

**Solutions for:**

Cars

Trucks

Utility Vehicles

Special Vehicles

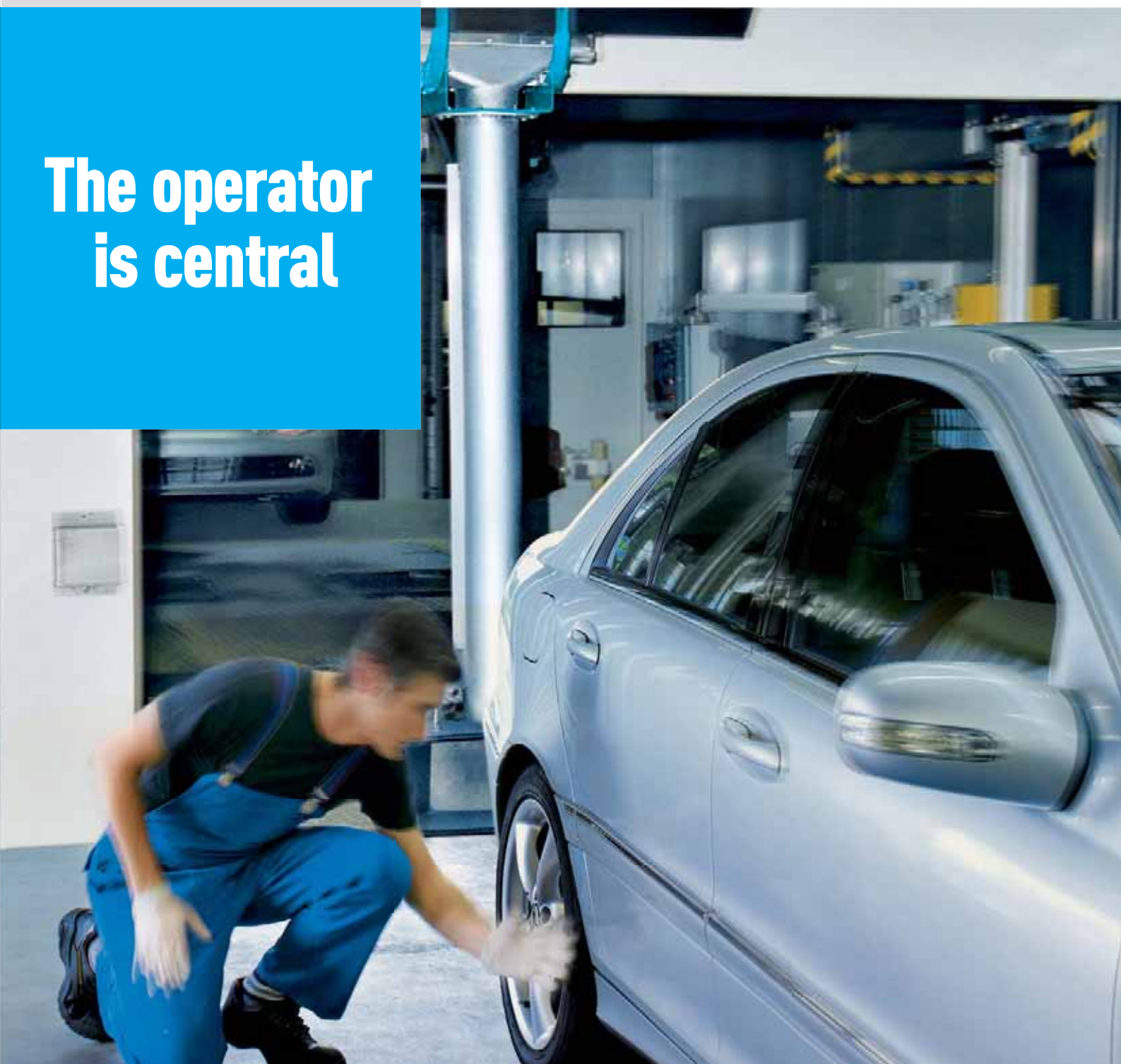
Diesel-Locomotives

Special Applications

**NORFI**  
Absaugtechnik

MORE THAN A CLEAN SOLUTION

**The operator  
is central**



**NORFI** stands for more than 25 years of competence in extraction technology.

From 1996 to 2003 we were part of another group of companies, now we are an independent company, trading on our traditional strength again – and we are moving forward with innovative energy. With a broad range of manufacture and well experienced personnel comprising only specialists.

