

## Operational current and power conforming to IEC ( $\theta \leq 60^\circ\text{C}$ )

Contactor size			LC1/ LP1 K06	LC1/ LP1 K09	LC1 K12	LC1 K16	LC1 D09	LC1 D12	LC1 D18	LC1 D25	LC1 D32	LC1 D38	LC1 D40A
Maximum operational current in AC-3	$\leq 440\text{ V}$	<b>A</b>	6	9	12	16	9	12	18	25	32	38	40
Rated operational power P (standard motor power ratings)	220/240 V	<b>kW</b>	1.5	2.2	3	3	2.2	3	4	5.5	7.5	9	11
	380/400 V	<b>kW</b>	2.2	4	5.5	7.5	4	5.5	7.5	11	15	18.5	18.5
	415 V	<b>kW</b>	2.2	4	5.5	7.5	4	5.5	9	11	15	18.5	22
	440 V	<b>kW</b>	3	4	5.5	7.5	4	5.5	9	11	15	18.5	22
	500 V	<b>kW</b>	3	4	4	5.5	5.5	7.5	10	15	18.5	18.5	22
	660/690 V	<b>kW</b>	3	4	4	4	5.5	7.5	10	15	18.5	18.5	30
	1000 V	<b>kW</b>	–	–	–	–	–	–	–	–	–	–	–

## Maximum operating rate in operating cycles/hour (1)

On-load factor	Operational power	LC1 D09	LC1 D12	LC1 D18	LC1 D25	LC1 D32	LC1 D38	LC1 D40A				
$\leq 85\%$	P	–	–	–	–	1200	1200	1200	1000	1000	1000	
	0.5 P	–	–	–	–	3000	3000	2500	2500	2500	2500	
$\leq 25\%$	P	–	–	–	–	1800	1800	1800	1800	1200	1200	1200

## Operational current and power conforming to UL, CSA ( $\theta \leq 60^\circ\text{C}$ )

Contactor size			LC1/ LP1 K06	LC1/ LP1 K09	LC1/ LP1 K12	LC1 D09	LC1 D12	LC1 D18	LC1 D25	LC1 D32	LC1 D38	LC1 D40A
Maximum operational current in AC-3	$\leq 440\text{ V}$	<b>A</b>	6	9	12	9	12	18	25	32	–	40
Rated operational power P (standard motor power ratings 60 Hz)	200/208 V	<b>HP</b>	1.5	2	3	2	3	5	7.5	10	–	10
	230/240 V	<b>HP</b>	1.5	3	3	2	3	5	7.5	10	–	10
	460/480 V	<b>HP</b>	3	5	7.5	5	7.5	10	15	20	–	30
	575/600 V	<b>HP</b>	3	5	10	7.5	10	15	20	25	–	30

(1) Depending on the operational power and the on-load factor ( $\theta \leq 60^\circ\text{C}$ ).

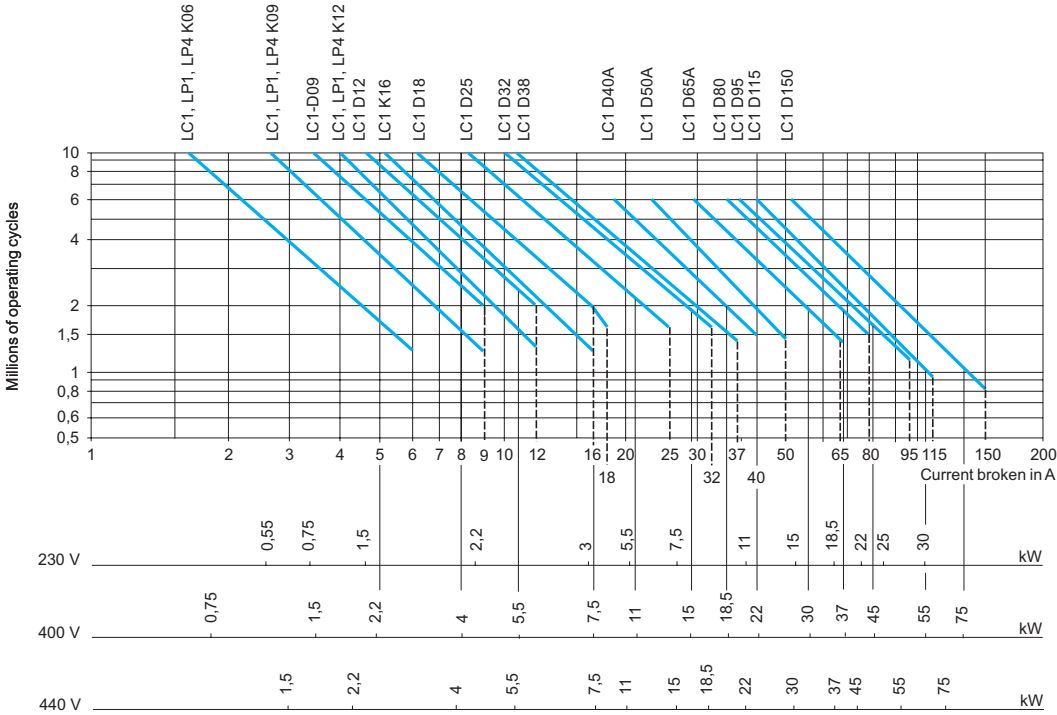
LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
50	65	80	95	115	150	185	225	265	330	400	500	630	780	800	750	1000	1500	1800
15	18,5	22	25	30	40	55	63	75	100	110	147	200	220	250	220	280	425	500
22	30	37	45	55	75	90	110	132	160	200	250	335	400	450	400	500	750	900
25	37	45	45	59	80	100	110	140	180	220	280	375	425	450	425	530	800	900
30	37	45	45	59	80	100	110	140	200	250	295	400	425	450	450	560	800	900
30	37	55	55	75	90	110	129	160	200	257	355	400	450	450	500	600	750	900
33	37	45	45	80	100	110	129	160	220	280	335	450	475	475	560	670	750	900
-	-	45	45	65	75	100	100	147	160	185	335	450	450	450	530	530	670	750

LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
1000	1000	750	750	750	750	750	750	750	750	500	500	500	500	500	120	120	120	120
2500	2500	2000	2000	2000	1200	2000	2000	2000	2000	1200	1200	1200	1200	600	120	120	120	120
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	600	600	120	120	120	120

LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800
50	65	80	95	115	150	185	225	265	330	400	500	630	780	800
15	20	30	30	30	40	50	60	60	75	100	150	250	-	350
15	20	30	30	40	50	60	75	75	100	125	200	300	450	400
40	40	60	60	75	100	125	150	150	200	250	400	600	900	900
40	50	60	60	100	125	150	150	200	250	300	500	800	-	900

**Selection according to required electrical durability, in category AC-3 ( $U_e \leq 440$  V)**

Control of 3-phase asynchronous squirrel cage motors with breaking whilst running.  
 The current broken ( $I_c$ ) in category AC-3 is equal to the rated operational current ( $I_e$ ) of the motor.



