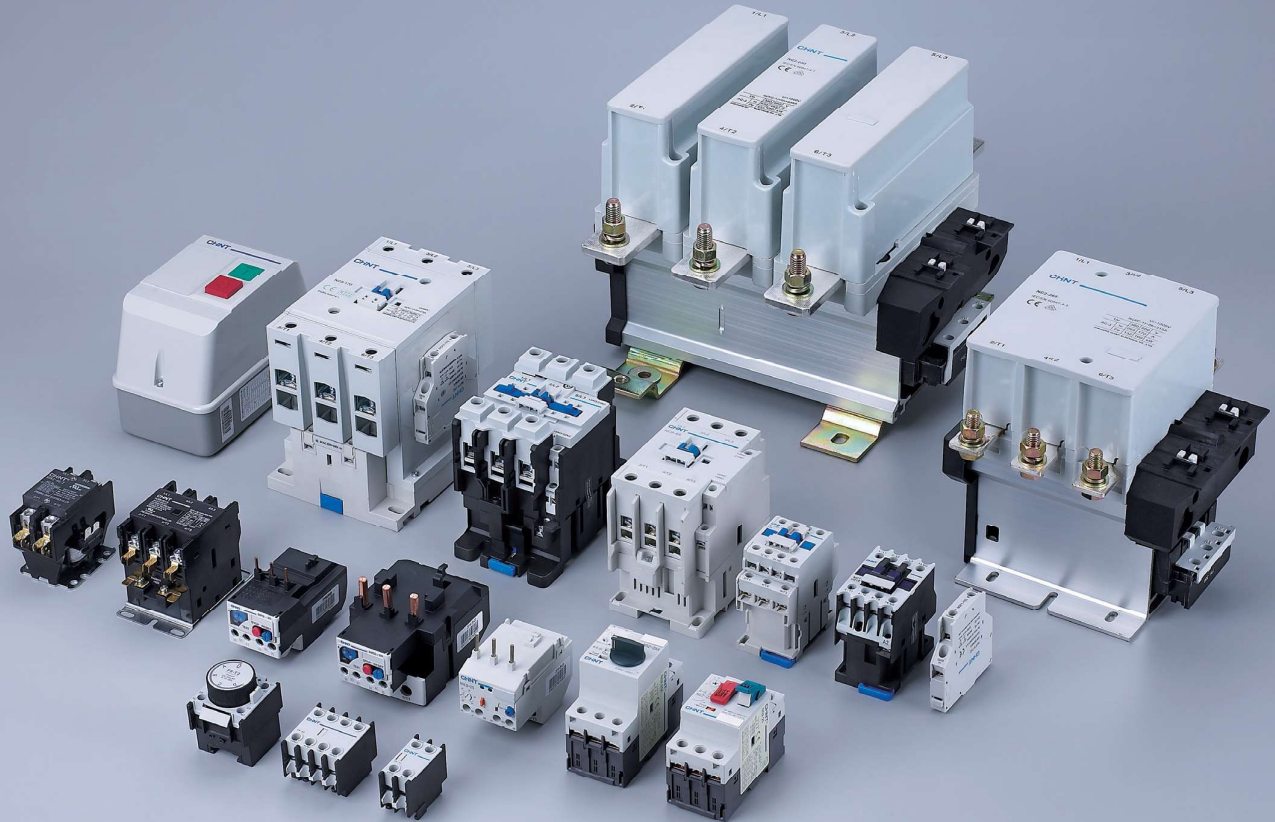


CHNT

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Motor Control and Protection
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NC1 AC Contactor, 09~95A

1. General

- 1.1 Certificates: CE, KEMA, VDE, EK, EAC, RCC, UL;
- 1.2 Electric ratings: AC50Hz (or 60Hz), 690V, up to 95A;
- 1.3 Application: remote making & breaking circuits; protect circuit from over-load when assembling with thermal over-load relay; Frequent start-up and control of AC contactor;
- 1.4 Utilization category: AC-3, AC-4;
- 1.5 Altitude: $\leq 2000\text{m}$;
- 1.6 Ambient temperature: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
- 1.7 Mounting category: III
- 1.8 Mounting conditions: inclination between the mounting plane and the vertical plane should not exceed $\pm 5^{\circ}$
- 1.9 Standard: IEC/EN 60947-4-1 2.0 IP10

2. Type designation

N C1- □ □ - □

Z: DC coil
 N: Reversing/change-over type contactor (There is no such type as NC1-**Z (DC coil) and NC1-**08 (2N/O+2N/C)).

Number of contacts

- 10: 3 N/O main contacts+1 N/O auxiliary contact (9A,12A,18A,25A,32A)
- 01: 3 N/O main contacts+1 N/C auxiliary contact (9A,12A,18A,25A,32A)
- 11: 3 N/O main contacts+1 N/O and 1N/C auxiliary contact (40A,50A,65A,80A,95A)
- 04: 4 N/O main contacts (9A,12A,25A,40A,50A,65A,80A,95A)
- 08: 2 N/O and 2N/C main contacts (9A,12A,25A,40A,50A,65A,80A,95A)

Basic specification, expressed with the rated operational current 400(380)V, AC-3

Design sequence No.

