

A SHUNTING LOCOMOTIVE POWERED BY HYDROGEN



SM42 6Dn specification:

Designed for	Shunting works and light freight trains, perfect solution for intermodal terminals and 'green ports'
Maximum speed	90 km/h
Axle arrangement	Bo-Bo
Loco weight	<70 t
Axle load	< 175 kN
Fuel cell power output	2x 85 kW
Fuel consumption	< 0.08 kg/kWh
Power supply DC voltage	<800V
Traction motors	Asynchronous
Number of traction motors	4
Intermediate energy storage // capacity	LTO Batteries
Hydrogen tanks // Pressure // capacity	Type III // 350 MPa // 175 kg H2
Refuelling speed // time	up to 120 g/s // max. 30 min.
Radio Control System	Yes
Anti-collision system	Yes

The shunting locomotive with a modern, innovative hydrogen drive is the result of a deep modernization of the SM42 locomotive realized for PKN Orlen. It is the first stage of PESA's program of implementing hydrogen technologies in rail vehicle drives. The production of zero-emission vehicles, including hydrogen-powered locomotives and passenger trains, is the key element of the "Green Pesa" strategy, which assumes the maximum reduction of the carbon footprint both, in the production and operation of rail vehicles.

The SM42 6Dn locomotive is a 4-axle shunting locomotive with 4x180kW traction motors. Two hydrogen cells /85 kW/ are responsible for generating energy.

The hydrogen cell power supply system consists of two 16 tanks packages mounted in a steel frame. A total capacity of 32 hydrogen tanks is 175 kg, with a max. refueling time up to 30 min.

The locomotive drive system also includes a large capacity traction battery, made in LTO technology, with a total capacity of 167 kWh.

The locomotive is equipped with an autonomous driving system, enabling the driver to control the vehicle by one person while setting up trains, and an obstacle recognition system (anti-collision).

The emission-free hydrogen locomotive SM42-6Dn is the perfect solution for intermodal terminals and green ports. It has the same technical and operational parameters as the diesel ones it is to replace, but unlike them, the SM42-6Dn is environment friendly.

