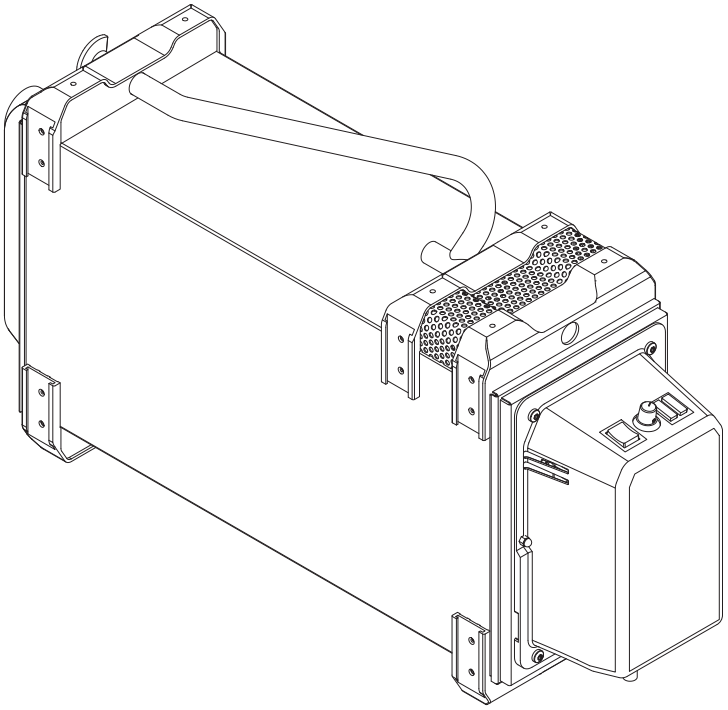
Nederman

User Manual

Portable and Compact Extraction Units

Fume Eliminator

FE860



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Declaration of Conformity

EN English

Declaration of Conformity

We, AB Ph. Nederman & Co., declare under our sole responsibility that the Nederman product:
FE860 (Part No. **, and stated versions of **) to which this declaration relates, is in conformity with all the relevant provisions of the following directives and standards:

Directives

2006/42/EC, 2014/30/EU, 2011/65/EU

Standards

EN 60204-1:2018, EN ISO 12100:2010, EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019, EN ISO 21904-1:2020, EN ISO 20607:2019
The name and signature at the end of this document is the person responsible for both the declaration of conformity and the technical file.

