No 4 | October 2019

DIZ Doepke-Info-Zeitung

The free customer newsletter by Doepke Schaltgeräte GmbH

Doepke

ELEKTRO MARKEN STARKE PARTNER ELEKTRO+ ZVEH

IN THIS ISSUE

24-7-365: round-the-clock resilience

Residual current protection for harsh environments: HD design

Residual current circuit-breakers need to be absolutely reliable in all situations, even when they are used in places that are particularly hot or cold, or alternate between the two. This also applies if they are used in areas where corrosive gases or exposure to dust or similar may arise.

Doepke residual current circuit-breakers with HD (heavy duty) design are especially resistant to corrosion as a result of their construction and the special alloys used. The core component of the residual current circuit-breaker – the trip – is extremely durable and is impervious to environmental influences, while the latch is made from robust stainless steel. HD circuit-breakers can easily handle temperatures between -25 °C and 60 °C and are also unaffected by corrosive gases.

The self-protection feature of the HD residual current circuit-breaker is an integral part of its design and is therefore permanently available: 24 hours a day, 7 days a week, 365 days a year, and even when there is no power supply.

This is particularly advantageous when used in building-site distribution boards. Building-site distribution boards often go weeks or months without being used, sometimes during the winter in unheated warehouses and without a power supply. Circuit-breakers that use heaters to protect against cold temperatures, for example, are clearly at a disadvantage here.

Doepke residual current circuit-breakers in the HD design can be used in a wide range of applications, such as cold stores, the agricultural sector, ports and facilities where solvents are processed.

HD versions are available for all DFS-series residual current circuit-breakers. Simply add 'HD' to the product number or designation. ■

Safe usage of mobile power supplies

Outdoor installations and their residual current protection requirements

Autumn is funfair season, so mobile installations are always in demand at this time of year. This can be a challenge as seasonal markets, building sites and funfair attractions like carousels all use multiphase frequency converters. These applications require type B residual current circuit-breakers.

A special feature of mobile installations with multiphase frequency converters is that any upstream residual current circuit-breakers must be taken into account in the protection concept. If type B RCCBs are required, no type A or type F circuit-breakers can be connected upstream. Operators are often unaware of which RCCBs are installed in the upstream fixed installation.

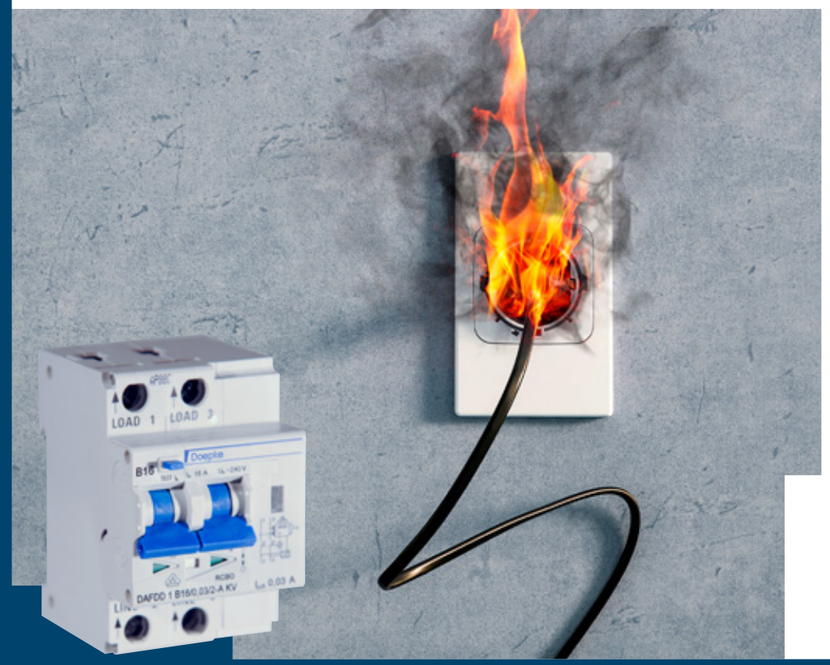
The DFS B MI is the only type B residual current circuit-breaker that can be installed downstream of a type A or type F RCCB. The device trips from a DC residual current of 6 mA, thereby preventing the pre-magnetisation of upstream type A or type F residual current circuit-breakers and preserving their protective function. This means the DFS B MI is always compatible, even if the residual current circuit-breaker in the upstream fixed installation is unknown. ■

When sparks fly …

The DAFDD arc-fault detection device reduces fire risks

Doepke's arc-fault detection device (AFDD) provides three-way security, combining residual current protection and line protection with protection against dangerous arc faults in just three modular units.
If the AFDD unit detects serial or parallel arc faults, it switches off the circuit affected.

