BTB Electric

CATALOGUE

BTB Electric is the leading company specializing in providing power quality solutions for utility and industry customers to ensure efficient and reliable operation of electrical systems. The company's broad range of products includes Active Harmonic Filter, Capacitor banks, Reactor and many other customized solutions

Common symptoms due to poor power quality

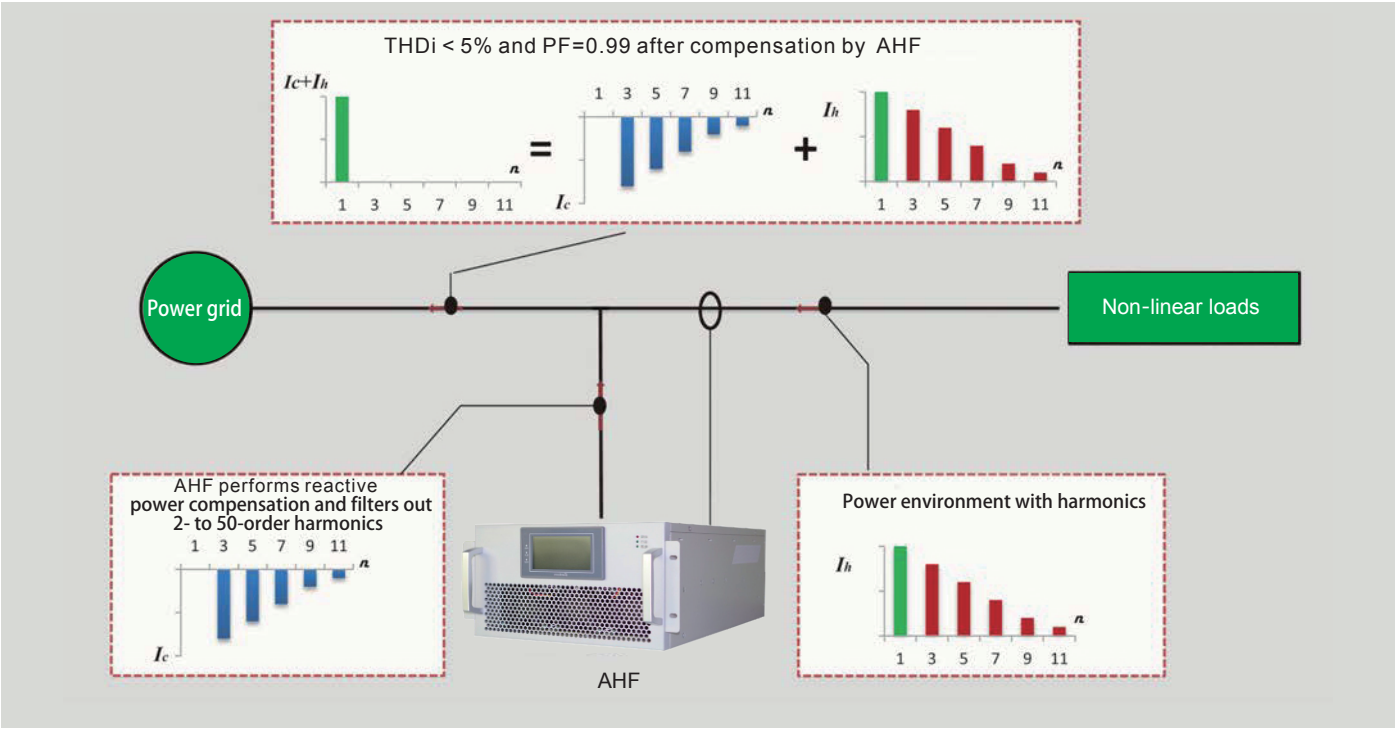
Benefits of improving power quality with Active Harmonic Filter (AHF)

AHF connected in parallel to the low-voltage side of the power grid to improve the power quality. Featuring smart control, high efficiency, rapid dynamic response, and stable and reliable operation, they eliminate the complicated power quality problems and make it possible to achieve perfect power quality.

