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**PUMPING EQUIPMENT**



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## Type D, 1D, 2D, AD, CN, NDv, NDS CENTRIFUGAL PUMPS

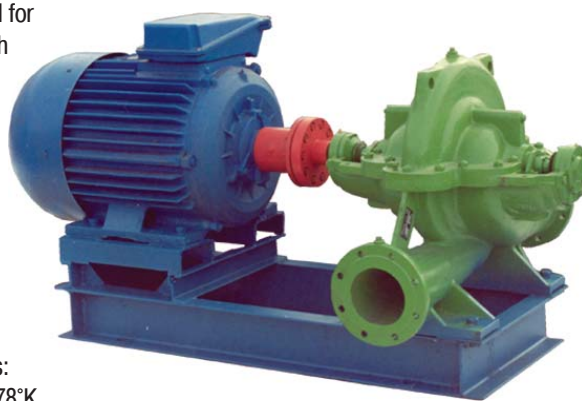
The centrifugal horizontal single-stage double-entry pumps are designed for pumping water and liquids similar to water in viscosity and chemical activity with temperatures up to 358°K (85°C), with contents of solid impurities within 0,05 % by weight, not more than 0,2 mm in size and hardness not more than 6,5 gPa (650 kgs/mm<sup>2</sup>).

They are used at urban, industrial and agricultural pump stations supplying water for various purposes, including irrigation and drainage of fields.

The CN-type horizontal single-stage double-entry pumps are designed for pumping water as well as jet engine fuel, automobile and aircraft petrol and diesel fuel at temperatures from 258°K to 323°K (from -15°C to 50°C).

The 6NDv-B, 8NDv-Nm, 12NDs-Nm and 14NDs-N type horizontal single-stage double-entry pumps are designed for pumping petroleum products: crude oil, automobile and aircraft petrol and diesel fuel at temperatures from 278°K to 318°K (from +5°C to +45°C).

Our company effects delivery of the type D pumps and pump units, produced by "Vipom"JSC, Bulgaria.



### Technical characteristics of pump units, type D, 1D, 2D, AD, CN, NDv, NDS

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
D200-36	200	36	1500	37	240	730	830 x 800 x 620	1625 x 799 x 835
D200-36a	190	29	1500	30	240	630	830 x 800 x 620	1414 x 799 x 730
D200-36b	180	25	1500	22	240	633	830 x 800 x 620	1422 x 799 x 730
1D200-90	200	90	3000	90	145	820	766 x 530 x 495	1727 x 557 x 795
1D200-90a	180	74	3000	75	145	780	766 x 530 x 495	1687 x 557 x 850
1D200-90b	160	62	3000	55	145	635	766 x 530 x 495	1582 x 530 x 850
1D200-90	100	22	1500	15	145	445	766 x 530 x 495	1560 x 530 x 810
1D250-125	250	125	3000	160	165	1245	766 x 550 x 515	2007 x 895 x 965
1D250-125a	240	101	3000	132	165	1195	766 x 550 x 515	1952 x 865 x 895
1D315-50	315	50	3000	75	190	821	766 x 600 x 520	1687 x 600 x 880
1D315-50a	300	42	3000	55	190	670	766 x 600 x 520	1582 x 600 x 840
1D315-50b	220	36	3000	45	190	596	766 x 600 x 520	1572 x 600 x 830
1D315-71	315	71	3000	110	190	1170	766 x 600 x 520	1912 x 660 x 910
1D315-71a	300	63	3000	90	190	861	766 x 600 x 520	1727 x 600 x 880
1D500-63	500	63	1500	160	450	1650	1145 x 770 x 714	2435 x 900 x 1050
1D500-63a	450	53	1500	132	450	1590	1145 x 770 x 714	2360 x 890 x 1020
1D500-63b	400	44	1500	110	450	1520	1145 x 770 x 714	2320 x 890 x 1020
1D630-90	630	90	1500	250	524	2352	1145 x 1000 x 845	2555 x 1000 x 1150
1D630-90	500	38	1000	132	524	2128	1145 x 1000 x 845	2505 x 1070 x 1147
1D630-90a	550	74	1500	200	524	1880	1145 x 1000 x 845	2155 x 1000 x 1095
1D630-90a	470	30	1000	90	524	1532	1145 x 1000 x 845	2120 x 965 x 990
1D630-90b	500	60	1500	160	524	1750	1145 x 1000 x 845	2440 x 1040 x 1100
1D630-90b	420	25	1000	55	524	1406	1145 x 1000 x 845	2110 x 1000 x 990
1D630-125	630	125	1500	400	797	2980	1145 x 900 x 900	2705 x 1320 x 1580
1D630-125a	550	101	1500	315	797	2440	1145 x 900 x 900	2435 x 900 x 1375
1D630-125b	500	82	1500	250	797	2360	1145 x 900 x 900	2555 x 795 x 1180
1D800-56	800	56	1500	200	560	1735	1145 x 880 x 835	2155 x 900 x 1020
1D800-56a	740	48	1500	132	560	1474	1145 x 880 x 835	2130 x 880 x 1020
1D800-56b	700	40	1500	110	560	1566	1145 x 880 x 835	2325 x 935 x 1065
1D1250-63	1250	63	1500	315	800	2815	1185 x 950 x 897	2645 x 1060 x 1220
1D1250-63	800	28	1000	110	800	1730	1185 x 950 x 897	2200 x 950 x 1015
1D1250-63a	1100	52,5	1500	250	800	2570	1185 x 950 x 897	2595 x 1060 x 1220

1	2	3	4	5	6	7	8	9
1D1250-63a	740	24	1000	75	800	1780	1185 x 950 x 897	2500 x 1015 x 1015
1D1250-63b	1050	44	1500	200	800	2250	1185 x 950 x 897	2510 x 1100 x 1150
1D1250-63b	710	20	1000	55	800	1520	1185 x 950 x 897	2150 x 1100 x 1100
1D1250-125	1250	125	1500	630	1515	4943	1378 x 1050 x 1005	3243 x 1470 x 1705
1D1250-125a	1150	102	1500	500	1515	4349	1378 x 1050 x 1005	3263 x 1370 x 1675
1D1250-125b	1030	87	1500	400	1515	3643	1378 x 1050 x 1005	2938 x 1370 x 1640
1D1600-90	1600	90	1500	630	1165	4488	1378 x 1200 x 1030	3243 x 1470 x 1705
1D1600-90a	1450	75	1500	500	1165	3614	1378 x 1200 x 1030	2938 x 1370 x 1640
1D1600-90b	1300	63	1500	400	1165	2576	1378 x 1200 x 1030	2938 x 1370 x 1640
2D2000-21	2000	21	1000	160	1565	3095	1575 x 1200 x 1135	2895 x 1230 x 1350
2D2000-21a	1850	19	1000	132	1565	2985	1575 x 1200 x 1135	2895 x 1230 x 1350
2D2000-21b	1700	17	1000	110	1565	2925	1575 x 1200 x 1135	2895 x 1230 x 1350
AD2000-100-2	2000	100	1000	800	2470	5420	1800 x 1550 x 1405	3762 x 1550 x 1770
AD2000-100a-2	1900	88	1000	630	2470	5220	1800 x 1500 x 1405	3702 x 1550 x 1405
AD2000-100b-2	1800	80	1000	630	2470	5080	1800 x 1550 x 1405	3655 x 1550 x 1770
AD2500-62-2	2500	62	1000	630	2700	5930	1850 x 1670 x 1420	3460 x 1670 x 1810
AD2500-62a-2	2300	52	1000	500	2680	5620	1850 x 1670 x 1420	3510 x 1670 x 1750
AD3200-33-2	3200	33	1000	400	2700	5250	1890 x 1760 x 1520	3445 x 1760 x 1800
AD3200-33a-2	3000	29	1000	315	2700	5100	1890 x 1760 x 1520	3445 x 1760 x 1800
AD3200-33b-2	2800	25	1000	315	2700	5100	1890 x 1760 x 1520	3445 x 1760 x 1800
AD3200-75-2	3200	75	1000	1000	3650	8930	2000 x 1740 x 1590	4310 x 1740 x 1700
AD3200-75a-2	3000	65	1000	800	3640	7250	2000 x 1740 x 1590	3710 x 1740 x 1910
AD4000-95-2	4000	95	1000	1600	4660	12050	2260 x 2200 x 1755	4820 x 2200 x 1800
AD4000-95a-2	3700	82	1000	1250	4650	11090	2260 x 2200 x 1755	4660 x 2200 x 1800
AD6300-27-3	6300	27	750	630	4600	8430	2000 x 1950 x 1950	3710 x 1950 x 2170
AD6300-27-3-1	5000	32	750	630	4600	8430	2000 x 1950 x 1950	3710 x 1950 x 2170
AD6300-27a-3	5800	24	750	500	4600	8150	2000 x 1950 x 1950	3710 x 1950 x 2170
AD6300-27b-3	5450	22	750	400	4600	7900	2000 x 1950 x 1950	3610 x 1950 x 2170
AD6300-80-2	6300	80	750	2000	8170	18170	2880 x 2385 x 2195	5470 x 2385 x 2150
AD6300-80a-2	5900	70	750	1600	8160	16660	2880 x 2385 x 2195	5300 x 2385 x 2150
AD6300-80b-2	5500	60	750	1250	8160	15470	2880 x 2385 x 2195	5470 x 2385 x 2000
CN90-100	90	100	3000	55	185	720	755 x 640 x 570	1625 x 710 x 875
CN90-100a	80	80	3000	55	185	720	755 x 640 x 570	1625 x 710 x 875
CN160-112	160	112	3000	90	185	920	755 x 640 x 570	1850 x 820 x 885
CN160-112a	150	100	3000	75	185	960	755 x 640 x 570	1850 x 820 x 885
CN160-112b	135	80	3000	55	485	720	755 x 640 x 570	1850 x 820 x 885
6NDv-B (∅ 405)	325	49	1500	75	490	2205	1288 x 966 x 731	2421 x 966 x 996
6NDv-B (∅ 380)	300	44	1500	55	490	1113	1288 x 966 x 731	2309 x 966 x 1025
8NDv-Nm (∅ 525)	500	38,5	1000	110	735	2035	1122 x 1258 x 890	2357 x 1297 x 1135
8NDv-Nm (∅ 525)	600	92	1500	250	735	2415	1122 x 1258 x 890	2432 x 1297 x 1135
12NDs-Nm (∅ 460)	800	28	1000	110	1150	2529	1233 x 1392 x 1012	2468 x 950 x 1312
12NDS-Nm (∅ 460)	1200	65	1500	250	1150	2906	1233 x 1392 x 1012	2543 x 1020 x 1312
14NDS-N (∅ 540)	1100	40	1000	160	1554		1457 x 1647 x 1110	Delivery separate of the pump and electric motor
14NDS-N (∅ 510)	1000	36	1000	132	1554		1457 x 1647 x 1110	

## Technical characteristics of pump units, type D, produced by “Vipom” JSC, Bulgaria

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
140D25	504	25	1500	55	450	810	940 x 895 x 780	1960 x 895 x 780
140D40	504	40	1500	90	450	975	940 x 895 x 780	2060 x 895 x 780
140D40A	486	33	1500	75	450	940	940 x 895 x 780	2030 x 895 x 780
140D40B	468	29	1500	55	450	810	940 x 895 x 780	1960 x 895 x 780

