



hammond
POWER SOLUTIONS



HPS CENTURION™ P

Passive Harmonic Filter



HPS Centurion™ P Passive Harmonic Filter

HPS Centurion P passive harmonic filter improves power quality by simultaneously reducing harmonics and improving true power factor.

The advanced HPS design delivers superior performance compared to traditional harmonic filters by reducing harmonic current distortion by 80% (typically to 5% or less at full load), corrects true power factor to over 95%, and meets IEEE 519 harmonic requirements when operated within designed parameters.

The Centurion P passive harmonic filter consists of reactors and capacitors in an LCL arrangement designed to reduce a broad range of harmonics associated with VFD's and other three phase rectifiers.



Power Quality & Harmonic Distortion

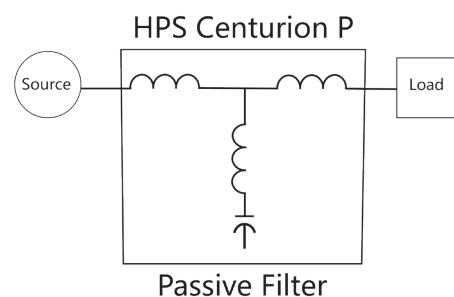
Causes

Harmonic current and voltage distortion are major causes of unscheduled down time, equipment malfunction and damage.

Current and voltage harmonics are caused by non-linear loads such as variable frequency drives (VFD's), DC drives, chargers, rectifiers, and induction heating systems.

Consequences

- Overheating of electrical equipment
- Loss of efficiency
- Nuisance tripping
- Premature equipment failure
- Interference with communication systems



One Power Solution

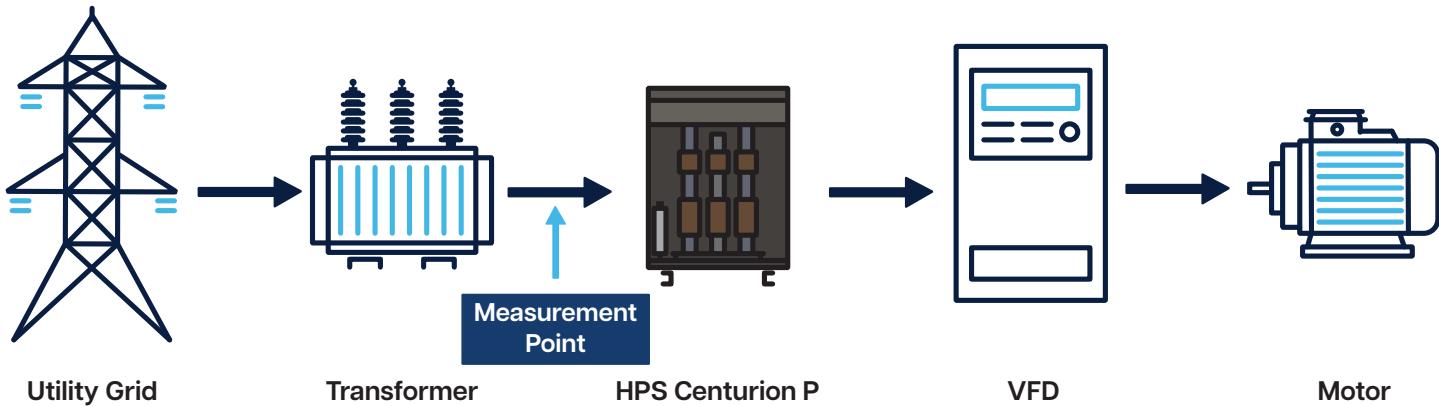
To maximize the harmonic mitigation and true power factor correction, each HPS Centurion P passive harmonic filter unit is specifically engineered to mitigate harmonic currents created by non-linear loads such as variable frequency drives and is available from 5 to 500 horsepower.

- Proven mitigation technology
- Patented design
- Suitable with varying power loads
- Meets IEEE 519 standard when operated within designed parameters
- Generator compatible without capacitor contactor

HPS Centurion P Operation Principle

By using an unique series/parallel arrangement of inductance and capacitance, harmonic currents produced by non-linear loads including VFD's are reduced. The HPS Centurion P achieves compliance with IEEE 519-2014 (when operated within designed parameters) for both current and voltage distortion at the input to the filter.

Example Installation



Industries

Critical applications require IEEE-519 compliant power systems. Below are some examples of industries with critical applications:

- Chemical Processing
- Data Centers
- HVAC Systems
- Material Handling
- Mining
- Oil & Gas
- Pulp & Paper
- Hospitals
- Wastewater Treatment Plants
- EV Charging



What You Gain

Compared to other power quality technologies HPS Centurion P provides the most efficient and reliable solution.



Profitability

Passive harmonic filters are a cost effective solution for power quality issues.



Energy Savings

Combine the most efficient passive harmonic filters with proven system efficiency gains.

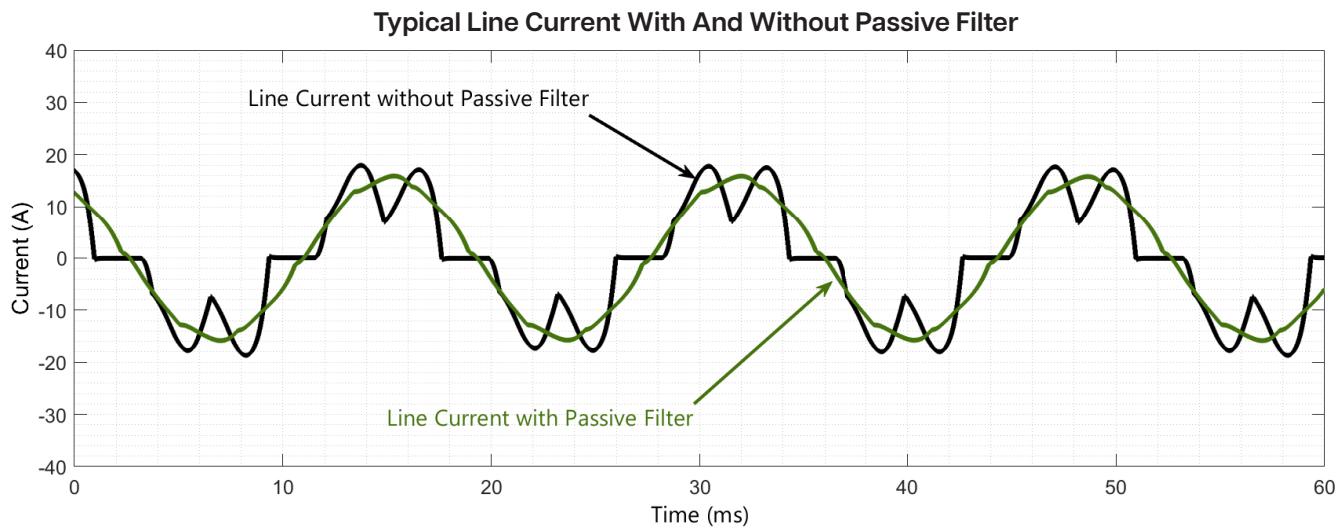
Improved Reliability

Increased electrical power quality results in increased uptime and reduces nuisance tripping events.

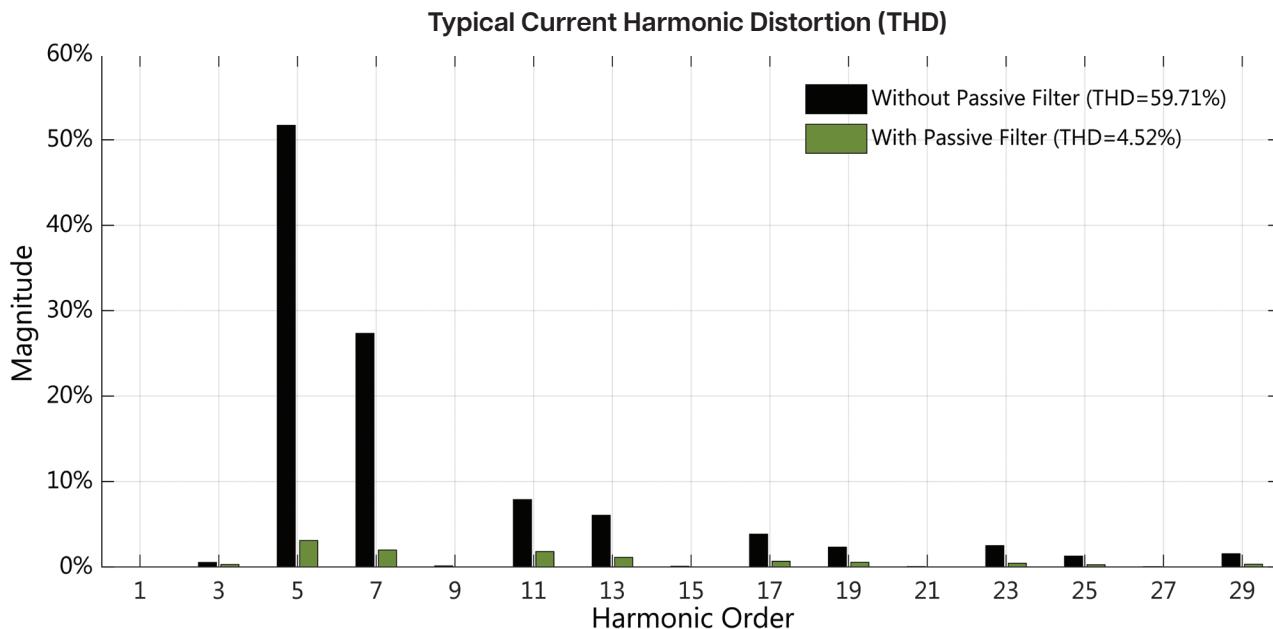


How Passive Filters Mitigate Harmonics

Variable frequency drives (VFD's) are power electronic devices designed to control the speed of motors by changing the frequency of the power supplied to the motor. VFD's, among other non-linear devices, create harmonics when converting AC to DC voltage. The current drawn by the 6-pulse rectifiers on the input of the VFD is non-linear, which distorts the utility's sine wave. This non-linear current is the source of harmonics. These harmonic currents flowing upstream from the VFD can cause inefficiency and overheating of transformers and motors, misoperation of equipment, and interference with telephone and other communication equipment.