Operational power in kW-50 Hz.

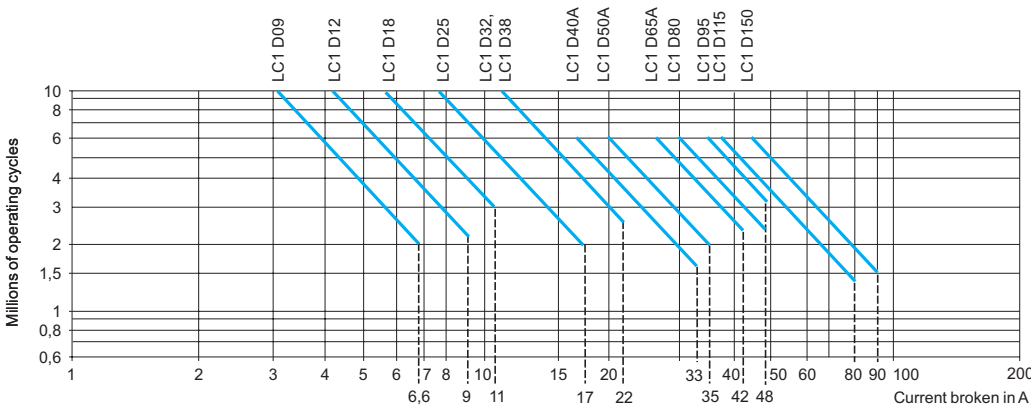
**Example:**

Asynchronous motor with  $P = 5.5$  kW -  $U_e = 400$  V -  $I_e = 11$  A -  $I_c = I_e = 11$  A  
 or asynchronous motor with  $P = 5.5$  kW -  $U_e = 415$  V -  $I_e = 11$  A -  $I_c = I_e = 11$  A  
 3 million operating cycles required.

The above selection curves show the contactor rating needed: LC1 D18.

**Selection according to required electrical durability, in category AC-3 ( $U_e = 660/690$  V) (1)**

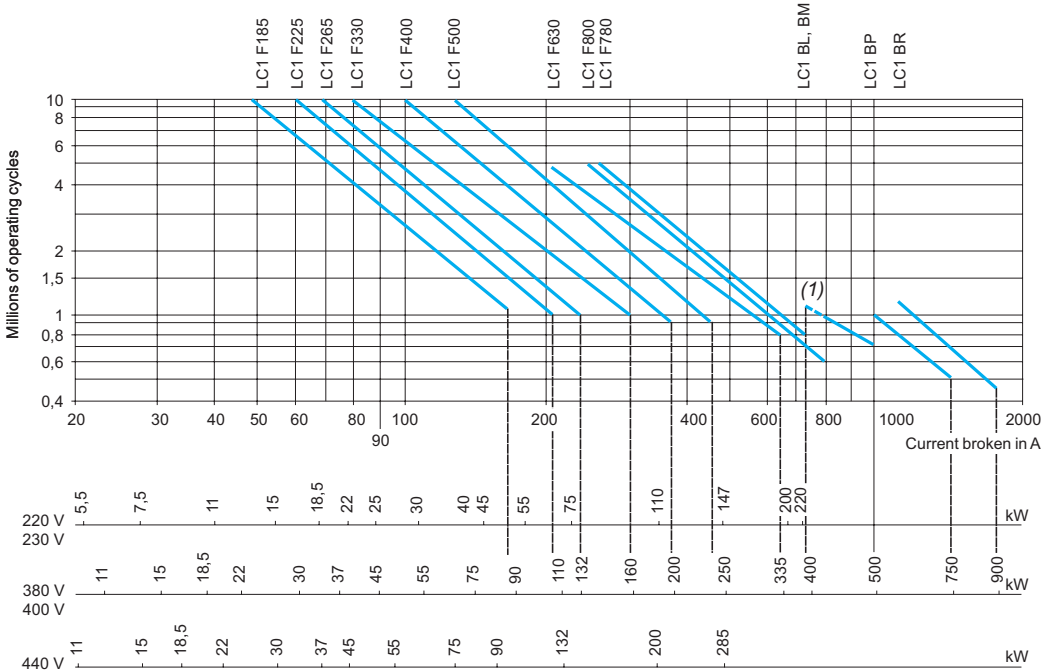
Control of 3-phase asynchronous squirrel cage motors with breaking whilst running.  
 The current broken ( $I_c$ ) in category AC-3 is equal to the rated operational current ( $I_e$ ) of the motor.



(1) For  $U_e = 1000$  V, use the 660/690 V curves, but do not exceed the operational current at the operational power indicated for 1000 V.

### Selection according to required electrical durability, in category AC-3 ( $U_e \leq 440$ V)

Control of 3-phase asynchronous squirrel cage motors with breaking whilst running.  
The current broken ( $I_c$ ) in category AC-3 is equal to the rated operational current ( $I_e$ ) of the motor.



Operational power in kW-50 Hz.

**Example:**

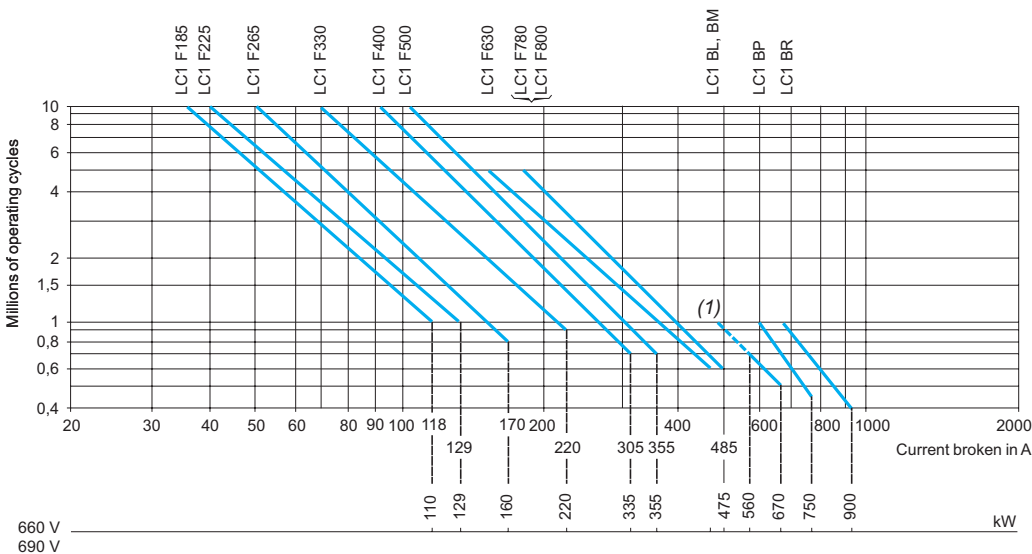
Asynchronous motor with  $P = 132$  kW -  $U_e = 380$  V -  $I_e = 245$  A -  $I_c = I_e = 245$  A  
or asynchronous motor with  $P = 132$  kW -  $U_e = 415$  V -  $I_e = 240$  A -  $I_c = I_e = 240$  A  
1.5 million operating cycles required.

