



PRODUCT LINE

Carbon

Electrical Application

Mechanical Application

Diagnostics

Brush Maintenance Accessories
Accessories (BMA)

Commutator Maintenance
(CMA)

Electrical Applications

- Carbon Brush.
- Carbon Current Collectors.
- Metallized Carbon Panto Strips.
- Silver Impregnated Copper Spray Graphite Contacts.

Mechanical Applications

- Carbon Seal Rings
- Carbon Gland Rings, Steam Joints.
- Carbon Bush & Bearings,
- Thrust Pad & Radial Bearing.
- Lubricating Blocks.
- Isostatic Graphite for High Temp applications.

Diagnostics

Brush Maintenance Accessories

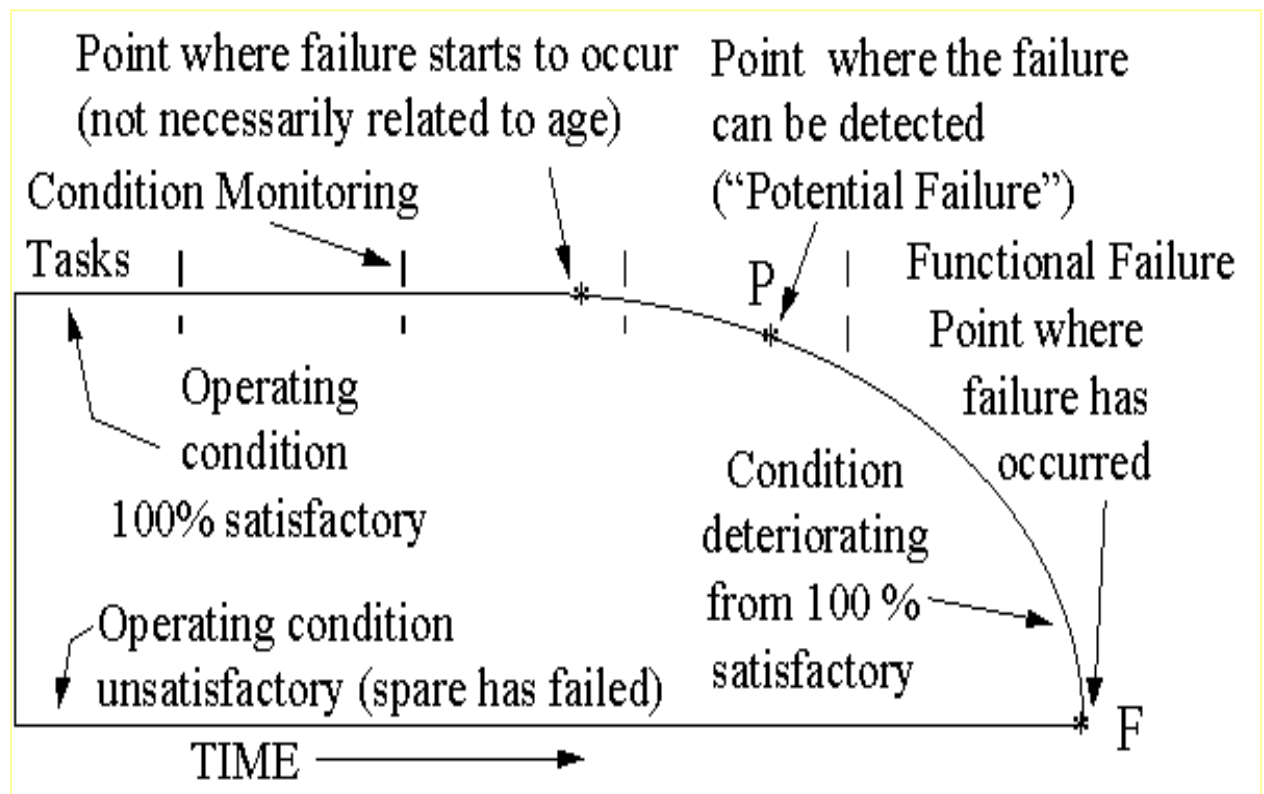
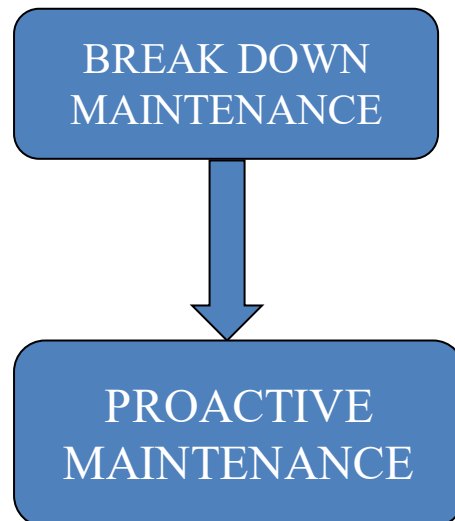
- Brush Bedding Stones (Brush Seater)
- Glass Fiber Burnishing Sticks.
- Brush Holders/ Br Holders Springs.
- Brush Pressure Meter.

