## **SIEMENS**

Data sheet 3RT2046-3NB30



power contactor, AC-3e/AC-3, 95 A, 45 kW / 400 V, 3-pole, 20-33 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, main circuit: screw terminal, control and auxiliary circuit: spring-loaded terminal, size: S3

product brand name	SIRIUS		
product designation	Power contactor		
product type designation	3RT2		
General technical data			
size of contactor	S3		
product extension			
<ul> <li>function module for communication</li> </ul>	No		
auxiliary switch	Yes		
power loss [W] for rated value of the current			
<ul> <li>at AC in hot operating state</li> </ul>	19.8 W		
<ul> <li>at AC in hot operating state per pole</li> </ul>	6.6 W		
<ul> <li>without load current share typical</li> </ul>	1.8 W		
type of calculation of power loss depending on pole	quadratic		
insulation voltage			
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	1 000 V		
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	690 V		
surge voltage resistance			
<ul> <li>of main circuit rated value</li> </ul>	8 kV		
of auxiliary circuit rated value	6 kV		
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	690 V		
shock resistance at rectangular impulse			
• at AC	10.3g / 5 ms, 6,.g / 10 ms		
• at DC	6.7 g / 5 ms, 4g / 10 ms		
shock resistance with sine pulse			
• at AC	16.3g / 5 ms, 10.g / 10 ms		
• at DC	10.6 g / 5 ms, 6.3 g / 10 ms		
mechanical service life (operating cycles)			
of contactor typical	10 000 000		
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000		
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000		
reference code according to IEC 81346-2	Q		
Substance Prohibitance (Date)	03/01/2017		
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8		
Weight	1.834 kg		
Ambient conditions			
installation altitude at height above sea level maximum	2 000 m		
ambient temperature			
<ul><li>during operation</li></ul>	-25 +60 °C		

during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	267 kg
global warming potential [CO2 eq] during manufacturing	9.35 kg
global warming potential [CO2 eq] during manufacturing	259 kg
global warming potential [CO2 eq] after end of life	-1.55 kg
Main circuit	-1.55 kg
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	•
at AC-3 rated value maximum	1 000 V
at AC-3 rated value maximum     at AC-3e rated value maximum	1 000 V
	1 000 V
operational current	420 A
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated value</li> </ul>	130 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	130 A
<ul> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul>	110 A
• at AC-3	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
— at 1000 V rated value	30 A
• at AC-3e	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
— at 1000 V rated value	30 A
at AC-4 at 400 V rated value	80 A
at AC-5a up to 690 V rated value	114 A
at AC-5b up to 400 V rated value	95 A
• at AC-6a	95 A
	84.4 A
— up to 230 V for current peak value n=20 rated value	84.4 A
— up to 400 V for current peak value n=20 rated value	
— up to 500 V for current peak value n=20 rated value	84.4 A
— up to 690 V for current peak value n=20 rated value	58 A
• at AC-6a	EG 2 A
— up to 230 V for current peak value n=30 rated value	56.3 A
— up to 400 V for current peak value n=30 rated value	56.3 A
— up to 500 V for current peak value n=30 rated value	56.3 A
— up to 690 V for current peak value n=30 rated value	56.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	42 A
at 690 V rated value	30 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 60 V rated value	60 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
at ooo v rated value	

— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A
— at 600 V rated value	1 A
<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 60 V rated value	6 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1A
— at 440 V rated value	0.15 A
— at 600 V rated value	0.06 A
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 A
— at 600 V rated value	0.16 A
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
operating power	
at AC-2 at 400 V rated value	45 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
— at 1000 V rated value	37 kW
• at AC-3e	00.1111
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
— at 1000 V rated value	37 kW
operating power for approx. 200000 operating cycles at AC-	
at 400 V rated value	22 kW
at 690 V rated value	27.4 kW
operating apparent power at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	33 kVA
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	58 kVA
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	73 kVA
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	69 kVA
operating apparent power at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	22.4 kVA
• up to 400 V for current peak value n=30 rated value	39 kVA
• up to 500 V for current peak value n=30 rated value	48.7 kVA