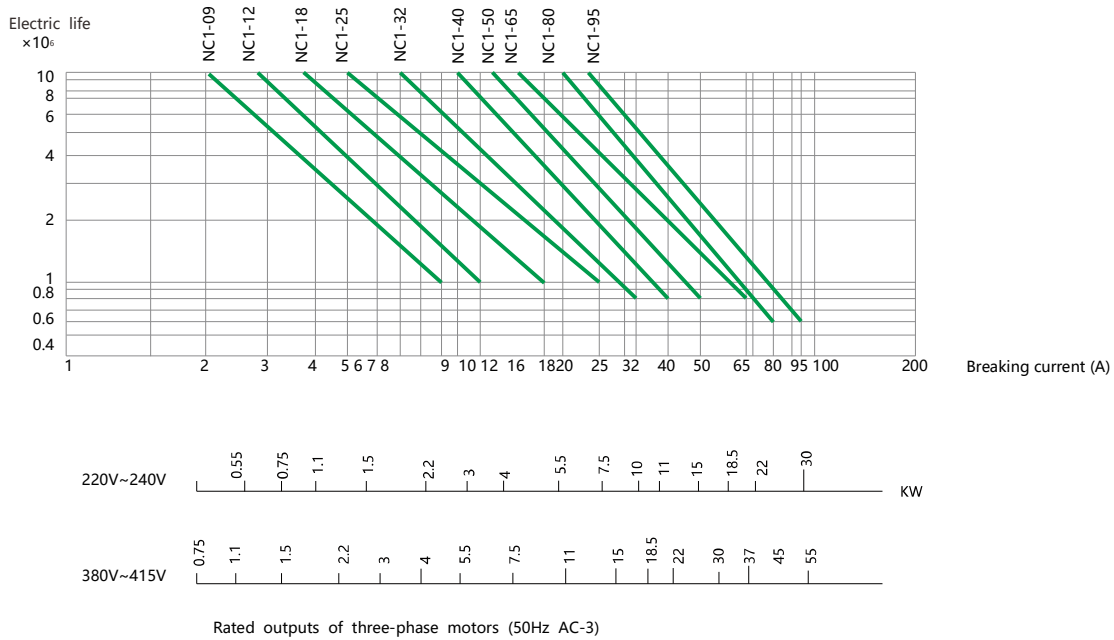
Contactor

Company code

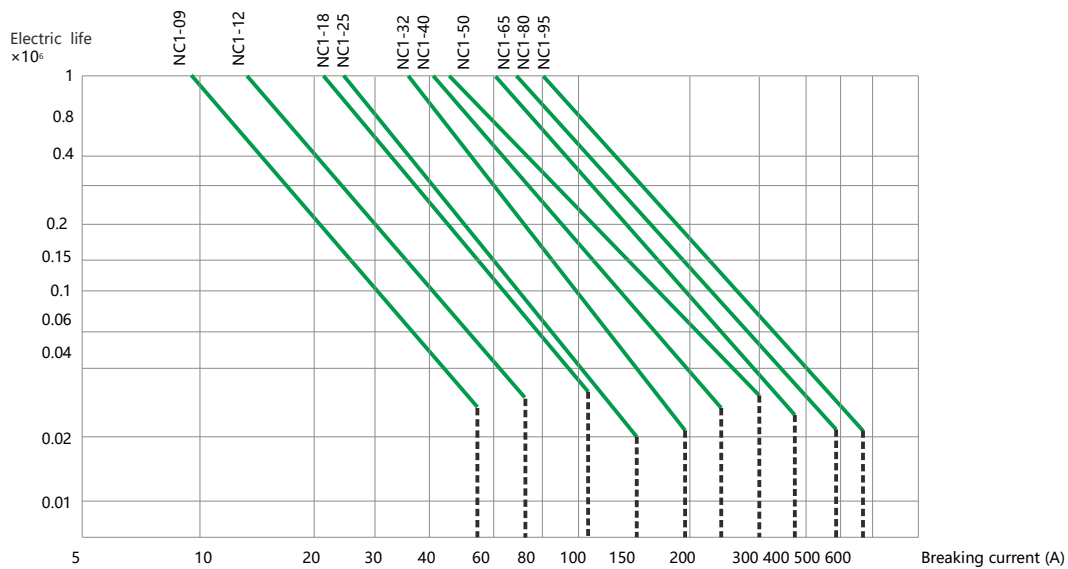


3. Curves

Electric life curves (AC-3)



Electric life curves (AC-4)






Example:
 Request to control the start of three-phase motors
 main technical parameter of three-phase motors: P=5.5kW, Ue=400V(380V), Ie=11A, I_c=6xIe=66A
 The electric life span of request: 2,00,000 operations
 the contactor should be NC1-32 according to the curves above



4. Technical data

4.1 AC coil contactor

★ AC coil operation




Items	Model	NC1-09	NC1-12	NC1-18	NC1-25	
Frame		Frame 1 (3P, 4P)		Frame 2 (3P)	Frame 3 (3P, 4P)	
						
Rated conventional heating current (A) AC-1		25	25	32	45	
Rated operational current (A)	400(380)V	AC-3	9	12	18	25
		AC-4	3.5	5	7.7	8.5
	690(660)V	AC-3	6.6	8.9	12	18
		AC-4	1.5	2	3.8	4.4
Rated insulation voltage (V AC)		690	690	690	690	
Power of controlled 3-phase cage motor (AC-3)	kW	230(220)V AC	2.2	3	4	5.5
		400(380)V AC	4	5.5	7.5	11
		690(660)V AC	5.5	7.5	10	15
	hp	200V AC	3	5	7.5	7.5
		240V AC	3	5	7.5	10
		460V AC	5	7.5	10	15
600V AC		5	7.5	10	15	
Operating frequency (operations/h)	Electrical	AC-3	1,200	1,200	1,200	1,200
		AC-4	300	300	300	300
		Mechanical	3,600	3,600	3,600	3,600
Electrical life ($\times 10^7$ operations)	AC-3		1,000	1,000	1,000	1,000
	AC-4		200	200	200	200
Mechanical life ($\times 10^6$ operations)		10		10	10	10
Matched fuse type		RT16-20	RT16-20	RT16-32	RT16-40	

