



HC6 Series Contactors

1 Application Range

1.1 HC6 series AC contactor, novel appearance, compact structure. It is mainly used for frequently starting and controlling AC motors, connecting and disconnecting circuits at a distance, and forming electromagnetic starters with appropriate thermal overload relays.

1.2 Standard: UL 60947-1, UL 60947-4-1, GB/T 14048.1/IEC 60947-1, GB/T 14048.4/IEC 60947-4-1, GB/T 14048.5/IEC 60947-5-1, GB 21518.

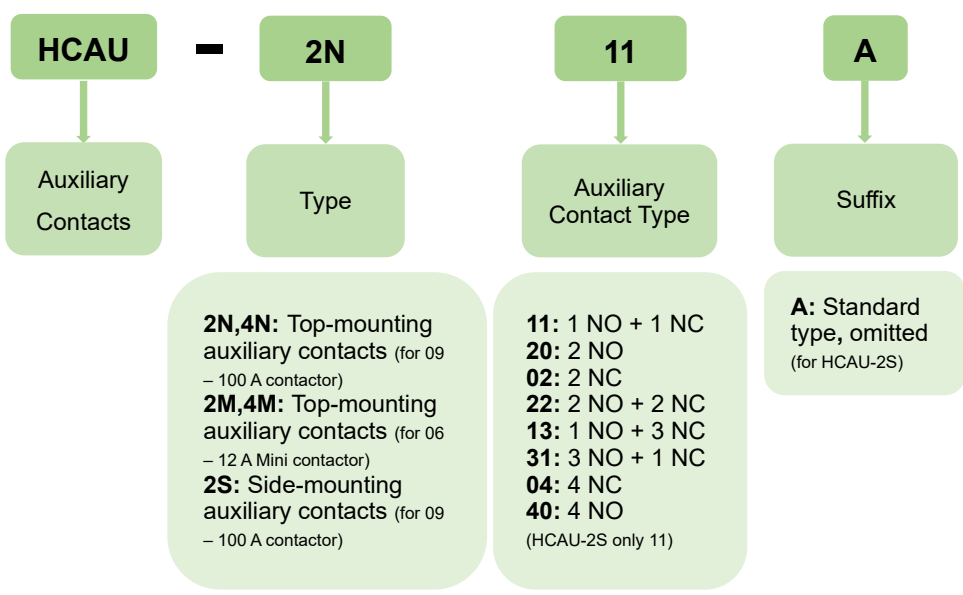
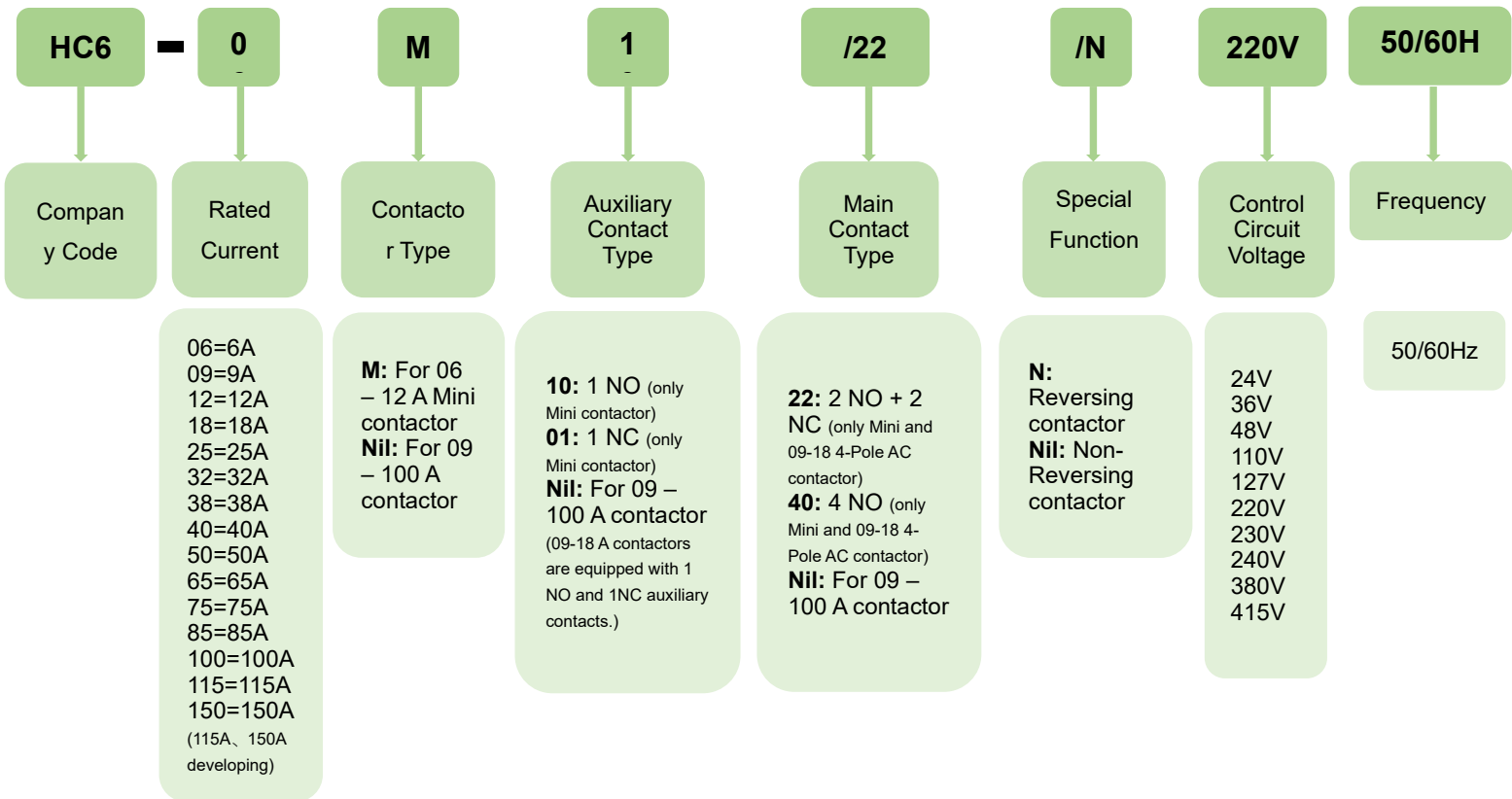
2 Main Parameter

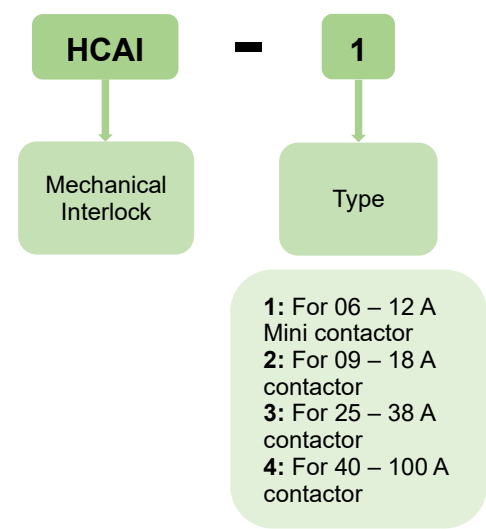
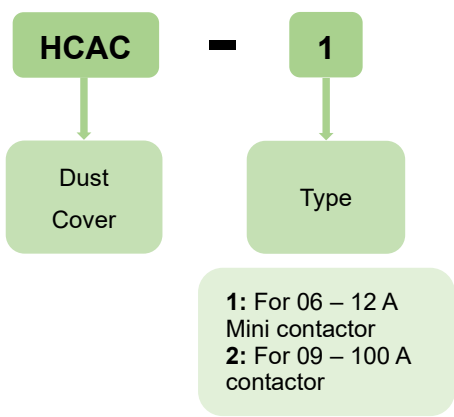
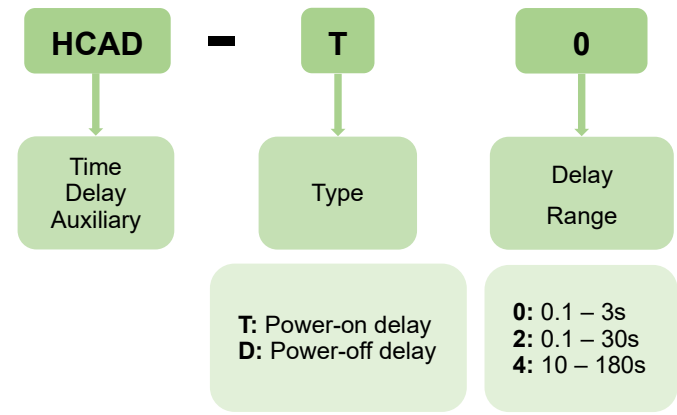
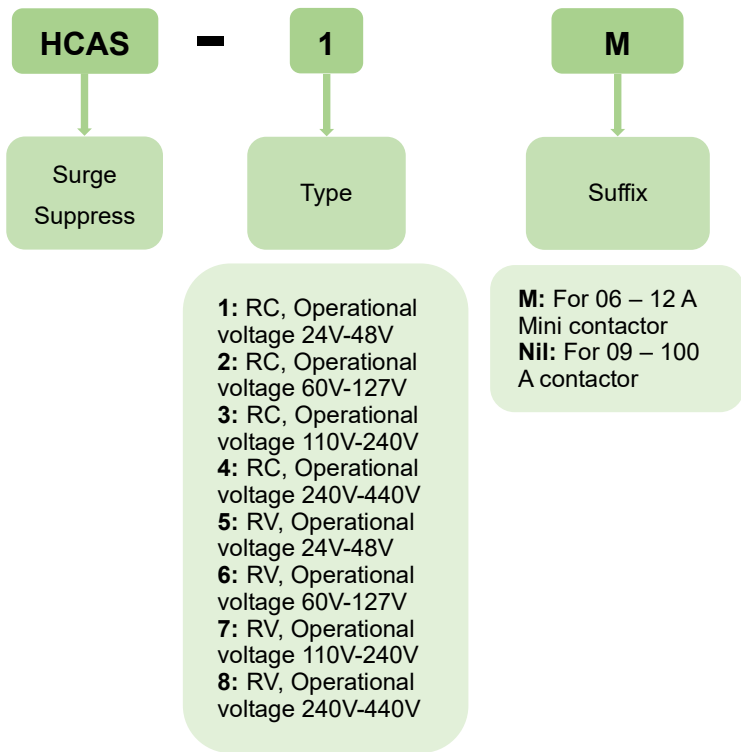
- 2.1 Rated operational current (Ie): 6-100A
- 2.2 Rated operational voltage (Ue): Up to 690V
- 2.3 Rated insulation voltage (Ui): 690V
- 2.4 Number of Pole: 3P, 4P (HC6-06M – 12M)
- 2.5 Coil control mode: AC
- 2.6 Mounting Support: DIN Rail, Plate

