



# Engine Protection Partner AS

## Schaller Automation Scandinavia & Baltics



## A Guide for Visatron Oil Mist Detector users

Version: V1-2020-01

New edition coming June 2021

» Spare parts

» Troubleshooting

» Exchange Pool

» Service & Maintenance



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# About this guide

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The new *Guide for Visatron Oil Mist Detector users* has been designed especially for Engine Protection Partner AS, and will answer your questions concerning the handling, operation, and maintenance of the oil mist detector Visatron series. Our intention is to make it easier to fault locate, solve technical problems and to understand the basic functionality of the oil mist detector. Should you encounter any interruption or breakdown of your Visatron oil mist detector during operation, please find contact details at: [www.epp.no](http://www.epp.no).

The repair of OMD device should only be carried out by Engine Protection Partner AS – as we are an authorized repair center for Schaller Automation. You can expect safe and reliable operation of your OMD when the device is operated in accordance with this guide.

## Please take note of the following:

- Please read this OMD handbook thoroughly and acquaint yourself with the correct installation, operation, and maintenance of your Visatron device.
- Use the Visatron devices only for the purpose described in the operating manual.
- Incorrect maintenance and handling errors may cause possible device failure or an unsafe operating environment.
- The Visatron devices may only be used by authorized staff.

## Safety instructions

The Visatron oil mist detectors are manufactured according to the high-quality standards of Schaller Automation and must pass stringent factory tests. In order to keep the device in smooth and problem free operation, the user has to take note of the safety hints and warnings. In the instruction manual they are marked with the following symbols:



**CAUTION!** Do not ignore the text next to this symbol. Personnel safety can be endangered, or the device can be damaged.



The marked text contains important information.



### **WARNING!**

**Don't ever ignore or try to restart the engine after a high oil mist concentration alarm or shutdown of the engine before the cause of overheating has been found and solved! Otherwise you risk heavy engine damage or an oil mist explosion! When the engine has been overheated, crankcase doors and other hand hold covers must remain closed for a minimum of 10 minutes after the engine is shut down!**

# Why use of oil mist detector

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Oil Mist Detectors protect large Diesel, Gas and Dual Fuel engines of all applications from heavy consequential damage due to oil mist explosions as a result of overheating of bearings or other moving parts.

All Schaller VISATRON Oil Mist Detection Systems continuously draw the atmosphere from every compartment of the engine's crankcase by the use of a suction system. The suction vacuum required is generated by a wear-free air jet pump within the device, fed by compressed air.

## The basics- and advantages of our Oil Mist Detectors

Although different to other systems on the market, this technology is well proven and accepted by both, engine makers and ship owners and brings along some field advantages such as high operations reliability and low maintenance costs.

The VISATRON® Oil Mist Detection System is designed to *last for the entire engine lifetime*.

**Surfaces that can generate intensive oil mist in addition to the crankshaft bearing system include:**

- **Pistons in cylinder liners**
- **Crankshaft bearings such as main bearings and big-end bearings**
- **Camshafts, their bearings, and cams**
- **Timing gear shafts and their bearings**
- **Gear boxes with their bearings, and in some cases pumps**
- **Guide blocks and paths in crosshead engines**



Oil mist in these sliding surfaces can only be monitored by an oil mist detection system, and therefore in the case of an overheating phenomenon starting in one of them, or a possible piston seizure occurring, an oil mist detection system should be employed.

## Class Approval

SOLAS requirement for oil mist detectors – Engines of 2,250 kW and above or having cylinders of more than 300mm bore shall be provided with crankcase oil mist detectors, engine bearing temperature monitors or equivalent devices. As per IACS M10.8 oil mist detection arrangements (or engine bearing temperature monitors or equivalent devices) are required:

For alarm and slow down purposes for low-speed diesel engines of 2,250 kW and above or having cylinders of more than 300mm bore for alarm and automatic shutoff purposes for medium- and high-speed diesel engines of 2,250 kW and above or having cylinders of more than 300mm bore. SCHALLER AUTOMATION developed the VISATRON® oil mist detectors to meet the IACS UR M10.

**Our oil mist detectors are:**

- Type approved for closed areas
- Designed for installation on combustion engines
- Approved for environmental category D
- Conform to IACS UR M67



For more information about class approval:

<https://www.epp.no/visatron-oil-mist-detector-systems/>



## Engine Protection Partner AS – the largest service partner worldwide!

Engine Protection Partner AS is a part of Schaller Automation group, and are the main centre for Norway, Svalbard, Jan Mayen, Faroe Islands, Aaland Islands, Sweden, Finland, Denmark, Iceland, Estonia, Latvia, Lithuania and Greenland. Our location is Bergen city in Norway. Since the start of 1995, our high knowledge of the technology has been leading us to be well known name on-board vessels using oil mist detector systems around the world. Engine Protection Partner AS provides you as a customer total service within sales, technical support, service and repairs. Engine Protection Partner AS is authorized by Schaller Automation for repairs. The main stock centre ensures you as a customer delivery within 24 hours. Engine Protection Partner AS is certified by Intertek Certification according to DIN EN ISO 9001:2015. EPP is Schaller's largest service partner worldwide!

Schaller Automation has for more than 50 years contributed worldwide to achieve a safe operation of large diesel, gas, and dual fuel engines, brought innovative products to the market, and built a trustworthy partnership with clients. These qualities have made Schaller Automation to become the market leader in the sector of the protection of large diesel, gas, and dual fuel engines against crankcase explosions by detection of oil mist. Schaller Automation employs more than 100 engineers, task specialists. A close cooperation with several universities and private research institutes allows Schaller Automation to bring both together for best result: theoretical and practical know how.



# Repair and service department

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Engine Protection Partner AS is authorized by Schaller Automation GmbH & Co for repairs on component level and is known for high-quality on all stages with the latest technology in use. Our workshop has become known for quick repairs and first-class service. All completed repairs go through extensive testing and are delivered with full documentation. The repair department is certified according to DIN ES ISO 9001:2015.

The repair department is separated in two departments: electronic repairs and mechanical repairs. Engine Protection Partner AS ensures always highly skilled personnel specialized for the different repair processes. In the electronic repair department, you will find the latest repair technology based on the POLAR robot fault locators. The repair departments are flexible, so if you require urgent service/repair of your Visatron oil mist detector – Please contact us, we always find good solutions!





# Exchange pool (EXP) for all systems

We offer a complete stock of exchange units. You can order after your specific needs, for example a measuring head or a complete oil mist detector system. Our systems are based on the principle "Plug & Play". This means that it is easy for the crew to make the installation of different parts in the exchange pool. Installation documentation and return form with return labels already filled out by us are following each exchange pool component to make it easier for you as user to ensure correct return of the defect components. Normal return period is 60 days of the defect components. If you face problems with delay, please contact us, and we will extend the return period up to 120 days without any extra cost!

**NOTE: According to warranty conditions when replacing only measuring head alternative – you always must replace maintenance kit for the specific model for warranty to remain during the next 1-year period. All kits marked with «+» in the end of the part number contains measuring head and maintenance kit for base plate. Example: 11651EXP+. When choosing complete exchange oil mist detector, a maintenance kit is not necessary.**



## VN/87 EMC Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100150	10601EXP+
VN 115/87 EMC	Measuring head - only	Measuring head without maintenance kit	10601EXP
VN 116/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100151	10701EXP+
VN 116/87 EMC	Measuring head - only	Measuring head without maintenance kit	10701EXP
VN 215/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100152	10801EXP+
VN 215/87 EMC	Measuring head - only	Measuring head without maintenance kit	10801EXP

## VN/87plus Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100150	11651EXP+
VN 115/87plus	Measuring head - only	Measuring head without maintenance kit	11651EXP
VN 116/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100151	11751EXP+
VN 116/87plus	Measuring head - only	Measuring head without maintenance kit	11751EXP
VN 215/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100152	11851EXP+
VN 215/87plus	Measuring head - only	Measuring head without maintenance kit	11851EXP

## VN/87plus Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100153	11201EXP+
VN 115/93	Measuring head - only	Measuring head without maintenance kit	11201EXP
VN 116/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100154	11401EXP+
VN 116/93	Measuring head - only	Measuring head without maintenance kit	11401EXP
VN 215/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100155	10901EXP+
VN 215/93	Measuring head - only	Measuring head without maintenance kit	10901EXP

## VN2020 Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 2020	Measuring head kit	Measuring head incl. maintenance kit Part no.: 155004	290044EXP+
VN 2020	Measuring head - only	Measuring head without maintenance kit	290044EXP
VN 2020 EX	Measuring head kit	Measuring head incl. maintenance kit Part no.: 155004	290045EXP+
VN 2020 EX	Measuring head - only	Measuring head without maintenance kit	290045EXP

## Complete Oil Mist Detector Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87 EMC	Oil mist detector	Complete oil mist detector	10600EXP
VN 116/87 EMC	Oil mist detector	Complete oil mist detector	10700EXP
VN 215/87 EMC	Oil mist detector	Complete oil mist detector	10800EXP
VN 115/87plus	Oil mist detector	Complete oil mist detector	12600EXP
VN 116/87plus	Oil mist detector	Complete oil mist detector	12700EXP
VN 215/87plus	Oil mist detector	Complete oil mist detector	12800EXP
VN 115/93	Oil mist detector	Complete oil mist detector	11200EXP
VN 116/93	Oil mist detector	Complete oil mist detector	11400EXP
VN 215/93	Oil mist detector	Complete oil mist detector	11900EXP
VN 2020	Oil mist detector	Complete oil mist detector	155000EXP
VN 2020 EX	Oil mist detector	Complete oil mist detector	155001EXP



For more information about our Exchange Pool:

<https://www.epp.no/exchange-pool/>



# Our Products

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## Visatron VN/87plus

The VN/87plus generation consist of: VN 115/87plus, VN 116/87plus & VN 215/87plus. The VN87plus is the successor of the VN/87 EMC. The VN/87plus was placed into the market in 2008 and was in production until the system was replaced by the VN2020 and VN301plus in 2020. The VN/87plus was mainly used for 4-stroke engine market, and the system requires a single tube installation. The VN 116/87plus and VN 215/87plus was mainly used for the 2-stroke engine market. The VN 215/87plus indicates during a high oil mist concentration alarm which compartment the oil mist is coming from. The VN 116/87plus indicates from what side (right or left side of the OMD installation), the oil mist concentration is coming from. The VN 115/87plus is during a high oil mist concentration alarm, indicates that there is coming oil mist concentration from the engine, without any compartment location of the oil mist.

For the VN/87plus version we supply:

- Authorized repair of the complete VN/87plus line
- Exchange Pool for all VN/87plus models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/87plus line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement



For more information:

<https://www.epp.no/products/vn-87plus-series/>



## Visatron VN301plus

The VN301plus is based on 50 years of experience in oil mist detection. The VN301plus system consist of a central unit which up to 20 sensors (master slave version) can be connected. Each sensor monitors one crankcase compartment independently and is a standalone unit. When a sensor is replaced, the surrounding sensors ensure that the crankcase is monitors under safe conditions.

For the VN301plus generation we supply:

- Sale of new complete systems
- Sale of reconditioned systems
- Spare parts with delivery within 24 hours!
- Exchange Pool
- Service agreement
- Authorized service on-site
- Authorized repairs
- Technical 24/7 service supply



For more information:

<https://www.epp.no/products/visatron-vn301plus/>



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## Visatron VN2020

The VN2020 system replaces the VN/87plus generation. The system was launched in 2020 and replaces the VN 115/87plus and the VN/116/87plus. For VN 215 applications the VN301plus is the successor. The mayor changes on the VN2020 oil mist detector is:

- Integrated pressure regulator including water/oil separator
- New design of LED panel that ensures safe reading under operation!
- New solid connection box, instead of connection socket!
- Reset button position directly on the measuring head
- New safe position of wire break resistance
- New pressure sensor technology, no need for fresh air filters
- CANopen and MODBUS RTU signals

For the VN2020 generation we supply:

- Sale of new complete systems
- Sale of reconditioned systems
- Spare parts with delivery within 24 hours!
- Exchange Pool
- Service agreement
- Authorized service on-site
- Authorized repairs
- Technical 24/7 service supply

For more information:

<https://www.epp.no/products/visatron-vn2020/>



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## Visatron VN/87 EMC

The VN/87 EMC generation consist of: VN 115/87 EMC, VN 116/87 EMC & VN 215/87 EMC. The VN/87 EMC is the successor of the VN/79 & VN/82 generations. The VN/87 was placed into the market in 1985 and was in production until the system was replaced by the VN/87 EMC in 1998. The VN/87 EMC was then replaced by the VN/87plus in 2008. The VN 115/87 EMC was mainly used for the 4-stroke engine market and the system requires a single tube installation. The VN 166/87 EMC & VN 215/87 EMC was mainly used for the 2-stroke engine market.

