

Equilibrium

VOL 64 – JANUARY - DECEMBER 2020

Collaborating for Innovation and Growth



NEW BUSINESS
SEGMENT

14

VALUE TO
CUSTOMER

15

CUSTOMER
SUPPORT

18

Ace Micromatic®
Group

CONTENTS

Message

- 03 Chairman's Message
- 04 MD's Desk

Safety, Care, Adaptability

- 05 Going with the Flow
- 05 Change Is the Only Constant

Safety, Care, Adaptability - Employee Experience

- 06 Stronger Together

Cover Story

- 08 Collaborating for Innovation and Growth
- 08 Environment – Being Water Wise
- 09 Pharma Innovation – Towards a Safe Future
- 10 Glass Machining – Another New Beginning
- 11 Drone Technology – Innovation Is in the Air
- 12 Healthcare – Shifting Focus

VAS - Grinding Center

- 13 From Strength to Strength

New Business Segment - Bearing ID Grinder

- 14 The Grind Continues

Value to Customer

- 15 Offering Smart Solutions

Case Study - Precision Components

- 16 Treading New Paths

Special Applications - Non-Metals

- 17 Talking Innovation

Value Added Services - Vision Camera for Zero Error

- 16 Chasing Zero Errors

Customer Support - Solving Cash Flow Issues

- 18 Cash is King

Customer Support - Virtual Final Acceptance Test

- 18 Virtual Is the New Real

CSR Activities

- 19 Care During Crisis



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The Lessons We Learnt

FROM the beginning of the lockdown in March until now, the end of the year, we have been dealing with an unthinkable situation. Grappling with the paralyzing fear of falling prey to the pandemic, we are left devastated by the losses of our near and dear ones. Sadly, being humans, we could fathom the severity of the situation only when it struck home. It has been a year that we will forever strive not to remember but will find it impossible to forget.



Ashok V. Sathe



Prof. K. K. Mukherjee



Kunwar Singh



Sidhartha E. Dhand

Kunwar Singh was only 18-year-old when he joined Micromatic in 1978, the year Kapil Dhand, now Managing Director of MGT, was born. He lived as part of our family ever since in an annex of our house. He got married, had 4 children who now have several children of their own, and now are a part of our extended family. On August 16, he became the first casualty of the pandemic at age 60, despite the Plasma therapy and being declared Covid-19 negative 3 days before his passing away. His only son, along with his wife and grandson, continues to live with us.

Another of our grave losses has been of **Prof. K. K. Mukherjee**. We have known him and his wife Dr. Mrs. Sutapa Mukherjee since 1976, at first as our neighbors and then from the 1990s as a husband-wife team running Gram Niyojan Kendra (GNK - www.gramniyojan.org), an NGO here in Ghaziabad. MGT is associated with GNK since 1995, much before CSR rules and any requirement to contribute became a law. Prof. Mukherjee contracted the virus in late September, and after battling with it and being declared Covid negative at the end of October, he too succumbed to it on November 15. I always felt inspired by his dedication and was in awe of his spirit to live life selflessly for worthy and noble social causes. He was an ex-XLRI Graduate who found his true calling in serving others. Through a quirk of fate, I not only got inducted into GNK's Governing Council 5 years ago, but also was made its Chairman 2 years ago on the demise of the then Chairman.

Sidharth E. Dhand, my elder son, had just turned 48 in November and due to a severe case of Jaundice, passed away on December 02, 2020. He was soft-spoken, handsome, affable, and liked by one and all. He will live in our hearts forever.

Mr. Ashok V. Sathe, Chairman of the AceMicromatic Group, also passed away on December 29, 2020. He is being remembered by us all not only as the Father of our enterprise, but we owe our very existence to his brilliance as the Numero Uno Machine Tool (MT) Designer of India for the last nearly 60 years. Words fail at expressing his contribution to the Indian MT industry and also the millions of lives he supported through the growth of the Auto components sector where the AMG group has had its maximum success for the last nearly 50 years. His legacy will continue to inspire all of us in the group.

देही नित्यमवध्योऽयं देहे सर्वस्य भारत ।
तस्मात्सर्वाणि भूतानि न त्वं शोचितुमर्हसि ॥ ३० ॥
dehī nityamavadhyo'yam dehe sarvasya bhārata
tasmātsarvāṇi bhūtāni na tvam śocitumarhasi
O Bhārata, this soul residing in the bodies of all can never be slain.
Therefore you should not grieve for any being. 30

This personal loss, along with the incalculable death toll taken by the pandemic, is an affirmation that the human spirit is resilient and is eternal. Our bodies die and decay but our Soul-Atma remains Eternal. Bhagwat Gita Chapter 2, Shloka 30 offers solace and teaches us to manage our grief at such times.



Kapil Dhand
Managing Director
Micromatic Grinding Technologies (MGT)
kdhand@micromaticgrinding.com

Looking on the Bright Side

Dear Readers,

It has been a year of grave losses for most of us. The only good that has come out of the situation is that it has taught us some invaluable lessons, which if put to use, can be of immense benefit to us and our future generations. Personally, I have **learnt to be grateful for everything** that life has thrown at me, the good and the ugly. The **peace and joy that we crave for, lie within us.** In essence, this is the Vedanta philosophy of non-duality (ADVAITHA) - to be always in EQUILIBRIUM. This year came as a reminder to practise it to attain a blissful life.

It would have been extremely hard to sail through the turbulent year without the support of our stakeholders (customers, suppliers, employees, service providers) who stood by us throughout. The new year has rekindled the spirit to start afresh and set on the path to find a purpose in life and work, which has never been so relevant as today. **'Evoking Pride & Impacting Society through Precision Engineering' is MGT's purpose of existence. With the aim to reduce imports and contribute to the country's efforts of becoming truly 'Atma-nirbhar', we forayed into new areas such as Computer vision-based pharmaceutical inspection machinery, glass processing machinery, bearing grinders and precision agri machinery for creating value through precision engineering.**

I wish you all a prosperous and healthy 2021, and a blissful journey ahead.



