

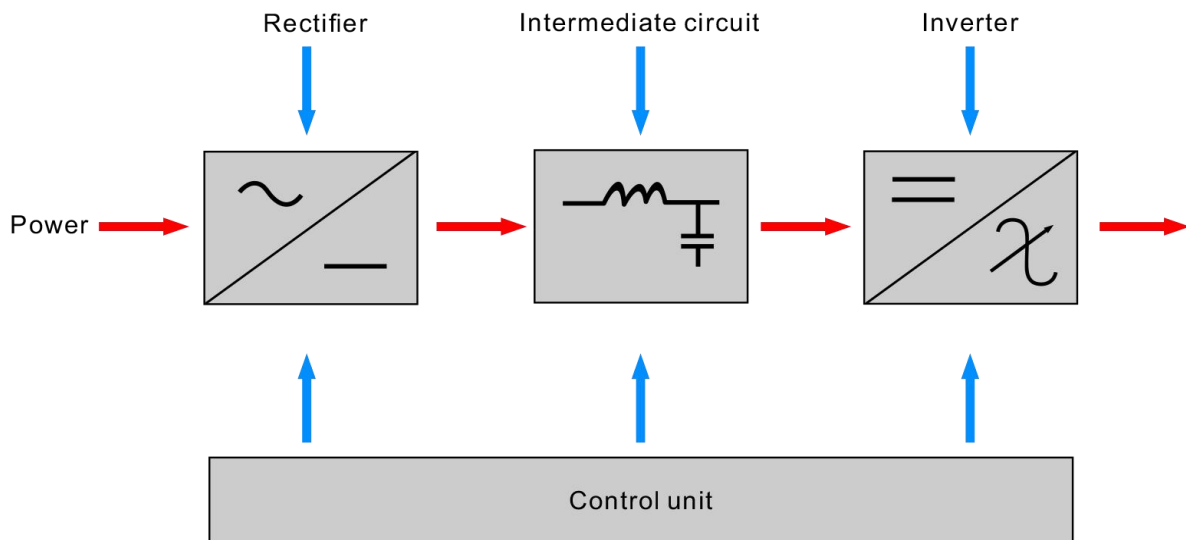


Passive Harmonic Filter

About

Passive Harmonic Filter

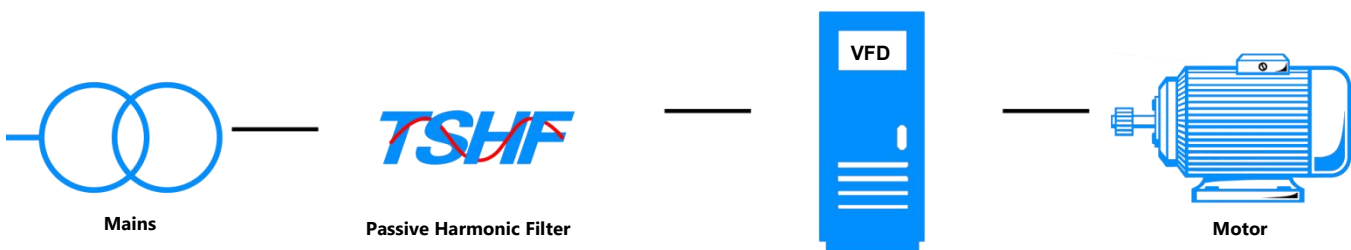
Passive Harmonic Filter (PHF) is a circuit composed of passive components (e.g., resistors, reactors, capacitors) designed to mitigate or eliminate harmonics in power systems. It provides a low-impedance path to absorb harmonic currents at specific frequencies, thereby improving power quality.

