



LARGE ELECTRIC MACHINES PLANT

NOMENCLATURE CATALOGUE
OF DC ELECTRIC MACHINES



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DC Electric motors

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MOTORS OF SERIES P2PM (SIZES 12-14), P2 (SIZE 17)

The motors are designed for use in the main drives of rolling mills and other mechanisms with a wide range of frequency regulation of rotation and high overload capacity.

Mode of operation - S1, S7 or S8 is as per State Standard 183-74. It is marked according to S1 mode.

Degree of protection - IP22 is as per GOST 17494-87.

Induced ventilation. Method of cooling of the motors P2PM sizes 12-14 is ICA17, ICA37 or ICA97, motors P2 size 17 is ICA17 or ICA37 as per GOST 20459-87.

Insulation of motors series P2 size 17 is of class "F", motors series P2PM sizes 12-14 is class "H" insulation of windings of the armature circuit and insulation of field winding is of class "F".

Climatic version and category of location is U3 or T3 as per GOST 15150-69.

The motors may be of horizontal or vertical design. The vertical design has the letter "B" in the designation of the motor type.

In each concrete case the technical data of the electric motors are coordinated with the plant-manufacturer.

Technical data of the motors are listed in Tables 1, 2, 3.

Overall and mounting dimensions are listed in Tables 4, 5, 6, 7, 8.

Motors for rated voltage 440 V

Table 1

Motor type	Rated type				Design dynamic moment of armature inertia, kgm ²
	Power, kW	Rotation speed, rpm		Eff., %	
		rated	maximum		
P2PM-400-122-3	110	400	1600	88,4	10,7
PV2PM-400-122-3	110	400	1600	88,4	10,7
P2PM-400-124-4	315	800	1500	92,2	13,5
PV2PM-400-124-4	315	800	1500	92,2	13,5
P2PM-400-125-4	315	630	1500	92,2	15,1
P2PM-400-126-6	500	800	1000	93,0	17,1
PV2PM-400-126-6	500	800	1000	93,0	17,1
P2PM-450-131-3	200	500	1250	90,6	15,7
P2PM-450-131-6	400	1000	1500	93,6	16,7
P2PM-450-132-3	200	400	1250	90,1	19,1
P2PM-450-132-6	400	800	1500	93,0	20,0
P2PM-450-134-6	400	630	1500	92,7	21,7
P2PM-450-135-6	400	500	1500	92,3	27,0
P2PM-500-141-3	200	315	1000	89,3	36,2
P2PM-500-141-4	315	500	1500	91,7	37,0
P2PM-500-142-4	315	400	1500	91,2	43,0
P2PM-500-144-4	315	315	1000	90,7	47,8
P2PM-500-144-7	500	500	1000	92,7	51,0
P2PM-500-145-7	500	400	1000	92,3	57,5
P2PM-500-147-7	500	315	1000	91,9	70,0



Motors for rated voltage 600 V

Table 2

Motor type	Rated type				Design dynamic moment of armature inertia, kgm ²
	Power, kW	Rotation speed, rpm		Eff., %	
		rated	maximum		
P2PM-400-122-3	160	560	1600	90,4	10,7
PV2PM-400-122-3	160	560	1600	90,4	10,7
P2PM-400-124-4	450	1120	1500	92,9	13,5
PV2PM-400-124-4	450	1120	1500	92,9	13,5
P2PM-400-125-4	450	900	1500	92,9	15,1
P2PM-450-131-3	280	710	1500	91,9	15,7
P2PM-450-131-6	560	1400	1500	93,8	16,7
P2PM-450-132-3	280	560	1500	91,7	19,0
P2PM-450-132-6	560	1120	1500	93,6	20,0
P2PM-450-134-6	560	900	1500	93,2	21,7
P2PM-450-135-6	560	710	1500	93,4	26,5
P2PM-500-141-3	280	450	1000	91,2	36,2
P2PM-500-141-4	450	710	1500	92,9	37,0
P2PM-500-142-4	450	560	1500	92,6	43,0
P2PM-500-144-4	450	450	1000	92,3	47,8
P2PM-500-144-7	710	710	1000	93,6	51,0
P2PM-500-145-7	710	560	1000	93,4	57,5
P2PM-500-147-7	710	450	1000	93,2	70,0

Table 3

Motor type	Rated type					Расчетный динамический момент инерции якоря, кгм2
	Power, kW	Voltage, V	Rotation speed, rpm		Eff., %	
			rated	maximum		
P2-800-172-8	1250	600	630	1000	94,1	330,0
P2-800-174-8	1000	600	315	650	93,5	442,5
	1250	600	400	700	93,9	
P2-800-175-8	1000	600	250	500	92,9	505,0
	1250	600	315	600	93,7	
PB2-800-175-8	1000	600	250	500	92.9	505.0
P2-800-176-8	1250	600	250	450	93,3	580,0
P2-800-177-8	1250	750	200	400	92.6	750.0

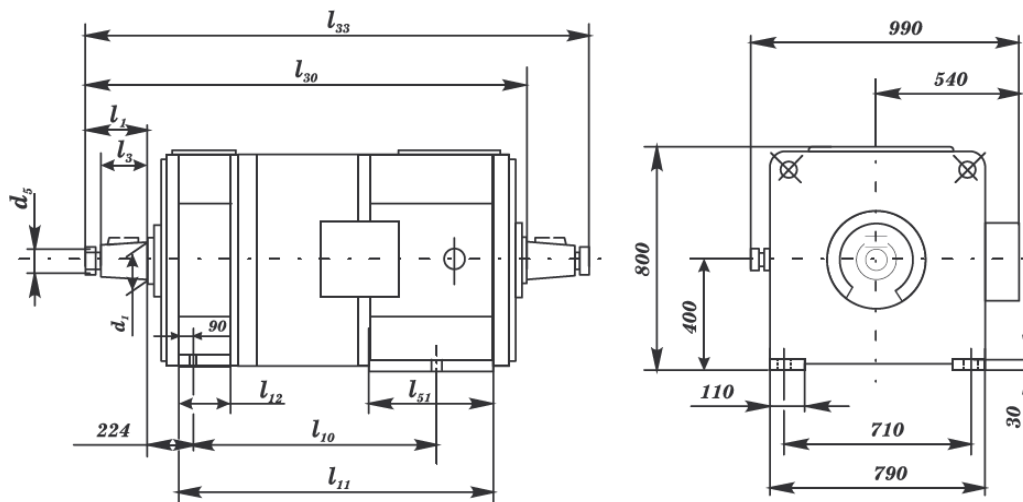




Table 4

Motor type	Dimensions, mm										Weight, kg
	d ₁	d ₅	l ₁	l ₃	l ₁₀	l ₁₁	l ₁₂	l ₃₀	l ₃₃	l ₅₁	
P2PM-400-122-3	120	M90x4	210	165	800	1095	250	1560	1780	375	2250
P2PM-400-124-4	120	M90x4	210	165	900	1265	280	1730	1950	415	2700
P2PM-400-125-4	140	M100x4	250	200	1000	1415	280	1920	2140	415	3105
P2PM-400-126-6	140	M100x4	250	200	1120	1560	280	2065	2285	480	3350

