

**LARGE ELECTRIC
MACHINES
PLANT**

**NOMENCLATURE CATALOGUE
OF SYNCHRONOUS MACHINES**



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1. SYNCHRONOUS ELECTRIC MOTORS

ELECTRIC MOTORS OF СДН, СДНЗ, СДС, СДСЗ TYPES

Electric motors are designed to drive mechanisms without adjustment of rotational speed, and they are rated for operation in continuous mode S1 from AC network, 6000 V or 10000 V, 50 Hz or 60 Hz, $\cos \varphi=0,9$ (leading).

The motors can be made for voltage 6300 V, 6600 V for export to the countries with temperate and tropical climate.

Climatic version and allocation category of the motors - Y3 or T3.

Protection degree of the motors СДН, СДС — IP00 or IP11; СДНЗ, СДСЗ — IP43/IP00.

The motors are produced with plain bearings with ring or combined lubrication, with one or two shaft ends, on feet. At a customer's request the motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Terminals of the stator winding are brought in the terminal box or in base hole at a customer's request (it's agreed when manufacture of the motor is ordered).

Motors are cooled:

- with protection degree IP00 or IP11 by self-ventilation;
- with protection degree IP43 — by self-ventilation or by forced ventilation.

The thyristor excitors with control and self-regulating system of exciting current energize the motors.

At a customer's request the motors can be manufactured for other power, voltage and network frequency on the basis of above-mentioned machines.

Technical data on the motors for 6000 V are shown in Table 1, for voltage 10 000 V - in Table 2.

Overall and mounting dimensions for 6000 V motors are stated in Table 3, for 10 000 V motors – in Table 4.

Data in tables are given for electric motors manufactured for current frequency 50 Hz.

Table 1

6000 V

Type of the motor СДН/СДНЗ, СДС/СДСЗ	Power, kW	Rotational speed, rpm	Type of the motor СДН/СДНЗ, СДС/СДСЗ	Power, kW	Rotational speed, rpm
14-41-6Y3	800	1000	15-39-10Y3	1000	600
14-49-6Y3	1000	1000	15-49-10Y3	1250	600
14-59-6Y3	1250	1000	15-64-10Y3	1600	600
14-46-8Y3	800	750	15-34-12Y3	630	500
14-59-8Y3	1000	750	15-39-12Y3	800	500
14-41-8Y3	630	750	15-49-12Y3	1000	500
14-44-10Y3	630	600	15-21-16Y3	315	375
14-56-10Y3	800	600	15-26-16Y3	400	375
14-36-12Y3	400	500	15-34-16Y3	500	375
14-44-12Y3	500	500	15-41-16Y3	630	375
15-39-6Y3	1600	1000	15-29-20Y3	315	300
15-49-6Y3	2000	1000	15-36-20Y3	400	300
15-64-6Y3	2500	1000	16-54-10Y3	2000	600
15-76-6Y3	3200	1000	16-41-12Y3	1250	500
15-39-8Y3	1250	750	16-51-12Y3	1600	500
15-49-8Y3	1600	750	16-41-16Y3	1000	375
15-64-8Y3	2000	750	СДСЗ-16-81-12УХЛ4	3150	500
			СДСЗ-16-81-12УХЛ4	4000	500



Table 2

10000 V

Type of the motor СДН/СДНЗ, СДС/СДСЗ	Power, kW	Rotational speed, rpm	Type of the motor СДН/СДНЗ, СДС/СДСЗ	Power, kW	Rotational speed, rpm
14-49-6Y3	800	1000	15-64-8Y3	2000	750
14-59-6Y3	1000	1000	15-49-10Y3	1000	600
14-59-8Y3	630	750	15-64-10Y3	1250	600
14-59-8Y3	800	750	15-49-12Y3	630	500
15-39-6Y3	1250	1000	16-64-8Y3	2000	750
15-49-6Y3	1600	1000	16-54-10Y3	1600	600
15-64-6Y3	2000	1000	16-51-12Y3	1250	500
15-76-6Y3	2500	1000	16-41-16Y3	630	375
15-64-8Y3	1600	750	16-81-12Y3	3150	500

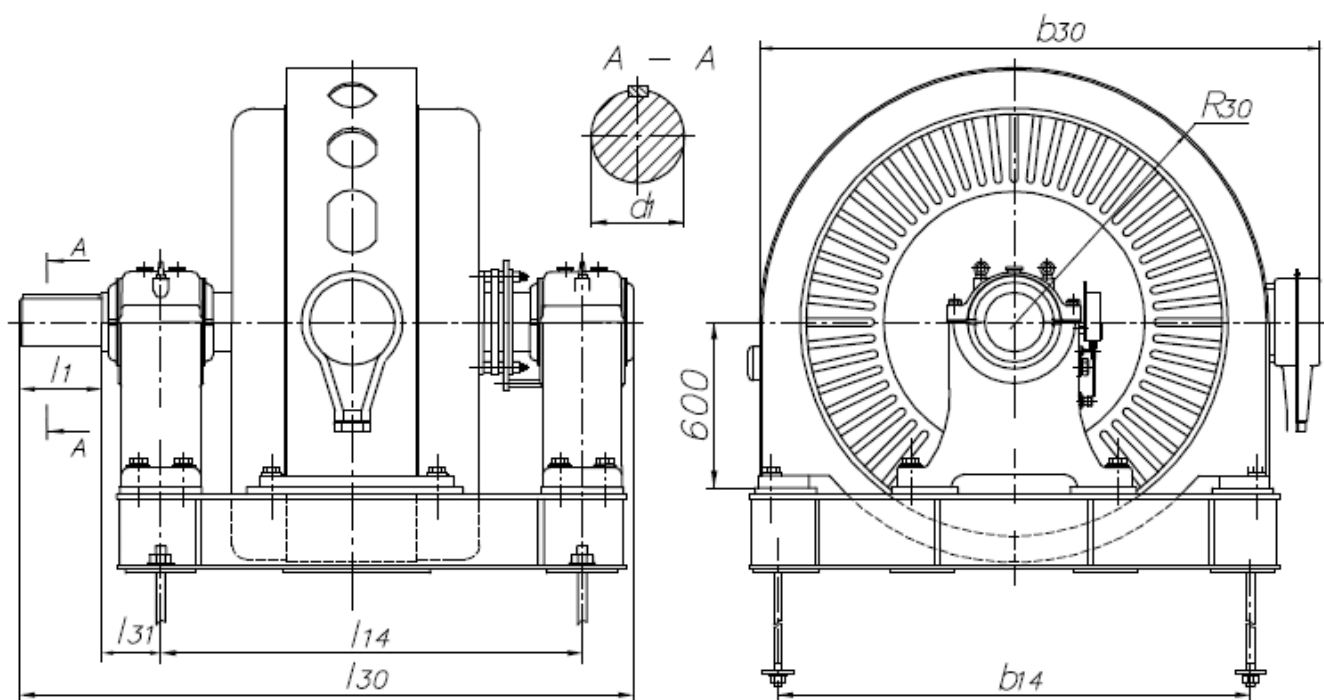




Table 3

6 000 V

Type of the motor СДН/СДНЗ, СДС/СДСЗ	Dimensions, mm										
	d ₁	l ₁	l ₁₄	l ₃₀	l ₃₁	R ₃₀	b ₁₄	b ₃₀			
14-41-6УЗ	130k6	250	1650/2130	2260/2740	190	750	1300	1800			
14-49-6УЗ			1750/2250	2360/2870							
14-59-6УЗ	140k6	250	1850/2350	2470/2970	195/190						
14-46-8УЗ			1650/2200	2260/2820	190/186						
14-59-8УЗ	140k6/150k6	250	1800/2350	2420/2970	195/190						
14-41-8УЗ	140k6/130k6		1600/2150	2210/2770	190						
14-44-10УЗ	130k6/140k6		1550/2150	2170/2770	190						
14-56-10УЗ	140k6/150k6		1650/2250	2270/2870	195						
14-36-12УЗ	120k6	210	1400/1650	1970/2230	185/191						
14-44-12УЗ	140k6	250	1500/1800	2120/2420	190/191						
15-39-6УЗ	160k6	300	1650/2150	2320/2820	195	900/950	1650/1900	2115/2330			
15-49-6УЗ	160k6	300	1750/2250	2420/2920	195						
15-64-6УЗ	180k6	300	1950/2500	2670/3230	220/219						
15-76-6УЗ	200k6	350	2050/2650	2820/3430	220/221						
15-39-8УЗ	160k6	300	1650/2150	2330/2830	195						
15-49-8УЗ	180k6	300	1750/2300	2470/3030	220						
15-64-8УЗ			1950/2450	2670/3180	220						
15-39-10УЗ	160k6	300	1550/2150	2220/2880	195/220						
15-49-10УЗ	180k6	300	1700/2250	2420/2980	220						
15-64-10УЗ			1800/2450	2520/3180							
15-34-12УЗ	140k6	250	1400/2050	2010/2730	190/220						
15-39-12УЗ	150k6	250	1550/2150	2170/2830	195/220						
15-49-12УЗ	180k6	300	1650/2200	2380/2930	220						
15-21-16УЗ	130k6	250	1300/1700	1910/2320	190						
15-26-16УЗ			1350/1800	1960/2420							
15-34-16УЗ	140k6	250	1400/1900	2010/2510	190						
15-41-16УЗ	160k6	300	1500/1950	2180/2620	195						
15-29-20УЗ	130k6	250	1400/1800	2020/2410	190						
15-36-20УЗ	140k6	250	1500/1850	2120/2480	190/195						
16-54-10УЗ	200k6	350	1800/2550	2600/3360	240	1050/1100	2030/2300	2495/2670			
16-41-12УЗ			1600/2200	2370/3020	220/240						
16-51-12УЗ			1740/2300	2545/3120	240						
16-41-16УЗ	180k6	300	1600/ -	2380/ -	220	1050/ -	2030/ -	2500/ -			
16-81-12УХЛ4	260k6	330	2720	3920	270	1100	1350	2500			



Table 4

10 000 V

Type of the motor СДН/СДНЗ, СДС/СДСЗ	Dimensions, mm							
	d ₁	l ₁	l ₁₄	l ₃₀	l ₃₁	R ₃₀	b ₁₄	b ₃₀
14-49-6У3	130k6	250	1750/2400	2360/3020	190	750	1300	1800
14-59-6У3	140k6		1900/2450	2520/3070	195/190			
14-59-8У3	140k6/150k6		1800/2350	2420/2970				
15-39-6У3	140k6	250	1800/2350	2430/2970	195	900/950	1650/1900	2115/2330
15-49-6У3	160k6	300	1900/2410	2570/3080				
15-64-6У3	160k6/180k6	300	2100/2600	2820/3330	220			
15-76-6У3	180k6/200k6	300/350	2220/2720	2940/3500				
15-64-8У3	180k6	300	1950/2450	2670/3180				
15-49-10У3			1800/2400	2520/3130				
15-49-12У3			1700/2310	2430/3020	220/195			
16-51-12У3	200k6	350	1900/2430	2720/3200	240	1050/1100	2030/2300	2500/2670
16-41-16У3	180k6	300	1600	2380/ -	220		2030/ -	2500/ -
16-64-8У3	200k6	350	2770	- /3560	240	- /1100	- /2300	- /2670
16-81-12У3	260k6	330	- /2720	- /3920	- /270			- /2500
16-54-10У3	200k6	350	- /2550	- /3660	240			- /2670

Dimensions given in tables with fraction: numerator shows data for motors in open version (IP 00), denominator shows data for motors in closed version (IP 43).



ELECTRIC MOTORS OF СДН-2, СДН3-2 SERIES

Electric motors are designed to drive mechanisms without adjustment of the rotational speed and rated for operation in continuous mode S1 from AC network, with voltage 6000 V, frequency 50 Hz or 60 Hz, $\cos \varphi=0,9$ (leading).

The motors can be made for voltage 6300 V, 6600 V for export to the countries with temperate and tropical climate.

Climatic version and allocation category of the motors - Y3 or T3

Degree of protection: СДН-2 motors — IP11; СДН3-2 motors — IP43.

The motors are produced with plain bearings with ring lubrication, with one shaft end, on feet.

At a customer's request the motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Terminals are brought in the terminal box.

The thyristor exciters with control and self-regulating system of exciting current energize the motors.

Motor cooling:

- with protection degree IP11 —self-ventilation;

- with protection degree IP43 —forced ventilation by closed or open cycle.

Technical data on motors for 50 Hz are stated in Table 5.

Overall and mounting dimensions are indicated in Table 6.

At a customer's request the motors can be manufactured for other power, voltage 10 000V on the basis of above-mentioned machines.

Table 5

Type of the motor СДН-2, СДН3-2	Power, kW	Rotational speed, rpm	Eff., %	Type of the motor СДН-2, СДН3-2	Power, kW	Rotational speed, rpm	Eff., %
16-31-6Y3	800	1000	95.3	17-44-10Y3	1250	600	95.5
16-36-6Y3	1000	1000	95.5	17-51-10Y3	1600	600	95.9
16-49-6Y3	1250	1000	95.9	17-64-10Y3	2000	600	96.1
16-59-6Y3	1600	1000	96.2	17-31-12Y3	800	500	94.3
16-74-6Y3	2000	1000	96.6	17-39-12Y3	1000	500	94.9
16-31-8Y3	630	750	94.3	17-49-12Y3	1250	500	95.3
16-36-8Y3	800	750	94.9	17-19-16Y3	315	375	91.1
16-46-8Y3	1000	750	95.4	17-21-16Y3	400	375	91.4
16-59-8Y3	1250	750	95.7	17-26-16Y3	500	375	92.5
17-44-8Y3	1600	750	95.9	17-31-16Y3	630	375	93.2
17-56-8Y3	2000	750	96.2	17-41-16Y3	800	375	94.1
17-71-8Y3	2500	750	96.5	17-26-20Y3	315	300	91
16-36-10Y3	630	600	94.4	17-31-20Y3	400	300	91.7
16-44-10Y3	800	600	94.9	17-41-20Y3	500	300	92.8
16-56-10Y3	1000	600	95.1				

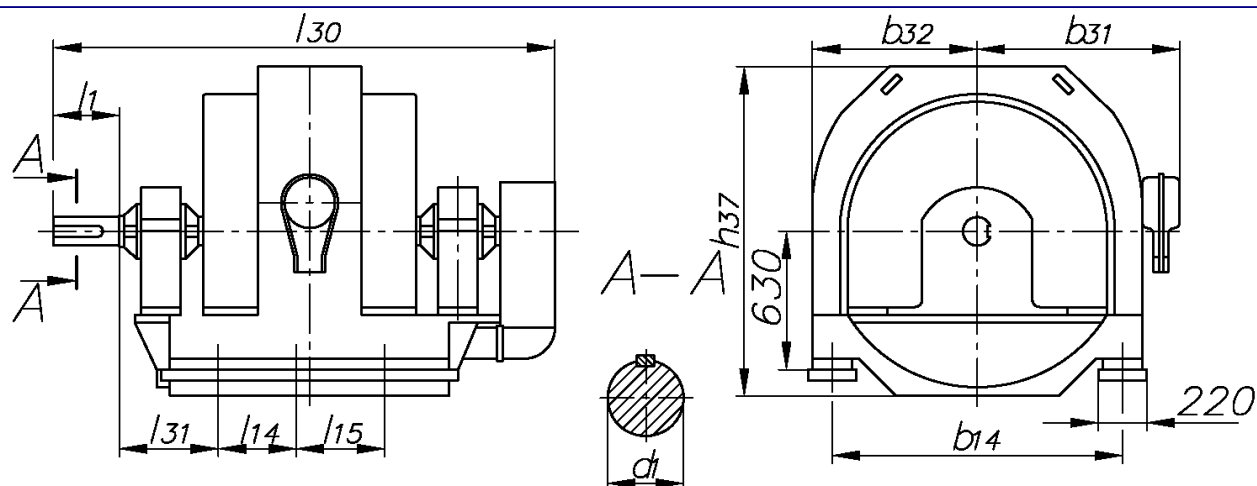


Table 6

Type of the motor СДН-2, СДНЗ-2	Dimensions, mm									
	d ₁	l ₁	l ₁₄	l ₁₅	l ₃₀	l ₃₁	b ₁₄	b ₃₁	b ₃₂	h ₃₇
16-31-6Y3	130k6	250	355	400	2280	450	1320	980	750	1500
16-36-6Y3			400	450	2300					
16-49-6Y3	140k6	250	500	450	2420					
16-59-6Y3			560	500	2580					
16-74-6Y3	160k6	300	630	560	2730					
16-31-8Y3			355	400	2280					
16-36-8Y3	140k6	250	400	450	2300					
16-46-8Y3	150k6	250	500	400	2400					
16-59-8Y3	160k6	300	560	500	2580					
17-44-8Y3	180k6	300	500	400	2410	425	1600	1125	925	1800
17-56-8Y3			560	450	2580	450				
17-71-8Y3	200k6	350	710	450	2790	425	1320	980	750	1500
16-36-10Y3	140k6	250	400	450	2250					
16-44-10Y3	150k6	250	500	400	2330	425	1600	1125	925	1800
16-56-10Y3	160k6	300	560	450	2510					
17-44-10Y3	180k6	300	500	400	2410	425	1600	1125	925	1800
17-51-10Y3	180k6	300	560	400	2530	450				
17-64-10Y3	200k6	350	630	450	2720	425	1600	1125	925	1800
17-31-12Y3	150k6	250	355	400	2210					
17-39-12Y3	180k6	300	400	450	2340	450	1600	1125	925	1800
17-49-12Y3	180k6	300	500	400	2490					
17-19-16Y3	130k6	250	280	315	2020	425	1600	1125	925	1800
17-21-16Y3			280	315	2040					
17-26-16Y3	140k6	250	280	355	2090					
17-31-16Y3	160k6	300	315	400	2200					
17-41-16Y3	180k6	300	355	450	2300					
17-26-20Y3	130k6	250	280	355	2090					
17-31-20Y3	140k6	250	315	400	2150					
17-41-20Y3	160k6	300	355	450	2300					



ELECTRIC MOTORS OF СДН-4, СДН3-4 SERIES

Electric motors are designed to drive mechanisms without adjustment of the rotational speed and rated for operation in continuous mode S1 from AC network, with voltage 6000 V or 10000 V, frequency 50 Hz or 60 Hz, $\cos \varphi=0,9$ (leading).

The motors can be made for voltage 6300 V, 6600 V for export to the countries with temperate and tropical climate.

Climatic version and allocation category of the motors - Y3 or T3

Degree of protection: СДН-4 motors — IP21; СДН3-4 motors — IP43.

The motors are produced with plain bearings with ring lubrication, with one shaft end, on feet.

At a customer's request the motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Terminals are brought in the terminal box.

The thyristor exciters with control and self-regulating system of exciting current energize the motors.

Motor cooling:

- with protection degree IP21 —self-ventilation;

- with protection degree IP43 —forced ventilation by closed or open cycle.

Technical data on motors for 50 Hz are stated in Table 7.

Table 7

Type of the motor СДН-4, СДН3-4	Power, kW	Rotational speed, rpm	Eff., %	Type of the motor СДН-4, СДН3-4	Power, kW	Rotational speed, rpm	Eff., %
16-800-6Y3	800	1000	95.3	17-1250-10Y3	1250	600	95.5
16-1000-6Y3	1000	1000	95.5	17-1600-10Y3	1600	600	95.9
16-1250-6Y3	1250	1000	95.9	17-2000-10Y3	2000	600	96.1
16-1600-6Y3	1600	1000	96.2	17-800-12Y3	800	500	94.3
16-2000-6Y3	2000	1000	96.6	17-1000-12Y3	1000	500	94.9
16-630-8Y3	630	750	94.3	17-1250-12Y3	1250	500	95.3
16-800-8Y3	800	750	94.9	17-315-16Y3	315	375	91.1
16-1000-8Y3	1000	750	95.4	17-400-16Y3	400	375	91.4
16-1250-8Y3	1250	750	95.7	17-500-16Y3	500	375	92.5
17-1600-8Y3	1600	750	95.9	17-630-16Y3	630	375	93.2
17-2000-8Y3	2000	750	96.2	17-800-16Y3	800	375	94.1
17-2500-8Y3	2500	750	96.5	17-315-20Y3	315	300	91
16-630-10Y3	630	600	94.4	17-400-20Y3	400	300	91.7
16-800-10Y3	800	600	94.9	17-500-20Y3	500	300	92.8
16-1000-10Y3	1000	600	95.1				



ELECTRIC MOTORS OF CДC3-2 TYPE

Synchronous electric motors CДC3-2 are used to drive disk mills without adjustment of rotational speed, and they are rated for operation in continuous mode S1 from AC network, with voltage 6000 V, 50 Hz, $\cos \varphi = 0.9$ (leading).

Climatic version: УХЛ4 by GOST 15150.

Degree of protection for motors - IP43; for the motor CДC3-2-17-49-12 – IP54/55/23.

Constructive mounting arrangement - M7611 by GOST 2479-79. The motors are manufactured on plain thrust bearings, and by customer's request motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

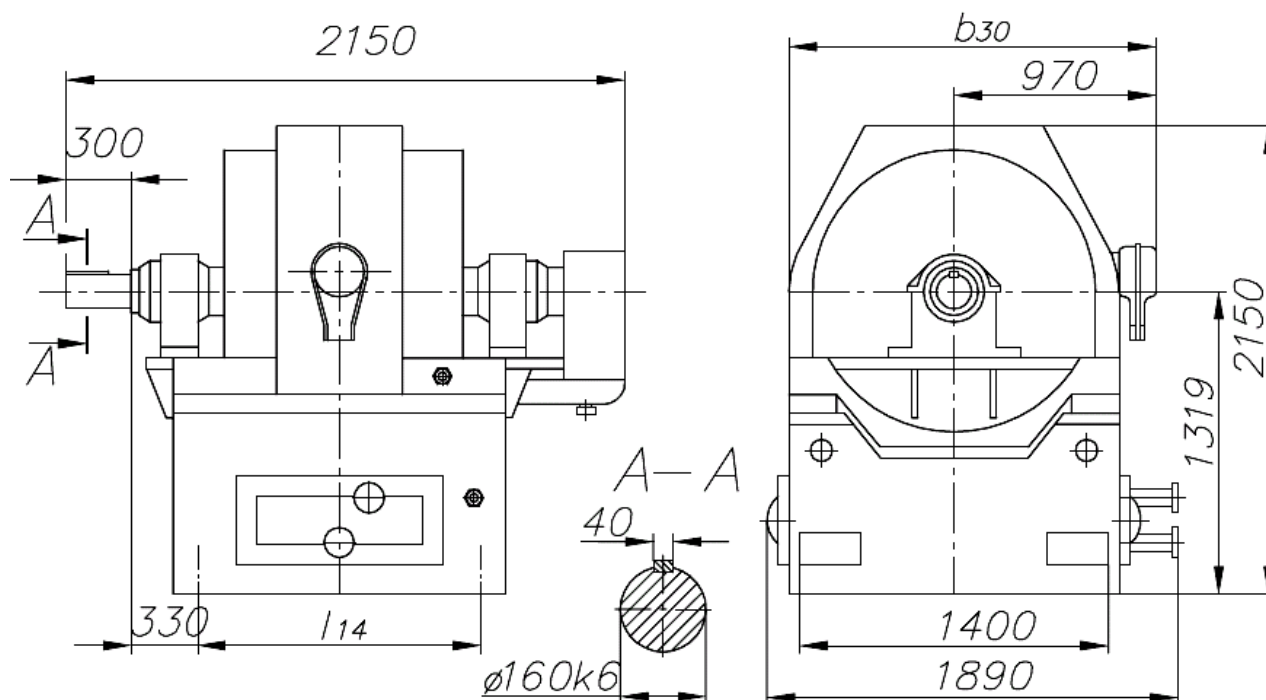
The thyristor exciters with control and self-regulating system of exciting current energize the motors.

Cooling way – ICW37 A81 by GOST 20459-87 – aerial, in self-ventilation by closed cycle.

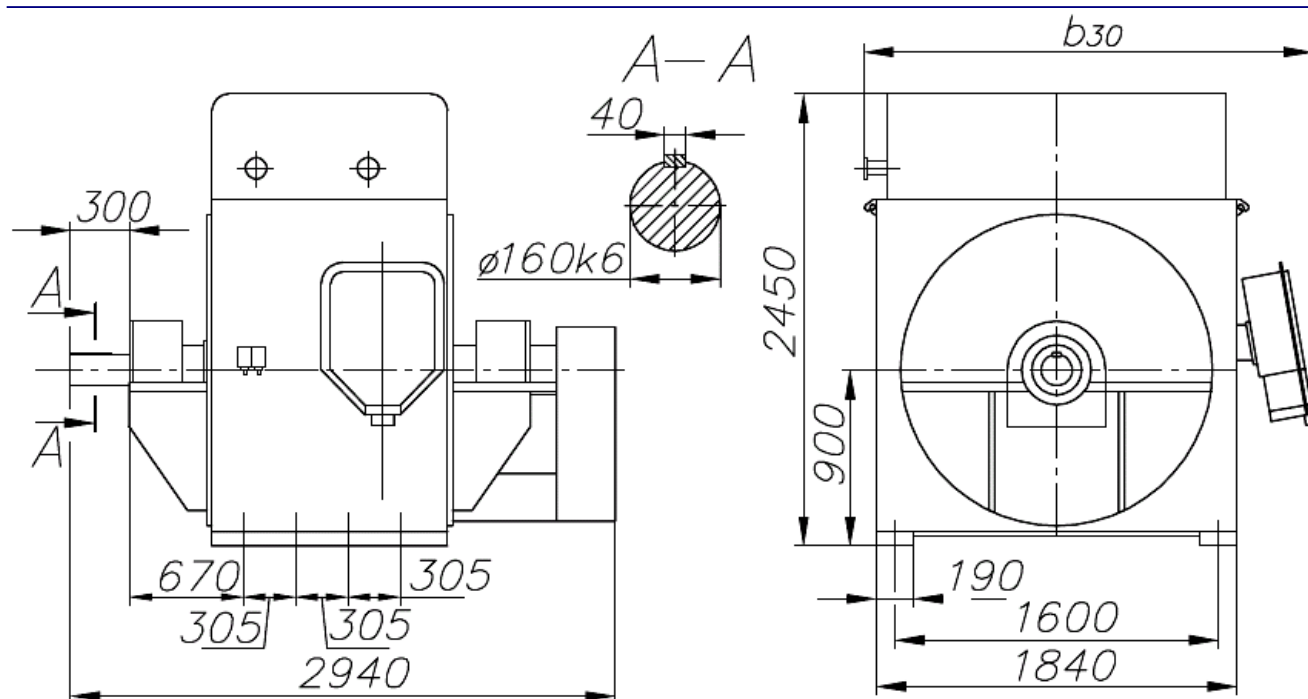
Technical data on motors are shown in Table 8.

Table 8

Motor type	Power, kW	Rotational speed, rpm	Eff., %	Weight, kg	Dimensions, mm	
					l_{14}	b_{30}
CДC3-2-16-56-10УХЛ4	1000	600	95.1	8700	1440+3	1730
CДC3-2-16-59-6 УХЛ4	1600	1000	96.2	8700	1510+3	
CДC3-2-17-49-12 УХЛ4	1250	500	95.5	11 500	-	2425



Electric motors CДC3-2 (the 16th size)



Electric motor СДС3-2-17-49-12 УХЛ4



ELECTRIC MOTORS OF СДР3, 2СДР TYPES

Electric motors are designed to drive mechanisms operating in conductive fine carbon medium (masticators and others).