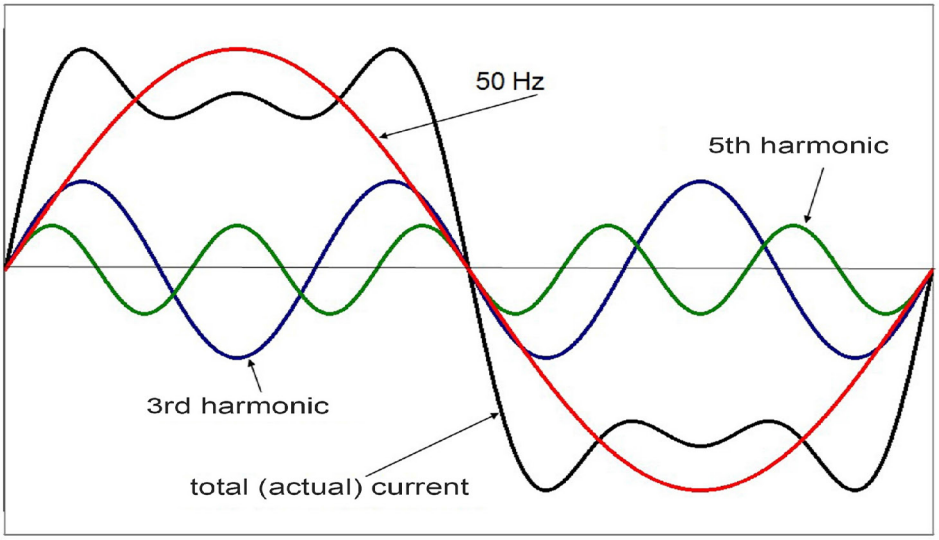
- Improve the power supply quality and reliability of enterprises' equipment, and reduce economic loss due to mal-operation of the equipment.
- Reduce the heating of power equipment and aging of insulation, thereby increasing the service life and reducing the maintenance cost of the equipment.
- Lower the harmonic probability of compensation capacitor, thereby improving the security of power consumption. Moreover, reduce the impact of harmonics on system signals, thereby improving the system reliability.
- Reduce the heating of equipment such as motors and the data error rate of the computer system.
- Reduce electromagnetic interference generated by harmonics, thereby ensuring normal operation of the weak-current system.
- Meet national and local standards.

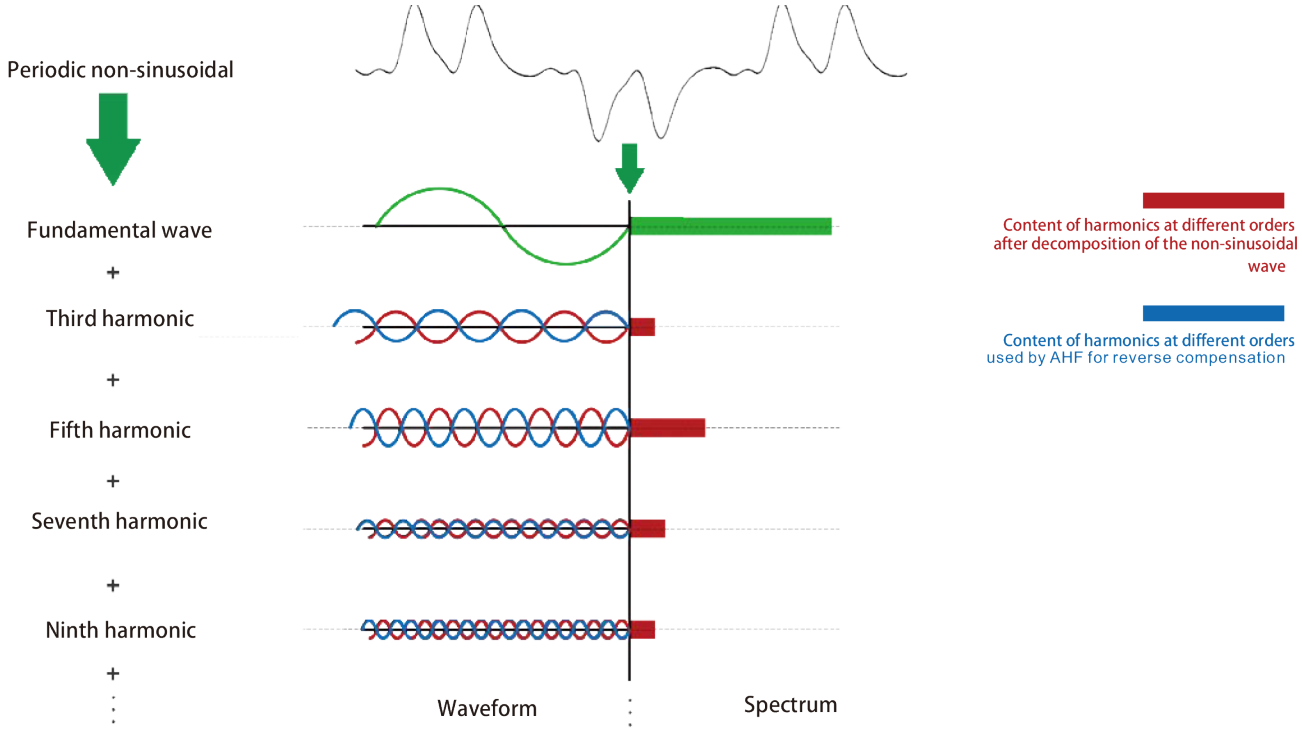
AHF Operating Principle

AHF checks the load current in real time through the external CT, performs computing through the internal DSP, and then extracts the harmonic components of the load current. After that, it sends the harmonic components to the internal IGBT through PWM signals to control the inverter to generate a current with a power equal to that of the harmonic and a direction reverse to that of the harmonic. Then, it injects the current into the compensation harmonic current to implement the filtering function.

