SIEMENS

Data sheet 3TF6944-0CQ7

vacuum contactor AC-3e 630 A, 335 kW / 400 V, AC-3 820 A, 450 kW / 400 V, Ue 690 V, 3-pole, Uc: 380-460 V AC(50/60 Hz) drive: conventional auxiliary contacts 4 NO + 4 NC main circuit: busbar control and auxiliary circuit: screw terminal

product designation	Vacuum contactor
product type designation	3TF6
General technical data	
size of contactor	14
product extension	
● function module for communication	No
● auxiliary switch	No
insulation voltage	
● of main circuit with degree of pollution 3 rated value	1 000 V
● of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
● of main circuit rated value	8 kV
● of auxiliary circuit rated value	6 kV
maximum permissible voltage for protective separation	
● in networks with grounded star point between auxiliary and auxiliary circuit	300 V
● in networks with grounded star point between main and auxiliary circuit	500 V
shock resistance at rectangular impulse	
● at AC	9.5g / 5 ms, 5.7g / 10 ms
shock resistance with sine pulse	
● at AC	13.5g / 5 ms, 7.8g / 10 ms
mechanical service life (operating cycles)	
● of contactor typical	5 000 000
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 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7
Weight	21.97 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
● during operation	-25 ... +55 °C
● during storage	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity during operation	10 ... 95 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Main circuit	

number of poles for main current circuit	3
number of NO contacts for main contacts	3
number of NC contacts for main contacts	0
type of voltage for main current circuit	AC
operating voltage	
● at AC-3 rated value maximum	690 V
● at AC-3e rated value maximum	690 V
operational current	
● at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	910 A
— up to 690 V at ambient temperature 55 °C rated value	850 A
● at AC-3	
— at 400 V rated value	820 A
— at 500 V rated value	820 A
— at 690 V rated value	820 A
● at AC-3e	
— at 400 V rated value	630 A
— at 500 V rated value	630 A
— at 690 V rated value	630 A
● at AC-4 at 400 V rated value	690 A
● at AC-6a	
— up to 500 V for current peak value n=20 rated value	675 A
— up to 690 V for current peak value n=20 rated value	675 A
● at AC-6a	
— up to 400 V for current peak value n=30 rated value	450 A
— up to 500 V for current peak value n=30 rated value	450 A
— up to 690 V for current peak value n=30 rated value	450 A
connectable conductor cross-section in main circuit at AC-1	
● at 40 °C minimum permissible	600 mm²
operational current for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	360 A
● at 690 V rated value	360 A
operating power	
● at AC-3	
— at 230 V rated value	260 kW
— at 400 V rated value	450 kW
— at 500 V rated value	600 kW
— at 690 V rated value	800 kW
● at AC-3e	
— at 230 V rated value	200 kW
— at 400 V rated value	355 kW
— at 690 V rated value	600 kW
operating apparent power at AC-6a	
● up to 400 V for current peak value n=20 rated value	445 kVA
● up to 690 V for current peak value n=20 rated value	771 kVA
operating apparent power at AC-6a	
● up to 400 V for current peak value n=30 rated value	297 kVA
● up to 690 V for current peak value n=30 rated value	514 kVA
thermal short-time current limited to 10 s	7 000 A
power loss [W] at AC-3 at 400 V for rated value of the operational current per conductor	70 W
power loss [W] at AC-3e at 400 V for rated value of the operational current per conductor	42 W
no-load switching frequency at AC	500 1/h
operating frequency	
● at AC-1 maximum	500 1/h
● at AC-3e	

