



Sanyo Shinkansen test vehicle tested on this facility

[Overview of the facility]

- The facility was constructed in 1959 by the predecessor of the current Railway Technical Research Institute (RTRI), which was a research wing of the former Japanese National Railways. Its purpose was to modernize railway traction systems and increase running speeds. Testing was started in 1960.
- High-speed running can be reproduced as a bench test with an actual vehicle. The rail-shaped rollers rotate at high speeds and are capable of simulating train running. The rollers can also add vertical vibration.

(Reference)

Gauge of roller: adjustable between 1000 mm to 1676 mm

Speed: Up to 250 km/h with a vehicle, 350 km/h with a bogie

- It can be used for tests to confirm vehicle performance, including stability at high speeds.
- Test results were used to determine specifications for the test vehicle bogie prior to the opening of Tokaido Shinkansen. The Series 951 test vehicle for Sanyo Shinkansen was also tested at this facility (Sanyo Shinkansen test vehicle tested on this facility) and this facility made a significant contribution to the development of Shinkansen.
- In 1990, RTRI constructed another high-speed vehicle test facility capable of testing at a maximum speed of 500 km/h in order to increase competitiveness of railways over other transport modes. Since then, vehicle running tests have been conducted at the new facility. The historical facility still serves for tests of inverters and other components.

[Note]

In 2007, JSME started to designate objects which are existing in Japan and have historical significance in the development of machine technology and engineering as Mechanical Engineering Heritage. This designation helps to preserve historical items and pass them on to the next generation as cultural heritage. JSME has designated 104 items prior to 2020.

JSME website <https://www.jsme.or.jp/kikaiisan/#section1>



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Preface Message from the General Director Dr. Tetsuo UZUKA

The establishment of Shinkansen HSR in 1964 was one of the biggest landmarks for railways, but it also invoked environmental problems such as noise and vibration along the railway. Since the days of the Japanese National Railways (JNR), RTRI has been working to address these environmental issues, and has contributed to the continuing

operation of high-speed trains.

In 2021, the world's environmental problem is global warming, and railways are becoming increasingly important. By reading the following articles you will find out how the environmental solutions of the 20th century are also helping to solve problems in the 21st century.