

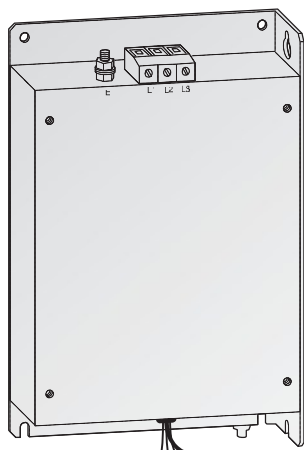
Overview of Noise Filters

No.	Frequency inverter (EC/E1/E6)	Noise filter for Environment 1 category C2 conforming 55011A	Art. no.	Noise filter for Environment 1 category C1 conforming 55022B	Art. no.
D1	FR-D720S-008-042SC	FFR-CS-050-14A-RF1	216227	FFR-CS-050-14A-RF1	216227
		FFR-CS-050-14A-RF1-LL	229801	FFR-CS-050-14A-RF1-LL	229801
D2	FR-D720S-070SC	FFR-CS-080-20A-RF1	216228	FFR-CS-080-20A-RF1	216228
		FFR-CS-080-20A-RF1-LL	229802	FFR-CS-080-20A-RF1-LL	229802
D3	FR-D720S-100SC	FFR-CS-110-26A-RF1	216229	FFR-CS-110-26A-RF1	216229
		FFR-CS-110-26A-RF1-LL	229803	FFR-CS-110-26A-RF1-LL	229803
D4	FR-D740-012-036SC	FFR-CSH-036-8A-RF1	215007	FFR-CSH-036-8A-RF1	215007
		FFR-CSH-036-8A-RF1-LL	226836	FFR-CSH-036-8A-RF1-LL	226836
D5	FR-D740-050/080SC	FFR-CSH-080-16A-RF1	215008	FFR-CSH-080-16A-RF1	215008
		FFR-CSH-080-16A-RF1-LL	226837	FFR-CSH-080-16A-RF1-LL	226837
D6	FR-D740-120/160SC	FFR-MSH-170-30A-RF1	215005	FFR-MSH-170-30A-RF1	215005
		FFR-MSH-170-30A-RF1-LL	226838	FFR-MSH-170-30A-RF1-LL	226838
		FFR-MSH-170-30A-RB1-LL	261978	FFR-MSH-170-30A-RB1-LL	261978
E1	FR-E720S-008-030SC	FFR-CS-050-14A-RF1	216227	FFR-CS-050-14A-RF1	216227
		FFR-CS-050-14A-RF1-LL	229801	FFR-CS-050-14A-RF1-LL	229801
E2	FR-E720S-050/080SC	FFR-CS-080-20A-RF1	216228	FFR-CS-080-20A-RF1	216228
		FFR-CS-080-20A-RF1-LL	229802	FFR-CS-080-20A-RF1-LL	229802
E3	FR-E720S-110SC	FFR-CS-110-26A-RF1	216229	FFR-CS-110-26A-RF1	216229
		FFR-CS-110-26A-RF1-LL	229803	FFR-CS-110-26A-RF1-LL	229803
E4	FR-E740-016-040SC	FFR-MSH-040-8A-RF1	214953	FFR-MSH-040-8A-RF1	214953
E5	FR-E740-060/095SC	FFR-MSH-095-16A-RF1	215004	FFR-MSH-095-16A-RF1	215004
		FFR-MSH-170-30A-RF1	215005	FFR-MSH-170-30A-RF1	215005
		FFR-MSH-170-30A-RF1-LL	226838	FFR-MSH-170-30A-RF1-LL	226838
E6	FR-E740-120/170SC	FFR-MSH-170-30A-RB1-LL	261978	FFR-MSH-170-30A-RB1-LL	261978
