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 "Line Reactor Selection Software".
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SECTION 3

**RM SERIES LINE REACTORS &
 RC SERIES DV/DT FILTER REACTORS**

Single and Three Phase

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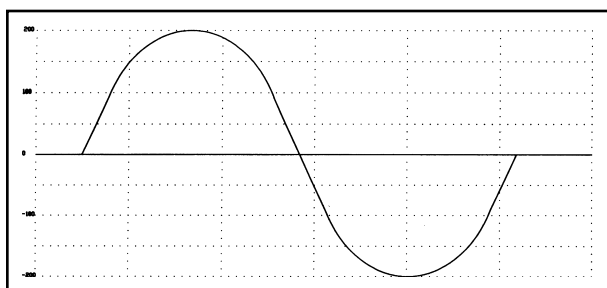
Why Choose A Line Reactor

Utilizing Variable Speed Drives to control motor speed has impacted industry both in energy savings and increased efficiencies. The challenge for today's designers is dealing with non linear wave shapes generated by solid state devices.

By choosing a Hammond line reactor, many line problems can be eliminated. Additionally, performance, life expectancy and efficiency of both the motor and the drive itself are significantly enhanced.

ELIMINATE NUISANCE TRIPPING

Transients due to switching on the utility line and harmonics from the drive system, can cause intermittent tripping of circuit breakers. Furthermore, modern switchgear, equipped with solid state trip sensing devices, is designed to react to peak current rather than RMS current. As switching transients can peak over 1000 volts, the resulting overvoltage will cause undesirable interruptions. A reactor added to your circuit restricts the surge current by utilizing its inductive characteristics, and therefore eliminates nuisance tripping.



Normal sine wave from the Utility supply.

EXTEND THE LIFE OF SWITCHING COMPONENTS

Due to the attenuation of line disturbances, the life of your solid state devices are extended when protected by the use of a Hammond line reactor.

SATURATION

Due to the care in the selection of the core material with its optimum flux density, Hammond line reactors will not saturate under the most adverse line conditions. Since the inductance is linear over a broader current range, equipment is protected even in extreme overcurrent circumstances.

EXTEND THE LIFE OF YOUR MOTOR

Line reactors, when selected for the output of your drive, will enhance the waveform and virtually eliminate failures due to output circuit faults. Subsequently, motor operating temperatures are reduced by 10 to 20 degrees and motor noise is reduced due to the removal of some of the high frequency harmonic currents.

LOW HEAT DISSIPATION

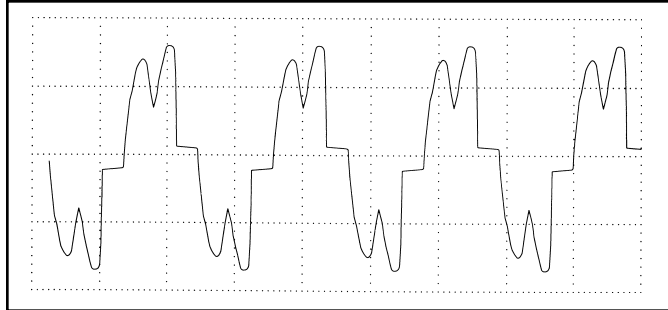
Particular attention has been focused on the design and field testing of this product line. The result are reactors with ideal operating features including low temperature rises and reduced losses. Hammond reactors will operate efficiently and heat dissipation in your equipment will be of minimal concern.



MINIMIZE HARMONIC DISTORTION

Nonlinear current waveforms contain harmonic distortion. By using a Hammond line reactor you can limit the inrush current to the rectifier in your drive. The peak current is reduced, the wave form is rounded and harmonic distortion is minimized. Current distortion typically is reduced to 30%.

Severe Harmonic current distortion can also cause the system voltage to distort. Often, high peak harmonic current drawn by the drive, causes “flat-topping” of the voltage waveform. Adding a reactor controls the current component, and voltage harmonic distortion is therefore reduced.



The total harmonic distortion of variable speed drives produces complex wave shapes such as the phase current shown above. The challenge for today's designers is to effectively minimize these line problems.

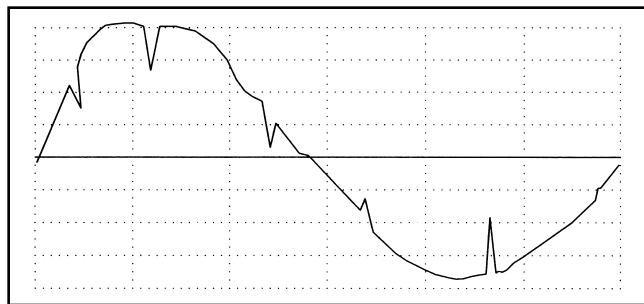
SHORT CIRCUIT CAPABILITY

Hammond line reactors can withstand current under short circuit conditions, reducing the potential of severe damage to electronic equipment. In a short circuit, the inductance of the coil is necessary to limit overcurrent after the core has saturated. Hammond has extensive experience in designing and testing dry-type transformers to withstand short circuits for the most demanding applications, and this experience has been applied to line reactor design.

REDUCE LINE NOTCHING

Whenever AC power is converted to DC by a rectifier using a nonlinear device, such as an SCR, the process of commutation occurs. The result is a notch in the voltage waveform. The number of notches is a function of both the number of pulses and the number of SCR's in the rectifier.

Line Reactors are used to provide the inductive reactance needed to reduce notching, which can adversely effect equipment operation.



A voltage waveform illustrating line notching. Line reactors are used to provide the inductive reactance needed to reduce such notches.



Why Choose A Line Reactor con't...

IMPEDANCE RATINGS

Definition:

$$\% Z = \frac{(VD \times 100) \times \sqrt{3}}{VS}$$

Z = IMPEDANCE (three phase)

VD = VOLTAGE DROP ACROSS REACTOR

VS = VOLTAGE SUPPLY FOR RATED CURRENT TO FLOW THROUGH REACTOR

SELECTION - 3% OR 5% IMPEDANCE REACTOR

Choose 3% impedance reactors to satisfy most solid state applications in North America. Reactors rated for 3% impedance are ideal for absorbing normal line spikes and motor current surges, and will prevent most nuisance line tripping of circuit protection devices or equipment.

Where considerably higher line disturbances are present, a 5% impedance reactor may be required. Additionally, if the application is overseas, or when it is necessary to comply to IEEE 519, the higher impedance reactor is recommended. These units may also be selected to further reduce harmonic current and frequencies if desirable, or to both extend motor life or diminish motor noise.

LINE REACTORS OR DRIVE ISOLATION TRANSFORMERS ?

When true line isolation is required, such as limiting short circuit current, or where it is necessary to step up or step down voltage, use a drive isolation transformer. Hammond carries an extensive line of drive isolation transformers in stock. Refer to Section 4 for information on Drive Isolation transformers.



The RM Line Reactor . . .

CORE

The quality and performance of a line reactor is fundamentally dependant on its ability to withstand harmonics and transients in what is clearly a difficult environment. The bonding and clamping techniques of the gapped core also significantly impacts its performance characteristics.

Hammond has paid particular attention to these basics to ensure both reliable and consistent performance.

Core materials, manufacturing and assembly processes have been carefully evaluated to produce optimum losses and sound levels necessary for this product.

COILS

Copper conductors, precision wound for optimum short circuit withstandability and electrical balance, are used throughout the RM line. Choice of conductors, winding techniques and cooling ducts are precisely selected to assure the highest continuous, reliable performance.

INSULATION SYSTEM

Hammond Line Reactors are designed to meet the most difficult temperature environments. On units up to 160 amps, RM line reactors are 115°C temperature rise, designed for 180°C Insulation Class. This results in a permissible 24 hour maximum ambient of 50°C, or an average of 40°C continuously.

On units larger than 160 amps, Insulation Class

220 is used throughout with a maximum permissible continuous ambient temperature of 60° C. These temperature tests are all measured at 150% rated 60 Hz current. For further information on temperature rises, please consult our Sales Offices.

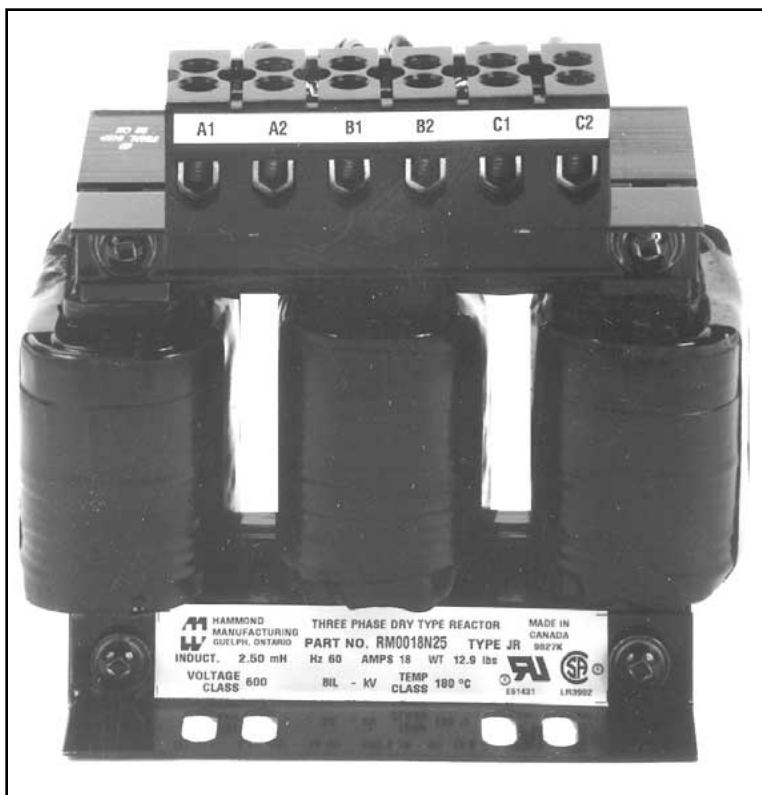
VPI IMPREGNATION

Every reactor is fully VPI vacuum and pressure processed with VT (vinyl-toluene) Polyester Resin. This modern, vinyl-toluene based resin with its thicker build, offers significant benefits for electrical, mechanical and thermal properties.

