

**ETHER NDE** 

# VeeScan-H Aircraft Wheel Half Inspection System.



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# Introduction

**Why inspect wheel halves?** – Wheels are subject to very high stresses and temperatures during landing and are vital in maintaining the safe operation of an aircraft

**Why use Eddy Current?** The wheels are coated to prevent corrosion and eddy current permits inspection without removing the coating.

**Why automate this inspection?** – Automation gives a faster and more consistent inspection resulting in a higher PoD.

# Wheel Inspection Areas



# Requirements

- Reliability
- Easy to service/repair
- Suits different setup scenarios e.g. free standing, in conveyors, height adjustable work station
- Safety
- Reliable calibration
- Easy setup

# Solutions

- Use standard and globally available components e.g. PC, Electromechanical control hardware
- Standard removable eddy current flaw detector
- Built in diagnostics and standard components
- Roller conveyor and height adjustable control panel
- No pinch points and no hardware above the work surface
- Dynamic setting standard which can be removed for verification
- Simple Graphical indication of machine setting and only three parameters be wheel half

# Complete Machine





# With Standard Flaw Detector



# Simple User Interface





# User Interface - Opening Screen



# User Interface - Settings

VeeScan Automatic Wheel Inspection System

Home | **Wheel Profile** | Settings | Running | Inspection Report | Wheel Measure | Manual | Diagnostics | Errors

767	Wheel Specification
Nosewheel	Wheel Type
I/B	Wheel Half
148	Wheel Lift Height
544	Wheel Diameter
16	First Acquisition Start Height
213	First Acquisition End Height
0	Second Acquisition Start Height
0	Second Acquisition End Height
60	Wheel Speed
1.5	HelixRate
TW1507	Serial Number
TW1507	PartNumber
Test Engineer	Inspection Performed By
ETHer NDE	Customer

