

Solid-State Switching Devices for Switching Motors

Solid-State Contactors

3RF24 solid-state contactors, three-phase

Fused version with solid-state semiconductor protection (similar to type of coordination "2")¹⁾

The semiconductor protection for the 3RF24 switchgear can be used with different protection devices. Siemens recommends the use of special SITOR semiconductor fuses. The table below lists the maximum permissible fuses for each 3RF24 control gear.

If a fuse is used with a higher rated current than specified, semiconductor protection is no longer guaranteed. However, smaller fuses with a lower rated current up to a lower rated current of the load can only be used after the behavior of the existing load alternation has been tested.

Order No.	Full area fuse gR	Semiconductor fuses aR				Cable and line protection fuse				DIAZED
		LV HRC design	Cylindrical design			LV HRC design	Cylindrical design			
		LV HRC design SITOR 3NE1	SITOR 3NE8	10 x 38 mm SITOR 3NC1	14 x 51 mm SITOR 3NC1	22 x 58 mm SITOR 3NC2	gG 3NA3	10 x 38 mm gG 3NW6	14 x 51 mm gG 3NW6	
										Quick 5SB1

Operational voltage U_n up to 506 V

3RF24 05-BB.4	3NE1 813-0	3NE8 015-1	3NC 1 020	3NC 1 415	3NC2 220	3NA3 801-6	3NW6 001-1	3NW6 101-1	--	5SB1 71
3RF24 10-BB.4	3NE1 802-0	3NE8 020-1	3NC 1 032	3NC 1 450	3NC2 263	3NA3 805-6	3NW6 005-1	3NW6 105-1	3NW6 205-1	5SB3 11
3RF24 12-BB.4	3NE1 818-0	3NE8 021-1	3NC 1 032	3NC 1 450	3NC2 280	3NA3 810-6	3NW6 010-1	3NW6 116-1	3NW6 210-1	5SB3 21
3RF24 16-BB.4	3NE1 818-0	3NE8 022-1	3NC 1 032	3NC 1 450	3NC2 280	3NA3 812-6	3NW6 010-1	3NW6 116-1	3NW6 210-1	5SB3 22

Operational voltage U_n up to 660 V

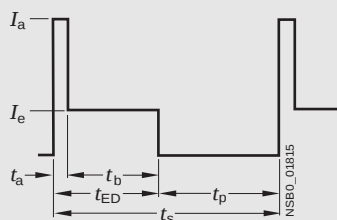
3RF24 05-BB.6	3NE1 813-0	3NE8 015-1	3NC 1 016	3NC 1 420	3NC2 220	3NA3 801-6	--	--	--	--
3RF24 10-BB.6	3NE1 803-0	3NE8 018-1	3NC 1 032	3NC 1 450	3NC2 250	3NA3 805-6	--	--	--	--
3RF24 12-BB.6	3NE1 817-0	3NE8 021-1	3NC 1 032	3NC 1 450	3NC2 280	3NA3 810-6	--	--	--	--
3RF24 16-BB.6	3NE1 817-0	3NE8 022-1	3NC 1 032	3NC 1 450	3NC2 200	3NA3 812-6	--	--	--	--

Suitable fuse holders, fuse bases and control gear can be found in Catalog LV 1, chapter 19.

¹⁾ Type of coordination "2" according to EN 60947-4-1:
In the event of a short-circuit, the control gear in the load feeder must not endanger persons or the installation. They must be suitable for further operation. For fused configurations, the protection device must be replaced.

Characteristic curves

Load diagram of motor



Operating data of motor

- I_a Direct starting current
- I_e Rated operational current
- t_a Starting time
- t_b Operating time
- t_p Interval time
- t_{OP} ON period
- t_s Operating cycle

