-quality product at optimal price and provide for minimum idleness of the equipment at your plant.

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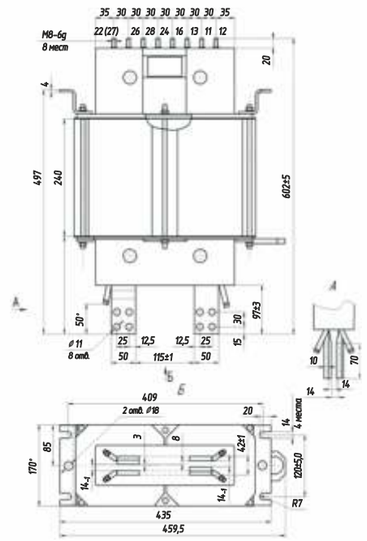
Transformers TVK–75, TVK–75–1

Transformers TVK-75, TVK-75-1 is intended as welding current source in resistance welding machines. The transformers has water cooling.

Climatic version UHL4.

TVK-75 general form



TVK-75 diagram

Technical characteristics

Parameter		Value	
		TVK-75	TVK-75-1
Rated voltage of supply grid at 50 Hz frequency	V	380	380
Rated voltage of the primary winding	V	365	365
Continuous the primary current (at load cycle = 100%)	A	145	145
Continuous current of one secondary ring, min	kA	4,5	4,5
Continuous secondary current of the transformer during parallel activation of rings, min	kA	9,0	9,0
Power at load cycle = 50% on the maximum stage of adjustment, min	kVA	75	75
The number of stages		8	8
Secondary idle run voltage	V±2,5%	2,9…6,3	3,15…7,30
Insulation class		F	F
Cooling		water	water
Consumption of cooling water, min	l/min	4	4
Overall dimensions (L x W x H)	mm	607x170x460	607x170x460
Weight, max	kg	115	115

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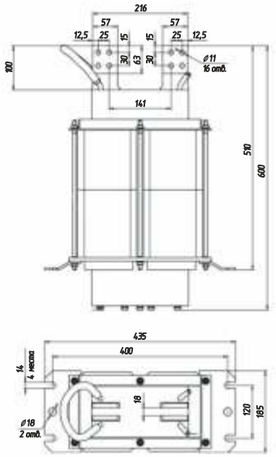
Transformers TK–80, TK–80.04

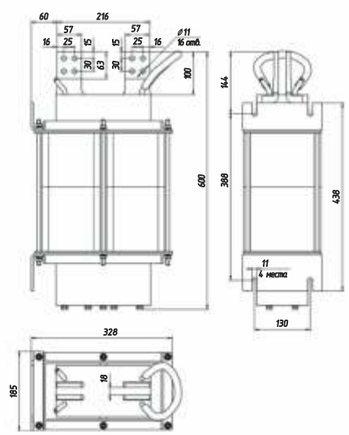
Transformers TK-80, TK-80.04 is intended as welding current source in resistance welding machines. The transformers has water cooling.

Climatic version UHL4.

TK-80 General form



TK 80 diagram



TK 80.04 diagram

Technical characteristics

Parameter		Value	
		TK-80	TK-80.04
Rated voltage of supply grid at 50 Hz frequency	V	380	380
Rated voltage of the primary winding	V	365	365
Continuous the primary current	A	155	155
Continuous current of one secondary ring, min	kA	4,5	4,5
Continuous secondary current of the transformer during parallel activation of rings, min	kA	9,0	9,0
Power at load cycle = 50% on the maximum stage of adjustment, min	kVA	80	80
Cooling		water	water
The number of stages		8	8
Limits of secondary voltage regulation	V±2,5%	2,9…6,3	2,9…6,3
Insulation class		F	F
Consumption of cooling water, min	l/min	4	4
Overall dimensions (L x W x H)	mm	600x185x435	600x185x328
Weight, max	kg	112	112

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Transformers for K–355 rail welding machines

Tailored transformers are used for suspended K-355 rail welding machines.
Climatic version UHL4.

