

> Robots and Automation

TMA Automation specializes in turnkey automation solutions for plastic injection molding and IML labeling production processes.

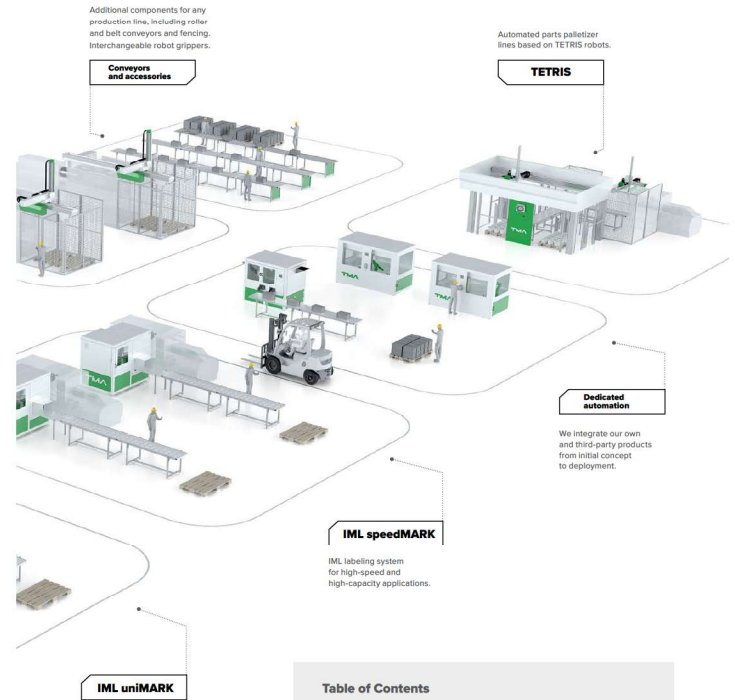
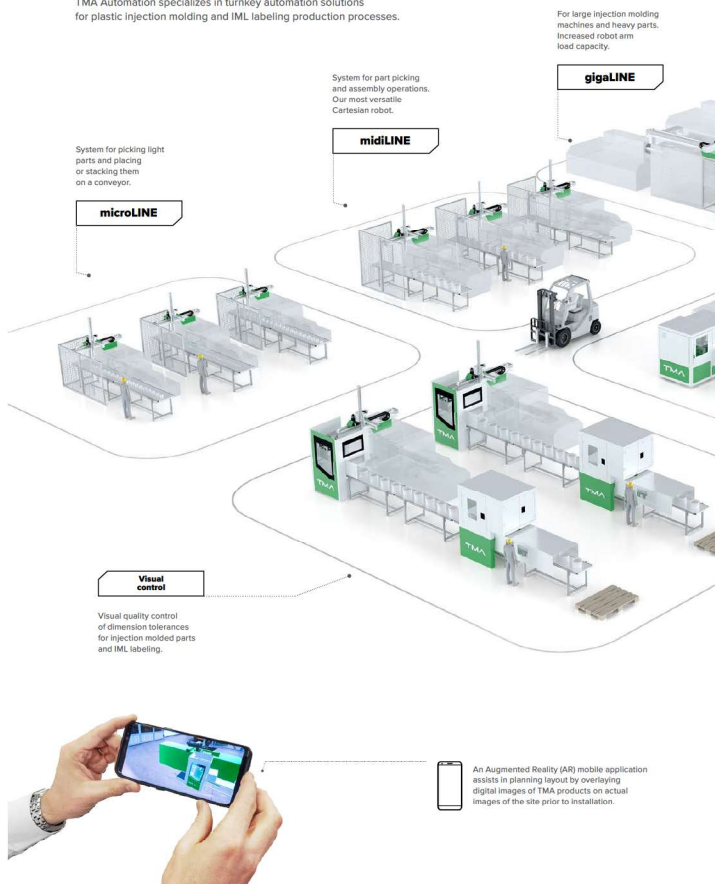


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> Our company



The core asset of TMA are people, who live by values such as teamwork, commitment, initiative and respect for others' work. Every day we empower and encourage our staff to develop their skills and hone their key talents.

tma-automation.com

> Dynamic Growth Through Innovation



TMA Automation was founded in Gdynia in 2010. We develop, manufacture and install technologically advanced Cartesian robots, in-mold labeling systems (IML) and automated assembly stations.



