

Power Factor Correction Capacitors Type LKT



c RU[®] US
E337088



// Features that matter:

- Handles continuous current up to 2.25 (60 Hz) / 2.7 (50 Hz) times rated current
- Withstands inrush current up to 375 (60 Hz) / 450 (50 Hz) times rated current
- Self-healing type, segmented film technology plus overpressure disconnecter
- Environment-friendly, dry type
- CO₂ emission reduction
- Saves energy costs

It's all about saving your money!



Power Factor Correction Capacitors

Type LKT

General Features

FRAKO Power Factor Correction Capacitors utilize unique advanced technology and incorporate our exclusive triple safety feature. **FRAKO** is the first power capacitor manufacturer to succeed in combining segmented capacitor film with self-healing and over-pressure disconnection. This exclusive manufacturing technique significantly increases the reliability of capacitors in power factor and filter applications.

The capacitors are compliant with:

- UL 810 (up to 600 VAC, 68 °C ambient)
- CSA C22.2 No. 190 (up to 600 VAC, 46 °C ambient)
- IEC 60831 (up to 800 VAC, 68 °C ambient)

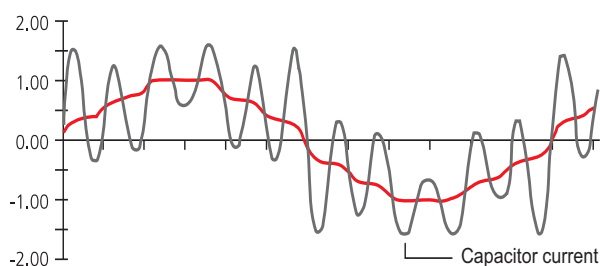
Technical Features

For the operation of Power Factor Correction Capacitors three aspects are of utmost importance:

- High current capability
- Long life expectancy
- Triple safety features

High Current Capability

In electrical systems containing harmonic producing loads, power factor capacitors must be capable of carrying additional current due to the system harmonics. Even without resonance, harmonics will increase capacitor terminal voltage and increase capacitor current, which can further stress a capacitor making it necessary for a high current capability. If, for example, the 11th harmonic is present with 8% of the rated system voltage, then the rms value of the rated voltage is only slightly increased (about 0.3%), but the current in the capacitor will exceed its rated value by 33%. It becomes clear that the ability of a capacitor to withstand excessive current is much more important than the ability to withstand excessive voltage.



Therefore **FRAKO** designs its capacitors as follows:

- Maximum continuous current up to 2.25 (60 Hz) / 2.7 (50 Hz) times rated current
- Withstand inrush current up to 375 (60 Hz) / 450 (50 Hz) times rated current

Highest Durability

FRAKO capacitors have earned a reputation for superior quality, high reliability and long life expectancy. This is assured by our conservative approach to capacitor design plus skillful manufacturing processes and in-process verification testing. **FRAKO** sets a new standard for capacitor manufacturing.

Exceeds Industry Standards

Our specifications for capacitors exceed all known industry standards and **FRAKO** capacitors surpass the requirements of UL, CSA and EN/IEC standards. Additional quality tests following each individual manufacturing step confirm an outstanding manufacturing quality. Through our unique manufacturing process, **FRAKO** achieves a world leading capacitor of the highest durability.

Exclusive Manufacturing Process for long life

For example, our consistently low power loss throughout the life of the capacitor, is achieved by our use of a proprietary mineral filler and stabilizer which can permanently avoid partial discharges within the dielectric material. Our vacuum drying process takes place under temperature controlled conditions for several days and eliminates the possibility of humidity within the capacitor - which if present would accelerate the aging process of a capacitor (reducing capacitor life). This process is an extra effort made by **FRAKO** but pays off for our customers with a longer life expectancy. Our production processes assure that quality and reliability are built into every capacitor, and this is confirmed by our verification testing.

Power Factor Correction Capacitors

Type LKT

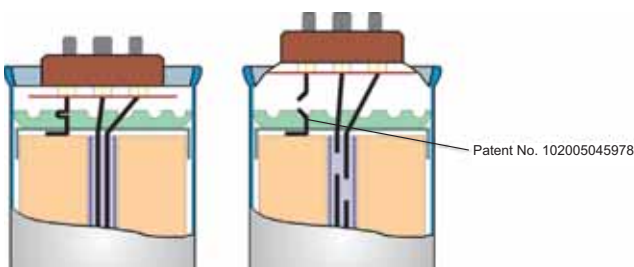
Safety Features

FRAKO Power Factor Correction Capacitors offer our exclusive Triple Safety feature:

- Self-healing at over-voltage
- Segmented film increases capacitor integrity and life expectancy by removing (electrically) small segments of film which have been damaged e. g. in the unlikely event of a failing self-healing process
- Our patented over-pressure disconnecter system assures safe and quick removal of capacitors from the electrical circuit at the end of their life or under a severe overload condition



Self-healing segmented capacitor film



The principle of the overpressure disconnecter

To verify proper functioning of all internal safety systems, **FRAKO** regularly draws sample capacitors from the production line and performs multiple tests to confirm proper operation of the safety system and to assure our outstanding quality is achieved in every capacitor.

Over-Voltage Capability

FRAKO Power Factor Correction Capacitors have an over-voltage capability that meets the requirements of EN 60831-1 and -2, IEC 60831-1 and -2, and surpasses the requirements of UL 810:

Rated voltage [VAC]	240	300	400	440	480	500	525	600
Over-voltage [VAC]								
8 hours daily	264	330	440	484	528	550	578	660
30 min. daily	276	345	460	506	552	575	604	690
5 min. daily	288	360	480	528	576	600	630	720
1 min. daily	312	390	520	572	624	650	683	780

Further ratings for IEC only:

Rated voltage [VAC]	690	800
Over-voltage [VAC]		
8 hours daily	759	880
30 min. daily	793.5	920
5 min. daily	828	960
1 min. daily	897	1040

Application

FRAKO capacitors are recommended for use in fixed or automatic power factor correction systems as well as harmonic filters. **FRAKO** holds system registration certificates for **ISO 9001** (quality system), **ISO 14001** (environmental management system) and **ISO 50001** (energy management system).

