



INFRASTRUCTURE

INITIATE. PLAN. ACT.
GLOBAL COMPETENCE IN THERMAL
MANAGEMENT AND SIGNALING
TECHNOLOGY



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WORLDWIDE

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THE PFANNENBERG GROUP:

A GLOBAL NETWORK TO PROVIDE THE BEST FOR YOU



Pfannenberg is one of the largest globally active companies in the following sectors: of thermal management for electrical enclosures, process cooling and signaling technology. An efficient sales and service network around the globe means we can be there for you quickly and individually around the globe.

To be one of the market leaders, you always have to achieve a little more. Pfannenberg has been doing so for the past 50 years, when Otto Pfannenberg invented the filterfan and thus laid the foundation for thermal management of electrical enclosures.

Today, Pfannenberg offers components, integrated systems and tailor-made application solutions for different tasks in the infrastructure sector such as building services, transportation engineering (tunnel), naval and marine (ships/cranes), airport and also water and waste water in more than 42 countries worldwide.

Furthermore, we are also represented with our products in mechanical engineering, the automotive industry, in medical engineering, by the generation of conventional and renewable energy

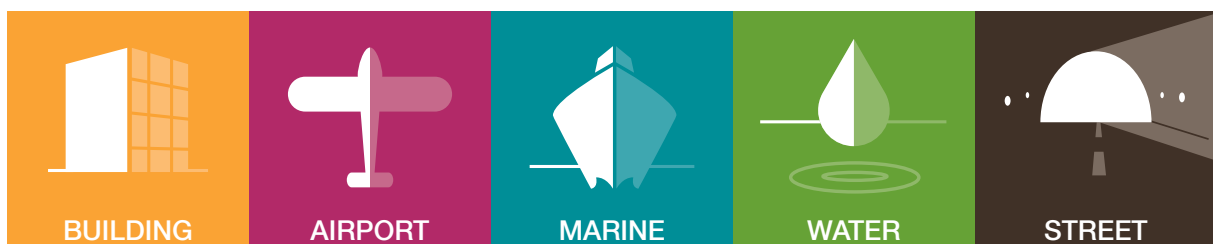
and also in the entire field of manufacturing and processing. Hardly any other company can advise you so comprehensively and supply you from one source like Pfannenberg can.

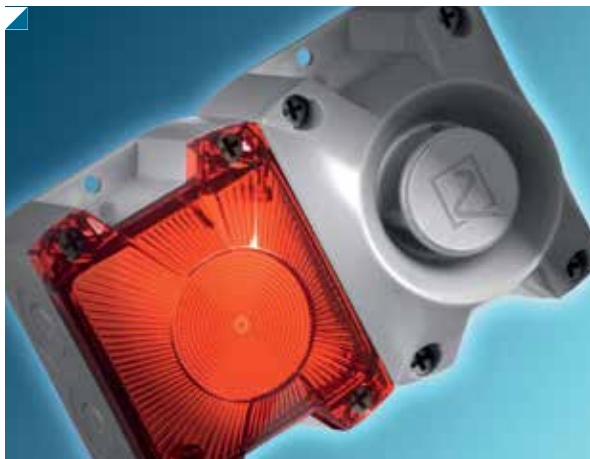
Whether it is the thermal management of electrical enclosures, process cooling, signaling technology, obstacle lights or the worldwide art illuminations by Pfannenberg, which make the Eiffel Tower in Paris amongst other things, sparkle.

As different as our applications may be, they all have one thing in common: they are energy efficient, durable, innovative and in regard to assembly and maintenance, absolutely service oriented.

Regardless of what you are planning, we are always open for requests of all sorts. We will be happy to advise you on combining safety and economic efficiency optimally.

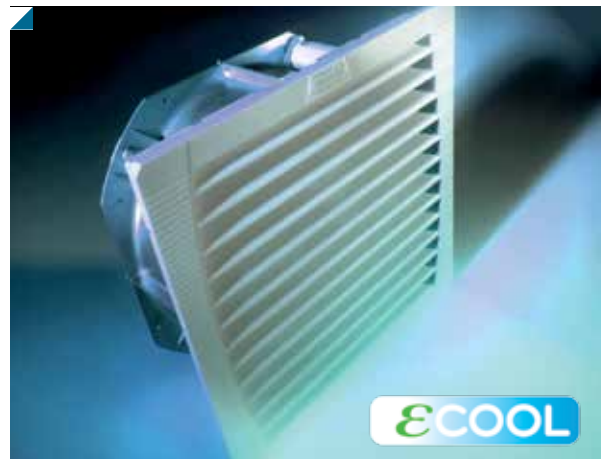
WE HAVE A SOLUTION FOR EVERYTHING:





SIGNALING:

- Visual and Audible Signaling Devices
- Signal Towers
- Ex Signaling Devices
- Art Illumination and Custom Solutions



THERMAL MANAGEMENT:

- Cooling Units
- Air/Water Heat Exchangers
- Chillers
- Air/Air Heat Exchangers
- Filterfans
- Heaters, Thermostats, Hygrostats



10
YEAR WARRANTY
ON SIGNALING
DEVICES!*



SOLUTIONS FOR BUILDINGS:

SAFELY UNDER COVER

Isn't it good to know that we are safe, no matter where we are? Whether we are staying in a hotel, working in an office building or getting on a train at the station, it is our task to create and maintain this safety.

Pfannenberg's solutions make buildings safer – all over the world. Our visible and audible signaling devices alert in the event of danger, fire, burglary, accidents or technical faults. Ranging from gas alarms in garages and rolling gates to obstacle lights on tall buildings. Our individual components and system solutions not only reduce the risk of accidents, however. They also reduce unnecessary downtime and costs and guarantee reliability and consistency.

Whether in houses, schools, public buildings, hospitals or factories: with intelligent thermal management solutions, Pfannenberg reliably and durably protects the building technology and thus in turn protects people. Our filterfans and cooling units provide a perfect climate for the control systems found in lighting, blinds and safety. Heaters and thermostats protect the control systems found in car park barriers, rolling gates, car park ticket machines and access controls from the build-up of condensate. For the use of outdoor displays, the use of air/-air heat exchangers also ensures a hermetic sealing of the enclosures' interiors.



DEFINITELY THE CORRECT SOLUTION FOR ALL INDUSTRIAL AND PUBLIC BUILDINGS:

- Obstacle lights on tall buildings
- Visual alarms for the hearing impaired and for acoustic smog
- Fire and gas alarms
- Thermal management solutions for control equipment

* from the PATROL, PYRA, DS and Quadro series

AIRPORT SOLUTIONS:

ALWAYS ON THE MARK

At hardly any other place are security and safety so much in focus as at the airport. Here, everything has to work smoothly both in front of and behind the scenes. Pfannenberg components and system solutions make an important contribution in this respect.

Pfannenberg has almost become indispensable at many airports. In the tower, **ECOOL** cooling units protect important recording devices from overheating. Air/water heat exchangers cool the X-ray machines in the baggage checking areas.

Pfannenberg heaters, thermostats and hygrostats safely protect the electronics in the car park ticket machines from corrosion. Additionally, signaling devices are used in many different applications.

In contrast to Pfannenberg thermal management

solutions which are often not visible for the visitor, these must always be visible and often audible, so they are noticed in the event of an alarm. Our signaling solutions are used everywhere where safety and a smooth traffic flow are paramount. On towers, buildings and cranes, LED obstacle lights alert the air traffic, in particular airplanes landing and taking off. In the "Baggage Claim" area, continuous lights and flashing lights alert about the start and operation of the conveyor belts. Throughout the airport, signaling devices alert visitors and staff visually and audibly in the event of a fire alarm.