★ AC coil operation, reversing type

Items	Model	NC1-09N	NC1-12N	NC1-18N	NC1-25N	
Frame		Frame 1 (3P, 4P)		Frame 2 (3P)	Frame 3 (3P, 4P)	
Rated conventional heating current (A) AC-1		25	25	32	45	
AC-4	Ie(A)	380/400V	3.5	5	7.7	8.5
		660/690V	1.5	2	3.8	4.4
	Pe(kW)	380/400V	1.5	2.2	3	4
		660/690V	1.1	1.5	3.7	4
Power of controlled 3-phase cage motor (AC-3)	hp	200V	3	5	7.5	7.5
		240V	3	5	7.5	10
		460V	5	7.5	10	15
		600V	5	7.5	10	15

★ AC coil operation, change-over type

Items	Model	NC1-09N	NC1-12N	NC1-25N	
Frame		Frame 1 (4P)	Frame 2 (4P)	Frame 3 (4P)	
Rated conventional heating current (A) AC-1		25	25	45	
AC-4	Ie(A)	380/400V	3.5	5	8.5
		660/690V	1.5	2	4.4
	Pe(kW)	380/400V	1.5	2.2	4
		660/690V	1.1	1.5	4
Power of controlled 3-phase cage motor (AC-3)	hp	200V	3	5	7.5
		240V	3	5	10
		460V	5	7.5	15
		600V	5	7.5	15

NC1-32	NC1-40	NC1-50	NC1-65	NC1-80	NC1-95
Frame 4 (3P)	Frame 5 (3P, 4P)			Frame 6 (3P, 4P)	
					
50	60	80	80	110(Can be customized for 125)	110(Can be customized for 125)
32	40	50	65	80	95
12	18.5	24	28	37	44
21	34	39	42	49	49
7.5	9	12	14	17.3	21.3
690	690	690	690	690	690
7.5	11	15	18.5	22	25
15	18.5	22	30	37	45
18.5	30	37	37	45	45
10	15	15	20	25	30
15	20	20	25	30	30
20	25	30	40	40	50
20	25	30	40	40	50
600	600	600	600	600	600
300	300	300	300	300	300
3,600	3,600	3,600	3,600	3,600	3,600
800	800	600	600	600	600
200	150	150	150	100	100
8	8	8	8	6	6
RT16-50	RT16-63	RT16-80	RT16-80	RT16-100	RT16-125









NC1-32N	NC1-40N	NC1-50N	NC1-65N	NC1-80N	NC1-95N
Frame 4 (3P)	Frame 5 (3P, 4P)			Frame 6 (3P, 4P)	
50	60	80	80	110(Can be customized for 125)	110(Can be customized for 125)
12	18.5	24	28	37	44
7.5	9	12	14	17.3	21.3
5.5	7.5	11	15	18.5	22
5.5	7.5	11	11	15	18.5
10	15	15	20	25	30
15	20	20	25	30	30
20	25	30	40	40	50
20	25	30	40	40	50

NC1-40N	NC1-50N	NC1-65N	NC1-80N	NC1-95N
Frame 4 (4P)	Frame 5 (4P)		Frame 6 (4P)	
60	80	80	110(Can be customized for 125)	110(Can be customized for 125)
18.5	24	28	37	44
9	12	14	17.3	21.3
7.5	11	15	18.5	22
7.5	11	11	15	18.5
15	15	20	25	30
20	20	25	30	30
25	30	40	40	50
25	30	40	40	50

4.2 DC coil contactor

★ DC coil operation(24V,110V,220V)

Items		Model	NC1-09Z	NC1-12Z	NC1-18Z	NC1-25Z
Frame			Frame 1 (3P, 4P)		Frame 2 (3P)	Frame 3 (3P, 4P)
						
Rated conventional heating current (A) AC-1			25	25	32	45
Rated operational current (A)	400(380)V	AC-3	9	12	18	25
		AC-4	3.5	5	7.7	8.5
	690(660)V	AC-3	6.6	8.9	12	18
		AC-4	1.5	2	3.8	4.4
Conventional heating current (A)			25	25	7.7	8.5
Rated insulation voltage (V AC)			690	690	12	18
Power of controlled 3-phase cage motor (AC-3)	kW	230(220)V AC	2.2	3	3.8	4.4
		400(380)V AC	4	5.5	32	45
		690(660)V AC	5.5	7.5	690	690
Operating frequency (operations/h)	Electrical	AC-3	1,200	1,200	1,200	1,200
		AC-4	300	300	300	300
	Mechanical	3,600	3,600	3,600	3,600	
Electrical life ($\times 10^5$ operations)	AC-3	1,000	1,000	1,000	1,000	
	AC-4	200	200	300	300	
Mechanical life ($\times 10^6$ operations)			10	10	3,600	3,600
Matched fuse type			RT16-20	RT16-20	RT16-32	RT16-40

