



**MOLDOVAHYDROMASH**

## **CATALOGUE OF PRODUCTION**

# CONTENTS



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## Introduction

Electric centrifugal hermetical pumps of CG type	5
Working diapason of electric pumps feeding CG	6
Technical characteristics	7
Constructive performance of electric pumps CG	9
Overall dimensions of electric pumps CG for liquid transfer till 100°C	10
Overall dimensions of electric pumps CG for liquid transfer till 360°C	12

## Electric centrifugal hermetical pumps of NG type

Technical characteristics	14
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## Electric centrifugal hermetical pumps of AG type

Technical characteristics	17
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## Electric centrifugal hermetical special pumps of type BEN-OS, BEN-MS, BEN-DMS

Technical characteristics	18
Overall dimensions of electric pumps BEN-OS	19
Overall dimensions of electric pumps BEN-MS	34
Schemes of automation and management	37
Overall dimensions of electric pumps BEN-DMS	39
Schemes of automation and management	40

## Electric transformer pumps of the type MT, MTT, TT, TE

Technical characteristics	42
Overall dimensions of electric pump TT-63/10, MT-63/10	43
Overall dimensions of electric pump MTT-16/10	44
Overall dimensions of electric pumps 1TE 100/15, 1TE 100/20, MT-100/8, TE 160/10	45
Working characteristics	46

## Electric centrifugal immersing pumps for dirty waters of the type GNOM and GNOM-Ex

Technical characteristics	48
Overall scheme of the electric pumps 2GNOM 16-16, GNOM 25-12,5, 2GNOM 16-16Ex, 1GNOM 25-12, 5Ex, 1GNOM 100-25, 1GNOM 100-25Ex	49
Characteristics of the electric pumps on the water (t=20° C), U=380 V, f=50 Hz	50

## Electric centrifugal immersing sewer pumps of the type CMK

Technical characteristics	51
Scheme of assembling	52

## Electric centrifugal immersing sewer discharge ship pumps of the type PVS

Technical characteristics	54
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## Enclosures

Enclosure 1. The list of the specific fluids, pumped over by the pumps	55
Enclosure 2. Questionnaire	56
Enclosure 3. The table of the pumps marking and their analogue depending on the year of manufacturing	57
Enclosure 4. The list of the bearing pairs, abutment of the pumps, manufactured earlier	57
Enclosure 5. The list of the secure pieces, instrument and articles, delivered together with the electric pumps	58
Enclosure 6. Dimensions of the high-wear details SG-T	59
Enclosure 7. Centrifugal hermetical electric pump of the type CG of the 3rd constructive execution. Section	60

# INTRODUCTION

JSC "Pinta" during more than 10 years has been one of the leading providers of the pump equipment JSC "Moldovahydromas" production to the markets of Russian Federation, Ukraine and other countries, which is successfully applied in petrochemical, gas, chemical, fuel-energy, petrol, food, refrigeratory, processing industry.

Our company takes direct participation in JSC "Moldovahydromas" management, manufacture, delivery of necessary materials and utilities, realization of the ready production.

The pumps of JSC "Moldovahydromas" have been used for a long time and deserved the favorable report at such prominent enterprises as : JSC "Caoutchouc from Omsk", JSC "NK Russian petrole-NPZ from Tuapse", OAO 'ANHK', JSC "Petrol-chemical industrial complex", enterprises JSC "AK Sibur", ZAO "Lukoil-Petrolchem", OAO "NZSP", JSC "Kazaniorgsynthesis". JSC "Permitpetro", JSC "Salavatpetroleorgsynthesis", JSC "Pigment", JSC "Nevinnomorskii AZOT", LLC "Stavrolen", LLC "Usolchemindustry", JSC "Shekino-Azot", JSC "Sibpetrole-Omsk NPZ", JSC "Orskpetroleorgsynthesis", JSC NPZ "NORSI", "Lisiceansk" (JSC "LINOS"), GPZ Otradnensk and others.

For the enterprises – consumers there exist interesting conditions of delivery work: flexible system of discounts, accordance of the goods credit, minimal prepayment, temporary delay of payment, delivery of production, commissioning.

All output, manufactured serially is available at our deposits. For convenience of delivery, we offer the following conditions for collaboration:

- Shipping of the output from the deposits in: Moscow, Tula, Samara, Rostov-on-Don, S. Petersburg, Kyiv, Kirovograd, Kishinev.

- The delivery till the consumer is practiced by the proper auto transport, or r/w containers.

- It is possible to conclude the contracts with our representative offices: in Russia – LLC "Centr-Elektro" (member TPP RF, certificate nr. 118-479), in Ukraine – LLC "Interagro".

The certificates of correspondence of RF and Permission of StateCityTechSupervision are granted for all discharged output: 18....36 months till the moment of delivery.

Accompaniment of the equipment, commissioning and repair works, technical consultations are done by the specialists of the certified service centre LLC "Moldovahydromash-Kubani", created in year 2002, JSC "Pinta" and JSC "Moldovahydromash".

Kishinev factory of hermetical pumps was created on the first of July, year 1959. In 1992 the enterprise was reorganized into Joint Stock Company with private capital equal to 100 %.

## ELECTRIC PUMPS CENTRIFUGAL AND HERMETICAL

# CG

JSC "Moldovahydromash" has developed scientific – technical base, steel industry (power till 2000 tones of moldings per year), area of gas-plasma cutting, blacksmiths's-pressing, electro-magnet, and other areas.

JSC "Moldovahydromash" has proper test station, accredited for carrying out of certified tests ST "NASTHOL", city of Moscow, performs the elaborations of perspective specimens of new equipment, performs the projects on technical commands of the clients.

During the period of the enterprise existence there were changed many series of hermetical electric pumps CNG, HG, HGV, which present constructively monoblock, consisting of incorporated asynchronous canned electric motor and pump part.

Till the end of the 80th the factory began to use the new type of electric pump CG with the improved technical characteristics. There were enlarged the diapasons of the parameters – according to the supply, pressure and power. The construction of the electric pumps has been constantly modernized with the purpose of SE increase, optimization of the used motors, increase of the exploitation reliability.

Electric pumps of CG type according to their construction and used materials, are universal and are used for the supply of aggressive, explosion hazard, toxic, neutral fluids, liquefied gases, the leakage of which to the environment is not permissible.

On the basis of the electric pumps CG, there have been elaborated centrifugal hermetic explosion – proof electric pumps of NG type, designed for transfer of various neutral to carbonaceous and alloyed steel of liquids and liquefied gases.

Electric pumps of NG type are manufactured by one, two and three stepped pumps, the fault of the liquid is done by hollow roller of the rotor. This simplifies the assembling and provides the stable work of electric pump, not depending on possible mistakes when studding at consumer.

Taking into account the fact, that the electric pumps of CG and NG type don't embrace all the possible requirements of the Clients concerning supply, force, pressure in contour, used materials and so on., we elaborate and supply in short terms (till 3 months) electric pumps of BEN type on concrete conditions of exploitation at Client.

There was created a number of electric pumps, with the power from 1 till 220 kW (in perspective till 400 kW).

In the catalogue there were shown the destination and region of appliance of the manufactured electric pumps, the description of their construction, technical characteristics, drafts with overlap and conjunctive dimensions, the schemes of automation.

Electric pumps of the type **CG** are designed for transfer in stationary conditions of different liquids, including chemically active, aggressive, toxic, explosion hazard, inflammable and containing harmful substances of all classes of hazard.

Monoblock sealless explosion proof construction and special materials of electric pumps provide:

- full containment of technological process (lack of leakage of transferred product),
- preservation of the sterility and cleanliness of the transferred product,
- security of the personnel and environment,
- longevity, reliability and economy in exploitation,
- practical lack of noise and vibration.

They are used chemical, petrol, petrol-chemical, gas, fuel-energy, microbiological and chemical-pharmaceutical, food, meat- and milk, refrigeratory and processing industry, metallurgy and energy.

### CHARACTERISTICS OF THE TRANSFERRED PRODUCT:

- thickness – till 1600 kg/m<sup>3</sup>, (for electric pumps 25/12,5 – 3B-1 CG 50/12,5-5,5B-1- till 1800 kg/m<sup>3</sup>)
- viscosity – till 40 sSt,
- temperature (see the table).

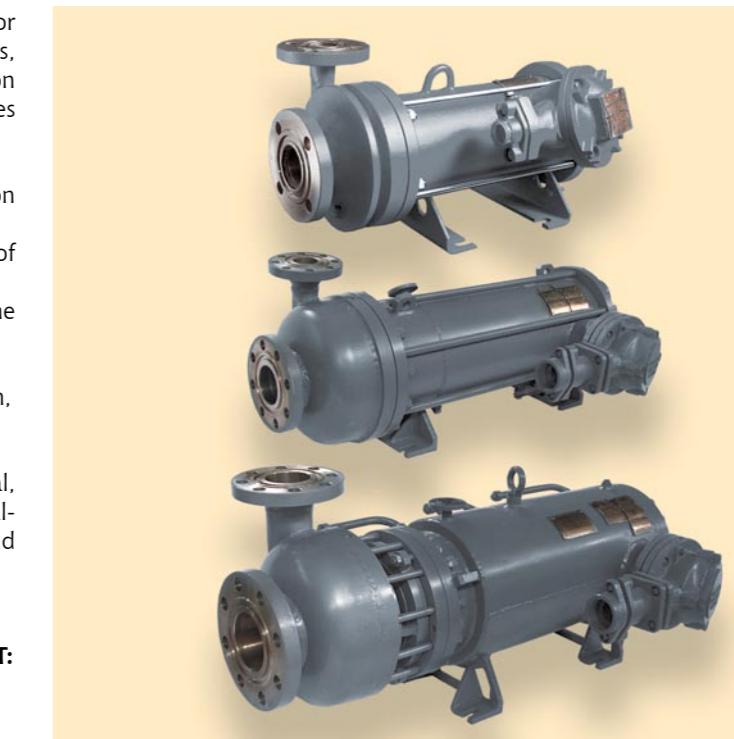
The parameters, shown in the table are given for the working liquid with the thickness 1000 kg/m<sup>3</sup> and viscosity 1 sSt. When transferring the liquid with the thickness more than 1000 kg/m<sup>3</sup> and (or) with the taking into account the viscosity, the electric pumps are supplied with the diminution of the pressure owing to the turning of the working wheel on the external diameter with the purpose of excluding the overcharge of the motor.

### PRESSURE IN CONTOUR OF THE ELECTRIC PUMP:

- till 16 kgs/cm<sup>2</sup>, for electric pumps of 1,2, and 3 performances,
- till 50 kgs/cm<sup>2</sup>, for electric pumps of 4,5, and 6 performances.

### MARKING OF THE EXPLOSION PROOF:

- for electric pumps of 1,2,4,5 – 1ExdsIICT4 X performances,



- for electric pumps of 1C,2C,5C – 1ExdsIICT4 X performances,
- for electric pumps of 3,6 – 1ExdsIIBT1-T4 X performances,
- for electric pumps of 6 C – 1ExdsIIC1-T4 X performances.

**Electric pumps are made in accordance with the technical conditions**  
**PT MD23-05833093-033:2003**

**Electric pumps are manufactured in the following performances according to the material:**

- A - carbon steel,
- K - stainless steel 12X18H10T according to GOST 5632-72. 12X18H9TL according to GOST 977-8.
- K1 - economic alloyed steel 12X21H5T according to GOST 5632-72, 10X21H5TL according to GOST 977-88.
- E - stainless steel 10X17H133M2T according to GOST 5632-72, 12X18H12M3TL according to GOST 977-88.

**THE SPECIMEN OF THE CONVENTIONAL  
MARKING OF THE PUMP, TYPE CG:**

a) the pump, transferring the liquid with the thickness till 1000 kg/m<sup>3</sup>, the viscosity till 1 sSt, the performance according to explosion proof 1ExdIIBT4 X:

**ELECTRIC CENTRIFUGAL HERMETIC PUMP  
3CG 100/50-K-30-5-U2**

where:  
3 - serial number of modernization,  
CG - type (centrifugal hermetical),  
100 - nominal supply in cube meters per hour (m<sup>3</sup>/hour).

50 - pressure at nominal supply in meters (m),  
K - performance according to the material (see note).

30 - nominal power of the inserted electric motor in kilowatts,

5 - constructive performance,  
U2 - looks of the climate performance and the category of the accommodation according to GOST 15150-69.

b) the same thing with the performance on explosion proof 1ExdsIICT4 X:

**ELECTRIC CENTRIFUGAL HERMETIC PUMP  
3CG 100/50-K-30-5-U2**

c) the same thing at the thickness of the transferred liquid from 1000 till 1300 kg/m<sup>3</sup> (variant "a" of the turning of the working wheel) or from 1300 till 1600 kg/m<sup>3</sup> (variant "b"), with the viscosity till 40 sSt:

**ELECTRIC CENTRIFUGAL HERMETIC PUMP**

**3CG 100/50A-K-30-5-U2 OR  
3CG 100/50B-K-30-5-U2**

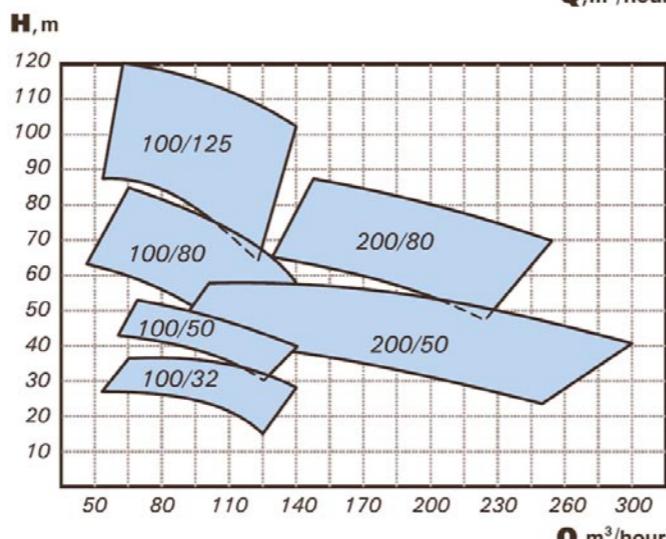
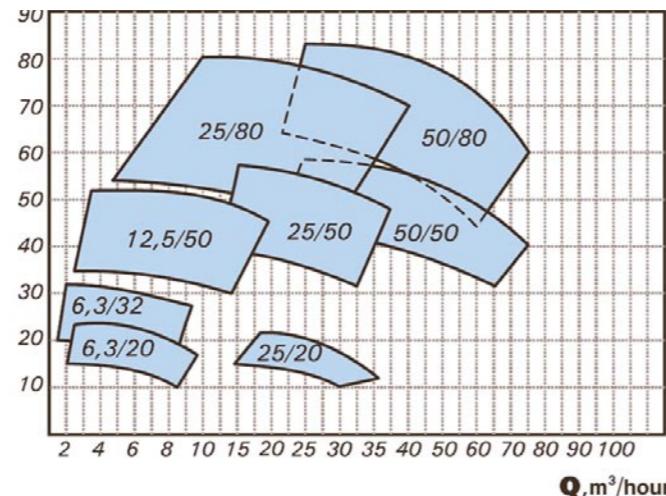
d) transferring the liquids with the temperature below 40°C, thickness till 700 kg/m<sup>3</sup> with the motor of fewer power, than in the main performance:

**ELECTRIC CENTRIFUGAL HERMETIC PUMP  
5CG 50/80-K-18,5M-4L-U2**

e) with the pre-switched wheel (screw) with the purpose of reducing of the admissible suction head deposit:

