

# LPC 2,5/ 9-STF-5,08 - PCB connector

1110636

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PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 16 A, rated voltage (III/2): 320 V, contact surface: Sn, contact connection type: Socket, number of rows: 1, number of positions: 9, product range: LPC 2,5/...-STF, pitch: 5.08 mm, connection method: Lever Push-in connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking mechanism, mounting method: Screw flange, type of packaging: packed in cardboard

## Your advantages

- Tool-free lever principle enables time-saving connection and release of conductors with/without ferrules
- Clear lever positions provide reliable feedback on opened or closed clamping spaces
- Time-saving push-in connection when lever is closed
- Screwable flange for superior mechanical stability
- Quick and convenient testing using integrated test option

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1110636       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Sales key                            | AA03          |
| Product key                          | AACBAB        |
| GTIN                                 | 4063151027735 |
| Weight per piece (including packing) | 18.2 g        |
| Weight per piece (excluding packing) | 2.22 g        |
| Customs tariff number                | 85366990      |
| Country of origin                    | SK            |

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## Technical data

### Product properties

|                     |                       |
|---------------------|-----------------------|
| Product type        | PCB connector         |
| Product family      | LPC 2,5/...-STF       |
| Product line        | COMBICON Connectors M |
| Number of positions | 9                     |
| Pitch               | 5.08 mm               |
| Number of rows      | 1                     |

### Electrical properties

#### Properties

|                             |              |
|-----------------------------|--------------|
| Nominal current $I_N$       | 16 A         |
| Nominal voltage $U_N$       | 320 V        |
| Contact resistance          | 1 m $\Omega$ |
| Rated voltage (III/3)       | 250 V        |
| Rated surge voltage (III/3) | 4 kV         |
| Rated voltage (III/2)       | 320 V        |
| Rated surge voltage (III/2) | 4 kV         |
| Rated voltage (II/2)        | 630 V        |
| Rated surge voltage (II/2)  | 4 kV         |

### Connection data

#### Connection technology

|                         |                     |
|-------------------------|---------------------|
| Connector system        | COMBICON MSTB 2,5   |
| Nominal cross section   | 2.5 mm <sup>2</sup> |
| Contact connection type | Socket              |

#### Interlock

|                   |                         |
|-------------------|-------------------------|
| Locking type      | Screw locking mechanism |
| Mounting type     | Screw flange            |
| Tightening torque | 0.3 Nm                  |

#### Conductor connection

|   |  |
|---|--|
| Connection method   | Lever Push-in connection                     |
| Connection direction of the conductor to plug-in direction              | 0 °  |
| Conductor/PCB connection direction                                      | 0 °  |
| Conductor cross-section rigid   | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section flexible  | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section AWG   | 26 ... 12                                    |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve    | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| 2 conductors with the same cross section, flexible, with TWIN           | 0.5 mm <sup>2</sup> ... 1 mm <sup>2</sup>    |

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|                                    |                          |
|------------------------------------|--------------------------|
| ferrule with plastic sleeve        |                          |
| Cylindrical gauge a x b / diameter | 2.8 mm x 2.0 mm / 2.4 mm |
| Stripping length                   | 10 mm                    |

## Specifications for ferrules without insulating collar

|  |  |
|--|--|
| recommended crimping tool                                    | 1212034 CRIMPFOX 6   |
| ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.25 mm <sup>2</sup> ; Length: 7 mm           |
|  | Cross section: 0.34 mm <sup>2</sup> ; Length: 7 mm           |
|  | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|  | Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|  | Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 12 mm    |
|  | Cross section: 1.5 mm <sup>2</sup> ; Length: 10 mm ... 12 mm |
| Cross section: 2.5 mm <sup>2</sup> ; Length: 10 mm ... 12 mm |  |

## Specifications for ferrules with insulating collar

|   |   |
|---|---|
| recommended crimping tool                                 | 1212034 CRIMPFOX 6  |
| ferrules with insulating collar, according to DIN 46228-4 | Cross section: 0.25 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|   | Cross section: 0.34 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|   | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm   |
|   | Cross section: 0.75 mm <sup>2</sup> ; Length: 10 mm ... 12 mm |
|   | Cross section: 1 mm <sup>2</sup> ; Length: 10 mm ... 12 mm    |
|   | Cross section: 1.5 mm <sup>2</sup> ; Length: 10 mm ... 12 mm  |
| Cross section: 2.5 mm <sup>2</sup> ; Length: 12 mm        |   |

## Material specifications

### Material data - contact

|  |  |
|--|--|
| Note                                     | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material                         | Cu alloy   |
| Surface characteristics                  | hot-dip tin-plated   |
| Metal surface terminal point (top layer) | Tin (4 µm - 8 µm Sn)   |
| Metal surface contact area (top layer)   | Tin (4 µm - 8 µm Sn)   |

