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PROUD OF OUR PAST, FOCUSED ON OUR FUTURE

India: Leading global manufacturing



On April 11, 2024, the Asian Development Bank (ADB) - following the International Monetary Fund (IMF), World Bank, and Moody's - raised India's GDP growth forecast for 2024-25 to 7 per cent from the 6.7 per cent projected in December 2023. The ADB's growth estimate for FY25 is in line with the Reserve Bank of India's (RBI) forecast of 7 per cent GDP growth in the current fiscal year, based on expectations of moderating inflationary pressures, a normal monsoon, and sustained momentum in the manufacturing and services sectors.

Starting in 2010, India has surpassed the economies of the UK, France, Italy, and Brazil in terms of size. Japan, which was overtaken by Germany last year to become the world's fourth-largest economy, is expected to be the next to be surpassed by India within the coming years. The country's average growth rate over the last decade has been about 7 per cent, which should be sustainable given that only about 35 per cent of its population lives in cities, with an expected increase in the speed of urbanization in the coming years.

Factors such as India's central location in the Indo-Pacific region, large population, and the country's rising economy are attracting companies from across the world. With governments in developed countries urging their companies to look for viable alternatives to China for sourcing their products and raw materials (also known as the China Plus One policy), India has emerged as one of the big beneficiaries of this trend.

As a result, India has drawn significant foreign direct investment (FDI) into its manufacturing sector. The Government of India's push for indigenous production with its Make in India drive and production-linked incentive (PLI) schemes have played a crucial role in fostering a favorable business environment, encouraging investments, and promoting indigenous manufacturing. For example, Apple now makes around 14 per cent of its iPhones in India, which is double the amount it produced there last year. In the interim Union budget for 2024-25, the GoI increased the allocation for PLI schemes to Rs 6,200 crore from Rs 4,645 crore in 2023-24 (budget estimate).

India has set a target to increase the share of manufacturing to 25 percent of GDP by 2047, up from about 17 per cent currently. Manufacturing exports hit a record high of \$447.46 billion in FY23, a 6.03 per cent increase from \$422 billion in FY22, reflecting underlying momentum. The sector's performance points to early evidence of India, which has outshone in the services sector (especially in information technology), developing into a global manufacturing hub.

Success in manufacturing heavily relies on well-functioning infrastructure for efficient transportation for export and import. Over the last few years, the government has been increasing its investment in infrastructure development to propel growth. With an 11.11 per cent increase in capital expenditure to Rs 11.11 trillion, India's interim budget 2024-25 gave priority to infrastructure for enhancing logistics further.

India, the fastest-growing large economy, is on a trajectory to become the world's third-largest economy by 2027, with manufacturing playing a lead role in development.

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CONTENTS



Editor's Note	04
---------------	----

COVER STORY

India: A responsible leader in the evolving manufacturing sector	08
<i>Marc Jarrault, MD, LAPP India</i>	
How is India emerging as a manufacturing hub?	12
<i>R Jayaraman, Head, Capstone Projects, Bhavan's S P Jain Institute of Management & Research (SPJIMR)</i>	
India's rise in global manufacturing	18
<i>Samit Jain, MD, Pluss Advanced Technologies Ltd</i>	
Electric vehicle sales in India zoom	20
<i>Courtesy: Bloomberg New Economy Forum</i>	

INTERVIEWS



Arun Kumar Garodia, Chairman, EEPC India	23
<i>"India is aiming for \$ 300 bn in engineering goods exports by 2030"</i>	



R K Purohit, MD, Sphoorti Machine Tools Pvt Ltd	24
<i>"Exports account for more than 50% of our turnover"</i>	



Shreedhar Kamat, Co-Founder & Chairman, Electronic Automation Pvt Ltd	26
<i>"Electronic Automation offers smart solutions to our customers"</i>	

TRADE TALKS

Indo-Germany alliance: A model of resilience and growth	29
<i>Rajesh Nath, MD, VDMA India</i>	

PREVIEW: HANNOVER MESSE 2024



HANNOVER MESSE promotes international trade and investment	33
Bosch Rexroth and congatec open up new possibilities for embedded computer	34
Igus launches new compact low-cost energy chain for drawers	35

INDUSTRY UPDATE

Sany India unveils Made-in-India mining truck SKT105E	10
Hyundai Motor and Kia partner with Exide Energy for EV battery localization	22
Lubrizol opens new Global Capability Center in India at Pune	25
German firm Rittal expands capacity in India with new Integration Centre	31

PRODUCT INNOVATION

Safcon Seals develops Snap-Lok security solution for water meters	36
---	----

COMMUNICATION FEATURE

Electro Zavod offers tailored bulk material handling solutions	38
Diamond Metal Screens offers high-quality perforated sheets	39
Oscar Equipments: Hydraulic Equipment & Projects	40

Product Showcase	42
------------------	----

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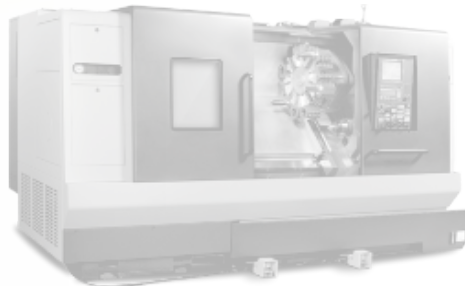
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India: A responsible leader in the evolving manufacturing sector

India's growing manufacturing sector, coupled with its commitment to sustainability, presents a unique opportunity for the country to become a global leader in responsible manufacturing, says **Marc Jarrault**.

The global manufacturing landscape is undergoing a significant transformation driven by technological advancements, shifting policies, and evolving consumer demands. In this dynamic environment, India stands poised to emerge as a leader in responsible manufacturing.

India's rise in manufacturing sector positions it as a powerhouse in the global economy. It contributes over 15 per cent to the national GDP, boasting a vast pool of potential skilled workers and a robust infrastructure network that attracts global investments. Government initiatives like 'Make in India' and 'PLI schemes' have spurred significant investment, with FDI equity inflow in the manufacturing sectors increasing by 55 per cent over the last decade. With a goal of becoming a \$10 trillion economy by 2030, India is prioritizing growth in sunrise sectors like renewable energy, electric vehicles, and advanced manufacturing technologies. Positive signs are evident looking at the strong new order growth and increasing manufacturing output. Additionally, India's manufacturing output has risen steadily for 33 months, reaching a peak in March 2024.

Several advantages for manufacturers make India a compelling choice. Competitive labour costs, combined with government incentives such as tax breaks and subsidies, make it cost-effective to manufacture here. India also boasts an abundant talent pool of skilled engineers, scientists, and technicians, with over 1.5 million graduating annually in engineering and technology fields. Furthermore, Indian companies are increasingly investing in research and development, with spending growing by over 13 per cent in the last five years. This fosters a dynamic ecosystem for developing cutting-edge solutions and keeping pace with technological advancements. LAPP India's commitment to innovation aligns with this trend. The company's focus on developing proprietary compounds exemplifies its dedication to pushing the boundaries of

Several advantages for manufacturers make India a compelling choice. Competitive labour costs, combined with government incentives such as tax breaks and subsidies, make it cost-effective to manufacture here.



LAPP India's compounding plant in Bhopal (Madhya Pradesh, India)

cable and connectivity technology.

One key driver boosting Indian manufacturing transformation is automation. Indian manufacturers are embracing robotics, freeing up human workers from repetitive tasks. This allows them to focus on higher-value activities that leverage their skills and ingenuity.

The changing face of manufacturing presents both challenges and opportunities. Industry 5.0 is an emerging paradigm that emphasizes human-centricity, customization, and data-driven decision making. Smart factories with interconnected machines, intelligent automation, and real-time data analysis will become the norm. The global artificial intelligence in manufacturing market size is anticipated to reach \$20.8 billion by 2028.

Environmental concerns are a top priority. Manufacturers are adopting sustainable practices to reduce their carbon footprint, minimize waste, and utilize renewable energy sources. The global green technology & sustainability market size is expected to reach USD 79.65 billion by 2030, according to a report by Grand View Research Inc. Global trade and supply chain disruptions are leading companies to diversify their manufacturing locations. This presents an opportunity for India to become a reliable and resilient manufacturing hub.

Indian consumers are increasingly conscious of environmental impact. Over 70 per cent of Indian consumers are willing to pay a premium for products which are sustainably produced or environmentally friendly. Local manufacturers can cater to this growing



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demand by focusing on eco-friendly production methods and sustainable materials.

As India recognises the importance of sustainable manufacturing, the government has set ambitious targets for reducing carbon emissions and promoting renewable energy. Several initiatives are underway to encourage eco-friendly practices in the manufacturing sector such as promoting waste reduction, reuse, and recycling through regulations and incentives, aiming to achieve a 50 per cent reduction in waste generation by 2030.

The Bureau of Energy Efficiency (BEE) has helped India reduce its carbon emissions by 306 million tons annually. Contributing to India's national goal of reducing energy intensity, India is witnessing a significant increase in renewable energy production. India's installed Renewable Energy (RE) capacity is estimated to increase to 170 GW by March 2025 from a level of 135 GW in December 2023, with solar and wind power leading the way. This shift towards clean energy sources helps power manufacturing facilities and reduces reliance on fossil fuels.

India's growing manufacturing sector, coupled with

its commitment to sustainability, presents a unique opportunity for the country to become a global leader in responsible manufacturing. By overcoming challenges, fostering innovation, and attracting investment in clean technologies, India can create a future where economic growth goes hand-in-hand with environmental well-being.

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- ❑ Bureau of Energy Efficiency of India
- ❑ ICRA

About the author:



Marc Jarrault is the Managing Director of LAPP India, which is a one stop solution provider for cable and connection technology.



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NEWS SNIPPET

Sany India unveils Made-in-India mining truck SKT105E

Sany India, a leading global manufacturer of construction and mining equipment, has unveiled the SKT105E electric dump truck, the first of its kind to be locally manufactured in India. This groundbreaking addition to Sany's portfolio marks a significant milestone in the nation's mining industry. The unveiling ceremony was held at Sany India's cutting-edge facility.



The SKT105E Electric Dump Truck represents a new era in mining technology, combining local expertise with global innovation. Designed to meet the rigorous demands of open-cast mining operations, this fully electric off-highway dump truck boasts exceptional energy efficiency and cost-effectiveness. With an impressive payload capacity of 70 tonnes, it stands as a powerhouse asset for mining enterprises across the nation.

Deepak Garg, Vice Chairman & Managing Director of Sany India & South Asia, emphasised the significance of the SKT105E in driving sustainable mining practices in India. He stated, "The SKT105E marks a historic moment for Sany India and the Indian mining industry. By localizing production and introducing cutting-edge electric technology, we are not only enhancing operational efficiency but also contributing to the nation's

vision of sustainable development."

The SKT105E's innovative design, coupled with its zero-emission operation, makes it an environmentally friendly solution for mining sites. Its advanced electric propulsion system ensures optimal performance while reducing carbon footprint, thereby aligning with India's commitment to combat climate change.

Furthermore, Garg highlighted Sany India's dedication to fostering local manufacturing capabilities and empowering the nation's economy. He stated, "The SKT105E is a testament to Sany India's commitment to 'Make in India' initiative. By manufacturing locally, we not only create job opportunities but also strengthen the indigenous manufacturing ecosystem."

Sany India offers the widest range of construction machinery in India & South Asia. In 2012, Sany India invested more than Rs 1000 crores to develop infrastructure for R&D, manufacturing, quality inspection, testing, and service at their manufacturing facility in Chakan, Pune. Through this facility, the company operates in multiple business verticals viz: earth moving, lifting, foundation, mining, ports, concrete, roads and renewable energy solutions.

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Products	Applications	Images
PLASTIC		
p1	MASTER BATCHES	 Master Batches  Vinyl Calendered Films
p2	INJECTION MOULDING	
p3	BLOW MOULDING	
p4	VINYL CALENDERED FILMS	
PAINTS		
p5	AEROSOL SPRAY PAINTS	 Water Paints  Aerosol Spray
p6	WATER BASED PAINTS	
p7	SOLVENT BASED PAINTS	
TEXTILES		
p8	TEXTILE PRINTING	 Textile Dyeing  Textile Printing
p9	TEXTILE DYEING	
p10	TEXTILE PLASTISOL INKS	
WRITING INKS		
p11	HIGHLIGHTER INKS	 Highlighter Inks  Dry Erase Markers
p12	DRY ERASE MARKERS	
p13	HIGHLIGHTER INKS (DYE BASED)	
COATINGS		
p14	PAPER COATING	 Paper Coating  Seed Coating
p15	CLAY COATING	
p16	SEED COATING	
p17	GRAVURE COATING	
p18	PVC COATING	
INKS		
p19	FLEXO INKS WATER BASED	 Flexo Inks Solvent  Gravure Ink Solvent
p20	FLEXO INKS SOLVENT BASED	
p21	GRAVURE INK WATER BASED	
p22	GRAVURE INK SOLVENT BASED	
p23	OFFSET INKS	
p24	SILK SCREEN INKS	
ARTS & CRAFTS		
p25	WAX CRAYONS	 Wax Crayons  Pencil Coating
p26	PENCIL COATING	
p27	ERASER	
p28	PLASTIC CRAYONS	
p29	POSTER COLORS	
p30	WATER COLORS	
p31	CLAY DOUGH	

Products	Applications	Images
WAX		
p32	INDUSTRIAL MARKERS	 Industrial Markers  Candles
p33	CANDLES	
p34	SOAPS	
COSMETICS		
p35	NAIL POLISH COLOUR	 Nail Polish Colour  Hair Color
p36	HAIR COLOR	
NDT		
p37	CRACK DETECTION	 Leak Detection  Crack Detection
p38	LEAK DETECTION	
ANTICOUNTERFEIT PRODUCTS		
p39	INVISIBLE PIGMENTS	 Invisible Inks  Invisible Pigments
p40	INVISIBLE INKS	
MISCELLANEOUS		
p41	IDOL COATING	 Idol Coating  Sindhoor
p42	SINDHOOR	
p43	RANGOLI COLORS	
p44	PAINTBALL	
p45	SPECKLE	
p46	HOLI COLORS	
ORGANIC PIGMENT DISPERSIONS		
p47	TEXTILE PRINTING	 COIR COATINGS  PAINTS & COATINGS
p48	PAINTS & COATINGS	
p49	PERSONAL CARE	
p50	SEED COATINGS	
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p52	ARTS & CRAFTS	

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India: An emerging manufacturing hub for the world

The contribution of the ‘industry’ sector – which includes manufacturing, mining and quarrying and allied industries – has been consistently around 25 to 30 percent in the last ten years, says **R Jayaraman**.