Arc faults can be generated by defects in the cabling, for example, and produce heat that can damage surrounding materials in the long term and, in the worst case scenario, even cause fires. This process can continue unnoticed over a very long period of time, maybe even years. ■



STANDARD NEWS

DIN VDE 0100-420

A new version of the standard DIN VDE 0100-420 comes into force from October 2019. The section on the use of AFDDs in particular has been amended. Recommendations for certain premises now apply for the use of AFDDs:

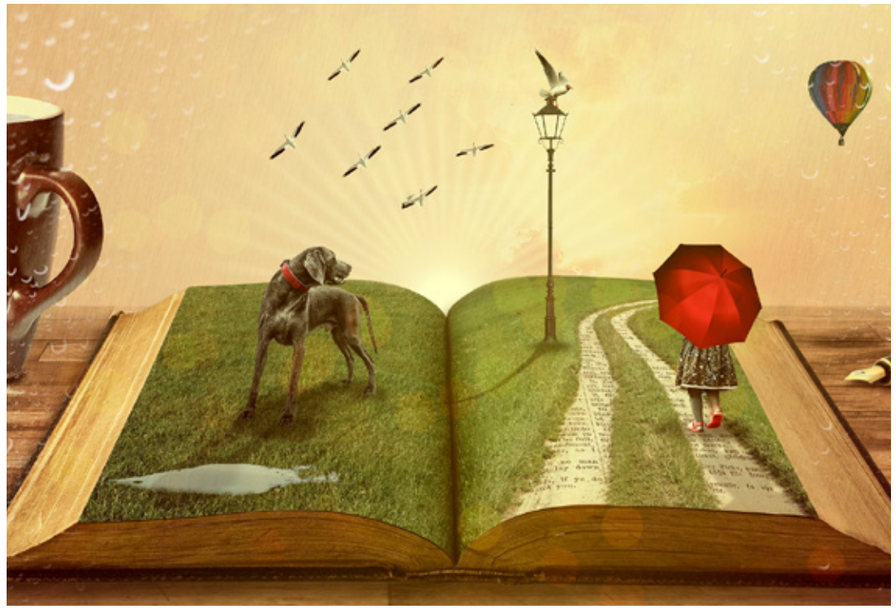
- premises with sleeping accommodation
- rooms or places at particular risk of fire – facilities at risk of fire
- rooms or places made from structural elements with flammable building materials, if these are minimally fire-resistant
- rooms or places where irreplaceable goods may be put at risk

A key element of the new standard is that a risk and safety assessment must be carried out in the planning phase and also be documented.
If any specific risks are posed due to the effects of arc faults, suitable engineering measures must be taken.

We will continue to keep you informed about further changes to the standard. ■

People and electricity through the years

The use of electricity as an achievement of and danger to humans



Electricity has always fascinated us humans, even before we had a name for it. Visible electrical phenomena such as lightning, will-o'-the-wisps and St. Elmo's fire have long been explained away with myths and legends or as the acts of a vengeful god. The Egyptians and Greeks were both researching static electricity long before the days of Christ.

The term electricity was coined at the end of the 16th century. From the 18th century, research into electricity and its exploitation gained momentum and, for the first time, protection against the dangers of electricity became a key concern. Examples include Benjamin Franklin's lightning arrester in 1750, followed in around 1800 by the Voltaic pile, which is considered the first battery.

From 1830 onwards, electricity was being used for a wide range of applications: Morse's electromagnetic telegraph, Davenport's electric locomotive, the electric light bulb, the generator, the first electric lighting of a public square at Place de la Concorde in Paris, and the telephone are all examples of the technologies in use then. All of these appeared in the 19th century, which is when the industrial use of electricity also began.

The risks and safe use of electricity played a key role at this time during what was known as the 'War of the Currents': around 1890, Thomas Alva Edison and George Westinghouse were arguing about whether direct voltage or alternating voltage were more suitable for large-scale electricity supply in the USA. The outcome is well-known.

Electricity came to dominate in private households during the 20th century. To begin with, having an electricity supply was a scarcely affordable luxury but, nonetheless, the first electrical appliances started to appear in the kitchens of more wealthy home-owners – with uninsulated cables and only a porcelain fuse as protection – and electrical accidents and short-circuits were the order of the day. Despite this, the number of households with an electricity supply rose from 10% to 76% between 1910 and 1933. In the 1950s, having electricity in the home became the norm; from the years of the 'economic miracle' onwards, Germany's households saw one new appliance arrive after the other. This time also marked the start of the consumer electronics success story.

In the 20th century, the residual current circuit-breaker and the miniature circuit-breaker were invented to help ensure electricity was safe to use. One of the first 'summation current transformers for ground fault protection' appeared as early as 1903. However, the residual current circuit-breaker wasn't available on the market until the 1950s. Pioneers like the founder of Doepke, Franz Doepke, made this life-saving technology available to the wider public. Since 1984, it has been a mandatory requirement to have a fault interrupter in rooms with showers or bathtubs, and in 2009 this was extended to all newly installed power outlet circuits in private households.

