



## CASE STUDY HIGH-QUALITY PRECISION COMPONENTS

### COMPANY DETAILS:

NAME: SANSERA ENGINEERING

LOCATION: Various Locations (Manesar, PantNagar, Bangalore)


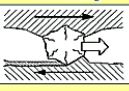
PRODUCT: Filtrimag FM1.5+ along with Micron Filtration System®

INDUSTRY: High quality precision components for Automotive Industry

PROCESS TYPE: Grinding & Honing applications

### CHALLENGES WE FACED:

- 1 There was an acute contamination of carbon & ferrous particles which were abrading the Grinding machines and getting production to a halt.
- 2 The grinding of the parts was putting a stress on the machine leading to grinding “burn” which damaged the rim zone of the part. The wear rate of the grinding disc was also determined with respect to the grinding time.
- 3 Irregular scratches due to Dirty coolant & Dust and / or other particles with Irregular marks of various lengths.
- 4 The main aim was to reduce grinding wheel consumption through magnetic filter. Along with this, there were settled chips in the coolant, leading to Isolated deep scratches on work.

| Overview                              | Lapping   | Fine Grinding   |
|---------------------------------------|---|---|
| Comparison<br>Lapping – Fine Grinding |  |  |
|                                       | Tool  |   |
| Abrasive                              | Loose grain distributed in fluid, shape-transferring counterpart                      | Fixed grain in matrix   |
| Active motion                         | Rolling-off, indentation of grain edges and tips                                      | Combination of scratching, scraping, plowing of grains                                |
| Primary direction of motion           | Orthogonal to workpiece surface   | Parallel to workpiece surface   |
|                                       | Removal Mechanisms  |   |
| Chip formation                        | By exceeding bending strength   | By exceeding shearing strength  |
| Temperatures                          | Low   | Higher  |
|                                       | Surface Generation  |   |
| Microscopic                           | Crater topography   | Scratches with material outbursts   |
| Macroscopic                           | No directional machining traces, evenly rough and mat                                 | Grinding traces without preferential direction, satin mat to glossy                   |
|                                       | Additional Characteristics  |   |
| Contamination                         | High, cleaning of parts is necessary  | Low   |
| Removal rate                          | Low   | High  |
| Automation                            | Difficult   | Possible  |

Irregular “fishtail” marks of varying lengths and widths required to use a filter for fine finish grinding.

It is clear that even a sealed system can have contaminated build up, therefore any machine needs to have a means of controlling contamination.

SANSERA ENGINEERING are an engineering-led integrated manufacturer of complex and high-quality precision components for the automotive and aerospace sector

They manufacture and supply a wide range of precision forged and machined components that are critical for engine, transmission and other systems for the two-wheeler, passenger vehicle and light and heavy commercial vehicle verticals in the automotive sector.

Manufacturing operations include forging, heat treatment and machining being carried out in-house.

They have various plants in Bangalore, PantNagar and Manesar among others



## WE FOUND A SOLUTION:

Installation of the Magnetic Filter – FILTRAMAG FM+ was installed on the grinding machine and results found were as follows:

|    |  | Estimated Cost (Rs)  |            | Approval Status |            | Actual Cost Incurred (Rs) |                  |            |              |
|----|--|--|------------|-----------------|------------|---------------------------|------------------|------------|--------------|
|    |  | 120,000  |            | Approved        |            | 1,20,000                  |                  |            |              |
| a) | Investment / Cost                            | #  | Wheel cost | Wheel Life      | Daily prod | Rework Qty /day           | rework cost /day | Daily cost | Monthly Cost |
|    |  | Before   | 4700       | 35000           | 8000       | 400                       | 0.13             | 1128       | 28200        |
|    |  | After  | 4700       | 80000           | 8000       | 40                        | 0.06             | 472        | 11809        |
|    |  | Monthly Saving   |            |                 |            |                           |                  |            | 16391        |
|    |  | ROI in Months  |            |                 |            |                           |                  |            | 7.3          |
| d) | Horizontal Deployment                        | Informed to other plants   |            |                 |            |                           |                  |            |              |
| e) | Monitoring & Measurement                     | Monitoring & measurement responsibility taken by Tool dept.  |            |                 |            |                           |                  |            |              |
| f) | Conclusion                                   | Reduction of grinding wheel consumption, Reduction of Hazardous waste generation & Cost saving to company. |            |                 |            |                           |                  |            |              |
| g) | Aspect Impact / HIRA Score after the program | Aspect Impact score : Before - Will be checked   |            |                 |            |                           |                  |            |              |

Report on ROI from the plant itself

With the success in one plant in Manesar where 16 Filtramag FM+ were installed on individual grinding machines, same was applied to the plants in Pantnagar & Bangalore along with Micron Filtration System® for their hydraulic oils.

## DID YOU KNOW

### The ADVANTAGES of MAGNETIC FILTRATION?

Magnetic filters or magnetic separators are the most effective way of removing problem ferrous particles from industrial fluids such as machine tool coolants, cutting oils, lubricants, grinding fluids and industrial wash solutions.

These filters are widely used in a range of precision machining applications such as precision grinding, honing, lapping, drilling, cutting, steel rolling, EDM and wash stations.

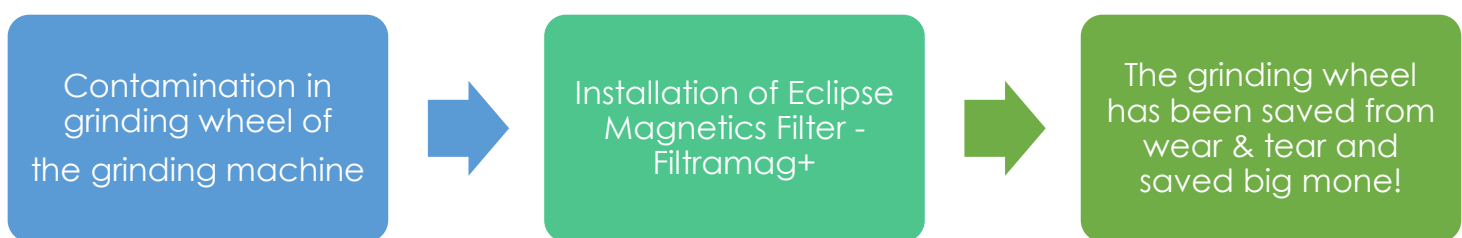
The success of advanced magnetic filtration is based on high-performance magnets and optimised fluid flow dynamics. This enables magnetic filters to remove almost 100% of ferrous contamination without the need to regularly replace consumable media filters or having adverse effects on fluid properties.

Traditional coolant or grinding fluid filters such as bag or band filters typically leave ferrous particles smaller than 5-10 microns circulating in the fluid, which causes damage to equipment and finished products.

- ✓ Extended fluid life - Reduced costs, decreased fluid disposal
- ✓ Lower consumable costs - Reduced media filter consumption
- ✓ Environmentally friendly - Reduces consumable filter waste and fluid disposal
- ✓ Recycles ferrous waste
- ✓ Increased productivity - Reduced machine downtime, tool wear and inspection failures
- ✓ Improved product quality - Better surface finish



### TO SUMMERIZE:



Plan is to buy the same filters for all their plants

For Product Information please click on <https://www.kleenoilindia.com/Home.php>

For product explanation video please click on:

<https://www.youtube.com/watch?v=OrfbdBHEkEA>

For latest Information Please Follow us



Information is for internal use only.