

# 1 Technical Data

## 1.1 Claire® pro: 2-Filter-System

### GENERAL DATA

<b>Manufacturer</b>	BERNER INTERNATIONAL GMBH		
<b>Device</b>	Lab device		
<b>Device type</b>	Class II microbiological safety cabinets		
<b>Design</b>	DIN EN 12469; NSF 49, Type A2		
<b>Year of construction</b>	Please refer to the type label underneath the front hood		
<b>Certificate</b>	TÜV GS certificate		
<b>Labelling</b>	CE		
<b>Quality management system</b>	DIN EN ISO 9001:2008		
<b>Model</b>	<b>Claire® pro B-2-130</b>	<b>Claire® pro B-2-160</b>	<b>Claire® pro B-2-190</b>
<b>Article number</b>	200003	200004	200005

### GENERAL TECHNICAL DATA

<b>Sound pressure level conforming to ISO 11201<sup>a)</sup> (ECO/GMP)</b>	≥ 49.9/54.8 dB(A)	≥ 54.0/56.9 dB(A)	≥ 51.5/54.5 dB(A)
<b>Nominal illuminance</b>	0-1,100 lux	0-1,100 lux	0-1,100 lux
<b>Vibration (RMS) on the worktops</b>	≤ 5 µm	≤ 5 µm	≤ 5 µm
<b>Collecting basin volume</b>	approx. 74 l	approx. 92 l	approx. 110 l

### ELECTRICAL DATA

<b>Nominal voltage or nominal frequency</b>	230 V AC / 50 Hz		
<b>Deactivation characteristics of fuse on-site</b>	C16		
<b>Nominal current<sup>b)</sup> or nominal output (GMP/ECO)</b>	0.80 A, 185 VA 0.61 A, 142 VA	1.15 A, 264 VA 1.05 A, 242 VA	1.1 A, 250 VA 0.90 A, 215 VA
<b>Power consumption (GMP/ECO)</b>	approx. 160 / 112 W	approx. 241 / 220 W	approx. 214 / 172 W
<b>Protection class</b>	I		
<b>Protection type</b>	IP 20		
<b>Connection</b>	Schuko safety plug		

a) Measured with distances to the device conforming to EN 12469.

b) Overall nominal current increases with the use of the sockets in the working area by up to 5 A. The total load of the sockets is not permitted to exceed 5 A!

### MECHANICAL DATA\*:

\* All length specifications in [mm]

<b>External dimensions (WxHxD)</b>	1,352 x 2,008 – 2,277 x 815	1,654 x 2,008 – 2,277 x 815	1,957 x 2,008 – 2,277 x 815
<b>Work area (WxHxD)</b>	1,257 x 640-700 x 600	1,559 x 640-700 x 600	1,862 x 640-700 x 600
<b>Usable working surface<sup>c)</sup> (WxD)</b>	1,217 x 467	1,519 x 467	1,822 x 467
<b>Segmented worktops (WxL)</b>	313 x 472	310 x 472	309 x 472
<b>Number of worktops</b>	4	5	6
<b>Maximum load capacity per segment</b>	10 kg	10 kg	10 kg
<b>Working access opening(WxH)</b>	1,257 x 180	1,559 x 180	1,862 x 180
<b>Access opening, front window fully open<sup>d)</sup></b>	450 ± 50	450 ± 50	450 ± 50
<b>Clearance dimensions<sup>e)</sup> (HxD), complete with cabling</b>	1,996 x 815	1,996 x 815	1,996 x 815
<b>Clearance dimensions<sup>e)</sup> (HxD), excl. add-on parts</b>	1,946 x 815	1,946 x 815	1,946 x 815
<b>Minimal clearance dimensions<sup>e)f)</sup> (HxD)</b>	1,946 x 790	1,946 x 790	1,946 x 790
<b>Work surface height</b>	683 - 952	683 - 952	683 - 952
<b>Weight</b>	approx. 312 kg	approx. 375 kg	approx. 400 kg

c) Excluding the front, rear and side intake openings.

d) **Caution:** This is not a position with optimal personnel and product protection! Only for loading/unloading of the working space (e.g. bulky utensils), cleaning, etc.

e) Default shipment for Claire® pro is in combination with base frame due to the overall height < 2m. **A horizontal and vertical distance of 10 mm more should be planned in!** Before delivery, it is critical to coordinate with the dimensions of the smallest doors! Also take the pallet into account! Only applies to the standard base frame. When combined with an electrical height adjustable base frame, the minimum height is approx. 2034mm! The delivery is then generally made separated from the

base frame.  
 f) Excludes front side panels.