K-355 general form

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	380
Rated voltage of the primary winding	V	380
Secondary idle run voltage, ±2,5%	V	6,3
Number of adjustment stages		1
Continuous current of one secondary ring, min	kA	8,3
Continuous secondary current of the transformer during parallel activation of rings, min	kA	16,6
Power at load cycle = 50%, min	kVA	75
Cooling		water
Consumption of cooling water, min	l/min	5
Insulation class		F
Overall dimensions (L x W x H)	mm	326 x 215 x 360
Weight, max	kg	160

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Transformers for K–1000 rail welding machines

The welding transformer is intended for use in resistance welding machines for rails. Climatic version UHL4.

K 1000 general form

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	380
Continuous primary current	A	394
Power continuous	kVA	150
Secondary idle run voltage	V	6,8
Current run voltage, max	A	35
Continuous secondary current	kA	22
Power at load cycle = 50%	kVA	212
Insulation class		F
Weight	kg	190

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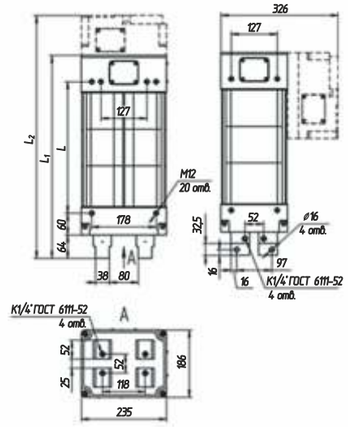
Transformers TK–301, TK–302, TK–401

Transformers TK-301, TK-302, TK-401 is intended as welding current source in resistance welding machines.

The transformers has water cooling.

Climatic version UHL4.

TK-301, TK-302, TK-401 general form



Diagram

Technical characteristics

Parameter		Value		
		TK-301	TK-302	TK-401
Rated voltage of supply grid at 50 Hz frequency	V	380		
Rated voltage of the primary winding	V	365		
Secondary idle run voltage, ±2,5%	V	3,0...5,0	5,0...7,0	7,0...10,0
Number of adjustment stages		4		
Number of independent secondary rings of the transformer		2		
Continuous current of one secondary ring, min	kA	2,80	3,20	3,55
Continuous secondary current of the transformer during parallel activation of rings, min	kA	5,60	6,40	7,10
Power at load cycle=50% on the maximum stage of adjustment, min	kVA	40	60	100
Primary winding current	A	78	122	194
Cooling		water		
Consumption of cooling water, min	l/min	4		
Insulation class		F		
Overall dimensions (L x W x H)	mm	184x470x235	184x560x235	184x695x235
Weight, max	kg	80	100	135

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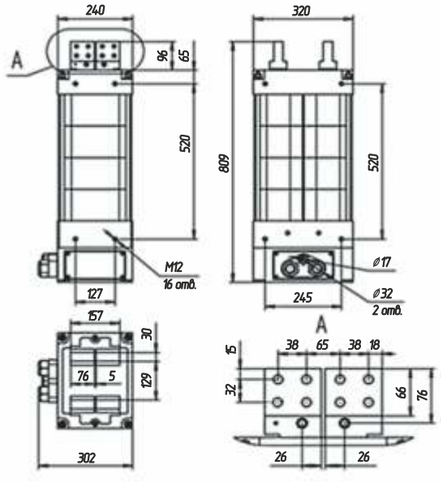
Transformers TK–501

Transformers TK-501 is intended as welding current source in resistance welding machines.
The transformers has water cooling.
Climatic version UHL4.

