

PFC Capacitors in sheet steel cases

Power Factor Correction Capacitors in sheet steel cases – detuned



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Power Factor Correction Capacitors in sheet steel cases – detuned

Power Capacitors type LKND-P and LKNS-P for fixed compensation of inductive consumers in networks with high harmonic content.

	LKND-P...	LKNS-P...
		
Sheet steel case	•	•
With capacitor switching contactors	•	•
Ingress protection IP20	•	•
Additional fuse switch (optional)	•	•
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LKND-P / LKNS-P

Power Factor Correction Capacitors in sheet steel cases – detuned

Power Capacitors type LKND-P and LKNS-P for fixed compensation of inductive consumers in networks with high harmonic content.

- Power Range: 7.5 to 50 kvar per case
- Ready for connection
- Power Factor Correction Capacitors LKT dry-type with four safety features
- Low-loss harmonic filter reactors, type: Standard

Application Recommendations

Detuned Power Factor Correction Capacitors in sheet steel cases are mainly used for fixed compensation of motors and transformers.

They are suitable for compensation in supply networks with harmonic distortion according to EN 61000-2-4 class 2.

They are available as follows:

Version	Detuning factor	Resonance frequency
P1	$\rho = 14 \%$	134 Hz
P7	$\rho = 7 \%$	189 Hz
P8	$\rho = 8 \%$	177 Hz

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Power Range

Power Factor Correction Capacitors in sheet steel case - detuned:

- **LKND-P:** 6.25 to 50 kvar
- **LKNS-P:** 10 to 50 kvar

Construction

Sheet steel case suitable for wall mounting or as freestanding cabinet (with socket, see accessories / options).

The case contains:

- Self-healing LKT type power capacitors with low loss self-healing dielectric made from segmented metallised polypropylene film. Filled with a PCB-free filler. With discharge resistors, as per EN 60831-1 and -2 as well as IEC 60831-1 and -2
- Low-loss harmonic filter reactors with thermal trip switch

The LKNS series furthermore contains:

- Capacitor switching contactors
- Control terminal strip with control fuse
- Control switch indicator light

Natural air cooling is ensured by appropriate cutouts in the door and on the roof.

Regulations

For installation and connection of Power Factor Correction Capacitors in Germany the following regulations must be complied with: VDE 0100, VDE 0105, VDE 0560 Part 46 and VDE 0106 Part 100 (German Association of Electrical Engineers). In other countries the equivalent local regulations must be followed.

Installation Site

The place of installation must comply with the requirements of the ingress protection and ambient temperature concerned.

Connection

The supply cable enters the cabinet from below and is connected to the studs of the junction plate.

Technical Data

Rated voltage	400 V/50 Hz
Rated voltage of capacitors	440 V/50 Hz
Ambient temperature	-10 °C to +40 °C
Humidity	Max. 90 %, no condensation
Case colour	RAL 7035
Standards	EN 60831-1 and -2 IEC 60831-1 and -2 EN 61921 IEC 61921 EN 61439-1 and -2 IEC 61439-1 and 2

Important Notes

For further information on power factor correction and harmonics please refer to our "Manual of Power Factor Correction".

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Type: LKND-P

Article-No.	Type	Rated power [kvar]	Rated capacity [μF]	Dimensions			Weight approx. [kg]	Protection IP
				Width [mm]	Height [mm]	Depth [mm]		

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKND ...-P1 (Detuning factor p = 14 %)

31-22097	LKND 6,25-400-2-P1	6.25	3 x 41.5	600	850	275	48	20
31-22010	LKND 10-400-2-P1	10	3 x 66.3	600	850	275	52	20
31-22011	LKND 12,5-400-2-P1	12.5	3 x 82.9	600	850	275	55	20
31-22012	LKND 15-400-2-P1	15	3 x 99.5	600	850	275	57	20
31-22013	LKND 20-400-2-P1	20	3 x 132.6	600	850	275	63	20
31-22014	LKND 25-400-2-P1	25	3 x 165.8	600	850	275	70	20
31-22015	LKND 30-400-2-P1	30	3 x 198.9	600	850	275	74	20
31-22016	LKND 40-400-2-P1	40	3 x 265.3	600	850	275	89	20
31-22017	LKND 50-400-2-P1	50	3 x 331.6	600	850	275	94	20