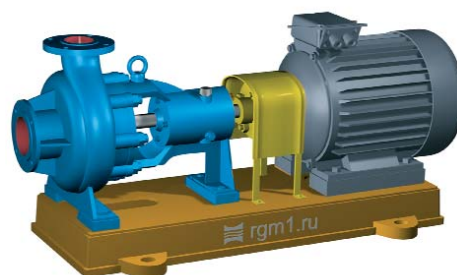
1	2	3	4	5	6	7	8	9
140D70	504	69	1500	160	618	1740	950 x 1033 x 803	2400 x 1033 x 803
140D70A	468	58	1500	132	618	1515	950 x 1033 x 803	2220 x 1033 x 803
200D90	504	39	1000	75	603	1360	1258 x 1032 x 844	2520 x 1032 x 844
200D90	720	90	1500	250	603	1605	1258 x 1032 x 844	2310 x 1032 x 844
200D90A	504	34	1000	75	603	1360	1258 x 1032 x 844	2520 x 1032 x 844
200D90A	720	80	1500	250	603	1605	1258 x 1032 x 844	2310 x 1032 x 844
200D90B	504	30	1000	55	603	1065	1258 x 1032 x 844	2380 x 1032 x 844
200D90B	720	70	1500	200	603	1515	1258 x 1032 x 844	2310 x 1032 x 844
220D20	792	20	1500	55	530	885	840 x 940 x 865	1860 x 940 x 865
220D20A	684	15	1500	45	530	810	840 x 940 x 865	1740 x 940 x 865
220D36	792	36	1500	132	540	1440	950 x 965 x 720	2220 x 965 x 720
220D36A	756	32	1500	90	540	1065	950 x 965 x 720	2070 x 965 x 720
220D36B	792	28,5	1500	75	540	1030	950 x 965 x 720	2040 x 965 x 720
220D55	792	55	1500	160	695	1820	1180 x 1060 x 915	2630 x 1060 x 915
220D55A	720	43	1500	132	695	1590	1180 x 1060 x 915	2450 x 1060 x 915
220D55B	684	37	1500	110	695	1490	1180 x 1060 x 915	2450 x 1060 x 915
220D90	792	90	1500	315	700	2000	1220 x 1150 x 935	2400 x 1150 x 935
220D90A	774	80	1500	250	700	1700	1220 x 1150 x 935	2270 x 1150 x 935
220D90A	756	71	1500	250	700	1700	1220 x 1150 x 935	2270 x 1150 x 935
300D40	1080	40	1500	160	850	1970	1645 x 1286 x 1125	3090 x 1286 x 1125
300D40	1080	40	1000	160	850	1840	1645 x 1286 x 1125	2690 x 1286 x 1125
300D40A	1080	35	1500	132	850	1745	1645 x 1286 x 1125	2910 x 1286 x 1125
300D40A	1080	35	1000	160	850	1840	1645 x 1286 x 1125	2690 x 1286 x 1125
300D40B	900	32	1500	110	850	1640	1645 x 1286 x 1125	2910 x 1286 x 1125
300D40B	900	32	1000	110	850	1820	1645 x 1286 x 1125	2990 x 1286 x 1125
350D40	1080	40	1000	160	1447	2440	1645 x 1306 x 1125	2690 x 1306 x 1125
350D40A	1080	35	1000	160	1447	2440	1645 x 1306 x 1125	2690 x 1306 x 1125
350D40B	900	32	1000	110	1447	2420	1645 x 1306 x 1125	2990 x 1306 x 1125
300D70	1080	69	1500	250	1034	2035	1392 x 1120 x 1070	2440 x 1120 x 1070
300D70	792	28	1000	90	1034	1825	1392 x 1120 x 1070	2660 x 1120 x 1070
300D70A	1080	58,5	1500	250	1034	2035	1392 x 1120 x 1070	2440 x 1120 x 1070
300D70A	720	25,2	1000	75	1039	1795	1392 x 1120 x 1070	2660 x 1120 x 1070
300D70B	1080	48	1500	200	1034	1945	1392 x 1120 x 1070	2440 x 1120 x 1070
300D70B	720	21	1000	55	1034	1495	1392 x 1120 x 1070	2510 x 1120 x 1070
350D140	1260	148	1500	800	1333	3925	1240 x 1480 x 1115	2850 x 1480 x 1410
350D140A	1260	140	1500	800	1333	3925	1240 x 1480 x 1115	2850 x 1480 x 1410
350D140B	1260	130	1500	630	1333	3635	1240 x 1480 x 1115	2900 x 1480 x 1300
350D140V	1170	120	1500	630	1333	3635	1240 x 1480 x 1115	2900 x 1480 x 1300
450D32	1620	32	1500	200	850	1760	1050 x 1180 x 1120	2490 x 1180 x 1120
450D32A	1548	28	1500	160	850	1970	1050 x 1180 x 1120	2500 x 1180 x 1120
450D32B	1476	24	1500	132	850	1745	1050 x 1180 x 1120	2320 x 1180 x 1120
450D90	1620	90	1500	630	1200	3500	1330 x 1402 x 1095	2990 x 1402 x 1300
450D90A	1566	76	1500	500	1200	3280	1330 x 1402 x 1095	2890 x 1402 x 1300
450D90B	1512	63	1500	400	1200	3140	1330 x 1402 x 1095	2890 x 1402 x 1300
550D22	1512	13	750	90	1539	2515	1350 x 1293 x 1358	2700 x 1293 x 1358
550D22	1350	8,5	750	55	1539	2275	1350 x 1293 x 1358	2620 x 1293 x 1358
550D22	1980	22	1000	160	1539	2530	1350 x 1293 x 1358	2400 x 1293 x 1358
550D22A	1800	15	1000	110	1539	2510	1350 x 1293 x 1358	2700 x 1293 x 1358
900D30	3240	30	1000	400	2828	4950	1620 x 1663 x 1531	3180 x 1663 x 1531
900D30A	3060	24,5	1000	315	2828	4800	1620 x 1663 x 1531	3180 x 1663 x 1531
900D50	3240	50	1000	630	3050	5680	1550 x 1700 x 1460	3160 x 1700 x 1460
900D50A	2736	43	1000	500	3050	5380	1550 x 1700 x 1460	3210 x 1700 x 1460
900D50B	2520	35	1000	400	3050	5170	1550 x 1700 x 1460	3110 x 1700 x 1460
900D80	3240	80	1000	1000	3078	8615	1900 x 1783 x 1555	-
900D80A	2880	71	1000	800	3078	6030	1900 x 1783 x 1555	3610 x 1783 x 1555
900D80B	2700	60	1000	630	3078	5710	1900 x 1783 x 1555	3510 x 1783 x 1555
1600D30	5760	30	750	630	6340	9420	2012 x 2018 x 2115	3720 x 2018 x 2115
1600D30A	5400	25	750	500	6340	9140	2012 x 2018 x 2115	3720 x 2018 x 2115

## Type CVK CENTRIFUGAL VORTEX PUMPS

Centrifugal, vortex, cantilever horizontal double-stage pumps (the first-step impeller is centrifugal, the second-step impeller is vortical)

The pumps are designed for pumping water and other neutral liquids with temperatures from -15°C to 105°C that contain solid insertions of size below 0,05 mm and concentration below 0,01% by mass.

They are used in the systems of hot and cold water supply.



### Technical characteristics of pump units, type CVK

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
CVK 4/112	14,4	112	3000	22	303	1322 x 360 x 545
CVK 5/125	18	125	3000	30	313	1362 x 360 x 545
CVK 6,3/160	22,7	160	3000	30	385	1375 x 406 x 615

## Type Ks, KsV PUMP UNITS

Condensate pumps of Ks type are designed for pumping waste steam condensibles of stationary steam turbines and of heating steam from heat exchangers with temperatures up to 125°C, and for pumps Ks32-150 and Ks80-155, with temperatures up to 160°C.

A distinguishing feature of the condensate pumps is their good suction capacity.

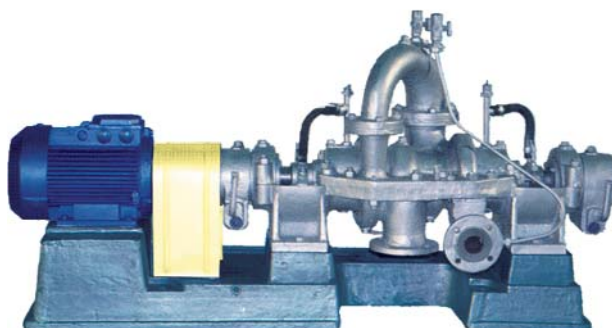
Structurally the type Ks pumps fall into the following categories:

horizontal single-bottom spiral unilateral;

horizontal sectional single-bottom;

vertical sectional double-body (KsV);

single-stage spiral with the double-sided impeller (horizontal and vertical); The pumps are designed for pumping waste steam condensibles with temperatures up to 160°C into deaerators of atomic power plants and heat power plants. They are also used for pumping condensate in electric power station systems.



### Technical characteristics of pump units, type Ks, KsV

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
Ks 12-50	12	50	3000	5,5	345	1400 x 410 x 730
Ks 12-110	12	110	3000	11	465	1645 x 447 x 900
Ks 20-50	20	50	3000	7,5	320	1455 x 410 x 740
Ks 20-110	20	110	3000	18,5	550	1875 x 517 x 905
Ks 32-150-2	32	150	3000	22	525	1755 x 595 x 590
Ks 50-55-2	50	55	3000	15	660	1557 x 615 x 680
Ks 50-110-2	50	110	3000	30	745	1712 x 615 x 665
Ks 80-155-2	80	155	3000	55	965	1915 x 615 x 695
KsV 125-55	125	55	3000	30	670	680 x 600 x 1615
KsV 125-140	125	140	3000	75	2145	680 x 600 x 1825

## Type CNS CENTRIFUGAL pumps

Centrifugal multistage horizontal high pressure pumps, according to their construction peculiarities and sphere of application, are classified into several groups:

The type **CNS** pumps are designed for pumping neutral cold water with temperatures of 1°C to 45°C and the contents of solid impurities within 0,2% by mass, not more than 0,2 mm in size and the hardness of no more than 1.46 gPa. They are used for water drainage in coalmines, in water-supply systems and for increasing pressure in cold water circuits.

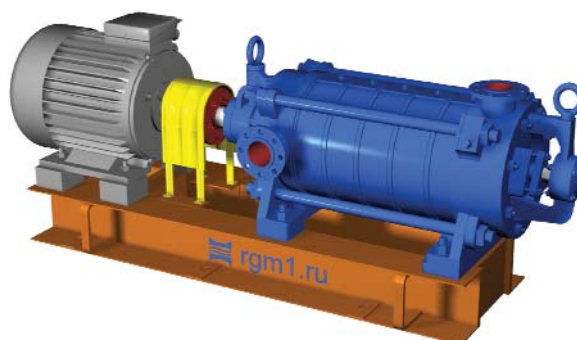
The type **CNSg** pumps are designed for pumping neutral hot water with temperatures of 45°C to 105°C and the contents of solid impurities within 0,1 % by mass, not more than 0,1 mm in size and the hardness of not more than 1.46 gPa. The additional pressure of the in-coming water should not be less than 10 m of water column.

**CNSk** pumps - are designed for pumping acidic waters with pH less than 6.5, with temperatures of 1°C to 40°C, the contents of solid impurities not more than 0,2% by mass and not more than 0,2mm in size and the hardness not higher than 1,47 gPa.

**CNSn** pumps are designed for pumping water-containing gas-saturated, as well as commercial, petroleum in the course of in-field collection, preparation and transportation, the oil being free of hydrogen sulfide, its density within 900-1050 kg/m<sup>3</sup>, paraffin-content not more than 20% and pressure within 500 mm mercury.

**CNSm** - are designed for operating in turbo-generator oiling systems to supply oil to the sealing bearings at starting, stopping and working of the generator. Oil temperature should be 2°C up to 60°C for CNSm of 38- and 60- series and up to 55°C for CNSm of 180- and 300- series, at viscosity of 20-25 cSt and density of 0,88 g/cm<sup>3</sup>.

