

Table 34-78. Coil Data Notes

P.U.	Pick-up time is the average time taken from closing of the coil circuit to main contact touch.
D.O.	Drop-out time is the average time taken from opening of the coil circuit to main contact separation.
Cold	Coil data with a cold coil.
Hot	Coil data with a hot coil.

All data is based on a standard contactor with no auxiliary devices and a 120V AC or 24V DC magnet coil. Coil data has a ±5% range depending on the application, therefore specific data may vary.

Table 34-79. Specifications — IEC Sizes A – E

Description	Contactor Catalog Number/Size														
	CE15A IEC Size A			CE15B IEC Size B			CE15C IEC Size C			CE15D IEC Size D			CE15E IEC Size E		
Configuration: Number of Poles Aux. Contacts, Std. Add-On Aux. Contacts Frame Size	2, 3, 4 4th Pole NO (1) Top (4) or Side (4) 45 mm			2, 3, 4 4th Pole NO (1) Top (4) or Side (4) 45 mm			2, 3, 4 4th Pole NO (1) Top (4) or Side (4) 45 mm			2, 3 Side NO (1) Top (4) or Side (3) 45 mm			2, 3 Side NO (1) Top (4) or Side (3) 45 mm		
Finger Protection ①	IP20									IP10					
Insulation Voltage (Ui)	690V														
Impulse Withstand Voltage (Uimp)	6 kV														
Current Ratings (I) IEC 947-4-1 AC-1 Thermal Current Ith 230-380-460-575V	20 Amperes			20 Amperes			20 Amperes			32 Amperes			32 Amperes		
	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I
AC-3 (Ie) 230V 380V 460V 575V	1.1 2.2 2.2 4.0	1-1/2 — 3 5	5.2A 5.2A 4.8A 6.9A	1.5 4.0 4.0 5.5	2 — 5 7-1/2	6.8A 9.1A 7.8A 9.4A	2.2 5.5 5.5 7.5	3 — 7-1/2 10	9.6A 12A 11A 12A	4.0 7.5 7.5 11	5 — 10 15	16A 16A 14A 17A	5.5 11 11 15	7-1/2 — 15 20	22A 23A 21A 23A
AC-4 (Ie) 230V 380V 460V 575V	1.1 2.2 2.2 4.0	— — — —	5.2A 5.2A 4.8A 6.9A	1.5 4.0 4.0 5.5	1 — 2 3	6.8A 9.1A 7.8A 9.4A	3.0 5.5 5.5 7.5	1.5 — 3 5	9.6A 12A 11A 9.4A	4.0 7.5 7.5 11	2 — 5 7.5	16A 16A 14A 12A	5.5 11 11 15	3 — 7-1/2 10	22A 23A 21A 17A
AC Magnet Coil Data Pick-Up Volts — Cold Pick-Up Volts — Hot Pick-Up Voltamperes Pick-Up Watts Sealed Voltamperes	74% 78% 80 49 7.5			74% 78% 80 49 7.5			74% 78% 80 49 7.5			74% 78% 100 65 10			74% 78% 100 65 10		
Sealed Watts Drop-Out Volts — Cold Drop-Out Volts — Hot Max. Operation Rate — Ops/Hour Pick-Up Time (mS) Drop-Out Time (mS)	2.4 45% 46% 12,000 12 12			2.4 45% 46% 12,000 12 12			2.4 45% 46% 12,000 12 12			3.1 45% 46% 12,000 12 12			3.1 45% 46% 12,000 12 12		
Coil Operating Range % of Rated Voltage	-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%		
DC Magnet Coil Data	For DC Magnet Coils (and coil data), see Accessories Page 34-50.														
Mechanical Life	20,000,000			20,000,000			20,000,000			20,000,000			20,000,000		
Electrical Life (440/460V) AC-3 AC-4	2,000,000 46,000			2,000,000 70,000			2,200,000 90,000			1,300,000 60,000			1,600,000 50,000		
AWG Wire Range Power Terminals Control Terminals	12 – 16 Stranded 12 – 14 Solid Cu 12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu 12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu 12 – 16 Stranded 12 – 14 Solid Cu			8 – 16 Stranded 10 – 14 Solid Cu 12 – 16 Stranded 12 – 14 Solid Cu			8 – 16 Stranded 10 – 14 Solid Cu 12 – 16 Stranded 12 – 14 Solid Cu		
Power Terminal Torque — lb-in	7			7			7			15			15		
Contact Kit Part No.	None			None			None			None			None		
Auxiliary Contact Ratings ②	A600, P300, AC-15, DC-13														

① Without optional IP20 finger shields.
② See Pages 34-48 – 34-49 for ratings.