NC1-32Z	NC1-40Z	NC1-50Z	NC1-65Z	NC1-80Z	NC1-95Z
Frame 4 (3P)	Frame 5 (3P, 4P)			Frame 6 (3P, 4P)	
					
50	60	80	80	110(Can be customized for 125)	110(Can be customized for 125)
32	40	50	65	80	95
12	18.5	24	9	37	44
21	34	39	28	49	49
7.5	9	12	42	17.3	21.3
50	60	80	14	110(Can be customized for 125)	110(Can be customized for 125)
690	690	690	80	690	690
7.5	11	15	18.5	22	25
15	18.5	22	30	37	45
18.5	30	37	37	45	45
600	600	600	600	600	600
300	300	300	300	300	300
3,600	3,600	3,600	3,600	3,600	3,600
800	800	600	600	600	600
200	150	150	150	100	100
8	8	8		6	6
RT16-50	RT16-63	RT16-80		RT16-100	RT16-125

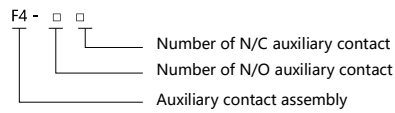


5. Accessories

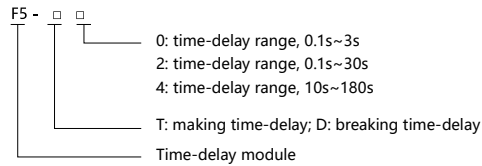
5. Accessories

Items	Model	NC1-09	NC1-12	NC1-18	NC1-25	
AC coil	Coil power	In-rush (VA)	70	70	70	110
		Sealed (VA)	9	9	9.5	14
		Power (W)	1.8~2.7	1.8~2.7	3~4	3~4
	Operation range	Operation voltage	(85%~110%)Us			
		Drop-out voltage	(20%~75%) Us			
	Coil voltage(50Hz,60Hz, 50/60Hz)(V)	24,36,48,110,127,220,230,240,380,415,440,480,500,600,660				
DC coil	Coil power(W)		9	9	11	11
	Operation range	Pick-up voltage	(85%~110%) Us			
		Drop-out voltage	(10%~75%) Us			
	Coil voltage (V)		24,36,48,110,220			

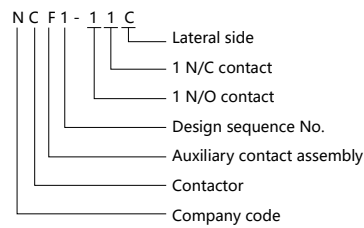
F4 auxiliary contact









F5 time-delay block



NCF1-11C lateral side auxiliary contact



















NC1-32	NC1-40	NC1-50	NC1-65	NC1-80	NC1-95
110	300	300	300	300	300
14	57	57	57	57	57
3~4	6~10	6~10	6~10	6~10	6~10
(85%~110%) Us					
(20%~75%) Us					
24,36,48,110,127,220,230,240,380,415,440,480,500,600					
11	20	20	20	20	20
(85%~110%) Us					
(10%~75%) Us					

Picture	Model	Configuration of contacts		
		Number of N/O contact	Number of N/C contact	
	F4-20	2	0	
	F4-11	1	1	
	F4-02	0	2	
	F4-40	4	0	
	F4-31	3	1	
	F4-22	2	2	
	F4-13	1	3	
	F4-04	0	4	
Picture	Model	Time-delay rangeN	umber of time-delay contacts	
	F5-T0	0.1s~3s	N/O+N/C	
	F5-T2	0.1s~30s	N/O+N/C	
	F5-T4	10s~ 180s	N/O+N/C	
	F5-D0	0.1s~3s	N/O+N/C	
	F5-D2	0.1s~30s	N/O+N/C	
	F5-D4	10s~ 180s	N/O+N/C	
	NCF1-11C			
	NC1-40Z-95Z (DC coil) cannot be installed with such accessory	11		
 SR2-A Surge suppressor	Suppression voltage range	AC 24V~48V	SR2-A 24V~48V	
		AC 100V~250V	SR2-A 100V~250V	Able to be used for the products of 9A~38A or lower
		AC 380V~440V	SR2-A 380V~440V	
		AC 24V~48V	SR2-C 24V~48V	
		AC 100V~250V	SR2-C 100V~250V	Able to be used for the products of 40A~95A or lower
		AC 380V~440V	SR2-C 380V~440V	
 SR2-C Surge suppressor				






5.2 Derived products when the contactor is assembled with following accessory module

Derived products	Contactor	Accessorial modular	Picture
Time-delay contactor		Time-delay block 	
Reversing contactor		Mechanical interlock 	
Magnetic starter		Thermal relay 	
AC contactor for capacitor switching		Current-limiting contact assembly 	
Star-delta starter		Time-delay block  + Auxiliary contact assembly 	




Note: NC1-09Z-95Z cannot form the reversing contactor.