• up to 690 V for current peak value n=30 rated value	67.3 kVA		
short-time withstand current in cold operating state up to			
40 °C			
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	1 725 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	1 297 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	946 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	610 A; Use minimum cross-section acc. to AC-1 rated value		
limited to 60 s switching at zero current maximum	486 A; Use minimum cross-section acc. to AC-1 rated value		
no-load switching frequency			
• at AC	1 000 1/h		
• at DC	1 000 1/h		
operating frequency			
• at AC-1 maximum	900 1/h		
• at AC-2 maximum	350 1/h		
• at AC-3 maximum	850 1/h		
• at AC-3e maximum	850 1/h		
• at AC-4 maximum	250 1/h		
Control circuit/ Control			
type of voltage of the control supply voltage	AC/DC		
control supply voltage at AC			
• at 50 Hz rated value	20 33 V		
at 60 Hz rated value	20 33 V		
control supply voltage at DC rated value	20 33 V		
operating range factor control supply voltage rated value of			
magnet coil at DC			
• initial value	0.8		
• full-scale value	1.1		
operating range factor control supply voltage rated value of magnet coil at AC			
• at 50 Hz	0.8 1.1		
• at 60 Hz	0.8 1.1		
design of the surge suppressor	with varistor		
inrush current peak	6.5 A		
duration of inrush current peak	50 μs		
locked-rotor current mean value	3.2 A		
locked-rotor current peak	6.5 A		
duration of locked-rotor current	150 ms		
holding current mean value	75 mA		
apparent pick-up power of magnet coil at AC			
● at 50 Hz	151 VA		
• at 60 Hz	151 VA		
apparent holding power			
at minimum rated control supply voltage at DC	1.8 VA		
at maximum rated control supply voltage at DC	1.8 VA		
apparent holding power			
at minimum rated control supply voltage at AC			
— at 50 Hz	3.1 VA		
— at 60 Hz	3.1 VA		
at maximum rated control supply voltage at AC			
— at 50 Hz	3.1 VA		
— at 60 Hz	3.1 VA		
apparent holding power of magnet coil at AC	0.1 47.1		
at 50 Hz	3.1 VA		
• at 50 Hz	3.1 VA 3.1 VA		
	V.1 VA		
inductive power factor with the holding power of the coil	0.05		
• at 50 Hz	0.95		
• at 60 Hz	0.95		
closing power of magnet coil at DC	76 W		
holding power of magnet coil at DC	1.8 W		
closing delay			
• at AC	50 70 ms		
at DC	50 70 ms		

opening delay			
• at AC	38 57 ms		
• at DC	38 57 ms		
arcing time	10 20 ms		
control version of the switch operating mechanism	Standard A1 - A2		
Auxiliary circuit	4		
number of NC contacts for auxiliary contacts instantaneous contact	1		
number of NO contacts for auxiliary contacts instantaneous contact	1		
operational current at AC-12 maximum	10 A		
operational current at AC-15			
at 230 V rated value	6 A		
at 400 V rated value	3 A		
at 500 V rated value	2 A		
at 690 V rated value	1 A		
operational current at DC-12			
at 24 V rated value	10 A		
at 48 V rated value	6 A		
at 60 V rated value	6 A		
• at 110 V rated value	3 A		
at 125 V rated value	2 A		
at 220 V rated value	1 A		
at 600 V rated value	0.15 A		
operational current at DC-13	40.1		
at 24 V rated value	10 A		
at 48 V rated value	2 A		
at 60 V rated value	2 A		
at 110 V rated value	1 A		
at 125 V rated value	0.9 A		
at 220 V rated value	0.3 A		
at 600 V rated value	0.1 A		
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)		
JL/CSA ratings			
full-load current (FLA) for 3-phase AC motor  • at 480 V rated value	96 A		
at 480 V rated value     at 600 V rated value	96 A 77 A		
yielded mechanical performance [hp]	117		
• for single-phase AC motor			
— at 110/120 V rated value	10 hp		
— at 110/120 V rated value  — at 230 V rated value	20 hp		
for 3-phase AC motor	20 119		
— at 200/208 V rated value	30 hp		
— at 220/230 V rated value	30 hp		
— at 460/480 V rated value	75 hp		
— at 575/600 V rated value	75 hp		
contact rating of auxiliary contacts according to UL	A600 / P600		
Short-circuit protection			
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA		
design of the fuse link			
for short-circuit protection of the main circuit			
— with type of coordination 1 required	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)		
— with type of assignment 2 required	gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)		
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)		
nstallation/ mounting/ dimensions			
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface		
fastening method side-by-side mounting	Yes		
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715		
<u> </u>			

