Industry Outlook
GEAR MANUFACTURERS
THEINDUSTRYOUTLOOK.COM
MAY, 2021

Vantage Point

MUKULSINGHAL,
HEAD,
DIGITAL AND IT

SURESH VEKARIA,
MANAGING DIRECTOR

Synnova

Gears & Transmissions

SYNERGIZING TALENTS, INNOVATING FUTURE

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for CNC Machine

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DOWN DRAFT TABLES

Down draft table for manual Welding/Grinding/Buffing/Polishing Operation

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EDITOR'S NOTE

Steering the Mechanical Power

Gears have been enabling industrial machinery to perform as desired by transmitting and redirecting the mechanical power. All the automation initiatives are being realized by the essential contribution of gears. Apart from automation, it is also the driver of operational procedures at large. As the requirement for high-quality and uninterrupted production process arises, manufacturers in various industries are looking for premium quality gears. Premium quality gears with robust wear performance and enhanced surface quality continue to gain significant demand in the medical, automotive, aerospace, agriculture, paper and pulp, mining industry. A shift in energy-efficient units such as seven and eight-speed automatic transmissions and fast-growing markets like wind and solar energy are also boosting global gear sales as they play an important role in minimizing production times to ensure competitiveness. Manufacturers in the industrial gear market are increasing their production capabilities in worm gears that are being extensively used to accomplish large speed reduction ratio. Since industrial gears are being used in routine production activities worldwide, the industrial gear market is expected to surpass the revenue of USD 111.4 Bn by the end of 2030.

One of the major sectors witnessing high usage of gears is the automotive industry which is growing unimpeded with increased production volume of passenger cars and commercial vehicles in recent years. In addition, increasing installation of mechanized and automated parts in automobiles, advancements in technology, and demand for improved driving experience in terms of smooth gear shift and enhanced acceleration are driving the growth of the automotive gears industry. Several players have ventured into the market to harness the potential of this sector.

After studying this industry segment in-depth, we have come up with the list of Top 10 Gear Manufacturers who have excelled in this field with their innovative approach. Having proven their dedication to quality and delivery in order to meet the customer expectations in an end-to-end manner, these companies have stood out from the crowd.

We look forward to receiving your feedback and suggestions.

Sudhakar Singh

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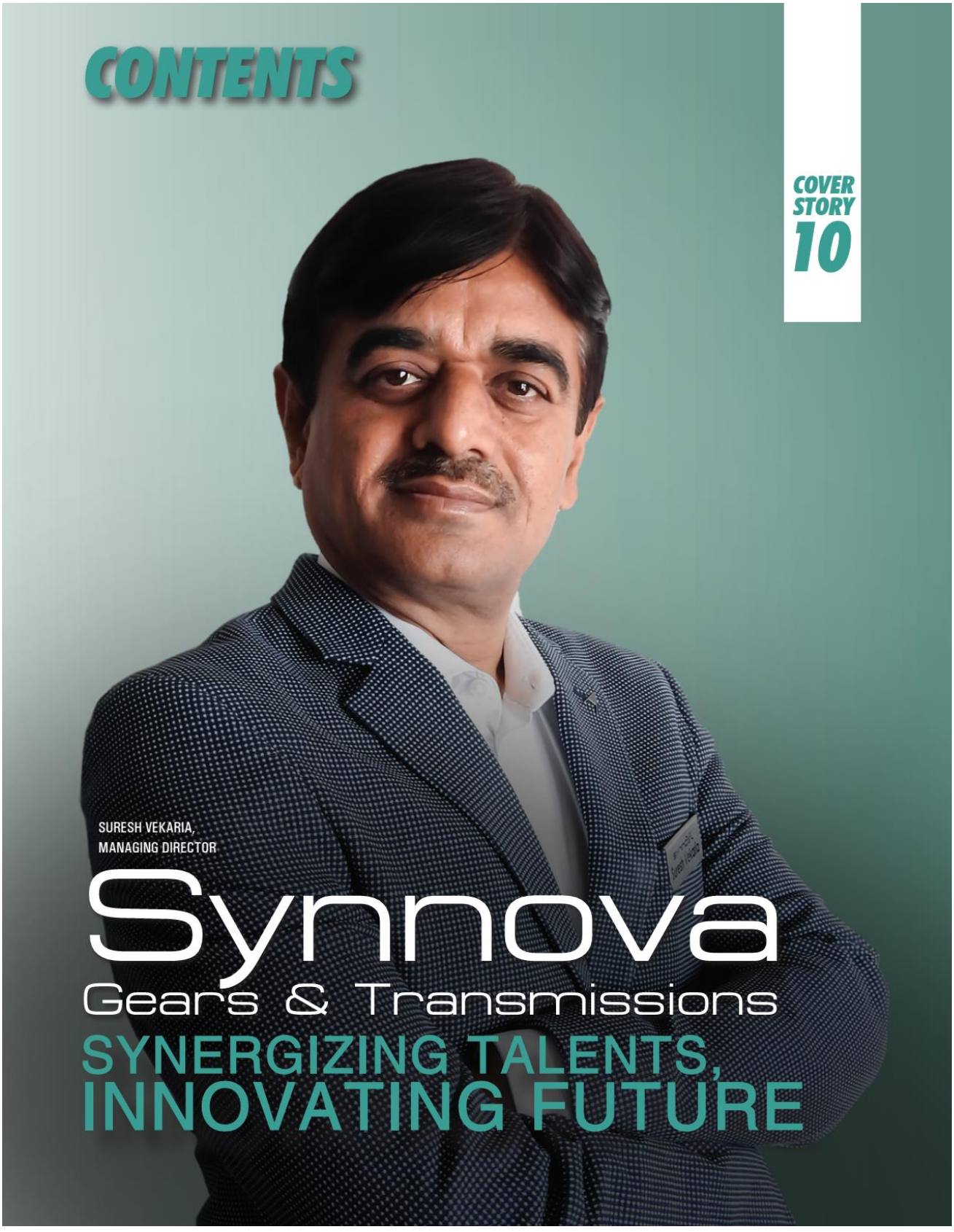

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Gears & Transmissions
SYNERGIZING TALENTS, INNOVATING FUTURE

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SHIFTING IT GEARS AND PRIORITIES IN 2021

By MukulSinghal, Head – Digital and IT

Covid-19 brought turbulence in the laid plans for respective industries and forced us in the degree of urgency to redefine our strategies for business continuity. Businesses observed that survival of the fittest is the ship that will sail them through these unprecedented times. Technology has played the most crucial role across sectors for enabling an ecosystem for business operation continuity.A boom in digital transformation across industries was observed, bringing opportunities for the industry and a mantra of Pivot or Perish that made businesses move beyond old-school brick-and-mortar presence online.

According to a NASSCOM report, Digital transformation deals have seen a 30% jump, 80% jump in cloud spending, and a 15% increase in customer experience have been witnessed since the pandemic.Organizations across have accelerated their digital transformation journey, adopting newer technologies to meet customer demand and make their operation nimbler and more resilient. Hence, there is a thriving towards revisiting the priorities and drive towards new plans in the next 12-18 months and beyond, with Trust, Agility, Talent, and Innovation being the critical pillars for being competitive in the new normal.

HYPER AUTOMATION WAVE AMONG ENTERPRISES

Enterprises are witnessing a Hyper automation wave as they are focusing on maximizing the potential of automation to drive digital acceleration, increase resilience, enable scale, cut costs and reduce organizational debt which includes technical, process, data, architecture & security. COVID-19 safety precautions that support remote operations with contactless interactions, human safety in dangerous environments, and other recent developments like increasing tariffs and rising labor costs are the response for accelerated automation.

Artificial Intelligence (AI) and Robotic Process Automation (RPA), and other automation technologies like Machine Learning are automating the business and IT processes, helping in better prediction and decision-making. Automation has changed the way we work and enhances efficiency, bring digital operational excellence and resilience.