TK-501 general form



TK-501 diagram

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	380
Rated voltage of the primary winding	V	365
Secondary idle run voltage, ±2,5%	V	9,61...14,00
Number of adjustment stages		4
Number of independent secondary rings of the transformer		2
Continuous current of one secondary ring, min	kA	4,55
Continuous secondary current of the transformer during parallel activation of rings, min	kA	9,10
Power at load cycle = 50% on the maximum stage of adjustment, min	kVA	180
Cooling		water
Consumption of cooling water, min	l/min	5
Insulation class		F
Overall dimensions (L x W x H)	mm	240x320x809
Weight, max	kg	260

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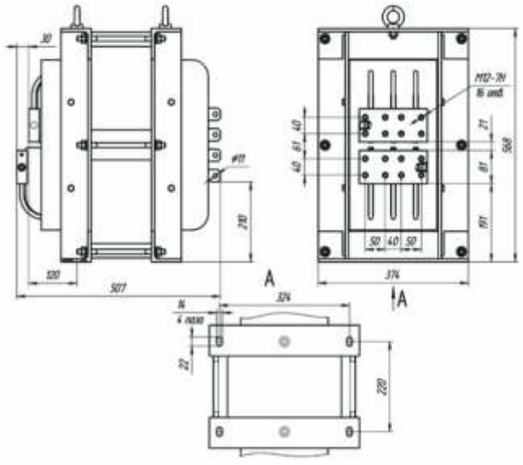
Transformers MS–20.08

MS-20.08 transformers are used as welding current source in resistance welding machines.
The transformers has water cooling.
Climatic version UHL4.

MS-20.08 general form



MS-20.08 diagram

Technical characteristics

Parameter		Values
Rated voltage of supply grid at 50 Hz frequency	V	380
Rated voltage of the primary winding	V	365
Continuous primary current (at load cycle = 100%)	A	180
Secondary idle run voltage, ±2,5%	V	4,05...8,10
Number of adjustment stages		16
Nominal stage		15
Number rings the secondary current		1
Current continuous secondary winding , min	kA	9,0
Power at load cycle = 50% on the maximum stage of adjustment, min	kVA	152
Insulation class		B
Cooling		water
Consumption of cooling water, min	l/min	5
Overall dimensions (L x W x H)	mm	568 x 374 x 507
Weight, max	kg	315

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Transformers TK–20.08

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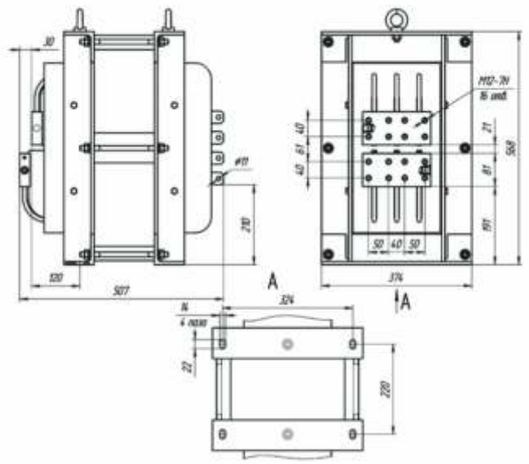
The transformers has water cooling.
Climatic version UHL4.

TK-20.08 general form



TK-20.08 diagram

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	380
Rated voltage of the primary winding	V	365
Continuous primary current (at load cycle = 100%)	A	180
Secondary idle run voltage, ±2,5%	±2,5%	4,05...8,10
Number of adjustment stages		16
Nominal stage		15
Number rings the secondary current		1
Current continuous secondary winding , min	kA	9
Power at load cycle = 50% on the maximum stage of adjustment, min	kVA	152
Insulation class		B
Cooling		water
Consumption of cooling water, min	l/min	5
Overall dimensions (L x W x H)	mm	568 x 374 x 477
Weight, max	kg	315

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Transformers TK–10.10, TK–11.09, TK–14.08

TK- 10.10, TK-11.09, TK-14.08 transformers are used as welding current source in resistance welding machines.

The transformers has water cooling.