The above selection curves show the contactor rating needed: LC1 F330.

(1) The dotted lines are only applicable to LC1 BL contactors.

### Selection according to required electrical durability, in category AC-3 ( $U_e = 660/690$ V)

Control of 3-phase asynchronous squirrel cage motors with breaking whilst running.  
The current broken ( $I_c$ ) in category AC-3 is equal to the rated operational current ( $I_e$ ) of the motor.



**Example:**

Asynchronous motor with  $P = 132$  kW -  $U_e = 660$  V -  $I_e = 140$  A -  $I_c = I_e = 140$  A  
1.5 million operating cycles required.

The above selection curves show the contactor rating needed: LC1 F330.

(1) The dotted lines are only applicable to LC1 BL contactors.

### Maximum operational current (open-mounted device)

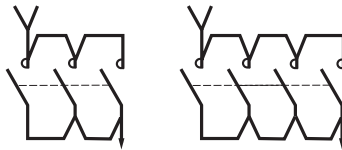
Contactor size		LC1/ LP1 K09	LC1/ LP1 K12	LC1 D09	LC1 DT20	LC1 D12 DT25	LC1 D18 DT32	LC1 D25 DT40	LC1 D32	LC1 D38	LC1 D40A DT60A	
Maximum operating rate in operating cycles/hour		600	600	600	600	600	600	600	600	600	600	
Connection conforming to IEC 60947-1	Cable c.s.a. <b>mm<sup>2</sup></b>	4	4	4	4	4	6	6	10	10	35	
	Bar c.s.a. <b>mm</b>	-	-	-	-	-	-	-	-	-	-	
Operational current in AC-1 in A, according to the ambient temperature conforming to IEC 60947-1	≤ 40 °C	<b>A</b>	20	20	25	20	25	32	40	50	50	60
	≤ 60 °C	<b>A</b>	20	20	25	20	25	32	40	50	50	60
	≤ 70 °C	<b>A (at UC)</b>	(1)	(1)	17	(1)	17	22	28	35	35	42
Maximum operational power ≤ 60 °C	220/230 V	<b>kW</b>	8	8	9	8	9	11	14	18	18	21
	240 V	<b>kW</b>	8	8	9	8	9	12	15	19	19	23
	380/400 V	<b>kW</b>	14	14	15	14	15	20	25	31	31	37
	415 V	<b>kW</b>	14	14	17	14	17	21	27	34	34	41
	440 V	<b>kW</b>	15	15	18	15	18	23	29	36	36	43
	500 V	<b>kW</b>	17	17	20	17	20	23	33	41	41	49
	660/690 V	<b>kW</b>	22	22	27	22	27	34	43	54	54	65
	1000 V	<b>kW</b>	-	-	-	-	-	-	-	-	-	-

(1) Please consult your Regional Sales Office.

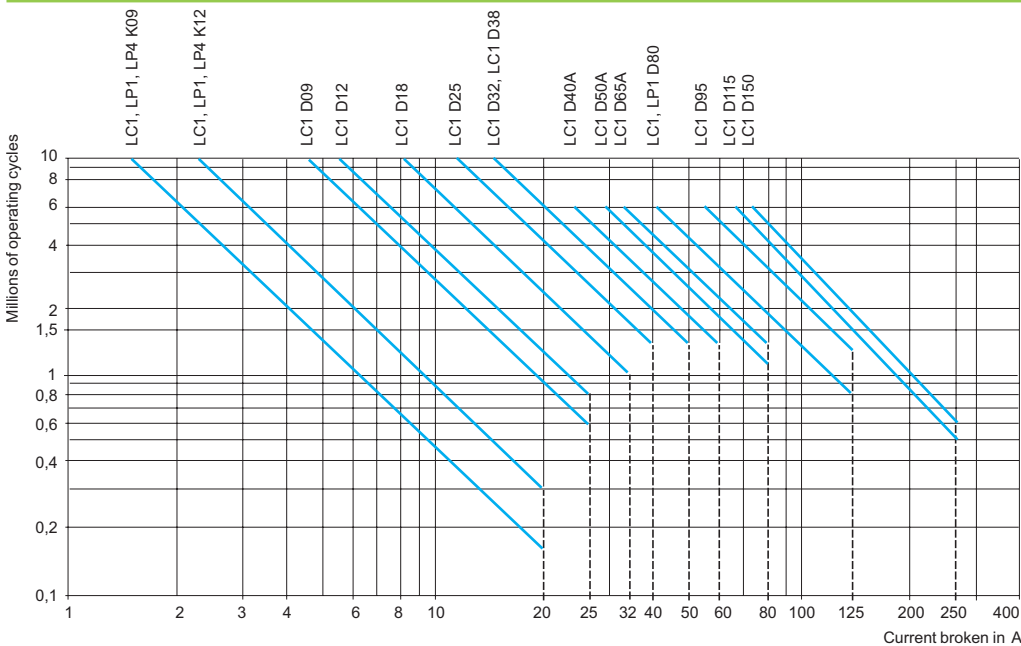
### Increase in operational current by parallel connection of poles

Apply the following coefficients to the currents or power values given above; these coefficients take into account an often unbalanced current distribution between the poles:

- 2 poles in parallel: K = 1.6
- 3 poles in parallel: K = 2.25
- 4 poles in parallel: K = 2.8



### Selection according to required electrical durability, in category AC-1 (U<sub>e</sub> ≤ 440 V)



Control of resistive circuits (cos φ ≥ 0.95).

