

Harmonic filter **HF1K 400**



General Data

Rated voltage 3 x 400 Vac
Rated current 3 x 10 - 3 x 144 A
THD-I <8 % in rated operation
Load rated capacity 5.5 - 90 kW
Insulation class H
Ambient temperature -10 °C to +45 °C
Degree of protection IP 00

Advantages

Sinusoidal current consumption from the main in devices with uncontrolled B6U diode rectifiers
Compliance with EN 61000-3-2, EN 61000-3-12
Support in the compliance with IEEE 519, D-A-CH-CZ
$\text{Cos}(\phi) > 0,95$ at rated current
Hardly any intermediate circuit voltage dip by comparison with a 4 % uK line reactor
Harmonic filter with minimum capacitive idle reactive power
Very good corrosion protection and low noise thanks to vacuum impregnation
Operation at 50 - 60 Hz possible
Use of the HF1K as a central sum filter for multiple converters possible

Applications

Harmonic filter module to ensure sinusoidal main currents, reduction of main 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

Approvals



UL 506, CSA 22.2



Harmonic filter HF1K 400

Typ	HF1K 7-400	HF1K 13-400	HF1K 18-400	HF1K 24-400	HF1K 30-400	HF1K 50-400
Electrical data						
Operating data						
Rated voltage	3 x 400 Vac	3 x 400 Vac	3 x 400 Vac	3 x 400 Vac	3 x 400 Vac	3 x 400 Vac
Voltage range	360-440 Vac	360-440 Vac	360-440 Vac	360-440 Vac	360-440 Vac	360-440 Vac
Rated current	3 x 10 A	3 x 19 A	3 x 26 A	3 x 35 A	3 x 43 A	3 x 72 A
THD-I	8 % (nominal load)	8 % (nominal load)	8 % (nominal load)	8 % (nominal load)	8 % (nominal load)	8 % (nominal load)
Rated load power*	5.5 kW	11 kW	15 kW	20 kW	26 kW	45 kW
Description of the load	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers
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.
Power loss	90.0 W	160.0 W	180.0 W	230.0 W	290.0 W	412.0 W
Efficiency	99.0 %	99.0 %	99.0 %	99.0 %	99.0 %	99.0 %
Capacitive idle power	1.7 kVAr	1.8 kVAr	2.9 kVAr	3.8 kVAr	4.9 kVAr	10.0 kVAr
Input						
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Approvals						
Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment						
Ambient temperature	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation
Type of cooling	AN	AN	AN	AN	AN	AN
MTBF @ 50 °C/500 V (Mil-HB-217F)	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac
Safety and protection						
Type	Open type	Open type	Open type	Open type	Open type	Open type
Insulation class	H	H	H	H	H	H
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class	I	I	I	I	I	I
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
Order numbers						
Order Number	HF1K 7-400	HF1K 13-400	HF1K 18-400	HF1K 24-400	HF1K 30-400	HF1K 50-400

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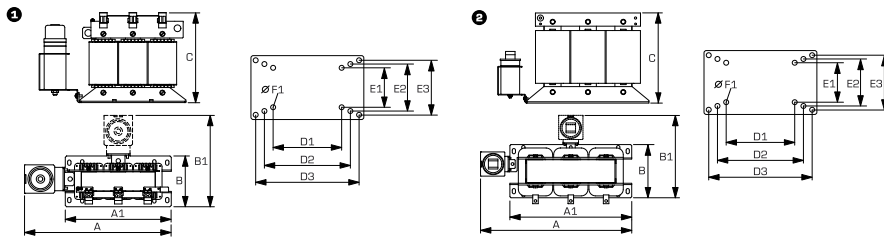
Typ		HF1K 70-400	HF1K 100-400
Electrical data	Operating data		
	Rated voltage	3 x 400 Vac	3 x 400 Vac
	Voltage range	360-440 Vac	360-440 Vac
	Rated current	3 x 101 A	3 x 144 A
	THD-I	8 % (nominal load)	8 % (nominal load)
	Rated load power*	63 kW	90 kW
	Description of the load	Symmetrical loading by converters with B6U input rectifiers	Symmetrical loading by converters with B6U input rectifiers
	Overtopping Capacity	150 % for 60 sec. every 10 min.	150 % for 60 sec. every 10 min.
	Power loss	550.0 W	750.0 W
	Efficiency	99.0 %	99.0 %
	Capacitive idle power	13.5 kVAr	19.0 kVAr
	Input		
	Rated frequency	50 - 60 Hz	50 - 60 Hz
	Approvals		
	Approvals	cURus	cURus
	Environment		
Ambient temperature	-10 °C to +45 °C, without condensation	-10 °C to +45 °C, without condensation	
Type of cooling	AN	AN	
MTBF @ 50 °C/500 V (Mil-HB-217F)	>500.000 h @ 40°C/400Vac	>500.000 h @ 40°C/400Vac	
Safety and protection			
Type	Open type	Open type	
Insulation class	H	H	
Protection index	IP 00	IP 00	
Safety class	I	I	
Notes			
*	IE2 efficiencies of the motors and an efficiency >96 % assumed	IE2 efficiencies of the motors and an efficiency >96 % assumed	
Order numbers			
Order Number	HF1K 70-400	HF1K 100-400	



Harmonic filter
HF1K 400

Typ	Terminals phase	Terminals PE	Fixing method	Weight	Dimension picture (in mm)														
						A	A1	B	B1	C	D1	D2	D3	E1	E2	E3	F1		
HF1K 7-400	Screw clamp, 10 mm ²	Bolt, M6	Mounting lugs	14.0 kg	1	375	260	121	236	235	175	225	-	85	84	-	7		
HF1K 13-400	Screw clamp, 10 mm ²	Bolt, M6	Mounting lugs	28.0 kg	1	440	325	160	275	275	200	215	292	90	114	112	10		
HF1K 18-400	Screw clamp, 10 mm ²	Bolt, M6	Mounting lugs	31.0 kg	1	440	325	170	285	275	200	215	292	102	126	124	10		
HF1K 24-400	Screw clamp, 10 mm ²	Bolt, M6	Mounting lugs	36.2 kg	1	485	360	165	290	315	224	240	328	107	133	117	10		
HF1K 30-400	Screw clamp, 10 mm ²	Bolt, M6	Mounting lugs	59.1 kg	1	545	420	165	290	355	264	310	388	125	125	115	10		
HF1K 50-400	Copper tab, M10 bolt	Bolt, M6	Mounting lugs	75.5 kg	2	545	420	195	320	315	264	310	388	155	155	145	10		
HF1K 70-400	Copper tab, M12 bolt	Bolt, M8	Mounting lugs	125.0 kg	2	685	560	223	348	420	356	430	516	156	182	154	14.5		
HF1K 100-400	Copper tab, M12 bolt	Bolt, M8	Mounting lugs	163.0 kg	2	685	560	250	375	430	356	430	516	184	210	182	14.5		

Dimension pictures



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