This impregnation process and material results in a much improved dielectric constant, dissipation

factor, bonding strength and dielectric breakdown (volts per mil) than any other impregnation material including the more traditional oil modified epoxies and varnishes.

Vacuum impregnation is considered vital for the integrity of electrical equipment located in such sensitive locations. The core and coil assembly is finished in black to optimize heat dissipation.



TERMINATIONS

Customer connections are provided for in several ways. Finger-proof-terminal blocks are provided on three model ranges, and terminal pads are supplied on higher current ratings. Refer to the dimensional summary for details. All connections are brazed to ensure electrical integrity.



... Features Of Construction

ENCLOSURES

Enclosed reactors are standard as NEMA 2, suitable for floor or wall mounting. Other enclosures available are NEMA 1, UH2, UH3, UH4 and UH10. Wall mounting kits are available for UH2 enclosures. Please consult customer service for details.

Enclosures are finished with a 7 stage phosphate process with a baked enamel ANSI grey final finish.



QUALITY CONTROL

Every reactor is production line tested in accordance with the requirements for UL, ANSI, NEMA and CSA. This confirms that every unit meets our highest expectations for Quality Assurance.

Additionally, line reactors have been short circuit tested at a certified laboratory to confirm the withstandability of our reactors to short circuits that may be present in a distribution system. Tests were done in accordance with ANSI C57.12.91 at 25 times rated current for 2 seconds. Those test results are available upon request. Successfully withstanding this test ensured that the RM line reactor will survive power stresses such as short circuits that may be present in a distribution circuit.

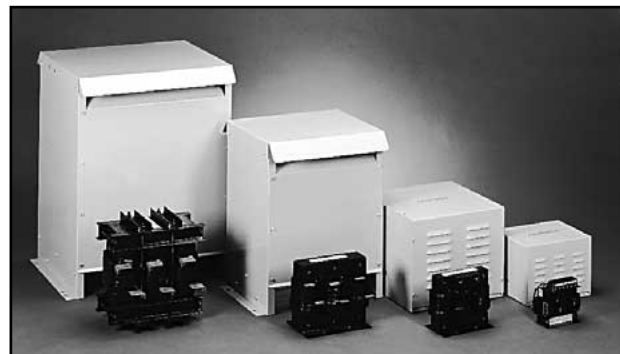
UL and CSA CERTIFICATION

A vital assurance for our customers is the approval of this product line to national standards.

Our open and enclosed style reactors are recognized by UL and certified by CSA as follows:

UL File No.: E61431

CSA File No.: LR3902



This approval is inclusive to 2000 amps and 8.6 kV class, and may be of interest for any special applications.

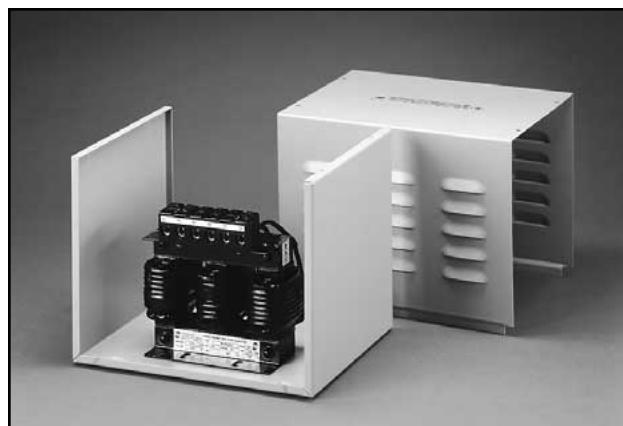
Our products are built in accordance with and meet UL 508 and UL 506 standards.

INPUT AND OUTPUT SIDE REACTORS

Hammond 3 Phase Line Reactors are designed for both the input and output side of variable speed drives including Insulated Gate Bipolar Transistor (IGBT) type inverters.

SPECIALS

For special applications or for any features that you may require beyond the standard line listed, please contact our Sales Offices.



Standard 3 Phase Line Reactor Specifications

RATINGS:

Nominal Inductance +/- 10% @ rated current.
 95% of nominal inductance @ 150% rated current.
 50% of nominal inductance @ 350% of rated current.

The above performance indicates that even at very substantial overload conditions (even beyond what other equipment in the circuit could tolerate), the RM Line Reactor will still provide current limiting performance against total harmonic distortion generated by the drive system.

OVERLOAD:

150% rated 60 Hz current overload continuous.

TEMPERATURE RISE:

115° C on units up to 160 amps; average ambient of 40°C.

115° C on units larger than 160 amps; average ambient of 60° C.

INSULATION SYSTEM:

180° C Temperature Class up to 160 amps,
 220° C Temperature Class over 160 amps.

FREQUENCY:

60 Hz Fundamental Current Maximum.

COOLING METHOD:

Natural convection

SYSTEM VOLTAGE:

600 Volts Maximum

APPROVALS:

UL File No.: E61431

CSA File No.: LR 3902

SOUND LEVEL:

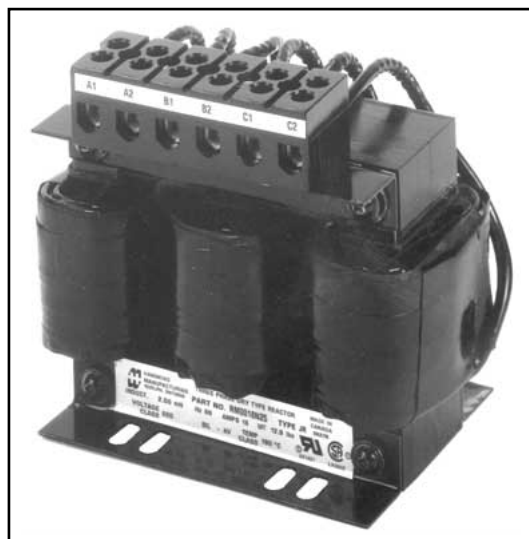
| | |
|-------------------|--------|
| 2 to 18 amps: | 58 dBA |
| 130 to 320 amps: | 70 dBA |
| 25 to 100 amps: | 64 dBA |
| 400 to 1200 amps: | 75 dBA |

ENCLOSURE: (when specified)

NEMA 2

HARMONIC WITHSTAND:

Hammond reactors are designed to withstand typical harmonics associated with both the input and output side of AC variable speed drives including IGBT type inverter drives. For additional information, contact our Sales Office.

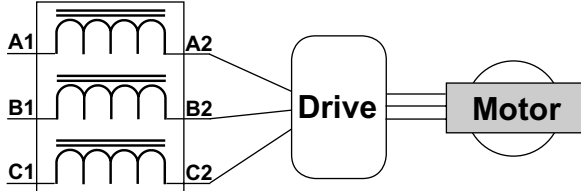


Application and Connection Diagrams For Line Reactors

SECTION 3

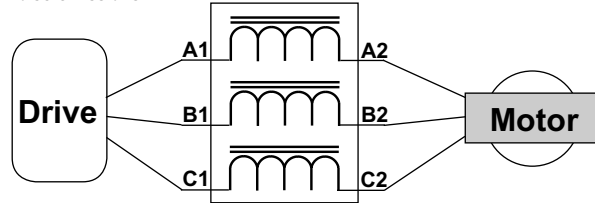
INPUT SIDE OF DRIVE

Installed on the input side of drives, reactors will reduce line notching, limit current and voltage spikes and surges from the incoming line, and will reduce harmonic distortion from the drive onto the line. Units are installed in front of the drive or inverter as shown.



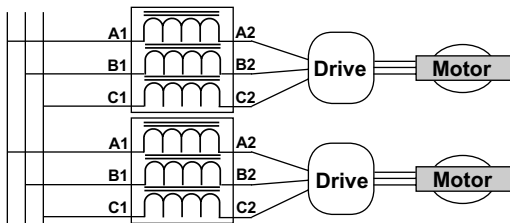
OUTPUT SIDE OF DRIVE

On the output side between the motor and the controller, reactors protect the controller from short circuits at the load. Motor performance improves. Voltage and current waveforms from the supply are enhanced reducing motor overheating and noise emissions.



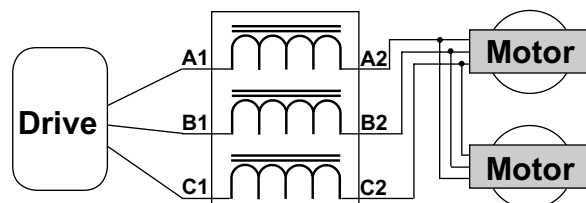
MULTIPLE DRIVES

Individual line reactors are recommended when multiple drives are installed on the same power line. Individual reactors eliminates cross talk between multiple drives and provides isolated protection for each controller for its own specific load.



MULTIPLE MOTORS

A single reactor can be installed when the application calls for multiple motors on the same drive. The reactor is sized based on the total horsepower of all the motors. Recommended for simultaneous operating motors only.



RM Series Line Reactor Selection Tables

Line Reactor Part Number Guide

RM 0002 M 32 * _

Further suffix to follow.
 Add suffix "E" for Enclosure.
 Inductance Value
 The inductance value is preceded with a letter to designate the position of the decimal point to determine the inductance. The letters are as follows:
 'M' XX. mH
 'N' X.X mH
 'P' 0.XX mH
 'U' .0XX mH or XX.0 uH
 Example: M32 is 32.0 mH
 4 digits for current rating
 In-Line Reactor

Note: As all characters of the P/N represent performance values of the reactor, P/N's are not completely sequential. They are sorted by current rating.

