



3-line filters

Sine-wave output filter

520 V AC, 4...320 A, 40 °C

Ordering code: B84143V*R227

Date: 2009-06-17

Version: 54

Construction

- 3-line sine-wave output filter

Features

- Reduction of motor noise and eddy current losses
- dv/dt reduction
- Easy to install
- Compact design
- Degree of protection IP 20 ¹⁾
- Optimized for long motor cables (up to 1000m) and operation under full load
- Natural cooling

Applications

- Frequency converters for motor drives, e.g.
 - elevators
 - pumps
 - traction and conveyer systems
 - HVAC systems (heating, ventilation and air conditioning)

Terminals

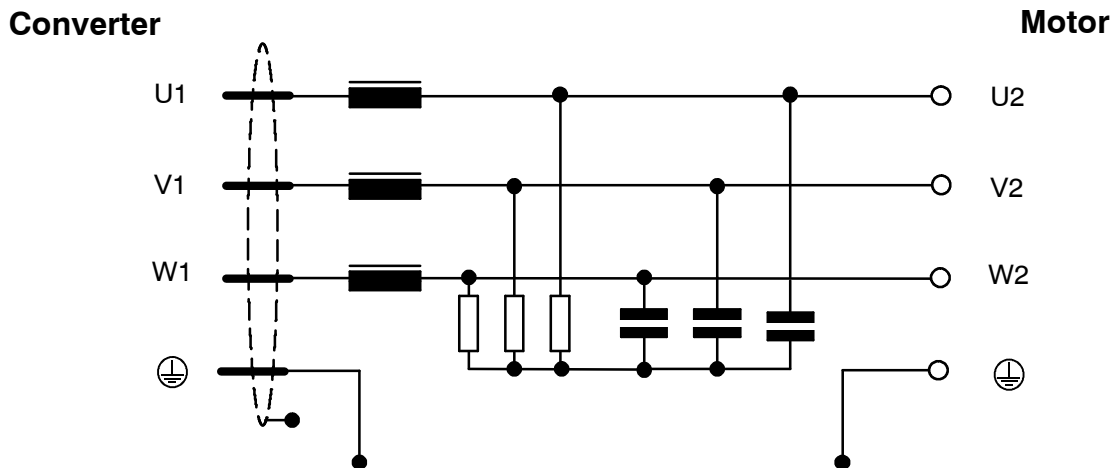
- finger-safe terminal blocks up to 180 A; copper bus bars for 250 and 320 A

Marking

- Marking on component:
manufacturer's logo, ordering code, rated voltage, rated current,
rated motor frequency, rated switching frequency, rated temperature,
climatic category, date code
- Minimum marking on packaging:
manufacturer's logo, ordering code, date code, quantity