MukulSinghal,
Head – Digital and IT, Birlasoft

ACCELERATE TRANSFORMATIONS THROUGH CLOUD PLATFORMS

Enterprises on their digitalization journey are using emerging technologies like AI, ML, IoT, RPA, and special emphasis on cloud adoption due to its ability to accelerate the digital shift. According to IDC, 64% of Indian firms are expected to adopt cloud computing amid the pandemic to cater to the increased need for remote working capabilities. While enterprises were already moving to the cloud, the pandemic worked as a catalyst for cloud adoption. The adoption of cloud helped organizations move online and make work-from-home a success. It enables

the IT delivery function to be agile by cutting provisioning time, reducing infrastructure spend by having a mechanism to use it optimally and facilitating system rationalization & modernization. Cloud adoption reduces disruption risk and provides scalability to enterprises.

> AS HYBRID WORK EMERGES AS A PREFERRED SET-UP, BUSINESSES NEED TO REINVENT THEMSELVES WITH THE WORKFORCE FRONT OF MIND

NEED OF A ZERO TRUST FRAMEWORK

In a hyper-digital and largely contactless world, 'Trust' will be the core currency of the next normal and will be the key factor for decision making. A trusted environment needs be built in which sensitive data can be processed or analysed in work from anywhere, giving clients a feeling that their data is secure. Businesses are re-visiting IT priorities that need to be modified for the new hybrid work environment and address increasing cybersecurity concerns by implementing zero trust security architectures. In a trend wherein most assets and devices are now located outside traditional physical and logical security parameters, enabling a cybersecurity mesh in enterprises for scalable and reliable controls is a priority for customer satisfaction on critical data security. A zero-trust network access, multifactor authentication etc. have been implemented by enterprises that offer remote access.

CREATING A DIGITAL WORKPLACE

As hybrid work emerges as a preferred set-up, businesses need to reinvent themselves with the workforce front of mind. A digital workforce and IT operations need to be rebuilt to support a new work model that allows employees to operate from anywhere and support their customers. According to Gartner, the model for anywhere operations is "digital first, remote first". Infrastructure, policies, practices will require a change to provide a seamless and scalable digital experience. In a future of work without boundaries, employees will expect a safe, productive, and seamless experience that satisfies personal and professional needs wherever work happens. As we enter the golden age of the human-centric approach of work, companies will need to rethink how they shape work patterns, while new ways of working will need to be adapted and reinvented to meet employee preferences. Digital skilling has become an integral part of IT companies' overall business strategy, and talent development must be our national priority. The OSP reform will provide the industry with an epic boost to hybrid work and significantly expand access to the talent base.

India today, is at an exciting inflection point where technology is redefining business models. We are at a crucial intersection, where humankind, businesses and technology can create a better and productive world. With the ingredients already in place since the start of 2020 – people-centric innovation, trust-based collaboration, accelerated go-to-market strategies, undying talent focus, and adaptability to hybrid work models are essential. While organizations continue to respond to the crisis and explore new ways to operate and drive growth, the decade will emerge an accelerated techade ushering in A NEW WORLD AND A VIRTUAL FUTURE! In

SYNNOVATING THE AUTOMOTIVE GEAR MARKET

Core Values

- Empowerment Culture
- Responsive & Result oriented
- Value Creation
- Continuous Improvement

Core Purpose

To provide innovative Solutions by synergizing Talent for everlasting customer success

B.H.A.G.

To provide Best in Class Quality of Gears to Customers & become 1500 Cr. Company by the Year 2030

Industry Outlook TOP 10 GEAR MANUFACTURERS - 2021

Synnova
Gears & Transmissions

SYNERGIZING TALENTS, INNOVATING FUTURE

By Mary Janifha Evangeline X

Significance of gears in automotive manufacturing industry is paramount. As a matter of fact, there is apparently no other critical component to the performance of an automobile than its transmission, whether automatic or manual. Owing to their high usage in the differential systems of vehicles, automotive gears find major applications across functions. Other factors fuelling the growth of this market include the surge in demand for passenger cars and light commercial vehicles from developing economies, due to the increase in per capita income, standard of living, rapid urbanization, and growing consumer base.

The automotive industry is growing at a significant rate, which acts as a major growth driver for the automotive gears' market. Therefore, the automotive gears market is expected to witness considerable growth in this category in the coming years. According to a recent report, the global automotive gears market is estimated to reach USD 38.32 billion by 2023, registering a CAGR of over 6 percent during the forecast period. Increasing vehicle production and sales, increasing installation of automated parts in automobiles, growing technological advancements, and ongoing industrialization are some of the major factors driving the automotive gears segment. Other factors include the rise in vehicle production, enhanced driving experience in terms of smooth gear shifting and improved acceleration, and surge in demand for low carbon footprint technologies.

Enhancing the innovative ability to optimise the costs and augmenting the customer delivered value by amalgamating the manufacturing synergy, financial synergy and marketing synergy are the most important levers to increase profitability and growth. For Synnova, this amalgamation of innovation and synergy is synnovation. The expertise, experience and excellence of the team Synnova has established Synnova as one of the top-10 gear manufacturers in the industry.

However, the rapid growth of the electric industry is anticipated to hinder the growth of the automotive gears' market. The penetration of electric vehicles is low at present, constituting only a fraction of the total vehicle sales.

The Asia Pacific is expected to be the largest market for automotive gears over the forecast period. The automotive gears in the APAC region are majorly fuelled by the increasing demand for vehicles used for personal transportation. The automotive gears are broadly classified into two types. While automotive gears can be manufactured from a wide range of materials using metallic and non-metallic materials, the material selection for manufacturing these products is based on factors such as reliability, precision, load capacity, and durability. Customers look for quality gears and shafts that would not only meet their requirements but also help in increasing efficiency, fit their budgets, and cost-effectivesolutions that meet global standards.

THIS IS WHERE RAJKOT-BASED SYNNOVA GEARS & TRANSMISSIONS IS WORTHY OF ACKNOWLEDGMENT.

Synnova offers quality gears and shafts for farm equipment, automotive and heavy industries. Synnova manufactures a complete range of transmission products for tractors, trucks, off-highway vehicles, windmills, industrial applications, and components for these vehicles right from the engine to wheel, hubs, shafts, etc.

THE WINNING EDGE

Synnova's unflinching commitment to excel by achieving customer delight has pegged it many accolades and recognitions. The Company has also been awarded 16949 & ISO 9001:2008 certifications by IATF.

Its product development team has developed more than 1215 gears during last 10 years and has robust development pipeline to meet ever-demanding customer needs.

STATE-OF-THE-ART MANUFACTURING FACILITY

Spread across an area of around 22000 square meters and coupled with cutting-edge technical expertise, the Synnova state-of-the-art manufacturing facility provides quality products and cost-effective solutions benchmarked with the global standards. Formed mainly with two positive indicators of success – 'Synergy and Innovation', Synnova Gears & Transmissions possesses Innovation and customization at the heart of every product and service it delivers.

EQUIPPED WITH THE RIGHT KNOW-HOW AND RIGHT QUALITY OF EQUIPMENT

The OEM Customers today expect system and quality management of the equipment, which are well equipped at Synnova with the right know-how and right quality of equipment. By leveraging its rich repertoire of experience, best technology, and skill sets, Synnova offers products and services that not only meet the clients' specific requirements but also the clients' budget as well without compromising on quality. Be it any gear design for any industry, Synnova Gears & Transmissions delivers the best gear at the right time and this is one of the core competencies that differentiate the company from the other players in this landscape. Other factors such as timely delivery, impeccable service, in-depth understanding of operations, value engineering, & value analysis, customization capabilities are also some of the differentiating factors that make the company stand out from the crowd.

Synnova's product solutions are supplied to both Indian and international companies for automotive, farm

> WE ARE ONE OF THE FASTEST-GROWING COMPANIES IN OUR SEGMENT OWING TO CORE EDGES WHICH ARE SHARPER COMPARED TO OUR COMPETITORS, ATTRACTING MANY OEM BUSINESSES IN OUR PORTFOLIO. WE STARTED IN 2010-11 WITH A SMALL TEAM OF 40 PEOPLE AND TODAY, WE HAVE 1000 PEOPLE STRENGTH. WE RECEIVED THE 'INDIA SME 100 AWARDS 2020' FROM THE GOVERNMENT OF INDIA
>
> SURESH VEKARIA, MANAGING DIRECTOR

equipment, and several other industrial applications. Some of the key industries the company caters to include Heavy Industries, Earthmoving Equipment, Wind Energy, Construction, Plastic and Sugar Industries.

