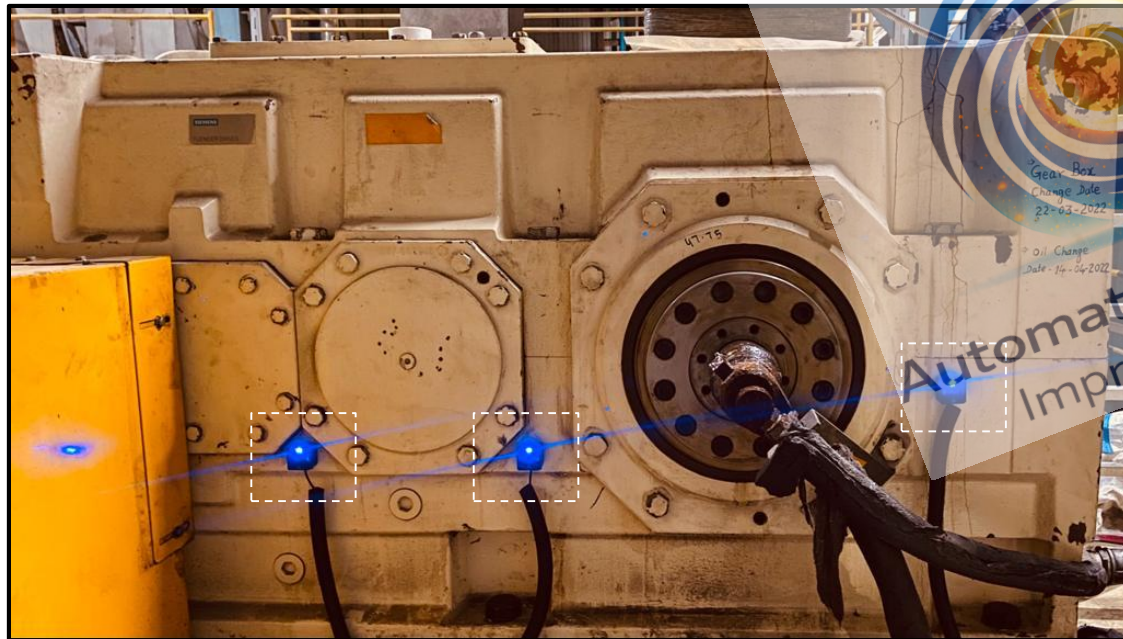


CASE STUDY OF SRF LTD, INDORE



Asset Name: 4 Stage Gearbox

Total Number of Sensors Installed: 4

Sensor location:

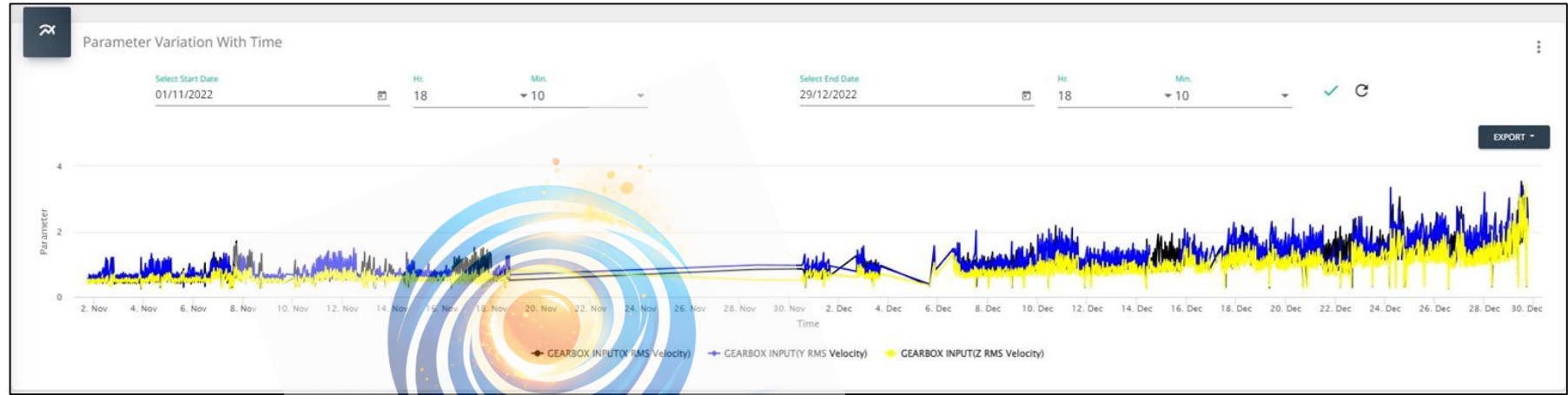
Gear Input Drive End
Gear Intermediate 1 Drive End
Gear Intermediate 2 Drive End
Gear Output Drive End

