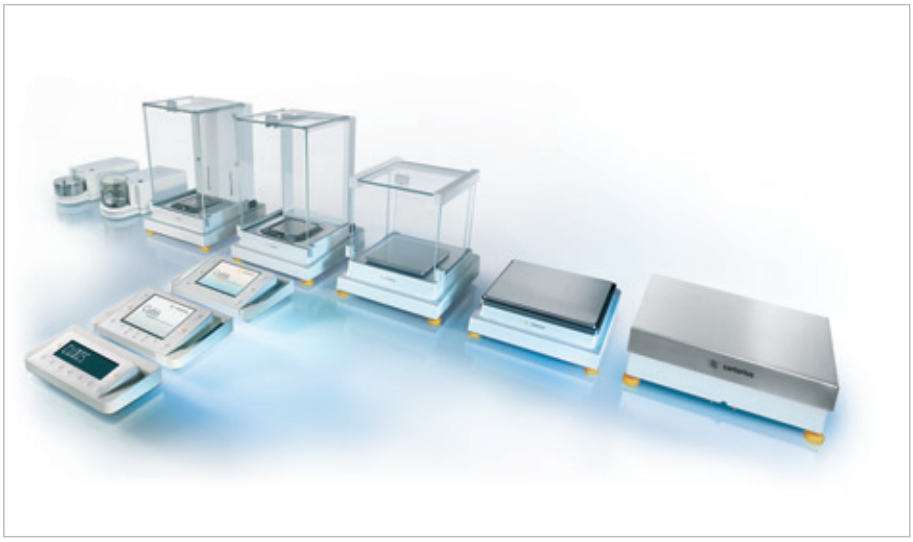
sartorius

Sartorius Cubis® Series

Laboratory balances



CUBIS

MODULAR DESIGN

General Specifications

Power supply	100–240 V~, –15 %/+10 %, 50–60 Hz, 1.0 A
Input voltage	15 VDC, ± 5 %
Power consumption	7W (max.)
Ambient temperature	Operation +5°C to +40°C
Highest relative humidity	80 % for temperatures up to 31°C, decreasing linearly to 50 % relative humidity for 40°C
Safety of electrical equipment	According to EN 61010-1:2001: Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements
Electromagnetic compatibility	According to EN 61326-1:2006: Electrical equipment for measurement, control, and laboratory use – EMC requirements – Part 1: General requirements
Defined immunity to interference	Suitable for use in industrial areas
Interference emission	Class B (suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings)

Cubis® Display and Control Units

Type	MSA	MSU	MSE
Operation	Touch screen, keys for central basic functions	Keys	Keys
Display	High-resolution color TFT, 5.7" graphic display	High-resolution black-and-white, 5.7" graphical display	Liquid crystal display, black-and-white
Adaptation of the display and control unit	Tiltable display, removable display and control unit		Removable display and control unit
Standard data interfaces	– USB (integrated into weighing module) – RS-232C accessory interface, 25-pin (integrated into weighing module) – Various data protocols available (can also be connected to software designed for external manufacturers) – Ethernet (integrated into display unit)		– USB (integrated into weighing module) – RS-232C accessory interface, 25-pin (integrated into weighing module)
SD card reader	Integrated as standard into display and control unit		–
Operation of the motorized draft shield (only for DA, DI, DM draft shields)	Activated by side keys or touch-free using IR switch (optional); learning capability		Activated by key or touch-free using IR switch (optional); learning capability
Applications	Unit conversion, SQmin function for minimum initial weight according to USP, isoCAL automatic calibration | adjustment function, individual identifiers, density determination, statistics, calculations, averaging, formulation, weighing in percent, time-controlled functions, totalizing, DKD measurement uncertainty, second tare memory, counting, checkweighing, alibi memory, audit trail		Unit conversion, isoCAL automatic calibration | adjustment function, density determination (buoyancy method only), calculations, averaging, net | total formulation, weighing in percent, counting, totalizing

Cubis® Weighing Modules

Ultramicrobalances 0.0001 mg

Model		2.7S	2.7S (with DF filter draft shield)
Readability	mg	0.0001	0.0001
Weighing capacity	g	2.1	2.1
Tare range (subtractive)	g	– 2.1	– 2.1
Repeatability	≤±mg	0.00025	0.00025
Linearity	≤±mg	0.0009	0.0009
Corner load (test load [g])	mg	0.0025 (1)	0.0025 (1)
Optimal starting point of the operating range*	mg	0.082	–
Sensitivity drift between +10 to +30°C	±ppm/K	1	1
Typical stabilization time	s	< 7	< 7
Typical measurement time	s	< 10	< 10
External standard calibration value (min. accuracy class)	g	2 (E2)	2 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4
Weighing pan size ∅	mm	20	50
Weighing chamber height	mm	70	15
Protection		Protected against dust and water	

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Microbalances 0.001 mg

Model		6.6S	6.6S (with DF filter draft shield)	3.6P
Readability	mg	0.001	0.001	0.001 | 0.002 | 0.005
Weighing capacity	g	6.1	6.1	1.1 | 2.1 | 3.1
Tare range (subtractive)	g	– 6.1	– 6.1	– 3.1
Repeatability	≤±mg	0.001	0.001	0.003 | 0.004 | 0.005
Linearity	≤±mg	0.004	0.004	0.004
Corner load (test load [g])	mg	0.004 (2)	0.004 (2)**	0.005 (1)
Optimal starting point of the operating range*	mg	0.82	–	0.82
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1
Typical stabilization time	s	< 5	< 5	< 5
Typical measurement time	s	< 8	< 8	< 8
External standard calibration value (min. accuracy class)	g	5 (E2)	5 (E2)	3 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size ∅	mm	30	50	30
Weighing chamber height	mm	70	15	70
Protection		Protected against dust and water		

Semi-microbalances 0.01 mg

Model		225S	225P	125P
Readability	mg	0.01	0.01 | 0.02 | 0.05	0.01 | 0.1
Weighing capacity	g	220	60 | 120 | 220	60 | 120
Tare range (subtractive)	g	– 220	– 220	– 120
Repeatability	≤±mg	0...60 g: 0.015 60...220 g: 0.025	0...60 g: 0.015 60...220 g: 0.04	0...60 g: 0.015 60...120 g: 0.06
Linearity	≤±mg	0.1	0.15	0.15
Corner load (test load [g])	mg	0.15 (100)	0.2 (100)	0.15 (50)
Optimal starting point of the operating range*	mg	8.2	8.2	8.2
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1
Typical stabilization time	s	≤ 2	≤ 2	≤ 2
Typical measurement time	s	≤ 6	≤ 6	≤ 6
External standard calibration value (min. accuracy class)	g	200 (E2)	200 (E2)	100 (E2)
Display result (depending on the set filter level)	s	0.2 – 0.4	0.2 – 0.4	0.2 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261
Protection		Protected against dust and water		

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.
** = Measured using a standard pan

Analytical Balances 0.1 mg

Model		524S	524P	324S	324P	224S	124S
Readability	mg	0.1	0.1 | 0.2 | 0.5	0.1	0.1 | 0.2 | 0.5	0.1	0.1
Weighing capacity	g	520	120 | 240 | 520	320	80 | 160 | 320	220	120
Tare range (subtractive)	g	– 520	– 520	– 320	– 320	– 220	– 120
Repeatability	≤±mg	0.1	0.15 | 0.2 | 0.4	0.1	0.1 | 0.2 | 0.4	0.07	0.1
Linearity	≤±mg	0.4	0.5	0.3	0.5	0.2	0.2
Corner load (test load [g])	mg	0.3 (200)	0.4 (200)	0.3 (200)	0.4 (200)	0.2 (100)	0.2 (50)
Optimal starting point of the operating range*	mg	82	82	82	82	82	82
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1	1	1	1
Typical stabilization time	s	< 1	< 1	< 1	< 1	< 1	< 1
Typical measurement time	s	< 3	< 3	< 3	< 3	< 3	< 3
External standard calibration value (min. accuracy class)	g	500	500	200+100 (E2)	200+100 (E2)	200 (E2)	100 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261	261	261	261
Protection		IP54 in accordance with IEC 60529					

Precision Balances

Model		5203S	5203P	3203S	2203S	2203P	1203S
Readability	mg	1	1 | 2 | 5	1	1	1 | 10	1
Weighing capacity	g	5,200	1,200 | 2,400 | 5,200	3,200	2,200	1,010 | 2,200	1,200
Tare range (subtractive)	g	- 5,200	- 5,200	– 3,200	– 2,200	– 2,200	– 1,200
Repeatability	≤±mg	1	1	1	1	1 | 6	0.7
Linearity	≤±mg	5	5	5	3	5	2
Corner load (test load [g])	mg	2 (2,000)	2 (2,000)	2 (1,000)	2 (1,000)	3 (1,000)	2 (500)
Optimal starting point of the operating range*	g	0.82	0.82	0.82	0.82	0.82	0.82
Sensitivity drift between +10 to +30°C	±ppm/K	1	1	1	1	1	1.5
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 2	≤ 2	≤ 2	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	g	5,000	5,000	2,000	2,000 (E2)	1,000 (E2)	1,000 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172	172	172	172
Protection		Protected against dust and water					

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Precision Balances

Model		623S	623P	323S
Readability	mg	1	1 | 2 | 5	1
Weighing capacity	g	620	150 | 300 | 620	320
Tare range (subtractive)	g	– 620	– 620	– 320
Repeatability	≤±mg	0.7	1 | 2 | 4	0.7
Linearity	≤±mg	2	5	2
Corner load (test load [g])	mg	2 (200)	4 (200)	2 (200)
Optimal starting point of the operating range*	g	0.82	0.82	0.82
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	2
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	g	500 (E2)	500 (F1)	200 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172
Protection		Protected against dust and water		

Model		14202S	14202P	10202S	8202S
Readability	mg	10	10 | 20 | 50	10	10
Weighing capacity	g	14,200	3,500 | 7,000 | 14,200	10,200	8,200
Tare range (subtractive)	g	- 14,200	- 14,200	– 10,200	– 8,200
Repeatability	≤±mg	10	10 | 20 | 40	7	7
Linearity	≤±mg	30	50	20	20
Corner load (test load [g])	mg	20 (5,000)	40 (5,000)	20 (5,000)	20 (5,000)
Optimal starting point of the operating range*	g	8.2	8.2	8.2	8.2
Sensitivity drift between +10 to +30°C	±ppm/K	1.5	1.5	2	2
Typical stabilization time	s	1	1	1	1
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	kg	10 (E2)	10 (E2)	10 (E2)	5 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Precision Balances

Model		6202S	6202P	5202S	4202S
Readability	mg	10	10 | 20 | 50	10	10
Weighing capacity	g	6,200	1,500 | 3,000 | 6,200	5,200	4,200
Tare range (subtractive)	g	– 6,200	– 6,200	- 5,200	– 4,200
Repeatability	≤±mg	7	7 | 20 | 40	6	7
Linearity	≤±mg	20	50	10	20
Corner load (test load [g])	mg	20 (2,000)	50 (2,000)	10 (2,000)	30 (2,000)
Optimal starting point of the operating range*	g	8.2	8.2	8.2	8.2
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	2	2
Typical stabilization time	s	1	1	0.8	**0.8**
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	5 (E2)	5 (F1)	5	2 (E2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	140 × 140	206 × 206
Protection		IP54 in accordance with IEC 60529			