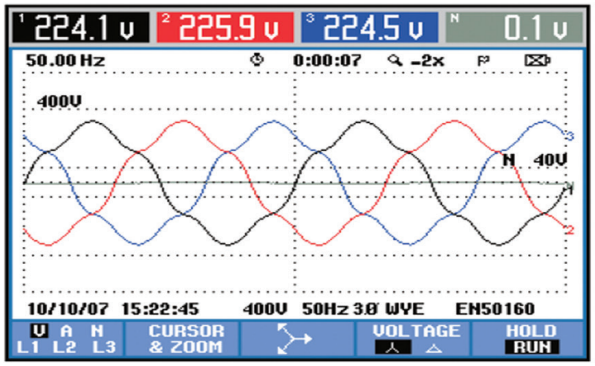


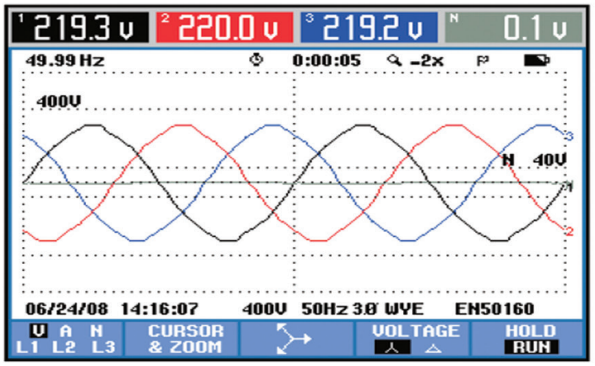
Current at individual harmonic orders superposed onto the fundamental current to form non-sinusoidal waveform.



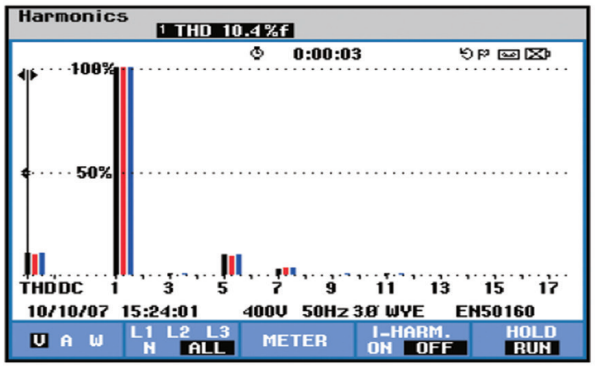


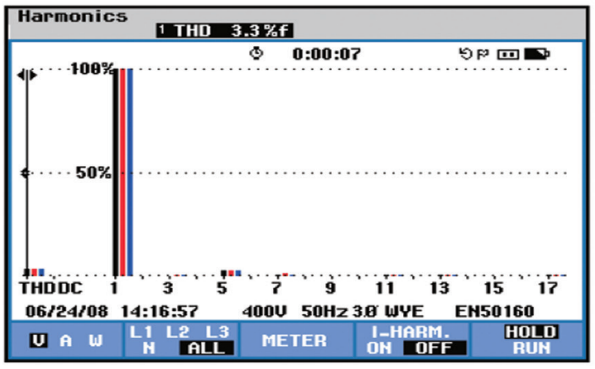
Examples:



