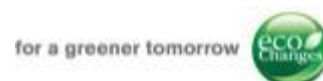


Product information



December 2010

FFR-HEL-(H)-E DC-choke

Herewith we would like to inform you about the new compact DC-choke generation FFR-HEL-(H)-E.

Our new flexible and compact DC-choke is available for all 700series Inverter (1/3~200/ 3~400V) from 0,4 to 55kW. Above 55kW you will find the MT-HEL DC-chokes included as standard in the box.

For quick and easy installation, all chokes have standardised body sizes and isolated screw clamps.

The advantage of the potted versions is a smaller size. Each type becomes one size smaller than air cooled chokes,

because of the better heat dissipation caused by the polyurethane polyamide sealing.



Picture 1: 18.5kW, 400V type

Energy saving advantages:

- By using this DC-choke the Inverter complies with EN 61000-3-12 Harmonic standard.
- Tests have shown that using a FFR-HEL-(H)-E DC-choke can shorten the energy consumption of the Mitsubishi Inverter by 34%.

The chokes have IP20 protection (400V: 0.4 to 37kW and 200V: 0.4 to 22kW; others have IP00) and they are produced according to UL- and RoHS-standard. Rated temperature is 50°C.

The FFR-HEL-(H)-E will be available from stock as standard product from January 2010.

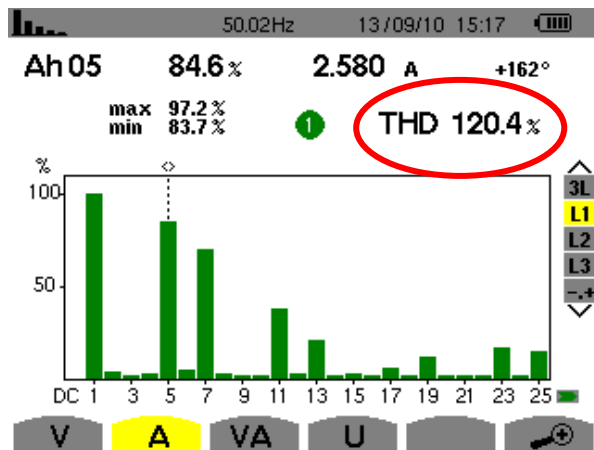
Find below the FFR-HEL types including list prices and article numbers:

FFR-HEL-H (400V)		
Motor Power	Type	SAP Code
0,4 kW	FFR-HEL-H0.4K-E	238342
0,75 kW	FFR-HEL-H0.75K-E	238343
1,5 kW	FFR-HEL-H1.5K-E	238344
2,2 kW	FFR-HEL-H2.2K-E	238345
3,7 kW	FFR-HEL-H3.7K-E	238346
5,5 kW	FFR-HEL-H5.5K-E	238347
7,5 kW	FFR-HEL-H7.5K-E	238348
11 kW	FFR-HEL-H11K-E	238349
15 kW	FFR-HEL-H15K-E	238350
18,5 kW	FFR-HEL-H18.5K-E	238351
22 kW	FFR-HEL-H22K-E	238352
30 kW	FFR-HEL-H30K-E	238353
37 kW	FFR-HEL-H37K-E	238354
45 kW	FFR-HEL-H45K-E	238355
55 kW	FFR-HEL-H55K-E	238356

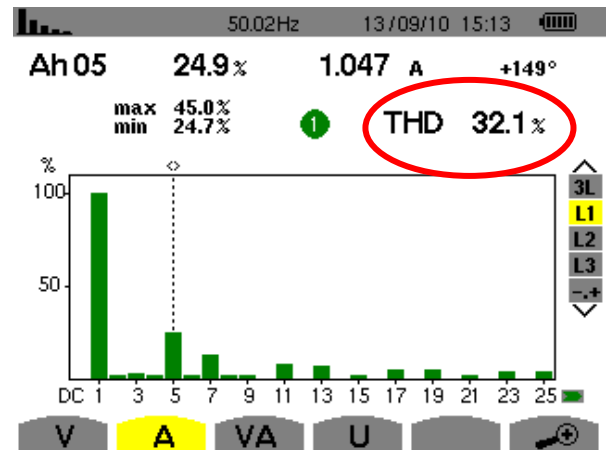
FFR-HEL (1-/3-phase, 200V)		
Motor Power	Type	SAP Code
0,4 kW	FFR-HEL-0.4K-E	238357
0,75 kW	FFR-HEL-0.75K-E	238358
1,5 kW	FFR-HEL-1.5K-E	238359
2,2 kW	FFR-HEL-2.2K-E	238360
3,7 kW	FFR-HEL-3.7K-E	238361
5,5 kW	FFR-HEL-5.5K-E	238362
7,5 kW	FFR-HEL-7.5K-E	238363
11 kW	FFR-HEL-11K-E	238364
15 kW	FFR-HEL-15K-E	238365
18,5 kW	FFR-HEL-18.5K-E	238366
22 kW	FFR-HEL-22K-E	238367
30 kW	FFR-HEL-30K-E	238368
37 kW	FFR-HEL-37K-E	238369
45 kW	FFR-HEL-45K-E	238370
55 kW	FFR-HEL-55K-E	238371