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Anna Cederlund
Product Center Manager
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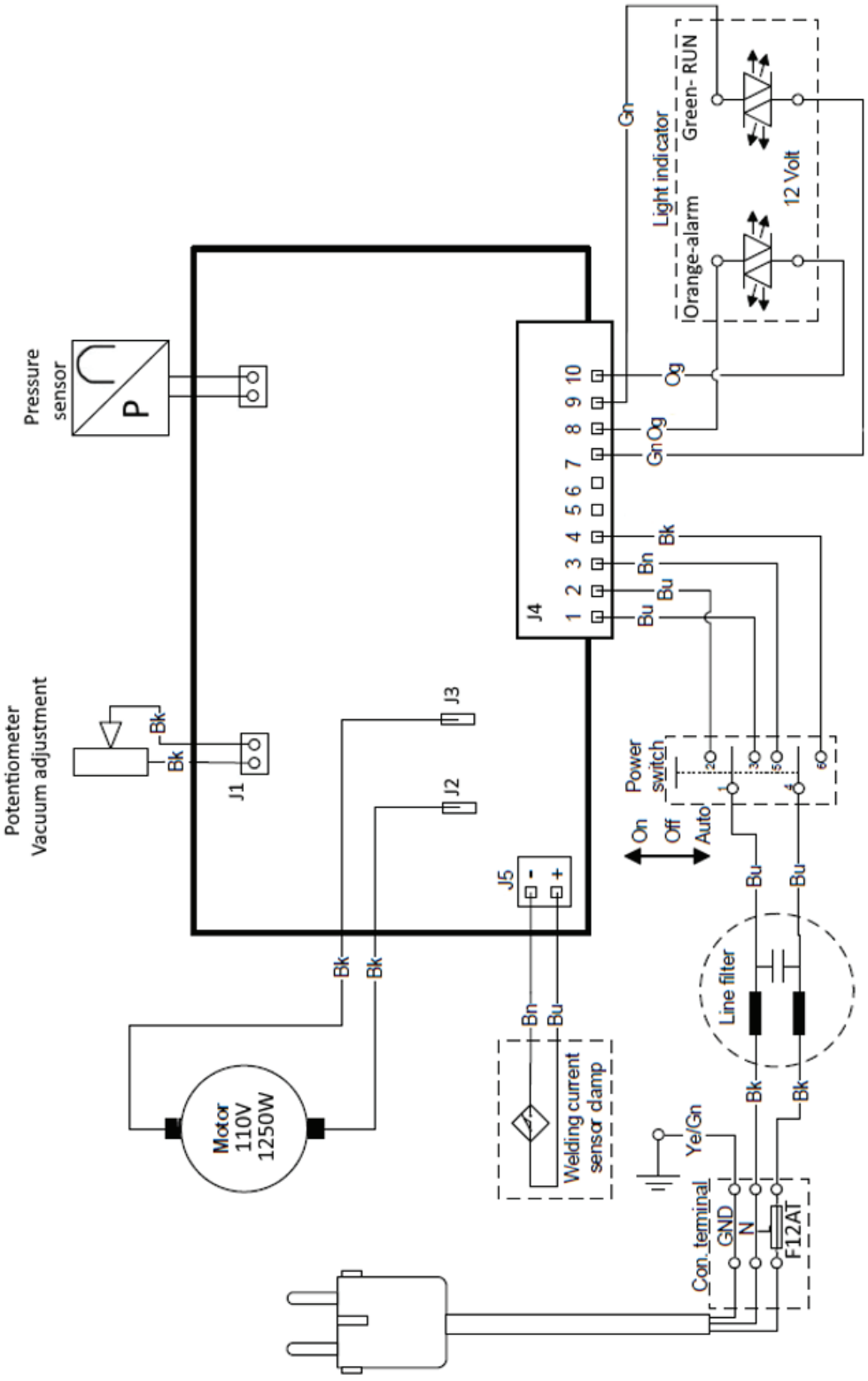
2023-04-11