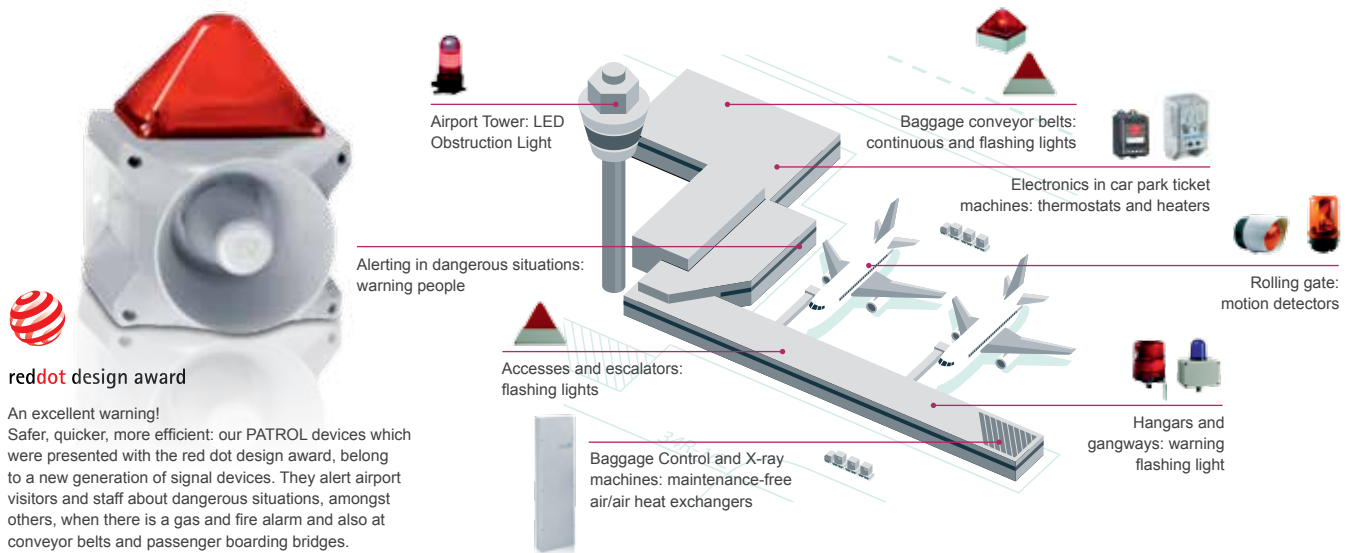


**ECOOL COOLING
UNITS REDUCE
ENERGY
CONSUMPTION BY**

43%



INDICATION, WARNING, ALARM:



FULL SPEED AHEAD FOR MORE SECURITY AND SAFETY:

THERMAL MANAGEMENT AND SIGNALING TECHNOLOGY IN THE CRANE AND SHIPPING INDUSTRIES

We humans appear tiny in places where freight ships with several thousand containers operate and portal cranes heave capacities of up to 1,000 tonnes. Pfannenberg solutions ensure these forces remain safely under control.

Cranes, elevators and ships are real sloggers in our automated world. Hydraulic cranes, automated traffic guidance systems and gangways have lifted shipping into new spheres of velocity and productivity. Yet, where so much concentrated power is used, it has to be carefully controlled.

Pfannenberg components ensure safety, either separately or as a system solution as well as visually and audibly. Pfannenberg components ensure safety in those areas in which safety must be guaranteed for man, machine and environment.

On land, our applications on cranes and elevators signal loading capacities warn about movements or alert when the wind is too strong.

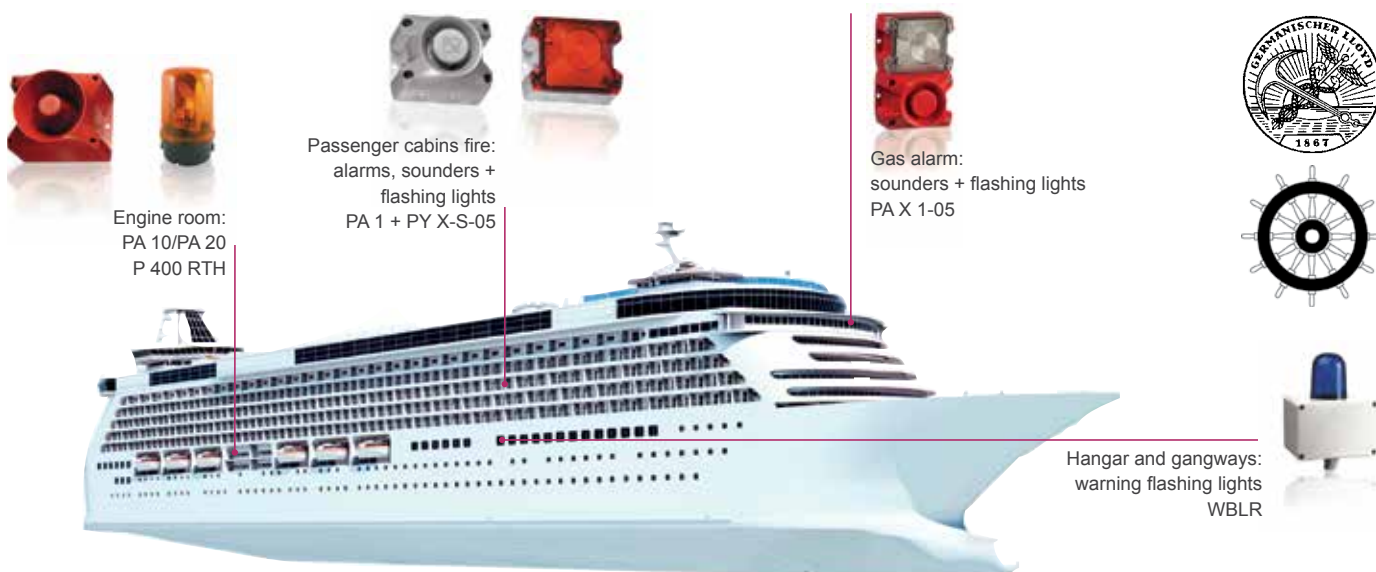
On board ships for example, safety is increased by gas alarms in engine rooms, fire alarms in the cabins and signal lamps on the moving gangways. At the harbour terminals, our lighting solutions guarantee a safe routing of traffic. Filterfans on thermal management devices ensure the controlling devices on cranes are cooled through energy efficient solutions.



