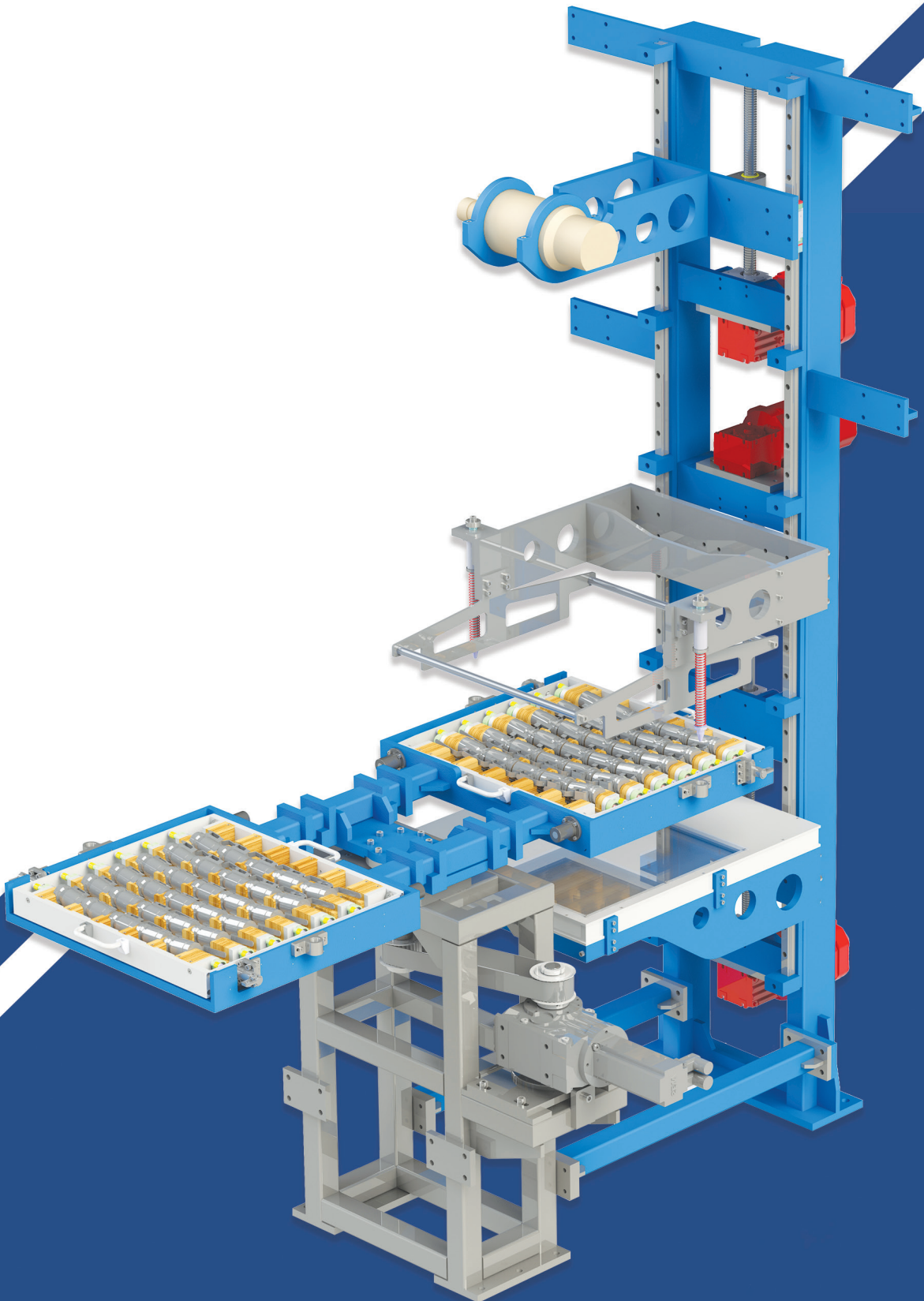


# Multi-Axis Manipulators



# Manipulator for small & medium size part inspection

Standalone Manipulators are designed for use in existing or new cabinet systems / concrete bunkers.

