SCHAFFNER

Sinusoidal output filter for improved symmetrical performance FN 5020

- **25 to 120A current ratings**
- **Increases the service life of motors**
- **Suitable for motor frequencies up to 600Hz**
- **Improvement of the service security and reliability of the system**

- **Nennströme von 25 bis 120A**
- **Erhöht die Lebensdauer von Motoren**
- **Für Motorfrequenzen bis 600Hz geeignet**
- **Verbessert die Betriebssicherheit und die Zuverlässigkeit des Systems**

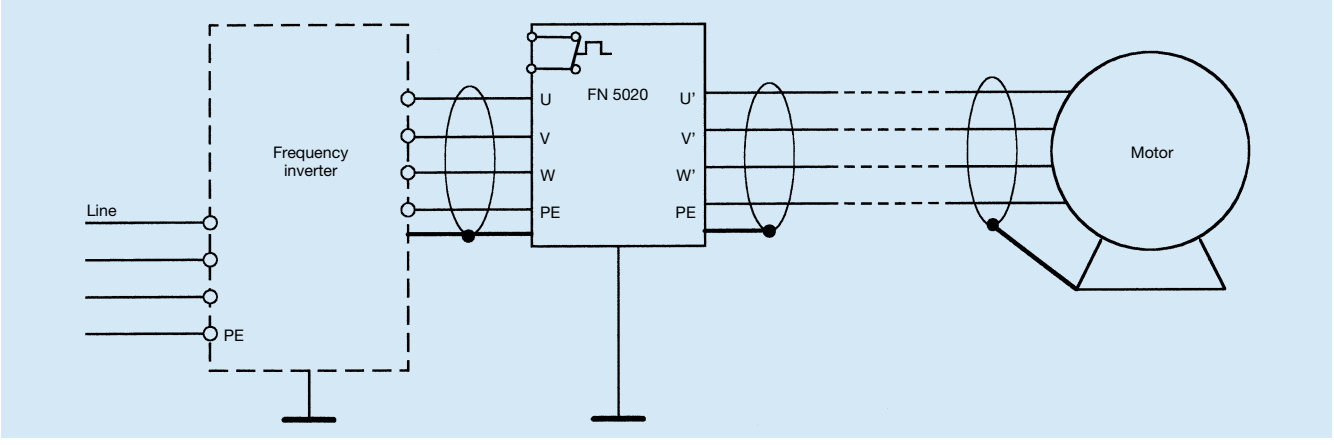
- **Courants de service de 25 à 120A**
- **Augmente la durée de vie des moteurs**
- **Convient pour des fréquences de moteurs jusqu'à 600Hz**
- **Améliore le rendement du système et la fiabilité**

Technical specifications

Maximum operating voltage:	3 x 500VAC/1000VDC
Current ratings:	25 to 120A @ 50˚C
Motor frequency:	max. 600Hz
Switching frequency:	f_{min} 6kHz to f_{max} 15kHz
Maximum cable length:	200m
Overload:	1.5 times rated current for 1 minute, once per hour
High potential test voltage:	U/V/W E 3400VDC for 2 sec (factory test)
	U V W 2150VDC for 2 sec (factory test)
Temperature range:	-25˚C to +100˚C (25/100/21)
Flammability:	UL94V2 (or higher)
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, EN 133'200

Electrical schematic

This filter converts pulse width modulated output voltages to sinusoidal voltages (symmetrical – between the phases) at the motor.

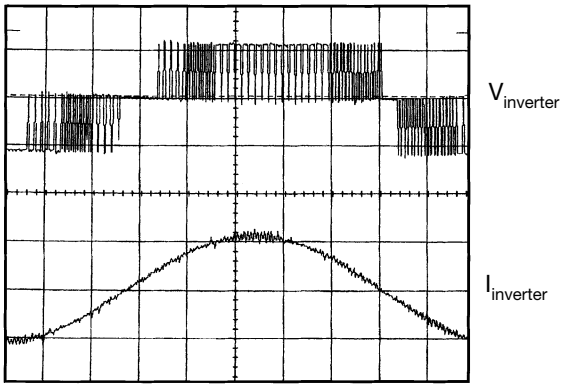


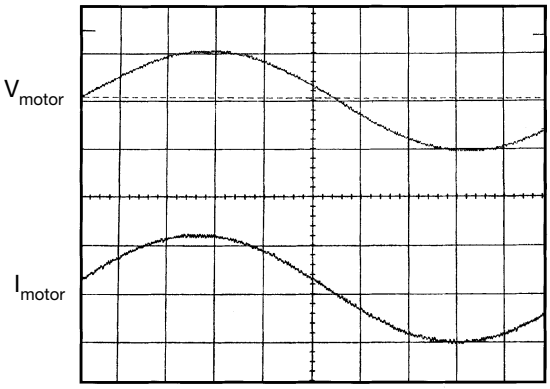
All filters of this range are equipped with a temperature switch. The 75A and 120A versions provide additional internal cooling fan's, which require external supply. Connections for both devices are located on the filter housing, next to the phase-connections.

