

**EF3LC,
Passive Sine-wave Filter**

2,2 kW up to 630 kW



Approvals



Technical data

Rated power	2,2-630 kW
Rated voltage	380-500 V
Rated frequency	50/60 Hz
Switching frequency	≥4 kHz (up to 132 kW), ≥2 kHz (over 160 kW)
THDu	≤5%
Overload capability	110% In (continuous)
	160% In 1 min/h (momentary)
Cooling	air natural
Ambient temperature	40°C - land design
	45°C - maritime design
	≥50°C - heavy duty design or derating
Insulation class	F (2,2-15 kW, 155°C) H (18,5-630 kW, 180°C)
Winding material	Aluminium, copper
Standard equipment	NC temperature switch from 15 kW
Mounting	standing, vertical
Degree of protection	IP00, IP23
Standards compatibility	EN 61558-20, EN 60076-6

*- UL approved insulation system

Function

Pulse Width Modulation is a great method to control electric motor operation, but has negative impact on its lifespan. EF3LC filter converts rectangular PWM voltage into sinusoidal thus eliminates harmful side effects of transistors switching. Application of LC filter on inverter output will protect motor against high voltage peaks, bearing currents, overheating and cable ringing, which cause premature insulation and armature damage. Due to compact design, filter can be easily integrated with existing system and is ready to use right after installation.

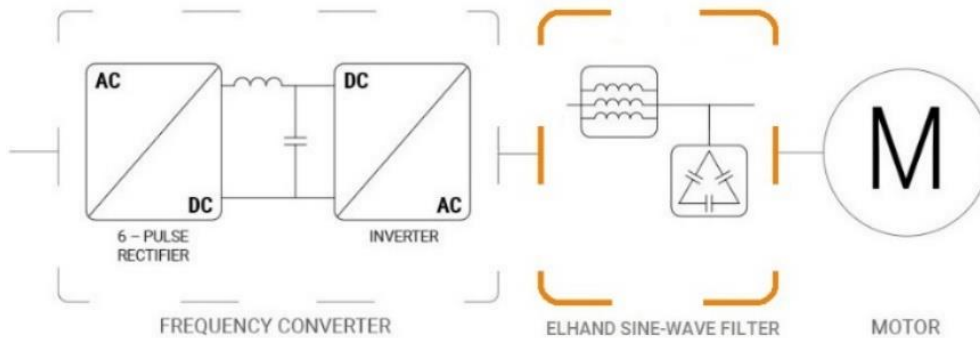
Benefits

- Prolonged motor lifetime
- Extended motor cable length
- Cheaper, unshielded cables can be used
- Reduction of service costs
- Lower motor noise

Application

- Motors with PWM drives
- Submersible pumps
- Drives with long cable routes
- Motors in explosive atmospheres
- High power drives for critical applications
- Mining & Minerals
- Oil & Gas
- Chemical industry

