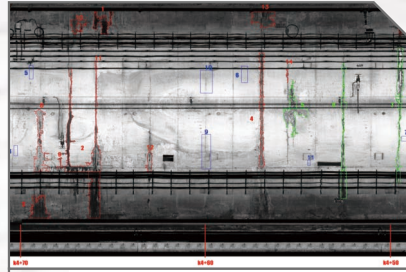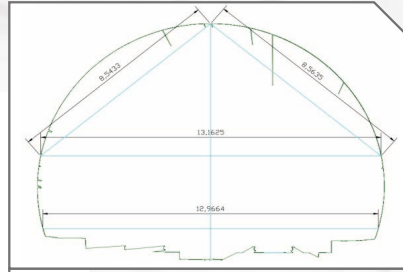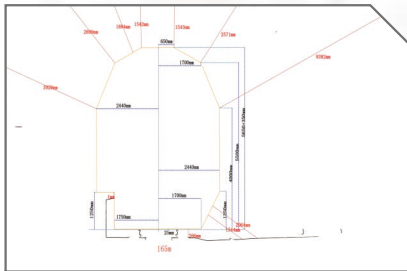## CASE STUDY

full inspection
@ Guangzhou Metro Line 4
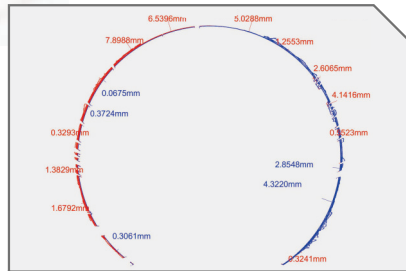(tunnel clearance, diseases, etc.)

disease inspection
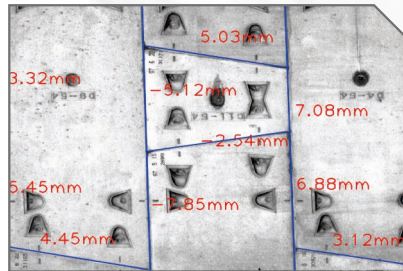@ Shenzhen Metro Line 11
(2-way completed in 1 hour)

sectional inspection
@ Hunan High-speed Railway
(comparison with historical data)

platform gauge inspection
@ Guangzhou Metro Line 3
(1.8 km/h, results done on site)

segment faulting inspection
@ Shenzhen Metro Line 2
(sectional data display)

segment faulting inspection
@ Guangzhou Metro Line 1
(faulting display in orthophoto)

SPECIFICATION

System Performance
current version: 5th generation (1st generation since 2016)
ground control: Bluetooth 2.0 for hardware datalink
trolley gear: 2WD, 2-direction movements (forward and reverse)
trolley speed: max. 3.6 km/h, with cruise control function
scanning resolution: 0.5/1/2/3/5 mm optional
system overall accuracy: ±2 mm
distance measurement accuracy: ±1 mm
angle measurement accuracy: ±0.009°
output format: .doc (report); .tiff (orthophoto); .bin/.e57/.txt (point cloud)
application range: underground rail tunnels during operation and maintenance stage

Physical
trolley dimension (LxWxH): 1600x550x350 mm
net weight: 25kg (w/o scanner)
packaging dimension (LxWxH): 750x430x370 mm/case
packaging weight: 41kg (w/o scanner), 2 cases
scanner interfacing: Faro series (as default)

Inbuilt Computer Configuration
HDD: 1 TB
RAM: 32 GB
data export: USB 2.0, 2 ports available

Electrical
power supply: lithium battery group, 44800mAh in total, 16.8V
power endurance: max. 8 hours (after fully charged)

Environmental
operating temperature: -10℃ ~ +50℃
humidity: 80%, non-condensing

Software Installation Requirement
CPU: Intel Core i7 or above
RAM: 32 GB or above
GPU: Nvidia GTX 960 or above

Note: all information above is subject to change without any prior notice.

SOUTH
Target your success

AUTOMATED TUNNEL SCANNING & DETECTION SYSTEM MS100
Revolutionary Solution. Abundant Outputs. Amazing Efficiency.
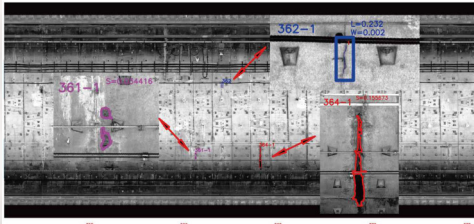

"This system package was specifically made to provide A One-stop Solution of underground rail tunnel scanning and detection for those metro or high-speed rail authorities. For example, for routine inspection of 1km metro tunnel, you may obtain plenty of data outcomes just within a few hours!" said Engr. Hongwei Huang, a Chinese specialist dedicated to precise measurement technology for nearly 15 years.