Model		2202S	1202S	12201S	8201S	5201S
Readability	mg	10	10	100	100	100
Weighing capacity	g	2,200	1,200	12,200	8,200	5,200
Tare range (subtractive)	g	– 2,200	– 1,200	– 12,200	– 8,200	– 5,200
Repeatability	≤±mg	7	7	50	50	50
Linearity	≤±mg	20	20	100	100	100
Corner load (test load [g])	mg	20 (1,000)	20 (500)	200 (5,000)	200 (5,000)	200 (2,000)
Optimal starting point of the operating range*	g	8.2	8.2	82	82	82
Sensitivity drift between +10 to +30°C	±ppm/K	2	2	4	4	4
Typical stabilization time	s	0.8	0.8	0.8	0.8	0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	2 (F1)	1 (F1)	10 (F1)	5 (F2)	5 (F2)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529				

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Precision High Capacity Balances

Model		70201S	36201S	36201P	20201S
Readability	mg	100	100	100 | 1,000	100
Weighing capacity	g	70,200	36,200	10,200 | 36,200	20,200
Tare range (subtractive)	g	– 70,200	– 36,200	- 36,200	– 20,200
Repeatability	≤±mg	100	100	100 | 500	100
Linearity	≤±mg	500	200	200	200
Corner load (test load [g])	mg	500 (20,000)	300 (10,000)	300 (10,000)	300 (5,000)
Optimal starting point of the operating range*	g	82	82	82	82
Sensitivity drift between +10 to +30°C	±ppm/K	3	2	2	2
Typical measurement time	s	1.5	1.5	1.5	1.5
External standard calibration value (min. accuracy class)	kg	20 (F1)	10 (F1)	10 (F1)	10 (F1)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300	400 × 300	400 × 300
Protection		IP54 in accordance with IEC 60529			

Model		70200S	36200S
Readability	mg	1,000	1,000
Weighing capacity	g	70,200	36,200
Tare range (subtractive)	g	– 70,200	– 36,200
Repeatability	≤±mg	500	500
Linearity	≤±mg	1,000	1,000
Corner load (test load [g])	mg	1,000 (20,000)	1,000 (10,000)
Optimal starting point of the operating range*	g	820	820
Sensitivity drift between +10 to +30°C	±ppm/K	2	3
Typical measurement time	s	1	1
External standard calibration value (min. accuracy class)	kg	20 (F1)	10 (F1)
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300
Protection		IP54 in accordance with IEC 60529	

* = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Verified Models with EC Type Approval Certificate: Micro- and Ultramicrobalances

Model		6.6S-xCE	2.7S-xCE	3.6P-xCE
Accuracy class*	mg	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	0.001	0.0001	0.001
Weighing capacity max*	g	6.1	2.1	3.1
Calibration value e*	mg	1	1	1
Min. load min*	mg	0.1	0.01	0.1
Tare equalization range (subtractive)	g	≤ 100 % from max. weighing capacity		
Application range according to DIR*	g	0.001 – 6.1	0.001 – 2.1	0.001 – 3.1
Optimal starting point of the operating range**	mg	0.82	0.082	0.82
Typical stabilization time	s	≤ 5	≤ 7	≤ 5
Typical measurement time	s	≤ 8	≤ 10	≤ 8
External standard calibration value (min. accuracy class)	g	5	2	3
Application range (temperature)		With "isoCAL" function: +5...+40°C | Without "isoCAL" function: +15 ... +25°C		
Display result (depending on the set filter level)	s	By selection of 1 of 4 optimized filter levels		
Weighing pan size ∅	mm	30	20	30
Weighing chamber height (draft shield DM)	mm	70	70	70
Protection		Protected against dust and water		

Verified Models with EC Type Approval Certificate: Semi-microbalances 0.01 mg

Model		225S-xCE	225P-xCE	125P-xCE
Accuracy class*	mg	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	0.01	0.01 | 0.02 | 0.05	0.01 | 0.1
Weighing capacity max*	g	220	60 | 120 | 220	60 | 120
Calibration value e*	mg	1	1	1
Min. load min*	mg	1	1	1
Tare equalization range (subtractive)		≤ 100 % from max. weighing capacity		
Application range according to DIR*	g	0.001 – 220	0.001 – 220	0.001 – 120
Optimal starting point of the operating range**	mg	8.2	8.2	8.2
Typical stabilization time	s	≤ 2	≤ 2	≤ 2
Typical measurement time	s	≤ 6	≤ 6	≤ 6
External standard calibration value (min. accuracy class)	g	200 (E2)	200 (E2)	100 (E2)
Application range (temperature)		With "isoCAL" function: +5 ... +40°C | Without "isoCAL" function: +15 ... +25°C		
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels		
Display result (depending on the set filter level)	s	0.2 – 0.4	0.2 – 0.4	0.2 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261
Protection		Protected against dust and water		

* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area
** = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Verified Models with EC Type Approval Certificate: Analytical Balances 0.1 mg

Model		524S-xCE	524P-xCE	324S-xCE	224S-xCE	324P-xCE	124S-xCE
Accuracy class*		Ⓘ	Ⓘ	Ⓘ	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX							
Scale interval d*	mg	0.1	0.1 | 0.2 | 0.5	0.1	0.1	0.1 | 0.2 | 0.5	0.1
Weighing capacity max*	g	520	120 | 240 | 520	320	220	80 | 160 | 320	120
Calibration value e*	mg	1	1	1	1	1	1
Min. load min*	mg	10	10	10	10	10	10
Tare equalization range (subtractive)	g	≤ 100 % from max. weighing capacity					
Application range according to DIR*	g	0.01–520	0.01–520	0.01–320	0.01–220	0.01–320	0.01–120
Optimal starting point of the operating range**	mg	82	82	82	82	82	82
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
External standard calibration value (min. accuracy class)	g	500	500 (E2)	200+100 (E2)	200 (E2)	200+100 (E2)	100
Application range (temperature)		With "isoCAL" function: +5 ... +40°C | Without "isoCAL" function: +15 ... +25°C					
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85	85 × 85
Weighing chamber height (draft shield DU)	mm	261	261	261	261	261	261
Protection		IP54 in accordance with IEC 60529					

Verified Models with EC Type Approval Certificate: Precision Balances

Model		5203S-xCE	5203P-xCE	3203S-xCE	2203S-xCE	2203P-xCE	1203S-xCE
Accuracy class*		Ⓘ	Ⓘ	Ⓘ	Ⓘ	Ⓘ	Ⓘ
For verified models: EC type approval certificate D09-09-015, Type: MSX							
Scale interval d*	mg	1	1 | 2 | 5	1	1	1 | 10	1
Weighing capacity max*	g	5,200	1,200 | 2,400 | 5,200	3,200	2,200	1,010 | 2,200	1,200
Calibration value e*	mg	10	10	10	10	10	10
Min. load min*	mg	100	100	100	100	100	100
Tare equalization range (subtractive)	g	≤ 100 % from max. weighing capacity					
Application range according to DIR*	g	0,1 – 5,200	0,1 – 5,200	0,1 – 3,200	0,1 – 2,200	0,1 – 2,200	0,1 – 1,200
Optimal starting point of the operating range**	g	0.82	0.82	0.82	0.82	0.82	0.82
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 2	≤ 2	≤ 2	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (min. accuracy class)	g	5,000	5,000	2,000	2,000 (E2)	1,000 (E2)	1,000 (E2)
Application range (temperature)		With "isoCAL" function: +5 to +40°C | Without "isoCAL" function: +15 to +25°C					
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172	172	172	172
Protection		Protected against dust and water					

* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area

** = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Verified Models with EC Type Approval Certificate: Precision Balances

Model		623S-xCE	623P-xCE	323S-xCE
Accuracy class*	mg	Ⅱ	Ⅱ	Ⅱ
For verified models: EC type approval certificate D09-09-015, Type: MSX				
Scale interval d*	mg	1	1 | 2 | 5	1
Weighing capacity max*	g	620	150 | 300 | 620	320
Calibration value e*	mg	10	10	10
Min. load min*	mg	20	20	20
Tare equalization range (subtractive)		≤ 100 % from max. weighing capacity		
Application range according to DIR*	g	0.02 – 620	0.02 – 620	0.02 – 320
Optimal starting point of the operating range**	g	0.82	0.82	0.82
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1
Application range (temperature)		With "isoCAL" function: +5 ... +40°C | Without "isoCAL" function: +10 ... +30°C		
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	140 × 140	140 × 140	140 × 140
Weighing chamber height (draft shield DE)	mm	172	172	172
Protection		Protected against dust and water		

Model		14202S-xCE	14202P-xCE	10202S-xCE	8202S-xCE
Accuracy class*		Ⅰ	Ⅰ	Ⅰ	Ⅱ
For verified models: EC type approval certificate D09-09-015, Type: MSX					
Scale interval d*	g	0.01	0.01 | 0.02 | 0.05	0.01	0.01
Weighing capacity max*	g	14,200	3,500 | 7,000 | 14,200	10,200	8,200
Calibration value e*	g	0.1	0.1	0.1	0.1
Min. load min*	g	1	1	1	0.5
Tare equalization range (subtractive)		≤ 100 % from max. weighing capacity			
Application range according to DIR*	g	1 – 14,200	1 – 14,200	1 – 10,200	0,5 – 8,200
Optimal starting point of the operating range**	g	8.2	8.2	8.2	8.2
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Application range (temperature):					
With "isoCAL" function		+5 ... +40°C	+5 ... +40°C	+5 ... +40°C	+5 ... +40°C
Without "isoCAL" function		+15 ... +25°C	+15 ... +25°C	+15 ... +25°C	+10 ... +30°C
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area
** = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Verified Models with EC Type Approval Certificate: Precision Balances

Model		6202S-xCE	6202P-xCE	5202S-xCE	4202S-xCE
Accuracy class*		Ⅱ	Ⅱ	Ⅰ	Ⅱ
For verified models: EC type approval certificate D09-09-015. Type: MSX					
Scale interval d*	g	0.01	0.01 | 0.02 | 0.05	0.01	0.01
Weighing capacity max*	g	6,200	1,500 | 3,000 | 6,200	5,200	4,200
Calibration value e*	g	0.1	0.1	0.1	0.1
Min. load min*	g	0.5	0.5	1	0.5
Tare equalization range (subtractive)		≤ 100 % from max. weighing capacity			
Application range according to DIR*	g	0.5 – 6,200	0.5 – 6,200	1 – 5,200	0.5 – 4,200
Optimal starting point of the operating range**	g	8.2	8.2	8.2	8.2
Typical stabilization time	s	≤ 1	≤ 1	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1	≤ 1
Application range (temperature):					
With "isoCAL" function		+5 ... +40°C	+5 ... +40°C		+5 ... +40°C
Without "isoCAL" function		+10 ... +30°C	+10 ... +30°C		+10 ... +30°C
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529			

Model		2202S-xCE	1202S-xCE	12201S-xCE	8201S-xCE	5201S-xCE
Accuracy class*		Ⅱ	Ⅱ	Ⅱ	Ⅱ	Ⅱ
For verified models: EC type approval certificate D09-09-015, Type: MSX						
Scale interval d*	mg	10	10	100	100	100
Weighing capacity max*	g	2,200	1,200	12,200	8,200	5,200
Calibration value e*	g	0.1	0.1	1	1	1
Min. load min*	g	0.5	0.5	5	5	5
Tare equalization range (subtractive)		≤ 100 % from max. weighing capacity				
Application range according to DIR*	g	0.5 – 2,200	0.5 – 1,200	5 – 12,200	5 – 8,200	5 – 5,200
Optimal starting point of the operating range**	g	8.2	8.2	82	82	82
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
External standard calibration value (min. accuracy class)	kg	2 (F1)	1 (F1)	10 (F1)	5 (F2)	5 (F2)
Application range (temperature)		With "isoCAL" function: +5 ... +40°C | Without "isoCAL" function: +10 ... +30°C				
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	206 × 206	206 × 206	206 × 206	206 × 206	206 × 206
Protection		IP54 in accordance with IEC 60529				

* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area
** = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Verified models with EC Type Approval Certificate: High load balances

Modelle		**36201S-0CE**	**36201P-0CE**	**20201S-0CE**
Accuracy class*		(II)	(II)	(II)
For verified models: EC Type-Approval Certificate D09-09-015, Type: MSX				
Scale interval d*	mg	100	100 | 1.000	100
Weighing capacity max*	g	36,200	10,200 | 36,200	20,200
Calibration value e*	g	1	1	1
Min. load min*	g	5	5	5
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity		
Application range according to DIR*	g	5 – 36,200	5 – 36,200	5 – 20,200
Optimal starting point of the operating range**	g	82	82	82
Typical stabilization time	s	≤ 1.5	≤ 1.5	≤ 1.5
Typical measurement time	s	≤ 2	≤ 2	≤ 2
Application range (temperature)		With "isoCAL" function: +5 to +40 °C | Without "isoCAL" function: +10 to +30 °C		
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300	400 × 300
IP protection		IP54		

Modelle		**70200S-0CE**	**36200S-0CE**
Accuracy class*		(II)	(II)
For verified models: EC Type-Approval Certificate D09-09-015, Type: MSX			
Scale interval d*	mg	1,000	1,000
Weighing capacity max*	g	70,200	36,200
Calibration value e*	g	10	1
Min. load min*	g	50	50
Tare equalization range (subtractive)		≤ 100% from max. weighing capacity	
Application range according to DIR*	g	50 – 70,200	50 – 36,200
Optimal starting point of the operating range**	g	820	820
Typical stabilization time	s	≤ 1	≤ 1
Typical measurement time	s	≤ 1.2	≤ 1.2
Application range (temperature)		With "isoCAL" function: +5 to +40 °C | Without "isoCAL" function: +10 to +30 °C	
Display result (depending on the set filter level)	s	0.1 – 0.4	0.1 – 0.4
Weighing pan size (W × D)	mm	400 × 300	400 × 300
IP protection		IP54	

* DIR = Directive 90/384/EEC on non-automatic weighing instruments used within the European Economic Area
** = According to USP (United States Pharmacopeia) Chapter 41, the optimal operating range is defined from 820d to maximum weighing capacity. Depending on the installation location and environmental conditions, the value could be higher.

Cubis® Leveling

Ø	The Cubis® shows the level indicator on the display and provides support for rapid leveling (as standard on the display and service units MSA and MSU; on the MSE there are only symbols to support manual leveling).
1	Fully automatic, motorized Q-Level leveling at the touch of a button (available for all Cubis® weighing modules with a weighing capacity of > 6.1 g and ≤ 6200 g).

Test Certificates and Permits

ØØ	Standard certificate of conformity to specifications
TR	Like ØØ, but with a detailed test protocol
CE	Factory-calibrated with European calibration permit (not for models with DF draft shield)

Cubis® Draft Shields

DØ	Flat, stainless steel weigh pan with no draft shield for weighing modules with a pan size of 206 × 206 mm and 400 × 300 mm.
DE	Manual, glass draft shield for precision balances with a readability of 1 mg and weighing module 5202S.
DR	Flat, stainless steel weighing pan draft shield (removable, with no glass components) for precision balances with a readability of 1 mg and weighing module 5202S.
DU	Manual, glass analytical balance draft shield with smooth-running, wide-opening doors, unimpeded access to the weighing chamber without interfering braces. For models with 0.01 mg, 0.1 mg, 1 mg readability and weighing module 5202S.
DA	Automatic, glass motorized draft shield with learning capability for ergonomic working and individual adaptation to different applications. For models with 0.01 mg, 0.1 mg, 1 mg readability and weighing module 5202S.
DI	Automatic, glass motorized draft shield with integrated ionizer to eliminate the impact of electrostatic charges in samples | vessels and learning capability for ergonomic working and individual adaptation to different applications. For models with 0.01 mg, 0.1 mg, 1 mg readability and weighing module 5202S.
DM	Automatic, motorized, round 100% glass draft shield with learning capability for ultra-micro and micro balances with a readability of 0.0001 mg and 0.001 mg (2.7S, 6.6S and 3.6P weighing modules).
DF	Manual, stainless steel draft shield for weighing filters with a diameter of up to 50 mm (75 mm and 90 mm pans are optional) in ultra-micro and micro balances with a readability of 0.0001 mg and 0.001 mg (not for weighing module 3.6P) and also reduces electrostatic effects.

Optional Interface Modules

IR	RS-232 interface, 25-pin
IB	*Bluetooth*® interface
IP	RS-232 interface, 9-pin, incl. PS/2 interface

Cubis® Optional Accessories

Printers and Communication

Verifiable data printer for connection to RS-232, 25-pin, accessory interface	YDP10-0CE
Verifiable data printer with *Bluetooth®* data transmission (with YDO01MS-B or IB option only)*	YDP10BT-0CE
Color ribbon for YDP10-0CE and YDP10BT-OCE	6906918
Paper rolls for printer YDP10-0CE; 5 rolls 50 m each	6906937
Bluetooth® data interface for wireless connection of data printer YDP10BT*	YDO01MS-B
RS-232C data interface, 9-pin including PS/2 for connecting a PC or keyboard*	YDO01MS-P
RS-232C data interface, 25-pin for connection of Cubis® accessories*	YDO01MS-R
Display cable 3 m for Cubis® MSA and MSU models for separate setup of display and weighing unit (installation by Sartorius Service or ex works [order VF4016])	YCC01-MSD3
Display cable 3 m for Cubis® MSE models, for separate setup of display and weighing unit (installation by Sartorius Service or ex works [order VF4016])	YCC01-MSED3
Cable 3 m between weighing module and electronics module for Cubis® models with 0.01 mg | 0.001 mg | 0.0001 mg readability	YCC01-MSM3
Installation display cable 3 m for Cubis® models, for separate setup of display and weighing unit	VF4016
RS-232C connection cable to connect PC with 9-pin; COM interface, length 1.5 m	7357314
SartoCollect software for data communication between balance and PC	YSC02

Displays and Input | Output Elements

MSA control unit with color TFT graphic display and touch screen	YAC01MSA
MSE display unit with backlit LC display and tactile keys	YAC01MSE
MSU display and control unit with backlit b|w graphic display and tactile navigation keys	YAC01MSU
Barcode reader with connection cable, 120 mm reading range	YBR03PS2
Foot switch for printing, taring, or using function keys, selection via menu, incl. T connector	YFS01
Infrared sensor for touch-free activation of functions (e.g., draft shield control)	YHS01MS
Hand switch for printing, taring, or using function keys, selection via menu, incl. T connector	YHS02
Foot switch for functions draft shield OPEN | CLOSED (in combination with DA and DI draft shields only), tare, and print	YPE01RC
Additional display, LCD, figure size 13 mm, backlit	YRD03Z
3-segment control display, red – green – red, for plus|minus measurements, incl. T connector	YRD11Z

* Not available for Precision high capacity models with a weighing capacity of ≥ 20,200 g.

Pipette Calibration Hardware and Software

Pipette calibration kit (hardware) for models with 0.1 mg and 0.01 mg readability Consists of moisture trap and all required adapters	YCP04MS
Pipette calibration kit (hardware) for microbalance weighing modules 6.6S and 3.6P Consists of moisture trap and all required adapters	VF988
Pipette Tracker pipette calibration software. Software and user manual in English only.	YCP04-PT
Pipette Tracker Pro pipette calibration software, for use in regulated areas, networkable and validatable, according to the 21 CFR Part 11 regulations. Software and user manual in English only.	YCP04-PTPro
Documentation basis for validation (IQ, OQ) of Pipette Tracker PRO version. All documents are in English only.	YCP04-VTK

Filter Weighing and Antistatic Accessories

Antistatic weighing pan, diameter 130 mm, for weighing modules with a readability of 0.1 mg or 0.01 mg	YWP01MS
Filter weighing pan ∅ 75 mm, for ultramicrobalance or microbalance models (weighing modules 6.6S, 2.7S; only together with DF draft shield)	VF2562
Filter weighing pan ∅ 90 mm, for ultramicrobalance or microbalance models (weighing modules 6.6S, 2.7S; only together with DF draft shield)	VF2880
Ionization blower to eliminate electrostatic charges on sample containers and samples	YIB01-0DR
Stat-Pen ionization probe for discharging electrostatically charged samples and filters	YSTP01

Special Applications

Density determination kit for solids and liquids for weighing modules with a readability of < 1 mg	YDK01MS
Density determination kit for solids and liquids for weighing modules with a readability of 1 mg	YDK02MS
Q-Grip, flexible holder for weigh-in containers and filters up to 120 mm diameter (replaces the original weighing pan; for Cubis® models with 0.01 and 0.1 mg readability)	YFH01MS
Q-Grid grid weighing pan for Cubis® models with 10 mg or 100 mg readability for weighing in laboratory hoods, safety weighing cabinets, or workbenches (smaller areas exposed to draft on the weighing pan; replaces the standard weighing pan)	YWP03MS

Weighing Tables

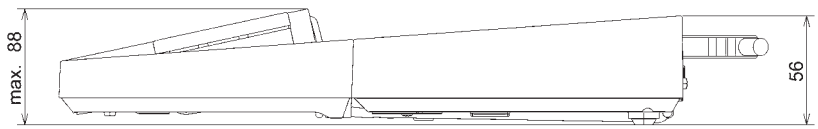
Weighing table made from synthetic stone, with vibration dampening	YWT03
Wall console	YWT04
Weighing table made from wood with synthetic stone for precise, reliable measurements	YWT09

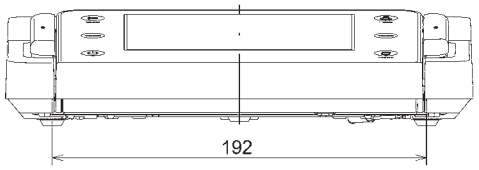
Weighing Accessories

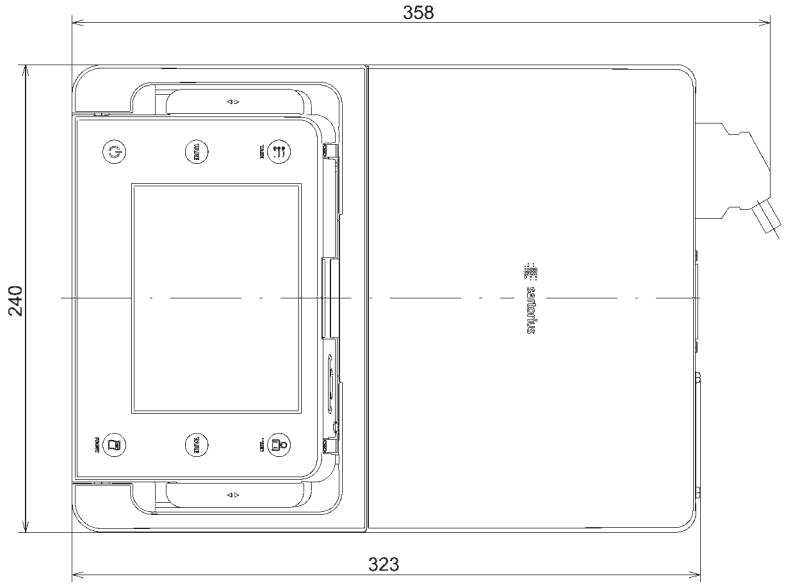
Weighing scoop made from chrome nickel steel, 90 × 32 × 8 mm	641214
Aluminum weighing scoop, 4.5 mg (250 pieces) for ultramicrobalance and microbalance models	6565-250
Aluminum weighing scoop, 52 mg (50 pieces) for ultramicrobalance and microbalance models	6566-50
Support arm for 10 | 100 mg precision weighing modules for raising MSE, MSU, and MSA display and control units	YDH01MS
Support arm for precision weighing modules with 100 mg | 1 g readability and weighing capacity > 20 kg for raising MSE, MSU, and MSA display and control units	YDH02MS
Hook for below-balance weighing for precision weighing modules with 100 mg | 1 g readability and weighing capacity > 20 kg (not for verified models, CE mark)	69EA0040

