



# RosNeftegazInstrument

Mechanical mixing plant

USM-14R1

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Technical proposal

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Mechanical mixing plant USM-14R1



The mechanical mixing plant is designed for transporting dry powdered materials, the mechanical supply of these materials with screw augers for the preparation of cementing slurries.

Technical characteristics

Tank volume, m	14
Density range of the prepared slurry, g/cm <sup>3</sup>	1.3-2.4
Maximum mixer performance, dm <sup>3</sup> /c	27
The largest weight of the transported material, tons	8.5*
Total weight of cement loading, taking into account the additional loading in place, tons	20
Plant dimension, mm, max.	
- Length	9200
- Width	2 500
- Height	3420
Coupling dimensions:	
- on the hydraulic vacuum mixer under BRS 2"	Spec. buttress thread Ø98.8x12.7
- on the pneumatic feed line under BRS 4"	Spec. buttress thread Ø158.8x12.7
Chassis:	
- Labeling	43118-3096-42
- Cargo capacity, tonnes	12.7
- Wheel arrangement	6x6
- Engine EURO-4	KAMAZ 740.662-280(E-4)
- Maximum capacity, l.c	280
- Gear box	154
- Fuel tank, l.	210
- Sleeping berth	One
- Heated fuel suction hose and mirrors, filter	Installed
- Starting preheater	14 TS-01
- Tires	KAMA 425/85-R21
- Power take-off device	MP24-4208010-60

\* When choosing the set YCM-14P1 the largest weigh of the transported material is 7.4 tons.



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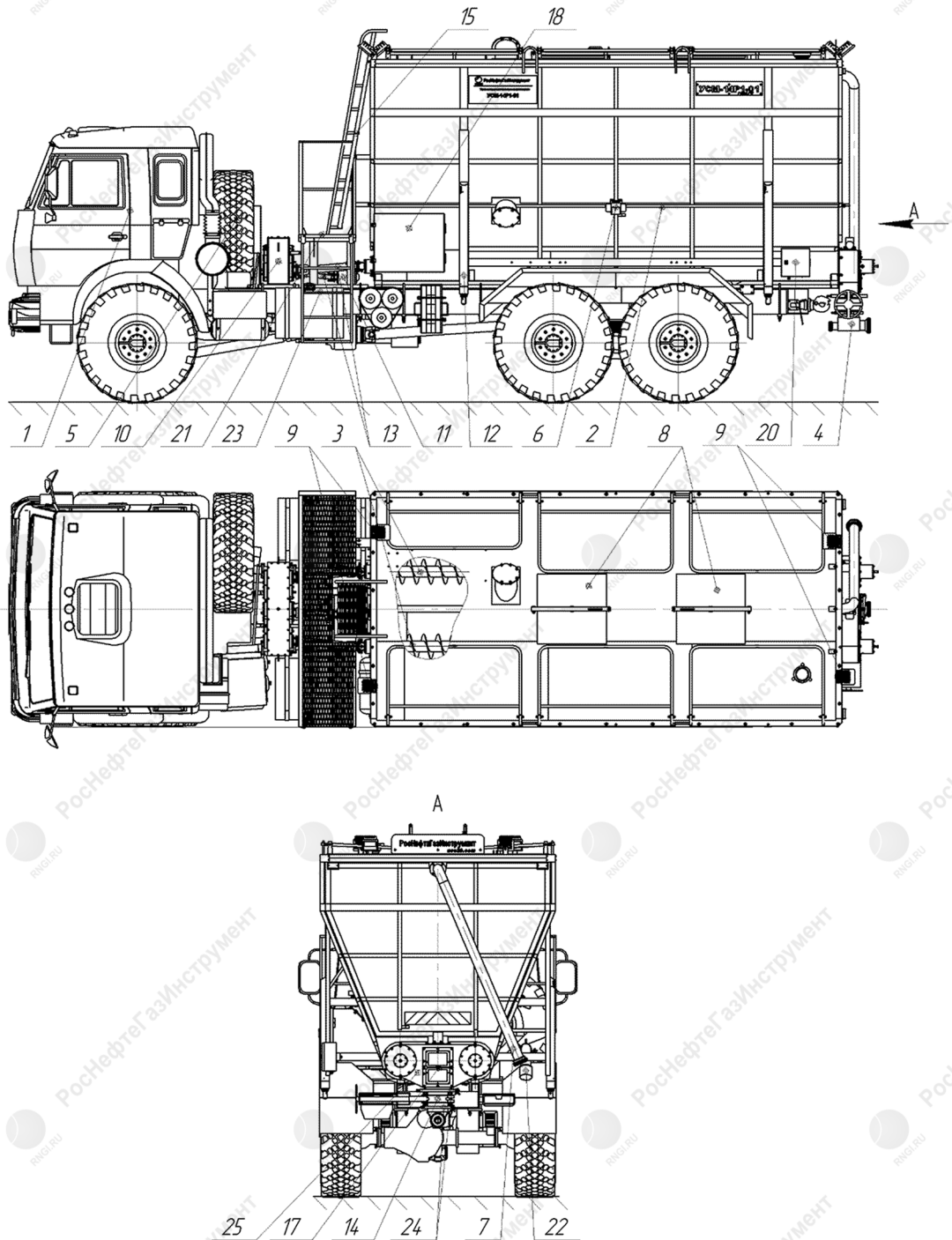