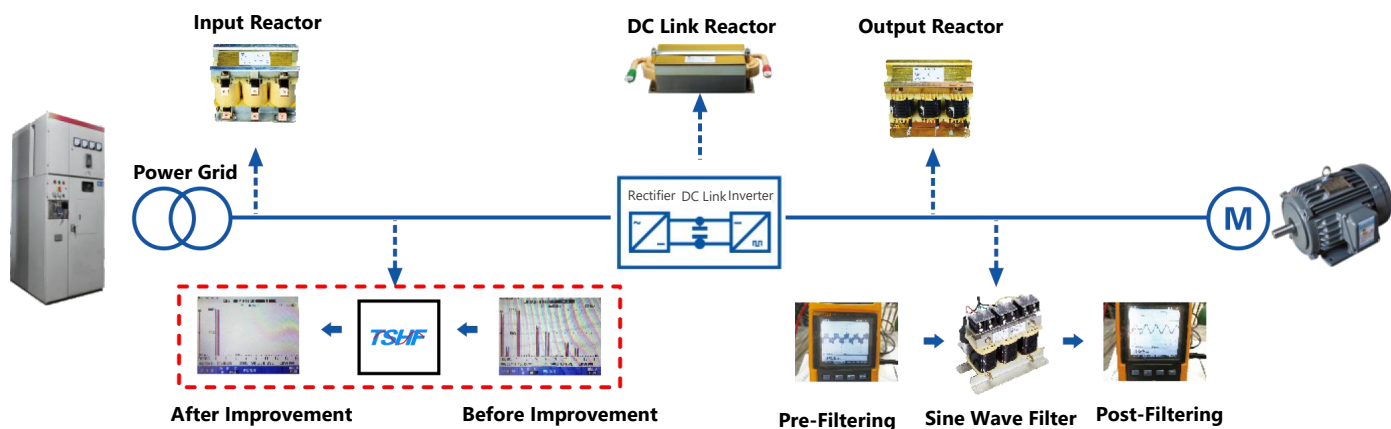


Tuned Square Harmonic Filter (TSHF) introduction:

TSHF is a passive harmonic filter designed to mitigate harmonics and improve power factor in 6-pulse rectified systems. Key features:

- Targeted filtering for dominant harmonics (5th, 7th, 11th)
- Power factor correction capability
- Plug-and-play installation for rectifiers/VFD
- Current-based selection to match load requirements



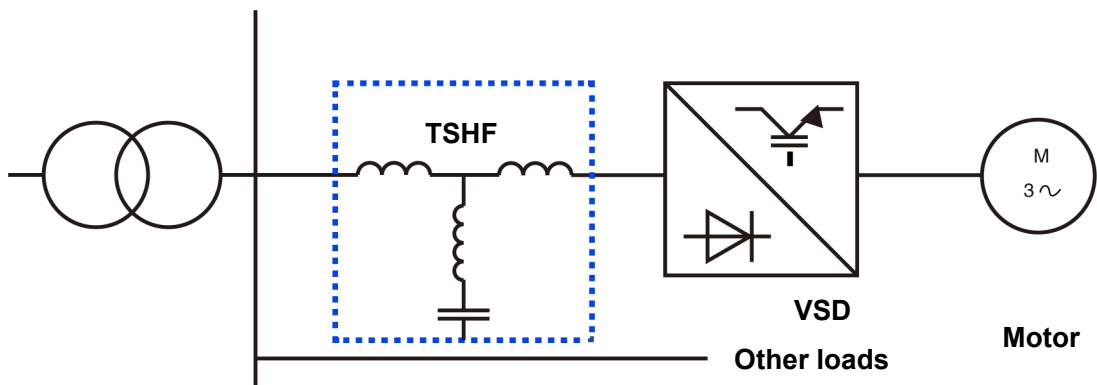


TSHF comply with IEEE-519 harmonic voltage and current distortion limits.

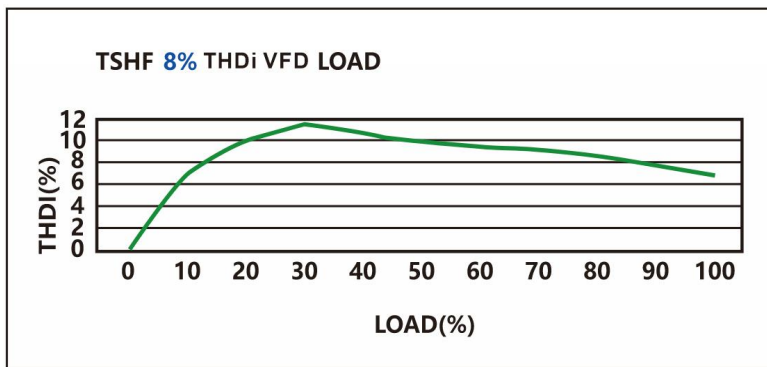
IEEE-519 Voltage Distortion Limits	
Special application (hospitals、airports)	3%
General system applications	5%
IEEE-519 Current Distortion Limits	
Isc/IL	TDD (total demand distortion)
< 20	5%
20 < 50	8%
50 < 100	12%