India has always been a promise yet to be fulfilled. After independence, we spent a lot of years to understand the newly emerged entity. Prior to independence, India was a loose federation of many states, kingdoms, etc. All of these were brought into one whole by the super human efforts of one man – Sardar Vallabh Bhai Patel. How he could unite some 30 plus languages, 400 plus dialects, several hundred eating habits and so on should have filled several text books and newspaper articles, but we didn't see that many. We were still in the process of absorbing the new feeling of freedom. What began as a 'tryst with destiny', took a winding path towards a united future. Jeena Yahan, Marna Yahan.

It took us nearly 40 years, from 1950 to 1990, to

realize that the path of socialism was not the right one. That poverty cannot be removed by praising it, celebrating it and perpetuating it. It cannot be erased by legislation, by increased agricultural output (of this, we have sufficient and more to feed our hungry billions, a stupendous success indeed, thanks to the green revolution), or by trading in spices. The world had changed and we needed to see the reality. All communist governments were tottering, and all social experiments had failed miserably. A system which does not configure how to support individual endeavour, but stifle it in many ways, has no place on this earth.

The five-year plans, anchored by the famous statistician Mahalanobis were grand documents, and a lot of paper was produced to bring out these. Some

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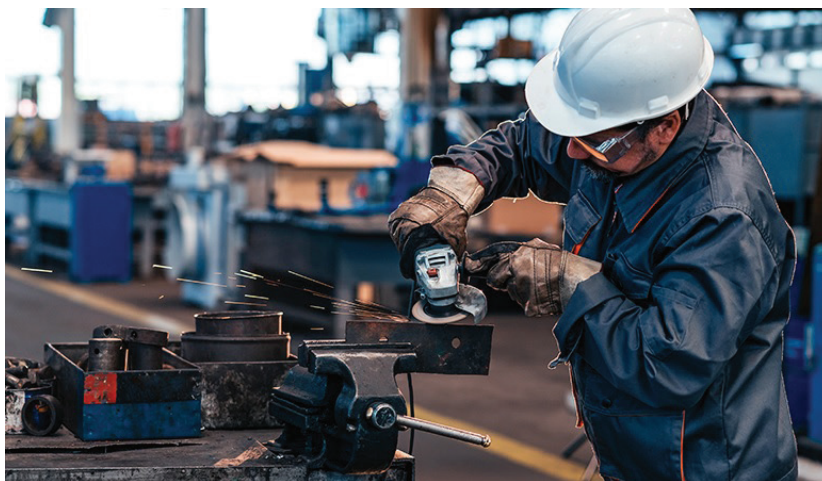
read it, some acted on it, and some joined the activities of the country, whatever the direction. The option was to die in the streets. PL 480 was a disaster, and we learnt from it. The first rumblings of industry were rolled out by eminent personalities like Jamshedji Tata, TVS Iyengar, GD Birla, and many others, who chose to remain faceless, but with only one intent – to develop industries which could meet the basic needs of a growing country. To their immense credit, these and others overcame many hurdles which cannot even be imagined today. For example, many companies had to have an office in Delhi, manned by middlemen and company employees, whose only job was to chase government bureaucrats to obtain a license, some prevented others from obtaining the same, too.

Government ministries became the centres of bribery and collusion, while also getting some work done. Witness the establishment of the large integrated steel plants under SAIL, the super large Heavy Engineering Corporation – HEC for short, in those days – which were the modern temples of industrialization. Followed up by the IIT/s, and the IIM/s and the many engineering colleges, medical colleges (not that many). In spite of the heavy odds against their existence, exist and thrive, they did, and, over time, some of them attained international standards of excellence.

In the 1700's and 1800's India and China were the largest economies. While China remained a closed society, explored only by the Buddhist monks from India, who spread Buddhism to Japan, China and Korea, India was an open one, welcoming all those who were subject to persecution, typically for their religious beliefs. To the eternal credit of the then maharajahs, these displaced populations found sanctuary in a friendly land, where they mingled and became one of the hundreds of similar clans, tribes, etc. While India was not known as a manufacturing led economy, untold wealth, in the form of gold, diamonds, jewelry, rich textiles, spices, etc., was ubiquitous. Every corner of India had temples built by rich kings, who supported arts and culture. But no industrialization, in the modern sense, of mass production and distribution, to meet continuous consumption.

By 1947, the English had completed their task of loot, having filled their coffers with the output of the blood and sweat of Indian labour. They even exported Indian labour too! However, cotton and textile mills, railway lines, shipyards, ports were also left by them as a part of their legacy, apart from the English language. Indian industrialists started their journey in the early 1900's, and then, after 1991, when PV Narasimha Rao pledged gold to pay for the deficit, they really got into action. Galvanized by the misery of the state of the country then, they showed their 'animal spirits' (a term coined by Sri Manmohan Singh, a former PM of India).

Manufacturing industries were started up at many places and in many branches, such as, automobiles,



The contribution of about \$ 1.2 trillion plus in the year 2023 from the industry sector, which includes manufacturing too, is significant.

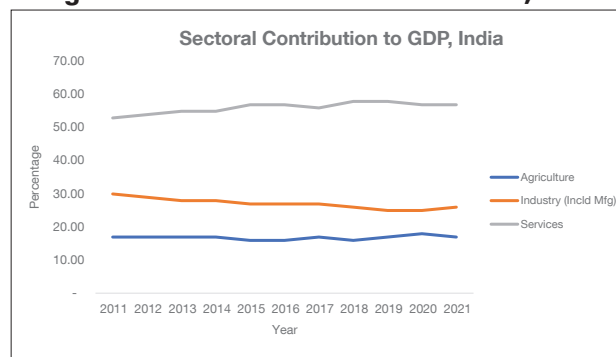
textiles, iron and steel, aluminium, copper, zinc, two wheelers, machinery, railway coaches and bogies and couplers, and so on. The list grew substantially when the government, in its efforts to 'liberalize' the economy, threw open the telecom industry to the private sector. This was a seminal event in the history of Indian industry. A sector, which, till 2002, was under the thumbs of the government, and which exemplified the term 'inefficiency', was sold to private owners. While the Airtel group has been the pioneer in this area, the Tata group, through its acquisition of VSNL, also played a key role, not to forget the Reliance group. The world's biggest refinery was built in Jamnagar by Dhirubhai.

With all these developments, manufacturing started contributing significantly to the GDP of the country. The contribution of the 'Industry' sector – which includes manufacturing, mining and quarrying and allied industries – has been consistently around 25 to 30 percent in the last ten years.

If we look at the contribution of the manufacturing sector alone (Figure 2), it would be around 14 per cent to 16 per cent in the same period.

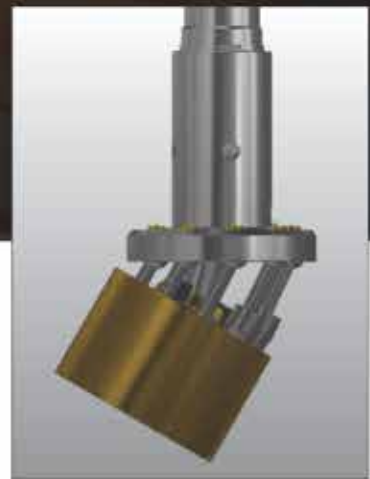
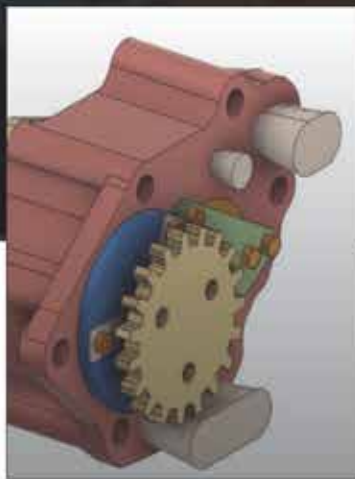
These data indicate that manufacturing is not the most important sector in India, neither in the past nor at

Figure 1: Sectoral Contribution to GDP, India



Source: Statista

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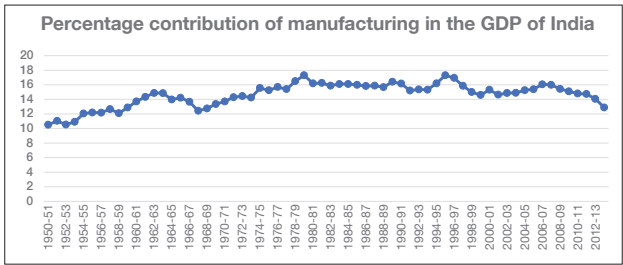
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- Electromechanical Actuators
- Hydraulic Actuators
- Electromechanical valves, and
- Mechanical assemblies.



There has been much action in the manufacturing industry in India in the last few years.

present. However, the contribution of about \$ 1.2 trillion plus in the year 2023 from the industry sector, which includes manufacturing too, is significant. Two years back, the automobile industry in India set itself a target to contribute \$ 1 trillion to the GDP, by 2025. The auto contribution to manufacturing is 50 per cent, and, so, the industry contribution would need to be about \$ 3.2 trillion, which would mean a GDP of around 9 trillion. Not possible by 2025, but a goal worth trying for. Reminds one of the BHAG's, of Jim Collins fame.

Figure 2: Percentage contribution of manufacturing in the GDP of India



Source: Statistics Times

There has been much action in the manufacturing industry in India in the last few years. One indicator of that is the earnings from exports.

A 68 per cent growth at the aggregate level is, over 5 years, is indicative of the seriousness with which the government of India has been pursuing the policy of becoming a manufacturing powerhouse of the world. No doubt, it is an ambition which is worth having, but one needs to work at it for a few more years, to reap the fruits.

The sectors which are expected to drive India's ambitions include: chip manufacturing, EV batteries, EV Cars and Commercial vehicles, defence equipment, defence mobiles like tanks, trucks, ships, etc.; mobile

Table 1: Earnings from exports

	2022	2017	
Product	Value (in \$ million)	Value (in \$ million)	Growth (in %)
Aluminium and articles thereof	9,597.94	3,223.05	198
Machinery and mechanical appliances	27,502.75	14,100.58	95
Electrical machinery	26,573.97	8,232.02	223
Automobiles	21,256.87	14,950.08	42
Refined petroleum	98,472.28	32,435.65	204
Organic chemicals	21,876.53	11,688.52	87
Pharmaceutical products	19,799.95	12,930.48	53
Miscellaneous chemical products	7,966.17	3,249.08	145
Cotton	6,942.55	6,611.05	5
Knit apparel	8,473.39	8,223.74	3
Clothing	6,020.98	4,705.34	28
Mineral fuels	39,274.61	43,623.16	-10
Iron and steel	15,198.28	8,682.99	42
Iron or steel articles	9,898.01	5,916.09	67
Seafood	6,771.67	5,501.05	23
Cereals	14,087.76	6,012.95	134

phones, electric power plants, solar power generators, textiles, food processing, metals and minerals, commercial aircraft parts, and white goods.

Returning to the question or the proposition: India is/ will be a powerhouse of manufacturing in the world. It is nowhere near that now. It will not be there even in the next five to ten years. But beyond that, it can surely hope to be one. PM Modi has, in a recent statement, said that so far, it has been only a trailer, the real one is yet to start. Hopefully, after he re-assumes power after his victory in 2024, we will see a new India, which will be quite different from what we have been used to. And the word 'Powerhouse' may come to apply to many of the fields in which the country will soon be active in. **SME**

About the author:



R Jayaraman is the Head, Capstone Projects, at Bhavan's S P Jain Institute of Management & Research (SPJIMR). He has worked in several capacities, including Tata Steel, for over 30 years. He has authored over 60

papers in academic and techno economic journals in India and abroad. Jayaraman is a qualified and trained Malcolm Baldrige and EFQM Business Model Lead Assessor.



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India: An enticing prospect for global manufacturers

India's advantageous geographical location offers access to major markets in Asia, the Middle East, and Africa, which makes it a perfect manufacturing base for businesses aiming to effectively service these regions. India's rise in global manufacturing is a convergence of opportunity, sustainability, and heritage, says **Samit Jain**.



Driven by a robust economy and strategic geopolitical shifts, India is making significant strides in the global manufacturing landscape. Recent geopolitical events, including the Covid-19 pandemic, the Ukraine-Russia conflict, and disruptions like the closure of the Suez Canal, have spurred developed economies to reassess their supply chains, seeking alternative production hubs for risk mitigation.

With a population exceeding 1.3 billion, India offers an expansive and burgeoning domestic market, presenting a lucrative opportunity for businesses seeking expansion. Moreover, its competitive advantage lies in an abundant workforce comprising skilled engineers and technicians, coupled with a cost-effective labour market. Despite historical infrastructure challenges, ongoing investments in power, transportation, and logistics infrastructure are driving down manufacturing expenses and streamlining business operations. Embracing technological advancements and renewable energy initiatives not only bolsters sustainability but also enhances competitiveness. Government incentives such as tax advantages and subsidies further incentivize manufacturing investments. However, bureaucratic hurdles, regulatory complexities, infrastructure deficiencies, and skill shortages are hurdles that need attention for India to consolidate its position in the global manufacturing arena.



