



ZER



equilibrium
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CONTENTS

0.1	Chairman's Message	1
0.2	Introduction to the Zero Philosophy	2
0.3	2014: A Successful Pursuit	3
0.4	Machining a Swiss Chalet	4
0.5	Transporting the Good	5
0.6	New Product Stories	6-9
0.7	New Innovations & Features	10-11
0.8	Awards	12
0.9	Culture Stories	13
0.10	Sustainability and CSR	14
0.11	The MGT Ecosystem	15
0.12	Sustainability- Green Machine Concept	16-17



Chairman's Message

“As we enter a new financial year, it is time to explore new opportunities and new horizons. We embarked on a quest for perfection in 1973, and with hard work and dedication we have evolved to be the best in Cylindrical Grinding machines in India. And now our Vision is to be the best in Surface Generation Technologies globally.

To be the best in the world requires a change in culture, from accepting mediocrity to striving for perfection. This change will come from Zero tolerance for defects – in our machines, processes and values. MGT will now be defined by this constant pursuit of Zero.

The pursuit of Zero means striving for perfection in all our actions to become a value multiplier for our stakeholders, just as the symbol 0 adds tenfold value each time it is added to any digit.

This focus on adding value is reflected in our new leadership, with Mr. Kapil Dhand taking over as the Managing Director. His insight, dedication and knowledge will ensure MGT soars to new heights.

I invite each and every one of you to join us in our pursuit of Zero.



NK DHAND
CHAIRMAN



“I thank the Board of MGT for providing me with the opportunity to serve as the Managing Director. As I take over, the challenge in front of me is "How to bring Sustained Growth & Profitability to the company". Mr. N.K. Dhand led MGT to become the Best in India. Now the aim is to become one of the Best Globally.

The first step towards this Goal will be creating a Culture of Excellence & Perfection - defined by the Pursuit of ZERO which adds ten times value to anything it gets added to, as mentioned by our Chairman in his message above.

But how do we achieve zero? The answer is in fact, in the question. One of the biggest qualities of zero as a digit is that it is a centre – between positive and negative. It is neutral. It is objective. It is constantly in a state of equilibrium.

To achieve a state of perfection, we will need to first achieve and maintain a state of equilibrium – to constantly be neutral and never biased, to look at things objectively and to be at the centre of everything around us – positive or negative. Because only when we are the centre, will we be able to change the world around us.

I request you to see yourself as the centre, the zero of the company and by doing so, help define an organizational culture that speaks of excellence, of perfection, of zero. To enable you to do the same, I present to you MGT's new newsletter – Equilibrium.

Equilibrium will not just be a newsletter, but a tool, that will put you at the centre of MGT's world and enable you to be an active part of everything we do. Equilibrium will be the balance, that will allow you to see yourself, and us, from a broader perspective. And lastly, but most importantly, Equilibrium will be a steady ground, that will enable you, and us, to reflect, to update and to move forward, together, in our pursuit of perfection, in our pursuit of ZERO.



KAPIL DHAND
MANAGING DIRECTOR



Introduction to **ZERO PHILOSOPHY** The Pursuit of Zero



At MGT we are bound by a set of shared beliefs, values and practices. A culture that encompasses every aspect of our lives. A culture of value generation. This is our culture of Zero.

The pursuit of Zero is the pursuit of perfection.

Zero Defects. Zero Downtime. Zero Emissions.

2014

A SUCCESSFUL PURSUIT

Pursuing perfection and value generation in everything we do is integral to us. At the end of each year, we reflect upon our achievements – to better them, to perfect them.

It is this drive to further our achievements that has led us to identify our major success factors of 2014 and work towards improving on them in the coming year:

- ❖ **Machines that expand the scope of Surface Generation Technologies in India.**
- ❖ **Innovations that make the process of grinding better, faster and more economical.**
- ❖ **Actions and Discoveries that benefit the society and the environment.**
- ❖ **A Culture that seeks perfection in everything, at every step.**

Every achievement is the stepping stone to a greater achievement.



Machines



Innovations



Actions & Discoveries



Culture of Perfection

MACHINING A SWISS CHALET



In 2014, we managed to develop the 'Non Round Grinder' and receive orders for the same. This was a first for MGT, as before this, we had only been manufacturing cylindrical and round part grinders. Trust us, it was no ordinary feat...

In the winters of the Alpine, where is warmth but in front of the fire that is lit under snow-capped gabled roofs. A classic splendour: it's the Swiss chalet in all its glory! What is it, but wooden works put together like a magnificent puzzle – a natural creation. What makes them possible, but expertly designed lumber, shaped and caressed by a woodworks machine.

Our Non – Round Grinder creates the Spindle, a crucial component in any woodworks machine. With detailing that goes to the extent of being able to reach a Surface Finish of 0.3 – 0.4 Ra on Dia, our Spindles lay down a solid foundation of precision, perfection and true accuracy in a woodworks machine – something that is reflected in all its products, and even more so in the exquisitely carved Swiss Chalets.

