

# Cubis® II

## The New Generation of Modular Premium Balances

### Highlights

- Leading performance. Monolithical weighing system, integrated climate sensors, individual sample holders
- Error-free operation. Individual QApp workflows, motorized auto-leveling\*
- Full end-to-end data integrity. 21 CFR Part 11 compliance, integrated audit-trail, state-of-the-art user management
- Outstanding service support. Integrated status center, integrated service functions preventive maintenance on accredited standards



\* For all models up to a maximum capacity of 8.2 kg

# Product Information

The modular weighing system Cubis® II can be individually configured from different components. The combinability of the display unit, weighing module, draft shield, software packages for various applications and functions and a comprehensive range of accessories allows the individual adaptation of the Cubis® II balance to all weighing tasks. The Cubis® II range of premium laboratory balances with a maximum load between 2.1 g and 70 kg and a readability between 0.1 µg to 1 g provide the ideal model for every application.

## Cubis® II Display and Control Units



Type	MCA	Type	MCE
<b>Display*</b>	Large high end 7" color touch TFT display in 16:9 format with new user interface	<b>Display*</b>	State of the art TFT touch screen operation with brilliant, readable, display but uncomplex, easy to operate user interface
<b>Software</b>	Factory installed basic set of essential weighing applications (license free) and packages with special weighing applications and function extensions (license required)	<b>Software</b>	Factory installed basic set of essential weighing applications
<b>Operation</b>	Activated by touch key, touch-free using IR sensor (draft shield M) or gesture sensor (optional), learning capability	<b>Operation</b>	Activated by touch key, touch-free using IR sensor (draft shield M) or gesture sensor (optional), learning capability

\* LED backlight 50,000 hours (if used with max. contrast), cable length 25 cm

## Draft Shield Inner Dimensions

Draft Shield Version	Depth (mm)	Height (mm)	Width (mm)
F	-	33	Ø 109
M	-	67	Ø 80
U	191	261	193
I and A**	154	250	192
E	191	172	193
R	154	275	154

\*\* max. 500,000 opening/closing cycles guaranteed if serviced at regular intervals of 100,000 cycles

# Technical Specifications

## Cubis® II Weighing Modules Ultra-Micro Balances 0.0001 mg

	Units	2.7S
Scale interval (d)	mg	0.0001
Maximum capacity (Max)	g	2.1
<b>Repeatability at 5% load</b>		
Standard deviation of the load values, tolerance	mg	0.0002
Standard deviation of the load values, typical value	mg	0.00015
<b>Repeatability near Max</b>		
Standard deviation of the load values, tolerance	mg	0.00025
Standard deviation of the load values, typical value	mg	0.00018
<b>Linearity deviation</b>		
Tolerance	mg	0.0009
Typical value	mg	0.0007
<b>Deviation at eccentric loading, positions according to OIML R76</b>		
Test weight	g	1
Tolerance	mg	0.0007
Typical value	mg	0.0005
Sensitivity drift between +10° C and +30° C	ppm/K	1
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>		
Accuracy class according to Directive 2014   31   EU		I
Verification scale interval (e) according to Directive 2014   31   EU	mg	1
Minimum load (Min) according to Directive 2014   31   EU	mg	0.01
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>		
Optimum minimum weight	mg	0.082
Typical minimum weight	mg	0.3
Typical stabilization time	s	7
Typical measurement time	s	10
<b>Recommended calibration weight</b>		
External test load	g	2
Accuracy class, according to OIML R111-1		E2
<b>isoCAL</b>		
Temperature change	K	1.5
Time span	h	12
<b>Dimensions</b>		
MCE   MCA Weighing module (L x W x H)*	mm	340 x 139 x 129
MCE Electronics module (L x W x H)	mm	315 x 240 x 61
MCA Electronics module (L x W x H)	mm	355 x 240 x 61
Weighing pan size	mm	Ø 20
Filter weighing pan	mm	Ø 50
Weight, approx.*	kg	6.4   7.1

\* depending upon weighing pan size, filter weighing pan and draft shield

**Cubis® II Weighing Modules**  
**Micro Balances 0.001 mg**

	Units	10.6S	6.6S	3.6P
Scale interval (d)	mg	0.001	0.001	0.001 0.002 0.005
Maximum capacity (Max)	g	10.1	6.1	1.1 2.1 3.1
<b>Repeatability at 5% load</b>				
Standard deviation of the load values, tolerance	mg	0.001	0.001	0.003
Standard deviation of the load values, typical value	mg	0.0005	0.0005	0.0005
<b>Repeatability near Max</b>				
Standard deviation of the load values, tolerance	mg	0.001	0.001	0.005
Standard deviation of the load values, typical value	mg	0.0006	0.0006	0.0006
<b>Linearity deviation</b>				
Tolerance	mg	0.004	0.004	0.004
Typical value	mg	0.003	0.003	0.003
<b>Deviation at eccentric loading, positions according to OIML R76</b>				
Test weight	g	5	2	1
Tolerance	mg	0.004	0.004	0.005
Typical value	mg	0.003	0.003	0.003
Sensitivity drift between +10° C and +30° C	ppm/K	1	1	1
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>				
Accuracy class according to Directive 2014   31   EU		I	I	I
Verification scale interval (e) according to Directive 2014   31   EU mg		1	1	1
Minimum load (Min) according to Directive 2014   31   EU	mg	0.1	0.1	0.1
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>				
Optimum minimum weight	mg	0.82	0.82	0.82
Typical minimum weight	mg	0.82	0.82	0.82
Typical stabilization time	s	5	5	5
Typical measurement time	s	8	8	8
<b>Recommended calibration weight</b>				
External test load	g	10	5	3
Accuracy class, according to OIML R111-1		E2	E2	E2
<b>isoCAL</b>				
Temperature change	K	1.5	1.5	1.5
Time span	h	12	12	12
<b>Dimensions</b>				
MCE   MCA Weighing module (L x W x H)*	mm	340 x 139 x 129	340 x 139 x 129	340 x 139 x 129
MCE Electronics module (L x W x H)	mm	315 x 240 x 61	315 x 240 x 61	315 x 240 x 61
MCA Electronics module (L x W x H)	mm	355 x 260 x 61	355 x 260 x 61	355 x 260 x 61
Weighing pan size	mm	Ø 30	Ø 30	Ø 30
Filter weighing pan	mm	Ø 50	Ø 50	Ø 50
Weight, approx.*	kg	6.4 7.1	6.4 7.1	6.4 7.1