**Our company effects delivery of the centrifugal sectional type MT pumps and pump units, produced by "Vipom" JSC, Bulgaria. The type MT pumps and pump units are complete analogues of the type CNS pumps.**



### Technical characteristics of pump units, type CNS

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW CNS(G,K)	Power, kW CNSN(M)	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7	8
CNS 13-70	13	70	3000	11	-	335	1387 x 220 x 561
CNS 13-105	13	105	3000	11	-	372	1458 x 220 x 561
CNS 13-140	13	140	3000	15	-	415	1626 x 220 x 621
CNS 13-175	13	175	3000	18,5	-	457	1697 x 220 x 621
CNS 13-210	13	210	3000	18,5	-	494	1768 x 220 x 621
CNS 13-245	13	245	3000	22	-	549	1839 x 220 x 640
CNS 13-280	13	280	3000	30	-	575	1935 x 220 x 640
CNS 13-315	13	315	3000	30	-	612	2006 x 220 x 640
CNS 13-350	13	350	3000	30	-	649	2077 x 220 x 640
CNS 38-44	38	44	3000	11	18,5	326	1387 x 220 x 578
CNS 38-66	38	66	3000	15	18,5	405	1555 x 220 x 621
CNS 38-88	38	88	3000	18,5	30	465	1626 x 220 x 621
CNS 38-110	38	110	3000	22	30	491	1722 x 220 x 640
CNS 38-132	38	132	3000	30	37	521	1793 x 220 x 640
CNS 38-154	38	154	3000	30	45	551	1864 x 220 x 640
CNS 38-176	38	176	3000	30	55	593	1935 x 220 x 640
CNS 38-198	38	198	3000	37	55	648	2059 x 225 x 685
CNS 38-220	38	220	3000	45	75	692	2195 x 225 x 685
CNS 60-66	60	66	3000	22	30	474	1540 x 255 x 676
CNS 60-99	60	99	3000	30	45	588	1620 x 255 x 676
CNS 60-132	60	132	3000	45	55	688	1818 x 255 x 715
CNS 60-165	60	165	3000	55	75	829	1930 x 255 x 731
CNS 60-198	60	198	3000	55	75	876	2008 x 255 x 731

1	2	3	4	5	6	7	8
CNS 60-231	60	231	3000	75	110	1060	2318 x 260 x 785
CNS 60-264	60	264	3000	75	110	976	2270 x 260 x 790
CNS 60-297	60	297	3000	75	132	1324	2350 x 260 x 790
CNS 60-330	60	330	3000	110	132	1346	2470 x 290 x 790
CNS 105-98	105	98	3000	55	75	950	1900 x 640 x 780
CNS 105-147	105	147	3000	75	110	1120	2100 x 640 x 820
CNS 105-196	105	196	3000	110	132	1186	2103 x 275 x 940
CNS 105-245	105	245	3000	132	160	1609	2548 x 535 x 935
CNS 105-294	105	294	3000	160	200	1571	2398 x 330 x 845
CNS 105-343	105	343	3000	160	250	1635	2493 x 465 x 845
CNS 105-392	105	392	3000	200	250	1786	2628 x 465 x 845
CNS 105-441	105	441	3000	250	315	1906	2768 x 500 x 891
CNS 105-490	105	490	3000	250	250	1971	2863 x 500 x 891
CNS 180-85	180	85	1500	75	75	1308	2190 x 890 x 940
CNS 180-128	180	128	1500	110	110	1417	2480 x 1000 x 940
CNS 180-170	180	170	1500	132	160	1611	2590 x 1000 x 940
CNS 180-212	180	212	1500	160	200	1906	2770 x 1000 x 940
CNS 180-255	180	255	1500	200	250	2255	2900 x 1000 x 950
CNS 180-297	180	297	1500	250	315	2740	3050 x 1020 x 930
CNS 180-340	180	340	1500	250	315	2859	3150 x 1020 x 930
CNS 180-383	180	383	1500	315	315	3077	3560 x 1230 x 1230
CNS 180-425	180	425	1500	315	315	3313	3800 x 1230 x 1230
CNS 300-120	300	120	1500	160	200;250	2210	2785 x 900 x 1180
CNS 300-180	300	180	1500	250	250;400	4150	3115 x 950 x 1200
CNS 300-240	300	240	1500	315	315;500	4710	3115 x 1100 x 1440
CNS 300-300	300	300	1500	400	400;630	5250	3505 x 1130 x 1440
CNS 300-360	300	360	1500	500	500;630	5400	3625 x 1130 x 1440
CNS 300-420	300	420	1500	500	630;800	6300	3815 x 1160 x 1440
CNS 300-480	300	480	1500	630	630;800	6500	3935 x 1160 x 1440
CNS 300-540	300	540	1500	800	800	6660	4055 x 1160 x 1440
CNS 300-600	300	600	1500	800	800	6820	4175 x 1160 x 1440

## CENTRIFUGAL SUBMERSIBLE PUMP UNITS, type ECV

Centrifugal electric pump units of ECV type for wells are intended for feeding water with general mineral content (solid residue) within 1500 mg/l, with pH ranging 6,5 to 9,5, the temperatures up to 25°C and with hard mechanical impurities below 0.01% by mass, the chloride content - not more than 350 mg/l, sulfate content - not more than 500 mg/l, hydrogen sulfide - not more than 1,5 mg/l.

Version1. Pump with the impellers fixed on the shaft. Axial hydraulic stress is taken in by the supporting device, located in the electric motor. The casing of blade taps are formed.

Version2. The casing of blade taps are cylindrical, made of pipes with disks, which fix the taps in the axial direction, separate the inter-stage chambers and form slotted sealing of the working wheels.

Version3. Pumps with cast (trap) blade taps. The stages of the pumps are of a semi-axle type. The impellers are fixed on the shaft.

Version4. Mono-block electric pump units (the impeller is located on the shaft of the electric motor).

Versions H, G, Tr and their combinations can be applied in tougher working conditions, determined in the every concrete case in the specifications for a concrete unit. They are used for the rise of pure water for urban, industrial and agricultural water supply from artesian wells.



## Technical characteristics of pump units, type ECV

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm length x ∅ max, mm
1	2	3	4	5	6	7
ECV 4-2,5-65	2,5	65	3000	1,1	25	970 x 100
ECV 4-2,5-80	2,5	80	3000	1,1	26	1040 x 100
ECV 4-2,5-100	2,5	100	3000	1,5	27	1190 x 100
ECV 4-2,5-120	2,5	120	3000	2,2	33	1350 x 100
ECV 5-4-125	4	125	3000	3	52	1540 x 125
ECV 5-6,5-80	6,5	80	3000	3	49	1380 x 125
ECV 5-6,5-120	6,5	120	3000	4	67	1860 x 125
ECV 6-4-130	4	130	3000	4	64	1300 x 145
ECV 6-4-190	4	190	3000	4	65	1450 x 145
ECV 6-6,5-60	6,5	60	3000	2,2	56	1070 x 145
ECV 6-6,5-85	6,5	85	3000	3	66	1240 x 145
ECV 6-6,5-125	6,5	125	3000	4	68	1370 x 145
ECV 6-6,5-140	6,5	140	3000	5,5	72	1410 x 145
ECV 6-6,5-185	6,5	185	3000	7,5	83	1650 x 145
ECV 6-6,5-225	6,5	225	3000	7,5	87	1780 x 145
ECV 6-10-50	10	50	3000	2,2	55	1015 x 145
ECV 6-10-80	10	80	3000	4	66	1200 x 145
ECV 6-10-110	10	110	3000	5,5	68	1320 x 145
ECV 6-10-140	10	140	3000	6,3	72	1470 x 145
ECV 6-10-185	10	185	3000	8	89	1750 x 145
ECV 6-10-235	10	235	3000	11	94	1960 x 145
ECV 6-10-350	10	350	3000	13	121	1410 x 145
ECV 6-16-75	16	75	3000	5,5	70	1355 x 145
ECV 6-16-90	16	90	3000	6,3	72	1430 x 145
ECV 6-16-110	16	110	3000	7,5	80	1615 x 145
ECV 6-16-140	16	140	3000	11	91	1800 x 145
ECV 6-16-160	16	160	3000	13	103	1950 x 145
ECV 6-16-190	16	190	3000	13	110	2200 x 145
ECV 8-16-140	16	140	3000	11	93	1440 x 186
ECV 8-16-160	16	160	3000	11	107	1590 x 186
ECV 8-16-180	16	180	3000	13	110	1650 x 186
ECV 8-16-200	16	200	3000	22	135	1620 x 186
ECV 8-25-100	25	100	3000	11	90	1410 x 186
ECV 8-25-125	25	125	3000	13	102	1570 x 186
ECV 8-25-150	25	150	3000	17	128	1545 x 186
ECV 8-25-180	25	180	3000	18,5	132	1660 x 186
ECV 8-25-230	25	230	3000	22	142	1840 x 186
ECV 8-25-300	25	300	3000	32	177	2200 x 186
ECV 8-40-60 nrk	40	60	3000	11	87	1310 x 186
ECV 8-40-90 nrk	40	90	3000	17	127	1440 x 186
ECV 8-40-120 nrk	40	120	3000	22	135	1490 x 186
ECV 8-40-150 nrk	40	150	3000	27	170	1790 x 186
ECV 8-40-180 nrk	40	180	3000	32	172	1920 x 186
ECV 8-65-70 nrk	65	70	3000	18,5	141	1660 x 186
ECV 8-65-90 nrk	65	90	3000	25	176	2025 x 186
ECV 8-65-110 nrk	65	110	3000	30	178	2110 x 186
ECV 8-65-145 nrk	65	145	3000	37	213	2450 x 186
ECV 8-65-180 nrk	65	180	3000	45	227	2700 x 186

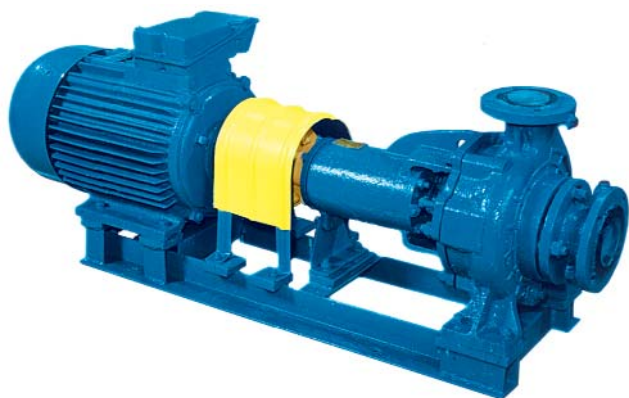


1	2	3	4	5	6	7
ECV 10-65-65 nrk	65	65	3000	22	141	1400 x 235
ECV 10-65-110 nrk	65	110	3000	32	176	1750 x 235
ECV 10-65-150 nrk	65	150	3000	45	198	1930 x 235
ECV 10-65-175 nrk	65	175	3000	45	262	2030 x 235
ECV 10-65-225 nrk	65	225	3000	55	295	2360 x 235
ECV 10-65-275 nrk	65	275	3000	75	337	2600 x 235
ECV 10-120-60 nrk	120	60	3000	32	173	1615 x 235
ECV 10-120-80 nrk	120	80	3000	33	222	1700 x 235
ECV 10-120-100 nrk	120	100	3000	45	254	1930 x 235
ECV 10-160-35 nrk	160	35	3000	22	171	1520 x 235
ECV 10-160-50 nrk	160	50	3000	33	216	1620 x 235
ECV 12-160-65 nrk	160	65	3000	45	200	1590 x 281
ECV 12-160-100 nrk	160	100	3000	65	286	1800 x 281
ECV 12-160-140 nrk	160	140	3000	90	327	1970 x 281
ECV 12-210-25	210	25	3000	22	212	1416 x 281
ECV 12-255-30	255	30	3000	32	254	1490 x 281

## CENTRIFUGAL SEWAGE PUMPS type SM

The SM-type centrifugal pumps are intended for pumping household sewage, industrial discharge and other non-aggressive polluted liquids with density within 1050 kg/m<sup>3</sup>, pH = 6-8.5, temperatures - up to 90°C, with the content of abrasive particles not more than 1% by mass, with the size of the particles not more than 5 mm and the hardness of no more than 9000 MPa.

The nature of the transferred liquid, which is highly polluted, requires the pump to be resistant to clogging. The settings of the pump are wider in comparison with the settings of the pumps, which transfer pure liquids. The seal of the pump shafts is a soft gasket.