Mechanical Construction

Cylindrical aluminum case with mounting stud M12×12, low loss self-healing dielectric made from segmented metallized polypropylene film. Filled with a dry type PCB-free, flame inhibiting, mineral filler with adhesive stabilizer and integrated mechanical overpressure disconnecter. Discharge resistors are permanently connected at the capacitor terminals. Our patented fast connecting terminal, available as an option, minimizes wiring time, protects against direct contact with live terminals and meets the requirements of protection class IP20.



Power Factor Correction Capacitors

Type LKT

// Design

FRAKO specializes in the production of three phase capacitors which are available in a wide variety of ratings to meet various international requirements. Our additional offerings include single phase capacitors and medium voltage capacitors. Please contact our company for more information.

// Ratings

- **UL/CSA:** 0.9-30 kvar (60 Hz); 208-600 VAC
- **IEC:** 0.9-30.9 kvar (60 Hz); 208-800 VAC

- **UL/CSA:** 0.7-25 kvar (50 Hz); 208-600 VAC
- **IEC:** 0.7-25.7 kvar (50 Hz); 208-800 VAC

Other ratings upon request.

Maximum Fault Current: 10,000 amps

// Capacitance Tolerance

- 5% / + 5% (Available to - 1% / + 1%)

// Power Loss

Less than 0.5W/kvar when measured at the connecting terminal (including discharge resistor). About 0.2W/kvar dielectric losses.

// Ambient Temperature

- **UL/IEC:** - 40 °C up to + 68 °C
(- 40 °F up to + 154 °F)

- **CSA:** - 40 °C up to + 46 °C
(- 40 °F up to + 114.8 °F)

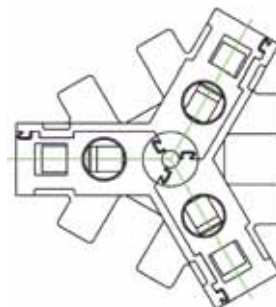
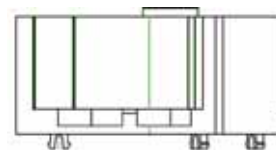
// Discharging after Disconnection

In accordance with the National Electrical Code (NFPA 70, Article 460), Canadian Electrical Code (C22.2 No. 190-M1985) and IEC 60831, all **FRAKO** capacitors have integrated discharge resistors that guarantee terminal voltage will discharge to 50 V or less within one minute after the capacitor is disconnected from the power source.

// Accessories: Fast Connecting Terminal for FRAKO Power Factor Correction Capacitors

All **FRAKO** capacitors are available with an optional fast connecting terminal. This maintenance free, patented terminal saves wiring time and assures secure connection of capacitor wiring and maintains permanent connection for the duration of the capacitor life.

Article-No.	Description	Type
31-08005	Plug-in type fast connecting terminal for capacitors with Ø85 mm, 3-phase	AKD 30/3
31-08004	Plug-in type fast connecting terminal for capacitors with Ø85 mm, single phase	AKD 30/1



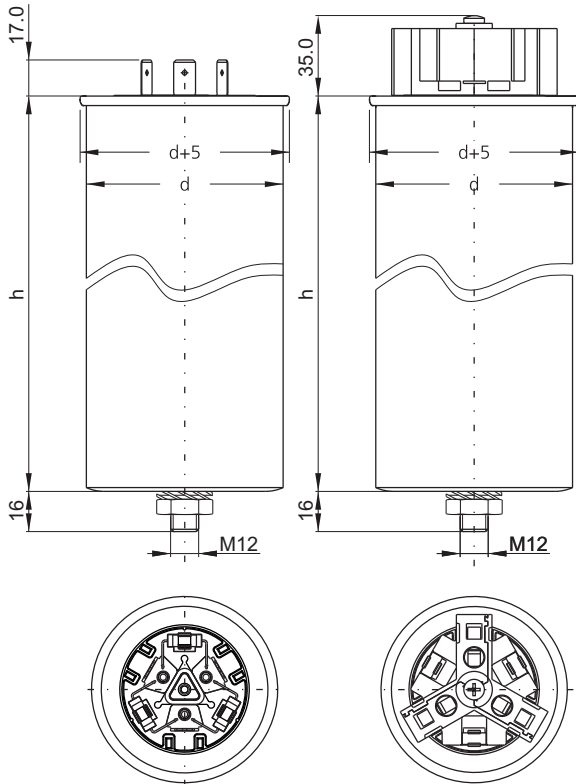
Plug-in type fast connecting terminal for capacitors with Ø85 mm
 Type: AKD 30/3
 Article-No.: 31-08005

Power Factor Correction Capacitors

Type LKT



Dimensions



Capacitors with
 $d = 85 \text{ mm}$ (3.35 in) diameter
 for connection with
 flat cable plug
 $9.5 \times 1.2 \text{ mm}$
 (0.38 \times 0.05 in)

Capacitors with
 $d = 85 \text{ mm}$ (3.35 in) diameter
 Fast connecting terminal
 AKD 30/3
 6 AWG
 16 mm^2 (0.0248 in²)

Height (h) varies by capacitor rating (see page 8-15
 for h dimensions)

