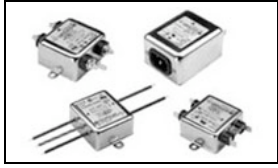


6609028-6 Product Details



6609028-6

TE Internal Number: 6609028-6



Active

EMI/RFI Filters and Accessories

 Always EU RoHS/ELV Compliant (Statement of Compliance)

Product Highlights:

- Filter - EMI/RFI
- Filter Type = Power Line
- K (1-10 Amp) Series
- General Purpose Application
- Mount Style = Flanged

Documentation & Additional Information

Product Drawings:

- [CUSTOMER DRAWING 3VK3](#) (PDF, English)

Catalog Pages/Data Sheets:

- [1-1654250-1_CORCOM_EMI_RFI_QRG](#) (PDF, English)
- [1654001_CORCOM_PRODUCT_GUIDE_K_SERIES](#) (PDF, English)

Product Specifications:

- None Available

Application Specifications:

- None Available

Instruction Sheets:

- None Available

CAD Files: (CAD Format & Compression Information)

- [2D Drawing](#) (DXF, Version B)
- [3D Model](#) (IGES, Version B)
- [3D Model](#) (STEP, Version B)

Additional Information:

- [Product Line Information](#)

Additional Product Images:

- [Insertion Loss/Specifications](#)

Related Products:

- [Tooling](#)

Product Features (Please use the Product Drawing for all design activity)

Product Type Features:

- [Product Type](#) = Filter - EMI/RFI
- [Filter Type](#) = Power Line
- [Series](#) = K (1-10 Amp)
- [Filtered](#) = Yes

Electrical Characteristics:

- [Current Rating \(A\)](#) = 3
- [Voltage ≤ \(VAC\)](#) = 250
- [Leakage Current \(Line-to-Ground\) Max. @ 250 VAC 50 Hz \(mA\)](#) = 0.7
- [Leakage Current \(Line-to-Ground\) Max. @ 120 VAC 60 Hz \(mA\)](#) = 0.4

Termination Features:

- [Terminal Input - Output Combination](#) = Wire Lead - Wire Lead

Body Features:

- [Mount Style](#) = Flanged

Industry Standards:

- [RoHS/ELV Compliance](#) = RoHS compliant, ELV compliant
- [Lead Free Solder Processes](#) = Not relevant for lead free process
- [RoHS/ELV Compliance History](#) = Always was RoHS compliant
- [Approved Standards](#) = UL Recognized, CSA Certified, VDE Approved

Conditions for Usage:

- [Facility Installation](#) = No
- [Need Min Size With IEC Connector](#) = No
- [Need Optional Switch, Fusing, Or Voltage Selector](#) = No

Operation/Application:

- [Application](#) = General Purpose

Other:

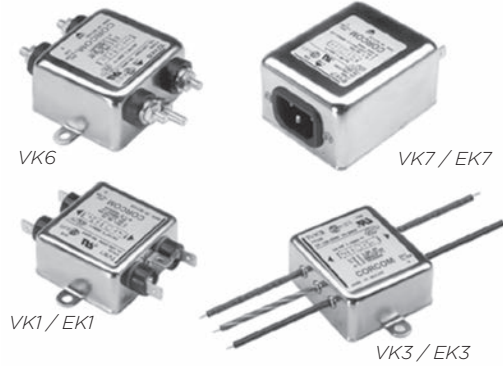
- [Brand](#) = Corcom

General Purpose RFI Power Line Filters - Ideal for High Impedance Load

K Series



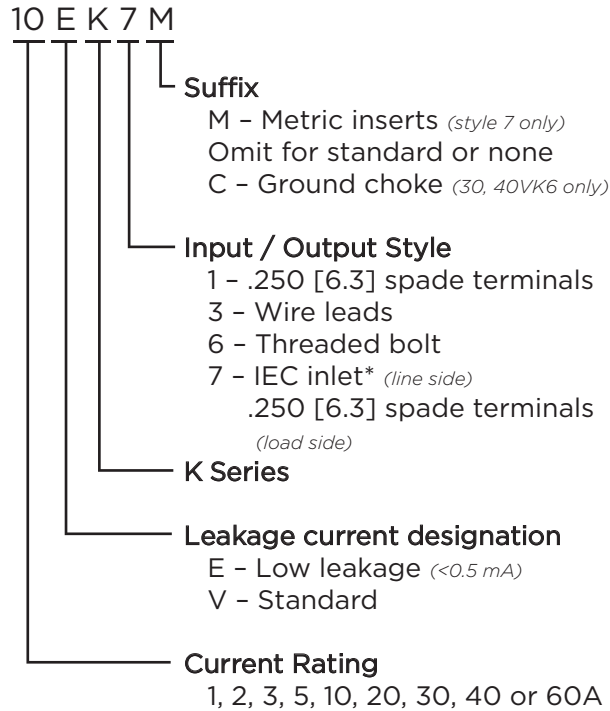
UL Recognized
CSA Certified
VDE Approved**