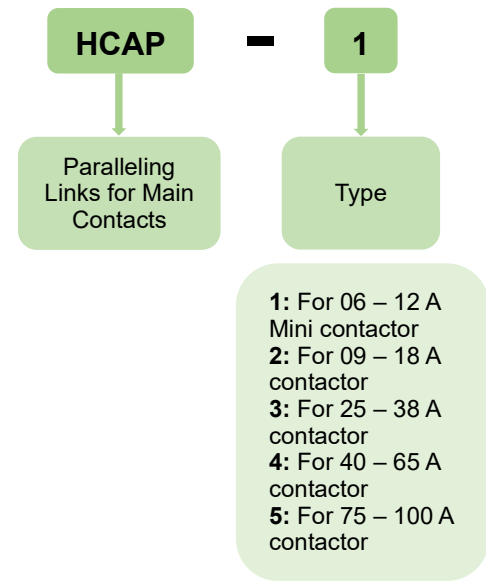
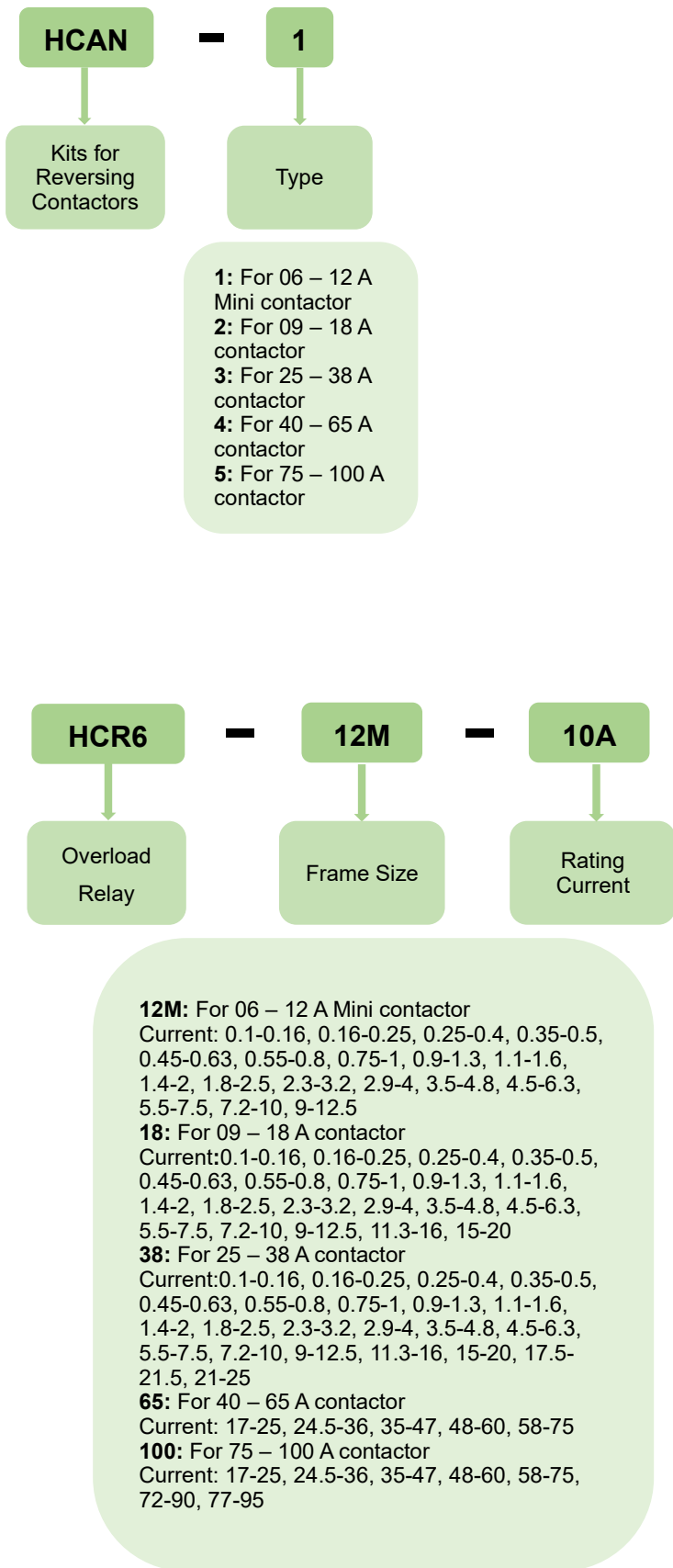
3 Normal service conditions and mounting conditions

Item	Description
Installation Category	III
Pollution Degree	3
Standard	UL 60947-1, UL 60947-4-1, GB/T 14048.1/IEC 60947-1, GB/T 14048.4/IEC 60947-4-1, GB/T 14048.5/IEC 60947-5-1, GB 21518
Certificates	CE/CCC/UL
Enclosure protection class	IP20/IP00
Ambient Air Temperature	Normal of working temperature -25°C - +60°C, its average over a period of 24h does not exceed +35°C.
Atmospheric Conditions	The relative humidity of the air does not exceed 50% at a maximum temperature of +40°C. Higher relative humidity may be permitted at lower temperatures, e.g. 90 % at +20°C. Special measures may be necessary in cases of occasional condensation due to variations in temperature.
Mounting Conditions	The inclination of mounting surface and vertical plane is not more than ±22.5°.

4 Model description







Selection table of HC6 series AC contactor

Motor power kW				Maximum operating current A (AC-3 380V/400V)	Auxiliary contact composition		Contactor model
220V/230V/240V	380V/415V	500V	660V/690V		NO	NC	
1.5	2.2	3	3	6	1NO	/	HC6-06M10
1.5	2.2	3	3	6	/	1NC	HC6-06M01
2.2	4	4	4	9	1NO	/	HC6-09M10
2.2	4	4	4	9	/	1NC	HC6-09M01
2.2	4	5.5	5.5	9	1	1	HC6-09
3	5.5	5	5	12	1NO	/	HC6-12M10
3	5.5	5	5	12	/	1NC	HC6-12M01
3	5.5	7.5	7.5	12	1	1	HC6-12
4	7.5	10	10.0	18	1	1	HC6-18
5.5	11	15	15	25	/	/	HC6-25
7.5	15	18.5	18.5	32	/	/	HC6-32
9	18.5	18.5	18.5	38	/	/	HC6-38
11	18.5	22	22	40	/	/	HC6-40
15	22	30	30	50	/	/	HC6-50
18.5	30	33	33	60	/	/	HC6-65
22	37	37	37	75	/	/	HC6-75
25	45	55	45	85	/	/	HC6-85
30	45	55	55	100	/	/	HC6-100

Specification of control circuit voltage

HC6-06M – 100										
AC(V) 50Hz	24V	36V	48V	110V	127V	220V	230V	240V	380V	415V
AC(V) 50/60Hz	24V	36V	48V	110V	127V	220V	230V	240V	380V	415V

