

Total solutions for motor drives

EMC compliance

Harmonics suppression

Motor protection

Reliability assurance



SCHAFFNER

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Total solutions for motor drive systems

Introduction



Schaffner's full load test set-up for motor drives

Frequency inverters are among the most widely used pieces of equipment for AC motor control. Nowadays, they are found in virtually every area of industry, in applications as diverse as pumps, air conditioning systems, elevators and cranes, conveyors, machine tools, alternative energy production and in a vast array of other industrial and domestic automation.

Problems associated with modern drives

In the quest for ultra-compact, efficient power conversion, inverter manufacturers employ high speed semiconductor switches and pulse width modulation (PWM) techniques to generate fast rise-time voltage pulses of the appropriate duration and polarity.

Unfortunately, this creates a considerable number of problems for OEM's and system integrators, from purely functional difficulties to most severe motor damage. Following, a brief summary of the most significant problems and phenomena:

Inverter input

- EMC problems
- Harmonics
- Commutation notches
- Inrush & peak currents
- Low frequency interference phenomena

Inverter output

- Excessive dv/dt
- Peak- & overvoltages
- Parasitic earth currents
- Eddy current losses in the motor
- Displacement currents
- Bearing currents

- Additional pulse loads on the inverter
- Acoustic noise
- EMC problems

Inverter DC-link

- DC-link capacitor stress
- Harmonics
- Various other problems in the DC-link

Whole system

- Low efficiency / power factor
- Uncertain system immunity
- Uncertain service security & reliability

Solutions from Schaffner

In most cases, several phenomena occur in the same system, a fact which underlines the idea of combined components and total solutions.

By careful investigation of the end equipment, input and output components can be chosen carefully and fine-tuned to each other, in order to reduce the total required suppression effort.

As the number 1 solution provider, Schaffner can help against all these problems by offering:

- EMI / RFI input filters
- RFI suppression chokes
- Harmonics filters / chokes
- Line-reactors
- Commutation-reactors
- Special components for energy regeneration
- Motor protection chokes
- dv/dt filters
- Sinusoidal output filters
- 'Sinus Plus' filters
- Combi filters

Further products on request:

- DC-link chokes
- Various transformers
- Other related products

The decision to favour a certain solution above another depends entirely on the system requirements and should always be backed by a technical and economic analysis.

Advanced testing capabilities

To ensure that our components work properly in the final equipment, Schaffner operates a full load test setup for motor drives at the headquarters in Switzerland.

With the unique ability to test every drive with various loads and cable lengths, switching frequencies and environmental conditions, we are able to serve our customers with the most reliable and cost-effective solutions.

Conclusion

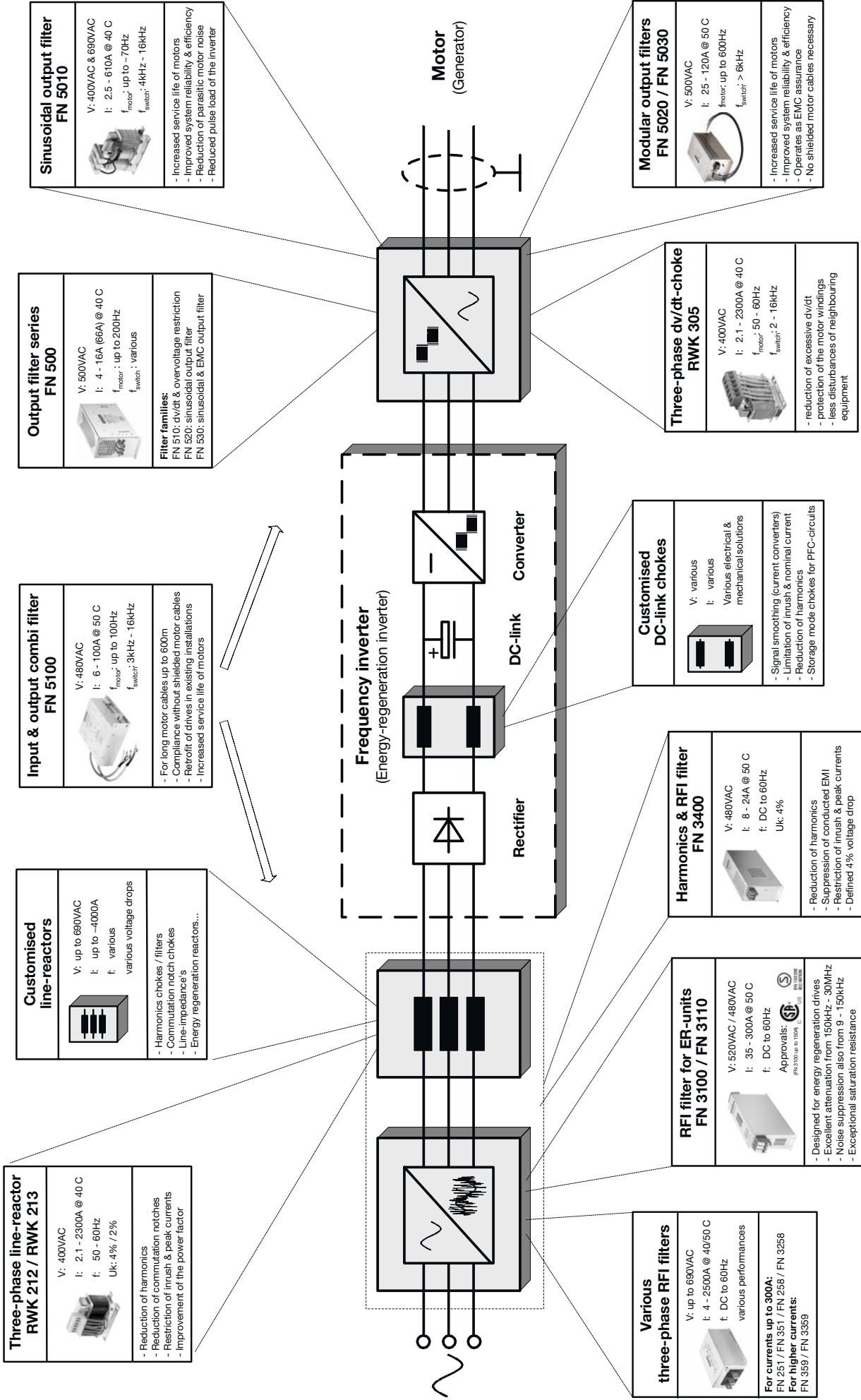
Schaffner can help you to ensure:

- EMC compliance
- Functional security
- System reliability

To obtain more detailed information's please contact your local Schaffner sales office, distributor or www.schaffner.com.

Note: Motor drives are used as a typical example; Schaffner is also active in numerous other areas.

Schaffner solutions for motor drive systems



Every component can be customised to meet special requirements.

To obtain more information please contact your local Schaffner sales office or www.schaffner.com

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