\* depending upon weighing pan size, filter weighing pan and draft shield

**Cubis® II Weighing Modules**  
**Semi-Micro Balances 0.01 mg**

	Units	225S	225P	125S	125P
Scale interval (d)	mg	0.01	0.01 0.02 0.05	0.01	0.01 0.1
Maximum capacity (Max)	g	220	60 120 220	120	60 120
<b>Repeatability at 5% load</b>					
Standard deviation of the load values, tolerance	mg	0.015	0.015	0.015	0.015
Standard deviation of the load values, typical value	mg	0.01	0.01	0.01	0.01
<b>Repeatability near Max</b>					
Standard deviation of the load values, tolerance	mg	0.025	0.04	0.025	0.06
Standard deviation of the load values, typical value	mg	0.02	0.02	0.02	0.02
<b>Linearity deviation</b>					
Tolerance	mg	0.1	0.15	0.1	0.15
Typical value	mg	0.065	0.1	0.065	0.1
<b>Deviation when load is off-center, positions according to OIML R76</b>					
Test weight	g	100	100	50	50
Tolerance	mg	0.15	0.2	0.15	0.2
Typical value	mg	0.1	0.1	0.1	0.1
Sensitivity drift between +10° C and +30° C	ppm/K	1	1	1	1
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>					
Accuracy class according to Directive 2014   31   EU		I	I	I	I
Verification scale interval (e) according to Directive 2014   31   EU mg		1	1	1	1
Minimum load (Min) according to Directive 2014   31   EU	mg	1	1	1	1
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>					
Optimum minimum weight	mg	8.2	8.2	8.2	8.2
Typical minimum weight	mg	13	13	13	13
Typical stabilization time	s	2	2	2	2
Typical measurement time	s	6	6	6	6
<b>Recommended calibration weight</b>					
External test load	g	200	200	100	100
Accuracy class, according to OIML R111-1		E2	E2	E2	E2
<b>isoCAL</b>					
Temperature change	K	1.5	1.5	1.5	1.5
Time span	h	12	12	12	12
<b>Dimensions</b>					
MCE   MCA Weighing module (L x W x H)*	mm	404 x 240 x 373			
MCE Electronics module (L x W x H)	mm	315 x 240 x 61			
MCA Electronics module (L x W x H)	mm	355 x 240 x 61			
Weighing pan size	mm	85 x 85			
Weight, approx.*	kg	10.2 11.7			

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules Analytical Balances 0.1 mg

	Units	524S	524P	324S	324P	224S	124S
Scale interval (d)	mg	0.1	0.1 0.2 0.5	0.1	0.1 0.2 0.5	0.1	0.1
Maximum capacity (Max)	g	520	120 240 520	320	80 160 320	220	120
<b>Repeatability at 5% load</b>							
Standard deviation of the load values, tolerance	mg	0.08	0.08	0.08	0.08	0.07	0.1
Standard deviation of the load values, typical value	mg	0.04	0.04	0.04	0.04	0.05	0.05
<b>Repeatability near Max</b>							
Standard deviation of the load values, tolerance	mg	0.1	0.15	0.1	0.1	0.07	0.1
Standard deviation of the load values, typical value	mg	0.05	0.05	0.05	0.05	0.05	0.05
<b>Linearity Deviation</b>							
Tolerance	mg	0.4	0.5	0.3	0.5	0.2	0.2
Typical value	mg	0.2	0.2	0.2	0.2	0.13	0.13
<b>Deviation when load is off-center, positions according to OIML R76</b>							
Test weight	g	200	200	200	200	100	50
Tolerance	mg	0.3	0.4	0.3	0.4	0.2	0.2
Typical value	mg	0.2	0.2	0.2	0.2	0.12	0.12
Sensitivity drift between +10° C and +30° C	ppm/K	1	1	1	1	1	1
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>							
Accuracy class according to Directive 2014   31   EU		I	I	I	I	I	I
Verification scale interval (e) according to Directive 2014   31   EU	mg	1	1	1	1	1	1
Minimum load (Min) according to Directive 2014   31   EU	mg	10	10	10	10	10	10
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>							
Optimum minimum weight	mg	82	82	82	82	82	82
Typical minimum weight	mg	82	82	82	82	100	100
Typical stabilization time	s	1	1	1	1	1	1
Typical measurement time	s	3	3	3	3	3	3
<b>Recommended calibration weight</b>							
External test load	g	500	500	300	300	200	100
Accuracy class, according to OIML R111-1		E2	E2	E2	E2	E2	E2
<b>isoCAL</b>							
Temperature change	K	1.5	1.5	1.5	1.5	1.5	1.5
Time span	h	6	6	12	12	12	12
<b>Dimensions</b>							
Weighing module (L x W x H)*	mm	425 x 240 x 373					
Weighing pan size	mm	85 x 85					
Weight, approx.*	kg	8.2 10.0					

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules Precision Balances

	Units	5203S	5203P	3203S	2203S	2203P	1203S
Scale interval (d)	mg	1	1 2 5	1	1	1 10	1
Maximum capacity (Max)	g	5200	1200 2400 5200	3200	2200	1010 2200	1200
<b>Repeatability at 5% load</b>							
Standard deviation of the load values, tolerance	mg	1	1	1	0.7	0.7	0.7
Standard deviation of the load values, typical value	mg	0.6	0.6	0.6	0.5	0.5	0.5
<b>Repeatability near Max</b>							
Standard deviation of the load values, tolerance	mg	1	1	1	1	1	0.7
Standard deviation of the load values, typical value	mg	0.6	0.6	0.6	0.6	0.6	0.6
<b>Linearity Deviation</b>							
Tolerance	mg	5	5	5	3	5	2
Typical value	mg	2	3	2	2	3	1
<b>Deviation when load is off-center, positions according to OIML R76</b>							
Test weight	g	2000	2000	1000	1000	1000	500
Tolerance	mg	2	2	2	2	3	2
Typical value	mg	1	1	1	1	2	1
Sensitivity drift between +10° C and +30° C	ppm/K	1	1	1	1	1	1.5
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>							
Accuracy class according to Directive 2014   31   EU		I	I	I	I	I	I
Verification scale interval (e) according to Directive 2014   31   EU	mg	10	10	10	10	10	10
Minimum load (Min) according to Directive 2014   31   EU	mg	100	100	100	100	100	100
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>							
Optimum minimum weight	mg	820	820	820	820	820	820
Typical minimum weight	mg	1200	1200	1200	1000	1000	1000
Typical stabilization time	s	1	1	1	1	1	1
Typical measurement time	s	2	2	2	1.5	1.5	1.5
<b>Recommended calibration weight</b>							
External test load	g	5000	5000	3000	2000	1000	1000
Accuracy class, according to OIML R111-1		E2	E2	E2	E2	E2	E2
<b>isoCAL</b>							
Temperature change	K	1.5	1.5	1.5	1.5	1.5	1.5
Time span	h	6	6	6	12	12	12
<b>Dimensions</b>							
Weighing module (L × W × H)*	mm	425 x 240 x 122   284   373					
Weighing pan size	mm	140 x 140					
Weight, approx.*	kg	5.9   7.5   9.4   10.2					

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules Precision Balances

	Units	623S	623P	323S	14202S	14202P
Scale interval (d)	mg	1	1 2 5	1	10	10 20 50
Maximum capacity (Max)	g	620	150 300 620	320	14200	3500 7000 14200
<b>Repeatability at 5% load</b>						
Standard deviation of the load values, tolerance	mg	0.7	1	0.7	10	10
Standard deviation of the load values, typical value	mg	0.4	0.4	0.4	5	5
<b>Repeatability near Max</b>						
Standard deviation of the load values, tolerance	mg	0.7	1	0.7	10	10
Standard deviation of the load values, typical value	mg	0.5	0.5	0.5	5	5
<b>Linearity deviation</b>						
Tolerance	mg	2	5	2	30	50
Typical value	mg	0.6	1.5	0.6	10	20
<b>Deviation when load is off-center, positions according to OIML R76</b>						
Test weight	g	200	200	200	5000	5000
Tolerance	mg	2	4	2	20	40
Typical value	mg	1	3	1	10	10
Sensitivity drift between +10° C and +30° C	ppm/K	2	2	2	1.5	1.5
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>						
Accuracy class according to Directive 2014   31   EU		II	II	II	I	I
Verification scale interval (e) according to Directive 2014   31   EU	mg	10	10	10	100	100
Minimum load (Min) according to Directive 2014   31   EU	mg	20	20	20	1000	1000
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>						
Optimum minimum weight	mg	820	820	820	8200	8200
Typical minimum weight	mg	820	820	820	8200	8200
Typical stabilization time	s	0.8	0.8	0.8	0.8	0.8
Typical measurement time	s	1	1	1	1.5	1.5
<b>Recommended calibration weight</b>						
External test load	g	500	500	200	14000	14000
Accuracy class, according to OIML R111-1		E2	E2	E2	E2	E2
<b>isoCAL</b>						
Temperature change	K	2	2	2	1.5	1.5
Time span	h	12	12	12	6	6
<b>Dimensions</b>						
Weighing module (L x W x H)*	mm	425 x 240 x 122   284   373			425 x 240 x 95	
Weighing pan size	mm	140 x 140			206 x 206	
Weight, approx.*	kg	5.9   7.5   9.4   10.2			5.4	