Typical application schematic



Dimensions

Execution A, B, C

380-500V 50/60Hz

No.	Type of filter	Inductance	Current	f_{kmin}	Winding material	L	B	H	d	e	f	Weight [kg]	Execution
		[mH]	[A]	[kHz]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
1	EF3LC-2,2kW	8,5	5,5	4	Cu	125	142	191	100	55	4x(5x8)	3,6	A
2	EF3LC-3kW	7,0	7,5	4	Cu	155	149	194	130	57	4x(8x12)	5,2	A
3	EF3LC-4kW	7,3	10	4	Cu	155	162	194	130	72	4x(8x12)	6,8	A
4	EF3LC-5,5kW	4,5	13	4	Cu	195	156	218	173	82	4x(8x11)	10	A
5	EF3LC-7,5kW	3,4	17	4	Cu	208	157	238	173	85	4x(8x11)	13	A
6	EF3LC-11kW	2,4	24	4	Cu	209	171	238	173	95	4x(8x11)	16	A
7	EF3LC-15kW	1,8	32	4	Cu	240	184	267	198	115	4x(11x29)	22	A
8	EF3LC-18,5kW	1,5	38	4	Cu	240	199	267	198	129	4x(11x29)	25	A
9	EF3LC-22kW	1,3	46	4	Cu	261	197	284	198	126	4x(11x29)	31	A
10	EF3LC-30kW	0,95	60	4	Cu	300	239	334	240	133	4x(11x15)	37	A
11	EF3LC-37kW	0,80	72	4	Cu	300	252	334	240	145	4x(11x15)	44	A
12	EF3LC-45kW	0,64	90	4	Cu	300	275	334	240	160	4x(11x15)	50	A
13	EF3LC-55kW	0,53	110	4	Cu	342	296	315	300	142	4x(11x21)	60	B
					Al	340	313	311		162		58	B
14	EF3LC-75kW	0,40	150	4	Cu	349	313	314	300	152	4x(11x21)	72	B
					Al	352	309	312		172		67	B
15	EF3LC-90kW	0,32	180	4	Cu	346	331	346	300	162	4x(11x21)	85	B
					Al	343	330	342		192		84	B
16	EF3LC-110kW	0,28	210	4	Cu	353	358	315	300	182	4x(11x21)	94	B
					Al	347	363	375		192		92	B
17	EF3LC-132kW	0,22	260	4	Cu	420	367	380	370	173	4x(13x18)	109	B
					Al		387	408		193		110	B
18	EF3LC-160kW	0,18	320	2	Cu	490	407	509	430	218	4xM12	178	C
					Al		469	548		238		181	C
19	EF3LC-200kW	0,18	400	2	Cu	490	491	548	430	238	4xM12	212	C
					Al		515	617		258		226	C
20	EF3LC-250kW	0,15	500	2	Cu	550	394	561	490	248	4xM12	242	C
					Al		419	561		268		248	C

Execution D

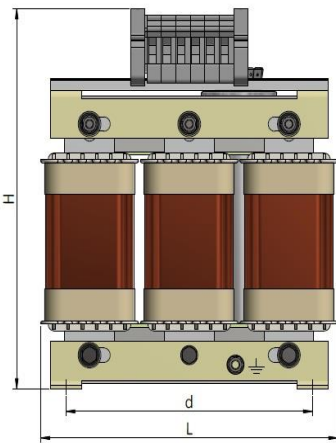
380-500V 50/60Hz

No	Type of filter	Inductance [mH]	Current [A]	fk min [kHz]	Winding material	Choke dimensions						Weight [kg]	Capacitor dimensions						
						L	B	H	d	e	f		L	B	H	d	e	f	Weight
						[m m]	[m m]	[m m]	[m m]	[m m]	[mm]		[m m]	[m m]	[m m]	[mm]	[m m]	[mm]	[kg]
1	EF3LC-315kW	0,10	600	2	Cu	550	419	633	490	258	4xM12	269	620	300	320	570/490/430	270	12x(11x15)	17
					Al		444	688		278		281							
2	EF3LC-355kW	0,12	660	2	Cu	550	427	634	490	278	4xM12	313	620	300	320	570/490/430	270	12x(11x15)	17
					Al		425	688		298		314							
3	EF3LC-400kW	0,105	750	2	Cu	690	427	668	590	238	4xM12	359	640	300	320	570/490/430	270	12x(11x15)	19
					Al		425	772		343									
4	EF3LC-500kW	0,085	900	2	Cu	690	460	668	590	258	4xM12	414	475	400	320	430/370/310	370	12x(11x15)	23
					Al		458	772		392									
5	EF3LC-560kW	0,077	1000	2	Cu	720	487	694	620	278	2xM16	486	640	400	320	590/490/430	370	12x(11x15)	26
					Al		484	793		446									
6	EF3LC-630kW	0,07	1100	2	Cu	720	530	694	620	298	2xM16	550	640	400	320	590/490/430	370	12x(11x15)	28
					Al		527	793		503									

