# ELR H3-I-SC- 24DC/500AC-9 - Hybrid motor starter

2900545

https://www.phoenixcontact.com/us/products/2900545

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Hybrid motor starter for starting 3~ AC motors up to 500 V AC and 9 A output current, with 24 V DC control voltage, adjustable overload shutdown, and screw connection.

## Your advantages

- 22.5 mm wide
- Low-wear switching
- Reduction in wiring
- Long service life
- Space saving
- 3-phase loop bridges
- Adjustable current for bimetal function

## Commercial data

| | |
|---|---|
| Item number | 2900545 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C470 |
| Product key | DK7423 |
| GTIN | 4046356527705 |
| Weight per piece (including packing) | 239.42 g |
| Weight per piece (excluding packing) | 216.51 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

## Technical data

### Product properties

| | |
|---|---|
| Product type | Hybrid motor starters |
| Product family | CONTACTRON |
| Operating mode | 100% operating factor |

### Electrical properties

| | |
|---|---|
| Number of phases | 3 |
| Motor starter type | Direct starter |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation for nominal condition | 13.5 W |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation | 14.6 W |
| Minimum power dissipation | 1.1 W |
| Coordination type | 1 |

#### Supply

| | |
|---|---|
| Rated control circuit supply voltage $U_S$ | 24 V DC |
| Control supply voltage range | 19.2 V DC ... 30 V DC |
| Rated control supply current $I_S$ | 40 mA |
| Protective circuit | Surge protection |
| | Reverse polarity protection |

#### Insulation characteristics

| | |
|---|---|
| Rated insulation voltage | 500 V |
| Rated surge voltage | 6 kV |
| Overvoltage category | III |
| Degree of pollution | 2 |
| Insulation characteristics between the control input and control supply voltage, and auxiliary circuit to the main circuit | Safe isolation (IEC 60947-1) at operating voltage ≤ 300 V AC (e. g., 230/400 V AC, 277/480 V AC) |
| | Basic insulation (IEC 60947-1) at operating voltage 300 V AC ... 500 V AC |
| Isolation characteristics between the control input and control supply voltage to auxiliary circuit | Safe isolation (IEC 60947-1) in the auxiliary circuit ≤ 300 V AC |

#### Emergency tripping

| | |
|---|---|
| Operate threshold | > 45 A |
| Response time | < 2 s |

### Input data

#### Control

| | |
|---|---|
| Input name | Control input |
| Rated actuating voltage $U_C$ | 24 V DC |
| Triggering voltage range | 19.2 V DC ... 30 V DC |

| | |
|---|---|
| Rated actuating current $I_C$ | 5 mA (Input type 1) |
| Switching threshold | 9.6 V (“0” signal) |
| | 19.2 V (“1” signal) |
| Typical turn-off time | < 30 ms |
| Protective circuit | Reverse polarity protection |

## Output data

AC output

| | |
|---|---|
| Rated operating voltage $U_e$ | 500 V AC |
| Operating voltage range | 42 V AC ... 550 V AC |
| Rated operating current $I_e$ | 9 A (AC-51) |
| | 6.5 A (AC-53a) |
| Mains frequency | 50/60 Hz |
| Load current range | 1.5 A ... 9 A (see to derating) |
| Trigger characteristic in acc. with IEC 60947-4-2 | Class 10A |
| Cooling time | 20 min (for auto reset) |
| Leakage current | 0 mA |
| Protective circuit | Surge protection |

Acknowledge output

| | |
|---|---|
| Note | Confirmation: floating change-over contact, signal contact |
| Contact switching type | 1 changeover contact |
| Switching capacity in accordance with IEC 60947-5-1 | 3 A (230 V, AC15) |
| | 2 A (24 V (DC13)) |

## Connection data

Control circuits

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section AWG | 24 ... 14 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |
| | 5 $lb_f$-in. ... 7 $lb_f$-in. |

Load circuit

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section AWG | 24 ... 14 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

| | |
|---|---|
| | 5 $lb_f$-in. ... 7 $lb_f$-in. |

## Signaling

| | |
|---|---|
| Status display | LED (yellow) |
| Operating voltage display | Green LED |
| Error indication | Red LED |

## Dimensions

| | |
|---|---|
| Width | 22.5 mm |
| Height | 107 mm |
| Depth | 114 mm |

## Material specifications

| | |
|---|---|
| Flammability rating according to UL 94 (Housing) | V0 (Housing) |

## Environmental and real-life conditions

### Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 70 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |
| Altitude | ≤ 2000 m |

