

**INSTRUCTION MANUAL**  
**ELECTROSTATIC FILTER SER. 612/613**

**Nederman<sup>®</sup> CE**

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This product is designed to meet the requirements of the relevant EC directives. To maintain this status all installation, repair and maintenance work must be carried out by qualified personnel using only original spare parts. Contact your nearest authorised dealer or AB Ph. Nederman & Co. for advice on technical service or if you require spare parts.

### **DECLARATION OF CONFORMITY**

We, AB Ph. Nederman & Co., declare under our sole responsibility that the Nederman products **Electrostatic Filter, serial 612 and 613** to which this declaration relates, are in conformity with the following standards or other normative documents:

No. 3260: 1994, statutory instrument  
EN 60204 part 1: 1992  
EN 60335: part 1: 1988, 1994  
EN 50081-2 EMC Emission  
EN 50082-2 Immunity

#### **AB Ph. Nederman & Co.**

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1998-02-01



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Olle Nilsson, Product Manager

## TECHNICAL DATA

Article No.	610112	610212	610312	610412	610512	610612	610113	610213
Air-flow, max.:	2210 m <sup>3</sup> /h	2210 m <sup>3</sup> /h	4420 m <sup>3</sup> /h	4420 m <sup>3</sup> /h	8840 m <sup>3</sup> /h	8840 m <sup>3</sup> /h	2210 m <sup>3</sup> /h	4420 m <sup>3</sup> /h
Voltage:	400 V	400 V	400 V	400 V	400 V	400 V	230 V	230 V
Phase:	3~	3~	3~	3~	3~	3~	1~	1~
Frequency:	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Fan capacity:	0,55 kW	1,1 kW	0,55 kW	1,5 kW	2,2 kW	4 kW	N/A	N/A
Weight:	82 kg	82 kg	117 kg	117 kg	250 kg	250 kg	41 kg	80 kg
No. of electrostat.cells:	1	1	2	2	4	4	1	2
Rec. inlet Ø:	250 mm	350 mm	600 mm	250 mm	350 mm	600 mm	250 mm	350 mm
Operating temp. max:	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C

Electrostatic cells: Ionizing voltage: 12 kV, Collecting voltage: 5,9 kV, Weight: 14,9 kg

## UNIT INSTALLATION

Remove the unit from the shipping pallet and inspect for damage. Any damage which occurs when the unit is being removed or has been removed from the shipping pallet, is the responsibility of the consignee or his agent.

Before installing the unit, remove its ionizer / ionizers and collector cell / cells, store these in such a manner as not to damage them.

All units can be suspended from four eyebolts ( part no. 222449-017), (six eyebolts, part. no. 222449-018 on 610512 and 610612). Threaded holes covered by knock out discs are provided in the corner of the top surface (six positions on T.5200). The eyebolts must be double nutted. Alternatively, the units can be supported to platforms. A space of 538mm must be left to ensure the Cell Access door can be opened. Space should be left for the oil drain dimple on the bottom surface.

**Note:** The installation of the unit is the responsibility of the installation engineer, and as such, it is his responsibility to ensure that all anchorage points, shackles, suspension chains, and any other means of support are within safe working loads.



### WARNING!

To avoid the risk of collected contaminants, particularly oil being blown from the floorpan of the unit back up into the filters which would result in a fire risk it is ESSENTIAL that the oil drain hole is either plugged or fitted with an appropriate liquid trap.

The unit should be inspected regularly and collected contaminant removed to prevent excessive accumulation which may result in flash over or fire damage.

## ELECTRICAL CONNECTION



### WARNING!

This appliance must be earthed.

A circuit diagram on the inside of the cell access door and in this manual shows the electrical connection needed. For single phase, connect cable into the terminal block provided.

For three phase, connect cable into the terminal block provided then check rotation of fan.

If fan direction is incorrect, interchange the position of two of the three phase wires.

### Rating Label

The units rating label is fitted on the rear of the unit.

**Note:** This appliance must be fitted with a supply disconnecting device in accordance with EN 60947-3; utilization category AC-23B or a circuit-breaker in accordance with EN60947-2 suitable for isolation in accordance with EN 60947-3.

For connection to supply use HO5 VV-F or HO5 VVH2-F cable.

## OPERATION

### Louvers

The Louvers on the out-let grille are adjustable so that the direction of air flow may be controlled as desired.

### Arcing (snapping or cracking noise)

An occasional arcing noise may be emitted from the air cleaner. This is a normal reaction being caused by an exceptionally large piece of dirt etc., entering the collecting elements. Also, an arcing noise accompanied by flickering of the indicating light may also be noted after washing the cell. Should this happen, allow more drying time. Also see eFault Diagnosis Chart for additional causes of arcing.