### Technical characteristics of pump units, type SM

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
SM80-50-200/2	50	50	3000	15	250	1400 x 305 x 478
SM80-50-200a/2	45	42	3000	11	202	1228 x 305 x 478
SM80-50-200b/2	25	32	3000	11	202	1228 x 305 x 478
SM80-50-200/4	25	12,5	1500	3	150	1125 x 305 x 478
SM80-50-200a/4	22	9	1500	2,2	147	1102 x 305 x 478
SM80-50-200b/4	20	7,5	1500	1,5	145	1063 x 305 x 478
SM100-65-200/2	100	50	3000	37	420	1503 x 450 x 647
SM100-65-200a/2	100	32	3000	22	335	1445 x 450 x 598
SM100-65-200b/2	80	32	3000	18,5	315	1415 x 450 x 598
SM100-65-200/4	50	12,5	1500	5,5	200	1195 x 450 x 598
SM100-65-200a/4	45	9	1500	3	174	1184 x 450 x 598
SM100-65-200b/4	40	8	1500	2,2	171	1160 x 450 x 598
SM100-65-250/4	50	20	1500	7,5	235	1240 x 350 x 560

1	2	3	4	5	6	7
SM100-65-250a/4	45	16	1500	5,5	214	1215 x 350 x 560
SM100-65-250b/4	40	14	1500	4	197	1204 x 350 x 560
SM125-80-315/4	80	32	1500	22	405	1470 x 400 x 668
SM125-100-250/4	100	20	1500	11	247	1387 x 405 x 607
SM125-100-250a/4	100	15	1500	7,5	234	1349 x 405 x 607
SM125-100-250b/4	80	14	1500	7,5	234	1349 x 405 x 607
SM150-125-315/4	200	32	1500	37	715	1955 x 517 x 775
SM150-125-315a/4	180	27,5	1500	30	675	1925 x 517 x 775
SM150-125-315b/4	160	22,5	1500	22	655	1685 x 517 x 775
SM150-125-315/6	100	15	1000	11	609	1800 x 517 x 775
SM150-125-315a/6	100	12,5	1000	11	609	1800 x 517 x 775
SM150-125-315b/6	92	10	1000	7,5	567	1590 x 517 x 775
SM 200-150-400/4	400	50	1500	110	1533	2335 x 710 x 1125
SM 200-150-400a/4	300	40	1500	90	1498	2135 x 710 x 1125
SM 200-150-400b/4	300	32	1500	75	1463	2095 x 710 x 1125
SM 200-150-400/6	250	22,5	1000	30	1243	1971 x 710 x 1125
SM200-150-400a/6	220	17	1000	22	1228	1925 x 710 x 1125
SM200-150-500/4	400	80	1500	200	2240	3025 x 650 x 990
SM200-150-500a/4	300	70	1500	160	2015	2965 x 650 x 990
SM200-150-500b/4	280	57	1500	110	1925	2880 x 650 x 990
SM250-200-400/4	800	50	1500	250	2635	3130 x 720 x 1150
SM250-200-400a/4	720	43	1500	200	2380	3040 x 720 x 1150
SM250-200-400b/4	680	35	1500	160	2155	2990 x 720 x 1150
SM250-200-400/6	530	22	1000	75	2065	2910 x 720 x 1150
SM250-200-400a/6	440	21	1000	55	1815	2695 x 720 x 1150
SM250-200-400b/6	400	18	1000	45	1770	2655 x 720 x 1150

## CENTRIFUGAL CANTILEVER PUMPS, type K

Type K centrifugal cantilever single-staged pumps with horizontal axial intake of liquid to the impeller are designed for pumping, in stationary conditions, of pure water (except sea water) with pH=6-9 and temperatures from 0°C to 85°C (up to 105°C if double gland seal is used) as well as of other liquids similar to water in density, viscosity and chemical activity and containing solid impurities of not more than 0.1% in volume and less than 0,2 mm in size.

They are used in systems of municipal water services, for irrigation and drainage.

The pumps are designed for operating in explosion-proof and fire-proof works. The usage of the pumps for transferring inflammable liquids as well as placement in the apartment buildings (except boosting pumps type KMP) is not permitted.

Various designs:

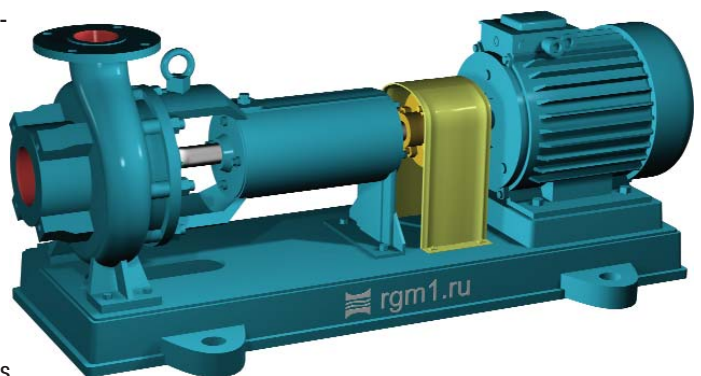
K - horizontal cantilever with the bearing on the casing (the basic version)

KM - mono-block;

KMP - boosting (for installation in the apartment buildings);

KML - linear vertical (the axes of the suction and delivery pipes are located in-line and the vertical rotor axis of rotation).

The application and technical characteristics of the type K and KM pump parts are identical, at that the pump units type KM have smaller overall dimensions and mass.



## Technical characteristics of pump units, type K

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
K 8/18 (K 50-32-125)	8	18	3000	1,5	64	768 x 257 x 321
K 20/30 (K 65-50-160)	20	30	3000	4	85	932 x 287 x 335
K 45/30	45	30	3000	7,5	131	1030 x 320 x 375
K 45/30a	35	22,5	3000	5,5	102	990 x 320 x 375
K 90/20	90	20	3000	7,5	135	1030 x 320 x 375
K 80-50-200	50	50	3000	15,0	250	1127 x 458 x 485
K 80-50-200a	45	50	3000	11,0	202	955 x 458 x 485
K 80-65-160	50	32	3000	7,5	136	942 x 390 x 410
K 100-80-160	100	32	3000	15	270	1245 x 458 x 458
K 100-80-160a	90	26	3000	11	222	1073 x 458 x 458
K 100-65-200	100	50	3000	30	376	1310 x 498 x 540
K 100-65-200a	90	40	3000	18,5	334	1330 x 498 x 540
K 100-65-250	100	80	3000	45	485	1390 x 568 x 605
K 100-65-250a	90	67	3000	37	465	1344 x 568 x 605
K 150-125-250	200	20	1500	18,5	420	1345 x 465 x 675
K 150-125-315	200	32	1500	30	427	1380 x 525 x 705
K 200-150-250	290	18	1500	22	425	1400 x 525 x 725
K 200-150-250a	260	16,5	1500	18,5	412	1470 x 525 x 725
K 200-150-315	315	32	1500	45	570	1665 x 785 x 600
K 200-150-315a	250	24	1500	30	490	1534 x 785 x 600

## CENTRIFUGAL CANTILEVER PUMP UNITS, type KM

The pumps are centrifugal horizontal mono-block single-staged with the closed impeller, which is mounted directly on the shaft of the special induction motor with extension of the shaft.

The application and technical characteristics of the type K and KM pump parts are identical, at that the pump units type KM have smaller overall dimensions and mass.



## Technical characteristics of the pump units, KM

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
KM 50-32-125	12,5	20	3000	2,2	47	491 x 200 x 276
KM 65-50-160	25	32	3000	5,5	76	570 x 250 x 321
KM 80-65-160	50	32	3000	7,5	90	630 x 320 x 362
KM 80-50-200	50	50	3000	15	90	630 x 320 x 362
KM 100-80-160	100	32	3000	15	195	825 x 358 x 430
KM 100-65-200	100	50	3000	30	260	850 x 400 x 470
KM 150-125-250	200	20	1500	18,5	195	895 x 430 x 705

Portable centrifugal submersible electric type GNOM pumps for contaminated waters are designed for pumping water containing solid impurities less than 5 mm in size and temperatures not more than 60°C.



### Technical characteristics of pump units, type GNOM

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
GNOM 10x10	10	10	3000	1,1	19,5	215 x 220 x 425
GNOM 16x16	16	16	3000	2,2	32	240 x 300 x 510
GNOM 25x20	25	20	3000	4	52	265 x 280 x 605
GNOM 53x10	53	10	3000	4	54	265 x 300 x 605
GNOM 100x25	100	25	3000	11	132	385 x 410 x 785

## GEAR PUMPS, type SH, NMSH

These are positive displacement gear pumps with interior support on feet (NMSHF - flanged), in which the delivery of the working liquid is carried out with the help of gears installed on the driving and driven shafts that are connected to the electric motor by a coupling. The pumps are complete with safety valves that prevent the excess of pressure in the pipeline above the permissible value. The pumps are manufactured with differences in the materials used in their hydraulic parts: of cast iron SCh20 - without a marking, of bronze - with the "B" marking. The pumping units are complete with electric motors of various power and types (explosion-proof) depending on the kind and viscosity of the pumped liquid and on the operating conditions (the motor version is marked with the last numbers after the dash in the graphical symbols).

They are designed for pumping of petroleum products without mechanical impurities, such as oils, black oil, petroleum, at temperatures below 70°C and diesel fuel at temperatures up to 40°C, and also of easily solidifying liquids, such as paraffin and others, that have greasing capacity.

They are applied in systems of fuel and petroleum products conveyance, and also for feeding fuel oil to boiler installations.



### Technical characteristics of the pump units, type SH, NMSH

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
NMSH 2-40-1,6/16	1,6	16	1500	1,5; 2,2; 3	78	614 x 277 x 430
NMSH 5-25-2,5/6	2,5	6	1000	1,5; 2,2	112,4	786 x 320 x 440
NMSH 5-25-4,0/4	4	4	1500	1,5; 2,2; 3	78	624 x 277 x 430

1	2	3	4	5	6	7
NMSH 5-25-4,0/10	4	10	1500	3	87	760 x 302 x 440
NMSH 5-25-4,0/25	4	25	1500	5,5	123,5	835 x 320 x 470
NMSH 8-25-6,3/2,5	6,3	2,5	1500	1,5; 2,2; 3	82	666 x 277 x 430
NMSH 8-25-6,3/10	6,3	10	1500	4	112,5	795 x 320 x 440
NMSH 8-25-6,3/25	6,3	25	1500	7,5	162	832 x 320 x 535
SH 40-4-19,5/4	19,5	4	1000	5; 5,5; 7; 7,5	240	1020 x 410 x 600
SH 40-4-19,5/6	19,5	6	1000	7	275	1000 x 410 x 600
SH 80-2,5-37,5/2,5	37,5	2,5	1000	11;15	310	1295 x 565 x 660

## VORTEX PUMPS, type VK, VKS

Vortex pumps are intended for pumping water and neutral, combustible, toxic, highly inflammable and explosive as well as chemically active liquids with temperatures ranging from 233K to 358K (from -40° to +85°C) and with solid impurities content not exceeding 0,01% by mass and 0,05 mm in size.

They are used in the systems of water supply, in chemical and oil-processing industry.

Various designs:

VK - vortex cantilever;

VKO - vortex cantilever heated (for pumping easily solidifying liquids);

VKS - vortex cantilever self-priming (with pressure dome).