TG Deenabandhu
VP & SBU Head
MGT Bangalore Plant
deenabandhu.tg@micromaticgrinding.com

Planting a Hope

'Success Always and Focus in Everything' - SAFE is the dictum that has been our driving force at MGT.

Whenever the mankind has been up against a challenge, it has surmounted it with its grit and inner strength. And that's what we did when confronted with a highly changed business scenario after the lockdown. Bringing our employees back to work for the livelihood and safe guarding their lives was crucial. The way to ensure that was investing in them to reap benefits for all. **All our initiatives** during this pandemic period revolved **around innovation in www (work, way, workforce).** Our efforts have **yielded results in our workforce adapting itself to the new discipline** after the understandable initial discomfort. And now with the new year, MGT has started 'PLANT to PLANT', a new initiative of sending a plant with its machines, reinforcing the fact that machines like plants respond to good care. **Let us all hope** that the worst is over and **better times are to follow this year and ahead.**

Going with the Flow

With all the lessons the pandemic has taught us, accepting change must be the biggest. MGTians have gracefully done that to move on and look ahead...



LOCKDOWN CHALLENGES

The 'work from home' movement was among the prominent changes that happened during the lockdown. However, it was not a breeze for all and came with its unique set of challenges. For MGT, it was necessary to enable remote access to all the people who could work from their respective places without hampering work and data security.

Hurdles are meant to be overcome. In this matter, the onus was on the IT department to come up with solutions to ensure smooth sailing. Laptops were arranged on rent from the nearby vendor and secure working rights were provided on personal systems.

POST-LOCKDOWN CHALLENGES

When we resumed work after the lockdown, employee safety



became a matter of paramount importance for the human resource department.

Various steps were practised on an everyday basis for ensuring every one's safety:

- Disinfection would be carried out before restarting the plant and after every shift;
- Employees and visitors were asked for self-declaration;
- Thermal Screening would be done on everyone while coming in and going out of the factory;
- Hand wash and hand sanitization points were increased;
- Visitor entry was avoided to a large extent.

Change Is the Only Constant

The pandemic and its subsequent lockdowns brought the entire world to a standstill. To slowly get back to normalcy with changed norms has been a challenge. A snippet of how MGTians coped during the period...

CHALLENGES

Like the rest of the country, MGTians too had to confront an uncertain business scenario as we got back to work after the lockdown. Getting employees to get to work for the livelihood, and at the same time safeguarding their lives was the key. Hence, investing in people to reap the benefits was the only choice.

PLANNING

If we turn into V2.0, which is version 2.0 of ourselves, and become more practical, more pro-active, more responsible, more interacting and more contributing members, that way any system (society/business), which we are or will be part of, will surely be more stable and poised to grow.

Hence, to help our employees evolve so as to adapt to the changes around us, we had to educate them on various applicable industry acts (occupational wisdom) and, hence, regular in-house HR sessions for LAW (Law Abiding Workforce) were arranged for them.

ACHIEVEMENT

To follow the directives, the IT department displayed the agility and speed to put secured infrastructure to support work from home for design and administration functions. Work continued, making MGTians a productive digital workforce. Meanwhile at the shopfloor, a step approach was resorted to with limited members. All the members attended but in staggered shifts and for lesser hours, following revised social distancing norms all along.

Stronger Together

There is no debating the power of a team. MGT acknowledges each member's contribution to the success accomplished so far and during the ongoing pandemic. The support they have provided in the face of their personal and professional challenges in the midst of the worldwide trial is of utmost value to the company.



VALUING PEOPLE

“ Covid-19 has brought us closer to our dear ones, making us value them better. I was fortunate to have my parents at a safer place in Uttaranchal, my native, during the lockdown. The period, although grim, provided us a chance to spend quality time with the family and neighbours. Working from home became an essential part of life, while offering an opportunity to try hands at different hobbies. I could enhance my gardening skills, take care of the house, repair all the damages and bring new items such as furniture, etc.”

Amit Chandra
MGT



COPING WITH CURRENT TIMES

“ As was followed by most, I too drank Kashaya and hot water daily, along with following the cleaning and sanitizing protocol. Although there were financial issues at hand, with me being the sole earning member in the family, we learnt to cope with the situation and manage things. There were certain travel related issues after the lockdown, which we could eventually sort it out and provide our customers the necessary services at their workplace.”

Anilkumar S
MGT



A LESSON TO ADAPT

“ The pandemic has taught us to adopt hygienic and healthy life practices like sanitizing spaces and surfaces around us along with taking necessary precautions such as wearing masks. We started our operations by adopting safe distance working and virtual meetings through platforms including Microsoft Teams to avoid human contact as much as possible. Meanwhile, we also got ample time to improve our work pattern. There arose challenges too like price increases but that did not stop us from looking out for opportunities. We are geared up for the future too.”

Nanjundaswamy M
MGT



SEEING THE BRIGHT SIDE

“ We faced many new challenges in transporting our machines in India as well as abroad due to the sudden lockdown. **Since there was a simultaneous lockdown overseas also, our machines got stuck enroute but we learnt to do all the paperwork through virtual means and managed to export our orders to the customers.** The positive that came out of the situation was we could spend time with the family. That itself was an invaluable experience while fighting off the fear of the pandemic.”

**Pradeep J
MGT**



FACING CHALLENGES HEADS ON

“ **The pandemic brought in many changes along with me getting married. There were challenges from finance to transport, but all is well that ends well.** Now, things are smooth at both ends, professionally as well as personally. At workplace, we maintain safe working conditions and sanitize everything before passing it on to the Assembly Department.”