**ELECTRIC CENTRIFUGAL HERMETIC PUMP  
4CG 100/125H-K-55M-4L-U2**

**WORKING DIAPASONS OF THE  
SUPPLIES OF THE ELECTRIC PUMPS CG**

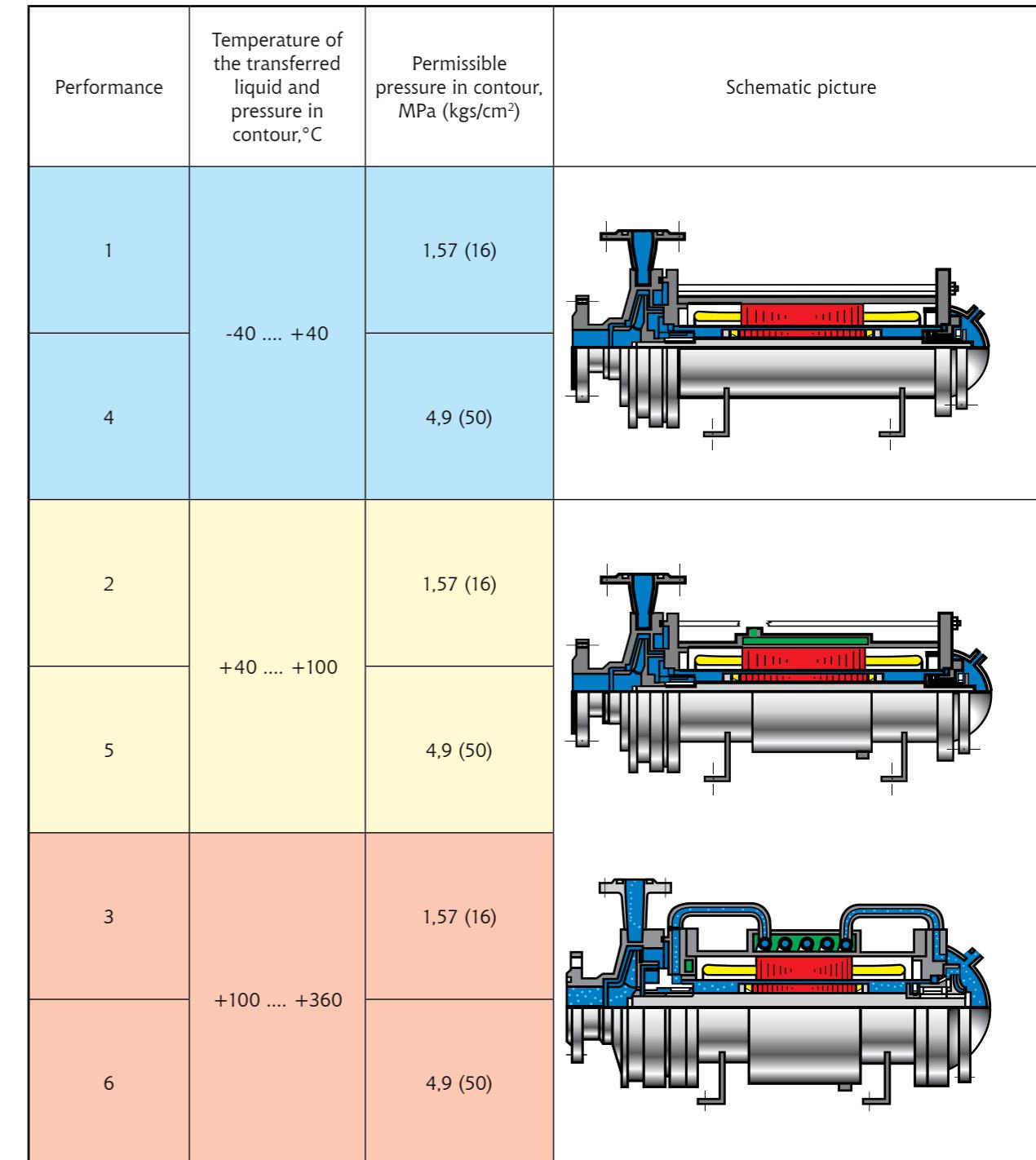


H-pressure; Q-supply

MARKING OF THE PUMP	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	WORKING INTERVAL OF THE SUPPLY, m <sup>3</sup> /hour	PERMISSIBLE SUCTION HEAD AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	TEMPERATURE OF THE PUMPED LIQUID, °C	TYPE OF THE COOLING OF THE EXTERNAL SURFACE OF THE MOTOR'S STATOR - LIQUID (B/O) OR WITHOUT COOLING (J)	SIZE, mm	MASS, kg
MARKING	Q <sub>nom.</sub>	H	Q.....Q	ΔH	Pn	T	COOLING	SIZE	M
<b>CG 6,3/20-1,1-2 (5)</b>	6,3	20	2,5-9,5	0,9	1,1	- 40... +100	B/O	580×370×280	75
<b>CG 6,3/20-1,1-3</b>				1,2		+100... +360	J		115
<b>CG 6,3/32-2,2- 2 (5)</b>		32	2,0-9,5	0,9	2,2	- 40... +100	B/O	640×380×290	86
<b>CG 6,3/32-2,2-3</b>				1,2		+100... +360	J		125
<b>1CG 12,5/50-4-2 (5)</b>	12,5	50	3,5-18	1,0	4,0	- 40... +100	B/O	755×400×340	100
<b>1CG 12,5/50-4-2C</b>						+100... +360	J		130
<b>1CG 12,5/50-4-3 (6)</b>								785×400×365	115
<b>1CG 25/12,5-3V-1</b>		12,5	17,5-37,5	0,8		- 40... +40	B/O	700×420×390	130
<b>1CG 25/20-3-2 (5)</b>		20	18-36	2,6	3,0	- 40... +100		695×395×290	95
<b>1CG 25/20-3-3 (6)</b>				1,9		+100... +360	J		103
<b>1CG 25/50-7,5-1 (4)</b>					1,5	- 40... +40	B/O	790×445×365	140
<b>1CG 25/50-7,5-1C</b>						+40... +100			148
<b>1CG 25/50-7,5-2 (5)</b>					7,5	+40... +360	J	830×445×365	162
<b>1CG 25/50-7,5-3 (6)</b>				1,8		+40... +100	J	790×445×365	150
<b>1CG 25/50-7,5-5S</b>						- 40... +40	B/O	760×435×370	140
<b>2CG 25/50-5,5-1 (4)</b>					1,5	+40... +100			140
<b>2CG 25/50-5,5-2 (5)</b>					5,5	+100... +360	J	805×460×370	150
<b>2CG 25/50-5,5-3(6)</b>						+100... +360	J		
<b>CG 25/80-15-4</b>					1,8	- 40... +40	B/O	950×425×420	190
<b>CG 25/80-15-5</b>						+40... +100	J		
<b>CG 25/80-15-5S</b>								885×445×420	170
<b>2CG 25/80-11-4</b>					1,5	- 40... +40	B/O		
<b>2CG 25/80-11-5</b>						+40... +100	J	885×495×420	175
<b>2CG 25/80-11-5S</b>						+100... +360			
<b>2CG 25/80-11-6</b>								1100×470×420	220

MARKING	Q <sub>nom.</sub>	H	Q.....Q	ΔH	Pn	T	COOLING	SIZE	M		
CG 50/12,5-5,5B-1	50	50	35-65	2,3	1,0	5,5	- 40... +40	B/O	800×460×440	175	
3CG 50/50-15- 1 (4)							- 40... +40	B/O	940×410×390	180	
3CG 50/50-15-2 (5)							+40... +100	J	970×460×390		
3CG 50/50-15-3							+100... +360	J	970×460×390		
3CG 50/50-15-5S							+40... +100	J	940×410×390		
3CG 50/50-15-6S							+100... +360	J	985×500×390	215	
4CG 50/50-11-1 (4)			25-75	2,5	11,0	5,5	- 40... +40	B/O	875×430×370	160	
4CG 50/50-11-2 (5)							+40... +100	J	920×460×370	180	
4CG 50/50-11- 3 (6)							100... +360	J	875×480×370	165	
4CG 50/50-11-5S							+40... +100	X	920×500×390	185	
4CG 50/50-11-6S							+100... +360	J	1150×600×500	345	
5CG 50/80-K-18,5M-4L			80	2,2	18,5	5,5	- 100... - 40	B/O	970×690×445	280	
4CG 50/80-22-4							- 40... +40	B/O	970×590×445		
4CG 50/80-22-5							+40... +100	J	875×480×370		
4CG 50/80-22-6							+100... +360	J	1100×580×535	390	
1CG 50/125-37-5							- 40... +100	J	1010×440×400	205	
CG 100/32-15-1 (4)			32	65-140	3,5	5,5	+40... +100	J	1010×440×400	205	
CG 100/32-15-2 (5)							+100... +360	J	1010×440×415	225	
CG 100/32-15-3 (6)							- 40... +40	B/O	880×465×380	190	
1CG 100/32-11-1 (4)							+40... +100	J	880×465×380	190	
1CG 100/32-11-2 (5)							+100... +360	J	920×490×380	205	
CG 100/32-11-3 (6)							+100... +360	J	1080×530×400	235	
1CG 100/32-11-6S	100	50	70-140	3,8	25,0	5,5	- 40... +40	B/O	1000×560×505	325	
2CG 100/50-25-4							+40... +100	J	1090×620×470	330	
2CG 100/50-25-5							+40... +100	J	1300×620×500	410	
2CG 100/50-25-5S							- 40... +40	B/O	1185×800×485	450	
3CG 100/50-30-4							+40... +100	J	1227×700×485	485	
3CG 100/50-30-5							+100... +360	J	1365×645×585	600	
3CG 100/50-30-5S			65-140	3,0	37,0	5,5	- 40... +100	J	1410×825×610	800	
2CG 100/80-37-5							+100... +360	J	1130×660×520	360	
2CG 100/80-37-6							- 40... +100	J	1165×610×540	400	
4CG 100/125N-K-55M-4L							+70... +30	J	1355×715×565	535	
5CG 100/125-75-5							- 40... +100	J	1227×700×485	485	
5CG 100/125-75-6							+100... +360	J	1365×645×585	600	
CG 100/200-132-5	200	80	30-150	3,0	55,0	5,5	- 40... +100	J	1410×825×610	800	
3CG 200/50-37-5							+37,0	- 40... +100	J	1130×660×520	360
4CG 200/50-45-5							+45,0	- 40... +100	J	1165×610×540	400
2CG 200/80-75-5							+75,0	- 40... +100	J	890×535×420	485
2CG 200/80-75-6							+100... +360	J	1355×715×565	535	
CNG 69/2S	36	60	18-36	5	15	- 50... +50	B/O	890×535×420	270		

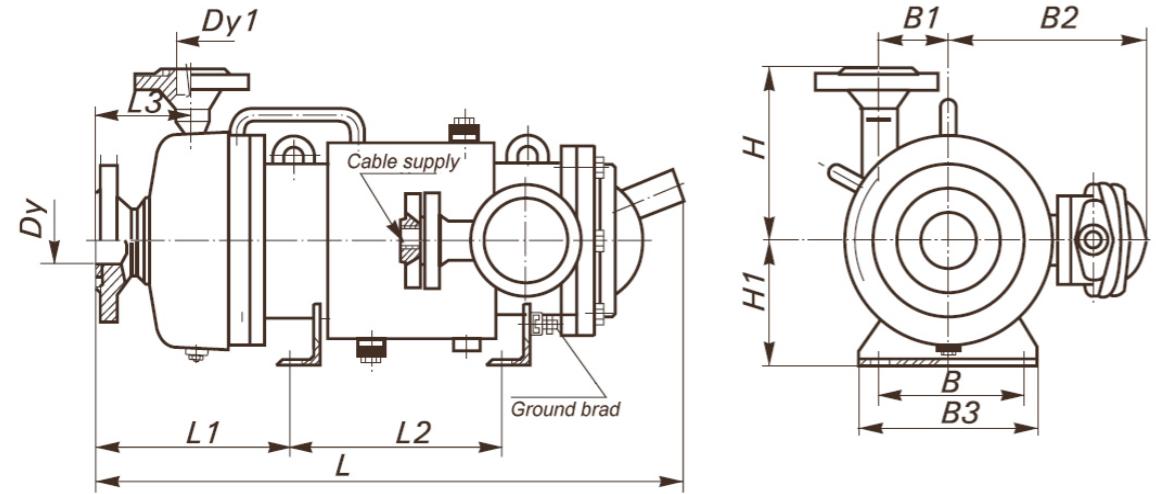
Constructive performances of the electric pumps of the type CG depending on the temperature of the transferred liquid and pressure in contour





ELECTRIC PUMPS CG  
FOR LIQUID TRANSFER  
TILL 360 °C

OVERALL  
DIMENSIONS



MARKING	P <sub>y</sub> , kgs/cm <sup>2</sup>	D <sub>y</sub> , mm	D <sub>y1</sub> , mm	L, mm	L <sub>1</sub> , mm	L <sub>2</sub> , mm	L <sub>3</sub> , mm	H <sub>1</sub> , mm	H, mm	B, mm	B <sub>1</sub> , mm	B <sub>2</sub> , mm	B <sub>3</sub> , mm
CG 6,3/20-1,1-3	16	50	32	886	305	280	90	160	150	190	73	235	240
CG 6,3/32-2,2-3	16	50	32	910	325	280	106	160	160	190	82	235	240
1CG 12,5/50-4-3	16	65	32	760	290	240	115	140	200	190	99	266	230
1CG 12,5/50-4-6	50	65	32	785	315	240	140	140	200	190	103	275	230
CG 25/20-3-3	16	80	50	695	262	200	100	128	160	190	87	215	230
CG 25/20-3-6	50	80	50	695	262	200	100	128	160	190	84	215	230
1CG 25/50-7,5-3	16	80	40	800	325	210	110	165	200	200	109	270	240
1CG 25/50-7,5-6	50	80	40	830	355	210	140	165	200	200	113	270	240
2CG 25/50-5,5-3	16	80	40	775	230	280	110	170	200	200	109	270	240
2CG 25/50-5,5-6	50	80	40	805	260	280	140	170	200	200	113	270	240
2CG 25/80-11-6	50	80	40	1100	365	450	156	190	230	200	127	257	240
3CG 50/50-15-3	16	100	50	970	350	350	125	190	200	200	105	275	240
3CG 50/50-15-6S	50	100	50	985	365	350	140	190	200	200	105	308	240
4CG 50/50-11-3	16	100	50	900	262	380	125	170	200	200	105	270	240
4CG 50/50-11-6	50	100	50	920	282	380	145	170	200	200	107	305	240
4CG 50/50-11-6S	50	100	50	920	282	380	145	170	200	200	107	305	240
4CG 50/80-22-6	50	80	50	1150	415	450	155	225	275	300	122	390	350
3CG 100/32-15-3	16	125	80	1010	365	350	140	190	225	200	130	260	240
3CG 100/32-15-6	50	125	80	1010	365	350	140	190	225	200	130	260	240
1CG 100/32-11-3	16	125	78	920	285	380	142	170	210	200	121	275	240
1CG 100/32-11-6	50	125	80	920	285	380	142	170	210	200	121	275	240
1CG 100/32-11-6S	50	125	80	920	285	380	142	170	210	200	121	305	240
2CG 100/80-37-6	50	100	65	1275	435	560	162	225	250	300	126	390	340
5CG 100/125-75-6	50	100	65	1365	515	480	179	275	310	280	0	430	340
2CG 200/80-75-6	50	125	100	1355	521	480	200	275	290	280	152	450	340

ELECTRIC CENTRIFUGAL  
HERMETIC PUMPS

**NG**

The electric pumps of the type **NG** are designed for transfer of the neutral in relation to the liquid of the carbon steel, including toxic, explosion hazard, various types of fuel, liquefied gases and others.

They are made in accordance with the technical conditions PT MD23-05833093-037:2003

**Characteristics of the product transferred:**

For the electric pumps NG:  
thickness – till 1600 kg/m<sup>3</sup>, viscosity – till 40 sSt.

For the electric pumps NG (L):  
thickness – till 700 kg/mm<sup>3</sup>, viscosity – till 3 sSt .

The solid nonabrasive engaging with the size till 0.2 mm and till 0.2 % according to the mass.

There are presented at the table the parameters for the electric pumps NG - for the working liquid with the thickness 1000 kg/m<sup>3</sup> and viscosity 3 sSt; NG (L) - for the working liquid with the thickness 1000 kg/m<sup>3</sup> and viscosity 3 sSt.

When using electric pumps for the transfer of the liquids with the thickness till 1000 kg/m<sup>3</sup> or viscosity till 3 sSts with the purpose of diminution of the load on the motor, electric pumps are made with one of the variants of the turning of the external diameter of the working wheel with the corresponding diminution of the developing pressure:

**1) variant of the turning "a":**

- for the transfer of the liquids with thickness more than 1000 till 1300 kg/m<sup>3</sup> and viscosity till 3 sSt.
- for the transfer of the liquids with thickness more than 1000 kg/m<sup>3</sup> and viscosity till 20 sSt.

**2) variant of the turning "b":**

- for the transfer of the liquids with thickness more than 1300 till 1600 kg/m<sup>3</sup> and viscosity till 3 sSt.
- for the transfer of the liquids with thickness till 1000 kg/m<sup>3</sup> and viscosity more than 20 till 40 sSt .

**The pressure in the contour of the electric pump:**

- till 16 kgs/cm<sup>2</sup> – for the electric pumps of 1, 1L, 2, 2L execution,
- till 40 kgs/cm<sup>2</sup> – for the electric pumps of 4, 4L, 5, 5L execution.

Electric pumps are manufactured for the voltage: 380, 660 V (stipulated when ordering), frequency of the current 50 Hz.