The HPS Centurion P is engineered to reduce the 5th, 7th, 11th, and 13th harmonics and higher orders in three phase power systems. The HPS Centurion P improves the power quality by mitigating harmonics caused by non-linear loads.



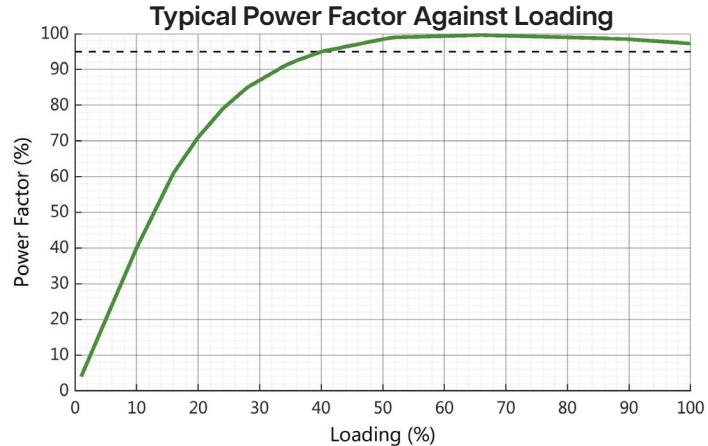
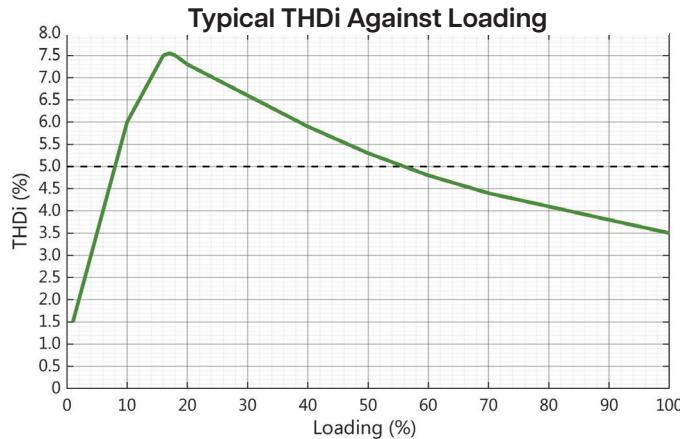
Results are typical and actual results may vary with unit specifications and design parameters.

Energy Savings - Lower kW & kVA

The mitigation of harmonics (THDi) and correction of power factor produces efficiencies in the electrical system, which lowers kW and kVA. This is an important benefit and one of the compelling reasons for installing the HPS Centurion P.

A 6-pulse VFD (without a harmonic filter) will typically create 30% to 60% total harmonic distortion and will result in a true power factor of less than 90%.

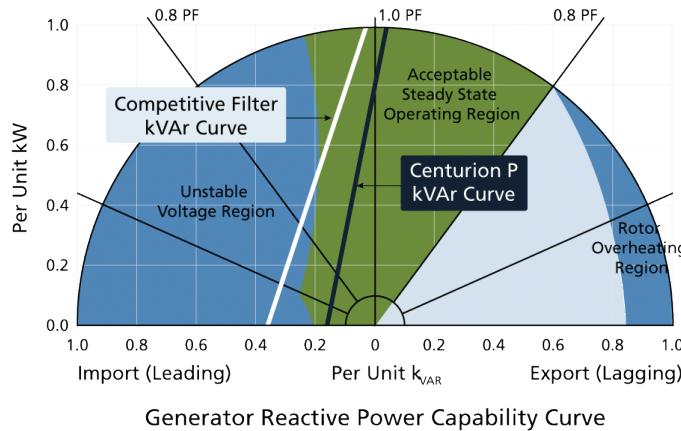
The real data measurements below demonstrate a reduction of THDi and power factor improvement against VFD loading.



Generator Capability

HPS Centurion P passive harmonic filter's kVAr ratings are limited to no more than 20% of the filter's kVA, which ensures compatibility with a generator fed system as well as utility grid fed systems. This low kVAr rating helps to avoid a leading power factor from occurring when the VFD or other harmonic producing loads are operating lightly loaded.

The low kVAr ratings also negates the need for load monitoring and a contactor to disconnect the filter's capacitors during low loads.



Capacitor Contactor Option

The capacitor contactor option allows the user to open and close a contact that will remove the capacitors from the circuit. The user can control the contactor by providing configurable contact output from the VFD which opens at light load.

The capacitor contactor option includes a contactor and an auxiliary contact. Switching out the capacitor mitigates the possibility of a leading power factor.

The low kVAr ratings also negates the need for load monitoring and a contactor to disconnect the filter's capacitors during low loads.

HPS Centurion™ P Passive Harmonic Filter

Specifications



Electrical Product Characteristics

| | |
|----------------------------|--|
| Voltage Rating: | 480VAC or 600VAC +/-10% |
| Input Power Rating: | 480VAC: 8 – 632A (5 – 500HP) 600VAC: 6 – 505A (5 – 500HP) |

Environmental Conditions

| | |
|---------------------------------------|---|
| Ambient Operating Temperature: | Up to 50°C |
| Humidity: | 95% maximum non-condensating |
| Altitude: | ≤ 1000m, (de-rated at higher altitudes) |
| Storage Temperature: | -20°C to +60°C |
| Cooling Method: | Natural Convection |
| Enclosure Type: | Open or Type 3R |

Technical Product Characteristics

| | |
|--|---|
| Harmonic Attenuation: | Total harmonic current distortion is reduced by 80% (typically to 5% or less at full load) and meets IEEE 519-2014 harmonic requirements when operated within designed parameters |
| Harmonic Mitigation: | 5th, 7th, 11th, 13th, etc. |
| (major 6-pulse rectifier harmonics) | 130°C (2A - 54A), 180°C (>55A) |
| Typical Power Factor: | >95% |
| Efficiency: | No less than 99% at full load |
| Overload Capability: | 150% of rated current for 1 minute |
| Resonance: | Engineered not to cause resonance |
| Capacitance: | Low kVAr design |
| Approval: | cUL Listed (E61431) |
| Warranty: | 3 years |
| Contactor: | Optional |

Part Number Guide

| Family | Type | Generation | Voltage | Frequency | Thermal Characteristics | Rating | Enclosure | Contactor |
|---------------|--------------------------------------|------------------------|----------|---|--|---|--|-----------|
| Example | C P | 1 | K | 6 | G | 0 0 2 5 | F | C |
| Family | 1 = current designs C = Centurion | K = 480 V P = 600 V | 6 = 60Hz | Temperature Rise at 220°C Insulation Class G = 130°C | Current 6A to 632A 6A = 0006 69A = 0069 632A = 0632 | Enclosure F = Open Frame C = Type 3R | C = Contactor S = No contactor* (Default) | |
| Type | P = Passive Harmonic Filter | | | | | | | |

