



# Towards **INDUSTRY 4.0**

# CONTENTS

## Company Overview

02

Bharat Forge at a Glance

04

Board of Directors

05

Corporate  
Information

06

Chairman & Managing  
Director's Message

10

Financial Highlights

## Statutory Reports

12

Management Discussion &  
Analysis

25

Board's Report

57

Report on Corporate  
Governance

74

Business Responsibility  
Report

## Financial Statements

84

Standalone Financials

139

Consolidated Financials



For more information log on to  
[www.bharatforge.com](http://www.bharatforge.com)



A close-up photograph of an orange industrial robotic arm, likely a KUKA model, with various cables and hoses attached. The background is blurred, showing a factory setting. A white hexagonal grid pattern with dots at the intersections is overlaid on the right side of the image.

# INDUSTRY 4.0

The Fourth Industrial Revolution (Industry 4.0) is going to drive the next wave of transformation in manufacturing operations and productivity. The Industry has advanced from mechanical production facilities, through electrically charged assembly line production to electronics based controls. By linking components of the cyber and physical world, industry is propelling towards making manufacturing systems flexible and integrated, with an increased focus on collaboration.

Social machines, thinking factories, global facilities, smart products and virtual production advance productivity by making us agile and responsive to market needs. This intelligence also pre-empts and mitigates safety risks.

During the year, Bharat Forge started exploring the strategy towards Industry 4.0 and deploying various initiatives under its pillars. Innovation is at the heart of everything we do. We continue our endeavour of venturing through diversification and manufacturing of high quality products that drive change and sustainability. We continue to work with various customers to develop various innovative light weighting design concepts. Our expertise in sophisticated design and simulation techniques and 3D printing provides an advantage.

# BHARAT FORGE AT A GLANCE

Bharat Forge is the world's largest forging company with global manufacturing footprint spread across India, Germany, Sweden and France. We are backed by 50 years of experience in manufacturing a wide range of high performance, critical & safety components. We are proud to cater to every major global OEM as our customer and their faith is reposed on our strong capabilities of metallurgical knowledge, design & engineering capability and manufacturing prowess.

Bharat Forge has transformed itself from just being a supplier of components to a preferred development partner through a concentrated focus on innovation, technology and value addition.

Developing our own technology, constantly improving our technical processes, adopting the latest manufacturing practices and continuously training our workforce to create a talent factory has been the cornerstone of our success.

**We are backed by 50 years of experience in manufacturing a wide range of high performance, critical & safety components.**

## BUSINESS DIVISIONS

### Automotive



Passenger Vehicles



Commercial Vehicles



SUV

### Industrial



Power



Oil & Gas



Rail



Marine



Aerospace



Metals & Mining



Construction



General Engineering

## FY 2016 HIGHLIGHTS

87% growth in Passenger Vehicle export Business in FY 2016 in comparison to FY 2015.