K Series

- Suitable for high impedance loads
- Well suited to applications where pulsed, continuous and/or intermittent RFI interference is present
- EK models meet the very low leakage current requirements for VDE portable equipment and non-patient care medical equipment
- Available with ground line inductor (choke)

Ordering Information



*1-15A: IEC 60320-1 C14 inlet mates with C13 connector
20VK7: C20 inlet mates with C19 connector

Specifications

Maximum leakage current each Line to Ground:

| | VK Models | EK Models |
|------------------|-----------|-----------|
| @ 120 VAC 60 Hz: | .5 mA | .21 mA |
| @ 250 VAC 50 Hz: | 1.0 mA | .36 mA |

Hipot rating (one minute):

| | |
|-----------------|----------|
| Line to Ground: | 2250 VDC |
| Line to Line: | 1450 VDC |

Rated Voltage (max):

250 VAC

Operating Frequency:

50/60 Hz

Rated Current:

1 to 60A*

Operating Ambient Temperature Range

(at rated current I_r): -10°C to +40°C

In an ambient temperature (T_a) higher than +40°C the maximum operating current (I_o) is calculated as follows: $I_o = I_r \sqrt{(85-T_a)/45}$

Available Part Numbers

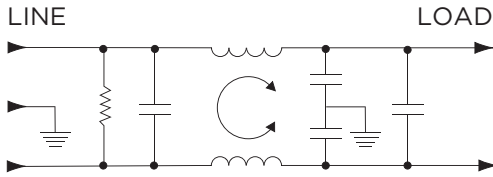
| | | |
|-------|--------|--------|
| 1VK1 | 10VK6 | 2EK3 |
| 1VK3 | 10VK7 | 3EK1 |
| 2VK1 | 10VK7M | 3EK3 |
| 2VK3 | 20VK1 | 3EK7 |
| 3VK1 | 20VK6 | 3EK7M |
| 3VK3 | 20VK7* | 5EK1 |
| 3VK7 | 30VK6 | 5EK3 |
| 3VK7M | 30VK6C | 5EK7 |
| 5VK1 | 40VK6 | 5EK7M |
| 5VK3 | 40VK6C | 10EK1 |
| 5VK7 | 60VK6 | 10EK3 |
| 5VK7M | 1EK1 | 10EK7 |
| 10VK1 | 1EK3 | 10EK7M |
| 10VK3 | 2EK1 | 20EK1 |

**20VK7, 20A model tested by Underwriters Laboratories to US and Canadian requirements and is VDE approved at 16A, 250VAC

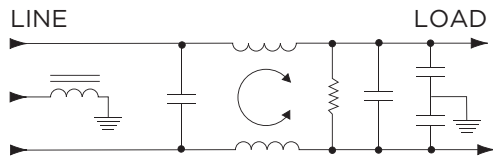
General Purpose RFI Power Line Filters *(continued)*

K Series

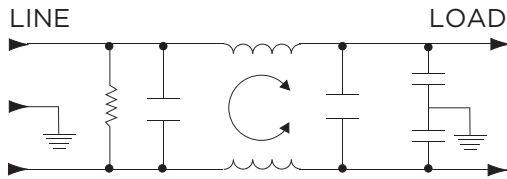
Electrical Schematics



30 & 40VK6C *(Inductor in Ground Line)*

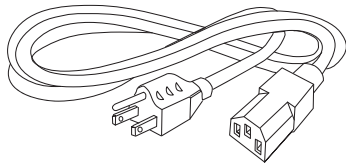


60VK6



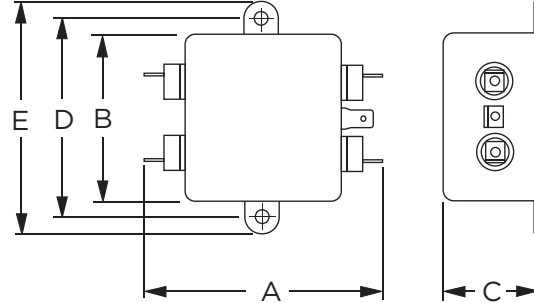
Accessories

GA400: NEMA 5-15P to IEC 60320-1 C-13 line cord



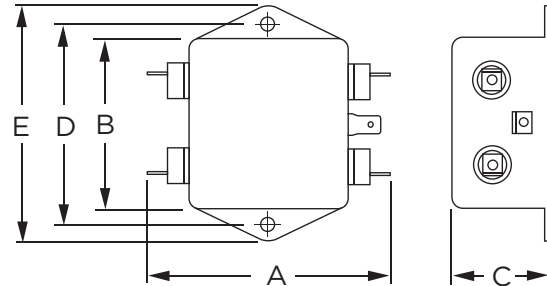
Case Styles

K1 (1, 2, 3, 6, 10A)