**Welcome to the new old NORFI.**

**There are  
no difficult  
tasks**





## 1 PLANNING

During the planning phase, we concentrate on finding the ideal solution for your problem. And we design it under economical aspects. Your contact person will support you throughout the entire process.

## 2 DEVELOPMENT

Our experience helps you to avoid mistakes. Through careful and permanent reviews of all details, autonomous and foresighted work.

## 3 MANUFACTURE

We produce in our own premises, from A to Z and under permanent supervision of the project manager in charge. Including electrical engineering and assembly of control boards. All components and systems are thoroughly tested and documented.

## 4 REALISATION

The installation is carried out by our own staff – all specialists. The project manager is on site as well.



### **The NORFI Philosophy: Competence pays**

NORFI is characterized by a strong focus on applications and customers. Based on our many years of experience, we can easily put ourselves into our customers' position – and understand the view of the operator who has to use the system daily. We think the way the operator thinks and always look for the most advantageous solution.

*Because:* Different from others, we do not offer only standard solutions! Of course, you can also work with a conventional system. But that surely is not the optimum regarding handling, functionality or economic efficiency. NORFI makes the difference!

### **NORFI means added value: Always a better solution**

A NORFI solution means for example that there is definitely nothing lying on the ground, that operators can fulfil their work more efficiently, that all components are installed ergonomically perfect. And it means that we do not build three different nozzles per vehicle type, but only one that will fit all varieties. This does not necessarily mean a more expensive solution. At the end, NORFI is even more favourable in most of the cases.

We do also understand the other trades involved in installations. Thus, we can see whether there is something going to be in the way already during the planning phase. Not only during the installation! Take these advantages, add to them our experience in the co-operation with site managements, and you will understand why the integration of NORFI systems into any kind of building always is a bit better – as is the functionality. We develop automatic systems which will help you to rationalise processes, to decrease the required operation work, to reduce the need for manipulation, and to avoid production downtimes.

**There are  
only simple  
solutions**

# Which industries do we work for?



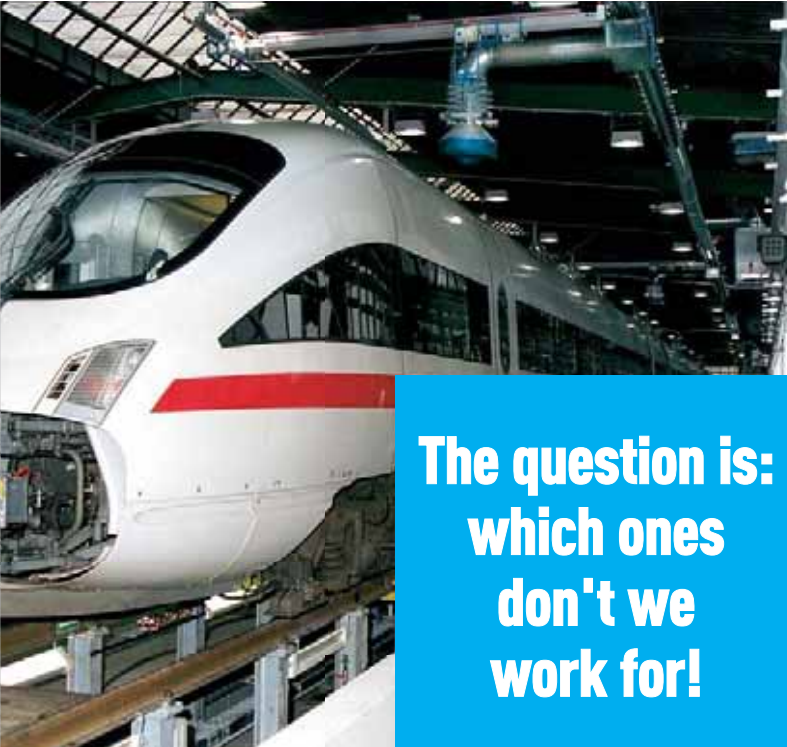
## **NORFI's experience...**

Competence can't be replaced by anything. Thus, whoever is looking for a competent partner for his application, can make use of our virtually unlimited diversity in experience with different trades and applications. Because every industry has its own rules. And every application includes its specific tasks. The better one understands the demands, the easier one will find the solution. Trying to go by rote will result in failure.