Commutator Maintenance Accessories.

- Profiler™
- Commutator Grinding Stones.
- Chamfers, Scrapers etc.
- Mica Under cutters.
- Vibration Analysers.

Profiler™

Present Industrial Practices



Industrial Objective

To reduce Cost: Few important areas—

- Maintenance.
- Down Time.
- Equipment Reliability.
- Machine output.

An approach to Best Condition Monitoring Practices

❑ Factors affecting Industrial applications

- ✓ Where downtime cost is predominantly high.
- ✓ Where a safety risk is particularly likely to arise from the breakdown of the machinery.
- ✓ Where accurate and advanced planning of maintenance is essential.
- ✓ Where plant/equipment is of recent design & may have residual development problems.
- ✓ Where operators cannot be expected to detect faults in expensive equipment whose breakdown may result in serious damage.
- ✓ Where instruments or other equipment required for condition monitoring can be used or is already being used.
- ✓ Where the manufacturer can offer a condition monitoring service to users of its equipment.

Commutator/ Slip-Ring Maintenance

Main Objectives:

- Measurement of Ovality accurately.
- Keep Max bar to bar variance low.
- Detect the segments with High Mica.

Objective

- The primary object of reconditioning a commutator is to remove all irregularities that disturb the Carbon Brush efficiency and reduced brush and commutator life.
- Axial error and steps, even an irregularity as small as 0.001 in (0.025mm) can disturb the brush sufficiently to result in digging and arcing as the brush reseats on the commutator surface.
- It should be understood that the nature of Carbon Brush and Commutator are such that even these small irregularities cannot be absorbed without detracting from Carbon Brush Efficiency.

Our Needs

- Reduce Sparking.
- Avoid premature Carbon Brush Failure.
- Avoid Grooving / unevenness on Commutator/Slip-ring surface.
- Avoid Vibration.
- Enhance life of Commutator/ Slip-ring

Meeting the Needs

Solutions:

- 1) Profiler™
- 2) Brush Pressure Meter
- 3) Brush Seater
- 4) Commutator Grinding Stone
- 5) Glass Fibre Sticks
- 6) Chamfer/ Scraper
- 7) Mica Under Cutter.
- 8) Many more.....

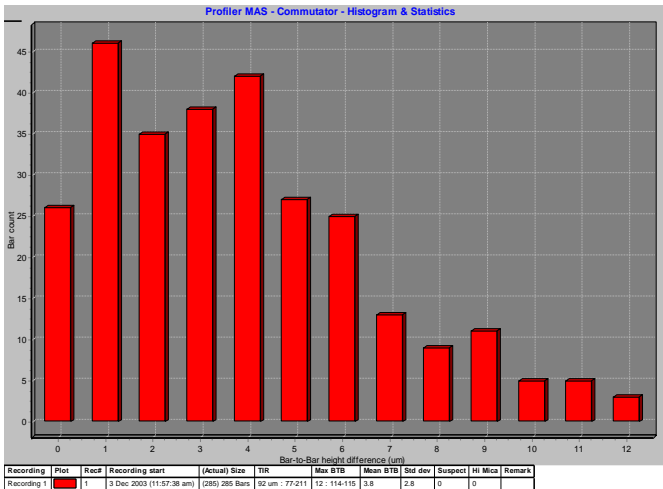
Profiler™ Measures

- Total Indicated Run-out (TIR/ Ovality)
- Max Bar To Bar Variations (High Bar)
- Raised Mica