\* depending upon weighing pan size, filter weighing pan and draft shield



## Cubis® II Weighing Modules Precision Balances

	Units	10202S	8202S	6202S	6202P	5202S	4202S	2202S
Scale interval (d)	mg	10	10	10	10 20 50	10	10	10
Maximum capacity (Max)	g	10200	8200	6200	1500  3000 6200	5200	4200	2200
<b>Repeatability at 5% load</b>								
Standard deviation of the load values, tolerance	mg	7	7	7	7	6	7	7
Standard deviation of the load values, typical value	mg	5	4	4	4	2	4	4
<b>Repeatability near Max</b>								
Standard deviation of the load values, tolerance	mg	7	7	7	40	6	7	7
Standard deviation of the load values, typical value	mg	5	4	4	15	2	4	4
<b>Linearity deviation</b>								
Tolerance	mg	20	20	20	50	10	20	20
Typical value	mg	6	6	6	20	5	6	6
<b>Deviation when load is off-center, positions according to OIML R76</b>								
Test weight	g	5000	5000	2000	2000	2000	2000	1000
Tolerance	mg	20	30	20	30	10	30	20
Typical value	mg	10	10	10	30	5	10	10
Sensitivity drift between +10° C and +30° C	ppm/K	1.5	2	2	2	2	2	2
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>								
Accuracy class according to Directive 2014   31   EU		II	II	II	II	I	II	II
Verification scale interval (e) according to Directive 2014   31   EU	mg	100	100	100	100	100	100	100
Minimum load (Min) according to Directive 2014   31   EU	mg	1000	500	500	500	1000	500	500
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>								
Optimum minimum weight	mg	8200	8200	8200	8200	8200	8200	8200
Typical minimum weight	mg	8200	8200	8200	8200	8200	8200	8200
Typical stabilization time	s	0.8	1	1	1	0.8	1	0.8
Typical measurement time	s	1.5	1.5	1.5	1.5	1	1	1
<b>Recommended calibration weight</b>								
External test load	g	10000	7000	5000	5000	5000	3000	1500
Accuracy class, according to OIML R111-1		E2	E2	E2	E2	E2	E2	E2
<b>isoCAL</b>								
Temperature change	K	1.5	2	2	2	2	2	2
Time span	h	6	12	12	12	12	12	12
<b>Dimensions</b>								
Weighing module (L × W × H)*	mm	425 x 240 x 95				425x240 x122 284  373	425 x 240 x 95	
Weighing pan size	mm	206 x 206				140 x 140	206 x 206	
Weight, approx.*	kg	5.4				5.9 7.5  9.4 10.2	5.4	

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules Precision Balances

	Units	1202S	12201S	8201S	5201S
Scale interval (d)	mg	10	100	100	100
Maximum capacity (Max)	g	1200	12200	8200	5200
<b>Repeatability at 5% load</b>					
Standard deviation of the load values, tolerance	mg	7	50	50	50
Standard deviation of the load values, typical value	mg	4	20	20	20
<b>Repeatability near Max</b>					
Standard deviation of the load values, tolerance	mg	7	50	50	50
Standard deviation of the load values, typical value	mg	4	20	20	20
<b>Linearity deviation</b>					
Tolerance	mg	20	100	100	100
Typical value	mg	6	30	30	20
<b>Deviation when load is off-center, positions according to OIML R76</b>					
Test weight	g	500	5000	5000	2000
Tolerance	mg	20	200	200	200
Typical value	mg	10	100	100	100
Sensitivity drift between +10° C and +30° C	ppm/K	2	4	4	4
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>					
Accuracy class according to Directive 2014   31   EU		I	II	II	II
Verification scale interval (e) according to Directive 2014   31   EU	mg	100	1000	1000	1000
Minimum load (Min) according to Directive 2014   31   EU	mg	500	5000	5000	5000
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>					
Optimum minimum weight	mg	8200	82000	82000	82000
Typical minimum weight	mg	8200	82000	82000	82000
Typical stabilization time	s	0.8	0.8	0.8	0.8
Typical measurement time	s	1	1	1	1
<b>Recommended calibration weight</b>					
External test load	g	700	12000	8000	5000
Accuracy class, according to OIML R111-1		E2	F1	F1	F1
<b>isoCAL</b>					
Temperature change	K	2	4	4	4
Time span	h	6	12	12	12
<b>Dimensions</b>					
Weighing module (L x W x H)*	mm	425 x 240 x 95			
Weighing pan size	mm	206 x 206			
Weight, approx.*	kg	5.4			

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules High Capacity Balances

	Units	32202P	70201S	50201S	36201S	36201P
Scale interval (d)	mg	10   100	100	100	100	100   1000
Maximum capacity (Max)	g	4200   32200	70200	50200	36200	10200   36200
<b>Repeatability at 5% load</b>						
Standard deviation of the load values, tolerance	mg	40	100	100	100	100
Standard deviation of the load values, typical value	mg	20	40	40	20	20
<b>Repeatability near Max</b>						
Standard deviation of the load values, tolerance	mg	40   100	100	100	100	100
Standard deviation of the load values, typical value	mg	20   50	40	40	50	20
<b>Linearity deviation</b>						
Tolerance	mg	200	500	500	200	200
Typical value	mg	100	150	150	100	100
<b>Deviation when load is off-center, positions according to OIML R76</b>						
Test weight	g	10000	20000	20000	10000	10000
Tolerance	mg	200	500	500	300	300
Typical value	mg	100	300	300	200	200
Sensitivity drift between +10° C and +30° C	ppm/K	2	2	2	2	2
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>						
Accuracy class according to Directive 2014   31   EU		-	II	II	II	II
Verification scale interval (e) according to Directive 2014   31   EU	mg	-	1000	1000	1000	1000
Minimum load (Min) according to Directive 2014   31   EU	mg	-	5000	5000	5000	5000
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>						
Optimum minimum weight	mg	8200	82000	82000	82000	82000
Typical minimum weight	mg	8200	82000	82000	82000	82000
Typical stabilization time	s	2	1.5	1.5	1.5	1.5
Typical measurement time	s	2	1.5	1.5	2	2
<b>Recommended calibration weight</b>						
External test load	g	30000	70000	50000	30000	30000
Accuracy class, according to OIML R111-1		F1	F1	F1	F1	F1
<b>isoCAL</b>						
Temperature change	K	2	2	2	4	4
Time span	h	12	12	12	12	12
<b>Dimensions</b>						
Weighing module (L x W x H)*	mm	412 x 400 x 159	412 x 400 x 126			
Weighing pan size	mm	Ø 233	400 x 300			
Weight, approx.*	kg	17.1	15.8			