Significant changes are underway in the global manufacturing landscape, propelled by a trifecta of government policy evolution, technological advancements, and a growing emphasis on sustainability. Innovations such as automation, AI, and the Internet of Things (IoT) are revolutionising manufacturing processes, ushering in improvements in precision, efficiency, and customisation. This technological revolution allows businesses to enhance efficiency, minimise waste, and streamline operations.

Simultaneously, governments worldwide are intensifying their focus on sustainability, enacting regulations to enforce environmental standards,

Manufacturers need to embrace sustainability as a fundamental business philosophy, navigate regulatory frameworks, and adjust to technological innovations in order to prosper in the global market.

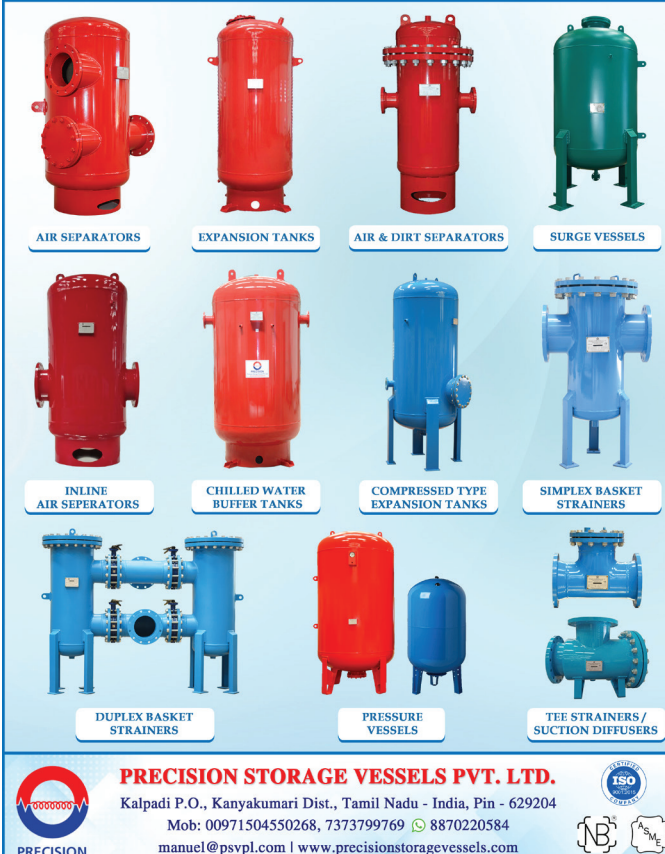
promote renewable energy adoption, and reduce carbon emissions. Manufacturers are compelled to integrate sustainability into their supply chains, operations, and product lifecycles to meet legal obligations and consumer expectations. Heightened investor scrutiny, growing consumer consciousness, and risk mitigation imperatives have elevated sustainability to a strategic imperative for firms. Environmental, social, and governance (ESG) considerations are assuming greater significance in corporate strategies as businesses strive for long-term viability, talent attraction, and brand enhancement. Manufacturers need to embrace sustainability as a fundamental business philosophy, navigate regulatory frameworks, and adjust to technological innovations in order to prosper in the global market.

Innovations such as automation, AI, and the IoT are revolutionising manufacturing processes, ushering in improvements in precision, efficiency, and customisation.

To address global environmental issues such as pollution, resource depletion, and climate change, sustainable manufacturing is crucial. Recognising its significance, India is intensifying its focus on sustainable manufacturing methods, actively reducing its carbon footprint by prioritizing renewable energy sources. Efforts to curtail waste, optimize resource utilization, and minimize greenhouse gas emissions are spurred by advancements in cleaner technologies and stringent environmental regulations. India's commitment to sustainable development is evident through its endorsement of global initiatives like the Paris Agreement. Additionally, government support for green technologies via subsidies and incentives is incentivizing businesses to adopt eco-friendly production practices. By embracing sustainability, India aims to enhance its competitiveness and long-term economic resilience in the global arena, while also mitigating its environmental impact.

Moreover, India boasts a wide range of manufacturing sectors. In addition to lowering reliance on any one industry, diversification creates chances for cross-industry cooperation, innovation, and synergies. India's advantageous geographical location offers access to major markets in Asia, the Middle East, and Africa, which makes it a perfect manufacturing base for businesses aiming to effectively service these regions.

In addition, the Indian government has been aggressively pushing programs like "Make in India," which are meant to increase manufacturing, draw in international capital, and streamline regulatory procedures. India's appeal as a manufacturing site is further enhanced by the government's many incentives, tax cuts, and subsidies. Last but not least, India's



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dedication to sustainability and renewable energy is in line with consumer tastes and worldwide trends.

Notably, the resurgence of Indian heritage and access to indigenous knowledge systems play a pivotal role in shaping the country's future trajectory. Emphasizing regional language education and the implementation of the New Education Policy lays a strong foundation for skill development. As India adapts to technological innovations to address population challenges, its cultural ethos of assimilation fosters social cohesion conducive to manufacturing progress.

To summarise, India emerges as an enticing prospect for companies seeking to expand manufacturing operations, buoyed by its expansive market, competitive costs, diverse manufacturing landscape, strategic positioning, and sustainability focus.

SME

About the author:



Samit Jain is the Managing Director of Pluss Advanced Technologies Ltd. Pluss is a materials research and manufacturing company involved in the field of phase change materials

(PCMs) for thermal energy storage and speciality polymeric additives for enhancing polymer properties.



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Electric vehicle sales in India zoom

Backed by supportive government policy and low running costs, sales of electric vehicle (EV) grew across all segments in India in 2023, says Bloomberg New Economy Forum report.

Sales of electric vehicle grew across all segments in India 2023, backed by a combination of factors including lower lifetime ownership costs, the availability of more models and purchase subsidies, according to a report of Bloomberg New Economy Forum (BloombergNEF). Efforts to improve the network of fast EV chargers are also expanding with state-owned fuel retailers at the forefront. The federal government has introduced a spate of policies that will help sustain sales and attract more investment to the sector.

Passenger EV sales gain ground off the back of more affordable models: India's annual passenger EV sales, which include cars and multi-utility vehicles, nearly doubled to 96,000 in 2023. EVs now account for 2.3% of all passenger vehicle sales. Private demand for EVs in this segment remained strong, fueled by the popularity of compact electric SUVs, as well as the launch of low-cost models in the small segment such as Tata Motors' Tiago EV and MG Motor's Comet EV. Demand from shared mobility operators has held steady, driven by startups operating all-electric fleets and Uber's target of inducting 25,000 EVs.

Electric two-wheeler sales held strong despite reduced subsidies: Annual two-wheeler sales in India

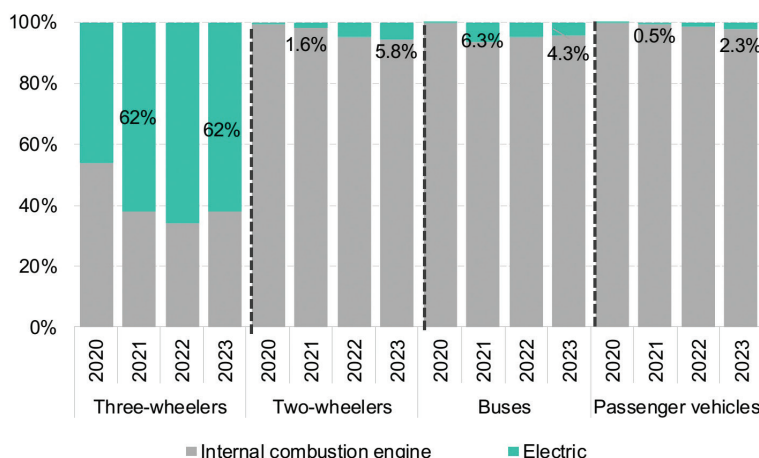


Figure 1: Share of EVs in India's new vehicle sales, by segment

Source: Ministry of Road Transport and Highways, Society of Indian Automobile Manufacturers, Society of Manufacturers of Electric Vehicles, JATO Dynamics, BloombergNEF. Note: Includes sales estimates for electric two- and three-wheelers with top speeds of less than 25 km per hour. Two-wheeler, three-wheeler and bus sales include estimates for Telangana.



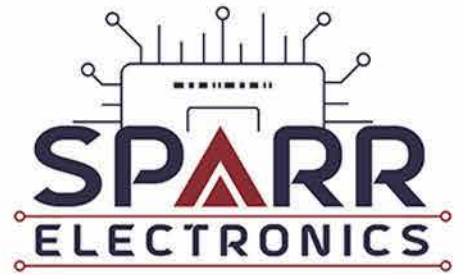
grew by 13% in 2023 to nearly 18 million, BloombergNEF estimates. EVs were just under 6% of these sales, at over 1 million units. Electric models in the segment are benefitting from rising gasoline prices, more model launches and a favorable total cost of ownership compared with gasoline two-wheelers.

Delhi and Maharashtra lead in electric bus deployments: Electric bus demand continues to rely on government procurement. Delhi led the market in 2023, with 1,121 e-buses added – nearly three times

the additions in the state a year ago and 42% of all e-buses deployed. This was followed by Maharashtra with 451 e-buses. The push from state governments remains the largest driver of EV adoption in this segment, supported by federal subsidies.

Maharashtra leads EV deployment across most vehicle segments: Among all Indian states, Maharashtra had the largest fleet of electric two-wheelers, passenger EVs and e-buses by the end of 2023. Karnataka followed, with the second-largest fleet of electric two-wheelers and cars. Delhi is rapidly electrifying its municipal bus fleet and, as of 2023, the number of e-buses in the state was second only to Maharashtra.

Charging infrastructure: India had nearly 17,000 public EV charging stations by March 2024. Assuming each station has two chargers, on average, a public charger can support eight electric cars. This number is likely higher because most of India's

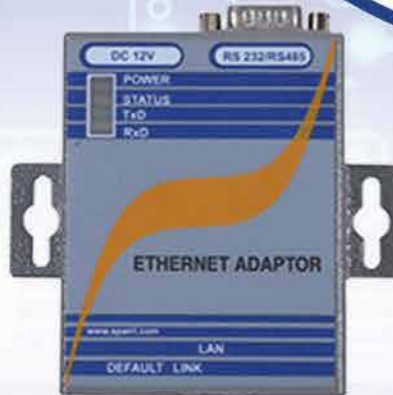


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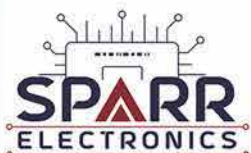


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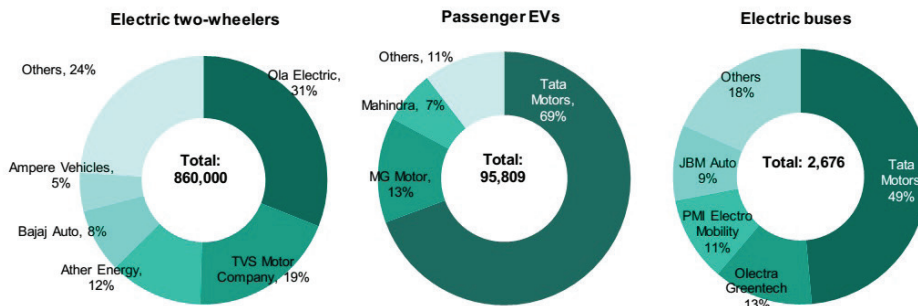


Figure 1: Indian manufacturers' shares of EV sales in 2023, by segment

Source: Ministry of Road Transport and Highways, Bloomberg, BloombergNEF. Note: Sales in Telangana are not included due to data unavailability. Two-wheeler sales do not include low-speed vehicles. Data as of January 18, 2024.

demand-side subsidies for EV and charging equipment purchases, as well as supply-side support to incentivize local manufacturing. Delhi became the first state in India to mandate phase-out targets for fossil fuel vehicles in selected vehicle segments. More federal support for charging infrastructure is planned, with the details expected to be announced in July. E-buses could also see a boost amid the federal government's

public EV chargers that were installed prior to 2022 were based on the Bharat charging standards. None of the passenger EVs available today are compatible with these chargers.

Policy support continues to grow: Federal and state governments have announced several policies and regulations to boost EV adoption in India. These include

announced payment security mechanism in partnership with the US.

Article courtesy: Bloomberg New Economy Forum, under the auspices of Bloomberg Finance LP



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NEWS SNIPPET

Hyundai Motor and Kia partner with Exide Energy for EV battery localization

Hyundai Motor Company and Kia Corporation have signed a memorandum of understanding (MOU) for strategic cooperation with Exide Energy Solutions Ltd, a leading Indian battery company, as part of their electric vehicle (EV) expansion plans.

The signing ceremony took place at Hyundai Motor Group's Namyang Research and Development Center in South Korea, attended by Heui Won Yang (President and Head of Hyundai Motor and Kia's R&D Division), Chang Hwan Kim (Head of Electrification Energy Solutions Tech Unit), Duk Gyo Jeong (Head of Electric Vehicle Parts Purchasing Sub-Division) and Dr Mandar V Deo (Managing Director, and CEO of Exide Energy).

With the expansion of their EV plans for the Indian market, Hyundai Motor and Kia aim to localise their EV battery production, specifically focusing on lithium-iron-phosphate (LFP) cells. This strategic move will position them as the pioneers in applying domestically produced batteries in their upcoming EV models in the Indian market.