* Add the Suffix "E" to the standard part number for an Enclosed unit.

| HP RATING | 240 VOLT - 60 Hz | | | |
|-----------|------------------|------|--------------|------|
| | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | AMPS | P/N | AMPS |
| 0.5 | RM0004N65 | 4 | RM0004M12 | 4 |
| 1 | RM0004N30 | 4 | RM0004N65 | 4 |
| 1.5 | RM0008N30 | 8 | RM0008N50 | 8 |
| 2 | RM0008N15 | 8 | RM0008N30 | 8 |
| 3 | RM0012N13 | 12 | RM0012N25 | 12 |
| 5 | RM0018P80 | 18 | RM0018N15 | 18 |
| 7.5 | RM0025P50 | 25 | RM0025N12 | 25 |
| 10 | RM0035P40 | 35 | RM0035P80 | 35 |
| 15 | RM0045P30 | 45 | RM0055P50 | 55 |
| 20 | RM0055P25 | 55 | RM0055P50 | 55 |
| 25 | RM0080P20 | 80 | RM0080P40 | 80 |
| 30 | RM0080P20 | 80 | RM0080P23 | 80 |
| 40 | RM0110P15 | 110 | RM0110P18 | 110 |
| 50 | RM0130P10 | 130 | RM0130P20 | 160 |
| 60 | RM0160U75 | 160 | RM0160P15 | 160 |
| 75 | RM0200U55 | 200 | RM0200P11 | 200 |
| 100 | RM0250U45 | 250 | RM0250U90 | 250 |
| 125 | RM0320U40 | 320 | RM0320U75 | 320 |
| 150 | RM0400U30 | 400 | RM0400U61 | 400 |
| 200 | RM0500U25 | 500 | RM0500U50 | 500 |
| 250 | RM0600U20 | 600 | RM0600U40 | 600 |
| 300 | RM0750U15 | 750 | RM0750U25 | 750 |
| 350 | RM0900U13 | 900 | RM0900U26 | 900 |
| 400 | RM1000U11 | 1000 | RM1000U18 | 1000 |
| 500 | RM1200U10 | 1200 | RM1200U15 | 1200 |

SECTION 3

| HP RATING | 480 VOLT - 60 Hz | | | |
|-----------|------------------|------|--------------|------|
| | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | AMPS | P/N | AMPS |
| 1 | RM0002M12 | 2 | RM0002M20 | 2 |
| 1.5 | RM0004N91 | 2 | RM0004M12 | 2 |
| 2 | RM0004N65 | 4 | RM0004M12 | 4 |
| 3 | RM0008N50 | 8 | RM0008N75 | 8 |
| 5 | RM0008N30 | 8 | RM0008N50 | 8 |
| 7.5 | RM0012N25 | 12 | RM0012N42 | 12 |
| 10 | RM0018N15 | 18 | RM0018N25 | 18 |
| 15 | RM0025N12 | 25 | RM0025N20 | 25 |
| 20 | RM0035P80 | 35 | RM0035N17 | 35 |
| 25 | RM0035P80 | 35 | RM0035N12 | 35 |
| 30 | RM0045P70 | 45 | RM0045N12 | 45 |
| 40 | RM0055P50 | 55 | RM0055P85 | 55 |
| 50 | RM0080P40 | 80 | RM0080P70 | 80 |
| 60 | RM0080P40 | 80 | RM0080P70 | 80 |
| 75 | RM0110P30 | 110 | RM0110P45 | 110 |
| 100 | RM0130P20 | 130 | RM0130P30 | 130 |
| 125 | RM0160P15 | 160 | RM0160P23 | 160 |
| 150 | RM0200P11 | 200 | RM0200P24 | 200 |
| 200 | RM0250U90 | 250 | RM0250P15 | 250 |
| 250 | RM0320U75 | 320 | RM0320P13 | 320 |
| 300 | RM0400U61 | 400 | RM0400P11 | 400 |
| 350 | RM0500U50 | 500 | RM0500U85 | 500 |
| 400 | RM0500U50 | 500 | RM0500U85 | 500 |
| 500 | RM0600U40 | 600 | RM0600U65 | 600 |
| 600 | RM0750U36 | 750 | RM0750U60 | 750 |
| 700 | RM0900U26 | 900 | RM0900U43 | 900 |
| 800 | RM1000U29 | 1000 | RM1000U38 | 1000 |
| 1000 | RM1200U18 | 1200 | RM1200U30 | 1200 |

| HP RATING | 600 VOLT - 60 Hz | | | |
|-----------|------------------|------|--------------|------|
| | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | AMPS | P/N | AMPS |
| 1 | RM0002M20 | 2 | RM0002M32 | 2 |
| 1.5 | RM0002M12 | 2 | RM0002M20 | 2 |
| 2 | RM0004M12 | 4 | RM0004M22 | 4 |
| 3 | RM0004N91 | 4 | RM0004M12 | 4 |
| 5 | RM0008N50 | 8 | RM0008N75 | 8 |
| 7.5 | RM0012N31 | 12 | RM0012N51 | 12 |
| 10 | RM0012N25 | 12 | RM0012N42 | 12 |
| 15 | RM0018N15 | 18 | RM0018N25 | 18 |
| 20 | RM0025N12 | 25 | RM0025N20 | 25 |
| 25 | RM0035N12 | 35 | RM0035N17 | 35 |
| 30 | RM0035P80 | 35 | RM0035N17 | 35 |
| 40 | RM0045P70 | 45 | RM0045N12 | 45 |
| 50 | RM0055P50 | 55 | RM0055P85 | 55 |
| 60 | RM0080P40 | 80 | RM0080P70 | 80 |
| 75 | RM0080P40 | 80 | RM0080P70 | 80 |
| 100 | RM0110P30 | 110 | RM0110P45 | 110 |
| 125 | RM0130P20 | 130 | RM0130P37 | 130 |
| 150 | RM0160P23 | 160 | RM0160P32 | 160 |
| 200 | RM0200P19 | 200 | RM0200P24 | 200 |
| 250 | RM0250P15 | 250 | RM0250P19 | 250 |
| 300 | RM0320U96 | 320 | RM0320P16 | 320 |
| 350 | RM0400U82 | 400 | RM0400P14 | 400 |
| 400 | RM0400U82 | 400 | RM0400P14 | 400 |
| 500 | RM0500U57 | 500 | RM0500U96 | 500 |
| 600 | RM0600U65 | 600 | RM0600U80 | 600 |
| 700 | RM0700U41 | 700 | RM0700U68 | 700 |
| 800 | RM0750U36 | 750 | RM0750U60 | 750 |
| 900 | RM0900U32 | 900 | RM0900U53 | 900 |
| 1000 | RM1000U29 | 1000 | RM1000U48 | 1000 |
| 1200 | RM1200U24 | 1200 | RM1200U40 | 1200 |