Fault Diagnosed: Bearing Impacting Found via Sensor - Gear Input Drive End.

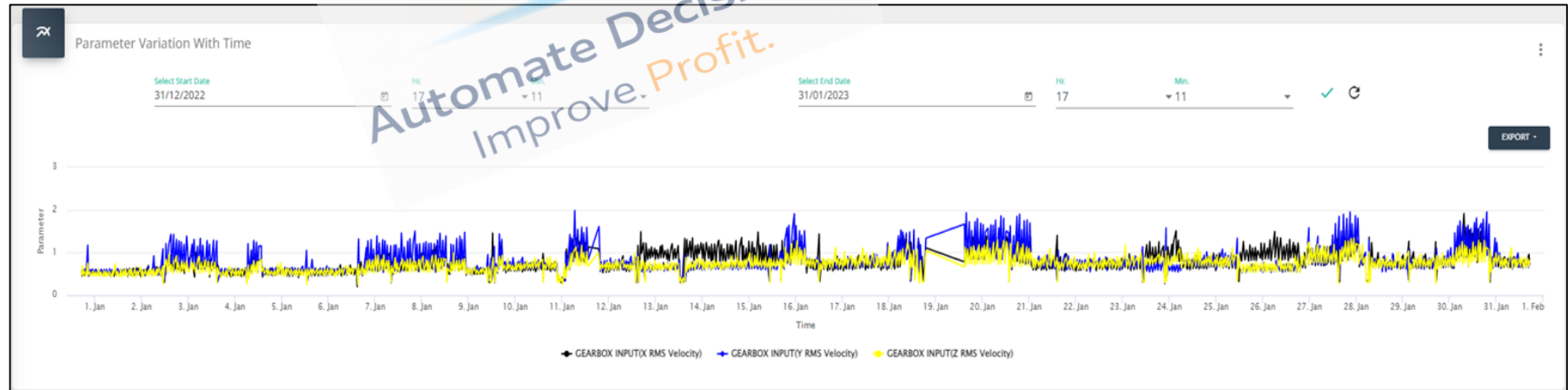
Final Action - Bearing replaced by the Client

Savings: Reduced Maintenance cost of further damages in Gears which is very costly in Gearbox if not intervened in time.