## Approvals

### UL approval

| | |
|---|---|
| Certificate | NLDX.E228652 |

### UL data

| | |
|---|---|
| SCCR | 100 kA (500 V AC (fuse: 30 A class CC/30 A class J (high fault))) |
| | 5 kA (500 V AC (fuse: 20 A RK5 (standard fault))) |
| FLA | 6.5 A (500 V AC) |
| Group installation | 20 A (class RK5, SCCR 5kA, #24 - 14 AWG max. solid and stranded) |
| | 30 A (class CC or J, SCCR 100kA, #24 - 14 AWG max, solid and stranded) |
| Category code | NLDX / NRNT |

## Standards and regulations

### Standards/regulations

| | |
|---|---|
| Standards/regulations | IEC 60947-1 |
| | IEC 60947-4-2 |

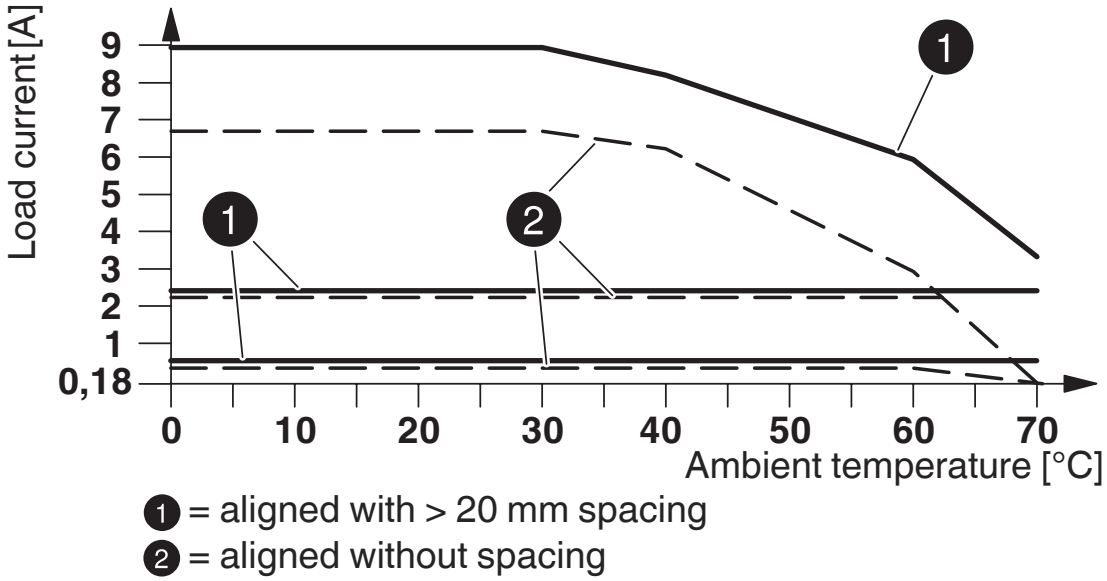
## Mounting

| | |
|---|---|
| Mounting type | DIN rail mounting |
| Assembly note | alignable, for spacing see derating |

| | |
|---|---|
| Mounting position | vertical (horizontal DIN rail, motor output below) |