Balance Dimensions

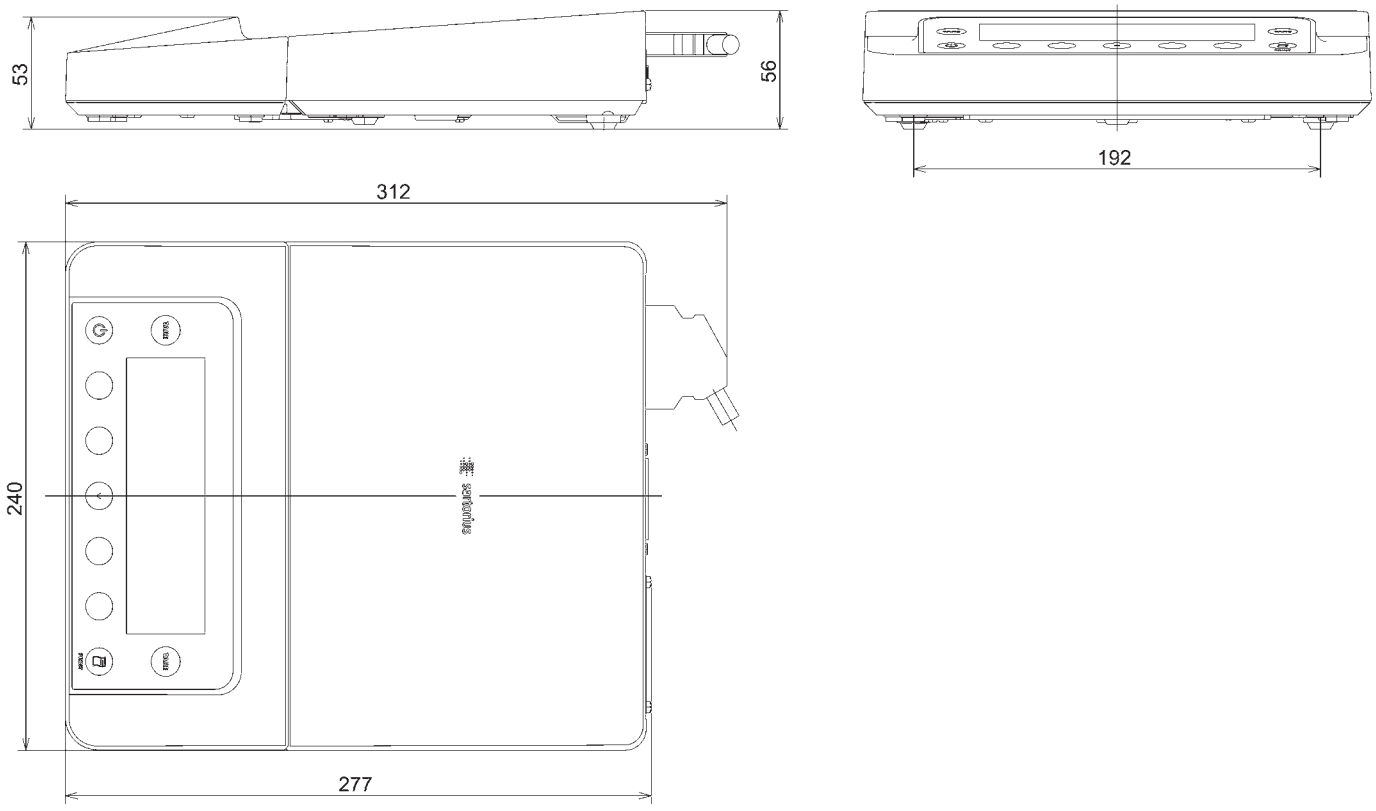
Ultramicrobalance | Microbalance Control Unit MSA | MSU with E-box
All dimensions are given in millimeters



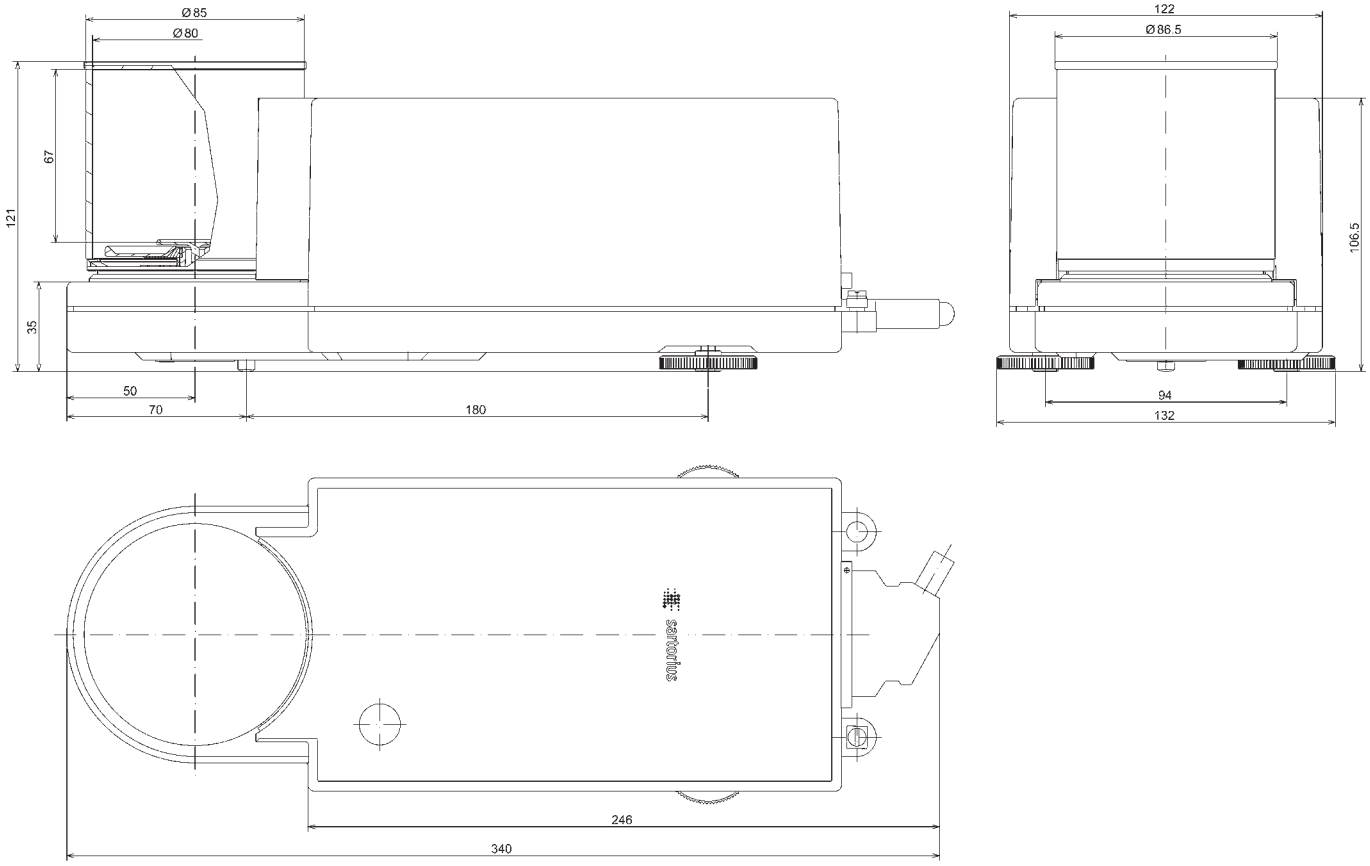




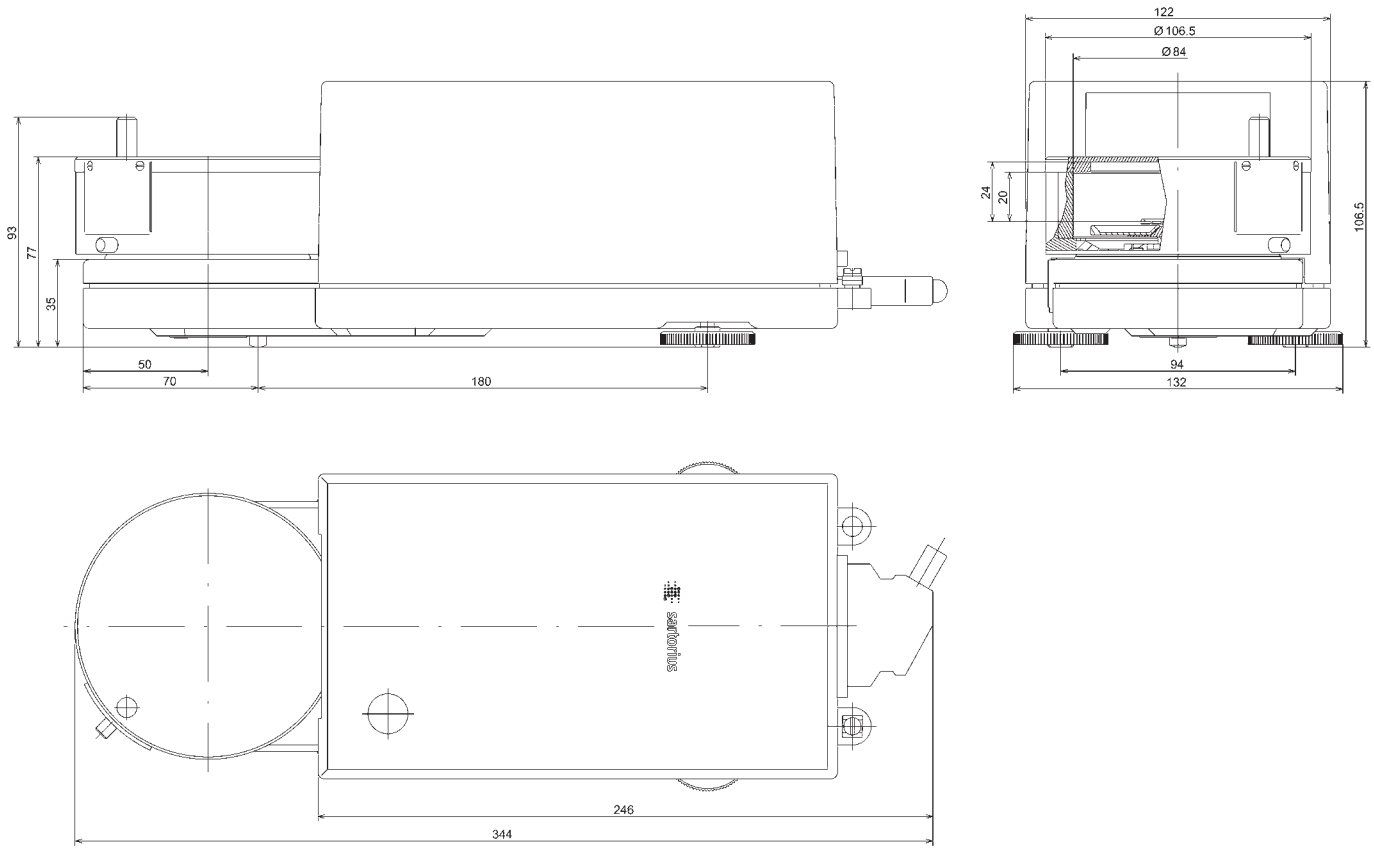
Ultramicrobalance | Microbalance Control Unit MSE with E-box
All dimensions are given in millimeters