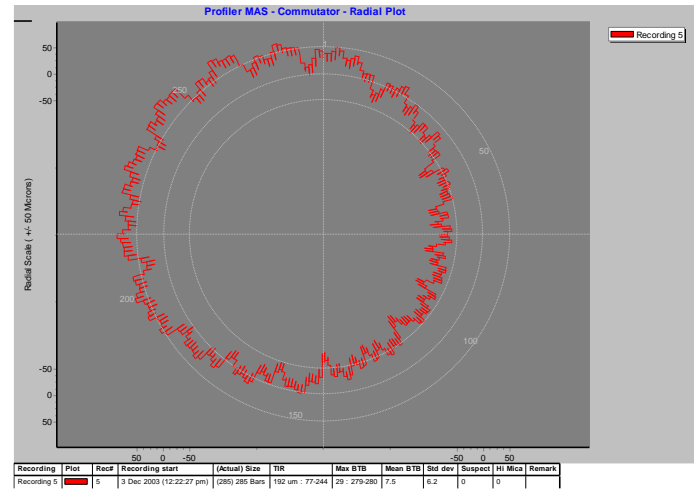
Profiler™ Analyses

- Linear Chart
- Histogram in MAS.
- Radial Profile in MAS
- TIR identifying the Segments
- Max BTB & Mean BTB identifying the Segments
- High Mica identifying the Segments
- Standard Deviation
- Suspected Bars / Segments

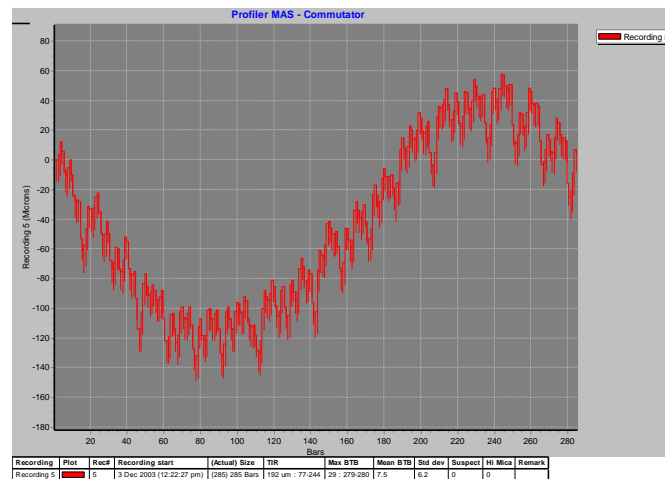
Measurement Analysis Software (MAS)



Histogram



Radial Profile



Linear Chart

How Profiler™ help.


Keeps electric motors and generators operating at peak efficiency and maximize their useful life, by helping you maintaining commutators and slip rings in a perfectly round and smooth condition.

IMPORTANT





Particularly with commutators, it is bar-to-bar height variations of adjacent bars rather than simply out of roundness that can cause a significant loss of output efficiency, increase power consumption, cause premature wear and damage of brushes, and even lead to serious breakdown problems.

Options

Dial Indicators

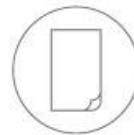
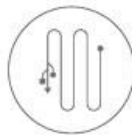
- TIR - 
(time consuming)
- MBTB - X
- High Mica - X
- IBH vs. BC - X
- Radial Graph- X

ProfilerTM

- TIR -(effortless) 
- MBTB - 
- High Mica - 
- IBH vs. BC - 
- Radial Graph - 

Comparative

An instrument such as a Dial Indicator can detect out of roundness (or TIR) on commutators, such a device cannot detect the more serious problems of bar-to-bar height variations and raised mica insulation. With a precise measurement resolution of 1 micron (0.04 mils) the **Profiler**TM easily produces a detailed and accurate report which can prove a clean bill of health on all counts. These measurements can also be downloaded to the MAS (Measurement analysis Software) PC application for data archiving and presentation purposes. MAS is included in the price of the **Profiler**TM, not an expensive add-on.



