Case Study #1

TRANSCAT
Megger
Baker Instruments

Wound rotor problem detected with Megger Baker EXP4000

Without load

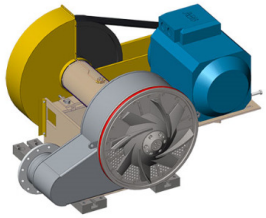
Situation :

The customer, a rewinder company based in south of France receive an AC wound-rotor motor for standard maintenance. The end user didn't send information about a possible on-site problem.

Before to dismount the motor for maintenance, the rewinder perform Baker static testing with AWA4kV and vibration on motor test bench. He would like to include electrical dynamic testing to detect rotor bar problem and so he contacted us for demonstration of our Megger Baker EXP4000.

Diagnostic :

Motor nameplate : BBC Brown Boveri 400kW – 1485RPM
Stator : 380V-716A
Rotor : 695V-335A



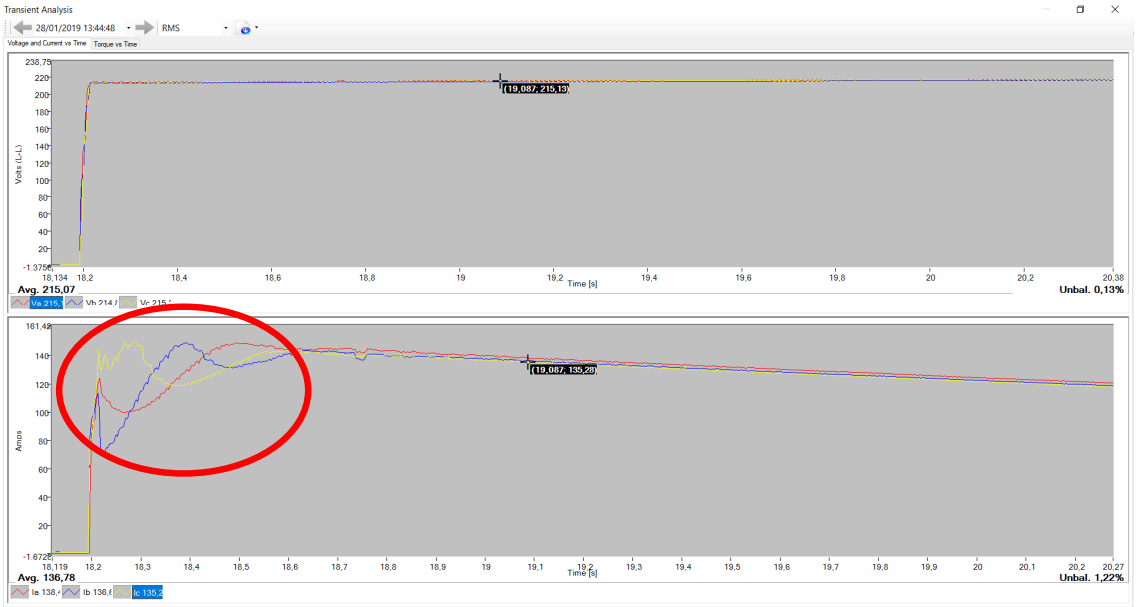
Application : Pulper Paper Machine

- **Static analysis :**

Insulation system on stator and rotor are in good condition, resistance unbalance on rotor is a bit high but below the limit.

Motor ID	Time	Temp	Resist	Megohm	DA/PI	DC	Surge
Stator	28/02/2019	14°C	PASS	PASS	PASS	PASS	PASS
Rotor	28/02/2019	14°C	PASS 2.8%	PASS	PASS	PASS	PASS

- **Dynamic analysis : Start up** : During the startup the current is very unbalanced and during steady state the current is balanced. Voltage balance does not change through the start-up process. This phenomenon is due to contact resistance issue.