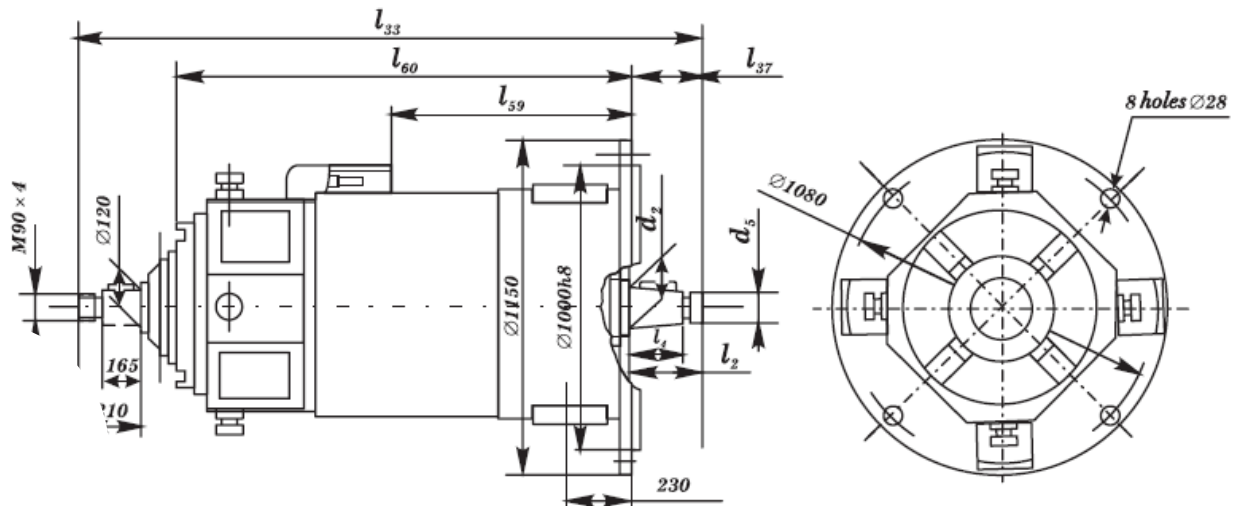


Table 5

Motor type	Dimensions, m								Weight, kg
	d ₂	d ₅	i ₃	l ₄	l ₃₃	l ₃₇	l ₅₉	l ₆₀	
PV2PM-400-122-3	120	M90x4	210	165	2035	210	1200	1475	2975
PV2PM-400-124-4	140	M100x4	250	200	2175	250	1300	1575	3575
PV2PM-400-126-6	160	M125x4	300	240	2520	300	1530	1870	3800

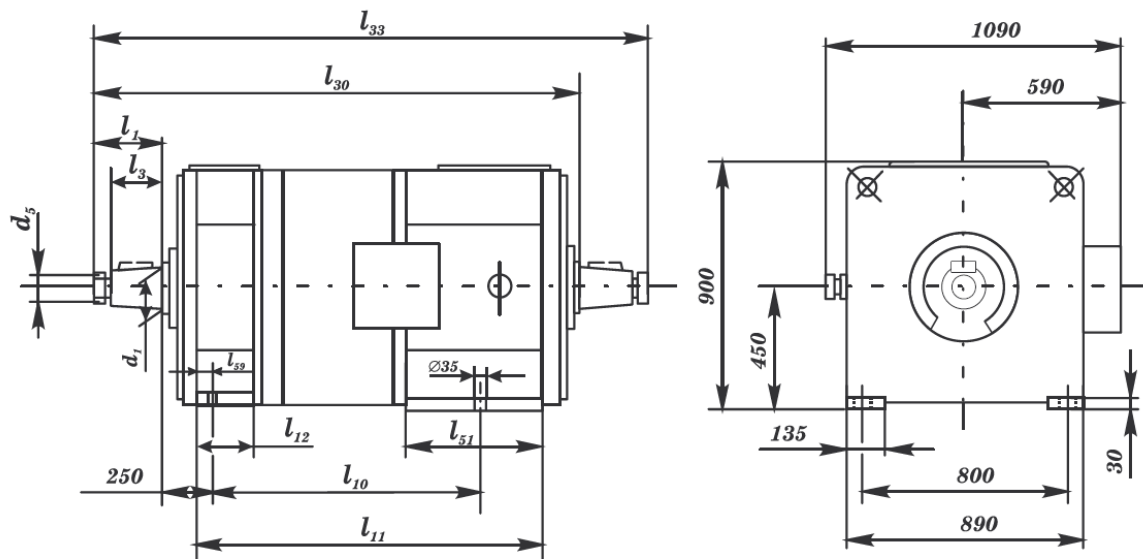




Table 6

Motor type	Dimensions, mm											Weight, kg
	d ₁	d ₅	l ₁	l ₃	l ₁₀	l ₁₁	l ₁₂	l ₃₀	l ₃₃	l ₅₁	l ₅₉	
P2PM-450-131-3	140	M100x4	250	200	900	1045	200	1575	1845	405	100	2740
P2PM-450-131-6	140	M100x4	250	200	900	1150	200	1680	1950	510	100	2820
P2PM-450-132-3	140	M100x4	250	200	900	1130	185	1660	1930	405	100	3140
P2PM-450-132-6	140	M100x4	250	200	900	1235	185	1765	2035	510	100	3220
P2PM-450-134-6	140	M100x4	250	200	1000	1340	185	1870	2140	475	100	3840
P2PM-450-135-6	160	M125x4	300	240	1120	1525	200	2100	2370	475	105	4120

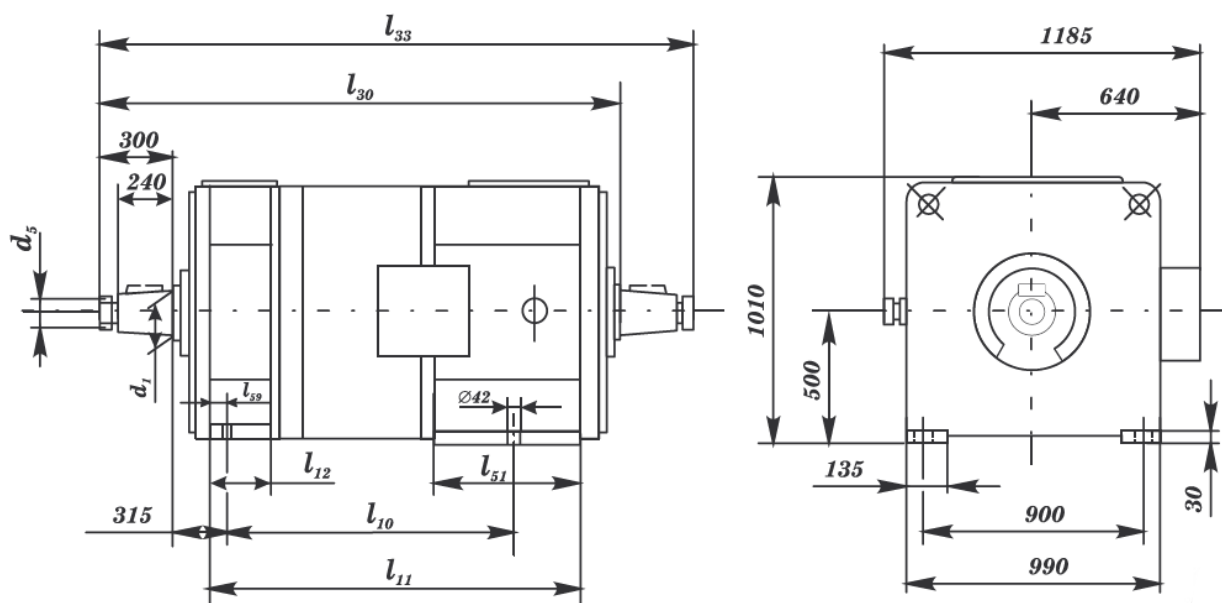
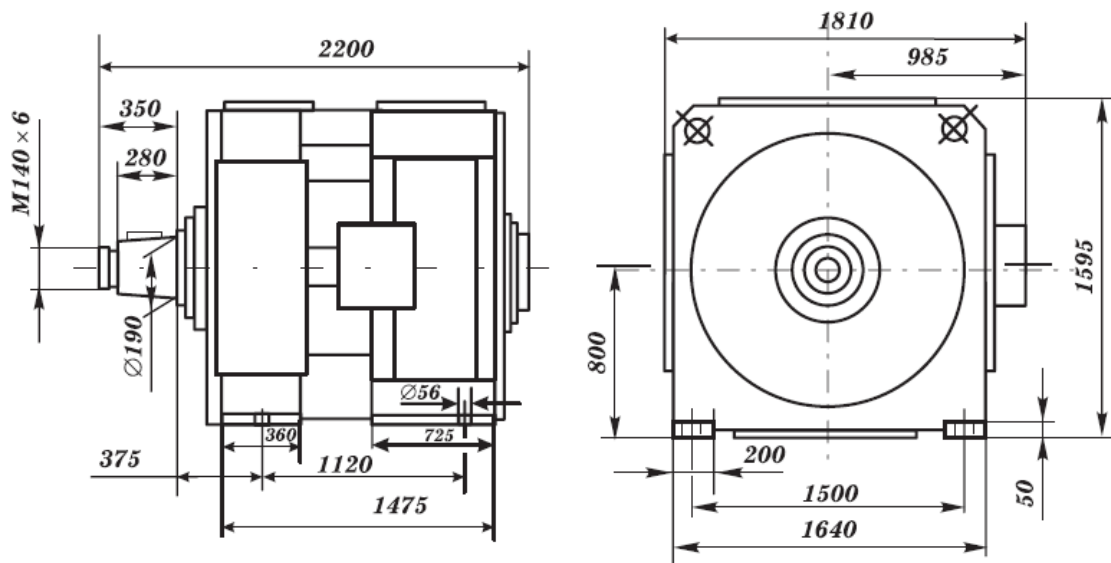