*Please contact HPS for other available options

** Default options - ignore if all following characteristics are default values

SELECTION TABLES

HPS CENTURION P

Passive Harmonic Filter

480 V

60 HZ

| Motor Rating (HP) | Part Number | Current (A) | | Encl. Style | Filter Dimensions in Inches [Millimeter] | | | Capacitor Dimensions in Inches [Millimeter] ¹ | | Cap. Qty ² | Weight Lbs. [kg] | Watts Loss | | |
|-------------------|-------------|-------------|--------|--------------|--|------------|-------------|--|-------------------------|-----------------------|------------------|------------|--|--|
| | | Input | Output | | Dimens. Fig. | A | B | C | H | | | | | |
| 5 | CP1K6G0008F | 7 | 8 | Open (Wall) | A | 7.5 [191] | 7.7 [196] | 12.5 [318] | 4.4 [112] 2.6 [66] | 1 | 45 [20] | 175 | | |
| | CP1K6G0008C | | | Open (Floor) | C | 7.2 [183] | 7.6 [193] | 11.3 [287] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 7.5 | CP1K6G0011F | 9 | 11 | Open (Wall) | A | 7.5 [191] | 7.7 [196] | 12.5 [318] | 5.5 [140] 2.6 [66] | 1 | 50 [23] | 190 | | |
| | CP1K6G0011C | | | Open (Floor) | C | 7.2 [183] | 7.7 [196] | 11.3 [287] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 10 | CP1K6G0014F | 12 | 14 | Open (Wall) | A | 9.8 [249] | 8.9 [226] | 15.2 [386] | 5.5 [140] 2.6 [66] | 1 | 70 [32] | 210 | | |
| | CP1K6G0014C | | | Open (Floor) | C | 9.0 [229] | 7.9 [201] | 13.8 [351] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 15 | CP1K6G0019F | 17 | 19 | Open (Wall) | A | 9.8 [249] | 8.8 [224] | 15.2 [386] | 7.5 [191] 2.6 [66] | 1 | 70 [32] | 230 | | |
| | CP1K6G0019C | | | Open (Floor) | C | 9.0 [229] | 8.0 [203] | 13.8 [351] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 20 | CP1K6G0025F | 23 | 25 | Open (Wall) | A | 9.8 [249] | 9.7 [246] | 15.2 [386] | 7.4 [188] 2.6 [66] | 1 | 95 [43] | 300 | | |
| | CP1K6G0025C | | | Open (Floor) | C | 9.0 [229] | 8.8 [224] | 13.8 [351] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 25 | CP1K6G0032F | 29 | 32 | Open (Wall) | A | 9.8 [249] | 10.7 [272] | 15.2 [386] | 8.5 [216] 3.5 [66] | 1 | 100 [45] | 320 | | |
| | CP1K6G0032C | | | Open (Floor) | C | 9.0 [229] | 10.5 [267] | 13.8 [351] | | | | | | |
| | Type 3R | | | DH1 | 21.5 [546] | 20.1 [510] | 22.0 [559] | Pre-installed in Enclosure | | | | | | |
| 30 | CP1K6G0037F | 34 | 37 | Open (Wall) | A | 11.5 [292] | 10.1 [257] | 17.6 [447] | 8.5 [216] 3.5 [89] | 1 | 135 [61] | 480 | | |
| | CP1K6G0037C | | | Open (Floor) | C | 10.8 [274] | 9.8 [249] | 16.3 [414] | | | | | | |
| | Type 3R | | | DH2 | 25.8 [655] | 23.8 [604] | 28.8 [731] | Pre-installed in Enclosure | | | | | | |
| 40 | CP1K6G0050F | 46 | 50 | Open (Wall) | A | 11.5 [292] | 10.3 [262] | 17.6 [447] | 9.1 [231] 3.5 [89] | 1 | 150 [68] | 525 | | |
| | CP1K6G0050C | | | Open (Floor) | C | 10.8 [274] | 9.8 [249] | 16.3 [414] | | | | | | |
| | Type 3R | | | DH2 | 25.8 [655] | 23.8 [604] | 28.8 [731] | Pre-installed in Enclosure | | | | | | |
| 50 | CP1K6G0061F | 57 | 61 | Open (Wall) | A | 11.5 [292] | 11.8 [300] | 17.6 [447] | 9.1 [231] 3.5 [89] | 1 | 175 [79] | 600 | | |
| | CP1K6G0061C | | | Open (Floor) | D | 10.8 [274] | 12.6 [320] | 16.3 [414] | | | | | | |
| | Type 3R | | | DH2 | 25.8 [655] | 23.8 [604] | 28.8 [731] | Pre-installed in Enclosure | | | | | | |
| 60 | CP1K6G0074F | 69 | 74 | Open (Wall) | B | 14.8 [376] | 11.3 [287] | 25.5 [648] | 9.1 [231] 3.5 [89] | 1 | 275 [125] | 675 | | |
| | CP1K6G0074C | | | Open (Floor) | D | 14.3 [363] | 9.8 [249] | 23.5 [597] | | | | | | |
| | Type 3R | | | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | | | | | |
| 75 | CP1K6G0091F | 85 | 91 | Open (Wall) | B | 14.8 [376] | 12.5 [318] | 25.5 [648] | 10.3 [262] 3.5 [89] | 1 | 350 [159] | 725 | | |
| | CP1K6G0091C | | | Open (Floor) | D | 14.3 [363] | 9.7 [246] | 23.5 [597] | | | | | | |
| | Type 3R | | | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | | | | | |
| 100 | CP1K6G0121F | 113 | 121 | Open (Wall) | B | 14.8 [376] | 12.9 [328] | 25.5 [648] | 12.1 [307] 3.5 [89] | 1 | 375 [170] | 1000 | | |
| | CP1K6G0121C | | | Open (Floor) | D | 13.5 [343] | 11.7 [297] | 23.5 [597] | | | | | | |
| | Type 3R | | | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | | | | | |
| 125 | CP1K6G0151F | 141 | 151 | Open (Wall) | B | 14.8 [376] | 12.3 [312] | 25.5 [648] | 10.3 [262] 3.5 [89] | 1 | 390 [177] | 1025 | | |
| | CP1K6G0151C | | | Open (Floor) | D | 15.8 [401] | 13.3 [338] | 23.5 [597] | | | | | | |
| | Type 3R | | | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | | | | | |
| 150 | CP1K6G0180F | 169 | 180 | Open (F) | D | 15.8 [401] | 14.9 [378] | 23.5 [597] | 11.5 [292] 4.6 [117] | 1 | 430 [195] | 1300 | | |
| | CP1K6G0180C | | | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | | | | | |
| | Type 3R | | | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | Pre-installed in Enclosure | | | | | | |
| 200 | CP1K6G0241F | 226 | 241 | Open (F) | D | 18 [457] | 15.8 [401] | 23.5 [597] | 12.1 [307] 3.5 [89] | 1 | 625 [283] | 1400 | | |
| | CP1K6G0241C | | | Type 3R | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | | | | | | |
| | Type 3R | | | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | Pre-installed in Enclosure | | | | | | |
| 250 | CP1K6G0299F | 281 | 299 | Open (F) | E | 19.0 [483] | 17.0 [432] | 32.0 [813] | 12.1 [307] 3.5 [89] | 1 | 755 [352] | 1700 | | |
| | CP1K6G0299C | | | Type 3R | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | | | | | | |
| | Type 3R | | | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | Pre-installed in Enclosure | | | | | | |

*Weight & dimensions are approximate

¹Capacitors are pre-installed in enclosed style parts

²Please refer to figure G for capacitor drawing

SELECTION TABLES

HPS CENTURION P

Passive Harmonic Filter

480 V

60 HZ

| Motor Rating (HP) | Part Number | Current (A) | | Encl. Style | Filter Dimensions in Inches [Millimeter] | | | Capacitor Dimensions in Inches [Millimeter] ¹ | | Cap. Qty ² | Weight Lbs. [kg] | Watts Loss |
|-------------------|-------------|-------------|--------|-------------|--|----------|----------|--|----------------------------|-----------------------|------------------|------------|
| | | Input | Output | | Dimens. Fig. | A | B | C | H | | | |
| 300 | CP1K6G0358F | 337 | 358 | Open (F) | E | 21 [533] | 17 [432] | 34 [864] | 11.5 [292] | 4.6 [117] | 2 | 1200 [544] |
| | CP1K6G0358C | | | Type 3R | DH5 | 38 [965] | 34 [864] | 52 [1321] | Pre-Installed in Enclosure | | 1400 [635] | 2150 |
| 350 | CP1K6G0420F | 395 | 420 | Open (F) | E | 21 [533] | 17 [432] | 35 [889] | 11.5 [292] | 4.6 [117] | 3 | 1300 [590] |
| | CP1K6G0420C | | | Type 3R | DH5 | 38 [965] | 34 [864] | 52 [1321] | Pre-Installed in Enclosure | | 1650 [748] | 2300 |
| 400 | CP1K6G0499F | 470 | 499 | Open (F) | F | 30 [762] | 20 [508] | 37 [940] | 11.5 [292] | 4.6 [117] | 3 | 1750 [794] |
| | CP1K6G0499C | | | Type 3R | DH5 | 38 [965] | 34 [864] | 52 [1321] | Pre-Installed in Enclosure | | 1850 [839] | 2700 |
| 500 | CP1K6G0632F | 595 | 632 | Open (F) | F | 32 [813] | 21 [533] | 39 [991] | 11.5 [292] | 4.6 [117] | 4 | 1900 [862] |
| | CP1K6G0632C | | | Type 3R | DH5 | 38 [965] | 34 [864] | 52 [1321] | | | 2300 [1043] | 2900 |