5.3 Assembly with thermal over-load relay

Model of contactor	Assembled thermal over-load relay			
	Model	Rated current (A)	Recommended fuse type	
			aM	gG
NC1-09 NC1-12 NC1-18 NC1-25 NC1-32	 NR2-25	0.1~0.16	0.25	2
		0.16~0.25	0.5	2
		0.25~0.4	1	2
		0.4~0.63	1	2
		0.63~1	2	4
		1~1.6	2	4
		1.25~2	4	6
		1.6~2.5	4	6
		2.5~4	6	10
		4~6	8	16
		5.5~8	12	20
		7~10	12	20
		9~13	16	25
12~18	20	35		
17~25	25	50		
NC1-32	 NR2-36	23~32	40	63
		28~36	40	80
NC1-40 NC1-50 NC1-65 NC1-80 NC1-95	 NR2-93	23~32	40	63
		30~40	40	100
		37~50	63	100
		48~65	63	100
		55~70	80	125
		63~80	80	125
		80~93	100	160



5.4 Assembly with electronic overload relay

Model of contactor	Model	Rated	Range of setting	Recommended	
		Assembled thermal current (A)	Over-load relay current (A)	Fuse type	
NC1-09		1.2	0.6~1.2	RT36-4 (NT00-4)	
		2.4	1.2~2.4	RT36-6 (NT00-6)	
		4	2~4	RT36-10 (NT00-10)	
		8	4~8	RT36-16 (NT00-16)	
		10	5~10	RT36-20 (NT00-20)	
		12	7~12	RT36-25 (NT00-25)	
NC1-12	NRE8-25	20	10~20	RT36-40 (NT00-40)	
NC1-18		25	20~25	RT36-50 (NT00-50)	
NC1-25		32	22~32	RT36-80 (NT00-80)	
NC1-32			4	2~4	RT36-10 (NT00-10)
NC1-40			8	4~8	RT36-16 (NT00-16)
			10	5~10	RT36-20 (NT00-20)
	20		10~20	RT36-40 (NT00-40)	
	40		20~40	RT36-80 (NT00-80)	
NC1-40		65	30~65	RT36-160 (NT00-160)	
NC1-50					
NC1-65					
NC1-80					
NC1-95					100

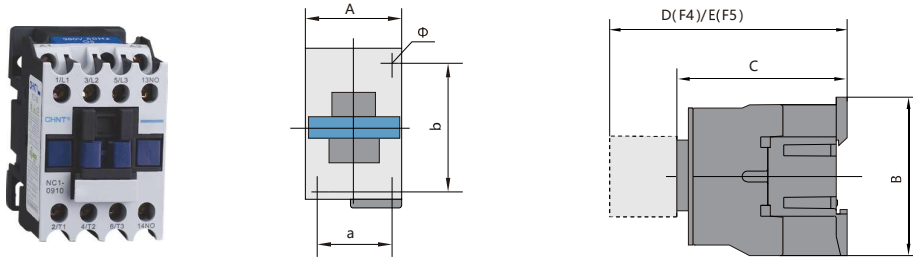
6. Technical information

6.1 Terminal connection

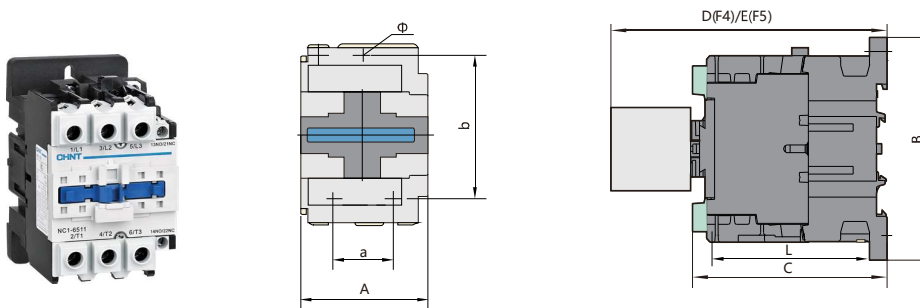
Model	Cabling cross section(Cu)				Screw size	Tightening torque (Nm)
	Number of piece	Flexible cable with cold-pressed socket (mm ²)	Flexible cable without cold-pressed socket (mm ²)	Inflexible cable (mm ²)		
NC1-09	1	1/2.5	1/4	1/4	M3.5	0.8
	2	1/2.5	1/2.5	1/4	M3.5	0.8
NC1-12	1	1/2.5	1/4	1/4	M3.5	0.8
	2	1/2.5	/	1/4	M3.5	0.8
NC1-18	1	1.5/4	1.5/6	1.5/6	M3.5	0.8
	2	1.5/4	1.5/4	1.5/6	M3.5	0.8
NC1-25	1	1.5/4	1.5/10	1.5/6	M4	1.2
	2	1.5/4	1.5/6	1.5/6	M4	1.2
NC1-32	1	2.5/6	2.5/10	2.5/10	M4	1.2
	2	2.5/6	2.5/6	2.5/10	M4	1.2
NC1-40	1	6/25	6/25	6/25	M8	6
	2	4/10	4/10	4/10	M8	6
NC1-50	1	6/25	6/25	6/25	M8	6
	2	4/10	4/10	4/10	M8	6
NC1-65	1	6/25	6/25	6/25	M8	6
	2	4/10	4/10	4/10	M8	6
NC1-80	1	10/35	10/35	10/35	M10	⌀ 6 ○ 10
	2	6/16	6/16	6/16	M10	⌀ 6 ○ 10
NC1-95	1	10/35(50)	10/35(50)	10/35(50)	M10	⌀ 6 ○ 10
	2	6/16	6/16	6/16	M10	⌀ 6 ○ 10