For the VN/87 EMC generation we supply:

- Authorized repair of the complete VN/87EMC line
- Exchange Pool for all VN/87 EMC models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/87 EMC line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement

For more information:

<https://www.epp.no/products/visatron-vn-87-emc-series/>



## Visatron VN/93

The VN/93 generation consist of: VN 115/93, VN 116/93 & VN 215/93. The VN/93 generation did not replace any of our other oil mist detector generations but was a supplement to the other systems. The VN/93 generation was launched into the market in 1997 and production line stopped in 2019. It is easy to identify the VN/93 generation as this is the only oil mist detector by Schaller Automation that was not in a grey, metallic colour, but white.

VN 115/93 during a high oil mist concentration alarm is indicating that there is oil mist concentration inside the engine. VN 116/93 indicates which side of the installation the oil mist concentration is located in the engine. VN 215/93 indicates which compartment of the engine the high oil mist concentration is located in.

For the VN/93 generation we supply:

- Authorized repair of the complete VN/93 line
- Exchange Pool for all VN/93 models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/93 line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement

For more information:

<https://www.epp.no/products/visatron-vn-93-series/>



# Wire break resistance for oil mist alarm



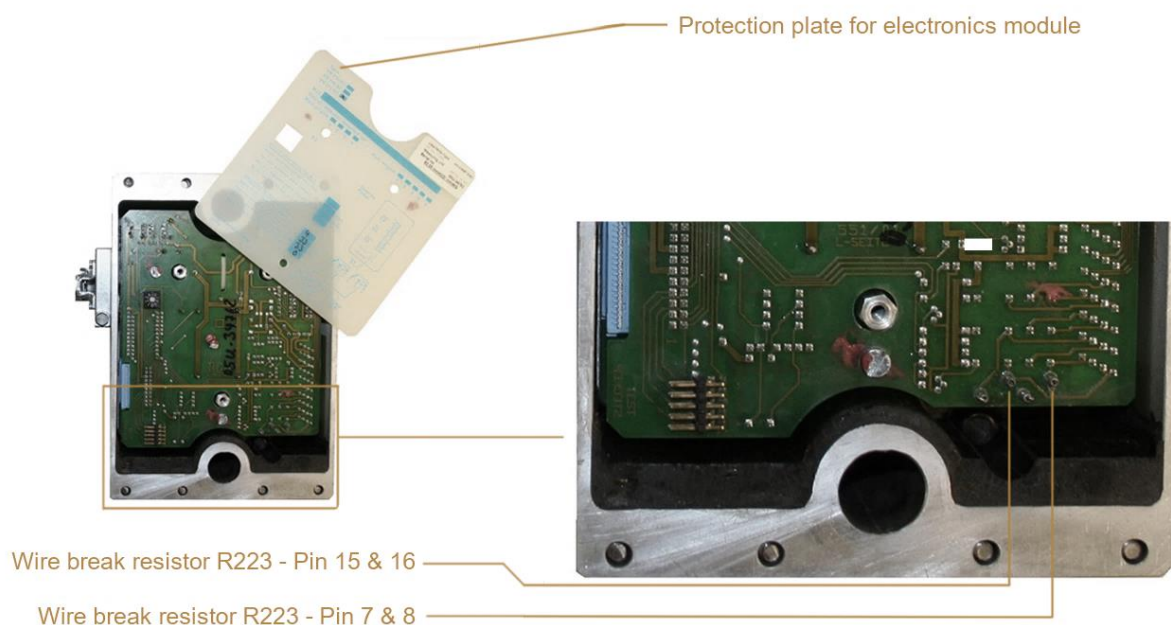
## Important information:

All Visatron oil mist detectors are equipped with wire break resistance for oil mist alarm. The wire break resistance is a set resistance value for the oil mist alarm and are connected between pin 7 & 8 and pin 15 & 16. It is important to make sure that the wire break resistance is correct according to the required resistance for the alarm shut down function of the engine. If the value is not correct according to required wire break resistance value (at the alarm shut down panel) – this may lead to a situation where you get no shut down or reduced RPM of the engine during a real high oil mist level alarm!

If you are replacing the complete oil mist detector or a measuring head with for example an exchange unit – you always need to check the documented wire break resistance on the “old” device. When you have this information, you need to check that it is the same wire break resistance value on the new device before starting up the engine. If the wire break resistance is different between the devices, you can transfer the wire break resistance (2 pc. presented on the backside of the electronic module placed in the measuring head) from the “old” device to the new device. Always make a proper test of your system when replacing measuring head or complete oil mist detector!

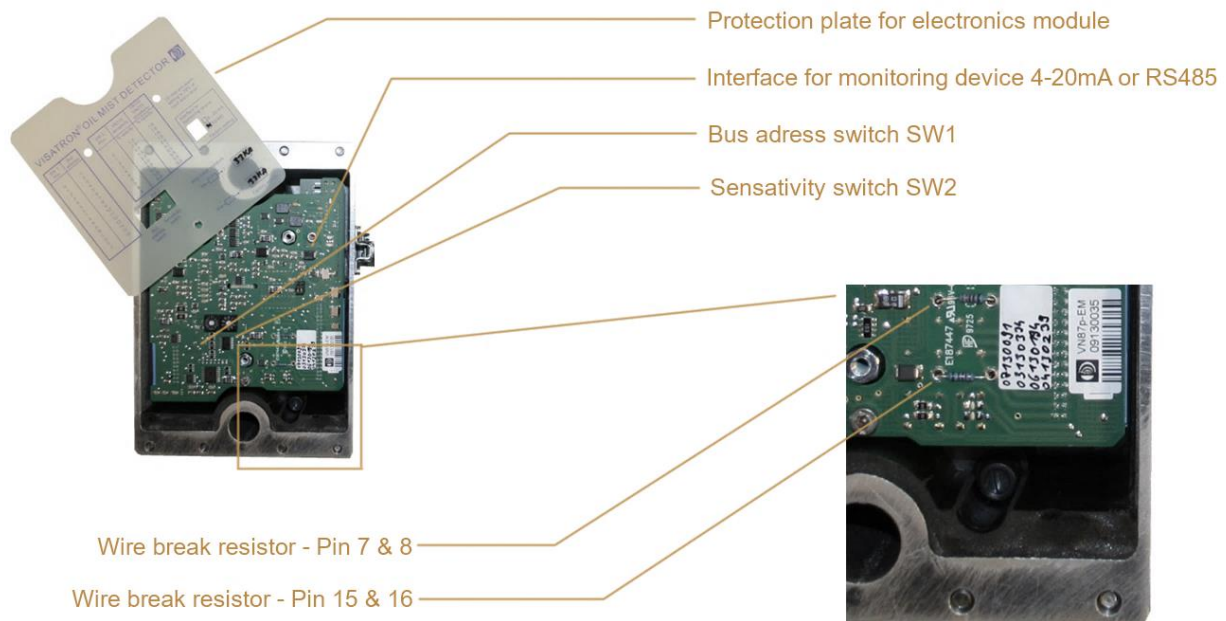


## Wire break resistance for VN/87 EMC

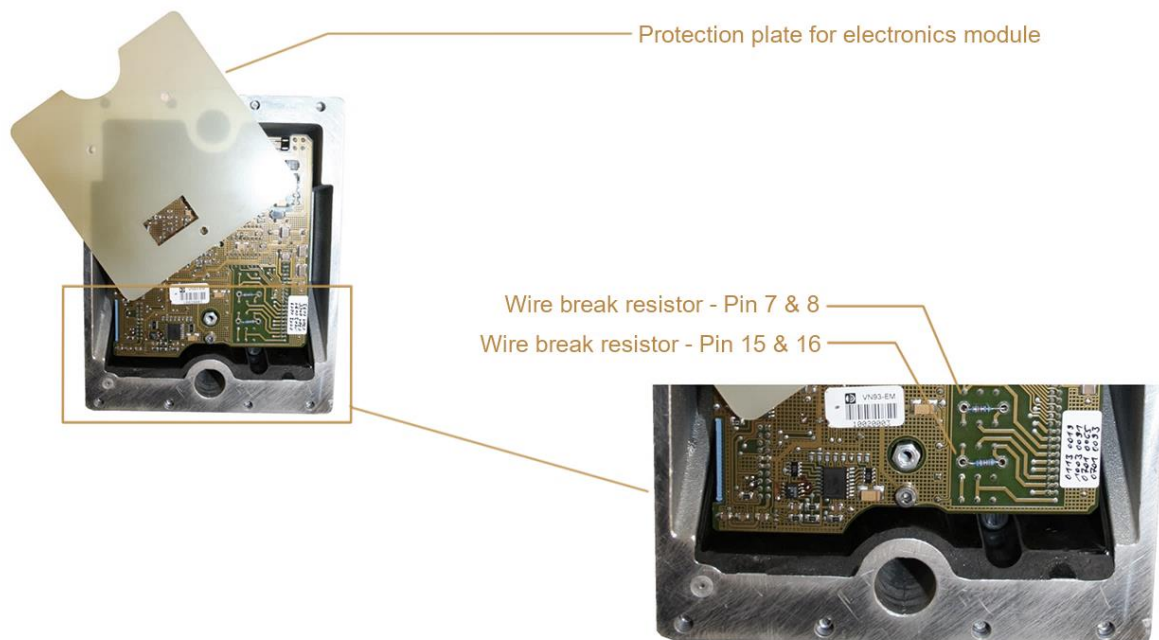




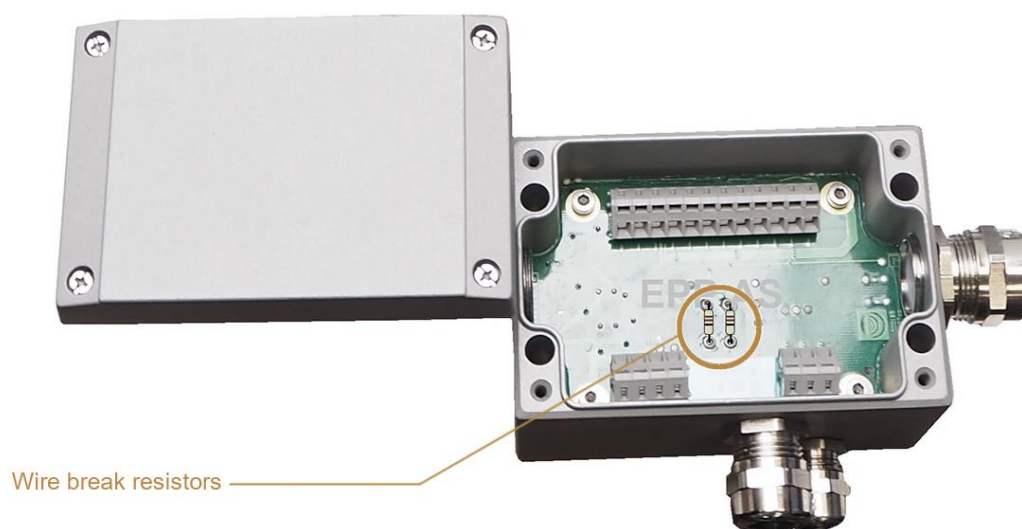
## Wire break resistance for VN/87plus



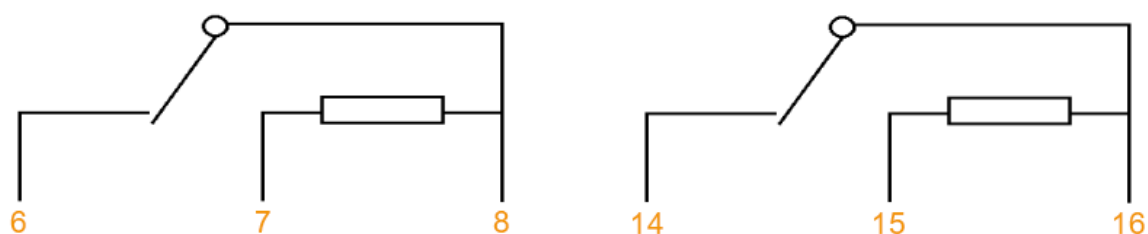
## Wire break resistance for VN/93



## Wire break resistance for VN/2020



## Alarm diagram for VN/87 EMC, VN/87plus & VN/93



### Part numbers for wire break resistors:

Part no.:	Value K ohm:	Other information:
100900-33,00K	33,00 K ohm	2 pc. per package incl. instruction fact sheet
100900-33,20K	33,20 K ohm	2 pc. per package incl. instruction fact sheet
100900-24,90K	24,90 K ohm	2 pc. per package incl. instruction fact sheet
100900-10,00K	10,00 K ohm	2 pc. per package incl. instruction fact sheet
100900-3,30K	3,30 K ohm	2 pc. per package incl. instruction fact sheet