REVOLUTIONARY SOLUTION. ABUNDANT OUTPUTS. AMAZING EFFICIENCY.

INTRODUCTION

To guarantee the operational safety, it's a must to inspect rail tunnel health conditions at regular intervals, otherwise the structural deformation and tunnel diseases might result in safety hazards and incalculable losses. MS100 was particularly designed to deal with those existing headaches (see below) and serve as a perfect trouble-shooter for the industry.
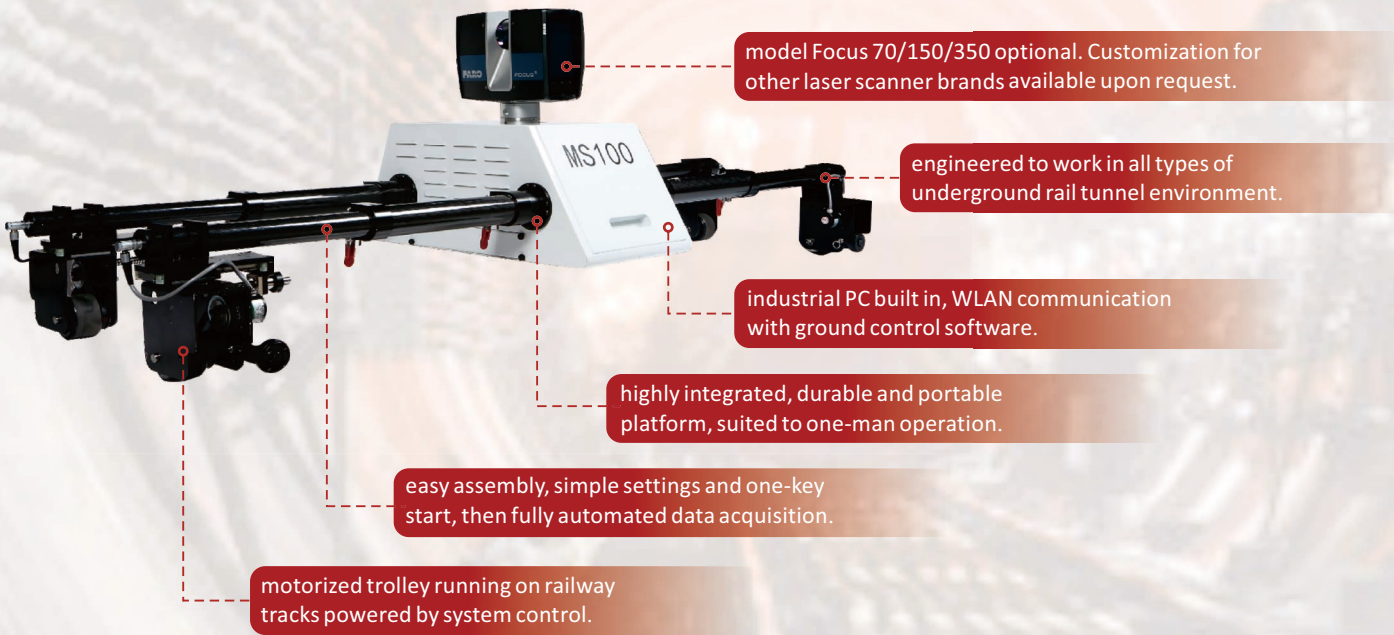

HEADACHES & REMEDIES

typically short stoppage time
harsh underground environment
movements restricted much
comparably low efficiency
long time to wait for results
limited outputs for reference