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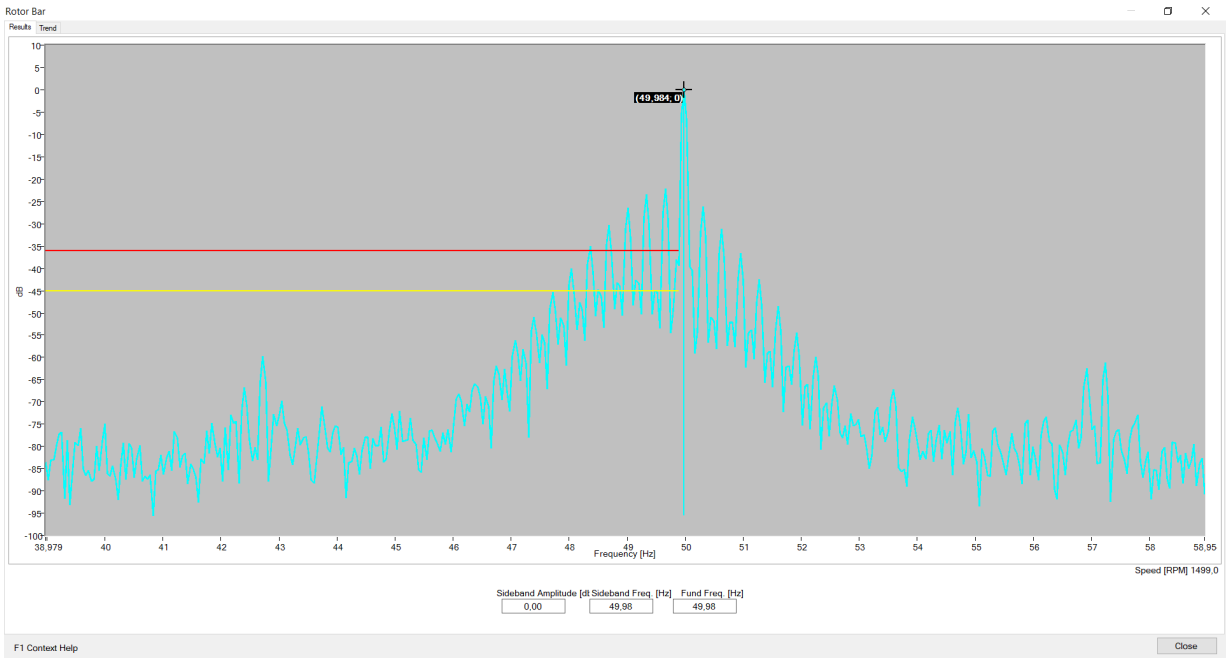
❖ **Dynamic analysis : Steady state without load**

High level of modulation around the line frequency. The fundamental of the pole pass frequency is not visible in the spectrum due to the high shaft speed and the low load. But the harmonics of this frequency are present on the spectrum. The torque waveform shows the same phenomenon.



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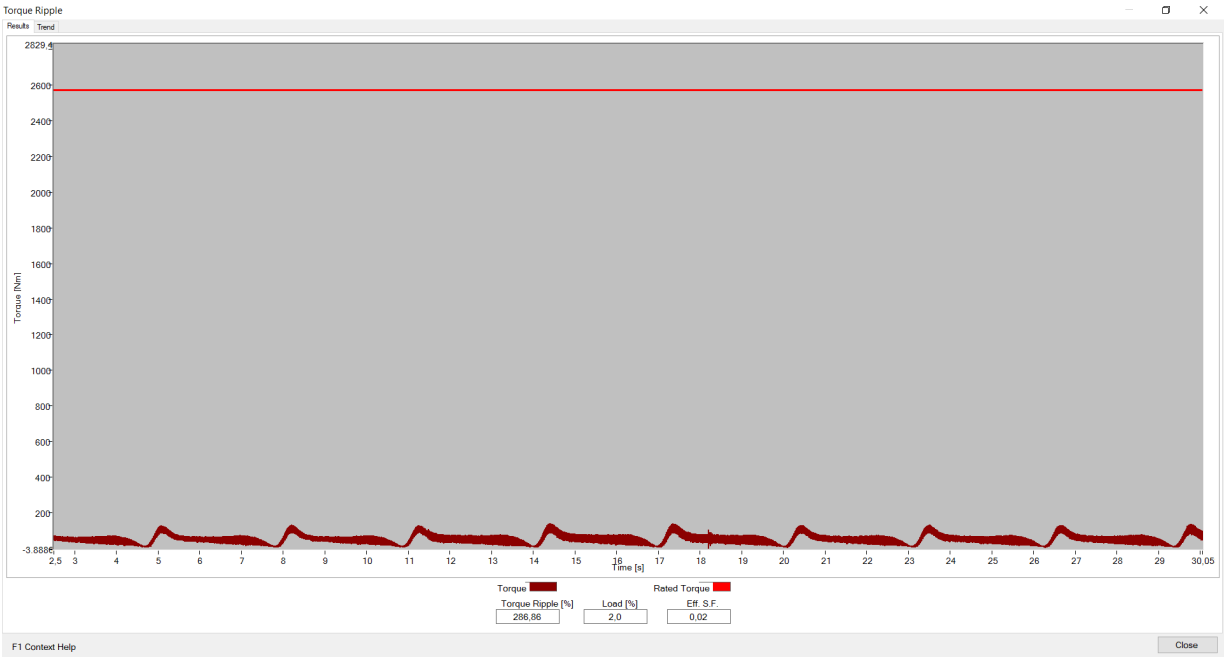

Defect located after removal of the insulation.

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Contact resistance problem