¹⁾ To IEC 60529:2001

Typical circuit diagram



Technical data and measuring conditions

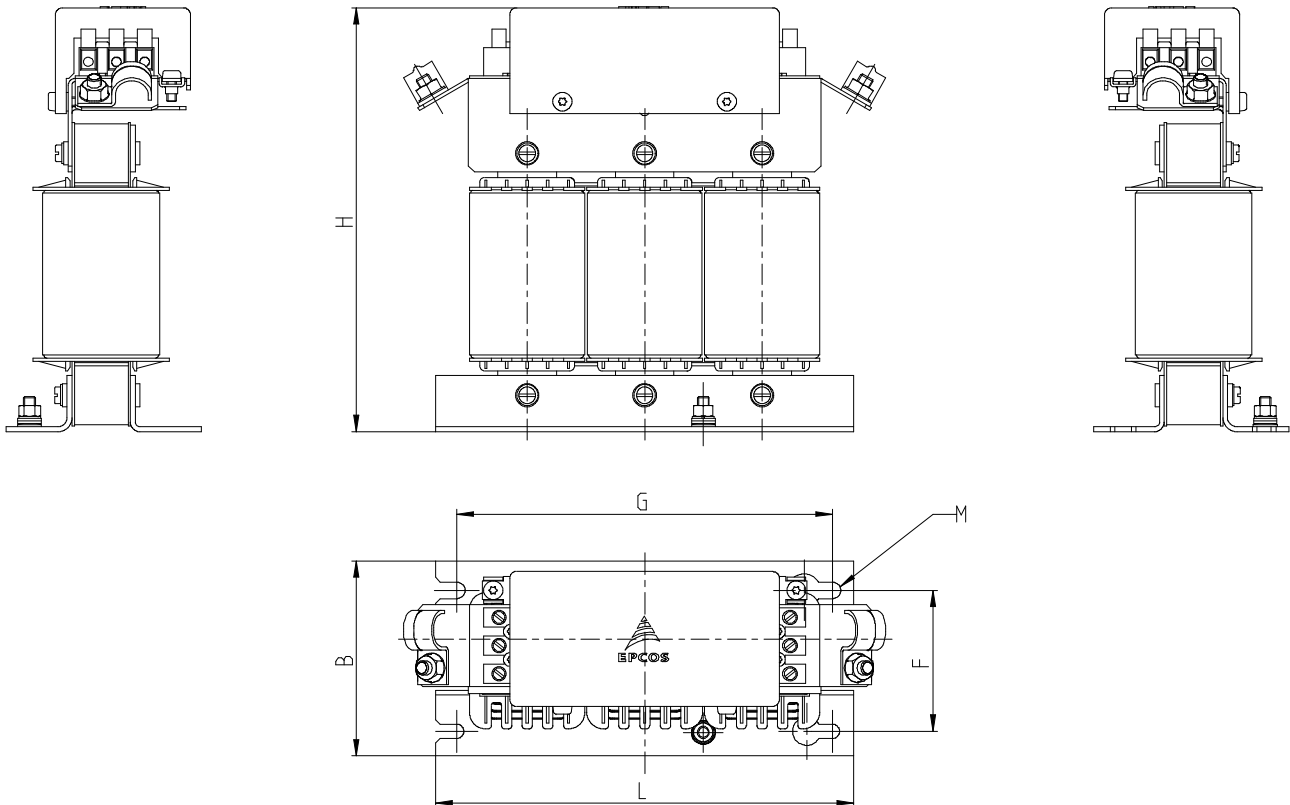
Rated voltage V_R	4-132A: 520 VAC 180-320A: 690 VAC
Rated current I_R	Referred to 40°C ambient temperature
Test voltage V_{test}	line/line: 3000 VAC, 1min lines/case: 3000 VAC, 1min
Frequency Motor Pulse (Switching)	0-100 Hz see table
Overload capability	$1.5 \cdot I_R$ for 1 min per hour
Max. dv/dt on filter input	5 kV/μs (higher values can be approved individually)
Current (I_R) derating depending on altitude	from 1000...4000 m: 5 % / 1000 m
Current (I_R) derating depending on ambient temperature	from 40...60 °C 10 % / 5 °C
Climatic category (IEC 60068-1)	25/100/21 (-25 °C/ +100 °C/ 21 days damp heat test)