Technical Data

Technical Data	Basic Capacitor	Standard Capacitor	Premium Capacitor		Heavy Duty Capacitor
			operated with DL-specification	operated with DP-specification*	
Type	LKT...-DB60	LKT...-DP60	LKT...-DL60	LKT...-DL60	LKT...-HD60
Rated reactive power	1.8...30 kvar (60 Hz) 1.5...25 kvar (50 Hz)	0.9...30 kvar (60 Hz) 0.7...25 kvar (50 Hz)	1.8...25 kvar (60 Hz) 1.5...20.8 kvar (50 Hz)	1.8...29.9 kvar (60 Hz) ²⁾ 1.5...24.9 kvar (50 Hz) ²⁾	3.2...21.6 kvar (60 Hz) 2.7...18 kvar (50 Hz)
Rated voltage	208...525 V	UL ratings: 208...600 V IEC ratings: 208...800 V	208...525 V	UL ratings: 208...600 V IEC ratings: 208...615 V	208...525 V
Rated frequency	60/50 Hz power frequency suitable for use in harmonic and PWM voltage filters	60/50 Hz power frequency suitable for use in harmonic and PWM voltage filters	60/50 Hz power frequency suitable for use in harmonic and PWM voltage filters	60/50 Hz power frequency suitable for use in harmonic and PWM voltage filters	60/50 Hz power frequency suitable for use in harmonic and PWM voltage filters
Maximum overcurrent capability (at rated voltage)	1.25 × I _N (60 Hz) 1.5 × I _N (50 Hz)	1.5 × I _N (60 Hz) 1.8 × I _N (50 Hz)	1.8 × I _N (60 Hz) 2.2 × I _N (50 Hz)	1.65 × I _N (60 Hz) 2.0 × I _N (50 Hz)	2.25 × I _N (60 Hz) 2.7 × I _N (50 Hz)
Maximum inrush current capability (at rated voltage)	167 × I _N (60 Hz) 200 × I _N (50 Hz)	208 × I _N (60 Hz) 250 × I _N (50 Hz)	250 × I _N (60 Hz) 300 × I _N (50 Hz)	250 × I _N (60 Hz) 300 × I _N (50 Hz)	375 × I _N (60 Hz) 450 × I _N (50 Hz)
Ambient temperature ¹⁾	-25 °C up to class D (-13 °F up to class D)	-40 °C up to +60 °C (-40 °F up to +140 °F)	-40 °C up to +65 °C (-40 °F up to +149 °F)	-40 °C up to +60 °C (-40 °F up to +140 °F)	-40 °C up to +68 °C (-40 °F up to +154 °F)
Maximum case temperature	70 °C (158 °F)	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)	75 °C (167 °F)
Dielectric power loss	0.2 W/kvar	0.2 W/kvar	0.2 W/kvar	0.2 W/kvar	0.2 W/kvar
Power loss including discharge resistors	≤ 0.5 W/kvar	≤ 0.5 W/kvar	≤ 0.5 W/kvar	≤ 0.5 W/kvar	≤ 0.5 W/kvar
Test voltage (terminal - terminal)	2.15 × U _N for 2 s 1.85 × U _N for 18 s	2.15 × U _N for 2 s 1.85 × U _N for 18 s	2.15 × U _N for 2 s 1.85 × U _N for 18 s	2.15 × U _N for 2 s 1.85 × U _N for 18 s	2.15 × U _N for 2 s 1.85 × U _N for 18 s
Test voltage (terminal - case)	3,900 V, 2 s	3,900 V, 2 s	3,900 V, 2 s	3,900 V, 2 s	3,900 V, 2 s
Mean life expectancy	100,000 h.	130,000 h.	170,000 h.	130,000 h.	200,000 h.
Maximum humidity	95% relative humidity	95% relative humidity	95% relative humidity	95% relative humidity	95% relative humidity
Maximum altitude	4,000 m (13,124 ft)	4,000 m (13,124 ft)	4,000 m (13,124 ft)	4,000 m (13,124 ft)	4,000 m (13,124 ft)
Number of annual switching operations	20,000	40,000	60,000	60,000	100,000
Discharging level in 60 s	≤ 50 V	≤ 50 V	≤ 50 V	≤ 50 V	≤ 50 V

1) CSA compliance up to +46 °C (114.8 °F) maximum

Generally, DL-type capacitors can also be operated at higher voltages with the DP-type specification.

Please note that the DP values in the chart are marked with *

2) IEC ratings up to 30.9 kvar (60 Hz) / 25.7 kvar (50 Hz)



Technical Data	Basic Capacitor	Standard Capacitor	Premium Capacitor		Heavy Duty Capacitor
Tightening torque for aluminium mounting screw (approx.)	15 Nm (133 in-lbs)	15 Nm (133 in-lbs)	15 Nm (133 in-lbs)	<i>15 Nm (133 in-lbs)</i>	15 Nm (133 in-lbs)
Recommended for	Networks with low harmonic content and normal ambient temperature	Networks with higher harmonic levels and/or high ambient temperature	Demanding networks (i.e. networks with very high harmonic levels and/or very high ambient temperature)	<i>Networks with higher harmonic levels and/or high ambient temperature</i>	Extreme demanding network- and ambient conditions

1) CSA compliance up to +46 °C (114.8 °F) maximum

Generally, DL-type capacitors can also be operated at higher voltages with the DP-type specification.

Please note that the DP values in the chart are marked with *

2) IEC ratings up to 30.9 kvar (60 Hz) / 25.7 kvar (50 Hz)

Temperature class	admissible ambient temperature		
	maximum	mean over 24 h	highest mean over 1 year
D	55°C (131 °F)	45°C (113 °F)	35°C (95 °F)

Power Factor Correction Capacitors (three-phase)

