

ME Company

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SEALED CENTRIFUGAL

PUMP UNITS

WITH THE DRIVE THROUGH THE MAGNETIC COUPLER

PRODUCT CATALOG

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Pump units of LLC "Mechanics and Engineering Company" GDM, GDMP provide pumping of such products as stable gas condensate, oil and oil products, diethylene glycol, ammonia, the broad fraction of light hydrocarbons, water and water-methanol mixture, reactive liquids, petrol, diesel fuel, for what more than 100 pump models were developed, which technical parameters uniformly cover the specified range. The pump units are equipped with explosion-proof motors. Also, the design department is ready to develop pump units at customer request with the following main characteristics:



Parameter	GDM	GDMP
Supply, m ³ /h	10-300	6-600
Pressure, m	40-750	20-350
Motor power, kVt	5,5-630	5,5-200
Synchronous electric motor rotor speed, circle/min	1500/3000	1500/3000

Electric pump units of "GDM" and "GDMP" types refer to non-electrical equipment intended for use in potentially explosive zones of 1 and 2 (grades according to GOST 60079-10-1-2011) categories and (sub-groups according to GOST R IEC 60079-20 -1-2011) in accordance with GOST 31438.1-2011 and assigned Ex marking GOST 31441.1-2011.

Temperature class	The maximum permissible pumped fluid temperature, ° C
T1	400
T2	270
T3	185
T4	125
T5	85
T6	60

Pump units of GDM (GDMP) type are intended for pumping:

- neutral, corrosive, toxic liquids;
- explosive and flammable liquids;
- petroleum products, methanol and gas condensate.

Parameter of pumped fluid	Limitation
Content of mechanical impurities, %	to 6
Size of solid, particles, mm	to 4
Microhardness of the particles, MPa (kgf / cm ²)	to 65 (650)
Ferromagnetic inclusions	at no time
Temperature °	from -40 to 280
Density, kg / m ³	to 1800
Kinematic viscosity, m ² / s (cSt)	to 30x10 ⁻⁶ (30)
The pH index	to 8,5

Advantages of pump units GDM and GDMP

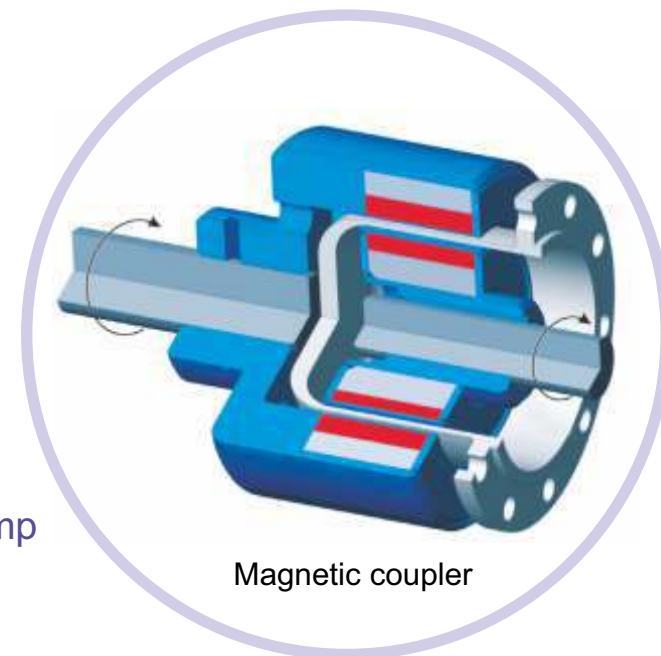
According to statistics, the leakage through the mechanical seals make up 80% of all failures connected with leaks in pumps. Exclusion of mechanical seals makes it impossible for this type of failure.

Advantages of sealed pumps with the drive through the magnetic coupler to pumps with mechanical seals:

- Mean time between failures is 3 times more than the pumps with mechanical shaft seal;
- In contrast to pumps with double mechanical seals do not require feeding by cooling lubricants systems and do not require constant monitoring and maintenance of them;
- Pumps with the drive through the magnetic coupler don't have any leakage;
- Closed sealed system, which prevents the formation of gas pollution;
- Pumps with the drive through the magnetic coupler don't require alignment of the connective coupler.

Advantages of sealed pumps with the drive through the magnetic coupler to pump with armoured motor:

- The possibility to use standard explosion-proof electric motors;
- More simple design, the possibility of repair by the customer.