TIE-UPS WITH LEADING COMPANIES ACROSS THE WORLD

Some of the factors that facilitate in manufacturing of high-quality products and services include comprehensive facilities, advanced technologies, experienced and dynamic management, complemented by world-class infrastructure. Keeping pace with fast-changing technology, Synnova Gears & Transmissions has tied up with leading companies across the world to develop world-class infrastructure and become a business leader in the gear manufacturing market.

The Synnova facility comprises globally benchmarked divisions covering the entire spectrum right from product development to dispatch, which enables the company to provide accelerated development plus services, such as reverse engineering to aid indigenization programs.

AN EMPLOYER OF CHOICE

The Company presently employs 950 employees and believes in empowering women employees in all its functions. Synnova's HSE policy has been designed to attract best talent and includes essential facilities like staff buses, employee canteen & recreation, ambulance, health benefits, insurance cover, PF etc.

ENERGIZED TALENT, CUTTING-EDGE TECHNOLOGY

From design to delivery, quality enhancement to cost reduction, Synnova brings together energized talent and cutting-edge technology to provide unmatched value.

"We believe in pursuing excellence at all levels. Hence, we invest in R&D and upgrade our product & process

efficiencies by implementing practices that align with the highest International standards. Our team is our driving force. We bring together the best-in-trade talents with experience in varied fields such as heat treatment, zinc plating, heavy engineering, material technology, and material sourcing. Guided by industry experts who have led various top gear organizations and leveraging the knowledge pool, we aim to provide gear solutions across geographies" affirms Suresh Vekaria.

THE ROAD AHEAD

Having carved a niche for itself in the Gears manufacturing segment, Synnova is currently working on a few core sharp edges such as the best in class heat treatment, best and fast product development, rebuilding of machines, fast and responsive service and system management.

Moving ahead, the company aims to achieve a turnover of Rs 1500 Crore in the next 10 years and has invested in a 16-acre land area additionally for expanding its manufacturing facility. Synnova is also in the process of establishing tie-ups with European and American companies for product manufacturing suitable for electrical cars as it seems to be the future in automotive.

GEARS: DRIVING THE TRAIN OF MECHANICAL POWER

Transfer of mechanical power is the rudimentary requirement for most of the industrial machinery today. Gears play an important role in enabling the same by making efficient use of power and directing it purposefully to the right part of the machinery. With advancement in the usage of right material and design, the load carrying capacity and endurance of gears has increased over time.

This has enabled manufacturers to keep the factory running for a long period of time with minimal repair and maintenance. The primary factors that define the longevity of industrial gears are dimensioning and lubrication. Only the right dimensioning and lubrication can render the desired long life to the gears.

If we look at the application of industrial gears, there are a host of industries which are reaping benefits out of its usage in the machinery being operated. Its applications in heavy industries and manufacturing industries are manifold and all of them can be attributed to the capability of industrial gears to reduce mechanical work in the respective operations.

Gears have an inherent role to play in industrial automation. For any automation system to work, the gears have to conduct the actual maneuver. No matter how intricate and clearly laid out are the algorithms of the software system, when it comes to execution, it is the gears that carry the load.

SIGNIFICANCE OF DESIGN AND LUBRICATION

As the end-use industries rise, industrial automation has picked up pace globally and it is going to boost the growth the industrial gear market in the near future. Owing to the increasing use of gears in the routine production activities across the world, the industrial gear market is expected to become worth US$ 111.4 billion in revenue by the end of year 2030.

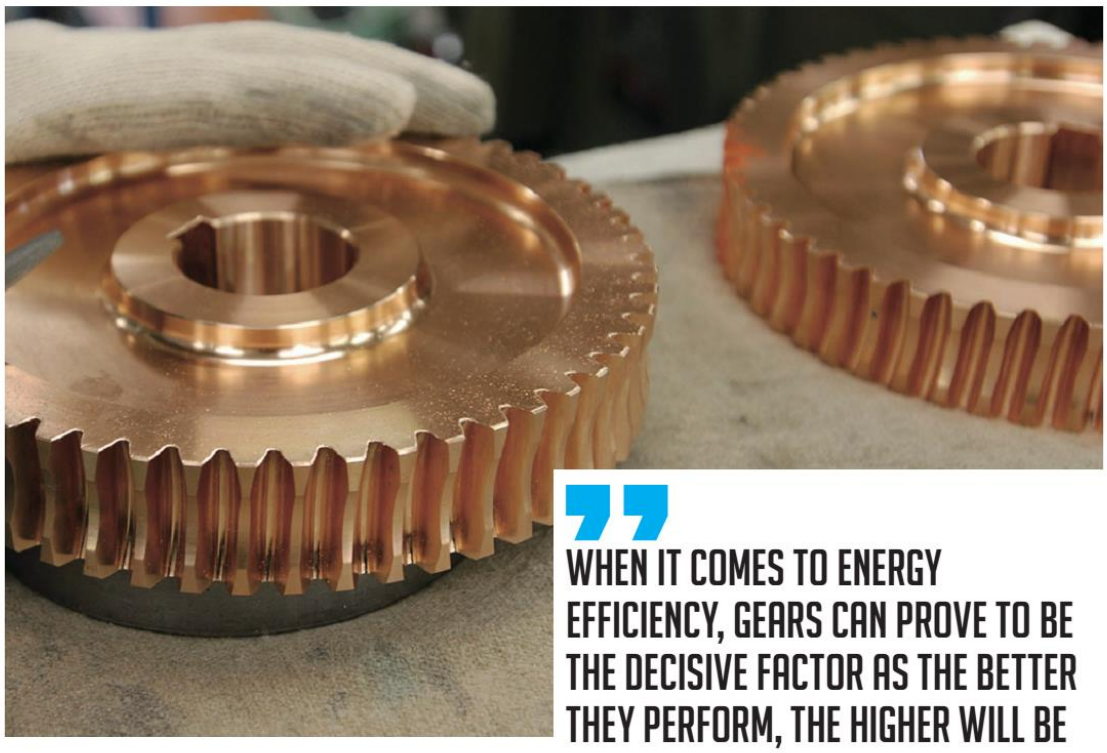
Major demand is coming from the Asia Pacific region because of the booming automotive market in the region which is creating a need for efficient drive trains and fuel saving engines. To the core of operation of drive trains lie the industrial gears which work like the integral cog shaping them up and enabling their proper functioning.

When it comes to energy efficiency, gears can prove to be the decisive factor as the better they perform, the higher will be the fuel efficiency. Their performance can be improved by state-of-the-art design and lubrication techniques.

A similar trend can be seen in the area of construction wherein the mushrooming infrastructure programs are causing the demand for construction equipment to grow. Industrial gears have extensive usage in the manufacturing process of construction equipment and as a result, the growth is being cascaded from construction to industrial gears market.

In addition, there are other areas witnessing high demand for gears and they are mining, industrial machinery, power plants, and oilfields. The energy sector which is quite upbeat about its growth in the near future and rightly so is going to open new avenues for industrial gear applications.

Businesses have already started harnessing the market potential in the energy sector. One of the most conspicuous applications of industrial gears in the energy segment is in the segment of renewable. Wind turbines and hydro



> WHEN IT COMES TO ENERGY EFFICIENCY, GEARS CAN PROVE TO BE THE DECISIVE FACTOR AS THE BETTER THEY PERFORM, THE HIGHER WILL BE THE FUEL EFFICIENCY

turbines use gearboxes to transmit the absorbed kinetic energy forward to the generator for producing electricity. Thus, it is the gears that are enabling us to make use of the renewable energy sourced from wind and water.

"Gear manufacturing market in India is growing because of Make in India focus. Many OEMs originally sourcing gear and transmission product have started to localize the same in India and are getting it done from Indian manufacturers. However, the challenge that remains is that Indian gear manufacturers have to achieve those high expectations in terms of quality requirements for OEMs," says Suresh Vekaria, Managing Director, Synnova Gears & Transmissions.