\* depending upon weighing pan size, filter weighing pan and draft shield

## Cubis® II Weighing Modules High Capacity Balances

	Units	20201S	11201S	70200S	36200S
Scale interval (d)	mg	100	100	1000	1000
Maximum capacity (Max)	g	20200	11200	70200	36200
<b>Repeatability at 5% load</b>					
Standard deviation of the load values, tolerance	mg	100	100	500	500
Standard deviation of the load values, typical value	mg	20	20	200	200
<b>Repeatability near Max</b>					
Standard deviation of the load values, tolerance	mg	100	100	500	500
Standard deviation of the load values, typical value	mg	20	20	200	200
<b>Linearity Deviation</b>					
Tolerance	mg	200	200	1000	1000
Typical value	mg	60	60	200	200
<b>Deviation when load is off-center, positions according to OIML R76</b>					
Test weight	g	5000	5000	20000	10000
Tolerance	mg	300	300	1000	1000
Typical value	mg	200	200	600	500
Sensitivity drift between +10° C and +30° C	ppm/K	2	2	3	3
<b>Tare maximum capacity: Less than 100% of maximum capacity</b>					
Accuracy class according to Directive 2014   31   EU		II	II	II	II
Verification scale interval (e) according to Directive 2014   31   EU	mg	1000	1000	10000	1000
Minimum load (Min) according to Directive 2014   31   EU	mg	5000	5000	50000	50000
<b>Minimum weight according to USP (United States Pharmacopeia), Chap. 41</b>					
Optimum minimum weight	mg	82000	82000	820000	820000
Typical minimum weight	mg	82000	82000	820000	820000
Typical stabilization time	s	1.5	1.5	1	1
Typical measurement time	s	2	2	1.2	1.2
<b>Recommended calibration weight</b>					
External test load	g	20000	10000	70000	30000
Accuracy class, according to OIML R111-1		F1	F1	F1	F1
<b>isoCAL</b>					
Temperature change	K	4	4	2	4
Time span	h	12	12	12	12
<b>Dimensions</b>					
Weighing module (L x W x H)*	mm	412 x 400 x 126   159			
Weighing pan size	mm	400 x 300   Ø 233			
Weight, approx.*	kg	15.8   17.1			

\* depending upon weighing pan size, filter weighing pan and draft shield

# Accessories

## Cubis® II Power Supply Unit

Only by Sartorius AC Adapter YEPS03-15V0

	Units	Value
<b>Primary</b>		
AC voltage	V	100-240 (±10%)
Frequency	Hz	50-60 (±5%)
Current consumption, maximum	A	1.0
<b>Secondary</b>		
DC voltage at 2 A output current	V	14.25-15.75
Power, maximum	W	30
Short circuit protection: Electronic		
Protection class according to IEC 62368-1		I
Pollution level according to IEC 61010-1		2
Oversoltage category according to IEC 606641-1		II
Installation site according to IEC 62368-1, maximum altitude above sea level	m	5000
<b>Temperature</b>		
In operation	°C	0 - +40
During storage and transport	°C	-20 - +80
Connector for mains connection according to IEC 60320-1   C14: 3-pin		
<b>Power supply cable</b>		
Power supply cable according to IEC 60320-1   C14: Country-specific, 3-pin, two-sided plug		
Other data: See label on AC adapter		
<b>Safety of Electrical Equipment</b>		
According to EN 61010-1   IEC 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General Requirements		
<b>Electromagnetic Compatibility</b>		
<b>Interference resistance</b>		
Suitable for use in industrial areas		
<b>Transient emissions</b>		
Class B		
Suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings		
<b>Materials</b>		
Housing: Die-cast aluminum, plastic PBT, Optiwhite float glass and stainless steel 1.4401   1.4404, PA handles, aluminum trim		
Control unit: Die-cast aluminum, painted, float glass and plastic PBT, PP		
<b>Integrated Clock</b>		
Maximum deviation per month (RTC): 30s		
<b>Backup Battery</b>		
Lithium battery: type CR2032		
Service life at room temperature, minimum: 10 Years		
<b>Alibi Memory Value</b>		
Maximum number of data records: 150,000		
<b>Audit-Trail memory</b>		
Maximum number of data points: 300,000		

## Interfaces

### Specifications for the COM-RS232 Interface

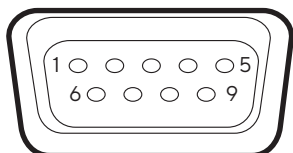
Type of interface: Serial interface

Interface operation: Full duplex

Level: RS232

Connection: D-sub connector, 9-pin

Pin assignment:



Pin 1: Not assigned

Pin 2: Data output (TxD)

Pin 3: Data input (RxD)

Pin 4: Not assigned

Pin 5: Internal ground

Pin 6: Not assigned

Pin 7: Clear to Send (CTS)

Pin 8: Request to Send (RTS)

Pin 9: Not assigned

### Specifications for the USB-A Interface

Communication: USB host (master)

Connectable devices: Sartorius printers, USB sticks with software update

### Specifications for the USB-B Interface

Communication: USB device (slave)

Type of interface: Virtual serial interface (virtual COM-port, VCP) and "PC direct" communication

## Draft Shields

Code	Item
0	Flat, stainless steel weighing pan with no draft shield for weighing modules
A	Automatic, glass motorized draft shield with learning capability for user-friendly operation and easy customization to the changing requirements of different applications
E	Manual glass draft shield for precision balances
F	Manual stainless steel draft shield for weighing filters with diameters of up to 50 mm (75 mm and 90 mm pans optional)
I	Identical to the A draft shield, but also includes an integrated ionizer to eliminate interfering electrostatic charges on samples and sample containers
M	Automatic, motorized, round 100% glass draft shield with learning capability for ultra-micro balance and micro balances
R	Flat, stainless steel weighing pan draft shield (removable, with no glass components) for all precision balances
U	Manual glass analytical draft shield chamber, with smooth-action doors that open wide and provide unimpeded access to the weighing chamber without interfering braces

## Software

Code	Item
QP1	QApp Package Pharma
QP2	QApp Package Advanced Applications
QP3	QApp Package Utilities
QP4	QApp Package Connectivity

## Ambient Conditions

	Units	Value
<b>Installation Site</b>		
AC voltage	V	100-240 (±10%)
Frequency	Hz	50-60 (±5%)
Current consumption, maximum	A	1.0
<b>Secondary</b>		
Standard laboratory rooms		
Installation site according to IEC 60259-1, maximum altitude above sea level	m	3000
For indoor use only		
<b>Temperature</b>		
In operation	°C	+5 - +40
In operation for conformity-assessed devices: see information on the device's ID plate		
During storage and transport	°C	-20 - +60
<b>Relative humidity</b>		
At temperatures of up to 31° C	%	80
Then linear decrease from 80% at 31° C to 50% at 40° C		
No heat from heating systems or direct sunlight		
No drafts from open windows, AC systems, or doors		
No vibrations		
No "heavy traffic" areas (personnel)		
No electromagnetic fields		
No dry air		

## Meteorological Data

Code	Item
SØØ	Standard version non-verified, all units
SØ1	Standard version non-verified, metric units only
CCN	Balance with Type Approval Certificate for China
CEU	Verified balance with EC Type Approval Certificate (for EU except France)
CFR	Verified balance with EC Type Approval Certificate for France only
OBR	Balance with Type Approval Certificate for Brazil
OIN	Balance with Type Approval Certificate for India
OJP	Balance with Type Approval Certificate for Japan
ORU	Balance with Type Approval Certificate for Russia