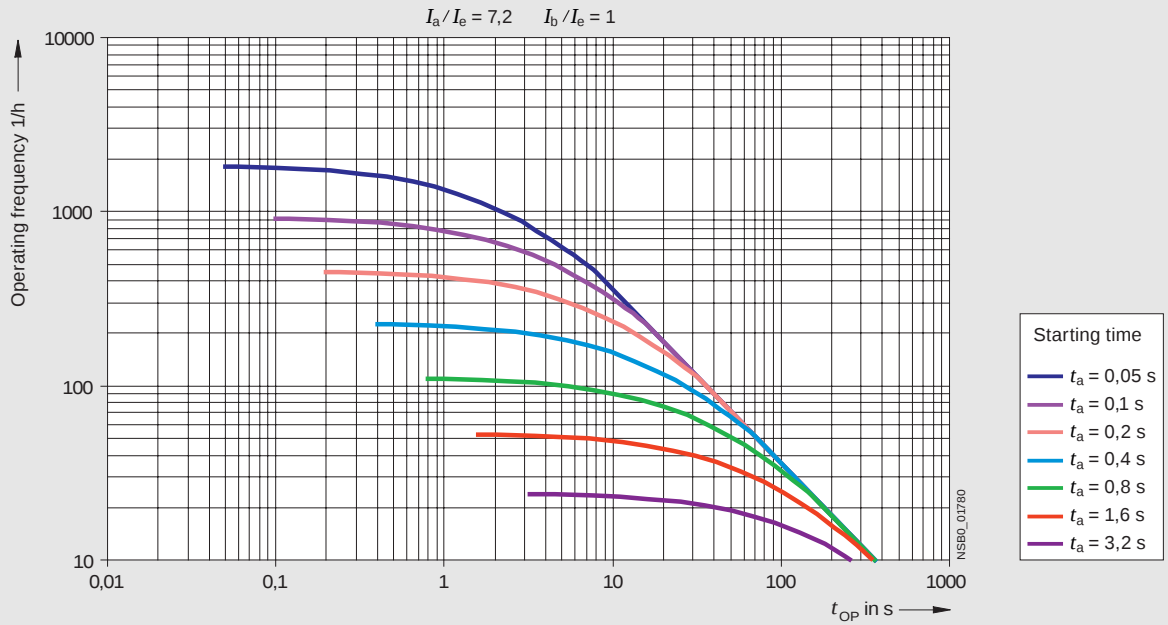
$$OP [\%] = \frac{t_{OP}}{t_s} \times 100\%$$

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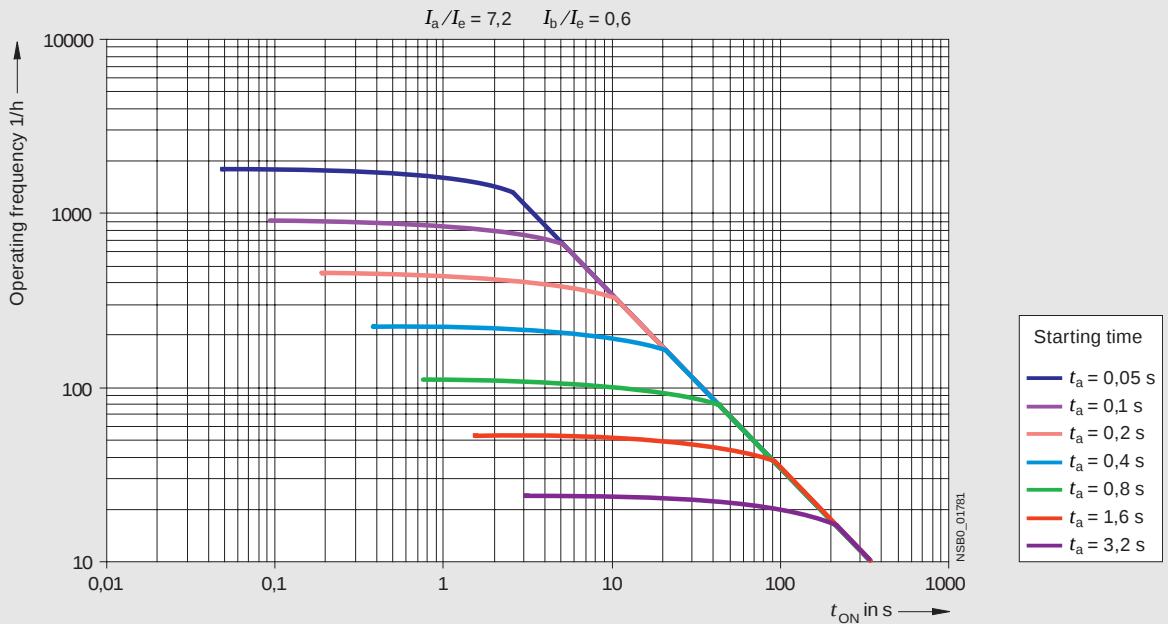
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Maximum permissible switching frequency depending on the starting time t_a and the ON period t_{ED}



For motors with a starting current of 4- to 7.2 times the rated current and with a full load