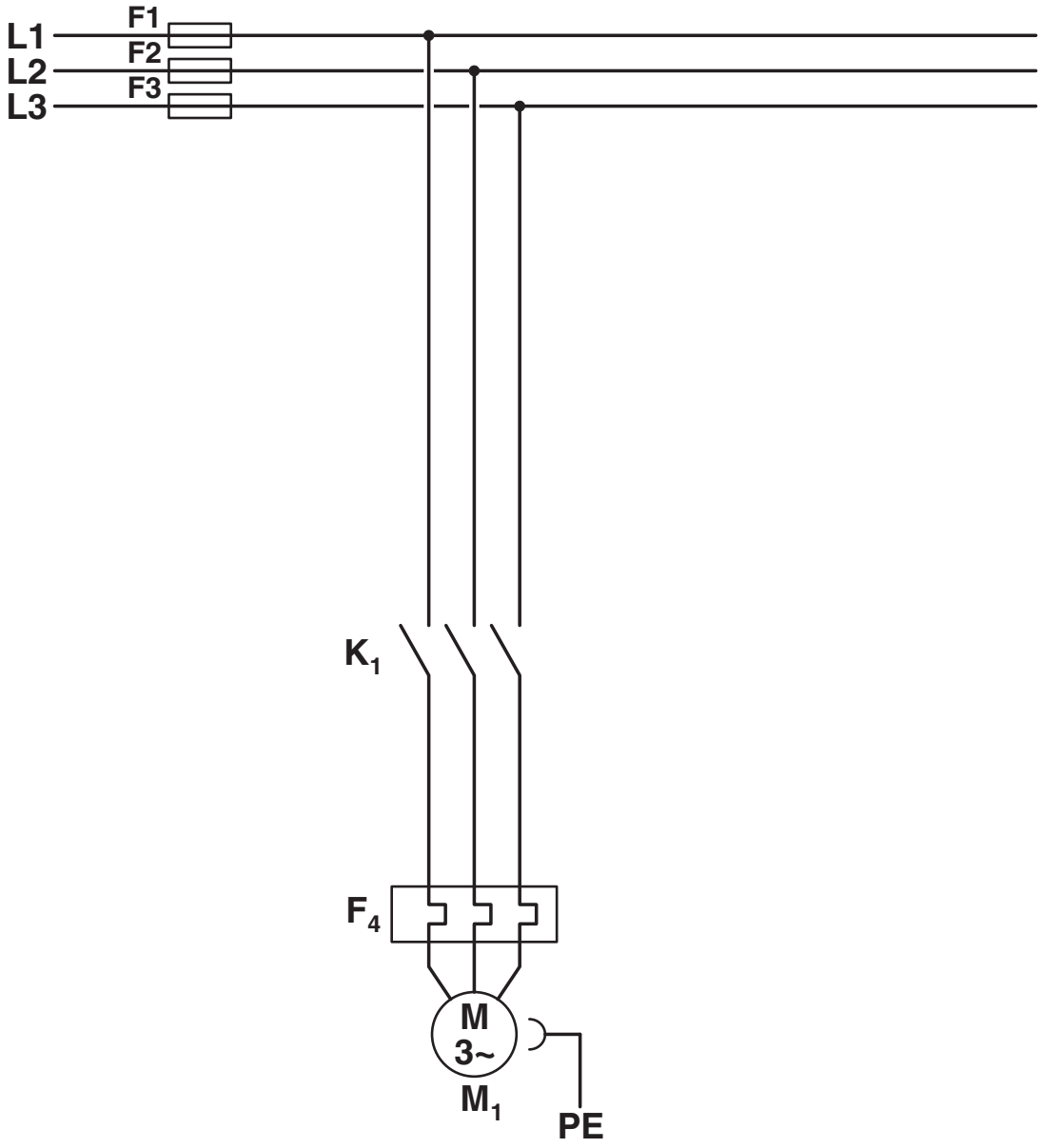
## Drawings

Diagram




Derating diagram

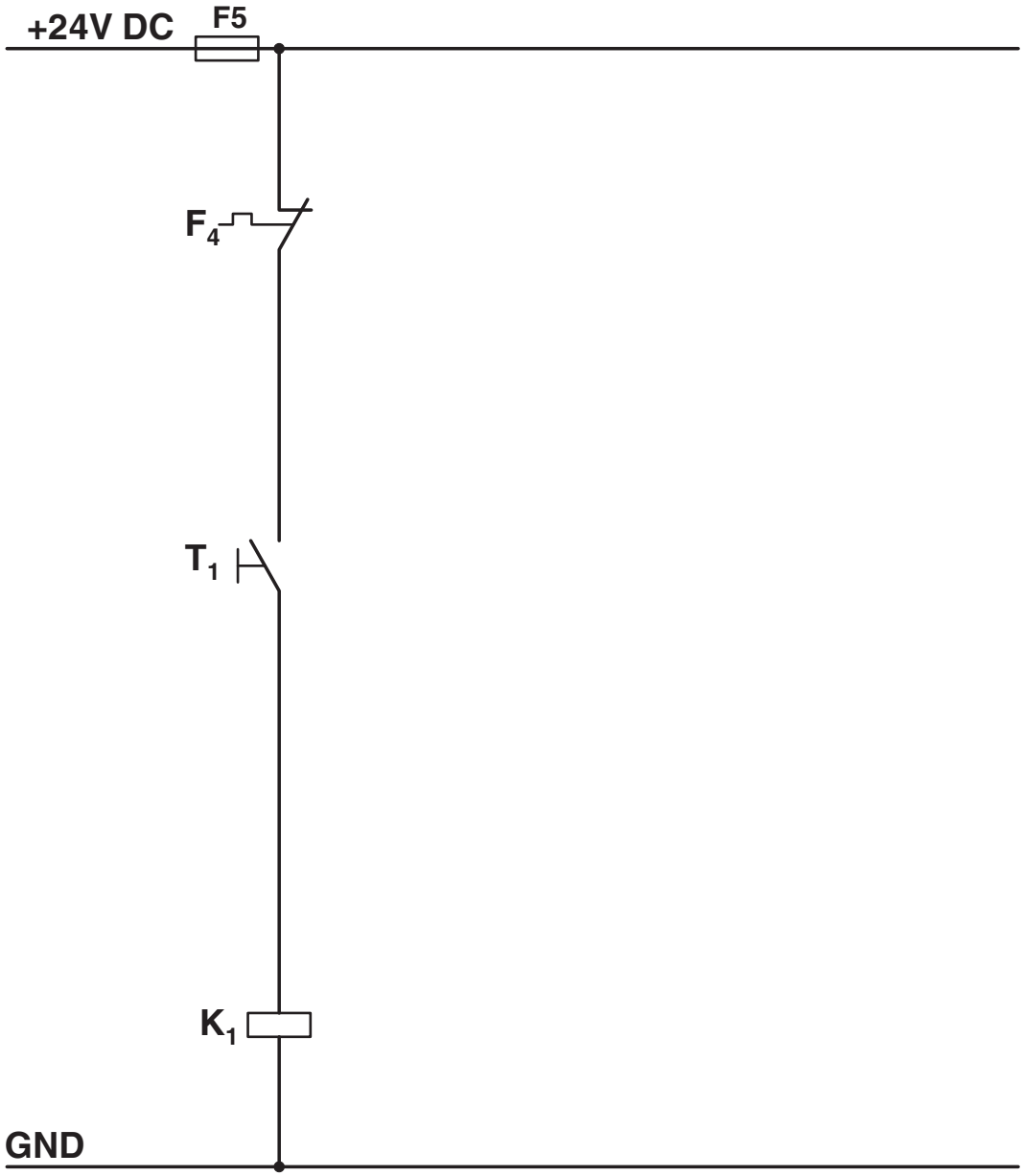
Circuit diagram




## Conventional structure

Main current path reversing contactor
K1 = Right contactor
F4 = Motor protection relay

