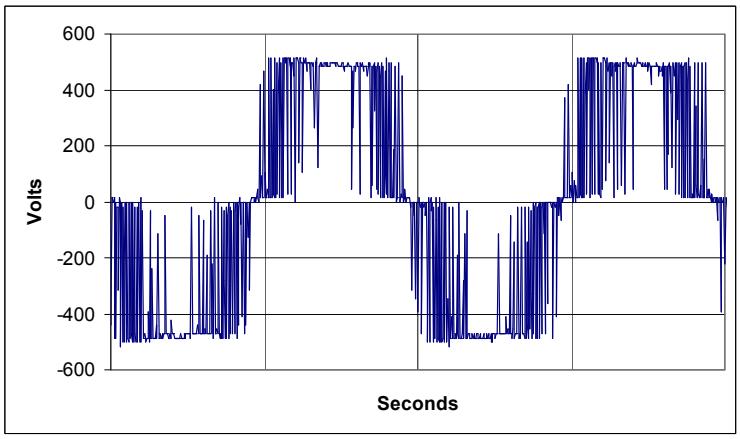
Filter series standard features:

Nominal voltage U_N	3 x 400 V
Current range I_N	2,5…90 A
Typical motor power P_N	1,1…45 kW
Nominal frequency f_N	0…70 Hz
Switching frequency f_s	4…16 kHz
Motor cable length, max l_{motor}	500 m*
Short circuit impedance u_k	10 % @ I_N, f_N & U_N
IP - class	00
Standards	EN 61558-2-20

***Maximum length of the motor cable is depending on the properties of the cable, switching frequency and switching components.**

Problem:

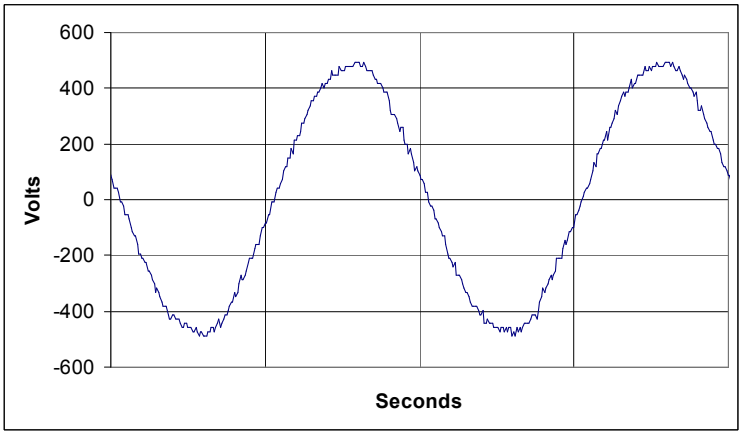
The current waveform from the frequency converter is almost sinusoidal but the voltage waveform is pulsed.



Picture 1. Voltage of the motor without filter (f_s = 8 kHz, l_{cable} = 100 m & P_{motor} = 15 kW).

The solution:

With sine-wave filter the output phase to phase voltages and currents are sinusoidal. This reduces the losses in the motor and protects it against voltage peaks hence prolongs its lifetime.



Picture 2. Voltages of the motor with sine wave filter after frequency converter. (f_s = 8 kHz, l_{cable} = 100 m & P_{motor} = 15 kW).