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKND ...-P7 (Detuning factor p = 7 %)

31-22018	LKND 7,5-400-2-P7	7.5	3 x 49.7	600	850	275	48	20
31-22019	LKND 10-400-2-P7	10	3 x 66.3	600	850	275	49	20
31-22020	LKND 12,5-400-2-P7	12.5	3 x 82.9	600	850	275	49	20
31-22021	LKND 15-400-2-P7	15	3 x 99.5	600	850	275	54	20
31-22022	LKND 20-400-2-P7	20	3 x 132.6	600	850	275	54	20
31-22023	LKND 25-400-2-P7	25	3 x 165.8	600	850	275	57	20
31-22009	LKND 30-400-2-P7	30	3 x 198.9	600	850	275	63	20
31-22025	LKND 40-400-2-P7	40	3 x 265.3	600	850	275	65	20
31-22026	LKND 50-400-2-P7	50	3 x 331.6	600	850	275	72	20

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKND ...-P8 (Detuning factor p = 8 %)

31-22035	LKND 7,5-400-2-P8	7.5	3 x 49.7	600	850	275	49	20
31-22072	LKND 10-400-2-P8	10	3 x 66.3	600	850	275	50	20
31-22102	LKND 12,5-400-2-P8	12.5	3 x 82.9	600	850	275	51	20
31-22071	LKND 15-400-2-P8	15	3 x 99.5	600	850	275	56	20
31-22080	LKND 20-400-2-P8	20	3 x 132.6	600	850	275	56	20
31-22081	LKND 25-400-2-P8	25	3 x 165.8	600	850	275	62	20
31-22046	LKND 30-400-2-P8	30	3 x 198.9	600	850	275	61	20
31-22086	LKND 40-400-2-P8	40	3 x 265.3	600	850	275	65	20
31-22063	LKND 50-400-2-P8	50	3 x 331.6	600	850	275	72	20

Other rated voltages, frequencies and power ratings on request

Recommended supply lead cross sections: please refer to the technical annex (page 141 ff.)

Accessories

Article-No.	Type	Description
34-80196	KR-LSK-2/LKND/LKNS-200	base 200 mm (needed for floor installation)

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Type: LKNS-P

Article-No.	Type	Rated power [kvar]	Rated capacity [μF]	Dimensions			Weight approx. [kg]	Protection IP
				Width [mm]	Height [mm]	Depth [mm]		

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKNS ...-P1 (Detuning factor p = 14 %)

31-21105	LKNS 10-400-2-P1	10	3 x 66.3	600	850	275	54	20
31-21133	LKNS 12,5-400-2-P1	12.5	3 x 82.9	600	850	275	61	20
31-21155	LKNS 15-400-2-P1	15	3 x 99.5	600	850	275	63	20
31-21212	LKNS 20-400-2-P1	20	3 x 132.6	600	850	275	65	20
31-21260	LKNS 25-400-2-P1	25	3 x 165.8	600	850	275	60	20
31-21311	LKNS 30-400-2-P1	30	3 x 198.9	600	850	275	74	20
31-21404	LKNS 40-400-2-P1	40	3 x 256.3	600	850	275	94	20
31-21505	LKNS 50-400-2-P1	50	3 x 331.6	600	850	275	98	20

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKNS ...-P7 (Detuning factor p = 7 %)

31-21106	LKNS 10-400-2-P7	10	3 x 66.3	600	850	275	58	20
31-21127	LKNS 12,5-400-2-P7	12.5	3 x 82.9	600	850	275	58	20
31-21153	LKNS 15-400-2-P7	15	3 x 99.5	600	850	275	59	20
31-21211	LKNS 20-400-2-P7	20	3 x 132.6	600	850	275	60	20
31-21257	LKNS 25-400-2-P7	25	3 x 165.8	600	800	275	62	20
31-21309	LKNS 30-400-2-P7	30	3 x 198.9	600	850	275	64	20
31-21403	LKNS 40-400-2-P7	40	3 x 256.3	600	850	275	68	20
31-21503	LKNS 50-400-2-P7	50	3 x 331.6	600	850	275	72	20