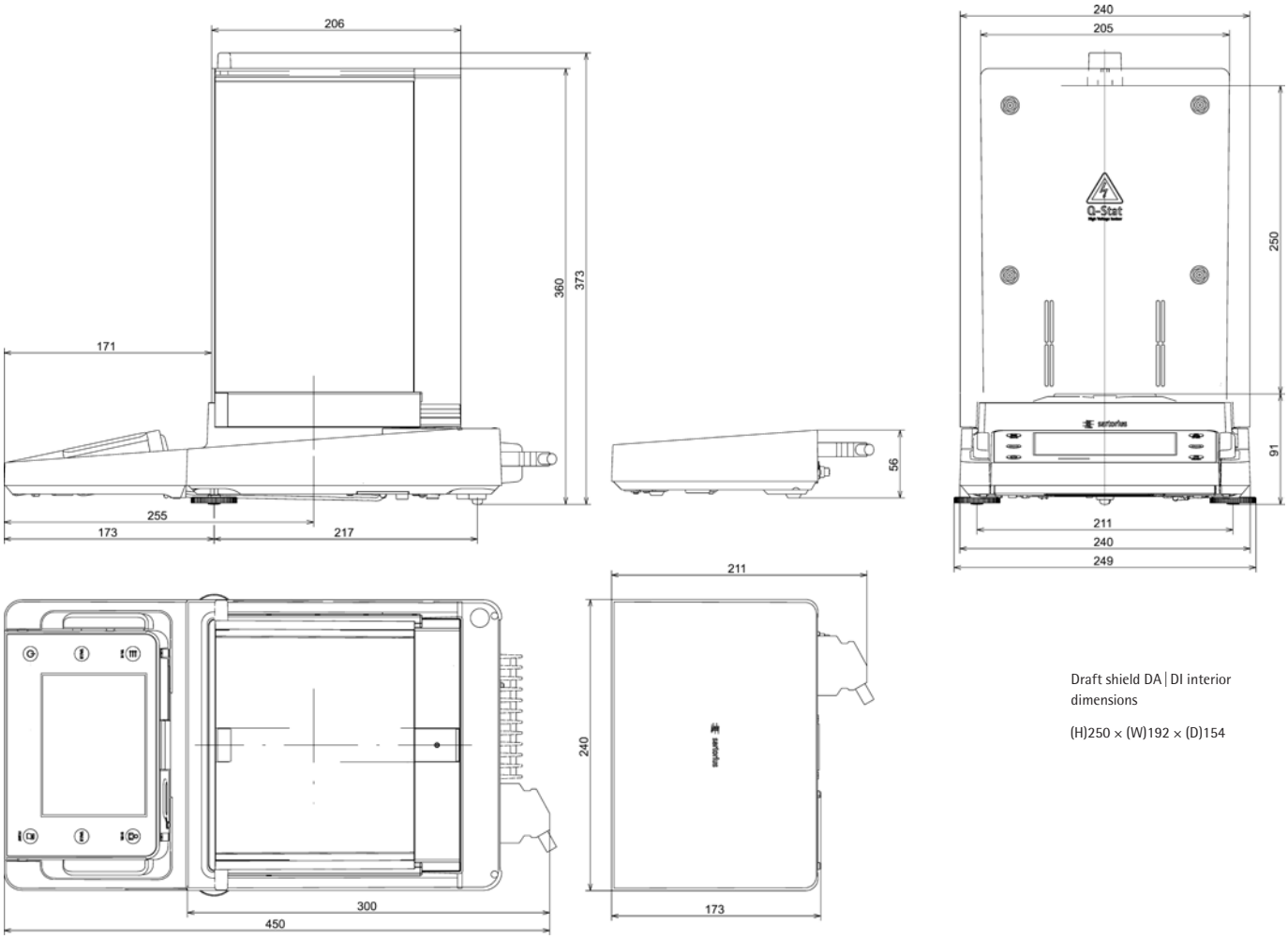
Ultramicrobalance | Microbalance Weighing Module with DM Draft Shield
All dimensions are given in millimeters



Ultramicrobalance | Microbalance Weighing Module with DF Draft Shield
All dimensions are given in millimeters



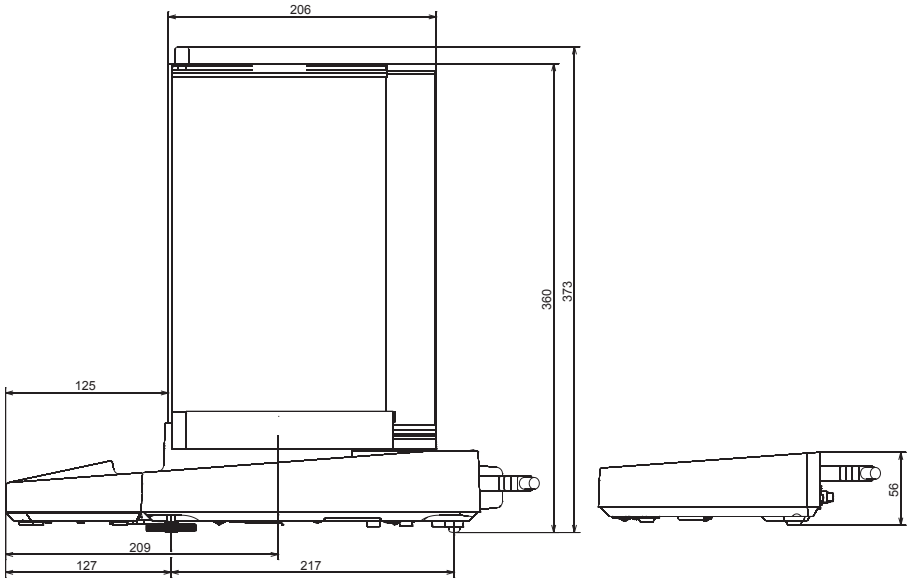
Semi-microbalances with Motorized Draft Shield – Control Unit MSA | MSU with E-box
All dimensions are given in millimeters

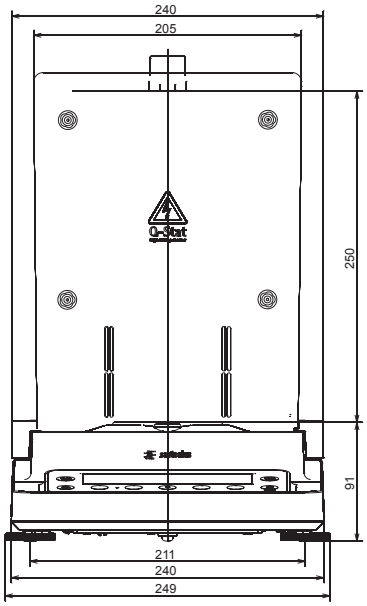


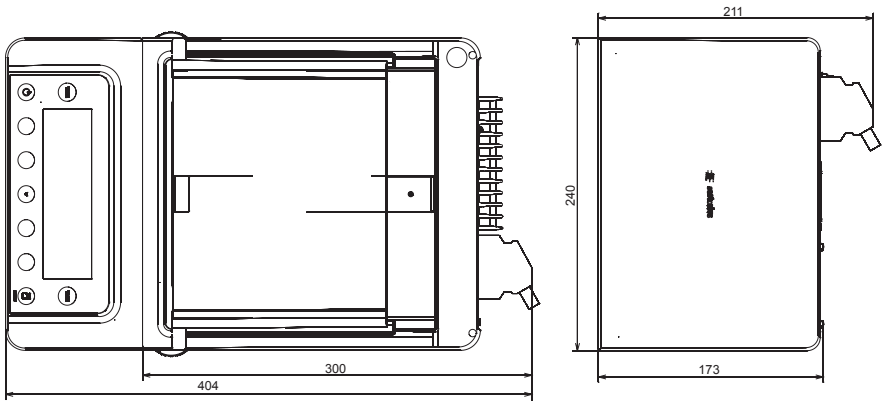
Draft shield DA | DI interior dimensions

(H)250 × (W)192 × (D)154

Semi-microbalances with Motorized Draft Shield – Control Unit MSE with E-box
All dimensions are given in millimeters