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Table 34-80. Specifications — IEC Sizes F – K

Description	Contactor Catalog Number/Size														
	CE15F IEC Size F			CE15G IEC Size G			CE15H IEC Size H			CE15J IEC Size J			CE15K IEC Size K		
Configuration: Number of Poles Aux. Contacts, Std. Add-On Aux. Contacts Frame Size	2, 3 Side NO (1) Top (4) or Side (3) 45 mm			2, 3, 4, 5 Side NO (1) Top (4) or Side (3) 65 mm			2, 3, 4, 5 Side NO (1) Top (4) or Side (3) 65 mm			2, 3, 4, 5 Side NO (1) Top (4) or Side (3) 65 mm			2, 3 Side NO (1) Top (4) or Side (3) 65 mm		
Finger Protection ①	IP10														
Insulation Voltage (Ui)	690V														
Impulse Withstand Voltage (Uimp)	6 kV														
Current Ratings (I) IEC 947-4-1 AC-1 Thermal Current Ith 230-380-460-575V	32 Amperes			50 Amperes			60 Amperes			75 Amperes			80 Amperes		
	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I
AC-3 (Ie)															
230V	7.5	10	28A	—	10	36A	11	15	42A	15	20	54A	18.5	25	68A
380V	15	—	30A	18.5	—	37A	22	—	44A	30	—	59A	37	—	73A
460V	15	20	27A	18.5	25	34A	22	30	40A	30	40	52A	37	50	65A
575V	18.5	25	28A	22	30	34A	30	40	45A	30	40	45A	37	50	55A
AC-4 (Ie)															
230V	5.5	5	22A	—	7.5	36A	11	10	42A	15	10	54A	15	15	54A
380V	11	—	23A	18.5	—	37A	22	—	44A	30	—	59A	30	—	59A
460V	11	10	21A	18.5	15	34A	22	20	40A	30	25	52A	30	30	52A
575V	15	15	19A	22	20	34A	30	25	45A	37	30	45A	37	40	45A
AC Magnet Coil Data															
Pick-Up Volts — Cold	74%			74%			74%			74%			74%		
Pick-Up Volts — Hot	78%			78%			78%			78%			78%		
Pick-Up Volts — Hot	100			230			230			230			230		
Pick-Up Watts	65			95			95			95			95		
Sealed Voltamperes	10			28			28			28			28		
Sealed Watts	3.1			7.8			7.8			7.8			7.8		
Drop-Out Volts — Cold	45%			49%			49%			49%			49%		
Drop-Out Volts — Hot	46%			50%			50%			50%			50%		
Max. Operation Rate — Ops/Hour	12,000			12,000			12,000			12,000			12,000		
Pick-Up Time (mS)	12			20			20			20			20		
Drop-Out Time (mS)	12			14			14			14			14		
Coil Operating Range % of Rated Voltage	-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%		
DC Magnet Coil Data	For DC Magnet Coils (and coil data), see Accessories Page 34-50.														
Mechanical Life	20,000,000			10,000,000			10,000,000			10,000,000			10,000,000		
Electrical Life (440/460V)															
AC-3	1,500,000			1,400,000			1,500,000			1,600,000			1,600,000		
AC-4	55,000			70,000			75,000			40,000			32,000		
AWG Wire Range															
Power Terminals	8 – 16 Stranded 10 – 14 Solid Cu			2 – 14 (Upper) and/or 6 – 14 (Lower) Stranded or Solid Cu			2 – 14 (Upper) and/or 6 – 14 (Lower) Stranded or Solid Cu			2 – 14 (Upper) and/or 6 – 14 (Lower) Stranded or Solid Cu			2 – 14 (Upper) and/or 6 – 14 (Lower) Stranded or Solid Cu		
Control Terminals	12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu			12 – 16 Stranded 12 – 14 Solid Cu		
Power Terminal Torque — lb-in	15			40 (14 – 8 AWG) 45 (6 – 4 AWG) 50 (3 AWG)			40 (14 – 8 AWG) 45 (6 – 4 AWG) 50 (3 AWG)			40 (14 – 8 AWG) 45 (6 – 4 AWG) 50 (3 AWG)			40 (14 – 8 AWG) 45 (6 – 4 AWG) 50 (3 AWG)		
Contact Kit Part No.	None			6-65-4			6-65-6			6-65-8			6-65-17		
Auxiliary Contact Ratings ②	A600, P300, AC-15, DC-13														

① Without optional IP20 finger shields.