## CELL CLEANING

For routine maintenance of a free hanging unit the operator must ensure he has a stable platform (scaffold tower etc.) to work from before removing the cell for cleaning. The frequency of cleaning depends on both the amount and type of contaminant. Units collecting welding fumes directly from the welding operation may require cleaning weekly, whereas free hanging units in a general workshop environment can go a month or more between services. The units are cleaned by manual process, it is a very efficient and simple method of cleaning the collector cells. The procedure is as follows:-

- "WARNING" During normal operation high voltage is present inside cabinet. Do not defeat door interlock switch. Always disconnect from supply and wait 1 minute before performing service within the cabinet.**
- Open access door
- Using the handle on the side of the cell (note the position of the direction of air flow arrow). Pull the cell / cells from the unit. The cell weighs 14.9 kgs. Then remove the pre

and after filter. See Unit Assembly on page 8.

d) The cell can then be cleaned by blowing the dust off using an airline or washing with a strong detergent and warm water solution. Do not use an alkaline cleaner that may attack the aluminum.

e) The cell / cells are then rinsed and allowed to drip dry before being replaced in the unit. When inserting the cell / cells it is imperative to the operation of the unit that the cell / cells are completely dry and correctly fitted (note the position of the direction of air flow arrow). Ensure the cell with earth spring is fitted last and that the spring makes contact with the door when closed.

### Oil Application

If a unit has an oil application, the unit becomes virtually self cleaning, needing infrequent washing. This occurs due to the fact that the oil, once collected, then runs down the cell plates and is allowed to drip through a drain plug, into a suitable receptacle.

## RECOMMENDED MAINTENANCE

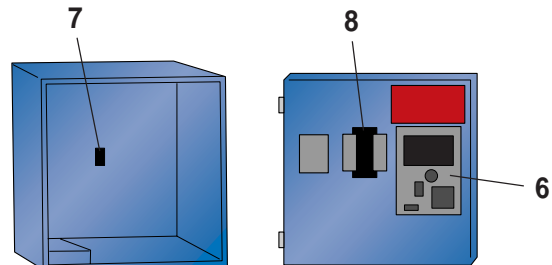
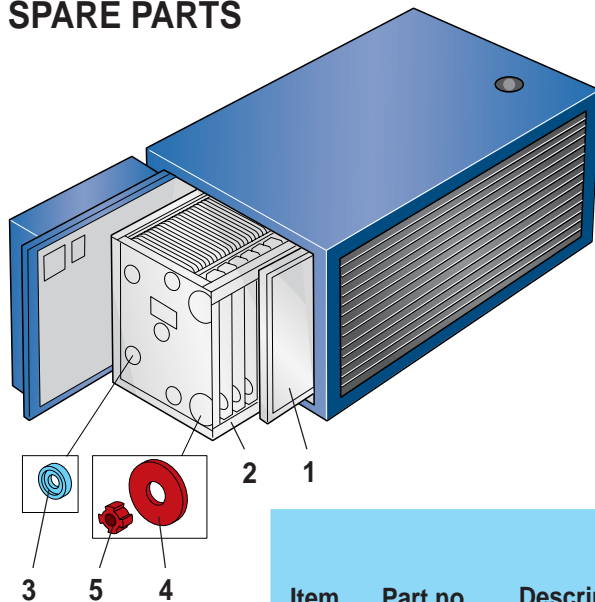
The unit requires the following check:

- Red L.E.D. light, on the side access door, should ALWAYS be illuminated when operating efficiently. **This should be checked on a daily basis.**
- The pre-filter should be inspected to see if excess

contamination is building up. If dirty, clean in detergent and warm water solution. **This should be checked initially every week and then every four weeks.**

- The fan belt should be checked for excessive wear and that it is tensioned correctly.

## SPARE PARTS



### Order instruction

- When ordering spare parts always state:
- Part no. of the spare part and the name (as per list below).
  - Quantity of the parts required.