### Technical characteristics of pump units, type VK, VKS

Unit designation	Flow rate, m <sup>3</sup> /h (l/s)	Head, m	Frequency, rpm	Power, kW	Height of self-suction, m	Unit mass, kg	Efficiency, % not less than
1	2	3	4	5	6	7	8
VKS 1/16A	3,6 (1)	16	1500	1,5	3	58	30
VK 2/26A	7,2 (2)	26	1500	4; 5,5	-	84 (111)	33
VKS 2/26A	7,2 (2)	26	1500	4; 5,5	4	84 (111)	33
VK 2/26K	7,2 (2)	26	1500	4; 5,5	-	84 (111)	33
VK 4/28A	14 (4)	28	1500	5,5; 7,5	-	113 (134)	41
VKS 4/28A	14 (4)	28	1500	5,5; 7,5	4	113 (134)	41
VK 4/28K	14 (4)	28	1500	5,5; 7,5	-	113 (134)	41
VK 5/32A	18 (5)	32	1500	5,5; 11	-	107 (147)	38
VKS 5/32A	18 (5)	32	1500	5,5; 11	3,5	107 (147)	38
VK 5/32K	18 (5)	32	1500	5,5; 11	-	107 (147)	38
VK 10/45A	36 (10)	45	1500	18,5; 30	-	232 (270)	35
VKS 10/45A	36 (10)	45	1500	18,5; 30	3	232 (270)	35

### Overall and mounting dimensions of pump units, type VKS

Unit designation	Length, mm	Width, mm	Height, mm	Diameter of the suction pipe, mm	Diameter of the delivery pipe, mm
1	2	3	4	5	6
VKS 1/16A, 1,5 kW	754	290	326	60	25
VKS 2/26A, 4 kW	840	310	448	40	40
VKS 2/26A, 5,5 kW	907	290	448	40	40
VKS 4/28A, 5,5 kW	914	290	444	40	40
VKS 4/28A, 7,5 kW	942	310	456	40	40
VKS 5/32A, 5,5 kW	940	290	452	40	40
VKS 5/32A, 11 kW	998	310	464	40	40
VKS 10/45A, 18,5 kW	1174	341	547	65	65
VKS 10/45A, 30 kW	1269	366	567	65	65

## HELICAL ROTOR PUMPS, type N1V, AN1V

The N1V-type pumps belong to the group of positive-displacement pumps and are designed for pumping pure and polluted liquids with temperatures to 353°K (80°C), including chemically active ones, with viscosity to 46x10<sup>3</sup> mm<sup>2</sup>/sec (0,046 m<sup>2</sup>/sec) and containing solid impurities of 0,2 mm or less in size and 5% by volume. The N1V-type pumps can deliver as much as 40 m<sup>3</sup>/h and ensure a delivery pressure of 1kg/cm<sup>2</sup>.

The shaft is gland-sealed or end-sealed. The main parts are made: the body - of 12X18N9TL(K) or 10X17N13M3T(E) steel, the yoke - of rubber.

The pumps are used in coal industry for removal of water from sumps and water-collectors when driving workings, cutting of slopes and inclined run-offs of mines, as well as in various construction operations. They can also be used in agriculture and other branches of industry.



### Technical characteristics of pump units, type N1V, AN1V

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
N1V1,6/5-0,1/1,6	0,1	1,6	140*	1,1	180	1525 x 475 x 445
N1V 6/5-1/2,5	1	2,5	360*	2,2	210	1715 x 475 x 445
N1V 6/5-2,5/1,6	2,5	1,6	720	2,2	110	1285 x 230 x 385
N1V6/5-5/5	5	5	1450	2,2	120	1275 x 240 x 455
N1V6/10-4/6,3-Rp	1-4	6,3	350	4	225	2000 x 440 x 535
N1V20/5-10/5	10	5	960	4	185	1630 x 350 x 530
N1V20/5-16/5	16	5	1450	4	157	1505 x 290 x 500
N1V20/10-16/10	16	10	1450	11	233	1826 x 276 x 575
N1V80/5-6,3/5	6,3	5	150*	3	305	2250 x 495 x 495
N1V80/5-6,3/5Rp	1,3-6,3	5	30-150**	4	530	3050 x 645 x 650
N1V80/5-32/4	32	4	730	15	395	2300 x 410 x 655
AN1V1,6/5-0,6/5	0,6	5	980	0,75	80	980 x 260 x 290
AN1V1,6/5-1,2/5	1,2	5	1450	1,1	80	980 x 260 x 290
AN1V1,6/5-2/2	2,5	1,4	2900	0,75	18	485 x 235 x 345
AN1V6/5-2/5	2	5	730	1,5	62	1240 x 260 x 365
AN1V6/5-5/5	5	5	1450	2,2	68	1185 x 240 x 320

\*Rotational speed with reduction gear

\*\*Rotational speed with speed regulator

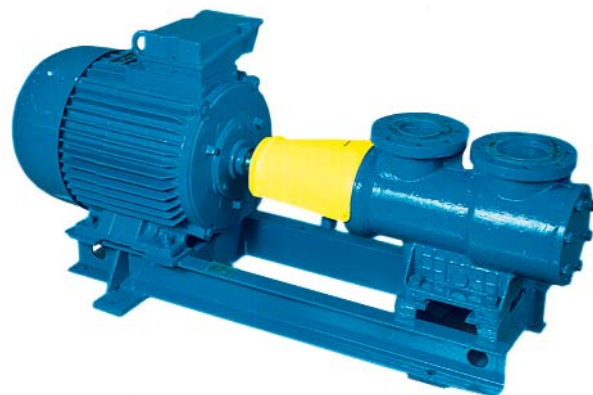
## THREE-SCREW PUMPS, type A1 3V, A2 3V, A3 3V

Positive-displacement three-screw pumps are designed for pumping non-corrosive liquids, having lubricating capacity, containing no abrasive impurities and with temperatures of the transferred liquids within 100°C, including coal oil with temperatures up to 80°C, fuel oil and oil with temperatures up to 100°C, diesel oil with temperatures to 40°C.

The working parts of the pump consist of three screws with cycloidal screw thread (one of them, which is connected to the electric motor by a coupling, is the leading) and a yoke with three through adjacent vents. The pumps are complete with safety valves that prevent the excess of pressure in the pipeline above the permissible value.

The design of pump units is vertical and horizontal. The pumping units are complete with electric motors of various power and types (explosion-proof) depending on the kind and viscosity of the pumped liquid and on the operating conditions.

They are applied in systems of fuel and petroleum products conveyance, and also for feeding fuel oil to boiler installations.



## Technical characteristics of pump units, type A1 3V, A2 3V, A3 3V

Unit designation	Flow rate, m <sup>3</sup> /h	Pressure, kgf/cm <sup>2</sup>	Frequency, rpm	Power, kW	Unit mass, kg	Unit overall dimensions, mm
1	2	3	4	5	6	7
A1 3V0,25/25-0,4/25B	0,45	25	3000	0,95; 1,1	40	740 x 185 x 308
A1 3V0,6/63-0,7/16B	1	16	3000	1,1	30	750 x 200 x 280
A1 3B0,6/63-1/25B	1	25	3000	2,2	35	780 x 200 x 288
A1 3V1/100-1,8/100B	1,8	100	3000	11	180	1198 x 403 x 443
A1 3V1,6/40-1,3/25B	1,3	25	1500	3	80	860 x 272 x 305
A1 3V1,6/40-3/25B	3,24	25	3000	7,5	110	955 x 350 x 350
A1 3V2,5/100-3/100B	3,8	100	3000	18,5	320	1435 x 402 x 490
A1 3V4/25-3/25	3	25	3000	5,5	180	1090 x 390 x 480
A1 3V4/25-3,2/4	3,2	4	3000	1,5	102	855 x 260 x 452
A1 3V4/25-6,4/25	6,84	25	3000	7,5	174	1090 x 350 x 475
A1 3V4/25-6,8/10B	6,8	10	3000	5,5	120	890 x 305 x 345
A1 3V4/25-6,8/25B	6,8	25	3000	7,5	130	950 x 280 x 392
A1 3V4/160-5,8/160B	5,8	160	3000	37	460	1580 x 480 x 680
A1 3V8/25-5/4B	5,5	4	3000	3	86	935 x 325 x 370
A1 3V8/25-11/10B	12,5	10	3000	7,5	123	1000 x 330 x 415
A2 3V8/63-6/40B	6,3	40	1500	20	315	1435 x 380 x 545
A1 3V8/63-11/40B	11,6	40	3000	22	535	570 x 665 x 1620
A3 3V8/63-11/63B	11,52	63	3000	30	420	1525 x 535 x 735
A1 3V8/100-11/100B	11,52	100	3000	45	870	1821 x 815 x 715
A1 3V16/25-8/25B	8	25	1500	15	326	1280 x 555 x 605
A1 3V16/25-10/6,3B	10	6,3	1500	7,5	243	1185 x 430 x 577
A1 3V16/25-20/6,3B	21,6	6,3	3000	11; 15	368	1280 x 554 x 565
A1 3V16/25-20/25B	21,6	25	3000	22	336	1340 x 555 x 655
A1 3V16/25-22/10B	21,6	10	3000	11	220	1120 x 410 x 435
A1 3V16/25-22/25B	21,6	25	3000	22	310	1280 x 476 x 570
A1 3V16/63-20/63B	21	63	3000	55	625	1735 x 480 x 775
A1 3V40/25-21/4B	21	4	1000	5,5	350	600 x 530 x 1500
A1 3V40/25-30/25B	32,4	25	1500	45	650	1760 x 685 x 735
A1 3V40/25-35/6,3B	35	6,3	1500	15	425	1455 x 565 x 645
A1 3V63/25-45/6,3B	47	6,3	1500	22	506	1565 x 580 x 705
A2 3V63/25-45/25B	46,8	25	1500	55	686	1745 x 685 x 770
A1 3V63/25-50/4B	50	4	1500	15	385	520 x 545 x 1525
A1 3V125/16-50/4B	45	4	750	22	600	630 x 675 x 1642
A2 3V125/16-58/10B	58	10	1000	45	953	2000 x 810 x 755
A1 3V125/16-90/4B	90	4	1500	22	560	630 x 675 x 1550
A2 3V125/16-90/6,3	90	6,3	1500	45	726	1940 x 670 x 790
A1 3V125/16-90/10	90	10	1500	45	600	630 x 675 x 1642
A2 3V125/16-90/25	90	25	1500	110	1315	2090 x 960 x 845
A1 3V320/16-125/4B	130	4	1500	30	875	790 x 895 x 1715
A1 3V320/16-125/10B	126	10	1500	75	930	790 x 895 x 1715
A1 3V400/16-80/4B	75	4	750	30	1270	830 x 930 x 1870
A1 3V400/16-160/4B	162	4	1500	37	1270	825 x 930 x 1860
A1 3Vx2 320/16-250/4B	255	4	1500	55	1380	930 x 830 x 2130
A1 3Vx2 400/16-320/4	325	4	1500	75	1800	880 x 1030 x 2250
A1 3Vx2 500/10-400/4	400	4	1500	75	1875	970 x 1030 x 2330

## Type SE PUMPS FOR HEAT-SUPPLYING SYSTEMS

Type SE electric pumps for heat-supplying systems are a modification of horizontal, single-stage pumps with a double suction impeller. They are designed for water with temperatures as high as 180°C and with concentration of solid impurities of 5 mg/l or less, with their size of 0,2 mm or less.

These pumps differ from D type pumps in that inoculated cast iron is used for the case, cover and the working wheel and that there is a cooling water jacket around the sealing units.

The main sphere of application is heat-supplying systems.

Normal operational conditions require a backwater of 100 m of water column before the impeller inlet.

