



Exhaust Extraction Systems for Rail Vehicles

Edition 2014 | 2015

Why Exhaust Extraction?

Vehicle exhaust emissions when inhaling in closed spaces affect your health significantly. They can cause irritations of eyes and airways, cough, difficulty in breathing as well as heart and circulation problems. The contained toxic substances can reach blood circulation and cause dizziness and feeling of sickness. Diesel exhaust gases have carcinogenic effect as well as they give rise to allergy. Modern engines produce very fine respirable particles.

A technical room ventilation is not enough for a safe transport of harmful substances. Exhaust fumes that are produced during the operation of combustion engines concentrate in the breathing zone of employees before these fumes can be captured by a ventilation system.

The only efficient solution is direct capture (extraction at source) of exhaust fumes at the exhaust pipe by means of an exhaust extraction system. All ecovent products meet the Technical Rules for Hazardous Substances TRGS 554 (Oct. 2008) and therefore they ensure the compliance with § 7 German Ordinance on Hazardous Substances. Our technical department will calculate the required extraction capacity for your application.

According to TRGS 554 exhaust extraction systems require regular maintenance and are subject to annual examination (UVV-Inspection).



ecovent®, clean air for you!

ecovent was founded in 1997 by Dipl.-Ing. Jens Hagemester in Lübbecke, Germany and is one of the market leaders in the segment of exhaust extraction systems with many thousands of installations by now.

With the systems for rail vehicles we focus on the European area and offer sophisticated solutions for all exhaust extraction problems.

From left: Frank Sandeck, Roger Wulf, Egon Schumm, Jens Hagemester, Axel Görlt, Dennis Berghoff and Thorben Pax.
(not on the picture: Dirk Röder)



Short decision paths as well as qualified and open-minded employees enable the development of functional and high-quality exhaust extraction systems. From development, production and project through to assembly and service - in our company you get everything from a single source.

But also after purchase and installation you stay in good hands of ecovent. And should you ever need some help, an ecovent partner will always be near you.

Picture on the right: ecovent vehicle fleet



Exhaust Extraction Systems for Rail Vehicles

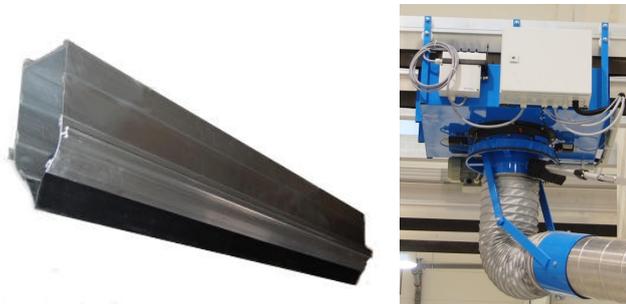
The problem of exhaust pollution in workshops also affects depots of rail operators. Diesel engines when running in the hall cause high exhaust concentrations in the breathing air. At the same time exhaust pipes with manually operated exhaust nozzles are difficult to reach. Moreover, the handling of extraction components is difficult due to their big diameter and it is connected with accident risks. Also it is important for vehicle manufacturers not to scratch or damage tailpipes of brand-new vehicles.

With the extraction technology of ecovent you get system solutions from one of the leading manufacturers in Germany. Rely on our long-term experience with lots of large vehicle manufacturers. For applications in train depots we have developed standard components that can be customized according to local conditions.

Main Components

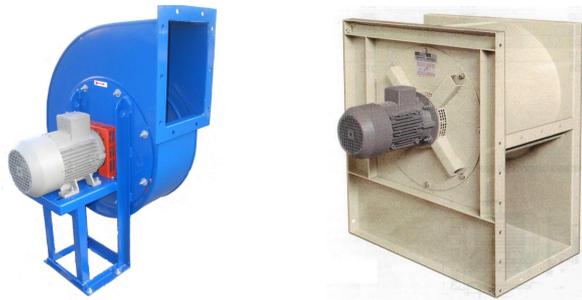
ecovent suction rail system AS

This system ensures maximum flexibility in use. There are 5 different sizes from AS 200 to AS 740 (200cm² - 740cm²) available. With the installation of a double suction rail this cross-section increases correspondingly. As an option we offer a high-temperature sealing lip.



highly efficient radial exhaust fan

The ecovent radial fans feature high efficiency and very quiet running. The heat of exhaust flow is kept away from the motor via cooling impeller on the drive shaft. The permanent temperature resistance is 200°C (left picture) or 300°C.



Controls

For most applications a hanging hand unit is enough. All functions can be controlled by this handy and robust unit.

As an option we offer a radio remote control. When setting an extraction hood the operator is no more tied to one specific place and he can see better the whole exhaust situation.



Suction Rail in the Track's Longitudinal Direction

For long maintenance tracks, various exhaust positions and not very frequent use this system version with a suction vehicle is a very good choice. Within a max. 6 m wide working area of the suction rail axis every point at a height of exhausts can be reached.

The exhaust extraction systems are equipped with electric drives for all movement directions.

Regentalbahn, 92421 Schwandorf, Germany

In the workshop of Regentalbahn two tracks were equipped with one each exhaust extraction system. The vehicle types are Siemens Eurorunner RH 2016, Stadler Regio Shuttle RS1 a. Siemens Desiro VT 642

Technical Data:

- 60m double suction rail AS 590
- 60m double suction rail AS 290
- 2 double suction trolleys with $\text{Ø}350\text{mm}$ a. $\text{Ø}250\text{mm}$
- suction capacity $6.700\text{m}^3/\text{h}$ and $5.200\text{m}^3/\text{h}$
- radio remote control + man. control panel



Voith Turbo, 24106 Kiel, Germany

For locomotives Voith Maxima 40CC with 3600 kW we have implemented an exhaust extraction system with double suction rail and suction vehicle with tube arm. On customer request steel elements of the system were painted in RAL 1021 (yellow).