Standard 3 Phase Line Reactor Specification Charts

| Current (Amps) | Part Number | Inductance | Watts Loss | Dimensions | | | | | Mtg Slot/ Hole Size | Dim. Fig. # | Encl. Fig. # | Weight (Lbs.) | Enclosed Weight(Lbs.) |
|----------------|-------------|------------|------------|------------|-------|------|--------|--------|---------------------|-------------|--------------|---------------|-----------------------|
| | | | | H | W | D | Mtg. D | Mtg. W | | | | | |
| 2 | RM0002M12 | 12.0 | 7 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 2 | 9 |
| 2 | RM0002M20 | 20.0 | 9 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 3 | 10 |
| 2 | RM0002M32 | 32.0 | 13 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 3 | 10 |
| 4 | RM0004M12 | 12.0 | 21 | 3.40 | 4.40 | 3.33 | 2.39 | 1.44 | .28 x .63 | 1 | N1 | 4 | 11 |
| 4 | RM0004M22 | 22.0 | 25 | 4.80 | 6.00 | 3.30 | 2.09 | 2.00 | .28 x .63 | 3 | N1 | 8 | 15 |
| 4 | RM0004N30 | 3.00 | 7 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 2 | 9 |
| 4 | RM0004N65 | 6.50 | 13 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 3 | 10 |
| 4 | RM0004N91 | 9.10 | 15 | 3.40 | 4.40 | 2.83 | 1.77 | 1.44 | .28 x .63 | 1 | N1 | 3 | 10 |
| 8 | RM0008N15 | 1.50 | 11 | 3.40 | 4.40 | 2.83 | 1.77 | 2.00 | .28 x .63 | 1 | N1 | 3 | 10 |
| 8 | RM0008N30 | 3.00 | 25 | 3.40 | 4.40 | 2.83 | 1.77 | 2.00 | .28 x .63 | 1 | N1 | 3 | 10 |
| 8 | RM0008N50 | 5.00 | 31 | 3.40 | 4.40 | 3.39 | 2.39 | 2.00 | .28 x .63 | 1 | N1 | 4 | 11 |
| 8 | RM0008N75 | 7.50 | 31 | 4.80 | 6.30 | 3.55 | 2.34 | 2.00 | .28 x .63 | 3 | N1 | 9 | 16 |
| 12 | RM0012N13 | 1.30 | 23 | 3.40 | 4.40 | 2.83 | 1.77 | 2.00 | .28 x .63 | 1 | N1 | 3 | 10 |
| 12 | RM0012N25 | 2.50 | 26 | 4.80 | 6.00 | 3.30 | 2.09 | 2.00 | .28 x .63 | 3 | N1 | 8 | 15 |
| 12 | RM0012N31 | 3.10 | 30 | 4.80 | 6.00 | 3.55 | 2.34 | 2.00 | .28 x .63 | 3 | N1 | 9 | 16 |
| 12 | RM0012N42 | 4.20 | 34 | 4.80 | 6.30 | 3.80 | 2.59 | 2.00 | .28 x .63 | 3 | N1 | 10 | 17 |
| 12 | RM0012N51 | 5.10 | 39 | 4.80 | 6.00 | 3.80 | 2.59 | 2.00 | .28 x .63 | 3 | N1 | 13 | 20 |
| 18 | RM0018N15 | 1.50 | 29 | 4.80 | 6.30 | 3.55 | 2.34 | 2.00 | .28 x .63 | 3 | N1 | 9 | 16 |
| 18 | RM0018N25 | 2.50 | 40 | 5.70 | 6.00 | 3.84 | 2.84 | 3.00 | .28 x .63 | 2 | N1 | 13 | 20 |
| 18 | RM0018P80 | 0.80 | 19 | 4.80 | 6.00 | 3.30 | 2.09 | 2.00 | .28 x .63 | 3 | N1 | 7 | 14 |
| 25 | RM0025N12 | 1.20 | 44 | 5.70 | 6.00 | 3.34 | 2.34 | 3.00 | .28 x .63 | 2 | N1 | 10 | 18 |
| 25 | RM0025N20 | 2.00 | 59 | 5.61 | 6.90 | 3.95 | 2.75 | 3.00 | .38 x .63 | 3 | N2 | 18 | 35 |
| 25 | RM0025P50 | 0.50 | 23 | 5.70 | 6.00 | 3.09 | 2.09 | 3.00 | .28 x .63 | 2 | N1 | 7 | 14 |
| 35 | RM0035N12 | 1.20 | 75 | 6.88 | 8.50 | 4.37 | 3.12 | 3.00 | .44 X 1.00 | 3 | N2 | 26 | 43 |
| 35 | RM0035N17 | 1.70 | 90 | 6.88 | 8.50 | 4.37 | 3.62 | 3.00 | .44 X 1.00 | 3 | N2 | 35 | 52 |
| 35 | RM0035P40 | 0.40 | 36 | 5.70 | 6.00 | 3.34 | 2.34 | 3.00 | .28 x .63 | 2 | N1 | 9 | 16 |
| 35 | RM0035P80 | 0.80 | 51 | 5.61 | 6.90 | 3.95 | 2.75 | 3.00 | .38 x .63 | 3 | N2 | 17 | 24 |
| 45 | RM0045N12 | 1.20 | 100 | 6.88 | 8.50 | 4.37 | 3.63 | 3.00 | .44 X 1.00 | 3 | N2 | 35 | 52 |
| 45 | RM0045P30 | 0.30 | 33 | 5.70 | 6.00 | 3.84 | 2.84 | 3.00 | .28 x .63 | 2 | N1 | 13 | 20 |
| 45 | RM0045P70 | 0.70 | 64 | 5.61 | 6.90 | 4.45 | 3.25 | 3.00 | .38 x .63 | 3 | N2 | 22 | 39 |
| 55 | RM0055P25 | 0.25 | 39 | 5.70 | 6.00 | 3.84 | 2.84 | 3.00 | .28 x .63 | 2 | N1 | 12 | 19 |
| 55 | RM0055P50 | 0.50 | 75 | 6.88 | 8.50 | 4.37 | 3.12 | 3.00 | .44 X 1.00 | 3 | N2 | 26 | 43 |
| 55 | RM0055P85 | 0.85 | 110 | 6.88 | 8.50 | 4.37 | 3.62 | 3.00 | .44 X 1.00 | 3 | N2 | 35 | 52 |
| 80 | RM0080P20 | 0.20 | 88 | 6.88 | 8.50 | 4.37 | 3.12 | 3.60 | .44 X 1.00 | 4 | N2 | 26 | 43 |
| 80 | RM0080P23 | 0.23 | 70 | 6.88 | 8.50 | 4.87 | 3.62 | 3.60 | .44 X 1.00 | 4 | N2 | 33 | 50 |
| 80 | RM0080P40 | 0.40 | 138 | 6.88 | 8.50 | 4.87 | 3.62 | 3.60 | .44 X 1.00 | 4 | N2 | 36 | 53 |
| 80 | RM0080P70 | 0.70 | 140 | 8.29 | 10.50 | 5.85 | 4.23 | 3.60 | .44 X 1.25 | 4 | N2 | 63 | 30 |
| 110 | RM0110P15 | 0.15 | 86 | 6.88 | 8.50 | 4.37 | 3.12 | 3.60 | .44 X 1.00 | 4 | N2 | 27 | 44 |
| 110 | RM0110P18 | 0.18 | 95 | 6.88 | 8.50 | 4.87 | 3.62 | 3.60 | .44 X 1.00 | 4 | N2 | 35 | 52 |
| 110 | RM0110P30 | 0.30 | 123 | 8.29 | 10.50 | 5.35 | 3.73 | 3.60 | .44 X 1.25 | 4 | N2 | 52 | 69 |
| 110 | RM0110P45 | 0.45 | 130 | 8.30 | 10.50 | 5.85 | 4.23 | 3.60 | .44 X 1.25 | 4 | N2 | 63 | 80 |
| 130 | RM0130P10 | 0.10 | 95 | 6.88 | 8.50 | 4.37 | 3.12 | 3.00 | .44 X 1.00 | 4 | N2 | 27 | 44 |
| 130 | RM0130P20 | 0.20 | 115 | 8.29 | 10.50 | 5.35 | 3.73 | 3.60 | .44 X 1.25 | 4 | N2 | 41 | 58 |
| 130 | RM0130P30 | 0.30 | 142 | 8.29 | 10.50 | 5.85 | 4.23 | 3.60 | .44 X 1.25 | 4 | N2 | 53 | 70 |
| 130 | RM0130P37 | 0.37 | 143 | 8.29 | 10.50 | 6.85 | 5.23 | 3.60 | .44 X 1.25 | 4 | N2 | 75 | 92 |
| 160 | RM0160P15 | 0.15 | 129 | 8.29 | 10.50 | 5.35 | 3.73 | 3.60 | .44 X 1.25 | 4 | N2 | 46 | 63 |
| 160 | RM0160P23 | 0.23 | 142 | 8.29 | 10.50 | 6.35 | 4.73 | 3.60 | .44 X 1.25 | 4 | N2 | 66 | 83 |
| 160 | RM0160P32 | 0.32 | 141 | 8.29 | 10.50 | 6.87 | 6.73 | 3.60 | .44 X 1.25 | 4 | UH2 | 104 | 164 |
| 160 | RM0160U75 | 0.08 | 100 | 6.88 | 8.50 | 4.37 | 3.12 | 3.60 | .44 X 1.00 | 4 | N2 | 29 | 46 |