EVERYTHING YOU NEED

- MMS7000
- Sensor with integrated clamp
- Carry Case
- Power Adapter + USB Cable
- Sensor Protector Sleeve
- Sensor Spacer Set
- EVOsoft Analysis Software
- including three licences
- Quick Reference Guide

THREE STEP SETUP

Machine Type

- ☒ Continuous
☐ Bars/Segments

Recording Stop

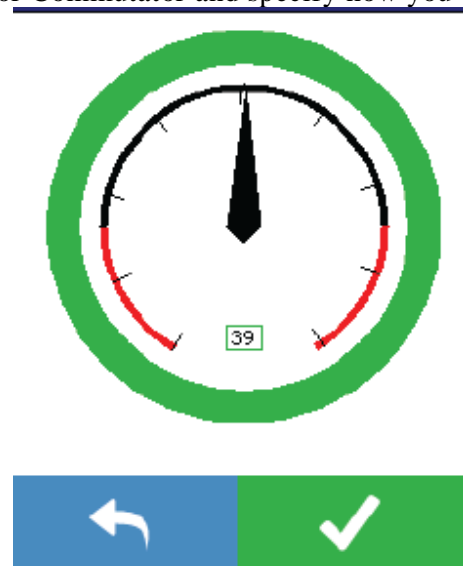
- ☒ Manual Stop
☐ Auto Stop after mm
☐ Measuring exactly 1 revolution



STEP ONE

Select

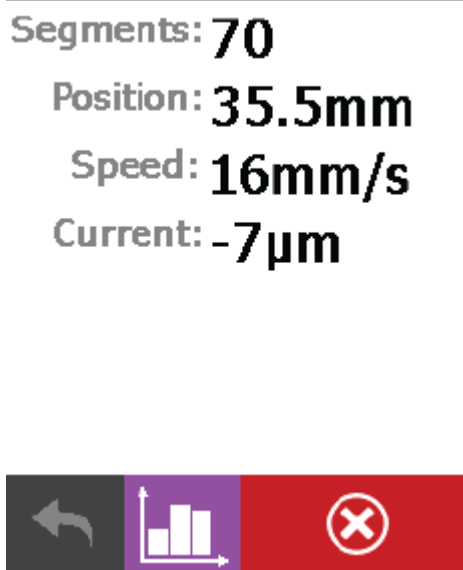
Choose Slip Ring or Commutator and specify how you will be measuring it



STEP TWO

Position your sensor

A handy dial indicator helps you position the sensor just right



STEP THREE

Start Measuring!

Watch the live readout as you measure in either text or graph format

The following information is based on recommendations for commutator condition:

Situation	Runout (TIR)	Bar to Bar Variance	Undercut Depth
NEW	<i>Less</i> than 1.5mil or 40µm	<i>Less</i> than 0.2mil or 5µm	<i>Greater</i> than 50mil or 1.25mm
IN SERVICE	<i>Less</i> than 3mil or 80µm	<i>Less</i> than 0.3mil or 8µm	<i>Greater</i> than 20mil or 0.5mm
NEEDS REPAIR	<i>Greater</i> than 3mil or 80µm	<i>Greater</i> than 0.3mil or 8µm	<i>Less</i> than 10mil or 0.25mm

Note: "mil" is the US term for one thousandth of an inch.