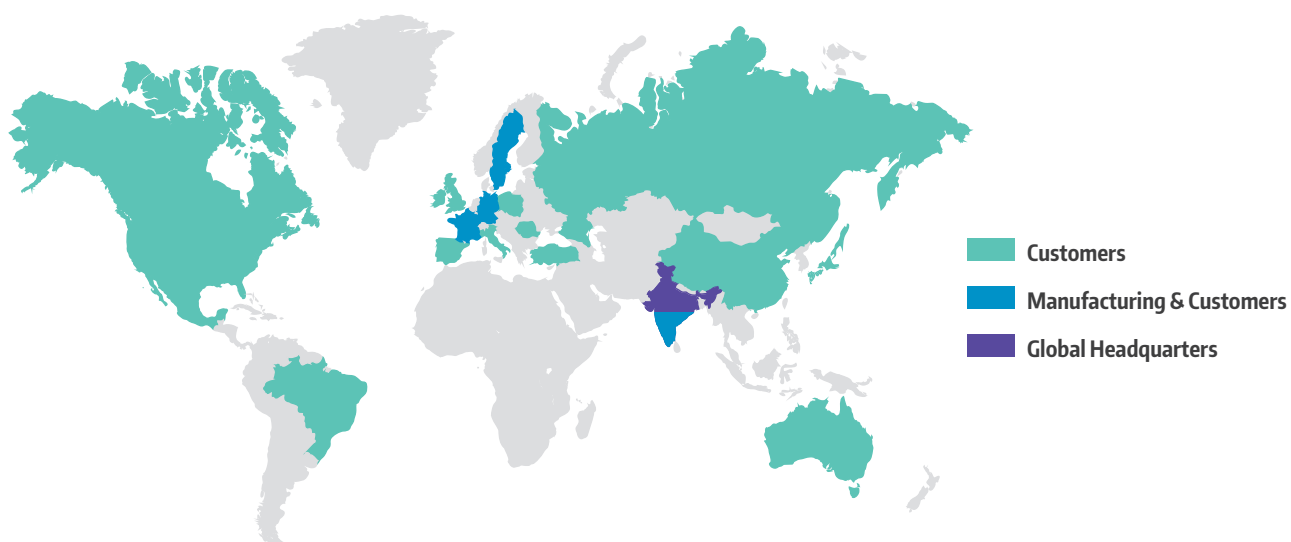
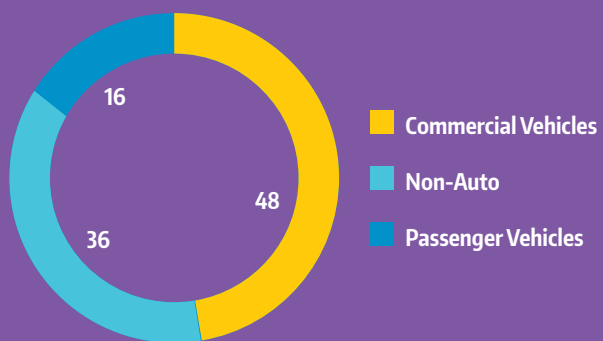
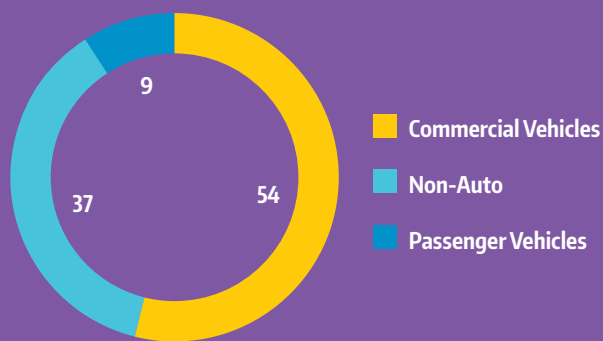
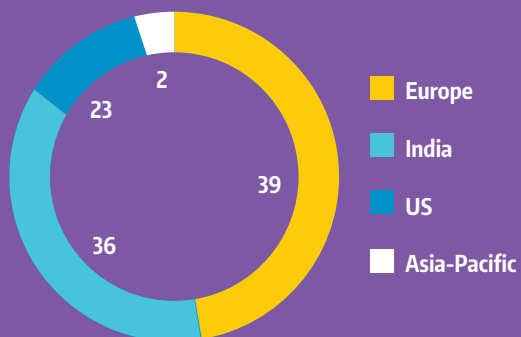
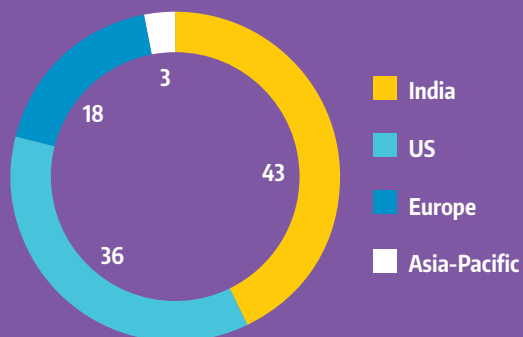
EBITDA margins maintained at 30%.

Net debt/equity at 0.19.

New customer addition in domestic PV market.

Gaining traction in Wind, Rail, and Aerospace sector with new customer wins.