SECTION 3



Standard 3 Phase Line Reactor Specification Charts

| Current (Amps) | Part Number | Inductance | Watts Loss | Dimensions | | | | | Mtg Slot/ Hole Size | Dim. Fig. # | Encl. Fig. # | Weight (Lbs.) | Enclosed Weight(Lbs.) |
|----------------|-------------|------------|------------|------------|-------|-------|--------|--------|---------------------|-------------|--------------|---------------|-----------------------|
| | | | | H | W | D | Mtg. D | Mtg. W | | | | | |
| 200 | RM0200P11 | 0.11 | 114 | 8.29 | 10.50 | 5.85 | 4.23 | 3.60 | .44 X 1.25 | 4 | UH2 | 52 | 112 |
| 200 | RM0200P19 | 0.190 | 138 | 8.29 | 10.50 | 7.85 | 6.23 | 3.60 | .44 X 1.25 | 4 | UH2 | 93 | 153 |
| 200 | RM0200P24 | 0.240 | 164 | 8.29 | 10.50 | 8.35 | 6.73 | 3.60 | .44 X 1.25 | 4 | UH2 | 105 | 165 |
| 200 | RM0200U55 | 0.055 | 89 | 6.88 | 10.50 | 4.87 | 3.62 | 3.60 | .44 X 1.00 | 4 | N2 | 37 | 154 |
| 250 | RM0250P15 | 0.150 | 188 | 11.43 | 13.75 | 6.75 | 5.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 119 | 179 |
| 250 | RM0250P19 | 0.190 | 203 | 11.43 | 13.75 | 7.25 | 5.94 | 4.80 | .44 X 1.00 | 5 | UH2 | 137 | 197 |
| 250 | RM0250U45 | 0.045 | 90 | 8.29 | 10.50 | 5.35 | 3.73 | 3.60 | .44 X 1.25 | 4 | UH2 | 40 | 100 |
| 250 | RM0250U90 | 0.090 | 131 | 8.29 | 10.50 | 6.35 | 4.73 | 4.80 | .44 X 1.25 | 4 | UH2 | 65 | 125 |
| 320 | RM0320P13 | 0.13 | 245 | 11.43 | 13.75 | 7.75 | 6.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 127 | 187 |
| 320 | RM0320P16 | 0.160 | 270 | 11.43 | 13.75 | 7.25 | 5.94 | 4.80 | .44 X 1.00 | 5 | UH2 | 146 | 206 |
| 320 | RM0320U40 | 0.040 | 94 | 8.29 | 10.50 | 6.85 | 5.23 | 4.80 | .44 X 1.25 | 4 | UH2 | 69 | 129 |
| 320 | RM0320U75 | 0.075 | 184 | 11.43 | 13.75 | 7.25 | 5.94 | 4.80 | .44 X 1.00 | 5 | UH2 | 87 | 147 |
| 320 | RM0320U96 | 0.096 | 214 | 11.43 | 13.75 | 6.25 | 5.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 107 | 167 |
| 400 | RM0400P11 | 0.11 | 278 | 11.43 | 13.75 | 7.75 | 6.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 156 | 216 |
| 400 | RM0400P14 | 0.14 | 305 | 14.00 | 18.00 | 9.75 | 8.25 | 6.00 | 0.563 | 6 | UH2 | 253 | 313 |
| 400 | RM0400U30 | 0.030 | 130 | 8.29 | 10.50 | 6.35 | 4.73 | 4.80 | .44 X 1.25 | 4 | UH2 | 61 | 121 |
| 400 | RM0400U61 | 0.061 | 177 | 11.43 | 13.75 | 6.75 | 5.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 115 | 175 |
| 400 | RM0400U82 | 0.082 | 210 | 11.43 | 13.75 | 7.75 | 6.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 148 | 208 |
| 500 | RM0500U25 | 0.025 | 152 | 11.43 | 13.75 | 7.75 | 6.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 100 | 160 |
| 500 | RM0500U50 | 0.05 | 196 | 11.43 | 13.75 | 7.75 | 6.44 | 4.80 | .44 X 1.00 | 5 | UH2 | 151 | 211 |
| 500 | RM0500U57 | 0.057 | 217 | 11.43 | 13.75 | 8.25 | 6.94 | 4.80 | .44 X 1.00 | 5 | UH3 | 168 | 245 |
| 500 | RM0500U85 | 0.085 | 280 | 11.43 | 13.75 | 9.75 | 8.44 | 4.80 | .44 X 1.00 | 5 | UH3 | 225 | 302 |
| 500 | RM0500U96 | 0.096 | 317 | 14.00 | 18.00 | 10.25 | 8.75 | 6.00 | 0.563 | 6 | UH3 | 282 | 359 |
| 600 | RM0600U20 | 0.020 | 147 | 11.43 | 13.75 | 8.30 | 6.94 | 4.80 | .44 X 1.00 | 5 | UH3 | 115 | 192 |
| 600 | RM0600U40 | 0.040 | 223 | 11.43 | 13.75 | 8.25 | 6.94 | 4.80 | .44 X 1.00 | 5 | UH3 | 177 | 254 |
| 600 | RM0600U65 | 0.065 | 290 | 11.43 | 13.75 | 9.75 | 8.44 | 4.80 | .44 X 1.00 | 5 | UH3 | 230 | 307 |
| 600 | RM0600U80 | 0.080 | 340 | 14.00 | 18.00 | 10.75 | 9.25 | 6.00 | 0.563 | 6 | UH4 | 310 | 417 |
| 700 | RM0700U41 | 0.041 | 276 | 14.00 | 18.00 | 9.25 | 7.25 | 6.00 | 0.563 | 6 | UH4 | 240 | 347 |
| 700 | RM0700U68 | 0.068 | 400 | 20.50 | 22.50 | 10.75 | 8.75 | 7.50 | 0.75 | 6 | UH4 | 403 | 510 |
| 750 | RM0750U15 | 0.015 | 209 | 14.00 | 18.00 | 8.25 | 6.25 | 6.00 | 0.563 | 6 | UH4 | 159 | 266 |
| 750 | RM0750U25 | 0.025 | 250 | 14.00 | 18.00 | 8.75 | 6.75 | 6.00 | 0.563 | 6 | UH4 | 184 | 291 |
| 750 | RM0750U36 | 0.036 | 293 | 14.00 | 18.00 | 9.75 | 7.75 | 6.00 | 0.563 | 6 | UH4 | 236 | 343 |
| 750 | RM0750U60 | 0.060 | 415 | 20.50 | 22.50 | 10.75 | 8.75 | 7.50 | 0.75 | 6 | UH4 | 403 | 510 |
| 900 | RM0900U13 | 0.013 | 216 | 14.00 | 18.00 | 9.25 | 7.25 | 6.00 | 0.563 | 6 | UH4 | 159 | 266 |
| 900 | RM0900U26 | 0.026 | 286 | 14.00 | 18.00 | 10.25 | 8.25 | 6.00 | 0.563 | 6 | UH4 | 259 | 366 |
| 900 | RM0900U32 | 0.032 | 400 | 20.50 | 22.50 | 10.25 | 8.25 | 7.50 | 0.75 | 6 | UH4 | 340 | 447 |
| 900 | RM0900U43 | 0.043 | 441 | 20.50 | 22.50 | 11.75 | 9.75 | 7.50 | 0.75 | 6 | UH4 | 434 | 541 |
| 900 | RM0900U53 | 0.053 | 490 | 20.50 | 22.50 | 12.25 | 10.25 | 7.50 | 0.75 | 6 | UH4 | 546 | 653 |
| 1000 | RM1000U11 | 0.011 | 179 | 14.00 | 22.50 | 8.75 | 6.75 | 6.00 | 0.563 | 6 | UH4 | 170 | 277 |
| 1000 | RM1000U18 | 0.018 | 232 | 14.00 | 22.50 | 10.75 | 8.75 | 6.00 | 0.563 | 6 | UH10 | 282 | 432 |
| 1000 | RM1000U29 | 0.029 | 377 | 20.50 | 22.50 | 11.75 | 9.75 | 7.50 | 0.75 | 6 | UH10 | 394 | 544 |
| 1000 | RM1000U38 | 0.038 | 416 | 20.50 | 22.50 | 12.25 | 10.25 | 7.50 | 0.75 | 6 | UH10 | 534 | 684 |
| 1000 | RM1000U48 | 0.048 | 490 | 20.50 | 22.50 | 13.25 | 11.25 | 7.50 | 0.75 | 6 | UH10 | 642 | 792 |
| 1200 | RM1200U10 | 0.010 | 228 | 14.00 | 18.50 | 9.25 | 7.25 | 6.00 | 0.563 | 6 | UH10 | 205 | 355 |
| 1200 | RM1200U15 | 0.015 | 287 | 14.00 | 18.50 | 10.75 | 8.75 | 6.00 | 0.563 | 6 | UH10 | 282 | 432 |
| 1200 | RM1200U18 | 0.018 | 395 | 20.50 | 22.50 | 10.25 | 8.25 | 7.50 | 0.75 | 6 | UH10 | 343 | 493 |
| 1200 | RM1200U24 | 0.024 | 440 | 20.50 | 22.50 | 11.25 | 9.25 | 7.50 | 0.75 | 6 | UH10 | 444 | 594 |
| 1200 | RM1200U30 | 0.030 | 490 | 20.50 | 22.50 | 12.25 | 10.25 | 7.50 | 0.75 | 6 | UH10 | 534 | 684 |
| 1200 | RM1200U40 | 0.040 | 576 | 20.50 | 22.50 | 13.75 | 11.75 | 7.50 | 0.75 | 6 | UH10 | 700 | 850 |



Single Phase Line Reactors

Hammond Line Reactors may be used in Single Phase Applications . However, in order to do so, please use the following selection tables and follow the circuit diagrams listed below. **Note:** Please ensure you properly insulate terminals B1 and B2 before any connections are made.

PART NUMBER GUIDE

RM 0002 M 32

- RM: In-Line Reactor
- 0002: 4 digits for current rating
- M: Inductance Value (XX mH)
- 32: Inductance Value (XX.0 uH)
- Further suffix to follow. Add suffix "E" for Enclosure.

The inductance value is preceded with a letter to designate the position of the decimal point to determine the inductance. The letters are as follows:

- 'M' XX. mH
- 'N' X.X mH
- 'P' 0.XX mH
- 'U' .0XX mH or XX.0 uH

Example: M32 is 32.0 mH

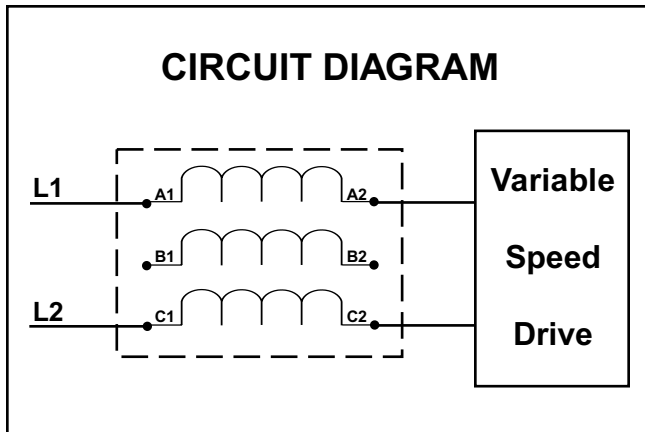
Note: As all characters of the P/N represent performance values of the reactor, P/N's are not completely sequential. They are sorted by current rating.

SELECTION TABLES

| 240 VOLT | | | | |
|-----------|--------------|------|--------------|------|
| HP Rating | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | Amps | P/N | Amps |
| 0.5 | RM0004N65 | 4 | RM0004N65 | 4 |
| 1 | RM0004N65 | 4 | RM0004N65 | 4 |
| 1.5 | RM0008N50 | 8 | RM0008N50 | 8 |
| 2 | RM0008N30 | 8 | RM0008N30 | 8 |
| 3 | RM0012N25 | 12 | RM0012N25 | 12 |
| 5 | RM0018N15 | 18 | RM0018N15 | 18 |
| 7.5 | RM0025P50 | 25 | RM0025P50 | 25 |
| 10 | RM0035P80 | 35 | RM0035P80 | 35 |

| 480 VOLT | | | | |
|-----------|--------------|------|--------------|------|
| HP Rating | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | Amps | P/N | Amps |
| 1 | RM0004M12 | 4 | RM0004M22 | 4 |
| 1.5 | RM0004M12 | 4 | RM0004M12 | 4 |
| 2 | RM0004N65 | 4 | RM0004M12 | 4 |
| 3 | RM0008N75 | 8 | RM0008N75 | 8 |
| 5 | RM0008N50 | 8 | RM0008N50 | 8 |
| 7.5 | RM0012N25 | 12 | RM0012N31 | 12 |
| 10 | RM0018N15 | 18 | RM0018N25 | 18 |

| 600 VOLT | | | | |
|-----------|--------------|------|--------------|------|
| HP Rating | 3% IMPEDANCE | | 5% IMPEDANCE | |
| | P/N | Amps | P/N | Amps |
| 1 | RM0004M22 | 4 | RM0002M32 | 2 |
| 1.5 | RM0004M12 | 4 | RM0004M22 | 4 |
| 2 | RM0004M12 | 4 | RM0004M22 | 4 |
| 3 | RM0004N65 | 4 | RM0004M12 | 4 |
| 5 | RM0008N50 | 8 | RM0008N75 | 8 |
| 7.5 | RM0012N31 | 12 | RM0012N51 | 12 |
| 10 | RM0012N25 | 12 | RM0012N51 | 12 |



