schaffner
MORE POWER TO YOU

Output dv/dt reactor 6% for motor drives

- Reduction of drive output voltage dv/dt
- Reduction of motor temperature
- Increase of motor service life
- Compact and economic open frame design
- Standard catalog reactors up to 1000 A
- UL rated materials used

Technical Specifications

Nominal operating voltage	3x480 VAC
Rated operating voltage	3x530 VAC
Pollution degree	3
High potential test voltage	P –> E 2480 VAC, 1 s
Protection category	IP00
Overload capability	1.5x rated current for 1 minute, once per hour
Ambient temperature range	-40°C to +45°C fully operation +45°C to +100°C derated operation* -40°C to +100°C transport and storage
Design corresponding to	Chokes: EN 61558-2-20 or EN 60076-6
Rated currents	2.3 to 1000 A @ 45°C
Climatic class	40/070/21
Switching frequency fPWM	0 to 16kHz
Impedance (uk)	6% @ 400 V, 50 Hz and rated current
Residual ripple voltage	<5%
Flammability corresponding to	UL-94V-0
Rated currents	2.3 to 1000 A @50°C
Motor cable length	Max. 100m depending of switching frequency (see user manual)
Overvoltage category	III acc. IEC 60664-1

* Iderated = Inominal*SQRT((Tmax-Tamb)/(Tmax-Tnominal)) = Inominal*SQRT((100°C-Tamb)/25°C)

Approvals & Compliances

For use on PWM side of AC or DC drives (power conversion equipment) only

Features and Benefits

- Converts the rectangular PWM output voltage of motor drives into a smooth sine wave with low residual ripple
- Elimination of premature motor damage caused by high dv/dt, overvoltages, cable ringing, motor overheating, and eddy current losses
- Improves bearing life time because of bearing currents caused by circulating currents
- Complies with IEC 60034-17* requirements for general purpose motors
- Optional with IP20 protective cover

Typical Applications

- HVAC applications
- Pumps
- Conveyors
- Compressors
- Elevators
- Cranes
- Medium voltage applications, deployed in front of the step-up transformer
- Retrofit installations with motor drives
- Motor drive with long motor cable
- Motor drive with multiple motors in parallel

Typical electrical schematic

Filter Selection Table RWK 5420

Filter	Rated current @ 45°C/ 50Hz [A]	Typical motor drive power rating @ 400V* [kW]	Typical motor drive power rating @ 480V** [kW]	Nominal inductance [mH]	Typical power loss*** [W]	Input/Output terminals	Weight [kg]
RWK5420-2.3-88-E0XXT	2.3	0.75	0.9	19.2	41	88	1.05
RWK5420-3.1-88-E0XXT	3.1	1.1	1.3	14.2	45	88	1.40
RWK5420-5.9-88-E0XXT	5.9	2.2	2.6	7.48	76	88	2.0
RWK5420-10-88-E0XXT	10.2	4.0	4.8	4.32	91	88	4.8
RWK5420-13-89-E0XXT	13.2	5.5	6.6	3.34	123	89	5.1
RWK5420-18-89-E0XXT	18	7.5	9.0	2.45	150	89	6.2
RWK5420-26-92-E0XXT	26	11	13	1.7	127	92	8.9
RWK5420-32-92-E0XXT	32	15	18	1.38	196	92	11.2
RWK5420-38-92-E0XXT	38	18.5	22	1.16	229	92	11.4
RWK5420-45-92-E0XXT	45	22	26	0.98	272	92	12.8
RWK5420-60-92-E0XXT	60	30	36	0.735	283	92	17.5
RWK5420-75-99-E0XXT	75	37	44	0.588	154	99	20.3
RWK5420-90-99-E0XXT	90	45	54	0.49	239	99	23.6
RWK5420-110-99-E0XXT	110	55	66	0.401	283	99	27.1
RWK5420-145-99-E0XXT	145	75	90	0.304	472	99	51
RWK5420-180-99-E0XXT	180	90	108	0.245	658	99	52
RWK5420-200-99-E0XXT	200	110	132	0.221	707	99	54
RWK5420-250-99-E0XXT	250	132	158	0.176	882	99	69
RWK5420-300-99-E0XXT	302	160	192	0.146	936	99	90
RWK5420-400-99-E0XXT	400	200	240	0.11	1023	99	118
RWK5420-480-99-E0XXT	477	250	300	0.092	1318	99	136
RWK5420-630-99-E0XXT	630	315	378	0.07	1459	99	164
RWK5420-710-99-E0XXT	710	355	426	0.062	1922	99	200
RWK5420-800-99-E0XXT	800	400	480	0.055	2062	99	239
RWK5420-1000-99-E0XXT	1000	500	600	0.044	2315	99	339

* General purpose four-pole (1500 r/min) AC induction motor rated 400 V/50 Hz.
** General purpose four-pole (1500 r/min) AC induction motor rated 480 V/50 Hz.
*** See user and installation manual for calculation of the filter power loss at other operation point. Exact value of the complete system depends on the motor cable length and type, switching frequency and further stray parameters of the system.