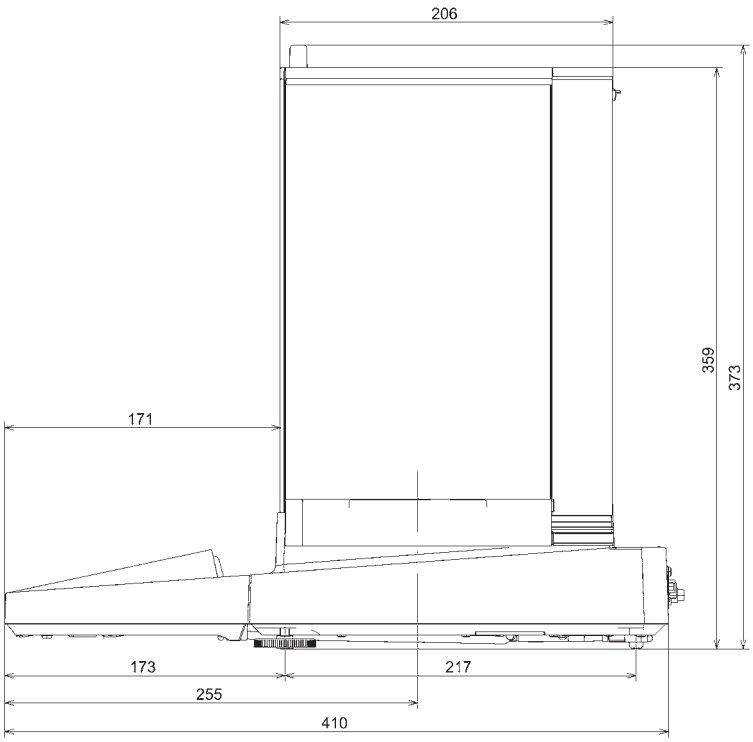


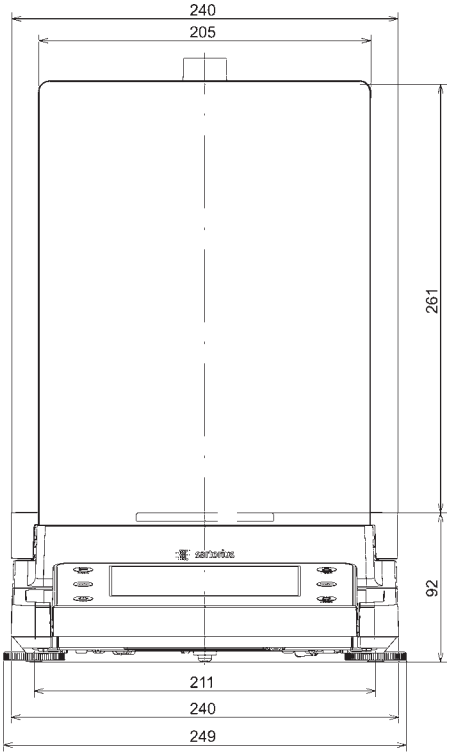


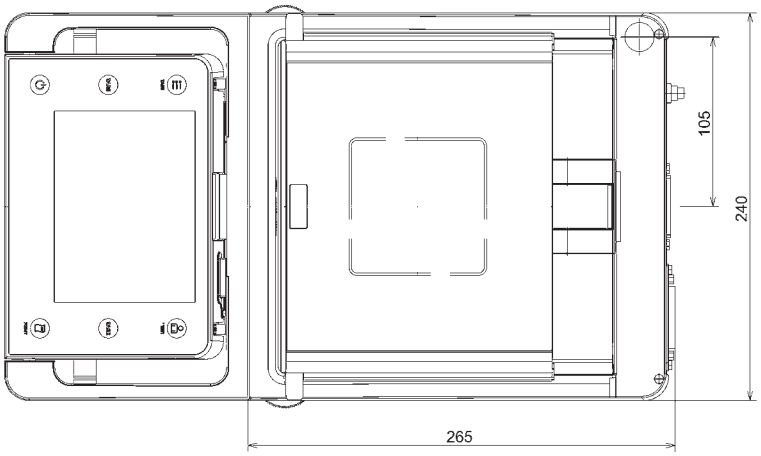
Draft shield DA | DI interior dimensions

(H)250 × (W)192 × (D)154

Analytical Balances with Manual DU Draft Shield – Control Unit MSA | MSU
All dimensions are given in millimeters



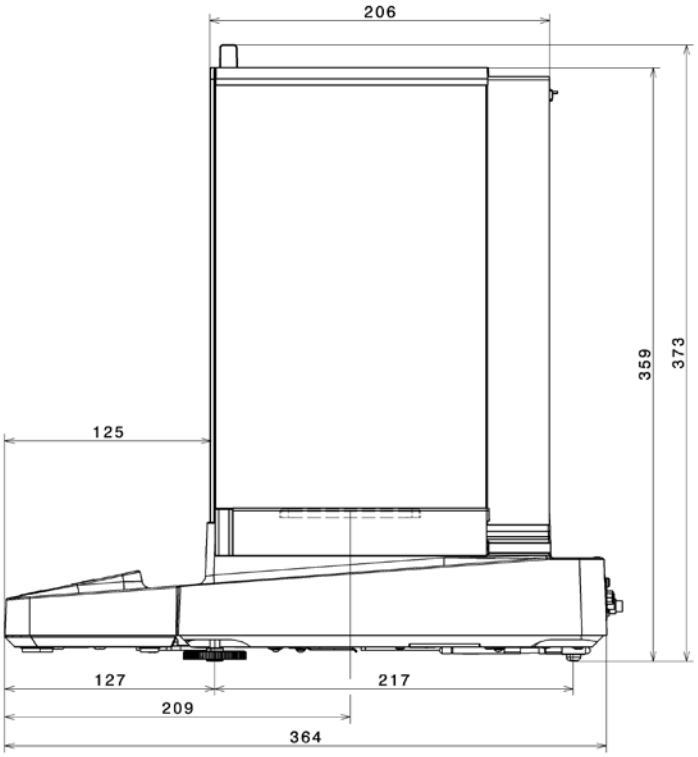


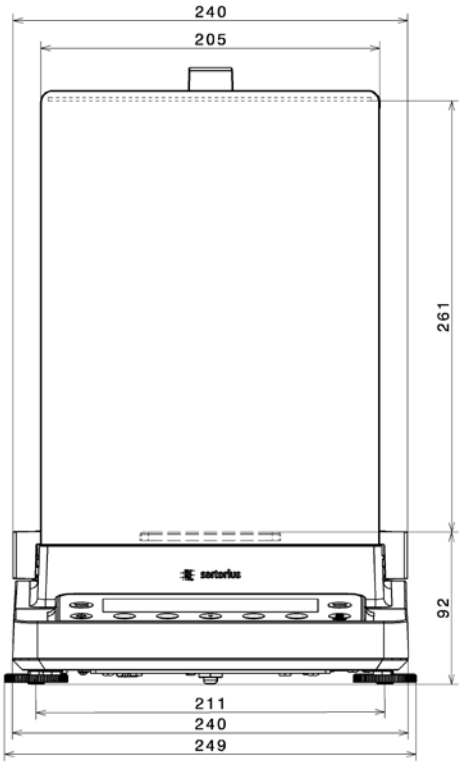


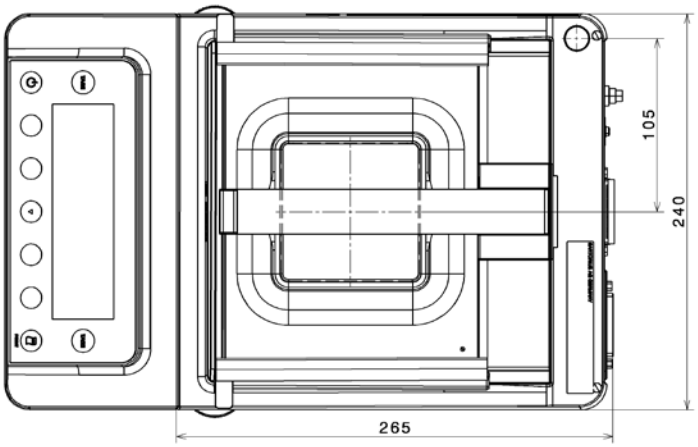
Draft shield DU interior dimensions

(H)261 × (W)193 × (D)191

Analytical Balances with a Manual DU Draft Shield – Control Unit MSE
All dimensions are given in millimeters



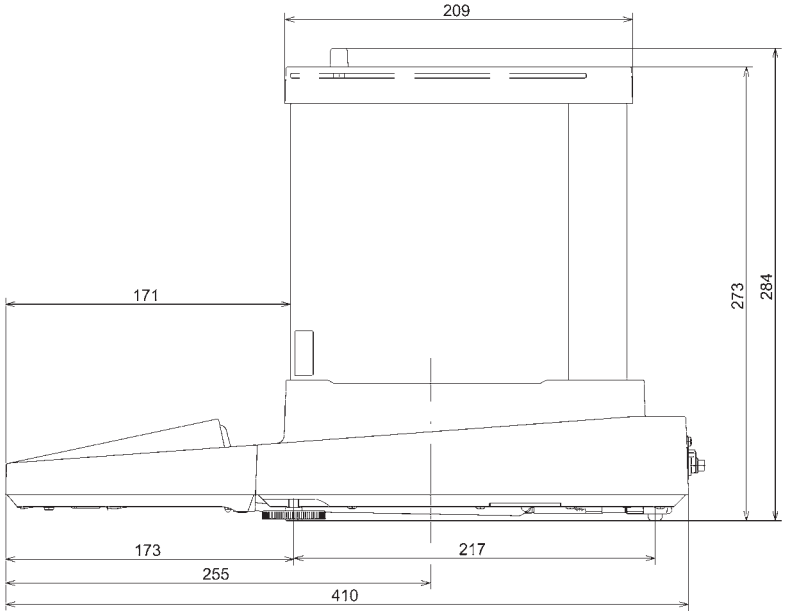


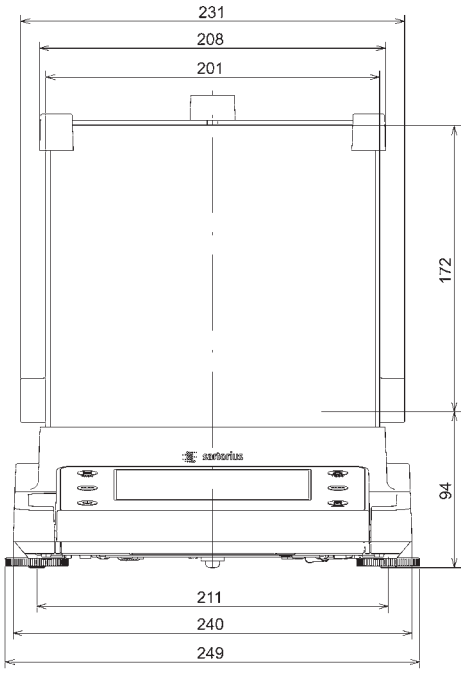


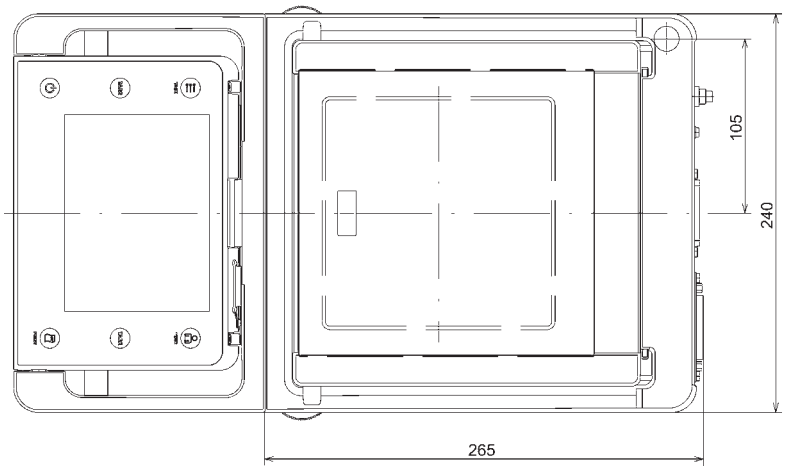
Draft shield DU interior dimensions

(H)261 × (W)193 × (D)191

Precision Balances with a Readability of 1 mg and Manual DE Draft Shield – Control Unit MSA | MSU
All dimensions are given in millimeters