**Marking of the explosion proof** - 1ExdIIIBT4 X or 1ExdIICT4 X (stipulated when ordering).

More detailed information, including graphic characteristics, schemes of studding and management, description of the construction, the rules of the assembly and exploitation, are indicated at the exploitation documents for the electric pump.

**The specimen of conventional marking of the electric pump of the NG type:**

a ) for the transfer of the liquid with the thickness of 700 till 1000 kg/m<sup>3</sup>, with the viscosity till 3 sSt, execution on explosion proof 1ExdIIIBT4X;

**Electric centrifugal hermetic pump NG 25-50-1**, where:

**NG** - type (hermetic for the neutral liquid);

**25** - nominal supply in cubic meters per hour m<sup>3</sup>/hour;

**50** - pressure at nominal supply in meters (m);

1- constructive performance;

b) the same with the performance at explosion proof 1ExdIICT4 X;

**Electric centrifugal hermetic pump NG 25-50-1S;**

c) the same at the thickness of the variant of the turning "a" of the working wheel or the variant "b":

**Electric centrifugal hermetic pump NG 25-50a-1 or 25-50a -1 or NG 25-50b-1;**

d) the same at the thickness of the transferred liquid till 700 kg/m<sup>3</sup> and viscosity till 3 sSt:

**Electric centrifugal hermetic pump NG 25-50-1L.**



## ELECTRIC CENTRIFUGAL HERMETIC PUMPS **NG**

## TECHNICAL CHARACTERISTICS

## ELECTRIC CENTRIFUGAL HERMETIC PUMPS **NG**

## TECHNICAL CHARACTERISTICS

MARKING OF THE PUMP	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	WORKING INTERVAL OF THE SUPPLY, m <sup>3</sup> /hour	PERMISSIBLE SUCTION HEAD AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	TEMPERATURE OF THE PUMPED LIQUID, °C	TYPE OF THE COOLING OF THE EXTERNAL SURFACE OF THE MOTOR'S STATOR - LIQUID () OR WITHOUT COOLING (B/O)	SIZE, mm	MASS, kg
MARKING	Q <sub>nom.</sub>	H	Q.....Q	ΔH	Pn	T	COOLING	SIZE	M
NG 3,2-30-2 (2L)	3,2	30	1,5 - 4	1,7	1,5 (1,1)	- 40... +100	B/O	570 × 340 × 310	55
NG 3,2-30-5 (5L)				1,8	3,0 (2,2)			800 × 395 × 385	175
NG 3,2-60-2 (2L)				1,8	4,0 (3,0)				
NG 3,2-60-5 (5L)									
NG 3,2-90-2 (2L)	90	60	1,5 - 4			- 40... +100	B/O		
NG 3,2-90-5 (5L)									
NG 6,3-20-2 (2L)	6,3	20	2,5-9,5	1,3	1,5 (1,1)	-40... +100	B/O		
NG 6,3-20-5 (5L)									
NG 6,3-32-2 (2L)									
NG 6,3-32-5 (5L)									
NG 6,3-50-2 (2L)									
NG 6,3-50-5 (5L)									
NG 6,3-70-1 (4)									
NG 6,3-70-2 (5)									
NG 6,3-100-1 (1L)									
NG 6,3-100-2 (2L)									
NG 6,3-100-4 (4L)									
NG 6,3-100-5 (5L)									
NG 6,3-150-1L									
NG 6,3-150-2L									
NG 6,3-150-4 (4L)									
NG 6,3-150-5 (5L)									

MARKING	Q <sub>nom.</sub>	H	Q.....Q	ΔH	Pn	T	COOLING	SIZE	M
NG 12,5-20-2 (2L)	12,5	20	5-18	1,1	2,2 (1,5)	- 40... +100	B/O		
NG 12,5-20-5 (5L)					4,0 (3,0)	- 40... +100	B/O		
NG 12,5-50-2 (2L)					- 40... +40	B/O			
NG 12,5-50-5 (5L)					+40... +100	J			
NG 12,5-80-1 (1L)					- 40... +40	B/O			
NG 12,5-80-2 (2L)					+40... +100	J			
NG 12,5-80-4 (4L)					- 40... +40	B/O			
NG 12,5-80-5 (5L)					+40... +100	J			
NG 12,5-100-1 (1L)					- 40... +40	B/O			
NG 12,5-100-2 (2L)					+40... +100	J			
NG 12,5-100-4 (4L)					- 40... +40	B/O			
NG 12,5-100-5 (5L)					+40... +100	J			
NG 12,5-160-4 (4L)	160	18,5 (15)	1,3	1,5	- 40... +40	B/O			
NG 12,5-160-5 (5L)					+40... +100	J			
NG 12,5-240-4 (4L)					- 40... +40	B/O			
NG 12,5-240-5 (5L)					+40... +100	J			
NG 25-20-2 (2L)					20	2,7	3,0 (2,2)	- 40... +100	B/O
NG 25-20-5 (5L)					32	2,5	5,5 (4,0)	-40... +100	B/O
NG 25-32-2 (2L)						1,8	7,5 (5,5)	-40... +40	B/O
NG 25-32-5 (5L)								+40... +100	J
NG 25-50-1 (1L)								-40... +40	B/O
NG 25-50-2 (2L)								+40... +100	J
NG 25-50-4 (4L)								-40... +40	B/O
NG 25-50-5 (5L)								+40... +100	J
NG 25-80-1 (1L)								-40... +40	B/O
NG 25-80-2 (2L)								+40... +100	J
NG 25-80-4 (4L)								-40... +40	B/O
NG 25-80-5 (5L)								+40... +100	J
NG 25-100-1 (1L)								-40... +40	B/O
NG 25-100-2 (2L)								+40... +100	J
NG 25-100-4 (4L)								-40... +40	B/O
NG 25-100-5 (5L)								+40... +100	J
NG 25-160-4 (4L)								-40... +40	B/O
NG 25-160-5 (5L)								+40... +100	J
NG 25-240-5 (5L)								-40... +100	J



SPECIALIZED CENTRIFUGAL  
HERMETIC ELECTRIC PUMPS

**BEN**  
**-OS**  
**-MS**  
**-DMS**

Designation, specifics and area of performance of the **BEN** electric pumps are identical to the hermetical electrical pumps of the CG, NG, AG.

At the Customer requirement, electric pumps can be manufactured with specific exploitation characteristics, in the range of:

- Rated delivery from 1 to 600 m<sup>3</sup>/hour;
- Head pressure from 10 to 800 m;
- Pressure in the profile up to 100 (kgs/cm<sup>2</sup>);
- Temperature of the pumped liquid, from minus 100°C up to plus 450°C;
- Density of the pumped liquid, up to 2500 kg/m<sup>3</sup>.

Electric pumps are, as a rule, manufactured in explosion-proof version.

Installation position is of vertical or horizontal performance.

In contrast to the electric pumps of CG, NG, AG types, which nomenclature is basically unchanged, the assortment of the specialized **BEN** electric pumps is periodically enriched with articles, which are manufactured in concordance with special Customer's requirements (rated delivery, head pressure, temperature of the pumped liquid, density and viscosity of the pumped liquid, flow-through material, etc.)

In the pumped liquid it is allowed the presence of nonabrasive particles having a up to 0.2 mm size and a 2% mass.

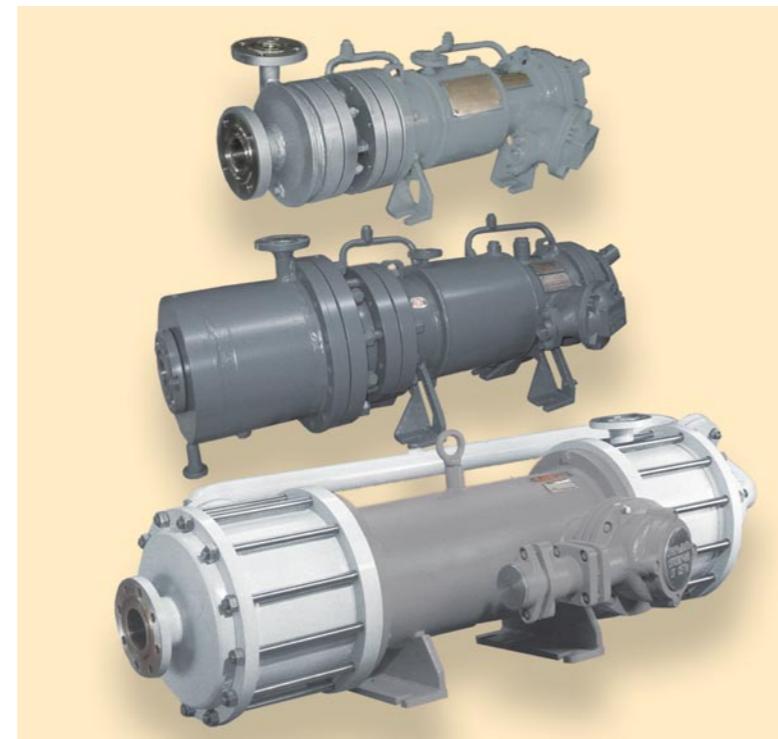
The materials of the firm parts components of the **BEN** electric pumps are identical to those used in the CG electric pumps.

Electric pumps are produced for the potential tension: 380, 500, 660 V (this is discussed when the order is made), energy frequency 50 Hz.

More detailed information including graphic characteristics of the binding and driving patterns, description of the structure, rules of the installation and exploitation, is provided in the in-line documentation attached to the electric pump.

Electric pumps are manufactured in accordance with technical conditions:

**BEN – OS:** PT MD 23-05833093-038:2003  
**BEN – MS:** PT MD 23-05833093-039:2003  
**BEN – DMS:** PT MD 23-05833093-040:2003



Example of the symbolic notation for the **BEN** type electric pump:

**Centrifugal hermetical single-stage electric pump**

**1BEN –221 OS,**

where:

**1** – Serial number of the modernization;

**BEN** – Semi-hermetic electric pump;

**221** – Serial registration number;

**OS** – Single -stage electric pump (MS – multistage unilateral, DMS – multistage bilateral)

SPECIALIZED CENTRIFUGAL HERMETIC  
ELECTRIC PUMPS  
**BEN-OS, BEN-MS, BEN-DMS**

TECHNICAL CHARACTERISTICS

MARKING OF THE PUMP	PARAMETERS OF THE PUMP							TRANSFERRED PRODUCT		
	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	WORKING INTERVAL OF THE SUPPLY, m <sup>3</sup> /hour	PERMISSIBLE SUCTION HEAD AT NOMINAL SUPPLY, m	PRESSURE IN THE PROFILE , kgs/cm <sup>2</sup>	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	TYPE OF THE COOLING OF THE EXTERNAL SURFACE OF THE MOTOR'S STATOR -LIQUID (J) OR WITHOUT COOLING (B/O)	CONDITIONAL INDICATION OF THE MATERIAL OF THE RUNNING PART	TEMPERATURE, °C	DENSITY, kg/m <sup>3</sup>
MARKING	Q <sub>nom</sub>	H	Q.....Q	ΔH	Pu	Pn	COOLING	MATERIAL	T	p
<b>1BEN 9-OS</b>	170	14	100-180	2,2	4	15	J	K	+90	1760
<b>1BEN 10-OS</b>	100	14	60-110	1,8	4	11	J	K	+90	1760
<b>1BEN 11-OS</b>	170	14	100-180	2,2	4	11	J	K	+90	1000
<b>1BEN 221-OS</b>	550	75	400-570	11	63	132	J	K	+100...+260	960
<b>BEN 221/1-OS</b>	550	75	400-570	12	50	150	J	A,K <sub>1</sub>	+40	850
<b>BEN 225/1-OS</b>	270	41	250-300	5,5	16	65	B/O	K	+40	1315
<b>1BEN 233/1-MS</b>	240	225	200-280	5,8	25	150	J	A, K <sub>1</sub>	+40... 45	525
<b>1BEN 250/3-MS</b>	25	220	10-32	1,5	40	30	J	A, K <sub>1</sub>	+40	860
<b>BEN 252/2-MS</b>	3	100	2-4	1,8	16	5,5	J	E,K	+159	1160
<b>BEN 256-OS</b>	50	88	25-55	2,4	40	22	B/O	K, K <sub>1</sub>	+40	540
<b>BEN 258-DMS</b>	6	280	3-7	1,4	50	18,5	J	K, K <sub>1</sub>	+20... +70	950
<b>BEN 262-MS</b>	50	380	20-55	2,4	40	75	J	A,K <sub>1</sub>	+40	600
<b>BEN 264/1-MS</b>	20	300	10-25	2,5	40	75	J	K	+20	1200
<b>BEN 266-MS</b>	40	280	20-56	2,2	40	55	J	K, K <sub>1</sub>	0... +30	587
<b>BEN 270/1-OS</b>	18	32	14-20	2,5	16	4	J	K,K <sub>1</sub>	+139	880
<b>BEN 273-OS</b>	25	45	18-32	1,7	40	5,5	B/O	K	-100	400
<b>BEN 276-MS</b>	200	125	150-250	4	40	110	J	K, K <sub>1</sub>	+60	900
<b>1BEN 277-OS</b>	300	100	100-320	5,5	40	75	J	K, K <sub>1</sub>	+38	570
<b>BEN 283-OS</b>	150	82	130-170	3,8	50	45	B/O	K	+60	700
<b>BEN 283/1-OS</b>	160	54	130-190	4,5	16	45	B/O	K	+37	860
<b>BEN 284/1-MS</b>	60	248	35-65	2,5	40	55	J	A,K <sub>1</sub>	-40... +40	600
<b>BEN 284/2-MS</b>	100	270	70-110	2,8	50	90	J	K	-30... +30	650
<b>1BEN 286-MS</b>	12,5	100	6-18	1,6	16	9	J	K, K <sub>1</sub>	+90... 100	900
<b>1BEN 286/1-MS</b>	12,5	100	6-18	1,7	16	9	J	A, K <sub>1</sub>	+325	750









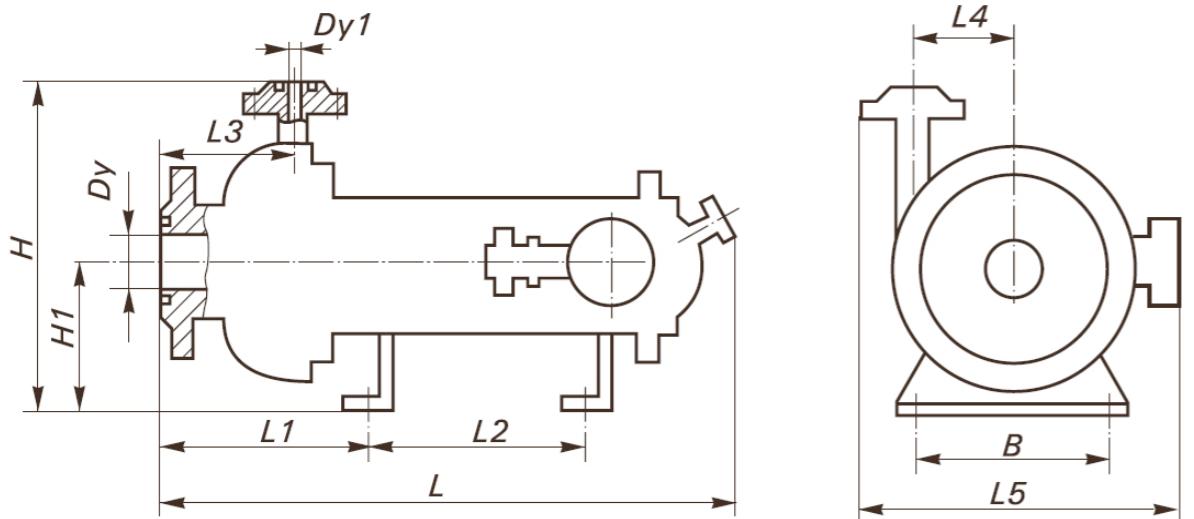






ELECTRIC PUMPS  
**BEN-OS**

OVERALL  
DIMENSIONS



MARKING	Py, kgs/cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	L5, mm	H, mm	H1, mm	B, mm	M, kg
1BEN 9 – OS	4	150	125	745	183	517	117	167	600	610	260	260	295
1BEN 10 – OS	4	150	100	690	177	477	100	153	570	560	260	260	255
1BEN 11 – OS	4	150	125	705	183	477	117	167	600	610	260	260	275
1BEN 221 – OS	63	200	150	1665	696	730	262	158	822	670	300	370	900
BEN 273 – OS	40	80	40	780	250	320	140	113	495	410	210	200	155
1BEN 277 – OS	40	200	125	1245	335	600	160	265	670	670	300	370	600
BEN 293 – OS	16	100	65	1250	425	530	155	0	575	510	225	300	410
BEN 295 – OS	45	80	50	1130	385	450	135	0	557	465	225	300	370
1BEN 295 – OS	16	80	50	1130	400	450	133	0	562	500	225	300	375
BEN 300 – OS	16	80	40	810	220	350	110	109	426	410	210	200	150
1BEN 303 – OS	16	80	50	975	295	450	133	0	543	505	240	300	315
BEN 304 – OS	40	80	50	1060	330	480	170	0	590	530	240	300	350
BEN 305 – OS	16	80	50	1010	255	500	130	0	386	410	210	200	190
BEN 306 – OS	16	100	65	975	325	410	155	0	560	525	240	300	330
BEN 316 – OS	16	100	65	960	310	410	160	135	500	520	220	300	295
1BEN 316 – OS	16	100	65	975	308	410	145	0	560	500	240	300	305
BEN 322/1 – OS	25	100	65	1175	325	560	170	0	615	605	300	370	535
BEN 339 – OS	16	80	50	985	330	410	173	0	570	530	240	300	325
BEN 350 – OS	16	65	32	955	325	320	108	104	370	340	160	190	140