CE

Figures

1

Wiring Diagram - 120V



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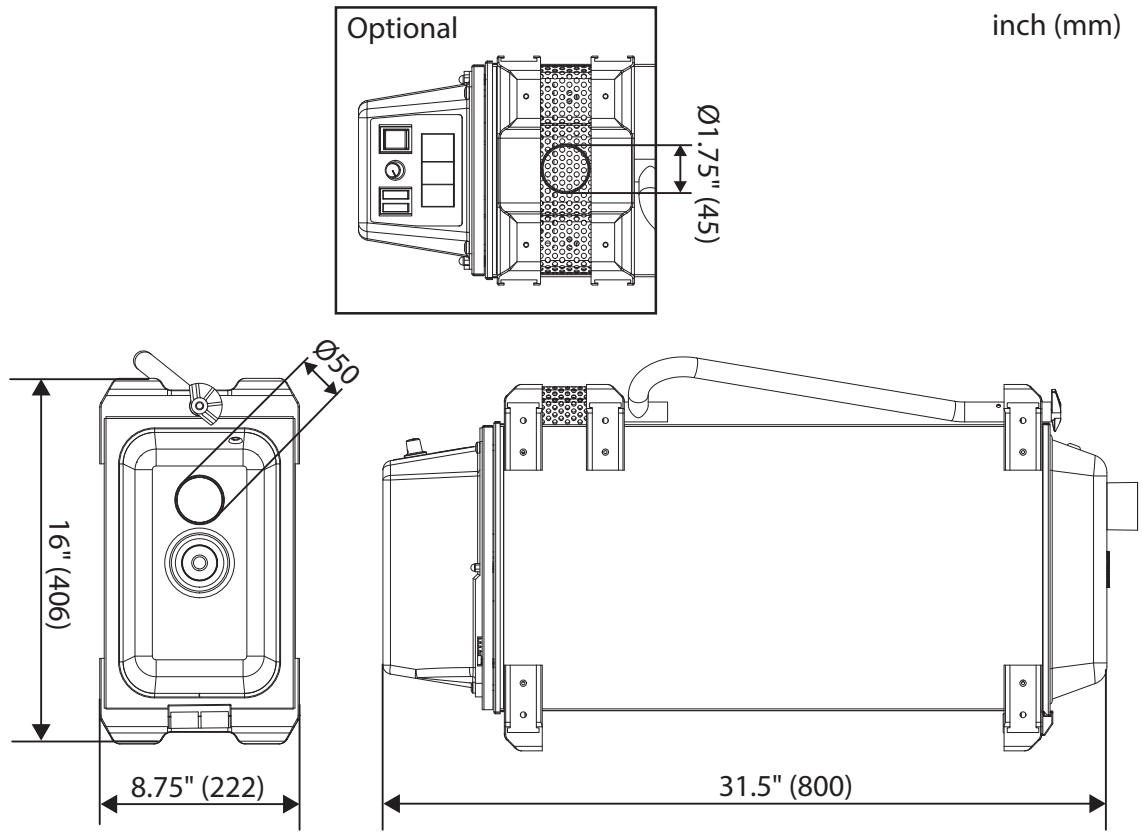
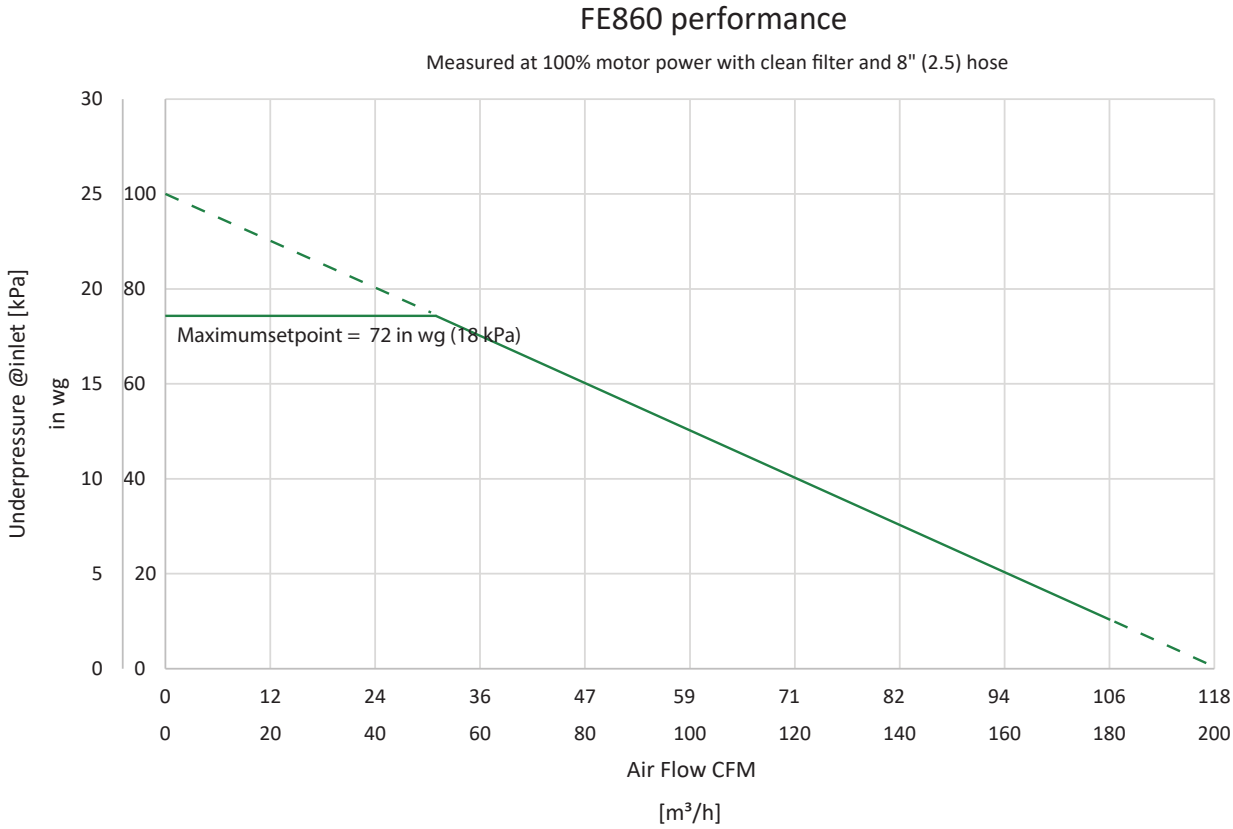
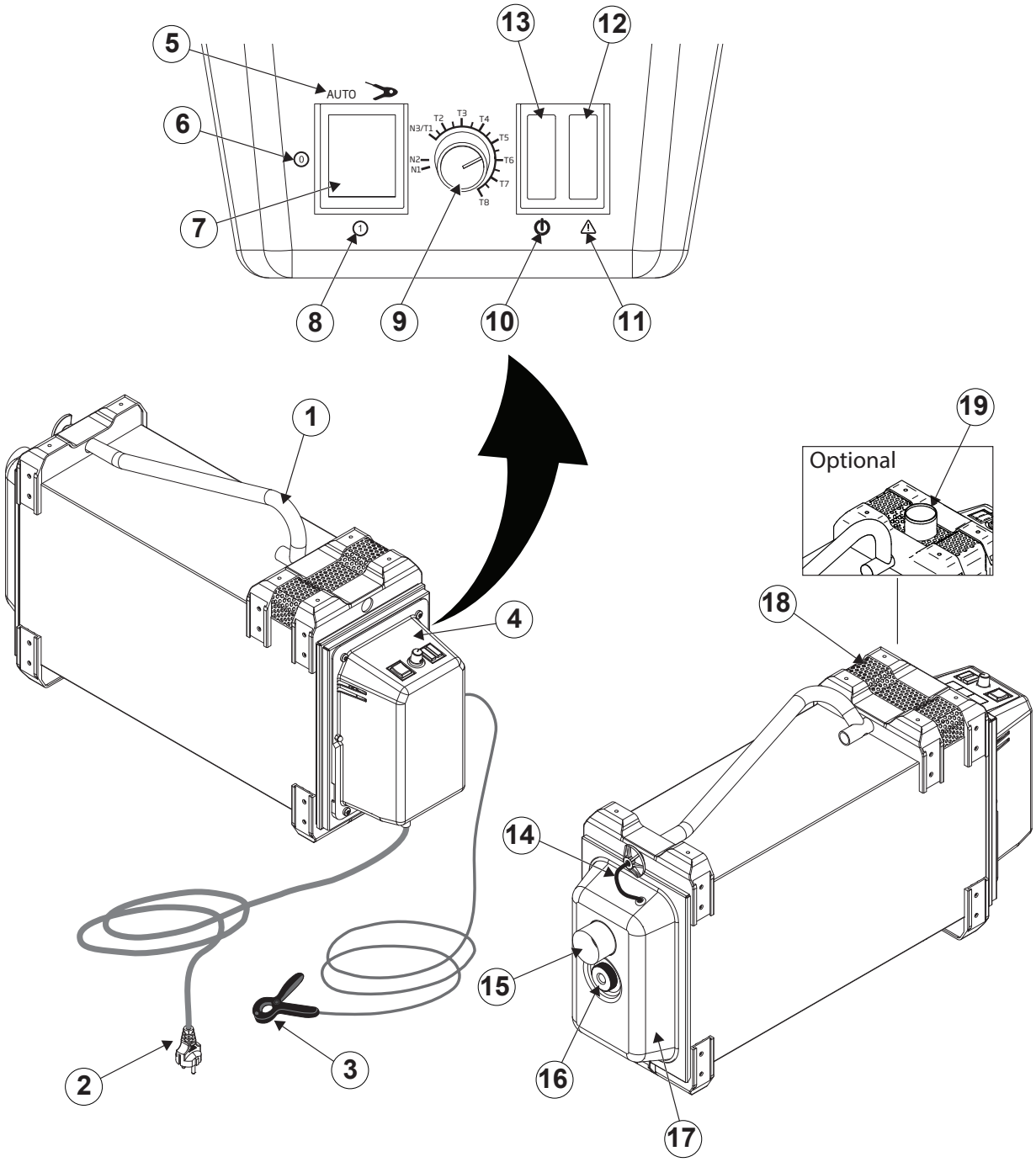

