Metal Detection

Series 40, MB, 60 and 70
Flexible Conveyorised Inspection Solutions

METTLER TOLEDO

Protecting Your Customers
Configurable to Suit Your Application

In a competitive market place you need to provide your customers with consistent, high quality, contaminant-free products. The Series 40, MB, 60 and 70 Conveyorised Metal Detection range of products provide flexible, inspection solutions to suit a wide range of light to heavy duty food and non-food applications.

Series 40* Conveyorised Metal Detection System with R-Series Profile painted metal detector

Tailored to Meet Your Inspection Needs

Systems can be fully configured and built to suit your specific process requirements. Simple stop-on-detection systems through to fully automated detect and reject systems utilising a wide range of product removal devices are available. Conveyorised Metal Detectors provide flexible solutions capable of operating in almost any working environment. This means that whether your product is wet or dry, chilled or frozen, loose or packed, METTLER TOLEDO's range of flexible Conveyorised Metal Detection solutions can address your inspection challenge.

Series 70** Conveyorised Metal Detection System with R-Series Signature metal detector

* Series 40 systems are designed for lighter load packages see pages 8 to 9.
** Series 70 systems are designed for medium to heavy load packages see pages 10 to 11.

Future-Proof Inspection Solutions

Detector apertures, finishes and operational frequencies can be specified to suit your process requirements in order to maximise sensitivity and on line performance. A choice of METTLER TOLEDO metal detection technologies and operating software solutions are available to ensure your quality standards are met.

Profile Technology

The most advanced metal detection solution available provides the ultimate detection sensitivity to all metals including non-magnetic stainless steels. Profile software also delivers numerous additional features including Product Clustering, Continuous Condition Monitoring and SMS / email communication facilities for maximised process efficiency.

Signature Technology

The well proven Signature software platform from METTLER TOLEDO provides reliable capability to detect all metal contaminants in a multitude of applications.

3

Reliable, Consistent Performance
In any Working Environment

The Series 40, MB, 60 and 70 Conveyorised Metal Detection product range can be configured to suit your working environment. This means they deliver consistent performance for maximum process efficiency enabling your business to benefit from improved competitiveness and increased productivity with minimum overall operating costs.

An Integrated Solution for Dry, Ambient Environments

In dry, ambient operating environments, painted finishes to both the metal detection head and conveyor frame are sufficient. In some instances a medium duty Stainless Steel (SuS) detector may need to be specified. With IP ratings from a standard IP54 to an IP65 special, systems are capable of withstanding wipe down and light hose down cleaning regimes.

Systems of this type can include US Food and Drug Administration (FDA) approved polyurethane (PU) conveyor belts or can be specified to incorporate modular, polyethylene (PE) belts if required.

Suitable for Wet, Chilled and Frozen Products in Extreme Environments

When the working environment gets tough, inspection systems need to be specified to equally high standards. The Conveyorised Metal Detection product range can be configured with heavy duty stainless steel detectors rated at IP69K and conveyors sealed up to IP65 standard. Systems of this type are normally designed to include modular polyethylene belts to ensure that the whole system is capable of withstanding high-pressure, high temperature wash-down regimes and still perform reliably, day after day.

R Series Profile detector sealed to IP69K for extreme wash down conditions

Conveyors for wet, harsh environments

Systems include emergency stop buttons as standard

Reliable Performance, Easy Integration

All Conveyorised Metal Detection systems are designed and built to exacting standards for long term stability, performance and reliability. Conveyor frames are rigid and robust with fully welded construction. Ledges, flat horizontal surfaces and other dirt traps are minimised ensuring that cleaning is made easy.

Effective Product Conveying for Enhanced Process Efficiency

High quality motors and drives are utilised to ensure product is transported positively and consistently through the detector. A choice of fixed speed, direct drive motors are available to meet most demands. Alternatively, variable speed drives can be specified when required.

Further Options for a Tailored Solution

Other options can be specified to further aid operational efficiency and product transfer effectiveness including the incorporation of product guides to provide full control of the product as it passes through the system.

