

Type	NE12, NE21, NE30	N22, N31, N40	N44, N53, N62, N71, N80	NL22, NL31, NL40	NL44, NL62
Number of poles	3	4	8	4	8
Pole utilization characteristics					
Rated operational voltage U_e V	690				
Conventional thermal current in free air I_{th} according to IEC947-5-1 $\theta \leq 40^\circ\text{C}$	A	16		10	
Rated operating current I_e					
in AC-15 according to IEC947-5-1					
24 – 127 V 50/60 Hz	A	6		6	
230 – 240 V 50/60 Hz	A	4		4	
400 – 415 V 50/60 Hz	A	3		3	
500 V 50/60 Hz	A	2		2	
690 V 50/60 Hz	A	2		2	
in DC-13 according to IEC947-5-1					
24VDC	A/W	6/144		6/144	
48VDC	A/W	2.8/134		2.8/134	
72VDC	A/W	1/72		1/72	
125VDC	A/W	0.55/69		0.55/69	
250VDC	A/W	0.3/75		0.3/75	
Field of rated frequencies	Hz	25 – 400			
Mechanical durability in operating cycles		10 million	> 20 million	30 million	
Max. switching frequency	cycles/h	3000	6000	6000	
Electrical durability in operating cycles		1200			
Max. switching frequency	cycles/h	1200			
Rated making capacity according to IEC947-5-1		$10 \times I_e$ /AC-15			
Rated breaking capacity according to IEC947-5-1		$10 \times I_e$ /AC-15			
gG (gl) protection fuse	A	10			
Rated short time withstand current					
at ambient temp. of 40°C ,	1.0 s	100A		50A	
in free air, from cold state	0.1 s	140A		100A	
Insulation resistance at 500 VDC		after durability test: $5 \text{ M}\Omega$			
Min. switching capacity with failure rate below 10^{-6}		17V / 5mA		24V / 5mA	
Non overlapping time between N.O. and N.C. contacts	ms	≥ 2			
Power loss per pole at 6A	W	0.10		0.15	
Magnet system characteristics					
Coil operating limits $\theta \leq 40^\circ\text{C}$		according to IEC 947-5-1 : $0.85 - 1.1 U_c$			
Drop out voltage in % of U_c		10 – 30%	roughly 40 – 65%	roughly 10 – 30%	
Coil consumption (average value)					
– a.c. operation: 50 Hz pull in	VA	–	70	–	
60 Hz pull in	VA	–	80	–	
50/60 Hz ^① pull in	VA/VA	–	74/70	–	
50/60Hz holding	VA/W	–	8/2	–	
– d.c. operation: cold pull in	W	90	–	7	
warm holding	W	2	–	7	
Rated control voltage U_c					
– AC operation: 50/60 Hz	V	–	20 – 690	–	
– DC operation:	VDC	12 – 250	–	24 – 240	
Max. permissible short supply interruption without opening of contacts	ms	2	2	2	
Operating time					
between coil energization and:					
– closing of N.O. contact	ms	10 – 16	10 – 26	50 – 75	
– opening of N.C. contact	ms	8 – 12	7 – 21	45 – 70	
between coil de energization and:					
– opening of N.O. contact	ms	5 – 14	4 – 11	15 – 30 ^②	
– closing of N.C. contact	ms	11 – 17	9 – 16	17 – 32 ^②	

① 50/60 Hz coils: voltage codes 80 to 88, see page 7.5.

② Using surge suppressors increases the opening time on a scale/ratio of 1.1 to 1.5 for a varistor suppressor and by 4 to 8 for a diode suppressor.