



LSK / LSKI

Power Factor Correction Systems

- Power Range: 17.5 to 200 kvar per cabinet
- Compact design in sheet steel or insulated enclosures
- Ready for connection
- Fully automatic and intelligent Power Factor Control Relay
- Power Factor Correction Capacitors LKT dry type with triple safety feature

// Application Recommendations

Power Factor Correction Systems type LSK and LSKI are a perfect solution for small and medium-sized firms and buildings.

Power Factor Correction Systems type LSK /LSKI are suitable for power factor correction in networks without harmonic distortion.

Attention: Even low harmonic levels can be amplified by network resonances. High harmonic levels can overload or damage all electrical devices and machines in the network.

Today, networks without harmonic distortion are quite rare. Therefore we generally recommend installing fixed capacitors with Harmonic Filter Reactors (page 121 ff.).

// Power Range

Power Factor Correction System in sheet steel cabinet:

- **LSK ...-4:** 17.5 to 60 kvar
- **LSK ...-2:** 68.75 to 100 kvar
- **LSK ...-3:** 112.5 to 200 kvar

Power Factor Correction System in insulation material housing:

- **LSKI ...-4:** 17.5 to 52.5 kvar

// Construction

The ready-for-connection Power Factor Correction System consists of a pre-assembled mounting plate, type LSPN or LSP and suitable sheet steel or insulated enclosures.

The cabinet 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
- Capacitor Switching Contactors with leading transition contact for damping of current peaks
- Fuse links, 3-pole, size NH00
- Control terminal strip with control fuse and Thermal trip contact for safety shutdown
- Intelligent Power Factor Control Relay RM 9606

// Installation Site

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

// 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.

// Connection

The power supply cable and the current transformer cable enter the bottom of the cabinet through a sliding gland plate and a cable clamp rail, the power supply being connected to the busbar system and the current transformer cable to the terminal strip provided.

// System Expansion

An extension of the system is possible by adding LSKZ or LSKIZ extension units. This extension unit will be integrated in the existing control circuit via the control cable (supplied with the extension unit).

// Technical Data

Design	LSK	Sheet steel wall cabinet
	LSKI	Insulated wall cabinet
		LSK/LSKI ...-4 with door left hinged
		LSK ...-2 /...-3 with door right hinged
Rated voltage	400 V / 50 Hz	
Rated voltage of capacitors	440 V / 50 Hz	
Ambient temperature	-5 °C to +35 °C	
Humidity	Max. 90 %, no condensation	
Cabinet colour	RAL 7035	
Standards	EN 60831-1 and -2 IEC 60831-1 and -2 EN 61921 VDE 0660 Part 600-1 and -2 EN 61439-1 and -2	

// Important Notes

The presence of inductive and capacitive reactances in the low voltage network means that the harmonics generated there, together with those fed in from the medium voltage network, can be amplified many times over due to resonance. Particularly in industrial networks with loads that generate harmonics, the use of conventional power factor correction systems without Harmonic Filter Reactors is not advisable. Instead, detuned systems should be installed. See the LSK-P series of Power Factor Correction Systems.

For further information on power factor correction and harmonics please refer to our „Manual of Power Factor Corrections“.

FRAKO systems are designed for connecting 5 core cables. If a 4-core cable is used, a jumper must be fitted to connect PE and N, or a control transformer must be installed.

Power Factor Correction Systems

Power Factor Correction Systems



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

Power Factor Correction Systems in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz

Type series: LSK ...-4

34-13645	LSK 17,5-2,5-111-400-4-606-54	17.5	2.5	1:2:4	500	500	300	26	54
34-13650	LSK 27,5-2,5-112-400-4-606-54	27.5	2.5	1:2:4:4	500	500	300	29	54
34-13644	LSK 30-5-11A-400-4-606-54	30	5	1:2:3	500	500	300	29	54
34-13646	LSK 37,5-2,5-1111-400-4-606-54	37.5	2.5	1:2:4:8	500	500	300	31	54
34-13655	LSK 37,5-7,5-12-400-4-606-54	37.5	7.5	1:2:2	500	500	300	29	54
34-13661	LSK 43,75-6,25-111-400-4-606-54	43.75	6.25	1:2:4	500	500	300	30	54
34-13693	LSK 46,88-3,13-1111-400-4-606-54	46.88	3.13	1:2:4:8	500	500	300	31	54
34-13647	LSK 50-5-11A1-400-4-606-54	50	5	1:2:3:4	500	500	300	32	54
34-13671	LSK 50-10-12-400-4-606-54	50	10	1:2:2	500	500	300	30	54
34-13648	LSK 52,5-7,5-111-400-4-606-54	52.5	7.5	1:2:4	500	500	300	31	54
34-13679	LSK 60-10-11A-400-4-606-54	60	10	1:2:3	500	500	300	33	54

Power Factor Correction Systems in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz

Type series: LSK ...-2

34-14802	LSK 68,75-6,25-112-400-2-606	68.75	6.25	1:2:4:4	600	811	286	43	20
34-14803	LSK 75-6,25-212-400-2-606	75	6.25	1:1:2:4:4	600	811	286	44	20
34-14804	LSK 75-12,5-11A-400-2-606	75	12.5	1:2:3	600	811	286	44	20
34-14805	LSK 87,5-12,5-111-400-2-606	87.5	12.5	1:2:4	600	811	286	45	20
34-14806	LSK 93,75-6,25-1111-400-2-606	93.75	6.25	1:2:4:8	600	811	286	46	20
34-14807	LSK 100-12,5-211-400-2-606	100	12.5	1:1:2:4	600	811	286	49	20

Power Factor Correction Systems, extension units in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz

Type series: LSKZ ...-2

34-14080	LSKZ 50-50-1-400-2	50	50	1	600	811	286	42	20
34-14078	LSKZ 75-25-11-400-2	75	25	1:2	600	811	286	51	20
34-14076	LSKZ 100-50-2-400-2	100	50	1:1	600	811	286	55	20

Power Factor Correction System in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz

Type series: LSK ...-3

34-13653	LSK 112,5-6,25-11AB-400-3-606	112.5	6.25	1:2:3:6:6	600	1211	311	88	20
34-13619	LSK 125-12,5-221-400-3-606	125	12.5	1:1:2:2:4	600	1211	311	88	20
34-13688	LSK 143,75-6,25-1112-400-3-606	143.75	6.25	1:2:4:8:8	600	1211	311	91	20
34-13652	LSK 150-12,5-212-400-3-606	150	12.5	1:1:2:4:4	600	1211	311	92	20
34-13658	LSK 150-25-22-400-3-606	150	25	1:1:2:2	600	1211	311	90	20
34-13724	LSK 175-25-13-400-3-606	175	25	1:2:2:2	600	1211	311	94	20
34-13642	LSK 187,5-12,5-113-400-3-606	187.5	12.5	1:2:4:4:4	600	1211	311	101	20
34-13659	LSK 200-12,5-213-400-3-606	200	12.5	1:1:2:4:4	500	1211	311	93	20
34-13673	LSK 200-25-23-400-3-606	200	25	1:1:2:2:2	600	1211	311	98	20

Power Factor Correction Systems, extension units in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz

Type series: LSKZ ...-3

34-14054	LSKZ 150-50-3-400-3	150	50	1:1:1	600	1211	311	91	20
34-14074	LSKZ 200-50-4-400-3	200	50	1:1:1:1	600	1211	311	97	20

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

Power Factor Correction System in insulation material housing, rated mains voltage: 400 V / 50 Hz

Type series: LSKI ...-4

34-13725	LSKI 17,5-2,5-111-400-4-606-54	17.5	2.5	1:2:4	500	500	300	26	54
34-13691	LSKI 27,5-2,5-112-400-4-606-54	27.5	2.5	1:2:4:4	500	500	300	28	54
34-13672	LSKI 30-5-11A-400-4-606-54	30	5	1:2:3	500	500	300	25	54
34-13694	LSKI 30-5-11A-400-4-111-54	30	5	1:2:3	500	500	300	25	54
34-13651	LSKI 37,5-2,5-1111-400-4-606-54	37.5	2.5	1:2:4:8	500	500	300	28	54
34-13670	LSKI 37,5-7,5-12-400-4-606-54	37.5	7.5	1:2:2	500	500	300	24	54
34-13668	LSKI 43,75-6,25-111-400-4-606-54	43.75	6.25	1:2:4	500	500	300	25	54
34-13722	LSKI 46,88-3,13-1111-400-4-606-54	46.88	3.13	1:2:4:8	500	500	300	26	54
34-13682	LSKI 50-5-11A1-400-4-606-54	50	5	1:2:3:4	500	500	300	30	54
34-13726	LSKI 50-10-12-400-4-606-54	50	10	1:2:2	500	500	300	29	54
34-13656	LSKI 52,5-7,5-111-400-4-606-54	52.5	7.5	1:2:4	500	500	300	30	54

Other rated voltages, frequencies and power ratings on request

Recommended supply lead cross sections: please refer to the technical annex (page 145 ff.)

