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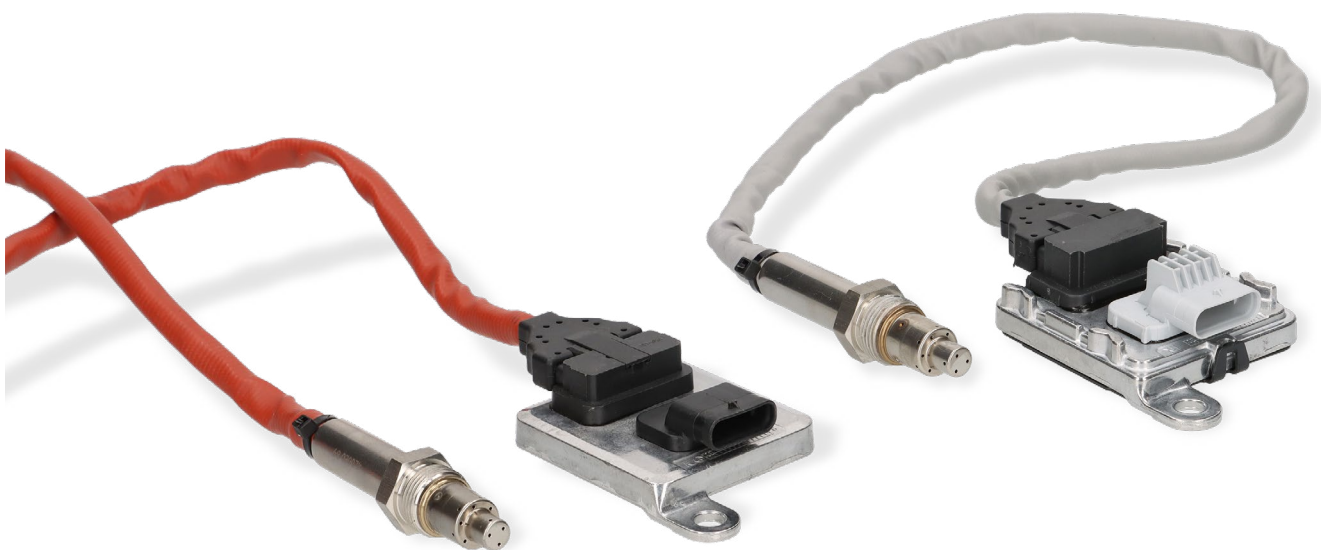
For technical personnel only!

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PRODUCT INFORMATION

NITROGEN OXIDE / NO_x SENSORS

FROM THE SPECIALIST FOR EMISSION CONTROL



With nitrogen oxide or NO_x sensors, Motorservice is enlarging its product range in the field of exhaust gas sensor systems from Pierburg.

The available item numbers cover a global vehicle fleet of more than 13 million vehicles, including utility vehicles from the “big seven” – DAF, IVECO, MAN, Mercedes-Benz, Renault, Scania and Volvo.

These sensors are a key component for reducing harmful nitrogen oxides, NO_x for short.

See the following pages for further technical background information

SENSORS FROM PIERBURG – TAILOR-MADE OFFER, WIDE MARKET COVERAGE

Our sensors in OE quality have proven themselves millions of times over across the globe. They are indispensable components, and several of them can often be found installed in one vehicle. That is why we keep on expanding our product range. High operating temperatures and aggressive exhaust gas place high demands on NO_x sensors. You should therefore choose products from the specialist for emission control.

All content including pictures and diagrams is subject to change. For assignment and replacement, refer to the current catalogues or systems based on TecAlliance.