Turnkey solutions

We offer comprehensive services covering conceptual and detailed design, production, assembly, commissioning and integration with client production lines.

R&D department

Our research engineers work continuously to develop and improve TMA's control engineering products and solutions by increasing their performance and robustness.

Independence

With 80% of all mechanical components for our products manufactured in-house, we can guarantee high quality and timely deliveries.

Our partners

Control systems
OMRON SOLUTION PARTNER

Injection molding machines
ENGEL INJECTION MOLD MACHINE PARTNER

TMA Innovations

Rapid tool exchange system for IML robot installation

Greater production versatility with IML tool exchange times even to 15 min.

Ultra-compact IML robot installation

Save space in the production shop with complete IML installations as narrow as 1 m.

Visual quality control system

Improve product and IML label defect detection with an innovative backlighting system.

Optimized placement algorithm

Parts of varying sizes can be efficiently placed and palletized by a compact palletizer robot.

Strengthened top-entry robot construction

Improved top-entry robot construction minimizes workload vibrations and improves accuracy.

AR-based visualization system

Smartphone application to present product work cycles and installation locations.

> Top-entry Cartesian robots



SEE VIDEO



Top-entry Cartesian robots are TMA Automation's flagship product. We are the only company in Poland that has this solution in mass production. With top quality mechanical and electrical components, carefully engineered designs and stable construction to minimize vibrations, our products are directly comparable to best-in-class solutions from leading global vendors.



Designed
and produced
in Poland

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High quality controllers

Our control systems are based on acclaimed solutions from Omron, our partner since 2010.



Intuitive programming

Robot work cycles are easy to program with a clear and intuitive interface.



Telescopic arm

Selected robot models are fitted with a telescopic arm with a reach of 2.8 meters and high working dynamics.



Helical gears

Helical rack-and-pinion gearing guarantees high operating precision.



Servomotors

All drive units use servomotors to provide high speeds and acceleration up to 4 m/s².



Custom grippers

Each robot can be fitted with a custom gripper designed to fit the shape of the product.



Operating status indicator

The color of the LED lamp indicates the operating status to the operator: working, maintenance, or fault.



Integrated control box

The control box is mounted directly on the robot arm to save precious real estate in the production shop.



Robust construction

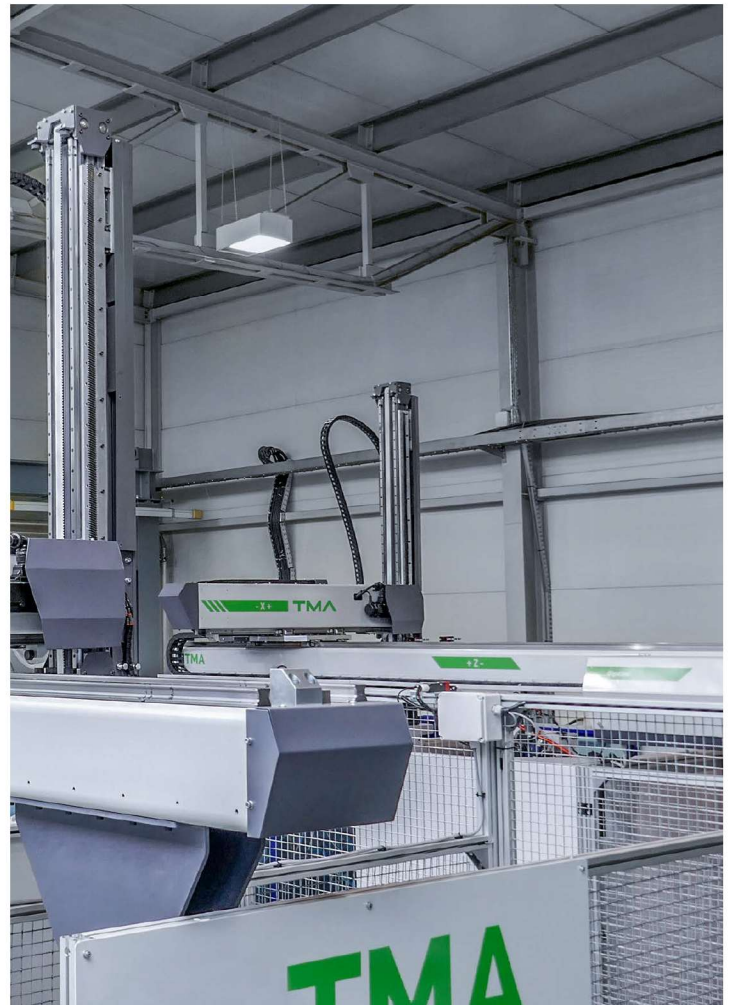
Linear bearings ensure precise and dynamic robot operation.