Mechanical Data RWK 5420

2.3 to 3.1 A types

5.9 to 18 A types

26 to 60 A types

75 to 110 A types

145 to 1000 A types

Dimensions RWK 5420

Filter	A	B±5	C±3	D	E	F	G	H	J	K	L±5	M±5	N±5	O	P	Q	R
2.3	120	63	118	107	38	6.5x5.5	-88	-	1.5	M3	-	-	32	-	-	-	-
3.1	120	72	118	107	47.2	6.5x5.5	-88	-	1.5	M3	-	-	32	-	-	-	-
5.9	150	69	137	135	45.3	8x5.5	-88	-	2	M3	-	-	42	-	-	-	-
10.2	195	95	159	170	71.5	12x9	-88	-	2.5	M4	-	-	50	-	-	-	-
13.2	195	95	160	170	71.5	12x9	-89	-	2.5	M4	-	-	50	-	-	-	-
18	220	84.5	183	200	57.5	12x9	-89	-	2.5	M6	-	-	60	-	-	-	-
26	220	139	157	200	77.5	12x9	ø6.5	-	2.5	M6	-	-	60	-	-	-	-
32	240	142	178	220	84.5	12x9	ø6.4	-	2.5	M6	-	-	68	-	-	-	-
38	240	142	178	220	84.5	12x9	ø6.4	-	2.5	M6	-	-	68	-	-	-	-
45	240	149	197	215	95	15x11	ø6.4	-	3	M6	-	-	80	-	-	-	-
60	240	169	197	215	115	15x11	ø6.4	-	3	M6	-	-	80	-	-	-	-
75	240	178	198	215	129	15x11	-	-	3	M6	170	37	80	20	10	3	ø9
90	265	177	218	240	126	15x11	-	-	3	M8	185	42	88	20	10	3	ø9
110	290	183	234	260	138	15x11	-	-	3	M8	201	43	96	20	10	3	ø9
145	420	223	338	370	134	24x11	-	-	5	M8	263	79	140	25	12.5	4	ø11
180	420	226	338	370	134	24x11	-	-	5	M8	263	79	140	25	12.5	4	ø11
200	420	239	338	370	134	24x11	-	-	5	M8	263	79	140	25	12.5	4	ø11
250	420	263	403	370	134	24x11	-	-	5	M8	321	87	140	40	20	4	ø13.5
302	420	303	389	370	174	24x11	-	-	5	M8	314	80	140	40	20	4	ø13.5
400	420	308	498	370	174	24x11	-	-	5	M8	418	84	140	40	20	4	ø13.5
477	420	313	594	370	174	24x11	-	-	5	M8	517	82	140	50	25	5	ø13.5
630	420	313	722 +/-10	370	174	24x11	-	-	5	M8	631	96	140	50	25	5	ø13.5
710	420	353	693 +/-10	370	214	24x11	-	-	5	M8	617	82	140	50	25	5	ø13.5
800	420	355	821 +/-10	370	214	24x11	-	-	5	M8	734	96	140	50	25	8	ø13.5
1000	420	384	1013 +/-10	370	244	24x11	-	-	5	M8	930	92	140	50	25	8	ø13.5

All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2'768-m / EN 22'768-m

Power Terminals

Terminal designation	Recommended connector type	Screw thread	Flex wire AWG	Flex wire [mm²]	Screw torque value [Nm]	Max width cable lug* [mm]
88	Fork cable shoe	M3.5	20-16	0.5-1.5	0.78	6.4
89	Fork cable shoe	M4	18-12	0.5-2.5	1.76	8
92	Ring cable shoe	M6	-	-	-	-
99	Ring cable shoe	M8/M10/M12	-	-	-	-

* To fulfill creepage/clearance acc. UL 61800-5-1 without additional protection (insulation). Creepage/clearance can vary depending on applicable standard and must be reviewed by customer. Creepage/clearance may be reduced when additional protection (insulation) is provided.

Auxiliary Terminals

Filter size	Recommended connector type	Screw thread	Flex wire AWG	Flex wire [mm²]	Screw torque value [Nm]	Max width cable lug [mm]
2.3A & 3.1A	Fork cable shoe	M3.5	20-16	0.5-1.5	0.78	6.4
5.9 to 18A	Fork cable shoe	M4	18-12	0.5-2.5	1.76	8.0
26A to 1000A	No connector	-	20-14	0.5-2.5	0.4	-

Earth Terminals

Filter size	Screw thread	Screw torque value [Nm]
2.3 to 5.9A	M3	0.6
10 to 13A	M4	1.7
18 to 75A	M6	4
90 to 1000A	M8	9

Headquarters, Global Innovation and Development

Switzerland
Schaffner Group
Industrie Nord
Nordstrasse 11e
4542
Luterbach
+41 32 681 66 26
info@schaffner.com

Sales and Application Centers

Switzerland
Schaffner EMV AG
Industrie Nord
Nordstrasse 11e
4542
Luterbach
+41 32 681 66 26
switzerlandsales@schaffner.com

China
Schaffner EMC Ltd. Shanghai
T20-3 C No 565 Chuangye Road Pudong district
201201
Shanghai
+86 2138139500
cschina@schaffner.com

Singapore
Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1 #05-09 Kampong Ubi Industrial Estate
408705
Singapore
+65 63773283
singaporesales@schaffner.com

To find your local partner within Schaffner's global network schaffner.com

© 2023 Schaffner Group

The content of this document has been carefully checked and understood. However, neither Schaffner nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifica-tionsw are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Schaffner does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Swiss law and resulting disputes shall be settled by the courts at the place of business of Schaffner Holding AG. Latest publications and a complete disclaimer can be downloa-ded from the Schaffner website. All trademarks recognized.