NITROGEN OXIDE / NOx SENSORS IN THE RANGE

Pierburg no.	OEM	Ref. no.	Example vehicles / application
7.13557.00.0	Citroën, Peugeot, DS, Opel, Vauxhall	98 211 209 80	208, 308, C4, DS3, DS4, DS5, Expert, Jumpy, Vivaro c, Zafira Life (1.6 & 2.0 Hdi)
7.13557.01.0	Renault, Nissan, Opel, Vauxhall, Fiat	22 79 054 33R, 93 463 067, 22790-00Q0F	Movano B, Master III, Trafic III, NV300, NV400, Talento (1.6 & 2.3 dCi)
7.13557.02.0	BMW	13 62 8 589 846	1 / 2 / 3 / 5 series, X3 / X4 / X6 (B47, N47, M57, N57 engines)
7.13557.03.0	Citroën, Peugeot, DS, Opel, Vauxhall	98 211 211 80	3008, 5008, 508, C5, DS7, Expert, Jumpy, Vivaro C, Zafira Life
7.13557.04.0	Renault, Nissan, Opel, Vauxhall, Fiat	22060-00Q0E, 6.000.620.236, 93 457 719, 22 79 085 39R	NV300, Vivaro B, Trafic III, Talento
7.14350.00.0	Mercedes-Benz	A 006 153 73 28	Actros MP2 / MP3 12L + 16L
7.14350.01.0	Mercedes-Benz	A 008 153 98 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.02.0	Mercedes-Benz	A 008 153 99 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.03.0	Mercedes-Benz	A 009 153 00 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.04.0	Mercedes-Benz	A 009 153 01 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.05.0	Mercedes-Benz	A 010 153 14 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.06.0	Mercedes-Benz	A 010 153 16 28	Actros MP4 / MP5 7.7L, 10.7L, 12.8L, 15.6L
7.14350.08.0	Volvo / Renault	22827991	FE / FH / FL / FM 7.1L, 7.7L, 8.8L, 12.8L
7.14350.09.0	Volvo / Renault	22827993	FH / FL / FM 7.1L, 7.7L, 8.8L, 12.8L, 16.1L
7.14350.10.0	Volvo / Renault	22827995	FE / FH / FL / FM 5.1L, 7.1L, 7.7L, 12.8L, 16.1L
7.14350.11.0	Scania	1872080	P, G, R, T series 8.9L, 9.3L, 10.6L, 11.7L, 12.7L, 15.6L, 16.4L
7.14350.12.0	Iveco	5801754015	Eurocargo / Stralis / Trakker 3.9L, 5.9L, 7.8L, 8.7L, 10.3L, 11.1L, 12.9L
7.14350.13.0	Iveco	5801777219	Stralis / Trakker 7.8L, 8.7L, 10.3L, 11.1L, 12.9L
7.14350.14.0	Iveco	5801754016	Eurocargo 3.9L, 4.5L, 5.9L, 6.7L
7.14350.15.0	Iveco	5801754014	Eurocargo / Stralis / Trakker 3.9L, 5.9L, 7.8L, 8.7L, 10.3L, 11.1L, 12.9L
7.14350.16.0	MAN	51.15408-0000	TGA / TGL / TGM / TGS 4.6L, 6.8L, 9.0L, 10.5L, 12.4L, 12.8L
7.14350.17.0	MAN	51.15408-0011	TGA / TGL / TGM / TGS 4.6L, 6.8L, 9.0L, 10.5L, 12.4L, 12.8L
7.14350.18.0	DAF	1744683	CF / XF 5.9L, 6.7L, 9.2L, 12.9L
7.14350.19.0	DAF	1793380	CF / XF 5.9L, 6.7L, 9.2L, 12.9L
7.14350.20.0	DAF	1793379	CF / XF 5.9L, 6.7L, 9.2L, 12.9L
7.14350.21.0	DAF	1705572	CF / LF 3.8L, 4.5L, 5.9L, 6.7L, 9.2L, 12.9L



NOTE

When replacing the NOx sensor, pay attention to its positioning. Especially when working on vehicles with several NOx sensors, swapping them can cause malfunctions.



BACKGROUND INFORMATION

“Nitrogen oxide” is the collective term for gaseous pollutants such as nitrogen monoxide (NO), nitrogen dioxide (NO₂) and nitrous oxide (N₂O). These substances increasingly arise at high combustion temperatures and when there is an excess of oxygen ($\lambda > 1$).

In diesel engines, NO_x sensors (01) are intended for metering the urea injection (04) in the SCR catalytic converter (SCR = selective catalytic reduction). If two NO_x sensors are installed, the second NO_x sensor (03) monitors the functioning of the SCR catalytic converter (02).

NO_x sensors are installed in utility vehicles as from EURO VI as standard.

In the case of direct injection petrol engines, the NO_x sensor monitors the loading state of the NO_x catalytic converter.

METHOD OF OPERATION

The NO_x sensor works according to a similar principle as the wideband lambda sensor and, similar to it, requires sensor heating which brings the sensor up to operating temperature (approx. 700°C).

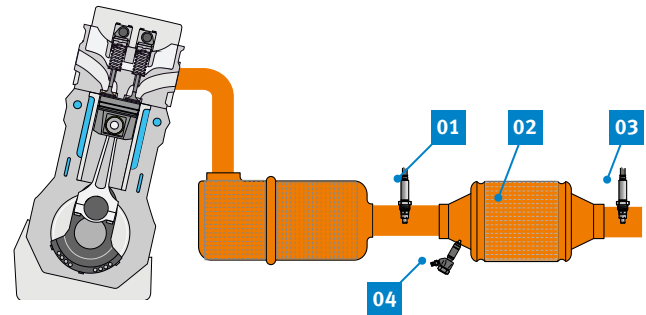
The NO_x sensor consists of two chambers arranged one after the other:

The amount of residual oxygen in the exhaust gas is determined in the first chamber. This can be achieved by applying a voltage which “pumps” the oxygen out of the cell.

Depending on the vehicle type and position of the sensor, the NO_x sensor may therefore take on the function of a lambda sensor and replace it.

NO_x is broken down into its constituent parts, nitrogen and oxygen, in the second chamber. The amount of oxygen that results as part of this process is measured by an additional pump electrode.

The “pump current” expended for this is proportional to the NO_x concentration in the exhaust gas. It is evaluated by the control unit at the NO_x sensor and reported to the engine control unit via CAN bus.



NO_x sensors in the diesel engine

INFORMATION FOR THE REPAIR SHOP

- Make sure the NO_x sensor and the NO_x catalytic converter are working and positioned correctly.
- Prevent overheating of or damage to the NO_x sensor or the NO_x catalytic converter.
- If an NO_x sensor ages, it may send incorrect signals to the control unit. This may result in the engine entering a limp home function with increased fuel consumption.
- The NO_x sensor may be stored as faulty in the fault code memory, even though the cause is a defective NO_x catalytic converter.
- Due to the aggressive exhaust gas, NO_x sensors only have a limited durability. If two NO_x sensors are installed, we therefore recommend that both sensors are exchanged during replacement.
- Note the tightening torques for the sensor head on exhaust tract: 50 Nm ±10 Nm.
- Read the instruction leaflet for more information.