For more information about wire break resistance:

<https://www.epp.no/exchange-pool/wire-break-resistance/>

# How to test the alarm system



**ATTENTION:** You must stop or slow down the engine during this test! Before starting the test, perform procedure 1 and 2 of the maintenance schedule for your system. The pipe system must be clean and if used – siphons to be filled with oil!

It is important to test your oil mist system regularly during maintenance work and replacement of measuring head or complete oil mist detector. It is important to ensure that the oil mist detector works according to the functionality instructions and that the alarm signal from the oil mist detector reaches the shutdown/reduced RPM function at the engine during an alarm situation!



## How to perform the test:

To perform the functionality test, we offer you the “Test plate kit for functional test of Oil Mist Detector” (Part no.: 11072). The kit contains a test plate and a test glass 10%.

Below are step-by-step instructions of how to perform the test.



1. Open the inspection cover on the measuring head.



2. The oil mist detection need to be in operation mode with negative pressure set to 60,00 mmWC.



3. Place the test plate over the open chamber – the test plate will be sucked into position by the vacuum in the measuring head.



4. Press the 10% glass into the test plate.



5. Ensure that the glass is in a straight vertical position!



For more information and different test guides:

<https://www.epp.no/maintenance/>

# Maintenance Schedules

It is always a good solution to do maintenance on your Visatron oil mist detector system with a view to be precautionary in relation to technical problems. This eliminates the risk of downtime of the oil mist detector and the engine.

The routine maintenance schedule must be followed as described below. Valid for gas operation with TPS turbo charger, stationary power plant application and marine engines.



## Maintenance Schedule Visatron VN/87 EMC & VN/87plus

**NOTE: All maintenance steps should be performed while engine is stopped!**

	What to do:	Interval:
<b>Procedure 1</b>	<ul style="list-style-type: none"> <li>Check the negative pressure with u-tube manometer or digital manometer. Adjust if necessary! Setting level is 60,00 mmH<sub>2</sub>O!</li> <li>Replace the sintered bronze air filter/fresh air filter (Part no.: 10042) in the measuring head.</li> <li>Clean the fresh air bores in the measuring head. Use the cleaning needle (Part no.: 10135).</li> <li>Clean both infrared sensor glasses in the measuring head with cotton pins and technical alcohol.</li> </ul>	Every month
<b>Procedure 2</b>	<ul style="list-style-type: none"> <li>Replace filter in pressure regulator (Part no.: 100170).</li> </ul> <p><b>If you have a water separator:</b></p> <ul style="list-style-type: none"> <li>Replace filter cartridge of water separator.</li> </ul>	Every 4 months
<b>Procedure 3</b>	<ul style="list-style-type: none"> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> </ul>	Yearly
<b>Procedure 4</b>	<ul style="list-style-type: none"> <li>Replace measuring head or complete oil mist detector with a spare unit. Use our Exchange Pool Service (ExP) for this procedure!</li> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Check sampling funnels/pipe system.</li> </ul> <p><b>If your system has siphon blocks:</b></p> <ul style="list-style-type: none"> <li>Replace rubber inserts and o-rings in siphon blocks (Part no.: 10095/360106 &amp; 365287).</li> </ul> <p><i>If you are ordering a complete exchange oil mist detector unit, there is no need to replace maintenance kit for base plate.</i></p>	Every 4 years



## Procedure 1:



1. Check the negative pressure with a u-tube manometer. Adjust if necessary! Setting level is 60,00 mmWC!



2. replace the sintered bronze air filter/fresh air filter (part no.: 10042)



3. Clean the fresh air bones in the measuring head. Use the cleaning needle (Part no.: 10135)



4. Clean the infrared sensor glasses at the left and the right side inside the measuring head. Use cotton sticks (Part no.: 10036) and technical alcohol (Part no.: 10035)

## Procedure 2:



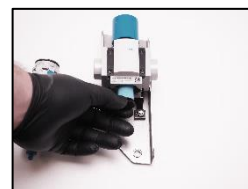
1. Close the air pressure



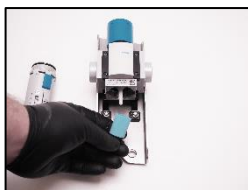
2. Hold the filter cage in one hand and pull the blue tab down horizontally with your thumb.



3. Turn the filter cage clockwise and pull out downwards



4. Unscrew the black plastic disc and remove the dirty filter



5. Screw in the new filter counter-clockwise and make sure that it is aligned for installation



6. Reinstall the filter cage



7. Install the quick connection



8. Fill in slacked water in the u-tube manometer



9. To the middle line



10. Install the u-tube manometer




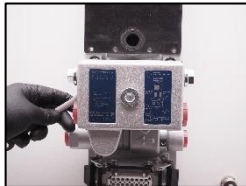


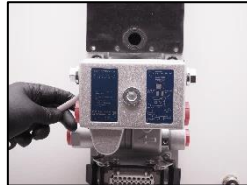


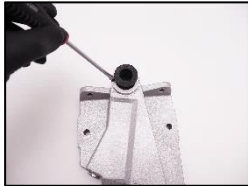
















11. Adjust the air pressure to 60.00 mmWC.



12. Disconnect the u-tube manometer and install the plug for inspection cover

### Procedure 3:

	→		→		→		↺
<b>1. Stop the engine and reduce the incoming air pressure</b>		<b>2. Disconnect the RESET task connector</b>		<b>3. Dismount the measuring head</b>		<b>4. Disconnect the connection case</b>	
	→		→		→		↺
<b>5. Change the small seal (Part no.: 10206)</b>		<b>6. Change the valve box seal (Part no.: 10049)</b>		<b>7. Reconnect the connection case to the base plate</b>		<b>8. Unscrew the vibration plate</b>	
	→		→		→		↺
<b>9. Change the upper and lower elastic mounting system (Part no.: 10018 &amp; 10019)</b>		<b>10. Change the flexible bellows (Part no.: 10023)</b>		<b>11. Reinstall the vibration plate to the base plate</b>		<b>12. Change the measuring head seal (Part no.: 10022)</b>	
	→		→		→		↺
<b>13. Reinstall the measuring head at the vibration plate</b>		<b>14. Open the inspection cover</b>		<b>15. Change the scavenging air filter (Part no.: 10042)</b>		<b>16. Change the seal for inspection cover (Part no.: 10010/10166)</b>	
	→		→		→		↺
<b>17. Clean the infrared sensor glasses with cotton sticks and alcohol (Part no.: 10036 &amp; 10035)</b>		<b>18. Clean the bores with cleaning needle (Part no.: 10135)</b>		<b>19. Change the screw plug seal 1/4" for inspection cover (Part no.: 10082)</b>		<b>20. Close inspection cover</b>	
	→		→		→		
<b>21. Unscrew the plugs at the connection case</b>		<b>22. Change the screw plug seal 1/2" (Part no.: 10209)</b>		<b>23. Check the heating element if it is hot. If cold – replace!</b>		<b>24. Check all leaders in the main socket. If bad condition – replace! (Part no.: 10033)</b>	

#### Procedure 4:



**1.** Stop the engine and remove the measuring head.



**2.** Clean the inside and outside of the base plate and replace all the parts in the maintenance kit part no.: 100150.



**3.** Install the new exchange measuring head. When starting up the OMD device, please check the negative pressure and adjust if necessary! See procedure 1. Make final test of the system to ensure that oil mist detector operation is safe.

## Maintenance Schedule Visatron VN/93

The routine maintenance schedule must be followed as described below. Valid for gas operation with TPS turbo charger, stationary power plant application and marine engines.

**NOTE: All maintenance steps should be performed while engine is stopped!**



	What to do:	Interval:	Part kit:
<b>Procedure 1</b>	<ul style="list-style-type: none"> <li>Check the negative pressure with u-tube manometer or digital manometer. Adjust if necessary! Setting level is 60,00 mmH<sub>2</sub>O!</li> <li>Replace the sintered bronze air filter/fresh air filter (Part no.: 10042) in the measuring head.</li> <li>Clean the fresh air bores in the measuring head. Use the cleaning needle (Part no.: 10135).</li> <li>Clean both infrared sensor glasses in the measuring head with cotton pins and technical alcohol.</li> <li>Perform functional test with test glass kit.</li> </ul>	Every 3 months or 2 000 operating hours. (whatever comes first)	Test glass kit – Part no.: 11072
<b>Procedure 2</b>	<ul style="list-style-type: none"> <li>Replace filter in pressure regulator (Part no.: 100170).</li> </ul> <p><b>If you have a water separator:</b></p> <ul style="list-style-type: none"> <li>Replace filter cartridge of water separator.</li> </ul>	Every 6 months or 4 000 operating hours. (whatever comes first)	
<b>Procedure 3</b>	<ul style="list-style-type: none"> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Check scavenging air outlet behind the control cover manually (low-right) by feeling the air stream.</li> </ul>	Every 12 months or 8 000 operating hours. (whatever comes first)	Maintenance kit VN115/93 – 100153 Maintenance kit VN116/93 – 100154 Maintenance kit VN215/93 – 100155
<b>Procedure 4</b>	<ul style="list-style-type: none"> <li>Overhaul the complete oil mist detector system. <b>This procedure is to be carried out by authorized service personnel!</b></li> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Perform functional test of entire oil mist detector system with smoke generator (Part no.: 10353 &amp; 10097) or smoke test (Part no.: 151780).</li> </ul>	Every 24 months or 16 000 operating hours. (whatever comes first)	Maintenance kit VN115/93 – 100153 Maintenance kit VN116/93 – 100154 Maintenance kit VN215/93 – 100155
<b>Procedure 5</b>	<ul style="list-style-type: none"> <li>Replace complete oil mist detector or measuring head with an exchange unit.</li> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> </ul> <p><b><i>If you are ordering a complete exchange oil mist detector unit, there is no need to replace maintenance kit for base plate.</i></b></p>	Every 48 months or 32 000 operating hours. (whatever comes first)	Maintenance kit VN115/93 - 100153 Maintenance kit VN116/93 - 100154 Maintenance kit VN215/93 – 100155



### Procedure 1:



1. Check the negative pressure with a u-tube manometer. Adjust if necessary! Setting level is 60,00 mmWC!



2. replace the sintered bronze air filter/fresh air filter (part no.: 10042)



3. Clean the fresh air bones in the measuring head. Use the cleaning needle (Part no.: 10135)



4. Clean the infrared sensor glasses at the left and the right side inside the measuring head. Use cotton sticks (Part no.: 10036) and technical alcohol (Part no.: 10035)

### Procedure 2:



1. Close the air pressure



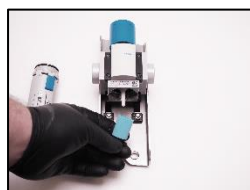
2. Hold the filter cage in one hand and pull the blue tab down horizontally with your thumb.