ELECTRIC PUMPS  
**BEN-OS**

OVERALL  
DIMENSIONS

MARKING	Py, kgs/cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	L5, mm	H, mm	H1, mm	B, mm	M, kg
1BEN 356 – OS	50	80	50	1010	315	450	152	0	567	535	240	300	340
1BEN 358 – OS	25	80	50	1015	285	480	140	152	565	530	290	300	330
BEN 365 – OS	50	80	50	1130	346	550	180	0	567	535	240	300	380
BEN 369 – OS	16	80	50	1230	372	560	125	0	587	505	225	300	425
BEN 375 – OS	16	100	65	1095	325	480	170	0	615	605	300	370	480
1BEN 375 – OS	25	125	65	995	265	480	118	135	555	470	220	300	330
BEN 375/4 – OS	40	100	65	1050	372	450	207	140	595	510	240	300	310
BEN 384 – OS	16	80	40	810	220	350	110	109	411	410	210	200	145
BEN 402 – OS	16	80	50	1110	372	450	125	0	587	505	225	300	385
BEN 403 – OS	25	65	40	1005	295	450	140	0	555	470	240	300	260
BEN 404 – OS	16	200	125	1335	337	640	145	255	750	655	300	370	760
BEN 412 – OS	16	50	32	680	220	260	90	73	360	295	145	190	90
BEN 417 – OS	40	80	50	1100	315	530	152	0	567	530	240	300	375
BEN 418 – OS	16	200	125	1500	470	670	145	0	750	695	340	370	800
BEN 419 – OS	16	200	150	1530	500	670	165	0	755	740	340	370	840
BEN 420 – OS	16	200	150	1425	370	730	165	260	755	740	340	370	790
1BEN 421 – OS	16	65	32	825	215	350	108	104	367	350	170	200	145
BEN 422 – OS	16	100	50	900	238	420	125	105	430	410	210	200	165
BEN 441/3 – OS	25	80	50	915	275	400	130	128	458	460	220	300	280
BEN 487 – OS	25	150	125	1635	500	750	171	0	785	740	340	370	980
BEN 488 – OS	16	50	25	650	220	200	90	92	370	300	130	190	90
BEN 514 – OS	16	65	32	720	265	220	115	99	387	340	140	190	95
BEN 515 – OS	16	100	65	1175	326	600	155	150	645	485	225	280	450
BEN 516 – OS	16	100	65	1030	306	480	145	0	555	500	240	300	325
1BEN 516 – OS	16	100	65	1030	310	480	160	135	575	520	220	300	300
BEN 517 – OS	16	65	32	805	245	280	117	128	395	370	170	200	160
BEN 518 – OS	50	80	40	960	290	380	156	127	470	420	190	200	185
BEN 519 – OS	16	100	65	1050	310	370	160	135	610	520	220	300	335
BEN 539 – OS	16	125	50	1070	297	530	150	164	575	530	290	300	365

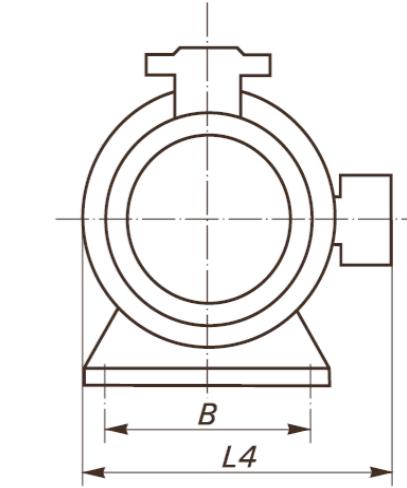
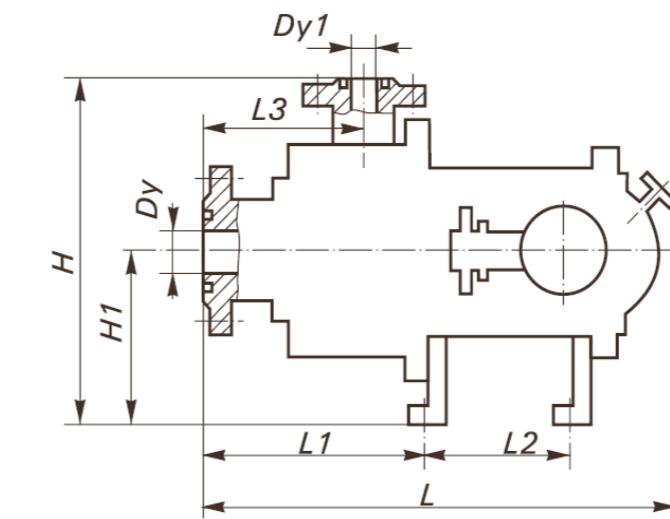
ELECTRIC PUMPS  
**BEN-OS**

OVERALL  
DIMENSIONS

MARKING	Py, kgs/cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	L5, mm	H, mm	H1, mm	B, mm	M, kg
BEN 815 – OS	16	50	32	715	260	255	124	104	407	325	145	190	105
BEN 820 – OS	16	65	32	980	325	350	108	104	430	370	190	200	175
BEN 822 – OS	16	200	150	1530	500	670	165	0	755	740	340	370	840
BEN 823 – OS	40	80	50	1160	435	450	133	0	663	500	225	300	390
BEN 828 – OS	16	65	32	965	230	500	115	99	422	410	210	200	170
BEN 829 – OS	16	100	65	1230	425	530	155	0	575	500	225	300	410
BEN 866 – OS	16	80	50	1230	416	530	167	0	587	515	225	300	435
BEN 872 – OS	16	200	150	1370	370	640	165	260	755	740	340	370	740
BEN 874 – OS	40	80	50	1080	340	480	173	0	567	530	240	300	360
BEN 895 – OS	16	50	20	556	180	150	49	0	355	310	145	190	85
BEN 936 – OS	16	65	32	1015	340	350	115	99	428	461	220	250	200
BEN 941 – OS	16	80	50	1020	340	450	173	0	552	530	240	300	345
BEN 949 – OS	63	50	25	725	250	225	106	82	345	320	160	190	100
BEN 959 – OS	16	50	32	920	335	280	124	104	370	340	160	190	145
BEN 962 – OS	16	50	20	840	260	280	49	0	356	326	160	190	125
BEN 965 – OS	16	50	20	840	260	280	49	0	356	326	160	190	120
BEN 975 – OS	16	65	40	895	285	350	160	0	415	440	210	200	180
BEN 986 – OS	16	65	32	840	215	380	108	104	417	350	170	200	160
BEN 1009 – OS	16	80	50	1105	336	530	173	0	568	530	240	300	365
BEN 1013/1 – OS	16	80	50	855	275	350	130	128	458	460	220	300	240
BEN 1025 – OS	16	100	65	1185	316	560	162	0	680	600	300	370	470
BEN 1048 – OS	16	125	65	1065	325	500	158	0	530	522	240	300	360
BEN 1060 – OS	48	125	100	1440	470	640	180	0	635	600	300	370	585
BEN 1100 – OS	16	65	32	820	235	320	117	128	440	410	210	200	160
BEN 1101 – OS	16	80	50	925	295	390	133	0	545	505	240	300	290
BEN 1102 – OS	16	80	50	1020	336	450	173	0	568	530	240	300	325
BEN 1103 – OS	16	80	50	925	295	390	133	0	478	505	240	300	260

ELECTRIC PUMPS  
**BEN-MS**

OVERALL  
DIMENSIONS



MARKING	Py, kgs/cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	H, mm	H1, mm	B, mm	M, kg
1BEN 233/1 – MS	25	200	125	1640	525	800	305	837	780	370	420	1400
1BEN 250/3 – MS	40	65	40	1445	725	410	550	670	594	300	370	655
BEN 262 – MS	40	80	50	1565	645	600	470	717	656	340	370	1040
BEN 266 – MS	40	80	50	1310	505	530	345	697	610	300	370	690
BEN 276 – MS	40	150	100	1510	512	640	306	800	710	340	370	1050
BEN 284/1 – MS	40	100	50	1290	440	530	261	717	656	340	370	780
BEN 284/2 – MS	50	125	65	1309	475	530	150	775	650	310	320	825
1BEN 286 – MS	16	50	32	976	330	380	197	444	405	220	250	255
1BEN 287 – MS	40	80	50	1240	435	480	251	717	656	340	370	720
BEN 294 – MS	25	65	40	1370	555	530	315	601	485	225	300	520
BEN 296/1 – MS	25	125	65	1535	490	600	287	793	740	370	370	950
BEN 301 – MS	40	100	50	1565	645	600	470	717	656	340	370	950
BEN 309 – MS	16	80	32	1105	425	410	225	535	510	240	300	415
BEN 332/2 – MS	40	100	50	1250	440	480	261	717	656	340	370	730
1BEN 337/2 – MS	25	125	100	1800	725	730	515	800	710	340	370	1460
BEN 339/3 – MS	16	65	32	998	325	380	200	444	460	220	250	250
BEN 366 – MS	16	80	40	1230	495	450	290	452	440	200	250	325
BEN 370 – MS	40	50	32	1125	420	450	230	597	507	240	300	390
BEN 371/2 – MS	40	80	50	1210	416	520	247	685	610	300	370	570
1BEN 385/3 – MS	16	50	20	940	385	315	255	395	385	190	190	185

ELECTRIC PUMPS  
**BEN-MS**

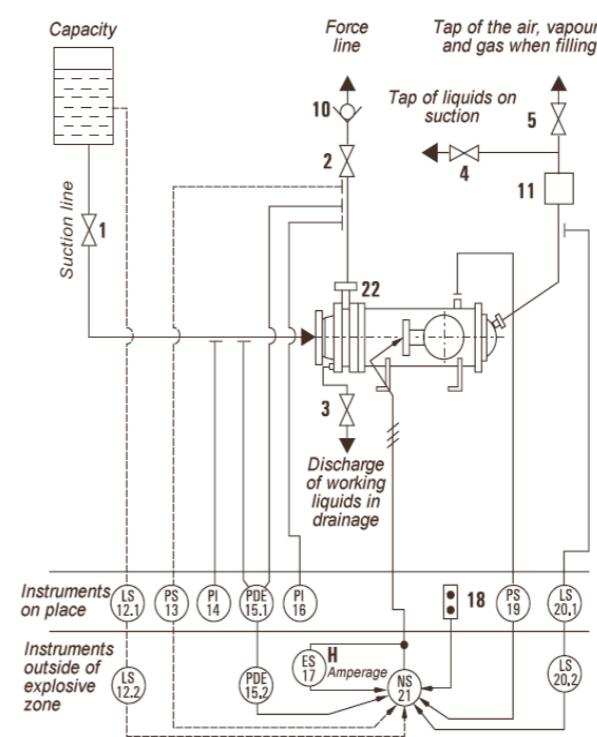
OVERALL  
DIMENSIONS

MARKING	Py, kgs/ cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	H, mm	H1, mm	B, mm	M, kg
<b>BEN 389 – MS</b>	40	65	32	1285	545	450	380	601	508	240	300	540
<b>BEN 400 – MS</b>	40	80	50	1515	630	600	474	697	610	300	370	820
<b>BEN 406 – MS</b>	40	50	20	830	377	260	236	350	374	190	190	160
<b>BEN 488/1 – MS</b>	16	50	20	760	275	260	140	395	385	190	190	150
<b>BEN 517/3 – MS</b>	16	50	32	895	360	280	245	425	405	190	200	190
<b>BEN 812 – MS</b>	40	125	100	1530	602	600	397	800	710	340	370	1030
<b>BEN 824 – MS</b>	50	100	65	1730	670	730	460	793	710	340	370	1130
<b>BEN 845 – MS</b>	40	50	32	1450	705	420	460	455	460	220	250	400
<b>BEN 856 – MS</b>	50	100	65	1900	715	860	515	793	740	370	420	1480
<b>BEN 858 – MS</b>	40	100	65	1640	610	670	280	793	710	340	370	1070
<b>BEN 863 – MS</b>	16	50	20	905	310	280	138	395	385	190	190	180
<b>BEN 870 – MS</b>	40	65	40	1270	510	450	348	620	594	300	370	490
<b>BEN 871 – MS</b>	40	100	65	1610	660	600	460	793	710	340	370	990
<b>BEN 880 – MS</b>	40	80	50	1700	815	600	630	717	656	340	370	1030
<b>BEN 887 – MS</b>	40	50	32	1250	600	380	460	455	461	220	250	350
<b>BEN 889 – MS</b>	40	50	32	1205	540	350	295	455	460	220	250	310
<b>BEN 892 – MS</b>	16	50	20	950	355	280	137	395	385	190	190	175
<b>BEN 907 – MS</b>	40	80	50	1330	445	600	261	717	656	340	370	735
<b>BEN 946 – MS</b>	16	50	20	760	270	260	140	395	385	190	190	140
<b>BEN 1006 – MS</b>	16	65	32	1160	410	420	350	450	461	220	250	300
<b>BEN 1008 – MS</b>	25	125	65	1435	480	600	280	793	710	340	370	1050
<b>BEN 1013 – MS</b>	16	80	40	1090	435	380	240	530	465	240	300	395
<b>BEN 1015 – MS</b>	40	100	65	1730	712	640	514	897	710	340	370	1220
<b>BEN 1024 – MS</b>	50	100	50	1680	665	730	473	777	670	340	370	1200
<b>BEN 1036 – MS</b>	40	100	50	1640	680	600	473	777	656	340	370	1050
<b>BEN 1070 – MS</b>	16	80	40	1200	495	410	212	516	495	240	300	445
<b>BEN 1099 – MS</b>	16	50	20	925	310	280	138	395	385	190	190	175
<b>BEN 1104 – MS</b>	16	80	50	1175	430	450	260	685	610	300	370	600

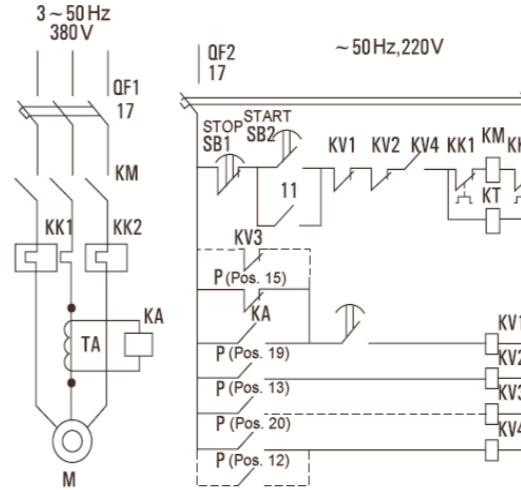
ELECTRIC PUMPS  
**BEN-MS**

AUTOMATION, MANAGEMENT  
AND PROTECTION  
ON EXAMPLE OF ELECTRIC PUMP  
**BEN 1015-MS**

SCHEME OF THE AUTOMATION



SCHEME OF THE CONTROL AND PROTECTION  
ELECTRIC PRINCIPAL



Position	Name	Quantity
1-5	Lacking valve	5
10	Back valve	1
11	Visual device	1
12, 20	Indicator of the level	2
13	Electric contact manometer. The limit of the measuring 1,6 MPa (16 kg/cm <sup>2</sup> )	1
14, 16	Indicating manometer. The limit of the measuring 1,6 MPa (16 kg/cm <sup>2</sup> )	2
15	Measuring transformer of the difference of the pressure for the surplus tension 1,6 MPa (16 kg/cm <sup>2</sup> )	1
17	Relay of the maximal current	1
18	Control button panel	1
19	Electric contact manometer. The limit of the measuring 1,6 MPa (16 kg/cm <sup>2</sup> )	1
21	Magnet actuator	1
22	Electric pump	1

