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Pneumatic UAV Launching System GLS-1A

Purpose:
The ground launcher GLS-1A is a pneumatic mechanism designed to launch from the ground unmanned aerial vehicles (UAV) with take-off weight up to 40 kg at a speed of 17 m/s (61 km/h). At the same time, the launch speed for UAV of less mass can be higher - up to 22 m/s (79 km/h).
Pneumatic catapult GLS-1A is capable of launching UAVs from limited areas with a ground covering, under various weather conditions, at any time of the day in the temperature range from -25° to +40° C.

Description:
The unit operates autonomously and is powered by a gasoline generator. The launch control is carried out using a remote control panel. Pumping of gas cylinder with air up to a given pressure can be carried out both in automatic and manual mode. The pressure level in the cylinders is controlled by pressure gauges. One of them is installed directly on the compressor station; the second is located on the control panel.
The compressor station has the possibility of a forced emergency pressure relief. A safety valve is installed at the compressor station, which is triggered when the system pressure exceeds 12 bars.
When the air is pumped into the cylinders, the carriage with the launched UAV on it is countered by a safety pin, which is pulled out immediately before starting.

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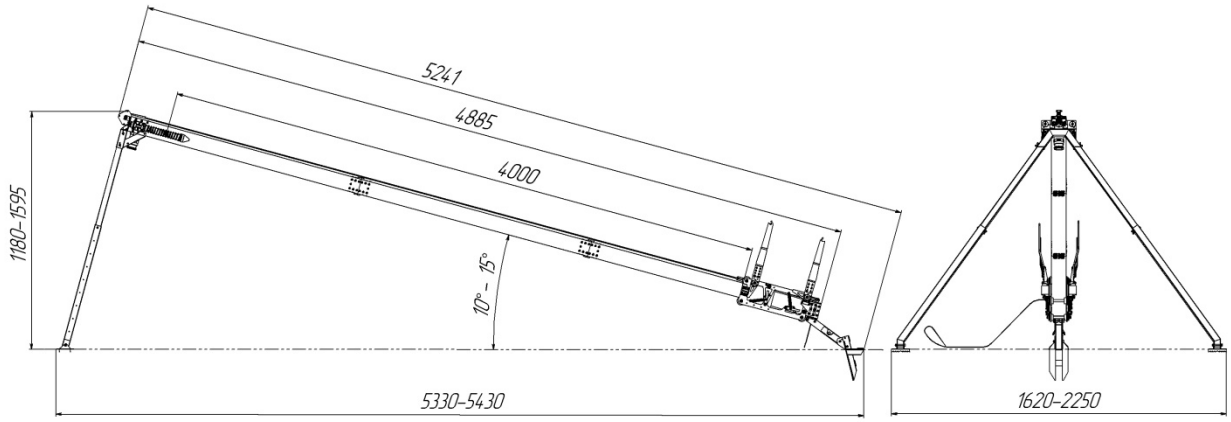

Fig. 1. General view of the pneumatic launcher.

Launcher technical data:
The general view of the pneumatic launcher is shown in Fig. 1.
Maximum weight of the launched UAV (with a speed of 17 m/s): 40 kg
Maximum launch speed of the UAV: 22 m/s
Range of ambient working temperatures: -25°/+40°C
Launch angle range of the rail relative to the ground: 10°-15°
Length (10° - 15°): 5.3 - 5.4 m
Width (10° - 15°): 1.6 - 2.3 m
Height (10° - 15°): 1.2 - 1.6 m
Overall length of the rail: 4.9 m
Carriage stroke: 4 m
Rail weight: 50 kg
Carriage weight: 8.7 kg
Launcher overall weight (including pegs, strapping ropes, safety pin): 61 kg