Model	Claire® pro B-2-130	Claire® pro B-2-160	Claire® pro B-2-190
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**MATERIAL-SPECIFIC DATA: HOUSING**

Material of work area	1.5 mm thick stainless steel "V2A", material no.: 1.4301		
Surface quality of work area	320 grind, medium roughness $R_a \approx 1.6 \mu\text{m}$		
Housing material	Powder-coated 1.5 mm thick Zincor steel plate, material no.: 1.0330		
Powder coating colour	White RAL 9003 matt; black RAL 9005 matt		
Front, side and rear panels	Multi-layer safety glass with intermediate film to absorb UV radiation		

**TECHNICAL AIR DATA "2-FILTER SYSTEM"**

Exhaust and supply air volume flow	approx. 330 m <sup>3</sup> /h	approx. 410 m <sup>3</sup> /h	approx. 485 m <sup>3</sup> /h
Required total exhaust volume (with non-reactive exhaust connection)	450 ± 50 m <sup>3</sup> /h	525 ± 50 m <sup>3</sup> /h	600 ± 50 m <sup>3</sup> /h
Displacement flow velocity <sup>g)</sup> (Downflow)	0.29 / 0.45 m/s (ECO/GMP)	0.32 / 0.45 m/s (ECO/GMP)	0.33 / 0.45 m/s (ECO/GMP)
Average air inlet velocity (Inflow)	0.40 m/s	0.40 m/s	0.40 m/s
LWZ <sub>ECO</sub> in the work area (air exchanges/h)	1,175 /h	1,181 /h	1,223 /h
LWZ <sub>GMP</sub> in the work area (air exchanges/h)	1,889 /h	1,897 /h	1,965 /h
Temperature increase in the work area <sup>h)</sup>	0.6°C	1.0°C	1.0°C
Heat load (ECO/GMP)	approx. 67.2 / 96 W	approx. 132 / 144 W	approx. 103 / 128 W
Filter class(es) of the 2-filter system with recirculation and exhaust air filters	Minimum of H 14 (separation efficiency <sup>i)</sup> : $E \geq 99.995\%$ in accordance with DIN EN 1822-1		
Cleanroom class in the work space	EG-GMP guide: Class A; DIN EN ISO 14644-1: ISO class 5		

g) Specifications for ECO determined in accordance with DIN EN 12469, for GMP in accordance with ISO 14644-3.

h) Increase in temperature inside the cabinet when switched on in GMP mode after 4 hours of operation.

i) Integral separation efficiency determined in the minimum of separation efficiency or with maximum penetrability, i.e. using particles known as the Most Penetrating Particle Size (MPPS).