*Weight & dimensions are approximate

¹Capacitors are pre-installed in enclosed style parts

²Please refer to figure G for capacitor drawing

600 V

60 HZ

| Motor Rating (HP) | Part Number | Current (A) | | Encl. Style | Filter Dimensions in Inches [Millimeter] | | | Capacitor Dimensions in Inches [Millimeter] ¹ | | Cap. Qty ² | Weight Lbs. [kg] | Watts Loss |
|-------------------|-------------|-------------|--------|--------------|--|------------|------------|--|-----------|-----------------------|------------------|------------|
| | | Input | Output | | Dimens. Fig. | A | B | C | H | | | |
| 5 | CP1P6G0006F | 5 | 6 | Open (Wall) | A | 7.5 [191] | 6.0 [152] | 12.5 [318] | 4.4 [112] | 2.6 [66] | 1 | - |
| | CP1P6G0006C | | | Open (Floor) | C | 7.2 [183] | 5.7 [145] | 11.3 [287] | | | 120 [54] | - |
| 7.5 | CP1P6G0008F | 7 | 8 | Open (Wall) | A | 7.5 [191] | 6.0 [152] | 12.5 [318] | 4.4 [112] | 2.6 [66] | 1 | - |
| | CP1P6G0008C | | | Open (Floor) | C | 7.2 [183] | 5.8 [147] | 11.3 [287] | | | 130 [59] | - |
| 10 | CP1P6G0012F | 10 | 12 | Open (Wall) | A | 10.0 [254] | 8.5 [216] | 15.2 [386] | 4.4 [112] | 2.6 [66] | 1 | - |
| | CP1P6G0012C | | | Open (Floor) | C | 9.0 [229] | 7.5 [191] | 13.8 [351] | | | 140 [64] | - |
| 15 | CP1P6G0016F | 14 | 16 | Open (Wall) | A | 10.0 [254] | 8.5 [216] | 15.2 [386] | 5.5 [140] | 2.6 [66] | 1 | - |
| | CP1P6G0016C | | | Open (Floor) | C | 9.0 [229] | 7.5 [191] | 13.8 [351] | | | 160 [73] | - |
| 20 | CP1P6G0020F | 18 | 20 | Open (Wall) | A | 10.0 [254] | 9.5 [229] | 15.2 [386] | 7.5 [191] | 2.6 [66] | 1 | - |
| | CP1P6G0020C | | | Open (Floor) | C | 9.0 [229] | 8.3 [211] | 13.8 [351] | | | 165 [75] | - |
| 25 | CP1P6G0025F | 23 | 25 | Open (Wall) | A | 10.0 [254] | 10.8 [274] | 15.2 [386] | 7.4 [188] | 3.5 [89] | 1 | - |
| | CP1P6G0025C | | | Open (Floor) | C | 9.0 [229] | 10.0 [254] | 13.8 [351] | | | 170 [77] | - |
| 30 | CP1P6G0031F | 28 | 31 | Open (Wall) | A | 11.5 [292] | 10.5 [267] | 17.6 [447] | 7.4 [188] | 3.5 [89] | 1 | - |
| | CP1P6G0031C | | | Open (Floor) | C | 10.8 [274] | 9.5 [229] | 16.3 [414] | | | 190 [86] | - |
| 40 | CP1P6G0040F | 37 | 40 | Open (Wall) | A | 11.5 [292] | 10.5 [267] | 17.6 [447] | 8.7 [221] | 2.6 [66] | 1 | - |
| | CP1P6G0040C | | | Open (Floor) | C | 10.8 [274] | 9.5 [229] | 16.3 [414] | | | 240 [109] | - |
| 50 | CP1P6G0049F | 45 | 49 | Open (Wall) | B | 11.5 [292] | 11.8 [300] | 17.6 [447] | 8.5 [216] | 3.5 [89] | 1 | - |
| | CP1P6G0049C | | | Open (Floor) | D | 10.8 [274] | 11.5 [292] | 16.3 [414] | | | 290 [132] | - |
| 60 | CP1P6G0059F | 55 | 59 | Open (Wall) | B | 14.8 [376] | 11.8 [300] | 25.5 [648] | 9.1 [231] | 3.5 [89] | 1 | - |
| | CP1P6G0059C | | | Open (Floor) | D | 14.3 [363] | 11.0 [279] | 23.5 [597] | | | 420 [191] | - |

*Weight & dimensions are approximate

¹Capacitors are provided loose with Open Style and pre-installed in enclosure for enclosed parts

²Please refer to figure G for capacitor drawing

SELECTION TABLES

HPS CENTURION P

Passive Harmonic Filter

600 V

60 HZ

| Motor Rating (HP) | Part Number | Current (A) | | Encl. Style | Filter Dimensions in Inches [Millimeter] | | | Capacitor Dimensions in Inches [Millimeter] ¹ | | Cap. Qty ² | Weight Lbs. [kg] | Watts Loss |
|-------------------|-------------|-------------|--------|--------------|--|------------|------------|--|----------------------------|-----------------------|------------------|-------------|
| | | Input | Output | | Dimens. Fig. | A | B | C | H | | | |
| 75 | CP1P6G0073F | 68 | 73 | Open (Wall) | B | 14.8 [376] | 12.5 [318] | 25.5 [648] | 9.1 [231] | 3.5 [89] | 1 | - |
| | CP1P6G0073C | | | Open (Floor) | D | 14.3 [363] | 11.5 [292] | 23.5 [597] | | | | |
| 100 | CP1P6G0096F | 90 | 96 | Type 3R | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | 540 [245] | |
| | CP1P6G0096C | | | Open (Wall) | B | 14.8 [376] | 12.5 [318] | 25.5 [648] | 12.1 [307] | 3.5 [89] | 1 | - |
| | CP1P6G0096C | | | Open (Floor) | D | 16.5 [419] | 11.0 [279] | 23.5 [597] | | | | |
| 125 | CP1P6G0120F | 112 | 120 | Type 3R | DH3 | 28.3 [719] | 27.0 [687] | 36.0 [914] | Pre-installed in Enclosure | | 590 [268] | |
| | CP1P6G0120C | | | Open (Wall) | B | 14.8 [376] | 13.5 [343] | 25.5 [648] | 8.5 [216] | 3.5 [89] | 1 | - |
| | CP1P6G0120C | | | Open (Floor) | D | 16.5 [419] | 12.0 [305] | 23.5 [597] | 9.1 [231] | 3.5 [89] | 1 | - |
| 150 | CP1P6G0144F | 135 | 144 | Open (F) | D | 19.0 [483] | 12.0 [305] | 23.5 [597] | 9.1 [231] | 3.5 [89] | 1 | - |
| | CP1P6G0144C | | | DH3 | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | 11.5 [292] | 3.5 [89] | 1 | - |
| 200 | CP1P6G0192F | 180 | 192 | Open (F) | D | 19.5 [495] | 14.0 [356] | 23.5 [597] | 14.4 [366] | 3.5 [89] | 1 | - |
| | CP1P6G0192C | | | Type 3R | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | Pre-installed in Enclosure | | 1050 [476] | |
| 250 | CP1P6G0240F | 225 | 240 | Open (F) | D | 19.5 [495] | 15.5 [394] | 23.5 [597] | 14.4 [366] | 3.5 [89] | 1 | - |
| | CP1P6G0240C | | | Type 3R | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | 14.4 [366] | 4.6 [117] | 1 | - |
| 300 | CP1P6G0287F | 270 | 278 | Open (F) | E | 21.0 [633] | 17.0 [432] | 34.0 [864] | 12.1 [307] | 3.5 [89] | 3 | - |
| | CP1P6G0287C | | | Type 3R | DH4 | 31.5 [800] | 29.5 [749] | 44.5 [1130] | Pre-installed in Enclosure | | 1450 [658] | |
| 350 | CP1P6G0335F | 315 | 335 | Open (F) | E | 21.0 [633] | 19.0 [483] | 35.0 [889] | 12.1 [307] | 3.5 [89] | 1 | - |
| | CP1P6G0335C | | | Type 3R | DH5 | 38.0 [965] | 34.0 [864] | 52.0 [1321] | 14.4 [366] | 3.5 [89] | 1 | - |
| 400 | CP1P6G0399F | 375 | 399 | Open (F) | F | 26.0 [660] | 19.0 [483] | 39.0 [991] | 14.4 [366] | 4.6 [117] | 3 | - |
| | CP1P6G0399C | | | Type 3R | DH5 | - | 34.0 [864] | 52.0 [1321] | Pre-installed in Enclosure | | 1900 [862] | |
| 500 | CP1P6G0505F | 475 | 505 | Open (F) | F | 27.0 [686] | 21.0 [533] | 41.0 [1041] | 14.4 [366] | 3.5 [89] | 2 | - |
| | CP1P6G0505C | | | Type 3R | DH5 | 38.0 [965] | 34.0 [864] | 52.0 [1321] | 14.4 [366] | 4.6 [117] | 2 | 2400 [1089] |