**Srinivas
MGT**



OPPORTUNITY FOR GROWTH

“ The Covid-19 lockdown presented an opportunity to learn and adapt to new practices and ways of working. We learnt new tools, adopted virtual working, took online reviews, conducted online trainings and got enough time to think of and develop new processes and products. **Working from increased our productivity as we had the entire day to work at our ease and pace.”**

**Vipin Pal
MGT**



CNC EXTERNAL CYLINDRICAL GRINDER PLUTO 18

PLUTO 18 is designed to meet below needs of the industry

- Compact Foot print: 1700 mm (front) x 2280 mm (depth)
- Competitive Grinding solution
- High performance
- Ease of Operation through MGT's Standard Graphics Screen

Machine is suitable to produce high precision between centre and chuck type parts.

Easy to adopt various automation through gantry/robot.

Ergonomically designed for easy operation & maintenance.



/micromaticgrindingtech



//tinyurl.com/z7264wo



micromaticgrinding.com

Ace Micromatic®
Group

Collaborating for Innovation and Growth

THE Covid-19 pandemic and its subsequent lockdowns crippled the manufacturing industry, putting immense downward pressure on demand, production, and revenue. Like other companies, MGT too experienced the ripple effect and personal losses but continued forth with the same spirit looking out for opportunities. Focused on MGT's Purpose, "**Evoking Pride & Impacting Society through Precision Engineering**", we have expanded our horizons by diversifying and foraying into newer growth areas. **By collaborating with new strategic partners and attempting to locally develop new precision products that can add value to our society, we have discovered our potential that remained unearthed so far.** We have innovated with computer vision-based pharmaceutical inspection machinery, glass processing machinery, bearing grinders, precision agri machinery, which are some of the areas the country still depends on imports. Our venture into unexplored territories is our honest endeavor towards making India 'Atma Nirbhar', the clarion call by our Hon'ble Prime Minister Shri Narendra Modi.

COVER STORY - ENVIRONMENT

Being Water Wise

The below endeavor by MGT asserts it being mindful of the environment and depleting natural resources...

// When the wells dry, we know the worth of water," said Benjamin Franklin. Who would better know this than we Indians. With monsoons being unpredictable in India, we keep facing water shortages that affect lives and livelihood of people dependent on agriculture to begin with. Hence, it becomes critical that we take measures to ensure that the water is well managed to survive dry spells.

GROUNDWATER MANAGEMENT THROUGH IoT
Wells run dry if excessive water is pumped out. As an attempt to help save our wells for future generations, **MGT has partnered with JTEKT India**

for indigenizing its IoT-based system that monitors the underground water table of borewells. It works by controlling the pump that pumps water from a well, based on the amount of water that flows into the well. It is anticipated that the life of a well can be extended this way.

The system:

- # Controls the pump that pumps water from the underground well;
- # Monitors the water table with a water depth sensor to draw water judiciously;
- # Day wise records the water used;
- # Gives alert in the case of any abnormality in the usage;
- # Automates the operation through a mobile app;
- # Saves power.

BENEFITS ABOUND

The advantages of the system are many, starting with it bringing in an easy, automatic control of water level and water usage that leads to no wastage of water. Its real-time digitalization saves labor and the time-consuming manual management. Batch data output is also possible through this system.

For further details contact:
Navneet Sawal at j-well@jtekt.co.in

JTEKT Water Management Solution

SDG 6.4 Target for 2030
Ensure sustainable withdrawals and supply of freshwater to address water scarcity.

J-Well (JAL HAI TO KAL HAI)
Well runs dry if excess of water is pumped out.
How to save our Wells for Future Generations?
Answer is 'Water Management Solution'

Mechanism
By controlling the pump that pumps water from a well based on the amount of water that flows into the well, it is anticipated that the life of a well can be extended.

Benefits
Easy, automatic control of water level, water usage, etc. (no waste)
Less water usage and suppress wasteful usage
Real-time digitalization
Batch data output possible

Example of factory power-saving

Water using sector	Apply Water	Required Power	Power consumption	Power saving
Water using sector	14,14ton	10,3kwh	-	-73%
Water using sector	16,2ton	8,3kwh	-	-50%

By controlling with digitalization power generation, labor to reduce power consumption by a factor of 20% for a 1000L water saving is not small.

Time-consuming manual management → Real-time automatic management (reduce management cost through labor-saving)

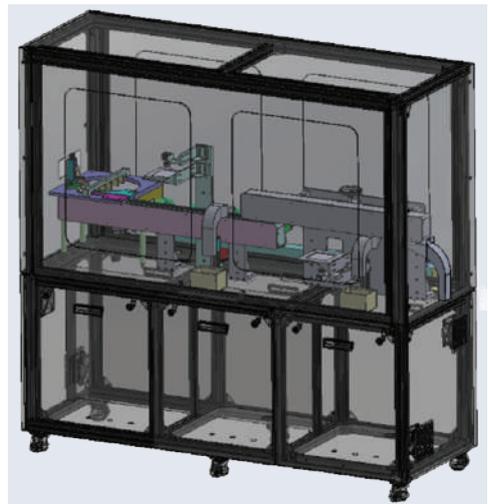
Towards a Safe Future

Quality is highly critical in the Pharmaceutical industry. Taking up the challenge to deliver the needed precision, MGT has taken a plunge into the field with its collaboration with Spookfish Innovations to produce machines that are already receiving overwhelming response from potential customers.