Fig. 1 - Mechanical mixing plant USM-20R1 in the transport position.



Mechanical mixing plant USM-14R1

1 - vehicle chassis KAMAZ 43118	13 - drive shafts of distributing gear unit (3 pcs.)
2 - fuel hopper	14 - slide valve
3 - dosing auger (2 pcs.)	15 - ladder
4 - hydraulic vacuum rotatable mixer	16 - hand railings
5 - spare wheel	17 - hatch with a manhole
6 - pneumatic turbinal vibrator TV-32R1 (2 pcs.)	18 - instrument case
7 - pneumatic feed line under BRS 4"	19 - stone trap (2 pcs.)
8 - hatches	20 - control unit
9 - work platform lighting floodlight	21 - site
10 - distributing gear unit	22 - discharge pipe
11 - power take-off device	23 - foot board
12 - casing pullers	24 - clamp (2 pcs.)
	25 - suction chamber

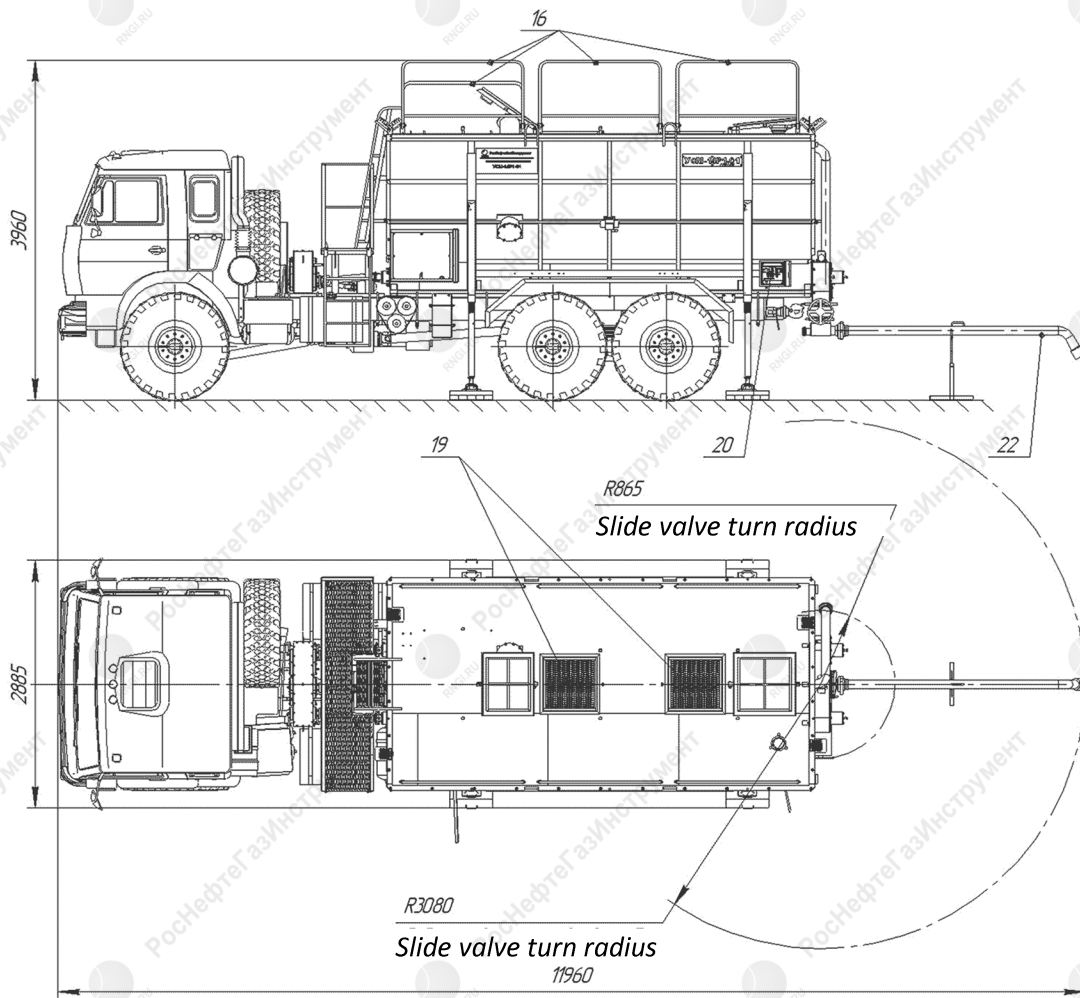


Fig. 2 - Mechanical mixing plant USM-14R1 in the operating position.