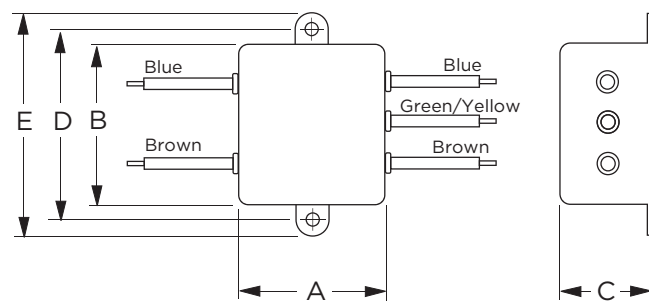
Typical Dimensions:
 Line/Load Terminals (4): .250 [6.3] with .07 [1.8] Dia. hole
 Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
 Mounting Holes (2): .188 [4.78] Dia.

K1 (20A)



Typical Dimensions:
 Line/Load Terminals (4): .250 [6.3] with .07 [1.8] Dia. hole
 Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
 Mounting Holes (2): .188 [4.78] Dia.

K3



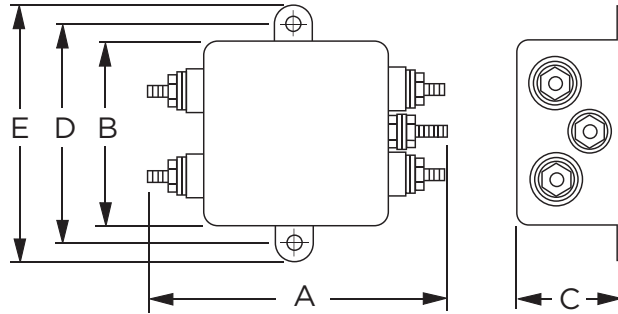
Typical Dimensions:
 Wire Leads (5): 4.0 [101.6] Min., AWG18 (AWG16 for 10A)
 Mounting Holes (2): .188 [4.78] Dia.

General Purpose RFI Power Line Filters (continued)

K Series

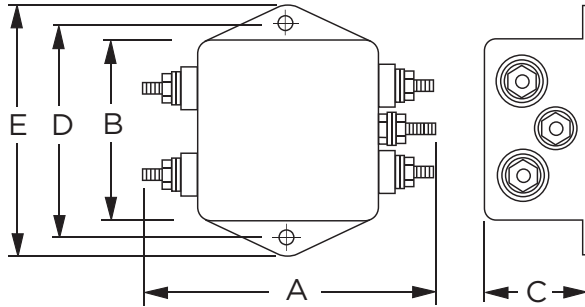
Case Styles (continued)

10VK6



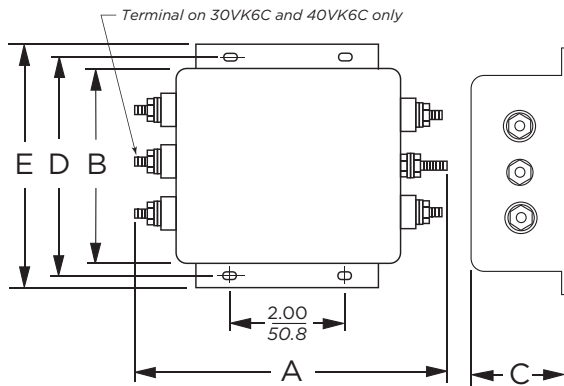
Typical Dimensions:
 Terminals (5): 8-32, Torque 18 lbf-in. [2.03 N-m] max. ± 2 [.22]
 Mounting Holes (2): .188 [4.78] Dia.

20VK6



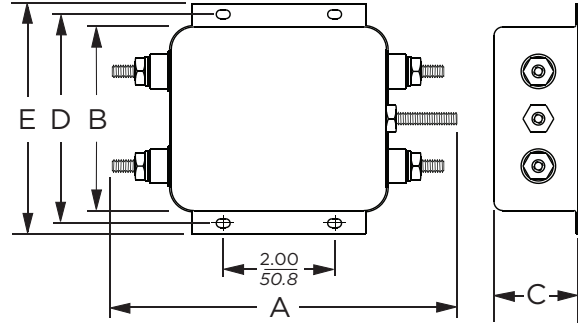
Typical Dimensions:
 Terminals (5): 8-32, Torque 18 lbf-in. [2.03 N-m] max. ± 2 [.22]
 Mounting Holes (2): .188 [4.78] Dia.