The chain of impeccable quality that begins from our Non Round Grinder, extends to its components like the Spindle, and among many, the woodworks machines that they are a part of, is finally reflected in the greater things built much later on the timeline, such as the Swiss Chalets.

The thought itself may be way back into the process, but our Non Round Grinder is truly the grand beginning of a journey that reaches the Alps back again; making something as beautiful as a Swiss Chalet.

PROFILE ACCURACY **0.02** mm

TRANSPORTING THE GOOD



REAR AXLE

We entered the arena of manufacturing grinders for big parts of 2 and 4 wheeler automobiles. Through our newly developed Large Part/ Heavy Duty Grinder for Axle Beams, we developed a grinder for components that weigh up to 300 Kg and are 2 metres in length.

Development is a phenomenon often symbolized through the construction of skyscrapers, and rightly so. But an equally integral, but heavily ignored visual of development, is the sight of goods being transported from one destination to the other, growth being enabled from one milestone to the other. And in the case of India, if there is any vehicle that has enabled such growth, it is a BharatBenz Truck.

A BharatBenz Truck is not only a symbol of growth as it enables development, but its impeccable quality is a testament in itself to the growth this country has achieved. To reach such standards of quality, every component that is a part of a BharatBenz Truck is perfected to speak the same language – of world class quality and precision.

Out of the many components that make a BharatBenz Truck come alive, one crucial component is the Rear Axle, manufactured and perfected by our Heavy Duty Grinder.

With the capability of achieving a Surface Finish of 0.3 – 0.4 Ra on Dia, the Rear Axle manufactured by our Heavy Duty Grinder personifies excellence and precision worthy of being a part of India's growth story through a BharatBenz Truck.

SIZE **0.022**
TOLERANCE **mm**

NEW PRODUCT STORIES

Special Purpose Machines (SPM)



H GRIND MACHINE

The H-Grind is developed to suit heavy duty grinding applications for Automobile, Agriculture, Compressor & other general engineering industries. The Machine features a high wheel width & a 60 MPS wheel surface speed to enable Higher Material Removal rate (MRR) with increased productivity.

The 'Why' behind the Machine

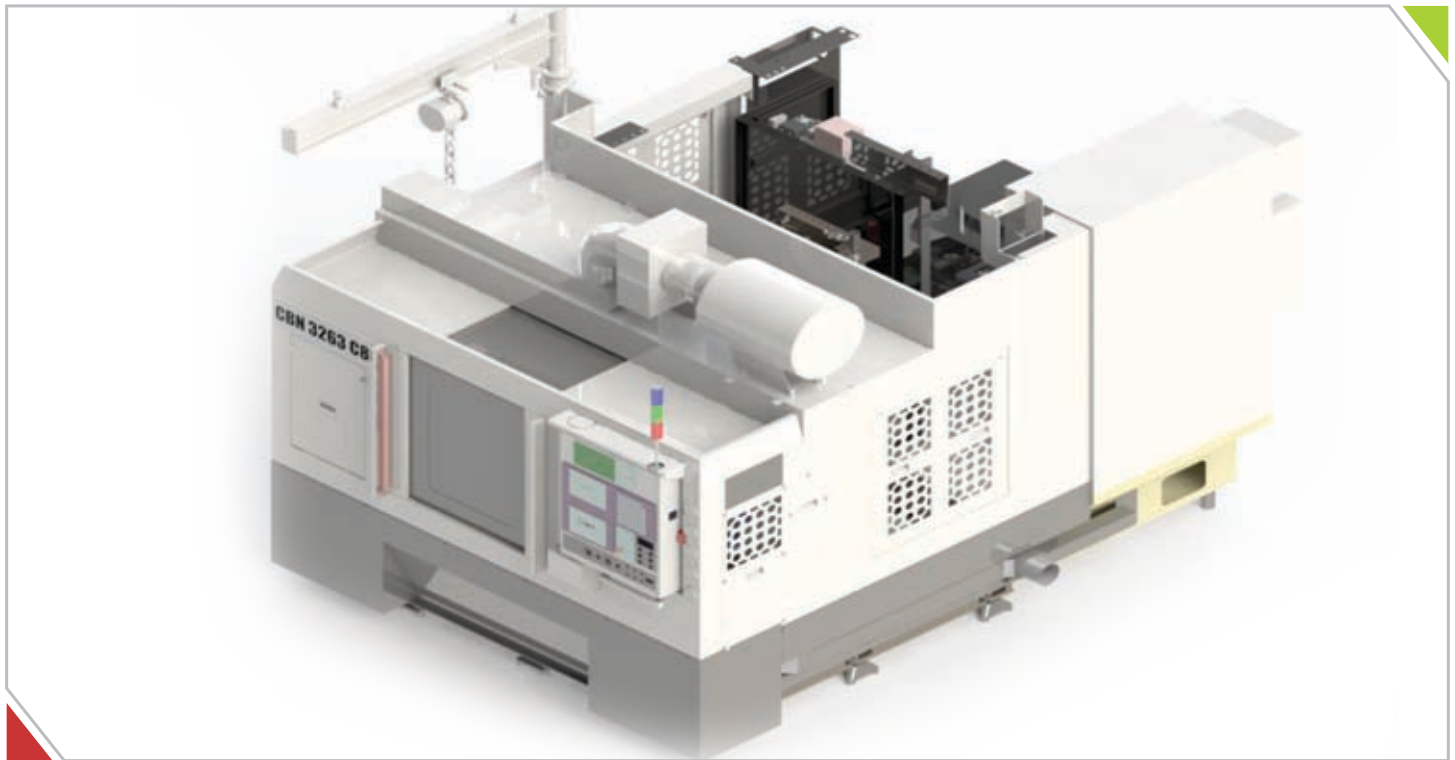
Developing a machine that can grind large parts requires extremely complex design, application and machine building capabilities. As a result, Large Part Grinding needs in India were mostly catered to by foreign companies up until now.