NO Pharma Tablet Manufacturing is complete without its final visual inspection for any minor defects like chipping etc. before packing in the aluminum strips. Today, highly sophisticated machines using industrial vision systems are replacing manual inspection. This not only improves the entire process, but also eliminates the factors of human error and fatigue. Any visual inspection machine needs to address the following critical criteria:



(L-R) Spookfish Innovations Founders John Robinson, Dr Anupriya Balikai, and Dr Sudeep Sundaram



The Automatic Tablet/Capsule Inspection Machine by MGT and Spookfish Innovations

- **Precision:** The machines must inspect products to a precision of tens of microns.
- **Speed:** The machines must, at a minimum, match the production speed of the manufacturing lines.
- **Accuracy:** The machines must not allow even a single defective product into the consumer market.
- **Flexibility:** In a cleanroom environment, the design of the machine must be dynamic to multiple products, modular, and easy to clean between batches.

MGT'S FORAY INTO PHARMA SECTOR

As part of its de-risking strategy, MGT, in association with Spookfish Innovations, has entered the Pharma sector with two visual quality inspection products that have moved past the concept stage and are currently being built.

The first machine is an **Automatic Tablet/Capsule Inspection Machine** that examines each manufactured tablet/capsule from all angles to ensure correct size, color, and surface finish. The machine is equipped with one feeder table and vacuum-operated belt conveyors and a special high-speed vision system. This machine is designed for inspection of 1 lakh tablets/hour.

The prototype is under final assembly at MGT's Bangalore plant and will go into the final phase of a continuous run test by the end of February 2021.

The second one is for the **Automatic Inspection of Rubber Stoppers to seal vials**. Interest from potential customers for these machines has been overwhelming. 



(L-R) MGT Team: Murganandan B, Electrical Designer; Praveen SG, Project Manager; Shashikumar, Mechanical Designer; Manjunath, Technician; Bharat Kumar, Technician; and Narendra A, Assembly Supervisor

Another New Beginning

MGT has forayed into a new business arena with its collaboration with a leading glass processing machinery manufacturer SK Glass Machines (India), and is already convinced of it being a rewarding move...

MICROMATIC GRINDING TECHNOLOGIES (MGT) has entered the glass processing machinery market by collaborating with a leading glass processing machinery manufacturer in India, SK Glass Machines (India) Pvt Ltd. The strengths of both companies will be leveraged to create synergies to deliver operational excellence and value to customers and stakeholders. The glass industry is growing at a fast pace and has tremendous long-term potential which will help us diversify our business. Currently, the major share of glass processing machinery lies with China.

PARTNERS IN GROWTH

Established in the year 1986, SK Glass Machines (India) is one of the leading manufacturers and exporters of glass processing machinery. The company is a global supplier to clients in India, Dubai, Malaysia, Venezuela, Iran, Oman, South Africa, Kenya, Pakistan, Sri Lanka, Mauritius, Nepal, the Philippines, Vietnam, etc. With a vast experience in the industry, it specializes in manufacturing and marketing a large variety of Glass Processing Machines



Star Singh
Managing Director
SK Glass Machines
(India)



(L-R): Team Members from MGT: RA Yadav, PPC; Naman Kumar, Mechanical Design; Sitaram, Mechanical Assembly; Ravinder Som, Electrical Assembly; Arvind Chaurasia, Electrical Design; Vipin Pal, Mechanical Design and Nitin, Mechanical Assembly with CNC Glass Edge-Milling & Grinding machine built by MGT



CNC Glass Edge-Milling & Grinding machine built by MGT

including Glass Washing Machines, Glass Drilling Machines, Glass Edge Grinding Machines, Glass Profile Edging Machines, Glass Beveling Machines and CNC Glass Grinding Machines. Driving greater economies of scale across the value chain, product development and access to relevant technologies will enhance efficiencies and strengthen MGT brand globally. SK Glass and MGT plan to develop precision machinery that requires high expertise, CNC software systems, quality part machining and assembling. These machines can be exported all over the world and will be a strong alternative to Chinese machines.

PLANS SHAPING UP

Star Singh, Managing Director, SK Glass Machines (India) has been instrumental in forming this alliance with MGT and has long-term growth plans. Currently, the two companies plan to develop Glass Double Edging Machines, Glass Cutting Machines, Horizontal Glass Machining Centers, and High-End models of Vertical Glass Straight Line Edging Machines. "We are working on products which are currently imported in India. A prototype machine of a CNC Glass Edge-Milling and Grinding has been produced already at MGT's plant. Other machines related to Glass Edging and Beveling are also under development," shared Singh.

Innovation Is in the Air

The country's agricultural space is revolutionizing itself with the adoption of modern technologies including drones. A look at MGT's transition from precision grinding machines to precision agriculture to support the cause of empowering our farmers and ensuring India's food security...

THE Covid-19 lockdown had everything shut for over two months. By April 2020, it had become clear that the impact of the pandemic on our normal business will be severe and last long. Hence, MGT's senior technical team sought company Managing Director Kapil Dhand's guidance to explore possible new areas where company's know-how and technological expertise could be deployed. Keeping MGT's Purpose – 'Technology in the service of Humanity' in focus, sectors including Pharma, Agriculture, Healthcare etc. were considered. Masks and mask making machines, ventilators etc. were reviewed but the ideas soon got discarded with these businesses having crowded the market already.

TEAMING UP

The team further researched and exchanged ideas with various universities like IIFSR (Indian Institute of Farming Systems Research), a group of Agri-scientists and a group of 20 farmers. They highlighted a dire need of mechanization for plant protection in the Agriculture sector which could be of immense help to farmers. Matching MGT's own technical expertise, the team discovered a Gurugram-based, eight-year-old startup called DeHaat with the calibre to shape the idea.