Our Manipulator system is ideal for inspecting small and medium samples such as automotive assemblies, munitions, castings, aerospace parts and composite parts, from every possible angle with maximum detail.

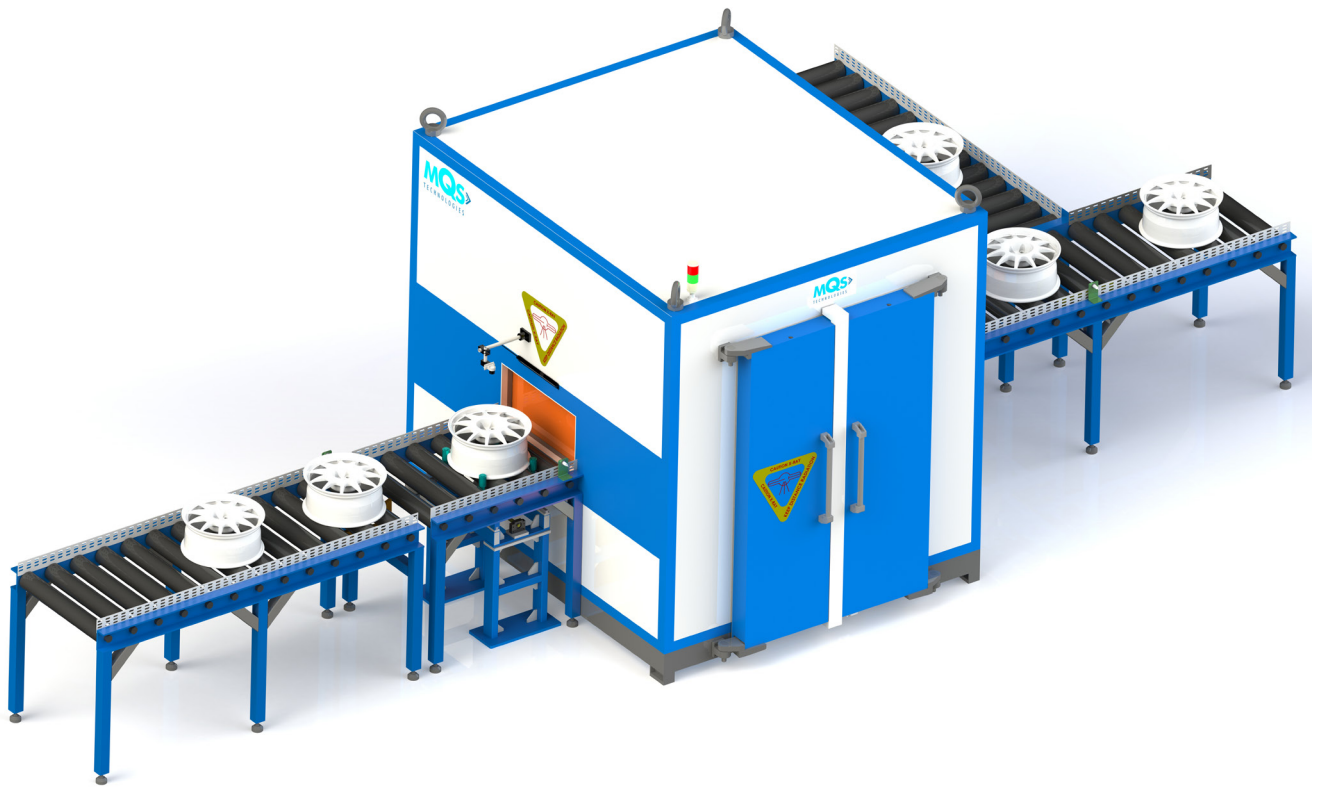
Designed to offer high precision movements, the manipulator system is built using servo/ stepper drives and is easily maneuverable in both automatic and manual modes.