Heui Won Yang, President and Head of Hyundai

Strategic Partnership on Electrification in India MOU Signing Ceremony



Motor and Kia's R&D Division, elaborated, "India is a key market for vehicle electrification due in part to the government's carbon neutrality goals, which makes securing cost competitiveness through localized battery production crucial. Through this global partnership with Exide Energy Solutions Ltd, we will gain a competitive advantage by equipping Hyundai Motor and Kia's

future EV models in the Indian market with locally produced batteries."

Kolkata-based Exide Industries Ltd, a leading lead-acid battery supplier in India, has over 75 years of experience and market leadership in lead-acid batteries. Exide Energy Solutions Ltd is a wholly owned subsidiary company of Exide Industries Ltd, which was established in 2022 to foray into the business of manufacturing of lithium-ion cells, modules and packs incorporating a portfolio of multiple chemistries and form factors.

This strategic cooperation with Exide Energy marks the beginning of Hyundai Motor and Kia's efforts to expand its exclusive battery development, production, supply and partnerships in the Indian market.

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“India is aiming for \$ 300 bn in engineering goods exports by 2030”

While India's engineering goods exports in February 2024 recorded an increase of 15.9 per cent to \$9.94 billion over \$ 8.58 billion a year back, the cumulative engineering exports during April 2023-February 2024 stood at \$98.03 billion as against \$96.84 billion in the corresponding period in 2022-23. The industry is confident to cross the 2022-23 figure this year, says **Arun Kumar Garodia**, Chairman, EEPC India, in this interview with Rakesh Rao.

How was the export scenario in 2023-24?

The performance of the engineering goods sector was good in 2023-24. Though we are yet to receive the final data from Ministry of Commerce, we are sure that engineering goods exports will cross the last year's figure of \$107.04 billion.

In the prevailing global market uncertainty, how did India managed to perform well?

In spite of all the global headwinds - such as recession in developed markets, interest rate increase, Russia-Ukraine war, Israel-Hamas conflict, supply disruptions due to Red Sea problem, etc - export performance has been good. The major reason for this good show has been China Plus One policy which is driving all countries to come to India. Second, the government has signed Free Trade Agreements (FTAs) with countries like UAE and Australia, which have had positive effect on our overseas trade. In March 2024, India also signed FTA with the European Free Trade Association, whose members are Switzerland, Iceland, Norway and Liechtenstein. This will also aid in boosting India's exports.

We are in final stages to sign FTAs with Gulf Cooperation Council (GCC) and Oman. Once the new union government is formed after the general election, these FTAs will be signed.

India has gained from the crisis between Russia and Ukraine, as India's engineering exports to Russia has doubled to \$ 1.22 billion till February during the 2023-24 fiscal (compared to \$ 616.68 million in the previous fiscal). Similarly, we have seen 60 per cent jump in exports to Saudi Arabia.

With more FTAs in place in 2024-25, you expect a boost in exports?



Yes; as FTAs are in the final stages, companies in these countries are already getting in touch with agents, suppliers and manufacturers in India, because they are also equally aware of duty concessions being offered in import-exports. They are also eager to develop their businesses.

What is the update on ASEAN FTA renegotiation?

No doubt renegotiation is currently underway, but any major announcement will come only after the new government assumes office after the election. We have already given our suggestions with respect to this.

How big is the factor of China Plus One Policy in increasing exports from India?

This has been a big booster to all sectors which are into exports. Global firms are looking for a reliable alternative to China and India stands to gain from this trend.

What is your outlook for engineering goods exports in the next two years?

This year, only the steel sector has not done well because the first six months were bad for them. Steel exports have picked up after January 2024 and, hence, they should come out with robust figures in March 2024. So, we expect the buoyancy in engineering exports to carry forward in 2024-25 and beyond.

We have already set an ambitious target for us. As per the vision document submitted to the government, we aim to grow engineering goods exports to \$ 300 billion by 2030 and we are working towards achieving this goal.

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“Exports account for more than 50% of Sphoorti’s turnover”

The Bengaluru-based Sphoorti Machine Tools - a manufacturer of tool holders for any type of tool turrets on all global brands of CNC machine tools - is a 100-per cent home grown company that exports its products across the world. In this interview with Rakesh Rao, **R K Purohit**, Managing Director, Sphoorti Machine Tools Pvt Ltd, elaborates on advantages offered by India to manufacturers and the company’s growth plans.

Could you please brief us about Sphoorti Machine Tools?

Sphoorti Machine Tools is a pioneer manufacturer of tool holders for any type of tool turrets on all global brands of CNC lathes, CNC turning centres and CNC turn mill centres. All the industries using CNC machines are our customers. However, we being an embedded part of the machine, most of the machine tool builders are our primary customers and there are many distributors who shoulder the responsibility to supply our tool holders directly to customers.

Sphoorti has a state-of-the-art manufacturing facility with high precision machines from Hermle, Mazak, DMG-MORI, Hardinge.

How is the demand for your products? What is driving this demand?

We are the right and obvious significant bridge between the cutting tools and the turret of CNC machines. Our products play a vital role in holding the cutting tool to yield optimum results on the machining requisites. As Sphoorti has a wide range of tool holders for any CNC turning center & CNC turn mill center, demand for our products by machine tool builders always exist and the trend is upwards irrespective of market situations. In tandem with it, CNC users & tooling distributors also supplement the demands as a second highest channel.

What are the USPs of your products and solutions?

Starting from simple tool holder for a generic CNC lathe, we cover the entire range including slotted types, VDI and BMT configurations in both static as well as live/driven/rotary holders.

Since tool holder business is dependent on the evolution of turret types in the machine tool industry, we always comply with the demands of OE industry.

How are you planning to step up R&D for



launches new products & solutions? Are you going to launch any new product/technology/application in 2024?

Our R&D is nothing but a real time design engineering activity in meeting the tooling needs of machine tool builders which in-turn driven by end-users. We constantly strive to align with any updations in the turret arena.

The current/future trend is BMT type of tool holders. This is the most rigid type of tool holding on CNC machine and being implemented largely by North America, Korea, Japan, etc. Ironically, all other

European countries, India, Taiwan, China, are complying with the market needs.

What are your plans to grow your export business?

Almost, every type from our product range is being exported as we have a wide range to meet demands of international requirements. Our contribution of exports is more than half of our turnover.

Sphoorti exports across the globe like Germany, Italy Poland, Austria, Spain, France, Netherlands, Czech Republic, UK, Sweden, USA, Canada, Brazil, Mexico, Russia, Belarus, Turkey, Saudi Arabia, South Africa, Thailand, Singapore Vietnam, China, Taiwan, Korea, Australia, New Zealand, etc.

One of the major plans to grow exports is our participation in international exhibitions in Europe like EMO, Russia, IMTS, Korea, South Africa, Brazil, Mexico, etc.

We are carefully adding highly result oriented distributors in various countries and also enhancing our relationship with machine builders globally.

Are you looking to collaborate with global companies to bring in their technologies / products into India?

We are proudly a 100-per cent home grown

company and we have most of the products which are in demand globally.

How is India as a potential market for global manufacturers? What are emerging trends and opportunities in the Indian market?

India, as the socialistic best democratic country in the world, is an undoubted destination for all MNCs.

Our machine tool market is becoming extremely attractive for the global companies. On the other hand, many other verticals are rapidly growing like aerospace, defense, space, oil & gas, construction, energy, infrastructure, EV and many contract manufacturing sectors.

India is surely a safe, best, economical and long-

lasting destination for global manufacturers. This is also evidenced by most of the Indian corporates in each & every industrial sector.

What are your growth plans for the company?

We are adding capacities, optimising productivity, bringing in better digital environment, increased employee satisfaction, enhancing automation and bringing in global practices continuously.

Not just new product launch or a diversification, we are always amalgamated with any demands of machine builders and turret tool needs.



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NEWS SNIPPET

Lubrizol opens new Global Capability Center in India

Lubrizol, a global leader in speciality chemicals, has opened a new Global Capability Center (GCC) in Pune, India, as a strategic hub to accelerate its growth in the region and enable closer collaboration for its customers and employees leveraging local talent to enable regional and global success in the many markets and industries it serves.

The Lubrizol GCC is part of a new facility in Pune, Embassy Tech Zone, Hinjewadi. The campus is WELL- and LEED Gold certified to enable a safe, healthy, and environmentally conscious workspace. In addition to a well-designed and ergonomic workspace, the 42,000-square-foot facility features wellness rooms, a recreational area, a training area and huddle rooms with an emphasis on natural light. A customer experience centre showcases Lubrizol science. More than 200 regional employees, representing functions including Engineering, Supply Chain, Technology, Finance, Procurement, Legal and HR are expected to be added to the site over the next year.

Lubrizol has a long history in India, dating back to 1966 when the company started manufacturing chemical additives to support the transportation and industrial sectors. Since then, Lubrizol has improved the quality of life for those in India and surrounding regions through innovative solutions that help advance mobility, improve well-being and enhance modern life. The company currently has its workforce employed across India through various in-region commercial offices, labs and manufacturing plants.



Lubrizol new center in Pune

In 2023, Lubrizol announced a more than \$ 150 million investment to enable the world's largest CPVC resin plant in Vilayat, Gujarat, double capacity at its site in Dahej, Gujarat, open a grease lab in Navi Mumbai and enable significant in-country job growth and innovation.

"India is undeniably one of our fastest growing markets and a critical hub for the talent we require to propel both regional and global customer success and innovation," said JT Jones, Senior

Vice President, High Growth Regions, Lubrizol.

"The GCC is an integrated extension of our global team. It serves as a regional and global centre providing business processing and digital capabilities that will help Lubrizol solve complex problems and find better business outcomes. Today is an exciting day for us as we look forward to the many possibilities the future holds," said Bhavana Bindra, Managing Director – India, Middle East and Africa, Lubrizol.

Abhishek Jain, India GCC Leader, Lubrizol, added, "The opening of the GCC in Pune marks a significant milestone for our team, enabling us to access and develop world-class talent to enhance our technological capabilities and operational excellence. This will enable us to serve our customers in India and around the world in even more innovative ways."

The opening of the GCC is another milestone in the company's commitment to and growth in India, as well as its best-in-class service and collaboration with customers and employees. To learn more about open Lubrizol GCC roles, please visit: Lubrizol Corporation Jobs.

SME

“Electronic Automation offers smart solutions to customers”

With various sectors looking to adopt Industry 4.0, IoT-enabled products and services are gaining demand. By leveraging on its vast experience, Electronic Automation Pvt Ltd (EAPL) is accelerating this transition by offering smart solutions to its expanding base of end-users. In this interview, **Shreedhar Kamat**, Co-Founder & Chairman, Electronic Automation Pvt Ltd, explains the emerging changes in the industry and how the company is gearing up to tap new opportunities with innovative solutions.

How is Electronic Automation Pvt Ltd contributing to the growth of the Indian manufacturing sector?

Electronic Automation Private Limited, headquartered in Bangalore, was founded in 1985 by Late Shri Madhav Kamat. Partnering with Kruger + Co Ltd, Switzerland, EAPL embodies Swiss perfection in its products. Beginning with timers nearly four decades ago, EAPL has established itself as a prominent player in the Indian electronic industry, specialising in manufacturing high-quality products at affordable prices. With approvals from product safety regulators CSA, CE, and UL, EAPL ensures compliance with safety norms.

EAPL's diverse product portfolio includes electronic timers, sequence timer, programmable annunciators, energy meters, temperature controllers, protection relays, power supplies pump controllers and digital time switches, catering to various electrical applications across industries. With a wide consumer base spanning over 50 cities in India and several GCC countries, EAPL prides itself on its commitment to quality and affordability.

Spread across 50,000 sq ft, EAPL's manufacturing infrastructure is capable of producing over 500,000 units annually. Certified under ISO 9001:2015, ISO 45001:2018, and ISO 14001:2015, EAPL prioritises quality, safety, and environmental responsibility. Equipped with the latest SMT technology and supported by a dedicated Quality Control (QC) department, EAPL ensures rigorous quality checks at every stage of production, from raw materials to the final product.

With its own tool room and plastic injection molding facility adhering to UL graded materials and safety protocols, EAPL further strengthens its manufacturing capabilities. Additionally, the in-house EMI/EMC lab



enhances product validation, ensuring excellence in quality.

How is your company serving the customers? What is the USP of your company?

EAPL has a network of over 100 sales channel partners spanning across India and internationally, dedicated to delivering essential service and support to customers in their respective regions.

One of EAPL's standout qualities lies in the exceptional quality of its products, boasting a rejection ratio of less than 100 ppm, aligning with global standards. Furthermore, EAPL products feature high-quality, UL graded plastics, ensuring safety compliance. They are also engineered for effortless

installation.

In our marketing policy, we stand by our promise: "Any manufacturing defects confirmed within the warranty period will result in product updates, refunds, or replacements."

Many of our products carry CE and UL certifications, demonstrating our commitment to quality and performance. Additionally, EAPL is a key contributor to the ESDM project "LAHARI" by the Government of India, housing an advanced NABL-accredited testing facility in Mysore. These factors underscore EAPL's dedication to delivering quality and performance at competitive prices.

How was the performance of your company in 2023?

As for our performance in 2023, EAPL has witnessed consistent growth, of 15-20 per cent increase in revenue year-over-year. Looking ahead, we plan to further accelerate this growth trajectory offering a diverse portfolio of over 500 instruments for various applications.

In addition to expanding our facilities, we've invested in new machinery, including injection molding facilities, to offer comprehensive solutions for industrial needs. Recently, we introduced IoT-enabled production monitoring meters tailored for the plastic industry, with plans to extend this technology to other sectors, aligning with Industry 4.0 standards.

What are your plans to increase exports?

