# Construction Drilling Equipment's Industry in India

## Focus on Trenchless and Foundation Equipment in India

October 2025

Prepared For Apollo Techno Industries Private Limited

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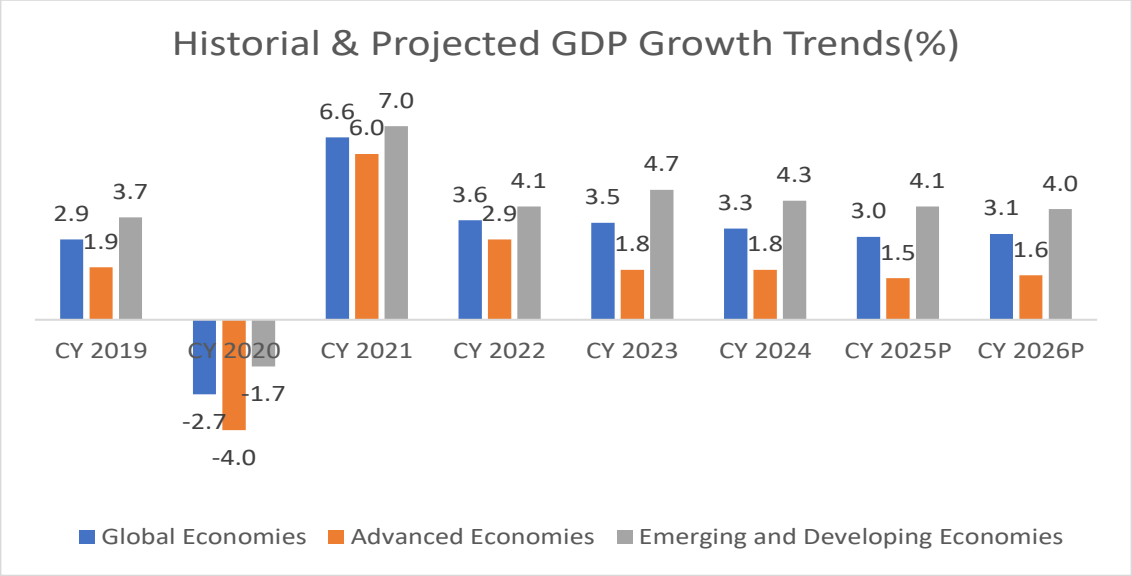
## Global Macroeconomic Landscape

### Global Economic Overview

The global economy, which recorded GDP growth at 3.3% in CY 2024, is expected to show resilience at 3.0% in CY 2025. This marks the slowest expansion since 2020 and reflects a -0.3%point downgrade from January 2025 forecast. Moreover, the projection for CY 2026 has also reduced to 3.1%. This slowdown is majorly attributed due to numerous factors such as high inflation in many economies despite central bank effort to curb inflation, continuing energy market volatility driven by geopolitical tensions particularly in Ukraine and Middle East, and the re-election of Donald Trump as US President extended uncertainty around the trade policies as well as overall global economic growth. High inflation and rising borrowing costs affected the private consumption on one hand while fiscal consolidation impacted the government consumption on the other hand. As a result, global GDP growth is projected to slow down from 3.3% in CY 2024 to 3.0% in CY 2025.



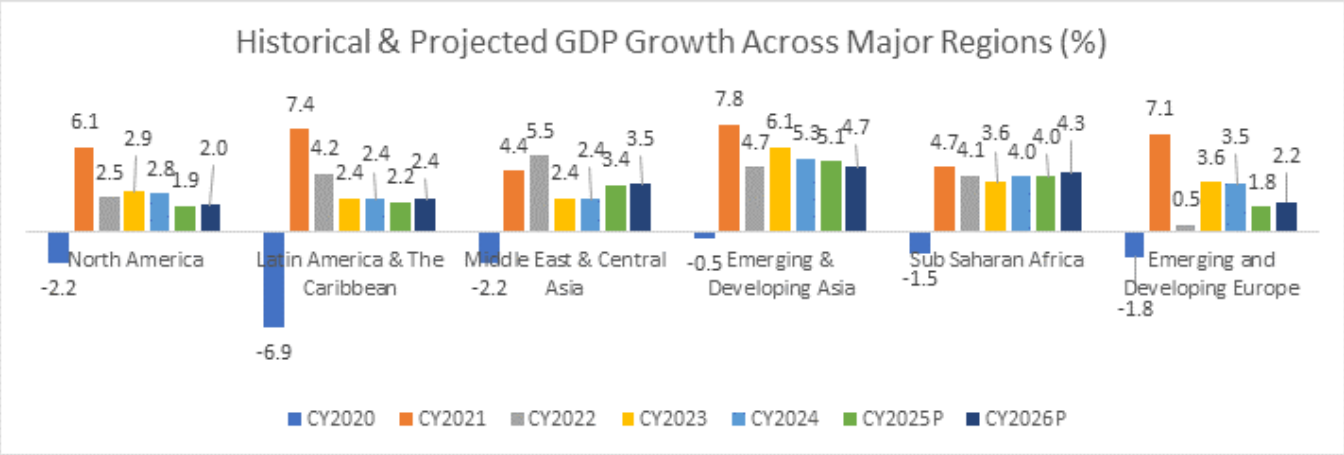

Source – IMF Global GDP Forecast Release July 2025

*Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)*

### Historical and Projected GDP Growth

GDP growth across major regions exhibited a mixed trend between 2022-23, with GDP growth in many regions including North America, Emerging and Developing Asia, and Emerging and Developing Europe slowing further in 2024. In 2025, GDP growth rate in Emerging and Developing Asia (India, China, Indonesia, Malaysia, etc.) is expected to moderate further to 5.1% from 5.3% in the previous year, while in the North America, it is expected to moderate to 1.9% in CY 2025 from 2.8% in CY

2024. Similarly in Emerging and Developing Europe is expected to moderate further to 1.8% from 3.5% in the previous year.




Source-IMF World Economic Outlook July 2025 update.

Except Middle East & Central Asia, all other regions like Emerging and Developing Asia, Emerging and Developing Europe, Latin America & The Caribbean, Sub Saharan Africa and North America, are expected to record a moderation in GDP growth rate in CY 2025 as compared to CY 2024. Further, growth in the United States is expected to come down at 1.9% in CY 2025 from 2.8% in CY 2024 due to lagged effects of monetary policy tightening, gradual fiscal tightening, and a softening in labour markets slowing aggregate demand.

## Global Economic Outlook

The global macroeconomic environment remains shaped by divergent regional trends and continued geopolitical and policymaking uncertainties. A wave of new U.S. tariffs, mostly effective from August 7, has shaken markets and raised costs for global trade. On August 1, the U.S. announced higher tariff rates for countries from which it imports goods, with most of the rates effective from August 7. A 15% rate will act as a baseline floor for countries with which the U.S. has a trade deficit; a 10% rate applies for those with which the U.S. has a trade surplus. However, there are some countries that are subject to higher U.S. tariffs.

In North America, the United States continues to engage in trade negotiations with multiple countries and has announced plans to introduce sector-specific tariffs, targeting industries such as copper and pharmaceuticals. However, talks with Canada have stalled, despite Canada's decision to withdraw its Digital Services Tax in an effort to ease tensions. As a result, the U.S. imposed a 35% tariff on Canadian goods that do not meet USMCA compliance standards, effective August 1. This move has further strained bilateral relations and added complexity to the regional trade landscape.

By August 7, the U.S. had announced increased tariffs of 15-50% on Asian economies, with most rates around 20%. Although these tariffs are lower than the levels announced in April, they remain higher than those applied to most Western counterparts, impacting exporters such as Taiwan Region (20%) and India (25%, with the U.S. saying this could rise to 50% at the end of August). Moreover, On July 28, the US imposed a 15% tariff on most EU imports under a new trade agreement, impacting Nordic countries such as Denmark, Finland, and Sweden. Key exemptions include aircraft parts and semiconductor equipment, while steel and aluminum continue to face 50% tariffs.

Tariffs and their unpredictable application have weighed on consumer and business sentiment, sunk global stock markets, raised recession risks, and made a global slowdown more likely. Our latest Global Business Optimism Insights report for indicates a further decline in business optimism as firms continue to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors reported sharp declines in optimism. Financial risk perceptions remain elevated as businesses contend with high borrowing costs and persistent inflation expectations. More broadly, the uncertainty is reflected in delayed capital expenditure and a pullback in hiring.

Tariffs have begun to exert pressure on central banks by contributing to inflationary pressures and increasing financial market volatility. Central banks are adjusting forward guidance and policy frameworks and may begin to consider the likelihood of softer growth being a bigger priority than high inflation by starting to cut interest rates to support economies. For businesses, this uncertainty translates into unpredictable cost structures, fluctuating credit availability, and the management of operational costs through diversified supply networks.

The latest Dun & Bradstreet Global Business Optimism Insights report reveals a further decline in business optimism, though at a more moderate pace than in the prior quarter, as businesses continued to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors such as automotives, electricals, and metals saw sharp declines in optimism, particularly in the U.S., Mexico, South Korea, and Japan, where rising tariffs and shifting trade policies have fueled cost pressures and demand volatility. Financial risk perceptions remain elevated.

## Global Growth Projection

At broader level, the global economy is expected to experience a slowdown in 2025, with GDP growth projected to decline to 3.0%, down from 3.3% in 2024. This deceleration reflects persistent inflationary pressure, geopolitical uncertainties and tightened monetary policies. However, a sightly recovery is anticipated in 2026, with growth projected to improve to 3.1%. Global inflation is expected to decline steadily, to 4.2% in 2025 and to 3.6% in 2026. Inflation is projected to converge back to the target earlier in advanced economies, reaching 2.2% in 2026, whereas in emerging market and developing economies, it is anticipated to decrease to 4.6% during the same period. Trade tariffs function as a

supply shock for the countries imposing them, leading to a decrease in productivity and an increase in unit costs. Countries subject to tariffs experience a negative demand shock as export demand declines, placing downward pressure on prices. In each scenario, trade uncertainty introduces an additional layer of demand shock since businesses and households react by delaying investment and spending, and this impact could be intensified by stricter financial conditions and heightened exchange rate volatility. Moreover, Global trade growth is expected to slow down in 2025 to 1.7%. This forecast reflects increased tariff restrictions affecting trade flows and, to a lesser extent, the waning effects of cyclical factors that have underpinned the recent rise in goods trade. Geopolitical tensions as seen in the past such as the wars in Ukraine and the Middle East could exacerbate inflation volatility, particularly in energy and agricultural commodities.

## India Macroeconomic Analysis

India emerged as one of the fastest growth economies amongst the leading advanced economies and emerging economies. In CY 2024, even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world and is expected to grow by 6.4% in CY 2025.

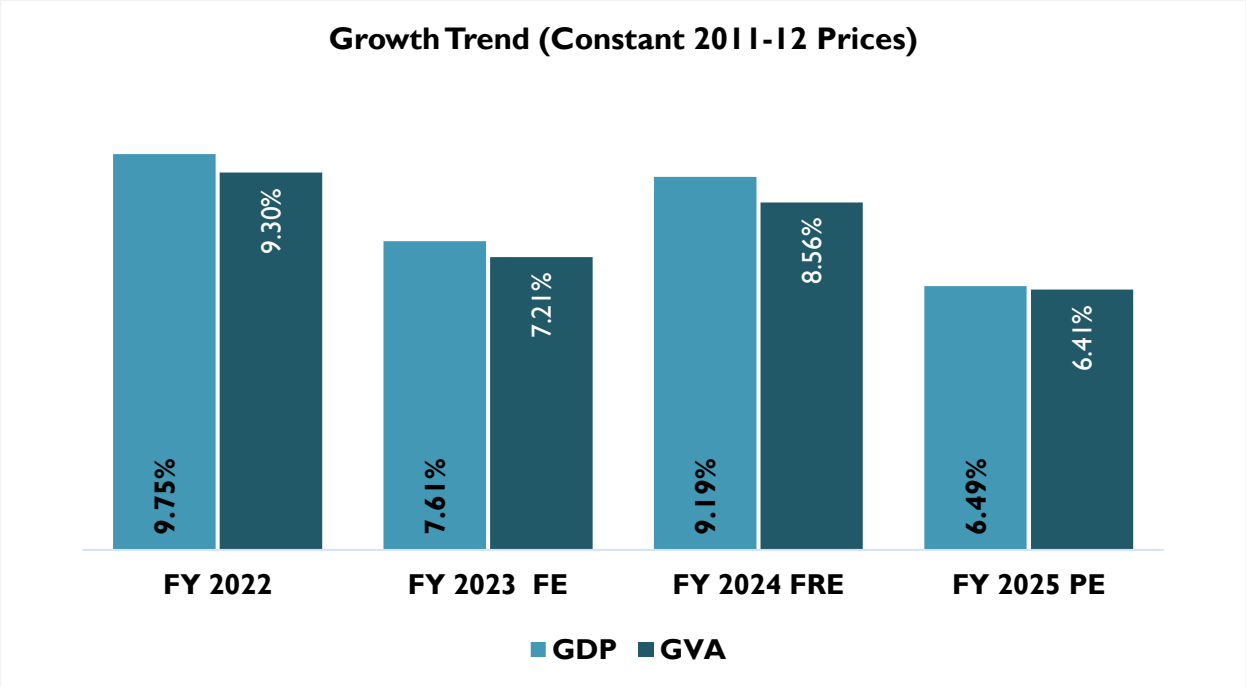
| Country | CY 2020 | CY 2021 | CY 2022 | CY 2023 | CY 2024 | CY 2025 P | CY 2026 P |
|---|---|---|---|---|---|---|---|
| **India** | –5.8% | 9.7% | 7.6% | 9.2% | 6.5% | 6.4% | 6.4% |
| **China** | 2.3% | 8.6% | 3.1% | 5.4% | 5.0% | 4.8% | 4.2% |
| **United States** | -2.2% | 6.1% | 2.5% | 2.9% | 2.8% | 1.9% | 2.0% |
| **Japan** | -4.2% | 2.7% | 0.9% | 1.4% | 0.2% | 0.7% | 0.5% |
| **United Kingdom** | -10.3% | 8.6% | 4.8% | 0.4% | 1.1% | 1.2% | 1.4% |
| **Russia** | -2.7% | 5.9% | -1.4% | 4.1% | 4.3% | 0.9% | 1.0% |

Source: World Economic Outlook, July 2025

The Government stepped spending on infrastructure projects to boost the economic growth had a positive impact on economic growth. The capital expenditure of the central government increased by average 26.52% during FY 2023-FY 2024 which slowed to 7.27% in FY 2025 which is expected to translate in moderating GDP growth of 6.4% in CY2025. In the Union Budget 2025-2026, the government announced INR 11.21 billion capex on infrastructure (10.12% higher than previous year revised estimates) coupled with INR 1.5 trillion in interest-free loans to states. This has provided much-needed confidence to the private sector, and in turn, expected to attract the private investment.

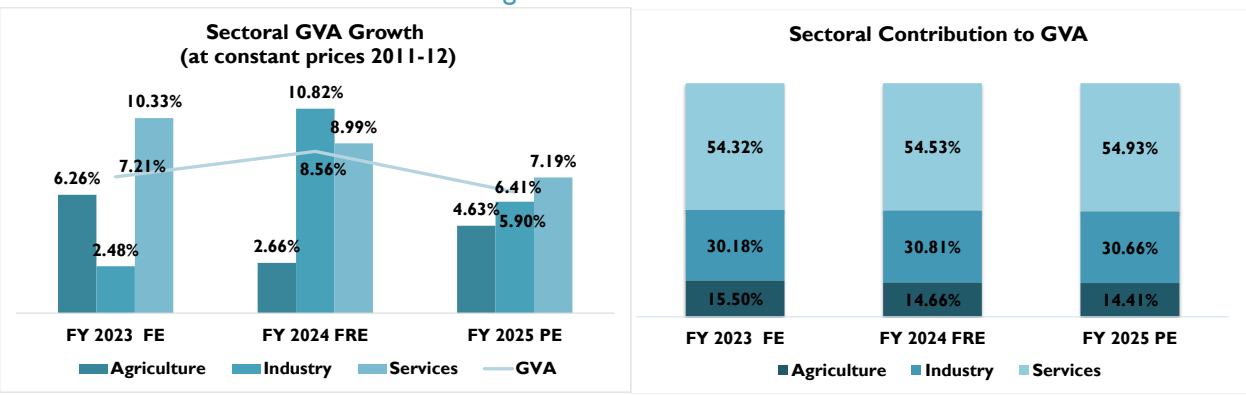
### Historical GDP and GVA Growth trend

As per the latest estimates, India's GDP at constant prices is estimated to grow to INR 187.96 trillion in FY 2025 (Provisional Estimates) with the real GDP growth rates estimated to be 6.5% for FY 2025. Similarly, real Gross Value Added (GVA) growth stood is estimated to have moderated to 6.4% in FY 2025. Even amidst global economic uncertainties, India's economy exhibited resilience supported by robust consumption and government spending.




Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics: FY2025.
FE is Final Estimates, FRE is First Revised Estimate and PE is Provisional Estimates

## Sectoral Contribution to GVA and annual growth trend




Source: Ministry of Statistics & Programme Implementation (MOSPI)
FE is Final Estimates, FRE is First Revised Estimate and PE is Provisional Estimates

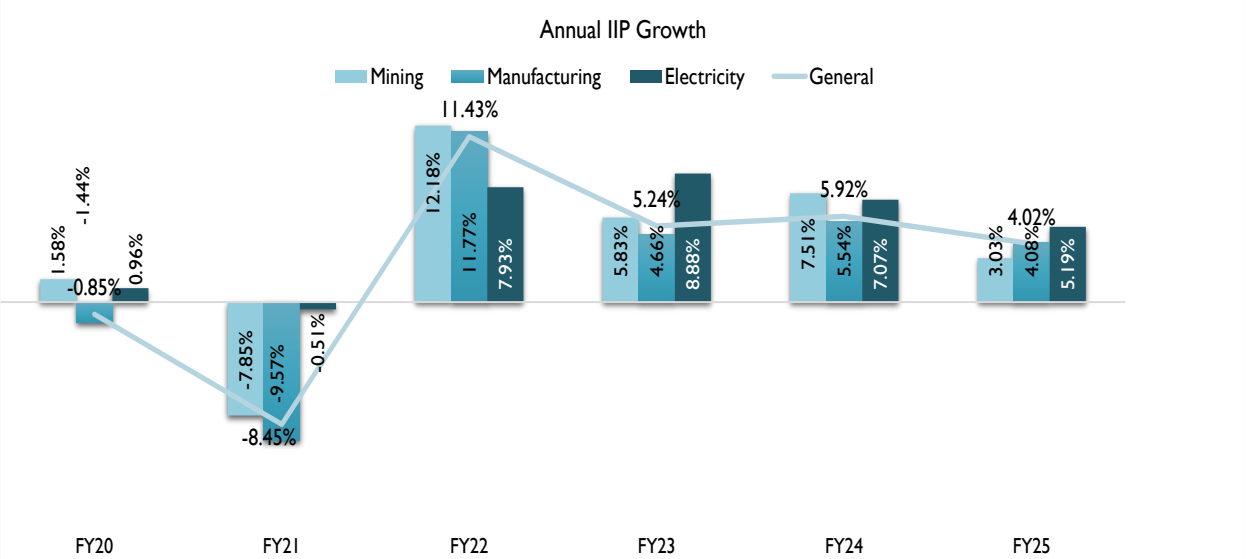
Sectoral analysis of GVA reveals that the industrial sector experienced a moderation in FY 2025, recording a 5.90% y-o-y growth against 10.82% year-on-year growth in FY 2024. Within the industrial sector, growth moderated across sub sector with mining, manufacturing, and construction activities growing by 2.69%, 4.52%, and 9.35% respectively in FY 2025, compared to 3.21%, 12.30%, and 10.41% in FY 2024. Growth in the utilities sector too moderated to 6.03% in FY 2025 from 8.64% in the previous year. The industrial sector's contribution to GVA moderated marginally from 30.81% in FY 2024 to 30.66% in FY 2025.

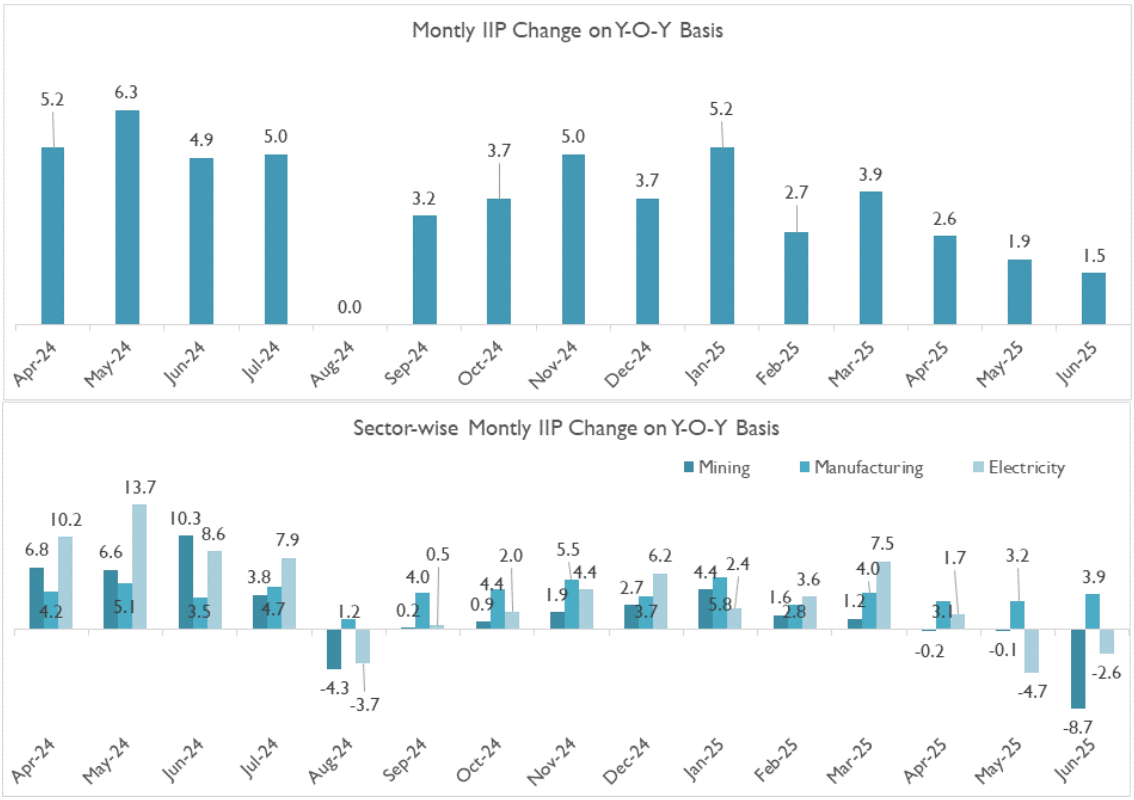
The services sector continued to be the main driver of economic growth, although its pace moderated. It expanded by 7.19% in FY 2025 from 8.99% in FY 2024. The services sector retained its position as the largest contributor to GVA, rising from 54.32% in FY 2023 to 54.53% in FY 2024, with a further increase to 54.93% in FY 2025.