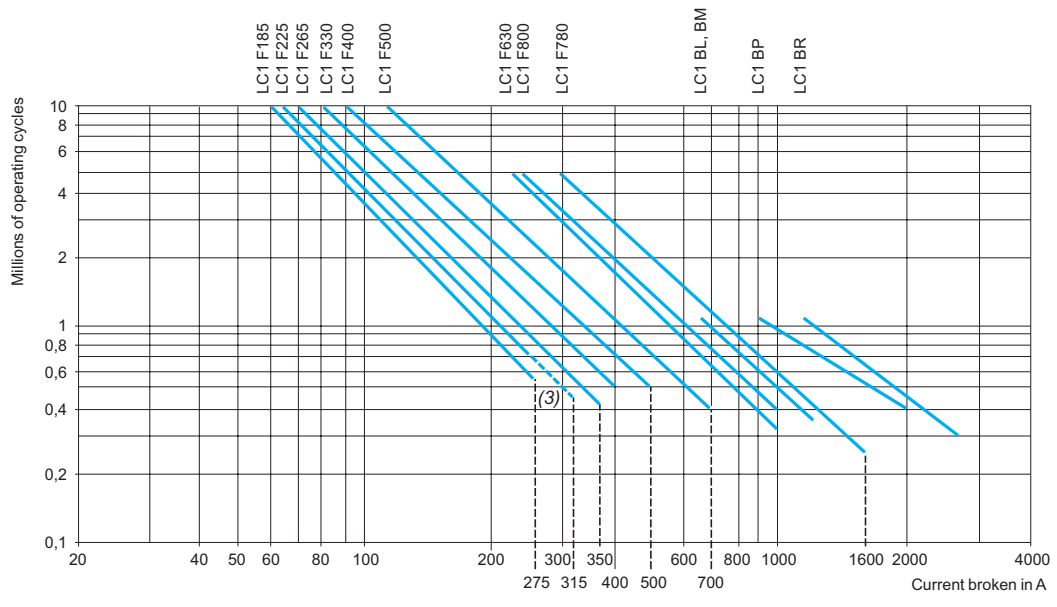
The current broken (I<sub>c</sub>) in category AC-1 is equal to the current (I<sub>e</sub>) normally drawn by the load.

**Example:**

- U<sub>e</sub> = 220 V - I<sub>e</sub> = 50 A θ ≤ 40 °C - I<sub>c</sub> = I<sub>e</sub> = 50 A.
- 2 million operating cycles required.
- The above selection curves show the contactor rating needed: either LC1 or LP1 D50.

LC1 D50A	LC1 D65A DT80A D80	LC1/ LP1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 F1700	LC1 F2100	LC1 BL	LC1 BM	LC1 BP	LC1 BR
600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	200	200	120	120	120	120
35	35	50	50	120	120	150	185	185	240	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	2 30 x 5	2 40 x 5	2 60 x 5	2 100 x 5	2 60 x 5	3 100 x 5	4 100 5	2 50 x 5	2 80 x 5	2 100 x 5	2 100 x 10
80	80	125	125	250	250	275	315	350	400	500	700	1000	1600	1000	1700	2100 (2)	800	1250	2000	2750
80	80	125	125	200	200	275	280	300	360	430	580	850	1350	850	1450	1750	700	1100	1750	2400
56	56	80	80	160	160	180	200	250	290	340	500	700	1100	700	-	-	600	900	1500	2000
29	29	45	45	80	80	90	100	120	145	170	240	350	550	350	570	700	300	425	700	1000
31	31	49	49	83	83	100	110	125	160	180	255	370	570	370	600	780	330	450	800	1100
50	50	78	78	135	135	165	175	210	250	300	430	600	950	600	1000	1200	500	800	1200	1600
54	54	85	85	140	140	170	185	220	260	310	445	630	1000	630	1050	1300	525	825	1250	1700
58	58	90	90	150	150	180	200	230	290	330	470	670	1050	670	1100	1350	550	850	1400	2000
65	65	102	102	170	170	200	220	270	320	380	660	750	1200	750	1250	1550	600	900	1500	2100
80	80	135	135	235	235	280	300	370	400	530	740	1000	1650	1000	1700	2100	800	1100	1900	2700
-	-	120	120	345	345	410	450	540	640	760	950	1500	2400	1500	2500	3100	1100	1700	3000	4200

(2) With set of right-angled connectors LA9 F2100.



**Example:**  
 ■  $U_e = 220\text{ V} - I_e = 500\text{ A} - \theta \leq 40\text{ }^\circ\text{C} - I_c = I_e = 500\text{ A}$ .  
 ■ 2 million operating cycles required.  
 ■ The above selection curves show the contactor rating needed: LC1 F780.

(3) The dotted lines are only applicable to LC1 F225.

## Maximum breaking current

Category AC-2: slip ring motors - breaking the starting current.  
 Category AC-4: squirrel cage motors - breaking the starting current.

Contactor size			LC1/ LP1 K06	LC1/ LP1 K09	LC1/ LP1 K12	LC1 D09	LC1 D12	LC1 D18	LC1 D25	LC1 D32	LC1 D38	LC1 D40A
In category AC-4 (Ie max)	Ue ≤ 440 V Ie max broken = 6 x I motor	A	36	54	54	54	72	108	150	192	192	240
	440 V < Ue ≤ 690 V Ie max broken = 6 x I motor	A	26	40	40	40	50	70	90	105	105	150

### Depending on the maximum operating rate (1) and the on-load factor, θ ≤ 60 °C (2)

From 150 and 15 % to 300 and 10 %	A	20	30	30	30	40	45	75	80	80	110
From 150 and 20 % to 600 and 10 %	A	18	27	27	27	36	40	67	70	70	96
From 150 and 30 % to 1200 and 10 %	A	16	24	24	24	30	35	56	60	60	80
From 150 and 55 % to 2400 and 10 %	A	13	19	19	19	24	30	45	50	50	62
From 150 and 85 % to 3600 and 10 %	A	10	16	16	16	21	25	40	45	45	53

(1) Do not exceed the maximum number of operating cycles..

(2) For temperatures higher than 60 °C, use a maximum operating rate value equal to 80% of the actual value when selecting from the tables.

## Counter current braking (plugging)

The current varies from the maximum plug-braking current to the rated motor current.  
 The making current must be compatible with the rated making and breaking capacities of the contactor.

As breaking normally takes place at a current value at or near the locked rotor current, the contactor can be selected using the criteria for categories AC-2 and AC-4.

