Automated Precision Weighing

Designed for Automation

Compact Precision Weighing

High Precision
Designed to meet the most demanding customer specifications. The WMS is a high speed high accuracy weigh module with a readability up to 0.1 mg

Rugged Design
The 316L (1.4404) stainless steel housing with FDA-compliant seal and the rugged industrial plug connector with IP67 protection ensure high levels of reliability.

Flexible Platforms
Customer specific adapters can easily be fixed to the square shaped weighing platform which is rigidly connected by means of a patented locking device to the weigh module.

Functionality Test
The module can be checked at any time with the internal calibration weight. Adapters on weighing pan don't have to be removed for calibration if they weigh less than 50% of full load.

WMS
Precision Weigh Modules

Automated processes with their demanding standards and quality requirements ask more and more for high-resolution weigh modules.

These modules must be easily integrated into plants, machines and instruments.

The WMS precision weigh modules meet these customer demands simply and effectively.

METTLER TOLEDO

Model Specific Data WMS

		Models with internal adjustment			
Parameter		**WMS104C**	**WMS404C**	**WMS1203C**	**WMS6002C**
Maximum Capacity	nom.	120 g	410 g	1220 g	6200 g
Readability	nom.	0.1 mg	0.1 mg	1 mg	10 mg
Measurement properties (properties apply to environmental conditions)					
Specification temperatures		10 … 30 °C	10 … 30 °C	10 … 30 °C	10 … 30 °C
Specification humidity		20 … 80 %rH	20 … 80 %rH	20 … 80 %rH	20 … 80 %rH
Limit values					
Repeatability (at nominal load)	sd	0.12 mg	0.1 mg	1 mg	10 mg
Linearity deviation	sd	0.25 mg	0.4 mg	3 mg	30 mg
Eccentricity deviation (test load) OIML R76	sd	0.5 mg (50 g)	1 mg (200 g)	5 mg (500 g)	50 mg (2000 g)
Sensitivity offset (test load)		0.5 mg (100 g)	2 mg (400 g)	10 mg (1200 g)	80 mg (6000 g)
Sensitivity temperature drift		0.00015 %/°C	0.00015 %/°C	0.00015 %/°C	0.00015 %/°C
Sensitivity stability		0.00025 %/a	0.00025 %/a	0.00025 %/a	0.00025 %/a
Typical values					
Repeatability	typ.	0.08 mg	0.08 mg	0.8 mg	6 mg
Differential linearity deviation	typ.	0.08 mg	0.25 mg	2 mg	19 mg
Eccentric load deviation (test load)	typ.	0.2 mg (100 g)	0.6 mg (200 g)	3 mg (500 g)	32 mg (2000 g)
Sensitivity offset [1)]	typ.	0.24 mg (100 g)	0.95 mg (400 g)	2.9 mg (1200 g)	24 mg (6000 g)
Minimum weight (according to USP)		160 mg	160 mg	1600 mg	12000 mg
Minimum weight (@ U=1%, 2 sd)		16 mg	16 mg	160 mg	1200 mg
Dynamics					
Settting time [2)]	typ.	0.8s	0.8s	0.8s	0.8s
Setting time under good conditions [2)]		0.15s	0.15s	0.15s	0.15s
Interface update rate	max.	92/s	92/s	92/s	92/s

		Models without internal adjustment			
Parameter		**WMS204**	**WMS403**	**WMS803**	**WMS4002**
Maximum Capacity	nom.	220 g	410 g	820 g	4200 g
Readability	nom.	0.1 mg	1 mg	1 mg	10 mg
Measurement properties (properties apply to environmental conditions)					
Specification temperatures		10 … 30 °C	10 … 30 °C	10 … 30 °C	10 … 30 °C
Specification humidity		20 … 80 %rH	20 … 80 %rH	20 … 80 %rH	20 … 80 %rH
Limit values					
Repeatability (at nominal load)	sd	0.2 mg	1 mg	1 mg	10 mg
Linearity deviation	sd	0.4 mg	2 mg	3 mg	30 mg
Eccentricity deviation (test load) OIML R76	sd	1 mg (100 g)	2 mg (200 g)	5 mg (500 g)	50 mg (2000 g)
Sensitivity offset (test load)		1 mg (200 g)	2 mg (400 g)	7 mg (800 g)	50 mg (4000 g)
Sensitivity temperature drift		0.00015 %/°C	0.00015 %/°C	0.00015 %/°C	0.00015 %/°C
Sensitivity stability		0.00025 %/a	0.00025 %/a	0.00025 %/a	0.00025 %/a
Typical values					
Repeatability	typ.	0.12 mg	0.5 mg	0.8 mg	8 mg
Differential linearity deviation	typ.	0.25 mg	1.3 mg	2 mg	20 mg
Eccentric load deviation (test load)	typ.	0.6 mg (100 g)	1 mg (200 g)	3 mg (500 g)	32 mg (2000 g)
Minimum weight (according to USP)		240 mg	1000 mg	1600 mg	16000 mg
Minimum weight (@ U=1%, 2 sd)		24 mg	100 mg	160 mg	1600 mg
Dynamics					
Settting time [2)]	typ.	0.8s	0.8s	0.8s	0.8s
Setting time under good conditions [2)]		0.15s	0.15s	0.15s	0.15s
Interface update rate	max.	92/s	92/s	92/s	92/s