*Weight & dimensions are approximate

¹Capacitors are pre-installed in enclosed style parts

²Please refer to figure G for capacitor drawing

HPS Centurion™ P Passive Harmonic Filter

Wall Mount Mounting Dimensions & Figures

Figure A

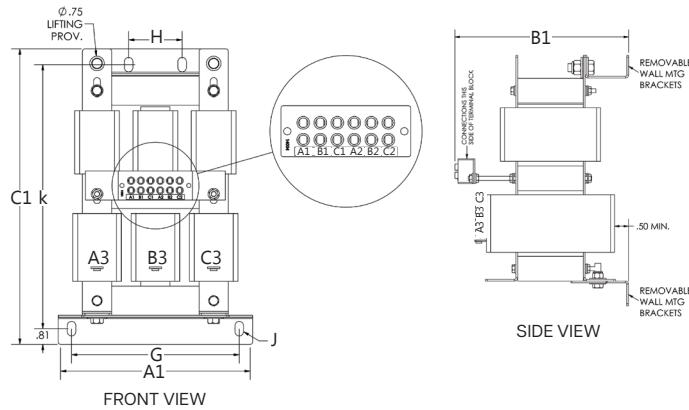
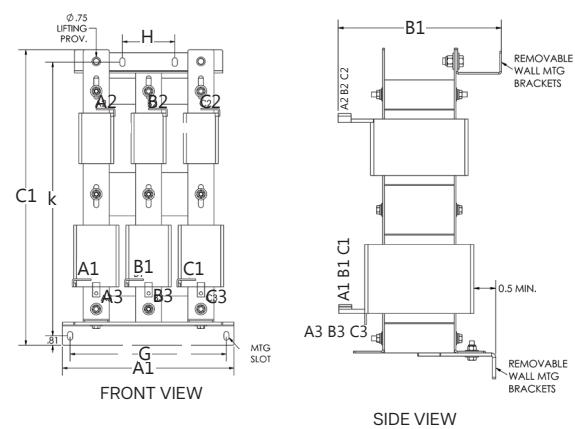


Figure B



480V

Wall Mount Reactor Mounting Information

Dimensions in Inches [Millimeter]

| Dim. Fig. # | Amps at 480V | Mtg Width BOT [G] | Mtg Width TOP [H] | Mtg H (K) | Mtg Slot (J) |
|-------------|--------------|-------------------|-------------------|------------|---------------------|
| A | 8 - 11 | 6.6 [168] | 2.8 [71] | 12.5 [318] | .28 x .56 [7 x 14] |
| | 14 - 32 | 8.6 [218] | 2.8 [71] | 15.2 [386] | .44 x .75 [11 x 19] |
| | 37-61 | 10.2 [259] | 4.5 [114] | 17.6 [447] | .44 x .75 [11 x 19] |
| B | 74-151 | 13.4 [340] | 4.5 [114] | 25.5 [648] | .44 x .75 [11 x 19] |

600V

Wall Mount Reactor Mounting Information

Dimensions in Inches [Millimeter]

| Dim. Fig. # | Amps at 600V | Mtg Width BOT [G] | Mtg Width TOP [H] | Mtg H (K) | Mtg Slot (J) |
|-------------|--------------|-------------------|-------------------|------------|---------------------|
| A | 6 - 8 | 6.6 [168] | 2.8 [71] | 11.2 [284] | .28 x .56 [7 x 14] |
| | 12 - 25 | 8.6 [218] | 2.8 [71] | 13.6 [345] | .44 x .75 [11 x 19] |
| | 31 - 49 | 10.2 [259] | 4.5 [114] | 16 [406] | .44 x .75 [11 x 19] |
| B | 59 - 120 | 13.4 [340] | 4.5 [114] | 23.6 [599] | .44 x .75 [11 x 19] |

Floor Mount Mounting Dimensions & Figures

Figure C

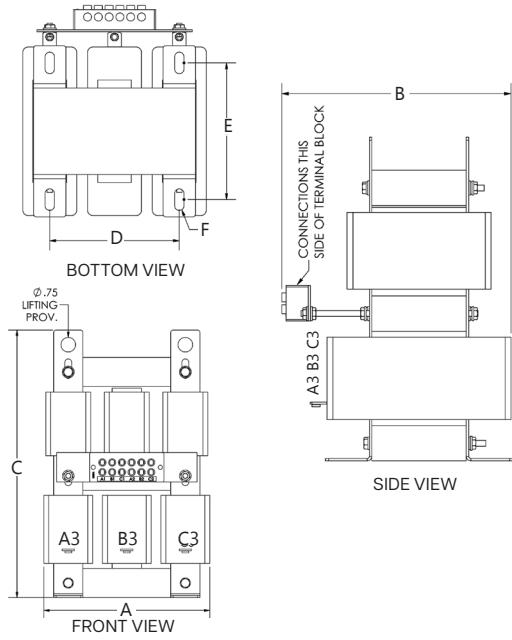


Figure D

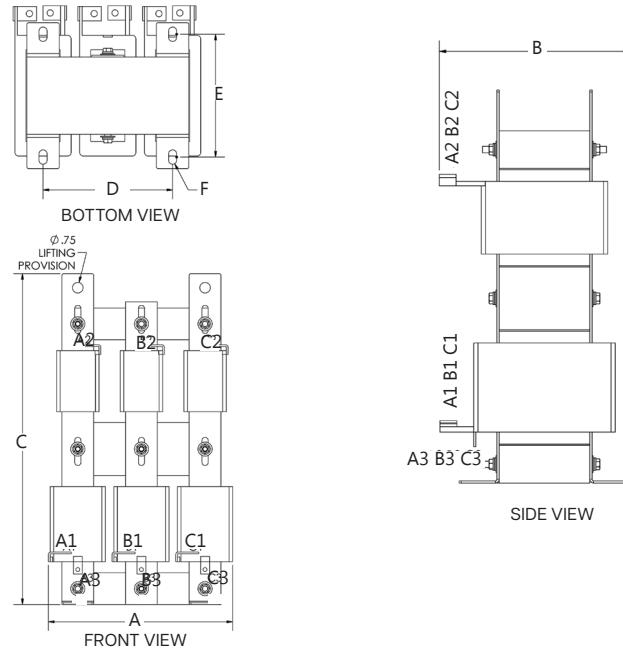


Figure E

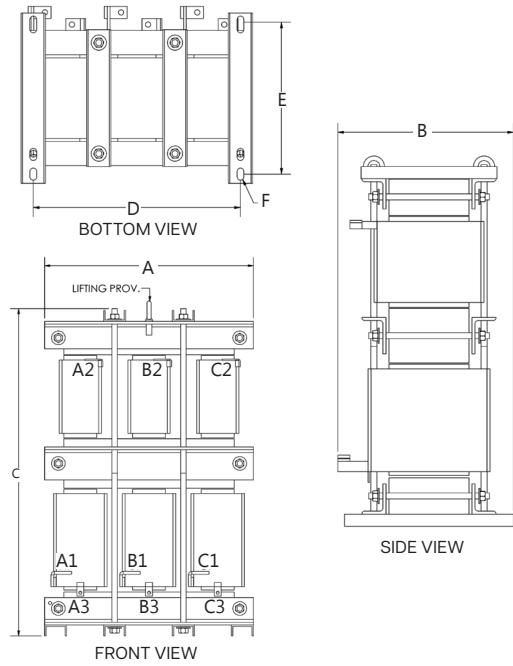
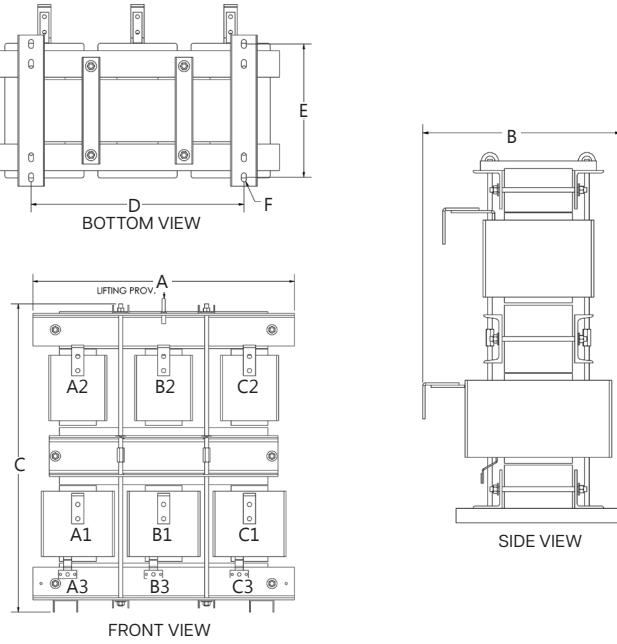


