

4. RATINGS AND SPECIFICATIONS

4.1 Standard Models



Item			Frame	8	10	20	25	35	50	65C	80C	100C	125C	150C	200C	250C	300C	400C	600C	800C																																													
Model	Electromagnetic contactor	without enclosure	Non-reversible	HS8	HS10	HS20	HS25	HS35	HS50	H65C	H80C	H100C	H125C	H150C	H200C	H250C	H300C	H400C	H600C	H800C																																													
		Reversible	—	HS10-R	HS20-R	HS25-R	HS35-R	HS50-R	—	H65C-R	H80C-R	H100C-R	H125C-R	H150C-R	H200C-R	H250C-R	H300C-R	H400C-R	H600C-R	H800C-R																																													
	Electromagnetic switch with 1E Thermal Overload Relay	without enclosure	Non-reversible	HS8-T	HS10-T	HS20-T	HS25-T	HS35-T	HS50-T	—	H65C-T	H80C-T	H100C-T	H125C-T	H150C-T	H200C-T	H250C-T	H300C-T	H400C-T	H600C-T	—																																												
			Reversible	—	HS10-RT	HS20-RT	HS25-RT	HS35-RT	HS50-RT	—	H65C-RT	H80C-RT	H100C-RT	H125C-RT	H150C-RT	H200C-RT	H250C-RT	H300C-RT	H400C-RT	H600C-RT	—																																												
		with enclosure	Non-reversible	—	SHS10-T	SHS20-T	SHS25-T	SHS35-T	SHS50-T	—	SH65C-T	SH80C-T	SH100C-T	SH125C-T	SH150C-T	SH200C-T	SH250C-T	SH300C-T	SH400C-T	SH600C-T	—																																												
			Reversible	—	SHS10-RT	SHS20-RT	SHS25-RT	SHS35-RT	SHS50-RT	—	SH65C-RT	SH80C-RT	SH100C-RT	SH125C-RT	SH150C-RT	SH200C-RT	SH250C-RT	SH300C-RT	SH400C-RT	SH600C-RT	—																																												
Thermal overload relay		TR12B-1E		TR20B-1E	TR25B-1E	TR50B-1E		TR80B-1E		TR150B-1E		TR250B-1E		TR400B-1E		TR600B-1E		—																																															
Rated insulation voltage (Ui)			690V							660V																																																							
Max. rated capacity of motor	JIS, JEM	Rated operational current (AC3)	200–220VAC	11A	13A	20 (18) A	26A	35A	50 (48) A	65A	80A	100A	125A	150A	180A	240A	300A	400A	600A	800A (AC2)																																													
			380–440VAC	7A	9A	17A	36A	32A	47A	65A	80A	100A	125A	150A	180A	240A	300A	400A	600A	800A (AC2)																																													
			500–550VAC	6A	9A	17A	20A	26A	37A	52A	72A	72A	80A	145A	145A	250A	350A	500A	—																																														
		Three-phase motor (AC3)	200–220VAC	2.2kW	2.7kW	4 (3.7) kW	5.5kW	7.5kW	11kW	15kW	19kW	25kW	30kW	37kW	45kW	55kW	60kW	75kW	110kW	150kW	200kW (AC2)																																												
	380–440VAC		2.7kW	4kW	7.5kW	11kW	15kW	22kW	30kW	37kW	50kW	60kW	75kW	90kW	120kW	150kW	200kW	300kW	400kW (AC2)																																														
	IEC	Rated operational current (AC3)	220–240VAC	11A	13A	22A	27A	40A	50A	65A	80A	105A	126A	150A	182A	240A	300A	400A	600A	800A (AC2)																																													
			380–440VAC	9A	12A	22A	26A	40A	50A	65A	80A	100A	125A	150A	180A	240A	300A	400A	600A	800A (AC2)																																													
	Single-phase motor (AC3)	Rated operational current (AC3)	200–220VAC	2.5kW	3.5kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW	75kW	90kW	115kW	160kW	200kW (AC2)																																													
			380–440VAC	4kW	5.5kW	11kW	11kW	18.5kW	22kW	30kW	37kW	50kW	60kW	75kW	90kW	120kW	150kW	200kW	300kW	400kW (AC2)																																													
	Inching (AC4)	Rated operational current (AC3)	100–110VAC	0.4kW	0.5kW	0.9kW	1.2kW	1.7kW	—	—	—	—	—	—	—	—	—	—	—	—																																													
200–220VAC			0.8kW	1kW	1.8kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—																																														
Rated capacity for resistance load (AC1)	(Electrical durability 0.5 million times) JIS, JEM and IEC	200–220VAC	20A	20A	32A	35A	50A	70A	80A	120A	135A	150A	200A	260A	300A	350A	420A	600A	800A (0.1 million times)																																														
		380–440VAC	20A	20A	32A	35A	50A	70A	80A	120A	135A	150A	200A	260A	300A	350A	420A	600A	800A (0.1 million times)																																														
Rated thermal current (Ith)	without enclosure	20A	20A	32A	35A	50A	70A	80A	120A	135A	150A	200A	260A	300A	350A	420A	600A	800A																																															
Open thermoelectric current (Ith)	with enclosure	15A	15A	26A	35A	44A	60A	65A	80A	100A	125A	150A	180A	240A	300A	400A	600A	—																																															
Characteristics of operation coil	Coil burden (max.) 50/60Hz	At power-on	100/90VA	100/90VA	100/90VA	100/90VA	135/125VA	135/125VA	220/190VA	490/420VA		400/400VA		480/480VA		1600/1600VA		1800/1800VA																																															
		After power-on	12/11VA	12/11VA	12/11VA	12/11VA	15/14VA	15/14VA	18/14VA	50/40VA		8/8VA		9/9VA		10/10VA		14/14VA																																															
	Coil consumption (mean)	3W				4.3W				6W	9.5W		7W		8W		8W		13W																																														
