TELEDYNE TAPTONE
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Product Overview

Leak Inspection Systems

INNOVATION IN CONTAINER INSPECTION

www.taptone.com

SPECIFICATIONS

T100
Compact, Affordable Container Inspection System The TapTone 100 on-line inspection system offers a variety of sensors for detecting defects in cans, bottles and jars. The compact design requires minimal line space and no floor space, which is especially important for crowded production lines.

T500
Simplified Control/Versatile Inspection
The TapTone 500 offers options for complete inspection of containers for fill level, pressure and vacuum inspection as well as cap and closure defects. The TapTone 500 is a cost effective solution for inspection of your plastic, metal and glass containers.

TapTone Model Number	T100	T500
Container Types	Glass	Glass
	Metal	Metal
		Plastic
Primary Inspection	Vacuum	Dependent on sensor(s) chosen
Optional Inspections	Cap Inspection	Vacuum
	Code Inspection	Pressure
		Fill Level
		Cap Inspection
		Code Inspection
TDLC Sensor	N	N
User Interface	Alpha/Numeric LCD Display	Graphical LCD Display
Password Levels	1	1
Stored Product Set-ups	50	10
Communications Capability	RS-232 Serial	RS-232 Serial
Multi-Language Display	Yes	Yes
Controller Exposure Rating	NEMA 4X IP 65	NEMA 4X IP 65
Sensor Mounting	Floor/Conveyor	Floor/Conveyor
Sensor Construction	Stainless Steel	Stainless Steel
Inspection Speed	2,000 Containers/Minute Maximum	2,000 Containers/Minute Maximum
Reject Capability	Single Rejector	Single Rejector
Line Space Requirement	35.6 cm (14 in)	27.3 cm (10.75 in)

*A PC User Interface is required for operation of any TapTone vision sensor.

T4000
Advanced Control/Versatile Inspection

The TapTone 4000 is a full feature package inspection system capable of inspecting glass, metal, and plastic containers for fill level, leaks, pressure and vacuum, as well as cap and closure defects. The system combines an intuitive user interface, proven technology, and a long standing record of high reliability.

T4000-C Compression System
Versatile Inspection/Advanced Control

The TapTone 4000 Compression system inspects 100% of your flexible containers at production line speeds. The TapTone 4000 Compression system will detect pin-hole leaks in plastic containers and tubes. Available in standard and low profile configurations.

T4000-DSC Dual Compression System
Advanced Leak Detection for Flexible Plastic Containers

The TapTone 4000-DSC system can inspect a wide variety of flexible containers for micro leaks. The design incorporates our patented dual sensor technology and is available in standard and low profile configurations.

	NON-PRESSURIZED CONTAINERS	
T4000	T4000 C/CLP	T4000 DSC/DSC-LP
Glass	Plastic	Plastic
Metal		Pouches
Plastic		
Dependent on sensor(s) chosen	Leaks (>.508 mm/.020 in)	Leaks (>.152 mm/.006 in)
Vacuum	Fill Level	Fill Level
Pressure	Vision Inspection*	Vision Inspection*
Fill Level	Cap Inspection	Cap Inspection
Vision Inspection*	Code Inspection	Code Inspection
Cap Inspection		
Code Inspection		
N	Y	Y
25 cm (10 in) Color (HMI or PC)	25 cm (10 in) Color (HMI or PC)	25 cm (10 in) Color (HMI or PC)
10	10	10
16	16	16
Ethernet	Ethernet	Ethernet
Yes	Yes	Yes
NEMA 4X IP 65	NEMA 4X IP 65	NEMA 4X IP 65
Floor/Conveyor	Floor/Conveyor	Floor
Stainless Steel	Stainless Steel/Aluminum	Stainless Steel
2,000 Containers/Minute Maximum	1.5 m/sec (300 ft/min) Maximum	1.5 m/sec (300 ft/min) Maximum
Dual Rejector	Dual Rejector	Dual Rejector
27.3 cm (10.75 in)	72.4 cm (28.5)	119.3 cm (47 in)

T4000-F Force System
On-Line Pressure Inspection The TapTone 4000-F system will detect leaks and low pressure in LN2 dosed and carbonated containers with internal pressure up to 3.1 bar (45 psi). Optional sensors can be added for additional inspections.

T4000-FS Force System
High Speed High Pressure Inspection
The TapTone 4000-FS system will detect leaks and low pressure in LN2 dosed and carbonated containers and aerosol cans with internal pressure up to 11 bar (160 psi). The TapTone 4000-FS is manufactured with a stainless steel transport deck and reinforced frame for extra rigidity in high pressure applications.

T4000-FSB Force System
High Speed High Pressure Inspection
The TapTone 4000-FSB was designed for the higher conveyor heights found in many processing plants. Similar to the T4000-FS, the system will detect leaks and low pressure in LN2 dosed and carbonated containers. Ideal for conveyor heights up to 196 cm (77").