Figure F



HPS Centurion™ P Passive Harmonic Filter

480V

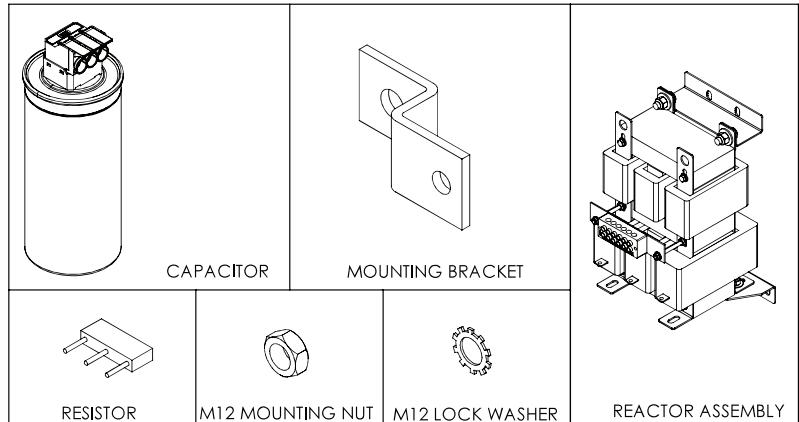
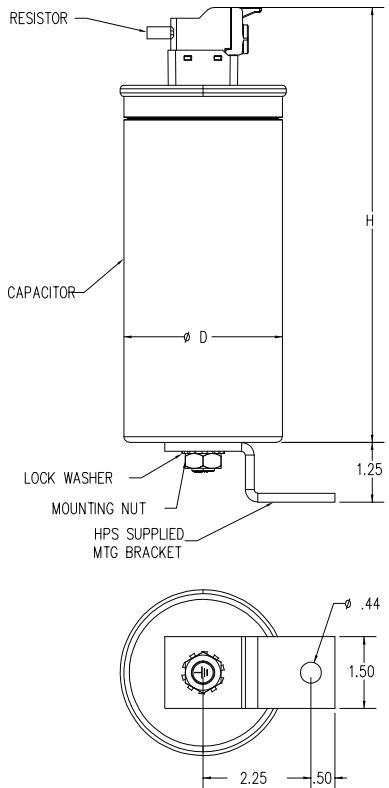
| Floor Mount Reactor Mounting Information | | | | |
|--|--------------|---------------|---------------|---------------------|
| Dimensions in Inches [Millimeter] | | | | |
| Dim. Fig. # | Amps at 480V | Mtg Width [D] | Mtg Width [E] | Mtg Slot (J) |
| C | 8 - 11 | 4.8 [122] | 3.6 [91] | .38 x .50 [10 x 13] |
| | 14 - 19 | 6 [152] | 4.5 [114] | .44 x 1.0 [11 x 25] |
| | 25 | 6 [152] | 5.3 [135] | .44 x 1.0 [11 x 25] |
| | 32 | 6 [152] | 6.3 [160] | .44 x 1.0 [11 x 25] |
| | 37 - 50 | 7.2 [183] | 5.5 [140] | .44 x 1.0 [11 x 25] |
| D | 61 | 7.2 [183] | 7.0 [178] | .44 x 1.0 [11 x 25] |
| | 74 | 9.5 [241] | 6.9 [175] | .44 x 1.0 [11 x 25] |
| | 91 | 9.5 [241] | 8.2 [208] | .44 x 1.0 [11 x 25] |
| | 121 | 9 [229] | 8.6 [218] | .44 x 1.0 [11 x 25] |
| | 151 | 10.5 [267] | 7.9 [201] | .44 x 1.0 [11 x 25] |
| E | 180 | 10.5 [267] | 8.7 [221] | .44 x 1.0 [11 x 25] |
| | 241 | 12 [305] | 9.3 [236] | .44 x 1.0 [11 x 25] |
| | 299 | 17 [432] | 12.5 [318] | .56 x 1.0 [14 x 25] |
| | 358 | 19 [483] | 15 [381] | .56 x 1.0 [14 x 25] |
| | 420 | 19 [483] | 14.8 [376] | .56 x 1.0 [14 x 25] |
| F | 499 - 632 | 24 [610] | 15 [381] | .56 x 1.0 [14 x 25] |

600V

| Floor Mount Reactor Mounting Information | | | | |
|--|--------------|---------------|---------------|---------------------|
| Dimensions in Inches [Millimeter] | | | | |
| Dim. Fig. # | Amps at 600V | Mtg Width [D] | Mtg Width [E] | Mtg Slot (J) |
| C | 6 - 8 | 4.8 [122] | 3.5 [89] | .38 x .50 [10 x 13] |
| | 12 - 16 | 6 [152] | 4.5 [114] | .44 x 1.0 [11 x 25] |
| | 20 | 6 [152] | 5.2 [132] | .44 x 1.0 [11 x 25] |
| | 25 | 6 [152] | 6.3 [160] | .44 x 1.0 [11 x 25] |
| | 31 - 40 | 7.2 [183] | 5.5 [140] | .44 x 1.0 [11 x 25] |
| D | 49 | 7.2 [183] | 7.1 [180] | .44 x 1.0 [11 x 25] |
| | 59 | 9.5 [241] | 6.8 [173] | .44 x 1.0 [11 x 25] |
| | 73 | 9 [229] | 8.6 [218] | .44 x 1.0 [11 x 25] |
| | 96 | 10.5 [267] | 7.7 [196] | .44 x 1.0 [11 x 25] |
| | 120 | 10.5 [267] | 8.7 [221] | .44 x 1.0 [11 x 25] |
| E | 144 | 12.5 [318] | 9 [229] | .44 x 1.0 [11 x 25] |
| | 192 | 13 [330] | 9.3 [236] | .44 x 1.0 [11 x 25] |
| | 240 | 13 [330] | 10.2 [259] | .44 x 1.0 [11 x 25] |
| | 287 | 19 [483] | 15 [381] | .56 x 1.0 [14 x 25] |
| | 335 | 19 [483] | 14.8 [376] | .56 x 1.0 [14 x 25] |
| F | 399 | 24 [610] | 17 [432] | .56 x 1.0 [14 x 25] |
| | 505 | 24 [610] | 16.5 [419] | .56 x 1.0 [14 x 25] |

Capacitors & Contactor Information

Capacitor Drawing - Figure G



1. If the resistor is not installed in capacitor terminal block, install it.
2. Mount the capacitor using the nut and lock washer provided. Please refer to installation manual for further details.

Optional Contactors

A contactor(s) can be provided as an option to disconnect the filter capacitor(s) as such load ratings if the capacitors is not required. These specific load ratings are determined by customer requirements. The contactor(s) are supplied with No?NC auxiliary contacts.

Open Style Filter

Customer is responsible for mounting and wiring of capacitors(s) as well as contactor(s).

Enclosed

Both capacitor(s) and contactor(s) are pre-installed and wired in the enclosure.

HPS Centurion™ P Passive Harmonic Filter

Capacitors & Contactor Information - Continued

480V

| Dimensions in Inches [Millimeter] | | | | | | |
|-----------------------------------|--------|-----------------------------|------------|-----------|-----|-------------------------------------|
| HP at 480V | Cap | Replacement Cap Part Number | H | D | Qty | "Optional Contactor Current Rating" |
| 5 | Cap #1 | CP1K-0621 | 4.4 [112] | 2.6 [66] | 1 | 15 |
| 7.5 | Cap #1 | CP1K-0622 | 5.5 [140] | 2.6 [66] | 1 | 15 |
| 10 | Cap #1 | CP1K-0600 | 5.5 [140] | 2.6 [66] | 1 | 15 |
| 15 | Cap #1 | CP1K-0624 | 7.5 [191] | 2.6 [66] | 1 | 15 |
| 20 | Cap #1 | CP1K-0625 | 7.4 [188] | 2.6 [66] | 1 | 15 |
| 25 | Cap #1 | CP1K-0601 | 8.5 [216] | 3.5 [89] | 1 | 15 |
| 30 | Cap #1 | CP1K-0601 | 8.5 [216] | 3.5 [89] | 1 | 30 |
| 40 | Cap #1 | CP1K-0607 | 9.1 [231] | 3.5 [89] | 1 | 30 |
| 50 | Cap #1 | CP1K-0614 | 9.1 [231] | 3.5 [89] | 1 | 30 |
| 60 | Cap #1 | CP1K-0613 | 9.1 [231] | 3.5 [89] | 1 | 50 |
| 75 | Cap #1 | CP1K-0610 | 10.3 [262] | 3.5 [89] | 1 | 50 |
| 100 | Cap #1 | CP1K-0602 | 12.1 [307] | 3.5 [89] | 1 | 90 |
| 125 | Cap #1 | CP1K-0610 | 10.3 [262] | 3.5 [89] | 1 | 2 x 50 |
| | Cap #2 | CP1K-0614 | 9.1 [231] | 3.5 [89] | 1 | |
| 150 | Cap #1 | CP1K-0606 | 11.5 [292] | 4.6 [117] | 1 | 90 |
| 200 | Cap #1 | CP1K-0602 | 12.1 [307] | 3.5 [89] | 1 | 2 x 90 |
| | Cap #2 | CP1K-0605 | 11.5 [292] | 4.6 [117] | 1 | |
| 250 | Cap #1 | CP1K-0602 | 12.1 [307] | 3.5 [89] | 1 | 3 x 50 |
| | Cap #2 | CP1K-0611 | 10.3 [262] | 3.5 [89] | 2 | |
| 300 | Cap #1 | CP1K-0606 | 11.5 [292] | 4.6 [117] | 2 | 2 x 90 |
| 350 | Cap #1 | CP1K-0605 | 11.5 [292] | 4.6 [117] | 3 | 3 x 90 |
| 400 | Cap #1 | CP1K-0605 | 11.5 [292] | 4.6 [117] | 2 | 3 x 90 |
| | Cap #2 | CP1K-0606 | 11.5 [292] | 4.6 [117] | 1 | |
| 500 | Cap #1 | CP1K-0605 | 11.5 [292] | 4.6 [117] | 2 | 4 x 90 |
| | Cap #2 | CP1K-0606 | 11.5 [292] | 4.6 [117] | 2 | |