While EAPL has traditionally focused on the Indian market, we have begun to establish distributor channels in the Gulf region, with some products gaining traction. Participation in international expos like Hannover Fair and the upcoming Middle East Expo in Dubai in April '24 signifies our commitment to expanding our global presence. Although export sales are currently modest, we are confident that EAPL's excellent track record in quality, cost-effectiveness, and customer service will pave the way for success in the global market.

The market for electric vehicles (EV infrastructure) and renewable energy is showing strong growth. Is this opening up new growth opportunities for EAPL?

Recognising India's advancements in EV infrastructure and renewable energy, EAPL has developed specific products for energy measurement within EV monitoring systems, which have been well-received in the market. Additionally, we have designed products such as DC energy meters and reverse relays for solar panel applications. We are progressively expanding our offerings in these areas to align with market demands, with ongoing development efforts in this direction.

Companies (including your customers) across industries are emphasising on sustainability. How is your company helping them meet their sustainability goals?

EAPL's products adhere to DIN standards and IEC guidelines, utilising high-quality materials such as UL V.0-rated fireretardant plastics to ensure product safety. Moreover, many of our products hold certifications such as CE and UL, aligning with global standards. Furthermore, as an ISO 9001 certified company with an integrated management system, we maintain compliance with Occupational Health, Safety, and Environmental standards, underscoring our commitment to sustainability.

What kinds of emerging trends are you observing in the electrical & electronics industry today?

We're witnessing a gradual adoption of Industry 4.0 across various sectors, with a notable emphasis on IoT-enabled products and services. At EAPL, we're poised to accelerate this transition, leveraging our current portfolio of 500+ products to offer smart solutions to our expanding base of end-users.

The growth of the electronic industry in India is

Recognising India's advancements in EV infrastructure and renewable energy, EAPL has developed specific products for energy measurement within EV monitoring systems, which have been well-received in the market.

intricately tied to specific segments, influenced by factors such as the existing ecosystem, the presence of organised players, import levels, and governmental focus on respective sectors.

The industrial electronics segment, for instance, is experiencing growth driven by the automation of manufacturing facilities and a rising emphasis on renewable energy utilisation.

How do you plan to scale up your business in FY2024 & FY2025?

EAPL's performance in 2023 was notably positive, setting the stage for ambitious growth plans. We aim to double our capacity over the next two years from the current 500,000 units/year level. This expansion will be accompanied by efforts to penetrate untapped markets and boost exports to regions like the Middle East and Southeast Asia, where we intend to showcase our innovative, high-quality products and services.

Our recent product launches reflect our commitment to innovation and meeting market demands. Examples include the "M3" series of annunciators, the sleek ETR Series timers, the APD Series relays, Sleek counters, Digital timers, sequence timers and the SPP-T auto switch designed for the irrigation and agriculture sector.

Looking ahead, we're gearing up to integrate IoT features into products like energy meters and annunciators, time switches aligning with the market's shift towards connectivity technologies like WiFi, LORA, and GSM. Additionally, we're venturing into the electric vehicle (EV) segment and expanding into building automation, emphasizing powersaving solutions.

Future product developments include IoT-enabled controllers, electric vehicle charging solutions, and simplified PLCs. We are also focused on obtaining certifications like 'CE' to expand our global footprint and exploring new markets in Europe, Africa, Gulf and Southeast Asia.

Participation in trade fairs like the upcoming Middle East Expo in Dubai underscores our commitment to showcasing our advancements and expanding our reach globally.

While EAPL has enjoyed steady growth in recent years, we're now poised for exponential expansion, driven by our diverse product portfolio and growing acceptance in the market.



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Indo-Germany alliance: A model of resilience and growth

The Indo-German trade partnership serves as a powerful symbol of the potential for synergy and collaboration in the interconnected global landscape. This partnership not only exemplifies mutual success but also lays the foundation for prosperity and sustainable growth for both nations, says **Rajesh Nath**.



German Chancellor Olaf Scholz (left) with Indian Prime Minister Narendra Modi during their meeting on February 25, 2023, in New Delhi.



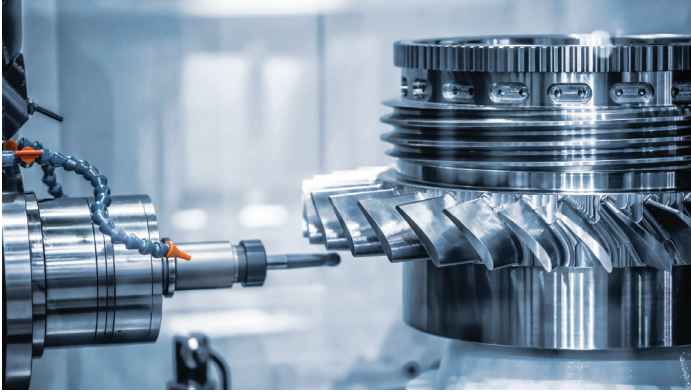
In the ever-evolving global trade landscape, the partnership between India and Germany stands out as a shining example of resilience and opportunity. Over centuries, these two nations have cultivated a strong foundation of economic exchange, weaving a rich tapestry of trade and cooperation that has endured the test of time. From the historical Silk Road to modern-day trade routes, India and Germany have continuously engaged in commerce, evolving into a robust collaboration that transcends geographical boundaries and enriches both economies.

With a trade history spanning over 500 years, India and Germany share a deep-rooted connection forged through centuries of economic cooperation. Over time, bilateral trade has not only increased but has also led to the discovery of new business and investment prospects by German companies in India and vice versa. From the 16th to the 18th centuries, numerous German enterprises were established with the intent of engaging in trade with India and other East Asian nations. This longstanding relationship is characterised by mutual respect, trust, and a shared vision for prosperity, making it a beacon of stability and growth in the dynamic landscape of global trade.

Flourishing trade

In recent times, this partnership has flourished significantly, witnessing an exponential surge in bilateral trade, solidifying India and Germany's positions as pivotal trading partners for each other. India, recognised as one of the fastest-growing economies globally, presents a plethora of opportunities for German companies. Presently, over 2000 German companies are actively operating in India, contributing to approximately 400,000 direct and indirect employment opportunities. Furthermore, Germany holds the position of being India's largest trading partner in Europe and features among India's top ten global trade partners, and is the seventh largest Foreign Direct Investment (FDI) source for India. The collaboration between India and Germany extends to over 1600 partnerships and encompasses more than 600 joint ventures.

To facilitate the exploration of business prospects in India, various initiatives and programs have been instituted, including the Fast-Track-System for German companies and the Make-in-India Mittelstand-Program. These endeavours aim to streamline processes and support the realisation of business opportunities in



India. The total bilateral trade between the two countries stood at \$31.4 billion during the year 2022, marking a notable increase from \$21.76 billion in FY 2020–21. In December 2023 alone, Germany exported approximately \$1.39 billion worth of goods to India and imported around \$1.03 billion from India, resulting in a positive trade balance of approximately \$364 million. What sets the Indo-German trade relationship apart is its inherent reciprocity, with both nations reaping mutual benefits from their collaborative endeavours.

Germany's advanced technology and manufacturing prowess perfectly complement India's burgeoning market potential and highly skilled workforce, resulting in fruitful collaborations across various industrial sectors. This synergy has been particularly evident in sectors such as automotive, engineering, pharmaceuticals, renewable energy, and machinery, where joint ventures and strategic partnerships have flourished. In the fiscal year 2023, India's exports to Germany reflected the depth of this collaboration, with a total of 5,842 commodities exported, amounting to approximately \$10.13 billion. Notably, between April and November 2023 alone, India's exports to Germany reached \$6.29 billion, showcasing sustained growth and partnership.

Major exported items spanned across various sectors, underscoring the diversity of India's export portfolio. Electrical machinery and equipment emerged as the top category with exports valued at \$725 million, followed closely by ready-made garments made of cotton, including accessories, at \$571 million. Additionally, telecom instruments accounted for \$477 million in exports, machinery for dairy reached \$476 million, and products of iron and steel amounted to \$471 million. These figures highlight the depth of collaboration between India and Germany, as well as the significant contributions of various sectors to bilateral trade and economic growth.

Conversely, India imported a total of 5,955 commodities from Germany in fiscal year 2023, with imports totalling approximately \$15.93 billion. Notable imports from Germany to India included machinery for dairy valued at \$1.96 billion, aircraft, spacecraft, and parts at \$1.73 billion, medical and scientific instruments

at \$872 million, electrical machinery and equipment at \$856 million, and auto components and parts at \$809 million. During April to November 2023, India's imports from Germany included reactors and parts thereof at \$3.16 billion, electrical machinery and equipment at \$1.43 billion, aircraft and spacecraft parts at \$1.42 billion, and optical, photographic, cinematographic measuring, medical, or surgical apparatus parts and accessories at \$1.08 billion. Importantly, imports from Germany to India stood at \$11.46 billion during April to November 2023.

But, challenges persist...

Despite notable achievements, persistent challenges persist, particularly in the shortage of skilled labour within the manufacturing sector, posing significant hurdles to further growth. Acknowledging this obstacle, India and Germany are poised to address it through collaborative efforts in vocational training, knowledge exchange programs, and skill development initiatives. Germany's esteemed dual education system serves as a model of success, offering valuable insights for India to refine its educational curriculum. This ensures that the workforce not only acquires essential skills but also remains adaptable to the evolving demands of industry. In addition to addressing labour shortages, sustainability and advanced technologies emerge as critical factors in enhancing global trade competitiveness. Leveraging Germany's expertise in these areas presents a significant opportunity for India to drive sustainable development and technological advancement across various industries.

By implementing innovative solutions and adopting best practices, India can propel its economic growth while contributing to global efforts towards environmental conservation and resource efficiency. Collaboration between India and Germany in these domains is essential for overcoming current challenges and seizing future opportunities. Through strategic partnerships and knowledge exchange, both nations can leverage their respective strengths to foster innovation and competitiveness. This collaborative approach not only benefits the economies of India and Germany but also contributes to global progress towards a more sustainable and technologically advanced future.

Strategic cooperation and ongoing policy dialogue are paramount for India and Germany to strengthen their trade relations, especially in the face of global uncertainties. By creating an environment conducive to collaboration and innovation, both nations can bolster their resilience and adaptability to changing market dynamics. As we look towards the future, the Indo-German trade relationship holds immense potential for further growth and diversification. By nurturing a business-friendly environment, fostering innovation-driven entrepreneurship, and deepening bilateral cooperation, both countries can explore new avenues of economic collaboration and mutual prosperity. To

reiterate, India stands to benefit from Germany's renowned vocational training system, which can effectively address its skill gap challenges and enhance workforce readiness for emerging industries. Furthermore, diversifying trade portfolios, minimising trade barriers, and harnessing digital technologies are pivotal strategies that can drive sustained growth and prosperity for both nations. Through collaborative efforts in these areas, India and Germany can not only strengthen their bilateral ties but also contribute significantly to global economic development.

Synergistic partnership

In conclusion, the Indo-German trade partnership serves as a powerful symbol of the potential for synergy and collaboration in our interconnected global landscape. This partnership not only exemplifies mutual success but also lays the foundation for prosperity and sustainable growth for both nations. Given that India is ranked as the 5th and Germany as the 4th largest economies globally, there exists immense potential for both countries to capitalise on their complementary strengths. By leveraging their respective advantages, fostering innovation, and embracing sustainable practices, India and Germany can chart a course

towards a brighter future built on collaboration, resilience, and shared prosperity.

The Indo-German trade partnership represents more than just economic cooperation; it embodies a commitment to working together towards common goals in a rapidly changing world. Through joint efforts, both nations can navigate challenges, seize opportunities, and create a sustainable and prosperous future for generations to come. This partnership not only benefits India and Germany but also contributes positively to the global community, showcasing the power of collaboration in driving meaningful change on a global scale.

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About the author:



Rajesh Nath is the Managing Director of VDMA India. He has more than 32 years of experience working in various industries in Germany and India. He has been accorded the "Cross of the Order of Merit" – highest civilian award from the German President, for promoting Indo-German Trade in Engineering Sector.



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NEWS SNIPPET

German firm Rittal expands capacity in India with new Integration Centre

Rittal Pvt Ltd - a wholly owned subsidiary of Germany-based Rittal GmbH & Co KG (a Friedhelm Loh Group company) and a manufacturer of enclosures, power distribution, climate control and IT infrastructure systems - inaugurated its new Integration Centre dedicated to cooling units and liquid cooling package (LCP) solutions at its manufacturing facility in Bangalore. This significant expansion will increase company's overall production capacity and meet the growing demand for industrial cooling solutions in the market.

The new Integration Centre is a state-of-the-art facility equipped with latest machines and testing centres designed to meet optimum productivity and flexible to manufacture cooling units for industrial applications and LCP solutions for IT infrastructure. This new facility is strategically incorporated to support continued growth in India and other emerging markets even more efficiently with premium made in India products.

Emphasising the significance of this milestone, Lars Platzhoff, Executive Vice President of Business Unit Cooling Solutions, Rittal GmbH & Co KG, Germany, said, "This facility marks a groundbreaking achievement to



Rittal and becomes the 3rd facility to produce the world's best industrial cooling units. Rittal cooling units are unique in the market and well recognised for its disruptive technology and exceptional efficiency."

Over the past few years, Rittal Cooling Units have received an overwhelmingly positive response from customers. Mathew Jacob, Vice President of Sales and Marketing, Rittal Pvt Ltd, expressed, "With this expansion, we further strengthen our commitment to India and neighbouring markets. We shall continue to focus on customer value creation by developing intelligent Industrial Cooling Solutions that help our customers reduce energy consumption, save cost and combat climate change."

Rittal cooling units are globally recognised for their quality, longevity, and productivity. Due to their exceptional properties such as flexibility and ease of use, Rittal cooling units are the ideal choice for a broad range of applications. The growth of the industrial cooling solutions market is driven by various factors, including the rising awareness of safety, energy efficiency, carbon reduction, and increasing customer expectations for sustainable performance.