Optional
inch (mm)
Ø1.75" (45)
Ø50
16" (406)
8.75" (222)
31.5" (800)

3

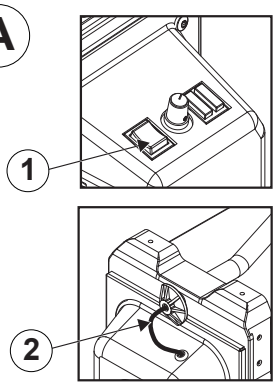

FE860 performance
Measured at 100% motor power with clean filter and 8" (2.5) hose
Underpressure @inlet [kPa]
in wg
Maximumsetpoint = 72 in wg (18 kPa)
Air Flow CFM
[m³/h]
30
25
20
15
10
5
0
100
80
60
40
20
0
0 12 24 36 47 59 71 82 94 106 118
0 20 40 60 80 100 120 140 160 180 200

4


5
6
7
8
9
10
11
12
13
AUTO
T2
T3
T4
T5
T6
T7
T8
N3/T1
N2
N1
1
2
3
4
Optional
18
19
14
15
16
17

5

A



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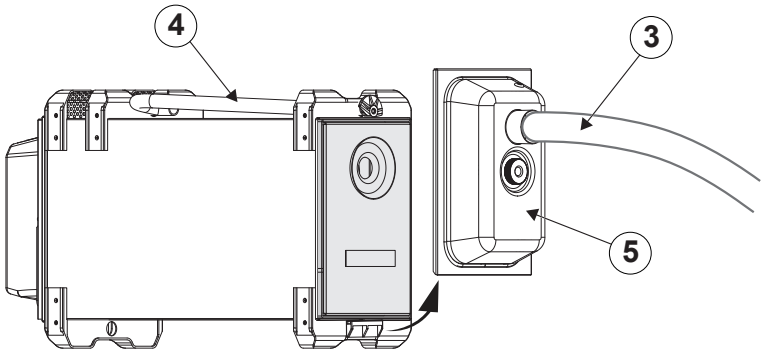
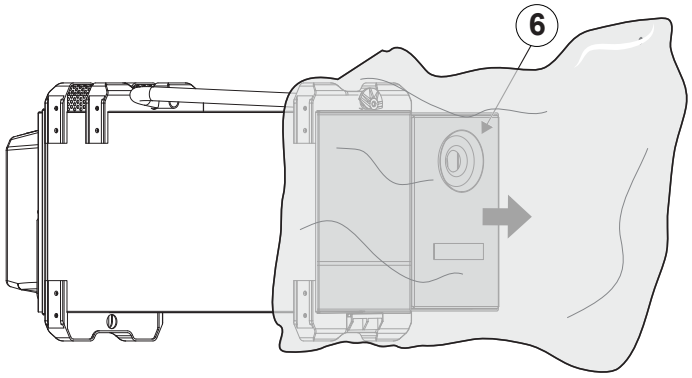


C



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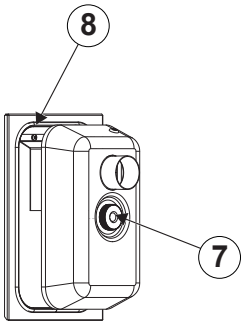
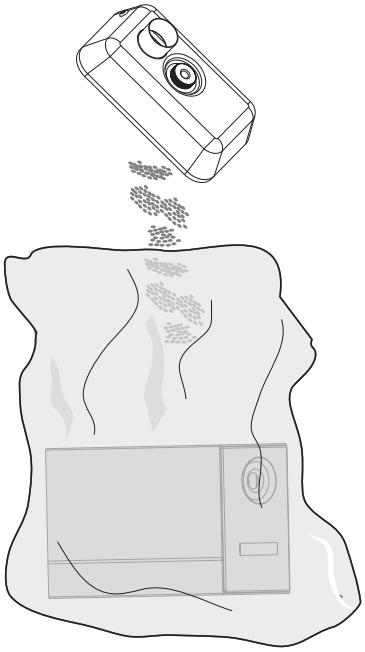