(L-R) MGT Team: Anurag Bais, Raushan Kumar, and Shivendra Chauhan with Farmer Akash Kumar



MGT Drone sprinkling pesticides in a potato field

Founded by the alumni of the prestigious IIT and IIM, DeHaat is one of the fastest-growing companies in the AgriTech sector and among the very few that provide end-to-end solutions and services to the farming community in India. The startup builds AI-enabled technologies to revolutionize supply chain and production efficiency in the Farming sector. **Shashank Kumar, CEO, DeHaat, showed keen interest in MGT's idea of building Drones to fulfil the farmers' critical need of crop protection, which the startup would add to its services.**

THE BIG PICTURE

Following are some major applications and benefits of the MGT-made Drone:

- Optimizing chemical application (pesticides sprinkling) and plant protection;
- Crop monitoring (nutrients, water, pests);
- Crop health monitoring (NDVI [normalized difference vegetation index], level of chlorophyll);
- Savings in terms of labor, time, and chemical costs.

The field trials have so far been encouraging with a highly positive feedback from the farmers as these services, carried out with the aid of drones, aim at improving the quality and yield of their crops. The MGT team is extremely proud of its contribution to the Agri-sector in the otherwise bleak year of 2020.

Shifting Focus

MGT has been quick in diversifying its business, sensing opportunities in several untapped markets during the current unprecedented times. CoronaCleaner UV Sterilization Box is its yet another innovation with which it has joined the battle against the pandemic...



CoronaCleaner UV sterilization Box



“During the lockdown, we were fortunate to partner with Micromatic to develop CoronaCleaner UV Sterilization Box which have so far benefitted over 3,000 users across 400 locations. They have helped us in engineering a radiation leak-proof design with sturdy packaging to ensure 100% customer satisfaction”

Shubham Rathore
Founder & CEO
TestRight

AMONG the array of new ideas developed by MGT during this pandemic, the company has come across a new business in the Healthcare segment. In its sheet metal vertical, Micromatic Manufacturing Systems Pvt Ltd (MMS), the company worked on a project of UV sanitization boxes with TestRight, which was approved by DRDO.

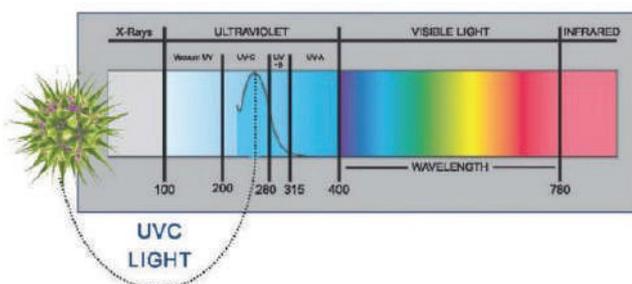
UV POWER

Founded in 2016 by IIT Roorkee alumnus Subham Rathore, TestRight is a Delhi-based startup that develops portable Spectroscopy solutions. These

include India's first portable Raman Spectrometer used in explosives and narcotics detection, and UV-Vis Absorption Spectrometers used for in-field diagnostics and water testing.

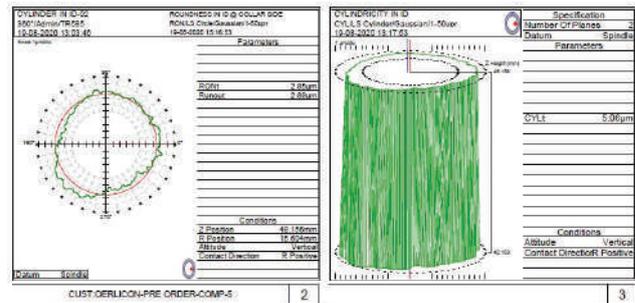
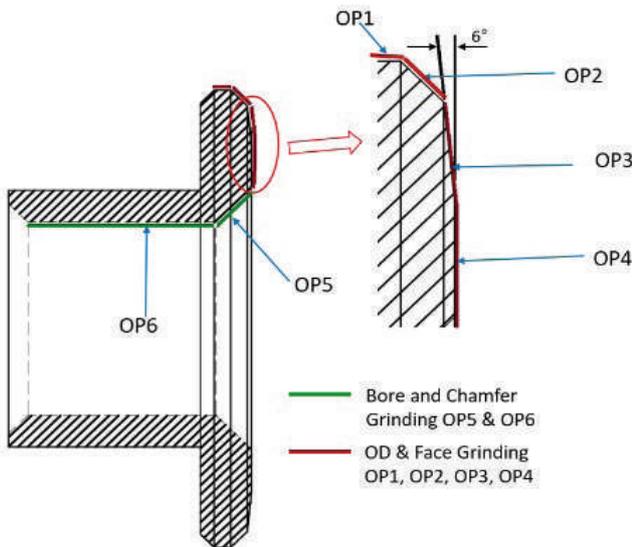
Talking on the association with MGT, Shubham Rathore, Founder & CEO, TestRight, stated, “During the lockdown, we were fortunate to partner with Micromatic to develop CoronaCleaner UV sterilization devices which have so far benefitted over 3,000 users across 400 locations. They have helped us in engineering a radiation leak-proof design with sturdy packaging to ensure 100% customer satisfaction. We look forward to collaborating on future projects with Micromatic.”

The box utilizes UV rays to sanitize daily use items like car keys, phones, wallets etc. and mails or parcels coming from outside. The items need to be placed within the box and after closing the lid and initiating the process, the box sanitizes the item within five minutes.



From Strength to Strength

MGT has added another feather to its cap by developing a one-of-a-kind Grinding Center in Bangalore that is equipped to fulfil many a challenging demand from customers of varied industrial segments. Another Center is soon to come up at the company's Ghaziabad plant in North India.



Roundness within 3 microns, Cylindricity 5.06 microns

To support customers for establishing their new businesses, MGT has taken the initiative of setting up a Grinding Center at its Bangalore plant, which is the first of its kind in the country. **The current Center is equipped with a CNC centerless grinding machine, a CNC universal grinding machine, and a CNC angular grinding machine for providing the below services:**

- Pre-order component trials on the new products introduced in the recent years including Centerless grinding, Internal grinding, CBN grinding, NRG (non-round grinding) etc.;
- Support for sample submission for Pre-PPAP;
- Customer support through grinding capacity enhancement to take care of the sudden spikes in their customers' demands;
- Training our application and service engineers.