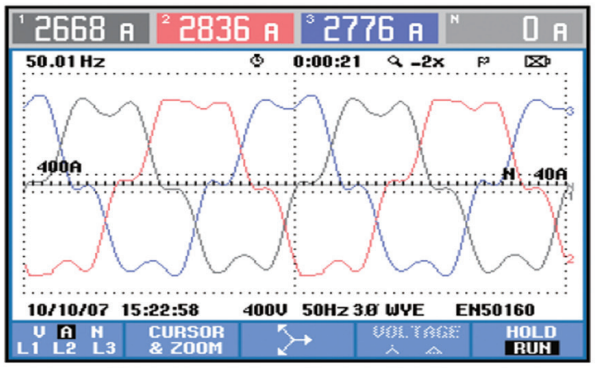


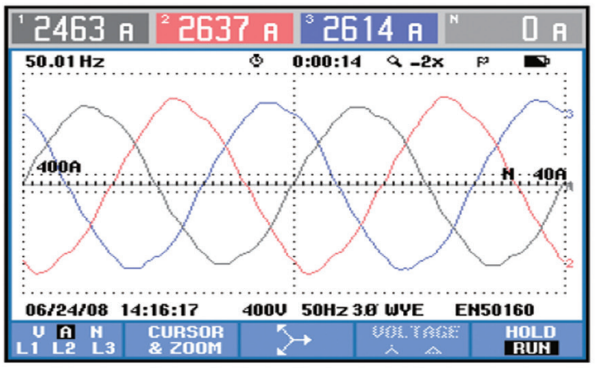
Waveforms and RMS values of phase currents before and after AHF were installed



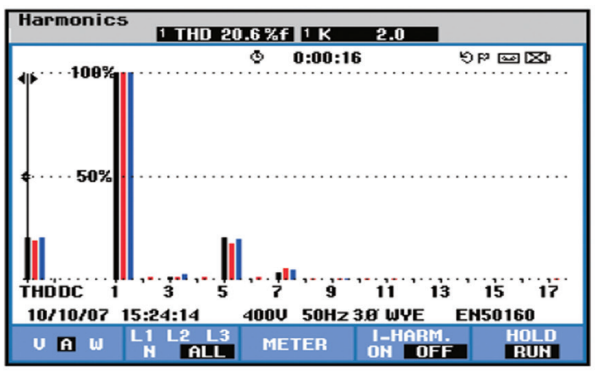


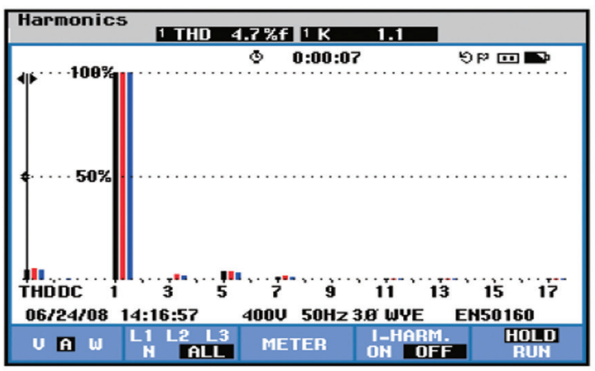
Harmonic spectrum of phase currents before and after AHF were installed