## **...and how it pays off**

Each vehicle, each building is different: trucks mostly have the exhaust pipe at the bottom of the chassis, utility vehicles often at the top. With locomotives, you might be able to install the extraction rail beside the rail track, some special vehicles require a very large working radius.

Within *one* trade alone, there can be huge differences already. Just take an emission test stand and compare it to a dynamometer: the first one requires reliable extraction during the short cycles, while the latter demands for durability against temperatures of more than 500 °C even for longer periods. There are all kinds of different requirements. NORFI knows them all.



**The question is:  
which ones  
don't we  
work for!**

**Cars**

**Trucks**



**Utility Vehicles**

**Motorcycles**



**Diesel-Locomotives**

**Special Applications,  
Industry**



NORFI provides extraction technology for every source of exhaust gas; from lawn-mowers to cars and trucks, from special vehicles to locomotives



**Most of  
the solutions  
we have  
already**

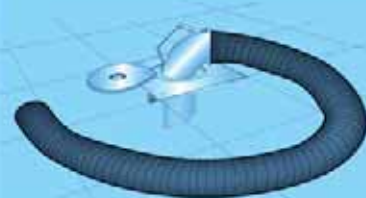


**The others we  
will develop  
for you**

The components shown on this page can only represent part of our portfolio. Tell us what you need, we surely have it in our program.



**Underfloor Extraction Plate [5]**



## NORFI also offers standard solutions - made of well engineered products

Basically, it is quite simple: Almost every technical extraction solution consists of a fan, the extraction rail, hoses, nozzles, etc. Of course we offer that as well.

Competitively priced, direct from our factory. But: our standard begins where it ends for the others. NORFI always adds something extra.

*For example:* lightweight material for faster handling; new ideas about clamping mechanisms for more flexibility; proposals during the planning phase for a more intelligent integration; innovative design for the hose support; and so on, and so on. This requires more thinking than money – and differentiates us from competitors.

## And NORFI is the specialist for special demands

To serve our customers means to us, to offer custom-made solutions within an economically reasonable framework. In most of the cases, it is already sufficient to modify small details. They will make the difference and give you the added value. We develop, try out and test, we go and we show new ways. You will hardly find anyone being as experienced as we are. If someone is going to make it happen, it is NORFI!

**Extraction Rail [1]**

**Exhaust Hose Reel [6]**

**Rail Bend [2]**

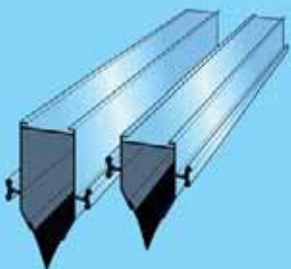
**Cantilever Arm [7]**

**Rail Shunt [3]**

**Telescope [8]**

**Vertical Shifter [4]**

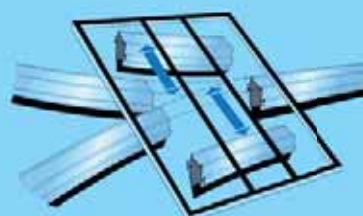
**Extractor Arm [9]**



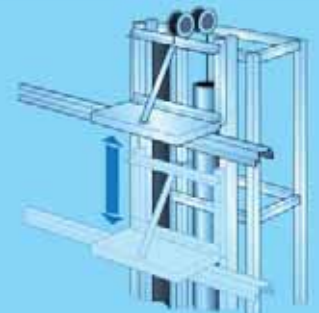
1



2



3



4



6



7



8



9



**What is  
special about  
a NORFI  
solution?**







## The operator is central



Pictures from left to right: [Balancer for lifting the hose](#) | [Automatic damper](#) | [Hose coupling](#) | [Hose guide at the exhaust hose reel](#) | [Control element in switch cabinet](#) | [Automatic drive unit for hose trolley](#) | [Touch screen for automatic exhaust extraction system](#)

### **NORFI solutions are more efficient and more economic**

NORFI lets the operators concentrate on their main tasks. Solutions that will increase the productivity of people, applications and systems. After all, we are living in a time of rationalisation and automation. Modern control systems and sensors give new opportunities: extraction systems that are easy to operate, that run virtually by themselves, that require less personnel, less money and less attention.

### **NORFI solutions are more innovative and more user-friendly**

We are especially strong when it comes to creativity. Continuously, we are keeping us informed about every new development or trend on the market. Extraction hoses for more than +750 °C? Ex-proof extraction systems? Automatic control devices? No problem. Ask us about it!