Power Factor Correction Capacitors in sheet steel cases, detuned, rated mains voltage 400 V / 50 Hz

Type series: LKNS ...-P8 (Detuning factor p = 8 %)

31-21110	LKNS 10-400-2-P8	10	3 x 66.3	600	850	275	59	20
31-21126	LKNS 12,5-400-2-P8	12.5	3 x 82.9	600	850	275	59	20
31-21154	LKNS 15-400-2-P8	15	3 x 99.5	600	850	275	60	20
31-21216	LKNS 20-400-2-P8	20	3 x 132.6	600	850	275	61	20
31-21261	LKNS 25-400-2-P8	25	3 x 165.8	600	850	275	63	20
31-21312	LKNS 30-400-2-P8	30	3 x 198.9	600	850	275	65	20
31-21406	LKNS 40-400-2-P8	40	3 x 256.3	600	850	275	69	20
31-21504	LKNS 50-400-2-P8	50	3 x 331.6	600	850	275	63	20

Other rated voltages, frequencies and power ratings on request

Recommended supply lead cross sections: please refer to the technical annex (page 141 ff.)

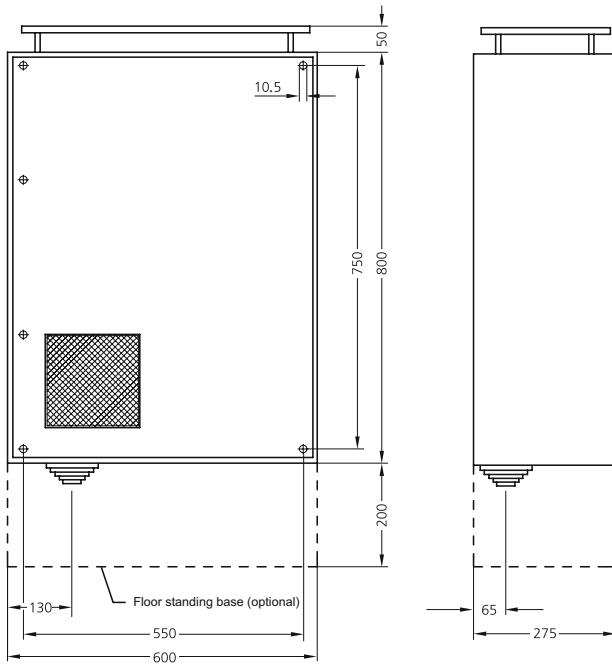
Accessories

Article-No.	Type	Description
34-80196	KR-LSK-2/LKND/LKNS-200	base 200 mm (needed for floor installation)

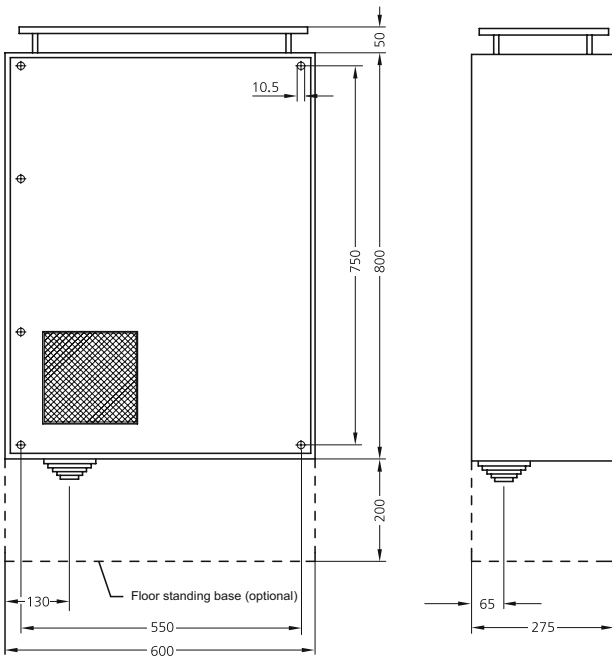
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Dimensions



Dimensional drawing LKND-P (6.25 to 50 kvar)



Dimensional drawing LKNS-P (10 to 50 kvar)

All dimensions in mm