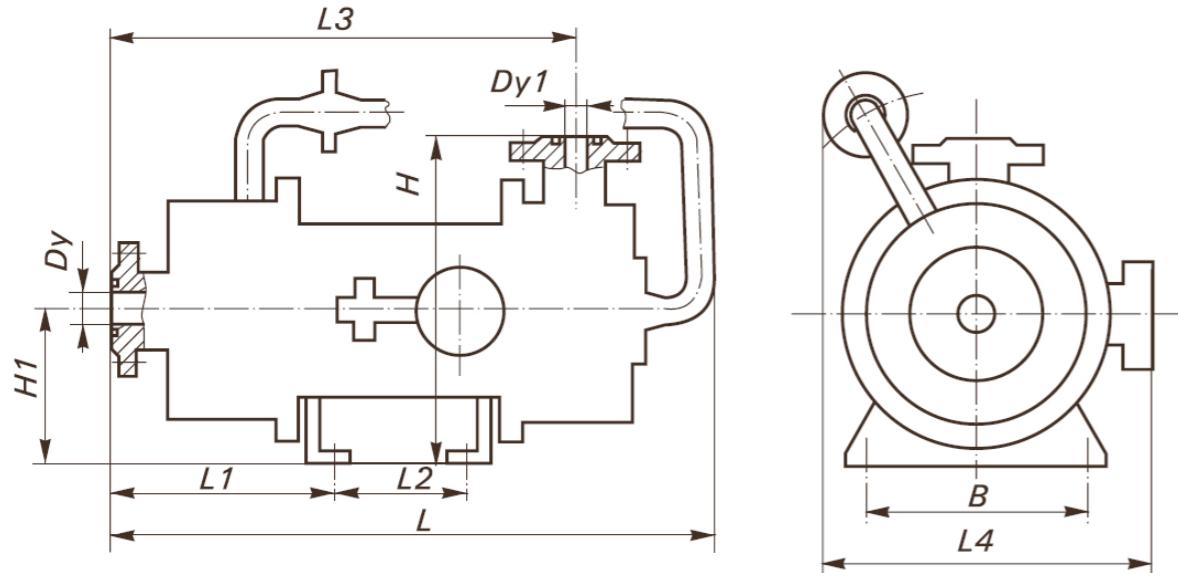
1. The devices, set according to its place, are chosen in accordance with the class of the explosion hazard zone.

2. The schemes should be studied together.

Marking	Name	Quantity
QF1, QF 2	Automatic switch	2
KM	Magnet actuator	1
KK1, KK2	Electric heating current relay	2
KA	Relay of the maximal current	1
TA	Transformer of the current	1
SB1, SB2	Control button panel	2
KV1-KV4	Intermediate relay	4
KT	Time relay with the time constraint 3 sec.	1
M	Electric pump	1

ELECTRIC PUMPS  
**BEN-DMS**

OVERALL  
DIMENSIONS

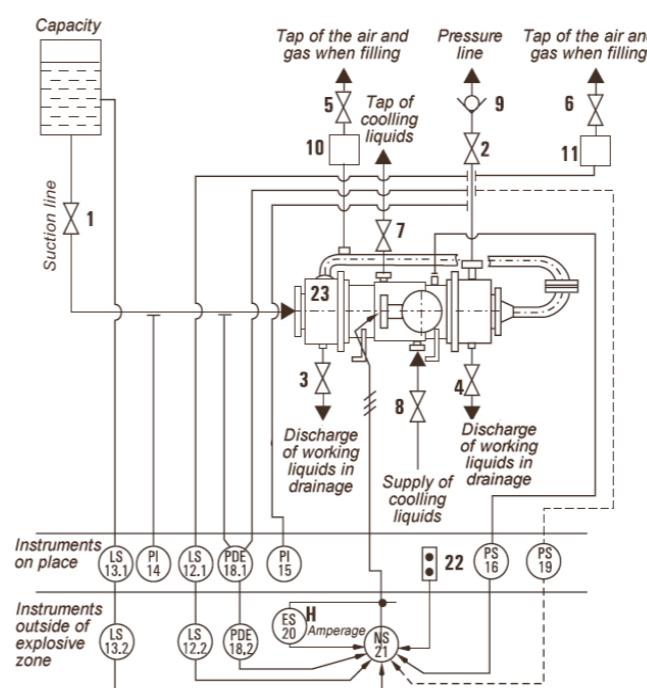


MARKING	$P_y$ , kgs/cm <sup>2</sup>	Dy, mm	Dy1, mm	L, mm	L1, mm	L2, mm	L3, mm	L4, mm	H, mm	H1, mm	B, mm	M, kg
BEN 258 – DMS	50	65	32	2100	480	410	1200	815	502	240	300	720
BEN 297 – DMS	40	60	32	1660	490	450	1145	820	482	240	300	555
1BEN 297 – DMS	40	50	32	1465	440	380	1130	480	373	190	200	335
BEN 348 – DMS	40	65	32	1610	480	410	1100	765	482	240	300	540
BEN 353 – DMS	40	80	40	1785	518	430	1255	780	490	240	300	720
BEN 354 – DMS	40	80	50	2040	514	640	1513	895	580	300	370	1150
1BEN 386 – DMS	55	50	32	2275	750	530	1480	945	594	300	370	1250
BEN 388 – DMS	50	65	32	2100	640	530	1380	815	502	240	300	780
BEN 401 – DMS	40	50	32	1915	580	450	1255	995	508	240	300	740
BEN 407 – DMS	40	50	32	1590	475	380	1062	760	482	240	300	470
BEN 408 – DMS	40	50	32	2180	725	450	1390	820	482	240	300	720
BEN 409 – DMS	40	50	32	2010	660	410	1280	760	535	240	300	665
1BEN 483/2 – DMS	50	80	50	2750	715	800	1800	1160	666	340	370	1750
BEN 805 – DMS	50	50	32	1995	487	530	1265	903	615	300	370	860
BEN 806 – DMS	50	65	40	2745	863	600	1757	965	594	300	370	1350
BEN 825 – DMS	50	50	32	1725	515	410	1130	800	502	240	300	-
BEN 826 – DMS	50	50	32	1960	605	450	1275	860	502	240	300	-
BEN 931 – DMS	50	80	50	2200	495	640	1460	1160	666	340	370	1430
1BEN 931 – DMS	40	65	40	2585	785	600	1648	885	594	300	370	1230
BEN 953 – DMS	16	50	20	1160	276	320	812	570	385	190	200	270
BEN 958 – DMS	40	50	20	1290	342	320	878	570	385	190	200	310
BEN 964 – DMS	40	80	50	2140	490	730	1260	1050	656	340	370	1450
BEN 989 – DMS	40	50	20	1290	342	320	878	570	385	190	200	315
BEN 1120 – DMS	40	100	50	2200	492	600	1432	975	676	340	370	1220

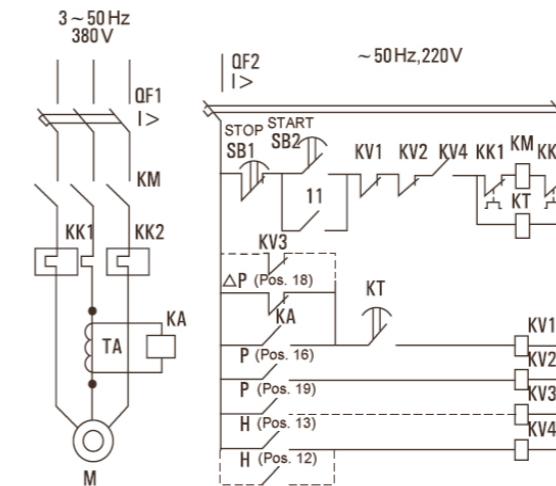
ELECTRIC PUMPS  
**BEN-DMS**

AUTOMATION, MANAGEMENT  
AND PROTECTION  
ON EXAMPLE OF ELECTRIC PUMP  
**BEN 1120-DMS**

SCHEME OF THE AUTOMATION



SCHEME OF THE CONTROL AND PROTECTION  
ELECTRIC PRINCIPAL



Позиция	Наименование	Количество
1-8	Lacking valve	6
9	Back valve	1
10, 11	Visual device	2
12, 13	Indicator of the level	2
14, 15	Indicating manometer. The limit of the measuring 4,0 MPa (40 kg/cm <sup>2</sup> )	2
16	Electric contact manometer. The limit of the measuring 0,16 MPa (16 kg/cm <sup>2</sup> )	1
18	Measuring transformer of the difference of the pressure for the surplus tension 4,0 MPa (40 kg/cm <sup>2</sup> )	1
19	Electric contact manometer. The limit of the measuring 4,0 MPa (40 kg/cm <sup>2</sup> )	1
20	Relay of the maximal current	1
21	Magnet actuator	1
22	Control button panel	1
23	Electric pump	1

1. The devices, set according to its place, are chosen in accordance with the class of the explosion hazard zone.

2. The schemes should be studied together.

Marking	Name	Quantity
QF1, QF 2	Automatic switch	2
KM	Magnet actuator	1
KK1, KK2	Electric heating current relay	2
KA	Relay of the maximal current	1
TA	Transformer of the current	1
SB1, SB2	Control button panel	2
KV1-KV4	Intermediate relay	4
KT	Time relay with the time constraint 3 sec.	1
M	Electric pump	1

TRANSFORMING  
ELECTRIC PUMPS



Is designated for assuring circulation of the transformer oil in the power transformer cooling system of the electro-transporting composition (TT, MTT) and of the stationary power transformers of the electric stations (TE). Specifics of the structure: monoblock electric pump with oil-filled stator (TT, MTT) and tube-type stator (TE).

**Characteristic of the pumped transformer oil:**

- Density – 840 kg/m<sup>3</sup>;
- Temperature – see the table;
- Presence of the mechanic admixtures – is not allowed.

Used Materials – iron, carbon steels, and stainless steels.

Electric pumps are manufactured for the potential tension: 220/380 V, 250/440 V, 240/415 V, when energy frequency is 50 Hz and 220/380 V, when energy frequency is 60 Hz (this is discussed when the order is made).

More detailed information is provided in the in-line documentation attached to the electric pump.

**Example of the symbolic notation for the electric pump:**

a) **Centrifugal transforming electric pump**  
**TT63-10-02 TU 26-06-1617-92**, where:  
**TT** – Type of electric pump (traction-feeding and transforming);  
**63** – Rated delivery in cubic meters per hour (m<sup>3</sup>/hour);  
**10** – Head pressure during a rated delivery in meters (m);  
**02** – Type of climatic performance considering GOST 15150 – 69;  
**TU 26-06-1617-92** – number of technical conditions;

b) **Centrifugal transforming electric pump**  
**MTT 63-10-02 TU 26-06-1617-92**, where:  
**M** – Modernized;  
The rest – see above;

c) **Centrifugal transforming electric pump**  
**1TE 100/20 – U1 TU 26-06-1617-92**, where:  
**1** – Serial number of the modernization;  
**TE** – Type of electric pump (transforming and shielded);  
**U1** – Type of climatic performance considering GOST 15150 – 69;  
The rest – see above.



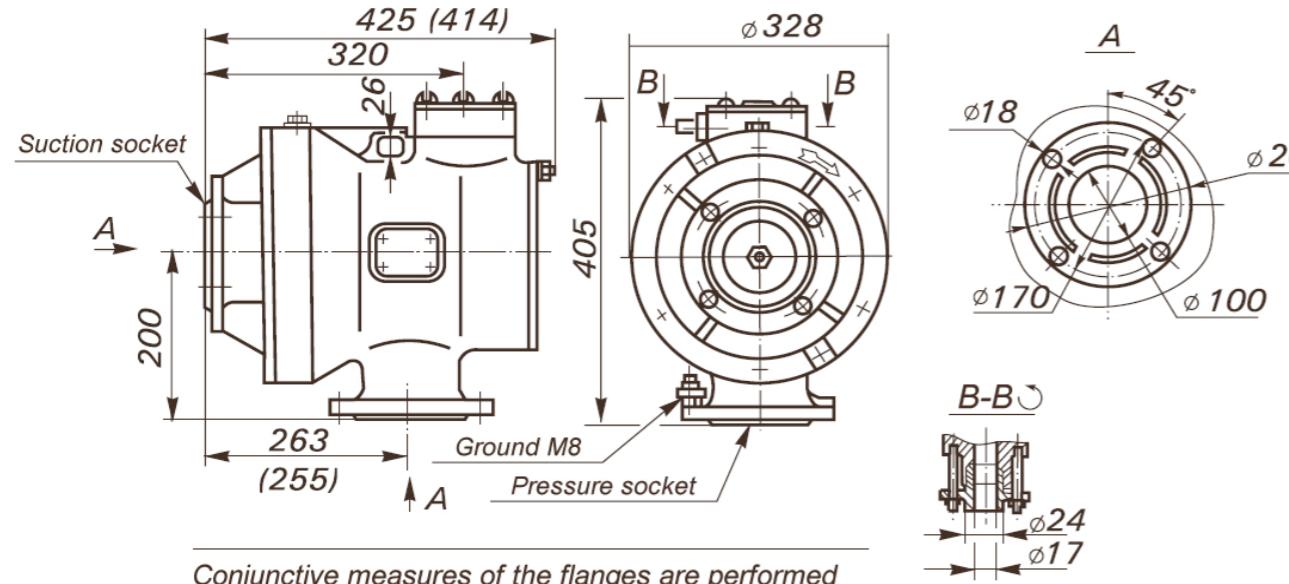
TRANSFORMING  
ELECTRIC PUMPS  
**MT, MTT, TT, TE**

TECHNICAL  
CHARACTERISTICS

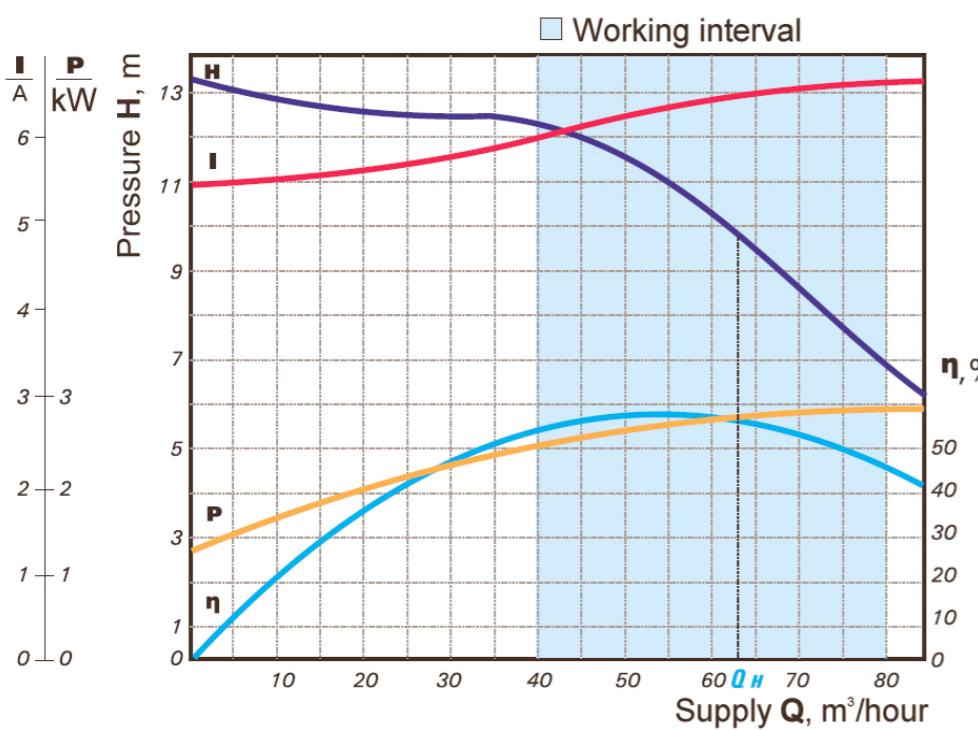
MARKING OF THE PUMP	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	WORKING INTERVAL OF THE SUPPLY, m <sup>3</sup> /hour	PERMISSIBLE SUCTION HEAD AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	TEMPERATURE OF THE PUMPED LIQUID, °C	SIZE, mm	MASS, kg
<b>MTT 16/10</b>	16	10	10-20	4,0	1,1	+85	350× 255×300	60
<b>MT 63/10</b>	63	10	20-80	3,5	2,2	+80	410×330×390	105
<b>TT 63/10</b>	63	10	40-80	3,5	2,2	+85	425×330×445	105
<b>MT 63/20</b>	63	20	40-75	3,5	5,5	+80	670×430×485	126
<b>MT 100/8</b>	100	8	75-125	3,5	3,0	+80	685×403×455	110
<b>MT 100/15</b>	100	15	60-120	5,0	7,5	+80	520×350×418	133
<b>1TE 100/15</b>	100	15	75-130	5,0	7,5	+80	685×410×490	206
<b>1TE 100/20</b>	100	20	75-130	5,0	7,5	+80	685×410×490	206
<b>TE 160/10</b>	160	10	100-180	4,0	5,5	+80	670×430×485	206