ADDRESSING THE CHALLENGE OF DILAPIDATION

As effective as they are, industrial gears like every piece of machinery are not immune to wear and tear. Long term usage of gears can cause them to break or get deformed, making them unfit to be used further. And the most important apprehension is that in terms of operation of the machinery, there is usually no indication of a fault until the complete breakdown happens.

In such case, continuous maintenance and quality check of industrial gears becomes extremely important, ignoring which can not only disrupt operations but prove to be fatal. The primary reasons for failure of gears are design errors, manufacturing faults, repetitive stresses because of improper balancing of axial and radial load, and degrading of lubricant properties.

In order to address the failures, new types of gears are being made and better lubrication is being strived for. Right from spur gears and helical gears, the industrial gears have a come a long way with new types being produced such as double helical gear, herringbone gear, bevel gear, and hypoid gear for varied applications. Manufacturers are increasingly producing more and more worm gears that are proving to be effective in achieving large speed reduction ratio.

Owing to their multifarious benefits, gears of all types are finding their application across the manufacturing and energy spectrums which are going to be the lifeblood of prosperity and sustainability. In

Industry Outlook TOP 10

GEAR MANUFACTURERS - 2021

Gear manufacturing refers to the production of gears, which may be done in a variety of ways, including casting, extrusion, forging, blanking, and powder metallurgy. Gear machining is commonly used to achieve the gear's final form, surface finish, and proportions. Blanking operations are the first operations that manufacture a semi-finished component ready for machining, and the gear blank is the first product in the machining process.

Gear Technology Market was worth 127.81 billion dollars in 2018, and is forecasted to expand at a 5.9 percent CAGR from 2019 to 2026, reaching 200.10 billion dollars. Increasing vehicle production, continuous economic growth in developed countries, and increased demand for manufacturing output are driving the Gear Technology Market. The Global Gear Technology Business study offers a comprehensive analysis of the industry. The study includes a detailed overview of the market's main segments, dynamics, drivers, constraints, competitive environment, and other important factors.

Mechanisms of gears help in mesh together with teeth and are very important for transmitting motion from one shaft to another. By definition, gears are known for important items – radius and number of teeth, which are mounted or connected to other parts with shaft or base.

Industry Outlook in this issue presents a list of "Top 10 Gear Manufacturers - 2021," who have leveraged their extensive industry expertise and experience in bringing innovative products and solutions that cater to the unique needs of the clients. Being closely scrutinized by a distinct panel of judges including CEOs, CIOs, CXOs, analysts and the Industry Outlook editorial board, we believe that these solutions will help businesses through their significant offerings. We recognize their valuable contributions to the ever-expanding and competitive market and their stability to sustain themselves and emerge as the top contestants through their reliable products and services.

TOP 10 GEARS MANUFACTURERS – 2021

COMPANY	MANAGEMENT	DESCRIPTION
Allied Transmission & Gears Haryana alliedtransmission.in	Bindu Verma, Managing Director	It is is a reliable business entity and an ISO 9001:2015 certified company engaged in offering high quality Transmission Gears and Shafts, Synchronizer Cones, and more
Gala Gears Maharastra galagears.com	Nitin Gala, Owner	Their specialty is rush jobs without losing the quality of the product. They are expertise in manufacturing jobs as per specification & Prototypes
GNA Gears Phagwara gnagears.com	Gursaran Singh, Managing Director	GNA Gears is a tier-one manufacturer of automotive Gears, Axle Shafts and Propeller Shafts for all Light, Medium, Heavy and Off-Highway
Him Teknoforge Baddi himteknoforge.com	Vijay Aggarwal, Chairman & Managing Director Rajiv Aggarwal, Jt. Managing Director	Manufacturer of Transmission Gears, Kingpins, Axle Shafts, Propeller Shaft Components, Wheel Spanner, Forklift Parts, Agricultural Gearboxes, Off-road parts, Multiple Levers and E-Rickshaws
JS Engineering Work New Delhi jsengineeringworks.com	Jagjit Singh, Owner	They are providing a remarkable and wide range of spare parts as per the global set standards
JS Gear Ahemdabad jsgears.in	J.S. Panchal, Founder	The factory has consistently embraced innovation to provide a superior level of excellence, providing full and specific solutions for every valuable customer
Pushpak Trademech Company Ahemdabad pushpakgear.co.in	Patel Riddhesh, Director	Their modern facility is equipped for a full range of gear manufacturing for Girth Gear & Pinion, Spiral Bevel gear & pinion
RACL Geartech Noida raclgeartech.com	Gursharan Singh, CMD	RACL Geartech offers Transmission Gears and Shafts, Reduction Gears Trains CVT Gear Boxes, Engine Timing Gears, Sub-Assemblies, Sprockets and Ratchets, Precision Machined Parts, Synchronizing Cones and Rings, and Industrial Gears
Shreecon Gear Vitthal Udyognagar shreecongear.com	Paresh Panchal, Founder & MD Pooja Panchal, Head (Business Development)	Shreecon serves the Gearing needs of every industry be it Gears, Gearboxes, Spares, Couplings or Geared Motors globally
Synnova Gears & Transmission Rajkot synnova.in	Suresh Vekaria, Managing Director	Provides customized products and services such as Shafts, Ring Gear Supports, Transmission Gears and Pump Gears

Him Teknoforge

BRINGING FOUR DECADES OF INDUSTRY EXPERTISE IN GEAR MANUFACTURING


Vijay Aggarwal
Chairman & MD

In the last few years, the market for gear manufacturers has been witnessing an upsurge with demand increasing from various industry verticals, especially from the automotive market. With further focus on designing technologically advanced gear motor and gearboxes, it has been significantly aiding in minimizing the costs related with energy and further enabling the industries to fulfil their tasks effectively. However, the major expectations of client organizations are still not being met when it concerns CQD (Cost/Quality/Delivery) of the products; all the OEMs want the components at the most competitive cost with highest quality and on-time deliveries.

With perfectly placed technology and processes, Him Teknoforge Ltd. (HTL) is uniquely positioned to overcome the challenges of its clients across two major automotive sectors – Farm Equipment and Commercial Vehicles - when it concerns the products' cost, quality and deliverability. They have been supplying a wide range of gear and non-gear components to all Indian OEMs in the farm equipment segment and commercial vehicle segment. Apart from catering to the OEM requirements, they are also a major replacement market player in the Indian Subcontinent for all gears and shafts under two brands, namely, KAG and Allied Panther. HTL is also exporting various components for European Trucks. Furthermore, the company has six manufacturing facilities spread across the country, and hence gives them the needed locational advantage while catering to customers from all over the country by being in close proximity to most of the customers.

> A fully equipped tool-room is set up in both our forging facilities along with a CMM/Standard room in all our manufacturing facilities with the state-of-the-art equipment. This gives us an edge and sets us apart from our competitors.

"Him Teknoforge Ltd. is vertically integrated, wherein, we convert steel into finished components, as we manufacture forgings as well as machined components. This gives us a better control over the cost as well, as all the facilities are in-house right from heat treatment, painting, electroplating, to powder-coating and hot-dip galvanizing; this helps us in mitigating the risks and meeting the urgent requirements of all our customers," highlights Mr. Rajiv Aggarwal, Jt. Managing Director at HTL.

Commitment of Superior Quality and Robust Products

HTL has been offering various products which include gears, axles, shafts, crown wheel, pinions, levers, couplings, bevel gears and pinions etc. Along with it, they also offer multiple assemblies and sub-assemblies such as PTO Shaft assembly,


Rajiv Aggarwal
Jt Managing Director

Rotavator Gearbox, Spider Kits, Gear Joint Assembly, BC Lever Assembly among others. Furthermore, HTL is not only catering to the automotive sector, but have also been supplying Track Chain Assembly for BMP II Armoured Core Vehicle to the Indian Defence for more than 15 years now. Moreover, in the last 3-4 years, HTL has also developed E-Rickshaws and has a complete fabrication, assembly line and paint shop set-up in-house.