The motors are rated for operation in continuous mode S1 from AC network, 50 Hz and 60 Hz, 6000 V, $\cos \varphi = 0,9$.

The motors can be made for voltage 6300 V, 6600 V and 10000 V, for 60 Hz, for export to the countries with temperate and tropical climate.

Climatic version and installation category of СДР3 motors - Y3 or T3, motors 2СДР - УХЛ4.

Degree of protection – IP54.

Constructive mounting arrangement - IM 7601 or IM 7621 by GOST 2479-6579. The motors are manufactured on rolling bearings with horizontal shaft, with one free cylindrical shaft end.

At a customer's request motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Complete devices with static exciting system with self- regulation of exciting current energize the motors.

Cooling way of the motor: ICW37 A86.

The motor is coupled with the operating mechanism by means of a flexible coupling.

Technical data of СДР3 motors are given in the Table 9 and Figure 1.

Technical data of 2СДР motors are given in the Table 10 and Figure 2.

Table 9

Type of the motor	Power, kW	Rotational speed, rpm	Eff., %	l_{17} , MM	l_{30} , MM	Weight, kg
СДР3-14-59-6Y3	800	1000	94.6	1800	2010	8900
СДР3-14-59-8Y3	630	750	94.0	1800	2010	8800
СДР3-14-36-8Y3	315	750	92.6	1570	1780	7200
СДР3-14-56-10Y3	400	600	92.8	1800	2010	8200
СДР3-14-56-12Y3	315	500	92.5	1800	2010	7700

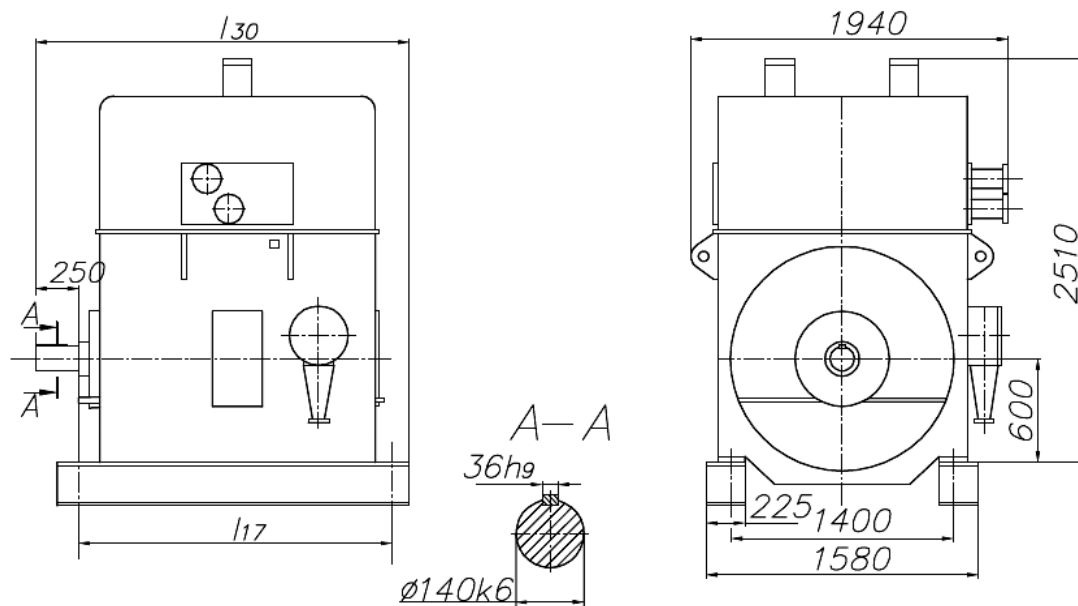


Fig. 1 CDP3 electric motors

Table 10

Type of the motor	Power, kW	Rotational speed, rpm	Eff., %	Dimensions, mm			Weight, kg
				l_{10}	l_{30}	l_{31}	
2CDP 710-43-10УХЛ4	400	600	94.0	800	1970	335	8200
2CDP 710-54-6УХЛ4	800	1000	95.5	1000	2190	315	8900

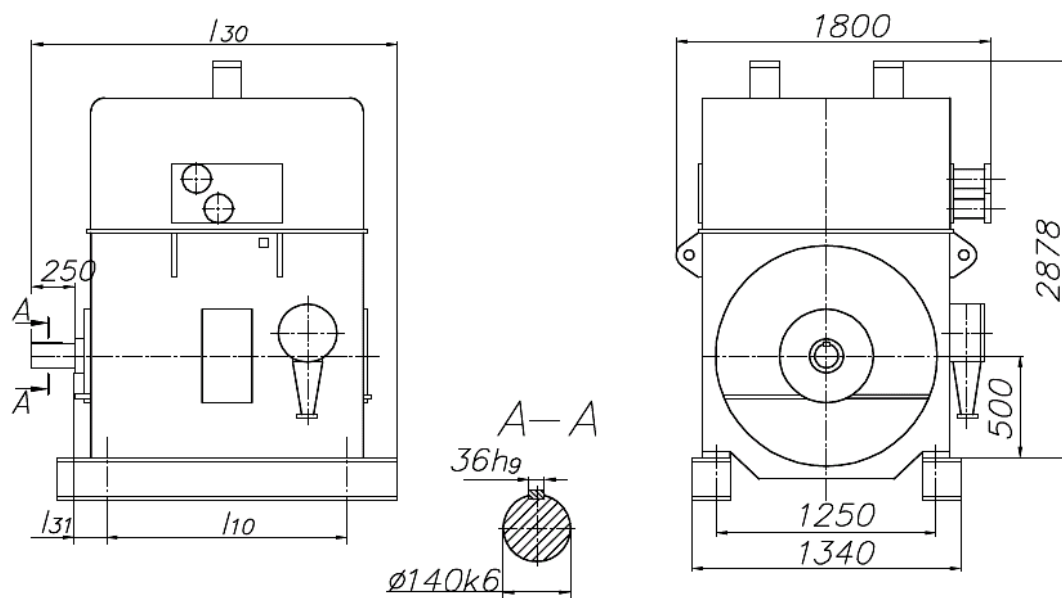


Fig. 2 2CDP electric motors



ELECTRIC MOTORS $\text{C}\mathcal{D}\text{C}$ (3) IN THE 17TH ... 20TH FRAMES

Synchronous $\text{C}\mathcal{D}\text{C}$ motors in the 17th...20th frames and $\text{C}\mathcal{D}\text{C}3$ motors in the 17th frame are designed to drive ore-pulverizing, raw or cement mills used in production lines of ore dressing or cement enterprises.

Motors are rated to operate from AC network, 50 Hz, with voltage 6 000 V, in continuous S1 operating mode by GOST 183, with power factor $\cos \varphi = 0,9$ (leading). The motors can be made for voltage 3 000 V or 10 000 V.

Degree of protection of the case of $\text{C}\mathcal{D}\text{C}$ motor in the 19th, 20th frames - IP00, of $\text{C}\mathcal{D}\text{C}$ motors in the 17th, 18th frames – IP21, of $\text{C}\mathcal{D}\text{C}3$ motors – IP43. At a customer's request $\text{C}\mathcal{D}\text{C}$ motors in the 19th, 20th frames can be also manufactured with protection degree IP21.

Climatic version and installation category - УХЛ4.

Constructive mounting arrangement:

- $\text{C}\mathcal{D}\text{C}$ motors in the 18th frame - **IM7311** or **IM7312** by GOST 2479: on foundation plate, with two plain pedestal bearings, on lifted feet, with one or two cylindrical shaft ends;
- $\text{C}\mathcal{D}\text{C}$ motors in the 19th frame - **IM 7311** by GOST 2479, with horizontal shaft, on foundation plate, with two plain pedestal bearings, on lifted feet, with one cylindrical shaft end;
- $\text{C}\mathcal{D}\text{C}(3)$ motors in the 17th, 20th frame - **IM7321** or **IM7322** by GOST 2479: on foundation beams, with two plain pedestal bearings, on lifted feet, with one or two cylindrical shaft ends.

Constructive version by cooling way:

- $\text{C}\mathcal{D}\text{C}$ motors - ICA01 by GOST 20459 (self-ventilation by open cycle, with cooling air intake from the working area through holes in end shields and with heated air discharge through the side holes or shutters in the stator case jacket);
- $\text{C}\mathcal{D}\text{C}3$ motors - ICW37A81 by GOST 20459 (air cooler is installed directly on the motor case), or ICW37A97 by GOST 20459 (air cooler is installed in the foundation pit).

Heat-resistance of insulating materials of the stator and rotor motor winding is not below class "F".

The thyristor exciters energize the motors.

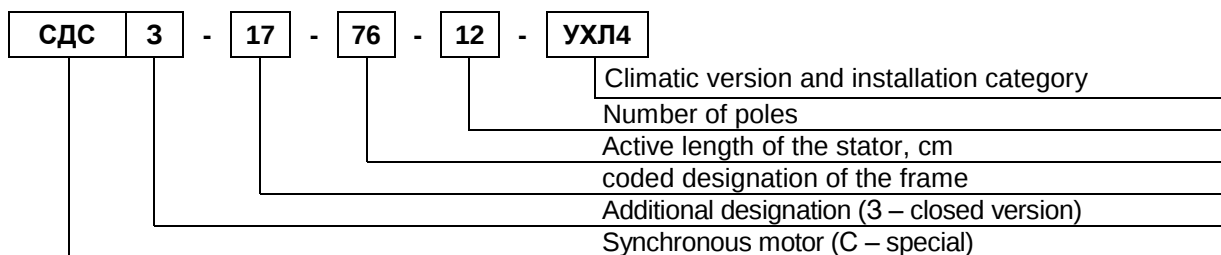
The motor has temperature control for winding and stator core, bearings.

Terminals of stator winding can be located in the terminal box or can be brought downwards, in the foundation hole (it's agreed, when motor production is ordered).

$\text{C}\mathcal{D}\text{C}$ motors are designed to be installed in premises with rock-dust density not over 0,2 mg/m³, $\text{C}\mathcal{D}\text{C}3$ motors – not over 2 mg/m³; environment is non-flammable, non-explosive, it doesn't contain aggressive gases and steam, it meets atmosphere type II by GOST 15150.

The $\text{C}\mathcal{D}\text{C}$ and $\text{C}\mathcal{D}\text{C}3$ motor designations are decoded as follows:

$\text{C}\mathcal{D}\text{C}3$ 17-76-12 УХЛ4



Technical data of the motor are given in the Table 11.

Overall and mounting dimensions of the motors are given:

- $\text{C}\mathcal{D}\text{C}$ in the 17th, 19th, 20th frame – in figure 3 (table 12);
- $\text{C}\mathcal{D}\text{C}$ in the 18th frame – in figure 4 (table 12);
- $\text{C}\mathcal{D}\text{C}3$ in the 17th frame – in figures 5, 6 (Table 12);

At a customer's request, motors for other power and voltage 3 000 V или 10 000 V can be manufactured on base of above-mentioned motors.

At a customer's request, motors with other mounting dimensions, which are different from sizes given in the Table 12, can be also manufactured.



Table 11

Type of the motor СДС, СДСЗ	Power, kW	Mounting construction	Construction by cooling way	Voltage, V	Rotational speed, rpm
СДС-17-59-12 УХЛ4	3200	IM 7321 (IM 7322)	ICA01	6 000	500
СДСЗ-17-59-12 УХЛ4			ICW37A97		
СДС-17-76-12 УХЛ4			ICA01	10 000	
СДСЗ-17-76-12 УХЛ4			ICW37A81		
СДС 18-26-36 УХЛ4	550	IM 7311 (IM 7312)	ICA01	3 000	166,5
СДС 18-51-36 УХЛ4	1000			10 000	
СДС 18-51-36 УХЛ4	1120			6 000	
СДС 18-51-36 УХЛ4	1250				
СДС 18-51-32 УХЛ4	1250	IM 7311 (IM 7312)	ICA01	6 000	187,5
СДС-19-46-40 УХЛ4	2000	IM 7311	ICA01	6 000	150
СДС-19-56-40 УХЛ4	2500				
СДС-19-61-40 УХЛ4	2800				
СДС-19-67-40 УХЛ4	3150	IM 7321			
СДС-19-91-40 УХЛ4	4500				
СДС-19-46-48 УХЛ4	1600	IM 7311	ICA01	6 000	125
СДС-19-56-48 УХЛ4	2000				
СДС-20-34-60 УХЛ4	1600	IM 7321 (IM 7322)	ICA01	6 000	100
СДС-20-41-60 УХЛ4	2000				
СДС-20-49-60 УХЛ4					

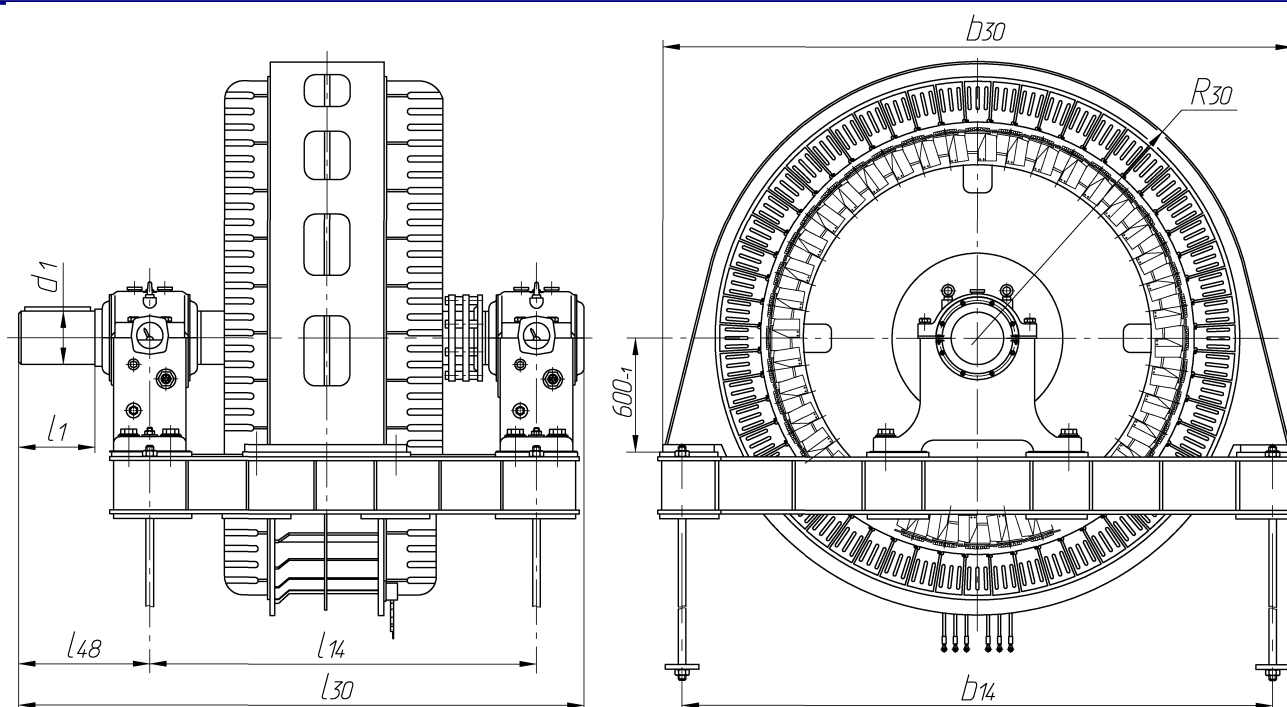


Fig. 3: Electric motors of **CDC** type in the 17th, 19th, 20th frames..
Mounting version IM7311, by cooling way ICA01

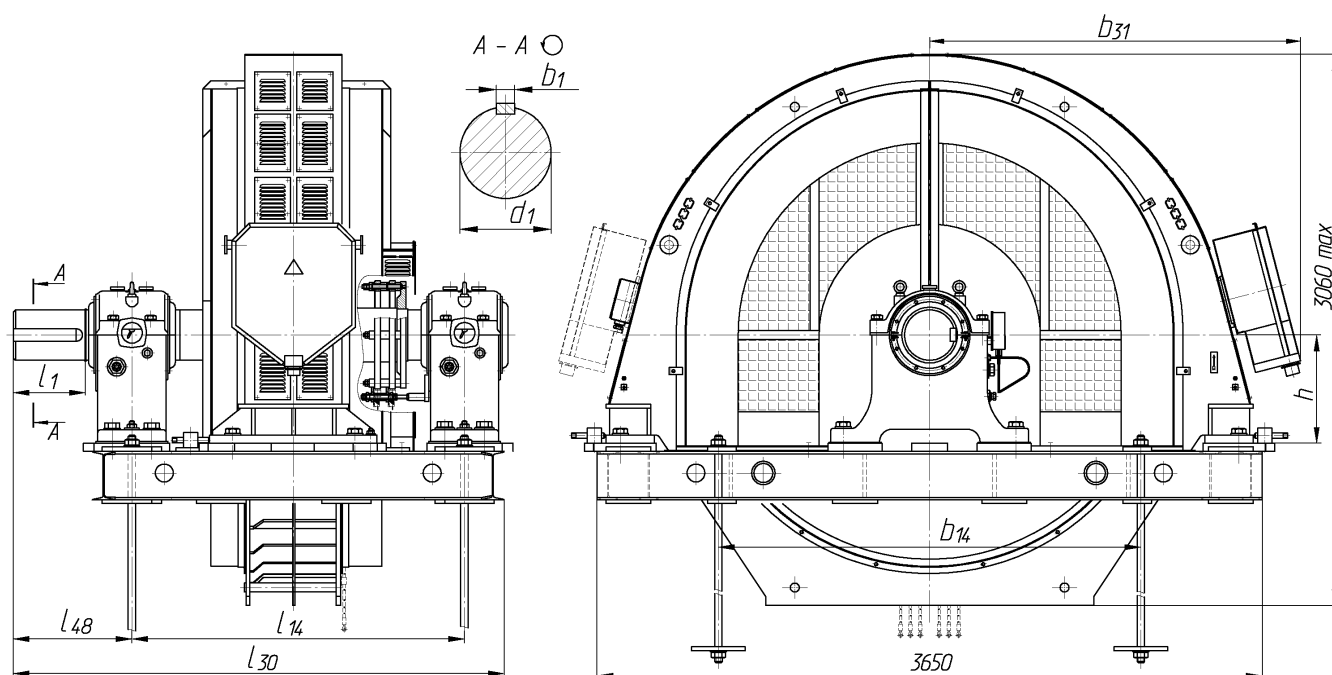


Fig. 4: Electric motors of **CDC** type in the 18th frame. Mounting version IM7311, by cooling way ICA01

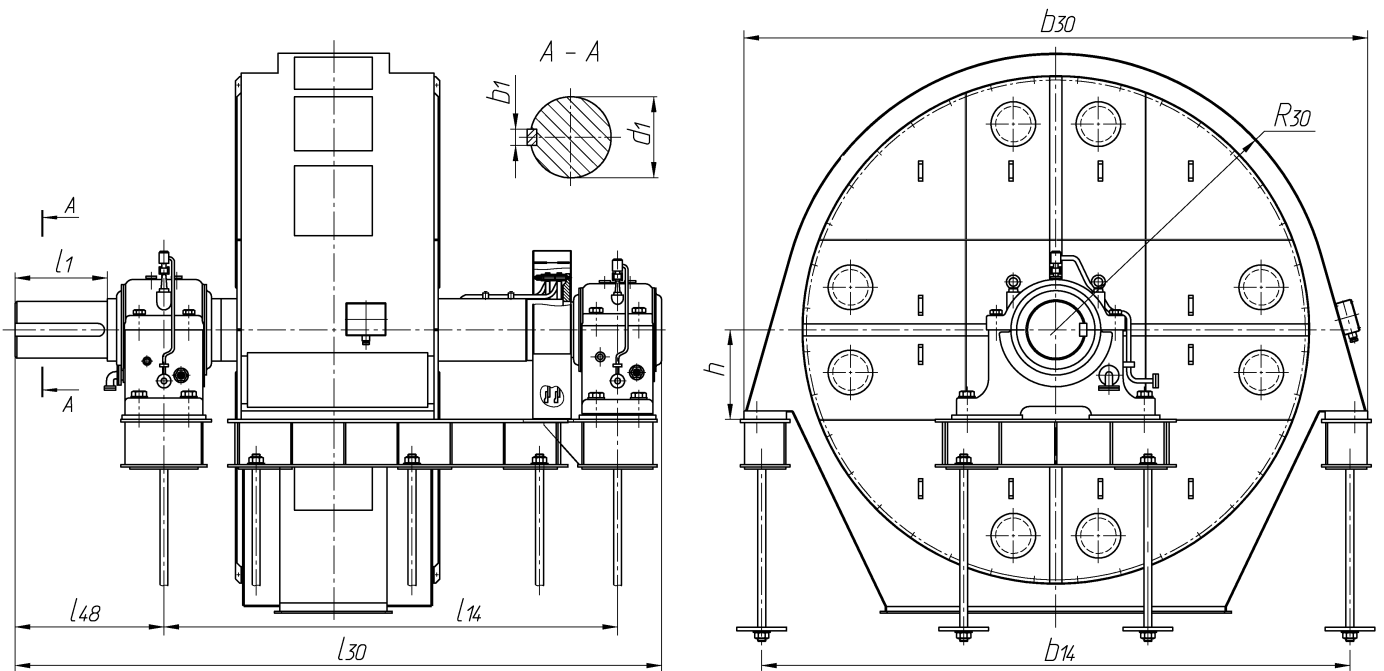


Fig. 5: Electric motors of **CДC3 type in the 17th frame.**
Mounting construction **IM7321**, by cooling way **ICW37A97**

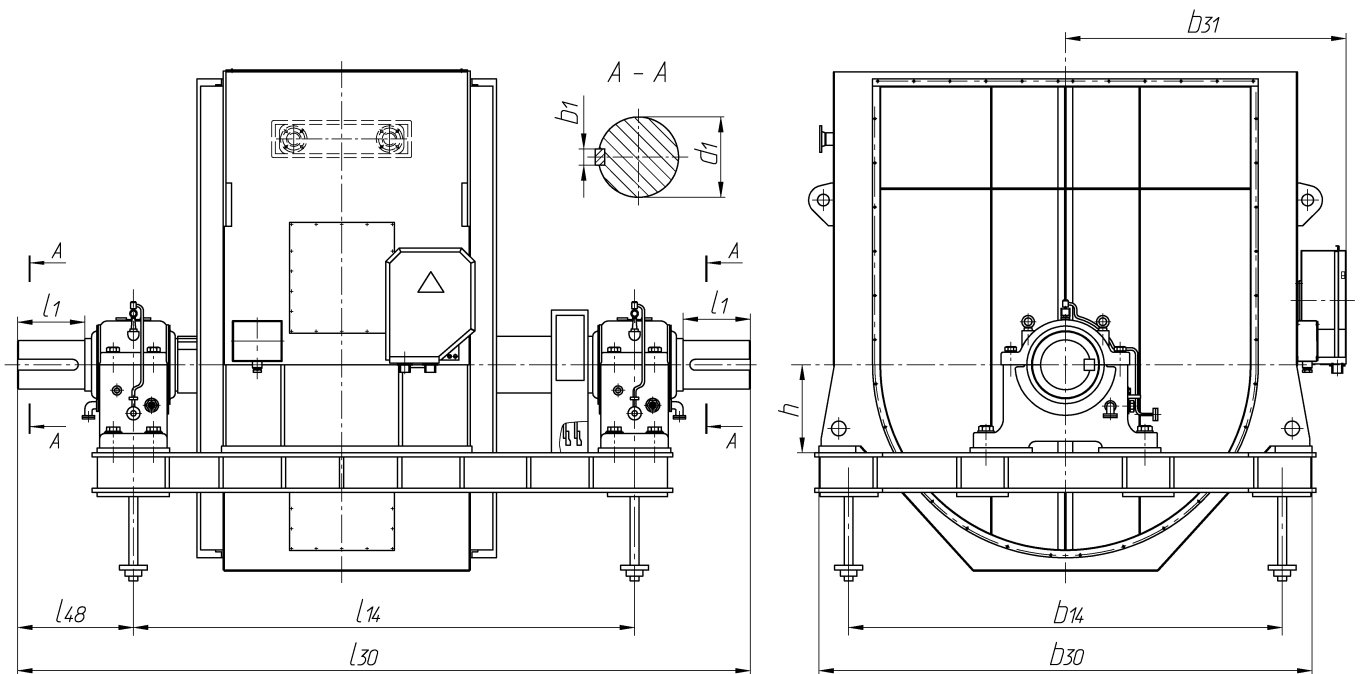


Fig. 6: Electric motors of **CДC3 type in the 17th frame.**
Mounting construction **IM7322**, by cooling way **ICW37A81**



Table 12

Motor type	Dimensions, mm										
	d_1	l_1	l_{14}	l_{30}	l_{48}	b_1	b_{14}	b_{30}	b_{31}	R_{30}	h
СДС -17-59-12 УХЛ4 СДС3-17-59-12 УХЛ4	240k6	330	2600	3860	630	56	2950	3300	-	1400	600
СДС -17-76-12 УХЛ4 СДС3-17-76-12 УХЛ4	300k6	470	3950	5550	800	70	3100	3350	1925	-	600
СДС 18-26-36 УХЛ4	220	350	1600	2420	600	63	2900	3600	1800/2250	-	600
СДС 18-51-36 УХЛ4 СДС 18-51-32 УХЛ4	280r6	400 (or 470)	1850	2750 (or 2825)	660 (or 55)	70 (or 63)	2350				600 (or 630)
СДС-19-46-40 УХЛ4	400s7	600	1900	3180	950	90	4100	4400	2600	1950	600
СДС-19-56-40 УХЛ4 СДС-19-61-40 УХЛ4			2000	3280							
СДС-19-46-48 УХЛ4 СДС-19-56-48 УХЛ4	400s7	600	2000	3280	950	90	4100	4400	2600	1950	600
СДС-19-67-40 УХЛ4	400k6	650	3200	4600	1050	90	4150	4400	2600	1950	630
СДС-19-91-40 УХЛ4	500k6	650	4250	5685	1100	100	4300	4600	2600	1980	630
СДС-20-34-60 УХЛ4	360k6	550	2650	3780	910	80	5650	6000	-	2700	600 (630)
СДС-20-41-60 УХЛ4			2800	4020							
СДС-20-49-60 УХЛ4	420k6	600	2850	4150	955	$\frac{30}{108,2}$	5800	6200	-	2700	600
СДС-20-49-60 УХЛ4	400k6	800	2500	4000	1160	$\frac{26}{98,6}$	5400	5700	-	2700	600

Note 1: Dimension b_1 given in the table with fraction are specified for motors with tangential keys on the output shaft end: numerator shows width of the key, denominator – height of pair of keys.

Note 2: Dimension b_{31} given in the table with fraction: numerator shows data for the motors without terminal box, denominator – for the motors with terminal box.



ELECTRIC MOTORS OF CDM, CDB TYPES

Synchronous electric motors of CDM type are used to drive cement and raw crumbers and rated for operation in continuous mode S1 from AC network, 50 Hz, 6000 V, $\cos \varphi=0.9$.

Synchronous electric motors of CDB type are used to drive fans and other mechanisms with high moment of inertia of rotating parts, and they are rated for operation in continuous mode S1 from AC network, 50 Hz or 60 Hz, 6000 V, $\cos \varphi=0.9$.