Solutions that are difficult to operate are bad for both motivation and business. The handling of a simple nozzle can be crucial for the value of an entire extraction system. At NORFI, we only use well-engineered solutions. You can't work properly with just "something".

# The phenomenon about NORFI solutions is:



## 1 Extraction trolley with clamping nozzle (semi-automatic)

This system only requires the nozzle to be clamped to the tail pipe by an operator. Everything is done automatically.

The trolley is pulled along the extraction rail through the factory by the car. The nozzle is automatically disconnected from the muffler at the end of the extraction rail, the hose is lifted from the ground and the trolleys drive along a return track, back to the start. The integrated drive unit with our patented friction-wheel solution makes it happen!



## 2 Underfloor extraction system (controlled flaps)

The NORFI detection system automatically detects the position of the vehicles and opens – depending on the type of vehicle detected – one or two extraction flaps. An overload protection in the opening mechanism guarantees safe operation for the operator and the vehicle.

The control board according to the customer's requirements, programming, pilot lights, extraction flaps in frame, and cover are included in the scope of supply.



## 3 Synchronously driven extraction trolley (contact-free)

State-of-the-art sensors enable the extraction unit to follow the vehicle without the need for a physical connection to the tail pipe. The system detects the different types of vehicles and will always (synchronously with the same speed) maintain the pre-set distance between the trolley and the car.

Included are the control devices, drive unit, distance control, speed control, electric hose hoist unit, collision protection devices, safety devices and a universal extraction hood.





**The operator  
does not  
notice we  
are there!**



#### 4 Extraction cantilever arm

Leave the extraction hoses lying on the floor and you will most likely stumble over them, step on them, drive over them and so on. Thus, NORFI offers a special cantilever arm solution which keeps the hoses off the floor and allows for easy positioning.

Two days of careful thinking will save you 2.000 days of trouble.



#### 5 Automatic extraction telescope

This solution extracts the exhaust fumes in a test stand during production even when the vehicles are in an elevated position. Due to limited space we developed a telescope which is extended and retracted automatically, controlled by the NORFI detection system.

There is no need for an operator to run the system.



#### 6 Exhaust nozzles (*tailor-made*)

A proper connection to the tail pipe is crucial for the function and the handling of an exhaust extraction system. Thus, besides our standard nozzles, we manufacture custom-made nozzles in all possible shapes, be it with a body of aluminium or rubber, with manual or automatic clamping mechanisms.

*Just ask us:* there is a good chance that one of the nozzles we already developed will also fit your specific need. And if it doesn't? Well, then we will develop one for you!

**NORFI Absaugtechnik GmbH**

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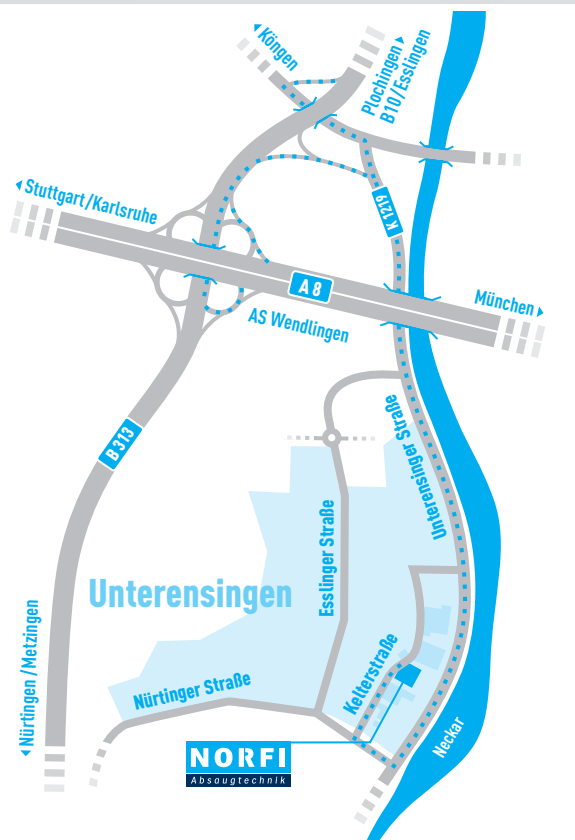
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Come and visit us:  
we are located right in the centre  
of the automotive industry