Histogram Analysis

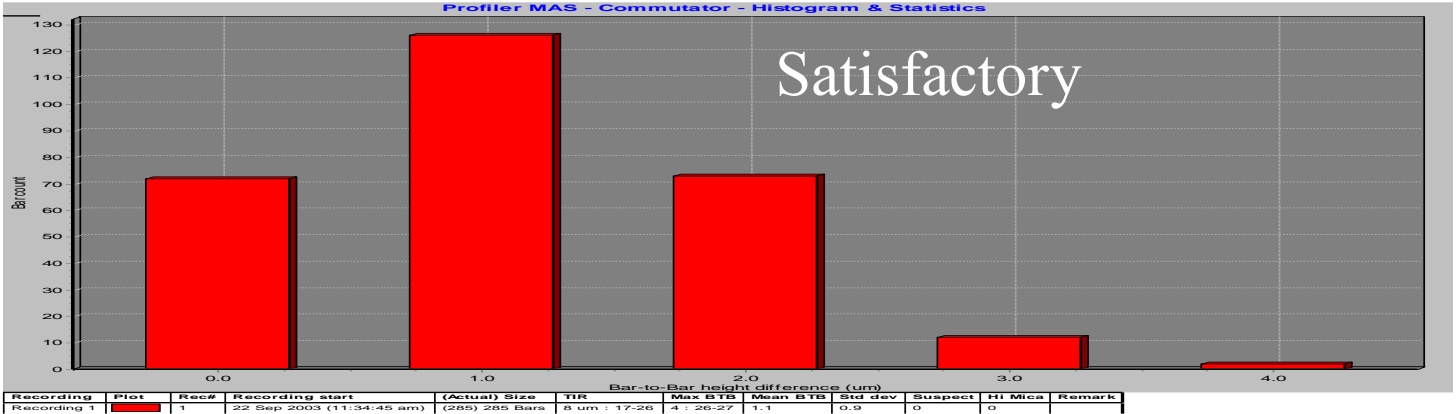
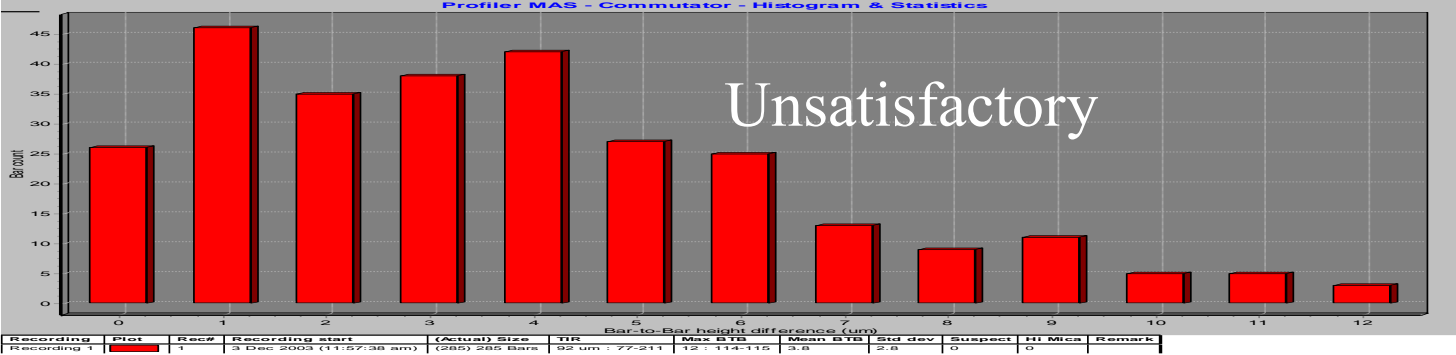