Climatic version and installation category of the motors – Y3.

Degree of protection - IP00.

The motors are made on plain bearings with ring lubrication, with one or two shaft ends. At a customer's request motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Terminals of the stator winding can be located in the terminal box or brought downwards in base hole.

The thyristor exciters with control and self-regulating system of exciting current energize the motors.

Way of cooling is self-ventilation.

Technical data on the motors are shown in Table 13.

Overall and mounting dimensions are stated in Table 14.

Table 13

Type of the motor	Power, kW	Rotational speed, rpm	Eff., %
СДМ-15-49-6У3	1600	1000	95.7
СДМ-15-64-6У3	2000	1000	95.9
СДМ-15-49-8У3	1250	750	95.3
СДВ-15-39-10У3	800	600	94.3
СДВ-15-49-10У3	1000	600	94.8
СДВ-15-64-10У3	1250	600	95.3
СДВ-15-64-10У3	1600	600	95.2
СДВ-15-34-12У3	500	500	93.0
СДВ-15-49-12У3	800	500	94.0
СДВ-16-41-12У3	1250	500	94.5
СДВ-16-51-12У3	1600	500	95.3
СДВ-16-64-12У3	2000	500	95.3
СДВ-16-41-16У3	1000	375	94.1

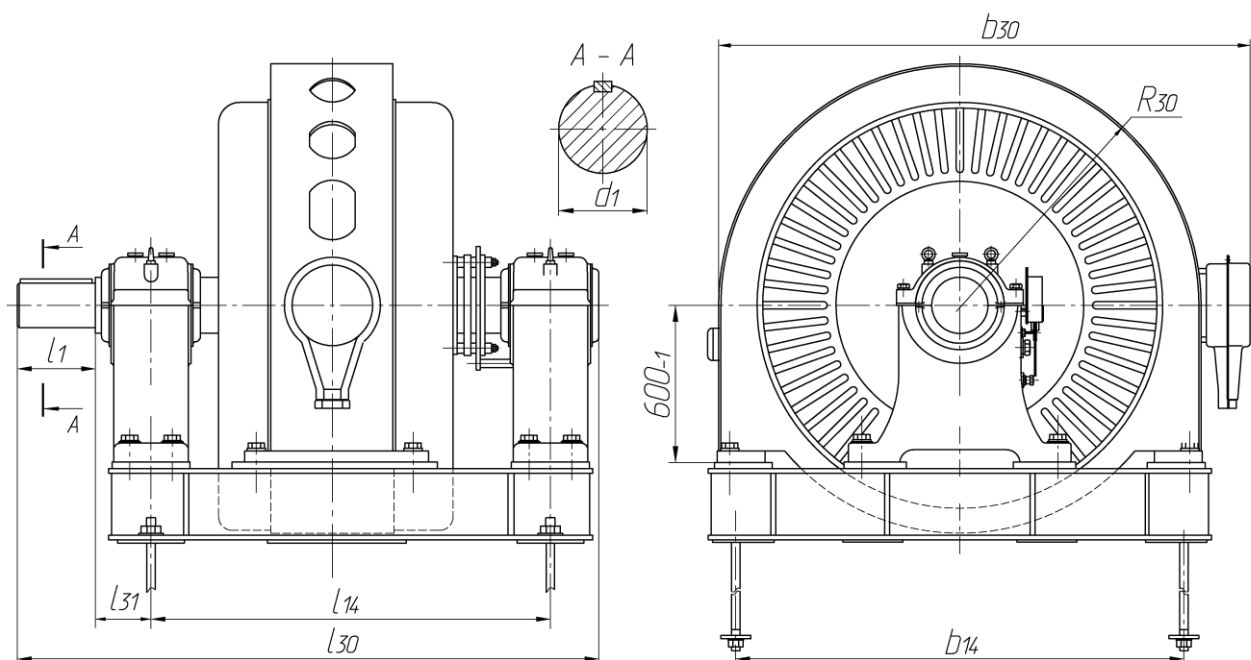


Table 14

Type of the motor	Dimensions, mm							
	d_1	l_1	l_{14}	l_{30}	l_{31}	R_{30}	b_{14}	b_{30}
СДМ-15-49-6У3	180 k6	300	1750	2480	220	900	1650	2115
СДМ-15-64-6У3			1950	2670				
СДМ-15-49-8У3			1750	2480				
СДВ-15-39-10У3	160 k6	300	1550	2230	195			
СДВ-15-39-10У3	220 k6	350		2330	250			
СДВ-15-49-10У3	180 k6	300	1700	2420	220			
СДВ-15-64-10У3			1800	2540	240			
СДВ-15-64-10У3			1800	2540	240			
СДВ-15-34-12У3	160 k6	300	1450	2120	195			
СДВ-15-49-12У3	220 k6	350	1700	2490	240			
СДВ-16-41-12У3	200 k6	350	1600	2380	220	1050	2030	2500
СДВ-16-51-12У3	220 k6	350	1740	2560	240			
СДВ-16-64-12У3	240 k6	410	1950	2850	260			
СДВ-16-41-16У3	220 k6	350	1650	2450	240			



ELECTRIC MOTORS OF CDM3(2) TYPE

Synchronous motors of CDM(3)2 type are designed to drive ore- and coal-pulverizing, raw and cement mills, used in production lines of mining-and-processing integrated works, cement plants and TPS. The motors can be used both for new plants and for replacing the motors of old series installed before.

Motors are rated for operation from AC network, 50 Hz, with voltage 6000 V or 10000 V.

Construction of the motors:

- by mounting arrangement - **IM7321** or **IM7322** by GOST 2479: on foundation beams, with two plain pedestal bearings, on lifted feet, with one or two cylindrical shaft ends;
- by degree of protection of slip rings - IP 11 (GOST 17494);
- by climatic version and installation category - YXL4(GOST 15150);
- by degree of protection of the motor case CDM 2 - IP 21; CDM3 2 - IP 43.

The motors are cooled by self-ventilation by open cycle (for CDM2), or in mode of forced ventilation by closed or open cycle (for CDM3 2).

Way of cooling:

- motors CDM 2 - ICA01 by GOST 20459;
- motors CDM3 2 - ICW37A86 by GOST 20459 (air-coolers are placed directly on the motor case), or ICW37A97 by GOST 20459 (air-coolers are placed directly in the foundation pit).

Environment is non-flammable, non-explosive, it doesn't contain aggressive gases and steam, it meets atmosphere type II by GOST 15150.

CDM 2 motors are designed to be installed in premises, where concentration of rock-dust is not over 0,2 mg/m³, and motors CDM3 2 – not over 2 mg/m³. If concentration of rock-dust is more, than 2 mg/m³, CDM3 2 motors must operate under excessive pressure with adding pure air with dust content not over 0,2 mg/m³.

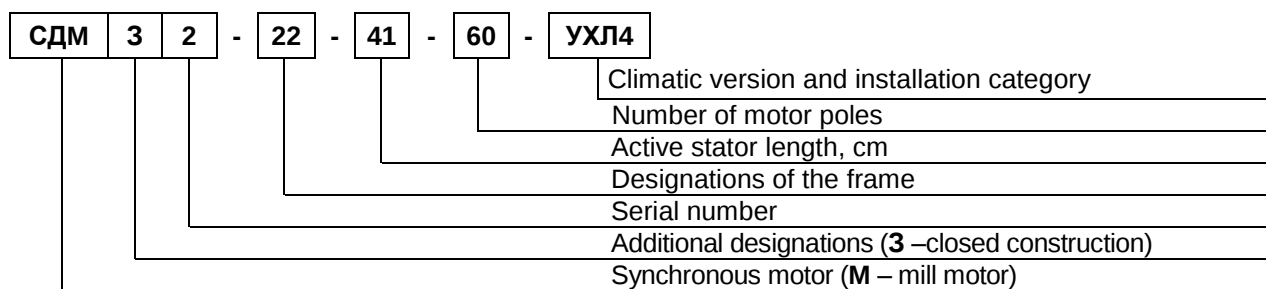
Heat-resistance class of insulation material of the stator and rotor winding in the motor is not below class "F".

The thyristor exciters energize the motors.

Terminals of stator winding can be placed in the terminal box, or they can be brought downwards in the foundation hole. At a customer's request the terminal box can be installed on the right or left side on the stator case (it's specified in the order). At a customer's agree current transformers also can be placed in the terminal box, through these transformers neutral terminals of stator windings are connected (U2, V2, W2).

Designations of CDM2, CDM32 motors are decoded as follows:

CDM3 2- 22-41-60 YXL4



Technical characteristics of the CDM(3)2 motors for voltage 6 000 V and 10 000 V, frequency 50 Hz are given in the Table 15.

Overall and mounting dimensions are given in figures 7-9 and in the Table 16.

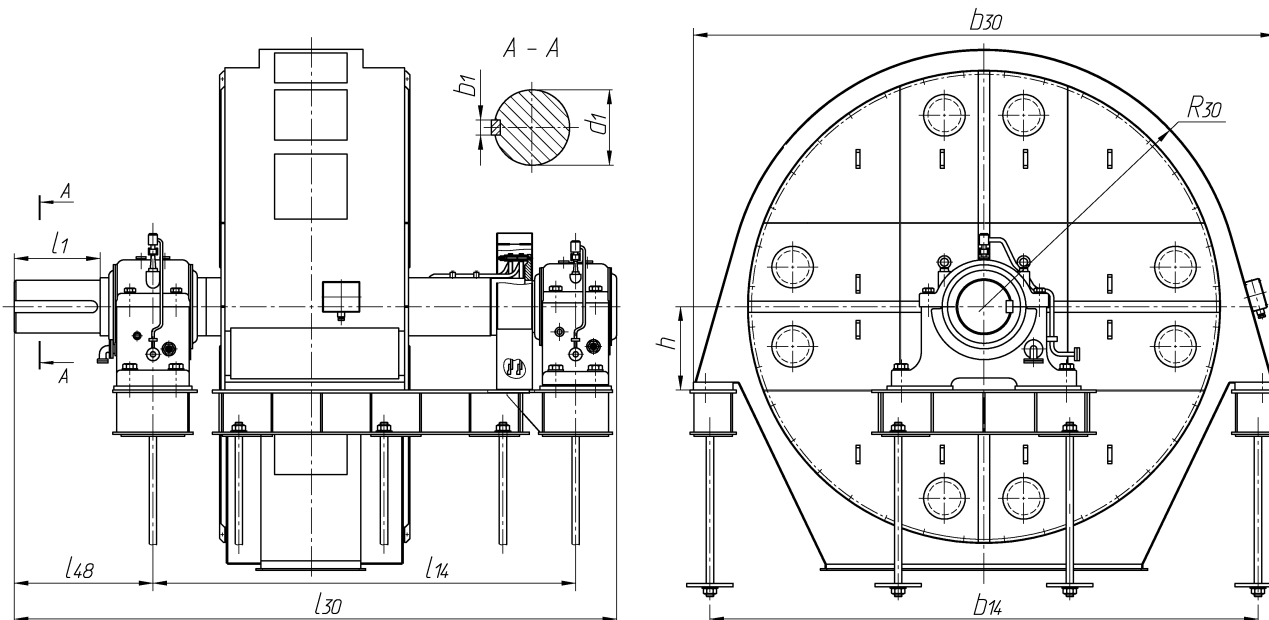
At a customer's request, the motors for other powers and voltages 3000 V and 10000 V can be made on basis of above-mentioned machines.

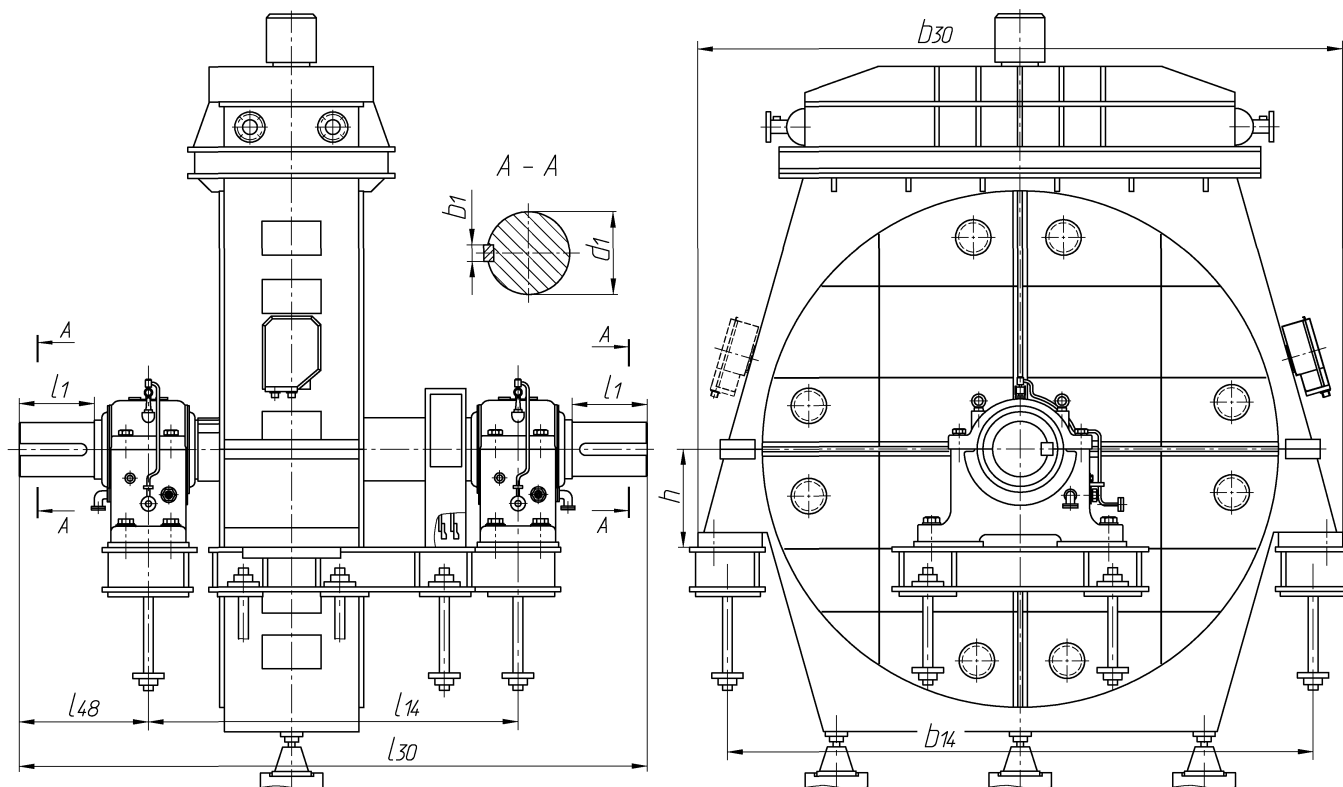
At a customer's agree, the motors also can be manufactured with other overall and mounting dimensions different from dimensions given in the Table 16.



Table 15.

Motor type СДМ (3) 2	Power, kW	Mounting construction	Cooling version	Voltage, V	Rotational speed, rpm	Weight, kg
СДМ 2-21-61-40 УХЛ4	2500	IM 7321 (IM 7322)	ICA01	10 000	150	36 400
СДМ3 2-21-61-40 УХЛ4			ICW37A97			37 000
СДМ 2-21-67-40 УХЛ4	3150	IM 7321	ICA01	6 000		37 300
СДМ3 2-21-67-40 УХЛ4			ICW37A97			38 000
СДМ 2-21-91-40 УХЛ4	4000		ICA01			56 500
СДМ3 2-21-91-40 УХЛ4			ICW37A97			57 100
СДМ 2-22-34-60 УХЛ4	1600	IM 7321 (IM 7322)	ICA01	6 000	100	39 200
СДМ3 2-22-34-60 УХЛ4			ICW37A86			41 000
СДМ 2-22-41-60 УХЛ4	2000	IM 7321 (IM 7322)	ICA01			41 200
СДМ3 2-22-41-60 УХЛ4			ICW37A86			43 000
СДМ 2-22-49-60 УХЛ4			ICA01			49 500
СДМ3 2-22-49-60 УХЛ4			ICW37A86			51 300
СДМ 2-22-56-60 УХЛ4	2000	IM 7321 (IM 7322)	ICA01	10 000	100	51 400
СДМ3 2-22-56-60 УХЛ4			ICW37A86			52 000
СДМ 2-24-59-80 УХЛ4	4000	IM 7321	ICA01	6 000	75	167 500
СДМ3 2-24-59-80 УХЛ4			ICW37A97			168 300

Fig. 7: **СДМ3 2** electric motors. Mounting construction **IM7321**, cooling version **ICW37A97**



Figc. 8: **СДМ3 2** electric motors. Mounting construction **IM7322**, cooling version **ICW37A86**

Table 16.

Motor type	Dimensions, mm										Instead of motors
	d_1	l_1	l_{14}	l_{30}	l_{48}	b_1	b_{14}	b_{30}	R_{30}	h	
СДМ 2-21-61-40 УХЛ4 СДМ3 2-21-61-40 УХЛ4	400k6	650	3350	4735	1050	90	4150	4400	1950	630	-
СДМ 2-21-67-40 УХЛ4 СДМ3 2-21-67-40 УХЛ4			3200	4600							-
СДМ 2-21-91-40 УХЛ4 СДМ3 2-21-91-40 УХЛ4	500k6	650	4250	5685	1100	100	4300	4600	1980	630	-
СДМ 2-22-34-60 УХЛ4 СДМ3 2-22-34-60 УХЛ4	360k6	550	2650	3780	910	80	5650	6000	-	630	-
СДМ 2-22-41-60 УХЛ4 СДМ3 2-22-41-60 УХЛ4			2800	4020							-
СДМ 2-22-34-60 УХЛ4 СДМ3 2-22-34-60 УХЛ4	400k6	650	2650	4020	1035	$40/_{120}$	5750	6200	-	600	-
СДМ 2-22-49-60 УХЛ4 СДМ3 2-22-49-60 УХЛ4	420k6	600	2850	4150	955	$30/_{108,2}$	5800	6200	2700	600	СДС-20-49-60 СДМ-20-49-60
СДМ 2-22-49-60 УХЛ4 СДМ3 2-22-49-60 УХЛ4	400k6	800	2500	4000	1160	$26/_{98,6}$	5400	5700	-	600	СДС3-2000-100 СДС3-20-49-60
СДМ 2-22-56-60 УХЛ4 СДМ3 2-22-56-60 УХЛ4	420k6	600	3350	4640	955	$30/_{108,2}$	5400	5700	-	600	СДМ3 2-22-56-60

Note: Dimensions given in the table with fraction are specified for motors with tangential keys on the output shaft end: numerator shows width of the key, denominator – height of pair of keys.

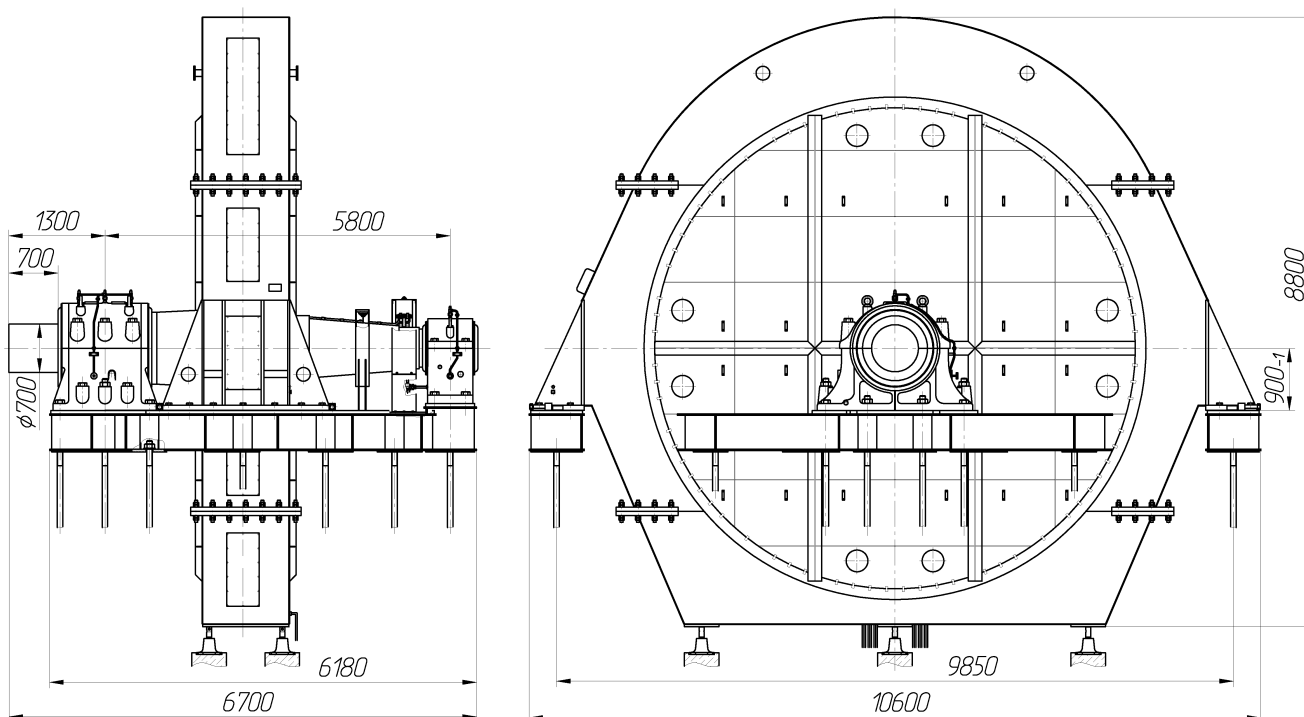


Fig.9: **СДМ(3)2-24-59—80** electric motor. Mounting construction **IM7321**, cooling version **ICW37A97**



ELECTRIC MOTORS OF CDM 4, CDM3 4, CDC3 4, CDMП 4 TYPES

Synchronous electric motors of CDM4-1250, CDM(П)4-1500, CDM3 4 and CDC3 4 types are designed to drive ore- and coal-pulverizing, raw and cement mills, which are used in production lines of mining-and-processing integrated works, cement plants and TPS. The motors can be used both for new construction projects and for replacement of earlier installed motors of old series.

CDM(П)4, CDC34 and CDM34 motors are replaceable with analogous motors of 4CDM, CDM32, CDC, DC, DC3 and ДСП series by mounting dimensions. At a customer's agreement, the motors can be made adjusted for available base in place of operation instead of motors of other series, without dismantle of available base frame of the replaced motor (i.e. without heavy time consumptions for dismantle of the old base plate and accordingly for installation, alignment, without covering a new base plate with concrete and re-aggregating the motor with the driving mechanism).

The motors are designed with application of more reliable insulants and new technologies, which allow to improve reliability of insulation of motor windings and thereby to prolong life of the motor.

The motors are rated for operation in continuous mode S1 from AC network, 50 Hz, for voltage 6000 V by GOST 183, power factor $\cos \varphi=0,9$ (leading).

The motors can be made for voltage 3 000 V or 10 000 V.

Construction of the motors:

- by mounting arrangement
 - **IM7311** or **IM7312** by GOST 2479: on base plate, with two pedestal plain bearings, on raised feet, with one or two cylindrical shaft ends;
 - **IM7321** or **IM7322** by GOST 2479: on foundation beams, with two pedestal plain bearings, on raised feet, with one or two cylindrical shaft ends;
- by degree of protection of slip rings - IP 11(GOST 17494);
- by climatic version and installation category - UHL4 (GOST 15150).
- by degree of protection of the case:
 - CDM 4 motors - IP 21;
 - CDMП 4, CDM3 4, CDC3 4 motors - IP 44.

Way of cooling is self-ventilation by open cycle or forced ventilation (by closed or open cycle).

Way of cooling:

- CDM 4 motors - ICA01 (GOST 20459);
- CDMП 4 motors - ICA37 or ICW37A97 by GOST 20459
- CDC3 4 and CDM3 4 motors - ICW37A86 or ICW37A81 by GOST 20459 (air coolers are installed directly on the motor case) or ICW37A97 by GOST 20459 (air cooler is installed in base pit).

Environment is not inflammable, not explosive; it is free from aggressive gases and vapours, and it meets atmosphere type II by GOST 15150.

The motors of CDM 4 type are designed to be installed in premises where concentration of inert dust is not more than $0,2 \text{ mg/m}^3$, and the motors of CDMП4, CDC3 4 and CDM3 4 types are designed to be installed in premises where concentration of inert dust is not more than 2 mg/m^3 . If concentration of inert dust is more than 2 mg/m^3 , CDMП4, CDC3 4 and CDM3 4 motors should operate under overpressure with supplementary clear air inlet with dustiness no more than $0,2 \text{ mg/m}^3$.

Insulation of stator and rotor winding belongs to heat-resistance class, which is not below than "F" class.

The thyristor exciters energize the motors.

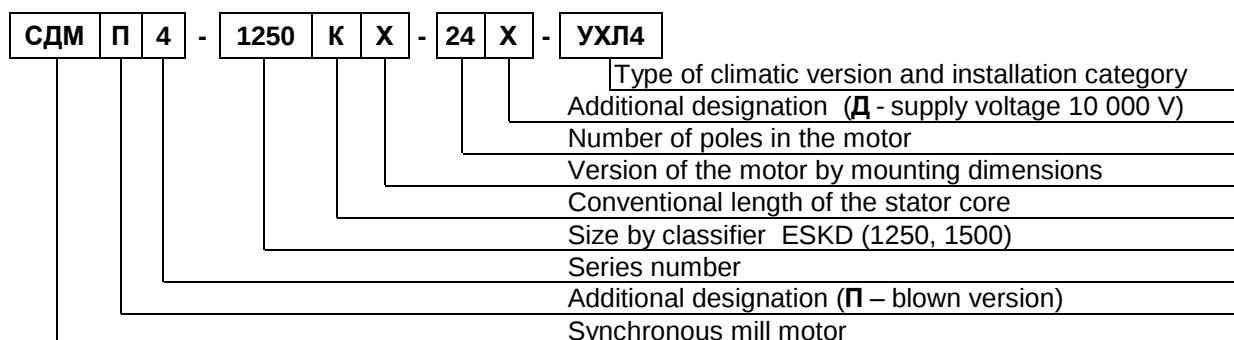
Terminals of stator winding can be located in the terminal box or can be brought downwards in a base hole. At a customer's agreement the terminal box may be installed on the case on the right or left (it's stipulated in the order). At a customer's agreement, there may be three current transformers in the terminal box (type of transformers is ТОЛ 10-I-1), through which neutral outlets of stator windings (U2, V2, W2) are connected.

In designation of motors CDM4-1250K(...), CDM4-1500K(...) and so on, there may be additional character (CDM4-1250KA, CDM4-1250KB, CDM4-1250KM, CDM4-1500LA, CDM4-1500LB, CDM4-1500KA and so on), which indicates construction version of the electric motor with overall and mounting dimensions meeting the motors of earlier manufactured series.