The agriculture sector saw an acceleration, with growth increasing from 2.66% in FY 2024 to 4.63% in FY 2025. However, its contribution to GVA declined marginally from 14.66% in FY 2024 to 14.41% in FY 2025. Overall, Gross Value Added (GVA) growth moderated to 6.41% in FY 2025 from 8.56% in FY 2024

## Annual & Monthly IIP Growth

Industrial sector performance as measured by IIP index exhibited moderation in FY 2025, recording a 4.02% y-o-y growth against 5.92% increase in the previous year. The manufacturing index showed moderation and grew by 4.08% in FY 2025 against 5.54% in FY 2024. Mining sector index too moderated and exhibited a growth of 3.03% in FY 2025 against 7.51% in the previous years while the Electricity sector Index, also witnessed moderation of 5.19% in FY 2025 against 7.07% in the previous year.



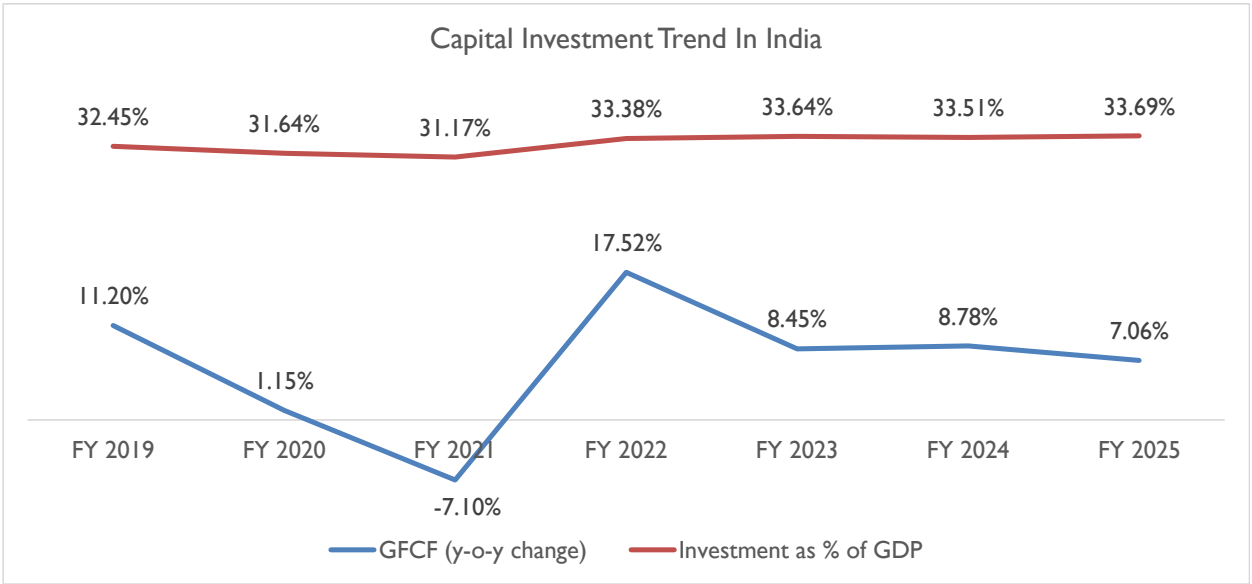


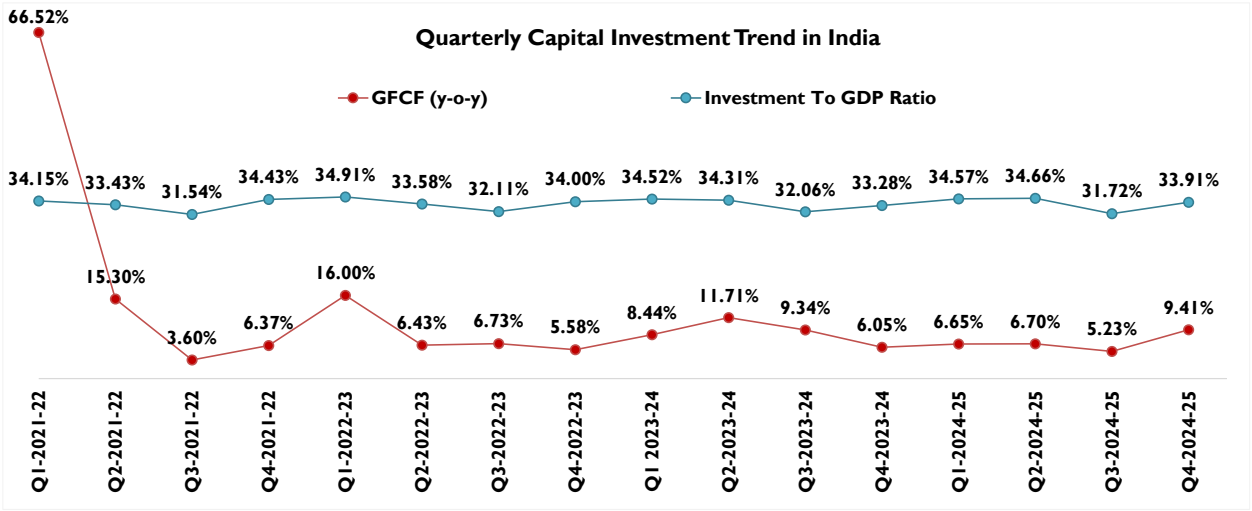

Source: Ministry of Statistics & Programme Implementation (MOSPI)

The IIP growth rate for the month of June 2025 is 1.5% which was 1.9% in the month of May 2025. The growth rates of the three sectors, Mining, Manufacturing and Electricity for the month of May 2025 are (-)8.7%, 3.9% and (-)2.6% respectively.

## Annual and Quarterly: Investment & Consumption Scenario

Other major indicators such as Gross fixed capital formation (GFCF), a measure of investments, has shown fluctuation during FY 2025 as it registered 7.06% year-on-year growth against 8.78% yearly growth in FY 2024, taking the GFCF to GDP ratio measured to 33.69%.

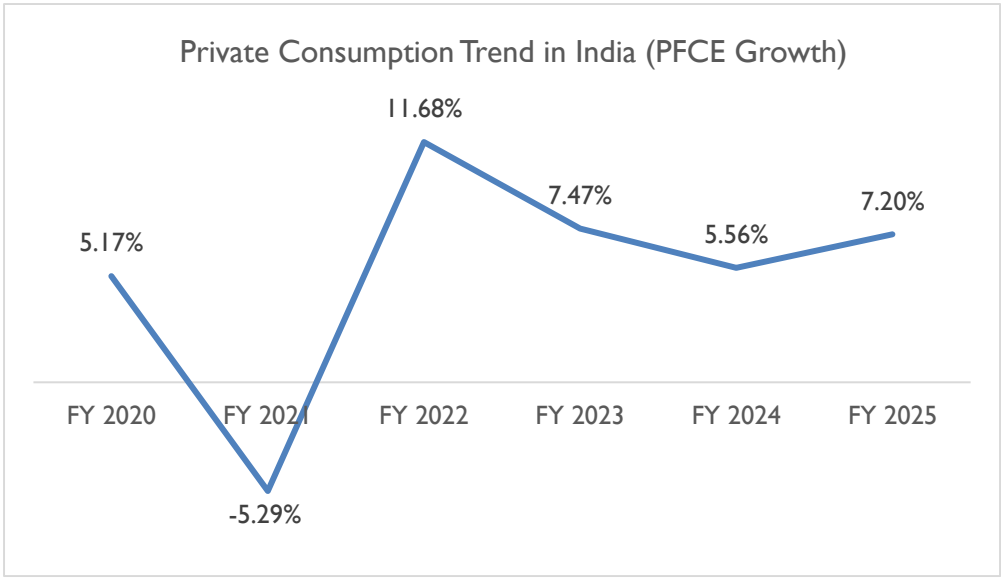


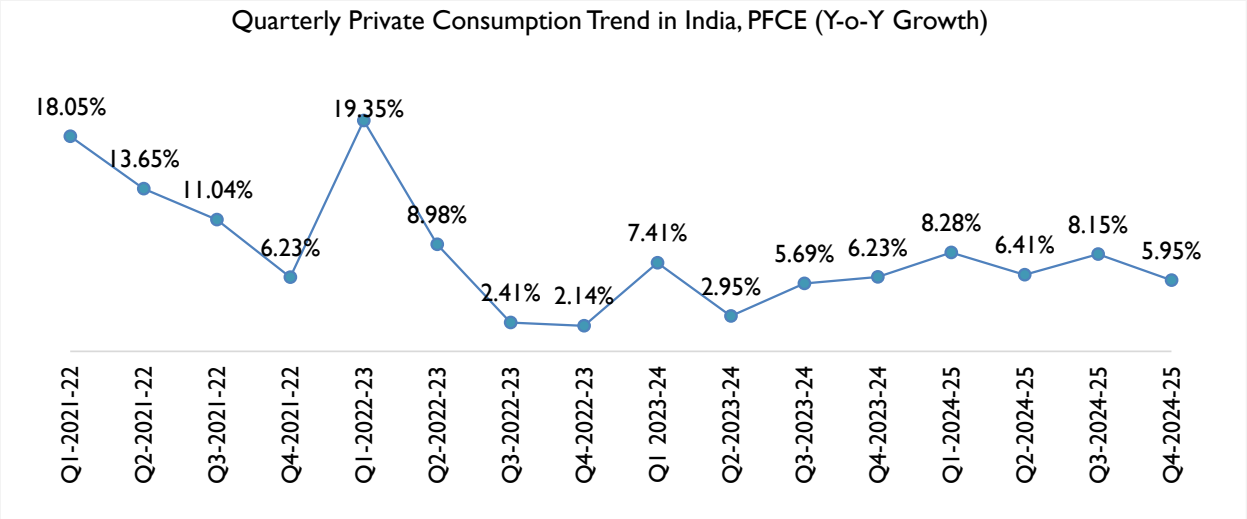



Source: Ministry of Statistics & Programme Implementation (MOSPI)

On quarterly basis, GFCF exhibited a fluctuating trend in quarterly growth over the previous year same quarter. In FY 2024, the growth rate moderated to 6.05% in March quarter against the previous two quarter as government went slow on capital spending amidst the 2024 general election while it observed an improvement in Q1 FY 2025 by growing at 6.65% against 6.05% in the previous quarter and moderated in the subsequent two quarter. On yearly basis, the growth rate remained lower compared to the same quarter in the previous year during FY 2025. The GFCF to GDP ratio measured 33.91% in Q4 FY 2025.

**Private Consumption Scenario**






Sources: MOSPI

Private Final Expenditure (PFCE) a realistic proxy to gauge household spending, observed growth in FY 2025 as compared to FY 2024. However, quarterly data indicated some improvement in the current fiscal as the growth rate improved over the corresponding period in the last fiscal.

## Inflation Scenario

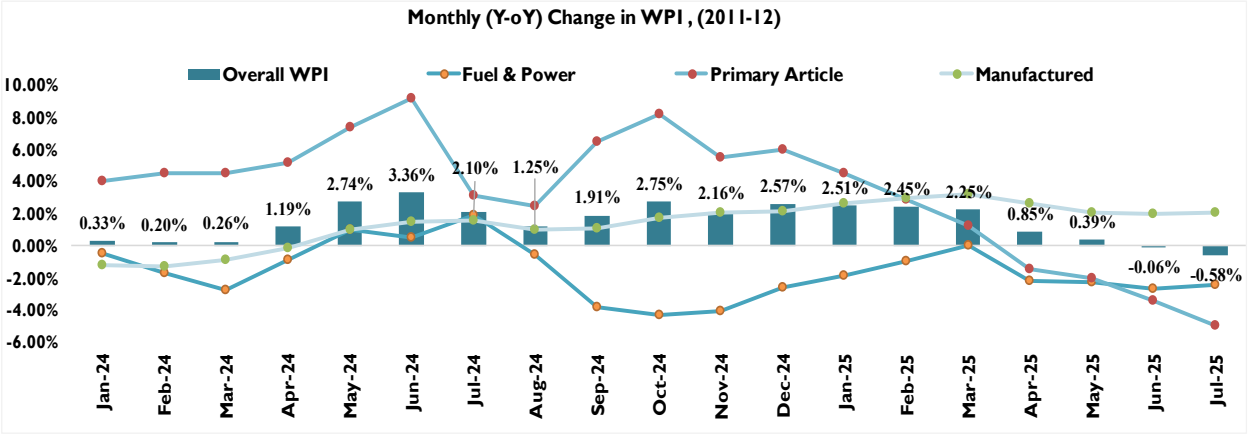
The inflation rate based on India's Wholesale Price Index (WPI) exhibited significant fluctuations across different sectors from January 2024 to July 2025. The annual rate of inflation based on All India Wholesale Price Index (WPI) number is (-) 0.58% (provisional) for the month of July, 2025 (over July, 2024). Negative rate of inflation in July 2025 is primarily due to increase in prices of manufacture of food products, electricity, other manufacturing, chemicals and chemical products, manufacture of other transport equipment and non-food articles etc.

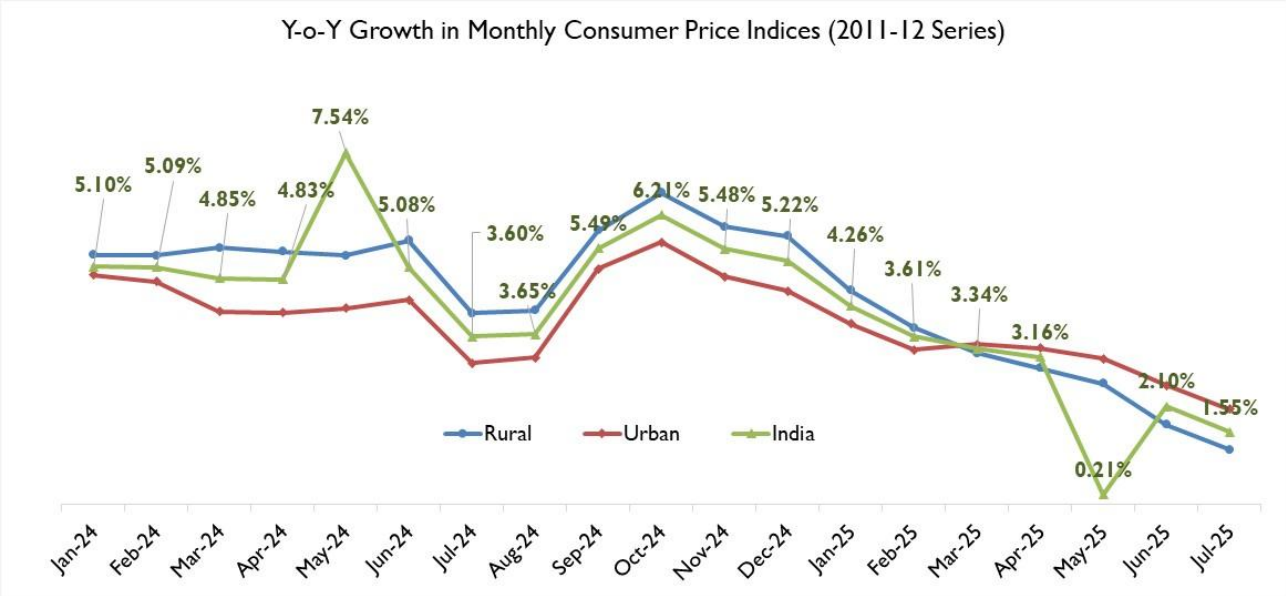
By July 2025, Primary Articles (Weight 22.62%), - The index for this major group increased by 1.18 % from 185.8 (provisional) for the month of June 2025 to 188.0 (provisional) in July, 2025. Price of Crude Petroleum & Natural Gas (2.56%), non-food articles (2.11%) and food articles (0.96%) increased in July, 2025 as compared to June, 2025. The price of minerals (-1.08%) decreased in July, 2025 as compared to June, 2025.

Moreover, power & fuel, the index for this major group increased by 1.12% from 143.0 (provisional) for the month of June, 2025 to 144.6 (provisional) in July, 2025. The price of mineral oils (1.98%) increased in July, 2025 as compared to June, 2025. Price of coal (-0.44%) and electricity (-0.36%) decreased in July, 2025 as compared to June, 2025.

Furthermore, Manufactured Products (Weight 64.23%), The index for this major group declined by 0.14% from 144.8 (provisional) for the month of June, 2025to 144.6 (provisional) in July, 2025. Out of the 22 NIC two-digit groups for manufactured products, 9 groups witnessed an increase in prices, 9 groups witnessed a decrease in prices and 4 groups witnessed no change in prices. Some of the important groups that showed month-over-month increase in prices were other manufacturing; other

transport equipment; motor vehicles, trailers and semi-trailers; other non-metallic mineral products and furniture etc. Some of the groups that witnessed a decrease in prices were manufacture of basic metals; fabricated metal products, except machinery and equipment; food products; chemicals and chemical products and paper and paper products etc in July, 2025 as compared to June, 2025.

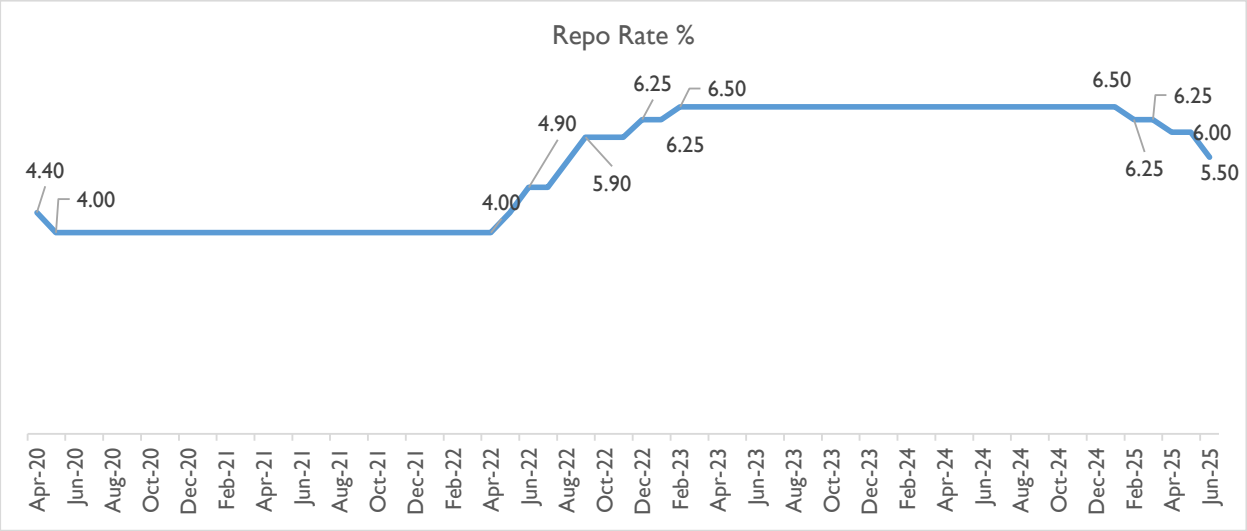



Source: MOSPI, Office of Economic Advisor

Retail inflation rate (as measured by the Consumer Price Index) in India showed notable fluctuations between January 2024 and July2025. Overall, the national CPI inflation rate moderated to 1.55% by July 2025, indicating a gradual easing of inflationary pressures across both rural and urban areas. Rural CPI inflation peaked at 6.68% in October 2024, declining to 1.18% in July 2025. Urban CPI inflation followed a similar trend, rising to 5.62% in October 2024 and then dropping to 2.05% in July 2025. CPI measured above 6.00% tolerance limit of the central bank since July 2023. As a part of an anti-inflationary measure, the RBI has hiked the repo rate by 250 bps since May 2022 and 8 Feb 2023 while

it held the rate steady at 6.50 % till January 2025. On 6th June 2025, RBI reduced the repo rate by 50 basis points which currently stands at 5.50%.




Sources: CMIE Economic Outlook

## Growth Outlook

The Union Budget 2025-26 has laid the foundation for sustained growth by balancing demand stimulation, investment promotion and inclusive development. Inflation level is reaching within the central bank's target; the RBI may pursue further monetary easing that will support growth. The medium-term outlook is bright, fueled by the emphasis on physical and digital infrastructure spending. With a focus on stimulating demand, driving investment and ensuring inclusive development, the budget introduces measures such as tax relief, increased infrastructure spending and incentives for manufacturing and clean energy. These initiatives aim to accelerate growth while maintaining fiscal discipline, reinforcing India's long-term economic resilience. The expansion of tax relief i.e zero tax liability for individuals earning up to INR 12 lacs annually under the new tax regime is expected to strengthen household finances and, consequently, boost consumption.

The external sector remains resilient, and key external vulnerability indicators continue to improve. However, tariff-related uncertainty is likely to weigh on exports and investment, prompting us to cut our CY26 GDP growth forecast to 6.4%.

## Industry Overview

Indian construction equipment industry is the world's third-largest, next only to China and the U.S, transforming India's infrastructure growth. The construction equipment industry in India is experiencing significant growth, driven by various factors including urbanization, government infrastructure investments, and technological advancements.

Infrastructure development is the foundation of the construction sector, which is supported by strategic government investment and active private sector participation, leading to widespread expansion of critical sectors. Infrastructure sector development under the government flagship programme i.e. National Infrastructure Pipeline and National Master Plan 'Gati Shakti', amongst other paves way for integrated, holistic, and inclusive economic development. In addition to this master plan, infrastructure development programmes launched by Ministry of Road Transport and Highways (MoRTH), Ministry of Shipping compliment construction equipment industry growth.

Construction and mining equipment comprise of machinery used in construction operation as well as mining. These include heavy lift equipment like crane, earthmoving equipment like dozers, loaders and heavy transport vehicles like tippers, dumpers and trailers. Manufacturing of these equipments are capital intensive and require access to superior technology, due to which only handful of players manufacture the large and complex equipment.

