

robusta (115A ~ 800A)

Contactors' Specifications, Spare Coils



LC1-FDP115A-XX

3 Pole Contactor (without AC or DC operating coil)

Maximum Current		Maximum HP Rating				Main Pole Configuration		Catalog Number
Inductive A	Resistive AC-3 A	200V	230V	480V	600V	NO	NC	
115	200	30	40	75	100	3	-	LC1-FDP115A-■
150	250	40	50	100	125	3	-	LC1-FDP150A-■
185	275	50	60	125	150	3	-	LC1-FDP185A-■
225	315	50	65	130	155	3	-	LC1-FDP225A-■
265	350	60	75	150	200	3	-	LC1-FDP265A-■
330	400	75	100	200	250	3	-	LC1-FDP330A-■
400	500	100	125	250	300	3	-	LC1-FDP400A-■
500	700	150	200	400	500	3	-	LC1-FDP500A-■
630	1000	250	300	600	800	3	-	LC1-FDP630A-■
780	1600	Current rated				3	-	LC1-FDP780A-■
800	1000	Current rated				3	-	LC1-FDP800A-■

Note : 115A - 630A (UL) & 115A - 780A (SP) approved (only for Standard Fault Ratings)

4 Pole Contactor (without AC or DC operating coil)



LC1-FDP1154A-XX

Maximum Current		Maximum HP 3 Phase				Main Pole Configuration		Catalog Number
Inductive A	Resistive AC-3 A	200V	230V	480V	600V	NO	NC	
115	200	30	40	75	100	4	-	LC1-FDP1154A■
150	250	40	50	100	125	4	-	LC1-FDP1504A■
185	275	50	60	125	150	4	-	LC1-FDP1854A■
225	315	50	65	130	155	4	-	LC1-FDP2254A■
265	350	60	75	150	200	4	-	LC1-FDP2654A-■
330	400	75	100	200	250	4	-	LC1-FDP3304A-■
400	500	100	125	250	300	4	-	LC1-FDP4004A-■
500	700	150	200	400	500	4	-	LC1-FDP5004A■
630	1000	250	300	600	800	4	-	LC1-FDP6304A■
780	1600	Current Rated				4	-	LC1-FDP7804A■

- If Contactors are required with coil replace ■ with coil codes given below
- 4P Contactors' (UL)/(SP) listing under process

Coils (Replace ■ with coil code)

For Contactors	Catalog Number	
	AC	DC
F115A - F150	LX1FFXX	LX4FFXX
F185 - F225	LX1FGXX	LX4FGXX
F265 - F330	LX1FH.2XX	LX4FHXX
F400	LX1FJXX	LX4FJXX
F500	LX1FKXX(3P)LX1FLXX(4P)	LX4FKXX(3P)LX4FLXX(4P)
F630	LX1FLXX	LX4FLXX
F780	LX1FXXX	LX4FXXX
F800	LX4F8XX	LX4F8XX

Replace XX with voltage rating from Table -9 for AC Coil & from table 10 for DC Coil

Table-9: XX-AC Coil Voltages

Contactor	Volts AC	24	48	110	115	120	127	200	208	220	230	240	277	380	400	415	440	480	500	600	660
F115, F150	50 Hz	✓	✓	✓	x	x	✓	x	x	✓	✓	✓	x	✓	✓	✓	✓	x	✓	✓	x
F185, F225	60 Hz	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓
F265, F330	40-400Hz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	x	✓	x	✓	✓	✓	x
F400, F500, F630	40-400Hz	x	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x
F780	40-400Hz	x	✓	x	x	✓	x	x	x	✓	x	✓	x	x	x	✓	x	✓	x	x	x
F800	40-400Hz	x	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x

- If 24V, 50Hz Coil is required, replace XX with 24V, 50Hz

Table-10: XX-DC Coil Voltages

Volt DC	24	48	110	120	125	220	240	250	440
F115, F150, F185	✓	✓	✓	x	✓	✓	x	✓	✓
F225, F265, F330	✓	✓	✓	x	✓	✓	x	✓	✓
F115, F150, F185	✓	✓	✓	x	✓	✓	x	✓	✓
F400, F500	✓	✓	✓	x	✓	✓	x	✓	✓
F630	x	✓	✓	x	✓	✓	x	✓	✓
F780	x	x	✓	✓	x	✓	✓	✓	✓
F800	x	x	✓	✓	x	✓	✓	✓	✓