5 Main parameters and technical requirements

Main circuit parameters and technical requirements

Contactor model			HC6-06M	HC6-09M	HC6-12M	HC6-09	HC6-12	HC6-18	HC6-25	HC6-32	HC6-38	
Frame Size			06M - 12M			09 - 18			25 - 38			
Conventional free air thermal current (Ith)		A	20	20	20	25	25	32	40	50		
Rated insulation voltage (Ui)		V	690			690			690			
Rated impulse (withstand) voltage (Uimp)		kV	6			6			8			
Rated making capacity (415V) AC-3			Making Current: 10×Ie (AC-3), 12×Ie (AC-4)									
Rated breaking capacity (415V) AC-3			Making and Breaking Current: 8×Ie (AC-3), 10×Ie (AC-4)									
Rated operational current (Ie) A	220V/230V	AC-3	6	9	12	9	12	18	25	32	38	
		AC-4	6	9	12	9	12	18	25	32	38	
	380V/400V	AC-3	6	9	12	9	12	18	25	32	38	
		AC-4	6	9	9	9	12	18	25	32	32	
	660V/690V	AC-3	4	5	5	6.6	8.9	12	18	22	22	
		AC-4	4	5	5	6.6	8.9	12	18	22	22	
Rated control power	AC-3 kW	220V/230V/240V	1.5	2.2	3	2.2	4	5.5	5.5	7.5	9	
		380V/415V	2.2	4	5.5	3	5.5	7.5	11	15	18.5	
		500V	3	3	5	5.5	7.5	10	15	18.5	18.5	
		660V/690V	3	4	4	4	7.5	10	15	18.5	18.5	
Electrical durability ×10 ⁴		AC-3	120	120	120	120	120	120	120	120	120	
		AC-4	Characteristic curves see Page 18									
Mechanical durability ×10 ⁴			1500	1500	1500	1200	1200	1200	1000	1000	1000	
UL 50/60Hz	Operational current		A	20	20	20	25	25	32	40	50	50
	Single-phase	110-120V	A	4.4	4.4	6.4	4.4	8.4	13.6	13.6	13.6	13.6
		220-240V	A	4.2	6	6.8	4.2	6.8	9.6	9.6	15.2	15.2
	Three-phase	200-208V	A	6.9	7.8	11	7.5	10.6	16.7	24.2	30.8	30.8
		220-240V	A	6	6.8	9.6	9.6	9.6	15.2	22	28	28
		440-480V	A	4.8	7.6	11	7.6	11	14	21	27	27
	Single-phase	550-600V	A	3.9	6.1	9	9	11	17	22	27	27
		110-120V	HP	1/2	1/2	3/4	1/3	1	1	2	2	2
		220-240V	HP	1	1-1/2	2	1	2	3	3	5	5
	Three-phase	200-208V	HP	1-1/2	2	3	2	3	5	7-1/2	10	10
		220-240V	HP	1-1/2	2	3	3	3	5	7.5	10	10
		440-480V	HP	3	5	7-1/2	5	7.5	10	15	20	20
		550-600V	HP	3	5	7-1/2	7-1/2	10	15	20	25	
Matching fuse model			NT00-20	NT00-20	NT00-25	NT00-20	NT00-25	NT00-32	gG40	gG50	gG50	
Relay		Type	HCR6-12M			HCR6-18			HCR6-38			
Auxiliary contact composition		3P	1 NO or 1 NC			1 NO + 1 NC			-			
Contactor model			HC6-06M	HC6-09M	HC6-12M	HC6-09	HC6-12	HC6-18	HC6-25	HC6-32	HC6-38	
Control circuit		AC 50Hz	24, 36, 48, 110, 127, 220, 230, 240 380, 415									
Action range		Pick-up	(70%-120%) Us			(70%-120%) Us			(70%-120%) Us			
		Drop-out	(20%-65%) Us			(20%-65%) Us			(20%-65%) Us			
Average power loss VA		50Hz	Pick-up	70			70			70		
			Sealing	7			8			10		
		60Hz	Pick-up	70			70			70		
			Sealing	7.5			7.5			9.5		
Current heat loss W		AC	1-3			1-3			1-3			
Operating time		Closing delay	ms			12-22			12-22			
		Opening delay	ms			4-19			4-19			
Impact resistance 1/2 sine wave = 11 ms		Open	g			10			10			
		Close	g			15			15			
Seismic performance 5-300 Hz		Open	g			2			2			
		Close	g			4			4			

Contactor model			HC6-40	HC6-50	HC6-65	HC6-75	HC6-85	HC6-100	
Frame Size			40 - 65			75 - 100			
Conventional free air thermal current (Ith)			A	60	70	100	100	125	125
Rated insulation voltage (Ui)			V	690			1000		
Rated impulse (withstand) voltage (Uimp)			kV	8			8		
Rated making capacity (415V) AC-3			Making Current: 10×Ie (AC-3), 12×Ie (AC-4)						
Rated breaking capacity (415V) AC-3			Making and Breaking Current: 8×Ie (AC-3), 10×Ie (AC-4)						
Rated operational current Ie (A)	220V/230V	AC-3	40	50	65	75	85	100	
		AC-4	40	50	65	75	85	100	
	380V/400V	AC-3	40	50	65	75	85	100	
		AC-4	40	50	65	75	85	100	
	660V/690V	AC-3	34	39	42	42	49	49	
		AC-4	34	39	42	42	49	49	
Rated control power	AC-3 kW	220V/230V	11	15	18.5	22	25	30	
		380V/400V	18.5	22	30	37	45	45	
		500V	22	30	33	37	55	55	
		660V/690V	22	30	33	37	45	55	
Electrical durability ×10 ⁴		AC-3	100			80			
		AC-4	Characteristic curves Page 18						
Mechanical durability ×10 ⁴			1000			1000			
UL 50/60Hz	Operational current		A	60	70	80	110	110	110
	Single-phase	110-120V	A	19.2	19.2	30.4	30.4	44	44
		220-240V	A	15.2	22	28	42	42	42
	Three-phase	200-208V	A	30.8	46.2	59.4	74.8	74.8	74.8
		220-240V	A	28	42	54	80	80	80
		440-480V	A	40	52	52	65	77	77
	Single-phase	550-600V	A	32	41	52	62	62	62
		110-120V	HP	3	3	5	5	7.5	7.5
		220-240V	HP	5	7.5	10	15	15	15
	Three-phase	200-208V	HP	10	15	20	25	25	25
		220-240V	HP	10	15	20	30	30	30
		440-480V	HP	30	40	40	50	60	60
	550-600V		HP	30	40	50	60	60	60
	Matching fuse model			gG63	gG80	gG80	gG100	gG100	gG125
Relay		Type	HCR6-65			HCR6-100			
Auxiliary contact composition			3P			-			
Contactor model			HC6-40	HC6-50	HC6-65	HC6-75	HC6-85	HC6-100	
Control circuit			AC 50Hz						
Action range			Pick-up			Drop-out			
			(70%-120%) Us			(70%-120%) Us			
			(20%-65%) Us			(20%-65%) Us			
Average power loss VA	50Hz	Pick-up	245			245			
		Sealing	26			26			
	60Hz	Pick-up	245			245			
		Sealing	26			26			
Current heat loss W			AC			4-8			
Operating time	Closing delay	ms	20-26			20-35		20-35	
	Opening delay	ms	8-12			6-20		6-20	
Mechanical shock resistance	Open	g	10			8			
	Close	g	15			10			
Seismic performance	Open	g	2						
	Close	g	4			3			

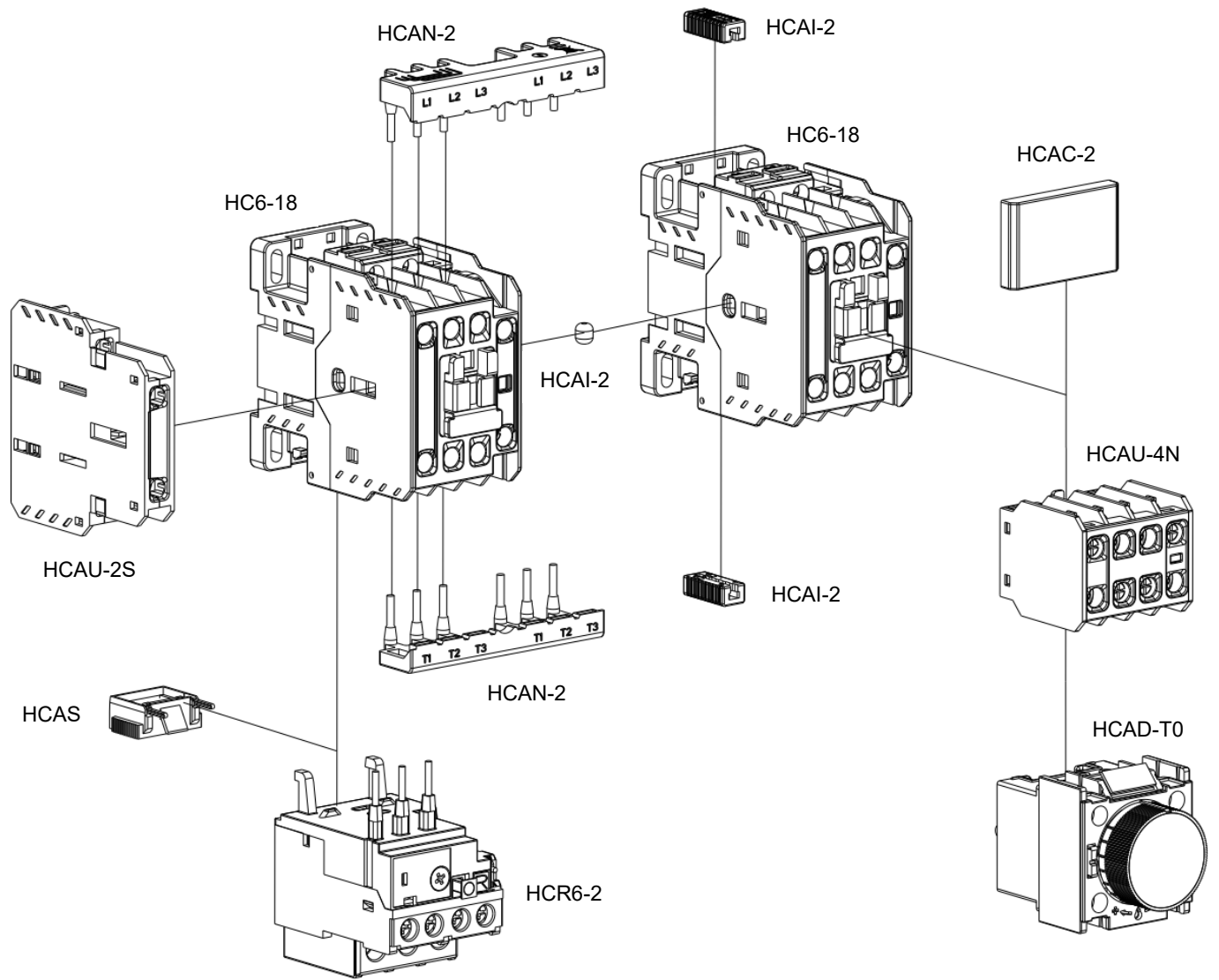
Contactors with the same shell level refer to contactors with the same overall dimensions and internal structure, only some dimensions are different, but the rated working current is different; For example, HC6-09 and HC6-18 are contactors of the same frame grade (09 - 18).