We have redefined this equation by developing the H Grind 250, a heavy duty machine that can grind large parts up to 2.5 meters in length and 700 KG in weight. The machine is capable of catering to the large part grinding of needs of various industries including Aerospace, Automotive, Construction etc.



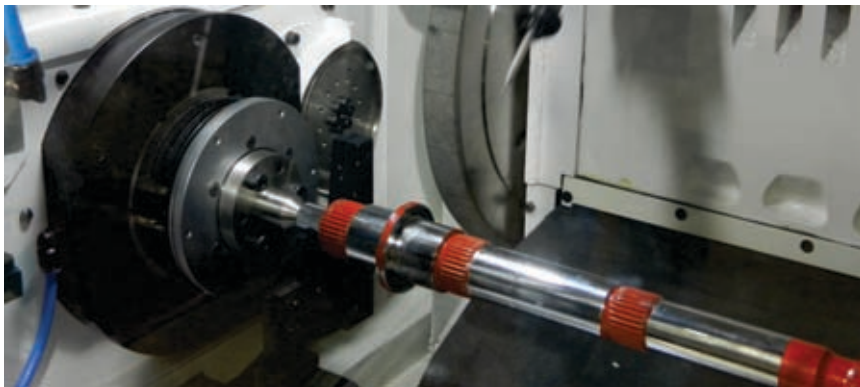
H-GRIND Heavy Duty Grinder

Feature	Unit	Specification
Swing over Table	mm	630
Maximum Grinding diameter	mm	500
Admit Between Centre	mm	2500 / (3000)
Grinding length	mm	1200 / (2500)
Max Job Weight with Steady	kg	750



CBN OD GRINDING MACHINE

The CBN OD Grinding Machine has been developed to meet the high quality and productivity demands of the automotive industry using a CBN grinding wheel. The Machine has been designed using the latest CAD software and has been validated for static and dynamic rigidity by Finite Element Analysis (FEA).



CBN OD Grinder

Feature	Unit	Specification
Swing over table	mm	320
Grinding Length	mm	630
Grinding Diameter	mm	100
Weight between centers (Max.)	kg	50
Grinding wheel(OD X ID X W) [MAX.]	mm	CBN 450X40X35
Wheel peripheral speed	m/sec	80
Spindle power	kW	15 (22)

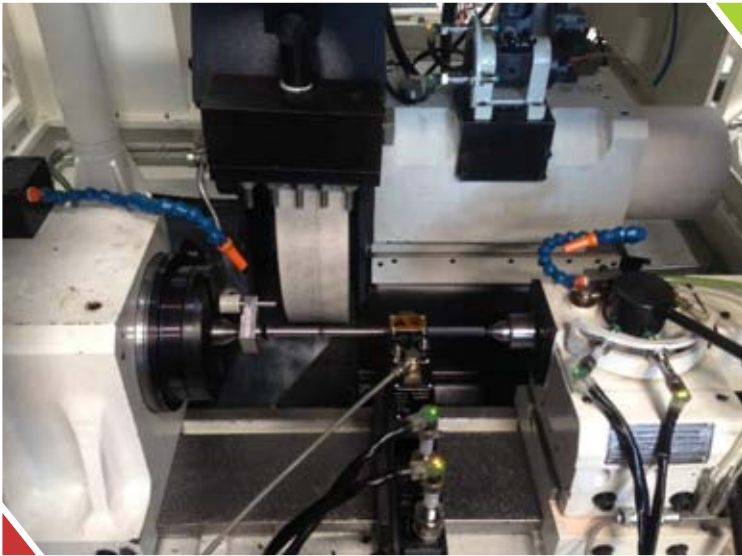
The 'Why' behind the Machine

The CBN OD Grinder is an extremely significant development as this is the first time that an Indian manufacturer is introducing High Speed CBN Grinding Technology in the Indian market. The machine was developed to achieve quantum reduction in cycle time, leading to 30% - 50% savings in cost per part through high performance CBN Grinding.