Note : Protected shrouds for main poles available & to be ordered separately from page B-25



LX1-FF-XX

robusta (115A ~ 800A)

3 & 4 Pole Contactors Characteristics

General Characteristics

Type		Unit	LC1-FDP115A-800A, LC1FDP1154A-8004A
Rated Insulation Voltage (Ui)			
	IEC 60947-4-1	V	1500
Conforming to Standards			NFCEN60947, VDE0660, BSEN60947, JEM1038, IEC60947-1 & IEC60947-4
Approvals			UL*, CSA, IEC
Protective treatment	Standard Version		"TH"
Ambient air temperature	Storage	°C	-60 to +80
(around the device)	Operation	°C	-5 to +55 (0.8 to 1.1 Uc)
	Permissible	°C	-50 to +70, for operation at Uc
Maximum operating altitude	Without derating	Mtr.	3000
Operating position	Without derating		+30° possible, in relation to normal vertical mounting plane

* 4 Pole contactor under U_L approval

Pole Characteristics

TYPE	LC1-FDP	UNIT	115A	150A	185A	225A	265A	330A	400A	500A	630A	780A	800A
Number of Poles (Power)			3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4
Rated current (Ie) in AC-3 $\theta < 55^\circ\text{C}$		A	115	150	185	225	265	330	400	500	630	780	800
Rated operating voltage upto		V	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency limits of the operating current		Hz	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200
Rated thermal current (Ith) $\theta < 40^\circ\text{C}$		A	200	250	275	315	350	400	500	700	1000	1600	1000
Rated making capacity I _{ms} conforming to IEC-60947-4		A	1300	1700	2100	2460	2940	3600	4500	5550	6740	8550	-
Rated breaking capacity I _{ms} conforming to IEC-60947-4	220-440V	A	1300	1500	1800	2050	2450	3000	4000	5000	6300	7100	-
	500V	A	1100	1200	1600	1850	2200	2810	3500	4500	5400	6100	-
	690V	A	900	1100	1200	1350	1700	2350	3050	3560	4600	5200	-
Average impedance per pole at Ith & 50 Hz		MILLI Ω	0.4	0.4	0.36	0.36	0.32	0.28	0.28	0.18	0.12	0.1	0.12
Power dissipation per pole for above operational current AC-3		W	6	9	12	18	22	31	45	45	48	60	48
Tightening Torque	Power Circuit	Nm	10	18	18	35	35	35	35	35	58	58	58
Cabling			Maximum CSA										
No. of Bars			2	2	2	2	2	2	2	2	2	2	2
Bar		mm	20x3	25x3	25x3	32x4	32x4	30x5	30x5	40x5	60x5	100x5	60x5
Cable with Lug		mm	95	120	150	185	240	240	2x150	2x240	-	-	-
Cable with connector		Sqmm	95	120	150	185	240	-	-	-	-	-	-
Bolt Diameter		Sqmm	6	8	8	10	10	10	10	10	12	2xDia 14	12