— at 400 V maximum	500 1/h
— at 690 V maximum	500 1/h
● at AC-2 at AC-3 maximum	200 1/h
● at AC-2 at AC-3e maximum	200 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
● at 50 Hz rated value	380 ... 460 V
● at 60 Hz rated value	380 ... 460 V
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
apparent pick-up power	
● at minimum rated control supply voltage at AC	
— at 50 Hz	900 VA
— at 60 Hz	900 VA
● at maximum rated control supply voltage at AC	
— at 60 Hz	1 050 VA
— at 50 Hz	1 050 VA
inductive power factor with closing power of the coil	
● at 50 Hz	1
● at 60 Hz	1
apparent holding power	
● at minimum rated control supply voltage at AC	
— at 50 Hz	18 VA
— at 60 Hz	18 VA
● at maximum rated control supply voltage at AC	
— at 50 Hz	25 VA
— at 60 Hz	25 VA
inductive power factor with the holding power of the coil	
● at 50 Hz	0.2
● at 60 Hz	0.2
closing delay	
● at AC	70 ... 120 ms
opening delay	
● at AC	50 ... 130 ms
arcing time	10 ... 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts	
● attachable	4
● instantaneous contact	4
number of NO contacts for auxiliary contacts	
● attachable	4
● instantaneous contact	4
operational current at AC-12 maximum	10 A
operational current at AC-15	
● at 230 V rated value	5.6 A
● at 400 V rated value	3.6 A
● at 500 V rated value	2.5 A
● at 690 V rated value	2.3 A
operational current at DC-12 at 440 V rated value	0.33 A
operational current at DC-12	
● at 24 V rated value	10 A
● at 48 V rated value	10 A
● at 110 V rated value	3.2 A
● at 125 V rated value	2.5 A
● at 220 V rated value	0.9 A

● at 600 V rated value	0.22 A
operational current at DC-13	
● at 24 V rated value	10 A
● at 48 V rated value	5 A
● at 110 V rated value	1.14 A
● at 125 V rated value	0.98 A
● at 220 V rated value	0.48 A
● at 600 V rated value	0.07 A
contact reliability of auxiliary contacts	one incorrect switching operation of 100 million switching operations (17 V, 5 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
● at 480 V rated value	820 A
● at 600 V rated value	820 A
yielded mechanical performance [hp]	
● for 3-phase AC motor	
— at 200/208 V rated value	290 hp
— at 220/230 V rated value	350 hp
— at 460/480 V rated value	700 hp
— at 575/600 V rated value	860 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
● for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 1250 A (690 V, 100 kA)
— with type of coordination 2 required	gG: 630 A (690 V, 50 kA), aM: 630 A (690 V, 50 kA), BS88: 630 A (690 V, 50 kA)
● for short-circuit protection of the auxiliary switch required	fuse gG: 10 A
Installation/ mounting/ dimensions	
mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
fastening method side-by-side mounting	Yes
fastening method	screw fixing
height	295 mm
width	230 mm
depth	237 mm
required spacing	
● with side-by-side mounting	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm
● for grounded parts	
— 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	Connection bar
● for auxiliary and control circuit	screw-type terminals
● at contactor for auxiliary contacts	Screw-type terminals
width of connection bar	40 mm
thickness of connection bar	6 mm
diameter of holes	13.5 mm

number of holes	1
type of connectable conductor cross-sections for main contacts	
● stranded	50 ... 240 mm²
● finely stranded with core end processing	50 ... 240 mm²
connectable conductor cross-section for main contacts	
● finely stranded with core end processing	240 ... 50 mm²
connectable conductor cross-section for auxiliary contacts	
● solid or stranded	0.5 ... 2.5 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
type of connectable conductor cross-sections	
● for auxiliary contacts	
— solid	2x (0.5 ... 1.0 mm²), 2x (1.0 ... 2.5 mm²)
— finely stranded with core end processing	2x (0.5 ... 1.0 mm²), 2x (0.75 ... 2.5 mm²)
● for AWG cables for auxiliary contacts	2x (18 ... 12)
AWG number as coded connectable conductor cross section for main contacts	500
AWG number as coded connectable conductor cross section for auxiliary contacts	18 ... 12
Safety related data	
product function	
● mirror contact according to IEC 60947-4-1	Yes; One NC contact each must be connected in series for the right and left auxiliary switch block respectively
● positively driven operation according to IEC 60947-5-1	No
● suitable for safety function	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 31920	100 FIT
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	Type A
Electrical Safety	
protection class IP on the front according to IEC 60529	IP00; IP20 with cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with cover

Approvals Certificates

General Product Approval	Functional Saftey
CCC, UKCA, CE EG-Konf., UL, EAC	Type Examination Certificate

