

Harmonics & Power Quality

HARMONICGUARD® **PASSIVE**

Poor power quality can be a result of variable frequency drives or other types of non-linear loads using a power conversion process that causes current and voltage distortion. This resulting distortion is known as harmonics.

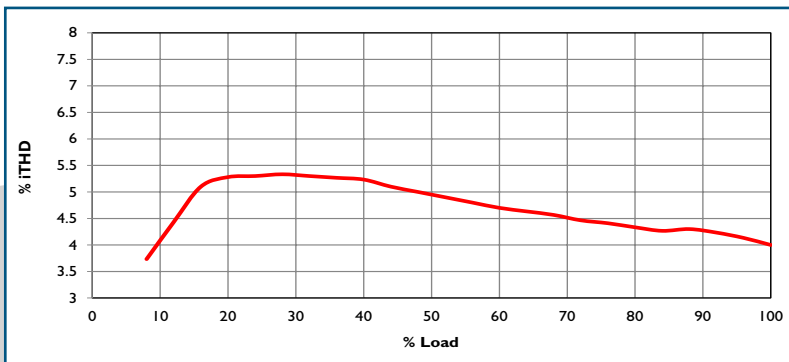
Issues caused by harmonics may include:

- Transformer and distribution equipment overheating
- Random breaker tripping
- Sensitive equipment failure
- Poor power factor

HarmonicGuard Passive Filter

- Limits current harmonic distortion to less than 5% over a wide load range
- Industry leading performance under high background voltage distortion
- True 100kA SCCR
- Fuse Monitor available
- IEEE 519-2014 compliant
- Branch circuit protection via fuses
- Generator compatible
- Increases drive uptime
- Eliminates nuisance tripping
- For Type 3R enclosures: 150 HP and above units include hardware for floor mounting, 125 HP and below include hardware for wall mounting

iTHD% vs. % Load



HGP Filters vs. Other Harmonic Solutions

The HarmonicGuard Passive (HGP) filter is built using the highest quality components and is able to operate under the harshest conditions. The UL 508A open panels, Type 1 and Type 3R enclosures include 100kA SCCR, safety fusing and easy internal access.

Compared to 18-pulse drives, the HGP:

- Is a more efficient and reliable solution at reduced loads
- Has a better THID at reduced loads
- Saves money by reducing operation costs and energy loss
- Corrects power factor in both the VFD and filter
- Has a smaller footprint

Oil & Gas Industry Application

The HGP filter is uniquely suited for power quality needs in oil and gas fields. Excessive background voltage distortion, often found in remote oil and gas applications, reduces the effectiveness of standard passive filters. In these applications, the HGP filter performs well with distortion as high as 5%.

Typical Applications

- Oil & Gas
- Steel Industry
- Water/Wastewater
- HVAC Systems
- Machining
- Airports
- Commercial Buildings
- Hospitals
- Irrigation Fields, Farms
- Extruders
- Pulp & Paper



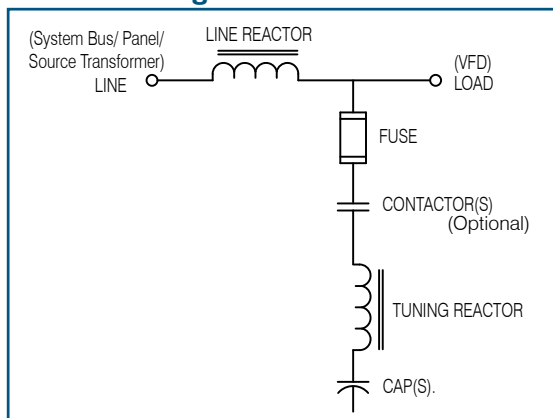
Technical Specifications

Voltage Rating	480 & 600 VAC
Phase	3-phase
Operating Frequency	60 Hz
Motor drive input power rating range	5 - 900 HP
SCCR (Short Circuit Current Rating)	100 kA
Immunity from Voltage Distortion	Less than 5% iTHD at full load with vTHD as high as 5%*
THID	Less than 5% at full load
Efficiency	Greater than 99%
Overload Capability	200% of current rating for 3 minutes
Environmental Conditions	
Operating Temperature	Open: 50°C (122°F), Enclosed: 40°C (104°F)
Storage Temperature	60°C (140°F)
Elevation	Up to 1,000 m without derating. Consult factory for higher elevations.
Humidity	95% non-condensing
Protection Category	Open Chassis, UL Type 1, UL Type 3R
Cooling Method	Natural or Forced Air Convection
Reference Technical Standards	
Agency Approvals	cULus

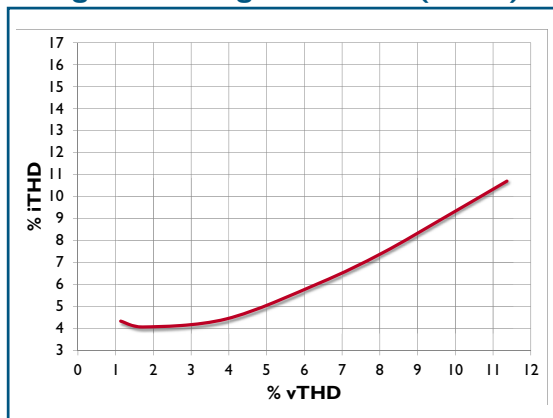
Part Numbering System

	H	G	P	0	1	5	0	L	X	1	S	0	0	0	P
Series:	HGP			0150			LX			1S			000P		
kW Rating:	HGP			0150			LX			1S			000P		
Voltage Rating:	HGP			0150			LX			1S			000P		
A - 480 V	HGP			0150			LX			1S			000P		
C - 600 V	HGP			0150			LX			1S			000P		
L - 400 V	HGP			0150			LX			1S			000P		
Frequency:	HGP			0150			LX			1S			000P		
W - 60 Hz (HP Rated)	HGP			0150			LX			1S			000P		
X - 50 Hz	HGP			0150			LX			1S			000P		
Enclosure:	HGP			0150			LX			1S			000P		
0 - Open	HGP			0150			LX			1S			000P		
1 - Type 1	HGP			0150			LX			1S			000P		
3 - Type 3R	HGP			0150			LX			1S			000P		
Option:	HGP			0150			LX			1S			000P		
S - Standard	HGP			0150			LX			1S			000P		
C - Contactor	HGP			0150			LX			1S			000P		
F - Contactor and Fuse Monitor	HGP			0150			LX			1S			000P		
G - Standard & Fuse Monitor	HGP			0150			LX			1S			000P		
Option:	HGP			0150			LX			1S			000P		
0 - Standard	HGP			0150			LX			1S			000P		
Option:	HGP			0150			LX			1S			000P		
0 - Standard	HGP			0150			LX			1S			000P		
Option:	HGP			0150			LX			1S			000P		
0 - Typical Voltage Distortion	HGP			0150			LX			1S			000P		
1 - High Voltage Distortion	HGP			0150			LX			1S			000P		
Option:	HGP			0150			LX			1S			000P		
0 - Standard	HGP			0150			LX			1S			000P		
H - Heater (only available on Type 3R Enclosures)	HGP			0150			LX			1S			000P		
P - Oilfield Version	HGP			0150			LX			1S			000P		
V - Vibration Pads	HGP			0150			LX			1S			000P		

One-Line Diagram



Current Distortion (iTHD) vs. Background Voltage Distortion (vTHD)



*When configured for High Background Voltage Distortion. See IOM for guidelines for distortion above 5%.