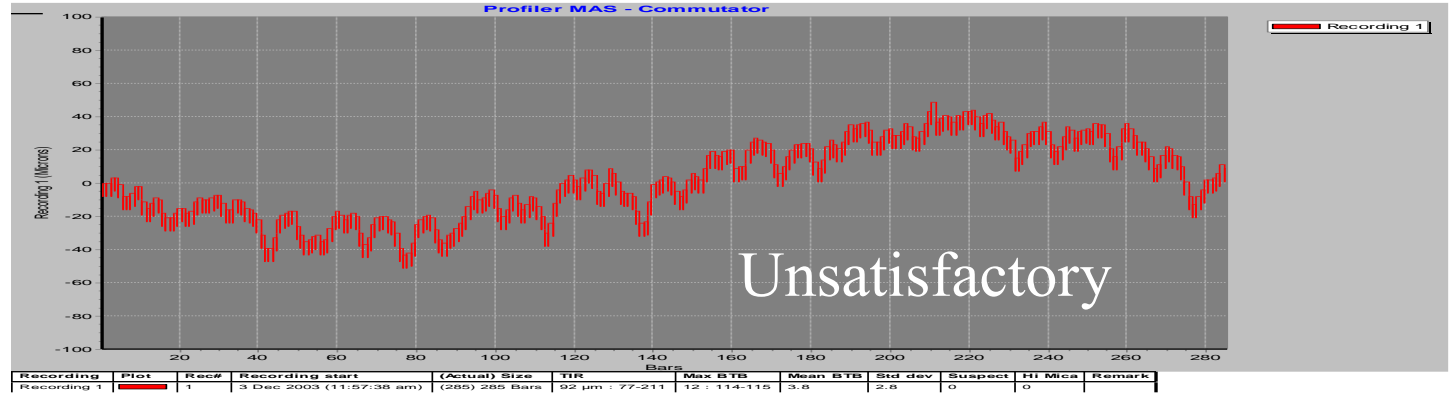
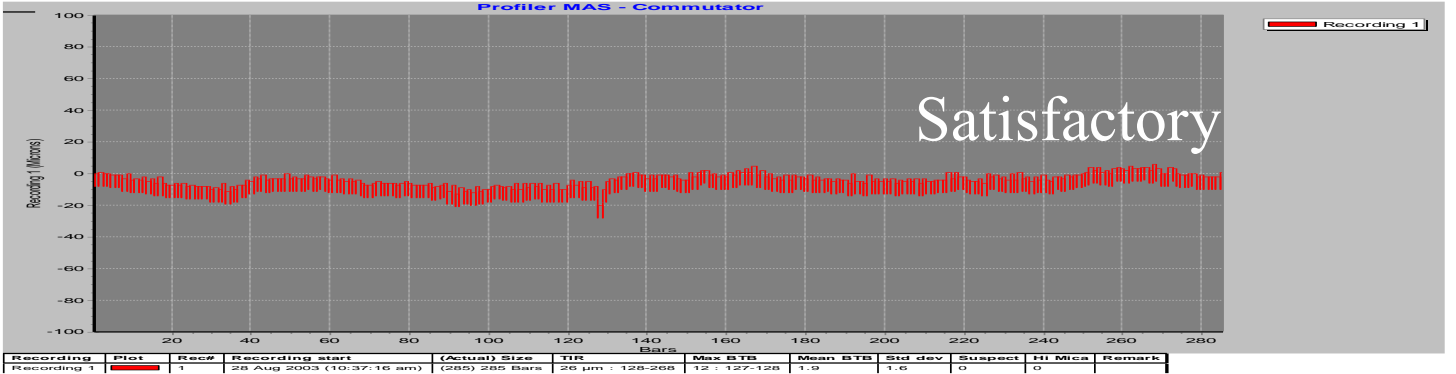
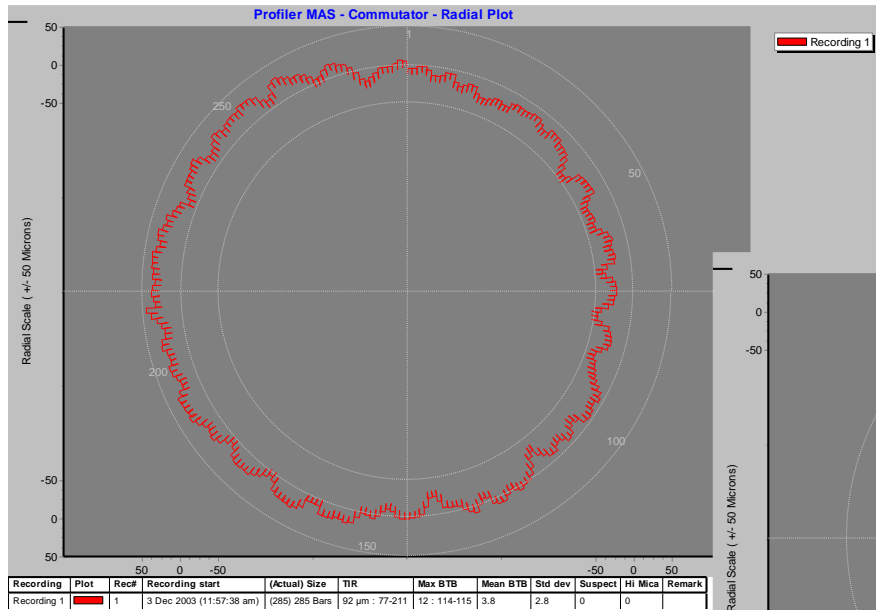