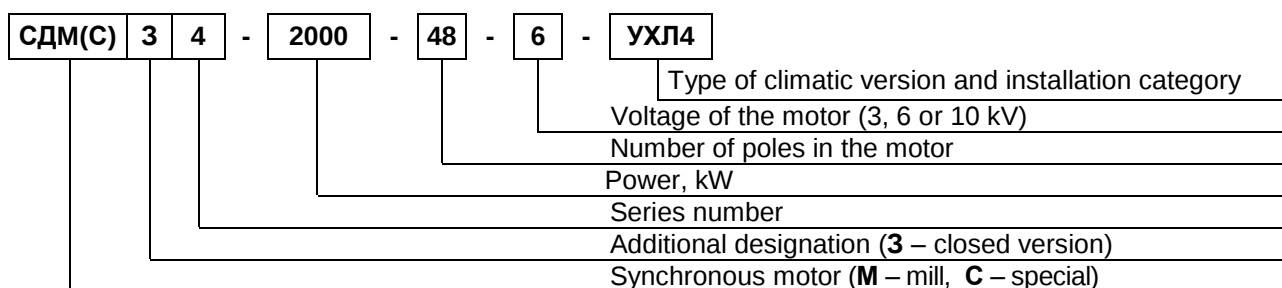
The motor designations **СДМ4-1250**, **СДМ4-1500** are decoded as follows:

СДМ 4 - 1250КХ – 24Д УХЛ4



The motor designations **СДМ3 4**, **СДС3 4** are decoded as follows:

СДМ3 4-2000-48-6 УХЛ4



Technical data of СДМ(3)4 motors for voltage 6 000 V (or 3 000 V) and 10 000 V, frequency 50 Hz are specified in Table 17, 18.

Overall and mounting dimensions of the motors are given:

- СДМ 4-1250 motors are shown in figure 10 (Table 19);
- СДМ 4-1500 and СДМП 4-1500 are shown in figure 11 (Table 20);
- СДМ3 4 and СДС3 4 – in figures 12, 13, 14 (Table 21);
- СДМ3 4-4000-80-6 – in figure 15.

At a customer's request the motors can be manufactured for other power and voltages 3 000 or 10 000 V on the basis of above-mentioned machines.

At a customer's agreement the motors can be manufactured with other overall and mounting dimensions differing from dimensions specified in Tables 19, 20, 21.



Technical data of the motors

Table 17

Type of the motor СДМ4-1250	Power, kW	Rotational speed, rpm	Type of the motor СДМ4-1500	Power, kW	Rotational speed, rpm	
Voltage 6 000 V (or 3 000 V), 50 Hz			Voltage 6 000 V (or 3 000 V), 50 Hz			
СДМ4-1250К-32 УХЛ4	400	187,5	СДМ4-1500К-36 УХЛ4	900	166,6	
СДМП4-1250К-32 УХЛ4			СДМ4-1500КА-36 УХЛ4			
СДМ4-1250КА-32 УХЛ4			СДМ4-1500КВ-36 УХЛ4			
СДМ4-1250КВ-32 УХЛ4			СДМ4-1500КХ-36 УХЛ4			
СДМП4-1250КВ-32 УХЛ4			СДМП4-1500КХ-36 УХЛ4			
СДМ4-1250КХ-32 УХЛ4			СДМ4-1500L-36 УХЛ4	1000		
СДМ4-1250KM-32 УХЛ4			СДМ4-1500LA-36 УХЛ4			
СДМ4-1250Х-24 УХЛ4	500	250	СДМ4-1500LB-36 УХЛ4			
СДМ4-1250К-24 УХЛ4	630		СДМ4-1500S-36 УХЛ4	1120		
СДМП4-1250К-24 УХЛ4			СДМ4-1500SA-36 УХЛ4			
СДМ4-1250КА-24 УХЛ4			СДМ4-1500SB-36 УХЛ4			
СДМ4-1250КВ-24 УХЛ4			СДМ4-1500M-36 УХЛ4	1250		
СДМП4-1250КВ-24 УХЛ4			СДМ4-1500MA-36 УХЛ4			
СДМ4-1250КХ-24 УХЛ4			СДМ4-1500MB-36 УХЛ4			
СДМ4-1250KM-24 УХЛ4				СДМ4-1500MA-32 УХЛ4	1250	
Voltage 10 000 V, 50 Hz			SDM4-1500MB-32 UHL4			
СДМ4-1250К-32Д УХЛ4	400	187,5	СДМ4-1500MX-32 УХЛ4			
СДМ4-1250КХ-32Д УХЛ4			СДМП4-1500MX-32 УХЛ4			
СДМ4-1250К-24Д УХЛ4	630	250	СДМ4-1500ТА-32 УХЛ4	1600		
СДМ4-1250КХ-24Д УХЛ4			СДМ4-1500ТВ-32 УХЛ4			



Table 18

Type of the motor СДМ (3) 4	Power, kW	Construction version	Cooling way	Voltage, V	Rotational speed, rpm	Instead of electric motors
СДМ 4-2000-40-6 УХЛ4	2000	IM 7311	ICA01	6 000	150	СДС-19-46-40
СДМ3 4-2000-40-6 УХЛ4			ICW37A97			-
СДМ 4-2500-40-6 УХЛ4	2500		ICA01			СДС-19-56-40
СДМ3 4-2500-40-6 УХЛ4			ICW37A97			-
СДМ 4-2500-40-10 УХЛ4	2500	IM 7321 (IM 7322)	ICA01	10 000		СДМ3 2-21-61-40
СДМ3 4-2500-40-10 УХЛ4			ICW37A97			
СДМ 4-3150-40-6 УХЛ4	3150	IM 7321	ICA01	6 000		СДМ3 2-21-67-40
СДМ3 4-3150-40-6 УХЛ4			ICW37A97			
СДМ 4-4000-40-6 УХЛ4	4000		ICA01			СДМ3 2-21-91-40
СДМ3 4-4000-40-6 УХЛ4			ICW37A97			
СДМ 4-1600-48-6 УХЛ4	1600	IM 7311	ICA01	6 000	125	СДС-19-56-48
СДМ3 4-1600-48-6 УХЛ4			ICW37A97			-
СДМ 4-2000-48-6 УХЛ4	2000		ICA01			СДС-19-56-48
СДМ3 4-2000-48-6 УХЛ4			ICW37A97			-
СДМ 4-1600-60-6 УХЛ4	1600	IM 7321 (IM 7322)	ICA01	6 000	100	СДМ3 2-22-34-60
СДМ3 4-1600-60-6 УХЛ4			ICW37A86			
СДМ 4-2000-60-6 УХЛ4	2000	IM 7321 (IM 7322)	ICA01			СДМ3 2-22-41-60
СДМ3 4-2000-60-6 УХЛ4			ICW37A86			
СДС 4-2000-60-6 УХЛ4			ICA01			СДМ, СДС-20-49-60
СДС3 4-2000-60-6 УХЛ4			ICW37A86 (or ICA16)			СДС3-2000-100 СДС3-20-49-60
СДС 4М-2000-60-6 УХЛ4			ICA01			СДМ3 2-22-41-60 СДМ3 2-22-34-60
СДС3 4М-2000-60-6 УХЛ4			ICW37A86 (or ICA16)			
СДМ 4-2000-60-10 УХЛ4	2000	IM 7321 (IM 7322)	ICA01	10 000		СДМ3 2-22-56-60
СДМ3 4-2000-60-10 УХЛ4			ICW37A86 (or ICA16)			
СДС 4-3150-12-6 УХЛ4	3200	IM 7321 (IM 7322)	ICA01	6 000	500	СДС3-17-59-12
СДС3 4-3150-12-6 УХЛ4			ICW37A97			
СДС 4-3150-12-10 УХЛ4			ICA01	10 000		СДС3-17-76-12
СДС3 4-3150-12-10 УХЛ4			ICW37A81			
СДМ 4-4000-80-6 УХЛ4	4000	IM 7321	ICA01	6 000	75	СДМ3 2-24-59-80
СДМ3 4-4000-80-6 УХЛ4			ICW37A97			



Overall and mounting dimensions of the motors

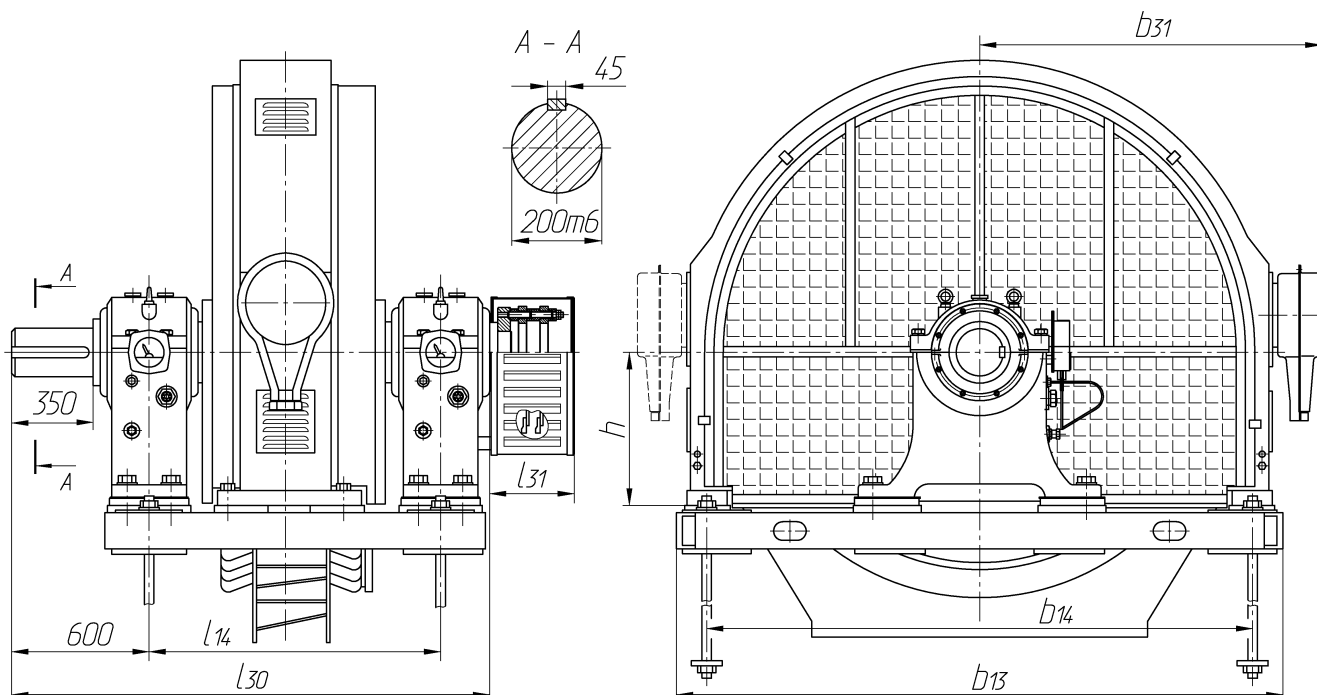


Fig. 10: Electric motors of СДМ4-1250 (К, КА, КВ, КХ, КМ) type.
Construction version **IM7311**, cooling way **ICA01**.

Table 19

Type of the motor	l_{14}	l_{30}	l_{31}	b_{13}	b_{14}	b_{31}	h	Instead of the electric motors
СДМ4-1250К-32 УХЛ4	1250	2070	320	2600	2360	1460/ 1590	630	4СДМ 1250К-32-6 УХЛ4
СДМ4-1250К-32Д УХЛ4								4СДМ 1250К-24-6 УХЛ4
СДМ4-1250К-24 УХЛ4	1250	2070	-	2600	2360	1460/ 1590	630	4СДМ 1250К-32-6 УХЛ4
СДМ4-1250КХ-32Д УХЛ4								4СДМ 1250К-24-6 УХЛ4
СДМ4-1250КХ-24 УХЛ4								СДМ 500-250 УХЛ4
СДМ4-1250Х-24 УХЛ4								СДМ 215/26-32 УХЛ4
СДМ4-1250КА-32 УХЛ4	1550	2370	-	3100	2770	1575	630	СДМ 215/26-24 УХЛ4
СДМ4-1250КА-24 УХЛ4								ДСМ 213/34-32 УХЛ4
СДМ4-1250КВ-32 УХЛ4	1600	2420	-	3100	2850	1575	600	ДСМ 213/29-24 УХЛ4
СДМ4-1250КВ-24 УХЛ4								4СДМ 1250К-32-6 УХЛ4
СДМ4-1250КМ-32 УХЛ4	1550	2370	-	2600	2360	1460	630	4СДМ 1250К-24-6 УХЛ4
СДМ4-1250КМ-24 УХЛ4								-
СДМП4-1250К-32 УХЛ4	1550	2400	320	2600	2360	1460	630	-
СДМП4-1250К-24 УХЛ4								-
СДМП4-1250КВ-32 УХЛ4	1700	2520	-	3100	2850	1575	600	ДСП 213/34-32 УХЛ4
СДМП4-1250КВ-24 УХЛ4								ДСП-400-32-3 УХЛ4
								ДСП 213/29-24 УХЛ4

Note: Dimensions given in the table with fraction: numerator shows data for the motors with terminal box for voltage 6 000 V, denominator - for motors with terminal box for voltage 10 000 V.

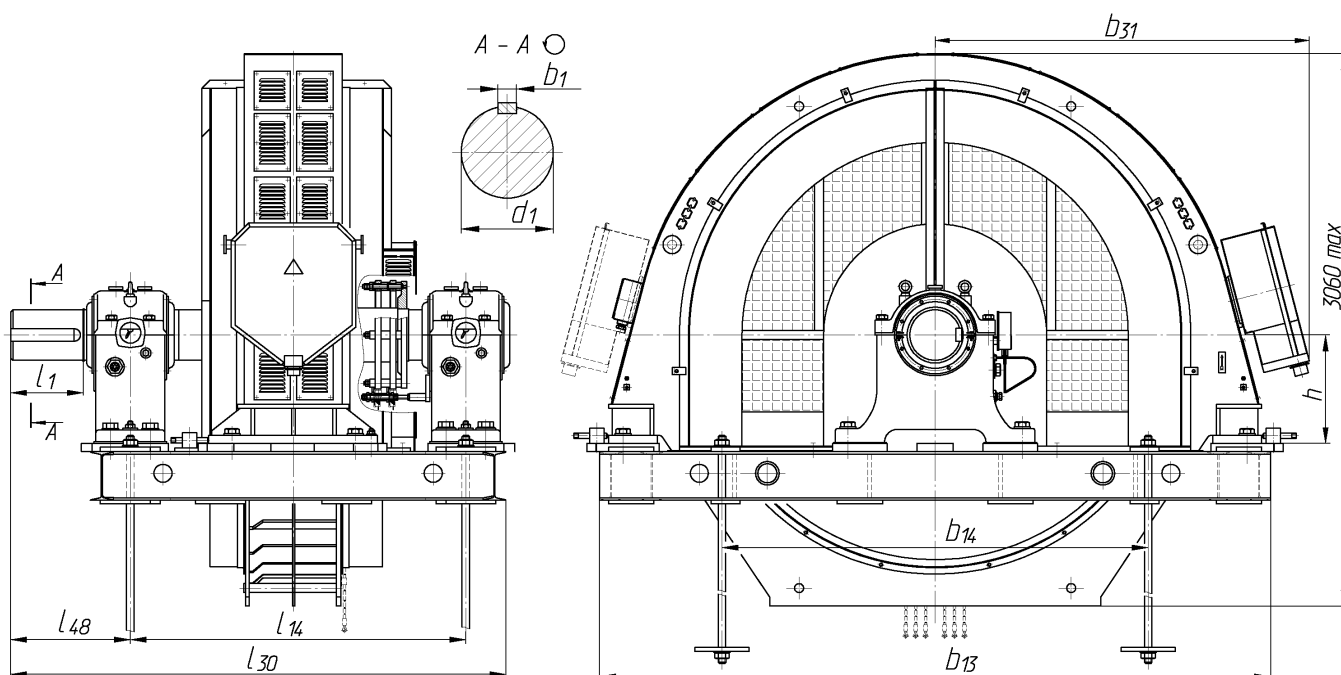


Fig. 11: Electric motor of **CDM4-1500 type**. Construction version **IM7311**, cooling way **ICA01**.

Table 20

Type of the motor	l_1	l_{14}	l_{30}	l_{48}	b_1	b_{13}	b_{14}	b_{31}	h	Instead of the electric motors
СДМ4-1500К-36 УХЛ4	470	1850	2825	755	63	3200	2090	1600/2050	630	4СДМ -1500К-36 УХЛ4
СДМ4-1500L-36 УХЛ4										4СДМ -1500L-36 УХЛ4
СДМ4-1500S-36 УХЛ4										4СДМ -1500S-36 УХЛ4
СДМ4-1500М-36 УХЛ4										-
СДМ4-1500КА-36 УХЛ4	400		2750	660	70	3650	2350	1800/2250	600	ДС(3) 260/39-36 УХЛ4
СДМ4-1500LA-36 УХЛ4										-
СДМ4-1500SA-36 УХЛ4										ДС(3) 260/44-36 УХЛ4
СДМ4-1500МА-36 УХЛ4										-
СДМ4-1500МА-32 УХЛ4										ДС(3) 260/49-32 УХЛ4
СДМ4-1500ТА-32 УХЛ4										-
СДМ4-1500КВ-36 УХЛ4	470		2825	755	63	3650	2350	1800/2250	630	-
СДМ4-1500LB-36 УХЛ4										СДМ 260/36-36 УХЛ4
СДМ4-1500SB-36 УХЛ4		-								
СДМ4-1500МВ-36 УХЛ4		СДМ 260/46-36 УХЛ4								
СДМ4-1500МВ-32 УХЛ4		СДМ 260/41-32 УХЛ4								
СДМ4-1500ТВ-32 УХЛ4		-								
СДМ4-1500КХ-36 УХЛ	400	2060	2970	660	70	3650	2350	1800/2250	600	ДСП 260/39-36 УХЛ4
СДМП4-1500КХ-36 УХЛ										
СДМ4-1500МХ-32 УХЛ4	400	2060	2970	660	70	3650	2350	1800/2250	600	ДСП 260/49-32 УХЛ4
СДМП4-1500МХ-32 УХЛ4										

Note: Dimensions given in the table with fraction: numerator shows data for the motors without terminal box, denominator - for motors with terminal box.

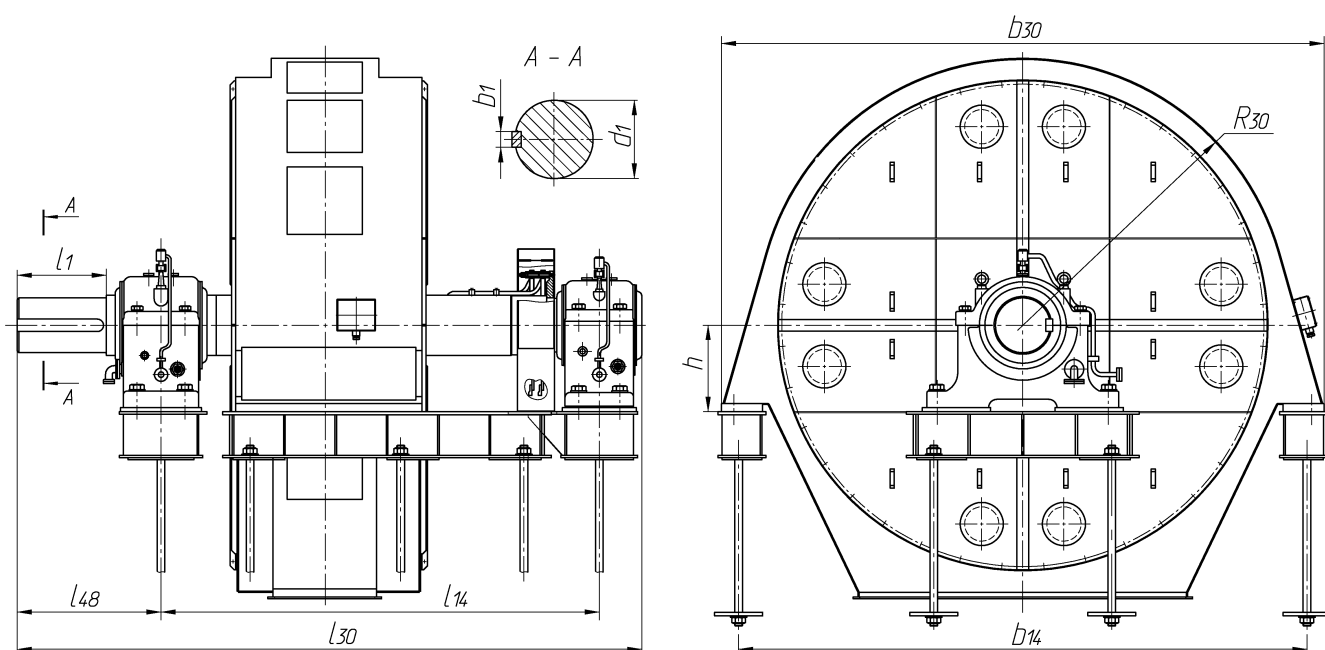


Fig. 12: Electric motors of **СДМ3 4** type. Construction version **IM7321**, cooling way **ICW37A97**

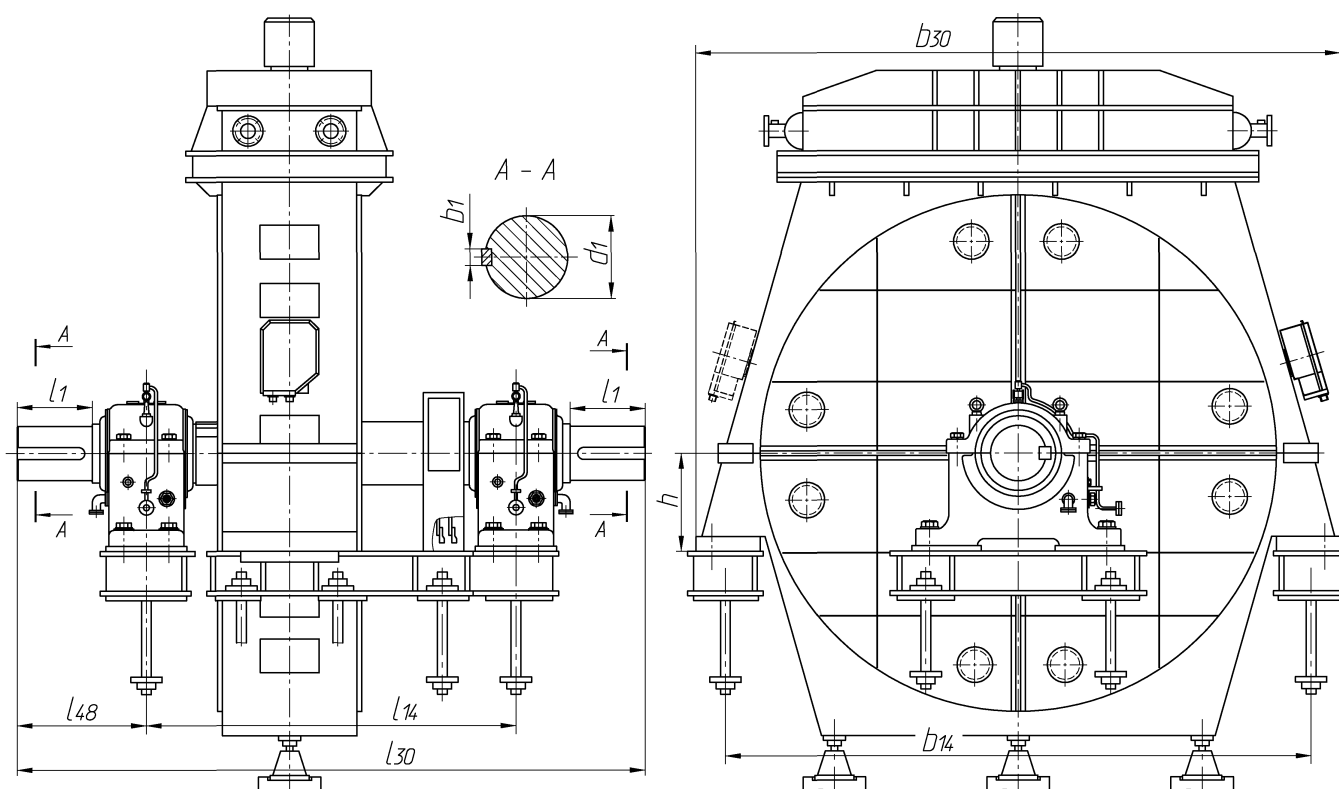


Fig. 13: Electric motors of **СДМ3 4**, **СДС3 4** types. Construction version **IM7322**, cooling way **ICW37A86**

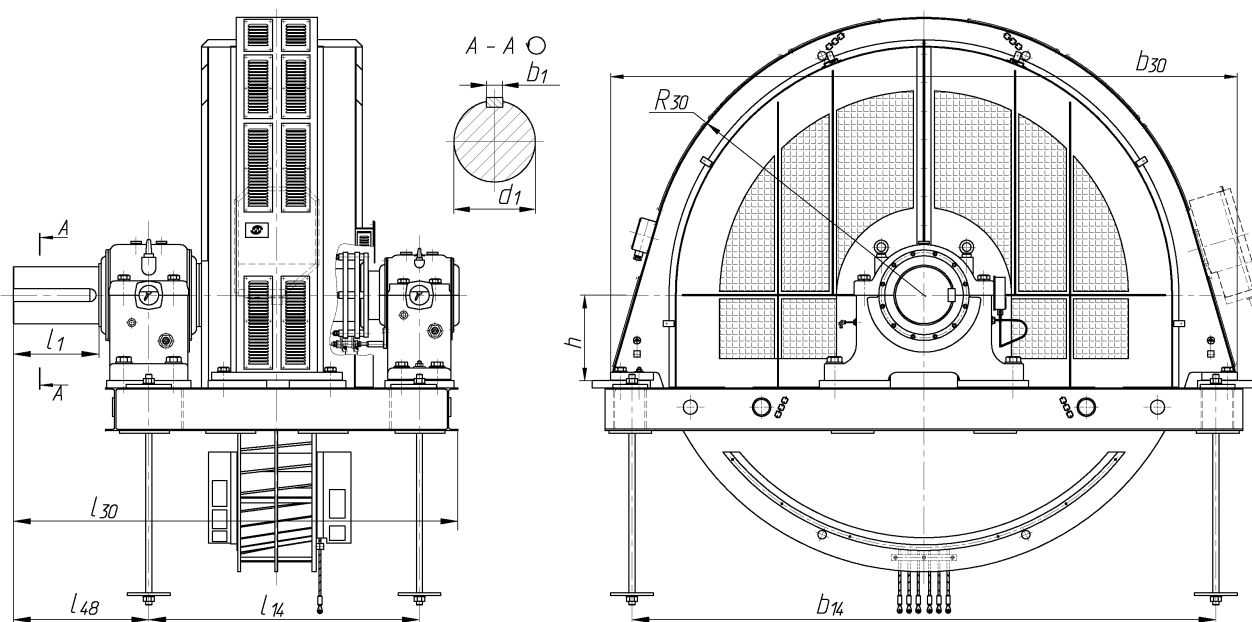


Fig. 14: Electric motors of **CDM 4** type. Construction version **IM7311**, cooling way **ICA01**.