Connections - terminals

Contactor model				HC6-06M	HC6-09M	HC6-12M	HC6-09	HC6-12	HC6-18	HC6-25	HC6-32	HC6-38	
Main circuit	Cable	Flexible mm ²	1 piece	1-2.5	1-2.5	1-2.5	1-4	1-4	1.5-6	1.5-6	1.5-6	1.5-6	
			2 pieces	1-1.5	1-1.5	1-1.5	1-4	1-4	1.5-6	1.5-6	1.5-6	1.5-6	1.5-6
		Solid mm ²	1 piece	1-2.5	1-2.5	1-2.5	1-4	1-4	1.5-6	1.5-6	1.5-6	1.5-6	1.5-6
			2 pieces	1-2.5	1-2.5	1-2.5	1-4	1-4	1.5-6	1.5-6	1.5-6	1.5-6	1.5-6
	Solid/ Stranded	AWG	14			10			16-10				
	Connection screw/bolt	mm	M3.5			M3.5			M4				
	Tightening torque	N·m	1.2			1.5			1.2				
Control circuit	Cable	Flexible mm ²	1 piece	1-2.5	1-2.5	1-2.5	1-4	1-4	1-4	1-1.5	1-1.5	1-1.5	
			2 pieces	1-1.5	1-1.5	1-1.5	1-4	1-4	1-4	1-1.5	1-1.5	1-1.5	
		Solid mm ²	1 piece	1-2.5	1-2.5	1-2.5	1-4	1-4	1-4	1-1.5	1-1.5	1-1.5	
			2 pieces	1-2.5	1-2.5	1-2.5	1-4	1-4	1-4	1-1.5	1-1.5	1-1.5	
	Solid/ stranded	AWG	14			10			16				
	Connection screw/bolt	mm	M3.5			M3.5			M3.5				
	Tightening torque	N·m	1.2			1.0			0.8				

Contactor model				HC6-40	HC6-50	HC6-65	HC6-75	HC6-85	HC6-100
Main circuit	Cable	Flexible mm ²	1 piece	1-35	1-35	1-35	10-50	10-50	10-50
			2 pieces	1-25	1-25	1-25	6-35	6-35	6-35
		Solid mm ²	1 piece	1-35	1-35	1-35	10-50	10-50	10-50
			2 pieces	1-25	1-25	1-25	6-35	6-35	6-35
	Solid/ Stranded	AWG	18-2			10-0			
	Connection screw/bolt	mm	M6			M8			
	Tightening torque	N·m	4.5			6			
Control circuit	Cable	Flexible mm ²	1 piece	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5
			2 pieces	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5
		Solid mm ²	1 piece	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5
			2 pieces	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5	1-1.5
	Solid/ stranded	AWG	16			16			
	Connection screw/bolt	mm	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	
	Tightening torque	N·m	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	

6 Accessories



Selection table of accessories

Auxiliary contacts			
Contactor model	Accessories	Accessories model	Auxiliary contact composition
HC6-12M	HCAU-2M HCAU-4M	HCAU-2M20	2NO
		HCAU-2M11	1NO+1NC
		HCAU-2M02	2NC
		HCAU-4M40	4NO
		HCAU-4M31	3NO+1NC
		HCAU-4M22	2NO+2NC
		HCAU-4M13	1NO+3NC
	HCAU-4M04	4NC	
HC6-09 – 100	HCAU-2N HCAU-4N	HCAU-2N20	2NO
		HCAU-2N11	1NO+1NC
		HCAU-2N02	2NC
		HCAU-4N40	4NO
		HCAU-4N31	3NO+1NC
		HCAU-4N22	2NO+2NC
		HCAU-4N13	1NO+3NC
	HCAU-4N04	4NC	
	HCAU-2S	HCAU-2S11	1NO+1NC

Time delay auxiliary				
Contactor model	Accessories	Accessories model	Type	Delay range (s)
HC6-09 – 100	HCAD	HCAD-T0	Power-on delay	0.1 – 3
		HCAD-T2	Power-on delay	0.1 – 30
		HCAD-T4	Power-on delay	10 – 180
		HCAD-D0	Power-off delay	0.1 – 3
		HCAD-D2	Power-off delay	0.1 – 30
		HCAD-D4	Power-off delay	10 – 180

Dust cover			Mechanical interlock	
Contactor model	Accessories		Contactor model	Accessories
HC6-06M – 12M	HCAC-1		HC6-06M – 12M	HCAI-1
HC6-09 – 38	HCAC-2		HC6-09 – 18	HCAI-2
HC6-40 – 100			HC6-25 – 38	HCAI-3
			HC6-40 – 100	HCAI-4

Kits for reversing contactors			Paralleling links for main contacts	
Contactor model	Accessories		Contactor model	Accessories
HC6-6M – 12M	HCAN-1		HC6-6M – 12M	HCAP-1
HC6-09 – 18	HCAN-2		HC6-09 – 18	HCAP-2
HC6-25 – 38	HCAN-3		HC6-25 – 38	HCAP-3
HC6-40 – 65	HCAN-4		HC6-40 – 65	HCAP-4
HC6-75 – 100	HCAN-5		HC6-75 – 100	HCAP-5
HC6-110 – 150	HCAN-6		HC6-110 – 150	HCAP-6

Surge Suppressors

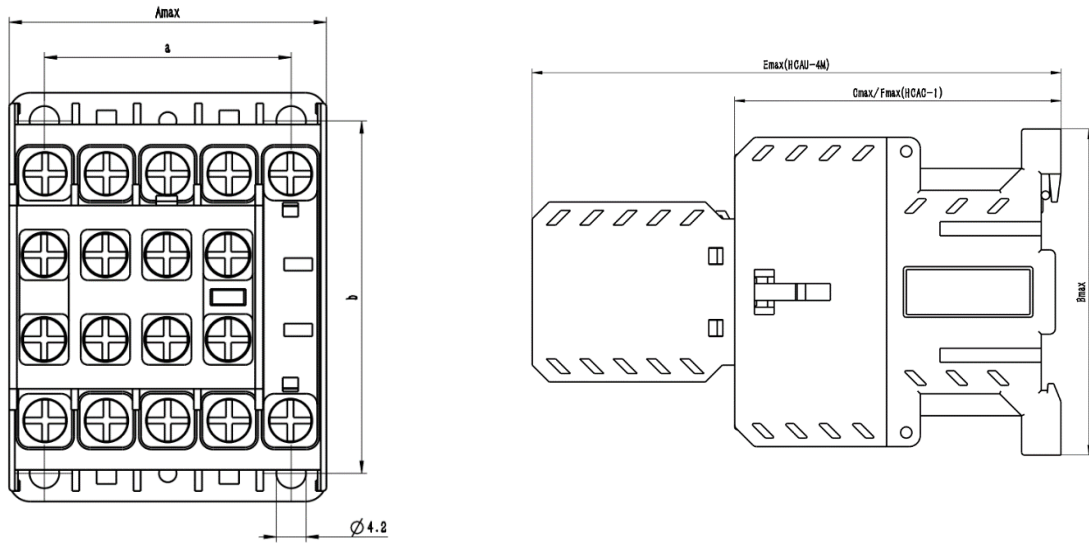
Contactor model	Accessories	Group	Accessories model	Operational voltage
HC6-06M – 12M	HCAS	RC	HCAS-1M	24 – 48V
			HCAS-2M	60 – 127V
			HCAS-3M	110 – 240V
			HCAS-4M	240 – 440V
		RV	HCAS-5M	24 – 48V
			HCAS-6M	60 – 127V
			HCAS-7M	110 – 240V
			HCAS-8M	240 – 440V
HC6-09 – 100	HCAS	RC	HCAS-1	24 – 48V
			HCAS-2	60 – 127V
			HCAS-3	110 – 240V
			HCAS-4	240 – 440V
		RV	HCAS-5	24 – 48V
			HCAS-6	60 – 127V
			HCAS-7	110 – 240V
			HCAS-8	240 – 440V

Overload relay

Contactor model	Accessories	Accessories model	Current
HC6-06M – 100	HCR6	HCR6-12M	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5
		HCR6-18	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5, 11.3-16, 15-20
		HCR6-38	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5, 11.3-16, 15-20, 17.5-21.5, 21-25
		HCR6-65	17-25, 24.5-36, 35-47, 48-60, 58-75
		HCR6-100	17-25, 24.5-36, 35-47, 48-60, 58-75, 72-90, 77-95

