



**Thermo Scientific APEX 500**  
Metal Detector

- Industry leading performance
- Wide range of aperture sizes
- AuditCheck verification option

## **high performance metal protection** for a wide range of conveyor applications

The Thermo Scientific APEX 500 delivers unrivaled sensitivity and an extensive feature set enabling you to protect your brand and meet legal or customer obligations.

# Thermo Scientific APEX 500

High Performance Metal Detector for Package and Process Applications

## Features & Benefits

- Unmatched sensitivity; up to 20% smaller diameter metal can be detected than previous generations
- Unique icon driven interface with multilingual Help and Autocalibrate functions
- Quality Assurance Test (QAT) and AuditCheck features to ensure peak performance
- Sanitary blue epoxy aperture lining
- Dual frequency /dual gain operation for application flexibility
- Available with Thermo Scientific™ conveyor systems designed to your specifications



### AuditCheck

- Automatic performance verification
- Senses small changes in sensitivity prior to manual audits fail

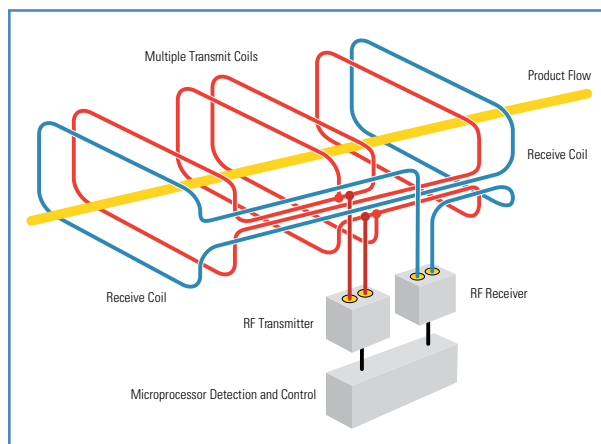
*In today's competitive marketplace, food products must be delivered on time and at a competitive price. Food safety cannot be compromised so metal detectors are an integral part of a HACCP program. The key to protecting your brand is to deploy the highest performance, easiest to use, and most robust detectors available. These are the areas in which APEX 500 sets a new standard. Drawing on decades of metal detection design and application experience, We have developed the most sensitive, yet easy to operate metal detector in the world. With APEX 500 in your production line you can quickly and completely fulfill your quality goals, protect expensive downstream production equipment and be assured your production shipments don't contain any unwanted metallic foreign objects.*



### Unique Icon-Driven User Interface

Drawing on design concepts successfully utilized in many consumer products such as cell phones and PCs, the APEX 500 user interface is universally understandable because it's based on icons, not complex technical terms. To facilitate ease of use, multilingual help-text can be activated for additional information. A durable touch panel circuit is used behind the navigation buttons so you don't have to worry about keypad fragility or damage during cleaning or by physical abuse. The completely integrated control panel is made of heavy duty, food grade ABS plastic which won't dent or distort like metal control panels. Minor damage to metal control panels can result in water leaks and electronics failure.

### APEX 500 multi-coil detection architecture



### Breakthrough Search Head Design

Using technology developed for super-sensitive Thermo Scientific pharmaceutical metal detectors, APEX 500 incorporates innovative multi-coil technology, to achieve signal levels significantly greater than previous generations. Proprietary software simulation techniques were developed to optimize the coil arrangement for each head size. Multiple transmit coils are configured to yield a magnetic field that is more effective as compared to competing metal detectors. In addition, sensitivity on wet or conductive products has been radically improved through a new, proprietary shielding technique.

The result of this breakthrough technology is that fundamental metal detection sensitivity has been improved such that metal spheres up to 20% smaller in diameter can be reliably detected. An additional benefit of the new coil design is that APEX 500 also has a decreased overall case size. This means APEX 500 can support your ever-tightening quality programs or new product challenges without the annoyance of false rejects.

# metal detector system



The Thermo Scientific™ APEX 500 metal detector offers unrivaled sensitivity to enable you to fulfill your legal obligations and protect your brand. An innovative user interface enables quick setup and optimum configuration with minimal training, reducing production downtime.