TRANSFORMING  
ELECTRIC PUMPS  
**MT, MTT, TT, TE**

Overall scheme of the electric pump TT-63/10 (MT 63/10)

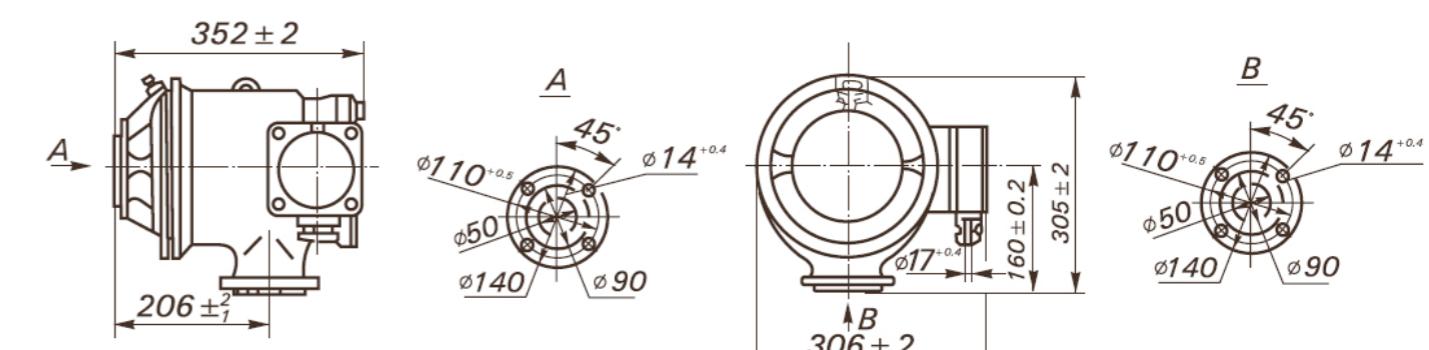


Working characteristics of the electric pump TT-63/10, MT 63/10  
at the oil temperature  $+85^\circ\text{C}$ , U=380V

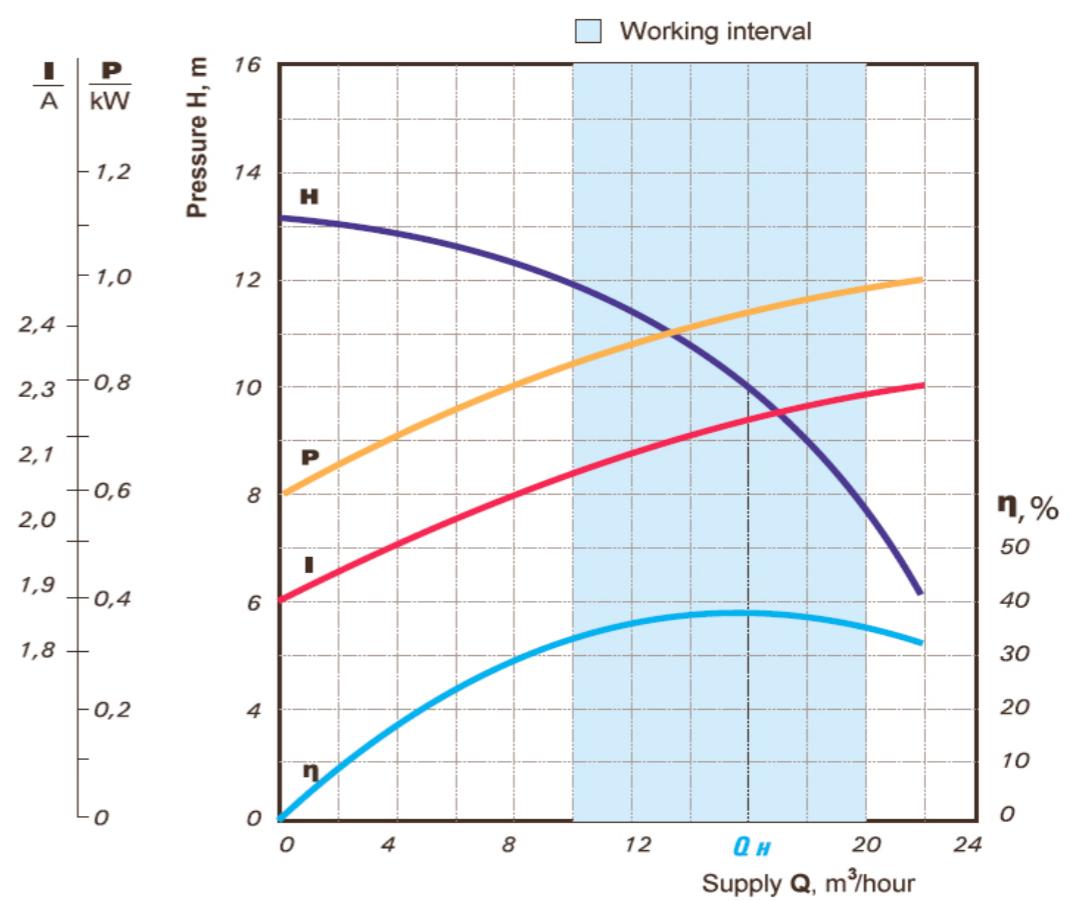


TRANSFORMING  
ELECTRIC PUMPS  
**MT, MTT, TT, TE**

Overall scheme of the electric pump MTT-16/10



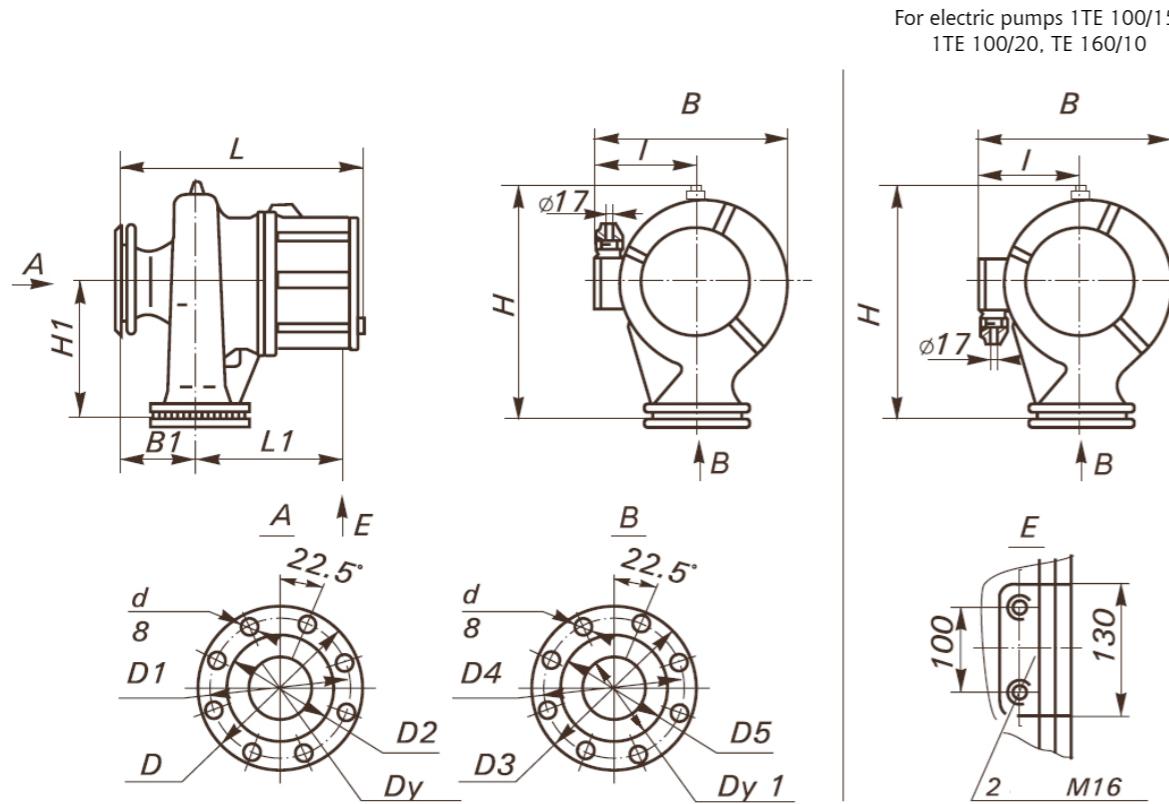
Working characteristics of the electric pump MTT-16/10  
at the oil temperature  $+85^\circ\text{C}$ , U=380V



TRANSFORMING  
ELECTRIC PUMPS  
**MT, MTT, TT, TE**

OVERALL  
DIMENSIONS

ELECTRIC PUMPS 1TE 100/15, 1TE 100/20, MT-100/8, TE 160/10



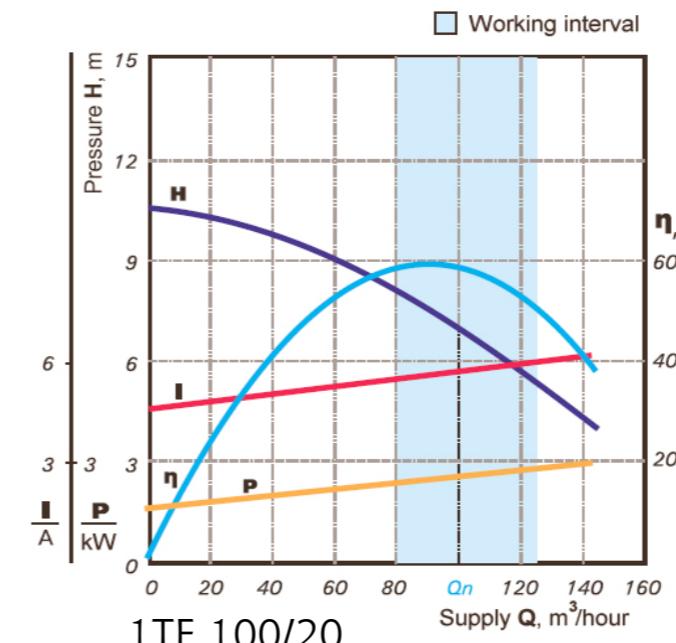
MARKING	Dy, mm	Dy <sub>1</sub> , mm	D, mm	D <sub>1</sub> , mm	D <sub>2</sub> , mm	D <sub>3</sub> , mm	D <sub>4</sub> , mm	D <sub>5</sub> , mm	L, mm	L <sub>1</sub> , mm	B, mm	B <sub>1</sub> , mm	H <sub>1</sub> , mm	d, mm	I, mm	
TE 160/10	150	150	278	240	210	280	240	210	669	448	430	154	260	483	22	220
1TE 100/20	125	130	245	210	188	245	210	188	685	455	411	132	250	488	18	222
1TE 100/15	125	130	245	210	188	245	210	188	685	455	411	132	250	488	18	222
MT 100/8	125	130	245	210	188	245	210	188	480	-	360	118	260	410	18	175
MT 100/15	125	130	245	210	188	245	210	188	520	-	350	132	250	418	18	170
MT 63/20	100	100	215	180	158	215	180	158	580	-	350	132	220	388	18	170

TRANSFORMING  
ELECTRIC PUMPS  
**MT, MTT, TT, TE**

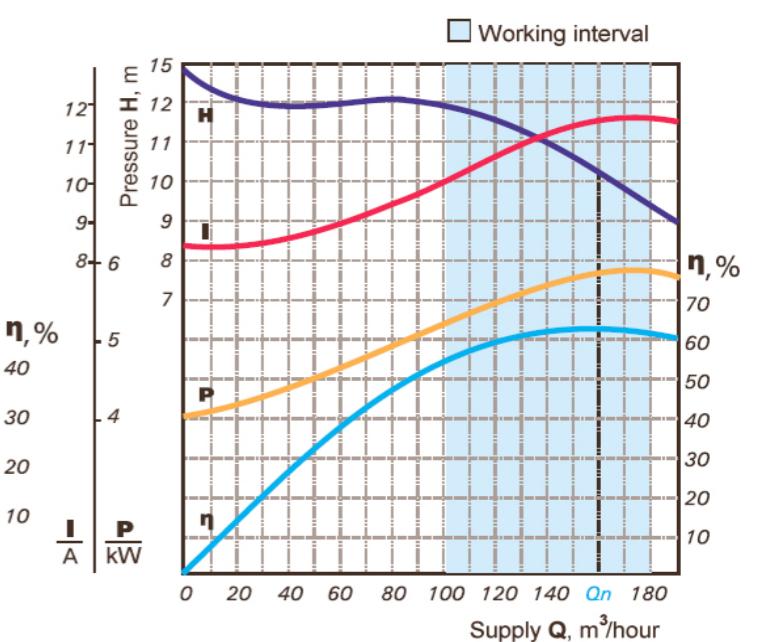
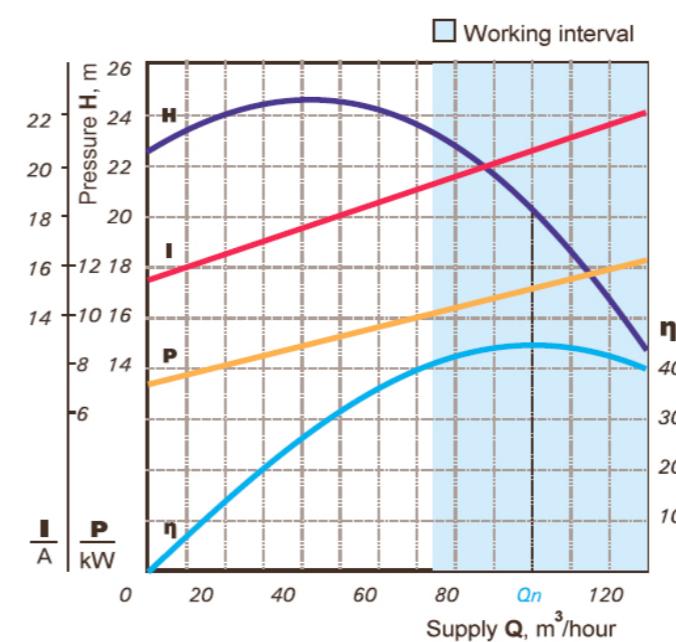
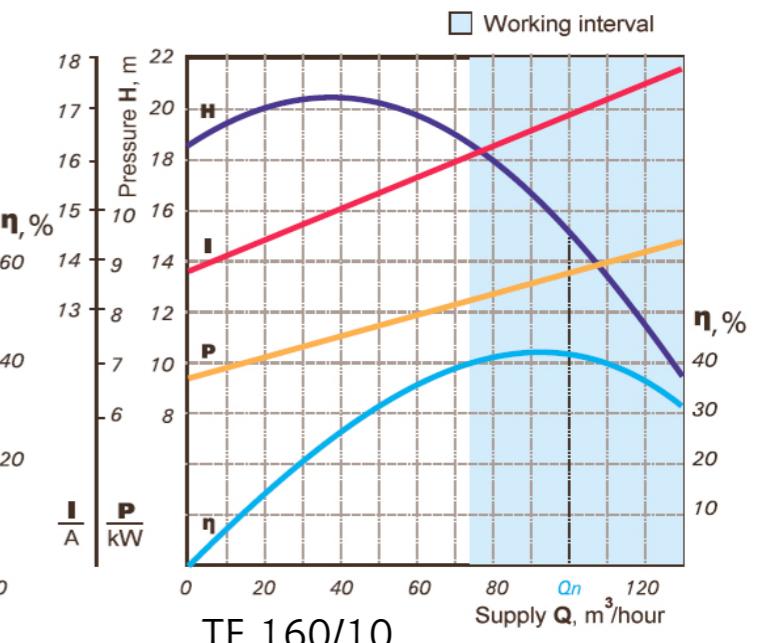
OPERATING  
CHARACTERISTICS

at the oil temperature +80°C, U=380V

MT-100/8



1TE 100/15



CENTRIFUGAL SUBMERSIBLE  
ELECTRIC PUMPS  
FOR POLLUTED WATER

# GNOM AND GNOM - EX

The electric pumps of the GNOM type are designated for pumping polluted waters including drain waters, subterranean waters from the depressions, borrows, accumulations in the places of projects under construction or industrial, construction and agricultural objects, etc., excepting waste (faecal) waters and manufacturing waters.

