

Harmonic Filter
HFM-FB



General Data

Rated voltage 3 x 400 - 3 x 480 Vac
Rated current 3 x 10.00 - 3 x 433.00 A
THD-I 5 % in rated operation
Load rated capacity 5 - 250 kW
Insulation class F
Ambient temperature -10 °C to +40 °C
Degree of protection IP 00
SCCR 100 kA (without preliminary fuse)

Advantages

Sinusoidal current consumption from the mains in devices with uncontrolled B6U diode rectifiers or controlled B6C thyristor bridges
Compliance with EN 61000-3-2, EN 61000-3-12
Support in the compliance with IEEE 519, D-A-CH-CZ
Cos(phi)>0.95 at rated current
Hardly any intermediate circuit voltage dip by comparison with a 4 % uK line reactor
Use of the HFM as a central hum filter for multiple converters possible

Applications

Harmonic filter module to ensure sinusoidal mains currents, reduction of mains harmonic currents, increase in system service life and system reliability and compliance with power quality standards such as IEEE 519, TEC 61000-3-2, IEC 61000-3-12.

Standards

Harmonic filter in accordance with
EN 61558 Part 1, EN 61558 Part 20, UL 508 17th Ed., CSA 22.2 No. 14-10

Certifications

UL 506, CSA 22.2



Harmonic Filter HFM-FB

Electrical data	Type	HFM-FB 7-400	HFM-FB 8-460	HFM-FB 13-400	HFM-FB 15-460	HFM-FB 18-400	HFM-FB 21-460
	Operating data						
	Rated voltage	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac
	Rated current	3 x 10.00 A	3 x 10.00 A	3 x 19.00 A	3 x 19.00 A	3 x 26.00 A	3 x 26.00 A
	Voltage range	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac
	Rated frequency	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
	THD-I	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)
	Rated load power*	5.0 kW	5.5 kW	7.5 kW	11.0 kW	11.0 kW	15.0 kW
	Description of the load	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter
	Overtopping Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Efficiency	99 %	99 %	99 %	99 %	99 %	99 %
	Approvals	cURus	cURus	cURus	cURus	cURus	cURus
	Environment						
	Ambient temperature	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation
	MTBF @ 50°C/500 V (Mil-HB-217F)	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h
	Safety and protection						
	Type	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure
	Class of Insulation System	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155
	Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
	Safety class	I	I	I	I	I	I
	SCCR**	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
	Notes						
	*	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed
	**	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse
	Order numbers						
	Order Number	HFM-FB 7-400	HFM-FB 8-460	HFM-FB 13-400	HFM-FB 15-460	HFM-FB 18-400	HFM-FB 21-460

LINE-SIDE SUPPRESSION/ HARMONIC FILTERS



Harmonic Filter HFM-FB

Electrical data	Type	HFM-FB 24-400	HFM-FB 28-460	HFM-FB 30-400	HFM-FB 34-460	HFM-FB 50-400	HFM-FB 57-460
	Operating data						
	Rated voltage	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac
	Rated current	3 x 35.00 A	3 x 35.00 A	3 x 43.00 A	3 x 43.00 A	3 x 72.00 A	3 x 72.00 A
	Voltage range	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac
	Rated frequency	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
	THD-I	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)
	Rated load power*	15.0 and 18.5 kW	22.0 kW	22.0 kW	30.0 kW	30.0 and 37.0 kW	345.0 kW
	Description of the load	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter
	Overtating Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Efficiency	99 %	99 %	99 %	99 %	99 %	99 %
Approvals							
	Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment							
	Ambient temperature	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation
	MTBF @ 50°C/500 V (MIL-HB-217F)	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h
Safety and protection							
	Type	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure
	Class of Insulation System	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155
	Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
	Safety class	I	I	I	I	I	I
	SCCR**	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
Notes							
	*	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed
	**	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse
Order numbers							
	Order Number	HFM-FB 24-400	HFM-FB 28-460	HFM-FB 30-400	HFM-FB 34-460	HFM-FB 50-400	HFM-FB 57-460