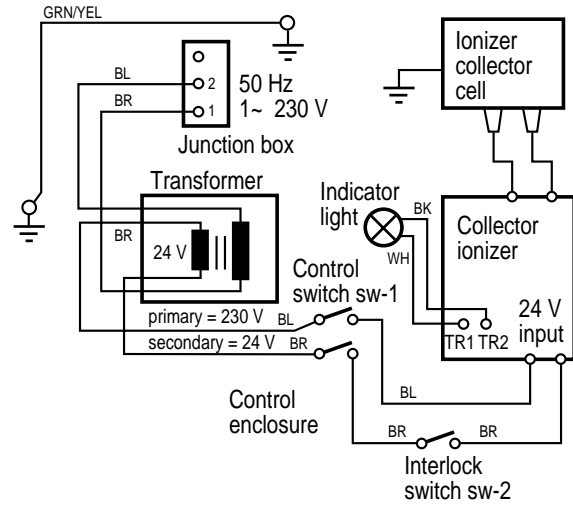
Item	Part no.	Description	610112	610212	610312	610412	610512	610612	610113	610213
1	224451-006	Pre/After filter	1/1	1/1	2/2	2/2	4/4	4/4	1/1	2/2
2	448104-001	Ionizer collector cell	1	1	2	2	4	4	1	2
3	246533-001	Insulator/cell	10	10	10	10	10	10	10	10
4	243805-002	Insulator, venturi/cell	4	4	4	4	4	4	4	4
5	143589-001	Spacer, venturi/cell	4	4	4	4	4	4	4	4
6	347891-013	High frequency power supply	1	1					1	
6	347891-026	High frequency power supply			1	1	2	2		1
7	243847-002	Switch, on/off	1	1	1	1	1	1	1	1
8	248655-005	Transformer, 230V - 24V							1	1
8	70513-087	Transformer, 400V - 24V	1	1	1	1	2	2		

## FAULT DIAGNOSIS

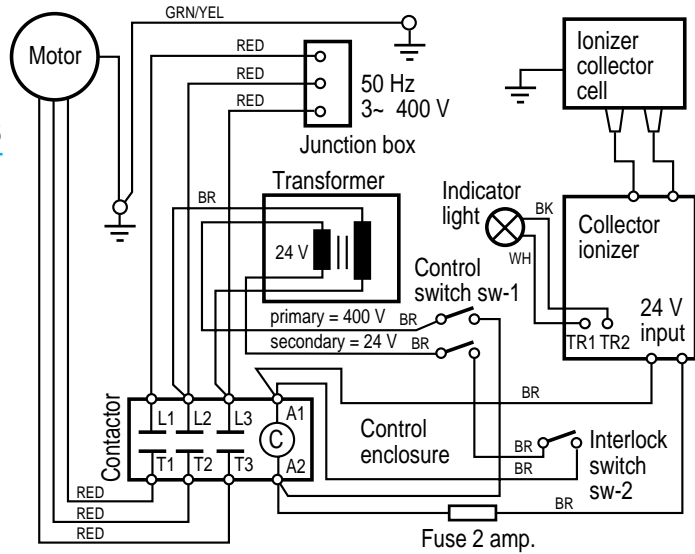
PROBLEM	POSSIBLE CAUSE	CORRECTION
On / Off switch not illuminated	<ul style="list-style-type: none"> <li>a) Check power supply to unit</li> <li>b) Control switch off</li> <li>c) Door not fully closed</li> <li>d) Fuse blown / cut out operated</li> </ul>	<ul style="list-style-type: none"> <li>a) Connect power</li> <li>b) Switch on</li> <li>c) Close door</li> <li>d) Change fuse/reset</li> </ul>
Red L.E.D out	<ul style="list-style-type: none"> <li>a) Check on/off switch light, is on, if not</li> <li>b) Broken cell insulator</li> <li>c) Extremely dirty cells</li> <li>d) Power pack malfunction</li> </ul>	<ul style="list-style-type: none"> <li>a) Check on/off switch not illuminated</li> <li>b) Replace</li> <li>c) Wash</li> <li>d) Replace</li> </ul>
Electrostatics not working	<ul style="list-style-type: none"> <li>a) Excessive dirt</li> <li>b) Object between plates</li> <li>c) Damaged (bent) plate</li> <li>d) Damaged (bent) ionizer</li> <li>e) Broken insulator</li> <li>f) Defective power supply</li> </ul>	<ul style="list-style-type: none"> <li>a) Wash</li> <li>b) Remove</li> <li>c) Straighten or replace</li> <li>d) Straighten or replace</li> <li>e) Replace</li> <li>f) Replace</li> </ul>
Power pack not working	<ul style="list-style-type: none"> <li>a) No power supply</li> <li>b) Defective power pack</li> </ul>	<ul style="list-style-type: none"> <li>a) Check input to pack</li> <li>b) Replace</li> </ul>
Unit will not work	<ul style="list-style-type: none"> <li>a) No power at service connection</li> <li>b) Access panel not closed</li> <li>c) Bad (open) safety switch</li> <li>d) Bad (open) control switch</li> <li>e) Transformer (open) wiring</li> <li>f) Loose Wiring</li> </ul>	<ul style="list-style-type: none"> <li>a) Rectify</li> <li>b) Close</li> <li>c) Replace</li> <li>d) Replace</li> <li>e) Replace</li> <li>f) Repair</li> </ul>
Heavy arcing after washing	<ul style="list-style-type: none"> <li>a) Collector elements still wet</li> </ul>	<ul style="list-style-type: none"> <li>a) Allow more drying time</li> </ul>
Continuous arcing and flickering indicating light	<ul style="list-style-type: none"> <li>a) Dirty cell</li> <li>b) Damaged (bent) plates</li> <li>c) Damaged (bent) ionizer</li> <li>d) Large particle between plates</li> <li>e) Bad contact to cell / ionizer</li> </ul>	<ul style="list-style-type: none"> <li>a) Wash</li> <li>b) Straighten or replace</li> <li>c) Straighten or replace</li> <li>d) Remove</li> <li>e) Check</li> </ul>
Loud hissing noise	<ul style="list-style-type: none"> <li>a) Dirty cell</li> <li>b) Loose high-voltage connection</li> </ul>	<ul style="list-style-type: none"> <li>a) Wash</li> <li>b) Rectify</li> </ul>
Radio and/or TV interference	<ul style="list-style-type: none"> <li>a) Improper earth connection</li> <li>b) Loose high-voltage connection</li> <li>c) Faulty suppression choke</li> </ul>	<ul style="list-style-type: none"> <li>a) Rectify</li> <li>b) Rectify</li> <li>c) Replace</li> </ul>
Air not being cleaned	<ul style="list-style-type: none"> <li>a) Cells not working</li> <li>b) Insufficient units</li> <li>c) Badly situated</li> <li>d) Pre-filter blocked</li> <li>e) Cell too dirty</li> <li>f) Inlet air too hot</li> <li>g) Air flow too great</li> <li>h) Inlet plenum too short</li> <li>i) Fault on electrostatics</li> <li>j) Excessive fume</li> </ul>	<ul style="list-style-type: none"> <li>a) Check as above</li> <li>b) Increase units</li> <li>c) Relocate</li> <li>d) Clean or replace</li> <li>e) Wash</li> <li>f) Pre-cool</li> <li>g) Slow air speed</li> <li>h) Modify</li> <li>i) Rectify (see above)</li> <li>j) Fit double pass unit</li> </ul>
Stinging eyes	<ul style="list-style-type: none"> <li>a) Unit blowing into faces</li> <li>b) Insufficient ventilation</li> </ul>	<ul style="list-style-type: none"> <li>a) Relocate</li> <li>b) Ventilate</li> </ul>