Table 7

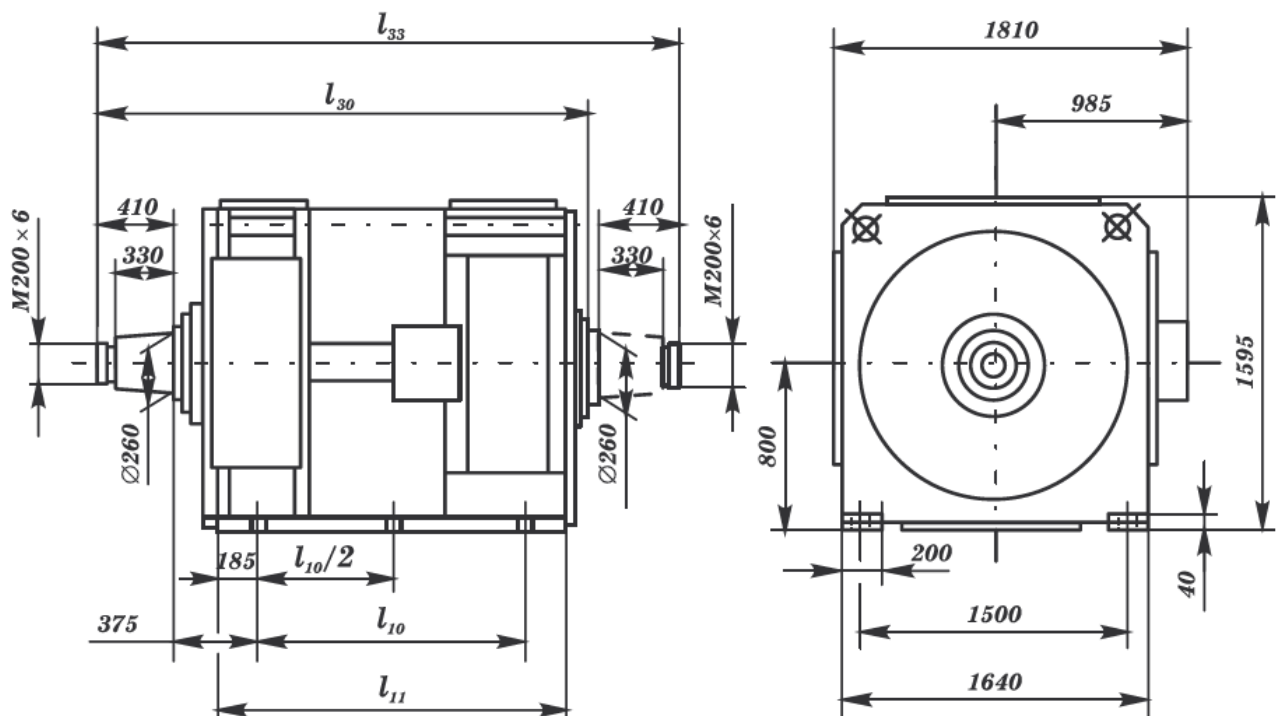
Motor type	Dimensions, mm									Weight, kg
	d ₁	d ₅	l ₁₀	l ₁₁	l ₁₂	l ₃₀	l ₃₃	l ₅₁	l ₅₉	
P2PM-500-141-3	160	M125x4	1000	1229	305	1791	2100	475	172	3680
P2PM-500-141-4	160	M125x4	1000	1229	305	1791	2100	475	172	3750
P2PM-500-142-4	160	M125x4	1000	1339	305	1901	2210	475	172	4050
P2PM-500-144-4	180	M140x6	1120	1334	265	1970	2285	365	132	4970
P2PM-500-144-7	180	M140x6	1120	1439	265	2075	2390	470	132	5060
P2PM-500-145-7	180	M140x6	1250	1569	220	2205	2520	470	132	5800
P2PM-500-147-7	180	M140x6	1400	1730	220	2365	2680	405	132	6700



Mass – 10200 kg
Motor type - П 2-800-172-8

Table 8

Motor type	Dimensions, mm					Weight, kg
	$l_{10/2}$	l_{10}	l_{11}	l_{30}	l_{33}	
P2-800-174-8	-	1250	1720	2495	2920	13500
P2-800-175-8	700	1400	1870	2645	3070	15800
P2-800-176-8	800	1600	1990	2765	3190	16800
P2-800-177-8	900	1800	2270	3045	3470	20400





MOTORS OF TYPE P2-630-204, 5-4 K

Designed for use for the manipulator head of the blooming mill.

The motors have closed cycle induced ventilation employing air coolers.

Guaranteed service life of the motors is 3 years from the date of putting into operation and not more than 4 years from the date of crossing the State Frontier of the Ukraine.

Rated power - 800 kW.

Rated voltage - 750 V.

Rated current - 1240 A.

Rotation frequency - 40 rpm.

Efficiency - 84%.

The motors can be used for less rated voltage with corresponding decrease of power and rotation frequency.

Dynamic inertia moment of the armature - 5150 kgm².

The motor mass (plate and anchor fittings) - 46000 kg.

Rated excitation voltage – 220 V. For power transfer to rated voltage 110 V the motor has an outlet for four finishes of field winding.

Permissible overloadings in fractions of rated current:

- operation with duration not more than 15 s at rated rotation frequency – 3,0;
- not frequently repeated with duration not more than 10s at rotation frequency close to zero - 3,2;
- breaking – 3,5.

Root-mean-square current (while technology cycle) not more than rated current of the motor.

Stable operation of the motor at frequency rotation close to zero is provided by the control diagram.

Class of thermal endurance of insulation – F.

Windings insulation of the armature circuit relative the frame of the motor is designed for working voltage - 1500 V, field winding – 1000 V.

