



LN 600 series



### Application-dependent filter equipment

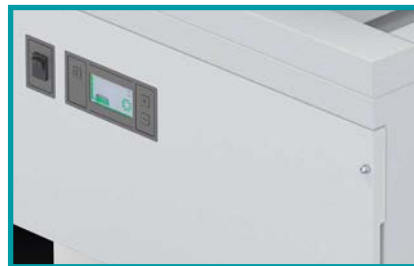


Depending on the process, the compact and modular design ensures that the filter equipment is adapted to the respective process at the factory. The use of high-performance turbines enables decentralized system arrangement and reliable

extraction even over long distances. The LN series effectively filters vapours and gases from the air, especially for soldering work, laser processing and sticky and moist dusts.



### Application-dependent motor selection



TBH offers a selection of different motor concepts in its product range to ensure the optimum suitability of the filter and extraction system for the respective application. This enables the system to be ideally adapted to the conditions on site, for example through:

- Short or long extraction lines,
- Large or small line cross-sections,
- Coarse or fine particles,
- single-spot or multi-spot extraction,
- noise-sensitive environment,
- industrial production hall.



## Low-contamination filter changing

Once the filter is saturated, the user can individually remove it from the system and exchange it without touching the other filters. TBH has optimized the "ZS" and "ZSA" filter equipment of the LN 600 series with regard to handling and system service life. The SafeLine filter developed for this purpose is in an enclosed housing that can be easily closed off when changing the filter. Thus, the user is effectively protected against the filtrate contained in it. Due to the special filter design,



heavy particles settle at the bottom of the filter without loading the filter surface. The optimum inflow of the filter packs and the enormous filter surface ensure long service life. The filter equipment includes particle filters (H14), which effectively separate ultrafine particles to 99.995% according to DIN EN 1822 and thus allow the cleaned air to be returned to the work area. The filters are especially designed for high safety standards in laser welding.



## Double adsorption power



Active carbon



BAC granulate



Active carbon/BAC

The adsorption of the gaseous substances takes place with activated carbon (physical adsorption) and BAC granulate (chemical adsorption). In addition, they take up a very broad spectrum of gases and odours.

-> Neutralization through chemical bonding with the reaction substance applied to the substrate material.

**Draws off every harmful particle**

**Pollutants do not stand a chance**



- Low-contamination dust disposal
- Molecular sieve against gaseous pollutants
- Piping / Flexible hose / Extraction arm
- Air-recirculation or exhaust-air pipe

**High air flow rate**

**For powerful extraction**



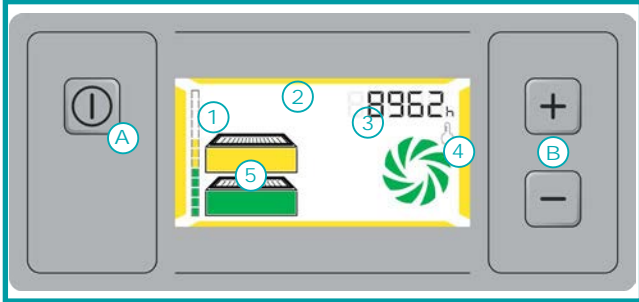
Illustration similar

- Specially developed for applications where high air flow is required for extraction, e.g. from large laser systems.
- Can be used as a central system for multi-user extraction
- Reliable extraction over longer distances possible due to smaller cross-sections

## Inspiring checking



### Always full control over the system



- . A - Start / Stop button
- . B - Manual power control
- . 1 - Saturated filter notification
- . 2 - System status indication
- . 3 - Power-setting indication/Hour meter
- . 4 - Temperature and turbine-status indication
- . 5 - Filter-status indication

## Sub-D 25 interface



### External control of the system



Illustration similar

#### Powerful control unit

- . Start / Stop button
- . "Filter full" pre-warning stage (75 %)
- . Group-error output  
(speed, temperature, "filter full" 100 %)
- . External power control
- . Parameterization access for activating special functions
- . Message cache
- . Digital interface (RS232)

## OFFICES

OPIRA BRISBANE  
32 DIVIDEND ST  
MANSFIELD, QLD 4122

OPIRA MELBOURNE  
25 GRAHAM RD  
CLAYTON SOUTH, VIC

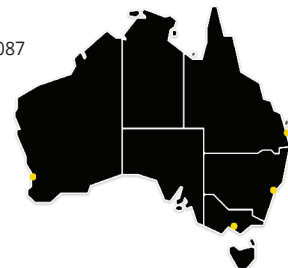
OPIRA PERTH  
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20 DUKE STREET  
FORESTVILLE, NSW 2087

## CONTACT

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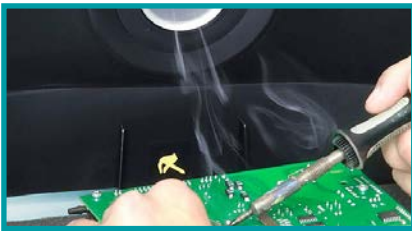


## Applications



### **Laser technology**

Lasers are used for processing metals, woods and plastics. Due to this versatility, companies are intensively involved in laser technology. This not only increases efficiency, but also creates unwanted by-products, regardless of type and performance. TBH systems ensure safe extraction of fine dust and laser fumes.