## WIRING DIAGRAMS

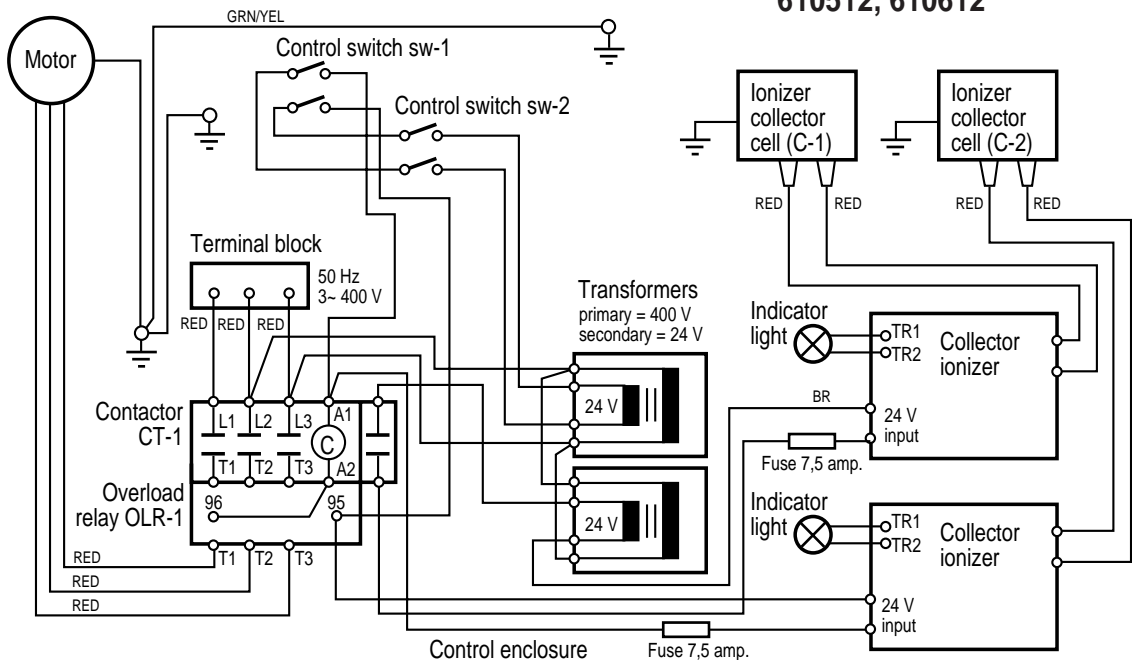
### ELECTROSTATIC FILTERS 610113, 610213