Performance benefits by using our new DC-choke: (left without choke; right with choke)

Total harmonic distortion (THDI):

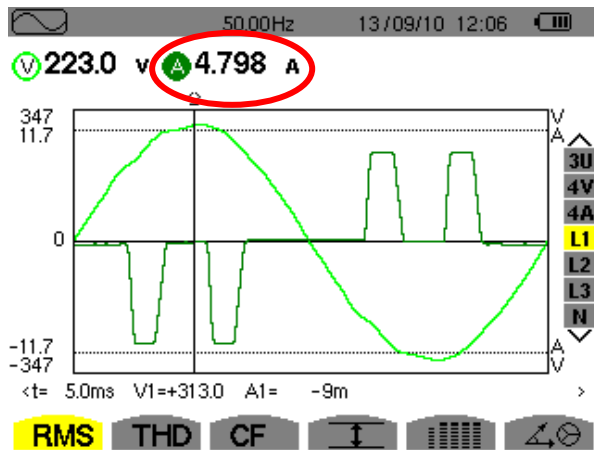


Picture 1: THDI without choke

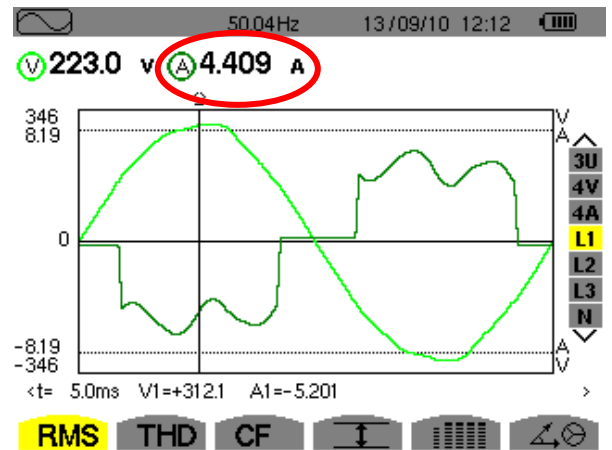


Picture 3: THDI with DC-choke

Input current wave form:



Picture 4: Input current without choke

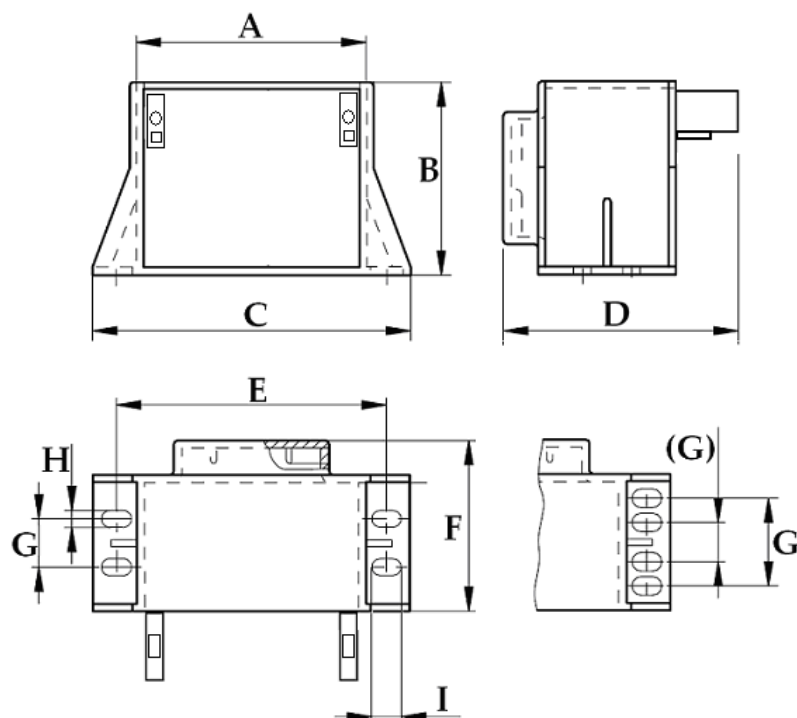


Picture 5: Input current with DC-choke

You can see the better harmonic performance and a smoothed DC-current wave form on a 2.2kW drive.

Dimensions:

Drowned types (IP20):



Picture 6: DC-choke, drowned type

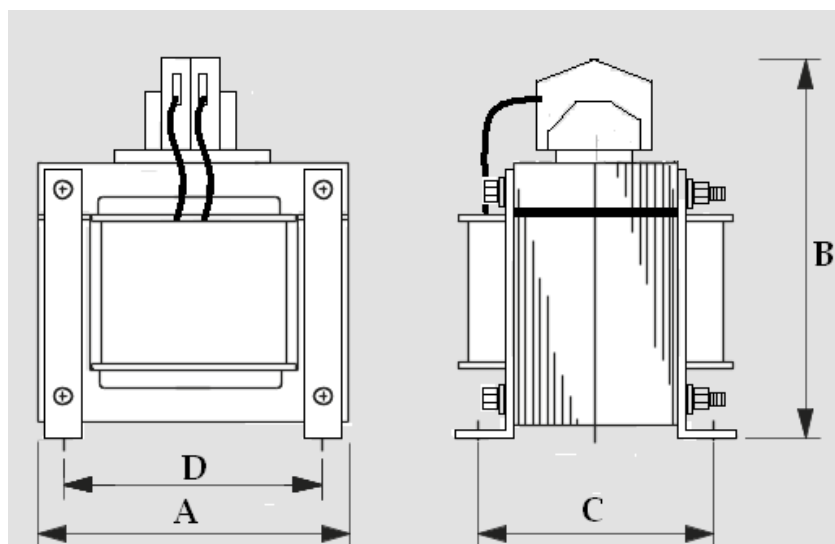
Voltage type	DC-choke	A	B	C	D	E	F	G	H	I	Weight (kg)	Type of clamp
400V drowned	FFR-HEL-H0.4K-E	51	43	75	60	62	38,6	12	3,5	6,7	0,35	TK4
	FFR-HEL-H0.75K-E	63,5	53,5	88	70	75	48	13,5	5	9	0,6	TK4
	FFR-HEL-H1.5K-E	63,5	53,5	88	70	75	48	13,5	5	9	0,61	TK4
	FFR-HEL-H2.2K-E	82,5	71,5	112,5	81	97,5	59	32,5	5,2	10	1,2	TK4
	FFR-HEL-H3.7K-E	82,5	71,5	112,5	81	97,5	59	32,5	5,2	10	1,2	TK4
	FFR-HEL-H5.5K-E	89,2	74,7	120	85,5	102,5	63,8	32,5	5,5	10,2	1,5	TK4
	FFR-HEL-H7.5K-E	89,2	74,7	120	100	102,5	77,8	45	5,5	10,2	2,2	TK4
	FFR-HEL-H11K-E	101,5	85	133,2	112	115	84,6	50	5,5	10,2	3,1	TK10
	FFR-HEL-H15K-E	101,5	85	133,2	112	115	84,6	50	5,5	10,2	3	TK10
	FFR-HEL-H18.5K-E	101,5	85,2	133,2	128	115	98,5	64	5,5	10,2	4	RK16
	FFR-HEL-H22K-E	127	106,8	172	166	150	108,5	65	8,5	8,5	5,3	RK35
	FFR-HEL-H30K-E	127	106,8	172	166	150	108,5	65	8,5	8,5	5,5	RK35
	FFR-HEL-H37K-E	127	106,8	172	186	150	128,5	85	8,5	8,5	8	RK35