### Material data - housing

|   |              |
|---|--------------|
| Color (Housing)   | green (6021) |
| Insulating material   | PA           |
| Insulating material group   | I            |
| CTI according to IEC 60112  | 600          |
| Flammability rating according to UL 94                            | V0           |
| Glow wire flammability index GWFI according to EN 60695-2-12      | 850          |
| Glow wire ignition temperature GWIT according to EN 60695-2-13    | 775          |
| Temperature for the ball pressure test according to EN 60695-10-2 | 125 °C       |

### Material data – actuating element

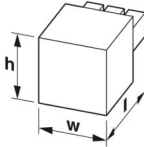
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|  |               |
|--|---------------|
| Color (Actuating element)              | orange (2003) |
| Insulating material                    | PA GF         |
| Insulating material group              | I             |
| CTI according to IEC 60112             | 600           |
| Flammability rating according to UL 94 | V0            |

## Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Pitch               | 5.08 mm  |
| Width [w]           | 55.9 mm  |
| Height [h]          | 15.39 mm   |
| Length [l]          | 27.37 mm   |

## Mounting

### Flange

|                   |        |
|-------------------|--------|
| Tightening torque | 0.3 Nm |
|-------------------|--------|

## Notes

|                    |  |
|--------------------|--|
| Notes on operation | In accordance with IEC 61984, COMBICON connectors have no switching power (COC). During designated use, they must not be plugged in or disconnected when carrying voltage or under load. |
|--------------------|--|

## Mechanical tests

### Conductor connection

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### Test for conductor damage and slackening

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### Repeated connection and disconnection

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### Pull-out test

|   |   |
|---|---|
| Specification   | IEC 60999-1:1999-11                     |
| Conductor cross-section/conductor type/tractive force setpoint/actual value | 0.2 mm <sup>2</sup> / solid / > 10 N    |
|   | 0.2 mm <sup>2</sup> / flexible / > 10 N |
|   | 2.5 mm <sup>2</sup> / solid / > 50 N    |
|   | 2.5 mm <sup>2</sup> / flexible / > 50 N |

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## Insertion and withdrawal forces

|                                     |                        |
|-------------------------------------|------------------------|
| Specification                       | IEC 60512-13-2:2006-02 |
| Result                              | Test passed            |
| No. of cycles                       | 25                     |
| Insertion strength per pos. approx. | 7 N                    |
| Withdraw strength per pos. approx.  | 6 N                    |

## Resistance of inscriptions

|               |                        |
|---------------|------------------------|
| Specification | IEC 60068-2-70:1995-12 |
| Result        | Test passed            |

## Polarization and coding

|               |                        |
|---------------|------------------------|
| Specification | IEC 60512-13-5:2006-02 |
| Result        | Test passed            |

## Visual inspection

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-1:2002-02 |
| Result        | Test passed           |

## Dimension check

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-2:2002-02 |
| Result        | Test passed           |

## Environmental and real-life conditions

### Durability test

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 4.8 kV                |
| Contact resistance $R_1$                     | 1 m $\Omega$          |
| Contact resistance $R_2$                     | 1.2 m $\Omega$        |
| Insertion/withdrawal cycles                  | 25                    |
| Insulation resistance, neighboring positions | > 5 M $\Omega$        |

### Climatic test

|                                   |   |
|-----------------------------------|---|
| Specification                     | ISO 6988:1985-02  |
| Corrosive stress                  | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Thermal stress                    | 105 °C/168 h  |
| Power-frequency withstand voltage | 2.21 kV   |

### Vibration test

|                        |                             |
|------------------------|-----------------------------|
| Specification          | IEC 60068-2-6:2007-12       |
| Frequency              | 10 - 150 - 10 Hz            |
| Sweep speed            | 1 octave/min                |
| Amplitude              | 0.35 mm (10 Hz ... 60.1 Hz) |
| Acceleration           | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |
| Test directions        | X-, Y- and Z-axis           |

# LPC 2,5/ 9-STF-5,08 - PCB connector



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## Shocks

|                 |                                   |
|-----------------|-----------------------------------|
| Specification   | IEC 60068-2-27:2008-02            |
| Pulse shape     | Semi-sinusoidal                   |
| Acceleration    | 20g                               |
| Shock duration  | 11 ms                             |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

## Railway application: Oscillation/broadband noise

|                        |  |
|------------------------|--|
| Specification          | DIN EN 50155 (VDE 0115-200):2022-06<br>IEC 61373:2010-05 |
| Spectrum               | Long life test category 1, class B, body mounted         |
| Frequency              | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$           |
| ASD level              | 0.964 (m/s <sup>2</sup> )/Hz                             |
| Acceleration           | 0.572 g  |
| Test duration per axis | 5 h  |
| Test directions        | X-, Y- and Z-axis  |
| Contact interruption   | < 1 $\mu\text{s}$  |
| Result                 | Test passed  |