### Technical characteristics of pump units, type SE

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
SE 500-70-16	500	70	3000	160	1034	2328	1290 x 1050 x 1065	2300 x 1050 x 1065
SE 800-55-11	800	55	1500	200	1514	2710	1480 x 1155 x 1102	2485 x 1155 x 1102
SE 800-100-11	800	100	1500	315	3010	4510	2215 x 1375 x 1840	3508 x 1375 x 1840
SE 800-100-8	800	100	3000	315	2800	4840	2100 x 1695 x 1160	3720 x 1695 x 1500
SE 1250-70-11	1250	70	1500	315	1400	3900	1610 x 1236 x 1145	2900 x 1236 x 1275
SE 1250-140-11	1250	140	1500	630	4380	6755	2510 x 1530 x 2220	4170 x 1530 x 2220
SE 1250-140-8	1250	140	3000	800	2800	5860	2100 x 1695 x 1160	4073 x 1695 x 1515
SE 2500-60-11	2500	60	1500	500	1400	5840	2130 x 2305 x 1585	3690 x 2305 x 2010
SE2500-60-11-1	2500	60	1500	630	3875	6610	2130 x 2305 x 1585	3790 x 2305 x 2005
SE 2500-60-8	2500	60	1500	630	4300	7370	2130 x 2343 x 1590	3790 x 2345 x 2005
SE 2500-60-16	2500	60	1500	630	4300	7370	2130 x 2345 x 1590	3790 x 2345 x 2005
SE 2500-180-10	2500	180	3000	1600	2300	6800	1775 x 1775 x 1235	4410 x 1775 x 1610
SE 1250-45-11	1250	45	1500	200	2300	3730	1775 x 1775 x 1235	3020 x 1790 x 1235
SE 2500-180-8	2500	180	3000	1600	3050	8580	1975 x 1915 x 1345	4770 x 1915 x 1710
SE 2500-180-25	2500	180	3000	1600	3700	9200	2105 x 1500 x 1380	4900 x 1510 x 1750
SE 5000-70-6	5000	70	1500	1250	5220	16070	2065 x 1872 x 1720	5605 x 2355 x 2120
SE 5000-70-5	5000	70	1500	1250	5500	10400	2165 x 1940 x 1720	4365 x 1940 x 2425
SE 5000-160-10	5000	160	3000	3150	4870	13200	2320 x 2175 x 1620	5440 x 2175 x 2210
SE 5000-160-8	5000	160	3000	3150	5120	13900	2325 x 2125 x 1620	5450 x 2125 x 2190
SE 5000-160-25	5000	160	3000	3150	5600	14000	2335 x 1900 x 1590	5455 x 1900 x 2145

## CENTRIFUGAL PUMPS, type CN

The CN type pumps are designed for pumping water and liquids similar to water in viscosity and chemical activity with temperatures up to 373°K (100°C), with contents of solid inclusions within 0,05 % by weight, not more than 0,2 mm in size. The CN-type pumps are horizontal single-stage single-entry pumps. The setting material –cast iron Sch20.

For pumping oilfield waters including hydrogen sulfide with hardness up to 1200 kgs/m<sup>3</sup> and temperature up to 353K (80°C), the material of the setting is made of steel 12H18N12M3TL.

In case of pumping water with temperatures up to 318K (45°C) into the oil-bearing beds the setting can be made of steel 20H13L.

The CN type pumps provide the flow rate from 50 up to 3000 m<sup>3</sup>/h and the head from 100 up to 1900m.

The shafts of the pump are connected to the electric motor by an elastic coupling.

The working stages are sealed with the help of membranes mounted on the pump body.

The end seals of the pump are dual soft gaskets.



## Technical characteristics of pump units, type CN

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
CN 400-105	400	105	1500	200	1320	3186	1570 x 1155 x 988	2570 x 1155 x 1148
CN 400-105a	380	96	1500	160	1320	2562	1570 x 1155 x 988	2575 x 1155 x 1148
CN 400-105b	360	83	1500	132	1320	2517	1570 x 1155 x 988	2535 x 1155 x 1148
CN 400-210	400	210	1500	400	2230	5550	2155 x 1155 x 1010	2445 x 1215 x 1148
CN 400-210a	380	192	1500	315	2230	5005	2155 x 1155 x 1010	3710 x 1370 x 1645
CN 400-210b	360	166	1500	250	2230	4975	1765 x 1440 x 1340	3785 x 1370 x 1440
CN 1000-180	1000	180	1500	630	2200	4730	1765 x 1440 x 1340	3425 x 1440 x 1590
CN 1000-180a	900	157	1500	500	2200	4505	1765 x 1440 x 1340	3325 x 1440 x 1590

## FEEDING PUMPS, type PE

The type PE feeding pumps provide delivery of water with temperatures of 165°C or less into drum and once-through steam boilers with steam pressure of 4, 10, 14 and 22,5 MPa.

Structurally, they are horizontal sectional multistage pumps with unilateral disposition of the impellers; they are classed into single-body and two-body kinds. Water cooling of staffing boxes is incorporated in the design. Water is delivered into the sealing unit to condense the vapors of the pumped liquid that might infiltrate through the seal.

The type PE pumps are designed for operating in explosion-proof and fire-proof works only.

## Technical characteristics of pump units, type PE

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency, rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
PE 60-32	60	330	3000		1125		1630 x 810 x 960	-
PE 65-40	65	440	3000	132	1068	2170	1720 x 760 x 910	2565 x 840 x 910
PE 65-53	65	580	3000	200	1124	2570	1900 x 760 x 910	2880 x 888 x 910
PE 90-110	90	1100	3000	500	5000	6860	2280 x 1360 x 1615	4235 x 1360 x 1615
PE 90-180	90	1900	3000	800	6070	8920	2850 x 1390 x 1615	5015 x 1390 x 1615
PE 100-32	100	330	3000	160	1165	2400	1680 x 810 x 840	2645 x 870 x 1030
PE 100-53	100	580	3000		1363		1970 x 1200 x 1070	-
PE 150-53	150	580	3000	500	1610	5925	2010 x 1020 x 1000	3800 x 1175 x 1240
PE 150-63	150	700	3000	500	1720	4450	2158 x 950 x 1010	3915 x 1115 x 1010
PE 380-185-3	380	2030	3000	3150	10465	28265	3300 x 1550 x 1735	8950 x 1635 x 1915
PE 380-185-5	380	2030	3000	3150	10465	28265	3300 x 1550 x 1735	8950 x 1635 x 1915
PE 380-185-4T3	380	2030	3000	3150	11000	29160	3300 x 1550 x 1735	8950 x 1635 x 1915
PE 380-200-3	380	2190	3000	3150	10465	28265	3300 x 1550 x 1735	8950 x 1635 x 1915
PE 380-200-5	380	2190	3000	3150	10465	28265	3300 x 1550 x 1735	8950 x 1635 x 1915
PE 580-185-3	580	2030	3000	5000	10200	30090	3300 x 1550 x 1735	9240 x 2000 x 2130
PE 580-185-5	580	2030	3000	5000	10590	30090	3300 x 1550 x 1735	9240 x 2000 x 2130
PE 580-195	580	2150	3000	5000	10200	30090	3300 x 1550 x 1735	9240 x 2000 x 2130
PE 580-195-5	580	2150	3000	5000	10590	30090	3300 x 1550 x 1735	9240 x 2000 x 2130
PE 600-300-3	600	3290	6300	8000	12065	35210	2783 x 1980 x 1690	9600 x 2930 x 2120
PE 600-300-4	600	3290	6300	8000	8000	30670	2535 x 1670 x 1570	8800 x 2700 x 2300

## DREDGING and SAND PUMPS, type GrAT, GrAK, PR

The GrAT, GrAK type centrifugal dredging pumps structurally are made in the form of a cantilever one-stage pump, located horizontally on a separate support. The pumps are driven by an electric motor with the help of an elastic coupling. The impeller is of a closed type.

The pumps are designed for pumping gravel, sandy-gravel, slaggy, cinder and other abrasive hydraulic fluids with pH = 6-8, density up to 1300 kg/m<sup>3</sup> and with temperatures up to 70 °C.

Sand pumps are single-staged pumps with the impeller of an open type. They are designed for pumping various hydraulic liquids (such as sand, gravel, products of flotation and other) with pH=6-8, density up to 1300kg/m<sup>3</sup>, with concentration of solid impurities up to 25% and with temperatures up to 60°C.

From the point of view of the setting protection the pumps fall into the rubberized (type PR), corundum (type PK), made of wearproof cast iron (types P and PB). The pumps are produced with horizontally located shaft (P, PR, PK, PB) and vertically located shaft of submersible type (PRVP and PKVP).

### Technical characteristics of pump units, type PR, PRVP, PK, GrAT

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Frequency rpm	Power, kW	Mass, kg		Overall dimensions, mm	
					pump	unit	pump	unit
1	2	3	4	5	6	7	8	9
PR 63/22,5-SP	63	22,5	1500	11	170	310	750 x 485 x 510	1215 x 485 x 555
PR 63/22,5a-SP	58	19	1500	11	170	310	750 x 485 x 510	1215 x 485 x 555
PRVP 63/22,5	63	22,5	1500	11	246	370	680 x 500 x 1270	1200 x 500 x 1720
PRVP 63/22,5a	58	19	1500	11	246	370	680 x 500 x 1270	1200 x 500 x 1720
PK 63/22,5-SP	63	22,5	1500	15	184	380	752 x 485 x 510	1310 x 485 x 555
PK 63/22,5a-SP	55	16	1500	11	184	275	752 x 485 x 510	115 x 485 x 555
PKVP 63/22,5	63	22,5	1500	15	255	425	680 x 500 x 1270	1200 x 500 x 1785
PKVP 63/22,5b	55	16	1500	11	255	387	680 x 500 x 1270	1200 x 500 x 1720
PR 12,5/12,5-SP	12,5	12,5	1500	2,2	-	100	-	840 x 360 x 365
GrAT 85/40/1-1,6	85	40	1500	45	840	1310	1480 x 680 x 765	2165 x 680 x 900
GrAT 85/40/1-16-1,6	56	17	1000	15	840	1150	1480 x 680 x 765	1995 x 680 x 1150
GrAT 85/40/0-1,3	85	40	1500	30	840	940	1480 x 680 x 765	1905 x 555 x 830
GrAT 85/40/0	85	40	-	-	610	-	1330 x 620 x 695	-
GrAT 85/40/1-1,6	85	40	1500	45	830	1300	1480 x 680 x 765	2165 x 680 x 900
GrAK 85/40/1-16-1,6	56	17	1000	15	830	1140	1480 x 680 x 765	1995 x 680 x 900

# ELECTRIC PUMPS FOR GENERAL DOMESTIC USAGE

## DOMESTIC PUMPS, type "SURF" / "BURUN"

Self-priming one-screw electric pump is designed for pumping water including water with mechanical impurities. Self-suction is up to 5 m. The pumps can be used for pumping high-viscosity liquids (sludges and mortars) in gardening, during cleanup and other ecologic work.

### Technical characteristics of pumps, type "Surf" / "Burun"

Flow rate, m <sup>3</sup> /h	2,5
Head, m	25
Power consumption, kW	700
Overall dimensions, mm	490 x 210 x 140
Mass, kg	12,5

## DOMESTIC PUMPS, type "BROOK" / "RUCHEYOK"

Compact domestic vibrating pump is designed for pumping water from wells with diameter more than 100 mm as well as from open ponds and different reservoirs and can be used for drinking water supply and sprinkling.

### Technical characteristics of pumps, type "Brook" / "Rucheyok"

Flow rate, m <sup>3</sup> /h	up to 1,5
Head, m	40
Power consumption, kW	250
Overall dimensions, mm	∅ 98x250
Mass, kg	4

## DOMESTIC PUMPS, type BCP

Domestic centrifugal submersible electric pumps are designed for drinking water supply from wells with minimum diameter 100 mm. The pumps can be used for pumping water during floods of basements, cellars, garages, in gardening, during cleanup and other ecologic work.

### Technical characteristics of pumps, type BCP

Unit designation	Flow rate m <sup>3</sup> /h	Head, m	Power, kW	Mass unit, kg	Unit overall dimensions, mm
1	2	3	4	5	6
BCP 0,63-16	2,25	16	390	10	∅ 90 x 97 x 400
BCP 0,63-25	2,25	25	620	15	∅ 90 x 97 x 480
BCP 0,63-40	2,25	40	950	17	∅ 90 x 97 x 620
BCP 0,63-63	2,25	63	1150	28	∅ 90 x 97 x 794

## HYDRAULIC ACCUMULATOR

The type GA-25 hydraulic accumulator is designed to insure work of domestic electric pumps in automated operation with power supply voltage 220V, frequency 50 Hz of single-phase current to create constant pressure in water supply systems of cottages, dachas, farms and other buildings.

The pump operation depends on water flow in the hydraulic accumulator and is automatically controlled by the pressure relay.