## Accessories

Printers and Communication	Quantity	Cat. No.
Thermal transfer   thermal printer for GMP   GLP printouts on continuous paper and labels	1	YDP30
Laboratory thermal transfer printer YDP30 with USB and ethernet connection	1	YDP30-NET
Wireless Nano USB Adapter	1	YWLAN01MS
WIFI Nano Router	1	YWLAN02MS
Standard paper and ink ribbon, set, 90 m, for YDP30	1	69Y03285
Self-adhesive paper and ink ribbon, 90 m, for YDP30	1	69Y03286
Standard thermal paper, 24 m roll, for YDP30   YDP40	5	69Y03287
Self-adhesive thermal paper, 13 m roll, for YDP30	5	69Y03288
Self-adhesive labels for YDP30		
58 mm × 100 mm	350	69Y03094
58 mm × 76 mm	500	69Y03093
58 mm × 30 mm	1000	69Y03092
<b>Displays and Input   Output Elements</b>		
MCE Display	1	69MS0218
Display head MCA for balances with automatic draft shield	1	69MS0212
Display head MCA for balances without automatic draft shield	1	69MS0215
MCA display for high-capacity balances (including short distance adapter)	1	69MS0216
Motion sensor for triggering a maximum of 4 functions via gesture control, selection via menu	1	YHS02MS
Display stand for weigh cells with scale interval of 100 mg   1 g and weighing capacity > 20 kg for raising the operating unit	1	YDH04MS
Display stand for weigh cells with scale interval of 10 mg   100 mg for raising the operating unit	1	YDH03MS
Barcode and QR Reader with USB	1	YBR05
Foot switch for draft shield, tara, print	1	YFS02
<b>Hardware for Pipette Calibration (Semi-Micro and Analytical Balances)</b>		
Pipette calibration kit (hardware). Consists of moisture trap and all required adapters	1	YCP04MS
<b>Density Determination Kits</b>		
Density determination kit for solids and liquids for 0.1 and 0.01 mg weighing modules	1	YDK03MS
Density determination kit for solids and liquids for 1 mg weighing modules	1	YDK04MS






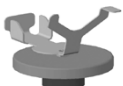

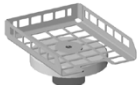



## Accessories (continued)

Filter Pans, Ionizer and Weighing Scoops	Quantity	Cat. No.
Grid pan for model with a scale interval of 10 mg or 100 mg for weighing in laboratory hoods, safety weighing cabinets and workbenches, reduced wind attack surface of the weighing pan, replaces standard pan	1	YWP07MS
Anti-static weighing pan, 100 mm diameter, for weighing module for semi-micro balance and analytical balances with 0.1 mg or 0.01 mg scale interval	1	YWP04MS
Filter weighing pan made of titanium, diameter 52 mm, for ultra-micro and micro balances only together with F draft shield	1	YSH34
Filter weighing pan made of titanium, diameter 75 mm, for ultra-micro balance or micro balance models only together with F draft shield	1	YSH35
Filter weighing pan made of titanium, diameter 90 mm, for ultra-micro balance or micro balance models only together with F draft shield	1	YSH36
Ionization blower for electrostatically charged samples	1	YIB01-ODR
Ionizer with U-shaped electrode for 230 V	1	YIB02-230V
Ionizer with U-shaped electrode for 115 V	1	YIB02-115V
Stat-Pen ionization pen for discharging electrostatically charged samples	1	YSTP01
Aluminum weighing scoop, 4.5 mg for ultra-micro balance and micro balance models	250	6565-250
Aluminum weighing scoop, 52 mg for ultra-micro balance and micro balance models	50	6566-50
Weighing scoop made from chrome-nickel steel, L 90 mm x W 32 mm x H 8 mm	1	641214
<b>Other Accessories</b>		
Display cable, 3 m, for separate installation of MCE or MCA display and weighing unit, installation by Sartorius Service or at the factory	1	YCC01-MCD3
Cable RS232 9-pin to M12 inlet for connecting Watson-Marlow pumps 530DuN and 630DuN, 2 m	1	YCC-D09M-M12F-2M
Cable RS232 9-pin (male) to 9-pin (male) for connecting e.g. Watson-Marlow 323Du pump, 2.9 m	1	YCC-D09MM-EC-2.9M
Cable DSUB25 DIO to USB for connecting e.g. signal light, 0.5 m	1	YCC01-MC05
RS232C connection cable, 9 pin male to 9 pin female, 1.5 m	1	YCC-D09MF
Below-balance weighing hook for precision balances with scale interval of 100 mg   1 g and weighing capacity > 20 kg, not for verified models	1	69EA0040
Sartorius Wedge, software for data communication between the PC and balance	1	YSW02
Pipette calibration set micro balances	1	VF988
Signal light for displays MCE and MCA	1	VF4763
Connection cable for eBox 1.2 m   2.5 m	1	VF4755
Extension cable for climate tower 0.8 m	1	VF4756
Extension cable for motion sensor 0.8 m	1	VF4757
Connection cable for fermenter	1	VF4758
RS232 analog converter	1	VF4759
MCA3203S-2S00-R for Ceracon	1	VF4760
MC*36201S-000-DO with display 0.01 g	1	VF4768
MC*20201S-000-DO with display 0.01 g	1	VF4769
MC*70201S-000-DO with display 0.01 g	1	VF4770
YRB11Z modified for Cubis® balances	1	VF4476
External battery pack	1	YRB11Z