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With India emerging as the bellwether of the global economy, the manufacturing sector is all set to witness monumental changes with the adoption of new technologies, policies and strategies. In line with these changes, **Industrial Products Finder (IPF)** – after serving the industry for the last 52 years – will now transform to take on much bigger role to fulfill the new needs of the manufacturing sector. **IPF is now:**

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Hannover Messe 2024 promotes international trade and investment

While international trade plays a central role in the global economy, it also brings challenges such as trade imbalances and protectionism. Hannover Messe fosters global dialog on these issues.

The 2024 edition of Hannover Messe - hosted from April 22-26, 2024 in Hannover, Germany – will have the theme of “Energizing a Sustainable Industry”. Norway is Partner Country for Hannover Messe 2024.

A balanced, transparent policy is crucial in order to make the most of the benefits of international trade. Visitors to Hannover Messe discover how this can work at the exhibition area “International Trade & Investment”, where countries and regions present their business opportunities and discuss with economic development organisations, foreign direct investors and public private partnerships trade and investment opportunities as well as market entry, settlement promotion and international cooperation.

“The world currently faces many challenges, including supply chain disruptions, climate change, economic stagnation and a shortage of skilled workers. However, it is precisely at this time that companies should seize the opportunities for international dialog, cooperation and investment. Our ‘International Trade & Investment’ platform serves precisely this purpose. Every year, thousands of participants learn about the latest topics and developments in global trade,” stated **Basilios Triantafillos**, Global Director Trade Fair and Product Management at Hannover Messe.

“Despite challenges, international trade remains an important pillar of the German economy. According to the latest DIHK economic survey, the export industry is



developing slightly better undeterred by the overall gloomy mood. However, the DIHK surveys also show that increased energy prices, the high tax and duty burden as well as bureaucratic reporting obligations put a strain on German companies’ foreign business. Trade barriers and protectionism are additional challenges in many target markets,” said **Melanie Vogelbach**, Managing Director International Economic Policy at the German Chamber of Commerce and Industry (DIHK). “At Hannover Messe, the German Chambers of Commerce Abroad provides visitors with first-hand advice and practical support to help them discover new business opportunities abroad.”

The daily program at the Trade & Invest Stage in Hall 4 includes keynote speeches, panel discussions and presentations on topics such as digitalization, diversification, mergers and acquisitions, and trade policy. On 22 April, for example, the session “Partnerships with the Global South” takes a close look at the potential of emerging markets.

On 25 April, the stage program focuses on the MENA and Southeast Asia regions. Malaysia, for example, presents the session “Boundless Opportunities for High-Tech, Digital Economy, Blockchain & H2”. Entrepreneurs, institutions and authorities will present various opportunities for trading partners and investors in Malaysia.



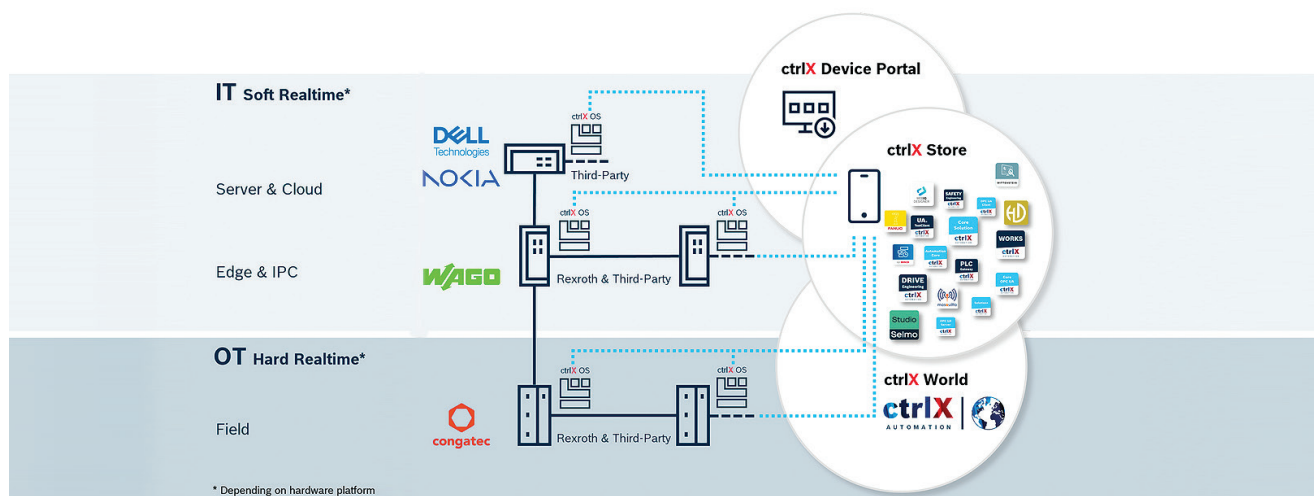
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Bosch Rexroth, congatec open up new possibilities with ctrlX OS

Operating system ctrlX OS is now in embedded and edge computing products from congatec; users gain access to the entire ctrlX OS ecosystem.



The Linux-based operating system ctrlX OS from Bosch Rexroth is gaining ground in the automation market and is now also available for embedded computer applications from congatec. The collaboration between the two companies opens up new possibilities for users of embedded and edge computing products from congatec. By using ctrlX OS they also gain access to Bosch Rexroth's extensive ecosystem.

The industry's digitalization and sustainability goals can be achieved primarily through the use of open and modular solution platforms. Bosch Rexroth therefore opened up the operating system ctrlX OS to the entire automation market at the end of 2022 and is now attracting more and more partner companies.

"CtrlX OS is highly versatile and can be scaled according to requirements. On the basis of manufacturer-independent standards, we can now also support any design of ctrlX OS-based embedded computer platforms. Users of the open and modular solution platforms from congatec can now also benefit from this. With this important new partnership, we are sending out a further signal that openness is the only sensible way forward in the automation sector," said **Steffen Winkler**, Vice President Sales Business Unit Automation & Electrification Solutions at Bosch Rexroth. **Opening up a complete world of automation for users**

Congatec is a fast-growing technology company with a focus on embedded and edge computing products

based on computer-on-modules. By using ctrlX OS and the associated ecosystem, users gain access to the entire solution portfolio and numerous apps. This means that they can use both ctrlX OS apps and the apps from the partner network ctrlX World. Ready-made building blocks at the hardware and software level simplify the development of even complex embedded applications including edge and cloud integration. This reduces the time to market and at the same time offers a high level of design reliability.

One of congatec's goals is to provide fully integrated and application-ready solutions for applications. These range from connecting sensors and actuators in the field to the cloud.

Dominik Reßing, CEO of congatec, said, "With Bosch Rexroth, we've found an effective, internationally active partner who supports the modular and open design approach of our Secure Embedded Building Blocks in a comprehensive and application-oriented manner on the software side. This makes our modular, scalable range of solutions for connected and cloud-integrated applications even more attractive.

And the apps create great added value for developers – they allow faster and more efficient application development for example. This makes it easier to achieve the required speed and agility in the modern factory."

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Igus launches new compact low-cost energy chain for drawers

By downsizing, the draw e-chain saves 30 per cent of costs in applications with a low degree of movement.

For cable guidance in drawers and pull-outs of all kinds, igus is launching the draw e-chain. Thanks to the minimalist design, the price of the compact energy chain is 30 per cent lower than the most cost-effective standard e-chains. This protects against expensive oversizing, especially if the application is only moved a little.

From drawers in camper vans to pull-outs in server racks in data centres: industrial energy chains for hundreds of thousands of cycles are oversized for guiding cables in applications where movement only occurs occasionally. Users would pay for features that they do not need. "We have therefore developed the draw e-chain, a new compact low-cost energy chain for cable guidance in drawers and pull-outs of all kinds," explained Jörg Ottersbach, Head of the e-chain Business Unit at igus. The new energy chain has a bend radius of 45mm, an external width of 45mm and an external height of just 22mm. "This makes it 13 per cent flatter than our flattest standard e-chain B17.1.048.0 to date."

Minimalist design makes draw e-chain cost-effective

The draw-e-chain is not only more compact than standard models, it also costs less. The reason: there are no mechanically complex components. The injection-moulded e-chain does not need any chain links to fold. Instead, the segments are flexible enough to allow the required bending. Thanks to this absence of chain links, the draw-e-chain consists of just six segments per metre, which can be connected via a simple connector system, which reduces effort and costs. "Due to this minimalist design, the draw e-chain costs 30 per cent less than our most cost-effective standard e-chain," said Ottersbach.

Assembly completed in just a few minutes

The draw e-chain is designed so that users can assemble it by hand in a very short time. The low-cost energy chain is designed for installation rotated by 90 degrees, for example on the inner side of a drawer. Connection elements are not necessary. The segments of the cable guidance have holes for screws. "Inserting cables is also done quickly," said Ottersbach. Unlike standard e-chains, there are no crossbars that users have to open first. "You can simply push the cables through the bendable tabs of the energy chain from



The draw-e-chain offers a flat, simple and cost-effective design for cable routing in pull-outs and drawers of all kinds, for example in server racks.

above. That takes just a few seconds."

Igus GmbH develops and produces motion plastics. These lubrication-free, high-performance polymers improve technology and reduce costs wherever things move. In energy supplies, highly flexible cables, plain and linear bearings as well as lead screw technology made of tribo-polymers, igus is the worldwide market leader. The family-run company based in Cologne, Germany, is represented in 31 countries and employs 4,600 people across the globe. In 2022, igus generated a turnover of Euro 1.15 billion. In recent years, the company has expanded by creating internal startups, e.g. for ball bearings, robot drives, 3D printing, the RBTx platform for Lean Robotics and intelligent "smart plastics" for Industry 4.0. Among the most important environmental investments are the "chainge" programme – recycling of used e-chains – and the participation in an enterprise that produces oil from plastic waste.



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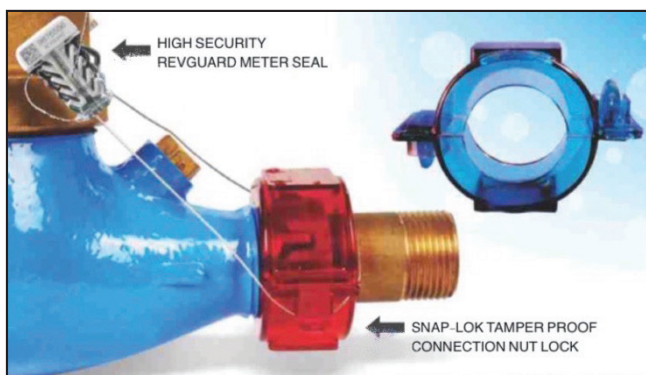
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Smart security seal to prevent utility meter tampering

Safcon Seals Pvt Ltd has developed unique smart security seal to protect utility meters from tampering to prevent the revenue loss to the utilities. The meter seal - designed for energy, water, and gas meters - provides high security to smart meters. The seal is provided in pre-locked condition having unique locking mechanism and do not have any scope for pre-tampering the seal before installation. Another common problem with the old meter seal is difficulty in reading seal number from the dark backgrounds. Safcon's smart security seal is provided with serial number on white background which enables easy to read installed seal number and prevent any possibility of error in reading. In addition, the seal is provided with DPM 2D data matrix barcode having seal number and utility's security ID to read seal number and security ID digitally by smartphone or barcode scanner. Encrypted secret code is provided on each seal to discourage duplicate fake seal and creating barrier to defeat the meter seal and prevent power theft. Smart security seal's unique robust locking mechanism provides highest protection to utility meters. Smart security seal is manufactured from especially formulated UV stabilised polycarbonate material and AISI 304/316 grade non-corrosive, non-magnetic stainless-steel wire. The seal can be deployed for 15-20 years without degradation from ultraviolet rays, moisture, rust, and changes in temperature. Smart security seal can easily be tracked by smartphone or barcode reader and reduce any chance of manual manipulation of records. Smart security seal is provided with DPM 2D data matrix barcode which is directly engraved on seal itself and enables foolproof reading, recording and verification of serial number with smartphone or handheld scanner. Combination of DPM barcode, embossed security ID, encrypted secret code makes it impossible for counterfeiters for replacing the original seals with fake/duplicate seals.



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Safcon Seals develops Snap-Lok security solution for water meters

Safcon Seals has developed security solution for water meter protection from theft. Combination of Snap-Lok water meter connection nut lock and RevGuard tamper resistant security seal is most effective water meter locking system to prevent unauthorised access by any means once installed. Transparent body of both nut lock and security seal provides clear signs of tampering. Both connection nut lock and security seal are customised with user security ID and unique serial numbering. The security seal is provided with DPM barcode. They are manufactured from especially formulated polycarbonate that is extremely brittle and

designed to break on tampering and/or attempt to remove. It's easy push-fit locking mechanism provides positive, secured and permanent locking. It is corrosion resistant and suitable for indoor or outdoor application.

Seven digit unique serial numbers provided on each nut lock and security seal. Locking device can be easily checked and recognised. Designed for single use and once removed cannot be re-used. Customer's security identification and/or codes are provided, which are permanent and cannot be manipulated. Resistant to accidental breakage, long term direct sunlight or rain water exposure, and can withstand High temperature. It is environment friendly and contains no lead.



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Electro Zavod offers tailored bulk material handling solutions

As the company celebrates its Golden Jubilee, Electro Zavod is gearing up to double its manufacturing capacity with focus on growth and innovation.



Electro Zavod factory

Electro Zavod (India) Pvt Ltd, a leading manufacturer of specialised machinery for the bulk material handling industry, is celebrating its remarkable 50th year of foundation this year.