Rnt = net weight (of sample);

[1)] Applies only after adjustment at nominal capacity with an OIML E2 weight;

[2)] The time between placing the weighed object on the weighing module and indication of a stabilized weighing value under optimal environmental conditions.

General Specifications

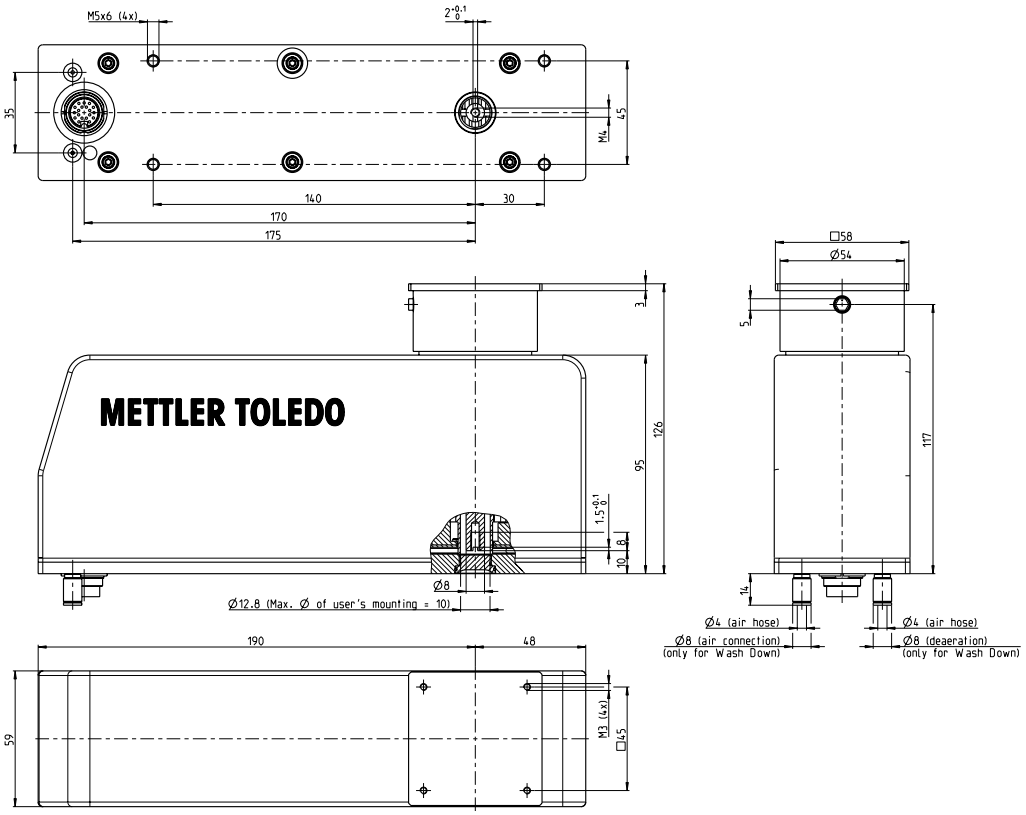
Power supply	
Power supply voltage	12 to 24 V DC nominal (10 - 29 V DC)
Power requirement at 24 VDC (typical)	
In operation	2.5 W
Electrical connection	
Connector	19pin male, Typ Binder, series 423
Interfaces	2400 to 38400 baud, 7 or 8 bits, parity: no, even, odd, 1 or 2 stop bits, handshake: no, hardware, Xoff/Xon
RS-232C	bidirectional, full duplex
RS-422	bidirectional, full duplex, bus-capable, termination with 120 ohms
Digital Input	10-30 VDC, 5mA
Digital Output	10-30 VDC, 0.5A
Air connection (wash-down version)	
Tube diameter external	4 mm (5/32 inch)
Tube diameter internal	2.5 mm (1/10 inch)
Nominal (recommended)	1.0 bar (14.5 psi)
IP protection (in operational state with weighing plate/platform in place)	
When weighing (protected with double-labyrinth)	IP54
When cleaning wash-down (seal activated with 1 bar air pressure)	IP66
Typical service life of seals (normal environmental conditions)	2 years
Allowable ambient conditions	
Operating temperature range	+10 to +30 °C
Allowable ambient temperature range	+5 to +40 °C (40 to 105 °F)
Height above mean sea level	max. 4000 m (13,330 feet)
Relative air humidity (at 30°C / 85°F)	Max. 80% at 31°C, decreasing lineraly to 50% at 40 °C, non-condensing
Warm-up time	At least 30 minutes after the WMS weigh module has been connected to the mains
Materials	
Housing, baseplate	Stainless steel X2CrNiMo17-12 (1.4404 resp. 316L)
Weighing platform ø 54mm, 58x58mm	Aluminum, chrome plated or Stainless steel X2CrNiMo17-12-2 (1.4404 or 316L)
Seal between flange and housing	FPM 50 Shore A, black, FDA-compliant
Seal between baseplate and housing	FPM 65° Shore A, black FDA-compliant
Bellows of wash-down version	NBR 50 Shore, black, antistatic mixture no. 13-NBR/033-50A-0099
Surface roughness of housing	N7 or better

