Get it done with tape automation.

RoboTape™ System for 3M™ Tape, brought to you by the experts at Innovative Automation and 3M

This complete solution automates production tape applications that require precision, repeatability and high output. 3M, a leading expert of tape for assembly, and Innovative Automation, a leader in automation technology, have joined forces to provide turn-key solutions for automated tape application. The system has been carefully optimized to meet the demands of production manufacturing, while providing additional features to streamline operation and maintenance.

Automated taping:
# An advanced solution for advanced manufacturing.

The RoboTape™ System for 3M™ Tape is the solution that advanced manufacturing engineers have been asking for. It allows the design and assembly processes to take advantage of the benefits of 3M Tape, while reducing manual labor, re-work, work-in-process inventory and increasing digitization and production throughput.

Adjustable for foam, felt and attachment tapes, this system has been pre-configured and optimized for a variety of 3M™ VHB™ Tapes. The system includes the payout (or unwind stand), capable of zero-downtime spool changes, a patent-pending feed system and a lightweight applicator head.

The flexible design can be integrated onto most small and large industrial robots or cobots from a variety of robot OEMs to match customer preferences. The system utilizes levelwound rolls of 3M™ VHB™ Tape to achieve extended run times and minimize material handling. Levelwound rolls are available directly from 3M or through a 3M distributor or a Preferred 3M Converter.

The cell can be designed to work with existing equipment and floor space requirements, and achieve desired cycle times to deliver the efficiencies needed for a successful program. Innovative Automation invented this machinery and can offer it as a turn key cell with full integration as part of a new line, retrofitted to an existing line, or stand-alone to be integrated by another integrator. The RoboTape applicator head is ideal for direct robot mounting, allowing for dynamic tape application to nested parts; alternatively the head can be fixed mounted and the part can be indexed accordingly.

Applying 3M™ VHB™ Tape with a RoboTape™ System for 3M™ Tape allows designers and manufacturers to choose designs and achieve cycle times that were previously out of reach with manual application. With its flexible feed system, tape designs requiring curved radiuses, square corners, 3D profiles, small strip placement and narrow tape application are now achievable and repeatable at high volumes using 3M™ VHB™ Tape.
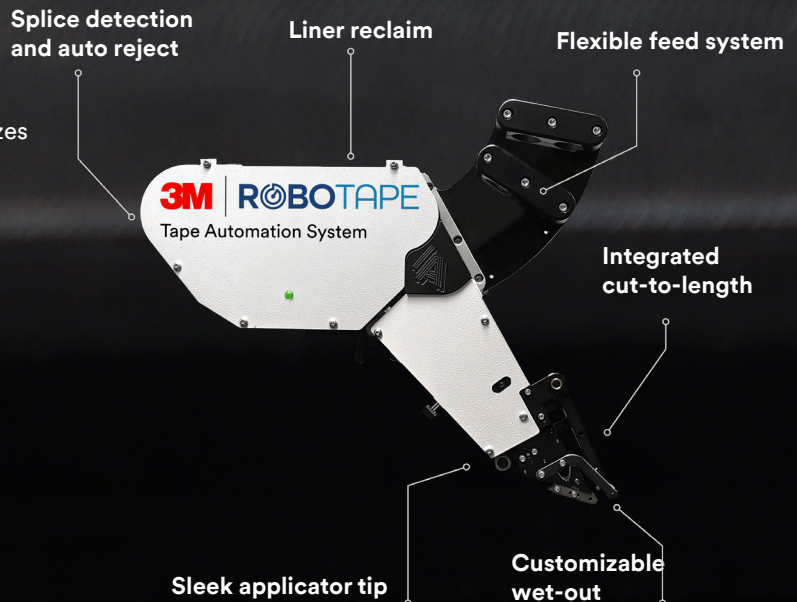

3M | **ROBOTAPE**
Tape Automation System
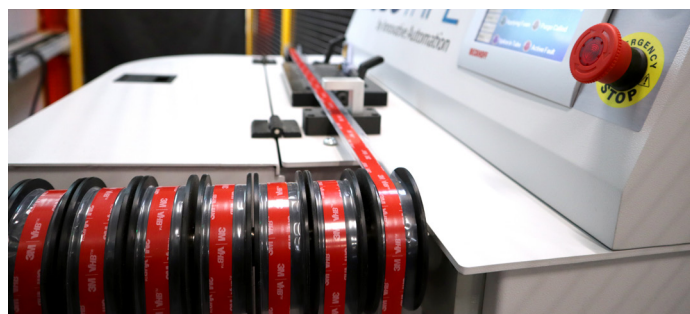
Features:

- Zero-downtime spool change
- Remote machine tending
- Standard design adapts to various 3M tape types and sizes
- Integrates to most 7kg+ robots
- Application speeds up to 300mm/s
- Data collection and spool level monitoring
- Immediate handling of parts to next stage
- Automatic feed system threading
- Adjustable feed system length up to 7 meters

Benefits:

- Increase throughput
- Reduce manual labor
- Improve quality and repeatability
- Flexible cell layout
- Enables new designs

Splice detection and auto reject

Liner reclaim

Flexible feed system

3M | ROBOTAPE Tape Automation System

Integrated cut-to-length

Sleek applicator tip

Customizable wet-out

Considerations and Specifications:

Is RoboTape™ System for 3M™ Tape right for my application?