### ELECTROSTATIC FILTERS 610112, 610212 610312, 610412

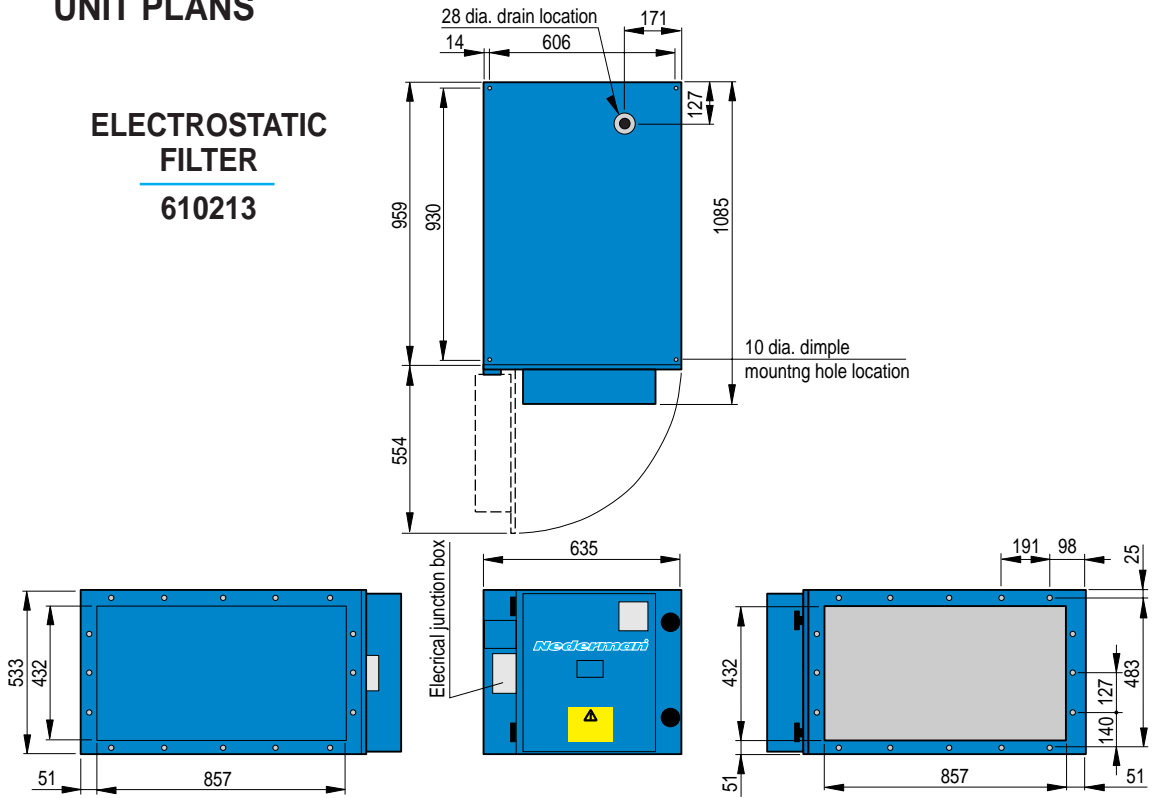


### ELECTROSTATIC FILTERS 