## Permissible AC-4 power rating for 200 000 operating cycles

Operational voltage		LC●/ LP● K06	LC●/ LP● K09	LC● LP● K12	LC● D09	LC● D12	LC● D18	LC● D25	LC● D32	LC● D38	LC● D40A
220/230 V	kW	0.75	1.1	1.1	1.5	1.5	2.2	3	4	4	4
380/400 V	kW	1.5	2.2	2.2	2.2	3.7	4	5.5	7.5	7.5	9
415 V	kW	1.5	2.2	2.2	2.2	3	3.7	5.5	7.5	7.5	9
440 V	kW	1.5	2.2	2.2	2.2	3	3.7	5.5	7.5	7.5	11
500 V	kW	2.2	3	3	3	4	5.5	7.5	9	9	11
660/690 V	kW	3	4	4	4	5.5	7.5	10	11	11	15

LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F26	LC1 F330	LC1 F40	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
300	390	480	570	630	830	1020	1230	1470	1800	2220	2760	3360	4260	3690	4320	5000	7500	9000
170	210	250	250	540	640	708	810	1020	1410	1830	2130	2760	2910	2910	4000	4800	5400	6600
140	160	200	200	280	310	380	420	560	670	780	1100	1400	1600	1600	2250	3000	4500	5400
120	148	170	170	250	280	350	400	500	600	700	950	1250	1400	1400	2000	2400	3750	5000
100	132	145	145	215	240	300	330	400	500	600	750	950	1100	1100	1500	2000	3000	3600
80	110	120	120	150	170	240	270	320	390	450	600	720	820	820	1000	1500	2000	2500
70	90	100	100	125	145	170	190	230	290	350	500	660	710	710	750	1000	1500	1800

LC● D50A	LC● D65A	LC● D80	LC● D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
5.5	7.5	7.5	9	9	11	18.5	22	28	33	40	45	55	63	63	90	110	150	200
11	11	15	15	18.5	22	33	40	51	59	75	80	100	110	110	160	160	220	250
11	11	15	15	18.5	22	37	45	55	63	80	90	100	110	110	160	160	250	280
11	15	15	15	18.5	22	37	45	59	63	80	100	110	132	132	160	200	250	315
15	15	22	22	30	37	45	55	63	75	90	110	132	150	150	180	200	250	355
15	18.5	25	25	30	45	63	75	90	110	129	140	160	185	185	200	250	315	450

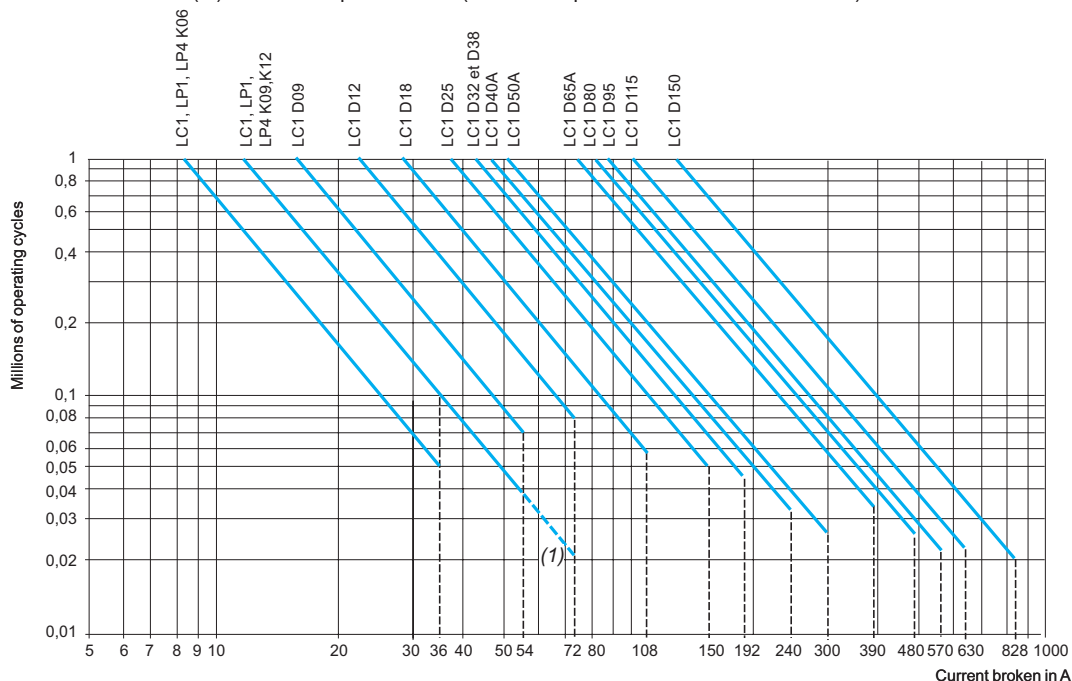


### Selection according to required electrical durability, in categories AC-2 or AC-4 ( $U_e \leq 440\text{ V}$ )

Control of 3-phase asynchronous squirrel cage motors (AC-4) or slip ring motors (AC-2) with breaking whilst motor stalled.

The current broken ( $I_c$ ) in AC-2 is equal to  $2.5 \times I_e$ .

The current broken ( $I_c$ ) in AC-4 is equal to  $6 \times I_e$ . ( $I_e$  = rated operational current of the motor).



5

**Example:**

- Asynchronous motor with  $P = 5.5\text{ kW}$  -  $U_e = 400\text{ V}$  -  $I_e = 11\text{ A}$ .  $I_c = 6 \times I_e = 66\text{ A}$
- or asynchronous motor with  $P = 5.5\text{ kW}$  -  $U_e = 415\text{ V}$  -  $I_e = 11\text{ A}$ .  $I_c = 6 \times I_e = 66\text{ A}$ .
- 200 000 operating cycles required.
- The above selection curves show the contactor rating needed: LC1 D25.