② See Pages 34-48 – 34-49 for ratings.

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Table 34-81. Specifications — IEC Sizes L – R

Description	Contactor Catalog Number/Size														
	CE15L IEC Size L			CE15M IEC Size M			CE15N IEC Size N			CE15P IEC Size P			CE15R IEC Size R		
Configuration: Number of Poles Aux. Contacts, Std. Add-On Aux. Contacts Frame Size	2, 3 Side NO (1) Left Side (4) or Right (3) 90 mm			2, 3 Side NO (1) Left Side (4) or Right (3) 90 mm			2, 3 Side NO (1) Left Side (4) or Right (3) 90 mm			3 Side NO-NC (1) Left Side (2) or Right (4) 180 mm			3 Side NO-NC (1) Left Side (2) or Right (4) 180 mm		
Finger Protection ①	IP10									IP00					
Insulation Voltage (Ui)	690V														
Impulse Withstand Voltage (Uimp)	6 kV														
Current Ratings (I) IEC 947-4-1 AC-1 Thermal Current Ith 230-380-460-575V	100 Amperes			135 Amperes			175 Amperes			185 Amperes			220 Amperes		
	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I	kW	hp	I
AC-3 (Ie) 230V 380V 460V 575V	22 45 45 55	30 — 60 75	86A 86A 86A 81A	30 55 55 75	40 — 75 100	106A 106A 106A 105A	37 75 75 90	50 — 100 125	140A 140A 140A 105A	45 90 90 90	60 — 125 125	170A 170A 170A 130A	55 110 110 110	75 — 150 150	200A 200A 200A 160A
AC-4 (Ie) 230V 380V 460V 575V	— — — —	20 — 40 40	68A 73A 65A 55A	— — — —	25 — 50 50	86A 86A 86A 55A	— — — —	30 — 60 75	106a 106A 106A 81A	37 65 65 65	— — — —	128A 128A 128A 98A	45 75 75 75	— — — —	150A 140A 140A 105A
AC Magnet Coil Data Pick-Up Volts — Cold Pick-Up Volts — Hot Pick-Up Voltamperes Pick-Up Watts Sealed Voltamperes	72% 76% 390 112 49.8			72% 76% 390 112 49.8			72% 76% 390 112 49.8			72.5% 76% 1040 216 116			72.5% 76% 1040 216 116		
Sealed Watts Drop-Out Volts — Cold Drop-Out Volts — Hot Max. Operation Rate — Ops/Hour Pick-Up Time (mS) Drop-Out Time (mS)	13 50% 52% 7,200 14 11			13 50% 52% 7,200 14 11			13 50% 52% 7,200 14 11			17 54% 56% 2,400 23 15			17 54% 56% 2,400 23 15		
Coil Operating Range % of Rated Voltage	-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%		
DC Magnet Coil Data	For DC Magnet Coils (and coil data), see Accessories Page 34-50.														
Mechanical Life	6,000,000			6,000,000			5,000,000			5,000,000			5,000,000		
Electrical Life (440/460V) AC-3 AC-4	420,000 41,000			420,000 37,000			510,000 36,000			500,000 58,000			400,000 56,000		
AWG Wire Range Power Terminals Control Terminals	1/0 – 14 Cu 12 – 16 Stranded 12 – 14 Solid Cu			2/0 – 14 Cu/Al 12 – 16 Stranded 12 – 14 Solid Cu			3/0 – 8 Cu/Al 12 – 16 Stranded 12 – 14 Solid Cu			350 kcmil – 6 12 – 16 Stranded 12 – 14 Solid Cu			350 kcmil – 6 12 – 16 Stranded 12 – 14 Solid Cu		
Power Terminal Torque — lb-in	35 (14 – 10 AWG) 40 (8 AWG) 45 (6 – 4 AWG) 50 (3 – 1/0 AWG)			40 (8 AWG) 45 (6 – 4 AWG) 50 (3 – 1/0 AWG)			200			375			375		
Contact Kit Part No.	6-43-4			6-43-2			6-43-6			6-294			6-288		
Auxiliary Contact Ratings ②	A600, P300, AC-15, DC-13														

① Without optional IP20 finger shields.