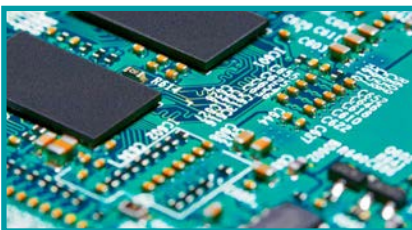
### **Soldering**

Soldering connects two different materials by melting. Tin solder being used releases additives that have harmful effects on the respiratory organs. Depending on the soldering application (manual or automated), a suitable filter and extraction system must therefore be used.



### **Welding/Grinding/Cutting**

Welding, grinding and cutting processes result in very fine particles from the surfaces being worked. These dangerous substances settle in the lungs and can lead to permanent inability of the respective employee to work. To prevent this from happening, welding fumes must be efficiently extracted. This is demanded by the legal authorities in TRGS528. TBH GmbH therefore offers a large number of systems with W3 / DGUV approval.



### **Electronics**

Manufacturers of electronic products work with small or tiny elements. Highly-toxic materials such as arsenic or phosphorus are often used to modify the properties of semiconducting substances. Solvents are used for removing contaminants on microchips; these pollute the environment and are harmful for employees.



### **Work processes with vapours/gases**

Gases are much more difficult to separate than solid particles. Due to their chemical structure, they can pass through most filters without any problems. Special filters are required to extract gases correctly and reliably.



### **Plastics processing**

Almost every industry today processes plastics. TBH systems are exactly the right solution for the safe extraction and filtration of grinding dusts and vapours that occur during the processing of plastics. Be convinced by our quality.



### **Technical glass**

Glass production results in great heat. The high temperatures required for melting glass cause gases containing large quantities of environmentally-hazardous substances to rise. In the course of the acid polishing, the hot or cold final layer releases tin or titanium chlorides, such as hydrofluoric acid and sulphuric acid. These substances must be drawn off, as they are harmful to one's health.



### **Refilling work, packaging processes, feeding and conveying processes**

When materials are moved from one place to another, such as during packaging or transportation, this process can cause particles to be released. Especially since they are not visible to the human eye, the risk should not be underestimated. Particles can develop from turbulences. TBH filter and extraction systems safely remove these particles from the ambient air.



### **Textile processing**

Clothing can lose small lint and thread particles. These are so light that they can hover in the air of enclosures, and any motion continuously whirled them up. A high concentration of these airborne fibres is present particularly in the processing of textiles. There are also chemicals used for dyeing clothing, which are usually harmful to health and therefore need to be extracted

## Technical data LN 610



Illustration similar



### Delivery scope:

- Fully mounted (incl. individual filter equipment)
- 4 castors for mobile use (filter equipment standard, A, ZS)
- Base stands (suitable for forklift trucks) - Filter equipment ZSA)
- Power cord

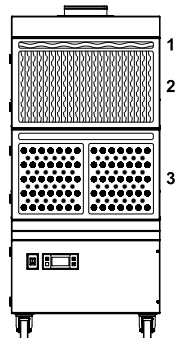
TECHNICAL DATA	UNIT	STANDARD	A	ZS	ZSA
Air volume flow with free air delivery	m <sup>3</sup> /h	max. 2000	max. 2000	max. 2000	max. 2000
Effective air flow rate	m <sup>3</sup> /h	300-1500	300-1500	300-1500	300-1300
Max. static pressure	Pa	5500	5500	5500	5500
Voltage	V	400*	400*	400*	400*
Frequency	Hz	50/60	50/60	50/60	50/60
Motor output	kW	3.0	3.0	3.0	3.0
Class of protection	-	1	1	1	1
Drive type	-	Continuous running			
Sound level	db(A)	approx. 68	approx. 68	approx. 68	approx. 68
Serial interface	Sub-D	25-pin	25-pin	25-pin	25-pin
Weight	kg	approx. 280	approx. 190	approx. 210	approx. 300
Dimensions (HxWxD)	mm	1530x700x777	1100x700x777	1600x700x777	1800x700x777
Intake sleeve NW 200	-	Standard	Standard	Standard	Standard
Exhaust sleeve NW 250	-	Standard	Standard	Standard	Standard
Color	RAL	7035	7035	7035	7035

\*400V (3P+N)

FILTER CONFIGURATION					
	Pre-filter mat M5 (ISO ePM <sub>10</sub> > 50%)	✓	✓	-	-
Z	Z+ F9 (ISO ePM <sub>2.5</sub> > 65%)	-	-	✓	✓
S	Particle filter	(H13)	-	(H14)	(H14)
A	activated carbon/BAC filter	2x 60 liters	2x 60 liters	-	2x 26 liters

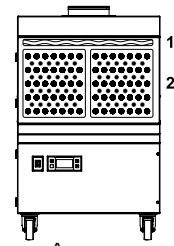


## Ordering data LN 610



STANDARD

DESIGNATION	ART. NO.
<b>LN 610</b> 400V 50/60 Hz	90033

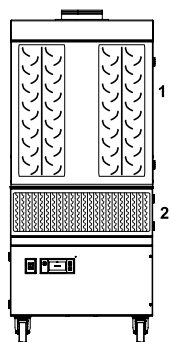


A

DESIGNATION	ART. NO.
<b>LN 610</b> 400V 50/60 Hz	90047

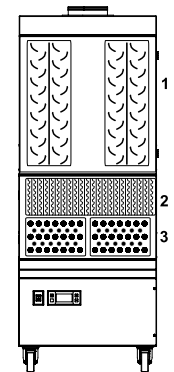
SPARE FILTER	
Pre-filter mat	12257 <b>1</b>
SafeLine filter	-
Particle filter	12258 <b>2</b>
2x activated carbon/ BAC filter	13190 <b>3</b>

