

Plant Name: ****

Coordinator: ****

File name: C:\USA32\ATPOL TEST DATA\STORAENZO\STORA3-3_000

Date: 02/04/2004 15:05:04

Equipment : MOTOR TEST 001

Analyst : ****

ALL TEST Pro OL 3.1 Analysis Results

PERFORMANCE SUMMARY

Bottom Line

This motor is operating normally, no action is required.

This motor exhibits suspicious operation, trending of the motor is warranted.

This motor exhibits abnormal indications, action is warranted, NOW.

Power Factor Commentary

Power factor exceeds 0.85.

Power factor is below 0.85, see detailed report.

Current Commentary

Current variation is within normal limits.

Current variation is beyond normal limits, see detailed report.

Voltage Commentary

Voltage variation is within normal limits.

Voltage variation is beyond normal limits, see detailed report.

RMS voltage differs from nameplate by more than 5%.

Load Commentary

Load on the motor is consistent with nameplate values.

Load on the motor exceeds nameplate values, see detailed report.

Load on the motor is less than 25%.

Phase Connection Commentary

Connections are normal.

Voltage ground reference is NOT neutral.

Loose connection.

Rotor Commentary

Rotor bar health is normal.

Rotor bar health is questionable, see detailed report.

Load is insufficient to determine rotor bar health, at this time.

Stator Commentary

Stator health is normal.

Stator electrical health is questionable.

Stator mechanical health is questionable.

Turn to turn short.

Rotor/Stator Air-gap Characteristics

Dynamic or static eccentricity indications do not exist.

Indications of static eccentricity exist.

Indications of dynamic eccentricity exist.

Harmonic Distortion Commentary

There is no evidence of harmonic distortion.

There is evidence of harmonic distortion, see detailed report.

Misalignment Indications

There are no indications of mechanical problems like misalignment or unbalance.

There are indications of mechanical problems like misalignment or unbalance;

Perform vibration survey to identify and correct the cause.

Bearing Commentary

There is no evidence of bearing problem.

Indications of potential bearing problems, perform vibration survey to verify.

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INPUT SUMMARY

NAMEPLATE INFORMATION

		Units
Manufacturer	****	
Serial Number	****	
Model Number	****	
Motor type	Induction	
Power	50.00	HP
RPM	1780.0	Rpm
AC/DC	AC	
Poles	4	
Phases:	3	
Voltage	460.0	Volt
Full Load Current	57.50	Amp
Number Stator Slots	48	
Rotor Bars	40	
Torque (ft-lbs):	147.5	In.Lb
CT Ratio	1.000	
PT Ratio	1.000	
Duty Cycle	****	
Service Factor	****	
Frame Size	****	
Insulation Type	****	
Ambient Temperature	70.0	F°

Detailed Calculations

LEGENDS:

Impedance = Complex Impedance = v_i/c_i
CF = Crest Factor = (waveform peak)/(waveform rms)
CFC = Carrier Frequency Content = $10^{(x/20)}/\text{frms}$, %
THDF = Transformer Harmonic De-rating Factor = $\sqrt{2}/\text{CF}$, %
VDF = Voltage De-rating Factor = $100 - (\text{voltage unbalance, \%})^2$, %
Se, fund = Location of EMPATH slip fundamental, Hz (EMPATH slip is the same as pole passing frequency)
Se, harm = Number of EMPATH slip harmonics
Level = Sum of spectral amplitudes of EMPATH slip fundamentals and harmonics
Slip % = SRSS sum of slip and harmonic "levels" divided by RMS level of RMS DEMOD spectra between 0 and 65 Hz.
Upper sb = dB level of upper slip sideband of power line peak
Lower sb = dB level of lower slip sideband of power line peak
Rotor bar health = Estimate of the percent of broken or cracked rotor bars
Thd = Total harmonic distortion
+Ve = Positive sequence harmonic
-Ve = Negative sequence harmonic
Zero = Zero sequence harmonic

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Running Speed = 29.907 Hz / 1794 Rpm
 Pole pass frequency = 0.610 Hz
 Load = 34.0 %

Time			
	RMS	Peak	CF
Current 1	29.350	44.425	1.514
Current 2	28.480	43.108	1.514
Current 3	29.270	44.304	1.514
Average	29.033	43.946	1.514
% dev	1.9	1.9	0.0

THDF = 93.4

Time			
	RMS	Peak	CF
Voltage 1	500.100	714.030	1.428
Voltage 2	501.350	715.810	1.428
Voltage 3	500.450	714.530	1.428
Average	500.630	714.790	1.428
% dev	0.1	0.1	0.0

VDF = 100.0

* Note-

Phase 2 and 3 CF and peak entries are assumed to be the same as phase-1.