NEW PRODUCT STORIES

CREATING PERFECT SHAPES – OTHER THAN ROUND!

Introducing Non-Round Grinding from MGT.



Our pursuit for grinding the perfect circle has led us to enter the realm of Non Round Grinding.

The development of the Non-Round Grinding machine is a stepping stone towards creating perfect shapes & meeting the demands of customers who were so far dependent only on technology from outside India for such applications. The machine can grind various shapes & eccentric diameters. Grinding with CBN & Conventional wheels can be offered depending on the application.

The 'Why' behind the Machine

To develop a technology indigenously & to make our customers more competitive, who so far were dependent only on imported grinders for their non-round applications.

Salient Features

- › Built-in Motor Wheel Spindle
- › Direct Drive Work Spindle
- › Optimised sizing and Servo tuning for high Dynamic Response.



UNIVERSALITY → FLEXIBILITY → PRECISION

Introducing IEG150-U the Universal Grinder.



The IG-150U universal grinder has been developed for high volume production of chucked components requiring Internal & External Grinding of Diameters in a single chucking.

The machine features separate slides for Internal & External Grinding spindles. The grinding feed is through a separate slide on which the work spindle is mounted. Optional features like, Linear glass scales, rotary dresser, Dynamic Balancer, HF Spindles are also available.

The 'Why' behind the machine

Grinding Outside diameters, inside diameters and faces in a single setup to achieve the highest precision.

Specifications of IG-150U

Specifications	
Maximum Rotating diameter including chuck (With suitable work spindle)	450mm
Maximum diameter of grind able hole (With suitable wheel spindle)	150 mm
Maximum hole length	150 mm
Maximum component weight (Including Chuck)	150 kg
Work spindle	A2-6 (A2-8)
Work Spindle Swiveling range	+ 25° to -5°
Machine weight	5500 kg

PRECISION + HIGH PRODUCTIVITY + HIGH RELIABILITY = LOWEST COST/PIECE (CPC)

Introducing CLG5020 Centerless Grinder.



Precision, High Productivity at the lowest CPC are features that define the New Centreless Grinder Jaguar CLG5020 launched by MGT at the IMTEX 2015.

The machine is suitable for Through Feed and Infeed Grinding. Combined with various options for automation of work handling, it delivers highest precision at the most optimum costs.



Specifications	CLG5020
Component Diameter	2-60 mm
Grinding Wheel Φ x Width	510 x 205 mm
Regulating Wheel Φ x Width	305 x 205 mm
Grinding wheel spindle power	11 (15) kW
Wheel Surface Speed	33(45) m/s

The 'Why' behind the Machine

To meet the requirement of our customers for a Reliable & Precise Centerless Grinder to achieve the lowest Cost per Piece (CPC).

NEW INNOVATIONS & FEATURES

Innovation has always been a part of MGT's culture. In our latest set of innovations, we have come up with simple but effective features which will help you save time during the manufacturing process and increase productivity.

MANUFACTURE FASTER, BETTER & MORE ECONOMICALLY



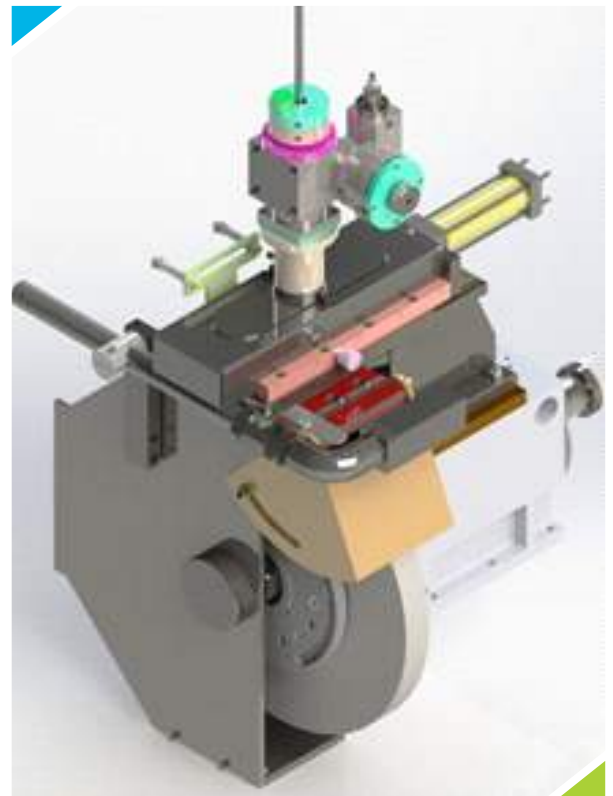
Wheel Head Mounted Automatic Dressing Unit COMPLETELY HANDS FREE DRESSING!