## GLOBAL PRESENCE

CONSOLIDATED REVENUE  
DISTRIBUTION FY 2016 (%)STANDALONE REVENUE  
DISTRIBUTION FY 2016 (%)CONSOLIDATED GEOGRAPHIC  
REVENUE FY 2016 (%)STANDALONE GEOGRAPHIC  
REVENUE FY 2016 (%)



# BOARD OF DIRECTORS



## ROW 1 (L-R) - BACK

**Mr. S. E. Tandale**  
Executive Director

**Mr. Kishore Saletore**  
Executive Director

**Mr. Pratap G. Pawar**  
Director

**Mr. Naresh Narad**  
Director

**Mr. Vimal Bhandari**  
Director

**Mr. P. H. Ravikumar**  
Director

**Mr. P. C. Bhalerao**  
Director

## ROW 2 (L-R) - FRONT

**Mr. G. K. Agarwal**  
Deputy Managing  
Director

**Mr. B. P. Kalyani**  
Executive Director

**Dr. T. Mukherjee**  
Director

**Mrs. Lalita D. Gupte**  
Director

**Mr. B. N. Kalyani**  
Chairman & Managing  
Director

**Mr. Amit B. Kalyani**  
Executive Director

**Mr. S. M. Thakore**  
Director

# CORPORATE INFORMATION

## BANKERS

Bank of India  
Bank of Baroda  
Bank of Maharashtra  
Canara Bank  
State Bank of India  
HDFC Bank Ltd.  
ICICI Bank Ltd.  
Axis Bank Ltd.  
Citibank N.A.  
Standard Chartered Bank  
HSBC  
Credit Agricole CIB