The electric pumps of GNOM-EX type manufactured with implosion protection permit existence of the crude oil mixture in the pumped water in the range of 10% related to mass.

Distinctive features of the structure: monoblock portable electric pumps.

Hermetic encapsulation of the built-in motor is assured by the end tightening.

#### Characteristics of the pumped water:

- Density – till 1100 kg/m<sup>3</sup>;
- Temperature – from 5 °C up to 35°C;
- Hydrogen ion exponent pH – from 5 to 10;
- Availability of mechanic rigid bodies – is allowed with the maximum volume concentration of 10%, density up to 2500 kg/m<sup>3</sup>, and size not more than 5 mm.

Used Materials – iron, carbon steels, aluminium alloy, stainless steels, and rubber.

Electric pumps are produced for the potential tension: 220 V, 380 V, 415 V (this is discussed when the order is made), energy frequency 50 Hz.

More detailed information is provided in the in-line documentation attached to the electric pump.

#### Example of the symbolic notation for the electric pump:

a) Centrifugal submersible electric pump for polluted waters 2GNOM 16-16 U. 380V PT MD 23-05833093-022:2002,

where:

2 – Serial number of the modernization;

**GNOM** – Type of electric pump (for polluted waters single-stage monoblock);

**16** – Rated delivery in cubic meters per hour (m<sup>3</sup>/hour);

**16** – Head pressure in meters (m);

**Y** – Type of climatic performance considering GOST 15150 – 69;

**380V** – electrical tension.

**PT MD 23-05833093-022:2002** – number of technical conditions;



b) Centrifugal submersible electric pump with implosion protection for polluted waters 2GNOM 16-16 Ex U. 380V PT MD 23-05833093-023:2002,

where:

**Ex** – explosion protected (explosion protection marking 1ExdIIBT4 X);

**PT MD 23-05833093-023:2002** – number of technical conditions;

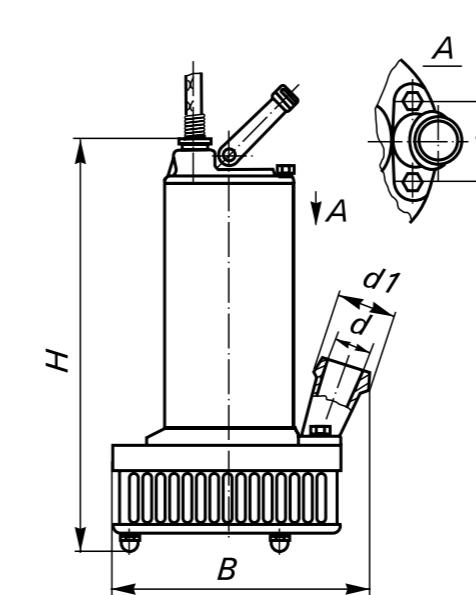
The rest – see above.

## ELECTRIC PUMPS GNOM AND GNOM - Ex

TECHNICAL CHARACTERISTICS.  
OVERALL DIMENSIONS.

MARKING OF THE PUMP	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kw	BUTTRESS, m	SIZE, mm	MASS, kg
2GNOM 16-16	16	16	1,5	0,4	240×270×460	27
GNOM 25-12,5	25	12,5	2,2	0,4	240×270×460	30
1GNOM 100-25	100	25	11	0,6	375×420×640	130
2GNOM 16-16Ex	16	16	1,5	0,4	240×270×460	35
GNOM 25-12,5 Ex	25	12,5	2,2	0,4	240×270×460	40
1GNOM 100-25 Ex	100	25	11	0,6	375×420×640	140

ELECTRIC PUMPS 2GNOM 16-16, GNOM 25-12,5, 2GNOM 16-16Ex, 1GNOM 25-12,5Ex, 1GNOM 100-25, 1GNOM 100-25Ex.



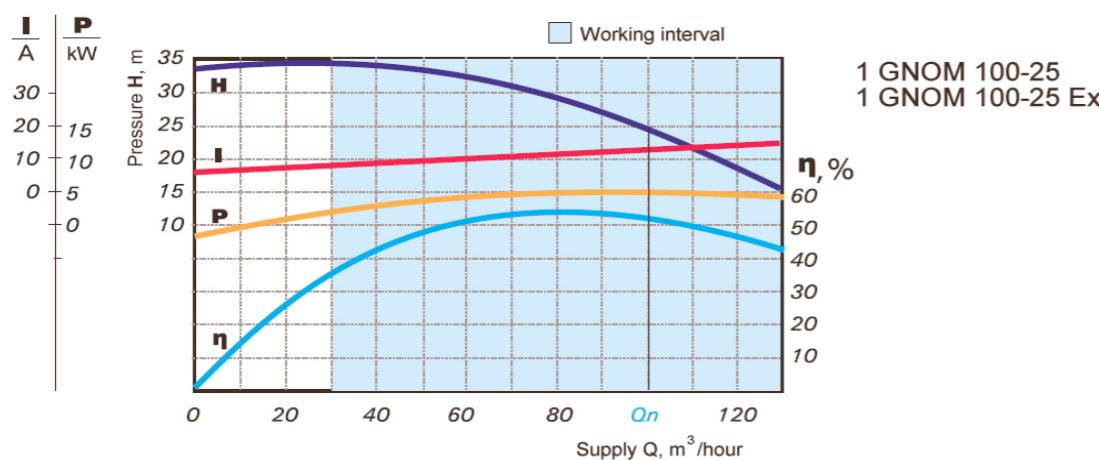
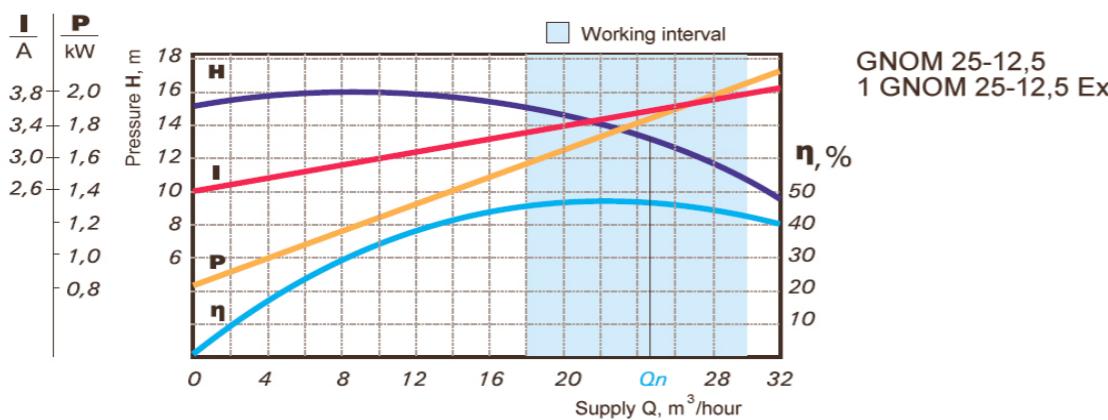
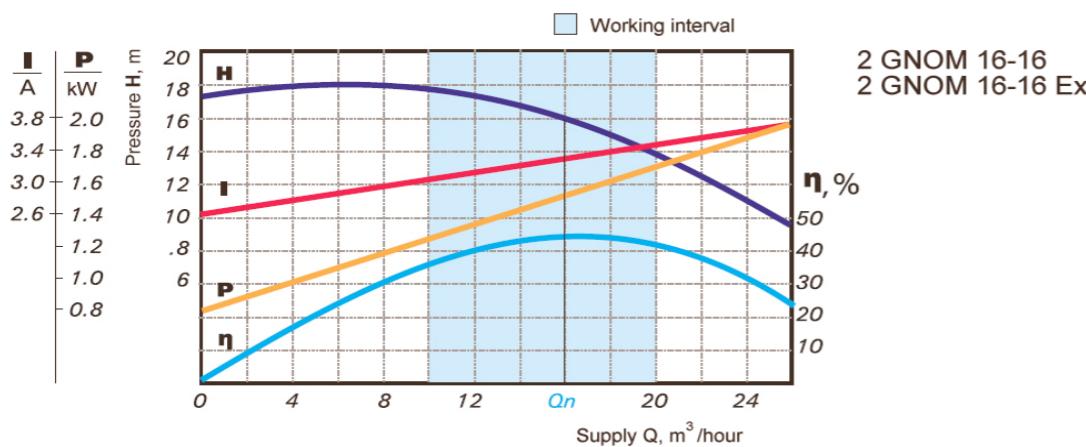
MARKING	d, mm	d1, mm	l, mm	H, mm	B, mm	EXPLOSION PROTECTION MARKING
2GNOM 16-16	42	58	80	410	270	-
GNOM 25-12,5	50	68	100	410	270	-
1GNOM 100-25	85	102	120	620	420	-
2GNOM 16-16Ex	42	58	80	460	270	1ExdsIIBT4 X
1GNOM 25-12,5Ex	50	68	100	460	270	1ExdsIIBT4 X
1GNOM 100-25Ex	85	102	120	640	420	1ExdsIIBT4 X

## ELECTRIC PUMPS GNOM AND GNOM - Ex

## OPERATING CHARACTERISTICS

## CENTRIFUGAL SUBMERSIBLE SEWAGE ELECTRIC PUMPS

Characteristics of electric pumps on water ( $t=20^{\circ}\text{C}$ ,  $U=380\text{V}$ ,  $f=50\text{Hz}$ )



Electric pumps of the type **CMK**, **CN** are designated for pumping out waste (faecal) waters and manufacturing waters. In a steady state it is settled in a special well (pump stations), which are connected with the small sewage systems. The pumps are also used as portable units in emergency conditions for pumping out waste waters from ordinary sewage wells and storages.

Distinctive features of the structure:

**CMK**: monoblock, submersible, with a built-in hermetic asynchronous motor, with short-circuited rotor and with the spiral retracting direction of the pumping part. The motor encapsulation is provided with an end seal.

**CN**: stationary assembly for vertical performance which consists of a submersible pumping part and non-submersible electromotor, which transmits its rotational moment to the pumping part roller through a finger-bushing elastic clutch.

### Characteristics of the pumped product:

- Density –  $1000 \text{ kg/m}^3$ ;
- Temperature – up to  $45^{\circ}\text{C}$ ;
- Hydrogen ion exponent pH – from 6 to 8;
- Availability of mechanic rigid bodies – is allowed with the maximum volume concentration of 1%, density up to  $3000 \text{ kg/m}^3$ , and size not more than 5 mm.

Used Materials – iron, carbon steels, stainless steels, rubber.

Electric pumps are produced for the potential tension: 220 V, 380 V, 415 V (this is discussed when the order is made), energy frequency 50 Hz.

More detailed information is provided in the in-line documentation attached to the electric pump.

### Example of the symbolic notation for the electric pump CMK:

Centrifugal, submersible and sewage electric pump **CMK 16-27 M-U\* 380 V**, where:

**CMK** – type of electric pump (centrifugal, monoblock, sewage);

**16** – rated delivery in cubic meters per hour ( $\text{m}^3/\text{hour}$ );

**27** – head pressure during a rated delivery in meters (m);

**M** – modernized;

**U\*** – type of climatic performance considering GOST 15150-69;

**380 V** – electrical tension.



### Example of the symbolic notation for the electric pump CN:

**Electric pump CN 212 TU 26-06-1102-77**

where:

**CN** – type of electric pump (centrifugal);

**212** – conventional index;

**TU 26-06-1102-77** – number of technical conditions.

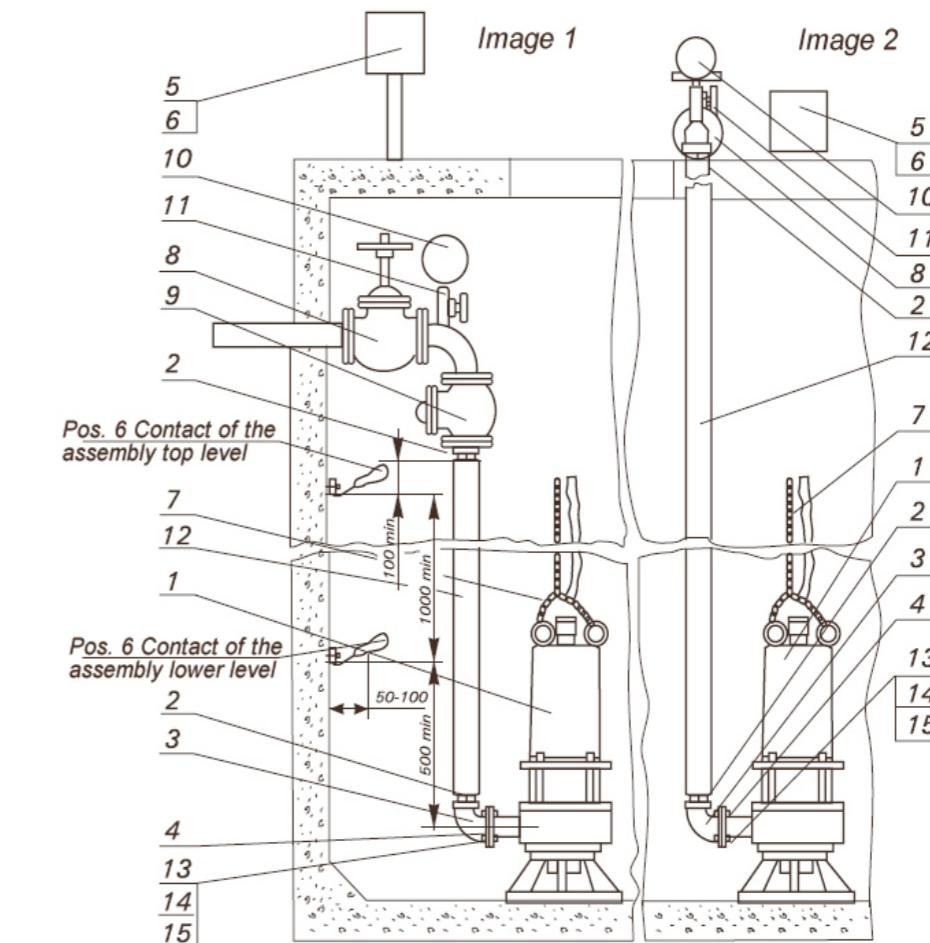
## ELECTRIC PUMPS CMK, CN

## TECHNICAL CHARACTERISTICS

MARKING OF THE PUMP	NOMINAL SUPPLY, m <sup>3</sup> /hour	PRESSURE AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	ALLOWED SPARE OF CAVITY, m	PRESSURE IN THE PROFILE, kg/cm <sup>2</sup>	DENSITY OF LIQUID, t/m <sup>3</sup>	TEMPERATURE OF THE PUMPED LIQUID, °C	SIZE, mm	MASS, kg
CMK 6,3-12,5	6,3	12,5	1,1	-	-	1,05	+45	240×270×460	50
CMK 16-27M	16	27	3,0	-	-	1,05	+45	725×475×300	96
CMK 16-32	16	32	4,0	-	-	1,05	+45	720×475×300	85
CN - 212	15	15	4	0,5	2	1,05	+40	1760×660×660	360
CN - 216	20	50	16	0,5	5	1,05	+40	1920×660×660	440
CN - 261	20	190	55	7,0	29	1,05	+30	1650×700×700	830

## ELECTRIC PUMPS CMK

## SPACE DIAGRAM OF ASSEMBLING



Position	Marking	Name	Quantity
1	3KE.906.819	Electric pump	1
2	5VS.145.000	Stirrup bolt	2
3	8KE.458.831	Bend	1
4	8KE.371.204	Space filler	1
5		Solenoid starter	1
6		Element KL. 100.100	1
7		Chain	1
8		Damper Dy 50-80 mm	1
9		Check valve Dy 50-80 mm	1
10		Manometer	1
11		Three-way cock	1
12		Fire hose D56	1
13		Screw M12x50	4
14		Nut M12	4
15		Hollow disk 12	4

Pos. 7,8,9,10,11,12 are not delivered by the factory.

Are designated for pumping out marine and sweet waters from flooded marine modules and coastal installations.

Distinctive features of the structure: Monoblock portable pumps. Designated for vertical, horizontal and inclined performance.

Temperature of the pumped water – up to 30°C;  
Used Materials – bronze Br 05C5S5 considering GOST 613–79, stainless steel 12X18H10T considering GOST 5632–72, 12X18H9TL considering GOST 977-88, rubber rings considering GOST 18829-73.

Electric pumps are produced for the potential tension: 380 V and energy frequency 50 Hz.