Order Information

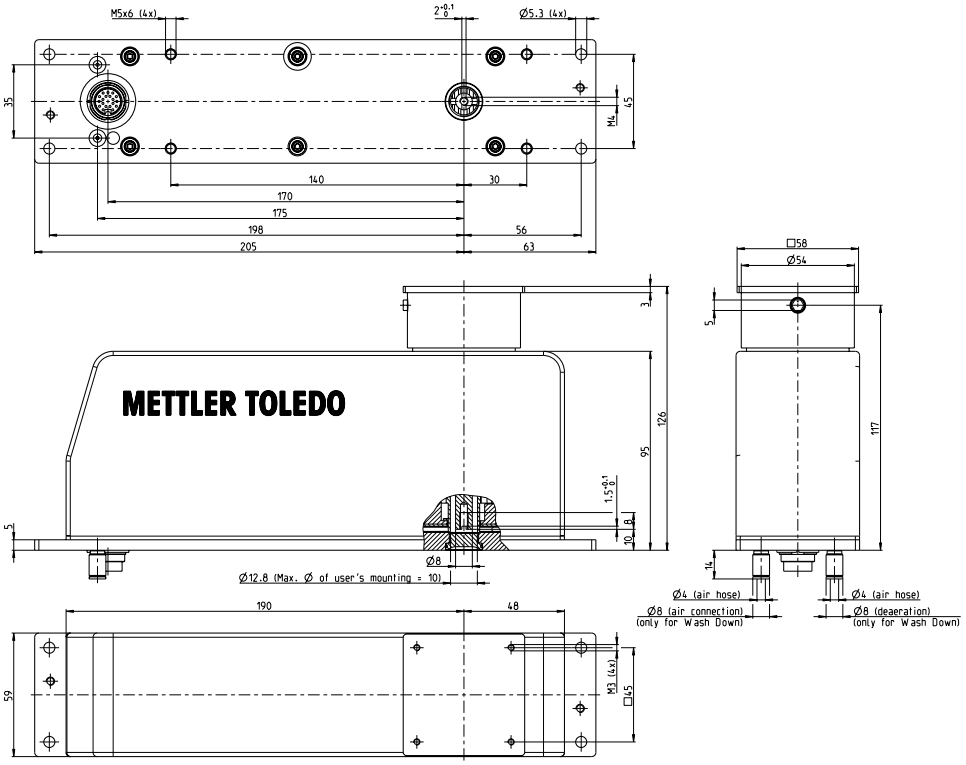
		With internal adjustment		Without internal adjustment	
		Long base plate	**Short base plate**	**Long base plate**	**Short base plate**
Labyrinth	**Below connector**	WMS104C-L 30'008'490	WMS104C-L/10 30'008'493	WMS204-L 11'149'500	WMS204-L/10 11'149'510
		WMS404C-L 11'152'100	WMS404C-L/10 11'152'110	WMS403-L 11'149'600	WMS403-L/10 11'149'610
		WMS1203C-L 11'152'200	WMS1203C-L/10 11'152'210	WMS803-L 11'149'700	WMS803-L/10 11'149'710
		WMS6002C-L 11'152'300	WMS6002C-L/10 11'152'310	WMS4002-L 11'149'800	WMS4002-L/10 11'149'810
	Rear connector	WMS104C-L/01 30'008'492	WMS104C-L/11 30'008'495	WMS204-L/01 11'149'504	WMS204-L/11 11'149'514
		WMS404C-L/01 11'152'104	WMS404C-L/11 11'152'114	WMS403-L/01 11'149'604	WMS403-L/11 11'149'614
		WMS1203C-L/01 11'152'204	WMS1203C-L/11 11'152'214	WMS803-L/01 11'149'704	WMS803-L/11 11'149'714
		WMS6002C-L/01 11'152'304	WMS6002C-L/11 11'152'314	WMS4002-L/01 11'149'804	WMS4002-L/11 11'149'814
"Wash-Down"	**Below connector**	WMS104C-W 30'008'491	WMS104C-W/10 30'008'494	WMS204-W 11'149'501	WMS204-W/10 11'149'511
		WMS404C-W 11'152'101	WMS404C-W/10 11'152'111	WMS403-W 11'149'601	WMS403-W/10 11'149'611
		WMS1203C-W 11'152'201	WMS1203C-W/10 11'152'211	WMS803-W 11'149'701	WMS803-W/10 11'149'711
		WMS6002C-W 11'152'301	WMS6002C-W/10 11'152'311	WMS4002-W 11'149'801	WMS4002-W/10 11'149'811