	Pick-up voltage (% of rated voltage) (mean)	70%	70%	70%	70%	70%	70%	70%	75%	75%		70%		70%		70%		70%																																															
	Drop-out voltage (% of rated voltage) (mean)	55%	55%	60%	60%	60%	60%	60%	58%	58%		45%		45%		35%		35%																																															
Operating time (reference value)	At power-on	10–20ms							10–20ms	10–25ms		30–50ms		30–50ms		35–60ms		40–70ms																																															
		At release	10–35ms							10–30ms	10–30ms		20–40ms		20–45ms		20–45ms		20–50ms																																														
Auxiliary contact specification	Type of constant		Twin contact							Twin contact																																																							
	Numbers	Standard	1N0 or 1NC		1N01NC or 2N02NC		2N02NC		2N02NC													3N03NC		4N04NC																																									
		Maximum	Four contacts can be added to the standard specification. Head-on2P: 2N0, 1N01NC, 2NC (Not applicable for the machine mounted with the side-on unit) Head-on4P: 4N0, 3N01NC, 2N02NC (Not applicable for the machine mounted with the side-on unit) Side-on2P: 1N01NC (Not applicable for the machine mounted with the head-on unit)																																																														
Rated operational current	<table border="1"> <thead> <tr> <th colspan="2">AC-12</th> <th colspan="3">AC-15</th> <th colspan="2">DC-12</th> <th colspan="2">DC-13</th> <th rowspan="2">Minimum rating</th> </tr> <tr> <th>110V</th> <th>220V</th> <th>110V</th> <th>220V</th> <th>440V</th> <th>110V</th> <th>220V</th> <th>110V</th> <th>220V</th> <th>440V</th> </tr> </thead> <tbody> <tr> <td>10A</td> <td>8A</td> <td>6A</td> <td>3A</td> <td>1.5A</td> <td>2.5A</td> <td>1A</td> <td>1.5A</td> <td>0.55A</td> <td>0.27A</td> <td>20V 5mA</td> </tr> </tbody> </table>											AC-12		AC-15			DC-12		DC-13		Minimum rating	110V	220V	110V	220V	440V	110V	220V	110V	220V	440V	10A	8A	6A	3A	1.5A	2.5A	1A	1.5A	0.55A	0.27A	20V 5mA	<table border="1"> <thead> <tr> <th colspan="3">AC-15</th> <th colspan="2">DC L/R≤40ms</th> <th rowspan="2">Minimum rating</th> </tr> <tr> <th>200–220V</th> <th>380–440V</th> <th>500–550V</th> <th>48V</th> <th>110V</th> </tr> </thead> <tbody> <tr> <td>2A</td> <td>1A</td> <td>0.75A</td> <td>0.7A</td> <td>0.3A</td> <td>24V 10mA</td> </tr> </tbody> </table>						AC-15			DC L/R≤40ms		Minimum rating	200–220V	380–440V	500–550V	48V	110V	2A	1A	0.75A	0.7A	0.3A	24V 10mA
AC-12		AC-15			DC-12		DC-13		Minimum rating																																																								
110V	220V	110V	220V	440V	110V	220V	110V	220V		440V																																																							
10A	8A	6A	3A	1.5A	2.5A	1A	1.5A	0.55A	0.27A	20V 5mA																																																							
AC-15			DC L/R≤40ms		Minimum rating																																																												
200–220V	380–440V	500–550V	48V	110V																																																													
2A	1A	0.75A	0.7A	0.3A	24V 10mA																																																												
With mechanical interlock	—	Provided as standard																																																															
IEC 35-mm rail mounting mechanism	Provided as standard																																																																
Durability	Mechanical	8 million times																																																															
	Electrical	2 million times			1.5 million times		1 million times			1 million times						0.5 million times																																																	
Available voltage range of operational coil	24–550V							24–550V						100–440V																																																			

Notes:

- The ratings of the 200V class in the parenthesis when frames 20 and 50 are provided with an enclosure.
- The rated thermal current applies to electromagnetic contactors.
- The pick-up and drop-out voltages apply to 200V 60Hz power source. In case of 50Hz, the figures for frame H65C–125C are about 10% smaller and for frame H150C–800C are about the same.
- Application of Category AC3 and AC2 to the reversible electromagnetic contactors and switches shall be limited to regular reversible operation in which a motor starts reverse rotation after it has once stopped. Category AC4 is applicable when the motor starts reverse rotation before it has completely stopped.
- Operating time is a reference value where 200V 50Hz is applied to AC 200V coil. Operating time varies with coil voltage, frequency and phase so it is unsuitable for timing use.

6) Testing conditions of electrical durability (Category AC3):

The making and breaking currents and operating frequency of the electrical durability are tested as shown in the right drawing according to test conditions of JIS C8201-4-1, JEM 1038 and IEC 60947-4-1.