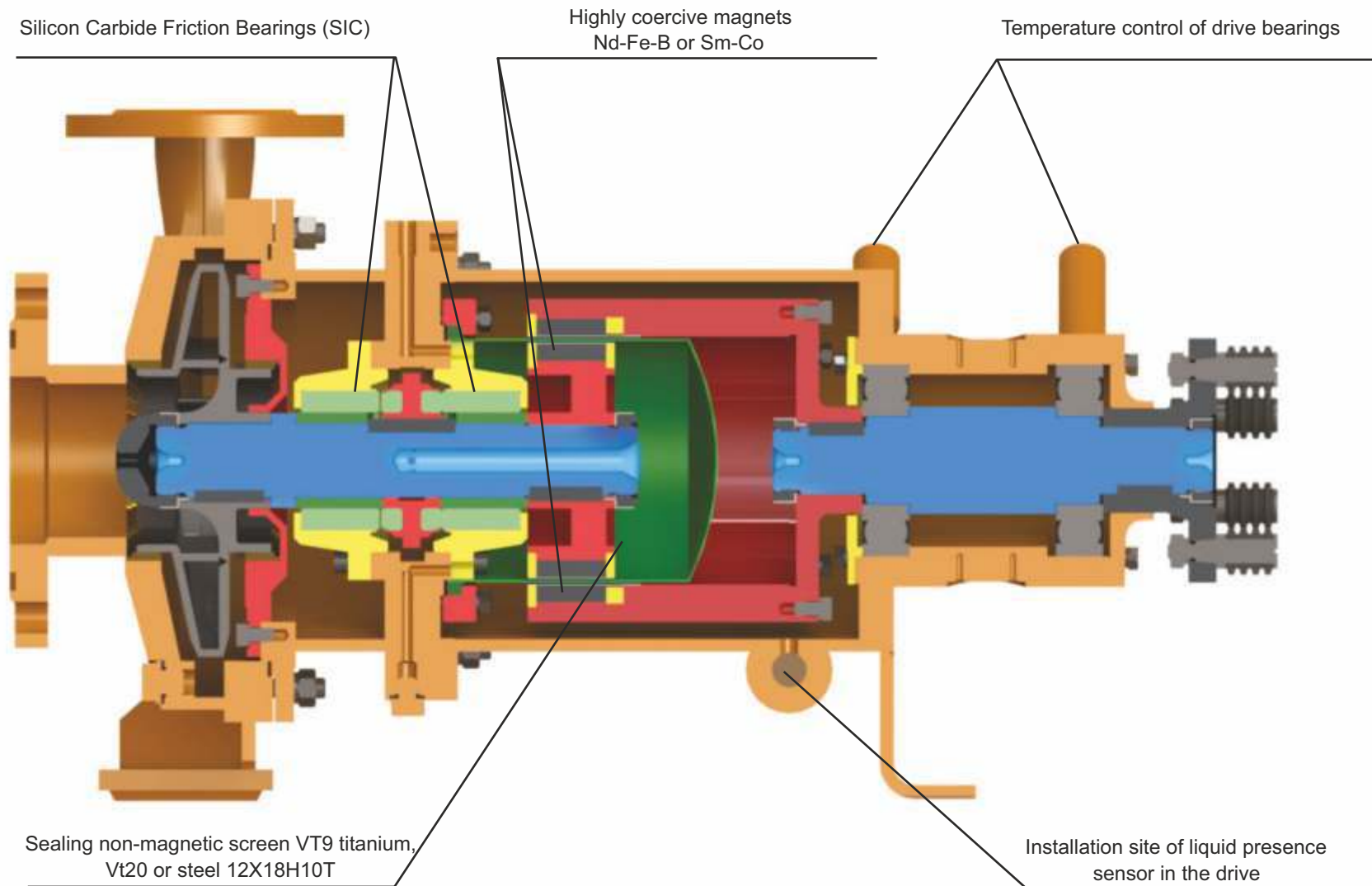


Magnetic coupler

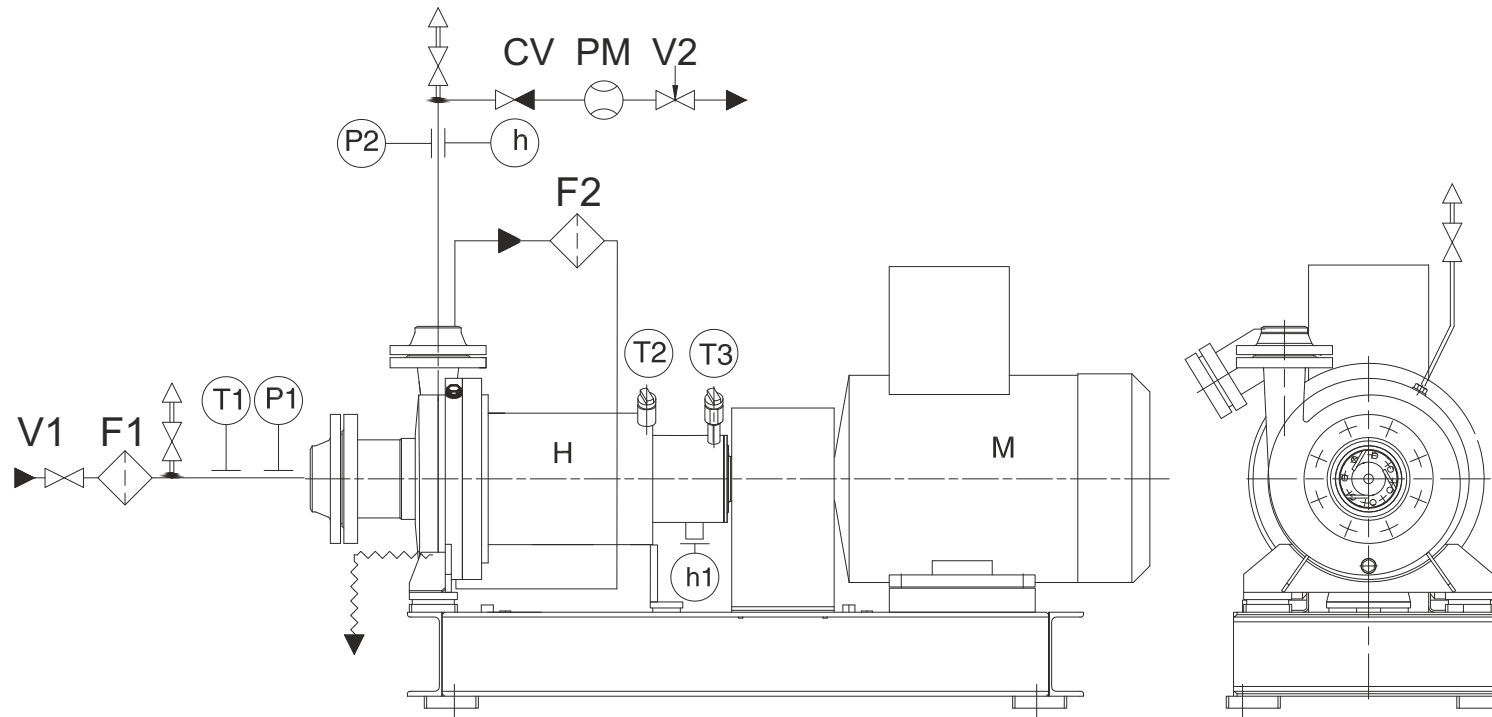
The advantages of working with LLC "Mechanics and Engineering Company":

- Efficiency in customer relations;
- High-quality raw materials and components;
- New machine tools;
- Term of producing of pump units 60-90 days;
- Complementing pump units with measuring instrument according to the wishes of the customer;
- Availability service, commissioning works, supervision of erection;
- In the production of pumping units qualified staff involved;
- It is possible to provide technical advice.

The structure of the pump unit with the drive through the magnetic coupler ME Company