E



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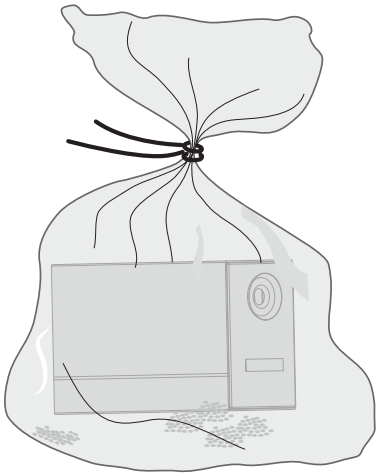

1 Preface

Thank you for using a Nederman product!

The Nederman Group is a world-leading supplier and developer of products and solutions for the environmental technology sector. Our innovative products will filter, clean and recycle in the most demanding of environments. Nederman's products and solutions will help you improve your productivity, reduce costs and also reduce the impact on the environment from industrial processes.

Read all product documentation and the product identification plate carefully before installation, use, and service of this product. Replace documentation immediately if lost. Nederman reserves the right, without previous notice, to modify and improve its products including documentation.

All installation, maintenance, and repair should be completed by qualified personnel using only Nederman original spare parts and accessories. Contact the nearest authorized distributor or Nederman for advice on technical service and obtaining spare parts. If there are any damaged or missing parts when the product is delivered, notify the carrier and the local Nederman representative immediately.

2 Safety

2.1 Classification of important information

This document contains important information that is presented either as a warning, caution or note, according to the following examples:

WARNING! Risk of personal injury
Warnings indicate a potential hazard to the health and safety of personnel, and how that hazard may be avoided.

CAUTION! Risk of equipment damage
Cautions indicate a potential hazard to the product but not to personnel, and how that hazard may be avoided.

NOTE!
Notes contain other information that is important for personnel.

2.2 General safety instructions

WARNING! Risk of fire and explosion

- Do not use the product for flammable or explosive dust and gases.
- Do not use the product in an environment where there is a danger of explosion, or where there is dust or gases in explosive concentrations.
- If the product has been used for dust applications, do not use it for welding fumes or grinding dust.
- Do not use the product for extracting toxic substances (except welding fumes).
- Only use the product in a well-ventilated room.
- In case of fire, smoke from the product may contain hazardous substances such as burning polycarbonate, PVC, polyethylene, etc. Also, hazardous smoke from the separated dust may occur depending on the material being separated.
- In case of fire, disconnect power to the product at the mains. Use a fire extinguisher, minimum class AB.
- Check that no sparks or objects that can cause fire are sucked into the nozzle. For welding applications generating a high amount of sparks, spark protection (accessory) must be mounted inside the coarse separator to reduce the fire risk.

WARNING! Risk of personal injury
Only properly trained personnel are allowed to use this product.

CAUTION! Risk of equipment damage
Store FE860 indoors in a dry environment.

3 Description

FE860 is a portable welding filter that filters out pollutants such as fumes and dust.

NOTE!
Gases are not filtered out.

1	Handle/lock	11	Warning and Alarm
2	Plug, electrical connection	12	Orange light
3	Current sensor clamp for welding or welding return cable	13	Green light
4	Suction settings, see Table 4.1	14	Filter indicator hose
5	Auto position	15	Hose connection
6	Off	16	Locking screw
7	Main switch	17	Coarse separator
8	On	18	Exhaust
9	Knob for suction power	19	Exhaust, hose connection (optional)
10	Standby		

