

## Three phase 500Vac 6 to 300A EMC Filters with high attenuation

[https://product.tdk.com/en/products/emc/emc/power-line/tec\\_data/tdk\\_nf\\_rthc.html](https://product.tdk.com/en/products/emc/emc/power-line/tec_data/tdk_nf_rthc.html)

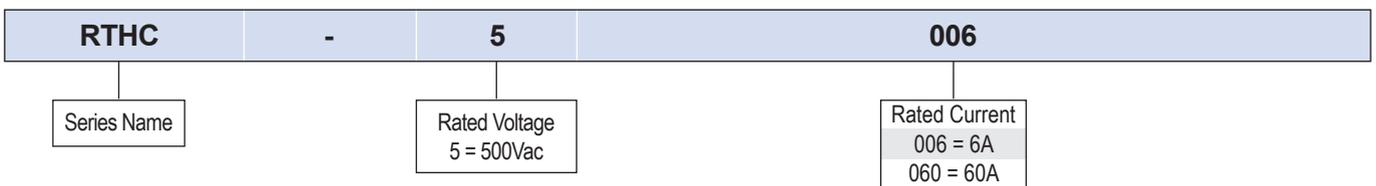
<https://www.emea.lambda.tdk.com/uk/products/r-series>



The RTHC three-phase EMC filters are enclosed in compact cubic case formats. They are rated for 500Vac with multiple current ratings of 6 to 300A enabling the optimum attenuation to match the current rating. The series uses TDK's ferrite core material to in a two stage configuration to provide excellent noise attenuation. The connection terminals are integrated into the case with both the screws and terminal covers captive, avoiding dropped or lost hardware.

| Features                    | Benefits                                                      |
|-----------------------------|---------------------------------------------------------------|
| • 6 to 300A Current Ratings | • Optimizes the Attenuation for the Wide Range Current Rating |
| • Cubic Profile             | • Space Saving                                                |
| • High Noise Attenuation    | • Reduces EMI and Voltage Surge Levels                        |
| • Captive Hardware          | • No Lost Screws or Terminal Covers                           |
| • Safety Certified          | • Global Use                                                  |

| Model Selector |                   |           |                                |                            |                                   |                           |            |
|----------------|-------------------|-----------|--------------------------------|----------------------------|-----------------------------------|---------------------------|------------|
| Model          | Rated Current (A) | SCCR (kA) | Leakage Current 500V/60Hz (mA) | Maximum DC Resistance (mΩ) | Attenuation frequency range (MHz) |                           |            |
|                |                   |           |                                |                            | Common mode at 25dB               | Differential mode at 25dB | Weight (g) |
| RTHC-5006      | 6                 | 5         | 5.0                            | 290                        | 0.1 to 10                         | 0.2 to 30                 | 800        |
| RTHC-5010      | 10                | 5         | 5.0                            | 120                        | 0.1 to 10                         | 0.2 to 30                 | 820        |
| RTHC-5020      | 20                | 5         | 5.0                            | 50                         | 0.1 to 10                         | 0.2 to 30                 | 1200       |
| RTHC-5030      | 30                | 5         | 5.0                            | 26                         | 0.2 to 10                         | 0.2 to 30                 | 1200       |
| RTHC-5040      | 40                | 5         | 5.0                            | 20                         | 0.2 to 10                         | 0.2 to 30                 | 2260       |
| RTHC-5050      | 50                | 5         | 5.0                            | 14                         | 0.2 to 10                         | 0.2 to 30                 | 2260       |
| RTHC-5060      | 60                | 5         | 5.0                            | 10                         | 0.2 to 10                         | 0.2 to 30                 | 2260       |
| RTHC-5080      | 80                | 5         | 5.0                            | 10                         | 0.1 to 10                         | 0.2 to 30                 | 7400       |
| RTHC-5100      | 100               | 5         | 5.0                            | 8                          | 0.1 to 10                         | 0.2 to 30                 | 7800       |
| RTHC-5150      | 150               | 10        | 5.0                            | 6                          | 0.1 to 10                         | 0.2 to 30                 | 12000      |
| RTHC-5200      | 200               | 10        | 5.0                            | 4                          | 0.3 to 10                         | 0.2 to 30                 | 16300      |
| RTHC-5250      | 250               | 10        | 5.0                            | 3                          | 0.3 to 10                         | 0.2 to 30                 | 15600      |
| RTHC-5300      | 300               | 10        | 5.0                            | 2                          | 0.5 to 6                          | 0.2 to 30                 | 14800      |