OBJECTIVE:

- To reduce dressing cycle time for hydraulic grinders.

BENEFITS:

- Automatic dressing provision suitable for heavy and long jobs.
- Dressing is possible without removing / changing job setting.



Operating a Hydraulic Grinder requires you to dress the wheel by moving the table manually, which is an operator dependent process. This results in tremendous loss of time and effort, especially during large batch production.

Our new feature counters all these problems. The 'Wheel Head Mounted Automatic Dressing Unit' makes dressing of the wheel on a Hydraulic Grinder completely "Hands Free". It can be mounted on top of the Grinding wheel and the dressing feed can be given by the push of a button. The traverse movement of the dresser is hydraulic, making the process of wheel dressing Semi-Automatic, Safe & Easy on a conventional Hydraulic grinder.

Quick Grinding Wheel Change System

50% REDUCTION IN WHEEL CHANGE TIME!

OBJECTIVE:

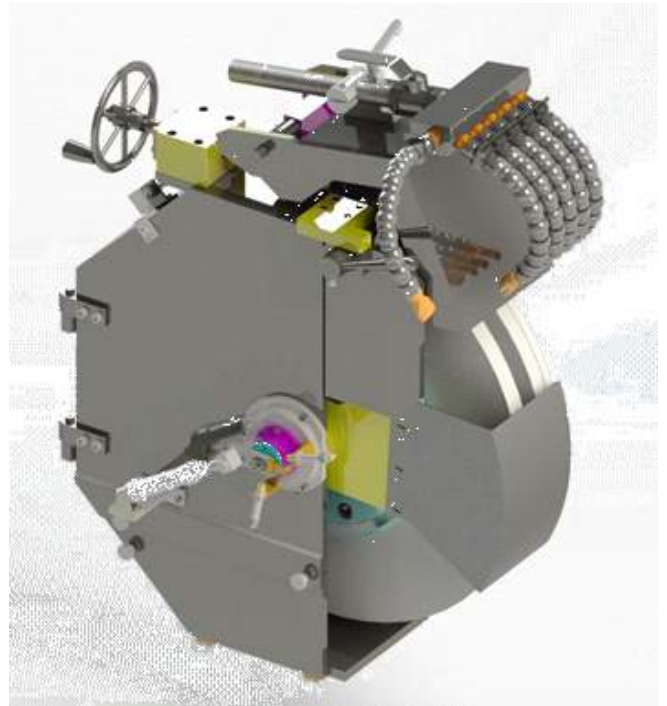
- › To minimize wheel change over time.

BENEFITS:

- › To improve OEE of machine.
- › Ease of change & User friendly.
- › Minimum tools required for change.

Our new feature, the 'Quick Grinding Wheel Change System' is a step towards improving the productivity of the grinding process by reducing the time spent on non – value adding procedures, such as changing grinding wheels.

This feature aims to decrease the time it takes to change the grinding wheel by a huge 50%, while simultaneously making the wheel change process simpler and safer.



Two Axes Dressing Unit For Diamond Wheel

FASTER AND ACCURATE TRUING!

OBJECTIVE:

- › To make the truing process for diamond wheels more accurate and faster.

BENEFITS:

- › Reduces dressing cycle time.
- › A safer dressing method in comparison with dressing through stick.
- › Better dressing/ truing of diamond wheel to achieve consistent accuracies.

Truing consists of grinding or wearing away a portion of the abrasive section of the grinding wheel to make it run true or to bring it to the desired shape. This is a necessary process which cannot be avoided.

Our new feature – the 'Two Axes Dressing Unit for Diamond Wheel', is a revolutionary step that drastically improves the truing process in diamond wheels. Through this feature, truing becomes faster and more accurate, thus resulting in increased productivity and less non – grinding time during the manufacturing process.



AWARDS

At MGT, we consider awards and accomplishments to be nothing but a confirmation that we are on our way to achieving our goal of global leadership, of perfection, of zero.

RANE AWARD FOR BEST SUPPLIER



5S AWARD



Our new innovative product – the Centerless Grinder not only successfully functioned as an import substitute, but also managed to drastically increase productivity by 30% as compared to the machine previously used by that company.

This incredible achievement was recognized and we were bestowed with the honour of winning the prestigious Rane Award for the Best Supplier – 2014.

We follow is the principle of 5S with the aim of eliminating MUDA or waste, because we believe best practices result in best results.

In a big achievement, MGT's Bangalore plant won the prestigious 5S Award in a competition held for the medium – scale industries in South India. We stood first out of the large number of companies that participated – a manifestation of our Pursuit of Zero.