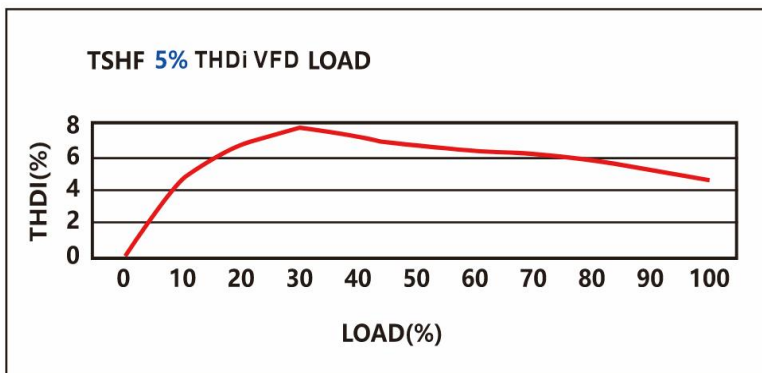
TSHF Structural Diagram



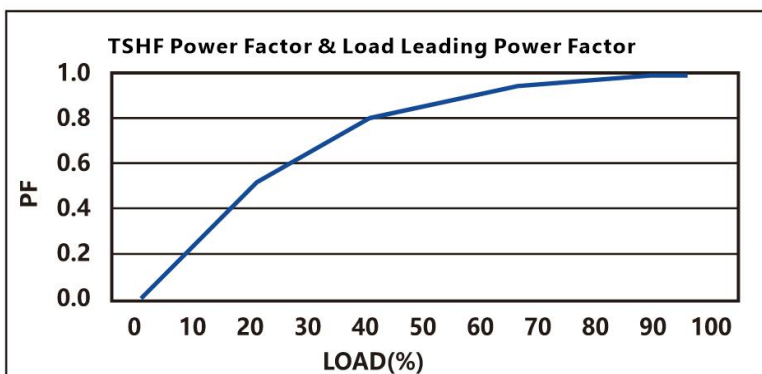
Passive Harmonic Filter specifications



Specification	
TSHF-08	
THDi @	
-40% Load	~ 11%
-70% Load	~ 9%
-100% Load	~ 8%
Efficiency@100% load	~ 99%



Specification	
TSHF-05	
THDi @	
-40% Load	~ 7%
-70% Load	~ 6%
-100% Load	~ 5%
Efficiency@100% load	~ 99%



True Power factor@	
TSHF-05	
THDi @	
-40% Load	~ 0.80
-70% Load	~ 0.96
-100% Load	> 0.99

Comparative Test Data: With TSHF **VS** Without TSHF

Parameter	Before Installation	After Installation	Improvement
THDi	27.3%	4.9%	↓82%
5th Harmonic Content	22.1%	3.2%	↓85.5%
Power Factor	0.78 (Lagging)	0.94 (Leading)	↑20.5%

Typical Benefits:

- 15-20% annual electricity cost savings (by eliminating harmonic-related losses)
- 30%+ extended motor lifespan (reduced insulation degradation)
- Elimination of relay protection misoperation risks