- automated scanning working mode
- big data captured by 3D laser scanning
- motorized trolley running on rail tracks
- cutting-edge mechanical and digitized solution
- data acquisition and process in one stop
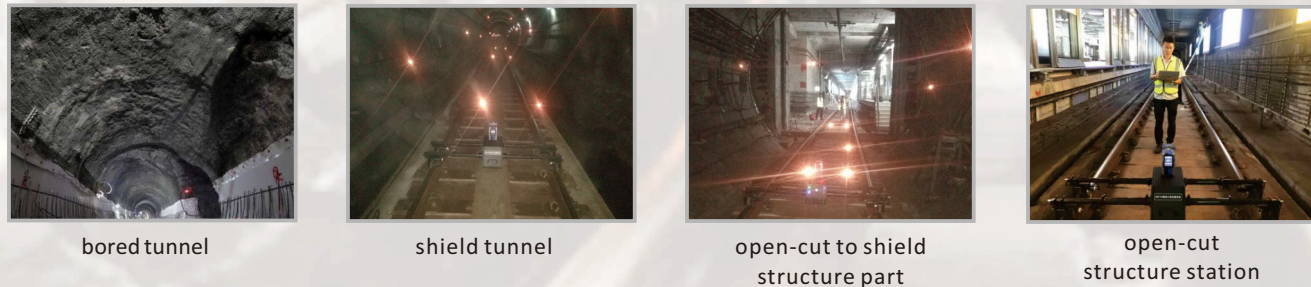- abundant analysis reports available

SYSTEM COMPONENTS

MS100 includes 3 major components:
① TrolleyAuto (with industrial PC built in); ② All-in-One software Tunnel Scan&Go; ③ Faro laser scanner.

model Focus 70/150/350 optional. Customization for other laser scanner brands available upon request.

engineered to work in all types of underground rail tunnel environment.

industrial PC built in, WLAN communication with ground control software.

highly integrated, durable and portable platform, suited to one-man operation.

easy assembly, simple settings and one-key start, then fully automated data acquisition.

motorized trolley running on railway tracks powered by system control.

JOB ENVIRONMENTS

bored tunnel

shield tunnel

open-cut to shield structure part

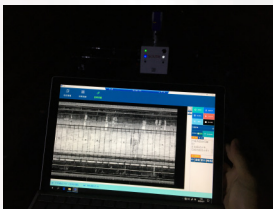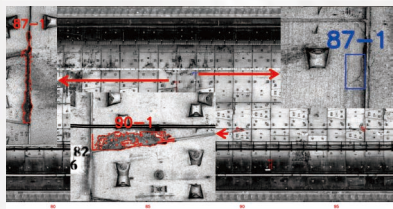open-cut structure station

ALL-IN-ONE SOFTWARE

The All-in-One software Tunnel Scan&Go is the core of the system, which plays a vital role in the whole process. It enables the users to conduct automated scanning, data analysis, intelligent detection, report export, etc. and features largely in an A-to-Z solution.
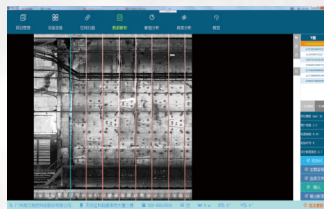

SOFTWARE FEATURES

realtime outputting to show basic results on site

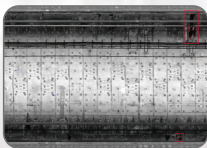high identification capability of problematic portions up to 90%
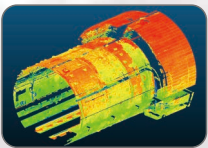
quick results, ready for immediate response

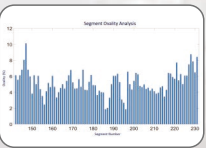independent R&D, customizations available
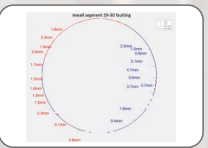
OUTPUTS DISPLAY

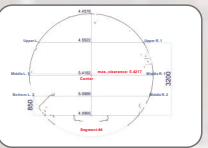

high-resolution circular orthophoto
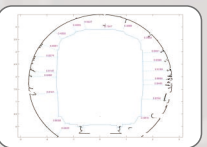
3D point cloud analysis
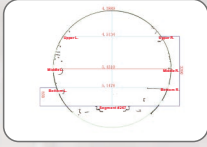
segment ovality analysis

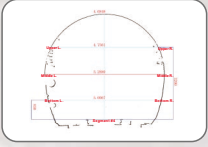segment faulting analysis

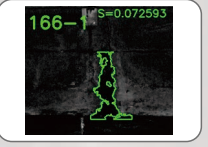tunnel clearance analysis

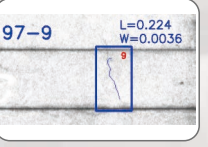tunnel gauge analysis

shield tunnel sectional data

bored tunnel sectional data

metro station sectional data

detected water seepage

detected inwall crack

detected concrete peeling

RESULTS COMPARISON

example	photo taken by iPhone	software display	
		scanned result on site	computed & detected result
1			
2			