SECTION 3

RM Line Reactor Cross-Reference Table

| MTE Part Number | Current (amps) | Hammond Part Number | Induct. (mH) | TCI Part Number |
|-----------------|----------------|---------------------|--------------|-----------------|
| RL-00201 | 2 | RM0002M12 | 12.000 | KLR2A |
| RL-00202 | 2 | RM0002M20 | 20.000 | KLR2C |
| RL-00203 | 2 | RM0002M32 | 32.000 | * |
| RL-00404 | 4 | RM0004M12 | 12.000 | * |
| RL-00401 | 4 | RM0004N30 | 3.000 | KLR4B |
| RL-00402 | 4 | RM0004N65 | 6.500 | KLR4A |
| RL-00403 | 4 | RM0004N91 | 9.100 | KLR4C |
| RL-00801 | 8 | RM0008N15 | 1.500 | KLR8B |
| RL-00802 | 8 | RM0008N30 | 3.000 | KLR8A |
| RL-00803 | 8 | RM0008N50 | 5.000 | KLR8C |
| RL-00804 | 8 | RM0008N75 | 7.500 | * |
| RL-01201 | 12 | RM0012N13 | 1.300 | KLR12B |
| RL-01202 | 12 | RM0012N25 | 2.500 | KLR12A |
| RL-01203 | 12 | RM0012N42 | 4.200 | KLR12C |
| RL-01802 | 18 | RM0018N15 | 1.500 | KLR16A |
| RL-01803 | 18 | RM0018N25 | 2.500 | KLR16C |
| RL-01801 | 18 | RM0018P80 | 0.800 | KLR16B |
| RL-02502 | 25 | RM0025N12 | 1.200 | KLR25A |
| RL-02503 | 25 | RM0025N20 | 2.000 | KLR25C |
| RL-02501 | 25 | RM0025P50 | 0.500 | KLR25B |
| RL-03503 | 35 | RM0035N12 | 1.200 | KLR35C |
| RL-03501 | 35 | RM0035P40 | 0.400 | KLR35B |
| RL-03502 | 35 | RM0035P80 | 0.800 | KLR35A |
| RL-04503 | 45 | RM0045N12 | 1.200 | KLR45C |
| RL-04501 | 45 | RM0045P30 | 0.300 | KLR45B |
| RL-04502 | 45 | RM0045P70 | 0.700 | KLR45A |
| RL-05501 | 55 | RM0055P25 | 0.250 | KLR55B |
| RL-05502 | 55 | RM0055P50 | 0.500 | KLR55A |
| RL-05503 | 55 | RM0055P85 | 0.850 | KLR55C |

| MTE Part Number | Current (amps) | Hammond Part Number | Induct. (mH) | TCI Part Number |
|-----------------|----------------|---------------------|--------------|-----------------|
| RL-00201 | 2 | RM0002M12 | 12.000 | KLR2A |
| RL-08001 | 80 | RM0080P20 | 0.200 | KLR80B |
| RL-08002 | 80 | RM0080P40 | 0.400 | KLR80A |
| RL-08003 | 80 | RM0080P70 | 0.700 | KLR80C |
| RL-10001 | 100 | RM0110P15 | 0.150 | KLR110B |
| RL-10002 | 100 | RM0110P30 | 0.300 | KLR110A |
| RL-10003 | 100 | RM0110P45 | 0.450 | KLR110C |
| RL-13001 | 130 | RM0130P10 | 0.100 | KLR130B |
| RL-13002 | 130 | RM0130P20 | 0.200 | KLR130A |
| RL-13003 | 130 | RM0130P30 | 0.300 | KLR130C |
| RL-16002 | 160 | RM0160P15 | 0.150 | KLR160A |
| RL-16003 | 160 | RM0160P23 | 0.230 | KLR160C |
| RL-16001 | 160 | RM0160U75 | 0.075 | KLR160B |
| RL-20002 | 200 | RM0200P11 | 0.110 | KLR200A |
| RL-20003 | 200 | RM0200P19 | 0.190 | KLR200C |
| RL-20001 | 200 | RM0200U55 | 0.055 | KLR200B |
| RL-25003 | 250 | RM0250P15 | 0.150 | KLR250C |
| RL-25001 | 250 | RM0250U45 | 0.045 | KLR250B |
| RL-25002 | 250 | RM0250U90 | 0.090 | KLR250A |
| RL-32003 | 320 | RM0320P13 | 0.130 | KLR300C |
| RL-32001 | 320 | RM0320U40 | 0.040 | KLR300B |
| RL-32002 | 320 | RM0320U75 | 0.075 | KLR300A |
| RL-40003 | 400 | RM0400P11 | 0.110 | KLR360C |
| RL-40001 | 400 | RM0400U30 | 0.030 | KLR360B |
| RL-40002 | 400 | RM0400U61 | 0.061 | KLR360A |
| RL-50001 | 500 | RM0500U25 | 0.025 | KLR480B |
| RL-50002 | 500 | RM0500U50 | 0.050 | KLR480A |
| RL-50003 | 500 | RM0500U85 | 0.085 | KLR480C |
| RL-60001 | 600 | RM0600U20 | 0.020 | KLR600B |
| RL-60002 | 600 | RM0600U40 | 0.040 | KLR600A |
| RL-60003 | 600 | RM0600U65 | 0.065 | KLR600C |



DV/DT Filter Reactors

The advent of pulse width modulated (PWM) inverters with IGBT high speed transistors, has resulted in smaller more cost effective drives and increased switching speeds. A waveform with increased harmonics at higher frequencies is the result of these much faster switching devices, usually at frequencies of 10,000 to 20,000 Hertz.

Drives and motors often need to be separated by significant distances. For deep wells or mines, the motors are usually controlled on the surface. As a result, the distance between the drive and the motor creates long motor lead lengths. In some plant applications, the motors can withstand the harsh environment but the sensitive variable frequency drive cannot. This again results in long lead lengths to the motor.

Most manufactures of variable frequency drives will publish a recommended maximum distance between their equipment and the motor. Sometimes these recommendations create application difficulties, thus increased motor lead lengths are inevitable.

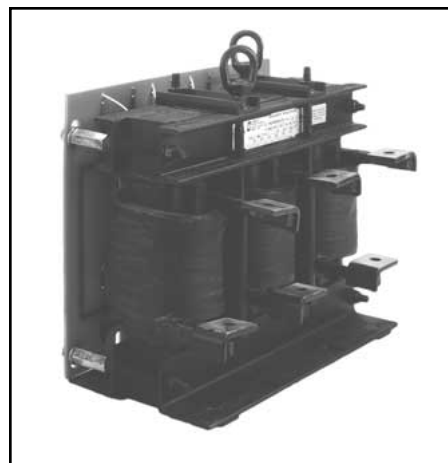
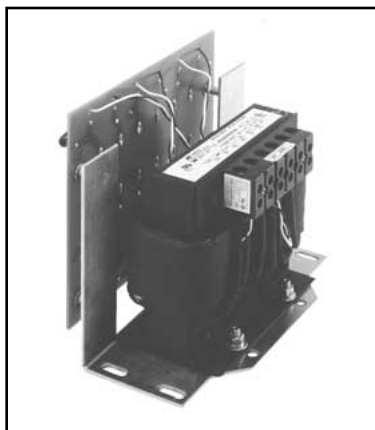
DV/DT is explained as the steep-front voltage pulses that travel down these long leads in the circuit to the motor and subsequently reverted back in a “reflective wave”. When the conductors are long enough, usually 20 feet or more, the time for reflection matches the time for transmission resulting in a high amplitude ‘standing wave’ on the circuit. Voltage spikes of up to 2100 volts are frequently experienced for 600-volt systems, and motor winding failures are the result.

A Filter Reactor, installed in front of the motor, combines the current limiting ability of an AC line reactor plus an resistive capacitance circuit that forms a damped, low pass filter. It provides protection for the motor by slowing the rate of voltage increase and minimizing the peak voltage that occurs at the motor terminals.

The cost of a DV/DT Filter Reactor is little more than the cost of the reactor and can be mounted next to the motor, or inside the PWM enclosure.

APPLICATIONS

The Hammond RC series DV/DT filter reactors are specifically designed for drive/motor applications with long lead lengths (usually where the motor cable length is 20 feet and greater). They are always installed between the IGBT variable frequency drive and the motor. Typical installation applications include production process lines, conveyor systems and deep wells.



TYPICAL “RC” DV/DT FILTER REACTOR PERFORMANCE

The RC series DV/DT filter reactors combine appropriate values of inductance, capacitance and resistance to form a filter which reduces dv/dt and peak voltages from the PWM voltage waveform. This combined with a 3% impedance reactor, that will reduce motor heating harmonics, will significantly increase the life of the motor.

Long lead length motor drive applications can experience motor terminal peak voltage spikes twice the DC bus voltage, and higher. Therefore motor terminal voltage peaks of 1200 volts for 480V drives and 1600 volts for 600V drives are not uncommon. The highest peak voltages will typically occur in lower HP applications.

Standard “RC” DV/DT Filter Reactor Specifications

RATINGS:

Nominal Inductance +/- 10% @ rated current.
95% of nominal inductance @ 150% rated current.
50% of nominal inductance @ 350% of rated current.

The above performance indicates that even at very substantial overload conditions (even beyond what other equipment in the circuit could tolerate), the RM Line Reactor will still provide current limiting performance against total harmonic distortion generated by the drive system.

OVERLOAD:

150% rated 60 Hz current overload continuous.

TEMPERATURE RISE:

115° C on units up to 160 amps; average ambient of 40°C.

115° C on units larger than 160 amps; average ambient of 60° C.

INSULATION SYSTEM:

180° C Temperature Class up to 160 amps,
220° C Temperature Class over 160 amps.

FREQUENCY:

60 Hz Fundamental Current Maximum.

COOLING METHOD:

Natural convection

SYSTEM VOLTAGE:

600 Volts Maximum

APPROVALS:

UL File No.: E61431
CSA File No.: LR 3902

SOUND LEVEL:

| | |
|------------------|--------|
| 2 to 18 amps: | 58 dBA |
| 130 to 320 amps: | 70 dBA |
| 25 to 100 amps: | 64 dBA |
| 400 to 600 amps: | 75 dBA |

ENCLOSURE: (when specified)

NEMA 2

HARMONIC WITHSTAND:

Hammond dv/dt filter reactors are designed to withstand harmonics associated with the output side of variable speed drives including IGBT type inverters.

SWITCHING FREQUENCY:

2.5 KHz up to 20 KHz.



“RC” DV/DT Filter Reactor Selection

SELECTION GUIDELINES

Hammond RC output filter reactors are current rated devices. Therefore, to properly size and select the correct unit for your application, it is necessary to know the total motor load on the inverter. All RC filter reactors are designed to be located next to and wired directly to the input terminals of the motor. Placement of these filter reactors anywhere else in the circuit will negatively impact the units performance.

Our RC DV/DT filter reactor is standard with 3% impedance RM line reactors. Utilizing a 3% reactor provides optimum performance and protection for the motor. Using smaller impedance reactors will not protect against the same current peaks, and motor performance will be diminished.

DVDT Filter Reactor Part Number Guide

RC 0002 M 32 * _

↑ ↑ ↑ ↑ ↑

Further suffix to follow.
Add suffix “E” for Enclosure.