SPARE FILTER	
Pre-filter mat	12257 <b>1</b>
SafeLine filter	-
Particle filter	-
2x activated carbon/ BAC filter	13190 <b>2</b>



ZS

DESIGNATION	ART. NO.
<b>LN 610</b> 400V 50/60 Hz	90455



ZSA

DESIGNATION	ART. NO.
<b>LN 610</b> 400V 50/60 Hz	90453

SPARE FILTER	
Pre-filter mat	-
SafeLine filter	16871 <b>1</b>
Particle filter	15951 <b>2</b>
2x activated carbon/ BAC filter	-

SPARE FILTER	
Pre-filter mat	-
SafeLine filter	16871 <b>1</b>
Particle filter	15951 <b>2</b>
2x activated carbon/ BAC filter	14517 <b>3</b>

## Technical data LN 615



Illustration similar

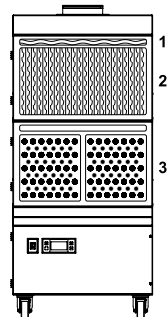
### Delivery scope:

- Fully mounted (incl. individual filter equipment)
- 4 castors for mobile use (filter equipment standard, A, ZS)
- Base stands (suitable for forklift trucks) - Filter equipment ZSA)
- Power cord

TECHNICAL DATA	UNIT	STANDARD	A	ZS	ZSA
Air volume flow with free air delivery	m <sup>3</sup> /h	max. 700	max. 700	max. 700	max. 700
Effective air flow rate	m <sup>3</sup> /h	100-550	100-550	100-550	100-500
Max. static pressure	Pa	15000	15000	15000	15000
Voltage	V	230	230	230	230
Frequency	Hz	50/60	50/60	50/60	50/60
Motor output	kW	1.8	1.8	1.8	1.8
Class of protection	-	1	1	1	1
Drive type	-	Continuous running			
Sound level	db(A)	approx. 68	approx. 68	approx. 68	approx. 68
Serial interface	Sub-D	25-pin	25-pin	25-pin	25-pin
Weight	kg	approx. 280	approx. 190	approx. 210	approx. 300
Dimensions (HxWxD)	mm	1530x700x777	1100x700x777	1600x700x777	1800x700x777
Intake sleeve NW 80	-	Standard	Standard	Standard	Standard
Exhaust sleeve NW 250	-	Standard	Standard	Standard	Standard
Color	RAL	7035	7035	7035	7035

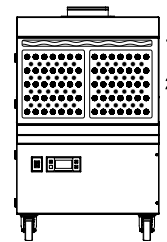
FILTER CONFIGURATION					
	Pre-filter mat M5 (ISO ePM > 50%)	✓	✓	-	-
Z	Z+ F9 (ISO ePM > 65%)	-	-	✓	✓
S	Particle filter	(H13)	-	(H14)	(H14)
A	activated carbon/BAC filter	2x 60 liters	2x 60 liters	-	2x 26 liters

## Ordering data LN 615



STANDARD

DESIGNATION	ART. NO.
<b>LN 615</b> 230V 50/60 Hz	90257

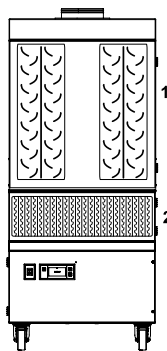


A

DESIGNATION	ART. NO.
<b>LN 615</b> 230V 50/60 Hz	90256

SPARE FILTER	
Pre-filter mat	12257 <b>1</b>
SafeLine filter	-
Particle filter	12258 <b>2</b>
2x activated carbon/ BAC filter	13190 <b>3</b>

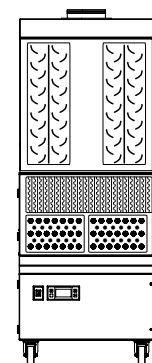
SPARE FILTER	
Pre-filter mat	12257 <b>1</b>
SafeLine filter	-
Particle filter	-
2x activated carbon/ BAC filter	13190 <b>2</b>



ZS

DESIGNATION	ART. NO.
<b>LN 615</b> 230V 50/60 Hz	90456

SPARE FILTER	
Pre-filter mat	-
SafeLine filter	16871 <b>1</b>
Particle filter	15951 <b>2</b>
2x activated carbon/ BAC filter	-



ZSA

DESIGNATION	ART. NO.
<b>LN 615</b> 230V 50/60 Hz	90454

SPARE FILTER	
Pre-filter mat	-
SafeLine filter	16871 <b>1</b>
Particle filter	15951 <b>2</b>
2x activated carbon/ BAC filter	14517 <b>3</b>

## Electronic control system



FUNCTION	LN 610	LN 615
Start / Stop button	✓	✓
Manual output control	✓	✓
Saturated filter notification (complete system)	✓	✓
Filter status indication SafeLine filter*	✓	✓
Filter status indication particle filter	✓	✓
Visual and audible indication of filter saturation	✓	✓
Indication of system status	✓	✓
Indication of power setting/hour meter	✓	✓
Indication of temperature and turbine error	✓	✓

