SIEMENS

Data sheet 3TF6944-0CM7

Contactor, Size 14, 3-pole, AC-3, 450 kW, 400/380 V (690 V) Auxiliary switch 44 (4NO+4NC) AC operation 200...240 V AC 50/60 Hz

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 safe isolation in networks with grounded star point	
● between auxiliary and auxiliary circuit	300 V
● 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 (switching cycles)	
● of contactor typical	5 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
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
— up to 1000 V at ambient temperature 55 °C rated value	800 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 1000 V rated value	580 A
● at AC-3e	
— at 500 V rated value	630 A
— at 690 V rated value	630 A
— at 1000 V rated value	580 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
— up to 1000 V for current peak value n=20 rated value	580 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
— up to 1000 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 690 V rated value	800 kW
— at 1000 V rated value	800 kW
● at AC-3e	
— at 230 V rated value	200 kW
— at 400 V rated value	335 kW
— at 690 V rated value	600 kW
— at 1000 V rated value	800 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
● up to 1000 V for current peak value n=20 rated value	1 003 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

● up to 1000 V for current peak value n=30 rated value	778 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	70 kW
no-load switching frequency at AC	1 000 1/h
operating frequency	
● at AC-1 maximum	700 1/h
● at AC-3e	
— at 400 V maximum	500 1/h
— at 690 V maximum	500 1/h
— at 1000 V maximum	250 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	200 ... 240 V
● at 60 Hz rated value	200 ... 240 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 of magnet coil at AC	
● at 50 Hz	600 VA
● at 60 Hz	600 VA
inductive power factor with closing power of the coil	
● at 50 Hz	1
● at 60 Hz	1
apparent holding power of magnet coil at AC	
● at 50 Hz	12.9 VA
● at 60 Hz	12.9 VA
inductive power factor with the holding power of the coil	
● at 50 Hz	0.31
● at 60 Hz	0.31
closing delay	
● at AC	80 ... 120 ms
opening delay	
● at AC	70 ... 80 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 assignment 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	screw fixing
● side-by-side mounting	Yes
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
● at AWG cables for main contacts	2/0 ... 500 kcmil
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)
● at AWG cables for auxiliary contacts	2x (18 ... 12)
AWG number as coded connectable conductor cross section	
● for main contacts	500
● 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
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

Certificates/ approvals

General Product Approval					Functional Safety/Safety of Machinery
CSA	CCC	UL	UR	EAC	Type Examination Certificate

Declaration of Conformity	Test Certificates			Marine / Shipping
CE EG-Konf.	UKCA	Type Test Certificates/Test Report	Special Test Certificate	Miscellaneous	BUREAU VERITAS

Marine / Shipping			other	
PRS	RMRS	DNV·GL	Confirmation	Miscellaneous

Further information

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=3TF6944-0CM7
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TF6944-0CM7
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TF6944-0CM7
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TF6944-0CM7&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3TF6944-0CM7/char
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3TF6944-0CM7&objecttype=14&gridview=view1

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