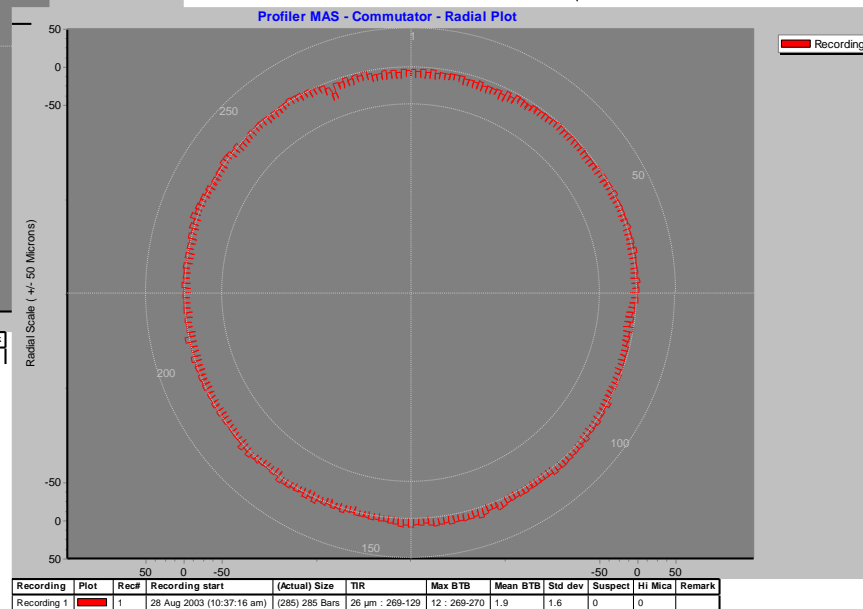
Chart Analysis



Radial Profile Analysis.



Unsatisfactory



Satisfactory

Warranty & Service

3 years on the Instrument.

servicing support from New Zealand.

Spare Support – Assam Carbon.

Application support – Assam Carbon/ New Zealand.

Cost Analysis.

Avg. shed strength/year = 100 Motors.

Profiler™ cost = Rs. 865000

One time Investment / TM

= Rs. 865000/100

= Rs. 8650.00

Avoiding 1 Break down of Motor saves you =Rs.???

Cost Benefit Analysis

	Profiler™	Alternative	Saving
TIR/Mtr	5 mins	15 mins	10 mins
MBTB	0 mins	30 mins	30 mins
High Mica	0 mins	10 mins	10 mins
Data Capture	2 mins	10 mins	8 mins
Data Analysis	2 mins	15 mins	13 mins
Old Data Revival	1 mins	15 mins	14 mins
	10 mins	95 mins	85 mins

Cost Benefit Analysis:

- Time saved/ TM = 85 mins
- Time saved in 100 TM/ yr = 8500 mins = 141 hrs.
= 18 man days.
- Enhanced **life** of Commutator/ Slip Ring.
- Proper **Commutation**.
- Improves **brush life**.
- Reduce **pre-mature failure** of Carbon Brush.
- Documented **data** of individual motors/ gen.
- Reduce **Down-time** losses.
- Increases Machine **Reliability**.
- Reduces **Maintenance** Cost.

Our Requirements



- Reduce Sparking.
- Normal Brush Life.
- Avoid premature Brush Failure.
- Avoid Grooving / unevenness on Commutator/Slip-ring surface.
- Avoid Vibration.
- Enhance life of Commutator/ Slip-ring

Thank you

- Please ask if there is any doubt.
 - Bangalore Office: Mr. Madan Kumar
E-mail: mkumar@ascarbon.com or Mobile: 9740067426.
 - Kolkata Office: Mr. B.Roy Choudhary
E-mail: bhaskar.roychoudhury@ascarbon.com or Mobile: 7595087073.
 - New Delhi Office: Mr. Santanu SenGupta
E-mail: acpldelhi@ascarbon.com or Mobile: 8126062557.
 - Pune Office: Mr. Aaviinash Nimckar
E-mail: aaviinash@ascarbon.com or Mobile: 8425884515.