3. Turn the filter cage clockwise and pull out downwards



4. Unscrew the black plastic disc and remove the dirty filter



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation



6. Reinstall the filter cage



7. Install the quick connection



8. Fill in slacked water in the u-tube manometer



9. To the middle line



10. Install the u-tube manometer



11. Adjust the air pressure to 60.00 mmWC.



12. Disconnect the u-tube manometer and install the plug for inspection cover

### Procedure 3:



1. Stop the engine and reduce the incoming air pressure



2. Disconnect the RESET task connector



3. dismantle the measuring head



4. disconnect the connection case





**5. Change the small seal**  
(Part no.: 10206)



**6. Change the valve box seal**  
(Part no.: 10405)



**7. Reconnect the connection case to the base plate**



**8. unscrew the vibration plate**



**9. Replace the mounting system**  
(Part no.: 10991)



**10. Replace the flexible bellows, included the mounting system kit**  
(Part no.: 10991)



**11. Install the new vibration plate to the base plate**



**12. reinstall the measuring head at the vibration plate**



**13. open the inspection cover**



**14. change the scavenging air filter**  
(Part no.: 10042)



**15. Change the seal for inspection cover**  
(Part no.: 11180)



**16. clean the infrared sensor glasses with cotton sticks and alcohol**  
(Part no.: 10036 & 10035)



**17. clean the bores with cleaning needle**  
(Part no.: 10135)



**18. change the screw plug seal 1/4"**  
for inspection cover  
(Part no.: 10082)



**19. close inspection cover**



**20. unscrew the plugs at the connection case**



**21. change the screw plug seal 1/2"**  
(Part no.: 10209)



**22. check the heating element if it is hot. If cold – replace!**



**23. Check all leaders in the main socket. If bad condition – replace!**  
(Part no.: 10905)

## Procedure 5:



Stop the engine and replace the measuring head. When starting up the OMD device, please check the negative pressure and adjust if necessary! See procedure 1.

## Visatron VN2020

By conducting regular maintenance, the product will have a long service life. If the maintenance intervals are not observed, the oil mist detector may fail prematurely. It is essential that you follow the given sequence for the work.

**NOTE: All maintenance steps should be performed while engine is stopped!**



	What to do:	Interval:	Part kit:
<b>Procedure 1</b>	<ul style="list-style-type: none"> <li>M1   Clean infrared sensors in measuring head and replace seal on inspection cover.</li> <li>M2   Exchange seal on connection box and check bellows and suspension system between measuring head and base plate for damage.</li> <li>M3   Exchange filter in pressure regulator and check negative pressure in measuring head.</li> <li>M4   Clean suction/pipe system with compressed air.</li> <li>M5   Functional test with smoke test to be carried out.</li> </ul>	Every 6 months or 4 000 operating hours. (whatever comes first)	Test kit 1: 100160  Maintenance kit 2: 100161
<b>Procedure 2</b>	<b>Main two-year service (2 years) by authorized and certified Schaller personnel only!</b> <ul style="list-style-type: none"> <li>Service and test of complete Oil Mist Detector installation incl. software check and upgrade if necessary.</li> <li>Replacement of mayor part kit for VN2020.</li> <li>Service certificate to be approved by authorized personnel!</li> </ul> <p><b>Please contact us for authorized personnel at: <a href="mailto:epp@epp.no">epp@epp.no</a></b></p>	Every 24 months or 16 000 operating hours. (whatever comes first)	Test kit 1: 100160  Maintenance kit 3: 100162
<b>Procedure 3</b>	<ul style="list-style-type: none"> <li>Perform procedure 1 &amp; procedure 2.</li> <li>Replace measuring head or complete oil mist detector.</li> </ul> <p><b>Please contact us for authorized personnel at: <a href="mailto:epp@epp.no">epp@epp.no</a></b></p>	Every 48 months or 32 000 operating hours. (whatever comes first)	

### M1 | Clean infrared sensors in measuring head and replace seal on inspection cover.



1. Loosen the captive screws on the inspection cover.



2. Open the inspection cover.



3. Use the cleaning fluid and cotton sticks.



4. Clean the glass on the transmitter diode on the right side until it is clean.



5. And clean the diode until the glass is clean.



6. Clean the surface and replace the gasket for inspection cover.



7. Close the inspection cover and hand tight the captive screws.



## M2 | Exchange seal on connection box and check bellows and suspensions.



**1.** Disconnect the measuring head from the base plate.



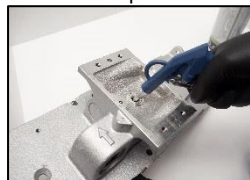
**2.** Remove the base plate from protection cover base.



**3.** Unscrew the 4 pc. mounting bolts on the pipe connection box.



**4.** Clean the base plate for oil and dirt.



**5.** Use compressed air to the air channels into the base plate.



**6.** And into the ejector inlet and outlet chamber.



**7.** Clean the ejector in and out nozzle free for oil and dirt.



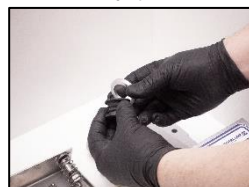
**8.** Replace the valve box gasket.



**9.** Install the pipe connection box.



**10.** Unscrew the 2 pc. screws, and remove the fastening ring for the upper bellow.



**11.** Check the upper bellow for damage, replace if necessary.



**12.** Unscrew the 2 pc. screws and remove the fastening ring for the lower bellow.



**13.** Check the lower bellow damage, replace if necessary.



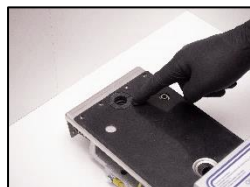
**14.** Reinstall the fastening ring and ensure correct position of the bellows.



**15.** Check the upper and lower suspensions for any damage, replace if necessary.



**16.** Reinstall the vibration damping plate.



**17.** Ensure that position of the flexible bellows are correct.



**18.** Install the measuring head and tighten the captive screws with a torque of 4,5 Nm.



### M3 | Replace the filter in pressure regulator and check/adjust negative pressure in measuring head.



1. Close the air pressure.



2. Hold the filter cage one hand and pull the blue tab down with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



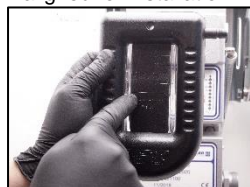
6. Reinstall the filter cage.



7. Install the quick connection.



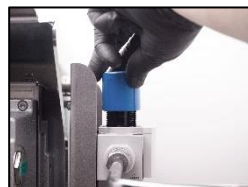
8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 60.00 mmWC.



12. Disconnect the u-tube manometer and install the plug for inspection cover.

### M4 | Clean suction/pipe system with compressed air.



1. Loosen the main pipe connection.



2. Remove the pipe from oil mist detector.



3. Blow compressed air into the main pipe for few seconds so collected oil will drain back to the engine.

**The procedure to be done on the right and left side!**

## M5 | Functional test with smoke test to be carried out.



### CAUTION!

The oil mist alarm will now be triggered, showing alarm LED lighting up and the engine will be shutting down/reducing the RPM.



1. Remove the plug in the inspection cover.



2. Install the test plug at the inspection cover.



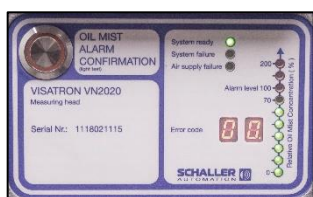
3. Bend the smoke house until tube content break.



4. Pull the hose into the test pump.



5. Pump smoke until the oil mist alarm is realised.



6. When the oil mist concentration is high, the LED indicator will increase and at 70% opacity of the set alarm threshold, the "Oil Mist Alarm" LED turns on. At 100% opacity relative to the set alarm threshold, the "Oil Mist Alarm" LED will start flashing. If the opacity subsequently decreases, the alarm status is saved. The opacity is displayed on the LED level indicator on the right. If the top LED comes on, the opacity has reached/exceeded the oil mist alarm threshold. The alarm condition can only be reset by pressing the oil mist alarm reset button.



7. Each extraction point is now checked individually. To do this, hold the smoke tube directly under the suction funnel of the individual extraction point and perform at least 3 – 5 pumping strokes. The resulting smoke should now be drawn out directly via the suction funnels. After no more than 10 seconds, the oil mist detector should indicate an alarm on the measuring head display. The time to display varies depending on the engine type and the installation kit.

# Troubleshooting

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If an internal or a system failure occurs, the diagnostics system shows the failure condition by a LED on the LED bar. The error codes are shown in the sites below. A detected oil mist alarm is displayed at this time with the TEST relay not switched on.

Below you will find links and QR codes leading you to the various Visatron oil mist detector models fault location pages. There you will find complete lists over the different alarms and how to solve them, including step-by-step guides on how to solve your systems error.

**Caution! Fault location has to be done when the engine is stopped**



## Visatron VN/87 EMC



<https://www.epp.no/troubleshooting/fault-indication-vn-87/>

## Visatron VN/87plus



<https://www.epp.no/troubleshooting/fault-indication-vn-87plus/>

## Visatron VN/93



<https://www.epp.no/troubleshooting/fault-indication-vn-93/>

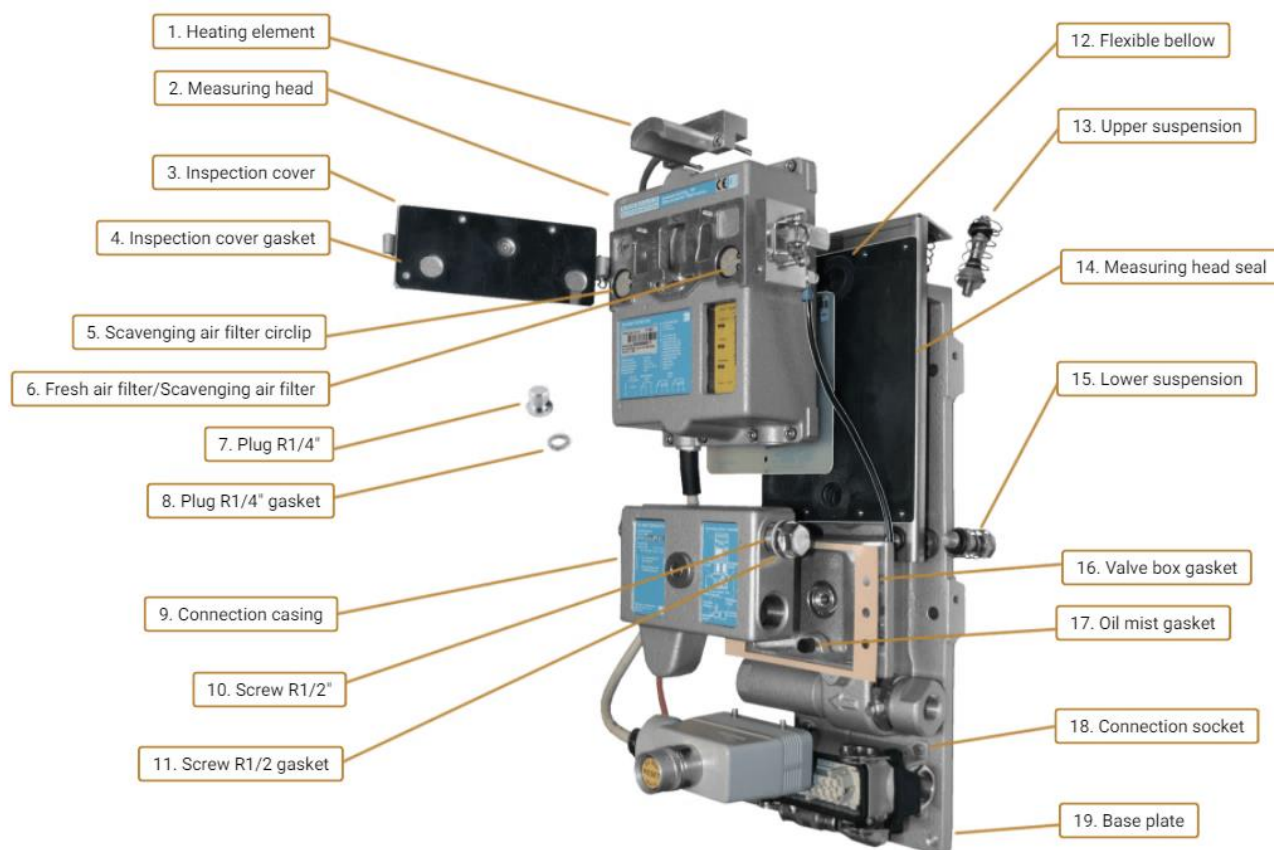
## Visatron VN2020



<https://www.epp.no/troubleshooting/fault-indication-vn-2020/>

# Spare Parts

## Visatron VN115/87 EMC



Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Heating element	10671   270765	11	Screw R1/2" gasket	10209   365280
2	Measuring head	10601   10601R	12	Flexible bellow	10023   365193
3	Inspection cover	10798   270412	13	Upper suspension	10018   200211
4	Inspection cover gasket	10166   355336	14	Measuring head seal	10022   330482
5	Scavenging air filter circlip	10041   365198	15	Lower suspension	10019   200212
6	Fresh air filter/Scavenging air filter	10042   365197	16	Valve box gasket	10405   330721
7	Plug R1/4"	10083	17	Oil mist gasket	10206   360136
8	Plug R1/4" gasket	10082	18	Connection socket	10033
9	Connection casing	10202   10202R	19	Base plate	10604   10604R
10	Screw R1/2"	10208			