\*depending on system

INTERFACE FUNCTION	LN 610	LN 615
Interface	Sub-D	Sub-D
Start / Stop button		✓
Pre-warning, filter saturated to 75 %	✓	✓
Group-error output (speed, temperature, "filter full"100%)	✓	✓
External power control	✓	✓
Message cache	✓	✓
Parameterization access for activating special functions	✓	✓

## Accessories



### USB CONNECTION

USE	DESIGNATION	CABLE LENGTH	ART. NO.
LN 610 / 615	USB connection cable	1.5 meters	16455

DELIVERY SCOPE: Connection cable (incl. software)

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**OPIRA SYDNEY**  
 20 DUKE ST  
 FORESTVILLE, NSW 2087



## Harting option



### HARTING MAINS CONNECTION

USE	DESIGNATION	ART. NO.
LN 610 / 615	Mains connection Harting option	17036



### INTERFACE HARTING

USE	DESIGNATION	ART. NO.
LN 610 / 615	Interface Harting option	15719



### USB CONNECTION HARTING

USE	DESIGNATION	CABLE LENGTH	ART. NO.
LN 610 / 615	USB connection cable Harting	1.5 meters	16466

DELIVERY SCOPE: Connection cable (incl. software)



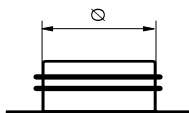
### ACTIVATED CARBON/BAC SEPARATOR

USE	DESIGNATION	ART. NO.
LN 610 / 615	Activated carbon/BAC separator	90461

Is connected downstream of the filter and extraction system

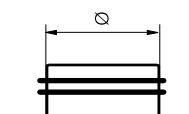
- Optimum inflow and contact time
- 150 l activated carbon/BAC filter for longer service life
- Reduction of pressure losses / Increase of system performance

## Accessories



### INTAKE SOCKET

USE	DESIGNATION	ART. NO.
LN 610	Flared collar/flange 1 x NW 200	Standard
	Flared collar/flange 1 x NW 160	16538
LN 615	Flared collar/flange 1 x NW 80	Standard
	Flared collar/flange 1 x NW 100	16539



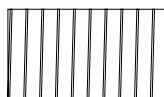
### DISCHARGE SOCKET

USE	DESIGNATION	ART. NO.
LN 610 / LN 615	Exhaust sleeve NW 250	Standard

\* Connection plate with socket for specific air discharge via hose

### AIR INLET - flexible connection hoses

Hose set with 2 hose clamps



USE	NW (mm)	LENGTH (m)	ART. NO.
LN 615	80	5.0	16655
		10.0	16656
	100	5.0	16443
		10.0	16444
LN 610	160	5.0	13213
		10.0	13214
	200	5.0	13215
		10.0	13216

For further connecting hoses, spiral ducts and pipe connectors, please refer to the TBH accessories catalog or contact the TBH service.



### SIGNAL MODULE

USE	ART. NO.
LN610 / LN 615	16621



### SPARK EXTINGUISHER (Use in piping)

USE	AIR VOLUME	Ø d (mm)	ART. NO.
LN 615	300-600 m³/h	80	16766

#### ATEX approval according to EN 1834

Installation: Depending on the application and size, the spark extinguishers can be installed on the wall or on a worktable using a special holder (included in delivery scope) or with pipe clamps (please order separately).

## Accessories



### FLOW-RATE MONITORING DEVICE

USE	Ø d (mm)	ART. NO.
LN 610 / LN 615	80	16642
LN 610 / LN 615	100	16643
LN 610 / LN 615	125	16644
LN 610 / LN 615	160	16762
LN 610 / LN 615	200	16661



### FILTER-RUPTURE MONITORING DEVICE

USE	Ø d (mm)	ART. NO.
LN 610 / LN 615	100	16651
LN 610 / LN 615	160	16652
LN 610 / LN 615	250	16653



### CABLE REMOTE CONTROL

#### FUNKTIONS:

- "Filter full indication"
- Start / Stop button
- Speed control
- Switch-on status of the system: Standby operation

USE	DESIGNATION	CABLE LENGTH	ART. NO.
LN 610 / 615	Cable remote control	7 meters	16477

DELIVERY SCOPE: Remote control (incl. cable)



### ELECTRIC FOOT SWITCH

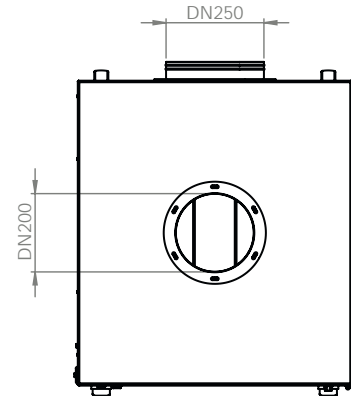
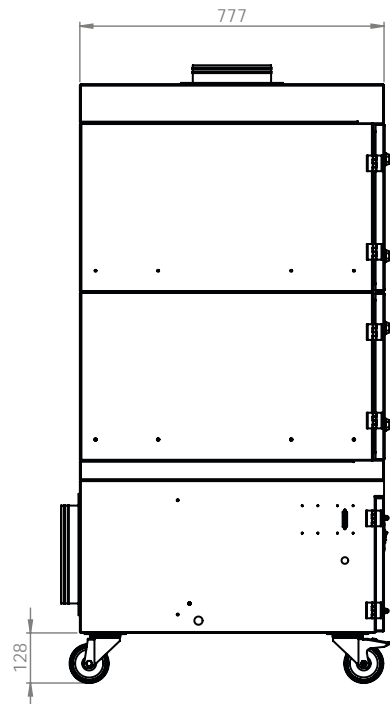
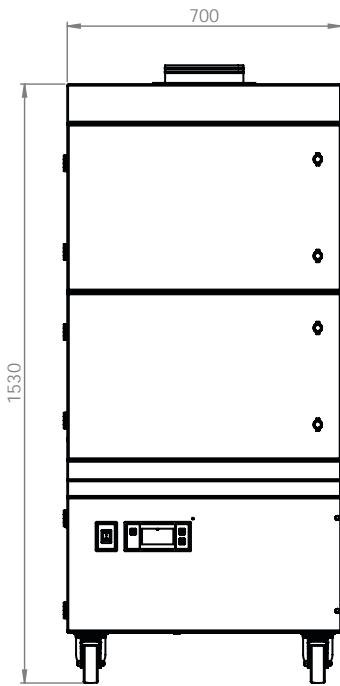
#### FUNKTIONS:

- Start / Stop button
- Switch-on status of the system: Standby operation

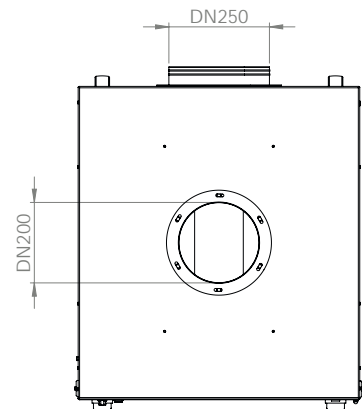
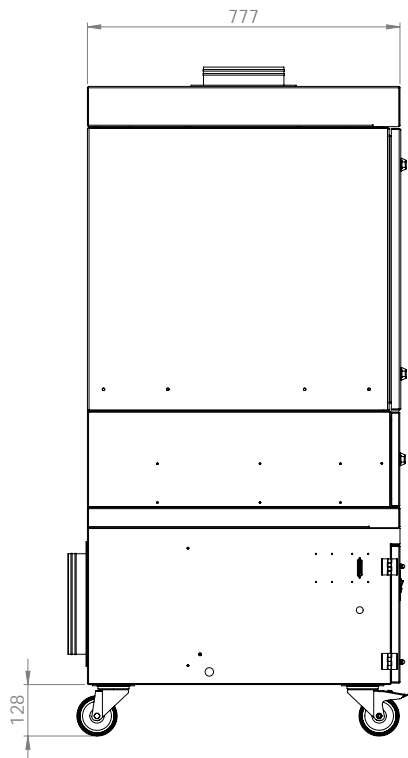
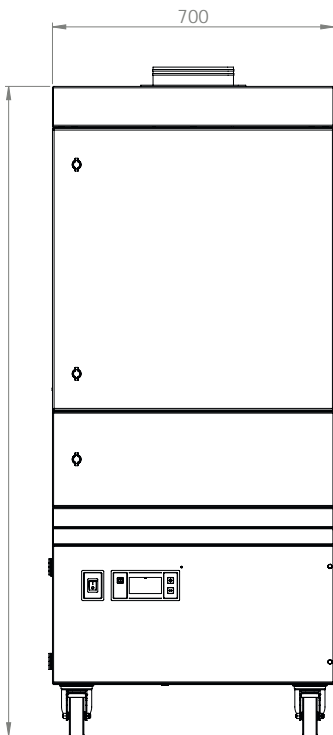
USE	DESIGNATION	CABLE LENGTH	ART. NO.
LN 610 / 615	Electric foot switch	2 meters	16369

DELIVERY SCOPE: Foot switch (incl. cable)

**Technical drawings**



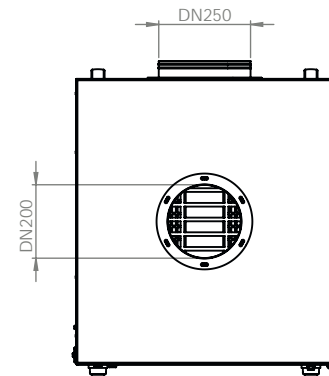
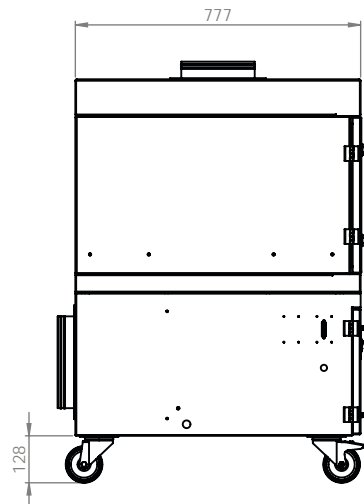
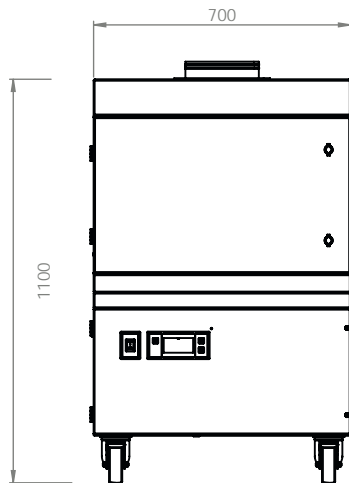
**LN 610**