OVERALL VIBRATION DATA- Vibration Velocity



Gearbox Input Velocity Before Trend



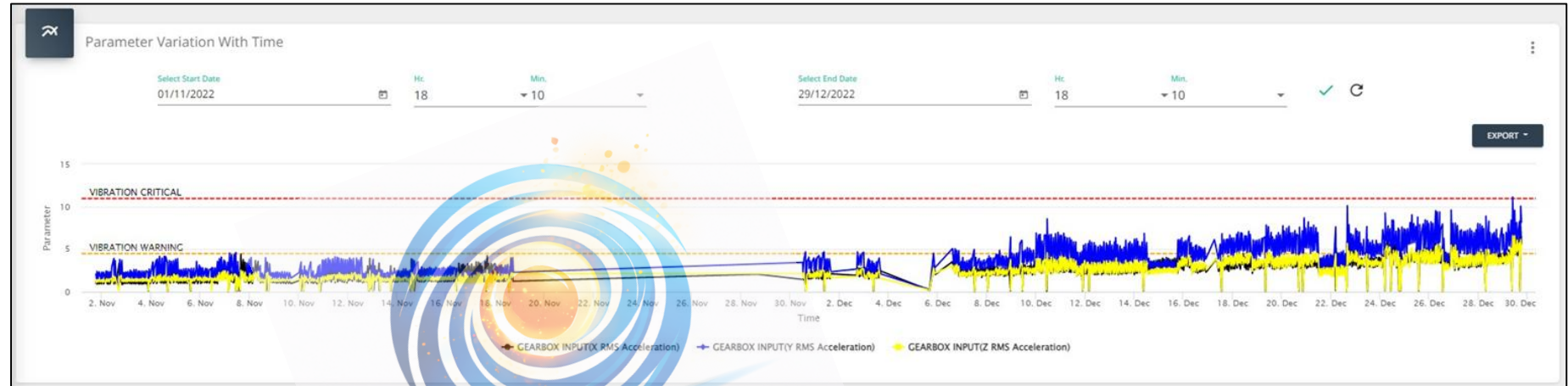
Gearbox Input Velocity After Trend

DIRECTION	BEFORE	AFTER
HORIZONTAL	2.8	2.1
VERTICAL	3.7	2.2
AXIAL	2.2	1.4

Before - Error Reporting - 2nd Nov- 30th Dec.
 After - After Correction - 1st Jan- 1st Feb.

*Automate Decisions
 Improve Profit.*

OVERALL VIBRATION DATA- Vibration Acceleration



Gearbox Input Acceleration Before Trend



Gearbox Input Acceleration After Trend

DIRECTION	BEFORE	AFTER
HORIZONTAL	9.6	4.1
VERTICAL	9.7	4.9
AXIAL	7.9	2.7

Before - Error Reporting - 2nd Nov- 30th Dec.
 After - After Correction - 1st Jan- 1st Feb.





Gearbox Input

❑ Observation for GEARBOX INPUT:

- As per ISO-10816 standard Vibration level are in the **Warning** condition.
- High Frequencies has been observed which might be the gear mesh frequency for detailed analysis no. of gear teeth required.
- High Impacting has been observed in time waveform which indicates some kind of wear and tear has been started in the Gearbox.

❑ Recommendation for GEARBOX INPUT:

- Vibration is Increasing Gradually in the Historical trend (last slide) for Velocity as well as Acceleration.
- Kindly Replace the Gear Oil & Inspect the Gearbox for wear & tear of the Gear teeth and Bearings .

CASE STUDY OF SRF LTD, INDORE



Asset Name: MDO Roller 8

Total Number of Sensors Installed: 2

Sensor location:

Roller Drive End

Roller Non-Drive end

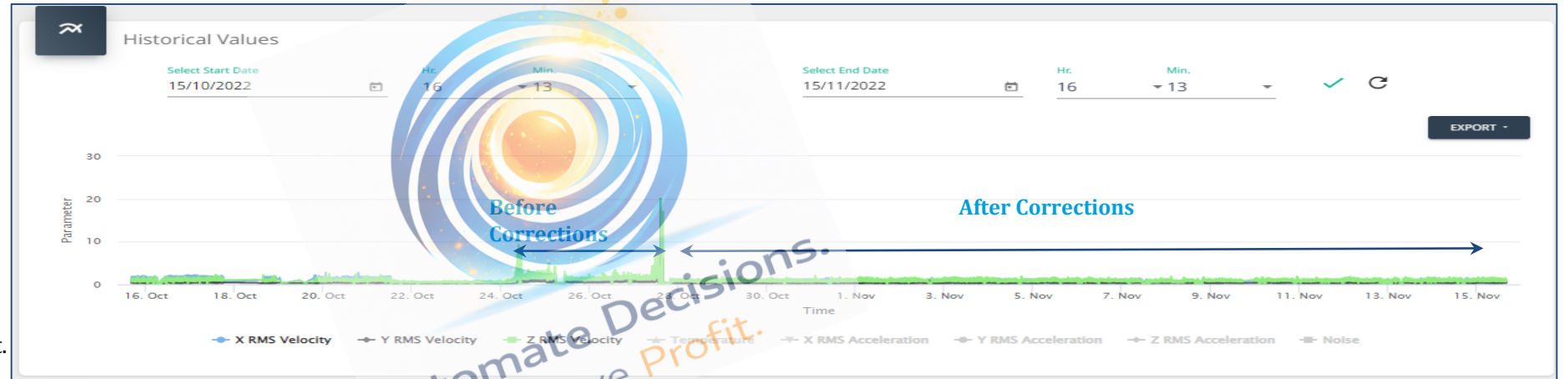
Fault Diagnosed: Bearing Impacting has been Observed via
Sensor - Roller Non-Drive End.