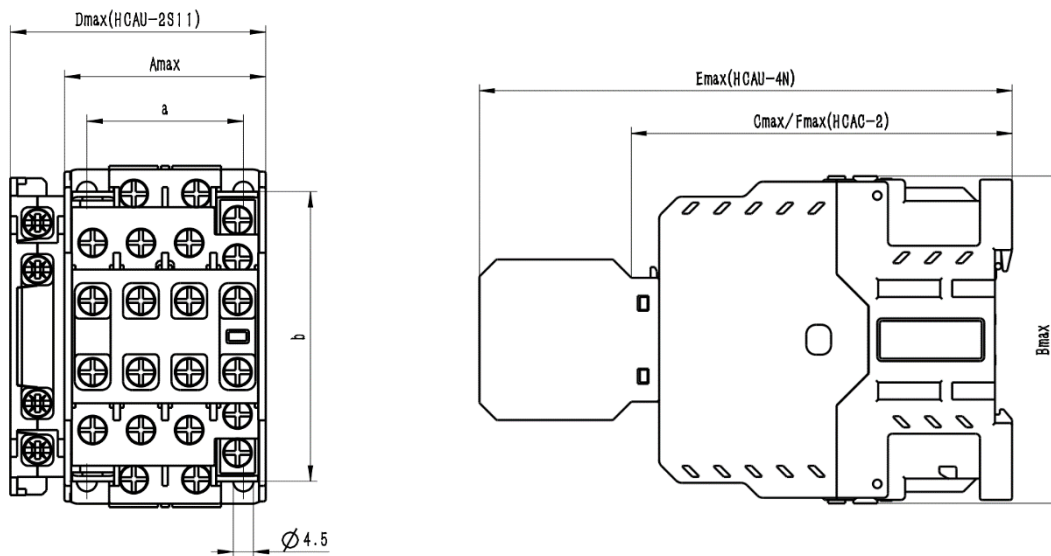
Accessories parameters and technical requirements				
Item		parameter		
Rated operational voltage V		690		
Rated insulation voltage V		660		
Conventional free air thermal current (Ith) A		10		
Rated making capacity A		Making: 10Ie (AC-15) 或 Ie (DC-13)		
Short circuit protection		gG Fuse: 10A		
Control capacity	Auxiliary contact	AC-15	380V/400V	1.5A
		DC-13	220V	0.3A
	Time delay auxiliary	AC-15	660V/380V	0.52A/0.95A
		DC-13	220V	0.15A
Standard		UL 60947-1, UL 60947-4-1, GB/T 14048.5, IEC/EN 60947-5-1		
Certificates		CE, CCC, UL		
Enclosure protection class (front side only)		IP20		
Cable connection mm ²	Flexible without ferrule	1-4		
		1-4		
	Flexible with ferrule	1-4		
		1-2.5		
	Solid	1-4		
		1-4		
connection screw/bolt		M3.5, M3		
tightening torque N·m		1.2		

7 Outline and installation dimensions
HC6-06M – 12M



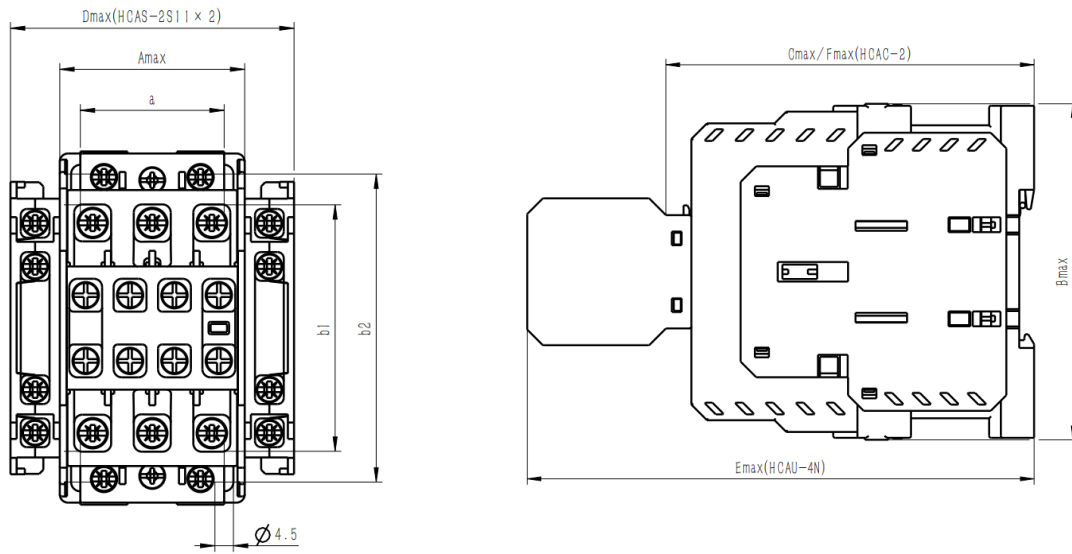
Model	Amax	Bmax	Cmax	Dmax	Emac	Fmax	a	b
HC6-06M – 12M	45	58	58	-	95	62	35	50

HC6-09 – 18



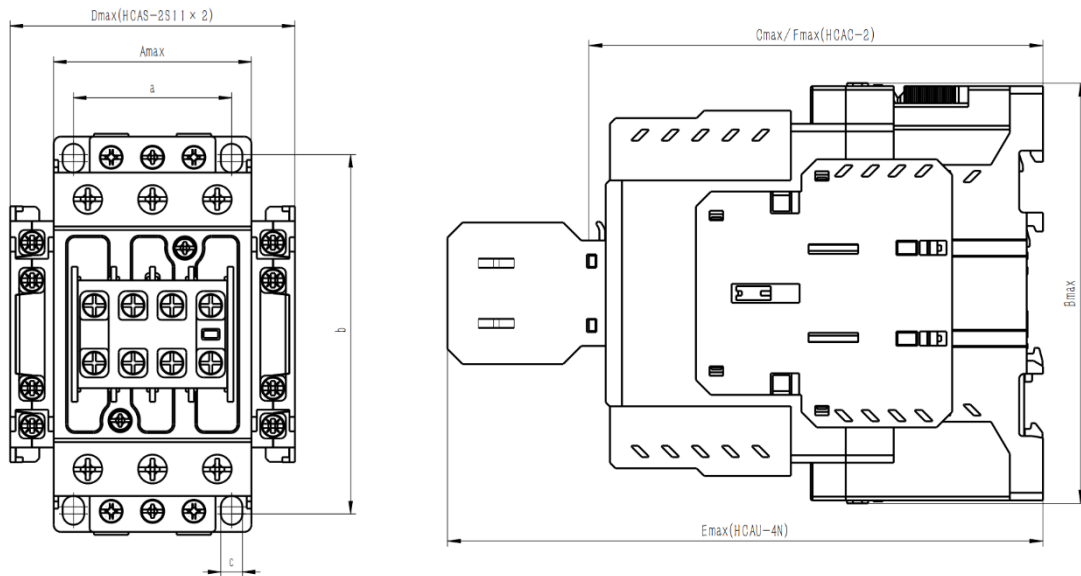
Model	Amax	Bmax	Cmax	Dmax	Emac	Fmax	a	b
HC6-09 - 18	45	76.6	87	57	124.5	89	35	52-65

HC6-25 - 38



Model	Amax	Bmax	Cmax	Dmax	Emax	Fmax	a	b1	b2
HC6-25 - 38	45	86	94	69	129.7	94	35	65	75

HC6-40 - 100



Model	Amax	Bmax	Cmax	Dmax	Emax	Fmax	a	b	c
HC6-40 - 65	55	11.6	120.5	79.2	158	122.3	44	96-100	φ6
HC6-75 - 100	70	141.6	134.5	94.2	176.5	136.3	55	119-130	φ5.5

8 Wiring diagram	
HC6-09 - 18	HC6-25 - 100
HCAU-2N11	HCAU-2N20
HCAU-2N02	HCAU-4N22
HCAU-4N13	HCAU-4N40

<p>HCAU-4N04</p>	<p>HCAU-4N31</p>
<p>HCAU-2M11</p>	<p>HCAU-2M20</p>
<p>HCAU-2M02</p>	<p>HCAU-4M22</p>
<p>HCAU-4M13</p>	<p>HCAU-4M40</p>
<p>HCAU-4M04</p>	<p>HCAU-4M31</p>

Appendix I: Instructions for use in abnormal environment

Description of correction factor used in high altitude areas:

- GB/T 14048.1 specifies the relationship between altitude and impulse withstand voltage. When altitude ≤ 2000m, it has no significant impact on product performance.
- When the altitude is more than 2000m, the air cooling effect and the drop of rated impulse withstand voltage must be considered. Therefore, the manufacturer and the user need to negotiate for design or use.
- The following table shows the correction factors for rated impulse withstand voltage and rated working current when the altitude is > 2000m and the rated working voltage remains unchanged.

Altitude m	2000	3000	4000
Derating factor of rated impulse withstand voltage	1	0.88	0.78
Derating factor of rated operational current	1	0.92	0.9

Instructions for use in abnormal temperature environment:

- GB/T 14048.1 standard specifies the normal working ambient temperature of the product. If it is used within the normal working ambient temperature range, it has no significant impact on the product performance.
- When the working environment temperature is higher than +40°C, it is necessary to consider that the allowable limit temperature rise of the product should be reduced, the rated working current must be reduced and the number of contactors installed in the standard components should be reduced. Otherwise, the product life may be damaged and the service reliability reduced, and the action range of the product will be affected; When the working ambient temperature is lower than - 5°, it shall be considered that the grease for insulation and lubrication will freeze at too low ambient temperature, resulting in product action failure. Therefore, the manufacturer shall negotiate with the user for design or use.
- +55°C - +70°C, the pull-in voltage range of AC contactor is (90% - 110%) us, (70% - 120%) us is the test result under normal temperature and 40°C cold state.
- The following table shows the correction factors for the rated working current when the working ambient temperature exceeds +55°C and the rated working voltage remains unchanged.