AXIS	STROKE (mm)
*X-Axis Travel	~650mm
*Y-Axis Travel	~650mm
*Z-Axis Travel	~900mm, Tilt±45°
Magnification Axis	500mm
Object rotation (Turn table)	nx360°, Ø 400
Weight capacity of the table	~60kgs

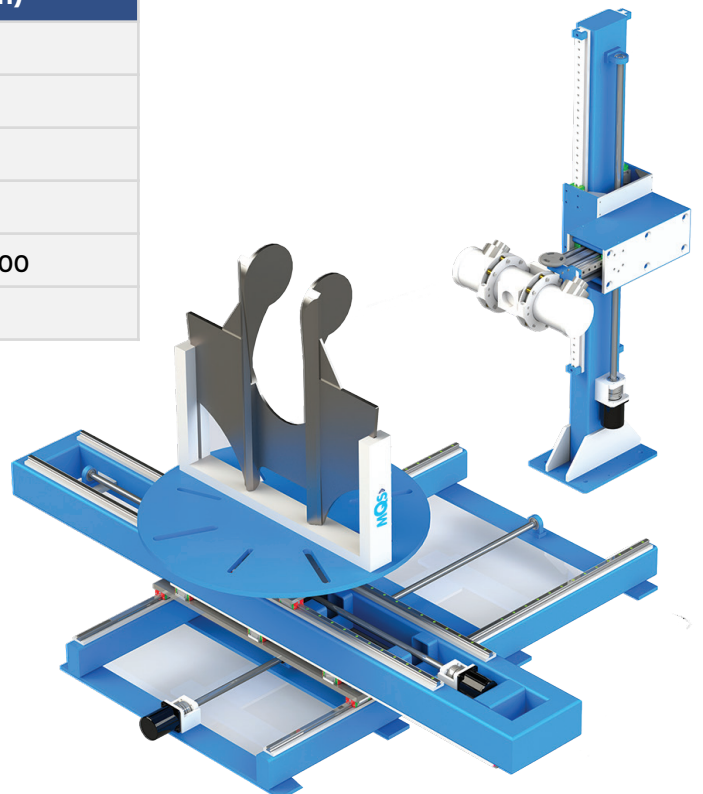
\* can be customized



# Inline Wheel Inspection System

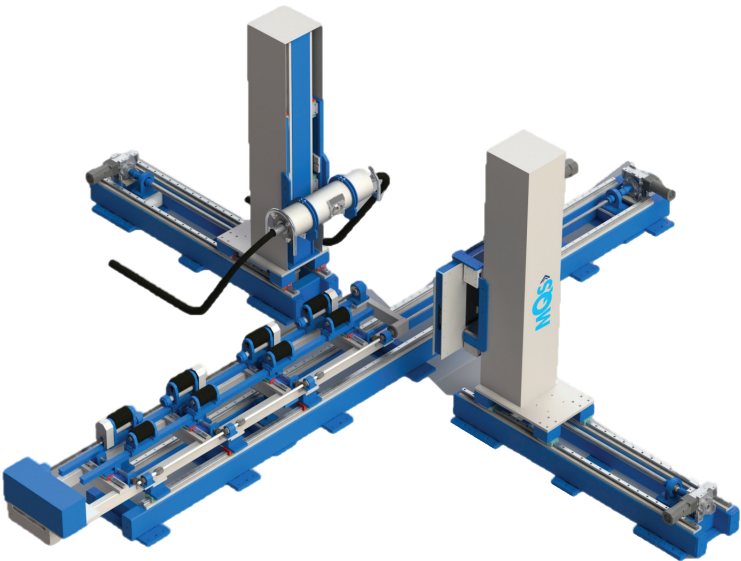


AXIS	STROKE (mm)
Vertical Stroke	~1000mm
Horizontal Stroke	~1000mm
Transverse Travel	~± 600mm
Total Height	~2900mm
Object rotation (Turn table)	n X 360°, Ø 1500
Weight capacity of the table	~100kgs



7 Axis Manipulator for Real time inspection of composite parts is designed for performing real time radiography of cylindrical objects with dimensions of 200mm dia and maximum length of 5000mm. Object holding mechanism is designed to rotate the object about its axis, by a required angle, as specified by the operator.