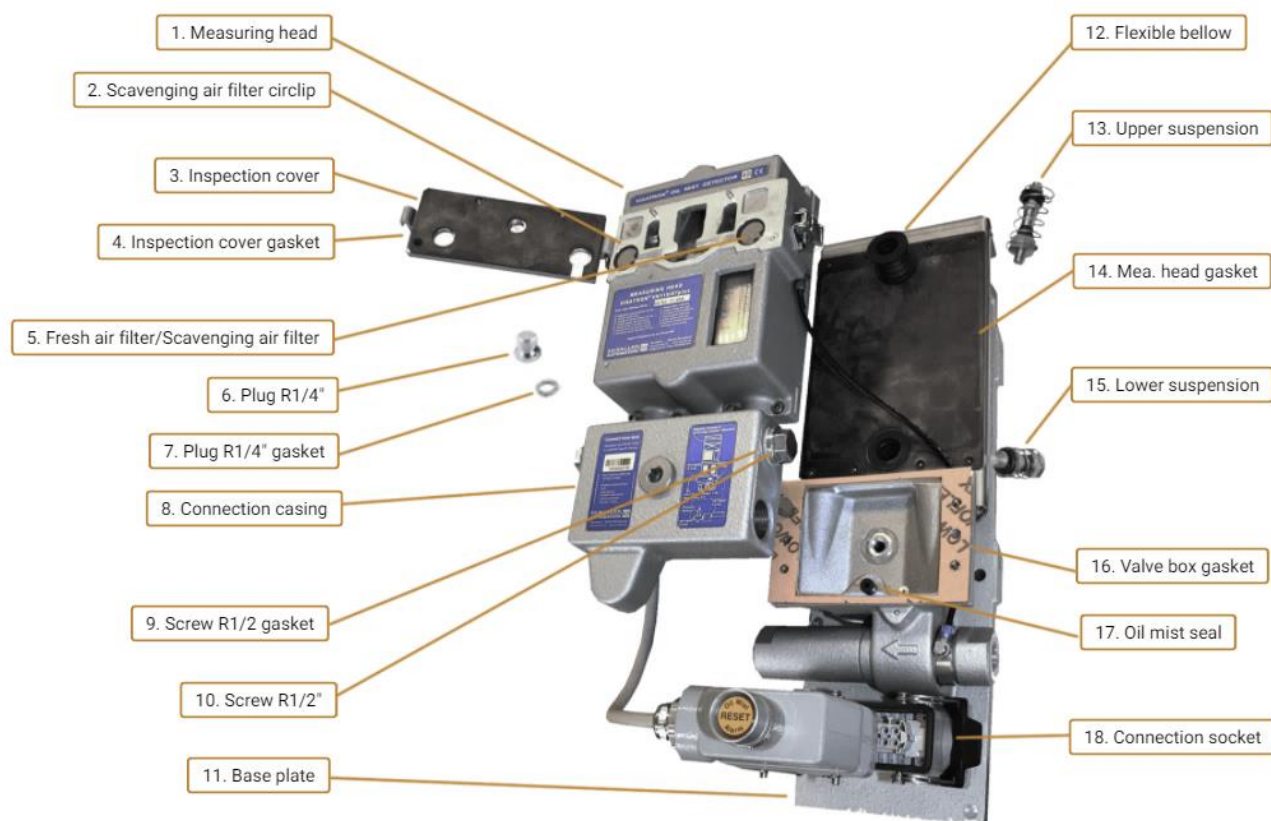


For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-87/>



## Visatron VN115/87plus



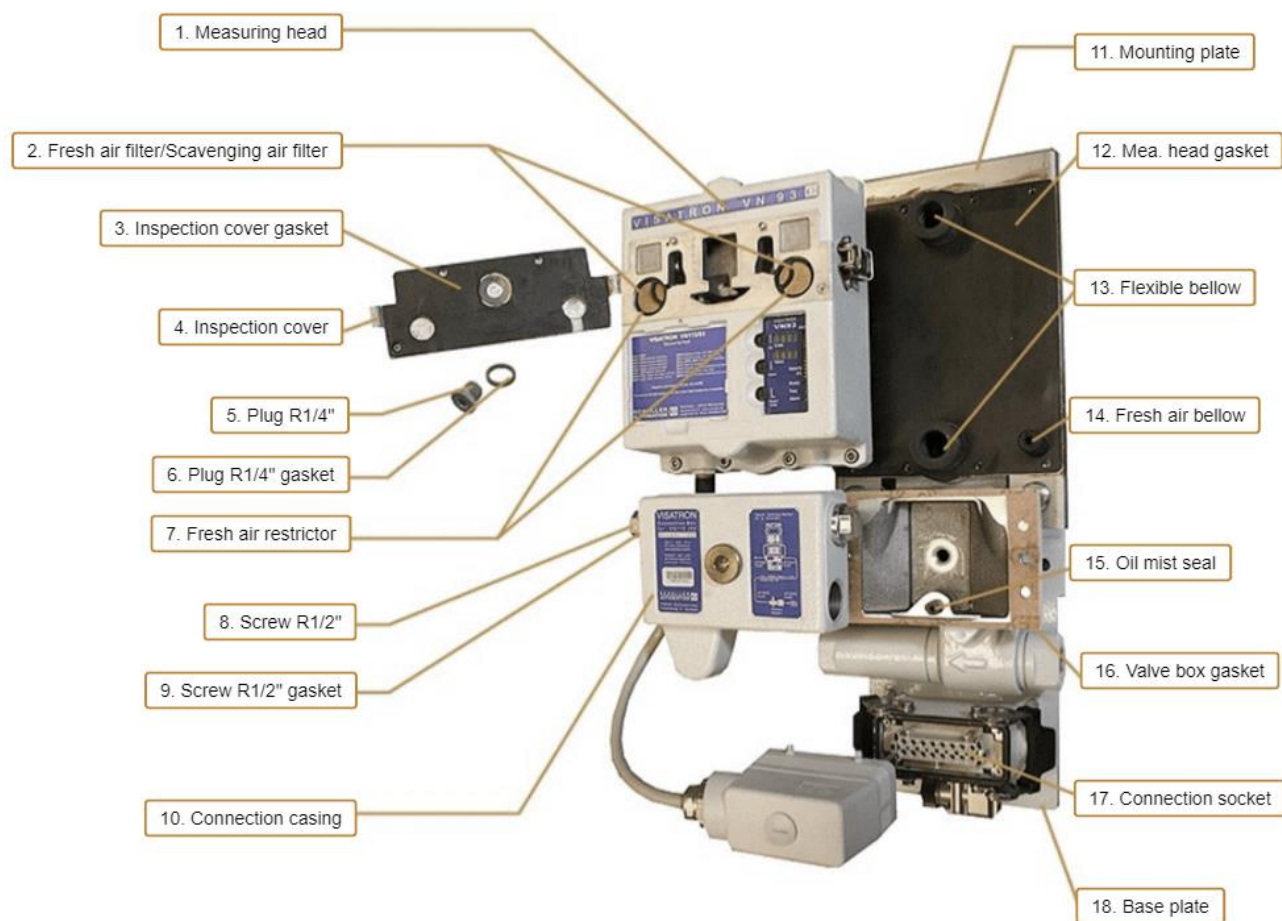
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11651   11651R	10	Screw R1/2"	10208
2	Scavenging air filter circlip	10041   365198	11	Base plate	10604   10604R
3	Inspection cover	10798   270412	12	Flexible bellow	10023   365193
4	Inspection cover gasket	10166   355336	13	Upper suspension	10018   200211
5	Fresh air filter/Scavenging air filter	10042   365197	14	Mea. Head gasket	10022   330482
6	Plug R1/4"	10083	15	Lower suspension	10019   200212
7	Plug R1/4" gasket	10082	16	Valve box gasket	10045
8	Connection casing	11652   11652R	17	Oil mist gasket	10206   360136
9	Screw R1/2" gasket	10209   365280	18	Connection socket	11004



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-87plus/>

## Visatron VN115/93



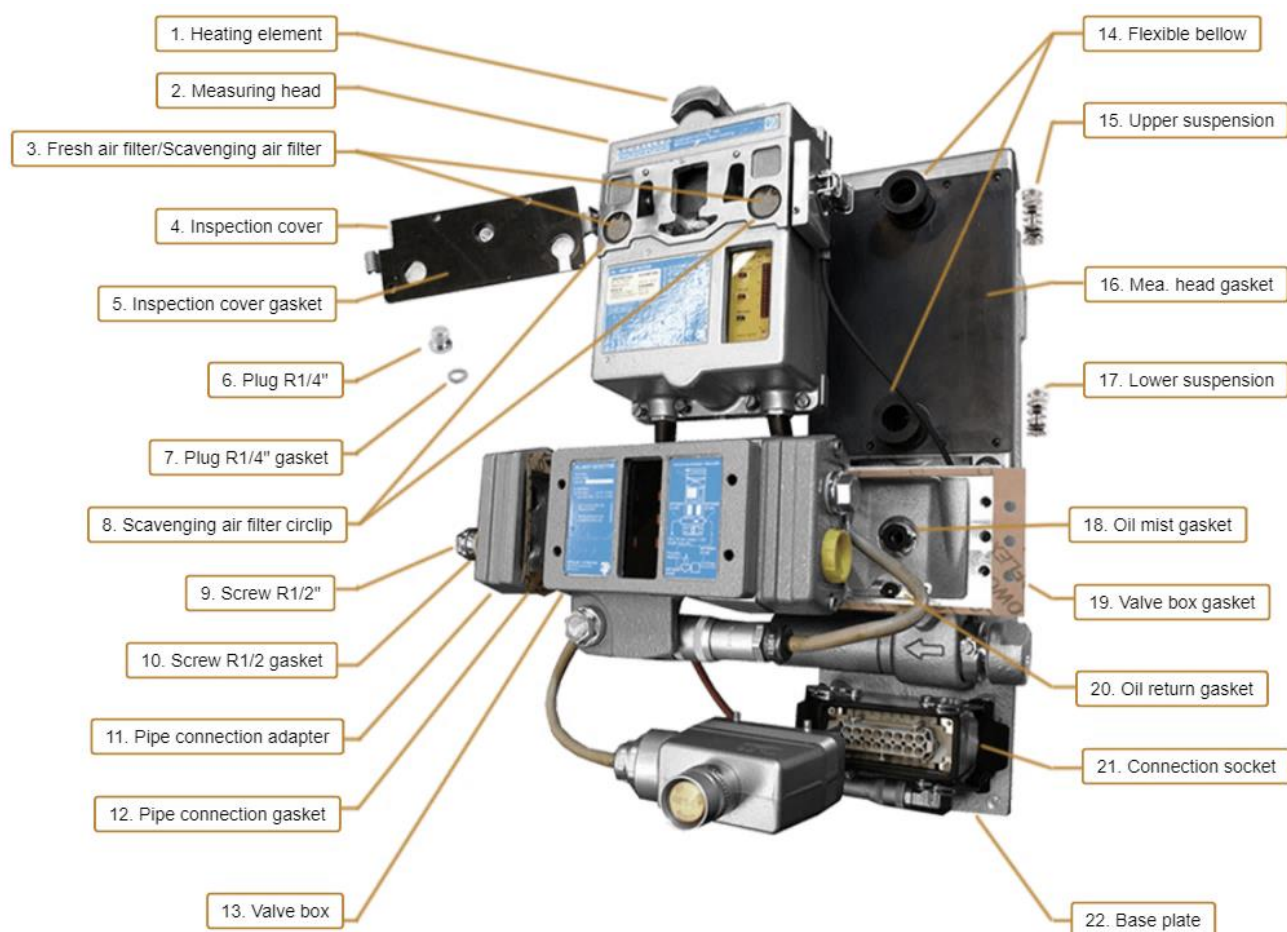
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11201   11201R	10	Connection casing	11232   11232R
2	Fresh air filter/Scavenging air filter	10042   365197	11	Mounting plate	10991
3	Inspection cover gasket	11180   355576	12	Mea. head gasket	10969   355321
4	Inspection cover	10798   270412	13	Flexible bellow	10023   365193
5	Plug R1/4"	10083	14	Fresh air bellow	10990
6	Plug R1/4" gasket	10082	15	Oil mist seal	10206   360136
7	Fresh air restrictor	10992	16	Valve box gasket	10405   330721
8	Screw R1/2"	10208	17	Connection socket	10905
9	Screw R1/2" gasket	10209   365280	18	Base plate	10904   10904R