Climatic version UHL4.

TK-10.10 general form

Technical characteristics

Parameter		Value		
		TK- 10.10	TK-11.09	TK-14.08
Rated voltage of supply grid at 50 Hz frequency	V	380		
Rated voltage of the primary winding	V	340		
Power continuous	kVA	95	95	102
Current at load cycle = 20% on the maximum stage of adjustment, min	kA	22	24	31
Number of adjustment stages		8	6	6
Control limits the secondary voltage	V	3,26...9,5	5,0...8,5	5,0...7,3
Insulation class		F		
Cooling		water		
Consumption of cooling water	l/min		8	
Overall dimensions (L x W x H)	mm	310x528x655	310x500x633	310x528x606
Weight, max	kg	267	283	285

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Transformers TK–05.05–1 EP

TK-05.05-1 EP transformers are used as welding current sources. They can be used for power supply to resistance welding tools (pincers, heads, Etc.) and microwelding.

The transformers are produced with air cooling device.

Climatic version UHL4.

TK- 05.05-1 EP general form

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	220
Power at load cycle=20%	kVA	25
Rated of the primary voltage	V	220
Limits of secondary idle run voltage regulation during sequential connection of secondary rings	V	1,26...5,0
Number of secondary voltage regulation stages		5
Continuous secondary current of one ring	A	660
The number of transformer secondary rings		3
Continuous primary current transformer at rated level	A	15
Insulation class		F
Overall dimensions (L x W x H), max	mm	280x300x240
Weight, max	kg	37

Transformers TK–20 EP, TKE–140

TK-20 EP, TKE-140 transformers are intended to supply for powerful welding machines as welding power sources.

The transformers has water cooling.

Climatic version UHL4.

Technical characteristics

Parameter		Value	
		ТК- 20 ЭП	ТКЭ-140
Rated voltage of supply grid at 50 Hz frequency	V	380	380
Rated voltage of the primary winding	V	335	335
Power continuous	kVA	177	157
Current at load cycle = 20% on the maximum stage of adjustment, min	kA	50	24
Number of adjustment stages		12	8
Control limits the secondary voltage	V	2,7...8	4,3...8,6
Insulation class		F	F
Cooling		water	water
Consumption of cooling water, min	l/min	4	4
Overall dimensions (L x W x H), max	mm	378x577x580	248x687x500
Weight, max	kg	362	280

Transformers TK SDOM 3–100

TK-SDOM-3/100 transformers for diffusion furnace is intended for operation in diffusion furnaces as a heating power source.
Climatic version UHL4.

TK SDOM 3-100 general form

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	220
Continuous primary current	A	60
Power at load cycle=50%	kVA	21
Primary idle current	A	3,9
Limits of secondary idle run voltage regulation during sequential connection	V	70/90/120
Number of adjustment stages		3
Continuous secondary current	A	125
Number of secondary windings of the transformer		3
Maximum secondary current at load cycle = 40%		190
Insulation class		F
Overall dimensions (L x W x H), max	mm	250x230x260
Weight, max	kg	65

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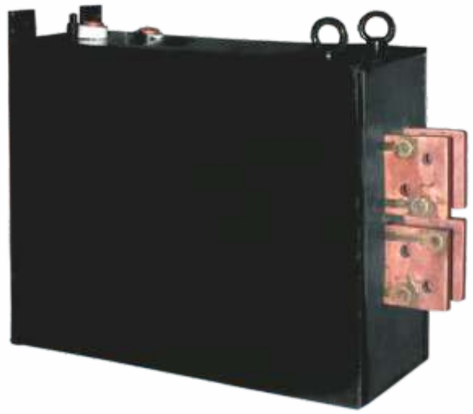
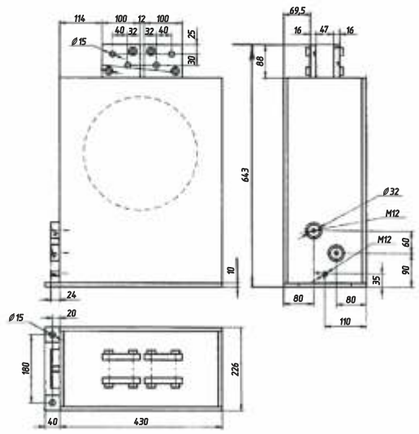
Transformers TK–14.06

TK-14.06 transformer are used as welding current source in resistance welding machines.
Climatic version UHL4.