TSHF840060-05
IP 20 harmonic filter

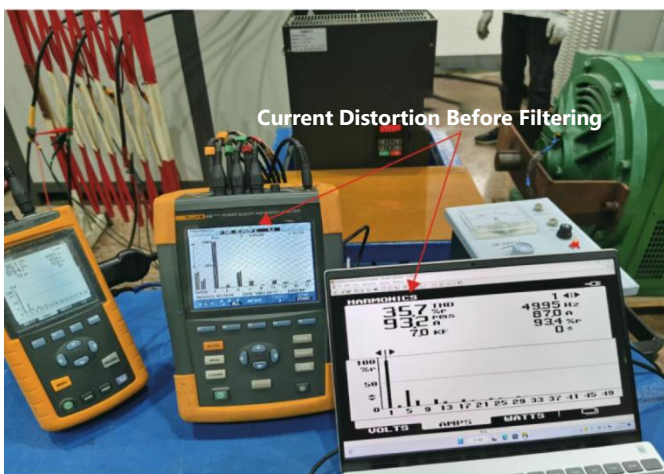
400V 45KW VFD

System Voltage Distortion in Frequency Converter Testing
THDi=1.9%



Before filtering of TSHF harmonic filter
THDi=35.7%

After filtering of TSHF harmonic filter
THDi=4.6%



Setting condition	
Rated Frequency:	60Hz or 50Hz± 0.5Hz
System voltage:	Rated voltage ± 10%
System impedance:	1.5% - 6%
Design method:	Three phase
Ambient temperature:	-40 to +50°C
Cooling method:	Force air
System requirement:	line voltage unbalance and the voltage distortion rate < 1%
Protection Class:	IP00, IP20, IP54 or other available
Total demand distortion TDD:	According to IEEE-519
Design according to:	EN EN60076-6 ,EN61558-2-20

TSHF selection table

3P 50 HZ, 220 V

HP	KW	Rated current (A)	8%TSHF	5%TSHF
			Model Number	Model Number
20	15	60	TSHF82020-08	TSHF82020-05
25	18.5	80	TSHF82025-08	TSHF82025-05
30	22	96	TSHF82030-08	TSHF82030-05
40	30	120	TSHF82040-08	TSHF82040-05
50	37	150	TSHF82050-08	TSHF82050-05
60	45	180	TSHF82060-08	TSHF82060-05
75	55	220	TSHF82075-08	TSHF82075-05
100	75	290	TSHF82100-08	TSHF82100-05
150	110	400	TSHF82150-08	TSHF82150-05

3P 50HZ, 440 V (380 V- 480 V)

HP	KW	Rated current (A)	8%TSHF	5%TSHF
			Model Number	Model Number
5	3.7	8	TSHF84005-08	TSHF84005-05
7.5	5.5	13	TSHF84007-08	TSHF84010-05
10	7.5	16	TSHF84010-08	TSHF84015-05
15	11	24	TSHF84015-08	TSHF84020-05
20	15	32	TSHF84020-08	TSHF84020-05
25	19	40	TSHF84025-08	TSHF84025-05
30	22	48	TSHF84030-08	TSHF84030-05
40	30	60	TSHF84040-08	TSHF84040-05
50	37	75	TSHF84050-08	TSHF84050-05
60	45	90	TSHF84060-08	TSHF84060-05
75	55	110	TSHF84075-08	TSHF84075-05
100	75	145	TSHF84100-08	TSHF84100-05
125	90	180	TSHF84120-08	TSHF84120-05
150	110	210	TSHF84150-08	TSHF84150-05
200	160	280	TSHF84200-08	TSHF84200-05
250	185	350	TSHF84250-08	TSHF84250-05
300	220	420	TSHF84300-08	TSHF84300-05
400	300	610	TSHF84400-08	TSHF84400-05
500	375	770	TSHF84500-08	TSHF84500-05

Other Specifications available upon request.



Sino-German joint venture

About LTEC

We have specialized in the production of reactors, capacitors, filters, and transformers since 2004. Our primary production plant in Kunshan City spans an area of 20,000 square meters and is located just a one-hour drive from Shanghai Pudong International Airport (PVG).

Our R&D teams are based in Gelsenkirchen and Taipei, and we hold approximately 120 patents related to our products.

In 2023, *Drosseln GmbH* invested in *Jiangsu LTEC Electric Co., Ltd.*, forming a Sino-German joint venture with the purpose of enhancing competitiveness in the Asian market.

We provide our customers with world-class LV and HV products, along with reliable technology and friendly, flexible customer support. Additionally, we develop *"tailor-made"* products and solutions tailored to your applications.

Our products have been exported to the United States, Germany, the United Kingdom, Israel, Australia, and more than **60** countries and regions worldwide.

Just contact us

We are right here waiting for you...