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TMA gigaLINE robot

A gigaLINE series robot used to pick parking grids and palletize them on Euro-pallets. This is just one of many Industry 4.0 applications deployed by TMA, combining fully automated production with a central management system.



> Models

microLINE

System for picking light parts and placing or stacking them on a conveyor.



50-200 T

- Belt drive for high acceleration along the Y axis
- Servomotors in all drive units
- Optional R axis installation with a servomotor

midLINE

System for part picking and assembly operations. Our most popular Cartesian robot.



80-400 T

- Control box integrated with the robot
- Servomotors in all drive units
- LED indicator for signaling robot operating status

midLINE RS

For packaging production and IML labeling where dynamic work is required.



80-400 T

- Purpose-built Y axis for acceleration up to 4 m/s²
- X and Z axis drives based on helical racks

gigaLINE

For large injection molding machines and heavy parts. Increased working arm load capacity.



300-2000 T

- Telescopic axis with a reach up to 2.8 m
- Robot load capacity up to 100 kg
- All drives with helical racks
- LED indicator for signaling robot operating status

Stroke	
Z axis	1100 mm
X axis	400 mm
Y axis	700 mm
C axis	0-90°
R axis	0-180° (optional)
Load capacity	
gripper + load	2 kg
Drive	
Z axis	servomotor, gear rack
X axis	servomotor, gear rack
Y axis	servomotor, belt drive
C axis	pneumatic
R axis	pneumatic / servomotor
Other	
Vacuum system	1 circuit
Gripper	1 circuit
Programmable inputs	4
Programmable outputs	4

Stroke	
Z axis	1800-4000 mm
X axis	500-900 mm
Y axis	600-1200 mm
C axis	0-90°
R axis	0-180° (optional)
Load capacity	
gripper + load	5-10 kg
Drive	
Z axis	servomotor, gear rack
X axis	servomotor, gear rack
Y axis	servomotor, belt drive
C axis	pneumatic / servomotor
R axis	pneumatic / servomotor
Other	
Vacuum system	2-4
Gripper	2-4
Programmable inputs	8
Programmable outputs	8

Stroke	
Z axis	1800-4000 mm
X axis	500-900 mm
Y axis	600-1600 mm
C axis	0-90°
R axis	0-180° (optional)
Load capacity	
gripper + load	5 kg
Drive	
Z axis	servomotor, gear rack
X axis	servomotor, gear rack
Y axis (telescopic)	servomotor, belt drive
C axis	pneumatic / servomotor
R axis	pneumatic / servomotor
Other	
Vacuum system	2-4
Gripper	2-4
Programmable inputs	8
Programmable outputs	8

Stroke	
Z axis	2000-5500 mm
X axis	700-900 mm
Y axis	900-2500 mm
C axis	0-90°
R axis	0-180° (optional)
Load capacity	
gripper + load	10-30 kg
Drive	
Z axis	servomotor, gear rack
X axis	servomotor, gear rack
Y axis	servomotor, gear rack
Telescopic Y axis (optional)	servomotor, gear rack, belt drive
C axis	pneumatic / servomotor
R axis	pneumatic / servomotor
Other	
Vacuum system	2-4
Gripper	2-4
Programmable inputs	8
Programmable outputs	8

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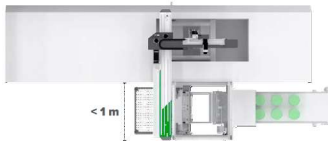
> IML uniMark

SEE VIDEO



Flexible production

Use the uniMARK for flexible production planning for IML-labeled parts.



