

MeatMaster™**Introduction**

The MeatMaster™ is available in a Standard and a Compact version with a total length of 5.24 and 3.34 meters respectively. The MeatMaster Compact is today applicable for measurements on meat in cartons or boxes. In addition, the MeatMaster Standard can measure meat loose on the conveyor. Both MeatMaster Standard and Compact versions are offered with capacities of minimum 10, 17 or 25 tons per hour for boxed meat and up to approximately 15, 25 or 38 tons per hour for loose meat, depending on conveyor speed.

Performance data

Performance range: 2 - 85% Fat

		Meat :Loose on Conveyor	Meat : Plastic wrapped; carton boxed and in white boxes	Meat in coloured boxes
Repeatability (s) ¹	Fat:	≤ 0.5 % absolute ²	≤ 0.5 % absolute ²	≤ 0.5 % absolute ²
	Weight:	≤ 0.5 % relative ²	≤ 0.5 % relative ²	≤ 0.5 % relative ²
Accuracy (RMSEP) ³	Fat:	≤ 1 % absolute ²	≤ 1 % absolute ²	≤ 1.5 % absolute ^{2,4}
	Weight:	≤ 2 % relative ²	≤ 1 % relative ²	≤ 1 % relative ²

Note: Product thickness is limited to 5 - 20 cm (2 - 8 inches) in order to maintain the stated performance.

1 Repeatability (Sr = repeatability standard deviation) is given for aerial densities of 5 - 15 g/cm².

2 One Standard Deviation.

3 Accuracy (RMSEP= Root Mean Square Error of Prediction) is given for aerial densities of 5 - 15 g/cm².

4 Accuracy on fat in coloured boxes is guaranteed at 1.5 % absolute, but may be proven better depending on type of box and the structural variations between the boxes

Metal detection: Metal detection is available for all conveyor speeds 150, 250 or 375 mm/s. The performance depends on product presentation (loose meat on conveyor, in plastic boxes, in carton boxes etc) and the MeatMaster™ instrument configuration (best performance on MeatMaster Standard 150).

We detect objects down to 2 mm. Please refer to the separate Application Notes for details on performance. The aim is a 99% successful determination of metal objects with a density higher than 7.85 g/cm³ (e.g. iron, stainless steel and copper) and a minimum size of
 - 3 mm (118/1000 inch) for MeatMaster 150 and 250 or
 - 4 mm (157/1000 inch) for MeatMaster 375 all directions.

The actual performance will be determined on a project-to-project basis.

Bone Detection: The performance of bone detection is influenced by a number of factors such as product presentation, thickness of the meat and the speed of the conveyor.

- MM Standard and meat in boxes Best
- MM Standard 150 and Loose meat Possible
- MM Standard 250 and Loose meat Difficult
- MM Compact and Loose meat Not recommended
- MM 375 in general Bone detection not available

Nominal detection is 10mm in any direction with a density of 1.7g/cm² or more.

Please refer to Application Fact Sheet: Detection bone contaminants in meat on MeatMaster™ for more details.

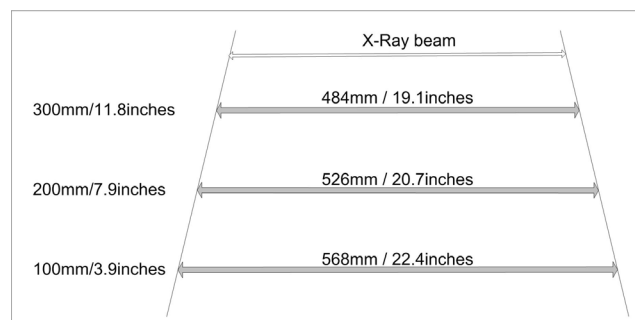
NOTE: Actual performance must be stated and experimentally verified on a project-to-project basis.

Conveyor speed: 150 mm/s (29.5 feet/minute), 250 mm/s (49 feet/minute) or 375mm/s (73.8 feet/minute)

Capacity: 10 tons/h (22.000 lbs/h) at 150 mm/s, 17 tons/h (37.000 lbs/h) at 250 mm/s
 (boxed meat) or 25 tons/h (55.000 lbs/h) at 375 mm/s

Capacity: 15 tons/h (33.000 lbs/h) at 150 mm/s, or 25 tons/h (55.000 lbs/h) at 250 mm/s
 (loose meat) or 38 tons/h (84.000 lbs/h) at 375 mm/s

The exact capacity will depend on the conditions of use and will be estimated for each customer's application.