Harmonic Filter HFM-FB

Electrical data	Type	HFM-FB 70-400	HFM-FB 80-460	HFM-FB 100-400	HFM-FB 115-460	HFM-FB 125-400	HFM-FB 145-460
	Operating data						
	Rated voltage	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 460 Vac
	Rated current	3 x 101.00 A	3 x 101.00 A	3 x 144.00 A	3 x 144.00 A	3 x 180.00 A	3 x 180.00 A
	Voltage range	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	460 - 500 Vac
	Rated frequency	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
	THD-I	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)
	Rated load power*	55.0 kW	55.0 kW	75.0 kW	90.0 kW	90.0 kW	110.0 kW
	Description of the load	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter
	Overtopping Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Efficiency	99 %	99 %	99 %	99 %	99 %	99 %
Approvals							
	Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment							
	Ambient temperature	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation
	MTBF @ 50°C/500 V (Mil-HB-217F)	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h
Safety and protection							
	Type	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure
	Class of Insulation System	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155
	Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
	Safety class	I	I	I	I	I	I
	SCCR**	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
Notes							
	*	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed
	**	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse
Order numbers							
	Order Number	HFM-FB 70-400	HFM-FB 80-460	HFM-FB 100-400	HFM-FB 115-460	HFM-FB 125-400	HFM-FB 145-460

LINE-SIDE SUPPRESSION/ HARMONIC FILTERS



Harmonic Filter HFM-FB

Electrical data	Type	HFM-FB 150-400	HFM-FB 175-460	HFM-FB 200-400	HFM-FB 225-400	HFM-FB 230-460	HFM-FB 255-400
	Operating data						
	Rated voltage	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac	3 x 400 Vac	3 x 460 Vac	3 x 400 Vac
	Rated current	3 x 217.00 A	3 x 217.00 A	3 x 289.00 A	3 x 325.00 A	3 x 289.00 A	3 x 370.00 A
	Voltage range	380 - 440 Vac	460 - 500 Vac	380 - 440 Vac	380 - 440 Vac	380 - 440 Vac	380 - 420 Vac
	Rated frequency	50 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz
	THD-I	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)
	Rated load power*	110.0 kW	132.0 kW	160.0 kW	180.0 kW	160.0 kW	200.0 kW
	Description of the load	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter
	Oversizing Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Efficiency	99 %	99 %	99 %	99 %	99 %	99 %
Approvals							
Approvals		cURus	cURus	cURus	cURus	cURus	cURus
Environment							
Ambient temperature		-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation
MTBF @ 50°C/500 V (MIL-HB-217F)		>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h	>200.000 h
Safety and protection							
Type		Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure	Metal enclosure
Class of Insulation System		IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155
Protection index		IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class		I	I	I	I	I	I
SCCR**		100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
Notes							
*		IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed
**		with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse
Order numbers							
Order Number		HFM-FB 150-400	HFM-FB 175-460	HFM-FB 200-400	HFM-FB 225-400	HFM-FB 230-460	HFM-FB 255-400



Harmonic Filter HFM-FB

Electrical data	Type	HFM-FB 260-460	HFM-FB 295-460	HFM-FB 300-400
	Operating data			
	Rated voltage	3 x 460 Vac	3 x 460 Vac	3 x 400 Vac
	Rated current	3 x 325,00 A	3 x 370,00 A	3 x 433,00 A
	Voltage range	460 - 500 Vac	460 - 500 Vac	380 - 420 Vac
	Rated frequency	60 Hz	60 Hz	50 Hz
	THD-I	5 % (nominal load)	5 % (nominal load)	5 % (nominal load)
	Rated load power*	230.0 kW	260.0 kW	250.0 kW
	Description of the load	Balanced load by inverter	Balanced load by inverter	Balanced load by inverter
	Overtating Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Efficiency	99 %	99 %	99 %
	Approvals	cURus	cURus	cURus
	Environment			
	Ambient temperature	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation	-10 °C to +40 °C, without condensation
	MTBF @ 50°C/500 V (Mil-HB-217F)	>200.000 h	>200.000 h	>200.000 h
	Safety and protection			
	Type	Metal enclosure	Metal enclosure	Metal enclosure
	Class of Insulation System	IEC=F, UL=class 155	IEC=F, UL=class 155	IEC=F, UL=class 155
	Protection index	IP 00	IP 00	IP 00
	Safety class	I	I	I
	SCCR**	100 kA	100 kA	100 kA
	Notes			
	*	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed
	**	with corresponding preliminary fuse	with corresponding preliminary fuse	with corresponding preliminary fuse
	Order numbers			
	Order Number	HFM-FB 260-460	HFM-FB 295-460	HFM-FB 300-400