Broad Classification in construction equipment sector

| Classification | Type of equipment |
|---|---|
| **Foundation Equipment** | Digging equipment (including excavator, backhoe, dragline excavator), Loading equipment (wheel loader, dump truck), Compacting equipment (compact roller, bulldozer), Rigs including Diaphragm rig, Piling rig and Vertical drilling rig |
| **Trenchless Equipment** | Light and heavy Horizontal Directional Drilling (HDD) Rigs, Auger Boring Equipment:, Micro Tunnelling Machines (MTM), Pipe Ramming Machines (PR), Cured-In-Place Pipe (CIPP) Lining Equipment:. |
| **Concrete Equipment** | Concrete Mixers, Concrete Pumps, Batching Plants |
| **Construction Vehicles** | Dumpers, Trippers, Tankers, Trailers |
| **Material Handling Equipment** | Mobile cranes, Gantry cranes, Hoists, Forklifts, Telehandlers |

| | |
|---|---|
| **Construction Equipment** | Road rollers, Road making machines, Tandem Compactors and Soil Compactors, Construction Drilling Equipment |
| **Material Processing Equipment** | Concrete mixers, Hot mix plants, Stone crushers, Screeners, Jaw Crushers, Impact Crushers, Cone Crushers |
| **Mining Equipment** | Crushing equipment, screening equipment, Conveying & feeding equipment, Pyro processing equipment, tunneling equipment, Slurry pumping equipment |

Nearly 65-70% of the different construction equipment in India operate on roads and highways, while the rest are in off-road/off-highway applications such as mining, quarrying, irrigation projects and the like. Construction equipment operating on roads are regulated by MoRTH from 1st April 2021, and so are at par with international standards, with global competitiveness. However, the off-road construction equipment is unregulated, thus lacking adequate governance.

The construction equipment industry in India is poised for substantial growth driven by infrastructure investments, urbanization trends, and technological advancements. While challenges such as high costs and labour shortages exist, the overall outlook remains positive as demand continues to rise across various sectors. As companies adapt to these dynamics, opportunities for innovation and expansion will likely shape the future landscape of this vital industry.

### Drilling Equipment

Despite the availability of multiple types of equipment deployed in construction activity, a construction project is incomplete without drilling equipment. Drilling equipment plays a crucial role in construction, particularly in foundation engineering, road construction, and various infrastructure projects. The types of drilling equipment vary widely, each designed for specific applications and geological conditions. Among them, the specialized drilling equipments are:

- **Horizontal Directional Drilling**
- **Diaphragm Wall Drilling Rigs**
- **Rotary Drilling Rigs also called as Piling Rigs**

These types of drilling equipment are predominantly used for the following purposes:

- **Underground Infrastructure:**
  HDD is used to install pipelines for water, gas, sewage, and electricity, as well as cables for telecommunications.
- **Foundation Work**
  Drilling equipment is vital for creating stable foundations for buildings and infrastructure. It allows for precise hole placement and depth control, which are critical for structural integrity.

- **Geotechnical Investigation**

  Helps assess soil conditions before construction begins, ensuring that projects are built on solid ground. This geotechnical investigation is an important element in construction of any major projects such as metro line, bridges, windmill installation and the like. Any infrastructure project with heavy investment cannot be started without geotechnical investigation. This process is crucial in deciding the method of construction, type of equipment to be used for construction and the materials to be used for construction.

- **Efficiency and Safety**

  Modern drilling technologies improve operational efficiency and minimize risks associated with manual drilling methods. These types of drilling equipment ensure safety of the workforce, reduce the labour force involved in drilling and thus, reduce the overall construction cost, environmental hassles, and employee safety at the construction site.

### Horizontal Directional Drill

Horizontal directional drilling (HDD) is a sophisticated trenchless technology used primarily for installing underground pipelines, conduits, and cables with minimal surface disruption. This method is particularly advantageous in urban environments or areas with existing underground utilities. HDD is used when trenching or excavating is not practical. The tools and techniques used in HDD process are an outgrowth of the oil well drilling industry. HDD is characterized by its ability to create horizontal boreholes beneath obstacles like roads, railroads, and rivers without the need for extensive excavation. The process is generally divided into three main stages:

- **Pilot Hole Drilling** – A small-diameter pilot hole is drilled along a predetermined path using a steerable drill bit. Drilling fluid aids the drill bit cut through the soil and rock. It lubricates and cools the drill bit. It also carries cuttings from the hole back to the surface.
    - Pilot hole drilling is the most challenging and time consuming. When a piece of drill pipe is advanced, the next drill pipe is fitted with a wire inside, which is attached to all the pipes. This wire is used to signal the steering probe located at the bottom hole assembly (BHA).
    - Pilot hole directional drilling is achieved by using non-rotating drill string with an asymmetrical leading edge.
- **Hole Expansion** – The pilot hole is then enlarged to accommodate the installation of the desired pipeline or conduit. This is done through an appropriate tool to open the pilot hole, which depends on the percentage of variables such as soil types, soil stability, depth, drilling mud, borehole hydrostatic pressure and the like.
- **Pipe Installation** – Pipe installation is done by attaching a prefabricated pipeline pull section behind a reaming assembly at the exit point and pulling the reaming assembly and pull section back

to the drilling rig. Finally, the production pipe is pulled back through the enlarged hole. This is done through a pullback operation, which involves an entire pipeline string pulling back through the drilling mud along the reamed-pole pathway. Proper pipe handling, cradling, bending minimization are followed in pipe installation.

**Advantages of HDD**

Advantages of HDD compared to traditional trenching methods are listed below:

- **Minimal Surface Disruption** – HDD allows for the installation of utilities without disturbing the surface, making it ideal for urban and residential area. Additionally, HDD is preferred if the underground is congested with other utilities.
- **Cost-effectiveness** – The method typically requires less equipment and fewer personnel, leading to lower overall project costs, including reduced surface restoration expenses.
- **Speed** – HDD projects can be completed faster than conventional methods due to reduced excavation time and surface restoration efforts. Horizontal drilling is done across is more efficient that drilling down, so done at a faster speed.
- **Depth of Installation** – Pipeline installation is deeper than the trench approach. The technique allows for deeper installations, minimizing the risk of damaging existing underground utilities.

**Equipment Used in HDD**

HDD uses three main equipment, supported by many ancillary accessories and supportive nuts, bolts, wires, computer system, control unit and the like.

- **Drilling Rig** – A surface-launched rig equipped with an inclined ramp instead of a vertical mast.
- **Drill Pipe and Tools** – These are similar to those used in oil well drilling but adapted for horizontal applications. Drill pipes are often non-magnetic to avoid interference with directional tools.
- **Drilling Fluid** – Essential for lubricating the drill bit, cooling it, transporting cuttings back to the surface, and stabilizing the borehole.

**Technicalities of HDD**

- **Drilling Techniques**
  - **Directional Control** – is achieved through specialized drill bits that allow steering during drilling.
  - **Measurement while Drilling (MWD)** – Tools that provide real-time data on borehole **inclination** and azimuth, enabling immediate adjustments as needed.

- **Hole Stability Factors**

  The stability of the drilled hole can be affected by

  - Soil type and condition
  - The diameter of the hole
  - The geometry of the drilling path

- **Risks Involved**

  - Fluid loss due to porous soil conditions
  - Hydraulic fractures caused by excessive fluid pressure.
  - Hole instability leading to potential pipeline damage during installation.

- **Safety Considerations**

  - Ensuring all personnel are trained in HDD processes and equipment operation.
  - Conducting thorough site assessments to identify potential hazards.
  - Implementing measures to prevent fluid loss and manage hydraulic fractures during drilling.

In summary, horizontal directional drilling is a highly efficient method for installing underground utilities with minimal environmental impact. Its advantages make it a preferred choice in many construction projects where traditional excavation methods would be impractical or disruptive.

## Diaphragm Wall Drilling Rigs

Diaphragm wall drilling rigs are specialized machines used in the construction of diaphragm walls, which are reinforced concrete structures cast into the ground for various applications such as foundation support, excavation support, and cut-off walls. Diaphragm walls have become a standard method in specialist foundation engineering, acting as retaining structures, cut-off walls, foundation elements with structural function.

### Overview of Diaphragm Walls

A diaphragm wall is a continuous wall constructed from a series of overlapping panels. These walls serve multiple purposes including:

- **Support for Excavation** – Diaphragm walls provide stability during excavation in deep or challenging soil conditions. This is constructed using grab or cutters to create a narrow trench excavation into the ground. The trench is supported by engineered slurry. These walls are made with reinforced concrete, through unreinforced walls can be used.

- **Foundation Elements** – Used as part of the foundation for large structures like buildings and underground stations. This is a reinforced concrete wall constructed in the ground to support major construction projects. These walls serve as both temporary and permanent earth-retaining structures, that are largely effective in urban areas with limited space for excavation and shoring systems.
- **Cut-off Walls** – Diaphragm wall is used to prevent water seepage in areas like dams and basements. Diaphragm walls in dams are used as cut-off provisions or underground foundations for dams that require deep excavation or water control.

**Types of Diaphragm Wall Drilling Rigs**

- **Trench Cutters**
  - Designed for hard soil conditions.
  - Equipped with cutting wheels that loosen soil, which is then mixed with slurry for removal.
  - Capable of reaching depths up to 80-100 meter

- **Hydraulic Grabs**
  - Operate in cycles to excavate soil by inserting a grab into the trench, loosening it, and removing it.
  - Supported by slurry to stabilize the trench during excavation.
- **KHD Systems**
  - Compact designs ideal for tight spaces and various alignments.
  - Feature a rotation system for enhanced manoeuvrability.

**Construction Methods**

- **Trench Cutter Method**
  - Utilizes a trench cutter to excavate soil while mixing it with slurry. The slurry supports the trench walls and is recycled through a desanding plant.
  - This method is cost-effective as it has high operational efficiency due to continuous excavation, requiring lesser labour thus reducing labour cost, and the versatility to handle wide range of soil types.
- **Hydraulic Grab Method**

- Involves cyclic excavation using hydraulic grabs. The grab loosens soil at the trench base and removes it while maintaining trench stability with slurry.
- It is not as cost-effective as trench cutter method, as it is effective only in soft soils, but needs more labour for operation.

- **Slurry Preparation**
  - A mixture of bentonite and water is prepared to stabilize trench walls during construction. Tanks and pumps are used to manage slurry on-site effectively.

Key features of Trench Cutters and Diaphragm Wall Grabs are captured below:

| Features | Trench Cutters | Diaphragm Wall Grabs |
|---|---|---|
| Design | Equipped with two counter-rotating cutter wheels | Consists of mechanical or hydraulic clamshell grabs |
| Excavation Method | Continuous excavation with simultaneous spoil removal | Cyclic excavation, where soil is intermittently removed |
| Wall Thickness Capability | Can create walls from 500mm to 3,200mm thick | Suitable for 600mm to 1,500 mm wall thickness |
| Soil Type Handling | Effective in a way variety of soil types, including hard rock | Primarily used for softer soils but can handle larger blocks with modifications |
| Depth Capability | Suitable for depths exceeding 40 meters | Typically used for shallower depths than trench cutters |
| Operational Noise and Vibration | Produces more noise and vibration due to cutting process | Operates with low noise and vibration levels, particularly with hydraulic grabs |
| Soil Transport | Continuously transports excavated material mixed with slurry to the surface | Soil is transported cyclically, which may require additional handling |
| Precision and Control | Offers hydraulic steering for precise horizontal control during excavation | Verticality is monitored through installed measuring systems; less control over horizontal alignment |

| | | |
|---|---|---|
| Applications | Ideal for constructing deep diaphragm walls in challenging soil conditions, including urban settings | Commonly used for shallow diaphragm walls in less complex soil environments. |

**Advantages of Diaphragm Wall Drilling Rigs**

- **Versatility** – Effective in various soil types, including very hard formations and rock. Capable of resisting high lateral loads from soil and water pressures.
- **Vibration-free Operation** – Reduces disturbance to surrounding structures. Compared to other methods like driven piles, diaphragm wall construction generates less disturbance, which is beneficial in urban setting
- **Depth Capability** – Can construct walls exceeding 100 meters in depth.
- **Efficiency** – Continuous operation with minimal interruptions due to slurry recycling.
- **Durability** – Made from reinforced concrete, they are long-lasting and suitable for various environmental conditions.
- **Structural Stability** – Capable of resisting high lateral loads from soil and water pressures.

**Applications**

- **Basement Construction** – Diaphragm walls are commonly used to create robust and watertight enclosures for basements, protecting them from groundwater and soil pressure. This is particularly important in areas with high water tables or unstable soil condition.
- **Under-ground Parking Garages** – These walls provide necessary support for underground parking structures, preventing soil collapse and ensuring safety during excavation and construction.
- **Metro and Subway Stations** – In urban environments, diaphragm walls form a "box" structure that isolates the construction site from surrounding soil and groundwater, allowing safe excavation for metro and subway stations. Once constructed, they serve as permanent structural elements.
- **Tunnels** – Diaphragm walls are utilized in tunnel construction to provide stability and support against lateral earth pressures, ensuring the integrity of the tunnel structure.
- **Bridges & Dams** – Diaphragm walls enhance the stability of dams by minimizing seepage through foundations, which is crucial for maintaining structural integrity under high water pressure in a dam. Similarly, these can be integrated into bridge foundations, offering strength and stability to withstand loads and environmental conditions.

- **Environmental Remediation** – Used as cut-off walls to prevent groundwater contamination during remediation projects, diaphragm walls help isolate polluted areas from clean groundwater sources.
- **Retaining Walls** – They serve as effective retaining structures in various construction projects, providing lateral support against soil movement.
- **Land Usage Optimization** – By enabling the construction of deep basements and underground facilities without increasing surface footprint, diaphragm walls optimize land usage in densely populated urban areas.

Diaphragm walls play a crucial role in foundation engineering across various applications, particularly where structural integrity and groundwater control are paramount. Their versatility makes them an invaluable tool in modern construction projects. Diaphragm wall drilling rigs are critical tools in modern construction engineering, allowing for efficient and effective installation of diaphragm walls under challenging conditions while minimizing surface disruption and maintaining structural integrity.

## Rotary Drilling Rigs

Rotary drilling rigs also referred as DTH Rigs or water rig is a water well application equipment. These are critical tools used in various industries, including n,  used in mining, quarrying, construction, and other industries. They operate by rotating a drill bit to bore into the earth's surface, making them versatile and efficient for deep drilling applications. This is the most common type of drilling deep into the ground for several centuries. Rotary drilling rigs use high level of torque and rotation. The rotation of the drill bit bores through the rock formation at a speed of 50 to 120rpm, with the use of fixed cutter bits (called as PDC bits) and roller-cone bits. These two types of bits are predominantly used in this process.

### Key Components of Rotary Drilling Rigs

- **Drilling Rig Structure** – This is a framework set up at the site of drilling, this includes a mast and substructure that provide stability during drilling operations.
- **Rotary Table** – This device is essential for rotating the drill string, transferring torque to enable the drill bit to penetrate the ground.
- **Drill String** – Comprising hollow steel pipes, it connects the rotary system to the drill bit, allowing for rotation and weight application.

- **Bottom-Hole Assembly** – Located at the end of the drill string, it contains the drill bit and other tools necessary for drilling operations. Depending on the type of soil and other parameters, PDC bits or roller-cone bits are fixed at BHA. BHA contains all the equipment required to drill a section, which may include drill collars (heavy steel tubing used to add weight to the drill bit), directional drilling equipment, Measurement While Drilling (MWD) tools or Logging While Drilling (LWD) tools and the like.
- **Circulation System** – This system includes drilling fluids (often referred to as mud) which is circulated through the drill string to cool the bit, stabilize the borehole, maintain pressure in the wellbore and transport cuttings to the surface.

**Types of Rotary Drilling Rigs**

- **Conventional Rotary Rig (Kelly Drive Rig)** – Utilizes a rotary table to turn the drill string. It requires a Kelly bar for rotation and is commonly used in traditional drilling operations.
- **Top-Drive Rig** – Features a mechanism at the top of the drill string that rotates it directly, eliminating the need for a Kelly bar. This design enhances efficiency and reduces downtime during pipe connection.
- **Differences** - Primary differences between the two methods are captured below:

| Parameter | Conventional Rotary Rigs | Top-Drive Rig |
|---|---|---|
| **Operational Mechanism** | • Utilize a rotary table to turn the drill string, which is connected to a Kelly bar that fits into the rotary table's master bushing. The rotation of the rotary table imparts torque to the Kelly and subsequently to the drill string.<br>• The rig requires manual connections and disconnections of drill pipe sections, typically adding one joint at a time during drilling operations. | • Employ top-drive system, which is a motorized unit mounted on the traveling block that directly rotates the drill string without needing a Kelly or rotary table. This allows for more efficient torque application and eliminates some manual handling.<br>• The top-drive can add multiple joints of drill pipe in one operation, significantly reducing connection time during drilling. |
| **Efficiency and Speed** | • Considered less efficient due to the need for frequent manual handling and longer connection times when adding drill pipe sections. This can lead to increased non-productive time. | • Offer faster drilling rates and reduced trip times, leading to lower overall drilling costs. The efficiency gains can exceed 20% compared to conventional rigs. |
| **Safety** | • Involve more manual handling of heavy equipment, which can | • Enhance safety by minimizing manual handling. The |

| | | |
|---|---|---|
| | increase the risk of accidents and injuries during operation | automated systems reduce worker exposure to hazardous situations, making it a safer option overall |
| **Cost** | • Typically have lower initial investment costs due to simpler construction and technology. They are often seen as more economical for smaller operations. | • Come with higher initial costs and maintenance expenses. This investment may be justified for larger operations due to their efficiency and reduced operational costs over time |
| **Pipe Handling** | • Done through manual connections | • Done through automated connections |

Although conventional rotary table rigs have been a reliable choice for many years, top-drive rigs represent a significant advancement in drilling technology, offering improved efficiency, safety, and speed at a higher cost. The choice between these two systems largely depends on the specific needs and capabilities of the drilling operation.

### Advantages of Rotary Drilling Rig

- Offers high efficiency in penetrating various geographical formations, thus the flexibility of drilling across different locations is possible.
- Capability to produce precise boreholes with minimal noise—ideal for urban projects.
- Versatility in using different drilling fluids depending on geological conditions.

### Applications of Rotary Drilling Rigs

The versatility of rotary drilling rigs makes them indispensable across multiple sectors, from energy production to construction and environmental management. Their ability to penetrate various geological formations efficiently allows them to meet diverse operational needs effectively. The list of applications that use rotary drilling rigs are captured below as a table.

| Application | Functionality |
|---|---|
| **Oil and Gas Exploration** | Used to drill deep into the earth to access hydrocarbon reservoirs, facilitating the extraction of oil and natural gas. |
| **Mining** | Employed for mineral exploration and extraction, including drilling for ores and other valuable minerals. |
| **Water Well Drilling** | Essential for creating water wells to supply fresh water for residential, agricultural, and industrial use. |
| **Geothermal Energy** | Utilized in drilling geothermal wells to harness heat from the earth for energy production. |

| | |
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| **Pile Foundation Construction (Piling Rigs)** | Critical in constructing deep foundations for buildings, bridges, and other infrastructure projects, ensuring stability in various soil conditions. |
| **Environmental Remediation** | Applied in drilling boreholes for soil and groundwater sampling to assess contamination levels and implement remediation strategies |
| **Construction Projects** | Used for drilling pilot holes, core sampling, and other subsurface investigations necessary for construction planning |
| **Infrastructure Development** | Important in projects such as roadways, railways, and tunnels where deep foundations or geological assessments are required. |
| **Core Sampling** | Employed to obtain cylindrical samples of subsurface materials for geological analysis and resource evaluation. |
| **Blast Hole Drilling** | Used in mining and construction to create holes for explosives to break rock formations efficiently |
| **Utility Installation** | Facilitates the installation of underground utilities such as water lines, sewer systems, and electrical conduits through horizontal directional drilling techniques. |
| **Research and Geological Survey** | Supports scientific research by providing access to subsurface geological formations for study. |
| **Seismic Studies** | Assists in preparing sites for seismic surveys by creating necessary boreholes for data collection. |

Rotary drilling rigs are vital in modern drilling practices due to their efficiency and versatility across multiple industries. Understanding their components, operation methods, and applications provides valuable insights into their significance in resource extraction and environmental management.

