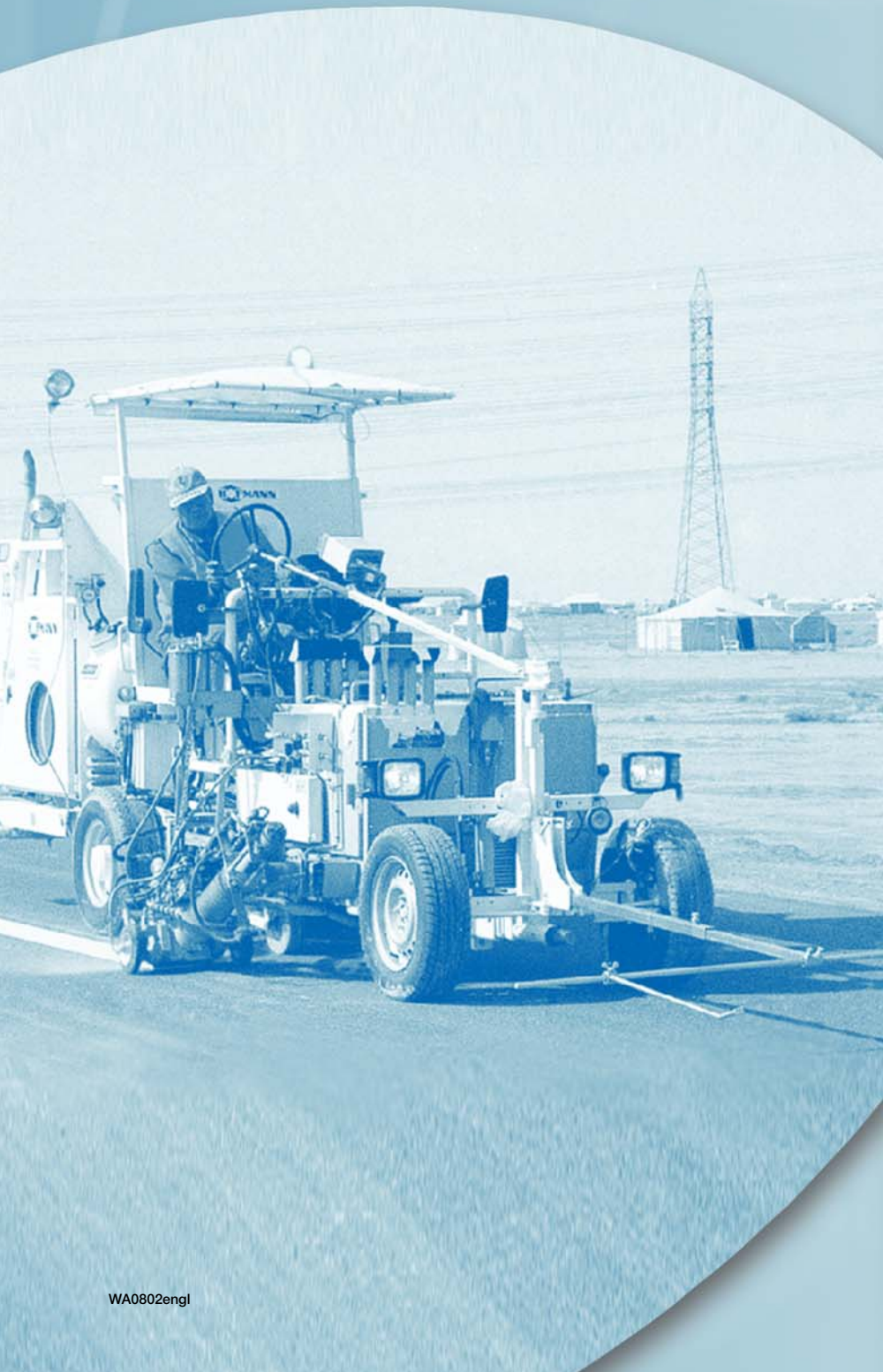


Construction vehicles

Roadmarking with millimetre accuracy

- High accuracy measurement of speed, distance and consumption for optimal application
- Very high continuous load capacity
- Reliable even in the most extreme conditions
- Jointly developed solutions





How the white lines appear on our roads

The road network in Germany alone encompasses more than 200,000 kilometers - covered just about everywhere with painted lines showing the centre or edge of the carriageway or restricted areas such as box junctions. Wachendorff encoders are used to ensure the precise application of these road markings.

Every day we drive next to them or over them – road markings. Most of the time we are oblivious to them – they only really register when they are not there and we lose track of the road or are forced to slow down.

The white lines at the edge of the road or in the centre of the carriageway are an important safety factor and ensure clearly visible traffic flow and improved orientation for drivers.