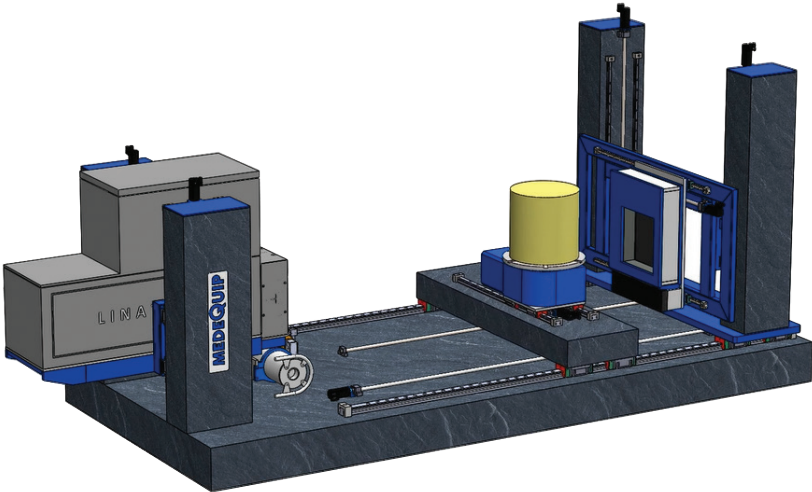
AXIS	STROKE (mm)
Vertical Stroke for both Source & Detector	~600mm
Horizontal Stroke for both Source & Detector	~1000mm
Movement Accuracy	~ 1mm in all axis
Object rotation (Turn table for small objects)	Nx360°, Ø200
Weight capacity of the table	~ 200kgs



## Manipulator for High Energy CT Inspection

Customize your CT High Energy solution with our multi-axial manipulators, DFPDs, and wall-mount solutions.

AXIS	STROKE (mm)
Energy Range	Upto 15MeV
DFPD	PaxScan 4343HE
Source Z-Axis	~1150mm
Detector X-Axis	~2500mm
Detector Z-Axis	~ 1050mm
Object X-Axis	~2000mm
Object Y-Axis	±350mm
Object rotation (Turn table)	nx360°, Ø 500
Object Size	500x500mm (ØxH)

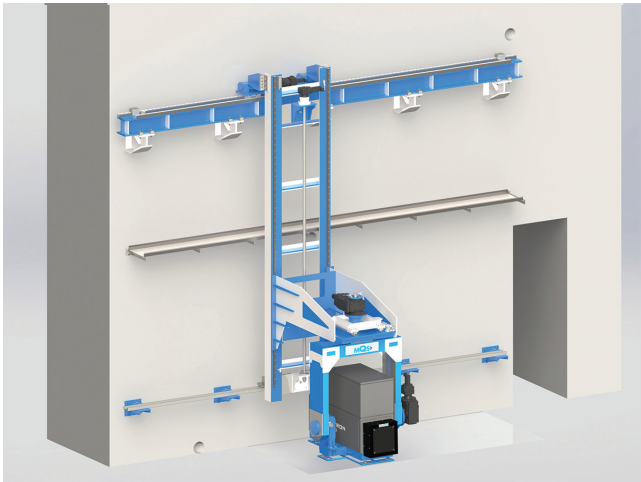




Whenever space is at a premium, a wall-mount manipulator is a perfect inspection solution. The Wall mount manipulator for a high energy linear accelerator, can be designed to hold a 15 MeV X-ray head, is the best choice for saving. This solution is particularly of relevance for inspection of large and dense objects at facilities where space to accommodate an inspection system is a major challenge.