Save Wheel Profile

Load Wheel Profile

Load Original Wheel Profile

Start Inspection



# Versatile Wheel Clamping System

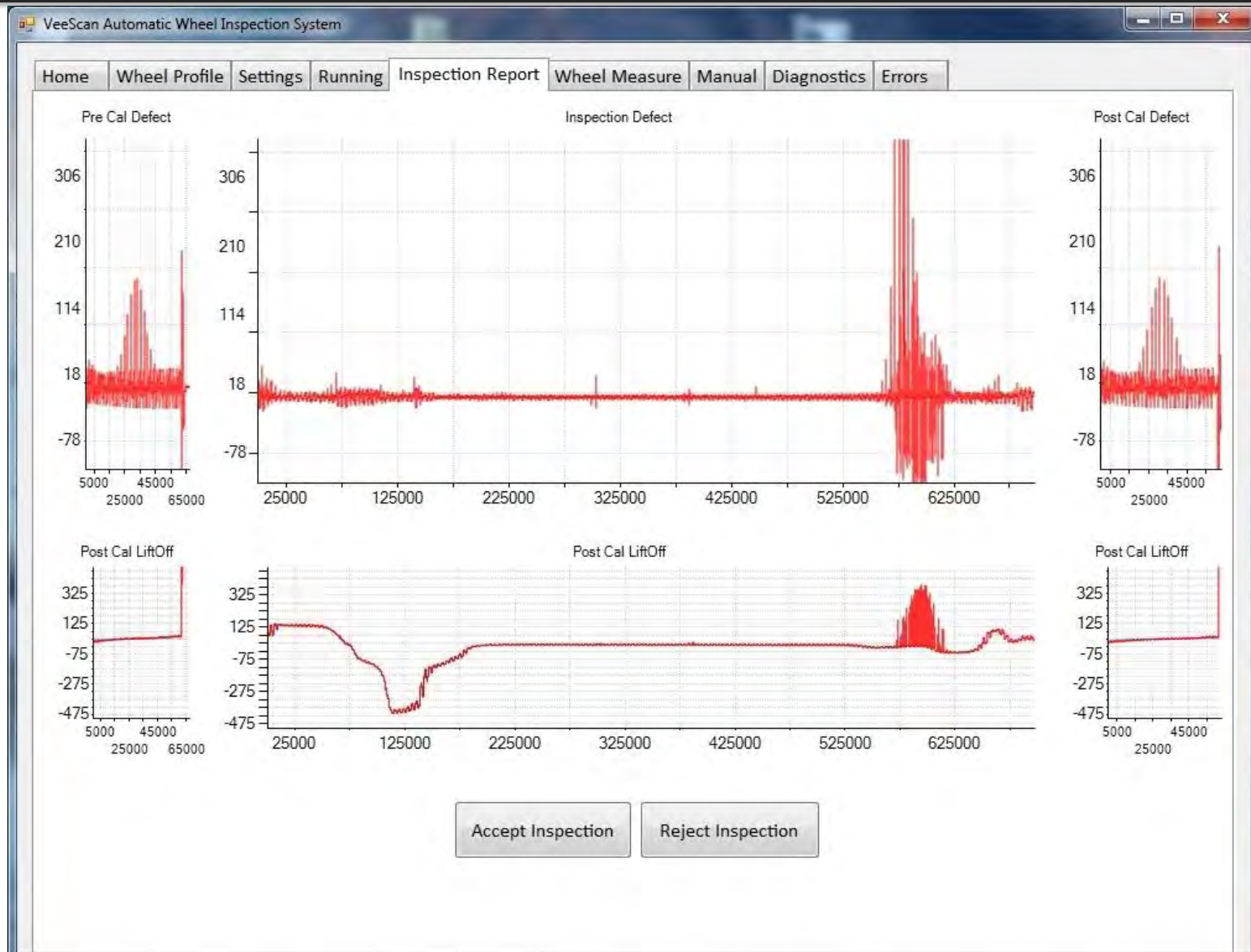


# User Interface - Running





# User Interface - Reporting



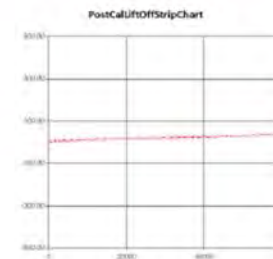
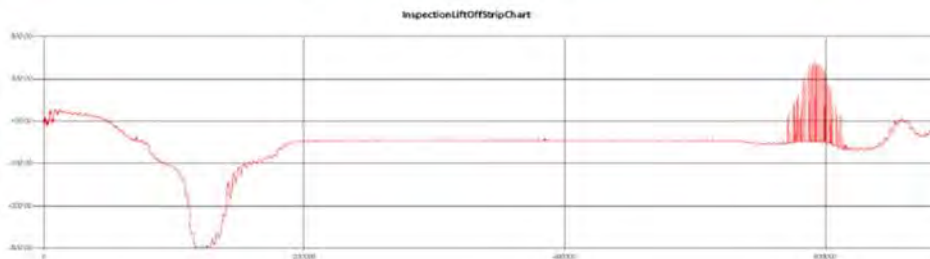
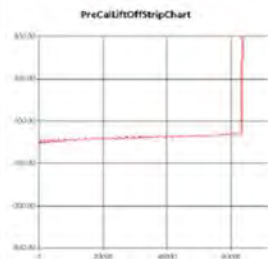
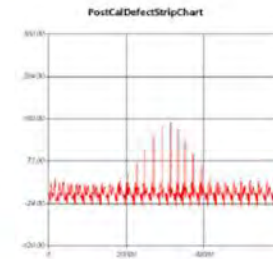
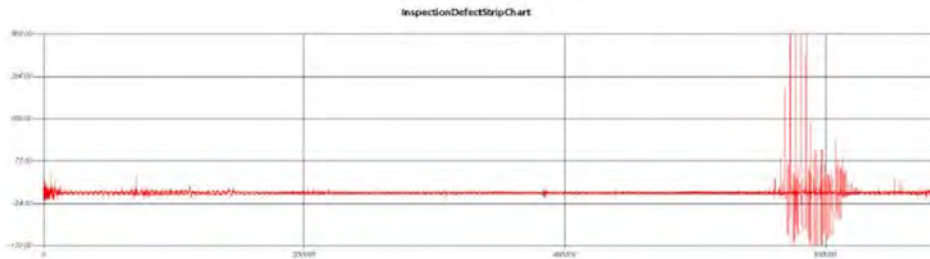
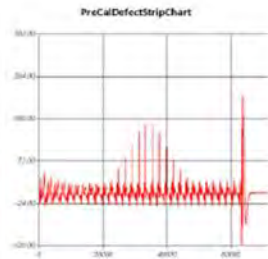
# User Interface – PDF Report



