



NDC ON
Logic

THE SMART SOLUTION



Diagnostic train DJ NDT

- Compact unit with modern technologies for railway infrastructure diagnostics
- Non-destructive defectoscopic measurement of rail defects - ultrasound, eddy currents, video inspections
- Special measuring bogie - telescopic
- Evaluation work station of measured data directly on the wagon - diagnostic control room
- Ability to carry out continuous measurements of the railway transport route over a period of several days
- Custom-developed expert software for storage, transmission, redistribution and evaluation of measured data
- Comprehensive facilities for diagnostic staff - bedrooms, rest room, kitchenette and meeting room

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DIAGNOSTIC TRAIN DJ NDT

Set speed in measurement mode	0 - 70 km/h.
Maximum transport speed	110 km/h.
Train Set composition	driving car, steering car, meas. car
Length of the train	73,79 m
Total weight	150,36 t
Combustion engine	Caterpillar C27
Process water tanks	Total volume of 12,000 l
Residential compartments	for a crew of five
Bedrooms, restroom, meeting room	complete dispatching workplace
ICT infrastructure	server, PC, WI-FI, SW, HW, dispatcher workplace design solutions
Daily measurement range	500 km

TECHNOLOGY FOR DJ NDT

- **Non-destructive defectoscopic measurement** of rail defects and failures.
- **The ultrasonic rail inspection system** is able to detect internal rail defects based on pulses transmitted by probes and analysis of the reflected ultrasonic signal. The system detects any defects that cause changes in the reflection of the ultrasonic signal transmitted to the rails.
- **The visual inspection system for rail strips - video inspection** is a contactless, high-speed optical system designed to permanently record images of the track surface including tracks, fastening material, sleepers and gravel.
- **The eddy current contact and fatigue defect inspection system** is designed for the detection and evaluation of the rail area near the surface. The system is optimized for the detection and evaluation of rail head damage. An emphasis is placed on determining the depth of damage so that rail reprofiling and qualitative assessment can be carried out effectively. Other surface damage manifestations such as signs of abrasion and pitting are also chosen. The assessment is carried out up to a damage depth of 2.7 mm.
- **Measuring bogie** - the above-mentioned measuring systems are mounted on a measuring bogie, which is suspended under the measuring wagon and drawn freely with pneumatic expansion to allow safe guidance of probes at the rail heads. The measuring bogie shall be suspended in the lower position during the measurement; if no measurement is taking place, the bogie is raised and secured in this position.
- The standard SŽDC localization with the M12 dial is integrated into all measuring systems for **accurate location of the measured points**.
- Measured data can be evaluated directly on the set or transferred to the SŽDC offices for further processing in the **central control room workplace**.
- The lossless **automated data recording** from all systems on board the vehicle and their transfer to the evaluation workplace is taken care of by the centralised CDR system, which is operated on the vehicle and at the SŽDC diagnostic workplace in Pardubice. The system has asynchronous logic for redundant recording of data from individual measuring systems already during measuring operation. In this way the data are quickly, correctly, safely and error-free delivered to the target data storage for processing and evaluation in the downstream processes of SZDC diagnostics and track management. The SW equipment of the unit consists of a set of specialised applications for data acquisition, data analysis, data evaluation, data transfer, as well as any additional manual metering, as the case may be. Together, the applications and technologies form a comprehensive **intelligent diagnostic system**.