### Technical characteristics of hydraulic accumulator GA-25

Capacity of the head tank, l	25
Overall dimensions, mm	480 x 255 x 330
Mounting dimension of the tapped nozzle (inch)	G <sup>3</sup> / <sub>4</sub>
Air pressure in the tank, kgs/cm <sup>2</sup>	1-1,2
Mass, kg	12

## CIRCULATION PUMPS, type CVC

The pumps are designed for water circulation with temperatures up to 70°C in heat supply systems; to improve heating of apartment buildings and production areas.

### Technical characteristics of pumps, type CVC

Unit designation	Flow rate, m <sup>3</sup> /h	Head, m	Power, kW	Mass unit, kg	Unit overall dimensions, mm
1	2	3	4	5	6
CVC 2,5-2	2,5	2	75	3,5	135 x 128 x 130
CVC 4-2,8	4	2,8	110	3,5	135 x 128 x 130
CVC 6,3-3,5	6,3	3,5	up to 200	3,5	125 x 128 x 130

## AC ELECTRIC MOTORS with squirrel-cage rotor AIR and 5A series

The electric motors are designed for a long-time operation (S1 according to GOST 183) out-of-doors, under the shelter without direct action of sun rays and atmospheric precipitation as well as in closed rooms from AC networks with frequency 50 Hz. The motors have designs for operation in the regions with moderate climate (Y), tropical climate (T), moderate frigid climate (YHL) and frigid climate (HL) according to GOST 15150.

The electric motors are designed to work with nominal voltage of 220V/380V, 380V/660V, 400V/690V and at frequency 50 Hz.

Construction form of the electric motors: IM1001 (on feet), IM2001 (combined construction form - feet-flange), IN3001 (flange construction form).

Protection level: IP54. Thermal resistance class - F.

### Technical characteristics of electric motors 5A, AIR series

Type of motor	Power, kW	Frequency rpm	Efficiency, %	Cos	Overall dimensions, m	Mass, kg
1	2	3	4	5	6	7
5A 80 MA2	1,5	3000	81,0	0,85	295 x 194 x 178	14
5A 80 MB2	2,2	3000	81,0	0,85	320 x 194 x 178	15,5
5A 80 MA4	1,1	1500	74,0	0,80	295 x 194 x 178	13
5A 80 MB4	1,5	1500	76,0	0,81	320 x 194 x 178	14,7
5A 80 MA6	0,75	1000	71,0	0,69	295 x 194 x 178	14
5A 80 MB6	1,1	1000	72,0	0,70	320 x 194 x 178	16
5A 80 MA8	0,37	750	59,0	0,62	295 x 194 x 178	13,5
5A 80 MB8	0,55	750	60,0	0,62	320 x 194 x 178	15,7
5A 112 M2	7,5	3000	87,5	0,89	480 x 280 x 246	57
5A 112 M4	5,5	1500	86,0	0,83	480 x 280 x 246	56
5A 112 MA6	3	1000	80,5	0,79	480 x 280 x 246	50
5A 112 MB6	4	1000	81,5	0,81	480 x 280 x 246	55
5A 112 MA8	2,2	750	78,0	0,66	480 x 280 x 246	50
5A 112 MB8	3	750	78,5	0,67	480 x 280 x 246	54
AIRM 132 M2	11	3000	89,0	0,89	498 x 325 x 288	77,5
AIRM 132 S4	7,5	1500	88,0	0,85	460 x 325 x 288	70
AIRM 132 M4	11	1500	89,0	0,85	498 x 325 x 288	83,5
AIRM 132 S6	5,5	1000	84,5	0,81	460 x 325 x 288	68
AIRM 132 M6	7,5	1000	86,0	0,81	498 x 325 x 288	81
AIRM 132 S8	4	750	81,5	0,70	460 x 325 x 288	68
AIRM 132 M8	5,5	750	83,5	0,73	498 x 325 x 288	82
5A 160 S2	15	3000	90,0	0,89	670 x 402 x 334	126
5A 160 M2	18,5	3000	90,5	0,89	700 x 402 x 334	138
5A 160 S4	15	1500	89,5	0,86	670 x 402 x 334	127
5A 160 M4	18,5	1500	90,0	0,86	700 x 402 x 334	140
5A 160 S6	11	1000	88,5	0,84	670 x 402 x 334	124
5A 160 M6	15	1000	88,5	0,84	700 x 402 x 334	150
5A 160 S8	7,5	750	87,0	0,74	670 x 402 x 334	123
5A 160 M8	11	750	87,0	0,74	700 x 402 x 334	149
AIR 180 S2	22	3000	90,5	0,89	630 x 440 x 375	160
AIR 180 M2	30	3000	91,0	0,89	680 x 440 x 375	180
AIR 180 S4	22	1500	90,5	0,86	630 x 440 x 375	170
AIR 180 M4	30	1500	91,5	0,87	680 x 440 x 375	190
AIR 180 M6	18,5	1000	90,0	0,85	680 x 440 x 375	180
AIR 180 M8	15	750	87,5	0,79	680 x 440 x 375	180
5A 200 M2	37	3000	93,5	0,89	735 x 485 x 410	235
5A 200 L2	45	3000	93,5	0,89	781 x 485 x 410	255
5A 200 M4	37	1500	92,3	0,85	765 x 485 x 410	245
5A 200 L4	45	1500	92,7	0,84	811 x 485 x 410	270
5A 200 M6	22	1000	90,5	0,83	765 x 485 x 410	245
5A 200 L6	30	1000	91,2	0,84	811 x 485 x 410	260
5A 200 M8	18,5	750	90,5	0,77	765 x 485 x 410	240

1	2	3	4	5	6	7
5A 200 L8	22	750	91,0	0,80	811 x 485 x 410	260
5A 225 M2	55	3000	93,5	0,91	835 x 535 x 458	340
5A 225 M4	55	1500	93,3	0,86	865 x 535 x 458	345
5A 225 M6	37	1000	92,0	0,84	865 x 535 x 458	330
5A 225 M8	30	750	91,5	0,80	865 x 535 x 458	340
5AM 250 S2	75	3000	93,2	0,92	935 x 630 x 545	475
5AM 250 M2	90	3000	93,1	0,93	965 x 630 x 545	505
5AM 250 S4	75	1500	94,3	0,86	935 x 630 x 545	480
5AM 250 M4	90	1500	94,7	0,88	965 x 630 x 545	515
5AM 250 S6	45	1000	93,0	0,85	935 x 630 x 545	430
5AM 250 M6	55	1000	93,0	0,84	965 x 630 x 545	450
5AM 250 S8	37	750	92,0	0,72	935 x 630 x 545	430
5AM 250 M8	45	750	92,5	0,75	935 x 630 x 545	460
5AM 280 S2	110	3000	94,1	0,92	1080x 660 x 620	720
5AM 280 M2	132	3000	94,5	0,92	1080 x 660 x 620	770
5AM 280 S4	110	1500	95,4	0,88	1110 x 660 x 620	780
5AM 280 M4	132	1500	95,9	0,89	1180 x 660 x 620	885
5AM 280 S6	75	1000	94,7	0,85	1110 x 660 x 620	745
5AM 280 M6	90	1000	94,7	0,84	1110 x 660 x 620	780
5AM 280 S8	55	750	94,5	0,83	1110 x 660 x 620	725
5AM 280 M8	75	750	94,5	0,83	1110 x 660 x 620	790
5AM 315 S2	160	3000	94,5	0,92	1160 x 765 x 680	970
5AM 315 M2	200	3000	95,0	0,94	1260 x 765 x 680	1110
5AM 315 S4	160	1500	96,0	0,88	1290 x 765 x 680	1110
5AM 315 M4	200	1500	96,0	0,90	1290 x 765 x 680	1150
5AM 315 S6	110	1000	95,0	0,90	1190 x 765 x 680	960
5AM 315 M6	132	1000	95,2	0,91	1190 x 765 x 680	1010
5AM 315 S8	90	750	94,5	0,85	1190 x 765 x 680	965
5AM 315 M8	110	750	94,5	0,86	1190 x 765 x 680	1025

## AC ELECTRIC MOTORS with squirrel-cage rotor 4AMN, 5AMN and 5AN series

The electric motors are designed for operation in closed rooms without artificial climate control with ambient temperature from -45°C up +50°C and with relative humidity up to 98% at 25°C.

The electric motors are designed to work with nominal voltage of 380 and 660V at frequency 50Hz. To meet the customer's requirements the electric motors can be made for other voltages at frequency 50 and 60 Hz.

The construction forms of electric motors: IM1001 (on feet) and IM 2001 (combined construction form - feet-flange).

Protection level: IP23. Thermal resistance class - F.

### Technical characteristics of electric motors 4AMN, 5AMN and 5AN

Type of motor	Power, kW	Frequency rpm	Efficiency, %	Cos	Overall dimensions, mm	Mass, kkg
1	2	3	4	5	6	7
4AMN 180 S2	37	3000	91,0	0,87	695 x 378 x 470	170
4AMN 180 M2	45	3000	91,5	0,89	735 x 378 x 470	185
4AMN 180 S4	30	1500	90,0	0,83	695 x 378 x 470	170
4AMN 180 M4	37	1500	90,5	0,86	735 x 378 x 470	190
4AMN 180 S6	18,5	1000	87,0	0,83	695 x 378 x 470	170
4AMN 180 M6	22	1000	88,5	0,84	735 x 378 x 470	190
4AMN 180 S8	15	750	87,0	0,74	695 x 378 x 470	170
4AMN 180 M8	18,5	750	88,5	0,80	735 x 378 x 470	190
5AN 200 M2	55	3000	93,0	0,88	835 x 422 x 490	250
5AN 200 L2	75	3000	93,0	0,88	865 x 422 x 490	280
5AN 200 M4	45	1500	92,5	0,85	865 x 422 x 490	260
5AM 200 L4	55	1500	93,0	0,86	895 x 422 x 490	290
5AN 200 M6	30	1000	90,5	0,81	865 x 422 x 490	240
5AN 200 L6	37	1000	91,0	0,81	895 x 422 x 490	265
5AN 200 M8	22	750	90,0	0,80	865 x 422 x 490	250

1	2	3	4	5	6	7
5AN 200 L8	30	750	90,0	0,80	895 x 422 x 490	280
5AMN 250 S2	90	3000	93,4	0,92	1085 x 545 x 630	485
5AMN 250 M2	110	3000	93,7	0,92	1115 x 545 x 630	530
5AMN 250 S4	90	1500	94,5	0,85	1085 x 545 x 630	490
5AMN 250 M4	110	1500	94,8	0,85	1115 x 545 x 630	540
5AMN 250 S6	55	1000	92,7	0,83	1085 x 545 x 630	440
5AMN 250 M6	75	1000	93,5	0,83	1115 x 545 x 630	475
5AMN 250 S8	45	750	91,5	0,75	1085 x 545 x 630	440
5AMN 250 M8	55	750	91,5	0,77	1085 x 545 x 630	470
5AMN 280 S2	132	3000	94,5	0,91	1230 x 620 x 660	720
5AMN 280 M2	160	3000	95,0	0,91	1230 x 620 x 660	770
5AMN 280 S4	132	1500	95,3	0,88	1230 x 620 x 660	756
5AMN 280 M4	160	1500	96,0	0,89	1330 x 620 x 660	835
5AMN 280 S6	90	1000	94,7	0,85	1230 x 620 x 660	715
5AMN 280 M6	110	1000	94,8	0,85	1330 x 620 x 660	800
5AMN 280 S8	75	750	93,5	0,87	1230 x 620 x 660	705
5AMN 280 M8	90	750	94,2	0,82	1260 x 620 x 660	790
5AMN 315 S2	200	3000	95,5	0,93	1310 x 680 x 765	965
5AMN 315 M2	250	3000	96,0	0,93	1410 x 680 x 765	1105
5AMN 315 S4	200	1500	95,5	0,87	1440 x 680 x 765	1050
5AMN 315 M4	250	1500	96,0	0,87	1440 x 680 x 765	1145
5AMN 315 S6	132	1000	94,5	0,88	1340 x 680 x 765	905
5AMN 315 M6	160	1000	95,0	0,88	1340 x 680 x 765	1005
5AMN 315 S8	110	750	94,5	0,83	1340 x 680 x 765	960
5AMN 315 M8	132	750	94,5	0,84	1340 x 680 x 765	1020
5AN 355 A-2	315	3000	94,0	0,92	1135 x 820 x 900	1310
5AN 355 B-2	400	3000	95,0	0,92	1135 x 820 x 900	1440
5AN 355 A-4	315	1500	94,5	0,91	1175 x 820 x 900	1290
5AN 355 B-4	400	1500	94,5	0,91	1175 x 820 x 900	1400
5AN 355 A-6	200	1000	94,0	0,90	1175 x 820 x 900	1240
5AN 355 B-6	250	1000	94,5	0,90	1175 x 820 x 900	1360
5AN 355 A-8	160	750	93,5	0,86	1175 x 820 x 900	1340
5AN 355 B-8	200	750	94,0	0,86	1175 x 820 x 900	1460
5AN 355 A-10	110	600	92,5	0,83	1175 x 820 x 900	1260
5AN 355 B-10	132	600	92,5	0,83	1175 x 820 x 900	1340
5AN 355 A-12	90	500	92,0	0,77	1175 x 820 x 900	1250
5AN 355 B-12	110	500	92,5	0,77	1175 x 820 x 900	1320

## AC ELECTIC MOTORS with phase-wound rotor 5ANK series

The electric motors are designed for driving mechanisms with gradual multistage start as well as for the units with difficult conditions of start. The electric motors are produced for countries with moderate and tropical climate. The climatic design for operation in moderate climatic conditions (YZ), in tropical climatic conditions (TZ) according to GOST 15150. Frequency - 50 Hz.