| Related Products                          |                    |                      |                |                                       |
|-------------------------------------------|--------------------|----------------------|----------------|---------------------------------------|
| Type                                      | Current Rating (A) | Series               | DIN Rail Mount | For use with secondary side inverters |
| Multipurpose with a low profile           | 6 - 300            | <a href="#">RTEN</a> | Y (Up to 30A)  |                                       |
| High attenuation, narrow package, 2 stage | 6 - 150            | <a href="#">RTHB</a> |                |                                       |
| High attenuation, low profile, 2 stage    | 6 - 60             | <a href="#">RTMN</a> |                |                                       |
| High attenuation, low leakage (250V)      | 6 - 300            | <a href="#">RTHN</a> |                |                                       |
| Multipurpose with HV pulse protection     | 6 - 60             | <a href="#">RTAN</a> | Y (Up to 30A)  |                                       |
| Compact package size, 1 stage             | 6 - 300            | <a href="#">RTCN</a> | -              | Y                                     |

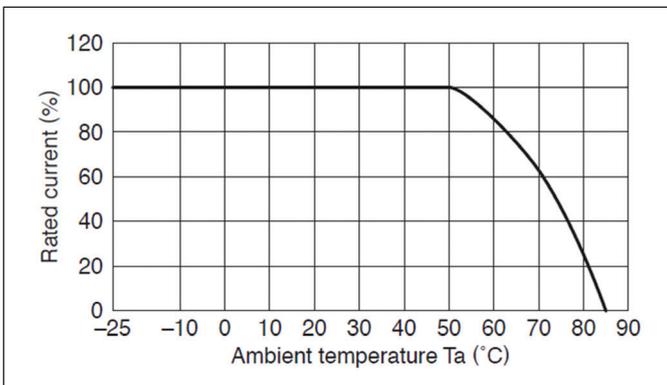
[Click here for TDK-Lambda single phase filters](#)

| Specification                       |         |                                                                                    |
|-------------------------------------|---------|------------------------------------------------------------------------------------|
| Model                               |         |                                                                                    |
| <b>Input</b>                        |         |                                                                                    |
| Rated Voltage (max)                 | Vac/Vdc | 500 (Safety certified for AC input only)                                           |
| Input Frequency                     | Hz      | 50/60                                                                              |
| Leakage Current (500Vac, 60Hz)      | mA      | 5                                                                                  |
| Safety Certifications and Markings  | -       | UL1283 (Up to 150A), EN60939-1/-2 (ENEC14), conforms to RoHS Directive             |
| <b>Environmental</b>                |         |                                                                                    |
| Operating Temperature               | °C      | -25 to +85, derating above 50. See derating curve below                            |
| Storage Temperature                 | °C      | -25 to +85                                                                         |
| Humidity (non condensing)           | %RH     | Operating: 15 - 85, storage: 5 - 85                                                |
| Cooling                             | -       | Convection                                                                         |
| Withstand Voltage                   | Vac     | 2,500 input to earth                                                               |
| Isolation Resistance (For 1 minute) | MΩ      | >100 at 500Vdc                                                                     |
| Vibration                           | -       | 10-55Hz Amplitude 0.7mm, Sweep for 1 min. X, Y and Z directions for 0.5 hours each |
| <b>Other</b>                        |         |                                                                                    |
| Weight (Typ)                        | -       | See model selector                                                                 |
| Size (LxWxH)                        | mm      | See outline drawings                                                               |
| Size (LxWxH)                        | Inches  | See outline drawings                                                               |
| Connectors                          | -       | See outline drawings                                                               |
| MIL-HDBK-217F NOTICE2               | Hours   | RTHC-5006: 1,998,242, RTHC-5300: 1,906,069                                         |
| Warranty                            | Years   | 5                                                                                  |

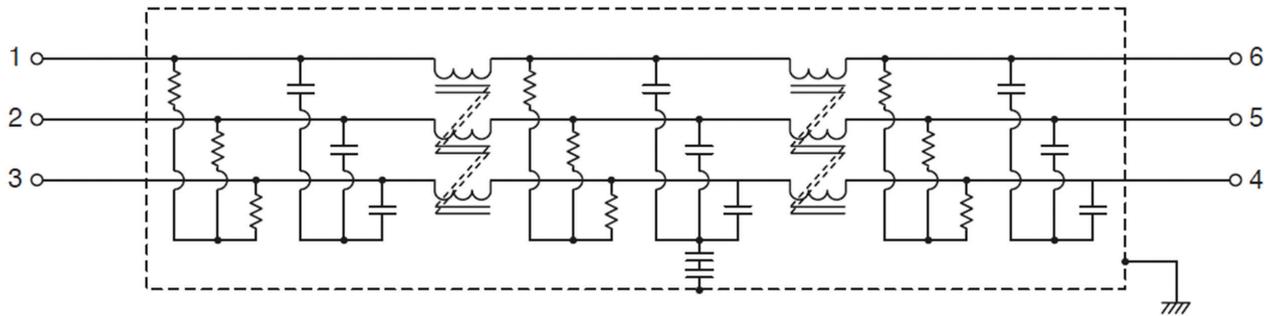
\*Notes  
See website for detailed specifications, test methods and installation manual [RTHC technical files](#).