CULTURE STORIES

At MGT, we consider ourselves to be a part of a 'Circle of Interdependence' that comprises of our customers, the environment and the society. To keep this circle functioning, we contribute towards the development of each of our stakeholders.

This year, a number of us stood out due to their immense contributions to our Circle of Interdependence.

Empowerment through Education

Mr. RK Singhal, (on right) along with Mr. RA Yadav, Mr. Sohan Goswami & Mr. Satish Mhaske, MGT staff, initiated free coaching classes for underprivileged girl students of Raispur village in association with GNK (Gram Niyojan Kendra), starting from May 2014.

Their path was not easy and they faced several obstacles initially as the students, most of whom are girls, were demotivated, felt helpless and were unwilling to study. However, today, the same students are motivated to study and see education as a stepping stone to achieving greater things in life.



Holding Life's Hand



Mr. David

Mr. David truly proved that all of us at MGT are one big family. Mrs. Paramjeet Kaur, the wife of MGT employee Mr. Charanjit Singh, was suffering from a severe form of Pancreatitis for more than three months. Mr. David along with the help of some other team members took initiative and contacted the Institute of Liver and Biliary Sciences Hospital in New Delhi which specializes in the treatment of such rare diseases.

However, Mrs. Paramjeet Kaur's recovery was still not assured as the treatment was extremely costly and the hospital was not under the jurisdiction of ESI. Mr. David took hold of the situation and made sure that an approval for Rs. 13,50,000 was granted by the ESI office so that her treatment could take place safely and completely.

Healing the World



Mr. C Raju

Mr. C Raju's actions are a commanding example of one's concern for the society. Actively involved with an NGO called Prochedna, he helps collect food, clothes and medicines from in and around neighbourhoods and distributes them to nearly 600 needy people in the city, regularly once every month. He has been a ray of hope for many people within and beyond the boundaries of MGT by helping people get treatment in various government hospitals.

We, on behalf of the entire MGT family, thank Mr. RK Singhal, Mr. RA Yadav, Mr. Sohan Goswami, Mr. Satish Mhaske, Mr. David & Mr. C. Raju for their compassionate actions and feel privileged to have colleagues like them in our midst.

SUSTAINABILITY & CSR

The Health Attendant Program

The Health Attendant Program is a social initiative by MGT in association with the NGO Gram Niyojan Kendra. The idea behind this initiative is to provide employment to unskilled women & men from nearby urban areas as Health Attendants in Hospitals, Clinics & Private homes.

Up until the end of 2014, more than 60 women & men had been provided with employment through this program and MGT is committed to ensuring a constant increase in the number of beneficiaries.



TRANSFORMING LIVES



MS. KUSUM

“ The course had many benefits for me. I am now employed and earn about Rs. 8,500 in a month. I am able to provide my children with better education & facilities. ”

I came to know about the Health Attendant Program through the village awareness program conducted by GNK at a local centre in our village – Raispur.

The course resulted in many benefits for me. I am now employed and earn about Rs. 8,500 in a month, and am able to provide my children with better education & facilities. Additionally, the fact that I am now self-dependent has resulted in me becoming an equal part of the decision making process along with my husband.

CSR ACTIVITY AT BANGALORE

At MGT, we believe that our Pursuit of Zero is not just a pursuit of perfection, but also a pursuit of adding value, just like zero does to any other number. With the objective of adding value to our surroundings, MGT Bangalore plant decided to distribute Carpets and Water Purifiers to Local Primary Schools around the plant.