30VK6/6C & 40VK6/6C



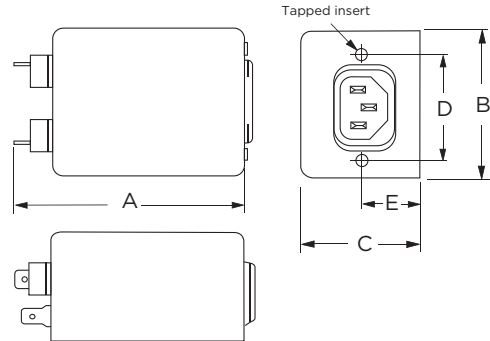
Typical Dimensions:
 Terminals (5): 8-32, Torque 18 lbf-in. [2.03 N-m] max. ± 2 [.22]
 Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

60VK6



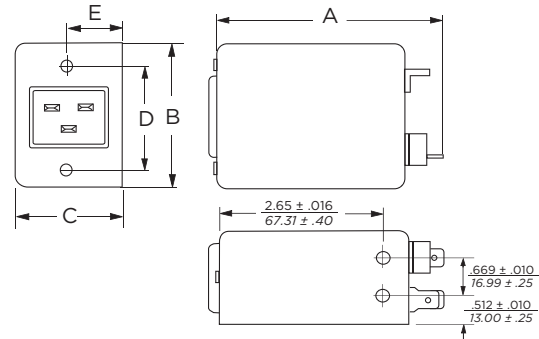
Typical Dimensions:
 Terminals (5): 1/4-20, Torque 56 lbf-in. [6.32 N-m] max. ± 2 [.22]
 Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

K7 & K7M (3, 5, 10A)



Typical Dimensions:
 Load Terminals (2): .250 [6.3] with .07 [1.8] Dia. hole
 Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
 Line Inlet (1): IEC 60320-1 C14
 K7 Tapped Inserts (2): 6-32 x 1/4
 K7M Tapped Inserts (2): M3 x .5

20VK7



Typical Dimensions:
 Load Terminals (2): .250 [6.3] with .07 [1.8] Dia. hole
 Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
 Line Inlet (1): IEC 60320-1 C20
 K7 Tapped Inserts (2): 6-32 x 1/4
 K7M Tapped Inserts (2): M3 x .5



RFI Power Line Filters

General Purpose RFI Power Line Filters (continued)