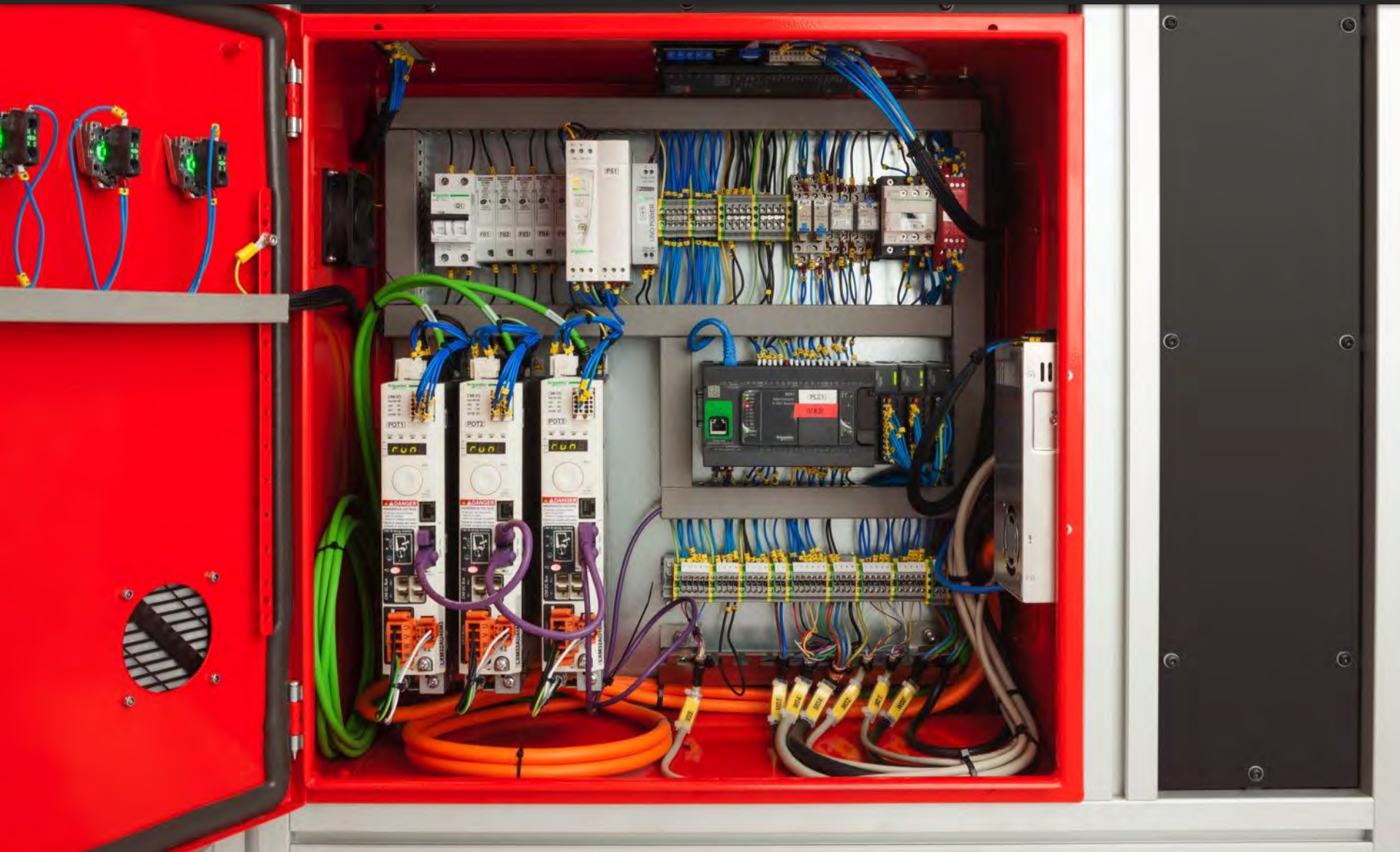
File Name -> C:\Users\VeeScanController\ETHER NDE\VeeScan  
v3\20160920150247.pdf  
Test Completion Date and Time -> 20/09/2016 15:02:47  
Test Result -> True  
Inspection Performed By -> Test Engineer