Final Action - Client Rotated the Bearing Upside down/ 180 Deg
Rotation done.

Savings: With the help of Vibration Sensors we detected the fault
at Initial stage as the Bearing Cost in this case is Zero as we used
the same bearing with little modification in the Mounting.

OVERALL VIBRATION DATA- Vibration Velocity

DIRECTION	BEFORE	AFTER
HORIZONTAL	3.6	1.4
VERTICAL	3.7	1.2
AXIAL	2.5	1.1



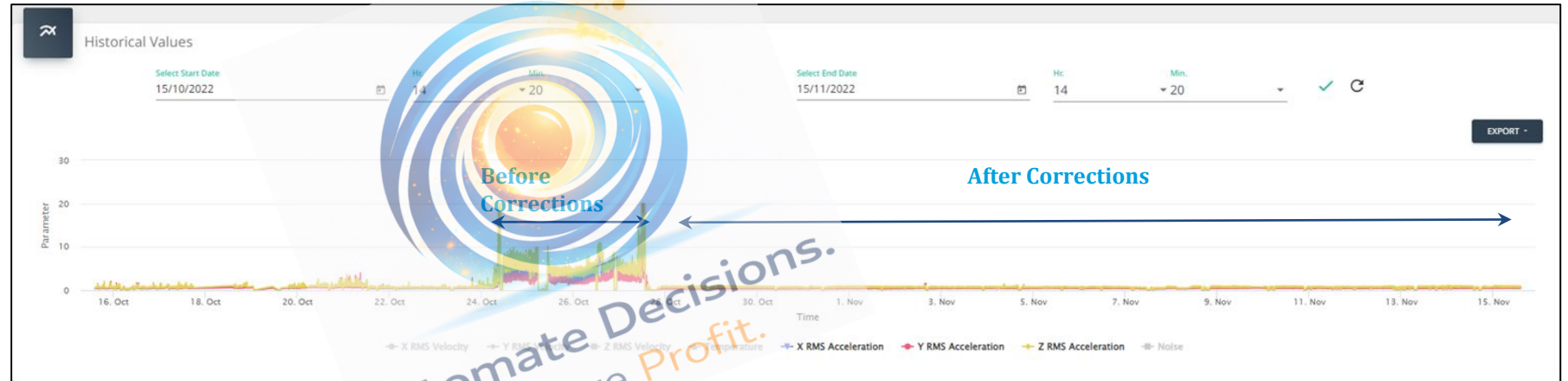
Before - Error Reporting - 24th Oct- 28th Oct.
 After - After Correction -28th Oct- 15th Nov.

Automate Decisions.
 Improve Profit.
Roller Non-Drive END - Velocity

OVERALL VIBRATION DATA- Vibration Acceleration

DIRECTION	BEFORE	AFTER
HORIZONTAL	19.6	2.5
VERTICAL	10.7	2.1
AXIAL	10.1	1.7

Before - Error Reporting - 24th Oct- 28th Oct.
After - After Correction -28th Oct- 15th Nov.



Roller Non-Drive END - Acceleration



MDO Roller NDE

❑ Observation for MDO ROLLER NDE:

- As per ISO-10816 standard Vibration level are in the **Warning** condition.
- High Frequency peaks has been Observed (Left Image) this indicates Bearing issues in the Machine.
- Observed Impacting (Right Image) in Time waveform that means there is a Deterioration in the Bearing.

❑ Recommendations for MDO ROLLER NDE :

- Lubrication of the Bearings has been done on 26-10-2022.
- Kindly check the Bearing condition/ Clearances in the Next Opportunity.
- As per Discussion we will monitor the Machine again for further improvements. Keep machine under Observation.