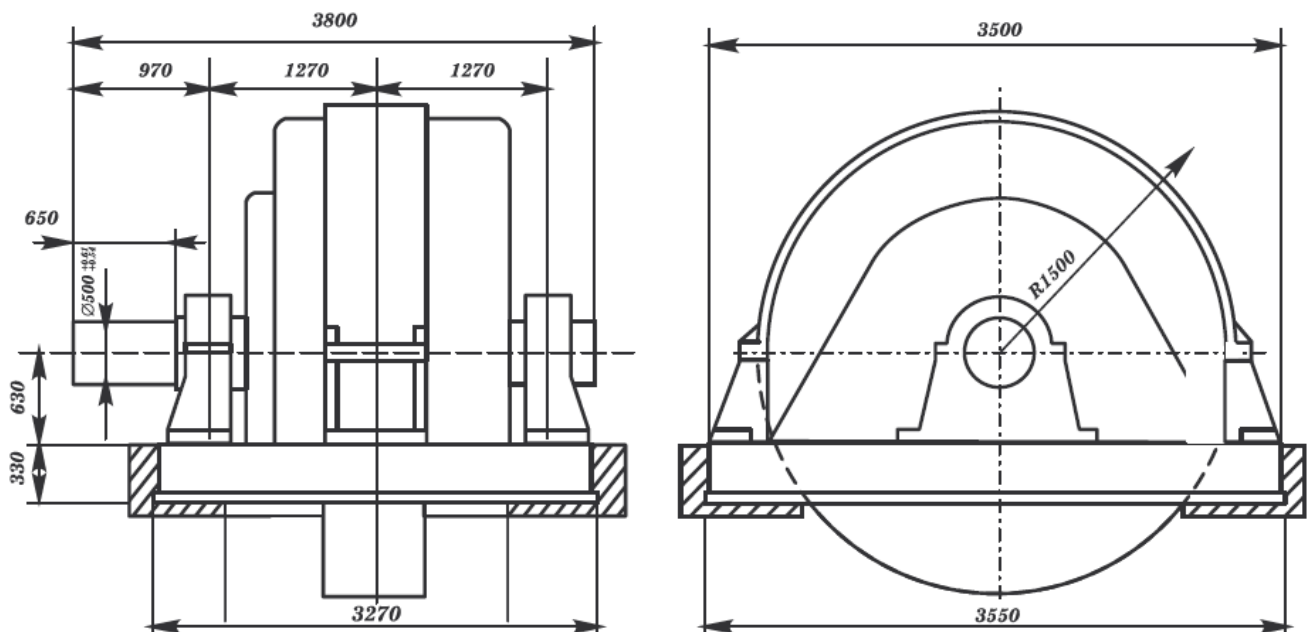


Figure 1. Overall and mounting dimensions of the motor P2-630-204,5-4K.



REVERSIBLE MOTORS SERIES P2, SIZES 21-25

Designed for use for main electric drives of rolling mills and for other mechanisms.

Explanation of designation:

P2-XXX-XXX-XCXX:

P2 – designation of motors series

XXX - height of rotation axis (630, 800, 1000 mm)

XX – number of armature diameter – 21, 22, 23, 24, 25 (armature diameter in mm is produced accordingly 2150,2500,2850,3100,3400)

X – number of length of armature core (3, 5, 6, 7, 8)

X - quantity of brushes on each bracket (8, 14)

C – design on plain bearings

X – climatic version (UHL, O, T)

X – location category (4, 3)

For design Y3 minimum temperature of ambient air is minus 10°C.

The motors are enclosed machines with closed or open circuit induced ventilation employing air coolers.

Tolerable 15-s operation overloads:

- at rated rotation frequency – 2,25 I nom;

- at maximum rotation frequency – 1,8 I nom.

Breaking overloads:

- at rated rotation frequency – 2,75 I nom;

- at maximum rotation frequency – 2,0 I nom. I nom means rated current value.

When operating under the above-specified overloads the maximum rate of current changes in armature circuit is up to 100 Inom/s.

The motors that operate in temperate climate withstand continuous current loads 1,15 Inom at temperature rises for class “F” insulation.

Rated armature voltage - 930 V.

Rated voltage of separate motor excitation – 220 V.

For power transfer to 110 V the motor has an outlet of four finishes of field winding.

The motor is supplied from static and rotatable voltage converters.

Winding insulation of class “F” is of polyimide. Insulation of windings of armature circuit relatively the motor frame is designed for 1500 V, field winding – 1000 V.

Motor reverse is performed by changing of current direction in the armature circuit.

Tolerable is three-fold excitation forcing.

Guaranteed service life of the motors for rolling mills is 24 months from the date of putting into operation but not more than 36 months from the moment of crossing the State Frontier of the Ukraine.

Technical data

Motor type	Power, kW	Current, A	Rotational speed, rpm	Efficiency regarding excitation losses, %	Dynamic inertia moment, tm ²
P2-630-215-8C	3150	3650	90/150	92,5	13,63
P2-630-216-8C	3150	3680	71/125	91,7	16,68
P2-800-217-8C	3150	3730	56/100	91,1	19,6
P2-800-217-14C	7100	8075	125/150	94,7	20,05
P2-800-218-8C	3150	3750	45/80	90,1	22,4
P2-800-227-8C	4000	4710	50/100	90,9	29,8



Motor type	Power, kW	Current, A	Rotational speed, rpm	Efficiency regarding excitation losses, %	Dynamic inertia moment, tm ²
P2-800-227-14C	8000	9080	100/125	94,4	30,25
P2-800-228-8C	4000	4830	40/80	90,3	38,5
P2-800-228-14C	8000	9130	80/125	93,7	39,0
P2-800-253-8C	5000	5720	90/125	93,7	52,5
P2-800-255-8C	5000	5740	63/100	93,2	60,0
P2-1000-247-8C	4500	5280	40/80	90,8	63,0
P2-1000-257-8C	5600	6600	36/71	91,4	82,3
P2-1000-257-14C	12500	14200	71/90	94,3	85,8

Motor type	Dimensions, mm												Weight, kg (design)	
	b ₁₃	b ₃₀	d ₁	l ₁	l ₁₈	l ₃₃	l ₄₆	l ₄₇	l ₄₈	h	h ₁₁	r ₃₀	motor	motor with plate and anchor fittings
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P2-630-215-8C	4040	4000	Ø500и7	650	4000	4960	1700	1650	1140	630	400	1725	69400	75500
P2-630-216-8C	4040	4000	Ø530и8	680	4300	5300	1850	1800	1145	630	400	1725	65400	94400
P2-800-217-8C	4040	4000	Ø600и6	800	5405	6200	2230	1960	1310	800	400	1760	107350	120200
P2-800-218-8C	4040	4000	Ø650и6	850	5705	6550	2380	2110	1360	800	400	1760	125500	136500
P2-800-217-14C	4040	4000	Ø600и6	800	5625	6420	2230	2180	1310	800	400	1760	108150	121000
P2-800-227-8C	4500	4450	Ø650и6	850	5430	6200	2080	2060	1360	800	400	2000	121000	132500
P2-800-228-8C	4500	4450	Ø710и6	1030	5745	6835	2230	2280	1550	800	400	2000	146000	159000
P2-800-227-14C	4500	4450	Ø650и6	850	5650	6420	2080	2280	1360	800	400	2000	123000	135000
P2-800-228-14C	4500	4450	Ø710и6	1030	5965	7055	2230	2500	1550	800	400	2000	148000	161500
P2-1000-247-8C	5450	5400	Ø750и6	1060	5920	6830	2280	2170	1640	1000	450	2370	162500	179000
P2-800-253-8C	5850	5800	Ø650и8	800	3960	5210	1550	1650	1340	800	450	2550	101000	111000
P2-800-255-8C	5850	5800	Ø650и8	800	4175	5410	1650	1750	1340	800	450	2550	118000	131000
P2-1000-257-8C	5850	5800	Ø850и7	1100	5630	6780	2260	2000	1750	1000	450	2550	200000	217000
P2-1000-257-14C	5850	5800	Ø850и7	1100	5850	7000	2260	2220	1750	1000	450	2550	203000	220000