FN 5020 specifications

Filter	Current rating @ 50°C [A]	Maximum motor power (@ cos γ = 0.8) [kW]	Connections	Weight [kg]
FN 5020-25-33	25	17.3	/33	13
FN 5020-55-34	55	38.1	/34	29
FN 5020-75-35	75	51.9	/35	49
FN 5020-120-35	120	83.1	/35	57

Output voltages (symmetrical)



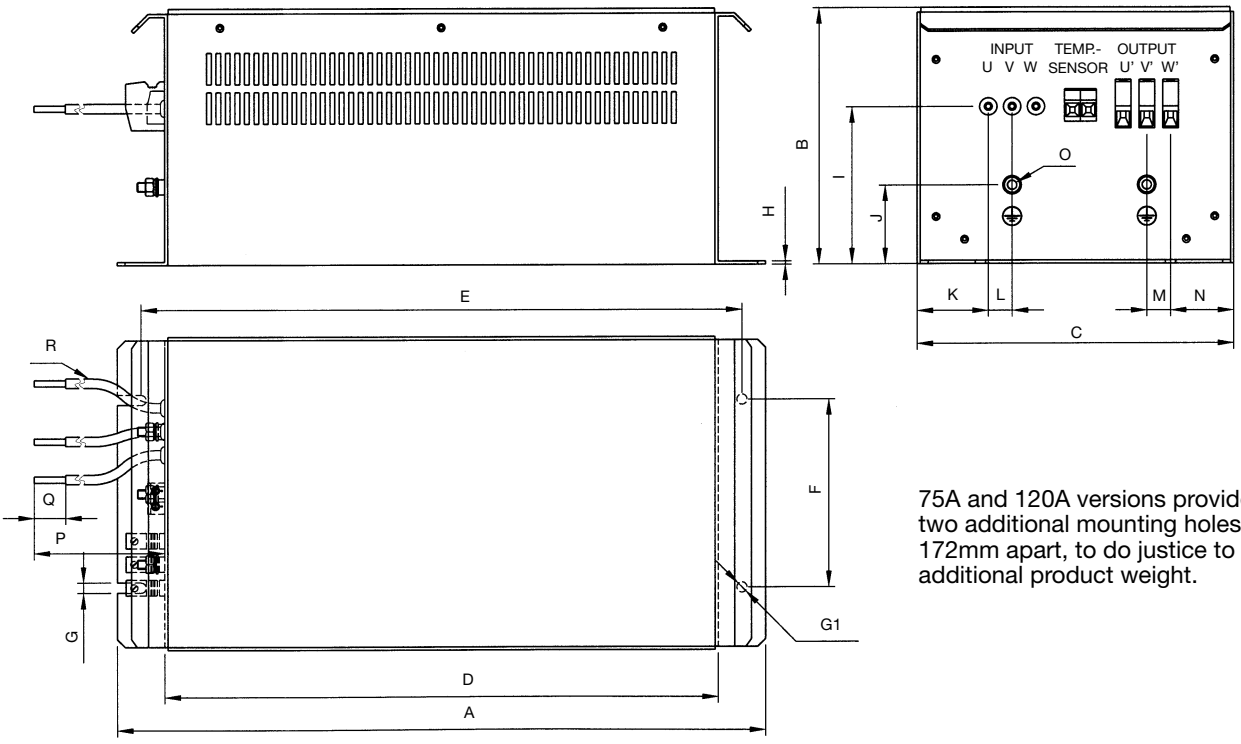


The sinusoidal output filter type FN 5020 offers the following advantages:

- Protects the motor from:
  - dv/dt stress
  - over voltages / surge voltage problems
  - eddy current losses in the motor
  - ripple voltage on the carrier
- Reduces acoustic motor noise
- Reduces EMC related problems by:
  - EMC conscious construction (if mounted correct according to EMC guidelines)
  - lowering the pulse currents in the motor cables and the motor by generating less interference emissions
- Reduced semiconductor losses due to:
  - smaller pulse currents on long motor cables
- Less voltage loss
- Improves system efficiency and reliability
- Exceptional saturation resistance

Temperature monitoring connection

The temperature monitoring facility opens a potential-free contact in the case of filter-overtemperature (>120°C). The maximum switching capability is 10A (6A) @ 250V. The switch can be used, for example, in the input of a SPS controller or as the trip for a circuit breaker in order to interrupt the main power supply.



75A and 120A versions provide two additional mounting holes, 172mm apart, to do justice to the additional product weight.

Note: This drawing shows a 25A version. The 75A and 120A filters also provide safety terminals to connect the external supply for the internal cooling fan. These terminals are located next to the connections of the temperature sensor.

Dimensions

	25A	55A	75A	120A
A	410	554	799	
B	163	203	280	
C	200	250	343	
D	350	500	725	
E	380	524	760	
F	120	170	296	
G	6.5	9		
G1	Ø 6.5	Ø 9	9x15	
H	2	3		
I	100	114	140	
J	50	69	80	
K	45	40	58	
L	15	30		
M	15	20		
N	40	35	50	
O	M6		M8	
P	$1000\ ^{+20}_{-0}$			
Q	20			
R	AWG 10	AWG 6	$25mm^2$	$35mm^2$

All dimensions in mm; 1 inch = 25.4 mm

Tolerances according: ISO2768-m / EN22768-m