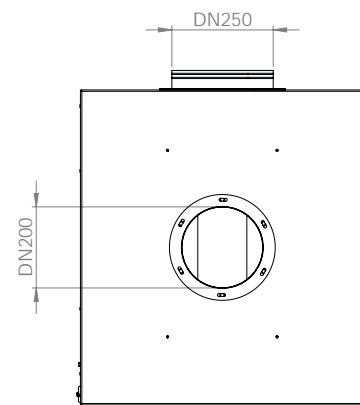
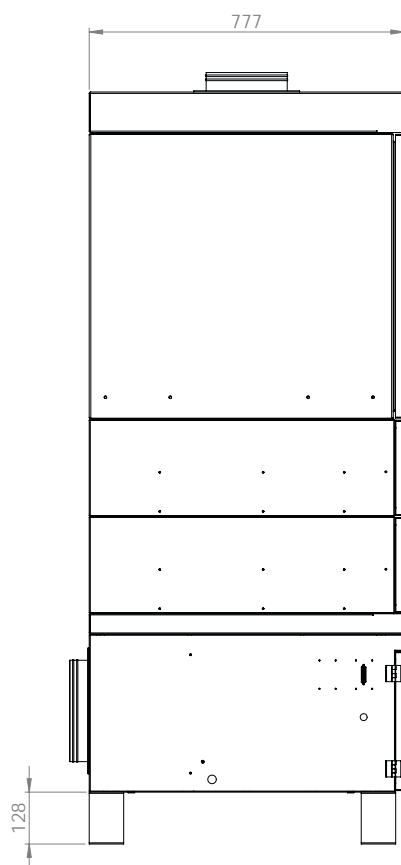
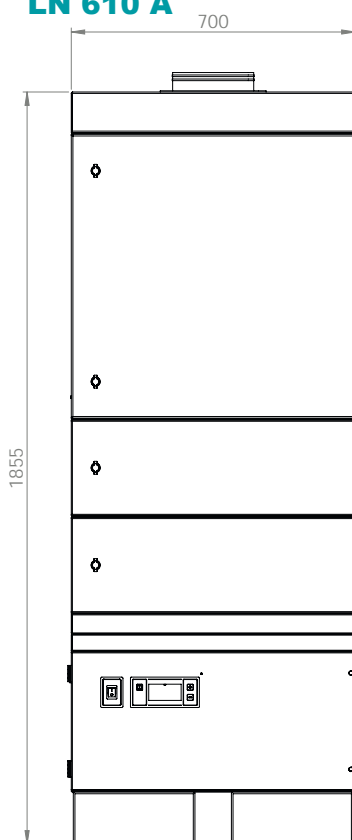
**LN 610 ZS**



## Technical drawings



### LN 610 A

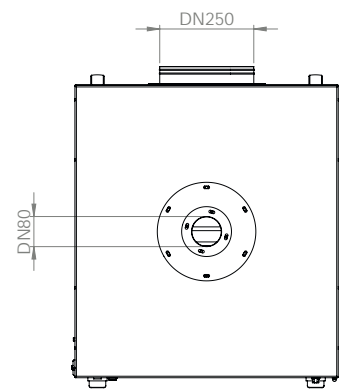
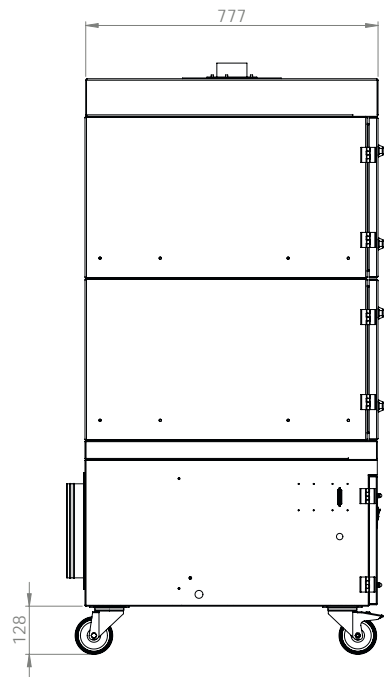
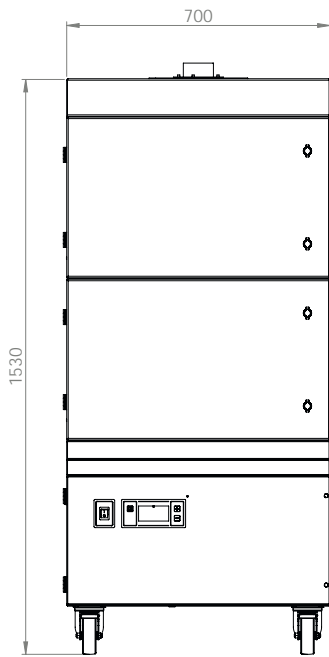