A Robust Roadmap Ahead

HTL is already investing in the latest technologies to upgrade its manufacturing capabilities. The company has been continuously working to move up the value chain by focusing more towards manufacturing sub-assemblies and assemblies in order to further enhance the value addition. "We also have a plan to further enhance current manufacturing capabilities by adding gear grinding machines, which will help add more gear related products to its existing product range. We are already in the process of developing multiple assemblies catering to various sectors of the automotive industry for its existing customers in the domestic as well as the international market. Also, we have added new CNC Screw Presses of 1600 Ton and 1000 Ton each, which has enabled us to upgrade our manufacturing technology and enter the Warm Forging space, opening new avenues for the company," concludes Mr. Vijay Aggarwal Chairman & Managing Director at Him Teknoforge Limited.

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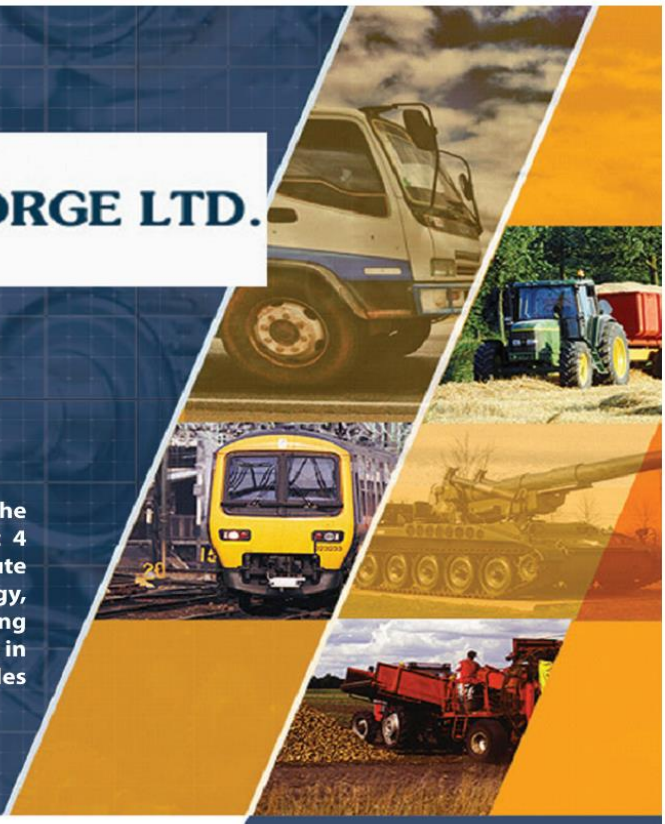

Gearing For Future

Him Teknoforge Ltd., established in 1981 is the flagship company of Him Group. Over the last 4 decades, it has come to be a name of repute Internationally for its world-class technology, established quality processes and core engineering capabilities. The comapny plays a significant role in the Tractor, Agri-machinery, Commercial Vehicles and Engineering Industry.

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HOW TO CHOOSE THE BEST DRILL TYPE FOR THE NEXT JOB: DECIDING BETWEEN SOLID DRILLS OR REPLACEABLE INSERT DRILLS

By Rob Brown, Engineering Trainer, Allied Machine & Engineering Corp

Holemaking is a common procedure in any machine shop, but selecting the best type of cutting tool for each job is not always clear. It is best to have a drill that caters to the workpiece material, produces the specs required and provides the most profit for the job at hand. When it comes to the variety of jobs manufactured in machine shops, there is no "one-drill-fits-all." Fortunately, the process can be simplified by considering five criteria when choosing between solid drills and replaceable insert drills.

IS THE NEXT CONTRACT LONG-TERM OR A SHORT RUN?

If the answer is running a long-term, repeatable process, invest in a replaceable insert drill. Commonly referred to as a spade drill or replaceable tip drill, these drills are engineered so that machine operators have the ability to change out the worn cutting edge quickly. This reducesthe overall cost per hole in high production runs. The initial investment of the drill body (insert holder) is compensated quickly by the reduction of cycle time and cost of replacing inserts versus the cost of new solid tooling. Simply put, speed of change out coupled with a lower long-term cost of ownership makes replaceable insert drills the better choice for high production jobs.

If the next project is a short run or custom prototype, then a solid drill is the better choice due to the initial low cost. Since it is not likely that the tool will wear out while machining smaller jobs, the ease of cutting edge replacement is irrelevant. For a short run, the replaceable tool is likely to have a higher initial cost than a solid drill, so it may not pay dividends to invest. Lead time can be better for a solid tool as well, depending on the source for these products. With solid carbide drills, efficiency and cost-savings can be maintained when machining a wide range of hole-making applications.

HOW MUCH STABILITY IS REQUIRED FOR THIS JOB?

Consider the dimensional stability of a reground solid tool versus replacing the worn cutting edge with a fresh blade. Unfortunately, with a reground tool, the diameters and lengths of the tool no longer match the original version; it is smaller in diameter, and the overall length is shorter. The reground tool is used more often as a roughing tool, and a new solid tool is needed to meet the required finished dimensions. By using the reground tool, another step is added to the manufacturing process to make use of a tool that no longer satisfies the finished dimensions, thus increasing the cost per hole in each part.

HOW IMPORTANT IS PERFORMANCE FOR THIS PARTICULAR JOB?

Machine operators know that solid drills can be run at higher feeds than replaceable tools of the same diameter. Solid cutting tools are stronger and more rigid as they have no connection to fail over time. Nevertheless, machinists opt to use uncoated solid drills in order to reduce time invested in regrinds and lead times on reorders. Unfortunately, using uncoated tools reduces the superior speed and feed capabilities of a solid cutting tool. At this point, the performance gap between solid drills and replaceable insert drills is almost negligible.

> A DRILL DESIGNED WITH REPLACEABLE CUTTING EDGES CAN OFFER A LOWER COST OF OWNERSHIP OVER THE LIFE OF THE TOOL FOR LONG-TERM CONTRACTS AND HIGH PRODUCTION RUNS

WHAT IS THE OVERALL COST PER HOLE?

The job size, initial cost of the tool, downtime for changeouts, regrinds and touch-offs, and number of steps in the application process are all variables in the cost of ownership equation.

Solid drills are a smart choicefor short runs due to their lower initial cost. Generally, small jobs do not wear a tool out before they are complete, meaning there is no downtime from changeouts, regrinds and touch-offs.

A drill designed with replaceable cutting edges can offer a lower cost of ownership over the life of the tool for long-term contracts and high production runs. The savings start when the cutting edge is worn or damaged because there is no need to order the whole tool—only the insert (a.k.a. blade).

Another cost savings variable is the amount of machine time saved or spent when changing out cutting tools. The replaceable insert drill's diameter and length are not affected by changing out the cutting edge, but since the solid drill needs reground when it is worn, solid tools should be touched off when replaced. This is a minute that parts are not being produced.

The last variable in the cost of ownership equation is the number of steps in the hole-making process. Replaceable insert drills can usually complete the process to spec in a single operation. Many applications that incorporate solid drills add a finishing operation after using the reground tool to meet the job's requirements, creating an unnecessary step that adds machining cost to the part produced.

Overall, most machine shops need a good selection of drill types. Many industrial tooling suppliers offer expert guidance in selection of the best drill for a particular job, and tooling manufacturers have free resources for determining the cost per hole to help aid in the decision process.

RACL GEARTECH

BREAKING NEW GROUND IN GEAR MANUFACTURING

Automotive manufacturers across all segments of mobility solutions are continually up-grading their technology in terms of increasing statutory requirements of Emission control, Passenger safety and customers expectation for vehicle power, comfort and advanced features. In turn automotive manufacturers are working on newer strategies continually for creating a sustainable supply chain for premium quality components, sub-assemblies and aggregates.


Gursharan Singh, CMD

Gears & shafts, being a critical commodity for drivetrain in a vehicle, always remains a focus area for any of the OEMs', as it has a major influence on Vehicle performance & durability until completion of life cycle. Gears are expected to have a robust wear performance, utmost precision as per laid down standards and enhanced surface quality to maintain NVH norms of vehicles. Thanks to technological advancements happening throughout the globe, innovative manufacturing processes are available today. These technologies which are fully capable for, not only, meeting the quality norms on mass scale of production, but, also, are very flexible for adopting from one product to another, in particular, to high precision gears required for E-Mobility solutions.