*However, it has its inherent disadvantages such as this technique is not universally applicable, while some projects may require alternative drilling methods including dual rotary or reverse circulation. Also, this process requires careful management of drilling fluids to prevent borehole collapse or contamination.*

## Advantages of these Drilling Rigs Over Conventional Equipment

| HDD | Diaphragm Wall Drilling | Rotary Drilling |
|---|---|---|
| **Minimal Surface Disruption**: HDD is a trenchless method. It does not require extensive excavation or open trenches, thus, reducing surface disruption. This is particularly beneficial in urban areas, where maintaining access to properties and minimizing disruption to daily activities is crucial. | **Structural Integrity & Stability:** Diaphragm walls provide excellent lateral support and can resist high lateral loads and bending moments, making them suitable for deep excavations and heavy structures. This structural stability is crucial in urban environments where space is | **Increased Flexibility**: Rotary drilling rigs feature a lightweight modular design, making them easy to install and relocate, which enhances operational flexibility across different job sites. |

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| | limited, and surrounding structures must be protected. | |
| **Reduced Environmental Impact:** The trenchless nature of HDD minimizes disturbance to local ecosystems, including sensitive areas like wetlands and rivers. It protects flora and fauna by avoiding large-scale land clearing and soil displacement. Additionally, HDD reduces the risk of soil contamination since it does not bring contaminated soil to the surface. | **Watertight Construction:** The reinforced concrete nature of diaphragm walls allows them to act as effective barriers against groundwater infiltration, which is essential in projects located below the water table. This capability helps maintain dry working conditions during construction, reducing the risk of water-related issues. | **Higher Automation:** Many rotary drilling rigs are equipped with advanced automation features and computer operating systems, allowing for greater operational efficiency and productivity compared to conventional rigs, which often require more manual intervention. |
| **Cost-Effectiveness:** HDD results in lower overall installation costs due to reduced labor requirements and faster installation times. With less need for heavy equipment and fewer personnel on-site, operational costs are minimized. The efficiency of HDD can lead to savings in cleanup and restoration efforts as well. | **Reduced Surface Disruption:** Similar to HDD, diaphragm wall drilling minimizes surface disruption since it involves trenching rather than extensive excavation. This is particularly advantageous in urban areas where maintaining access and minimizing disturbance to traffic and nearby buildings is important. | **Faster Drilling Speeds:** Rotary drilling rigs can achieve significantly higher drilling speeds, reaching up to 10 mph in soil and sand, and 4-6 mph in clay. This speed is generally 3-5 times faster than that of conventional drilling rigs, allowing for quicker project completion. |
| **Flexibility in Installation:** HDD allows for the installation of utilities in challenging locations, such as under roads, rivers, or other obstacles where conventional drilling would be impractical or prohibitively expensive. This flexibility enables utility placement in areas that would otherwise require extensive excavation or rerouting. | **Versatility in Soil Conditions:** Diaphragm wall rigs can be equipped with various tools (e.g., grabs or trench cutters) that allow them to operate effectively in diverse soil conditions, including hard and soft soils. This versatility makes them suitable for a wide range of construction projects. | **Improved Operational Efficiency:** The use of drilling muds in rotary drilling rigs helps lubricate, cool, and clean the drill bit while stabilizing the hole wall. This results in better penetration rates and overall higher operational efficiency compared to traditional methods. |
| **Faster Installation Times**: The process of HDD is quicker than conventional methods. Since it requires less excavation and fewer crew members, projects can be completed more rapidly, which is | **Efficient Excavation Process:** The process of constructing diaphragm walls typically involves continuous trenching supported by slurry, which stabilizes the excavation and allows for deeper and wider trenches compared to | **Better Adaptability to Geological Conditions**: Rotary drilling rigs can be configured with different drill bits tailored to various strata, making them suitable for a wide range of geological conditions, including clay, silt, sand, and |

| | | |
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| advantageous for both contractors and clients. | conventional methods. This efficiency can lead to faster project completion times. | even slightly weathered rock formation, this is limited in conventional drills. |
| **Improved Safety:** By reducing the need for extensive excavation, HDD minimizes hazards associated with traditional digging methods, such as cave-ins or equipment accidents. The smaller footprint of HDD operations also contributes to a safer work environment for crews and nearby residents. | **Adaptability to Site Constraints:** Diaphragm wall rigs are designed to work in confined spaces and can be adapted for various alignments, making them ideal for sites with limited headroom or proximity to existing structures. Their compact design facilitates operations in challenging urban environment | **Reduced Environmental Impact:** Rotary drilling rigs generate less noise and vibration compared to conventional methods, contributing to a cleaner job site with lower environmental pollution. This is particularly important in urban areas where noise regulations may apply. |
| **Less Need for Permits:** HDD involves less surface disturbance; it often requires fewer permits compared to conventional drilling methods that may impact public rights-of-way or require road closures. This can streamline project timelines and reduce bureaucratic hurdles. | **Environmental Benefits:** The use of low-carbon concrete and electric-powered equipment in diaphragm wall construction reduces the environmental footprint compared to conventional methods that may rely on diesel-powered machinery. Additionally, the reduced need for large-scale excavation minimizes soil displacement and potential contamination. | **Enhanced Safety Features:** With higher levels of automation and fewer manual handling requirements, rotary drilling rigs can reduce the risk of accidents associated with traditional drilling methods. The self-propelling nature of these rigs also contributes to safer operations on-sit |
| **Durability of Installations:** The materials used in HDD installations, such as high-density polyethylene (HDPE) pipes, are known for their durability and resistance to corrosion. This leads to longer-lasting infrastructure with lower maintenance needs compared to some traditional materials. | **Long-Term Durability:** Diaphragm walls are designed for durability, providing long-lasting solutions that require less maintenance over time compared to some traditional foundation methods. Their robust construction helps ensure structural integrity throughout the lifespan of the building or infrastructure they support. | **Cost-Effectiveness:** Although the initial investment may be higher for rotary drilling rigs, their efficiency and speed can lead to lower overall costs due to reduced labor requirements and faster project timelines compared to conventional drills. |
| **Specific Applications:** HDD are suitable for specific horizontal applications such as installing cable ducts, pipes for residential, commercial and municipal purpose, with minimal labour, footprint and property damage. | **Specific Applications:** Diaphragm wall drilling are suitable for specific purposes such as basements, tunnels, bridge piers, retaining walls, underground car parks and the like. | **Versatility in Applications**: Rotary drilling rigs are suitable for various applications such as oil and gas exploration, water well drilling, foundation work for buildings and bridges, and environmental remediation projects. This versatility is |

| | | |
|---|---|---|
| | | greater than that of conventional drills. |
| **Conclusion:** Horizontal Directional Drilling presents significant advantages over conventional drilling methods by minimizing environmental impact, reducing costs and installation times, enhancing safety, and providing greater flexibility in utility installations. These benefits make HDD an increasingly popular choice for various applications in utility construction and infrastructure development. | **Conclusion:** Diaphragm wall drilling rigs present significant advantages over conventional drilling methods, particularly in urban construction contexts where stability, environmental impact, and site constraints are critical considerations. Their ability to create strong, watertight barriers while minimizing surface disruption makes them an essential choice for modern foundation engineering projects. | **Conclusion:** Rotary drilling rigs offer significant advantages over conventional drilling methods through enhanced flexibility, automation, speed, efficiency, adaptability to geological conditions, reduced environmental impact, improved safety features, cost-effectiveness, and versatility in applications. These benefits make rotary drilling an increasingly preferred choice in various industries requiring efficient and effective drilling solutions. |

## Current Market Scenario

### Estimated Size of Indian Construction Equipment Market

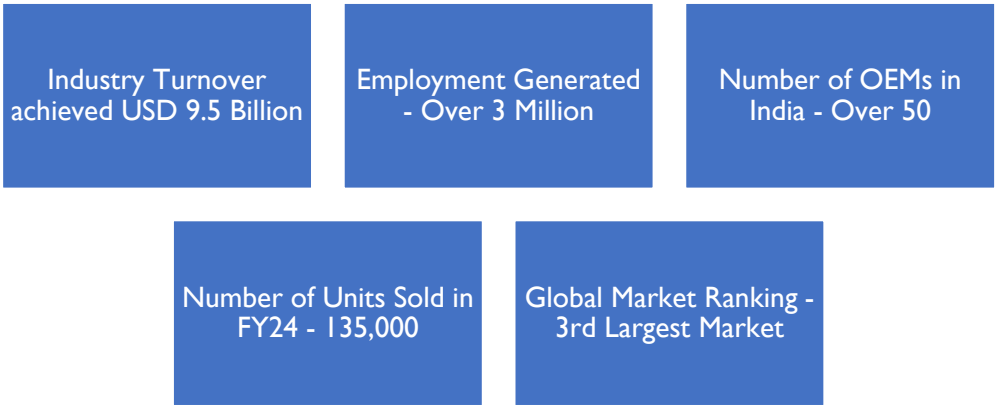
India's construction equipment market is experiencing significant growth, driven by increasing infrastructure development translating into an increasing demand for various types of machinery. The Indian construction equipment market is poised for robust growth, supported by increasing sales across various segments and increasing government spending towards the infrastructure development. The Indian CE market works with a goal of pursuing the objectives of CE Vision Plan 2030, which is a key driver for growth of this segment.

**Goals of CE Vision Plan 2030**

- 12% CAGR in the next five years, to achieve a three times export growth, which could eventually lead to a market size of USD 25 billion by 2030.
- Growth in the number of projects, that could offer employment to 6 million workforce by 2030.
- Emerge as the second largest CE industry globally by being a prime global manufacturing hub for CE by 2030.

In addition to these goals, the industry is in the process of preparing CE Vision Plan 2035, for which a Technology Roadmap 2035 is in place. This roadmap acts as a step-by-step guide for the CE manufacturers to embrace the path of tech-enabled growth and environmental sustainability. Increased localisation of components, growth of exports, and improving the skilled workforce count are the key focus areas to achieve this growth for 2030 and 2035. Additionally, this CE Vision Plan 2035 is prepared to align with CE Vision Plan 2047 with the objectives of Viksit Bharat.

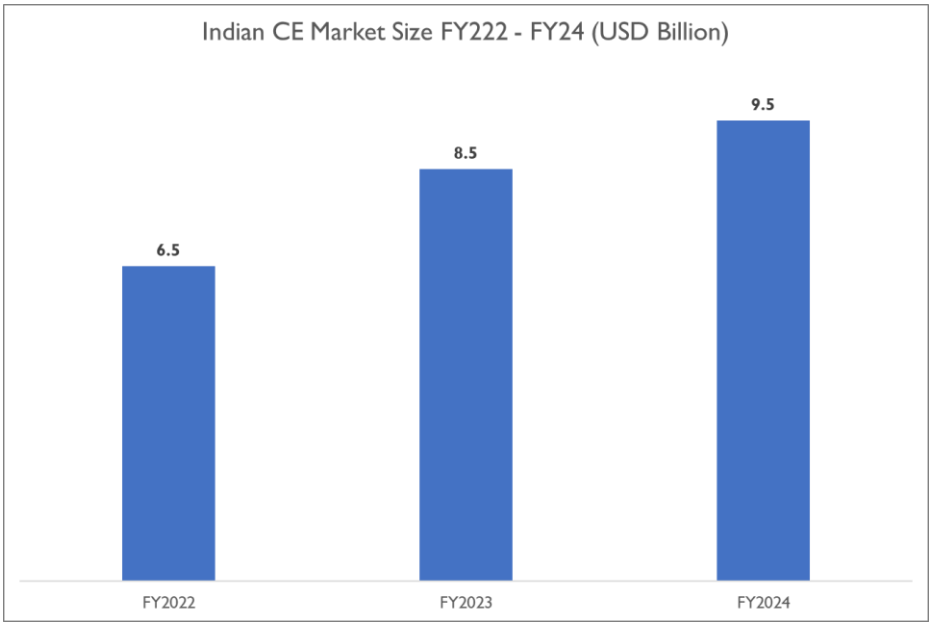
### Current Market Scenario of Construction Equipment Industry FY2023-24




Source: Indian Construction Equipment Manufacturers Association (ICEMA) Activity Report FY2023-24

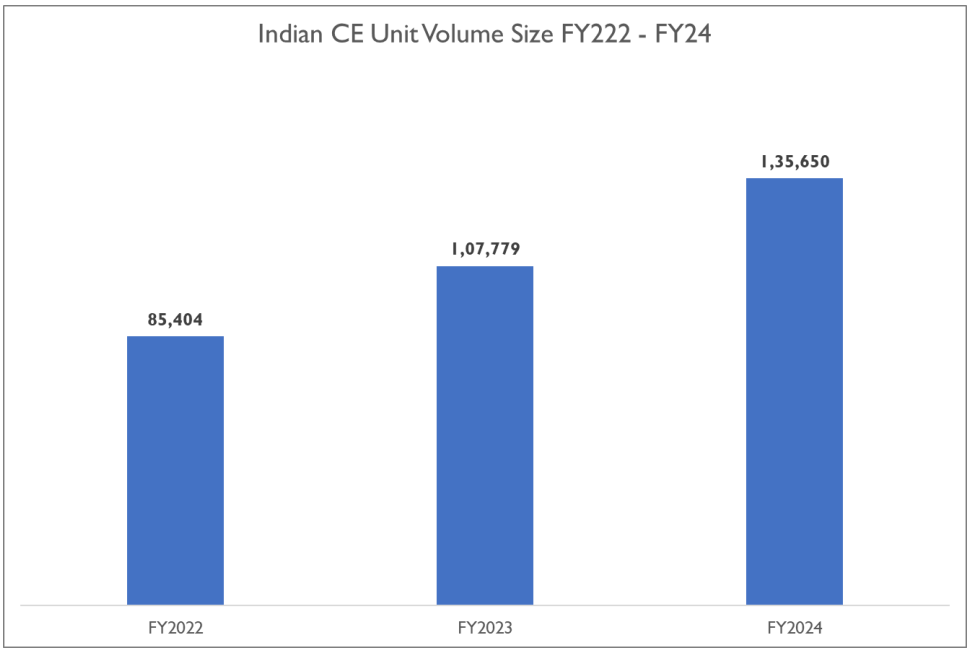
### Historical Market Growth of Construction Equipment Industry FY2022-FY24

The Indian CE market witnessed a steady, consistent growth over the past three years since the pandemic. Despite the slump to the construction sector due to the lockdown imposed during the years of 2020 and 2021, the country bounced back and register healthy double digit growth rate of 30.8% during FY2023, which stabilized to 11.8% in FY2024. This trend is likely to continue to maintain a double-digit year-on-year growth rate till FY2030 and beyond.




Source: ICEMA Activity Report FY2022 – FY2024

In addition to the strong revenue growth of the CE market, the unit volumes too witnessed similar trend, which indicates a steady pricing and the surging demand for construction equipment in the industry. The enhanced pace of implementation of infrastructure projects, coupled with a strong pipeline of projects listed for the next three to five years, both from the different Ministries of the Government, and the private construction companies and Metro line connectivity work presents a promising futuristic growth ahead for this market.




Source: ICEMA Activity Report FY2024

Volume growth of CE units registered a 26% year-on-year both in FY2023 and FY2024, which indicates a robust demand for CE in India, both at the domestic and export market. All the categories of construction equipment witnessed positive double-digit growth except the material processing

equipment, which grew at the lowest 8% in FY2024, while material handling equipment registered the highest 61% growth in FY2024.

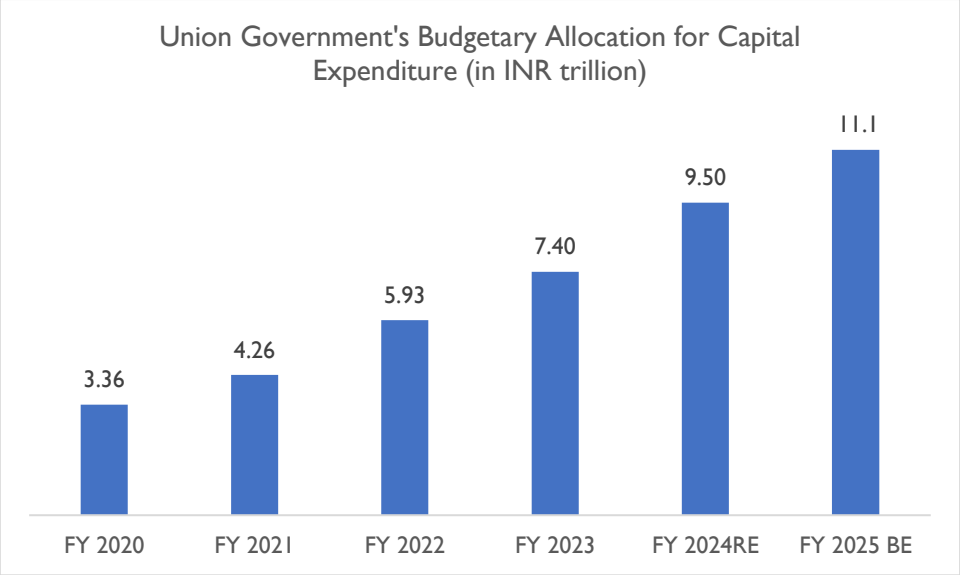
## Key Demand Drivers

### Analysis of Key Factors Driving the Demand for Overall Construction Equipment (CE)

CE market is poised for a strong robust growth in the long-term owing to multiple conventional drivers and factors such as:

- **Supportive Government Infrastructure Budgetary Allocation:**

  Growing infrastructure spending is vital for overall infrastructure development as it has a multiplier effect on overall economic growth. By allocating substantial funds to the development of roads, railways, airports, and urban infrastructure, the government stimulates economic growth and improves public facilities. This investment not only country's infrastructure but also creates a ripple effect, driving demand for CE equipment. The government with stepped up public spending over the last few years has been providing support to the sector.




Union Budget, Government of India

Government has strong infrastructure pipeline and budgetary allocation from multiple Ministries of India. Each ministry has its own internal budget to promote construction activity in its sector. The budgetary allocations are listed below:

| Ministry | Budgetary Allocation (INR Billion) |
|---|---|
| Ministry of Road Transport & Highways (MoRTH) | 2,780 |
| Ministry of Mining & Quarrying | 21.34 |
| Ministry of Housing & Urban Affairs | 775.24 |
| Ministry of Ports & Waterways | 23.46 |
| Ministry of Airports | 23.0 |
| Ministry of Railways | 2,550 |
| Ministry of Telecommunications (BharatNet) | 50.0 |
| Ministry of Petroleum and Natural Gas (North East Natural Gas Pipeline Grid) | 18.0 |

Source: IECMA Activity Report FY2024

- **Adoption of Latest Technologies**

  Adoption of latest technologies by industry players to facilitate equipment align with artificial intelligence-machine learning software, equipment with electric engine or engine powered by alternative fuel, set to drive demand for CE. Some of the technological advancement include launch

of JCB19C-1E excavator which is powered by lithium-ion batteries, that can operate for an entire day on a single charge. Battery powered CE will not have emissions, thus becoming environment friendly and comply with emissions target. Similarly, electric construction equipment typically has about 50% lower operating costs compared to diesel-powered machines due to reduced fuel expenses and lower maintenance costs. This cost advantage is becoming increasingly attractive to contractors looking to optimize their operational budgets, thus providing long-term savings on fuel and maintenance.

- **Initiatives by OEMs towards easing of Supply Chain**

  OEMs are actively involved in supporting component manufacturing MSMEs towards easing the crunch in supply chains, which will have a positive impact on product-development initiatives such as CEV-V compliant equipment and alternative fuel driven powertrains. These localisation initiatives are supported by 'Make in India' and 'Production Linked Incentive' policies, thus provide growth impetus to the CE industry in the long term.

### Analysis of Key Demand Drivers for Horizontal Drilling Equipment (HDD)

The demand for horizontal drilling equipment in India is driven by several key factors that reflect the country's infrastructure needs and technological advancements.

**Infrastructure Development**

Infrastructure development projects cannot be completed without the usage of HDD equipment. Thus, any new infrastructure project is a direct driver to this market.

**Metro Rail and Mass Rapid Transit System (MRTS) Projects**

- The Union Budget 2024-25 allocated approximately INR249.32 billion for metro rail and Mass Rapid Transit System (MRTS) projects, marking a 7.8% increase from the previous year. This funding is crucial for expanding metro networks across various cities. As of December 2024, Metro Rail network in India is operational for around 900Km across 23 cities. This is world's third largest network next only to China and the U.S.
- Apart from these operational lines, nearly 970 Km is under construction across 28 cities, which could make the country world's second largest network.
- In FY25, government has approved many new metro line projects including:
  - Bengaluru Metro Phase-3: Estimated cost of INR 156.11 billion.
  - Thane Integral Ring Metro: Estimated cost of INR 122 billion.

- Pune Metro Extension: Estimated cost of INR 29.54 billion.

- The list of under construction metro lines, which are currently using HDD equipment include:

| City | Distance (Km) |
|---|---|
| Delhi-NCR | 154.65 |
| Mumbai Metro | 176.05 |
| Namma Metro – Bengaluru | 143.425 |
| Chennai Metro | 118.9 |
| Kolkata Metro | 75.2 |
| Nagpur Metro | 43.8 |
| Pune Metro | 33.133 |
| Patna Metro | 32.507 |
| Surat Metro | 40.35 |
| Indore Metro | 31.55 |
| Thane Metro | 29 |
| Bhopal Metro | 27.87 |
| Agra Metro | 24.1 |
| Kanpur Metro | 23.657 |
| Kochi Metro | 11.2 |
| Ahmedabad Metro | 8.884 |

**Railway Infrastructure Development**

The Union Cabinet has approved eight new railway projects across several states, with a total estimated investment of INR 246.57 billion. Significant contracts have been awarded for the redevelopment of railway stations, such as the redevelopment of Gurugram Railway Station and the construction of a multi-modal transit hub in New Delhi. These projects aim to enhance the railway network by constructing freight routes for approximately 900 km with 64 new stations spanning 14 districts in seven states of Odisha, Maharashtra, Andhra Pradesh, Jharkhand, Bihar, West Bengal, and Telangana.

| New Railway Line Route | Length of Line (Km) | Districts Covered | States |
|---|---|---|---|

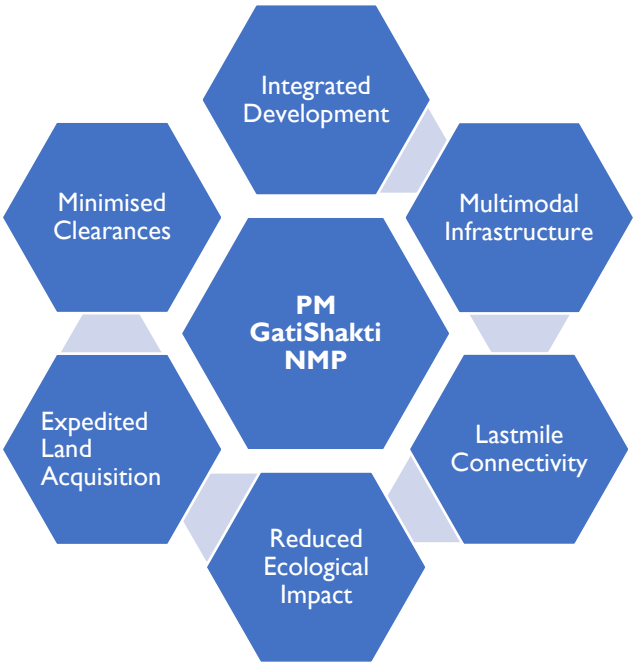
| | | | |
|---|---|---|---|
| Gunupur- Therubali (New Line) | 73.62 | Rayagada | Odisha |
| Junagarh – Nabrangpur | 116.21 | Kalahandi and Nabrangpur | Odisha |
| Badampahar – Kandujhargarh | 82.06 | Keonjhar and Mayurbhanj | Odisha |
| Bangriposi – Gorumahisani | 85.60 | Mayurbhanj | Odisha |
| Malkangiri – Pandurangapuram (Via Badrachalam) | 173.61 | Malkangiri, East Godavari and Bhadradri Kothagudem | Odisha, Andhra Pradesh and Telangana |
| Buramara – Chakulia | 59.96 | East Singbhum, Jhargram and Mayurbhanj | Jharkhand, West Bengal and Odisha |
| Jalna – Jalgaon | 174 | Aurangabad | Maharashtra |
| Bikramshila – Katareah | 26.23 | Bhagalpur | Bihar |

These routes are vital to transport agricultural products, fertilizer, coal, iron ore, steel, cement, granite, and the like. This additional lines with increased capacity could handle an additional 143[1] million tonnes of freight annually.