Wheel Specification -> 767  
Wheel Type -> Nosewheel  
Wheel Half -> I/B  
Serial Number -> TW1507  
Part Number -> TW1507  
Customer -> ETHER NDE  
RPM -> 60  
Helix Rate -> 1.5

Frequency -> 200 KHz  
Gain X -> 36dB  
Gain Y -> 52dB  
Phase -> 73degrees  
Filter LP -> 750Hz  
Filter HP -> 2Hz  
Drive Gain -> 12dB  
Input Gain -> 10dB

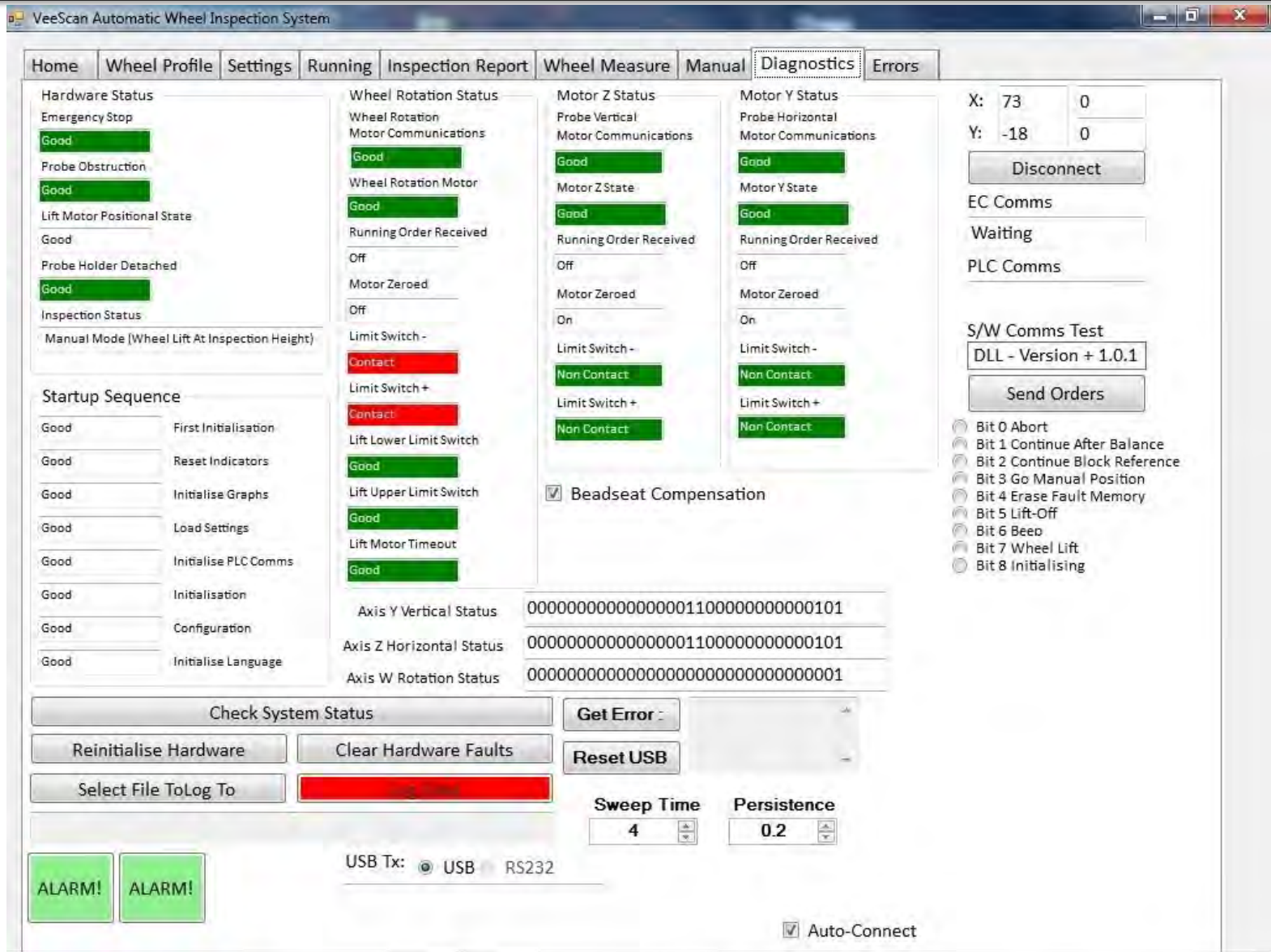


# Standard Globally Available Control System





# User Interface - Diagnostics





# Specification

- **Instrument** AeroCheck+
- **Probe** Differentially connected absolute (integral balance load) with circular head. Recommended Frequency 200kHz, option 100kHz, 500kHz and 1.5 MHz. Recommended diameter 6mm (mm also available and narrow shaft for large wheels)
- **Wheel Diameter** 0-900mm 0-35"
- **Max Wheel Height** 400mm 16"
- **Max Load** 150Kg / 330 lbs
- **Typical Inspection Helix** 1.5mm 0.06"
- **Rotation Speed** 15-120 rpm
- **Probe Position** Adaptive contour following using dual axis pressure sensors with fully bi-directional control
- **Alarms** Acoustic and visual
- **Frame** Extruded Aluminium
- **Wheel Position** The wheel is lifted clear of the roller tray using a 250mm 10" stroke electric actuator and then held under its own weight by an adaptive automatic grip mechanism
- **Data Recording & Storage** Yes with pdf reports.
- **Automatic Calibration** Yes, by means of dynamic standard option
- **Automatic Stop on Defect** Yes