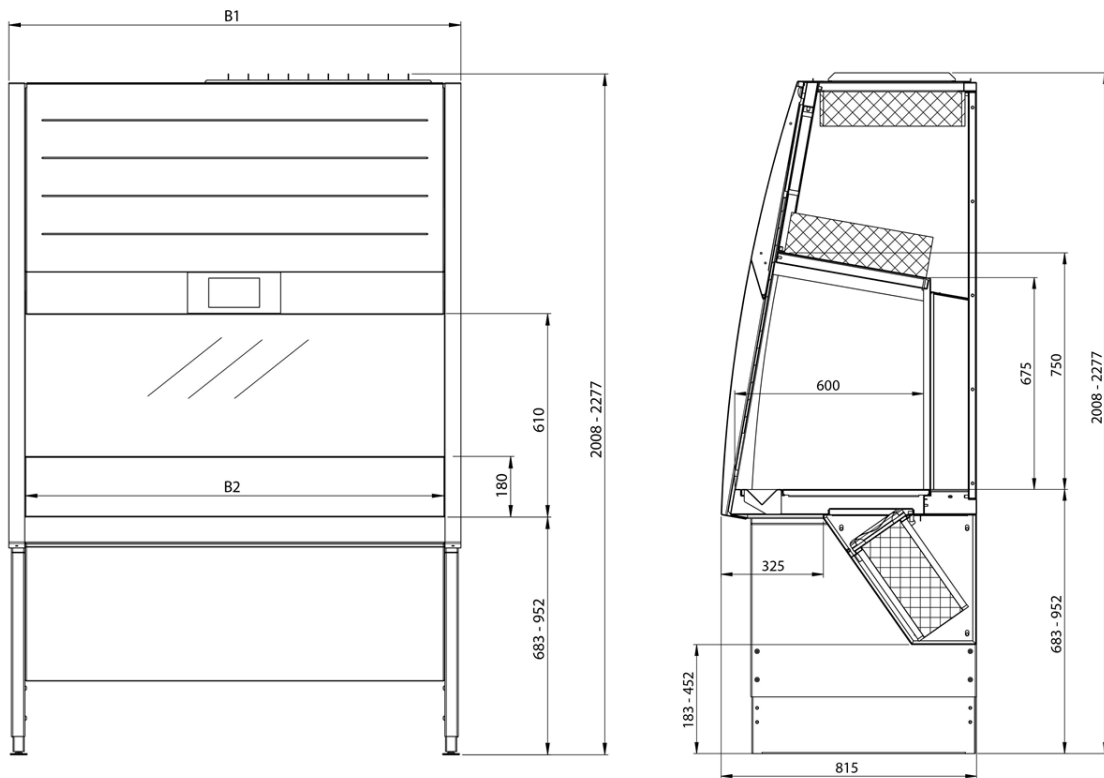


Figure 1: Construction and dimensions of the safety cabinet in the front and side views; example: Claire® pro B/C-3-130 (B1 = width, external dimensions; B2 = width of the work aperture, depending on the model size, see table of technical data)

## 1.2 Claire® pro: 3-Filter-System

### GENERAL DATA

<b>Manufacturer</b>	BERNER INTERNATIONAL GMBH		
<b>Device</b>	Lab device		
<b>Device type</b>	Class II microbiological safety cabinets		
<b>Design</b>	DIN 12980; DIN EN 12469; NSF 49, Type A2		
<b>Year of construction</b>	Please refer to the type label underneath the front hood		
<b>Certificate</b>	TÜV GS certificate (valid for all models with the exception of the B/C-3-160!)		
<b>Labelling</b>	CE		
<b>Quality management system</b>	DIN EN ISO 9001:2008		
<b>Model</b>	<b>Claire® pro C-3-130</b>	<b>Claire® pro C-3-160</b>	<b>Claire® pro C-3-190</b>
<b>Article number</b>	200000	200001	200002
<b>Model</b>	<b>Claire® pro B-3-130</b>	<b>Claire® pro B-3-160</b>	<b>Claire® pro B-3-190</b>
<b>Article number</b>	200006	200007	200008

### GENERAL TECHNICAL DATA

<b>Sound pressure level conforming to ISO 11201<sup>a)</sup> (ECO/GMP)</b>	≥ 54.0/56.6 dB(A)	≥ 56.1/58.5 dB(A)	≥ 55.8/56.9 dB(A)
<b>Nominal illuminance</b>	0-1,100 lux	0-1,100 lux	0-1,100 lux
<b>Vibration (RMS) on the worktops</b>	≤ 5 µm	≤ 5 µm	≤ 5 µm
<b>Collecting basin volume</b>	approx. 6 l	approx. 7.0 l	approx. 8.7 l

### ELECTRICAL DATA

<b>Nominal voltage or nominal frequency</b>	230 V AC / 50 Hz		
<b>Deactivation characteristics of fuse on-site</b>	C16		
<b>Nominal current<sup>b)</sup> or nominal output (GMP/ECO)</b>	1.35 A, 310 VA 0.95 A, 220 VA	1.90 A, 440 VA 1.5 A, 345 VA	2.44 A, 560 VA 1.63 A, 375 VA
<b>Power consumption (GMP/ECO)</b>	280 / 190 W	400 / 330 W.	530 / 335 W
<b>Protection class</b>	I		
<b>Protection type</b>	IP 20		
<b>Connection</b>	Schuko safety plug		

a) Measured with distances to the device conforming to EN 12469.

b) Overall nominal current increases with the use of the sockets in the working area by up to 5 A. The total load of the sockets is not permitted to exceed 5 A!