## Accessories (continued)

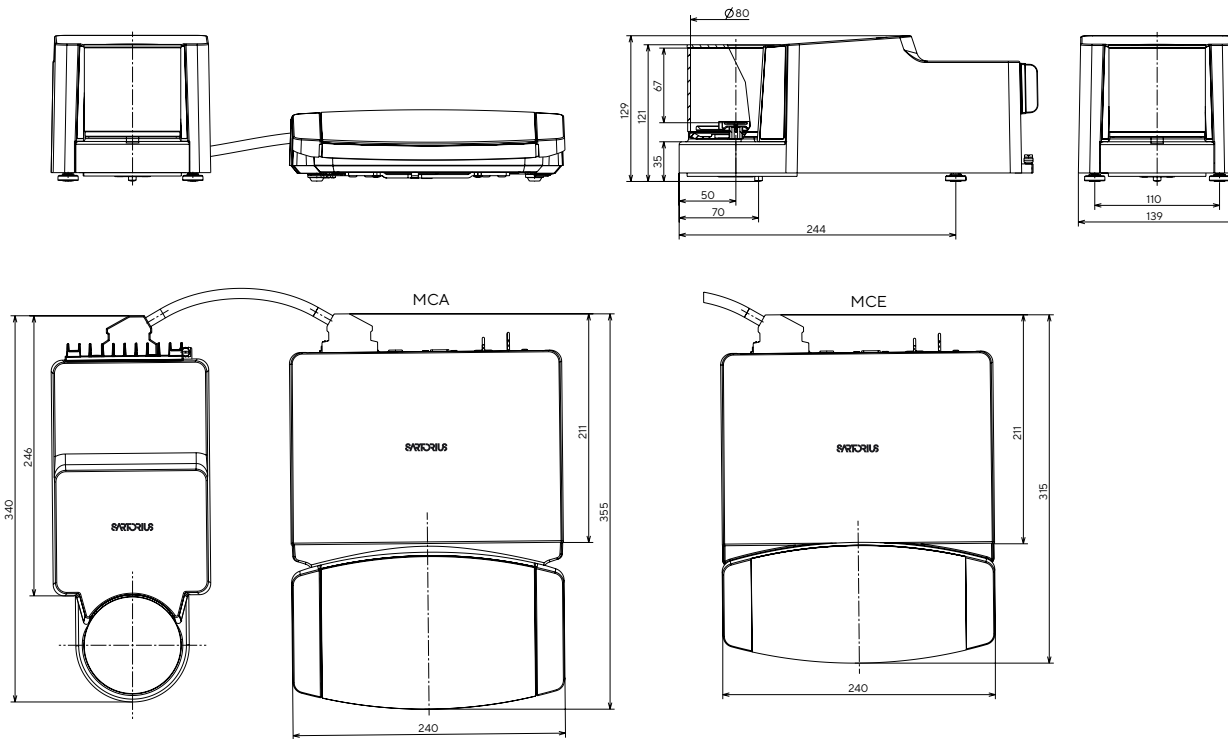
Weighing Tables	Quantity	Cat. No.
Made from synthetic stone, with vibration dampening	1	YWT03
Made from wood with synthetic stone	1	YWT09
Wall console	1	YWT04
<b>Climate Modules</b>		
Climate module, uncalibrated, for draft shield A and user interface MCA	1	YCM20MC
Calibration of a climate module YCM20MC with DAkkS calibration certificate	1	YCM20DAkkS
Climate module with DAkkS calibration certificate for draft shield A and user interface MCA	1	YCM20MC-DAkkS
Tower for climate module, for mounting YCM20MC; incl. climate module YCM20MC; can be ported to all Cubis® II weighing modules with user interface MCA	1	YCM20MC-Tower

## Accessories (continued)

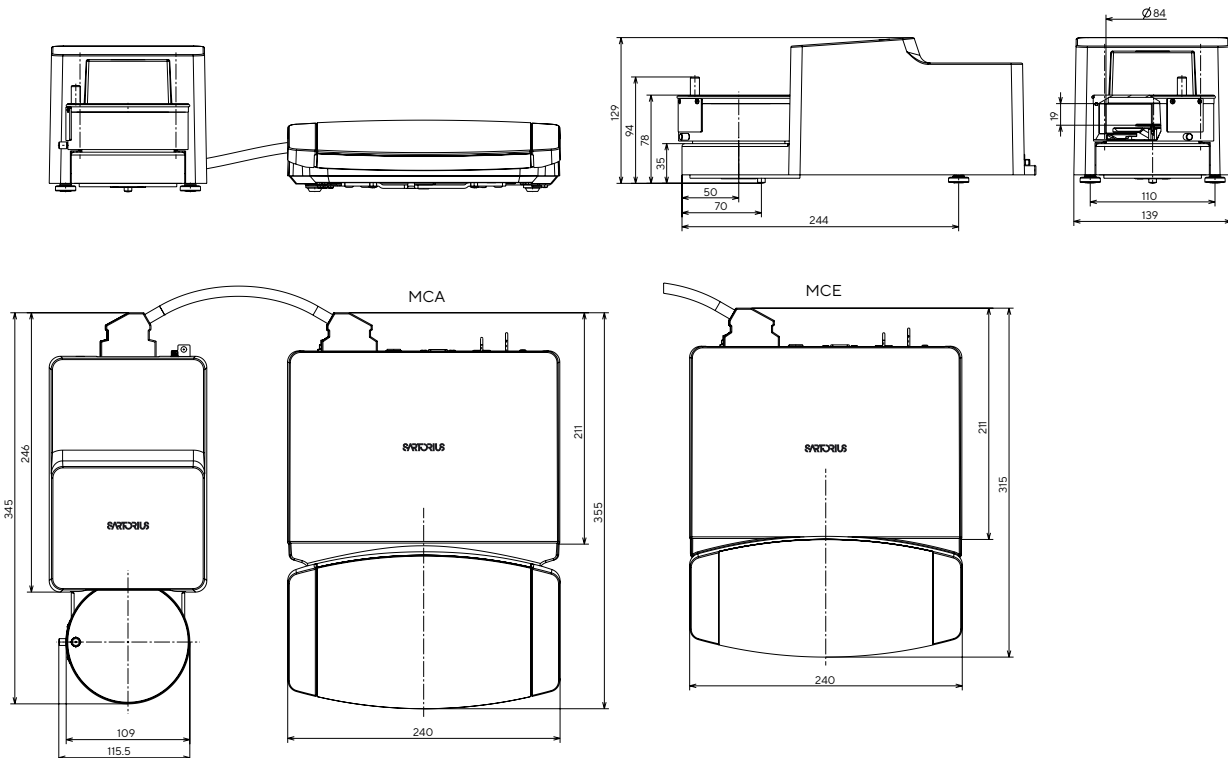
Titanium Holders for Ultra-Micro Balances and Micro Balances		Quantity	Cat. No.
For coronary stents (up to 38 mm)		1	YSH10
For save-lock tubes, 1.5 mL – 2 mL		1	YSH13
<b>Titanium Holders for Semi-Micro Balances and Analytical Balances</b>			
For save-lock tubes, 1.5 mL – 2 mL		1	YSH15
For save-lock tubes up to 5 mL		1	YSH19
For vials		1	YSH23
For weighing boats		1	YSH26
For filters, 150 mm diameter		1	YSH30
For titration vessels and round bottom flasks		1	YSH37
For syringes, vertical		1	YSH46

# Balance Dimensions

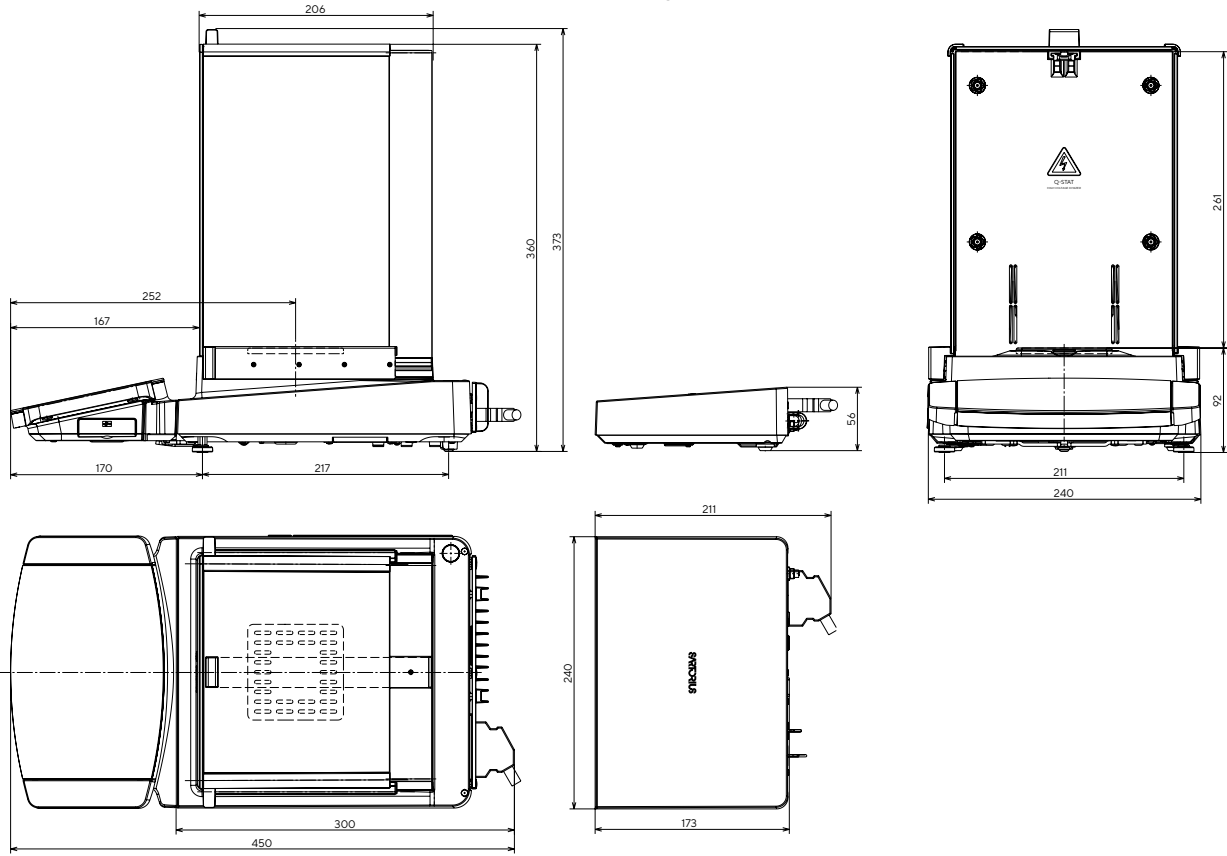
Ultra-Micro and Micro Balance | All dimensions are given in millimeters