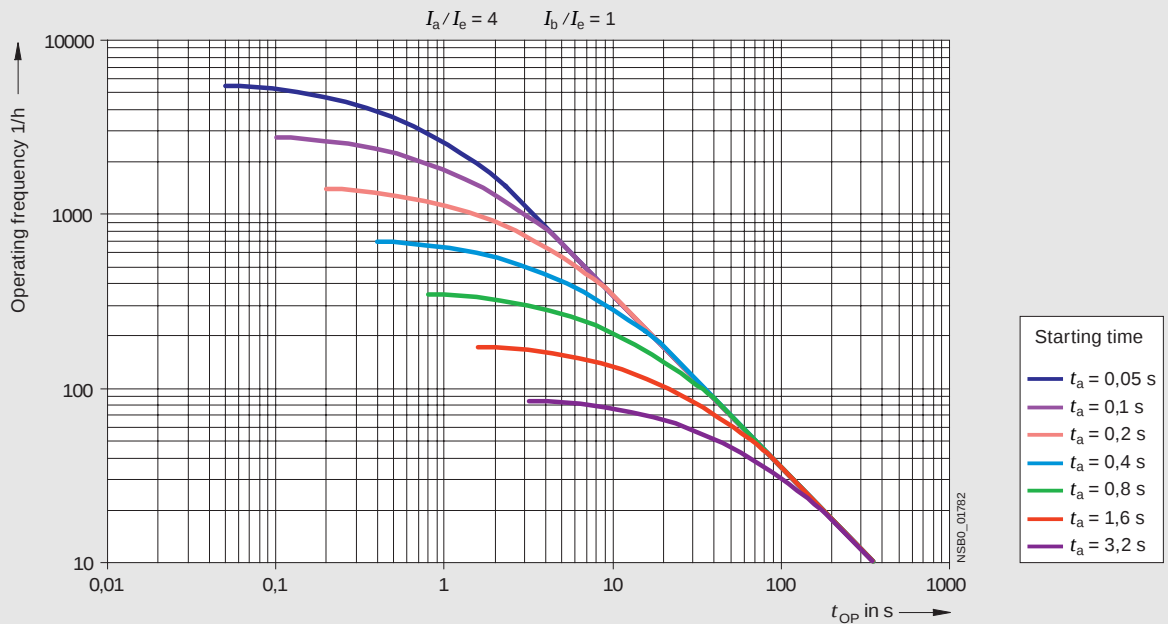


For motors with a starting current of 4- to 7.2 times the rated current and with a 60 % load

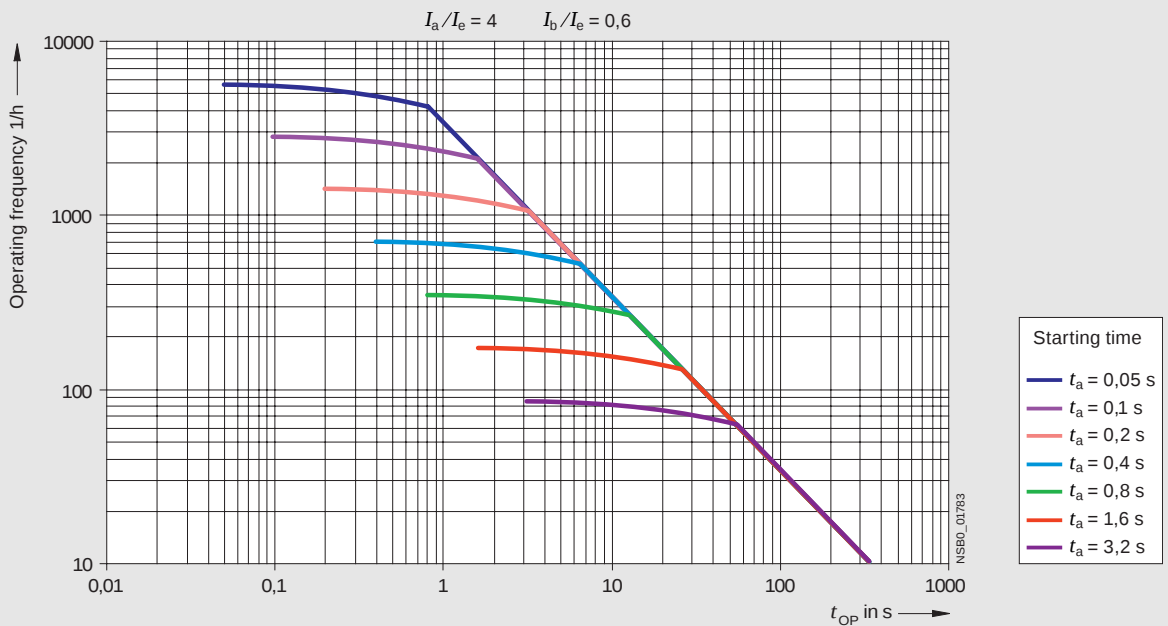
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For motors with a starting current of up to 4 times the rated current and with a full load



For motors with a starting current of up to 4 times the rated current and with a 60 % load