② See Pages 34-48 – 34-49 for ratings.

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Table 34-82. Specifications — IEC Sizes S – V

Description	Contactor Catalog Number/Size											
	CE15S IEC Size S			CE15T IEC Size T			CE15U IEC Size U			CE15V IEC Size V		
Configuration: Number of Poles Aux. Contacts, Std. Add-On Aux. Contacts Frame Size	3 Side NO-NC (1) Left Side (2) or Right (4) 180 mm			3 Top Left 2NO-2NC (1) Top Right 2NO-2NC (1) 220 mm			3 Top Left 2NO-2NC (1) Top Right 2NO-2NC (1) 220 mm			3 Top Left 2NO-2NC (1) Top Right 2NO-2NC (1) 280 mm		
Finger Protection ①	IP00											
Insulation Voltage (Ui)	690V			1000V								
Impulse Withstand Voltage (Uimp)	6 kV			N/A								
Current Ratings (I) IEC 947-4-1 AC-1 Thermal Current Ith 230-380-460-575V	315 Amperes			600 Amperes, 1000V			760 Amperes, 1000V			1000 Amperes, 1000V		
	kW	hp	I	kW	I	hp/V	kW	I	hp/V	kW	I	hp/V
AC-3 (Ie) 230V 380V 460V 575V	90 160 160 160	100 — 200 200	300A 300A 300A 210A	129 220 240 300 300 220	450A 450A 450A 420A 350A 170A	— — — — — —	160 280 315 375 375 355	550A 550A 550A 520A 450A 260A	— — 150/200V 150/230V 350/460V 350/575V	220 375 400 500 500 500	700A 700A 700A 630A 630A 350A	— — 150/200V 200/230V 400/460V 400/575V
AC-4 (Ie) 230V 380V 460V 575V	50 90 90 110	— — — —	170A 170A 170A 160A	55 95 95 95 110	180A 180A 180A 140A 140A	— — — — —	60 105 105 100 132	200 200 200 145 145	— — — — —	65 110 110 105 140	220A 220A 220A 150A 150A	— — — — —
AC Magnet Coil Data Pick-Up Volts — Cold Pick-Up Volts — Hot Pick-Up Voltamperes Pick-Up Watts Sealed Voltamperes	72.5% 76% 1040 216 116			75% 75% 950 798 11			75% 75% 950 798 11			75% 75% 1600 1345 25		
Sealed Watts Drop-Out Volts — Cold Drop-Out Volts — Hot Max. Operation Rate — Ops/Hour Pick-Up Time (mS) Drop-Out Time (mS)	17 54% 56% 2,400 23 15			10 ③ ③ N/A 100 170			10 ③ ③ N/A 100 170			22 ③ ③ N/A 105 200		
Coil Operating Range % of Rated Voltage	-15% to +10%			-15% to +10%			-15% to +10%			-15% to +10%		
DC Magnet Coil Data	For DC Magnet Coils (and coil data), see Accessories Page 34-50.											
Mechanical Life	5,000,000			5,000,000			5,000,000			5,000,000		
Electrical Life (440/460V) AC-3 AC-4	300,000 52,000			420,000 4,200			420,000 4,200			420,000 4,200		
AWG Wire Range Power Terminals Control Terminals	350 kcmil – 6 12 – 16 Stranded 12 – 14 Solid Cu			(2) 600 kcmil – 2/0 12 – 16 Stranded 12 – 14 Solid Cu			(2) 600 kcmil – 2/0 12 – 16 Stranded 12 – 14 Solid Cu			(2) 750 kcmil – 3/0 12 – 16 Stranded 12 – 14 Solid Cu		
Power Terminal Torque — lb-in	375			375			375			550		
Contact Kit Part No.	6-286			6-621			6-622			6-601		
Auxiliary Contact Ratings ②	A600, P300, AC-15, DC-13											

① Without optional IP20 finger shields.