	PRESSURIZED CONTAINERS	
T4000 F	T4000 FS	T4000 FSB
Plastic	Plastic	Plastic
Metal	Metal	Metal
Pressure Maximum 3.1 bar (45 psi)	Pressure Maximum 11 bar (160 psi)	Pressure Maximum 11 bar (160 psi)
Fill Level	Fill Level	Fill Level
Vision Inspection*	Vision Inspection*	Vision Inspection*
Leak Inspection	Leak Inspection	Leak Inspection
Cap Inspection	Cap Inspection	Cap Inspection
Code Inspection	Code Inspection	Code Inspection
Y	Y	Y
25 cm (10 in) Color (HMI or PC)	25 cm (10 in) Color (HMI or PC)	25 cm (10 in) Color (HMI or PC)
10	10	10
16	16	16
Ethernet	Ethernet	Ethernet
Yes	Yes	Yes
NEMA 4X IP 65	NEMA 4X IP 65	NEMA 4X IP 65
Floor/Conveyor	Floor	Floor
Stainless Steel/Aluminum	Stainless Steel	Stainless Steel
1.5 m/sec (300 ft/min) Maximum	2.67 m/sec (525 ft/min) Maximum	2.67 m/sec (525 ft/min) Maximum
Dual Rejector	Dual Rejector	Dual Rejector
57.8 cm (22.75)	81.3 cm (32 in)	54.3 cm (21.4 in)

Technologies and Options

Acoustic Technology

Compatible with T500, T4000

Acoustic technology is used to measure pressure or vacuum in containers with metal

closures that do not have a measurable lid deflection. The sensor works by applying a "tap" to the top of each container lid using an electromagnetic pulse which excites the closure. The lid vibrates at a natural resonant frequency "tone" based on internal pressure or vacuum. The resultant "tone" signal is sensed by a microphone. The Digital Signal Processor (DSP) produces a real-time signal spectrum and calculates the resultant frequency of the "tone" for that lid. The frequency is then compared to user set limits. Containers with a frequency outside these limits are rejected.

Compression Technology

Compatible with T4000

Compression technology detects and rejects leaking and damaged flexible containers.

As a container passes through the system, dual parallel belts apply force to the sidewalls of the container. This action compresses the headspace of the container which allows a sensor to take a force measurement at the discharge of the system. Utilizing DSP technology, the controller analyzes the measurement and assigns a merit value to each container. If the merit value is outside of the acceptable range, a reject signal activates a remote reject system.

Dual Sensor Compression

Compatible with T4000

Dual Sensor Compression technology detects and rejects leaking and damaged flexible

containers at production line speeds up to 300 feet/minute (1.5 meters/second). The system is designed with dual parallel belts suspended over the customers existing conveying system. As the container passes through the system, the dual parallel belts apply force to the sidewall of the container. This action compresses the headspace of the container that allows a comparative measurement to be taken at both the infeed and the discharge of the system. Comparing readings on the same container at the infeed and discharge of the system eliminates the effects of typical product and container variations.

Force Technology

Compatible with T4000

Force technology is designed to find leaks and low pressure in LN2 dosed or carbonated

containers. As a container passes through the system, dual parallel belts transport the container past a sensor that measures the tension on the sidewall of the container. This action allows the system to measure the pressure inside the container and automatically reject all containers that fall below or above the acceptable pressure range.

Proximity Technology

Compatible with T100, T500, T4000

Proximity technology measures pressure or vacuum in containers with metal closures by

measuring the lid deflection. The sensor produces a continuous magnetic field that monitors the distance between the sensor and the metal lid. The continuous signal is digitally sampled to produce a merit value of the lid profile. The profile value is then compared to user set limits. Containers with lid deflection outside these limits are rejected.

Other TapTone Technologies

- Vision
- X-Ray fill level
- Infrared fill level

Information on these technologies can be found on product specific data sheets or on the TapTone website.

Options

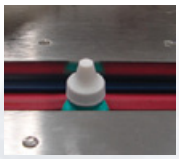
TDLC Sensor

The new TDLC sensor takes a pressure measurement from the top of the container

on the seal rather than on the sides yielding a more sensitive measurement on certain container types. The sensor can be configured on compression and force systems for inspection of standard or low profile containers with foil or film seals.

Low Profile Belts

Low profile belts are offered as an option on our Compression and Dual Sensor



Compression sensors. The lower profile belts allow for more accurate compression of small, low profile containers or containers with challenging geometry.

Proven Technologies, Industry Expertise

With over 40 years of experience in the packaging industry, Teledyne TapTone can help you stay competitive in today's changing economic climate. TapTone systems allow you to accurately detect defective packaging before it reaches your customers; saving time, money and your brand image. With a global focus on quality and cost control, there has never been a better time to add a TapTone inspection system to your production line.

TapTone has package inspection options for:

- Glass, Metal, and Plastic Containers
- Leak, Vacuum/Pressure, Fill Level, Cap, and Label Inspection
- Individual Containers or Cases

Case Systems

Case Inspection for Metal Cans or Glass Jars with Metal Closures

The T4000 Case system is designed for non-contact, non-destructive, 100% automatic container inspection through a sealed cardboard and/or shrink wrapped case. The system offers the option of acoustic or proximity technology to inspect glass jars with metal closures or metal cans for pressure or vacuum after the containers have been sealed in the case. In many applications, the T4000 Case system will detect defects other than low pressure or vacuum. Some examples are missing containers, containers with missing lids or broken bottles, flat sours and damaged cans.

Features

- 100% non-contact inspection
- Large PC touch screen
- Graphic screen shows defects in case
- Acoustic and Proximity sensor heads (up to 4 heads)
- Quick set sensor bridge for easy product changeover
- Speeds up to 250 cases per minute
- NEMA 4x, stainless steel, water wash down (user interface enclosure and control enclosure)

Applications

- Vacuum/Pressure inspection in metal cans
- Vacuum/Pressure inspection in glass jars with metal closures
- Missing cans
- Broken or missing glass bottles

Case System Configuration

The T4000 Case system is a self-standing system that can be configured as follows:

- Proximity inspection: 1-4 proximity sensor heads (single bridge)
- Acoustic inspection: 1-4 acoustic sensor heads (single bridge)
- Combined acoustic/proximity inspection (one acoustic bridge and one proximity bridge)

The system includes a six-foot inspection conveyor for warehouse or other off-line applications. Spray markers can also be added (optional) to mark the location of the faulty containers within the case for easy identification and rework. The system can be ordered without the conveyor for on-line applications.

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