height	140 mm		
width	70 mm		
depth	152 mm		
required spacing			
<ul><li>with side-by-side mounting</li></ul>			
— forwards	20 mm		
— upwards	10 mm		
— downwards	10 mm		
— at the side	0 mm		
<ul> <li>for grounded parts</li> </ul>			
— forwards	20 mm		
— upwards	10 mm		
— at the side	10 mm		
— downwards	10 mm		
for live parts			
— forwards	20 mm		
— upwards	10 mm		
— downwards	10 mm		
— at the side	10 mm		
Connections/ Terminals			
type of electrical connection			
• for main current circuit	screw-type terminals		
for auxiliary and control circuit	spring-loaded terminals		
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Spring-type terminals		
of magnet coil	Spring-type terminals		
type of connectable conductor cross-sections			
for main contacts			
<ul> <li>finely stranded with core end processing</li> </ul>	2x (2.5 35 mm²), 1x (2.5 50 mm²)		
<ul> <li>for AWG cables for main contacts</li> </ul>	2x (10 1/0), 1x (10 2)		
connectable conductor cross-section for main contacts			
• solid	2.5 16 mm²		
• stranded	6 70 mm²		
<ul> <li>finely stranded with core end processing</li> </ul>	2.5 50 mm²		
connectable conductor cross-section for auxiliary contacts			
solid or stranded	0.5 2.5 mm <sup>2</sup>		
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm²		
<ul> <li>finely stranded without core end processing</li> </ul>	0.5 2.5 mm²		
type of connectable conductor cross-sections			
for auxiliary contacts			
— solid or stranded	2x (0.5 2.5 mm²)		
— finely stranded with core end processing	2x (0.5 1.5 mm²)		
finely stranded without core end processing	2x (0.5 2.5 mm²)		
for AWG cables for auxiliary contacts	2x (20 16)		
AWG number as coded connectable conductor cross			
section			
• for main contacts	10 2		
<ul> <li>for auxiliary contacts</li> </ul>	20 14		
Safety related data			
product function			
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	Yes		
<ul> <li>positively driven operation according to IEC 60947-5-1</li> </ul>	No		
suitable for safety function	Yes		
suitability for use safety-related switching OFF	Yes		
service life maximum	20 a		
test wear-related service life necessary	Yes		
proportion of dangerous failures			
with low demand rate according to SN 31920	40 %		
with high demand rate according to SN 31920	73 %		
B10 value with high demand rate according to SN 31920	1 000 000		
failure rate [FIT] with low demand rate according to SN	100 FIT		
31920	177		

ISO 13849		
device type according to ISO 13849-1	3	
overdimensioning according to ISO 13849-2 necessary	Yes	
IEC 61508		
safety device type according to IEC 61508-2	Туре А	
Electrical Safety		
protection class IP on the front according to IEC 60529	IP20	
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front	
Approvals Certificates		

**General Product Approval** 







Confirmation



<u>KC</u>

**General Product Ap**proval

**EMV** 

**Test Certificates** 

Marine / Shipping





Type Test Certificates/Test Report

**Special Test Certific-**<u>ate</u>





Marine / Shipping other









Confirmation

**Special Test Certific-**<u>ate</u>

Railway

**Dangerous goods** 

**Environment** 

Transport Information



**Environmental Con**firmations

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

all.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2046-3NB30

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-3NB30

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

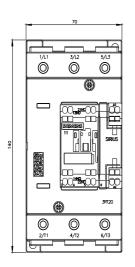
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3NB30

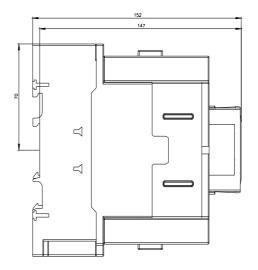
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

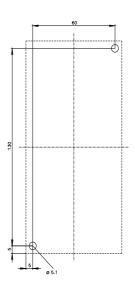
Characteristic: Tripping characteristics, I2t, Let-through current

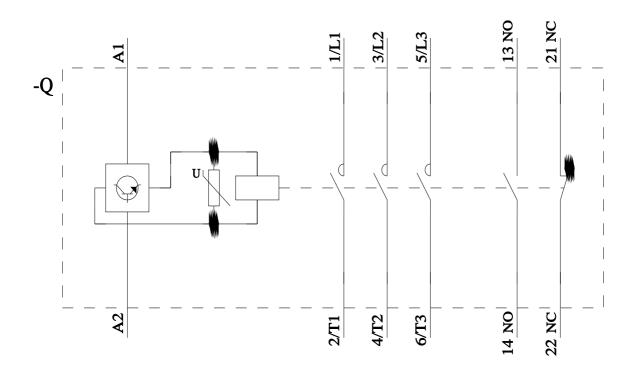
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3NB30/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-3NB30&objecttype=14&gridview=view1









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