② See Pages 34-48 – 34-49 for ratings.

③ 20 – 30% of rated coil voltage.

Table 34-83. Specifications — IEC Sizes W – Z

Description	Contactor Catalog Number/Size								
	CE15W IEC Size W			CE15X IEC Size X			CE15Z IEC Size Z		
Configuration: Number of Poles Aux. Contacts, Std. Add-On Aux. Contacts Frame Size	3 Top Left 2NO-2NC (1) Top Right 2NO-2NC (1) 280 mm			3 Top Left 2NO-2NC (1) Top Right 2NO-2NC (1) 280 mm			3 Outside Left 2NO-1NC 6NO-7NC 334 mm		
Finger Protection	IP00								
Insulation Voltage (Ui)	1000V								
Impulse Withstand Voltage (Uimp)	N/A								
Current Ratings (I) IEC 947-4-1 AC-1 Thermal Current Ith 230-380-460-575V	1000 Amperes			1100 Amperes			1350 Amperes		
	kW	I	hp/V	kW	I	hp/V	kW	I	hp/V
AC-3 (Ie) 220/240V 380V 415/440V 500/550V 660V 1000V	220 375 400 500 500 500	700A 700A 650A 680A 515A —	250/230V — 500/460V 500/575V — —	270 475 500 600 600 550	850A 850A 820A — — —	300/230V — 600/460V 600/575V — —	380 650 700 840 — —	1180A — — — — —	450/230V — 900/460V 900/575V — —
AC-4 (Ie) 220/240V 380V 415/440V 500/550V 660V	65 110 110 105 140	220A 220A 220A 150A 150A	— — — — —	80 150 160 185 185	260A 280A 280A 265A 200A	— — — — —	132 220 230 257 257	425A 400A 400A 365A 280A	— — — — —
AC Magnet Coil Data Pick-Up Volts — Cold Pick-Up Volts — Hot Pick-Up Voltamperes Pick-Up Watts Sealed Voltamperes	75% 75% 1000 — 23			75% 75% 1000 — 23			75% 75% 2400 — 70		
Sealed Watts Drop-Out Volts — Cold Drop-Out Volts — Hot Max. Operation Rate — Ops/Hour Pick-Up Time (mS) Drop-Out Time (mS)	— ⓪ ⓪ — 100 150 – 1000			— ⓪ ⓪ — 100 150 – 1000			— ⓪ ⓪ — 100 25 – 50		
Coil Operating Range % of Rated Voltage	-15% to +10%								
Mechanical Life	10,000,000								
Electrical Life (440/460V) AC-3 AC-4				600,000 60,000			600,000 10,000		
AWG Wire Range Power Terminals Control Terminals	(2) 750 kcmil – 3/0 12 – 16 Stranded 12 – 14 Solid			(3) 750 kcmil – 3/0 12 – 16 Stranded 12 – 14 Solid			(4) 750 kcmil – 3/0 12 – 16 Stranded 12 – 14 Solid		
Power Terminal Torque — lb-in	550			550			500		
Contact Kit Part No.	6-601			6-613			6-571		
Auxiliary Contact Ratings	A600, P300, AC-15, DC-13								

⓪ 20 – 30% of rated coil voltage.

Table 34-84. Utilization Categories

The International Electrotechnical Commission (IEC) has developed utilization categories for contactors and auxiliary contacts. The categories describe the type of electrical load and the conditions for making and breaking the current.

Category	Typical Application
AC-1	Non-inductive or slightly inductive loads: Resistance furnaces, heating.
AC-2	Slip-ring motors: Starting, plugging. ②
AC-3	Squirrel cage motors: Starting, switching off motors during running (motors in most industrial applications typically fall into this category).
AC-4	Squirrel cage motors: Starting, plugging ②, inching ③ (very few applications in industry are totally AC-4).
AC-11	Control of alternating current electromagnetic circuits (auxiliary contacts).

② Plugging is stopping or reversing the motor rapidly by reversing the connections while the motor is running.

③ Inching or jogging is energizing the motor once or repeatedly for short durations to obtain small movements of the motor driven load.