Scope of delivery: • WMS weigh module • Weighing platform (if included in the order) • WMS short instruction • Production certificate • CE Declaration of Conformity

Short base plate and square weighing platform with connector on the bottom



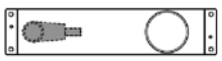
Long base plate and square weighing platform with connector on the bottom



Connector on the bottom
(Top view)

WM Cable 180M/5 (5m)
11 138 860
WM Cable 180M/10 (10m)
11 138 861

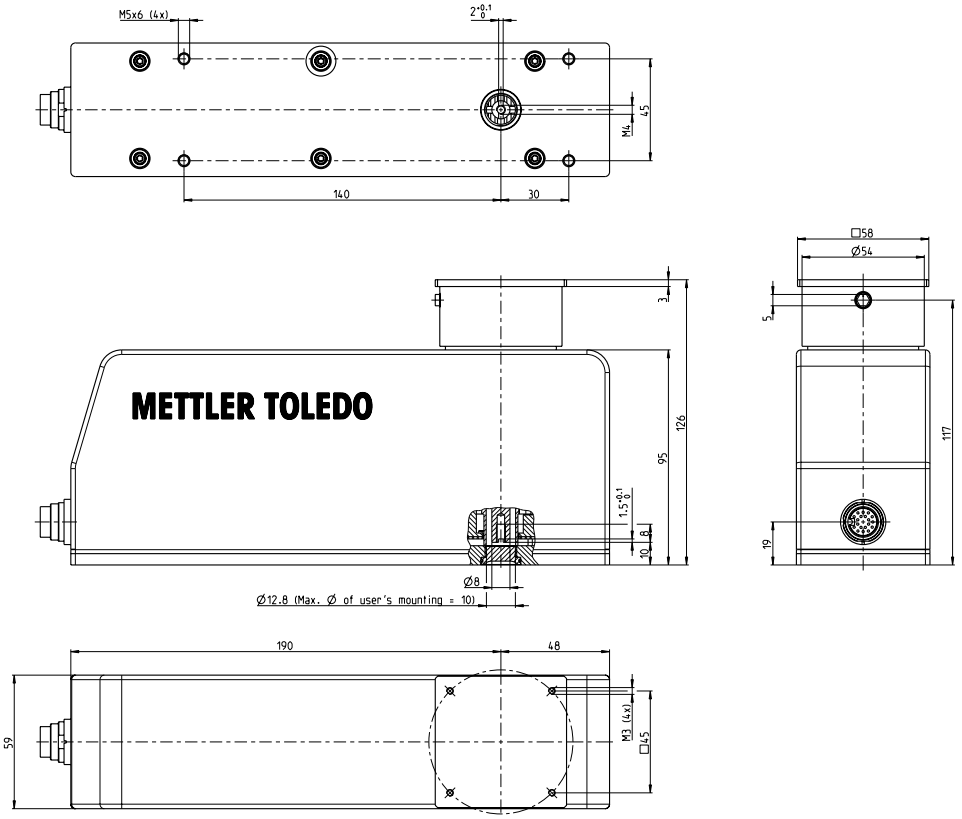
WM Cable 90M/5 (5m)
11 138 862
WM Cable 90M/10 (10m)
11 138 863