### MECHANICAL DATA\*

\* All length specifications in [mm]

<b>External dimensions (WxHxD)</b>	1,352 x 2,008 – 2,277 x 815	1,654 x 2,008 – 2,277 x 815	1,957 x 2,008 – 2,277 x 815
<b>Work area (WxHxD)</b>	1,257 x 640-700 x 600	1,559 x 640-700 x 600	1,862 x 640-700 x 600
<b>Usable working surface<sup>c)</sup> (WxD)</b>	1,217 x 445	1,519 x 445	1,822 x 445
<b>Segmented worktops (WxL)</b>	313 x 470	310 x 470	309 x 470
<b>Number of worktops</b>	4	5	6
<b>Maximum load capacity per segment</b>	10 kg	10 kg	10 kg
<b>Working access opening(WxH)</b>	1,257 x 180	1,559 x 180	1,862 x 180
<b>Access opening, front window fully open<sup>d)</sup></b>	450 ± 50	450 ± 50	450 ± 50
<b>Clearance dimensions<sup>e)</sup> (HxD), complete with cabling</b>	1,996 x 815	1,996 x 815	1,996 x 815
<b>Clearance dimensions<sup>e)</sup> (HxD), excl. add-on parts</b>	1,946 x 815	1,946 x 815	1,946 x 815
<b>Minimal clearance dimensions<sup>e)f)</sup> (HxD)</b>	1,946 x 790	1,946 x 790	1,946 x 790
<b>Work surface height</b>	683 - 952	683 - 952	683 - 952
<b>Weight</b>	approx. 325 kg	approx. 400 kg	approx. 426 kg

c) Excluding the front, rear and side intake openings.

d) **Caution:** This is not a position with optimal personnel and product protection! Only for loading/unloading of the working space (e.g. bulky utensils), cleaning, etc.

e) Default shipment for Claire® pro is in combination with base frame due to the overall height < 2m. **A horizontal and vertical distance of 10 mm more should be planned in!** Before delivery, it is critical to coordinate with the dimensions of the smallest doors! Also take the pallet into account! Only applies to the standard base frame. When combined with an electrical height adjustable base frame, the minimum height is approx. 2034mm! The delivery is then generally made separated from the base frame.

f) Excludes front side panels.

Model	Claire® pro C-3-130	Claire® pro C-3-160	Claire® pro C-3-190
	Claire® pro B-3-130	Claire® pro B-3-160	Claire® pro B-3-190

**MATERIAL-SPECIFIC DATA: HOUSING**

Material of work area	1.5 mm thick stainless steel "V2A", material no.: 1.4301		
Surface quality of work area	320 grind, medium roughness $R_a \approx 1.6 \mu\text{m}$		
Housing material	Powder-coated 1.5 mm thick Zincor steel plate, material no.: 1.0330		
Powder coating colour	White RAL 9003 matt; black RAL 9005 matt		
Front, side and rear panels	Multi-layer safety glass with intermediate film to absorb UV radiation		

**TECHNICAL AIR DATA "3-FILTER SYSTEM"**

Exhaust and supply air volume flow	approx. 330 m <sup>3</sup> /h	approx. 410 m <sup>3</sup> /h	approx. 485 m <sup>3</sup> /h
Required total exhaust volume (with non-reactive exhaust connection)	450 ± 50 m <sup>3</sup> /h	525 ± 50 m <sup>3</sup> /h	600 ± 50 m <sup>3</sup> /h
Displacement flow velocity <sup>g)</sup> (Downflow)	0.29 / 0.45 m/s (ECO/GMP)	0.30 / 0.45 m/s (ECO/GMP)	0.31 / 0.45 m/s (ECO/GMP)
Average air inlet velocity (Inflow)	0.40 m/s	0.40 m/s	0.40 m/s
LWZ <sub>ECO</sub> in the work area (air exchanges/h)	1175 /h	1181 /h	1223 /h
LWZ <sub>GMP</sub> in the work area (air exchanges/h)	1889 /h	1897 /h	1965 /h
Temperature increase in the work area <sup>h)</sup>	1.8°C	1.2°C	1.4°C
Heat load (ECO/GMP)	approx. 114 / 168 W	approx. 165 / 200 W	approx. 201 / 318 W
Filter class(es) of the 3-filter system with main, recirculation and exhaust air filters	Minimum of H 14 (separation efficiency <sup>i)</sup> : $E \geq 99.995\%$ ) in accordance with DIN EN 1822-1		
Cleanroom class in the work area	EG-GMP guide: Class A; DIN EN ISO 14644-1: ISO class 5		