Fast forward to today

Electricity is all around us and is an indispensable part of our private and professional lives. Our domestic electrical installations are often, however, better suited as exhibits in a museum than they are for the requirements of today, or even tomorrow: according to a study by the ZVEI (German Electrical and Electronic Manufacturers' Association) from 2015, over 70% of residential buildings contain electrical cabling that is over 35 years old. In 20% of buildings, the distribution boards are at least 30 years old. Something which may not seem relevant to safety at first glance is the fact that the majority of private residential buildings have too few electrical circuits and plug sockets installed. The ZVEI believes that this can lead to overloading. This is because these installations need to handle modern electrical consumers equipped with power electronics with high inrush currents, resonant frequencies, mixed frequencies or even DC residual current components. The amount of household electrical appliances is constantly increasing. At the same time, we are seeing increasing networking in our homes, the expansion of decentralised power supply in the form of photovoltaics, cogeneration systems, battery storage systems and heat pumps as well as the rise of electromobility. ■

Available now!

… the new magazine covering education, work and leisure in East Frisia. ■

Our electrical finds

Be it cable chaos, a curious installation or even 'chindogu' – the electrical curiosities we encounter have one thing in common: they are out of the ordinary and catch our eye. By the way, chindogu is Japanese and means 'unusual gadget'. The term refers to inventions that the world doesn't really need but finds very amusing. We want to make you stare in amazement, shake your head or laugh out loud, so we are going to share our favourite electrical finds with you in a regular feature.

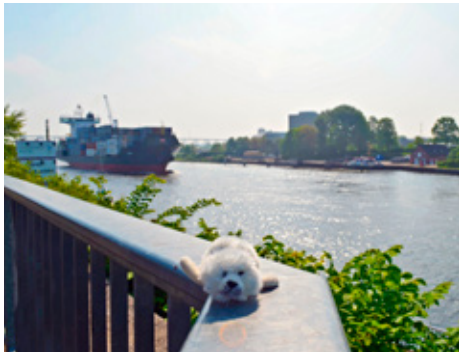
This time around, the find was spotted by someone on their holidays and features a less-than-professional use of a miniature circuit-breaker for a domestic power supply. The picture was taken by Anja Zimmer in the Croatian village of Trogir.

Do you have an entertaining electrical find to show us? If so, please take a photo of it and send it to us at:
kommunikation@doepke.de
Important: We can only consider photos that you have taken yourself. ■

Pinni's travels:

Pinni and the big ships

Pinni thinks that the Kiel canal is always worth a visit for ship enthusiasts and, as you can see, found a nice sunny spot to relax in alongside the canal at Rendsburg. There is an almost constant flow of huge container ships, small private boats, yachts, sailing boats and even passenger ships passing by here. In many places there are even 'ship welcoming stations' – restaurants with an announcer to inform guests about the passing ships.
Pinni would also have loved to take a ride across the Kiel canal on the Rendsburg transporter bridge, which you can just about make out in the background of the picture.

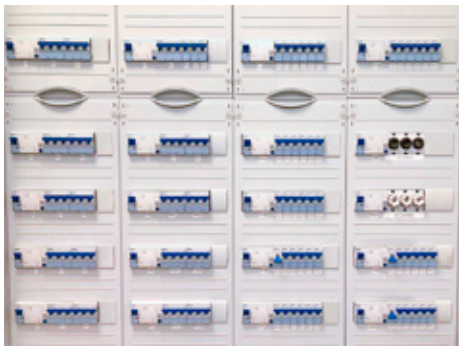


Sadly though, the technological monument – which is over 100 years old – has been out of service since a collision with a freighter in 2016. It is expected to be replaced by a newly constructed bridge from 2020. ■

Knuust in Norddeich – the bakery playing it safe

In spring 2019, the Grünhoff bakery opened its new main business 'Knuust' in Norddeich. The new development includes another Grünhoff outlet, a new, ultra-modern bakery and all the company's administrative offices, as well as a gastronomic establishment that has since become a magnet for visitors in Norddeich.

Visitors can feast from 06:00 until 22:00 here: from sumptuous breakfasts in the morning, to coffee and cake, through to burgers and pizzas in the evening, there is a huge selection on offer. For all this to work properly, a wide variety of electrical installations is required: baking ovens, kneaders, cold stores, ventilation, lighting ... everything needs to be secured. The Grünhoff family opted to use Doepke circuit-breakers for protection and allowed us to take a look into their distribution cabinet. ■



Welcome to Doepke – training and dual study

On 1 August, we welcomed our new trainees and a dual-programme student to the company.
They will be starting in the following training professions: warehouse logistics specialist, tool mechanic, process mechanic for plastic and rubber technology, industrial engineering electrician, devices and systems electrician, digital and print media designer, and one dual-programme electrical engineering student. ■

DATES/NOTES

etalk – das andere Jahrestreffen der Elektrosicherheit

12–13 November 2019, Düsseldorf

Specialist seminar on "Expert knowledge on residual current devices (RCDs) and forward-thinking measurement procedures"

13–14 November 2019, Glottertal

Jahrestagung – Elektrosicherheit 2019

19–20 November 2019, Wiesbaden

SPS, Hall 3, Stand 260

26–28 November 2019, Nuremberg

PUBLISHER

Doepke

Schaltgeräte GmbH
Stellmacherstraße 11
26506 Norden

@ info@doepke.de
T +49 (0) 49 31 18 06-0
F +49 (0) 49 31 18 06-101

www doepke.de

QUOTE OF THE QUARTER

It is better to light a candle than to curse the darkness.

Chinese proverb

Item no 5961402 | 04/2019