### LN 610 ZSA

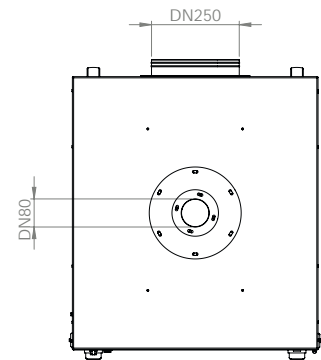
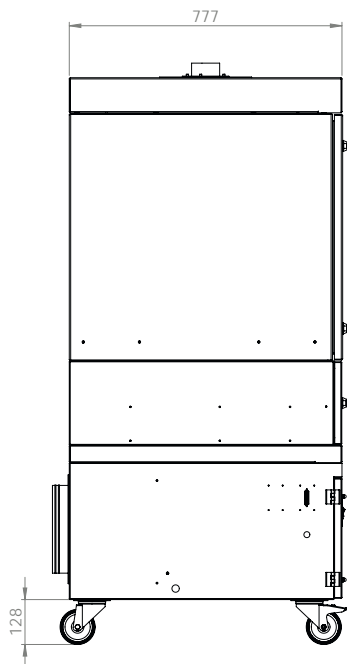
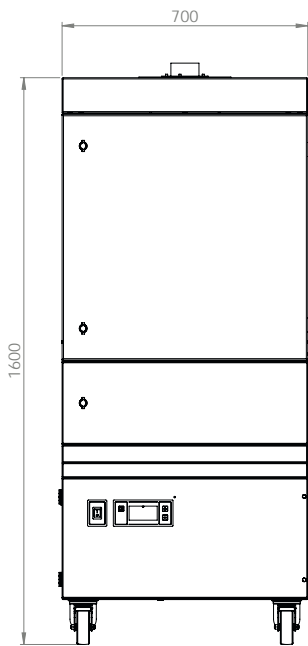
HUMANS / ENVIRONMENT / MACHINERY