AXIS	STROKE (mm)
Energy Range	Upto 15MeV
Cross Travel	5Mts with 1mm accuracy
Magnification Adjustment	~300mm (Manual)
Vertical Axis Travel	3.3Mts with 1mm accuracy
Tilt	± 60Deg with 0.1° accuracy
Rotation	+ 60Deg& - 60Deg with 0.1° accuracy
Stability	Less than 10Sec

\* can be customized



8 Axis Manipulator for Inspection of Aircraft Wings is designed for performing real time X-Ray inspection of honeycomb sandwich assemblies/ panels. While the part is stationary, the manipulator system is designed to operate in manual as well as automated mode to carry out digital radiography inspection of the part at various angles. Tube head and Flat panel detector manipulator mechanism is designed to operate in synchronization with horizontal rotation of 20° minimum to scan an aircraft wing with taper radius of 200mm to 600mm(approximately) over a length of 4000 mm in a single setting.

AXIS	STROKE (mm)
Longitudinal Axis Travel	~8000mm
Transverse Travel	~2000mm
Vertical Axis Travel	~2500mm
Vertical Tilt for Source & Detector	-5to+30°

\* can be customized



Manipulators are an integral part of an Industrial X-Ray solution and aid in holistic inspection of objects with minimum to nil human intervention and help with higher throughput - which is of essence especially for production line inspection needs.

MQS Technologies leverages its decades of multi-disciplinary engineering expertise to design & build customised manipulators for a multitude of applications.

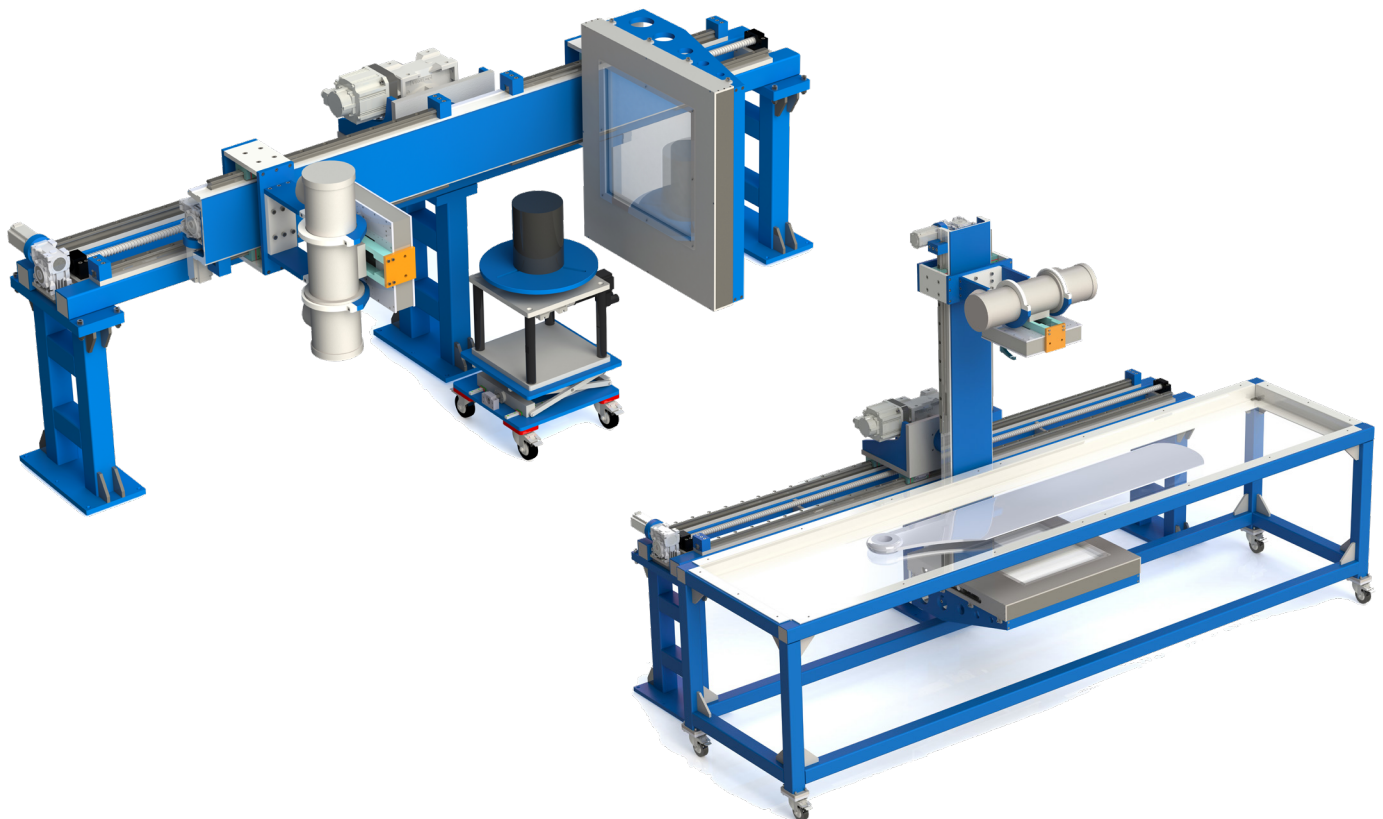
Each manipulator is designed to suit a customer's unique imaging requirement and is built to provide accurate imaging with precise positioning, ease of alignment and ease of usage.