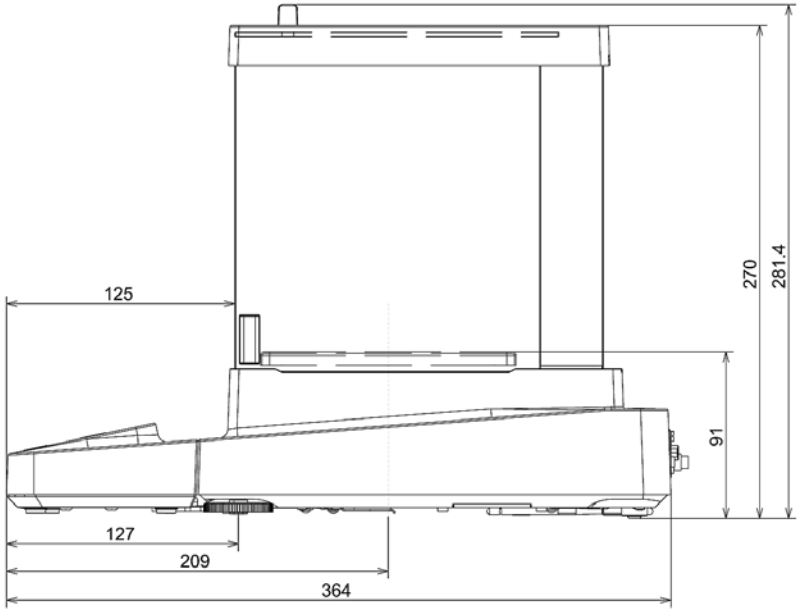


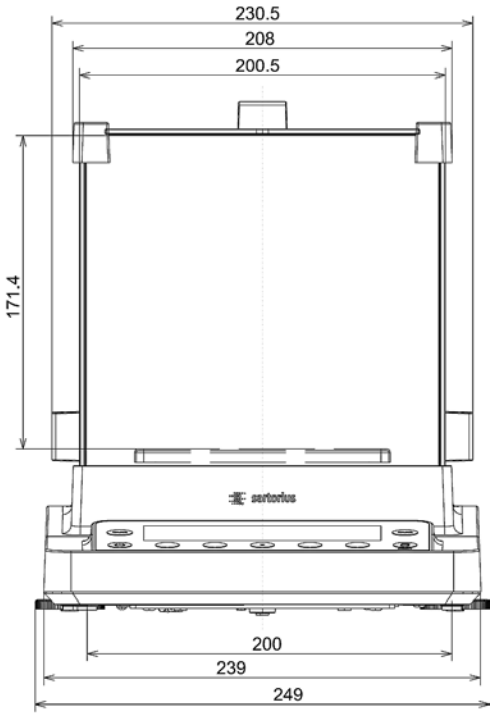


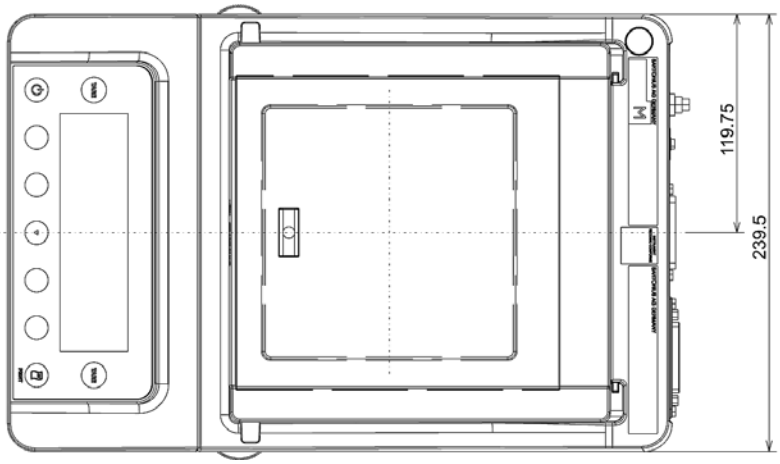
Draft shield interior dimensions

(H)172 × (W)193 × (D)191

Precision Balances with a Readability of 1 mg and Manual DE Draft Shield – Control Unit MSE
All dimensions are given in millimeters



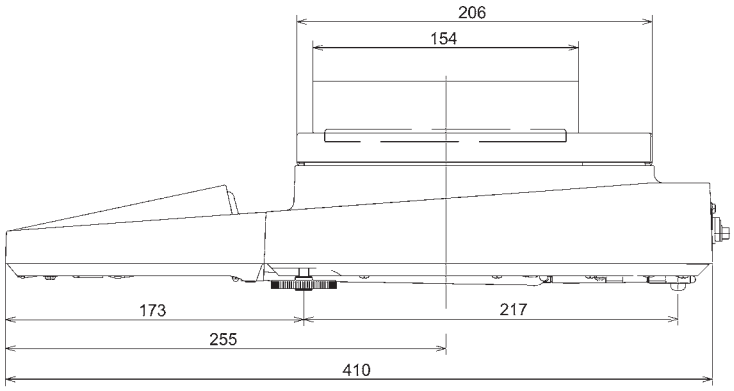


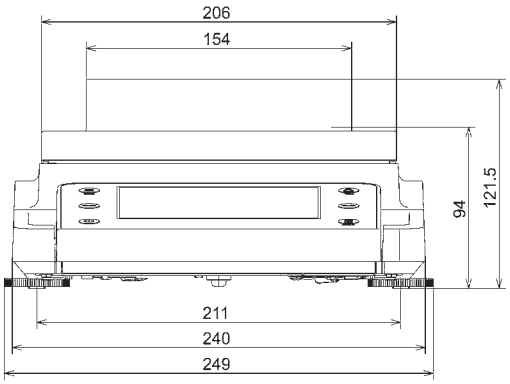


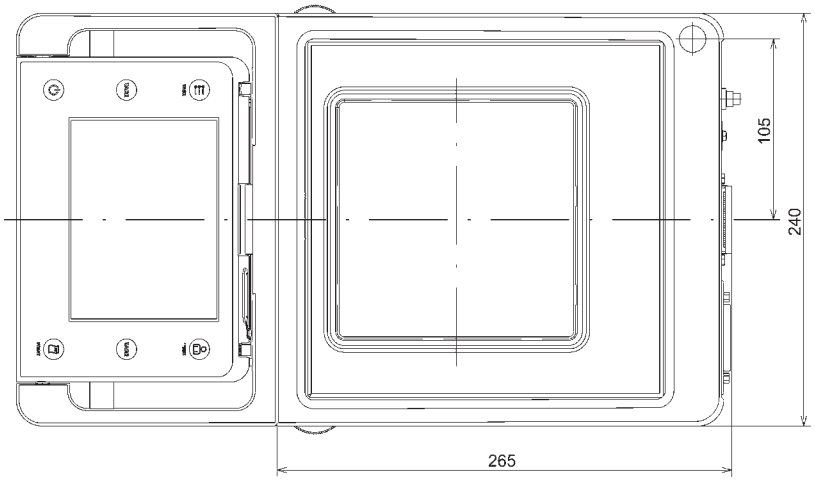
Draft shield interior dimensions

(H)172 × (W)193 × (D)191

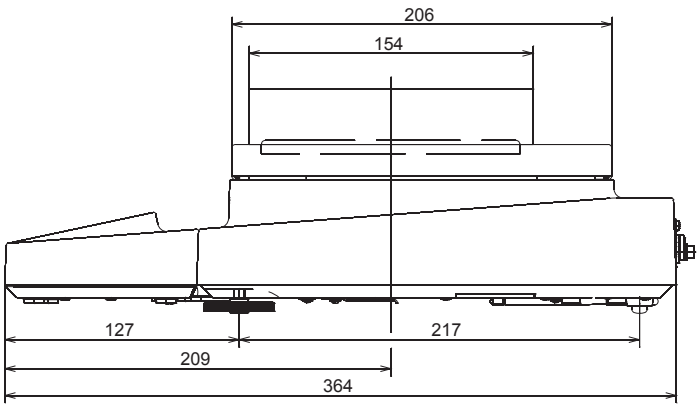
Precision Balances with a Readability of 1 mg and Framed DR Draft Shield – Control Unit MSA | MSU
All dimensions are given in millimeters

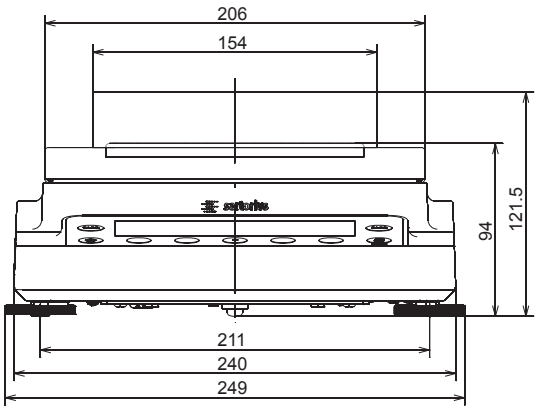


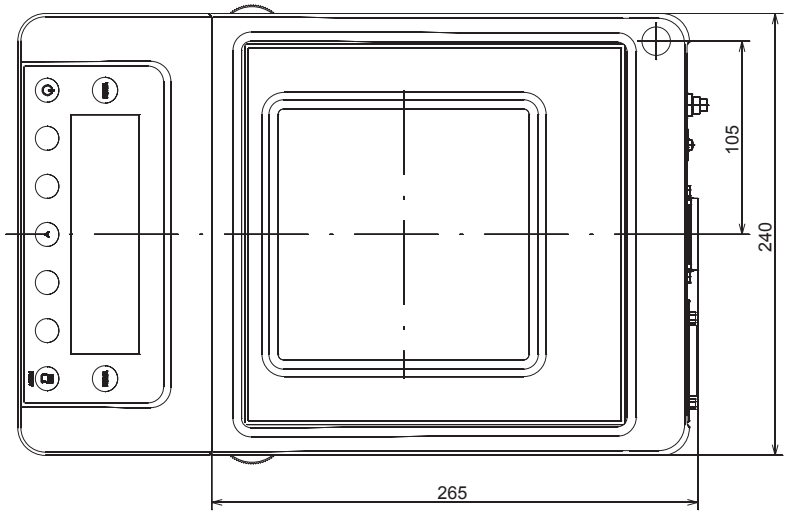




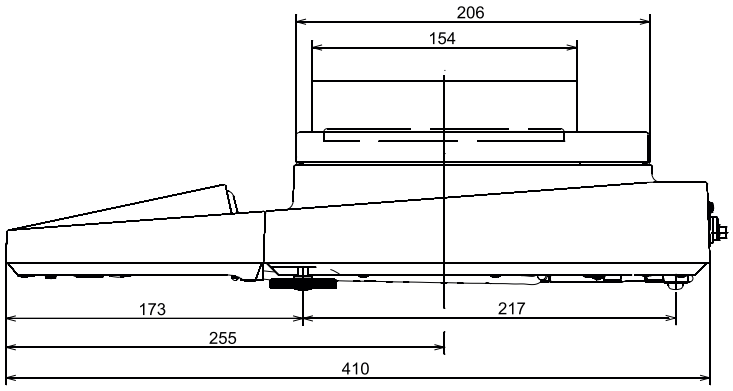
Precision Balances with a Readability of 1 mg and Framed DR Draft Shield – Control Unit MSE
All dimensions are given in millimeters