TK-14.06 general form



TK-14.06 diagram

Technical characteristics

Parameter		Value
Rated voltage of supply grid at 50 Hz frequency	V	400
Power continuous	kVA	97,6
Power at load cycle = 50%	kVA	138,6
Idle run voltage of the secondary winding	V	6,6
Current continuous primary winding	A	247,5
Number of secondary independent windings of the transformer		2
Current continuous secondary winding	A	7425x2
Consumption of cooling water, min	l/min	5
Insulation class		F
Overall dimensions (L x W x H)	mm	643x226x430
Weight	kg	240

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CLIMATIC MODIFICATION AND PLACEMENT FOR RECORDS CATEGORY OF ELECTRICAL EQUIPMENT

Electrical equipment and products designed for use within certain macroclimatic areas on land, rivers and lakes, released in the following climatic versions according to russian standarts and represent respectively:

CLIMATIC MODIFICATION

N	With a temperate climate
NF (UHL)	With temperate and cold climate.
F	With a cold climate.
TH	With a humid tropical climate.
TA	With a dry tropical climate.
T	With a tropical climate.
U	General climatic modification.
M	Moderately cold marine.
TM	Tropical marine.
MU	Moderately cold Maritime tropical (for vessels of unrestricted navigation area).
W	All climate performance

PLACEMENT CATEGORY

Performance	Placement category	Air temperature				
		Operating		The maximum operating		
		Max	Min	Average	Max	Min
N	1,2	+40	-45	+10	+45	-50
	3	+40	-10	+10	+45	-10
F	1,2	+40	-60	+10	+45	-60
	3	+40	-10	+10	+45	-10
NF (UHL)	1,2	+40	-60	+10	+45	-60
	3	+40	-10	+10	+45	-10
TH	1,2	+25	+1	+27	+50	+1
	3	+45	+10	+20	+40	+1
T, TA	1,2,3	+45	-10	+27	+55	-10
	4	+45	+1	+27	+55	+1
U	1,2	+45	-60	+27	+55	-60
M	1	+40	-45	+10	+45	-50
TM	1	+45	+1	+27	+50	+1
MU	1	+45	-60	+27	+55	-60
W	1	+45	-60	+27	+55	-60

The digit which follows the letters states for the placement category:

1 - in the open air;
2 - in the open air with no direct solar radiation or atmospheric precipitation impact;
3 - in closed premises with no artificially adjusted climatic conditions;
4 - in closed heated or cooled ventilated premises;
5 - in premises with high humidity and no artificially adjusted climatic conditions.

TRANSFORMERS

«Technosvar KS», ltd.

