

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



2900545

<https://www.phoenixcontact.com/gb/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
Note	Made to order (non-returnable)
Sales key	DK7423
Product key	DK7423
GTIN	4046356527705
Weight per piece (including packing)	243.7 g
Weight per piece (excluding packing)	205.06 g
Customs tariff number	85371098
Country of origin	DE

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## 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

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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 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	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb <sub>F</sub> -in. ... 7 lb <sub>F</sub> -in.

### Load circuit

Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
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	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

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5 lb<sub>F</sub>-in. ... 7 lb<sub>F</sub>-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)
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## 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
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### 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

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



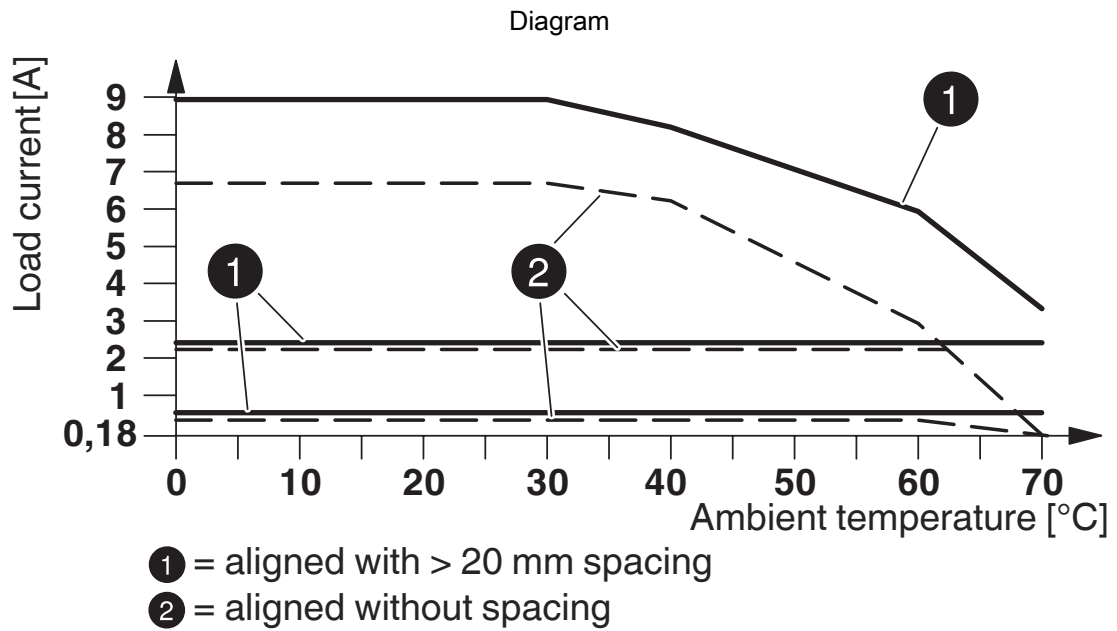
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Mounting position