Optimised Performance, Today and into the Future

The Conveyorised Metal Detection product range is supplied ready for installation with a comprehensive documentation package as standard which includes:

- Operational manuals
- System drawings
- Factory acceptance test certification (FAT cert)
- Performance test samples
- Installation and commissioning guide (IPAC)

Fail Safe Systems
For Complete Peace of Mind

The Conveyorised Metal Detection product range can be configured to meet and exceed the demands of all leading retailer and other industry or regulatory standards. An extensive range of options from simple pack sensing devices through to sophisticated closed loop failsafe systems are available.

Systems provide a future proof solution with the option to retro-fit failsafe systems at a later stage enabling the system to grow and evolve with your needs and the needs of your customers.

Devices and Systems Available Include:

- Warning beacons and sounders
- Push-button and re-set systems
- Pack in-feed sensors
- Reject confirmation sensors
- Bin-full sensors
- Detector head fault warning
- Air failure alarm
- Shaft encoder

Series 70 Conveyorised System with R-Series Signature metal detector

Warning beacons and sounders

Key re-set (shown) and push button systems available

Pack sensors

Data Collection via USB Sticks

The detectors used within the product range can be configured to incorporate ports to support external devices such as USB sticks to collect data. Information gathered can be used to generate data tickets or provide electronic records.

When more sophisticated automated data collection is required, systems can incorporate advanced connectivity solutions ranging from a simple serial connection to full Ethernet network connectivity which could include wireless functionality.

Ethernet Network
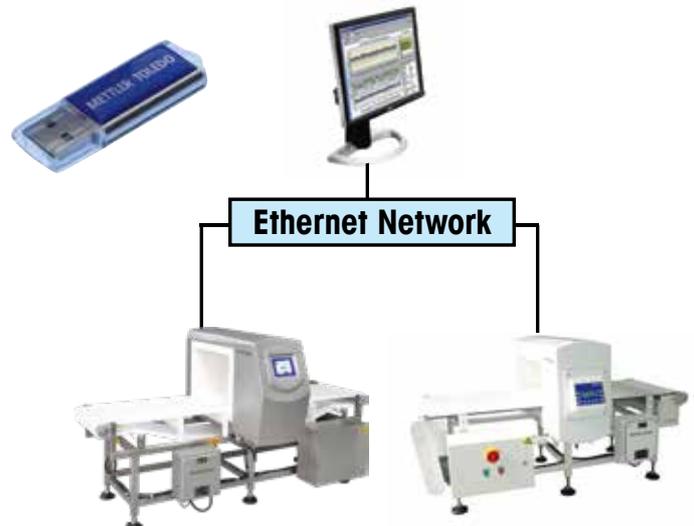
Removing the Right Contaminated Product Every Time

Once identified, metal contaminated product or packs need to be safely and effectively removed from the production line. Rejecting the right pack every time without compromising process efficiency requires the system to be specified correctly with sophisticated timing and process control measures. Important factors to consider can include the need to meet compliance requirements and the characteristics of the product and process, for example, the pack size and line speed.

Stop on Detect Functionality

The simplest solutions enable the conveyor to be stopped on the detection of metal contamination. Contaminated product can be manually removed before re-starting the system. The effectiveness of these basic systems can be supplemented through the use of optional warning sounders, high visibility beacons and other secure system re-set features.
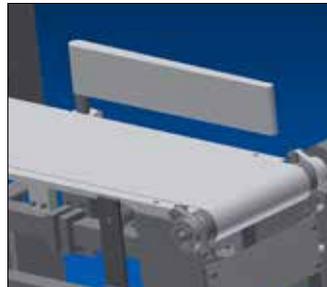

Air Blast Reject Systems

End Flap Systems

Pusher Reject Systems

Sweep Arm Diverter

A Choice of Automatic Reject Systems

The Series 40, MB, 60 and 70 Conveyorised Metal Detection product range can be configured with a host of dynamic, fully automated reject systems. For pack products the reject systems include photo-gated timers to ensure the correct pack is rejected every time. These systems can also be supplemented with the full range of optional warning devices, reject product collection bins and innovative fail safe systems to further support compliance.