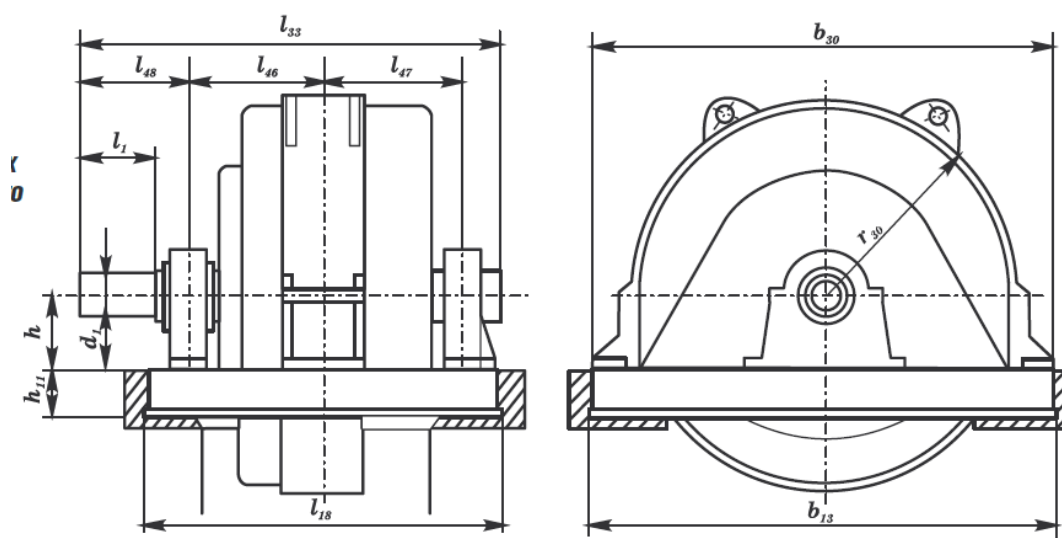


Figure 2. Overall and mounting dimensions of D.C. reversible motors series P2, sizes 21-25.



NON-REVERSIBLE MOTORS OF TYPE P2, SIZES 20,21,24

Designed for use in the main drives of rolling mills and other mechanisms.

Explanation of designation:

P2-630-XXX-XCXX

P2 – designation of the motor series

630 - height of rotation axis, mm

XX – number of armature diameter – 20, 21, 24 (armature diameter, mm, accordingly 1800, 2150, 3100)

X – number of length of armature core (1, 2, 3, 4)

X - quantity of brushes on each bracket (5, 6, 8, 11)

C – design on rolling bearings

X – climatic version (УХЛ, О, Т)

X – location category (4,3)

For design Y3 minimum temperature of ambient air is minus 10°C

The motors are enclosed machines with closed or open circuit induced ventilation employing air coolers.

Tolerable 15-s operation overloads:

- at rated rotation frequency – 2,0 I nom,

- at maximum rotation frequency – 1,8 I nom. I nom. means rated current value.

Breaking overloads in the whole regulation range of rotation frequency – 2,25 I nom.

When operating under the above-specified overloads the maximum rate of current change in armature circuit is up to 100 I nom/s.

The motors are intended for use in temperate climate and withstand continuous current loads 1,15 I nom and during two hours - 1,25 I nom at temperature rise for class “F” insulation.

Rated armature voltage - 930 V.

Rated voltage of separate motor excitation – 220 V.

For power transfer to 110 V the motor has an outlet for four finishes of field winding.

The motor is supplied from static and rotatable voltage converters Insulation of windings of armature circuit relatively the motor frame is designed for 1500 V, field winding – 1000 V.

Motors operation stability at rotation frequency close to zero and at more than two-fold field reduction is performed by the control system.

Tolerable is three-fold excitation forcing.

Guaranteed service life of the motors for rolling mills is 2 years from the date of putting into operation but not more than 4 years from the moment of crossing the State Frontier of the Ukraine.

TECHNICAL DATA

Motor type	Power, kW	Current, A	Rotation speed, rpm	Efficiency regarding excitation losses, %	Dynamic inertia moment, tm ²
P2-630-201-5C	1600	1855	250/500	93,7	3,75
P2-630-202-8C	3150	3565	400/600	94,8	4,07
P2-630-203-5C	1600	1865	160/500	92,4	4,95
P2-630-212-11C	5000	5640	400/500	95,3	7,33
P2-630-213-6C	2500	2860	160/315	93,9	9,00
P2-630-214-6C	2500	2870	125/315	93,3	9,85
P2-630-241-8C	4000	4570	160/320	94,2	30,0
P2-630-243-8C	4000	4600	100/200	93,4	37,8
P2-630-201-8C	3150	3580	500/600	94,6	3,80
P2-630-213-11C	5000	5620	315/400	95,3	9,25

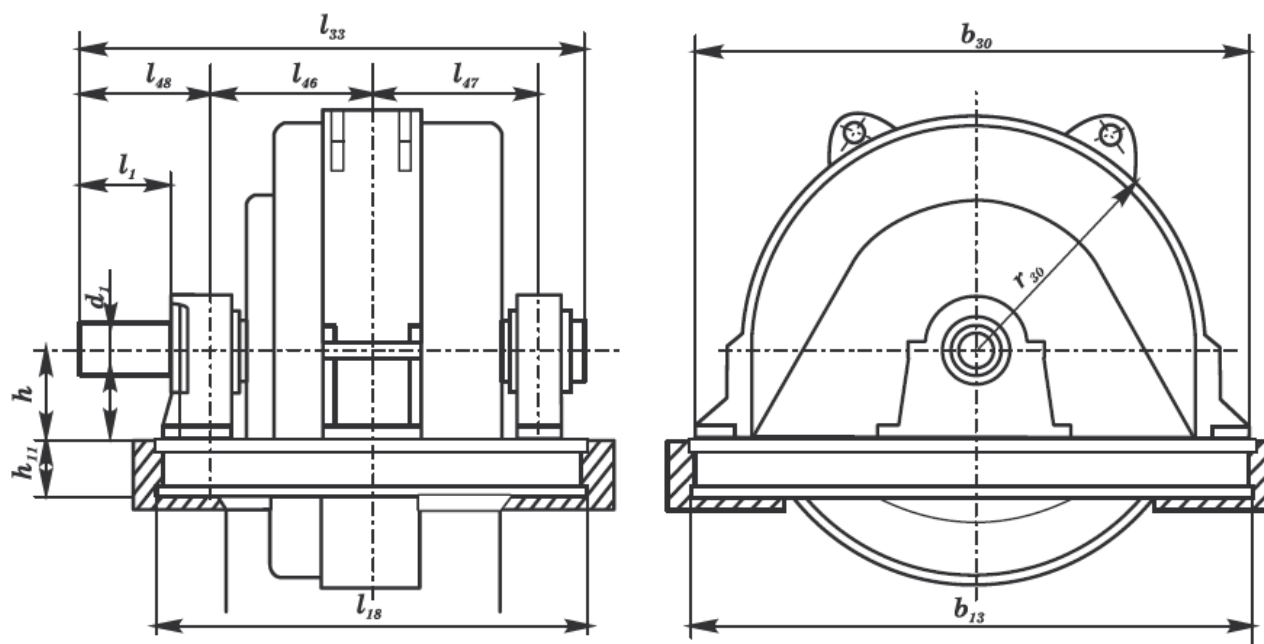


Figure 3. Overall and mounting dimensions of DC non-reversible motors series P2, sizes 20, 21 and 24.