Voltage type	DC-choke	A	B	C	D	E	F	G	H	I	Weight (kg)	Type of clamp
200V drowned	FFR-HEL-0.4K-E	63,5	53,5	88	70	75	48	13,5	5	9	0,6	TK4
	FFR-HEL-0.75K-E	63,5	53,5	88	70	75	48	13,5	5	9	0,6	TK4
	FFR-HEL-1.5K-E	82,5	71,5	112,5	81	97,5	59	32,5	5,2	10	1,2	TK4
	FFR-HEL-2.2K-E	82,5	71,5	112,5	81	97,5	59	32,5	5,2	10	1,2	TK4
	FFR-HEL-3.7K-E	89,2	74,7	120	85,5	102,5	63,8	32,5	5,5	10,2	1,5	TK4
	FFR-HEL-5.5K-E	101,5	85	133,2	112	115	84,6	50	5,5	10,2	3,1	TK10
	FFR-HEL-7.5K-E	101,5	85	133,2	112	115	84,6	50	5,5	10,2	3,1	RK16
	FFR-HEL-11K-E	101,5	85	133,2	102	115	84,6	50	5,5	10,2	3,1	RK16
	FFR-HEL-15K-E	101,5	85,2	133,2	156	115	98,5	64	5,5	10,2	4	RK35
	FFR-HEL-18.5K-E	101,5	85,2	133,2	163	115	98,5	64	5,5	10,2	4	RK50
	FFR-HEL-22K-E	127	106,8	172	144	150	108,5	65	8,5	8,5	5,5	RK50

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Open types (IP00):



Picture 7: DC-choke, open type

Voltage type	DC-choke	A	B	C	D	Weight (kg)	Type of clamp
400V open	FFR-HEL-H45K-E	150	202	114	125	11,3	RK50
	FFR-HEL-H55K-E	150	212	134	125	14,4	RK95

Voltage type	DC-choke	A	B	C	D	Weight (kg)	Type of clamp
200V open	FFR-HEL-30K-E	150	237	94	125	8,2	RK95
	FFR-HEL-37K-E	150	237	114	125	10,7	RK95
	FFR-HEL-45K-E	150	237	114	125	10,7	RK95
	FFR-HEL-55K-E	150	237	134	125	14,4	RK95

FFR- HEL- H 18.5K- E

- └ Supplier index
- └ Power (18.5kW)
- └ "High Voltage" (400V); 200V types w/o "H"
- └ DC-choke like japanese HEL-types for big inverter
- └ Option "For Frequency inverter"

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Motor power	DC-Choke	Art.Nr.	Size	L [mH]	I [A]	Type	Inverter	Art.Nr.
200V								
0,4k	FFR-HEL-0.4K-E	238357	EI 60/21	17	2,1	drowned type IP20	FR-D720-0.4K FR-D720S-025-EC FR-E720-0.4K FR-E720S-030-EC FR-A720-0.4k	217401 214191 202362 217895 169745
0,75k	FFR-HEL-0.75K-E	238358	EI 60/21	9,7	3,6		FR-D720-0.75K FR-D720S-042-EC FR-E720-0.75K FR-E720S-050-EC FR-F720-0.75k FR-A720-0.75k	217402 214192 202363 217896 194686 169746
1,5k	FFR-HEL-1.5K-E	238359	EI 78/27	4,3	7,3		FR-D720-1.5K FR-D720S-070-EC FR-E720-1.5K FR-E720S-080-EC FR-F720-1.5k FR-A720-1.5k	217403 214193 202364 217897 194687 165014
2,2k	FFR-HEL-2.2K-E	238360	EI 78/27	3,1	10,5		FR-D720-2.2K FR-D720S-100-EC FR-E720-2.2K FR-E720S-110-EC FR-F720-2.2k FR-A720-2.2k	217404 214194 202365 217898 194688 165015
3,7k	FFR-HEL-3.7K-E	238361	EI 84/29	1,77	17		FR-A720-3.7k FR-F720-3.7k FR-E720-3.7K FR-D720-3.7K	165016 194689 202366 217415
5,5k	FFR-HEL-5.5K-E	238362	EI 96/45	1,25	25		FR-A720-5.5k FR-F720-5.5k FR-E720-5.5K FR-D720-5.5K	165017 160810 202367 217416
7,5k	FFR-HEL-7.5K-E	238363	EI 96/45	0,77	34		FR-A720-7.5K FR-F720-7.5K FR-E720-7.5K FR-D720-7.5K	169747 194690 202368 217417
11k	FFR-HEL-11K-E	238364	EI 96/45	0,6	48		FR-A720-11K FR-F720-11K FR-E720-11K	169748 194691 202369
15k	FFR-HEL-15K-E	238365	EI 96/59	0,4	64,7		FR-A720-15K FR-F720-15K FR-E720-15K	169749 194692 202370
18,5k	FFR-HEL-18.5K-E	238366	EI 96/59	0,35	80		FR-A720-18.5K FR-F720-18.5K	169750 194693
22k	FFR-HEL-22K-E	238367	EI 120/53	0,3	95		FR-A720-22K FR-F720-22K	169751 194714
30k	FFR-HEL-30K-E	238368	EI 150N/50	0,23	129	open type IP00	FR-A720-30K FR-F720-30K	169752 194715
37k	FFR-HEL-37K-E	238369	EI 150N/70	0,2	158		FR-A720-37K FR-F720-37K	169753 194716
45k	FFR-HEL-45K-E	238370	EI 150N/70	0,16	190		FR-A720-45K FR-F720-45K	169754 194717
55k	FFR-HEL-55K-E	238371	EI 150N/90	0,13	233		FR-A720-55K FR-F720-55K	169755 194718

