

# 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.

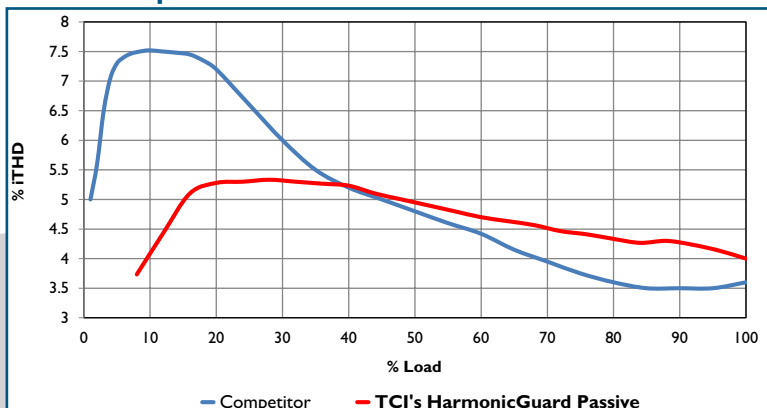
Issues caused by harmonics may include:

- 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
- Performs with background distortion as high as 5%
- True 100kA SCCR
- Fuse Monitor available
- IEEE 519-2014 compliant
- Fused branch circuit to protect capacitors
- 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

### Filter Comparison: 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
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
<b>Environmental Conditions</b>	
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	UL Type 1, UL Type 3R
Cooling Method	Natural or Forced Air Convection
<b>Reference Technical Standards</b>	
Agency Approvals	cULus

## Part Numbering System

	H	G	P	0	1	5	0	A	W	1	S	0	0	0	0
Series:	HGP			0150			AW			1S0000					
Horse Power:				0150											
Voltage Rating:							A			W					
							A - 480 V			W - 60 Hz					
							C - 600 V								
Frequency:							W								
Enclosure:							1			S			0000		
							0 - Open			1 - Type 1			3 - Type 3R		
Option:										S					
										S - Standard			C - Contactor		
										F - Fuse Monitor with Contactor			G - Fuse Monitor without Contactor		
Option:													0 - Standard		
Option:													0 - Standard		
Option:													0 - Typical Voltage Distortion		
													1 - High Voltage Distortion		
Option:													0 - Standard		
													H - Heater		

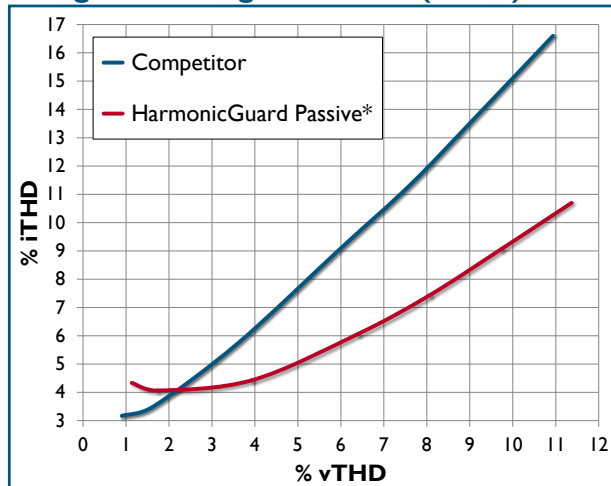
## Package Options

Configure the HGP to meet your performance needs:

- S -** High Quality Harmonic Filter
- C -** High Quality Harmonic Filter with contactor and control power transformer that allows users to remove the capacitors from circuit, eliminating the possibility of leading power factor

\* When configured for High Background Voltage Distortion

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



## One-Line Diagram

