Kraftelektronik AB

S 109.017 GB

Smart-KRAFT – Improves purification in ESPs

Smart-KRAFT improves the efficiency of electrostatic preciptators.

Smart-KRAFT (Switched Mode Advanced Rectifier Technology) is based on high frequency technology (switched mode). This offers several valuable advantages, such as higher purification levels, symmetrical three-phase loading, high power factor, low weight, small volume and fast reaction to changes in precipitator operation conditions.

Smart-KRAFT has been found to be particularly effective in dealing with dust with medium to high resistivity, which changes the design parameters for electrostatic preciptators. You can either reduce the precipitator dimensions, possibly even cut the number of filter chambers or - with unchanged dimensions - reduce discharge levels.

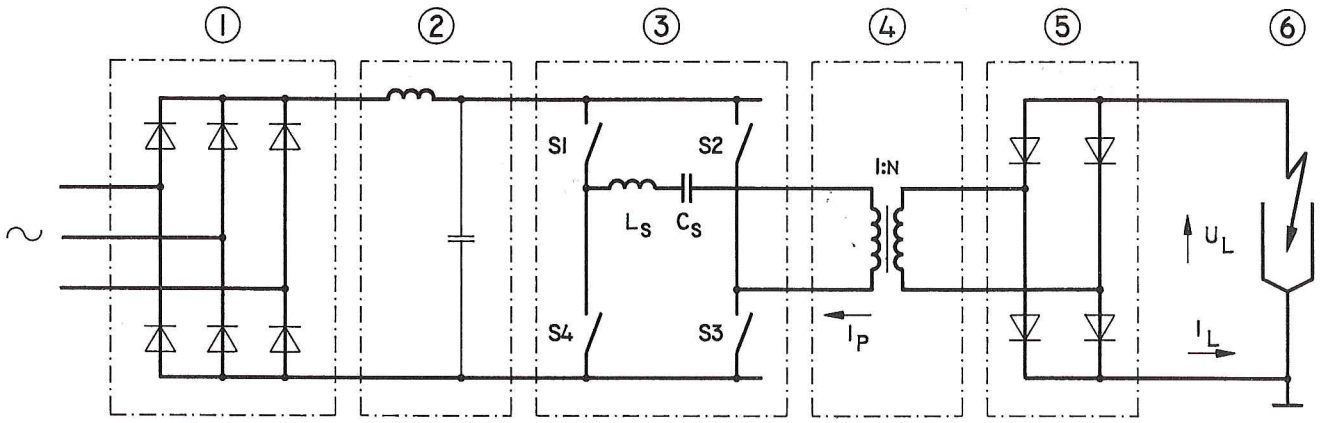
Main features

- Better efficiency due to increased charge on particles and reduced back corona
- Less impact on the main electricity network, due to lower power rating, symmetrical three-phase loading and high power factor.
- Lower transport and handling costs since the equipment is small and light.

CE ISO 9001

KRAFT

Schematic diagram



1. Rectifier bridge
2. Filter
3. Resonance converter
4. Step up transformer
5. Bridge rectifier
6. ESP

Smart-KRAFT uses quick charging, i.e. heavy current pulses are sent to the precipitator for a few milliseconds, followed by a time without pulses. This can be set between a few milliseconds and several seconds.

Smart-KRAFT is supplied by three-phase mains electricity. The voltage is rectified in a three-phase bridge rectifier ① and is then filtered in a smoothing filter ②, which includes the storage capacitor. The DC supplies a series resonance converter ③, connected to a step-up HV transformer ④, whose secondary voltage is rectified in a single-phase bridge rectifier ⑤ connected to the discharge electrode in the precipitator ⑥.

The main component is the converter ③, which consists of four switches, a series capacitance and a series inductance. Each switch consists of an IGBT and a back-EMF protection diode.

The principle of intermittent pulsed operation is the subject of a patent application.

Technical data

The data applies to a Smart-KRAFT for 100 kV, 600 mA.

Primary voltage	3x400-660 V AC, 50/60 Hz	HV terminal	Horizontal
Secondary voltage	100 kV peak value at ESP load	Length	1200 mm
Secondary current	600 mA average	Width	800 mm
Power factor	> 0.90	Height	1380 mm
Control system	Microprocessor based	Weight	395 kg

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