**Focus on Multimodal Connectivity**

The government's emphasis on multimodal connectivity under the PM GatiShakti National Master Plan aims to integrate various transport modes effectively. This National Master Plan incorporates infrastructure schemes of various Ministries and State Governments such as Bharatmala, Sagarmala, inland waterways, dry/land ports and UDAN[2]. This plan has onboarded 44 Central Ministries, 36 States/UTs and a total of 1,614 data layers to set up a standard operating procedure (SOP) for 8 infrastructure ministries and 15 social sector ministries. This initiative is expected to streamline logistics and enhance overall efficiency in transportation. Six key principles of PM GatiShakti are captured as:

[1] Press Information Bureau, Ministry of Commerce & Industry
[2] Press Information Bureau, Ministry of Commerce & Industry




Source: Ministry of Commerce & Industry

**Efficient Utility Distribution**

The growing demand for efficient electricity, water, and gas transmission systems is a major driver. HDD facilitates the laying of cables and pipelines necessary for these utilities, which is crucial in urban and industrial areas where traditional methods may cause extensive disruption. Few examples of such projects in 2024 include:

- Bengaluru is initiating a project to move 12,800Km of overhead cables underground at a cost of INR 2 billion
- Siliguri Municipal Corporation in West Bengal is working on the phase I of underground cabling towards electricity modernization, which will cover 220Km across 19 wards at an estimated cost of INR 2.48 billion.

**Telecommunication Expansion**

The rapid rollout of broadband services, including 4G and 5G networks, necessitates extensive underground cabling. HDD provides an effective method for installing these cables with minimal disruption to existing urban environments. Telecom expansion projects are happening both by the government funded project along with projects by private telecom players in India.

**BharatNet Project – Government Project[3]**

[3] Digital Bharat Nidhi, Department of Telecommunications, Ministry of Communications

- This is one of the biggest rural telecom projects in the world to bring in last mile internet connectivity to rural villages of India. This project is designed to provide non-discriminatory access of the network to all telecom service providers to enable launch of various digital services such as e-health, e-education, e-governance, and the like in rural areas.
- As of December 2024, 2,14,289 Gram Panchayats are connected through this project, through optical fibre cable laid for 6,92,299 Km. This project has also provided 11,91,587 Fibre-To-The-Home (FTTH) connections and 1,04574 Wi-Fi hotspots across multiple locations.
- The cable work for this project is possible through extensive usage of HDD machines.

**Bharti Airtel Expansion**

- Bharti Airtel has deployed an additional 5MHz spectrum in the 2100 band across the states of Uttar Pradesh and Uttarakhand aimed at enhancing 4G and 5G capabilities in the region.
- Setting up this infrastructure will drive demand for drilling equipment.

**Environmental Considerations**

With increasing awareness of environmental issues, there is a shift towards more sustainable construction practices. HDD is less invasive than traditional open-cut methods, resulting in reduced soil disturbance and minimal impact on surrounding ecosystems. This eco-friendly approach aligns with regulatory trends favouring sustainable practice.

The horizontal drilling equipment market in India is experiencing robust growth driven by urbanization, infrastructure development, efficient utility distribution needs, technological advancements, environmental considerations, telecommunications expansion, supportive government initiatives, and rising energy demands. These factors collectively enhance the appeal of horizontal directional drilling as a preferred method for modern construction and utility installation projects in India.

## Analysis of Key Demand Drivers for Diaphragm Wall Drilling Equipment

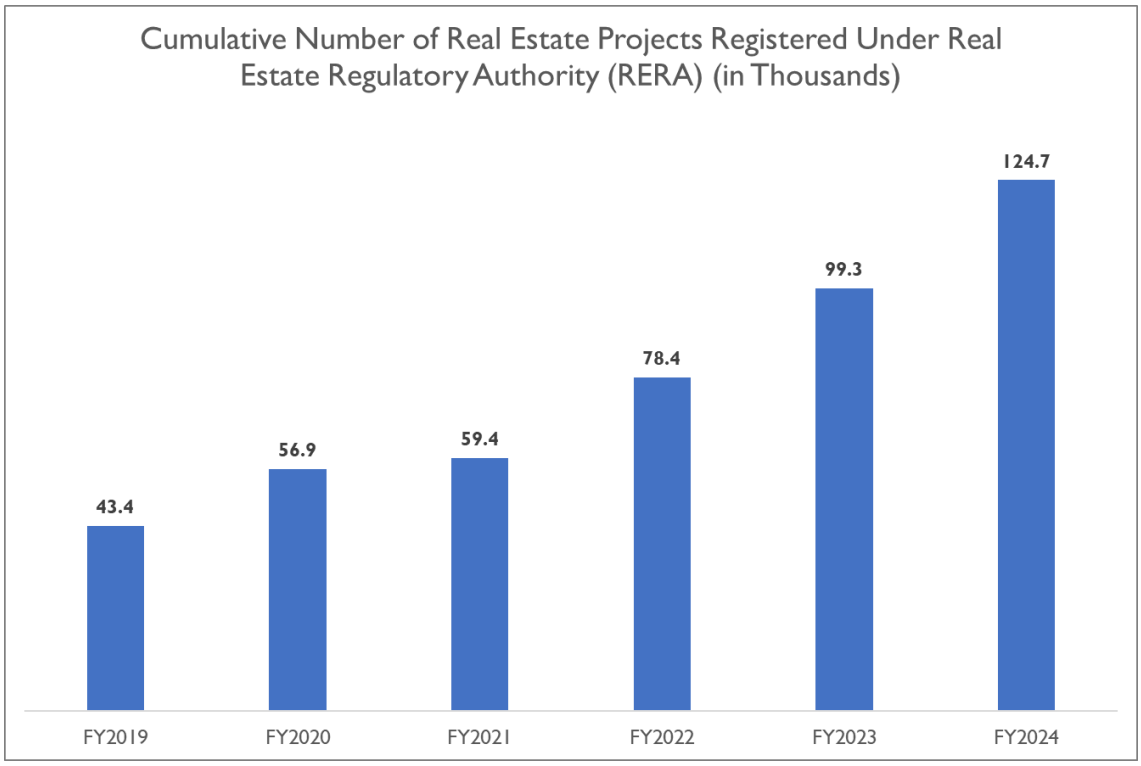
Automation and robotics are significantly enhancing the efficiency of diaphragm wall drilling operations in several ways. Automated systems can perform drilling tasks with high precision, reducing human error. **For example**, robotic arms can execute precise measurements and cuts, ensuring that diaphragm walls are constructed to exact specifications, which is crucial for structural integrity. By automating hazardous tasks, robotics minimize the risk of injuries associated with manual drilling operations. Robots can handle heavy lifting and operate in potentially dangerous environments without putting human workers at risk. Many robotic systems can be controlled remotely, allowing operators to manage drilling operations from a safe distance, further enhancing safety on site. The demand for diaphragm wall drilling equipment is influenced by several key drivers, particularly in the context of urban infrastructure development and construction practices.

- **Need for High-Quality Foundations**

  As construction projects become more complex, there is a heightened need for high-quality foundations that can withstand lateral loads and water pressure. Diaphragm walls provide the necessary stability and safety for deep excavations without extensive surface disruption, which is crucial in densely populated environments.

- **Healthy, Active, Surging Construction Activity in Real Estate Sector**

  Real estate sector is the second-highest employment generator in India. 100% FDI allowed for townships and settlements development project is likely to transform this sector remarkably in the coming years. For example, private market investor, Blackstone has invested USD 50 billion in FY2023 and is likely to invest an additional USD 22 billion by 2030. Based on these trends, India's physical retail space is likely to witness 41[4] million sq.ft of retail developments operational between 2024 and 2028 across the country. Similarly, housing sector is also witnessing steady, consistent surge in India, which drives the demand for diaphragm wall equipment. The high raise buildings as residential units is regulated by Real Estate Regulatory Authority (RERA), which is witnessing a year-on-year steady growth in the number of residential units in the country. The trend of projects registered in RERA shows a consistent growth in real estate construction activity which is a strong driver for the demand of diaphragm wall equipment.




Source: Real Estate Regulatory Authority Database, 2024

[4] India Brand Equity Foundation, Ministry of Commerce & Industry

Similarly, river front expansion construction is possible only through the use of diaphragm wall equipment. Few major river development project which are currently under development in India include

| | |
|---|---|
| Sabarmati Riverfront Development project | INR 1,200 Crore |
| Mahanadi Riverfront Development project | INR 200 Crore |
| Kota's Chambal riverfront | INR 1400 Crore |
| Ganga Riverfront | INR 300 Crore |
| Brahmaputra Riverfront | INR 69.85 Crore |
| Mula-Mutha Riverfront Development Project (RFD) | INR 303 Crore |

The construction of these river development project will benefit the market demand for diaphragm wall equipment in India.

- **Technological Advancements in Construction Process**

  Technological advancements in diaphragm wall construction are transforming the industry by improving precision, efficiency, safety, and environmental sustainability. The integration of modern equipment such as hydraulic cutters, slurry pumps, advanced excavation grabs, and sophisticated monitoring systems is enabling contractors to meet the challenges of urban construction more effectively while adhering to stringent quality standards. These innovations not only enhance the performance of diaphragm walls but also contribute to the overall success of complex infrastructure projects in urban settings. The key technological advancements include:

  - **Hydraulic Cutters** – Modern hydraulic cutters allow for precise cutting through various soil types at high speeds. This capability reduces excavation time and improves the overall efficiency of the construction process, enabling contractors to complete projects faster and with greater accuracy.
  - **Slurry Pumps** - Slurry pumps facilitate the continuous transport of excavated material and the controlled injection of concrete. This technology enhances the quality of the diaphragm walls by ensuring a smooth and uniform concrete placement, which is essential for structural integrity.
  - **Excavation Grabs** – Advanced excavation grabs, including hydraulic and mechanical types, can operate effectively in different soil conditions. Hydraulic grabs offer high load capacities and remote-control capabilities, improving safety and operational efficiency during trench excavation.
  - **Surveying and Monitoring Systems** – The integration of advanced surveying tools such as lasers, sensors, and cameras allow for real-time monitoring of trench geometry, soil conditions, and concrete properties. These systems ensure that construction adheres to design specifications and quality standards.

- **Top-down Construction Techniques** – This innovative approach allows for simultaneous construction of underground structures while maintaining surface activities. It minimizes disruption to urban environments, making it particularly suitable for densely populated areas.
- **Geotechnical Investigation Technologies** – Advanced geotechnical investigation methods help identify soil types and underground obstacles before construction begins. This information allows engineers to select appropriate equipment and techniques tailored to specific site conditions, reducing risks associated with unpredictable ground conditions.

- **Environmental Considerations**

  There is a growing emphasis on sustainable construction practices. Diaphragm wall methods minimize surface disruption and reduce the environmental impact of construction activities, aligning with the increasing demand for eco-friendly solutions. Additionally, diaphragm wall construction techniques cause less vibration and noise compared to traditional methods, making them more suitable for urban areas where minimizing disturbances is essential. This attribute helps maintain good relations with local communities during construction. Modern diaphragm wall construction incorporates eco-friendly practices that minimize waste and emissions. Technologies that recycle slurry and manage water usage contribute to more sustainable construction processes.

Urbanization drives significant demand for diaphragm wall drilling equipment due to increased construction activities, space constraints, stability requirements, environmental considerations, regulatory compliance, technological advancements, and a focus on sustainable practices. As cities continue to grow and evolve, the role of diaphragm walls in supporting complex infrastructure projects will become increasingly vital, further enhancing the demand for specialized drilling equipment in the construction industry.

## Analysis of Key Demand Drivers for Rotary Drilling Rigs

These rotary drilling rigs are used in various infrastructure construction projects ranging from building foundations to large-scale industrial installations. In infrastructure development projects, rotary drilling rig machines are used for a wide range of applications, including stable foundation for buildings, bridges, and other structures, the construction of tunnels, dams, and in the extraction of oil, gas, and minerals.

- **Increasing Global Demand for Natural Resources**

  The ongoing demand for minerals and energy materials, especially in sectors like mining and oil & gas, is a primary driver. As exploration activities intensify for resources such as gold, copper, lithium, and oil, the need for efficient and high-performance rotary drilling rigs has surged. This

trend is particularly pronounced with the rise of electric vehicles (EVs) and renewable energy technologies that require abundant raw materials.

- **Renewable Energy Installations**

  Renewable energy technologies are playing a pivotal role in shaping the demand for rotary blasthole drill rigs by reducing operational costs, enhancing sustainability, complying with environmental regulations, and supporting the expansion of resource extraction activities associated with renewable infrastructure development. As these trends continue to evolve, the integration of renewable energy into drilling operations is likely to become a standard practice, further driving innovation and efficiency within the industry.

  India's wind market has a potential installation of 21.1GW[5] from 2023-2027, with offshore wind installations at 1.8GW in 2022, to 2.8GW in 2023 and 3.7GW in 2024. This trend is likely to continue and reach 5GW by 2025. This offshore wind installations create direct demand for rotary drilling rigs as these are capable of drilling efficiently at such depths in the middle of the ocean.

- **Technological Advancements**

  Technological advancements are playing a crucial role in enhancing the efficiency of rotary drill rigs through automation, real-time data monitoring, improved drilling capabilities, advanced propulsion technologies, ergonomic designs, and sustainability practices. These innovations not only improve operational performance but also contribute to cost savings and environmental responsibility in mining and construction activities. As these technologies continue to evolve, they will further shape the future landscape of rotary drilling operations. Modern rigs equipped with advanced features improve operational efficiency and reduce human error, making them more attractive to operators in challenging environment.

  - **Automated Control System**

    Modern rotary drill rigs are equipped with automated control systems that optimize drilling parameters such as feed force, rotation speed, and thrust based on geological conditions. This automation minimizes human error and ensures consistent performance, leading to faster and more efficient drilling operation.

  - **Remote Operation**

    The integration of remote operation capabilities allows operators to control drilling rigs from a safe distance, enhancing safety and enabling continuous operation without the need

[5] India's Wind Energy Market Outlook, 2023-2027, A Report by Global Wind Energy Council, India.

for personnel on-site. This technology increases overall productivity by allowing for simultaneous operations across multiple sites.

- **Data Analytics**

  Advanced data monitoring systems provide real-time feedback on drilling performance, allowing operators to make immediate adjustments to optimize efficiency. This capability helps in identifying issues early, reducing downtime and maintenance costs.

- **Predictive Maintenance**

  By analysing operational data, companies can implement predictive maintenance strategies that minimize equipment failures and extend the lifespan of drilling rigs. This proactive approach enhances overall operational efficiency.

- **Electric and Hybrid Propulsion Systems**

  The adoption of electric-driven rotary blasthole drills reduces fuel consumption and emissions while providing consistent power output. These systems can also lower operational costs over time due to reduced fuel expenses and maintenance needs.

- **Hydraulic Drive Systems**

  Innovations in hydraulic drive technologies improve the responsiveness and power of drilling rigs, allowing for better control over drilling processes and enhancing overall efficiency.

- **Deep Water and Offshore Exploration**

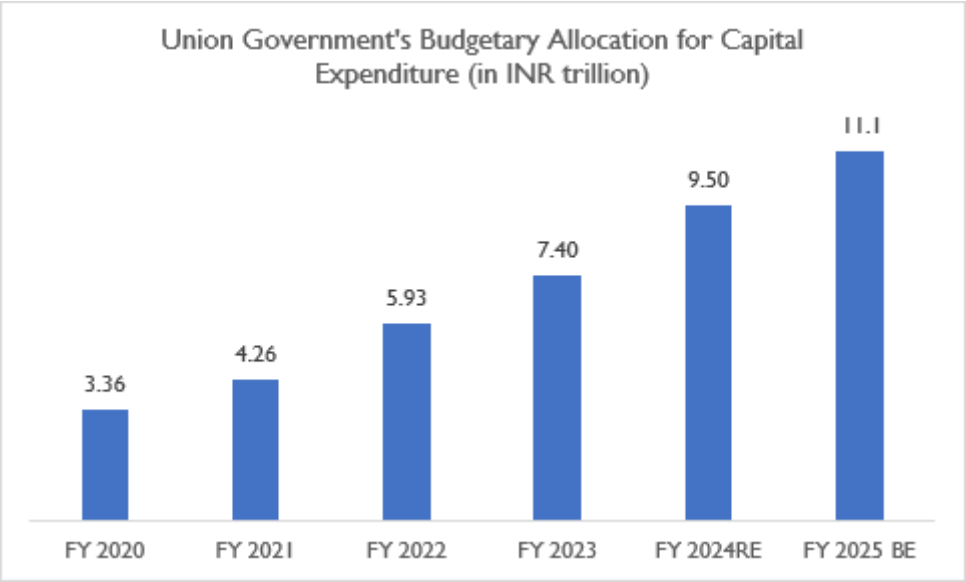
  Implementation of New Exploration Licensing Policy (NELP) bidding rounds have encouraged private participation in the deep water and offshore exploration. India has 9 offshore basins spread over an area of 1.73[6] million sq.Km of which 0.41 million sq.km is located in shallow water and 1.32 million sq.km in deepwater. Few examples of deepwater drilling projects include:

  - Reliance Industries awarded deepwater drilling contract to Transocean Ltd for USD 123 million at Dhirubhai Deepwater KG1 for six offshore wells in India in 2024. The project will begin drilling in 2026 and rig will be available for operation from 2029.
  - Total Energies, a global integrated energy company, signed an agreement with Indian Oil Corporation Ltd (IOCL) for the supply of 0.8 million tons per annum of LNG for 10 years from 2026.

[6] India's Hydrocarbon Outlook Report, 2023-2024, Directorate General of Hydrocarbons, Ministry of Petroleum & Natural Gas, Government of India

- **Infrastructure Development**

Growing infrastructure spending is vital for overall infrastructure development as it has a multiplier effect on overall economic growth. By allocating substantial funds to the development of roads, railways, airports, and urban infrastructure, the government stimulates economic growth and improves public facilities. This investment not only enhances connectivity and logistics but also creates a ripple effect, driving demand for various foundation equipment used in infrastructure construction.




Sources: The Union Budget on India

Among the various infrastructure development in the country, national highways, and state highways massive bridges use rotary drilling equipment and so these projects will directly influence demand for this equipment. including the construction of tunnels, dams, and underground storage facilities. There are many eco-friendly measures taken during construction of a bridge, which favours usage of rotary drilling rig for piling, followed by using recycled plastic framework systems, soil compactors and the like. The list of bridges announced and under construction, which drive demand for rotary drilling equipment are captured below.

| Project Name | Cost (INR Billion) | Length (Km) | State |
|---|---|---|---|
| Kachi Dargah-Bidupur Six-Lane Bridge Project | 50.00 | 22.76 | Bihar |
| Bharalumukh-Six-Lane Bridge Project | 26.08 | 1.60 | Assam |
| Phaphamau Six-Lane Bridge Project | 19.48 | 9.90 | Uttar Pradesh |
| Sultanganj-Aguwani Ghat Bridge Project | 17.11 | 23.16 | Bihar |
| Gaimukh-Payegoan Creek Bridge | 9.21 | 6.42 | Maharashtra |
| New Ganga Bridge, Varanasi | 26.42 | NA | Uttar Pradesh |
| Dhubri Phulbari Bridge | 50.00 | 19 | Assam |

The list of approved metro projects in India, which influences demand for rotary drill equipment.

| Project Name, State | Cost (INR Billion) | Length (Km) | Operator |
|---|---|---|---|
| Bhubaneshwar Metro, Odisha | 59.26 | 26 | BMRCL |
| Gorakhpur Metrolite, Uttar Pradesh | 46.72 | 27.41 | UPMRC |
| Kozhikode Metrolite, Kerala | 46.73 | 13.13 | KRTL |
| Nashik Metro Neo, Maharashtra | 21 | 32 | Maha-Metro |
| Trivandrum Metro, Kerala | 27.73 | 32 | KRTL |

The demand for rotary drilling rigs is being driven by a combination of factors including the increasing global demand for natural resources, technological advancements, deep water exploration needs, infrastructure development, market volatility, and sustainability initiatives. As these drivers continue to evolve, they will shape the future landscape of the rotary drilling rig market significantly.

## Regulatory Landscape

### Regulatory/Policy Framework Governing the Industry

The regulatory policy governing the construction equipment industry in India is evolving, particularly with a focus on safety standards and environmental compliance.

- **Safety Standards for Electric Construction Equipment**

  The Ministry of Road Transport and Highways (MoRTH) has introduced new safety standards for electric construction vehicles, including dumpers and excavators. These standards, effective from January 1, 2025, require compliance with the Automotive Industry Standard (AIS) 174, which covers battery safety, electrical systems, and overall vehicle construction.

- **Automotive Industry Standards (AIS)**

  The introduction of AIS-174 is part of a broader effort to ensure that electric construction vehicles meet stringent safety requirements. This includes guidelines for battery systems, electrical components, and performance specifications aimed at protecting both operators and the public during construction activities. AIS-174 establishes comprehensive safety standards for electric power train construction equipment in India, focusing on battery safety, electrical system protection, charging infrastructure safety, overall vehicle construction integrity, operational safety features, and compliance testing. These regulations aim to enhance the safety of operators and pedestrians on construction sites while promoting the adoption of electric vehicles in the construction industry. Compliance with these standards is crucial as the sector transitions towards more sustainable practices with electric machinery.

- **Central Motor Vehicles Rules (CMVR) Amendments**

  The CMVR, established in 1989, is being amended to incorporate various safety requirements for construction equipment vehicles. This includes visual display requirements, operator station safety measures, and noise control regulations to ensure safe operation on public roads.

- **Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme**

  The government is considering including electric construction equipment in the FAME-III scheme, which aims to provide subsidies for electric vehicles. This initiative is designed to accelerate the adoption of electric technologies in various sectors, including construction.

**Implications of these Policies for the Construction Equipment Industry**

- **Increased Compliance Cost**

Manufacturers will need to invest significantly in research and development to meet new safety and environmental standards. This may lead to higher production costs that could be passed on to consumers.

- **Market Shift Towards Electric Vehicles**

  As regulations favour electric and hybrid technologies, there will be a shift in market dynamics. Companies that adapt quickly to these changes may gain a competitive advantage.

- **Enhanced Safety Measures**

  Stricter safety regulations are expected to improve workplace safety for operators and reduce accidents on construction sites. This could enhance the industry's reputation and attract more skilled labour.

- **Innovation Drive**

  The need to comply with new standards will likely spur innovation within the industry as manufacturers seek to develop safer, more efficient, and environmentally friendly equipment.