Recommended pump piping arrangement of GDM type

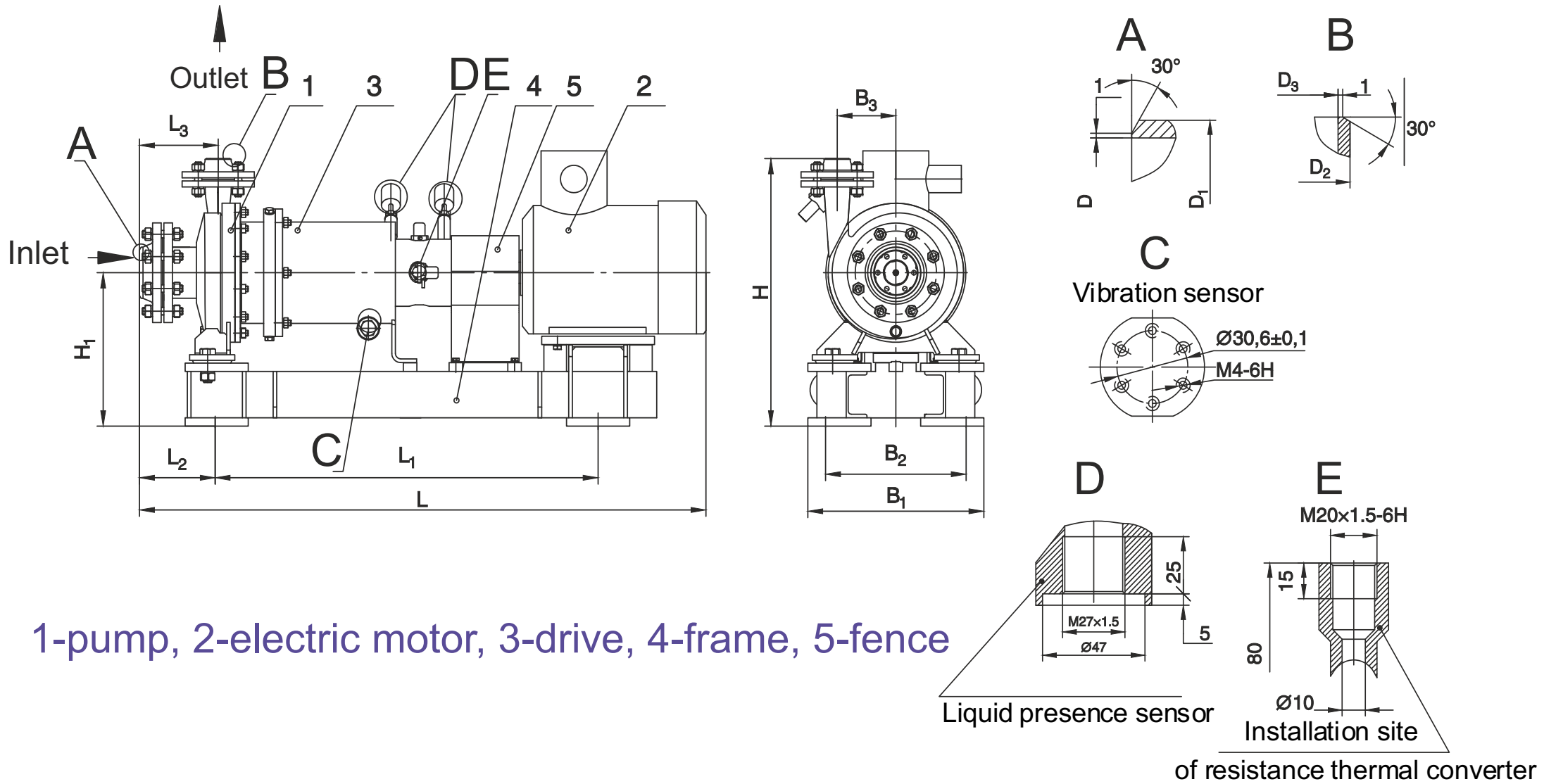


V1 - shut-off valve
 V2 - regulating valve
 CV - check valve
 M - electric motor
 P - the pump
 F1, F2 - filters
 HC – hydrocyclone