Motor power	DC-Choke	Art.Nr.	Size	L [mH]	I [A]	Type	Inverter	Art.Nr.
400V								
0.4k	FFR-HEL-H0.4K-E	238342	EI 48/16	88	0,9	drowned type IP20	FR-A740-00023-EC FR-E740-016-EC FR-D740-012-EC	169826 211955 212414
0.75k	FFR-HEL-H0.75K-E	238343	EI 60/21	46,9	1,6		FR-A740-00038-EC FR-F740-00023-EC FR-E740-026-EC FR-D740-022-EC	169797 156569 211956 212415
1.5k	FFR-HEL-H1.5K-E	238344	EI 60/21	20,5	3,1		FR-A740-00052-EC FR-F740-00038-EC FR-E740-040-EC FR-D740-036-EC	169798 156570 211957 212416
2.2k	FFR-HEL-H2.2K-E	238345	EI78/27	14,2	4,4		FR-A740-00083-EC FR-F740-00052-EC FR-E740-060-EC FR-D740-050-EC	169799 156571 211958 212417
3.7k	FFR-HEL-H3.7K-E	238346	EI 78/27	8,81	7,1		FR-A740-00126-EC FR-F740-00083-EC FR-E740-095-EC FR-D740-080-EC	169800 156572 211959 212418
5.5k	FFR-HEL-H5.5K-E	238347	EI 84/29	4,74	10,5		FR-A740-00170-EC FR-F740-00126-EC FR-E740-120-EC FR-D740-120-EC	169801 156573 211960 212419
7.5k	FFR-HEL-H7.5K-E	238348	EI 84/43	3,55	14		FR-A740-00250-EC FR-F740-00170-EC FR-E740-170-EC FR-D740-160-EC	169802 156594 211961 212420
11k	FFR-HEL-H11K-E	238349	EI 96/45	2,58	20,5		FR-A740-00310-EC FR-F740-00250-EC FR-E740-230-EC	169803 156595 211962
15k	FFR-HEL-H15K-E	238350	EI 96/45	1,97	27,5		FR-A740-00380-EC FR-F740-00310-EC FR-E740-300-EC	169804 156596 211963
18.5k	FFR-HEL-H18.5K-E	238351	EI 96/59	1,76	34		FR-A740-00470-EC FR-F740-00380-EC	169805 156597
22k	FFR-HEL-H22K-E	238352	EI 120/53	1,35	40,5		FR-A740-00620-EC FR-F740-00470-EC	169806 156598
30k	FFR-HEL-H30K-E	238353	EI 120/53	1,06	55		FR-A740-00770-EC FR-F740-00620-EC	169807 156599
37k	FFR-HEL-H37K-E	238354	EI 120/73	1	68		FR-A740-00930-EC FR-F740-00770-EC	169808 156600
45k	FFR-HEL-H45K-E	238355	EI 150N/70	0,84	82	open type IP00	FR-A740-01160-EC FR-F740-00930-EC	169809 156601
55k	FFR-HEL-H55K-E	238356	EI 150N/90	0,68	99		FR-A740-01800-EC FR-F740-01160-EC	169810 156602