

## **VANDE BHARAT EXPRESS: A Make in India Success Story**

**400 Vande Bharat Trains to be introduced in next 3 years: Union Budget 2022**

**Vande Bharat 2.0: Offering a Novel Travel Experience for New India**

**Sixth Vande Bharat Train flagged off by Prime Minister Narendra Modi**

(Ministry of Railways)

February 15, 2022

(Updated on December 12, 2022)

### **Introduction**

The Indian Government has dedicated significant efforts towards strengthening the ‘Make in India’ campaign. As an excellent example of the ‘Make in India’ success story, the Indian Railways launched India’s **first indigenous Semi High Speed train, Vande Bharat Express**. The first Vande Bharat Express train was **flagged off on February 15, 2019**, on the New Delhi-Kanpur-Allahabad-Varanasi route.<sup>1</sup> On **December 11, 2022**, Prime Minister Narendra Modi flagged off the **sixth Vande Bharat Express train connecting Nagpur, Maharashtra and Bilaspur, Chhattisgarh**.

The Vande Bharat Express can run up to a maximum speed of **160 kmph** and has travel classes like Shatabdi Train but with better facilities. It aims to provide a totally new travel experience to passengers.

**Speed, Safety and Service** are the hallmarks of this train. **Integral Coach Factory (ICF), Chennai**, a Railways Production unit, has been the force behind a completely in-house design and manufacture, computer modelling and working with a large number of suppliers for system integration in just 18 months.<sup>2</sup>



<sup>1</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1564577>

<sup>2</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1564577>

## Objectives behind Vande Bharat Express

This train has been introduced to upgrade maintenance technologies and methodologies and achieve improvement in productivity and performance of all Railway assets and manpower in which inter-alia would cover reliability, availability, utilization and efficiency.<sup>3</sup>

## Culmination of 'Make in India' effort of Indian Railways

In keeping with the Prime Minister's vision of "Make in India", the major systems of the train have been designed and built in India. Impact of this train, matching global standards of performance, safety and passenger comfort and yet costing less than half of global prices, has the potential to be a game changer in the global rail business.<sup>4</sup>

## Vision for a New India

Vande Bharat Express is the next major leap for Indian Railways in terms of speed and

convenience. In his address to the nation on 15 August 2021 from the ramparts of the Red Fort, Prime Minister Narendra Modi announced that during the 75 weeks of the Amrit Mahotsav of Independence, **75 Vande Bharat trains will connect every corner of the country.**<sup>5</sup>

This train is India's first semi high-speed train equipped with world class passenger amenities. It can achieve high speeds due to faster acceleration & deceleration and will reduce journey time by 25% to 45%. Scheduled commute between New Delhi & Varanasi will take approximately eight hours making it 40-50% faster than the fastest train currently connecting these two cities.<sup>6</sup>

**Budget 2022-23**

**HIGHER INVESTMENT For Railways**

- 400 new-generation Vande Bharat trains will be developed and manufactured in next 3 years
- 'One station-One Product' concept will be popularised to help local businesses & supply chains
- 2,000 km of rail network will be brought under the indigenous world-class technology KAVACH
- 100 PM Gati Shakti Cargo Terminals will be developed in next 3 years
- Railways will develop new products and efficient logistics services for small farmers and SMEs

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## Union Budget 2022: 400 Vande Bharat Trains in three years

In the **Union Budget 2022-23**, Finance Minister Smt. Nirmala Sitharaman announced that **four hundred new-generation Vande Bharat Trains** with better energy efficiency and passenger riding experience will be developed and manufactured during the **next three years.**<sup>7</sup>

<sup>3</sup> [VANDE BHARAT Volume 1\(1\).pdf \(indianrailways.gov.in\)](https://www.indianrailways.gov.in)

<sup>4</sup> <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1564577>

<sup>5</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1746062>

<sup>6</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1561592>

<sup>7</sup> [https://www.indiabudget.gov.in/doc/budget\\_speech.pdf](https://www.indiabudget.gov.in/doc/budget_speech.pdf)

These trains would be in addition to the two existing Vande Bharat Express Trains. The Howrah – Ranchi Vande Bharat Express is now being planned by Indian Railways, and the Railway Board has approved this rail route. This will be the third Vande Bharat Express Train in the country, which will connect Howrah (Kolkata) with the Capital of Jharkhand, Ranchi.<sup>8</sup>

### **Features and Amenities in Vande Bharat Express<sup>9</sup>**

- The Vande Bharat Express train has an **intelligent braking system** which enables better acceleration and deceleration.
- All coaches are equipped with automatic doors; GPS based audio-visual passenger information system, on-board hotspot Wi-Fi for entertainment purposes, and very comfortable seating. The executive class also has rotating chairs.