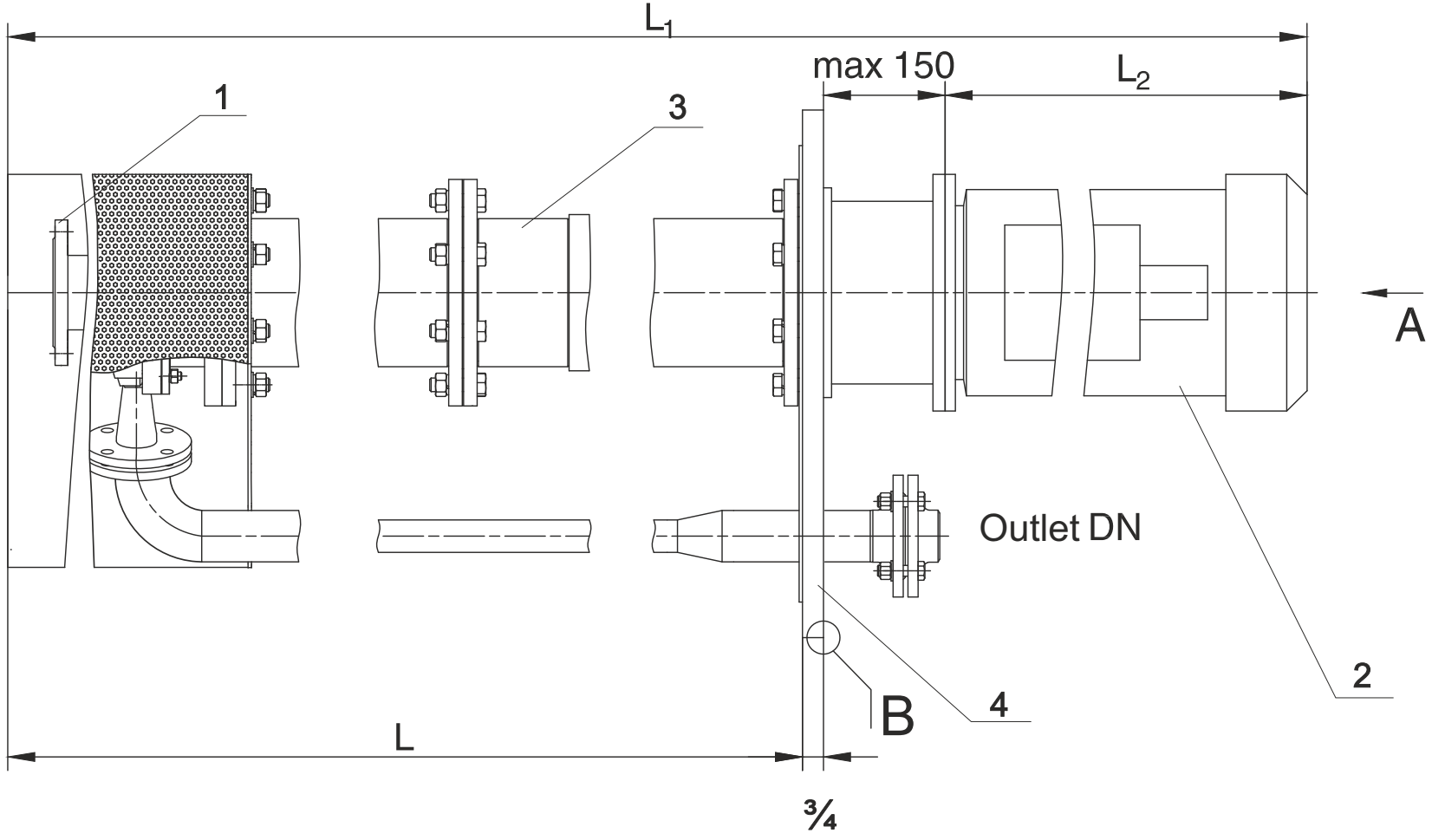
h – level controller
 h1 - liquid presence signalizer in the drive housing
 PM - flow measuring device
 P1 - Inlet Pressure
 P2 - outlet pressure
 T1 - the liquid inlet temperature
 T2, T3 - drive bearings temperature