Inductance Value

The inductance value is preceded with a letter to designate the position of the decimal point to determine the inductance. The letters are as follows:

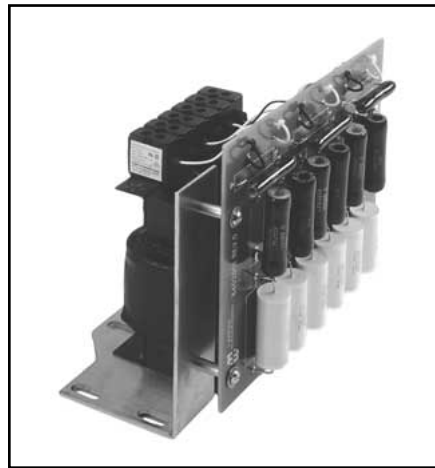
| | |
|-----|--------------------|
| ‘M’ | XX. mH |
| ‘N’ | X.X mH |
| ‘P’ | 0.XX mH |
| ‘U’ | .0XX mH or XX.0 uH |

Example: M32 is 32.0 mH

4 digits for current rating
DV/DT Filter Reactor

Note: As all characters of the P/N represent performance values of the reactor, P/N's are not completely sequential. They are sorted by current rating.

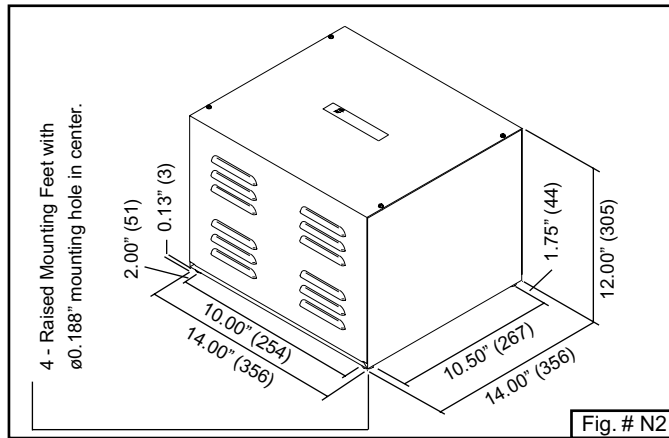
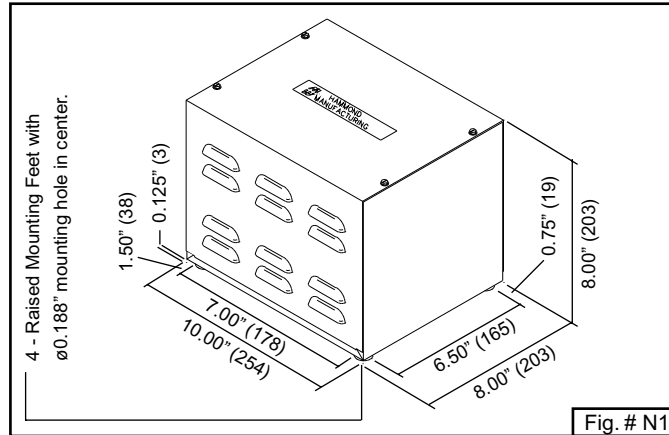
* Add the Suffix “E” to the standard part number below for an Enclosed unit.



“RC” DV/DT FILTER REACTOR SELECTION TABLE

| Current (Amps) | Part Number | Inductance | Watts Loss | Dimensions | | | | | Mtg Slot/ Hole Size | Dim. Fig. # | Encl. Fig. # | Weight (Lbs.) | Enclosed Weight(Lbs.) |
|----------------|-------------|------------|------------|------------|-------|-------|--------|--------|---------------------|-------------|--------------|---------------|-----------------------|
| | | | | H | W | D | Mtg. D | Mtg. W | | | | | |
| 2 | RC0002M12 | 12.0 | 62 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 7 | N1 | 4 | 11 |
| 4 | RC0004N65 | 6.50 | 68 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 7 | N1 | 5 | 12 |
| 8 | RC0008N30 | 3.00 | 80 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 7 | N1 | 5 | 12 |
| 12 | RC0012N25 | 2.50 | 81 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 8 | N1 | 10 | 17 |
| 18 | RC0018N15 | 1.50 | 84 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 8 | N1 | 11 | 18 |
| 25 | RC0025N12 | 1.20 | 99 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 8 | N1 | 12 | 19 |
| 35 | RC0035P80 | 0.80 | 106 | 7.40 | 9.00 | 6.18 | 2 | 8.25 | .28 x .88 | 9 | N2 | 19 | 36 |
| 45 | RC0045P70 | 0.70 | 119 | 7.40 | 9.00 | 6.42 | 2 | 8.25 | .28 x .88 | 9 | N2 | 24 | 41 |
| 55 | RC0055P50 | 0.50 | 130 | 7.40 | 9.00 | 6.27 | 2 | 8.25 | .28 x .88 | 10 | N2 | 28 | 45 |
| 80 | RC0080P40 | 0.40 | 193 | 7.40 | 9.00 | 7.83 | 2 | 8.25 | .28 x .88 | 10 | N2 | 38 | 55 |
| 110 | RC0110P30 | 0.30 | 423 | 11.62 | 14.00 | 8.70 | 4.20 | 3.60 | .44 X 1.25 | 11 | UH1 | 55 | 95 |
| 130 | RC0130P20 | 0.20 | 415 | 11.62 | 14.00 | 8.20 | 3.73 | 3.60 | .44 X 1.25 | 11 | UH1 | 44 | 88 |
| 160 | RC0160P15 | 0.15 | 429 | 11.62 | 14.00 | 8.70 | 4.23 | 3.60 | .44 X 1.25 | 11 | UH1 | 49 | 89 |
| 200 | RC0200P11 | 0.11 | 414 | 11.62 | 14.00 | 9.23 | 4.23 | 3.60 | .44 X 1.25 | 11 | UH2 | 55 | 115 |
| 250 | RC0250U90 | 0.090 | 431 | 11.62 | 14.00 | 9.73 | 4.70 | 3.60 | .44 X 1.25 | 11 | UH2 | 68 | 128 |
| 320 | RC0320U75 | 0.075 | 484 | 11.43 | 14.40 | 9.50 | 5.94 | 4.80 | .44 X 1.00 | 12 | UH2 | 90 | 150 |
| 400 | RC0400U61 | 0.061 | 477 | 11.43 | 14.40 | 11.50 | 6.44 | 4.80 | .44 X 1.00 | 12 | UH2 | 118 | 178 |
| 500 | RC0500U50 | 0.05 | 496 | 11.43 | 14.40 | 11.50 | 6.44 | 4.80 | .44 X 1.00 | 12 | UH3 | 154 | 231 |
| 600 | RC0600U40 | 0.040 | 523 | 11.43 | 14.40 | 12.00 | 6.94 | 4.80 | .44 X 1.00 | 12 | UH4 | 180 | 287 |

Enclosure Reference Drawings



| Dimension | UH2 | UH3 | UH4 | UH10 |
|-------------|------|------|------|------|
| Width (W) | 21.5 | 26.0 | 30.0 | 34.0 |
| Mtg. W | 23.0 | 27.5 | 31.5 | 31.5 |
| Footprint W | 24.0 | 28.5 | 32.5 | 32.5 |
| Depth (D) | 19.5 | 21.0 | 24.0 | 30.0 |
| Mtg. D | 14.5 | 16.0 | 19.0 | 29.0 |
| Height (H) | 29.0 | 38.0 | 39.0 | 44.0 |