The depth submersion of the electric pump is up to – 10 m.

More detailed information is provided in the in-line documentation attached to the electric pump.

**Example of the symbolic notation for the electric pump.**

**Centrifugal, submersible dewatering and marine electric pump PVS 25-20-OM5 3KE.991.824 TU,** where:

**PVS** – type of electric pump (submersible dewatering marine);

**25** – rated delivery in cubic meters per hour ( $m^3/hour$ );

**20** – head pressure during a rated delivery in meters (m);

**OM5** – type of climatic performance and category considering GOST 15150–69;

**3KE.991.824 TU** – number of technical conditions.

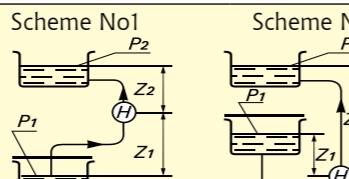
## TECHNICAL CHARACTERISTICS

MARKING OF THE PUMP	NOMINAL SUPPLY, $m^3/hour$	PRESSURE AT NOMINAL SUPPLY, m	NOMINAL POWER OF THE INSERTED ELECTRIC MOTOR, kW	ALLOWABLE VACUUM-METRIC SUCTION HEAD, m	SIZE, mm	MASS, kg
PVS 12,5-20	12,5	20	1,5	-	-	-
PVS 25-20	25	20	3,0	7	Ø 300×550	60
PVS 40-18	40	18	5,5	-	-	-
PVS 63-18	63	18	5,5	-	Ø 260×700	100
PVS 100-20	100	20	11,0	5	Ø 450×750	150

NAME OF THE ENVIRONMENT	TYPICAL REPRESENTATIVES
Water	main, hot, distilled, deionized, desalinated, marine...
Waters with chemical impurity	With oils, greases, ammonia water of the galvanic departments, with hydrogen sulfide, with cyanine connections, phenol compound...
Liquefied gases	Freon, ethane, propane, butane, liquefied propylene, liquid ammonia, liquid dioxide carbon...
Mineral acids	Nitric (up to 70%), boric, chromic (up to 10%)...
Organic acids	Ethanoic, formic, propionic, fatty, tartaric, citric, acrylic...
Alkali, bases	Ammonia, caustic potassium (up to 20%), degreasing solutions, hydroxide of calcium...
Salts of the mineral acids	Sodium chloride, Sodium sulfate, ammonium sulfate, natrium sulfate, natrium nitrate...
Oxides, peroxides	hydrogen peroxide (up to 20%), ethylene oxide, propylene oxide, arsenious anhydride...
Mineral oils	Industrial oils, circuit-breaker oil, compressor oil, drying oil, gasoline, kerosine oil, dissolvent, antifreeze, diesel oil, white spirit...
Ethers, aldehydes	Ethyl acetate, acetoacetic ether, diethyl ether, acetic, dimethyl formaldehyde...
Amines	Dimethylamine, trimethylamine, ethylenediamine, hydroxylamine, triethanolamine...
Alcohols	Ethanol, methanol, propyl alcohol, butyl alcohol, isoamyl alcohol, isopropyl alcohol, glycerin...
Halogenated hydrocarbons	Dycloethane, chlorous carbon 4th, vinyl chloride...
Aromatic and turpentine hydrocarbons	Benzol, turpentine, xylene, toluene, monoethyl benzol, polyalkyle benzol, pyridine, phenol, cresol, isoprene...
Microbiological products	Biological preparations, biosuspensions, organic-mineral water solution, bioamines...
	High-temperature heat-carrying agent, diphenyl mixture, aromatic oils...
Other environments	high-molecular compound, stains...

## ENCLOSURE 2

**QUESTIONNAIRE  
FOR CO-ORDINATION OF USAGE  
AND SELECTION SEALED  
ELECTRIC PUMPS CG, NG, AG, BEN**

Enterprise and manufacture where the pump is installed	No. of the position from the diagram	Delivery period
Potential customer organization (address, phone, fax)		
Required supply, m <sup>3</sup> /hour	Range of supply, m <sup>3</sup> /hour	
Required head pressure, m (kgs/cm <sup>2</sup> ) (kg/force/cm <sup>2</sup> )	Allowable cavitations reserve for installation, m	
The pumped liquid and its composition in percents	Density kg/m <sup>3</sup>	
	Temperature of operation T, °C	
	Viscosity during T,	
Steam tension considering T, mm..	Thermal capacity, J/kg K	
Boiling-point during a pressure in the reservoir and the process of imbibitions, °C	Possibility of crystallization	
	Crystallization temperature, °C	
Quantity of weighing particles, g/l	Size of the particles, mm	
	Type of climatic performance and category considering GOST 15150-69	
Group and category of the explosive mixture considering GOST 12.1.011-78	Grade of the explosive zone	
	System voltage, V	
Performance of the flow-through considering the material	Corrosion rate, mm/year	
A – carbon steel:		
E – steel 10X17H13M2T GOST 5632-72, 12X18H12M3TL GOST 977-88;		
K – steel 12X18H10T GOST 5632-72, 12X18H9TL GOST 977-88;		
K1 – 12X21H5T GOST 5632-72, 10X21H5TL GOST 977-88;		
Indicate: - No. of the diagram or your variant of the diagram  - Additional data, which are not provided by the questionnaire, if needed.		
Basic data regarding pump installation		
Suction line:	Pressure line:	
Pressure over water plane in the reservoir, P <sub>1</sub> , (kg/force/cm <sup>2</sup> )	Pressure over water plane in the reservoir, P <sub>2</sub> , (kg/force/cm <sup>2</sup> )	
Level of the liquid in the reservoir from the axis of the outlet, Z <sub>1</sub> , m	Level of the liquid in the reservoir from the axis of the outlet, Z <sub>2</sub> , m	
NOTE: Allowable cavitations reserve for installation has to correspond to the below requirement: $\Delta h$ of the installation $\geq \Delta h$ electric pump allowance		
Customer Responsible Executor: (First name, Last name, phone, fax)	Recommendations of the manufacturing	
JSC " Moldovahidromas", 7 Mesterul Manole str., Chisinau, Republic of Moldova, MD-2023 Phone/fax: (+3732) 32 17 03, 45 07 05, 49 87 48 Fax: (+37322) 47 15 77 e-mail: info@pintam.ru • www.pintam.ru		

## ENCLOSURE 3

## MARKING OF THE ELECTRIC PUMPS AND THEIR ANALOGS IN DEPENDENCE ON THE DELIVERY YEAR

before 1975	Q/H	before 1987	Q/H	from 1987 on present time
<b>CNG - 70M1</b>	10/21	1,5 HG-6-2,8-2	8/18	CG 6,3/20-1,1-2 (3,5)
<b>CNG - 70M2</b>	10/40	1,5 HG-6x2-2,8-2	8/35	CG 6,3/32-2,2-2 (3,5)
<b>CNG - 70M3</b>	10/55	1,5 HG-6x3-2,8-2	8/53	CG 12,5/50-4-2
-	-	1,5 HG-3K-2,8-3	8/53	CG 12,5/50-4-3 (6)
-	-	1,5 HG-3-2,8-4 (5)	8/53	CG 12,5/50-4-4 (5)
<b>CNG - 68</b>	20/50	2HG-5-4,5-1 (2)	20/44	CG 25/50-7,5-4 (5), 2CG 25/50-5,5-4 (5), 1CG 25/50-7,5-4 (5)
<b>CNG - 63</b>	40/50	2HG-4-10-4 (5)	20/60	CG 25/80a-15-4 (5), 2CG 25/80a-11-4 (5)
<b>CNG - 69</b>	50/50	3HG-6-14-2	45/54	CG 50/50-15-1, 3CG 50/50-15-1, 4CG 50/50-11-1 (5)
<b>CNG - 69/3</b>	50/50	3HG-6-14-3	45/54	CG 50/50-15-6, 3CG 50/50-15-3 (6), 4CG 50/50-11-3 (6)
<b>CNG - 71</b>	90/30	4HG-12-12-2	90/33	CG 100/32-15-2 (4,5), 1CG 100/32-11-1
<b>CNG - 71/3</b>	90/30	4HG-12-12-3	90/33	CG 100/32-15-3 (6), 1CG 100/32-11-3 (6)
		2HG-3K-14-4 (5)	20/88	CG 25/80-15-4 (5,5S), 2CG 25/80-11-4 (5,5S,6)
<b>3HGV-7x2-20-4</b>	45/90	CG 50/80-30-4 (5)	50/80	4CG 50/80-22-4 (5,6)
<b>4HGV-6-40-5</b>	90/85	CG 100/80-45-5	100/80	2CG 100/80-37-5 (6)
<b>6HGV-17-55-6</b>		CG 200/80-75-6	200/80	2CG 200/80-75-6 (5)
<b>4HGV-7x2-40-4</b>	90/143	CG 100/125-75-5	100/125	3CG 100/125-75-5, 5CG 100/125-75-5 (6)
-	-	2HG-9K-2,8-3	25/18	CG 25/20-3-3 (6)
-	-	БЭН-34	45/12	CG 50/12,5-5,5-Б1
-	-	БЭН-33	20/12	CG 25/12,5-5,5-3Б-1

## ENCLOSURE 4

## INDEX OF THE BEARING PAIRS, TRUST ABUTMENTS OF THE PREVIOUS PRODUCED ELECTRIC PUMPS

MARKING OF THE PUMP	SG – T		KV
	BUSHING	BEARING	ABUTMENT
CNG-70M1(2,3); 1,5 HG-6x2,8-2; 1,5 HG-6x2K2,8-2; 1,5 HG-6x3-2,8-2; CNG-68; 2HG-5-4,5-1(2); 1,5 HG-3-2,8-3 (4,5)	<b>8VS 210. 143</b>	<b>8VS 263. 013</b>	<b>8VS 266. 009-02</b>
CNG-63; CNG-69; CNG-69/3; CNG-71; CNG-71/3; 3HG-6-14-2(3); 4HG-12-14-2(3); 2HG-3-14-4(5); 2HG-4-10-4(5); CG-25/50-7,5-4(5); CG-50/50-15-1(4,5,6); BEN-33; BEN-34	<b>8VS 210. 144</b>	<b>8VS 263. 006</b>	<b>8VS 266. 010-01</b>

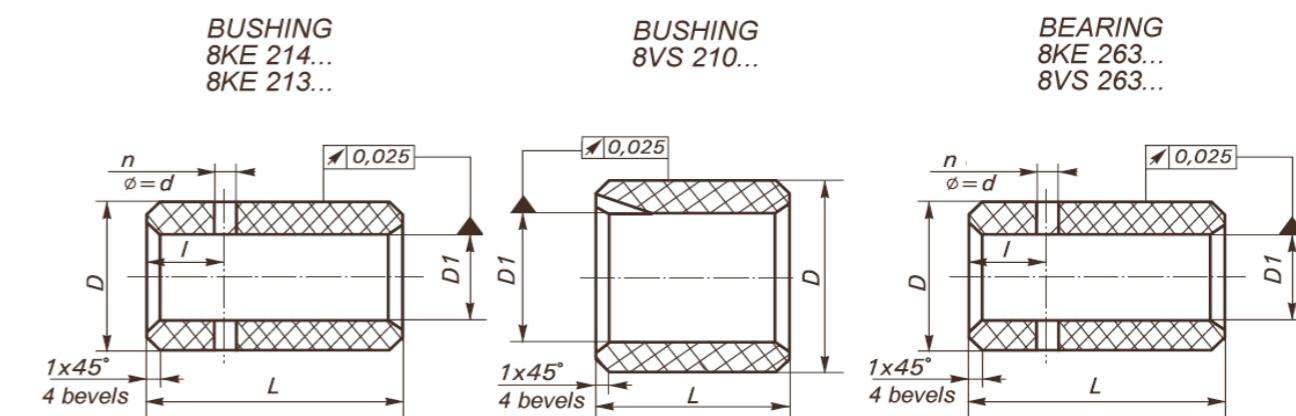
## ENCLOSURE 5

INDEX OF THE RESERVE PARTS, TOOLS AND ACCESSORIES, WHICH ARE DELIVERED WITH ELECTRIC PUMPS OF CG TYPE

No.	ELECTRIC PUMP	COMPLETENESS			
		NAME	Quantity	NAME	Quantity
1	CG 6,3/20				
2	CG 6,3/32-2,2-2 (3, 5)				
3	1CG 12,5/50-4-3 (6)				
4	CG 25/20-3-3 (6)				
5	1CG 12,5/50-4-2 (2S, 5)	Bushing 8KE 213. 325 Bearing 8KE 263. 271 Remover 5KE 487. 031 Key 8KE 484. 801-01	2 2 1	Abutment 8KE 266. 235  Abutment 8KE 266. 235 Abutment 8KE 266. 280  Abutment 8KE 266. 822 Abutment 8KE 266. 839	2 1 1
6	CG 25/50-3-2, (5)				
7	1CG 25/50-7,5-1 (2,4,5,1S5S)				
8	2CG 25/80-11-4 (5,5S)				
9	CG 25/80-15-4 (5,5S)				
10	1CG 100/32-11-1 (2,3,4,5,6,6S)				
11	CG 25/80-15-4 (5,5S)				
12	1CG 100/32-11-1 (2,3,4,5,6,6S)				
13	3CG 50/50-15-1 (2,3,4,5,5S,6S)	Bushing 8KE 213. 329 Bearing 8KE 263. 150 Remover 5KE 487. 031 Key 8KE 484. 801-05	2 2 1 1	Abutment 8KE 266. 224 Abutment 8KE 266. 286	1 1
14	2CG 25/50-5,5-3 (6)				
15	1CG 25/50-7,5-3 (6)				
16	CG 25/12,5-3B-1				
17	CG 50/12,5-5,5B-1				
18	1CG 12,5/50-4-2 (2S,5)				
19	CG 50/12,5-5,5-B-1				
20	2CG 25/80-11-6				
21	2CG 25/80-11-6				
22	5CG 50/80-18,5M -4L				
23	4CG 50/80-22-4 (5)				
24	2CG 100/80-37-5				
25	3CG 200/50-37-5				
26	4CG 200/50-45-5	Bushing 8KE 213. 866 Bearing 8KE 263. 801 Remover ЗВШ 950. 003 Key 8KE 484. 801-01	2 2 1 1	Abutment 8KE 266. 818 Abutment 8KE 266. 819	1 1
27	3CG 100/50-30-1 (2,4,5,5S)				
28	1CG 50/125-41-5				
29	4CG 50/80-22-6				
30	2CG 100/80-37-6				
31	5CG 100/125-75-5				
32	4CG 100/125H-55M-4L				
33	5CG 100/125-75-6	Bushing 8KE 213. 511 Bearing 8KE 263. 009 Remover ЗВШ 950. 003 Key 8KE 484. 801-05	2 2 1 1	Abutment 8KE 266. 816 Abutment 8KE 266. 817	1 1
34	2CG 200/80-75-6				
35	2CG 200/80-75-5				

## ENCLOSURE 6

SIZES OF THE FAST WORN-OUT PARTS SG-T,  
WHICH ARE USED AS ACCESSORIES TO THE ELECTRIC PUMPS OF HGV, CNG, HR, CG, NG, AG AND BEN TYPES.



Designation	D, mm	D <sub>1</sub> , mm	L, mm	l, mm	n, mm	d, mm
8VS. 210. 144	54,86	40	112	-	-	-
8VS. 263. 006	68	55	100	48	6	7
8KE. 210. 817-04	55	40	50	-	-	-
8KE. 263. 150-01	68	55	45	19	4	7
8VS. 210. 143	44,86	32	101	-	-	-
8KE. 263. 013	58,5	45	88	43	4	7
8KE. 210. 817-03	45	32	40	-	-	-
8KE. 263. 150	58,5	45	36	16	4	7
8VS. 210. 097	64,86	50	105	-	-	-
8VS. 263. 009	80	65	93	47,5	4	7
8KE. 263. 271	45	36	55	27,5	4	4
8KE. 213. 325	35,9	24	65	20	2	4
8KE. 213. 329	44,85	32	40	10	2	8
8KE. 263. 801	68	55	70	35	4	7,2
8KE. 213. 866	54,85	40	80	20	2	8,2
8VS. 263. 009	80	65	93	47,5	1	7
8KE. 213. 511	64,85	50	105	20	2	8
8KE. 263. 803	90	75	90	45	4	7
8KE. 214. 831	74,85	55	100	20	2	8

## ENCLOSURE 7

ELECTRIC CENTRIFUGAL HERMETICAL  
PUMP OF THE TYPE **CG**  
OF THE 3RD CONSTRUCTIVE  
PERFORMANCE. SECTION.