Table 21

Motor type	Dimensions, mm										Instead of the motors
	d_1	l_1	l_{14}	l_{30}	l_{48}	b_1	b_{14}	b_{30}	R_{30}	h	
СДМ 4-2000-40-6 УХЛ4 СДМ3 4-2000-40-6 УХЛ4	400s7	600	1900	3180	950	90	4100	4400	1950	600	СДС-19-46-40
СДМ 4-2500-40-6 УХЛ4 СДМ3 4-2500-40-6 УХЛ4			2000	3280							СДС-19-56-40
СДМ 4-1600-48-6УХЛ4 СДМ3 4-1600-48-6УХЛ4	400s7	600	2000	3280	950	90	4100	4400	1950	600	СДС-19-56-48
СДМ 4-2000-48-6УХЛ4 СДМ3 4-2000-48-6УХЛ4			2000	3280							СДС-19-56-48
СДС 4-3150-12-6 УХЛ4 СДС3 4-3150-12-6 УХЛ4	240k6	330	2600	3860	630	56	2950	3300	1400	600	СДС3-17-59-12
СДС 4-3150-12-10 УХЛ4 СДС3 4-3150-12-10 УХЛ4	300k6	470	3950	5550	800	70	3100	3350	-	600	СДС3-17-76-12
СДМ 4-2500-40-10 УХЛ4 СДМ3 4-2500-40-10 УХЛ4	400k6	650	3350	4735	1050	90	4150	4400	1950	630	СДМ3 2-21-61-40
СДМ 4-3150-40-6 УХЛ4 СДМ3 4-3150-40-6 УХЛ4			3200	4600							СДМ3 2-21-67-40
СДМ 4-4000-40-6 УХЛ4 СДМ3 4-4000-40-6 УХЛ4	500k6	650	4250	5685	1100	100	4300	4600	1980	630	СДМ3 2-21-91-40
СДМ 4-1600-60-6 УХЛ4 СДМ3 4-1600-60-6 УХЛ4	360k6	550	2650	3780	910	80	5650	6000	-	630	СДМ3 2-22-34-60
СДМ 4-2000-60-6 УХЛ4 СДМ3 4-2000-60-6 УХЛ4			2800	4020							СДМ3 2-22-41-60
СДМ 4-2000-60-10 УХЛ4 СДМ3 4-2000-60-10 УХЛ4	420k6	600	3350	4640	955	$\frac{30}{108,2}$	5400	5700	-	600	СДМ3 2-22-56-60
СДС 4-2000-60-6 УХЛ4	420k6	600	2850	4150	955	$\frac{30}{108,2}$	5800	6200	2700	600	СДС-20-49-60 СДМ-20-49-60
СДС3 4М-2000-60-6 УХЛ4	400k6	650	2650	4020	1035	$\frac{40}{120}$	5750	6200	-	600	СДМ3 2-22-34-60 СДМ3 2-22-41-60
СДС3 4-2000-60-6 УХЛ4	400k6	800	2500	4000	1160	$\frac{26}{98,6}$	5400	5700	-	600	СДС3-2000-100 СДС3-20-49-60

Note: Dimensions given in the table with fraction are specified for motors with tangential keys on the output shaft end: numerator shows width of the key, denominator – height of pair of keys.

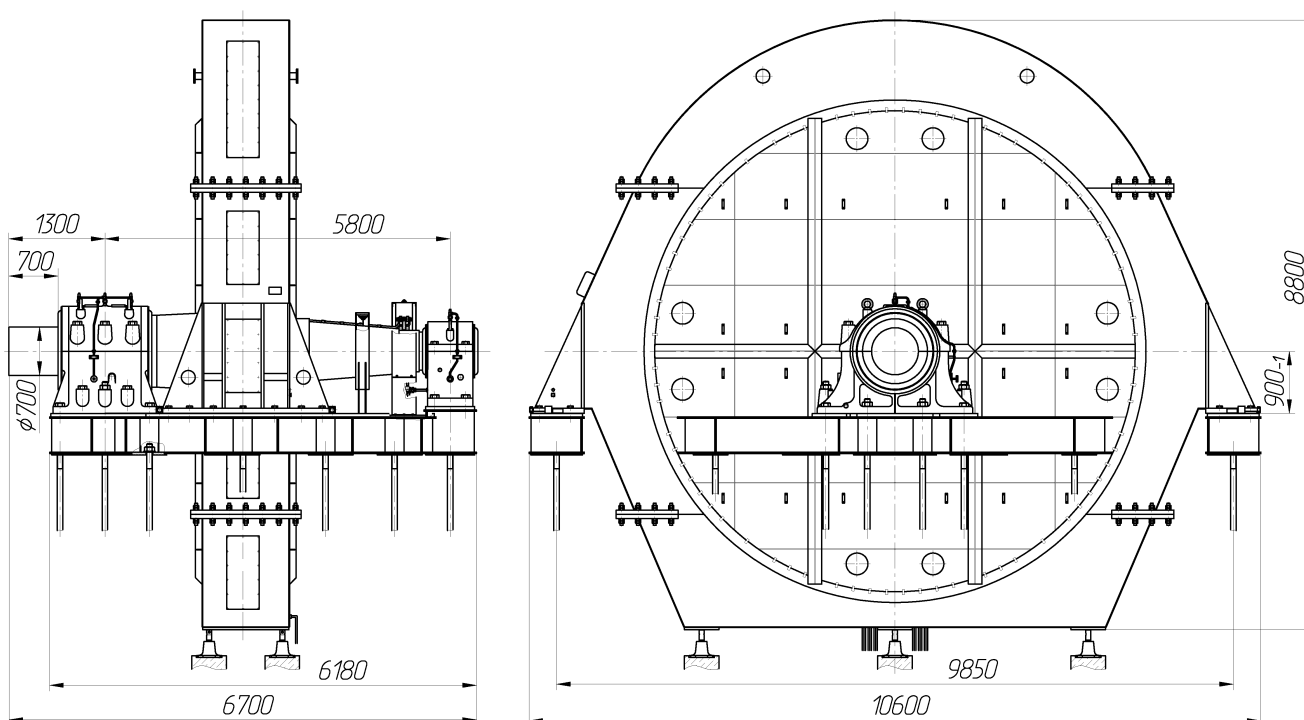


Fig. 15: Electric motors **СДМЗ 4-4000-80-6**. Construction version **IM7321**, cooling way **ICW37A97**



ELECTRIC MOTORS 4CД-215-3150-16 УХЛ4, CД4-3150-16 УХЛ4

Electric motors **4CД-215-3150-16 УХЛ4** and **CД4-3150-16 УХЛ4** are designed to drive rotary soil pumps of **2ГрТ8000/71** or **28ГР8** types (made by OS "UralHydromash") and pumps **GHPP 28-24 УУ** (made by the firm "WARMAN"), which are used to pump abrasive hydromixtures at ore mining and processing enterprises.

The motors may be used both for new construction projects and for replacement of earlier installed motors of old series **2CД-215-3150-16 УХЛ4** or **CDY-18-54-16 УХЛ4**.

At a customer's agreement the delivery set has special adapter plates to install motors 4CД-215-3150-16 or CД4-3150-16 on available base plate of motors CDY 18-54-16.

Instead of motors **2CД-215-3150-16**, new motors 4CД-215-3150-16 or SD4-3150-16 can be mounted on the base plate of the old motor, which the customer has, not changing the casing and not dismantling the old plate.

The motors are designed with application more reliable modern electrotechnical and insulating materials and technologies allowing to improve service characteristics of electric motors and reliability of insulation of their windings, that prolongs life of the motor.

Motors are rated for operation in continuous mode S1 by GOST 183 from AC network, 50 Hz, with voltage 6000 V, power factor $\cos \varphi = 0,9$ (leading).

Design of the motors by degree of protection of the case - IP21 (GOST17494); by climatic version and installation category – УХЛ4 (GOST15150).

The motors are cooled in self-ventilation - ICA01(GOST 20459).

Environment is not inflammable, not explosive; it is free from aggressive gases and vapours, and it meets atmosphere type II by GOST 15150. Concentration of inert dust - no more than 2 mg/m³.

Insulation of stator and rotor windings belongs to heat-resistance class not lower than "F" class.

The thyristor exciters energize the motors.

Design of the motors by mounting arrangement:

- **4CД-215-3150-16 - IM7315** by GOST 2479 (fig. 13): on base plate, with two pedestal plain bearings with combined lubrication, with two thrust plates, on raised feet, with one flange shaft end;

- **CД4-3150-16**

IM7315 by GOST 2479 (fig.14): on base plate, with two pedestal plain bearings with combined lubrication (without thrust plates), on raised feet, with one flange shaft end (thus, insulated bearing on side of contact rings has fitting dimensions of similar thrust bearings of motors **2CД-215-3150-16 УХЛ4** and **CDY-18-54-16 УХЛ4**);

IM7311 by GOST 2479 (fig.15): on base plate, with two pedestal plain bearings with combined lubrication (without thrust plates), on raised feet, with one cylindrical shaft end;

The motors have **left** sense of rotation (counter-clockwise, if you see on output shaft end side).

Motors 4SD-215-3150-16 are made with following plain bearings:

- The bearing on drive mechanism side - КПК 300×300-600, of pedestal type, demountable, with liquid combined lubrication.
- The bearing on contact rings side - КПК 300×300-600, of pedestal type, demountable, isolated, with liquid combined lubrication and with two thrust plates (one of them is rated for axial load 450 kN directed towards the pump; and the second is rated for axial load 120 kN, vectored to the opposite side).

CД4-3150-16 motors are also made with isolated bearing КПК 300×300-600 (on contact rings side), but without two thrust plates (to make motor service and installation easier), and they are designed to be coupled with pumps which do not transfer axial efforts to bearing supports of the motor (pumps of type GHPP 28-24 УУ made by the firm "WARMAN").

The stator winding has 12 outlet ends (each parallel phase branch of stator winding is brought out by separate wires). The outlet ends of stator winding may be in the terminal box or may be brought downwards, in a base hole. At a customer's agreement, the terminal box may be installed on the right or the left side on the stator case (it's stipulated in the order).

Also, at a customer's agreement, the motors may be delivered with additional terminal box (installed on the motor case in opposite side to the power terminal box), which has two current transformers (type ТОЛ 10-I-1-2/0,5/10P-400/5 У2), through which neutral ends of stator windings (U2, V2, W2) are connected to organize differential current protection of the electric motor or noncommercial energy accounting.

Technical data of 4CД and CД4 motors for voltage 6 000 V, frequency 50 Hz are shown in Table 22.

At a customer's request the motors can be manufactured for other power and voltage 3 000 V or 10 000 V on the basis of above-mentioned machines.

At a customer's agreement the motors can be also manufactured with other overall and mounting dimensions differing from dimensions specified in figures 16, 17, 18.



Technical data of the motors

Table 22

Type of the motor	Mounting construction (GOST 2479)	Power, kW	Voltage, kV	Stator current, A	Rotational speed, rpm	Startup characteristics			Rotor voltage, V	Rotor current, A	Eff., %	Weight, kg
						Starting torque-to-nominal torque ratio	Ratio of input torque	Starting current ratio				
4CД-215-3150-16	IM7315	3150	6,0	350	375	1,0	1,3	6,0	110	295	96,0	25 300
CД4-3150-16	IM7311											21 300
	IM7315											22 200

Overall and mounting dimensions of the motors.

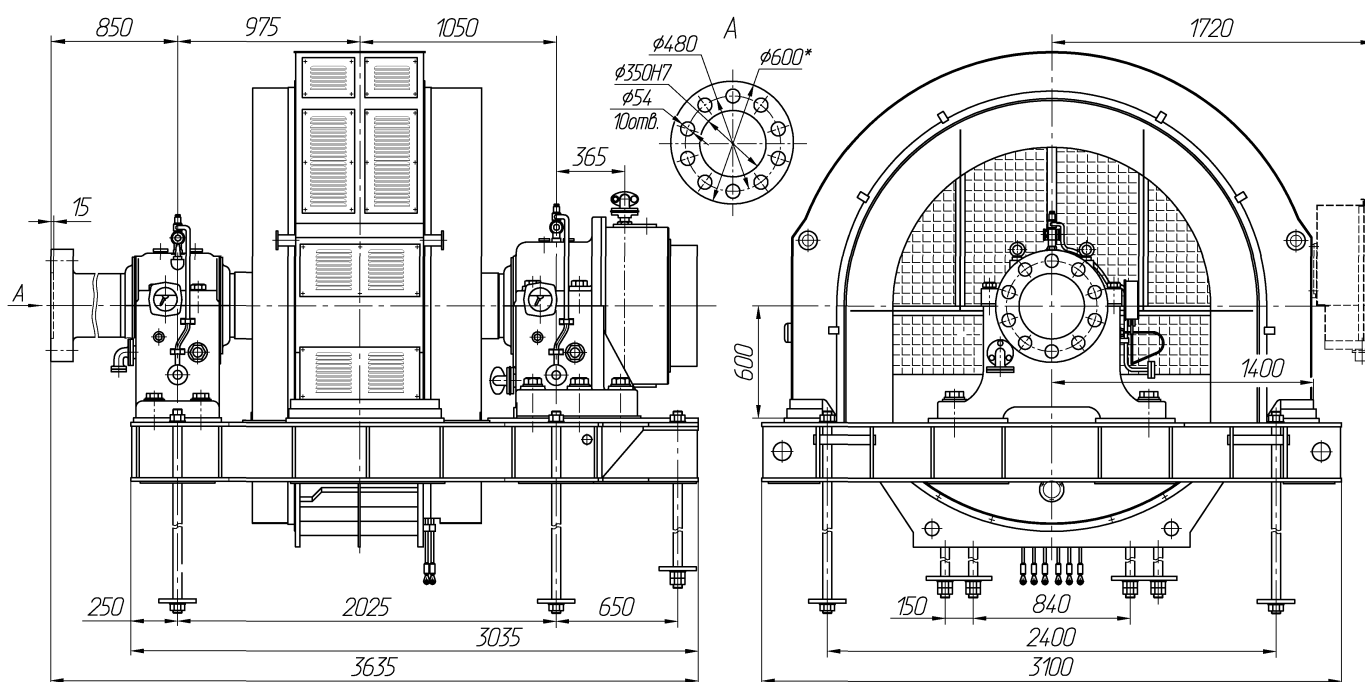


Fig.16: Electric motors 4CД 215-3150-16



Overall and mounting dimensions of the motors (continuation).

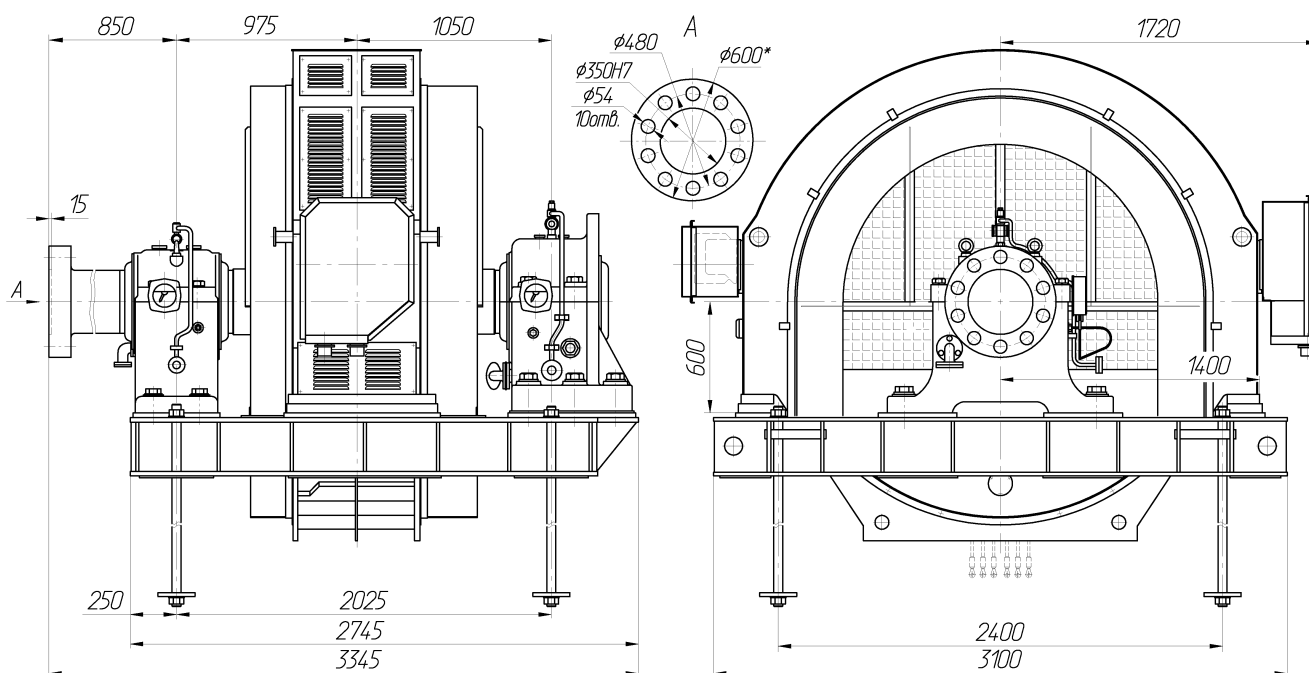


Fig. 17: Electric motors **CD4-3150-16** (IM 7315, with flange shaft end).

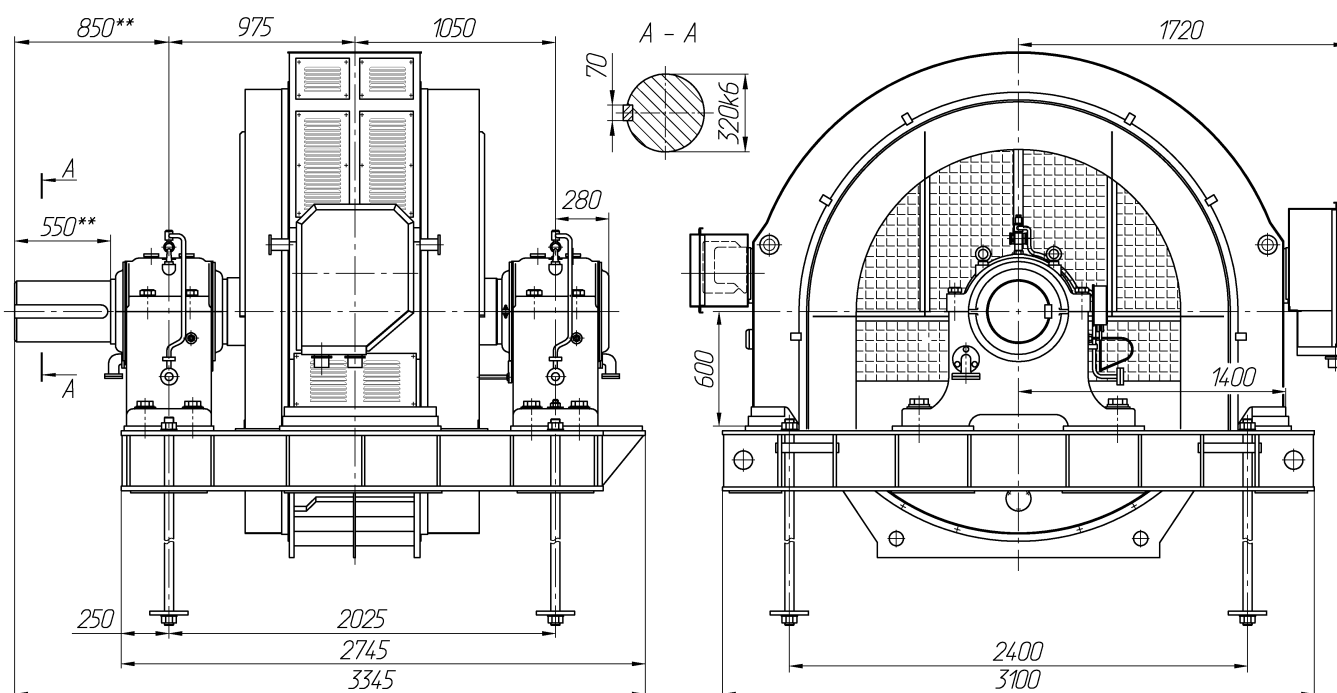


Fig.18: Electric motors **CD4-3150-16** (IM7311, with cylindrical shaft end).

(** Note: dimensions of outlet shaft end are agreed depending on type of half-coupling used)



ELECTRIC MOTORS OF СДК(3) 4 TYPE

Synchronous electric motors of СДК(3) 4 type are used to drive piston compressors and rated for operation in continuous mode S1 from AC network, 50 Hz, with voltage 6000 V or 10000 V, $\cos \varphi = 0.9$.

Climatic version - УХЛ4 by GOST 15150.

Degree of protection for motors СДК4 is IP11, motors СДК3 4 - IP44.

Construction version - IM 5710 (console), motors СДК(3)4-17-39-12Ф, СДК(3)4-19-41-16Ф, СДК(3)4-19-38-16Ф - IM 7125 – IM 7125 (flange).

At a customer's request the motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

The thyristor exciters with self- regulating system for exciting current energize the motors.

Motor start is asynchronous, direct, at full network voltage with discharging resistance going into the circuit of field winding.

Motors enable two cold starts successively or one hot start. Interval between subsequent starts is not less than two hours.

Insulation of stator winding belongs to heat-resistance class not lower than "F" by GOST 8865.

Stator winding is connected in "star" and has six terminals brought in the terminal box.

The thyristor exciters energize the motors.

Technical data on motors are shown in Table 23, overall and mounting dimensions are shown in figures and in Tables 24, 25 and 26.

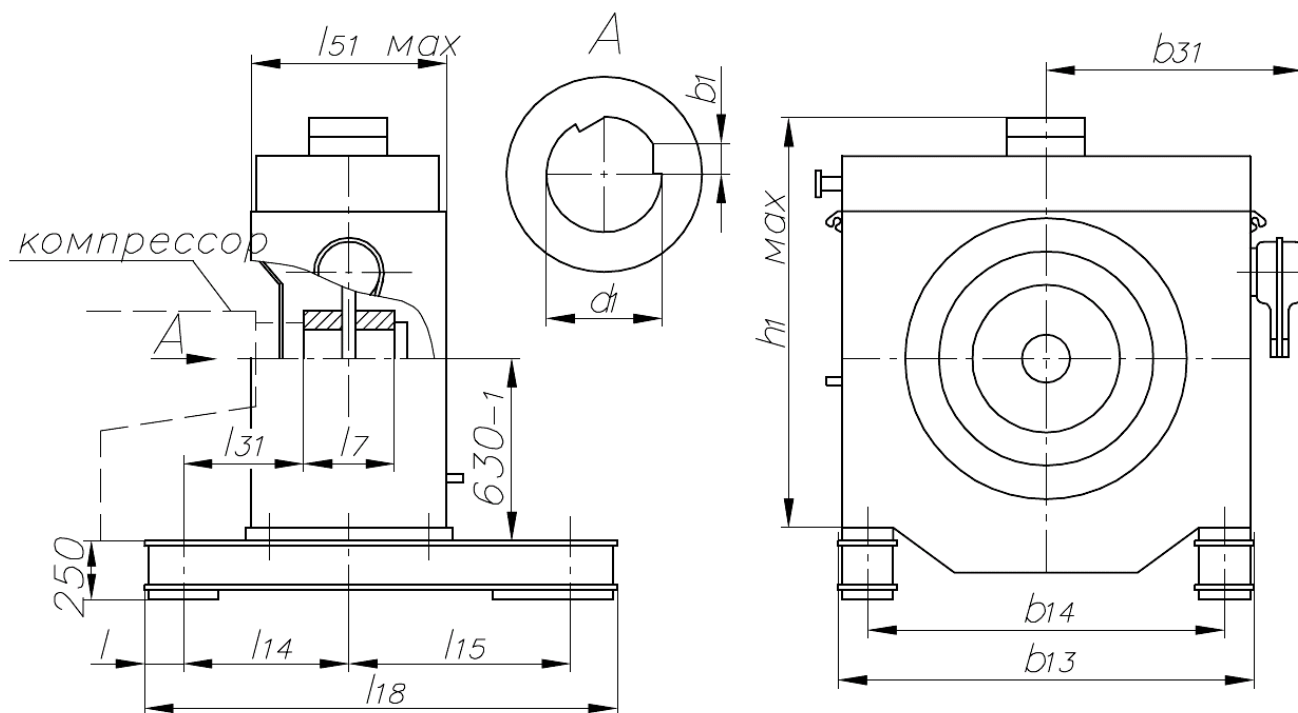
Table 23

Type of the motor	Power, kW	Rotational speed, rpm	Eff., %
СДК 4-16-24КУХЛ4	400	600	93,9
СДКЗ 4-16-24КУХЛ4			
СДК 4-16-44КУХЛ4	800	600	96,0
СДКЗ 4-16-44-10УХЛ4			
СДК 4-16-24-12КУХЛ4	315	500	92,3
СДКЗ 4-16-24-12КУХЛ4			
СДК 4-17-26-12КУХЛ4	630	500	94,5
СДКЗ 4-17-26-12КУХЛ4			
СДК 4-17-26-16КУХЛ4	500	375	93,5
СДКЗ 4-17-26-16КУХЛ4			
СДК 4-18-26-16КУХЛ4	800		93,4
СДКЗ 4-18-26-16КУХЛ4			
СДК 4-18-34-16КУХЛ4	1000		94,2
СДКЗ 4-18-34-16КУХЛ4			
СДК 4-18-41-16ФУХЛ4	1250		94,4
СДКЗ 4-18-41-16ФУХЛ4			
СДК 4-19-39-16ФУХЛ4	1600		95,4
СДКЗ 4-19-39-16ФУХЛ4			
СДК 4-19-41-16ФУХЛ4	2000		95,8
СДКЗ 4-19-41-16ФУХЛ4			



Table 24

Motor type	Voltage, V	l_7 , mm	l_{14} , mm	l_{18} , mm	l_{31} , mm	l_{51} , mm	b_1 , mm	b_{13} , mm	b_{14} , mm	b_{31} , mm	d_1 , mm	h_1 , mm	Weight, kg
СДК4-16-44-10КУХЛ4	6000	200	1120 ±2	200	270	1100				995			3790
	10000									1086			3820
СДК4-16-24-10КУХЛ4	6000	150		1320	375	925	44,9	1550	1350 ± 2	995	Ø180H	1400	2570
	10000									1086			2600
СДК4-16-24-12КУХЛ4	6000	150	1060 ±2				44,9			995	Ø180H		2480
	10000									1086			2510
СДК4-17-26-12КУХЛ4	6000	200	1060 ±2	1320 ⁺¹⁰	400	1000	44,9	1850 ⁺¹⁰	1650 ± 2	1145	Ø180H	1630	3600
	10000									1236			3650
СДК4-17-26-16КУХЛ4	6000	200	1060 ±2	1320 ⁺¹⁰	400	1000	44,9	1850 ⁺¹⁰	1650 ± 2	1145	Ø180H	1630	3900
	10000									1236			3950

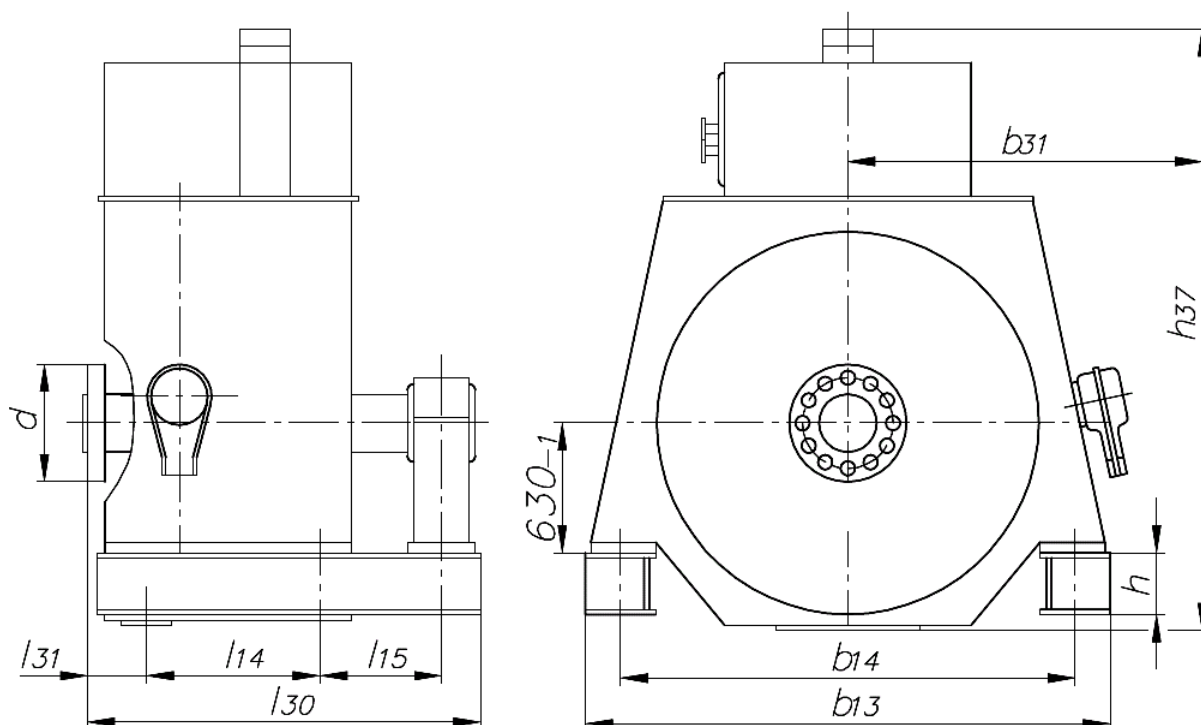


Motors in version IM 5710



Table 25

Motor type	Voltage, V	l_7 , mm	l_{14} , mm	l_{18} , mm	l_{31} , mm	l_{51} , mm	b_1 , mm	b_{13} , mm	b_{14} , mm	b_{31} , mm	d_1 , mm	h , mm	h_1 , mm	Weight, kg
СДКЗ 4-16-44-10КУХЛ4	6000	200	1120 ± 2	200 0	375	120 0				995				5400
	10000													5430
СДКЗ 4-16-24-10КУХЛ4	6000	150			270	100 0	44, 9	155 0	1350 ± 2	995	$\varnothing 180H$	120	187 0	3300
	10000													3330
СДКЗ 4-16-24-12КУХЛ4	6000	150	1160 ± 2	160 0						995				3660
	10000													3690
СДКЗ 4-17-26-12КУХЛ4	6000	200			400	100 0		185 0	1650 ± 2	1145		230	210 0	5170
	10000													5200
СДКЗ 4-17-26-16КУХЛ4	6000	200								1145				5470
	10000													5500



Motors in version IM 7125

Table 26

Type of the electric motor	Weight, kg
СДК(3) 4-18-41 -16ФУХЛ4	11800
СДК(3) 4-19-39 -16ФУХЛ4	13500



ELECTRIC MOTORS OF СДКП 4 TYPE

Synchronous electric motors of СДКП 4 type are used to drive compressors, and they are designed for operation in continuous mode in explosive zones of premises of all classes, except for outdoor installations. The motors are rated for operation in continuous mode from AC network, 50 Hz, with voltage 6000 V or 10000 V.