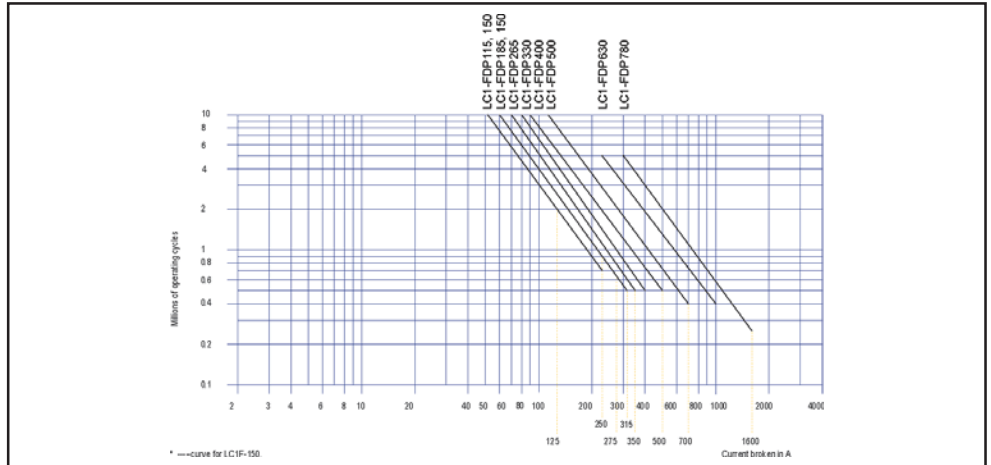
Control Circuit Characteristics

TYPE (LC1-F)		UNIT	115A	150A	185A	225A	265A	330A	400A	500A	630A	780A	800A		
Rated control circuit voltage (Uc)	50 or 60 Hz	V	24...600									48...600	48...600	110...500	48...600
Control voltage limits	Operational		0.85 - 1.10Uc									0.85-1.10Uc	0.85-1.10Uc	0.85-1.10Uc	0.85-1.10Uc
Temperature $\theta < 55^\circ\text{C}$	Drop out		0.35 - 0.55Uc									0.3-0.5Uc	0.25-0.5Uc	0.2-0.4Uc	0.25-0.5Uc
Average consumption at 20 °C and at Uc, 50/60 Hz coil	Operational														
Average consumption at 20 °C and at Uc, AC 50 / 60Hz	In rush 50 Hz coil	VA	550	550	805	805	1200	700	1075	1100	1650	2100	1900		
	In rush 60 Hz coil	VA	660	660	970	970	1445	700	1075	1100	1650	2100	1900		
	In rush 40 - 400 Hz coil	VA	-	-	-	-	700	700	1075	1100	1650	2100	1900		
	In rush Cos ϕ		0.28	0.28	0.3	0.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
	Sealed 50 Hz coil	VA	45	45	55	55	95	10	15	18	22	50	15		
	Sealed 60 Hz coil	VA	55	55	66	66	110	10	15	18	22	50	15		
	Sealed 40 - 400 Hz coil	VA	-	-	-	-	10	10	15	18	22	50	22		
	Sealed Cos ϕ		0.28	0.28	0.3	0.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
Average operating time at Uc	Closing time "C"	msec	23-35	23-35	20-35	20-35	30-65	30-65	40-75	40-75	40-80	40-80	40-80		
	Opening time "O"	msec	5-15	5-15	7-15	7-15	100-170	100-170	100-170	100-170	100-200	130-230	100-200		
Mechanical life Uc (Mechanical durability) in millions of operating cycles	50 or 60 Hz coil	Cycles	10	10	10	10	10	10	10	10	5	5	5		
	50/60 Hz coil	Cycles	10	10	10	10	10	10	10	10	5	5	5		
Maximum operating rate	In operating cycle/hour		2400	2400	2400	2400	2400	2400	2400	2400	1200	600	1200		
Tightening Torque	Power Circuit Connection	Nm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2		
Cabling			Minimum / Maximum C.S.A												
Flexible Cable without cable end	1 or 2 Conductors	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4		
Flexible Cable with end	1 Conductor	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4		
Flexible Cable with end	2 Conductors	Sqmm	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5		
Solid Cable without cable end	1 or 2 Conductors	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4		

