



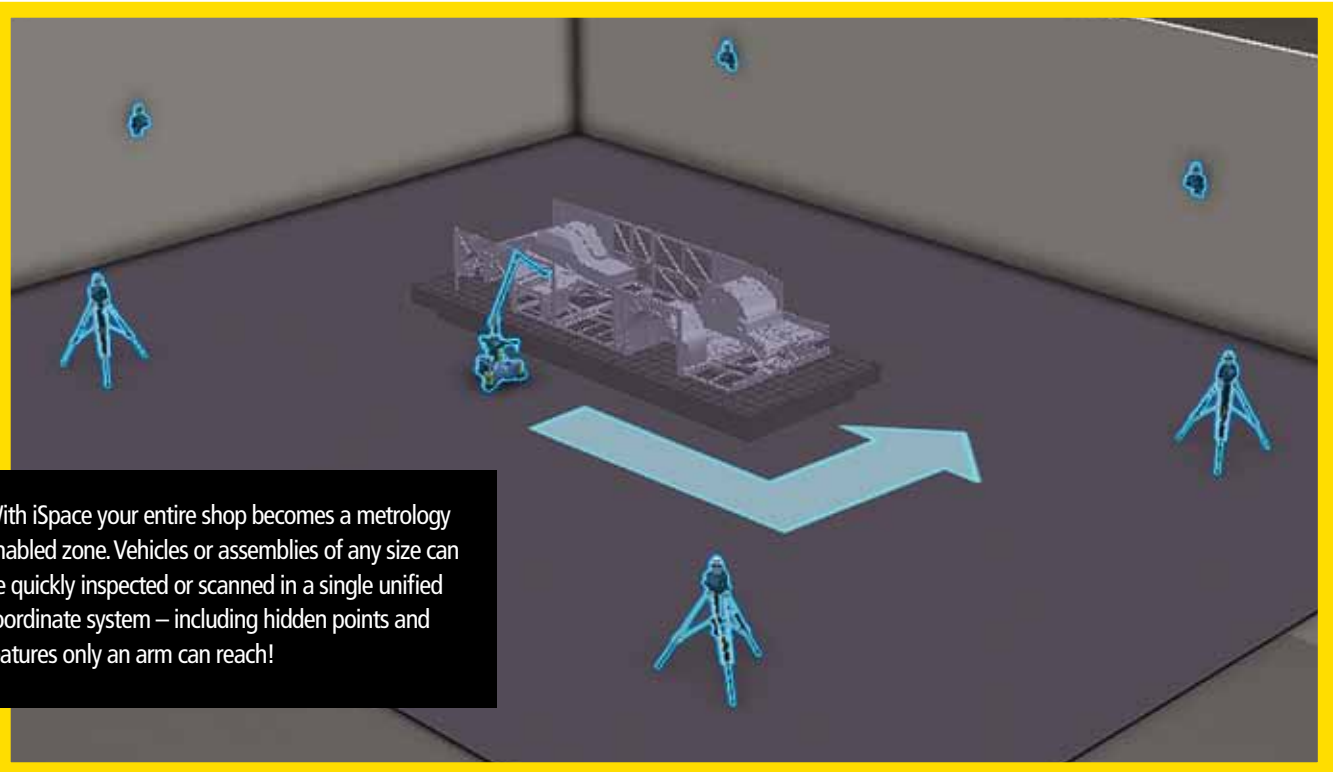
iSpace for Assembly & Fabrication

Turning your assembly facility into a metrology lab



Improve build accuracy & reduce assembly times

Jig or layout plate based assembly using traditional aides including physical gauges, digital indicators and layout arms can fall short in flexibility or accuracy and is often very time consuming. Large or complex assemblies are often built with less dimensional control than desired in order to maintain rates. As a result these assemblies may not meet desired build accuracies requiring costly rework or performance compromises. iSpace provides a means of maximizing build efficiency & accuracy by providing in-process assembly assistance & verification.