		FFR-MSH-300-50A-RF1	215006	FFR-MSH-300-50A-RF1	215006
		FFR-BS-00126-18A-SF100	193677	FFR-BS-00126-18A-SF100	193677
AF1	FR-A/F740-00023-00126	FFR-BS-00250-30A-SF100	193678	FFR-BS-00250-30A-SF100	193678
AF2	FR-A/F740-00170-00250	FFR-BS-00380-55A-SF100	193679	FFR-BS-00380-55A-SF100	193679
AF3	FR-A/F740-00310-00380	FFR-BS-00620-75A-SF100	193680	FFR-BS-00620-75A-SF100	193680
AF4	FR-A/F740-00470-00620	FFR-BS-00770-95A-SF100	193681	FFR-BS-00770-95A-SF100	193681
AF5	FR-A/F740-00770	FFR-BS-00930-120A-SF100	193682	FFR-BS-00930-120A-SF100	193682
AF6	FR-A/F740-00930	FFR-BS-01800-180A-SF100	193683	FFR-BS-01800-180A-SF100	193683
AF7	FR-A/F740-01160-01800	FN3359-250-28	104663		
AF8	FR-A/F740-02160-02600	FN3359-400-99	104664		
AF9	FR-A/F740-03250-04320	FN3359-600-99	104665		
AF10	FR-A/F740-04810-06100	FN3359-1000-99	104666		
AF11	FR-A/F740-06830-09620				
AF12	FR-A/F740-10940-12120				
F1	FR-F746-00023-00126	FFR-AF-IP54-21A-SM2	201551	FFR-AF-IP54-21A-SM2	201551
F2	FR-F746-00170-00250	FFR-AF-IP54-44A-SM2	201552	FFR-AF-IP54-44A-SM2	201552
F3	FR-F746-00310-00380	FFR-AF-IP54-62A-SM2	201553	FFR-AF-IP54-62A-SM2	201553
F4	FR-F746-00470-00620	FFR-AF-IP54-98A-SM2	201704	FFR-AF-IP54-98A-SM2	201704
F5	FR-F746-00770	FFR-AF-IP54-117A-SM2	201705	FFR-AF-IP54-117A-SM2	201705
F6	FR-F746-00930-01160	FFR-AF-IP54-172A-SM2	201706	FFR-AF-IP54-172A-SM2	201706
A1	FR-A741-5.5K/7.5K	FFR-RS-7.5K-27A-EF100	227840	FFR-RS-7.5K-27A-EF100	227840
A2	FR-A741-11K/15K	FFR-RS-15K-45A-EF100	227841	FFR-RS-15K-45A-EF100	227841
A3	FR-A741-18.5K/22K	FFR-RS-22K-65A-EF100	227842	FFR-RS-22K-65A-EF100	227842
A4	FR-A741-30K/37K/45K	FFR-RS-45K-127A-EF100	227843	FFR-RS-45K-127A-EF100	227843
A5	FR-A741-55K	FFR-RS-55K-159A-EF100	227844	FFR-RS-55K-159A-EF100	227844
A6	FR-A770-355K-79	FFR-VBS-690V-600A-RB100	269407	FFR-VBS-690V-600A-RB100	269407
A7	FR-A770-560K-79	FFR-VBS-690V-800A-RB100	269406	FFR-VBS-690V-800A-RB100	269406