Characteristics and ordering codes

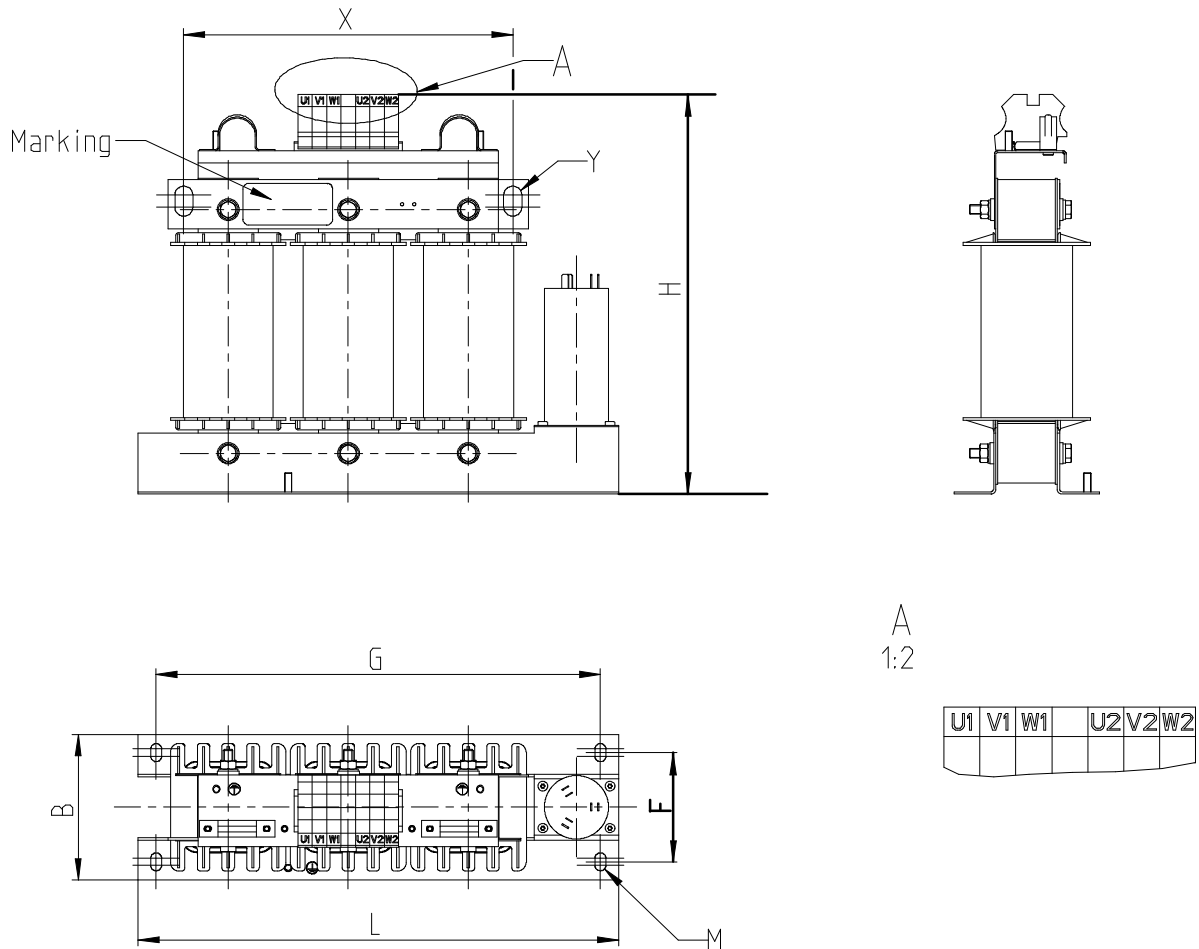
V_R	I_R	Terminal cross section	Resonance frequency	Inductance	Min. pulse frequency ¹⁾	Max. pulse frequency	R_{typ}	Rated power losses ²⁾	Approx. weight	Ordering code
V	A	mm ²	Hz	mH	kHz	kHz	mΩ	W	kg	
520	4	4	1000	12.0	1.8	16	375	40	3.3	B84143V0004R227
	6	4	1170	8.5	1.9	16	274	45	3.5	B84143V0006R227
	11	4	1300	4.5	2.2	16	71	55	5.3	B84143V0011R227
	16	4	1230	3.0	2.0	10	35	60	8.5	B84143V0016R227
	25	6	1100	2.5	1.9	10	28	100	20	B84143V0025R227
	33	6	1190	1.8	2.0	10	20	150	18	B84143V0033R227
	50	10	1330	1.2	2.2	10	11	190	25	B84143V0050R227
	66	25	1210	0.95	2.0	8	8	250	26	B84143V0066R227
	75	25	1050	0.86	1.9	8	6.5	320	38	B84143V0075R227
	95	50	1120	0.75	2.0	8	5.7	330	52	B84143V0095R227
	132	50	910	0.52	1.8	8	3.2	380	67	B84143V0132R227
690	180	150	870	0.4	1.6	6	3.1	480	74	B84143V0180R227
	250	busbars	890	0.32	1.6	6	1.8	560	91	B84143V0250R227
	320	busbars	780	0.25	1.6	6	1.3	950	121	B84143V0320R227

1) lowest frequency in converter pulse spectrum.