### Mechanical Specification

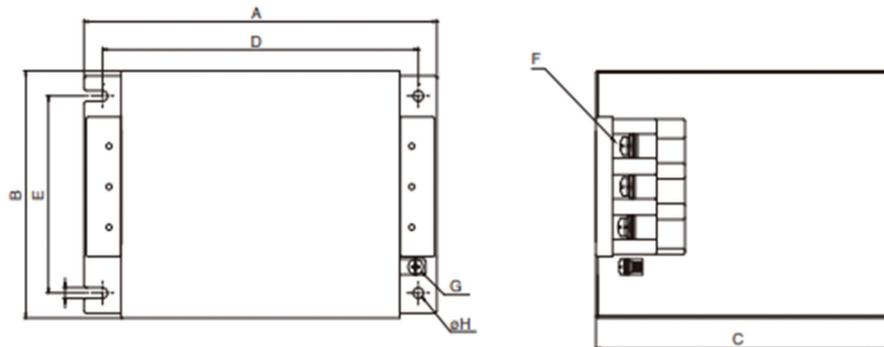
#### Derating Curve



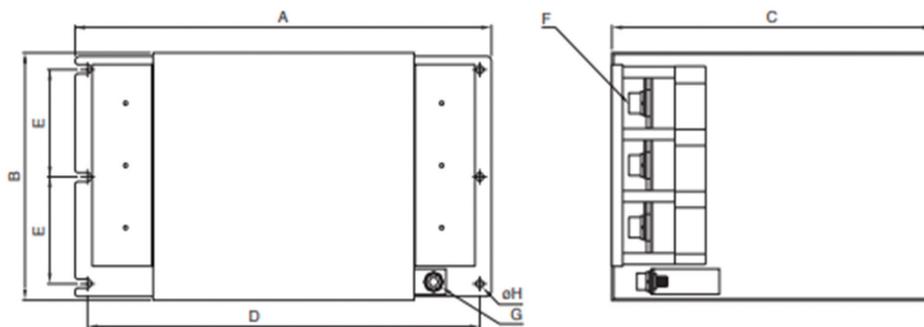
## Schematic



## RTHC Outline Drawings



RTHC-5200/5250/2300

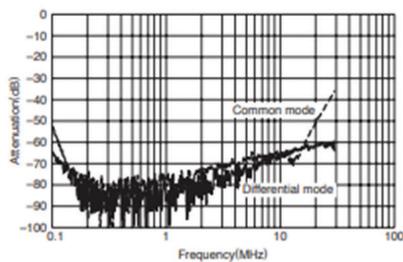


Dimensions in mm

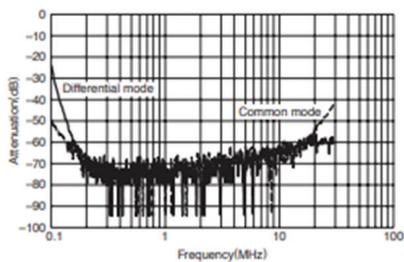
| Part No.  | A   | B   | C   | D   | E    | F   | G  | $\phi H$ | Recommended clamping torque                                                           |
|-----------|-----|-----|-----|-----|------|-----|----|----------|---------------------------------------------------------------------------------------|
| RTHC-5006 | 145 | 95  | 120 | 130 | 78   | M4  | M4 | 4.5      | M4 : 1.27N · m<br>M5 : 2.5N · m<br>M6 : 4.8N · m<br>M8 : 7.64N · m<br>M10 : 11.8N · m |
| RTHC-5010 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5020 | 160 | 105 | 135 | 145 | 85   | M4  | M4 |          |                                                                                       |
| RTHC-5030 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5040 | 190 | 128 | 160 | 170 | 102  | M5  | M4 |          |                                                                                       |
| RTHC-5050 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5060 | 240 | 161 | 210 | 220 | 135  | M8  | M6 | 6.5      |                                                                                       |
| RTHC-5080 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5100 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5150 | 255 | 190 | 232 | 235 | 164  | M8  | M6 | 6.5      |                                                                                       |
| RTHC-5200 |     |     |     |     |      |     |    |          |                                                                                       |
| RTHC-5250 | 340 | 195 | 262 | 320 | 84.5 | M10 | M8 | 6.5      |                                                                                       |
| RTHC-5300 |     |     |     |     |      |     |    |          |                                                                                       |