Special applications include manipulators with flame proof motors for critical defence applications such as inspection of ammunitions & propellants, heavy duty ones for accommodating objects in excess of 2-3 tons of weight and more than 10meters in length and wall mounted systems for high energy X-Ray head, for applications where space is limited.

**Salient features of custom built manipulators:**

- ▶ Suitable for diverse energy ranges (160kV - 15MeV) and a wide range of objects (10mm to 3000mm dia)
- ▶ Available in multiple operation modes - automatic, semi automatic and manual
- ▶ Synchronization in-built to guarantee precision, minimum number of exposures and quicker inspection time
- ▶ Designed to cater to requisite accuracy levels - plays a key role in real time radiography
- ▶ User friendly and minimal training required

Product ranges include multi axis linear manipulators and rotary manipulators for standard and CT applications. Manipulators can also be customised to accommodate X-Ray tubes and Flat Panel Detectors



## APPLICATIONS

- ▶ Castings Inspection
- ▶ Propellant Inspection
- ▶ Rocket Motor Bodies Inspection
- ▶ Weldments
- ▶ Warhead Munitions
- ▶ Ammunitions
- ▶ Cargo Screening
- ▶ Ship Body Inspection
- ▶ Aircraft Body Inspection
- ▶ Valve Inspection
- ▶ Pressure Vessels
- ▶ Engine blocks / thick welds / composites

## KEY FEATURES

- ▶ High precision rotary table and manipulators for CT applications.
- ▶ Suitable for real-time inspection system.
- ▶ Fully automated system with position feedback. Motors also available with flame proof option point.
- ▶ Ease of usage - Positions along all axes can be preset and recalled, thereby saving time and labor for large object inspection and also for production jobs.

## Our Clients



## About MQS Technologies

MQS Technologies (formerly MedeQuip Services) is a diversified firm with Design, manufacturing & maintenance capabilities that offers custom solutions for engineering & healthcare applications.

Focused on three business lines - Non-Destructive Testing, Aerospace & Defense and Healthcare, our USP lies in leveraging decades of multidisciplinary expertise in electronics, electro-mechanical, mechanical and software domains, to provide user-friendly products and services for a wide range of industries.



K K House, Plot No. B-35/1, Industrial Estate, Sanathnagar, Hyderabad - 500018, Telangana, India.

Email: [bdev@mqstechnologies.in](mailto:bdev@mqstechnologies.in)  
[sales@mqstechnologies.in](mailto:sales@mqstechnologies.in)  
Ph: +91 40 2381 1122  
[www.mqstechnologies.in](http://www.mqstechnologies.in)

Copyright 2023, MQS Technologies. All rights reserved.



**MQS** TECHNOLOGIES  
formerly **MEDEQUIP**