FROM VISION TO REALITY

During the year, MGT has also received an RFQ for a machine from a new customer in the Aerospace segment. The Bush type component required 6 grinding operations. **To meet the stringent size and geometrical accuracies, all the 6 operations needed to be completed in a single set-up.** Since MGT did not have any previous experience of grinding such a component or the process to do it, it requested the

customer to supply sample components for doing the trials at its Grinding Center.

Our application engineers developed the process on the Universal ID/OD grinding machine Model IG-150U. The component was held in a special chucking system and by using 2 Grinding wheels (one OD and other ID), all the 6 operations were completed and samples submitted to the customer for verification. The customer appreciated MGT's approach of working together and being transparent.

Based on the capability demonstrated in the process and the results achieved, the customer gained confidence and placed the order for the new machine. **This development will help in saving not only CAPEX for the customer by nearly 40 percent, but also the foreign exchange by substituting a high-value imported machine with MGT's, besides contributing to our nation's vision of an Atmanirbhar Bharat.**

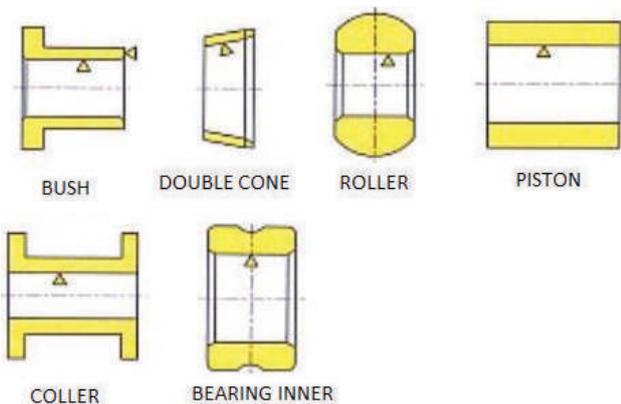


The Grind Continues

In line with the Government of India's goal of 'Atmanirbhar Bharat', MGT has now come up with indigenous Bearing ID and OD Grinding machines, the design and manufacture of which has already begun.



BEARINGS are extensively used in all the industries that require precise, vibration-free and noise-free motion as a key to performance. So higher the performance requirements, higher is the precision requirement of all the elements of a bearing. Some of the bearing elements like outer race and inner race are precision ground on a high-performance, high-speed automatic OD or ID grinding machines that are mostly imported from Europe, China or Japan.



According to the Grand View Research, Inc. Report, the global bearing market size is estimated to touch \$186.1 billion by 2025, registering a CAGR of 9.1 percent during 2014-2025. The estimated consumption of anti-friction bearings in India is about ₹9,500 to 10,500 Crore in 2021 with nearly 40 percent imports.

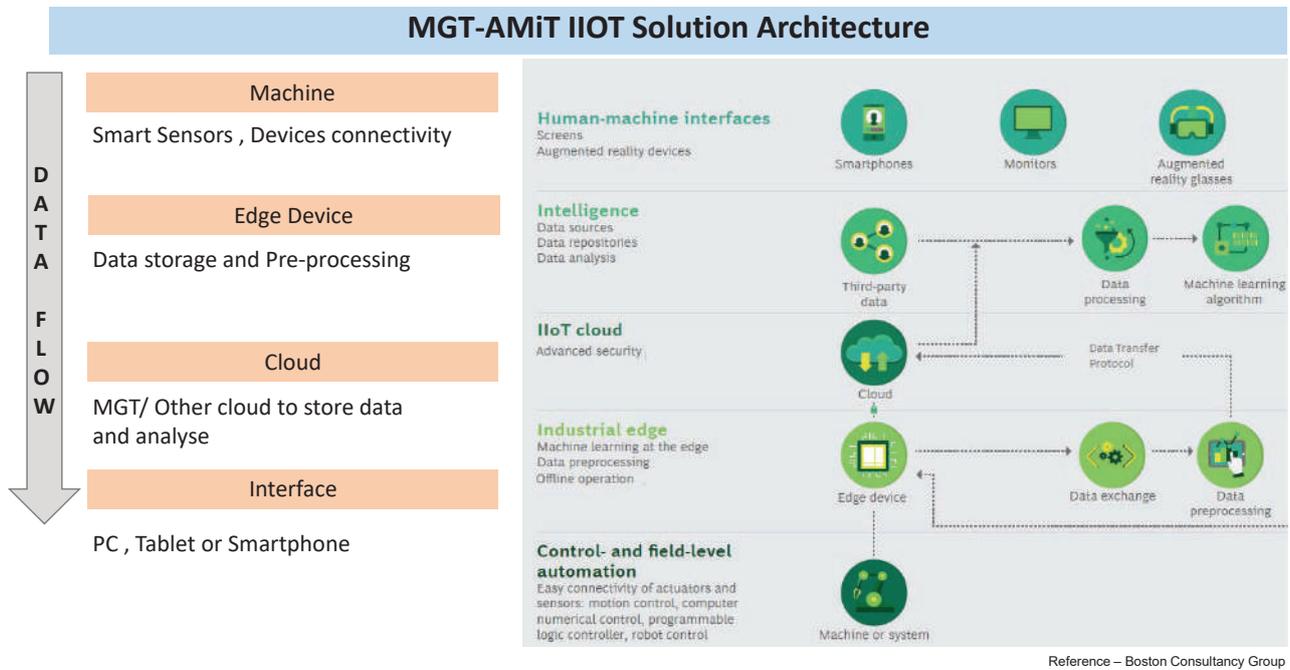
TOWARDS BEING SELF-RELIANT

Considering the requirement of Indian and global customers, MGT has initiated the Design and Manufacture of Bearing ID and OD Grinding machines with the aim to offer indigenous Bearing Grinding solution in alignment with the Government of India's 'Atmanirbhar Bharat' goal.