Ambient temperature °C	55	60	65	70
Derating factor	1	0.93	0.875	0.75

Description of volume reduction in corrosive environment:

- Impact on metal parts: chlorine Cl₂, nitrogen dioxide NO₂, hydrogen sulfide H₂S, sulfur dioxide SO₂.
 Copper: the thickness of copper sulfide coating in chlorine environment will be twice that in normal environment, which is basically the same in the presence of nitrogen dioxide.
 Silver: when the silver contact or silver coated contact is used in SO₂ and H₂S environment, the contact surface will be dark, so as to form silver sulfide coating, increase the contact temperature rise and cause contact damage. In humid environment, when Cl₂ and H₂S exist at the same time, the thickness of the coating will be increased by 7 times. If H₂S and NO₂ exist at the same time, the thickness of silver sulfide coating increases by 20 times.
- It shall be considered during model selection
 In oil refining, iron and steel, papermaking, artificial fiber (nylon) industries, or industries that generally use sulfur, the equipment used will appear vulcanization, which is also called "oxidation" in the industrial industry. Installing the equipment in the machine room can not ensure that it will not be oxidized. In order to ensure that the air pressure in the machine room is slightly higher than the atmospheric pressure, the air inlet is generally short, which does reduce the external pollution to a certain extent. However, after 5 to 6 years of operation, the equipment inevitably produces corrosion and oxidation. Therefore, in the working environment with corrosive gas, the equipment needs to be reduced. The reduction factor is the rated value multiplied by 0.6 (up to 0.8), which can reduce the rate of accelerated oxidation due to temperature rise.
- When poles are used in parallel, considering the distribution of long-term unstable current, the rated current of parallel poles needs to be corrected, as shown in the table below.

Parallel series	2	3	4
Derating factor	1.6	2.25	2.8

Appendix II: description of use category

The load properties and current changes during on-off process of different electrical equipment vary greatly, so the requirements for contactors are also different. GB/T 14048.1 standard specifies the use categories of contactors, which are characterized by one or more of the following use conditions:

- Current, expressed as a multiple of rated current
- Voltage, expressed as a multiple of rated working voltage
- Power factor or time constant
- Short circuit performance
- selectivity
- Other conditions of use (if applicable)

The main application categories of HC6 series AC contactors are as follows:

Use category of AC main circuit

AC-1

This category applies to all AC loads with a power factor greater than or equal to 0.95.

For example: heating, power distribution.

AC-2

This category is applied to the starting, reverse braking and inching of slip ring motor.

When closed, the contactor turns on the starting current, which is about 2.5 times the rated current of the motor.

When disconnected, the contactor must disconnect the starting current when the voltage is less than or equal to the main power supply.

AC-3

This category shall be used to disconnect normally started squirrel cage motors.

When closed, the contactor turns on the starting current, which is about 7 times the rated current of the motor.

During disconnection, the contactor disconnects the rated current of the motor. At this time, the voltage at the terminal of the contactor is about 20% of the main power supply, and the disconnection is not severe.

For example: all standard squirrel cage motors: vertical ladder, escalator, conveyor belt, excavator, air compressor, pump, mixer, air conditioner, etc.

AC-4

This category includes reverse braking and inching of squirrel cage motor and slip ring motor.

The contactor connects 5 to 7 times the rated motor current, breaks the same current under higher voltage, and the motor speed is lower.

At this time, the voltage is the same as the main voltage, and the breaking is very severe.

For example: printing machinery, wire drawing machine, tower crane, hoisting, metallurgical industry.

Use category of control circuit

DC-13

The working system shall be used for starting, reverse current braking and inching of DC shunt motor. Duration ≤ 2 ms.

This category applies to switching electromagnetic loads.

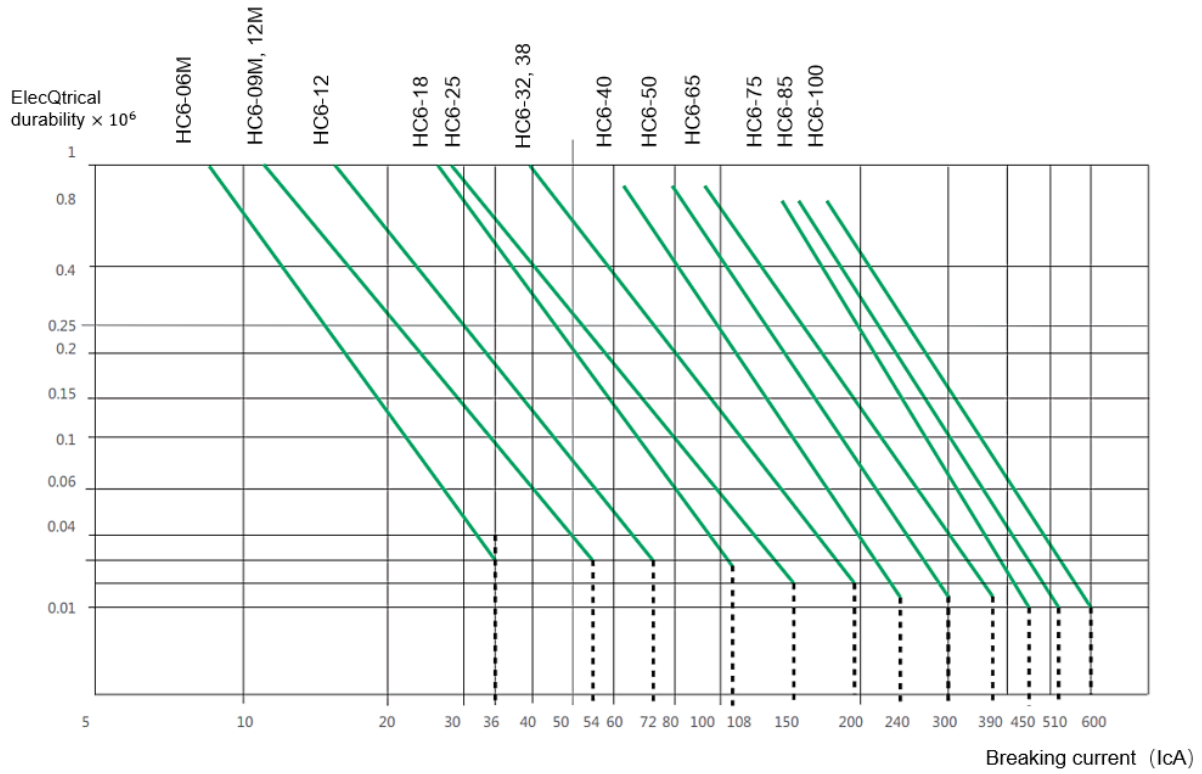
AC-15

This category is applied to switching electromagnetic loads. When the electromagnet is closed, the pull-in power is greater than 72 VA.

Example: operating coil of switch contactor.

Appendix III: Characteristic curves

HC6-09 – 100
AC-4



For example:

Asynchronous motor P = 5.5kW, Ue = 400 (380V), Ie = 11a, Ic = 6xIe = 66A

200,000 operations required

According to the curve selection, the rated value of the contactor is HC6-32

HCR6 Overload Relay

1 Application Range

1.1 It is applicable to overload and phase failure protection of AC motor with AC 50Hz/60Hz, voltage up to 690V and setting current of 0.1 - 97A for long-term or intermittent operation.

1.2 Standard: VDE 0600; BS EN60947-4-1; IEC 60947-4-1; IEC 60947-5-1; UL 60947-4-1; CNS 14816-1

2 Structure Features

- 2.1 Three phase bimetallic chip.
- 2.2 With phase failure protection.
- 2.3 Continuous adjustable device with setting current.
- 2.4 With temperature compensation.
- 2.5 With action indication.
- 2.6 With testing organization.
- 2.7 With stop button.
- 2.8 With manual and automatic reset buttons.
- 2.9 It has electrically separable normally open and normally closed contacts.
- 2.10 Installation method: plug-in installation with contactor, independent installation.

3 Normal service conditions and mounting conditions

Item	Description
Installation Category	III
Pollution Degree	3
Standard	GB/T 14048.4/IEC 60947-4-1; GB/T 14048.5/IEC 60947-5-1 UL 60947-4-1
Certificates	CE/CCC/UL
Enclosure protection class	IP20/IP00
Ambient Air Temperature	Normal of working temperature -25°C - +60°C, its average over a period of 24 h does not exceed +35°C.
Atmospheric Conditions	The relative humidity of the air does not exceed 50% at a maximum temperature of +40°C. Higher relative humidity may be permitted at lower temperatures, e.g. 90% at +20°C. Special measures may be necessary in cases of occasional condensation due to variations in temperature.
Mounting Conditions	The inclination of mounting surface and vertical plane is not more than ±22.5°.
Shock and Vibration	The product should be installed and used in the place without significant shaking, shock and vibration.