— The main circuit
 = Purge
 ~ Sink

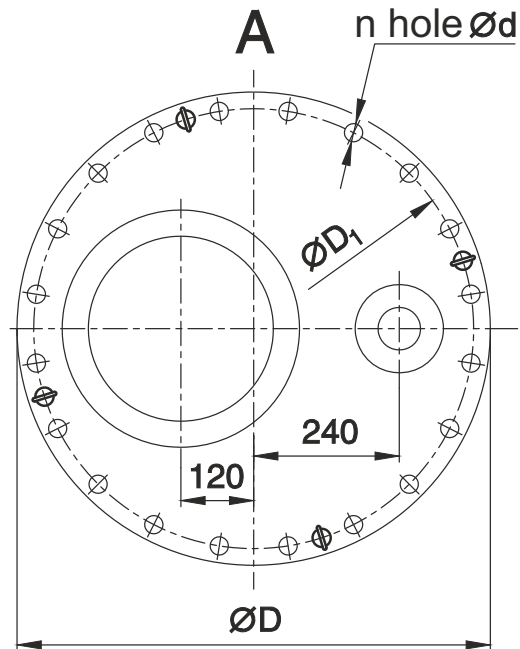
Overall drawing of the pump of GDM type



Overall drawing of the semi-submersible pump of GDMP type

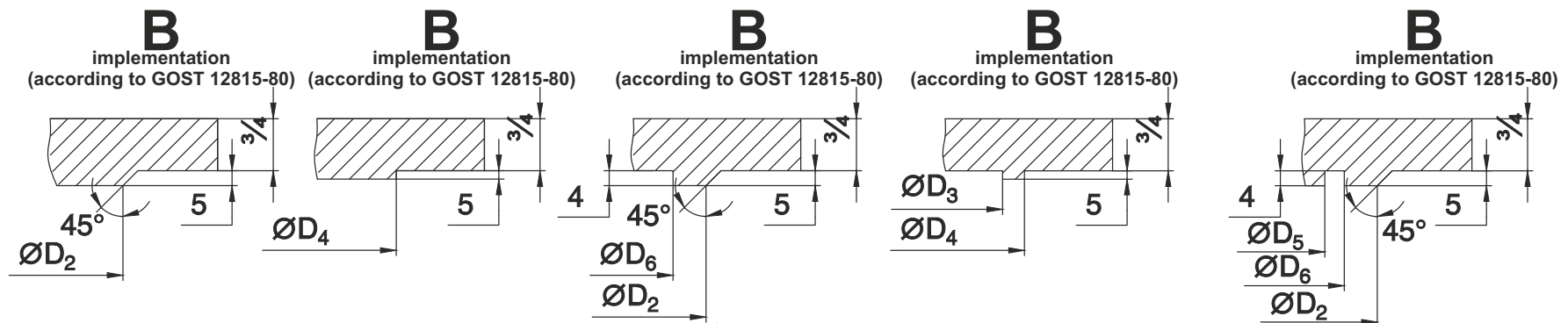


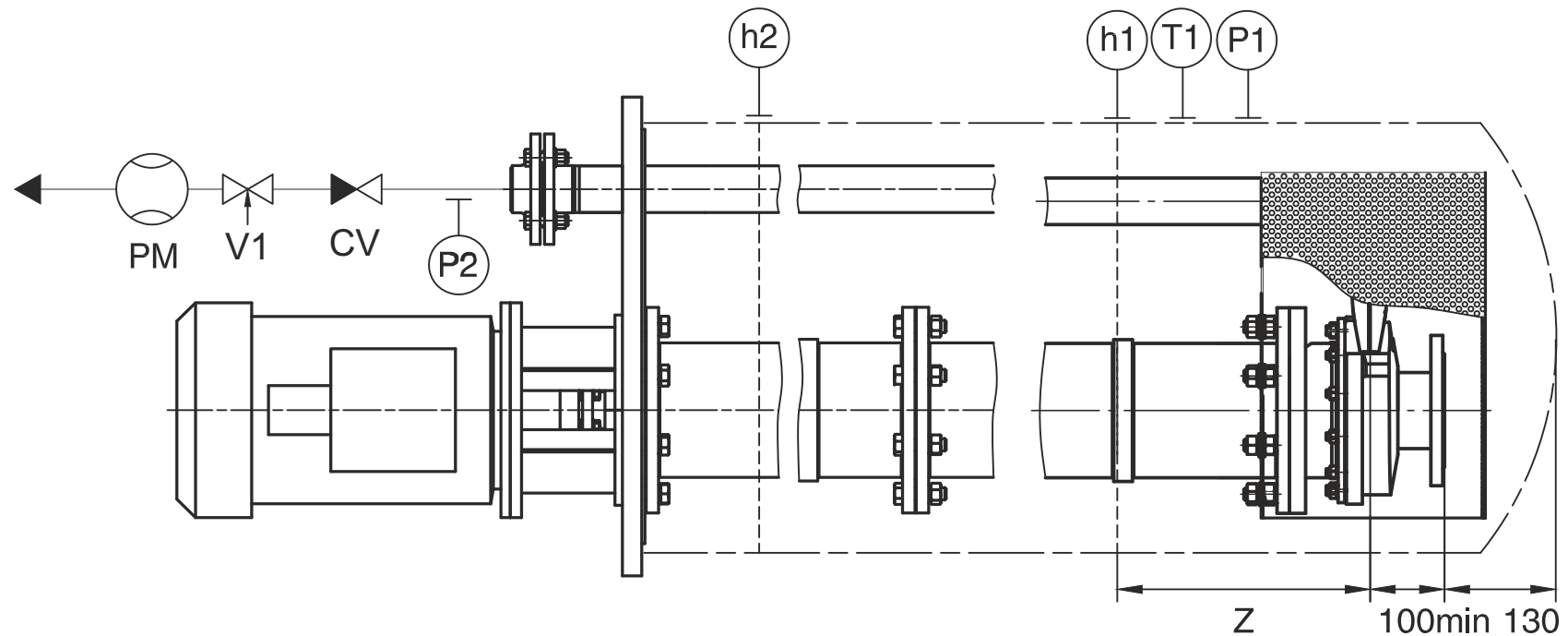
1-pump, 2-electric motor, 3-shaft line shafting, 4-bearing plate



Parameter	D	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	d	n	h
D _y 600 P _y 0,6	755	705	670	631	657	630	658	26	20	31
D _y 600 P _y 1	780	725	685	649	675	648	676	30	20	31
D _y 600 P _y 1,6	840	770	685	649	675	648	676	36	20	31
D _y 700 P _y 0,6	860	810	775	736	762	735	763	26	20	34
D _y 700 P _y 1	895	840	800	751	777	750	778	30	24	34
D _y 700 P _y 1,6	910	840	800	751	777	750	778	36	24	34
D _y 800 P _y 0,6	975	920	880	841	867	840	868	30	24	37
D _y 800 P _y 1	1010	950	905	856	882	855	883	33	24	37
D _y 800 P _y 1,6	1020	950	905	856	882	855	883	39	24	37