## Autocalibration quickly determines product settings

### Aftermarket Services

A full range of aftermarket services is available worldwide to support the Thermo Scientific APEX 500 throughout its lifetime. This includes application evaluation, installation, training and preventive maintenance. To ensure maximum operational efficiency, we also offer on-site maintenance contracts and a full spare-parts service.

### Available Options

- AuditCheck performance verification
- Remote control panel mounting
- Field compression flanges
- Certified test spheres
- Reject verification/bin full sensors
- Modbus serial or Ethernet communications
- Mounting kits to convert from DSP 1/2/3 to APEX
- A wide variety of customized conveyor systems

### Intuitive Software

APEX 500 can be set up for most applications in a matter of minutes. The detector comes standard with two operating frequencies and high/low gain electronics. An Autocalibration routine quickly determines product phase and detection thresholds while the production line is running. Once these settings are learned and basic system parameters are configured (i.e., photoeye, reject output/distance, et.al.) a product profile is saved for easy recall by operators. To protect the system from inadvertent changes to critical parameters, a multi-level password system is included. Behind the user interface you will find completely new signal processing software that targets and amplifies metal signals. Innovative new Digital Signal Processing (DSP) filters are incorporated to reduce background noise and annoying false rejects. Phase-tracking is used to adjust the detection system to deal with temperature changes in conductive products or bulk density variations.

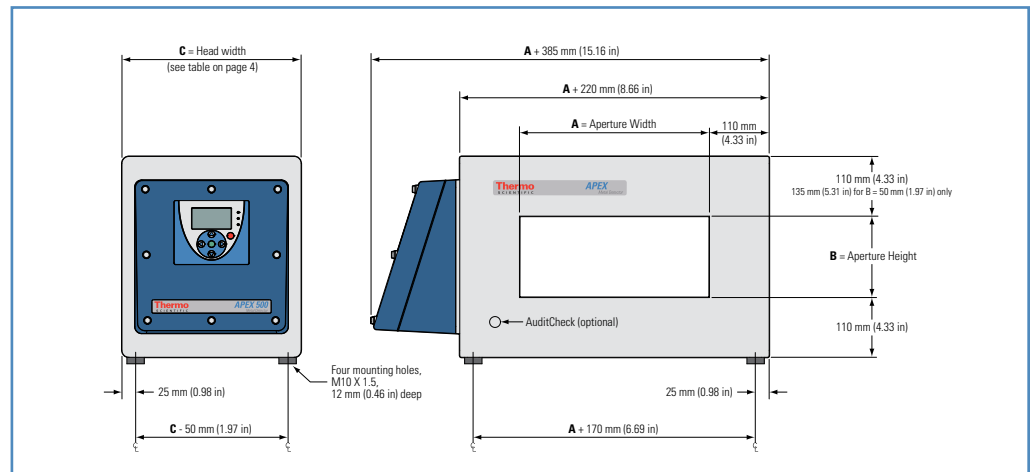
### Total Quality Solution

To make the APEX 500 metal detector the best possible QA tool, it is available with our Total Quality Solution (TQS). TQS ensures that your metal detector is at peak performance and all rejects are dealt with correctly. AuditCheck, an optional feature with APEX 500, is an automatic performance verification system where a metal test shuttle is pneumatically passed through the head. The resulting signal is compared to a baseline calibration level. Any deviation from this standard is reported so the operator can take action.

Total Quality Solution includes:

- AuditCheck; a patented automatic performance verification feature
- Quality Audit Test (QAT); a unique, manual three-pass signal level check
- Reject verification and bin full detection
- Dual reject outputs; one for packages and one for quality tests
- Batch printer output