Remark:

The frequency inverters of the FR-F740/FR-F746/FR-A740 series are equipped with a built-in EMC filter for industrial environment (2nd environment). The filters shown in the table above are required for special cases only.

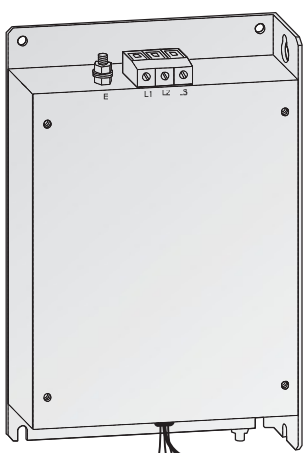
■ Noise Filters for FR-D700 SC



Filter	Frequency inverter	Power loss [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-CS-050-14A-RF1	FR-D720S-008-042SC	9	14	< 30	0.4	216227
FFR-CS-050-14A-RF1-LL	FR-D720S-008-042SC	9	14	< 3.5	0.4	229801
FFR-CS-080-20A-RF1	FR-D720S-070SC	13	20	< 30	0.6	216228
FFR-CS-080-20A-RF1-LL	FR-D720S-070SC	13	20	< 3.5	0.6	229802
FFR-CS-110-26A-RF1	FR-D720S-100SC	18	26	< 30	0.8	216229
FFR-CS-110-26A-RF1-LL	FR-D720S-100SC	18	26	< 3.5	0.8	229803
FFR-CSH-036-8A-RF1	FR-D740-012-036SC	6	8	< 30	0.9	215007
FFR-CSH-036-8A-RF1-LL	FR-D740-012-036SC	6	8	< 3.5	0.9	226836
FFR-CSH-080-16A-RF1	FR-D740-050/080SC	14	16	< 30	1.9	215008
FFR-CSH-080-16A-RF1-LL	FR-D740-050/080SC	14	16	< 3.5	1.9	226837
FFR-MSH-170-30A-RF1	FR-D740-120/160SC	42	30	< 30	2.0	215005
FFR-MSH-170-30A-RF1-LL	FR-D740-120/160SC	42	30	< 3.5	2.0	226838
FFR-MSH-170-30A-RB1-LL	FR-D740-120/160SC	42	30	< 3.5	2.0	261978

The filters can provide conformity with following limits: C1 up to 25 m (LL types C1 up to 20 m), C2 up to 100 m

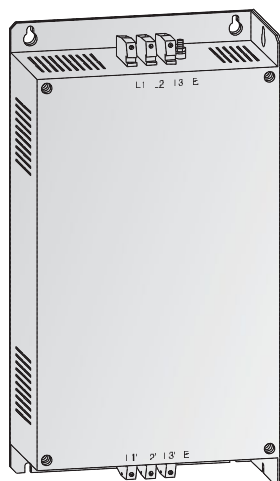
■ Noise Filters for FR-E700 SC



Filter	Frequency inverter	Power loss [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-CS-050-14A-RF1	FR-E720S-008-030SC	9	14	< 30	0.4	216227
FFR-CS-050-14A-RF1-LL	FR-E720S-008-030SC	9	14	< 3.5	0.4	229801
FFR-CS-080-20A-RF1	FR-E720S-050/080SC	13	20	< 30	0.6	216228
FFR-CS-080-20A-RF1-LL	FR-E720S-050/080SC	13	20	< 3.5	0.6	229802
FFR-CS-110-26A-RF1	FR-E720S-110SC	18	26	< 30	0.8	216229
FFR-CS-110-26A-RF1-LL	FR-E720S-110SC	18	26	< 3.5	0.8	229803
FFR-MSH-040-8A-RF1	FR-E740-016-040SC	17	8	< 30	1.1	214953
FFR-MSH-095-16A-RF1	FR-E740-060/095SC	26	16	< 30	1.2	215004
FFR-MSH-170-30A-RF1	FR-E740-120/170SC	42	30	< 30	2.0	215005
FFR-MSH-170-30A-RF1-LL	FR-E740-120/170SC	42	30	< 3.5	2.0	226838
FFR-MSH-170-30A-RB1-LL	FR-E740-120/170SC	42	30	< 3.5	2.0	261978
FFR-MSH-300-50A-RF1	FR-E740-230/300SC	26	50	< 30	2.8	215006

The filters can provide conformity with following limits: C1 up to 25 m (LL types C1 up to 20 m), C2 up to 100 m

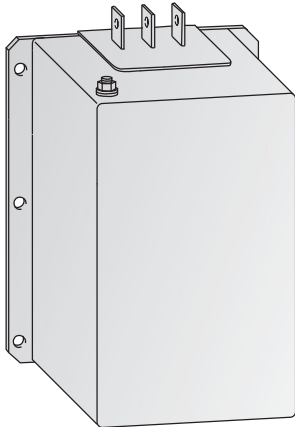
■ Noise Filters for FR-A/F740-00023 to -01800



Filter	Frequency inverter	Power loss [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-BS-00126-18A-SF100	FR-A/F740-00023-00126	11.5	18	< 30	1.25	193677
FFR-BS-00250-30A-SF100	FR-A/F740-00170/00250	15.8	30	< 30	1.8	193678
FFR-BS-00380-55A-SF100	FR-A/F740-00310/00380	27.1	55	< 30	2.42	193679
FFR-BS-00620-75A-SF100	FR-A/F740-00470/00620	43.9	75	< 30	4.25	193680
FFR-BS-00770-95A-SF100	FR-A/F740-00770	45.8	95	< 30	6.7	193681
FFR-BS-00930-120A-SF100	FR-A/F740-00930	44.9	120	< 30	10.0	193682
FFR-BS-01800-180A-SF100	FR-A/F740-01160/01800	60.7	180	< 30	12.0	193683

The filters can provide conformity with following limits: C1 up to 20 m, C2 up to 100 m, C3 up to 100 m
These filters are UL/CUL certified.