4 Model description

HC6 series overload relay

HCR6	-	12M	
↑		↑	
Relay Model		Type	
		12M	
		18	
		38	
		65	
		100	

Rated current range

Overload Relay Model	Current Range
HCR6-12M	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5
HCR6-18	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5, 11.3-16, 15-20
HCR6-38	0.1-0.16, 0.16-0.25, 0.25-0.4, 0.35-0.5, 0.45-0.63, 0.55-0.8, 0.75-1, 0.9-1.3, 1.1-1.6, 1.4-2, 1.8-2.5, 2.3-3.2, 2.9-4, 3.5-4.8, 4.5-6.3, 5.5-7.5, 7.2-10, 9-12.5, 11.3-16, 15-20, 17.5-21.5, 21-25
HCR6-65	17-25, 24.5-36, 35-47, 48-60, 58-75
HCR6-100	17-25, 24.5-36, 35-47, 48-60, 58-75, 72-90, 77-95

Selection table of overload relay

Overload relay	Rated current A	Fuse A	For use with contactor model
		gG	
HCR6-12M	0.1-0.16	2	HC6-06M HC6-09M HC6-12M
	0.16-0.25	2	
	0.25-0.4	2	
	0.35-0.5	2	
	0.45-0.63	2	
	0.55-0.8	2	
	0.75-1	4	
	0.9-1.3	4	
	1.1-1.6	4	
	1.4-2	6	
	1.8-2.5	6	
	2.3-3.2	6	
	2.9-4	10	
	3.5-4.8	10	
	4.5-6.3	16	
HCR6-18	0.1-0.16	2	HC6-09 HC6-12 HC6-18
	0.16-0.25	2	
	0.25-0.4	2	
	0.35-0.5	2	
	0.45-0.63	2	

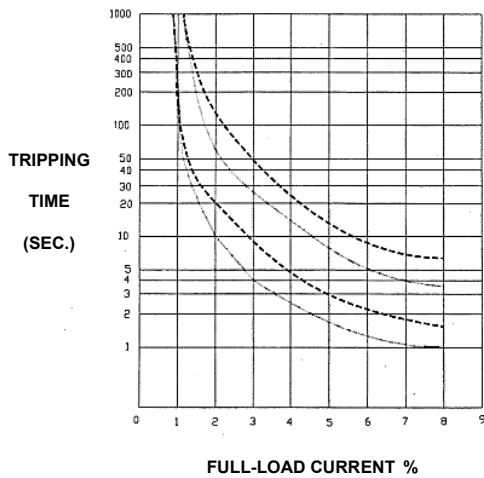
HCR6-18	0.55-0.8	2	HC6-09 HC6-12 HC6-18
	0.75-1	4	
	0.9-1.3	4	
	1.1-1.6	4	
	1.4-2	6	
	1.8-2.5	6	
	2.3-3.2	6	
	2.9-4	10	
	3.5-4.8	10	
	4.5-6.3	16	
	5.5-7.5	20	
	7.2-10	20	
	9-12.5	25	
	11.3-16	35	
15-20	50		
HCR6-38	0.1-0.16	2	HC6-25 HC6-32 HC6-38
	0.16-0.25	2	
	0.25-0.4	2	
	0.35-0.5	2	
	0.45-0.63	2	
	0.55-0.8	2	
	0.75-1	4	
	0.9-1.3	4	
	1.1-1.6	4	
	1.4-2	6	
	1.8-2.5	6	
	2.3-3.2	6	
	2.9-4	10	
	3.5-4.8	10	
	4.5-6.3	16	
	5.5-7.5	20	
	7.2-10	20	
	9-12.5	25	
	11.3-16	35	
15-20	50		
17.5-21.5	50		
21-25	50		
HCR6-65	17-25	50	HC6-40 HC6-50 HC6-65
	24.5-36	63	
	35-47	100	
	48-60	100	
	58-75	125	
HCR6-100	17-25	50	HC6-75 HC6-85 HC6-100
	24.5-36	63	
	35-47	100	
	48-60	100	
	58-75	125	
	72-90	160	
77-95	160		

5 Overload relay parameters and technical requirements

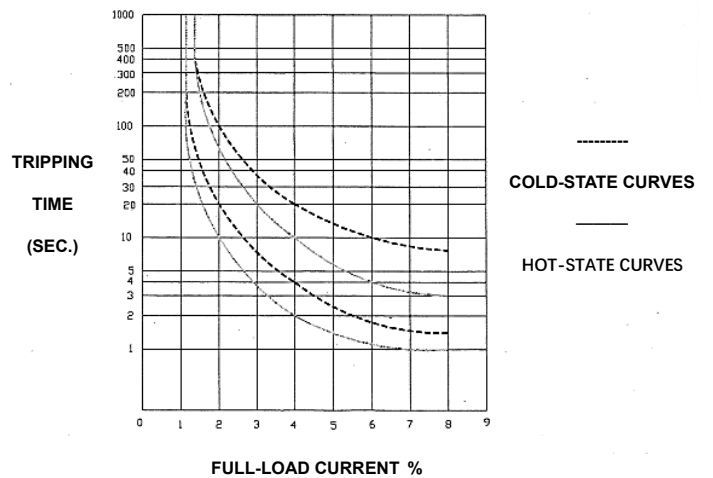
Parameters and technical requirements

Item		HCR6-12M	HCR6-18	HCR6-38	HCR6-65	HCR6-100
Frame grade		12	18	38	65	100
Rated insulation voltage V	UL	600	600	600	600	600
	IEC	690	690	690	690	690
Pole		2P, 3P				
Protection characteristics		1. Under-phase + Overload protection: A type 2. Overload protection: M type: 3P; K type: 2P				
Reset mode		Automatic, Manual				
Auxiliary contact composition		1 NO + 1 NC	1 NO + 1 NC	1 NO + 1 NC	1 NO + 1 NC	1 NO + 1 NC
Auxiliary current	AC15	120V	6A			
		240V	3A			
		380V	1.9A			
		480V	1.5A			
		500V	1.4A			
		600V	1.2A			
	DC13	125V	0.55A			
		250V	0.27A			
	lth	NC	10A			
NO		10A				
Main circuit terminal form	Power side	Tip type			Connecting plate	
	Load side	Screw type				
Maximum common conductor of load side terminal of main circuit		AWG 8 (8.4mm ²)			AWG 3 (38mm ²)	
Load side terminal width		< 9.5mm			< 22mm	

Tripping curve

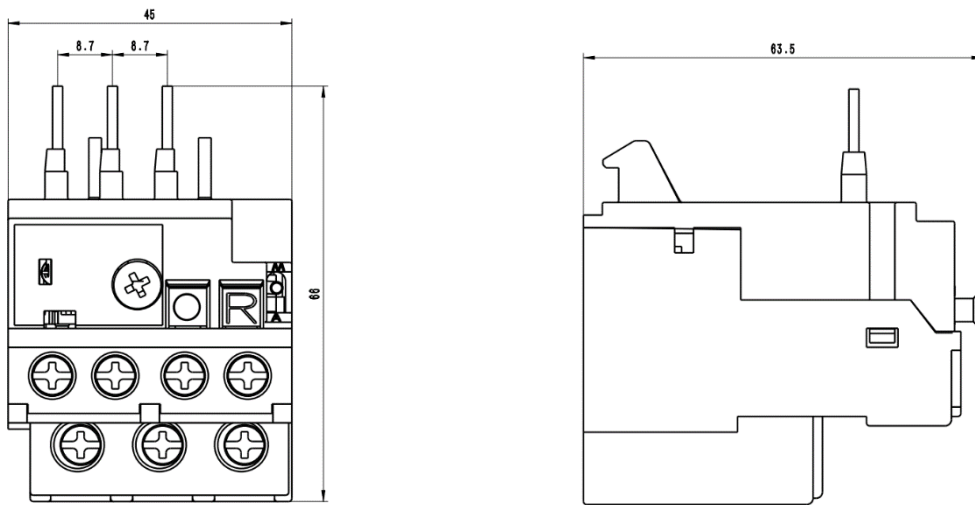


TRIPPING TIME CHARACTERISTICS OF Under-Phase

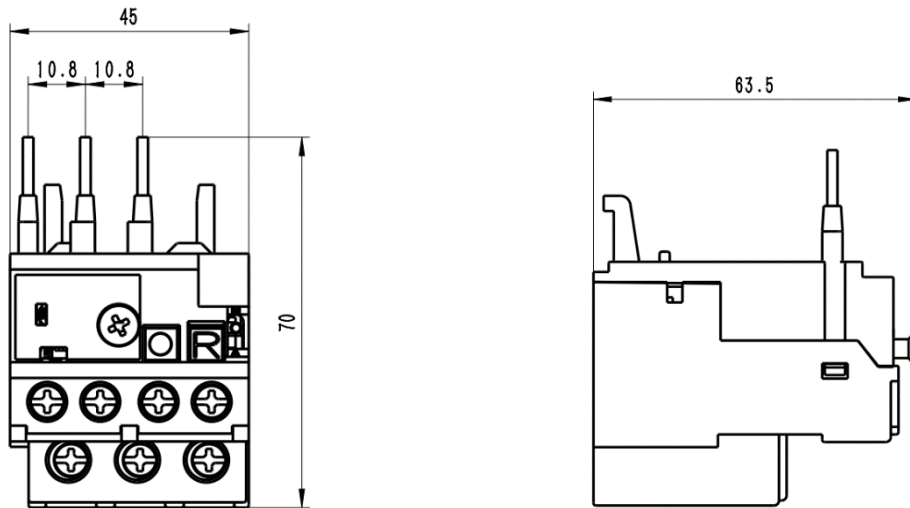


TRIPPING TIME CHARACTERISTICS OF Three-phase

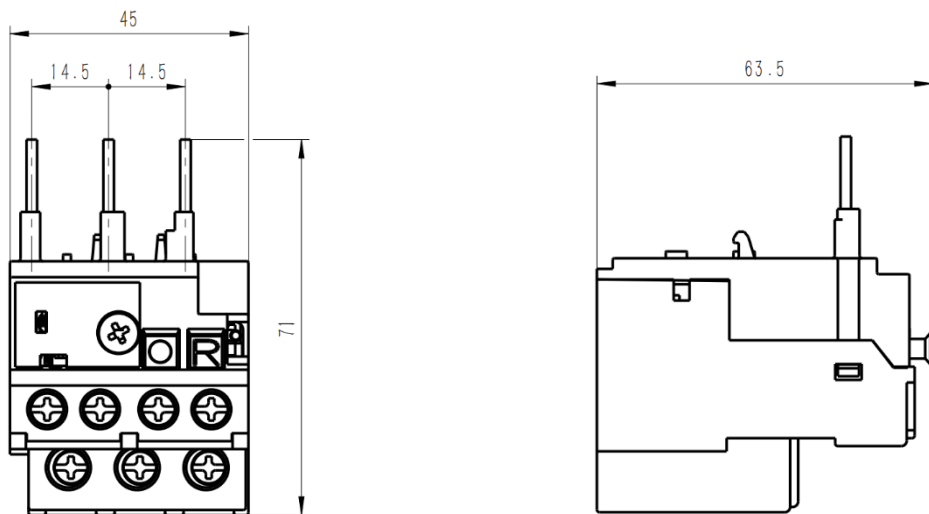
6 Outline and installation dimensions
HCR6-12M