K Series

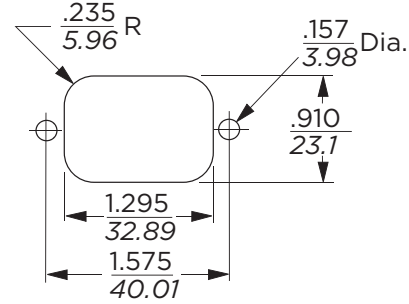
Case Dimensions

| Part No. | A (max) | B (max) | C (max) | D $\pm .015$ $\pm .38$ | E (max) |
|-------------|-------------|-------------|-------------|------------------------------|--------------|
| 1VK1, 1EK1, | 3.1 | 2.07 | 0.91 | 2.375 | 2.81 |
| 2VK1, 2EK1 | 78.7 | 52.6 | 23.1 | 60.33 | 74.1 |
| 1VK3, 1EK3, | 1.81 | 2.07 | 0.91 | 2.375 | 2.81 |
| 2VK3, 2EK3 | 46.0 | 52.6 | 23.1 | 60.33 | 74.1 |
| 3VK1, 3EK1, | 3.10 | 2.07 | 1.16 | 2.375 | 2.81 |
| 5VK1, 5EK1 | 78.7 | 52.6 | 29.5 | 60.33 | 74.1 |
| 3VK3, 3EK3, | 1.81 | 2.07 | 1.16 | 2.375 | 2.81 |
| 5VK5, 5EK3 | 46.0 | 52.6 | 29.5 | 60.33 | 74.4 |
| 3VK7/7M, | 3.21 | 2.25 | 1.28 | 1.575 | 0.63* |
| 3EK7/7M | 81.5 | 57.2 | 32.5 | 40.01 | 16.0' |
| 5VK7/7M, | 3.21 | 2.25 | 1.28 | 1.575 | 0.63* |
| 5EK7/7M | 81.5 | 57.2 | 32.5 | 40.01 | 16.0' |
| 10VK1, | 3.35 | 2.07 | 1.16 | 2.375 | 2.81 |
| 10EK1 | 85.1 | 52.6 | 29.5 | 60.33 | 71.4 |
| 10VK3, | 2.07 | 2.07 | 1.16 | 2.375 | 2.81 |
| 10EK3 | 52.6 | 52.6 | 29.5 | 60.33 | 71.4 |
| 10VK6 | 3.46 | 2.07 | 1.16 | 2.375 | 2.81 |
| | 87.9 | 52.6 | 29.5 | 60.33 | 71.4 |
| 10VK7/7M, | 3.71 | 2.25 | 1.28 | 1.575 | 0.63* |
| 10EK7/7M | 94.2 | 57.2 | 32.5 | 40.01 | 16.0' |
| 20VK1, | 3.35 | 2.56 | 1.53 | 2.938 | 3.35 |
| 20EK1 | 85.1 | 65.0 | 38.9 | 74.63 | 85.1 |
| 20VK6 | 3.46 | 2.56 | 1.53 | 2.938 | 3.35 |
| | 87.9 | 65.0 | 38.9 | 74.63 | 85.1 |
| 20VK7 | 3.8 | 2.28 | 1.78 | 1.575 | .846' |
| | 90.4 | 54.6 | 39.6 | 74.63 | 85.8' |
| 30VK6, | 5.34 | 3.38 | 1.53 | 3.75 | 4.20 |
| 30VK6C | 135.6 | 85.9 | 38.9 | 95.25 | 106.7 |
| 40VK6, | 5.34 | 3.38 | 1.53 | 3.75 | 4.20 |
| 40VK6C | 135.6 | 85.9 | 38.9 | 95.25 | 106.7 |
| 60VK6 | 6.0 | 3.38 | 1.53 | 3.75 | 4.20 |
| | 152.4 | 85.9 | 38.9 | 95.25 | 106.7 |

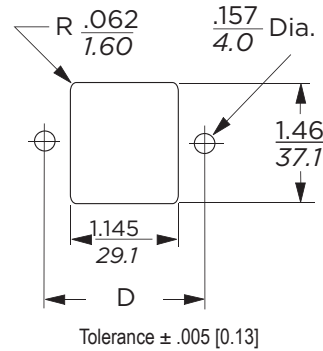
*±0.02 [0.5]
'±0.01 [0.25]

Recommended Panel Cutouts

K7 & K7M Cutout (3, 5, 10A)



20VK7 Cutout

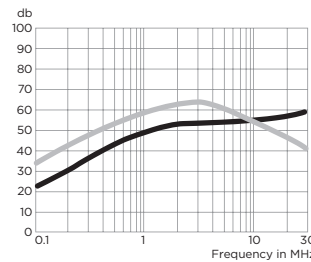


Performance Data

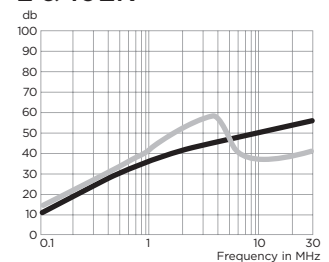
Typical Insertion Loss

Measured in closed 50 Ohm system

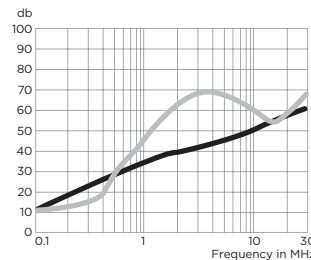
1 & 3EK



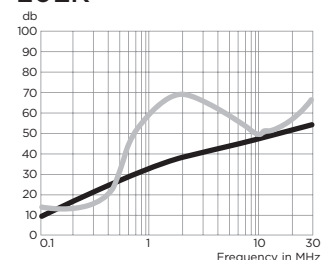
2 & 10EK



5EK



20EK



General Purpose RFI Power Line Filters (continued)

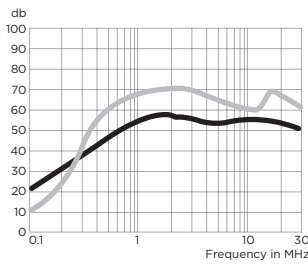
K Series

Performance Data (continued)