Type LKT...-DB60 for 60Hz



Basic Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article- No.	Rated Reactive Power in kvar at Rated Voltage 60Hz										
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	525 V	
12-400-DB60	85 × 163	3 × 66.3	31-10664	3.2	4.0	4.3	6.8	12.0						
15-400-DB60	85 × 163	3 × 82.9	31-10665	4.1	5.0	5.4	8.4	15.0						
24-400-DB60	85 × 215	3 × 132.6	31-10666	6.5	7.9	8.6	13.5	24.0						
30-400-DB60	85 × 278	3 × 165.8	31-10667	8.1	9.9	10.8	16.9	30.0						
12-440-DB60	85 × 163	3 × 54.8	31-10668	2.7	3.3	3.6	5.6	9.9	10.7	12.0				
15-440-DB60	85 × 163	3 × 68.5	31-10669	3.4	4.1	4.5	7.0	12.4	13.3	15.0				
24-440-DB60	85 × 215	3 × 109.6	31-10670	5.4	6.6	7.1	11.2	19.8	21.4	24.0				
30-440-DB60	85 × 278	3 × 137.0	31-10671	6.7	8.2	8.9	13.9	24.8	26.7	30.0				
10-480-DB60	85 × 163	3 × 38.4	31-10672	1.9	2.3	2.5	3.9	6.9	7.5	8.4	9.2	10.0		
12.5-480-DB60	85 × 163	3 × 48	31-10673	2.3	2.9	3.1	4.9	8.7	9.3	10.5	11.5	12.5		
20-480-DB60	85 × 215	3 × 76.8	31-10674	3.8	4.6	5.0	7.8	13.9	15.0	16.8	18.4	20.0		
25-480-DB60	85 × 215	3 × 95.9	31-10675	4.7	5.7	6.3	9.8	17.4	18.7	21.0	23.0	25.0		
11.25-525-DB60	85 × 163	3 × 36.1	31-10676	1.8	2.2	2.4	3.7	6.5	7.0	7.9	8.6	9.4	11.25	
14-525-DB60	85 × 163	3 × 44.9	31-10677	2.2	2.7	2.9	4.6	8.1	8.8	9.8	10.7	11.7	14.0	
22.5-525-DB60	85 × 215	3 × 72.2	31-10678	3.5	4.3	4.7	7.3	13.1	14.1	15.8	17.3	18.8	22.5	
28-525-DB60	85 × 278	3 × 89.8	31-10679	4.4	5.4	5.9	9.1	16.3	17.5	19.7	21.5	23.4	28.0	

Power Factor Correction Capacitors (three-phase)

Type LKT...-DB60 for 50Hz



Basic Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article- No.	Rated Reactive Power in kvar at Rated Voltage 50Hz									
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	525 V
12-400-DB60	85 × 163	3 × 66.3	31-10664	2.7	3.3	3.6	5.6	10.0					
15-400-DB60	85 × 163	3 × 82.9	31-10665	3.4	4.1	4.5	7.0	12.5					
24-400-DB60	85 × 215	3 × 132.6	31-10666	5.4	6.6	7.2	11.3	20.0					
30-400-DB60	85 × 278	3 × 165.8	31-10667	6.8	8.3	9.0	14.1	25.0					
12-440-DB60	85 × 163	3 × 54.8	31-10668	2.2	2.7	3.0	4.6	8.3	8.9	10.0			
15-440-DB60	85 × 163	3 × 68.5	31-10669	2.8	3.4	3.7	5.8	10.3	11.1	12.5			
24-440-DB60	85 × 215	3 × 109.6	31-10670	4.5	5.5	6.0	9.3	16.5	17.8	20.0			
30-440-DB60	85 × 278	3 × 137.0	31-10671	5.6	6.8	7.4	11.6	20.7	22.2	25.0			
10-480-DB60	85 × 163	3 × 38.4	31-10672	1.6	1.9	2.1	3.2	5.8	6.2	7.0	7.7	8.3	
12.5-480-DB60	85 × 163	3 × 48	31-10673	2.0	2.4	2.6	4.1	7.2	7.8	8.8	9.6	10.4	
20-480-DB60	85 × 215	3 × 76.8	31-10674	3.1	3.8	4.2	6.5	11.6	12.5	14.0	15.3	16.7	
25-480-DB60	85 × 215	3 × 95.9	31-10675	3.9	4.8	5.2	8.1	14.5	15.6	17.5	19.1	20.8	
11.25-525-DB60	85 × 163	3 × 36.1	31-10676	1.5	1.8	2.0	3.1	5.4	5.9	6.6	7.2	7.8	9.4
14-525-DB60	85 × 163	3 × 44.9	31-10677	1.8	2.2	2.4	3.8	6.8	7.3	8.2	9.0	9.8	11.7
22.5-525-DB60	85 × 215	3 × 72.2	31-10678	3.0	3.6	3.9	6.1	10.9	11.7	13.2	14.4	15.7	18.8
28-525-DB60	85 × 278	3 × 89.8	31-10679	3.7	4.5	4.9	7.6	13.5	14.6	16.4	17.9	19.5	23.3

Power Factor Correction Capacitors (three-phase)