Climatic version - УХЛ4 by GOST 15150.

Degree of protection - IP44. Motors have explosion-proof level of explosion protection (1), with explosion protection «filling the casing under overpressure» (p) by GOST 22782.4, (px) by GOST R 51330.3, group of electric equipment II, thermal class T5 by GOST 22782.0, GOST R 51330.0. Explosion protection marking is 1ExpII T5 by GOST 12.2.020 for delivery to Ukraine and 1ExpII T5X by GOST R 51330.3 for delivery to Russia.

Construction version - IM 5710 (console) – for electric motors СДКП4-16,17,18; IM 7125 (flange) – for electric motors СДКП4-17,18,19.

The thyristor exciters with control and self-regulating system for exciting current energize the motors.

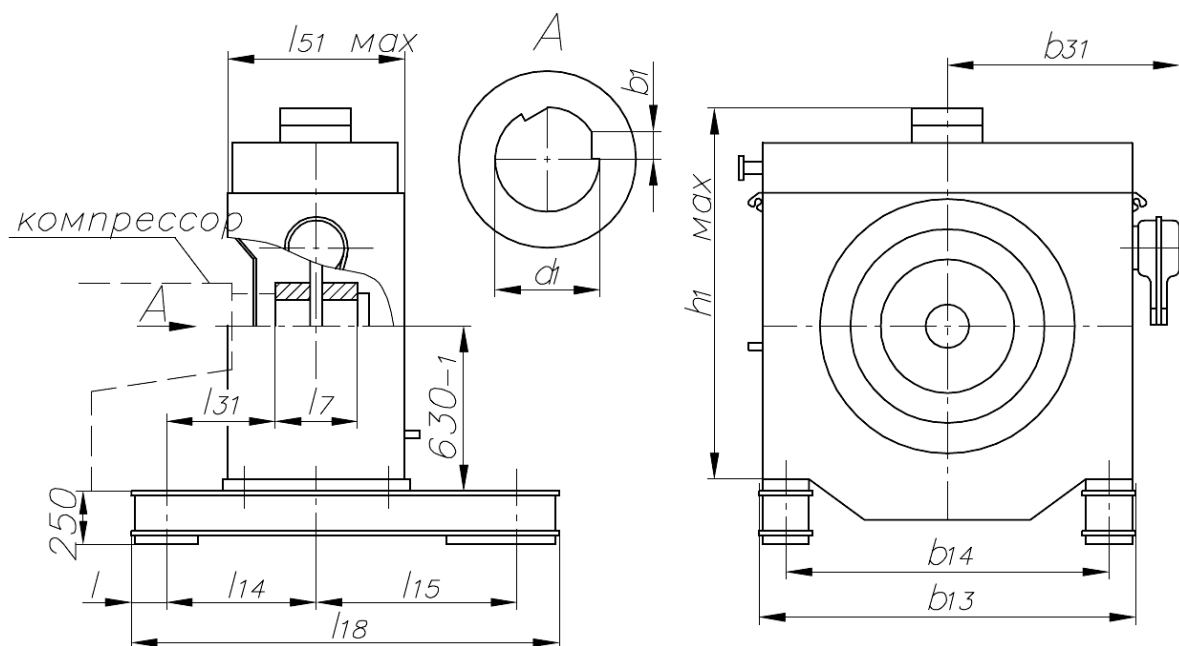
Motor start is asynchronous, direct, at full network voltage with discharging resistance going into the circuit of field winding.

Insulation of stator winding belongs to heat-resistance class not lower than "F". Stator winding is connected in "star" and has six terminals brought in the terminal box.

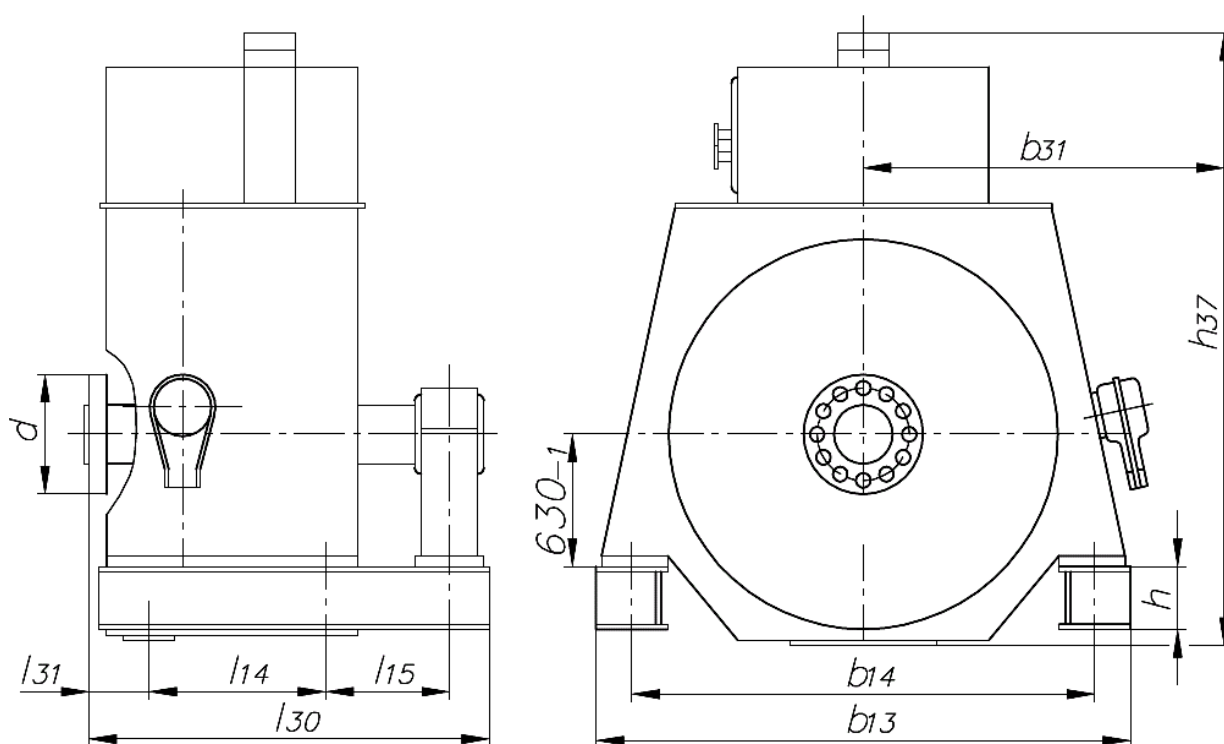
Technical data on motors are shown in the Table 27.

Table 27

Motor type	Power, kW	Voltage, V	Rotational speed, rpm	Eff., %
СДКП4-16-24-12КУХЛ4	315	6000	500	92,2
СДКП4-16-29-12КУХЛ4	400		500	93,4
СДКП4-16-36-12КУХЛ4	500		500	93,7
СДКП4-16-29-10КУХЛ4	500		600	94,0
СДКП4-17-26-12КУХЛ4	630		500	94,0
СДКП4-17-31-12КУХЛ4	800		500	94,5
СДКП4-18-26-16КУХЛ4	800		375	93,8
СДКП4-18-34-16КУХЛ4	1000		375	94,6
СДКП4-18-41-16ФУХЛ4	1250		375	94,8
СДКП4-19-38-16ФУХЛ4	1600		375	95,5
СДКП4-19-41-16ФУХЛ4	2000		375	95,6
СДКП4-16-24-12КУХЛ4	315	10000	500	92,0
СДКП4-16-29-12КУХЛ4	400		500	93,0
СДКП4-16-36-12КУХЛ4	500		500	93,4
СДКП4-16-29-10КУХЛ4	500		600	93,7
СДКП4-17-26-12КУХЛ4	630		500	93,8
СДКП4-17-31-12КУХЛ4	800		500	94,3
СДКП4-18-26-16КУХЛ4	800		375	93,4
СДКП4-18-34-16КУХЛ4	1000		375	94,2
СДКП4-18-41-16ФУХЛ4	1250		375	94,4
СДКП4-19-41-16ФУХЛ4	1600		375	95,4
СДКП4-19-51-16ФУХЛ4	2000		375	95,5



Electric motors СДКП4-16, 17, 18, version (IM5710)



Electric motors СДКП4-17, 18, 19, version (IM7125)



ELECTRIC MOTORS OF ДСП, ДСПУ, СДПН, СДПНК, СДПНУ TYPES

Electric motors are used to drive mechanisms without adjustment of the rotational speed (pumps, blowers, etc.) and rated for operation in continuous mode S1 from AC network, 6000 V and 10000 V, 50 Hz, $\cos \varphi=0,9$ (leading).

Climatic construction: УХЛ4 by GOST 15150.

Degree of protection - IP43/IP00

The motors are produced with plain bearings with ring or combined lubrication; with one or two shaft ends, on feet.

At a customer's request the motors can be provided with magnetic fluid seals (МЖГ) to improve sealing of the bearing.

Motors ДСП, ДСПУ have stator terminals brought in a base hole.

Motors СДПН, СДПНУ, СДПНК have stator terminals brought in two terminal boxes. At a customer's request they can be brought in one terminal box or downwards in a base hole.

The thyristor exciters with control and self-regulating system for exciting current energize the motors.

At a customer's request the motors can be manufactured for other power, voltage and network frequency on the basis of above-mentioned machines.

Technical data on motors are shown in the Table 28.

Overall and mounting dimensions of the motors ДСП, ДСПУ are given in Fig. 19 and Table 29.

Overall and mounting dimensions of the motors СДПН, СДПНУ, СДПНК are given in Fig. 20 and Table 30.

Table 28

Motor type	Power, kW	Voltage, V	Rotational speed, rpm	Eff., %
ДСП 140-74-4УХЛ4	2000	6 000	1500	95,6
СДПН 15-74-4УХЛ4				
ДСП 140-74-4УХЛ4	3150			96,0
СДПН 15-74-4УХЛ4				
ДСПУ 140-84-4УХЛ4	2500			95,9
СДПНУ15-84-4УХЛ4				
СДПНК 15-84-4УХЛ4				
ДСП 143-84-4УХЛ4				
СДПН 15-84-4УХЛ4	10 000	96,0		
СДПН 15-64-8У3			750	96,4
ДСП 173/64-8УХЛ4				

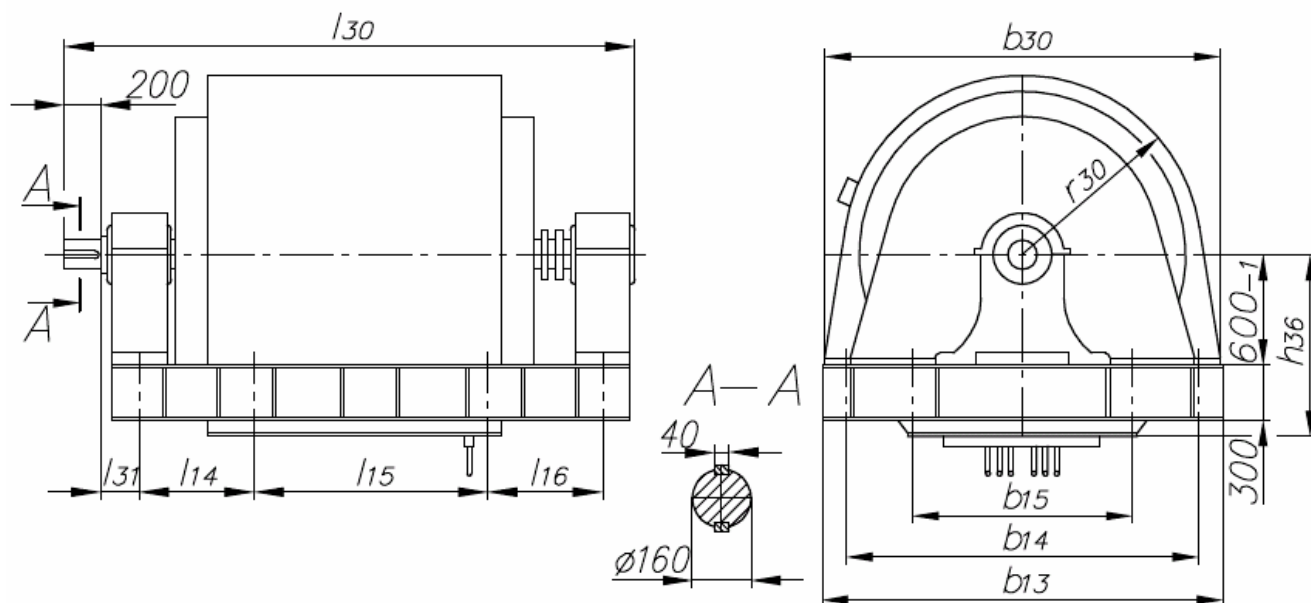


Fig. 19

Table 29

Motor type	Dimensions, m											Weight, kg
	l ₁₄	l ₁₅	l ₁₆	l ₃₀	l ₃₁	b ₁₃	b ₁₄	b ₁₅	b ₃₀	h ₃₆	r ₃₀	
ДСП 140-74-4УХЛ4	550	1300	750	3220	220	2180	1930	1180	2150	990	975	13250
ДСПУ 140-84-4УХЛ4	600		800	3420	320							14750
ДСП 143-84-4УХЛ4		1520		3645								15100

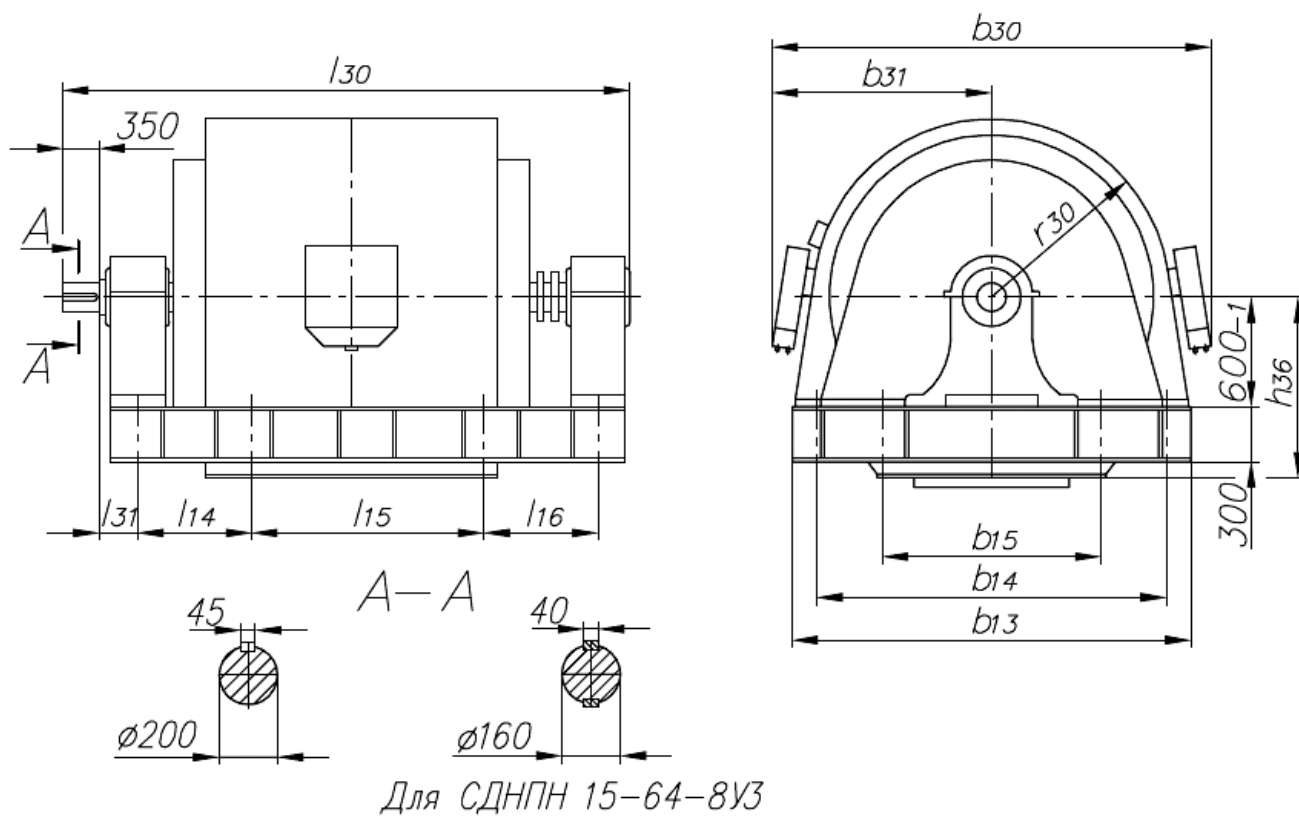


Fig. 20

Table 30

Motor type	Dimensions, mm												Weight, mm
	l ₁₄	l ₁₅	l ₁₆	l ₃₀	l ₃₁	b ₁₃	b ₁₄	b ₁₅	b ₃₀	b ₃₁	h ₃₆	r ₃₀	
СДПН 15-74-4УХЛ4	550	1300	750	3220	220	2180	1930	1180	316 0	1580	990	975	13375
СДПНУ 15-84-4УХЛ4	600		800	3420	320								14875
СДПНК 15-84-4УХЛ4	550		750	3220	220								13850
СДПНУ 15-74-4УХЛ4	600		800	3645	320								15225
СДПН 15-64-8У3	475	1550	600	3445	250	2550	2370	1300	-	-	1200	950	14000



VERTICAL ELECTRIC MOTOR **СДВ2К-215/41-10УХЛ4**

Synchronous vertical AC three-phase electric motor **СДВ2К-215/41-10УХЛ4** is designed to drive vertical hydraulic pumps 800В-2,5/100.

The motor is delivered as a component part.

The motor is installed in structure of the assembly unit in the serving room of the pump station.

Rated operating mode of the motor – continuous S1 by GOST R 52776.

Climatic version of the motor –УХЛ, installation category – 4 by GOST 15150 and GOST 15543.1.

Environment is not inflammable, not explosive; it is free from aggressive gases and vapours, which destroy metal and insulation.

Stator winding insulation is thermosetting «Monolith-2», it belongs to heat-resistance class "F" by GOST 8865, and with temperature usage as class "B". Insulation of rotor winding belongs to heat-resistance class "F" by GOST 886.

Stator winding has six terminals. Phase are connected in «star».

The static thyristor exciter ТЕП -400/115 excites the motor.

Motor start is asynchronous, direct, at full network voltage with rotor winding closed on resistors' unit. The resistors' unit has built-in exciter.

Protection degree of the motor meets IP23, of the terminal box – IP11, of contact rings – IP11 by GOST 17494.

Construction version of the motor by mounting way - IM8425 by GOST 2479. Construction of the motor is vertical, suspended, with flange shaft end, with two guide bearings and one end thrust bearing, which are rated to accept loading of weight of rotating pump parts and of water body reaction.

The motor shaft is coupled with the pump shaft rigidly.

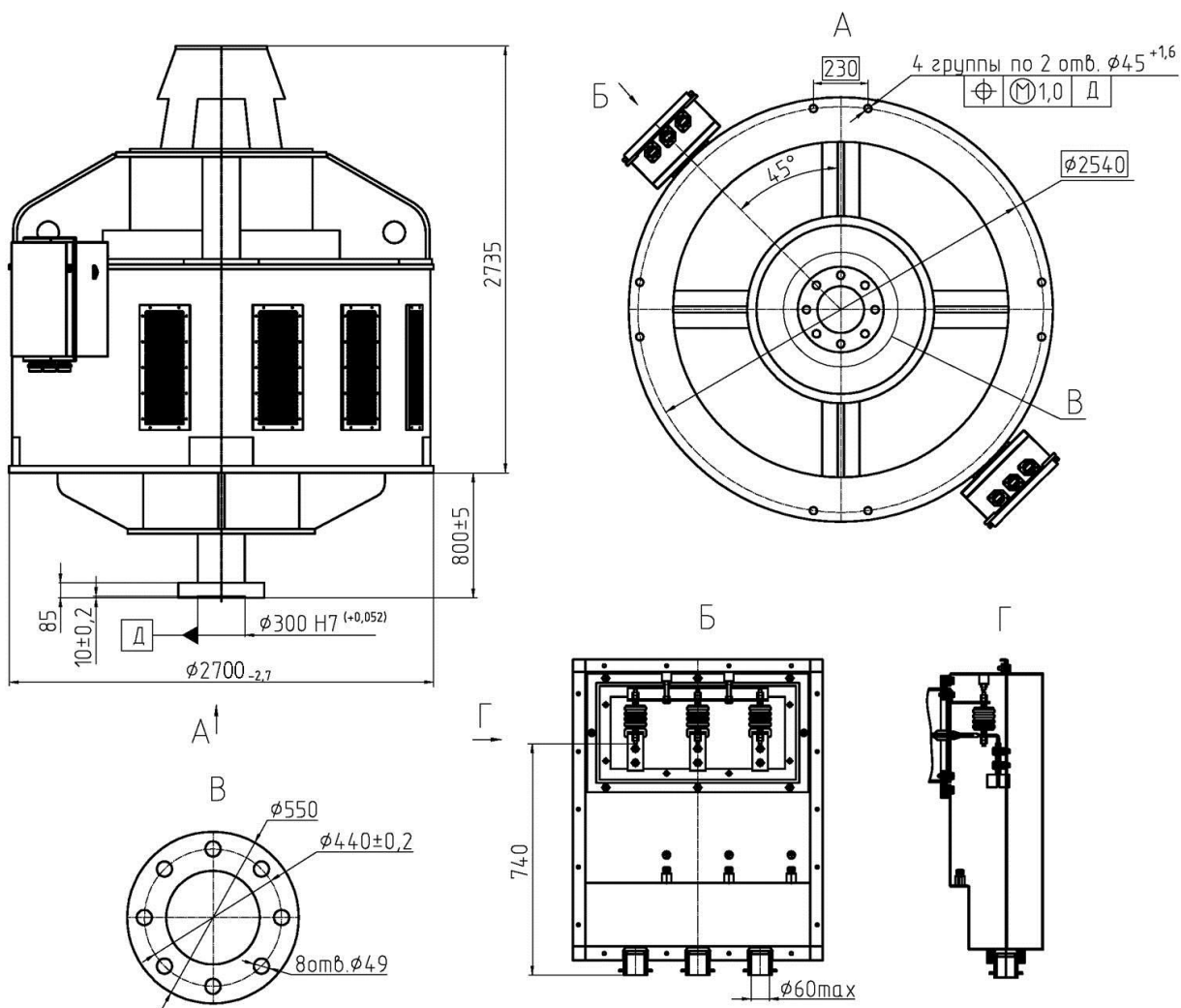
The motor is manufactured with right sense of rotation, if you see from working shaft end side. At a customer's request the motor is made with mounting bars.

Cooling way of the motor ICA01 GOST 20459

Motor designation is decoded as follows:

СДВ2К	-	215	/	41	-	10	УХЛ	4							
								Installation category							
								Climatic version							
								Number of poles							
								Length of the stator core in cm							
								Outer diameter of the stator core in cm							
Designation of the series:															
С - synchronous															
Д - motor															
В - vertical															
2 – the 2 nd series															
К - made in Novaya Kakhovka															

Motor type	Power, kW	Rotational speed, rpm	Eff., %	cos φ	Weight, kg
СДВ2К-215/41-10УХЛ4	3150	600	95,4	0,90	21700





ELECTRIC MOTORS SERIES MC AND СДC3

Synchronous three-phase motors series MC and СДC3 are designed for the rolls drive of the mills, for converting units and fans. Designed for operation from AC mains at voltages 6 kW, 10 kW, 10,5 kW and frequency 50 Hz.

Explanation of designations of the motors series MC 325-9/12УХЛ4:

MC- designation of the series
325 - designation of dimension
9 - quantity of stator packages
12 - quantity of poles
УХЛ - climatic version
4 - location category

Explanation of designations of the motors series СДC3-18-39-20РУХЛ4:

СДC3 - designation of the series
18 - designation of dimension
39 - stator core length, cm
20 - quantity of poles
P - reversible (two-sides rotation)
УХЛ - climatic version
4 - location category

Climatic version УХЛ and 0, location category 4. The motors parameters of climatic version 0 are to be coordinated in every concrete case with the plant-manufacturer.

Rated mode of operation is continuous S1.

