








-  **Customer:** LLC "Unitrass", Russia
-  **Machinery:** soil vibrating roller
-  **Task:** fuel consumption monitoring
-  **Solution:** DFM fuel flowmeter
-  **Result:** installation of fuel consumption monitoring system

## CUSTOMER

LLC "Unitrass" has been working in the market of Tyumen region, Russia, since 2006. The company is involved in construction, reconstruction and overhaul of highways, planning and construction of parks, public gardens, parking lots, landscaping of urban courtyards. LLC "Unitrass" also provides road transport services such as transportation of construction materials and leasing of road machinery and construction equipment.

## MACHINERY

LLC "Unitrass" processes its own fleet of road-building machinery including asphalt pavers, rollers, motor graders, excavators, loaders, dump trucks and many more.

Single drum rollers HAMM 3412 are used in road industry to compact the soil for road basement and pavements.

The dimensions of the roller are 5705\*2250\*2990 mm, drum width is 2100 mm, and the weight is 14 200 kg. Diesel engine is Deutz TCD 2012 L04 2V, capacity 4.0 l, power 100 kW. The volume of the fuel tank is 290 liters.



Roller HAMM 3412

## TASK



Fuel consumption of the rollers varies greatly depending on operations conducted and working conditions.

Main factors affecting fuel consumption are as follows:

- operating mode - rolling or compaction of the roadbed;
- vibration unit is switched on or off;
- the area where the roller works – is it flat or has a slope;
- temperature and humidity of soil or road surface;
- technical condition of the engine, other joints and components of the roller.

Standard fuel consumption for HAMM 3412 roller is 12.5 l/h. However, the actual fuel consumption can vary several times - from 10 to 100 l/h.

The Customer did not have reliable data on fuel consumption. Such information cannot be obtained from the standard equipment of the roller. Fuel tank is curved, also roller works on slopes – that's why fuel level sensor inaccuracy is too high. There is no fuel data in the CAN bus.

Thus, the Customer needed to install additional equipment to ensure accurate measuring of actual fuel consumption and transmitting of the consumption data online to the dispatch service.

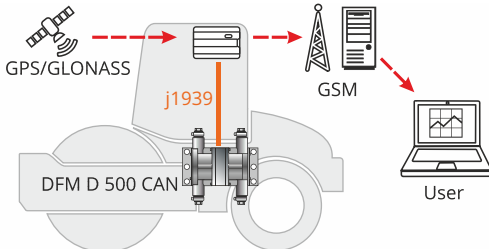
## SOLUTION

Technoton's Partner has offered to install a fuel consumption monitoring system on the roller. The system includes DFM 500 DCAN differential fuel flow meter and a monitoring terminal that was sending the data to the telematic service.

The differential fuel flow meter has two measuring chambers - for supply and return fuel lines. There is no need to change the fuel circuit of the engine as the installation of the flow meter is quick and easy.

Unlike fuel meters with pulse output, DFM D CAN with CAN J1939 interface sends more useful data to a telematics device:

- Fuel consumption and engine operation time Counters – total and split by engine work loads «Idling», "Optimal", "Overload";
- notification messages on interference into flow meter's operation – "Interference duration" and "Data tampering" Counters.



**Monitoring system composition**

Galileosky telematics device gets ready-for-use data Counters and transmits them to Wialon telematics service without any risk of losing information due to connectivity or server issues.



**DFM 500DCAN differential fuel flowmeter**

### Andrei Dergousov, Director of 76 Oil Tumen, Technoton's Partner

*"Finding a proper fuel management solution for HAMM 3412 was not easy. There is no fuel data in the standard CAN bus of the roller. It is impossible to use fuel level sensors - the fuel tank has an irregular shape and, moreover, the roller often works at a large slope. The DFM fuel flow meter turned out to be the best option. The components of the system such as DFM flow meter, terminal with CAN input and Wialon service are compatible with each other and provide the required accuracy of fuel consumption measurement."*



## RESULT

The fuel consumption monitoring system was installed on the roller in August 2020. All elements of the system work without interruptions, the Customer receives the needed data in real time mode as of the fuel consumption and the operating time of the roller's engine.

The system has ensured the transparency of fuel counting for the roller. Now the actual data about consumption are available and according to them the fuel is written off. The dispatcher monitors fuel consumption online. If the fuel consumption becomes too high, he informs the roller operator about this fact. The operator adjusts the working style and the fuel consumption is reducing.

Basing on the fuel consumption data, received from the system, the Customer can also evaluate and monitor the technical condition of the engine and make a well-grounded decision about its maintenance.

### Sergey Dolgushin, Director of LLC "Unitrass"

*"Installation of the fuel consumption monitoring system has definitely solved our problem. Now we can monitor fuel consumption in real time mode, we also can receive the Reports on fuel consumption and operating time in various modes. It is clear and vivid under which conditions an unplanned fuel consumption increase takes place. It allows us quickly make management decisions in order to reduce fuel consumption. Now we plan to equip other units of our road-building fleet of machinery with Fuel consumption monitoring systems."*