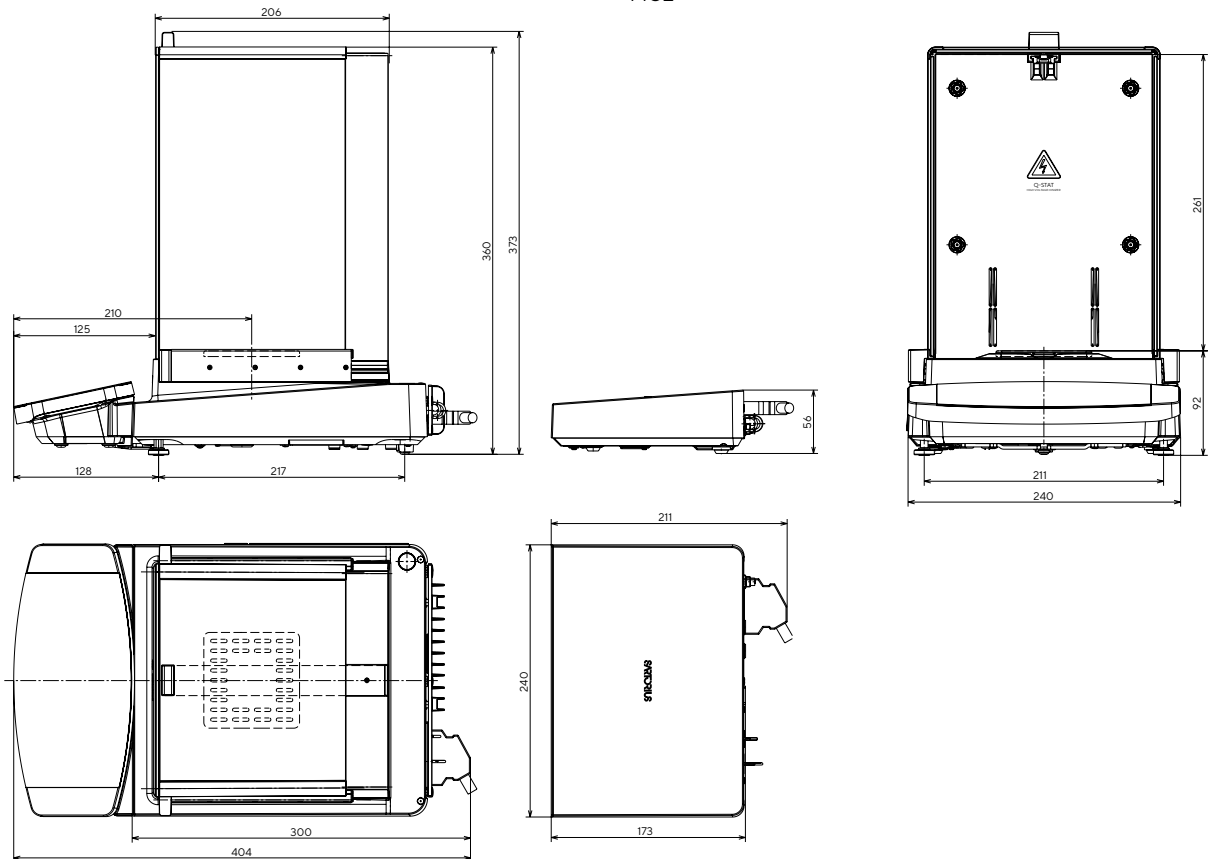
Ultra-Micro and Micro Filter Balance | All dimensions are given in millimeters



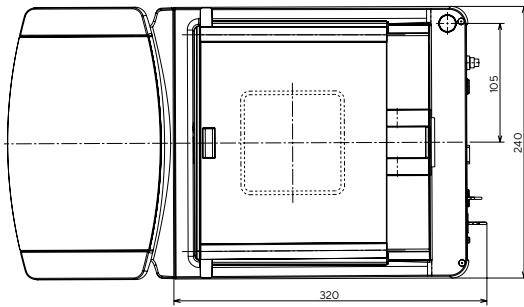
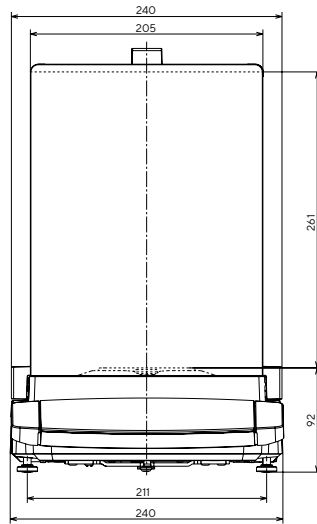
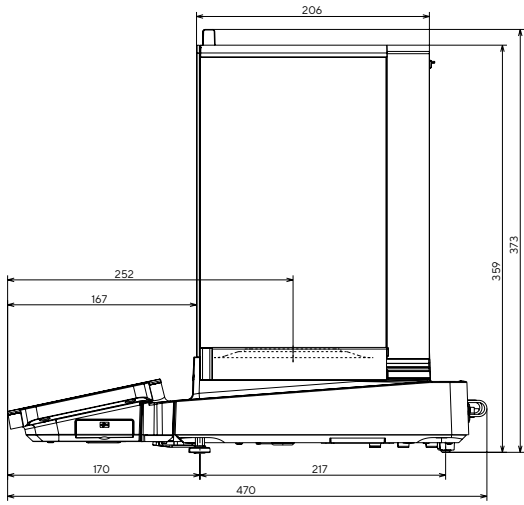
MCA