	Power factor	Impedance	App. Power kVA	Real Power kW	Reac. Power kVARS
Phase 1	0.719	17.039	8.303	5.971	5.770
Phase 2	0.732	17.604	8.387	6.142	5.712
Phase 3	0.716	17.098	8.477	6.072	5.915
Avg/Total	0.723	17.247	25.167	18.185	17.396
% dev	1.3	2.1			

Demand power = 24.38 HP

Summary of Rotor Bar Health				Power line dB diff.		Rotor bar Health index
	Se, fund	Se, harm	Level %	Upper SB	Lower SB	
Measured	0.610	0	-	-57.6	-49.6	0.4777
Severity level	Rotor Condition Assessment			Recommended Corrective Action		
4	Rotor bar crack may be developing or problems with high resistance joint			Reduce survey intervals, trend closely		

Harmonic Distortion Results:

Voltage input, from 60.059 Hz harmonics

	THD Odd %	THD Even %	+ve%	-ve %	Zero %	THD All %
Current 1	1.852	0.250	0.262	1.281	1.335	1.869
Current 2	0.000	0.000	0.000	0.000	0.000	0.000
Current 3	0.000	0.000	0.000	0.000	0.000	0.000
Voltage 1	0.758	0.056	0.379	0.407	0.517	0.760
Voltage 2	0.000	0.000	0.000	0.000	0.000	0.000
Voltage 3	0.000	0.000	0.000	0.000	0.000	0.000

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Figure- 1: Current Harmonic distortion graph

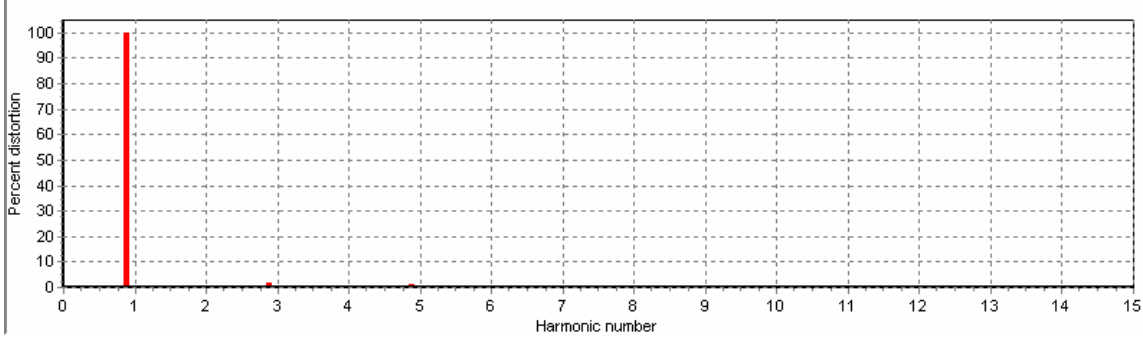
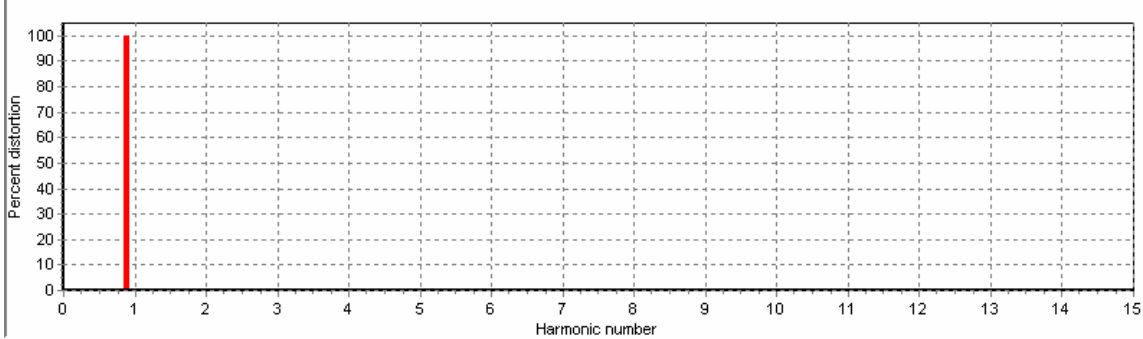


Figure- 2: Voltage Harmonic distortion graph



Harmonic distortion table						
Hz	Cur1	Vlt1	Cur2	Vlt2	Cur3	Vlt3
60	27.4	473	***	***	***	***
120	0.1	0	***	***	***	***
180	0.4	2	***	***	***	***
240	0.0	0	***	***	***	***
300	0.3	2	***	***	***	***
360	0.0	0	***	***	***	***
420	0.1	2	***	***	***	***
480	0.0	0	***	***	***	***
540	0.0	0	***	***	***	***
600	0.0	0	***	***	***	***
660	0.1	2	***	***	***	***
720	0.0	0	***	***	***	***
780	0.0	0	***	***	***	***

Description:

No comment entries made