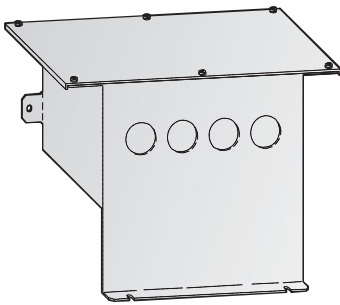
Noise Filters for FR-A/F740-02160–12120



Filter	Frequency inverter	Power loss [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FN 3359-250-28	FR-A/F740-02160/02600	38	250	< 6	7	104663
FN 3359-400-99	FR-A/F740-03250–04320	51	400	< 6	10.5	104664
FN 3359-600-99	FR-A/F740-04810–06100	65	600	< 6	11	104665
FN 3359-1000-99	FR-A/F740-06830–09620	84	1000	< 6	18	104666
FN 3359-1600-99	FR-A/F740-10940/12120	130	1600	< 6	27	130229

The filters can provide conformity with following limits: C2 up to 100 m, C4 up to 100 m

Noise Filters for FR-F746-00023–01160



Noise Filters conforming to EN 61800-3

The noise filters listed below make it possible to comply with the requirements for Environment 1 (unrestricted distribution) with shielded motor cables up to 20 m long and the requirements of Environment 1 (restricted distribution) with shielded motor cables up to 100 m long. This also provides compliance with the 100 A limits for Environment 2 with shielded cables up to 100 m long.

They meet the emission requirements of EN 61800-3, Category C1 and EN 55011.

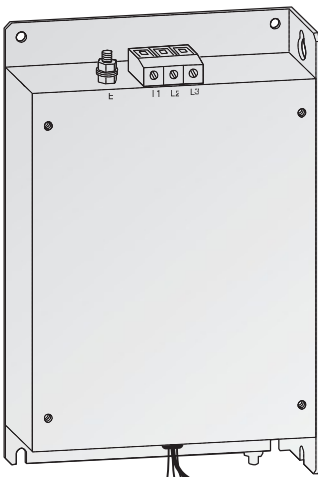
The frequency inverters of the FR-F746 series are fitted with an integrated EMC noise filter for industrial environments (Environment 2). They meet the emission requirements of EN 61800-3.

Filter	Frequency inverter	Power loss ① [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-AF-IP54-21A-SM2	FR-F746-00023–00126	9.26	21	< 30	3.2	201551
FFR-AF-IP54-44A-SM2	FR-F746-00170–00250	20.3	44	< 30	4.4	201552
FFR-AF-IP54-62A-SM2	FR-F746-00310–00380	23	62	< 30	5.4	201553
FFR-AF-IP54-98A-SM2	FR-F746-00470–00620	51.8	98	< 30	7.7	201704
FFR-AF-IP54-117A-SM2	FR-F746-00770	61.6	117	< 30	10.6	201705
FFR-AF-IP54-172A-SM2	FR-F746-00930–01160	128.7	172	< 30	16	201706

① Power dissipation at 20 °C and rated current with copper cables

The filters can provide conformity with following limits: C1 up to 20 m, C2 up to 100 m, C3 up to 100 m

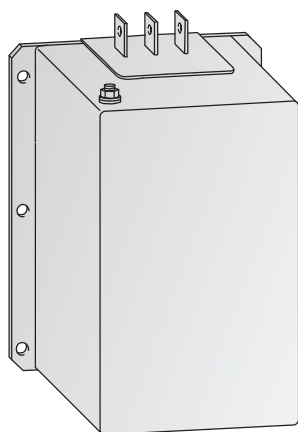
Noise Filters for FR-A741-5.5K–55K



Filter	Frequency inverter	Power loss [W]	Rated current [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-RS-7.5k-27A-EF100	FR-A741-5.5K–7.5K	12	27	6.8	6	227840
FFR-RS-15k-45A-EF100	FR-A741-11K–15K	25	45	6.8	8.5	227841
FFR-RS-22k-65A-EF100	FR-A741-18.5K–22K	37	65	12.2	13	227842
FFR-RS-45k-127A-EF100	FR-A741-30K–45K	64	127	15.9	18	227843
FFR-RS-55k-159A-EF100	FR-A741-55K	73	159	15.9	28	227844

The filters can provide conformity with following limits: C1 up to 20 m, C2 up to 100 m.