// Options and accessories for Power Factor Correction Systems type LSK / LSKI 400V, 50 Hz

Options, mounted and wired ready for operation

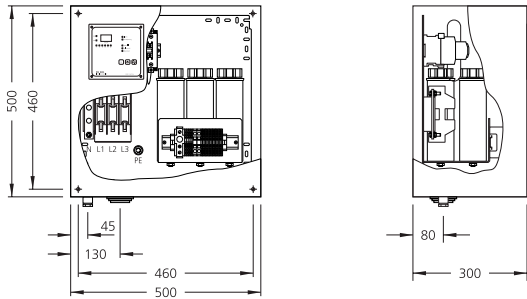
Article-No.	Type	Description	LSKI ...-4	LSK ...-4	LSK ...-3	LSK ...-2
S34-5502	-111- (instead of -606)	Power Factor Control Relay EMR 1100 S instead of RM 9606	•	•	•	•
S34-5500	-112- (instead of -606)	Power Factor Control Relay EMR 1100 instead of RM 9606	•	•	•	•
S34-5508	-Li	Cabinet with door left hinged			•	•
S34-0060	-SO	Special painting outside (RAL-Scale)		•	•	•
S34-5032	-54	Ingress protection IP 54			•	
S34-5511	-S131	Fuse switch disconnecter instead of fuse base per 60 kvar		1 pc.		2 pcs.
S34-5512	-SLT	Fuse switch disconnecter instead of fuse base, power < 150 kvar			3 pcs.	
S34-5513	-SLT	Fuse switch disconnecter instead of fuse base, power ≥ 150 kvar			4 pcs.	
S34-0103	-LTA	Switch disconnecter* in cable entry compartment		•		
S34-5538	-LTA	Switch disconnecter* in cable entry compartment, size of the cabinet changes for LSK...-3				•
S34-0105	-LTA	Switch disconnecter* in cable entry compartment			•	
34-90011	-S56	Circuit breaker and control switch (On/Off) (option for Switzerland)	•	•	•	•
S34-5535	-S19	Control phase + N via a protective motor switch (option for France)	•	•	•	•
S34-5537	-S119 (+ Leistung)	Control transformer set 315 VA incl. primary and secondary fuses	•	•	•	•
S34-5073	-SO (+ Description)	Voltage meter with switch	•	•	•	•
S34-0040	-S66	Summation current transformer 5+5/5A	•	•	•	•
S34-0081	-S66	Summation current transformer 5+5+5/5A	•	•	•	•

*) Switch disconnecter can be operated from the outside

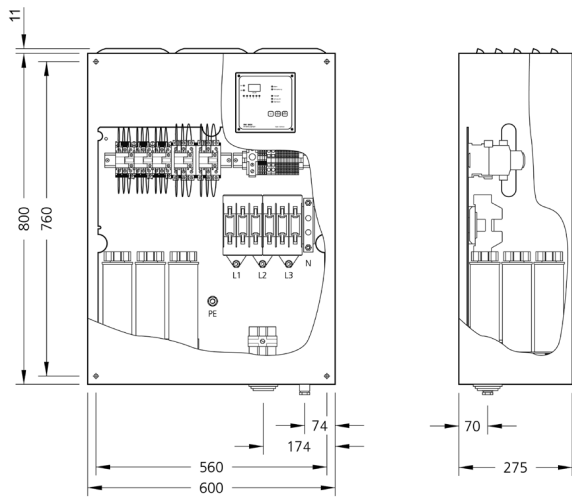
Accessories

Article-No.	Type	Description	LSKI ...-4	LSK ...-4	LSK ...-3	LSK ...-2
34-80021	WB LSK-10	Wall distance assembly set 10 mm		•	•	•
34-80018	WB LSK-40	Wall distance assembly set 40 mm		•	•	•
34-80195	KR-LSK-2-200	Floor standing base (Height = 200 mm; Depth = 275 mm)				•
34-80194	KR-LSK-3-200	Floor standing base (Height = 200 mm; Depth = 300 mm)			•	

// Dimensions

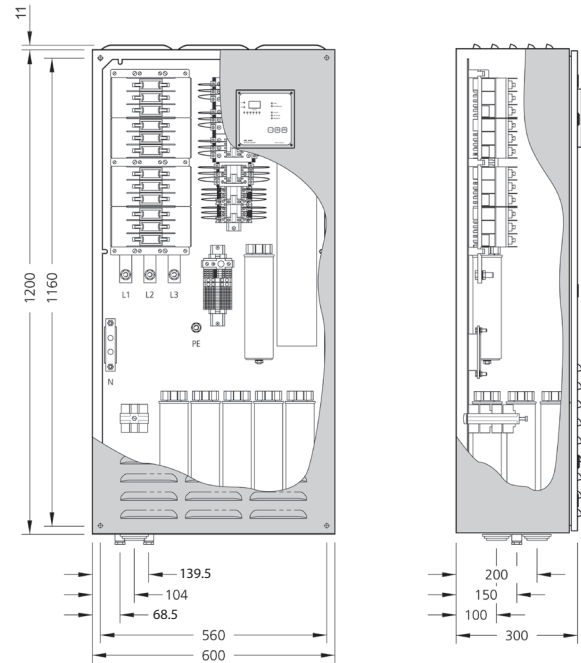


Dimensional drawing LSK-4 (17.5 to 60 kvar)



Dimensional drawing LSK-2 (68.75 to 100 kvar)

All dimensions in mm



Dimensional drawing LSK-3 (112.5 to 200 kvar)