The regulatory policy governing the construction equipment industry in India is becoming increasingly stringent, particularly concerning safety standards for electric vehicles and environmental compliance. These changes are expected to drive innovation, increase compliance costs, and shift market dynamics towards cleaner technologies while enhancing safety measures across the sector. As these regulations take effect, stakeholders will need to adapt proactively to remain competitive in this evolving landscape.

### Policy Initiatives/Government Incentives Designed to Promote the Industry Activity

The Indian government has implemented several incentives designed to promote construction across various sectors, particularly focusing on infrastructure development, housing, and sustainable practices.

| Policy Initiative / Government Incentives | Details |
|---|---|
| Pradhan Mantri Awas Yojana (PMAY) – U 2.0 | Approved on 9th Aug'24, this scheme aims to construct 100,000 new houses within 1st Sep2029, with financial subsidy of INR 250,000 per house |
| Urban Infrastructure Development Fund (UIDF) | Established with an annual allocation of around USD 1.2 billion, the UIDF aims to enhance infrastructure in Tier-2 and Tier-3 cities. This initiative supports projects that improve urban infrastructure, thereby driving construction activities in smaller cities |

| | |
|---|---|
| Bharatmala Pariyojana and Sagarmala Project | These ambitious infrastructure initiatives focus on improving road connectivity and port infrastructure across the country. They involve substantial investments that stimulate construction activities related to highways, roads, and transportation networks. |
| Green Building Incentive | The government promotes sustainable construction practices through initiatives like the Eco-Niwas Samhita and the Green Rating for Integrated Habitat Assessment (GRIHA), that assess buildings based on 34 criteria. States offer incentives such as increased floor-to-area ratio (FAR), property tax reductions, and subsidies for projects achieving green certifications. |
| State Incentives for Green Buildings | • Maharashtra leads in Green Building Incentives, with 373 LEED-Certified projects, totalling 10 million sq.meters<br>• Karnataka ranks second with 301 LEED-Certified projects, covering 9.7 million sq.meters<br>• Haryana has 139 LEED-Certified projects, followed by Telangana at 106 LEED-Certified projects.<br>• Uttar Pradesh has 95 LEED-Certified projects and actively growing. |

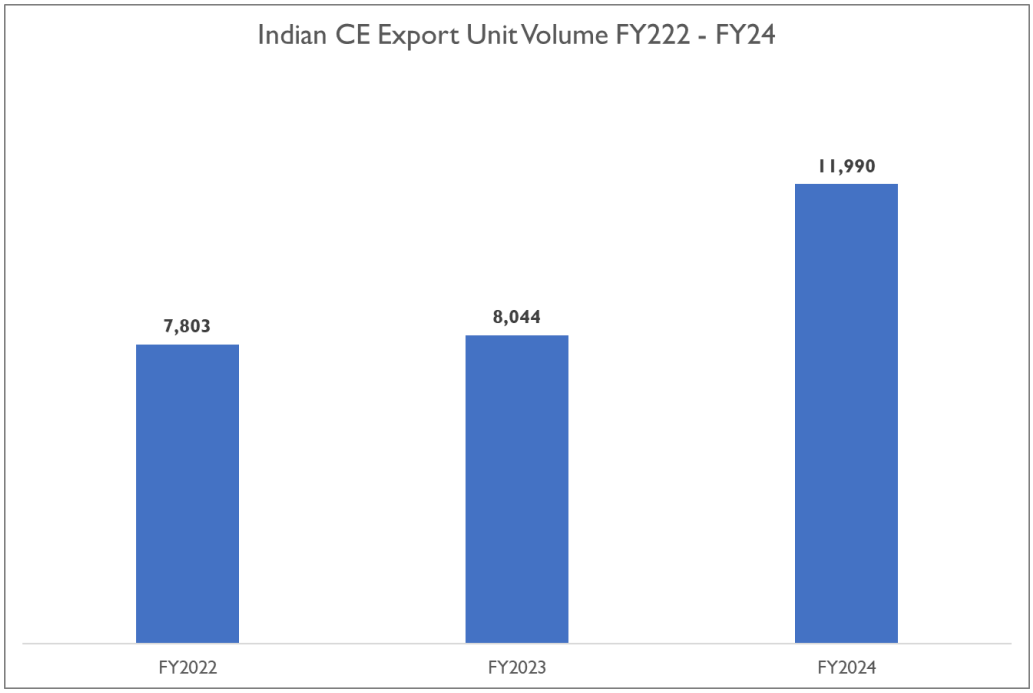
The Indian government's incentives for promoting construction encompass a range of financial support mechanisms, regulatory simplifications, and initiatives focused on sustainability and skill development. These measures aim to stimulate growth in the construction sector, enhance infrastructure development, and promote affordable housing while addressing environmental concerns. As these incentives continue to evolve, they play a crucial role in shaping the future landscape of India's construction industry.

## Trade Scenario of Construction Equipment

### Export & Import of Construction Equipment

The export and import trends of construction equipment in India reflect a dynamic market influenced by infrastructure development, technological advancements, and regulatory changes. The significant growth in exports underscores India's potential as a manufacturing hub for construction machinery, while rising imports indicate a continued need for specialized equipment to support ambitious infrastructure projects. As the industry evolves, these trends will shape the future landscape of construction equipment in India, fostering both domestic growth and international collaboration.

Major markets for Indian construction equipment exports include Italy, Russia, and Brazil. These countries have shown a growing demand for various types of construction machinery produced in India. The Indian government is actively promoting the export of construction equipment through initiatives that align with the Make in India campaign, aiming to enhance local manufacturing capabilities and reduce import dependence. This strategic focus is expected to bolster export opportunities significantly. The ongoing infrastructure projects under initiatives like the National Infrastructure Pipeline are driving demand for construction equipment domestically, which in turn supports export growth as manufacturers scale up production to meet both local and international needs. The implementation of stringent emission norms (BS-V) is enhancing the quality and competitiveness of Indian construction equipment on the international stage. This regulatory environment encourages manufacturers to innovate and produce machinery that meets global standards, further boosting export potential.




Source: IECMA Activity Report, 2024

The unit volumes witnessed a minimal increase in FY2023, as the market was rebounding from the slump of the pandemic, while in FY2024, exports of construction equipment witnessed sharp surge as India is considered as the manufacturing hub through the 'Make in India' policy, promoting heavy engineering manufacturing process. So, there is a remarkable growth in exports from 7,803 units in FY2022 to 11,990 units in FY2024.

## Mapping Export Trend to Middle East, Europe & Russia

- **Russia**

  The high import levels of construction equipment in Russia are driven by a combination of limited domestic manufacturing capabilities, quality gaps in locally produced machinery, cost advantages of imports, insufficient government support for local industries, and an ongoing need for advanced technology. These factors collectively contribute to Russia's reliance on foreign suppliers to meet its construction equipment needs amidst growing infrastructure development demands. So, Indian manufacturer has high potential for growth in the construction equipment sector in Russia.

- **Middle East**

  Major infrastructure projects in the Middle East, including housing developments, smart cities, and transportation networks, are driving demand for construction equipment. For instance, significant orders for construction machinery have been reported from Saudi Arabia for projects like NEOM City. Similarly, Indian manufacturers are capitalizing on competitive pricing and improving quality standards to penetrate the Middle Eastern market. The cost-effectiveness of Indian construction machinery compared to Western counterparts makes it an attractive option for buyers in the region. The largest importers of construction equipment from India in the Middle East include several key countries that are heavily investing in infrastructure development.

  - **Saudi Arabia**
    - Saudi Arabia is one of the largest importers of construction equipment from India. The country is experiencing substantial growth in its construction sector, driven by mega projects such as NEOM City and the Jeddah Tower.
    - The demand for various types of machinery, including excavators, cranes, and bulldozers, is fueled by ongoing infrastructure projects aimed at diversifying the economy beyond oil.
  - **United Arab Emirates (UAE)**
    - The UAE ranks as a significant importer of construction equipment, accounting for over 34% of the revenue generated in the GCC region. The country's rapid urbanization and development projects contribute to this demand.

- Major cities like Dubai and Abu Dhabi are constantly expanding, requiring a wide range of construction machinery for residential, commercial, and public infrastructure developments.

- **Qatar**
  - Qatar is also a key importer of construction equipment from India, with a focus on infrastructure development projects. The country has invested heavily in building roads, stadiums, and other facilities, driving the need for advanced construction machinery.
- **Oman**
  - Oman is increasingly importing construction equipment as it undertakes various infrastructure projects aimed at enhancing its economic diversification efforts. The Omani government's focus on developing transportation networks and urban facilities has led to increased imports of construction machinery.

Saudi Arabia, the UAE, Qatar, and Oman are the largest importers of construction equipment from India in the Middle East. Their ongoing investments in infrastructure development and urbanization drive significant demand for various types of construction machinery, making these countries critical markets for Indian exporters in the construction equipment sector. As these nations continue to pursue ambitious development goals, the trend of importing construction equipment from India is expected to grow further.

- **Europe**

The export of construction equipment from India to European countries has been growing, driven by increasing infrastructure needs and the demand for high-quality machinery. Indian manufacturers are leveraging competitive pricing and improving quality standards to penetrate these markets effectively.

- **Germany**

  Germany is a significant importer of construction equipment from India, known for its advanced engineering and high standards in construction machinery. The demand includes a variety of equipment, particularly in sectors such as infrastructure, road construction, and mining.

- **The United Kingdom**

  The UK has been a substantial market for Indian construction equipment, especially with ongoing infrastructure projects and urban development initiatives. The UK imports a range of machinery including excavators, loaders, and specialized construction tools.

- **France**

  France is another key importer in Europe, benefiting from strong trade relations with India. The French market requires diverse construction equipment for various projects, including residential and commercial developments.

- **Italy**

  Italy imports significant amounts of construction machinery from India, leveraging its own manufacturing capabilities while supplementing with imports for specific needs. The focus is on both general construction equipment and specialized machinery.

- **Belgium**

  Belgium serves as a gateway for Indian exports to other European markets and has a growing demand for construction equipment. The country's strategic location enhances its role in facilitating trade within Europe.

- **Netherlands**

  The Netherlands has shown increasing imports of construction equipment from India, driven by its robust logistics sector and infrastructure projects. Common imports include earthmoving machinery and material handling equipment.

## Competitive Landscape

The domestic market for specialised construction equipment including trenchless and foundation equipment comprise mainly of Indian subsidiaries of global conglomerates[7] while home grown companies are very limited. At present, Apollo Techno Industries Private Limited[8] is the only home-grown manufacturing player to operate in this space. Few global Construction Equipment manufacturers like Sany India have manufacturing presence in India which are engaged manufacturing of specialised construction equipment's.

[7] which majorly operates as a supplier of trenchless and foundation equipment in India.

[8] Assessment based on Dun & Bradstreet Extensive Secondary research. During the secondary research process Dun & Bradstreet could not come across any home grown / domestic manufacturer in this domain. The Indian players active in this segment are mostly subsidiaries of global players.

The construction equipment industry in India is shaped by several competitive factors that influence market dynamics and the strategies of key players. The key factors shaping competition in the construction equipment sector are listed below:

- **National Infrastructure Pipeline**

  The Indian government's significant investment in infrastructure projects, including highways, railways, and urban development, creates a robust demand for construction equipment. This investment acts as a catalyst for growth in the industry, prompting companies to enhance their offerings to meet rising project demands.

- **Technological Innovations in Equipment**

  The integration of advanced technologies such as automation, telematics, and real-time data monitoring systems is transforming the construction equipment landscape. Companies that adopt these technologies can improve operational efficiency, safety, and productivity, giving them a competitive edge.

- **Focus on Sustainability**

  There is an increasing emphasis on environmentally friendly machinery that meets stringent emission standards. Manufacturers that innovate to produce sustainable equipment are likely to capture a larger market share.

- **Market Demand Fluctuations**

  - **Economic Factors**

    The construction equipment market is highly susceptible to economic fluctuations, political stability, and changes in government policies. Companies must be agile and responsive to these changes to maintain competitiveness.

  - **Urbanization Trends**

    Rapid urbanization drives demand for construction equipment as cities expand and require new infrastructure. Companies that can quickly adapt to urban development needs will have a competitive advantage.

- **Cost Competitiveness**

  - **Pricing Strategies**

    With a price-sensitive market, companies must balance quality and cost-effectiveness. Competitive pricing strategies are essential for attracting customers while maintaining profitability.

- **Local Manufacturing**

  Initiatives like "Make in India" encourage local manufacturing, which can reduce costs associated with imports and tariffs. Companies that establish local production facilities may benefit from lower operational costs.

- **Availability of Skilled Labour**

  The availability of skilled labour is crucial for the effective operation of advanced machinery. Companies that invest in training programs or collaborate with educational institutions may gain a competitive advantage by ensuring a skilled workforce.

- **Strategic Partnerships and Collaborations**

  Companies are increasingly engaging in partnerships, mergers, and acquisitions to enhance their market position. Collaborations with technology providers or other manufacturers can lead to innovative product offerings and expanded market reach.

- **Customer-Centric Innovations**

  Providing customized solutions tailored to specific customer needs can differentiate companies in a crowded market. Additionally, offering excellent after-sales service can enhance customer loyalty and retention.

- **Export Opportunities**

  As domestic manufacturers seek to expand their footprint internationally, they face competition from established global players. Companies that successfully navigate export markets can significantly enhance their growth prospects. However, the domestic manufacturer engaged in manufacturing special equipment face limited competition in the export market as entry barriers are high and there exist very few players which operates in this segment globally. The low competition in the global manufacturing fronts provide good export opportunities to companies operating in India in this segment including Apollo Techno Industries Private Limited.

The competitive landscape of the construction equipment industry in India is influenced by government investments, technological advancements, economic fluctuations, cost competitiveness, labour availability, strategic partnerships, customer-centric innovations, and export opportunities. Companies that effectively leverage these factors will be better positioned to thrive in this dynamic market environment. As the industry evolves, continuous adaptation and innovation will be key to maintaining a competitive edge.

## Profiling of Peer Companies

### XCMG Construction Machinery Co.,d

XCMG Global, officially known as XCMG Construction Machinery Co., is a leading manufacturer in the construction equipment industry. Established in 1943, the company has grown to become one of the prominent construction machinery manufacturers globally. XCMG's mission is to explore engineering technology and provide innovative solutions for global construction and sustainable development. The company aims to achieve significant revenue growth while maintaining high standards of quality and customer satisfaction.

**Company Overview**

- Founded: 1943
- Headquarters: Xuzhou, Jiangsu, China
- Industry: Construction Equipment Manufacturing

**Product Range**

XCMG offers an extensive range of construction machinery, covering 17 categories and over 100 applications. Key products include:

- Cranes: Truck cranes, crawler cranes, all-terrain cranes.
- Earth-Moving Machinery: Excavators, backhoe loaders, bulldozers.
- Road Machinery: Graders, pavers, rollers, asphalt mixing plants.
- Concrete Machinery: Concrete mixers, pumps, and batching plants.
- Mining Equipment: Dredgers and specialized mining machinery.
- Heavy Trucks: For transportation and logistics.
- Special Vehicles: Including firefighting and sanitation machinery.

**Technological Innovation**

XCMG emphasizes technology and innovation as its core competitive edge. The company has established research and development centers in multiple countries, including Europe, The United States of America, India and Brazil. With a dedicated R&D team of around 6,000 employees, including over 200 industry experts from various countries, XCMG focuses on developing cutting-edge machinery that meets international standards.

**Manufacturing and Global Presence**

XCMG operates manufacturing facilities in several countries, including China, the U.S, Germany, Netherlands, Poland, Austria, Brazil, India, and Uzbekistan. The company has exported its products to over 170 countries and regions, supported by more than 300 sales and service centers worldwide to provide integrated services in sales, maintenance, and spare parts.

**Business Segments**

In addition to manufacturing construction equipment, XCMG is involved in:

- **Finance and Leasing Services**: Offering financial solutions for equipment acquisition.
- **Remanufacturing Services**: Focusing on sustainability by refurbishing used equipment.

XCMG Global stands out as a major player in the construction equipment industry with its extensive product range, commitment to technological innovation, and strong global presence. The company's strategic focus on research and development ensures that it remains competitive in an evolving market while contributing to infrastructure development worldwide.

## SANY Group

**Company Overview**

- Founded: 1989
- Headquarters: Changsha, Hunan, China
- Industry: Construction Equipment Manufacturing

**Company History**

SANY Group was established in 1989 as a small welding supply company by four entrepreneurs. It has since evolved into a global leader in the construction machinery industry, recognized for its innovation and high-quality products. The company officially entered the heavy machinery sector in 1994 and has grown rapidly, achieving significant milestones such as being listed on the Shanghai Stock Exchange in 2003.

**Product Range**

SANY offers a comprehensive range of construction equipment, including:

- **Concrete Machinery**: Pump trucks, mixer trucks, trailer pumps, and batching plants.
- **Earthmoving Machinery**: Excavators, loaders, and bulldozers.
- **Hoisting Machinery**: Wheel cranes, crawler cranes, and tower cranes.
- **Road Machinery**: Soil compactors, motor graders, and pavers.
- **Piling Machinery**: Rotary drilling rigs.

- **Port Machinery**: Container gantry cranes and other port equipment.
- **Mining Equipment**: Heavy-duty machinery for mining operations.
- **Renewable Energy Equipment**: Wind turbines and photovoltaic systems.

**Technological Innovation**

SANY is committed to research and development (R&D), investing about 5% of its annual revenue into this area. The company holds over 13,694 patents, with more than 10,613 granted. It operates several R&D centres globally and focuses on integrating digital technologies into its machinery.

**Manufacturing & Global Presence**

- SANY has established 25 manufacturing bases across China and internationally in countries such as the USA, Germany, India, Brazil, and Indonesia.
- The company's products are sold in over 150 countries, supported by a robust network of more than 400 dealers worldwide.

## Casagrande (I) Piling & Geotechnical Equipment Pvt. Ltd.

Casagrande Piling & Geotechnical Equipment operate as a subsidiary company of global multipurpose civil foundation equipment manufacturer name Casagrande S.p.A. Casagrande S.p.A is a key player engaged in the design and manufacturing of specialized equipment for foundation engineering and geotechnical applications. The designs and produces hydraulic crawler cranes, large diameter piling rigs, equipment for diaphragm walls, small diameter drilling rigs, machines for tunnels, geothermal drill rigs and grouting plants.

- Year of Incorporation: 1963
- Headquarters: Italy
- Website: https://www.casagrandegroup.com/

**Key Products and Services**

Casagrande offers a diverse range of products and services tailored for the construction and geotechnical sectors, including:

- **Piling Equipment**
    - **Hydraulic Piling Rigs**
        - **Rotary Dilling Rig** - These are used for various piling applications, allowing for the installation of deep foundations with minimal disturbance to the surrounding environment.

        - **Continous Flight Auger (CFA) Rigs** - Specifically designed for creating deep foundations using continuous flight augers, suitable for different soil conditions.
    - **Diaphragm Wall Rigs** - Equipment designed for constructing diaphragm walls, which are crucial for deep excavations and underground structures.
    - **Hydraulic Crawler Drills**- Versatile drilling machines that can be used for a variety of geotechnical investigations and foundation work.

- **Geotechnical Equipment**
    - **Soil Investigation Tools** – Tools and machinery for assessing soil properties and conditions, essential for informed decision-making in foundation design.
    - **Ground Improvement** Systems – Technologies aimed at enhancing the stability and load-bearing capacity of soils, including various ground treatment methods. A range of additional tools designed to support specific geotechnical tasks, ensuring efficiency and accuracy in construction projects.

- **Foundation Solutions**

  Offers comprehensive solutions for various types of foundation process, including bored piles, driven piles, and diaphragm walls.

- **Consulting Services**

  Casagrande provides technical assistance and training to clients to ensure optimal use of their equipment and adherence to best practices in geotechnical engineering.

**Quality and Compliance**

- **ISO Certification**: Casagrande manufactures its products in compliance with ISO 9001:2015 quality management standards, ensuring high-quality production processes and reliability in performance.
- **Durability**: The equipment is constructed using high-quality materials, such as heavy-duty steel, which enhances durability and longevity under demanding conditions

**Versatility and Customization**

- **Multipurpose Functionality:** Casagrande rigs are designed to be multipurpose, allowing for conversion to various applications such as diaphragm walls, CFA (Continuous Flight Auger), stone columns, and soil mixing. This flexibility can lead to significant cost savings for contractors by reducing the need for multiple specialized machines.

- **Custom Solutions**: The company offers customizable interfaces and application kits that allow users to adapt the machinery for specific project requirements quickly.

**Technological Advancements**

- **Smart Power Management (SPM):** The XP Series features an advanced Smart Power Management system that optimizes hydraulic power usage, improving fuel efficiency by up to 25%. This system enhances operational efficiency by regulating power based on actual needs during drilling operation.
- **Digital Control Systems**: All machines are equipped with digital display systems controlled through PLC (Programmable Logic Controller), which minimizes human intervention and increases reliability and uptime.

**Key Notable Projects of Casagrande Piling Equipment**

1. **Rishikesh – Karanprayag Rail Link Project**
   - Location: India
   - Client: Rail Vikas Nigam Limited (RVNL)
   - Contractor: Max Infra Limited
   - Project Details: This prestigious project involves the construction of a 125 km rail link that includes 106 km of tunnels and 35 flyovers, aimed at enhancing connectivity for the Char Dham Yatra.
   - Equipment Used: The Casagrande PG185 rig was employed to construct Horizontal Jet Columns for excavation support systems. This rig features dual power capabilities (electric and diesel) and is designed for high manoeuvrability and efficiency in difficult geological conditions, such as those found in the Himalayan region.
2. **Tunnel Projects in Nepal**
   - Location: Nepal
   - Project Details: Casagrande's equipment has been instrumental in various tunneling projects in Nepal, which often face complex geological challenges due to the mountainous terrain.
   - Equipment Used: Specific models like the PG185 have been utilized to address the unique soil conditions encountered during these projects, demonstrating the adaptability of Casagrande's technology to different environment.
3. **Boston Logan Airport**

- **Location**: Boston, USA
- **Project Details**: While not directly utilizing Casagrande's modern equipment, the foundational work and soil mechanics principles established by Arthur Casagrande, a pioneer in the field of geotechnical engineering, have influenced many large-scale projects, including the design and construction of Logan Airport.
- **Relevance**: The methodologies developed by Casagrande continue to inform current practices in geotechnical investigations and foundation engineering

The company emphasizes sustainable practices in its operations, focusing on developing equipment that minimizes environmental impact while maximizing efficiency. With decades of experience in the geotechnical sector, Casagrande Piling & Geotechnical Equipment continues to set industry standards through its innovative products and solutions. Its dedication to quality and customer satisfaction positions it as a trusted partner for construction projects worldwide.