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-93/>

## Visatron VN116/87 EMC



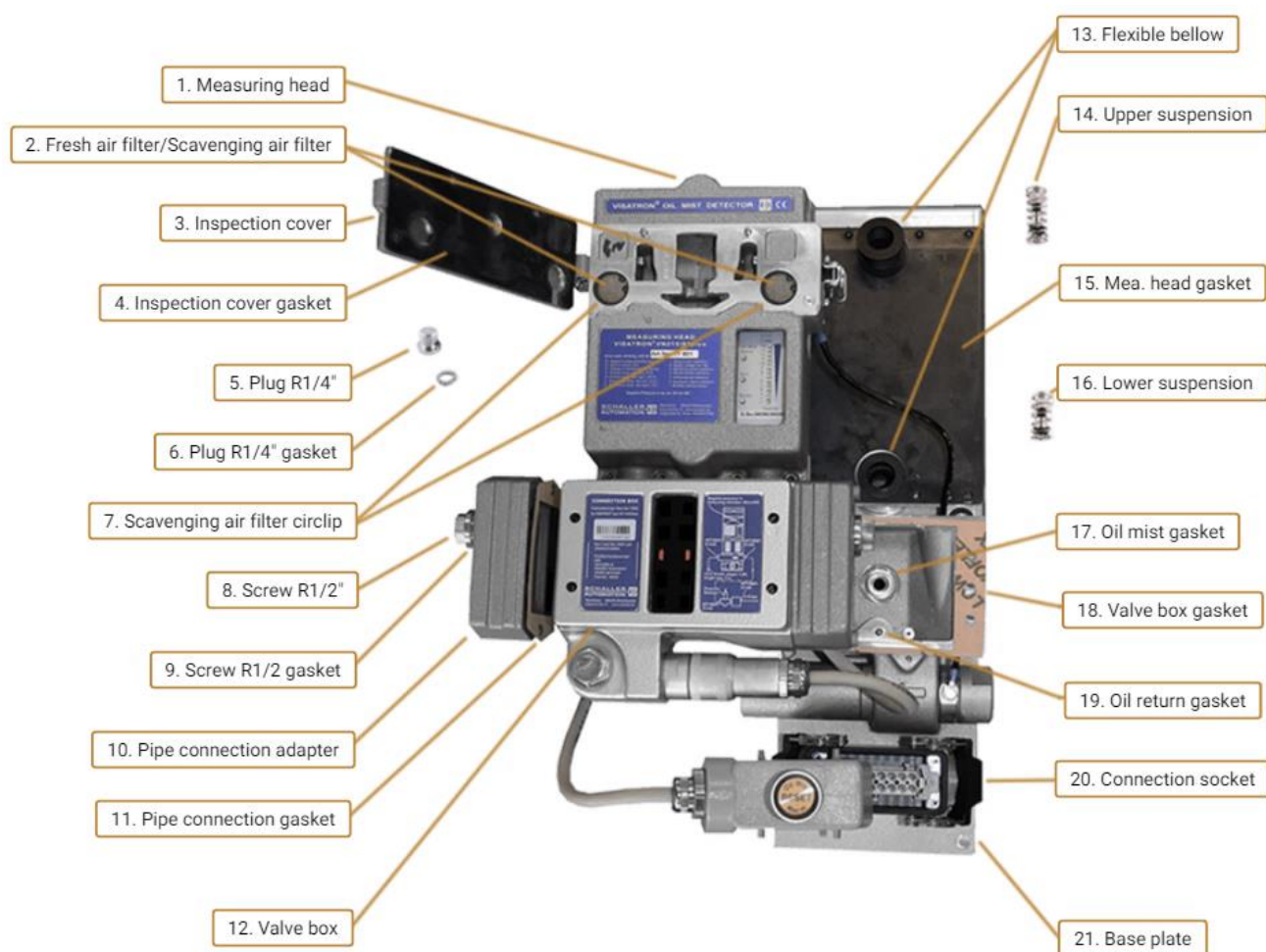
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Heating element	10671   270765	12	Pipe connection gasket	10313
2	Measuring head	10706   10706R	13	Valve box	10302   10302R
3	Fresh air filter/Scavenging air filter	10042   365197	14	Flexible bellow	10023   365193
4	Inspection cover	10798   270412	15	Upper suspension	10018   200211
5	Inspection cover gasket	10166   355336	16	Mea. head gasket	10022   330482
6	Plug R1/4"	10083	17	Lower suspension	10019   200212
7	Plug R1/4" gasket	10082	18	Oil mist gasket	10307
8	Scavenging air filter circlip	10041   365198	19	Valve box gasket	10405   330721
9	Screw R1/2"	10208	20	Oil return gasket	10306
10	Screw R1/2" gasket	10209   365280	21	Connection socket	10033
11	Pipe connection adapter	10312	22	Base plate	10708   10708R



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-87/>

## Visatron VN116/87plus



Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11751   11751R	12	Valve box	11752   11752R
2	Fresh air filter/Scavenging air filter	10042   365197	13	Flexible bellow	10023   365193
3	Inspection cover	10798   270412	14	Upper suspension	10018   200211
4	Inspection cover gasket	10166   355336	15	Mea. head gasket	10022   330482
5	Plug R1/4"	10083	16	Lower suspension	10019   200212
6	Plug R1/4" gasket	10082	17	Oil mist gasket	10307
7	Scavenging air filter circlip	10041   365198	18	Valve box gasket	10405   330721
8	Screw R1/2"	10208	19	Oil return gasket	10306
9	Screw R1/2" gasket	10209   265280	20	Connection socket	11004
10	Pipe connection adapter	10312	21	Base plate	11076   11076R
11	Pipe connection gasket	10313			