As such, Industry has to go a long way, for being a truly global quality manufacturer and be able to deliver with hundred percent on-time performance with strict adherence to standards & product protocol.

"Leveraging more than 30 years of experience in delivering international standard of transmission gears and shafts, sub assembled drive train parts, engine timing gears, industrial gears, among others, RACL Geartech has been one of the most renowned companies in the field today, as it has a fully integrated manufacturing capability under one roof & is able to provide end to end solution to customers. The company has been successfully catering to clients across diverse segments that include motorcycles & scooters, three & four Wheeler passenger and cargo vehicles, agricultural machinery, tractors, ATV,Snow mobiles, Light & Heavy commercial vehicles, to name a few. RACL Geartech is fully equipped to maintain the product quality as per global regulations & quality norms," Gursharan Singh, CMD RACL Geartech Ltd sharing this information.

"We adopt continually latest technologies & processes innovations, steered by team of our dedicated employees, who work relentlessly towards keeping the customer delighted," he adds

"We have created a niche market for ourselves to cater to clients who need an excellent quality product at value based pricing structure & 100% on-time performance. Given the fact that gears have many applications and it is a highly competitive market, RACL has been successful in creating its unique product portfolio," shares Gursharan Singh.

The company has also made a name in the international market by exporting around 65 to 70 percent of its products across developed economies like Germany, Japan, Switzerland, Italy, USA, Austria, Thailand among others. RACL is catering to the world's top brands like BMW, KTM, KUBOTA, BRP Rotax, Piaggio & Yamaha to name a few.

> We at RACL, concentrate on meeting growing expectations of customers by not only manufacturing product on a build-to-print concept, rather, we involve ourselves in product development by 'Concurrent Engineering' process, thus, providing value for money to our clients.

The company has a strong vision for growth & diversification. RACL has recently put up a state of the art, new facility to manufacture chassis components for car segment. Singh explains that "RACL has carved out a well-defined strategy for entering in this segment, by ensuring that RACL has presence, irrespective of a fuel, hybrid or electric car, as Chassis components are not influenced in a big way by this change."

"We are working further on upgrading our capabilities in terms of quality, technology and skill set of the people to prepare in advance for catering to the precision requirement of Gears for E-mobility solutions," concludes Singh.

SUSTAINABILITY IS ABOUT CO-EXISTENCE BETWEEN 3ES - ECONOMY, ECOLOGY & EQUITY

By Vivek Tomar, *Vice President, Ceratizit India Private Limited*

Vivek is having experience of more than two decades in metal cutting tool industries & responsible for Project Management, Product Management, Application Engineering & Technical Centre in India for Ceratizit Group

Vivek Tomar,
Vice President

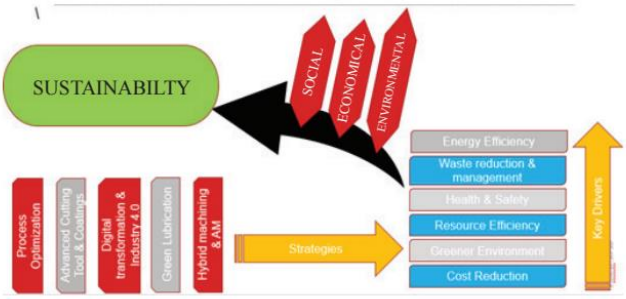
Our lives are connected. Connected at both extrinsic and intrinsic levels with each other, our nature and on a larger scale to this universe. Now to sustain this life, irrespective of variegated needs of individuals, we have been consuming since the dawn of civilization. Alarmingly the growing needs, services, and industrial systems demanded by society has provoked in the last century a great impact on the planet, contributing to the increase in the Metabolic Rift.

The metabolic rift corresponds with the existing distance between the natural capital (provided by the planet) and the social capital; it is also defined by the consumption of energy resources and materials caused by the humans' economic activities. The mitigation of the metabolic rift is the origin of the current framework that is used to structure and manage Sustainable Manufacturing (SM) from the three dimensions known as: Economic Capital—economy, Environmental capital—ecology and Human capital—equity.

They interact as a whole and in establishing the triple bottom line (TBL or 3E) to achieve three objectives: (1) improve the economic, environmental and human performance, simultaneously; (2) reintegrate the natural ecosystems; and (3) mitigate the metabolic rift leading us to the currently accepted definition of Sustainability: sustainable development is the development that meets the needs of the present, without compromising the ability of future generations, to meet their own needs.

SUSTAINABILITY FRAMEWORK IN MACHINING

Sustainability in machining can be assured by reducing energy consumption for machining processes, minimizing waste (less generation of waste and increasing the recycling of waste) and minimizing Carbon footprint of machining processes. The basic framework of Sustainability in machining which consists of the major Strategies which with the help 6 key drivers constructs 3 pillars of Sustainability is well represented in the image.



PROCESS OPTIMIZATIONS

The domain of Process Optimization quite vast as encompasses multiple sub-domains starting from Material selection & drawing study to ultimate delivery of the finished product. This whole work-chain involves CAD, CAM , CAPP , Machine , Cutting tools and so on. Optimization is possible in each domain towards the coveted goal of Sustainability in the following ways.

1. Utilization advanced Thermo-mechanical simulation and Finite Element based process optimizations in terms of Material selection, Coating and designing is contributing significantly in minimizing Energy requirements , environmental hazards & carbon footprints.
2. Advancement of CAD/CAM technologies and integration of CAD/CAPP/CAM at single platform done a remarkable job by simplifying the whole process, reducing Machine up-time and down time.
3. Advanced feature oriented CAM techniques such as Adaptive Roughing (Profit Milling, Volumill etc) together with Machines with multiple & simultaneous DOF which has reduced machining time and difficulty significantly. As an example switching to Adaptive roughing technologies for machining Ti6Al4V reduces cut time with respect to conventional by 30-40%. Henceforth reducing the machine hour and energy consumption for the same.

ADVANCED CUTTING TOOL & COATINGS

Sustainable machining is about producing a part by the following concepts:

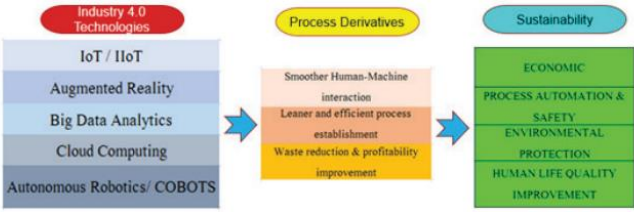
- Maximize the use of the cutting tool
- Maximize the cycles of regrinding or reworks of the cutting tool
- Minimize CO2 generation during the machining process

In order to minimize CO2 emissions Automotive & Aerospace industry is strongly going towards Materials with higher Strength to Weight ratios; thereby increasing efficiency. But at the same time these materials (Ti6Al4V, Inconel, Nimonic, Stelite etc) are very difficult to machine drawing higher Cutting energy. Hence to reduce the difficulty in machining Cutting material and coating is going continuous and steeper improvements. With CBN, Ceramic (Whisker reinforced & Sialon) and PCD cutting tools we can machine such difficult materials 5 – 10 times faster.

Also advancement in cutting geometry design, sintered 3D Chip Breaker has also reduced specific cutting force requirements and reducing energy demands. Al2O3, AlTiN, TiSiN, AlCr/AlTiN based hard and Heat resistant coatings (both CVD & PVD) has paved the way of increasing tooling life when machining highly abrasive and difficult materials. TiBN and TiB2 based coating has achieved significant life and tribology improvements in machining HRSA and high Si based Al compounds.

DIGITAL TRANSFORMATION & INDUSTRY 4.0

The sky and even beyond is the limit when we talk about adaptation of Industry 4.0 towards sustainability goals. Researchers in manufacturing are currently focusing on the convergence to realize larger benefits of industry 4.0, which is sustainable manufacturing.