Integrated Reject Options Available Include

• Air Blast Reject Systems
• Pusher Reject Systems*
• End Flap Systems*
• Sweep Arm Diverter*
• Reject Bins

Rejection Mechanism Capability Table

Rejection Mechanism	Product Size Range		
	Length	Height	Weight
End Flap System	≤150 mm	≤50 mm	≤5kg
Pusher	≤300 mm	≥50 mm	≤5kg
Sweep Arm Diverter	≤300 mm	≥50 mm	≤5kg
Air Blast	≤150 mm	≤50 mm	≤200g
Reject Bin 110 **	≤110 mm	≤120 mm	≤5kg
Reject Bin 140 **	≤140 mm	≤120 mm	≤5kg

* These systems need be chosen as per configuration and rejection mechanism capability tables.

** Reject Bin can only match with Pusher and Air Blast rejections.

Reject Bin

Series 40 and Series MB
Conveyorised Inspection Solutions

Available in different lengths and widths, Series 40 Conveyorised Systems are designed to be used for light load packed applications with the Series MB solution being utilised in wet harsh processing and packed product line production.

Systems are suited for integration into production lines or can be utilised in stand alone applications.

Such solutions can form Critical Control Points (CCP's) in a production process to support compliance with local regulatory and international food standards.

The system can be designed and built to suit your specific process requirements from simple stop-on-detection, to fully automatic detect and reject systems.

Series MB Conveyorised System with R-Series Profile SuS Detector

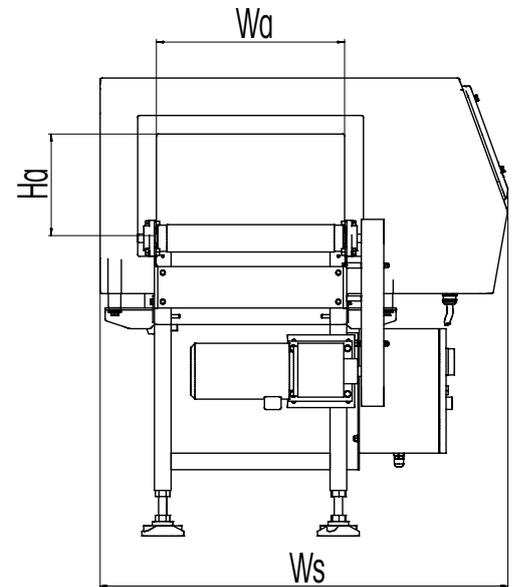## Series 40 and Series MB Configuration Tables

		Series 40	Series MB
Choice of Aperture Size		•	•
Choice of Conveyor Length and Height		•	•
Conveyor Frame Materials	Mild Steel – White Painted	•	
	Stainless Steel – Brushed	•	•
Fixed Conveyor Speed *			•
Stop-on-Detection		•	•
Beacon Sounder		•	•
Rejection Mechanism	End Flap	•	•
	Pusher	•	•
	Sweep Arm Diverter	•	•
	Air Blast	•	•
System Options	Product Guide	•	•
	Pack Sensor	•	•
	Reject Bin	•	•
	Emergency Stop	•	•
	Variable Conveyor Speed *	•	•

* For speed value refer to the conveyor speed tables

Series 40 and Series MB Size Range

		Series 40	Series MB
Conveyor Belt Material		PU*	Modular PE**
Outline Dimensions (mm)	Length (Lc)	1000~1200	1200~2000
	Width (Ws)	800~900	800~1100
	Height (Hc)	550~1000	550~1000
Maximum Load (kg)		10	40
MD Aperture Size (mm)	Width (Wa)	200~300	200~500
	Height (Ha)	75~200	75~350