610512, 610612

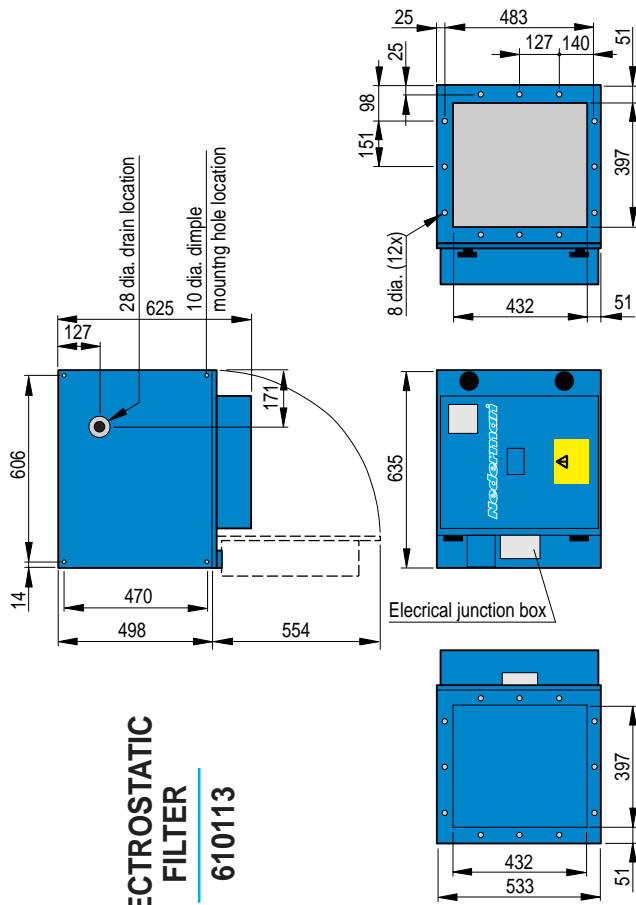


# UNIT PLANS

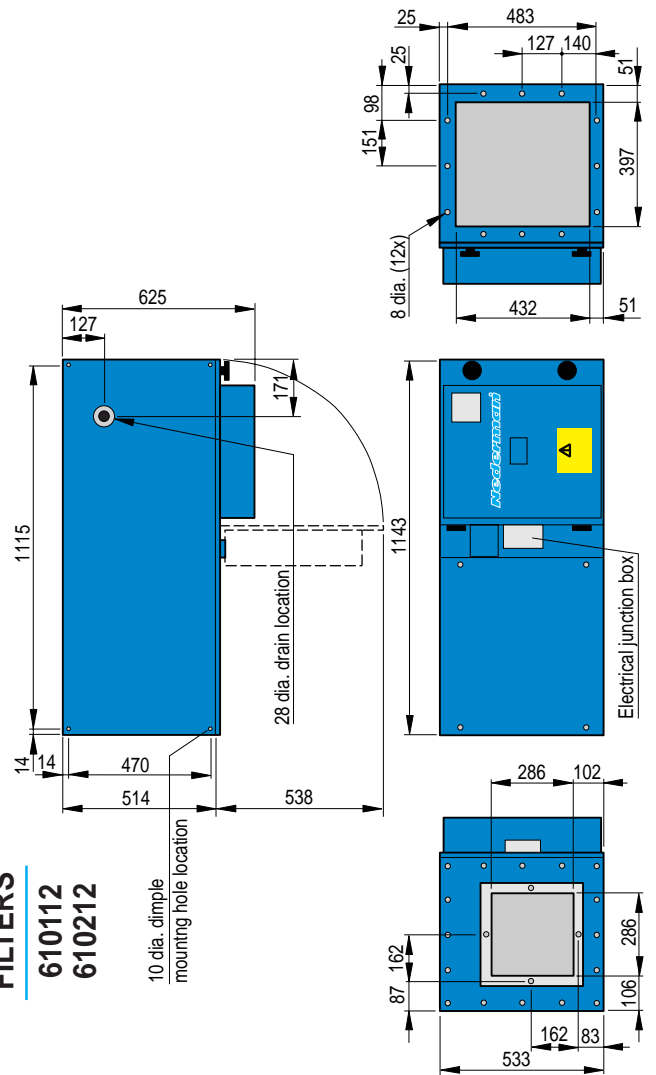
## ELECTROSTATIC