7. Overall and mounting dimensions (mm)

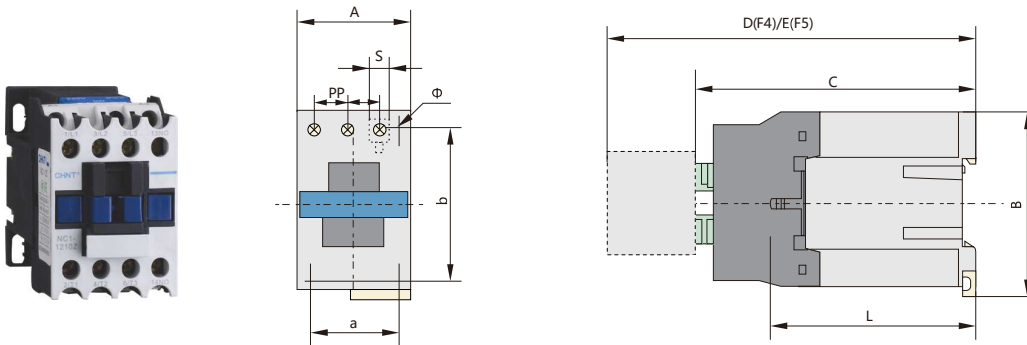
NC1-09~32



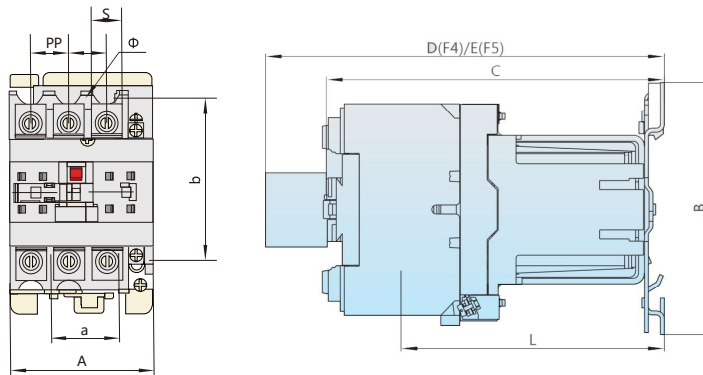
NC1-40~95



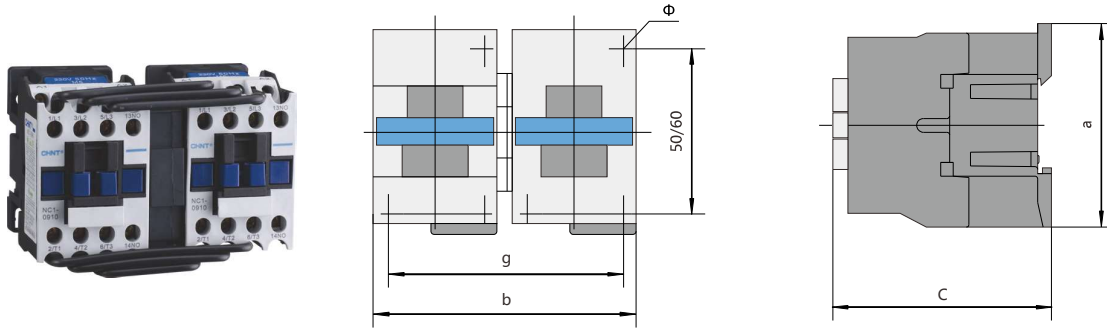
NC1-09Z~32Z



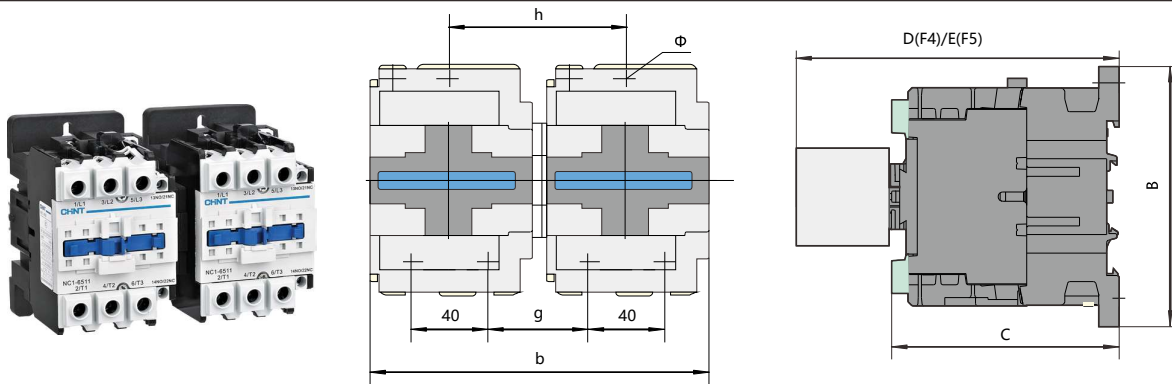
NC1-40Z~95Z



Model	A max	B max	C max	D max	E max	a	b	Φ	L	P	S
NC1-09(Z)~12(Z)	47	76	82(116)	120.5(154.5)	140.5(174.5)	34/35	50/60	4.5	60(95)	10.5	8.6
NC1-18(Z)	47	76	87(122)	125.5(160.5)	145.5(180.5)	34/35	50/60	4.5	61(96)	11.3	10.4
NC1-25(Z)	57	86	95(131)	133.5(169.5)	153.5(189.5)	40	48	4.5	70(107)	13.2	11.7
NC1-32(Z)	57	86	100(138)	138.5(176.5)	158.5(196.5)	40	48	4.5	71.6(120)	14.5	13
NC1-4011(Z)~6511(Z)	77	129	116(173)	154.5(211.5)	174.5(231.5)	40	105	6.5	78(135)	20	8.6
NC1-4004~6504	84	129	116	154.5	174.5	40	105	6.5	78(135)	20	8.6
NC1-4008~6508	84	129	127	154.5	174.5	40	105	6.5	78	20	8.6
NC1-8011(Z)~9511(Z)	87	129	127(188)	165.5(226.5)	185.5(246.5)	40	105	6.5	83(140)	23.5	12
NC1-8004~9504	96	129	122	160.5	180.5	40	105	6.5	83	23.5	12
NC1-8008~9508	96	129	135	160.5	180.5	40	105	6.5	83	23.5	12