24/7

ALL SIGNALING DEVICES
HAVE TO BE IN OPERA-
TION IN HARBOURS FOR
WARNING .

INDICATION, WARNING, ALARM:





100%
INCREASE IN AIR
CAPACITY THANKS TO
PATENTED FANS AND
FILTER TECHNOLOGY

WITH ALL THE TRICKS IN THE BOOK:

WATER AND WASTE WATER SOLUTIONS FROM PFANNENBERG

Drinking water is becoming more valuable all over the world. The careful use of this precious resource is one of man's biggest future tasks. Intelligent and energy efficient solutions for processing and treatment of water and waste water are becoming increasingly more significant. Discover how easy it is to permanently reduce your costs with Pfannenberg and the proper system.

Pfannenberg provides its customers with solutions for every link in the utilization chain – from the exploitation and processing of water to the distribution and sewage treatment. Furthermore, Pfannenberg's signaling devices show the process states of systems and alert in the event of danger, fire, accidents or technical faults.

Whether they are in the ozone systems for processing of water in pumps with variable frequency drive technology or in UV filter

systems, industries all over the world trust our components and solutions in their water carrying systems.

Cooling units from the **ECOOL** range with a top energy efficiency ratio and a long passage of air provide an optimal system solution for cooling of your processes, machines and controls.

The patented 4th Generation filterfans enable an increase in service times of up to 300 % due to their use of patented fluted filters.

VFD pumping systems

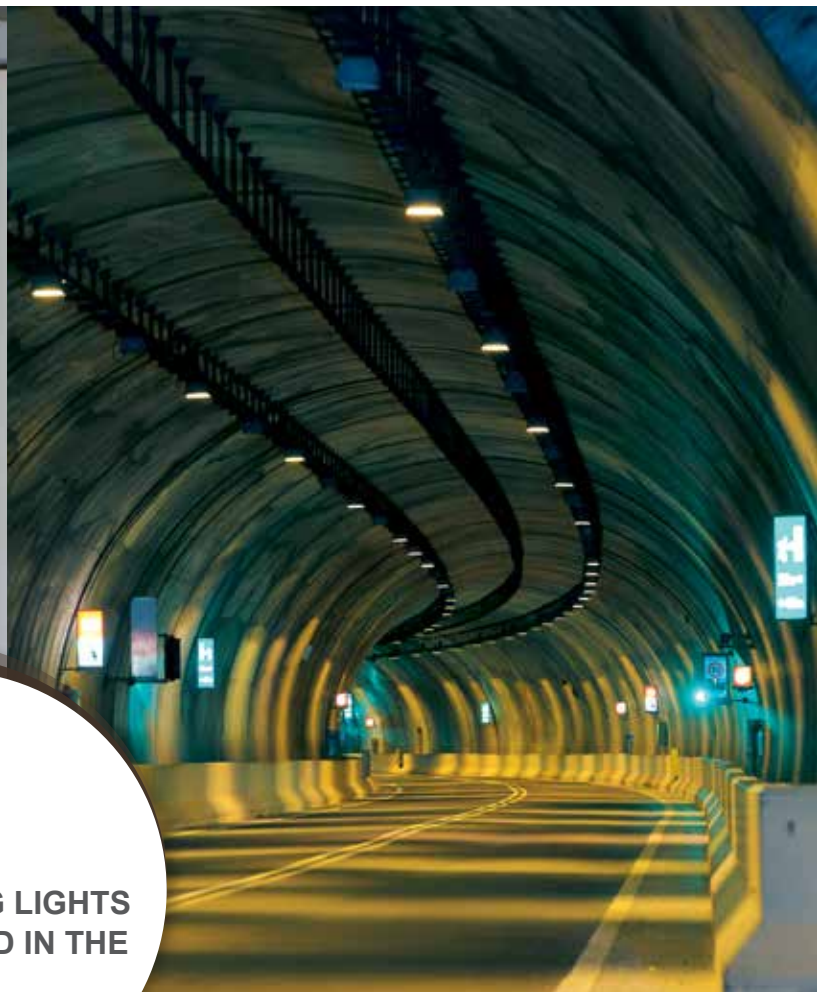


ROAD AND TUNNEL SOLUTIONS:

WE CLEAR THE WAY

The building and safe operation of tunnels not only present a great challenge to engineers. All products and solutions meet the strictest requirements and also need to work perfectly in difficult ambient temperatures. It's great that there is a partner like Pfannenberg who always has a solution when it comes to safety.