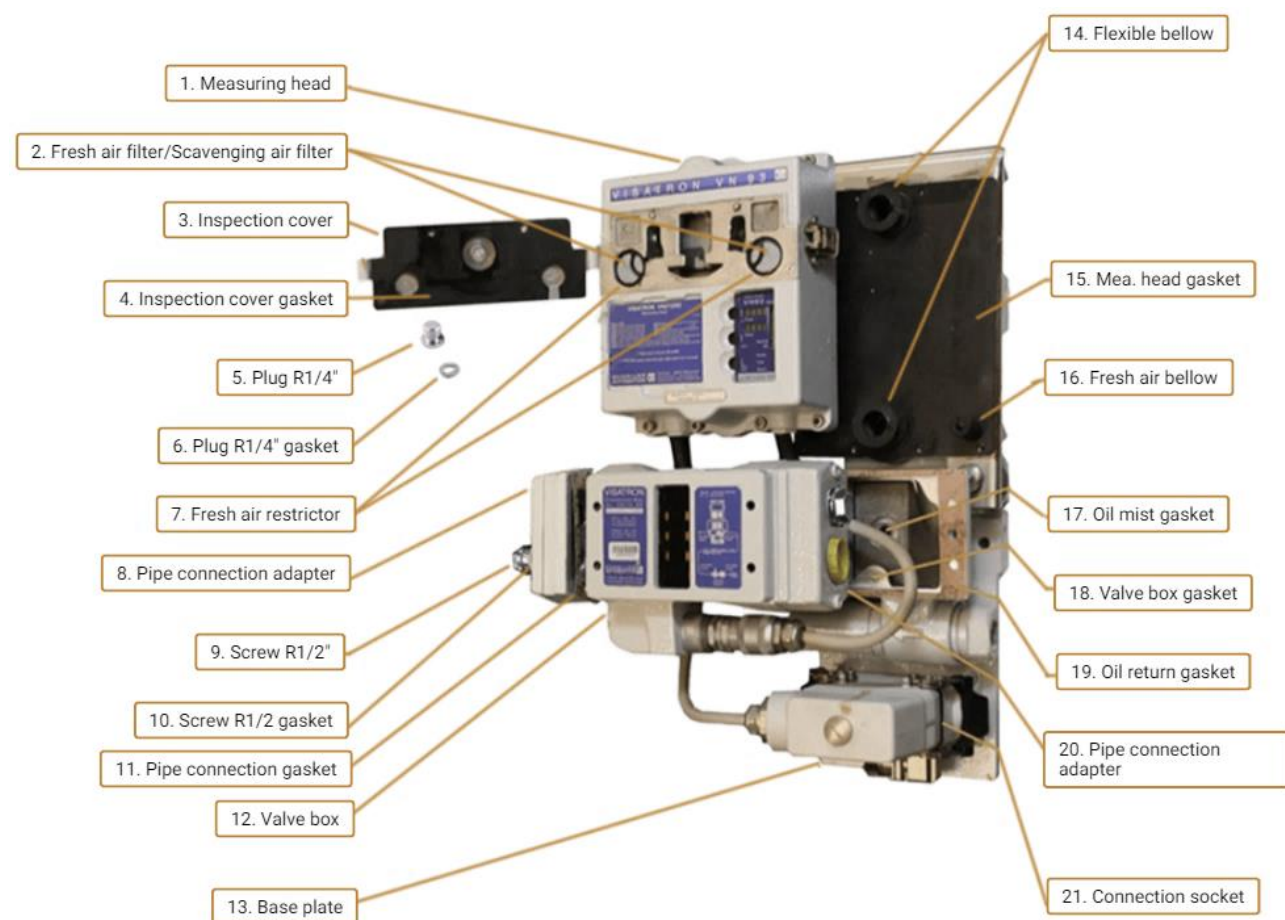


For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-87plus/>



## Visatron VN116/93



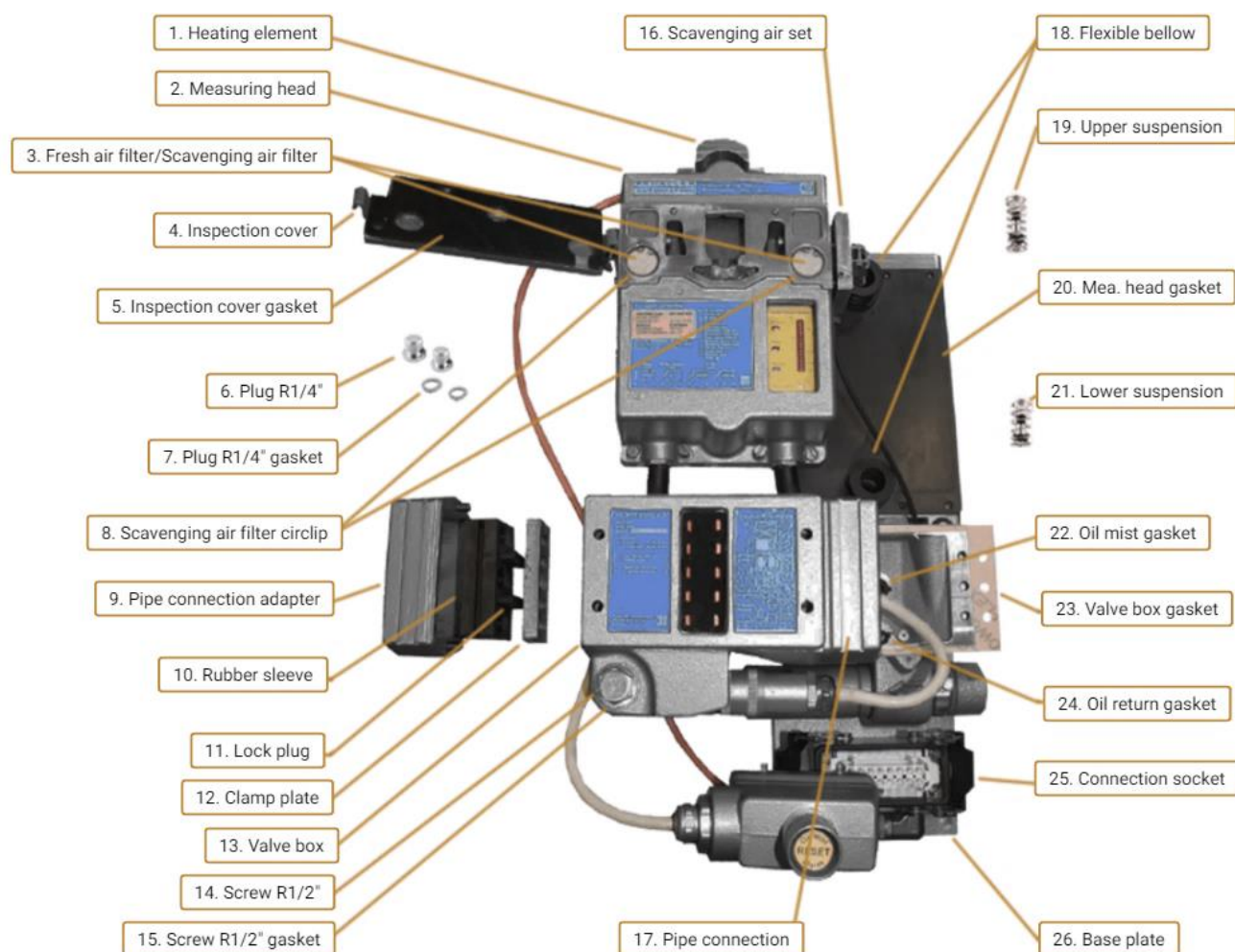
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11401   11401R	12	Valve box	
2	Fresh air filter/Scavenging air filter	10042   365197	13	Base plate	10904   10904R
3	Inspection cover	10798	14	Flexible bellow	10023   365193
4	Inspection cover gasket	11180	15	Mea. head gasket	10696
5	Plug R1/4"	10083	16	Fresh air bellow	10975
6	Plug R1/4" gasket	10082	17	Oil mist gasket	10407
7	Fresh air restrictor	10992	18	Valve box gasket	10405   330721
8	Pipe connection adapter		19	Oil return gasket	10406
9	Screw R1/2"	10208	20	Pipe connection adapter	
10	Screw R1/2" gasket	10209   265280	21	Connection socket	10033
11	Pipe connection gasket	10313			



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-93/>

## Visatron VN215/87 EMC



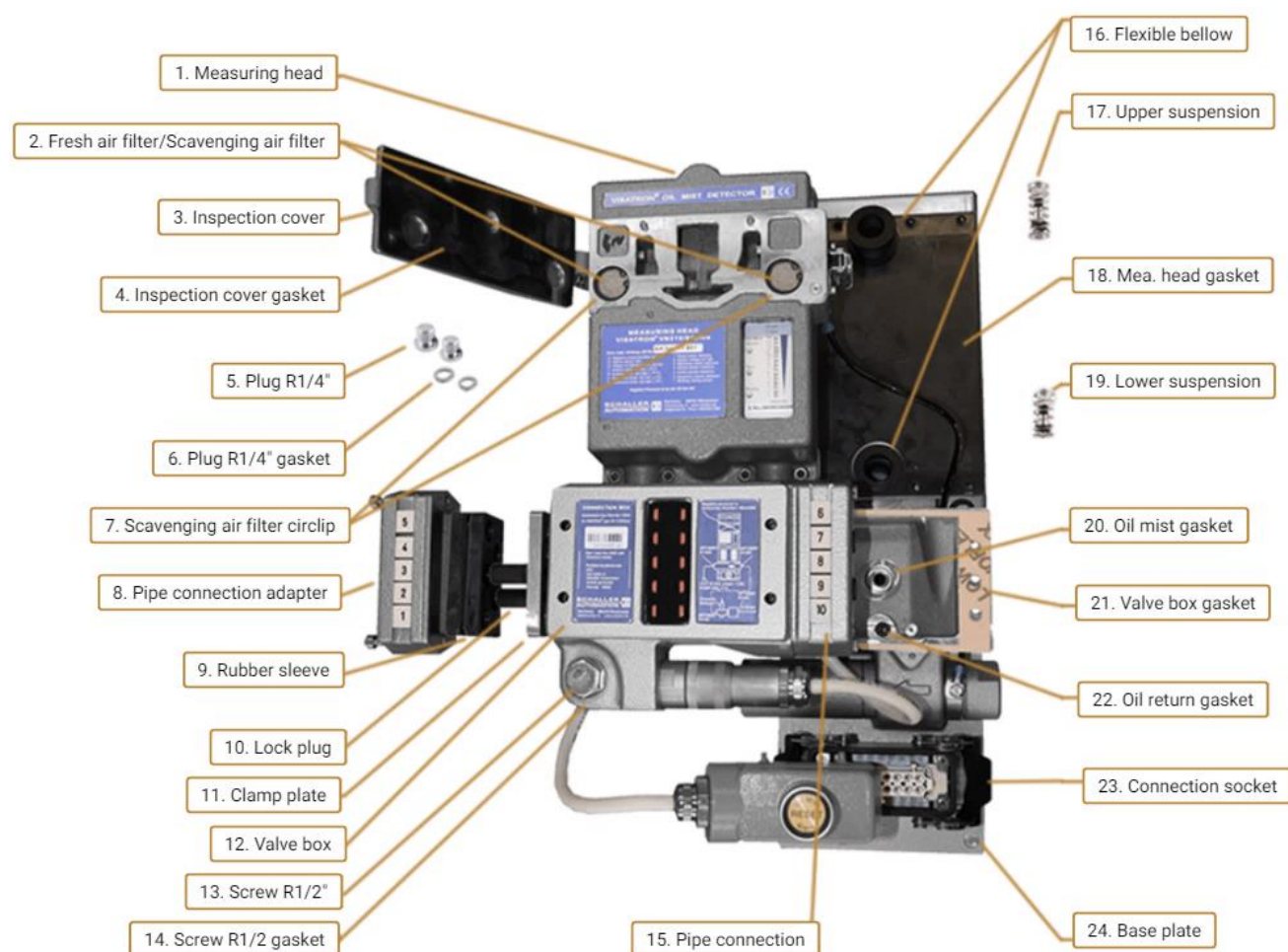
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Heating element	10671   270765	14	Screw R1/2"	10208
2	Measuring head	10802   10802R	15	Screw R1/2" gasket	10209   365280
3	Fresh air filter/Scavenging air filter	10042   365197	16	Scavenging air set	10798
4	Inspection cover	10798   270412	17	Pipe connection	10408
5	Inspection cover gasket	10166   355336	18	Flexible bellow	10023   365193
6	Plug R1/4"	10083	19	Upper suspension	10018   200211
7	Plug R1/4" gasket	10082	20	Mea. head gasket	10022   330482
8	Scavenging air filter circlip	10041   365198	21	Lower suspension	10019   200212
9	Pipe connection adapter	10430	22	Oil mist gasket	10407
10	Rubber sleeve	10411	23	Valve box gasket	10405   330721
11	Lock plug	10412	24	Oil return gasket	10406
12	Clamp plate	10409	25	Connection socket	10033
13	Valve box	10402   10402R	26	Base plate	



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-215-87/>

## Visatron VN215/87plus



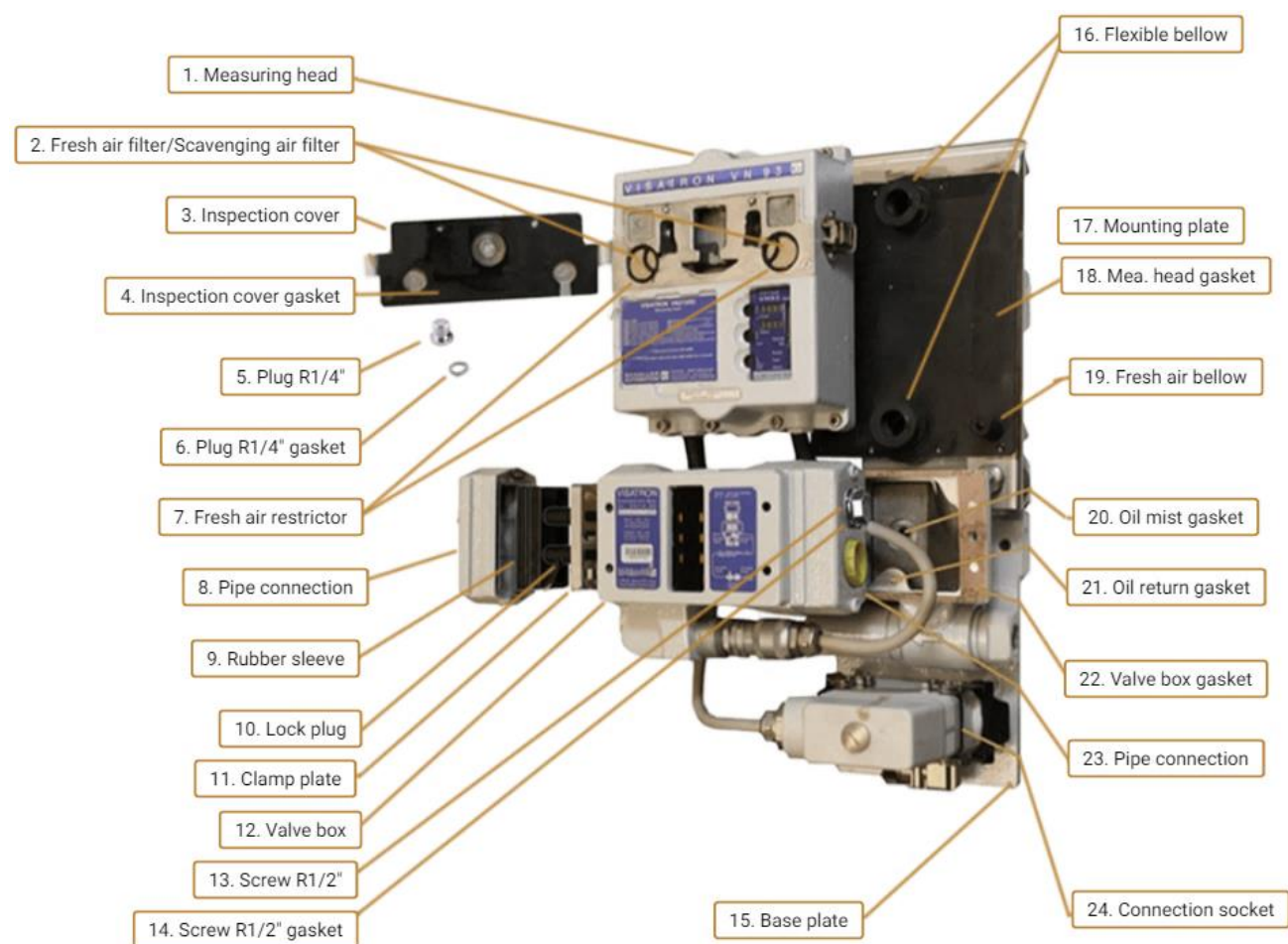
Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11851   11851R	13	Screw R1/2"	10208
2	Fresh air filter/Scavenging air filter	10042   365197	14	Screw R1/2" gasket	10209   365280
3	Inspection cover	10798   270412	15	Pipe connection	10408
4	Inspection cover gasket	10166   355336	16	Flexible bellow	10023   365193
5	Plug R1/4"	10083	17	Upper suspension	10018   200211
6	Plug R1/4" gasket	10082	18	Mea. head gasket	10022   330482
7	Scavenging air filter circlip	10041   365198	19	Lower suspension	10019   200212
8	Pipe connection adapter	10430	20	Oil mist gasket	10407
9	Rubber sleeve	10411	21	Valve box gasket	10405   330721
10	Lock plug	10412	22	Oil return gasket	10406
11	Clamp plate	10409	23	Connection socket	11004
12	Valve box	11852   11852R	24	Base plate	