Construction form of the electric motors: IM1001 (on feet).

Protection level: IP23.

### Technical characteristics of electric motors 5ANK series

Type of motor	Power, kW	Frequency rpm	Efficiency, %	Cos	Overall dimensions, mm	Mass, kg
1	2	3	4	5	6	7
5ANK 280 A-4	132	1500	92,5	0,89	1275 x 665 x 745	740
5ANK 280 B-4	160	1500	92,5	0,89	1275 x 665 x 745	800
5ANK 280 A-6	90	1000	91,0	0,88	1275 x 665 x 745	690
5ANK 280 B-6	110	1000	91,0	0,88	1275 x 665 x 745	730
5ANK 280 A-8	75	750	91,0	0,84	1275 x 665 x 745	740
5ANK 280 B-8	90	750	91,0	0,85	1275 x 665 x 745	790
5ANK 280 A-10	45	600	89,0	0,80	1275 x 665 x 745	670

1	2	3	4	5	6	7
5ANK 280 B-10	55	600	89,5	0,80	1275 x 665 x 745	740
5ANK 315 A-4	200	1500	93,0	0,89	1300 x 740 x 816	870
5ANK 315 B-4	250	1500	93,0	0,90	1300 x 740 x 816	950
5ANK 315 A-6	132	1000	92,0	0,88	1300 x 740 x 816	840
5ANK 315 B-6	160	1000	92,5	0,88	1300 x 740 x 816	920
5ANK 315 A-8	110	750	91,5	0,85	1300 x 740 x 816	930
5ANK 315 B-8	132	750	92,5	0,86	1300 x 740 x 816	960
5ANK 315 A-10	75	600	90,0	0,81	1300 x 740 x 816	850
5ANK 315 B-10	90	600	90,0	0,81	1300 x 740 x 816	920
5ANK 355 A-4	315	1500	93,5	0,90	1445 x 820 x 900	1290
5ANK 355 B-4	400	1500	94,0	0,90	1445 x 820 x 900	1400
5ANK 355 A-6	200	1000	93,0	0,90	1445 x 820 x 900	1240
5ANK 355 B-6	250	1000	93,5	0,89	1445 x 820 x 900	1360
5ANK 355 A-8	160	750	93,0	0,86	1445 x 820 x 900	1340
5ANK 355 B-8	200	750	93,5	0,87	1445 x 820 x 900	1460
5ANK 355 A-10	110	600	90,5	0,79	1445 x 820 x 900	1260
5ANK 355 B-10	132	600	91,0	0,81	1445 x 820 x 900	1340

## ELECTRIC MOTORS explosion-proof with squirrel-cage rotor VA series

Induction electric motors, explosion-proof, with short-circuited rotor, VA series, are designed for driving mechanisms in chemical, gas and oil-producing, as well as allied industries where explosive mixtures of gas and steams with air (of T1, T2, T3, T4 categories by the GOST 12.1.011 standards) may be formed. By the degree of explosion protection, the VA motors are explosion-proof against explosive mixtures of IIB (degree of explosion protection 1ExdIIBT4) and have enhanced security against explosion for mixtures of IIC-categories (degree of explosion protection 2ExdIICT4).

Electric motors of VA are designed for operation at AC 50Hz. Motors may be manufactured for 380V with the phases triangle-linked or for 660V with the phases star-linked.

Construction forms of the motors: IM1081 (on feet), IM2001 (combined construction form - feet-flange), IM3001 (flange design).

Protection level IP54. Thermal resistance class - F.

### Technical characteristics of electric motors VA series

Type of motor	Power, kW	Frequency rpm	Efficiency, %	Cos	Overall dimendions, mm	Mass, kg
1	2	3	4	5	6	7
VA 80 MA2	1,5	3000	81,5	0,85	410 x 190 x 300	40
VA 80 MB2	2,2	3000	82,0	0,86	410 x 190 x 300	42
VA 80 MA4	1,1	1500	74,0	0,80	410 x 190 x 300	40
VA 80 MB4	1,5	1500	75,0	0,81	410 x 190 x 300	42
VA 80 MA6	0,75	1000	71,0	0,70	410 x 190 x 300	40
VA 80 MB6	1,1	1000	71,0	0,71	410 x 190 x 300	42
VA 132 M2	11	3000	88,0	0,90	586 x 290 x 395	100
VA 132 S4	7,5	1500	87,5	0,86	548 x 290 x 395	92
VA 132 M4	11	1500	88,5	0,85	586 x 290 x 395	107
VA 132 S6	5,5	1000	85,0	0,80	548 x 290 x 395	91
VA 132 M6	7,5	1000	85,5	0,81	586 x 290 x 395	105
VA 132 S8	4	750	83,0	0,70	548 x 290 x 395	90
VA 132 M8	5,5	750	83,0	0,74	586 x 290 x 395	105
VA 200 M2	37	3000	93,0	0,89	880 x 410 x 550	305
VA 200 L2	45	3000	93,0	0,89	920 x 410 x 550	325
VA 200 M4	37	1500	92,0	0,85	910 x 410 x 550	305
VA 200 L4	45	1500	92,0	0,85	950 x 410 x 550	330
VA 200 M6	22	1000	90,0	0,84	910 x 410 x 550	295
VA 200 L6	30	1000	90,0	0,84	950 x 410 x 550	320
VA 200 M8	18,5	750	90,5	0,76	910 x 410 x 550	295
VA 200 L8	22	750	91,0	0,78	950 x 410 x 550	320

# PUMPS INTERCHANGEABILITY TABLE

## cantilever pumps

since 1973	since 1982	since 1990
1,5K-6	K 8/18	K 50-32-125
1,5KM-6	KM 8/18	KM 50-32-125
2K-6	K 20/30	K 65-50-160
2KM-6	KM 20/30	KM 65-50-160
2K-9	K 45/30	K 80-65-160
3K-6	K 45/55	K 80-50-200
3KM-6	KM 45/55	KM 80-50-200
4K-12	K 90/35	K 100-80-160
4KM-12	KM 90/35	KM 100-80-160
4K-8	K 90/55	K 100-65-200
4KM-8	KM 90/55	KM 100-65-200
4K-6	K 90/85	K 100-65-250
4KM-6	KM 90/85	KM 100-65-250
6K-12	K 160/20	K 150-125-250
6KM-12	KM 160/20	KM 150-125-250
6K-8	K 160/30	K 150-125-315
8K-12	K 290/30	K 200-150-315

## glandless pumps

since 1973	since 1982	since 1990
CNG-70M-1	1,5HG-6K-2,8	1CG6,3/20K-1,1 1CG6,3/32K-2,2
CNG-70M-2	1,5HG-6H3-K-4	1CG12,5/50K-4
CNG-68	2HG-3K-14	2CG25/50K-5,5 1CG25/80K-11
CNG-69	3HG-6E-14	4CG50/50K-11
CNG-71	4HG-12K-14	4CG100/32K-11

## sewage pumps

since 1973	since 1982	since 1990
FG14,5/10	SD 16/10	SM 80-50-200/4
FG25,5/14,5	SD 25/14	SM 100-65-200/4
FG16/27	SD 16/25	SM 80-50-200a/2
	SD 32/40	SM 80-50-200/2
FG57,7/9,5	SD 50/10	SM 100-65-200/4
FG51/58	SD 50/56	SM 100-65-200/2
FG81/18	SD 80/18	SM 125-80-315a/4
FG81/31	SD 80/32	SM 125-80-315/4
FG115/38	SD 100/40	SM 100-65-200/2
FG144/46	SD 160/45	SM 150-125-315/4
FG216/24	SD 250/22,5	SM 150-125-315a/4
FG450/22,5	SD 450/22,5	SM 250-200-400/6
FG450/57,5	SD 450/56	SM 200-150-500a/4
FG540/95	SD 450/95-2	SM 200-150-500/4
FG800/33	SD 800/32	SM 250-200-400/4



## horizontal pumps

since 1973	since 1982	since 1990
5NDV	D 200-36	D 200-36
4NDV	D 200-95	1D 200-90
6NDV	D 320-50	1D 315-50
6NDS	D 320-70	1D 315-71
10D-6	D 500-65	1D 500-63
8NDV	D 630-90	1D 630-90
		1D 630-125
12D-9	D 800-57	1D 800-56
12NDS	D 1250-65	1D 1250-63
14D-6	D 1250-125	1D 1250-125
14NDS	D 1600-90	1D 1600-90
16NDV	D 2000-21	AD 2000-21-2
20D-6	D 2000-100	AD 2000-100-2
18NDS	D 2000-62	AD 2500-62-2
20NDV	D 3200-33	AD 3200-33-2
20NDS	D 3200-75	AD 3200-75-2
22NDS	D 4000-95	AD 4000-95-2
24NDV	D 5000-32	AD 6300-27-3
24NDS	D 6300-80	AD 6300-80-2
-	D 6300-27	AD 6300-27



**Oryol:**

47 Polesskaya St

Oryol, Russia

302028

Phone: +7 (486 2) 43-73-22

Phone: +7 (486 2) 45-41-60

Fax: +7 (486 2) 45-86-56

E-mail: [rgm@rgm1.ru](mailto:rgm@rgm1.ru)

**Moscow:**

52 Mosfilmovskaya St, of. 38

Moscow, Russia

Phone/Fax: +7 (495) 931-97-18

E-mail: [m@rgm1.ru](mailto:m@rgm1.ru)

**St.Petersburg:**

10 Sedova St, Floor 3

St.Petersburg, Russia

Phone/Fax: +7 (812) 365-15-02, 380-42-13

E-mail: [spb@rgm1.ru](mailto:spb@rgm1.ru)

**Voronezh:**

54 Peshestreletskaya St

Voronezh, Russia

Phone/Fax: +7 (473 2) 63-59-81, 39-30-17

E-mail: [v@rgm1.ru](mailto:v@rgm1.ru)

**Omsk:**

115 Pushkina St

Omsk, Russia

Phone/Fax: +7 (381 2) 31-22-30

E-mail: [omsk@rgm1.ru](mailto:omsk@rgm1.ru)

**Sofia:**

1 of., 1 fl., 2A, Temenuga St,

Sofia, Bulgaria

Phone/Fax: (+3592) 971-56-70

Phone: (+3592) 971-56-71

E-mail: [sofia@vipom.com](mailto:sofia@vipom.com)