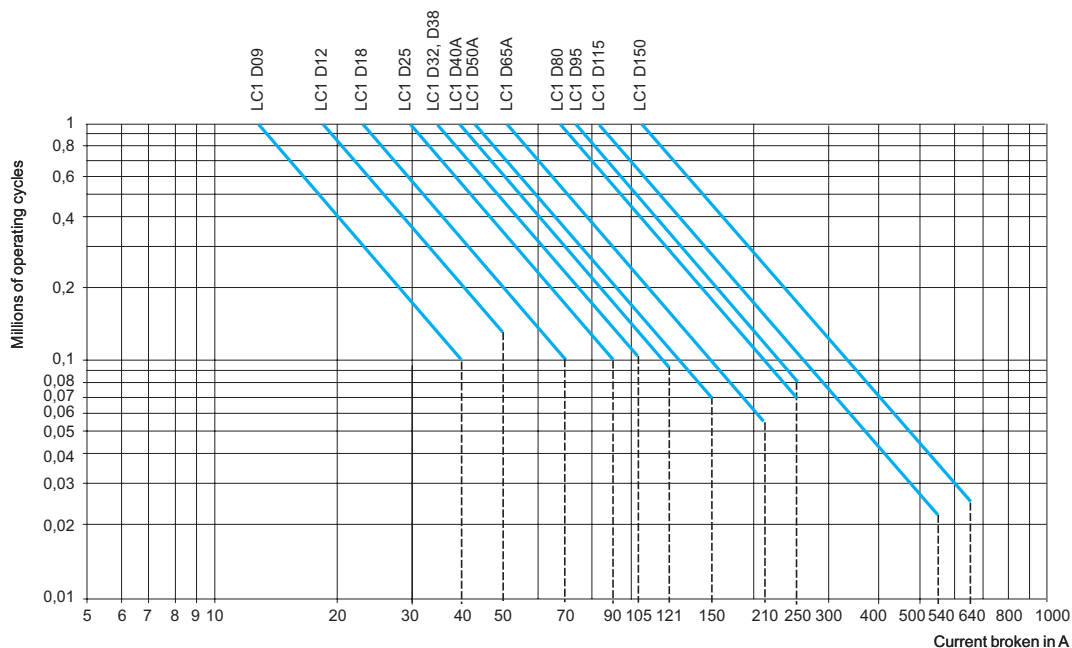
(1) The dotted lines are only applicable to LC1, LP1 K12 contactors.

### Selection according to required electrical durability, use in category AC-4 ( $440\text{ V} < U_e \leq 690\text{ V}$ )

Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor stalled

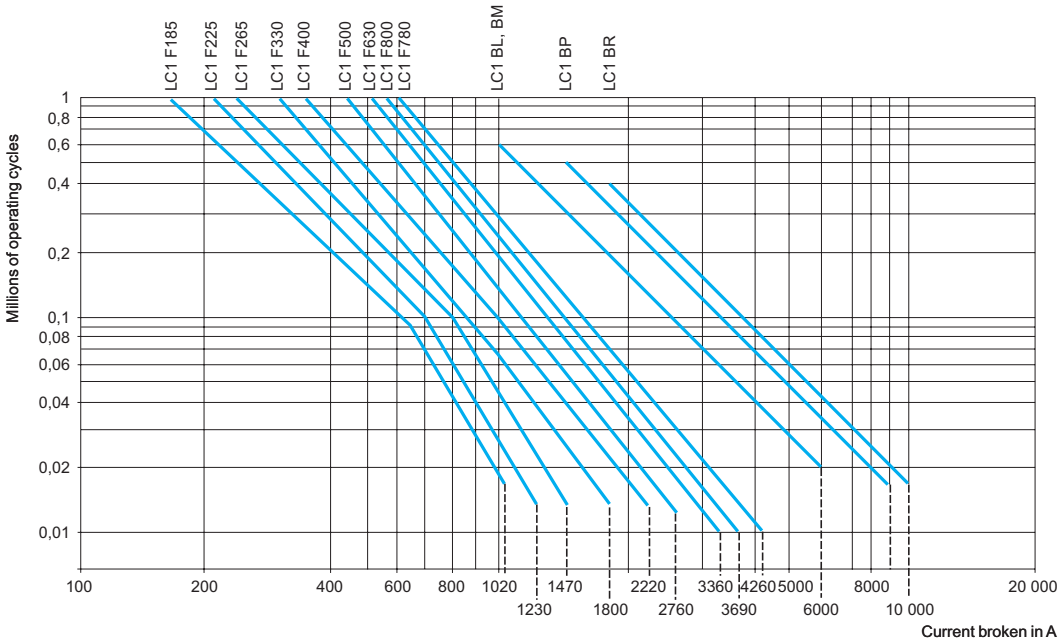
The current broken ( $I_c$ ) in AC-2 is equal to  $2.5 \times I_e$ .

The current broken ( $I_c$ ) in AC-4 is equal to  $6 \times I_e$ . ( $I_e$  = rated operational current of the motor).



**Selection according to required electrical durability, in categories AC-2 or AC-4 ( $U_e \leq 440\text{ V}$ )**

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

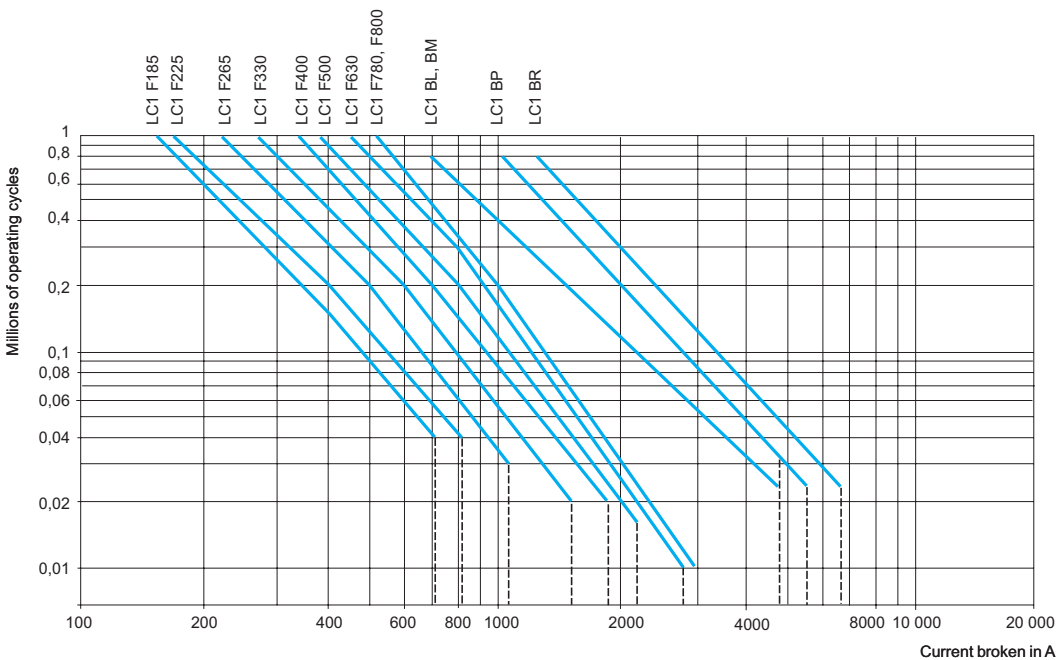


**Example:**

- Asynchronous motor with  $P = 90\text{ kW}$  -  $U_e = 380\text{ V}$  -  $I_e = 170\text{ A}$ .  $I_c = 6 \times I_e = 1020\text{ A}$  or asynchronous motor with  $P = 90\text{ kW}$  -  $U_e = 415\text{ V}$  -  $I_e = 165\text{ A}$ .  $I_c = 6 \times I_e = 990\text{ A}$ .
- 60 000 operating cycles required.
- The above selection curves show the contactor rating needed: LC1 F265.