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-21587plus/>

## Visatron VN215/93



Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Measuring head	11901   11901R	13	Screw R1/2"	10208
2	Fresh air filter/Scavenging air filter	10042   365197	14	Screw R1/2" gasket	10209   365280
3	Inspection cover	10798	15	Base plate	10904   10904R
4	Inspection cover gasket	11180	16	Flexible bellow	10023   365193
5	Plug R1/4"	10083	17	Mounting plate	10991
6	Plug R1/4" gasket	10082	18	Mea. head gasket	10969
7	Fresh air restrictor	10992	19	Fresh air bellow	10990
8	Pipe connection	10430	20	Oil mist gasket	10407
9	Rubber sleeve	10411	21	Oil return gasket	10406
10	Lock plug	10412	22	Valve box gasket	10405   330721
11	Clamp plate	10409	23	Pipe connection	10408
12	Valve box	10902   10902R	24	Connection socket	10905

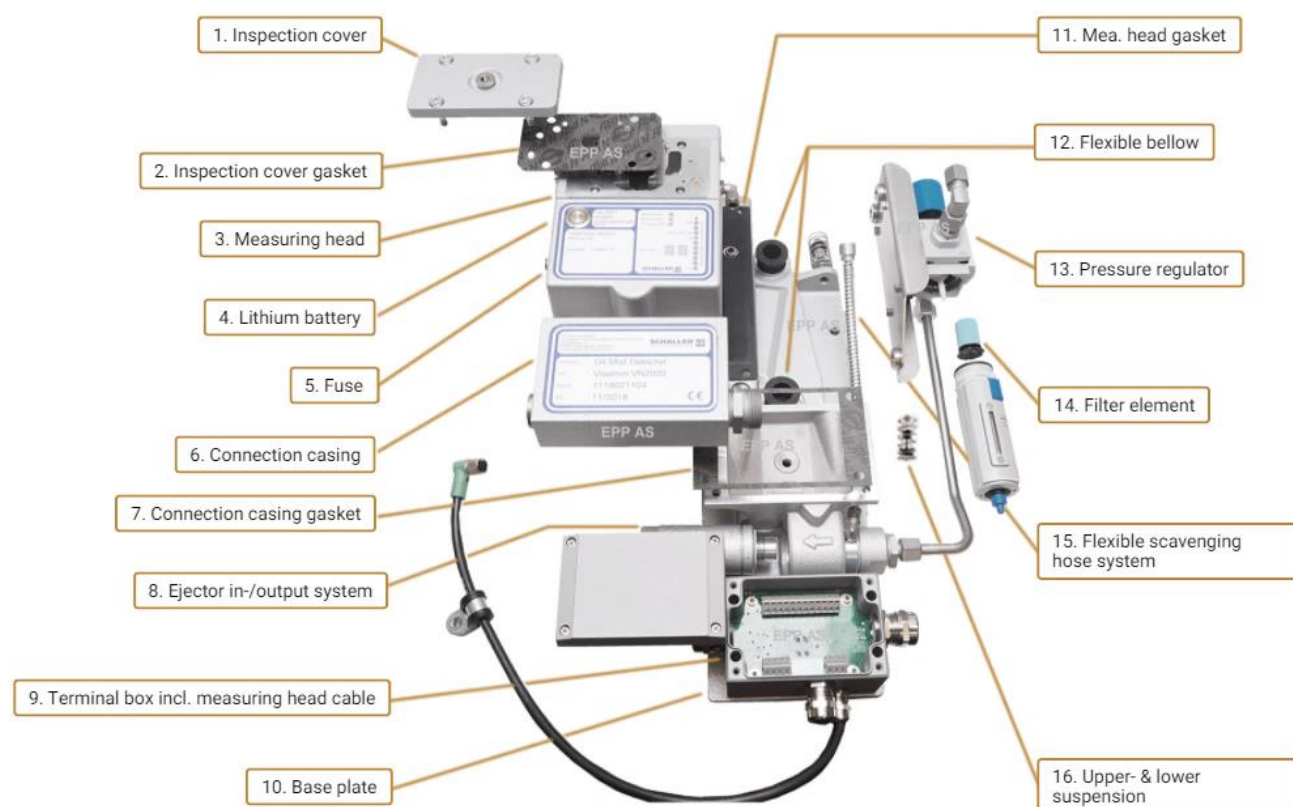


For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-21593/>



## Visatron VN2020



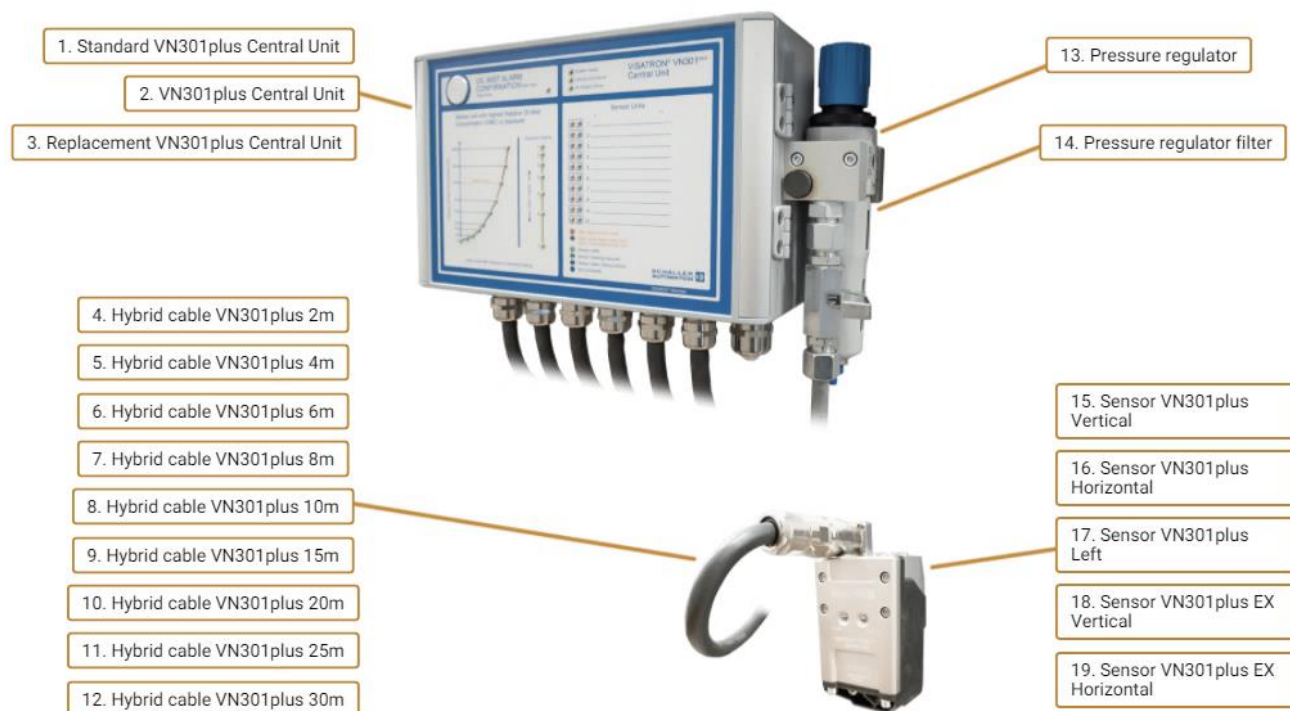
Position:	Part name:	Incl. in kit:	Position:	Part name:	Incl. in kit:
1	Inspection cover	155000 & 155001	9	Terminal box incl. measuring head cable	155000 & 100164
2	Inspection cover gasket	155000, 155001 & 100171	10	Base plate	155000
3	Measuring head	155000 & 155001	11	Mea. head gasket	155000 & 100171
4	Lithium battery	155000, 155001 & 100172	12	Flexible bellow	155000, 100163 & 100171
5	Fuse	155000, 155001 & 100173	13	Pressure regulator	155000 & 100168/100169
6	Connection casing	155000	14	Filter element	155000, 155005/366717 & 100168/100169
7	Connection casing gasket	155000 & 100171	15	Flexible scavenging hose system	155000
8	Ejector in-/output system	155000	16	Upper- & lower suspension	155000, 100163 & 100171



For more information:

<https://www.epp.no/spare-parts/spare-parts-for-vn2020/>

## Visatron VN301plus



Position:	Part name:	Part no.:	Position:	Part name:	Part no.:
1	Standard VN301plus central unit	273100	11	Hybrid cable VN301plus 25m	273225
2	VN301plus central unit	273120	12	Hybrid cable VN301plus 30m	273230
3	Replacement VN301plus central unit	273150	13	Pressure regulator	273102
4	Hybrid cable VN301plus 2m	273202	14	Pressure regulator filter	273214
5	Hybrid cable VN301plus 4m	273204	15	Sensor VN301plus vertical	153070
6	Hybrid cable VN301plus 6m	273206	16	Sensor VN301plus horizontal	153080
7	Hybrid cable VN301plus 8m	273208	17	Sensor VN301plus left	153024
8	Hybrid cable VN301plus 10m	273210	18	Sensor VN301plus EX vertical	153050
9	Hybrid cable VN301plus 15m	273215	19	Sensor VN301plus EX horizontal	153060
10	Hybrid cable VN301plus 20m	273220			



For more information:

<https://www.epp.no/spare-parts/spare-parts-for-visatron-vn301plus/>

# Part- & Kit Database

In the Part- & Kit Database you are able to search for part and kits by both names and part numbers. We keep a complete library of the parts and kits we have been providing through the years. Every part and kit are catalogued with all specs like weight, size, material and contents, all in downloadable PDFs that you can bring with you anywhere.

We recommend using part number when you search for a part as our search-bar is very specific and some parts for different models are named the same. After inputting your search, press the search button to execute the search or press the "Enter" key. For more information about a product click on the drop-down menus and click the images in the dropdowns to download PDF versions of the documents!

## Part Database:

Here you will be able look up every oil mist detector system part we supply along with all specs of the product by searching the name or part number of the product you are interested in.



For more information and to view the Part Database:

<https://www.epp.no/databases/part-database/>

## Kit Database:

Here you will be able look up every oil mist detector kit we supply along with all specs of the product by searching the name or part number of the product you are interested in.



For more information and to view the Kit Database:

<https://www.epp.no/databases/kit-database/>





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