The system is pre-configured and optimized to work with a variety of common 3M Tapes. A RoboTape application specialist will be assigned to specify a system and can demonstrate the system's performance in a test cell. If you are unsure which 3M Tape is right for your application, a 3M Application Engineer can provide design assistance, and conduct hands-on adhesion testing with your substrate while also generating a test report. Collaboration between all parties helps to ensure the system will provide the desired final product results while reducing process risk.

What tape types does this system work with?

The RoboTape™ System for 3M™ Tape is designed to work with a variety of 3M tapes, including the popular products listed below. Each is available in levelwound rolls from 3M, a 3M distributor or a Preferred 3M Converter. For more information on where to buy, contact your local 3M representative.

- 3M™ VHB™ Tape 5925
- 3M™ VHB™ Tape 5952
- 3M™ VHB™ Tape 5962
- 3M™ VHB™ Tape GPH-110
- 3M™ VHB™ Tape 4930
- 3M™ VHB™ Tape 4646
- 3M™ VHB™ Tape 4955
- 3M™ Acrylic Plus Tape PT1100T
- 3M™ Acrylic Plus Tape EX4015T

Should I retrofit an existing cell or build new?

RoboTape can be easily retrofitted to existing work cells to create new efficiencies and solve production challenges. There are also benefits to designing a new cell, including improving workflows, automating additional processes, combining part variants and building in future flexibility.

What is the return on investment?

ROI calculations vary, but are often less than one year. The system offers many cost saving advantages such as reductions in labor, inventory, floor space and quality issues. The system can increase throughout and accomplish applications that are not feasible for human operators. Switching to a 3M tape from mechanical fasteners, welding or liquid adhesives can also provide additional ROI.

What is the layout of the system?

For specific footprint dimensions, see specifications in the table below. A proprietary material management system, referred to as a payout or unwind station, feeds material from a remote location and processes it to support continuous operation of the cell. By locating the payout outside the safe zone, both process flow and maintenance access can be best optimized.

Is there downtime during roll changeover?

In the event of a spool changeover, a zero-downtime spool change system provides the user a window of time to install a new full spool while the upstream equipment is running, sometimes referred to as a flying roll change or "hot swapping."

How do I get started?

For more information visit the 3M website at: **engage.3m.com/RoboTape** to submit some basic information about your application and to connect with a 3M representative. We look forward to working with you.

RoboTape Payout Specifications

Item	Product
Size	890mm w x 575mm d x 1285mm h (35"w x 22.5"d x 50.4"h)
Weight	68kg (150lbs)
Tape Dimension Constraints	3mm - 16mm wide, up to 16mm thick (0.118" - 0.63" wide, up to 0.63" thick)*
Spool Size	Up to 425mm diameter x 425mm wide (16.75" x 16.75")
Feed System	Adjustable length up to 7 meters (22.9 feet)
Minimum Air Supply	5.5 bar, 315LPM (80PSI, 11CFM)**
Electrical Supply	100-127V, 15A, NEMA 5-15P
Maximum Ambient Temperature	40°C (104°F)
Maximum Feed Rate	300mm/s (1 fps)
Integrated Control System	Beckhoff TwinCAT3, Windows 10 IoT, 64 bit
Program	Built-in recipe selection, fault messaging, data collection, material level indicator, maintenance alerts
Slave Communication Protocol	EtherCAT, Ethernet-IP, PROFINET
Safety	Beckhoff TwinSAFE
Material	Body: Powder coated steel; Mechanical components: 6061 T6 AL, HRS, Hardened steel, Brass; Pulleys: Nylon
Sensors	24VDC, PNP (Optical, inductive, laser, IO-Link)

* Application-dependent – please consult the RoboTape team to confirm feasibility
** Air consumption varies based on machine set points and cycle time

RoboTape Applicator Specifications

Item	Product
Size	425mm w x 225mm d x 350mm h (16.7"w x 8.9"d x 13.8"h)*
Weight	6.0kg (13.2lbs)
Tape Dimension Constraints	Up to 16mm square (0.63" square)**
Air Supply	1x 8mm PU tube (from Payout)
Electrical Supply	24VDC, 1.5A, DB25 (from Payout)
Maximum Ambient Temperature	40°C (104°F)
Maximum Feed Rate	300mm/s (1 fps)**
Standard Tool Clearance	11mm from center of tape (zero clearance applicator tip available)
Application Precision	+/-1mm (0.04") All around**
Blade Adjustment Precision	0.02mm (0.0008") per increment
Material	Body: 6061 T6 AL Mechanical components: 6061 T6 AL, HRS, hardened steel, brass Pulleys: Nylon Lightweight components: Nylon/carbon blend
Sensors	24VDC, PNP (Optical, inductive, laser, IO-Link)
Robot	7kg minimum payload, must have TCP speed output**

* Dimensions are approximate 'tip to tip'
** Application-dependent – please consult the RoboTape team to confirm feasibility

For more information on the RoboTape™ System for 3M™ Tape, contact your local 3M representative or call 1-800-831-0658.

3M

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