## Railway application: Shocks

|                                |  |
|--------------------------------|--|
| Specification                  | DIN EN 50155 (VDE 0115-200):2022-06<br>IEC 61373:2010-05 |
| Pulse shape                    | Semi-sinusoidal  |
| Acceleration                   | 20g  |
| Shock duration                 | 11 ms  |
| Number of shocks per direction | 3  |
| Test directions                | X-, Y- and Z-axis (pos. and neg.)                        |
| Contact interruption           | < 1 $\mu\text{s}$  |
| Result                         | Test passed  |

## Ambient conditions

|   |   |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |
| Ambient temperature (operation)         | -40 °C ... 105 °C (dependent on the derating curve) |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 20                    |

### Insulation resistance

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 5 M $\Omega$        |

# LPC 2,5/ 9-STF-5,08 - PCB connector



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## Temperature cycles

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

## Air clearances and creepage distances |

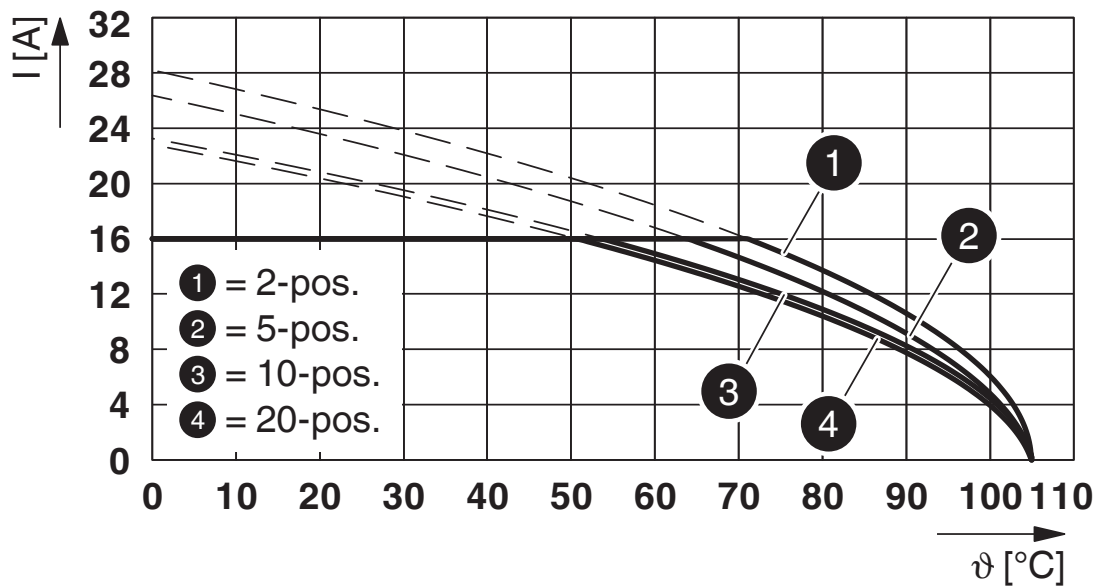
|  |                     |
|--|---------------------|
| Specification  | IEC 60664-1:2007-04 |
| Insulating material group                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| Rated insulation voltage (III/3)                       | 250 V               |
| Rated surge voltage (III/3)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/3) | 3 mm                |
| minimum creepage distance (III/3)                      | 3.2 mm              |
| Rated insulation voltage (III/2)                       | 320 V               |
| Rated surge voltage (III/2)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/2) | 3 mm                |
| minimum creepage distance (III/2)                      | 3 mm                |
| Rated insulation voltage (II/2)                        | 630 V               |
| Rated surge voltage (II/2)                             | 4 kV                |
| minimum clearance value - non-homogenous field (II/2)  | 3 mm                |
| minimum creepage distance (II/2)                       | 3.2 mm              |

## Packaging specifications

|                   |                     |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