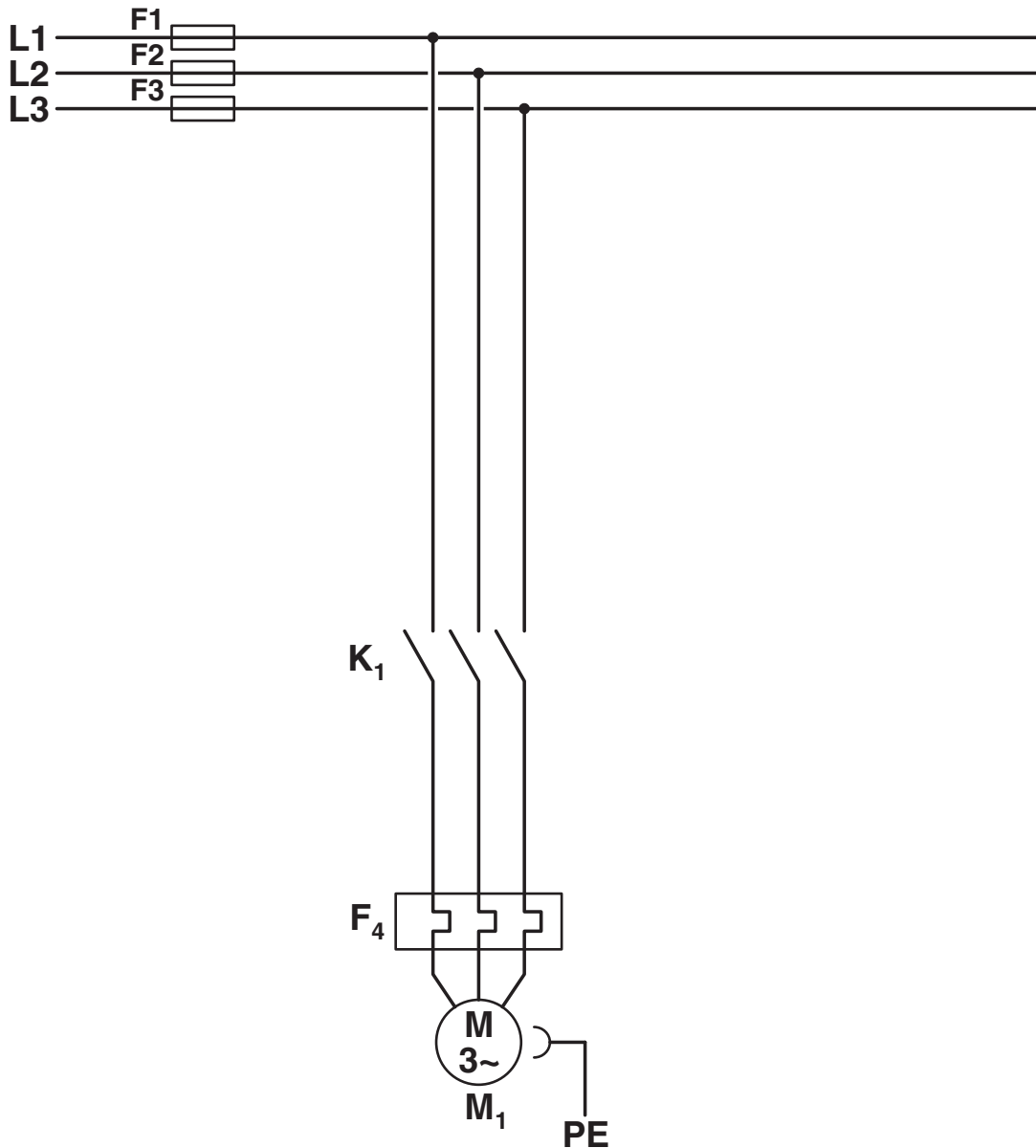
vertical (horizontal DIN rail, motor output below)