FILTER 610213



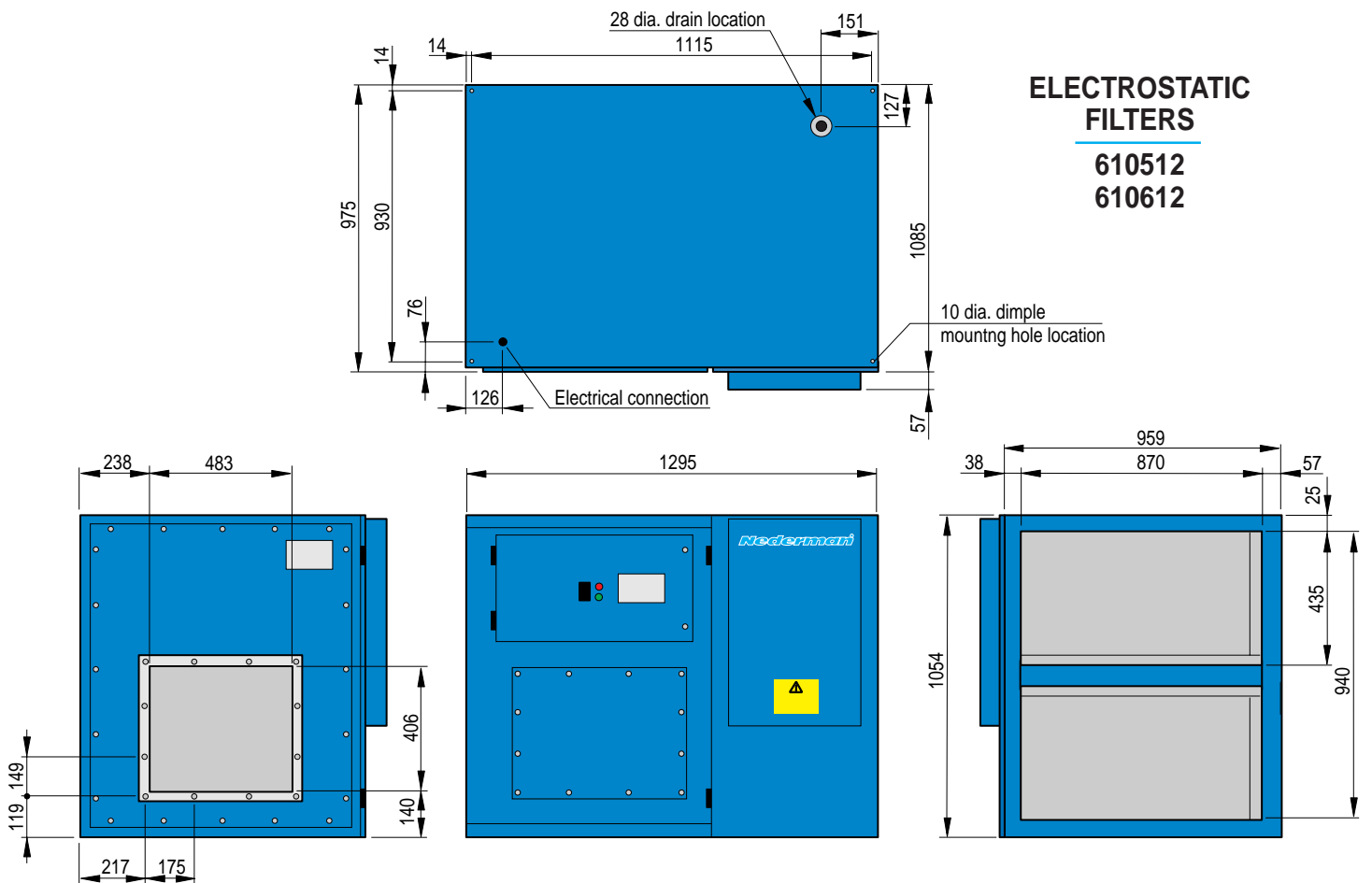
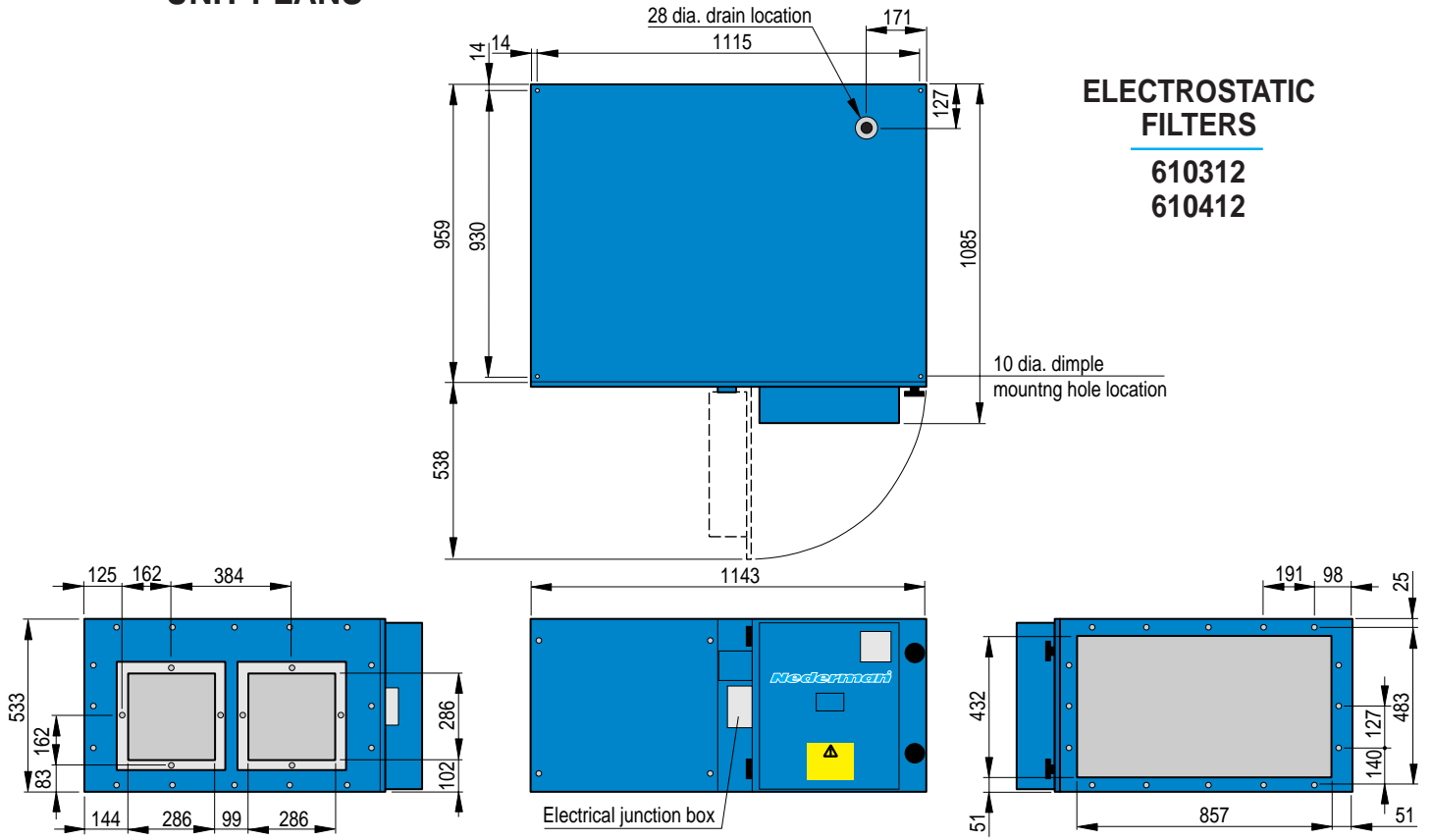
## ELECTROSTATIC FILTER 610113