Currently, industry experts are utilizing industry 4.0 technologies to address challenges and issues related to TBL of sustainable manufacturing. Transformation of a manufacturing unit into an intelligent factory requires both horizontal and vertical integration (Digital Twin), wherein, all the production areas are integrated. The seamless integration, provided by industry 4.0 technologies and Information & Communication technology platforms, increases the transparency of the production processes and supply chain activities, thus helping optimize all the energy and resources.

GREEN LUBRICATION

Cutting fluids are dangerous for health. In a report it is stated that about 80% of the skin diseases are due to the use of cutting fluids. The machinists are facing the problem of skin and respiratory diseases due to metal working fluids. Among the machinist over 1 million workers all over the world are facing toxic effects of cutting fluids, and majority of the cases are related to chest bronchitis.

As per study tooling cost is about 4% of the total machining costs and coolant/lubrication cost is about 15% of total machining cost; therefore huge sustainability gain is possible by avoiding CLF (Conventional Cooling/Lubrication Fluid).

The alternatives are MQL, MQC , Cryogenic Fluid and Dry Cutting. The immediate benefits of these are significant reduction Cutting Power, Machining cost, Machining Time, Tool Life & MRR.

HYBRID MACHINING TECHNIQUES &ADDITIVE MANUFACTURING:

Increasing adaptation of LAM (Laser Assisted Machining) , WJM (Water Jet Machining) , UVAM(Ultrasonic Vibration Assisted machining) has shown improved machinability against HRSA materials.

The experimental investigations showed that the ultrasonic vibration–assisted cutting reduced the torque during tapping as compared to the conventional process. They observed a 19.1% reduction in torque, approximately 20.3% reduction in cutting temperature, a superior surface quality, and better machinability. Various possibilities still exist where combinations of different tool materials and coatings along with other sustainable machining strategies, namely, MQL, cryogenic, LAM, and UVAM, may be developed into hybrid processes that could lead to further improvements.

Apart from these, strategies such as the utilization of new and cleaner technologies for manufacturing and the use of 3D printing will also help manufacturers reduce waste generation. Despite the limitations associated with AM, such as material selection and characteristics, low process productivity, geometrical dimension accuracy, surface quality, repeatability and unit cost, five key environmental benefits can be expected from the adoption of AM:

(1) Reduced amount of raw material required in the supply chain;

(2) Reduced need for energy-intensive, wasteful, and polluting manufacturing processes;

(3) More efficient and flexible product design with better functional and operational performance;

(4) Reduced weight of transport-related products and improved carbon footprint.

CONCLUSION

Sustainability concept revolves around the basic principles of Compassion and Co-Existence between Economy, Ecology & Equity (3E). This is not just a mere concept anymore rather this is ardent need of today and a way to future. EU leaders set 55% target for CO2 emissions cut. EU leaders have agreed on a more ambitious goal for cutting greenhouse gases - reducing them by 55% by 2030, rather than 40%. Likewise all the government bodies are considering sustainability goals across the globe.

To conclude sustainability, as a competitive core idea, should be considered for the optimization of the machining processes, where material efficiency, low energy consumption, and cyclical metabolism can contribute to the mitigation of the metabolic rift and simultaneously to the creation of quality of life. In

SHREECON GEAR

DRIVING EXCELLENCE IN THE ART OF GEAR MANUFACTURING

Paresh Panchal,
Founder & Managing Director

India is evolving to become a global hub when it comes to the gear manufacturing segment with availability of skilled workers and raw materials at an economical price. Moreover, various government initiatives have significantly driven the growth of market for Indian gear manufacturers. However, as the market is getting more transparent than ever, the major expectation from the customers is timely deliverability of quality products.

Shreecon Gear is one such company that has adapted to the advancements in the gear manufacturing segment to provide thehighest quality products delivered with impeccable customer services. This is why Shreecon's products & services are trusted by an ever-increasing number of customers. It is a perfect case of alignment between Quality, Versatility & Performance with economical solutions. With a diverse product portfolio, technology competence, talented-team and passion to make a difference for customers, Shreecon is a trusted brand for Gears today.

Shreecon has a strategic edge in the industry because of their strong reverse engineering skills and sound business practices. Their product line consists right from the varieties of Gears, Gearbox, Spares and Geared Motors to Couplings. They are not just the manufacturers but also offer specialist Gearbox refurbishing services and has the ability to reconstruct, upgrade, and redevelop any gearbox or gear mechanism.

Future-ready Company

"Someone has rightly said that the future belongs to those who believe in the beauty of their dreams. Our company today is a result of continuous and endless efforts. We have seen many ups and downs, but with every fall, we have always made a stronger comeback than before. We have always focused on capacity expansion and process innovation. We believe innovation starts with the customer and this approach has propelled us not to limit ourselves with a specific range of products. We are flexible with our offerings." highlights Paresh Panchal, Managing Director at Shreecon Gear.

Shreecon has increased its customer base in India over time. Having more than 300 customers pan-India, they have captured almost every sector. With an aim to continuously enhance productivity and efficiency, they have always been self-reliant with their own in-house facilities.

Quality Products in-time

Shreecon has always prioritised on-time product delivery, wherein, all its employees are adept at multitasking to run the operations more efficiently and effectively. They are never late in their promised product deliverability.

"We are responsive. We never make anyone wait. We follow a 45-minute response system. Anyone be it our existing or prospect customer, we respond to their queries within 45 minutes because we believe time is money." says Paresh Panchal.

"We are preferred gear manufacturer to a wide range of industries and leading organizations. Our primary emphasis has always been on cost reduction and timely quality hence Shreecon today has emerged as a Genuine brand that people can rely on," adds Pooja Panchal, Head.

Pooja Panchal,
Head (Business Development)

"Success in this industry is not about finding the right customers, instead it is all about becoming the right brand for people to look for and yes we have become the right brand today." elucidates Pooja Panchal, Daughter of Mr. Panchal who has joined his legacy at Shreecon Gear as Marketing and Business Development Head.

"We continue to leverage our existing competencies in technology and engineering. We are well aware of the rising demand in the global market today. We are planning to come up with a new but bigger plant in coming years with a greater supply chain visibility and automation of repetitive tasks which can cater to the diverse needs of our clients. Our goal is to minimize segment concentration and expand to the global market." Concludes Pooja.

3D PRINTED MODELS- HIGHLY PRECISE DEFORMITY CORRECTION TREATMENT METHOD

By Dr. Pradeep Moonot, Orthopedic Surgeon & Pediatrist, Mumbai Knee Foot and Ankle Clinic

The outcomes for deformity correction in the knee foot and ankle injuries have drastically improved with the advent of 3D printing technology. The technology offers a realistic option for even the most complicated deformity surgeries. 3D Printed models have been proving to be a boon not only for patients but also for the surgeons providing them with better and precise pre-operative planning, thereby saving time and correcting the deformity with accuracy.

More often it has been seen in cases where patients undergoing fractures in the foot and ankle usually have deformed structure post treatment. Such corrections may not have any severe impact on their quality of life, but once the deformity occurs, it seems to be an irreversible damage. Now with the revolutionizing technology, the deformities can be corrected with high accuracy and precision. Generating a pre-model of even the most complex structures, the surgeons can better analyze the anatomy through surgical simulation and plan their surgeries for better outcomes.

As the complete anatomy of the foot and ankle can be deeply studied, irrespective of the presence of patient, surgeons get ample time to predict the angle of deformity to be corrected with high accuracy. Being cost effective, such technologies are gaining importance gradually across the country.

3D Printed models are highly useful for treating complex conditions like bow legs, knee deformities, deformities in the foot and ankle due to improper or misaligned joining of the bones, claw toes, plantar fasciitis among many other orthopedic complications which can be treated with high accuracy. With less time consumption, the hospital stay is also reduced and the minimally invasive procedures used ensures complete safety and quicker recovery with better functional outcomes.

WHAT IS 3D PRINTING?

Three-dimensional (3D) printing is a manufacturing method in which objects are made by fusing or depositing materials—such as plastic, metal, ceramics, powders, liquids, or even living cells—in layers to produce a 3D object. 3D printing is expected to revolutionize medicine and other fields.