The prototype machine is under manufacturing and scheduled to be ready for a try-out by June 2021. This machine is planned to be tooled-up for a CV joint cage for one of our prime customers.

Offering Smart Solutions

MGT-AMiT IIoT architecture offers a wide array of benefits and adds immense value for customers.



MGT has come up with its newest smart solution, MGT-AMiT IIoT architecture that lets customers explore the full potential of its grinding machines, by incorporating various IoT modules in them.

Following are the advantages that customers will be able to avail of:

- **Improved machine uptime** with the help of predictive maintenance, remote service help and online health monitoring with multiple smart sensors on the machine. On-line spares ordering option has also been planned;
- **Increased productivity** with self-optimization of processes and increased uptime;
- **Process traceability** that opens new avenues for continuous improvement of the process;
- **Real-time dashboards** available for Management and Production engineers based on the need to acquire information for proper supervision;

- Improvement and **online monitoring of OEE** for better productivity, machine uptime and quality with online process monitoring;
- **Better capacity planning** with realistic uptime machine data;
- **Enhanced machine life**, availability, utilization, and asset productivity.

FURTHER WORK-IN-PROCESS ON THE ANALYTICS

Predictive Maintenance: Planning to analyse data collected for wheel head and work head Spindles to predict problems in these areas for proactive action by the Maintenance Department. Data includes temperature, vibrations, current, RPM, etc.

Process Analytics: By collecting the process data, including coolant flow rate & pH value, wheel axis feed, RPM, dress feed, gauge data and spindle vibrations, etc., process outcomes can be predicted and optimised.

Feedback from a key customer

The customer is the largest 2-wheeler manufacturer in the country and the world, who is using the initial modules of the IoT on MGT grinding machines. The solution has helped him:

- Establish process for Predictive Maintenance;
- Monitor process parameters like coolant flow rate, machine vibrations and component size variation, etc.

Treading New Paths

With MGT's expansion plans involving critical parts development, challenges were bound to be encountered. Here's how they were resolved while developing guide rods for Schenck Rotec India...

AS part of its business de-risking strategy, MGT also decided to enter part manufacturing involving precision grinding, its core competency. The company got the first order of a component, Guide Rod from the Noida-based Schenck Rotec India Ltd. Schenck is a world renowned manufacturer of Balancing Machines based in Germany.



Schenck Guide-rod being finish ground on MGT machine model GCH 440X1200

CHALLENGE

A guide rod is a long component with L/D ratio of 17. The challenge was to provide straightness of 5 micron on a 50 mm dia. rod of 850 mm length. Another challenge was to do casehardening of 1 mm without bending and also to avoid bending in chrome plating operation.

SOLUTION

Since MGT has the expertise to prove out 5-micron straightness on such long parts, the real challenge here was to avoid bending while hardening the part. In consultation with our heat-treatment partner, a decision was taken to provide sufficient extra-material on the diameter as case depth was also important. The guide rod was suitably placed in the heat treatment chamber to avoid bending. The Methods Department discussed with the customer about the job carrier mounting to be done in an alternate way to enable finish grind the guide rod in a single set-up.

ACHIEVEMENT

We achieved straightness within 0.002 mm and taper within 0.001 micron as per the inspection report of M/s Schenck. Timelines were also adhered to in compliance with the customer requirements.

VALUE ADDED SERVICES – VISION CAMERA FOR ZERO ERROR

Chasing Zero Errors

MG T VAS team could provide the solution to two of its major automotive customers who faced the issue of wrong loading of parts while working on different components on the same machine. One of the challenges was the differentiation of components before loading them as similar type of components for BS 4 and BS 6 were ground on the same machine.

Another was the mounting demand for highly skilled operators in the manual process. Hence, the need was to deskill it.



A robot placing a component in front of vision camera for inspection

VISION CAMERA AS THE SOLUTION

The team came up with a solution that included placing of a vision camera on the machine, which worked as a component inspector. The operator just has to place a component in front of the camera before loading it on the machine. The camera checks the component corresponding to the selected part program. For the right part, it shows a green light and the visual of the component over the screen. For the wrong part, an alarm goes off with a red light.

BENEFITS OF THE SOLUTION

- Bringing part loading error percentage to zero;
- Reducing machine accident chances due to wrong part loading;
- Increasing production capability by eliminating the need for a skilled operator.

Talking Innovation

Thinking and acting out of the box has been one of the hallmarks of MGT. Notwithstanding the current situation that has unhinged the way the industry operates, the company has taken many an untrodden path and broken the mould of its business. Read on to know about its latest solutions for different non-ferrous material grinding applications...

REGARDLESS of the unforeseen situations in 2020, MGT has delivered some path-breaking solutions to its customers for different non-ferrous material grinding applications. Here are some of the use cases:

MATERIAL – PU (Gr-M), NYLON

MGT's Application Engineering Team has stretched its arms in a new area of PU and Nylon grinding, paving its way forward to serve many industries like Textiles, White Goods etc. These applications are tooled up on our smallest footprint model PLUTO 18.



Component – PU Roller

Application – Paper shredder machines, Paper sliding machines and Loom machines

Industries – Textiles, Paper

MATERIAL – TUNGSTEN CARBIDE

This component made of tungsten carbide was ground using a diamond wheel. The application was performed on MGT's specially designed TC Roll Grinding machine that has a special work holding and antifriction work head.



Component – Tungsten Carbide Rolls

Application – For drawing steel rods used majorly in construction

Industries – Steel Rolling Mills

MATERIAL – CERAMIC

Component – Ceramic Bushes

Challenge – Changing a skill-based process to an automated process (from Hydraulic to CNC Grinder)

Preparation & Planning –

- Observed existing process at the customer end
- Developed diamond wheel and special dresser arrangement
- Optimized parameters to meet productivity requirement

Application – These Ceramic Bushes are primarily used in pumps used for coolant systems, chemical transfer etc.