Casagrande's piling equipment stands out in the industry due to its commitment to quality, versatility, technological innovation, and operational efficiency. These factors contribute to its competitive edge in meeting the evolving demands of modern construction projects while adhering to high safety and environmental standards.

## Competitor Profiling – Drillto Trenchless

Drillto Trenchless Co., Ltd. is a leading manufacturer and innovator in the field of trenchless technology, specializing in horizontal directional drilling (HDD) equipment. Founded in 2000, the company has become a prominent player in both domestic and international markets, providing advanced solutions for underground construction.

- Year of Incorporation: 2000
- Headquarters: Shenzhen, Guangdong, China
- Website: https://www.drilltohdd.com/

### Products and Services

Drillto offers a comprehensive range of products and services tailored to meet the needs of the trenchless construction industry:

1. **Horizontal Directional Drilling Machines:**
    - Advanced HDD rigs designed for efficient underground installations with minimal disruption.
    - HDD models include ZT-300A, ZT-36/72CDF, ZT-100A, ZT-525, ZT-60/120A, ZT-16, ZT-140, ZT-6, ZT-25AK, ZT-32AT, ZT-95/135, ZT-50/100CDF, ZT-280 and so

on offering both trenchless and horizontal drilling equipment. The company has the wide product range to suit all requirement of horizontal drilling.

- Notable models include the ZT-75/150AT, trenchless HDD featuring a closed-loop hydraulic system for enhanced performance.

2. **Drilling Rods and Tools:**
   - A variety of drilling rods and accessories that complement their HDD machines, ensuring comprehensive solutions for customers.
   - Drilling rods are available at a wide range of 60mm, 73mm, 83mm, 89mm, thin wall drill rod, geological drill pipe, HDD Drill rod, and so on.
3. **Construction Training and Technical Guidance**
   - Drillto provides extensive training programs and technical support to help clients maximize the efficiency and safety of their operations.
4. **Maintenance Services**
   - Ongoing maintenance support to ensure the longevity and reliability of their equipment.

**Key Features of HDD Equipment**

Drillto's horizontal directional drilling (HDD) machines are equipped with several key features that enhance their performance and efficiency in underground construction projects.

- **High Torque and Pulling Force**
  - **Max Torque**: Drillto HDD machines, such as the ZT-180/240 model, can achieve a maximum torque of up to 78,000 N·m, enabling effective drilling through various soil conditions.
  - **Pulling Force**: The machines offer impressive pulling forces, with models like the 140-ton HDD machine providing up to 1800/2400 kN, ensuring strong performance during installation operations.
- **Advanced Engine Performance**
  - **Powerful Engines**: Drillto HDD machines are powered by high-performance engines, such as a 373 kW engine operating at 2100 rpm, which contributes to their overall efficiency and operational capabilities.
- **Efficient Hydraulic Systems**
  - **Closed-loop Hydraulic Systems**: Many models feature closed-loop hydraulic systems that enhance volumetric efficiency and reduce power loss, providing stable and reliable transmission performance during drilling operation.

- **Speed and Handling**
  - **Fast Push and Pull Speeds**: The machines are designed for quick push and pull actions, allowing for efficient operation and reduced project timelines.
  - **Good Handling**: The design of Drillto's HDD machines facilitates excellent manoeuvrability on-site, making them suitable for various construction environments.
- **Steering and Guidance System**
  - **Precision Control**: Advanced steering and guidance systems are integrated into the machines to accurately control the direction of the bore path, ensuring precise installations even in complex underground conditions.
- **Energy Efficiency**
  - **Energy-saving Features**: Drillto emphasizes energy efficiency in its designs, which helps reduce operational costs while maintaining high performance level.
- **Versatility**
  - Multiple Applications: Drillto HDD machines are versatile and can be used for a wide range of applications, including pipeline installation, telecommunications, and utility work.

These features collectively position Drillto's horizontal directional drilling machines as robust solutions for modern trenchless construction needs, capable of handling a variety of challenging projects efficiently.

**Commitment to Innovation**

The company emphasizes continuous improvement through research and development. Drillto's mission is to simplify underground pipe laying processes by leveraging advanced technology, which drives its ongoing innovation efforts.

- The company has applied for 203 trenchless HDD field independent intellectual property patents, including 27 invention patents.
- The company passed the ISO9001 quality management, ISO14001 environmental management dual system certification, ISO45001 safety production implementation standardization and obtained the ISO50001 energy management certification and CE certification, and has been recognized by the authorities in the enterprise business process and quality management.

With over two decades of experience in trenchless technology, Drillto Trenchless Co., Ltd. continues to lead the market with its innovative products and comprehensive service offerings. Its dedication to quality, customer support, and technological advancement positions it as a trusted partner for underground construction projects worldwide.

## Bauer Equipment India Ltd

Bauer Equipment India Pvt. Ltd. is a prominent subsidiary of the global BAUER Maschinen GmbH, specializing in foundation engineering and equipment solutions.

### Company Overview

- Year of Incorporation : 1994
- Company Type: 100% Subsidiary of BAUER Maschinen GmbH
- Indian Headquarters: Navi Mumbai, Maharashtra
- Operational Locations:
    - Main Workshop: Navi Mumbai
    - Sales Offices: Delhi, Mumbai, Chennai
    - Registered Office: Gurgaon, Haryana

### Business Segments

- Equipment Sales
- Technical Services
- Parts Supply
- Training
- Specialized Foundation Engineering Solution

### Product Portfolio

- Rotary drilling rigs
- Trench cutters
- Drilling accessories
- Foundation cranes
- Deep vibrators
- Diesel and hydraulic hammers
- Desanders
- Deep drilling rig

### Market Focus

Specializes in infrastructure projects including:

- Dam and Hydro-Electric Power Projects
- Metro Construction
- Highway Construction

- Complex Geotechnical Engineering Solution

**Competitive Advantages**

- Highly skilled technical sales team
- Comprehensive after-sales support
- Local workshop with trained technicians
- Direct technological connection with German headquarters
- Extensive parts inventory to minimize equipment downtime

The company continues to be a key player in India's foundation engineering and specialized construction equipment market.

## Financial Analysis

Financial is done for two Indian companies EIMCO ELECON India Ltd and Vermeer Equipment India Pvt Ltd.

## EIMCO ELECON India Ltd

Eimco Elecon (India) Limited is a prominent manufacturer the rotary drilling rigs and mining equipment, based in Vallabh Vidyanagar, Gujarat, India. Established in 1974, the company has carved a niche for itself in the underground mining machinery sector.

**Company Overview**

- **Incorporation Date:** July 31, 1974
- **Type:** Public Company
- **Location:** Anand Sojitra Road, Vallabh Vidyanagar, Gujarat, India
- **Employees:** Approximately 124

**Product and Services**

Eimco Elecon specializes in a wide range of products for mining and construction applications. The list of products include:

- **Underground Mining Equipment**
    - Load Haul Dumpers (e.g., 811, 912E, 912B MK II)
    - Side Dump Loaders (e.g., 625, 611)
    - Continuous Miner Packages
    - Articulated Wheel Loaders (e.g., AL 120, AL 520)
- **Construction Equipment**
    - Hydraulic Drilling and Roof Bolting Jumbos
    - Piling Rigs
    - Air Motors for various applications

**Key Achievements**

- Technological Advancements: The company has continually invested in technology to enhance the efficiency and safety of its products, aligning with global standards.
- Global Reach: Eimco Elecon has expanded its operations beyond India, supplying equipment to various international markets.
- Sustainability Initiatives: The company emphasizes sustainable practices in its operations and product development to minimize environmental impact.

**Financial Performance**

| Eimco Elecon Pvt Ltd (INR Million) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| **Revenue** | 1,831.83 | 2,459.25 | 2,647.98 |
| **Raw Material Cost** | 468.83 | 866.92 | 1,165.86 |
| **Power & Fuel Cost** | 9.03 | 11.13 | 10.41 |
| **Employee Cost** | 152.58 | 182.64 | 194.63 |
| **Interest Cost** | 5.-01 | 9.43 | 5.63 |
| **EBITDA** | 347.89 | 583.57 | 744.84 |
| **EBITDA Margin** | 20.14% | 25.65% | 30.22% |
| **PAT** | 208.68 | 404.12 | 489.07 |
| **PAT Margin** | 12.1% | 17.8% | 19.8% |
| **Debt Equity Ratio** | NA | NA | NA |
| **Interest Coverage Ratio** | 53.86 | 53.95 | 117.48 |
| **Return on Investment** | 5.78% | 10.10% | 8.10% |
| **Return on Assets** | 5.4% | 9.0% | 10.0% |
| **Current Ratio** | 4.42 | 3.45 | 4.63 |

Eimco Elecon (India) Limited stands out as an important domestic player in the mining and construction equipment industry in India. With a strong focus on innovation, quality manufacturing, and sustainability, the company is well-positioned for future growth and expansion within both domestic and international markets.

## Vermeer Equipment India Ltd

Vermeer Corporation is a leading global manufacturer of industrial and agricultural equipment, known for its innovative solutions in various sectors, including construction, environmental services, and agriculture. Founded in 1948, the company has a rich history of growth and product development.

### Company Overview

- Founded: 1948
- Founder: Gary Vermeer
- Headquarters: 1210 Vermeer Road East, Pella, Iowa, USA

### Key Products and Services

Vermeer Corporation specializes in a wide range of equipment designed for efficiency and performance in challenging environments. Key product lines include:

- **Underground Construction Equipment**
  - Horizontal directional drills
  - Trenchers
  - Vacuum excavators
  - Rockwheels and plows
- **Agriculture Equipment**
  - Round hay balers
  - Silage balers
  - Hay rakes and mowers
- **Environmental Equipment**
  - Stump cutters
  - Wood chippers
  - Tub grinders

Vermeer operates in over 60 countries worldwide, supported by a robust network of nearly 600 dealerships. The company is committed to providing localized customer service and support, which has been integral to its success for more than six decades.

## Financial Snapshot

Financial performance of Vermeer Equipment for the past three years is captured below:

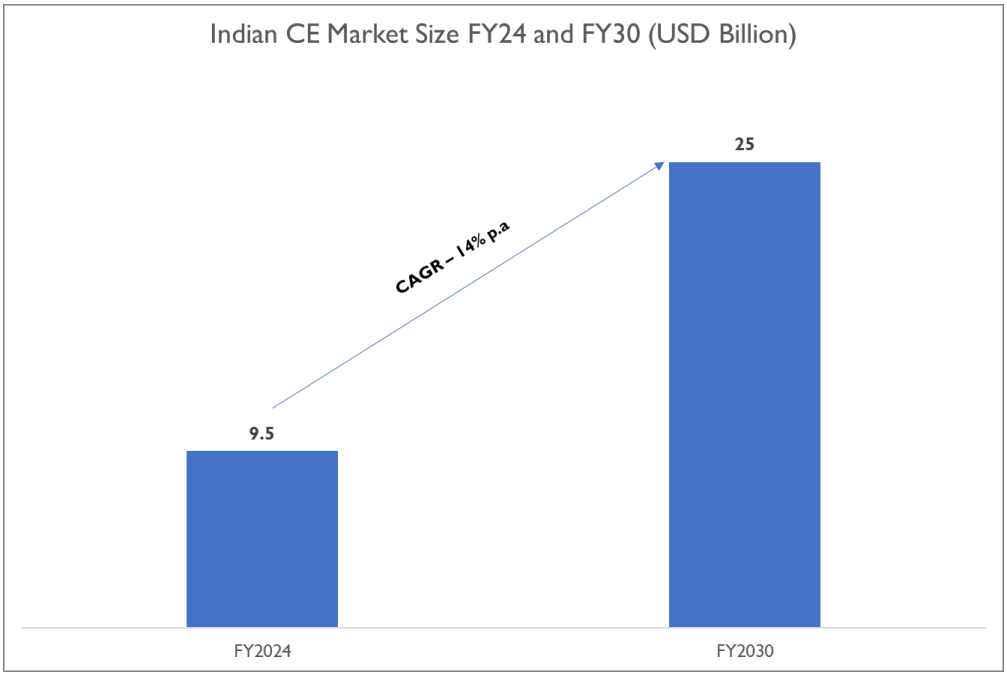
| Vermeer Equipment Pvt Ltd (INR Million) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| **Revenue** | 194.9 | 182.7 | 127.9 |
| **Raw Material Cost** | 0.0 | 0.0 | 0.0 |
| **Power & Fuel Cost** | 0.033 | 0.052 | 0.05 |
| **Employee Cost** | 6.45 | 7.03 | 8.5 |
| **Interest Cost** | 0 | 0 | 0 |
| **EBITDA** | (0.8) | (36.4) | (22.6) |
| **EBITDA Margin** | (0.4) % | (19.9) % | (17.7) % |
| **PAT** | (0.8) | (36.7) | (22.9) |
| **PAT Margin** | (0.4) % | (20.1) % | (17.9) % |
| **Debt Equity Ratio** | NA | NA | NA |

| | | | |
|---|---|---|---|
| **Interest Coverage Ratio** | NA | NA | NA |
| **Return on Investment** | NA | NA | NA |
| **Return on Assets** | 81.7% | 71.1% | 44.6% |
| **Current Ratio** | 1.0455 | 0.905 | 0.85 |

## Growth Forecast

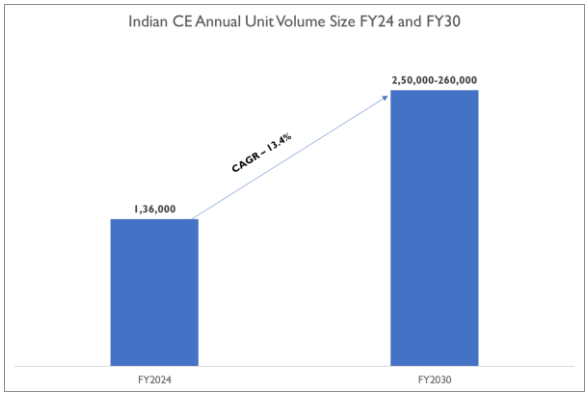
### Expected Growth in Indian CE Market

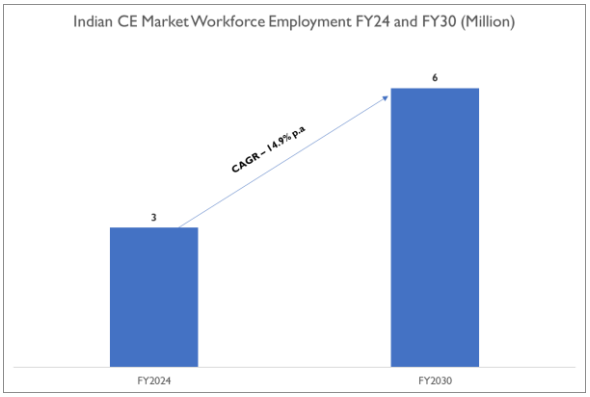
Indian CE market is poised for strong growth in FY2030, supported by steady economic growth, infrastructure projects and planned pipeline in place by Ministry of Road Transport and Highways (MoRTH), Ministry of Shipping, Ministry of Housing and Urban Affairs, Ministry of Planning and Development and Ministry of Commerce and Industry. In addition to these government projects and pipelines, urban infrastructure development, multiple commercial housing projects across the country are some of the factors that is assuring a remarkable growth to this sector by FY2030.

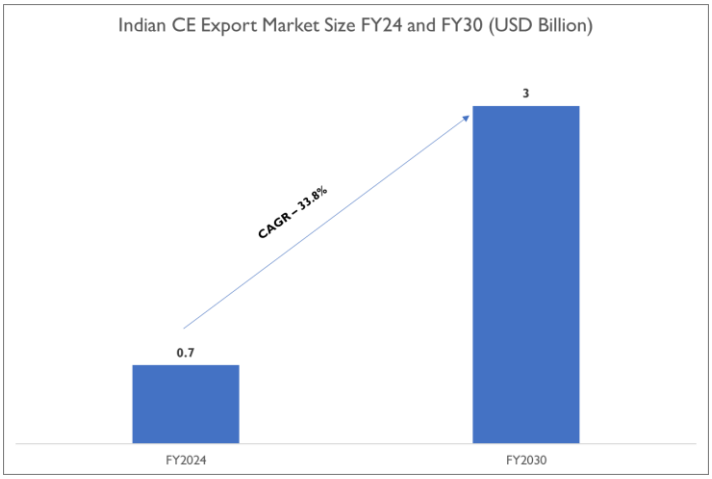



Source: ICEMA Activity Report FY2023-24

In addition to the market size, the other goals for FY2030 includes target for employment, annual volume of CE, and export value.






Source: ICEMA Activity Report FY2023-24

## Key Factors Impacting Future Demand in Indian CE Market

The key factors contributing to the growth for FY2030 includes:

- **Electric and Alternate Fuel Engines**

  This includes steps to promote usage of electric engines or engines of equipment powered by alternative fuels. This is a significant step towards achieving Net Zero emissions target by 2070 along with the commitment towards COP26.

- **Increased Localisation of Supply Chains**

  Promoting 'Make in India' initiative and 'Production-Linked Incentive (PLI)' scheme towards capacity building of MSMEs and local component manufacturers for improved resilience of supply chain and risk mitigation.

- **Application-Specific Equipment**

  Promoting usage of smaller equipment appropriate for the construction site with reduced noise and emissions due to construction activity.

- **Leveraging Telematics & Advanced Technologies**

  Equipment with efficient utilization of advanced technologies and telematics will be preferred and have more demand for complex construction projects demanding higher levels of precision, productivity and connectivity.

# Threats & Challenges Impacting CE Industry

## Analysis of Major Threats & Challenges Indian CE Market

The Indian construction equipment market faces several threats and challenges that impact its growth and competitiveness.

- **High Cost of Equipment Maintenance and Replacement**

  The significant costs associated with maintaining and replacing construction equipment deter many companies from purchasing new machinery. This leads to a preference for rental services, which can hinder sales growth in the new equipment market.

- **Increasing Demand for Rental Equipment**

  The rising trend of renting construction equipment rather than purchasing it outright poses a challenge for manufacturers. Contractors often opt for rentals to avoid high capital expenditures, impacting overall sales volumes for new machinery.

- **Economic Fluctuations**

  The construction equipment market is sensitive to economic cycles. Economic downturns or slowdowns can lead to reduced investment in infrastructure projects, directly affecting demand for construction equipment.

- **Regulatory Compliance and Emission Standards**

  Compliance with stringent emission regulations (such as the CEV Stage-IV standards) can increase production costs and complicate manufacturing processes. Delays in implementing these standards may also create uncertainty in the market.

- **Supply Chain Challenges**

  The need for a robust supply chain is critical for achieving localization targets within the industry. Any disruptions or inefficiencies in the supply chain can hinder production capabilities and affect delivery timelines.

- **Competition from Imported Equipment**

  The influx of imported construction machinery, often at competitive prices, poses a threat to domestic manufacturers. This competition can pressure local companies to reduce prices or enhance their product offerings to maintain market share.

- **Technological Adaptation**

As the industry shifts towards automation and digitalization (e.g., IoT connectivity, GPS tracking), companies must invest in new technologies to remain competitive. Those unable to adapt may fall behind.

- **Labour Shortages**

  A shortage of skilled labour in the construction sector can impede project timelines and affect the operational efficiency of construction equipment. This challenge necessitates investment in training and development programs.

- **Geopolitical Factors**

  Global geopolitical dynamics, such as trade tensions and shifts in manufacturing bases (e.g., the China+1 strategy), can influence supply chains and investment flows into India's construction sector.

- **Market Volatility**

  Fluctuations in material costs, currency exchange rates, and interest rates can create an unpredictable business environment, making it challenging for companies to plan investments and pricing strategies effectively.

The Indian construction equipment market is navigating a complex landscape characterized by high maintenance costs, increasing demand for rentals, regulatory pressures, supply chain challenges, and competition from imports. Addressing these threats will require strategic planning, investment in technology, and a focus on building a skilled workforce to sustain growth in this dynamic industry.

## SWOT Analysis

### Strengths

- **Government Initiatives:** Government initiatives such as infrastructure development plans, including metro rail projects, ports, industrial corridors, and freight corridors, are anticipated to boost infrastructural development in India. The government is investing approximately USD 1.4 trillion in infrastructure development, which has direct influence in the various construction equipment including foundation equipment demand.
- **Increasing Awareness:** There is growing awareness and demand for foundation equipment and Trenchless equipment in the construction industry. Construction companies are becoming more conscious about productivity and are demanding the latest technologies. This makes these equipments inevitable in the construction industry.

- **Domestic Demand:** The increasing population, urbanization, and improving lifestyles are driving demand for infrastructure construction, affordable housing and smart buildings, contributing to the growth of the heavy construction equipment market.

**Weakness**

- **Cyclical Demand:** The demand for construction equipment in India is cyclical, with periods of growth followed by periods of stagnation.
- **Policy Paralysis:** Policy paralysis and sluggish economic conditions can have a negative impact the demand for construction equipment market.
- **Monsoon Season Impact:** The monsoon season in certain parts of the country can lead to a temporary shrinking of demand for construction equipment.
- **Maintenance and After-Sales Support:** Maintaining construction equipment is a costly and time-consuming endeavour. In India, especially in rural or less-developed areas, the availability of reliable service centres and spare parts can be limited.

**Opportunities**

- **Infrastructure Development:** Numerous port projects, underground metro railway projects, and overall development of core infrastructure and real estate projects are creating opportunities for the heavy construction equipment market.
- **Technological Development:** The adoption of new technologies, such as diesel hammers, hydraulic hammers, and hydraulic press-in methods, can drive market growth.
- **Global Demand:** Various economies are trusting Indian construction equipment and importing it for their development activities, providing growth opportunities to the market.
- **Public-Private Partnerships:** Government policies aimed at encouraging Public-Private Partnerships (PPP) and infrastructure development are expected to boost the construction equipment market's growth.

**Threats**

- **Competition:** The Indian market has players competing on various grounds, including customer base, geographical presence, technology, and product portfolio. (Need clear input)
- **Economic Slowdown:** An economic slowdown or negative policies from the government could adversely affect the demand for foundation equipment.
- **Global Economic Crisis:** Global economic factors and trade policies could impact the import and export of construction equipment.

- **Skilled Labor:** Shortage of skilled operators to use the machinery may hamper the market. A major hindrance in this growth is the lack of disciplined & consistent workforce at the factory level which wants to work consistently.