NC1-40~95N



Contactor model	a	b	c	g	h	Φ
NC1-09N~12N	86	109	82	95	--	4.5
NC1-18N	86	109	87	95	--	4.5
NC1-25N	93	131	95	111	--	4.5
NC1-32N	93	131	100	111	--	4.5
NC1-40N~65N(3P)	129	165	116	50	90	6.5
NC1-80N~95N(3P)	129	187	127	57	96	6.5
NC1-40N~65N(4P)	129	180	116	50	90	6.5
NC1-80N~95N(4P)	129	205	127	57	96	6.5

Note:
 1. L: in main circuit, the distance between terminals and plate;
 2. P: in main circuit, the distance between two phases;
 3. S: in main circuit, the width of contacting plate.



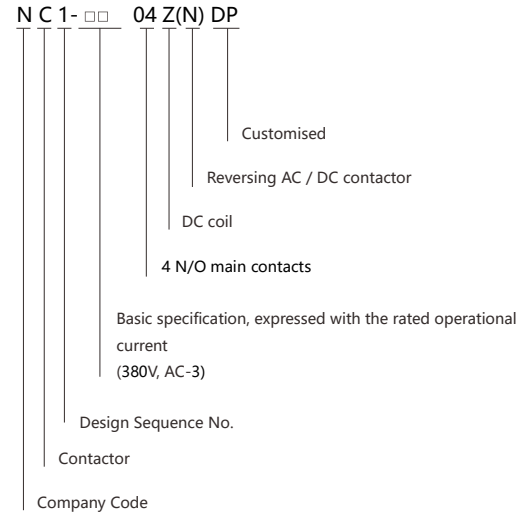
NC1-2504Z(N) DP NC1-4004Z(N) DP Contactor

1. General

NC1-2504Z DP, NC1-4004Z DP AC contactor (hereinafter called contactor) is developed from NC1-2504, NC1-4004 ac contactor model, is mainly used for DC 48V, rated operation voltage up to 690V, rated current 25A and 40A circuit for remote making and breaking circuits. And apply to match with thermal overload relays electromagnetic starter; can meet reversible function matching with same model of NC1-2504, NC1-4004 AC contactor.

Standard: IEC60947-4-1

2.Type designation



3. Operating conditions

- 3.1 Ambient temperature: -5°C ~ +40°C , average does not over +35°C
- 3.2 Altitude: below to 2000m
- 3.3 Humidity: +40°C max, relative humidity is no more than 50%, lower temperature allows a higher relative humidity.
- 3.4 Pollution degree: 3 3.5 Installation category: III
- 3.6 Installation conditions: the mounting surface and the vertical gradient of not more than ± 5° . Product should be installed and used for no apparent shake, shock and vibration
- 3.7 IP10



4. Technical data

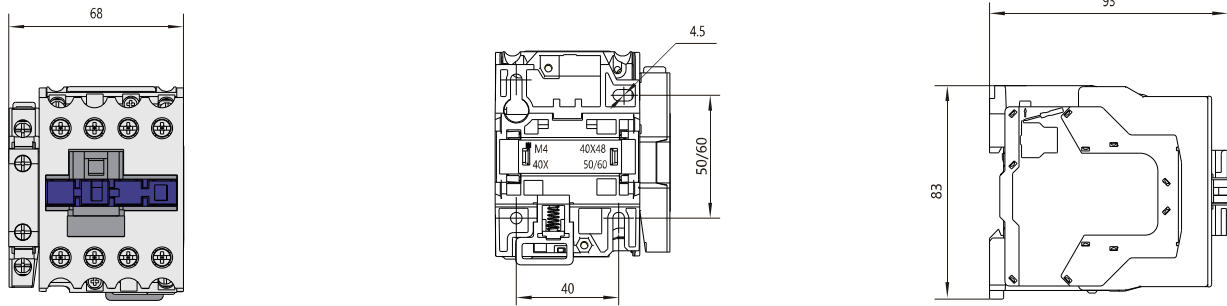
Model		NC1-2504Z DP			NC1-4004Z DP		
Rated current (A)	380V~400V	AC-3	25			40	
		AC-4	8.5			18.5	
	660V~690V	AC-3	18			34	
		AC-4	4.4			9	
Rated conventional current (Ith)(A)		40			60		
M Rated insulation voltage (V)		690V					
Power of controlled 3-phase cage motor (AC-3)kw	220V/230V		5.5			11	
	380V/400V		11			18.5	
	660V/690V		15			30	
Operation frequency	Electrical life (AC-4)		300				
	Mechanical life		1800				
Electrical life (AC-4)X10 ⁴		400V (without derating)		1.5			
Mechanical life X10 ⁴		50					
Coil voltage		DC 48V			DC48V		
Matched fuse model		RT16-40			RT16-63		
Cold end	pc	mm ²	1	2	1	2	
	Non-prefabricated cord ends		1.5/4	1.5/4	6/25	4/10	
	Prefabricated cord ends		1.5/10	1.5/6	6/25	4/10	
	Non-prefabricated hard-wire ends		1.5/6	1.5/6	6/25	4/10	
Terminal screw size		M4	M4	M4	M8	M8	M8
Tighting torque (N.M)		1.2	1.2	1.2	4	4	4
Operation range		Pick-up voltage:DC 40V-60V			Pick-up voltage:DC 40V-60V		
		Drop-out voltage:DC 4.8V-16V			Drop-out voltage:DC 4.8V-16V		