Technical Data:

- 40m double suction rail AS 590
- 2 double suction trolleys with arm $\text{Ø}=500\text{mm}$
- temperature resistance up to 300°C
- suction capacity approx. $16.000\text{m}^3/\text{h}$
- radio remote control + man. control panel



K+S AG, 36269 Phillipstal, Germany

For Kali + Salz AG we have installed a compact exhaust extraction system for maintenance of shunting locomotives. Due to small airspace there no extraction hood was used in the design.

Technical Data:

- 14m double suction rail AS 440
- double suction trolleys with arm $\text{Ø}=355\text{mm}$
- suction capacity $6.000\text{m}^3/\text{h}$
- manual control panel



Suction Rail as Swivel Arm

This system offers you high suction capacity and fast handling in a manageable area. The central rotating console can be fastened on a support. The suction rail arm reaches lengths up to 10m and can be used with an asymmetric suction vehicle. When using several swivel arms for each system a separate extraction fan can be used to reach extremely high suction capacities.

EVB, 27432 Bremervörde, Germany

The railway and transport companies Elbe Weser required for their new maintenance halls 6 exhaust extraction systems for railcars series 628 and locomotives V200 and Kolomna.

Technical Data of a System:

- 6m double suction rail AS 590
- rotating console and suction hose Ø 450mm
- asymmetric double suction trolley
- suction capacity 10.000m³/h
- radio remote control + man. control panel



Eiffage Rail, 44652 Herne, Germany

For exhaust extraction of track construction trains 3 swivel arms were installed. Because of rare use the arm is operated manually.

Technical Data of a System:

- 6m suction rail AS 590
- rotating console and suction hose Ø 355mm
- asymmetric suction trolley
- suction capacity 4.500m³/h



Exhaust extraction systems for engine pre-heating

DB Depot Maschen, 21220 Seevetal, Germany

This special system with 6 motorized hose reels ensures exhaust extraction (over 420°C) on service work positions. The collecting pipe is placed in the floor plate.

Technical Data of a System:

- 9m high temperature hose up to 500°C, Ø175mm
- special exhaust nozzle with additional air inlet
- manual control panels



Exhaust Extraction for Drive Motor/Additional Heating

Thanks to the combination of extraction arms with high suction capacities for drive motors and installation of hose reels for auxiliary units very efficient and functional solutions are possible.

DB Regio AG, 90429 Nuremberg, Germany

For railcars VT 642 and VT 648 we have equipped track 20 with extraction system ecovent. All required exhaust versions can be operated quickly and comfortably by remote control from the roofing platform. The motorized hose reels for the extraction of additional heaters can also be operated by remote control. A completely clean solution!

Technical Data:

- 2 x 42m double suction rail AS 290.
- 4 x ecovent special suction trolleys, swivel arm Ø 300, temp. resistant up to 250 °C, incl. electric drive motors for moving, swivelling and lowering of extraction hood Ø 500mm, total extension: approx. 1,00mm.
- 2 x high temperature radial exhaust fan VB 550-H, made of steel sheet, suitable up to 400 °C/2h.
- 4 x motorized hose reels ecovent MS-880 each with 10m high temperature exhaust hose GL 400, up to 400 °C, Ø 100.
- 4 x special extraction hood for additional heating under the vehicle.



DB Regio AG, FIBA, 89075 Ulm, Germany

In the area of tracks URA, VT1, VT2 and VT3 we have installed exhaust extraction systems for drive motors and additional heating for vehicle types BR 111, BR 628, BR 143, BR 146 and BR 650.

Technical Data:

- 4 x 116m double suction rail AS 300.
- 14 x ecovent special suction trolleys, swivel arm Ø 300, temp. resistant up to 250 °C, incl. electric drive motors for moving, swivelling and lowering of extraction hood Ø 500mm, total extension: approx. 1,00m (VT1 + VT2), total extension: approx. 5,00m (VT3 + URA).
- 7 x high temperature radial exhaust fan VB 750-H, made of steel sheet, suitable up to 250 °C/2h, controlled by frequency converter with flap control.
- 6 x motorized hose reels ecovent MS-880, electrically driven, flanged to driving carriage, partially equipped with high temperature exhaust hose GL 500, suitable up to 500 °C, Ø 100.
- 6 x special extraction hood with additional heating on the vehicle.





Exhaust extraction system of the Hessische Landesbahn, Kassel, Germany

Notes / drafts

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More information for clean air ->

Don't wait any longer, visit our homepage for detailed information.
 On <http://www.ecovent.de> you'll find many other products and information for system design.

However, any kind of product representation can't be as informative as a personal conversation.
 Our sales representatives would be pleased to prepare customized offer for you.
 Contact us!

Product portfolio

As a dynamic manufacturer we offer a wide delivery program for vehicle repair shops, fire and emergency stations, schools, universities and industry. Workshops for rail and military vehicles are also our clients.

Exhaust and welding smoke extraction systems from ecovent are ergonomic, efficient and durable.



Our sales terms and delivery conditions apply. Subject to technical modifications.



Revision: Sep. 2014
 Brochure-Rail-Vehicles-140901

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