Distribution of Carpets in schools



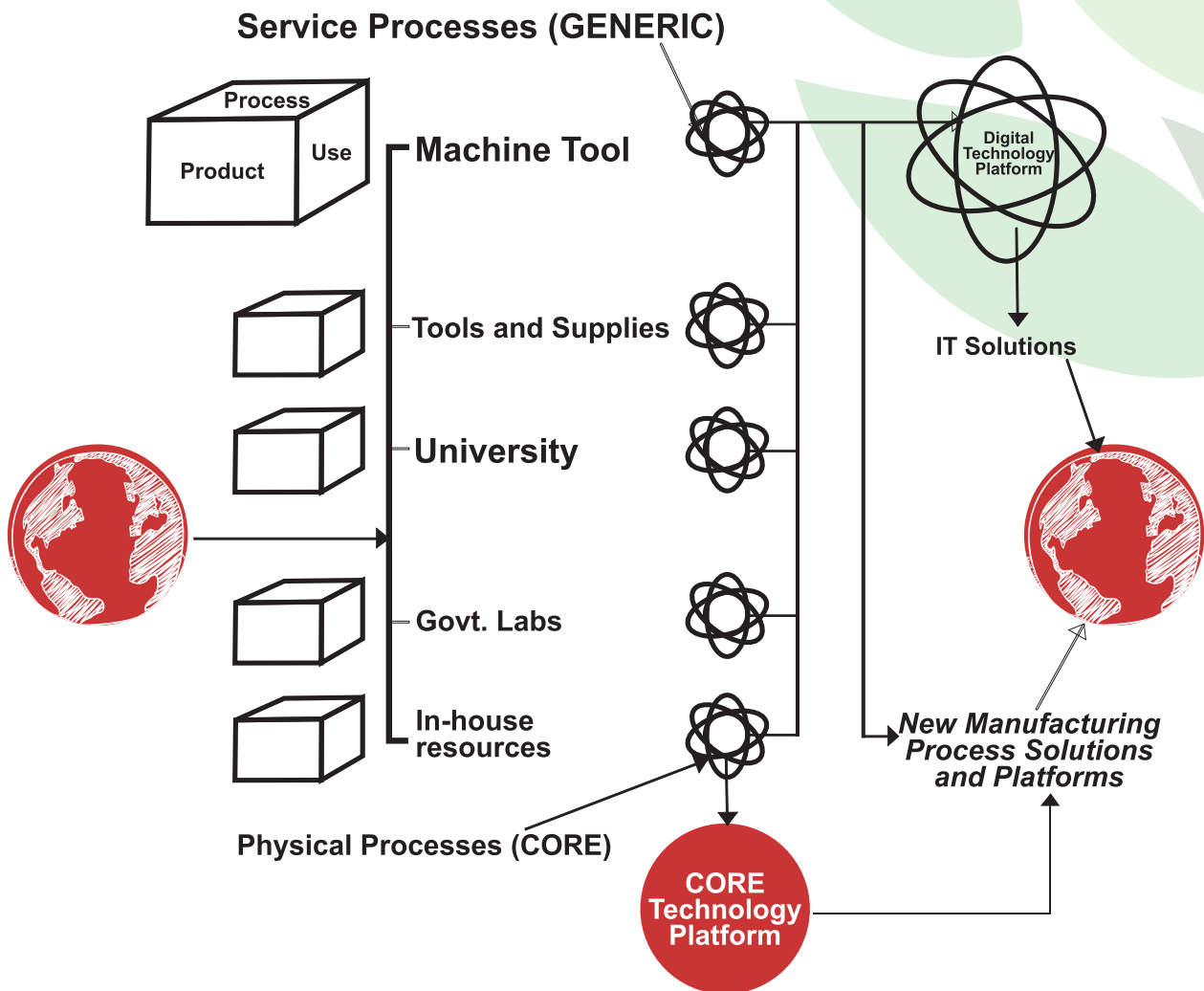
Water Purifiers installed in schools

THE MGT ECOSYSTEM

CREATING TOMORROWS MANUFACTURING PROFESSIONAL

Manufacturing professionals of the 21st century will require an ability for aggregation of knowledge and related skills in all process categories. In addition they should be capable of configuring the scope of the need – the system – and delivering comprehensive solutions. This will require collaboration between Industry, Academia and Government. Global expertise and resources from STIMS Institute (USA) are engaged with MGT in fostering such collaboration and creating the necessary eco-system.

In due course such collaboration has to translate into New Manufacturing Process Solutions and Platforms, which draw upon resources from across the globe and deliver solutions of impact for users across the globe. This model for the system view of manufacturing process platform evolution, by systematically integrating the core outputs of all players is schematically illustrated here:



This approach will attract, retain and nurture the best talent into the manufacturing industry. MGT- with guidance from STIMS Institute (USA) - started an internship program in 2012 to recruit highly talented graduates and train them for system thinking and transformational skills. This collaboration between, MGT and STIMS Institute (USA) has resulted in launching a new initiative in 2014 termed GPS (Grinding Process Solutions), as a service for any Industry utilising Grinding machines & targeting to optimise the Process or solving Quality issues etc.