Drawings



Derating diagram

Circuit diagram



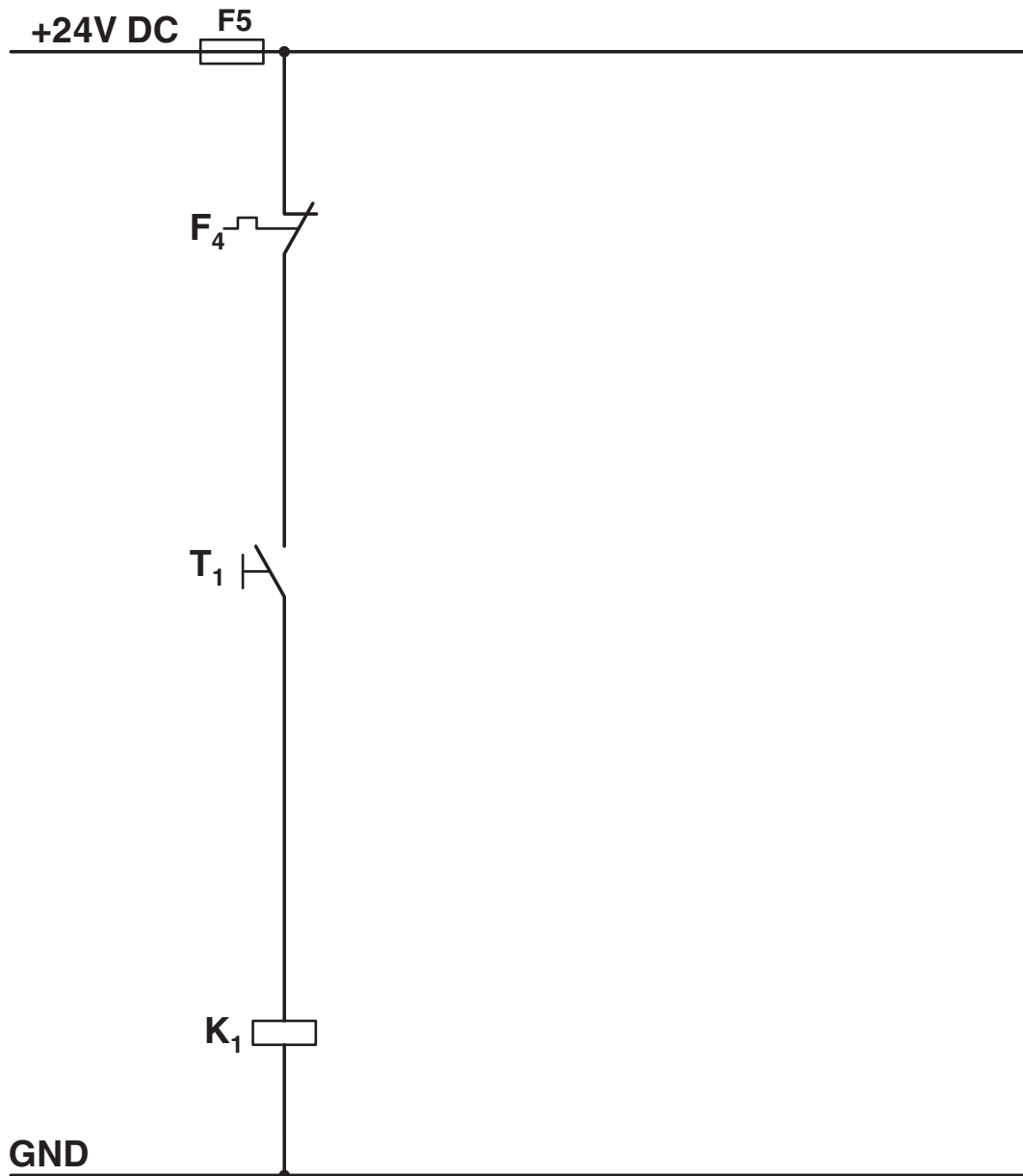
## Conventional structure

Main current path reversing contactor

K1 = Reversing contactor

F4 = Motor protection relay

Circuit diagram



**Conventional structure**

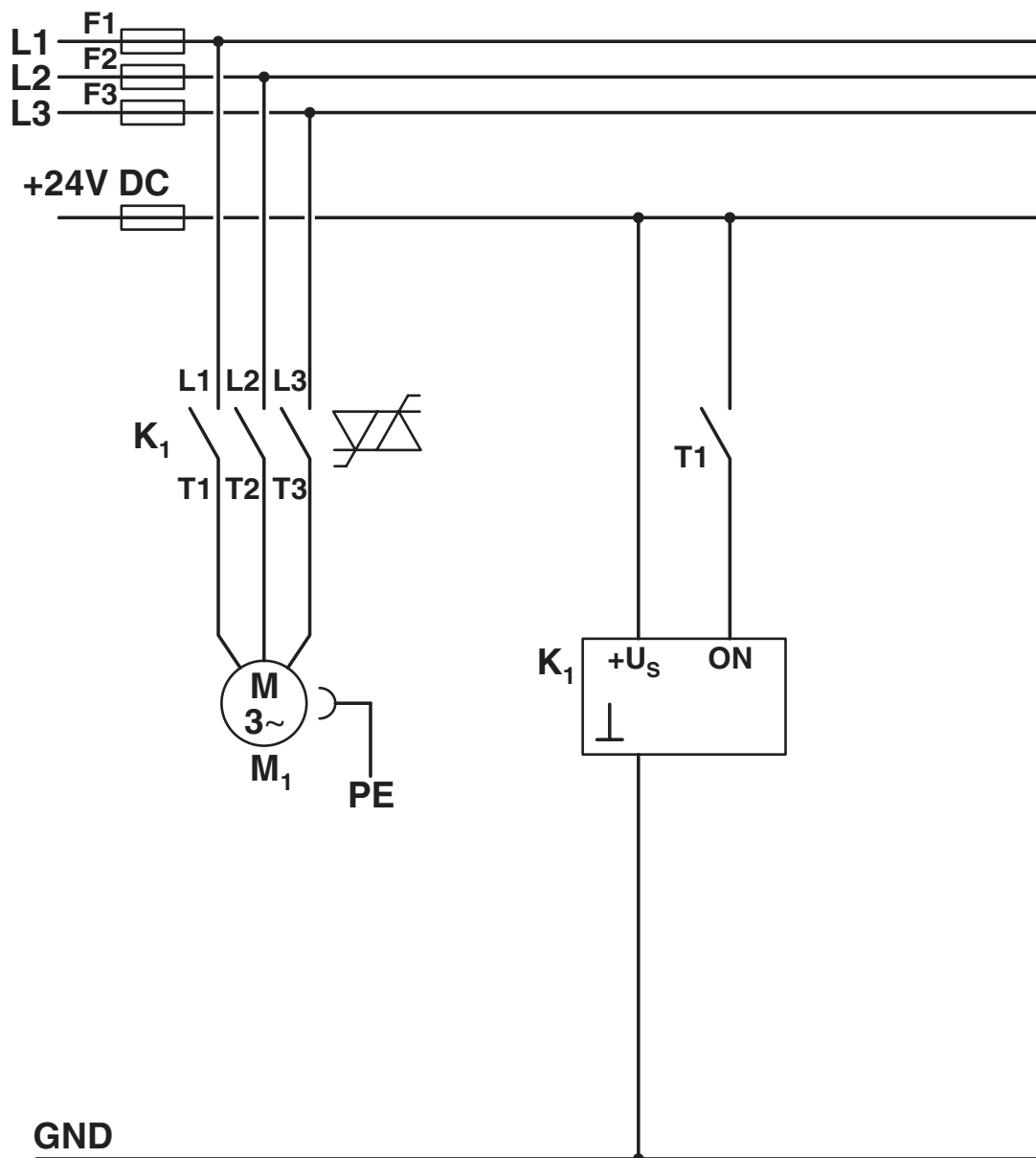
Control current path contactor

K1 = Right contactor

T1 = Right

F4 = Motor protection relay

Circuit diagram

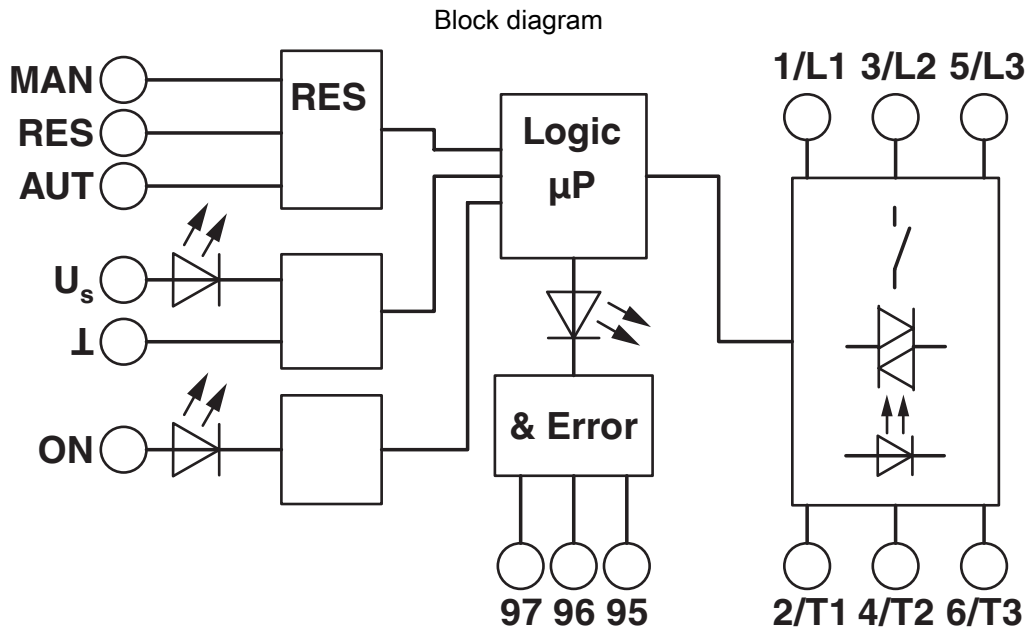


## Structure with CONTACTRON

Main and control current path for '2 in 1' hybrid motor starter

K1 = '2 in 1' hybrid motor starter

T1 = Right



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## Approvals

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



**EAC**  
Approval ID: RU\*C-DE.\*08.B.00520\*



**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

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## Classifications

### ECLASS

ECLASS-13.0	27370905
ECLASS-15.0	27370905

### ETIM

ETIM 10.0	EC001037
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### UNSPSC

UNSPSC 21.0	25173900
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	185f2d54-5434-495c-807e-14d4a24e61d2

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