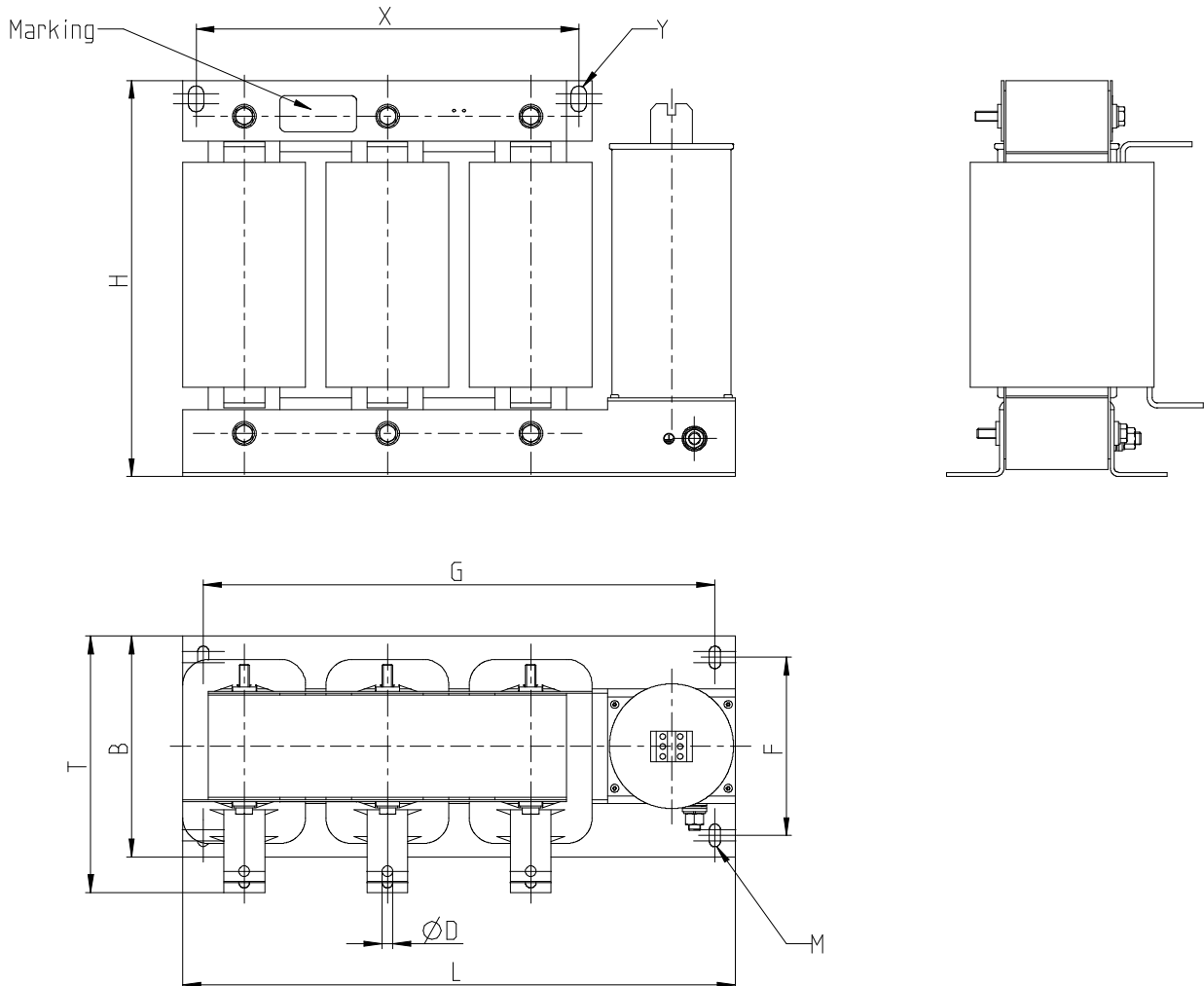
2) typical value. Varies with type and length of motor cable, pulse frequency and modulation mode.

Dimensional drawings (capacitor wiring removed in picture)


Ordering code	L	B	H max.	G	F	M
B84143V0004R227	178	83	210	160	60	M6
B84143V0006R227	178	83	210	160	60	M6
B84143V0011R227	178	98	210	160	75	M6
B84143V0016R227	220	100	230	200	75	M6
B84143V0025R227	275	120	290	255	92	M6
B84143V0033R227	275	120	290	255	92	M6

Dimensional drawings (capacitor wiring removed in picture)


Ordering code	L	B	H max.	G	F	M	X	Y
B84143V0050R227	400	121	350	370	91	9x15	274	15x25
B84143V0066R227	400	121	350	370	91	9x15	274	15x25
B84143V0075R227	400	146	350	370	116	9x15	274	15x25
B84143V0095R227	440	161	400	400	125	9x15	324	15x25
B84143V0132R227	440	176	400	400	140	9x15	324	15x25
B84143V0180R227	500	191	400	460	155	9x15	324	15x25

Dimensional drawings (capacitor wiring removed in picture)


Ordering code	L	B	H	G	F	ØD	T	X	Y	M
B84143V0250R227	540	216	410	500	174	12,5	290	374	15x25	11x22
B84143V0320R227	540	246	460	500	204	12,5	320	374	15x25	11x22

Cautions and warnings

- Please note the advices in our data book “EMC Filters” (latest edition); attention should be paid to the chapter “General safety notes”.
- It shall be ensured that only qualified persons (electricity specialists) are engaged on work such as planning, assembly, installation, operation, repair and maintenance. They must be provided with the corresponding documentation.
- Danger of electric shock. Sine-wave filters contain components that store an electric charge. Dangerous voltages can continue to exist at the filter terminals for longer than five minutes even after the power has been switched off.
- The protective earth connections shall be the first to be made when the sine-wave filter is installed and the last to be disconnected. Depending on the magnitude of the leakage currents, the particular specifications for making the protective-earth connection must be observed.
- Impermissible overloading of the sine-wave filter, such as with circuits able to cause resonances, impermissible voltages at higher frequencies etc. can lead to bodily injury and death as well as cause substantial material damages (e.g. destruction of the filter housing).
- Sine-wave filters must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective circuitry.
- The converter pulse frequency must not exceed the specified range to avoid resonances and uncontrolled heating of the sine-wave filter.

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