< 1 m

Reduced production surface

Because the robot is located above the injection molding machine, the complete installation is less than 1 meter wide, allowing for more effective production shop layouts.



Rapid retooling

With a removable cartridge and quick IML label feeder exchange system, the machine can be quickly retooled.



Flat and cylindrical labels from one machine

The TMA uniMARK IML system's unique construction allows to label both flat and cylindrical products.

> IML speedMark

Continuous operation

Robot for heavy-duty mass production, where high precision and speed are a must.

Ultrafast

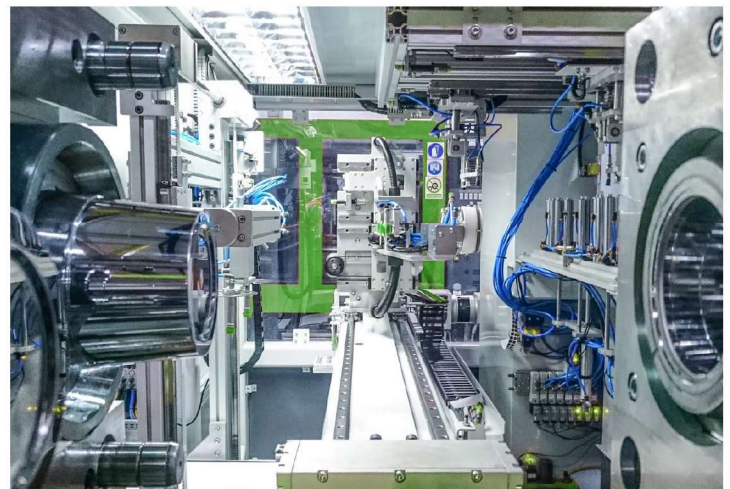
Reinforced servomotors allow this robot to work at very high speeds with high acceleration.

High precision

The robot is installed on a rigid structure next to the injection molding machine for very precise label placement in the injection mold.



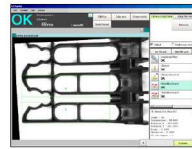
SEE VIDEO



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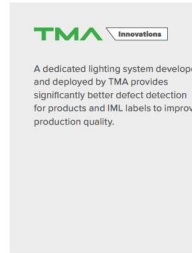
> Visual quality control



Injection-molded parts

TMA integrates visual systems for molding quality control to:

- Detect part defects
- Control sizes
- Detect overinjected parts
- Detect underinjected parts



Label visual control

TMA delivers stations for visual quality control of IML labels to detect a variety of defects, including:

- Shifted label joins
- Label flooding
- Incorrect gap on label joins
- Serrated edge on label joins
- Illegible bar codes



Cylindrical parts
(buckets, mugs, containers)



Flat parts
(pds, trays)



> TETRIS palletizer robots



Universal palletizing

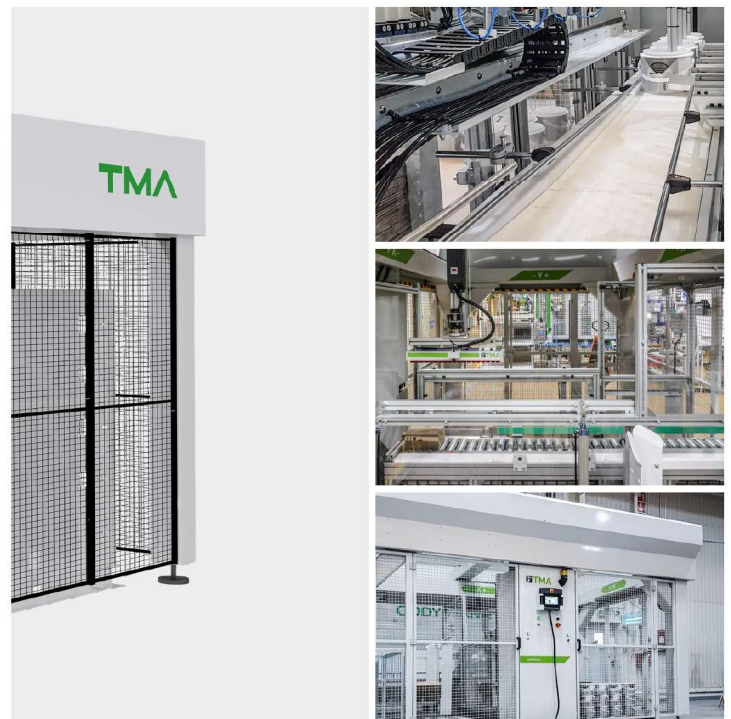
Support for multiple part sizes on pallets, including tins, buckets, boxes etc.