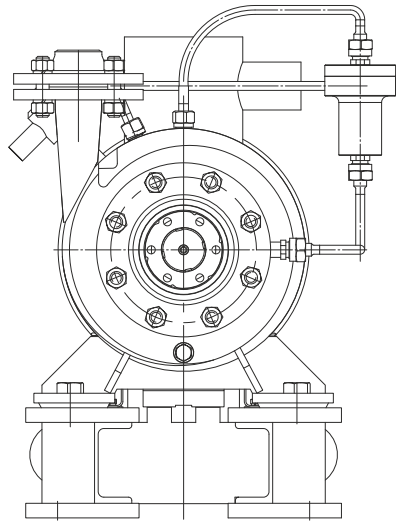
There are other versions of implementation of bearing plates in agreement with the customer





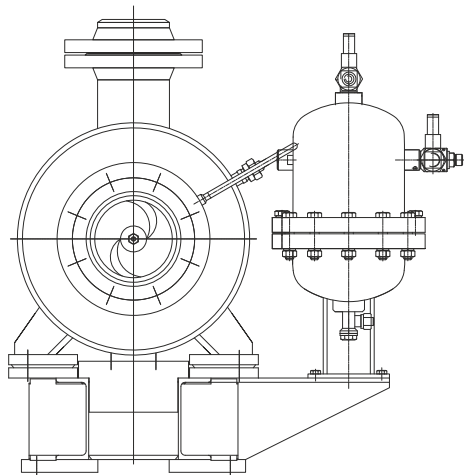
— Main circuit
 - - - Device's border
 PM - flow measuring device
 h1,h2 - level controller
 Z - minimum filling level at start

CV - check valve
 V1 - regulating valve
 P1 - the pressure in the container
 P2 - Outlet pressure
 T1 - temperature of the liquid in the container



Cyclone separator

Liquid withdrawn from the discharge nozzle, through conduit flows into the cyclone separator through the tangential inlet. Mechanical impurities by gravity and centrifugal force are separated in the rotating fluid flow. The purified liquid is discharged from the cyclone separator through an opening located in the lid. Mechanical impurities in the liquid stream enter the hole located at the bottom of the separator housing and through the conduit fall into the inlet of the pump unit.



Magnetic strainer

Through the inlet connection filterable fluid tangentially enters the cavity formed by the housing, glass and magnetic element. Next, the fluid passes along the magnetic element, the ferromagnetic particles by magnetic force are deposited on its surface. The fluid then passes through the mesh filter element, particles which size is greater than 100 microns remain on the surface. Next, the liquid drifts through the nozzle out of the filter. With clogging of the filter increases pressure difference before and after the mesh filter element. When the differential pressure reaches 0.15 MPa, the blowoff valve opens and through it fluid flows to the outlet union, bypassing the filter element. For differential pressure control in the inlet and outlet are provided unions for connection of pressure gauges.

Sealed pump units with the drive through the magnetic coupler



GDM



GDM (with a housing heating jacket)

Temperature conditions for using pumps of individual implementation when there are from - 73 to + 350 ° C, discharge head to 3000 m.

Sealed pump units with the drive through the magnetic coupler



Application area:

- Oil and gas industry
- Chemical industry
- Food and Refrigeration

Questionnaire

« ___ » _____ 20___ y.