## Mechanical mixing plant USM-14R1

During the preparation of the slurry the plant works as follows.



The original dry backfill through hatches (8) or by pneumatic transport through the feed line (7) is fed into the hopper (2), which is mounted and fixed to the car chassis frame (1).

The hopper is a container with the walls having slope angles exceeding the natural angle of the cement slope; in the upper part two hatches (8) are provided with lids in which the stone trap are installed (19). The

bottom of the hopper is made in the form of two parallel gutters for dosing augers (3).

The backfill in the hopper (2) is moved by two dosing augers (3) and enters the suction chamber (25). Vibration devices (6) are installed on the side walls to prevent arching.

The installation has a remote panel (20) installed near the suction chamber (25) for the operator's convenience, through which the following mechanisms are controlled: auger control (two or one auger works), activation of vibrator devices, DVS (vacuum suction degasser) start and stop button, KOM (power take-off device) switch button, DVS rotary speed alternate button, switching on the light.

The hydraulic vacuum rotatable mixer (4) is equipped with exchangeable nozzles with different cross-sections for selecting the required density of the prepared cementing slurry. The hydraulic vacuum rotatable mixer ((4) and the slide gate are fixed on the suction chamber (25) with special clamps (24). The construction of the clamps (24) allows the rotation of the hydraulic vacuum mixer and the metering device by 180° for their installation in a convenient position during operation and rapid dismantling.

Dosing auger drive is carried out from KOM (11) the car chassis distributing box through the drive shafts (13) and the dispensing gear unit (10). It is also possible to shut off one of the augers. Adjusting the plant capacity is carried out by changing the  $\Delta BC$  rotational speed and switching off/turning on one auger and changing the gearing in the gearbox.



Mechanical mixing plant USM-14R1

Table 1 - USM-14R1 assemblies.

Labeling	Version	Drawing	Required assembly*
USM-14R1-01	Without loading auger	1;2	<input type="checkbox"/>
USM-14R1-02	With the loading auger**	3	<input type="checkbox"/>

\* by default USM-14P1-01 assembly is delivered

\*\* The loading auger (30) (Fig.3) serves for feeding the dry backfill to the hopper, is supplied complete with a removable feed hopper (31). The lowering, lifting of the folding part of the loading auger is carried out using a hand winch (32). The loading auger is controlled (turning on and off, speed control) via the remote control (20). The drive is carried out from KOM (11) of the car chassis distributing box through the cardan shafts (13) and the distributing gear unit (10), the chain drive (33), the auger drive (37) to the cardan shaft and the angular gear unit (34). Cardan shaft on the hopper roof, the chain are covered with casings (35 and 36).

If necessary, the loading auger assembly is easily installed if it was not included in the package originally, and can also be easily dismantled when not in use.