### APEX 500 Metal Detector dimensional diagram



# Thermo Scientific APEX 500

## General Specifications

Construction	Stainless steel 304 straightlined case, ABS plastic control panel
Protection Ratings	IP69K, Type 3 enclosure, ATEX zone 22, hazardous location Class II Division 2 Groups F&G
Operating Temperature	-10°C to +40°C (+14°F to +104°F)
Relative Humidity	20% to 80% non-condensing
Electrical Supply	85 volts to 260 volts AC single phase plus earth ground; 47 Hz to 65 Hz, 100 watts maximum
Air Supply (for AuditCheck)	5.5 bar (80 psi)
Product Speed	0.5 m/min (1.7 ft/min) to 1000 m/min (3,300 ft/min)
Outputs	6 Relays outputs; Relays: 250 volt AC 2 amp max. 50 volt DC 1 amp max.
Output Allocation (selectable via menu)	Reject 1, Reject 2, AuditCheck, Fault, Alarm, Warning, QA Lamp
Inputs	6 Inputs - Active 12v DC+12 volt auxiliary supply for input sensors
Input Allocation (selectable via menu)	Speed Sensor, Keylock, Product Select 1, Product Select 2, Infeed PEC, Reject Confirmation 1 and Bin Full, External Suppression, External Alarm, External Reset
Communications	Optional ModBus serial or Ethernet modules
Safety and Export Approvals	cCSAus, CE, ATEX zone 22
Manufacturing Quality	ISO9001 certified
Help-Text, Users Manual Languages	English, Spanish, French, German, Italian, Dutch, Chinese, Czech, Russian, Polish, Thai, Koren and Brazilian Portuguese

## APEX 500 Metal Detector Standard Aperture Sizes — table shows case width (C) dimension stated in millimeters (custom sizes available also, consult the factory)

		Aperture Height (B)														
mm (in)		50 (1.9)	75 (2.9)	100 (3.9)	125 (4.9)	150 (5.9)	175 (6.9)	200 (7.9)	250 (9.8)	300 (11.8)	350 (13.8)	400 (15.7)	450 (17.7)	500 (19.7)	550 (21.6)	600 (23.6)
Aperture Width (A)	50 (1.9)	295	295	295	295	295	295									
	75 (2.9)	295	295	295	295	295	295	295	295							
	100 (3.9)	295	295	295	295	295	295	295	295							
	125 (4.9)	295	295	295	295	295	295	295	295							
	150 (5.9)	295	295	295	295	330	330	330	330	330	330	330	330	330		
	175 (6.9)	295	295	295	295	330	330	330	330	330	330	330	330	330		
	200 (7.9)	295	295	295	295	330	330	380	380	380	380	380	380	380	380	
	250 (9.8)	295	295	295	295	330	330	380	380	380	380	380	380	380	380	
	300 (11.8)	295	295	295	295	330	330	380	380	380	380	380	380	380	380	
	350 (13.8)	295	295	295	295	330	330	380	380	380	480	480	480	480		
	400 (15.7)	295	295	295	295	330	330	380	380	380	380	480	480	480	480	
	450 (17.7)	295	295	295	295	330	330	380	380	380	380	480	480	480	480	
	500 (19.7)	295	295	295	295	330	330	380	380	380	380	480	480	480	680	
	550 (21.6)	295	295	295	295	330	330	380	380	380	380	480	480	480	680	680
	600 (23.6)	295	295	295	295	330	330	380	380	380	380	480	480	480	680	680
	650 (25.6)	295	295	295	295	330	330	380	380	380	380	480	480	480	680	680
	700 (27.6)	295	295	295	295	330	330	380	380	380	380	480	480	480	680	680
	750 (29.5)	295	295	295	295	330	330	380	380	380	380	480	480			
	800 (31.25)	295	295	295	295	330	330	380	380	380	380	480	480			
	850 (33.5)	295	295	295	295	330	330	380	380	380	380	480				
950 (37.4)	295	295	295	295	330	330	380	380	380							
1050 (41.4)	295	295	295	295	330	330	380	380	380							
1150 (45.3)	295	295	295	295	330	330	380	380								
1250 (49.2)	295	295	295	295	330	330	380									
1350 (53.1)	295	295	295	295	330											
1450 (57.1)	295	295	295	295	330											
1550 (61.0)	295	295	295	295	330											
1650 (65.0)	295	295	295	295	330											
1750 (68.0)	295	295	295	295	330											

**Legend**

Standard aperture case width in mm

Vertical aperture case width in mm

Note: For vertical apertures, APEX control panel can be mounted on the side of the case or installed remote

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