3.1

3.2

3.3

3.4

3.5



Harmonic Filter HFM-FB

Typ	Connections phase/N	Connections PE	Fixing method	Weight	Dimension picture (in mm)													
						A	B	C	D	E	F1	F2	F3	G	H			
HFM-FB 7-400	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	27.00 kg	1	455	165	242	440	-	416	-	-	135	6.5			
HFM-FB 8-460	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	27.00 kg	1	455	165	242	440	-	416	-	-	135	6.5			
HFM-FB 13-400	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	28.00 kg	1	455	165	242	440	-	416	-	-	135	6.5			
HFM-FB 15-460	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	28.00 kg	1	455	165	242	440	-	416	-	-	135	6.5			
HFM-FB 18-400	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	40.00 kg	2	645	302	225	600	365.5	532.5	-	-	333.5	11			
HFM-FB 21-460	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	41.00 kg	2	645	302	225	600	365.5	532.5	-	-	333.5	11			
HFM-FB 24-400	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	49.00 kg	2	645	302	225	600	356.5	532.5	-	-	333.5	11			
HFM-FB 28-460	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	49.00 kg	2	645	302	225	600	356.5	532.5	-	-	333.5	11			
HFM-FB 30-400	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	52.00 kg	2	885	302	225	840	356.5	772.5	-	-	333.5	11			
HFM-FB 34-460	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	56.00 kg	2	885	302	225	840	356.5	772.5	-	-	333.5	11			
HFM-FB 50-400	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	88.00 kg	2	885	302	225	840	356.5	772.5	-	-	333.5	11			
HFM-FB 57-460	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	80.00 kg	2	885	302	225	840	356.5	772.5	-	-	333.5	11			
HFM-FB 70-400	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	150.00 kg	3	1060	345	400	830	393	377	395	-	370	11			
HFM-FB 80-460	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	98.00 kg	3	1060	345	400	830	393	377	395	-	370	11			
HFM-FB 100-400	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	167.00 kg	3	1060	345	400	830	393	377	395	-	370	11			
HFM-FB 115-460	Screw clamp, 50 mm ²	Bolt, M8	Mounting lugs	130.00 kg	3	1060	345	400	830	393	377	395	-	370	11			
HFM-FB 125-400	Screw clamp, 150 mm ²	Bolt, M8	Mounting lugs	178.00 kg	3	1160	406	420	900	454	430	412	-	430	11			
HFM-FB 145-460	Screw clamp, 150 mm ²	Bolt, M8	Mounting lugs	151.00 kg	3	1160	406	420	900	454	430	412	-	430	11			
HFM-FB 150-400	Screw clamp, 150 mm ²	Bolt, M8	Mounting lugs	224.00 kg	3	1160	406	420	900	454	430	412	-	430	11			
HFM-FB 175-460	Screw clamp, 150 mm ²	Bolt, M8	Mounting lugs	171.00 kg	3	1160	406	420	900	454	430	412	-	430	11			
HFM-FB 200-400	Screw clamp, 16 mm ²	Bolt, M8	Mounting lugs	271.00 kg	3	1330	406	420	1070	454	515	497	-	430	11			
HFM-FB 225-400	Screw clamp, 240 mm ²	Bolt, M8	Mounting lugs	284.00 kg	3	1330	406	420	1070	454	515	497	-	430	11			
HFM-FB 230-460	Screw clamp, 240 mm ²	Bolt, M8	Mounting lugs	215.00 kg	3	1330	406	420	1070	454	515	497	-	430	11			
HFM-FB 255-400	Screw clamp, 240 mm ²	Bolt, M8	Mounting lugs	310.00 kg	4	1350	470	420	1100	530	355	355	355	505	11			
HFM-FB 260-460	Screw clamp, 240 mm ²	Bolt, M8	Mounting lugs	240.00 kg	4	1350	470	420	1100	530	355	355	355	505	11			
HFM-FB 295-460	Screw clamp, 240 mm ²	Bolt, M8	Mounting lugs	285.00 kg	4	1350	470	420	1100	530	355	355	355	505	11			
HFM-FB 300-400	Screw clamp, 300 mm ²	Bolt, M8	Mounting lugs	387.00 kg	4	1350	470	420	1100	530	355	355	355	505	11			

Dimension pictures