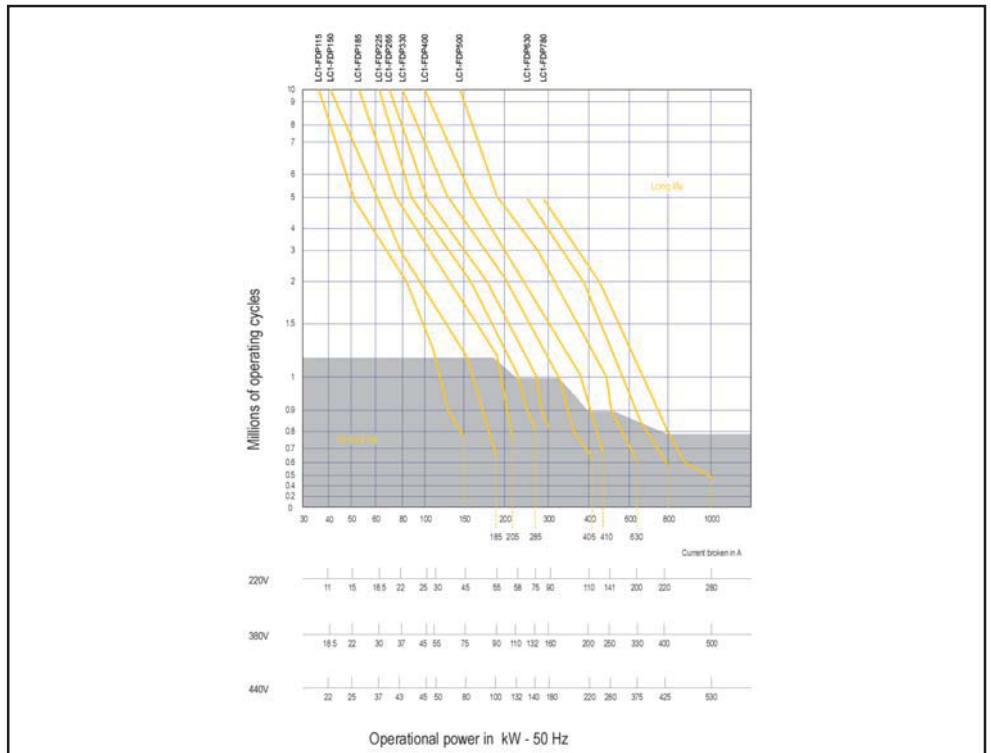
B

Contactors' Selection Guide (according to the required electrical life)

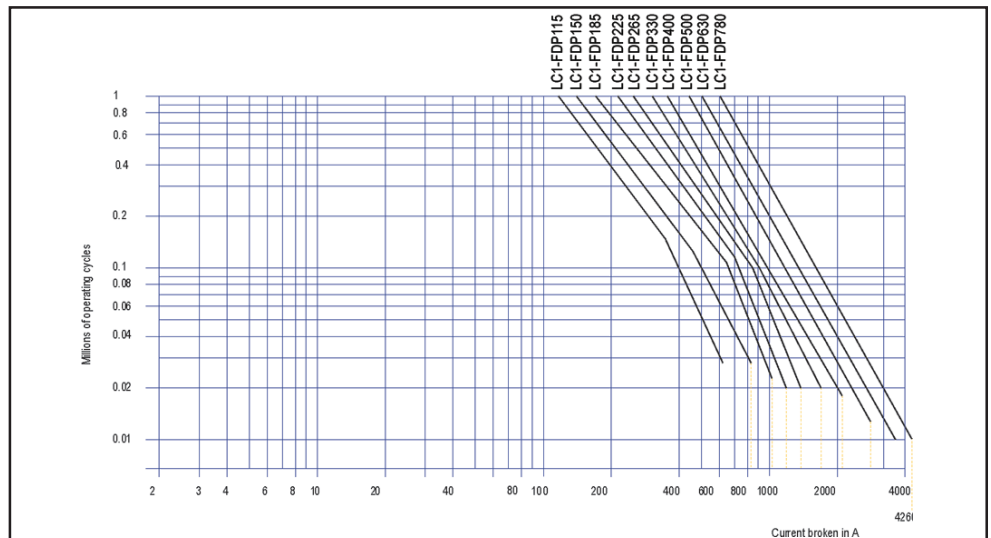
Use in Category AC-1 ($U_e < 440V$). Control of resistive circuits ($\cos \phi > 0.95$). The current broken (I_c) in category AC-1 is equal to the current (I_e) normally drawn by the load.



Use in Category AC-3 ($U_e < 440V$). Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor running. The current broken (I_c) in category AC-3 is equal to the current (I_e) normally drawn by the load.



Use in Categories AC-2, AC-4 ($U_e < 440V$). Control of 3-phase asynchronous squirrel cage (AC-4) or slip ring (AC-2) motors with breaking whilst motor stalled. The current broken in category AC-4 is equal to $6 \times I_e$. (I_e =rated operational current of the motor).