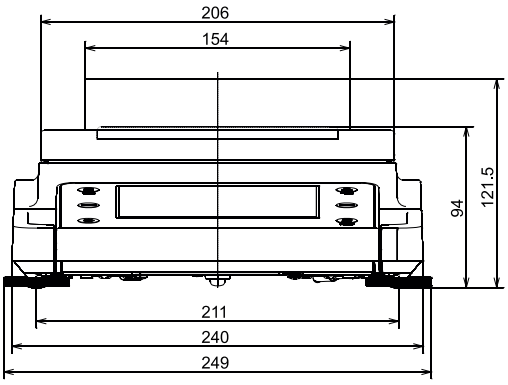


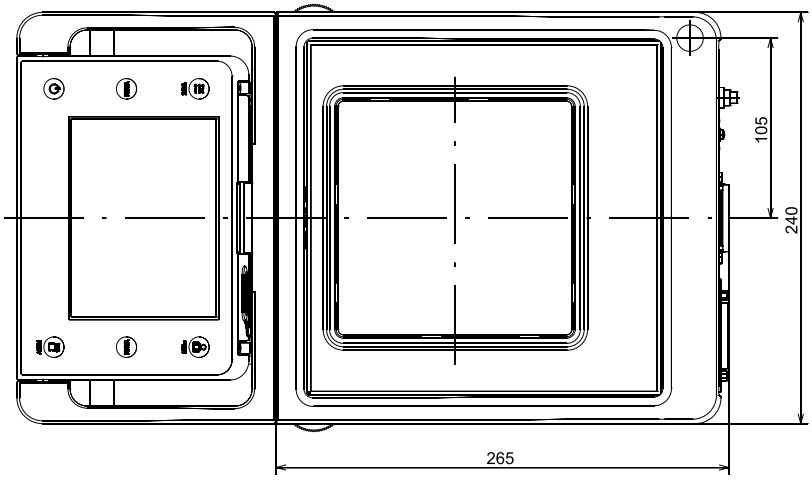




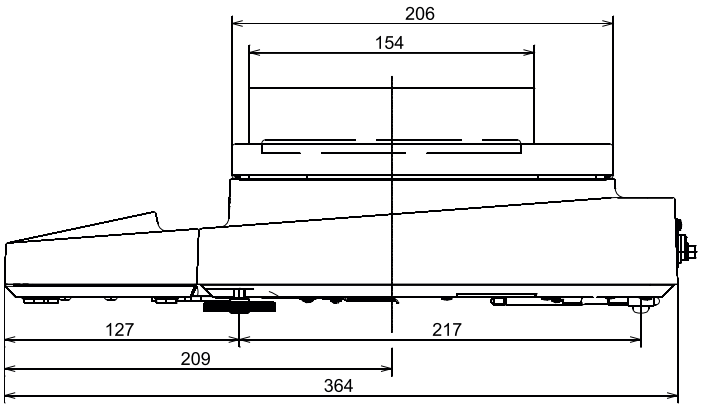
Precision Balances with No Draft Shield – Control Unit MSA | MSU
All dimensions are given in millimeters

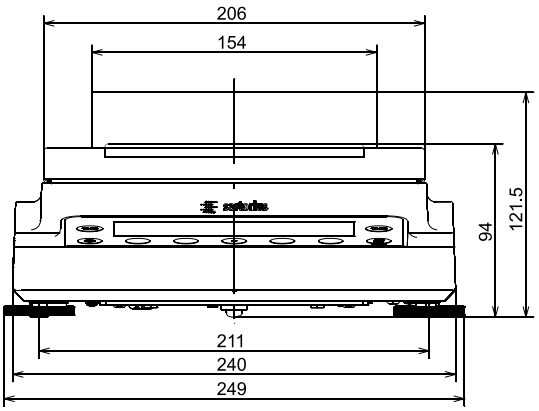


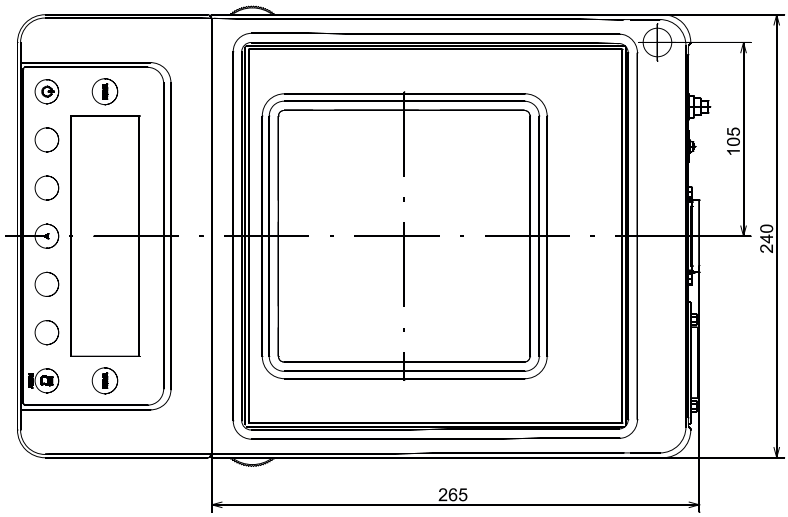




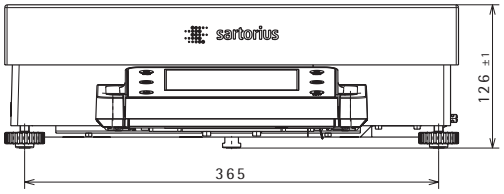
Precision Balances with No Draft Shield – Control Unit MSE
All dimensions are given in millimeters

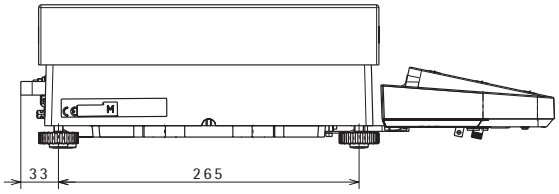


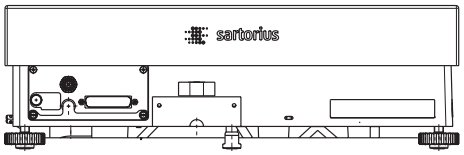


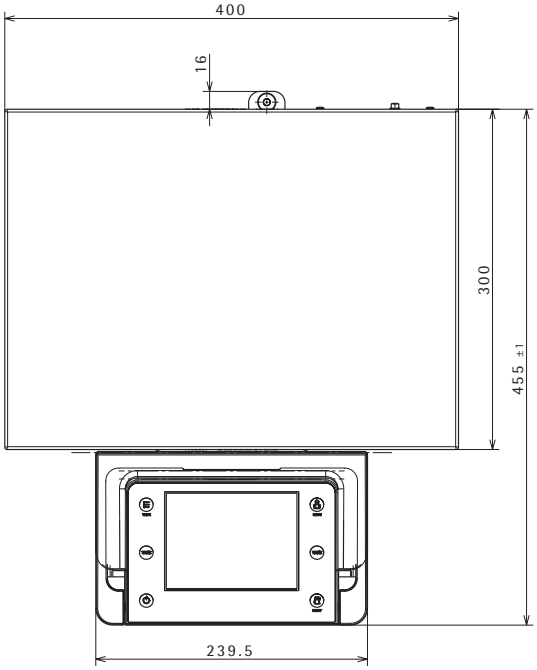


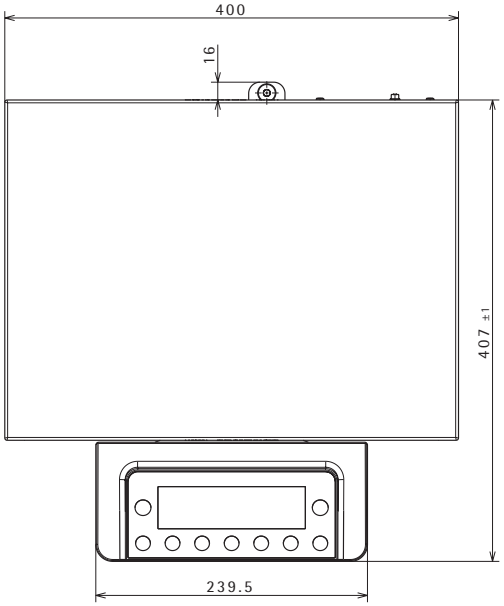
Precision High Capacity Balances
All dimensions are given in millimeters



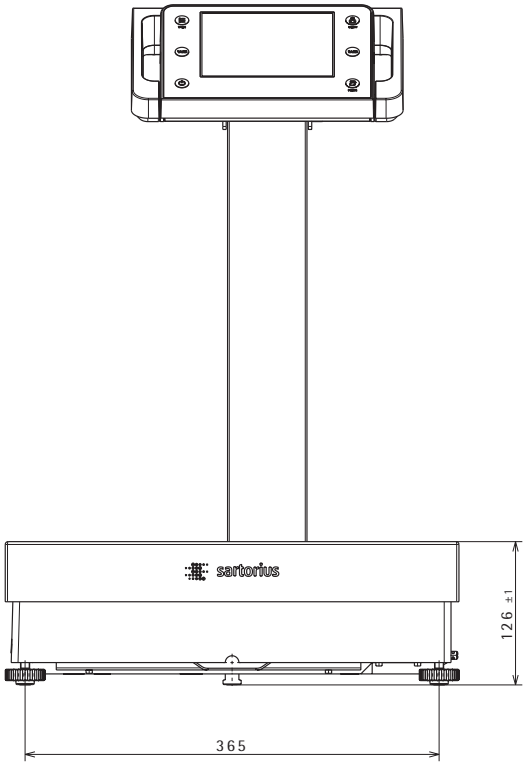


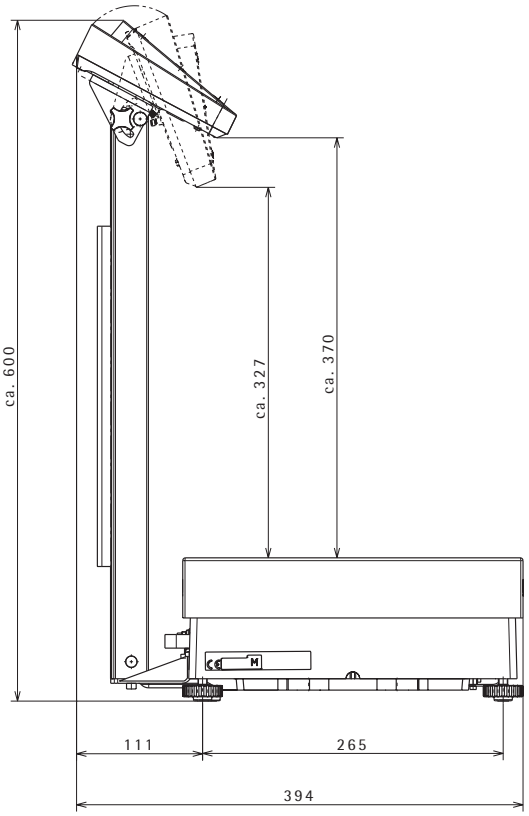


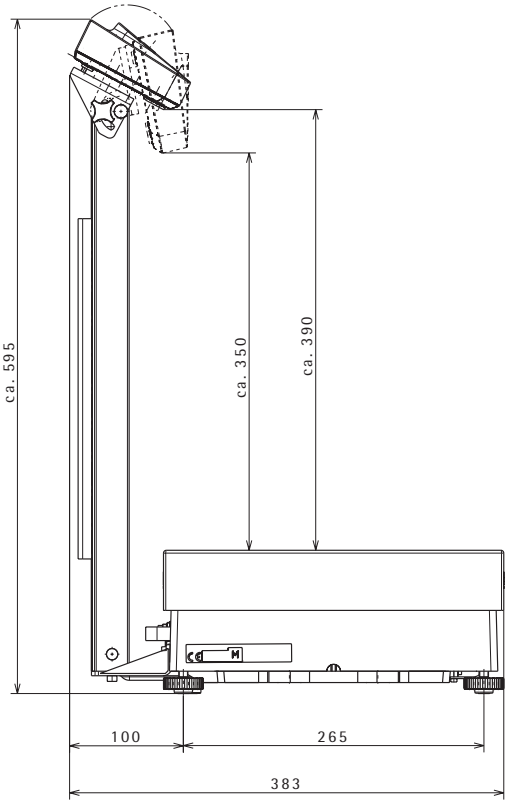




Precision High Capacity Balances
All dimensions are given in millimeters







Sartorius Lab Instruments GmbH & Co. KG
Weender Landstrasse 94-108
37075 Goettingen, Germany

Phone +49.551.308.0
Fax +49.551.308.3289

info.mechatronics@sartorius.com
www.sartorius.com

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