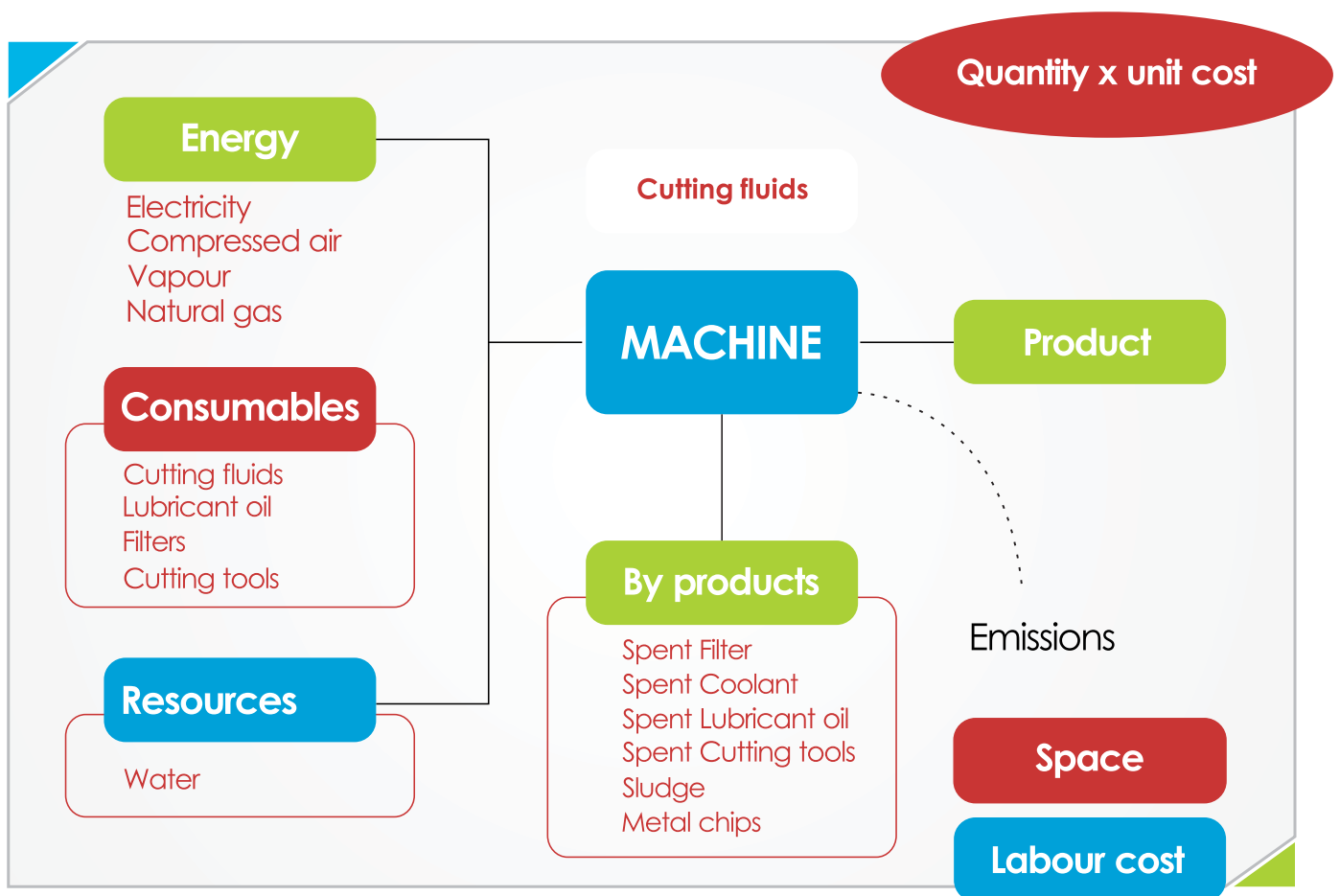
All this will endow with pride and professionalism, the label of MAKE IN INDIA

SUSTAINABILITY – GREEN MACHINE CONCEPT

The Vision to grow in Harmony with the Society is the guiding principle for all process improvements & Product + Solution developments at MGT.

The machine is only one part of the larger eco system of manufacturing. Multiple inputs come together to undergo transformation resulting in the desired System Output, that is the desired part with the desired quality & cost.

The below graphic explains the concept schematically.



One of the elements of our pursuit for
ZERO is the ZERO

EMISSIONS PHILOSOPHY WHICH IS DRIVING US TO CONTINUOUSLY IMPROVE OUR MACHINES & PROCESSES.

SOME OF THE LATEST DEVELOPMENTS ON THIS FRONT ARE DESCRIBED BRIEFLY IN THE TABLE BELOW:

Feature

Impact

Coolant & Oil Mixing Monitor	Improved life of oil. Environment friendly disposal.
Chillers with CFC free R407C Gas	Ozone friendly. No chlorine content. Less global warming.
Electrical noise & emission control	Enhanced safety for the operator.
VFD controlled coolant motor	Power saving. Optimum quantity of coolant usage.
Filtration system without paper	No disposal of filters required.
Bearing spindles	No oil consumption. Power saving.



To know more reach us at
sales@micromaticgrinding.com



CONTACT:

E-mail : sales@micromaticgrinding.com

Web : www.micromaticgrinding.com

Head Office : C-27 & 28, Meerut Road, Indl. Area,
Ghaziabad - 201 003, INDIA,
Phone : 0120-2712137, 69, 79

Plot No. 5-A, Somapura, Village Dobaspet,
Industrial Area, Nelamangala Taluk,
Bangalore - 562 123
Phone : 080-27702449

Micromatic Manf. Systems Pvt. Ltd.
C-40/1, Meerut Road Industrial Area,
Ghaziabad - 201 003, INDIA

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