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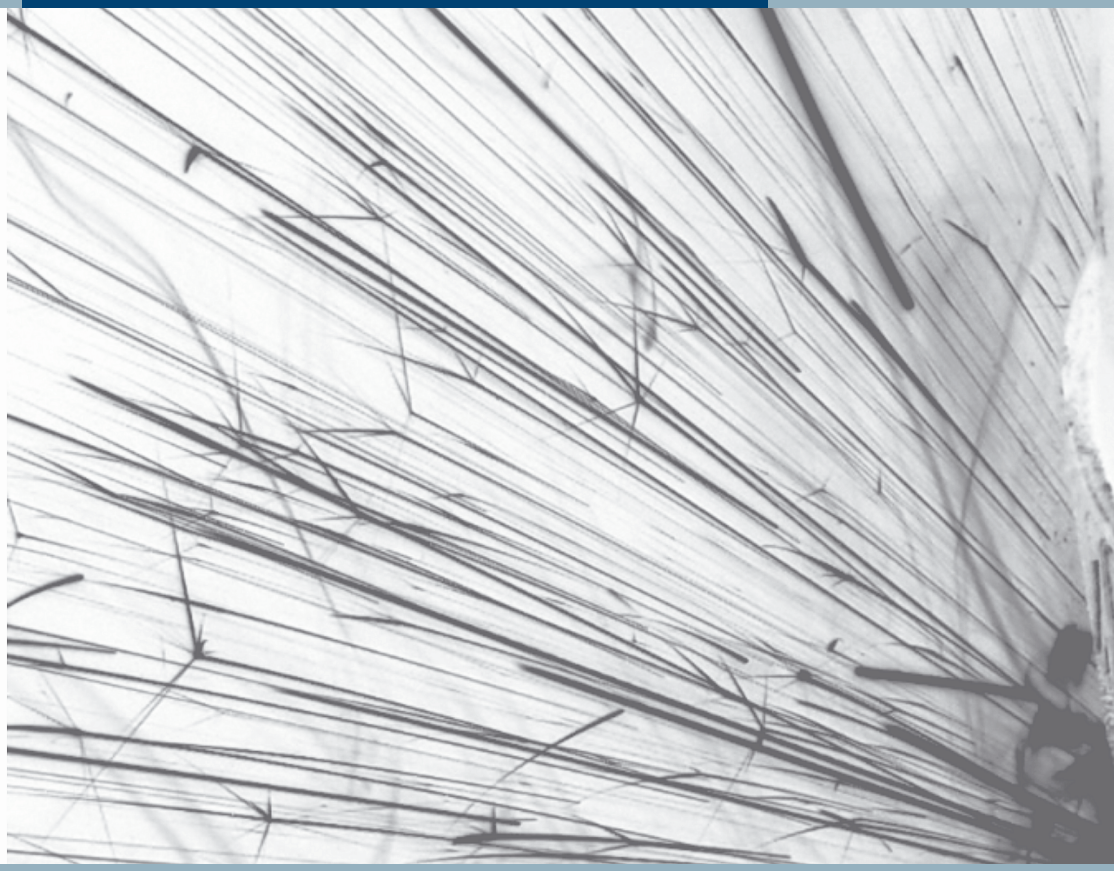
TECHNOSVAR
TECHNOLOGICAL CENTRE



PRODUCT CATALOGUE
CONTROL UNITS

CONTROL UNITS, RESISTANCE WELDING REGULATORS

Resistance welding regulator RKS–810

Resistance welding electronic regulator **RKS-810** is intended to control one-phase alternated current welding machines for spot resistance welding which have a thyristor contactor and a direct current valve.

RKS-810 - resistance welding regulator designed for spot welding.
RKS-810-SH - resistance welding regulator designed for seam welding.
RKS-810-U - multipurpose resistance welding regulator.

Technical specifications

Parameters		Value		
		RKS-810	RKS-810SH	RKS-810U
Supply voltage, 50 Hz frequency	V	380	380	380
Welding operations adjustment range, main supply period: **Compression 1** **Compression 2** **Modulation** **Current 1, length** **Current 2, length** **Postweld upsetting 1** **Postweld upsetting 2** **Pause**		 0-255 0-255 0-255 0-255 0-255 0-255 0-255 0-255	 0-255 0-255 0-255 0-255 0-255 0-255 0-255 0-255	 0-255 0-255 0-255 0-255 0-255 0-255 0-255 0-255
Average value of power supply voltage on the valves at 50 Ohm resistance, at normal circuit voltage	V	24 ± 1%	24 ± 1%	24 ± 1%
Parameters of pulse thyristors activation:				
Amplitude	V	24	24	24
The duration of pulse at 0,7 level from an amplitude value	Mks	100	100	100
The range of welding current adjustment with regard for $\cos\alpha$	%	0-100	0-100	0-100
The value of $\cos\alpha$		0,1 – 0,9	0,1 – 0,9	0,1 – 0,9
Operating mode with the skip of the period	Hz	25	25	25
Pedal push mode		2-cycle and 4-cycle	2-cycle and 4-cycle	2-cycle and 4-cycle
Operating mode		single cycle	single cycle	single cycle
Number of welding process programs		20	20	20
Max. input power	W	1,7	1,7	1,7
Max. weight	kg	1,3	1,3	1,3