TETRIS advanced placement logic

Part placement on pallets is controlled by optimized algorithms to ensure maximum packing for a given size.

Additional equipment

Palletizers can easily be fitted with automatic feeders for empty and loaded pallets.



Easy programming

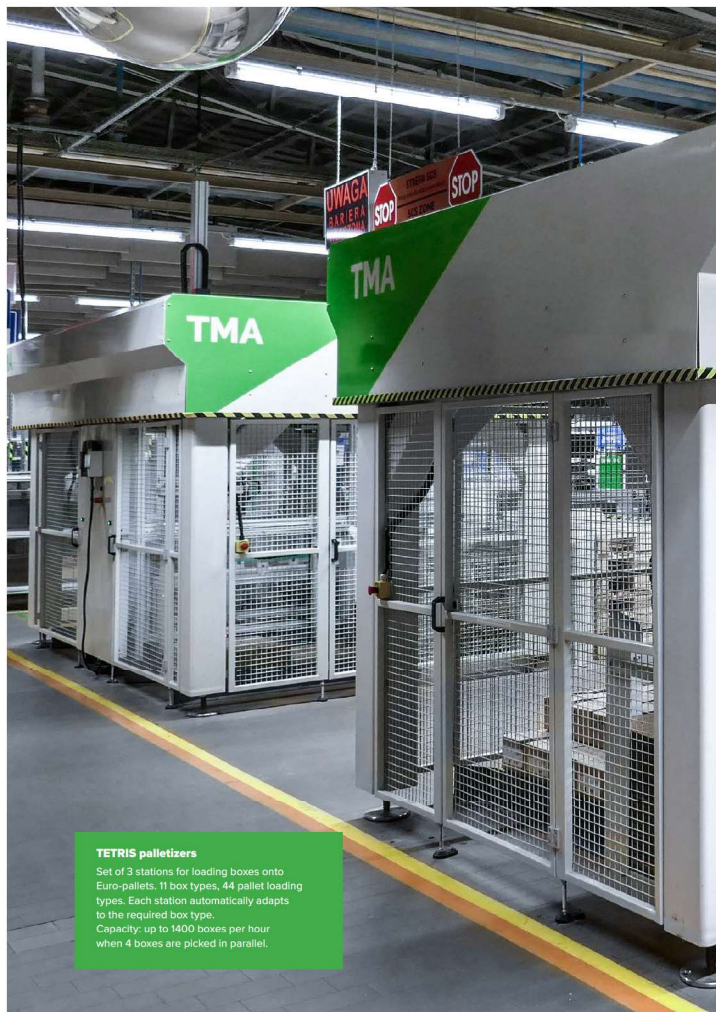
No special skills are required to program a palletizer work cycle.

Non-stop operation

Multi-pallet configurations are available for heavy-duty applications.

Surface saving

The robot arm is installed above the work area to reduce the installation space.



TETRIS palletizers

Set of 3 stations for loading boxes onto Euro-pallets. 11 box types, 44 pallet loading types. Each station automatically adapts to the required box type.
Capacity: up to 1400 boxes per hour when 4 boxes are picked in parallel.



> Models

SEE VIDEO



SEE VIDEO



TETRIS

Stroke	
X axis	1800 mm
Y axis	1300 mm
Z axis	1800 mm
R axis	0-90° (optionally: 0-360°)
Load capacity	
gripper + load	10-20 kg
Drive	
X axis	servomotor, gear rack
Y axis	servomotor, gear rack
Z axis	servomotor, belt drive
R axis	pneumatic (optionally: servomotor)
part picking	vacuum pump / jaw gripper
Options	
Spacer feeding system	YES
Automatic pallet feeding	YES
Automatic pallet retrieval	YES
Other	
Programmable inputs	8
Programmable outputs	8