Motor type	Dimensions, mm (figure 3)												Design weight, kg	
	b ₁₃	b ₃₀	d ₁ deviation limit 7	l ₁	l ₁₈	l ₃₃	l ₄₆	l ₄₇	l ₄₈	h	h ₁₁	r ₃₀	motor	motor with plate and anchor fittings
P2-630-201-5C	3550	3380	260	410	3060	3600	1300	1200	710	630	330	1450	22900	25200
P2-630-202-8C	3550	3380	260	410	3230	3700	1250	1350	710	630	330	1450	26700	29200
P2-630-203-5C	3550	3380	300	470	3270	3870	1400	1280	800	630	330	1450	30600	33200
P2-630-212-11C	4040	4000	360	450	3310	4000	1300	1450	825	630	350	1700	35800	40200
P2-630-213-6C	4040	4000	360	450	3350	4080	1450	1350	825	630	400	1725	43700	45500
P2-630-214-6C	4040	4000	380	550	3380	4300	1450	1400	925	630	400	1725	46200	47900
P2-630-241-8C	5250	5200	420	540	3390	4210	1320	1450	950	630	450	2275	56800	66100
P2-630-243-8C	5250	5200	480	650	3620	4580	1450	1550	1090	630	450	2275	74600	84500
P2-630-201-8C	3550	3380	260	410	3120	3600	1200	1300	710	630	330	1450	23400	25800
P2-630-213-11C	4040	4000	360	450	3460	4150	1400	1500	825	630	350	1725	38000	41500



MOTOR OF TYPE P2SH, SIZES 21,25

Designed for use as part of complete sets of mine hoist electric drives.

Explanation of designation P2Sh-XXX-XXX-XKX4:

P2Sh – designation of motor series

XXX – height of rotation axis, mm (630, 800, 1000)

XX – number of armature diameter (21,25) (armature diameter, mm, accordingly 2150, 3400)

X – number of armature core length (3,4,5,6)

X – quantity of brushes on each bracket (4,7)

K – designed on rolling bearings (in motors size 21 of cantilever version letter “K” is missing)

X4 – climatic version (UHL or 0) and category of location.

The motors are enclosed machines with closed horizontal design with induced ventilation from separate ventilator with open or closed circuit employing air coolers.

Thermal endurance class of insulation of all armature circuit windings – “H”, that of field winding – “F”.

Insulation of the armature circuit windings to the frame has been designed for 1500 V and that of the field winding – for 1000 V.

Tolerable current overloads:

- operational not more than 15 s – 2,0 I nom,

- breaking – 2,25 I nom. I nom means rated current value.

The motors are intended for use in temperate climate and withstand continuous current loads 1,15 I nom under permissible overheatings of class “F”.

Rated voltage of motors – 930 V. Separate excitation – 220 or 110 V.

Main rated voltage – 220 V.

For power transfer to rated voltage 110 V the motor has an outlet for four finishes of field winding.

Used in the motors are rolling bearings lubricated by consistent (fat) grease to facilitate operation.

TECHNICAL DATA

Motor type	Power, kW	Current, A	Rotational speed, rpm	Eff., %	Dynamic inertia moment, tm ²
P2Sh-630-213-4KUHL4 P2Sh-1000-213-4 UHL4	1600	1930	71	88,4	8,8
P2Sh-630-214-4KUHL4 P2Sh-1000-214-4UHL4	1600	1955	56	87,5	9,3
P2Sh-630-214-7KUHL4	3150	3630	125	92,9	10,0
P2Sh-630-215-4KUHL4	1600	1990	40	85,7	12,7
P2Sh-630-215-7KUHL4	3150	3650	90	92,6	13,4
P2Sh-630-216-7KUHL4	3150	3670	71	91,7	16,0
P2Sh-800-253-7KUHL4	5000	5730	90	93,4	49
P2Sh-800-255-7KUHL4	5000	5755	63	93,0	57,5
P2Sh-800-256-7KUHL4	5000	5790	50	92,3	61,5

The motors are manufactured with one working shaft end.

The motors of size 21 can be manufactured as cantilever version.

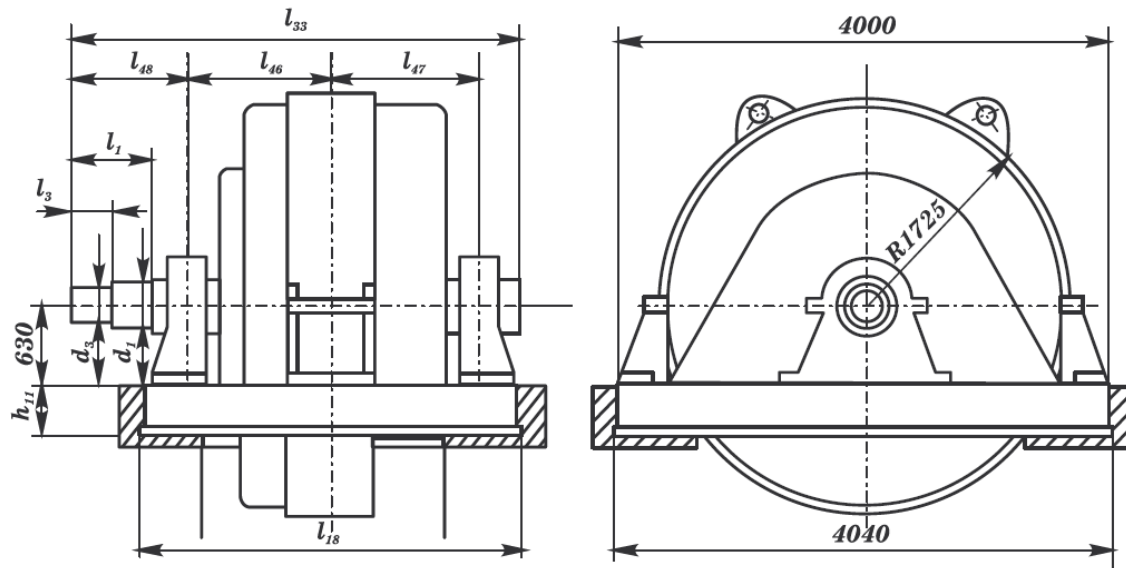


Figure 4. Overall and mounting dimensions and weight of motors with height of rotation axis 630 mm.

Motor type	Dimensions, mm (figure 4)										Weight, kg
	d ₁	d ₃	l ₁	l ₃	l ₁₈	l ₃₃	l ₄₆	l ₄₇	l ₄₈	h ₁₁	
P2Sh-630-213-4KUHL4	380 ^{+0,492} _{+0,435}	340 ^{+0,447} _{+0,390}	650	330	3140	3625	1150	1200	950	320	46500
P2Sh-630-214-7KUHL4	450 ^{+0,553} _{+0,490}	400 ^{+0,492} _{+0,435}	650	300	3630	4170	1450	1420	980	420	57000
P2Sh-630-214-4KUHL4			650	300	3530	4070	1450	1320	980	420	56700
P2Sh-630-215-7KUHL4	500 ^{+0,603} _{+0,54}	450 ^{+0,603} _{+0,54}	720	370	3890	4440	1550	1520	1050	420	69600
P2Sh-630-215-4KUHL4			720	370	3640	4190	1400	1420	1050	420	66500
P2Sh-630-216-7KUHL4			820	420	4070	4780	1670	1640	1150	420	80300