Established in 1973, Electro Zavod today stands as the preferred supplier of a wide range of products that includes magnetic separators, cable reeling drums, vibrating screens, vibrating feeders, slip ring assemblies, lifting magnets, and industrial metal detectors to major end-users and EPCs operating across the country.

“Since our inception in 1973, Electro Zavod has been at the forefront of innovation, delivering cutting-edge solutions tailored to meet the diverse needs of the bulk material handling sector. From our humble beginnings as a local manufacturing startup, we have evolved into a nationally recognized player in India’s industrial landscape,” stated the company’s spokesperson.

Nestled in Kolkata (West Bengal), its manufacturing facility is equipped with state-of-the-art technology. The company’s USP lies in its ability to deliver tailored solutions that are robust, efficient, and reliable. With expertise spanning from in-house design to delivery, Electro Zavod ensures unparalleled quality and service.

In a significant milestone, Electro Zavod merged with Hi-Tech Systems & Services in 2022, further enhancing its capabilities and expanding its reach in India’s power and process industries. This strategic alliance has bolstered Electro Zavod’s position as a trusted provider of specialized equipment and engineering services.

Electro Zavod’s extensive portfolio includes: cable reeling drums and hose reeling drums; cable festoon systems; magnetic separators; lifting magnets; industrial metal detectors; slip ring assemblies; vibrating screens; and vibrating feeders among others. Its clientele spans across various sectors, including steel, sponge iron, cement, power generation, mining & metals, ports & docks, ceramic, fertilizer, defence, food, paper, sugar, and chemical industries.

Electro Zavod supplies tailor made solutions to clients like ABB, Adani, Aditya Birla Group, Atlas Copco, BEML, BHEL, Danieli, FL Smidth, GE, Gebr Pfeiffer, Humboldt Wedag, ISGEC, ITC, JSPL, JSW, JSL, L&T, Metso, McNally, NLC, NMDC, NTPC, Reliance, SAIL, Sandvik, Siemens, SMS, State Power Utilities, Takraf,



Cable reeling drum

ThyssenKrupp, Tata, Thermax, TRF, Ultratech, Vedanta, and many more.

As Electro Zavod celebrates its Golden Jubilee, the company is gearing up to double its manufacturing capacity with focus on growth and innovation. "As we commemorate our Golden Jubilee, we are delighted to announce the doubling of our manufacturing capacity, a testament to our commitment to growth and innovation. With our sights set on both Indian and international markets, we are poised to expand our footprint and establish Electro Zavod as a global leader in the bulk material handling industry. Partner with Electro Zavod for unparalleled expertise and solutions tailored to your specific needs," said the spokesperson.

Looking ahead, the company remains steadfast in its resolve to push boundaries, lead with innovation, and make a positive impact on industries worldwide. Together (with its customers), Electro Zavod continues to forge new paths and shape the future of material handling solutions.

SME

For details, contact Electro Zavod on Email: info@ElectroZavod.com, or visit www.ElectroZavod.com

(Communication provided by the management of the company)



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COMMUNICATION FEATURE

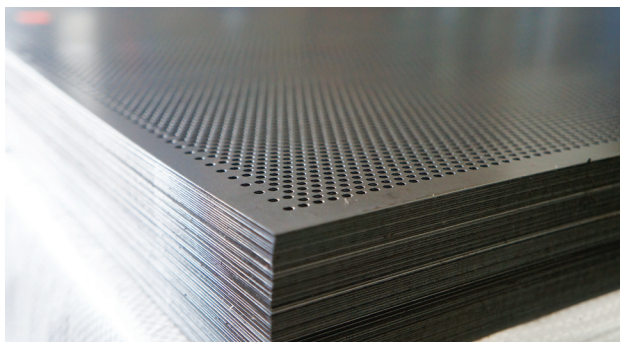
Diamond Metal Screens offers high-quality perforated sheets

Transform your projects with the ultimate blend of functionality and aesthetics using Diamond Metal Screens' premium perforated sheet metal. Crafted with precision and engineered for excellence, these perforated sheets offer unparalleled adaptability across a spectrum of industries.

Why choose Diamond Metal Screens PI?

Perforated sheets of Diamond Metal Screens (DMS) offers advantages like:

- ❑ **Customisation:** Tailored to the exact specifications, DMS perforated sheets come in various materials, hole patterns, and sizes, ensuring they meet the user's unique requirements.
- ❑ **Durability:** Built to withstand the rigors of demanding environments, this perforated sheet metal guarantees long-lasting performance, providing optimal structural integrity and corrosion resistance.
- ❑ **Enhanced ventilation:** Achieve superior airflow and ventilation control with DMS expertly perforated sheets, ideal for applications in HVAC systems, industrial machinery, and architectural designs.
- ❑ **Visual appeal:** Elevate the projects with visually striking designs enabled by DMS precision perforation techniques. From intricate patterns to sleek, modern aesthetics, this perforated sheet metal enhances both form and function.
- ❑ **Versatility:** Whether it's filtration, screening, sound absorption, or decorative applications, this perforated sheet metal offers limitless



Diamond Metal Screens

possibilities, empowering innovation without constraints.

Experience unrivalled quality at an affordable price

Backed by years of expertise and a commitment to excellence, Diamond Metal Screens prides itself on delivering top-tier perforated sheet metal solutions that exceed expectations. With unparalleled customer support and competitive pricing, partnering with DMS ensures the projects are executed with precision and efficiency.

SME

For details, contact Diamond Metal Screens, Belgaum (Karnataka, India) on Mob: +91 63647 22223 or email: sales@diamondscreens.com

(Communication provided by the management of the company)



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Oscar Equipments: Hydraulic Equipment & Projects

Hydraulic equipment – all types of cylinders, actuators, power packs and related accessories – are important components of machines and automation in industries. Incorporated in the year 1985, Oscar Equipments Pvt Ltd, an ISO 9001: 2008 certified company is a specialised manufacturer of hydraulic and pneumatic cylinders, rotary and linear actuators, electro-mechanical actuators and hydraulically operated equipment for various industrial and strategic applications. The company incorporates latest technological features that offer solutions for increasingly critical requirements based on customised and strategic applications of fluid power.

Oscar's backbone lies in its team of highly professional engineers with vast experience in design, development and manufacturing of hydraulic and pneumatic cylinders and equipment. With its highly dedicated workforce, the company caters to the needs of various steel plants, mines, railways, nuclear power plant and other heavy industries, earthmoving and construction equipment manufacturers besides special hi-tech projects of defence establishments, DRDO units and other strategic

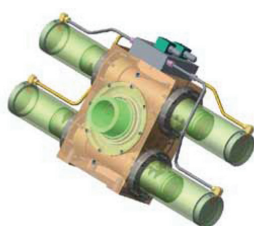


Customized Multi Stage Hydraulic Cylinders for Steel Mill Applications and other Heavy Industries.

applications. The key to Oscar capabilities is the ability to combine the state-of-the-art features as per customers' specifications along with most effective solutions. This expertise is derived from decades of

experience available with the Oscar team in design and development of various hydraulic products and allied special type equipment for fluid power applications.

The company is equipped with complete manufacturing facilities including 'dust free' assembly shop apart from automatic honing machines, CNC turning centres, grinding machines, special type welding machines, high pressure and low pressure testing facilities along with complete engineering, research and development facilities and well experienced team for after-sales service.



Hydraulic Rotary Actuators for High Torque applications.

Quality is the hallmark of Oscar and quality assurance is the top most priority. With the aid of modern equipments the company maintains rigid quality control system at every stage of production. It is an ideal partner for catering to various requirements of hydraulic/

pneumatic cylinders and hydraulic operated equipment for any application, any type and any standard. The product range includes: single stage/multi stage hydraulic cylinders, tie rod type standard/customised hydraulic cylinders, hydraulic rotary actuators, electro-mechanical actuators and hydraulic power packs.



Electro-Mechanical Actuators for Heavy Industrial Applications

The company also undertakes development of special cylinders and products. A few examples:

- ❑ For steel plants and heavy industrial applications – automatic gauge control (AGC) hydraulic capsule cylinders capsule cylinders having bore dia 1016 mm (40 inches) for plate mill application
- ❑ Automatic gauge control (AGC) hydraulic capsule cylinders capsule cylinders having bore dia 700 mm (28 inches) for cold rolling mill application
- ❑ Ladle lifting and tilting hydraulic cylinder having bore dia 500 mm bore with ceramic coated plunger for continuous casting shop
- ❑ Ladle lifting and tilting hydraulic cylinder having bore dia 600 mm bore for continuous casting shop
- ❑ Hydraulic cylinders for ladle lifting stand for continuous casting shop having bore dia up to 450 mm
- ❑ Development of special cylinders and products for steel plants and heavy industrial applications
- ❑ Lift and turn hydraulic cylinders for continuous casting shops having roll force cylinders for screw down mechanism of cold rolling mill having bore dia up to 480 mm



Hydraulic Power Packs



Ladle Lifting & Tilting Hydraulic Cylinder having Bore Dia 500 mm Bore with Ceramic Coated Plunger for Continuous Casting Shop.



Double Acting Hydraulic Cylinders fitted with Heat Resistant Bellow for Walking Beam Furnace application.



Manufacturing of Pilotless Target Aircraft (P.T.A.) Launcher including complete Hydraulic System and Controls. – Project Lakshya.

- ❑ Roll force cylinder with Kelk transducer for rolling mill application
- ❑ Telescoping hoist hydraulic cylinder having bore dia 480/420/360 mm with total stroke length 8100 mm for steel melting shop application
- ❑ Work roll balancing cylinder (top and bottom) for hot strip mill application
- ❑ Development of special cylinders and products for steel plants and heavy industrial applications, and
- ❑ Mud gun hydraulic cylinders for blast furnace applications.

Prestigious Projects

Oscar has executed a number of prestigious projects for strategic applications. A few examples include:

- ❑ Sarvatra Bridging System – Fabrication and supply of 3-stage pier leg assemblies including fabrication of base plate in RDG-40 aluminium alloy with synergy pulse MIG welding process for bridging system – Project Sarvatra

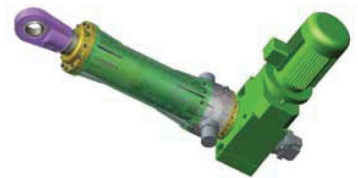


Double Acting Long Stroke Cylinder



Manufacturing of Jet Deflector Carrier Equipment and installation of the same on Tatra Chesis along with 30 MT Crane along with complete Hydraulic System

- ❑ Hydraulic System Launching Mechanism – Fabrication, integration, testing and supply of hydraulic system mounted on the wheeled vehicle Tatra and launching mechanism for 15-mtr span bridging system – Project Sarvatra
- ❑ Manufacturing of Pilotless Target Aircraft (PTA) launcher including complete hydraulic system and controls – Project Lakshya
- ❑ Manufacturing of Jet Deflector Carrier Equipment and installation of the same on Tatra chassis along with 30 MT crane along with complete hydraulic system
- ❑ Pick & Place PLC Type Manipulator– for shell forging unit for ministry of defence unit
- ❑ Electro-Mechanical Actuators for Multi-Barrel Rocket Launcher – Project Pinaka
- ❑ Electro-Mechanical Actuators for Surface to Air Missile Launcher – Project Aakash, and
- ❑ Electro-Mechanical Actuators for Cruise Missile Launcher – Project Prahar.



Electro- Mechanical Actuators for Multi- Barrel Rocket Launcher – Project Pinaka. Electro- Mechanical Actuators for Surface to Air Missile Launcher – Project Aakash. Electro- Mechanical Actuators for Cruise Missile Launcher – Project Prahar

SME

Oscar Equipments Pvt Ltd, West Bengal.
Tel: 033-24531059/1938.
Email: marketing@oscarequipments.com,
oepl1985@gmail.com

(Communication provided by the management of the company)

SINGLE STAGE, NEUTRAL DISPLACEMENT RELAY - JRV 062

JVS Electronics Pvt Ltd offers a wide range of single stage, neutral displacement relay - JRV 062.

Features:

- NDR is a voltage operated relay and get's sensing voltage from open delta secondary of potential transformer.
- Whenever there is a ground fault in one phase, the voltage in other two phases will rise and generate a sensing voltage which is continuously monitored in the relay.
- The Relay contacts are self reset type and indications are latched. The RESET button provided on the front of relay to clear these latched indications. The TEST button is provided to test the relay contacts for the trip and alarm circuits.
- Its applications include: Neutral Displacement Relay is used for protection of motors, generators and capacitor banks.

About the Company: JVS Electronics Pvt Ltd is an exporter, manufacturer and supplier of audio indicating instruments, visual indicating instruments, electrical indicating instruments, etc.

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Contact:

JVS Electronics Pvt Ltd, Bangalore
Mobile: 09448288863
Email: bangalore@jvselectronics.in



CNC POLYGON TURNING MACHINE - 2A

Brisk Tech Engineers offers a wide range of CNC polygon turning machine - 2A.

Features:

- Brisk machines are rigid in construction and high precision to provide a wide variety of machining needs.
- Gaining expertise over the decade it developed CNC Polygon turning machines and special-purpose machines that cater to the needs of various segments of the manufacturing industry.

About the Company: Brisk Tech Engineers was established in 2003. a design consulting firm developing products designed for various machine tools.

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Contact:

Brisk Tech Engineers, Bengaluru
Tel: 080-28364403
Mobile: 09448479855, 07892743816
Email: info@brisktechengineers.com
briskanand500@gmail.com



MANUAL LATHE CHUCKS

Schunk Intec India Pvt Ltd offers wide range of manual lathe chucks.

Features:

- Manually actuated manual lathe chucks with angled or straight-toothed jaw interfaces can be used for almost any type of machining. Due to their jaw quick-change system, the lathe chucks are extremely flexible and can be adapted to new clamping tasks very quickly. The SCHUNK manual lathe chucks can be used on lathes as well as on modern mill/turn centers.
- SCHUNK manual chucks can be combined with the largest range of standard chuck jaws with 1,200 models. Optimize set-up times with the jaw quick-change chuck: Change jaws in just 60 seconds.