- All **toilets are bio-vacuum** type. The **lighting is dual mode**, viz. diffused for general illumination and personal for every seat.
- Every coach has a **pantry** with facilities to serve hot meals, hot and cold beverages. The insulation is meant to keep heat and noise to very low levels for additional passenger comfort.
- The Vande Bharat Express has **16 air-conditioned coaches** of which two are executive class coaches. The total seating capacity is 1,128 passengers. It is much more than the conventional Shatabdi rake of equal number of coaches, thanks to shifting of all electric equipment below the coaches and seats in the driving coach also.
- It also has provision for **Divyang-friendly facilities**.
- Adding up the green footprints, the train has a regenerative braking system in the Vande Bharat Express coaches which **can save up to 30% of electrical energy**.
- The Vande Bharat Express train has fully sealed gangways and censored interconnecting doors for a dust free environment.
- A fire survival cable indoor circuit will also be an available on the train. There will also be an improved air conditioning system.<sup>10</sup>

<sup>8</sup> [NIS English FEB 1-15 2022.pdf \(pib.gov.in\)](#)

<sup>9</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1564577>

<sup>10</sup> <https://newindiasamachar.pib.gov.in/WriteReadData/flipbook/2022/Feb/1st/English/index.html>

## Routes:

The **six Vande Bharat Express Trains** are currently running on the following routes:

1. New Delhi - Shri Vaishno Devi Mata, Katra
2. New Delhi - Varanasi
3. Gandhinagar Capital - Ahmedabad - Mumbai Central
4. Amb Andaura - New Delhi
5. Mysuru - Puratchi Thalaivar Dr MGR Chennai Central
6. Nagpur, Maharashtra – Bilaspur, Chhattisgarh



## **Vande Bharat 2.0**

The Indian Railways has introduced the **new avatar of Vande Bharat: Vande Bharat 2.0 with the first train being flagged off by the Prime Minister on September 30, 2022 from Gandhinagar to Mumbai.**<sup>11</sup> The Vande Bharat 2.0 will be equipped with a range of advanced features over its predecessor. It will be able to attain **maximum speed up to 180 kmph**, and will be **lighter**, weighing 392 ton instead of the earlier 430 ton. The advancements in this new avatar include the following:

- **Enhanced Safety:**

The Vande Bharat 2.0 trains have the **KAVACH (Train Collision Avoidance System)** for enhanced safety in operations. There will be improved security with **four emergency windows** added in every coach. There will be **four platform side cameras** including **rear view cameras** outside the coach instead of two earlier. The new coaches have **Level-II safety integration certification** for better train control. The Vande Bharat 2.0 will also have better **fire safety measures** with Aerosol based fire detection and suppression system in all electrical cubicles and toilets. There will be superior **flood proofing** for under-slung electrical equipment to withstand floods up to 650 mm height

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<sup>11</sup> <https://www.pib.gov.in/PressReleaseDetailm.aspx?PRID=1862476>

as compared to 400 mm earlier. The train will also have **four emergency lightings** in every coach in case of electric failure.

- **Improved Amenities for Passengers:**

There will be **enhanced riding comfort** for passengers at 3.5 riding index. The new Vande Bharat will also have **32-inch LCD TVs** in place of the earlier 24-inch TVs. There will be a **passenger information and communication system** in Vande Bharat 2.0. **15 percent more energy efficient ACs with dust free clean air cooling** of traction motor will make the travel more comfortable. **Side recliner seat** facility which is being provided to Executive Class passengers, will now be made available for **all classes**. The Executive Coaches have the added feature of 180-degree rotating seats. The train will also have **bio vaccum toilets with touch-free amenities**. The trains will also have wi-fi content on demand.

- **Other Enhancements:**

The Vande Bharat 2.0 will have **finer heat ventilation** and air-conditioning control through higher efficiency compressor, with **Ultra Violet (UV) lamp for germ-free supply of air**. The train's time to reach 160 KMPH will be **140 seconds**, compared to 145 seconds earlier. There will be **driver-guard communication** with voice recording facility. There will be change of formation with **non-driving trailer coach in the middle** for better acceleration and deceleration. The train will have **better ventilation for traction motor** for better reliability. There will also be **two signal exchange lights** on the coaches for exchange of signal with the way side stations.

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