

If you are looking for competence, performance and flexibility, Pfannenberg is the right partner. After all it was Pfanner who invented the filter fan thirty years ago and herewith founded switch cabinet air-conditioning. A pioneering achiever if you consider the fact that cool, clean air ensures that electronics last longer, thus protecting against the prohibitive cost of machine failure.



You can also benefit from our experience! Take a look at our wide range of high-quality air-conditioning components and you will always find the optimum solution for your particular need: From our patented filter fans to our superplanar con cooling units for side-, internal as well as top-mounting, to air/water heat exchangers and water chillers for central operation; cooling systems, as well as to switch cabinet heaters and the associated control devices.

You want to achieve your target by expending as little effort as possible: the maximum in fail safe operation for your production facility ensured by air-conditioning the electronic control systems. We do everything to support you in your energy-saving technology, prompt planning, easy installation and efficient service.

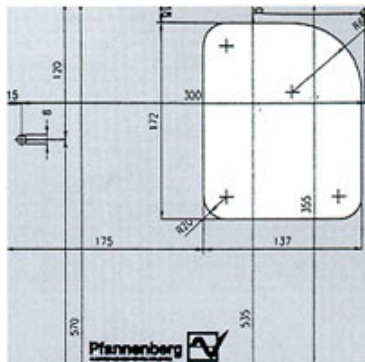
Higher capacity!

Several detailed improvements have enabled us to increase capacity by up to 20%. This makes it worthwhile for you - especially for your pocket.

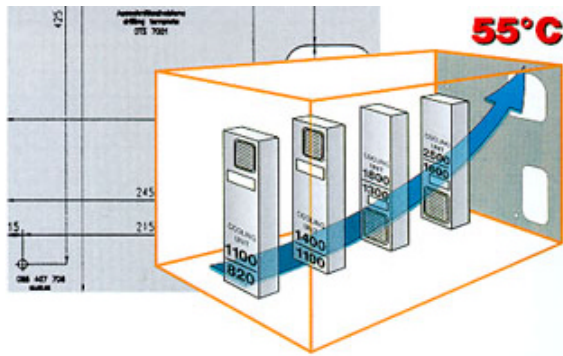
No worries about water in your switch cabinets

Air-condition your cabinets with water! Air/water heat exchangers extract the waste heat and deliver it to a water circulation system that is in turn cooled by a central located water chiller. A particularly economic method with low impact on the environment.

Prompt planning and easy installation

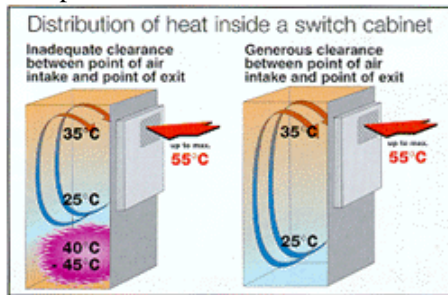


We have made it as easy as possible for you: One single template accommodates all of the cooling units in a particular range, in this example four models. You can cut out the panel on your switch cabinet before you know the capacity you need to install. And installing our patented filter fans? Simply press the fan into place, "click and it fits!" There's nothing faster than that!



Optimum method of directing airflow

Take advantage of and support natural convection - that is the optimum method of directing airflow. We draw in warm air from the switch cabinet at the very top and blow in cold air at the bottom. This is an absolutely effective system of preventing heat pockets.



Talking about environment!

Environmental protection is important. That's why we certainly use ozone-friendly refrigerants (R 134a) as well as receive and properly dispose old equipment. And in all modesty: We were the first in our industry to do so.

Worldwide service?

If you are "hot around the collar" because one of your units has developed a fault, we won't drag our feet. Our overnight service makes sure that your spare parts are dispatched from one day to the next - anywhere in the world! Our word is our bond!

Switch Cabinet Air Conditioning with Filter Fans

General Filter Fan Information

In the past those who needed to ventilate their switch cabinets employed a simple grill which every cabinet manufacturer offered as an accessory. Through the principle of natural convection (warm air rises) an air flow was established between lower and upper regions of the cabinet. Unfortunately these openings also allowed dust to enter the enclosure. After a short time all the internal components became coated with a layer of dust. The insulating properties of this contamination resulted in localized overheating of the switch cabinet components. A further disadvantage of this insulating layer was a reduction in the service life of the components themselves. An increase of only 10° Kelvin in the operating temperature halves the service life of the components.

The moment for Pfannenberg Filter Fans came in 1965. A simple cloth placed over the fan served as a filter. Right up to today's modern filter fans, the basic principle of filtration remains the same. Fan, filter and protective measures are the 1 of Pfannenberg Filter Fans. In any event, the timely introduction of the PF series provides a compact design (max. 6mm external projection) and the cost saving "...click and fit" fastener free fixing system. Naturally we use only the highest quality components in our filter fans. Manufactured in Europe, the fans employ ABS housings with flame-resistant properties according to UL-94 VO. This is why we can offer protection to DIN 31001, IP54, as well as a 350g filter as standard with a filtration efficiency of 83%, established during strict testing to Ashrae standard 52-68. All the stated air flow and resistance values were measured in a double chamber and have been prepared in diagrammatic form for easy reference.

"...Click and fit" After many years experience with filter fans we launched the new series in 1990. Outstanding features of this design include the compact construction (only 6mm visible) and the patented "Click and fit" quick action fixing system developed exclusively by Pfannenberg for fastener-free installation.

This completely does away with tiresome screws for fixing filter fans and exhaust filters, and saves up to 24 minutes of valuable installation time.

"...Click and fit" is ideal for painted panels from 1.5 to 3.0 mm thick.



The waste heat produced inside the enclosure warms the outside air drawn into the cabinet by the filter fan. The heated air is then returned to the outside environment through the exhaust fan. The maximum temperature is limited by the operating temperature of the installed components.

Using the following simple formula it is possible to determine the requisite air flow for any filter fan. The basis of this comparison forms the main principle of thermal science.

The filter fan which has been chosen to match the necessary air flow should supply a minimum of 10% more air than required to provide reserve capacity for extreme operating conditions, or contaminated filters.

The best location for the filter fan is in the lower third of the enclosure. This configuration assists the natural air flow upwards in the enclosure. Ideally, air should always be blown into enclosures, so that the resultant pressure differential prevents the ingress of dust.

Pfannenberg offers a wide range of filters for every application. Series FLF 02 and PF 1000 employ a large filter with a weight of only 150g/m². The filtration efficiency of this filter is 62%. All other filter fans are fitted with our standard 350g/m² filter. This filter provides a filtration efficiency of 83% for particles of 10 micrometer diameter. Sometimes it is necessary to fit an additional superfine filter. Dust particles up to 0.5 micrometer are filtered out with a filtration efficiency of 96%. All these air and filtration tests were established in accordance with Ashrae standard 52-68.