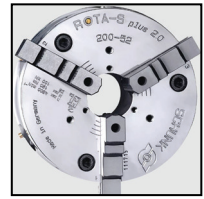
About the Company: Schunk Intec India is engaged in products distribution and supply of industrial automation systems, automation work holding, tool holding, heat shrink tool holder, etc.

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Contact:

Schunk Intec India Pvt Ltd, Bangalore
Tel: 080-40538999
Email: rakhi.singh@in.schunk.com
info@in.schunk.com



WIRE HARNESS

Miracle Electronic Devices Pvt Ltd offers a wide range of wire harness.

Features:

- As a leading looms manufacturer in India, we exemplify the commitment to excellence in providing cutting-edge wire harness solutions that meet the highest industry standards.
- These harnesses cater to various applications such as single & discrete EMI cables, EMI-shielded cable harnesses, wiring harness multiwire, flat cable harness assembly, RF cable assembly, airborne looms, ribbon cable harness assembly, power cable, and military looms assembly.

About the Company: Miracle Electronics is a renowned transformer manufacturer in India, engaged in manufacturing power transformers, toroidal transformers, EI transformers, SMPS transformers, medical isolation transformers. Also manufacture the finest quality wire & cable harness, electronic box assemblies, etc.

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Contact:

Miracle Electronic Devices Pvt Ltd
Bangalore
Tel: 080-28362750
Email: sales@miracle.net.in



FLUORESCENT PIGMENTS FOR TRAFFIC CONE

Aron Universal Limited offers a wide range of fluorescent pigments for traffic cone.



Features:

- This Rubber Paint is extensively used for colouring steel structural and concrete surfaces of chemical & fertilizer industries.
- These products are available in various colours and shades to suit varied client's requirement.
- Its features include: safe to use; non-toxic nature; long shelf life.

About the Company: Aron Universal Limited was established in the year 1974 and is headquartered at Bengaluru, India. It is India's leading manufacturer and exporter of vivid daylight Fluorescent pigments, Fluorescent Toners, Fluorescent ink bases, Fluorescent dispersions and pigment dispersions through relentless research and development.

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Contact:

Aron Universal Limited, Bangalore
Tel: 080-27825331
Mobile: 09791427847
Email: enquiry@aronuniversal.in

PROJECTILE TRANSFER ARM MOTOR

Iyappan Engineering Industries Private Limited offers a wide range of projectile transfer arm motor.



Features:

- Application across industries. Primary functionality being loading and unloading.
- Power industries to open or close the valves.
- Industries/Automation - Material handling, to turn or Oscillate, for loading and unloading.
- Automobiles - Cement mixer & Garbage trucks - loading, and unloading. In food industries Mix or stir.
- To load and unload the arms into the firing barrel
- Capability to develop and manufacture as per customer drawing & samples or with required spec.

About the Company: Iyappan Engineering Industries Pvt Ltd is a 50 year old precision manufacturing company in Chennai, India. With expertise in manufacturing world-class precision components and assemblies from drawing, through Reverse engineering, as a new development for various industry verticals across India.

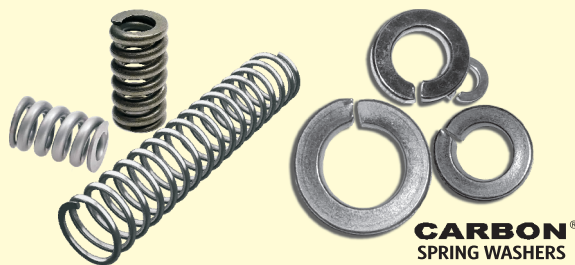
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Contact:

Iyappan Engineering Industries Pvt Ltd
Ambattur, Chennai
Tel: 044-42189424 Mobile: 09840359690
Email: uma@iyappanengg.com

INDUSTRIAL SPRINGS & SPRING WASHERS



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All types of springs for different uses available in Spring Steel and in SS 304.

Spring Washers available in sizes from 2.5 mm. to 50 mm.

Special combi-size washers are also available in all sizes.

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Khanwalkar Industries

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Tel. : 0731 4046226, Cell. : 09993555087, 75665 05559
e-mail : khanwalkar08@gmail.com
www.khanwalkarindustries.com

GROUND SPIRAL BEVEL GEAR

Bevel Gears (India) Pvt Ltd offers a wide range of ground spiral bevel gear.



Features:

- Ground spiral bevel gears are used for demanding applications with the highest accuracies.
- Its benefits include lower noise, higher rpm capabilities, improved surface finish, and lower vibrations.
- It provides solutions for users of ground spiral bevels, spiral bevels, spiral, straight, zerol, angular and hypoid gears. Contact us with your requirements. Its range is: 25 – 800 mm (1"-32").

About the Company: Bevel Gears (India) Pvt Ltd is a part of the Jamal Group of Companies. Their manufacturing facilities comprise of Bevel Gears India (BGI) for industrial gears and Karnataka Machine Tools (KMT) for their exports. They are an active AGMA member and have been exporting for decades to several countries.

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Contact:

Bevel Gears (India) Pvt Ltd, Bangalore
Mobile: 09606023391, 09606023392
Email: jamalgrp@bevelgearsindia.com, akthar.s@bevelgearsindia.com

QUICK RELEASE COUPLERS

Vijay Air Control offers a wide range of quick release couplers -New Generation = ST Series.

Features:

- Its valve less construction drastically saves pressure loss and achieves high flow rate.
- It is suitable for high viscosity fluids (such as grease).
- Available in various standard body materials, sizes and end configurations to cope with diversified and operating situations.

About the Company: Vijay Air Control is a one large workplace where work is done and then put on the market in the form of products and services. This work must be benefit if it is to hold its own in the face of competition. Only company based on sound economic, technical and organisation principles and which is in a position to have a say in future developments is a match for the challenges presented by the market and competition.

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Contact:

*Vijay Air Control, Bengaluru
Tel: 080-23148871, 23141136
Mobile: 08951101436, 09880652082
Email: saivacblr@vacpneumatic.co.in*



CNC COMBO POLYGON LATHE

Brisk Tech Engineers offers a wide range of CNC polygon lathe.

Features:

- A CNC combo polygon lathe machine is a unique integration of a CNC polygon machine with basic CNC lathe operation.
- Turning, centring, grooving, drilling, tapping & polygon milling cutting are carried out at the same machine.

About the Company: Brisk Tech Engineers was established in 2003. a design consulting firm developing products designed for various machine tools.

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Contact:

*Brisk Tech Engineers, Bengaluru
Tel: 080-28364403
Mobile: 09448479855, 07892743816
Email: info@brisktechengineers.com, briskanand500@gmail.com*



EARTH LEAKAGE RELAY - JRC 173

JVS Electronics Pvt Ltd offers a wide range of earth leakage relay (setting range 0.5 to 8.0A) JRC 173.

Features:

- The relay measures the earth leakage current from the CBCT and if it exceeds the threshold, it extends a trip signal after the operating time.
- Its application include: The relay used for protection of LV/MV distribution systems requiring very high sensitivity for earth faults.
- Its features include: solid state reliability; built in test facility; very low primary current sensing; core balance current transformer; supplied along with the unit.

About the Company: JVS Electronics Pvt Ltd is an exporter, manufacturer and supplier of audio indicating instruments, visual indicating

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instruments, electrical indicating instruments, etc.

Contact:

*JVS Electronics Pvt Ltd, Bangalore
Mobile: 09448288863
Email: bangalore@jvselectronics.in*

COMBINATION TIMERS

Electronic Automation Pvt Ltd offers a wide range of combination timers.

Features:

- It is independently programmable - 8 relays, 8 On-Off timings programmable for each relays (overall 64 combination).
- Hold/restart, single/repeat cycle, time inhibit/pause -user selectable.
- Non potential pulse start signal for timer initiation.
- Its application used in: air dryers, nitrogen and other gas plants, process industries and many more.

About the Company: EAPL is one of the earliest establishments in Bangalore to be certified under ISO 9001:2008 by UL (Underwriters Laboratory, USA) and has currently upgraded to ISO 9001:2015. The organization has also adopted the SAP B1 as a part of enterprise resource management and fact-based decision making.

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Contact:

*Electronic Automation Pvt Ltd
Bangalore
Tel: 080-42802345
Email: info@eaplindiamail.com*



POWER CONVERSION SYSTEMS

POM Systems & Services Pvt Ltd offers a wide range of PCS power conversion systems energy storage.

Features:

- PCS power conversion system energy storage is a multi-functional AC-DC converter by offering both basic bidirectional power converters factions of PCS power and several optional modules which could offer on/off grid switch and renewable energy access.
- Ranging from 50kW to 250kW, the PCS converter well fits the requirement of battery energy storage in commercial and industrial applications. Both energy storage PCS power conversion system and Lithium-ion battery system are made by POM Power in house.

About the Company: POM Systems & Services Pvt Ltd, is a reputed and leading company with over 25 years of experience in the field of Power Electronics.



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Contact:

POM Systems & Services Pvt Ltd
Bangalore

Tel: 080-28372296 Mobile: 09844034106

Email: pompower@pompower.in

AIR AND DIRT SEPARATORS

Precision Storage Vessels Pvt Ltd offers a wide range of air and dirt separators.

Features:

- Precision air and dirt separator are designed to eliminate air and separate debris associated with any hydronic system.
- Precision air and dirt separator removes entrained air bubbles and dirt particles in the system. Small Air bubble coalesce and form larger air bubbles which rise to the top of the vessel and vented through the air vent.
- In case of coalescing medium to be cleaned then top removable cover to be removed for access.

About the Company: Precision Storage Vessels Pvt Ltd is a highly specialized storage tank manufacturer concentrating in hot water storage tanks, electric hot water heaters, indirect heated water heaters, oil or gas fired stand alone water heaters, chilled water buffer tanks, and other products in pressure vessels category.



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Contact:

Precision Storage Vessels Pvt Ltd
Kanyakumari

Tel: 04651-237730

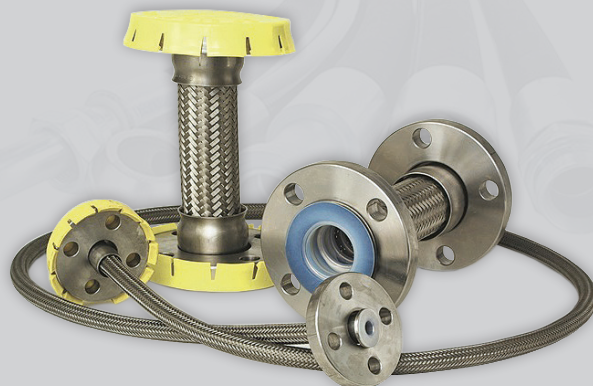
Mobile: 07373799769

Email: manuel@psvpl.com



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E-mail: ceedee@cdhose.com , URL: www.cdhose.com

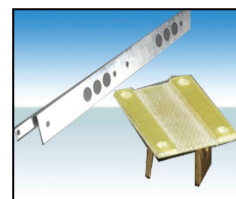
CONNECTORS

G R Enterprises offers a wide range of connectors.

Features:

- These flexible aluminum connectors available with us assure the clients of longer working life.
- Durable quality and available in superior finish, these aluminum connectors & electrical connectors manufactured by us ensure 100% leak proof functioning. As far as the application areas are concerned these aluminum connectors are further catered to automobile and engineering industries.
- The customization facility is also made accessible. Before the final dispatch we test the entire range on varied parameters to make sure that the offered range are as per the international standards.

About the Company: G R Enterprises are leading aluminum connectors supplier & electrical connectors manufacturer, where our wide gamut of is manufactured & exported from high quality aluminum. **Contact:**
G R Enterprises, Bangalore
Tel: 080-23146701
Mobile: 09845338178
Email: info@grenterprisesindia.com



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Client	Page No.	Client	Page No.
A		K	
Aron Universal Ltd	11	Khanwalkar Industries	43
B		M	
Brisktech Engineers	17	MACHT Technologies Pvt Ltd	9
C		O	
Cee Dee industries	45	Oscar Equipments Pvt Ltd	Cover II
D		P	
Diamond Metal Screens Pvt Ltd	13	POM Systems & Services Pvt Ltd	Cover III
E		Precision Storage Vessels Pvt Ltd	19
Electro Zavod India Pvt Ltd	Cover IV	S	
Electronic Automation Pvt Ltd	5	Safcon Seals Pvt Ltd	3
I		Sparr Electronics Ltd	21
Iyappan Engineering Industries Pvt Ltd	15	Sphoorti Machine Tools Pvt Ltd	7

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- ♦ EV Fast Chargers 30kw to 360kw
- ♦ Smart Micro Data Centers

Applications :

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PMP

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Our robust portfolio. Powered by global technology partnerships.



Magnetic Separators



Slip Ring Assemblies



Vibrating Screen & Feeders



Lifting Magnets



Cable Reeling Drums



Metal Detectors

About Electro Zavod - A Hi-Tech Company

Electro Zavod is a leading manufacturer in the Bulk Material Handling Industry for more than 50 years with a reputation for exceptional quality, durability & performance. It is now a part of Hi-Tech Systems & Services Ltd, a specialised solution provider to the Power and Process industries.

Our Clients



To know more, contact us today

Electro Zavod (India) Pvt. Ltd.

Regd. office : White House, 119 Park Street, Kolkata 700 016, India

Works : Sankrail Industrial Park, Dhulagarh, Howrah 711 302, India

☎ +91 9051 700070 (WhatsApp only) ✉ info@electrozavod.com 🌐 www.electrozavod.com



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