Type LKT...-DP60 for 60Hz



Standard Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 60Hz												
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	525 V	570 V	600 V	
10-240-DP60	85 × 163	3 × 153.5	31-10629	7.5	9.2	10.0										
12.5-240-DP60	85 × 215	3 × 191.9	31-10630	9.4	11.5	12.5										
20-240-DP60	85 × 278	3 × 307.0	31-10631	15.0	18.4	20.0										
15-300-DP60	85 × 163	3 × 147.4	31-10632	7.2	8.8	9.6	15.0									
18-300-DP60	85 × 215	3 × 176.8	31-10633	8.7	10.6	11.5	18.0									
12-400-DP60	85 × 163	3 × 66.3	31-10652	3.2	4.0	4.3	6.8	12.0								
15-400-DP60	85 × 215	3 × 82.9	31-10653	4.1	5.0	5.4	8.4	15.0								
24-400-DP60	85 × 278	3 × 132.6	31-10654	6.5	7.9	8.6	13.5	24.0								
30-400-DP60	85 × 278	3 × 165.8	31-10655	8.1	9.9	10.8	16.9	30.0								
12-440-DP60	85 × 163	3 × 54.8	31-10656	2.7	3.3	3.6	5.6	9.9	10.7	12.0						
15-440-DP60	85 × 215	3 × 68.5	31-10657	3.4	4.1	4.5	7.0	12.4	13.3	15.0						
24-440-DP60	85 × 278	3 × 109.6	31-10658	5.4	6.6	7.1	11.2	19.8	21.4	24.0						
30-440-DP60	85 × 278	3 × 137.0	31-10659	6.7	8.2	8.9	13.9	24.8	26.7	30.0						
10-480-DP60	85 × 163	3 × 38.4	31-10634	1.9	2.3	2.5	3.9	6.9	7.5	8.4	9.2	10.0				
12.5-480-DP60	85 × 163	3 × 48	31-10635	2.3	2.9	3.1	4.9	8.7	9.3	10.5	11.5	12.5				
20-480-DP60	85 × 215	3 × 76.8	31-10636	3.8	4.6	5.0	7.8	13.9	15.0	16.8	18.4	20.0				
25-480-DP60	85 × 278	3 × 95.9	31-10637	4.7	5.7	6.3	9.8	17.4	18.7	21.0	23.0	25.0				
11.25-525-DP60	85 × 163	3 × 36.1	31-10638	1.8	2.2	2.4	3.7	6.5	7.0	7.9	8.6	9.4	11.25			
14-525-DP60	85 × 215	3 × 44.9	31-10639	2.2	2.7	2.9	4.6	8.1	8.8	9.8	10.7	11.7	14.0			
22.5-525-DP60	85 × 278	3 × 72.2	31-10640	3.5	4.3	4.7	7.3	13.1	14.1	15.8	17.3	18.8	22.5			
28-525-DP60	85 × 278	3 × 89.8	31-10641	4.4	5.4	5.9	9.1	16.3	17.5	19.7	21.5	23.4	28.0			
10-600-DP60	85 × 215	3 × 24.6	31-10642	1.2	1.5	1.6	2.5	4.4	4.8	5.4	5.9	6.4	7.7	9.0	10.0	
12.5-600-DP60	85 × 215	3 × 30.7	31-10643	1.5	1.8	2.0	3.1	5.6	6.0	6.7	7.3	8.0	9.6	11.3	12.5	
20-600-DP60	85 × 278	3 × 49.1	31-10644	2.4	2.9	3.2	5.0	8.9	9.6	10.8	11.8	12.8	15.3	18.1	20.0	
25-600-DP60	85 × 320	3 × 61.4	31-10645	3.0	3.7	4.0	6.3	11.1	12.0	13.4	14.7	16.0	19.1	22.6	25.0	
12.5-690-DP60	85 × 215	3 × 23.2	31-10646	1.1	1.4	1.5	2.4	4.2	4.5	5.1	5.6	6.0	7.2	8.5	9.5	
15-690-DP60	85 × 215	3 × 27.9	31-10647	1.4	1.7	1.8	2.8	5.0	5.4	6.1	6.7	7.3	8.7	10.2	11.3	
20-690-DP60	85 × 215	3 × 37.1	31-10648	1.8	2.2	2.4	3.8	6.7	7.2	8.1	8.9	9.7	11.6	13.7	15.1	
25-690-DP60	85 × 278	3 × 46.4	31-10649	2.3	2.8	3.0	4.7	8.4	9.0	10.2	11.1	12.1	14.5	17.1	18.9	
30-690-DP60	85 × 320	3 × 55.7	31-10650	2.7	3.3	3.6	5.7	10.1	10.9	12.2	13.3	14.5	17.4	20.5	22.7	
12.6-800-DP60	85 × 215	3 × 17.4	31-10661	0.9	1.0	1.1	1.8	3.2	3.4	3.8	4.2	4.5	5.4	6.4	7.1	
16-800-DP60	85 × 215	3 × 22.1	31-10662	1.1	1.3	1.4	2.3	4.0	4.3	4.8	5.3	5.8	6.9	8.1	9.0	
25.2-800-DP60	85 × 278	3 × 34.8	31-10663	1.7	2.1	2.3	3.5	6.3	6.8	7.6	8.3	9.1	10.9	12.8	14.2	

Power Factor Correction Capacitors (three-phase)