There are about two dozen 3D printing processes, which use varying printer technologies, speeds, and resolutions, and hundreds of materials. These technologies can build a 3D

Pradeep Moonot,
Orthopedic Surgeon & Pediatrist

object in almost any shape imaginable as defined in a computer-aided design (CAD) file. It is important to note that two-dimensional (2D) radiographic images, such as x-rays, magnetic resonance imaging (MRI), or computerized tomography (CT) scans, can be converted to digital 3D print files, allowing the creation of complex, customized anatomical and medical structures.

DIVERSITY IN 3D PRINTING

3D printing has made a huge difference in the field of medical science. Usually this method is popular in planning of heart operation, spine and other orthopedic procedure. As this has nothing to do with the patient's body during surgery there are no ill effects on them. Any organ or tissue can be made in nearly any imaginable geometry through the translation of x-ray, MRI, or CT scans into digital .stl 3D print files. In this way, 3D printing has been used successfully in the health care sector to make both standard and complex customized prosthetic limbs and surgical implants, sometimes within hours.

The ability to quickly produce custom implants and prostheses solves a clear and persistent problem in orthopedics, where standard implants are often not sufficient for some patients, particularly in complex cases. Previously, surgeons had to perform bone graft surgeries or use scalpels and drills to modify implants by shaving pieces of metal and plastic to a desired shape, size, and fit. Most often in cases where a patient has undergone knee foot or ankle fracture, their shape tend to deform. In such cases 3D printing has revolutionized the correction of deformity.

In the upcoming days, this itself will grow and develop with more advanced 3D models along with functional models where materials are more like the organs. Functional models along with organ like material could help us understand the diagnosis much better.

ADVANTAGES OVER TRADITIONAL METHOD

3D bio printing offers additional important advantages beyond this traditional regenerative method

1. Customization and Personalization - The greatest advantage that 3D printers provide in medical applications is the freedom to produce custom-made medical products and equipment. Custom-made implants, fixtures, and surgical tools can have a positive impact in terms of the time required for surgery, patient recovery time, and the success of the surgery.

2. Increased Cost Efficiency - Another important benefit offered by 3D printing is the ability to produce items cheaply. The cost depends on the material used for printing, but it is cost efficient than other methods of treatment. Prior to this method, CT, MRI and X-rays on a plate were used which only portrayed 2 D model. Traditional manufacturing methods remain less expensive for large-scale production; however, the cost of 3D printing is becoming more and more competitive for small production runs. The cost to custom-print a 3D object is minimal, with the first item being as inexpensive as the last. 3D printing can also reduce manufacturing costs by decreasing the use of unnecessary resources.

> IN CASES WHERE A PATIENT HAS UNDERGONE KNEE FOOT OR ANKLE FRACTURE, THEIR SHAPE TEND TO DEFORM. IN SUCH CASES 3D PRINTING HAS REVOLUTIONIZED THE CORRECTION OF DEFORMITY

3. Enhanced Productivity - Fast in 3D printing means that product can be made within hours. That makes 3D printing technology much faster than traditional methods of making items which require milling, forging, and a long delivery time. In addition to speed, other qualities, such as the resolution, accuracy, reliability, and repeatability of 3D printing technologies, are also improving. In

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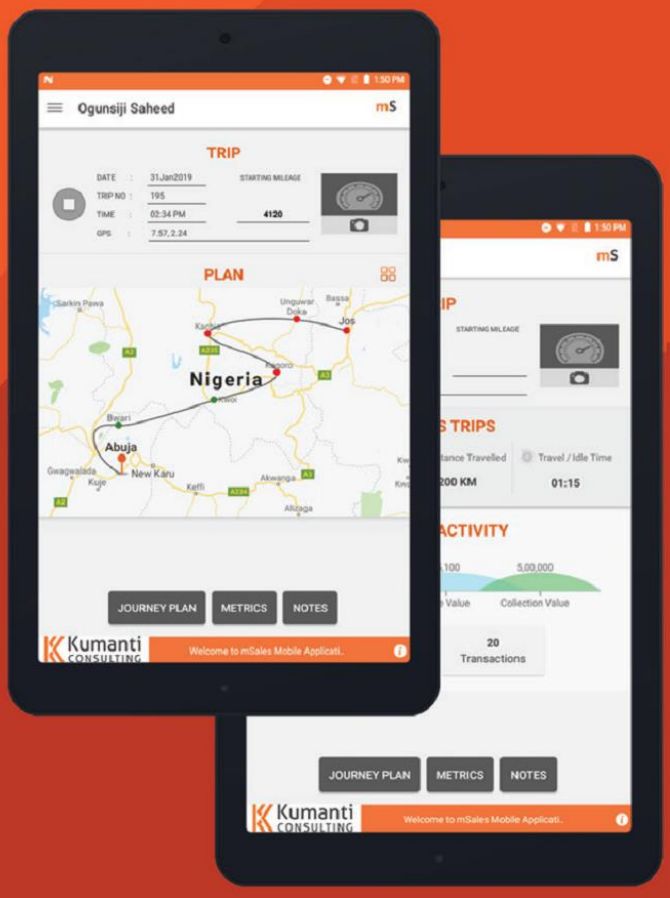

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CREATE A MANUFACTURING DRIVEN ECOSYSTEM TO ACCELERATE ECONOMIC GROWTH

By Jubin Peter, Co-Founder & Chairman, Qthree Ventures Private

The recently announced Union Budget was a crucial one. It was the first time in decades where a budget was announced in the backdrop of an economy that has contracted without precedent. The Reserve Bank of India (RBI) further anticipates that India's GDP should shrink by around 8 percent, per International Monetary Fund (IMF) gauges. It is imperative to now focus on bringing the economy back on track.

With borders shutting down for close to a year, the supply chain was massively impacted. And while this posed several challenges, it also opened a tremendous opportunity – to create a self-reliant nation that can cater to domestic needs as well as export to make the economy bounce back. Historically though, India has always seen success in assembling products, rather than manufacturing something completely from scratch. A shift in this mindset is a long term journey, but will positively yield results over the years.

I see the tremendous opportunity that is there in manufacturing within the country for domestic and international consumption. And while the government has announced a slew of measures to spur job creation in the manufacturing sector, it is imperative more than ever before that we make the 'Make in India' story work, to enable the 'Make for the World.'

From a manufacturing perspective, our government is going in the right direction, however a little extra push can accelerate economic growth.

• The Covid-19 crisis created a massive demand supply gap, and the only way to ensure that this is not a business challenge in future is to become self-reliant. Consumer electronics, healthcare, and durables are industries where there is a significant opportunity in the domestic consumption narrative as well. The declaration in the budget to bring 13 areas with an expense of Rs 1.97 lakh crore on various schemes over five years will boost makers to extend creation and produce extra venture and open positions. This rollout is intended at attracting international investments in the manufacturing sector and make India globally competitive. It aims to encourage local companies to set up or expand existing manufacturing units in the country

• The PLI scheme has the potential of creating approximately 1.40 crore man-months of additional work. This enables doubling the workforce engaged in production and manufacturing activities, thereby creating more jobs and income. Our policies and regulations should invite foreign companies to set up manufacturing units in the country while also encourage the local companies to expand production and manufacturing facilities.

> **WITH BORDERS SHUTTING DOWN FOR CLOSE TO A YEAR, THE SUPPLY CHAIN WAS MASSIVELY IMPACTED**

• Making it easier to set up businesses, irrespective of the scale and size is definitely a great move to increase economic activity. We need to create a competitive manufacturing ecosystem, capable of reducing dependency on other countries. And for this, we need to reduce bottlenecks and encourage investments in better technological innovations.

• Availability of flexible financing and skilled workers to improve efficiency and reduce costs is the key to realize real growth in the sector.

The manufacturing sector contributes to approximately 20 per cent of India's GDP. And therefore, it largely shoulders the responsibility of job creation, attracting investments, propelling business, industrial and economic growth. Creating a conducive environment for this industry to thrive is essential. Building up the scale of its manufacturing sector is of utmost importance for the country as the lack of it would prove detrimental to its economic aspirations.

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