**RTHC Attenuation vs. Frequency**

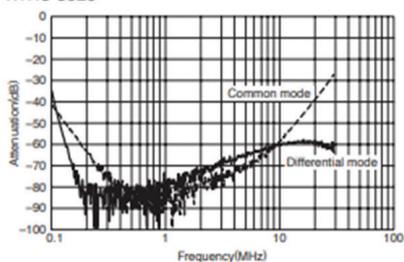
RTHC-5006



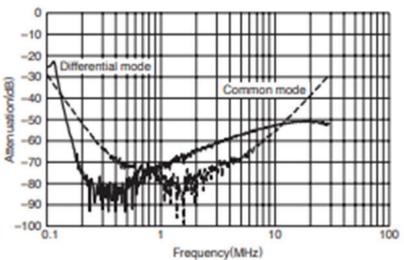
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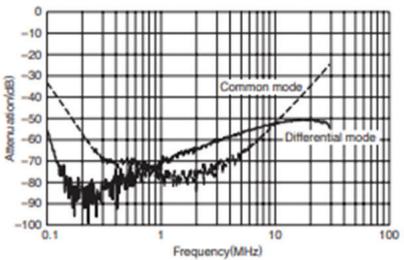
RTHC-5020



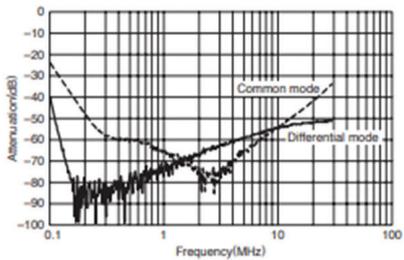
RTHC-5030



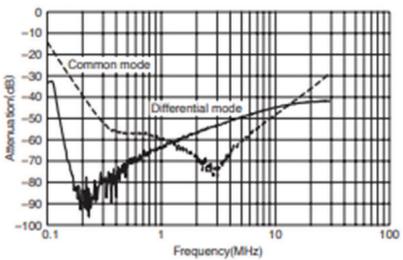
RTHC-5040



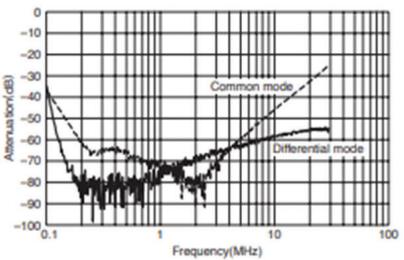
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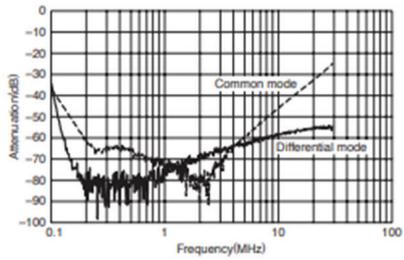
RTHC-5060



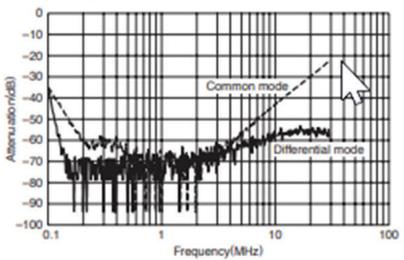
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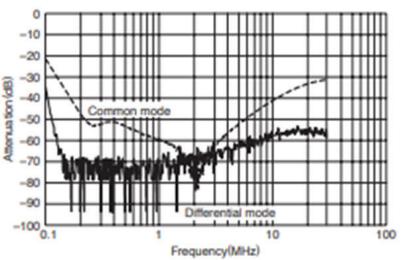
RTHC-5100



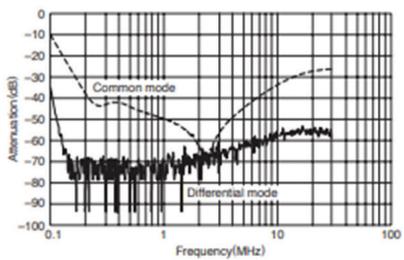
RTHC-5150



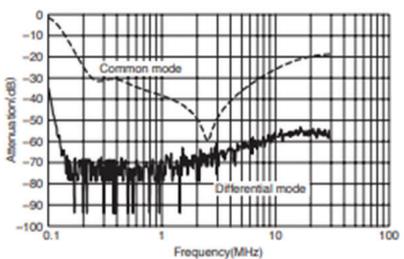
RTHC-5200



RTHC-5250



RTHC-5300





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