Waveforms and RMS values of phase voltages before and after AHF were installed





Harmonic spectrum of phase voltages before and after AHF were installed

Application


Automotive Manufacturing


IDC industry


Hospital


Modern architecture


Sewage treatment


Power generation


Theater


Photovoltaic


Oil exploitation


Semiconductor


Distribution network transformer


Car charging pile


Theme parks and hotels


Smelting steel


Papermaking


Subway


Rubber

Specifications

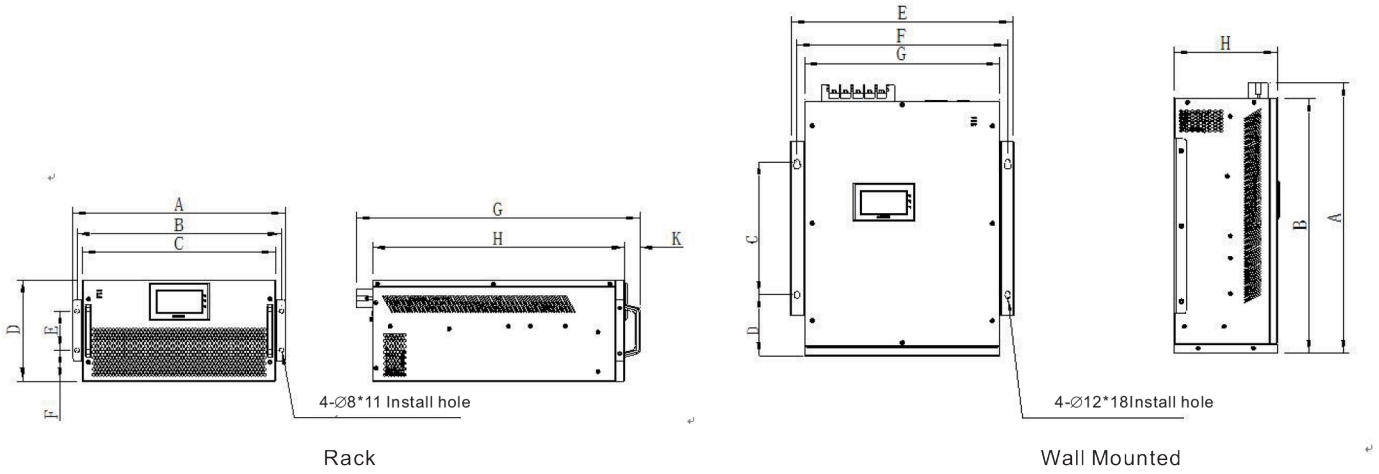
Item	Data
Rated input	400V ÷ 690V(-20%-+15%)
Power grid frequency	50Hz/60Hz (range: ±10%)
Parallel operation	Unlimited
Overall efficiency	≥ 97%
Power grid structure	3P3L, 3P4L
CT	150/5 ~ 10,000/5
Performance indicators	
Rated capacity	50A/75A/100A/150A (35/50/75/100kVAR)
Harmonic compensation	Available
Reactive power compensation	Available
Unbalance compensation	Available
Filtering range	2 to 50 orders
Filtering degree	Adjustable from 2 to 50
Filter performance	THDi<5%
Overall response time	<10ms
Target power factor	Adjustable from -1 to +1
Control algorithms	FFT, Intelligemt and instantaneous reactive power
Switching frequency	20kHz
Noise level	<60dB
Communications and monitoring capabilities	
Communications ports	RS485, CAN and network port
Communications protocols	TCP/IPPMBus Modbus and TCP/IP
Module display interface	Touch screen
PC software	Optional
Protection functions	over-valtage protection under-voltage protection short-circuit protection inverter bridge inverse protection, over-compensation protection and so on
Fault alarm	Available at most 500 alarm records
Monitoring	Independent monitoring and centralized monitoring
Mechanical properties	
Altitude	1% up 1500 m. Between 1500 m to 4000 m, according to GB/T3859.2, the power decreases by 1% for every additional 100m.
Operating temperature	-10^{O}C ~ +40^{O}C
Relative humidity	5% to 95% non-condensing
Protection class	IP20 (other IP classes are customizable.)
Note:	1.Customize service optional. 2.Product update without further notice

Mode Description

B A	AHF B	XXX C	4 D	4L E	R F	L G

Serial number	
A	Company code: BTB Electric
B	Active Harmonic Filter
C	Compensation current: 30A/50A/75A/100A/150A
D	Voltage degree: 4(400V) / 5(480) / 6(690)
E	3P3L / 3P4L
F	R: rack, H: wall mounted, F: Tower cabinet
G	L: LCD / E: LED / M: Centralized monitoring

Product structure



Installation	Rack			Wall Mounted		
Dimension(mm)	30A/50A	100A	150A	30A/50A	100A	150A
A	359	484	554	512.5	611	621
B	341	466	536	500	575	585
C	315	440	510	300	300	300
D	200	232	250	120.5	137.5	142.5
E	89	89	89	379	500	570
F	55.5	71.5	80.5	350	475	545
G	556.5	646	656	315	440	510
H	500	575	585	200	232	250
K	35	35	35			

Product Advantages

Extremely high reliability

Three-level technology platform, excellent air duct design, flexible grid-connected technology, early warning monitoring function, maximum system reliability

Dynamic compensation mode

Flexible setting for harmonic compensation, harmonic & reactive compensation, harmonic & three-phase unbalanced hybrid compensation mode according to application conditions

High efficiency, high power density

97.5% system efficiency, the industry's highest power density, reducing system investment costs and operating costs

Easy to expand and maintain

Modular expansion and maintenance, maintenance time less than 15min, maximum continuity of operation

Smart communication is easy to use

With WIFI, GPRS communication method is convenient for collecting data and checking data

Industry standard capacity polling list

Transformer capacity/KVA	THDI distortion rate					
	15%	20%	25%	30%	35%	40%
200	50A	50A	100A	100A	100A	100A
250	50A	100A	100A	100A	150A	150A
315	100A	100A	150A	150A	150A	200A
400	100A	150A	150A	200A	200A	250A
500	100A	150A	200A	200A	250A	300A
630	150A	200A	250A	300A	350A	400A
800	200A	250A	300A	350A	450A	500A
1000	200A	300A	400A	450A	550A	600A
1250	300A	350A	450A	550A	650A	750A
1600	350A	500A	600A	700A	850A	950A
2000	450A	600A	750A	900A	1050A	1200A
2500	550A	750A	900A	1150A	1300A	1500A

NOTE: This list just for reference

AHF capacity got from 80% load of transformer capacity

BTB Electric

Leading Power Quality Solutions

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