Type LKT...-DP60 for 50Hz



Standard Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance µF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 50Hz											
				208V	230V	240V	300V	400V	415V	440V	460V	480V	525V	570V	600V
10-240-DP60	85 × 163	3 × 153.5	31-10629	6.3	7.7	8.33									
12.5-240-DP60	85 × 215	3 × 191.9	31-10630	7.8	9.6	10.4									
20-240-DP60	85 × 278	3 × 307.0	31-10631	12.5	15.3	16.7									
15-300-DP60	85 × 163	3 × 147.4	31-10632	6.0	7.4	8.0	12.5								
18-300-DP60	85 × 215	3 × 176.8	31-10633	7.2	8.8	9.6	15.0								
12-400-DP60	85 × 163	3 × 66.3	31-10652	2.7	3.3	3.6	5.6	10.0							
15-400-DP60	85 × 215	3 × 82.9	31-10653	3.4	4.1	4.5	7.0	12.5							
24-400-DP60	85 × 278	3 × 132.6	31-10654	5.4	6.6	7.2	11.3	20.0							
30-400-DP60	85 × 278	3 × 165.8	31-10655	6.8	8.3	9.0	14.1	25.0							
12-440-DP60	85 × 163	3 × 54.8	31-10656	2.2	2.7	3.0	4.6	8.3	8.9	10.0					
15-440-DP60	85 × 215	3 × 68.5	31-10657	2.8	3.4	3.7	5.8	10.3	11.1	12.5					
24-440-DP60	85 × 278	3 × 109.6	31-10658	4.5	5.5	6.0	9.3	16.5	17.8	20.0					
30-440-DP60	85 × 278	3 × 137.0	31-10659	5.6	6.8	7.4	11.6	20.7	22.2	25.0					
10-480-DP60	85 × 163	3 × 38.4	31-10634	1.6	1.9	2.1	3.2	5.8	6.2	7.0	7.7	8.3			
12.5-480-DP60	85 × 163	3 × 48	31-10635	2.0	2.4	2.6	4.1	7.2	7.8	8.8	9.6	10.4			
20-480-DP60	85 × 215	3 × 76.8	31-10636	3.1	3.8	4.2	6.5	11.6	12.5	14.0	15.3	16.7			
25-480-DP60	85 × 278	3 × 95.9	31-10637	3.9	4.8	5.2	8.1	14.5	15.6	17.5	19.1	20.8			
11.25-525-DP60	85 × 163	3 × 36.1	31-10638	1.5	1.8	2.0	3.1	5.4	5.9	6.6	7.2	7.8	9.4		
14-525-DP60	85 × 215	3 × 44.9	31-10639	1.8	2.2	2.4	3.8	6.8	7.3	8.2	9.0	9.8	11.7		
22.5-525-DP60	85 × 278	3 × 72.2	31-10640	3.0	3.6	3.9	6.1	10.9	11.7	13.2	14.4	15.7	18.8		
28-525-DP60	85 × 278	3 × 89.8	31-10641	3.7	4.5	4.9	7.6	13.5	14.6	16.4	17.9	19.5	23.3		
10-600-DP60	85 × 215	3 × 24.6	31-10642	1.0	1.2	1.3	2.1	3.7	4.0	4.5	4.9	5.3	6.4	7.5	8.3
12.5-600-DP60	85 × 215	3 × 30.7	31-10643	1.2	1.5	1.7	2.6	4.6	5.0	5.6	6.1	6.7	8.0	9.4	10.4
20-600-DP60	85 × 278	3 × 49.1	31-10644	2.0	2.5	2.7	4.2	7.4	8.0	9.0	9.8	10.7	12.8	15.0	16.7
25-600-DP60	85 × 320	3 × 61.4	31-10645	2.5	3.1	3.3	5.2	9.2	10.0	11.2	12.2	13.3	16.0	18.8	20.8
12.5-690-DP60	85 × 215	3 × 23.2	31-10646	0.9	1.2	1.3	2.0	3.5	3.8	4.2	4.6	5.0	6.0	7.1	7.9
15-690-DP60	85 × 215	3 × 27.9	31-10647	1.1	1.4	1.5	2.4	4.2	4.5	5.1	5.6	6.0	7.2	8.5	9.5
20-690-DP60	85 × 215	3 × 37.1	31-10648	1.5	1.9	2.0	3.2	5.6	6.0	6.8	7.4	8.1	9.7	11.4	12.6
25-690-DP60	85 × 278	3 × 46.4	31-10649	1.9	2.3	2.5	3.9	7.0	7.5	8.5	9.2	10.1	12.1	14.2	15.8
30-690-DP60	85 × 320	3 × 55.7	31-10650	2.3	2.8	3.0	4.7	8.4	9.0	10.2	11.1	12.1	14.5	17.1	18.9
12.6-800-DP60	85 × 215	3 × 17.4	31-10661	0.7	0.9	0.9	1.5	2.6	2.8	3.2	3.5	3.8	4.5	5.3	5.9
16-800-DP60	85 × 215	3 × 22.1	31-10662	0.9	1.1	1.2	1.9	3.3	3.6	4.0	4.4	4.8	5.7	6.8	7.5
25.2-800-DP60	85 × 278	3 × 34.8	31-10663	1.4	1.7	1.9	3.0	5.3	5.7	6.4	6.9	7.6	9.0	10.7	11.8

Power Factor Correction Capacitors (three-phase)

Type LKT...-DP60 for 60Hz and 50Hz



Standard Capacitors (three-phase) - IEC ratings only

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 60Hz							
				208 V ... 600 V							
				615 V	690 V	750 V	800 V				
12.5-690-DP60	85 × 215	3 × 23.2	31-10646	See Table Standard Capacitors (three-phase) - UL ratings				9.9	12.5		
15-690-DP60	85 × 215	3 × 27.9	31-10647					11.9	15.0		
20-690-DP60	85 × 215	3 × 37.1	31-10648					15.9	20.0		
25-690-DP60	85 × 278	3 × 46.4	31-10649					19.9	25.0		
30-690-DP60	85 × 320	3 × 55.7	31-10650					23.8	30.0		
12.6-800-DP60	85 × 215	3 × 17.4	31-10661	7.5	9.4	11.1	12.6				
16-800-DP60	85 × 215	3 × 22.1	31-10662	9.5	11.9	14.1	16.0				
25.2-800-DP60	85 × 278	3 × 34.8	31-10663	14.9	18.8	22.2	25.2				

Standard Capacitors (three-phase) - IEC ratings only

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 50Hz							
				208 V ... 600 V							
				615 V	690 V	750 V	800 V				
12.5-690-DP60	85 × 215	3 × 23.2	31-10646	See Table Standard Capacitors (three-phase) - UL ratings				8.3	10.4		
15-690-DP60	85 × 215	3 × 27.9	31-10647					9.9	12.5		
20-690-DP60	85 × 215	3 × 37.1	31-10648					13.2	16.7		
25-690-DP60	85 × 278	3 × 46.4	31-10649					16.6	20.8		
30-690-DP60	85 × 320	3 × 55.7	31-10650					19.9	25.0		
12.6-800-DP60	85 × 215	3 × 17.4	31-10661	6.2	7.8	9.2	10.5				
16-800-DP60	85 × 215	3 × 22.1	31-10662	7.9	9.9	11.7	13.3				
25.2-800-DP60	85 × 278	3 × 34.8	31-10663	12.4	15.6	18.5	21.0				

Power Factor Correction Capacitors (single-phase)

