

Sinusoidal output filter for frequency inverters

SCHAFFNER

FN 5010

- 2.5 to 610A current ratings
- Reduction of parasitic motor noise
- Improvement of system efficiency
- Reduction of eddy current losses
- Nennströme von 2.5 bis 610A
- Reduzierung der Motorgeräusche
- Verbesserung des System-Wirkungsgrads
- Reduktion der Wirbelstromverluste
- Courants de service de 2.5 à 610A
- Pour la réduction des bruits de moteur
- Amélioration du rendement du système
- Pour la réduction des pertes par courant de circulation

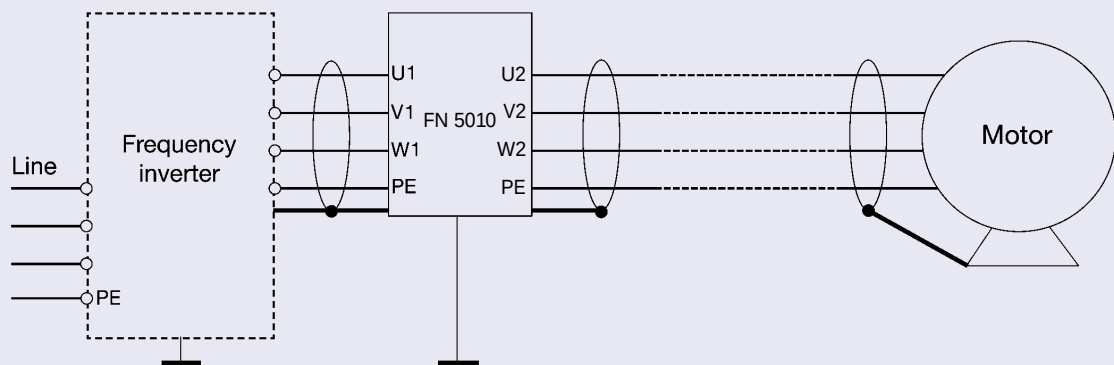


Technical specifications

Maximum operating voltage:	400VAC @ 40°C / 690VAC @ 40°C
Current ratings:	2.5 to 610A @ 40°C
Motor frequency:	up to ~70Hz
Switching frequency:	$f_{\min}$ 4kHz to $f_{\max}$ 16kHz
High potential test voltage:	P → E 3000VAC for ~3 sec (factory test) P → P 3000VAC for ~3 sec (factory test)
Protection category:	IP00
Insulation class:	T40/F (155°C)
Temperature range:	-25°C to +85°C (derating necessary above 40°C!)
Max. cable lengths:	400m shielded 300m unshielded

Electrical schematic

The filter converts pulse width modulated output voltages to sinusoidal voltages at the motor. Therefore, the service life of the motor will be increased significant.



Specifications and dimensions

FN 5010-Series (400VAC)