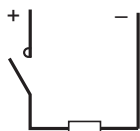
**Selection according to required electrical durability, use in category AC-4 ( $440\text{ V} < U_e \leq 690\text{ V}$ )**

Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor stalled. The current broken ( $I_c$ ) in AC-4 is equal to  $6 \times I_e$ . ( $I_e$  = rated operational current of the motor).

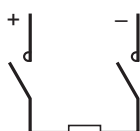


# TeSys contactors

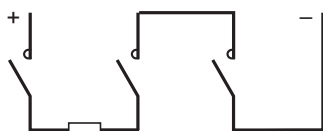
For utilisation categories DC-1 to DC-5



1 pole



2 poles



3 poles



4 poles

5

### Rated operational current (Ie) in Amperes, in utilisation category DC-1, resistive loads: time constant $\frac{L}{R} \leq 1$ ms, ambient temperature $\leq 60$ °C

Rated operational voltage Ue V	No. of poles connected in series	Contactor rating (1)									
		LC1 D09	LC1 DT20	LC1 D12 DT25	LC1 D18 DT32	LC1 D25 DT40	LC1 D32	LC1 D38	LC1 D40A	LC1 DT60A	
24	1	20	20	20	25	32	40	40	50	50	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
48/75	1	20	20	20	25	32	40	40	50	50	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
125	1	4	4	4	4	7	7	7	7	7	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
250	1	1	1	1	1	1	1	1	1	1	
	2	4	4	4	4	7	7	7	7	7	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
300	3	4	4	4	4	7	7	7	7	-	
	4	-	20	20	25	32	-	-	-	50	
460	1	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	
900	2	-	-	-	-	-	-	-	-	-	
1200	3	-	-	-	-	-	-	-	-	-	
1500	4	-	-	-	-	-	-	-	-	-	

### Rated operational current (Ie) in Amperes, in utilisation category DC-2 to DC-5, inductive loads: time constant $\frac{L}{R} \leq 15$ ms, ambient temperature $\leq 60$ °C

Rated operational voltage Ue V	No. of poles connected in series	Contactor rating (1)									
		LC1 D09	LC1 DT20	LC1 D12 DT25	LC1 D18 DT32	LC1 D25 DT40	LC1 D32	LC1 D38	LC1 D40A	LC1 DT60A	
24	1	20	20	20	25	32	40	40	50	50	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
48/75	1	20	20	20	25	32	40	40	50	50	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
125	1	2	2	2	2	3	3	3	4	4	
	2	20	20	20	25	32	40	40	50	50	
	3	20	20	20	25	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
250	1	0,5	0,5	0,5	0,5	0,5	0,5	0,5	1	1	
	2	2	2	2	2	3	3	3	4	4	
	3	8	8	8	8	32	40	40	50	50	
	4	-	20	20	25	32	-	-	-	50	
300	3	2	2	2	2	3	3	3	3	3	
	4	-	8	8	8	32	-	-	-	50	
460	1	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	
900	2	-	-	-	-	-	-	-	-	-	
1200	3	-	-	-	-	-	-	-	-	-	
1500	4	-	-	-	-	-	-	-	-	-	

(1) For rated operational currents of contactors LC1 and LP1 K: please consult your Regional Sales Office.

LC1 D50A	LC1 D65A	LC1 DT80A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
7	7	7	12	12	12	12	210	230	270	320	380	520	760	1180	760	700	1100	1750	2400
65	65	65	100	100	200	200	210	230	270	320	380	520	760	1180	760	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
1	1,5	1,5	2	2	10	10	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
7	7	7	12	12	200	200	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
7	7	7	12	12	200	200	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1000	850	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	200	-	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400

LC1 D50A	LC1 D65A	LC1 DT80A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
4	4	4	5	5	10	10	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
65	65	65	100	100	200	200	160	180	250	300	350	500	700	1000	700	700	1100	1750	2400
65	65	65	100	100	200	200	240	240	280	310	350	550	850	1000	850	700	1100	1750	2400
-	-	65	100	-	200	-	240	240	280	310	350	550	850	1000	850	700	1100	1750	2400
1	1,5	1,5	1	1	3	3	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
4	4	4	5	5	200	200	140	160	220	280	310	480	680	900	680	700	1100	1750	2400
65	65	65	100	100	200	200	160	180	250	300	350	500	700	1000	700	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
3	3	3	5	5	200	200	140	160	220	280	310	480	680	900	680	700	1100	1750	2400
-	-	65	100	-	200	-	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	200	-	140	160	220	280	310	480	680	800	680	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1100	1750	2400

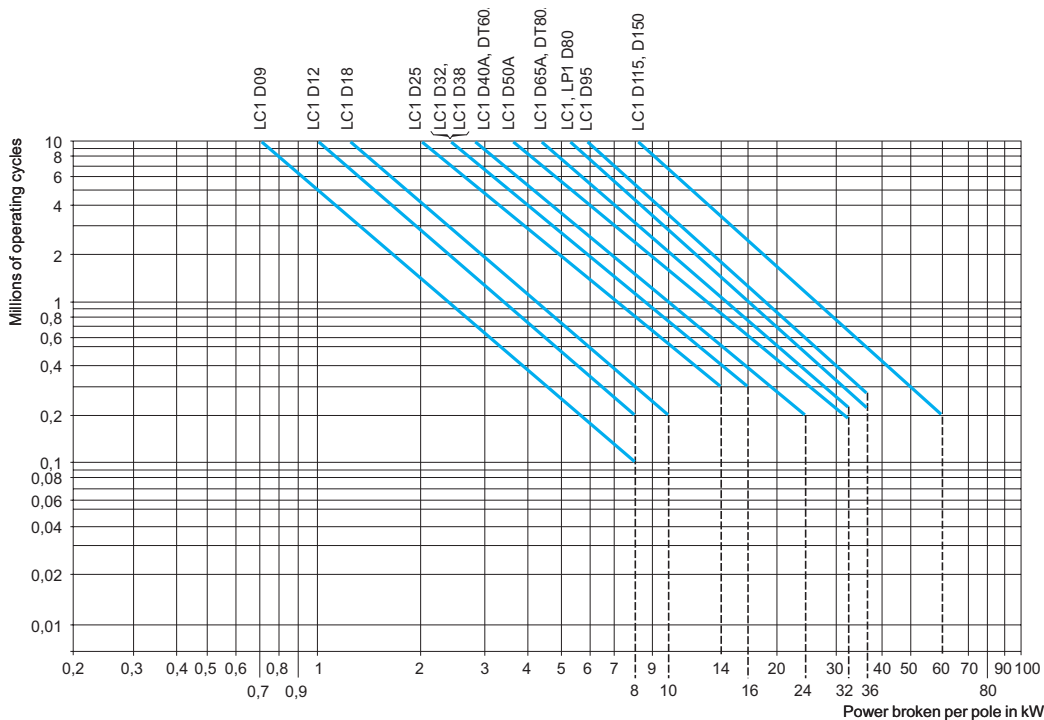
**Selection according to required electrical durability, use in categories DC-1 to DC-5**