Advantages

- Support for picking different-sized parts
- Servomotors on all axes (including the rotational C axis)
- Fencing to prevent any operator contact with the robot
- Portable remote control for robot programming
- Loaded pallet dispatch station (optional)
- Pallet magazine with automatic feeding
- System for feeding cardboard spacers between layers

TETRIS Multi

Stroke	
X axis	3400 mm
Y axis	1300 mm
Z axis	1800 mm
R axis	0-90° (optionally: 0-360°)
Load capacity	
gripper + load	10-20 kg
Drive	
X axis	servomotor, gear rack
Y axis	servomotor, gear rack
Z axis	servomotor, belt drive
R axis	pneumatic (optionally: servomotor)
part picking	vacuum pump / jaw gripper
Options	
Spacer feeding system	YES
Automatic pallet feeding	YES
Automatic pallet retrieval	YES
Other	
Programmable inputs	8
Programmable outputs	8

Advantages

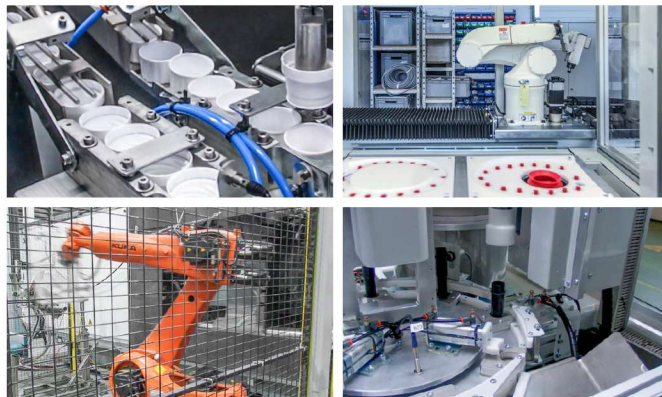
- System for feeding spacers between box layers
- Non-stop operation available in configurations with 2 or more pallets
- Mechanical curtains prevent operator contact with the robot during pallet exchange



Conveyors

Mass-produced and customized belt and roller conveyors.

> Dedicated automation



PROBLEM ANALYSIS → CONCEPTUAL DESIGN → DETAILED DESIGN → COMPONENT MANUFACTURE → ASSEMBLY AND PROGRAMMING → PRODUCTION INTEGRATION

Our solutions and technologies:

- › TMA Cartesian robots
- › TETRIS palletizers
- › 6-axis robots
- › DELTA robots
- › SCARA robots

SEE VIDEO



A key challenge in the process of making dedicated automation solutions is the sheer variety of products and solutions used within a single production cell.

TMA solution

Our portfolio includes complete turnkey solutions — we develop a design concept, prepare documentation, deliver equipment and integrate our products with the client's production line.

We use both our own TMA-branded products, including Cartesian robots, palletizers, fencing, conveyors and grippers, and solutions provided by leading external vendors, such as Omron and Kuka.

With our extensive expertise and know-how in production automation, we can handle all aspects of system deployment and operation.

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> Accessories

Belt conveyors



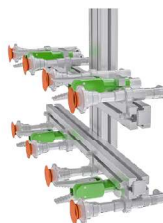
- Width: 300 mm to 1400 mm
- Length: 500 mm to 5000 mm
- Belt load capacity: up to 10 kg/m
- Adjustable height

Roller conveyors



- Width: 300 mm to 2500 mm
- Length: 300 mm to 6000 mm
- Belt load capacity: up to 50 kg/m

Robot grippers



- Suction grippers
- Jaw grippers
- Individual designs and solutions customized to specific part shapes

Safety covers



- Covers to prevent human access to the robot's work area
- With our TMA covers installed, we can grant CE marking for production cells

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> TMA service



Our robots are a key component of automated production lines, where the highest levels of service and support are required. We have procedures and solutions in place to ensure timely resolution of all requests.



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Single point of contact

We have a single helpline number and a central service coordinator to ensure that the right expert is dispatched to deal with the client's machine.

24 hour response time

We understand that your production lines must stay in motion. That's why the standard response time for TMA service is 24 hours.

90% of spare parts in stock

We keep most of our spare parts in stock to ensure timely service response.

Remote service

Using an internet connection to the service interface, we can perform remote error diagnostics.

Request identification

Each service request is assigned a unique ticket, allowing clients to easily track resolution status.



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TMA



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