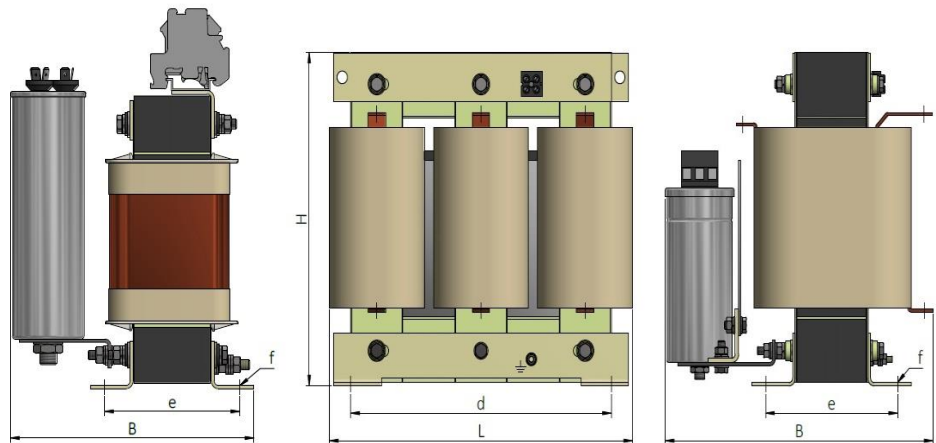
Manufacturer reserves the right to make changes resulting from the continuous development of products offered

Drawings

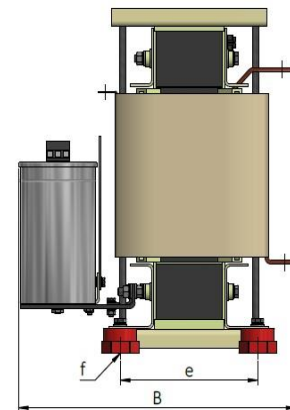
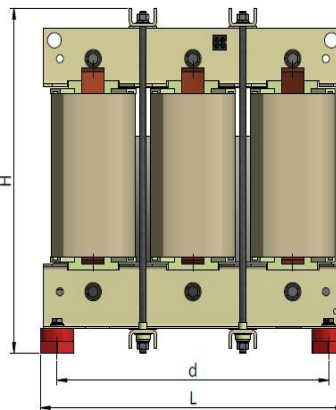
Execution A



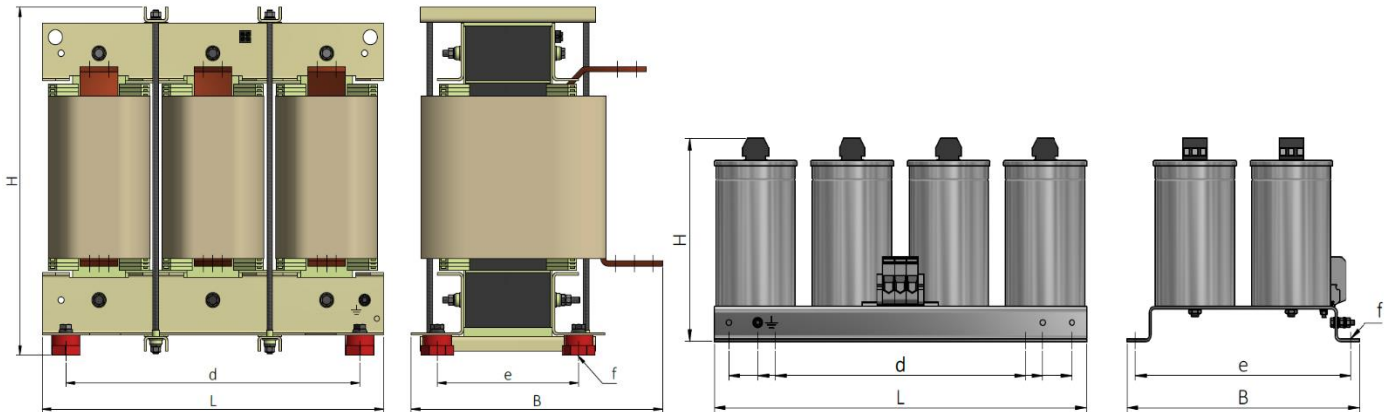
Execution B



Execution C



Execution D



IP23 enclosures

Thanks to the special perforations, construction of IP23 enclosure enables natural air flow for optimal cooling.