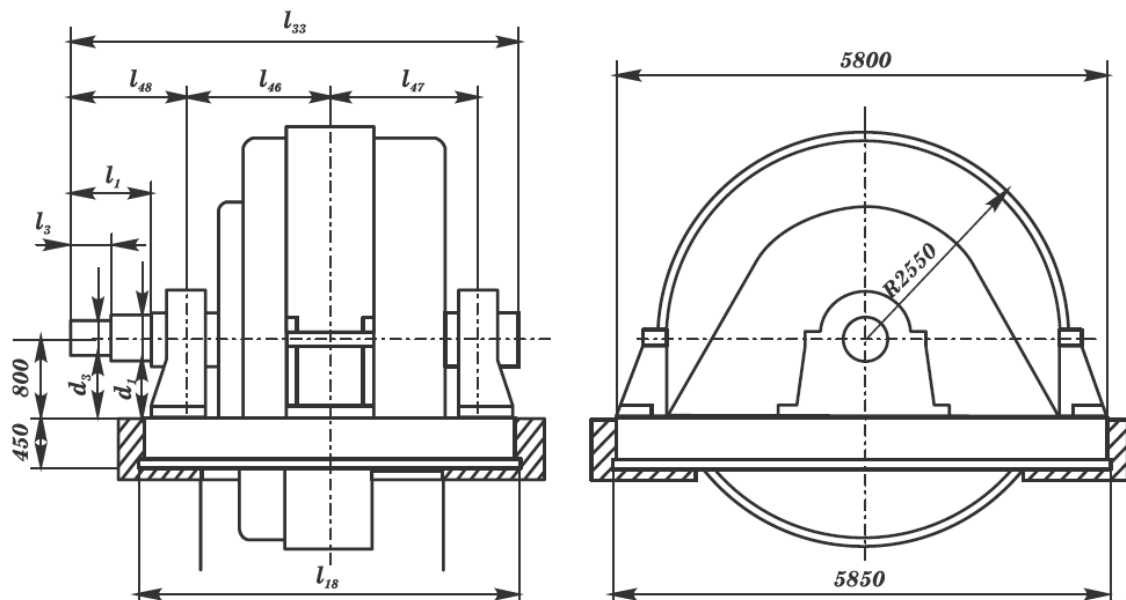


Figure 5. Overall and mounting dimensions and weight of motors with height of rotation axis 800 mm.

Motor type	Dimensions, mm (figure 5)									Weight, kg
	d ₁	d ₃	l ₁	l ₃	l ₁₈	l ₃₃	l ₄₆	l ₄₇	l ₄₈	



P2Sh-800-253-7KUHL4	$560^{+0,710}_{+0,640}$	$550^{+0,710}_{+0,640}$	720	370	3500	4100	1200	1400	1140	94300
P2Sh-800-255-7KUHL4	$620^{+0,710}_{+0,640}$	$550^{+0,710}_{+0,640}$	800	390	3700	4300	1300	1500	1140	112000
P2Sh-800-256-7KUHL4	$620^{+0,710}_{+0,640}$	$550^{+0,710}_{+0,640}$	950	470	3900	4650	1400	1600	1290	127000

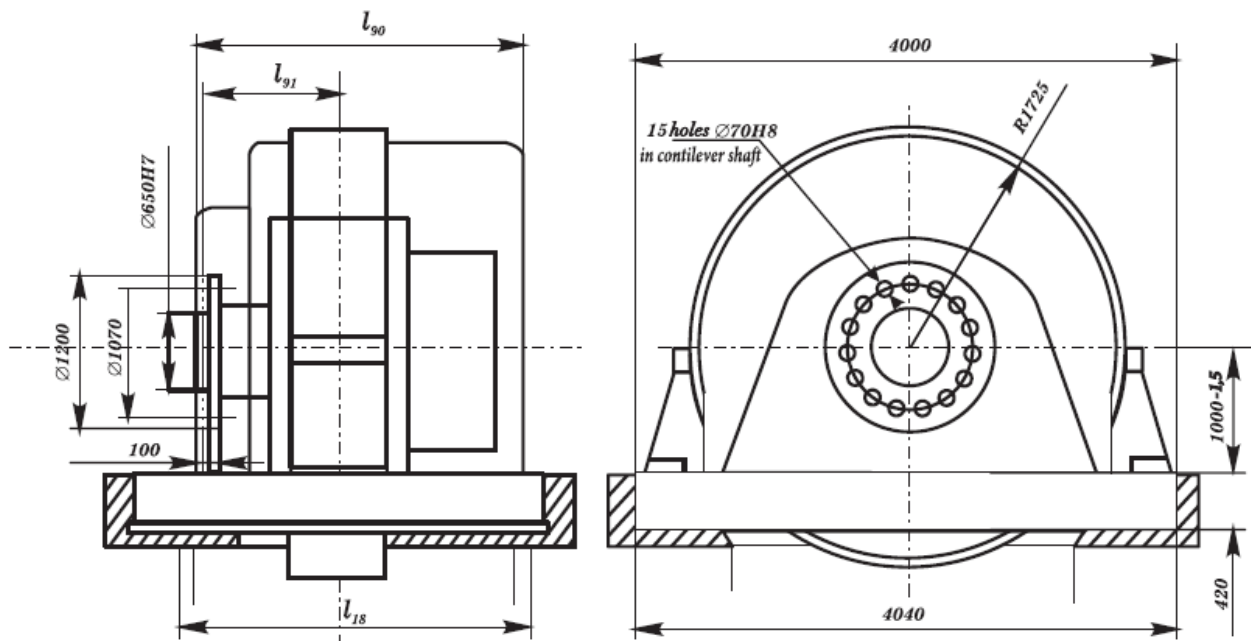


Figure 6. Overall and mounting dimensions and weight of motors with height of rotation axis 1000 mm (cantilever design).

Motor type	Dimensions, mm (figure 6)			Weight, kg (without cantilever shaft)	
	l_{18}	l_{90}	l_{91}	general	armature
P2Sh-1000-213-4UHL4	1985	1785	800	37500	12500
P2Sh-1000-214-4UHL4	2285	2085	860	44500	14500

Motors of type P2E, P2EV



1. Motors P2E are used to drive tilting and hauling gears, lifting and walking mechanisms of excavators.
2. These motors are fully interchangeable with MPE motors of these types:

Table 1 Motor replaceability

Motor name	Name of replaceable motor
P2E-134-8	MPE-450-900-M
P2E -134-8-2	MPE-450-900
P2EV-134-8	MPVE-400-900-M

3. Rating data of main parameters of the motors are specified in table 2

Table 2 Rating data of parameters

Parameters of the electric motor	P2E3-134-8	P2E-134-8-2	P2EV-134-8
Operation mood	S1	S1	S1
Power, kW	500	500	500
Voltage, V	440	440	440
Armature current, A	1210	1210	1210
Rotational speed, rpm	900	1000	1000
Max. Rotational speed, rpm	1250	1250	1250
Eff., %	94,0	94,0	94,0
Type of actuation	ind.	ind.	ind.
Voltage of actuation, V	110	110	110
Current of actuation, A	18,7	13,8	13,8
Moment of inertia, kg-m ²	30,0	30,0	30,0
Mountain version	IM 1003	IM 1004	IM 3014
Cooling system	ГC 16	ГC 16	ГC 16
Protection degree	IP 21	IP 21	IP 21
Insulation class	H	H	H
Air quantity, m ³ /min	150	150	150
Brand and dimensions of brushes, mm	ЭГ-14 (2x12,5)x25	ЭГ-14 (2x12,5)x25	ЭГ-14 (2x12,5)x25
Weight, kg	4200	4300	4800

4. Motors are designed for operation in closed unheated excavator body.
5. Rated values of climatic factors are by GOST 15150 and GOST 15543. Working values of ambient air temperature and humidity are specified in Table 3, all unspecified requirements shall meet GOST 15150.