Filter	Current rating [A]	Induct. L [mH]	Cap. C [μF]	Weight			Dimensions								Connections	Drawing
				Total	Copper [kg]	Alu.	A	B	B1	C [mm]	D	E	F	G*		
FN 5010-2.5-99	2.5	22.4	1.5	2.6	0.68	–	125	65	110	180	100	45	5x8	2.5	Terminal block	D1
FN 5010-3.5-99	3.5	16	1.5	2.6	1.05	–	125	65	110	180	100	45	5x8	2.5	Terminal block	D1
FN 5010-4.5-99	4.5	11	1.5	3.0	1.1	–	125	75	110	180	100	55	5x8	2.5	Terminal block	D1
FN 5010-6.5-99	6.5	8.4	1.5	5.4	2.1	–	155	80	118	205	130	55	8x12	4	Terminal block	D1
FN 5010-8-99	8	7.2	1.5	6.6	2.2	–	155	95	118	205	130	70	8x12	4	Terminal block	D1
FN 5010-10-99	10	4.2	1.5	6.6	2.6	–	155	95	118	205	130	70	8x12	4	Terminal block	D1
FN 5010-13-99	13	4.2	1.5	7.3	3.2	–	190	100	125	230	170	58	8x12	4	Terminal block	D1
FN 5010-18-99	18	3.5	1.5	11.5	3.6	–	190	120	125	230	170	78	8x12	10	Terminal block	D1
FN 5010-24-99	24	2.4	1.5	14	5	–	210	125	135	260	175	85	8x12	10	Terminal block	D1
FN 5010-32-99	32	2	2	16	6.8	–	210	135	135	260	175	95	8x12	10	Terminal block	D1
FN 5010-42-99	42	1.58	7	22	7.4	–	230	140	150	285	180	122	8x12	10	Terminal block	D1
FN 5010-48-99	48	1.5	4	28	8.8	–	240	210	< B	290	190	125	8x12	10	Terminal block	D2
FN 5010-60-99	60	1.1	4	35	10.9	–	240	220	< B	290	190	135	8x12	16	Terminal block	D2
FN 5010-75-99	75	0.9	4	42	11.5	–	300	210	< B	345	240	134	11x15	35	Terminal block	D2
FN 5010-90-99	90	0.8	5	46	12.8	–	300	215	< B	345	240	139	11x15	35	Terminal block	D2
FN 5010-110-99	110	0.7	5	58	13	–	300	237	< B	345	240	161	11x15	50	Terminal block	D2
FN 5010-150-99	150	0.5	7	75	14.8	–	420	217	< B	470	370	142	11x15	50	Terminal block	D2
FN 5010-180-99	180	0.4	10	88	1.4	10.9	420	235	< B	470	370	157	11x15	11	Copper bar	D3
FN 5010-210-99	210	0.4	10	115	2.1	11.2	420	260	< B	470	370	182	11x15	11	Copper bar	D3
FN 5010-270-99	270	0.3	12	150	2.1	14	420	295	< B	470	370	217	11x15	11	Copper bar	D3
FN 5010-325-99	325	0.3	12	194	5.2	21	480	310	< B	580	430	234	13x18	11	Copper bar	D3
FN 5010-410-99	410	0.2	18	206	5.2	23.8	480	310	< B	580	430	234	13x18	11	Copper bar	D3
FN 5010-480-99	480	0.185	20	255	6.5	28	500	340	< B	670	430	238	13x18	11	Copper bar	D3
FN 5010-510-99	510	0.17	20	290	6.5	32	500	370	< B	670	430	248	13x18	11	Copper bar	D3
FN 5010-610-99	610	0.14	25	330	7.7	37.5	500	370	< B	670	430	268	13x18	11	Copper bar	D3

FN 5010HV-Series (690VAC)

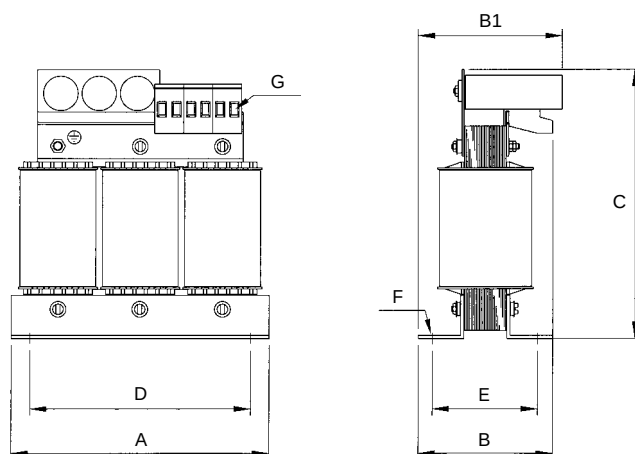
Filter	Current rating [A]	Induct. L [mH]	Cap. C [μF]	Weight			Dimensions								Connections	Drawing
				Total	Copper [kg]	Alu. [kg]	A	B	B1	C [mm]	D	E	F	G*		
FN 5010HV-2.5-99	2.5	61	1.5	5.8	0.86	–	155	95	118	205	130	70	8x12	2.5	Terminal block	D1
FN 5010HV-3.5-99	3.5	43.5	1.5	6.6	1.55	–	155	95	118	205	130	70	8x12	2.5	Terminal block	D1
FN 5010HV-4.5-99	4.5	33.5	1.5	7.5	2.4	–	155	95	118	205	130	70	8x12	2.5	Terminal block	D1
FN 5010HV-6.5-99	6.5	23.5	1.5	11.2	3.95	–	190	110	125	230	170	68	8x12	4	Terminal block	D1
FN 5010HV-8-99	8	19	1.5	13.3	4.35	–	190	120	125	230	170	78	8x12	4	Terminal block	D1
FN 5010HV-10-99	10	15.2	1.5	15.8	5.7	–	210	125	135	260	175	85	8x12	4	Terminal block	D1
FN 5010HV-13-99	13	11.7	1.5	18.9	6	–	210	135	135	260	175	95	8x12	4	Terminal block	D1
FN 5010HV-18-99	18	8.4	1.5	27.2	9.5	–	230	160	< B	290	180	122	8x12	10	Terminal block	D1
FN 5010HV-24-99	24	6.3	2.2	29.7	11	–	230	160	< B	290	180	122	8x12	10	Terminal block	D1
FN 5010HV-32-99	32	4.7	2.2	46.5	15.7	–	300	215	< B	345	240	135	11x15	10	Terminal block	D1
FN 5010HV-42-99	42	3.6	4.7	53.6	16.4	–	300	232	< B	345	240	152	11x15	10	Terminal block	D1
FN 5010HV-48-99	48	3.1	4.7	66	16.9	–	360	235	< B	420	310	136	11x15	10	Terminal block	D2
FN 5010HV-60-99	60	2.5	4.7	70.7	17.4	–	360	241	< B	420	310	142	11x15	16	Terminal block	D2
FN 5010HV-75-99	75	2	5.6	78	19.6	–	360	261	< B	420	310	157	11x15	35	Terminal block	D2
FN 5010HV-90-99	90	1.75	5.6	94.7	25.2	–	420	228	< B	470	370	153	11x15	35	Terminal block	D2
FN 5010HV-110-99	110	1.38	10	112	27.8	–	420	248	< B	470	370	173	11x15	50	Terminal block	D2
FN 5010HV-150-99	150	1	10	152	29.6	–	420	288	< B	470	370	213	11x15	50	Terminal block	D2
FN 5010HV-180-99	180	0.85	12	181	2.3	17.8	480	350	< B	470	430	258	13x18	11	Copper bar	D3
FN 5010HV-210-99	210	0.73	18	200	3.4	19.6	480	340	< B	580	430	248	13x18	11	Copper bar	D3
FN 5010HV-270-99	270	0.56	18	210	3.4	26.6	480	340	< B	580	430	248	13x18	11	Copper bar	D3
FN 5010HV-325-99	325	0.47	22	232	4.9	35	480	350	< B	580	430	258	13x18	11	Copper bar	D3
FN 5010HV-410-99	410	0.37	28	277	6.3	47.6	480	350	< B	690	430	258	13x18	11	Copper bar	D3
FN 5010HV-480-99	480	0.32	36	289	8.4	49.7	480	360	< B	690	430	268	13x18	11	Copper bar	D3
FN 5010HV-510-99	510	0.3	36	303	8.4	51.4	480	370	< B	690	430	278	13x18	11	Copper bar	D3
FN 5010HV-610-99	610	0.25	44	335	13	53.9	480	360	< B	790	430	268	13x18	11	Copper bar	D3