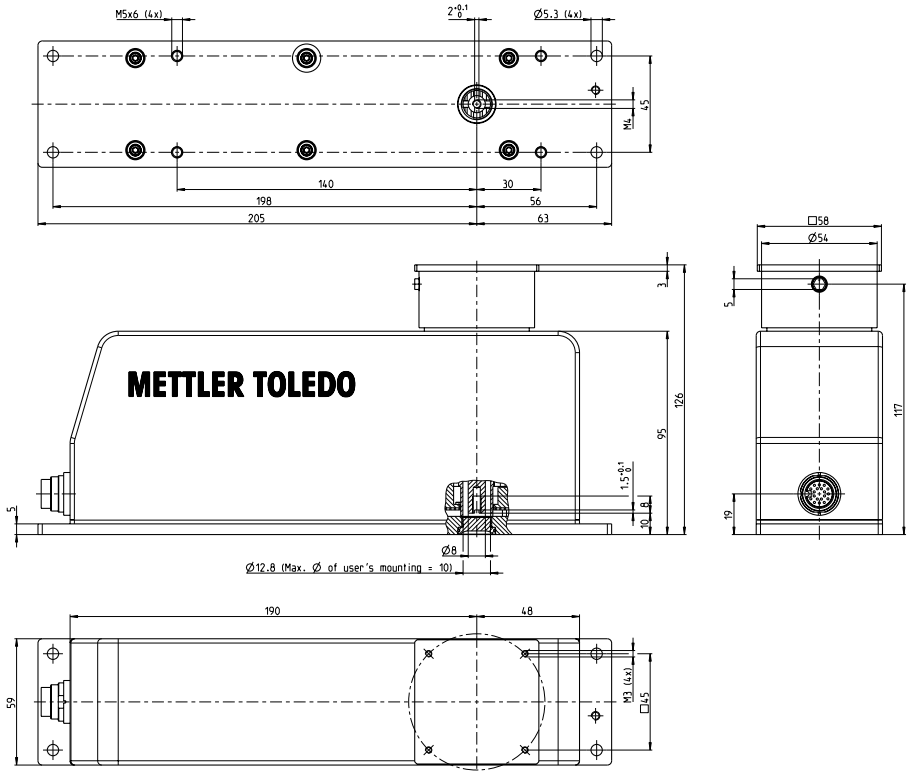
WM Cable 90H/10 (10m)
11 138 864

WM Cable 90B/10 (10m)
11 138 865

Short base plate and square weighing platform with connector on the rear

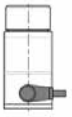


Long base plate and square weighing platform with connector on the rear



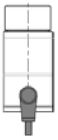
Connector on the rear
(Back view)

