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Rotek Industries

Memo reference No: **X-4523741-126 rev 1**

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To:	Thembeka Ncaba
	Generator HOD
Copy to:	Joshua Lengwati, Lufuno Murovhi
Date:	14 December 2022

Subject: Digital Wedge tightness test (Stator wedge analyser)

Note: it is required to test or identify loose stator winding wedges; the instrument allows maintenance personnel to easily and effectively assess the tightness of stator wedges in generators. If the wedges are loose, this may allow stator coils or bars to vibrate in the slot, leading to insulation abrasion and a ground fault. Electronic measurement and storage enables easy and consistent testing and accurate trending of wedge tightness data.

Stator wedges are traditionally tested for tightness by tapping them with a hammer and listening to the sound produced. This method is slow and prone to inconsistency. Electronic wedge tightness evaluation is faster, more accurate and provides more consistent results. The stator wedge analyser instrument can be used to test most types of generator stator slot wedges, including those with ripple springs.

A hand-held probe automatically taps each wedge approximately 30 times in three seconds. An accelerometer gathers the data and transmits it to the SWA instrument. Results are presented on a computer in the form of numeric values and a color-coded tightness map.

1 DEISGN AND SUPPLY A MODERN AND OBJECTIVE TEST OF STATOR CORE WEDGES

- Make well-informed maintenance decisions based upon reliable and consistent SWA data.
- Use for all rotating machinery, including wedging systems with ripple springs.
- In Standard test mode, tightness of each wedge is compared to predefined values while in advanced mode, the tightness of each wedge can be compared to all other wedges in the winding, the wedges of another winding or any user selected references.
- Repeatable, objective, numeric test data removes subjectivity of manual hand tapping methods.
- Fast, easy wedge tightness testing and analysis
- Permanent record of test data.
- Easy report generation
- Option to install on a robotic vehicle to further automate the testing

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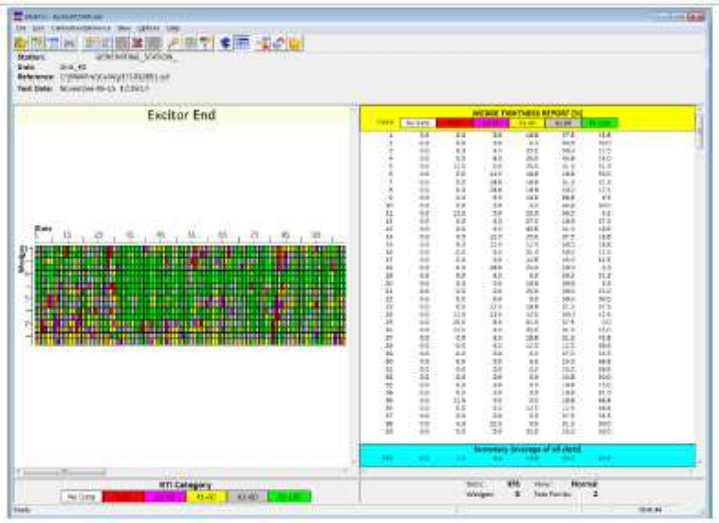
2 TECHNICAL SPECIFICATIONS



THE ADVANCED WAY TO TEST WEDGES

The color-coded map makes it easy to identify suspect areas. Details are provided in a numeric tightness report. Operator may choose up to five ranking categories to classify wedge tightness.

FEATURES

- Great flexibility in test set-up
- Two operational modes: Standard and Advanced
- Printing of results
- Ability to export test data to spreadsheets, databases, or word processors

KIT CONTENTS

- Hand-held Probe
- Extension bars 3", 6", 9" (7.6 cm, 15.2 cm, 22.8 cm)
- Control Unit
- Software
  - Operating
  - Data Processing
  - Analysis
- Calibration Board
- Connection Cables
- 3 mm Allen Key
- Operating Manual
- Rugged Carrying Case

SPECIFICATIONS	
Power Supply	90-132/180-264 V, 50/60 Hz
Hand-held Probe Dimensions	W- 25 mm (1") H – 160 mm (6-1/4") L- 145 mm (5-3/4")
Minimum Wedge Width	10 mm (0.4")
Minimum Wedge Length	50 mm (2.0")
Slot Depth Adjustment	0 mm - 20 mm (10 mm - 25 mm wide) 0 mm - 60 mm (>25 mm wide)
Connection Cable Length	15 m (50')
Analyzer Dimensions	28 x 18 x 25 cm (11" x 7" x 10")
Verification Block Dimensions	10 x 2.5 x 15 cm (4" x 1" x 6")
Carrying Case Dimensions	63 x 30 x 51 (25" x 12" x 20")
Weight (Entire Kit)	25 kg (55 lb)
Operating Temperature	+10° to +40 °C (+50° to +104 °F)

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3 RETURNABLE

- Electrical certificate of compliance
- Operating and maintenance manual
- Updated software

4 COMMISSION AND TRAINING

- The supply must provide minimum of 1 day training on site to ERI
- Technical support should the instruments breakdown

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5 TECHNICAL EVALUATION CRITERIA

CRETERIA	EVALUATION RANGE (Deliverables)	POINT RANGE	SCORING %
Supplier to have experience in the stator wedge analyser and conform with high value to ERI, Eskom or other customers in the past	Proof of conforming products supplied in the past	0 points: No experience 15 points: Partial Experience 25 point: More Experience	30%
Supplier meets all test set specifications/requirements	Proof of quality documents	5 points: no proof 20 points: proof	20%
Supply to have the capacity and capability to design, manufacture and supply	Plant visit or machine specification	20 points: Partial capacity 30 points: Capable	20%
Technical experience in the digital wedge analyse in industry with references	Relevant reference letters with contract details and contact information. Examples: previous customer orders. Previous contract dates and durations. Previous customer signed delivery notes.	0 points: 0 customer 5 Points: One customer 15 points: 1-2 customers 25 points: +/- 5 customers	30%
Minimum Qualifying Threshold		70	

All readings and information on actions taken must be fully recorded in the product quality plan (PQP). I trust that the scope meets the client's requirements. Please do not hesitate to contact me for more information.

Kind regards,

Errol Mathebula

Works Engineer

Acknowedged,

Thembeka Ncaba

Generator Service HOD