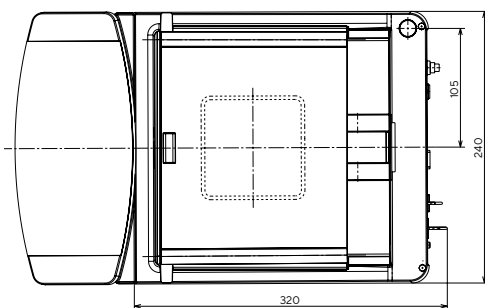
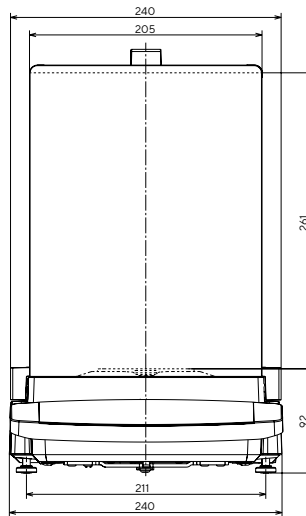
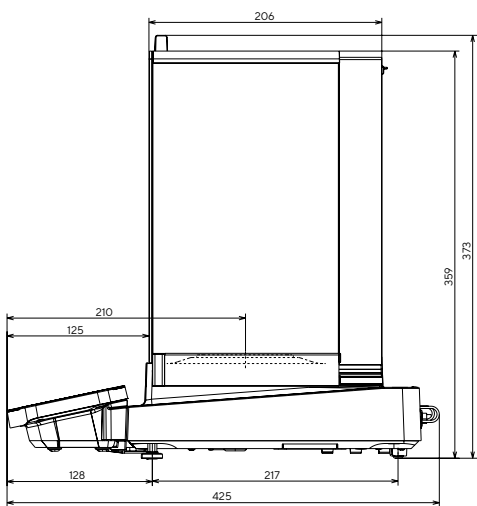
MCE



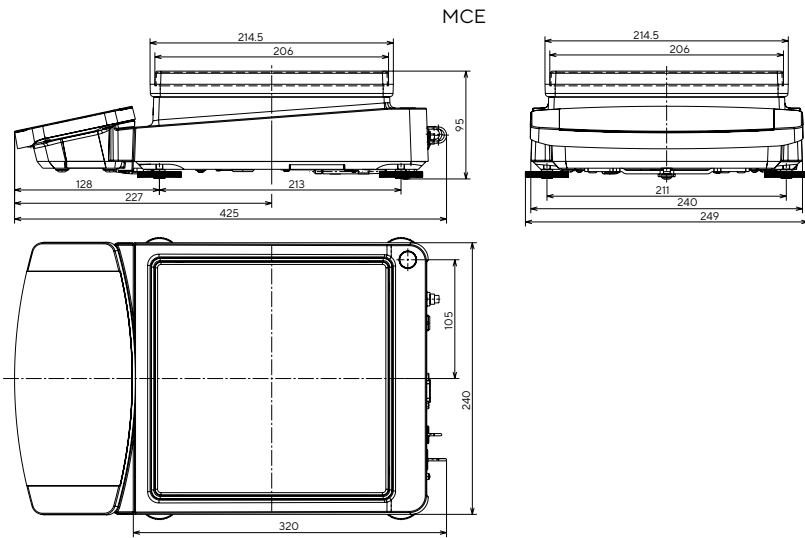
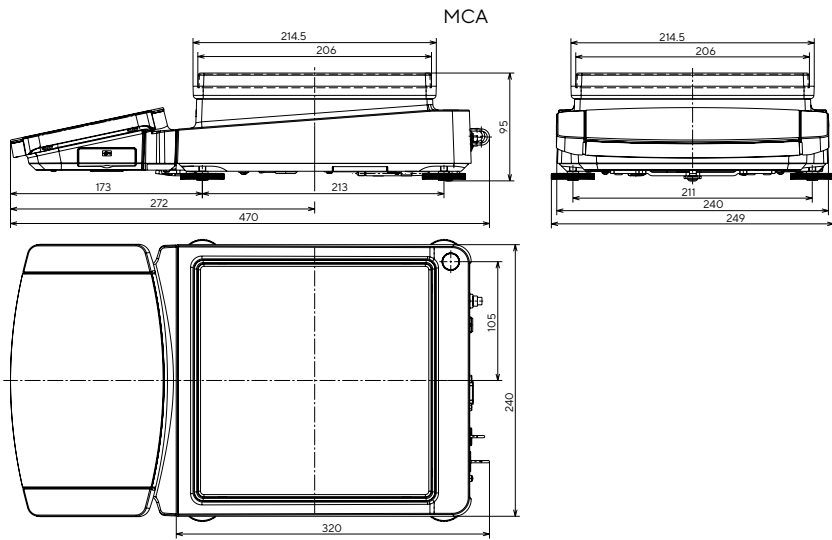
MCA



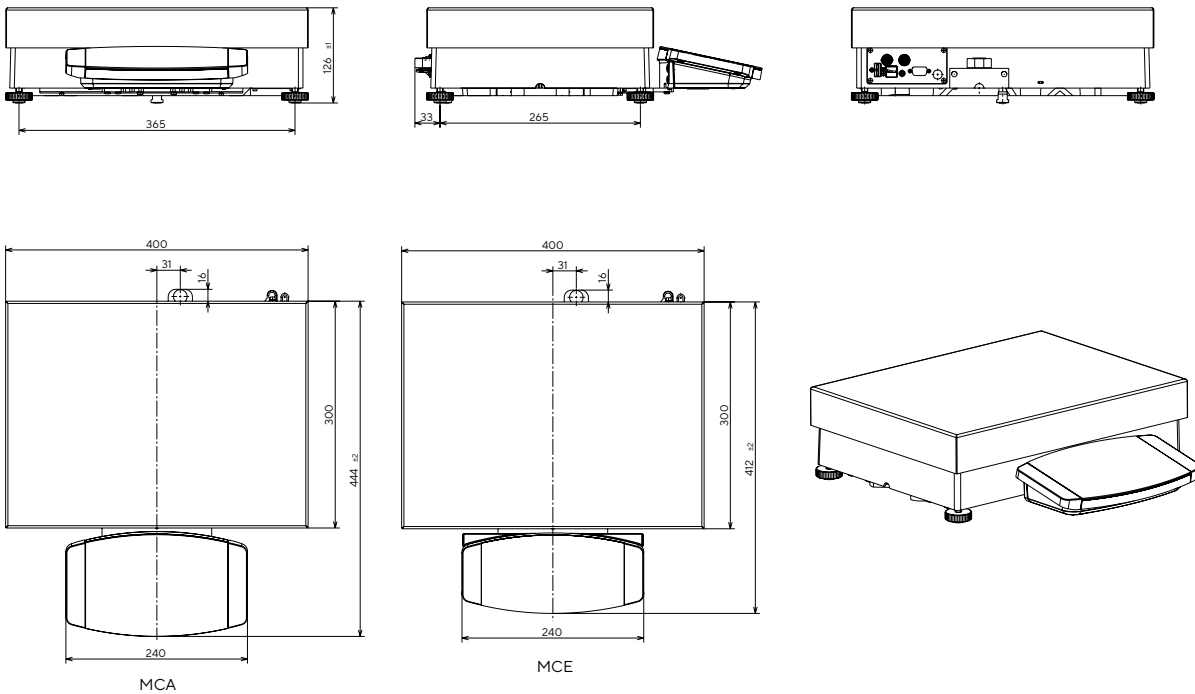
MCE



Precision Balance | All dimensions are given in millimeters



## High-Capacity Balance | All dimensions are given in millimeters



## Sales and Service Contacts

For further contacts, visit  
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