1000

**1000 FLASHING LIGHTS
ARE INSTALLED IN THE
PARIS TUNNEL
NETWORK**

Tunnels require special devices and equipment to operate safely. High resistance to pressure change and remote supervision of the operation are just two of the areas in which Pfannenberg's products and system solutions come into use.

Starting with the cooling and condensate protection of machine control systems of the huge tunnel drills, to the fire alarms and to the loud speakers on the emergency escape doors, our solutions are used amongst others, in the Loetschberg tunnel, Gotthard Tunnel, in the tunnel sections of the Paris highways and in Germany's longest tunnel: the almost eight kilometre long Rennsteig Tunnel in Thuringia.

On the roads, traffic guidance systems and environmental measuring devices are subject to extreme temperatures. Pfannenberg's cooling units and heaters, including control devices such

as thermostats and hygrostats protect from the formation of condensate and from overheating and thus enable safe traffic management.



Tunnel safety light:
Quadro S-M Flex



DTT **ecool** top mounted cooling unit



PFH compact heater

85%

OF ALL EMPLOYEES
USE SALESFORCE
FOR KNOW-HOW
TRANSFER

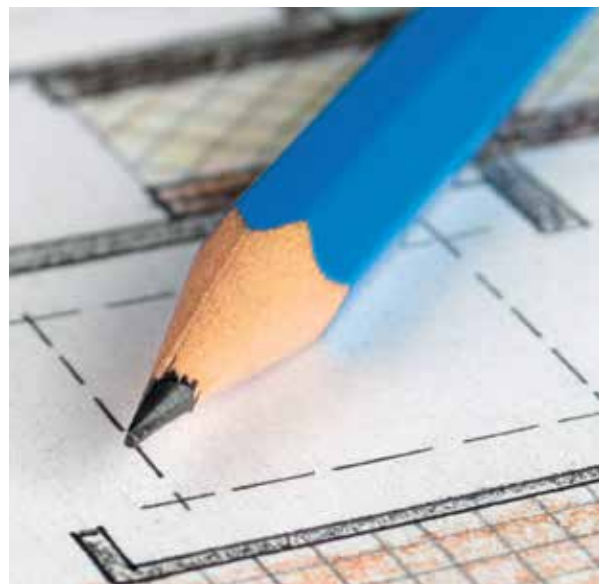
SHARING COMPETENCE:

WE SHARE KNOWLEDGE
TO DUPLICATE IT

The secret of our success: we are always in dialogue with our employees, customers and suppliers. This is the only way we can do justice to the demanding challenges of today and tomorrow, to the high quality demands we have on our products and to our customers.

The first and most important step on the way to a solution at Pfannenberg is to fully understand customers' requirements in order to subsequently design products and services accordingly.

This is possible due to our committed and highly trained employees who, thanks to sound specialist analysis of the tasks, are able to develop solutions that are optimal both technically and cost effectively.





SHARING COMPETENCE FOR YOUR SUCCESS:

- Working group “Operations Excellence for SME”
- Innovation workshops with suppliers and customers
- Symposiums and lectures
- Active support for sales and service partners worldwide
- Planning security by means of standardized products
- Invitations to tender
- Pfannenberg Sizing Software (PSS) for dimensioning



PFANNENBERG GLOBAL SERVICES:

AT YOUR SIDE WHEN YOU NEED US, WORLDWIDE

**You can trust Pfannenberg's products and solutions all over the world.
We have built up a global, comprehensive support system for you to
ensure smooth production at your plants.**

Repair Service

Your cooling system is losing efficiency?
No need to panic: our repair service is there for you immediately – nationally and internationally. Benefit from our worldwide network with a local service without the expensive and cumbersome transportation of your products back and forth.

Spare Parts

If necessary, you can rely on a quick delivery of both wear parts and spare parts. No matter where in the world you need the parts, we deliver original parts as replacements promptly.

Product development

You have new product ideas but lack the resources or experience? Then why not use Pfannenberg's R&D service? Make use of the complete product portfolio that a good

engineering firm has to meet your requirements cost efficiently and concentrate on your own core competence.

Product validation

Need to test a product? You can use Pfannenberg's testing laboratories. Spare the testing capacities in your company and benefit from being able to access professional and comprehensive testing facilities including specialized staff.

Choose your own service level!

In addition to a wide spectrum of services, we offer you the possibility to choose a different service level for every service component in your service and maintenance contract. We will be more than happy to help and advise you with your selection.



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