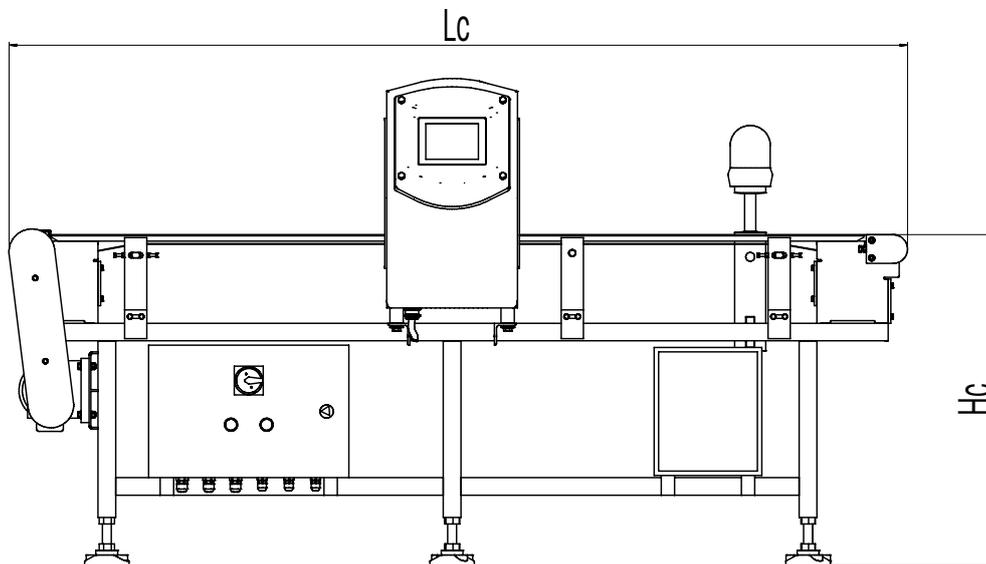PU* = Polyurethane PE** = Polyethylene

Series 40 and Series MB Speed Configuration

		Series 40 (m/min)	Series MB (m/min)
Fixed Speed	0.25Kw	Not applicable	20, 33
	0.55Kw	Not applicable	16, 19, 25, 35
Variable Speed		18~28	18~28
		25~40	25~40
		35~50	35~50

Note: Speed value tolerance ±10%

Series 40 and Series MB Product Application Range

		Series 40	Series MB
Application Environment		Dry product (discrete, small pack)	Dry, wet or frozen product (processed, block, pack)
Product Size	Length	≤1000 mm	≤1000 mm
	Width	≤200 mm	≤400 mm
	Height	≤150 mm	≤300 mm
	Weight	≤10 kg	≤30 kg

Series 60 and Series 70
Conveyorised Inspection Solutions

For larger product applications, the Series 60 and Series 70 Conveyorised Systems provide a flexible conveyor and detection solution well suited to medium and larger packed products.

Systems can be integrated efficiently into a production line or utilised for stand alone applications.

System design is flexible with a range of configurations enabling diverse solutions to be developed to suit specific process requirements from simple stop-on-detection systems to fully automatic detect and reject mechanisms.

Series 70 Conveyorised System with R-Series Signature metal detector
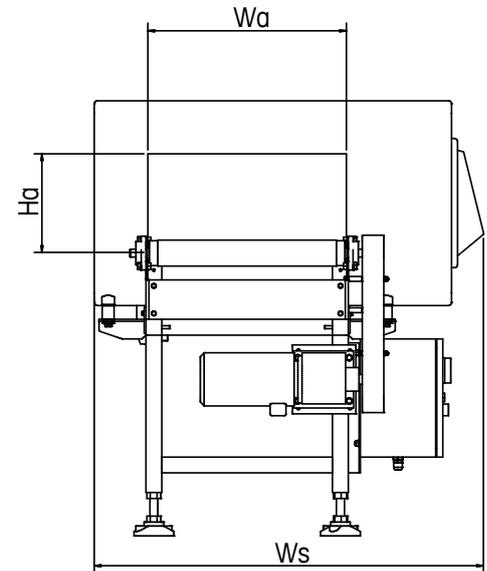
Series 60 and Series 70 Configuration Tables