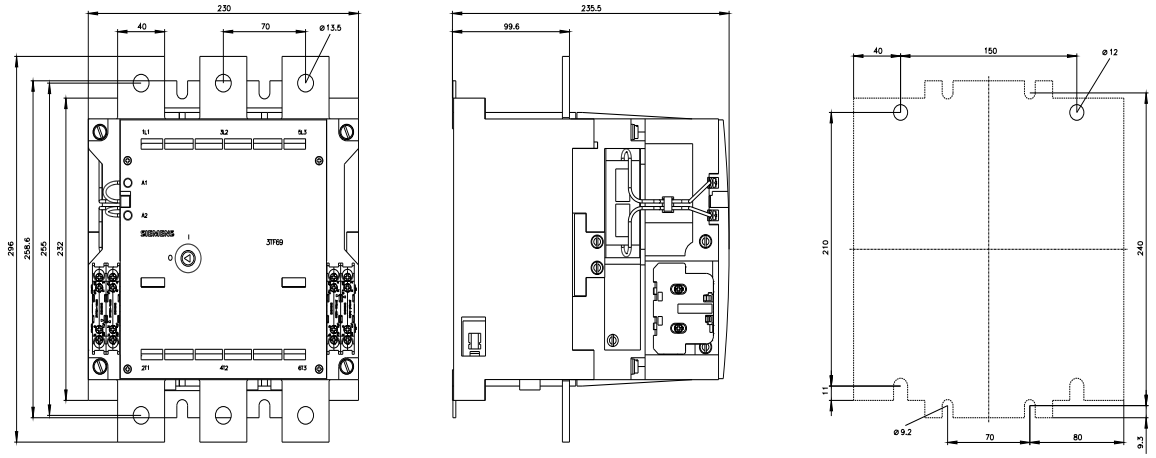
Test Certificates			Maritime application		
Type Test Certificates/Test Report	Miscellaneous	Special Test Certificate	BUREAU VERITAS	DNV	PRS

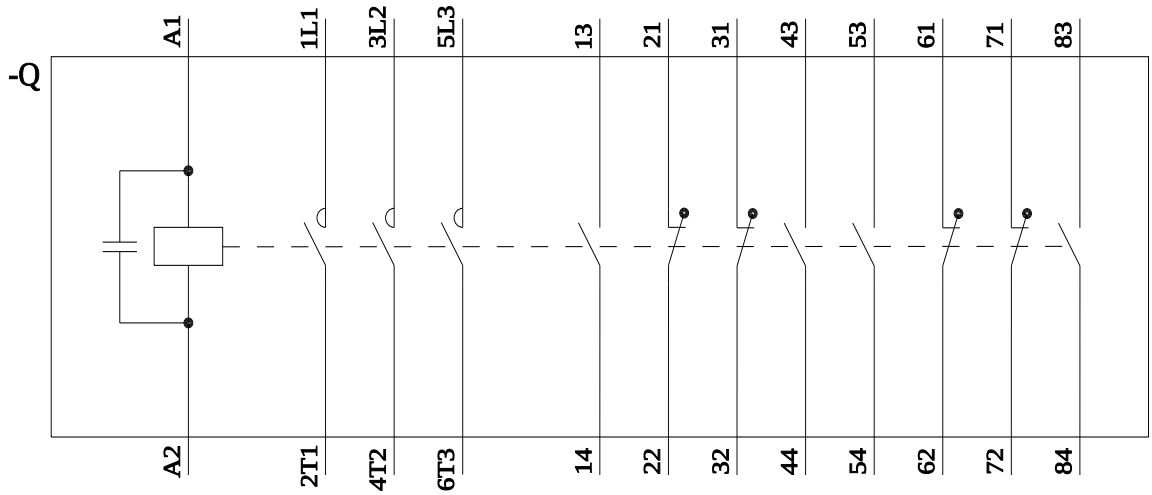
Maritime application	other

Confirmation Miscellaneous

Further information

Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information for data generation and storage
https://support.industry.siemens.com/cs/ww/en/view/109995012
Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3TF6944-0CQ7
Cax online generator
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TF6944-0CQ7
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TF6944-0CQ7
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TF6944-0CQ7&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3TF6944-0CQ7/char
Further characteristics (e.g. electrical endurance, switching frequency)
https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3TF6944-0CQ7&objecttype=14&gridview=view1





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