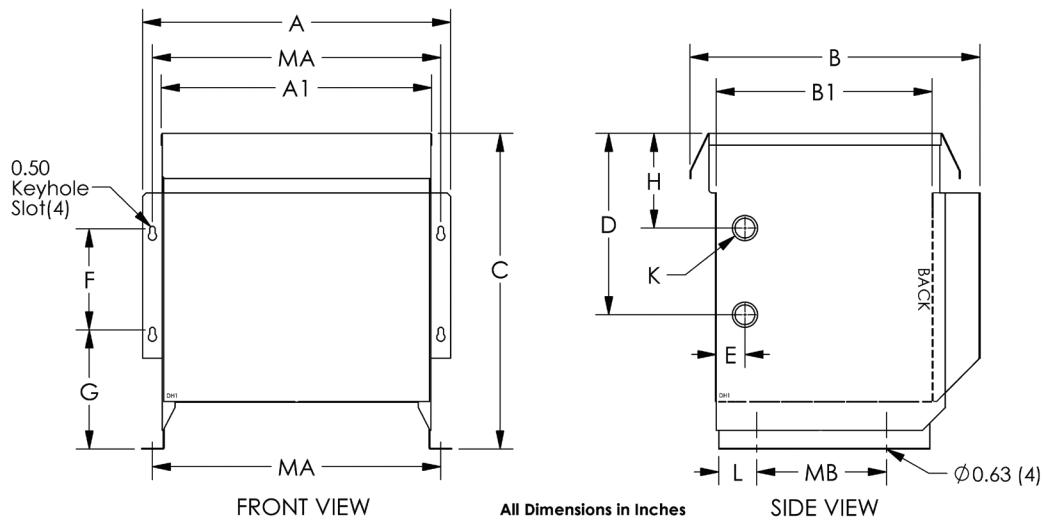
Capacitors & Contactor Information - Continued

600V

| Dimensions in Inches [Millimeter] | | | | | | |
|-----------------------------------|--------|-----------------------------|------------|-----------|-----|-------------------------------------|
| HP at 600V | Cap | Replacement Cap Part Number | H | D | Qty | "Optional Contactor Current Rating" |
| 5 | Cap #1 | CP1P-6015 | 4.4 [112] | 2.6 [66] | 1 | 15 |
| 7.5 | Cap #1 | CP1P-6026 | 4.4 [112] | 2.6 [66] | 1 | 15 |
| 10 | Cap #1 | CP1P-6026 | 4.4 [112] | 2.6 [66] | 1 | 15 |
| 15 | Cap #1 | | 5.5 [140] | 2.6 [66] | 1 | 15 |
| 20 | Cap #1 | CP1P-6027 | 7.5 [191] | 2.6 [66] | 1 | 15 |
| 25 | Cap #1 | CP1P-6030 | 7.4 [188] | 3.5 [89] | 1 | 15 |
| 30 | Cap #1 | CP1P-6030 | 7.4 [188] | 3.5 [89] | 1 | 15 |
| 40 | Cap #1 | CP1P-6008 | 8.7 [221] | 2.6 [66] | 1 | 30 |
| 50 | Cap #1 | CP1P-6020 | 8.5 [216] | 3.5 [89] | 1 | 30 |
| 60 | Cap #1 | CP1P-6016 | 9.1 [231] | 3.5 [89] | 1 | 30 |
| 75 | Cap #1 | CP1P-6017 | 9.1 [231] | 3.5 [89] | 1 | 50 |
| 100 | Cap #1 | CP1P-6018 | 12.1 [307] | 3.5 [89] | 1 | 50 |
| 125 | Cap #1 | CP1P-6020 | 8.5 [216] | 3.5 [89] | 1 | 2 x 30 |
| | Cap #2 | CP1P-6017 | 9.1 [231] | 3.5 [89] | 1 | |
| 150 | Cap #1 | CP1P-6016 | 9.1 [231] | 3.5 [89] | 1 | 2 x 50 |
| | Cap #2 | CP1P-6003 | 11.5 [292] | 3.5 [89] | 1 | |
| 200 | Cap #1 | CP1P-6004 | 14.4 [366] | 3.5 [89] | 1 | 2 x 50 |
| | Cap #2 | CP1P-6003 | 11.5 [292] | 3.5 [89] | 1 | |
| 250 | Cap #1 | CP1P-6004 | 14.4 [366] | 3.5 [89] | 1 | 2 x 90 |
| | Cap #2 | CP1P-6019 | 14.4 [366] | 4.6 [117] | 1 | |
| 300 | Cap #1 | CP1P-6018 | 12.1 [307] | 3.5 [89] | 3 | 3 x 50 |
| | Cap #1 | CP1P-6018 | 12.1 [307] | 3.5 [89] | 1 | |
| 350 | Cap #2 | CP1P-6004 | 14.4 [366] | 3.5 [89] | 1 | 3 x 90 |
| | Cap #3 | CP1P-6019 | 14.4 [366] | 4.6 [117] | 1 | |
| 400 | Cap #1 | CP1P-6019 | 14.4 [366] | 4.6 [117] | 3 | 3 x 90 |
| 500 | Cap #1 | CP1P-6004 | 14.4 [366] | 3.5 [89] | 2 | 4 x 90 |
| | Cap #2 | | 14.4 [366] | 4.6 [117] | 2 | |

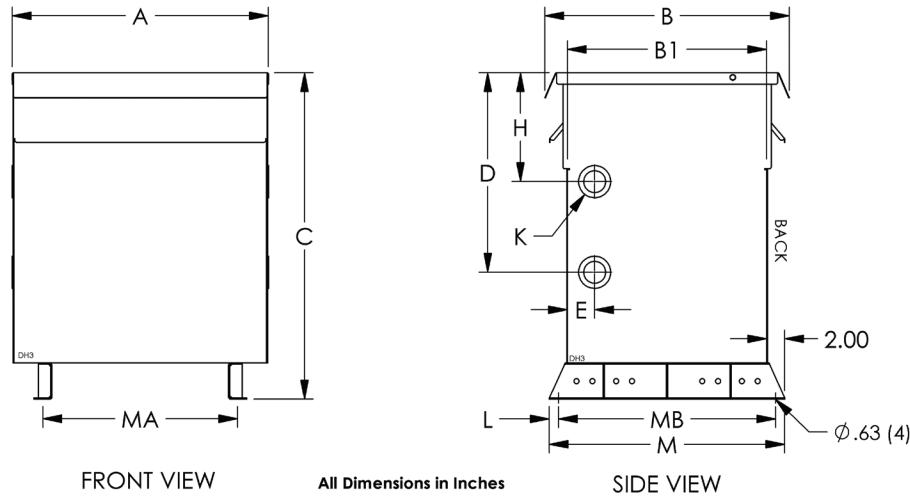
HPS Centurion™ P Passive Harmonic Filter

Enclosure Drawings



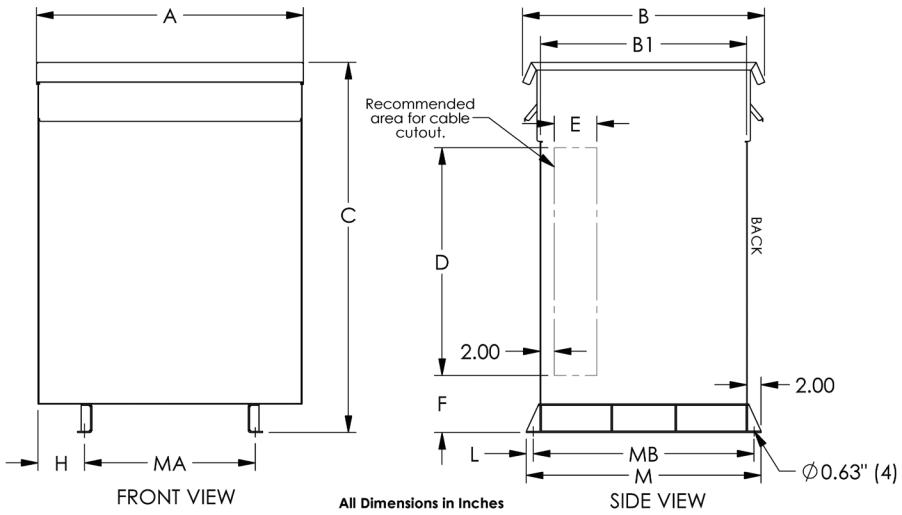
| Case Style | Dimensions in Inches [Millimeter] | | | | | | | | | | | | | |
|------------|-----------------------------------|---------------|---------------|-------------|---------------|---------------|-----------|------------|---------------|--------------|------------------------------------|-------------|---------------|------------|
| | A | A1 | B | B1 | C | D | E | F | G | H | K | L | MA | MB |
| DH1 | 21.5 [546] | 18.8 [477] | 20.1 [510] | 15 [381] | 22 [559] | 12.6 [320] | 2 [51] | 7 [178] | 8.3 [211] | 6.6 [168] | 1.38 X 1.75 K.O. [35 x 44 K.O.] | 2.6 [66] | 20 [508] | 9 [229] |
| DH2 | 25.8 [655] | 23.3 [592] | 23.8 [604] | 18 [457] | 28.8 [731] | 17 [432] | 2 [51] | 8 [203] | 10.3 [262] | 8.6 [218] | 1.75 X 2.50 K.O. [44 X 63 K.O.] | 3.8 [96] | 24.6 [625] | 9 [229] |