		Series 60	Series 70
Choice of Aperture Size		•	•
Choice of Conveyor Length and Height		•	•
Conveyor Materials	Mild Steel – White Painted	•	•
	Stainless Steel – Brushed	•	•
Fixed Conveyor Speed *		•	•
Stop on Detection		•	•
Beacon Sounder		•	•
Rejection Mechanism	End Flap	•	•
	Pusher	•	
	Sweep Arm Diverter	•	
Function Options	Product Guide	•	•
	Pack Sensor	•	•
	Reject Bin	•	
	Emergency Stop	•	•
	Variable Conveyor Speed *	•	•

* For speed value refer to the conveyor speed tables

Series 60 and 70 Size Range

		Series 60	Series 70
Conveyor Belt Material		PU*	PU*
Outline Dimensions (mm)	Length (Lc)	1200~2400	1200~2400
	Width (Ws)	900~1100	1100~1400
	Height (Hc)	550~1000	550~1000
Maximum Load (kg)		50	50
MD Aperture Size (mm)	Width (Wa)	300~600	650~800
	Height (Ha)	75~450	75~450

PU* = Polyurethane

Series 60 and 70 Speed Configuration

		Series 60 (m/min)	Series 70 (m/min)
Fixed Speed	0.25Kw	20, 27, 35, 41, 48	31, 39, 48
	0.55Kw	21, 28, 35, 43, 50	21, 28, 35, 40, 50
Variable Speed		18~28	18~28
		25~40	25~40
		35~50	35~50

Note: Speed value tolerance ±10%
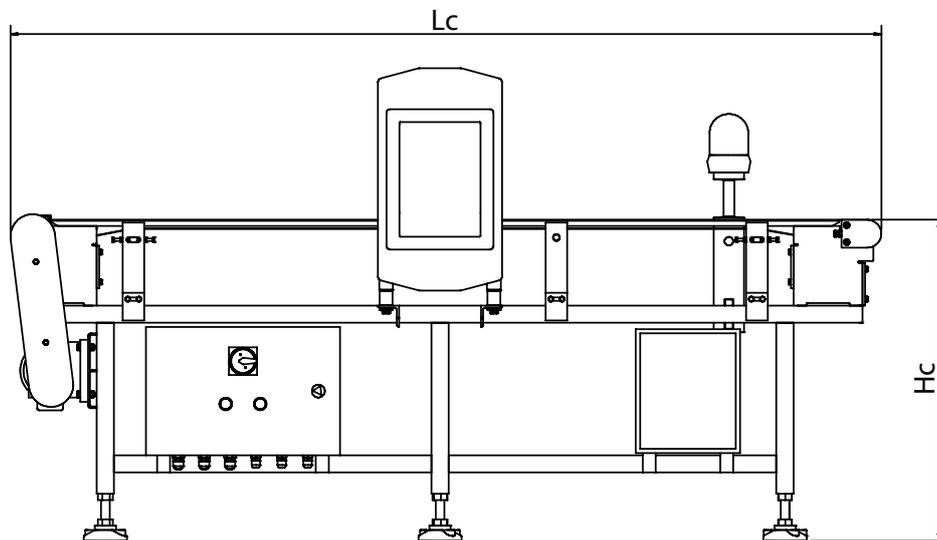
Series 60 and 70 Product Application Range

		Series 60	Series 70
Application Environment		Dry Product (discrete, big bag, pack)	Dry Product (discrete, block, pack)
Product Size	Length	≤2000 mm	≤2000 mm
	Width	≤500 mm	≤700 mm
	Height	≤400 mm	≤400 mm
	Weight	≤30 kg	≤30 kg

Customer Support

When you invest in a piece of **METTLER TOLEDO** equipment, you are assured of the highest build quality, consistent performance and maximum reliability, but that is just the start of the relationship.

Our sales and service engineers provide initial guidance on selecting the correct system solution to suit your needs.

Once your system has been installed and commissioned, you can be sure that a METTLER TOLEDO trained service expert is never far away.

Our team is ready to give ongoing support throughout the life of the system.

The full service and support package available from METTLER TOLEDO includes:

- Installation and commissioning support
- Operator and maintenance training
- Certified test samples
- Initial and ongoing performance verification
- Spare parts and spares kits
- Equipment repairs

www.mt.com/metaldetection

For more information