- The criteria for contactor selection are:
- the rated operational current  $I_e$ ,
  - the rated operational voltage  $U_e$ ,
  - the utilisation category and the time constant L/R,
  - the required electrical durability.

**Maximum operating rate (operating cycles)**

The following limits must not be exceeded: 120 operating cycles/hour at rated operational current  $I_e$ .

**Electrical durability**



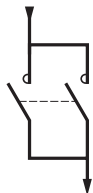
5

**Example**

Series wound motor -  $P = 1.5 \text{ kW}$  -  $U_e = 200 \text{ V}$  -  $I_e = 7.5 \text{ A}$ . Utilisation: reversing, inching.

- Utilisation category = DC-5.
- Select contactor LC1 D09 with 3 poles in series.
- The power broken is:  $P_c \text{ total} = 2.5 \times 200 \times 7.5 = 3.75 \text{ kW}$ .
- The power broken per pole is:  $1.25 \text{ kW}$ .
- The electrical durability read from the curve is  $\geq 3$  millions of operating cycles.

**Use of poles in parallel**



Electrical durability can be increased by using poles connected in parallel.

With N poles connected in parallel, the electrical durability becomes: electrical durability read from the curves  $\times N \times 0.7$ .

**Note: 1**

When the poles are connected in parallel, the maximum operational currents indicated on pages 5/204 and 5/205 must not be exceeded.

**Note: 2**

Ensure that the connections are made in such a way as to equalise the currents in each pole.

**Selection according to required electrical durability, use in categories DC-1 to DC-5**

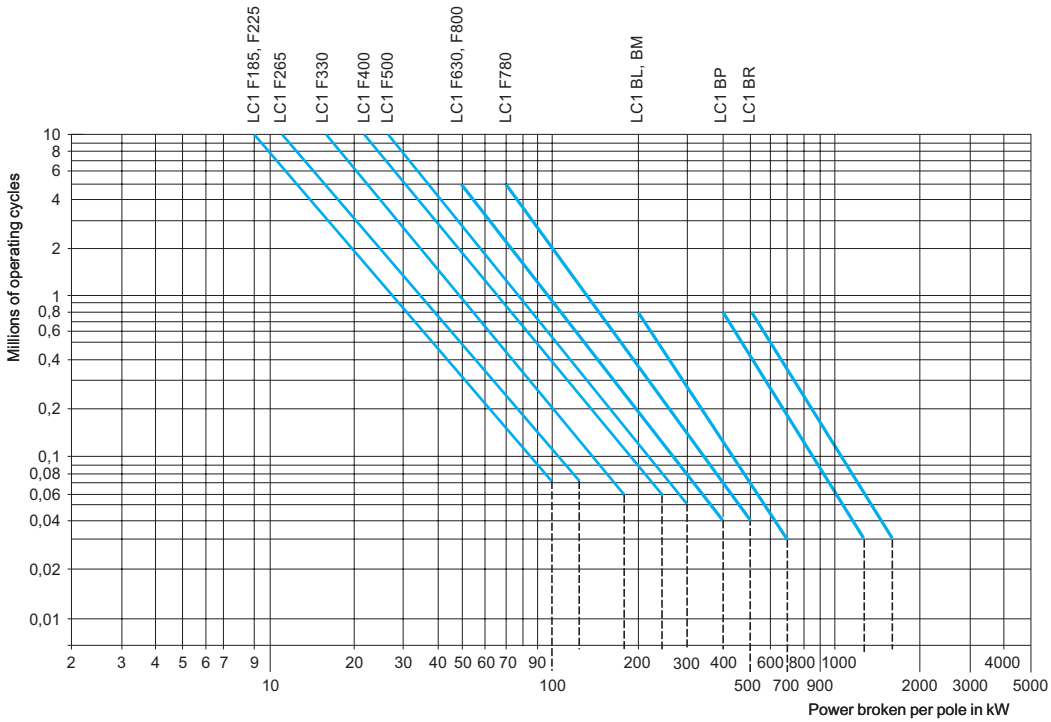
**Determining the electrical durability**

The electrical durability can be read directly from the curves below, having previously calculated the power broken as follows:

$P \text{ broken} = U \text{ broken} \times I \text{ broken}$

The tables below give the values of  $U_c$  and  $I_c$  for the various utilisation categories.

Power broken			
Utilisation categories	U broken	I broken	P broken
DC-1 Non inductive or slightly inductive loads	$U_e$	$I_e$	$U_e \times I_e$
DC-2 Shunt wound motors, breaking whilst motor running	$0.1 U_e$	$I_e$	$0.1 U_e \times I_e$
DC-3 Shunt wound motors, reversing, inching	$U_e$	$2.5 I_e$	$U_e \times 2.5 I_e$
DC-4 Series wound motors, breaking whilst motor running	$0.3 U_e$	$I_e$	$0.3 U_e \times I_e$
DC-5 Series wound motors, reversing, inching	$U_e$	$2.5 I_e$	$U_e \times 2.5 I_e$



**Example**

Series wound motor:  $P = 40 \text{ kW}$  -  $U_e = 200 \text{ V}$  -  $I_e = 200 \text{ A}$ . Utilisation: reversing, inching. Utilisation category = DC-5.

- Select contactor LC1 F265 with 2 poles in series.
- The power broken is:  $P_c \text{ total} = 2.5 \times 200 \times 200 = 100 \text{ kW}$ .
- The power broken per pole is 50 kW.
- The electrical durability read from the curve is 500 000 operating cycles.