Technical drawings



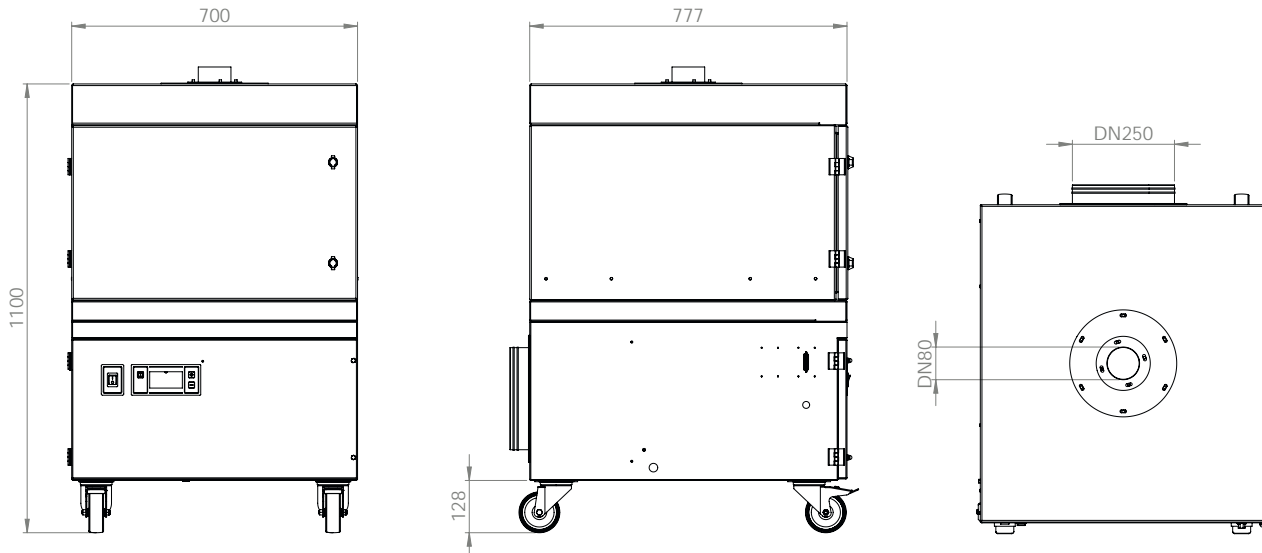
LN 615



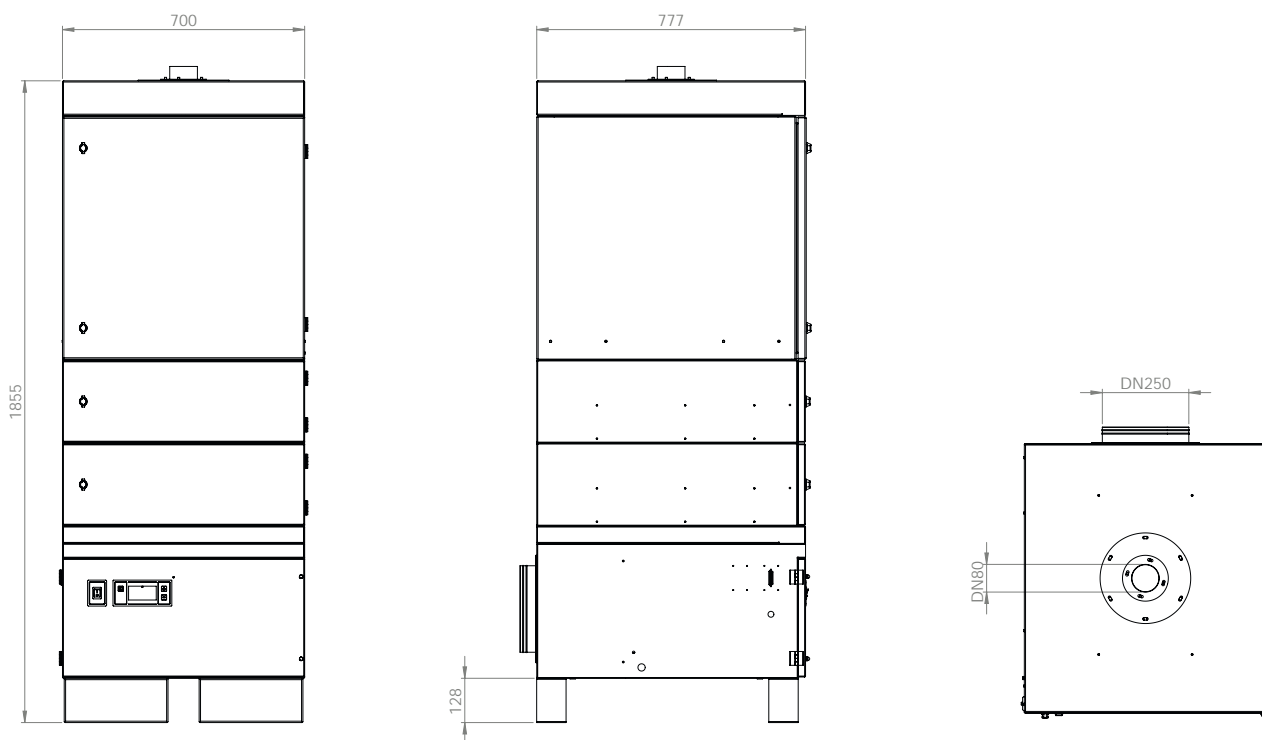
LN 615 ZS

HUMANS / ENVIRONMENT / MACHINERY

## Technical drawings



### LN 615 A



### LN 615 ZSA

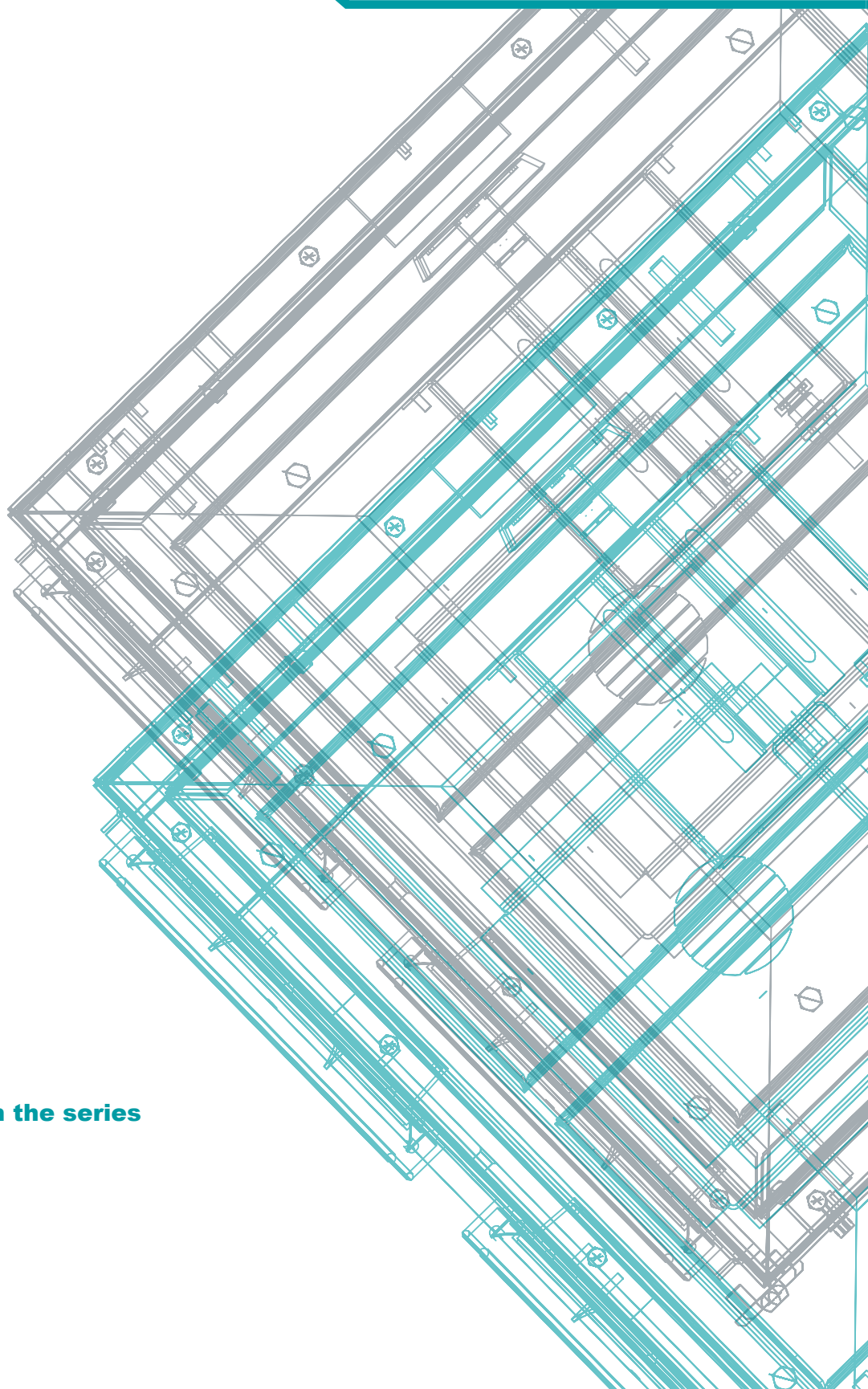
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**Further information on the series**