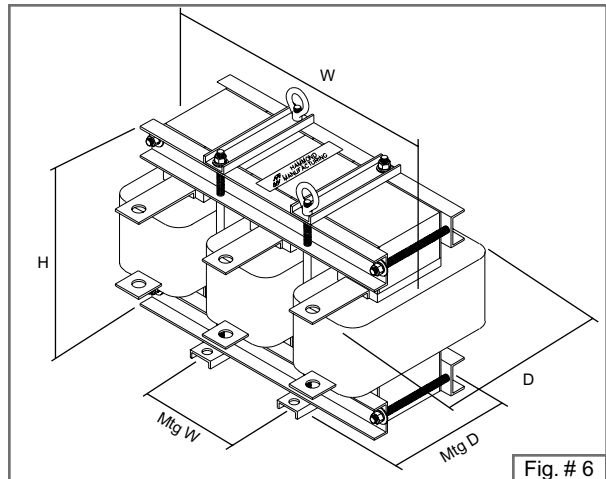
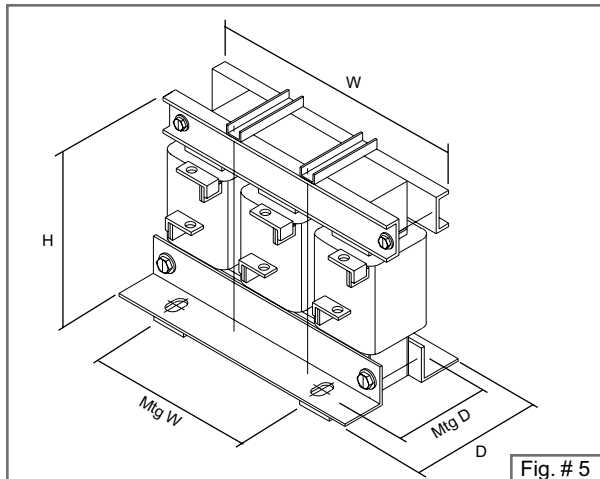
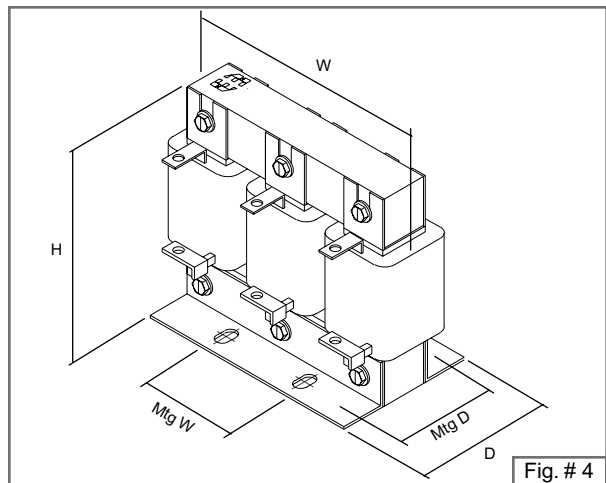
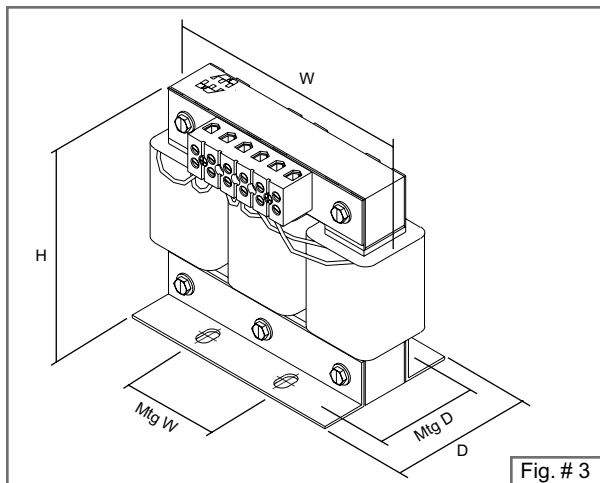
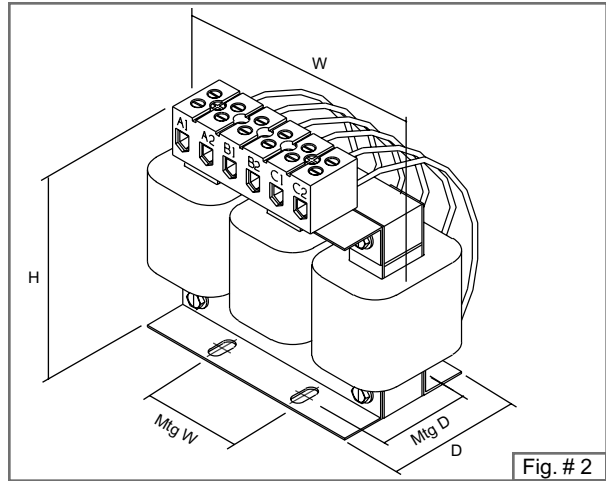
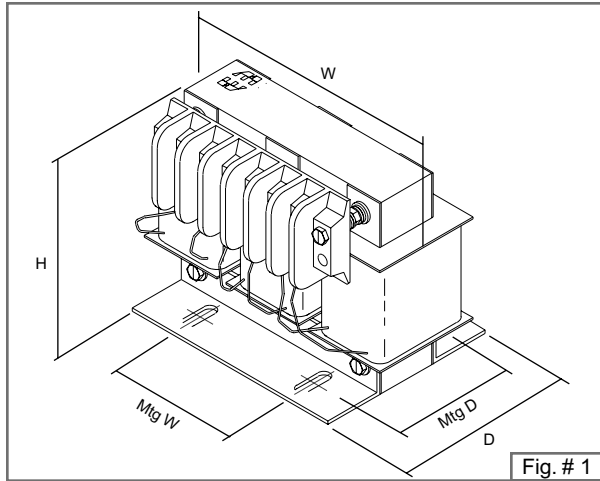
Above Dimensions in Inches

Fig. # UH2, UH3, UH4, UH10

| CONNECTOR DETAIL | | |
|------------------|----------------|-----------------|
| Open Style Ref. | Type | Range/Dia. |
| Figure #1 | Terminal Block | #12 - #22 |
| Figure #2 | Terminal Block | #4 - #18 |
| Figure #3 | Terminal Block | #4 - #18 |
| All Others: | | |
| 80 to 200 amps | Terminal Pad | .313" dia. hole |
| above 200 amps | Terminal Pad | .5" dia. hole |



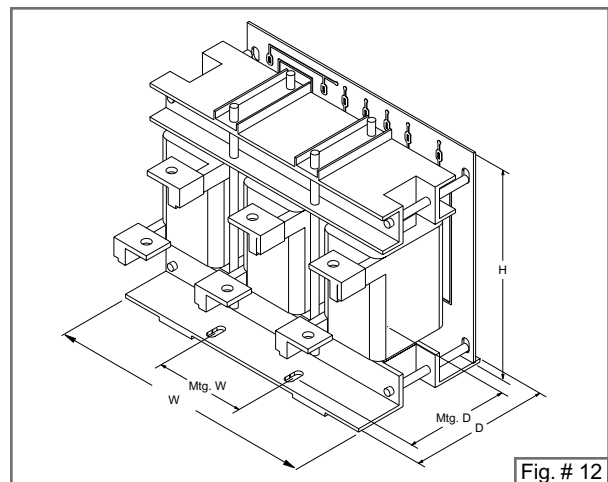
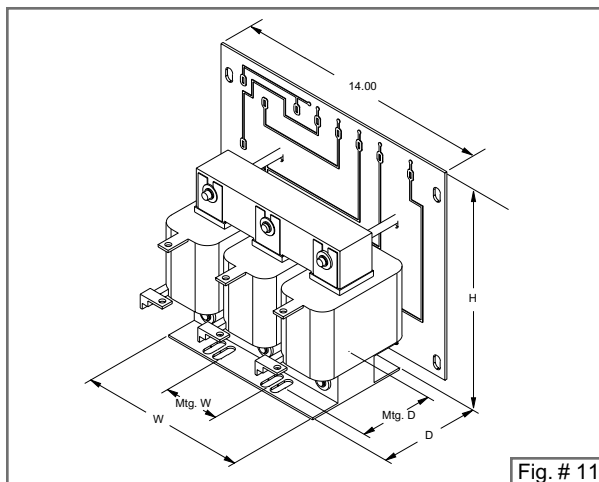
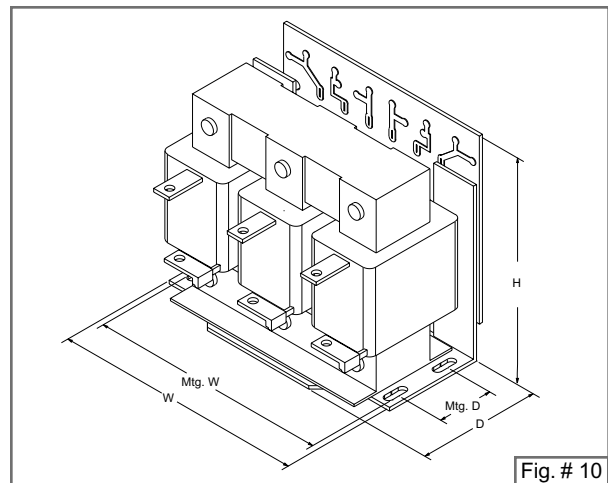
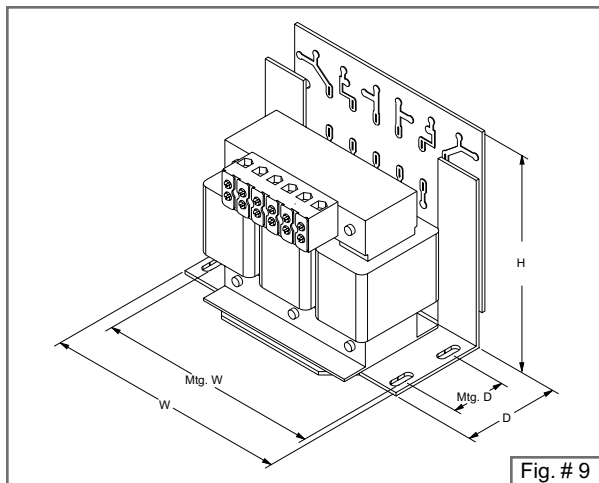
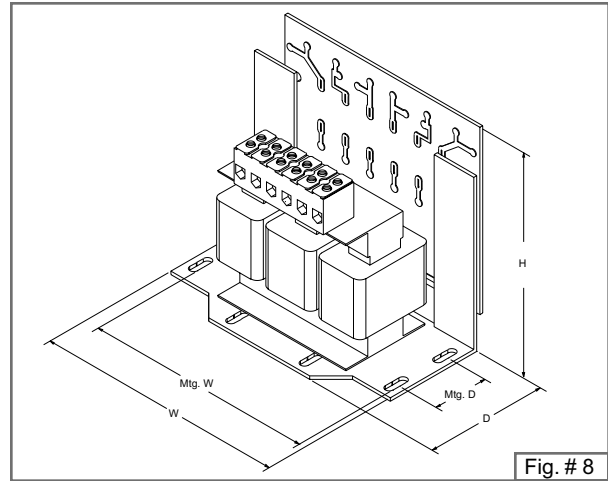
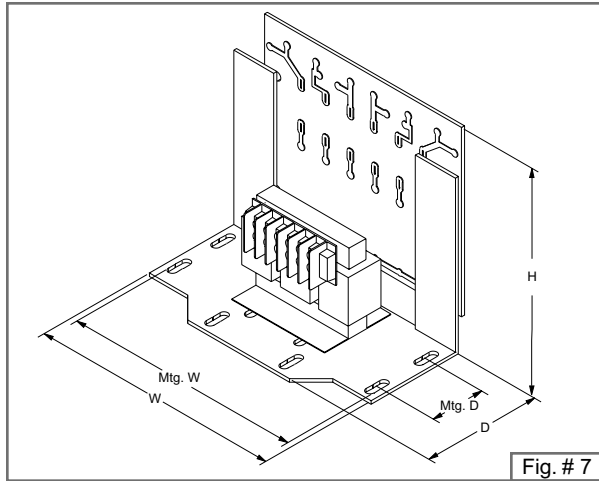
Open Style "RM" Reference Drawings



SECTION 3



Open Style "RC" Reference Drawings



SECTION 3



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[PHW30208](#) [90BWHW](#) [90YFWG](#) [90YWFW](#) [PJ1084P9](#) [PJ1086RHW](#) [PJ1086RLW](#) [PJ14126L](#) [PJ14126RTW](#) [PJ16148LW](#) [PJ16148TW](#)
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