¹Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



| Case Style | Dimensions in Inches [Millimeter] | | | | | | | | | | | | |
|------------|-----------------------------------|---------------|---------------|----------------|---------------|-----------|---------------|------------------------------------|-----------|---------------|---------------|---------------|--|
| | A | B | B1 | C | D | E | H | K | L | M | MA | MB | |
| DH3 | 28.3 [719] | 27 [687] | 22 [559] | 36 [914] | 22 [559] | 3 [76] | 12 [305] | 2.00 X 3.00 K.O. [50 X 76 K.O.] | 1 [25] | 26 [660] | 21.5 [546] | 24 [610] | |
| DH4 | 31.5 [800] | 29.5 [749] | 24.5 [622] | 44.5 [1130] | 27.5 [698] | 3 [76] | 14.5 [368] | 2.00 X 3.00 K.O. [50 X 76 K.O.] | 1 [25] | 28.5 [724] | 23.5 [597] | 26.5 [673] | |

¹Knockout (K) sizes are actual diameters of knockout, not conduit sizes.



| Case Style | Dimensions in Inches [Millimeter] | | | | | | | | | | | | |
|------------|-----------------------------------|-------------|-------------|--------------|-------------|------------|------------|--------------|-----------|-------------|-------------|-------------|--|
| | A | B | B1 | C | D | E | F | H | L | M | MA | MB | |
| DH5 | 38 [965] | 34 [864] | 29 [737] | 52 [1321] | 32 [813] | 6 [152] | 8 [203] | 6.6 [168] | 1 [25] | 33 [838] | 24 [610] | 31 [787] | |

¹Knockout (K) sizes are actual diameters of knockout, not conduit sizes.

Termination Details & Enclosure Mounting Kits

Termination Details

| HP | 480 V Current (A) | 600 V Current (A) |
|-----|-------------------|-------------------|
| 5 | 18-14 AWG | 18-14 AWG |
| 7.5 | 18-14 AWG | 18-14 AWG |
| 10 | 13-10 AWG | 13-10 AWG |
| 15 | 8-14 AWG | 13-10 AWG |
| 20 | 8-14 AWG | 8-14 AWG |
| 25 | 8-14 AWG | 8-14 AWG |
| 30 | Dia. 1A | Dia. 1A |
| 40 | Dia. 1A | Dia. 1A |
| 50 | Dia. 1A | Dia. 1A |
| 60 | Dia. 1A | Dia. 1A |
| 75 | Dia. 1A | Dia. 1A |
| 100 | Dia. 1b | Dia. 1A |
| 125 | Dia. 1b | Dia. 1b |
| 150 | Dia. 1b | Dia. 1b |
| 200 | Dia. 1b | Dia. 1b |
| 250 | Dia. 1b | Dia. 1b |
| 300 | Dia. 1b | Dia. 1b |
| 350 | Dia. 1b | Dia. 1b |
| 400 | Dia. 1b | Dia. 1b |
| 500 | Dia. 2 | Dia. 2 |

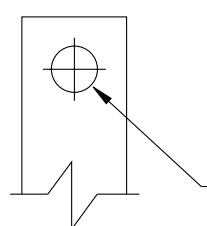


DIAGRAM 1

1A = 0.28" Dia.
1B = 0.44" Dia.

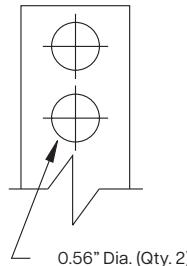


DIAGRAM 2

ENCLOSURE MOUNTING KITS

If wall and/or ceiling mounting is desired for a filter, optional mounting kits can be ordered separately. These mounting kits are NOT available for all enclosure case styles. Therefore, it is important that you confirm your enclosure case style, then use the selection table to the right to determine if A) a mounting kit is available and B) determine the correct HPS "Mounting Kit" part number that you must order. One kit is required for each filter.

Note: Some of the mounting kits can be used for both wall and ceiling mount, while others are for wall mounting only. The table indicates which mounting methods are available for each kit. The DW3 wall/ceiling mounting kit also includes a drip plate.

The DW3 wall/ceiling mounting kit is only designed for units up to 1000 pounds (453 kg) maximum.

If it is intended to wall and/or ceiling mount an enclosure that does not have a wall/ceiling mount kit available, considerations must be made to mechanically support the transformer safely and to install per the local building code. A drip plate must be provided beneath the enclosure per UL 1561 and CSA C22.2 No. 47.

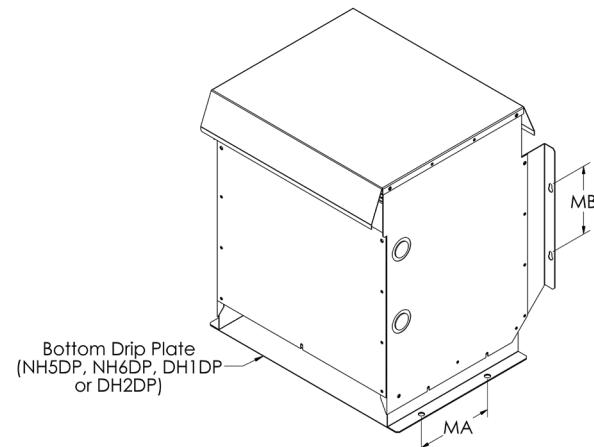
| Enclosure Case Style | Wall Mount Available | Ceiling Mount Available | HPS Mounting Kit P/N |
|----------------------|----------------------|-------------------------|----------------------|
| DH1 | Yes | Yes | DH1DP |
| DH2 | Yes | Yes | DH2DP |
| DH3 | Yes | Yes | DW3 |
| DH4 | No | No | N/A |
| DH5 | No | No | N/A |

DH1DP and DH2DP Wall/Ceiling Mounting Kits

The DH1, DH1-1 and DH2 enclosures are designed with integral wall mounting capabilities. However, when you wall mount them, you must also install the bottom drip plate as shown below. The "MB" dimensions listed in the table below indicate the location for the wall mounting hardware.

For ceiling mounting of the DH1, DH1-1 and DH2, refer to the "MA" dimensions listed in the table below and hang the enclosure using appropriate sized ceiling hanger rods. However, you must be sure to install the bottom drip plate to the bottom of the enclosure, then bring the hanger rod down through both the enclosure bottom mounting holes, through the drip plate mounting holes, and install mounting hardware.

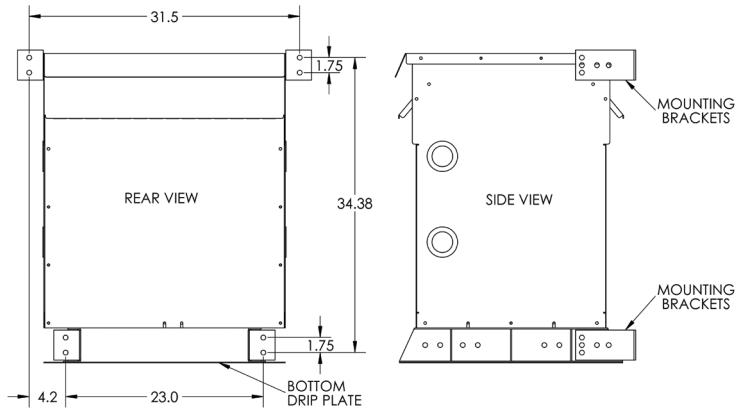
Note: Do not ceiling mount either the DH1, DH1-1 and DH2 enclosures without installing the bottom drip plate. All mounting hardware should be rated Grade 8 or higher.



| Mounting Kit P/N | Enclosure Style | MA Dimension Inches [mm] | MB Dimension Inches [mm] |
|------------------|-----------------|--------------------------|--------------------------|
| DH1DP | DH1 | 9.00 [228.6] | 7.00 [177.8] |
| DH2DP | DH2 | 9.00 [228.6] | 8.00 [203.2] |

DW3 Wall Mounting Kit Dimensions

The following drawing details the wall mounting dimensions required and method by which the DW3 kit are installed on their respective DH3 enclosures. The DW3 wall mounting kit also includes a drip plate.



Other HPS Power Quality Products



HPS Centurion R
Reactor



HPS Centurion D1
dV/dT Filter



HPS Sentinel H
Harmonic Mitigating Transformer
Energy Efficient



HPS TruWave
Active Harmonic Filter



HPS Tribune
Drive Isolation Transformer -
Low Efficiency



HPS Tribune E
Drive Isolation Transformer -
Energy Efficient



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