Types and main parameters of the motors are listed in Table 31.

Overall and mounting dimensions of the motors are listed in Tables 32, 33, 34 and Figures 1, 2, 3, 4.

Table 31

Motor type	Rated data			$\frac{M_{max.}}{M_{rated}}$	Rotation speed, rpm	Dynamic moment of armature inertia, kgm ²
	Power, kW	Voltage, V	Eff., %	M_{rated}		
MC325-9/12УХЛ4	5600	6000	96,0	2,30	500	9500
MC325-9/12УХЛ4	4000	10000	95,5	2,50	500	9500
MC325-12/12УХЛ4	7100	6000	96,1	2,50	500	13750
MC325-12/12УХЛ4	5000	10500	95,7	2,80	500	13750
MC325-15/12УХЛ4	9000	6000	96,3	2,50	500	15500
MC325-15/12УХЛ4	7100	10500	96,0	3,00	500	15500
MC325-20/12УХЛ4	10900	6000	96,4	2,50	500	21125
MC325-20/12УХЛ4	9000	10000	96,2	2,80	500	21125
СДC3-290-12/16УХЛ4	5600	6000	96,4	2,00	375	13750
СДC3-290-12/16УХЛ4	4500	10000	95,9	2,10	375	13750
СДC3-19-59-16УХЛ4	8000	6000	96,0	2,55	375	30000
СДC3-19-59-19УХЛ4	8000	10000	96,0	2,80	375	30000
СДC3-19-125-16УХЛ4	19500	6000	97,5	1,90	375	47500
СДC3-19-125-16УХЛ4	18500	10500	97,5	2,10	375	47500
СДC3-18-39-20УХЛ4	2000	6000	95,3	2,00	300	4500
СДC3-18-39-20РУХЛ4	2000	6000	95,3	2,00	300	5200
СДC3-18-49-20УХЛ4	2500	6000	95,6	2,00	300	5500

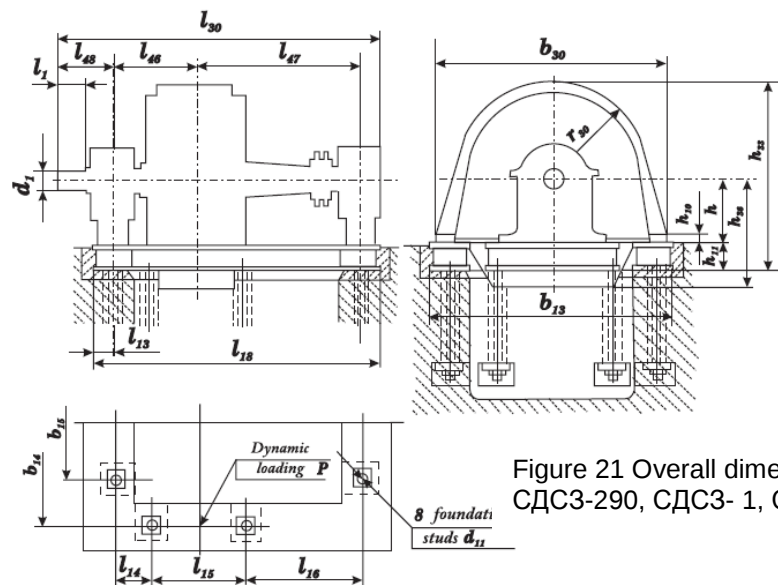


Figure 21 Overall dimensions of motors
СДС3-290, СДС3-1, СДС3-19

Table 32 (to the Figure 21)

Motor type	Dimensions, mm												
	b ₁₃	b ₁₄	b ₁₅	b ₃₀	d ₁	d ₁₁	l ₁	l ₁₃	l ₁₄	l ₁₅	l ₁₆	l ₁₈	l ₃₀
СДС3-290-12/16УХЛ4	4550	4150	1750	4500	400	M64	650	315	550	1750	1500	4430	5230
СДС3-19-59-16УХЛ4	5050	4650	2300	5000	500	M64	650	370	700	2000	1850	5290	6100
СДС3-18-39-20УХЛ4	4060	3750	1600	4000	300	M48	500	250	450	1300	1150	3400	3980
СДС3-18-49-20УХЛ4	4030	3750	1500	4000	320	M48	470	250	420	1500	1150	3570	4120
СДС3-18-61-20УХЛ4	4030	3295	1750	4000	360	M42	450	210	70	1310	-	3155	3675

Table 32. Continuation

Motor type	Dimensions, mm									Weight, kg			P, kW
	l ₄₆	l ₄₇	l ₄₈	h	h ₁₀	h ₁₁	h ₃₃	h ₃₆	r ₃₀	stator	rotor	total	
СДС3-290-12/16УХЛ4	1400	2400	1055	600	55	400	2900	1950	1900	16600	27500	57100	177
СДС3-19-59-16УХЛ4	1700	2850	1115	800	55	400	3150	2000	2150	25570	41000	86500	230
СДС3-18-39-20УХЛ4	1100	1800	800	600	50	450	2700	1700	1650	9200	9550	25750	111
СДС3-18-49-20УХЛ4	1170	1900	770	600	35	450	2700	1700	1650	10600	11850	2800	145
СДС3-18-61-20УХЛ4	1200	1450	780	600	35	340	2590	1700	1650	11200	14200	33000	234

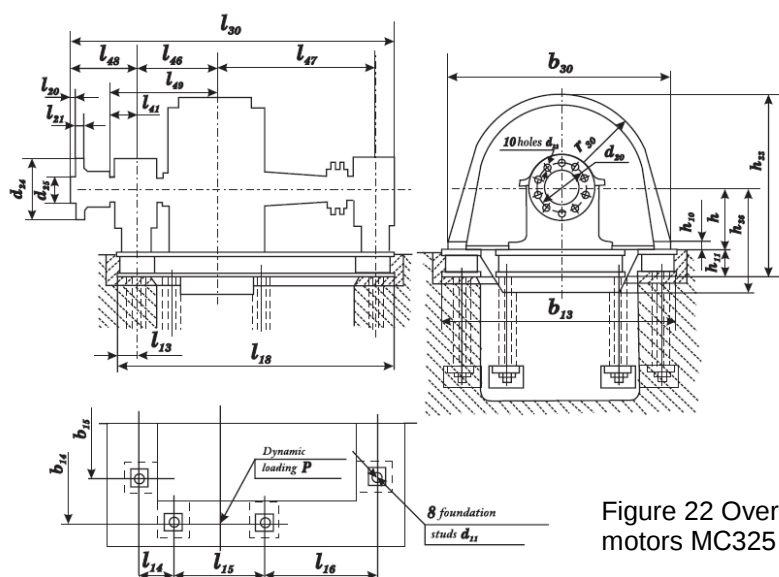


Figure 22 Overall dimensions of
motors MC325 and СДС3-290



Table 33 (to the Figure 22)

Motor type	Dimensions, mm										
	b ₁₃	b ₁₄	b ₁₅	b ₃₀	d ₁₁	d ₂₀	d ₂₂	d ₂₄	d ₂₅	l ₁₃	l ₁₄
MC325-9/12УХЛ4	4540	4150	2000	4500	M48	580	50	720	400	295	600
СДС3-290-12/16УХЛ4	4540	4150	2200	4500	M48	580	50	720	400	350	550

Continuation

Motor type	Dimensions, mm										
	l ₁₅	l ₁₆	l ₁₈	l ₂₀	l ₂₁	l ₃₀	l ₄₁	l ₄₆	l ₄₇	l ₄₈	l ₄₉
MC325-9/12УХЛ4	1450	1450	4015	12	70	4582	410	1300	2200	842	1710
СДС3-290-12/16УХЛ4	1750	1450	4400	12	70	5140	470	1450	2300	1012	1920

Continuation

Motor type	Dimensions, mm						Weight, kg			P, kW
	h	h ₁₀	h ₁₁	h ₃₃	h ₃₆	r ₃₀	stator	rotor	total	
MC325-9/12УХЛ4	600	55	380	2880	1950	1900	15100	24000	49500	182
СДС3-290-12/16УХЛ4	600	55	600	3100	1950	1900	17100	27400	57000	177

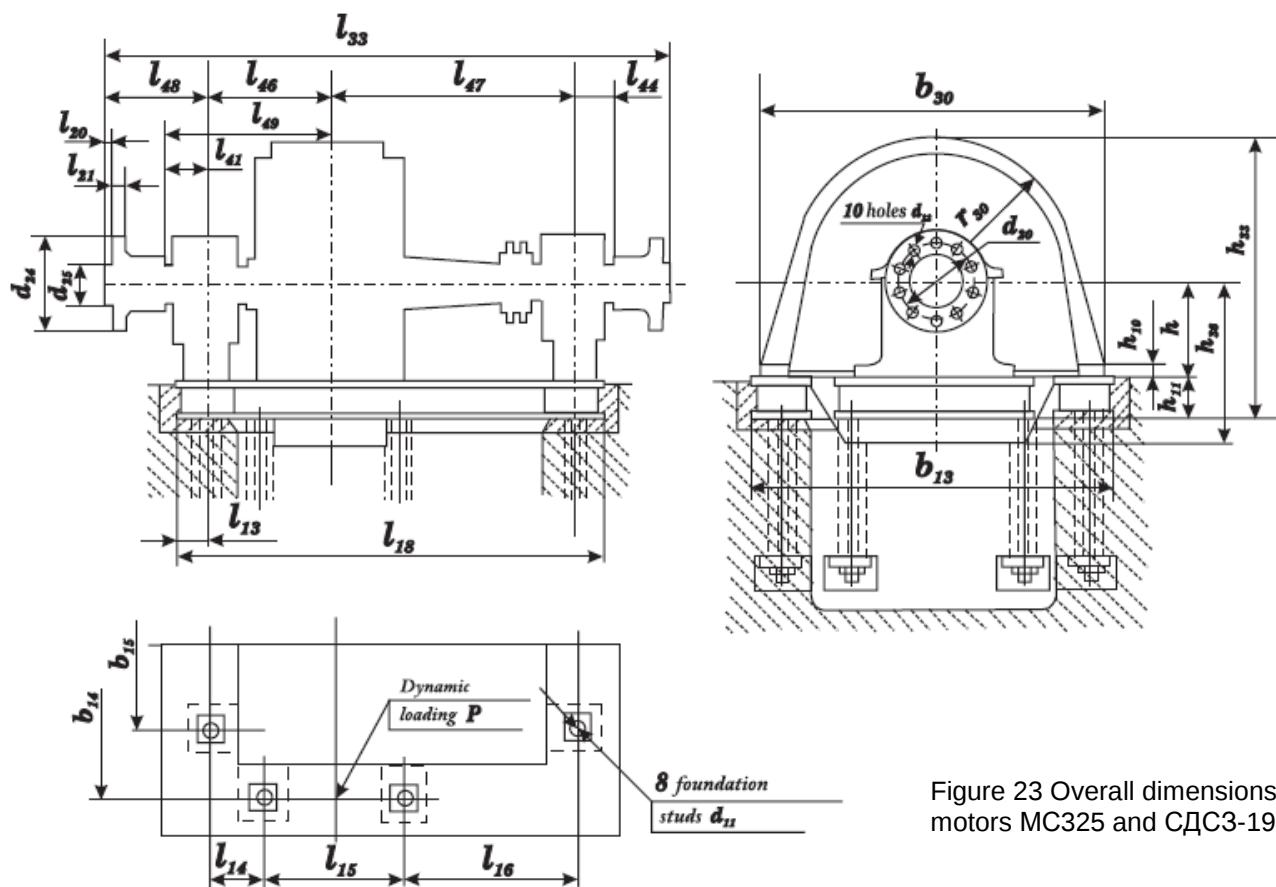


Figure 23 Overall dimensions of motors MC325 and СДС3-19

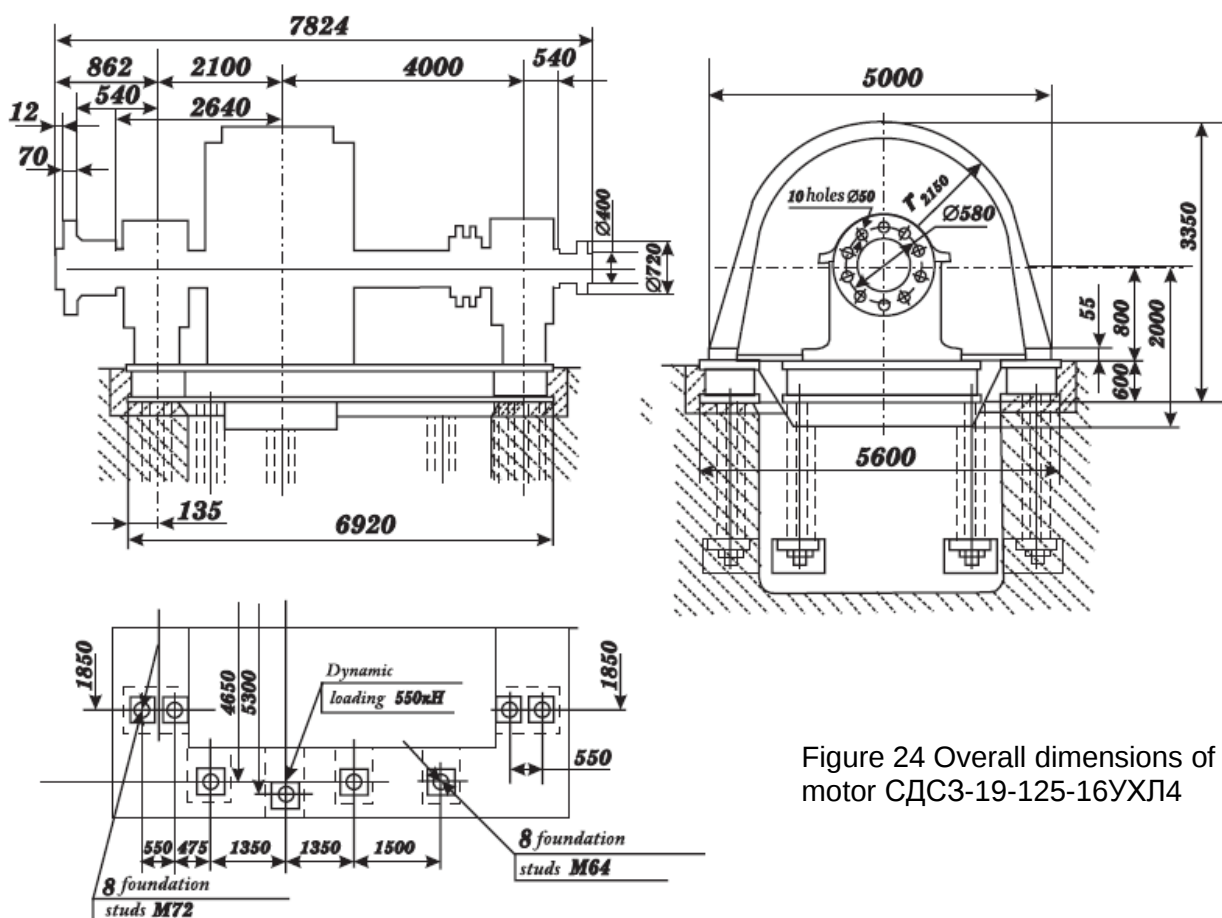


Figure 24 Overall dimensions of motor СДС3-19-125-16УХЛ4

Table 34 (to the Figure 23)

Motor type	Dimensions, mm										
	b ₁₃	b ₁₄	b ₁₅	b ₃₀	d ₁₁	d ₂₀	d ₂₂	d ₂₄	d ₂₅	l ₁₃	l ₁₄
МС325-12/12УХЛ4	4540	4150	2000	4500	M48	580	50	720	400	310	640
МС325-15/12УХЛ4	4530	4150	2000	4500	M48	580	50	720	400	310	600
МС325-20/12УХЛ4	4540	4150	2100	4500	M48	580	50	720	400	350	745
СДС3-19-59-16УХЛ4	5050	4650	2300	5000	M48	580	50	720	400	370	700

Continuation

Motor type	Dimensions, mm										
	l ₁₅	l ₁₆	l ₁₈	l ₂₀	l ₂₁	l ₃₃	l ₄₁	l ₄₄	l ₄₆	l ₄₇	l ₄₈
МС325-12/12УХЛ4	1760	1750	4770	12	70	5874	412	412	1600	2650	862
МС325-15/12УХЛ4	1900	1900	5020	12	70	6124	412	412	1550	2850	862
МС325-20/12УХЛ4	2250	2255	5950	12	70	7374	612	612	1850	3400	1062
СДС3-19-59-16УХЛ4	2000	1850	5290	12	70	6074	465	465	1700	2850	765

Продолжение

Тип двигателя	Dimensions, mm							Weight, kg			P, кВт
	l ₄₉	h	h	h ₁₁	h ₃₃	h ₃₆	r ₃₀	stator	rotor	total	
МС325-12/12УХЛ4	1812	600	55	330	2880	1950	1900	18200	30000	58300	196
МС325-15/12УХЛ4	1962	600	55	380	2880	1950	1900	21400	34050	65800	324
МС325-20/12УХЛ4	2462	600	55	380	2880	1950	1900	28000	46600	86000	450
СДС3-19-59-16УХЛ4	2165	800	55	400	3150	2000	2150	25600	41000	86500	230



SYNCHRONOUS MOTORS SERIES CD32 SIZES 16, 17

Synchronous three-phase motors series CD32 are designed to complete converter units of excavators. They may be used for drives of different mechanisms on agreement between the customer and the plant-manufacturer. Designed for operation from AC mains supply 6000 V and 10 000 V, frequency 50 Hz.

Explanation of designations of the motors series CD32-16-36-6Y2:

CD32 - designation of the series

16 - designation of dimension

36 - stator core length, cm

6 - quantity of poles

Y – climatic version

2- location category

Climatic version Y, XJ and T, location category 2.. The motors parameters of climatic version T are to be coordinated in every concrete case with the plant-manufacturer.

Rated mode of operation is continuous S1 with alternating loading.

Ambient temperature from – 45° C to + 45° C is for climatic version “U” and from - 60° C to + 45° C is for climatic version “XJ”

Design version of the motors as to the mode of mounting is IM1102, cooling method. - ICA21. Degree of protection of the motors is IP21, for the outlets box is IP44.

Insulation of the stator and rotor windings is of class “F”.

The motors are self-ventilated, air supply from the premises through shields, air ejection is under the assembly plate.

Excitation of the motors is performed from thyristor excitation arrangements. On customer's requirements excitation of motors can be performed from electric machine excitation unit which is a part of the converter set as well as the motor or from separate excitation unit.

Types and main parameters of the motors are listed in Table 35.

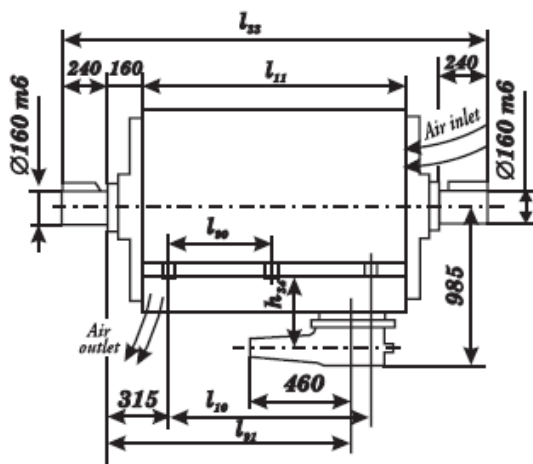
Overall and mounting dimensions of the motors and weight of the motors are listed in Tables 36, 37, 38, 39.

Table 35

Motor type	Rated data				$\frac{M_{max}}{M_{rated}}$	Motor inertia moment, tm^2	Permissible inertia moment of the mechanism, tm^2
	Power, kW	Voltage, kV	Rotation speed, rpm	Eff., %			
CD32-15-34-6Y2	630	6	1000	95,5	2,1	0,048	0,12
CD32-16-36-6Y2	1000	6	1000	95,5	2,1	0,102	0,88
CD32-16-36-6XJ2	1000	6	1000	95,5	2,1	0,102	0,88
CD32-16-36-6Y2	800	10	1000	94,5	2,0	0,102	0,88
CD32-16-36-6XJ2	800	10	1000	94,5	2,0	0,102	0,88
CD32-16-46-6Y2	1250	6	1000	96,0	2,1	0,122	1,0
CD32-16-46-6XJ2	1250	6	1000	96,0	2,1	0,122	1,0
CD32-16-46-6Y2	1000	10	1000	95,0	2,0	0,122	1,0
CD32-16-46-6XJ2	1000	10	1000	95,0	2,0	0,122	1,0
CD32-16-57-6Y2	1600	6	1000	96,4	2,0	0,142	1,13
CD32-16-57-6XJ2	1600	6	1000	96,4	2,0	0,142	1,13
CD32-16-57-6Y2	1250	10	1000	95,5	2,0	0,142	1,13
CD32-16-57-6XJ2	1250	10	1000	95,5	2,0	0,142	1,13
CD32-17-46-6Y2	2000	6	1000	96,3	2,1	0,32	1,25
CD32-17-46-6XJ2	2000	6	1000	96,3	2,1	0,32	1,25
CD32-17-46-6Y2	1600	10	1000	95,3	2,0	0,32	1,25
CD32-17-46-6XJ2	1600	10	1000	95,3	2,0	0,32	1,25
CD32-17-57-6Y2	2500	6	1000	96,4	2,0	0,384	1,38
CD32-17-57-6XJ2	2500	6	1000	96,4	2,0	0,384	1,38
CD32-17-57-6Y2	2000	10	1000	95,7	2,0	0,384	1,38
CD32-17-57-6XJ2	2000	10	1000	95,7	2,0	0,384	1,38
CD32-17-69-6Y2	2500	10	1000	96,2	1,9	0,445	1,50
CD32-17-69-6XJ2	2500	10	1000	96,2	1,9	0,445	1,50
CD32-17-69-8Y2	2500	6	750	96,2	2,0	0,582	2,90
CD32-17-69-8XJ2	2500	6	750	96,2	2,0	0,582	2,90
CD32-17-69-8Y2	2250	10	750	96,0	2,0	0,582	2,90
CD32-17-69-8XJ2	2250	10	750	96,6	2,0	0,582	2,90



Variant 1



Variant 2

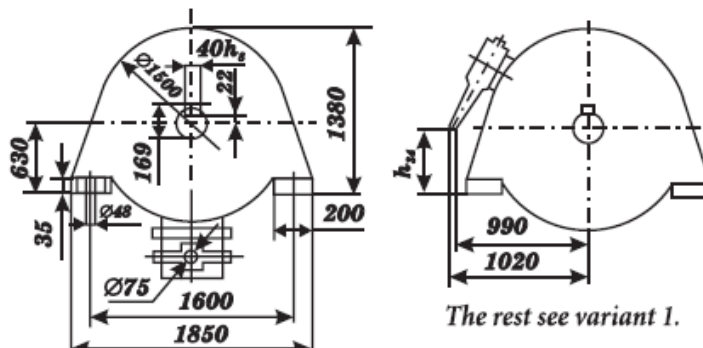


Figure 25. Overall and mounting dimensions of the motor СДЭ2 size 16, voltage 6 kV

Table 36

Motor type	Version	Dimensions, mm						Weight, kg
		l_{10}	l_{11}	l_{33}	l_{90}	l_{91}	h_{34}	
СДЭ2-16-36-6У2	1	1000	1350	2200	500	1235	255	6210
СДЭ2-16-36-6ХЛ2								
СДЭ2-16-36-6У2	2	1000	1350	2200	500	1235	500	6210
СДЭ2-16-36-6ХЛ2								
СДЭ2-16-46-6У2	1	1120	1450	2300	560	1335	255	6950
СДЭ2-16-46-6ХЛ2								
СДЭ2-16-46-6У2	2	1120	1450	2300	560	1335	500	6950
СДЭ2-16-46-6ХЛ2								
СДЭ2-16-57-6У2	1	1250	1560	2410	630	1445	255	7830
СДЭ2-16-57-6ХЛ2								
СДЭ2-16-57-6У2	2	1250	1560	2410	630	1445	500	7830
СДЭ2-16-57-6ХЛ2								

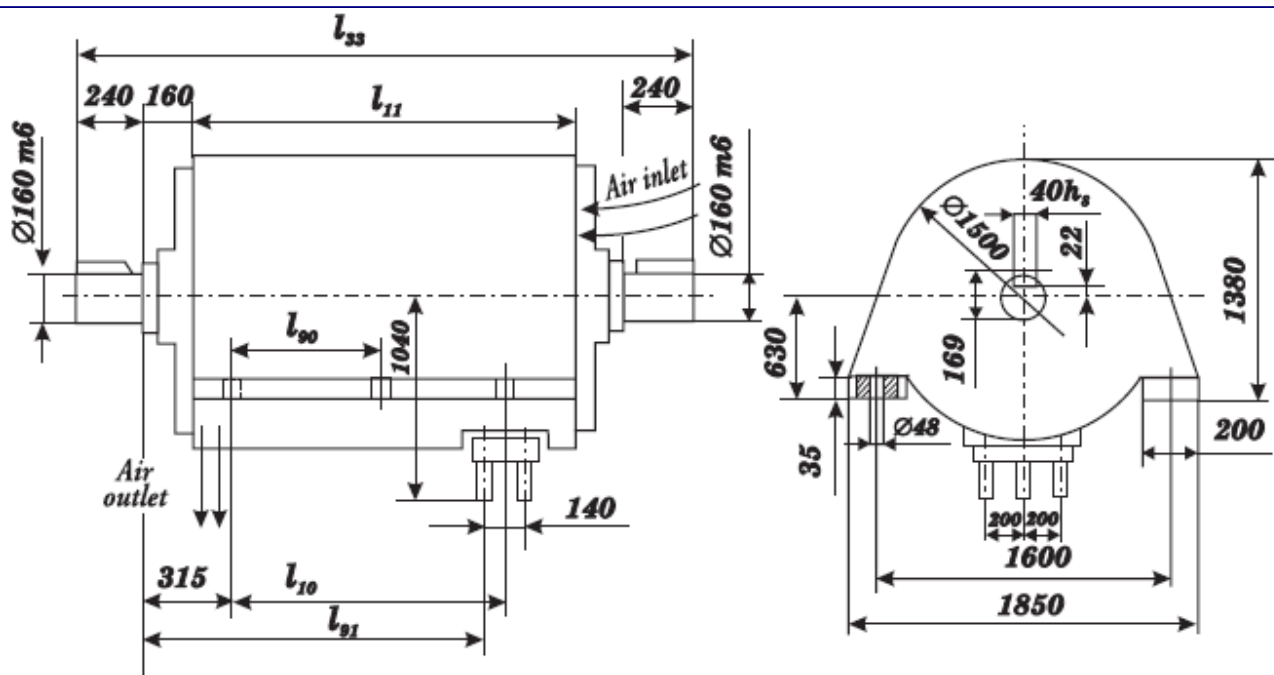
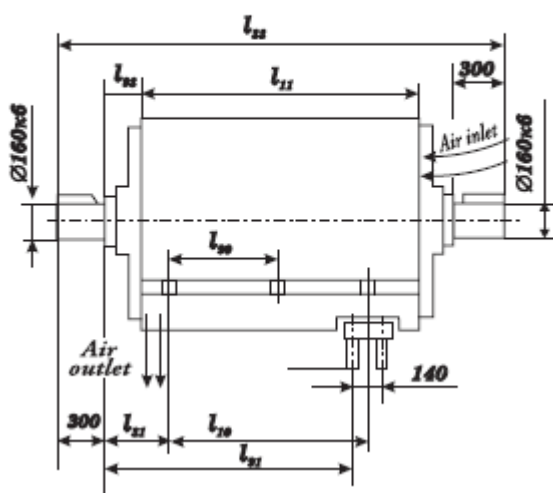


Figure 26. Overall and mounting dimensions of the motor CDЭ2 voltage 10 kV.