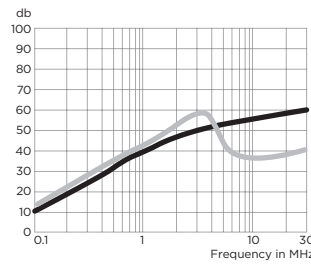
Typical Insertion Loss

Measured in closed 50 Ohm system

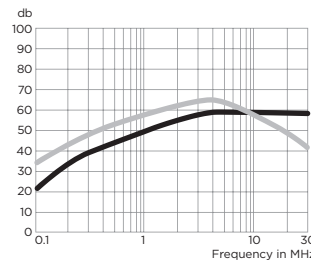
1VK



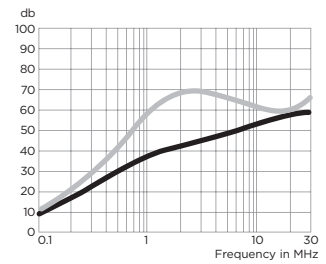
2VK



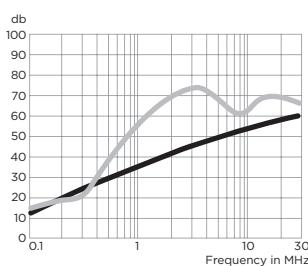
3VK



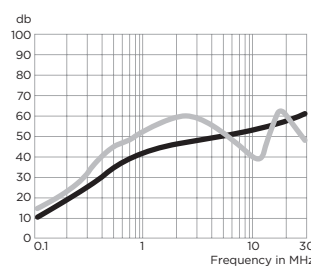
5VK



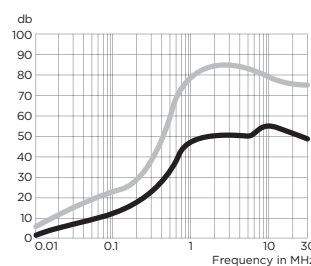
10VK



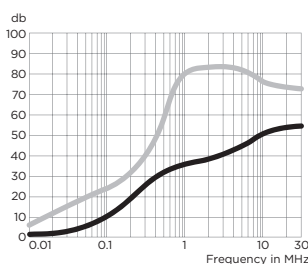
20VK



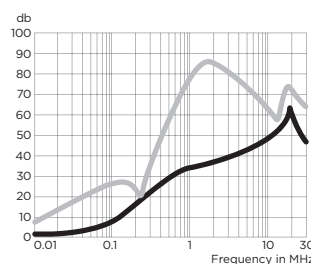
30VK & 30VK6C



40VK & 40VK6C



60VK



— Common Mode / Asymmetrical (L-G)
— Differential Mode / Symmetrical (L-L)

Minimum Insertion Loss

Measured in closed 50 Ohm system

Common Mode / Asymmetrical (Line to Ground)

| Current Rating | Frequency – MHz | | | | | |
|------------------|-----------------|----|----|----|----|----|
| | .15 | .5 | 1 | 5 | 10 | 30 |
| VK Models | | | | | | |
| 1A, 3A | 15 | 30 | 38 | 50 | 50 | 50 |
| 2A, 5A, 10A | 6 | 19 | 28 | 42 | 45 | 50 |
| 20A | 6 | 19 | 28 | 42 | 45 | 50 |
| 30A, 40A | 6 | 19 | 28 | 42 | 45 | 50 |
| 60A | 6 | 22 | 28 | 32 | 39 | 35 |
| EK Models | | | | | | |
| 1A, 3A | 15 | 29 | 35 | 45 | 45 | 50 |
| 2A, 5A, 10A | 8 | 19 | 25 | 38 | 40 | 45 |
| 20A | 8 | 19 | 25 | 38 | 40 | 45 |

Differential Mode / Symmetrical (Line to Line)

| Current Rating | Frequency – MHz | | | | | |
|------------------|-----------------|----|----|----|----|----|
| | .15 | .5 | 1 | 5 | 10 | 30 |
| VK Models | | | | | | |
| 1A, 3A | - | - | 48 | 55 | 50 | 35 |
| 2A, 5A, 10A | - | - | 30 | 50 | 30 | 30 |
| 20A | 6 | 6 | 30 | 50 | 30 | 30 |
| 30A, 40A | 2 | 40 | 60 | 65 | 57 | 55 |
| 60A | 13 | 49 | 67 | 57 | 53 | 53 |
| EK Models | | | | | | |
| 1A, 3A | - | - | 48 | 55 | 50 | 35 |
| 2A, 5A, 10A | - | - | 30 | 50 | 30 | 30 |
| 20A | 6 | 6 | 30 | 50 | 30 | 30 |

SAFETY ORGANIZATION(S):

THIS FILTER HAS BEEN FORMALLY RECOGNIZED, CERTIFIED OR APPROVED BY THE LISTED AGENCY. THEREFORE, ALL TEST/REQUIREMENTS SPECIFIED IN THE LATEST REVISION OF THE FOLLOWING AGENCY STANDARDS HAVE BEEN MET:

- UL 1283
- CSA 22.2, NO.0,0.4,8
- VDE 565-3

OPERATING SPECIFICATIONS:

- LINE VOLTAGE/CURRENT: 3 AMP., 120/250 VAC
- 3 AMP./40°C, 250 VAC
- 50-60Hz
- 30°C
- LINE FREQUENCY: .5 mA at 120V 60 Hz
- MAX. CASE RISE @ RATED CURRENT: 1.0 mA at 250V 50 Hz
- MAX. LEAKAGE CURRENT, EACH LINE TO GROUND: -10°C TO +40°C @ RATED CURRENT, I_r
- OPERATING AMBIENT TEMP. RANGE:

IN AN AMBIENT, T_a, HIGHER THAN 40°C, THE MAXIMUM OPERATING CURRENT, I_o, IS AS FOLLOWS:

$$I_o = I_r \sqrt{\frac{85-T_a}{45}}$$

RELIABILITY SPECIFICATIONS:

- STORAGE TEMPERATURE: -40°C TO +85°C
- HUMIDITY: 21 DAYS @ 40°C 95% RH
- CURRENT OVERLOAD TEST: 6 TIMES RATED CURRENT FOR 8 SECONDS

TEST SPECIFICATIONS:

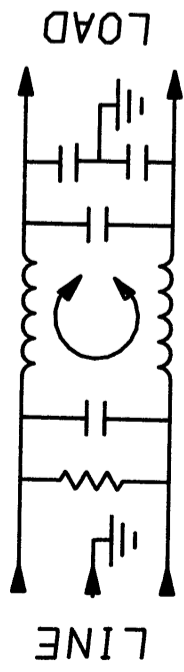
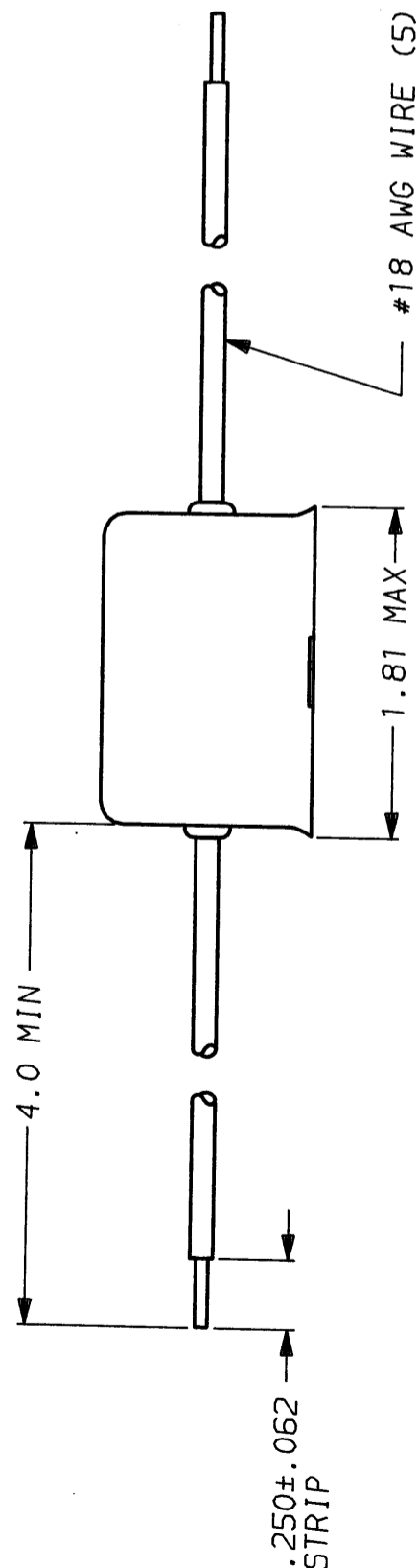
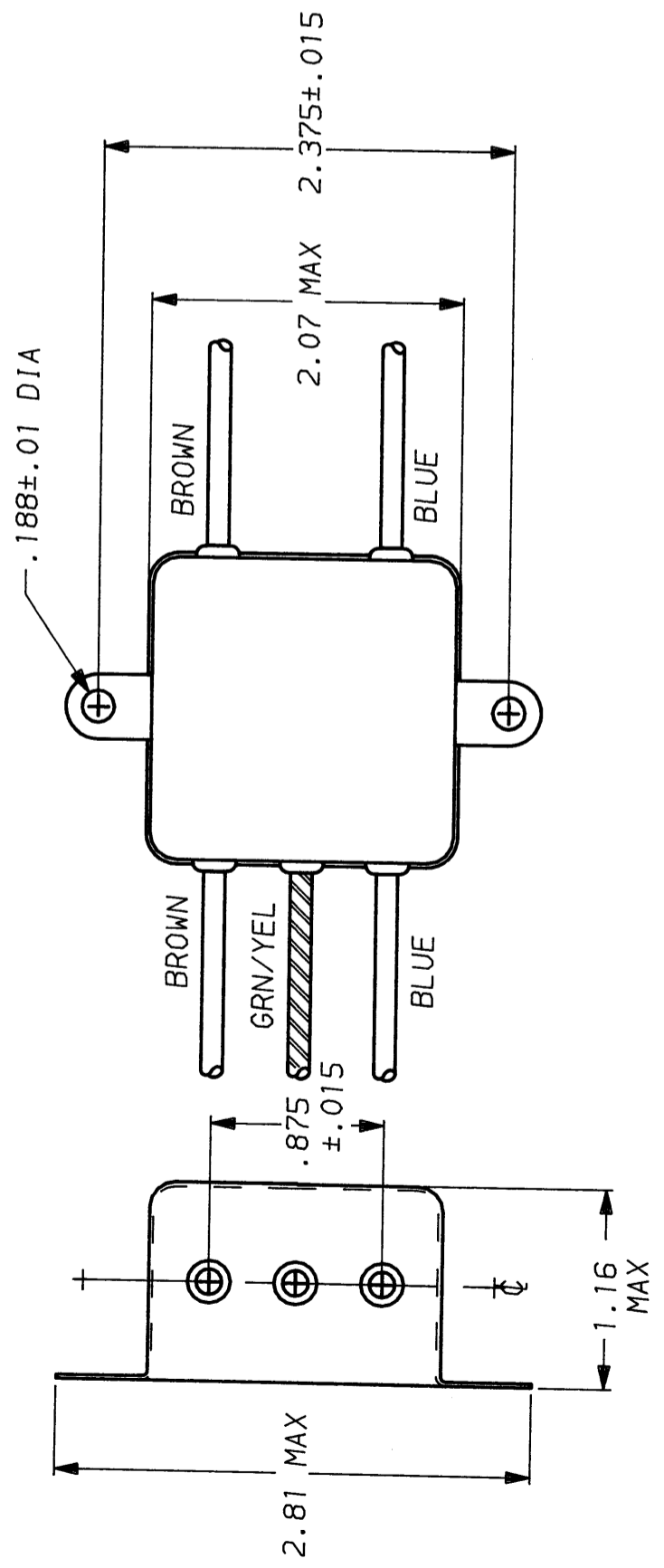
- INDUCTANCE: 1.76 mH NOMINAL
- CAPACITANCE: (MEASURED @ 1 KHz, 0.25 VAC MAX., 25°C ±1°C)
 - LINE TO GROUND: .011µF ±20%
 - LINE TO LINE: .203µF ±20%
- DISCHARGE RESISTOR: 1.5MΩ
- LINE/GROUND AND LINE/LINE INSULATION RESISTANCE: 6000 MΩ (MIN) AT 100 VDC 20°C AND 50% RH