CONTROL UNITS, RESISTANCE WELDING REGULATORS

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Thyristor contactors KTM–12, KTM–630V, KTM–07

KTM-12, KTM-630V, KTM-07 thyristor contactors are intended to equip spot, seam and projection resistance welding machines and are used for commutation and control of industrial frequency single-phase current when there is a control unit (for KTM-07) with synchronous activation of welding current.

KTM – 12

KTM – 630B

KTM – 07

The thyristor contactor operating is carried out by RKS and RSHS type synchronous welding regulators or similar devices producing output one-polar symmetric pulses with the following parameters:

- Voltage (20 ± 5) V at the resistance of 6,2 Ohm ± 5%;
- Duration (at level below 15 V) is 200 microseconds ± 100 microseconds and frequency two times exceeding the supply frequency.

Technical specifications

Parameters		Value		
		KTM -12	KTM -630B*	KTM-07*
Supply voltage, 50 Hz frequency	V	220 - 380	220 - 380	220 - 380
Rated current at duty cycle=50% and current pulse duration 0.5 s	A	1500	800	330
Rated current at duty cycle=20% and current pulse duration 0.5 s	A	1750	1000	480
Rated current at duty cycle=5% and current pulse duration 0.5 s	A	2200	1300	580
Overall dimensions (L x W x H)	mm	180 x 230 x 100	270 x 230 x 150	270 x 230 x 150
Max. weight	kg	5	6	6

* Air cooling

CONTROL UNITS, RESISTANCE WELDING REGULATORS

Resistance welding interrupter PK –1200, PK–1200M, PK–200, PK–200M

The interrupter is a special device which controls the welding alternate current in the primary circuit of resistance welding machines, it also controls electromagnetic pneumatic valves of compression drive in reference to specified welding mode.

Independent compact unit which includes:

- touch panel for welding cycle parameters input (5.7 inch/for models PK-200M and 1200M);
- resistance welding microprocessor regulator RKS-810;
- thyristor contactor (KTM-12 for PK-1200 and KTM-07 for PK-200);
- contact devices for external power circuits and control circuits connection;
- automatic breaker;
- rated voltage of one-phase power supply of alternate current ~380V (+5% -10%).

RKS-810 resistance welding microprocessor regulator provides:

- control of power thyristor contactor operating condition;
- control of external load connection circuits operating condition;
- higher reliability of operation under workshop conditions because of welding parameters reference input element absence and because of high degree of electronic components integration, decrease of wire mounting and contact connections;
- compensation of the supply voltage fluctuations influence on the welding current value (Changes of secondary short circuit current must not exceed ± of 3% of the rated value at fluctuations of power supply voltage from -10 % to +5 % of rated value).

Technical specifications

Parameters		Value	
		PK -1200	PK -200
Supply voltage, 50 Hz frequency	V	220 - 380	220 - 380
Rated current at duty cycle=50%	A	1500	330
Rated current at duty cycle=20%	A	1750	480
Overall dimensions (L x W x H)	mm	600 x 400 x 200	600 x 400 x 200
Max. weight	kg	16	16

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CONTROL UNITS

PRODUCT CATALOGUE

TECHNOSVAR

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