

PowerSource

A publication of John Deere Power Systems

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Pumps primed for work in the
oil and gas industries

Seismic UniVib vibrators map the world below

Reliable locomotives for underground mines

Our solution for Final Tier 4/Stage IV emissions



Creating opportunities together

Modified and ATEX-certified John Deere marine engine breaks into new markets

Emissions Cert.	Tier 1 / Stage I	Tier 2/Stage II	Tier 2/Stage II
Engine Model	PowerTech 3029DF150	PowerTech 4045TFM75	PowerTech 6068TFM75
Displacement	2.9L	4.5L	6.8L
Rated Power	36 kW (48 hp) @ 2500 rpm	101 kW (135 hp) @ 2600 rpm	150 kW (201 hp) @ 2600 rpm
Cylinders	3	4	6
Aspiration	Naturally aspirated	Turbocharged	Turbocharged
Distributor	TECHBUD SP. z o.o. Zielona Góra, Poland +48 68 470 72 50 Techbud@techbud.eu		

When URZADZENIA I KONSTRUKCJE S.A., manufacturer of mining equipment, developed its new UiK GLS 150 mining locomotive, it opted for a surprising power source. Working closely with John Deere distributor TECHBUD SP. z o.o., the company modified the PowerTech 6068TFM marine engine to suit the demanding mining environment. Fully ATEX certified, the engine's versatility has created opportunities in new markets, with manufacturers of aggregates, firefighting units, and fire pump stations showing a keen interest.

URZADZENIA I KONSTRUKCJE S.A., based in Żory, Poland, has ambitious growth plans. After researching market needs, it designed the GLS 150 underground mining locomotive, its flagship product. According to Slawek Kwiatkowski at URZADZENIA I KONSTRUKCJE S.A., the GLS 150 showcases the company's commitment to innovative technology, safety, and productivity in explosive environments.

The GLS 150: a pioneer. Four GLS 150s are already operating in Polish coal mines transporting personnel and materials. With tracks just 550 to 900 mm (22 to 35 in.) wide, it can handle inclines of 35 per mil at even the deepest levels, where working conditions are toughest. "The GLS 150 is the only locomotive with these parameters," says Slawek. "And it boasts innovative technical solutions such as the modified John Deere engine, a hydraulic control system, and braking, driving, and coupling systems."

Thirty five per mil inclines even at the deepest levels are all in a day's work for the GLS 150.

The 150 kW (201 hp) PowerTech 6068TFM marine engine was an easy choice because of its high power and low emission levels. What's more, its electronic injection pump, separate exhaust gas cooling system, and stable temperature, not exceeding 150 degrees C (302 F), contribute to safe operations in highly combustible environments.

Another decisive factor was the long-term, close relationship with TECHBUD SP. z o.o. "In particular, TECHBUD's brand manager, Sebastian Mrówczyński, and vice chairman, Ryszard Harenda, showed continuous commitment to our project," continues Slawek.

They supplied our head of R&D, Mr. Ryszard Dolny, who played a big role in the development of the GLS 150, with all the necessary documents, charts, calculations and specifications of every engine installed, and of any subassemblies."

The modified, ATEX-certified engine created by URZADZENIA I KONSTRUKCJE S.A is a pioneer, the first marine engine worldwide with this power and electronic equipment. Patents are being obtained for the engine modifications.

Expanding into other markets. With the four machines already performing to expectation, URZADZENIA I KONSTRUKCJE S.A intends to expand its collaboration with TECHBUD SP. z o.o. further into new areas.



The engine compartment is located on top of the GLS 150.

"We see opportunities for the modified 6068TFM engine in tired carriages used in copper ore mines, and are considering designing a range of smaller locomotives for underground mining, powered by a modified John Deere 4045T marine engine. This smaller engine will allow us to reduce the engine compartment size, and the overall machine weight. We've also opted for a stationary 36 kW (48 hp) John Deere 3029D engine to power a future 8 t (8.82 U.S. t) underground locomotive."

Different applications than mining are in the cards, as well. "Actually, any engine-driven device operating in hazardous environments could benefit from an ATEX-certified John Deere marine engine," Slawek points out. Examples include marine diesel aggregates, firefighting units, and fuel pumping stations. As various manufacturers have expressed an interest, the collaboration between URZADZENIA I KONSTRUKCJE S.A and TECHBUD SP. z o.o. is likely to lead to even more innovative products.

The future is looking bright for the ATEX-certified 6068TFM engine, as new markets beckon.