## AUDITORS

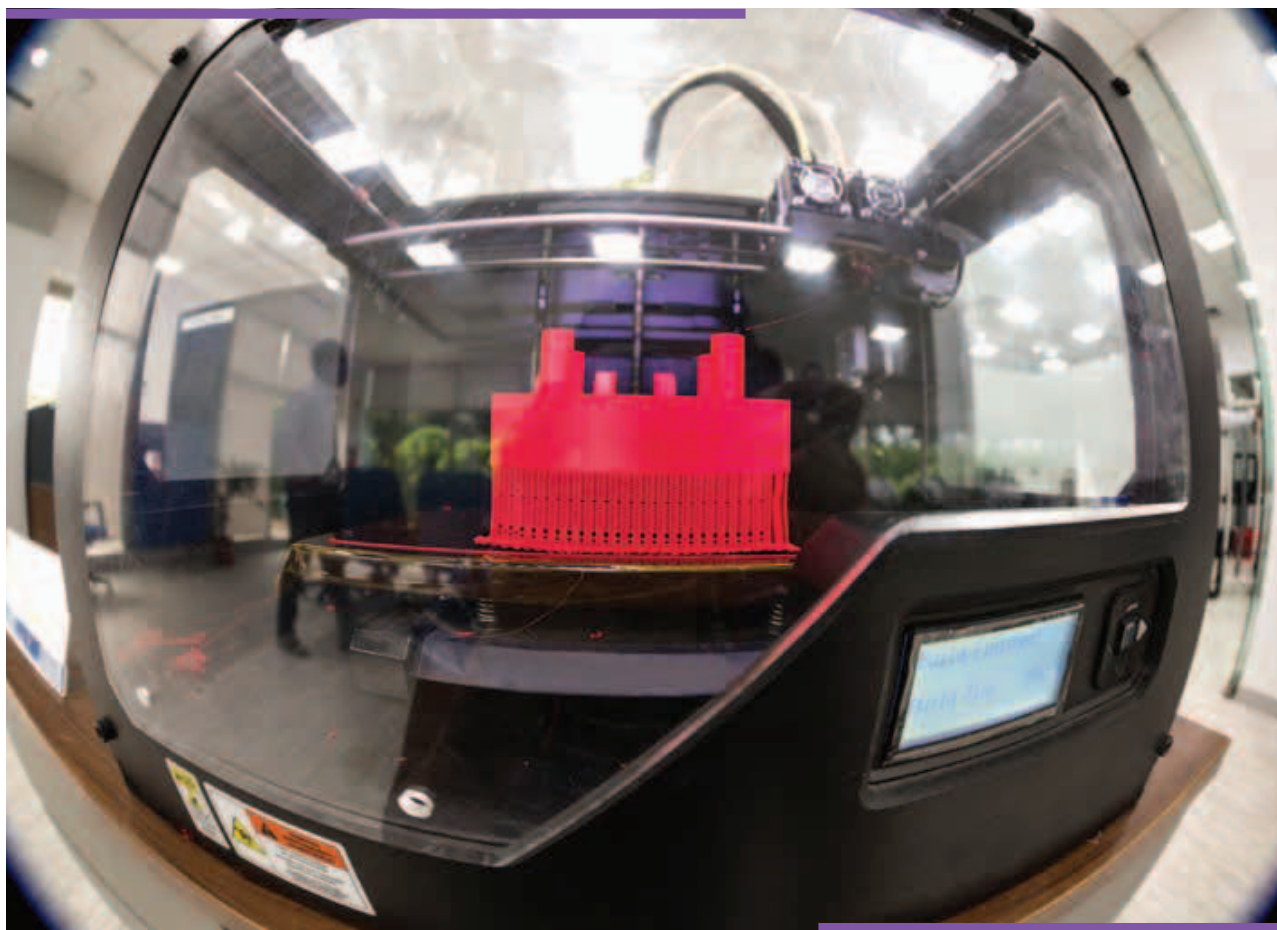
SRBC & Co LLP  
Chartered Accountants

## COMPANY SECRETARY

Mr. Anand Daga

## REGISTERED OFFICE

CIN: L25209PN1961PLC012046  
Bharat Forge Limited  
Mundhwa, Pune Cantonment,  
Pune 411 036, Maharashtra, India.  
Phone: +91 20 6704 2777 / 2476  
Fax: +91 20 2682 2163  
Email: [secretarial@bharatforge.com](mailto:secretarial@bharatforge.com)  
Web: [www.bharatforge.com](http://www.bharatforge.com)



3D Printing

# CHAIRMAN & MANAGING DIRECTOR'S MESSAGE



## Dear Shareholders,

In my earlier communications to you, I had dwelt extensively on enhancing opportunities through transformation. This is even more relevant in uncertain times like these where the global economy continues to struggle with fragile growth environment and dynamic technological transformation.

The year gone by did not witness any significant surge in global activity. The macro picture is still evolving; industries and governments across the world are carefully calibrating strategies to avoid unpredictable headwinds and seek new growth avenues.

In advanced economies the recovery was modest during the year and largely uneven. The US economy was supported by relatively easy financial conditions with strengthening housing and labour markets. In the Euro area, robust

**India remains one of the most attractive economies of the world with a 7.6% growth.**

private consumption was propped up by lower oil prices and quantitative easing. On the other hand, the rebalancing of the Chinese economy, low commodity prices and geopolitical tensions in West Asia continued to weigh on growth prospects of emerging market and developing economies.

Amid a challenging global scenario, India remains one of the most attractive economies of the world with a 7.6% growth. During the year, the Government has been successful on many fronts including sticking to fiscal deficit target and achieving significantly lower current account



deficit supported by lower crude oil prices. There are other positives as well. Forex reserves are at an all-time high, investor confidence is robust and the Government's Make in India initiative has been hugely successful in encouraging domestic entrepreneurship and attracting FDI.

The global automotive sector, whose fortunes are closely linked with the performance of the global economy, witnessed mixed fortunes during the year. Passenger vehicles globally grew across most major geographies while the commercial vehicle sector was particularly weak in the Americas & China while robust volumes were recorded in Europe & India.

The Indian auto industry stood out with all segments barring tractors delivering positive growth volumes. The key drivers for the market included replacement demand, pick-up in infrastructure related activities, record low fuel prices, declining interest rates and healthy economic growth.

### Financial Performance

Our financial performance was again impacted by the volatility in the macro environment. On a standalone basis, our total revenue declined by 5.3%, driven by continued weakness in the industrial sector across both, domestic and international markets and unexpected slowdown in the North American Class 8 truck market. Despite top-line challenges, EBITDA margins expanded by 110 bps driven by focus on cost control and supported by benign commodity prices. We continue to strengthen our balance sheet; and we will be a net cash positive company in the next two years. We have focused on creating an efficient cost structure, and will continue to rationalise costs in order to improve competitiveness. We continue to put more thrust on operational efficiency, accelerating new product development and new customer acquisition.

### Business Highlights

FY 2016 was a challenging year because of headwinds in the form of a global slowdown which impacted three of our key exports verticals; North American Class 8 truck markets, Oil & Gas, Metal & Mining and allied commodity

**We continue to strengthen our balance sheet; and we will be a net cash positive company in the next two years.**

sector. These three verticals will continue to pose a challenge to growth in FY 2017.