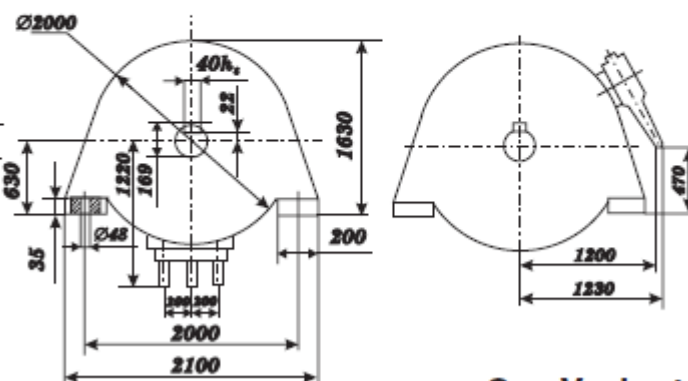
Table 37

Motor type	Dimensions, mm					Weight, kg
	l_{10}	l_{11}	l_{33}	l_{90}	l_{91}	
CDЭ2-16-36-6Y2	1000	1350	500	1215	2200	6170
CDЭ2-16-36-6XЛ2						
CDЭ2-16-46-6Y2	1120	1450	560	1265	2300	6930
CDЭ2-16-46-6XЛ2						
CDЭ2-16-57-6Y2	1250	1560	630	1320	2410	7800
CDЭ2-16-57-6XЛ2						

Variant 1



Variant 2



See Variant 1

Figure 27. Overall and mounting dimensions of the motor CDЭ2 size17, rotation speed 1000 rpm

Table 38

Motor type	Version	Voltage, kV	Dimensions, mm							Weight, kg
			l ₁₀	l ₁₁	l ₃₁	l ₃₃	l ₉₀	l ₉₁	l ₉₃	
СДЭ2-17-46-6У2	1	6	1400	1640	336	2670	710	1345	190	10900
СДЭ2-17-46-6ХЛ2			1400	1640	336	2670	710	-	190	
СДЭ2-17-46-6У2	2	6	1400	1640	336	2670	710	-	190	10900
СДЭ2-17-57-6У2	1	6	1400	1640	336	2670	710	1425	160	12660
СДЭ2-17-57-6ХЛ2			1400	1640	335	2670	710	1345	190	
СДЭ2-17-46-6У2	1	10	1400	1640	335	2670	710	1345	190	10720
СДЭ2-17-46-6ХЛ2			1400	1750	315	2720	710	1425	160	12580
СДЭ2-17-57-6У2			1400	1750	315	2720	710	1425	160	12580
СДЭ2-17-57-6ХЛ2			1400	1750	315	2720	710	1425	160	12580
СДЭ2-17-69-6У2			1600	1870	315	2840	800	1545	160	13880
СДЭ2-17-69-6ХЛ2			1600	1870	315	2840	800	1545	160	13880
СДЭ2-17-57-6У2	1	6/6,3	1400	1750	315	2720	710	1425	160	12660

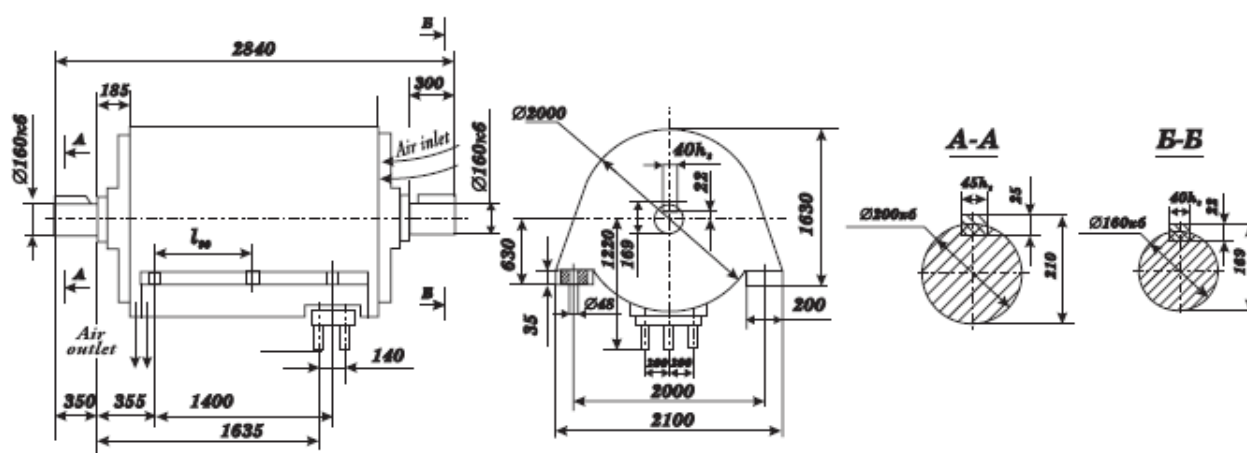


Figure. 28 Overall and mounting dimensions of the motor CДЭ2 size17, rotation frequency 750 rpm..

Table 39

Motor type	Voltage, kV	Weight, kg
СДЭ2-17-69-8У2	6	14025
СДЭ2-17-69-8ХЛ2		
СДЭ2-17-69-8У2		
СДЭ2-17-69-8У2	10	14050
СДЭ2-17-69-8ХЛ2		
СДЭ2-17-69-8У2		



2. SYNCHRONOUS GENERATORS

SYNCHRONOUS GENERATORS **ГГСБ-14-100-6Y2**

Generator **ГГСБ-14-100-6Y2** in structure of electrical units designed to operate with the aviation gas-turbine engine to generate AC 50 Hz grids, with voltage 6300 V and 10500 V.

Operating mode of the generator — continuous S1.

Climatic version — Y2.

Degree of protection — IP11.

The generators are made on plain bearings with ring lubrication. The flexible coupling is used to connect generator with the drive.

Generators are cooled in self-ventilation, with up and down air-out.

Excitation is brushless, from the exciter through rotating diode rectifier with pilot exciter on permanent magnets.

Limiting safe load of the generator at $\cos \varphi$ not below 0,8 depending on temperature of cooling air makes:

C°	40	20	0	-20 not below
Power kVA/kW	3188/2550	3375/2700	3563/2850	3750/3000

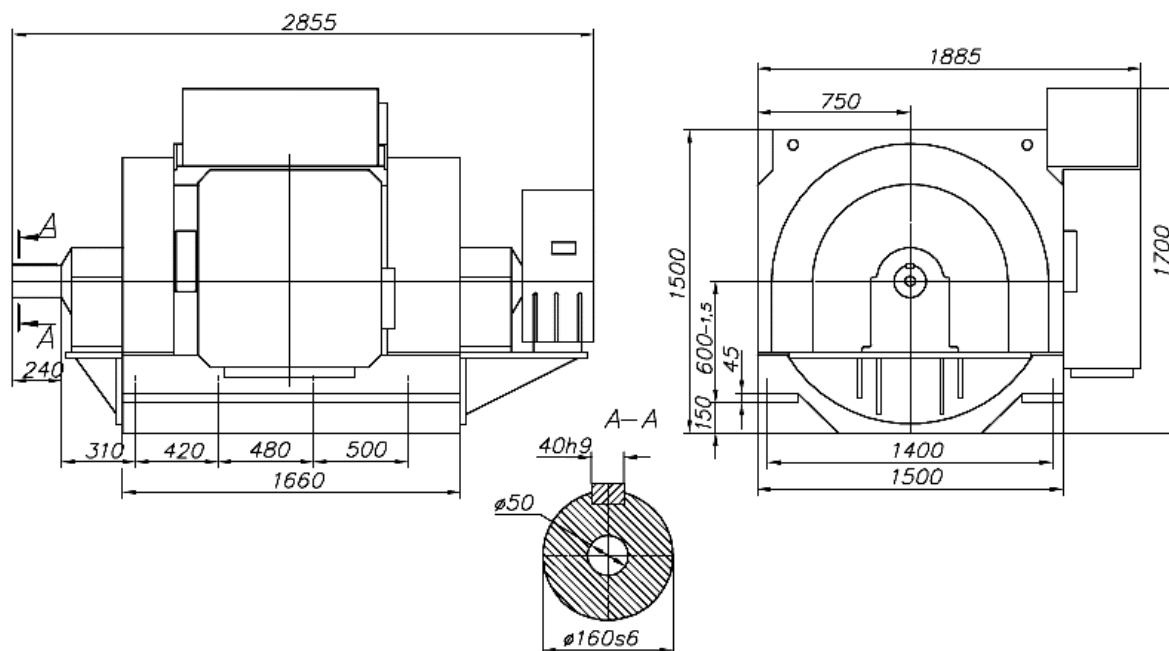
Completeness of delivery:

1. Generator **ГГСБ-14-100-6Y2** with the exciter and pilot exciter
2. Excitation control cabinet ШУБГМ, if delivery is stipulated in the order

Technical data of the generators are given in the Table 40.

Table 40

Type of the generator	Power, kW	Rotational speed, rpm	Eff., %	Weight, kg
ГГСБ-14-100-6Y2	2500	1000	96,3	9500





GENERATORS OF СГД, СГС 2 TYPES

Generators of СГД and СГС 2 types, in structure of electrical units, are used for operation with explosion engines as a source of AC, voltage 400 V, 6300 V and 10500 V, 50 Hz.

Operating mode – continuous S1.

Climatic version – УХЛ4.

Protection degree – IP21.

Generators are manufactured with static field system and delivered with control panels or exciting unit.

Technical data of the generators are stated in the Table 41.

Table 41

Type of the generator	Power, kW	Voltage, kV	Rotational speed, rpm	Weight, kg
СГС 2-800М-10 УХЛ4	500	0,4; 6,3 и 10,5	600	4200
СГС 2-800F-10 УХЛ4	630			4600
СГД 300-8Н1 УХЛ4	300	0,4	750	2600



SYNCHRONOUS GENERATOR OF ГСБ, ГСС TYPES

Synchronous generator of ГСС(Б) type with static or brushless exciting system is used to operate with gas-piston driving motor as a source of electrical power of three-phase AC current. Generators of ГСС(Б) type are designed instead of generators of СГД (СГД2) and СГСБ types which were produced before.

Rated operating mode of the generator - continuous S1 by GOST 183.

Climatic construction of the generators - УХЛ4.

Protection degree: generator and exciter - IP11, excitation device – IP21. Construction of the generator by protection degree on side of the driving mechanism - IP00.

Constructive mounting arrangement of the generator - IM 7115, of the exciter - IM 7111 by GOST 2479.

Cooling way: generator and exciter – ICO AI, excitation device – natural.

Insulation of stator and rotor windings of the generator is thermosetting «Monolith-2», it belongs to heat-resistance class "F".

Sense of the rotation is left, if you see on the generator from side, where it's coupled with the driving motor.

The generator shaft is coupled with the driving motor shaft by means of rigid flange connection.

Delivery completeness:

- Synchronous generator;
- Synchronous rotating-armature exciter – for ГСБ;
- ЩУЭ Panel which controls electrical unit;
- Generator circuit-breaker panel ЩГВ, for generators 0,4 kV.

Basic technical characteristics of the generators are given in the Table 42.



Table 42

Designation of generator version	Power		Voltage, V	Stator current, A	cosφ	Eff. %	Rotational speed, rpm
	kW	kVA					
ГСБ-630К-6Н1 УХЛ4	800	1000	400	1440	0,8	94,7	1000
ГСБ-630К-6В2 УХЛ4			6300	92		94,7	
ГСБ-630М-6В4 УХЛ4			10500	55		94,5	
ГСБ-630М-6Н1 УХЛ4	1000	1250	400	1804		96,0	
ГСБ-630М-6В2 УХЛ4			6300	114,5		95,9	
ГСБ-630Л-6В4 УХЛ4			10500	69		95,3	
ГСС-630К-8Н1 УХЛ4	300	375	400	541		93,5	750
ГСБ-630К-8Н1 УХЛ4	630	787,5	400	1137		94,6	
ГСБ-630К-8В2 УХЛ4			6300	72		94,6	
ГСБ-630М-8В4 УХЛ4			10500	43		94,4	
ГСБ-630М-8Н1 УХЛ4	800	1000	400	1440		95,2	
ГСБ-630М-8В2 УХЛ4			6300	92		95,2	
ГСБ-630Л-8В4 УХЛ4			10500	55		94,9	
ГСБ-800F-8Н1 УХЛ4	1000	1250	400	1804		96,0	
ГСБ-800F-8В2 УХЛ4			6300	114		95,9	
ГСБ-800F-8В4 УХЛ4			10500	69		95,3	
ГСБ-1100К-8В2 УХЛ4	2750	3437	6300	315		96,2	
ГСБ-1100М-8В4 УХЛ4			10500	189		95,8	
ГСБ-1100Л-8В2 УХЛ4	3600	4500	6300	412		96,3	
ГСБ-1100Н-8В4 УХЛ4			10500	247		96,0	
ГСБ-900К-12Н1 УХЛ4	1000	1250	400	1804		95,4	500
ГСБ-900К-12В2 УХЛ4			6300	114,5		95,2	
ГСБ-900М-12В4 УХЛ4			10500	69		95,2	
ГСС-900К-16Н1 УХЛ4	800	1000	6300	1440		95,0	375
ГСС-900К-16В2 УХЛ4			6300	92		95,0	
ГСС-900М-16В4 УХЛ4			10500	55		94,7	



SYNCHRONOUS INDUCTOR GENERATOR СГИ -350-0,69-16OM1

Synchronous inductor generator **СГИ-350-0,69-16OM1** is designed to convert mechanical energy of turbines in the wind turbo-generator electric plant TG-1000 into AC three-phase electric power with frequency 50 Hz.

Rated operating mode of the generator - continuous S1 by GOST 183.

Climatic construction of the generators – OM1.

Protection degree of the generators - IP 54 by GOST 17494-87.

Way of cooling – air cooling, by relative airflow. Relative airflow rate – 40 m/sec.

Connection of generator phases – “star” with brought-out neutral line.

Insulation of generator windings has class F by GOST 8865-93.

Sense of rotation - left, if you see on the generator from side, where it's coupled with the driving motor.

Basic technical characteristics of the generators are given in the Table 43.

Table 43

Type of the generator	Rated power at $\cos\varphi=0,95$ (at lagging current), kW	Voltage, V	Rotational speed, rpm
СГИ-350-0,69-16OM1	350	690	375



HYDRO-GENERATORS FOR MINI HEPS

Hydro-generators with static field systems are used for power production at generator operation with hydraulic turbine drive.

Hydro-generators are manufactured on rolling or plain bearings, with open cycle self-ventilation.

Protection degree - IP21.

Static field device is powered by additional winding placed in stator slots.

Technical data of the hydro-generators are specified in the Table 44.

Table 44

Type of the hydro-generator	Power, kW	Voltage, kV	Rotational speed, rpm	Version
БГС-300-40-0,4 УХЛ4	300	0,4	150	vertical
БГС-450-32-0,4 УХЛ4	450	0,4	187,5	vertical
СГГ-600-10Н1УХЛ4	600	0,4	600	horizontal

The motor designation is decoded as follows:

(Б)ГС - XXX - X - XXX УХЛ4

(Б)ГС – synchronous hydro-generator (vertical);

XXX - power, kW;

X - voltage, kV;

XXX – rotational speed, rpm



EXAMPLES OF COMPLETE SETS WITH ELECTRIC MOTORS MANUFACTURED BY JSC "LEMP"

Pump complete set

JSC "NASOENERGOMASH", SUMY

Type of the electric motor	Power, kW	Rotational speed, rpm	Voltage, V	Type of the pump
СДН-14-49-6У3	800	1000	10000	Д 2000-100-2
СДН-14-49-6	1000	1000	6000	Д 3200-75-2
СДН-2-16-36-6У3	1000	1000	6000	
СДН-14-49-6У3	800	1000	10000	
СДН-2-16-59-6У3	1600	1000	6000	Д 4000-95-2
СДН-15-49-6У3	1600	1000	10000	
СДН-14-59-8У3	630	750	10000	
СДН-2-16-49-6У3	1250	1000	6000	Д4000-95а-2-10
СДН-15-39-6У3	1250	1000	10000	
СДН-14-59-8У3	630	750	10000	
СДН-14-59-8У3	630	750	10000	
СДН-14-59-8У3	630	750	10000	
СДН-2-17-56-8У3	2000	750	6000	Д 6300-80-2
СДН-2-16-56-10У3	1000	600	6000	
СДН 15-49-10У3	1000	600	10000	
СДН3-16-64-8У3	2000	750	10000	Д 6300-80а-2
СДН-2-17-44-8У3	1600	750	6000	
СДН3-15-64-8У3	1600	750	10000	
СДН-15-64-8У3	1600	750	10000	
СДН3-2-16-44-10У3	800	600	6000	Д 6300-80б-2
СДН-2-16-59-8У3	1250	750	6000	
СДН-2-16-36-10У3	630	600	6000	

JSC "BOBRUIK MACHINE-BUILDING FACTORY", BOBRUIK

Type of the electric motor	Power, kW	Rotational speed, rpm	Voltage, V	Type of the pump
СДН2-16-36-8У3	800	750	6000	1СД 2400/75
СДН2-16-31-8У3	630	750	6000	1СД 2400/75а
СДН2-16-36-8У3	800	750	6000	СД 2400/75
СДН2-16-31-8У3	800	750	6000	СД 2400/75а
СДС3-16-51-12У3	1600	500	6000	1ГРТ 4000/71
СДС3-16-41-12У3	1250	500	6000	1ГРТ 4000/71а

JSC " URALHYDROMASH ", SYSERT

Type of the electric motor	Power, kW	Voltage, V	Type of the pump
СДВ5-1000-12УХЛ4	1000	6000	ОВ2-110-У3 ОПВ2-110-У3
СДВ5-1600-10УХЛ4	1600	6000	ОВ3-110-У3 ОПВ3-110-У3
СДВ5-1600-16У4	1600	6000	ОВ2-145-У3 ОПВ2-145-У3
СДВ5-1600-16У4	1600	6000	ОВ5-145-У3 ОПВ5-145-У3
СДВ5-2500-16УХЛ4	2500	6000	ОВ10-145-У3 ОПВ10-145-У3
СДВ5-12500Д-24УХЛ4	12500	10000	ОВ10-260-У3 ОПВ10-260Г-У3 ОВ11-260-У3 ОПВ11-260Г-У3
СДВ5-5000-24УХЛ4	5000	6000	220ДПВ-19/23Г



СДВ5-2000-8УХЛ4	2000	6000	600В-1,6/100-І
СДВ5-1600-8УХЛ4	1600	6000	
СДВ5-1600Д-8УХЛ4	1600	10000	
СДВ5-1250Д-10У3	1250	10000	600В-1,6/100-0
СДВ5-3150-10УХЛ4	3150	6000	800В-2,5/100
СДВ5-3150Д-10УХЛ4	3150	10000	
СДВ5-2000-12УХЛ4	2000	6000	800В-2,5/100-0
СДВ5-2000Д-12УХЛ4	2000	10000	
СДВ5-3150-12УХЛ4	3150	6000	1000В-4/63
СДВ5-3150Д-12УХЛ4	3150	10000	
СДВ5-1600-16УХЛ4	1600	6000	1000В-4/63-0
СДВ5-2000-12УХЛ4	2000	6000	
СДВ5-2000Д-12УХЛ4	2000	10000	
СДВ5-8000Д-16УХЛ4	8000	10000	1200В-6,3/100
СДВ5-5000-16УХЛ4	5000	6000	1200В-6,3/63
СДВ5-5000Д-16УХЛ4	5000	10000	
СДВ5-1600-10УХЛ4	1600	6000	800В-2,5/40-0
СДВ5-1000-12УХЛ4	1000	6000	
СДВ5-8000Д-16УХЛ4	8000	10000	1200ВР-6,3/100
СДВ5-6300Д-20УХЛ4	6300	10000	1600В-10/40-У3
СДВ5-5000-24УХЛ4	5000	6000	1600В-10/40-0У3
СДВ5-12500Д-24УХЛ4	12500	10000	1600ВР-10/40-0-У3
СДВ5-1000Д-24УХЛ4	10000	10000	2000В-16/63-3-У3
СДВ5-1000Д-24УХЛ4	10000	10000	2000В-16/63-А-3-У3
СДВ5-12500Д-24УХЛ4	12500	10000	2000В-16/63-АІ-3-У3
СДВ5-12500Д-28УХЛ4	12500	10000	2000ВР-16/63-А-3-У3
СДВ5-8000Д-32УХЛ4	8000	10000	2400В-25/40-У3
СДВ5-1250-12УХЛ4	1250	6000	
СДВ5-1000-12УХЛ4	1000	6000	2400ВР-25/25-У3
СДВ5-1600-12УХЛ4	1600	6000	СДВ9000/45-УХЛ4
СДВ5-1600Д-12УХЛ4	1600	10000	
СДВ5-3150-12УХЛ4	3150	6000	
СДВ5-2000-12УХЛ4	2000	6000	СДВ9000/63М-У3
СДВ5-5000-18УХЛ4	5000	6000	
СДС3-15-76-6У3	3200	6000	ЦН3000-197-У3
СДС3-15-76-6У3	2500	10000	
СДС-15-64-6У3	2500	6000	
СДН2-2-16-36-6У3 (кВт, В)	1000	6000	Д2000-100УХЛ4
СД2-74/49-8У3	315	6000	Д2500-62-0 УХЛ4
СДН2-16-36-6У3	1000	6000	Д3200-75 УХЛ4
СДН14-59-603	1000	10000	
СДН2-16-59-6У3	1600	6000	Д4000-95 УХЛ4
СДН-15-49-6У3	1600	10000	
СДН-14-59-8У3	630	10000	
СДН-14-59-8У3	630	10000	
СДН2-17-56-8У3	2000	6000	Д6300-80 УХЛ4
СДН3-16-64-8У3	2000	10000	
СДН2-16-56-10У3	1000	6000	Д6300-80-0 УХЛ4
СДН15-49-10У3	1000	10000	
СДН3-16-41-12У3	1250	6000	Д12500-24 УХЛ4



Draft machine complete set

JSC "SIBENERGOMASH", Barnaul

Type of the electric motor	Power, kW	Rotational speed, rpm	Voltage, V	Smoke extractor or fan
СДН3-16-64-8У3	2000	750	10000	Д-27.5x2
СДН3-16-54-10У3	1000	600	10000	Д25x2ШБ
СДН-15-39-12У3	800	500	6000	
СДН3-16-54-10У3	2000	600	6000	
СДН-16-41-12У3	1250	500	6000	
СДС3-2-17-56-8У3	2000	750	6000	Д 27.5x2
СДС3 15-49-6У3	1600	1000	10000	ДА-20-2У
СДН3-2-16-59-6У3	1600	1000	6000	
СДС3-15-39-6У3	1250	1000	10000	
СДН3-16-46-8У3	1000	750	6000	Д 21.5x2У Д 21.5x2
СДН-14-59-8У3	1000	750	6000	
СДН3-14-59-8У3	1000	750	6000	
СДН3-2-16-59-8У3	1250	750	6000	
СДН-2-16-44-10У3	800	600	6000	
СДС3-2-17-56-8У3	1600	750	10000	ДН-26x2-0.62
СДС3-14-59-6У3	1000	1000	6000	ДЦ 25x2
СДС- 14-59-6У3	1250	1000	6000	
СДН3-2-16-49-6У3	1250	1000	6000	ВМ-160-850У
СДН3-15-39-6У3	1250	1000	10000	
СДН3-15-39-6У3	1000	1000	11000	
СДН-2-16-31-6У3	800	1000	6000	ВА-21-2
СДН-14-49-6У3	1000	1000	6000	ГД-20-500У



Piston compressor complete set

JSC «PenzkompRESSormash», Penza

JSC «Sumy Frunze SPA» Sumy

Type of the electric motor	Type of the pump
СДК 4-16-24-12К УХЛ4	2 BM10-50/9
СДКЗ 4-16-24-12К УХЛ4	
СДК 4-16-24-10К УХЛ4	2 BM10-63/9
СДКЗ 4-16-24-10К УХЛ4	
СДК 4-16-44-10К УХЛ4	4 BM10-120/9
СДКЗ 4-16-44-10К УХЛ4	
СДК 4-17-26-12К УХЛ4	4 BM10-100/9
СДКЗ 4-17-26-12К УХЛ4	
СДК 4-17-26-12К УХЛ4	4 BM10-50/21
СДКЗ 4-17-26-12К УХЛ4	
СДК 4-17-26-16К УХЛ4	2 ГМ10-40/35
СДКЗ 4-17-26-16К УХЛ4	
СДК 4-16-44-10К УХЛ4	2 ГМ10-60/30
СДКЗ 4-16-44-10К УХЛ4	
СДК 4-17-39-12Ф УХЛ4	2 ГМ10-100/25
СДКЗ 4-17-39-12Ф УХЛ4	
СДК4-19-39-16Ф УХЛ4	6BM16-150/200M
СДКП 4-16-29-10К УХЛ4	2 ГМ10-10/20-50
СДКП 4-16-26-12К УХЛ4	2 ГМ10-11/42-60
СДКП4-18-26-16КУХЛ4	2M16-20/42-60
СДКП4-18-34-16КУХЛ4	4M16-14/16-104
СДКП4-18-41-16ФУХЛ4	4M16-22,4/23-64



Complete set of mill equipment and electrical units

JSC «NKMZ» Kramatorsk,
JSC «Tjzhmash» Syzran,
JSC «Volgatsemmash» Tolyatti

Type of the electric motor	Type of the crumber
СДМ4-1250К-32УХЛ4	МШР 2,1×3,0
СДМ4-1250КА-32 УХЛ4	
СДМ4-1250К-24УХЛ4	
СДМ4-1250КА-24 УХЛ4	МШР 3,2×2,9
СДМ4-1250К-24УХЛ4	
СДМ4-1250КА-24 УХЛ4	
СДМ4-1500ЛА-36УХЛ4	МСЦ 3,2×4,5
СДМ4-1500КА-36 УХЛ4	
СДМ4-1500КА-36 УХЛ4	
СДМ4-1500ЛА-36УХЛ4	МШР 3,2×4,5
СДМ4-1500КА-36 УХЛ4	
СДМ4-1500КА-36 УХЛ4	
СДМ3 4-22-41-60 УХЛ4	МЦ 3,2×15,0
СДМ3 4-21-91-60	МШР 3,6×5,0
СДМ3 4-22-34-60	ММС 70×23А
СДМ3 4-24-59-80	ММС 90×30А

Open Company «Pervomaiskdieselmash» Pervomaisk,
JSC «RUMO» Nijny Novgorod

Type of the generator	Type of the electrical unit
СГС 2-630М-10Н1 УХЛ4	ДГР А-500/600-1
СГС 2-630F-10Н1 УХЛ4	ДГР А-630/600-1
СГС 2-630М-10Н1 УХЛ4	ДвГ1А-500-1
СГС 2-630F-10Н1 УХЛ4	ДвГ1А-630-1
СГД-300-8Н1 УХЛ4	ДГР 1А 300/750