RECOMMENDED RECEIVING INSPECTION HIPOT:

- LINES TO GROUND: 2250 VDC FOR 1 MINUTE
- LINE TO LINE: 1450 VDC FOR 1 MINUTE

FILTER APPROVAL:

THE BEST WAY TO SELECT AND QUALIFY A FILTER IS FOR YOUR ENGINEERING TO TEST THE UNIT IN YOUR EQUIPMENT.



50Ω - 50Ω (MINIMUM) INSERTION LOSS

| FREQUENCY MHz | .15 | .3 | .5 | 1 | 2 | 5 | 10 | 20 | 30 |
|---------------|-----|----|----|----|----|----|----|----|----|
| COMMON dB | 23 | 30 | 36 | 43 | 45 | 55 | 56 | 56 | 56 |
| DIFF. dB | 2 | 2 | 32 | 52 | 63 | 63 | 58 | 46 | 46 |

This document is proprietary to CORCOM INC. and is not to be reproduced nor used for manufacturing purposes except on CORCOM's order or prior written consent.

TOLERANCE EXCEPT AS NOTED

- DECIMAL: .XXX .XX .X ANGLES ± 1°
- ENGLISH: ±.025
- METRIC: ±

MATERIAL:

AS SUPPLIED

FINISH:

AS SUPPLIED

CORCOM
LIBERTYVILLE, IL 60048

POWER LINE FILTER

| | | |
|---------|------------|----------|
| SCALE | DATE | DRG. NO. |
| NTS | 7-31-90 | 3VK3.05 |
| DRW. BY | ORIGINATOR | |
| CFW | CFW | |