Measurement area

The figure illustrates a cross-section of the measurement area. The MeatMaster comfortably accommodates all box and crate standards.

Weight and dimensions

	MeatMaster™ Standard	MeatMaster™ Compact
Dimensions [H*W*D]:	2.85*5.24*1.60 m (112.2*206.3*62.3 inches)	2.85*3.34*1.60 m (112.2*131.5*62.3 inches)
Space requirements [W*D]:	5.24*3.6 m (206.3*142 inches)	3.34*3.6 m (131.5*142 inches)
Tunnel aperture:	250*650 mm (9.8*25.6 inches)	250*650 mm (9.8*25.6 inches)
Weight, X-ray cabinet:	1000 kilos (2204 lbs)	1000 kilos (2204 lbs)
Length, conveyor:	5.24 meters (206.3 inches)	3.30 meters (130 inches)
Weight, conveyor:	450 kg (992 lbs)	400 kg (880 lbs)
Size of largest components as shipped:		
X-ray cabinet H*W*D:	1.9*2.1*1.0 m (74.8*82.7*39.4 inches)	1.9*2.1*1.0 m (74.8*82.7*39.4 inches)
Conveyor H*W*D:	1.4*5.24*1.5 m (55.1*206.3*59 inches)	1.4*3.34*1.5 m (55.1*131.5*59 inches)

Instrument data

Power supply:	3 phases, 0 (neutral) and ground (earth), 200/400 VAC ±10%, 50-60 Hz (a line conditioner may be required depending on local conditions)
Power consumption:	Max. 2300 VA
Water requirements:	Quality: Potable water, 8 - 15°C (46 - 59°F) and a maximum pressure of 10 bars (140 psi)
Water consumption:	Minimum 120 l/h (31 U.S.gal/h) Maximum 250 l/h (66 U.S.gal/h) Energy absorption ca. 750 W
Water connections:	In: Quick release fitting for hard plastic tubing (Pex) 12mm outer diameter (f.ex. fitting type: Norgren 102471228) Out: Quick release fitting for hard plastic tubing (Pex) 10mm outer diameter (f.ex. fitting type: Norgren 102251038)
Air requirements:	Clean dry air at min 2 bars (28 psi) Dewpoint at max -5°C
Air connection:	In: Ø4/6 mm hose (inner dia. 4mm / outer dia. 6mm) for pressurised air.
Ambient temperature:	2 - 15°C (max dT/dt 3°C/3h), 35 - 59°F (max dT/dt 5.5°F/3h)
Ambient humidity:	5 - 95% RH
Degree of protection:	IP 66 or better (Please refer to cleaning instructions in Operators Manual for further information)
Noise level:	< 70 dB

X-ray

High energy source:	Operated at 120 kV/3 mA
Low energy source:	Operated at 62 kV/5 mA
X-ray emission:	MeatMaster is shielded to < 5 µSv/hour at a distance of 5 cm (2 inches)
X-ray dose received by meat:	< 0.000005 Gy (Grey)

Data connection

Ethernet 10/100

OPC data standards

Modem or network for remote connection

Standards and approvals

MeatMaster™ is CE labelled and complies with the following directives:

- EMC (Electromagnetic Compatibility) Directive 2004/108/EEC
- LVD (Low voltage directive) 2006/95/EEC
- MD (Machine Directive) 2006/42/EEC

Patents

US Pat. No. 6,600,805

Patents pending

Reference methods

- Schmid-Bondzynski-Ratslaff (SBR) method No. 131, 1989 from the Nordic Committee for Food Analysis (NMKL)
- ISO 1443:1973 Fat in Meat Products

Installation

The analyser is of a robust design. We recommend nevertheless that the installed unit is protected by concrete mounted poles or rails that prevent the unit from being hit by passing vehicles. Such devices are not part of a FOSS delivery unless specified.

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