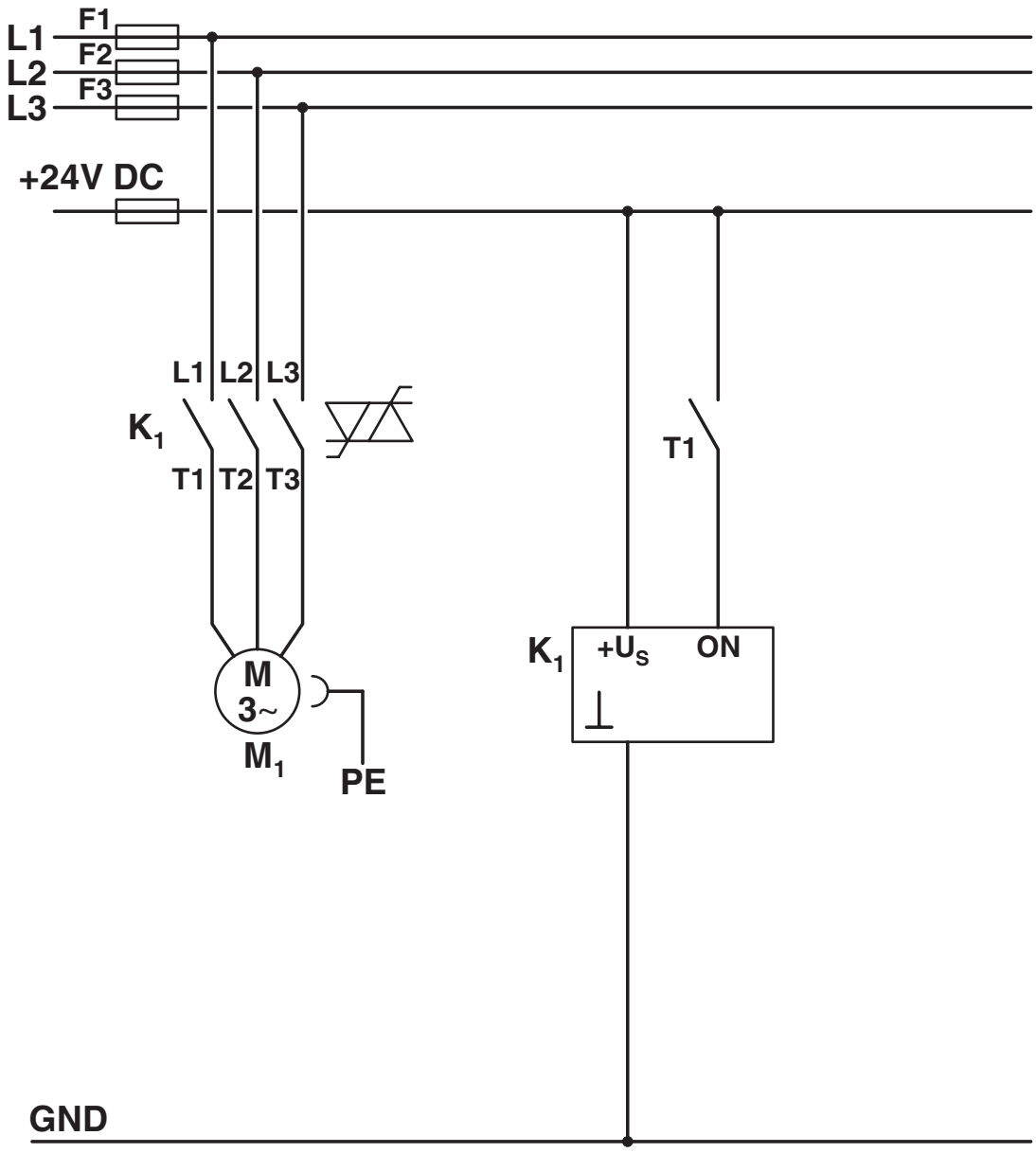
Circuit diagram




## Conventional structure

Control current path contactor
K1 = Right contactor
T1 = Right
F4 = Motor protection relay

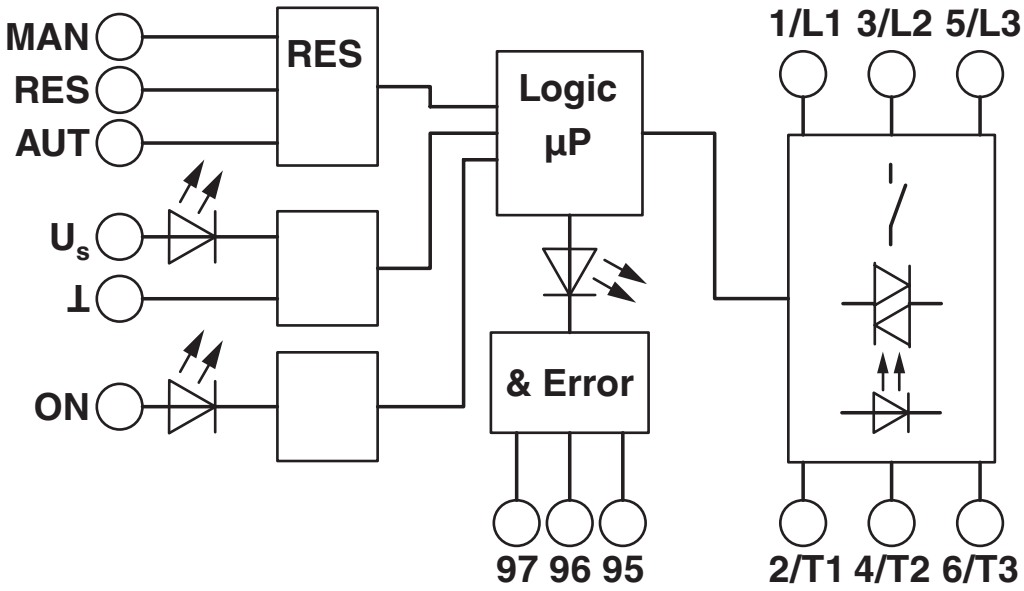
Circuit diagram




## Structure with CONTACTRON

Main and control current path for '2 in 1' hybrid motor starter
K1 = '2 in 1' hybrid motor starter
T1 = Right

Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2900545

**IECEE CB Scheme**
Approval ID: DE1-55728

**UL Listed**
Approval ID: FILE E 323771

**CCC**
Approval ID: 2016010304871315

**cUL Listed**
Approval ID: FILE E 323771

**cUL Listed**
Approval ID: E228652

**UL Listed**
Approval ID: E228652

**CCC**
Approval ID: 2024010304672817

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27370905 |
| ECLASS-15.0 | 27370905 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC001037 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 25173900 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(a)-I, 7(c)-I |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | 1-Methyl-2-pyrrolidone (NMP)(CAS: 872-50-4) |
| | Lead(CAS: 7439-92-1) |
| SCIP | 185f2d54-5434-495c-807e-14d4a24e61d2 |


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