g) Specifications for ECO determined in accordance with DIN EN 12469, for GMP in accordance with ISO 14644-3.

h) Increase in temperature inside the cabinet when switched on in GMP mode after 4 hours of operation.

i) Integral separation efficiency determined in the minimum of separation efficiency or with maximum penetrability, i.e. using particles known as the Most Penetrating Particle Size (MPPS).

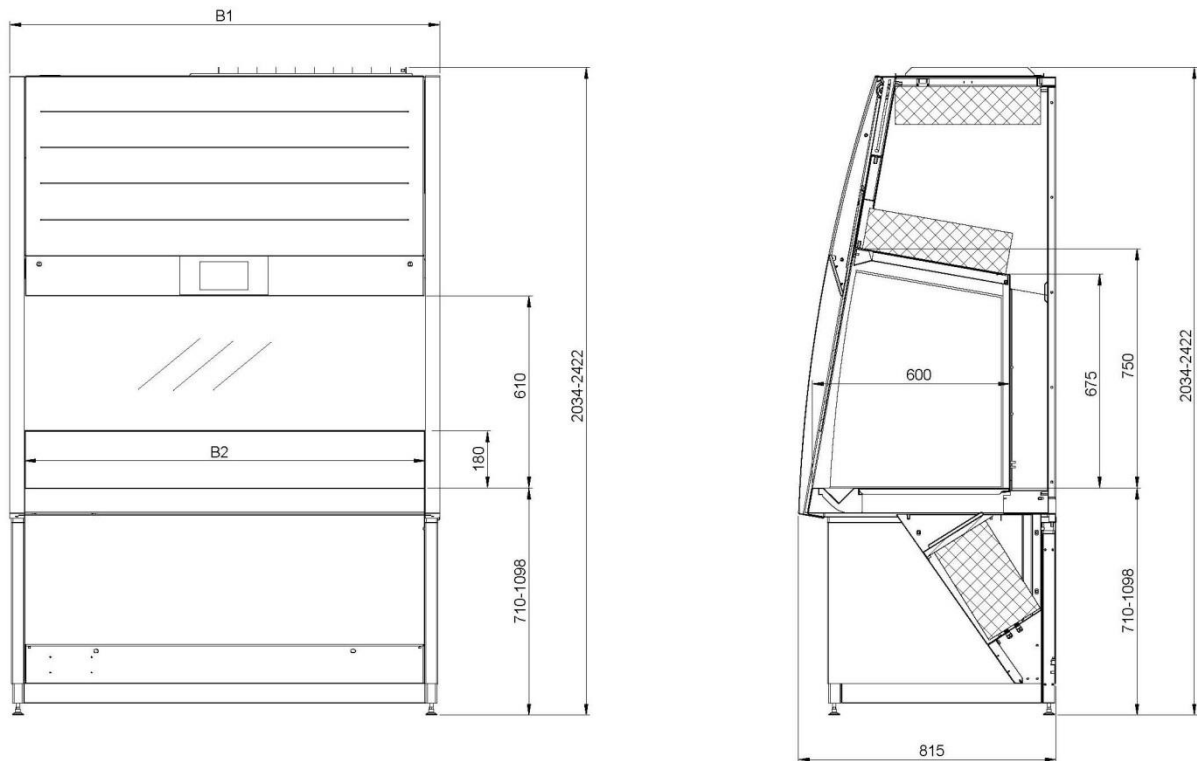


Figure 2: Construction and dimensions of the safety cabinet in the front and side views with electrical height adjustable base frame; example: Claire® pro B/C-3-130 (B1 = width, external dimensions; B2 = width of the work access opening, depending on the model size, see table of technical data)