The passenger vehicle segment, one of our key focus areas, performed extremely well in FY 2016 and the export revenues from this segment registered a growth of 87%. We have also made progress in our Aerospace & Rail verticals with supply of products for existing contracts as well as winning new contracts.

Over the past few years, the external demand environment has been the biggest impediment to your Company's growth. Two years of strong growth (FY 2014/FY 2015) was followed by a sluggish demand environment due to volatility in the end-markets. FY 2016 performance was a resultant of the same.

Your Company's management is focusing on this particular aspect on how best to mitigate the impact of external factors on the Company's performance. Steps already taken over the past few years will go a long way in developing a more resilient business model.

Following are the key transformation areas of the business over the next few years. The overarching theme is increasing penetration with existing customers & sectors, foraying into new sectors and enhancing product portfolio. All of this will be achieved by leveraging our innovation, metallurgical & technology capabilities to develop products which will address problems faced by our customers related to performance, light weighting or emissions.

1. **Increase product portfolio in commercial vehicle segment:** We have developed a range of new products in the commercial vehicle segment and secured orders for the same from our existing customers both in the domestic and international markets which will aid in contributing to the top-line from FY 2018.

**87%**

**Growth in PV Export  
in FY 2016**

**We have started journey in areas of connected enterprise, big data, mobility, augmented reality (human-machine interface) and additive manufacturing.**

2. **Enhance presence in passenger vehicle segment:** The structural shift in PV segment globally is giving us tremendous opportunity to build out this vertical into a US\$100+ million over the next 2-3 years. This will be driven by new product development, increase in market share and a simultaneous product portfolio expansion.
3. **Increase presence in transportation sector:** With the focus on railways being a key cornerstone of our new business diversification, we expect revenues per locomotive to grow substantially in the coming years.
4. **Grow aerospace business:** The progress made in the past 3 years in terms of winning new customers and developing products "first time right" using the asset light model is a statement to our technological capabilities. Over the next few years, the aerospace business will evolve into one of the fastest growing vertical largely driven by customer traction, product expansion and enhanced value addition.
5. **Make in India:** Your Company, with its full scope of products supplied into the global markets is excited about the prospects of the industrial sector in India. This increasing product portfolio coupled with the Government initiative puts us in a sweet spot to capture this opportunity. Key focus sectors for the Company will be supply of components & sub-systems into mining, transportation, aerospace and the defence sector. We are targeting import substitution across all verticals and have built upon our extensive knowledge to deliver solutions across these different verticals. Your Company has started making initial breakthrough with development orders with existing as well as new customers in India. Our Make in India strategy is well on its way.

Developing the above new businesses/products does not happen quickly, but your Company has the unique ability to do this on its own. We can develop new products, improve processes and enhance the product portfolio by using our asset light model which will eventually help in improving the return ratios.

We are benefiting from the focus on new technologies and innovation created through

in-house R&D. This has resulted in higher productivity, increased cash flows and consequent debt reduction. We are confident that the de-risked business model would take the Company back on the growth track very soon.

Businesses that can survive the shifting dynamics of global economies and industries will be the ones that can create enduring stakeholder value. Since inception, Bharat Forge has seen and adapted to Big Change; and will continue to recalibrate strategies and product mix, not just to embrace change, but to lead change. There is a structural shift in the manufacturing space globally driven by focus on emission control, light weighting, asset light model, and so on...

We, at Bharat Forge, are aligning our innovation strategy and product mix in accordance with that shift. We are reinventing ourselves as a global engineering company with a deeper presence across varied sectors.

#### Industry 4.0

Industry 4.0 can be defined as the next phase in the digital transformation of the manufacturing sector where machines and IT systems along with other components in the value chain will be connected to create a fully integrated, automated and optimized manufacturing system. This will help increase manufacturing productivity, improve efficiency, shift economics and foster industrial growth – ultimately changing the competitive landscape of all the companies.

Industry 4.0 has a strong potential to change the way factories work and it presents tremendous opportunities for innovative manufacturers like us. The Company is preparing to take advantage of this opportunity and trying to create our own ecosystem of a digital organization. We have started this journey in areas of connected enterprise, big data, mobility, augmented reality (human-machine interface) and additive manufacturing. We aim to apply this initiative across the entire value chain and create a cohesive manufacturing ecosystem. We see substantial potential of Industry 4.0 in helping us improve efficiency and increase productivity, thereby reducing costs and increasing our competitiveness.