Industries – Automotive, Electronics, Industrial Machinery and related industries

FUTURE SCOPE

MGT, with its vast experience, is all geared up to demonstrate its competency in varied industrial segments with its high-quality, state-of-the-art offerings for a wide range of applications. In future, such applications can be useful in many upcoming products using other non-conventional materials, thus enhancing customer convenience and technological abilities. 

Cash is King

Here's how MGT solved cash in-flow issues through critical timely support to the customers...



THE suddenly imposed lockdown got us in a situation where we faced huge financial crisis as the cash in-flow was down to practically nil, for us as well as our customers. To restart the cash flow cycle, MGT management decided to adopt a proactive strategy of taking care of customer's production machines, the source of their cash. Also, MGT team was unable to provide physical support for any machine breakdown due to the lockdown of facilities and Govt. restricted movement.

COPING STRATEGY

MGT team identified all the machines delivered over

the last five years to the customers, and developed an SOP/checklist, machine model-wise, for re-starting their machines after the long shutdowns. A CFT was formed to support by identifying a similar team at MMT's local offices. Necessary Spares stock was also created, and the information was shared with the customers via e-mail. Customized online training programs were also held for pan India customers that recorded over 1,500 logins.

This helped us reach and inform 303 customers who were extremely happy with our pre-emptive timely actions that saved their effort and many unwarranted costs. This reduced in-coming service calls by 80 percent compared to the normal times. Maintenance support was extended over Skype, Microsoft Teams or through WhatsApp Video calling. These practices supported our customers to come out of the financial crunch and ultimately benefitted us also thru this crisis.

CUSTOMER SUPPORT - VIRTUAL FINAL ACCEPTANCE TEST

Virtual Is the New Real

Due to the lockdown imposing travel restrictions, Sandvik Pune could not reach MGT for the FAT of a machine. The impasse was resolved virtually.

SANDVIK Pune had ordered a Centreless Grinder, CLG 6025 -6 axis CNC with automation, the first such machine for the cutting tool industry from MGT. Owing to the Covid-19 pandemic, a virtual FAT (Final Acceptance Test) of the machine was carried out in June 2020. Everything from the machine operation, setting changeover, SOPs, to the finish product inspection were shared live and the machine acceptance to ship was received.

THE UNPRECEDENTED SITUATION

The machine was ready for the FAT by the customer in March 2020. That is when the lockdown was imposed. Initially it was total and then on reopening, no interstate movement was allowed. This prohibited the Sandvik team to travel to the MGT factory at Bengaluru, and hence the delivery was getting delayed.

The MGT team proposed the option for the virtual FAT with the customer, asking to draw out their requirements of the machine run and component trials. We tried to build their confidence by sharing our earlier experience. We had started sharing videos of machine geometric tests to the customer starting August 2019 (done earlier also for the M&M SWARAJ CLG 5020 PO with automation). The virtual FAT was therefore a natural extension. This way a new process was established for the Virtual FAT and the delivery time was also ensured.



6 Axis CNC Centreless Grinder CLG 6025

Care During Crisis

MGT has always been ensuring well-being of the communities around it. With the ongoing Covid-19 pandemic impacting all, the company has multiplied its efforts of extending support to them with the aid of Gram Niyojan Kendra.



1 Covid-19 Awareness Programme: Since community members, especially women and children, lacked enough information on the protocol and precaution of the pandemic, 49 small group meetings were conducted, ranging from 6 to 15 women in each meeting. A total of 601 participants were successfully edified on the prevention measures; adherence to norms of social distancing, use of mask, proper hand washing, use of sanitizers; and ways to reduce stigma associated with it. Similarly, 217 children of 12 to 18 age group were taken in 17 small group meetings to make them understand the same.

2 Health Camps: With the approval of CMO, Ghaziabad, five general health camps were conducted to have 250 people treated by specialist doctors.

3 Sensitization Programme: To help children understand issues of violence, child labour, child marriage, Covid-19 and personal hygiene, groups of children in the age bracket of 12 to 18 years were formed in Dehra, Khichra, Kanawani, and Raispur. A total of 22 meetings with 179 children were held.

4 Sanitation Drive: As an important measure to prevent Covid-19, community women and children were educated on the six steps of hand washing.

5 Routine Immunization of Children and Women: Support was given to Anganwadi and ANM, and a total of 1,182 children and 304 pregnant women were covered for routine immunization and vaccination with the help from the local health department.

6 Academic Support to Children: Gram Niyojan Kendra (GNK) provided remedial classes to 500 children of standard 1st to 8th in four villages. Educators were appointed by the Kendra in all the villages for carrying on this educational support.

7 Skill & Livelihood Program (Youth & Women): To promote and support female workforce in the intervention area, GNK established skill training centers – three stitching training centers and one computer training center. Trained instructors were appointed for the requisite training. A total of 60 girls and women completed a three-month training in Kanawani (22), Dhera (20) and Raispur (18) and developed their skills in stitching.

8 Advocacy Networking with Stakeholders: A meeting with stakeholders at village, block and district levels was conducted to secure their cooperation in project activities and other issues within community. Owing to their support, services of immunization and vaccination have been regularized and health camps organized in intervention areas.

PLANTING PROSPERITY

PLANT TO PLANT, an initiative by MGT is started with a vision to make a greener and healthier world by sending a sapling with every machine. We're thankful to our customers for appreciating this step by planting those saplings in their premises.

Plant Sapling being planted by our customer Musashi in their premises.

Plant Sapling being dispatched by MGT team to the customer with their machine.

Some of our Idea Partners



MUSASHI

HAPPY FORGINGS LIMITED



BHARAT FORGE



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