The rules concerning how and where these road markings are to be applied is well defined in Germany in the road traffic regulations and relevant directives. Precision is of immense importance and the application of these white lines is a factor that needs to be costed in during road construction. Clearly the procedure has to be done correctly the first time round, otherwise the paint would have to be laboriously removed; this not only costs money but normally results in considerable traffic delays. This means that both the men and their machinery have to work very accurately. Moreover the white compound has to dry as quickly as possible, so that the road can be opened to traffic again without major delay.

These white lines on the carriageway are made up of a wide variety of substances according to the application in question. Some need to be heated, others have two components that need to be mixed together immediately prior to application. Yet again, others are applied not as a solid line but as thick drops, so that when they are driven over they create a loud rumbling noise, acting as a warning to the driver. Finally, for light reflexion purposes, very small fine glass beads are scattered over the damp material. All in all, quite complex procedures, which place high demands on the machine. As

they have to be used in all types of weather and windy conditions, the machines have to be both rugged and at the same time be able to work with high accuracy.

World leader in this market is the Hofmann company from Rellingen, near Hamburg, which has been manufacturing road marking machines since as far back as 1952; Hofmann supplies a wide variety of machines from small hand-controlled machines up to high-performance roadmarking trucks that can hold up to 3000 litres of sprayable thermoplastic compound. This family business is always making the news thanks to its innovations – for example, due to its machines, which were the first in the world to be able to work when the road bed is damp or wet. The success here of so many innovations that are 'Made in Germany' is clear to be seen: 90 % of all the machines they manufacture are exported and in use worldwide – in each case adapted to the local climatic conditions and technical requirements. Also on the agenda at Hofmann are special machines, manufactured to customers' requirements.

In Rellingen they prefer generally not to rely on off-the-shelf components. Their vertical range of manufacture is impressive; around 100 highly-qualified skilled workers produce in-house the majority of individual components that are used in their machines. One of the rare exceptions to this: an encoder, supplied by the Wachendorff company.

Wachendorff, also a family business, based in the Rheingau, has a company philosophy similar to that of Hofmann; it designs and manufactures its own encoders in-house, to a large extent by hand and with the utmost care and attention, so that they are able to meet the high quality requirements of their Rellingen-based customer.

Encoders are essential in marking technology, as they provide precise information regarding the distance covered – after all, when it comes to a line in the centre of the road, all the

lines should be exactly the same length. The Wachendorff encoder used in the Hofmann machines is based on the standard model WDG 58B; however it has been customized in line with the wishes of the Hofmann company, featuring a longer, reinforced shaft and special bearings. The housing has also been slightly modified and is equipped with a socket that accepts a plug connector used in all Hofmann machines.

"We adapted our encoder, so that it fitted into the already existing system at Hofmann", explains Stephan Rump, who works for Wachendorff. Special solutions, such as this, are not unusual for him. Such solutions can be implemented quickly and cost-effectively at Wachendorff, especially as all the employees, starting from R&D via production and through to after-sales service, are housed under one roof at the Geisenheim factory location. Short distances and communications that run smoothly between the individual departments ensure extremely fast reaction times.

"We were especially impressed by the ruggedness of the Wachendorff encoders", says Jens-Uwe Eymers, who is the control engineer at Hofmann and responsible for the high precision functioning of their marking equipment. Not only is the encoder in later use subjected to the effects of weather and vibration – but it itself acts as a bearing and must tolerate high loads. "In our experience it is the Wachendorff devices that best withstand these challenges," he comments, making the point that this is the reason why his company insists on the devices from the Rheingau.

However even the standard encoders featured in the Wachendorff catalogue can tolerate extremely high loads. Their design combines precision mechanics and a compact optical track with high-performance noise-resistant electronics. In addition they boast a high level of protection and a very wide operating temperature range. This makes Wachendorff encoders amongst the safest, most rugged devices available in the market.

The WDG58 series of encoders is now available with up to 25,000 pulses per revolution. These higher resolutions of 10,000, 12,500, 20,000 or 25,000 ppr for the hollow and solid shaft encoder series WDG58 now allow for even more precise measurement.



Fig 1:
Marking machine for road marking



Fig 2:
WDG 58 encoder employed on the front wheel



Fig 3:
WDG 58B with longer shaft and special bearings



Fig 4:
Impact and vibration resistant mounting. A special measuring wheel offers virtually non-slip measurement



Fig 5:
Optimized consumption, thanks to precise measurement,
saves costs and protects the environment

Any Questions? Just call Dieter Schömel +49 (0) 67 22/9965-10, send him an E-Mail at sco@wachendorff.de or call your local distributor.



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