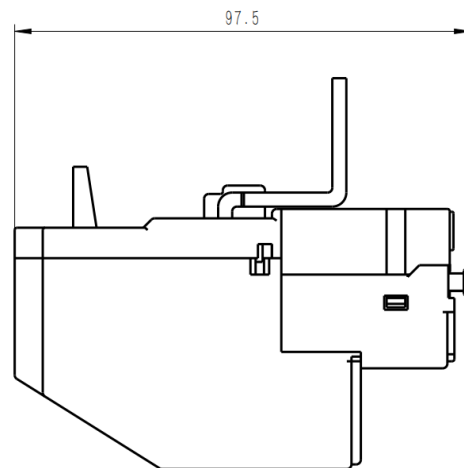
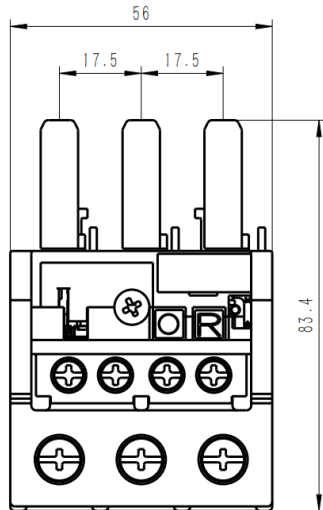
HCR6-18



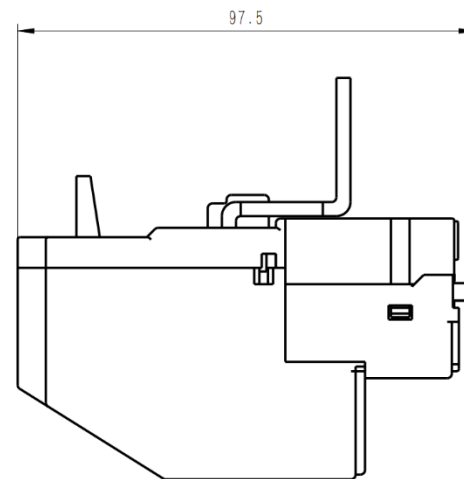
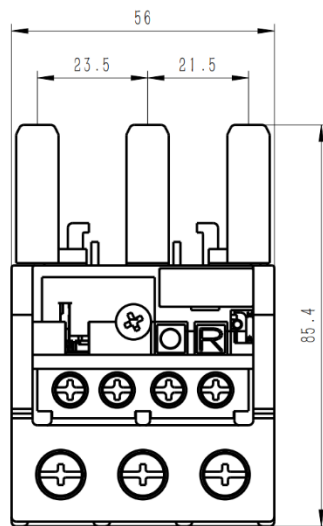
HCR6-38



HCR6-65



HCR6-100



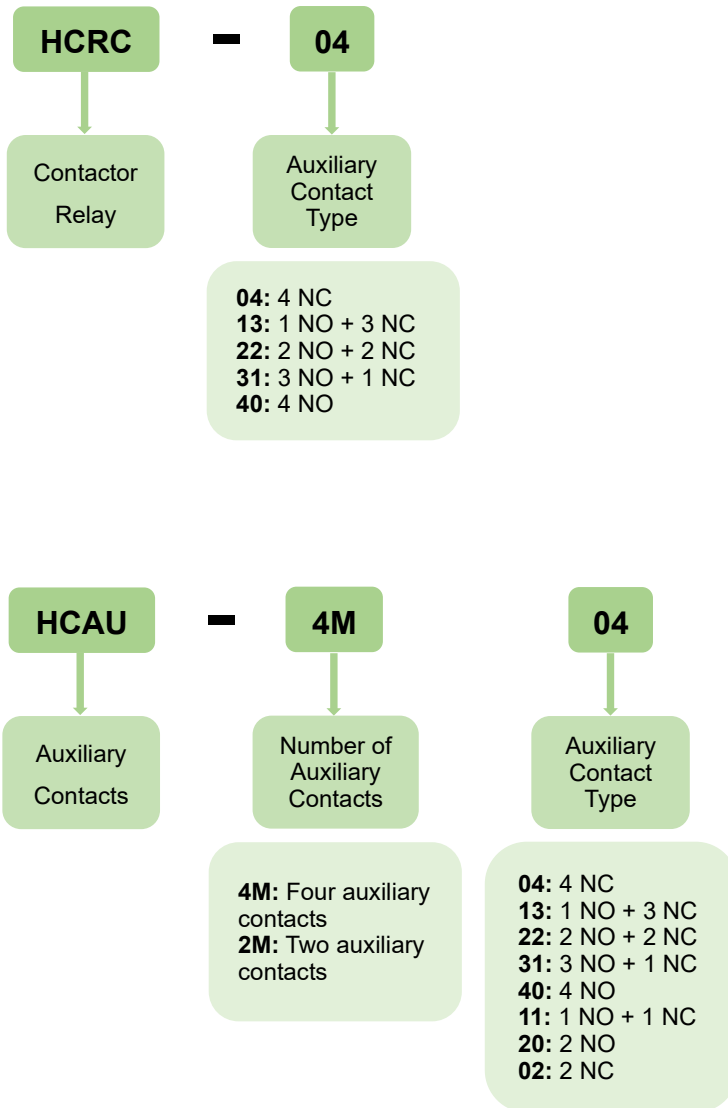
HCRC Contactor Relay

1 Application Range

1.1 HCRC contactor relay is mainly used in relay control, signal transmission, isolation and amplification circuits with AC 50Hz or 60Hz, rated working voltage up to 380V and DC rated voltage up to 220V.

1.2 Standard: GB/T 14048.5; IEC/EN 6094-5-1, UL 60947-4-1.

2 Model description



3 Contactor relay parameters and technical requirements

Parameters and technical requirements

Rated insulation voltage	Conventional free air thermal current	Rated control capacity				Operating rate cyc/h	Electrical durability $\times 10^4$	Mechanical durability $\times 10^4$
		Utilization category	Rated operational voltage	Rated operational current	Control capacity			
690V	10A	AC-15	380V	1.5A	570VA	1200	100	1000
		DC-13	220V	0.3A	66W			

Rated control circuit voltage (Us) :

- AC: 24V, 36V, 48V, 110V, 127V, 220V, 230, 240, 380V, 415V

- Action range:

Pick-up voltage: (85%~120%) Us, +40°C

Drop-out voltage: AC (20%~75%) Us, DC: (10%~75%) Us -5°C

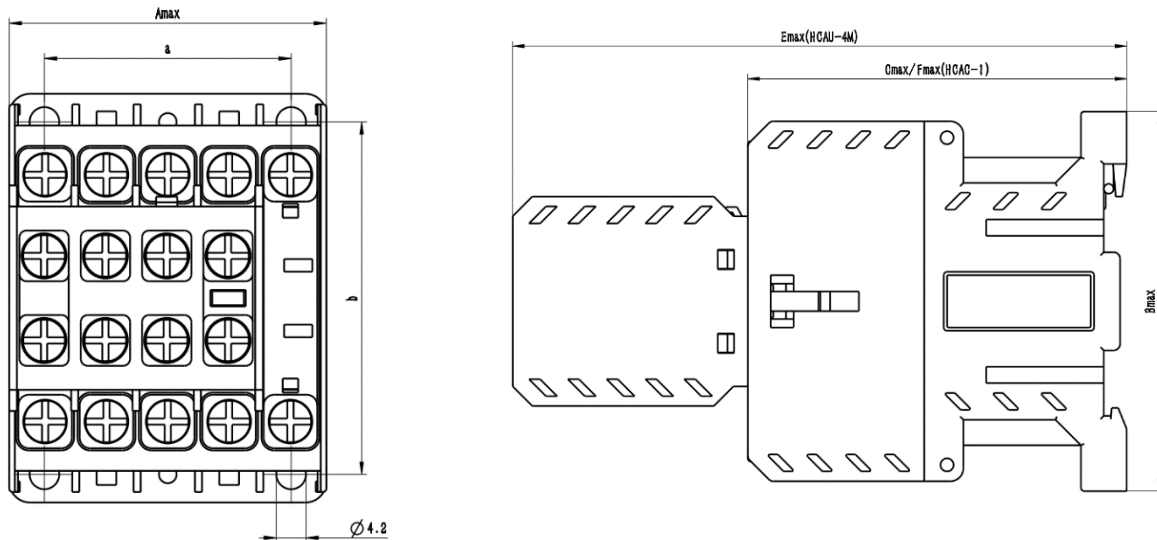
4 Structural features

This product is derived from HC6-12M product. Its appearance and installation dimensions are the same as HC6-12M. It can be hung with HCAU-2M/4M top hanging auxiliary contact.

The product is small in size and has AC operation and DC operation coils.

5 Outline and installation dimensions

NXRC-04/13/22/31/40



Model	Amax	Bmax	Cmax	Dmax	Emac	Fmax	a	b
HCRC-04/13/22/31/40	45	58	58	-	95	62	35	50