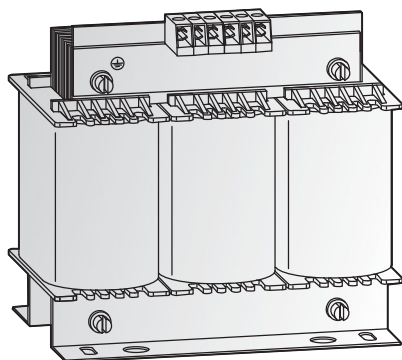
Noise Filters for FR-A770-355K/560K-79



Filter	Frequency inverter	Power loss [W]	Nennstrom [A]	Leakage current [mA]	Weight [kg]	Art. no.
FFR-VBS-690V-600A-RB100	FR-A770-355K-79	66	600	10 (300 max.)	14	269407
FFR-VBS-690V-800A-RB100	FR-A770-560K-79	160	800	10 (300 max.)	16	269406

The filters can provide conformity with following limits: C2 up to 100 m, C4 up to 100 m.

du/dt Filters for FR-D700 SC/E700 SC/F700/A700



du/dt Filter

The du/dt output filter efficiently reduces the voltage rise time, motor heat

generation, insulation stressing and motor noise generation.

du/dt Filter	Frequency inverter	Power loss [W]	Rated current [A]	Weight [kg]	Dimensions (WxHxD)	Art. no.
FFR-DT-10A-SS1	FR-D720S-008-070SC FR-D740-012-080SC FR-E720S-008-080SC FR-E740-016-060SC FR-A/F740-00023-00083 ^①	25	10	1.2	125x65x120	209755
FFR-DT-25A-SS1	FR-D720S-100SC FR-D740-120/160SC FR-E720S-110SC FR-E740-095-170SC FR-A/F740-00126-00250 ^① FR-A741-5.5K/7.5K	45	25	2.5	125x80x140	209756
FFR-DT-47A-SS1	FR-E740-230/300SC FR-A/F740-00310-00470 ^① FR-A741-11K-18.5K	60	47	6.1	155x110x195	209757
FFR-DT-93A-SS1	FR-A/F740-00620-00930 ^① FR-A741-22K-37K	75	93	7.4	190x100x240	209758
FFR-DT-124A-SS1	FR-A740-01160/01800 ^① FR-F740-01160 FR-A741-45K/55K	110	124	8.2	190x150x170	209759
FFR-DT-182A-SS1	FR-A740-02160 ^① FR-F740-01800	140	182	16	210x160x185	209760
FFR-DT-330A-SS1	FR-A740-02600-03610 ^① FR-F740-02160-03250	240	330	32	240x240x220	209761
FFR-DT-500A-SS1	FR-A740-04320-05470 ^① FR-F740-03610-04810	340	500	35	240x220x325	209762
FFR-DT-610A-SS1	FR-A740-06100 ^① FR-F740-05470/06100	380	610	37	240x230x325	209763
FFR-DT-683A-SS1	FR-A740-06830/07700 ^① FR-F740-06830	410	683	38	240x230x325	209764
FFR-DT-790A-SS1	FR-A740-08660 ^① FR-F740-07700	590	790	43	300x218x355	209765
FFR-DT-1100A-SS1	FR-A740-09620-12120 ^① FR-F740-08660-10940	760	1100	66	360x250x380	209766
FFR-DT-1500A-SS1	FR-F740-12120	②	1500	97 ^②	360x265x485	209767
FFR-DT-1920A-SS1	②	1000	1920	105 ^②	360x260x595	209768

① For FR-A700: Suitable for 200 % overload (ND). If the overload is lower (higher rated current) please use a filter one size higher.

② Under review, may be subject to change