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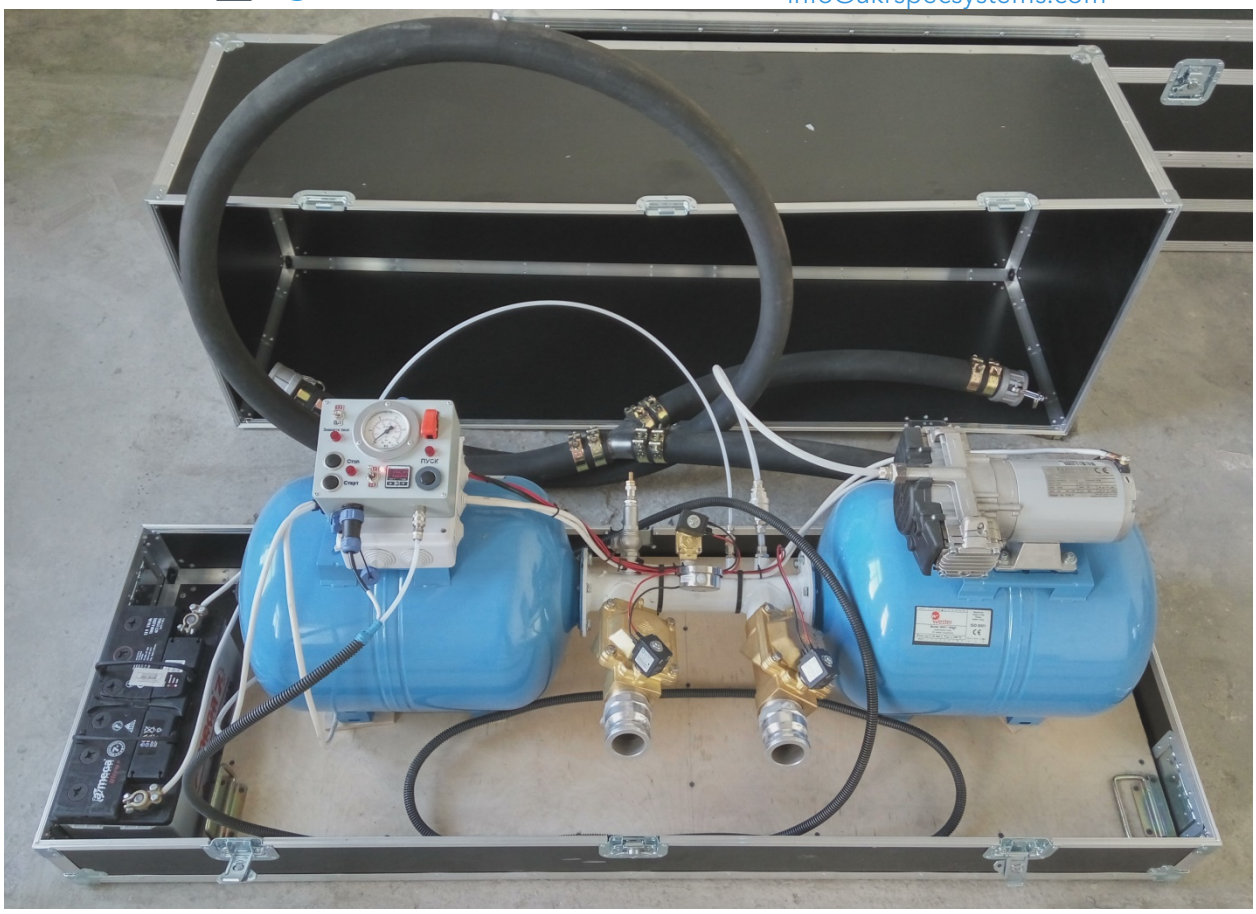

Fig. 2. General view of the compressor station.

Compressor station technical data:
The general view of the compressor station is shown in Fig. 2.
Compressor station weight: 42 kg
Compressor weight: 36 kg
Hose length: 1.4 m
Hose weight: 3.2 kg
Weight of the control panel: 1 kg
Cable control cable length: 10 m
Total weight of the compressor station: 88 kg
Maximum allowable working pressure in cylinders: 12 bar
Maximum compressor pressure: 22 bar
Pumping time up to 10 bar: 15 min
Compressor power supply: 12 V
Compressor rated current: 8 A
Maximum compressor power: 1.83 kW
Average run interval (with incomplete exhausting of pressure after start up to 5 bar and pressure pumping in cylinders up to 10 bar): 15 min

Unit performance characteristics:
Time of assembling the catapult and connecting the compressor station: 15 min
Number of people for assembling the launching system: 2
Pumping time up to 10 bars and ready for launch: 20 min

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Total weight of the complex without transportation cases: 151 kg

Transportation and storage:

Pneumatic UAV launching system GLS-1A is stored and transported in two boxes.

Dimensions of the transport box for the pneumatic catapult: 1733x583x335 mm (24 kg)

Total weight of pneumatic catapult with transport box: 85 kg

Dimensions of the transport box for the compressor station: 1733x583x680 mm (31 kg)

Total weight of compressor station with transport box: 126 kg

Total weight of the complex in transport form: 231 kg