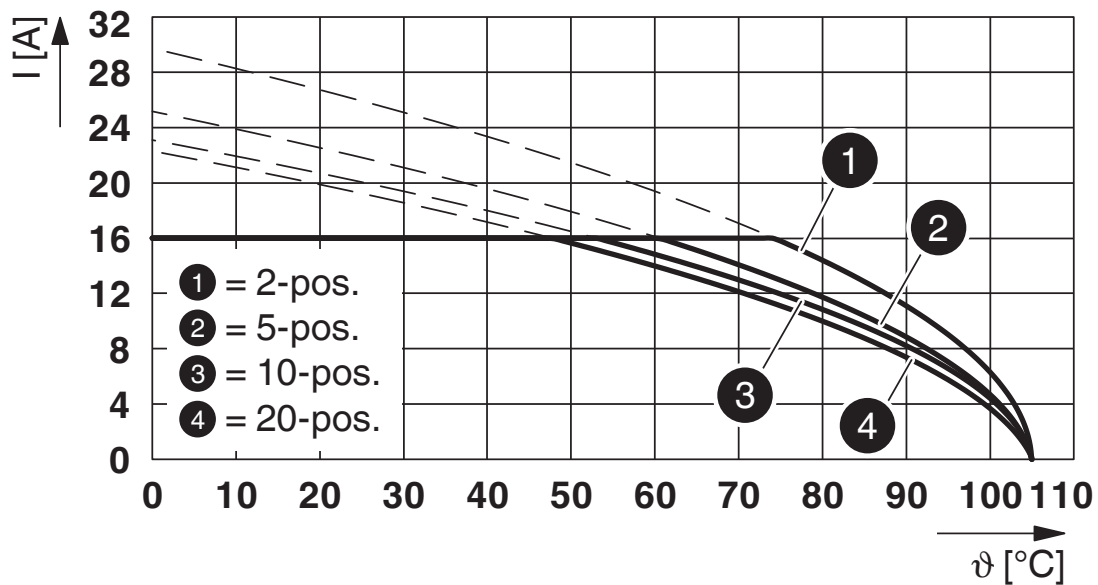
## Drawings

Diagram



Type: LPC 2,5/...-STF-5,08 with CC 2,5/...-GF-5,08 P...THR

Diagram



Type: LPC 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08 P...THR

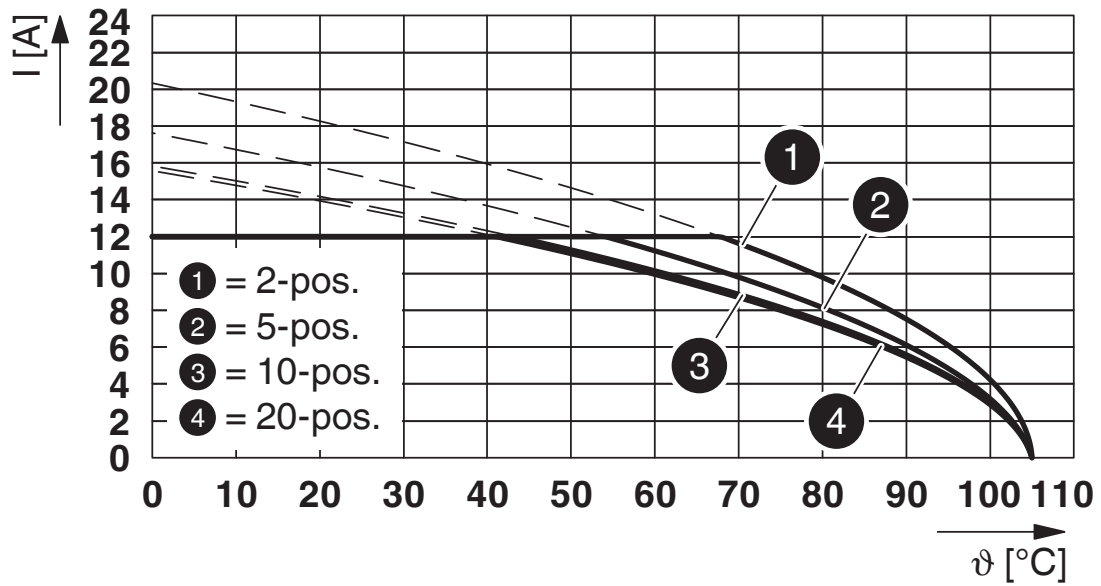
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Diagram



Type: LPC 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1110636>

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40053722 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 320 V                 | 16 A                  | -                 | 0.2 - 2.5                   |

|  <b>UL Recognized</b><br>Approval ID: E60425-20210715 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| F  |                       |                       |                   |                             |
|  | 320 V                 | 16 A                  | 26 - 12           | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-20210715 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B   |                       |                       |                   |                             |
|   | 300 V                 | 16 A                  | 26 - 12           | -                           |
| D   |                       |                       |                   |                             |
|   | 300 V                 | 10 A                  | 26 - 12           | -                           |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27460202 |
| ECLASS-15.0 | 27460202 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002638 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|   |                    |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|---|--------------------|

### China RoHS

|  |  |
|--|--|
| Environment friendly use period (EFUP) | EFUP-E                                   |
|  | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.622 kg CO2e |
|---------|---------------|

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