

multiwave passive



KBR UHPC premium capacitors

KBR high-power reactor

multiwave with passive harmonics solutions

The loads in industrial networks are increasingly dominated by a large number of small and large converters. These are introduced with the new acquisition of machines or the retrofitting of existing machines to increase the energy efficiency.

In this context, two effects can be observed. Due to the falling number of motors operated directly on the grid, the need for inductive fundamental reactive power is decreasing. At the same time, however, there is more and more reactive power caused by the harmonic currents of the converters.

The impedance of the network transformer plays a decisive role. A large part of the harmonic voltage is created here, leading to faults in the consumers. Frequently, the standard limit values for harmonics are already violated in the main distribution. This results in unreliable operation of the machines with an increased number of malfunctions in the control system.

As a solution, KBR offer the harmonic

filters of the multiwave series. New is the passive version as tuned filter circuit system. multiwave passive has been developed specifically for networks with a high ratio of 5th and 7th harmonics, which are typical for industrial networks. The system is introduced centrally in the low-voltage main distribution and absorbs part of the harmonic current. The degree of network cleaning depends on the design of the passive filter.

The result is a significant improvement of the total harmonic distortion of the voltage (THD-U) and a lesser thermal load on the transformer.

The multiwave passive is controlled and monitored with the tried-and-tested multicom D6 compensation controller equipped with a special filter circuit system program. The multicom D6 controls and checks contactors and fans and monitors the system for overcurrent and overtemperature. Various network measuring functions are implemented, as well as an error memory that can be displayed in the plain text display. You

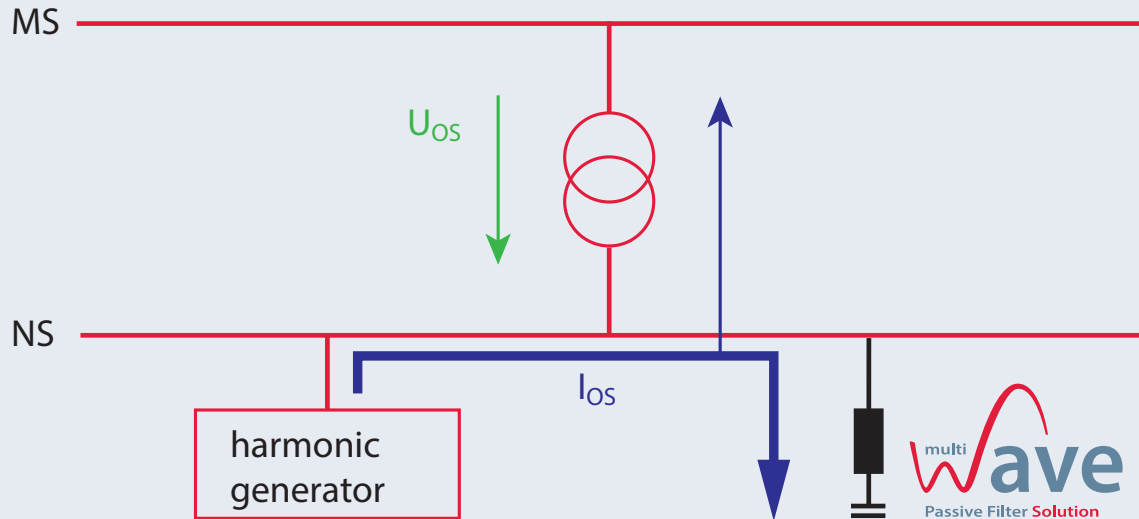
can also operate several systems in one network in master/slave operation.

The compensation power of the multiwave passive is considerable. For example, a filter with 250 kvar fundamental reactive power can absorb up to 650 A of harmonic current from the network. The broad-band filter effect yields the following typical degrees of compensation:

- 5th harmonic 85 %
- 7th harmonic 43 %
- 11th harmonic 32 %
- 13th harmonic 30 %

In order to guarantee this filter capacity in the long term, it is necessary to use components with a high load capacity. Once more, the components from our own production were the most convincing. KBR developed the high-power inductor used specifically for this system type. The tried-and-tested UHPC premium capacitors with an overload capacity of up to twice the rated current complete the package.

Harmonic generator basics



I_{0s} = harmonic current
 U_{0s} = harmonic voltage

Overall, this is a consistent concept for the significant improvement of your voltage quality at an unbeatable price/performance ratio.

Each filter system has to be designed for the individual use case. Our Power Quality Service department is specialized in this task and happy to assist you with your project.