WM Cable 180M/5 (5m)
11 138 860
WM Cable 180M/10 (10m)
11 138 861



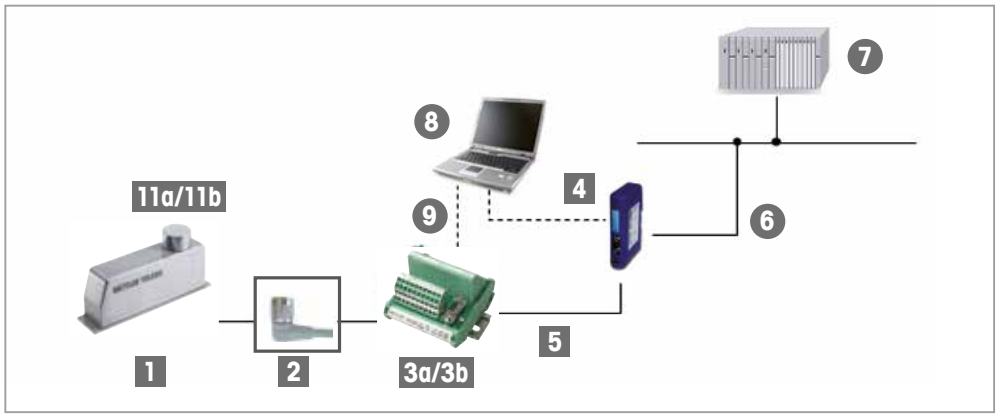
WM Cable 90M/5 (5m)
11 138 862
WM Cable 90M/10 (10m)
11 138 863

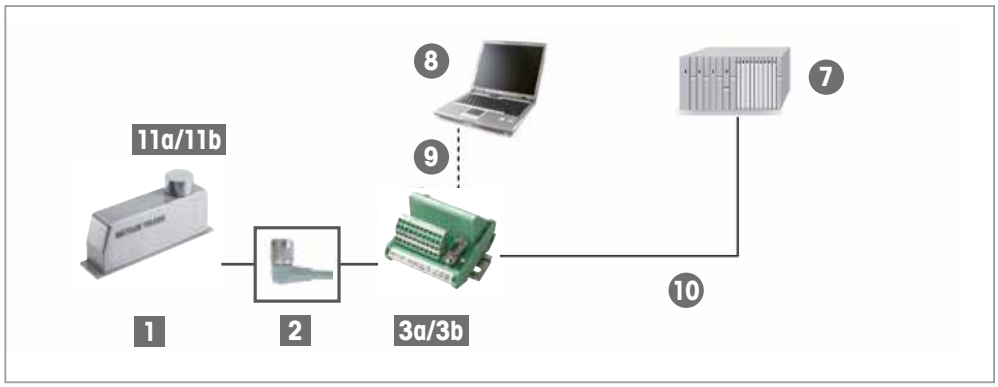
WM Cable 90H/10 (10m)
11 138 865



WM Cable 90B/10 (10m)
11 138 864

Typical Configurations





■ Available from METTLER TOLEDO ● Third party product

Pos	Item	Description	Item number
1	Weigh Module WMS	Different models available (without weighing platform)	see order inform.
2	Connection Cable	19 pin Connector <–> open leads	see accessories
3a	WMS ConBlock	Connection Module	11 152 000
3b	ConBlock IP66	Connection Module with IP66 housing	30 092 965
4	Profibus Module	Incl. connection cable for configuration	42 102 809
4	Profinet Module	Incl. connection cable for configuration	42 102 859
4	DeviceNet Module	Incl. connection cable for configuration	42 102 810
4	Ethernet IP Module	Incl. connection cable for configuration	42 102 860
4	CC-Link	Incl. connection cable for configuration	30 038 775
5	Cable, 1 m	D-Sub 9 male <–> open leads	11 141 979
6	Customer cable	Fieldbus cable	
7	PLC		
8	PC or Laptop	For configuration and service purpose	
9	Standard RS232 cable	DB9 male/female	
10	Customer cable	Connection to PLC through RS232 or RS422	
11a	Weighing platform	Square 58 x 58 mm, ordered together with weigh module	11 152 021
11b	Weighing platform	Round ø 54mm, ordered together with weigh module	11 152 020

Accessories

Extension arms
WMS Adapter pan, stainless steel X2CrNiMo17-12-2 (1.4404 or 316L)
30 095 946

WMS Adapter 55mm, aluminum, chrome plated
30 069 348

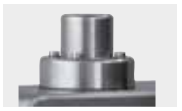
WMS Adapter 80mm, aluminum, chrome plated
30 069 347

Weighing platforms
Round weighing platform, ø 54mm
30 007 732

Square weighing platform
58 x 58 mm
Aluminum, chrome plated
30 007 731

Stainless Steel
1.4404
30 090 567

Stainless steel cover for top weighing interface
30 005 924



Connection module
WMS ConBlock
11 152 000

WMS ConBlock IP66
30 092 965

Leveling aid
WM levelling bubble
42 102 807

Mettler-Toledo AG
CH-8606 Greifensee, Switzerland
Tel. +41 44 944 22 11
Fax +41 44 944 30 60

www.mt.com/WMS
For more information