Type LKT...-EP for 60Hz and 50Hz



Standard Capacitors (single-phase) - IEC ratings only

Capacitor Type LKT ...	Diam. × height mm	Capacitance µF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 60Hz									
				208V	230V	280V	400V	415V	440V	460V	480V	525V	
5-280-EP	60 × 138	1 × 203.7	31-10547	3.3	4.1	6.0							
10-280-EP	85 × 131	1 × 407.4	31-10548	6.6	8.1	12.0							
3.33-440-EP	60 × 90	1 × 54.8	31-10526	0.9	1.1	1.6	3.3	3.6	4.0				
4.17-440-EP	60 × 138	1 × 68.6	31-10527	1.1	1.4	2.0	4.1	4.5	5.0				
5-440-EP	60 × 138	1 × 82.2	31-10528	1.3	1.6	2.4	5.0	5.33	6.0				
9.4-440-EP	70 × 138	1 × 154.6	31-10511	2.5	3.1	4.6	9.3	10.0	11.3				
2.4-480-EP	60 × 90	1 × 33.2	31-10529	0.5	0.7	1.0	2.0	2.15	2.4	2.7	2.9		
3.33-480-EP	60 × 90	1 × 46.0	31-10530	0.8	0.9	1.4	2.8	3.0	3.4	3.7	4.0		
3.6-480-EP	60 × 138	1 × 49.7	31-10531	0.8	1.0	1.5	3.0	3.2	3.6	3.9	4.3		
4.8-480-EP	60 × 138	1 × 66.3	31-10515	1.1	1.3	2.0	4.0	4.3	4.8	5.3	5.8		
6-480-EP	60 × 138	1 × 82.9	31-10514	1.4	1.66	2.5	5.0	5.4	6.0	6.6	7.2		
2.8-525-EP	60 × 90	1 × 32.3	31-10532	0.5	0.7	1.0	1.9	2.1	2.4	2.6	2.8	3.4	
3.33-525-EP	60 × 138	1 × 38.5	31-10533	0.6	0.8	1.1	2.3	2.5	2.8	3.1	3.3	4.0	
8.33-525-EP	70 × 138	1 × 96.2	31-10518	1.6	1.9	2.8	5.8	6.3	7.0	7.7	8.33	10.0	

Standard Capacitors (single-phase) - IEC ratings only

Capacitor Type LKT ...	Diam. × height mm	Capacitance µF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 50Hz									
				208V	230V	280V	400V	415V	440V	460V	480V	525V	
5-280-EP	60 × 138	1 × 203.7	31-10547	2.8	3.4	5.0							
10-280-EP	85 × 131	1 × 407.4	31-10548	5.5	6.8	10.0							
3.33-440-EP	60 × 90	1 × 54.8	31-10526	0.7	0.9	1.3	2.8	3.0	3.33				
4.17-440-EP	60 × 138	1 × 68.6	31-10527	0.9	1.1	1.7	3.4	3.7	4.17				
5-440-EP	60 × 138	1 × 82.2	31-10528	1.1	1.4	2.0	4.1	4.4	5.0				
9.4-440-EP	70 × 138	1 × 154.6	31-10511	2.1	2.6	3.8	7.8	8.4	9.4				
2.4-480-EP	60 × 90	1 × 33.2	31-10529	0.5	0.6	0.8	1.70	1.80	2.0	2.2	2.4		
3.33-480-EP	60 × 90	1 × 46.0	31-10530	0.6	0.8	1.1	2.3	2.5	2.8	3.1	3.33		
3.6-480-EP	60 × 138	1 × 49.7	31-10531	0.7	0.8	1.2	2.5	2.7	3.0	3.3	3.6		
4.8-480-EP	60 × 138	1 × 66.3	31-10515	0.9	1.1	1.6	3.33	3.6	4.0	4.4	4.8		
6-480-EP	60 × 138	1 × 82.9	31-10514	1.1	1.4	2.0	4.17	4.5	5.0	5.5	6.0		
2.8-525-EP	60 × 90	1 × 32.3	31-10532	0.4	0.5	0.8	1.6	1.7	2.0	2.1	2.3	2.8	
3.33-525-EP	60 × 138	1 × 38.5	31-10533	0.5	0.6	0.9	1.9	2.1	2.3	2.6	2.8	3.33	
8.33-525-EP	70 × 138	1 × 96.2	31-10518	1.3	1.6	2.4	4.8	5.2	5.9	6.4	7.0	8.33	

Power Factor Correction Capacitors (three-phase)

Type LKT...-DL60 for 60 Hz and 50 Hz



Premium Capacitors (three-phase) ³⁾

Capacitor Type LKT ...	Diam. × height mm	Capacitance µF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 60Hz													
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	525 V	570 V	600 V	615 V	
12-400-DL60	85 × 215	3 × 66.3	31-10680	3.2	4.0	4.3	6.8	12.0	12.9*	14.5*							
15-400-DL60	85 × 215	3 × 82.9	31-10681	4.1	5.0	5.4	8.4	15.0	16.2*	18.2*							
24-400-DL60	85 × 215	3 × 132.6	31-10682	6.5	7.9	8.6	13.5	24.0	25.8*	29.0*							
12-440-DL60	85 × 163	3 × 54.8	31-10683	2.7	3.3	3.6	5.6	9.9	10.7	12.0	13.1*	14.3*					
15-440-DL60	85 × 215	3 × 68.5	31-10684	3.4	4.1	4.5	7.0	12.4	13.3	15.0	16.4*	17.9*					
24-440-DL60	85 × 278	3 × 109.6	31-10685	5.4	6.6	7.1	11.2	19.8	21.4	24.0	26.2*	28.6*					
10-480-DL60	85 × 163	3 × 38.4	31-10686	1.9	2.3	2.5	3.9	6.9	7.5	8.4	9.2	10.0	12.0*				
12.5-480-DL60	85 × 215	3 × 48.0	31-10687	2.3	2.9	3.1	4.9	8.7	9.3	10.5	11.5	12.5	15.0*				
20-480-DL60	85 × 278	3 × 76.8	31-10688	3.8	4.6	5.0	7.8	13.9	15.0	16.8	18.4	20.0	23.9*				
25-480-DL60	85 × 278	3 × 95.9	31-10689	4.7	5.7	6.3	9.8	17.4	18.7	21.0	23.0	25.0	29.9*				
11.25-525-DL60	85 × 215	3 × 36.1	31-10690	1.8	2.2	2.4	3.7	6.5	7.0	7.9	8.6	9.4	11.25	13.3*	14.7	15.4*	
14-525-DL60	85 × 215	3 × 44.9	31-10691	2.2	2.7	2.9	4.6	8.1	8.7	9.8	10.8	11.7	14.0	16.5*	18.3	19.2*	
22.5-525-DL60	85 × 320	3 × 72.2	31-10692	3.5	4.3	4.7	7.3	13.1	14.1	15.8	17.3	18.8	22.5	26.5*	29.4	30.9*	