- **Turntable** Roller Tray Rubber coated steel rolls
- **Control Station** External free standing. Height adjustable with machine and eddy current control. 7" screen. Use of keyboard and tracker ball
- **Machine Weight** 275kg / 600lbs
- **Dimensions (w\*d\*h)** 850mm x 1120mm x 904-975 (typical 945mm) mm 33.5" x 44" \* 36-38"
- **Power Supply** 110-240v ac 50/60Hz

# VeeScan



VeeScan Pivot Arm Option.

# VeeScan

Avia Services / Air Atlanta	MRO/Airline	UK
Abu Dhabi Aviation	MRO	UAE
Aerolineas Argentinas	Airline	Argentina
Airbus Defence	Military	Spain
Australian Forces-2 Units*	Military	Australia
Emirates – 2 units*	Airline	UAE
Fly Dubai	Airline	UAE
Israeli Airforce*	Military	Israel
Kuwait Airforce	Military	Kuwait
NAVAIR (6 Units)*	Military	USA
Oman Air Force/via BAE*	Military	Oman
Rotable Repairs- 2 units*	Airline	UK
Sabena Technik*	MRO	Belgium
Singapore Airlines	Airline	Singapore
SkyWheels-2 units	MRO	UK

# VeeScan

When 7 out of your first 15 Customers are all placing repeat orders within 2 years that is the best endorsement of all.



# Advantages over Competition

- Footprint of VeeScan much smaller.
- Height adjustable to fit in line with a production line.
- Cost of probe (competitor over \$3,000).
- Large competitor unit will not test wheels less than 250mm/10" minimum diameter
- Easy data interpretation
- Overhead cone is a safety risk
- Overall cost of system.
- Flexibility & ease of set up.