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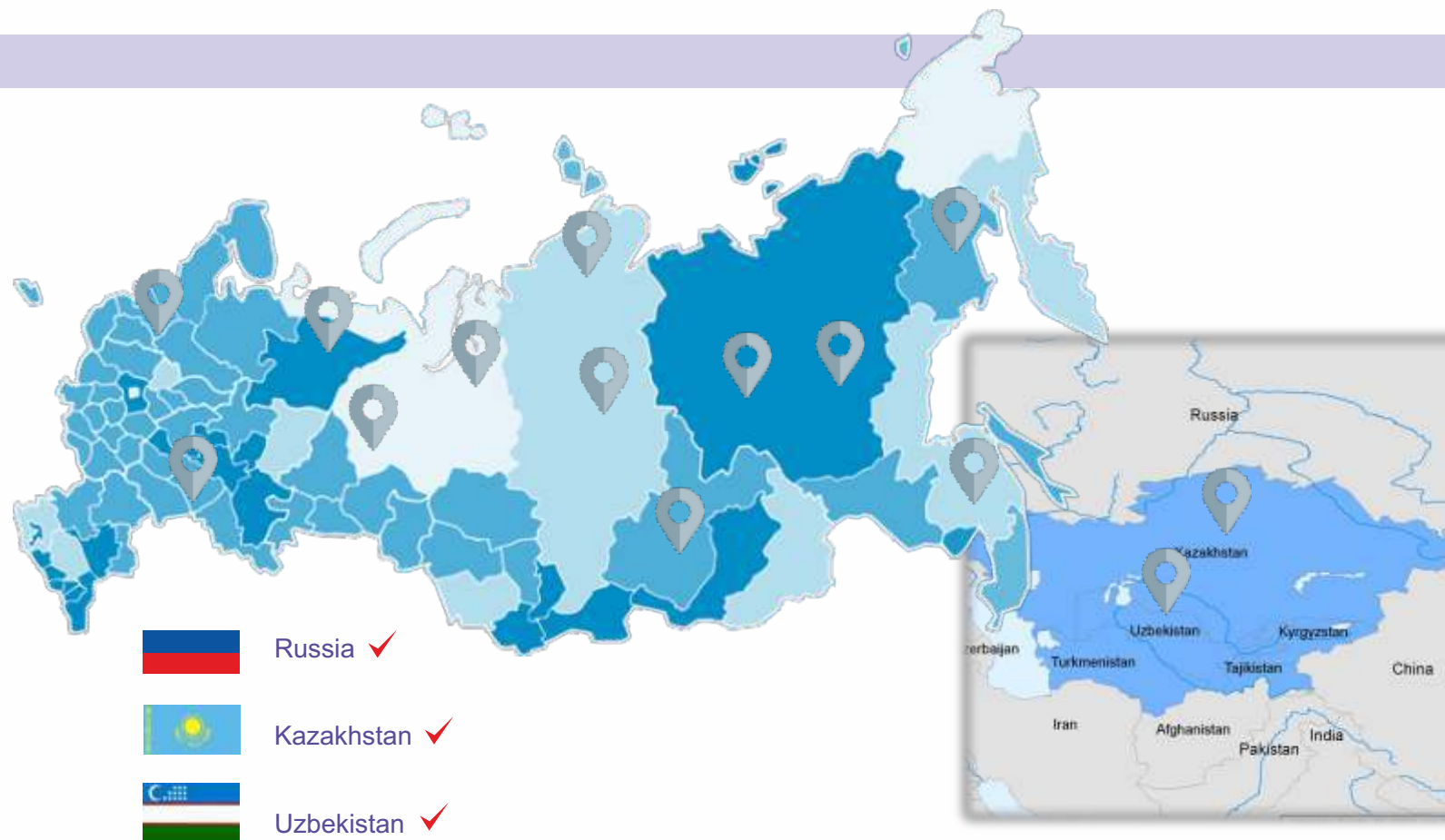
Main characteristics	Terms of usage and storage	Liquids
Pump type, known analog _____ _____ Feed m ³ / h _____ Hydraulic head, m _____ Inlet Pressure, MPa _____ The inlet temperature, °C _____ Positive suction head, m _____ Immersion depth (for GDMP), m _____ Admissibility of leakage of solid oral _____ _____ Requirements to the drive, voltage _____	The significance of climatic factors of the environment during the operation in accordance with GOST 15150-69 _____ Air temperature: With minimum _____ With maximum _____ Humidity, % _____ Altitude, m _____ Class of hazardous area in accordance with GOST EC 60079-10-1-2011 _____ _____ Subgroup of hazardous areas according to GOST R IEC 60079-20-1-2011 _____ _____ Temperature class according to GOST R IEC 60079-20-1-2011 _____ _____	Name _____ Density, kg / m ³ _____ Chemical composition _____ pH of the aqueous solutions _____ Category and explosion group according to GOST 12.1.011-78b _____ _____ Boiling Point °C _____ Viscosity _____ The heat capacity, J / K x ka _____ Vapour Pressure at the inlet, MPa _____ _____ The amount of suspended solids g / l _____ Particle size, mm _____ The degree of abrasiveness _____ Particle Density, kg / m _____ The presence of ferromagnetic particles and their sizes _____ _____ Material of parts, resistant to the pumped liquid: flowing part _____ sealants _____
Estimated demand		
Initial within _____ quarter 201_ y. _____ units. Possible need for 201_ - 201_ y. _____ units		
Additional requirements (Control and measuring devices and equipment, spare parts, etc.)		
_____ _____ _____		

The Customer : _____
 (post) (signature) (initials)

The Customer undertakes to provide LLC "Mechanics and Engineering Company" with the information about end-user and the organization using requested equipment. This statement is an essential condition for the answer to your query.

The operating organization, its location _____

Sales geography



Main partners



LLC "Mechanics and Engineering Company"

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