### 1.3 Claire® pro: standard equipment and other options

Standard and options	Model line Claire® pro					
	B/C-3-130	B/C-3-160	B/C-3-190	B-2-130	B-2-160	B-2-190
<b>GENERAL</b>						
Power socket <sup>1)</sup> , 230 VAC, I Max = 5 A				Standard (1x)		
Filter test access				Standard		
Base frame, 7-stage				Standard (for installation, adjustable between 683-952 mm)		
Power socket, in addition				200009		
side window lead-throughs, 2x, d=22 mm				200051		
Cable entry for 16 lines				200022		
Weighing work top for low vibration system				200018		
Heating plate, controllable, integrated into work top				200963		
Work top, fully continuous, one-part	201006	201041	201042	201027	201040	201038
Electrically height-adjustable base frame <sup>2)</sup>	200097	200098	200099	200059	200064	200060
SealSafe plus, attachment with waste sealing unit				200029 (right), 200147 (left)		
Stainless steel version <sup>3)</sup>				on request		
<b>INTERFACES<sup>4)</sup> &amp; IT WORKSTATION</b>						
Interface RS 232				200010		
Interface USB				200011		
Double Interface USB				200046		
Interface USB 3.0				200012		
Double Interface USB 3.0				200052		
Interface CAT 6				200425		
Double Interface CAT 6				200168		
Interface Mettler-Toledo scales				200081		
Interface HDMI				200447		
Integrated screen 19" / 22"				200047 / 200016		
Keyboard shelf, swivel-mounted, left/right				200050 / 200061		
Printer shelf (various sizes, DxW)				200049 (330x215mm) / 200133 (490x265mm) / 200065 (722x306mm)		
<b>CLEANROOM &amp; EXHAUST AND EXHAUST AIR SYSTEMS</b>						
Exhaust air connection Exhaust FlexDuct	200027	200180	200028	200027	200180	200028
Potential-free contact, normal operation				200035		
Potential free contact, night operation				200034		
Potential-free contact, group alarm				200036		
Particle monitoring: Integration of an isokinetic sampling probe in the rear panel				200062 <sup>5)</sup> / 200017 <sup>6)</sup>		
Particle monitoring: Connection preparations for fixed or mobile isokinetic sampling probe				on request		
Pressure sensor calibration certificate				on request		
GMP documentation <sup>7)</sup> (in accordance with EU-GMP guide in appendix 15)				200031		

**TECHNICAL DATA**

Claire® pro | Safety cabinet for cytostatics &amp; class II microbiological safety cabinet

Page 6 of 6

Standard and options (continuation)	Model line Claire® pro					
	B/C-3-130	B/C-3-160	B/C-3-190	B-2-130	B-2-160	B-2-190
<b>BIOTECHNOLOGICAL APPLICATIONS</b>						
Lab fittings for compressed air/vacuum/nitrogen	200037 / 200038 / 200039					
Assembly of the lab fittings into the rear panel	200096					
Media tap for flammable gases in the side panel	200040					
Media tap for flammable gases, integrated into the rear wall	200041					
Pre-filter protection	N/A		200069		200068	200070
Segmented recirculation filter	200030	200466	200048	200030	200466	200048
UV-C disinfection system QuickDecon	200019	200151	200020	200019	200151	200020

1) All connections in the working space are positioned in the rear and equipped with cover flaps (IP 44) with spraywater protection. The total number of possible connections is normally restricted with the Claire® pro models, 3+3 (R/L) for 130, 4+4 (R/L) for 160 and 5+5 (R/L) for 190.

2) Special adaptations should be observed or required when using an exhaust air connection or a gas line.

3) Complete housing made from stainless steel (AISI 304) instead of powder-coated steel plate, including other steel types (AISI 316) possible, including for individual components such as the work tops, complete work space etc.

4) Other interfaces not listed are available on request

5) Mobile or flexible installation in the work space

6) Stationary, normally positioned centrally in the middle of the rear panel

7) Individual consultation & quotation, in accordance with requirements