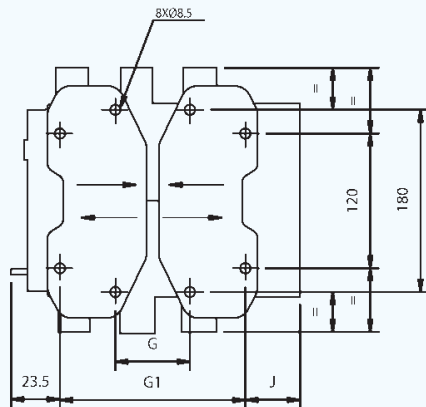
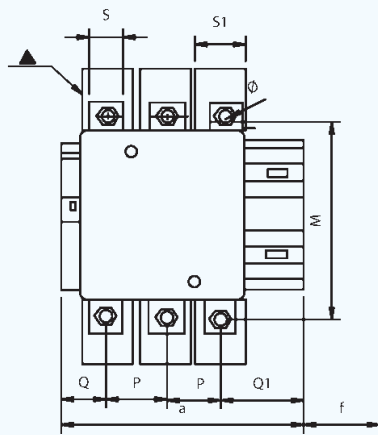
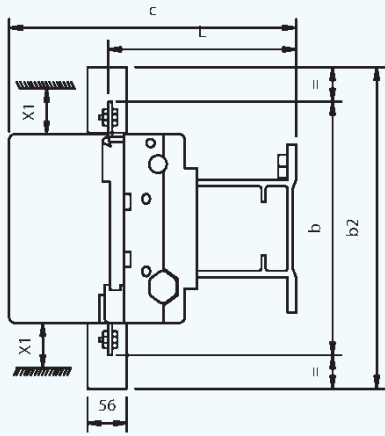


robusta (115A ~ 800A)

Contactors' Dimensions with AC/DC operating coil

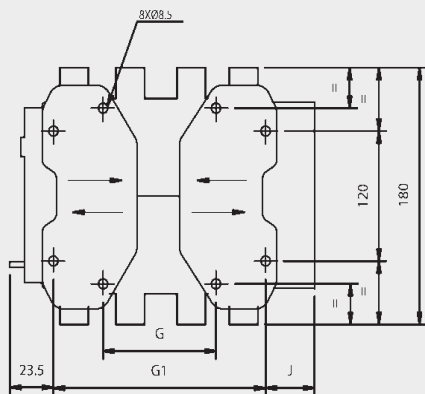
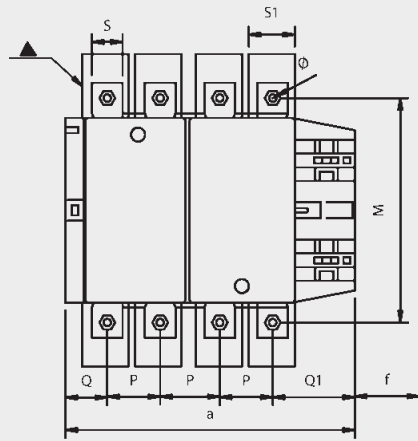
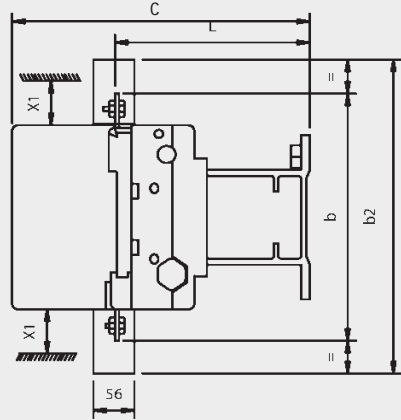
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LC1-FDP400A/LC1-FDP500A



f: minimum distance required for coil removal.
▲ Power terminal protection shroud

LC1-FDP4004A



LC1-	a	b	b1	b2	c	f	G*	Gmin	Gmax	G1*	G1min	G1max	J	L	M	P	Q	Q1	S	S1
FDP400A	211	206	209	375	220	119	170	66	102	170	156	192	19.5	145	181	48	43	74	25	44.5
FDP4004A	261	206	209	375	220	119	170	66	150	170	156	240	67.5	145	181	48	43	74	25	44.5
FDP500A	231	238	209	400	235	141	170	66	120	170	156	210	39.5	146	205	55	46	77	30	44.5

X1(mm) = Minimum electrical clearance according to operating voltage & breaking capacity		
LC1-	200 to 500V	600 to 1000V
FDP400A	15	20
FDP500A	15	20