NC1-2504ZN DP			NC1-4004ZN DP		
25			40		
8.5			18.5		
18			34		
4.4			9		
40			60		
5.5			11		
11			18.5		
15			30		
20			40		
DC48V/ AC220V			DC48V/AC220V		
RT16-40			RT16-63		
1	2		1	2	
1.5/4	1.5/4		6/25	4/10	
1.5/10	1.5/6		6/25	4/10	
1.5/6	1.5/6		6/25	4/10	
M4	M4	M4	M8	M8	M8
1.2	1.2	1.2	4	4	4
Pick-up voltage:DC40V-60V/AC 85%Us-110%Us			Pick-up voltage:DC40V-60V/AC 85%Us-110%Us		
Drop-out voltage:DC 4.8V-16V/AC 20%Us-75%Us			Drop-out voltage:DC 4.8V-16V/AC 20%Us-75%Us		

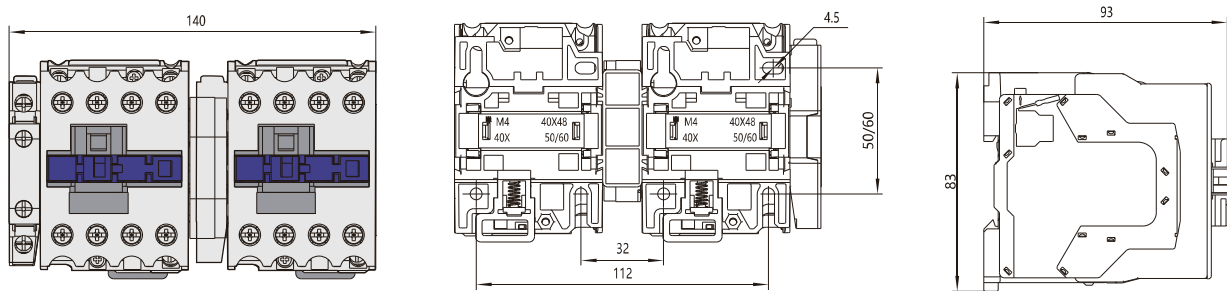


5. Overall and mounting dimensions (mm)

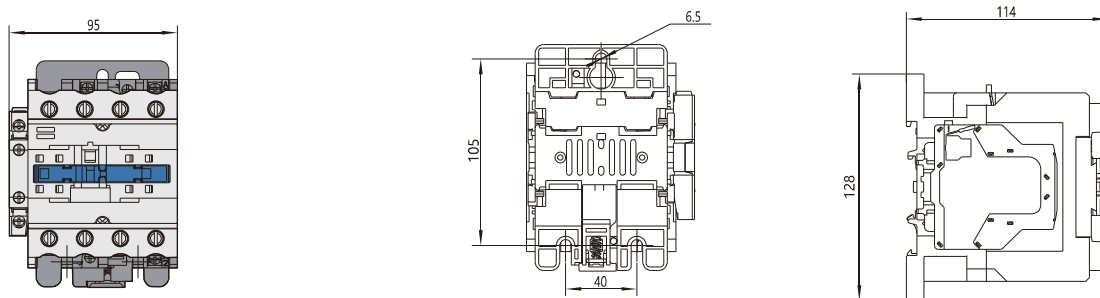
NC1-2504Z DP



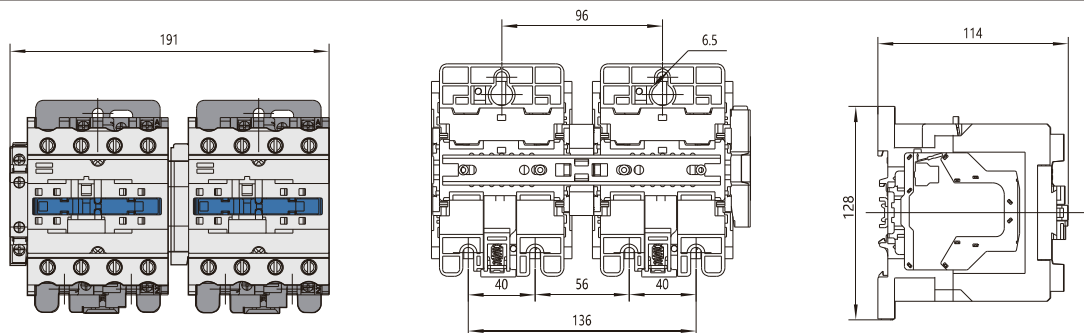
NC1-2504ZN DP



NC1-4004Z DP



NC1-4004ZN DP



6. Ordering information

- 6.1 Completed name and model of contactor;
- 6.2 Rated operation voltage and frequency for AC coil;
- 6.3 Purchase quantity;
- 6.4 Mark clearly for ordering F4 contacts or din-rail extra.