Table 3 Rated values of climatic factors

Motor version	Working values of ambient air temperature, °C		Working values of relative air humidity
	Upper	Lower	Upper
Y2	+40	-45	90 % at 20 °C
УХЛ2	+40	-60	100 % at 25 °C

6. Operation conditions:
7. Altitude is up to 1000 m;
8. Ambient medium is non-explosive, with contents of aggressive gases and vapors in concentrations that do not destroy metals and insulation, type I by GOST 15150;
9. Operation condition group as to external mechanical influence is M1 by GOST 17516.1 considering additional loads:
 - a. Inertial forces during speeding up and braking of excavator rotary platform are max 5 times per minute with angular acceleration max 0,05 1/sec² by absolute value, at platform rotation frequency not



exceeding 2 rpm and distance from axis of platform rotation to the most remote motor not exceeding 13 m;

- b. Single shocks with acceleration up to 3g and repetition frequency max 300 per year;
- c. Tilt and trim up to 12° (during excavator walking – up to 15°).
- d. Forces on gear of motor П2ЭВ-134-8:
- e. circumferential - up to 35 kN;
- f. radial - up to 12,7 kN;
- g. axial - up to 6,7 kN;

Distance from gear axle to the nearest bearing shall not exceed 270 mm.

10. Adjustment of motor speed from zero up to nominal values is made by alteration of impressed armature voltage, and adjustment from rated up to maximum values is made by excitation current.

11. Motors are reversible.

12. Motors withstand short-term current overloads under RMS current not exceeding rated value during 60 min. Values of current overloads are specified in Table 4.

Table 4 Short-term current overloads

Load	Load duration, sec	Load value		
		At immovable armature	At rated speed	At maximum speed
Working	15	-	2,5	2,0
	8	2,0	-	-
Disconnecting	-	2,75		

13. Motors are made with winding insulation thermal class “H” by GOST 8865.

14. Degree of commutator sparking - 1½ by GOST 183 (for Ukraine), GOST 52776 (for Russian Federation).

15. Allowable rise of motor winding temperature over ambient temperature measured by resistance method is max 125°C.

16. Allowable heating temperature of bearings - max 100°C.

17. Motors are made with frictionless bearings. Bearing lubrication is grease. Design of bearing assemblies ensures lubricant replacement without bearing disassembly.

18. Maximum RMS value of vibration speed of bearing supports meets GOST 20815 for “N” category (for Ukraine), and GOST R IEC 60034-14-2008 for “A” category (for Russian Federation).

Allowable noise level of motors meets class I by GOST 16372 (for Ukraine), GOST R 53148-2008 (for Russian Federation).

20. Motors have temperature control of:

- bearings - one detector per each bearing;
- cooling air - one detector at motor inlet and outlet;
- main poles – one detector per each pole.

For temperature control, resistance temperature detectors with USC 100P and $W_{100}=1,391$ by GOST 6651 are installed.

21. To prevent condensation occurrence, two heater blocks are installed in motors, they consist of three heaters ТЭН-80А10/0,25 S 220 GOST 13268 (0,25 kW, 220 V, 50 Hz) with total power of 1,5 kW.

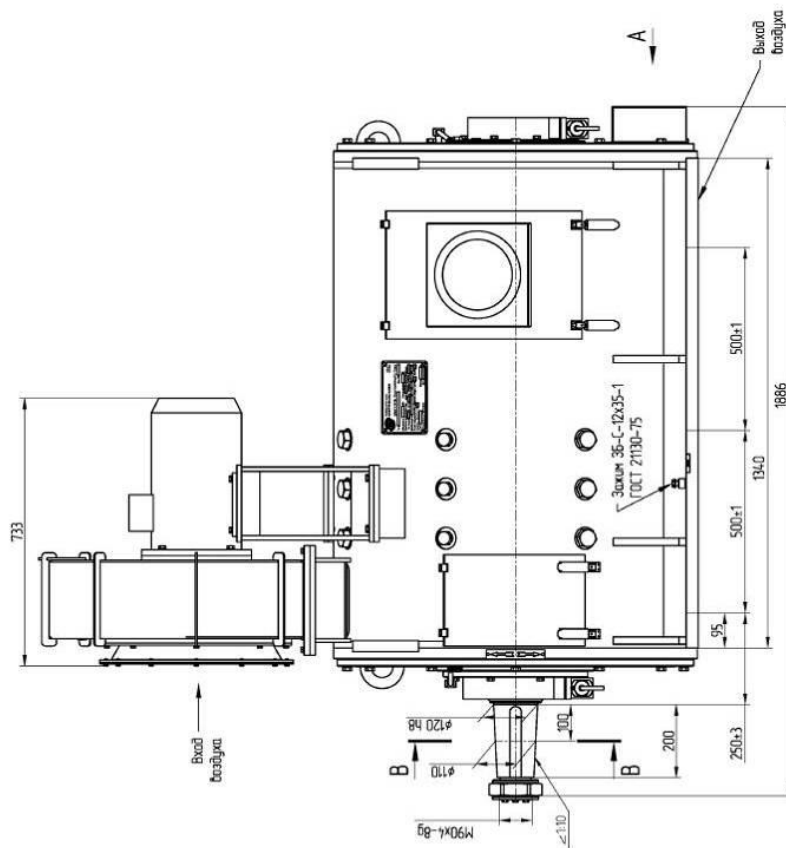
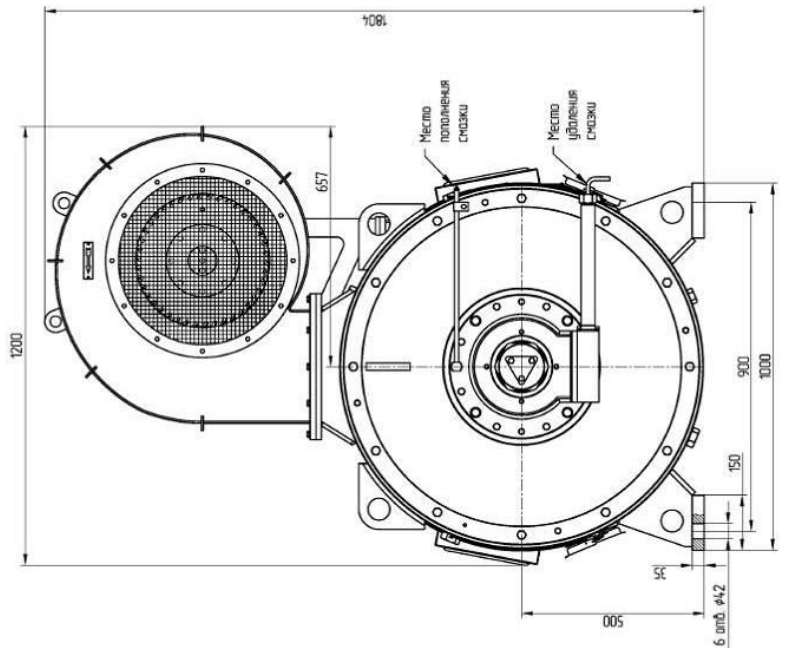
22. Cooling method - ICA16 by GOST 20459. Ventilation is forced using a built-in electric heater of “rider” type (independently driven) with three-phase asynchronous motor of 5,5 kW, 380 V, 50 Hz, 1500 min⁻¹ (synch.). Inlet of cooling air is made from excavator body, air is fed through a fan to motor, discharge of heated air – through a window in a base frame from commutator side.

23. Guaranteed service life of motors is **two** years from commissioning date, but not exceeding **three** years from manufacture date.

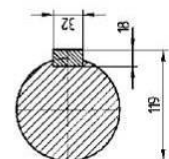
24. Average service life of motors is 10 years.



Габаритные и установочно-присоединительные размеры электродвигателя ПЭЭ-134-8



В-В(14)





Габаритные и установочно-присоединительные размеры электродвигателя ПЭЭ-134-8-2