## Company Profile – Apollo Techno Industries Limited

### Business Operation[9]

Incorporated in April 2016, Apollo Techno Industries Limited is a Mehsana based company that manufactures a variety of specialised construction equipment. Apollo Techno Industries Limited is the only domestic manufacturer that is engaged in the manufacturing of Horizontal Directional Drilling equipment, Diaphragm wall Drilling Rigs and one of the manufacturers of Rotary Drilling Rigs[10] catering the end user industries demand in India as well as in export market.

### Brief of Apollo Techno[11]


*Forging a Path of Innovation and Leadership: The Apollo Techno Story*

***Management Details:***

*For over four decades, Mr. Rashmibhai Patel has been a key figure in transforming the Indian construction equipment manufacturing industry. Mr. Patel is one of the founder promoter of Apollo Group. Under his visionary leadership, Apollo Techno has evolved from a small local business in Mehsana, Gujarat, into a leading player across India and started expending into the international market.*

*Mr. Patel has consistently pushed the boundaries of innovation, introducing ground breaking technologies that have changed construction practices nationwide. Notable advancements from Apollo Techno include Horizontal Directional Drilling Rigs, Diaphragm Wall Rigs, and Rotary Drilling Rigs. Each of these innovations marks a significant step forward, improving efficiency and setting high standards for quality in the construction sector.*

[9] Information is from company website.

[10] Assessment based on Dun & Bradstreet Extensive Secondary research. During the secondary research process Dun & Bradstreet could not come across any home grown / domestic manufacturer in this domain. The Indian players active in this segment are mostly subsidiaries of global players.

[11] Information on Brief of Apollo Techno covering Management detail and Product Profile has been received from the company and incorporated in report on as its basis.

*Mr. Patel's steadfast commitment to the "Made in India" initiative has significantly reduced the country's reliance on imported construction equipment. Beyond national borders, Mr. Patel envisions a global presence for Apollo Techno, highlighting India's technological capabilities on the world stage.*

*Mr. Parth Rashmikant Patel is now carrying forward Apollo Techno's ambitious global vision, guided by his father's mentorship. Together, they are steering the company toward new horizons by harnessing cutting-edge research and development. Their goal is to create innovative products that can compete effectively on the international stage.*

*With their combined expertise and forward-thinking mindset, they are opening doors to unexplored markets, establishing Apollo Techno as a formidable player in the global construction equipment industry.*

*As they embark on this exciting new chapter, Mr. Patel legacy of innovation, quality, and visionary leadership continues to shape the future of construction technology, impacting not only India but also markets around the world.*

### *Products Product*

- Horizontal Directional Drilling Rig ("Trenchless Technology")
- Diaphragm Drilling Rig ("Vertical Drilling And Foundation Equipment")
- Rotary Drilling Rig ("Vertical Drilling And Foundation Equipment")

### *Brief Write up about the products*

HORIZONTAL DIRECTIONAL DRILLING RIG ("TRENCHLESS TECHNOLOGY")

- *Directional Boring, popularly known as (HDD).*
- *The Technology usually preferred in those installation processes where trenching or excavation cannot be implemented.*
- *This technique in installation of various pipes, conduits, Steel pipes, power cables, water lines, etc., Causing minimum harmful impact on the environment.*
- *Major applications include crossing waterways, shore approaches, roadways, environmental sensitive areas, congested areas, etc.*

DIAPHRAGM DRILLING RIG ("VERTICAL DRILLING AND FOUNDATION EQUIPMENT")

*Diaphragm wall is a continuous wall constructed in ground in to facilitate certain construction activities, such as:*

- *As a retaining wall*
- *As a cut-off provision to support deep excavation*
- *As the final wall for basement or other underground structure (e.g. tunnel and shaft)*
- *As a separating structure between major underground facilities*
  *As a form of foundation (barrette pile – rectangular pile)*

*Benefits of Diaphragm wall Rig*

- *Diaphragm walls enhance the foundation strength of constructions*
- *It provides vital structural support for tunnels*
- *Diaphragm walls offer reliable protection from flood risk.*

ROTARY DRILLING RIG ("VERTICAL DRILLING AND FOUNDATION EQUIPMENT")

- *Piling rigs are specialized construction machines specifically built to install piles—long and slender structural elements that are driven deep into the ground to ensure support and stability for a variety of structures.*
- *These rigs come equipped with robust hydraulic systems and various attachments that allow for efficient driving, extracting, and boring of piles into the earth.*
- *The rotary drilling rig is used in segments of urban infrastructure, Metro and Rapid Rail connectivity, Bridges and flyovers, and general construction.*

## *HORIZONTAL DIRECTIONAL DRILLING RIG*

1. ***A100 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***


*A Powerful Rig on a Small Footprint*

*The compact and powerful A100 HDD is designed to work in tight areas and is powered by a 85 HP Ashok Leyland diesel engine. The A100 offers 5 tons of thrust-pullback force with a rack-pinion system, having a rotational torque of 3800 Nm, which helps to work faster. The additional features include an auto-anchoring system, an in-built rod box, and smart controls with value-added safety features. Apollo single-piece forged drill rod provides the optimal range of strength and more flexibility with finished threads.*

2. ***A200 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***


*A compact rig with dynamic performance*

*The A200 HDD is designed to work on narrow streets. The 85 HP Ashok Leyland engine delivers unmatched performance that operators can feel and appreciate during tough pull-back conditions. The A200 features a high-quality rack-pinion system with a thrust/pullback capacity of 10 tons. The A200 delivers a torque of 3800 Nm that provides high performance, greater crew productivity and efficiency. The A200 features sealed and*

*lubricated track rollers, carrier rollers and idlers that provide long service life, which keeps your machine in the field and working longer. Apollo single-piece forged drill rod provides the optimal range of strength and more flexibility with finished threads.*

3. ***A400 V2 (Designed for India, Nepal, and Bangladesh)***


*Better Productivity – Drill Perfect*

*The A400 HDD provides 12 tons of pulling force and 5500 Nm of torque, which delivers long-lasting productivity in a compact, well-designed and for better manoeuvrability. The 130 HP Ashok Leyland engine delivers unmatched performance that operators can feel and appreciate during tough drilling conditions. The A400 is fitted with quality components, which ensure durability over time. The design of the A400 is simple and delivers reliable operation and ease of maintenance. The A400 rig features a thoughtfully designed operator station with smart controls. For rig stability, the A400 offers an auto-anchoring system. Apollo single-piece forged drill rod provides the optimal range of strength and more flexibility with finished threads.*

4. ***A600 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***

*An Enhanced Rig with Greater Performance - Built to Counter Tough Jobs.*

*The A600 HDD features a rack-pinion system powered by a 130 HP Ashok Leyland engine. Along with a pullback capacity of 21 Tons and torque of 6500 Nm, the A600 is equipped with a variable flow water pump for a variety of tough drilling conditions. The A600 HDD is equipped with three variable drilling speeds, with greater rotational speed for enhanced productivity. The A600 also features; automatic rod loading on a rack and pinion system (optional) to reduce manpower requirements and increase job efficiency. The A600 features sealed & lubricated track rollers; carrier rollers and idlers that provide excellent service life and help keep the A600 working longer in the field. Based on the customer's input, we have designed the A600 for durability and*

*to deliver results in a highly efficient and reliable manner across a wide range of segments. Apollo single-piece forged drill rod provides the optimal range of strength and more flexibility with finished threads.*

5. ***A800 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***


*Powerful, Reliable, Rugged and Smallest Footprint in its Class.*

*The A800 HDD is designed for a range of small to medium-diameter, short to long-distance jobs and soft-to-hard rock boring projects. The A800 is constructed with a rack and pinion system with a 170 HP Ashok Leyland engine. Along with the more powerful engine, pull back force has increased to 32 Tons with a torque rating of 7200Nm. This combination of pullback force and torque is ideal for longer-distance jobs and larger-diameter applications. The A800 is equipped with an auto rod-loader system on rack and pinion system to reduce manpower requirements and increase job efficiency. The A800 also features three drilling speeds for different conditions. This model's proportional operated joystick control is designed to match your natural wrist and arm positions during operation to reduce operator fatigue and provide maximum comfort. The A800 also features sealed and lubricated track rollers; carrier rollers and idlers that provide excellent service life and help keep the rig working longer in the field. Additional special features are the auto-drill function and half-rotational function (optional), which enhance performance in solid conditions. Apollo single-piece forged drill rod provides the optimal range of strength and more flexibility with finished threads.*

6. ***A900 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***


*compact, powerful and reliable source for variety job-site*

*The A900 HDD delivers powerful combinations of 36 kg of thrust-pullback force with the greater torque rating of 8500 Nm which you need to get the job done quicker. A900 HDD is powered by a 170 HP Ashok Leyland (6 cylinders) with a turbocharger that efficiently delivers tremendous power. The rig is equipped with an auto-reloading system and an auto-anchoring system with safety features that help you to make your job faster.*

7. ***A950 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***

*Compact size with enhance force for pipeline jobs*

*The A950 HDD designed to handle pipeline job in narrow areas where operator required more power. A950 is gathering engine of 220 HP Ashok Leyland (6 cylinders) with a turbocharger, and the thrust-pullback capacity of 42 tons along with torque of 14500 Nm. The rig is equipped with an auto-reloading system and an auto-anchoring system with safety features which deliver for greater performance.*

8. ***A1000 V2 (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***


*IMPRESSIVE SIZE WITH INCREASED POWER*

*The A1000 HDD is manufactured to cater to larger-size diameters along with longer-distance lengths. The rig is constructed with a quality rack-pinion system and powered by a 225 HP Cat engine, with a thrust/pull-back force of 50400 Kg with a rotational torque rating of 19798 Nm. An air-conditioned cabin with a rotating operator seat provides a surround view for maximum comfort to monitor the operations. In-built crane is available as an optional.*

9. ***A1200 GEN II (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)***

*A Large-size Rig for Bigger Job-site*

*The A1200 is designed to cater to large-size underground infrastructure construction projects, equipped to face tough hard ground and difficult job-site conditions. The equipment is constructed with a quality rack-pinion system and powered by a 275 hp Cat engine. Along with this powerful engine, thrust/pull-back force has increased to 65 tons with a rotational torque rating of 30200 Nm which is ideal for longer distance jobs and larger diameter applications. Air-conditioned cabin with rotating operator seat provides a surround view for maximum comfort to monitor the operations. In-built crane is available as an optional.*

### *10. A1500 GEN II (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)*

*Rigid and tough rig in its class*

*The A1500 equipped with enhanced thrust-pullback capacity and rotation torque for special job-site and critical condition. Loaded with cat engine with capacity of 95 tons and torque of 36300 Nm with in-built crane for loading with drill rods into the rod box. Air-conditioned cabin with rotating operator seat provides a surround view for maximum comfort to monitor the operations.*

### *11. A2000 GEN II (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)*


*Built to take on the Challenge*

*The all-new A2000 HDD is loaded with 125 tons of thrust-pullback force and up to 39477 Nm of spindle torque with great spindle speed to power through in any soil condition. A2000 is engineered to attain maximum*

*productivity, powered by 6 cylinders, 402 HP (300 KW) with a turbocharger CAT engine efficiently delivers tremendous power to all drilling functions so that you can achieve the target faster. The A2000 HDD features auto drilling and auto thrust-pullback along with moving moving-wise system for better performance of your rig.*

*A combination of larger-diameter pipe with a lengthy installation through various soil conditions including solid rock, Apollo empowers you, A2000 with superior power and driller-friendly technology – your key to success.*

### *12. A3000 GEN II (Designed for India, Nepal, Bangladesh, Middle east, Russia & European Countries)*

*"Designed for Larger-Scale Horizontal Drilling Jobs"*

*The A3000 is in a maxi rig category of horizontal directional drilling (HDD) rig used for longer distances, greater depths and larger diameter pipe projects with Placement of polyethylene pipe, oil and gas steel pipe, or Conduit Under obstacles, Including river crossings, or cannel crossings. The rig is equipped Cat engine with the Thrust-pullback force of 180 tons and torque of 77012 Nm. A3000 having separate cabin for better visibility of the operations and operator can comfortably operate the rig.*

### *13. HD 50/100 (Designed for India, Nepal, Bangladesh, and Middle east)*


*The all new HD 50/100 is a freshly launched rig. It has been designed to be a more compact and cost-effective product. It has a 275 HP cat engine and 200 GPM in-built mud pump, which makes drilling more efficient and having thrust/pullback capacity of 100 tons and high torque. The air-conditioned cabin, with a rotating operator seat, gives a surround view for optimal comfort while monitoring operations. A built-in crane is offered as an option.*

## *DIAPHRAGM DRILLING RIG*

***DW 235 (Designed for India, Nepal, Bangladesh, and Middle east)***

*Digging Deeper, Growing Stronger*

*Apollo has launched India's first diaphragm wall drilling rig. The DW 235 is powered by a caterpillar engine. The rig can grab from 400 to 800 mm at a depth of 30 m, including Kelly's extension. The DW 235 includes a unique feature called the free-fall mechanism, which boosts productivity. The rig's undercarriage was designed and manufactured at our state-of-the-art India plant. It has a shoe width of 800 mm and a wire rope diameter of 28mm.*

## *ROTARY DRILLING RIG*

***PR 235 (Designed for India, Nepal, Bangladesh, and Middle east)***

*Enhanced Productivity for rotary drilling rig*

*Apollo has launched a rotary drilling rig. The PR 235 is frequently used in piles ranging in diameter from small to big, with a maximum pile depth of 54 meters. PR 235 can be used for diameters up to 1800 mm. The rig is powered by a Caterpillar engine and has two winches: the main winch and the auxiliary winch. The rig's undercarriage was developed and constructed in our state-of-the-art India factory.*

### Key Customer Segments Serviced

Primary markets that Apollo Techno Industries Pvt Ltd serve Include:

- **Oil & Gas Industry**

  Apollo's Horizontal Directional Drilling (HDD) machines are extensively used for laying long-distance and cross-country pipelines, as well as distribution networks for natural gas to homes. This sector is a significant driver of demand due to ongoing infrastructure projects in oil and gas distribution.

- **Telecommunication**

  The company provides HDD solutions for installing underground fiber optic cables (OFC), which are crucial for enhancing telecommunications infrastructure. The growth in digital connectivity has increased the need for such installations.

- **Water and Sewerage**

Apollo's equipment is utilized in the installation of water supply and sewerage pipelines. This is particularly relevant in urban areas where trenchless technology minimizes disruption during installation. Improving water and sewerage lines and laying new lines due to urban expansion and smart city projects drive demand for HDD equipment offered by Apollo Techno.

- **Power Distribution**

  The HDD machines are also employed for setting up underground power cables, supporting the electrical infrastructure necessary for urban development and smart city initiatives across different states of India.

Apollo Techno Industries Pvt Ltd Limited is well-positioned to meet the demands of various sectors focused on sustainable infrastructure development, leveraging its advanced HDD technology to provide efficient solutions that minimize environmental impact while facilitating essential utility installations.

## SWOT Analysis of Company

### Strengths

- **Leading Indian Manufacturer:** Apollo Techno Industries is a leading manufacturer of horizontal directional drilling (HDD) rigs and foundation rigs in India. They are the sole Indian company to manufacture horizontal directional drilling rig, and diaphragm wall foundation equipment.
- **Expertise and Innovation:** The company has expertise in crafting high-quality, new-generation equipment that meets global standards. They focus on engineering drilling solutions and are committed to innovation.
- **Product Features:** Apollo Techno's A-Series horizontal directional drill machines offer ease of operation, low operating costs, and high equipment availability, even in challenging ground conditions. These drills featured with high torque, tonnage capacity ranging from 5 to 180 tons, and are supported by 6000 psi hydraulic pressure for enhanced power. The compact footprint with robust design of the rigs makes them efficient and powerful. Diaphragm rig also equipped with free-fall system for faster output.
- **Technological Advancements:** The A-series machines are equipped with the latest technological advancements and can achieve work rates between 120 meters/hour to 180 meters/hour.
- **Customization and Add-ons:** Apollo Techno offers an add-on mud pump powered by an engine to enhance the performance of their rigs. They provide various configurations, including separate operator cabin for A3000 HDD model for easy and comfort operation. GEN II has launched with minimalistic harness, and having latest features like auto thrust/pullback, auto half

rotations, adjust mud flows, and so on. The operator cabin also equipped with AC, so operator can work comfortably.

- **Strong Market Presence:** Apollo horizontal directional drills[12] has sold good number of rigs in operation across India. Apollo Techno has larger range of HDD machine, so the company can provide better options to the end users. The company A800r model has strong reputation into international market.
- **Service Support:** Apollo Techno offers unmatched on-site service support and fast, reliable parts availability to minimize downtime. They have established offices in Kolkata, Bhopal, Uttar Pradesh, and Chennai to assist customers.
- **Legacy and Accreditations:** Apollo Techno promoter has decades of expertise in manufacturing construction equipment and a commitment to quality. The company has Quality Management System, System Applications & Products, and self-declared CE Marking certifications for European countries.

  **Expansions:** Apollo Techno has explored the International in various countries such as European region. Apollo Techno started developing new product line such as soil investigation rig, anchoring rig and CFA.

**Weakness**

- **Limited Production Line:** While specializing in drilling equipment, the company may have a limited product line in foundation rigs compared to international brands of construction equipment manufacturers/suppliers.
- **New Product Integration:** Apollo Techno launched its Apollo DW-235 in 2023 and is awaiting further responses from customers to make necessary modifications to better suit existing and emerging job site applications.

**Opportunities**

- **Market Expansion**: Apollo Techno is keen to widen the market reach of its horizontal directional drills by catering to various industries, such as city gas distribution, electricity cable lying, water pipe lying and underground utilities.
- **Product Development:** The company is actively working towards manufacturing smaller-sized, and larger-sized diaphragm wall rig that can operate in diameters ranging from 400 mm to 600 mm with depth of 24 m, and 500 mm to 1500 mm with depth of 38 m respectively. The company has also upgraded their horizontal directional drilling rig machines into Version 2 and GEN II for better performance and easier maintenance.

[12] Information Shared by Company

- **Global Reach:** Expansion into international market indicates potential for further global market penetration.

**Threats**

- **Competition:** Apollo Techno faces competition from well-established American, European and Chinese manufacturer of horizontal directional drills and foundation equipment in the Indian construction market.
- **Market Dynamics:** The construction industry is subject to economic cycles and fluctuations in infrastructure development, which could impact demand for Apollo Techno's products.

## Financial Snapshot

| ApolloTechno Industries Ltd (INR Million) | FY 2024 | FY 2025 |
|---|---|---|
| **Total Income** | 692.32 | 996.62 |
| **Raw Material Cost** | 541.86 | 555.61 |
| **Employee Cost** | 55.14 | 63.07 |
| **Interest Cost** | 25.69 | 26.43 |
| **EBITDA** | 80.35 | 184.25 |
| **PAT** | 32.35 | 137.35 |
| **Net Worth** | 115.52 | 252.54 |
| **Long Term Borrowing** | 212.38 | 69.76 |
| **Debt Equity Ratio** | 3.61 | 1.13 |
| **Return on Assets** | 4.83% | 18.02% |

**Financial KPI Benchmarking [13]**

| Particular | Apollo Techno Industries Limited | | Eimco Elecon (India) Limited | | Vermeer Equipment Pvt Ltd | |
|---|---|---|---|---|---|---|
| INR(Million) | FY 2024 | FY 2025 | FY 2024 | FY 2025 | FY 2023 | FY 2024 |
| Total Income | 692.32 | 996.62 | 2,459.25 | 2,647.98 | 182.75 | 127.93 |
| Revenue from Operations | 689.77 | 991.41 | 2,275.03 | 2,464.73 | 182.67 | 127.89 |
| EBITDA | 80.35 | 184.25 | 583.57 | 744.84 | -36.45 | -22.62 |
| EBITDA Margin | 11.6% | 18.6% | 25.65% | 30.22% | -19.90% | -17.70% |
| Profit After Tax | 32.35 | 137.35 | 404.12 | 489.07 | -36.70 | -22.86 |
| PAT Margin | 4.7% | 13.9% | 17.76% | 19.84% | -20.10% | -17.90% |
| Operating Cash Flow | 135.56 | 151.78 | 115.92 | 332.78 | 10.85 | 34.94 |
| Net Worth | 115.52 | 252.54 | 3,861.71 | 4,319.42 | -22.31 | -45.02 |
| Long Term Borrowing | 212.38 | 69.76 | NA | NA | NA | NA |
| Debt Equity Ratio | 3.61 | 1.13 | NA | NA | NA | NA |
| RoCE | 13.23% | 32.40% | 12.77% | 14.93% | 164.50% | 50.80% |
| RoE | 28.00% | 54.39% | 11.00% | 11.96% | 164.50% | 50.80% |

*Note: Vermeer Equipment Pvt Ltd Financials are available till 2024 on MCA*

The comparative financial analysis of Apollo Techno against its key competitors, Eimco Elecon, and Vermeer for FY2024 and FY2025, and Bauer for FY2023 highlight significant insights into the company's performance trajectory and positioning within the industry.

In FY 2025, **Apollo Techno Industries Limited** demonstrated strong growth and financial improvement. Its revenue from operations rose by nearly 44%, and EBITDA more than doubled, leading to a significant increase in EBITDA margin from 11.6% to 18.6%. The company's profit after tax (PAT) surged over fourfold, with PAT margin improving to 13.9%. Apollo also strengthened its balance sheet by reducing long-term borrowings and improving its debt-equity ratio from 3.61 to 1.13. Return metrics like RoCE and RoE showed impressive gains, indicating better capital efficiency and shareholder returns.

**Eimco Elecon (India) Limited** maintained steady performance with moderate revenue growth of 8.3%. It continued to deliver strong profitability, with EBITDA and PAT margins improving to 30.22% and 19.84%, respectively. Operating cash flow saw a substantial rise, reflecting efficient operations. Although its return ratios (RoCE and RoE) improved slightly, they remained stable, suggesting consistent but not aggressive growth.

In contrast, **Vermeer Equipment Pvt Ltd** faced challenges. The company's revenue declined by nearly 30%, dropping from ₹182.67 million in FY 2023 to ₹127.89 million in FY 2024. It continued to report negative EBITDA and Profit After Tax (PAT), although the losses narrowed slightly year-over-year. EBITDA improved from ₹-36.45 million in FY 2023 to ₹-22.62 million in FY 2024, and PAT from ₹-36.70 million to ₹-22.86 million. Despite a notable increase in operating cash flow—from ₹10.85

[13] Financial on standalone basis

million to ₹34.94 million—the company's net worth remained negative and deteriorated further, falling from ₹-22.31 million to ₹-45.02 million.