Characteristics:

- Colour: RAL7035
- Cables input:
 - Executions A, B – cable glands
 - Execution C – from the bottom
- Disassembly:
 - Executions A, B – top and sides are a fixed set
 - Execution C – all sides are dismountable

Dimensions – IP23

380-500V 50/60Hz

Lp	Type of filter	Inductance	Current	f _{kmin}	Winding material	L	B	H	d	e	f	Weight	Execution
		[mH]	[A]	[kHz]									
1	EF3LC-2,2kW	8,5	5,5	4	Cu	232	226	257	180	160	4xØ9	9,0	A
2	EF3LC-3kW	7	7,5	4	Cu	232	226	257	180	160	4xØ9	10,6	A
3	EF3LC-4kW	7,3	10	4	Cu	232	226	257	180	160	4xØ9	12,2	A
4	EF3LC-5,5kW	4,5	13	4	Cu	332	276	308	280	210	4xØ9	19	A
5	EF3LC-7,5kW	3,4	17	4	Cu	332	276	308	280	210	4xØ9	22	A
6	EF3LC-11kW	2,4	24	4	Cu	332	276	308	280	210	4xØ9	25	A
7	EF3LC-15kW	1,8	32	4	Cu	362	355	347	310	280	4xØ9	34	A
8	EF3LC-18,5kW	1,5	38	4	Cu	362	355	347	310	280	4xØ9	37	A
9	EF3LC-22kW	1,3	46	4	Cu	362	355	347	310	280	4xØ9	43	A
10	EF3LC-30kW	0,95	60	4	Cu	432	398	450	380	290	4xØ9	56	B
11	EF3LC-37kW	0,8	72	4	Cu	432	398	450	380	290	4xØ9	63	B
12	EF3LC-45kW	0,64	90	4	Cu	432	398	450	380	290	4xØ9	69	B

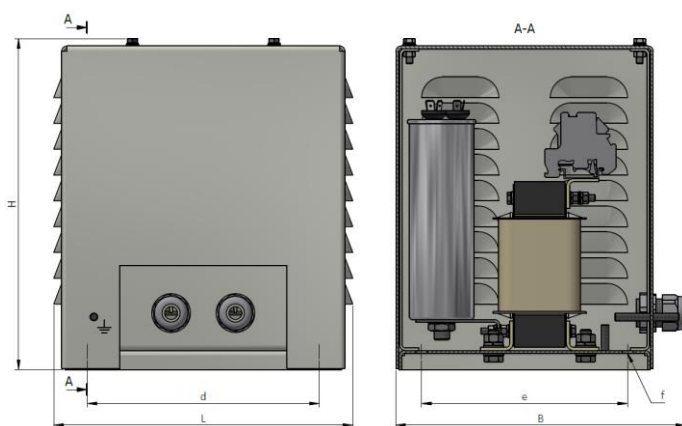
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Lp	Type of filter	Inductance	Current	f _{kmin}	Winding material	L	B	H	d	e	f	Weight	Execution
		[mH]	[A]	[kHz]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
13	EF3LC-55kW	0,53	110	4	Cu	540	510	482	310	460	4x(11x15)	81	C
					Al	540	540	482	310	490	4x(11x15)	80	C
14	EF3LC-75kW	0,4	150	4	Cu	540	510	482	310	460	4x(11x15)	93	C
					Al	540	540	482	310	490	4x(11x15)	89	C
15	EF3LC-90kW	0,32	180	4	Cu	540	570	512	310	520	4x(11x15)	109	C
					Al	540	570	512	310	520	4x(11x15)	108	C
16	EF3LC-110kW	0,28	210	4	Cu	540	570	482	310	520	4x(11x15)	117	C
					Al	540	570	542	310	520	4x(11x15)	117	C
17	EF3LC-132kW	0,22	260	4	Cu	620	610	576	370	565	4x(13x18)	139	C
					Al	620	610	606	370	565	4x(13x18)	141	C
18	EF3LC-160kW	0,18	320	2	Cu	660	690	716	430	645	4x(13x18)	215	C
					Al	660	720	746	430	675	4x(13x18)	220	C
19	EF3LC-200kW	0,18	400	2	Cu	660	720	746	430	675	4x(13x18)	251	C
					Al	660	750	806	430	705	4x(13x18)	268	C
20	EF3LC-250kW	0,15	500	2	Cu	720	750	836	490	705	4x(13x18)	290	C
					Al	720	780	896	490	735	4x(13x18)	299	C
21	EF3LC-315kW	0,1	600	2	Cu	720	780	896	490	735	4x(13x18)	333	C
					Al	720	810	956	490	765	4x(13x18)	349	C
22	EF3LC-355kW	0,12	660	2	Cu	720	810	896	490	765	4x(13x18)	379	C
					Al	720	840	956	490	795	4x(13x18)	383	C
23	EF3LC-400kW	0,105	750	2	Cu	870	825	987	590	780	4x(13x18)	458	C
					Al	870	825	1107	590	780	4x(13x18)	448	C
24	EF3LC-500kW	0,085	900	2	Cu	930	855	987	590	810	4x(13x18)	521	C
					Al	930	855	1107	590	810	4x(13x18)	506	C
25	EF3LC-560kW	0,077	1000	2	Cu	1070	900	1091	620	850	4x(17x25)	613	C
					Al	1070	900	1211	620	850	4x(17x25)	580	C
26	EF3LC-630kW	0,07	1100	2	Cu	1070	930	1091	620	880	4x(17x25)	682	C
					Al	1070	930	1211	620	880	4x(17x25)	642	C