## ELECTROSTATIC FILTERS 610112 610212



# UNIT PLANS



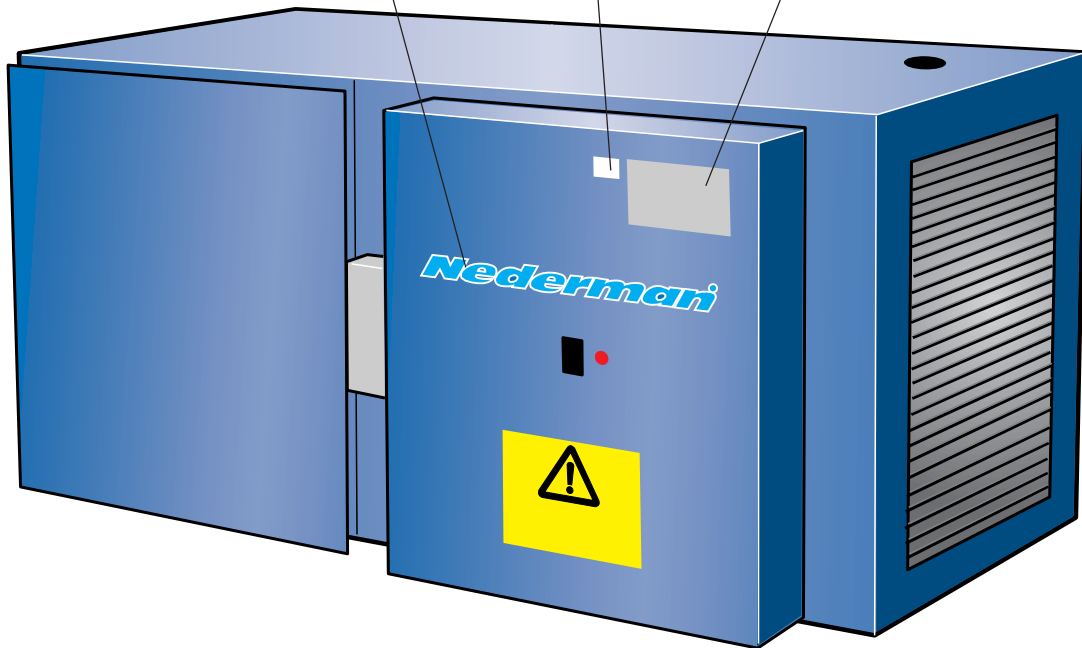
# COLOUR AND LABELS

## ELECTROSTATIC FILTER SER. 612/613

Nederman Label 147531  
(always above switch)

Nederman  
CE 147086

Nederman Article no.  
on Trion name plate



Colour: Blue NCS 5136-R98B  
(Raal 5009)