Sinusoidal output filters with customized specifications available on request.

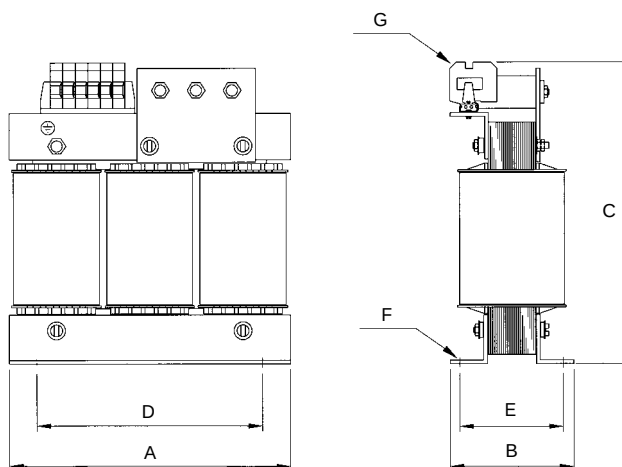
*All versions with terminal blocks: dimension G in [mm²]

All versions with copper bars: dimension G in [mm]

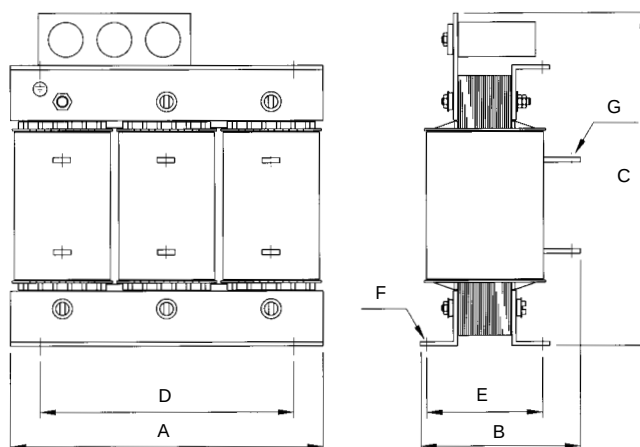
Drawing D1



Drawing D2



Drawing D3



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