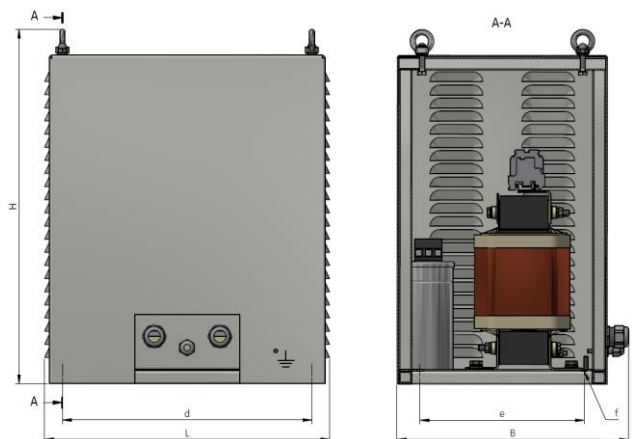
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Drawings – IP23

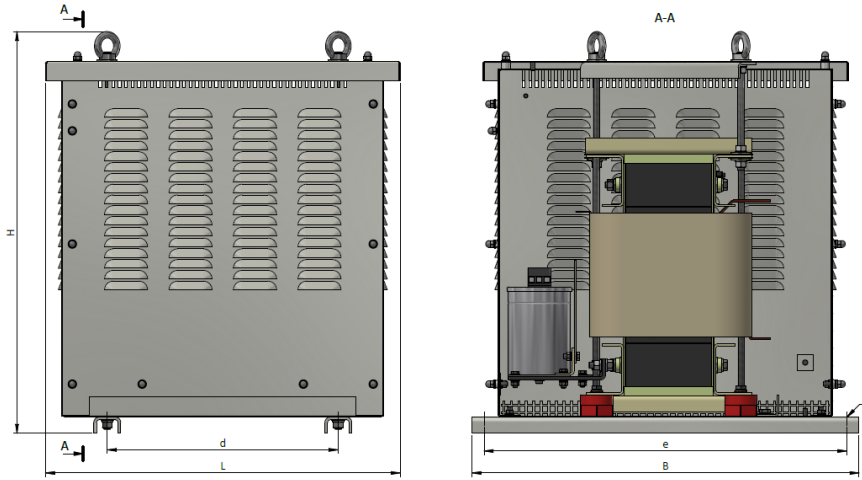
Execution A



Execution B



Execution C



Product code

E	F	3	LC	500 kW	380-500V	50/60Hz	fkmin=2kHz	THDu<5%	T40H	AL	IP23
Manufacturer symbol	Instrument type	Number of phases	Application type	Rated power of filter	Rated voltage	Rated frequency	Minimum switching frequency	Output THDu	Insulation class	Winding material Blank if copper	Protection degree Blank if IP00

Special execution

Products with parameters exceeding the catalogue card can be made upon prior contact.

Contact

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