3.1 Technical data

FE860	
Dimensions	31.5" x 8.75" x 16.0" (800 mm x 222 mm x 406 mm) (See Figure 2
Noise level at 100% motor power	79 dB(A) at 1m, ISO 11201
Weight	32.6 lb (14,8 kg)
Ambient temperature, storage	-4 °F - 140 °F(-20°C - 60°C)
Ambient temperature, operation	0 °F - 95 °F (0°C - 35°C)
Voltage	120 VAC @60Hz (12 amps)
Power	(1.9 hp (1440 W)
Max. vacuum generated by the motor	100 in wg (25 kPa)
Max. vacuum at hose connection (pos 15 in Figure 4) at set point T8	72 in wg (18 kPa)
Capacity	106 cfm (180 m^3/h) with 8.2' (2.5 m) hose. Also see Figure 3.
Filter area	54 ft (5.3 m^2)
Filtration efficiency	>99% (ISO 21904-2) F9 (EN779) MERV 14 (ASHRAE 52.2)

4 Using FE860

See Figure 4.

NOTE!
Do not block exhaust (18).

4.1 Manual mode

- Set the main switch (7) to position ON (8).

The unit will now work continuously. A fixed green light (13) indicates that the unit is in operation.

4.2 Automatic mode

1 Place the welding cable, or welding return cable in the current sensor clamp (3).
2 Set the main switch (7) to the AUTO position (5). The green light (13) will flash indicating that the unit is in standby mode.
3 The unit will start when the welding arc is struck and return to standby 10 seconds after the arc is broken.

4.3 Adjusting the suction power

The suction power (setpoint) can be adjusted using the knob (9). The unit will automatically adjust the motor power to maintain the desired suction and airflow, even as the filter gets saturated.

Before setting the suction power, ensure the hose is in the desired working position and that all connections are correctly fitted.

NOTE!
The scale of the knob (9) corresponds to a pressure setpoint, not motor speed. Therefore, the full motor speed can be reached at any scale position, depending on the resistance of the connected system and the saturation of the filter.

When adjusting the knob (9), work clockwise to minimize the risk of false alarms. Fast adjustments could trigger an alarm. The alarm will be reset after 3 seconds or if the unit is powered off (and on) again.

Table 4.1 Suction settings

	Hose length ft [m]	Setpoint
Nozzle	8.2 (2.5)	N1
Nozzle	16.4 (5.0	N2
Nozzle	49 (15.0)	N3
On-Torch	8.2 (2.5	T1-T8

4.3.1 Using the unit with a Nozzle (N1-N3)

Adjust the knob (9) using the suction settings table above to find the recommended setpoint, N1-N3[1], depending on the hose length. For hose lengths over 8" (2.5 m), it may be possible to adjust the knob (9) slightly counterclockwise and still maintain an adequate airflow, but with a reduced capturing distance.

4.3.2 Using the unit with a fume extraction torch (T1-T8)

Each fume extraction torch requires a specific airflow, as specified by the torch manufacturer, to ensure adequate extraction. Too high extraction can compromise weld integrity.

1 Measure the flow at the nozzle according to the instructions supplied by the torch manufacturer.
2 Adjust the knob (9) until the desired flow is achieved to ensure the correct extraction of fumes. For most torches, extraction will be correct using settings T1 to T8. However, in certain cases, N1-N3 may provide adequate extraction.
3 Repeat the process on a regular basis according to the manufacturer's instructions or when welding conditions change.

Ensuring the correct flow is always the responsibility of the user.

4.4 Status lights, Warnings and Alarms

See Figure 4.

Green light (13), fixed - indicates that the unit is operational, the motor is running and the status is OK. The light turns off when an alarm is active.

Green light (13), flashing - indicates that the unit is set to Auto mode but is on standby awaiting a run signal from the sensor clamp.

Orange Warning light (12), flashing every 5th second - indicates that the filter is approximately 85% full (at the current setpoint).

Orange Alarm light (12), continuously flashing - indicates that the unit is not maintaining the desired pressure as set by the knob (9).