3) UL and IEC ratings up to 600 V; 615 V IEC only

Generally, DL-type capacitors can also be operated at higher voltages with the DP-type specification. Please note that the DP values in the chart are marked with *

Premium Capacitors (three-phase) ³⁾

Capacitor Type LKT ...	Diam. × height mm	Capacitance µF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 50Hz													
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	525 V	570 V	600 V	615 V	
12-400-DL60	85 × 215	3 × 66.3	31-10680	2.7	3.3	3.6	5.6	10.0	10.8*	12.1*							
15-400-DL60	85 × 215	3 × 82.9	31-10681	3.4	4.1	4.5	7.0	12.5	13.5*	15.1*							
24-400-DL60	85 × 215	3 × 132.6	31-10682	5.4	6.6	7.2	11.3	20.0	21.5*	24.2*							
12-440-DL60	85 × 163	3 × 54.8	31-10683	2.2	2.7	3.0	4.6	8.3	8.9	10.0	10.9*	11.9*					
15-440-DL60	85 × 215	3 × 68.5	31-10684	2.8	3.4	3.7	5.8	10.3	11.1	12.5	13.7*	14.9*					
24-440-DL60	85 × 278	3 × 109.6	31-10685	4.5	5.5	6.0	9.3	16.5	17.8	20.0	21.9*	23.8*					
10-480-DL60	85 × 163	3 × 38.4	31-10686	1.6	1.9	2.1	3.2	5.8	6.2	7.0	7.7	8.3	10.0*				
12.5-480-DL60	85 × 215	3 × 48.0	31-10687	2.0	2.4	2.6	4.1	7.2	7.8	8.8	9.6	10.4	12.5*				
20-480-DL60	85 × 278	3 × 76.8	31-10688	3.1	3.8	4.2	6.5	11.6	12.5	14.0	15.3	16.7	19.9*				
25-480-DL60	85 × 278	3 × 95.9	31-10689	3.9	4.8	5.2	8.1	14.5	15.6	17.5	19.1	20.8	24.9*				
11.25-525-DL60	85 × 215	3 × 36.1	31-10690	1.5	1.8	2.0	3.1	5.5	5.9	6.6	7.2	7.8	9.4	11.1*	12.3	12.9*	
14-525-DL60	85 × 215	3 × 44.9	31-10691	1.8	2.2	2.4	3.8	6.8	7.3	8.2	9.0	9.8	11.7	13.8*	15.3	16.0*	
22.5-525-DL60	85 × 320	3 × 72.2	31-10692	3.0	3.6	3.9	6.1	10.9	11.7	13.2	14.4	15.7	18.8	22.1*	24.6	25.7*	

3) UL and IEC ratings up to 600 V; 615 V IEC only

Generally, DL-type capacitors can also be operated at higher voltages with the DP-type specification. Please note that the DP values in the chart are marked with *

Power Factor Correction Capacitors (three-phase)

Type LKT...-HD60 for 60 Hz and 50 Hz



Heavy Duty Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 60Hz										
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	500 V	525 V
20.1-480-HD60	85 × 215	3 × 77.1	31-10693	3.8	4.6	5.0	7.9	14.0	15.0	16.9	18.5	20.1		
21.6-480-HD60	85 × 215	3 × 82.9	31-10694	4.1	5.0	5.4	8.4	15.0	16.2	18.2	19.8	21.6		
18.7-500-HD60	85 × 215	3 × 66.1	31-10695	3.2	4.0	4.3	6.7	12.0	12.9	14.5	15.8	17.2	18.7	
19.3-500-HD60	85 × 215	3 × 68.3	31-10696	3.3	4.1	4.4	6.9	12.4	13.3	15.0	16.3	17.8	19.3	
20.2-500-HD60	85 × 215	3 × 71.4	31-10697	3.5	4.3	4.7	7.3	12.9	13.9	15.6	17.1	18.6	20.2	
21.6-525-HD60	85 × 215	3 × 69.3	31-10698	3.4	4.1	4.5	7.1	12.5	13.5	15.2	16.6	18.1	19.6	21.6

Heavy Duty Capacitors (three-phase)

Capacitor Type LKT ...	Diam. × height mm	Capacitance μF	Article-No.	Rated Reactive Power in kvar at Rated Voltage 50Hz										
				208 V	230 V	240 V	300 V	400 V	415 V	440 V	460 V	480 V	500 V	525 V
20.1-480-HD60	85 × 215	3 × 77.1	31-10693	3.2	3.9	4.2	6.6	11.6	12.5	14.1	15.4	16.8		
21.6-480-HD60	85 × 215	3 × 82.9	31-10694	3.4	4.1	4.5	7.0	12.5	13.5	15.1	16.5	18.0		
18.7-500-HD60	85 × 215	3 × 66.1	31-10695	2.7	3.3	3.6	5.6	10.0	10.7	12.1	13.2	14.4	15.6	
19.3-500-HD60	85 × 215	3 × 68.3	31-10696	2.8	3.4	3.7	5.8	10.3	11.1	12.5	13.6	14.8	16.1	
20.2-500-HD60	85 × 215	3 × 71.4	31-10697	2.9	3.6	3.9	6.0	10.7	11.6	13.0	14.3	15.5	16.8	
21.6-525-HD60	85 × 215	3 × 69.3	31-10698	2.8	3.5	3.8	5.9	10.5	11.3	12.6	13.8	15.1	16.3	18.0

Power Factor Correction Capacitors

Type LKT



In North America contact

Allied Industrial Marketing, Inc.

W62 N248 Washington Ave. # 208, Cedarburg, WI 53012

Phone: 1-262-618-2403 (GMT-6) Fax: 1-262-618-2303

<http://www.alliedindustrialmarketing.com>



Kondensatoren- und Anlagenbau GmbH

Tscheulinstr. 21a · 79331 Teningen · Germany

Tel. +49-7641-453-0 · Fax +49-7641-453-545

<http://www.frako.com> · E-Mail: info@frako.com