With iSpace your entire shop becomes a metrology enabled zone. Vehicles or assemblies of any size can be quickly inspected or scanned in a single unified coordinate system – including hidden points and features only an arm can reach!

Benefits at a glance

- Large volumes: transmitter range of 40m
- High accuracy: <0.25mm relative measurement
- Portable & flexible: bring the metrology process to the assembly line
- Multi task: multiple operators can utilize the system simultaneously
- Eliminates instrument 'leapfrogging'



Inspect or scan large and complex assemblies faster than ever before

System Overview

- Transmitters establish the measurement volume – Create a measurement zone of any size by surrounding it with transmitters. Extend your measurement zone by adding additional transmitters, now or in the future
- Setup is quick and easy – Simply walk a bundle tool around the volume or install permanent reference sensors for automatic calibration & continuous system monitoring
- Measure anywhere where 3 transmitters are visible
- Perform dimensional verification with the freedom of the wireless hand held i6 Probe
- Inspect hard to reach or hidden features with the i6 Long Reach Probe
- Utilize live positioning & leveling feedback with the Dynamic Tracking Kit
- Capture high density 3D scan data with the i7 Articulated Arm
- Directly interface with popular inspection software for data analysis and reporting

iSpace optimizes assembly and production

iSpace Systems help build vehicles from the ground up with applications at every stage to enable faster and more accurate assembly



Chassis Assembly

- Quickly align chassis to build plates or align directly to the chassis with the i6LRP
- Use the i6 Probe to position key chassis components including brackets & mounts
- Level critical features using DTKs including engine & axle mounts, draw bar, etc.

Chassis Verification & As-Built Characterization

- Perform QA inspection of assembled chassis prior to final assembly using the i7
- Collect high density scan data using the i7 for process improvements and as-built adaptation further down the line

Body Fabrication & Assembly

- Assemble large components with live feedback using DTKs
- Use the i6 LRP to perform body inspection and position fairings & deflectors for aerodynamic optimization

Final Inspection

- Perform QA inspection of final assembled vehicle using the i6LRP
- Collect high density scan data using the i7 for detailed aerodynamic analysis

Specifications

Range (transmitter – sensor)	2-40m (6' to 130')
Measurement Repeatability ¹	0.05mm (0.002")
3D Point Uncertainty ²	< 0.2mm (0.008") + 10ppm
Length Uncertainty	< 0.2mm (0.008") over 3x length of scale
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Relative Humidity	10% to 90% (non-condensing)

¹ Single point repeatability when measured with an i6 probe with consistent orientation. Repeatability remains constant throughout the iSpace measurement volume.
² Performance given for system bundled with a 2m length of scale. Scale factor doubles when using a 1m length of scale.

Software

In combination with the iGPS software platform Surveyor a Front end software package provides the visual feedback and analysis tools needed to complete the system. Choose from:

- Nikon Metrology CMM Manager
- Verisurf
- NRK Spatial Analyzer



Standard Configuration & Options

	Standard Setup for Assembly	6 wall or post mounted transmitters 1 i6 LRP for setup and inspection 1 deployable workstation including Surveyor Software and CMM Manager
	Additional transmitters	Can be added to an existing system at any time to expand the measurement volume
	i6 Long Reach Probe	Dual purpose setup and inspection tool. Comes with a variety of tip extensions and probe tips for performing facility layouts and inspecting large objects.
	i6 Probe	Ergonomic hand held inspection tool. Features multiple function buttons, measurement feedback and a variety of tips for precise geometric inspection.
	i7 Articulated Arm Tracking Kit	iGPS enabled MCAII extends the working volume of the arm throughout the entire iSpace volume. The i7 automatically aligns to the World reference frame wherever it is moved without having to leapfrog arm measurements or measure any nests. Also compatible with MCAII enabled 3D scanners.
	Dynamic Tracking Kit - i5 Integrated Sensors	Dual i5is kit allowing for live 6 Degree of Freedom tracking of parts and objects. Fast and easy to deploy with quick clamp locking system & automatic configuration. Use for part positioning and leveling during assembly operations.



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