If the Alarm is activated, terminate welding operations immediately and take action to resolve the issue by checking if any of the following conditions apply:

- the user has just changed the setpoint using the knob (4) and the unit is still calibrating itself to reach the desired pressure (when the setpoint is changed the alarm may either be triggered or released).
- the connections are not fitted properly.
- the hose or nozzle is clogged or damaged.
- the filter is clogged, damaged or bypassed.
- the filter is too saturated to maintain the required suction as set by the user and thereby requires changing as soon as possible.

1 Other nozzles than TM80/200 or other hoses than 2" (50 mm), may require other settings.

- the unit cannot reach the desired pressure as the knob (4) is set too far clockwise in relation to the resistance in the system.

5 Maintenance

Installation, repair and maintenance work must be carried out by qualified personnel using only original spare parts. Contact your nearest authorised distributor or Nederman for advice on technical service or if you require spare parts. See also www.nederman.com.

5.1 General inspection

Check hoses and seals for wear and damage. Replace if necessary.

5.2 Change the filter and empty the coarse separator

A new filter needs to be fitted when the orange light is flashing continuously and suction cannot be maintained, see Section 4.4 Status lights, Warnings and Alarms.

See Figure 5.

> ⚠ **WARNING! Risk of personal injury**
> Wear goggles, a dust mask, and gloves when changing the filter cartridge.

1 Set the main switch (1) to OFF.
2 Loosen the filter indicator hose (2).
3 Remove the suction hose (3).
4 Turn the handle (4) down and remove the coarse separator (5). The handle works as a lock for the coarse separator.
5 Pull out and dispose of the old filter (6). Place the old filter in a plastic bag and tie the bag tightly.
6 Insert a new filter.
7 Unscrew the locking screw (7) and remove the outer part.
8 Empty the coarse separator (5).
9 Check the rubber seal (8) around the coarse separator (5) for any signs of damage.
10 Reassemble the coarse separator (5). Lock with the locking screw (7) and the handle (4).

> ⓘ **NOTE!**
> The coarse separator (5) is partially locked when the handle (4) is in an upright position, and fully locked when it is in down position.

6 Spare Parts

> ⚠ **CAUTION! Risk of equipment damage**
> Use only Nederman original spare parts and accessories.

Contact your nearest authorized distributor or Nederman for advice on technical service or if you require help with spare parts. See also www.nederman.com.

6.1 Ordering spare parts

When ordering spare parts always state the following:

- The part number and control number (see the product identification plate).
- Detail number and name of the spare part (see www.nederman.com/en/service/spare-part-search).
- Quantity of the parts required.

7 Recycling

The product has been designed for component materials to be recycled. Different material types must be handled according to relevant local regulations. Contact the distributor or Nederman if uncertainties arise when scrapping the product at the end of its service life.

Notes

Nederman

The Nederman Group is one of the World's leading suppliers of products and solutions within the environmental technology sector focusing on industrial air filtration and recycling. These products and solutions reduce the environmental impact of industrial production and create safe and clean working environments while boosting production efficiency.

The group's offering covers the design stage through installation, commissioning and servicing with subsidiaries in 29 countries and agents and distributors in over 30 countries.

Nederman is ISO 9001 and 14001 certified and develops and produces in its own manufacturing and assembly facilities in Europe, North America and Asia.

Nederman Service Capabilities

Nederman has certified service partners trained extensively in servicing our machinery. Make sure to choose a certified technician to service your Nederman equipment as they have the correct tools and knowledge to solve any machinery issues and improve its performance. Be sure to ask if your technician is certified by Nederman.

Our services for fume & dust collection systems are customized to your particular needs. We work with you to understand your needs, then develop a program to meet your specific needs. Our services include: (*not all services available in all locations*)

- Bag & Filter Change-outs
- Bag Selection Recommendations
- Collector Re-builds
- Dye Testing for Leakage
- Electrical Tests - Current, Voltage
- Emergency Call-outs
- Filter Media Analysis
- Mechanical Survey and Repair
- Multi-year Contracts
- New Collector Start-up Service
- On-going Technical Support
- Preventative Maintenance Programs
- Repair and Replace Gauges/Timers/Valves
- Stack Emission Testing
- Training Programs
- Troubleshooting / Auditing
- Velocity, Pressure and Temperature Tests
- Written Service Report

Customer Service and Technical Support

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