Mechanical mixing plant USM-14R1

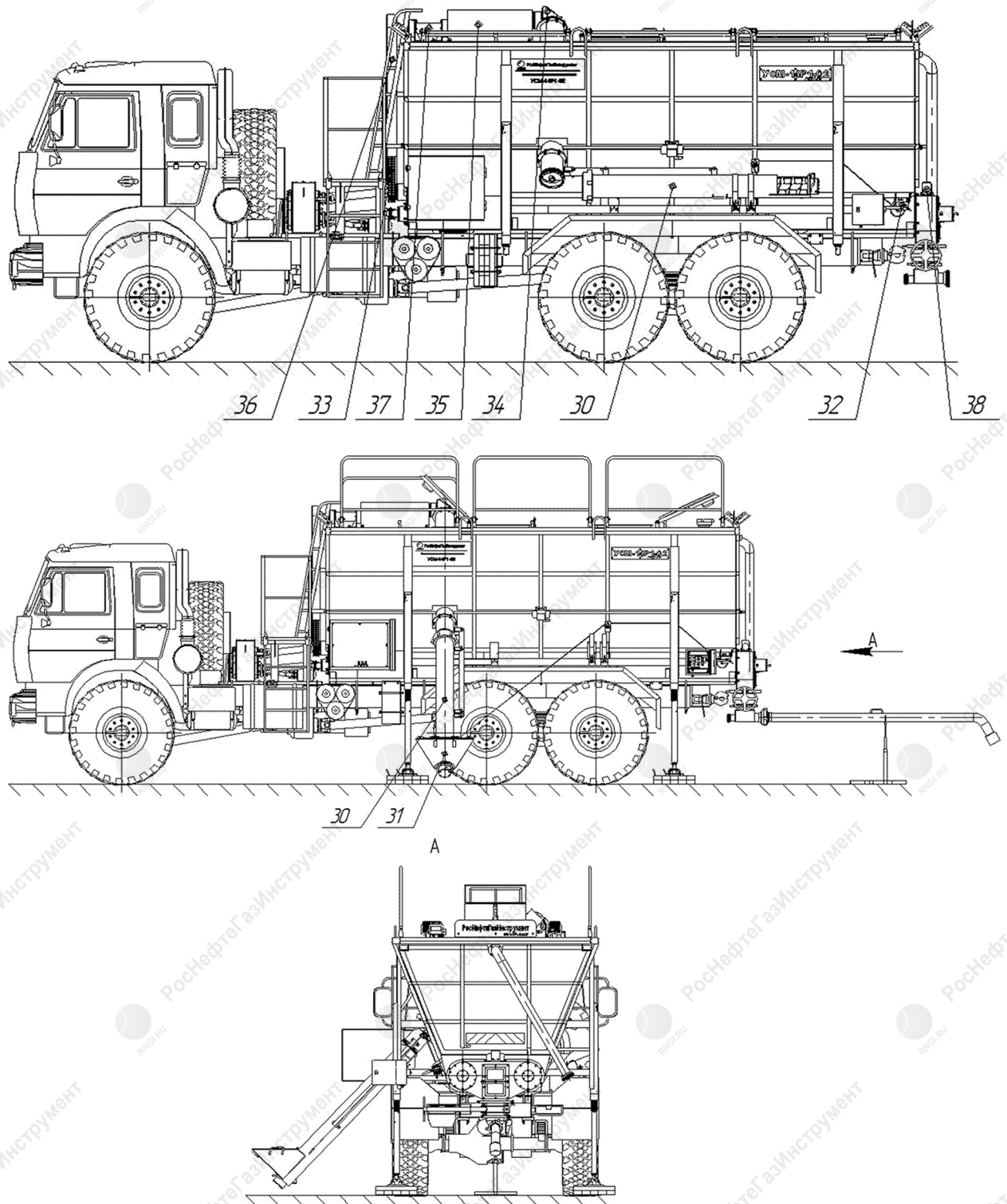


Fig. 3 - Mechanical mixing plant USM-14R1.



Mechanical mixing plant USM-14R1

Table 2 - Extras. option USM-14R1.

Labeling	Drawing	Position	To include in the set
Vibration device on the suction chamber	3	38	<input type="checkbox"/>
Feed hopper on the manholes with the vibration device			<input type="checkbox"/>
Scaffold truck			<input type="checkbox"/>
Floor hydraulic pressure mixer	4	40	<input type="checkbox"/>
Compressor for loading and unloading the dry backfill			<input type="checkbox"/>
Additional instrument case			<input type="checkbox"/>
Dismountable spark catcher			<input type="checkbox"/>
Exhaust gases discharge upwards			<input type="checkbox"/>
Instrument case with a set of tools			<input type="checkbox"/>
Climatic performance GOST15150-69, climatic category work -45 ... + 40 ° C; storage up to - 60°C			
Heat-insulated version of the AKB compartment and the cab			<input type="checkbox"/>
Air heater of "Planar" cockpit 4D-24			<input type="checkbox"/>
Electric heater DVS PBN "Severs-MZ" (220V, 3 kW)			<input type="checkbox"/>
Coloring to the corporate color (specify): _____			
Application of the corporate logo (specify): _____			

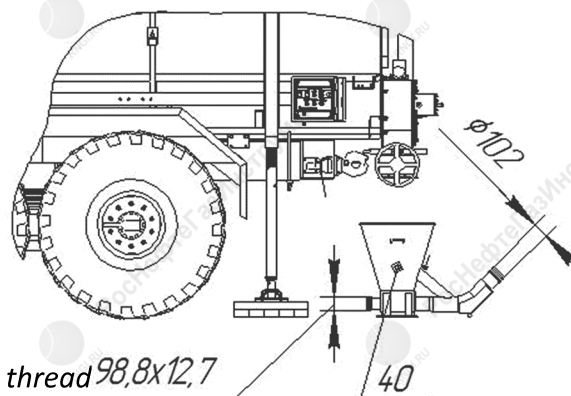


Fig. 4 - Mechanical mixing plant USM-14R1 with the floor hydraulic pressure mixer.